METHOD OF CONVERTING HEAVY MOTOR VEHICLE LOADS INTO EQUIVALENT DESIGN LOADS ON THE BASIS OF MAXIMUM SHEARS

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FOREWORD

The explanation of a simple, yet accurate method of converting any of the commonly used heavy motor vehicle types and loadings into equivalent design loads based on some maximum stress effect such as moment, shear, floor beam reaction, and the necessary numerical data are contained in this and a previous publication (Bulletin No. 127 "Method of Converting Heavy Motor Vehicle Loads into Equivalent Design Loads on the Basis of Maximum Bending Moments" by Henson K. Stephenson and Kriss Cloninger, Jr.).

The earlier publication dealt with applying the method on the basis of maximum bending moments. The material contained in this publication is for applying it on the basis of maximum shears.

The method and its supporting data can be useful not only to bridge designers, but also to maintenance engineers in the rating of old bridges, and to highway departments in the issuing of special permits and the routing of truck traffic.

It is hoped that practicing engineers and others will avail themselves of this further knowledge.

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SUMMARY

The maximum stresses produced by heavy motor vehicle types and loadings, on simple span bridges of various lengths, provide the means for comparing the stress producing characteristics of any given vehicle with those of another. They also provide a common unit of measure by which any given vehicle can be converted into some convenient or arbitrary equivalent loading, such as an equivalent H truck loading, an equivalent H-S truck loading, or an equivalent concentrated load.

The rating of heavy vehicle loads in terms of equivalent H truck loadings or any other convenient standardized loads can be accomplished by evaluating some maximum stress effect (moment, shear, or floor beam reaction) on a simple span of given length, and then finding the gross weight required on the standard vehicle (or other standard loading) on the given span to produce the same effect.

Tables and charts are provided for the rating of most any type of heavy vehicle, ordinarily encountered in highway traffic, in terms of standardized equivalent loads. For convenience, the tables are prepared for first converting all vehicles into equivalent H truck loadings which can then be converted into any of the other equivalent loadings given in Table 10.1 and Fig. 10.1 as may be desired.

The frequency distributions of equivalent H truck loadings and equivalent concentrated loads as given in Parts III and IV respectively should prove to be of something more than passing interest. These distributions are sufficiently regular to yield practical answers to many questions concerning stress repetitions of various intensities.

Part I

EQUIVALENT LOADS AND THEIR USE FOR MEASURING HEAVY MOTOR VEHICLE OPERATION

1. INTRODUCTION

The method presented herein for converting heavy motor vehicle loads into equivalent loads is fundamentally the same as that developed and presented previously in Bulletin No. 127.[1] The method is the same in the sense that, in both of these bulletins, the equivalent loads are based upon, or measured in terms of, the maximum stresses produced by various heavy vehicle types and loadings on simple spans.[2] The only difference between the two is that the equivalent loads discussed herein are based on maximum shears whereas those discussed in Bulletin No. 127 are based on maximum bending moments. Moreover, the main objectives of this bulletin are essentially the same as those of its predecessor. Briefly stated they are:

1. To develop a rapid, yet simple and accurate mathematical procedure for the rating of heavy motor vehicle types and loadings, such as those ordinarily encountered in present-day highway traffic, in terms of equivalent H truck loadings, equivalent H-S truck loadings, equivalent concentrated loads, or loading equivalents based on any other arbitrary standardized loading that might prove to be either convenient or desirable.

2. To indicate how these equivalent loads may be used as an approach to the problem of permissible loads on bridges and other highway structures.

3. To show how the frequency distributions of equivalent loads provide a rational means for measuring the varying levels of intensity of heavy motor vehicle operation which may obtain on a particular route, or within a given geographical area, corresponding with present or anticipated traffic conditions.

For some years past, the frequency distributions of heavy axle loads and gross loads have been used extensively for numerous purposes associated with the planning and building of highway facilities. Among other things, these frequency distributions have been used as an index for measuring the various levels of intensity of heavy vehicle operation. Both the actual and relative frequencies of heavy axle loads and gross vehicle weights furnish the type of information needed for analyzing and solving many important problems, particularly those associated with highway transport. The numbers and relative frequencies of various intensities of heavy axle loads also find an important use in the design of roadway subgrades and pavements. This is because the anticipated numbers of the various intensities of these heavy axle loads, in large measure, determine the subgrade and pavement designs in any particular case. It is generally agreed that roadway subgrades and pavements can be protected against undue overstress, pumping, fatigue failure, or other premature injury, simply by limiting the load that may be carried on a single axle, or on tandem axles which are less than about 4 feet apart.

Since the design of roadway subgrades and pavements is so largely determined by the anticipated frequencies of various intensities of heavy axle

[1]Henson K. Stephenson and Kriss Cloninger, Jr., "Method of Converting Heavy Motor Vehicle Loads into Equivalent Design Loads on the Basis of Maximum Bending Moments," Texas Engineering Experiment Station, Bulletin No. 127, October, 1952.

[2]For a more complete discussion of equivalent loads, their development and uses, see Bulletin No. 127, referred to above.

loads, the problem of determining permissible loads for them is a fairly simple one in that the establishment of such maximum allowable loads is mainly concerned with the loads carried by single and tandem axles, irrespective of the gross vehicle weights. In other words, it is the fatigue and other effects of repeated stresses which result from the varying magnitudes of heavy axle loads, rather than gross loads, that largely determine the useful life of roadway subgrades and pavements.

Unfortunately though, the frequency distributions of heavy axle loads and gross loads, by themselves, do not furnish the bridge engineer with the information needed for determining the stress producing effects of these loads on bridges and other highway structures. The reason for this is that the critical stresses produced in bridges by heavy vehicle loads are influenced by no less than six variables, whereas the live load stresses in subgrades and pavements are influenced mainly by the magnitude of single or tandem axle loads. In order to calculate the critical stresses in simple span bridges, for example, each of the following six variables must be taken into account:

1. Span length of bridge.
2. Gross weight on vehicle.
3. Wheel base length of vehicle.
4. Number of axles.
5. Spacing of axles.
6. Distribution of gross weight among the axles.

From this list of variables it will be seen readily that no simple relationship can be established between the gross loads or the individual axle loads of a given vehicle and the maximum stresses produced by it on bridges and other highway structures. For any one particular vehicle, however, it would not be difficult to calculate the maximum stresses produced by its passage over a span of given length. But such a procedure, by conventional methods, would be too tedious and time consuming to be of practical value for the rating of large numbers of vehicles, particularly since the entire process would have to be repeated for each vehicle and for each span length considered.

To be of practical use, therefore, a simplified method is needed whereby the ratings of heavy vehicle types and loadings might be calculated quickly and accurately without resort to the time consuming procedures incident to presently available conventional methods. In order to accomplish these objectives, it is first necessary to find an appropriate and satisfactory method for converting a given heavy vehicle loading into an equivalent design load, or simply into an equivalent load. This can be done rather easily by comparing the stresses (moment, shear, or floor beam reaction) produced by a given heavy vehicle on a given span with those produced by a particular standard design loading on the same span. More specifically, this would consist of calculating some stress effect, such as moment or shear, produced by a given vehicle on, say, a 30-foot simple span bridge and then finding the gross weight required on, say, a standard H truck to produce the same effect.

For example, if the given vehicle caused a maximum shear on the 30-foot simple span of 27.2 kips (one kip = 1000 pounds), it would produce the same maximum shear as an H 15 truck. Measured in terms of maximum shear, therefore, the given vehicle would be rated as an equivalent H 15 truck loading on a 30-foot simple span bridge. Similarly, the given vehicle could be rated in terms of an equivalent H-S truck loading, equivalent concentrated load, or any other standardized equivalent load as may be desired. However, since the maximum shear produced by any given standardized vehicle or loading on a given span bears a constant relationship to the maximum shear produced by any other standardized loading on the same span, any given vehicle that has been converted into either an equivalent H truck loading, an

equivalent H-S truck loading, or an equivalent concentrated load, on a given span, can easily be rated in terms of either of the other two equivalent loadings simply by using the conversion coefficients as explained in Article 10.

In general, though, it is believed that the simplest procedure will result from first converting the given vehicle or vehicles into equivalent H truck loadings for each span length under consideration. Once the H-equivalencies of a given vehicle or vehicles on certain spans have been determined, it would then be but a simple matter to convert them into any other equivalent loading or loadings that might prove to be necessary or desirable as the case may be. On this basis, therefore, tables presented in Part II provide the means for converting heavy vehicle loads into equivalent H truck loads (or H-equivalencies) which, in turn, may be converted into any of the equivalent loadings discussed in connection with Table 10.1 and Fig. 10.1.

Perhaps the simplest way to illustrate the conversion of one type of loading equivalent into another would be to apply the procedure to a particular situation. For example, suppose the vehicle under consideration produces a maximum shear of 37.76 kips (one kip = 1000 lbs.) on a 50-foot span and it is desired to know the numerical rating of this vehicle on a 50-foot span, measured in terms of: (1) an equivalent H truck loading, or EHT; (2) an equivalent H-S truck loading, or EHST; (3) an equivalent H design loading, or EHD; (4) an equivalent H-S design loading, or EHSD; (5) an equivalent concentrated load, or ECL.

The answers to these questions would be determined somewhat as follows:

(1) Since a standard H truck weighing 1.00 kip produces a maximum shear of .944 kips on a 50-foot span, it would require an H truck having a gross weight of 37.76/.944 = 40.00 kips to produce the same shear as the given vehicle. Therefore, the given vehicle would be rated as an equivalent H 20 truck on a 50-foot span.

(2) From Table 10.1 or Fig. 10.1 for a 50-foot span it will be found that the coefficient 1.16 will convert an EHT into an EHST. Therefore, the equivalent H 20 truck converts into (1.16 × 20 = 23.2) an equivalent HS 23.2 (ton) truck which produces the same maximum shear on the 50-foot span as the given vehicle or an H 20 truck.

(3) From Table 10.1 or Fig. 10.1 for a 50-foot span, it will be found that the coefficient .900 will convert an EHT into an EHD. The given equivalent H 20 truck, therefore, converts into (.90 × 20 = 18.00) an equivalent H 18 design loading. This means that an H 18 design loading (lane loading) would produce the same maximum shear as the given vehicle or an H 20 truck on a 50-foot span.

(4) Similarly, from Table 10.1 or Fig. 10.1, it will be found that the coefficient 1.16 will convert an EHT into an EHSD. Therefore, the equivalent H 20 truck converts into (1.16 × 20 = 23.2) an equivalent HS 23.2 design loading. This means that an H 20 truck produces the same maximum shear as a standard H-S design loading of 23.2 ton designation, on a 50-foot span. But since the H-S truck is the design loading for this span, the H 20 truck would produce the same maximum shear as a standard H-S truck, weighing 23.2 tons, on a 50-foot span.

(5) Also from Table 10.1 or Fig. 10.1, it will be found that the coefficient .94 will convert an EHT into an ECL. Therefore, the given equivalent H 20 truck converts into (.94 × 20 = 18.8) an 18.8 ton equivalent concentrated load. This means that an equivalent H 20 truck will produce the same maximum shear as an equivalent concentrated load, weighing 18.8 tons, on a 50-foot span.

The use of equivalent loads as an approach to the problem of permissible loads, and the use of equivalent loads for measuring heavy motor vehicle operation, will be discussed later in more detail.

2. PERMISSIBLE VEHICLE WEIGHTS ON ROADWAYS AND BRIDGES

The vehicles that are of particular interest in connection with these studies are the various types of heavy-axle trucks and other vehicle combinations whose axle-loads, axle-group loads, or gross weights are considered sufficiently heavy to influence the design of bridges and other highway structures. For these purposes, therefore, heavy vehicles are defined as those with one or more axles weighing 18,000 pounds or more; or, based on gross weight, all single-unit trucks weighing 26,000 pounds or more, and all other combinations weighing 34,000 pounds or more. These were the gross weights used in the 1942 loadometer survey as the dividing line between light freight vehicles and heavy freight vehicles by the Planning Survey Divisions of the several State Highway Departments and also by the Bureau of Public Roads.

The American Association of State Highway Officials, after many years of study, formulated a "Policy Concerning Maximum Dimensions, Weights and Speeds of Motor Vehicles to be Operated over the Highways of the United States" which was adopted April 1, 1946. The standards recommended by this Policy are as follows:

(1) WIDTH—No vehicle, unladen or with load, shall have a total outside width in excess of 96 inches.

(Note: It is recognized that certain conditions inherent in the design of vehicles suggest the desirability of 102 inches as a standard of maximum width. The existence of numerous bridges and a large mileage of highways too narrow for the safe accommodation of vehicles of such width precludes the present adoption of the higher standard of width. The State Highway Departments and Public Roads Administration are urged to give consideration to the desirability of eventual provision for the accommodation of vehicles 102 inches in width in planning the reconstruction of Federal-aid and State highways.)

(2) HEIGHT—No vehicle, unladen or with load, shall exceed a height of 12 feet, 6 inches.

(3) LENGTH—

(a) No single truck, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 35 feet.

(b) No single bus, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 40 feet, provided that a bus in excess of 35 feet in overall length shall not have less than 3 axles.

(c) No combination of truck-tractor and semi-trailer, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 50 feet.

(d) No other combination of vehicles shall consist of more than two units, and no such combination of vehicles, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 60 feet.

(4) SPEED—

(a) Minimum speed. No motor vehicle shall be unnecessarily driven at such slow speed as to impede or block the normal and reasonable movement of traffic. Exception to this requirement shall be recognized when reduced speed is necessary for safe operation or when a vehicle or combination of vehicles is necessarily or in compliance with law or police direction proceeding at reduced speed.

(b) Maximum speed. No truck shall be operated at a speed greater than 45 miles per hour. Passenger vehicles may be operated at such speeds as shall be consistent at all times with safety and the proper use of the roads.

(c) Vehicles equipped with solid rubber or cushion tires shall be operated at a speed not in excess of 10 miles per hour.

(5) PERMISSIBLE LOADS—

(a) No axle shall carry a load in excess of 18,000 pounds. (Note: An axle load shall be defined as the total load transmitted to the road by all wheels whose centers may be included between two parallel traverse vertical planes 40 inches apart, extending across the full width of the vehicle.)

(b) No group of axles shall carry a load in pounds in excess of the value given in the following table corresponding to the distance in feet between the extreme axles of the group, measured longitudinally to the nearest foot. The loads shown in Table 2.1 are based on the equation $W = 1025 (L + 24) - 3L^2$.

Table 2.1

PERMISSIBLE LOADS AS RECOMMENDED BY AASHO POLICY ADOPTED APRIL 1, 1946

Distance L in feet between the extremes of any group of axles	Maximum load W in pounds carried on any group of axles	Distance L in feet between the extremes of any group of axles	Maximum load W in pounds carried on any group of axles	Distance L in feet between the extremes of any group of axles	Maximum load W in pounds carried on any group of axles
4	32,000	22	45,700	40	60,800
5	32,000	23	46,590	41	61,580
6	32,000	24	47,470	42	62,360
7	32,000	25	48,350	43	63,130
8	32,610	26	49,220	44	63,890
9	33,580	27	50,090	45	64,650
10	34,550	28	50,950	46	65,400
11	35,510	29	51,800	47	66,150
12	36,470	30	52,650	48	66,890
13	37,420	31	53,490	49	67,620
14	38,360	32	54,330	50	68,350
15	39,300	33	55,160	51	69,070
16	40,230	34	55,980	52	69,790
17	41,160	35	56,800	53	70,500
18	42,080	36	57,610	54	71,200
19	42,990	37	58,420	55	71,900
20	43,900	38	59,220	56	72,590
21	44,800	39	60,010	57	73,280

(c) The maximum axle and axle-group loads recommended in paragraphs (a) and (b) above are subject to reasonable reduction in the discretion of the appropriate highway authorities during periods when road subgrades have been weakened by water saturation or other cause.

(d) The operation of vehicles or combinations of vehicles having dimensions or weights in excess of the maximum limits herein recommended shall be permitted only if authorized by special certificate issued by an appropriate State authority.

The extent to which the above axle load limitations are adhered to is indicated by the fact that in 1949 the axle load limit of 18,000 pounds was fixed by law in 34 states. In the remaining states and the District of Columbia the legal axle load limit varied from 19,000 to 22,400 pounds.

From a study of Section 5 (b) of the above AASHO policy, including the permissible axle-group loads given by Table 2.1, it will be seen that the maximum permissible load on any individual axle is recommended not to exceed 18,000 pounds and on tandem or dual axles, about 4 feet apart, the permissible gross load is limited to 32,000 pounds. As previously pointed out, these loads were established because it is generally agreed that roadway foundations and pavements can be protected against undue overstress, fatigue failure, or other premature injury simply by limiting the load that may be carried on a single axle or tandem axles about 4 feet apart. For roadway subgrades and pavement, therefore, the problem of permissible loads is

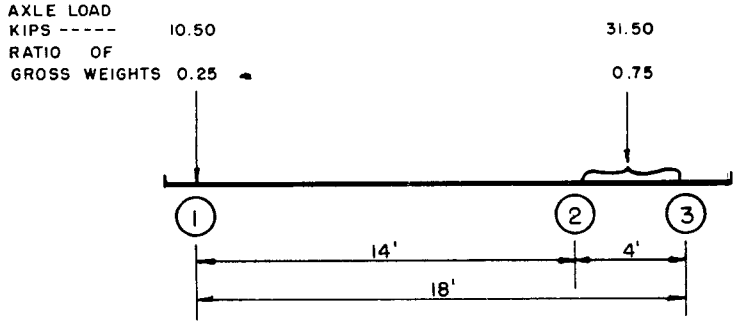
mainly concerned with the loads carried by single and tandem axles, irrespective of the total gross load carried by the entire vehicle.

But, as mentioned in the preceding article, the problem of determining permissible vehicle weights for bridges is not as simple as it is for roadway foundations and pavements. The reason for this is because the critical stresses produced in bridges by heavy vehicle loads are influenced by several other factors beside the permissible loads that may be carried by single and tandem axles. These variables not only include the number and spacing of axles, and the distribution of gross weight among the several axles and groups of axles, but they also include the span length of the bridge. From this, it will be readily seen that the problem of determining permissible axle-group loads and gross vehicle weights, which will not produce stresses in excess of those permitted by design specifications, is one that could not be classified as simple even though the solution for any one particular situation would not be very difficult.

It might be well to point out that the axle-group loads, and gross vehicle weights as given in Table 2.1, which are in accordance with present AASHO policy, were established at a level such that they will neither produce stresses in excess of those presently used for the design of new bridges nor unduly encroach upon the safety of existing bridges. These permissible loads were also established at a level such that they would not produce excessive overstresses which would be expected to result in premature injury or unduly shorten the useful life of new or existing structures as a result of fatigue. Although the permissible loads given in Table 2.1 provide a practical guide for heavy motor vehicle operation, they give no information concerning the actual stresses that would be produced in a bridge of given length by any particular vehicle type or loading.

In addition to providing a rational procedure for the rating of a given heavy vehicle in terms of its stress producing effects on a simple span bridge of any particular length, the method presented herein for converting heavy vehicle loads into equivalent loads also furnishes an approach to the problem of determining permissible vehicle weights on bridges of various lengths and design designations. The essentials of this approach to the problem of permissible vehicle weights can be explained best perhaps by discussing them in connection with the rating of a particular vehicle on a bridge of given length and design designation.

For example, suppose that the Type 3 truck, as shown in Fig. 2.1, is under consideration and it is desired to know the H-equivalency rating of



TYPE 3 TRUCK NUMBER 18

NOTE: SEE INDEX TABLE 6.2; MAXIMUM SHEARS PRODUCED BY THIS TRUCK ARE GIVEN IN TABLE 7.2 AND 8.2

Figure 2.1

this vehicle and also whether or not it should be permitted to pass over a particular two-lane simple span bridge, 30 feet in length, designed for an H 15 loading in accordance with the 1949 AASHO Standard Specifications.

By making the detailed calculations or by consulting Table 7.2, it will be found that this vehicle (Type 3 truck Number 18) will produce a maximum shear of 42.0 × .80 = 33.6 kips on a 30-foot span. Now, to rate this truck in terms of an equivalent H truck loading, it is only necessary to find the weight of a standard H truck that will produce the same maximum shear on a 30-foot span. By referring to the AASHO shear table for the H truck, or the Type 2 truck Number 18 as shown in Table 6.1 (which is the standard H truck), it will be found that the maximum shear produced on a 30-foot span by an H truck is equal to 0.907 or 90.7 percent of the gross vehicle weight. Therefore, the given vehicle will produce the same maximum shear on a 30-foot span as an H truck weighing 33.6/.907 = 37.0 kips or 18.5 tons. Measured in terms of maximum shear, therefore, the given vehicle would be rated as an equivalent H 37.0 (kip) truck loading or an equivalent H 18.5 (ton) truck loading on a 30-foot span.

It will be found, by referring to the permissible axle group loads in Table 2.1, that the truck shown in Fig. 2.1 does not exceed the axle-group loads indicated and, therefore, would be permitted to pass over the 30-foot bridge of H 15 design under consideration. The given vehicle, however, will produce 18.5/15.0 = 1.23 times or 23 percent more live load shear than an H 15 truck, which was the design vehicle in this case. This immediately raises the question: How does one arrive at the conclusion that it would be permissible for equivalent H 18.5 trucks to pass over a 30-foot bridge of H 15 loading design? The explanation of this seemingly paradoxical situation lies in the fact that all bridges, designed according to AASHO standards, are constructed in such a way as to include a reserve load carrying capacity as a safety precaution against unintentional or illegal overloads and also to provide for legal but infrequent heavy loads such as those indicated in Table 2.1, or those carried under special permit.

It would contribute toward a better understanding of overloads and their stress producing effects on bridges, perhaps, if it were pointed out that an increase of, say, 30 percent in the live load and impact shears (or moments) on a given bridge does not result in so large an increase, on a percentage basis, in the total shear. This is because the dead load shear, which in most cases is a considerable part of the total shear, for a given span always remains the same and, therefore, a given percent increase in only the live load and impact shears would not result in so great a percentage increase in the total shear. Although this line of reasoning provides a qualitative answer to the question, it is not sufficiently specific for one to determine the amount of overstress that may be involved in a particular situation. The qualitative answer is satisfactory as far as it goes, but it does not indicate the degree in which the reserve load carrying capacity of a given bridge is called upon to function during the passage of any particular heavy vehicle load. Once the H-equivalency of a given vehicle on a particular span has been determined, however, its numerical rating will usually provide a satisfactory answer for most practical cases. But, even so, the numerical rating is not sufficiently specific for accurately determining the magnitude of overstress involved in any particular situation.

Since the dead load of a bridge varies with both the span and type of construction, it is not possible to relate the H-equivalency of a given vehicle with a specific amount of overstress that would be exact for a given span and all types of construction. However, if the amount of overstress for a given span and H-equivalency is determined on the basis of the lightest possible type of construction, the answer would represent the maximum possible magnitude of overstress that could result from any particular H-equivalency on the given span.

For example, suppose it is desired to know the amount of shearing overstress produced by the Type 3 truck, shown in Fig. 2.1, on the above mentioned 30-foot bridge of H-15 loading design. If it is now assumed that this bridge is of a light construction type, consisting of a minimum concrete deck supported by simple span steel stringers, the dead load shear (also moment) would account for about 34 percent of the total design shear.

In this case, the AASHO shear table shows, for a 30-foot span, that the H-15 truck loading would control and produce a maximum live load shear of 27.2 kips per lane, to which a 30 percent allowance must be added for impact. The total shear for which the bridge must be designed, therefore, would be as follows:

Total Design Shear in Kips, for H-15 Loading on 30-Foot Span

Live load shear	$V_{LL} = 27.2$
Impact shear $= .30 \times 27.2 =$	$V_I = 8.2$
Dead load shear $= .34\ (27.2 + 8.2) =$	$V_{DL} = 12.0$
Total design shear	$V_{Tot.} = 47.4$

Total Shear, in Kips, Produced by 21 Ton Type 3 Truck No. 18

Live load shear	$V_{LL} = 33.6$
Impact shear $= .30 \times 33.6$	$V_I = 10.1$
Dead load shear $= .34\ (27.2 + 8.2) =$	$V_{DL} = 12.0$
Total shear	$V_{Tot.} = 55.7$

$$\text{Live Load Stress Ratio} = \frac{33.6}{27.2} = 1.24$$

$$\text{Design Stress Ratio} = \frac{55.7}{47.4} = 1.17$$

On the basis of these data it will be seen that the given vehicle, as shown in Fig. 2.1 will produce shearing stresses in the above described 30-foot simple span which are 1.17 times or 17 percent in excess of the basic design shearing stresses. And since these figures are based on light weight construction, it could be concluded that the given vehicle would not cause an overstress in excess of 17 percent on any 30-foot simple span bridge which had been designed in accordance with the 1949 AASHO Specifications. Even though it is not within the province of this report to recommend any particular percent of overstress that should not be exceeded, it would be safe to say that a 17 percent overstress caused by an infrequent heavy vehicle load would not be considered as an undue encroachment on the reserve load carrying capacity of a bridge whose reserve capacity compared favorably with that required by present day design specifications.

One of the more important points brought out by this example, however, is that even though the given vehicle has an H-equivalency of 24 percent in excess of the H 15 design truck, it would cause no more than a 17 percent overstress on a 30-foot simple span bridge of H 15 loading design. In some measure, this will explain why the present AASHO policy has established the level of permissible axle-group loads in Table 2.1 at a point where the maximum live load and impact shears (and moments) resulting from them will not be more than about 43 percent in excess of those caused by an H 15 design loading. In other words, the permissible axle-group loads in Table 2.1 establish the maximum level of heavy motor vehicle operation at a point where the maximum live load and impact shears (and moments) produced by them on any span will not exceed those required approximately for an H 21.5 loading design.[3]

[3]For a more complete discussion of this subject, see "Determination of Permissible Vehicle Weight on Bridges of H Loading Design" by Henson K. Stephenson, AASHO Proceedings, Washington, D. C., 1949, pp. 144-185.

Although the preceding discussion of permissible vehicle weights on roadways and bridges is in no sense complete, it will serve to indicate the nature of some of the more important problems associated with the sizes, weights, and frequencies of heavy vehicle types and loadings, and how they are related to highway and bridge provision. It will also serve to outline the method presented herein for the rating of heavy vehicles in terms of equivalent loads as an approach to the problem of correlating heavy motor vehicle operation with highway and bridge provision. The development and use of the tables and charts for converting heavy vehicles into equivalent loads will be discussed in more detail in Article 4 and Article 10.

3. EQUIVALENT LOADS PROVIDE MEANS FOR RATING HEAVY MOTOR VEHICLE TYPES AND LOADINGS

The rapid increases in both the numbers and weights of heavy axle loads and gross loads during the past decade have served to emphasize the need of appropriate methods for measuring and analyzing heavy motor vehicle operation at its varying levels of intensity and for correlating the effects of such operation with the design, construction, and useful life of present and future highway facilities. In recognition of these needs and as a partial contribution toward their fulfillment, this bulletin presents the development of a simple, yet accurate mathematical procedure for the rating of the stress producing effects of heavy vehicle loadings in terms of some convenient or arbitrarily standardized equivalent loads, and undertakes to show how the frequency distributions of these loading equivalents provide a rational means for measuring the level or levels of heavy motor vehicle operation corresponding to given traffic conditions such as those reported by a local, state, or national loadometer survey.

The method described in the preceding articles for converting heavy vehicle loads into equivalent loads is the principal subject for this bulletin. The method is basically the same as that developed and presented previously in Bulletin No. 127, where it was given for the first time. It gives answers which are mathematically correct for the 10,424 cases covered by the tables presented in Part II, and gives answers which compare favorably with slide rule accuracy for those cases where values are obtained by interpolation. The details concerning the basis upon which the method is developed together with the tables and charts that have been prepared to facilitate its use are discussed and more fully explained in the articles of Part II which follow immediately.

Part II

METHOD FOR RATING HEAVY VEHICLE LOADS IN TERMS OF EQUIVALENT LOADS

4. BASIS FOR CONVERTING HEAVY VEHICLE LOADS INTO EQUIVALENT LOADS

The method discussed herein for converting heavy vehicle loads into equivalent loads is based on the fact that any particular vehicle produces but one maximum shear (or one maximum moment) on a simple span bridge of given length. Therefore, any convenient procedure for finding the maximum shear produced by a particular vehicle or loading on a given span will provide a simple, yet effective means for measuring the stress producing effects of this vehicle in terms which may be compared directly with the stress producing effects of some standard design loading on the same span. Thus, after the maximum shear produced by a particular vehicle on a given span has been determined, it can then be compared with that produced by, say, one of the AASHO standard design trucks, or that produced by a single concentrated load, thereby converting the given vehicle into an equivalent H truck loading, equivalent H-S truck loading, or an equivalent concentrated load as may be desired.

The tables and charts presented herein provide the means for quickly determining the maximum shears produced on various spans by any of the more common heavy vehicle types or loadings ordinarily encountered in present-day highway traffic. This method provides answers which are exact for the 1303 trucks and combinations upon which the tables in the present bulletin are based; and closely approximate answers for any other vehicle for which values are obtained by interpolation. These tables and charts are concerned with the maximum shears (per lane) produced by 14 of the more common heavy vehicle types (see Fig. 6.1) on simple span bridges up to 100 feet in length. These include the 2- and 3-axle single-unit trucks; 6 types of truck-tractor semitrailer combinations with from 3 to 6 axles each; 4 types of truck-trailer combinations with from 4 to 6 axles each; and 2 types of truck-tractor semitrailer combinations with 5 and 8 axles, respectively.

Since the variables which must be taken into account in the calculation of critical stresses for simple span bridges may have an infinite number of values, it is obvious that the maximum shear produced by any particular vehicle on a given span would represent but one of an infinite number of possible values. It would not be practical, therefore, to undertake to determine the maximum shears (or moments) that would result from all possible combinations of these variables. However, these difficulties may be overcome by grouping certain of the variables in such a way as to cover all the practical cases likely to be encountered and then separate these groups into cells that are close enough together to give accurate results, either directly or by interpolation, and yet far enough apart to keep the total number of cells as small as possible, consistent with the degree of accuracy desired.

As a result of this approach, the 14 heavy vehicle types mentioned above and shown in Fig. 6.1 were selected for special study. A breakdown of each vehicle type was then made by varying wheel base length, spacing of axles, and the axle load ratios—that is, the ratio or percentage of gross vehicle weight carried by each of the several axles—in such a way as to cover all types and variations of practical trucks and combinations encountered in ordinary highway traffic. Gross vehicle weight is thus eliminated as a variable by the use of the axle load ratios or percentages of gross vehicle weight carried on the several axles in lieu of the actual weight. This permits

the use of unit weight vehicles or vehicles weighing one kip each. This simplification is possible because the maximum shear (or moment) produced by a particular vehicle on a given span is directly proportional to its gross weight. Therefore, the maximum shear produced by a particular vehicle on a given span may be obtained merely by multiplying the maximum shear in kips for a vehicle of unit weight by the gross weight of the same vehicle in kips.

The breakdown for the Type 2 truck (2-axle single-unit truck), for example, is covered by the 36 variations of wheel base length and loading distribution shown in Index Table 6.1. This table shows 6 different lengths of wheel base, varying in 2-foot increments from 10 to 20 feet, and for each wheel base there are 6 different percentage distributions of gross weight between the two axles, making a total of 36 variations or cells. Thus, if the wheel base length and the percentages of gross weight on each axle were known for any practical 2-axle truck it could be classified by fitting it into one of the 36 cells or by interpolation between the two cells nearest to it. To use a simple illustration, suppose it was desired to classify a Type 2 truck reported by a loadometer survey as follows: wheel base length of 18 feet; gross vehicle weight of 24,000 pounds with 7,200 and 16,800 pounds on front and rear axles, respectively. Since this truck carries 30 percent or .30 of the gross load on the front axle and 70 percent or .70 on the rear, it would be classified by Table 6.1 as a Type 2 truck, Number 28, hereafter designated as a 2-28. To further illustrate, suppose it is desired to classify a Type 2 truck reported by a loadometer survey having a wheel base length of 17 feet and a gross vehicle weight of 24,000 pounds with 6,480 and 17,520 pounds on the front and rear axles, respectively. In this case the truck carries 27 percent or .27 of the gross load on the front axle and 73 percent or .73 on the rear axle. Referring again to Table 6.1 it is found that .25-.75 loading distribution to the front and rear axles respectively, more nearly approximates the given vehicle than any other, so that for a 17-foot wheel base the given truck would be classified as a 2-23 or a 2-29. The final choice would be a 2-23. This results from the fact that the shorter wheel base will give a somewhat greater shear than the given truck and, therefore, would be on the side of safety, whereas a 2-29 with a longer wheel base would give a somewhat lesser shear than the given truck.

A breakdown similar to this was made for each of the 14 heavy vehicle types as shown in the identification Index Tables 6.1-6.14. The breakdown for the Type 3 truck, given in Table 6.2, has 42 cells; the Type 2-S1 truck has 126 cells, and so on, and all 14 vehicle types account for a total of 1303 cells from which to choose when undertaking to identify and classify any particular vehicle of known wheel base length, number and spacing of axles and loading distribution.

Span lengths of 10, 20, 30, 40, 50, 60, 80 and 100 feet were then decided upon and the maximum shears produced by each of the 1303 vehicles on each length of span was calculated. Thus the general problem of determining the maximum shears produced by heavy vehicle types and loadings on simple span bridges is reduced by this procedure to consideration of 10,424 cells for each of which the maximum shears have been determined. These 10,424 shears are included in Tables 7.1-7.14. In addition to giving the maximum shear for each of the 10,424 cases, these tables also give the axle-group which produces the maximum shear, the axle number under which the maximum shear occurs, and the end of the span at which this critical axle is placed for obtaining the maximum shear. Tables 7.1-7.14 — one for each of the 14 vehicle types considered — provide the fundamental information for determining the shear producing effects of heavy vehicle types and loadings on spans of various lengths, which in turn provides the means for rating them in terms of equivalent H truck loadings, equivalent H-S truck loadings, equivalent concentrated loads, or other equivalent loading as may be desired. These tables will be discussed more fully in the following articles.

For the time being, however, the above discussion is believed to be sufficient to outline the procedure employed herein for measuring the shear producing effects of heavy vehicles and converting them into equivalent loadings.

5. TABLES AND CHARTS FOR CONVERTING HEAVY VEHICLES INTO EQUIVALENT LOADS

5.1 Description of Tables and Charts for Converting Heavy Vehicle Loads into Equivalent Loads

The tables and charts in Part II provide the means for quickly and accurately determining the maximum shears produced by 14 of the more common heavy vehicle types on simple span bridges up to 100 feet in length. The main function of these tables is that of converting heavy vehicle types and loadings into equivalent H truck loadings based on the maximum shears produced by them on simple spans of various lengths. Once the H-equivalency of a particular vehicle on a given span has been determined, however, it is then but a simple matter to convert it into any other type of equivalent loading as may be desired simply by use of the conversion coefficients given by Table 10.1 and Fig. 10.1. A drawing of each of the 14 heavy vehicle types is shown in Fig. 6.1 and a breakdown of each type into cells or variants is given by the identification Index Tables 6.1-6.14, as follows:

Vehicle Type	No. of Cells	Table Number	Vehicle Type	No. of Cells	Table Number
2	36	6.1	3–S3	105	6.8
3	42	6.2	2–2	144	6.9
2–S1	126	6.3	2–3	90	6.10
2–S2	108	6.4	3–2	90	6.11
2–S3	90	6.5	3–3	90	6.12
3–S1	90	6.6	2–S1–2	96	6.13
3–S2	112	6.7	3–S2–3	84	6.14

Total Number of Cells = 1303

It will be noted that each of the 1303 trucks listed in these tables is of unit weight and may be thought of as weighing one kip (1000 pounds) each. In fact, all of the tables and charts in Part II are based on vehicles of unit weight or vehicles weighing one kip each. This elimination of gross vehicle weight as a variable is made possible by the fact that the maximum shear produced by a given vehicle on a simple span bridge is directly proportional to its gross weight. In other words, once the maximum shear caused by a particular vehicle of unit weight on a given span is known, the actual shear produced by it on that span is obtained simply by multiplying the unit weight by the gross weight of the vehicle under consideration.

After a given vehicle has been classified as to vehicle type and truck number in Tables 6.1-6.14, its stress producing characteristics and effects may then be determined from one or more of the remaining tables of Part II. Before undertaking to discuss the use of these tables and charts, however, a list of their titles is included here for convenient reference and also because they are somewhat explanatory. They are as follows:

Tables 7.1 — 7.14; Controlling Conditions for Maximum Shear on Simple Span Bridges.

Tables 8.1 — 8.14; Summary of Maximum Shears Produced by Vehicles of Unit Weight on Simple Span Bridges.

Tables 9.1 — 9.14; Equivalent H Truck Loadings for Vehicles of Unit Weight on Simple Span Bridges

Table 10.1 and Figure 10.1; Conversion Coefficients for Equivalent Loadings on Simple Spans of Various Lengths.

Note: Equivalent H truck loadings, equivalent H-S truck loadings, and equivalent concentrated loads may be converted from any one of these to either of the other by using the proper conversion coefficient as given by Table 10.1 or Figure 10.1.

5.2 Use of Tables and Charts for Converting Heavy Vehicles into Equivalent Loads

The simplest way to explain the use of the tables and charts described above perhaps would be to investigate several typical situations that could easily arise in connection with some particular heavy vehicle loading. Suppose, for example, that the vehicle in question is a 3-axle truck-tractor semitrailer combination (Type 2-S1 truck) having a gross weight of 45,000 pounds with 9,000 pounds on the front axle and 18,000 pounds on each of the other two, and with axle spacing front to rear of 8 feet and 16 feet, respectively, making an over-all wheel base length of 24 feet. The first step toward answering questions concerning this vehicle would be to identify it in accordance with the Index Tables 6.1-6.14. Thus, in Table 6.3, a Type 2-S1 truck having the same axle spacings as this vehicle, with 20 percent of its gross weight on the front axle and 40 percent on each of the other two will be found among the 126 variations for this vehicle type. In the fourth column from the left of Table 6.3, it will be seen that Truck Nos. 8 through 14 are for a vehicle with a 24-foot wheel base and axle spacings front to rear of 8 feet and 16 feet, respectively. In the next three columns to the right (columns 5, 6, and 7) it will be seen that Truck No. 13 is the one that fits the vehicle described above. So this vehicle would be classified as a Type 2-S1 truck— No. 13. In Table 6.3 it will be noted that there are 126 cells which represent a wide range of variations of wheel base lengths, axle spacings, and distributions of load among the axles, and that these are arranged in such a way as to approximate almost any practical Type 2-S1 truck that might be encountered in actual highway traffic.

Now, suppose it is desired to know the maximum shear produced by the Type 2-S1-13 (Type 2-S1 truck — No. 13) on several different span lengths; say on 20-, 50-, and 80-foot simple span bridges. This information will be found for Type 2-S1-13 in Table 7.3. For the 20-foot span it shows that a truck like this one will produce a maximum shear of .520 kips for each thousand pounds of gross vehicle weight. It also shows that this maximum shear would occur when axles 1 and 2 are on the span and axle 2 is placed at the right reaction. For the 50- and 80-foot spans, similarly, it will be seen that the maximum shear occurs where all three axles are on the span and axle 3 is placed at the right reaction; the maximum shears being .776 and .860 kips, respectively. In most cases, however, it is only the maximum shear caused by a vehicle on a given span that would be of interest. For this reason, as well as that of making the study of this information more convenient, the maximum shears for all the vehicle types and loadings shown in Tables 7.1-7.14 are summarized in Tables 8.1-8.14, respectively. For example, the maximum shears for the Type 2-S1-13, as given in Table 7.3, are summarized in Table 8.3.

It might be added that Tables 7.1-7.14 and Tables 8.1-8.14 are sufficiently extensive to cover practically any vehicle type, number of axles, wheel base length, and loading distribution among the axles ordinarily encountered in present-day highway traffic. From these tables the maximum shear caused by any of these vehicles on spans up to 100 feet in length may be rapidly and accurately determined. In many cases, it is only desired to know the maximum shear caused by a particular heavy vehicle on a given span. In other cases, however, just knowing the maximum shear caused by a vehicle on a given span would not be too informative. But if this maximum shear were measured in terms of the load required on a standard H truck to produce the same shear on the same span it could be readily interpreted in terms of an equivalent H truck loading, which would be very informative. This operation of converting a given truck into an equivalent H truck loading is accomplished simply by dividing the maximum shear produced by the given truck on a given span by the maximum shear produced by the standard H truck on the same span. For example, suppose it is desired to know the equivalent H truck loading on the 100-foot span for a Type 2-S1 truck

weighing 30,000 pounds with 6,000 pounds on the front axle and 12,000 pounds on each of the other two, and an axle spacing front to rear of 8 feet and 12 feet resulting in an over-all wheel base of 20 feet. Without any other information it would be necessary to calculate the maximum shear produced by the given vehicle on the 100-foot span, which in this case is found to be 27.36 kips and the shear produced by the standard H truck weighing 30 kips on the 100-foot span is found to be 29.16 kips. The equivalent H truck loading for the given truck when determined as outlined above would be EHTL = 27.36 ÷ 29.16 = .938 which means that the standard H truck would only have to be loaded with .938 × 30 kips = 28.14 kips to produce as much shear as the given truck. In other words, the given truck would be rated as an H 14.07 truck with respect to its stress producing characteristics based on shear. A summary of the equivalent H truck loadings for all the heavy vehicle types, loadings, and span lengths are given in Tables 9.1-9.14, and a brief explanation of their use follows immediately.

As an example in the use of Tables 9.1-9.14, suppose it is desired to know the equivalent load rating for a gross vehicle weight of 45,000 pounds on the Type 2-S1-13 (Type 2-S1 truck — No. 13) on the 30-, 50-, and 80-foot spans. The equivalent H truck loadings for this vehicle based on a gross load of one kip are to be found in Table 9.3 and for the spans in question they are as follows:

Equivalent H Truck Loadings in Kips for a Type 2S1 Truck—No. 13 Weighing 45,000 Pounds

Gross Vehicle Weight—Kips	Span Length—Feet		
	30	50	80
1.00	.692	.822	.891
45.00	31.1	37.0	40.1

This means that the Type 2-S1-13 weighing one kip would produce as much shear on a 30-foot span as a standard H truck weighing 0.692 times as much as the given vehicle, or 692 pounds. In other words, it would produce 69.2 percent as much shear as a standard H truck of the same weight. Or, better perhaps, it would produce the same shear on a 30-foot span as a standard H truck weighing 60.6 percent as much. The given Type 2-S1-13, therefore, would produce as much shear on a 30-foot span as a standard H truck weighing 45,000 × 0.692 = 31.1 kips = 15.6 tons; and for this span it would be rated as an equivalent H 15.6 truck loading. On the 50- and 80-foot spans, similarly, it would be rated as an equivalent H 18.5 truck loading and an equivalent H 20.1 truck loading, respectively.

In addition to the rating of heavy vehicle types and loadings on various spans in terms of equivalent H truck loadings, as was done in the preceding examples, there is another type of typical problem that often arises in connection with the load carrying capacity of certain bridges of given length and design designation. This is the problem of determining the maximum gross weight that should be permitted on any particular vehicle such that it might safely pass over a simple span bridge of given length and design rating. There are a number of variations to this problem of permissible vehicle weight, of course, but a few illustrative examples is all that is believed to be necessary to show how the tables may be used.

Example 5.1 Use of Tables 7.1-7.14 for Rating Heavy Vehicles

Given: A simple span bridge 50 feet long has a load carrying capacity such that it should not be subjected to a greater shear than that caused by an H 20 truck. Suppose it is desired to know the maximum gross load that may be carried over this bridge by a Type 3-S2 truck with axle spacing, front to rear, of 12 feet, 4 feet, 12 feet, and 4 feet, respectively, making an over-all wheel base length of 32 feet, if it is assumed that the gross weight is so distributed that each of the 5 axles will be equally loaded.

By consulting the identification Index Table 6.7, it will be seen that this vehicle would be classified as a Type 3-S2-48 (Type 3-S2 truck-No. 48). The problem here is to find the gross weight that might be carried by this vehicle such that it would not produce more shear on the 50-foot span than an H 20 truck. By consulting Table 7.1 it will be found that a standard H truck (Type 2 truck-No. 18) weighing one kip produces a shear of .944 kips on a 50-foot span, therefore, an H 20 truck would produce a total shear of $40 \times .944 = 37.76$ kips on the 50-foot span. In Table 7.7 it will be found that one kip on the given Type 3-S2-48 moving from right to left produces a shear of .712 kips on this span when all five axles are on the span and axle No. 5 is placed at the right reaction. This shows that a gross weight of $37.76/.712 = 53.03$ kips on this vehicle produces the same shear as an H 20 truck. In other words, the permissible gross weight for the Type 3-S2-48 under consideration would be 53.03 kips, and thus loaded, this vehicle would be rated as an equivalent H 20 truck loading.

Example 5.2 Use of Tables 8.1-8.14 for Rating Heavy Vehicles

Given: A simple span bridge 50 feet long, the same as for Example 5.1, has a load carrying capacity such that it should not be subjected to a greater shear than that caused by an H 20 truck. Suppose it is desired to know the maximum gross load that may be carried over this bridge by the Type 3-S2-48, described in Example 5.1, such that it would be rated as an equivalent H 20 truck loading.

From Table 8.7 it will be seen that a one kip load on a Type 3-S2-48 will produce a shear of 0.712 kips on a 50-foot span, and it has been shown in Example 5.1, above, that a standard H 20 truck will produce a shear of 37.76 kips on the same span. Therefore, a gross weight of $37.76/.712 = 53.03$ kips on the given vehicle would result in its being rated as an equivalent H 20 truck loading.

Example 5.3 Use of Tables 9.1-9.14 for Rating Heavy Vehicles

Suppose it is desired to know the gross load for a Type 3-S2-48 (Type 3-S2 truck — No. 48) as described in Example 5.1, that would cause it to be rated as an equivalent H 20 truck loading on a 50-foot span.

Tables 9.1-9.14 show the equivalent H truck loadings which result from various heavy vehicle types and loadings of unit weight on spans up to 100 feet in length. In Table 9.7 it will be found that a gross vehicle weight of one kip for Type 3-S2-48 on a 50-foot span produces the same shear as 0.754 kips on a standard H truck. Therefore, a gross load of $40.0/.754 = 53.03$ kips on this vehicle will produce the same shear as an H 20 truck, and for this load the above Type 3-S2-48 would be rated as an equivalent H 20 truck loading on a 50-foot span.

6. IDENTIFICATION INDEX OF HEAVY VEHICLE TYPES AND LOADINGS

The tables and charts given in Articles 6-10 (Part II) are concerned with evaluating the equivalent design loads which correspond with the maximum shears produced by one or another of the numerous possible loading and dimensional variations in 14 of the more commonly used heavy vehicle types on simple span bridges up to 100 feet in length. Each of these 14 vehicle types, together with the standardized notation used for their identification, is shown in Fig. 6.1.

The numerals used in this notation, which is shown opposite and to the left of each diagram, indicate the number of axles in each of the one or more units within a given vehicle assembly. When a semitrailer is included within a vehicle, it is identified by the letter S, followed by the numeral which indicates its number of axles. The Type 2 truck and the Type 3 truck, for

example, are single-unit trucks with 2 and 3 axles each, respectively. Double-unit vehicles may be one of the truck-tractor semitrailer combinations or one of the truck-trailer combinations; the three-unit vehicles may be one of the truck-tractor semitrailer trailer combinations. The Type 3-S2 truck, for example, consists of a 3-axle truck-tractor with a 2-axle semitrailer; and the Type 3-S2-3 truck is made up of a 3-axle truck-trailer with a 2-axle semitrailer followed by a 3-axle trailer.

A breakdown of each of the 14 vehicle types into cells or variants is given by Tables 6.1-6.14. A further discussion of these identification tables and how they are used is given in Articles 4 and 5. The vehicle type and the number of cells corresponding to each of the Tables 6.1-6.14 are as follows:

Table Number	Vehicle Types	No. of Cells	Table Number	Vehicle Types	No. of Cells
6.1	2	36	6.8	3–S3	105
6.2	3	42	6.9	2–2	144
6.3	2–S1	126	6.10	2–3	90
6.4	2–S2	108	6.11	3–2	90
6.5	2–S3	90	6.12	3–3	90
6.6	3–S1	90	6.13	2–S1–2	96
6.7	3–S2	112	6.14	3–S2–3	84

IDENTIFICATION OF FREIGHT VEHICLE TYPES

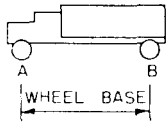
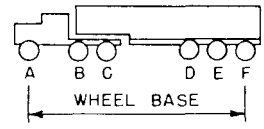
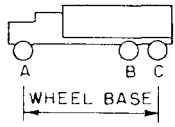
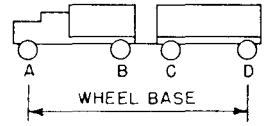
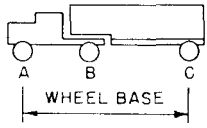
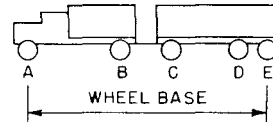
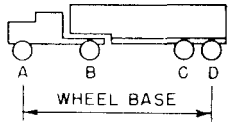
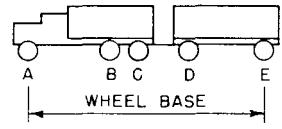
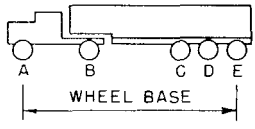
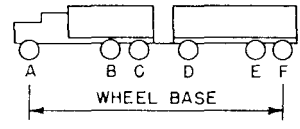
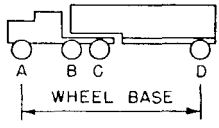
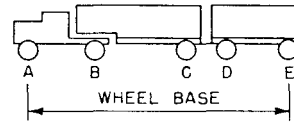
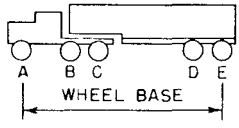
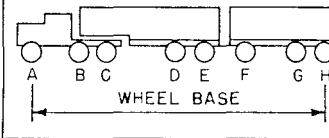
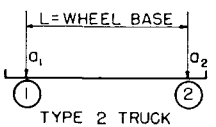
TYPE	TYPICAL VEHICLE	TYPE	TYPICAL VEHICLE
2		3-S3	
3		2-2	
2-S1		2-3	
2-S2		3-2	
2-S3		3-3	
3-S1		2-S1-2	
3-S2		3-S2-3	

Figure 6.1

TABLE 6.1

INDEX TO THE TYPE 2 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 36 represent 36 combinations of various wheel base lengths and axle loadings.



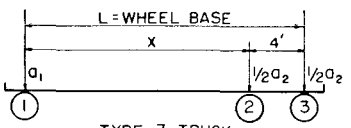
TYPE 2 TRUCK

Truck Number	Wheel Base	Loading on Axles Kips		Truck Number	Wheel Base	Loading on Axles Kips	
		a_1	a_2			a_1	a_2
1	10	.45	.55	19	16	.45	.55
2	10	.40	.60	20	16	.40	.60
3	10	.35	.65	21	16	.35	.65
4	10	.30	.70	22	16	.30	.70
5	10	.25	.75	23	16	.25	.75
6	10	.20	.80	24	16	.20	.80
7	12	.45	.55	25	18	.45	.55
8	12	.40	.60	26	18	.40	.60
9	12	.35	.65	27	18	.35	.65
10	12	.30	.70	28	18	.30	.70
11	12	.25	.75	29	18	.25	.75
12	12	.20	.80	30	18	.20	.80
13	14	.45	.55	31	20	.45	.55
14	14	.40	.60	32	20	.40	.60
15	14	.35	.65	33	20	.35	.65
16	14	.30	.70	34	20	.30	.70
17	14	.25	.75	35	20	.25	.75
18	14	.20	.80	36	20	.20	.80

TABLE 6.2

INDEX TO THE TYPE 3 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 42 represent 42 combinations of various wheel base lengths, axle spacings, and axle loadings.



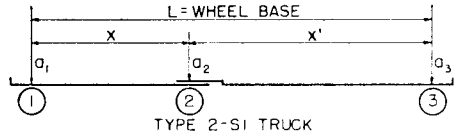
TYPE 3 TRUCK

Truck Number	Wh. Base and Axle Spacing		Loading on Axles Kips		Truck Number	Wh. Base and Axle Spacing		Loading on Axles Kips	
	X	L	a_1	a_2		X	L	a_1	a_2
1	10	14	.40	.60	22	16	20	.40	.60
2	10	14	.35	.65	23	16	20	.35	.65
3	10	14	.30	.70	24	16	20	.30	.70
4	10	14	.25	.75	25	16	20	.25	.75
5	10	14	.20	.80	26	16	20	.20	.80
6	10	14	.15	.85	27	16	20	.15	.85
7	10	14	.10	.90	28	16	20	.10	.90
8	12	16	.40	.60	29	18	22	.40	.60
9	12	16	.35	.65	30	18	22	.35	.65
10	12	16	.30	.70	31	18	22	.30	.70
11	12	16	.25	.75	32	18	22	.25	.75
12	12	16	.20	.80	33	18	22	.20	.80
13	12	16	.15	.85	34	18	22	.15	.85
14	12	16	.10	90	35	18	22	.10	.90
15	14	18	.40	.60	36	20	24	.40	.60
16	14	18	.35	.65	37	20	24	.35	.65
17	14	18	.30	.70	38	20	24	.30	.70
18	14	18	.25	.75	39	20	24	.25	.75
19	14	18	.20	.80	40	20	24	.20	.80
20	14	18	.15	.85	41	20	24	.15	.85
21	14	18	.10	.90	42	20	24	.10	.90

TABLE 6.3

INDEX TO THE TYPE 2-S1 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 126 represent 126 combinations of various wheel base lengths, axle spacings, and axle loadings.



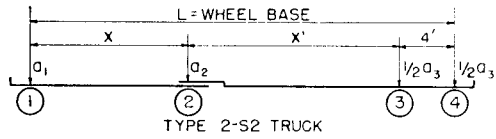
TYPE 2-S1 TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips		
	X	X'	L	a_1	a_2	a_3		X	X'	L	a_1	a_2	a_3		X	X'	L	a_1	a_2	a_3
1	8	12	20	.10	.30	.60	43	12	12	24	.10	.30	.60	85	16	8	24	.10	.30	.60
2	8	12	20	.10	.40	.50	44	12	12	24	.10	.40	.50	86	16	8	24	.10	.40	.50
3	8	12	20	.10	.45	.45	45	12	12	24	.10	.45	.45	87	16	8	24	.10	.45	.45
4	8	12	20	.10	.50	.40	46	12	12	24	.10	.50	.40	88	16	8	24	.10	.50	.40
5	8	12	20	.20	.30	.50	47	12	12	24	.20	.30	.50	89	16	8	24	.20	.30	.50
6	8	12	20	.20	.40	.40	48	12	12	24	.20	.40	.40	90	16	8	24	.20	.40	.40
7	8	12	20	.20	.50	.30	49	12	12	24	.20	.50	.30	91	16	8	24	.20	.50	.30
8	8	16	24	.10	.30	.60	50	12	16	28	.10	.30	.60	9.	16	12	28	.10	.30	.60
9	8	16	24	.10	.40	.50	51	12	16	28	.10	.40	.50	9:	16	12	28	.10	.40	.50
10	8	16	24	.10	.45	.45	52	12	16	28	.10	.45	.45	94	16	12	28	.10	.45	.45
11	8	16	24	.10	.50	.40	53	12	16	28	.10	.50	.40	95	16	12	28	.10	.50	.40
12	8	16	24	.20	.30	.50	54	12	16	28	.20	.30	.50	96	16	12	28	.20	.30	.50
13	8	16	24	.20	.40	.40	55	12	16	28	.20	.40	.40	97	16	12	28	.20	.40	.40
14	8	16	24	.20	.50	.30	56	12	16	28	.20	.50	.30	98	16	12	28	.20	.50	.30
15	8	20	28	.10	.30	.60	57	12	20	32	.10	.30	.60	99	16	16	32	.10	.30	.60
16	8	20	28	.10	.40	.50	58	12	20	32	.10	.40	.50	100	16	16	32	.10	.40	.50
17	8	20	28	.10	.45	.45	59	12	20	32	.10	.45	.45	101	16	16	32	.10	.45	.45
18	8	20	28	.10	.50	.40	60	12	20	32	.10	.50	.40	102	16	16	32	.10	.50	.40
19	8	20	28	.20	.30	.50	61	12	20	32	.20	.30	.50	103	16	16	32	.20	.30	.50
20	8	20	28	.20	.40	.40	62	12	20	32	.20	.40	.40	104	16	16	32	.20	.40	.40
21	8	20	28	.20	.50	.30	63	12	20	32	.20	.50	.30	105	16	16	32	.20	.50	.30
22	8	24	32	.10	.30	.60	64	12	24	36	.10	.30	.60	106	16	20	36	.10	.30	.60
23	8	24	32	.10	.40	.50	65	12	24	36	.10	.40	.50	107	16	20	36	.10	.40	.50
24	8	24	32	.10	.45	.45	66	12	24	36	.10	.45	.45	108	16	20	36	.10	.45	.45
25	8	24	32	.10	.50	.40	67	12	24	36	.10	.50	.40	109	16	20	36	.10	.50	.40
26	8	24	32	.20	.30	.50	68	12	24	36	.20	.30	.50	110	16	20	36	.20	.30	.50
27	8	24	32	.20	.40	.40	69	12	24	36	.20	.40	.40	111	16	20	36	.20	.40	.40
28	8	24	32	.20	.50	.30	70	12	24	36	.20	.50	.30	112	16	20	36	.20	.50	.30
29	8	28	36	.10	.30	.60	71	12	28	40	.10	.30	.60	113	16	24	40	.10	.30	.60
30	8	28	36	.10	.40	.50	72	12	28	40	.10	.40	.50	114	16	24	40	.10	.40	.50
31	8	28	36	.10	.45	.45	73	12	28	40	.10	.45	.45	115	16	24	40	.10	.45	.45
32	8	28	36	.10	.50	.40	74	12	28	40	.10	.50	.40	116	16	24	40	.10	.50	.40
33	8	28	36	.20	.30	.50	75	12	28	40	.20	.30	.50	117	16	24	40	.20	.30	.50
34	8	28	36	.20	.40	.40	76	12	28	40	.20	.40	.40	118	16	24	40	.20	.40	.40
35	8	28	36	.20	.50	.30	77	12	28	40	.20	.50	.30	119	16	24	40	.20	.50	.30
36	12	8	20	.10	.30	.60	78	12	32	44	.10	.30	.60	120	16	28	44	.10	.30	.60
37	12	8	20	.10	.40	.50	79	12	32	44	.10	.40	.50	121	16	28	44	.10	.40	.50
38	12	8	20	.10	.45	.45	80	12	32	44	.10	.45	.45	122	16	28	44	.10	.45	.45
39	12	8	20	.10	.50	.40	81	12	32	44	.10	.50	.40	123	16	28	44	.10	.50	.40
40	12	8	20	.20	.30	.50	82	12	32	44	.20	.30	.50	124	16	28	44	.20	.30	.50
41	12	8	20	.20	.40	.40	83	12	32	44	.20	.40	.40	125	16	28	44	.20	.40	.40
42	12	8	20	.20	.50	.30	84	12	32	44	.20	.50	.30	126	16	28	44	.20	.50	.30

TABLE 6.4

INDEX TO THE TYPE 2-S2 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 108 represent 108 combinations of various wheel base lengths, axle spacings, and axle loadings.



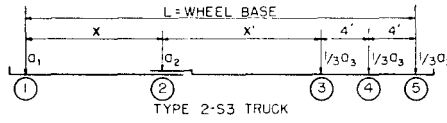
TYPE 2-S2 TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips		
	X	X'	L	a_1	a_2	a_3		X	X'	L	a_1	a_2	a_3		X	X'	L	a_1	a_2	a_3
1	8	8	20	.10	.30	.60	37	12	8	24	.10	.30	.60	73	16	8	28	.10	.30	.60
2	8	8	20	.10	.40	.50	38	12	8	24	.10	.40	.50	74	16	8	28	.10	.40	.50
3	8	8	20	.10	.50	.40	39	12	8	24	.10	.50	.40	75	16	8	28	.10	.50	.40
5	8	8	20	.20	.40	.40	41	12	8	24	.20	.30	.50	76	16	8	28	.20	.30	.50
4	8	8	20	.20	.30	.50	40	12	8	24	.20	.40	.40	77	16	8	28	.20	.40	.40
6	8	8	20	.20	.50	.30	42	12	8	24	.20	.50	.30	78	16	8	28	.20	.50	.30
7	8	12	24	.10	.30	.60	43	12	12	28	.10	.30	.60	79	16	12	32	.10	.30	.60
8	8	12	24	.10	.40	.50	44	12	12	28	.10	.40	.50	80	16	12	32	.10	.40	.50
9	8	12	24	.10	.50	.40	45	12	12	28	.10	.50	.40	81	16	12	32	.10	.50	.40
10	8	12	24	.20	.30	.50	46	12	12	28	.20	.30	.50	82	16	12	32	.20	.30	.50
11	8	12	24	.20	.40	.40	47	12	12	28	.20	.40	.40	83	16	12	32	.20	.40	.40
12	8	12	24	.20	.50	.30	48	12	12	28	.20	.50	.30	84	16	12	32	.20	.50	.30
13	8	16	28	.10	.30	.60	49	12	16	32	.10	.30	.60	85	16	16	36	.10	.30	.60
14	8	16	28	.10	.40	.50	50	12	16	32	.10	.40	.50	86	16	16	36	.10	.40	.50
15	8	16	28	.10	.50	.40	51	12	16	32	.10	.50	.40	87	16	16	36	.10	.50	.40
16	8	16	28	.20	.30	.50	52	12	16	32	.20	.30	.50	88	16	16	36	.20	.30	.50
17	8	16	28	.20	.40	.40	53	12	16	32	.20	.40	.40	89	16	16	36	.20	.40	.40
18	8	16	28	.20	.50	.30	54	12	16	32	.20	.50	.30	90	16	16	36	.20	.50	.30
19	8	20	32	.10	.30	.60	55	12	20	36	.10	.30	.60	91	16	20	40	.10	.30	.60
20	8	20	32	.10	.40	.50	56	12	20	36	.10	.40	.50	92	16	20	40	.10	.40	.50
21	8	20	32	.10	.50	.40	57	12	20	36	.10	.50	.40	93	16	20	40	.10	.50	.40
22	8	20	32	.20	.30	.50	58	12	20	36	.20	.30	.50	94	16	20	40	.20	.30	.50
23	8	20	32	.20	.40	.40	59	12	20	36	.20	.40	.40	95	16	20	40	.20	.40	.40
24	8	20	32	.20	.50	.30	60	12	20	36	.20	.50	.30	96	16	20	40	.20	.50	.30
25	8	24	36	.10	.30	.60	61	12	24	40	.10	.30	.60	97	16	24	44	.10	.30	.60
26	8	24	36	.10	.40	.50	62	12	24	40	.10	.40	.50	98	16	24	44	.10	.40	.50
27	8	24	36	.10	.50	.40	63	12	24	40	.10	.50	.40	99	16	24	44	.10	.50	.40
28	8	24	36	.20	.30	.50	64	12	24	40	.20	.30	.50	100	16	24	44	.20	.30	.50
29	8	24	36	.20	.40	.40	65	12	24	40	.20	.40	.40	101	16	24	44	.20	.40	.40
30	8	24	36	.20	.50	.30	66	12	24	40	.20	.50	.30	102	16	24	44	.20	.50	.30
31	8	28	40	.10	.30	.60	67	12	28	44	.10	.30	.60	103	16	28	48	.10	.30	.60
32	8	28	40	.10	.40	.50	68	12	28	44	.10	.40	.50	104	16	28	48	.10	.40	.50
33	8	28	40	.10	.50	.40	69	12	28	44	.10	.50	.40	105	16	28	48	.10	.50	.40
34	8	28	40	.20	.30	.50	70	12	28	44	.20	.30	.50	106	16	28	48	.20	.30	.50
35	8	28	40	.20	.40	.40	71	12	28	44	.20	.40	.40	107	16	28	48	.20	.40	.40
36	8	28	40	.20	.50	.30	72	12	28	44	.20	.50	.30	108	16	28	48	.20	.50	.30

TABLE 6.5

INDEX TO THE TYPE 2-S3 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 90 represent 90 combinations of various wheel base lengths, axle spacings, and axle loadings.



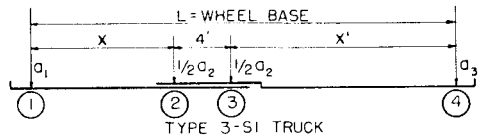
TYPE 2-S3 TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips		
	X	X′	L	a_1	a_2	a_3		X	X′	L	a_1	a_2	a_3		X	X′	L	a_1	a_2	a_3
1	8	8	24	.10	.225	.675	31	12	8	28	.10	.225	.675	61	16	8	32	.10	.225	.675
2	8	8	24	.10	.30	.60	32	12	8	28	.10	.30	.60	62	16	8	32	.10	.30	.60
3	8	8	24	.10	.40	.50	33	12	8	28	.10	.40	.50	63	16	8	32	.10	.40	.50
4	8	8	24	.20	.20	.60	34	12	8	28	.20	.20	.60	64	16	8	32	.20	.20	.60
5	8	8	24	.20	.30	.50	35	12	8	28	.20	.30	.50	65	16	8	32	.20	.30	.50
6	8	8	24	.20	.40	.40	36	12	8	28	.20	.40	.40	66	16	8	32	.20	.40	.40
7	8	12	28	.10	.225	.675	37	12	12	32	.10	.225	.675	67	16	12	36	.10	.225	.675
8	8	12	28	.10	.30	.60	38	12	12	32	.10	.30	.60	68	16	12	36	.10	.30	.60
9	8	12	28	.10	.40	.50	39	12	12	32	.10	.40	.50	69	16	12	36	.10	.40	.50
10	8	12	28	.20	.20	.60	40	12	12	32	.20	.20	.60	70	16	12	36	.20	.20	.60
11	8	12	28	.20	.30	.50	41	12	12	32	.20	.30	.50	71	16	12	36	.20	.30	.50
12	8	12	28	.20	.40	.40	42	12	12	32	.20	.40	.40	72	16	12	36	.20	.40	.40
13	8	16	32	.10	.225	.675	43	12	16	36	.10	.225	.675	73	16	16	40	.10	.225	.675
14	8	16	32	.10	.30	.60	44	12	16	36	.10	.30	.60	74	16	16	40	.10	.30	.60
15	8	16	32	.10	.40	.50	45	12	16	36	.10	.40	.50	75	16	16	40	.10	.40	.50
16	8	16	32	.20	.20	.60	46	12	16	36	.20	.20	.60	76	16	16	40	.20	.20	.60
17	8	16	32	.20	.30	.50	47	12	16	36	.20	.30	.50	77	16	16	40	.20	.30	.50
18	8	16	32	.20	.40	.40	48	12	16	36	.20	.40	.40	78	16	16	40	.20	.40	.40
19	8	20	36	.10	.225	.675	49	12	20	40	.10	.225	.675	79	16	20	44	.10	.225	.675
20	8	20	36	.10	.30	.60	50	12	20	40	.10	.30	.60	80	16	20	44	.10	.30	.60
21	8	20	36	.10	.40	.50	51	12	20	40	.10	.40	.50	81	16	20	44	.10	.40	.50
22	8	20	36	.20	.20	.60	52	12	20	40	.20	.20	.60	82	16	20	44	.20	.20	.60
23	8	20	36	.20	.30	.50	53	12	20	40	.20	.30	.50	83	16	20	44	.20	.30	.50
24	8	20	36	.20	.40	.40	54	12	20	40	.20	.40	.40	84	16	20	44	.20	.40	.40
25	8	24	40	.10	.225	.675	55	12	24	44	.10	.225	.675	85	16	24	48	.10	.225	.675
26	8	24	40	.10	.30	.60	56	12	24	44	.10	.30	.60	86	16	24	48	.10	.30	.60
27	8	24	40	.10	.40	.50	57	12	24	44	.10	.40	.50	87	16	24	48	.10	.40	.50
28	8	24	40	.20	.20	.60	58	12	24	44	.20	.20	.60	88	16	24	48	.20	.20	.60
29	8	24	40	.20	.30	.50	59	12	24	44	.20	.30	.50	89	16	24	48	.20	.30	.50
30	8	24	40	.20	.40	.40	60	12	24	44	.20	.40	.40	90	16	24	48	.20	.40	.40

TABLE 6.6

INDEX TO THE TYPE 3-S1 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 90 represent 90 combinations of various wheel base lengths, axle spacings, and axle loadings.



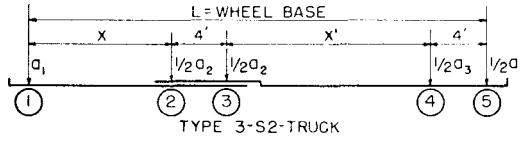
TYPE 3-S1 TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips		
	X	X′	L	a_1	a_2	a_3		X	X′	L	a_1	a_2	a_3		X	X′	L	a_1	a_2	a_3
1	8	12	24	.10	.40	.50	31	12	12	28	.10	.40	.50	61	16	12	32	.10	.40	.50
2	8	12	24	.10	.50	.40	32	12	12	28	.10	.50	.40	62	16	12	32	.10	.50	.40
3	8	12	24	.10	.60	.30	33	12	12	28	.10	.60	.30	63	16	12	32	.10	.60	.30
4	8	12	24	.20	.40	.40	34	12	12	28	.20	.40	.40	64	16	12	32	.20	.40	.40
5	8	12	24	.20	.50	.30	35	12	12	28	.20	.50	.30	65	16	12	32	.20	.50	.30
6	8	12	24	.20	.534	.266	36	12	12	28	.20	.534	.266	66	16	12	32	.20	.534	.266
7	8	16	28	.10	.40	.50	37	12	16	32	.10	.40	.50	67	16	16	36	.10	.40	.50
8	8	16	28	.10	.50	.40	38	12	16	32	.10	.50	.40	68	16	16	36	.10	.50	.40
9	8	16	28	.10	.60	.30	39	12	16	32	.10	.60	.30	69	16	16	36	.10	.60	.30
10	8	16	28	.20	.40	.40	40	12	16	32	.20	.40	.40	70	16	16	36	.20	.40	.40
11	8	16	28	.20	.50	.30	41	12	16	32	.20	.50	.30	71	16	16	36	.20	.50	.30
12	8	16	28	.20	.534	.266	42	12	16	32	.20	.534	.266	72	16	16	36	.20	.534	.266
13	8	20	32	.10	.40	.50	43	12	20	36	.10	.40	.50	73	16	20	40	.10	.40	.50
14	8	20	32	.10	.50	.40	44	12	20	36	.10	.50	.40	74	16	20	40	.10	.50	.40
15	8	20	32	.10	.60	.30	45	12	20	36	.10	.60	.30	75	16	20	40	.10	.60	.30
16	8	20	32	.20	.40	.40	46	12	20	36	.20	.40	.40	76	16	20	40	.20	.40	.40
17	8	20	32	.20	.50	.30	47	12	20	36	.20	.50	.30	77	16	20	40	.20	.50	.30
18	8	20	32	.20	.534	.266	48	12	20	36	.20	.534	.266	78	16	20	40	.20	.534	.266
19	8	24	36	.10	.40	.50	49	12	24	40	.10	.40	.50	79	16	24	44	.10	.40	.50
20	8	24	36	.10	.50	.40	50	12	24	40	.10	.50	.40	80	16	24	44	.10	.50	.40
21	8	24	36	.10	.60	.30	51	12	24	40	.10	.60	.30	81	16	24	44	.10	.60	.30
22	8	24	36	.20	.40	.40	52	12	24	40	.20	.40	.40	82	16	24	44	.20	.40	.40
23	8	24	36	.20	.50	.30	53	12	24	40	.20	.50	.30	83	16	24	44	.20	.50	.30
24	8	24	36	.20	.534	.266	54	12	24	40	.20	.534	.266	84	16	24	44	.20	.534	.266
25	8	28	40	.10	.40	.50	55	12	28	44	.10	.40	.50	85	16	28	48	.10	.40	.50
26	8	28	40	.10	.50	.40	56	12	28	44	.10	.50	.40	86	16	28	48	.10	.50	.40
27	8	28	40	.10	.60	.30	57	12	28	44	.10	.60	.30	87	16	28	48	.10	.60	.30
28	8	28	40	.20	.40	.40	58	12	28	44	.20	.40	.40	88	16	28	48	.20	.40	.40
29	8	28	40	.20	.50	.30	59	12	28	44	.20	.50	.30	89	16	28	48	.20	.50	.30
30	8	28	40	.20	.534	.266	60	12	28	44	.20	.534	.266	90	16	28	48	.20	.534	.266

TABLE 6.7

INDEX TO THE TYPE 3-S2 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 112 represent 112 combinations of various wheel base lengths, axle spacings, and axle loadings.



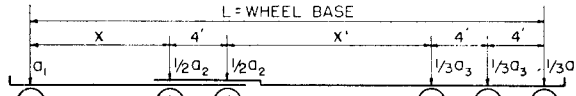
TYPE 3-S2-TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips		
	X	X'	L	a_1	a_2	a_3		X	X'	L	a_1	a_2	a_3		X	X'	L	a_1	a_2	a_3
1	8	12	28	.10	.30	.60	43	12	12	32	.10	.30	.60	85	16	16	40	.10	.30	.60
2	8	12	28	.10	.40	.50	44	12	12	32	.10	.40	.50	86	16	16	40	.10	.40	.50
3	8	12	28	.10	.45	.45	45	12	12	32	.10	.45	.45	87	16	16	40	.10	.45	.45
4	8	12	28	.10	.50	.40	46	12	12	32	.10	.50	.40	88	16	16	40	.10	.50	.40
5	8	12	28	.20	.30	.50	47	12	12	32	.20	.30	.50	89	16	16	40	.20	.30	.50
6	8	12	28	.20	.40	.40	48	12	12	32	.20	.40	.40	90	16	16	40	.20	.40	.40
7	8	12	28	.20	.50	.30	49	12	12	32	.20	.50	.30	91	16	16	40	.20	.50	.30
8	8	16	32	.10	.30	.60	50	12	16	36	.10	.30	.60	92	16	20	44	.10	.30	.60
9	8	16	32	.10	.40	.50	51	12	16	36	.10	.40	.50	93	16	20	44	.10	.40	.50
10	8	16	32	.10	.45	.45	52	12	16	36	.10	.45	.45	94	16	20	44	.10	.45	.45
11	8	16	32	.10	.50	.40	53	12	16	36	.10	.50	.40	95	16	20	44	.10	.50	.40
12	8	16	32	.20	.30	.50	54	12	16	36	.20	.30	.50	96	16	20	44	.20	.30	.50
13	8	16	32	.20	.40	.40	55	12	16	36	.20	.40	.40	97	16	20	44	.20	.40	.40
14	8	16	32	.20	.50	.30	56	12	16	36	.20	.50	.30	98	16	20	44	.20	.50	.30
15	8	20	36	.10	.30	.60	57	12	20	40	.10	.30	.60	99	16	24	48	.10	.30	.60
16	8	20	36	.10	.40	.50	58	12	20	40	.10	.40	.50	100	16	24	48	.10	.40	.50
17	8	20	36	.10	.45	.45	59	12	20	40	.10	.45	.45	101	16	24	48	.10	.45	.45
18	8	20	36	.10	.50	.40	60	12	20	40	.10	.50	.40	102	16	24	48	.10	.50	.40
19	8	20	36	.20	.30	.50	61	12	20	40	.20	.30	.50	103	16	24	48	.20	.30	.50
20	8	20	36	.20	.40	.40	62	12	20	40	.20	.40	.40	104	16	24	48	.20	.40	.40
21	8	20	36	.20	.50	.30	63	12	20	40	.20	.50	.30	105	16	24	48	.20	.50	.30
22	8	24	40	.10	.30	.60	64	12	24	44	.10	.30	.60	106	16	28	52	.10	.30	.60
23	8	24	40	.10	.40	.50	65	12	24	44	.10	.40	.50	107	16	28	52	.10	.40	.50
24	8	24	40	.10	.45	.45	66	12	24	44	.10	.45	.45	108	16	28	52	.10	.45	.45
25	8	24	40	.10	.50	.40	67	12	24	44	.10	.50	.40	109	16	28	52	.10	.50	.40
26	8	24	40	.20	.30	.50	68	12	24	44	.20	.30	.50	110	16	28	52	.20	.30	.50
27	8	24	40	.20	.40	.40	69	12	24	44	.20	.40	.40	111	16	28	52	.20	.40	.40
28	8	24	40	.20	.50	.30	70	12	24	44	.20	.50	.30	112	16	28	52	.20	.50	.30
29	8	28	44	.10	.30	.60	71	12	28	48	.10	.30	.60							
30	8	28	44	.10	.40	.50	72	12	28	48	.10	.40	.50							
31	8	28	44	.10	.45	.45	73	12	28	48	.10	.45	.45							
32	8	28	44	.10	.50	.40	74	12	28	48	.10	.50	.40							
33	8	28	44	.20	.30	.50	75	12	28	48	.20	.30	.50							
34	8	28	44	.20	.40	.40	76	12	28	48	.20	.40	.40							
35	8	28	44	.20	.50	.30	77	12	28	48	.20	.50	.30							
36	12	8	28	.10	.30	.60	78	16	12	36	.10	.30	.60							
37	12	8	28	.10	.40	.50	79	16	12	36	.10	.40	.50							
38	12	8	28	.10	.45	.45	80	16	12	36	.10	.45	.45							
39	12	8	28	.10	.50	.40	81	16	12	36	.10	.50	.40							
40	12	8	28	.20	.30	.50	82	16	12	36	.20	.30	.50							
41	12	8	28	.20	.40	.40	83	16	12	36	.20	.40	.40							
42	12	8	28	.20	.50	.30	84	16	12	36	.20	.50	.30							

TABLE 6.8

INDEX TO THE TYPE 3-S3 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 105 represent 105 combinations of various wheel base lengths, axle spacings, and axle loadings.



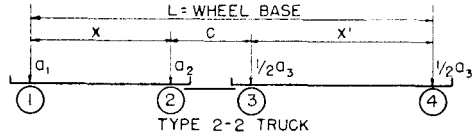
TYPE 3-S3 TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.			Load On Axles Kips		
	X	X′	L	a_1	a_2	a_3		X	X′	L	a_1	a_2	a_3		X	X′	L	a_1	a_2	a_3
1	8	12	32	.10	.30	.60	36	12	12	36	.10	.30	.60	71	16	12	40	.10	.30	.60
2	8	12	32	.10	.36	.54	37	12	12	36	.10	.36	.54	72	16	12	40	.10	.36	.54
3	8	12	32	.10	.40	.50	38	12	12	36	.10	.40	.50	73	16	12	40	.10	.40	.50
4	8	12	32	.10	.50	.40	39	12	12	36	.10	.50	.40	74	16	12	40	.10	.50	.40
5	8	12	32	.20	.30	.50	40	12	12	36	.20	.30	.50	75	16	12	40	.20	.30	.50
6	8	12	32	.20	.40	.40	41	12	12	36	.20	.40	.40	76	16	12	40	.20	.40	.40
7	8	12	32	.20	.50	.30	42	12	12	36	.20	.50	.30	77	16	12	40	.20	.50	.30
8	8	16	36	.10	.30	.60	43	12	16	40	.10	.30	.60	78	16	16	44	.10	.30	.60
9	8	16	36	.10	.36	.54	44	12	16	40	.10	.36	.54	79	16	16	44	.10	.36	.54
10	8	16	36	.10	.40	.50	45	12	16	40	.10	.40	.50	80	16	16	44	.10	.40	.50
11	8	16	36	.10	.50	.40	46	12	16	40	.10	.50	.40	81	16	16	44	.10	.50	.40
12	8	16	36	.20	.30	.50	47	12	16	40	.20	.30	.50	82	16	16	44	.20	.30	.50
13	8	16	36	.20	.40	.40	48	12	16	40	.20	.40	.40	83	16	16	44	.20	.40	.40
14	8	16	36	.20	.50	.30	49	12	16	40	.20	.50	.30	84	16	16	44	.20	.50	.30
15	8	20	40	.10	.30	.60	50	12	20	44	.10	.30	.60	85	16	20	48	.10	.30	.60
16	8	20	40	.10	.36	.54	51	12	20	44	.10	.36	.54	86	16	20	48	.10	.36	.54
17	8	20	40	.10	.40	.50	52	12	20	44	.10	.40	.50	87	16	20	48	.10	.40	.50
18	8	20	40	.10	.50	.40	53	12	20	44	.10	.50	.40	88	16	20	48	.10	.50	.40
19	8	20	40	.20	.30	.50	54	12	20	44	.20	.30	.50	89	16	20	48	.20	.30	.50
20	8	20	40	.20	.40	.40	55	12	20	44	.20	.40	.40	90	16	20	48	.20	.40	.40
21	8	20	40	.20	.50	.30	56	12	20	44	.20	.50	.30	91	16	20	48	.20	.50	.30
22	8	24	44	.10	.30	.60	57	12	24	48	.10	.30	.60	92	16	24	52	.10	.30	.60
23	8	24	44	.10	.36	.54	58	12	24	48	.10	.36	.54	93	16	24	52	.10	.36	.54
24	8	24	44	.10	.40	.50	59	12	24	48	.10	.40	.50	94	16	24	52	.10	.40	.50
25	8	24	44	.10	.50	.40	60	12	24	48	.10	.50	.40	95	16	24	52	.10	.50	.40
26	8	24	44	.20	.30	.50	61	12	24	48	.20	.30	.50	96	16	24	52	.20	.30	.50
27	8	24	44	.20	.40	.40	62	12	24	48	.20	.40	.40	97	16	24	52	.20	.40	.40
28	8	24	44	.20	.50	.30	63	12	24	48	.20	.50	.30	98	16	24	52	.20	.50	.30
29	8	28	48	.10	.30	.60	64	12	28	52	.10	.30	.60	99	16	28	56	.10	.30	.60
30	8	28	48	.10	.36	.54	65	12	28	52	.10	.36	.54	100	16	28	56	.10	.36	.54
31	8	28	48	.10	.40	.50	66	12	28	52	.10	.40	.50	101	16	28	56	.10	.40	.50
32	8	28	48	.10	.50	.40	67	12	28	52	.10	.50	.40	102	16	28	56	.10	.50	.40
33	8	28	48	.20	.30	.50	68	12	28	52	.20	.30	.50	103	16	28	56	.20	.30	.50
34	8	28	48	.20	.40	.40	69	12	28	52	.20	.40	.40	104	16	28	56	.20	.40	.40
35	8	28	48	.20	.50	.30	70	12	28	52	.20	.50	.30	105	16	28	56	.20	.50	.30

TABLE 6.9

INDEX TO THE TYPE 2-2 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 144 represent 144 combinations of various wheel base lengths, axle spacings, and axle loadings.



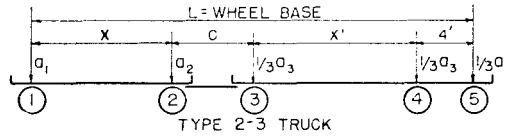
TYPE 2-2 TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips		
	X	X'	C	L	a_1	a_2	a_3		X	X'	C	L	a_1	a_2	a_3		X	X'	C	L	a_1	a_2	a_3
1	12	8	8	28	.10	.20	.70	49	16	8	8	32	.10	.20	.70	97	20	8	8	36	.10	.20	.70
2	12	8	8	28	.10	.30	.60	50	16	8	8	32	.10	.30	.60	98	20	8	8	36	.10	.30	.60
3	12	8	8	28	.10	.40	.50	51	16	8	8	32	.10	.40	.50	99	20	8	8	36	.10	.40	.50
4	12	8	8	28	.20	.20	.60	52	16	8	8	32	.20	.20	.60	100	20	8	8	36	.20	.20	.60
5	12	8	8	28	.20	.30	.50	53	16	8	8	32	.20	.30	.50	101	20	8	8	36	.20	.30	.50
6	12	8	8	28	.20	.40	.40	54	16	8	8	32	.20	.40	.40	102	20	8	8	36	.20	.40	.40
7	12	12	8	32	.10	.20	.70	55	16	12	8	36	.10	.20	.70	103	20	12	8	40	.10	.20	.70
8	12	12	8	32	.10	.30	.60	56	16	12	8	36	.10	.30	.60	104	20	12	8	40	.10	.30	.60
9	12	12	8	32	.10	.40	.50	57	16	12	8	36	.10	.40	.50	105	20	12	8	40	.10	.40	.50
10	12	12	8	32	.20	.20	.60	58	16	12	8	36	.20	.20	.60	106	20	12	8	40	.20	.20	.60
11	12	12	8	32	.20	.30	.50	59	16	12	8	36	.20	.30	.50	107	20	12	8	40	.20	.30	.50
12	12	12	8	32	.20	.40	.40	60	16	12	8	36	.20	.40	.40	108	20	12	8	40	.20	.40	.40
13	12	16	8	36	.10	.20	.70	61	16	16	8	40	.10	.20	.70	109	20	16	8	44	.10	.20	.70
14	12	16	8	36	.10	.30	.60	62	16	16	8	40	.10	.30	.60	110	20	16	8	44	.10	.30	.60
15	12	16	8	36	.10	.40	.50	63	16	16	8	40	.10	.40	.50	111	20	16	8	44	.10	.40	.50
16	12	16	8	36	.20	.20	.60	64	16	16	8	40	.20	.20	.60	112	20	16	8	44	.20	.20	.60
17	12	16	8	36	.20	.30	.50	65	16	16	8	40	.20	.30	.50	113	20	16	8	44	.20	.30	.50
18	12	16	8	36	.20	.40	.40	66	16	16	8	40	.20	.40	.40	114	20	16	8	44	.20	.40	.40
19	12	20	8	40	.10	.20	.70	67	16	20	8	44	.10	.20	.70	115	20	20	8	48	.10	.20	.70
20	12	20	8	40	.10	.30	.60	68	16	20	8	44	.10	.30	.60	116	20	20	8	48	.10	.30	.60
21	12	20	8	40	.10	.40	.50	69	16	20	8	44	.10	.40	.50	117	20	20	8	48	.10	.40	.50
22	12	20	8	40	.20	.20	.60	70	16	20	8	44	.20	.20	.60	118	20	20	8	48	.20	.20	.60
23	12	20	8	40	.20	.30	.50	71	16	20	8	44	.20	.30	.50	119	20	20	8	48	.20	.30	.50
24	12	20	8	40	.20	.40	.40	72	16	20	8	44	.20	.40	.40	120	20	20	8	48	.20	.40	.40
25	12	8	12	32	.10	.20	.70	73	16	8	12	36	.10	.20	.70	121	20	8	12	40	.10	.20	.70
26	12	8	12	32	.10	.30	.60	74	16	8	12	36	.10	.30	.60	122	20	8	12	40	.10	.30	.60
27	12	8	12	32	.10	.40	.50	75	16	8	12	36	.10	.40	.50	123	20	8	12	40	.10	.40	.50
28	12	8	12	32	.20	.20	.60	76	16	8	12	36	.20	.20	.60	124	20	8	12	40	.20	.20	.60
29	12	8	12	32	.20	.30	.50	77	16	8	12	36	.20	.30	.50	125	20	8	12	40	.20	.30	.50
30	12	8	12	32	.20	.40	.40	78	16	8	12	36	.20	.40	.40	126	20	8	12	40	.20	.40	.40
31	12	12	12	36	.10	.20	.70	79	16	12	12	40	.10	.20	.70	127	20	12	12	44	.10	.20	.70
32	12	12	12	36	.10	.30	.60	80	16	12	12	40	.10	.30	.60	128	20	12	12	44	.10	.30	.60
33	12	12	12	36	.10	.40	.50	81	16	12	12	40	.10	.40	.50	129	20	12	12	44	.10	.40	.50
34	12	12	12	36	.20	.20	.60	82	16	12	12	40	.20	.20	.60	130	20	12	12	44	.20	.20	.60
35	12	12	12	36	.20	.30	.50	83	16	12	12	40	.20	.30	.50	131	20	12	12	44	.20	.30	.50
36	12	12	12	36	.20	.40	.40	84	16	12	12	40	.20	.40	.40	132	20	12	12	44	.20	.40	.40
37	12	16	12	40	.10	.20	.70	85	16	16	12	44	.10	.20	.70	133	20	16	12	48	.10	.20	.70
38	12	16	12	40	.10	.30	.60	86	16	16	12	44	.10	.30	.60	134	20	16	12	48	.10	.30	.60
39	12	16	12	40	.10	.40	.50	87	16	16	12	44	.10	.40	.50	135	20	16	12	48	.10	.40	.50
40	12	16	12	40	.20	.20	.60	88	16	16	12	44	.20	.20	.60	136	20	16	12	48	.20	.20	.60
41	12	16	12	40	.20	.30	.50	89	16	16	12	44	.20	.30	.50	137	20	16	12	48	.20	.30	.50
42	12	16	12	40	.20	.40	.40	90	16	16	12	44	.20	.40	.40	138	20	16	12	48	.20	.40	.40
43	12	20	12	44	.10	.20	.70	91	16	20	12	48	.10	.20	.70	139	20	20	12	52	.10	.20	.70
44	12	20	12	44	.10	.30	.60	92	16	20	12	48	.10	.30	.60	140	20	20	12	52	.10	.30	.60
45	12	20	12	44	.10	.40	.50	93	16	20	12	48	.10	.40	.50	141	20	20	12	52	.10	.40	.50
46	12	20	12	44	.20	.20	.60	94	16	20	12	48	.20	.20	.60	142	20	20	12	52	.20	.20	.60
47	12	20	12	44	.20	.30	.50	95	16	20	12	48	.20	.30	.50	143	20	20	12	52	.20	.30	.50
48	12	20	12	44	.20	.40	.40	96	16	20	12	48	.20	.40	.40	144	20	20	12	52	.20	.40	.40

TABLE 6.10

INDEX TO THE TYPE 2-3 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 90 represent 90 combinations of various wheel base lengths, axle spacings, and axle loadings.



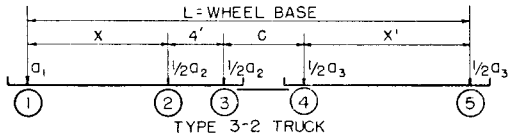
TYPE 2-3 TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips		
	X	X'	C	L	a_1	a_2	a_3		X	X'	C	L	a_1	a_2	a_3		X	X'	C	L	a_1	a_2	a_3
1	12	8	8	32	.10	.20	.70	31	16	8	8	36	.10	.20	.70	61	20	8	8	40	.10	.20	.70
2	12	8	8	32	.10	.30	.60	32	16	8	8	36	.10	.30	.60	62	20	8	8	40	.10	.30	.60
3	12	8	8	32	.10	.40	.50	33	16	8	8	36	.10	.40	.50	63	20	8	8	40	.10	.40	.50
4	12	8	8	32	.20	.20	.60	34	16	8	8	36	.20	.20	.60	64	20	8	8	40	.20	.20	.60
5	12	8	8	32	.20	.30	.50	35	16	8	8	36	.20	.30	.50	65	20	8	8	40	.20	.30	.50
6	12	12	8	36	.10	.20	.70	36	16	12	8	40	.10	.20	.70	66	20	12	8	44	.10	.20	.70
7	12	12	8	36	.10	.30	.60	37	16	12	8	40	.10	.30	.60	67	20	12	8	44	.10	.30	.60
8	12	12	8	36	.10	.40	.50	38	16	12	8	40	.10	.40	.50	68	20	12	8	44	.10	.40	.50
9	12	12	8	36	.20	.20	.60	39	16	12	8	40	.20	.20	.60	69	20	12	8	44	.20	.20	.60
10	12	12	8	36	.20	.30	.50	40	16	12	8	40	.20	.30	.50	70	20	12	8	44	.20	.30	.50
11	12	16	8	40	.10	.20	.70	41	16	16	8	44	.10	.20	.70	71	20	16	8	48	.10	.20	.70
12	12	16	8	40	.10	.30	.60	42	16	16	8	44	.10	.30	.60	72	20	16	8	48	.10	.30	.60
13	12	16	8	40	.10	.40	.50	43	16	16	8	44	.10	.40	.50	73	20	16	8	48	.10	.40	.50
14	12	16	8	40	.20	.20	.60	44	16	16	8	44	.20	.20	.60	74	20	16	8	48	.20	.20	.60
15	12	16	8	40	.20	.30	.50	45	16	16	8	44	.20	.30	.50	75	20	16	8	48	.20	.30	.50
16	12	8	12	36	.10	.20	.70	46	16	8	12	40	.10	.20	.70	76	20	8	12	44	.10	.20	.70
17	12	8	12	36	.10	.30	.60	47	16	8	12	40	.10	.30	.60	77	20	8	12	44	.10	.30	.60
18	12	8	12	36	.10	.40	.50	48	16	8	12	40	.10	.40	.50	78	20	8	12	44	.10	.40	.50
19	12	8	12	36	.20	.20	.60	49	16	8	12	40	.20	.20	.60	79	20	8	12	44	.20	.20	.60
20	12	8	12	36	.20	.30	.50	50	16	8	12	40	.20	.30	.50	80	20	8	12	44	.20	.30	.50
21	12	12	12	40	.10	.20	.70	51	16	12	12	44	.10	.20	.70	81	20	12	12	48	.10	.20	.70
22	12	12	12	40	.10	.30	.60	52	16	12	12	44	.10	.30	.60	82	20	12	12	48	.10	.30	.60
23	12	12	12	40	.10	.40	.50	53	16	12	12	44	.10	.40	.50	83	20	12	12	48	.10	.40	.50
24	12	12	12	40	.20	.20	.60	54	16	12	12	44	.20	.20	.60	84	20	12	12	48	.20	.20	.60
25	12	12	12	40	.20	.30	.50	55	16	12	12	44	.20	.30	.50	85	20	12	12	48	.20	.30	.50
26	12	16	12	44	.10	.20	.70	56	16	16	12	48	.10	.20	.70	86	20	16	12	52	.10	.20	.70
27	12	16	12	44	.10	.30	.60	57	16	16	12	48	.10	.30	.60	87	20	16	12	52	.10	.30	.60
28	12	16	12	44	.10	.40	.50	58	16	16	12	48	.10	.40	.50	88	20	16	12	52	.10	.40	.50
29	12	16	12	44	.20	.20	.60	59	16	16	12	48	.20	.20	.60	89	20	16	12	52	.20	.20	.60
30	12	16	12	44	.20	.30	.50	60	16	16	12	48	.20	.30	.50	90	20	16	12	52	.20	.30	.50

TABLE 6.11

INDEX TO THE TYPE 3-2 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 90 represent 90 combinations of various wheel base lengths, axle spacings, and axle loadings.



