

CHAPTER 2
BASIC EQUIPMENT

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The Bailey M2 bridge set contains 29 different items of bridge parts and 30 items of erection equipment. Table A-1 in Appendix A shows the number of parts needed to build a specific Bailey bridge.

WARNING: Due to the size and weight of components, personnel are advised to use extreme care when handling them. Failure to do so may result in serious.

PANEL

The panel (Figure 2-1) is the basic member of the bridge. It is a welded, high-tensile steel truss section 10 feet (3.0 meters) long, 5 feet 1 inch (1.5 meters) high, and 6 1/2 inches (16.5 centimeters) wide. It weighs 577 pounds (262 kilograms) and can be carried by six soldiers using carrying bars.

The horizontal members of the panel are called chords. Both chords have male lugs at one end and female lugs at the other. Panels are joined end to end by engaging these lugs and placing panel pins through the holes in the lugs. On the top of the bottom chord are four seatings or dowels. The beams that

BRIDGE PARTS

support the bridge roadway will be clamped to these dowels. Table 2-1 lists the holes in the panel.

PANEL PIN

The panel pin (Figure 2-2) is 8 5/16 inches (21.1 centimeters) long, 1 7/8 inches (4.8 centimeters) in diameter, and weighs 6 pounds (2.7 kilograms). It has a tapered end with a small hole

Table 2-1 Holes in panel chords and verticals

POSITION	TYPE OF BOLT REQUIRED	USE
Near each end of bottom chord	Sway brace pin	Fasten end of sway braces
Top and bottom chords	Bracing bolt	Fasten bracing frames between two inner trusses
Top and bottom chords	Chord bolt	Fasten chords of multistory bridges
End verticals	Bracing bolt	Fasten rakers
		Fasten bracing frames between two inner trusses
		Fasten tie plates between second and third trusses
Bottom of all verticals	Transom clamp	Fasten transom by insertion of transom clamp

for a retainer clip. A groove is cut across the head of the panel pin parallel to the bridge pin retainer hole. Panel pins should be inserted with the groove horizontal; otherwise, the flanges of the panel chord channels make it difficult to insert the retainer clip.