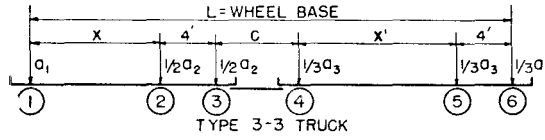
TYPE 3-2 TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips		
	X	X′	C	L	a_1	a_2	a_3		X	X′	C	L	a_1	a_2	a_3		X	X′	C	L	a_1	a_2	a_3
1	12	12	8	36	.10	.40	.50	31	16	12	8	40	.10	.40	.50	61	20	12	8	44	.10	.40	.50
2	12	12	8	36	.10	.50	.40	32	16	12	8	40	.10	.50	.40	62	20	12	8	44	.10	.50	.40
3	12	12	8	36	.10	.60	.30	33	16	12	8	40	.10	.60	.30	63	20	12	8	44	.10	.60	.30
4	12	12	8	36	.20	.40	.40	34	16	12	8	40	.20	.40	.40	64	20	12	8	44	.20	.40	.40
5	12	12	8	36	.20	.50	.30	35	16	12	8	40	.20	.50	.30	65	20	12	8	44	.20	.50	.30
6	12	16	8	40	.10	.40	.50	36	16	16	8	44	.10	.40	.50	66	20	16	8	48	.10	.40	.50
7	12	16	8	40	.10	.50	.40	37	16	16	8	44	.10	.50	.40	67	20	16	8	48	.10	.50	.40
8	12	16	8	40	.10	.60	.30	38	16	16	8	44	.10	.60	.30	68	20	16	8	48	.10	.60	.30
9	12	16	8	40	.20	.40	.40	39	16	16	8	44	.20	.40	.40	69	20	16	8	48	.20	.40	.40
10	12	16	8	40	.20	.50	.30	40	16	16	8	44	.20	.50	.30	70	20	16	8	48	.20	.50	.30
11	12	20	8	44	.10	.40	.50	41	16	20	8	48	.10	.40	.50	71	20	20	8	52	.10	.40	.50
12	12	20	8	44	.10	.50	.40	42	16	20	8	48	.10	.50	.40	72	20	20	8	52	.10	.50	.40
13	12	20	8	44	.10	.60	.30	43	16	20	8	48	.10	.60	.30	73	20	20	8	52	.10	.60	.30
14	12	20	8	44	.20	.40	.40	44	16	20	8	48	.20	.40	.40	74	20	20	8	52	.20	.40	.40
15	12	20	8	44	.20	.50	.30	45	16	20	8	48	.20	.50	.30	75	20	20	8	52	.20	.50	.30
16	12	12	12	40	.10	.40	.50	46	16	12	12	44	.10	.40	.50	76	20	12	12	48	.10	.40	.50
17	12	12	12	40	.10	.50	.40	47	16	12	12	44	.10	.50	.40	77	20	12	12	48	.10	.50	.40
18	12	12	12	40	.10	.60	.30	48	16	12	12	44	.10	.60	.30	78	20	12	12	48	.10	.60	.30
19	12	12	12	40	.20	.40	.40	49	16	12	12	44	.20	.40	.40	79	20	12	12	48	.20	.40	.40
20	12	12	12	40	.20	.50	.30	50	16	12	12	44	.20	.50	.30	80	20	12	12	48	.20	.50	.30
21	12	16	12	44	.10	.40	.50	51	16	16	12	48	.10	.40	.50	81	20	16	12	52	.10	.40	.50
22	12	16	12	44	.10	.50	.40	52	16	16	12	48	.10	.50	.40	82	20	16	12	52	.10	.50	.40
23	12	16	12	44	.10	.60	.30	53	16	16	12	48	.10	.60	.30	83	20	16	12	52	.10	.60	.30
24	12	16	12	44	.20	.40	.40	54	16	16	12	48	.20	.40	.40	84	20	16	12	52	.20	.40	.40
25	12	16	12	44	.20	.50	.30	55	16	16	12	48	.20	.50	.30	85	20	16	12	52	.20	.50	.30
26	12	20	12	48	.10	.40	.50	56	16	20	12	52	.10	.40	.50	86	20	20	12	56	.10	.40	.50
27	12	20	12	48	.10	.50	.40	57	16	20	12	52	.10	.50	.40	87	20	20	12	56	.10	.50	.40
28	12	20	12	48	.10	.60	.30	58	16	20	12	52	.10	.60	.30	88	20	20	12	56	.10	.60	.30
29	12	20	12	48	.20	.40	.40	59	16	20	12	52	.20	.40	.40	89	20	20	12	56	.20	.40	.40
30	12	20	12	48	.20	.50	.30	60	16	20	12	52	.20	.50	.30	90	20	20	12	56	.20	.50	.30

TABLE 6.12

INDEX TO THE TYPE 3-3 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 90 represent 90 combinations of various wheel base lengths, axle spacings, and axle loadings.

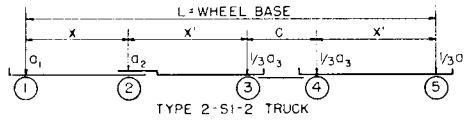


Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips		
	X	X'	C	L	a_1	a_2	a_3		X	X'	C	L	a_1	a_2	a_3		X	X'	C	L	a_1	a_2	a_3
1	12	8	12	40	.10	.30	.60	31	16	8	12	44	.10	.30	.60	61	20	8	12	48	.10	.30	.60
2	12	8	12	40	.10	.40	.50	32	16	8	12	44	.10	.40	.50	62	20	8	12	48	.10	.40	.50
3	12	8	12	40	.10	.50	.40	33	16	8	12	44	.10	.50	.40	63	20	8	12	48	.10	.50	.40
4	12	8	12	40	.20	.30	.50	34	16	8	12	44	.20	.30	.50	64	20	8	12	48	.20	.30	.50
5	12	8	12	40	.20	.40	.40	35	16	8	12	44	.20	.40	.40	65	20	8	12	48	.20	.40	.40
6	12	12	12	44	.10	.30	.60	36	16	12	12	48	.10	.30	.60	66	20	12	12	52	.10	.30	.60
7	12	12	12	44	.10	.40	.50	37	16	12	12	48	.10	.40	.50	67	20	12	12	52	.10	.40	.50
8	12	12	12	44	.10	.50	.40	38	16	12	12	48	.10	.50	.40	68	20	12	12	52	.10	.50	.40
9	12	12	12	44	.20	.30	.50	39	16	12	12	48	.20	.30	.50	69	20	12	12	52	.20	.30	.50
10	12	12	12	44	.20	.40	.40	40	16	12	12	48	.20	.40	.40	70	20	12	12	52	.20	.40	.40
11	12	16	12	48	.10	.30	.60	41	16	16	12	52	.10	.30	.60	71	20	16	12	56	.10	.30	.60
12	12	16	12	48	.10	.40	.50	42	16	16	12	52	.10	.40	.50	72	20	16	12	56	.10	.40	.50
13	12	16	12	48	.10	.50	.40	43	16	16	12	52	.10	.50	.40	73	20	16	12	56	.10	.50	.40
14	12	16	12	48	.20	.30	.50	44	16	16	12	52	.20	.30	.50	74	20	16	12	56	.20	.30	.50
15	12	16	12	48	.20	.40	.40	45	16	16	12	52	.20	.40	.40	75	20	16	12	56	.20	.40	.40
16	12	8	16	44	.10	.30	.60	46	16	8	16	48	.10	.30	.60	76	20	8	16	52	.10	.30	.60
17	12	8	16	44	.10	.40	.50	47	16	8	16	48	.10	.40	.50	77	20	8	16	52	.10	.40	.50
18	12	8	16	44	.10	.50	.40	48	16	8	16	48	.10	.50	.40	78	20	8	16	52	.10	.50	.40
19	12	8	16	44	.20	.30	.50	49	16	8	16	48	.20	.30	.50	79	20	8	16	52	.20	.30	.50
20	12	8	16	44	.20	.40	.40	50	16	8	16	48	.20	.40	.40	80	20	8	16	52	.20	.40	.40
21	12	12	16	48	.10	.30	.60	51	16	12	16	52	.10	.30	.60	81	20	12	16	56	.10	.30	.60
22	12	12	16	48	.10	.40	.50	52	16	12	16	52	.10	.40	.50	82	20	12	16	56	.10	.40	.50
23	12	12	16	48	.10	.50	.40	53	16	12	16	52	.10	.50	.40	83	20	12	16	56	.10	.50	.40
24	12	12	16	48	.20	.30	.50	54	16	12	16	52	.20	.30	.50	84	20	12	16	56	.20	.30	.50
25	12	12	16	48	.20	.40	.40	55	16	12	16	52	.20	.40	.40	85	20	12	16	56	.20	.40	.40
26	12	16	16	52	.10	.30	.60	56	16	16	16	56	.10	.30	.60	86	20	16	16	60	.10	.30	.60
27	12	16	16	52	.10	.40	.50	57	16	16	16	56	.10	.40	.50	87	20	16	16	60	.10	.40	.50
28	12	16	16	52	.10	.50	.40	58	16	16	16	56	.10	.50	.40	88	20	16	16	60	.10	.50	.40
29	12	16	16	52	.20	.30	.50	59	16	16	16	56	.20	.30	.50	89	20	16	16	60	.20	.30	.50
30	12	16	16	52	.20	.40	.40	60	16	16	16	56	.20	.40	.40	90	20	16	16	60	.20	.40	.40

TABLE 6.13

INDEX TO THE TYPE 2-S1-2 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 96 represent 96 combinations of various wheel base lengths, axle spacings, and axle loadings.



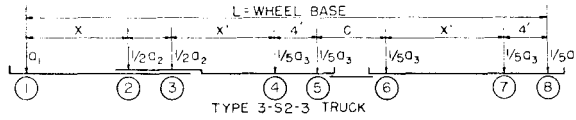
TYPE 2-S1-2 TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips		
	X	X′	C	L	a_1	a_2	a_3		X	X′	C	L	a_1	a_2	a_3		X	X′	C	L	a_1	a_2	a_3
1	8	10	8	36	.10	.20	.70	33	12	10	8	40	.10	.20	.70	65	16	16	8	56	.10	.20	.70
2	8	10	8	36	.10	.30	.60	34	12	10	8	40	.10	.30	.60	66	16	16	8	56	.10	.30	.60
3	8	10	8	36	.20	.20	.60	35	12	10	8	40	.20	.20	.60	67	16	16	8	56	.20	.20	.60
4	8	10	8	36	.20	.30	.50	36	12	10	8	40	.20	.30	.50	68	16	16	8	56	.20	.30	.50
5	8	12	8	40	.10	.20	.70	37	12	12	8	44	.10	.20	.70	69	16	18	8	60	.10	.20	.70
6	8	12	8	40	.10	.30	.60	38	12	12	8	44	.10	.30	.60	70	16	18	8	60	.10	.30	.60
7	8	12	8	40	.20	.20	.60	39	12	12	8	44	.20	.20	.60	71	16	18	8	60	.20	.20	.60
8	8	12	8	40	.20	.30	.50	40	12	12	8	44	.20	.30	.50	72	16	18	8	60	.20	.30	.50
9	8	14	8	44	.10	.20	.70	41	12	14	8	48	.10	.20	.70	73	16	20	8	64	.10	.20	.70
10	8	14	8	44	.10	.30	.60	42	12	14	8	48	.10	.30	.60	74	16	20	8	64	.10	.30	.60
11	8	14	8	44	.20	.20	.60	43	12	14	8	48	.20	.20	.60	75	16	20	8	64	.20	.20	.60
12	8	14	8	44	.20	.30	.50	44	12	14	8	48	.20	.30	.50	76	16	20	8	64	.20	.30	.50
13	8	16	8	48	.10	.20	.70	45	12	16	8	52	.10	.20	.70	77	16	22	8	68	.10	.20	.70
14	8	16	8	48	.10	.30	.60	46	12	16	8	52	.10	.30	.60	78	16	22	8	68	.10	.30	.60
15	8	16	8	48	.20	.20	.60	47	12	16	8	52	.20	.20	.60	79	16	22	8	68	.20	.20	.60
16	8	16	8	48	.20	.30	.50	48	12	16	8	52	.20	.30	.50	80	16	22	8	68	.20	.30	.50
17	8	18	8	52	.10	.20	.70	49	12	18	8	56	.10	.20	.70	81	16	24	8	72	.10	.20	.70
18	8	18	8	52	.10	.30	.60	50	12	18	8	56	.10	.30	.60	82	16	24	8	72	.10	.30	.60
19	8	18	8	52	.20	.20	.60	51	12	18	8	56	.20	.20	.60	83	16	24	8	72	.20	.20	.60
20	8	18	8	52	.20	.30	.50	52	12	18	8	56	.20	.30	.50	84	16	24	8	72	.20	.30	.50
21	8	20	8	56	.10	.20	.70	53	12	20	8	60	.10	.20	.70	85	16	26	8	76	.10	.20	.70
22	8	20	8	56	.10	.30	.60	54	12	20	8	60	.10	.30	.60	86	16	26	8	76	.10	.30	.60
23	8	20	8	56	.20	.20	.60	55	12	20	8	60	.20	.20	.60	87	16	26	8	76	.20	.20	.60
24	8	20	8	56	.20	.30	.50	56	12	20	8	60	.20	.30	.50	88	16	26	8	76	.20	.30	.50
25	8	22	8	60	.10	.20	.70	57	12	22	8	64	.10	.20	.70	89	16	28	8	80	.10	.20	.70
26	8	22	8	60	.10	.30	.60	58	12	22	8	64	.10	.30	.60	90	16	28	8	80	.10	.30	.60
27	8	22	8	60	.20	.20	.60	59	12	22	8	64	.20	.20	.60	91	16	28	8	80	.20	.20	.60
28	8	22	8	60	.20	.30	.50	60	12	22	8	64	.20	.30	.50	92	16	28	8	80	.20	.30	.50
29	8	24	8	64	.10	.20	.70	61	12	24	8	68	.10	.20	.70	93	16	30	8	84	.10	.20	.70
30	8	24	8	64	.10	.30	.50	62	12	24	8	68	.10	.30	.50	94	16	30	8	84	.10	.30	.50
31	8	24	8	64	.20	.20	.60	63	12	24	8	68	.20	.20	.60	95	16	30	8	84	.20	.20	.60
32	8	24	8	64	.20	.30	.50	64	12	24	8	68	.20	.30	.50	96	16	30	8	84	.20	.30	.50

TABLE 6.14

INDEX TO THE TYPE 3-S2-3 TRUCKS WEIGHING ONE KIP EACH

Truck numbers 1 to 84 represent 84 combinations of various wheel base lengths, axle spacings, and axle loadings.



TYPE 3-S2-3 TRUCK

Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips			Truck Number	Wheel Base and Axle Spacing Ft.				Load On Axles Kips		
	X	X′	C	L	a_1	a_2	a_3		X	X′	C	L	a_1	a_2	a_3		X	X′	C	L	a_1	a_2	a_3
1	8	8	8	44	.05	.20	.75	29	12	8	8	48	.05	.20	.75	57	16	12	8	60	.05	.20	.75
2	8	8	8	44	.05	.30	.65	30	12	8	8	48	.05	.30	.65	58	16	12	8	60	.05	.30	.65
3	8	8	8	44	.10	.20	.70	31	12	8	8	48	.10	.20	.70	59	16	12	8	60	.10	.20	.70
4	8	8	8	44	.10	.30	.60	32	12	8	8	48	.10	.30	.60	60	16	12	8	60	.10	.30	.60
5	8	10	8	48	.05	.20	.75	33	12	10	8	52	.05	.20	.75	61	16	14	8	64	.05	.20	.75
6	8	10	8	48	.05	.30	.65	34	12	10	8	52	.05	.30	.65	62	16	14	8	64	.05	.30	.65
7	8	10	8	48	.10	.20	.70	35	12	10	8	52	.10	.20	.70	63	16	14	8	64	.10	.20	.70
8	8	10	8	48	.10	.30	.60	36	12	10	8	52	.10	.30	.60	64	16	14	8	64	.10	.30	.60
9	8	12	8	52	.05	.20	.75	37	12	12	8	56	.05	.20	.75	65	16	16	8	68	.05	.20	.75
10	8	12	8	52	.05	.30	.65	38	12	12	8	56	.05	.30	.65	66	16	16	8	68	.05	.30	.65
11	8	12	8	52	.10	.20	.70	39	12	12	8	56	.10	.20	.70	67	16	16	8	68	.10	.20	.70
12	8	12	8	52	.10	.30	.60	40	12	12	8	56	.10	.30	.60	68	16	16	8	68	.10	.30	.60
13	8	14	8	56	.05	.20	.75	41	12	14	8	60	.05	.20	.75	69	16	18	8	72	.05	.20	.75
14	8	14	8	56	.05	.30	.65	42	12	14	8	60	.05	.30	.65	70	16	18	8	72	.05	.30	.65
15	8	14	8	56	.10	.20	.70	43	12	14	8	60	.10	.20	.70	71	16	18	8	72	.10	.20	.70
16	8	14	8	56	.10	.30	.60	44	12	14	8	60	.10	.30	.60	72	16	18	8	72	.10	.30	.60
17	8	16	8	60	.05	.20	.75	45	12	16	8	64	.05	.20	.75	73	16	20	8	76	.05	.20	.75
18	8	16	8	60	.05	.30	.65	46	12	16	8	64	.05	.30	.65	74	16	20	8	76	.05	.30	.65
19	8	16	8	60	.10	.20	.70	47	12	16	8	64	.10	.20	.70	75	16	20	8	76	.10	.20	.70
20	8	16	8	60	.10	.30	.60	48	12	16	8	64	.10	.30	.60	76	16	20	8	76	.10	.30	.60
21	8	18	8	64	.05	.20	.75	49	12	18	8	68	.05	.20	.75	77	16	22	8	80	.05	.20	.75
22	8	18	8	64	.05	.30	.65	50	12	18	8	68	.05	.30	.65	78	16	22	8	80	.05	.30	.65
23	8	18	8	64	.10	.20	.70	51	12	18	8	68	.10	.20	.70	79	16	22	8	80	.10	.20	.70
24	8	18	8	64	.10	.30	.60	52	12	18	8	68	.10	.30	.60	80	16	22	8	80	.10	.30	.60
25	8	20	8	68	.05	.20	.75	53	12	20	8	72	.05	.20	.75	81	16	24	8	84	.05	.20	.75
26	8	20	8	68	.05	.30	.65	54	12	20	8	72	.05	.30	.65	82	16	24	8	84	.05	.30	.65
27	8	20	8	68	.10	.20	.70	55	12	20	8	72	.10	.20	.70	83	16	24	8	84	.10	.20	.70
28	8	20	8	68	.10	.30	.60	56	12	20	8	72	.10	.30	.60	84	16	24	8	84	.10	.30	.60

7. CONTROLLING CONDITIONS FOR MAXIMUM SHEARS ON SIMPLE SPAN BRIDGES

Tables 7.1-7.14 give the maximum shears produced by the 1303 variations of the 14 heavy vehicle types shown in the identification index Tables 6.1-6.14 on simple spans of 10, 20, 30, 40, 50, 60, 80, and 100 feet in length. The maximum shears produced by each of the 1303 heavy vehicle types and loadings on 8 different span lengths makes a total of 10,424 maximum shears recorded in the 14 Tables 7.1-7.14. The table number corresponding to each of the 14 heavy vehicle types is as follows:

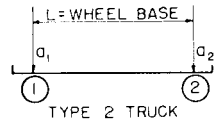
Table No.	Vehicle Type	Table No.	Vehicle Type
7.1	2	7.8	3–S3
7.2	3	7.9	2–2
7.3	2–S1	7.10	2–3
7.4	2–S2	7.11	3–2
7.5	2–S3	7.12	3–3
7.6	3–S1	7.13	2–S1–2
7.7	3–S2	7.14	3–S2–3

In addition to given the maximum shear for each of the 10,424 cases of vehicle type, loading, and span length, these tables also indicate in each case: (1) the axle-group which produces the maximum shear; (2) the axle number under which the maximum shear occurs; and (3) the end of span at which the critical axle is placed to coincide with the position for maximum shear.

A further description of these tables and how they are used is given in Articles 4 and 5.

TABLE 7.1

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 2 TRUCKS WEIGHING ONE KIP EACH



Thirty-six variations in the Type 2 truck are given in this table. Each truck number, from 1 to 36, represents a different combination of wheel base length, and ratios of gross vehicle weight on each axle.

Span-Feet		Truck No.	1	2	3	4	5	6	7	8	9	10
		Wh. Base L	10	10	10	10	10	10	12	12	12	12
		LoadOn Axles a_1	.45	.40	.35	.30	.25	.20	.45	.40	.35	.30
		a_2	.55	.60	.65	.70	.75	.80	.55	.60	.65	.70
		G	2	2	2	2	2	2	2	2	2	2
		N	2	2	2	2	2	2	2	2	2	2
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.550	.600	.650	.700	.750	.800	.550	.600	.650	.700
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	20	E	R	R	R	R	R	R	R	R	R	R
		V	.775	.800	.825	.850	.875	.900	.730	.760	.790	.820
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	30	E	R	R	R	R	R	R	R	R	R	R
		V	.850	.867	.883	.900	.917	.933	.820	.840	.860	.880
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	40	E	R	R	R	R	R	R	R	R	R	R
		V	.888	.900	.913	.925	.938	.950	.865	.880	.895	.910
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	50	E	R	R	R	R	R	R	R	R	R	R
		V	.910	.920	.930	.940	.950	.960	.892	.904	.916	.928
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	60	E	R	R	R	R	R	R	R	R	R	R
		V	.925	.933	.942	.950	.958	.967	.910	.920	.930	.940
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.944	.950	.956	.963	.969	.975	.933	.940	.948	.955
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.955	.960	.965	.970	.975	.980	.946	.952	.958	.964

All dimensions are in feet and shears are in kips.

a_1, and a_2—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus 1-2 means axles 1 and 2.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.1 (Continued)

Span-Feet		Truck No.	11	12	13	14	15	16	17	18	19	20
		Wh. Base L	12	12	14	14	14	14	14	14	16	16
		Load On a_1	.25	.20	.45	.40	.35	.30	.25	.20	.45	.40
		Axles a_2	.75	.80	.55	.60	.65	.70	.75	.80	.55	.60
		G	2	2	2	2	2	2	2	2	2	2
		N	2	2	2	2	2	2	2	2	2	2
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.750	.800	.550	.600	.650	.700	.750	.800	.550	.600
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	20	E	R	R	R	R	R	R	R	R	R	R
		V	.850	.880	.685	.720	.755	.790	.825	.860	.640	.680
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	30	E	R	R	R	R	R	R	R	R	R	R
		V	.900	.920	.790	.813	.837	.860	.883	.907	.760	.787
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	40	E	R	R	R	R	R	R	R	R	R	R
		V	.925	.940	.843	.860	.878	.895	.913	.930	.820	.840
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	50	E	R	R	R	R	R	R	R	R	R	R
		V	.940	.952	.874	.888	.902	.916	.930	.944	.856	.872
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	60	E	R	R	R	R	R	R	R	R	R	R
		V	.950	.960	.895	.907	.918	.930	.942	.953	.880	.893
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.963	.970	.921	.930	.939	.948	.956	.965	.910	.920
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.970	.976	.937	.944	.951	.958	.965	.972	.928	.936

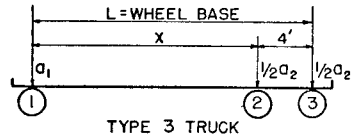
Span-Feet		Truck No.	21	22	23	24	25	26	27	28	29	30
		Wh. Base L	16	16	16	16	18	18	18	18	18	18
		Load On a_1	.35	.30	.25	.20	.45	.40	.35	.30	.25	.20
		Axles a_2	.65	.70	.75	.80	.55	.60	.65	.70	.75	.80
		G	2	2	2	2	2	2	2	2	2	2
		N	2	2	2	2	2	2	2	2	2	2
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.650	.700	.750	.800	.550	.600	.650	.700	.750	.800
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	20	E	R	R	R	R	R	R	R	R	R	R
		V	.720	.760	.800	.840	.595	.640	.685	.730	.775	.820
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	30	E	R	R	R	R	R	R	R	R	R	R
		V	.813	.840	.867	.893	.730	.760	.790	.820	.850	.880
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	40	E	R	R	R	R	R	R	R	R	R	R
		V	.860	.880	.900	.920	.798	.820	.843	.865	.888	.910
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	50	E	R	R	R	R	R	R	R	R	R	R
		V	.888	.904	.920	.936	.838	.856	.874	.892	.910	.928
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	60	E	R	R	R	R	R	R	R	R	R	R
		V	.907	.920	.933	.947	.865	.880	.895	.910	.925	.940
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.930	.940	.950	.960	.899	.910	.921	.933	.944	.955
		G	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2	1–2
		N	2	2	2	2	2	2	2	2	2	2
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.944	.952	.960	.968	.919	.928	.937	.946	.955	.964

TABLE 7.1 (Continued)

Span-Feet			Truck No.	31	32	33	34	35	36
			Wh. Base L	20	20	20	20	20	20
			Load On Axles a_1	.45	.40	.35	.30	.25	.20
			a_2	.55	.60	.65	.70	.75	.80
	10	G		2	2	2	2	2	2
		N		2	2	2	2	2	2
		E		L	L	L	L	L	L
		V		.550	.600	.650	.700	.750	.800
	20	G		1–2	1–2	1–2	1–2	1–2	1–2
		N		2	2	2	2	2	2
		E		R	R	R	R	R	R
		V		.550	.600	.650	.700	.750	.800
	30	G		1–2	1–2	1–2	1–2	1–2	1–2
		N		2	2	2	2	2	2
		E		R	R	R	R	R	R
		V		.700	.733	.767	.800	.833	.867
	40	G		1–2	1–2	1–2	1–2	1–2	1–2
		N		2	2	2	2	2	2
		E		R	R	R	R	R	R
		V		.775	.800	.825	.850	.875	.900
	50	G		1–2	1–2	1–2	1–2	1–2	1–2
		N		2	2	2	2	2	2
		E		R	R	R	R	R	R
		V		.820	.840	.860	.880	.900	.920
	60	G		1–2	1–2	1–2	1–2	1–2	1–2
		N		2	2	2	2	2	2
		E		R	R	R	R	R	R
		V		.850	.867	.883	.900	.917	.933
	80	G		1–2	1–2	1–2	1–2	1–2	1–2
		N		2	2	2	2	2	2
		E		R	R	R	R	R	R
		V		.888	.900	.913	.925	.938	.950
	100	G		1–2	1–2	1–2	1–2	1–2	1–2
		N		2	2	2	2	2	2
		E		R	R	R	R	R	R
		V		.910	.920	.930	.940	.950	.960

TABLE 7.2

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 3 TRUCKS WEIGHING ONE KIP EACH



TYPE 3 TRUCK

Forty-two variations in the Type 3 truck are given in this table. Each truck number, from 1 to 42, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base		L	14	14	14	14	14	14	14	16	16	16
Axle Spacing		X	10	10	10	10	10	10	10	12	12	12
Load On Axles		a_1	.40	.35	.30	.25	.20	.15	.10	.40	.35	.30
		a_2	.60	.65	.70	.75	.80	.85	.90	.60	.65	.70
Span-Feet	10	G	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.480	.520	.560	.600	.640	.680	.720	.480	.520	.560
	20	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.660	.690	.720	.750	.780	.810	.840	.620	.655	.690
	30	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.773	.793	.813	.833	.853	.873	.893	.747	.770	.793
	40	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.830	.845	.860	.875	.890	.905	.920	.810	.828	.845
	50	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.864	.876	.888	.900	.912	.924	.936	.848	.862	.876
	60	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.887	.897	.907	.917	.927	.937	.947	.873	.885	.897
	80	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.915	.923	.930	.938	.945	.953	.960	.905	.914	.923
	100	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.932	.938	.944	.950	.956	.962	.968	.924	.931	.938

All dimensions are in feet and shears are in kips.

a_1, and a_2—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus 1-3 means 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.2 (Continued)

Span-Feet			Truck No.	11	12	13	14	15	16	17	18	19	20
			Wh. Base L	16	16	16	16	18	18	18	18	18	18
			Axle Spacing X	12	12	12	12	14	14	14	14	14	14
			Load On Axles a_1	.25	.20	.15	.10	.40	.35	.30	.25	.20	.15
			Load On Axles a_2	.75	.80	.85	.90	.60	.65	.70	.75	.80	.85
		G		2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N		2	2	2	2	2	2	2	2	2	2
	10	E		L	L	L	L	L	L	L	L	L	L
		V		.600	.640	.680	.720	.480	.520	.560	.600	.640	.680
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	20	E		R	R	R	R	R	R	R	R	R	R
		V		.725	.760	.795	.830	.580	.620	.660	.700	.740	.780
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	30	E		R	R	R	R	R	R	R	R	R	R
		V		.817	.840	.863	.887	.720	.747	.773	.800	.827	.853
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	40	E		R	R	R	R	R	R	R	R	R	R
		V		.863	.880	.898	.915	.790	.810	.830	.850	.870	.890
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	50	E		R	R	R	R	R	R	R	R	R	R
		V		.890	.904	.918	.932	.832	.848	.864	.880	.896	.912
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	60	E		R	R	R	R	R	R	R	R	R	R
		V		.908	.920	.932	.943	.860	.873	.887	.900	.913	.927
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	80	E		R	R	R	R	R	R	R	R	R	R
		V		.931	.940	.949	.958	.895	.905	.915	.925	.935	.945
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	100	E		R	R	R	R	R	R	R	R	R	R
		V		.945	.952	.959	.966	.916	.924	.932	.940	.948	.956

Span-Feet			Truck No.	21	22	23	24	25	26	27	28	29	30
			Wh. Base L	18	20	20	20	20	20	20	20	22	22
			Axle Spacing X	14	16	16	16	16	16	16	16	18	18
			Load On Axles a_1	.10	.40	.35	.30	.25	.20	.15	.10	.40	.35
			Load On Axles a_2	.90	.60	.65	.70	.75	.80	.85	.90	.60	.65
		G		2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N		2	2	2	2	2	2	2	2	2	2
	10	E		L	L	L	L	L	L	L	L	L	L
		V		.720	.480	.520	.560	.600	.640	.680	.720	.480	.520
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	20	E		R	R	R	R	R	R	R	R	R	R
		V		.820	.540	.585	.630	.675	.720	.765	.810	.540	.585
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	30	E		R	R	R	R	R	R	R	R	R	R
		V		.880	.693	.723	.753	.783	.813	.843	.873	.667	.700
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	40	E		R	R	R	R	R	R	R	R	R	R
		V		.910	.770	.793	.815	.838	.860	.883	.905	.750	.775
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	50	E		R	R	R	R	R	R	R	R	R	R
		V		.928	.816	.834	.852	.870	.888	.906	.924	.800	.820
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	60	E		R	R	R	R	R	R	R	R	R	R
		V		.940	.847	.862	.877	.892	.907	.922	.937	.833	.850
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	80	E		R	R	R	R	R	R	R	R	R	R
		V		.955	.885	.896	.908	.919	.930	.941	.953	.875	.888
		G		1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N		3	3	3	3	3	3	3	3	3	3
	100	E		R	R	R	R	R	R	R	R	R	R
		V		.964	.908	.917	.926	.935	.944	.953	.962	.900	.910

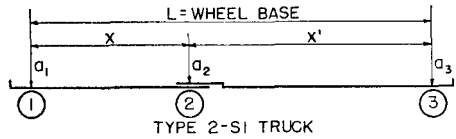
TABLE 7.2 (Continued)

Span-Feet		Truck No.	31	32	33	34	35	36	37	38	39	40
		Wh. Base L	22	22	22	22	22	24	24	24	24	24
		Axle Spacing X	18	18	18	18	18	20	20	20	20	20
		Load On Axles a_1	.30	.25	.20	.15	.10	.40	.35	.30	.25	.20
		Load On Axles a_2	.70	.75	.80	.85	.90	.60	.65	.70	.75	.80
		G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	2	2	2	2	2	2	2	2
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.560	.600	.640	.680	.720	.480	.520	.560	.600	.640
		G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	2	2	2	2	2	2	2	2
	20	E	L	L	L	L	L	L	L	L	L	L
		V	.630	.675	.720	.765	.810	.540	.585	.630	.675	.720
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	30	E	R	R	R	R	R	R	R	R	R	R
		V	.733	.767	.800	.833	.867	.640	.677	.713	.750	.787
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	40	E	R	R	R	R	R	R	R	R	R	R
		V	.800	.825	.850	.875	.900	.730	.758	.785	.813	.840
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	50	E	R	R	R	R	R	R	R	R	R	R
		V	.840	.860	.880	.900	.920	.784	.806	.828	.850	.872
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	60	E	R	R	R	R	R	R	R	R	R	R
		V	.867	.883	.900	.917	.933	.820	.838	.857	.875	.893
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.900	.913	.925	.938	.950	.865	.879	.893	.906	.920
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.920	.930	.940	.950	.960	.892	.903	.914	.925	.936

Span-Feet		Truck No.	41	42
		Wh. Base L	24	24
		Axle Spacing X	20	20
		Load On Axles a_1	.15	.10
		Load On Axles a_2	.85	.90
		G	2–3	2–3
		N	2	2
	10	E	L	L
		V	.680	.720
		G	2–3	2–3
		N	2	2
	20	E	L	L
		V	.765	.810
		G	1–3	1–3
		N	3	3
	30	E	R	R
		V	.823	.860
		G	1–3	1–3
		N	3	3
	40	E	R	R
		V	.868	.895
		G	1–3	1–3
		N	3	3
	50	E	R	R
		V	.894	.916
		G	1–3	1–3
		N	3	3
	60	E	R	R
		V	.912	.930
		G	1–3	1–3
		N	3	3
	80	E	R	R
		V	.934	.948
		G	1–3	1–3
		N	3	3
	100	E	R	R
		V	.947	.958

TABLE 7.3

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 2-S1 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-S1 TRUCK

One hundred and twenty-six variations in the Type 2-S1 truck are given in this table. Each truck number, from 1 to 126, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base L			20	20	20	20	20	20	20	24	24	24
Axle		X	8	8	8	8	8	8	8	8	8	8
Spacing		X'	12	12	12	12	12	12	12	16	16	16
Load		a_1	.10	.10	.10	.10	.20	.20	.20	.10	.10	.10
On		a_2	.30	.40	.45	.50	.30	.40	.50	.30	.40	.45
Axles		a_3	.60	.50	.45	.40	.50	.40	.30	.60	.50	.45
Span-Feet	10	G	3	3	1–2	1–2	3	1–2	1–2	3	3	1–2
		N	3	3	2	2	3	2	2	3	3	2
		E	L	L	R	R	L	R	R	L	L	R
		V	.600	.500	.470	.520	.500	.440	.540	.600	.500	.470
	20	G	1–3	1–3	1–3	2–3	1–3	1–3	2–3	2–3	2–3	2–3
		N	3	3	3	2	3	3	2	3	3	3
		E	R	R	R	L	R	R	L	R	R	R
		V	.720	.660	.630	.660	.620	.560	.620	.660	.581	.540
	30	G	1–3	1–3	1–3	2–3	1–3	1–3	2–3	1–3	1–3	1–3
		N	3	3	3	2	3	3	2	3	3	3
		E	R	R	R	L	R	R	L	R	R	R
		V	.813	.773	.753	.740	.747	.707	.680	.760	.707	.680
	40	G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.860	.830	.815	.800	.810	.780	.750	.820	.780	.760
	50	G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.888	.864	.852	.840	.848	.824	.800	.856	.824	.808
	60	G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.907	.887	.877	.867	.873	.853	.833	.880	.853	.840
	80	G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.930	.915	.908	.900	.905	.890	.875	.910	.890	.880
	100	G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.944	.932	.926	.920	.924	.912	.900	.928	.912	.904

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3, represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus 1–3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.3 (Continued)

Truck No.			11	12	13	14	15	16	17	18	19	20
Wh. Base L			24	24	24	24	28	28	28	28	28	28
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X′	16	16	16	16	20	20	20	20	20	20
Load On Axles		a_1	.10	.20	.20	.20	.10	.10	.10	.10	.20	.20
		a_2	.50	.30	.40	.50	.30	.40	.45	.50	.30	.40
		a_3	.40	.50	.40	.30	.60	.50	.45	.40	.50	.40
Span-Feet		G	1–2	3	1–2	1–2	3	3	1–2	1–2	3	1–2
		N	2	3	2	2	3	3	2	2	3	2
	10	E	R	L	R	R	L	L	R	R	L	R
		V	.520	.500	.440	.540	.600	.500	.470	.520	.500	.440
		G	2–3	2–3	1–2	1–2	2–3	2–3	1–2	1–2	2–3	1–2
		N	2	3	2	2	3	3	2	2	3	2
	20	E	L	R	R	R	R	R	R	R	R	R
		V	.581	.560	.520	.620	.600	.500	.510	.560	.500	.520
		G	2–3	1–3	1–3	1–2	1–3	1–3	1–3	2–3	1–3	1–2
		N	2	3	3	2	3	3	3	2	3	2
	30	E	L	R	R	R	R	R	R	L	R	R
		V	.687	.680	.627	.647	.707	.640	.607	.634	.613	.547
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	2–3	1–3	1–3
		N	3	3	3	1	3	3	3	2	3	3
	40	E	R	R	R	L	R	R	R	L	R	R
		V	.740	.760	.720	.720	.780	.730	.705	.700	.710	.660
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	1	3	3	3	3	3	3
	50	E	R	R	R	L	R	R	R	R	R	R
		V	.792	.808	.776	.776	.824	.784	.764	.744	.768	.728
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	1	3	3	3	3	3	3
	60	E	R	R	R	L	R	R	R	R	R	R
		V	.827	.840	.813	.813	.853	.820	.803	.787	.807	.773
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	1	3	3	3	3	3	3
	80	E	R	R	R	L	R	R	R	R	R	R
		V	.870	.880	.860	.860	.890	.865	.853	.840	.855	.830
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	1	3	3	3	3	3	3
	100	E	R	R	R	L	R	R	R	R	R	R
		V	.896	.904	.888	.888	.912	.892	.882	.872	.884	.864

Truck No.			21	22	23	24	25	26	27	28	29	30
Wh. Base L			28	32	32	32	32	32	32	32	36	36
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X′	20	24	24	24	24	24	24	24	28	28
Load On Axles		a_1	.20	.10	.10	.10	.10	.20	.20	.20	.10	.10
		a_2	.50	.30	.40	.45	.50	.30	.40	.50	.30	.40
		a_3	.30	.60	.50	.45	.40	.50	.40	.30	.60	.50
Span-Feet		G	1–2	3	3	1–2	1–2	3	1–2	1–2	3	3
		N	2	3	3	2	2	3	2	2	3	3
	10	E	R	L	L	R	R	L	R	R	L	L
		V	.540	.600	.500	.470	.520	.500	.440	.540	.600	.500
		G	1–2	3	3	1–2	1–2	3	1–2	1–2	3	3
		N	2	3	3	2	2	3	2	2	3	3
	20	E	R	L	L	R	R	L	R	R	L	L
		V	.620	.600	.500	.510	.560	.500	.520	.620	.600	.500
		G	1–2	2–3	2–3	2–3	2–3	2–3	1–2	1–2	2–3	2–3
		N	2	3	3	2	2	3	2	2	3	3
	30	E	R	R	R	L	L	R	R	R	R	R
		V	.647	.660	.580	.540	.580	.560	.547	.647	.620	.527
		G	1–3	1–3	1–3	1–3	2–3	1–3	1–3	1–3	1–3	1–3
		N	1	3	3	3	2	3	3	1	3	3
	40	E	L	R	R	R	L	R	R	L	R	R
		V	.690	.740	.680	.650	.660	.660	.600	.660	.700	.630
		G	1–3	1–3	1–3	1–3	2–3	1–3	1–3	1–3	1–3	1–3
		N	1	3	3	3	2	3	3	1	3	3
	50	E	L	R	R	R	L	R	R	L	R	R
		V	.752	.792	.744	.720	.708	.728	.680	.728	.760	.704
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	1	3	3	3	3	3	3	1	3	3
	60	E	L	R	R	R	R	R	R	L	R	R
		V	.793	.827	.787	.767	.747	.773	.733	.773	.800	.753
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	1	3	3	3	3	3	3	1	3	3
	80	E	L	R	R	R	R	R	R	L	R	R
		V	.845	.870	.840	.825	.810	.830	.800	.830	.850	.815
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	1	3	3	3	3	3	3	1	3	3
	100	E	L	R	R	R	R	R	R	L	R	R
		V	.876	.896	.872	.860	.848	.864	.840	.864	.880	.852

TABLE 7.3 (Continued)

Truck No.			31	32	33	34	35	36	37	38	39	40
Wh. Base L			36	36	36	36	36	20	20	20	20	20
Axle		X	8	8	8	8	8	12	12	12	12	12
Spacing		X′	28	28	28	28	28	8	8	8	8	8
Load		a_1	.10	.10	.20	.20	.20	.10	.10	.10	.10	.20
On		a_2	.45	.50	.30	.40	.50	.30	.40	.45	.50	.30
Axles		a_3	.45	.40	.50	.40	.30	.60	.50	.45	.40	.50
Span-Feet		G	1–2	1–2	3	1–2	1–2	2–3	2–3	2–3	2–3	2–3
		N	2	2	3	2	2	3	3	2	2	3
	10	E	R	R	L	R	R	R	R	L	L	R
		V	.470	.520	.500	.440	.540	.660	.580	.540	.580	.560
		G	1–2	1–2	3	1–2	1–2	1–3	1–3	1–3	2–3	1–3
		N	2	2	3	2	2	3	3	3	2	3
	20	E	R	R	L	R	R	R	R	R	L	R
		V	.510	.560	.500	.520	.620	.780	.740	.720	.740	.680
		G	1–2	1–2	2–3	1–2	1–2	1–3	1–3	1–3	1–3	1–3
		N	2	2	3	2	2	3	3	3	3	3
	30	E	R	R	R	R	R	R	R	R	R	R
		V	.524	.573	.520	.547	.647	.853	.827	.813	.800	.787
		G	1–3	2–3	1–3	1–3	1–2	1–3	1–3	1–3	1–3	1–3
		N	3	2	3	1	2	3	3	3	3	3
	40	E	R	L	R	L	R	R	R	R	R	R
		V	.595	.620	.610	.560	.660	.890	.870	.860	.850	.840
		G	1–3	2–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	2	3	1	1	3	3	3	3	3
	50	E	R	L	R	L	L	R	R	R	R	R
		V	.676	.676	.688	.648	.704	.912	.896	.888	.880	.872
		G	1–3	2–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	2	3	1	1	3	3	3	3	3
	60	E	R	L	R	L	L	R	R	R	R	R
		V	.730	.714	.740	.707	.753	.927	.913	.907	.900	.893
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	1	1	3	3	3	3	3
	80	E	R	R	R	L	L	R	R	R	R	R
		V	.798	.780	.805	.780	.815	.945	.935	.930	.925	.920
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	1	1	3	3	3	3	3
	100	E	R	R	R	L	L	R	R	R	R	R
		V	.838	.824	.844	.824	.852	.956	.948	.944	.940	.936

Truck No.			41	42	43	44	45	46	47	48	49	50
Wh. Base L			20	20	24	24	24	24	24	24	24	28
Axle		X	12	12	12	12	12	12	12	12	12	12
Spacing		X′	8	8	12	12	12	12	12	12	12	16
Load		a_1	.20	.20	.10	.10	.10	.10	.20	.20	.20	.10
On		a_2	.40	.50	.30	.40	.45	.50	.30	.40	.50	.30
Axles		a_3	.40	.30	.60	.50	.45	.40	.50	.40	.30	.60
Span-Feet		G	2–3	2–3	3	3	3	2	3	3	2	3
		N	2	2	3	3	3	2	3	3	2	3
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.480	.560	.600	.500	.450	.500	.500	.400	.500	.600
		G	1–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	3	2	3	3	2	2	3	2	2	3
	20	E	R	L	R	R	L	L	R	L	L	R
		V	.640	.680	.720	.660	.630	.660	.620	.560	.620	.660
		G	1–3	1–3	1–3	1–3	1–3	2–3	1–3	1–3	2–3	1–3
		N	3	3	3	3	3	2	3	3	2	3
	30	E	R	R	R	R	R	L	R	R	L	R
		V	.760	.733	.800	.760	.740	.740	.720	.680	.680	.747
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	40	E	R	R	R	R	R	R	R	R	R	R
		V	.820	.800	.850	.820	.805	.790	.790	.760	.730	.810
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	50	E	R	R	R	R	R	R	R	R	R	R
		V	.856	.840	.880	.856	.844	.832	.832	.808	.784	.848
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	60	E	R	R	R	R	R	R	R	R	R	R
		V	.880	.867	.900	.880	.870	.860	.860	.840	.820	.873
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.910	.900	.925	.910	.903	.895	.895	.880	.865	.905
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.928	.920	.940	.928	.922	.916	.916	.904	.892	.924

TABLE 7.3 (Continued)

Truck No.			51	52	53	54	55	56	57	58	59	60
Wh.Base	L		28	28	28	28	28	28	32	32	32	32
Axle Spacing	X		12	12	12	12	12	12	12	12	12	12
	X′		16	16	16	16	16	16	20	20	20	20
Load On Axles	a_1		.10	.10	.10	.20	.20	.20	.10	.10	.10	.10
	a_2		.40	.45	.50	.30	.40	.50	.30	.40	.45	.50
	a_3		.50	.45	.40	.50	.40	.30	.60	.50	.45	.40
Span-Feet	10	G	3	3	2	3	3	2	3	3	3	2
		N	3	3	2	3	3	2	3	3	3	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.500	.450	.500	.500	.400	.500	.600	.500	.450	.500
	20	G	2-3	2-3	2-3	2-3	2-3	1-2	2-3	2-3	1-2	1-2
		N	3	2	2	3	2	2	3	3	2	2
		E	R	L	L	R	L	R	R	R	R	R
		V	.580	.540	.581	.560	.480	.580	.600	.500	.490	.540
	30	G	1-3	1-3	2-3	1-3	1-3	2-3	2-3	2-3	2-3	2-3
		N	3	3	2	3	3	2	3	3	2	2
		E	R	R	L	R	R	L	R	R	L	L
		V	.693	.667	.687	.653	.600	.640	.700	.634	.600	.634
	40	G	1-3	1-3	2-3	1-3	1-3	2-3	1-3	1-3	1-3	2-3
		N	3	3	2	3	3	2	3	3	3	2
		E	R	R	L	R	R	L	R	R	R	L
		V	.770	.750	.740	.740	.700	.680	.770	.720	.695	.700
	50	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	2
		E	R	R	R	R	R	R	R	R	R	L
		V	.816	.800	.784	.792	.760	.728	.816	.776	.756	.740
	60	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.847	.833	.820	.827	.800	.773	.847	.813	.797	.780
	80	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.885	.875	.865	.870	.850	.830	.885	.860	.848	.835
	100	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.908	.900	.892	.896	.880	.864	.908	.888	.878	.868

Truck No.			61	62	63	64	65	66	67	68	69	70
Wh. Base	L		32	32	32	36	36	36	36	36	36	36
Axle Spacing	X		12	12	12	12	12	12	12	12	12	12
	X′		20	20	20	24	24	24	24	24	24	24
Load On Axles	a_1		.20	.20	.20	.10	.10	.10	.10	.20	.20	.20
	a_2		.30	.40	.50	.80	.40	.45	.50	.30	.40	.50
	a_3		.50	.40	.30	.60	.50	.45	.40	.50	.40	.30
Span-Feet	10	G	3	3	2	3	3	3	2	3	3	2
		N	3	3	2	3	3	3	2	3	3	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.500	.400	.500	.600	.500	.450	.500	.500	.400	.500
	20	G	2-3	1-2	1-2	3	3	1-2	1-2	3	1-2	1-2
		N	3	2	2	3	3	2	2	3	2	2
		E	R	R	R	L	L	R	R	L	R	R
		V	.500	.480	.580	.600	.500	.490	.540	.500	.480	.580
	30	G	2-3	2-3	1-2	2-3	2-3	2-3	2-3	2-3	1-2	1-2
		N	3	2	2	3	3	2	2	3	2	2
		E	R	L	R	R	R	L	L	R	R	R
		V	.600	.534	.620	.669	.580	.540	.580	.560	.520	.620
	40	G	1-3	1-3	2-3	1-3	1-3	1-3	2-3	1-3	1-3	1-2
		N	3	3	2	3	3	3	2	3	3	2
		E	R	R	L	R	R	R	L	R	R	R
		V	.690	.640	.650	.730	.670	.640	.660	.640	.580	.640
	50	G	1-3	1-3	1-3	1-3	1-3	1-3	2-3	1-3	1-3	1-3
		N	3	3	1	3	3	3	2	3	3	1
		E	R	R	L	R	R	R	L	R	R	L
		V	.752	.712	.688	.784	.736	.712	.708	.712	.664	.664
	60	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	1	3	3	3	3	3	3	1
		E	R	R	L	R	R	R	R	R	R	L
		V	.793	.760	.740	.820	.780	.760	.740	.760	.720	.720
	80	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	1	3	3	3	3	3	3	1
		E	R	R	L	R	R	R	R	R	R	L
		V	.845	.820	.805	.865	.835	.820	.805	.820	.790	.790
	100	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	1	3	3	3	3	3	3	1
		E	R	R	L	R	R	R	R	R	R	L
		V	.876	.856	.844	.892	.868	.856	.844	.856	.832	.832

TABLE 7.3 (Continued)

Truck No.			71	72	73	74	75	76	77	78	79	80
Wh. Base L			40	40	40	40	40	40	40	44	44	44
Axle	X		12	12	12	12	12	12	12	12	12	12
Spacing	X′		28	28	28	28	28	28	28	32	32	32
Load	a_1		.10	.10	.10	.10	.20	.20	.20	.10	.10	.10
On	a_2		.30	.40	.45	.50	.30	.40	.50	.30	.40	.45
Axles	a_3		.60	.50	.45	.40	.50	.40	.30	.60	.50	.45
Span-Feet	10	G	3	3	3	2	3	3	2	3	3	3
		N	3	3	3	2	3	3	2	3	3	3
		E	L	L	L	L	L	L	L	L	L	L
		V	.600	.500	.450	.500	.500	.400	.500	.600	.500	.450
	20	G	3	3	1-2	1-2	3	1-2	1-2	3	3	1-2
		N	3	3	2	2	3	2	2	3	3	2
		E	L	L	R	R	L	R	R	L	L	R
		V	.600	.500	.490	.540	.500	.480	.580	.600	.500	.490
	30	G	2-3	2-3	1-2	1-2	2-3	1-2	1-2	3	3	1-2
		N	3	3	2	2	3	2	2	3	3	2
		E	R	R	R	R	R	R	R	L	L	R
		V	.620	.527	.510	.560	.520	.520	.620	.600	.500	.510
	40	G	1-3	1-3	1-3	2-3	1-3	1-2	1-2	2-3	2-3	2-3
		N	3	3	3	2	3	2	2	3	3	2
		E	R	R	R	L	R	R	R	R	R	L
		V	.690	.620	.585	.620	.590	.540	.640	.661	.581	.540
	50	G	1-3	1-3	1-3	2-3	1-3	1-3	1-2	1-3	1-3	1-3
		N	3	3	3	2	3	3	2	3	3	3
		E	R	R	R	L	R	R	R	R	R	R
		V	.752	.696	.668	.676	.672	.616	.652	.720	.656	.624
	60	G	1-3	1-3	1-3	2-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	2	3	3	1	3	3	3
		E	R	R	R	L	R	R	L	R	R	R
		V	.793	.747	.723	.714	.727	.680	.700	.767	.713	.687
	80	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	1	3	3	3
		E	R	R	R	R	R	R	L	R	R	R
		V	.845	.810	.793	.775	.795	.760	.775	.825	.785	.765
	100	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	3	3	3	1	3	3	3
		E	R	R	R	R	R	R	L	R	R	R
		V	.876	.848	.834	.820	.836	.808	.820	.860	.828	.812

Truck No.			81	82	83	84	85	86	87	88	89	90
Wh. Base L			44	44	44	44	24	24	24	24	24	24
Axle	X		12	12	12	12	16	16	16	16	16	16
Spacing	X′		32	32	32	32	8	8	8	8	8	8
Load	a_1		.10	.20	.20	.20	.10	.10	.10	.10	.20	.20
On	a_2		.50	.30	.40	.50	.30	.40	.45	.50	.30	.40
Axles	a_3		.40	.50	.40	.30	.60	.50	.45	.40	.50	.40
Span-Feet	10	G	2	3	3	2	2-3	2-3	2-3	2-3	2-3	2-3
		N	2	3	3	2	3	3	2	2	3	2
		E	L	L	L	L	R	R	L	L	R	L
		V	.500	.500	.400	.500	.660	.580	.540	.580	.560	.480
	20	G	1-2	3	1-2	1-2	2-3	2-3	2-3	2-3	2-3	2-3
		N	2	3	2	2	3	3	2	2	3	2
		E	R	L	R	R	R	R	L	L	R	L
		V	.540	.500	.480	.580	.780	.740	.720	.740	.680	.640
	30	G	1-2	3	1-2	1-2	1-3	1-3	1-3	2-3	1-3	1-3
		N	2	3	2	2	3	3	3	2	3	3
		E	R	L	R	R	R	R	R	L	R	R
		V	.560	.500	.520	.620	.840	.813	.800	.793	.760	.733
	40	G	2-3	2-3	1-2	1-2	1-3	1-3	1-3	1-3	1-3	1-3
		N	2	3	2	2	3	3	3	3	3	3
		E	L	R	R	R	R	R	R	R	R	R
		V	.581	.560	.540	.640	.880	.860	.850	.840	.820	.800
	50	G	2-3	1-3	1-3	1-2	1-3	1-3	1-3	1-3	1-3	1-3
		N	2	3	3	2	3	3	3	3	3	3
		E	L	R	R	R	R	R	R	R	R	R
		V	.644	.632	.568	.652	.904	.888	.880	.872	.856	.840
	60	G	2-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	2	3	3	1	3	3	3	3	3	3
		E	L	R	R	L	R	R	R	R	R	R
		V	.687	.693	.640	.680	.920	.907	.900	.893	.880	.867
	80	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	1	3	3	3	3	3	3
		E	R	R	R	L	R	R	R	R	R	R
		V	.745	.770	.730	.760	.940	.930	.925	.920	.910	.900
	100	G	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
		N	3	3	3	1	3	3	3	3	3	3
		E	R	R	R	L	R	R	R	R	R	R
		V	.796	.816	.784	.808	.952	.944	.940	.936	.928	.920

TABLE 7.3 (Continued)

Truck No.			91	92	93	94	95	96	97	98	99	100
Wh. Base L			24	28	28	28	28	28	28	28	32	32
Axle		X	16	16	16	16	16	16	16	16	16	16
Spacing		X′	8	12	12	12	12	12	12	12	16	16
Load		a_1	.20	.10	.10	.10	.10	.20	.20	.20	.10	.10
On		a_2	.50	.30	.40	.45	.50	.30	.40	.50	.30	.40
Axles		a_3	.30	.60	.50	.45	.40	.50	.40	.30	.60	.50
Span-Feet		G	2–3	3	3	3	2	3	3	2	3	3
		N	2	3	3	3	2	3	3	2	3	3
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.560	.600	.500	.450	.500	.500	.400	.500	.600	.500
		G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	3	3	2	2	3	2	2	3	3
	20	E	L	R	R	L	L	R	L	L	R	R
		V	.680	.720	.660	.630	.660	.620	.560	.620	.660	.580
		G	2–3	1–3	1–3	1–3	2–3	1–3	1–3	2–3	2–3	2–3
		N	2	3	3	3	2	3	3	2	3	3
	30	E	L	R	R	R	L	R	R	L	R	R
		V	.720	.787	.747	.727	.740	.693	.653	.680	.740	.687
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	40	E	R	R	R	R	R	R	R	R	R	R
		V	.780	.840	.810	.795	.780	.770	.740	.710	.800	.760
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	50	E	R	R	R	R	R	R	R	R	R	R
		V	.824	.872	.848	.836	.824	.816	.792	.768	.840	.808
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	60	E	R	R	R	R	R	R	R	R	R	R
		V	.853	.893	.873	.863	.853	.847	.827	.807	.867	.840
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.890	.920	.905	.898	.890	.885	.870	.855	.900	.880
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.912	.936	.924	.918	.912	.908	.896	.884	.920	.904

Truck No.			101	102	103	104	105	106	107	108	109	110
Wh. Base L			32	32	32	32	32	36	36	36	36	36
Axle		X	16	16	16	16	16	16	16	16	16	16
Spacing		X′	16	16	16	16	16	20	20	20	20	20
Load		a_1	.10	.10	.20	.20	.20	.10	.10	.10	.10	.20
On		a_2	.45	.50	.30	.40	.50	.30	.40	.45	.50	.30
Axles		a_3	.45	.40	.50	.40	.30	.60	.50	.45	.40	.50
Span-Feet		G	3	2	3	3	2	3	3	3	2	3
		N	3	2	3	3	2	3	3	3	2	3
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.450	.500	.500	.400	.500	.600	.500	.450	.500	.500
		G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	1–2	1–2	2–3
		N	2	2	3	2	2	3	3	2	2	3
	20	E	L	L	R	L	L	R	R	R	R	R
		V	.540	.581	.560	.480	.560	.600	.500	.470	.520	.500
		G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	3	2	2	3	3	2	2	3
	30	E	L	L	R	L	L	R	R	L	L	R
		V	.660	.687	.640	.587	.640	.700	.634	.600	.634	.600
		G	1–3	2–3	1–3	1–3	2–3	1–3	1–3	1–3	2–3	1–3
		N	3	2	3	3	2	3	3	3	2	3
	40	E	R	L	R	R	L	R	R	R	L	R
		V	.740	.740	.720	.680	.680	.760	.710	.685	.700	.670
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	2–3	1–3
		N	3	3	3	3	3	3	3	3	2	3
	50	E	R	R	R	R	R	R	R	R	L	R
		V	.792	.776	.776	.744	.712	.808	.768	.748	.740	.736
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	60	E	R	R	R	R	R	R	R	R	R	R
		V	.827	.813	.813	.787	.760	.840	.807	.790	.773	.780
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.870	.860	.860	.840	.820	.880	.855	.843	.830	.835
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.896	.888	.888	.872	.856	.904	.884	.874	.864	.868

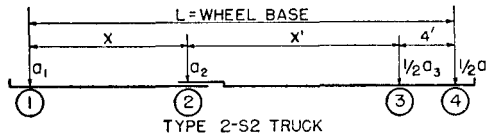
TABLE 7.3 (Continued)

Span-Feet		Truck No.	111	112	113	114	115	116	117	118	119	120
		Wh. Base L	36	36	40	40	40	40	40	40	40	44
		Axle X	16	16	16	16	16	16	16	16	16	16
		Spacing X′	20	20	24	24	24	24	24	24	24	28
		Load a_1	.20	.20	.10	.10	.10	.10	.20	.20	.20	.10
		On a_2	.40	.50	.30	.40	.45	.50	.30	.40	.50	.30
		Axles a_3	.40	.30	.60	.50	.45	.40	.50	.40	.30	.60
		G	3	2	3	3	3	2	3	3	2	3
		N	3	2	3	3	3	2	3	3	2	3
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.400	.500	.600	.500	.450	.500	.500	.400	.500	.600
		G	1–2	1–2	3	3	1–2	1–2	3	1–2	1–2	3
		N	2	2	3	3	2	2	3	2	2	3
	20	E	R	R	L	L	R	R	L	R	R	L
		V	.440	.540	.600	.500	.470	.520	.500	.440	.540	.600
		G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	1–2	1–2	2–3
		N	2	2	3	3	2	2	3	2	2	3
	30	E	L	L	R	R	L	L	R	R	R	R
		V	.534	.600	.660	.580	.540	.580	.560	.493	.594	.620
		G	1–3	2–3	1–3	1–3	1–3	2–3	1–3	2–3	2–3	2–3
		N	3	2	3	3	3	2	3	3	2	3
	40	E	R	L	R	R	R	L	R	R	L	R
		V	.620	.650	.720	.660	.630	.660	.620	.560	.620	.690
		G	1–3	2–3	1–3	1–3	1–3	2–3	1–3	1–3	2–3	1–3
		N	3	2	3	3	3	2	3	3	2	3
	50	E	R	L	R	R	R	L	R	R	L	R
		V	.696	.680	.776	.728	.704	.708	.696	.648	.656	.744
		G	1–3	1–3	1–3	1–3	1–3	2–3	1–3	1–3	2–3	1–3
		N	3	3	3	3	3	2	3	3	2	3
	60	E	R	R	R	R	R	L	R	R	L	R
		V	.747	.713	.813	.773	.753	.740	.747	.707	.680	.787
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.810	.785	.860	.830	.815	.800	.810	.780	.750	.840
		G	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	3	3	3	3	3
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.848	.828	.888	.864	.852	.840	.848	.824	.800	.872

Span-Feet		Truck No.	121	122	123	124	125	126
		Wh. Base L	44	44	44	44	44	44
		Axle X	16	16	16	16	16	16
		Spacing X′	28	28	28	28	28	28
		Load a_1	.10	.10	.10	.20	.20	.20
		On a_2	.40	.45	.50	.30	.40	.50
		Axles a_3	.50	.45	.40	.50	.40	.30
		G	3	3	2	3	3	2
		N	3	3	2	3	3	2
	10	E	L	L	L	L	L	L
		V	.500	.450	.500	.500	.400	.500
		G	3	1–2	1–2	3	1–2	1–2
		N	3	2	2	3	2	2
	20	E	L	R	R	L	R	R
		V	.500	.470	.520	.500	.440	.540
		G	2–3	1–2	1–2	2–3	1–2	1–2
		N	3	2	2	3	2	2
	30	E	R	R	R	R	R	R
		V	.527	.497	.547	.520	.493	.594
		G	2–3	2–3	2–3	2–3	2–3	1–2
		N	3	3	2	3	3	2
	40	E	R	R	L	R	R	R
		V	.620	.585	.620	.590	.520	.620
		G	1–3	1–3	2–3	1–3	1–3	1–2
		N	3	3	2	3	3	2
	50	E	R	R	L	R	R	R
		V	.688	.660	.676	.656	.600	.636
		G	1–3	1–3	2–3	1–3	1–3	2–3
		N	3	3	2	3	3	2
	60	E	R	R	L	R	R	L
		V	.740	.717	.714	.713	.667	.660
		G	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	1
	80	E	R	R	R	R	R	L
		V	.805	.788	.770	.785	.750	.735
		G	1–3	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	3	1
	100	E	R	R	R	R	R	L
		V	.844	.830	.816	.828	.800	.788

TABLE 7.4

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 2-S2 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-S2 TRUCK

One hundred and eight variations in the Type 2-S2 truck are given in this table. Each truck number, from 1 to 108, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh.Base L			20	20	20	20	20	20	24	24	24	24
Axle		X	8	8	8	8	8	8	8	8	8	8
Spacing		X'	8	8	8	8	8	8	12	12	12	12
Load		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
On		a_2	.30	.40	.50	.30	.40	.50	.30	.40	.50	.30
Axles		a_3	.60	.50	.40	.50	.40	.30	.60	.50	.40	.50
Span-Feet	10	G	3–4	2–3	2–3	3–4	1–2	1–2	3–4	1–2	1–2	3–4
		N	3	2	2	3	2	2	3	2	2	3
		E	L	L	L	L	R	R	L	R	R	L
		V	.480	.450	.540	.400	.440	.540	.480	.420	.520	.400
	20	G	1–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	4	2	2	4	2	2	4	2	2	4
		E	R	L	L	R	L	L	R	L	L	R
		V	.660	.650	.700	.570	.600	.650	.600	.550	.620	.510
	30	G	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4
		N	4	4	2	4	4	2	4	4	2	4
		E	R	R	L	R	R	L	R	R	L	R
		V	.773	.740	.767	.713	.680	.700	.720	.673	.714	.647
	40	G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
		N	4	4	2	4	4	1	4	4	2	4
		E	R	R	L	R	R	L	R	R	L	R
		V	.830	.805	.800	.785	.760	.765	.790	.755	.760	.735
	50	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
		N	4	4	4	4	4	1	4	4	2	4
		E	R	R	R	R	R	L	R	R	L	R
		V	.864	.844	.824	.828	.808	.812	.832	.804	.788	.788
	60	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	1	4	4	4	4
		E	R	R	R	R	R	L	R	R	R	R
		V	.887	.870	.853	.857	.840	.843	.860	.837	.813	.823
	80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	1	4	4	4	4
		E	R	R	R	R	R	L	R	R	R	R
		V	.915	.903	.890	.893	.880	.883	.895	.878	.860	.868
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	1	4	4	4	4
		E	R	R	R	R	R	L	R	R	R	R
		V	.932	.922	.912	.914	.904	.906	.916	.902	.888	.894

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus 1–3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed

V—Maximum shear.

TABLE 7.4 (Continued)

Truck No.		11	12	13	14	15	16	17	18	19	20
Wh. Base L		24	24	28	28	28	28	28	28	32	32
Axle	X	8	8	8	8	8	8	8	8	8	8
Spacing	X′	12	12	16	16	16	16	16	16	20	20
Load	a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
On	a_2	.40	.50	.30	.40	.50	.30	.40	.50	.30	.40
Axles	a_3	.40	.30	.60	.50	.40	.50	.40	.30	.60	.50
Span-Feet 10	G	1–2	1–2	3–4	1–2	1–2	3–4	1–2	1–2	3–4	1–2
	N	2	2	3	2	2	3	2	2	3	2
	E	R	R	L	R	R	L	R	R	L	R
	V	.440	.540	.480	.420	.520	.400	.440	.540	.480	.420
20	G	1–2	1–2	2–4	1–2	1–2	2–4	1–2	1–2	3–4	1–2
	N	2	2	4	2	2	4	2	2	3	2
	E	R	R	R	R	R	R	R	R	L	R
	V	.520	.620	.540	.460	.560	.450	.520	.620	.540	.460
30	G	2–4	2–4	1–4	1–4	2–4	1–4	2–4	1–2	2–4	2–4
	N	2	2	4	4	2	4	2	2	4	4
	E	L	L	R	R	L	R	L	R	R	R
	V	.614	.660	.667	.607	.660	.580	.560	.647	.620	.546
40	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
	N	4	1	4	4	2	4	1	1	4	4
	E	R	L	R	R	L	R	L	L	R	R
	V	.700	.735	.750	.705	.720	.685	.660	.705	.710	.655
50	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
	N	4	1	4	4	2	4	1	1	4	4
	E	R	L	R	R	L	R	L	L	R	R
	V	.760	.788	.800	.764	.756	.748	.728	.764	.768	.724
60	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
	N	4	1	4	4	2	4	1	1	4	4
	E	R	L	R	R	L	R	L	L	R	R
	V	.800	.823	.833	.803	.780	.790	.773	.803	.807	.770
80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	1	4	4	4	4	1	1	4	4
	E	R	L	R	R	R	R	L	L	R	R
	V	.850	.868	.875	.853	.830	.843	.830	.853	.855	.828
100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	1	4	4	4	4	1	1	4	4
	E	R	L	R	R	R	R	L	L	R	R
	V	.880	.894	.900	.882	.864	.874	.864	.882	.884	.862

Truck No.		21	22	23	24	25	26	27	28	29	30
Wh. Base L		32	32	32	32	36	36	36	36	36	36
Axle	X	8	8	8	8	8	8	8	8	8	8
Spacing	X′	20	20	20	20	24	24	24	24	24	24
Load	a_1	.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
On	a_2	.50	.30	.40	.50	.30	.40	.50	.30	.40	.50
Axles	a_3	.40	.50	.40	.30	.60	.50	.40	.50	.40	.30
Span-Feet 10	G	1–2	3–4	1–2	1–2	3–4	1–2	1–2	3–4	1–2	1–2
	N	2	3	2	2	3	2	2	3	2	2
	E	R	L	R	R	L	R	R	L	R	R
	V	.520	.400	.440	.540	.480	.420	.520	.400	.440	.540
20	G	1–2	3–4	1–2	1–2	3–4	1–2	1–2	3–4	1–2	1–2
	N	2	3	2	2	3	2	2	3	2	2
	E	R	L	R	R	L	R	R	L	R	R
	V	.560	.450	.520	.620	.540	.460	.560	.450	.520	.620
30	G	2–4	2–4	1–2	1–2	2–4	2–4	1–2	2–4	1–2	1–2
	N	2	4	2	2	4	4	2	4	2	2
	E	L	R	R	R	R	R	R	R	R	R
	V	.607	.526	.547	.647	.580	.493	.574	.486	.547	.647
40	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–2
	N	2	4	1	1	4	4	2	4	1	2
	E	L	R	L	L	R	R	L	R	L	R
	V	.680	.635	.620	.675	.670	.605	.640	.585	.580	.660
50	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
	N	2	4	1	1	4	4	2	4	1	1
	E	L	R	L	L	R	R	L	R	L	L
	V	.724	.708	.696	.740	.736	.684	.692	.668	.664	.716
60	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
	N	2	4	1	1	4	4	2	4	1	1
	E	L	R	L	L	R	R	L	R	L	L
	V	.753	.757	.747	.783	.780	.737	.726	.723	.720	.763
80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	4	1	1	4	4	1	4	1	1
	E	R	R	L	L	R	R	L	R	L	L
	V	.800	.818	.810	.838	.835	.803	.780	.793	.790	.823
100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	4	1	1	4	4	1	4	1	1
	E	R	R	L	L	R	R	L	R	L	L
	V	.840	.854	.848	.870	.868	.842	.824	.834	.832	.858

TABLE 7.4 (Continued)

Truck No.			31	32	33	34	35	36	37	38	39	40
Wh. Base L			40	40	40	40	40	40	24	24	24	24
Axle		X	8	8	8	8	8	8	12	12	12	12
Spacing		X′	28	28	28	28	28	28	8	8	8	8
Load		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
On		a_2	.30	.40	.50	.30	.40	.50	.30	.40	.50	.30
Axles		a_3	.60	.50	.40	.50	.40	.30	.60	.50	.40	.50
Span-Feet	10	G	3–4	1–2	1–2	3–4	1–2	1–2	3–4	2–3	2–3	3–4
		N	3	2	2	3	2	2	3	2	2	3
		E	L	R	R	L	R	R	L	L	L	L
		V	.480	.420	.520	.400	.440	.540	.480	.450	.540	.400
	20	G	3–4	1–2	1–2	3–4	1–2	1–2	2–4	2–4	2–4	2–4
		N	3	2	2	3	2	2	4	2	2	4
		E	L	R	R	L	R	R	R	L	L	R
		V	.540	.460	.560	.450	.520	.620	.660	.650	.700	.570
	30	G	3–4	1–2	1–2	3–4	1–2	1–2	1–4	2–4	2–4	1–4
		N	3	2	2	3	2	2	4	2	2	4
		E	L	R	R	L	R	R	R	L	L	R
		V	.560	.474	.574	.467	.547	.647	.760	.734	.767	.687
	40	G	1–4	1–4	2–4	1–4	1–2	1–2	1–4	1–4	2–4	1–4
		N	4	4	2	4	2	2	4	4	2	4
		E	R	R	L	R	R	R	R	R	L	R
		V	.630	.555	.600	.535	.560	.660	.820	.795	.800	.765
	50	G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
		N	4	4	2	4	1	1	4	4	2	4
		E	R	R	L	R	L	L	R	R	L	R
		V	.704	.644	.660	.628	.632	.692	.856	.836	.820	.812
	60	G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	2	4	1	1	4	4	4	4
		E	R	R	L	R	L	L	R	R	R	R
		V	.753	.703	.700	.690	.693	.743	.880	.863	.847	.843
	80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	1	4	1	1	4	4	4	4
		E	R	R	L	R	L	L	R	R	R	R
		V	.815	.778	.760	.768	.770	.808	.910	.898	.885	.883
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	1	4	1	1	4	4	4	4
		E	R	R	L	R	L	L	R	R	R	R
		V	.852	.822	.808	.814	.816	.846	.928	.918	.908	.906

Truck No.			41	42	43	44	45	46	47	48	49	50
Wh. Base L			24	24	28	28	28	28	28	28	32	32
Axle		X	12	12	12	12	12	12	12	12	12	12
Spacing		X′	8	8	12	12	12	12	12	12	16	16
Load		a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
On		a_2	.40	.50	.30	.40	.50	.30	.40	.50	.30	.40
Axles		a_3	.40	.30	.60	.50	.40	.50	.40	.30	.60	.50
Span-Feet	10	G	2–3	2–3	3–4	2	2	3–4	2	2	3–4	2
		N	2	2	3	2	2	3	2	2	3	2
		E	L	L	L	R	R	L	R	R	L	R
		V	.440	.530	.480	.400	.500	.400	.400	.500	.480	.400
	20	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	2	4	2	2	4	2	2	4	4
		E	L	L	R	L	L	R	L	L	R	R
		V	.600	.650	.600	.550	.620	.510	.520	.590	.540	.450
	30	G	2–4	2–4	1–4	2–4	2–4	1–4	2–4	2–4	2–4	2–4
		N	2	2	4	2	2	4	2	2	4	4
		E	L	L	R	L	L	R	L	L	R	R
		V	.666	.700	.707	.667	.714	.620	.614	.660	.660	.600
	40	G	1–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4
		N	4	2	4	4	2	4	4	2	4	4
		E	R	L	R	R	L	R	R	L	R	R
		V	.740	.725	.780	.745	.760	.715	.689	.695	.740	.695
	50	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	2	4	4	1	4	4
		E	R	R	R	R	L	R	R	L	R	R
		V	.792	.772	.824	.796	.788	.772	.744	.724	.792	.756
	60	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	1	4	4
		E	R	R	R	R	R	R	R	L	R	R
		V	.827	.810	.853	.830	.807	.810	.787	.770	.827	.797
	80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	1	4	4
		E	R	R	R	R	R	R	R	L	R	R
		V	.870	.858	.890	.873	.855	.858	.840	.828	.870	.848
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	1	4	4
		E	R	R	R	R	R	R	R	L	R	R
		V	.896	.886	.912	.898	.884	.886	.872	.862	.896	.878

TABLE 7.4 (Continued)

Truck No.		51	52	53	54	55	56	57	58	59	60
Wh. Base L		32	32	32	32	36	36	36	36	36	36
Axle	X	12	12	12	12	12	12	12	12	12	12
Spacing	X′	16	16	16	16	20	20	20	20	20	20
Load	a_1	.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
On	a_2	.50	.30	.40	.50	.30	.40	.50	.30	.40	.50
Axles	a_3	.40	.50	.40	.30	.60	.50	.40	.50	.40	.30
Span-Feet 10	G	2	3–4	2	2	3–4	2	2	3–4	2	2
	N	2	3	2	2	3	2	2	3	2	2
	E	R	L	R	R	L	R	R	L	R	R
	V	.500	.400	.400	.500	.480	.460	.500	.400	.400	.500
20	G	2–4	2–4	1–2	1–2	3–4	3–4	1–2	3–4	1–2	1–2
	N	2	4	2	2	3	3	2	3	2	2
	E	L	R	R	R	L	L	R	L	R	R
	V	.540	.450	.480	.580	.540	.450	.540	.450	.480	.580
30	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	1–2	1–2
	N	2	4	2	2	4	4	2	4	2	2
	E	L	R	L	L	R	R	L	R	R	R
	V	.660	.566	.560	.620	.620	.546	.607	.526	.520	.620
40	G	2–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4	2–4	1–2
	N	2	4	4	2	4	4	2	4	2	2
	E	L	R	R	L	R	R	L	R	L	R
	V	.720	.665	.620	.665	.700	.645	.680	.615	.580	.640
50	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
	N	2	4	4	1	4	4	2	4	4	1
	E	L	R	R	L	R	R	L	R	R	L
	V	.756	.732	.696	.700	.760	.716	.724	.692	.648	.676
60	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
	N	2	4	4	1	4	4	2	4	4	1
	E	L	R	R	L	R	R	L	R	R	L
	V	.780	.777	.747	.750	.800	.763	.753	.743	.707	.730
80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	4	4	1	4	4	4	4	4	1
	E	R	R	R	L	R	R	R	R	R	L
	V	.825	.833	.810	.813	.850	.823	.795	.808	.780	.798
100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	4	4	1	4	4	4	4	4	1
	E	R	R	R	L	R	R	R	R	R	L
	V	.860	.866	.848	.850	.880	.858	.836	.846	.824	.838

Truck No.		61	62	63	64	65	66	67	68	69	70
Wh.Base L		40	40	40	40	40	40	44	44	44	44
Axle	X	12	12	12	12	12	12	12	12	12	12
Spacing	X′	24	24	24	24	24	24	28	28	28	28
Load	a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
On	a_2	.30	.40	.50	.30	.40	.50	.30	.40	.50	.30
Axles	a_3	.60	.50	.40	.50	.40	.30	.60	.50	.40	.50
Span-Feet 10	G	3–4	2	2	3–4	2	2	3–4	2	2	3–4
	N	3	2	2	3	2	2	3	2	2	3
	E	L	R	R	L	R	R	L	R	R	L
	V	.480	.400	.500	.400	.400	.500	.480	.400	.500	.400
20	G	3–4	3–4	1–2	3–4	1–2	1–2	3–4	3–4	1–2	3–4
	N	3	3	2	3	2	2	3	3	2	3
	E	L	L	R	L	R	R	L	L	R	L
	V	.540	.450	.540	.450	.480	.580	.540	.450	.540	.450
30	G	2–4	2–4	1–2	2–4	1–2	1–2	3–4	3–4	1–2	3–4
	N	4	4	2	4	2	2	3	3	2	3
	E	R	R	R	R	R	R	L	L	R	L
	V	.580	.493	.560	.486	.520	.620	.560	.467	.560	.467
40	G	2–4	2–4	2–4	2–4	2–4	1–2	2–4	2–4	2–4	2–4
	N	4	4	2	4	2	2	4	4	2	4
	E	R	R	L	R	L	R	R	R	L	R
	V	.660	.595	.640	.565	.540	.640	.630	.555	.600	.535
50	G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
	N	4	4	2	4	4	1	4	4	2	4
	E	R	R	L	R	R	L	R	R	L	R
	V	.728	.676	.692	.652	.600	.652	.696	.636	.660	.612
60	G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
	N	4	4	2	4	4	1	4	4	2	4
	E	R	R	L	R	R	L	R	R	L	R
	V	.773	.730	.726	.710	.667	.710	.747	.697	.700	.677
80	G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
	N	4	4	2	4	4	1	4	4	2	4
	E	R	R	L	R	R	L	R	R	L	R
	V	.830	.798	.770	.783	.750	.783	.810	.773	.750	.758
100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	4	4	4	4	1	4	4	4	4
	E	R	R	R	R	R	L	R	R	R	R
	V	.864	.838	.812	.826	.800	.826	.848	.818	.788	.806

TABLE 7.4 (Continued)

Truck No.		71	72	73	74	75	76	77	78	79	80
Wh. Base L		44	44	28	28	28	28	28	28	32	32
Axle	X	12	12	16	16	16	16	16	16	16	16
Spacing	X′	28	28	8	8	8	8	8	8	12	12
Load	a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
On	a_2	.40	.50	.30	.40	.50	.30	.40	.50	.30	.40
Axles	a_3	.40	.30	.60	.50	.40	.50	.40	.30	.60	.50
Span-Feet 10	G	2	2	3–4	2–3	2–3	3–4	2–3	2–3	3–4	2
	N	2	2	3	2	2	3	2	2	3	2
	E	R	R	L	L	L	L	L	L	L	R
	V	.400	.500	.480	.450	.540	.400	.440	.530	.480	.400
20	G	1–2	1–2	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
	N	2	2	4	2	2	4	2	2	4	2
	E	R	R	R	L	L	R	L	L	R	L
	V	.480	.580	.660	.650	.700	.570	.600	.650	.600	.550
30	G	1–2	1–2	1–4	2–4	2–4	1–4	2–4	2–4	2–4	2–4
	N	2	2	4	2	2	4	2	2	4	2
	E	R	R	R	L	L	R	L	L	R	L
	V	.520	.620	.747	.734	.767	.660	.666	.700	.700	.667
40	G	1–2	1–2	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4
	N	2	2	4	4	2	4	4	2	4	4
	E	R	R	R	R	L	R	R	L	R	R
	V	.540	.640	.810	.785	.800	.745	.720	.725	.770	.735
50	G	1–4	1–2	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
	N	1	2	4	4	2	4	4	4	4	4
	E	L	R	R	R	L	R	R	R	R	R
	V	.568	.652	.848	.828	.820	.796	.776	.756	.816	.788
60	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	1	1	4	4	4	4	4	4	4	4
	E	L	L	R	R	R	R	R	R	R	R
	V	.640	.690	.873	.857	.840	.830	.813	.797	.847	.823
80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	1	1	4	4	4	4	4	4	4	4
	E	L	L	R	R	R	R	R	R	R	R
	V	.730	.768	.905	.893	.880	.873	.860	.848	.885	.868
100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	1	1	4	4	4	4	4	4	4	4
	E	L	L	R	R	R	R	R	R	R	R
	V	.784	.814	.924	.914	.901	.898	.888	.878	.908	.894

Truck No.		81	82	83	84	85	86	87	88	89	90
Wh. Base L		32	32	32	32	36	36	36	36	36	36
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	12	12	12	12	16	16	16	16	16	16
Load	a_1	.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
On	a_2	.50	.30	.40	.50	.30	.40	.50	.30	.40	.50
Axles	a_3	.40	.50	.40	.30	.60	.50	.40	.50	.40	.30
Span-Feet 10	G	2	3–4	2	2	3–4	2	2	3–4	2	2
	N	2	3	2	2	3	2	2	3	2	2
	E	R	L	R	R	L	R	R	L	R	R
	V	.500	.400	.400	.500	.480	.400	.500	.400	.460	.500
20	G	2–4	2–4	2–4	2–4	3–4	3–4	2–3	3–4	2–3	1–2
	N	2	4	2	2	3	3	2	3	2	2
	E	L	R	L	L	L	L	L	L	L	R
	V	.620	.510	.520	.590	.540	.450	.540	.450	.440	.540
30	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
	N	2	4	2	2	4	4	2	4	2	2
	E	L	R	L	L	R	R	L	R	L	L
	V	.714	.606	.614	.660	.660	.600	.660	.566	.560	.620
40	G	2–4	1–4	2–4	2–4	1–4	1–4	2–4	1–4	2–4	2–4
	N	2	4	2	2	4	4	2	4	2	2
	E	L	R	L	L	R	R	L	R	L	L
	V	.760	.695	.660	.695	.730	.685	.720	.645	.620	.665
50	G	2–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4
	N	2	4	4	2	4	4	2	4	4	2
	E	L	R	R	L	R	R	L	R	R	L
	V	.788	.756	.728	.716	.784	.748	.756	.716	.680	.692
60	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	2–4
	N	2	4	4	4	4	4	2	4	4	2
	E	L	R	R	R	R	R	L	R	R	L
	V	.806	.797	.773	.750	.820	.790	.780	.763	.733	.710
80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	4	4	4	4	4	4	4	4	4
	E	R	R	R	R	R	R	R	R	R	R
	V	.850	.848	.830	.813	.865	.843	.820	.823	.800	.778
100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	4	4	4	4	4	4	4	4	4
	E	R	R	R	R	R	R	R	R	R	R
	V	.880	.878	.864	.850	.892	.874	.856	.858	.840	.822

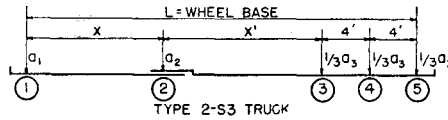
TABLE 7.4 (Continued)

Truck No.			91	92	93	94	95	96	97	98	99	100
Wh. Base L			40	40	40	40	40	40	44	44	44	44
Axle		X	16	16	16	16	16	16	16	16	16	16
Spacing		X′	20	20	20	20	20	20	24	24	24	24
Load		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
On		a_2	.30	.40	.50	.30	.40	.50	.30	.40	.50	.30
Axles		a_3	.60	.50	.40	.50	.40	.30	.60	.50	.40	.50
Span-Feet	10	G	3–4	2	2	3–4	2	2	3–4	2	2	3–4
		N	3	2	2	3	2	2	3	2	2	3
		E	L	R	R	L	R	R	L	R	R	L
		V	.480	.400	.500	.400	.400	.500	.480	.400	.500	.400
	20	G	3–4	3–4	1–2	3–4	1–2	1–2	3–4	3–4	1–2	3–4
		N	3	3	2	3	2	2	3	3	2	3
		E	L	L	R	L	R	R	L	L	R	L
		V	.540	.450	.520	.450	.440	.540	.540	.450	.520	.450
	30	G	2–4	2–4	2–4	2–4	2–4	1–2	2–4	2–4	2–4	2–4
		N	4	4	2	4	2	2	4	4	2	4
		E	R	R	L	R	L	R	R	R	L	R
		V	.620	.546	.607	.526	.506	.594	.580	.493	.554	.486
	40	G	1–4	1–4	2–4	1–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	4	4	2	4	2	2	4	4	2	4
		E	R	R	L	R	L	L	R	R	L	R
		V	.690	.635	.680	.595	.580	.635	.660	.595	.640	.565
	50	G	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4
		N	4	4	2	4	4	2	4	4	2	4
		E	R	R	L	R	R	L	R	R	L	R
		V	.752	.708	.724	.676	.632	.668	.720	.668	.692	.636
	60	G	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4
		N	4	4	2	4	4	2	4	4	2	4
		E	R	R	L	R	R	L	R	R	L	R
		V	.793	.757	.753	.730	.693	.690	.767	.723	.726	.697
	80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
		N	4	4	4	4	4	1	4	4	2	4
		E	R	R	R	R	R	L	R	R	L	R
		V	.845	.818	.790	.798	.770	.758	.825	.793	.770	.773
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	1	4	4	4	4
		E	R	R	R	R	R	L	R	R	R	R
		V	.876	.854	.832	.838	.816	.806	.860	.834	.808	.818

Truck No.			101	102	103	104	105	106	107	108
Wh. Base L			44	44	48	48	48	48	48	48
Axle		X	16	16	16	16	16	16	16	16
Spacing		X′	24	24	28	28	28	28	28	28
Load		a_1	.20	.20	.10	.10	.10	.20	.20	.20
On		a_2	.40	.50	.30	.40	.50	.30	.40	.50
Axles		a_3	.40	.30	.60	.50	.40	.50	.40	.30
Span-Feet	10	G	2	2	3–4	2	2	3–4	2	2
		N	2	2	3	2	2	3	2	2
		E	R	R	L	R	R	L	R	R
		V	.400	.500	.480	.400	.500	.400	.400	.500
	20	G	1–2	1–2	3–4	3–4	1–2	3–4	1–2	1–2
		N	2	2	3	3	2	3	2	2
		E	R	R	L	L	R	L	R	R
		V	.440	.540	.540	.450	.520	.450	.440	.540
	30	G	1–2	1–2	3–4	3–4	1–2	3–4	1–2	1–2
		N	2	2	3	3	2	3	2	2
		E	R	R	L	L	R	L	R	R
		V	.493	.594	.560	.467	.547	.467	.493	.594
	40	G	2–4	1–2	2–4	2–4	2–4	2–4	1–2	1–2
		N	2	2	4	4	2	4	2	2
		E	L	R	R	R	L	R	R	R
		V	.540	.620	.630	.555	.600	.535	.520	.620
	50	G	2–4	2–4	1–4	1–4	2–4	1–4	2–4	1–2
		N	2	2	4	4	2	4	2	2
		E	L	L	R	R	L	R	L	R
		V	.592	.644	.688	.628	.660	.596	.560	.636
	60	G	1–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4
		N	4	2	4	4	2	4	4	2
		E	R	L	R	R	L	R	R	L
		V	.653	.670	.740	.690	.700	.663	.613	.650
	80	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
		N	4	1	4	4	2	4	4	1
		E	R	L	R	R	L	R	R	L
		V	.740	.743	.805	.768	.750	.748	.710	.728
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	1	4	4	4	4	4	1
		E	R	L	R	R	R	R	R	L
		V	.792	.794	.844	.814	.784	.798	.768	.782

TABLE 7.5

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 2-S3 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 2-S3 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base L			24	24	24	24	24	24	28	28	28	28
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X'	8	8	8	8	8	8	12	12	12	12
Load On Axles		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
		a_2	.225	.30	.40	.20	.30	.40	.225	.30	.40	.20
		a_3	.675	.60	.50	.60	.50	.40	.675	.60	.50	.60
Span-Feet	10	G	3-5	3-5	1-2	3-5	1-2	1-2	3-5	3-5	1-2	3-5
		N	3	3	2	3	2	2	3	3	2	3
		E	L	L	R	L	R	R	L	L	R	L
		V	.405	.360	.420	.360	.340	.440	.405	.360	.420	.360
	20	G	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5
		N	5	2	2	5	2	2	5	5	2	5
		E	R	L	L	R	L	L	R	R	L	R
		V	.585	.540	.599	.520	.500	.560	.540	.480	.500	.480
	30	G	1-5	1-5	2-5	1-5	1-5	2-5	1-5	1-5	2-5	1-5
		N	5	5	2	5	5	2	5	5	2	5
		E	R	R	L	R	R	L	R	R	L	R
		V	.710	.680	.700	.653	.614	.640	.667	.627	.633	.600
	40	G	1-5	1-5	2-5	1-5	1-5	1-5	1-5	1-5	2-5	1-5
		N	5	5	2	5	5	1	5	5	2	5
		E	R	R	L	R	R	L	R	R	L	R
		V	.783	.760	.750	.740	.710	.720	.750	.720	.700	.709
	50	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	5	5	5	5	1	5	5	5	5
		E	R	R	R	R	R	L	R	R	R	R
		V	.826	.808	.784	.792	.768	.776	.800	.776	.744	.760
	60	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	5	5	5	5	1	5	5	5	5
		E	R	R	R	R	R	L	R	R	R	R
		V	.855	.840	.820	.827	.807	.813	.833	.813	.787	.800
	80	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	5	5	5	5	1	5	5	5	5
		E	R	R	R	R	R	L	R	R	R	R
		V	.891	.880	.865	.870	.855	.860	.875	.860	.840	.850
	100	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	5	5	5	5	1	5	5	5	5
		E	R	R	R	R	R	L	R	R	R	R
		V	.913	.904	.892	.896	.884	.888	.900	.888	.872	.880

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus 1-3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.5 (Continued)

Truck No.			11	12	13	14	15	16	17	18	19	20
Wh. Base L			28	28	32	32	32	32	32	32	36	36
Axle Spacing	X		8	8	8	8	8	8	8	8	8	8
	X′		12	12	16	16	16	16	16	16	20	20
Load On Axles	a_1		.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
	a_2		.30	.40	.225	.30	.40	.20	.30	.40	.225	.30
	a_3		.50	.40	.675	.60	.50	.60	.50	.40	.675	.60
Span-Feet	10	G	1–2	1–2	3–5	3–5	1–2	3–5	1–2	1–2	3–5	3–5
		N	2	2	3	3	2	3	2	2	3	3
		E	R	R	L	L	R	L	R	R	L	L
		V	.340	.440	.405	.360	.420	.360	.340	.440	.405	.360
	20	G	1–2	1–2	3–5	3–5	1–2	3–5	1–2	1–2	3–5	3–5
		N	2	2	3	3	2	3	2	2	3	3
		E	R	R	L	L	R	L	R	R	L	L
		V	.420	.520	.540	.480	.460	.480	.420	.520	.540	.480
	30	G	1–5	2–5	2–5	2–5	2–5	2–5	2–5	1–2	2–5	2–5
		N	5	2	5	5	2	5	5	2	5	5
		E	R	L	R	R	L	R	R	R	R	R
		V	.547	.587	.630	.580	.566	.560	.494	.547	.600	.540
	40	G	1–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5
		N	5	1	5	5	2	5	5	1	5	5
		E	R	L	R	R	L	R	R	L	R	R
		V	.660	.680	.718	.680	.650	.660	.610	.640	.685	.640
	50	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	1	5	5	5	5	5	1	5	5
		E	R	L	R	R	R	R	R	L	R	R
		V	.728	.744	.774	.744	.704	.728	.688	.712	.748	.712
	60	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	1	5	5	5	5	5	1	5	5
		E	R	L	R	R	R	R	R	L	R	R
		V	.773	.787	.812	.787	.754	.773	.740	.760	.790	.760
	80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	1	5	5	5	5	5	1	5	5
		E	R	L	R	R	R	R	R	L	R	R
		V	.830	.840	.859	.840	.815	.830	.805	.820	.843	.820
	100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	1	5	5	5	5	5	1	5	5
		E	R	L	R	R	R	R	R	L	R	R
		V	.864	.872	.887	.872	.852	.864	.844	.856	.874	.856

Truck No.			21	22	23	24	25	26	27	28	29	30
Wh. Base L			36	36	36	36	40	40	40	40	40	40
Axle Spacing	X		8	8	8	8	8	8	8	8	8	8
	X′		20	20	20	20	24	24	24	24	24	24
Load On Axles	a_1		.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
	a_2		.40	.20	.30	.40	.225	.30	.40	.20	.30	.40
	a_3		.50	.60	.50	.40	.675	.60	.50	.60	.50	.40
Span-Feet	10	G	1–2	3–5	1–2	1–2	3–5	3–5	1–2	3–5	1–2	1–2
		N	2	3	2	2	3	3	2	3	2	2
		E	R	L	R	R	L	L	R	L	R	R
		V	.420	.360	.340	.440	.405	.360	.420	.360	.340	.440
	20	G	1–2	3–5	1–2	1–2	3–5	3–5	1–2	3–5	1–2	1–2
		N	2	3	2	2	3	3	2	3	2	2
		E	R	L	R	R	L	L	R	L	R	R
		V	.460	.480	.420	.520	.540	.480	.460	.480	.420	.520
	30	G	2–5	2–5	2–5	1–2	3–5	3–5	1–2	3–5	1–2	1–2
		N	2	5	5	2	3	3	2	3	2	2
		E	L	R	R	R	L	L	R	L	R	R
		V	.500	.534	.454	.547	.585	.520	.474	.520	.447	.547
	40	G	2–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5
		N	2	5	5	1	5	5	2	5	5	1
		E	L	R	R	L	R	R	L	R	R	L
		V	.599	.620	.560	.600	.653	.600	.550	.580	.510	.560
	50	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	1	5	5	5	5	5	1
		E	R	R	R	L	R	R	R	R	R	L
		V	.664	.696	.648	.680	.722	.680	.624	.664	.608	.648
	60	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	1	5	5	5	5	5	1
		E	R	R	R	L	R	R	R	R	R	L
		V	.720	.747	.707	.734	.768	.733	.687	.720	.674	.707
	80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	1	5	5	5	5	5	1
		E	R	R	R	L	R	R	R	R	R	L
		V	.790	.810	.780	.800	.826	.800	.765	.790	.755	.780
	100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	1	5	5	5	5	5	1
		E	R	R	R	L	R	R	R	R	R	L
		V	.832	.848	.824	.840	.861	.840	.812	.832	.804	.824

TABLE 7.5 (Continued)

Span-Feet		Truck No.	31	32	33	34	35	36	37	38	39	40
		Wh. Base L	28	28	28	28	28	28	32	32	32	32
		Axle X	12	12	12	12	12	12	12	12	12	12
		Spacing X′	8	8	8	8	8	8	12	12	12	12
		Load a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
		On a_2	.225	.30	.40	.20	.30	.40	.225	.30	.40	.20
		Axles a_3	.675	.60	.50	.60	.50	.40	.675	.60	.50	.60
10	G		3–5	3–5	2	3–5	3–5	2	3–5	3–5	2	3–5
	N		3	3	2	3	3	2	3	3	2	3
	E		L	L	R	L	L	R	L	L	R	L
	V		.405	.360	.400	.360	.300	.400	.405	.360	.400	.360
20	G		2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
	N		5	2	2	5	2	2	5	5	2	5
	E		R	L	L	R	L	L	R	R	L	R
	V		.585	.540	.599	.520	.500	.560	.540	.480	.500	.480
30	G		1–5	1–5	2–5	1–5	2–5	2–5	2–5	2–5	2–5	2–5
	N		5	5	2	5	2	2	5	5	2	5
	E		R	R	L	R	L	L	R	R	L	R
	V		.697	.667	.700	.627	.600	.640	.660	.620	.633	.586
40	G		1–5	1–5	2–5	1–5	1–5	2–5	1–5	1–5	2–5	1–5
	N		5	5	2	5	5	2	5	5	2	5
	E		R	R	L	R	R	L	R	R	L	R
	V		.773	.750	.750	.720	.690	.680	.740	.710	.700	.680
50	G		1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5
	N		5	5	2	5	5	5	5	5	2	5
	E		R	R	L	R	R	R	R	R	L	R
	V		.818	.800	.780	.776	.752	.728	.792	.768	.740	.744
60	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N		5	5	5	5	5	5	5	5	5	5
	E		R	R	R	R	R	R	R	R	R	R
	V		.848	.833	.813	.813	.793	.773	.827	.807	.780	.787
80	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N		5	5	5	5	5	5	5	5	5	5
	E		R	R	R	R	R	R	R	R	R	R
	V		.886	.875	.860	.860	.845	.830	.870	.855	.835	.840
100	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N		5	5	5	5	5	5	5	5	5	5
	E		R	R	R	R	R	R	R	R	R	R
	V		.909	.900	.888	.888	.876	.864	.896	.884	.868	.872

Span-Feet		Truck No.	41	42	43	44	45	46	47	48	49	50
		Wh. Base L	32	32	36	36	36	36	36	36	40	40
		Axle X	12	12	12	12	12	12	12	12	12	12
		Spacing X′	12	12	16	16	16	16	16	16	20	20
		Load a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
		On a_2	.30	.40	.225	.30	.40	.20	.30	.40	.225	.30
		Axles a_3	.50	.40	.675	.60	.50	.60	.50	.40	.675	.60
10	G		3–5	2	3–5	3–5	2	3–5	3–5	2	3–5	3–5
	N		3	2	3	3	2	3	3	2	3	3
	E		L	R	L	L	R	L	L	R	L	L
	V		.300	.400	.405	.360	.400	.360	.300	.400	.405	.360
20	G		2–5	2–5	3–5	3–5	1–2	3–5	3–5	1–2	3–5	3–5
	N		5	2	3	3	2	3	3	2	3	3
	E		R	L	L	L	R	L	L	R	L	L
	V		.400	.480	.540	.480	.440	.480	.400	.480	.540	.480
30	G		2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
	N		5	2	5	5	2	5	5	2	5	5
	E		R	L	R	R	L	R	R	L	R	R
	V		.534	.587	.630	.580	.566	.560	.494	.534	.600	.540
40	G		1–5	2–5	1–5	1–5	2–5	1–5	1–5	2–5	1–5	1–5
	N		5	2	5	5	2	5	5	2	5	5
	E		R	L	R	R	L	R	R	L	R	R
	V		.640	.640	.708	.670	.650	.640	.590	.600	.675	.630
50	G		1–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5
	N		5	1	5	5	2	5	5	1	5	5
	E		R	L	R	R	L	R	R	L	R	R
	V		.712	.680	.766	.736	.700	.712	.672	.648	.740	.704
60	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N		5	1	5	5	5	5	5	1	5	5
	E		R	L	R	R	R	R	R	L	R	R
	V		.760	.734	.805	.780	.747	.760	.727	.707	.783	.753
80	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N		5	1	5	5	5	5	5	1	5	5
	E		R	L	R	R	R	R	R	L	R	R
	V		.820	.800	.854	.835	.810	.820	.795	.780	.838	.815
100	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N		5	1	5	5	5	5	5	1	5	5
	E		R	L	R	R	R	R	R	L	R	R
	V		.856	.840	.883	.868	.848	.856	.836	.824	.870	.852

TABLE 7.5 (Continued)

Span-Feet			Truck No.	51	52	53	54	55	56	57	58	59	60
			Wh. Base L	40	40	40	40	44	44	44	44	44	44
			Axle Spacing X	12	12	12	12	12	12	12	12	12	12
			Axle Spacing X′	20	20	20	20	24	24	24	24	24	24
			Load On Axles a_1	.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
			Load On Axles a_2	.40	.20	.30	.40	.225	.30	.40	.20	.30	.40
			Load On Axles a_3	.50	.60	.50	.40	.675	.60	.50	.60	.50	.40
	10	G		2	3–5	3–5	2	3–5	3–5	2	3–5	3–5	2
		N		2	3	3	2	3	3	2	3	3	2
		E		R	L	L	R	L	L	R	L	L	R
		V		.400	.360	.300	.400	.405	.360	.400	.360	.300	.400
	20	G		1–2	3–5	3–5	1–2	3–5	3–5	1–2	3–5	3–5	1–2
		N		2	3	3	2	3	3	2	3	3	2
		E		R	L	L	R	L	L	R	L	L	R
		V		.440	.480	.400	.480	.540	.480	.440	.480	.400	.480
	30	G		2–5	2–5	2–5	1–2	3–5	3–5	1–2	3–5	3–5	1–2
		N		2	5	5	2	3	3	2	3	3	2
		E		L	R	R	R	L	L	R	L	L	R
		V		.500	.534	.454	.520	.585	.520	.460	.520	.434	.520
	40	G		2–5	1–5	1–5	2–5	2–5	2–5	2–5	2–5	2–5	1–2
		N		2	5	5	2	5	5	2	5	5	2
		E		L	R	R	L	R	R	L	R	R	R
		V		.599	.600	.540	.560	.653	.600	.550	.580	.510	.540
	50	G		2–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5
		N		2	5	5	1	5	5	2	5	5	1
		E		L	R	R	L	R	R	L	R	R	L
		V		.660	.680	.632	.616	.714	.672	.620	.648	.592	.584
	60	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N		5	5	5	1	5	5	5	5	5	1
		E		R	R	R	L	R	R	R	R	R	L
		V		.714	.733	.694	.680	.762	.727	.680	.707	.660	.654
	80	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N		5	5	5	1	5	5	5	5	5	1
		E		R	R	R	L	R	R	R	R	R	L
		V		.785	.800	.770	.760	.821	.795	.760	.780	.745	.740
	100	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N		5	5	5	1	5	5	5	5	5	1
		E		R	R	R	L	R	R	R	R	R	L
		V		.828	.840	.816	.808	.857	.836	.808	.824	.796	.792

Span-Feet			Truck No.	61	62	63	64	65	66	67	68	69	70
			Wh. Base L	32	32	32	32	32	32	36	36	36	36
			Axle Spacing X	16	16	16	16	16	16	16	16	16	16
			Axle Spacing X′	8	8	8	8	8	8	12	12	12	12
			Load On Axles a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
			Load On Axles a_2	.225	.30	.40	.20	.30	.40	.225	.30	.40	.20
			Load On Axles a_3	.675	.60	.50	.60	.50	.40	.675	.60	.50	.60
	10	G		3–5	3–5	2	3–5	3–5	2	3–5	3–5	2	3–5
		N		3	3	2	3	3	2	3	3	2	3
		E		L	L	R	L	L	R	L	L	R	L
		V		.405	.360	.400	.360	.300	.400	.405	.360	.400	.360
	20	G		2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N		5	2	2	5	2	2	5	5	2	5
		E		R	L	L	R	L	L	R	R	L	R
		V		.585	.540	.599	.520	.500	.560	.540	.480	.500	.480
	30	G		2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N		5	2	2	5	2	2	5	5	2	5
		E		R	L	L	R	L	L	R	R	L	R
		V		.690	.660	.700	.614	.600	.640	.660	.620	.633	.586
	40	G		1–5	1–5	2–5	1–5	1–5	2–5	1–5	1–5	2–5	1–5
		N		5	5	2	5	5	2	5	5	2	5
		E		R	R	L	R	R	L	R	R	L	R
		V		.763	.740	.750	.700	.670	.680	.730	.700	.700	.660
	50	G		1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5
		N		5	5	2	5	5	5	5	5	2	5
		E		R	R	L	R	R	R	R	R	L	R
		V		.810	.792	.780	.760	.736	.712	.784	.760	.740	.728
	60	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N		5	5	5	5	5	5	5	5	5	5
		E		R	R	R	R	R	R	R	R	R	R
		V		.842	.827	.807	.800	.780	.760	.820	.800	.773	.773
	80	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N		5	5	5	5	5	5	5	5	5	5
		E		R	R	R	R	R	R	R	R	R	R
		V		.881	.870	.855	.850	.835	.820	.865	.850	.830	.830
	100	G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N		5	5	5	5	5	5	5	5	5	5
		E		R	R	R	R	R	R	R	R	R	R
		V		.905	.896	.884	.880	.868	.856	.892	.880	.864	.864

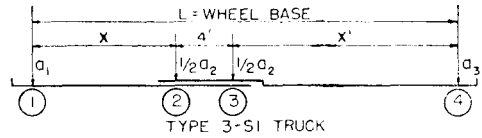
TABLE 7.5 (Continued)

Truck No.			71	72	73	74	75	76	77	78	79	80
Wh. Base	L		36	36	40	40	40	40	40	40	44	44
Axle	X		16	16	16	16	16	16	16	16	16	16
Spacing	X′		12	12	16	16	16	16	16	16	20	20
Load	a_1		.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
On	a_2		.30	.40	.225	.30	.40	.20	.30	.40	.225	.30
Axles	a_3		.50	.40	.675	.60	.50	.60	.50	.40	.675	.60
Span-Feet		G	3–5	2	3–5	3–5	2	3–5	3–5	2	3–5	3–5
		N	3	2	3	3	2	3	3	2	3	3
	10	E	L	R	L	L	R	L	L	R	L	L
		V	.300	.400	.405	.360	.400	.360	.300	.400	.405	.360
		G	2–5	2–5	3–5	3–5	2–4	3–5	3–5	1–2	3–5	3–5
		N	5	2	3	3	2	3	3	2	3	3
	20	E	R	L	L	L	L	L	L	R	L	L
		V	.400	.480	.540	.480	.433	.480	.400	.440	.540	.480
		G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	5	2	5	5	2	5	5	2	5	5
	30	E	R	L	R	R	L	R	R	L	R	R
		V	.534	.587	.630	.580	.566	.560	.494	.534	.600	.540
		G	1–5	2–5	1–5	1–5	2–5	1–5	1–5	2–5	2–5	2–5
		N	5	2	5	5	2	5	5	2	5	5
	40	E	R	L	R	R	L	R	R	L	R	R
		V	.620	.640	.698	.660	.650	.620	.570	.600	.675	.630
		G	1–5	2–5	1–5	1–5	2–5	1–5	1–5	2–5	1–5	1–5
		N	5	2	5	5	2	5	5	2	5	5
	50	E	R	L	R	R	L	R	R	L	R	R
		V	.696	.672	.758	.728	.700	.696	.656	.640	.732	.696
		G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	5	5	5	5
	60	E	R	R	R	R	R	R	R	R	R	R
		V	.747	.720	.798	.773	.740	.747	.714	.680	.777	.747
		G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	5	5	5	5
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.810	.790	.849	.830	.805	.810	.785	.760	.833	.810
		G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	5	5	5	5
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.848	.832	.879	.864	.844	.848	.828	.808	.866	.848

Truck No.			81	82	83	84	85	86	87	88	89	90
Wh. Base	L		44	44	44	44	48	48	48	48	48	48
Axle	X		16	16	16	16	16	16	16	16	16	16
Spacing	X′		20	20	20	20	24	24	24	24	24	24
Load	a_1		.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
On	a_2		.40	.20	.30	.40	.225	.30	.40	.20	.30	.40
Axles	a_3		.50	.60	.50	.40	.675	.60	.50	.60	.50	.40
Span-Feet		G	2	3–5	3–5	2	3–5	3–5	2	3–5	3–5	2
		N	2	3	3	2	3	3	2	3	3	2
	10	E	R	L	L	R	L	L	R	L	L	R
		V	.400	.360	.300	.400	.405	.360	.400	.360	.300	.400
		G	1–2	3–5	3–5	1–2	3–5	3–5	1–2	3–5	3–5	1–2
		N	2	3	3	2	3	3	2	3	3	2
	20	E	R	L	L	R	L	L	R	L	L	R
		V	.420	.480	.400	.440	.540	.480	.420	.480	.400	.440
		G	2–5	2–5	2–5	1–2	3–5	3–5	1–2	3–5	3–5	1–2
		N	2	5	5	2	3	3	2	3	3	2
	30	E	L	R	R	R	L	L	R	L	L	R
		V	.500	.534	.454	.493	.585	.520	.447	.520	.434	.493
		G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	5	5	2	5	5	2	5	5	2
	40	E	L	R	R	L	R	R	L	R	R	L
		V	.599	.600	.540	.560	.653	.600	.550	.580	.510	.520
		G	2–5	1–5	1–5	2–5	1–5	1–5	2–5	1–5	1–5	2–5
		N	2	5	5	2	5	5	2	5	5	2
	50	E	L	R	R	L	R	R	L	R	R	L
		V	.660	.664	.616	.608	.706	.664	.620	.632	.576	.576
		G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	2–5
		N	5	5	5	5	5	5	5	5	5	2
	60	E	R	R	R	R	R	R	R	R	R	L
		V	.707	.720	.680	.640	.755	.720	.674	.693	.647	.614
		G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	5	5	5	1
	80	E	R	R	R	R	R	R	R	R	R	L
		V	.780	.790	.760	.730	.816	.790	.755	.770	.735	.700
		G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	5	5	5	1
	100	E	R	R	R	R	R	R	R	R	R	L
		V	.824	.832	.808	.784	.853	.832	.804	.816	.788	.760

TABLE 7.6

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 3-S1 TRUCKS WEIGHING ONE KIP EACH



TYPE 3-S1 TRUCK

Ninety variations in the Type 3-S1 truck are given in this table. Each truck number from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base		L	24	24	24	24	24	24	28	28	28	28
Axle		X	8	8	8	8	8	8	8	8	8	8
Spacing		X'	12	12	12	12	12	12	16	16	16	16
Load		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
On		a_2	.40	.50	.60	.40	.50	.534	.40	.50	.60	.40
Axles		a_3	.50	.40	.30	.40	.30	.266	.50	.40	.30	.40
Span Feet	10	G	4	2 3	2 3	4	2 3	2 3	4	4	2-3	4
		N	4	2	2	4	2	2	4	4	2	4
		E	L	L	L	L	L	L	L	L	L	L
		V	.500	.400	.480	.400	.400	.427	.500	400	.480	.400
	20	G	2-4	2 4	2-4	2-4	1 3	1 3	2-4	1-3	1 3	1-3
		N	4	4	2	4	3	3	4	3	3	3
		E	R	R	L	R	R	R	R	R	R	R
		V	.620	.550	.600	.520	.530	.561	.540	.490	.580	.440
	30	G	1-4	1-4	2 4	1 4	1-4	2 4	1 4	1-4	2 4	1-4
		N	4	4	2	4	4	2	4	4	2	4
		E	R	R	L	R	R	L	R	R	L	R
		V	.733	.687	.700	.653	.607	.622	.667	.607	.660	.573
	40	G	1-4	1-4	2 4	1-4	1 4	1 4	1-4	1 4	2-4	1-4
		N	4	4	2	4	4	1	4	4	3	4
		E	R	R	L	R	R	L	R	R	L	R
		V	.800	.765	.780	.740	.705	.707	.750	.705	.720	.680
	50	G	1-4	1-4	1 4	1-4	1-4	1 4	1-4	1 4	2-4	1-4
		N	4	4	4	4	4	1	4	4	3	4
		E	R	R	R	R	R	L	R	R	L	R
		V	.840	.812	.784	.792	.764	.765	.800	.764	.756	.744
	60	G	1-4	1 4	1-4	1-4	1-4	1 4	1-4	1-4	2 4	1 4
		N	4	4	4	4	4	1	4	4	2	4
		E	R	R	R	R	R	L	R	R	L	R
		V	.867	.843	.820	.827	.803	.804	.833	.803	.780	.787
	80	G	1-4	1-4	1-4	1-4	1-4	1 4	1-4	1-4	1-4	1-4
		N	4	4	4	4	4	1	4	4	4	4
		E	R	R	R	R	R	L	R	R	R	R
		V	.900	.883	.865	.870	.853	.853	.875	.853	.830	.840
	100	G	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
		N	4	4	4	4	4	1	4	4	4	4
		E	R	R	R	R	R	L	R	R	R	R
		V	.920	.906	.892	.896	.882	.883	.900	.882	.864	.872

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus 1–3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.6 (Continued)

Truck No.			11	12	13	14	15	16	17	18	19	20
Wh. Base L			28	28	32	32	32	32	32	32	36	36
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X′	16	16	20	20	20	20	20	20	24	24
Load On Axles		a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
		a_2	.50	.534	.40	.50	.60	.40	.50	.534	.40	.50
		a_3	.30	.266	.50	.40	.30	.40	.30	.266	.50	.40
Span-Feet	10	G	2–3	2–3	4	2–3	2–3	4	2–3	2–3	4	2–3
		N	2	2	4	2	2	4	2	2	4	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.400	.427	.500	.400	.480	.400	.400	.427	.500	.400
	20	G	1–3	1–3	3–4	1–3	1–3	1–3	1–3	1–3	4	1–3
		N	3	3	4	3	3	3	3	3	4	3
		E	R	R	R	R	R	R	R	R	L	R
		V	.530	.561	.500	.490	.580	.440	.530	.561	.500	.490
	30	G	1–3	1–3	2–4	2–4	2–4	2–4	1–3	1–3	2–4	1–3
		N	3	3	4	2	2	4	3	3	4	3
		E	R	R	R	L	L	R	R	R	R	R
		V	.587	.619	.607	.547	.620	.507	.587	.619	.553	.527
	40	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	2–4
		N	1	1	4	4	2	4	1	1	4	2
		E	L	L	R	R	L	R	L	L	R	L
		V	.665	.680	.700	.645	.690	.620	.635	.653	.650	.595
	50	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
		N	1	1	4	4	2	4	1	1	4	4
		E	L	L	R	R	L	R	L	L	R	R
		V	.732	.744	.760	.716	.732	.696	.708	.723	.720	.668
	60	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
		N	1	1	4	4	2	4	1	1	4	4
		E	L	L	R	R	L	R	L	L	R	R
		V	.777	.787	.800	.763	.760	.747	.757	.769	.767	.723
	80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	1	1	4	4	1	4	1	1	4	4
		E	L	L	R	R	L	R	L	L	R	R
		V	.833	.840	.850	.823	.805	.810	.818	.827	.825	.793
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	1	1	4	4	1	4	1	1	4	4
		E	L	L	R	R	L	R	L	L	R	R
		V	.866	.872	.880	.858	.844	.848	.854	.861	.860	.834

Truck No.			21	22	23	24	25	26	27	28	29	30
Wh. Base L			36	36	36	36	40	40	40	40	40	40
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X′	24	24	24	24	28	28	28	28	28	28
Load On Axles		a_1	.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
		a_2	.60	.40	.50	.534	.40	.50	.60	.40	.50	.534
		a_3	.30	.40	.30	.266	.50	.40	.30	.40	.30	.266
Span-Feet	10	G	2–3	4	2–3	2–3	4	2–3	2–3	4	2–3	2–3
		N	2	4	2	2	4	2	2	4	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.480	.409	.400	.427	.500	.400	.480	.400	.400	.427
	20	G	1–3	1–3	1–3	1–3	4	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	4	3	3	3	3	3
		E	R	R	R	R	L	R	R	R	R	R
		V	.580	.440	.530	.561	.509	.490	.580	.440	.530	.561
	30	G	1–3	1–3	1–3	1–3	3–4	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	4	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.620	.493	.587	.619	.513	.527	.620	.493	.587	.619
	40	G	2–4	1–4	1–3	1–3	2–4	2–4	1–3	1–3	1–3	1–3
		N	2	4	3	3	4	2	3	3	3	3
		E	L	R	R	R	R	L	R	R	R	R
		V	.660	.560	.615	.647	.600	.555	.640	.520	.615	.647
	50	G	2–4	1–4	1–4	1–4	1–4	2–4	2–4	1–4	1–4	1–4
		N	2	4	1	1	4	2	2	1	1	1
		E	L	R	L	L	R	L	L	L	L	L
		V	.708	.648	.684	.701	.680	.624	.684	.600	.660	.680
	60	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
		N	2	4	1	1	4	4	2	1	1	1
		E	L	R	L	L	R	R	L	L	L	L
		V	.740	.707	.737	.751	.733	.683	.720	.667	.717	.733
	80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	1	4	1	1	4	4	1	1	1	1
		E	L	R	L	L	R	R	L	L	L	L
		V	.790	.780	.803	.813	.800	.763	.775	.750	.788	.800
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	1	4	1	1	4	4	1	1	1	1
		E	L	R	L	L	R	R	L	L	L	L
		V	.832	.824	.842	.851	.840	.810	.820	.800	.830	.840

TABLE 7.6 (Continued)

Truck No.			31	32	33	34	35	36	37	38	39	40
Wh. Base L			28	28	28	28	28	28	32	32	32	32
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	12	12	12	12	12	12	16	16	16	16
Load On Axles		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
		a_2	.40	.50	.60	.40	.50	.534	.40	.50	.60	.40
		a_3	.50	.40	.30	.40	.30	.266	.50	.40	.30	.40
Span-Feet		G	4	2-3	2-3	4	2-3	2-3	4	2-3	2-3	4
		N	4	2	2	4	2	2	4	2	2	4
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.500	.400	.480	.400	.400	.427	.500	.400	.480	.400
		G	2-4	2-4	2-4	2-4	2-4	2-4	2-4	1-3	1-3	2-4
		N	4	4	2	4	2	2	4	3	3	4
	20	E	R	R	L	R	L	L	R	R	R	R
		V	.620	.550	.600	.520	.510	.533	.540	.470	.560	.440
		G	1-4	1-4	2-4	1-4	2-4	2-4	2-4	2-4	2-4	2-4
		N	4	4	2	4	2	2	4	2	2	4
	30	E	R	R	L	R	L	L	R	L	L	R
		V	.720	.673	.700	.627	.607	.622	.660	.600	.660	.560
		G	1-4	1-4	2-4	1-4	1-4	1-4	1-4	1-4	2-4	1-4
		N	4	4	2	4	4	4	4	4	2	4
	40	E	R	R	L	R	R	R	R	R	L	R
		V	.790	.755	.750	.720	.685	.673	.740	.695	.720	.660
		G	1-4	1-4	2-4	1-4	1-4	1-4	1-4	1-4	2-4	1-4
		N	4	4	2	4	4	4	4	4	2	4
	50	E	R	R	L	R	R	R	R	R	L	R
		V	.832	.804	.780	.776	.748	.739	.792	.756	.756	.728
		G	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	2-4	1-4
		N	4	4	4	4	4	4	4	4	2	4
	60	E	R	R	R	R	R	R	R	R	L	R
		V	.860	.837	.813	.813	.790	.782	.827	.797	.780	.773
		G	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
		N	4	4	4	4	4	4	4	4	4	4
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.895	.878	.860	.860	.843	.837	.870	.848	.825	.830
		G	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
		N	4	4	4	4	4	4	4	4	4	4
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.916	.902	.888	.888	.874	.869	.896	.878	.860	.864

Truck No.			41	42	43	44	45	46	47	48	49	50
Wh. Base L			32	32	36	36	36	36	36	36	40	40
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	16	16	20	20	20	20	20	20	24	24
Load On Axles		a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
		a_2	.50	.534	.40	.50	.60	.40	.50	.534	.40	.50
		a_3	.30	.266	.50	.40	.30	.40	.30	.266	.50	.40
Span-Feet		G	2-3	2-3	4	2-3	2-3	4	2-3	2-3	4	2-3
		N	2	2	4	2	2	4	2	2	4	2
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.400	.427	.500	.400	.480	.400	.400	.427	.500	.400
		G	1-3	1-3	3-4	1-3	1-3	1-3	1-3	1-3	4	1-3
		N	3	3	4	3	3	3	3	3	4	3
	20	E	R	R	R	R	R	R	R	R	L	R
		V	.490	.520	.500	.470	.560	.400	.490	.520	.500	.470
		G	2-4	1-3	2-4	2-4	2-4	2-4	1-3	1-3	2-4	1-3
		N	2	3	4	2	2	4	3	3	4	3
	30	E	L	R	R	L	L	R	R	R	R	R
		V	.567	.592	.607	.547	.620	.507	.560	.592	.553	.514
		G	2-4	2-4	1-4	2-4	2-4	1-4	1-3	1-3	2-4	2-4
		N	2	2	4	2	2	4	3	3	4	2
	40	E	L	L	R	L	L	R	R	R	R	L
		V	.625	.640	.690	.635	.690	.600	.595	.628	.640	.595
		G	1-4	1-4	1-4	1-4	2-4	1-4	1-4	1-4	1-4	1-4
		N	4	4	4	4	2	4	1	1	4	4
	50	E	R	R	R	R	L	R	L	L	R	R
		V	.692	.680	.752	.708	.732	.680	.644	.659	.712	.660
		G	1-4	1-4	1-4	1-4	2-4	1-4	1-4	1-4	1-4	1-4
		N	4	4	4	4	2	4	1	1	4	4
	60	E	R	R	R	R	L	R	L	L	R	R
		V	.743	.733	.793	.757	.760	.733	.703	.715	.760	.717
		G	1-4	1-4	1-4	1-4	2-4	1-4	1-4	1-4	1-4	1-4
		N	4	4	4	4	2	4	1	1	4	4
	80	E	R	R	R	R	L	R	L	L	R	R
		V	.808	.800	.845	.818	.795	.800	.778	.787	.820	.788
		G	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
		N	4	4	4	4	4	4	1	1	4	4
	100	E	R	R	R	R	R	R	L	L	R	R
		V	.846	.840	.876	.854	.832	.840	.822	.829	.856	.830

TABLE 7.6 (Continued)

Truck No.			51	52	53	54	55	56	57	58	59	60
Wh. Base L			40	40	40	40	44	44	44	44	44	44
Axle		X	12	12	12	12	12	12	12	12	12	12
Spacing		X′	24	24	24	24	28	28	28	28	28	28
Load		a_1	.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
On		a_2	.60	.40	.50	.534	.40	.50	.60	.40	.50	.534
Axles		a_3	.30	.40	.30	.266	.50	.40	.30	.40	.30	.266
Span-Feet	10	G	2–3	4	2–3	2–3	4	2–3	2–3	4	2 3	2–3
		N	2	4	2	2	4	2	2	4	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.480	.400	.400	.427	.500	.400	.480	.400	.400	.427
	20	G	1–3	1–3	1–3	1–3	4	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	4	3	3	3	3	3
		E	R	R	R	R	L	R	R	R	R	R
		V	.560	.400	.490	.520	.500	.470	.560	.400	.490	.520
	30	G	1–3	1–3	1–3	1–3	3–4	1–3	1–3	1–3	1–3	1–3
		N	3	3	3	3	4	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.607	.467	.560	.592	.513	.514	.607	.467	.560	.592
	40	G	2–4	2–4	1–3	1–3	2–4	2–4	1–3	1–3	1–3	1–3
		N	2	4	3	3	4	2	3	3	3	3
		E	L	R	R	R	R	L	R	R	R	R
		V	.660	.540	.595	.628	.600	.555	.630	.500	.595	.628
	50	G	2–4	1–4	1–4	1–3	1–4	2–4	2–4	1–4	1–3	1–3
		N	2	4	1	3	4	2	2	4	3	3
		E	L	R	L	R	R	L	L	R	R	R
		V	.708	.632	.620	.649	.672	.624	.684	.584	.616	.649
	60	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	2–4	1–4
		N	2	4	1	1	4	4	2	4	2	1
		E	L	R	L	L	R	R	L	R	L	L
		V	.740	.693	.683	.698	.727	.677	.720	.653	.663	.680
	80	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
		N	2	4	1	1	4	4	2	4	1	1
		E	L	R	L	L	R	R	L	R	L	L
		V	.780	.770	.763	.773	.795	.758	.765	.740	.748	.760
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
		N	4	4	1	1	4	4	2	4	1	1
		E	R	R	L	L	R	R	L	R	L	L
		V	.804	.816	.810	.819	.836	.806	.792	.792	.798	.808

Truck No.			61	62	63	64	65	66	67	68	69	70
Wh. Base L			32	32	32	32	32	32	36	36	36	36
Axle		X	16	16	16	16	16	16	16	16	16	16
Spacing		X′	12	12	12	12	12	12	16	16	16	16
Load		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
On		a_2	.40	.50	.60	.40	.50	.534	.40	.50	.60	.40
Axles		a_3	.50	.40	.30	.40	.30	.266	.50	.40	.30	.40
Span-Feet	10	G	4	2–3	2–3	4	2–3	2 3	4	2–3	2–3	4
		N	4	2	2	4	2	2	4	2	2	4
		E	L	L	L	L	L	L	L	L	L	L
		V	.500	.400	.480	.400	.400	.427	.500	.400	.480	.400
	20	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	4	4	2	4	2	2	4	2	2	4
		E	R	R	L	R	L	L	R	L	L	R
		V	.620	.550	.600	.520	.510	.533	.540	.450	.540	.440
	30	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	4	4	2	4	2	2	4	2	2	4
		E	R	R	L	R	L	L	R	L	L	R
		V	.713	.667	.700	.613	.607	.622	.660	.600	.660	.560
	40	G	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4
		N	4	4	2	4	4	2	4	4	2	4
		E	R	R	L	R	R	L	R	R	L	R
		V	.780	.745	.750	.700	.665	.667	.730	.685	.720	.640
	50	G	1–4	1–4	2–4	1 4	1–4	1–4	1–4	1–4	2–4	1–4
		N	4	4	2	4	4	4	4	4	2	4
		E	R	R	L	R	R	R	R	R	L	R
		V	.824	.796	.780	.760	.732	.723	.784	.748	.756	.712
	60	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
		N	4	4	4	4	4	4	4	4	2	4
		E	R	R	R	R	R	R	R	R	L	R
		V	.853	.830	.807	.800	.777	.769	.820	.790	.780	.760
	80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	4	4	4
		E	R	R	R	R	R	R	R	R	R	R
		V	.890	.873	.855	.850	.833	.827	.865	.843	.820	.820
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	4	4	4
		E	R	R	R	R	R	R	R	R	R	R
		V	.912	.898	.884	.880	.866	.861	.892	.874	.856	.856

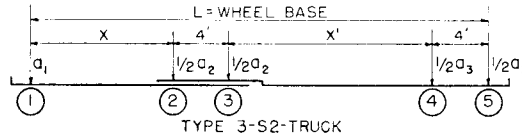
TABLE 7.6 (Continued)

Truck No.			71	72	73	74	75	76	77	78	79	80
Wh. Base L			36	36	40	40	40	40	40	40	44	44
Axle		X	16	16	16	16	16	16	16	16	16	16
Spacing		X′	16	16	20	20	20	20	20	20	24	24
Load		a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
On		a_2	.50	.534	.40	.50	.60	.40	.50	.534	.40	.50
Axles		a_3	.30	.266	.50	.40	.30	.40	.30	.266	.50	.40
Span-Feet	10	G	2–3	2–3	4	2–3	2–3	4	2–3	2–3	4	2–3
		N	2	2	4	2	2	4	2	2	4	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.400	.427	.500	.400	.480	.400	.400	.427	.500	.400
	20	G	1–3	1–3	4	1–3	1–3	4	1–3	1–3	4	1–3
		N	3	3	4	3	3	4	3	3	4	3
		E	R	R	R	R	R	R	R	R	L	R
		V	.450	.481	.500	.450	.540	.400	.450	.481	.500	.450
	30	G	2–4	2–4	2–4	2–4	2–4	2–4	1–3	1–3	2–4	1–3
		N	2	2	4	2	2	4	3	3	4	3
		E	L	L	R	L	L	R	R	R	R	R
		V	.567	.587	.607	.547	.620	.507	.533	.565	.553	.500
	40	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	2	4	2	2	4	2	2	4	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.625	.640	.680	.635	.690	.580	.595	.613	.640	.595
	50	G	1–4	2–4	1–4	1–4	2–4	1–4	2–4	2–4	1–4	2–4
		N	4	2	4	4	2	4	2	2	4	2
		E	R	L	R	R	L	R	L	L	R	L
		V	.676	.672	.744	.700	.732	.664	.636	.651	.704	.656
	60	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4
		N	4	4	4	4	2	4	4	2	4	4
		E	R	R	R	R	L	R	R	L	R	R
		V	.730	.720	.787	.750	.760	.720	.683	.676	.753	.710
	80	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	2	4	4	4	4	4
		E	R	R	R	R	L	R	R	R	R	R
		V	.798	.790	.840	.813	.795	.790	.763	.753	.815	.783
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	4	4	4
		E	R	R	R	R	R	R	R	R	R	R
		V	.838	.832	.872	.850	.828	.832	.810	.803	.852	.826

Truck No.			81	82	83	84	85	86	87	88	89	90
Wh. Base L			44	44	44	44	48	48	48	48	48	48
Axle		X	16	16	16	16	16	16	16	16	16	16
Spacing		X′	24	24	24	24	28	28	28	28	28	28
Load		a_1	.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
On		a_2	.60	.40	.50	.534	.40	.50	.60	.40	.50	.534
Axles		a_3	.30	.40	.30	.266	.50	.40	.30	.40	.30	.266
Span-Feet	10	G	2–3	4	2–3	2–3	4	2–3	2–3	4	2–3	2–3
		N	2	4	2	2	4	2	2	4	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.480	.400	.400	.427	.500	.400	.480	.400	.400	.427
	20	G	1–3	4	1–3	1–3	4	1–3	1–3	4	1–3	1–3
		N	3	4	3	3	4	3	3	4	3	3
		E	R	L	R	R	L	R	R	L	R	R
		V	.540	.400	.450	.481	.500	.450	.540	.400	.450	.481
	30	G	1–3	2–4	1–3	1–3	3–4	1–3	1–3	1–3	1–3	1–3
		N	3	4	3	3	4	3	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.594	.453	.533	.565	.513	.500	.594	.440	.533	.565
	40	G	2–4	2–4	1–3	1–3	2–4	2–4	2–4	2–4	1–3	1–3
		N	2	4	3	3	4	2	2	4	3	3
		E	L	R	R	R	R	L	L	R	R	R
		V	.660	.540	.575	.607	.600	.555	.630	.500	.575	.607
	50	G	2–4	1–4	2–4	1–3	1–4	2–4	2–4	1–4	1–3	1–3
		N	2	4	2	3	4	2	2	4	3	3
		E	L	R	L	R	R	L	L	R	R	R
		V	.708	.616	.612	.633	.664	.624	.684	.568	.600	.633
	60	G	2–4	1–4	2–4	2–4	1–4	2–4	2–4	1–4	2–4	1–3
		N	2	4	2	2	4	2	2	4	2	3
		E	L	R	L	L	R	L	L	R	L	R
		V	.740	.680	.643	.658	.720	.670	.720	.640	.623	.650
	80	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
		N	2	4	4	1	4	4	2	4	1	1
		E	L	R	R	L	R	R	L	R	L	L
		V	.780	.760	.728	.733	.790	.753	.765	.730	.708	.720
	100	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
		N	2	4	4	1	4	4	2	4	1	1
		E	L	R	R	L	R	R	L	R	L	L
		V	.804	.808	.782	.787	.832	.802	.792	.784	.766	.776

TABLE 7.7

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 3-S2 TRUCKS WEIGHING ONE KIP EACH



TYPE 3-S2-TRUCK

One hundred and twelve variations in the Type 3–S2 truck are given in this table. Each truck number, from 1 to 112, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base L			28	28	28	28	28	28	28	32	32	32
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X′	12	12	12	12	12	12	12	16	16	16
Load On Axles		a_1	.10	.10	.10	.10	.20	.20	.20	.10	.10	.10
		a_2	.30	.40	.45	.50	.30	.40	.50	.30	.40	.45
		a_3	.60	.50	.45	.40	.50	.40	.30	.60	.50	.45
Span-Feet	10	G	4–5	4–5	4–5	2–3	4–5	4–5	2–3	4–5	4–5	4–5
		N	4	4	4	2	4	4	2	4	4	4
		E	L	L	L	L	L	L	L	L	L	L
		V	.480	.400	.360	.400	.400	.320	.400	.480	.400	.360
	20	G	2–5	2–5	2–5	2–5	2–5	1–3	1–3	4–5	4–5	1–3
		N	5	5	2	2	5	3	3	4	4	3
		E	R	R	L	L	R	R	R	L	L	R
		V	.570	.490	.450	.490	.480	.440	.530	.540	.450	.445
	30	G	1–5	1–5	1–5	2–5	1–5	1–5	1–3	2–5	2–5	2–5
		N	5	5	5	2	5	5	3	5	5	2
		E	R	R	R	R	R	R	R	R	R	L
		V	.687	.633	.607	.626	.600	.547	.587	.640	.573	.540
	40	G	1–5	1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	2	5	5	1	5	5	5
		E	R	R	R	L	R	R	L	R	R	R
		V	.765	.725	.705	.695	.700	.660	.680	.725	.675	.650
	50	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	1	5	5	5
		E	R	R	R	R	R	R	L	R	R	R
		V	.812	.780	.764	.748	.760	.728	.744	.780	.740	.720
	60	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	1	5	5	5
		E	R	R	R	R	R	R	L	R	R	R
		V	.843	.817	.803	.790	.800	.773	.787	.817	.783	.767
	80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	1	5	5	5
		E	R	R	R	R	R	R	L	R	R	R
		V	.883	.863	.853	.843	.850	.830	.840	.863	.838	.825
	100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	1	5	5	5
		E	R	R	R	R	R	R	L	R	R	R
		V	.906	.890	.882	.874	.880	.864	.872	.890	.870	.860

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3 Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus, 1–3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.7 (Continued)

Truck No.		11	12	13	14	15	16	17	18	19	20
Wh. Base	L	32	32	32	32	36	36	36	36	36	36
Axle	X	8	8	8	8	8	8	8	8	8	8
Spacing	X′	16	16	16	16	20	20	20	20	20	20
Load	a_1	.10	.20	.20	.20	.10	.10	.10	.10	.20	.20
On	a_2	.50	.30	.40	.50	.30	.40	.45	.50	.30	.40
Axles	a_3	.40	.50	.40	.30	.60	.50	.45	.40	.50	.40
Span-Feet 10	G	2–3	4–5	4–5	2–3	4–5	4–5	4–5	2–3	4–5	4–5
	N	2	4	4	2	4	4	4	2	4	4
	E	L	L	L	L	L	L	L	L	L	L
	V	.400	.400	.320	.400	.480	.400	.360	.400	.400	.320
20	G	1–3	4–5	1–3	1–3	4–5	4–5	1–3	1–3	4–5	1–3
	N	3	4	3	3	4	4	3	3	4	3
	E	R	L	R	R	L	L	R	R	L	R
	V	.490	.450	.440	.530	.540	.450	.445	.490	.450	.440
30	G	2–5	2–5	1–3	1–3	2–5	2–5	2–5	1–3	2–5	1–3
	N	2	5	3	3	5	5	2	3	5	3
	E	L	R	R	R	R	R	L	R	R	R
	V	.573	.546	.493	.587	.600	.520	.480	.527	.506	.493
40	G	2–5	1–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	2	5	1	1	5	5	5	2	5	1
	E	L	R	L	L	R	R	L	L	R	L
	V	.655	.650	.600	.650	.685	.625	.595	.615	.600	.560
50	G	2–5	1–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	2	5	1	1	5	5	5	2	5	1
	E	L	R	L	L	R	R	L	L	R	L
	V	.704	.720	.680	.720	.748	.700	.676	.672	.680	.648
60	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	1	1	5	5	5	5	5	1
	E	R	R	L	L	R	R	R	R	R	L
	V	.750	.767	.733	.767	.790	.750	.730	.710	.733	.707
80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	1	1	5	5	5	5	5	1
	E	R	R	L	L	R	R	R	R	R	L
	V	.813	.825	.800	.825	.843	.813	.798	.783	.800	.780
100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	1	1	5	5	5	5	5	1
	E	R	R	L	L	R	R	R	R	R	L
	V	.850	.860	.840	.860	.874	.850	.838	.826	.840	.824

Truck No.		21	22	23	24	25	26	27	28	29	30
Wh. Base	L	36	40	40	40	40	40	40	40	44	44
Axle	X	8	8	8	8	8	8	8	8	8	8
Spacing	X′	20	24	24	24	24	24	24	24	28	28
Load	a_1	.20	.10	.10	.10	.10	.20	.20	.20	.10	.10
On	a_2	.50	.30	.40	.45	.50	.30	.40	.50	.30	.40
Axles	a_3	.30	.60	.50	.45	.40	.50	.40	.30	.60	.50
Span-Feet 10	G	2–3	4–5	4–5	4–5	2–3	4–5	4–5	2–3	4–5	4–5
	N	2	4	4	4	2	4	4	2	4	4
	E	L	L	L	L	L	L	L	L	L	L
	V	.400	.480	.400	.360	.400	.400	.320	.400	.480	.400
20	G	1–3	4–5	4–5	1–3	1–3	4–5	1–3	1–3	4–5	4–5
	N	3	4	4	3	3	4	3	3	4	4
	E	R	L	L	R	R	L	R	R	L	L
	V	.530	.540	.450	.445	.490	.450	.440	.530	.540	.450
30	G	1–3	3–5	3–5	1–3	1–3	3–5	1–3	1–3	4–5	4–5
	N	3	5	5	3	3	5	3	3	4	4
	E	R	R	R	R	R	R	R	R	L	L
	V	.587	.570	.480	.480	.527	.476	.493	.587	.560	.467
40	G	1–5	1–5	1–5	1–5	2–5	1–5	1–5	1–3	2–5	2–5
	N	1	5	5	5	2	5	1	3	5	5
	E	L	R	R	R	L	R	L	R	R	R
	V	.620	.645	.575	.540	.575	.550	.520	.615	.615	.535
50	G	1–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5
	N	1	5	5	5	2	5	1	1	5	5
	E	L	R	R	R	L	R	L	L	R	R
	V	.696	.716	.660	.632	.640	.640	.616	.672	.684	.620
60	G	1–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5
	N	1	5	5	5	2	5	1	1	5	5
	E	L	R	R	R	L	R	L	L	R	R
	V	.747	.763	.717	.693	.683	.700	.680	.727	.737	.683
80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	1	5	5	5	5	5	1	1	5	5
	E	L	R	R	R	R	R	L	L	R	R
	V	.810	.823	.788	.770	.753	.775	.760	.795	.803	.763
100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	1	5	5	5	5	5	1	1	5	5
	E	L	R	R	R	R	R	L	L	R	R
	V	.848	.858	.830	.816	.802	.820	.808	.836	.842	.810

TABLE 7.7 (Continued)

Truck No.			31	32	33	34	35	36	37	38	39	40
Wh. Base L			44	44	44	44	44	28	28	28	28	28
Axle		X	8	8	8	8	8	12	12	12	12	12
Spacing		X′	28	28	28	28	28	8	8	8	8	8
Load		a_1	10	.10	.20	.20	.20	.10	.10	.10	.10	.20
On		a_2	.45	.50	.30	.40	.50	.30	.40	.45	.50	.30
Axles		a_3	45	.40	.50	.40	.30	.60	.50	.45	.40	.50
Span-Feet	10	G	4-5	2-3	4-5	4-5	2-3	4-5	4-5	4-5	2-3	4-5
		N	4	2	4	4	2	4	4	4	2	4
		E	L	L	L	L	L	L	L	L	L	L
		V	.360	.400	.400	.320	.400	.480	.400	.360	.400	.400
	20	G	1-3	1-3	4-5	1-3	1-3	2-5	2-5	2-5	2-5	2-5
		N	3	3	4	3	3	5	5	2	2	5
		E	R	R	L	R	R	R	R	L	L	R
		V	.445	.490	.450	.440	.530	.630	.570	.540	.570	.540
	30	G	1-3	1-3	4-5	1-3	1-3	1-5	1-5	1-5	2-5	1-5
		N	3	3	4	3	3	5	5	5	2	5
		E	R	R	L	R	R	R	R	R	L	R
		V	.480	.527	.467	.493	.587	.727	.687	.667	.680	.640
	40	G	1-3	1-3	2-5	1-3	1-3	1-5	1-5	1-5	1-5	1-5
		N	3	3	5	3	3	5	5	5	5	5
		E	R	R	R	R	R	R	R	R	R	R
		V	.498	.545	.520	.520	.615	.795	.765	.750	.735	.730
	50	G	1-5	2-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	2	5	1	1	5	5	5	5	5
		E	R	L	R	L	L	R	R	R	R	R
		V	.588	.608	.600	.584	.648	.836	.812	.800	.788	.784
	60	G	1-5	2-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	2	5	1	1	5	5	5	5	5
		E	R	L	R	L	L	R	R	R	R	R
		V	.657	.657	.667	.653	.707	.863	.843	.833	.823	.820
	80	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	1	5	1	1	5	5	5	5	5
		E	R	L	R	L	L	R	R	R	R	R
		V	.743	.728	.750	.740	.780	.898	.883	.875	.868	.865
	100	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	1	5	1	1	5	5	5	5	5
		E	R	L	R	L	L	R	R	R	R	R
		V	.794	.782	.800	.792	.824	.918	.906	.900	.894	.892

Truck No.			41	42	43	44	45	46	47	48	49	50
Wh. Base L			28	28	32	32	32	32	32	32	32	36
Axle		X	12	12	12	12	12	12	12	12	12	12
Spacing		X′	8	8	12	12	12	12	12	12	12	16
Load		a_1	.20	.20	.10	.10	.10	.10	.20	.20	.20	.10
On		a_2	40	.50	.30	.40	.45	.50	.30	40	.50	.30
Axles		a_3	40	.30	.60	.50	.45	.40	.50	.40	.30	.60
Span-Feet	10	G	4-5	2-3	4-5	4-5	4-5	2-3	4-5	4-5	2-3	4-5
		N	4	2	4	4	4	2	4	4	2	4
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.480	.400	.360	.400	.400	.320	.400	.480
	20	G	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	1-3	4-5
		N	2	2	5	5	2	2	5	2	3	4
		E	L	L	R	R	L	L	R	L	R	L
		V	.480	.540	.570	.490	.450	.490	.480	.400	.490	.540
	30	G	1-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5
		N	5	2	5	5	2	2	5	2	2	5
		E	R	L	R	R	L	L	R	L	L	R
		V	.600	.626	.680	.626	.600	.626	.586	.534	.586	.640
	40	G	1-5	1-5	1-5	1-5	1-5	2-5	1-5	1-5	2-5	1-5
		N	5	5	5	5	5	2	5	5	2	5
		E	R	R	R	R	R	L	R	R	L	R
		V	.700	.670	.755	.715	.695	.695	.680	.640	.640	.715
	50	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	5	5	5	5	5	5	5	1	5
		E	R	R	R	R	R	R	R	R	L	R
		V	.760	.736	.804	.772	.756	.740	.744	.712	.680	.772
	60	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	5	5	5	5	5	5	5	1	5
		E	R	R	R	R	R	R	R	R	L	R
		V	.800	.780	.837	.810	.797	.783	.787	.760	.733	.810
	80	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	5	5	5	5	5	5	5	1	5
		E	R	R	R	R	R	R	R	R	L	R
		V	.850	.835	.878	.858	.848	.838	.840	.820	.800	.858
	100	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	5	5	5	5	5	5	5	1	5
		E	R	R	R	R	R	R	R	R	L	R
		V	.880	.868	.902	.886	.878	.870	.872	.856	.840	.886

TABLE 7.7 (Continued)

Truck No.			51	52	53	54	55	56	57	58	59	60
Wh. Base		L	36	36	36	36	36	36	40	40	40	40
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	16	16	16	16	16	16	20	20	20	20
Load On Axles		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.10
		a_2	.40	.45	.50	.30	.40	.50	.30	.40	.45	.50
		a_3	.50	.45	.40	.50	.40	.30	.60	.50	.45	.40
Span-Feet	10	G	4–5	4–5	2–3	4–5	4–5	2–3	4–5	4–5	4–5	2–3
		N	4	4	2	4	4	2	4	4	4	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.400	.360	.400	.400	.320	.400	.480	.400	.360	.400
	20	G	4–5	1–3	1–3	4–5	1–3	1–3	4–5	4–5	1–3	1–3
		N	4	3	3	4	3	3	4	4	3	3
		E	L	R	R	L	R	R	L	L	R	R
		V	.450	.425	.470	.450	.400	.490	.540	.450	.425	.470
	30	G	2–5	2–5	2–5	2–5	2–5	1–3	2–5	2–5	2–5	2–5
		N	5	2	2	5	2	3	5	5	2	2
		E	R	L	L	R	L	R	R	R	L	L
		V	.573	.540	.573	.546	.480	.560	.600	.520	.480	.520
	40	G	1–5	1–5	2–5	1–5	1–5	2–5	2–5	2–5	2–5	2–5
		N	5	5	2	5	5	2	5	5	2	2
		E	R	R	L	R	R	L	R	R	L	L
		V	.665	.640	.655	.630	.580	.610	.675	.615	.585	.615
	50	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5	1–5	2–5
		N	5	5	2	5	5	1	5	5	5	2
		E	R	R	L	R	R	L	R	R	R	L
		V	.732	.712	.704	.704	.664	.656	.740	.692	.668	.672
	60	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	2–5
		N	5	5	5	5	5	1	5	5	5	2
		E	R	R	R	R	R	L	R	R	R	L
		V	.777	.760	.743	.753	.720	.713	.783	.743	.723	.710
	80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	1	5	5	5	5
		E	R	R	R	R	R	L	R	R	R	R
		V	.833	.820	.808	.815	.790	.785	.838	.808	.793	.778
	100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	1	5	5	5	5
		E	R	R	R	R	R	L	R	R	R	R
		V	.866	.856	.846	.852	.832	.828	.870	.846	.834	.822

Truck No.			61	62	63	64	65	66	67	68	69	70
Wh. Base		L	40	40	40	44	44	44	44	44	44	44
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	20	20	20	24	24	24	24	24	24	24
Load On Axles		a_1	.20	.20	.20	.10	.10	.10	.10	.20	.20	.20
		a_2	.30	.40	.50	.30	.40	.45	.50	.30	.40	.50
		a_3	.50	.40	.30	.60	.50	.45	.40	.50	.40	.30
Span-Feet	10	G	4–5	4–5	2–3	4–5	4–5	4–5	2–3	4–5	4–5	2–3
		N	4	4	2	4	4	4	2	4	4	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.400	.320	.400	.480	.400	.360	.400	.400	.320	.400
	20	G	4–5	1–3	1–3	4–5	4–5	1–3	1–3	4–5	1–3	1–3
		N	4	3	3	4	4	3	3	4	3	3
		E	L	R	R	L	L	R	R	L	R	R
		V	.450	.400	.490	.540	.450	.425	.470	.450	.400	.490
	30	G	2–5	1–3	1–3	3–5	3–5	1–3	1–3	3–5	1–3	1–3
		N	5	3	3	5	5	3	3	5	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.506	.467	.560	.570	.480	.467	.513	.476	.467	.560
	40	G	2–5	2–5	1–3	2–5	2–5	2–5	2–5	2–5	1–3	1–3
		N	5	2	3	5	5	2	2	5	3	3
		E	R	L	R	R	R	L	L	R	R	R
		V	.580	.520	.595	.645	.575	.540	.575	.550	.500	.595
	50	G	1–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5	1–3
		N	5	5	1	5	5	5	2	5	5	3
		E	R	R	L	R	R	R	L	R	R	R
		V	.664	.616	.632	.708	.652	.624	.640	.624	.568	.616
	60	G	1–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5
		N	5	5	1	5	5	5	2	5	5	1
		E	R	R	L	R	R	R	L	R	R	L
		V	.720	.680	.693	.757	.710	.687	.683	.687	.640	.673
	80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	1	5	5	5	5	5	5	1
		E	R	R	L	R	R	R	R	R	R	L
		V	.790	.760	.770	.818	.783	.765	.748	.765	.730	.755
	100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	1	5	5	5	5	5	5	1
		E	R	R	L	R	R	R	R	R	R	L
		V	.832	.808	.816	.854	.826	.812	.798	.812	.784	.804

TABLE 7.7 (Continued)

Truck No.		71	72	73	74	75	76	77	78	79	80
Wh. Base L		48	48	48	48	48	48	48	36	36	36
Axle Spacing	X	12	12	12	12	12	12	12	16	16	16
	X′	28	28	28	28	28	28	28	12	12	12
Load	a_1	.10	.10	.10	.10	.20	.20	.20	.10	.10	.10
On	a_2	.30	.40	.45	.50	.30	.40	.50	.30	.40	.45
Axles	a_3	.60	.50	.45	.40	.50	.40	.30	.60	.50	.45
Span-Feet 10	G	4-5	4-5	4-5	2-3	4-5	4-5	2-3	4-5	4-5	4-5
	N	4	4	4	2	4	4	2	4	4	4
	E	L	L	L	L	L	L	L	L	L	L
	V	.480	.400	.360	.400	.400	.320	.400	.480	.400	.360
20	G	4-5	4-5	1-3	1-3	4-5	1-3	1-3	2-5	2-5	2-5
	N	4	4	3	3	4	3	3	5	5	2
	E	L	L	R	R	L	R	R	R	R	L
	V	.540	.450	.425	.470	.450	.400	.490	.570	.490	.450
30	G	4-5	4-5	1-3	1-3	4-5	1-3	1-3	2-5	2-5	2-5
	N	4	4	3	3	4	3	3	5	5	2
	E	L	L	R	R	L	R	R	R	R	L
	V	.560	.467	.467	.513	.467	.467	.560	.680	.626	.600
40	G	2-5	2-5	2-5	2-5	2-5	1-3	1-3	1-5	1-5	1-5
	N	5	5	2	2	5	3	3	5	5	5
	E	R	R	L	L	R	R	R	R	R	R
	V	.615	.535	.495	.535	.520	.500	.595	.745	.705	.685
50	G	1-5	1-5	1-5	2-5	1-5	1-5	1-3	1-5	1-5	1-5
	N	5	5	5	2	5	1	3	5	5	5
	E	R	R	R	L	R	L	R	R	R	R
	V	.676	.612	.580	.608	.584	.520	.616	.796	.764	.748
60	G	1-5	1-5	1-5	2-5	1-5	1-5	1-5	1-5	1-5	1-5
	N	5	5	5	2	5	1	1	5	5	5
	E	R	R	R	L	R	L	L	R	R	R
	V	.730	.677	.650	.657	.653	.600	.653	.830	.803	.790
80	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
	N	5	5	5	5	5	1	1	5	5	5
	E	R	R	R	R	R	L	L	R	R	R
	V	.798	.758	.738	.718	.740	.700	.740	.873	.853	.843
100	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
	N	5	5	5	5	5	1	1	5	5	5
	E	R	R	R	R	R	L	L	R	R	R
	V	.838	.806	.790	.774	.792	.760	.792	.898	.882	.874

Truck No.		81	82	83	84	85	86	87	88	89	90
Wh. Base L		36	36	36	36	40	40	40	40	40	40
Axle Spacing	X	16	16	16	16	16	16	16	16	16	16
	X′	12	12	12	12	16	16	16	16	16	16
Load	a_1	.10	.20	.20	.20	.10	.10	.10	.10	.20	.20
On	a_2	.50	.30	.40	.50	.30	.40	.45	.50	.30	.40
Axles	a_3	.40	.50	.40	.30	.60	.50	.45	.40	.50	.40
Span-Feet 10	G	2-3	4-5	4-5	2-3	4-5	4-5	4-5	2-3	4-5	4-5
	N	2	4	4	2	4	4	4	2	4	4
	E	L	L	L	L	L	L	L	L	L	L
	V	.400	.400	.320	.400	.480	.400	.360	.400	.400	.320
20	G	2-5	2-5	2-5	2-5	4-5	4-5	4-5	1-3	4-5	4-5
	N	2	5	2	2	4	4	4	3	4	4
	E	L	R	L	L	L	L	L	R	L	L
	V	.490	.480	.400	.480	.540	.450	.405	.450	.450	.360
30	G	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5
	N	2	5	2	2	5	5	2	2	5	2
	E	L	R	L	L	R	R	L	L	R	L
	V	.626	.586	.534	.586	.640	.573	.540	.573	.546	.480
40	G	2-5	1-5	1-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5
	N	2	5	5	2	5	5	2	2	5	2
	E	L	R	R	L	R	R	L	L	R	L
	V	.695	.660	.620	.640	.705	.655	.630	.655	.610	.560
50	G	2-5	1-5	1-5	2-5	1-5	1-5	1-5	2-5	1-5	1-5
	N	2	5	5	2	5	5	5	2	5	5
	E	L	R	R	L	R	R	R	L	R	R
	V	.736	.728	.696	.672	.764	.724	.704	.704	.688	.648
60	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
	N	5	5	5	5	5	5	5	5	5	5
	E	R	R	R	R	R	R	R	R	R	R
	V	.777	.773	.747	.720	.803	.770	.753	.737	.740	.707
80	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
	N	5	5	5	5	5	5	5	5	5	5
	E	R	R	R	R	R	R	R	R	R	R
	V	.833	.830	.810	.790	.853	.828	.815	.803	.805	.780
100	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
	N	5	5	5	5	5	5	5	5	5	5
	E	R	R	R	R	R	R	R	R	R	R
	V	.866	.864	.848	.832	.882	.862	.852	.842	.844	.824

TABLE 7.7 (Continued)

Truck No.			91	92	93	94	95	96	97	98	99	100
Wh. Base		L	40	44	44	44	44	44	44	44	48	48
Axle		X	16	16	16	16	16	16	16	16	16	16
Spacing		X′	16	20	20	20	20	20	20	20	24	24
Load		a_1	.20	.10	.10	.10	.10	.20	.20	.20	.10	.10
On		a_2	.50	.30	.40	.45	.50	.30	.40	.50	.30	.40
Axles		a_3	.30	.60	.50	.45	.40	.50	.40	.30	.60	.50
Span-Feet	10	G	2–3	4–5	4–5	4–5	2–3	4–5	4–5	2–3	4–5	4–5
		N	2	4	4	4	2	4	4	2	4	4
		E	L	L	L	L	L	L	L	L	L	L
		V	.400	.480	.400	.360	.400	.400	.320	.400	.480	.400
	20	G	1–3	4–5	4–5	4–5	1–3	4–5	4–5	1–3	4–5	4–5
		N	3	4	4	4	3	4	4	3	4	4
		E	R	L	L	L	R	L	L	R	L	L
		V	.450	.540	.450	.405	.450	.450	.360	.450	.540	.450
	30	G	2–5	2–5	2–5	2–5	2–5	2–5	1–3	1–3	3–5	3–5
		N	2	5	5	2	2	5	3	3	5	5
		E	L	R	R	L	L	R	R	R	R	R
		V	.546	.600	.520	.480	.520	.506	.440	.533	.570	.480
	40	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	5	5	2	2	5	2	2	5	5
		E	L	R	R	L	L	R	L	L	R	R
		V	.610	.675	.615	.585	.615	.580	.520	.580	.645	.575
	50	G	2–5	1–5	1–5	1–5	2–5	1–5	1–5	2–5	1–5	1–5
		N	2	5	5	5	2	5	5	2	5	5
		E	L	R	R	R	L	R	R	L	R	R
		V	.648	.732	.684	.660	.672	.648	.600	.624	.700	.644
	60	G	2–5	1–5	1–5	1–5	2–5	1–5	1–5	2–5	1–5	1–5
		N	2	5	5	5	2	5	5	2	5	5
		E	L	R	R	R	L	R	R	L	R	R
		V	.674	.777	.737	.717	.710	.707	.667	.654	.750	.703
	80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	5	1	5	5
		E	L	R	R	R	R	R	R	L	R	R
		V	.755	.833	.803	.788	.773	.780	.750	.730	.813	.778
	100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	5	1	5	5
		E	L	R	R	R	R	R	R	L	R	R
		V	.804	.866	.842	.830	.818	.824	.800	.784	.850	.822

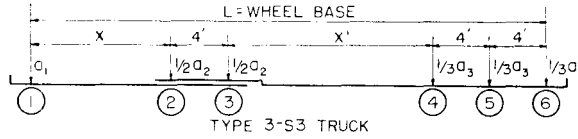
Truck No.			101	102	103	104	105	106	107	108	109	110
Wh. Base		L	48	48	48	48	48	52	52	52	52	52
Axle		X	16	16	16	16	16	16	16	16	16	16
Spacing		X′	24	24	24	24	24	28	28	28	28	28
Load		a_1	.10	.10	.20	.20	.20	.10	.10	.10	.10	.20
On		a_2	.45	.50	.30	.40	.50	.30	.40	.45	.50	.30
Axles		a_3	.45	.40	.50	.40	.30	.60	.50	.45	.40	.50
Span-Feet	10	G	4–5	2–3	4–5	4–5	2–3	4–5	4–5	4–5	2–3	4–5
		N	4	2	4	4	2	4	4	4	2	4
		E	L	L	L	L	L	L	L	L	L	L
		V	.360	.400	.400	.320	.400	.480	.400	360	.400	.400
	20	G	4–5	1–3	4–5	4–5	1–3	4–5	4–5	4–5	1–3	4–5
		N	4	3	4	4	3	4	4	4	3	4
		E	L	R	L	L	R	L	L	L	R	L
		V	.405	.450	.450	.360	.450	.540	.450	.405	.450	.450
	30	G	1–3	1–3	3–5	1–3	1–3	4–5	4–5	1–3	1–3	4–5
		N	3	3	5	3	3	4	4	4	3	4
		E	R	R	R	R	R	L	L	R	R	L
		V	.453	.500	.476	.440	.533	.560	.467	.453	500	.467
	40	G	2–5	2–5	2–5	2–5	1–3	2–5	2–5	2–5	2–5	2–5
		N	2	2	5	2	3	5	5	2	2	5
		E	L	L	R	L	R	R	R	L	L	R
		V	.540	.575	.550	.480	.575	.615	.535	.495	.535	.520
	50	G	1–5	2–5	1–5	1–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	5	2	5	5	2	5	5	2	2	5
		E	R	L	R	R	L	R	R	L	L	R
		V	.616	.640	.608	.552	.600	.672	.608	.576	.608	.576
	60	G	1–5	2–5	1–5	1–5	2–5	1–5	1–5	1–5	2–5	1–5
		N	5	2	5	5	2	5	5	5	2	5
		E	R	L	R	R	L	R	R	R	L	R
		V	.680	.683	.673	.627	.634	.723	.670	.643	.657	.640
	80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5
		N	5	5	5	5	1	5	5	5	2	5
		E	R	R	R	R	L	R	R	R	L	R
		V	.760	.743	.755	.720	.715	.793	.753	.733	.717	.730
	100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	1	5	5	5	5	5
		E	R	R	R	R	L	R	R	R	R	R
		V	.808	.794	.804	.776	.772	.834	.802	.786	.770	.784

TABLE 7.7 (Continued)

Truck No.			111	112
Wh. Base		L	52	52
Axle Spacing		X	16	16
		X'	28	28
Load On Axles		a_1	.20	.20
		a_2	.40	.50
		a_3	.40	.30
Span-Feet	10	G	4-5	2 3
		N	4	2
		E	L	L
		V	.320	.400
	20	G	4–5	1–3
		N	4	3
		E	L	R
		V	.360	.450
	30	G	1-3	1-3
		N	3	3
		E	R	R
		V	.440	.533
	40	G	1-3	1-3
		N	3	3
		E	R	R
		V	.480	.575
	50	G	2-5	1 3
		N	2	3
		E	L	R
		V	.512	.600
	60	G	1–5	1 3
		N	5	3
		E	R	R
		V	.587	.617
	80	G	1-5	1–5
		N	5	1
		E	R	L
		V	.690	.700
	100	G	1-5	1–5
		N	5	1
		E	R	L
		V	.752	.760

TABLE 7.8

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 3-S3 TRUCKS WEIGHING ONE KIP EACH



TYPE 3-S3 TRUCK

One hundred and five variations in the Type 3-S3 truck are given in this table. Each truck number, from 1 to 105, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base L			32	32	32	32	32	32	32	36	36	36
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X'	12	12	12	12	12	12	12	16	16	16
Load On Axles		a_1	.10	.10	.10	.10	.20	.20	.20	.10	.10	.10
		a_2	.30	.36	.40	.50	.30	.40	.50	.30	.36	.40
		a_3	.60	.54	.50	.40	.50	.40	.30	.60	.54	.50
Span-Feet	10	G	4–6	4–6	2–3	2–3	4–6	2–3	2–3	4–6	4–6	2–3
		N	4	4	2	2	4	2	2	4	4	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.360	.324	.320	.400	.300	.320	.400	.360	.324	.320
	20	G	4–6	4–6	4–6	1–3	4–6	1–3	1–3	4–6	4–6	4–6
		N	4	4	4	3	4	3	3	4	4	4
		E	L	L	L	R	L	R	R	L	L	L
		V	.480	.432	.400	.490	.400	.440	.530	.480	.432	.400
	30	G	2–6	2–6	2–6	2–6	2–6	2–6	1–3	2–6	2–6	2–6
		N	6	6	6	2	6	2	3	6	6	6
		E	R	R	R	L	R	L	R	R	R	R
		V	.600	.564	.540	.600	.514	.507	.587	.560	.516	.487
	40	G	1–6	1–6	1–6	2–6	1–6	1–6	1–6	1–6	1–6	1–6
		N	6	6	6	2	6	1	1	6	6	6
		E	R	R	R	L	R	L	L	R	R	R
		V	.695	.668	.650	.675	.625	.620	.665	.655	.622	.600
	50	G	1–6	1–6	1–6	2–6	1–6	1–6	1–6	1–6	1–6	1–6
		N	6	6	6	2	6	1	1	6	6	6
		E	R	R	R	L	R	L	L	R	R	R
		V	.756	.734	.720	.720	.700	.696	.732	.724	.698	.680
	60	G	1–6	1–6	1–6	2–6	1–6	1–6	1–6	1–6	1–6	1–6
		N	6	6	6	2	6	1	1	6	6	6
		E	R	R	R	L	R	L	L	R	R	R
		V	.797	.779	.767	.750	.750	.747	.777	.770	.748	.734
	80	G	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6
		N	6	6	6	6	6	1	1	6	6	6
		E	R	R	R	R	R	L	L	R	R	R
		V	.848	.834	.825	.802	.813	.810	.833	.828	.811	.800
	100	G	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6
		N	6	6	6	6	6	1	1	6	6	6
		E	R	R	R	R	R	L	L	R	R	R
		V	.878	.867	.860	.842	.850	.848	.866	.862	.849	.840

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus, 1–3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.8 (Continued)

Truck No.		11	12	13	14	15	16	17	18	19	20
Wh. Base L		36	36	36	36	40	40	40	40	40	40
Axle	X	8	8	8	8	8	8	8	8	8	8
Spacing	X′	16	16	16	16	20	20	20	20	20	20
Load	a_1	.10	.20	.20	.20	.10	.10	.10	.10	.20	.20
On	a_2	.50	.30	.40	.50	.30	.36	.40	.50	.30	.40
Axles	a_3	.40	.50	.40	.30	.60	.54	.50	.40	.50	.40
Span-Feet	G	2-3	4-6	2-3	2-3	4 6	4-6	2-3	2-3	4-6	2-3
	N	2	4	2	2	4	4	2	2	4	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.400	.300	.320	.400	.360	.324	.320	.400	.300	.320
	G	1-3	4-6	1-3	1-3	4-6	4-6	4-6	1-3	4-6	1-3
	N	3	4	3	3	4	4	4	3	4	3
20	E	R	L	R	R	L	L	L	R	L	R
	V	.490	.400	.440	.530	.480	.432	.400	.490	.400	.440
	G	2-6	2-6	1-3	1-3	3-6	3-6	3-6	1-3	3-6	1-3
	N	2	6	3	3	6	6	6	3	6	3
30	E	L	R	R	R	R	R	R	R	R	R
	V	.547	.474	.493	.587	.530	.480	.447	.527	.443	.493
	G	2-6	1 6	1 6	1-6	2-6	2-6	1-6	2-6	1-6	1 6
	N	2	6	1	1	6	6	6	2	6	1
40	E	L	R	L	L	R	R	R	L	R	L
	V	.635	.575	.580	.635	.615	.576	.550	.595	.525	.540
	G	2-6	1-6	1-6	1-6	1-6	1-6	1-6	2-6	1-6	1 6
	N	2	6	1	1	6	6	6	2	6	1
50	E	L	R	L	L	R	R	R	L	R	L
	V	.688	.660	.664	.708	.692	.661	.640	.656	.620	.632
	G	2-6	1 6	1-6	1-6	1-6	1-6	1-6	2-6	1-6	1-6
	N	2	6	1	1	6	6	6	2	6	1
60	E	L	R	L	L	R	R	R	L	R	L
	V	.724	.717	.720	.757	.743	.717	.700	.697	.684	.694
	G	1-6	1 6	1 6	1-6	1-6	1-6	1-6	1-6	1-6	1-6
	N	1	6	1	1	6	6	6	1	6	1
80	E	L	R	L	L	R	R	R	L	R	L
	V	.778	.788	.790	.818	.808	.788	.775	.758	.763	.770
	G	1-6	1-6	1-6	1 6	1-6	1-6	1-6	1-6	1 6	1 6
	N	1	6	1	1	6	6	6	1	6	1
100	E	L	R	L	L	R	R	R	L	R	L
	V	.822	.830	.832	.854	.846	.832	.820	.806	.810	.816

Truck No.		21	22	23	24	25	26	27	28	29	30
Wh. Base L		40	44	44	44	44	44	44	44	48	48
Axle	X	8	8	8	8	8	8	8	8	8	8
Spacing	X′	20	24	24	24	24	24	24	24	28	28
Load	a_1	.20	.10	.10	.10	.10	.20	.20	.20	.10	.10
On	a_2	.50	.30	.36	.40	.50	.30	.40	.50	.30	.36
Axles	a_3	.30	.60	.54	.50	.40	.50	.40	.30	.60	.54
Span-Feet	G	2-3	4-6	4-6	2-3	2-3	4-6	2-3	2-3	4-6	4-6
	N	2	4	4	2	2	4	2	2	4	4
10	E	L	L	L	L	L	L	L	L	L	L
	V	.400	.360	.324	.320	.400	.300	.320	.400	.360	.324
	G	1-3	4-6	4-6	4-6	1-3	4-6	1-3	1-3	4-6	4-6
	N	3	4	4	4	3	4	3	3	4	4
20	E	R	L	L	L	R	L	R	R	L	L
	V	.530	.480	.432	.400	.490	.400	.440	.530	.480	.432
	G	1-3	4-6	4-6	1-3	1-3	4-6	1-3	1-3	4-6	4-6
	N	3	4	4	3	3	4	3	3	4	4
30	E	R	L	L	R	R	L	R	R	L	L
	V	.587	.520	.468	.434	.527	.433	.493	.587	.520	.468
	G	1-3	2-6	2-6	2-6	2-6	2-6	1-3	1-3	2-6	2-6
	N	3	6	6	6	2	6	3	3	6	6
40	E	R	R	R	R	L	R	R	R	R	R
	V	.615	.585	.540	.510	.555	.495	.520	.615	.555	.504
	G	1-6	1-6	1-6	1-6	2-6	1-6	1-6	1-6	1-6	1-6
	N	1	6	6	6	2	6	1	1	6	6
50	E	L	R	R	R	L	R	L	L	R	R
	V	.684	.660	.624	.600	.624	.580	.600	.660	.628	.587
	G	1-6	1-6	1-6	1-6	2-6	1-6	1-6	1-6	1-6	1-6
	N	1	6	6	6	2	6	1	1	6	6
60	E	L	R	R	R	L	R	L	L	R	R
	V	.737	.717	.687	.667	.670	.650	.667	.717	.690	.656
	G	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1 6	1-6	1-6
	N	1	6	6	6	1	6	1	1	6	6
80	E	L	R	R	R	L	R	L	L	R	R
	V	.803	.788	.765	.750	.738	.738	.750	.788	.768	.742
	G	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6
	N	1	6	6	6	1	6	1	1	6	6
100	E	L	R	R	R	L	R	L	L	R	R
	V	.842	.830	.812	.800	.790	.790	.800	.830	.814	.794

TABLE 7.8 (Continued)

Truck No.			31	32	33	34	35	36	37	38	39	40
Wh. Base		L	48	48	48	48	48	36	36	36	36	36
Axle		X	8	8	8	8	8	12	12	12	12	12
Spacing		X′	28	28	28	28	28	12	12	12	12	16
Load		a_1	.10	.10	.20	.20	.20	.10	.10	.10	.10	.20
On		a_2	.40	.50	.30	.40	.50	.30	.36	.40	.50	.30
Axles		a_3	.50	.40	.50	.40	.30	.60	.54	.50	.40	.50
Span-Feet		G	2–3	2 3	4–6	2–3	2 3	4–6	4–6	2 3	2–3	4–6
		N	2	2	4	2	2	4	4	2	2	4
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.300	.320	.400	.360	.324	.320	.400	.300
		G	4–6	1–3	4–6	1–3	1–3	4–6	4 6	4–6	2 4	4–6
		N	4	3	4	3	3	4	4	4	2	4
	20	E	L	R	L	R	R	L	L	L	L	L
		V	.400	.490	.400	.440	.530	.480	.432	.400	.474	.400
		G	1–3	1 3	4–6	1 3	1 3	2–6	2 6	2 6	2 6	2–6
		N	3	3	4	3	3	6	6	6	2	6
	30	E	R	R	L	R	R	R	R	R	L	R
		V	.434	.527	.433	.493	.587	.600	.564	.540	.600	.514
		G	2–6	1–3	2 6	1–3	1 3	1 6	1 6	1 6	2–6	1 6
		N	6	3	6	3	3	6	6	6	2	6
	40	E	R	R	R	R	R	R	R	R	L	R
		V	.470	.545	.465	.520	.615	.685	.658	.640	.675	.605
		G	1–6	2 6	1–6	1 6	1 6	1–6	1–6	1 6	2–6	1–6
		N	6	2	6	1	1	6	6	6	2	6
	50	E	R	L	R	L	L	R	R	R	L	R
		V	.560	.592	.540	.568	.636	.748	.726	.712	.720	.684
		G	1 6	2 6	1–6	1 6	1 6	1–6	1 6	1 6	2–6	1–6
		N	6	2	6	1	1	6	6	6	2	6
	60	E	R	L	R	L	L	R	R	R	L	R
		V	.634	.644	.617	.640	.697	.790	.772	.760	.750	.737
		G	1–6	1–6	1 6	1 6	1–6	1 6	1 6	1 6	1–6	1–6
		N	6	1	6	1	1	6	6	6	6	6
	80	E	R	L	R	L	L	R	R	R	R	R
		V	.725	.718	.713	.730	.773	.843	.829	.820	.797	.803
		G	1–6	1–6	1–6	1–6	1 6	1–6	1–6	1 6	1–6	1 6
		N	6	1	6	1	1	6	6	6	6	6
	100	E	R	L	R	L	L	R	R	R	R	R
		V	.780	.774	.770	.784	.818	.874	.863	.856	.838	.842

Truck No.			41	42	43	44	45	46	47	48	49	50
Wh. Base		L	36	36	40	40	40	40	40	40	40	44
Axle		X	12	12	12	12	12	12	12	12	12	12
Spacing		X′	12	12	16	16	16	16	16	16	16	20
Load		a_1	.20	.20	.10	.10	.10	.10	.20	.20	.20	.10
On		a_2	.40	.50	.30	.36	.40	.50	.30	.40	.50	.30
Axles		a_3	.40	.30	.60	.54	.50	.40	.50	.40	.30	.60
Span-Feet		G	2–3	2–3	4–6	4–6	2–3	2–3	4–6	2–3	2–3	4–6
		N	2	2	4	4	2	2	4	2	2	4
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.360	.324	.320	.400	.300	.320	.400	.360
		G	1–3	1–3	4–6	4–6	4–6	1–3	4–6	1–3	1 3	4–6
		N	3	3	4	4	4	3	4	3	3	4
	20	E	R	R	L	L	L	R	L	R	R	L
		V	.400	.490	.480	.432	.400	.470	.400	.400	.490	.480
		G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	1–3	1–3	3–6
		N	2	2	6	6	6	2	6	3	3	6
	30	E	L	L	R	R	R	L	R	R	R	R
		V	.507	.567	.560	.516	.487	.547	.474	.467	.560	.530
		G	2–6	2–6	2–6	2–6	1–6	2–6	1–6	2–6	2–6	2–6
		N	2	2	6	6	6	2	6	2	2	6
	40	E	L	L	R	R	R	L	R	L	L	R
		V	.580	.625	.645	.612	.590	.635	.555	.540	.595	.615
		G	1–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6	1–6	1–6
		N	6	1	6	6	6	2	6	1	1	6
	50	E	R	L	R	R	R	L	R	L	L	R
		V	.648	.668	.716	.690	.672	.688	.644	.600	.644	.684
		G	1–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6	1–6	1–6
		N	6	1	6	6	6	2	6	1	1	6
	60	E	R	L	R	R	R	L	R	L	L	R
		V	.706	.723	.763	.741	.727	.724	.704	.667	.703	.737
		G	1–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6	1–6	1–6
		N	6	1	6	6	6	2	6	1	1	6
	80	E	R	L	R	R	R	L	R	L	L	R
		V	.780	.793	.823	.806	.795	.768	.778	.750	.778	.803
		G	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6
		N	6	1	6	6	6	6	6	1	1	6
	100	E	R	L	R	R	R	R	R	L	L	R
		V	.824	.834	.858	.845	.836	.814	.822	.800	.822	.842

TABLE 7.8 (Continued)

Truck No.			51	52	53	54	55	56	57	58	59	60
Wh. Base L			44	44	44	44	44	44	48	48	48	48
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	20	20	20	20	20	20	24	24	24	24
Load On Axles		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.10
		a_2	.36	.40	.50	.30	.40	.50	.30	.36	.40	.50
		a_3	.54	.50	.40	.50	.40	.30	.60	.54	.50	.40
Span-Feet	10	G	4–6	2–3	2–3	4–6	2–3	2–3	4–6	4–6	2–3	2–3
		N	4	2	2	4	2	2	4	4	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.324	.320	.400	.300	.320	.400	.360	.324	.320	.400
	20	G	4–6	4–6	1–3	4–6	1–3	1–3	4–6	4–6	4–6	1–3
		N	4	4	3	4	3	3	4	4	4	3
		E	L	L	R	L	R	R	L	L	L	R
		V	.432	.400	.470	.400	.400	.490	.480	.432	.400	.470
	30	G	3–6	3–6	1–3	3–6	1–3	1–3	4–6	4–6	4–6	1–3
		N	6	6	3	6	3	3	4	4	4	3
		E	R	R	R	R	R	R	L	L	L	R
		V	.480	.446	.514	.443	.467	.560	.520	.468	.433	.514
	40	G	2–6	2–6	2–6	2–6	2–6	1–3	2–6	2–6	2–6	2–6
		N	6	6	2	6	2	3	6	6	6	2
		E	R	R	L	R	L	R	R	R	R	L
		V	.576	.549	.595	.525	.500	.595	.585	.540	.509	.555
	50	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	1–6	1–6	2–6
		N	6	6	2	6	1	1	6	6	6	2
		E	R	R	L	R	L	L	R	R	R	L
		V	.653	.631	.656	.603	.568	.620	.652	.616	.591	.624
	60	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	1–6	1–6	2–6
		N	6	6	2	6	1	1	6	6	6	2
		E	R	R	L	R	L	L	R	R	R	L
		V	.711	.693	.697	.669	.640	.683	.710	.680	.659	.670
	80	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	1–6	1–6	2–6
		N	6	6	2	6	1	1	6	6	6	2
		E	R	R	L	R	L	L	R	R	R	L
		V	.783	.770	.748	.752	.730	.763	.783	.760	.745	.728
	100	G	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6
		N	6	6	6	6	1	1	6	6	6	6
		E	R	R	R	R	L	L	R	R	R	R
		V	.826	.816	.790	.802	.784	.810	.826	.808	.796	.766

Truck No.			61	62	63	64	65	66	67	68	69	70
Wh. Base L			48	48	48	52	52	52	52	52	52	52
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	24	24	24	28	28	28	28	28	28	28
Load On Axles		a_1	.20	.20	.20	.10	.10	.10	.10	.20	.20	.20
		a_2	.30	.40	.50	.30	.36	.40	.50	.30	.40	.50
		a_3	.50	.40	.30	.60	.54	.50	.40	.50	.40	.30
Span-Feet	10	G	4–6	2–3	2–3	4–6	4–6	2–3	2–3	4–6	2–3	2–3
		N	4	2	2	4	4	2	2	4	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.300	.320	.400	.360	.324	.320	.400	.300	.320	.400
	20	G	4–6	1–3	1–3	4–6	4–6	4–6	1–3	4–6	1–3	1–3
		N	4	3	3	4	4	4	3	4	3	3
		E	L	R	R	L	L	L	R	L	R	R
		V	.400	.400	.490	.480	.432	.400	.470	.400	.400	.490
	30	G	4–6	1–3	1–3	4–6	4–6	4–6	1–3	4–6	1–3	1–3
		N	4	3	3	4	4	4	3	4	3	3
		E	L	R	R	L	L	L	R	L	R	R
		V	.433	.467	.560	.520	.468	.433	.514	.433	.467	.560
	40	G	2–6	1–3	1–3	3–6	3–6	3–6	1–3	3–6	1–3	1–3
		N	6	3	3	6	6	6	3	6	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.495	.500	.595	.555	.504	.470	.535	.465	.500	.595
	50	G	1–6	1–6	1–3	2–6	2–6	2–6	2–6	2–6	1–3	1–3
		N	6	1	3	6	6	6	2	6	3	3
		E	R	L	R	R	R	R	L	R	R	R
		V	.563	.536	.616	.624	.583	.555	.592	.531	.520	.616
	60	G	1–6	1–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6	1–6
		N	6	1	1	6	6	6	2	6	1	1
		E	R	L	L	R	R	R	L	R	L	L
		V	.636	.614	.663	.683	.649	.626	.644	.603	.587	.643
	80	G	1–6	1–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6	1–6
		N	6	1	1	6	6	6	2	6	1	1
		E	R	L	L	R	R	R	L	R	L	L
		V	.727	.710	.748	.763	.737	.720	.707	.702	.690	.733
	100	G	1–6	1–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6	1–6
		N	6	1	1	6	6	6	2	6	1	1
		E	R	L	L	R	R	R	L	R	L	L
		V	.782	.768	.798	.810	.790	.776	.746	.762	.752	.786

TABLE 7.8 (Continued)

Truck No.		71	72	73	74	75	76	77	78	79	80
Wh. Base L		40	40	40	40	40	40	40	44	44	44
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	12	12	12	12	12	12	12	16	16	16
Load	a_1	.10	.10	.10	.10	.20	.20	.20	.10	.10	.10
On	a_2	.30	.36	.40	.50	.30	.40	.50	.30	.36	.40
Axles	a_3	.60	.54	.50	.40	.50	.40	.30	.60	.54	.50
Span-Feet	G	4-6	4 6	2 3	2 3	4-6	2 3	2-3	4-6	4 6	2-3
	N	4	4	2	2	4	2	2	4	4	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.360	.324	.320	.400	.300	.320	.400	.360	.324	.320
	G	4 6	4 6	4 6	2-4	4 6	2-4	2-4	4-6	4-6	4-6
	N	4	4	4	2	4	2	2	4	4	4
20	E	L	L	L	L	L	L	L	L	L	L
	V	.480	.432	.400	.474	.400	.384	.470	.480	.432	.400
	G	2 6	2-6	2 6	2-6	2-6	2 6	2-6	2-6	2-6	2-6
	N	6	6	2	2	6	2	2	6	6	6
30	E	R	R	L	L	R	L	L	R	R	R
	V	.600	.564	.541	.600	.513	.507	.566	.560	.516	.486
	G	2 6	2 6	2-6	2 6	2 6	2 6	2 6	2-6	2 6	2 6
	N	6	6	2	2	6	2	2	6	6	6
40	E	R	R	L	L	R	L	L	R	R	R
	V	.675	.648	.630	.675	.585	.580	.625	.645	.612	.590
	G	1-6	1-6	1-6	2-6	1-6	1 6	2 6	1-6	1 6	1 6
	N	6	6	6	2	6	6	2	6	6	6
50	E	R	R	R	L	R	R	L	R	R	R
	V	.740	.718	.704	.720	.668	.632	.660	.708	.682	.663
	G	1-6	1 6	1-6	2 6	1 6	1-6	2-6	1 6	1-6	1-6
	N	6	6	6	2	6	6	2	6	6	6
60	E	R	R	R	L	R	R	L	R	R	R
	V	.783	.765	.753	.750	.723	.693	.683	.757	.735	.720
	G	1 6	1 6	1 6	1-6	1 6	1-6	1-6	1 6	1 6	1 6
	N	6	6	6	6	6	6	1	6	6	6
80	E	R	R	R	R	R	R	L	R	R	R
	V	.838	.824	.815	.792	.792	.770	.753	.818	.801	.790
	G	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1 6	1-6
	N	6	6	6	6	6	6	1	6	6	6
100	E	R	R	R	R	R	R	L	R	R	R
	V	.870	.859	.852	.834	.834	.816	.802	.854	.841	.832

Truck No.		81	82	83	84	85	86	87	88	89	90
Wh. Base L		44	44	44	44	48	48	48	48	48	48
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	16	16	16	16	20	20	20	20	20	20
Load	a_1	.10	.20	.20	.20	.10	.10	.10	.10	.20	.20
On	a_2	.50	.30	.40	.50	.30	.36	.40	.50	.30	.40
Axles	a_3	.40	.50	.40	.30	.60	.54	.50	.40	.50	.40
Span-Feet	G	2 3	4-6	2 3	2 3	4-6	4 6	2-3	2-3	4-6	2 3
	N	2	4	2	2	4	4	2	2	4	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.400	.300	.320	.400	.360	.324	.320	.400	.300	.320
	G	1-3	4-6	1-3	1-3	4-6	4-6	4-6	1-3	4-6	1-3
	N	3	4	3	3	4	4	4	3	4	3
20	E	R	L	R	R	L	L	L	R	L	R
	V	.450	.400	.360	.450	.480	.432	.400	.450	.400	.360
	G	2 6	2-6	2 6	1-3	3-6	3-6	3-6	1-3	3-6	1-3
	N	2	6	2	3	6	6	6	3	6	3
30	E	L	R	L	R	R	R	R	R	R	R
	V	.547	.473	.454	.533	.530	.480	.446	.500	.443	.440
	G	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2 6	2-6	2-6
	N	2	6	2	2	6	6	6	2	6	2
40	E	L	R	L	L	R	R	R	L	R	L
	V	.635	.555	.540	.595	.615	.576	.549	.595	.525	.500
	G	2 6	1 6	2 6	2 6	1-6	1-6	1-6	2-6	1 6	2 6
	N	2	6	2	2	6	6	6	2	6	2
50	E	L	R	L	L	R	R	R	L	R	L
	V	.688	.627	.592	.636	.676	.645	.623	.656	.587	.560
	G	2-6	1-6	1-6	2-6	1 6	1-6	1-6	2-6	1-6	1-6
	N	2	6	6	2	6	6	6	2	6	6
60	E	L	R	R	L	R	R	R	L	R	R
	V	.724	.690	.653	.663	.730	.704	.686	.697	.656	.613
	G	2 6	1-6	1-6	1-6	1-6	1-6	1-6	2 6	1-6	1-6
	N	2	6	6	1	6	6	6	2	6	6
80	E	L	R	R	L	R	R	R	L	R	R
	V	.768	.767	.740	.738	.798	.778	.765	.748	.742	.710
	G	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6
	N	6	6	6	1	6	6	6	6	6	6
100	E	R	R	R	L	R	R	R	R	R	R
	V	.810	.814	.792	.790	.838	.822	.812	.786	.794	.768

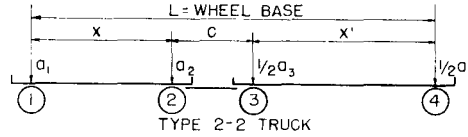
TABLE 7.8 (Continued)

Truck No.			91	92	93	94	95	96	97	98	99	100
Wh. Base L			48	52	52	52	52	52	52	52	56	56
Axle Spacing		X	16	16	16	16	16	16	16	16	16	16
		X′	20	24	24	24	24	24	24	24	28	28
Load On Axles		a_1	.20	.10	.10	.10	.10	.20	.20	.20	.10	.10
		a_2	.50	.30	.36	.40	.50	.30	.40	.50	.30	.36
		a_3	.30	.60	.54	.50	.40	.50	.40	.30	.60	.54
Span-Feet	10	G	2–3	4–6	4–6	2–3	2–3	4–6	2–3	2–3	4–6	4–6
		N	2	4	4	2	2	4	2	2	4	4
		E	L	L	L	L	L	L	L	L	L	L
		V	.400	.360	.324	.320	.400	.300	.320	.400	.360	.324
	20	G	1–3	4–6	4–6	4–6	1–3	4–6	1–3	1–3	4–6	4–6
		N	3	4	4	4	3	4	3	3	4	4
		E	R	L	L	L	R	L	R	R	L	L
		V	.450	.480	.432	.400	.450	.400	.360	.450	.480	.432
	30	G	1–3	4–6	4–6	4–6	1–3	4–6	1–3	1–3	4–6	4–6
		N	3	4	4	4	3	4	3	3	4	4
		E	R	L	L	L	R	L	R	R	L	L
		V	.533	.520	.468	.434	.500	.434	.440	.533	.520	.468
	40	G	1–3	2–6	2–6	2–6	2–6	2–6	1–3	1–3	3–6	3–6
		N	3	6	6	6	2	6	3	3	6	6
		E	R	R	R	R	L	R	R	R	R	R
		V	.575	.585	.540	.509	.555	.494	.480	.575	.555	.504
	50	G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	1–3	2–6	2–6
		N	2	6	6	6	2	6	2	3	6	6
		E	L	R	R	R	L	R	L	R	R	R
		V	.612	.648	.612	.587	.624	.556	.528	.600	.624	.583
	60	G	2–6	1–6	1–6	1–6	2–6	1–6	2–6	2–6	1–6	1–6
		N	2	6	6	6	2	6	2	2	6	6
		E	L	R	R	R	L	R	L	L	R	R
		V	.643	.703	.673	.653	.670	.623	.574	.623	.677	.643
	80	G	1–6	1–6	1–6	1–6	2–6	1–6	1–6	1–6	1–6	1–6
		N	1	6	6	6	2	6	6	1	6	6
		E	L	R	R	R	L	R	R	L	R	R
		V	.723	.778	.755	.740	.728	.717	.680	.708	.758	.732
	100	G	1–6	1–6	1–6	1–6	2–6	1–6	1–6	1–6	1–6	1–6
		N	1	6	6	6	2	6	6	1	6	6
		E	L	R	R	R	L	R	R	L	R	R
		V	.778	.822	.804	.792	.847	.774	.744	.766	.806	.786

Truck No.			101	102	103	104	105
Wh. Base L			56	56	56	56	56
Axle Spacing		X	16	16	16	16	16
		X′	28	28	28	28	28
Load On Axles		a_1	.10	.10	.20	.20	.20
		a_2	.40	.50	.30	.40	.50
		a_3	.50	.40	.50	.40	.30
Span-Feet	10	G	2–3	2–3	4–6	2–3	2–3
		N	2	2	4	2	2
		E	L	L	L	L	L
		V	.320	.400	.300	.320	.400
	20	G	4–6	1–3	4–6	1–3	1–3
		N	4	3	4	3	3
		E	L	R	L	R	R
		V	.400	.450	.400	.360	.450
	30	G	4–6	1–3	4–6	1–3	1–3
		N	4	3	4	3	3
		E	L	R	L	R	R
		V	.433	.500	.433	.440	.533
	40	G	3–6	1–3	3–6	1–3	1–3
		N	6	3	6	3	3
		E	R	R	R	R	R
		V	.470	.525	.465	.480	.575
	50	G	2–6	2–6	2–6	1–3	1–3
		N	6	2	6	3	3
		E	R	L	R	R	R
		V	.555	.592	.531	.504	.600
	60	G	1–6	2–6	1–6	2–6	1–3
		N	6	2	6	2	3
		E	R	L	R	L	R
		V	.619	.644	.589	.547	.617
	80	G	1–6	2–6	1–6	1–6	1–6
		N	6	2	6	1	1
		E	R	L	R	L	L
		V	.715	.707	.692	.650	.693
	100	G	1–6	2–6	1–6	1–6	1–6
		N	6	2	6	1	1
		E	R	L	R	L	L
		V	.772	.746	.754	.720	.754

TABLE 7.9

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 2–2 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-2 TRUCK

One hundred and forty-four variations in the Type 2–2 truck are given in this table. Each truck number, from 1 to 144, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base		L	28	28	28	28	28	28	32	32	32	32
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	8	8	8	8	8	8	12	12	12	12
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
		a_2	.20	.30	.40	.20	.30	.40	.20	.30	.40	.20
		a_3	.70	.60	.50	.60	.50	.40	.70	.60	.50	.60
Span-Feet		G	3–4	2–3	2–3	3–4	2–3	2–3	2–3	2–3	2–3	2–3
		N	3	2	2	3	2	2	3	2	2	3
	10	E	L	L	L	L	L	L	R	L	L	R
		V	.420	.360	.450	.360	.350	.440	.390	.360	.450	.340
		G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–3
		N	4	2	2	4	2	2	4	2	2	3
	20	E	R	L	L	R	L	L	R	L	L	R
		V	.600	.540	.600	.520	.500	.560	.490	.480	.550	.420
		G	1–4	1–4	2–4	1–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	4	4	2	4	2	2	4	2	2	4
	30	E	R	R	L	R	L	L	R	L	L	R
		V	.707	.667	.700	.627	.600	.640	.627	.620	.667	.547
		G	1–4	1–4	2–4	1–4	1–4	2–4	1–4	2–4	2–4	1–4
		N	4	4	2	4	4	2	4	2	2	4
	40	E	R	R	L	R	R	L	R	L	L	R
		V	.780	.750	.750	.720	.690	.680	.715	.690	.725	.650
		G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
		N	4	4	2	4	4	4	4	4	2	4
	50	E	R	R	L	R	R	R	R	R	L	R
		V	.824	.800	.780	.776	.752	.728	.772	.744	.760	.720
		G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
		N	4	4	4	4	4	4	4	4	2	4
	60	E	R	R	R	R	R	R	R	R	L	R
		V	.853	.833	.813	.813	.793	.773	.810	.787	.783	.767
		G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	4	4	4
	80	E	R	R	R	R	R	R	R	R	R	R
		V	.890	.875	.860	.860	.845	.830	.858	.840	.823	.825
		G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	4	4	4
	100	E	R	R	R	R	R	R	R	R	R	R
		V	.912	.900	.888	.888	.876	.864	.886	.872	.858	.860

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus, 1–3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.9 (Continued)

Truck No.			11	12	13	14	15	16	17	18	19	20
Wh. Base L			32	32	36	36	36	36	36	36	40	40
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	12	12	16	16	16	16	16	16	20	20
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
		a_2	.30	.40	.20	.30	.40	.20	.30	.40	.20	.30
		a_3	.50	.40	.70	.60	.50	.60	.50	.40	.70	.60
Span-Feet	10	G	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3
		N	2	2	3	2	2	3	2	2	3	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.350	.440	.390	.360	.450	.340	.350	.440	.390	.360
	20	G	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3
		N	2	2	3	2	2	3	2	2	3	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.450	.520	.470	.480	.550	.420	.450	.520	.470	.480
	30	G	2-4	2-4	2-4	2-4	2-4	1-3	1-3	2-4	1-3	1-3
		N	2	2	4	2	2	3	3	2	3	3
		E	L	L	R	L	L	R	R	L	R	R
		V	.567	.613	.553	.580	.633	.513	.537	.587	.530	.553
	40	G	2-4	2-4	1-4	2-4	2-4	1-4	2-4	2-4	2-4	2-4
		N	2	2	4	2	2	4	2	2	2	2
		E	L	L	R	L	L	R	L	L	L	L
		V	.625	.660	.650	.660	.700	.580	.600	.640	.585	.630
	50	G	1-4	1-4	1-4	2-4	2-4	1-4	1-4	1-4	1-4	2-4
		N	4	1	4	2	2	4	1	1	4	2
		E	R	L	R	L	L	R	L	L	R	L
		V	.692	.696	.720	.708	.740	.664	.648	.680	.668	.684
	60	G	1-4	1-4	1-4	2-4	2-4	1-4	1-4	1-4	1-4	2-4
		N	4	1	4	2	2	4	1	1	4	2
		E	R	L	R	L	L	R	L	L	R	L
		V	.743	.747	.767	.740	.767	.720	.707	.733	.723	.720
	80	G	1-4	1-4	1-4	1-4	2-4	1-4	1-4	1-4	1-4	1-4
		N	4	1	4	4	2	4	1	1	4	4
		E	R	L	R	R	L	R	L	L	R	R
		V	.808	.810	.825	.805	.820	.790	.780	.800	.793	.770
	100	G	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
		N	4	1	4	4	4	4	1	1	4	4
		E	R	L	R	R	R	R	L	L	R	R
		V	.846	.848	.860	.844	.828	.832	.824	.840	.834	.816

Truck No.			21	22	23	24	25	26	27	28	29	30
Wh. Base L			40	40	40	40	32	32	32	32	32	32
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	20	20	20	20	8	8	8	8	8	8
Hitch		C	8	8	8	8	12	12	12	12	12	12
Load On Axles		a_1	.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
		a_2	.40	.20	.30	.40	.20	.30	.40	.20	.30	.40
		a_3	.50	.60	.50	.40	.70	.60	.50	.60	.50	.40
Span-Feet	10	G	2-3	2-3	2-3	2-3	3-4	3-4	2	3-4	2	2
		N	2	3	2	2	3	3	2	3	2	2
		E	L	R	L	L	L	L	L	L	L	R
		V	.450	.340	.350	.440	.420	.360	.400	.360	.300	.400
	20	G	2-3	2-3	2-3	2-3	2-4	2-4	2-4	2-4	2-4	2-4
		N	2	3	2	2	4	4	2	4	2	2
		E	L	R	L	L	R	R	L	R	L	L
		V	.550	.420	.450	.520	.560	.480	.500	.480	.400	.480
	30	G	2-4	1-3	1-3	2-4	2-4	2-4	2-4	2-4	2-4	2-4
		N	2	3	3	2	4	4	2	4	2	2
		E	L	R	R	L	R	R	L	R	L	L
		V	.600	.513	.537	.560	.673	.620	.634	.586	.533	.586
	40	G	2-4	1-3	1-3	2-4	1-4	1-4	1-4	1-4	1-4	2-4
		N	2	3	3	2	4	4	4	4	4	2
		E	L	R	R	L	R	R	R	R	R	L
		V	.675	.560	.590	.620	.750	.710	.670	.680	.640	.640
	50	G	2-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
		N	2	4	1	1	4	4	4	4	4	1
		E	L	R	L	L	R	R	R	R	R	L
		V	.720	.608	.628	.664	.800	.768	.736	.744	.712	.680
	60	G	2-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
		N	2	4	1	1	4	4	4	4	4	1
		E	L	R	L	L	R	R	R	R	R	L
		V	.750	.673	.690	.720	.833	.807	.780	.787	.760	.733
	80	G	2-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
		N	2	4	1	1	4	4	4	4	4	1
		E	L	R	L	L	R	R	R	R	R	L
		V	.788	.755	.768	.790	.875	.855	.835	.840	.820	.800
	100	G	2-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
		N	2	4	1	1	4	4	4	4	4	1
		E	L	R	L	L	R	R	R	R	R	L
		V	.810	.804	.814	.832	.900	.884	.868	.872	.856	.840

TABLE 7.9 (Continued)

Truck No.		31	32	33	34	35	36	37	38	39	40
Wh. Base	L	36	36	36	36	36	36	40	40	40	40
Axle	X	12	12	12	12	12	12	12	12	12	12
Spacing	X′	12	12	12	12	12	12	16	16	16	16
Hitch	C	12	12	12	12	12	12	12	12	12	12
Load	a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
On	a_2	.20	.30	.40	.20	.30	.40	.20	.30	.40	.20
Axles	a_3	.70	.60	.50	.60	.50	.40	.70	.60	.50	.60
Span-Feet	G	4	4	2	4	2	2	4	4	2	4
	N	4	4	2	4	2	2	4	4	2	4
10	E	L	L	L	L	L	L	L	L	L	L
	V	.350	.300	.400	.300	.300	.400	.350	.300	.400	.300
	G	3–4	2–3	2–3	3–4	2–3	2–3	2–3	2–3	2–3	2–3
	N	3	2	2	3	2	2	3	2	2	3
20	E	L	L	L	L	L	L	R	L	L	R
	V	.490	.420	.500	.420	.400	.480	.430	.420	.500	.380
	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	1–3
	N	4	2	2	4	2	2	4	2	2	3
30	E	R	L	L	R	L	L	R	L	L	R
	V	.600	.540	.600	.520	.500	.560	.527	.500	.567	.460
	G	1–4	1–4	2–4	1–4	2–4	2–4	1–4	2–4	2–4	2–4
	N	4	4	2	4	2	2	4	2	2	4
40	E	R	R	L	R	L	L	R	L	L	R
	V	.685	.640	.675	.610	.575	.620	.620	.600	.650	.540
	G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	2–4	2–4	1–4
	N	4	4	2	4	4	1	4	2	2	4
50	E	R	R	L	R	R	L	R	L	L	R
	V	.748	.712	.720	.688	.652	.664	.696	.660	.700	.632
	G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
	N	4	4	2	4	4	1	4	4	2	4
60	E	R	R	L	R	R	L	R	R	L	R
	V	.790	.760	.750	.740	.710	.720	.747	.713	.733	.693
	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
	N	4	4	4	4	4	1	4	4	2	4
80	E	R	R	R	R	R	L	R	R	L	R
	V	.843	.820	.798	.805	.783	.790	.810	.785	.775	.770
	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	4	4	4	4	1	4	4	4	4
100	E	R	R	R	R	R	L	R	R	R	R
	V	.874	.856	.838	.844	.826	.832	.848	.828	.808	.816

Truck No.		41	42	43	44	45	46	47	48	49	50
Wh. Base	L	40	40	44	44	44	44	44	44	32	32
Axle	X	12	12	12	12	12	12	12	12	16	16
Spacing	X′	16	16	20	20	20	20	20	20	8	8
Hitch	C	12	12	12	12	12	12	12	12	8	8
Load	a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
On	a_2	.30	.40	.20	.30	.40	.20	.30	.40	.20	.30
Axles	a_3	.50	.40	.70	.60	.50	.60	.50	.40	.70	.60
Span-Feet	G	2	2	4	4	2	4	2	2	3–4	2–3
	N	2	2	4	4	2	4	2	2	3	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.300	.400	.350	.300	.400	.300	.300	.400	.420	.360
	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–4	2–4
	N	2	2	3	2	2	3	2	2	4	2
20	E	L	L	R	L	L	R	L	L	R	L
	V	.400	.480	.430	.420	.500	.380	.400	.480	.600	.540
	G	1–3	2–4	1–3	1–3	2–3	1–3	1–3	2–3	2–4	2–4
	N	3	2	3	3	2	3	3	2	4	2
30	E	R	L	R	R	L	R	R	L	R	L
	V	.470	.533	.490	.500	.550	.460	.470	.520	.700	.660
	G	2–4	2–4	2–4	2–4	2–4	1–3	1–3	2–4	1–4	1–4
	N	2	2	4	2	2	3	3	2	4	4
40	E	L	L	R	L	L	R	R	L	R	R
	V	.550	.600	.565	.570	.625	.520	.540	.580	.770	.740
	G	1–4	1–4	1–4	2–4	2–4	1–4	1–4	1–4	1–4	1–4
	N	1	1	4	2	2	4	1	1	4	4
50	E	L	L	R	L	L	R	L	L	R	R
	V	.608	.648	.644	.636	.680	.576	.588	.632	.816	.792
	G	1–4	1–4	1–4	2–4	2–4	1–4	1–4	1–4	1–4	1–4
	N	1	1	4	2	2	4	1	1	4	4
60	E	L	L	R	L	L	R	L	L	R	R
	V	.673	.707	.703	.680	.717	.647	.657	.693	.847	.827
	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
	N	1	1	4	4	2	4	1	1	4	4
80	E	L	L	R	R	L	R	L	L	R	R
	V	.755	.780	.778	.750	.763	.735	.743	.770	.885	.870
	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
	N	1	1	4	4	2	4	1	1	4	4
100	E	L	L	R	R	L	R	L	L	R	R
	V	.804	.824	.822	.800	.790	.788	.794	.816	.908	.896

TABLE 7.9 (Continued)

Truck No.			51	52	53	54	55	56	57	58	59	60
Wh. Base L			32	32	32	32	36	36	36	36	36	36
Axle Spacing	X		16	16	16	16	16	16	16	16	16	16
	X'		8	8	8	8	12	12	12	12	12	12
Hitch	C		8	8	8	8	8	8	8	8	8	8
Load	a_1		.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
On	a_2		.40	.20	.30	.40	.20	.30	.40	.20	.30	.40
Axles	a_3		.50	.60	.50	.40	.70	.60	.50	.60	.50	.40
Span-Feet	10	G	2–3	3–4	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	3	2	2	3	2	2	3	2	2
		E	L	L	L	L	R	L	L	R	L	L
		V	.450	.360	.350	.440	.390	.360	.450	.340	.350	.440
	20	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	4	2	2	4	2	2	4	2	2
		E	L	R	L	L	R	L	L	R	L	L
		V	.600	.520	.500	.560	.490	.480	.550	.420	.450	.520
	30	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	4	2	2	4	2	2	4	2	2
		E	L	R	L	L	R	L	L	R	L	L
		V	.700	.613	.600	.640	.627	.620	.667	.547	.567	.613
	40	G	2–4	1–4	1–4	2–4	1–4	2–4	2–4	1–4	2–4	2–4
		N	2	4	4	2	4	2	2	4	2	2
		E	L	R	R	L	R	L	L	R	L	L
		V	.750	.700	.670	.680	.705	.690	.725	.630	.625	.660
	50	G	2–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	2–4
		N	2	4	4	4	4	4	2	4	4	2
		E	L	R	R	R	R	R	L	R	R	L
		V	.780	.760	.736	.712	.764	.736	.760	.704	.676	.688
	60	G	1–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	2–4
		N	4	4	4	4	4	4	2	4	4	2
		E	R	R	R	R	R	R	L	R	R	L
		V	.807	.800	.780	.760	.803	.780	.783	.753	.730	.707
	80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	4	4	4
		E	R	R	R	R	R	R	R	R	R	R
		V	.855	.850	.835	.820	.853	.835	.818	.815	.798	.780
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	4	4	4
		E	R	R	R	R	R	R	R	R	R	R
		V	.884	.880	.868	.856	.882	.868	.854	.852	.838	.824

Truck No.			61	62	63	64	65	66	67	68	69	70
Wh. Base L			40	40	40	40	40	40	44	44	44	44
Axle Spacing	X		16	16	16	16	16	16	16	16	16	16
	X'		16	16	16	16	16	16	20	20	20	20
Hitch	C		8	8	8	8	8	8	8	8	8	8
Load	a_1		.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
On	a_2		.20	.30	.40	.20	.30	.40	.20	.30	.40	.20
Axles	a_3		.70	.60	.50	.60	.50	.40	.70	.60	.50	.60
Span-Feet	10	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	3	2	2	3	2	2	3	2	2	3
		E	R	L	L	R	L	L	R	L	L	R
		V	.390	.360	.450	.340	.350	.440	.390	.360	.450	.340
	20	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	3	2	2	3	2	2	3	2	2	3
		E	R	L	L	R	L	L	R	L	L	R
		V	.470	.480	.550	.420	.450	.520	.470	.480	.550	.420
	30	G	2–4	2–4	2–4	1–3	2–4	2–4	1–3	2–4	2–4	1–3
		N	4	2	2	3	2	2	3	2	2	3
		E	R	L	L	R	L	L	R	L	L	R
		V	.553	.580	.633	.487	.533	.587	.517	.540	.600	.487
	40	G	1–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	1–3
		N	4	2	2	2	2	2	2	2	2	3
		E	R	L	L	L	L	L	L	L	L	R
		V	.640	.660	.700	.560	.600	.640	.585	.630	.675	.540
	50	G	1–4	2–4	2–4	1–4	2–4	2–4	1–4	2–4	2–4	1–4
		N	4	2	2	4	2	2	4	2	2	4
		E	R	L	L	R	L	L	R	L	L	R
		V	.712	.708	.740	.648	.640	.672	.660	.684	.720	.592
	60	G	1–4	2–4	2–4	1–4	1–4	2–4	1–4	2–4	2–4	1–4
		N	4	2	2	4	4	2	4	2	2	4
		E	R	L	L	R	R	L	R	L	L	R
		V	.760	.740	.767	.707	.680	.694	.717	.720	.750	.660
	80	G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	2–4	2–4	1–4
		N	4	4	2	4	4	1	4	2	2	4
		E	R	R	L	R	R	L	R	L	L	R
		V	.820	.800	.800	.780	.760	.760	.788	.765	.788	.745
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4
		N	4	4	4	4	4	1	4	4	2	4
		E	R	R	R	R	R	L	R	R	L	R
		V	.856	.840	.824	.824	.808	.808	.830	.812	.810	.796

TABLE 7.9 (Continued)

Truck No.		71	72	73	74	75	76	77	78	79	80
Wh. Base L		44	44	36	36	36	36	36	36	40	40
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	20	20	8	8	8	8	8	8	12	12
Hitch	C	8	8	12	12	12	12	12	12	12	12
Load	a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
On	a_2	.30	.40	.20	.30	.40	.20	.30	.40	.20	.30
Axles	a_3	.50	.40	.70	.60	.50	.60	.50	.40	.70	.60
Span-Feet											
	G	2–3	2–3	3–4	3–4	2	3–4	3–4	2	4	4
	N	2	2	3	3	2	3	3	2	4	4
10	E	L	L	L	L	L	L	L	L	L	L
	V	.350	.440	.420	.360	.400	.360	.300	.400	.350	.300
	G	2–3	2–3	2–4	2–4	2–4	2–4	2–4	2–4	3–4	2–3
	N	2	2	4	4	2	4	2	2	3	2
20	E	L	L	R	R	L	R	L	L	L	L
	V	.450	.520	.560	.480	.500	.480	.400	.480	.490	.420
	G	1–3	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
	N	3	2	4	4	2	4	2	2	4	2
30	E	R	L	R	R	L	R	L	L	R	L
	V	.510	.560	.673	.620	.634	.587	.533	.586	.600	.540
	G	2–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4	2–4	2–4
	N	2	2	4	4	2	4	4	2	4	2
40	E	L	L	R	R	L	R	R	L	R	L
	V	.575	.620	.740	.700	.700	.660	.620	.640	.675	.630
	G	2–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4
	N	2	2	4	4	2	4	4	2	4	4
50	E	L	L	R	R	L	R	R	L	R	R
	V	.620	.656	.792	.760	.740	.728	.696	.672	.740	.704
	G	2–4	2–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	2	2	4	4	4	4	4	4	4	4
60	E	L	L	R	R	R	R	R	R	R	R
	V	.650	.680	.827	.800	.773	.773	.747	.720	.783	.753
	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	1	1	4	4	4	4	4	4	4	4
80	E	L	L	R	R	R	R	R	R	R	R
	V	.728	.750	.870	.850	.830	.830	.810	.790	.838	.815
	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	1	1	4	4	4	4	4	4	4	4
100	E	L	L	R	R	R	R	R	R	R	R
	V	.782	.800	.896	.880	.864	.864	.848	.832	.870	.852

Truck No.		81	82	83	84	85	86	87	88	89	90
Wh. Base L		40	40	40	40	44	44	44	44	44	44
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	12	12	12	12	16	16	16	16	16	16
Hitch	C	12	12	12	12	12	12	12	12	12	12
Load	a_1	.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
On	a_2	.40	.20	.30	.40	.20	.30	.40	.20	.30	.40
Axles	a_3	.50	.60	.50	.40	.70	.60	.50	.60	.50	.40
Span-Feet											
	G	2	4	2	2	4	4	2	4	2	2
	N	2	4	2	2	4	4	2	4	2	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.400	.300	.300	.400	.350	.300	.400	.300	.300	.400
	G	2–3	3–4	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
	N	2	3	2	2	3	2	2	3	2	2
20	E	L	L	L	L	R	L	L	R	L	L
	V	.500	.420	.400	.480	.430	.420	.500	.380	.400	.480
	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
	N	2	4	2	2	4	2	2	4	2	2
30	E	L	R	L	L	R	L	L	R	L	L
	V	.600	.520	.500	.560	.527	.500	.567	.453	.467	.533
	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
	N	2	4	2	2	4	2	2	4	2	2
40	E	L	R	L	L	R	L	L	R	L	L
	V	.675	.590	.575	.620	.620	.600	.650	.540	.550	.600
	G	2–4	1–4	1–4	2–4	1–4	2–4	2–4	1–4	2–4	2–4
	N	2	4	4	2	4	2	2	4	2	2
50	E	L	R	R	L	R	L	L	R	L	L
	V	.720	.672	.636	.656	.688	.660	.700	.616	.600	.640
	G	2–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4
	N	2	4	4	2	4	4	2	4	4	2
60	E	L	R	R	L	R	R	L	R	R	L
	V	.750	.727	.697	.680	.740	.707	.733	.680	.647	.667
	G	1–4	1–4	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4
	N	4	4	4	1	4	4	2	4	4	1
80	E	R	R	R	L	R	R	L	R	R	L
	V	.793	.795	.773	.750	.805	.780	.775	.760	.735	.740
	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	4	4	1	4	4	4	4	4	1
100	E	R	R	R	L	R	R	R	R	R	L
	V	.834	.836	.818	.800	.844	.824	.804	.808	.788	.792

TABLE 7.9 (Continued)

Truck No.			91	92	93	94	95	96	97	98	99	100
Wh. Base L			48	48	48	48	48	48	36	36	36	36
Axle Spacing		X	16	16	16	16	16	16	20	20	20	20
		X′	20	20	20	20	20	20	8	8	8	8
Hitch		C	12	12	12	12	12	12	8	8	8	8
Load On Axles		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
		a_2	.20	.30	.40	.20	.30	.40	.20	.30	.40	.20
		a_3	.70	.60	.50	.60	.50	.40	.70	.60	.50	.60
Span-Feet	10	G	4	4	2	4	2	2	3 4	3–4	2–3	3–4
		N	4	4	2	4	2	2	3	3	2	3
		E	L	L	L	L	L	L	L	L	L	L
		V	.350	.300	.400	.300	.300	.400	.420	.360	.450	.360
	20	G	2 3	2 3	2–3	2–3	2–3	2–3	2 4	2–4	2–4	2–4
		N	3	2	2	3	2	2	4	2	2	4
		E	R	L	L	R	L	L	R	L	L	R
		V	.430	.420	.500	.380	.400	.480	.600	.540	.600	.520
	30	G	1–3	1–3	2–3	1–3	2–3	2–3	2 4	2–4	2–4	2–4
		N	3	3	2	3	2	2	4	2	2	4
		E	R	R	L	R	L	L	R	L	L	R
		V	.476	.487	.550	.433	.450	.520	.700	.660	.700	.613
	40	G	2–4	2–4	2 4	1–3	2–4	2–4	1–4	1–4	2–4	1–4
		N	4	2	2	3	2	2	4	4	2	4
		E	R	L	L	R	L	L	R	R	L	R
		V	.565	.570	.625	.500	.525	.580	.760	.730	.750	.680
	50	G	1–4	2–4	2–4	1–4	2–4	2–4	1–4	1–4	2–4	1–4
		N	4	2	2	4	2	2	4	4	2	4
		E	R	L	L	R	L	L	R	R	L	R
		V	.636	.636	.680	.560	.580	.624	.808	.784	.780	.744
	60	G	1 4	2 4	2–4	1–4	2–4	2–4	1–4	1–4	1–4	1–4
		N	4	2	2	4	2	2	4	4	4	4
		E	R	L	L	R	L	L	R	R	R	R
		V	.697	.680	.717	.633	.617	.653	.840	.820	.800	.787
	80	G	1–4	1–4	2–4	1–4	1–4	1–4	1 4	1–4	1–4	1–4
		N	4	4	2	4	1	1	4	4	4	4
		E	R	R	L	R	L	L	R	R	R	R
		V	.773	.745	.763	.725	.703	.730	.880	.865	.850	.840
	100	G	1–4	1–4	2 4	1 4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	2	4	1	1	4	4	4	4
		E	R	R	L	R	L	L	R	R	R	R
		V	.818	.796	.790	.780	.762	.784	.904	.892	.880	.872

Truck No.			101	102	103	104	105	106	107	108	109	110
Wh. Base L			36	36	40	40	40	40	40	40	44	44
Axle Spacing		X	20	20	20	20	20	20	20	20	20	20
		X′	8	8	12	12	12	12	12	12	16	16
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
		a_2	.30	.40	.20	.30	.40	.20	.30	.40	.20	.30
		a_3	.50	.40	.70	.60	.50	.60	.50	.40	.70	.60
Span-Feet	10	G	2–3	2 3	2 3	2 3	2–3	2–3	2–3	2–3	2 3	2–3
		N	2	2	3	2	2	3	2	2	3	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.350	.440	.390	.360	.450	.340	.350	.440	.390	.360
	20	G	2–4	2 4	2 4	2–4	2–4	2–4	2–4	2–4	2–3	2–3
		N	2	2	4	2	2	4	2	2	3	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.500	.560	.490	.480	.550	.420	.450	.520	.470	.480
	30	G	2–4	2–4	2 4	2 4	2–4	2–4	2–4	2–4	2–4	2 4
		N	2	2	4	2	2	4	2	2	4	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.600	.640	.627	.620	.667	.547	.567	.613	.553	.580
	40	G	2 4	2–4	1–4	2 4	2–4	1–4	2–4	2–4	2–4	2–4
		N	2	2	4	2	2	4	2	2	4	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.650	.680	.695	.690	.725	.610	.625	.650	.640	.660
	50	G	1 4	2–4	1–4	2 4	2–4	1–4	2–4	2–4	1–4	2 4
		N	4	2	4	2	2	4	2	2	4	2
		E	R	L	R	L	L	R	L	L	R	L
		V	.720	.704	.756	.732	.760	.688	.660	.688	.704	.708
	60	G	1 4	1–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4	2–4
		N	4	4	4	4	2	4	4	2	4	2
		E	R	R	R	R	L	R	R	L	R	L
		V	.767	.747	.797	.773	.783	.740	.717	.707	.753	.740
	80	G	1–4	1 4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	2	4	4	4	4	4
		E	R	R	R	R	L	R	R	R	R	R
		V	.825	.810	.848	.830	.813	.805	.788	.770	.815	.795
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	4	4	4
		E	R	R	R	R	R	R	R	R	R	R
		V	.860	.848	.878	.864	.850	.844	.830	.816	.852	.836

TABLE 7.9 (Continued)

Truck No.			111	112	113	114	115	116	117	118	119	120
Wh. Base		L	44	44	44	44	48	48	48	48	48	48
Axle Spacing		X	20	20	20	20	20	20	20	20	20	20
		X′	16	16	16	16	20	20	20	20	20	20
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load		a_1	.10	.20	.20	.20	.10	.10	.10	.20	.20	.20
On		a_2	.40	.20	.30	.40	.20	.30	.40	.20	.30	.40
Axles		a_3	.50	.60	.50	.40	.70	.60	.50	.60	.50	.40
Span-Feet	10	G	2–3	2–3	2–3	2–3	2–3	2–3	2 3	2–3	2–3	2–3
		N	2	3	2	2	3	2	2	3	2	2
		E	L	R	L	L	R	L	L	R	L	L
		V	.450	.340	.350	.440	.390	.360	.450	.340	.350	.440
	20	G	2–3	2–3	2–3	2–3	2–3	2 3	2–3	2–3	2–3	2–3
		N	2	3	2	2	3	2	2	3	2	2
		E	L	R	L	L	R	L	L	R	L	L
		V	.550	.420	.450	.520	.470	.480	.550	.420	.450	.520
	30	G	2–4	2–4	2–4	2–4	1–3	2–4	2–4	1–3	2–4	2–4
		N	2	2	2	2	3	2	2	3	2	2
		E	L	L	L	L	R	L	L	R	L	L
		V	.633	.480	.533	.587	.503	.540	.600	.460	.500	.560
	40	G	2–4	2–4	2–4	2–4	2–4	2 4	2–4	2–4	2–4	2–4
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.700	.560	.600	.640	.585	.630	.675	.530	.575	.620
	50	G	2–4	1–4	2–4	2–4	1–4	2–4	2–4	2–4	2–4	2–4
		N	2	4	2	2	4	2	2	2	2	2
		E	L	R	L	L	R	L	L	L	L	L
		V	.740	.632	.640	.672	.652	.684	.720	.584	.620	.656
	60	G	2–4	1 4	2 4	2–4	1–4	2–4	2–4	1–4	2–4	2–4
		N	2	4	2	2	4	2	2	4	2	2
		E	L	R	L	L	R	L	L	R	L	L
		V	.767	.693	.667	.694	.710	.720	.750	.647	.650	.680
	80	G	2–4	1–4	1 4	1 4	1 4	2–4	2–4	1–4	1–4	1–4
		N	2	4	4	4	4	2	2	4	4	1
		E	L	R	R	R	R	L	L	R	R	L
		V	.800	.770	.750	.730	.783	.765	.788	.735	.713	.710
	100	G	1 4	1–4	1–4	1–4	1–4	1–4	2–4	1 4	1–4	1–4
		N	4	4	4	4	4	4	2	4	4	1
		E	R	R	R	R	R	R	L	R	R	L
		V	.820	.816	.800	.784	.826	.808	.810	.788	.770	.768

Truck No.			121	122	123	124	125	126	127	128	129	130
Wh. Base		L	40	40	40	40	40	40	44	44	44	44
Axle Spacing		X	20	20	20	20	20	20	20	20	20	20
		X′	8	8	8	8	8	8	12	12	12	12
Hitch		C	12	12	12	12	12	12	12	12	12	12
Load		a_1	.10	.10	.10	.20	.20	.20	.10	.10	.10	.20
On		a_2	.20	.30	.40	.20	.30	.40	.20	.30	.40	.20
Axles		a_3	.70	.60	.50	.60	.50	.40	.70	.60	.50	.60
Span-Feet	10	G	3–4	3–4	2	3–4	2	2	4	4	2	4
		N	3	3	2	3	2	2	4	4	2	4
		E	L	L	L	L	L	L	L	L	L	L
		V	.420	.360	.400	.360	.300	.400	.350	.300	.400	.300
	20	G	2–4	2–4	2–4	2–4	2–4	2–4	3–4	2–3	2–3	3–4
		N	4	4	2	4	2	2	3	2	2	3
		E	R	R	L	R	L	L	L	L	L	L
		V	.560	.480	.500	.480	.400	.480	.490	.420	.500	.420
	30	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	4	4	2	4	2	2	4	2	2	4
		E	R	R	L	R	L	L	R	L	L	R
		V	.673	.620	.634	.587	.533	.586	.600	.540	.600	.520
	40	G	1–4	1–4	2–4	1–4	1–4	2 4	2–4	2–4	2–4	2–4
		N	4	4	2	4	4	2	4	2	2	4
		E	R	R	L	R	R	L	R	L	L	R
		V	.730	.690	.700	.640	.600	.640	.675	.630	.675	.590
	50	G	1–4	1–4	2–4	1–4	1–4	2–4	1–4	1–4	2–4	1–4
		N	4	4	2	4	4	2	4	4	2	4
		E	R	R	L	R	R	L	R	R	L	R
		V	.784	.752	.740	.712	.680	.672	.732	.696	.720	.656
	60	G	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4	2 4	1–4
		N	4	4	2	4	4	4	4	4	2	4
		E	R	R	L	R	R	R	R	R	L	R
		V	.820	.793	.767	.760	.733	.707	.777	.747	.750	.713
	80	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	4	4	4
		E	R	R	R	R	R	R	R	R	R	R
		V	.865	.845	.825	.820	.800	.780	.833	.810	.788	.785
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	4	4	4
		E	R	R	R	R	R	R	R	R	R	R
		V	.892	.876	.860	.856	.840	.824	.866	.848	.830	.828

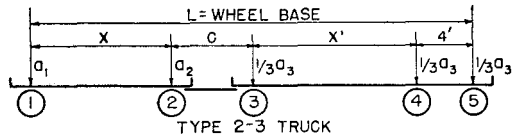
TABLE 7.9 (Continued)

Truck No.			131	132	133	134	135	136	137	138	139	140
Wh. Base		L	44	44	48	48	48	48	48	48	52	52
Axle Spacing		X	20	20	20	20	20	20	20	20	20	20
		X′	12	12	16	16	16	16	16	16	20	20
Hitch		C	12	12	12	12	12	12	12	12	12	12
Load On Axles		a_1	.20	.20	.10	.10	.10	.20	.20	.20	.10	.10
		a_2	.30	.40	.20	.30	.40	.20	.30	.40	.20	.30
		a_3	.50	.40	.70	.60	.50	.60	.50	.40	.70	.60
Span-Feet	10	G	2	2	4	4	2	4	2	2	4	4
		N	2	2	4	4	2	4	2	2	4	4
		E	L	L	L	L	L	L	L	L	L	L
		V	.300	.400	.350	.300	.400	.300	.300	.400	.350	.300
	20	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	3	2	2	3	2	2	3	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.400	.480	.430	.420	.500	.380	.400	.480	.430	.420
	30	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–3	2–3
		N	2	2	4	2	2	4	2	2	3	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.500	.560	.527	.500	.567	.453	.467	.533	.470	.480
	40	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	2	4	2	2	4	2	2	4	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.575	.620	.620	.600	.650	.540	.550	.600	.565	.570
	50	G	2–4	2–4	1–4	2–4	2–4	1–4	2–4	2–4	2–4	2–4
		N	2	2	4	2	2	4	2	2	4	2
		E	L	L	R	L	L	R	L	L	R	L
		V	.620	.656	.680	.660	.700	.600	.600	.640	.632	.636
	60	G	1–4	2–4	1–4	1–4	2–4	1–4	2–4	2–4	1–4	2–4
		N	4	2	4	4	2	4	2	2	4	2
		E	R	L	R	R	L	R	L	L	R	L
		V	.683	.680	.733	.700	.733	.667	.633	.667	.690	.680
	80	G	1–4	1–4	1–4	1–4	2–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	2	4	4	1	4	4
		E	R	R	R	R	L	R	R	L	R	R
		V	.763	.740	.800	.775	.775	.750	.725	.700	.768	.740
	100	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	4	4	4	4	4	1	4	4
		E	R	R	R	R	R	R	R	L	R	R
		V	.810	.792	.840	.820	.800	.800	.780	.760	.814	.792

Truck No.			141	142	143	144
Wh. Base		L	52	52	52	52
Axle Spacing		X	20	20	20	20
		X′	20	20	20	20
Hitch		C	12	12	12	12
Load On Axles		a_1	.10	.20	.20	.20
		a_2	.40	.20	.30	.40
		a_3	.50	.60	.50	.40
Span-Feet	10	G	2	4	2	2
		N	2	4	2	2
		E	L	L	L	L
		V	.400	.300	.300	.400
	20	G	2–3	2–3	2–3	2–3
		N	2	3	2	2
		E	L	R	L	L
		V	.500	.380	.400	.480
	30	G	2–3	2–3	2–3	2–3
		N	2	3	2	2
		E	L	R	L	L
		V	.550	.420	.450	.520
	40	G	2–4	2–4	2–4	2–4
		N	2	4	2	2
		E	L	R	L	L
		V	.625	.490	.525	.580
	50	G	2–4	2–4	2–4	2–4
		N	2	4	2	2
		E	L	R	L	L
		V	.680	.552	.580	.624
	60	G	2–4	1–4	2–4	2–4
		N	2	4	2	2
		E	L	R	L	L
		V	.717	.620	.617	.653
	80	G	2–4	1–4	1–4	1–4
		N	2	4	4	1
		E	L	R	R	L
		V	.763	.715	.688	.690
	100	G	2–4	1–4	1–4	1–4
		N	2	4	4	1
		E	L	R	R	L
		V	.790	.772	.750	.752

TABLE 7.10

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 2–3 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-3 TRUCK

Ninety variations in the Type 2–3 trucks are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base		L	32	32	32	32	32	36	36	36	36	36
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X'	8	8	8	8	8	12	12	12	12	12
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
		a_2	.20	.30	.40	.20	.30	.20	.30	.40	.20	.30
		a_3	.70	.60	.50	.60	.50	.70	.60	.50	.60	.50
Span-Feet	10	G	4–5	2–3	2–3	4–5	2–3	4–5	2–3	2–3	4–5	2–3
		N	4	2	2	4	2	4	2	2	4	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.374	.340	.433	.320	.333	.374	.340	.433	.320	.333
	20	G	2–5	2–5	2–5	2–5	2–5	3–5	2–3	2–3	3–5	2–3
		N	5	2	2	5	2	5	2	2	5	2
		E	R	L	L	R	L	R	L	L	R	L
		V	.513	.460	.533	.440	.433	.467	.420	.500	.400	.400
	30	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	5	2	2	5	2	5	2	2	5	2
		E	R	L	L	R	L	R	L	L	R	L
		V	.642	.607	.656	.560	.556	.585	.553	.611	.506	.511
	40	G	1–5	1–5	2–5	1–5	1–5	1–5	2–5	2–5	1–5	2–5
		N	5	5	2	5	5	5	2	2	5	2
		E	R	R	L	R	R	R	L	L	R	L
		V	.727	.690	.717	.660	.623	.673	.640	.683	.600	.583
	50	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
		N	5	5	2	5	5	5	5	2	5	5
		E	R	R	L	R	R	R	R	L	R	R
		V	.781	.752	.753	.728	.699	.739	.704	.727	.680	.645
	60	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
		N	5	5	2	5	5	5	5	2	5	5
		E	R	R	L	R	R	R	R	L	R	R
		V	.818	.793	.778	.773	.749	.782	.753	.756	.733	.704
	80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	5	5	5	5
		E	R	R	R	R	R	R	R	R	R	R
		V	.863	.845	.827	.830	.812	.837	.815	.793	.800	.778
	100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	5	5	5	5	5	5	5	5	5
		E	R	R	R	R	R	R	R	R	R	R
		V	.891	.876	.861	.864	.849	.869	.852	.835	.840	.823

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus, 1–3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.10 (Continued)

Span-Feet			Truck No.	11	12	13	14	15	16	17	18	19	20
			Wh. Base L	40	40	40	40	40	36	36	36	36	36
			Axle X	12	12	12	12	12	12	12	12	12	12
			Spacing X′	16	16	16	16	16	8	8	8	8	8
			Hitch C	8	8	8	8	8	12	12	12	12	12
			Load a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
			On a_2	.20	.30	.40	.20	.30	.20	.30	.40	.20	.30
			Axles a_3	.70	.60	.50	.60	.50	.70	.60	.50	.60	.50
		G		4–5	2–3	2–3	4–5	2–3	4–5	4–5	2	4–5	2
		N		4	2	2	4	2	4	4	2	4	2
	10	E		L	L	L	L	L	L	L	L	L	L
		V		.374	.340	.433	.320	.333	.374	.320	.400	.320	.300
		G		3–5	2–3	2–3	3–5	2–3	3–5	3–5	2–3	3–5	1–2
		N		5	2	2	5	2	5	5	2	5	2
	20	E		R	L	L	R	L	R	R	L	R	R
		V		.420	.420	.500	.360	.400	.513	.440	.467	.440	.380
		G		2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N		5	2	2	5	2	5	5	2	5	2
	30	E		R	L	L	R	L	R	R	L	R	L
		V		.527	.500	.567	.453	.467	.615	.553	.589	.533	.489
		G		1–5	2–5	2–5	1–5	2–5	1–5	1–5	2–5	1–5	1–5
		N		5	2	2	5	2	5	5	2	5	5
	40	E		R	L	L	R	L	R	R	L	R	R
		V		.620	.600	.650	.540	.550	.697	.650	.667	.620	.573
		G		1–5	2–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
		N		5	2	2	5	1	5	5	2	5	5
	50	E		R	L	L	R	L	R	R	L	R	R
		V		.696	.660	.700	.632	.608	.757	.720	.713	.696	.659
		G		1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
		N		5	5	2	5	1	5	5	2	5	5
	60	E		R	R	L	R	L	R	R	L	R	R
		V		.747	.713	.733	.693	.673	.798	.767	.744	.747	.716
		G		1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N		5	5	2	5	1	5	5	5	5	5
	80	E		R	R	L	R	L	R	R	R	R	R
		V		.810	.785	.775	.770	.755	.848	.825	.802	.810	.787
		G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N		5	5	5	5	1	5	5	5	5	5
	100	E		R	R	R	R	L	R	R	R	R	R
		V		.848	.828	.808	.813	.804	.879	.860	.841	.848	.829

Span-Feet			Truck No.	21	22	23	24	25	26	27	28	29	30
			Wh. Base L	40	40	40	40	40	44	44	44	44	44
			Axle X	12	12	12	12	12	12	12	12	12	12
			Spacing X′	12	12	12	12	12	16	16	16	16	16
			Hitch C	12	12	12	12	12	12	12	12	12	12
			Load a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
			On a_2	.20	.30	.40	.20	.30	.20	.30	.40	.20	.30
			Axles a_3	.70	.60	.50	.60	.50	.70	.60	.50	.60	.50
		G		4–5	4–5	2	4–5	2	4–5	4–5	2	4–5	2
		N		4	4	2	4	2	4	4	2	4	2
	10	E		L	L	L	L	L	L	R	L	L	L
		V		.374	.320	.400	.320	.300	.374	.320	.400	.320	.300
		G		3–5	3–5	2–3	3–5	1–2	3–5	2–3	2–3	3–5	1–2
		N		5	5	2	5	2	5	2	2	5	2
	20	E		R	R	L	R	R	R	L	L	R	R
		V		.467	.400	.467	.400	.380	.420	.380	.467	.360	.380
		G		2–5	2–5	2–5	2–5	2–5	3–5	3–5	2–4	3–5	1–2
		N		5	5	2	5	2	5	5	2	5	2
	30	E		R	R	L	R	L	R	R	L	R	R
		V		.558	.487	.545	.480	.445	.513	.440	.511	.440	.420
		G		1–5	1–5	2–5	1–5	2–5	2–5	2–5	2–5	2–5	2–5
		N		5	5	2	5	2	5	2	2	5	2
	40	E		R	R	L	R	L	R	L	L	R	L
		V		.643	.590	.633	.560	.533	.600	.540	.600	.520	.500
		G		1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
		N		5	5	2	5	5	5	5	2	5	1
	50	E		R	R	L	R	R	R	R	L	R	L
		V		.715	.672	.687	.648	.605	.672	.624	.660	.600	.568
		G		1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
		N		5	5	2	5	5	5	5	2	5	1
	60	E		R	R	L	R	R	R	R	L	R	L
		V		.762	.727	.722	.707	.671	.727	.687	.700	.667	.640
		G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
		N		5	5	5	5	5	5	5	2	5	1
	80	E		R	R	R	R	R	R	R	L	R	L
		V		.822	.795	.768	.780	.753	.795	.765	.750	.750	.730
		G		1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N		5	5	5	5	5	5	5	5	5	1
	100	E		R	R	R	R	R	R	R	R	R	L
		V		.857	.836	.815	.824	.803	.836	.812	.788	.800	.784

TABLE 7.10 (Continued)

Truck No.		31	32	33	34	35	36	37	38	39	40
Wh. Base L		36	36	36	36	36	40	40	40	40	40
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	8	8	8	8	8	12	12	12	12	12
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On	a_2	.20	.30	.40	.20	.30	.20	.30	.40	.20	.30
Axles	a_3	.70	.60	.50	.60	.50	.70	.60	.50	.60	.50
Span-Feet 10	G	4–5	2–3	2–3	4–5	2–3	4–5	2–3	2–3	4–5	2–3
	N	4	2	2	4	2	4	2	2	4	2
	E	L	L	L	L	L	L	L	L	L	L
	V	.374	.340	.433	.320	.333	.374	.340	.433	.320	.333
20	G	2–5	2–5	2–5	2–5	2–5	3–5	2–3	2–3	3–5	2–3
	N	5	2	2	5	2	5	2	2	5	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.513	.460	.533	.440	.433	.467	.420	.500	.400	.400
30	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
	N	5	2	2	5	2	5	2	2	5	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.642	.607	.656	.560	.556	.585	.553	.611	.506	.511
40	G	1–5	1–5	2–5	1–5	2–5	1–5	2–5	2–5	1–5	2–5
	N	5	5	2	5	2	5	2	2	5	2
	E	R	R	L	R	L	R	L	L	R	L
	V	.717	.680	.717	.640	.617	.663	.640	.683	.580	.583
50	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	5	2	5	5	5	5	2	5	5
	E	R	R	L	R	R	R	R	L	R	R
	V	.773	.744	.753	.712	.683	.731	.696	.727	.664	.629
60	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	5	2	5	5	5	5	2	5	5
	E	R	R	L	R	R	R	R	L	R	R
	V	.811	.787	.778	.760	.736	.776	.747	.756	.720	.691
80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	5	5	5	5	5	5	2	5	5
	E	R	R	R	R	R	R	R	L	R	R
	V	.858	.840	.822	.820	.802	.832	.810	.792	.790	.768
100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	5	5	5	5	5	5	5	5
	E	R	R	R	R	R	R	R	R	R	R
	V	.887	.872	.857	.856	.841	.865	.848	.831	.832	.815

Truck No.		41	42	43	44	45	46	47	48	49	50
Wh. Base L		44	44	44	44	44	40	40	40	40	40
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	16	16	16	16	16	8	8	8	8	8
Hitch	C	8	8	8	8	8	12	12	12	12	12
Load	a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On	a_2	.20	.30	.40	.20	.30	.20	.30	.40	.20	.30
Axles	a_3	.70	.60	.50	.60	.50	.70	.60	.50	.60	.50
Span-Feet 10	G	4–5	2–3	2–3	4–5	2–3	4–5	4–5	2	4–5	2
	N	4	2	2	4	2	4	4	2	4	2
	E	L	L	L	L	L	L	L	L	L	L
	V	.374	.340	.433	.320	.333	.374	.320	.400	.320	.300
20	G	3–5	2–3	2–3	3–5	2–3	3–5	3–5	2–3	3–5	2–3
	N	5	2	2	5	2	5	5	2	5	2
	E	R	L	L	R	L	R	R	L	R	L
	V	.420	.420	.500	.360	.400	.513	.440	.467	.440	.367
30	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
	N	5	2	2	5	2	5	5	2	5	2
	E	R	L	L	R	L	R	R	L	R	L
	V	.527	.500	.567	.453	.467	.615	.553	.589	.533	.489
40	G	2–5	2–5	2–5	2–5	2–5	1–5	1–5	2–5	1–5	2–5
	N	5	2	2	5	2	5	5	2	5	2
	E	R	L	L	R	L	R	R	L	R	L
	V	.620	.600	.650	.540	.550	.687	.640	.667	.600	.567
50	G	1–5	2–5	2–5	1–5	2–5	1–5	1–5	2–5	1–5	1–5
	N	5	2	2	5	2	5	5	2	5	5
	E	R	L	L	R	L	R	R	L	R	R
	V	.688	.660	.700	.616	.600	.749	.712	.713	.680	.643
60	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	5	2	5	5	5	5	2	5	5
	E	R	R	L	R	R	R	R	L	R	R
	V	.740	.707	.733	.680	.647	.791	.760	.744	.733	.702
80	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	2	5	5	5	5	5	5	5
	E	R	R	L	R	R	R	R	R	R	R
	V	.805	.780	.775	.760	.735	.843	.820	.797	.800	.777
100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	5	5	5	5	5	5	5	5
	E	R	R	R	R	R	R	R	R	R	R
	V	.844	.824	.804	.808	.788	.875	.856	.837	.840	.821

TABLE 7.10 (Continued)

Truck No.		51	52	53	54	55	56	57	58	59	60
Wh. Base	L	44	44	44	44	44	48	48	48	48	48
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	12	12	12	12	12	16	16	16	16	16
Hitch	C	12	12	12	12	12	12	12	12	12	12
Load	a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On	a_2	.20	.30	.40	.20	.30	.20	.30	.40	.20	.30
Axles	a_3	.70	.60	.50	.60	.50	.70	60	.50	.60	.50
Span-Feet 10	G	4–5	4–5	2	4–5	2	4–5	4–5	2	4–5	2
	N	4	4	2	4	2	4	4	2	4	2
	E	L	L	L	L	L	L	L	L	L	L
	V	.374	.320	.400	.320	.300	.374	.320	.400	.320	.300
20	G	3–5	3–5	2–3	3–5	2–3	3–5	2–3	2–3	3–5	2–3
	N	5	5	2	5	2	5	2	2	5	2
	E	R	R	L	R	L	R	L	L	R	L
	V	.467	.400	.467	.400	.367	.420	.380	.467	.360	.367
30	G	2–5	2–5	2–5	2–5	2–5	3–5	3–5	2–4	3–5	2–4
	N	5	5	2	5	2	5	5	2	5	2
	E	R	R	L	R	L	R	R	L	R	L
	V	.558	.487	.545	.480	.445	.513	.440	.511	.440	.411
40	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
	N	5	5	2	5	2	5	2	2	5	2
	E	R	R	L	R	L	R	L	L	R	L
	V	.643	.590	.633	.560	.533	.600	.540	.600	.520	.500
50	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	2–5
	N	5	5	2	5	5	5	5	2	5	2
	E	R	R	L	R	R	R	R	L	R	L
	V	.707	.664	.687	.632	.589	.664	.616	.660	.584	.560
60	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	5	2	5	5	5	5	2	5	5
	E	R	R	L	R	R	R	R	L	R	R
	V	.756	.720	.722	.693	.658	.720	.680	.700	.653	.613
80	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	5	2	5	5	5	5	2	5	5
	E	R	R	L	R	R	R	R	L	R	R
	V	.817	.790	.767	.770	.743	.790	.760	.750	.740	.710
100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	5	5	5	5	5	5	5	5
	E	R	R	R	R	R	R	R	R	R	R
	V	.853	.832	.811	.816	.795	.832	.808	.784	.792	.768

Truck No.		61	62	63	64	65	66	67	68	69	70
Wh. Base	L	40	40	40	40	40	44	44	44	44	44
Axle	X	20	20	20	20	20	20	20	20	20	20
Spacing	X′	8	8	8	8	8	12	12	12	12	12
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On	a_2	.20	.30	.40	.20	.30	.20	.30	.40	.20	.30
Axles	a_3	.70	.60	.50	.60	.50	.70	.60	.50	.60	.50
Span-Feet 10	G	4–5	2–3	2–3	4–5	2–3	4–5	2–3	2–3	4–5	2–3
	N	4	2	2	4	2	4	2	2	4	2
	E	L	L	L	L	L	L	L	L	L	L
	V	.374	.340	.433	.320	.333	.374	.340	.433	.320	.333
20	G	2–5	2–5	2–5	2–5	2–5	3–5	2–3	2–3	3–5	2–3
	N	5	2	2	5	2	5	2	2	5	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.513	.460	.533	.440	.433	.467	.420	.500	.400	.400
30	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
	N	5	2	2	5	2	5	2	2	5	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.642	.607	.656	.560	.556	.585	.553	.611	.506	.511
40	G	1–5	2–5	2–5	1–5	2–5	2–5	2–5	2–5	2–5	2–5
	N	5	2	2	5	2	5	2	2	5	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.707	.680	.717	.620	.617	.663	.640	.683	.580	.583
50	G	1–5	1–5	2–5	1–5	1–5	1–5	2–5	2–5	1–5	2–5
	N	5	5	2	5	5	5	2	2	5	2
	E	R	R	L	R	R	R	L	L	R	L
	V	.765	.736	.753	.696	.667	.723	.692	.727	.648	.627
60	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	5	2	5	5	5	5	2	5	5
	E	R	R	L	R	R	R	R	L	R	R
	V	.804	.780	.778	.747	.722	.769	.740	.756	.707	.678
80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	5	5	5	5	5	5	2	5	5
	E	R	R	R	R	R	R	R	L	R	R
	V	.853	.835	.817	.810	.792	.827	.805	.792	.780	.758
100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	5	5	5	5	5	5	5	5
	E	R	R	R	R	R	R	R	R	R	R
	V	.883	.868	.853	.848	.833	.861	.844	.827	.824	.807

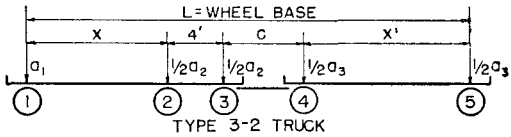
TABLE 7.10 (Continued)

Truck No.		71	72	73	74	75	76	77	78	79	80
Wh. Base L		48	48	48	48	48	44	44	44	44	44
Axle	X	20	20	20	20	20	20	20	20	20	20
Spacing	X′	16	16	16	16	16	8	8	8	8	8
Hitch	C	8	8	8	8	8	12	12	12	12	12
Load	a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On	a_2	.20	.30	.40	.20	.30	.20	.30	.40	.20	.30
Axles	a_3	.70	.60	.50	.60	.50	.70	.60	.50	.60	.50
Span-Feet	G	4–5	2–3	2–3	4–5	2–3	4–5	4–5	2	4–5	2
	N	4	2	2	4	2	4	4	2	4	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.374	.340	.433	.320	.333	.374	.320	.400	.320	.300
	G	3–5	2–3	2–3	3–5	2–3	3–5	3–5	2–3	3–5	2–3
	N	5	2	2	5	2	5	5	2	5	2
20	E	R	L	L	R	L	R	R	L	R	L
	V	.420	.420	.500	.360	.400	.513	.440	.467	.440	.367
	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
	N	5	2	2	5	2	5	5	2	5	2
30	E	R	L	L	R	L	R	R	L	R	L
	V	.527	.500	.567	.453	.467	.615	.553	.589	.533	.489
	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
	N	5	2	2	5	2	5	5	2	5	2
40	E	R	L	L	R	L	R	R	L	R	L
	V	.620	.600	.650	.540	.550	.687	.640	.667	.600	.567
	G	1–5	2–5	2–5	1–5	2–5	1–5	1–5	2–5	1–5	1–5
	N	5	2	2	5	2	5	5	2	5	5
50	E	R	L	L	R	L	R	R	L	R	R
	V	.680	.660	.700	.600	.600	.741	.704	.713	.664	.627
	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	5	2	5	5	5	5	2	5	5
60	E	R	R	L	R	R	R	R	L	R	R
	V	.733	.700	.733	.667	.633	.784	.753	.744	.720	.689
	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	2	5	5	5	5	5	5	5
80	E	R	R	L	R	R	R	R	R	R	R
	V	.800	.775	.775	.750	.725	.838	.815	.792	.790	.767
	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	5	5	5	5	5	5	5	5
100	E	R	R	R	R	R	R	R	R	R	R
	V	.840	.820	.809	.800	.780	.871	.852	.833	.832	.813

Truck No.		81	82	83	84	85	86	87	88	89	90
Wh. Base L		48	48	48	48	48	52	52	52	52	52
Axle	X	20	20	20	20	20	20	20	20	20	20
Spacing	X′	12	12	12	12	12	16	16	16	16	16
Hitch	C	12	12	12	12	12	12	12	12	12	12
Load	a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On	a_2	.20	.30	.40	.20	.30	.20	.30	.40	.20	.30
Axles	a_3	.70	.60	.50	.60	.50	.70	.60	.50	.60	.50
Span-Feet	G	4–5	4–5	2	4–5	2	4–5	4–5	2	4–5	2
	N	4	4	2	4	2	4	4	2	4	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.374	.320	.400	.320	.300	.374	.320	.400	.320	.300
	G	3–5	3–5	2–3	3–5	2–3	3–5	2–3	2–3	2–5	2–3
	N	5	5	2	5	2	5	2	2	5	2
20	E	R	R	L	R	L	R	L	L	R	L
	V	.467	.400	.467	.400	.367	.420	.380	.467	.360	.367
	G	2–5	2–5	2–5	2–5	2–5	3–5	3–5	2–4	3–5	2–4
	N	5	5	2	5	2	5	5	2	5	2
30	E	R	R	L	R	L	R	R	L	R	L
	V	.558	.487	.545	.480	.445	.513	.440	.511	.440	.411
	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
	N	5	5	2	5	2	5	2	2	5	2
40	E	R	R	L	R	L	R	L	L	R	L
	V	.643	.590	.633	.560	.533	.600	.540	.600	.520	.500
	G	1–5	1–5	2–5	1–5	2–5	2–5	2–5	2–5	2–5	2–5
	N	5	5	2	5	2	5	2	2	5	2
50	E	R	R	L	R	L	R	L	L	R	L
	V	.699	.656	.687	.616	.587	.660	.612	.660	.576	.560
	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	2–5
	N	5	5	2	5	5	5	5	2	5	2
60	E	R	R	L	R	R	R	R	L	R	L
	V	.749	.713	.722	.680	.644	.713	.673	.700	.640	.600
	G	1–5	1–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	5	2	5	5	5	5	2	5	5
80	E	R	R	L	R	R	R	R	L	R	R
	V	.812	.785	.767	.760	.733	.785	.755	.750	.730	.700
	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	5	5	5	5	5	5	5	5
100	E	R	R	R	R	R	R	R	R	R	R
	V	.849	.828	.807	.808	.787	.828	.804	.780	.784	.760

TABLE 7.11

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 3–2 TRUCKS WEIGHING ONE KIP EACH



TYPE 3-2 TRUCK

Ninety variations in the Type 3–2 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base		L	36	36	36	36	36	40	40	40	40	40
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X'	12	12	12	12	12	16	16	16	16	16
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
		a_2	.40	.50	.60	.40	.50	.40	.50	.60	.40	.50
		a_3	.50	.40	.30	.40	.30	.50	.40	.30	.40	.30
Span-Feet	10	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.480	.320	.400	.320	.400	.480	.320	.400
	20	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.460	.530	.600	.440	.510	.460	.530	.600	.440	.510
	30	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	1–4	2–5
		N	2	2	2	2	2	2	2	2	4	2
		E	L	L	L	L	L	L	L	L	R	L
		V	.573	.626	.680	.534	.586	.540	.600	.660	.506	.566
	40	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.655	.695	.735	.600	.640	.630	.675	.720	.580	.625
	50	G	2–5	2–5	2–5	1–5	1–5	2–5	2–5	2–5	1–5	1–5
		N	2	2	2	1	1	2	2	2	1	1
		E	L	L	L	L	L	L	L	L	L	L
		V	.704	.736	.768	.648	.689	.684	.720	.756	.632	.668
	60	G	1–5	2–5	2–5	1–5	1–5	2–5	2–5	2–5	1–5	1–5
		N	5	2	2	1	1	2	2	2	1	1
		E	R	L	L	L	L	L	L	L	L	L
		V	.743	.763	.790	.707	.733	.720	.750	.780	.693	.723
	80	G	1–5	2–5	2–5	1–5	1–5	1–5	2–5	2–5	1–5	1–5
		N	5	2	2	1	1	5	2	2	1	1
		E	R	L	L	L	L	R	L	L	L	L
		V	.808	.797	.817	.780	.800	.770	.788	.810	.770	.793
	100	G	1–5	1–5	2–5	1–5	1–5	1–5	2–5	2–5	1–5	1–5
		N	5	5	2	1	1	5	2	2	1	1
		E	R	R	L	L	L	R	L	L	L	L
		V	.846	.830	.834	.824	.840	.816	.810	.828	.816	.834

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus, 1–3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.11 (Continued)

Truck No.			11	12	13	14	15	16	17	18	19	20
Wh. Base		L	44	44	44	44	44	40	40	40	40	40
Axle		X	12	12	12	12	12	12	12	12	12	12
Spacing		X′	20	20	20	20	20	12	12	12	12	12
Hitch		C	8	8	8	8	8	12	12	12	12	12
Load		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On		a_2	.40	.50	.60	.40	.50	.40	.50	.60	.40	.50
Axles		a_3	.50	.40	.30	.40	.30	.50	.40	.30	.40	.30
Span-Feet	10	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.480	.320	.400	.320	.400	.480	.320	.400
	20	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	1–3
		N	2	2	2	2	2	2	2	2	2	3
		E	L	L	L	L	L	L	L	L	L	R
		V	.460	.530	.600	.440	.510	.410	.490	.570	.400	.490
	30	G	1–4	2–4	2–4	1–4	1–3	2–5	2–5	2–5	2–5	1–3
		N	4	2	2	4	3	2	2	2	2	3
		E	R	L	L	R	R	L	L	L	L	R
		V	.537	.587	.650	.506	.560	.507	.573	.640	.480	.560
	40	G	2–5	2–5	2–5	1–4	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	4	2	2	2	2	2	2
		E	L	L	L	R	L	L	L	L	L	L
		V	.605	.655	.705	.580	.610	.605	.655	.705	.560	.610
	50	G	2–5	2–5	2–5	1–4	1–5	2–5	2–5	2–5	1–5	1–5
		N	2	2	2	4	1	2	2	2	1	1
		E	L	L	L	R	L	L	L	L	L	L
		V	.664	.704	.744	.624	.656	.664	.704	.744	.616	.656
	60	G	2–5	2–5	2–5	1–5	1–5	1–5	2–5	2–5	1–5	1–5
		N	2	2	2	1	1	5	2	2	1	1
		E	L	L	L	L	L	R	L	L	L	L
		V	.703	.737	.770	.680	.713	.710	.737	.770	.680	.713
	80	G	2–5	2–5	2–5	1–5	1–5	1–5	2–5	2–5	1–5	1–5
		N	2	2	2	1	1	5	2	2	1	1
		E	L	L	L	L	L	R	L	L	L	L
		V	.752	.778	.803	.760	.785	.783	.778	.803	.760	.785
	100	G	1–5	2–5	2–5	1–5	1–5	1–5	1–5	2–5	1–5	1–5
		N	5	2	2	1	1	5	5	2	1	1
		E	R	L	L	L	L	R	R	L	L	L
		V	.786	.802	.822	.808	.828	.826	.806	.822	.808	.828

Truck No.			21	22	23	24	25	26	27	28	29	30
Wh. Base		L	44	44	44	44	44	48	48	48	48	48
Axle		X	12	12	12	12	12	12	12	12	12	12
Spacing		X′	16	16	16	16	16	20	20	20	20	20
Hitch		C	12	12	12	12	12	12	12	12	12	12
Load		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On		a_2	.40	.50	.60	.40	.50	.40	.50	.60	.40	.50
Axles		a_3	.50	.40	.30	.40	.30	.50	.40	.30	.40	.30
Span-Feet	10	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.480	.320	.400	.320	.400	.480	.320	.400
	20	G	2–4	2–4	2–4	2–4	1–3	2–4	2–4	2–4	2–4	1–3
		N	2	2	2	2	3	2	2	2	2	3
		E	L	L	L	L	R	L	L	L	L	R
		V	.410	.490	.570	.400	.490	.410	.490	.570	.400	.490
	30	G	2–4	2–4	2–4	1–3	1–3	2–4	2–4	2–4	2–4	1–3
		N	2	2	2	3	3	2	2	2	2	3
		E	L	L	L	R	R	L	L	L	L	R
		V	.490	.560	.630	.467	.560	.490	.560	.630	.467	.560
	40	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	1–3
		N	2	2	2	2	2	2	2	2	2	3
		E	L	L	L	L	L	L	L	L	L	R
		V	.580	.635	.690	.540	.595	.555	.615	.675	.520	.595
	50	G	2–5	2–5	2–5	1–5	1–5	2–5	2–5	2–5	1–5	1–5
		N	2	2	2	1	1	2	2	2	1	1
		E	L	L	L	L	L	L	L	L	L	L
		V	.644	.688	.732	.600	.644	.624	.672	.720	.584	.632
	60	G	2–5	2–5	2–5	1–5	1–5	2–5	2–5	2–5	1–5	1–5
		N	2	2	2	1	1	2	2	2	1	1
		E	L	L	L	L	L	L	L	L	L	L
		V	.687	.724	.760	.667	.703	.670	.710	.750	.653	.693
	80	G	1–5	2–5	2–5	1–5	1–5	2–5	2–5	2–5	1–5	1–5
		N	5	2	2	1	1	2	2	2	1	1
		E	R	L	L	L	L	L	L	L	L	L
		V	.745	.768	.795	.750	.778	.727	.758	.788	.740	.770
	100	G	1–5	2–5	2–5	1–5	1–5	1–5	2–5	2–5	1–5	1–5
		N	5	2	2	1	1	5	2	2	1	1
		E	R	L	L	L	L	R	L	L	L	L
		V	.796	.794	.816	.800	.822	.766	.786	.810	.792	.816

TABLE 7.11 (Continued)

Truck No.			31	32	33	34	35	36	37	38	39	40
Wh. Base		L	40	40	40	40	40	44	44	44	44	44
Axle		X	16	16	16	16	16	16	16	16	16	16
Spacing		X′	12	12	12	12	12	16	16	16	16	16
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On		a_2	.40	.50	.60	.40	.50	.40	.50	.60	.40	.50
Axles		a_3	.50	.40	.30	.40	.30	.50	.40	.30	.40	.30
Span-Feet	10	G	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.480	.320	.400	.320	.400	.480	.320	.400
	20	G	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.460	.530	.600	.440	.510	.460	.530	.600	.440	.510
	30	G	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.573	.626	.680	.534	.586	.540	.600	.660	.506	.566
	40	G	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.655	.695	.735	.600	.640	.630	.675	.720	.580	.625
	50	G	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.704	.736	.768	.640	.672	.684	.720	.756	.624	.660
	60	G	1-5	2-5	2-5	1-5	2-5	2-5	2-5	2-5	2-5	2-5
		N	5	2	2	5	2	2	2	2	2	2
		E	R	L	L	R	L	L	L	L	L	L
		V	.737	.763	.790	.680	.694	.720	.750	.780	.654	.683
	80	G	1-5	2-5	2-5	1-5	1-5	1-5	2-5	2-5	1-5	1-5
		N	5	2	2	5	1	5	2	2	1	1
		E	R	L	L	R	L	R	L	L	L	L
		V	.803	.797	.817	.760	.760	.765	.788	.810	.730	.753
	100	G	1-5	1-5	2-5	1-5	1-5	1-5	2-5	2-5	1-5	1-5
		N	5	5	2	5	1	5	2	2	1	1
		E	R	R	L	R	L	R	L	L	L	L
		V	.842	.826	.834	.808	.808	.812	.810	.828	.784	.802
Truck No.			41	42	43	44	45	46	47	48	49	50
Wh. Base		L	48	48	48	48	48	44	44	44	44	44
Axle		X	16	16	16	16	16	16	16	16	16	16
Spacing		X′	20	20	20	20	20	12	12	12	12	12
Hitch		C	8	8	8	8	8	12	12	12	12	12
Load		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On		a_2	.40	.50	.60	.40	.50	.40	.50	.60	.40	.50
Axles		a_3	.50	.40	.30	.40	.30	.50	.40	.30	.40	.30
Span-Feet	10	G	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.480	.320	.400	.320	.400	.480	.320	.400
	20	G	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.460	.530	.600	.440	.510	.410	.490	.570	.400	.480
	30	G	1-4	2-4	2-4	2-4	2-4	2-5	2-5	2-5	2-5	2-5
		N	4	2	2	2	2	2	2	2	2	2
		E	R	L	L	L	L	L	L	L	L	L
		V	.524	.587	.650	.493	.557	.507	.573	.640	.480	.546
	40	G	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.605	.655	.705	.560	.610	.605	.655	.705	.560	.610
	50	G	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.664	.704	.744	.608	.648	.664	.704	.744	.608	.648
	60	G	2-5	2-5	2-5	2-5	2-5	1-5	2-5	2-5	1-5	2-5
		N	2	2	2	2	2	5	2	2	5	2
		E	L	L	L	L	L	R	L	L	R	L
		V	.703	.737	.770	.640	.674	.703	.737	.770	.640	.674
	80	G	2-5	2-5	2-5	1-5	1-5	1-5	2-5	2-5	1-5	1-5
		N	2	2	2	1	1	5	2	2	5	1
		E	L	L	L	L	L	R	L	L	R	L
		V	.752	.778	.803	.720	.745	.778	.778	.803	.730	.745
	100	G	1-5	2-5	2-5	1-5	1-5	1-5	2-5	2-5	1-5	1-5
		N	5	2	2	1	1	5	2	2	5	1
		E	R	L	L	L	L	R	L	L	R	L
		V	.782	.802	.822	.776	.796	.822	.802	.822	.784	.796

TABLE 7.11 (Continued)

Truck No.			51	52	53	54	55	56	57	58	59	60
Wh. Base		L	48	48	48	48	48	52	52	52	52	52
Axle Spacing		X	16	16	16	16	16	16	16	16	16	16
		X′	16	16	16	16	16	20	20	20	20	20
Hitch		C	12	12	12	12	12	12	12	12	12	12
Load On Axles		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
		a_2	.40	.50	.60	.40	.50	.40	.50	.60	.40	.50
		a_3	.50	.40	.30	.40	.30	.50	.40	.30	.40	.30
Span-Feet	10	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.480	.320	.400	.320	.400	.480	.320	.400
	20	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.410	.490	.570	.400	.480	.410	.490	.570	.400	.480
	30	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.490	.560	.630	.467	.537	.490	.560	.630	.467	.537
	40	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.580	.635	.690	.540	.595	.555	.615	.675	.520	.580
	50	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.644	.688	.732	.592	.636	.624	.672	.720	.576	.624
	60	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.687	.724	.760	.626	.663	.670	.710	.750	.614	.654
	80	G	1–5	2–5	2–5	1–5	1–5	2–5	2–5	2–5	1–5	1–5
		N	5	2	2	1	1	2	2	2	1	1
		E	R	L	L	L	L	L	L	L	L	L
		V	.740	.768	.795	.710	.738	.727	.758	.788	.700	.730
	100	G	1–5	2–5	2–5	1–5	1–5	1–5	2–5	2–5	1–5	1–5
		N	5	2	2	1	1	5	2	2	1	1
		E	R	L	L	L	L	R	L	L	L	L
		V	.792	.794	.816	.768	.790	.762	.786	.810	.760	.784

Truck No.			61	62	63	64	65	66	67	68	69	70
Wh. Base		L	44	44	44	44	44	48	48	48	48	48
Axle Spacing		X	20	20	20	20	20	20	20	20	20	20
		X′	12	12	12	12	12	16	16	16	16	16
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
		a_2	.40	.50	.60	.40	.50	.40	.50	.60	.40	.50
		a_3	.50	.40	.30	.40	.30	.50	.40	.30	.40	.30
Span-Feet	10	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.480	.320	.400	.320	.400	.480	.320	.400
	20	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.460	.530	.600	.440	.510	.460	.530	.600	.440	.510
	30	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.573	.626	.680	.534	.586	.540	.600	.660	.506	.566
	40	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.655	.695	.735	.600	.640	.630	.675	.720	.580	.625
	50	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.704	.736	.768	.640	.672	.684	.720	.756	.624	.660
	60	G	2–5	2–5	2–5	1–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	5	2	2	2	2	2	2
		E	L	L	L	R	L	L	L	L	L	L
		V	.737	.763	.790	.667	.694	.720	.750	.780	.654	.683
	80	G	1–5	2–5	2–5	1–5	1–5	2–5	2–5	2–5	1–5	1–5
		N	5	2	2	5	5	2	2	2	5	1
		E	R	L	L	R	R	L	L	L	R	L
		V	.798	.797	.817	.750	.730	.765	.788	.810	.710	.713
	100	G	1–5	1–5	2–5	1–5	1–5	1–5	2–5	2–5	1–5	1–5
		N	5	5	2	5	5	5	2	2	5	1
		E	R	R	L	R	R	R	L	L	R	L
		V	.838	.822	.834	.800	.784	.808	.810	.828	.768	.770

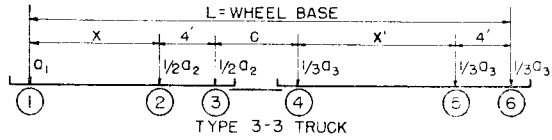
TABLE 7.11 (Continued)

Truck No.			71	72	73	74	75	76	77	78	79	80
Wh. Base		L	52	52	52	52	52	48	48	48	48	48
Axle Spacing		X	20	20	20	20	20	20	20	20	20	20
		X′	20	20	20	20	20	12	12	12	12	12
Hitch		C	8	8	8	8	8	12	12	12	12	12
Load On Axles		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
		a_2	.40	.50	.60	.40	.50	.40	.50	.60	.40	.50
		a_3	.50	.40	.30	.40	.30	.50	.40	.30	.40	.30
Span-Feet	10	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.480	.320	.400	.320	.400	.480	.320	.400
	20	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.460	.530	.600	.440	.510	.410	.490	.570	.400	.480
	30	G	2–4	2–4	2–4	2–4	2–4	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.523	.587	.650	.493	.557	.507	.573	.640	.480	.546
	40	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.605	.655	.705	.560	.610	.605	.655	.705	.560	.610
	50	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.664	.704	.744	.608	.648	.664	.704	.744	.608	.648
	60	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.703	.737	.770	.640	.674	.703	.737	.770	.640	.674
	80	G	2–5	2–5	2–5	1–5	1–4	1–5	2–5	2–5	1–5	1–5
		N	2	2	2	1	4	5	2	2	5	1
		E	L	L	L	R	R	L	L	L	R	L
		V	.752	.778	.803	.680	.707	.773	.778	.803	.720	.705
	100	G	2–5	2–5	2–5	1–5	1–5	1–5	2–5	2–5	1–5	1–5
		N	2	2	2	1	1	5	2	2	5	1
		E	L	L	L	L	L	R	L	L	R	L
		V	.782	.802	.822	.744	.764	.818	.802	.822	.776	.764

Truck No.			81	82	83	84	85	86	87	88	89	90
Wh. Base		L	52	52	52	52	52	56	56	56	56	56
Axle Spacing		X	20	20	20	20	20	20	20	20	20	20
		X′	16	16	16	16	16	20	20	20	20	20
Hitch		C	12	12	12	12	12	12	12	12	12	12
Load On Axles		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
		a_2	.40	.50	.60	.40	.50	.40	.50	.60	.40	.50
		a_3	.50	.40	.30	.40	.30	.50	.40	.30	.40	.30
Span-Feet	10	G	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3	2–3
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.400	.480	.320	.400	.320	.400	.480	.320	.400
	20	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.410	.490	.570	.400	.480	.410	.490	.570	.400	.480
	30	G	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.490	.560	.630	.467	.537	.490	.560	.630	.467	.537
	40	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.580	.635	.690	.440	.595	.555	.615	.675	.520	.580
	50	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.644	.688	.732	.592	.636	.624	.672	.720	.576	.624
	60	G	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5	2–5
		N	2	2	2	2	2	2	2	2	2	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.687	.724	.760	.626	.663	.670	.710	.750	.614	.654
	80	G	2–5	2–5	2–5	1–5	1–5	2–5	2–5	2–5	1–5	1–5
		N	2	2	2	5	1	2	2	2	1	1
		E	L	L	L	R	L	L	L	L	L	L
		V	.740	.768	.795	.680	.698	.727	.758	.788	.660	.690
	100	G	1–5	2–5	2–5	1–5	1–5	2–5	2–5	2–5	1–5	1–5
		N	5	2	2	5	1	2	2	2	1	1
		E	R	L	L	R	L	L	L	L	L	L
		V	.788	.794	.816	.744	.758	.762	.786	.810	.728	.752

TABLE 7.12

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 3–3 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 3–3 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base		L	40	40	40	40	40	44	44	44	44	44
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	8	8	8	8	8	12	12	12	12	12
Hitch		C	12	12	12	12	12	12	12	12	12	12
Load On Axles		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
		a_2	.30	.40	.50	.30	.40	.30	.40	.50	.30	.40
		a_3	.60	.50	.40	.50	.40	.60	.50	.40	.50	.40
Span-Feet	10	G	5–6	2–3	2–3	5–6	2–3	5–6	2–3	2–3	5–6	2–3
		N	5	2	2	5	2	5	2	2	5	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.320	.400	.267	.320	.320	.320	.400	.267	.320
	20	G	4–6	2–4	2–4	4–6	1–3	4–6	2–4	2–4	4–6	1–3
		N	6	2	2	6	3	6	2	2	6	3
		E	R	L	L	R	R	R	L	L	R	R
		V	.440	.394	.474	.367	.400	.400	.394	.477	.333	.400
	30	G	2–6	2–6	2–6	2–6	2–6	3–6	2–5	2–5	3–6	1–3
		N	6	2	2	6	2	6	2	2	6	3
		E	R	L	L	R	L	R	L	L	R	R
		V	.533	.496	.564	.451	.471	.477	.463	.537	.399	.467
	40	G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6
		N	6	2	2	6	2	6	2	2	6	2
		E	R	L	L	R	L	R	L	L	R	L
		V	.625	.597	.648	.538	.553	.575	.563	.622	.492	.527
	50	G	1–6	1–6	2–6	1–6	1–6	1–6	2–6	2–6	1–6	1–6
		N	6	6	2	6	1	6	2	2	6	1
		E	R	R	L	R	L	R	L	L	R	L
		V	.700	.659	.699	.631	.611	.652	.631	.677	.577	.589
	60	G	1–6	1–6	2–6	1–6	1–6	1–6	2–6	2–6	1–6	1–6
		N	6	6	2	6	1	6	2	2	6	1
		E	R	R	L	R	L	R	L	L	R	L
		V	.750	.716	.732	.692	.676	.710	.676	.714	.648	.658
	80	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
		N	6	6	2	6	1	6	6	2	6	1
		E	R	R	L	R	L	R	R	L	R	L
		V	.813	.787	.774	.769	.757	.783	.753	.761	.736	.743
	100	G	1–6	1–6	1–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
		N	6	6	6	6	1	6	6	2	6	1
		E	R	R	R	R	L	R	R	L	R	L
		V	.850	.829	.809	.815	.805	.826	.803	.876	.789	.795

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus, 1–3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.12 (Continued)

Truck No.			11	12	13	14	15	16	17	18	19	20
Wh. Base L			48	48	48	48	48	44	44	44	44	44
Axle		X	12	12	12	12	12	12	12	12	12	12
Spacing		X′	16	16	16	16	16	8	8	8	8	8
Hitch		C	12	12	12	12	12	16	16	16	16	16
Load		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On		a_2	.30	.40	.50	.30	.40	.30	.40	.50	.30	.40
Axles		a_3	.60	.50	.40	.50	.40	.60	.50	.40	.50	.40
Span-Feet	10	G	5–6	2–3	2–3	5–6	2–3	5–6	2–3	2–3	5–6	2–3
		N	5	2	2	5	2	5	2	2	5	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.320	.400	.267	.320	.320	.320	.400	.267	.320
	20	G	4–6	2–4	2–4	1–3	1–3	4–6	1–3	1–3	4–6	1–3
		N	6	2	2	3	3	6	3	3	6	3
		E	R	L	L	R	R	R	R	R	R	R
		V	.360	.394	.477	.310	.400	.440	.380	.470	.367	.400
	30	G	4–6	2–4	2–4	1–3	1–3	3–6	2–5	2–5	3–6	1–3
		N	6	2	2	3	3	6	2	2	6	3
		E	R	L	L	R	R	R	L	L	R	R
		V	.440	.451	.529	.374	.467	.503	.441	.519	.421	.467
	40	G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6
		N	6	2	2	6	2	6	2	2	6	2
		E	R	L	L	R	L	R	L	L	R	L
		V	.525	.530	.595	.445	.500	.595	.547	.608	.508	.513
	50	G	1–6	2–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
		N	6	2	2	6	6	6	6	2	6	1
		E	R	L	L	R	R	R	R	L	R	L
		V	.604	.604	.656	.524	.568	.668	.619	.667	.591	.579
	60	G	1–6	2–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
		N	6	2	2	6	6	6	6	2	6	1
		E	R	L	L	R	R	R	R	L	R	L
		V	.670	.653	.697	.603	.640	.723	.682	.706	.659	.649
	80	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
		N	6	6	2	6	6	6	6	2	6	1
		E	R	R	L	R	R	R	R	L	R	L
		V	.753	.720	.747	.702	.730	.793	.762	.754	.744	.737
	100	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	1–6	1–6	1–6
		N	6	6	2	6	6	6	6	6	6	1
		E	R	R	L	R	R	R	R	R	R	L
		V	.802	.776	.864	.762	.784	.834	.809	.785	.795	.789

Truck No.			21	22	23	24	25	26	27	28	29	30
Wh. Base L			48	48	48	48	48	52	52	52	52	52
Axle		X	12	12	12	12	12	12	12	12	12	12
Spacing		X′	12	12	12	12	12	16	16	16	16	16
Hitch		C	16	16	16	16	16	16	16	16	16	16
Load		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On		a_2	.30	.40	.50	.30	.40	.30	.40	.50	.30	.40
Axles		a_3	.60	.50	.40	.50	.40	.60	.50	.40	.50	.40
Span-Feet	10	G	5–6	2–3	2–3	5–6	2–3	5–6	2–3	2–3	5–6	2–3
		N	5	2	2	5	2	5	2	2	5	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.320	.320	.400	.267	.320	.320	.320	.400	.267	.320
	20	G	4–6	1–3	1–3	4–6	1–3	4–6	1–3	1–3	1–3	1–3
		N	6	3	3	6	3	6	3	3	3	3
		E	R	R	R	R	R	R	R	R	R	R
		V	.400	.380	.470	.333	.400	.360	.380	.470	.310	.400
	30	G	4–6	2–4	1–3	4–6	1–3	4–6	2–4	1–3	1–3	1–3
		N	6	2	3	6	3	6	2	3	3	3
		E	R	L	R	R	R	R	L	R	R	R
		V	.467	.429	.514	.389	.467	.440	.429	.514	.374	.467
	40	G	2–6	2–6	2–6	2–6	1–3	2–6	2–5	2–6	1–4	1–3
		N	6	2	2	6	3	6	2	2	1	3
		E	R	L	L	R	R	R	L	L	L	R
		V	.545	.513	.582	.462	.500	.495	.481	.555	.428	.500
	50	G	1–6	2–6	2–6	1–6	1–6	2–6	2–6	2–6	2–6	1–5
		N	6	2	2	6	1	6	2	2	6	1
		E	R	L	L	R	L	R	L	L	R	L
		V	.620	.591	.645	.537	.557	.576	.564	.624	.492	.541
	60	G	1–6	2–6	2–6	1–6	1–6	1–6	2–6	2–6	1–6	1–6
		N	6	2	2	6	1	6	2	2	6	1
		E	R	L	L	R	L	R	L	L	R	L
		V	.683	.642	.688	.614	.631	.643	.620	.670	.570	.613
	80	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
		N	6	6	2	6	1	6	6	2	6	1
		E	R	R	L	R	L	R	R	L	R	L
		V	.763	.728	.741	.711	.723	.733	.695	.727	.677	.710
	100	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
		N	6	6	2	6	1	6	6	2	6	1
		E	R	R	L	R	L	R	R	L	R	L
		V	.810	.783	.858	.769	.779	.786	.756	.847	.742	.768

TABLE 7.12 (Continued)

Truck No.		31	32	33	34	35	36	37	38	39	40
Wh. Base L		44	44	44	44	44	48	48	48	48	48
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	8	8	8	8	8	12	12	12	12	12
Hitch	C	12	12	12	12	12	12	12	12	12	12
Load	a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On	a_2	.30	.40	.50	.30	.40	.30	.40	.50	.30	.40
Axles	a_3	.60	.50	.40	.50	.40	.60	.50	.40	.50	.40
Span-Feet	G	5–6	2–3	2–3	5–6	2–3	5–6	2–3	2–3	5–6	2–3
	N	5	2	2	5	2	5	2	2	5	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.320	.320	.400	.267	.320	.320	.320	.400	.267	.320
	G	4–6	2–4	2–4	4–6	2–4	4–6	2–4	2–4	4–6.	2–4
	N	6	2	2	6	2	6	2	2	6	2
20	E	R	L	L	R	L	R	L	L	R	L
	V	.440	.394	.477	.367	.387	.400	.394	.477	.333	.387
	G	2–6	2–6	2–6	2–6	2–6	3–6	2–5	2–5	3–6	2–5
	N	6	2	2	6	2	6	2	2	6	2
30	E	R	L	L	R	L	R	L	L	R	L
	V	.533	.496	.564	.451	.471	.477	.463	.537	.399	.444
	G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6
	N	6	2	2	6	2	6	2	2	6	2
40	E	R	L	L	R	L	R	L	L	R	L
	V	.625	.597	.648	.538	.553	.575	.563	.622	.492	.527
	G	1–6	2–6	2–6	1–6	2–6	1–6	2–6	2–6	1–6	2–6
	N	6	2	2	6	2	6	2	2	6	2
50	E	R	L	L	R	L	R	L	L	R	L
	V	.692	.657	.699	.615	.603	.644	.631	.677	.561	.581
	G	1–6	1–6	2–6	1–6	1–6	1–6	2–6	2–6	1–6	2–6
	N	6	6	2	6	6	6	2	2	6	2
60	E	R	R	L	R	R	R	L	L	R	L
	V	.743	.709	.732	.679	.644	.703	.676	.714	.634	.618
	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
	N	6	6	2	6	6	6	6	2	6	1
80	E	R	R	L	R	R	R	R	L	R	L
	V	.808	.782	.774	.759	.733	.778	.748	.761	.726	.703
	G	1–6	1–6	1–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
	N	6	6	6	6	6	6	6	2	6	1
100	E	R	R	R	R	R	R	R	L	R	L
	V	.846	.825	.805	.807	.787	.822	.799	.876	.781	.763
Truck No.		41	42	43	44	45	46	47	48	49	50
Wh. Base L		52	52	52	52	52	48	48	48	48	48
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	16	16	16	16	16	8	8	8	8	8
Hitch	C	12	12	12	12	12	16	16	16	16	16
Load	a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On	a_2	.30	.40	.50	.30	.40	.30	.40	.50	.30	.40
Axles	a_3	.60	.50	.40	.50	.40	.60	.50	.40	.50	.40
Span-Feet	G	5–6	2–3	2–3	5–6	2–3	5–6	2–3	2–3	5–6	2–3
	N	5	2	2	5	2	5	2	2	5	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.320	.320	.400	.267	.320	.320	.320	.400	.267	.320
	G	4–6	2–4	2–4	2–4	2–4	4–6	4–6	2–4	4–6	2–4
	N	6	2	2	2	2	6	6	2	6	2
20	E	R	L	L	L	L	R	R	L	R	L
	V	.360	.394	.477	.303	.387	.440	.367	.450	.367	.360
	G	4–6	2–4	2–4	4–6	1–3	3–6	2–5	2–5	3–6	2–5
	N	6	2	2	6	3	6	2	2	6	2
30	E	R	L	L	R	R	R	L	L	R	L
	V	.440	.451	.529	.367	.440	.503	.441	.519	.421	.426
	G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6
	N	6	2	2	6	2	6	2	2	6	2
40	E	R	L	L	R	L	R	L	L	R	L
	V	.525	.530	.595	.445	.500	.595	.547	.608	.508	.513
	G	2–6	2–6	2–6	2–6	2–6	1–6	2–6	2–6	1–6	2–6
	N	6	2	2	6	2	6	2	2	6	2
50	E	R	L	L	R	L	R	L	L	R	L
	V	.600	.604	.656	.516	.560	.660	.617	.667	.575	.571
	G	1–6	2–6	2–6	1–6	2–6	1–6	1–6	2–6	1–6	2–6
	N	6	2	2	6	2	6	6	2	6	2
60	E	R	L	L	R	L	R	R	L	R	L
	V	.663	.653	.697	.590	.600	.717	.676	.706	.646	.609
	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
	N	6	6	2	6	1	6	6	2	6	6
80	E	R	R	L	R	L	R	R	L	R	R
	V	.748	.715	.747	.692	.690	.788	.757	.754	.734	.703
	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
	N	6	6	2	6	1	6	6	2	6	6
100	E	R	R	L	R	L	R	R	L	R	R
	V	.798	.772	.864	.754	.752	.830	.805	.870	.787	.763

TABLE 7.12 (Continued)

Truck No.		51	52	53	54	55	56	57	58	59	60
Wh. Base	L	52	52	52	52	52	56	56	56	56	56
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	12	12	12	12	12	16	16	16	16	16
Hitch	C	16	16	16	16	16	16	16	16	16	16
Load	a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On	a_2	.30	.40	.50	.30	.40	.30	.40	.50	.30	.40
Axles	a_3	.60	.50	.40	.50	.40	.60	.50	.40	.50	.40
Span-Feet 10	G	5–6	2–3	2–3	5–6	2–3	5–6	2–3	2–3	5–6	2–3
	N	5	2	2	5	2	5	2	2	5	2
	E	L	L	L	L	L	L	L	L	L	L
	V	.320	.320	.400	.267	.320	.320	.320	.400	.267	.320
20	G	4–6	2–4	2–4	4–6	2–4	4–6	2–4	2–4	5–6	2–3
	N	6	2	2	6	2	6	2	2	5	2
	E	R	L	L	R	L	R	L	L	L	L
	V	.400	.360	.450	.333	.360	.360	.360	.450	.301	.360
30	G	4–6	2–4	2–4	4–6	1–3	4–6	2–4	2–4	4–6	1–3
	N	6	2	2	6	3	6	2	2	6	3
	E	R	L	L	R	R	R	L	L	R	R
	V	.467	.429	.511	.389	.440	.440	.429	.511	.367	.440
40	G	2–6	2–6	2–6	2–6	2–6	2–6	2–5	2–6	2–6	1–3
	N	6	2	2	6	2	6	2	2	6	3
	E	R	L	L	R	L	R	L	L	R	R
	V	.545	.513	.582	.462	.487	.495	.481	.555	.415	.480
50	G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6
	N	6	2	2	6	2	6	2	2	6	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.616	.591	.645	.529	.549	.576	.564	.624	.492	.528
60	G	1–6	2–6	2–6	1–6	2–6	1–6	2–6	2–6	1–6	2–6
	N	6	2	2	6	2	6	2	2	6	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.677	.642	.688	.601	.591	.637	.620	.670	.557	.573
80	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
	N	6	6	2	6	1	6	6	2	6	1
	E	R	R	L	R	L	R	R	L	R	L
	V	.758	.723	.741	.701	.683	.728	.690	.727	.667	.670
100	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
	N	6	6	2	6	1	6	6	2	6	1
	E	R	R	L	R	L	R	R	L	R	L
	V	.806	.779	.858	.761	.747	.782	.752	.847	.734	.736

Truck No.		61	62	63	64	65	66	67	68	69	70
Wh. Base	L	48	48	48	48	48	52	52	52	52	52
Axle	X	20	20	20	20	20	20	20	20	20	20
Spacing	X′	8	8	8	8	8	12	12	12	12	12
Hitch	C	12	12	12	12	12	12	12	12	12	12
Load	a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On	a_2	.30	.40	.50	.30	.40	.30	.40	.50	.30	.40
Axles	a_3	.60	.50	.40	.50	.40	.60	.50	.40	.50	.40
Span-Feet 10	G	5–6	2–3	2–3	5–6	2–3	5–6	2–3	2–3	5–6	2–3
	N	5	2	2	5	2	5	2	2	5	2
	E	L	L	L	L	L	L	L	L	L	L
	V	.320	.320	.400	.267	.320	.320	.320	.400	.267	.320
20	G	4–6	2–4	2–4	4–6	2–4	4–6	2–4	2–4	4–6	2–4
	N	6	2	2	6	2	6	2	2	6	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.440	.394	.477	.367	.387	.400	.394	.477	.333	.387
30	G	2–6	2–6	2–6	2–6	2–6	3–6	2–5	2–5	3–6	2–5
	N	6	2	2	6	2	6	2	2	6	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.533	.496	.564	.451	.471	.477	.463	.537	.399	.444
40	G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6
	N	6	2	2	6	2	6	2	2	6	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.625	.597	.648	.538	.553	.575	.563	.622	.492	.527
50	G	1–6	2–6	2–6	1–6	2–6	2–6	2–6	2–6	2–6	2–6
	N	6	2	2	6	2	6	2	2	6	2
	E	R	L	L	R	L	R	L	L	R	L
	V	.684	.657	.699	.599	.603	.640	.631	.677	.553	.581
60	G	1–6	1–6	2–6	1–6	2–6	1–6	2–6	2–6	1–6	2–6
	N	6	6	2	6	2	6	2	2	6	2
	E	R	R	L	R	L	R	L	L	R	L
	V	.737	.702	.732	.666	.636	.697	.676	.714	.621	.618
80	G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
	N	6	6	2	6	6	6	6	2	6	6
	E	R	R	L	R	R	R	R	L	R	R
	V	.803	.777	.774	.749	.723	.773	.743	.761	.716	.687
100	G	1–6	1–6	1–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
	N	6	6	6	6	6	6	6	2	6	6
	E	R	R	R	R	R	R	R	L	R	R
	V	.842	.821	.801	.799	.779	.818	.795	.876	.773	.749

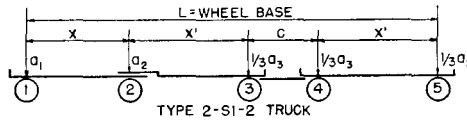
TABLE 7.12 (Continued)

Truck No.			71	72	73	74	75	76	77	78	79	80
Wh. Base		L	56	56	56	56	56	52	52	52	52	52
Axle		X	20	20	20	20	20	20	20	20	20	20
Spacing		X′	16	16	16	16	16	8	8	8	8	8
Hitch		C	12	12	12	12	12	16	16	16	16	16
Load		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On		a_2	.30	.40	.50	.30	.40	.30	.40	.50	.30	.40
Axles		a_3	.60	.50	.40	.50	.40	.60	.50	.40	.50	.40
Span-Feet		G	5–6	2–3	2–3	5–6	2–3	5–6	2–3	2–3	5–6	2–3
		N	5	2	2	5	2	5	2	2	5	2
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.320	.320	.400	.267	.320	.320	.320	.400	.267	.320
		G	4–6	2–4	2–4	2–4	2–4	4–6	4–6	2–4	4–6	2–4
		N	6	2	2	6	2	6	2	2	6	2
	20	E	R	L	L	L	L	R	R	L	R	L
		V	.360	.394	.477	.303	.387	.440	.367	.450	.367	.360
		G	4–6	2–4	2–4	4–6	2–4	3–6	2–5	2–5	3–6	2–5
		N	6	2	2	6	2	6	2	2	6	2
	30	E	R	L	L	R	L	R	L	L	R	L
		V	.440	.451	.529	.367	.435	.503	.441	.519	.421	.426
		G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6
		N	6	2	2	6	2	6	2	2	6	2
	40	E	R	L	L	R	L	R	L	L	R	L
		V	.525	.530	.595	.445	.500	.595	.547	.608	.508	.513
		G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6
		N	6	2	2	6	2	6	2	2	6	2
	50	E	R	L	L	R	L	R	L	L	R	L
		V	.600	.604	.656	.516	.560	.656	.617	.667	.567	.571
		G	1–6	2–6	2–6	1–6	2–6	1–6	1–6	2–6	1–6	2–6
		N	6	2	2	6	2	6	2	2	6	2
	60	E	R	L	L	R	L	R	R	L	R	L
		V	.657	.653	.697	.577	.600	.710	.669	.706	.632	.609
		G	1–6	2–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
		N	6	2	2	6	6	6	6	2	6	6
	80	E	R	L	L	R	R	R	R	L	R	R
		V	.743	.715	.747	.682	.650	.783	.752	.754	.724	.693
		G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
		N	6	6	2	6	6	6	6	2	6	6
	100	E	R	R	L	R	R	R	R	L	R	R
		V	.794	.768	.864	.746	.720	.826	.801	.870	.779	.755

Truck No.			81	82	83	84	85	86	87	88	89	90
Wh. Base		L	56	56	56	56	56	60	60	60	60	60
Axle		X	20	20	20	20	20	20	20	20	20	20
Spacing		X′	12	12	12	12	12	16	16	16	16	16
Hitch		C	16	16	16	16	16	16	16	16	16	16
Load		a_1	.10	.10	.10	.20	.20	.10	.10	.10	.20	.20
On		a_2	.30	.40	.50	.30	.40	.30	.40	.50	.30	.40
Axles		a_3	.60	.50	.40	.50	.40	.60	.50	.40	.50	.40
Span-Feet		G	5–6	2–3	2–3	5–6	2–3	5–6	2–3	2–3	5–6	2–3
		N	5	2	2	5	2	5	2	2	5	2
	10	E	L	L	L	L	L	L	L	L	L	L
		V	.320	.320	.400	.267	.320	.320	.320	.400	.267	.320
		G	4–6	2–4	2–4	4–6	2–4	4–6	2–4	2–4	5–6	2–4
		N	6	2	2	6	2	6	2	2	5	2
	20	E	R	L	L	R	L	R	L	L	L	L
		V	.400	.360	.450	.333	.360	.360	.360	.450	.301	.360
		G	4–6	2–4	2–4	4–6	2–4	4–6	2–4	2–4	4–6	2–4
		N	6	2	2	6	2	6	2	2	6	2
	30	E	R	L	L	R	L	R	L	L	R	L
		V	.467	.429	.511	.389	.418	.440	.429	.511	.367	.418
		G	2–6	2–6	2–6	2–6	2–6	2–6	2–5	2–6	2–6	2–6
		N	6	2	2	6	2	6	2	2	6	2
	40	E	R	L	L	R	L	R	L	L	R	L
		V	.545	.513	.582	.462	.487	.495	.481	.555	.415	.460
		G	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6	2–6
		N	6	2	2	6	2	6	2	2	6	2
	50	E	R	L	L	R	L	R	L	L	R	L
		V	.616	.591	.645	.529	.549	.576	.564	.624	.492	.528
		G	1–6	2–6	2–6	1–6	2–6	1–6	2–6	2–6	1–6	2–6
		N	6	2	2	6	2	6	2	2	6	2
	60	E	R	L	L	R	L	R	L	L	R	L
		V	.670	.642	.688	.588	.591	.630	.620	.670	.543	.573
		G	1–6	1–6	2–6	1–6	1–6	1–6	2–6	2–6	1–6	1–6
		N	6	6	2	6	6	6	2	2	6	2
	80	E	R	R	L	R	R	R	L	L	R	L
		V	.753	.718	.741	.691	.657	.723	.690	.727	.657	.630
		G	1–6	1–6	2–6	1–6	1–6	1–6	1–6	2–6	1–6	1–6
		N	6	6	2	6	6	6	6	2	6	1
	100	E	R	R	L	R	R	R	R	L	R	L
		V	.802	.775	.858	.753	.725	.778	.748	.847	.726	.704

TABLE 7.13

CONTROLLING CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 2-S1-2 TRUCKS WEIGHING ONE KIP EACH



Ninety-six variations in the Type 2-S1-2 truck are given in this table. Each truck number, from 1 to 96, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base		L	36	36	36	36	40	40	40	40	44	44
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X'	10	10	10	10	12	12	12	12	14	14
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.10	.10	.20	.20	.10	.10	.20	.20	.10	.10
		a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
		a_3	.70	.60	.60	.50	.70	.60	.60	.50	.70	.60
Span-Feet	10	G	3-4	1-2	3-4	1-2	3-4	1-2	3-4	1-2	3-4	1-2
		N	4	2	3	2	4	2	3	2	4	2
		E	R	R	L	R	R	R	L	R	R	R
		V	.280	.320	.240	.340	.280	.320	.240	.340	.280	.320
	20	G	3-5	2-4	2-4	1-2	2-4	2-4	2-4	1-2	3-4	1-2
		N	3	2	4	2	4	2	4	2	4	2
		E	L	L	R	R	R	L	R	R	R	R
		V	.397	.420	.340	.420	.374	.380	.320	.420	.374	.360
	30	G	3-5	2-5	1-4	1-4	3-5	2-4	1-4	1-4	3-5	2-4
		N	3	2	1	1	3	2	4	1	3	2
		E	L	L	L	L	L	L	R	L	L	L
		V	.498	.527	.453	.509	.482	.487	.427	.487	.467	.460
	40	G	1-5	2-5	1-5	1-5	1-5	2-5	1-5	1-5	1-4	2-5
		N	5	2	1	1	5	2	1	1	4	2
		E	R	L	L	L	R	L	L	L	R	L
		V	.607	.620	.560	.607	.553	.580	.520	.573	.535	.540
	50	G	1-5	2-5	1-5	1-5	1-5	2-5	1-5	1-5	1-5	2-5
		N	5	2	1	1	5	2	1	1	5	2
		E	R	L	L	L	R	L	L	L	R	L
		V	.685	.676	.648	.685	.643	.644	.616	.659	.600	.612
	60	G	1-5	2-5	1-5	1-5	1-5	2-5	1-5	1-5	1-5	2-5
		N	5	2	1	1	5	2	1	1	5	2
		E	R	L	L	L	R	L	L	L	R	L
		V	.738	.713	.707	.738	.702	.687	.680	.716	.667	.660
	80	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	5	1	1	5	1	1	1	5	1
		E	R	R	L	L	R	L	L	L	R	L
		V	.803	.780	.780	.803	.777	.750	.760	.787	.750	.730
	100	G	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
		N	5	5	1	1	5	1	1	1	5	1
		E	R	R	L	L	R	L	L	L	R	L
		V	.843	.824	.824	.843	.821	.800	.808	.829	.800	.784

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus, 1-3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.13 (Continued)

Truck No.			11	12	13	14	15	16	17	18	19	20
Wh. Base		L	44	44	48	48	48	48	52	52	52	52
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X′	14	14	16	16	16	16	18	18	18	18
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.20	.20	.10	.10	.20	.20	.10	.10	.20	.20
		a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
		a_3	.60	.50	.70	.60	.60	.50	.70	.60	.60	.50
Span-Feet	10	G	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2
		N	3	2	4	2	3	2	4	2	3	2
		E	L	R	R	R	L	R	R	R	L	R
		V	.240	.340	.280	.320	.240	.340	.280	.320	.240	.340
	20	G	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2
		N	3	2	4	2	3	2	4	2	3	2
		E	L	R	R	R	L	R	R	R	L	R
		V	.320	.420	.374	.360	.320	.420	.374	.360	.320	.420
	30	G	2–4	1–4	3–5	2–4	2–4	1–3	3–5	2–4	3–5	1–2
		N	4	1	3	2	4	1	3	2	3	2
		E	R	L	L	L	R	L	L	L	L	R
		V	.400	.465	.451	.433	.387	.454	.436	.407	.373	.447
	40	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	1	1	4	4	1	1	4	4	1	1
		E	L	L	R	R	L	L	R	R	L	L
		V	.500	.556	.520	.500	.480	.540	.505	.480	.460	.523
	50	G	1–5	1–5	1–4	2–5	1–5	1–5	1–4	2–5	1–4	1–4
		N	1	1	4	2	1	1	4	2	1	1
		E	L	L	R	L	L	L	R	L	L	L
		V	.584	.632	.570	.580	.552	.605	.558	.548	.528	.585
	60	G	1–5	1–5	1–5	2–5	1–5	1–5	1–5	2–5	1–5	1–5
		N	1	1	5	2	1	1	5	2	1	1
		E	L	L	R	L	L	L	R	L	L	L
		V	.653	.693	.631	.633	.627	.671	.596	.607	.600	.649
	80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	1	1	5	1	1	1	5	1	1	1
		E	L	L	R	L	L	L	R	L	L	L
		V	.740	.770	.723	.710	.720	.753	.697	.690	.700	.737
	100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	1	1	5	1	1	1	5	1	1	1
		E	L	L	R	L	L	L	R	L	L	L
		V	.792	.816	.779	.768	.776	.803	.757	.752	.760	.789

Truck No.			21	22	23	24	25	26	27	28	29	30
Wh. Base		L	56	56	56	56	60	60	60	60	64	64
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X′	20	20	20	20	22	22	22	22	24	24
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.10	.10	.20	.20	.10	.10	.20	.20	.10	.10
		a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
		a_3	.70	.60	.60	.50	.70	.60	.60	.50	.70	.60
Span-Feet	10	G	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2
		N	4	2	3	2	4	2	3	2	4	2
		E	R	R	L	R	R	R	L	R	R	R
		V	.280	.320	.240	.340	.280	.320	.240	.340	.280	.320
	20	G	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2
		N	4	2	3	2	4	2	3	2	4	2
		E	R	R	L	R	R	R	L	R	R	R
		V	.374	.360	.320	.420	.374	.360	.320	.420	.374	.360
	30	G	3–5	2–4	2–4	1–2	2–4	1–2	2–4	1–2	3–4	1–2
		N	3	2	4	2	4	2	4	2	4	2
		E	L	L	R	R	R	R	R	R	R	R
		V	.420	.380	.360	.447	.405	.373	.347	.447	.405	.373
	40	G	1–4	1–4	1–4	1–4	3–5	1–4	1–4	1–4	3–5	1–4
		N	4	4	1	1	3	4	1	1	3	4
		E	R	R	L	L	L	R	L	L	L	R
		V	.490	.460	.440	.507	.478	.440	.420	.490	.467	.420
	50	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	4	1	1	4	4	1	1	4	4
		E	R	R	L	L	R	R	L	L	R	R
		V	.546	.528	.512	.572	.534	.512	.496	.559	.522	.496
	60	G	1–4	2–5	1–5	1–5	1–4	1–4	1–5	1–5	1–4	1–4
		N	4	2	1	1	4	4	1	1	4	4
		E	R	L	L	L	R	R	L	L	R	R
		V	.583	.580	.573	.627	.573	.560	.547	.604	.563	.547
	80	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	1	1	1	5	1	1	1	5	1
		E	R	L	L	L	R	L	L	L	R	L
		V	.670	.670	.680	.720	.643	.650	.660	.703	.617	.630
	100	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
		N	5	1	1	1	5	1	1	1	5	1
		E	R	L	L	L	R	L	L	L	R	L
		V	.736	.736	.744	.776	.715	.720	.728	.763	.693	.704

TABLE 7.13 (Continued)

Truck No.		31	32	33	34	35	36	37	38	39	40
Wh. Base L		64	64	40	40	40	40	44	44	44	44
Axle	X	8	8	12	12	12	12	12	12	12	12
Spacing	X′	24	24	10	10	10	10	12	12	12	12
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.20	.20	.10	.10	.20	.20	.10	.10	.20	.20
On	a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
Axles	a_3	.60	.50	.70	.60	.60	.50	.70	.60	.60	.50
Span-Feet	G	1–2	1–2	3–4	2–3	3–4	2–3	3–4	3–4	3–4	3–4
	N	2	2	4	2	3	2	4	3	3	3
10	E	R	R	R	L	L	L	R	L	L	L
	V	.240	.340	.280	.300	.240	.300	.280	.240	.240	.200
	G	1–2	1–2	3–5	2–4	2–4	2–4	3–4	2–3	3–4	1–2
	N	2	2	3	2	4	2	4	2	3	2
20	E	R	R	L	L	R	L	R	L	L	R
	V	.320	.420	.397	.420	.340	.400	.374	.380	.320	.380
	G	1–2	1–2	3–5	2–5	2–4	2–5	3–5	2–4	2–4	2–4
	N	2	2	3	2	4	2	3	2	4	2
30	E	R	R	L	L	R	L	L	L	R	L
	V	.347	.447	.498	.527	.427	.489	.482	.487	.413	.456
	G	1–4	1–3	1–5	2–5	2–5	2–5	2–5	2–5	1–4	2–5
	N	1	1	5	2	2	2	5	2	4	2
40	E	L	L	R	L	L	L	R	L	R	L
	V	.400	.474	.597	.620	.520	.567	.553	.580	.500	.533
	G	1–4	1–4	1–5	2–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	1	1	5	2	5	1	5	2	5	1
50	E	L	L	R	L	R	L	R	L	R	L
	V	.480	.545	.677	.676	.616	.621	.635	.644	.568	.595
	G	1–4	1–4	1–5	2–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	1	1	5	2	5	1	5	2	5	1
60	E	L	L	R	L	R	L	R	L	R	L
	V	.533	.593	.731	.713	.680	.684	.696	.687	.640	.662
	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	1	1	5	5	5	1	5	5	5	1
80	E	L	L	R	R	R	L	R	R	R	L
	V	.640	.686	.798	.775	.760	.763	.772	.745	.730	.747
	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	1	1	5	5	5	1	5	5	5	1
100	E	L	L	R	R	R	L	R	R	R	L
	V	.712	.749	.839	.820	.808	.811	.817	.796	.784	.797

Truck No.		41	42	43	44	45	46	47	48	49	50
Wh. Base L		48	48	48	48	52	52	52	52	56	56
Axle	X	12	12	12	12	12	12	12	12	12	12
Spacing	X′	14	14	14	14	16	16	16	16	18	18
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.10	.10	.20	.20	.10	.10	.20	.20	.10	.10
On	a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
Axles	a_3	.70	.60	.60	.50	.70	.60	.60	.50	.70	.60
Span-Feet	G	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4
	N	4	3	3	3	4	3	3	3	4	3
10	E	R	L	L	L	R	L	L	L	R	L
	V	.280	.240	.240	.200	.280	.240	.240	.200	.280	.240
	G	3–4	2–3	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2
	N	4	2	3	2	4	2	3	2	4	2
20	E	R	L	L	R	R	R	L	R	R	R
	V	.374	.360	.320	.380	.374	.340	.320	.380	.374	.340
	G	3–5	2–4	2–4	2–4	3–5	2–4	2–4	1–2	3–5	2–4
	N	3	2	4	2	3	2	4	2	3	2
30	E	L	L	R	L	L	L	R	R	L	L
	V	.467	.460	.400	.433	.451	.433	.387	.420	.436	.407
	G	1–4	2–5	1–4	2–5	3–5	2–5	1–4	1–4	3–5	2–4
	N	4	2	4	2	3	2	4	1	3	2
40	E	R	L	R	L	L	L	R	L	L	L
	V	.525	.540	.480	.500	.513	.500	.460	.477	.502	.480
	G	1–5	2–5	1–4	1–5	1–4	2–5	1–4	1–4	1–4	2–5
	N	5	2	4	1	4	2	4	1	4	2
50	E	R	L	R	L	R	L	R	L	R	L
	V	.592	.612	.544	.568	.562	.580	.528	.548	.550	.548
	G	1–5	2–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5	2–5
	N	5	2	1	1	5	2	1	1	5	2
60	E	R	L	L	L	R	L	L	L	R	L
	V	.660	.660	.600	.640	.624	.633	.573	.618	.589	.607
	G	1–5	2–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5	2–5
	N	5	2	1	1	5	2	1	1	5	2
80	E	R	L	L	L	R	L	L	L	R	L
	V	.745	.720	.700	.730	.718	.700	.680	.713	.692	.680
	G	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5
	N	5	5	1	1	5	5	1	1	5	5
100	E	R	R	L	L	R	R	L	L	R	R
	V	.796	.772	.760	.784	.775	.748	.744	.771	.753	.724

TABLE 7.13 (Continued)

Truck No.			51	52	53	54	55	56	57	58	59	60
Wh. Base L			56	56	60	60	60	60	64	64	64	64
Axle Spacing	X		12	12	12	12	12	12	12	12	12	12
	X′		18	18	20	20	20	20	22	22	22	22
Hitch	C		8	8	8	8	8	8	8	8	8	8
Load On Axles	a_1		.20	.20	.10	.10	.20	.20	.10	.10	.20	.20
	a_2		.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
	a_3		.60	.50	.70	.60	.60	.50	.70	.60	.60	.50
Span-Feet	10	G	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4
		N	3	3	4	3	3	3	4	3	3	3
		E	L	L	R	L	L	L	R	L	L	L
		V	.240	.200	.280	.240	.240	.200	.280	.240	.240	.200
	20	G	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2	3–4	1–2
		N	3	2	4	2	3	2	4	2	3	2
		E	L	R	R	R	L	R	R	R	L	R
		V	.320	.380	.374	.340	.320	.380	.374	.340	.320	.380
	30	G	2–4	1–2	3–5	2–4	2–4	1–2	2–4	1–2	2–4	1–2
		N	4	2	3	2	4	2	4	2	4	2
		E	R	R	L	L	R	R	R	R	R	R
		V	.373	.420	.420	.380	.360	.420	.405	.360	.347	.420
	40	G	1–4	1–4	3–5	2–4	2–4	1–3	3–5	2–4	2–4	1–2
		N	4	1	3	2	4	1	3	2	4	2
		E	R	L	L	L	R	L	L	L	R	R
		V	.440	.460	.490	.460	.420	.444	.478	.440	.410	.440
	50	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
		N	4	1	4	4	4	1	4	4	4	1
		E	R	L	R	R	R	L	R	R	R	L
		V	.512	.535	.538	.520	.496	.501	.526	.504	.480	.508
	60	G	1–4	1–5	1–4	2–5	1–4	1–5	1–4	1–4	1–4	1–4
		N	4	1	4	2	4	1	4	4	4	1
		E	R	L	R	L	R	L	R	R	R	L
		V	.560	.596	.576	.580	.547	.573	.566	.553	.533	.562
	80	G	1–5	1–5	1–5	2–5	1–5	1–5	1–5	2–5	1–5	1–5
		N	1	1	5	2	1	1	5	2	1	1
		E	L	L	R	L	L	L	R	L	L	L
		V	.660	.697	.665	.660	.640	.680	.638	.640	.620	.663
	100	G	1–5	1–5	1–5	2–5	1–5	1–5	1–5	2–5	1–5	1–5
		N	1	1	5	2	1	1	5	2	1	1
		E	L	L	R	L	L	L	R	L	L	L
		V	.728	.757	.732	.708	.712	.744	.711	.692	.696	.731

Truck No.			61	62	63	64	65	66	67	68	69	70
Wh. Base L			68	68	68	68	56	56	56	56	60	60
Axle Spacing	X		12	12	12	12	16	16	16	16	16	16
	X′		24	24	24	24	16	16	16	16	18	18
Hitch	C		8	8	8	8	8	8	8	8	8	8
Load On Axles	a_1		.10	.10	.20	.20	.10	.10	.20	.20	.10	.10
	a_2		.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
	a_3		.70	.60	.60	.50	.70	.60	.60	.50	.70	.60
Span-Feet	10	G	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4
		N	4	3	3	3	4	3	3	3	4	3
		E	R	L	L	L	R	L	L	L	R	L
		V	.280	.240	.240	.200	.280	.240	.240	.200	.280	.240
	20	G	3–4	1–2	3–4	1–2	3–4	2–3	3–4	1–2	3–4	3–4
		N	4	2	3	2	4	2	3	2	4	3
		E	R	R	L	R	R	L	L	R	R	L
		V	.374	.340	.320	.380	.374	.340	.320	.340	.374	.320
	30	G	3–4	1–2	3–4	1–2	3–5	2–4	2–4	2–4	3–5	2–4
		N	4	2	3	2	3	2	4	2	3	2
		E	R	R	L	R	L	L	R	L	L	L
		V	.405	.360	.347	.420	.451	.433	.387	.411	.436	.407
	40	G	3–5	2–4	2–4	1–2	3–5	2–4	2–4	2–4	3–5	2–4
		N	3	2	4	2	3	2	4	2	3	2
		E	L	L	R	R	L	L	R	L	L	L
		V	.467	.420	.400	.440	.513	.500	.440	.467	.502	.480
	50	G	1–4	1–4	1–4	1–4	1–4	2–5	1–4	2–5	1–4	2–5
		N	4	4	4	1	4	2	4	2	4	2
		E	R	R	R	L	R	L	R	L	R	L
		V	.514	.488	.464	.495	.554	.580	.512	.533	.542	.548
	60	G	1–4	1–4	1–4	1–4	1–5	2–5	1–4	2–5	1–5	2–5
		N	4	4	4	1	5	2	4	2	5	2
		E	R	R	R	L	R	L	R	L	R	L
		V	.556	.540	.520	.551	.618	.633	.560	.578	.582	.607
	80	G	1–5	2–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5	2–5
		N	5	2	1	1	5	2	5	1	5	2
		E	R	L	L	L	R	L	R	L	R	L
		V	.612	.620	.600	.647	.713	.700	.660	.673	.687	.680
	100	G	1–5	2–5	1–5	1–5	1–5	1–5	1–5	1–5	1–5	2–5
		N	5	2	1	1	5	5	5	1	5	2
		E	R	L	L	L	R	R	R	L	R	L
		V	.689	.676	.680	.717	.771	.744	.728	.739	.749	.724

TABLE 7.13 (Continued)

Truck No.		71	72	73	74	75	76	77	78	79	80
Wh. Base L		60	60	64	64	64	64	68	68	68	68
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	18	18	20	20	20	20	22	22	22	22
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.20	.20	.10	.10	.20	.20	.10	.10	.20	.20
On	a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
Axles	a_3	.60	.50	.70	.60	.60	.50	.70	.60	.60	.50
Span-Feet	G	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4
	N	3	3	4	3	3	3	4	3	3	3
10	E	L	L	R	L	L	L	R	L	L	L
	V	.240	.200	.280	.240	.240	.200	.280	.240	.240	.200
	G	3–4	1–2	3–4	3–4	3–4	1–2	3–4	3–4	3–4	1–2
	N	3	2	4	3	3	2	4	3	3	2
20	E	L	R	R	L	L	R	R	L	L	R
	V	.320	.340	.374	.320	.320	.340	.374	.320	.320	.340
	G	2–4	1–2	3–5	2–4	2–4	1–2	2–4	2–3	2–4	1–2
	N	4	2	3	2	4	2	4	2	4	2
30	E	R	R	L	L	R	R	R	L	R	R
	V	.373	.394	.420	.380	.360	.394	.405	.354	.347	.394
	G	2–4	2–4	3–5	2–4	2–4	2–4	3–5	2–4	2–4	1–2
	N	4	2	3	2	4	2	3	2	4	2
40	E	R	L	L	L	R	L	L	L	R	R
	V	.450	.450	.490	.460	.420	.433	.478	.440	.410	.420
	G	1–4	2–5	3–5	2–5	1–4	2–5	3–5	1–4	1–4	2–4
	N	4	2	3	2	4	2	3	4	4	2
50	E	R	L	L	L	R	L	L	R	R	L
	V	.496	.507	.532	.516	.480	.480	.523	.496	.464	.460
	G	1–4	2–5	1–4	2–5	1–4	2–5	1–4	2–5	1–4	1–4
	N	4	2	4	2	4	2	4	2	4	1
60	E	R	L	R	L	R	L	R	L	R	L
	V	.547	.555	.569	.580	.533	.533	.559	.553	.520	.520
	G	1–5	1–5	1–5	2–5	1–5	1–5	1–5	2–5	1–4	1–5
	N	5	1	5	2	1	1	5	2	4	1
80	E	R	L	R	L	L	L	R	L	R	L
	V	.630	.657	.660	.660	.600	.640	.633	.640	.590	.623
	G	1–5	1–5	1–5	2–5	1–5	1–5	1–5	2–5	1–5	1–5
	N	5	1	5	2	1	1	5	2	1	1
100	E	R	L	R	L	L	L	R	L	L	L
	V	.704	.725	.728	.708	.680	.712	.707	.692	.664	.699

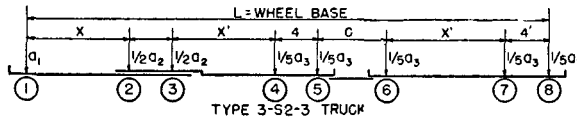
Truck No.		81	82	83	84	85	86	87	88	89	90
Wh. Base L		72	72	72	72	76	76	76	76	80	80
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	24	24	24	24	26	26	26	26	28	28
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.10	.10	.20	.20	.10	.10	.20	.20	.10	.10
On	a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
Axles	a_3	.70	.60	.60	.50	.70	.60	.60	.50	.70	.60
Span-Feet	G	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4	3–4
	N	4	3	3	3	4	3	3	3	4	3
10	E	R	L	L	L	R	L	L	L	R	L
	V	.280	.240	.240	.200	.280	.240	.240	.200	.280	.240
	G	3–4	3–4	3–4	1–2	3–4	3–4	3–4	1–2	3–4	3–4
	N	4	3	2	2	4	3	3	2	4	3
20	E	R	L	L	R	R	L	L	R	R	L
	V	.374	.320	.320	.340	.374	.320	.320	.340	.374	.320
	G	3–4	3–4	3–4	1–2	3–4	3–4	3–4	1–2	3–4	3–4
	N	4	3	3	2	4	3	3	2	4	3
30	E	R	L	L	R	R	L	L	R	R	L
	V	.405	.347	.347	.394	.405	.347	.347	.394	.405	.347
	G	3–5	2–4	2–4	1–2	3–5	2–4	2–4	1–2	3–5	2–4
	N	3	2	4	2	3	4	4	2	3	4
40	E	L	L	R	R	L	R	R	R	L	R
	V	.467	.420	.400	.420	.455	.405	.390	.420	.444	.390
	G	3–5	1–4	1–4	2–4	3–5	1–4	1–4	1–2	3–5	2–4
	N	3	4	4	2	3	4	4	2	3	4
50	E	L	R	R	L	L	R	R	R	L	R
	V	.513	.480	.448	.447	.504	.464	.432	.436	.495	.452
	G	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
	N	4	4	4	1	4	4	4	1	4	4
60	E	R	R	R	L	R	R	R	L	R	R
	V	.549	.533	.507	.509	.539	.520	.493	.498	.529	.507
	G	1–5	2–5	1–4	1–5	1–4	2–5	1–4	1–5	1–4	2–5
	N	5	2	4	1	4	2	4	1	4	2
80	E	R	L	R	L	R	L	R	L	R	L
	V	.607	.620	.580	.607	.596	.600	.570	.590	.589	.580
	G	1–5	2–5	1–5	1–5	1–5	2–5	1–5	1–5	1–5	2–5
	N	5	2	1	1	5	2	1	1	5	2
100	E	R	L	L	L	R	L	L	L	R	L
	V	.685	.676	.648	.685	.664	.660	.632	.672	.643	.644

TABLE 7.13 (Continued)

Truck No.			91	92	93	94	95	96
Wh. Base L			80	80	84	84	84	84
Axle Spacing	X		16	16	16	16	16	16
	X′		28	28	30	30	30	30
Hitch	C		8	8	8	8	8	8
Load On Axles	a_1		.20	.20	.10	.10	.20	.20
	a_2		.20	.30	.20	.30	.20	.30
	a_3		.60	.50	.70	.60	.60	.50
Span-Feet	10	G	3–4	3–4	3–4	3–4	3–4	3–4
		N	3	3	4	3	3	3
		E	L	L	R	L	L	L
		V	.240	.200	.280	.240	.240	.200
	20	G	3–4	1–2	3–4	3–4	3–4	1–2
		N	3	2	4	3	3	2
		E	L	R	R	L	L	R
		V	.320	.340	.374	.320	.320	.340
	30	G	3–4	1–2	3–4	3–4	3–4	1–2
		N	3	2	4	3	3	2
		E	L	R	R	L	L	R
		V	.347	.394	.405	.347	.347	.394
	40	G	2–4	1–2	3–5	2–4	2–4	1–2
		N	4	2	3	4	4	2
		E	R	R	L	R	R	R
		V	.380	.420	.432	.375	.370	.420
	50	G	3–5	1–2	3–5	2–4	3–5	1–2
		N	3	2	3	4	3	2
		E	L	R	L	R	L	R
		V	.424	.436	.485	.440	.416	.436
	60	G	1–4	1–4	3–5	1–4	1–4	1–4
		N	4	1	3	4	4	1
		E	R	L	L	R	R	L
		V	.480	.487	.521	.493	.467	.476
	80	G	1–4	1–5	1–4	1–4	1–4	1–4
		N	4	1	4	4	4	1
		E	R	L	R	R	R	L
		V	.560	.573	.581	.570	.550	.565
	100	G	1–5	1–5	1–5	2–5	1–5	1–5
		N	1	1	5	2	1	1
		E	L	L	R	L	L	L
		V	.616	.659	.621	.628	.600	.645

TABLE 7.14

CONTROLLED CONDITIONS AND MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY THE TYPE 3-S2-3 TRUCKS WEIGHING ONE KIP EACH



TYPE 3-S2-3 TRUCK

Eighty-four variations in the Type 3-S2-3 truck are given in this table. Each truck number from 1 to 84, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

Truck No.			1	2	3	4	5	6	7	8	9	10
Wh. Base L			44	44	44	44	48	48	48	48	52	52
Axle Spacing		X	8	8	8	8	8	8	8	8	8	8
		X'	8	8	8	8	10	10	10	10	12	12
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.05	.05	.10	.10	.05	.05	.10	.10	.05	.05
		a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
		a_3	.75	.65	.70	.60	.75	.65	.70	.60	.75	.65
Span-Feet	10	G	7-8	2-3	7-8	2-3	7-8	2-3	7-8	2-3	7-8	2-3
		N	7	2	7	2	7	2	7	2	7	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.240	.240	.224	.240	.240	.240	.224	.240	.240	.240
	20	G	5-8	2-5	2-5	2-5	4-6	2-5	4-6	2-5	4-6	2-5
		N	8	2	5	2	4	2	4	2	4	2
		E	R	L	R	L	L	L	L	L	L	L
		V	.330	.348	.312	.342	.330	.322	.308	.318	.330	.296
	30	G	4-8	2-6	4-8	2-6	4-8	2-6	4-8	2-6	4-8	2-6
		N	4	2	4	2	4	2	4	2	4	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.450	.445	.420	.432	.430	.419	.401	.408	.410	.393
	40	G	2-8	2-8	2-8	2-8	3-8	2-8	3-8	2-8	4-8	2-6
		N	8	2	8	2	8	2	8	2	4	2
		E	R	L	R	L	R	L	R	L	L	L
		V	.555	.545	.520	.525	.513	.500	.479	.483	.495	.467
	50	G	1-8	2-8	1-8	2-8	1-8	2-8	1-8	2-8	2-8	2-8
		N	8	2	8	2	8	2	8	2	8	2
		E	R	L	R	L	R	L	R	L	R	L
		V	.640	.626	.608	.600	.602	.590	.567	.566	.566	.553
	60	G	1-8	2-8	1-8	2-8	1-8	2-8	1-8	2-8	1-8	2-8
		N	8	2	8	2	8	2	8	2	8	2
		E	R	L	R	L	R	L	R	L	R	L
		V	.700	.680	.673	.650	.668	.650	.639	.622	.637	.619
	80	G	1-8	1-8	1-8	1-8	1-8	2-8	1-8	1-8	1-8	2-8
		N	8	8	8	8	8	2	8	1	8	2
		E	R	R	R	R	R	L	R	L	R	L
		V	.775	.748	.755	.728	.751	.725	.730	.702	.728	.702
	100	G	1-8	1-8	1-8	1-8	1-8	1-8	1-8	1-8	1-8	1-8
		N	8	8	8	8	8	8	8	1	8	8
		E	R	R	R	R	R	R	R	L	R	R
		V	.820	.798	.804	.782	.801	.776	.784	.761	.782	.754

All dimensions are in feet and shears are in kips.

a_1, a_2, and a_3—Represent the ratio of gross vehicle weight on axles.

G—Axle group causing maximum shear, thus, 1-3 means axles 1, 2, and 3.

N—Number of critical axle under which maximum shear occurs.

E—End of span at which critical axle is placed.

V—Maximum shear.

TABLE 7.14 (Continued)

Truck No.		11	12	13	14	15	16	17	18	19	20
Wh. Base L		52	52	56	56	56	56	60	60	60	60
Axle	X	8	8	8	8	8	8	8	8	8	8
Spacing	X′	12	12	14	14	14	14	16	16	16	16
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.10	.10	.05	.05	.10	.10	.05	.05	.10	.10
On	a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
Axles	a_3	.70	.60	.75	.65	.70	.60	.75	.65	.70	.60
Span-Feet 10	G	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3
	N	7	2	7	2	7	2	7	2	7	2
	E	L	L	L	L	L	L	L	L	L	L
	V	.224	.240	.240	.240	.224	.240	.240	.240	.224	.240
20	G	4–6	1–3	4–6	1–3	4–6	1–3	4–6	1–3	4–6	1–3
	N	4	3	4	3	4	3	4	3	4	3
	E	L	R	L	R	L	R	L	R	L	R
	V	.308	.310	.330	.290	.308	.310	.330	.290	.308	.310
30	G	4–8	2–6	4–8	2–5	4–8	2–5	4–6	2–5	4–6	2–5
	N	4	2	4	2	4	2	4	2	4	2
	E	L	L	L	L	L	L	L	L	L	L
	V	.383	.384	.390	.367	.364	.360	.370	.349	.345	.344
40	G	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6
	N	4	2	4	2	4	2	4	2	4	2
	E	L	L	L	L	L	L	L	L	L	L
	V	.462	.453	.480	.448	.448	.435	.465	.428	.434	.417
50	G	2–8	2–8	4–8	2–8	2–8	2–8	4–8	2–7	4–8	2–7
	N	8	2	4	2	8	2	4	2	4	2
	E	R	L	L	L	R	L	L	L	L	L
	V	.530	.533	.534	.517	.498	.500	.522	.485	.487	.470
60	G	1–8	2–8	1–8	2–8	1–8	2–8	2–8	2–8	2–8	2–8
	N	8	2	8	2	8	2	8	2	8	2
	E	R	L	R	L	R	L	R	L	R	L
	V	.605	.594	.605	.589	.571	.566	.574	.559	.537	.538
80	G	1–8	1–8	1–8	2–8	1–8	1–8	1–8	2–8	1–8	1–8
	N	8	1	8	2	8	1	8	2	8	1
	E	R	L	R	L	R	L	R	L	R	L
	V	.704	.681	.704	.679	.679	.660	.680	.656	.653	.639
100	G	1–8	1–8	1–8	1–8	1–8	1–8	1–8	2–8	1–8	1–8
	N	8	1	8	8	8	1	8	2	8	1
	E	R	L	R	R	R	L	R	L	R	L
	V	.763	.744	.763	.733	.743	.728	.744	.715	.722	.711

Truck No.		21	22	23	24	25	26	27	28	29	30
Wh. Base L		64	64	64	64	68	68	68	68	48	48
Axle	X	8	8	8	8	8	8	8	8	12	12
Spacing	X′	18	18	18	18	20	20	20	20	8	8
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.05	.05	.10	.10	.05	.05	.10	.10	.05	.05
On	a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
Axles	a_3	.75	.65	.70	.60	.75	.65	.70	.60	.75	.65
Span-Feet 10	G	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3
	N	7	2	7	2	7	2	7	2	7	2
	E	L	L	L	L	L	L	L	L	L	L
	V	.240	.240	.224	.240	.240	.240	.224	.240	.240	.240
20	G	4–6	1–3	4–6	1–3	4–6	1–3	4–6	1–3	4–6	2–5
	N	4	3	4	3	4	3	4	3	4	2
	E	L	R	L	R	L	R	L	R	L	L
	V	.330	.290	.308	.310	.330	.290	.308	.310	.330	.348
30	G	4–6	2–5	4–6	1–3	4–6	4–6	4–6	1–3	4–8	2–6
	N	4	2	4	3	4	4	4	3	4	2
	E	L	L	L	R	L	L	L	R	L	L
	V	.370	.332	.345	.340	.370	.321	.345	.340	.450	.445
40	G	4–8	2–6	4–8	2–6	4–8	2–6	4–8	4–8	2–8	2–8
	N	4	2	4	2	4	2	4	4	8	2
	E	L	L	L	L	L	L	L	L	R	L
	V	.450	.409	.420	.399	.435	.389	.406	.348	.555	.545
50	G	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6	1–8	2–8
	N	4	2	4	2	4	2	4	2	8	2
	E	L	L	L	L	L	L	L	L	R	L
	V	.510	.465	.476	.451	.498	.449	.465	.437	.636	.626
60	G	4–8	2–8	4–8	2–8	4–8	2–7	4–8	1–6	1–8	2–8
	N	4	2	4	2	4	2	4	1	8	2
	E	L	L	L	L	L	L	L	L	R	L
	V	.550	.528	.513	.510	.540	.498	.504	.486	.697	.680
80	G	1–8	2–8	1–8	1–8	1–8	2–8	1–8	1–8	1–8	2–8
	N	8	2	8	1	8	2	8	1	8	2
	E	R	L	R	L	R	L	R	L	R	L
	V	.656	.634	.628	.618	.633	.611	.602	.597	.773	.748
100	G	1–8	2–8	1–8	1–8	1–8	2–8	1–8	1–8	1–8	1–8
	N	8	2	8	1	8	2	8	1	8	8
	E	R	L	R	L	R	L	R	L	R	R
	V	.725	.697	.702	.694	.706	.679	.682	.677	.818	.796

TABLE 7.14 (Continued)

Truck No.			31	32	33	34	35	36	37	38	39	40
Wh. Base		L	48	48	52	52	52	52	56	56	56	56
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	8	8	10	10	10	10	12	12	12	12
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.10	.10	.05	.05	.10	.10	.05	.05	.10	.10
		a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
		a_3	.70	.60	.75	.65	.70	.60	.75	.65	.70	.60
Span-Feet	10	G	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3
		N	7	2	7	2	7	2	7	2	7	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.224	.240	.240	.240	.224	.240	.240	.240	.224	.240
	20	G	2–5	2–5	4–6	2–5	4–6	2–5	4–6	2–5	4–6	2–5
		N	5	2	4	2	4	2	4	2	4	2
		E	R	L	L	L	L	L	L	L	L	L
		V	.312	.342	.330	.322	.308	.318	.330	.296	.308	.294
	30	G	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6
		N	4	2	4	2	4	2	4	2	4	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.420	.432	.430	.419	.401	.408	.410	.393	.383	.384
	40	G	2–8	2–8	3–8	2–8	3–8	2–7	4–8	2–7	4–8	2–7
		N	8	2	8	2	8	2	4	2	4	2
		E	R	L	R	L	R	L	L	L	L	L
		V	.520	.525	.513	.500	.479	.483	.495	.467	.462	.453
	50	G	1–8	2–8	2–8	2–8	2–8	2–8	2–8	2–8	2–8	2–8
		N	8	2	8	2	8	2	8	2	8	2
		E	R	L	R	L	R	L	R	L	R	L
		V	.609	.600	.600	.590	.563	.566	.566	.553	.530	.533
	60	G	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8
		N	8	2	8	2	8	2	8	2	8	2
		E	R	L	R	L	R	L	R	L	R	L
		V	.667	.650	.665	.650	.633	.622	.633	.619	.599	.594
	80	G	1–8	1–8	1–8	2–8	1–8	1–8	1–8	2–8	1–8	2–8
		N	8	8	8	2	8	8	8	2	8	2
		E	R	R	R	L	R	R	R	L	R	L
		V	.750	.723	.749	.725	.725	.694	.725	.702	.699	.671
	100	G	1–8	1–8	1–8	1–8	1–8	1–8	1–8	1–8	1–8	1–8
		N	8	8	8	8	8	8	8	8	8	8
		E	R	R	R	R	R	R	R	R	R	R
		V	.800	.778	.799	.774	.780	.755	.780	.752	.759	.732

Truck No.			41	42	43	44	45	46	47	48	49	50
Wh. Base		L	60	60	60	60	64	64	64	64	68	68
Axle Spacing		X	12	12	12	12	12	12	12	12	12	12
		X′	14	14	14	14	16	16	16	16	18	18
Hitch		C	8	8	8	8	8	8	8	8	8	8
Load On Axles		a_1	.05	.05	.10	.10	.05	.05	.10	.10	.05	.05
		a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
		a_3	.75	.65	.70	.60	.75	.65	.70	.60	.75	.65
Span-Feet	10	G	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3
		N	7	2	7	2	7	2	7	2	7	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.240	.240	.224	.240	.240	.240	.224	.240	.240	.240
	20	G	4–6	4–6	4–6	1–3	4–6	4–6	4–6	1–3	4–6	4–6
		N	4	4	4	3	4	4	4	3	4	4
		E	L	L	L	R	L	L	L	R	L	L
		V	.330	.286	.308	.290	.330	.286	.308	.290	.330	.286
	30	G	4–8	2–5	4–8	2–6	4–6	2–5	4–6	2–5	4–6	2–5
		N	4	2	4	2	4	2	4	2	4	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.390	.367	.364	.360	.370	.349	.345	.344	.370	.332
	40	G	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6
		N	4	2	4	2	4	2	4	2	4	2
		E	L	L	L	L	L	L	L	L	L	L
		V	.480	.448	.448	.435	.465	.428	.434	.417	.450	.409
	50	G	4–8	2–8	2–8	2–8	4–8	2–7	4–8	2–7	4–8	2–6
		N	4	2	8	2	4	2	4	2	4	2
		E	L	L	R	L	L	L	L	L	L	L
		V	.534	.517	.498	.500	.522	.485	.487	.470	.510	.465
	60	G	1–8	2–8	1–8	2–8	2–8	2–8	2–8	2–8	4–8	2–8
		N	8	2	8	2	8	2	8	2	4	2
		E	R	L	R	L	R	L	R	L	L	L
		V	.602	.589	.565	.566	.574	.559	.537	.538	.550	.528
	80	G	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8
		N	8	2	8	2	8	2	8	2	8	2
		E	R	L	R	L	R	L	R	L	R	L
		V	.701	.679	.674	.650	.678	.656	.648	.628	.654	.634
	100	G	1–8	2–8	1–8	1–8	1–8	2–8	1–8	1–8	1–8	2–8
		N	8	2	8	8	8	2	8	8	8	2
		E	R	L	R	R	R	L	R	R	R	L
		V	.761	.733	.739	.708	.742	.715	.718	.685	.723	.697

TABLE 7.14 (Continued)

Truck No.		51	52	53	54	55	56	57	58	59	60
Wh. Base L		68	68	72	72	72	72	60	60	60	60
Axle	X	12	12	12	12	12	12	16	16	16	16
Spacing	X′	18	18	20	20	20	20	12	12	12	12
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.10	.10	.05	.05	.10	.10	.05	.05	.10	.10
On	a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
Axles	a_3	.70	.60	.75	.65	.70	.60	.75	.65	.70	.60
Span-Feet	G	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3
	N	7	2	7	2	7	2	7	2	7	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.224	.240	.240	.240	.224	.240	.240	.240	.224	.240
	G	4–6	1–3	4–6	4–6	4–6	1–3	4–6	2–4	4–6	2–4
	N	4	3	4	4	4	3	4	2	4	2
20	E	L	L	L	L	L	R	L	L	L	L
	V	.308	.290	.330	.286	.308	.290	.330	.296	.308	.294
	G	4–6	2–5	4–6	4–6	4–6	1–3	4–8	2–6	4–8	2–6
	N	4	2	4	4	4	3	4	2	4	2
30	E	L	L	L	L	L	R	L	L	L	L
	V	.345	.328	.370	.321	.345	.327	.410	.393	.383	.384
	G	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–7	4–8	2–7
	N	4	2	4	2	4	2	4	2	4	2
40	E	L	L	L	L	L	L	L	L	L	L
	V	.420	.399	.435	.389	.406	.381	.495	.467	.462	.453
	G	4–8	2–6	4–8	2–6	4–8	2–6	2–8	2–8	2–8	2–8
	N	4	2	4	2	4	2	8	2	8	2
50	E	L	L	L	L	L	L	R	L	R	L
	V	.476	.451	.498	.449	.465	.437	.566	.553	.530	.533
	G	4–8	2–8	4–8	2–8	4–8	2–8	1–8	2–8	1–8	2–8
	N	4	2	4	2	4	2	8	2	8	2
60	E	L	L	L	L	L	L	R	L	R	L
	V	.513	.510	.540	.498	.504	.482	.630	.619	.592	.594
	G	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8
	N	8	2	8	2	8	2	8	2	8	2
80	E	R	L	R	L	R	L	R	L	R	L
	V	.623	.608	.630	.611	.597	.587	.723	.702	.694	.671
	G	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8	1–8	1–8
	N	8	2	8	2	8	2	8	2	8	8
100	E	R	L	R	L	R	L	R	L	R	R
	V	.698	.666	.704	.679	.678	.649	.778	.751	.755	.728

Truck No.		61	62	63	64	65	66	67	68	69	70
Wh. Base L		64	64	64	64	68	68	68	68	72	72
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	14	14	14	14	16	16	16	16	18	18
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.05	.05	.10	.10	.05	.05	.10	.10	.05	.05
On	a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
Axles	a_3	.75	.65	.70	.60	.75	.65	.70	.60	.75	.65
Span-Feet	G	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3
	N	7	2	7	2	7	2	7	2	7	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.240	.240	.224	.240	.240	.240	.224	.240	.240	.240
	G	4–6	4–6	4–6	2–4	4–6	4–6	4–6	1–3	4–6	4–6
	N	4	4	4	2	4	4	4	3	4	4
20	E	L	L	L	L	L	L	L	R	L	L
	V	.330	.286	.308	.282	.330	.286	.308	.270	.330	.286
	G	4–8	2–5	4–8	2–6	4–6	2–5	4–6	2–5	4–6	2–5
	N	4	2	4	2	4	2	4	2	4	2
30	E	L	L	L	L	L	L	L	L	L	L
	V	.390	.367	.364	.360	.370	.349	.345	.344	.370	.332
	G	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6
	N	4	2	4	2	4	2	4	2	4	2
40	E	L	L	L	L	L	L	L	L	L	L
	V	.480	.448	.448	.435	.465	.428	.434	.417	.450	.409
	G	4–8	2–8	2–8	2–8	4–8	2–7	4–8	2–7	4–8	2–6
	N	4	2	8	2	4	2	4	2	4	2
50	E	L	L	R	L	L	L	L	L	L	L
	V	.534	.517	.498	.500	.522	.485	.487	.470	.510	.465
	G	2–8	2–8	2–8	2–8	2–8	2–8	2–8	2–8	4–8	2–8
	N	8	2	8	2	8	2	8	2	4	2
60	E	R	L	R	L	R	L	R	L	L	L
	V	.601	.589	.564	.566	.574	.559	.537	.538	.550	.528
	G	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8
	N	8	2	8	2	8	2	8	2	8	2
80	E	R	L	R	L	R	L	R	L	R	L
	V	.699	.679	.669	.650	.675	.656	.643	.628	.651	.634
	G	1–8	2–8	1–8	1–8	1–8	2–8	1–8	2–8	1–8	2–8
	N	8	2	8	8	8	2	8	2	8	2
100	E	R	L	R	R	R	L	R	L	R	L
	V	.759	.733	.735	.704	.740	.715	.714	.683	.721	.697

TABLE 7.14 (Continued)

Truck No.		71	72	73	74	75	76	77	78	79	80
Wh. Base	L	72	72	76	76	76	76	80	80	80	80
Axle	X	16	16	16	16	16	16	16	16	16	16
Spacing	X′	18	18	20	20	20	20	22	22	22	22
Hitch	C	8	8	8	8	8	8	8	8	8	8
Load	a_1	.10	.10	.05	.05	.10	.10	.05	.05	.10	.10
On	a_2	.20	.30	.20	.30	.20	.30	.20	.30	.20	.30
Axles	a_3	.70	.60	.75	.65	.70	.60	.75	.65	.70	.60
Span-Feet	G	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3	7–8	2–3
	N	7	2	7	2	7	2	7	2	7	2
10	E	L	L	L	L	L	L	L	L	L	L
	V	.224	.240	.240	.240	.224	.240	.240	.240	.224	.240
	G	4–6	1–3	4–6	4–6	4–6	1–3	4–6	4–6	4–6	1–3
	N	4	3	4	4	4	3	4	4	4	3
20	E	L	R	L	L	L	R	L	L	L	R
	V	.308	.270	.330	.286	.308	.270	.330	.286	.308	.270
	G	4–6	2–5	4–6	4–6	4–6	1–3	4–6	4–6	4–6	1–3
	N	4	2	4	4	4	3	4	4	4	3
30	E	L	L	L	L	L	R	L	L	L	R
	V	.345	.328	.370	.321	.345	.313	.370	.321	.345	.313
	G	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6
	N	4	2	4	2	4	2	4	2	4	2
40	E	L	L	L	L	L	L	L	L	L	L
	V	.420	.399	.435	.389	.406	.381	.420	.370	.392	.363
	G	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6	4–8	2–6
	N	4	2	4	2	4	2	4	2	4	2
50	E	L	L	L	L	L	L	L	L	L	L
	V	.476	.451	.498	.449	.465	.437	.486	.434	.454	.422
	G	4–8	2–8	4–8	2–8	4–8	2–7	4–8	2–7	4–8	2–7
	N	4	2	4	2	4	2	4	2	4	2
60	E	L	L	L	L	L	L	L	L	L	L
	V	.513	.510	.540	.498	.504	.482	.530	.476	.495	.462
	G	1–8	2–8	1–8	2–8	1–8	2–8	2–8	2–8	1–8	2–8
	N	8	2	8	2	8	2	8	2	8	2
80	E	R	L	R	L	R	L	R	L	R	L
	V	.618	.608	.628	.611	.592	.587	.604	.588	.567	.565
	G	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8	1–8	2–8
	N	8	2	8	2	8	2	8	2	8	2
100	E	R	L	R	L	R	L	R	L	R	L
	V	.694	.666	.702	.679	.674	.649	.683	.660	.653	.633

Truck No.		81	82	83	84
Wh. Base	L	84	84	84	84
Axle	X	16	16	16	16
Spacing	X′	24	24	24	24
Hitch	C	8	8	8	8
Load	a_1	.05	.05	.10	.10
On	a_2	.20	.30	.20	.30
Axles	a_3	.75	.65	.70	.60
Span-Feet	G	7–8	2–3	7–8	2–3
	N	7	2	7	2
10	E	L	L	L	L
	V	.240	.240	.224	.240
	G	4–6	4–6	4–6	1–3
	N	4	4	4	3
20	E	L	L	L	R
	V	.330	.286	.308	.270
	G	4–6	4–6	4–6	1–3
	N	4	4	4	3
30	E	L	L	L	R
	V	.370	.321	.345	.313
	G	4–8	4–8	4–8	2–5
	N	4	4	4	2
40	E	L	L	L	L
	V	.405	.351	.378	.345
	G	4–8	2–6	4–8	2–6
	N	4	2	4	2
50	E	L	L	L	L
	V	.474	.418	.442	.408
	G	4–8	2–6	4–8	2–6
	N	4	2	4	2
60	E	L	L	L	L
	V	.520	.464	.485	.450
	G	2–8	2–8	2–8	2–8
	N	8	2	8	2
80	E	R	L	R	L
	V	.582	.565	.546	.545
	G	1–8	2–8	1–8	2–8
	N	8	2	8	2
100	E	R	L	R	L
	V	.664	.642	.633	.616

8. SUMMARY OF MAXIMUM SHEARS PRODUCED BY VEHICLES OF UNIT WEIGHT ON SIMPLE SPAN BRIDGES

Tables 8.1 - 8.14 give the maximum shears produced by the 1303 variations of the 14 heavy vehicle types shown in the identification Tables 6.1 - 6.14 on simple spans of 10, 20, 30, 40, 50, 60, 80, and 100 feet in length. The maximum shears produced by each of the 1303 heavy vehicle types and loadings on 8 different span lengths makes a total of 10,424 maximum shears recorded in the Tables 8.1 - 8.14. The table number corresponding to each of the 14 heavy vehicle types is as follows:

Table No.	Vehicle Type	Table No.	Vehicle Type
8.1	2	8.8	3–S3
8.2	3	8.9	2–2
8.3	2–S1	8.10	2–3
8.4	2–S2	8.11	3–2
8.5	2–S3	8.12	3–3
8.6	3–S1	8.13	2–S1–2
8.7	3–S2	8.14	3–S2–3

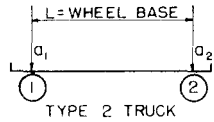
The maximum shears given in these tables represent a summary of the maximum shears shown in Tables 7.1 - 7.14. This summary should prove to be convenient in those cases when one is only concerned with the comparison or determination of maximum shears since these tables (Tables 8.1 - 8.14) do not include the controlling conditions given in Tables 7.1 - 7.14.

A further description of these tables and how they are used is given in Articles 4 and 5.

TABLE 8.1

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 2 TRUCKS WEIGHING ONE KIP EACH



Thirty-six variations in the Type 2 truck are given in this table. Each truck number, from 1 to 36, represents a different combination of wheel base length, and ratios of gross vehicle weight on each axle.

All dimensions are in feet. Maximum shears are in kips.

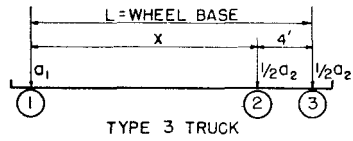
a_1 and a_2 represent the ratio of gross vehicle weight on axles.

Wheel Base Feet	Truck No.	Load On Axles Kips		Span-Feet							
		a_1	a_2	10	20	30	40	50	60	80	100
	1	.45	.55	.550	.775	.850	.888	.910	.925	.944	.955
	2	.40	.60	.600	.800	.867	.900	.920	.933	.950	.960
L = 10	3	.35	.65	.650	.825	.883	.913	.930	.942	.956	.965
	4	.30	.70	.700	.850	.900	.925	.940	.950	.963	.970
	5	.25	.75	.750	.875	.917	.938	.950	.958	.969	.975
	6	.20	.80	.800	.900	.933	.950	.960	.967	.975	.980
	7	.45	.55	.550	.730	.820	.865	.892	.910	.933	.946
	8	.40	.60	.600	.760	.840	.880	.904	.920	.940	.952
L = 12	9	.35	.65	.650	.790	.860	.895	.916	.930	.948	.958
	10	.30	.70	.700	.820	.880	.910	.928	.940	.955	.964
	11	.25	.75	.750	.850	.900	.925	.940	.950	.963	.970
	12	.20	.80	.800	.800	.920	.940	.952	.960	.970	.976
	13	.45	.55	.550	.685	.790	.843	.874	.895	.921	.937
	14	.40	.60	.600	.720	.813	.860	.888	.907	.930	.944
L = 14	15	.35	.65	.650	.755	.837	.878	.902	.918	.939	.951
	16	.30	.70	.700	.790	.860	.895	.916	.930	.948	.958
	17	.25	.75	.750	.825	.883	.913	.930	.942	.956	.965
	18	.20	.80	.800	.860	.907	.930	.944	.953	.965	.972
	19	.45	.55	.550	.640	.760	.820	.856	.880	.910	.928
	20	.40	.60	.600	.680	.787	.840	.872	.893	.920	.936
L = 16	21	.35	.65	.650	.720	.813	.860	.888	.907	.930	.944
	22	.30	.70	.700	.760	.840	.880	.904	.920	.940	.952
	23	.25	.75	.750	.800	.867	.900	.920	.933	.950	.960
	24	.20	.80	.800	.840	.893	.920	.936	.947	.960	.968
	25	.45	.55	.550	.595	.730	.798	.838	.865	.899	.919
	26	.40	.60	.600	.640	.760	.820	.856	.880	.910	.928
L = 18	27	.35	.65	.650	.685	.790	.843	.874	.895	.921	.937
	28	.30	.70	.700	.730	.820	.865	.892	.910	.933	.946
	29	.25	.75	.750	.775	.850	.888	.910	.925	.944	.955
	30	.20	.80	.800	.820	.880	.910	.928	.940	.955	.964
	31	.45	.55	.550	.550	.700	.775	.820	.850	.888	.910
	32	.40	.60	.600	.600	.733	.800	.840	.867	.900	.920
L = 20	33	.35	.65	.650	.650	.767	.825	.860	.883	.913	.930
	34	.30	.70	.700	.700	.800	.850	.880	.900	.925	.940
	35	.25	.75	.750	.750	.833	.875	.900	.917	.938	.950
	36	.20	.80	.800	.800	.867	.900	.920	.933	.950	.960

TABLE 8.2

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 3 TRUCKS WEIGHING ONE KIP EACH



TYPE 3 TRUCK

Forty-two variations in the Type 3 truck are given in this table. Each truck number, from 1 to 42, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

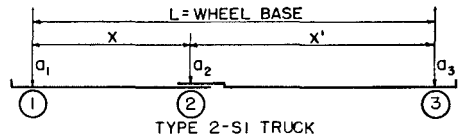
All dimensions are in feet. Maximum shears are in kips.
a_1 and a_2 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips		Span-Feet							
		a_1	a_2	10	20	30	40	50	60	80	100
	1	.40	.60	.480	.660	.773	.830	.864	.887	.915	.932
	2	.35	.65	.520	.690	.793	.845	.876	.897	.923	.938
	3	.30	.70	.560	.720	.813	.860	.888	.907	.930	.944
L = 14	4	.25	.75	.600	.750	.833	.875	.900	.917	.938	.950
X = 10	5	.20	.80	.640	.780	.853	.890	.912	.927	.945	.956
	6	.15	.85	.680	.810	.873	.905	.924	.937	.953	.962
	7	.10	.90	.720	.840	.893	.920	.936	.947	.960	.968
	8	.40	.60	.480	.620	.747	.810	.848	.873	.905	.924
	9	.35	.65	.520	.655	.770	.828	.862	.885	.914	.931
	10	.30	.70	.560	.690	.793	.845	.876	.897	.923	.938
L = 16	11	.25	.75	.600	.725	.817	.863	.890	.908	.931	.945
X = 12	12	.20	.80	.640	.760	.840	.880	.904	.920	.940	.952
	13	.15	.85	.680	.795	.863	.898	.918	.932	.949	.959
	14	.10	.90	.720	.830	.887	.915	.932	.943	.958	.966
	15	.40	.60	.480	.580	.720	.790	.832	.860	.895	.916
	16	.35	.65	.520	.620	.747	.810	.848	.873	.905	.924
	17	.30	.70	.560	.660	.773	.830	.864	.887	.915	.932
L = 18	18	.25	.75	.600	.700	.800	.850	.880	.900	.925	.940
X = 14	19	.20	.80	.640	.740	.827	.870	.896	.913	.935	.948
	20	.15	.85	.680	.780	.853	.890	.912	.927	.945	.956
	21	.10	.90	.720	.820	.880	.910	.928	.940	.955	.964
	22	.40	.60	.480	.540	.693	.770	.816	.847	.885	.908
	23	.35	.65	.520	.585	.723	.793	.834	.862	.896	.917
	24	.30	.70	.560	.630	.753	.815	.852	.877	.908	.926
L = 20	25	.25	.75	.600	.675	.783	.838	.870	.892	.919	.935
X = 16	26	.20	.80	.640	.720	.813	.860	.888	.907	.930	.944
	27	.15	.85	.680	.765	.843	.883	.906	.922	.941	.953
	28	.10	.90	.720	.810	.873	.905	.924	.937	.953	.962
	29	.40	.60	.480	.540	.667	.750	.800	.833	.875	.900
	30	.35	.65	.520	.585	.700	.775	.820	.850	.888	.910
	31	.30	.70	.560	.630	.733	.800	.840	.867	.900	.920
L = 22	32	.25	.75	.600	.675	.767	.825	.860	.883	.913	.930
X = 18	33	.20	.80	.640	.720	.800	.850	.880	.900	.925	.940
	34	.15	.85	.680	.765	.833	.875	.900	.917	.938	.950
	35	.10	.90	.720	.810	.867	.900	.920	.933	.950	.960
	36	.40	.60	.480	.540	.640	.730	.784	.820	.865	.892
	37	.35	.65	.520	.585	.677	.758	.806	.838	.879	.903
	38	.30	.70	.560	.630	.713	.785	.828	.857	.893	.914
L = 24	39	.25	.75	.600	.675	.750	.813	.850	.875	.906	.925
X = 20	40	.20	.80	.640	.720	.787	.840	.872	.893	.920	.936
	41	.15	.85	.680	.765	.823	.868	.894	.912	.934	.947
	42	.10	.90	.720	.810	.860	.895	.916	.930	.948	.958

TABLE 8.3

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 2-S1 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-S1 TRUCK

One hundred twenty-six variations in the Type 2-S1 truck are given in this table. Each truck number, from 1 to 126, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Maximum shears are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.30	.60	.600	.720	.813	.860	.888	.907	.930	.944
	2	.10	.40	.50	.500	.660	.773	.830	.864	.887	.915	.932
L = 20	3	.10	.45	.45	.470	.630	.753	.815	.852	.877	.908	.926
X = 8	4	.10	.50	.40	.520	.660	.740	.800	.840	.867	.900	.920
X' = 12	5	.20	.30	.50	.500	.620	.747	.810	.848	.873	.905	.924
	6	.20	.40	.40	.440	.560	.707	.780	.824	.853	.890	.912
	7	.20	.50	.30	.540	.620	.680	.750	.800	.833	.875	.900
	8	.10	.30	.60	.600	.660	.760	.820	.856	.880	.910	.928
	9	.10	.40	.50	.500	.581	.707	.780	.824	.853	.890	.912
L = 24	10	.10	.45	.45	.470	.540	.680	.760	.808	.840	.880	.904
X = 8	11	.10	.50	.40	.520	.581	.687	.740	.792	.827	.870	.896
X' = 16	12	.20	.30	.50	.500	.560	.680	.760	.808	.840	.880	.904
	13	.20	.40	.40	.440	.520	.627	.720	.776	.813	.860	.888
	14	.20	.50	.30	.540	.620	.647	.720	.776	.813	.860	.888
	15	.10	.30	.60	.600	.600	.707	.780	.824	.853	.890	.912
	16	.10	.40	.50	.500	.500	.640	.730	.784	.820	.865	.892
L = 28	17	.10	.45	.45	.470	.510	.607	.705	.764	.803	.853	.882
X = 8	18	.10	.50	.40	.520	.560	.634	.700	.744	.787	.840	.872
X' = 20	19	.20	.30	.50	.500	.500	.613	.710	.768	.807	.855	.884
	20	.20	.40	.40	.440	.520	.547	.660	.728	.773	.830	.864
	21	.20	.50	.30	.540	.620	.647	.690	.752	.793	.845	.876
	22	.10	.30	.60	.600	.600	.660	.740	.792	.827	.870	.896
	23	.10	.40	.50	.500	.500	.580	.680	.744	.787	.840	.872
L = 32	24	.10	.45	.45	.470	.510	.540	.650	.720	.767	.825	.860
X = 8	25	.10	.50	.40	.520	.560	.580	.660	.708	.747	.810	.848
X' = 24	26	.20	.30	.50	.500	.500	.560	.660	.728	.773	.830	.864
	27	.20	.40	.40	.440	.520	.547	.600	.680	.733	.800	.840
	28	.20	.50	.30	.540	.620	.647	.660	.728	.773	.830	.864
	29	.10	.30	.60	.600	.600	.620	.700	.760	.800	.850	.880
	30	.10	.40	.50	.500	.500	.527	.630	.704	.753	.815	.852
L = 36	31	.10	.45	.45	.470	.510	.524	.595	.676	.730	.798	.838
X = 8	32	.10	.50	.40	.520	.560	.573	.620	.676	.714	.780	.824
X' = 28	33	.20	.30	.50	.500	.500	.520	.610	.688	.740	.805	.844
	34	.20	.40	.40	.440	.520	.547	.560	.648	.707	.780	.824
	35	.20	.50	.30	.540	.620	.647	.660	.704	.753	.815	.852
	36	.10	.30	.60	.660	.780	.853	.890	.912	.927	.945	.956
	37	.10	.40	.50	.580	.740	.827	.870	.896	.913	.935	.948
L = 20	38	.10	.45	.45	.540	.720	.813	.860	.888	.907	.930	.944
X = 12	39	.10	.50	.40	.580	.740	.800	.850	.880	.900	.925	.940
X' = 8	40	.20	.30	.50	.560	.680	.787	.840	.872	.893	.920	.936
	41	.20	.40	.40	.480	.640	.760	.820	.856	.880	.910	.928
	42	.20	.50	.30	.560	.680	.733	.800	.840	.867	.900	.920
	43	.10	.30	.60	.600	.720	.800	.850	.880	.900	.925	.940
	44	.10	.40	.50	.500	.660	.760	.820	.856	.880	.910	.928
L = 24	45	.10	.45	.45	.450	.630	.740	.805	.844	.870	.903	.922
X = 12	46	.10	.50	.40	.500	.660	.740	.790	.832	.860	.895	.916
X' = 12	47	.20	.30	.50	.500	.620	.720	.790	.832	.860	.895	.916
	48	.20	.40	.40	.400	.560	.680	.760	.808	.840	.880	.904
	49	.20	.50	.30	.500	.620	.680	.730	.784	.820	.865	.892

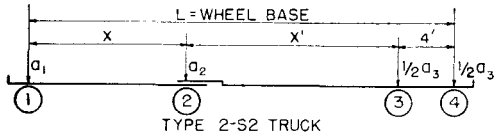
TABLE 8.3 (Continued)

	50	.10	.30	.60	.600	.660	.747	.810	.848	.873	.905	.924
	51	.10	.40	.50	.500	.580	.693	.770	.816	.847	.885	.908
L = 28	52	.10	.45	.45	.450	.540	.667	.750	.800	.833	.875	.900
X = 12	53	.10	.50	.40	.500	.581	.687	.740	.784	.820	.865	.892
X′ = 16	54	.20	.30	.50	.500	.560	.653	.740	.792	.827	.870	.896
	55	.20	.40	.40	.400	.480	.600	.700	.760	.800	.850	.880
	56	.20	.50	.30	.500	.580	.640	.680	.728	.773	.830	.864
	57	.10	.30	.60	.600	.600	.700	.770	.816	.847	.885	.908
	58	.10	.40	.50	.500	.500	.634	.720	.776	.813	.860	.888
L = 32	59	.10	.45	.45	.450	.490	.600	.695	.756	.797	.848	.878
X = 12	60	.10	.50	.40	.500	.540	.634	.700	.740	.780	.835	.868
X′ = 20	61	.20	.30	.50	.500	.500	.600	.690	.752	.793	.845	.876
	62	.20	.40	.40	.400	.480	.534	.640	.712	.760	.820	.856
	63	.20	.50	.30	.500	.580	.620	.650	.688	.740	.805	.844
	64	.10	.30	.60	.600	.600	.660	.730	.784	.820	.865	.892
	65	.10	.40	.50	.500	.500	.580	.670	.736	.780	.835	.868
L = 36	66	.10	.45	.45	.450	.490	.540	.640	.712	.760	.820	.856
X = 12	67	.10	.50	.40	.500	.540	.580	.660	.708	.740	.805	.844
X′ = 24	68	.20	.30	.50	.500	.500	.560	.640	.712	.760	.820	.856
	69	.20	.40	.40	.400	.480	.520	.580	.664	.720	.790	.832
	70	.20	.50	.30	.500	.580	.620	.640	.664	.720	.790	.832
	71	.10	.30	.60	.600	.600	.620	.690	.752	.793	.845	.876
	72	.10	.40	.50	.500	.500	.527	.620	.696	.747	.810	.848
L = 40	73	.10	.45	.45	.450	.490	.510	.585	.668	.723	.793	.834
X = 12	74	.10	.50	.40	.500	.540	.560	.620	.676	.714	.775	.820
X′ = 28	75	.20	.30	.50	.500	.500	.520	.590	.672	.727	.795	.836
	76	.20	.40	.40	.400	.480	.520	.540	.616	.680	.760	.808
	77	.20	.50	.30	.500	.580	.620	.640	.652	.700	.775	.820
	78	.10	.30	.60	.600	.600	.600	.661	.720	.767	.825	.860
	79	.10	.40	.50	.500	.500	.500	.581	.656	.713	.785	.828
L = 44	80	.10	.45	.45	.450	.490	.510	.540	.624	.687	.765	.812
X = 12	81	.10	.50	.40	.500	.540	.560	.581	.644	.687	.745	.796
X′ = 32	82	.20	.30	.50	.500	.500	.500	.560	.632	.693	.770	.816
	83	.20	.40	.40	.400	.480	.520	.540	.568	.640	.730	.784
	84	.20	.50	.30	.500	.580	.620	.640	.652	.680	.760	.808
	85	.10	.30	.60	.660	.780	.840	.880	.904	.920	.940	.952
	86	.10	.40	.50	.580	.740	.813	.860	.888	.907	.930	.944
L = 24	87	.10	.45	.45	.540	.720	.800	.850	.880	.900	.925	.940
X = 16	88	.10	.50	.40	.580	.740	.793	.840	.872	.893	.920	.936
X′ = 8	89	.20	.30	.50	.560	.680	.760	.820	.856	.880	.910	.928
	90	.20	.40	.40	.480	.640	.733	.800	.840	.867	.900	.920
	91	.20	.50	.30	.560	.680	.720	.780	.824	.853	.890	.912
	92	.10	.30	.60	.600	.720	.787	.840	.872	.893	.920	.936
	93	.10	.40	.50	.500	.660	.747	.810	.848	.873	.905	.924
L = 28	94	.10	.45	.45	.450	.630	.727	.795	.836	.863	.898	.918
X = 16	95	.10	.50	.40	.500	.660	.740	.780	.824	.853	.890	.912
X′ = 12	96	.20	.30	.50	.500	.620	.693	.770	.816	.847	.885	.908
	97	.20	.40	.40	.400	.560	.653	.740	.792	.827	.870	.896
	98	.20	.50	.30	.500	.620	.680	.710	.768	.807	.855	.884
	99	.10	.30	.60	.600	.660	.740	.800	.840	.867	.900	.920
	100	.10	.40	.50	.500	.580	.687	.760	.808	.840	.880	.904
L = 32	101	.10	.45	.45	.450	.540	.660	.740	.792	.827	.870	.896
X = 16	102	.10	.50	.40	.500	.581	.687	.740	.776	.813	.860	.888
X′ = 16	103	.20	.30	.50	.500	.560	.640	.720	.776	.813	.860	.888
	104	.20	.40	.40	.400	.480	.587	.680	.744	.787	.840	.872
	105	.20	.50	.30	.500	.560	.640	.680	.712	.760	.820	.856
	106	.10	.30	.60	.600	.600	.700	.760	.808	.840	.880	.904
	107	.10	.40	.50	.500	.500	.634	.710	.768	.807	.855	.884
L = 36	108	.10	.45	.45	.450	.470	.600	.685	.748	.790	.843	.874
X = 16	109	.10	.50	.40	.500	.520	.634	.700	.740	.773	.830	.864
X′ = 20	110	.20	.30	.50	.500	.500	.600	.670	.736	.780	.835	.868
	111	.20	.40	.40	.400	.440	.534	.620	.696	.747	.810	.848
	112	.20	.50	.30	.500	.540	.600	.650	.680	.713	.785	.828
	113	.10	.30	.60	.600	.600	.660	.720	.776	.813	.860	.888
	114	.10	.40	.50	.500	.500	.580	.660	.728	.773	.830	.864
L = 40	115	.10	.45	.45	.450	.470	.540	.630	.704	.753	.815	.852
X = 16	116	.10	.50	.40	.500	.520	.580	.660	.708	.740	.800	.840
X′ = 24	117	.20	.30	.50	.500	.500	.560	.620	.696	.747	.810	.848
	118	.20	.40	.40	.400	.440	.493	.560	.648	.707	.780	.824
	119	.20	.50	.30	.500	.540	.594	.620	.656	.680	.750	.800
	120	.10	.30	.60	.600	.600	.620	.690	.744	.787	.840	.872
	121	.10	.40	.50	.500	.500	.527	.620	.688	.740	.805	.844
L = 44	122	.10	.45	.45	.450	.470	.497	.585	.660	.717	.788	.830
X = 16	123	.10	.50	.40	.500	.520	.547	.620	.676	.714	.770	.816
X′ = 28	124	.20	.30	.50	.500	.500	.520	.590	.656	.713	.785	.828
	125	.20	.40	.40	.400	.440	.493	.520	.600	.667	.750	.800
	126	.20	.50	.30	.500	.540	.594	.620	.636	.660	.735	.788

TABLE 8.4

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 2-S2 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-S2 TRUCK

One hundred and eight variations in the Type 2-S2 truck are given in this table. Each truck number, from 1 to 108, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Maximum shears are in kips.

a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

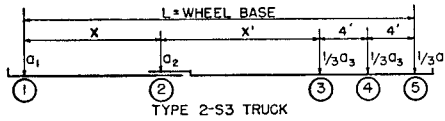
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips a_1	a_2	a_3	Span-Feet 10	20	30	40	50	60	80	100
	1	.10	.30	.60	.480	.660	.773	.830	.864	.887	.915	.932
	2	.10	.40	.50	.450	.650	.740	.805	.844	.870	.903	.922
L = 20	3	.10	.50	.40	.540	.700	.767	.800	.824	.853	.890	.912
X = 8	4	.20	.30	.50	.400	.570	.713	.785	.828	.857	.893	.914
X' = 8	5	.20	.40	.40	.440	.600	.680	.760	.808	.840	.880	.904
	6	.20	.50	.30	.540	.650	.700	.765	.812	.843	.883	.906
	7	.10	.30	.60	.480	.600	.720	.790	.832	.860	.895	.916
	8	.10	.40	.50	.420	.550	.673	.755	.804	.837	.878	.902
L = 24	9	.10	.50	.40	.520	.620	.714	.760	.788	.813	.860	.888
X = 8	10	.20	.30	.50	.400	.510	.647	.735	.788	.823	.868	.894
X' = 12	11	.20	.40	.40	.440	.520	.614	.700	.760	.800	.850	.880
	12	.20	.50	.30	.540	.620	.660	.735	.788	.823	.868	.894
	13	.10	.30	.60	.480	.540	.667	.750	.800	.833	.875	.900
	14	.10	.40	.50	.420	.460	.607	.705	.764	.803	.853	.882
L = 28	15	.10	.50	.40	.520	.560	.660	.720	.756	.780	.830	.864
X = 8	16	.20	.30	.50	.400	.450	.580	.685	.748	.790	.843	.874
X' = 16	17	.20	.40	.40	.440	.520	.560	.660	.728	.773	.830	.864
	18	.20	.50	.30	.540	.620	.647	.705	.764	.803	.853	.882
	19	.10	.30	.60	.480	.540	.620	.710	.768	.807	.855	.884
	20	.10	.40	.50	.420	.460	.546	.655	.724	.770	.828	.862
L = 32	21	.10	.50	.40	.520	.560	.607	.680	.724	.753	.800	.840
X = 8	22	.20	.30	.50	.400	.450	.526	.635	.708	.757	.818	.854
X' = 20	23	.20	.40	.40	.440	.520	.547	.620	.696	.747	.810	.848
	24	.20	.50	.30	.540	.620	.647	.675	.740	.783	.838	.870
	25	.10	.30	.60	.480	.540	.580	.670	.736	.780	.835	.868
	26	.10	.40	.50	.420	.460	.493	.605	.684	.737	.803	.842
L = 36	27	.10	.50	.40	.520	.560	.574	.640	.692	.726	.780	.824
X = 8	28	.20	.30	.50	.400	.450	.486	.585	.668	.723	.793	.834
X' = 24	29	.20	.40	.40	.440	.520	.547	.580	.664	.720	.790	.832
	30	.20	.50	.30	.540	.620	.647	.660	.716	.763	.823	.858
	31	.10	.30	.60	.480	.540	.560	.630	.704	.753	.815	.852
	32	.10	.40	.50	.420	.460	.474	.555	.644	.703	.778	.822
L = 40	33	.10	.50	.40	.520	.560	.574	.600	.660	.700	.760	.808
X = 8	34	.20	.30	.50	.400	.450	.467	.535	.628	.690	.768	.814
X' = 28	35	.20	.40	.40	.440	.520	.547	.560	.632	.693	.770	.816
	36	.20	.50	.30	.540	.620	.647	.660	.692	.743	.808	.846
	37	.10	.30	.60	.480	.660	.760	.820	.856	.880	.910	.928
	38	.10	.40	.50	.450	.650	.734	.795	.836	.863	.898	.918
L = 24	39	.10	.50	.40	.540	.700	.767	.800	.820	.847	.885	.908
X = 12	40	.20	.30	.50	.400	.570	.687	.765	.812	.843	.883	.906
X' = 8	41	.20	.40	.40	.440	.600	.666	.740	.792	.827	.870	.896
	42	.20	.50	.30	.530	.650	.700	.725	.772	.810	.858	.886
	43	.10	.30	.60	.480	.600	.707	.780	.824	.853	.890	.912
	44	.10	.40	.50	.400	.550	.667	.745	.796	.830	.873	.898
L = 28	45	.10	.50	.40	.500	.620	.714	.760	.788	.807	.855	.884
X = 12	46	.20	.30	.50	.400	.510	.620	.715	.772	.810	.858	.886
X' = 12	47	.20	.40	.40	.400	.520	.614	.680	.744	.787	.840	.872
	48	.20	.50	.30	.500	.590	.660	.695	.724	.770	.828	.862
	49	.10	.30	.60	.480	.540	.660	.740	.792	.827	.870	.896
	50	.10	.40	.50	.400	.450	.600	.695	.756	.797	.848	.878
L = 32	51	.10	.50	.40	.500	.540	.660	.720	.756	.780	.825	.860
X = 12	52	.20	.30	.50	.400	.450	.566	.665	.732	.777	.833	.866
X' = 16	53	.20	.40	.40	.400	.480	.560	.620	.696	.747	.810	.848
	54	.20	.50	.30	.500	.580	.620	.665	.700	.750	.813	.850

TABLE 8.4 (Continued)

	55	.10	.30	.60	.480	.540	.620	.700	.760	.800	.850	.880
	56	.10	.40	.50	.400	.450	.546	.645	.716	.763	.823	.858
L = 36	57	.10	.50	.40	.500	.540	.607	.680	.724	.753	.795	.836
X = 12	58	.20	.30	.50	.400	.450	.526	.615	.692	.743	.808	.846
X′ = 20	59	.20	.40	.40	.400	.480	.520	.580	.648	.707	.780	.824
	60	.20	.50	.30	.500	.580	.620	.640	.676	.730	.798	.838
	61	.10	.30	.60	.480	.540	.580	.660	.728	.773	.830	.864
	62	.10	.40	.50	.400	.450	.493	.595	.676	.730	.798	.838
L = 40	63	.10	.50	.40	.500	.540	.560	.640	.692	.726	.770	.812
X = 12	64	.20	.30	.50	.400	.450	.486	.565	.652	.710	.783	.826
X′ = 24	65	.20	.40	.40	.400	.480	.520	.540	.600	.667	.750	.800
	66	.20	.50	.30	.500	.580	.620	.640	.652	.710	.783	.826
	67	.10	.30	.60	.480	.540	.560	.630	.696	.747	.810	.848
	68	.10	.40	.50	.400	.450	.467	.555	.636	.697	.773	.818
L = 44	69	.10	.50	.40	.500	.540	.560	.600	.660	.700	.750	.788
X = 12	70	.20	.30	.50	.400	.450	.467	.535	.612	.677	.758	.806
X′ = 28	71	.20	.40	.40	.400	.480	.520	.540	.568	.640	.730	.784
	72	.20	.50	.30	.500	.580	.620	.640	.652	.690	.768	.814
	73	.10	.30	.60	.480	.660	.747	.810	.848	.873	.905	.924
	74	.10	.40	.50	.450	.650	.734	.785	.828	.857	.893	.914
L = 28	75	.10	.50	.40	.540	.700	.767	.800	.820	.840	.880	.904
X = 16	76	.20	.30	.50	.400	.570	.660	.745	.796	.830	.873	.898
X′ = 8	77	.20	.40	.40	.440	.600	.666	.720	.776	.813	.860	.888
	78	.20	.50	.30	.530	.650	.700	.725	.756	.797	.848	.878
	79	.10	.30	.60	.480	.600	.700	.770	.816	.847	.885	.908
	80	.10	.40	.50	.400	.550	.667	.735	.788	.823	.868	.894
L = 32	81	.10	.50	.40	.500	.620	.714	.760	.788	.806	.850	.880
X = 16	82	.20	.30	.50	.400	.510	.606	.695	.756	.797	.848	.878
X′ = 12	83	.20	.40	.40	.400	.520	.614	.660	.728	.773	.830	.864
	84	.20	.50	.30	.500	.590	.660	.695	.716	.750	.813	.850
	85	.10	.30	.60	.480	.540	.660	.730	.784	.820	.865	.892
	86	.10	.40	.50	.400	.450	.600	.685	.748	.790	.843	.874
L = 36	87	.10	.50	.40	.500	.540	.660	.720	.756	.780	.820	.856
X = 16	88	.20	.30	.50	.400	.450	.566	.645	.716	.763	.823	.858
X′ = 16	89	.20	.40	.40	.400	.440	.560	.620	.680	.733	.800	.840
	90	.20	.50	.30	.500	.540	.620	.665	.692	.710	.778	.822
	91	.10	.30	.60	.480	.540	.620	.690	.752	.793	.845	.876
	92	.10	.40	.50	.400	.450	.546	.635	.708	.757	.818	.854
L = 40	93	.10	.50	.40	.500	.520	.607	.680	.724	.753	.790	.832
X = 16	94	.20	.30	.50	.400	.450	.526	.595	.676	.730	.798	.838
X′ = 20	95	.20	.40	.40	.400	.440	.506	.580	.632	.693	.770	.816
	96	.20	.50	.30	.500	.540	.594	.635	.668	.690	.758	.806
	97	.10	.30	.60	.480	.540	.580	.660	.720	.767	.825	.860
	98	.10	.40	.50	.400	.450	.493	.595	.668	.723	.793	.834
L = 44	99	.10	.50	.40	.500	.520	.554	.640	.692	.726	.770	.808
X = 16	100	.20	.30	.50	.400	.450	.486	.565	.636	.697	.773	.818
X′ = 24	101	.20	.40	.40	.400	.440	.493	.540	.592	.653	.740	.792
	102	.20	.50	.30	.500	.540	.594	.620	.644	.670	.743	.794
	103	.10	.30	.60	.480	.540	.560	.630	.688	.740	.805	.844
	104	.10	.40	.50	.400	.450	.467	.555	.628	.690	.768	.814
L = 48	105	.10	.50	.40	.500	.520	.547	.600	.660	.700	.750	.784
X = 16	106	.20	.30	.50	.400	.450	.467	.535	.596	.663	.748	.798
X′ = 28	107	.20	.40	.40	.400	.440	.493	.520	.560	.613	.710	.768
	108	.20	.50	.30	.500	.540	.594	.620	.636	.650	.728	.782

TABLE 8.5

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY TYPE 2-S3 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-S3 TRUCK

Ninety variations in the Type 2-S3 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Maximum shears are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.225	.675	.405	.585	.710	.783	.826	.855	.891	.913
	2	.10	.30	.60	.360	.540	.680	.760	.808	.840	.880	.904
L = 24	3	.10	.40	.50	.420	.599	.700	.750	.784	.820	.865	.892
X = 8	4	.20	.20	.60	.360	.520	.653	.740	.792	.827	.870	.896
X' = 8	5	.20	.30	.50	.340	.500	.614	.710	.768	.807	.855	.884
	6	.20	.40	.40	.440	.560	.640	.720	.776	.813	.860	.888
	7	.10	.225	.675	.405	.540	.667	.750	.800	.833	.875	.900
	8	.10	.30	.60	.360	.480	.627	.720	.776	.813	.860	.888
L = 28	9	.10	.40	.50	.420	.500	.633	.700	.744	.787	.840	.872
X = 8	10	.20	.20	.60	.360	.480	.600	.700	.760	.800	.850	.880
X' = 12	11	.20	.30	.50	.340	.420	.547	.660	.728	.773	.830	.864
	12	.20	.40	.40	.440	.520	.587	.680	.744	.787	.840	.872
	13	.10	.225	.675	.405	.540	.630	.718	.774	.812	.859	.887
	14	.10	.30	.60	.360	.480	.580	.680	.744	.787	.840	.872
L = 32	15	.10	.40	.50	.420	.460	.566	.650	.704	.754	.815	.852
X = 8	16	.20	.20	.60	.360	.480	.560	.660	.728	.773	.830	.864
X' = 16	17	.20	.30	.50	.340	.420	.494	.610	.688	.740	.805	.844
	18	.20	.40	.40	.440	.520	.547	.640	.712	.760	.820	.856
	19	.10	.225	.675	.405	.540	.600	.685	.748	.790	.843	.874
	20	.10	.30	.60	.360	.480	.540	.640	.712	.760	.820	.856
L = 36	21	.10	.40	.50	.420	.460	.500	.599	.664	.720	.790	.832
X = 8	22	.20	.20	.60	.360	.480	.534	.620	.696	.747	.810	.848
X' = 20	23	.20	.30	.50	.340	.420	.454	.560	.648	.707	.780	.824
	24	.20	.40	.40	.440	.520	.547	.600	.680	.734	.800	.840
	25	.10	.225	.675	.405	.540	.585	.653	.722	.768	.826	.861
	26	.10	.30	.60	.360	.480	.520	.600	.680	.733	.800	.840
L = 40	27	.10	.40	.50	.420	.460	.474	.550	.624	.687	.765	.812
X = 8	28	.20	.20	.60	.360	.480	.520	.580	.664	.720	.790	.832
X' = 24	29	.20	.30	.50	.340	.420	.447	.510	.608	.674	.755	.804
	30	.20	.40	.40	.440	.520	.547	.560	.648	.707	.780	.824
	31	.10	.225	.675	.405	.585	.697	.773	.818	.848	.886	.909
	32	.10	.30	.60	.360	.540	.667	.750	.800	.833	.875	.900
L = 28	33	.10	.40	.50	.400	.599	.700	.750	.780	.813	.860	.888
X = 12	34	.20	.20	.60	.360	.520	.627	.720	.776	.813	.860	.888
X' = 8	35	.20	.30	.50	.300	.500	.600	.690	.752	.793	.845	.876
	36	.20	.40	.40	.400	.560	.640	.680	.728	.773	.830	.864
	37	.10	.225	.675	.405	.540	.660	.740	.792	.827	.870	.896
	38	.10	.30	.60	.360	.480	.620	.710	.768	.807	.855	.884
L = 32	39	.10	.40	.50	.400	.500	.633	.700	.740	.780	.835	.868
X = 12	40	.20	.20	.60	.360	.480	.586	.680	.744	.787	.840	.872
X' = 12	41	.20	.30	.50	.300	.400	.534	.640	.712	.760	.820	.856
	42	.20	.40	.40	.400	.480	.587	.649	.680	.734	.800	.840
	43	.10	.225	.675	.405	.540	.630	.708	.766	.805	.854	.883
	44	.10	.30	.60	.360	.480	.580	.670	.736	.780	.835	.868
L = 36	45	.10	.40	.50	.400	.440	.566	.650	.700	.747	.810	.848
X = 12	46	.20	.20	.60	.360	.480	.560	.640	.712	.760	.820	.856
X' = 16	47	.20	.30	.50	.300	.400	.494	.590	.672	.727	.795	.836
	48	.20	.40	.40	.400	.480	.534	.600	.648	.707	.780	.824
	49	.10	.225	.675	.405	.540	.600	.675	.740	.783	.838	.870
	50	.10	.30	.60	.360	.480	.540	.630	.704	.753	.815	.852
L = 40	51	.10	.40	.50	.400	.440	.500	.599	.660	.714	.785	.828
X = 12	52	.20	.20	.60	.360	.480	.534	.600	.680	.733	.800	.840
X' = 20	53	.20	.30	.50	.300	.400	.454	.540	.632	.694	.770	.816
	54	.20	.40	.40	.400	.480	.520	.560	.616	.680	.760	.808

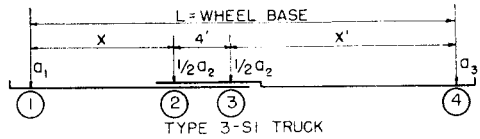
TABLE 8.5 (Continued)

	55	.10	.225	.675	.405	.540	.585	.653	.714	.762	.821	.857
	56	.10	.30	.60	.360	.480	.520	.600	.672	.727	.795	.836
L = 44	57	.10	.40	.50	.400	.440	.460	.550	.620	.680	.760	.808
X = 12	58	.20	.20	.60	.360	.480	.520	.580	.648	.707	.780	.824
X′ = 24	59	.20	.30	.50	.300	.400	.434	.510	.592	.660	.745	.796
	60	.20	.40	.40	.400	.480	.520	.540	.584	.654	.740	.792
	61	.10	.225	.675	.405	.585	.690	.763	.810	.842	.881	.905
	62	.10	.30	.60	.360	.540	.660	.740	.792	.827	.870	.896
L = 32	63	.10	.40	.50	.400	.599	.700	.750	.780	.807	.855	.884
X = 16	64	.20	.20	.60	.360	.520	.614	.700	.760	.800	.850	.880
X′ = 8	65	.20	.30	.50	.300	.500	.600	.670	.736	.780	.835	.868
	66	.20	.40	.40	.400	.560	.640	.680	.712	.760	.820	.856
	67	.10	.225	.675	.405	.540	.660	.730	.784	.820	.865	.892
	68	.10	.30	.60	.360	.480	.620	.700	.760	.800	.850	.880
L = 36	69	.10	.40	.50	.400	.500	.633	.700	.740	.773	.830	.864
X = 16	70	.20	.20	.60	.360	.480	.586	.660	.728	.773	.830	.864
X′ = 12	71	.20	.30	.50	.300	.400	.534	.620	.696	.747	.810	.848
	72	.20	.40	.40	.400	.480	.587	.640	.672	.720	.790	.832
	73	.10	.225	.675	.405	.540	.630	.698	.758	.798	.849	.879
	74	.10	.30	.60	.360	.480	.580	.660	.728	.773	.830	.864
L = 40	75	.10	.40	.50	.400	.433	.566	.650	.700	.740	.805	.844
X = 16	76	.20	.20	.60	.360	.480	.560	.620	.696	.747	.810	.848
X′ = 16	77	.20	.30	.50	.300	.400	.494	.570	.656	.714	.785	.828
	78	.20	.40	.40	.400	.440	.534	.600	.640	.680	.760	.808
	79	.10	.225	.675	.405	.540	.600	.675	.732	.777	.833	.866
	80	.10	.30	.60	.360	.480	.540	.630	.696	.747	.810	.848
L = 44	81	.10	.40	.50	.400	.420	.500	.599	.660	.707	.780	.824
X = 16	82	.20	.20	.60	.360	.480	.534	.600	.664	.720	.790	.832
X′ = 20	83	.20	.30	.50	.300	.400	.454	.540	.616	.680	.760	.808
	84	.20	.40	.40	.400	.440	.493	.560	.608	.640	.730	.784
	85	.10	.225	.675	.405	.540	.585	.653	.706	.755	.816	.853
	86	.10	.30	.60	.360	.480	.520	.600	.664	.720	.790	.832
L = 48	87	.10	.40	.50	.400	.420	.447	.550	.620	.674	.755	.804
X = 16	88	.20	.20	.60	.360	.480	.520	.580	.632	.693	.770	.816
X′ = 24	89	.20	.30	.50	.300	.400	.434	.510	.576	.647	.735	.788
	90	.20	.40	.40	.400	.440	.493	.520	.576	.614	.700	.760

TABLE 8.6

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 3-S1 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 3-S1 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Maximum shears are in kips.

a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

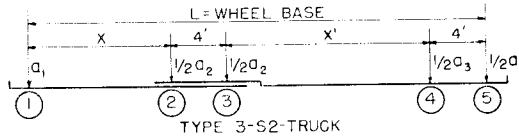
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.40	.50	.500	.620	.733	.800	.840	.867	.900	.920
	2	.10	.50	.40	.400	.550	.687	.765	.812	.843	.883	.906
L = 24	3	.10	.60	.30	.480	.600	.700	.780	.784	.820	.865	.892
X = 8	4	.20	.40	.40	.400	.520	.653	.740	.792	.827	.870	.896
X′ = 12	5	.20	.50	.30	.400	.530	.607	.705	.764	.803	.853	.882
	6	.20	.534	.266	.427	.561	.622	.707	.765	.804	.853	.883
	7	.10	.40	.50	.500	.540	.667	.750	.800	.833	.875	.900
	8	.10	.50	.40	.400	.490	.607	.705	.764	.803	.853	.882
L = 28	9	.10	.60	.30	.480	.580	.660	.720	.756	.780	.830	.864
X = 8	10	.20	.40	.40	.400	.440	.573	.680	.744	.787	.840	.872
X′ = 16	11	.20	.50	.30	.400	.530	.587	.665	.732	.777	.833	.866
	12	.20	.534	.266	.427	.561	.619	.680	.744	.787	.840	.872
	13	.10	.40	.50	.500	.500	.607	.700	.760	.800	.850	.880
	14	.10	.50	.40	.400	.490	.547	.645	.716	.763	.823	.858
L = 32	15	.10	.60	.30	.480	.580	.620	.690	.732	.760	.805	.844
X = 8	16	.20	.40	.40	.400	.440	.507	.626	.696	.744	.810	.848
X′ = 20	17	.20	.50	.30	.400	.530	.587	.635	.708	.757	.818	.854
	18	.20	.534	.266	.427	.561	.619	.653	.723	.769	.827	.861
	19	.10	.40	.50	.500	.500	.553	.650	.720	.767	.825	.860
	20	.10	.50	.40	.400	.490	.527	.595	.668	.723	.793	.834
L = 36	21	.10	.60	.30	.480	.580	.620	.660	.708	.740	.790	.832
X = 8	22	.20	.40	.40	.400	.440	.493	.560	.648	.707	.780	.824
X′ = 24	23	.20	.50	.30	.400	.530	.587	.615	.684	.737	.803	.842
	24	.20	.534	.266	.427	.561	.619	.647	.701	.751	.813	.851
	25	.10	.40	.50	.500	.500	.513	.600	.680	.733	.800	.840
	26	.10	.50	.40	.400	.490	.527	.555	.624	.683	.763	.810
L = 40	27	.10	.60	.30	.480	.580	.620	.640	.684	.720	.775	.820
X = 8	28	.20	.40	.40	.400	.440	.493	.520	.600	.667	.750	.800
X′ = 28	29	.20	.50	.30	.400	.530	.587	.615	.660	.717	.788	.830
	30	.20	.534	.266	.427	.561	.619	.647	.680	.733	.800	.840
	31	.10	.40	.50	.500	.620	.720	.790	.832	.860	.895	.916
	32	.10	.50	.40	.400	.550	.673	.755	.804	.837	.878	.902
L = 28	33	.10	.60	.30	.480	.600	.700	.750	.780	.813	.860	.888
X = 12	34	.20	.40	.40	.400	.520	.627	.720	.776	.813	.860	.888
X′ = 12	35	.20	.50	.30	.400	.510	.607	.685	.748	.790	.843	.874
	36	.20	.534	.266	.427	.533	.622	.673	.739	.782	.837	.869
	37	.10	.40	.50	.500	.540	.660	.740	.792	.827	.870	.896
	38	.10	.50	.40	.400	.470	.600	.695	.756	.797	.848	.878
L = 32	39	.10	.60	.30	.480	.560	.660	.720	.756	.780	.825	.860
X = 12	40	.20	.40	.40	.400	.440	.560	.660	.728	.773	.830	.864
X′ = 16	41	.20	.50	.30	.400	.490	.567	.625	.692	.743	.808	.846
	42	.20	.534	.226	.427	.520	.592	.640	.680	.733	.800	.840
	43	.10	.40	.50	.500	.500	.607	.690	.752	.793	.845	.876
	44	.10	.50	.40	.400	.470	.547	.635	.708	.757	.818	.854
L = 36	45	.10	.60	.30	.480	.560	.620	.690	.732	.760	.795	.832
X = 12	46	.20	.40	.40	.400	.400	.507	.600	.680	.733	.800	.840
X′ = 20	47	.20	.50	.30	.400	.490	.560	.595	.644	.703	.778	.822
	48	.20	.534	.266	.427	.520	.592	.628	.659	.715	.787	.829

TABLE 8.6 (Continued)

	49	.10	.40	.50	.500	.500	.553	.640	.712	.760	.820	.856
	50	.10	.50	.40	.400	.470	.514	.595	.660	.717	.788	.830
L = 40	51	.10	.60	.30	.480	.560	.607	.660	.708	.740	.780	.804
X = 12	52	.20	.40	.40	.400	.400	.467	.540	.632	.693	.770	.816
X′ = 24	53	.20	.50	.30	.400	.490	.560	.595	.620	.683	.763	.810
	54	.20	.534	.266	.427	.520	.592	.628	.649	.698	.773	.819
	55	.10	.40	.50	.500	.500	.513	.600	.672	.727	.795	.836
	56	.10	.50	.40	.400	.470	.514	.555	.624	.677	.758	.806
L = 44	57	.10	.60	.30	.480	.560	.607	.630	.684	.720	.765	.792
X = 12	58	.20	.40	.40	.400	.400	.467	.500	.584	.653	.740	.792
X′ = 28	59	.20	.50	.30	.400	.490	.560	.595	.616	.663	.748	.798
	60	.20	.534	.266	.427	.520	.592	.628	.649	.680	.760	.808
	61	.10	.40	.50	.500	.620	.713	.780	.824	.853	.890	.912
	62	.10	.50	.40	.400	.550	.667	.645	.796	.830	.873	.898
L = 32	63	.10	.60	.30	.480	.600	.700	.750	.780	.807	.855	.884
X = 16	64	.20	.40	.40	.400	.520	.613	.700	.760	.800	.850	.880
X′ = 12	65	.20	.50	.30	.400	.510	.607	.665	.732	.777	.833	.866
	66	.20	.534	.266	.427	.533	.622	.667	.723	.769	.827	.861
	67	.10	.40	.50	.500	.540	.660	.730	.784	.820	.865	.892
	68	.10	.50	.40	.400	.450	.600	.685	.748	.790	.843	.874
L = 36	69	.10	.60	.30	.480	.540	.660	.720	.756	.780	.820	.856
X = 16	70	.20	.40	.40	.400	.440	.560	.640	.712	.760	.820	.856
X′ = 16	71	.20	.50	.30	.400	.450	.567	.625	.676	.730	.798	.838
	72	.20	.534	.266	.427	.481	.587	.640	.672	.720	.790	.832
	73	.10	.40	.50	.500	.500	.607	.680	.744	.787	.840	.872
	74	.10	.50	.40	.400	.450	.547	.635	.700	.750	.813	.850
L = 40	75	.10	.60	.30	.480	.540	.620	.690	.732	.760	.795	.828
X = 16	76	.20	.40	.40	.400	.400	.507	.580	.664	.720	.790	.832
X′ = 20	77	.20	.50	.30	.400	.450	.533	.595	.636	.683	.763	.810
	78	.20	.534	.266	.427	.481	.565	.613	.651	.676	.753	.803
	79	.10	.40	.50	.500	.500	.553	.640	.704	.753	.815	.852
	80	.10	.50	.40	.400	.450	.500	.595	.656	.710	.783	.826
L = 44	81	.10	.60	.30	.480	.540	.594	.660	.708	.740	.780	.804
X = 16	82	.20	.40	.40	.400	.400	.453	.540	.616	.680	.760	.808
X′ = 24	83	.20	.50	.30	.400	.450	.533	.575	.612	.643	.728	.782
	84	.20	.534	.266	.427	.481	.565	.607	.633	.658	.733	.787
	85	.10	.40	.50	.500	.500	.513	.600	.664	.720	.790	.832
	86	.10	.50	.40	.400	.450	.500	.555	.624	.670	.753	.802
L = 48	87	.10	.60	.30	.480	.540	.594	.630	.684	.720	.765	.792
X = 16	88	.20	.40	.40	.400	.400	.440	.500	.568	.640	.730	.784
X′ = 28	89	.20	.50	.30	.400	.450	.533	.575	.600	.623	.708	.766
	90	.20	.534	.266	.427	.481	.565	.607	.633	.650	.720	.776

TABLE 8.7

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY TYPE 3-S2 TRUCKS WEIGHING ONE KIP EACH



One hundred twelve variations in the Type 3-S2 truck are given in this table. Each truck number from 1 to 112, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Maximum shears are in kips.

a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.30	.60	.480	.570	.687	.765	.812	.843	.883	.906
	2	.10	.40	.50	.400	.490	.633	.725	.780	.817	.863	.890
L = 28	3	.10	.45	.45	.360	.450	.607	.705	.764	.803	.853	.882
X = 8	4	.10	.50	.40	.400	.490	.626	.695	.748	.790	.843	.874
X' = 12	5	.20	.30	.50	.400	.480	.600	.700	.760	.800	.850	.880
	6	.20	.40	.40	.320	.440	.547	.660	.728	.773	.830	.864
	7	.20	.50	.30	.400	.530	.587	.680	.744	.787	.840	.872
	8	.10	.30	.60	.480	.540	.640	.725	.780	.817	.863	.890
	9	.10	.40	.50	.400	.450	.573	.675	.740	.783	.838	.870
L = 32	10	.10	.45	.45	.360	.445	.540	.650	.720	.767	.825	.860
X = 8	11	.10	.50	.40	.400	.490	.573	.655	.704	.750	.813	.850
X' = 16	12	.20	.30	.50	.400	.450	.546	.650	.720	.767	.825	.860
	13	.20	.40	.40	.320	.440	.493	.600	.680	.733	.800	.840
	14	.20	.50	.30	.400	.530	.587	.650	.720	.767	.825	.860
	15	.10	.30	.60	.480	.540	.600	.685	.748	.790	.843	.874
	16	.10	.40	.50	.400	.450	.520	.625	.700	.750	.813	.850
L = 36	17	.10	.45	.45	.360	.445	.480	.595	.676	.730	.798	.838
X = 8	18	.10	.50	.40	.400	.490	.527	.615	.672	.710	.783	.826
X' = 20	19	.20	.30	.50	.400	.450	.506	.600	.680	.733	.800	.840
	20	.20	.40	.40	.320	.440	.493	.560	.648	.707	.780	.824
	21	.20	.50	.30	.400	.530	.587	.620	.696	.747	.810	.848
	22	.10	.30	.60	.480	.540	.570	.645	.716	.763	.823	.858
	23	.10	.40	.50	.400	.450	.480	.575	.660	.717	.788	.830
L = 40	24	.10	.45	.45	.360	.445	.480	.540	.632	.693	.770	.816
X = 8	25	.10	.50	.40	.400	.490	.527	.575	.640	.683	.753	.802
X' = 24	26	.20	.30	.50	.400	.450	.476	.550	.640	.700	.775	.820
	27	.20	.40	.40	.320	.440	.493	.520	.616	.680	.760	.808
	28	.20	.50	.30	.400	.530	.587	.615	.672	.727	.795	.836
	29	.10	.30	.60	.480	.540	.560	.615	.684	.737	.803	.842
	30	.10	.40	.50	.400	.450	.467	.535	.620	.683	.763	.810
L = 44	31	.10	.45	.45	.360	.445	.480	.498	.588	.657	.743	.794
X = 8	32	.10	.50	.40	.400	.490	.527	.545	.608	.657	.728	.782
X' = 28	33	.20	.30	.50	.400	.450	.467	.520	.600	.667	.750	.800
	34	.20	.40	.40	.320	.440	.493	.520	.584	.653	.740	.792
	35	.20	.50	.30	.400	.530	.587	.615	.648	.707	.780	.824
	36	.10	.30	.60	.480	.630	.727	.795	.836	.863	.898	.918
	37	.10	.40	.50	.400	.570	.687	.765	.812	.843	.883	.906
L = 28	38	.10	.45	.45	.360	.540	.667	.750	.800	.833	.875	.900
X = 12	39	.10	.50	.40	.400	.570	.680	.735	.788	.823	.868	.894
X' = 8	40	.20	.30	.50	.400	.540	.640	.730	.784	.820	.865	.892
	41	.20	.40	.40	.320	.480	.600	.700	.760	.800	.850	.880
	42	.20	.50	.30	.400	.540	.626	.670	.736	.780	.835	.868
	43	.10	.30	.60	.480	.570	.680	.755	.804	.837	.878	.902
	44	.10	.40	.50	.400	.490	.626	.715	.772	.810	.858	.886
L = 32	45	.10	.45	.45	.360	.450	.600	.695	.756	.797	.848	.878
X = 12	46	.10	.50	.40	.400	.490	.626	.695	.740	.783	.838	.870
X' = 12	47	.20	.30	.50	.400	.480	.586	.680	.744	.787	.840	.872
	48	.20	.40	.40	.320	.400	.534	.640	.712	.760	.820	.856
	49	.20	.50	.30	.400	.490	.586	.640	.680	.733	.800	.840

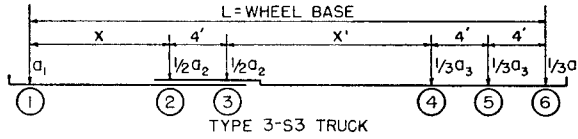
TABLE 8.7 (Continued)

	50	.10	.30	.60	.480	.540	.640	.715	.772	.810	.858	.886
	51	.10	.40	.50	.400	.450	.573	.665	.732	.777	.833	.866
L = 36	52	.10	.45	.45	.360	.425	.540	.640	.712	.760	.820	.856
X = 12	53	.10	.50	.40	.400	.470	.573	.655	.704	.743	.808	.846
X′ = 16	54	.20	.30	.50	.400	.450	.546	.630	.704	.753	.815	.852
	55	.20	.40	.40	.320	.400	.480	.580	.664	.720	.790	.832
	56	.20	.50	.30	.400	.490	.560	.610	.656	.713	.785	.828
	57	.10	.30	.60	.480	.540	.600	.675	.740	.783	.838	.870
	58	.10	.40	.50	.400	.450	.520	.615	.692	.743	.808	.846
L = 40	59	.10	.45	.45	.360	.425	.480	.585	.668	.723	.793	.834
X = 12	60	.10	.50	.40	.400	.470	.520	.615	.672	.710	.778	.822
X′ = 20	61	.20	.30	.50	.400	.450	.506	.580	.664	.720	.790	.832
	62	.20	.40	.40	.320	.400	.467	.520	.616	.680	.760	.808
	63	.20	.50	.30	.400	.490	.560	.595	.632	.693	.770	.816
	64	.10	.30	.60	.480	.540	.570	.645	.708	.757	.818	.854
	65	.10	.40	.50	.400	.450	.480	.575	.652	.710	.783	.826
L = 44	66	.10	.45	.45	.360	.425	.467	.540	.624	.687	.765	.812
X = 12	67	.10	.50	.40	.400	.470	.513	.575	.640	.683	.748	.798
X′ = 24	68	.20	.30	.50	.400	.450	.476	.550	.624	.687	.765	.812
	69	.20	.40	.40	.320	.400	.467	.500	.568	.640	.730	.784
	70	.20	.50	.30	.400	.490	.560	.595	.616	.673	.755	.804
	71	.10	.30	.60	.480	.540	.560	.615	.676	.730	.798	.838
	72	.10	.40	.50	.400	.450	.467	.535	.612	.677	.758	.806
L = 48	73	.10	.45	.45	.360	.425	.467	.495	.580	.650	.738	.790
X = 12	74	.10	.50	.40	.400	.470	.513	.535	.608	.657	.718	.774
X′ = 28	75	.20	.30	.50	.400	.450	.467	.520	.584	.653	.740	.792
	76	.20	.40	.40	.320	.400	.467	.500	.520	.600	.700	.760
	77	.20	.50	.30	.460	.490	.560	.595	.616	.653	.740	.792
	78	.10	.30	.60	.480	.570	.680	.745	.796	.830	.873	.898
	79	.10	.40	.50	.400	.490	.626	.705	.764	.803	.853	.882
L = 36	80	.10	.45	.45	.360	.450	.600	.685	.748	.790	.843	.874
X = 16	81	.10	.50	.40	.400	.490	.626	.695	.736	.777	.833	.866
X′ = 12	82	.20	.30	.50	.400	.480	.586	.660	.728	.773	.830	.864
	83	.20	.40	.40	.320	.400	.534	.620	.696	.747	.810	.848
	84	.20	.50	.30	.400	.480	.586	.640	.672	.720	.790	.832
	85	.10	.30	.60	.480	.540	.640	.705	.764	.803	.853	.882
	86	.10	.40	.50	.400	.450	.573	.655	.724	.770	.828	.862
L = 40	87	.10	.45	.45	.360	.405	.540	.630	.704	.753	.815	.852
X = 16	88	.10	.50	.40	.400	.450	.573	.655	.704	.737	.803	.842
X′ = 16	89	.20	.30	.50	.400	.450	.546	.610	.688	.740	.805	.844
	90	.20	.40	.40	.320	.360	.480	.560	.648	.707	.780	.824
	91	.20	.50	.30	.400	.450	.546	.610	.648	.674	.755	.804
	92	.10	.30	.60	.480	.540	.600	.675	.732	.777	.833	.866
	93	.10	.40	.50	.400	.450	.520	.615	.684	.737	.803	.842
L = 44	94	.10	.45	.45	.360	.405	.480	.585	.660	.717	.788	.830
X = 16	95	.10	.50	.40	.400	.450	.520	.615	.672	.710	.773	.818
X′ = 20	96	.20	.30	.50	.400	.450	.506	.580	.648	.707	.780	.824
	97	.20	.40	.40	.320	.360	.440	.520	.600	.667	.750	.800
	98	.20	.50	.30	.400	.450	.533	.580	.624	.654	.730	.784
	99	.10	.30	.60	.480	.540	.570	.645	.700	.750	.813	.850
	100	.10	.40	.50	.400	.450	.480	.575	.644	.703	.778	.822
L = 48	101	.10	.45	.45	.360	.405	.453	.540	.616	.680	.760	.808
X = 16	102	.10	.50	.40	.400	.450	.500	.575	.640	.683	.743	.794
X′ = 24	103	.20	.30	.50	.400	.450	.476	.550	.608	.673	.755	.804
	104	.20	.40	.40	.320	.360	.440	.480	.552	.627	.720	.776
	105	.20	.50	.30	.400	.450	.533	.575	.600	.634	.715	.772
	106	.10	.30	.60	.480	.540	.560	.615	.672	.723	.793	.834
	107	.10	.40	.50	.400	.450	.467	.535	.608	.670	.753	.802
L = 52	108	.10	.45	.45	.360	.405	.453	.495	.576	.643	.733	.786
X = 16	109	.10	.50	.40	.400	.450	.500	.535	.608	.657	.717	.770
X′ = 28	110	.20	.30	.50	.400	.450	.467	.520	.576	.640	.730	.784
	111	.20	.40	.40	.320	.360	.440	.480	.512	.587	.690	.752
	112	.20	.50	.30	.400	.450	.533	.575	.600	.617	.700	.760

TABLE 8.8

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 3-S3 TRUCKS WEIGHING ONE KIP EACH



TYPE 3-S3 TRUCK

One hundred and five variations in the Type 3-S3 truck are given in this table. Each truck number from 1 to 105, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

All dimensions are in feet. Maximum shears are in kips.

a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.30	.60	.360	.480	.600	.695	.756	.797	.848	.878
	2	.10	.36	.54	.324	.432	.564	.668	.734	.779	.834	.867
L = 32	3	.10	.40	.50	.320	.400	.540	.650	.720	.767	.825	.860
X = 8	4	.10	.50	.40	.400	.490	.600	.675	.720	.750	.802	.842
X' = 12	5	.20	.30	.50	.300	.400	.514	.625	.700	.750	.813	.850
	6	.20	.40	.40	.320	.440	.507	.620	.696	.747	.810	.848
	7	.20	.50	.30	.400	.530	.587	.665	.732	.777	.833	.866
	8	.10	.30	.60	.360	.480	.560	.655	.724	.770	.828	.862
	9	.10	.36	.54	.324	.432	.516	.622	.698	.748	.811	.849
L = 36	10	.10	.40	.50	.320	.400	.487	.600	.680	.734	.800	.840
X = 8	11	.10	.50	.40	.400	.490	.547	.635	.688	.724	.778	.822
X' = 16	12	.20	.30	.50	.300	.400	.474	.575	.660	.717	.788	.830
	13	.20	.40	.40	.320	.440	.493	.580	.664	.720	.790	.832
	14	.20	.50	.30	.400	.530	.587	.635	.708	.757	.818	.854
	15	.10	.30	.60	.360	.480	.530	.615	.692	.743	.808	.846
	16	.10	.36	.54	.324	.432	.480	.576	.661	.717	.788	.832
L = 40	17	.10	.40	.50	.320	.400	.447	.550	.640	.700	.775	.820
X = 8	18	.10	.50	.40	.400	.490	.527	.595	.656	.697	.758	.806
X' = 20	19	.20	.30	.50	.300	.400	.443	.525	.620	.684	.763	.810
	20	.20	.40	.40	.320	.440	.493	.540	.632	.694	.770	.816
	21	.20	.50	.30	.400	.530	.587	.615	.684	.737	.803	.842
	22	.10	.30	.60	.360	.480	.520	.585	.660	.717	.788	.830
	23	.10	.36	.54	.324	.432	.468	.540	.624	.687	.765	.812
L = 44	24	.10	.40	.50	.320	.400	.434	.510	.600	.667	.750	.800
X = 8	25	.10	.50	.40	.400	.490	.527	.555	.624	.670	.738	.790
X' = 24	26	.20	.30	.50	.300	.400	.433	.495	.580	.650	.738	.790
	27	.20	.40	.40	.320	.440	.493	.520	.600	.667	.750	.800
	28	.20	.50	.30	.400	.530	.587	.615	.660	.717	.788	.830
	29	.10	.30	.60	.360	.480	.520	.555	.628	.690	.768	.814
	30	.10	.36	.54	.324	.432	.468	.504	.587	.656	.742	.794
L = 48	31	.10	.40	.50	.320	.400	.434	.470	.560	.634	.725	.780
X = 8	32	.10	.50	.40	.400	.490	.527	.545	.592	.644	.718	.774
X' = 28	33	.20	.30	.50	.300	.400	.433	.465	.540	.617	.713	.770
	34	.20	.40	.40	.320	.440	.493	.520	.568	.640	.730	.784
	35	.20	.50	.30	.400	.530	.587	.615	.636	.697	.773	.818
	36	.10	.30	.60	.360	.480	.600	.685	.748	.790	.843	.874
	37	.10	.36	.54	.324	.432	.564	.658	.726	.772	.829	.863
L = 36	38	.10	.40	.50	.320	.400	.540	.640	.712	.760	.820	.856
X = 12	39	.10	.50	.40	.400	.474	.600	.675	.720	.750	.797	.838
X' = 12	40	.20	.30	.50	.300	.400	.514	.605	.684	.737	.803	.842
	41	.20	.40	.40	.320	.400	.507	.580	.648	.706	.780	.824
	42	.20	.50	.30	.400	.490	.567	.625	.668	.723	.793	.834
	43	.10	.30	.60	.360	.480	.560	.645	.716	.763	.823	.858
	44	.10	.36	.54	.324	.432	.516	.612	.690	.741	.806	.845
L = 40	45	.10	.40	.50	.320	.400	.487	.590	.672	.727	.795	.836
X = 12	46	.10	.50	.40	.400	.470	.547	.635	.688	.724	.768	.814
X' = 16	47	.20	.30	.50	.300	.400	.474	.555	.644	.704	.778	.822
	48	.20	.40	.40	.320	.400	.467	.540	.600	.667	.750	.800
	49	.20	.50	.30	.400	.490	.560	.595	.644	.703	.778	.822

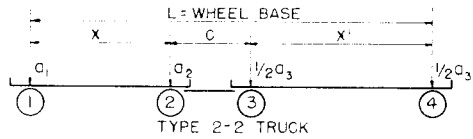
TABLE 8.8 (Continued)

	50	.10	.30	.60	.360	.480	.530	.615	.684	.737	.803	.842
	51	.10	.36	.54	.324	.432	.480	.576	.653	.711	.783	.826
L = 44	52	.10	.40	.50	.320	.400	.446	.549	.631	.693	.770	.816
X = 12	53	.10	.50	.40	.400	.470	.514	.595	.656	.697	.748	.790
X′ = 20	54	.20	.30	.50	.300	.400	.443	.525	.603	.669	.752	.802
	55	.20	.40	.40	.320	.400	.467	.500	.568	.640	.730	.784
	56	.20	.50	.30	.400	.490	.560	.595	.620	.683	.763	.810
	57	.10	.30	.60	.360	.480	.520	.585	.652	.710	.783	.826
	58	.10	.36	.54	.324	.432	.468	.540	.616	.680	.760	.808
L = 48	59	.10	.40	.50	.320	.400	.433	.509	.591	.659	.745	.796
X = 12	60	.10	.50	.40	.400	.470	.514	.555	.624	.670	.728	.766
X′ = 24	61	.20	.30	.50	.300	.400	.433	.495	.563	.636	.727	.782
	62	.20	.40	.40	.320	.400	.467	.500	.536	.614	.710	.768
	63	.20	.50	.30	.400	.490	.560	.595	.616	.663	.748	.798
	64	.10	.30	.60	.360	.480	.520	.555	.624	.683	.763	.810
	65	.10	.36	.54	.324	432	.468	.504	.583	.649	.737	.790
L = 52	66	.10	.40	.50	.320	.400	.433	.470	.555	.626	.720	.776
X = 12	67	.10	.50	.40	.400	.470	.514	.535	.592	.644	.707	.746
X′ = 28	68	.20	.30	.50	.300	.400	.433	.465	.531	.603	.702	.762
	69	.20	.40	.40	.320	.400	.467	.500	.520	.587	.690	.752
	70	.20	.50	.30	.400	.490	.560	.595	.616	.643	.733	.786
	71	.10	.30	.60	.360	.480	.600	.675	.740	.783	.838	.870
	72	.10	.36	.54	.324	.432	.564	.648	.718	.765	.824	.859
L = 40	73	.10	.40	.50	.320	.400	.541	.630	.704	.753	.815	.852
X = 16	74	.10	.50	.40	.400	.474	.600	.675	.720	.750	.792	.834
X′ = 12	75	.20	.30	.50	.300	.400	.513	.585	.668	.723	.792	.834
	76	.20	.40	.40	.320	.384	.507	.580	.632	.693	.770	.816
	77	.20	.50	.30	.400	.470	.566	.625	.660	.683	.753	.802
	78	.10	.30	.60	.360	.480	.560	.645	.708	.757	.818	.854
	79	.10	.36	.54	.324	.432	.516	.612	.682	.735	.801	.841
L = 44	80	.10	.40	.50	.320	.400	.486	.590	.663	.720	.790	.832
X = 16	81	.10	.50	.40	.400	.450	.547	.635	.688	.724	.768	.810
X′ = 16	82	.20	.30	.50	.300	.400	.473	.555	.627	.690	.767	.814
	83	.20	.40	.40	.320	.360	.454	.540	.592	.653	.740	.792
	84	.20	.50	.30	.400	.450	.533	.595	.636	.663	.738	.790
	85	.10	.30	.60	.360	.480	.530	.615	.676	.730	.798	.838
	86	.10	.36	.54	.324	.432	.480	.576	.645	.704	.778	.822
L = 48	87	.10	.40	.50	.320	.400	.446	.549	.623	.686	.765	.812
X = 16	88	.10	.50	.40	.400	.450	.500	.595	.656	.697	.748	.786
X′ = 20	89	.20	.30	.50	.300	.400	.443	.525	.587	.656	.742	.794
	90	.20	.40	.40	.320	.360	.440	.500	.560	.613	.710	.768
	91	.20	.50	.30	.400	.450	.533	.575	.612	.643	.723	.778
	92	.10	.30	.60	.360	.480	.520	.585	.648	.703	.778	.822
	93	.10	.36	.54	.324	.432	.468	.540	.612	.673	.755	.804
L = 52	94	.10	.40	.50	.320	.400	.434	.509	.587	.653	.740	.792
X = 16	95	.10	.50	.40	.400	.450	.500	.555	.624	.670	.728	.847
X′ = 24	96	.20	.30	.50	.300	.400	.434	.494	.556	.623	.717	.774
	97	.20	.40	.40	.320	.360	.440	.480	.528	.574	.680	.744
	98	.20	.50	.30	.400	.450	.533	.575	.600	.623	.708	.766
	99	.10	.30	.60	.360	.480	.520	.555	.624	.677	.758	.806
	100	.10	.36	.54	.324	.432	.468	.504	.583	.643	.732	.786
L = 56	101	.10	.40	.50	.320	.400	.433	.470	.555	.619	.715	.772
X = 16	102	.10	.50	.40	.400	.450	.500	.525	.592	.644	.707	.746
X′ = 28	103	.20	.30	.50	.300	.400	.433	.465	.531	.589	.692	.754
	104	.20	.40	.40	.320	.360	.440	.480	.504	.547	.650	.720
	105	.20	.50	.30	.400	.450	.533	.575	.600	.617	.693	.754

TABLE 8.9

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 2-2 TRUCKS WEIGHING ONE KIP EACH



One hundred forty-four variations in the Type 2-2 truck are given in this table. Each truck number, from 1 to 144, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

All dimensions are in feet. Maximum shears are in kips.

a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.20	.70	.420	.600	.707	.780	.824	.853	.890	.912
L = 28	2	.10	.30	.60	.360	.540	.667	.750	.800	.833	.875	.900
X = 12	3	.10	.40	.60	.450	.600	.700	.750	.780	.813	.860	.888
X' = 8	4	.20	.20	.60	.360	.520	.627	.720	.776	.813	.860	.888
C = 8	5	.20	.30	.50	.350	.500	.600	.690	.752	.793	.845	.876
	6	.20	.40	.40	.440	.560	.640	.680	.728	.773	.830	.864
	7	.10	.20	.70	.390	.490	.627	.715	.772	.810	.858	.886
L = 32	8	.10	.30	.60	.360	.480	.620	.690	.744	.787	.840	.872
X = 12	9	.10	.40	.50	.450	.550	.667	.725	.760	.783	.823	.858
X' = 12	10	.20	.20	.60	.340	.420	.547	.650	.720	.767	.825	.860
C = 8	11	.20	.30	.50	.350	.450	.567	.625	.692	.743	.808	.846
	12	.20	.40	.40	.440	.520	.613	.660	.696	.747	.810	.848
	13	.10	.20	.70	.390	.470	.553	.650	.720	.767	.825	.860
L = 36	14	.10	.30	.60	.360	.480	.580	.660	.708	.740	.805	.844
X = 12	15	.10	.40	.50	.450	.550	.633	.700	.740	.767	.820	.828
X' = 16	16	.20	.20	.60	.340	.420	.513	.580	.664	.720	.790	.832
C = 8	17	.20	.30	.50	.350	.450	.537	.600	.648	.707	.780	.824
	18	.20	.40	.40	.440	.520	.587	.640	.680	.733	.800	.840
	19	.10	.20	.70	.390	.470	.530	.585	.668	.723	.793	.834
L = 40	20	.10	.30	.60	.360	.480	.553	.630	.684	.720	.770	.816
X = 12	21	.10	.40	.50	.450	.550	.600	.675	.720	.750	.788	.810
X' = 20	22	.20	.20	.60	.340	.420	.513	.560	.608	.673	.755	.804
C = 8	23	.20	.30	.50	.350	.450	.537	.596	.628	.690	.768	.814
	24	.20	.40	.40	.440	.520	.560	.620	.664	.720	.790	.832
	25	.10	.20	.70	.420	.560	.673	.750	.800	.833	.875	.900
L = 32	26	.10	.30	.60	.360	.480	.620	.710	.768	.807	.855	.884
X = 12	27	.10	.40	.50	.400	.500	.634	.670	.736	.780	.835	.868
X' = 8	28	.20	.20	.60	.360	.480	.586	.680	.744	.787	.840	.872
C = 12	29	.20	.30	.50	.300	.400	.533	.640	.712	.760	.820	.856
	30	.20	.40	.40	.400	.480	.586	.640	.680	.733	.800	.840
	31	.10	.20	.70	.350	.490	.600	.685	.748	.790	.843	.874
L = 36	32	.10	.30	.60	.300	.420	.540	.640	.712	.760	.820	.856
X = 12	33	.10	.40	.50	.400	.500	.600	.675	.720	.750	.798	.838
X' = 12	34	.20	.20	.60	.300	.420	.520	.610	.688	.740	.805	.844
C = 12	35	.20	.30	.50	.300	.400	.500	.575	.652	.710	.783	.826
	36	.20	.40	.40	.400	.480	.560	.620	.664	.720	.790	.832
	37	.10	.20	.70	.350	.430	.527	.620	.696	.747	.810	.848
L = 40	38	.10	.30	.60	.300	.420	.500	.600	.660	.713	.785	.828
X = 12	39	.10	.40	.50	.400	.500	.567	.650	.700	.733	.775	.808
X' = 16	40	.20	.20	.60	.300	.380	.460	.540	.632	.693	.770	.816
C = 12	41	.20	.30	.50	.300	.400	.470	.550	.608	.673	.755	.804
	42	.20	.40	.40	.400	.480	.533	.600	.648	.707	.780	.824
	43	.10	.20	.70	.350	.430	.490	.565	.644	.703	.778	.822
L = 44	44	.10	.30	.60	.300	.420	.500	.570	.636	.680	.750	.800
X = 12	45	.10	.40	.50	.400	.500	.550	.625	.680	.717	.763	.790
X' = 20	46	.20	.20	.60	.300	.380	.460	.520	.576	.647	.735	.788
C = 12	47	.20	.30	.50	.300	.400	.470	.540	.588	.657	.743	.794
	48	.20	.40	.40	.400	.480	.520	.580	.632	.693	.770	.816
	49	.10	.20	.70	.420	.600	.700	.770	.816	.847	.885	.908
L = 32	50	.10	.30	.60	.360	.540	.660	.740	.792	.827	.870	.896
X = 16	51	.10	.40	.50	.450	.600	.700	.750	.780	.807	.855	.884
X' = 8	52	.20	.20	.60	.360	.520	.613	.700	.760	.800	.850	.880
C = 8	53	.20	.30	.50	.350	.500	.600	.670	.736	.780	.835	.868
	54	.20	.40	.40	.440	.560	.640	.680	.712	.760	.820	.856

TABLE 8.9 (Continued)

	55	.10	.20	.70	.390	.490	.627	.705	.764	.803	.853	.882
L = 36	56	.10	.30	.60	.360	.480	.620	.690	.736	.780	.835	.868
X = 16	57	.10	.40	.50	.450	.550	.667	.725	.760	.783	.818	.854
X′= 12	58	.20	.20	.60	.340	.420	.547	.630	.704	.753	.815	.852
C = 8	59	.20	.30	.50	.350	.450	.567	.625	.676	.730	.798	.838
	60	.20	.40	.40	.440	.520	.613	.660	.688	.707	.780	.824
	61	.10	.20	.70	.390	.470	.553	.640	.712	.760	.820	.856
L = 40	62	.10	.30	.60	.360	.480	.580	.660	.708	.740	.800	.840
X = 16	63	.10	.40	.50	.450	.550	.633	.700	.740	.767	.800	.824
X′= 16	64	.20	.20	.60	.340	.420	.487	.560	.648	.707	.780	.824
C = 8	65	.20	.30	.50	.350	.450	.533	.600	.640	.680	.760	.808
	66	.20	.40	.40	.440	.520	.587	.640	.672	.694	.760	.808
	67	.10	.20	.70	.390	.470	.517	.585	.660	.717	.788	.830
L = 44	68	.10	.30	.60	.360	.480	.540	.630	.684	.720	.765	.812
X = 16	69	.10	.40	.50	.450	.550	.600	.675	.720	.750	.788	.810
X′= 20	70	.20	.20	.60	.340	.420	.487	.540	.592	.660	.745	.796
C = 8	71	.20	.30	.50	.350	.450	.510	.575	.620	.650	.728	.782
	72	.20	.40	.40	.440	.520	.560	.620	.656	.680	.750	.800
	73	.10	.20	.70	.420	.560	.673	.740	.792	.827	.870	.896
L = 36	74	.10	.30	.60	.360	.480	.620	.700	.760	.800	.850	.880
X = 16	75	.10	.40	.50	.400	.500	.634	.700	.740	.773	.830	.864
X′= 8	76	.20	.20	.60	.360	.480	.587	.660	.728	.773	.830	.864
C = 12	77	.20	.30	.50	.300	.400	.533	.620	.696	.747	.810	.848
	78	.20	.40	.40	.400	.480	.586	.640	.672	.720	.790	.832
	79	.10	.20	.70	.350	.490	.600	.675	.740	.783	.838	.870
L = 40	80	.10	.30	.60	.300	.420	.540	.630	.704	.753	.815	.852
X = 16	81	.10	.40	.50	.400	.500	.600	.675	.720	.750	.793	.834
X′= 12	82	.20	.20	.60	.300	.420	.520	.590	.672	.727	.795	.836
C = 12	83	.20	.30	.50	.300	.400	.500	.575	.636	.697	.773	.818
	84	.20	.40	.40	.400	.480	.560	.620	.656	.680	.750	.800
	85	.10	.20	.70	.350	.430	.527	.620	.688	.740	.805	.844
L = 44	86	.10	.30	.60	.300	.420	.500	.600	.660	.707	.780	.824
X = 16	87	.10	.40	.50	.400	.500	.567	.650	.700	.733	.775	.804
X′= 16	88	.20	.20	.60	.300	.380	.453	.540	.616	.680	.760	.808
C = 12	89	.20	.30	.50	.300	.400	.467	.550	.600	.647	.735	.788
	90	.20	.40	.40	.400	.480	.533	.600	.640	.667	.740	.792
	91	.10	.20	.70	.350	.430	.476	.565	.636	.697	.773	.818
L = 48	92	.10	.30	.60	.300	.420	.487	.570	.636	.680	.745	.796
X = 16	93	.10	.40	.50	.400	.500	.550	.625	.680	.717	.763	.790
X′= 20	94	.20	.20	.60	.300	.380	.433	.500	.560	.633	.725	.780
C = 12	95	.20	.30	.50	.300	.400	.450	.525	.580	.617	.703	.762
	96	.20	.40	.40	.400	.480	.520	.580	.624	.653	.730	.784
	97	.10	.20	.70	.420	.600	.700	.760	.808	.840	.880	.904
L = 36	98	.10	.30	.60	.360	.540	.660	.730	.784	.820	.865	.892
X = 20	99	.10	.40	.50	.450	.600	.700	.750	.780	.800	.850	.880
X′= 8	100	.20	.20	.60	.360	.520	.613	.680	.744	.787	.840	.872
C = 8	101	.20	.30	.50	.350	.500	.600	.650	.720	.767	.825	.860
	102	.20	.40	.40	.440	.560	.640	.680	.704	.747	.810	.848
	103	.10	.20	.70	.390	.490	.627	.695	.756	.797	.848	.878
L = 40	104	.10	.30	.60	.360	.480	.620	.690	.732	.773	.830	.864
X = 20	105	.10	.40	.50	.450	.550	.667	.725	.760	.783	.813	.850
X′= 12	106	.20	.20	.60	.340	.420	.547	.610	.688	.740	.805	.844
C = 8	107	.20	.30	.50	.350	.450	.567	.625	.660	.717	.788	.830
	108	.20	.40	.40	.440	.520	.613	.660	.688	.707	.770	.816
	109	.10	.20	.70	.390	.470	.553	.640	.704	.753	.815	.852
L = 44	110	.10	.30	.60	.360	.480	.580	.660	.708	.740	.795	.836
X = 20	111	.10	.40	.50	.450	.550	.633	.700	.740	.767	.800	.820
X′= 16	112	.20	.20	.60	.340	.420	.480	.560	.632	.693	.770	.816
C = 8	113	.20	.30	.50	.350	.450	.533	.600	.640	.667	.750	.800
	114	.20	.40	.40	.440	.520	.587	.640	.672	.694	.730	.784
	115	.10	.20	.70	.390	.470	.503	.585	.652	.710	.783	.826
L = 48	116	.10	.30	.60	.360	.480	.540	.630	.684	.720	.765	.808
X = 20	117	.10	.40	.50	.450	.550	.600	.675	.720	.750	.788	.810
X′= 20	118	.20	.20	.60	.340	.420	.460	.530	.584	.647	.735	.788
C = 8	119	.20	.30	.50	.350	.450	.500	.575	.620	.650	.713	.770
	120	.20	.40	.40	.440	.520	.560	.620	.656	.680	.710	.768
	121	.10	.20	.70	.420	.560	.673	.730	.784	.820	.865	.992
L = 40	122	.10	.30	.60	.360	.480	.620	.690	.752	.793	.845	.876
X = 20	123	.10	.40	.50	.400	.500	.634	.700	.740	.767	.825	.860
X′= 8	124	.20	.20	.60	.360	.480	.587	.640	.712	.760	.820	.856
C = 12	125	.20	.30	.50	.300	.400	.533	.600	.680	.733	.800	.840
	126	.20	.40	.40	.400	.480	.586	.640	.672	.707	.780	.824
	127	.10	.20	.70	.350	.490	.600	.675	.732	.777	.833	.866
L = 44	128	.10	.30	.60	.300	.420	.540	.630	.696	.747	.810	.848
X = 20	129	.10	.40	.50	.400	.500	.600	.675	.720	.750	.788	.830
X′= 12	130	.20	.20	.60	.300	.420	.520	.590	.656	.713	.785	.828
C = 12	131	.20	.30	.50	.300	.400	.500	.575	.620	.683	.763	.810
	132	.20	.40	.40	.400	.480	.560	.620	.656	.680	.740	.792

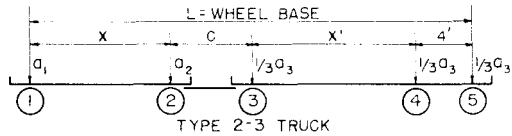
TABLE 8.9 (Continued)

	133	.10	.20	.70	.350	.430	.527	.620	.680	.733	.800	.840
L = 48	134	.10	.30	.60	.300	.420	.500	.600	.660	.700	.775	.820
X = 20	135	.10	.40	.50	.400	.500	.567	.650	.700	.733	.775	.800
X′ = 16	136	.20	.20	.60	.300	.380	.453	.540	.600	.667	.750	.800
C = 12	137	.20	.30	.50	.300	.400	.467	.550	.600	.633	.725	.780
	138	.20	.40	.40	.400	.480	.533	.600	.640	.667	.700	.760
	139	.10	.20	.70	.350	.430	.470	.565	.632	.690	.768	.814
L = 52	140	.10	.30	.60	.300	.420	.480	.570	.636	.680	.740	.792
X = 20	141	.10	.40	.50	.400	.500	.550	.625	.680	.717	.763	.790
X′ = 20	142	.20	.20	.60	.300	.380	.420	.490	.552	.620	.715	.772
C = 12	143	.20	.30	.50	.300	.400	.450	.525	.580	.617	.688	.750
	144	.20	.40	.40	.400	.480	.520	.580	.624	.653	.690	.752

TABLE 8.10

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 2-3 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 2-3 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Maximum shears are in kips.

a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

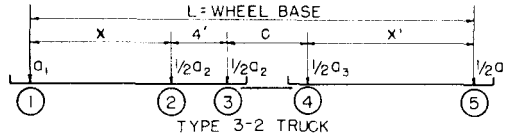
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.20	.70	.374	.513	.642	.727	.781	.818	.863	.891
L = 32	2	.10	.30	.60	.340	.460	.607	.690	.752	.793	.845	.876
X = 12	3	.10	.40	.50	.433	.533	.656	.717	.753	.778	.827	.861
X' = 8	4	.20	.20	.60	.320	.440	.560	.660	.728	.773	.830	.864
C = 8	5	.20	.30	.50	.333	.433	.556	.623	.699	.749	.812	.849
	6	.10	.20	.70	.374	.467	.585	.673	.739	.782	.837	.869
L = 36	7	.10	.30	.60	.340	.420	.553	.640	.704	.753	.815	.852
X = 12	8	.10	.40	.50	.433	.500	.611	.683	.727	.756	.793	.835
X' = 12	9	.20	.20	.60	.320	.400	.506	.600	.680	.733	.800	.840
C = 8	10	.20	.30	.50	.333	.400	.511	.583	.645	.704	.778	.823
	11	.10	.20	.70	.374	.420	.527	.620	.696	.747	.819	.848
L = 40	12	.10	.30	.60	.340	.420	.500	.600	.660	.713	.785	.828
X = 12	13	.10	.40	.50	.433	.500	.567	.650	.700	.733	.775	.808
X' = 16	14	.20	.20	.60	.320	.360	.453	.540	.632	.693	.770	.816
C = 8	15	.20	.30	.60	.333	.400	.467	.550	.608	.673	.755	.804
	16	.10	.20	.70	.374	.513	.615	.697	.757	.798	.848	.879
L = 36	17	.10	.30	.60	.320	.440	.553	.650	.720	.767	.825	.860
X = 12	18	.10	.40	.50	.400	.467	.589	.667	.713	.744	.802	.841
X' = 8	19	.20	.20	.60	.320	.440	.533	.620	.696	.747	.810	.848
C = 12	20	.20	.30	.50	.300	.380	.489	.573	.659	.716	.787	.829
	21	.10	.20	.70	.374	.467	.558	.643	.715	.762	.822	.857
L = 40	22	.10	.30	.60	.320	.400	.487	.590	.672	.727	.789	.836
X = 12	23	.10	.40	.50	.400	.467	.545	.633	.687	.722	.768	.815
X' = 12	24	.20	.20	.60	.320	.400	.480	.560	.648	.707	.780	.824
C = 12	25	.20	.30	.50	.300	.380	.445	.533	.605	.671	.753	.803
	26	.10	.20	.70	.374	.420	.513	.600	.672	.727	.795	.836
L = 44	27	.10	.30	.60	.320	.380	.440	.540	.624	.687	.765	.812
X = 12	28	.10	.40	.50	.400	.467	.511	.600	.660	.700	.750	.788
X' = 16	29	.20	.20	.60	.320	.360	.440	.520	.600	.667	.750	.800
C = 12	30	.20	.30	.50	.300	.380	.420	.500	.568	.640	.730	.784
	31	.10	.20	.70	.374	.513	.642	.717	.773	.811	.858	.887
L = 36	32	.10	.30	.60	.340	.460	.607	.680	.744	.787	.840	.872
X = 16	33	.10	.40	.50	.433	.533	.656	.717	.753	.778	.822	.857
X' = 8	34	.20	.20	.60	.320	.440	.560	.640	.712	.760	.820	.856
C = 8	35	.20	.30	.50	.333	.433	.556	.617	.683	.736	.802	.841
	36	.10	.20	.70	.374	.467	.585	.663	.731	.776	.832	.865
L = 40	37	.10	.30	.60	.340	.420	.553	.640	.696	.747	.810	.848
X = 16	38	.10	.40	.50	.433	.500	.611	.683	.727	.756	.792	.831
X' = 12	39	.20	.20	.60	.320	.400	.506	.580	.664	.720	.790	.832
C = 8	40	.20	.30	.50	.333	.400	.511	.583	.629	.691	.768	.815
	41	.10	.20	.70	.374	.420	.527	.620	.688	.740	.805	.844
L = 44	42	.10	.30	.60	.340	.420	.500	.600	.660	.707	.780	.824
X = 16	43	.10	.40	.50	.433	.500	.567	.650	.700	.733	.775	.804
X' = 16	44	.20	.20	.60	.320	.360	.453	.540	.616	.680	.760	.808
C = 8	45	.20	.30	.50	.333	.400	.467	.550	.600	.647	.735	.788
	46	.10	.20	.70	.374	.513	.615	.687	.749	.791	.843	.875
L = 40	47	.10	.30	.60	.320	.440	.553	.640	.712	.760	.820	.856
X = 16	48	.10	.40	.50	.400	.467	.589	.667	.713	.744	.797	.837
X' = 8	49	.20	.20	.60	.320	.440	.533	.600	.680	.733	.800	.840
C = 12	50	.20	.30	.50	.300	.367	.489	.567	.643	.702	.777	.821

TABLE 8.10 (Continued)

	51	.10	.20	.70	.374	.467	.558	.643	.707	.756	.817	.853
L = 44	52	.10	.30	.60	.320	.400	.487	.590	.664	.720	.790	.832
X = 16	53	.10	.40	.50	.400	.467	.545	.633	.687	.722	.767	.811
X' = 12	54	.20	.20	.60	.320	.400	.480	.560	.632	.693	.770	.816
C = 12	55	.20	.30	.50	.300	.367	.445	.533	.589	.658	.743	.795
	56	.10	.20	.70	.374	.420	.513	.600	.664	.720	.790	.832
L = 48	57	.10	.30	.60	.320	.380	.440	.540	.616	.680	.760	.808
X = 16	58	.10	.40	.50	.400	.467	.511	.600	.660	.700	.750	.784
X' = 16	59	.20	.20	.60	.320	.360	.440	.520	.584	.653	.740	.792
C = 12	60	.20	.30	.50	.300	.367	.411	.500	.560	.613	.710	.768
	61	.10	.20	.70	.374	.513	.642	.707	.765	.804	.853	.883
L = 40	62	.10	.30	.60	.340	.460	.607	.680	.736	.780	.835	.868
X = 20	63	.10	.40	.50	.433	.533	.656	.717	.753	.778	.817	.853
X' = 8	64	.20	.20	.60	.320	.440	.560	.620	.696	.747	.810	.848
C = 8	65	.20	.30	.50	.333	.433	.556	.617	.667	.722	.792	.833
	66	.10	.20	.70	.374	.467	.585	.663	.723	.769	.827	.861
L = 44	67	.10	.30	.60	.340	.420	.553	.640	.692	.740	.805	.844
X = 20	68	.10	.40	.50	.433	.500	.611	.683	.727	.756	.792	.827
X' = 12	69	.20	.20	.60	.320	.400	.506	.580	.648	.707	.780	.824
C = 8	70	.20	.30	.50	.333	.400	.511	.583	.627	.678	.758	.807
	71	.10	.20	.70	.374	.420	.527	.620	.680	.733	.800	.840
L = 48	72	.10	.30	.60	.340	.420	.500	.600	.660	.700	.775	.820
X = 20	73	.10	.40	.50	.433	.500	.567	.650	.700	.733	.775	.800
X' = 16	74	.20	.20	.60	.320	.360	.453	.540	.600	.667	.750	.800
C = 8	75	.20	.30	.50	.333	.400	.467	.550	.600	.633	.725	.780
	76	.10	.20	.70	.374	.513	.615	.687	.741	.784	.838	.871
L = 44	77	.10	.30	.60	.320	.440	.553	.640	.704	.753	.815	.852
X = 20	78	.10	.40	.50	.400	.467	.589	.667	.713	.744	.792	.833
X' = 8	79	.20	.20	.60	.320	.440	.533	.600	.664	.720	.790	.832
C = 12	80	.20	.30	.50	.300	.367	.489	.567	.627	.689	.767	.813
	81	.10	.20	.70	.374	.467	.558	.643	.699	.749	.812	.849
L = 48	82	.10	.30	.60	.320	.400	.487	.590	.656	.713	.785	.828
X = 20	83	.10	.40	.50	.400	.467	.545	.633	.687	.722	.767	.807
X' = 12	84	.20	.20	.60	.320	.400	.480	.560	.616	.680	.760	.808
C = 12	85	.20	.30	.50	.300	.367	.445	.533	.587	.644	.733	.787
	86	.10	.20	.70	.374	.420	.513	.600	.660	.713	.785	.828
L = 52	87	.10	.30	.60	.320	.380	.440	.540	.612	.673	.755	.804
X = 20	88	.10	.40	.50	.400	.467	.511	.600	.660	.700	.750	.780
X' = 16	89	.20	.20	.60	.320	.360	.440	.520	.576	.640	.730	.784
C = 12	90	.20	.30	.50	.300	.367	.411	.500	.560	.600	.700	.760

TABLE 8.11

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS PRODUCED BY TYPE 3-2 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 3-2 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Maximum shears are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.40	.50	.320	.460	.573	.655	.704	.743	.808	.846
L = 36	2	.10	.50	.40	.400	.530	.626	.695	.736	.763	.797	.830
X = 12	3	.10	.60	.30	.480	.600	.680	.735	.768	.790	.817	.834
X' = 12	4	.20	.40	.40	.320	.440	.534	.600	.648	.707	.780	.824
C = 8	5	.20	.50	.30	.400	.510	.586	.640	.680	.733	.800	.840
	6	.10	.40	.50	.320	.460	.540	.630	.684	.720	.770	.816
L = 40	7	.10	.50	.40	.400	.530	.600	.675	.720	.750	.788	.810
X = 12	8	.10	.60	.30	.480	.600	.660	.720	.756	.780	.810	.828
X' = 16	9	.20	.40	.40	.320	.440	.506	.580	.632	.693	.770	.816
C = 8	10	.20	.50	.30	.400	.510	.566	.625	.668	.723	.793	.834
	11	.10	.40	.50	.320	.460	.537	.605	.664	.703	.752	.786
L = 44	12	.10	.50	.40	.400	.530	.587	.655	.704	.737	.778	.802
X = 12	13	.10	.60	.30	.480	.600	.650	.705	.744	.770	.803	.822
X' = 20	14	.20	.40	.40	.320	.440	.506	.580	.624	.680	.760	.808
C = 8	15	.20	.50	.30	.400	.510	.560	.610	.656	.713	.785	.828
	16	.10	.40	.50	.320	.410	.507	.605	.664	.710	.783	.826
L = 40	17	.10	.50	.40	.400	.490	.573	.655	.704	.737	.778	.806
X = 12	18	.10	.60	.30	.480	.570	.640	.705	.744	.770	.803	.822
X' = 12	19	.20	.40	.40	.320	.400	.480	.560	.616	.680	.760	.808
C = 12	20	.20	.50	.30	.400	.490	.560	.610	.656	.713	.785	.828
	21	.10	.40	.50	.320	.410	.490	.580	.644	.687	.745	.796
L = 44	22	.10	.50	.40	.400	.490	.560	.635	.688	.724	.768	.794
X = 12	23	.10	.60	.30	.480	.570	.630	.690	.732	.760	.795	.816
X' = 16	24	.20	.40	.40	.320	.400	.467	.540	.600	.667	.750	.800
C = 12	25	.20	.50	.30	.400	.490	.560	.595	.644	.703	.778	.822
	26	.10	.40	.50	.320	.410	.490	.555	.624	.670	.727	.766
L = 48	27	.10	.50	.40	.400	.490	.560	.615	.672	.710	.758	.786
X = 12	28	.10	.60	.30	.480	.570	.630	.675	.720	.750	.788	.810
X' = 20	29	.20	.40	.40	.320	.400	.467	.520	.584	.653	.740	.792
C = 12	30	.20	.50	.30	.400	.490	.560	.595	.632	.693	.770	.816
	31	.10	.40	.50	.320	.460	.573	.655	.704	.737	.803	.842
L = 40	32	.10	.50	.40	.400	.530	.626	.695	.736	.763	.797	.826
X = 16	33	.10	.60	.30	.480	.600	.680	.735	.768	.790	.817	.834
X' = 12	34	.20	.40	.40	.320	.440	.534	.600	.640	.680	.760	.808
C = 8	35	.20	.50	.30	.400	.510	.586	.640	.672	.694	.760	.808
	36	.10	.40	.50	.320	.460	.540	.630	.684	.720	.765	.812
L = 44	37	.10	.50	.40	.400	.530	.600	.675	.720	.750	.788	.810
X = 16	38	.10	.60	.30	.480	.600	.660	.720	.756	.780	.810	.828
X' = 16	39	.20	.40	.40	.320	.440	.506	.580	.624	.654	.730	.784
C = 8	40	.20	.50	.30	.400	.510	.566	.625	.660	.683	.753	.802
	41	.10	.40	.50	.320	.460	.524	.605	.664	.703	.752	.782
L = 48	42	.10	.50	.40	.400	.530	.587	.655	.704	.737	.778	.802
X = 16	43	.10	.60	.30	.480	.600	.650	.705	.744	.770	.803	.822
X' = 20	44	.20	.40	.40	.320	.440	.493	.560	.608	.640	.720	.776
C = 8	45	.20	.50	.30	.400	.510	.557	.610	.648	.674	.745	.796
	46	.10	.40	.50	.320	.410	.507	.605	.664	.703	.778	.822
L = 44	47	.10	.50	.40	.400	.490	.573	.655	.704	.737	.778	.802
X = 16	48	.10	.60	.30	.480	.570	.640	.705	.744	.770	.803	.822
X' = 12	49	.20	.40	.40	.320	.400	.480	.560	.608	.640	.730	.784
C = 12	50	.20	.50	.30	.400	.480	.546	.610	.648	.674	.745	.796

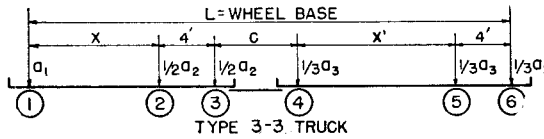
TABLE 8.11 (Continued)

	51	.10	.40	.50	.320	.410	.490	.580	.644	.687	.740	.792
L = 48	52	.10	.50	.40	.400	.490	.560	.635	.688	.724	.768	.794
X = 16	53	.10	.60	.30	.480	.570	.630	.690	.732	.760	.795	.816
X′= 16	54	.20	.40	.40	.320	.400	.467	.540	.592	.626	.710	.768
C = 12	55	.20	.50	.30	.400	.480	.537	.595	.636	.663	.738	.790
	56	.10	.40	.50	.320	.410	.490	.555	.624	.670	.727	.762
L = 52	57	.10	.50	.40	.400	.490	.560	.615	.672	.710	.758	.786
X = 16	58	.10	.60	.30	.480	.570	.630	.675	.720	.750	.788	.810
X′= 20	59	.20	.40	.40	.320	.400	.467	.520	.576	.614	.700	.760
C = 12	60	.20	.50	.30	.400	.480	.537	.580	.624	.654	.730	.784
	61	.10	.40	.50	.320	.460	.573	.655	.704	.737	.798	.838
L = 44	62	.10	.50	.40	.400	.530	.626	.695	.736	.763	.797	.822
X = 20	63	.10	.60	.30	.480	.600	.680	.735	.768	.790	.817	.834
X′= 12	64	.20	.40	.40	.320	.440	.534	.600	.640	.667	.750	.800
C = 8	65	.20	.50	.30	.400	.510	.586	.640	.672	.694	.730	.784
	66	.10	.40	.50	.320	.460	.540	.630	.684	.720	.765	.808
L = 48	67	.10	.50	.40	.400	.530	.600	.675	.720	.750	.788	.810
X = 20	68	.10	.60	.30	.480	.600	.660	.720	.756	.780	.810	.828
X′= 16	69	.20	.40	.40	.320	.440	.506	.580	.624	.654	.710	.768
C = 8	70	.20	.50	.30	.400	.510	.566	.625	.660	.683	.713	.770
	71	.10	.40	.50	.320	.460	.523	.605	.664	.703	.752	.782
L = 52	72	.10	.50	.40	.400	.530	.587	.655	.704	.737	.778	.802
X = 20	73	.10	.60	.30	.480	.600	.650	.705	.744	.770	.803	.822
X′= 20	74	.20	.40	.40	.320	.440	.493	.560	.608	.640	.680	.744
C = 8	75	.20	.50	.30	.400	.510	.557	.610	.648	.674	.707	.764
	76	.10	.40	.50	.320	.410	.507	.605	.664	.703	.773	.818
L = 48	77	.10	.50	.40	.400	.490	.573	.655	.704	.737	.778	.802
X = 20	78	.10	.60	.30	.480	.570	.640	.705	.744	.770	.803	.822
X′= 12	79	.20	.40	.40	.320	.400	.480	.560	.608	.640	.720	.776
C = 12	80	.20	.50	.30	.400	.480	.546	.610	.648	.674	.705	.764
	81	.10	.40	.50	.320	.410	.490	.580	.644	.687	.740	.788
L = 52	82	.10	.50	.40	.400	.490	.560	.635	.688	.724	.768	.794
X = 20	83	.10	.60	.30	.480	.570	.630	.690	.732	.760	.795	.816
X′= 16	84	.20	.40	.40	.320	.400	.467	.540	.592	.626	.680	.744
C = 12	85	.20	.50	.30	.400	.480	.537	.595	.636	.663	.698	.758
	86	.10	.40	.50	.320	.410	.490	.555	.624	.670	.727	.762
L = 56	87	.10	.50	.40	.400	.490	.560	.615	.672	.710	.758	.786
X = 20	88	.10	.60	.30	.480	.570	.630	.675	.720	.750	.788	.810
X′= 20	89	.20	.40	.40	.320	.400	.467	.520	.576	.614	.660	.728
C = 12	90	.20	.50	.30	.400	.480	.537	.580	.624	.654	.690	.752

TABLE 8.12

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 3-3 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 3-3 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Maximum shears are in kips.

a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.30	.60	.320	.440	.533	.625	.700	.750	.813	.850
L = 40	2	.10	.40	.50	.320	.394	.496	.597	.659	.716	.787	.829
X = 12	3	.10	.50	.40	.400	.477	.564	.648	.699	.732	.774	.809
X' = 8	4	.20	.30	.50	.267	.367	.451	.538	.631	.692	.769	.815
C = 12	5	.20	.40	.40	.320	.400	.471	.553	.611	.676	.757	.805
	6	.10	.30	.60	.320	.400	.477	.575	.652	.710	.783	.826
L = 44	7	.10	.40	.50	.320	.394	.463	.563	.631	.676	.753	.803
X = 12	8	.10	.50	.40	.400	.477	.537	.622	.677	.714	.761	.876
X' = 12	9	.20	.30	.50	.267	.333	.399	.492	.577	.648	.736	.789
C = 12	10	.20	.40	.40	.320	.400	.467	.527	.589	.658	.743	.795
	11	.10	.30	.60	.320	.360	.440	.525	.604	.670	.753	.802
L = 48	12	.10	.40	.50	.320	.394	.451	.530	.604	.653	.720	.776
X = 12	13	.10	.50	.40	.400	.477	.529	.595	.656	.697	.747	.864
X' = 16	14	.20	.30	.50	.267	.310	.374	.445	.524	.603	.702	.762
C = 12	15	.20	.40	.40	.320	.400	.467	.500	.568	.640	.730	.784
	16	.10	.30	.60	.320	.440	.503	.595	.668	.723	.793	.834
L = 44	17	.10	.40	.50	.320	.380	.441	.547	.619	.682	.762	.809
X = 12	18	.10	.50	.40	.400	.470	.519	.608	.667	.706	.754	.785
X' = 8	19	.20	.30	.50	.267	.367	.421	.508	.591	.659	.744	.795
C = 16	20	.20	.40	.40	.320	.400	.467	.513	.579	.649	.737	.789
	21	.10	.30	.60	.320	.400	.467	.545	.620	.683	.763	.810
L = 48	22	.10	.40	.50	.320	.380	.429	.513	.591	.642	.728	.783
X = 12	23	.10	.50	.40	.400	.470	.514	.582	.645	.688	.741	.858
X' = 12	24	.20	.30	.50	.267	.333	.389	.462	.537	.614	.711	.769
C = 16	25	.20	.40	.40	.320	.400	.467	.500	.557	.631	.723	.779
	26	.10	.30	.60	.320	.360	.440	.495	.576	.643	.733	.786
L = 52	27	.10	.40	.50	.320	.380	.429	.481	.564	.629	.695	.756
X = 12	28	.10	.50	.40	.400	.470	.514	.555	.624	.670	.727	.847
X' = 16	29	.20	.30	.50	.267	.310	.374	.428	.492	.570	.677	.742
C = 16	30	.20	.40	.40	.320	.400	.467	.500	.541	.613	.710	.768
	31	.10	.30	.60	.320	.440	.533	.625	.692	.743	.808	.846
L = 44	32	.10	.40	.50	.320	.394	.496	.597	.657	.709	.782	.825
X = 16	33	.10	.50	.40	.400	.477	.564	.648	.699	.732	.774	.805
X' = 8	34	.20	.30	.50	.267	.367	.451	.538	.615	.679	.759	.807
C = 12	35	.20	.40	.40	.320	.387	.471	.553	.603	.644	.733	.787
	36	.10	.30	.60	.320	.400	.477	.575	.644	.703	.778	.822
L = 48	37	.10	.40	.50	.320	.394	.463	.563	.631	.676	.748	.799
X = 16	38	.10	.50	.40	.400	.477	.537	.622	.677	.714	.761	.876
X' = 12	39	.20	.30	.50	.267	.333	.399	.492	.561	.634	.726	.781
C = 12	40	.20	.40	.40	.320	.387	.444	.527	.581	.618	.703	.763
	41	.10	.30	.60	.320	.360	.440	.525	.600	.663	.748	.798
L = 52	42	.10	.40	.50	.320	.394	.451	.530	.604	.653	.715	.772
X = 16	43	.10	.50	.40	.400	.477	.529	.595	.656	.697	.747	.864
X' = 16	44	.20	.30	.50	.267	.303	.367	.445	.516	.590	.692	.754
C = 12	45	.20	.40	.40	.320	.387	.440	.500	.560	.600	.690	.752
	46	.10	.30	.60	.320	.440	.503	.595	.660	.717	.788	.830
L = 48	47	.10	.40	.50	.320	.367	.441	.547	.617	.676	.757	.805
X = 16	48	.10	.50	.40	.400	.450	.519	.608	.667	.706	.754	.870
X' = 8	49	.20	.30	.50	.267	.367	.421	.508	.575	.646	.734	.787
C = 16	50	.20	.40	.40	.320	.360	.426	.513	.571	.609	.703	.763

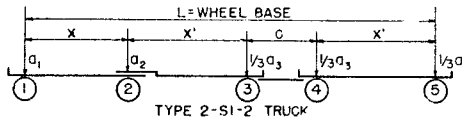
TABLE 8.12 (Continued)

	51	.10	.30	.60	.320	.400	.467	.545	.616	.677	.758	.806
L = 52	52	.10	.40	.50	.320	.360	.429	.513	.591	.642	.723	.779
X = 16	53	.10	.50	.40	.400	.450	.511	.582	.645	.688	.741	.858
X' = 12	54	.20	.30	.50	.267	.333	.389	.462	.529	.601	.701	.761
C = 16	55	.20	.40	.40	.320	.360	.440	.487	.549	.591	.683	.747
	56	.10	.30	.60	.320	.360	.440	.495	.576	.637	.728	.782
L = 56	57	.10	.40	.50	.320	.360	.429	.481	.564	.620	.690	.752
X = 16	58	.10	.50	.40	.400	.450	.511	.555	.624	.670	.727	.847
X' = 16	59	.20	.30	.50	.267	.301	.367	.415	.492	.557	.667	.734
C = 16	60	.20	.40	.40	.320	.360	.440	.480	.528	.573	.670	.736
	61	.10	.30	.60	.320	.440	.533	.625	.684	.737	.803	.842
L = 48	62	.10	.40	.50	.320	.394	.496	.597	.657	.702	.777	.821
X = 20	63	.10	.50	.40	.400	.477	.564	.648	.699	.732	.774	.801
X' = 8	64	.20	.30	.50	.267	.367	.451	.538	.599	.666	.749	.799
C = 12	65	.20	.40	.40	.320	.387	.471	.553	.603	.636	.723	.779
	66	.10	.30	.60	.320	.400	.477	.575	.640	.697	.773	.818
L = 52	67	.10	.40	.50	.320	.394	.463	.563	.631	.676	.743	.795
X = 20	68	.10	.50	.40	.400	.477	.547	.622	.677	.714	.761	.876
X' = 12	69	.20	.30	.50	.267	.333	.399	.492	.553	.621	.716	.773
C = 12	70	.20	.40	.40	.320	.387	.444	.527	.581	.618	.687	.749
	71	.10	.30	.60	.320	.360	.440	.525	.600	.657	.743	.794
L = 56	72	.10	.40	.50	.320	.394	.451	.530	.604	.653	.715	.768
X = 20	73	.10	.50	.40	.400	.477	.529	.595	.656	.697	.747	.864
X' = 16	74	.20	.30	.50	.267	.303	.367	.445	.516	.577	.682	.746
C = 12	75	.20	.40	.40	.320	.387	.435	.500	.560	.600	.650	.720
	76	.10	.30	.60	.320	.440	.503	.595	.656	.710	.783	.826
L = 52	77	.10	.40	.50	.320	.367	.441	.547	.617	.669	.752	.801
X = 20	78	.10	.50	.40	.400	.450	.519	.608	.667	.706	.754	.870
X' = 8	79	.20	.30	.50	.267	.367	.421	.508	.567	.632	.724	.779
C = 16	80	.20	.40	.40	.320	.360	.426	.513	.571	.609	.693	.755
	81	.10	.30	.60	.320	.400	.467	.545	.616	.670	.753	.802
L = 56	82	.10	.40	.50	.320	.360	.429	.513	.591	.642	.718	.775
X = 20	83	.10	.50	.40	.400	.450	.511	.582	.645	.688	.741	.858
X' = 12	84	.20	.30	.50	.267	.333	.389	.462	.529	.588	.691	.753
C = 16	85	.20	.40	.40	.320	.360	.418	.487	.549	.591	.657	.725
	86	.10	.30	.60	.320	.360	.440	.495	.576	.630	.723	.778
L = 60	87	.10	.40	.50	.320	.360	.429	.481	.564	.620	.690	.748
X = 20	88	.10	.50	.40	.400	.450	.511	.555	.624	.670	.727	.847
X' = 16	89	.20	.30	.50	.267	.301	.367	.415	.492	.543	.657	.726
C = 16	90	.20	.40	.40	.320	.360	.418	.460	.528	.573	.630	.704

TABLE 8.13

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 2-S1-2 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-S1-2 TRUCK

Ninety-six variations in the Type 2-S1-2 truck are given in this table. Each truck number, from 1 to 96, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Maximum shears are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
L = 36	1	.10	.20	.70	.280	.397	.498	.607	.685	.738	.803	.843
X = 8	2	.10	.30	.60	.320	.420	.527	.620	.676	.713	.780	.824
X' = 10	3	.20	.20	.60	.240	.340	.453	.560	.648	.707	.780	.824
C = 8	4	.20	.30	.50	.340	.420	.509	.607	.685	.738	.803	.843
L = 40	5	.10	.20	.70	.280	.374	.482	.553	.643	.702	.777	.821
X = 8	6	.10	.30	.60	.320	.380	.487	.580	.644	.687	.750	.800
X' = 12	7	.20	.20	.60	.240	.320	.427	.520	.616	.680	.760	.808
C = 8	8	.20	.30	.50	.340	.420	.487	.573	.659	.716	.787	.829
L = 44	9	.10	.20	.70	.280	.374	.467	.535	.600	.667	.750	.800
X = 8	10	.10	.30	.60	.320	.360	.460	.540	.612	.660	.730	.784
X' = 14	11	.20	.20	.60	.240	.320	.400	.500	.584	.653	.740	.792
C = 8	12	.20	.30	.50	.340	.420	.465	.556	.632	.693	.770	.816
L = 48	13	.10	.20	.70	.280	.374	.451	.520	.570	.631	.723	.779
X = 8	14	.10	.30	.60	.320	.360	.433	.500	.580	.633	.710	.768
X' = 16	15	.20	.20	.60	.240	.320	.387	.480	.552	.627	.720	.776
C = 8	16	.20	.30	.50	.340	.420	.454	.540	.605	.671	.753	.803
L = 52	17	.10	.20	.70	.280	.374	.436	.505	.558	.596	.697	.757
X = 8	18	.10	.30	.60	.320	.360	.407	.480	.548	.607	.690	.752
X' = 18	19	.20	.20	.60	.240	.320	.373	.460	.528	.600	.700	.760
C = 8	20	.20	.30	.50	.340	.420	.447	.523	.585	.649	.737	.789
L = 56	21	.10	.20	.70	.280	.374	.420	.490	.546	.583	.670	.736
X = 8	22	.10	.30	.60	.320	.360	.380	.460	.528	.580	.670	.736
X' = 20	23	.20	.20	.60	.240	.320	.360	.440	.512	.573	.680	.744
C = 8	24	.20	.30	.50	.340	.420	.447	.507	.572	.627	.720	.776
L = 60	25	.10	.20	.70	.280	.374	.405	.478	.534	.573	.643	.715
X = 8	26	.10	.30	.60	.320	.360	.373	.440	.512	.560	.650	.720
X' = 22	27	.20	.20	.60	.240	.320	.347	.420	.496	.547	.660	.728
C = 8	28	.20	.30	.50	.340	.420	.447	.490	.559	.604	.703	.763
L = 64	29	.10	.20	.70	.280	.374	.405	.467	.522	.563	.617	.693
X = 8	30	.10	.30	.60	.320	.360	.373	.420	.496	.547	.630	.704
X' = 24	31	.20	.20	.60	.240	.320	.347	.400	.480	.533	.640	.712
C = 8	32	.20	.30	.50	.340	.420	.447	.474	.545	.593	.686	.749
L = 40	33	.10	.20	.70	.280	.397	.498	.597	.677	.731	.798	.839
X = 12	34	.10	.30	.60	.300	.420	.527	.620	.676	.713	.775	.820
X' = 10	35	.20	.20	.60	.240	.340	.427	.520	.616	.680	.760	.808
C = 8	36	.20	.30	.50	.300	.400	.489	.567	.621	.684	.763	.811
L = 44	37	.10	.20	.70	.280	.374	.482	.553	.635	.696	.772	.817
X = 12	38	.10	.30	.60	.240	.380	.487	.580	.644	.687	.745	.796
X' = 12	39	.20	.20	.60	.240	.320	.413	.500	.568	.640	.730	.784
C = 8	40	.20	.30	.50	.200	.380	.456	.533	.595	.662	.747	.797
L = 48	41	.10	.20	.70	.280	.374	.467	.525	.592	.660	.745	.796
X = 12	42	.10	.30	.60	.240	.366	.460	.540	.612	.660	.720	.772
X' = 14	43	.20	.20	.60	.240	.320	.400	.480	.544	.600	.700	.760
C = 8	44	.20	.30	.50	.200	.380	.433	.500	.568	.640	.730	.784
L = 52	45	.10	.20	.70	.280	.374	.451	.513	.562	.624	.718	.775
X = 12	46	.10	.30	.60	.240	.340	.433	.500	.580	.633	.700	.748
X' = 16	47	.20	.20	.60	.240	.320	.387	.460	.528	.573	.680	.744
C = 8	48	.20	.30	.50	.200	.380	.420	.477	.548	.618	.713	.771
L = 56	49	.10	.20	.70	.280	.374	.436	.502	.550	.589	.692	.753
X = 12	50	.10	.30	.60	.240	.340	.407	.480	.548	.607	.680	.724
X' = 18	51	.20	.20	.60	.240	.320	.373	.440	.512	.560	.660	.728
C = 8	52	.20	.30	.50	.200	.380	.420	.460	.535	.596	.697	.757

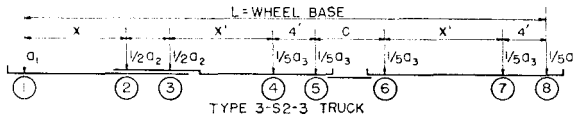
TABLE 8.13 (Continued)

L = 60	53	.10	.20	.70	.280	.374	.420	.490	.538	.576	.665	.732
X = 12	54	.10	.30	.60	.240	.340	.380	.460	.520	.580	.660	.708
X′ = 20	55	.20	.20	.60	.240	.320	.360	.420	.496	.547	.640	.712
C = 8	56	.20	.30	.50	.200	.380	.420	.444	.501	.573	.680	.744
L = 64	57	.10	.20	.70	.280	.374	.405	.478	.526	.566	.638	.711
X = 12	58	.10	.30	.60	.240	.340	.360	.440	.504	.553	.640	.692
X′ = 22	59	.20	.20	.60	.240	.320	.347	.410	.480	.533	.620	.696
C = 8	60	.20	.30	.50	.200	.380	.420	.440	.508	.562	.663	.731
L = 68	61	.10	.20	.70	.280	.374	.405	.467	.514	.556	.612	.689
X = 12	62	.10	.30	.60	.240	.340	.360	.420	.488	.540	.620	.676
X′ = 24	63	.20	.20	.60	.240	.320	.347	.400	.464	.520	.600	.680
C = 8	64	.20	.30	.50	.200	.380	.420	.440	.495	.551	.647	.717
L = 56	65	.10	.20	.70	.280	.374	.451	.513	.554	.618	.713	.771
X = 16	66	.10	.30	.60	.240	.340	.433	.500	.580	.633	.700	.744
X′ = 16	67	.20	.20	.60	.240	.320	.387	.440	.512	.560	.660	.728
C = 8	68	.20	.30	.50	.200	.340	.411	.467	.533	.578	.673	.739
L = 60	69	.10	.20	.70	.280	.374	.436	.502	.542	.582	.687	.749
X = 16	70	.10	.30	.60	.240	.320	.407	.480	.548	.607	.680	.724
X′ = 18	71	.20	.20	.60	.240	.320	.373	.430	.496	.547	.630	.704
C = 8	72	.20	.30	.50	.200	.340	.394	.450	.507	.555	.657	.725
L = 64	73	.10	.20	.70	.280	.374	.420	.490	.532	.569	.660	.728
X = 16	74	.10	.30	.60	.240	.320	.380	.460	.516	.580	.660	.708
X′ = 20	75	.20	.20	.60	.240	.320	.360	.420	.480	.533	.600	.680
C = 8	76	.20	.30	.50	.200	.340	.394	.433	.480	.533	.640	.712
L = 68	77	.10	.20	.70	.280	.374	.405	.478	.523	.559	.633	.707
X = 16	78	.10	.30	.60	.240	.320	.354	.440	.496	.553	.640	.692
X′ = 22	79	.20	.20	.60	.240	.320	.347	.410	.464	.520	.590	.664
C = 8	80	.20	.30	.50	.200	.340	.394	.420	.460	.520	.623	.699
L = 72	81	.10	.20	.70	.280	.374	.405	.467	.513	.549	.607	.685
X = 16	82	.10	.30	.60	.240	.320	.347	.420	.480	.533	.620	.676
X′ = 24	83	.20	.20	.60	.240	.320	.347	.400	.448	.507	.580	.648
C = 8	84	.20	.30	.50	.200	.340	.394	.420	.447	.509	.607	.685
L = 76	85	.10	.20	.70	.280	.374	.405	.455	.504	.539	.596	.664
X = 16	86	.10	.30	.60	.240	.320	.347	.405	.464	.520	.600	.660
X′ = 26	87	.20	.20	.60	.240	.320	.347	.390	.432	.493	.570	.632
C = 8	88	.20	.30	.50	.200	.340	.394	.420	.436	.498	.590	.672
L = 80	89	.10	.20	.70	.280	.374	.405	.444	.495	.529	.589	.643
X = 16	90	.10	.30	.60	.240	.320	.347	.390	.452	.507	.580	.644
X′ = 28	91	.20	.20	.60	.240	.320	.347	.380	.424	.480	.560	.616
C = 8	92	.20	.30	.50	.200	.340	.394	.420	.436	.487	.573	.659
L = 84	93	.10	.20	.70	.280	.374	.405	.432	.485	.521	.581	.621
X = 16	94	.10	.30	.60	.240	.320	.347	.375	.440	.493	.570	.628
X′ = 30	95	.20	.20	.60	.240	.320	.347	.370	.416	.467	.550	.600
C = 8	96	.20	.30	.50	.200	.340	.394	.420	.436	.476	.565	.645

TABLE 8.14

SUMMARY OF MAXIMUM SHEARS IN SIMPLE SPANS

PRODUCED BY TYPE 3-S2-3 TRUCKS WEIGHING ONE KIP EACH



TYPE 3-S2-3 TRUCK

Eighty-four variations in the Type 3-S2-3 truck are given in this table. Each truck number, from 1 to 84, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Maximum shears are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
L = 44	1	.05	.20	.75	.240	.330	.450	.555	.640	.700	.775	.820
X = 8	2	.05	.30	.65	.240	.348	.445	.545	.626	.680	.748	.798
X' = 8	3	.10	.20	.70	.224	.312	.420	.520	.608	.673	.755	.804
C = 8	4	.10	.30	.60	.240	.342	.432	.525	.600	.650	.728	.782
L = 48	5	.05	.20	.75	.240	.330	.430	.513	.602	.668	.751	.801
X = 8	6	.05	.30	.65	.240	.322	.419	.500	.590	.650	.725	.776
X' = 10	7	.10	.20	.70	.224	.308	.401	.479	.567	.639	.730	.784
C = 8	8	.10	.30	.60	.240	.318	.408	.483	.566	.622	.702	.761
L = 52	9	.05	.20	.75	.240	.330	.410	.495	.566	.637	.728	.782
X = 8	10	.05	.30	.65	.240	.296	.393	.467	.553	.619	.702	.754
X' = 12	11	.10	.20	.70	.224	.308	.383	.462	.530	.605	.704	.763
C = 8	12	.10	.30	.60	.240	.310	.384	.453	.533	.594	.681	.744
L = 56	13	.05	.20	.75	.240	.330	.390	.480	.534	.605	.704	.763
X = 8	14	.05	.30	.65	.240	.290	.367	.448	.517	.589	.679	.733
X' = 14	15	.10	.20	.70	.224	.308	.364	.448	.498	.571	.679	.743
C = 8	16	.10	.30	.60	.240	.310	.360	.435	.500	.566	.660	.728
L = 60	17	.05	.20	.75	.240	.330	.370	.465	.522	.574	.680	.744
X = 8	18	.05	.30	.65	.240	.290	.349	.428	.485	.559	.656	.715
X' = 16	19	.10	.20	.70	.224	.308	.345	.434	.487	.537	.653	.722
C = 8	20	.10	.30	.60	.240	.310	.344	.417	.470	.538	.639	.711
L = 64	21	.05	.20	.75	.240	.330	.370	.450	.510	.550	.656	.725
X = 8	22	.05	.30	.65	.240	.290	.332	.409	.465	.528	.634	.697
X' = 18	23	.10	.20	.70	.224	.308	.345	.420	.476	.513	.628	.702
C = 8	24	.10	.30	.60	.240	.310	.340	.399	.451	.510	.618	.694
L = 68	25	.05	.20	.75	.240	.330	.370	.435	.498	.540	.633	.706
X = 8	26	.05	.30	.65	.240	.290	.321	.389	.449	.498	.611	.679
X' = 20	27	.10	.20	.70	.224	.308	.345	.406	.465	.504	.602	.682
C = 8	28	.10	.30	.60	.240	.310	.340	.348	.437	.486	.597	.677
L = 48	29	.05	.20	.75	.240	.330	.450	.555	.636	.697	.773	.818
X = 12	30	.05	.30	.65	.240	.348	.445	.545	.626	.680	.748	.796
X' = 8	31	.10	.20	.70	.224	.312	.420	.520	.600	.667	.750	.800
C = 8	32	.10	.30	.60	.240	.342	.432	.525	.600	.650	.723	.778
L = 52	33	.05	.20	.75	.240	.330	.430	.513	.600	.665	.749	.799
X = 12	34	.05	.30	.65	.240	.322	.419	.500	.590	.650	.725	.774
X' = 10	35	.10	.20	.70	.224	.308	.401	.479	.563	.633	.725	.780
C = 8	36	.10	.30	.60	.240	.318	.408	.483	.566	.622	.694	.755
L = 56	37	.05	.20	.75	.240	.330	.410	.495	.566	.633	.725	.780
X = 12	38	.05	.30	.65	.240	.296	.393	.467	.553	.619	.702	.752
X' = 12	39	.10	.20	.70	.224	.308	.383	.462	.530	.599	.699	.759
C = 8	40	.10	.30	.60	.240	.294	.384	.453	.533	.594	.671	.732
L = 60	41	.05	.20	.75	.240	.330	.390	.480	.534	.602	.701	.761
X = 12	42	.05	.30	.65	.240	.286	.367	.448	.517	.589	.679	.733
X' = 14	43	.10	.20	.70	.224	.308	.364	.448	.498	.565	.674	.739
C = 8	44	.10	.30	.60	.240	.290	.360	.435	.500	.566	.650	.708
L = 64	45	.05	.20	.75	.240	.330	.370	.465	.522	.574	.678	.742
X = 12	46	.05	.30	.65	.240	.286	.349	.428	.485	.559	.656	.715
X' = 16	47	.10	.20	.70	.224	.308	.345	.434	.487	.537	.648	.718
C = 8	48	.10	.30	.60	.240	.290	.344	.417	.470	.538	.628	.685
L = 68	49	.05	.20	.75	.240	.330	.370	.450	.510	.550	.654	.723
X = 12	50	.05	.30	.65	.240	.286	.332	.409	.465	.528	.634	.697
X' = 18	51	.10	.20	.70	.224	.308	.345	.420	.476	.513	.623	.698
C = 8	52	.10	.30	.60	.240	.290	.328	.399	.451	.510	.608	.666

TABLE 8.14 (Continued)

L = 72	53	.05	.20	.75	.240	.330	.370	.435	.498	.540	.630	.704
X = 12	54	.05	.30	.65	.240	.286	.321	.389	.449	.498	.611	.679
X′ = 20	55	.10	.20	.70	.224	.308	.345	.406	.465	.504	.597	.678
C = 8	56	.10	.30	.60	.240	.290	.327	.381	.437	.482	.587	.649
L = 60	57	.05	.20	.75	.240	.339	.410	.495	.566	.630	.723	.778
X = 16	58	.05	.30	.65	.240	.296	.393	.467	.553	.619	.702	.751
X′ = 12	59	.10	.20	.70	.224	.308	.383	.462	.530	.592	.694	.755
C = 8	60	.10	.30	.60	.240	.294	.384	.453	.533	.594	.671	.728
L = 64	61	.05	.20	.75	.240	.330	.390	.480	.534	.601	.699	.759
X = 16	62	.05	.30	.65	.240	.286	.367	.448	.517	.589	.679	.733
X′ = 14	63	.10	.20	.70	.224	.308	.364	.448	.498	.564	.669	.735
C = 8	64	.10	.30	.60	.240	.282	.360	.435	.500	.566	.650	.704
L = 68	65	.05	.20	.75	.240	.330	.370	.465	.522	.574	.675	.740
X = 16	66	.05	.30	.65	.240	.286	.349	.428	.485	.559	.656	.715
X′ = 16	67	.10	.20	.70	.224	.308	.345	.434	.487	.537	.643	.714
C = 8	68	.10	.30	.60	.240	.270	.344	.417	.470	.538	.628	.683
L = 72	69	.05	.20	.75	.240	.330	.370	.450	.510	.550	.651	.721
X = 16	70	.05	.30	.65	.240	.286	.332	.409	.465	.528	.634	.697
X′ = 18	71	.10	.20	.70	.224	.308	.345	.420	.476	.513	.618	.694
C = 8	72	.10	.30	.60	.240	.270	.328	.399	.451	.510	.608	.666
L = 76	73	.05	.20	.75	.240	.330	.370	.435	.498	.540	.628	.702
X = 16	74	.05	.30	.65	.240	.286	.321	.389	.449	.498	.611	.679
X′ = 20	75	.10	.20	.70	.224	.308	.345	.406	.465	.504	.592	.674
C = 8	76	.10	.30	.60	.240	.270	.313	.381	.437	.482	.587	.649
L = 80	77	.05	.20	.75	.240	.330	.370	.420	.486	.530	.604	.683
X = 16	78	.05	.30	.65	.240	.286	.321	.370	.434	.476	.588	.660
X′ = 22	79	.10	.20	.70	.224	.308	.345	.392	.454	.495	.567	.653
C = 8	80	.10	.30	.60	.240	.270	.313	.363	.422	.462	.565	.633
L = 84	81	.05	.20	.75	.240	.330	.370	.405	.474	.520	.582	.664
X = 16	82	.05	.30	.65	.240	.286	.321	.351	.418	.464	.565	.642
X′ = 24	83	.10	.20	.70	.224	.308	.345	.378	.442	.485	.546	.633
C = 8	84	.10	.30	.60	.240	.270	.313	.345	.408	.450	.545	.616

9. EQUIVALENT H TRUCK LOADINGS FOR VEHICLES OF UNIT WEIGHT ON SIMPLE SPAN BRIDGES

Tables 9.1 - 9.14 give the equivalent H truck loading corresponding to each of the 1303 variations of the 14 heavy vehicle types weighing 1.0 kip each, as shown in identification Index Tables 6.1 - 6.14, on spans of 10, 20, 30, 40, 50, 60, 80, and 100 feet in length. The equivalent H truck loadings corresponding to each of the 1303 heavy vehicle types and loadings on each of the 8 different span lengths makes a total of 10,424 H truck loading equivalents recorded in Tables 9.1 - 9.14. The table numbers corresponding to each of the 14 heavy vehicle types are as follows:

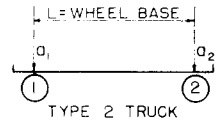
Table No.	Vehicle Type	Table No.	Vehicle Type
9.1	2	9.8	3–S
9.2	3	9.9	2–2
9.3	2–S1	9.10	2–3
9.4	2–S2	9.11	3–2
9.5	2–S3	9.12	3–3
9.6	3–S1	9.13	2–S1–2
9.7	3–S2	9.14	2–S2–3

An equivalent H truck loading is defined as the gross weight—either in pounds, kips, or tons—on a standard H truck required to produce the same maximum shear on a given span as that produced by the particular heavy vehicle under consideration on the same span. The equivalent H truck loadings given for various span lengths by Tables 9.1 - 9.14 are those that would result if the particular vehicle under consideration had a gross weight of one kip. Thus, the equivalent H truck loading for any particular vehicle type and loading on a given span may be obtained simply by multiplying the H truck loading equivalent indicated for a gross vehicle weight of one kip by the number of kips carried by the vehicle under consideration.

The use of Tables 9.1 - 9.14 for converting any particular heavy vehicle type and loading into an equivalent H truck loading on a given span is discussed in some detail in Articles 4 and 5.

TABLE 9.1

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 2 TRUCKS WEIGHING ONE KIP EACH



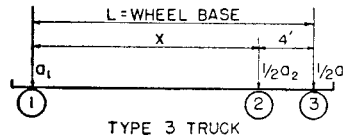
Thirty-six variations in the Type 2 truck are given in this table. Each truck number, from 1 to 36, represents a different combination of wheel base length, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1 and a_2 represent the ratio of gross vehicle weight on axles.

Wheel Base Feet	Truck No.	Load On Axles Kips a_1	Load On Axles Kips a_2	Span-Feet 10	20	30	40	50	60	80	100
	1	.45	.55	.688	.901	.937	.955	.964	.970	.978	.983
	2	.40	.60	.750	.930	.956	.968	.975	.979	.984	.988
L = 10	3	.35	.65	.813	.959	.974	.982	.985	.988	.991	.993
	4	.30	.70	.875	.988	.993	.995	.996	.997	.998	.998
	5	.25	.75	.938	1.017	1.011	1.009	1.006	1.005	1.004	1.003
	6	.20	.80	1.000	1.047	1.029	1.022	1.017	1.014	1.010	1.008
	7	.45	.55	.688	.849	.904	.930	.945	.955	.967	.973
	8	.40	.60	.750	.884	.926	.946	.958	.965	.974	.979
L = 12	9	.35	.65	.813	.919	.949	.962	.970	.976	.982	.986
	10	.30	.70	.875	.953	.971	.978	.983	.986	.990	.992
	11	.25	.75	.938	.988	.993	.995	.996	.997	.998	.998
	12	.20	.80	1.000	1.023	1.015	1.011	1.008	1.007	1.005	1.004
	13	.45	.55	.688	.797	.871	.907	.926	.939	.954	.964
	14	.40	.60	.750	.837	.897	.925	.941	.951	.964	.971
L = 14	15	.35	.65	.813	.878	.923	.944	.956	.963	.973	.978
	16	.30	.70	.875	.919	.949	.962	.970	.976	.982	.986
	17	.25	.75	.938	.959	.974	.982	.985	.988	.991	.993
	18	.20	.80	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
	19	.45	.55	.688	.744	.838	.882	.907	.923	.943	.955
	20	.40	.60	.750	.791	.868	.903	.924	.937	.953	.963
L = 16	21	.35	.65	.813	.837	.897	.925	.941	.951	.964	.971
	22	.30	.70	.875	.884	.926	.946	.958	.965	.974	.979
	23	.25	.75	.938	.930	.956	.968	.975	.979	.984	.988
	24	.20	.80	1.000	.977	.985	.989	.992	.993	.995	.996
	25	.45	.55	.688	.692	.805	.858	.888	.907	.932	.945
	26	.40	.60	.750	.744	.838	.882	.907	.923	.943	.955
L = 18	27	.35	.65	.813	.797	.871	.906	.926	.939	.954	.964
	28	.30	.70	.875	.849	.904	.930	.945	.955	.967	.973
	29	.25	.75	.938	.901	.937	.955	.964	.970	.978	.983
	30	.20	.80	1.000	.953	.971	.978	.983	.986	.990	.992
	31	.45	.55	.688	.640	.772	.833	.869	.892	.920	.936
	32	.40	.60	.750	.698	.808	.860	.890	.909	.933	.947
L = 20	33	.35	.65	.813	.756	.846	.887	.911	.926	.946	.957
	34	.30	.70	.875	.814	.882	.914	.932	.944	.959	.967
	35	.25	.75	.938	.872	.919	.941	.953	.962	.972	.977
	36	.20	.80	1.000	.930	.956	.968	.975	.979	.984	.988

TABLE 9.2

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 3 TRUCKS WEIGHING ONE KIP EACH



TYPE 3 TRUCK

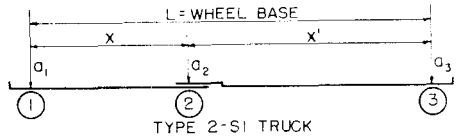
Forty-two variations in the Type 3 truck are given in this table. Each truck number, from 1 to 42, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1 and a_2 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips		Span-Feet							
		a_1	a_2	10	20	30	40	50	60	80	100
	1	.40	.60	.600	.767	.853	.892	.915	.930	.948	.959
	2	.35	.65	.650	.802	.875	.909	.928	.941	.956	.965
L = 14	3	.30	.70	.700	.837	.897	.925	.941	.951	.964	.971
	4	.25	.75	.750	.872	.919	.941	.953	.962	.972	.977
X = 10	5	.20	.80	.800	.907	.941	.957	.966	.972	.979	.984
	6	.15	.85	.850	.942	.963	.973	.979	.983	.988	.990
	7	.10	.90	.900	.977	.985	.989	.992	.993	.995	.996
	8	.40	.60	.600	.721	.824	.871	.898	.916	.938	.951
	9	.35	.65	.650	.762	.849	.890	.913	.928	.947	.958
L = 16	10	.30	.70	.700	.802	.875	.909	.928	.941	.956	.965
	11	.25	.75	.750	.843	.901	.928	.943	.952	.965	.972
X = 12	12	.20	.80	.800	.884	.926	.946	.958	.965	.974	.979
	13	.15	.85	.850	.924	.952	.966	.972	.978	.983	.987
	14	.10	.90	.900	.965	.978	.984	.987	.989	.993	.994
	15	.40	.60	.600	.674	.794	.849	.881	.902	.927	.942
	16	.35	.65	.650	.721	.824	.871	.898	.916	.938	.951
L = 18	17	.30	.70	.700	.767	.853	.892	.915	.930	.948	.959
	18	.25	.75	.750	.814	.882	.914	.932	.944	.959	.967
X = 14	19	.20	.80	.800	.860	.912	.935	.949	.958	.969	.975
	20	.15	.85	.850	.907	.941	.957	.966	.972	.979	.984
	21	.10	.90	.900	.953	.971	.978	.983	.986	.990	.992
	22	.40	.60	.600	.628	.764	.828	.864	.888	.917	.934
	23	.35	.65	.650	.680	.797	.853	.883	.904	.928	.943
L = 20	24	.30	.70	.700	.733	.831	.876	.903	.920	.941	.953
	25	.25	.75	.750	.785	.864	.901	.922	.936	.952	.962
X = 16	26	.20	.80	.800	.837	.897	.925	.941	.951	.964	.971
	27	.15	.85	.850	.890	.930	.949	.960	.967	.975	.980
	28	.10	.90	.900	.942	.963	.973	.979	.983	.988	.990
	29	.40	.60	.600	.628	.736	.806	.847	.874	.907	.926
	30	.35	.65	.650	.680	.772	.833	.869	.892	.920	.936
L = 22	31	.30	.70	.700	.733	.808	.860	.890	.909	.933	.947
	32	.25	.75	.750	.785	.846	.887	.911	.926	.946	.957
X = 18	33	.20	.80	.800	.837	.882	.914	.932	.944	.959	.967
	34	.15	.85	.850	.890	.919	.941	.953	.962	.972	.977
	35	.10	.90	.900	.942	.956	.968	.975	.979	.984	.988
	36	.40	.60	.600	.628	.706	.785	.831	.860	.896	.918
	37	.35	.65	.650	.680	.747	.815	.854	.879	.911	.929
L = 24	38	.30	.70	.700	.733	.786	.844	.877	.899	.925	.940
	39	.25	.75	.750	.785	.827	.874	.900	.918	.939	.952
X = 20	40	.20	.80	.800	.837	.868	.903	.924	.937	.953	.963
	41	.15	.85	.850	.890	.908	.933	.947	.957	.968	.974
	42	.10	.90	.900	.942	.949	.962	.970	.976	.982	.986

TABLE 9.3

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 2-S1 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-S1 TRUCK

One hundred twenty-six variations in the Type 2-S1 truck are given in this table. Each truck number, from 1 to 126, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

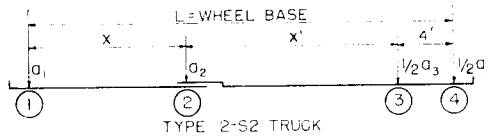
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.30	.60	.750	.837	.897	.925	.941	.951	.964	.971
	2	.10	.40	.50	.625	.767	.853	.892	.915	.930	.948	.959
L = 20	3	.10	.45	.45	.588	.733	.831	.876	.903	.920	.941	.953
X = 8	4	.10	.50	.40	.650	.767	.816	.860	.890	.909	.933	.947
X' = 12	5	.20	.30	.50	.625	.721	.824	.871	.898	.916	.938	.951
	6	.20	.40	.40	.550	.651	.780	.839	.873	.895	.922	.938
	7	.20	.50	.30	.675	.721	.750	.806	.847	.874	.907	.926
	8	.10	.30	.60	.750	.767	.838	.882	.907	.923	.943	.955
	9	.10	.40	.50	.625	.676	.780	.839	.873	.895	.922	.938
L = 24	10	.10	.45	.45	.588	.628	.750	.817	.856	.881	.912	.930
X = 8	11	.10	.50	.40	.650	.676	.758	.796	.839	.867	.902	.922
X' = 16	12	.20	.30	.50	.625	.651	.750	.817	.856	.881	.912	.930
	13	.20	.40	.40	.550	.605	.692	.774	.822	.853	.891	.914
	14	.20	.50	.30	.675	.721	.714	.774	.822	.853	.891	.914
	15	.10	.30	.60	.750	.698	.780	.839	.873	.895	.922	.938
	16	.10	.40	.50	.625	.581	.706	.785	.831	.860	.896	.918
L = 28	17	.10	.45	.45	.588	.593	.669	.758	.809	.842	.884	.907
X = 8	18	.10	.50	.40	.650	.651	.699	.753	.788	.826	.870	.897
X' = 20	19	.20	.30	.50	.625	.581	.676	.763	.814	.847	.886	.909
	20	.20	.40	.40	.550	.605	.603	.710	.771	.811	.860	.889
	21	.20	.50	.30	.675	.721	.714	.742	.797	.832	.876	.901
	22	.10	.30	.60	.750	.698	.728	.796	.839	.867	.902	.922
	23	.10	.40	.50	.625	.581	.640	.731	.788	.826	.870	.897
L = 32	24	.10	.45	.45	.588	.593	.596	.699	.763	.805	.855	.885
X = 8	25	.10	.50	.40	.650	.651	.640	.710	.750	.784	.839	.872
X' = 24	26	.20	.30	.50	.625	.581	.618	.710	.771	.811	.860	.889
	27	.20	.40	.40	.550	.605	.603	.645	.720	.769	.829	.864
	28	.20	.50	.30	.675	.721	.714	.710	.771	.811	.860	.889
	29	.10	.30	.60	.750	.698	.684	.753	.805	.839	.881	.905
	30	.10	.40	.50	.625	.581	.581	.677	.746	.790	.845	.877
L = 36	31	.10	.45	.45	.588	.593	.578	.640	.716	.766	.827	.862
X = 8	32	.10	.50	.40	.650	.651	.632	.667	.716	.749	.808	.848
X' = 28	33	.20	.30	.50	.625	.581	.574	.656	.729	.776	.834	.868
	34	.20	.40	.40	.550	.605	.603	.602	.686	.742	.808	.848
	35	.20	.50	.30	.675	.721	.714	.710	.746	.790	.845	.877
	36	.10	.30	.60	.825	.907	.941	.957	.966	.972	.979	.984
	37	.10	.40	.50	.725	.860	.912	.935	.949	.958	.969	.975
L = 20	38	.10	.45	.45	.675	.837	.897	.925	.941	.951	.964	.971
X = 12	39	.10	.50	.40	.725	.860	.882	.914	.932	.944	.959	.967
X' = 8	40	.20	.30	.50	.700	.791	.868	.903	.924	.937	.953	.963
	41	.20	.40	.40	.600	.744	.838	.882	.907	.923	.943	.955
	42	.20	.50	.30	.700	.791	.808	.860	.890	.909	.933	.947
	43	.10	.30	.60	.750	.837	.882	.914	.932	.944	.959	.967
	44	.10	.40	.50	.625	.767	.838	.882	.907	.923	.943	.955
L = 24	45	.10	.45	.45	.563	.733	.816	.866	.894	.913	.936	.949
X = 12	46	.10	.50	.40	.625	.767	.816	.849	.881	.902	.927	.942
X' = 12	47	.20	.30	.50	.625	.721	.794	.849	.881	.902	.927	.942
	48	.20	.40	.40	.500	.651	.750	.817	.856	.881	.912	.930
	49	.20	.50	.30	.625	.721	.750	.785	.831	.860	.896	.918

TABLE 9.3 (Continued)

	50	.10	.30	.60	.750	.767	.824	.871	.898	.916	.938	.951
	51	.10	.40	.50	.625	.674	.764	.828	.864	.888	.917	.934
L = 28	52	.10	.45	.45	.563	.628	.736	.806	.847	.874	.907	.926
X = 12	53	.10	.50	.40	.625	.676	.758	.796	.831	.860	.896	.918
X′ = 16	54	.20	.30	.50	.625	.651	.720	.796	.839	.867	.902	.922
	55	.20	.40	.40	.500	.558	.662	.753	.805	.839	.881	.905
	56	.20	.50	.30	.625	.674	.706	.781	.771	.811	.860	.889
	57	.10	.30	.60	.750	.698	.772	.828	.864	.888	.917	.934
	58	.10	.40	.50	.625	.581	.699	.774	.822	.853	.891	.914
L = 32	59	.10	.45	.45	.563	.570	.662	.747	.801	.836	.879	.903
X = 12	60	.10	.50	.40	.625	.628	.699	.753	.784	.818	.865	.893
X′ = 20	61	.20	.30	.50	.625	.581	.662	.742	.797	.832	.876	.901
	62	.20	.40	.40	.500	.558	.589	.688	.754	.797	.850	.881
	63	.20	.50	.30	.625	.674	.684	.699	.729	.776	.834	.868
	64	.10	.30	.60	.750	.698	.728	.785	.831	.860	.896	.918
	65	.10	.40	.50	.625	.581	.640	.720	.780	.818	.865	.893
L = 36	66	.10	.45	.45	.563	.570	.596	.688	.754	.797	.850	.881
X = 12	67	.10	.50	.40	.625	.628	.640	.710	.750	.776	.834	.868
X′ = 24	68	.20	.30	.50	.625	.581	.618	.688	.754	.797	.850	.881
	69	.20	.40	.40	.500	.558	.574	.624	.703	.755	.819	.856
	70	.20	.50	.30	.625	.674	.684	.688	.703	.755	.819	.856
	71	.10	.30	.60	.750	.698	.684	.742	.797	.832	.876	.901
	72	.10	.40	.50	.625	.581	.581	.667	.737	.784	.839	.872
L = 40	73	.10	.45	.45	.563	.570	.562	.629	.708	.758	.822	.858
X = 12	74	.10	.50	.40	.625	.628	.618	.667	.716	.749	.803	.844
X′ = 28	75	.20	.30	.50	.625	.581	.574	.634	.712	.763	.824	.860
	76	.29	.40	.40	.500	.558	.574	.581	.653	.713	.788	.831
	77	.20	.50	.30	.625	.674	.684	.688	.691	.374	.803	.844
	78	.10	.30	.60	.750	.698	.662	.711	.763	.805	.855	.885
	79	.10	.40	.50	.625	.581	.551	.625	.695	.748	.813	.852
L = 44	80	.10	.45	.45	.563	.570	.562	.581	.661	.721	.793	.835
X = 12	81	.10	.50	.40	.625	.628	.618	.625	.682	.721	.772	.819
X′ = 32	82	.20	.30	.50	.625	.581	.551	.602	.669	.727	.798	.840
	83	.20	.40	.40	.500	.558	.574	.581	.602	.671	.756	.807
	84	.20	.50	.30	.625	.674	.684	.688	.691	.713	.788	.831
	85	.10	.30	.60	.825	.907	.926	.946	.958	.965	.974	.979
	86	.10	.40	.50	.725	.860	.897	.925	.941	.951	.964	.971
L = 24	87	.10	.45	.45	.675	.837	.882	.914	.932	.944	.959	.967
X = 16	88	.10	.50	.40	.725	.860	.875	.903	.924	.937	.953	.963
X′ = 8	89	.20	.30	.50	.700	.791	.838	.882	.907	.923	.943	.955
	90	.20	.40	.40	.600	.744	.808	.860	.890	.909	.933	.947
	91	.20	.50	.30	.700	.791	.794	.838	.873	.895	.922	.938
	92	.10	.30	.60	.750	.837	.868	.903	.924	.937	.953	.963
	93	.10	.40	.50	.625	.767	.824	.871	.898	.916	.938	.951
L = 28	94	.10	.45	.45	.563	.733	.802	.855	.886	.905	.931	.944
X = 16	95	.10	.50	.40	.625	.767	.816	.839	.873	.895	.922	.938
X′ = 12	96	.20	.30	.50	.625	.721	.764	.828	.864	.888	.917	.934
	97	.20	.40	.40	.500	.651	.720	.796	.839	.867	.902	.922
	98	.20	.50	.30	.625	.721	.750	.763	.814	.847	.886	.909
	99	.10	.30	.60	.750	.767	.816	.860	.890	.909	.933	.947
	100	.10	.40	.50	.625	.674	.758	.817	.856	.881	.912	.930
L = 32	101	.10	.45	.45	.563	.628	.728	.796	.839	.867	.902	.922
X = 16	102	.10	.50	.40	.625	.676	.758	.796	.822	.853	.891	.914
X′ = 16	103	.20	.30	.50	.625	.651	.706	.774	.822	.853	.891	.914
	104	.20	.40	.40	.500	.558	.617	.731	.788	.826	.870	.897
	105	.20	.50	.30	.625	.651	.706	.731	.754	.797	.850	.881
	106	.10	.30	.60	.750	.698	.772	.817	.856	.881	.912	.930
	107	.10	.40	.50	.625	.581	.699	.763	.814	.847	.886	.909
L = 36	108	.10	.45	.45	.563	.547	.662	.737	.792	.829	.874	.899
X = 16	109	.10	.50	.40	.625	.605	.699	.753	.784	.811	.860	.889
X′ = 20	110	.20	.30	.50	.625	.581	.662	.720	.780	.818	.865	.893
	111	.20	.40	.40	.500	.512	.589	.667	.737	.784	.839	.872
	112	.20	.50	.30	.625	.628	.662	.699	.720	.748	.813	.852
	113	.10	.30	.60	.750	.698	.728	.774	.822	.853	.891	.914
	114	.10	.40	.50	.625	.581	.640	.710	.771	.811	.860	.889
L = 40	115	.10	.45	.45	.563	.547	.596	.677	.746	.790	.845	.877
X = 16	116	.10	.50	.40	.625	.605	.640	.710	.750	.776	.829	.864
X′ = 24	117	.20	.30	.50	.625	.581	.618	.667	.737	.784	.839	.872
	118	.20	.40	.40	.500	.512	.544	.602	.686	.742	.808	.848
	119	.20	.50	.30	.625	.628	.655	.667	.695	.713	.777	.823
	120	.10	.30	.60	.750	.698	.684	.742	.788	.826	.870	.897
	121	.10	.40	.50	.625	.581	.581	.667	.729	.776	.834	.868
L = 44	122	.10	.45	.45	.563	.547	.548	.629	.699	.752	.817	.854
X = 16	123	.10	.50	.40	.625	.605	.603	.667	.716	.749	.798	.840
X′ = 28	124	.20	.30	.50	.625	.581	.574	.634	.695	.748	.813	.852
	125	.20	.40	.40	.500	.512	.544	.559	.636	.700	.777	.823
	126	.20	.50	.30	.625	.628	.655	.667	.674	.692	.762	.811

TABLE 9.4

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 2-S2 TRUCKS WEIGHING ONE KIP EACH



One hundred and eight variations in the Type 2-S2 truck are given in this table. Each truck number, from 1 to 108, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

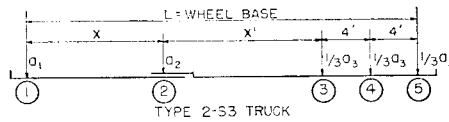
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.30	.60	.600	.767	.853	.892	.915	.930	.948	.959
L = 20	2	.10	.40	.50	.563	.756	.816	.866	.894	.913	.936	.949
X = 8	3	.10	.50	.40	.675	.814	.846	.860	.873	.895	.922	.938
X' = 8	4	.20	.30	.50	.560	.663	.786	.844	.877	.899	.925	.940
	5	.20	.40	.40	.550	.698	.750	.817	.856	.881	.912	.930
	6	.20	.50	.30	.675	.756	.772	.823	.860	.884	.915	.932
	7	.10	.30	.60	.600	.698	.794	.849	.881	.902	.927	.942
L = 24	8	.10	.40	.50	.525	.640	.742	.812	.852	.878	.910	.928
X = 8	9	.10	.50	.40	.650	.721	.787	.817	.835	.853	.891	.914
X' = 12	10	.20	.30	.50	.500	.593	.714	.790	.835	.863	.899	.920
	11	.20	.40	.40	.550	.605	.677	.753	.805	.839	.881	.905
	12	.20	.50	.30	.675	.721	.728	.790	.835	.863	.899	.920
	13	.10	.30	.60	.600	.628	.736	.806	.847	.874	.907	.926
L = 28	14	.10	.40	.50	.525	.535	.669	.758	.809	.842	.884	.907
X = 8	15	.10	.50	.40	.650	.651	.728	.774	.801	.818	.860	.889
X' = 16	16	.20	.30	.50	.500	.523	.640	.737	.792	.829	.874	.899
	17	.20	.40	.40	.550	.605	.618	.710	.771	.811	.860	.889
	18	.20	.50	.30	.675	.721	.714	.758	.809	.842	.884	.907
	19	.10	.30	.60	.600	.628	.684	.763	.814	.847	.886	.909
L = 32	20	.10	.40	.50	.525	.535	.602	.704	.767	.808	.858	.887
X = 8	21	.10	.50	.40	.650	.651	.669	.731	.767	.790	.829	.864
X' = 20	22	.20	.30	.50	.500	.523	.580	.683	.750	.794	.848	.879
	23	.20	.40	.40	.550	.605	.603	.667	.737	.784	.839	.872
	24	.20	.50	.30	.675	.721	.714	.726	.784	.821	.868	.895
	25	.10	.30	.60	.600	.628	.640	.720	.780	.818	.865	.893
L = 36	26	.10	.40	.50	.525	.535	.544	.651	.725	.773	.832	.866
X = 8	27	.10	.50	.40	.650	.651	.633	.688	.733	.762	.808	.848
X' = 24	28	.20	.30	.50	.500	.523	.536	.629	.708	.758	.822	.858
	29	.20	.40	.40	.550	.605	.603	.624	.703	.755	.819	.856
	30	.20	.50	.30	.675	.721	.714	.710	.758	.800	.853	.883
	31	.10	.30	.60	.600	.628	.618	.677	.746	.790	.845	.877
L = 40	32	.10	.40	.50	.525	.535	.523	.597	.682	.737	.806	.846
X = 8	33	.10	.50	.40	.650	.651	.633	.645	.699	.734	.788	.831
X' = 28	34	.20	.30	.50	.500	.523	.515	.575	.665	.724	.796	.837
	35	.20	.40	.40	.550	.605	.603	.602	.669	.727	.798	.840
	36	.20	.50	.30	.675	.721	.714	.710	.733	.779	.837	.870
	37	.10	.30	.60	.600	.767	.838	.882	.907	.923	.943	.955
L = 24	38	.10	.40	.50	.563	.756	.810	.855	.886	.905	.931	.944
X = 12	39	.10	.50	.40	.675	.814	.846	.860	.869	.888	.917	.934
X' = 8	40	.20	.30	.50	.500	.663	.758	.823	.860	.884	.915	.932
	41	.20	.40	.40	.550	.698	.735	.796	.839	.867	.902	.922
	42	.20	.50	.30	.663	.756	.772	.780	.818	.850	.889	.912
	43	.10	.30	.60	.600	.698	.780	.839	.873	.895	.922	.938
L = 28	44	.10	.40	.50	.500	.640	.736	.801	.843	.871	.905	.924
X = 12	45	.10	.50	.40	.625	.721	.787	.817	.835	.847	.886	.909
X' = 12	46	.20	.30	.50	.500	.593	.684	.769	.818	.850	.889	.912
	47	.20	.40	.40	.500	.605	.677	.731	.788	.826	.870	.897
	48	.20	.50	.30	.625	.686	.728	.747	.767	.808	.858	.887
	49	.10	.30	.60	.600	.628	.728	.796	.839	.867	.902	.922
L = 32	50	.10	.40	.50	.500	.523	.662	.747	.801	.836	.879	.903
X = 12	51	.10	.50	.40	.625	.628	.728	.774	.801	.818	.855	.885
X' = 16	52	.20	.30	.50	.500	.523	.624	.715	.775	.815	.863	.891
	53	.20	.40	.40	.500	.558	.618	.667	.737	.784	.839	.872
	54	.20	.50	.30	.625	.674	.684	.715	.742	.787	.842	.874

TABLE 9.4 (Continued)

	55	.10	.30	.60	.600	.628	.684	.753	.805	.839	.881	.905
L = 36	56	.10	.40	.50	.500	.523	.602	.694	.758	.800	.853	.883
X = 12	57	.10	.50	.40	.625	.628	.669	.731	.767	.790	.824	.860
X′= 20	58	.20	.30	.50	.500	.523	.580	.661	.733	.779	.837	.870
	59	.20	.40	.40	.500	.558	.574	.624	.686	.742	.808	.848
	60	.20	.50	.30	.625	.674	.684	.688	.716	.766	.827	.862
	61	.10	.30	.60	.600	.628	.640	.710	.771	.811	.860	.889
L = 40	62	.10	.40	.50	.500	.523	.544	.640	.716	.766	.827	.862
X = 12	63	.10	.50	.40	.625	.628	.618	.688	.733	.762	.798	.835
X′= 24	64	.20	.30	.50	.500	.523	.536	.608	.691	.745	.811	.850
	65	.20	.40	.40	.500	.558	.574	.581	.636	.700	.777	.823
	66	.20	.50	.30	.625	.674	.684	.688	.691	.745	.811	.850
	67	.10	.30	.60	.600	.628	.618	.677	.737	.784	.839	.872
L = 44	68	.10	.40	.50	.500	.523	.515	.597	.674	.731	.801	.842
X = 12	69	.10	.50	.40	.625	.628	.618	.645	.699	.734	.777	.811
X′= 28	70	.20	.30	.50	.500	.523	.515	.575	.648	.710	.785	.829
	71	.20	.40	.40	.500	.558	.574	.581	.602	.671	.756	.807
	72	.20	.50	.30	.625	.674	.684	.688	.691	.724	.736	.837
	73	.10	.30	.60	.600	.767	.824	.871	.898	.916	.938	.951
L = 28	74	.10	.40	.50	.563	.756	.810	.844	.877	.899	.925	.940
X = 16	75	.10	.50	.40	.675	.814	.846	.860	.869	.881	.912	.930
X′= 8	76	.20	.30	.50	.500	.663	.728	.801	.843	.871	.905	.924
	77	.20	.40	.40	.550	.698	.735	.774	.822	.852	.891	.914
	78	.20	.50	.30	.663	.756	.772	.780	.801	.836	.879	.903
	79	.10	.30	.60	.600	.698	.772	.828	.864	.888	.917	.934
L = 32	80	.10	.40	.50	.500	.640	.736	.790	.835	.863	.899	.920
X = 16	81	.10	.50	.40	.625	.721	.787	.817	.835	.845	.881	.905
X′= 12	82	.20	.30	.50	.500	.593	.668	.747	.801	.836	.879	.903
	83	.20	.40	.40	.500	.605	.677	.710	.771	.811	.860	.889
	84	.20	.50	.30	.625	.686	.728	.747	.758	.787	.842	.874
	85	.10	.30	.60	.600	.628	.728	.785	.831	.860	.896	.918
L = 36	86	.10	.40	.50	.500	.523	.662	.737	.792	.829	.874	.899
X = 16	87	.10	.50	.40	.625	.628	.728	.774	.801	.818	.850	.881
X′= 16	88	.20	.30	.50	.500	.523	.624	.694	.758	.800	.853	.883
	89	.20	.40	.40	.500	.512	.618	.667	.720	.769	.829	.864
	90	.20	.50	.30	.625	.628	.684	.715	.733	.745	.806	.846
	91	.10	.30	.60	.600	.628	.684	.742	.797	.832	.876	.901
L = 40	92	.10	.40	.50	.500	.523	.602	.683	.750	.794	.848	.879
X = 16	93	.10	.50	.40	.625	.605	.669	.731	.767	.790	.819	.856
X′= 20	94	.20	.30	.50	.500	.523	.580	.640	.716	.766	.827	.862
	95	.20	.40	.40	.500	.512	.558	.624	.669	.727	.798	.840
	96	.20	.50	.30	.625	.628	.655	.683	.708	.724	.785	.829
	97	.10	.30	.60	.600	.628	.640	.710	.763	.805	.855	.885
L = 44	98	.10	.40	.50	.500	.523	.544	.640	.708	.758	.822	.858
X = 16	99	.10	.50	.40	.625	.605	.611	.688	.733	.762	.798	.831
X′= 24	100	.20	.30	.50	.500	.523	.536	.608	.674	.731	.801	.842
	101	.20	.40	.40	.500	.512	.544	.581	.627	.685	.767	.815
	102	.20	.50	.30	.625	.628	.655	.667	.682	.703	.770	.817
	103	.10	.30	.60	.600	.628	.618	.677	.729	.776	.834	.868
L = 48	104	.10	.40	.50	.500	.523	.515	.597	.665	.724	.796	.837
X = 16	105	.10	.50	.40	.625	.605	.603	.645	.699	.734	.777	.807
X′= 28	106	.20	.30	.50	.500	.523	.515	.575	.631	.695	.775	.821
	107	.20	.40	.40	.500	.512	.544	.559	.593	.643	.736	.790
	108	.20	.50	.30	.625	.628	.655	.667	.674	.682	.754	.805

TABLE 9.5

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 2-S3 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 2-S3 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

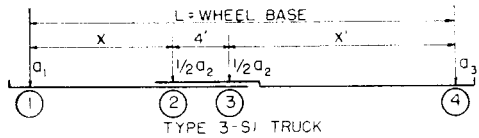
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.225	.675	.506	.680	.783	.842	.875	.897	.923	.939
L = 24	2	.10	.30	.60	.450	.628	.750	.817	.856	.881	.912	.930
X = 8	3	.10	.40	.50	.525	.697	.772	.806	.831	.860	.896	.918
X' = 8	4	.20	.20	.60	.450	.605	.720	.796	.839	.867	.902	.922
	5	.20	.30	.50	.425	.581	.677	.763	.814	.847	.886	.909
	6	.20	.40	.40	.550	.651	.706	.774	.822	.853	.891	.914
	7	.10	.225	.675	.506	.628	.736	.806	.847	.874	.907	.926
L = 28	8	.10	.30	.60	.450	.558	.692	.774	.822	.853	.891	.914
X = 8	9	.10	.40	.50	.525	.581	.698	.753	.788	.826	.870	.897
X' = 12	10	.20	.20	.60	.450	.558	.662	.753	.805	.839	.881	.905
	11	.20	.30	.50	.425	.488	.603	.710	.771	.811	.860	.889
	12	.20	.40	.40	.550	.605	.647	.731	.788	.826	.870	.897
	13	.10	.225	.675	.506	.628	.695	.772	.820	.852	.890	.913
L = 32	14	.10	.30	.60	.450	.558	.640	.731	.788	.826	.870	.897
X = 8	15	.10	.40	.50	.525	.535	.624	.699	.746	.791	.845	.877
X' = 16	16	.20	.20	.60	.450	.558	.618	.710	.771	.811	.860	.889
	17	.20	.30	.50	.425	.488	.545	.656	.729	.776	.834	.868
	18	.20	.40	.40	.550	.605	.603	.688	.754	.797	.850	.881
	19	.10	.225	.675	.506	.628	.662	.737	.792	.829	.874	.899
L = 36	20	.10	.30	.60	.450	.558	.596	.688	.754	.797	.850	.881
L = 8	21	.10	.40	.50	.525	.535	.551	.644	.703	.755	.819	.856
X' = 20	22	.20	.20	.60	.450	.558	.589	.667	.737	.784	.839	.872
	23	.20	.30	.50	.425	.488	.501	.602	.686	.742	.808	.848
	24	.20	.40	.40	.550	.605	.603	.645	.720	.770	.829	.864
	25	.10	.225	.675	.506	.628	.645	.702	.765	.806	.856	.886
L = 40	26	.10	.30	.60	.450	.558	.574	.645	.720	.769	.829	.864
X = 8	27	.10	.40	.50	.525	.535	.523	.591	.661	.721	.793	.835
X' = 24	28	.20	.20	.60	.450	.558	.574	.624	.703	.755	.819	.856
	29	.20	.30	.50	.425	.488	.493	.548	.644	.707	.782	.827
	30	.20	.40	.40	.550	.605	.603	.602	.686	.742	.808	.848
	31	.10	.225	.675	.506	.680	.769	.831	.867	.890	.918	.935
L = 28	32	.10	.30	.60	.450	.628	.736	.806	.847	.874	.907	.926
X = 12	33	.10	.40	.50	.500	.697	.772	.806	.826	.853	.891	.914
X' = 8	34	.20	.20	.60	.450	.605	.692	.774	.822	.853	.891	.914
	35	.20	.30	.50	.375	.581	.662	.742	.797	.832	.876	.901
	36	.20	.40	.40	.500	.651	.706	.731	.771	.811	.860	.889
	37	.10	.225	.675	.506	.628	.728	.796	.839	.867	.902	.922
L = 32	38	.10	.30	.60	.450	.558	.684	.763	.814	.847	.886	.909
X = 12	39	.10	.40	.50	.500	.581	.698	.753	.784	.818	.865	.893
X' = 12	40	.20	.20	.60	.450	.558	.646	.731	.788	.826	.870	.897
	41	.20	.30	.50	.375	.465	.589	.688	.754	.797	.850	.881
	42	.20	.40	.40	.500	.558	.647	.688	.720	.770	.829	.864
	43	.10	.225	.675	.506	.628	.695	.761	.811	.844	.885	.908
L = 36	44	.10	.30	.60	.450	.558	.640	.720	.780	.818	.865	.893
X = 12	45	.10	.40	.50	.500	.512	.624	.699	.742	.784	.839	.872
X' = 16	46	.20	.20	.60	.450	.558	.618	.688	.754	.797	.850	.881
	47	.20	.30	.50	.375	.465	.545	.634	.712	.763	.824	.860
	48	.20	.40	.40	.500	.558	.589	.645	.686	.742	.808	.848
	49	.10	.225	.675	.506	.628	.662	.726	.784	.821	.868	.895
L = 40	50	.10	.30	.60	.450	.558	.596	.677	.746	.790	.845	.877
X = 12	51	.10	.40	.50	.500	.512	.551	.644	.699	.749	.813	.852
X' = 20	52	.20	.20	.60	.450	.558	.589	.645	.720	.769	.829	.864
	53	.20	.30	.50	.375	.465	.501	.581	.669	.728	.798	.840
	54	.20	.40	.40	.500	.558	.574	.602	.653	.713	.788	.831

TABLE 9.5 (Continued)

	55	.10	.225	.675	.506	.628	.645	.702	.756	.799	.851	.882
L = 44	56	.10	.30	.60	.450	.558	.574	.645	.712	.763	.824	.860
X = 12	57	.10	.40	.50	.500	.512	.507	.591	.657	.713	.788	.831
X' = 24	58	.20	.20	.60	.450	.558	.574	.624	.686	.742	.808	.848
	59	.20	.30	.50	.375	.465	.479	.548	.627	.692	.772	.819
	60	.20	.40	.40	.500	.558	.574	.581	.619	.686	.767	.815
	61	.10	.225	.675	.506	.680	.761	.820	.858	.883	.913	.931
L = 32	62	.10	.30	.60	.450	.628	.728	.796	.839	.867	.902	.922
X = 16	63	.10	.40	.50	.500	.697	.772	.806	.826	.847	.886	.909
X' = 8	64	.20	.20	.60	.450	.605	.677	.753	.805	.839	.881	.905
	65	.20	.30	.50	.375	.581	.662	.720	.780	.818	.865	.893
	66	.20	.40	.40	.500	.651	.706	.731	.754	.797	.850	.881
	67	.10	.225	.675	.506	.628	.728	.785	.831	.860	.896	.918
L = 36	68	.10	.30	.60	.450	.558	.684	.753	.805	.839	.881	.905
X = 16	69	.10	.40	.50	.500	.581	.698	.753	.784	.811	.860	.889
X' = 12	70	.20	.20	.60	.450	.558	.646	.710	.771	.811	.860	.889
	71	.20	.30	.50	.375	.465	.589	.667	.737	.784	.839	.872
	72	.20	.40	.40	.500	.558	.647	.688	.712	.755	.819	.856
	73	.10	.225	.675	.506	.628	.695	.751	.803	.837	.880	.904
L = 40	74	.10	.30	.60	.450	.558	.640	.710	.771	.811	.860	.889
X = 16	75	.10	.40	.50	.500	.503	.624	.699	.742	.776	.834	.868
X' = 16	76	.20	.20	.60	.450	.558	.618	.667	.737	.784	.839	.872
	77	.20	.30	.50	.375	.465	.545	.613	.695	.749	.813	.852
	78	.20	.40	.40	.500	.512	.589	.645	.678	.713	.788	.831
	79	.10	.225	.675	.506	.628	.662	.726	.775	.815	.863	.891
L = 44	80	.10	.30	.60	.450	.558	.596	.677	.737	.784	.839	.872
X = 16	81	.10	.40	.50	.500	.488	.551	.644	.699	.742	.808	.848
X' = 20	82	.20	.20	.60	.450	.558	.589	.645	.703	.755	.819	.856
	83	.20	.30	.50	.375	.465	.501	.581	.653	.713	.788	.831
	84	.20	.40	.40	.500	.512	.544	.602	.644	.671	.756	.807
	85	.10	.225	.675	.506	.628	.645	.702	.748	.792	.846	.878
L = 48	86	.10	.30	.60	.450	.558	.574	.645	.703	.755	.819	.856
X = 16	87	.10	.40	.50	.500	.488	.493	.591	.657	.707	.782	.827
X' = 24	88	.20	.20	.60	.450	.558	.574	.624	.669	.727	.798	.840
	89	.20	.30	.50	.375	.465	.479	.548	.610	.679	.762	.811
	90	.20	.40	.40	.500	.512	.544	.559	.610	.644	.725	.782

TABLE 9.6

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 3-S1 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 3-S1 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

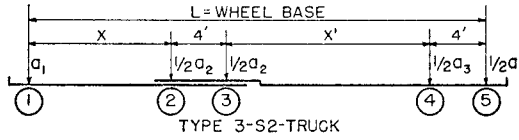
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.40	.50	.625	.721	.808	.860	.890	.909	.932	.947
L = 24	2	.10	.50	.40	.500	.640	.758	.822	.860	.884	.915	.932
X = 8	3	.10	.60	.30	.600	.698	.772	.839	.830	.860	.896	.918
X' = 12	4	.20	.40	.40	.500	.605	.720	.796	.839	.868	.901	.922
	5	.20	.50	.30	.500	.616	.670	.758	.809	.842	.884	.908
	6	.20	.534	.266	.534	.652	.686	.760	.810	.843	.884	.909
	7	.10	.40	.50	.625	.628	.736	.806	.847	.874	.907	.926
L = 28	8	.10	.50	.40	.500	.570	.670	.758	.809	.842	.884	.908
X = 8	9	.10	.60	.30	.600	.675	.728	.774	.801	.818	.860	.889
X' = 16	10	.20	.40	.40	.500	.512	.632	.731	.788	.826	.870	.897
	11	.20	.50	.30	.500	.616	.647	.715	.775	.815	.863	.891
	12	.20	.534	.266	.534	.652	.683	.731	.788	.826	.870	.897
	13	.10	.40	.50	.625	.582	.670	.753	.805	.839	.881	.906
L = 32	14	.10	.50	.40	.500	.570	.603	.693	.758	.800	.853	.883
X = 8	15	.10	.60	.30	.600	.675	.684	.742	.775	.797	.834	.868
X' = 20	16	.20	.40	.40	.500	.512	.559	.667	.737	.780	.839	.873
	17	.20	.50	.30	.500	.616	.647	.683	.750	.794	.847	.879
	18	.20	.534	.266	.534	.652	.683	.702	.766	.807	.857	.886
	19	.10	.40	.50	.625	.582	.610	.699	.762	.805	.855	.885
L = 36	20	.10	.50	.40	.500	.570	.581	.640	.707	.758	.822	.858
X = 8	21	.10	.60	.30	.600	.675	.684	.710	.750	.776	.818	.856
X' = 24	22	.20	.40	.40	.500	.512	.544	.602	.686	.742	.808	.848
	23	.20	.50	.30	.500	.616	.647	.661	.724	.773	.832	.866
	24	.20	.534	.266	.534	.652	.683	.696	.742	.788	.842	.876
	25	.10	.40	.50	.625	.582	.566	.645	.720	.769	.829	.864
L = 40	26	.10	.50	.40	.500	.570	.581	.597	.661	.716	.790	.833
X = 8	27	.10	.60	.30	.600	.675	.684	.688	.724	.755	.803	.844
X' = 28	28	.20	.40	.40	.500	.512	.544	.559	.635	.700	.777	.823
	29	.20	.50	.30	.500	.616	.647	.661	.699	.752	.816	.854
	30	.20	.534	.266	.534	.652	.683	.696	.720	.769	.829	.864
	31	.10	.40	.50	.625	.721	.794	.849	.881	.902	.927	.943
L = 28	32	.10	.50	.40	.500	.640	.742	.812	.851	.878	.910	.928
X = 12	33	.10	.60	.30	.600	.698	.772	.806	.826	.853	.891	.914
X' = 12	34	.20	.40	.40	.500	.605	.692	.774	.822	.853	.891	.914
	35	.20	.50	.30	.500	.593	.670	.736	.792	.829	.873	.899
	36	.20	.534	.266	.534	.620	.686	.723	.783	.820	.867	.894
	37	.10	.40	.50	.625	.628	.728	.796	.839	.868	.901	.922
L = 32	38	.10	.50	.40	.500	.547	.662	.747	.801	.836	.879	.903
X = 12	39	.10	.60	.30	.600	.651	.728	.774	.801	.818	.855	.885
X' = 16	40	.20	.40	.40	.500	.512	.618	.710	.771	.811	.860	.889
	41	.20	.50	.30	.500	.570	.625	.672	.733	.779	.837	.871
	42	.20	.534	.266	.534	.605	.653	.688	.720	.769	.829	.864
	43	.10	.40	.50	.625	.582	.670	.742	.796	.832	.875	.901
L = 36	44	.10	.50	.40	.500	.547	.603	.683	.750	.794	.847	.879
X = 12	45	.10	.60	.30	.600	.651	.684	.742	.775	.797	.824	.856
X' = 20	46	.20	.40	.40	.500	.465	.559	.645	.720	.769	.829	.864
	47	.20	.50	.30	.500	.570	.618	.640	.682	.737	.806	.846
	48	.20	.534	.266	.534	.605	.653	.675	.698	.750	.815	.853
	49	.10	.40	.50	.625	.582	.610	.688	.754	.797	.850	.881
L = 40	50	.10	.50	.40	.500	.547	.567	.640	.699	.752	.816	.854
X = 12	51	.10	.60	.30	.600	.651	.670	.710	.750	.776	.808	.827
X' = 24	52	.20	.40	.40	.500	.465	.515	.581	.669	.727	.798	.840
	53	.20	.50	.30	.500	.570	.618	.640	.657	.716	.790	.833
	54	.20	.534	.266	.534	.605	.653	.675	.687	.732	.801	.843

TABLE 9.6 (Continued)

	55	.10	.40	.50	.625	.582	.566	.645	.712	.763	.824	.860
L = 44	56	.10	.50	.40	.500	.547	.567	.597	.661	.710	.785	.829
X = 12	57	.10	.60	.30	.600	.651	.670	.677	.724	.755	.793	.815
X′ = 28	58	.20	.40	.40	.500	.465	.515	.538	.618	.685	.767	.815
	59	.20	.50	.30	.500	.570	.618	.640	.652	.695	.775	.821
	60	.20	.534	.266	.534	.605	.653	.675	.687	.713	.787	.831
	61	.10	.40	.50	.625	.721	.786	.839	.873	.895	.922	.938
L = 32	62	.10	.50	.40	.500	.640	.736	.693	.843	.871	.904	.924
X = 16	63	.10	.60	.30	.600	.698	.772	.806	.826	.847	.886	.910
X′ = 12	64	.20	.40	.40	.500	.605	.676	.753	.805	.839	.881	.906
	65	.20	.50	.30	.500	.593	.670	.715	.775	.815	.863	.891
	66	.20	.534	.266	.534	.620	.686	.717	.766	.807	.857	.886
	67	.10	.40	.50	.625	.628	.728	.785	.830	.860	.896	.918
L = 36	68	.10	.50	.40	.500	.523	.662	.736	.792	.829	.873	.899
X = 16	69	.10	.60	.30	.600	.628	.728	.774	.801	.818	.850	.881
X′ = 16	70	.20	.40	.40	.500	.512	.618	.688	.754	.797	.850	.881
	71	.20	.50	.30	.500	.523	.625	.672	.716	.766	.827	.862
	72	.20	.534	.266	.534	.559	.647	.688	.712	.755	.818	.856
	73	.10	.40	.50	.625	.582	.670	.731	.788	.826	.870	.897
L = 40	74	.10	.50	.40	.500	.523	.603	.683	.741	.787	.842	.875
X = 16	75	.10	.60	.30	.600	.628	.684	.742	.775	.797	.824	.852
X′ = 20	76	.20	.40	.40	.500	.465	.595	.624	.703	.755	.818	.856
	77	.20	.50	.30	.500	.523	.588	.640	.674	.716	.790	.833
	78	.20	.534	.266	.534	.559	.623	.659	.689	.709	.780	.826
	79	.10	.40	.50	.625	.582	.610	.688	.746	.790	.844	.877
L = 44	80	.10	.50	.40	.500	.523	.552	.640	.695	.745	.811	.850
X = 16	81	.10	.60	.30	.600	.628	.655	.710	.750	.776	.808	.827
X′ = 24	82	.20	.40	.40	.500	.465	.500	.581	.652	.713	.787	.831
	83	.20	.50	.30	.500	.523	.588	.618	.648	.675	.754	.805
	84	.20	.534	.266	.534	.559	.623	.653	.670	.690	.759	.810
	85	.10	.40	.50	.625	.582	.566	.645	.703	.755	.818	.856
L = 48	86	.10	.50	.40	.500	.523	.552	.597	.661	.703	.780	.825
X = 16	87	.10	.60	.30	.600	.628	.655	.677	.724	.755	.793	.815
X′ = 28	88	.20	.40	.40	.500	.465	.485	.538	.602	.671	.756	.807
	89	.20	.50	.30	.500	.523	.588	.618	.635	.654	.733	.788
	90	.20	.534	.266	.534	.559	.623	.653	.670	.682	.746	.799

TABLE 9.7

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 3-S2 TRUCKS WEIGHING ONE KIP EACH



One hundred and twelve variations in the Type 3-S2 truck are given in this table. Each truck number, from 1 to 112, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

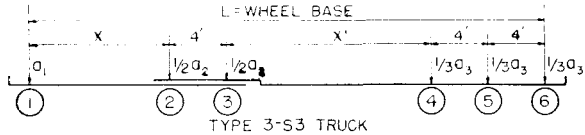
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.30	.60	.600	.663	.758	.823	.860	.884	.915	.932
	2	.10	.40	.50	.500	.570	.698	.780	.826	.857	.894	.916
L = 28	3	.10	.45	.45	.450	.523	.663	.758	.809	.842	.884	.907
X = 8	4	.10	.50	.40	.500	.570	.690	.747	.792	.829	.874	.899
X' = 12	5	.20	.30	.50	.500	.558	.662	.753	.805	.839	.881	.905
	8	.20	.40	.40	.400	.512	.603	.710	.771	.811	.860	.889
	7	.20	.50	.30	.500	.616	.647	.731	.788	.826	.870	.897
	8	.10	.30	.60	.600	.628	.706	.780	.826	.857	.894	.916
	9	.10	.40	.50	.500	.523	.632	.726	.784	.821	.868	.895
L = 32	10	.10	.45	.45	.450	.517	.596	.699	.763	.805	.855	.885
X = 8	11	.10	.50	.40	.500	.570	.632	.704	.746	.787	.842	.874
X' = 16	12	.20	.30	.50	.500	.523	.602	.699	.763	.805	.855	.885
	13	.20	.40	.40	.400	.512	.544	.645	.720	.769	.829	.864
	14	.20	.50	.30	.500	.616	.647	.699	.763	.805	.855	.885
	15	.10	.30	.60	.600	.628	.662	.737	.792	.829	.874	.899
	16	.10	.40	.50	.500	.523	.574	.672	.742	.787	.842	.874
L = 36	17	.10	.45	.45	.450	.517	.529	.640	.716	.766	.827	.862
X = 8	18	.10	.50	.40	.500	.570	.581	.661	.712	.745	.811	.850
X' = 20	19	.20	.30	.50	.500	.523	.558	.645	.720	.769	.829	.864
	20	.20	.40	.40	.400	.512	.544	.602	.686	.742	.808	.848
	21	.20	.50	.30	.500	.616	.647	.667	.737	.784	.839	.872
	22	.10	.30	.60	.600	.628	.629	.694	.758	.800	.853	.883
	23	.10	.40	.50	.500	.523	.529	.618	.699	.752	.817	.854
L = 40	24	.10	.45	.45	.450	.517	.529	.581	.669	.727	.798	.840
X = 8	25	.10	.50	.40	.500	.570	.581	.618	.678	.716	.780	.825
X' = 24	26	.20	.30	.50	.500	.523	.525	.591	.678	.734	.803	.844
	27	.20	.40	.40	.400	.512	.544	.559	.653	.713	.788	.831
	28	.20	.50	.30	.500	.616	.647	.661	.712	.763	.824	.860
	29	.10	.30	.60	.600	.628	.618	.661	.725	.773	.832	.866
	30	.10	.40	.50	.500	.523	.515	.575	.657	.716	.791	.833
L = 44	31	.10	.45	.45	.450	.517	.529	.535	.623	.689	.770	.817
X = 8	32	.10	.50	.40	.500	.570	.581	.586	.644	.689	.754	.805
X' = 28	33	.20	.30	.50	.500	.523	.515	.559	.636	.700	.777	.823
	34	.20	.40	.40	.400	.512	.544	.559	.619	.685	.767	.815
	35	.20	.50	.30	.500	.616	.647	.661	.686	.742	.808	.848
	36	.10	.30	.60	.600	.733	.802	.855	.886	.905	.931	.944
	37	.10	.40	.50	.500	.663	.758	.823	.860	.884	.915	.932
L = 28	38	.10	.45	.45	.450	.628	.736	.806	.847	.874	.907	.926
X = 12	39	.10	.50	.40	.500	.663	.750	.790	.835	.863	.899	.920
X' = 8	40	.20	.30	.50	.500	.628	.706	.785	.831	.860	.896	.918
	41	.20	.40	.40	.400	.558	.662	.753	.805	.839	.881	.905
	42	.20	.50	.30	.500	.628	.690	.720	.780	.818	.865	.893
	43	.10	.30	.60	.600	.663	.750	.812	.852	.878	.910	.928
	44	.10	.40	.50	.500	.570	.690	.769	.818	.850	.889	.912
L = 32	45	.10	.45	.45	.450	.523	.662	.747	.801	.836	.879	.903
X = 12	46	.10	.50	.40	.500	.570	.690	.747	.784	.821	.868	.895
X' = 12	47	.20	.30	.50	.500	.558	.646	.731	.788	.826	.870	.897
	48	.20	.40	.40	.400	.465	.589	.688	.754	.797	.850	.881
	49	.20	.50	.30	.500	.570	.646	.688	.720	.769	.829	.864

TABLE 9.7 (Continued)

	50	.10	.30	.60	.600	.628	.706	.769	.818	.850	.889	.912
	51	.10	.40	.50	.500	.523	.632	.715	.775	.815	.863	.891
L = 36	52	.10	.45	.45	.450	.494	.596	.688	.754	.797	.850	.881
X = 12	53	.10	.50	.40	.500	.547	.632	.704	.746	.779	.837	.870
X′ = 16	54	.20	.30	.50	.500	.523	.602	.677	.746	.790	.845	.877
	55	.20	.40	.40	.400	.465	.529	.624	.703	.755	.819	.856
	56	.20	.50	.30	.500	.570	.618	.656	.695	.748	.813	.852
	57	.10	.30	.60	.600	.628	.662	.726	.784	.821	.868	.895
	58	.10	.40	.50	.500	.523	.574	.661	.733	.779	.837	.870
L = 40	59	.10	.45	.45	.450	.494	.529	.629	.708	.758	.822	.858
X = 12	60	.10	.50	.40	.500	.547	.574	.661	.712	.745	.806	.846
X′ = 20	61	.20	.30	.50	.500	.523	.558	.624	.703	.755	.819	.856
	62	.20	.40	.40	.400	.465	.515	.559	.653	.713	.788	.831
	63	.20	.50	.30	.500	.570	.618	.640	.669	.727	.798	.840
	64	.10	.30	.60	.600	.628	.629	.694	.750	.794	.848	.879
	65	.10	.40	.50	.500	.523	.529	.618	.691	.745	.811	.850
L = 44	66	.10	.45	.45	.450	.494	.515	.581	.661	.721	.793	.835
X = 12	67	.10	.50	.40	.500	.547	.566	.618	.678	.716	.775	.821
X′ = 24	68	.20	.30	.50	.500	.523	.525	.591	.661	.721	.793	.835
	69	.20	.40	.40	.400	.465	.515	.538	.602	.671	.756	.807
	70	.20	.50	.30	.500	.570	.618	.640	.653	.706	.782	.827
	71	.10	.30	.60	.600	.628	.618	.661	.716	.765	.827	.862
	72	.10	.40	.50	.500	.523	.515	.575	.648	.710	.785	.829
L = 48	73	.10	.45	.45	.450	.494	.515	.532	.614	.682	.765	.813
X = 12	74	.10	.50	.40	.500	.547	.566	.575	.644	.689	.744	.796
X′ = 28	75	.20	.30	.50	.500	.523	.515	.559	.619	.685	.767	.815
	76	.20	.40	.40	.400	.465	.515	.538	.551	.629	.725	.782
	77	.20	.50	.30	.500	.570	.618	.640	.653	.685	.767	.815
	78	.10	.30	.60	.600	.663	.756	.801	.843	.871	.905	.924
	79	.10	.40	.50	.500	.570	.690	.758	.809	.842	.884	.907
L = 36	80	.10	.45	.45	.450	.523	.662	.737	.792	.829	.874	.899
X = 16	81	.10	.50	.40	.500	.570	.690	.747	.780	.815	.863	.891
X′ = 12	82	.20	.30	.50	.500	.558	.646	.710	.771	.811	.860	.889
	83	.20	.40	.40	.400	.465	.589	.667	.737	.784	.839	.872
	84	.20	.50	.30	.500	.558	.646	.688	.712	.755	.819	.856
	85	.10	.30	.60	.600	.628	.706	.758	.809	.842	.884	.907
	86	.10	.40	.50	.500	.523	.632	.704	.767	.808	.858	.887
L = 40	87	.10	.45	.45	.450	.471	.596	.677	.746	.790	.845	.877
X = 16	88	.10	.50	.40	.500	.523	.632	.704	.746	.773	.832	.866
X′ = 16	89	.20	.30	.50	.500	.523	.602	.656	.729	.776	.834	.868
	90	.20	.40	.40	.400	.419	.529	.602	.686	.742	.808	.848
	91	.20	.50	.30	.500	.523	.602	.656	.686	.707	.782	.827
	92	.10	.30	.60	.600	.628	.662	.726	.775	.815	.863	.891
	93	.10	.40	.50	.500	.523	.574	.661	.725	.773	.832	.866
L = 44	94	.10	.45	.45	.450	.471	.529	.629	.699	.752	.817	.854
X = 16	95	.10	.50	.40	.500	.523	.574	.661	.712	.745	.801	.842
X′ = 20	96	.20	.30	.50	.500	.523	.558	.624	.686	.742	.808	.848
	97	.20	.40	.40	.400	.419	.485	.559	.636	.700	.777	.823
	98	.20	.50	.30	.500	.523	.588	.624	.661	.686	.756	.807
	99	.10	.30	.60	.600	.628	.629	.694	.742	.787	.842	.874
	100	.10	.40	.50	.500	.523	.529	.618	.682	.737	.806	.846
L = 48	101	.10	.45	.45	.450	.471	.500	.581	.653	.713	.788	.831
X = 16	102	.10	.50	.40	.500	.523	.551	.618	.678	.716	.770	.817
X′ = 24	103	.20	.30	.50	.500	.523	.525	.591	.644	.706	.782	.827
	104	.20	.40	.40	.400	.419	.485	.516	.585	.658	.746	.798
	105	.20	.50	.30	.500	.523	.588	.618	.636	.665	.741	.794
	106	.10	.30	.60	.600	.628	.618	.661	.712	.758	.822	.858
	107	.10	.40	.50	.500	.523	.515	.575	.644	.703	.780	.825
L = 52	108	.10	.45	.45	.450	.471	.500	.532	.610	.674	.760	.809
X = 16	109	.10	.50	.40	.500	.523	.551	.575	.644	.689	.743	.792
X′ = 28	110	.20	.30	.50	.500	.523	.551	.559	.610	.671	.756	.807
	111	.20	.40	.40	.400	.419	.485	.516	.542	.616	.715	.774
	112	.20	.50	.30	.500	.523	.588	.618	.636	.647	.725	.782

TABLE 9.8

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 3-S3 TRUCKS WEIGHING ONE KIP EACH



One hundred and five variations in the Type 3-S3 truck are given in this table. Each truck number, from 1 to 105, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

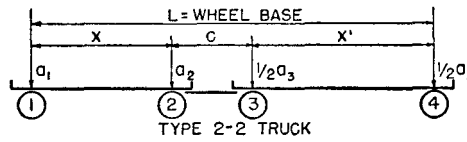
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.30	.60	.450	.558	.662	.747	.801	.836	.879	.903
	2	.10	.36	.54	.405	.502	.622	.718	.777	.817	.864	.892
L = 32	3	.10	.40	.50	.400	.465	.596	.699	.762	.805	.855	.885
X = 8	4	.10	.50	.40	.500	.570	.662	.726	.762	.787	.831	.866
X = 12	5	.20	.30	.50	.375	.465	.567	.672	.741	.787	.842	.875
	6	.20	.40	.40	.400	.512	.559	.667	.737	.784	.839	.873
	7	.20	.50	.30	.500	.616	.647	.715	.775	.815	.863	.891
	8	.10	.30	.60	.450	.558	.618	.704	.767	.808	.858	.887
	9	.10	.36	.54	.405	.502	.569	.669	.739	.785	.840	.874
L = 36	10	.10	.40	.50	.400	.465	.537	.645	.720	.770	.829	.864
X = 8	11	.10	.50	.40	.500	.570	.603	.683	.729	.759	.806	.846
X' = 16	12	.20	.30	.50	.375	.465	.523	.618	.696	.752	.816	.854
	13	.20	.40	.40	.400	.512	.544	.624	.703	.755	.818	.856
	14	.20	.50	.30	.500	.616	.647	.683	.750	.794	.847	.879
	15	.10	.30	.60	.450	.558	.585	.661	.733	.779	.837	.871
	16	.10	.36	.54	.405	.502	.529	.619	.700	.752	.816	.854
L = 40	17	.10	.40	.50	.400	.465	.493	.591	.678	.734	.803	.844
X = 8	18	.10	.50	.40	.500	.570	.581	.640	.695	.731	.785	.829
X' = 20	19	.20	.30	.50	.375	.465	.489	.564	.657	.718	.790	.833
	20	.20	.40	.40	.400	.512	.544	.581	.669	.728	.792	.840
	21	.20	.50	.30	.500	.616	.647	.661	.724	.773	.832	.866
	22	.10	.30	.60	.450	.558	.574	.629	.699	.752	.816	.854
	23	.10	.36	.54	.405	.502	.516	.581	.661	.721	.793	.836
L = 44	24	.10	.40	.50	.400	.465	.479	.548	.635	.700	.777	.823
X = 8	25	.10	.50	.40	.500	.570	.581	.597	.661	.703	.765	.813
X' = 24	26	.20	.30	.50	.375	.465	.478	.532	.614	.682	.765	.813
	27	.20	.40	.40	.400	.512	.544	.559	.635	.700	.777	.823
	28	.20	.50	.30	.500	.616	.647	.661	.699	.752	.816	.854
	29	.10	.30	.60	.450	.558	.574	.597	.665	.724	.796	.838
	30	.10	.36	.54	.405	.502	.516	.542	.622	.688	.769	.817
L = 48	31	.10	.40	.50	.400	.465	.479	.505	.593	.665	.751	.803
X = 8	32	.10	.50	.40	.500	.570	.581	.586	.627	.676	.744	.796
X' = 28	33	.20	.30	.50	.375	.465	.478	.500	.572	.647	.739	.792
	34	.20	.40	.40	.400	.512	.544	.559	.602	.671	.756	.807
	35	.20	.50	.30	.500	.616	.647	.661	.674	.731	.801	.842
	36	.10	.30	.60	.450	.558	.662	.736	.792	.829	.873	.899
	37	.10	.36	.54	.405	.502	.622	.707	.769	.810	.859	.888
L = 36	38	.10	.40	.50	.400	.465	.596	.688	.754	.797	.850	.881
X = 12	39	.10	.50	.40	.500	.551	.662	.726	.762	.787	.826	.862
X' = 12	40	.20	.30	.50	.375	.465	.567	.650	.724	.773	.832	.866
	41	.20	.40	.40	.400	.465	.559	.624	.686	.741	.808	.848
	42	.20	.50	.30	.500	.570	.625	.672	.707	.758	.822	.858
	43	.10	.30	.60	.450	.558	.618	.693	.758	.800	.853	.883
	44	.10	.36	.54	.405	.502	.569	.658	.731	.777	.835	.870
L = 40	45	.10	.40	.50	.400	.465	.537	.634	.712	.763	.824	.860
X = 12	46	.10	.50	.40	.500	.547	.603	.683	.729	.759	.796	.838
X' = 16	47	.20	.30	.50	.375	.465	.523	.597	.682	.738	.806	.846
	48	.20	.40	.40	.400	.465	.515	.581	.635	.700	.777	.823
	49	.20	.50	.30	.500	.570	.618	.640	.682	.737	.806	.846

TABLE 9.8 (Continued)

	50	.10	.30	.60	.450	.558	.585	.661	.724	.773	.832	.866
	51	.10	.36	.54	.405	.502	.529	.619	.692	.746	.811	.850
L = 44	52	.10	.40	.50	.400	.465	.492	.590	.668	.727	.798	.840
X = 12	53	.10	.50	.40	.500	.547	.567	.640	.695	.731	.775	.813
X′ = 20	54	.20	.30	.50	.375	.465	.489	.564	.639	.702	.779	.825
	55	.20	.40	.40	.400	.465	.515	.538	.602	.671	.756	.807
	56	.20	.50	.30	.500	.570	.618	.640	.657	.716	.790	.833
	57	.10	.30	.60	.450	.558	.574	.629	.690	.745	.811	.850
	58	.10	.36	.54	.405	.502	.516	.581	.652	.713	.787	.831
L = 48	59	.10	.40	.50	.400	.465	.478	.547	.626	.691	.772	.819
X = 12	60	.10	.50	.40	.500	.547	.567	.597	.661	.703	.754	.788
X′ = 24	61	.20	.30	.50	.375	.465	.478	.532	.596	.667	.753	.805
	62	.20	.40	.40	.400	.465	.515	.538	.568	.644	.736	.790
	63	.20	.50	.30	.500	.570	.618	.640	.652	.695	.775	.821
	64	.10	.30	.60	.450	.558	.574	.597	.661	.716	.790	.833
	65	.10	.36	.54	.405	.502	.516	.542	.617	.681	.764	.813
L = 52	66	.10	.40	.50	.400	.465	.478	.505	.588	.657	.746	.799
X = 12	67	.10	.50	.40	.500	.547	.567	.575	.627	.676	.732	.768
X′ = 28	68	.20	.30	.50	.375	.465	.478	.500	.562	.633	.727	.784
	69	.20	.40	.40	.400	.465	.515	.538	.551	.616	.715	.774
	70	.20	.50	.30	.500	.570	.618	.640	.652	.675	.759	.809
	71	.10	.30	.60	.450	.558	.662	.726	.784	.821	.868	.895
	72	.10	.36	.54	.405	.502	.622	.697	.760	.802	.854	.884
L = 40	73	.10	.40	.50	.400	.465	.597	.677	.746	.790	.844	.877
X = 16	74	.10	.50	.40	.500	.551	.662	.726	.762	.787	.821	.858
X′ = 12	75	.20	.30	.50	.375	.465	.566	.629	.707	.758	.821	.858
	76	.20	.40	.40	.400	.447	.559	.624	.669	.727	.798	.840
	77	.20	.50	.30	.500	.547	.624	.672	.699	.716	.780	.825
	78	.10	.30	.60	.450	.558	.618	.693	.750	.794	.847	.879
	79	.10	.36	.54	.405	.502	.569	.658	.722	.771	.830	.865
L = 44	80	.10	.40	.50	.400	.465	.536	.634	.702	.755	.818	.856
X = 16	81	.10	.50	.40	.500	.523	.603	.683	.729	.759	.796	.833
X′ = 16	82	.20	.30	.50	.375	.465	.522	.597	.664	.724	.795	.838
	83	.20	.40	.40	.400	.419	.501	.581	.627	.685	.767	.815
	84	.20	.50	.30	.500	.523	.588	.640	.674	.695	.765	.813
	85	.10	.30	.60	.450	.558	.585	.661	.716	.766	.827	.862
	86	.10	.36	.54	.405	.502	.529	.619	.683	.738	.806	.846
L = 48	87	.10	.40	.50	.400	.465	.492	.590	.660	.720	.793	.836
X = 16	88	.10	.50	.40	.500	.523	.552	.640	.695	.731	.775	.809
X′ = 20	89	.20	.30	.50	.375	.465	.489	.564	.622	.688	.769	.817
	90	.20	.40	.40	.400	.419	.485	.538	.593	.643	.736	.790
	91	.20	.50	.30	.500	.523	.588	.618	.648	.675	.749	.801
	92	.10	.30	.60	.450	.558	.574	.629	.686	.737	.806	.846
	93	.10	.36	.54	.405	.502	.516	.581	.648	.706	.782	.827
L = 52	94	.10	.40	.50	.400	.465	.479	.547	.622	.685	.767	.815
X = 16	95	.10	.50	.40	.500	.523	.552	.597	.661	.703	.754	.872
X′ = 24	96	.20	.30	.50	.375	.465	.479	.531	.589	.654	.743	.796
	97	.20	.40	.40	.400	.419	.485	.516	.559	.602	.704	.766
	98	.20	.50	.30	.500	.523	.588	.618	.635	.654	.733	.788
	99	.10	.30	.60	.450	.558	.574	.597	.661	.710	.785	.829
	100	.10	.36	.54	.405	.502	.516	.542	.617	.675	.758	.809
L = 56	101	.10	.40	.50	.400	.465	.478	.505	.588	.649	.741	.794
X = 16	102	.10	.50	.40	.500	.523	.552	.564	.627	.676	.732	.768
X′ = 28	103	.20	.30	.50	.375	.465	.478	.500	.562	.618	.717	.776
	104	.20	.40	.40	.400	.419	.485	.516	.534	.574	.673	.741
	105	.20	.50	.30	.500	.523	.588	.618	.635	.647	.718	.776

TABLE 9.9

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 2-2 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-2 TRUCK

One hundred and forty-four variations in the Type 2-2 truck are given in this table. Each truck number, from 1 to 144, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.20	.70	.525	.698	.780	.839	.873	.895	.922	.938
L = 28	2	.10	.30	.60	.450	.628	.736	.806	.847	.874	.907	.926
X = 12	3	.10	.40	.50	.563	.698	.772	.806	.826	.853	.891	.914
X' = 8	4	.20	.20	.60	.450	.605	.692	.774	.822	.853	.891	.914
C = 8	5	.20	.30	.50	.438	.582	.662	.742	.796	.832	.875	.901
	6	.20	.40	.40	.550	.651	.706	.731	.771	.811	.860	.889
	7	.10	.20	.70	.488	.570	.692	.769	.818	.850	.889	.912
L = 32	8	.10	.30	.60	.450	.558	.684	.742	.788	.826	.870	.897
X = 12	9	.10	.40	.50	.563	.640	.736	.779	.805	.821	.853	.883
X' = 12	10	.20	.20	.60	.425	.488	.603	.699	.762	.805	.855	.885
C = 8	11	.20	.30	.50	.438	.523	.625	.672	.733	.779	.837	.871
	12	.20	.40	.40	.550	.605	.676	.710	.737	.784	.839	.873
	13	.10	.20	.70	.488	.547	.610	.699	.762	.805	.855	.885
L = 36	14	.10	.30	.60	.450	.558	.640	.710	.750	.776	.834	.868
X = 12	15	.10	.40	.50	.563	.640	.698	.753	.784	.805	.850	.852
X' = 16	16	.20	.20	.60	.425	.488	.566	.624	.703	.755	.818	.856
C = 8	17	.20	.30	.50	.438	.523	.592	.645	.686	.742	.808	.848
	18	.20	.40	.40	.550	.605	.647	.688	.720	.769	.829	.864
	19	.10	.20	.70	.488	.547	.585	.629	.707	.758	.822	.858
L = 40	20	.10	.30	.60	.450	.558	.610	.677	.724	.755	.798	.840
X = 12	21	.10	.40	.50	.563	.640	.662	.726	.762	.787	.816	.833
X' = 20	22	.20	.20	.60	.425	.488	.566	.602	.644	.706	.782	.827
C = 8	23	.20	.30	.50	.438	.523	.592	.634	.665	.724	.796	.838
	24	.20	.40	.40	.550	.605	.618	.667	.703	.755	.818	.856
	25	.10	.20	.70	.525	.651	.742	.806	.847	.874	.907	.926
L = 32	26	.10	.30	.60	.450	.558	.684	.763	.813	.847	.886	.910
X = 12	27	.10	.40	.50	.500	.582	.699	.720	.779	.818	.865	.893
X' = 8	28	.20	.20	.60	.450	.558	.646	.731	.788	.826	.870	.897
C = 12	29	.20	.30	.50	.375	.465	.588	.688	.754	.797	.850	.881
	30	.20	.40	.40	.500	.558	.646	.688	.720	.769	.829	.864
	31	.10	.20	.70	.438	.570	.662	.736	.792	.829	.873	.899
L = 36	32	.10	.30	.60	.375	.488	.596	.688	.754	.797	.850	.881
X = 12	33	.10	.40	.50	.500	.582	.662	.726	.762	.787	.827	.862
X' = 12	34	.20	.20	.60	.375	.488	.574	.656	.729	.776	.834	.868
C = 12	35	.20	.30	.50	.375	.465	.552	.618	.690	.745	.811	.850
	36	.20	.40	.40	.500	.558	.618	.667	.703	.755	.818	.856
	37	.10	.20	.70	.438	.500	.581	.667	.737	.784	.839	.873
L = 40	38	.10	.30	.60	.375	.488	.552	.645	.699	.748	.813	.852
X = 12	39	.10	.40	.50	.500	.582	.625	.699	.741	.769	.803	.831
X' = 16	40	.20	.20	.60	.375	.442	.507	.581	.669	.727	.798	.840
C = 12	41	.20	.30	.50	.375	.465	.518	.591	.644	.706	.782	.827
	42	.20	.40	.40	.500	.558	.588	.645	.686	.742	.808	.848
	43	.10	.20	.70	.438	.500	.540	.607	.682	.737	.806	.846
L = 44	44	.10	.30	.60	.375	.488	.552	.613	.674	.713	.777	.823
X = 12	45	.10	.40	.50	.500	.582	.607	.672	.720	.752	.790	.813
X' = 20	46	.20	.20	.60	.375	.442	.507	.559	.610	.679	.761	.811
C = 12	47	.20	.30	.50	.375	.465	.518	.581	.623	.689	.770	.817
	48	.20	.40	.40	.500	.558	.574	.624	.669	.727	.798	.840
	49	.10	.20	.70	.525	.698	.772	.828	.864	.889	.917	.934
L = 32	50	.10	.30	.60	.450	.628	.728	.796	.839	.868	.901	.922
X = 16	51	.10	.40	.50	.563	.698	.772	.806	.826	.847	.886	.910
X' = 8	52	.20	.20	.60	.450	.605	.676	.753	.805	.839	.881	.906
C = 8	53	.20	.30	.50	.438	.582	.662	.720	.779	.818	.865	.893
	54	.20	.40	.40	.550	.651	.706	.731	.754	.797	.850	.881

TABLE 9.9 (Continued)

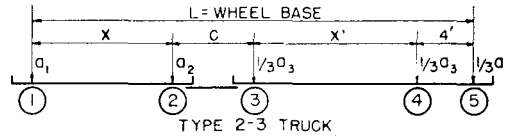
	55	.10	.20	.70	.488	.570	.692	.758	.809	.842	.884	.908
L = 36	56	.10	.30	.60	.450	.558	.684	.742	.779	.818	.865	.893
X = 16	57	.10	.40	.50	.563	.640	.736	.779	.805	.821	.847	.879
X′= 12	58	.20	.20	.60	.425	.488	.603	.677	.746	.790	.844	.877
C = 8	59	.20	.30	.50	.438	.523	.625	.672	.716	.766	.827	.862
	60	.20	.40	.40	.550	.605	.676	.710	.729	.742	.808	.848
	61	.10	.20	.70	.488	.547	.610	.688	.754	.797	.850	.881
L = 40	62	.10	.30	.60	.450	.558	.640	.710	.750	.776	.829	.864
X = 16	63	.10	.40	.50	.563	.640	.698	.753	.784	.805	.829	.848
X′= 16	64	.20	.20	.60	.425	.488	.537	.602	.686	.742	.808	.848
C = 8	65	.20	.30	.50	.438	.523	.588	.645	.678	.713	.787	.831
	66	.20	.40	.40	.550	.605	.647	.688	.712	.728	.787	.831
	67	.10	.20	.70	.488	.547	.570	.629	.699	.752	.816	.854
L = 44	68	.10	.30	.60	.450	.558	.596	.677	.724	.755	.793	.836
X = 16	69	.10	.40	.50	.563	.640	.662	.726	.762	.787	.816	.833
X′= 20	70	.20	.20	.60	.425	.488	.537	.581	.627	.692	.772	.819
C = 8	71	.20	.30	.50	.438	.523	.563	.618	.657	.682	.754	.805
	72	.20	.40	.40	.550	.605	.618	.667	.695	.713	.777	.823
	73	.10	.20	.70	.525	.651	.742	.796	.839	.868	.901	.922
L = 36	74	.10	.30	.60	.450	.558	.684	.753	.805	.839	.881	.906
X = 16	75	.10	.40	.50	.500	.582	.699	.753	.784	.811	.860	.889
X′= 8	76	.20	.20	.60	.450	.558	.647	.710	.771	.811	.860	.889
C = 12	77	.20	.30	.50	.375	.465	.588	.667	.737	.784	.839	.873
	78	.20	.40	.40	.500	.558	.646	.688	.712	.755	.818	.856
	79	.10	.20	.70	.438	.570	.662	.726	.784	.821	.868	.895
L = 40	80	.10	.30	.60	.375	.488	.596	.677	.746	.790	.844	.877
X = 16	81	.10	.40	.50	.500	.582	.662	.726	.762	.787	.822	.858
X′= 12	82	.20	.20	.60	.375	.488	.574	.634	.712	.763	.824	.860
C = 12	83	.20	.30	.50	.375	.465	.552	.618	.674	.731	.801	.842
	84	.20	.40	.40	.500	.558	.618	.667	.695	.713	.777	.823
	85	.10	.20	.70	.438	.500	.581	.667	.729	.776	.834	.868
L = 44	86	.10	.30	.60	.375	.488	.552	.645	.699	.742	.808	.848
X = 16	87	.10	.40	.50	.500	.582	.625	.699	.741	.769	.803	.827
X′= 16	88	.20	.20	.60	.375	.442	.500	.581	.652	.713	.787	.831
C = 12	89	.20	.30	.50	.375	.465	.515	.591	.635	.679	.761	.811
	90	.20	.40	.40	.500	.558	.588	.645	.678	.700	.767	.815
	91	.10	.20	.70	.438	.500	.525	.607	.674	.731	.801	.842
L = 48	92	.10	.30	.60	.375	.488	.587	.613	.674	.713	.772	.819
X = 16	93	.10	.40	.50	.500	.582	.607	.672	.720	.752	.790	.813
X′= 20	94	.20	.20	.60	.375	.442	.478	.538	.593	.664	.751	.803
C = 12	95	.20	.30	.50	.375	.465	.496	.564	.614	.647	.728	.784
	96	.20	.40	.40	.500	.558	.574	.624	.661	.685	.756	.807
	97	.10	.20	.70	.525	.698	.772	.817	.856	.881	.912	.930
L = 36	98	.10	.30	.60	.450	.628	.728	.785	.830	.860	.896	.918
X = 20	99	.10	.40	.50	.563	.698	.772	.806	.826	.839	.881	.906
X′= 8	100	.20	.20	.60	.450	.605	.676	.731	.788	.826	.870	.897
C = 8	101	.20	.30	.50	.438	.582	.662	.699	.762	.805	.855	.885
	102	.20	.40	.40	.550	.651	.706	.731	.746	.784	.839	.873
	103	.10	.20	.70	.488	.570	.692	.747	.801	.836	.879	.903
L = 40	104	.10	.30	.60	.450	.558	.684	.742	.775	.811	.860	.889
X = 20	105	.10	.40	.50	.563	.640	.736	.779	.805	.821	.842	.875
X′= 12	106	.20	.20	.60	.425	.488	.603	.656	.729	.776	.834	.868
C = 8	107	.20	.30	.50	.438	.523	.625	.672	.699	.752	.816	.854
	108	.20	.40	.40	.550	.605	.676	.710	.729	.742	.798	.840
	109	.10	.20	.70	.488	.547	.610	.688	.746	.790	.844	.877
L = 44	110	.10	.30	.60	.450	.558	.640	.710	.750	.776	.824	.860
X = 20	111	.10	.40	.50	.563	.640	.698	.753	.784	.805	.829	.844
X′= 16	112	.20	.20	.60	.425	.488	.529	.602	.669	.727	.798	.840
C = 8	113	.20	.30	.50	.438	.523	.588	.645	.678	.700	.777	.823
	114	.20	.40	.40	.550	.605	.647	.688	.712	.728	.756	.807
	115	.10	.20	.70	.488	.547	.555	.629	.690	.745	.811	.850
L = 48	116	.10	.30	.60	.450	.558	.596	.677	.724	.755	.793	.831
X = 20	117	.10	.40	.50	.563	.640	.662	.726	.762	.787	.816	.833
X′= 20	118	.20	.20	.60	.425	.488	.507	.570	.618	.679	.761	.811
C = 8	119	.20	.30	.50	.438	.523	.552	.618	.657	.682	.739	.792
	120	.20	.40	.40	.550	.605	.618	.667	.695	.713	.736	.790
	121	.10	.20	.70	.525	.651	.742	.785	.830	.860	.896	.918
L = 40	122	.10	.30	.60	.450	.558	.684	.742	.796	.832	.875	.901
X = 20	123	.10	.40	.50	.500	.582	.699	.753	.784	.805	.855	.885
X′= 8	124	.20	.20	.60	.450	.558	.647	.688	.754	.797	.850	.881
C = 12	125	.20	.30	.50	.375	.465	.588	.645	.720	.760	.829	.864
	126	.20	.40	.40	.500	.558	.646	.688	.712	.742	.808	.848
	127	.10	.20	.70	.438	.570	.662	.726	.775	.815	.863	.891
L = 44	128	.10	.30	.60	.375	.488	.596	.677	.737	.784	.829	.873
X = 20	129	.10	.40	.50	.500	.582	.662	.726	.762	.787	.816	.854
X′= 12	130	.20	.20	.60	.375	.488	.574	.634	.695	.748	.813	.852
C = 12	131	.20	.30	.50	.375	.465	.552	.618	.657	.716	.790	.833
	132	.20	.40	.40	.500	.558	.618	.667	.695	.713	.767	.815

TABLE 9.9 (Continued)

	133	.10	.20	.70	.438	.500	.581	.667	.720	.769	.829	.864
L = 48	134	.10	.30	.60	.375	.488	.552	.645	.699	.734	.803	.844
X = 20	135	.10	.40	.50	.500	.582	.625	.699	.741	.769	.803	.823
X′ = 16	136	.20	.20	.60	.375	.442	.500	.581	.635	.700	.777	.823
C = 12	137	.20	.30	.50	.375	.465	.515	.591	.635	.664	.751	.803
	138	.20	.40	.40	.500	.558	.588	.645	.678	.700	.725	.782
	139	.10	.20	.70	.438	.500	.518	.607	.669	.724	.796	.838
L = 52	140	.10	.30	.60	.375	.488	.529	.613	.674	.713	.767	.815
X = 20	141	.10	.40	.50	.500	.582	.607	.672	.720	.752	.790	.813
X′ = 20	142	.20	.20	.60	.375	.442	.463	.527	.585	.650	.741	.794
C = 12	143	.20	.30	.50	.375	.465	.496	.564	.614	.647	.713	.772
	144	.20	.40	.40	.500	.558	.574	.624	.661	.685	.715	.774

TABLE 9.10

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 2-3 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 2-3 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

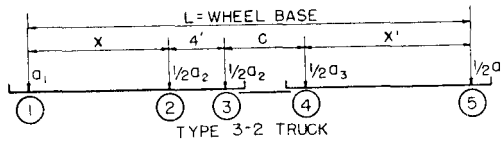
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.20	.70	.468	.597	.708	.782	.827	.858	.894	.917
L = 32	2	.10	.30	.60	.425	.535	.669	.742	.797	.832	.876	.901
X = 12	3	.10	.40	.50	.541	.620	.724	.771	.798	.816	.857	.886
X' = 8	4	.20	.20	.60	.400	.512	.618	.718	.771	.811	.860	.889
C = 8	5	.20	.30	.50	.416	.503	.613	.670	.740	.786	.841	.873
	6	.10	.20	.70	.468	.543	.645	.724	.783	.820	.867	.894
L = 36	7	.10	.30	.60	.425	.488	.610	.688	.746	.790	.845	.877
X = 12	8	.10	.40	.50	.541	.581	.674	.734	.770	.793	.822	.859
X' = 12	9	.20	.20	.60	.400	.465	.558	.645	.720	.769	.829	.864
C = 8	10	.20	.30	.50	.416	.465	.564	.627	.683	.738	.806	.847
	11	.10	.20	.70	.468	.488	.581	.667	.737	.784	.839	.872
L = 40	12	.10	.30	.60	.425	.488	.551	.645	.699	.748	.813	.852
X = 12	13	.10	.40	.50	.541	.581	.625	.699	.742	.769	.803	.831
X' = 16	14	.20	.20	.60	.400	.419	.500	.581	.669	.727	.798	.840
C = 8	15	.20	.30	.50	.416	.465	.515	.591	.644	.706	.782	.827
	16	.10	.20	.70	.468	.597	.678	.749	.802	.837	.879	.904
L = 36	17	.10	.30	.60	.400	.512	.610	.699	.763	.805	.855	.885
X = 12	18	.10	.40	.50	.500	.543	.650	.717	.755	.780	.831	.865
X' = 8	19	.20	.20	.60	.400	.512	.588	.667	.737	.784	.839	.872
C = 12	20	.20	.30	.50	.375	.442	.539	.616	.698	.751	.816	.853
	21	.10	.20	.70	.468	.543	.615	.691	.757	.799	.852	.882
L = 40	22	.10	.30	.60	.400	.465	.537	.634	.712	.763	.824	.860
X = 12	23	.10	.40	.50	.500	.543	.601	.681	.728	.757	.796	.838
X' = 12	24	.20	.20	.60	.400	.465	.529	.602	.686	.742	.808	.848
C = 12	25	.20	.30	.50	.375	.442	.491	.573	.641	.704	.780	.826
	26	.10	.20	.70	.468	.488	.566	.645	.712	.763	.824	.860
L = 44	27	.10	.30	.60	.400	.442	.485	.581	.661	.721	.793	.835
X = 12	28	.10	.40	.50	.500	.543	.564	.645	.699	.734	.777	.811
X' = 16	29	.20	.20	.60	.400	.419	.485	.559	.636	.700	.777	.823
C = 12	30	.20	.30	.50	.375	.442	.463	.538	.602	.671	.756	.807
	31	.10	.20	.70	.468	.597	.708	.771	.819	.851	.889	.913
L = 36	32	.10	.30	.60	.425	.535	.669	.731	.788	.826	.870	.897
X = 16	33	.10	.40	.50	.541	.620	.724	.771	.798	.816	.852	.882
X' = 8	34	.20	.20	.60	.400	.512	.618	.688	.754	.797	.850	.881
C = 8	35	.20	.30	.50	.416	.503	.613	.663	.724	.772	.831	.865
	36	.10	.20	.70	.468	.543	.645	.713	.774	.814	.862	.890
L = 40	37	.10	.30	.60	.425	.488	.610	.688	.737	.784	.839	.872
X = 16	38	.10	.40	.50	.541	.581	.674	.734	.770	.793	.821	.855
X' = 12	39	.20	.20	.60	.400	.465	.558	.624	.703	.755	.819	.856
C = 8	40	.20	.30	.50	.416	.465	.564	.627	.666	.725	.796	.838
	41	.10	.20	.70	.468	.488	.581	.667	.729	.776	.834	.868
L = 44	42	.10	.30	.60	.425	.488	.551	.645	.699	.742	.808	.848
X = 16	43	.10	.40	.50	.541	.581	.625	.699	.742	.769	.803	.827
X' = 16	44	.20	.20	.60	.400	.419	.500	.581	.653	.713	.788	.831
C = 8	45	.20	.30	.50	.416	.465	.515	.591	.636	.679	.762	.811
	46	.10	.20	.70	.468	.597	.678	.739	.793	.830	.874	.900
L = 40	47	.10	.30	.60	.400	.512	.610	.688	.754	.797	.850	.881
X = 16	48	.10	.40	.50	.500	.543	.650	.717	.755	.780	.826	.861
X' = 8	49	.20	.20	.60	.400	.512	.588	.645	.720	.769	.829	.864
C = 12	50	.20	.30	.50	.375	.427	.539	.610	.681	.736	.805	.845

TABLE 9.10 (Continued)

	51	.10	.20	.70	.468	.543	.615	.691	.749	.793	.847	.878
L = 44	52	.10	.30	.60	.400	.465	.537	.634	.703	.755	.819	.856
X = 16	53	.10	.40	.50	.500	.543	.601	.681	.728	.757	.795	.834
X' = 12	54	.20	.20	.60	.400	.465	.529	.602	.669	.727	.798	.840
C = 12	55	.20	.30	.50	.375	.427	.491	.573	.624	.690	.770	.818
	56	.10	.20	.70	.468	.488	.566	.645	.703	.755	.819	.856
L = 48	57	.10	.30	.60	.400	.442	.485	.581	.653	.713	.788	.831
X = 16	58	.10	.40	.50	.500	.543	.564	.645	.699	.734	.777	.807
X' = 16	59	.20	.20	.60	.400	.419	.485	.559	.619	.685	.767	.815
C = 12	60	.20	.30	.50	.375	.427	.453	.538	.593	.643	.736	.790
	61	.10	.20	.70	.468	.597	.708	.760	.810	.843	.884	.908
L = 40	62	.10	.30	.60	.425	.535	.669	.731	.780	.818	.865	.893
X = 20	63	.10	.40	.50	.541	.620	.724	.771	.798	.816	.847	.878
X' = 8	64	.20	.20	.60	.400	.512	.618	.667	.737	.784	.839	.872
C = 8	65	.20	.30	.50	.416	.503	.613	.663	.707	.757	.821	.857
	66	.10	.20	.70	.468	.543	.645	.713	.766	.807	.857	.886
L = 44	67	.10	.30	.60	.425	.488	.610	.688	.733	.776	.834	.868
X = 20	68	.10	.40	.50	.541	.581	.674	.734	.770	.793	.821	.851
X' = 16	69	.20	.20	.60	.400	.465	.558	.624	.686	.742	.808	.848
C = 8	70	.20	.30	.50	.416	.465	.564	.627	.664	.711	.785	.830
	71	.10	.20	.70	.468	.488	.581	.667	.720	.769	.829	.864
L = 48	72	.10	.30	.60	.425	.488	.551	.645	.699	.734	.803	.844
X = 20	73	.10	.40	.50	.541	.581	.625	.699	.742	.769	.803	.823
X' = 16	74	.20	.20	.60	.400	.419	.500	.581	.636	.700	.777	.823
C = 8	75	.20	.30	.50	.416	.465	.515	.591	.636	.664	.751	.802
	76	.10	.20	.70	.468	.597	.678	.739	.785	.822	.868	.896
L = 44	77	.10	.30	.60	.400	.512	.610	.688	.746	.790	.845	.877
X = 20	78	.10	.40	.50	.500	.543	.650	.717	.755	.780	.821	.857
X' = 8	79	.20	.20	.60	.400	.512	.588	.645	.703	.755	.819	.856
C = 12	80	.20	.30	.50	.375	.427	.539	.610	.664	.723	.795	.836
	81	.10	.20	.70	.468	.543	.615	.691	.740	.786	.841	.873
L = 48	82	.10	.30	.60	.400	.465	.537	.634	.695	.748	.813	.852
X = 20	83	.10	.40	.50	.500	.543	.601	.681	.728	.757	.795	.830
X' = 12	84	.20	.20	.60	.400	.465	.529	.602	.653	.713	.788	.831
C = 12	85	.20	.30	.50	.375	.427	.491	.573	.622	.676	.760	.810
	86	.10	.20	.70	.468	.488	.566	.645	.699	.748	.813	.852
L = 52	87	.10	.30	.60	.400	.442	.485	.581	.648	.706	.782	.827
X = 20	88	.10	.40	.50	.500	.543	.564	.645	.699	.734	.777	.802
X' = 16	89	.20	.20	.60	.400	.419	.485	.559	.610	.671	.756	.807
C = 12	90	.20	.30	.50	.375	.427	.453	.538	.593	.629	.725	.782

TABLE 9.11

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 3-2 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 3-2 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

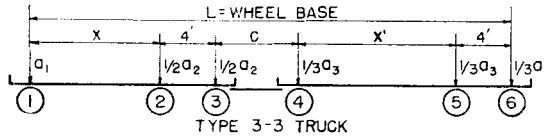
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.40	.50	.400	.535	.632	.704	.746	.779	.837	.871
L = 36	2	.10	.50	.40	.500	.616	.690	.747	.779	.800	.826	.854
X = 12	3	.10	.60	.30	.600	.698	.750	.790	.813	.829	.846	.858
X′ = 12	4	.20	.40	.40	.400	.512	.589	.645	.686	.742	.808	.848
C = 8	5	.20	.50	.30	.500	.593	.646	.688	.720	.769	.829	.864
	6	.10	.40	.50	.400	.535	.596	.677	.724	.755	.798	.840
L = 40	7	.10	.50	.40	.500	.616	.662	.726	.762	.787	.816	.833
X = 12	8	.10	.60	.30	.600	.698	.728	.774	.801	.818	.839	.852
X′ = 16	9	.20	.40	.40	.400	.512	.558	.624	.669	.727	.798	.840
C = 8	10	.20	.50	.30	.500	.593	.624	.672	.707	.758	.822	.858
	11	.10	.40	.50	.400	.535	.592	.650	.703	.737	.779	.809
L = 44	12	.10	.50	.40	.500	.616	.647	.704	.746	.773	.806	.825
X = 12	13	.10	.60	.30	.600	.698	.717	.758	.788	.808	.832	.846
X′ = 20	14	.20	.40	.40	.400	.512	.558	.624	.661	.713	.787	.831
C = 8	15	.20	.50	.30	.500	.593	.618	.656	.695	.748	.813	.852
	16	.10	.40	.50	.400	.477	.559	.650	.703	.745	.811	.850
L = 40	17	.10	.50	.40	.500	.570	.632	.704	.746	.773	.806	.829
X = 12	18	.10	.60	.30	.600	.663	.706	.758	.788	.808	.832	.846
X′ = 12	19	.20	.40	.40	.400	.465	.529	.602	.652	.713	.787	.831
C = 12	20	.20	.50	.30	.500	.570	.618	.656	.695	.748	.813	.852
	21	.10	.40	.50	.400	.477	.540	.624	.682	.721	.772	.819
L = 44	22	.10	.50	.40	.500	.570	.618	.683	.729	.759	.796	.817
X = 12	23	.10	.60	.30	.600	.663	.695	.742	.775	.797	.824	.840
X′ = 16	24	.20	.40	.40	.400	.465	.515	.581	.636	.700	.777	.823
C = 12	25	.20	.50	.30	.500	.570	.618	.640	.682	.737	.806	.846
	26	.10	.40	.50	.400	.477	.540	.597	.661	.703	.753	.788
L = 48	27	.10	.50	.40	.500	.570	.618	.661	.712	.745	.785	.809
X = 12	28	.10	.60	.30	.600	.663	.695	.726	.762	.787	.816	.833
X′ = 20	29	.20	.40	.40	.400	.465	.515	.559	.618	.685	.767	.815
C = 12	30	.20	.50	.30	.500	.570	.618	.640	.669	.727	.798	.840
	31	.10	.40	.50	.400	.535	.632	.704	.746	.773	.832	.866
L = 40	32	.10	.50	.40	.500	.616	.690	.747	.779	.800	.826	.850
X = 16	33	.10	.60	.30	.600	.698	.750	.790	.813	.829	.846	.858
X′ = 12	34	.20	.40	.40	.400	.512	.589	.645	.678	.713	.787	.831
C = 8	35	.20	.50	.30	.500	.593	.646	.688	.712	.728	.787	.831
	36	.10	.40	.50	.400	.535	.596	.677	.724	.755	.793	.836
L = 44	37	.10	.50	.40	.500	.616	.662	.726	.762	.787	.816	.833
X = 16	38	.10	.60	.30	.600	.698	.728	.774	.801	.818	.839	.852
X′ = 16	39	.20	.40	.40	.400	.512	.558	.624	.661	.686	.756	.807
C = 8	40	.20	.50	.30	.500	.593	.624	.672	.699	.716	.780	.825
	41	.10	.40	.50	.400	.535	.578	.650	.703	.737	.779	.805
L = 48	42	.10	.50	.40	.500	.616	.647	.704	.746	.773	.806	.825
X = 16	43	.10	.60	.30	.600	.698	.717	.758	.788	.808	.832	.846
X′ = 20	44	.20	.40	.40	.400	.512	.544	.602	.644	.671	.746	.799
C = 8	45	.20	.50	.30	.500	.593	.614	.656	.686	.707	.772	.819
	46	.10	.40	.50	.400	.477	.559	.650	.703	.737	.806	.846
L = 44	47	.10	.50	.40	.500	.570	.632	.704	.746	.773	.806	.825
X = 16	48	.10	.60	.30	.600	.663	.706	.758	.788	.808	.832	.846
X′ = 12	49	.20	.40	.40	.400	.465	.529	.602	.644	.671	.756	.807
C = 12	50	.20	.50	.30	.500	.558	.602	.656	.686	.707	.772	.819

TABLE 9.11 (Continued)

	51	.10	.40	.50	.400	.477	.540	.624	.682	.721	.767	.815
L = 48	52	.10	.50	.40	.500	.570	.618	.683	.729	.759	.796	.817
X = 16	53	.10	.60	.30	.600	.663	.695	.742	.775	.797	.824	.840
X' = 16	54	.20	.40	.40	.400	.465	.515	.581	.627	.657	.736	.790
C = 12	55	.20	.50	.30	.500	.558	.592	.640	.674	.695	.765	.813
	56	.10	.40	.50	.400	.477	.540	.597	.661	.703	.753	.784
L = 52	57	.10	.50	.40	.500	.570	.618	.661	.712	.745	.785	.809
X = 16	58	.10	.60	.30	.600	.663	.695	.726	.762	.787	.816	.833
X' = 20	59	.20	.40	.40	.400	.465	.515	.559	.610	.644	.725	.782
C = 12	60	.20	.50	.30	.500	.558	.592	.624	.661	.686	.756	.807
	61	.10	.40	.50	.400	.535	.632	.704	.746	.773	.827	.862
L = 44	62	.10	.50	.40	.500	.616	.690	.747	.779	.800	.826	.846
X = 20	63	.10	.60	.30	.600	.698	.750	.790	.813	.829	.846	.858
X' = 12	64	.20	.40	.40	.400	.512	.589	.645	.678	.700	.777	.823
C = 8	65	.20	.50	.30	.500	.593	.646	.688	.712	.728	.756	.807
	66	.10	.40	.50	.400	.535	.596	.677	.724	.755	.793	.831
L = 48	67	.10	.50	.40	.500	.616	.662	.726	.762	.787	.816	.833
X = 20	68	.10	.60	.30	.600	.698	.728	.774	.801	.818	.839	.852
X' = 16	69	.20	.40	.40	.400	.512	.558	.624	.661	.686	.736	.790
C = 8	70	.20	.50	.30	.500	.593	.624	.672	.699	.716	.739	.792
	71	.10	.40	.50	.400	.535	.577	.650	.703	.737	.779	.805
L = 52	72	.10	.50	.40	.500	.616	.647	.704	.746	.773	.806	.825
X = 20	73	.10	.60	.30	.600	.698	.717	.758	.788	.808	.832	.846
X' = 20	74	.20	.40	.40	.400	.512	.544	.602	.644	.671	.704	.766
C = 8	75	.20	.50	.30	.500	.593	.614	.656	.686	.707	.732	.786
	76	.10	.40	.50	.400	.477	.559	.650	.703	.737	.801	.842
L = 48	77	.10	.50	.40	.500	.570	.632	.704	.746	.773	.806	.825
X = 20	78	.10	.60	.30	.600	.663	.706	.758	.788	.808	.832	.846
X' = 12	79	.20	.40	.40	.400	.465	.529	.602	.644	.671	.746	.799
C = 12	80	.20	.50	.30	.500	.558	.602	.656	.686	.707	.730	.786
	81	.10	.40	.50	.400	.477	.540	.624	.682	.721	.767	.811
L = 52	82	.10	.50	.40	.500	.570	.618	.683	.729	.759	.796	.817
X = 20	83	.10	.60	.30	.600	.663	.695	.742	.775	.797	.824	.840
X' = 16	84	.20	.40	.40	.400	.465	.515	.581	.627	.657	.704	.766
C = 12	85	.20	.50	.30	.500	.558	.592	.640	.674	.695	.723	.780
	86	.10	.40	.50	.400	.477	.540	.597	.661	.703	.753	.784
L = 56	87	.10	.50	.40	.500	.570	.618	.661	.712	.745	.785	.809
X = 20	88	.10	.60	.30	.600	.663	.695	.726	.762	.787	.816	.833
X' = 20	89	.20	.40	.40	.400	.465	.515	.559	.610	.644	.684	.749
C = 12	90	.20	.50	.30	.500	.558	.592	.624	.661	.686	.715	.774

TABLE 9.12

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 3-3 TRUCKS WEIGHING ONE KIP EACH



Ninety variations in the Type 3-3 truck are given in this table. Each truck number, from 1 to 90, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

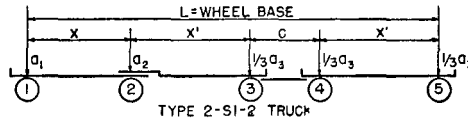
Wheel Base and Axle Spacing Feet	Truck No.	Axles Kips Load On			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
	1	.10	.30	.60	.400	.512	.588	.672	.741	.787	.842	.875
L = 40	2	.10	.40	.50	.400	.458	.547	.642	.698	.751	.815	.853
X = 12	3	.10	.50	.40	.500	.555	.622	.697	.740	.768	.802	.832
X' = 8	4	.20	.30	.50	.334	.427	.497	.578	.668	.726	.797	.839
C = 12	5	.20	.40	.40	.400	.465	.520	.594	.647	.709	.784	.828
	6	.10	.30	.60	.400	.465	.526	.618	.690	.745	.811	.850
L = 44	7	.10	.40	.50	.400	.458	.511	.605	.668	.709	.780	.826
X = 12	8	.10	.50	.40	.500	.555	.592	.669	.717	.749	.788	.901
X' = 12	9	.20	.30	.50	.334	.387	.440	.529	.611	.680	.762	.812
C = 12	10	.20	.40	.40	.400	.465	.515	.567	.624	.690	.770	.818
	11	.10	.30	.60	.400	.419	.485	.564	.640	.703	.780	.825
L = 48	12	.10	.40	.50	.400	.458	.497	.570	.640	.685	.746	.799
X = 12	13	.10	.50	.40	.500	.555	.583	.640	.695	.731	.774	.889
X' = 16	14	.20	.30	.50	.334	.361	.413	.478	.555	.633	.727	.784
C = 12	15	.20	.40	.40	.400	.465	.515	.538	.602	.671	.756	.807
	16	.10	.30	.60	.400	.512	.555	.640	.707	.758	.822	.858
L = 44	17	.10	.40	.50	.400	.442	.486	.588	.656	.715	.789	.832
X = 12	18	.10	.50	.40	.500	.547	.572	.654	.706	.741	.781	.808
X' = 8	19	.20	.30	.50	.334	.427	.464	.546	.626	.691	.771	.818
C = 16	20	.20	.40	.40	.400	.465	.515	.551	.613	.681	.764	.812
	21	.10	.30	.60	.400	.465	.515	.586	.657	.716	.790	.833
L = 48	22	.10	.40	.50	.400	.442	.473	.551	.626	.673	.754	.806
X = 12	23	.10	.50	.40	.500	.547	.567	.626	.683	.722	.768	.833
X' = 12	24	.20	.30	.50	.334	.387	.429	.497	.569	.644	.737	.791
C = 16	25	.20	.40	.40	.400	.465	.515	.538	.590	.662	.749	.802
	26	.10	.30	.60	.400	.419	.485	.532	.610	.675	.759	.809
L = 52	27	.10	.40	.50	.400	.442	.473	.517	.597	.650	.720	.778
X = 12	28	.10	.50	.40	.500	.547	.567	.597	.661	.703	.753	.872
X' = 16	29	.20	.30	.50	.334	.361	.413	.460	.521	.598	.701	.764
C = 16	30	.20	.40	.40	.400	.465	.515	.538	.573	.643	.736	.790
	31	.10	.30	.60	.400	.512	.588	.672	.733	.779	.837	.871
L = 44	32	.10	.40	.50	.400	.458	.547	.642	.696	.744	.810	.849
X = 16	33	.10	.50	.40	.500	.555	.622	.697	.740	.768	.802	.828
X' = 8	34	.20	.30	.50	.334	.427	.497	.578	.651	.712	.786	.830
C = 12	35	.20	.40	.40	.400	.450	.520	.594	.639	.676	.759	.810
	36	.10	.30	.60	.400	.465	.526	.618	.682	.737	.806	.846
L = 48	37	.10	.40	.50	.400	.458	.511	.605	.668	.709	.775	.822
X = 16	38	.10	.50	.40	.500	.555	.592	.669	.717	.749	.788	.901
X' = 12	39	.20	.30	.50	.334	.387	.440	.529	.594	.665	.752	.804
C = 12	40	.20	.40	.40	.400	.450	.490	.567	.615	.648	.728	.785
	41	.10	.30	.60	.400	.419	.485	.564	.635	.695	.775	.821
L = 52	42	.10	.40	.50	.400	.458	.497	.570	.640	.685	.741	.794
X = 16	43	.10	.50	.40	.500	.555	.583	.640	.695	.731	.774	.889
X' = 16	44	.20	.30	.50	.334	.352	.405	.478	.546	.619	.717	.776
C = 12	45	.20	.40	.40	.400	.450	.485	.538	.593	.629	.715	.774
	46	.10	.30	.60	.400	.512	.555	.640	.699	.752	.816	.854
L = 48	47	.10	.40	.50	.400	.427	.486	.588	.653	.709	.784	.828
X = 16	48	.10	.50	.40	.500	.523	.572	.654	.706	.741	.781	.895
X' = 8	49	.20	.30	.50	.334	.427	.464	.546	.609	.678	.760	.810
C = 16	50	.20	.40	.40	.400	.419	.470	.551	.605	.639	.728	.785

TABLE 9.12 (Continued)

	51	.10	.30	.60	.400	.465	.515	.586	.652	.710	.785	.829
L = 52	52	.10	.40	.50	.400	.419	.473	.551	.626	.673	.749	.802
X = 16	53	.10	.50	.40	.500	.523	.564	.626	.683	.722	.768	.883
X′= 12	54	.20	.30	.50	.334	.387	.429	.497	.560	.630	.726	.783
C = 16	55	.20	.40	.40	.400	.419	.485	.524	.581	.620	.708	.769
	56	.10	.30	.60	.400	.419	.485	.532	.610	.668	.754	.805
L = 56	57	.10	.40	.50	.400	.419	.473	.517	.597	.650	.715	.774
X = 16	58	.10	.50	.40	.500	.523	.564	.597	.661	.703	.753	.872
X′= 16	59	.20	.30	.50	.334	.350	.405	.446	.521	.584	.691	.755
C = 16	60	.20	.40	.40	.400	.419	.485	.516	.559	.601	.694	.757
	61	.10	.30	.60	.400	.512	.588	.672	.724	.773	.832	.866
L = 48	62	.10	.40	.50	.400	.458	.547	.642	.696	.736	.805	.845
X = 20	63	.10	.50	.40	.500	.555	.622	.697	.740	.768	.802	.824
X′= 8	64	.20	.30	.50	.334	.427	.497	.578	.634	.699	.776	.822
C = 12	65	.20	.40	.40	.400	.450	.520	.594	.639	.667	.749	.802
	66	.10	.30	.60	.400	.465	.526	.618	.678	.731	.801	.842
L = 52	67	.10	.40	.50	.400	.458	.511	.605	.668	.709	.770	.818
X = 20	68	.10	.50	.40	.500	.555	.592	.669	.717	.749	.788	.901
X′= 12	69	.20	.30	.50	.334	.387	.440	.529	.586	.651	.742	.795
C = 12	70	.20	.40	.40	.400	.450	.490	.567	.615	.648	.712	.771
	71	.10	.30	.60	.400	.419	.485	.564	.635	.689	.770	.817
L = 56	72	.10	.40	.50	.400	.458	.497	.570	.640	.685	.741	.790
X = 20	73	.10	.50	.40	.500	.555	.583	.640	.695	.731	.774	.889
X′= 16	74	.20	.30	.50	.334	.352	.405	.478	.546	.605	.707	.767
C = 12	75	.20	.40	.40	.400	.450	.480	.538	.593	.629	.673	.741
	76	.10	.30	.60	.400	.512	.555	.640	.695	.745	.811	.850
L = 52	77	.10	.40	.50	.400	.427	.486	.588	.653	.702	.779	.824
X = 20	78	.10	.50	.40	.500	.523	.572	.654	.706	.741	.781	.895
X′= 8	79	.20	.30	.50	.334	.427	.464	.546	.600	.663	.750	.802
C = 16	80	.20	.40	.40	.400	.419	.470	.551	.605	.639	.718	.777
	81	.10	.30	.60	.400	.465	.515	.586	.652	.703	.780	.825
L = 56	82	.10	.40	.50	.400	.419	.473	.551	.626	.673	.744	.797
X = 20	83	.10	.50	.40	.500	.523	.564	.626	.683	.722	.768	.883
X′= 12	84	.20	.30	.50	.334	.387	.429	.497	.560	.617	.716	.775
C = 16	85	.20	.40	.40	.400	.419	.461	.524	.581	.620	.681	.746
	86	.10	.30	.60	.400	.419	.485	.532	.610	.661	.749	.801
L = 60	87	.10	.40	.50	.400	.419	.473	.517	.597	.650	.715	.770
X = 20	88	.10	.50	.40	.500	.523	.564	.597	.661	.703	.753	.872
X′= 16	89	.20	.30	.50	.334	.350	.405	.446	.521	.570	.681	.747
C = 16	90	.20	.40	.40	.400	.419	.461	.495	.559	.601	.653	.724

TABLE 9.13

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 2-S1-2 TRUCKS WEIGHING ONE KIP EACH



TYPE 2-S1-2 TRUCK

Ninety-six variations in the Type 2-S1-2 truck are given in this table. Each truck number, from 1 to 96, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight on each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

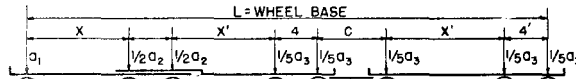
Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
L = 36	1	.10	.20	.70	.350	.462	.549	.653	.726	.774	.832	.867
X = 8	2	.10	.30	.60	.400	.488	.581	.667	.716	.748	.808	.848
X' = 10	3	.20	.20	.60	.300	.395	.500	.602	.686	.742	.808	.848
C = 8	4	.20	.30	.50	.425	.488	.561	.653	.726	.774	.832	.867
L = 40	5	.10	.20	.70	.350	.435	.532	.595	.681	.736	.805	.845
X = 8	6	.10	.30	.60	.400	.442	.537	.624	.682	.721	.777	.823
X' = 12	7	.20	.20	.60	.300	.372	.471	.559	.653	.713	.788	.831
C = 8	8	.20	.30	.50	.425	.488	.537	.616	.698	.751	.816	.853
L = 44	9	.10	.20	.70	.350	.435	.515	.575	.636	.700	.777	.823
X = 8	10	.10	.30	.60	.400	.419	.507	.581	.648	.692	.756	.807
X' = 14	11	.20	.20	.60	.300	.372	.441	.538	.619	.685	.767	.815
C = 8	12	.20	.30	.50	.425	.488	.513	.598	.669	.727	.798	.840
L = 48	13	.10	.20	.70	.350	.435	.497	.559	.604	.662	.749	.801
X = 8	14	.10	.30	.60	.400	.419	.478	.538	.614	.664	.736	.790
X' = 16	15	.20	.20	.60	.300	.372	.427	.516	.585	.658	.746	.798
C = 8	16	.20	.30	.50	.425	.488	.501	.581	.641	.704	.780	.826
L = 52	17	.10	.20	.70	.350	.435	.481	.543	.591	.625	.722	.779
X = 8	18	.10	.30	.60	.400	.419	.449	.516	.581	.637	.715	.774
X' = 18	19	.20	.20	.60	.300	.372	.411	.495	.559	.629	.725	.782
C = 8	20	.20	.30	.50	.425	.488	.493	.562	.620	.681	.764	.812
L = 56	21	.10	.20	.70	.350	.435	.463	.527	.578	.612	.694	.757
X = 8	22	.10	.30	.60	.400	.419	.419	.495	.559	.608	.694	.757
X' = 20	23	.20	.20	.60	.300	.372	.397	.473	.542	.601	.705	.765
C = 8	24	.20	.30	.50	.425	.488	.493	.545	.606	.658	.746	.798
L = 60	25	.10	.20	.70	.350	.435	.447	.514	.566	.601	.666	.736
X = 8	26	.10	.30	.60	.400	.419	.411	.473	.542	.587	.674	.741
X' = 22	27	.20	.20	.60	.300	.372	.383	.452	.525	.574	.684	.749
C = 8	28	.20	.30	.50	.425	.488	.493	.527	.592	.634	.728	.785
L = 64	29	.10	.20	.70	.350	.435	.447	.502	.553	.591	.639	.713
X = 8	30	.10	.30	.60	.400	.419	.411	.452	.525	.574	.653	.724
X' = 24	31	.20	.20	.60	.300	.372	.383	.430	.508	.559	.663	.733
C = 8	32	.20	.30	.50	.425	.488	.493	.510	.577	.622	.711	.771
L = 40	33	.10	.20	.70	.350	.462	.549	.642	.717	.767	.827	.863
X = 12	34	.10	.30	.60	.375	.488	.581	.667	.716	.748	.803	.844
X' = 10	35	.20	.20	.60	.300	.395	.471	.559	.653	.713	.788	.831
C = 8	36	.20	.30	.50	.375	.465	.539	.610	.658	.717	.791	.834
L = 44	37	.10	.20	.70	.350	.435	.532	.595	.673	.730	.800	.841
X = 12	38	.10	.30	.60	.300	.442	.537	.624	.682	.721	.772	.819
X' = 12	39	.20	.20	.60	.300	.372	.456	.538	.602	.671	.756	.807
C = 8	40	.20	.30	.50	.250	.442	.503	.573	.630	.694	.774	.820
L = 48	41	.10	.20	.70	.350	.435	.515	.565	.627	.692	.772	.819
X = 12	42	.10	.30	.60	.300	.419	.507	.581	.648	.692	.746	.794
X' = 14	43	.20	.20	.60	.300	.372	.441	.516	.576	.629	.725	.782
C = 8	44	.20	.30	.50	.250	.442	.478	.538	.602	.671	.756	.807
L = 52	45	.10	.20	.70	.350	.435	.497	.552	.595	.655	.744	.797
X = 12	46	.10	.30	.60	.300	.395	.478	.538	.614	.664	.725	.770
X' = 16	47	.20	.20	.60	.300	.372	.427	.495	.559	.601	.705	.765
C = 8	48	.20	.30	.50	.250	.442	.463	.513	.581	.648	.739	.793
L = 56	49	.10	.20	.70	.350	.435	.481	.540	.583	.618	.717	.775
X = 12	50	.10	.30	.60	.300	.395	.449	.516	.581	.637	.705	.745
X' = 18	51	.20	.20	.60	.300	.372	.411	.473	.542	.587	.684	.749
C = 8	52	.20	.30	.50	.250	.442	.463	.495	.567	.625	.722	.779

TABLE 9.13 (Continued)

L = 60	53	.10	.20	.70	.350	.435	.463	.527	.570	.604	.689	.753
X = 12	54	.10	.30	.60	.300	.395	.419	.495	.551	.608	.684	.728
X′= 20	55	.20	.20	.60	.300	.372	.397	.452	.525	.574	.663	.733
C = 8	56	.20	.30	.50	.250	.442	.463	.477	.531	.601	.705	.765
L = 64	57	.10	.20	.70	.350	.435	.447	.514	.557	.594	.661	.731
X = 12	58	.10	.30	.60	.300	.395	.397	.473	.534	.580	.663	.712
X′= 22	59	.20	.20	.60	.300	.372	.383	.441	.508	.559	.642	.716
C = 8	60	.20	.30	.50	.250	.442	.463	.473	.538	.590	.687	.752
L = 68	61	.10	.20	.70	.350	.435	.447	.502	.544	.583	.634	.709
X = 12	62	.10	.30	.60	.300	.395	.397	.452	.517	.566	.642	.695
X′= 24	63	.20	.20	.60	.300	.372	.383	.430	.492	.545	.622	.700
C = 8	64	.20	.30	.50	.250	.442	.463	.473	.524	.578	.670	.738
L = 56	65	.10	.20	.70	.350	.435	.497	.552	.587	.648	.739	.793
X = 16	66	.10	.30	.60	.300	.395	.478	.538	.614	.664	.725	.765
X′= 16	67	.20	.20	.60	.300	.372	.427	.473	.542	.587	.684	.749
C = 8	68	.20	.30	.50	.250	.395	.453	.502	.565	.606	.697	.760
L = 60	69	.10	.20	.70	.350	.435	.481	.540	.574	.610	.712	.771
X = 16	70	.10	.30	.60	.300	.372	.449	.516	.581	.537	.705	.745
X′= 18	71	.20	.20	.60	.300	.372	.411	.462	.525	.574	.653	.724
C = 8	72	.20	.30	.50	.250	.395	.435	.484	.537	.582	.681	.746
L = 64	73	.10	.20	.70	.350	.435	.463	.527	.564	.597	.684	.749
X = 16	74	.10	.30	.60	.300	.372	.419	.495	.547	.608	.684	.728
X′= 20	75	.20	.20	.60	.300	.372	.397	.452	.508	.559	.622	.700
C = 8	76	.20	.30	.50	.250	.395	.435	.466	.508	.559	.663	.733
L = 68	77	.10	.20	.70	.350	.435	.447	.514	.554	.586	.656	.727
X = 16	78	.10	.30	.60	.300	.372	.390	.473	.525	.580	.663	.712
X′= 22	79	.20	.20	.60	.300	.372	.383	.441	.492	.545	.611	.683
C = 8	80	.20	.30	.50	.250	.395	.435	.452	.487	.545	.646	.719
L = 72	81	.10	.20	.70	.350	.435	.447	.502	.543	.576	.629	.705
X = 16	82	.10	.30	.60	.300	.372	.383	.452	.508	.559	.642	.695
X′= 24	83	.20	.20	.60	.300	.372	.383	.430	.475	.532	.601	.667
C = 8	84	.20	.30	.50	.250	.395	.435	.452	.474	.534	.629	.705
L = 76	85	.10	.20	.70	.350	.435	.447	.489	.534	.565	.618	.683
X = 16	86	.10	.30	.60	.300	.372	.383	.435	.492	.545	.622	.679
X′= 26	87	.20	.20	.60	.300	.372	.383	.419	.458	.517	.591	.650
C = 8	88	.20	.30	.50	.250	.395	.435	.452	.462	.522	.611	.691
L = 80	89	.10	.20	.70	.350	.435	.447	.477	.524	.555	.610	.662
X = 16	90	.10	.30	.60	.300	.372	.383	.419	.479	.532	.601	.663
X′= 28	91	.20	.20	.60	.300	.372	.383	.409	.449	.503	.580	.634
C = 8	92	.20	.30	.50	.250	.395	.435	.452	.462	.511	.594	.678
L = 84	93	.10	.20	.70	.350	.435	.447	.465	.514	.547	.602	.639
X = 16	94	.10	.30	.60	.300	.372	.383	.403	.466	.517	.591	.646
X′= 30	95	.20	.20	.60	.300	.372	.383	.398	.441	.490	.570	.617
C = 8	96	.20	.30	.50	.250	.395	.435	.452	.462	.499	.585	.664

TABLE 9.14

SUMMARY OF EQUIVALENT H TRUCK LOADINGS IN SIMPLE SPANS PRODUCED BY TYPE 3-S2-3 TRUCKS WEIGHING ONE KIP EACH



TYPE 3-S2-3 TRUCK

Eighty-four variations in the Type 3-S2-3 truck are given in this table. Each truck number, from 1 to 84, represents a different combination of wheel base length, axle spacings, and ratios of gross vehicle weight of each axle.

All dimensions are in feet. Equivalent H truck loadings are in kips.
a_1, a_2, and a_3 represent the ratio of gross vehicle weight on axles.

Wheel Base and Axle Spacing Feet	Truck No.	Load On Axles Kips			Span-Feet							
		a_1	a_2	a_3	10	20	30	40	50	60	80	100
L = 44	1	.05	.20	.75	.300	.384	.496	.597	.678	.734	.803	.844
X = 8	2	.05	.30	.65	.300	.405	.491	.586	.663	.713	.775	.821
X' = 8	3	.10	.20	.70	.280	.363	.463	.559	.644	.706	.782	.827
C = 8	4	.10	.30	.60	.300	.398	.476	.564	.635	.682	.754	.805
L = 48	5	.05	.20	.75	.300	.384	.474	.551	.638	.701	.778	.824
X = 8	6	.05	.30	.65	.300	.374	.462	.538	.625	.682	.751	.799
X' = 10	7	.10	.20	.70	.280	.358	.442	.515	.600	.670	.756	.807
C = 8	8	.10	.30	.60	.300	.370	.450	.519	.599	.652	.727	.783
L = 52	9	.05	.20	.75	.300	.384	.452	.532	.599	.668	.754	.805
X = 8	10	.05	.30	.65	.300	.344	.433	.502	.586	.649	.727	.776
X' = 12	11	.10	.20	.70	.280	.358	.422	.497	.561	.635	.729	.785
C = 8	12	.10	.30	.60	.300	.361	.424	.487	.564	.623	.706	.766
L = 56	13	.05	.20	.75	.300	.384	.430	.516	.566	.635	.729	.785
X = 8	14	.05	.30	.65	.300	.337	.405	.482	.548	.618	.703	.754
X' = 14	15	.10	.20	.70	.280	.358	.401	.482	.527	.599	.703	.765
C = 8	16	.10	.30	.60	.300	.361	.397	.468	.530	.594	.684	.749
L = 60	17	.05	.20	.75	.300	.384	.408	.500	.553	.602	.704	.766
X = 8	18	.05	.30	.65	.300	.337	.385	.460	.514	.586	.680	.736
X' = 16	19	.10	.20	.70	.280	.358	.381	.467	.516	.563	.677	.743
C = 8	20	.10	.30	.60	.300	.361	.379	.448	.498	.564	.662	.732
L = 64	21	.05	.20	.75	.300	.384	.408	.484	.540	.577	.680	.746
X = 8	22	.05	.30	.65	.300	.337	.366	.440	.492	.554	.657	.717
X' = 18	23	.10	.20	.70	.280	.358	.381	.452	.504	.538	.651	.722
C = 8	24	.10	.30	.60	.300	.361	.375	.429	.478	.535	.640	.714
L = 68	25	.05	.20	.75	.300	.384	.408	.468	.527	.566	.656	.726
X = 8	26	.05	.30	.65	.300	.337	.354	.418	.475	.522	.633	.699
X' = 20	27	.10	.20	.70	.280	.358	.381	.436	.492	.529	.624	.702
C = 8	28	.10	.30	.60	.300	.361	.375	.374	.463	.510	.618	.697
L = 48	29	.05	.20	.75	.300	.384	.496	.597	.674	.731	.801	.842
X = 12	30	.05	.30	.65	.300	.405	.491	.586	.663	.713	.775	.819
X' = 8	31	.10	.20	.70	.280	.363	.463	.559	.635	.700	.777	.823
C = 8	32	.10	.30	.60	.300	.398	.476	.564	.635	.682	.749	.801
L = 52	33	.05	.20	.75	.300	.384	.474	.551	.635	.698	.776	.822
X = 12	34	.05	.30	.65	.300	.374	.462	.538	.625	.682	.751	.796
X' = 10	35	.10	.20	.70	.280	.358	.442	.515	.596	.664	.751	.803
C = 8	36	.10	.30	.60	.300	.370	.450	.519	.599	.652	.719	.777
L = 56	37	.05	.20	.75	.300	.384	.452	.532	.599	.664	.751	.803
X = 12	38	.05	.30	.65	.300	.344	.433	.502	.586	.649	.727	.774
X' = 12	39	.10	.20	.70	.280	.358	.422	.497	.561	.628	.724	.781
C = 8	40	.10	.30	.60	.300	.342	.424	.487	.564	.623	.695	.753
L = 60	41	.05	.20	.75	.300	.384	.430	.516	.566	.631	.726	.783
X = 12	42	.05	.30	.65	.300	.333	.405	.482	.548	.618	.703	.754
X' = 14	43	.10	.20	.70	.280	.358	.401	.482	.527	.593	.698	.760
C = 8	44	.10	.30	.60	.300	.337	.397	.468	.530	.594	.673	.729
L = 64	45	.05	.20	.75	.300	.384	.408	.560	.553	.602	.702	.764
X = 12	46	.05	.30	.65	.300	.333	.385	.460	.514	.586	.680	.736
X' = 16	47	.10	.20	.70	.280	.358	.381	.467	.516	.563	.671	.739
C = 8	48	.10	.30	.60	.300	.337	.379	.448	.498	.564	.651	.705

TABLE 9.14 (Continued)

L = 68	49	.05	.20	.75	.300	.384	.408	.484	.540	.577	.678	.744
X = 12	50	.05	.30	.65	.300	.333	.366	.400	.492	.554	.657	.717
X′ = 18	51	.10	.20	.70	.280	.358	.381	.452	.504	.538	.645	.718
C = 8	52	.10	.30	.60	.300	.337	.362	.429	.478	.535	.630	.685
L = 72	53	.05	.20	.75	.300	.384	.408	.468	.527	.566	.653	.724
X = 12	54	.05	.30	.65	.300	.333	.354	.418	.475	.522	.633	.699
X′ = 20	55	.10	.20	.70	.280	.358	.381	.436	.492	.529	.618	.698
C = 8	56	.10	.30	.60	.300	.337	.361	.410	.463	.506	.608	.668
L = 60	57	.05	.20	.75	.300	.384	.452	.532	.599	.661	.749	.801
X = 16	58	.05	.30	.65	.300	.344	.433	.502	.586	.649	.727	.773
X′ = 12	59	.10	.20	.70	.280	.358	.422	.497	.561	.621	.719	.777
C = 8	60	.10	.30	.60	.300	.342	.424	.487	.564	.623	.695	.749
L = 64	61	.05	.20	.75	.300	.384	.430	.516	.566	.630	.724	.781
X = 16	62	.05	.30	.65	.300	.333	.405	.482	.548	.618	.703	.754
X′ = 14	63	.10	.20	.70	.280	.358	.401	.482	.527	.592	.693	.756
C = 8	64	.10	.30	.60	.300	.328	.397	.468	.530	.594	.673	.724
L = 68	65	.05	.20	.75	.300	.384	.408	.500	.553	.602	.699	.761
X = 16	66	.05	.30	.65	.300	.333	.385	.460	.514	.586	.680	.736
X′ = 16	67	.10	.20	.70	.280	.358	.381	.467	.516	.563	.666	.735
C = 8	68	.10	.30	.60	.300	.314	.379	.448	.498	.564	.651	.703
L = 72	69	.05	.20	.75	.300	.384	.408	.484	.540	.577	.674	.742
X = 16	70	.05	.30	.65	.300	.333	.366	.440	.492	.554	.657	.717
X′ = 18	71	.10	.20	.70	.280	.358	.381	.452	.504	.538	.640	.714
C = 8	72	.10	.30	.60	.300	.314	.362	.429	.478	.535	.630	.685
L = 76	73	.05	.20	.75	.300	.384	.408	.468	.527	.566	.651	.722
X = 16	74	.05	.30	.65	.300	.333	.354	.418	.475	.522	.633	.699
X′ = 20	75	.10	.20	.70	.280	.358	.381	.436	.492	.529	.613	.694
C = 8	76	.10	.30	.60	.300	.314	.345	.410	.463	.506	.608	.668
L = 80	77	.05	.20	.75	.300	.384	.408	.452	.515	.556	.626	.703
X = 16	78	.05	.30	.65	.300	.333	.354	.398	.460	.499	.609	.679
X′ = 22	79	.10	.20	.70	.280	.358	.381	.421	.481	.519	.587	.672
C = 8	80	.10	.30	.60	.300	.314	.345	.390	.447	.485	.585	.651
L = 84	81	.05	.20	.75	.300	.384	.408	.435	.502	.545	.603	.683
X = 16	82	.05	.30	.65	.300	.333	.354	.377	.443	.487	.585	.661
X′ = 24	83	.10	.20	.70	.280	.358	.381	.406	.468	.509	.566	.651
C = 8	84	.10	.30	.60	.300	.314	.345	.371	.432	.472	.565	.634

10. CONVERSION COEFFICIENTS FOR EQUIVALENT LOADINGS ON SIMPLE SPANS OF VARIOUS LENGTHS

Owing to the fact that an H truck, an H-S truck, and a single concentrated load weighing one kip each produce maximum shears, respectively, on a given span which are definite values, their relative magnitudes may be fully described by the ratios that each one bears to the other two. Thus, if these ratios are known for a given span, they may be thought of as coefficients which may be used for converting any one of the above loadings into equivalent loadings measured in terms of either or both of the other two. These ratios or coefficients for certain selected spans up to 100 feet in length are given in Table 10.1 and shown graphically for all intermediate spans in Fig. 10.1.

In Table 10.1, for example, it will be seen that the coefficient for converting an equivalent H truck loading into an equivalent H-S truck loading on a 50-foot span is given as 1.16. This means that an H truck of given weight will produce 1.16 times as much shear as an H-S truck of equal weight on a 50-foot span. It also means that an H truck of given weight will produce as much shear as an H-S truck weighing 1.16 times as much on a 50-foot span. More specifically, suppose a given heavy vehicle has been found to produce the same shear on a 50-foot span as an H20 truck and rated accordingly as an equivalent H20 truck loading. Now suppose it is desired to convert the given heavy vehicle into an equivalent H-S truck loading. This may be done by noting that $1.16 \times 20 = 23.2$ tons would be required on an H-S truck to produce the same shear as the given vehicle on a 50-foot span. The given vehicle, therefore, would be rated as an equivalent 23.2 (ton) H-S truck loading or an equivalent 46.4 (kip) H-S truck loading.

In a similar manner, if it were desired to convert an equivalent 46.4 (kip) H-S truck loading into an equivalent H truck loading on a 50-foot span it would be done by multiplying the H-S truck rating by the coefficient 0.86 as shown in the fifth column of Table 10.1, or $46.4 \times .86 = 40.0$ kips. This means that the given vehicle could be rated as either an equivalent 46.4 (kip) H-S truck loading, or an equivalent 40.0 (kip) H truck loading on a 50-foot span.

Similarly, an equivalent 40.0 (kip) H truck loading may be converted into an equivalent concentrated load on a 50-foot span by multiplying the H truck rating by the coefficient 0.94 as shown in the fifth column of Table 10.1, or $40.0 \times .94 = 37.6$ kips. This means that the given vehicle would be rated as an equivalent 37.6 (kip) concentrated load on a 50-foot span.

From these illustrative examples, then, it will be seen that any given equivalent loading may be converted into any other loading equivalency simply by multiplying the rating of the given equivalent loading by the appropriate coefficient indicated for the span under consideration by either Table 10.1 or Fig. 10.1.

TABLE 10.1

CONVERSION COEFFICIENTS BASED ON SHEAR FOR EQUIVALENT LOADINGS ON SIMPLE SPANS OF VARIOUS LENGTHS

For Converting	Span									
	10	20	30	40	50	60	70	80	90	100
EHT to EHST	1.80	1.49	1.32	1.21	1.16	1.13	1.11	1.10	1.09	1.08
EHST to EHT	.56	.67	.76	.83	.86	.88	.90	.91	.92	.93
EHT to ECL	.80	.86	.91	.93	.94	.95	.96	.97	.98	.98
ECL to EHT	1.25	1.16	1.10	1.08	1.06	1.05	1.04	1.03	1.02	1.02
EHT to EHD	1.00	1.00	1.00	.96	.90	.84	.79	.75	.71	.67
EHD to EHT	1.00	1.00	1.00	1.04	1.11	1.19	1.27	1.33	1.41	1.49
EHT to EHSD	1.80	1.49	1.32	1.21	1.16	1.13	1.11	1.10	1.09	1.08
EHSD to EHT	.56	.67	.76	.83	.86	.88	.90	.91	.92	.93
EHST to ECL	.44	.58	.69	.77	.81	.84	.87	.88	.90	.91
ECL to EHST	2.25	1.73	1.45	1.30	1.23	1.18	1.15	1.13	1.12	1.09
EHST to EHD	.56	.67	.76	.79	.77	.75	.72	.68	.65	.63
EHD to EHST	1.80	1.49	1.32	1.26	1.29	1.34	1.40	1.46	1.53	1.60
EHST to EHSD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EHSD to EHST	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ECL to EHD	1.25	1.16	1.10	1.03	.95	.88	.83	.78	.73	.69
EHD to ECL	.80	.86	.91	.97	1.05	1.14	1.20	1.28	1.37	1.45
ECL to EHSD	2.25	1.73	1.45	1.30	1.23	1.18	1.15	1.13	1.12	1.10
EHSD to ECL	.44	.58	.69	.77	.81	.84	.87	.88	.90	.91
EHD to EHSD	1.80	1.49	1.32	1.26	1.29	1.34	1.40	1.46	1.53	1.60
EHSD to EHD	.56	.67	.76	.79	.78	.75	.71	.68	.65	.63

EHT—Equivalent H truck loading.
EHD—Equivalent H design loading.
EHST—Equivalent H-S truck loading.
EHSD—Equivalent H-S design loading.
ECL—Equivalent concentrated load.

CONVERSION COEFFICIENTS FOR EQUIVALENT LOADINGS BASED ON MAXIMUM SHEAR IN SIMPLE SPANS

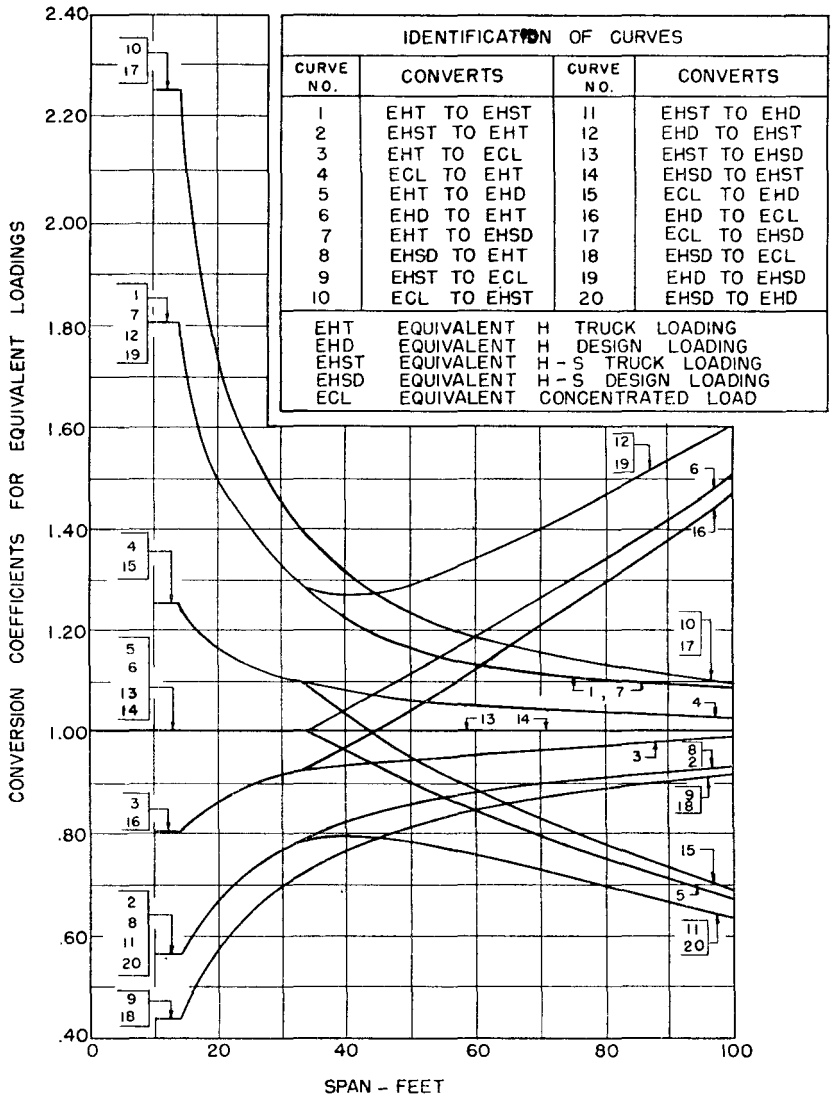


Figure 10.1

Part III

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPAN BRIDGES FOR THE HEAVY VEHICLES REPORTED BY THE SPECIAL LOADOMETER SURVEY OF 1942

11. FREQUENCY ANALYSIS OF EQUIVALENT H TRUCK LOADINGS

The ratings of heavy vehicle types and loadings in terms of equivalent H truck loadings, equivalent H-S truck loadings, or equivalent concentrated loads—by the procedure outlined in the preceding articles of this bulletin—not only provide an approach to the problem of permissible vehicle weights for bridges of given lengths and design designations, but they also provide a convenient means for analyzing the frequency distributions of various intensities of heavy vehicle loading equivalents on bridges of different lengths. Once all of the heavy vehicles reported by a loadometer survey have been converted into equivalent loads for a given span, the relative frequencies of various intensities of these loading equivalents for the given span may then be obtained rather simply by arranging them into groups or cells of increasing magnitudes and computing the percentage of vehicles thus found in each cell, respectively.

Table 11.1 is the result of such an analysis and gives the observed frequency distribution of equivalent H truck loadings for the 4531 heavy trucks reported in the 1942 loadometer survey. The information shown in Table 11.1 corresponds to the plotted values shown in Figs. 12.12 and 13.12. Similar tables were made for each of the 11 heavy vehicle types shown for Figs. 12.1-12.12 and 13.1-13.12, however, only the one table is included here since it is believed that this table provides sufficient illustration of the method.

Frequency distributions such as these, which have been determined from the heavy vehicle data reported by a given loadometer survey, not only furnish a quantitative measure for evaluating the level or levels of heavy motor vehicle operation corresponding to the traffic conditions at those stations or on those routes covered by the given survey, but they also furnish certain statistical measures or indices which should prove to be of value for correlating the various levels of heavy motor vehicle operation with minimum standards for highway and bridge provision. By way of specific illustration, the frequency distributions and other results obtained from analyses of the heavy vehicle data reported by the special loadometer survey of 1942 are given and discussed in the remaining articles of Part III. The titles of these articles will not only serve for convenient reference but also to indicate the nature of the material presented in each. They are as follows:

Article 12 (Figures 12.1-12.12)	Maximum, Minimum, and Average Equivalent H Truck Loadings on Simple Span Bridges Based on Gross Vehicle Weights.
Article 13 (Figures 13.1-13.12)	Histograms Showing Frequency Distribution of Equivalent H Truck Loadings on Simple Span Bridges Based on Gross Vehicle Weights.

TABLE 11.1

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS BASED ON THE SHEAR PRODUCED BY THE 4531 ALL TYPE TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY

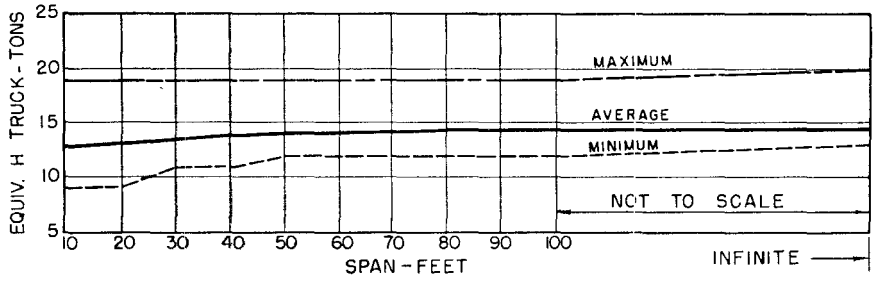
Equivalent H Truck Loadings	Span-Feet								
	10	20	30	40	50	60	80	100	Infinite
6	.3	.1							
7	.5	.3	.1						
8	1.8	.8	.3	.1					
9	7.4	3.3	.6	.2	.1				
10	15.6	9.7	2.3	.4	.2	.1			
11	19.6	15.0	5.3	1.7	.7	.4			
12	18.2	18.6	12.2	5.2	2.3	1.4	1.1	.8	
13	13.1	15.6	16.0	10.6	7.2	3.8	2.2	1.8	2.2
14	9.1	12.7	18.1	15.6	12.1	8.8	5.5	3.4	2.3
15	6.2	8.6	14.0	16.3	16.0	13.5	10.3	7.8	2.2
16	3.5	6.1	10.8	14.4	15.0	16.0	14.3	12.6	4.3
17	2.5	4.1	7.2	10.3	12.4	14.5	15.2	14.9	9.4
18	1.2	2.3	5.1	7.8	9.0	10.9	12.4	13.9	13.5
19	.6	1.4	3.3	5.8	6.6	7.8	9.3	10.2	13.7
20	.2	.7	2.0	4.2	5.1	5.4	6.5	8.0	10.6
21	.1	.4	1.2	2.9	4.0	4.6	5.0	5.2	8.0
22	.0	.2	.7	1.8	3.2	3.6	4.1	4.5	6.1
23	.0	.1	.4	1.2	2.3	3.0	3.5	3.7	4.3
24	.1		.2	.7	1.6	2.1	2.8	3.1	3.6
25			.1	.4	.9	1.6	2.2	2.4	3.2
26			.0	.2	.5	.9	1.8	2.0	2.9
27			.1	.1	.3	.6	1.3	1.7	2.4
28				.1	.2	.4	.9	1.3	1.9
29					.1	.3	.6	.9	1.7
30					.1	.1	.4	.6	1.3
31					.0	.0	.2	.4	1.2
32					.1	.1	.1	.2	1.0
33						.1	.1	.1	1.0
34							.1	.1	.9
35							.0	.1	.7
36							.0	.1	.5
37							.1	.1	.4
38								.0	.2
39								.0	.1
40								.1	.1
41									.0
42									.1
43									.1
44									.0
45									.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Max H Truck	24	23	27	28	32	33	37	40	47
Avg H Truck	12.1	13.0	14.6	15.9	16.8	17.6	18.4	19.0	21.0
Min H Truck	6	6	7	8	9	10	12	12	13
Range	18	17	20	20	23	23	25	28	34

12. MAXIMUM, AVERAGE, AND MINIMUM EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPAN BRIDGES BASED ON GROSS VEHICLE WEIGHT

Figs. 12.1-12.12 present a graphical representation of the maximum, average, and minimum equivalent H truck loadings on simple span bridges of various lengths for each of the 11 more numerous heavy vehicle types reported by the special loadometer survey of 1942. Figure 12.12 gives the same information for all heavy vehicles reported representing a combined total of 4531. The figures on which these data are given are as follows:

Heavy Vehicle Type	Number of Vehicles Reported	Figure Number
2	171	12.1
3	381	12.2
2-S1	2855	12.3
2-S2	508	12.4
3-S1	9	12.5
3-S2	142	12.6
3-S3	14	12.7
2-2	99	12.8
2-3	24	12.9
3-2	68	12.10
3-3	176	12.11
All	4531	12.12

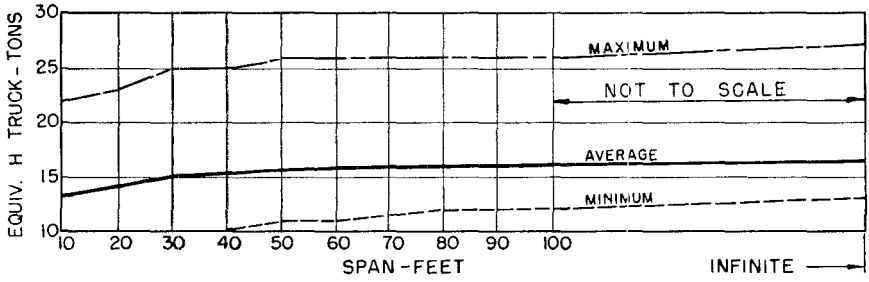
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 171 TYPE 2 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.1

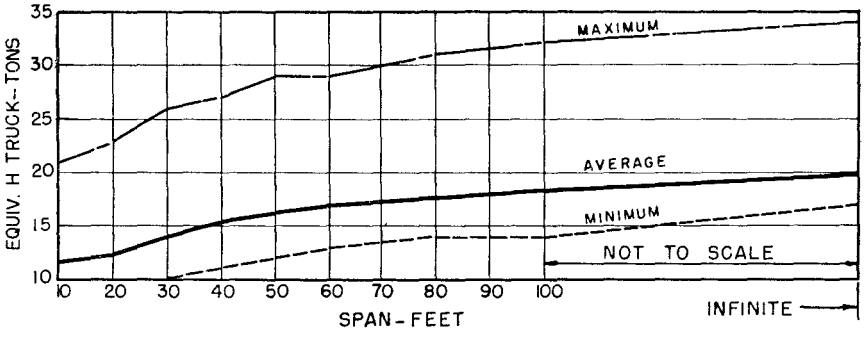
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 381 TYPE 3 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.2

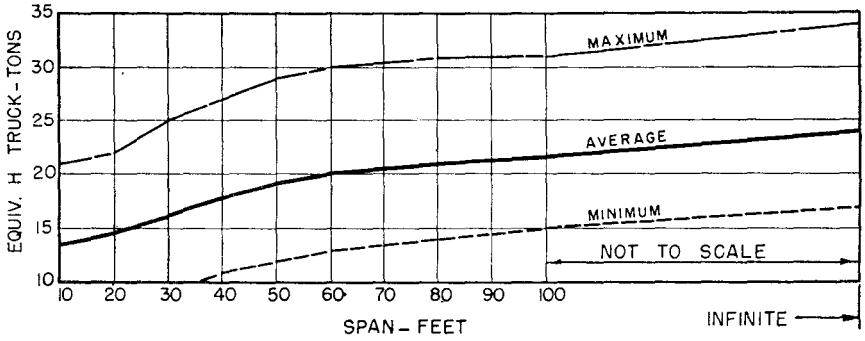
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 2855 TYPE 2-S1 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.3

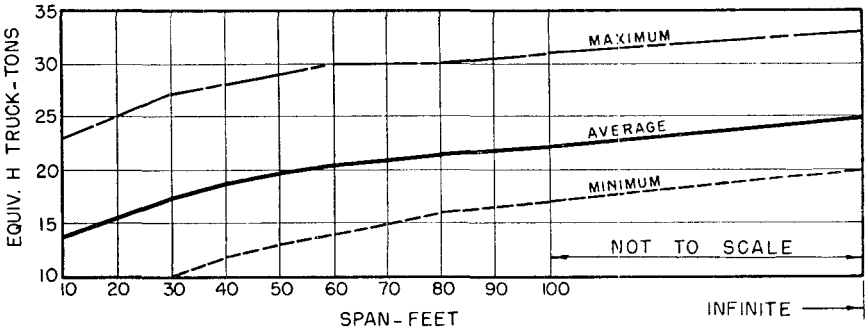
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 508 TYPE 2-S2 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.4

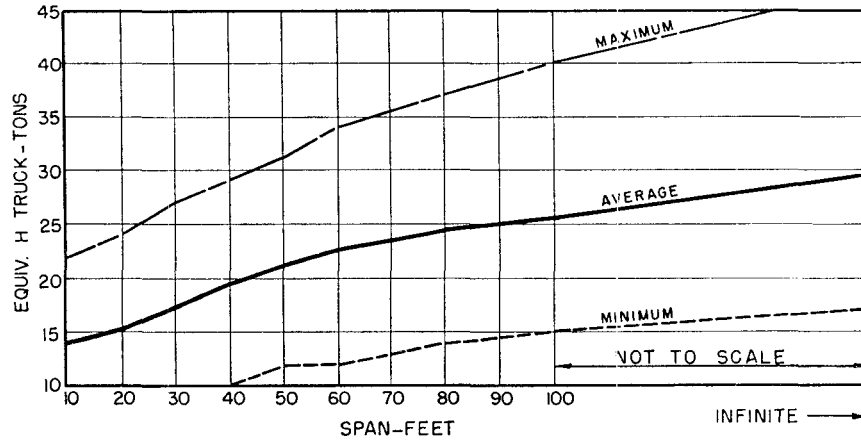
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 9 TYPE 3-S1 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.5

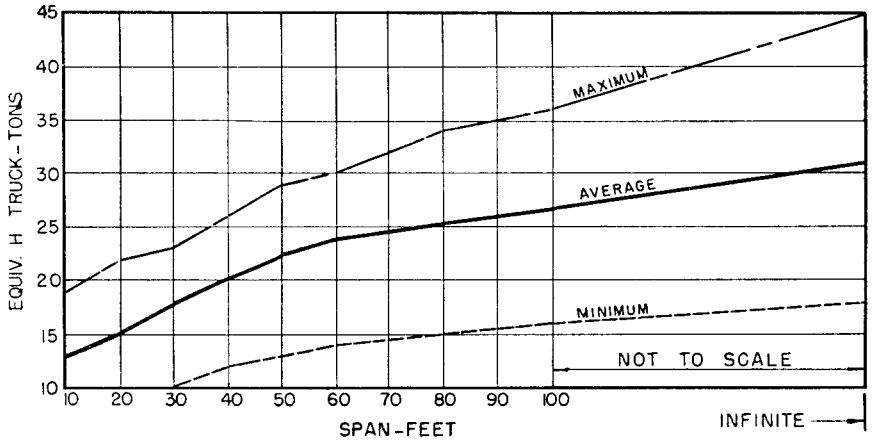
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 142 TYPE 3-S2 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.6

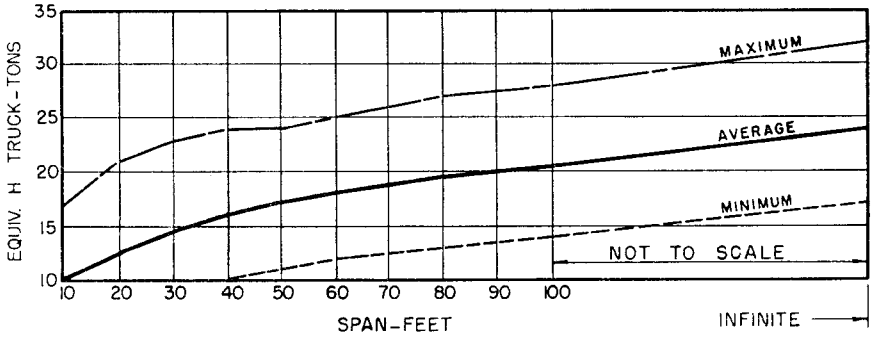
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 14 TYPE 3-S3 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.7

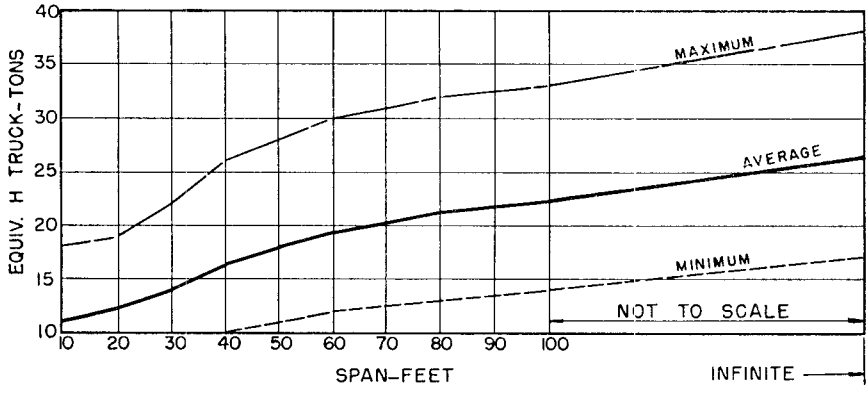
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 99 TYPE 2-2 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.8

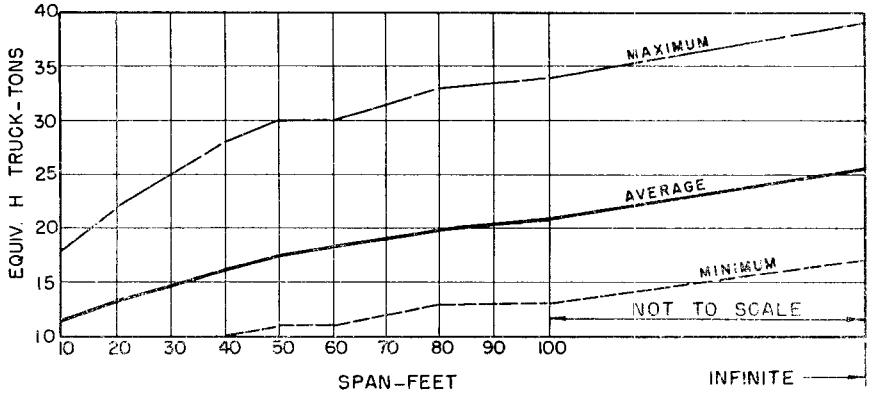
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 24 TYPE 2-3 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.9

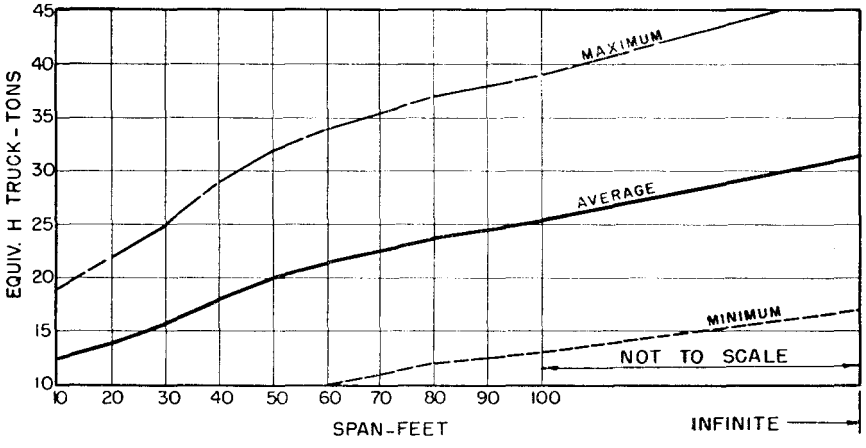
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 68 TYPE 3-2 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.10

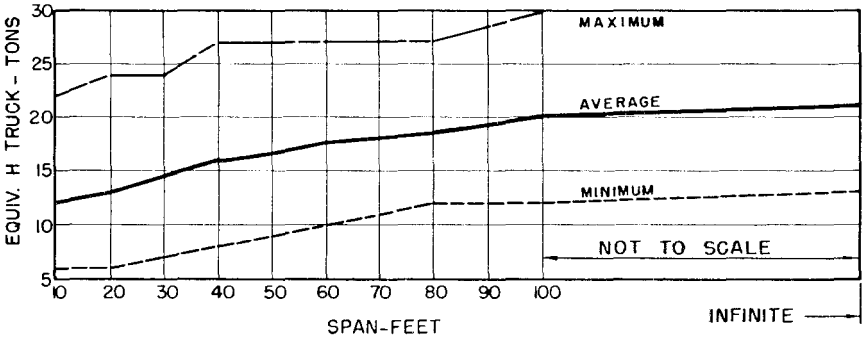
MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 176 TYPE 3-3 TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

Figure 12.11

MAXIMUM, MINIMUM AND AVERAGE EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPANS BASED ON MAXIMUM SHEARS PRODUCED BY THE 4531 ALL TYPE TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY



NOTE: GROSS VEHICLE WEIGHT IN TONS AND EQUIVALENT H TRUCK LOADINGS IN TONS ARE IDENTICAL AT INFINITE SPAN

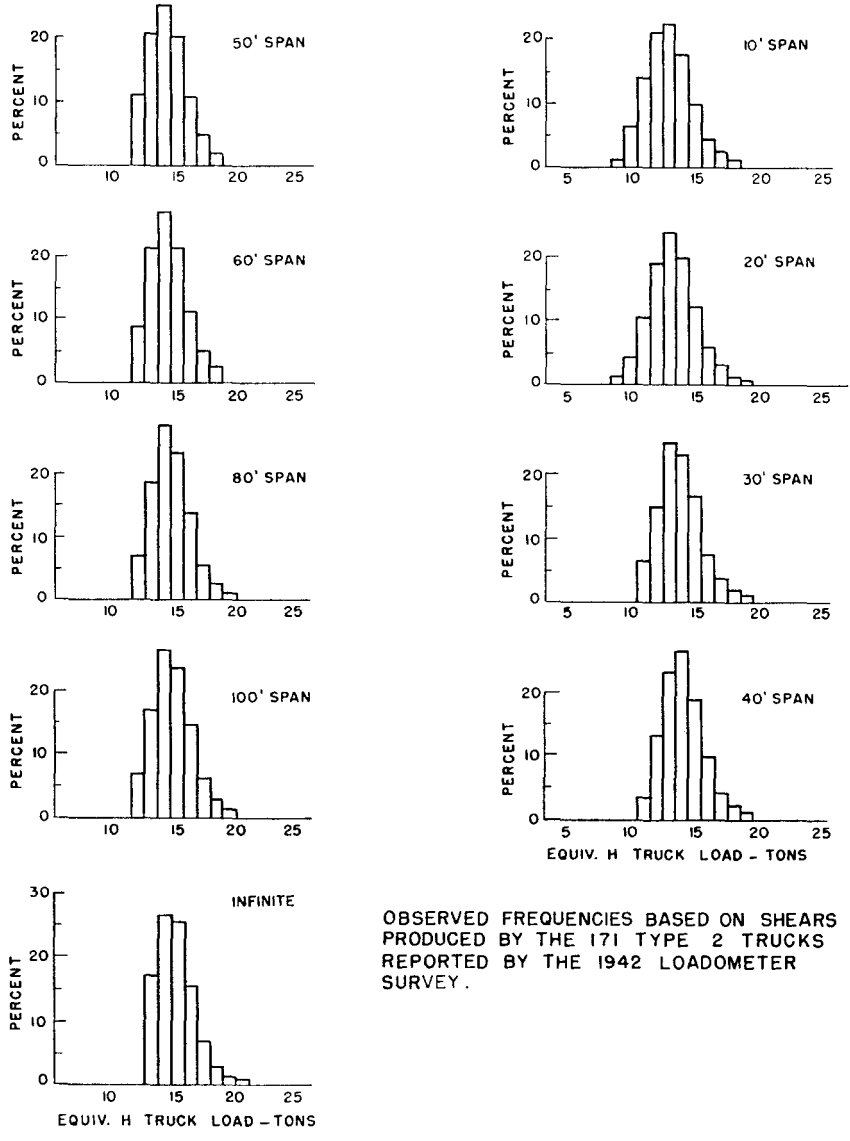
Figure 12.12

13. HISTOGRAMS SHOWING FREQUENCY DISTRIBUTIONS OF EQUIVALENT H TRUCK LOADINGS ON SIMPLE SPAN BRIDGES BASED ON GROSS VEHICLE WEIGHTS

Figs. 13.1-13.12 present a graphical representation of the observed and calculated frequencies of equivalent H truck loadings on simple spans up to 100 feet in length for each of the 11 more numerous heavy vehicle types reported by the 1942 loadometer survey; and Fig. 13.12 gives the same information for all the heavy vehicles reported, representing a combined total of 4531. These histograms, based on 3-item moving averages of the observed data, are given in the following figures.

Heavy Vehicle Type	Number of Vehicles Reported	Figure Number
2	171	13.1
3	381	13.2
2-S1	2855	13.3
2-S2	508	13.4
3-S1	9	13.5
3-S2	142	13.6
3-S3	14	13.7
2-2	99	13.8
2-3	24	13.9
3-2	68	13.10
3-3	176	13.11
All	4531	13.12

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 2 HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS



OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 171 TYPE 2 TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

Figure 13.1

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 3 HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 361 TYPE 3 TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

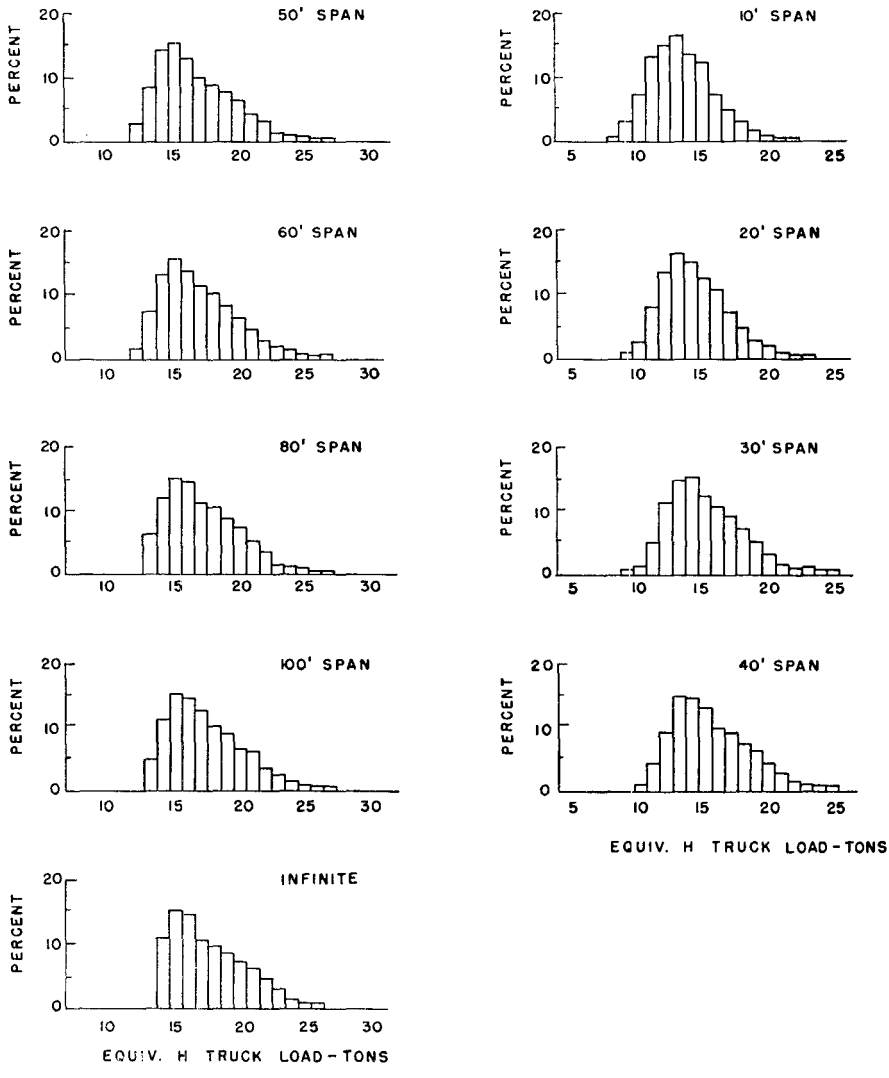


Figure 13.2

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 2-SI HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 2855 TYPE 2-SI TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

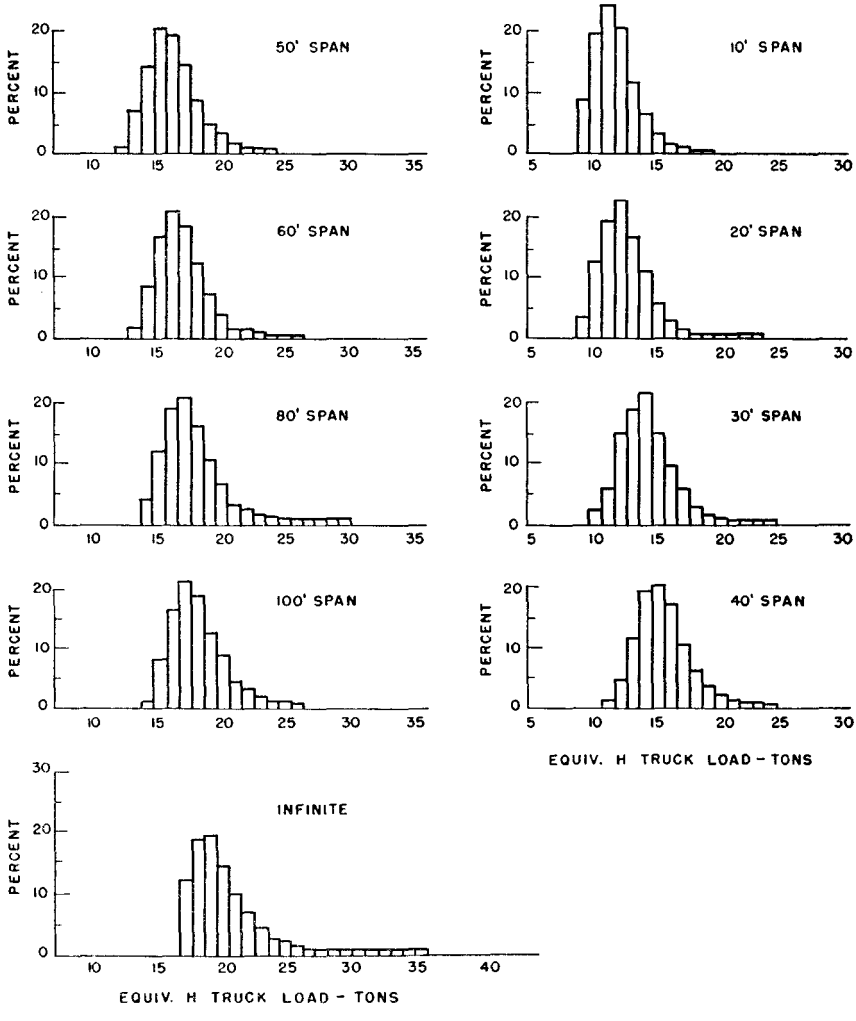


Figure 13.3

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 2-S2 HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 508 TYPE 2-S2 TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

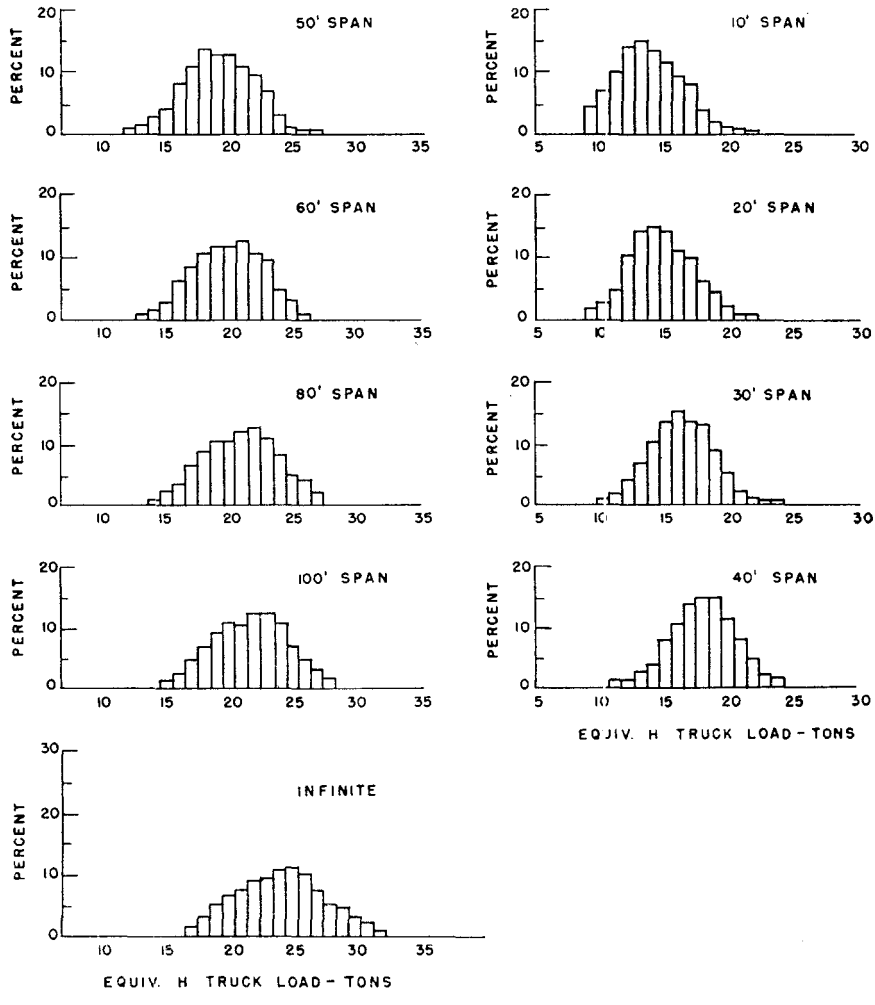


Figure 13.4

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 3-S1 HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 9 TYPE 3-S1 TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

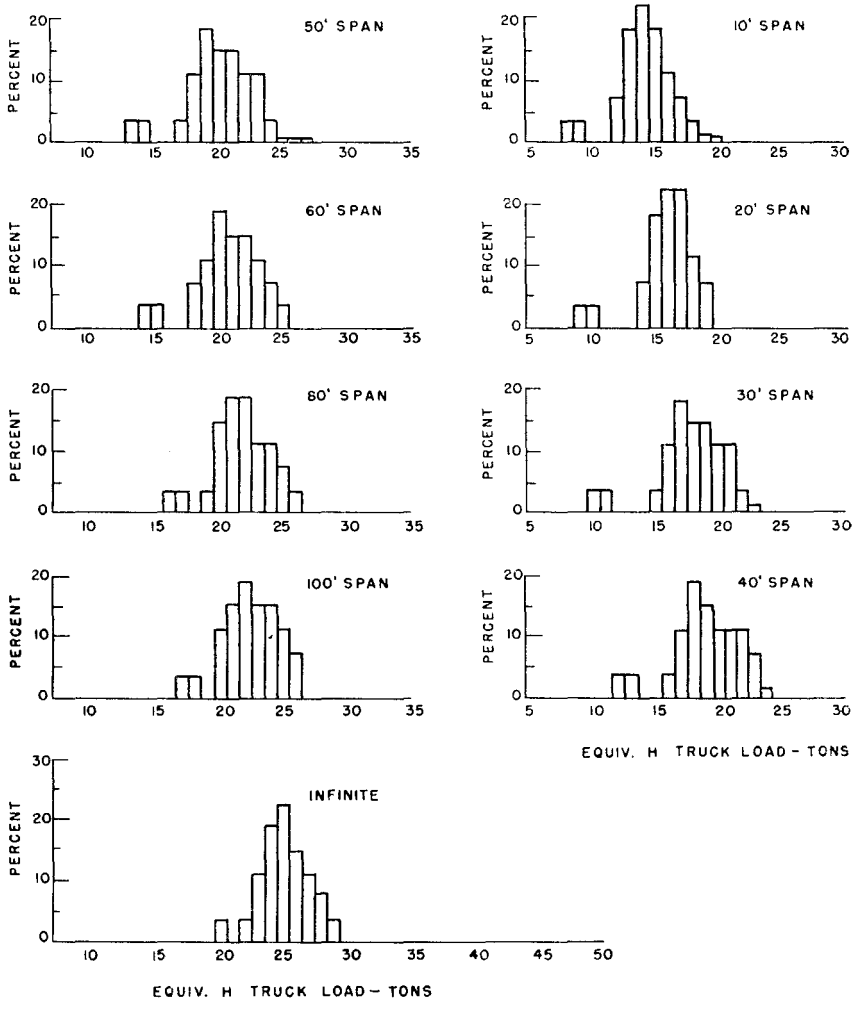


Figure 13.5

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 3-S2 HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 142 TYPE 3-S2 TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

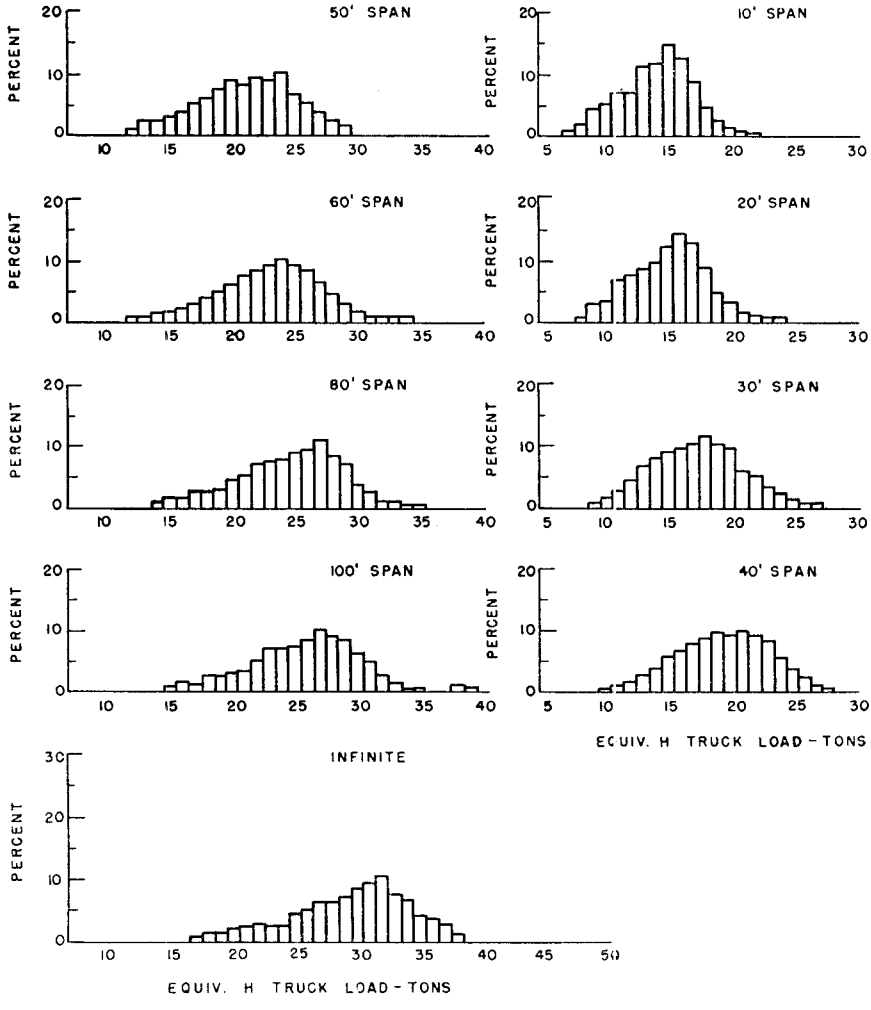


Figure 13.6

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 3-S3 HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 14 TYPE 3-S3 TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

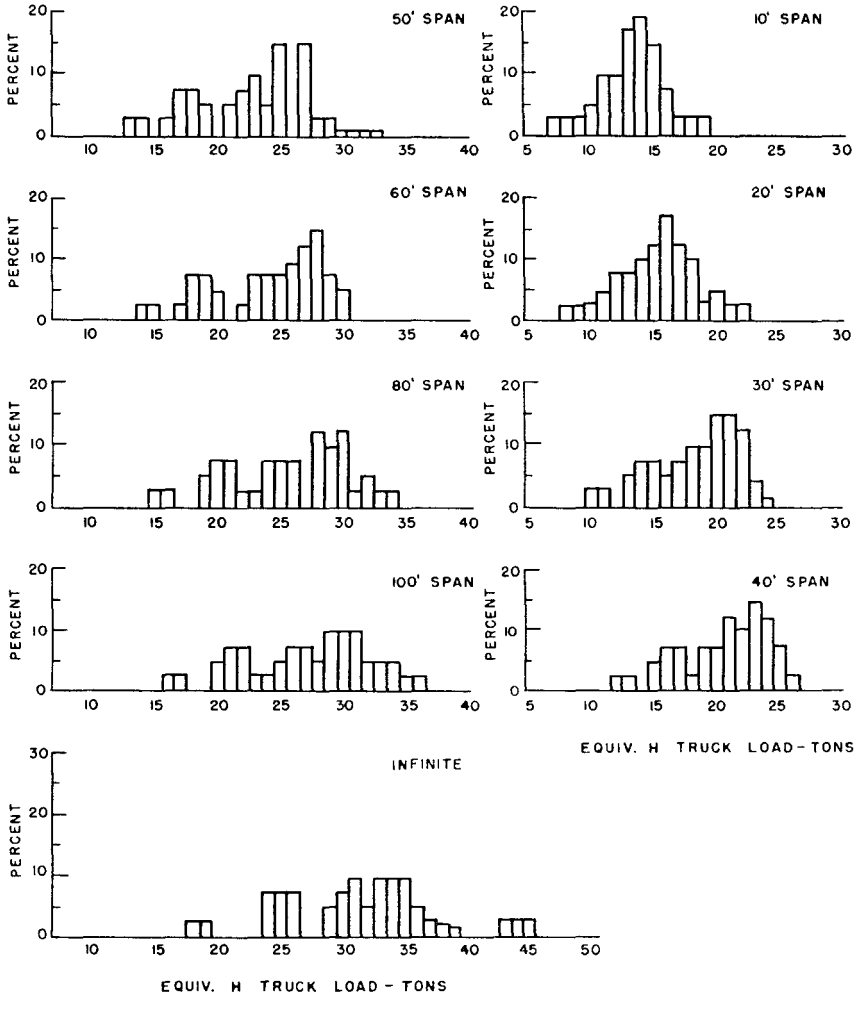


Figure 13.7

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 2-2 HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 99 TYPE 2-2 TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

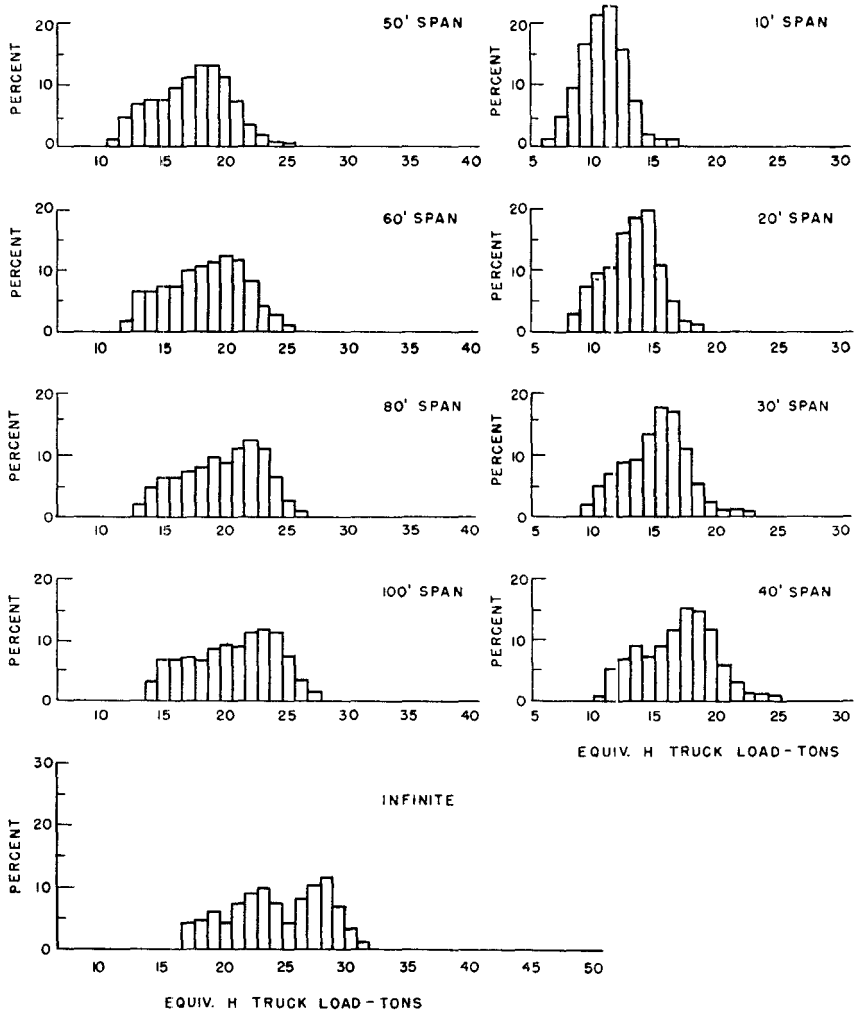


Figure 13.8

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 2-3 HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 24 TYPE 2-3 TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

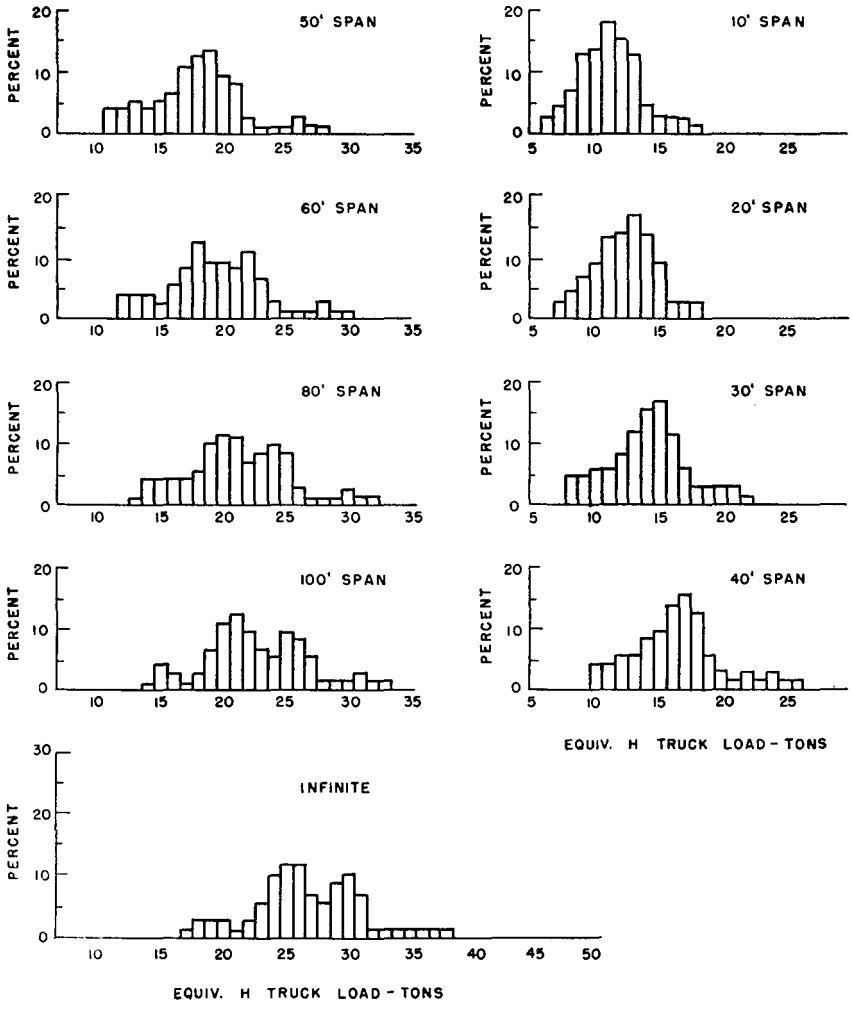


Figure 13.9

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 3-2 HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 68 TYPE 3-2 TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

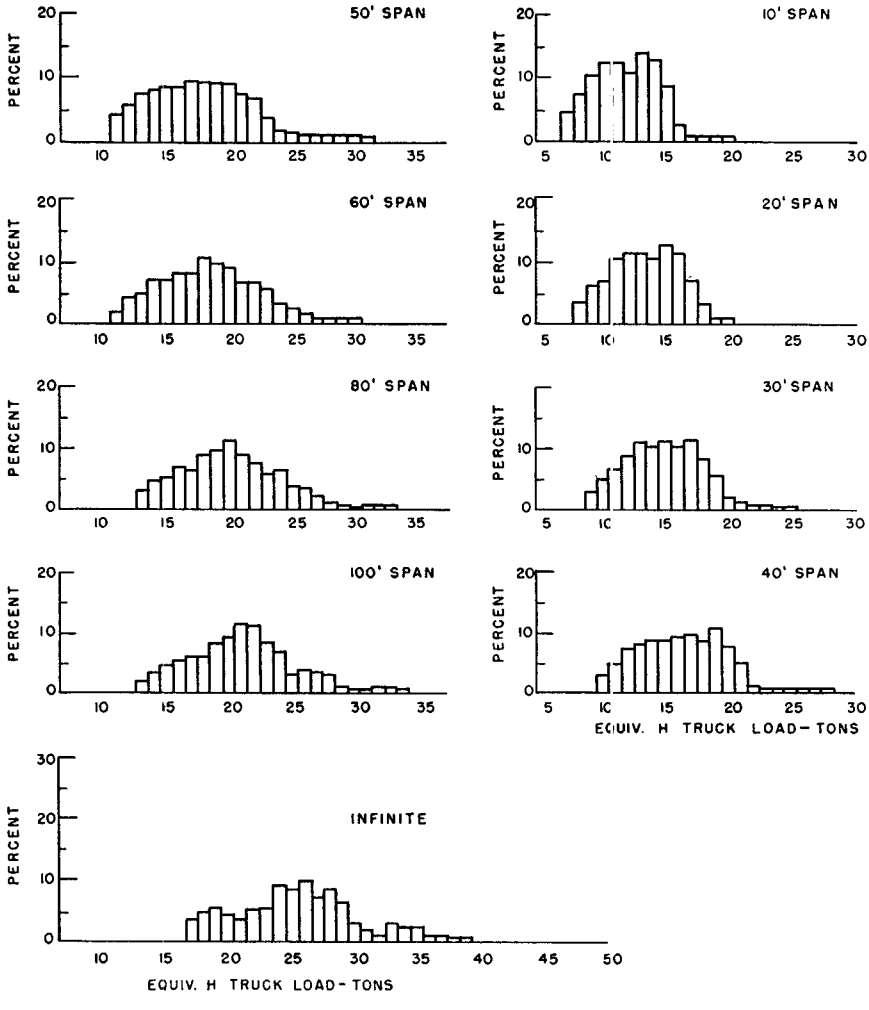


Figure 13.10

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR TYPE 3-3 HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

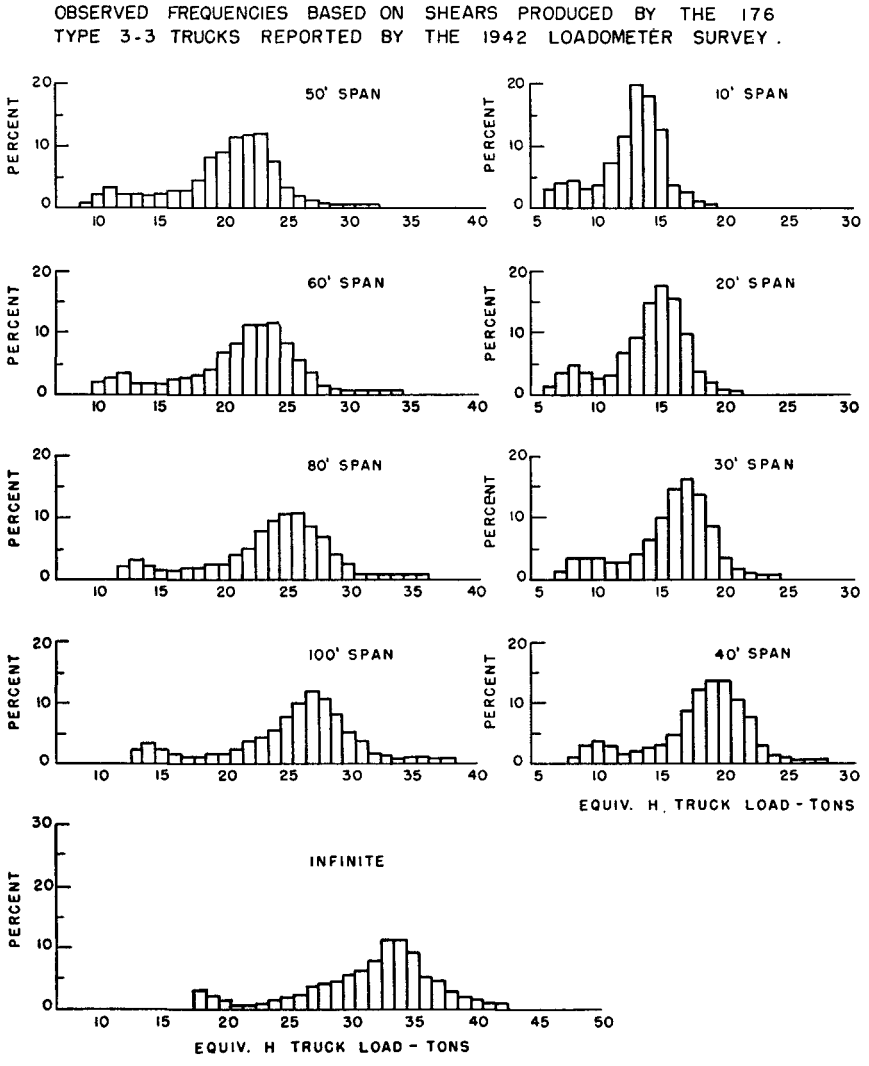


Figure 13.11

OBSERVED FREQUENCIES OF EQUIVALENT H TRUCK LOADINGS FOR ALL TYPE HEAVY VEHICLES ON SIMPLE SPANS OF VARIOUS LENGTHS

OBSERVED FREQUENCIES BASED ON SHEARS PRODUCED BY THE 4531 ALL TYPE TRUCKS REPORTED BY THE 1942 LOADOMETER SURVEY.

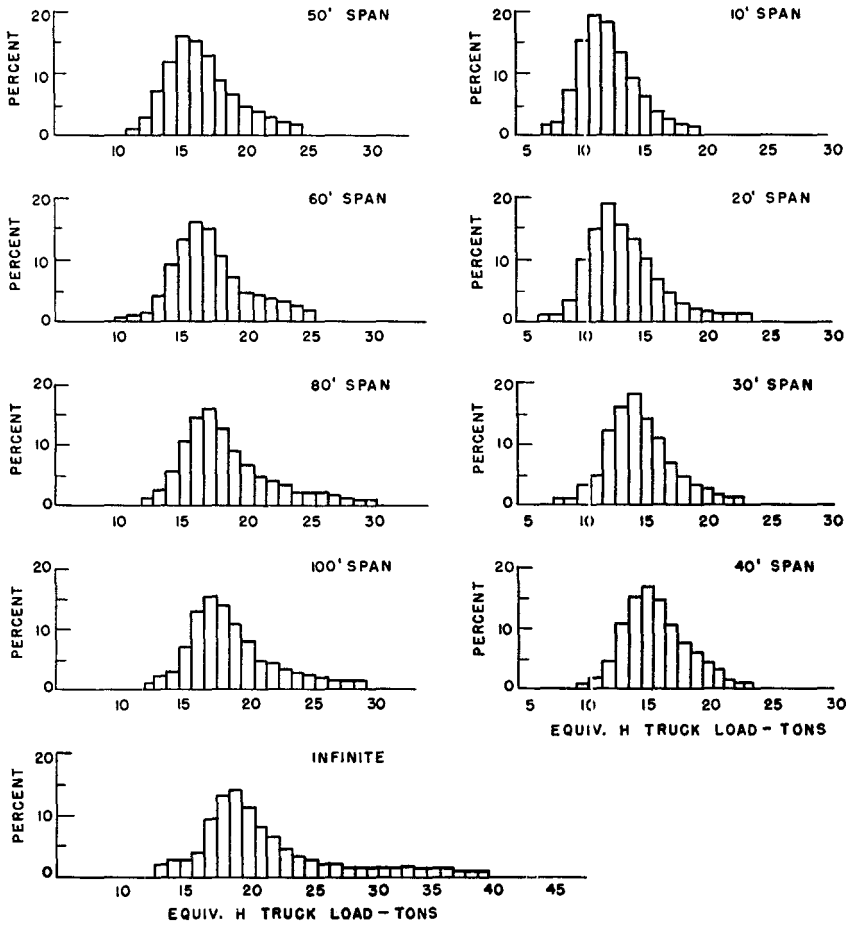


Figure 13.12

Part IV

OBSERVED FREQUENCIES OF EQUIVALENT CONCENTRATED LOADS ON SIMPLE SPAN BRIDGES FOR THE HEAVY VEHICLES REPORTED BY THE SPECIAL LOADOMETER SURVEY OF 1942

14. FREQUENCY ANALYSES OF EQUIVALENT CONCENTRATED LOADS

Since the procedure for arriving at the observed frequencies of equivalent concentrated loads, given by the table and charts in this and following articles of Part IV, have been outlined in previous articles of this bulletin, it is believed that only a brief discussion of each is necessary to facilitate their use. A point of particular interest in connection with these studies is that an equivalent concentrated load is exactly equal to the shear produced in a simple span bridge by a given heavy truck. It can be seen then, that any distribution of equivalent concentrated loads would be the same as the distribution that would obtain for the actual shears produced by a given sample of heavy truck loads. For example, Table 14.1 gives the distribution of equivalent concentrated loads for all of the heavy trucks reported in the 1942 loadometer survey, but this table also provides the distribution of actual shears produced by this sample of heavy trucks. In other words for the 10-foot span shown in Table 14.1, it will be noted that 0.5 percent of all heavy trucks are rated as equivalent concentrated loads of 5 tons. This would be the same as saying that 0.5 percent of all heavy trucks in the sample produced a shear of 5 tons = 10 kips on a 10-foot simple span bridge.

The numerical values given in Table 14.1 for the maximum, average, and minimum equivalent concentrated loads correspond to the plotted values shown in Fig. 15.1. The numerical values for the percent distribution of equivalent concentrated loads on various simple span bridges correspond to the plotted values for the histograms shown in Fig. 16.1.

TABLE 14.1

OBSERVED FREQUENCIES OF EQUIVALENT CONCENTRATED LOADS REQUIRED TO PRODUCE THE SAME SHEAR IN SIMPLE SPANS AS THAT PRODUCED BY THE 4531 ALL TYPE TRUCKS REPORTED IN THE 1942 LOADOMETER SURVEY

Equivalent Concentrated Loads	Span-Feet								
	10	20	30	40	50	60	80	100	Infinite
5	.5	.1							
6	1.9	.3	.1						
7	8.4	1.1	.3						
8	17.5	5.9	.6	.2					
9	22.6	14.3	2.4	.3	.2				
10	19.9	20.0	7.6	1.2	.4	.2			
11	13.2	20.0	14.0	4.5	1.8	1.0	.7		
12	7.9	14.4	18.5	10.8	5.1	2.7	1.8	2.1	
13	4.6	10.0	17.8	16.3	11.9	7.9	3.6	2.5	2.2
14	2.1	6.2	13.6	18.2	15.7	13.0	7.9	5.7	2.3
15	.9	3.9	9.2	14.6	17.0	15.9	12.5	10.4	2.2
16	.3	2.1	6.2	10.7	13.2	15.0	15.3	14.4	4.3
17	.1	1.0	4.3	7.4	10.1	11.7	14.3	14.9	9.5
18	.0	.4	2.6	5.6	6.8	8.8	10.6	11.7	13.5
19	.0	.2	1.3	4.0	5.2	6.0	8.1	8.7	13.7
20	.1	.1	.8	2.5	4.0	4.7	5.5	5.9	10.7
21			.4	1.7	3.3	3.9	4.8	4.8	8.0
22			.2	.9	2.1	3.1	3.6	4.1	6.1
23			.1	.5	1.4	2.1	3.1	3.5	4.3
24				.3	.7	1.6	2.4	2.7	3.6
25				.2	.5	1.0	1.9	2.2	3.2
26				.1	.3	.6	1.3	1.9	2.9
27					.1	.3	1.0	1.5	2.4
28					.1	.2	.6	1.0	1.9
29					.1	.1	.4	.7	1.7
30						.1	.2	.5	1.3
31						.0	.1	.3	1.2
32						.1	.1	.1	1.0
33							.1	.1	1.0
34							.0	.1	.9
35							.1	.0	.7
36								.1	.5
37								.0	.4
38								.1	.2
39									.1
40									.1
41									.0
42									.0
43									.0
44									.0
45									.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Max E.C.L.	20	20	23	26	29	32	35	38	47
Avg E.C.L.	9.7	11.2	13.2	14.9	15.9	16.7	17.8	18.4	21.0
Min E.C.L.	5	5	6	8	9	10	11	12	13
Range	15	15	17	18	20	22	24	26	34

15. MAXIMUM, AVERAGE, AND MINIMUM EQUIVALENT CONCENTRATED LOADS ON SIMPLE SPAN BRIDGES BASED ON GROSS VEHICLE WEIGHTS

Figure 15.1 presents a graphical representation of the maximum, average, and minimum equivalent concentrated loads for all of the heavy motor vehicles reported in the special loadometer survey of 1942. It also represents the maximum, average, and minimum shear produced on various span lengths by the reported heavy vehicles since, as discussed in Article 14, the shear produced by any loading and the equivalent concentrated load are equal. The values for these curves were plotted from the corresponding data given in Table 14.1.

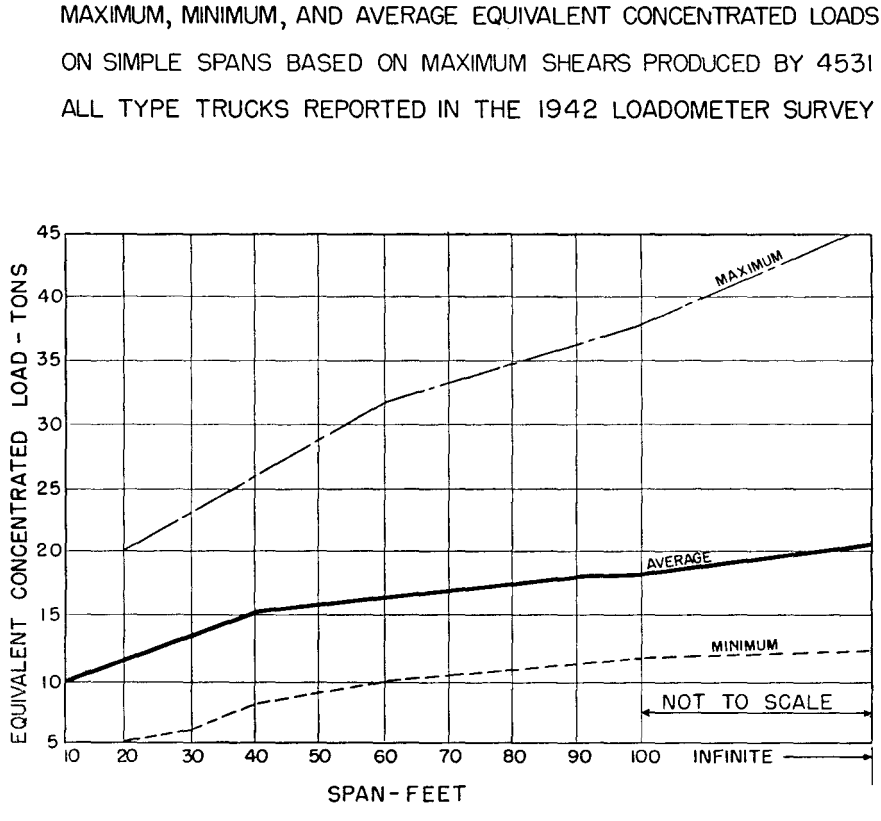


Figure 15.1

16. HISTOGRAMS SHOWING FREQUENCY DISTRIBUTIONS OF EQUIVALENT CONCENTRATED LOADS ON SIMPLE SPAN BRIDGES BASED ON GROSS VEHICLE WEIGHTS

Figure 16.1 presents a graphical representation of the observed frequencies of equivalent concentrated loads on simple spans up to 100 feet in length plus the infinite span for all of the heavy vehicles reported in the special

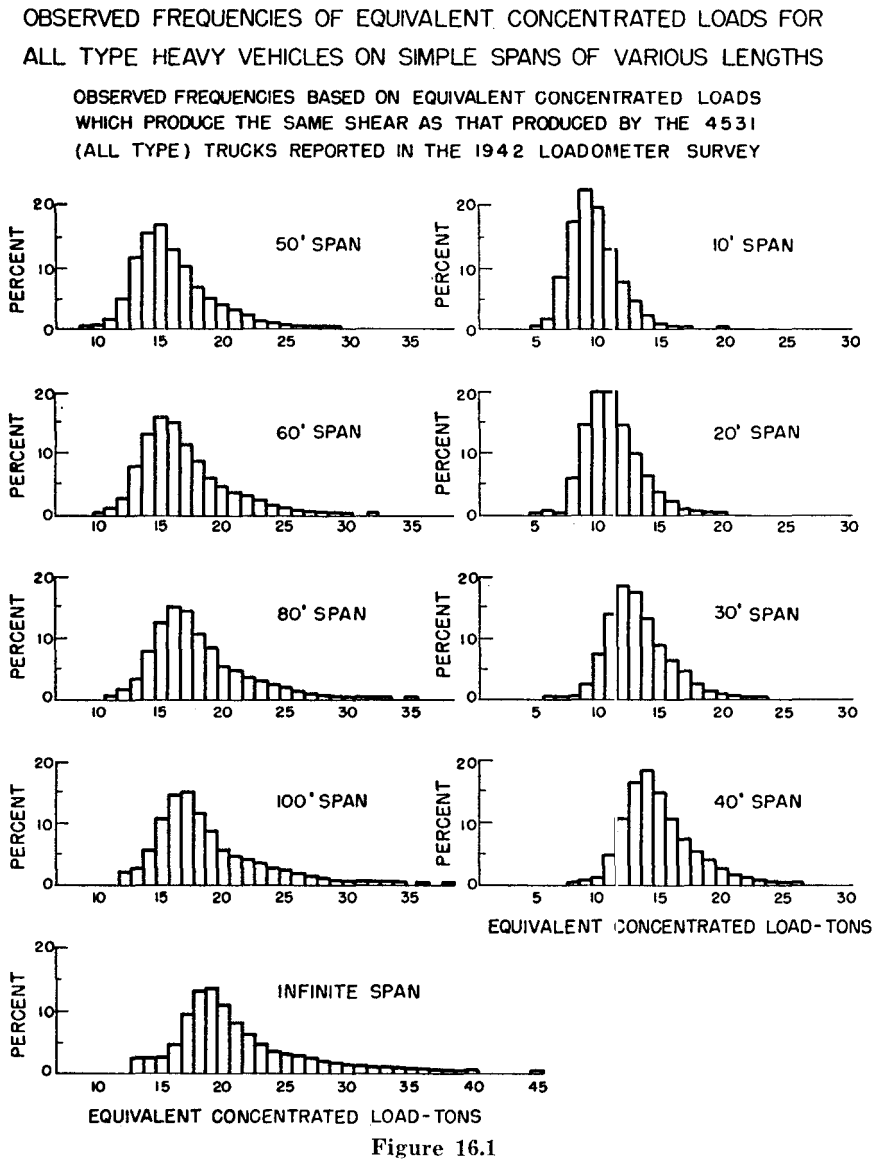


Figure 16.1

loadometer survey of 1942. These frequencies were plotted from the corresponding data given in Table 14.1.

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