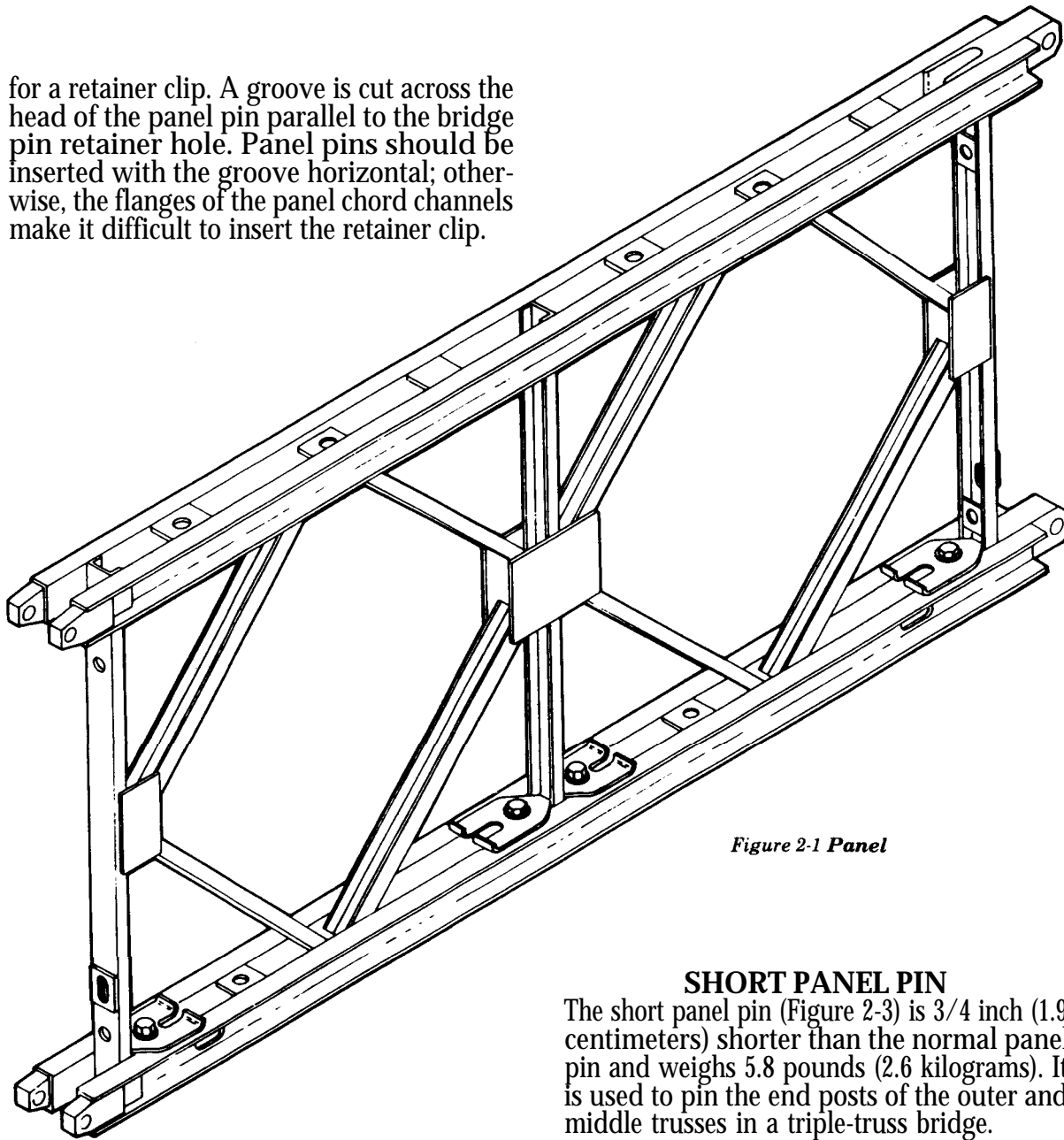


Figure 2-1 Panel

SHORT PANEL PIN

The short panel pin (Figure 2-3) is 3/4 inch (1.9 centimeters) shorter than the normal panel pin and weighs 5.8 pounds (2.6 kilograms). It is used to pin the end posts of the outer and middle trusses in a triple-truss bridge.

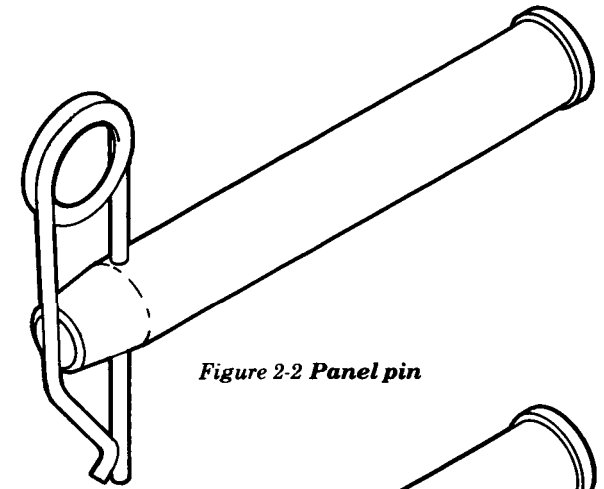


Figure 2-2 Panel pin

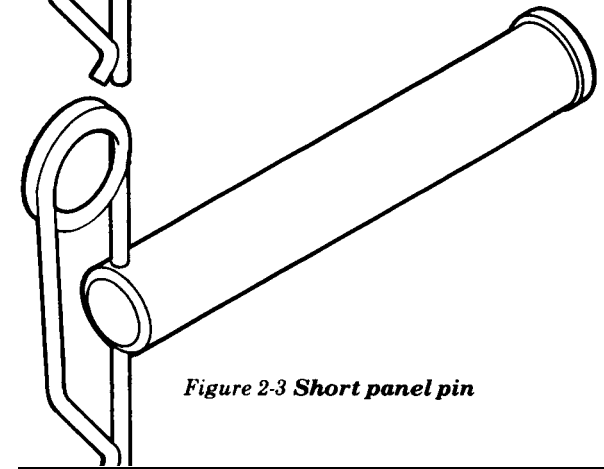


Figure 2-3 Short panel pin

WARNING: Never jack against transoms that are held in place by transom clamps, as the clamps will fail. This failure may result in severe injury or death and/or extreme damage to bridge components.

TRANSOM

The transom (Figure 2-4, page 8) is a steel beam that supports the floor system of the bridge. It is 10 inches (25.4 centimeters) by 19 feet 11 inches (6.1 meters) long. It has a 4 1/2-inch (11.4 centimeters) flange and a 5/16-inch

WARNING: Sway brace is a multi-hinged component; use care when handling to prevent injury.

(0.8 centimeter) cover plate on each flange. The transom weighs 618 pounds (280 kilograms). It can be carried by eight soldiers using carrying tongs clamped to the upper flange or carrying bars inserted through holes in the web.

The underside of the transom has six holes into which the panel dowels fit. The transom rests on the lower chord of the panel and is held in place with a transom clamp. The upper side of the transom has six lugs with an additional lug near each end. The stringers and rakers (explained later in this chapter) attach to these lugs.

Transoms are normally spaced 5 feet (1.5 meters) apart, one at the middle and one at the end of each panel, to support vehicles of class 70 or less. Four transoms per bay—two in the middle and one at each end of the panel—are required to support vehicles over class 70.

WARNING: Transom clamp is a hinged component; use care when handling to prevent injury.

TRANSOM CLAMP

The transom clamp (Figure 2-5) is a hinged screw-in type clamp, 13 1/2 inches (34.3 centimeters) high and 8 inches (20.3 centimeters) across the top. It weighs 7 pounds (3.2 kilograms). It clamps the transom to the vertical and bottom chord of the panel. It is tightened by a vise-handled screw.

SWAY BRACE

The sway brace (Figure 2-6) is a 1 1/8-inch (2.9 centimeters) steel rod, hinged at the center,

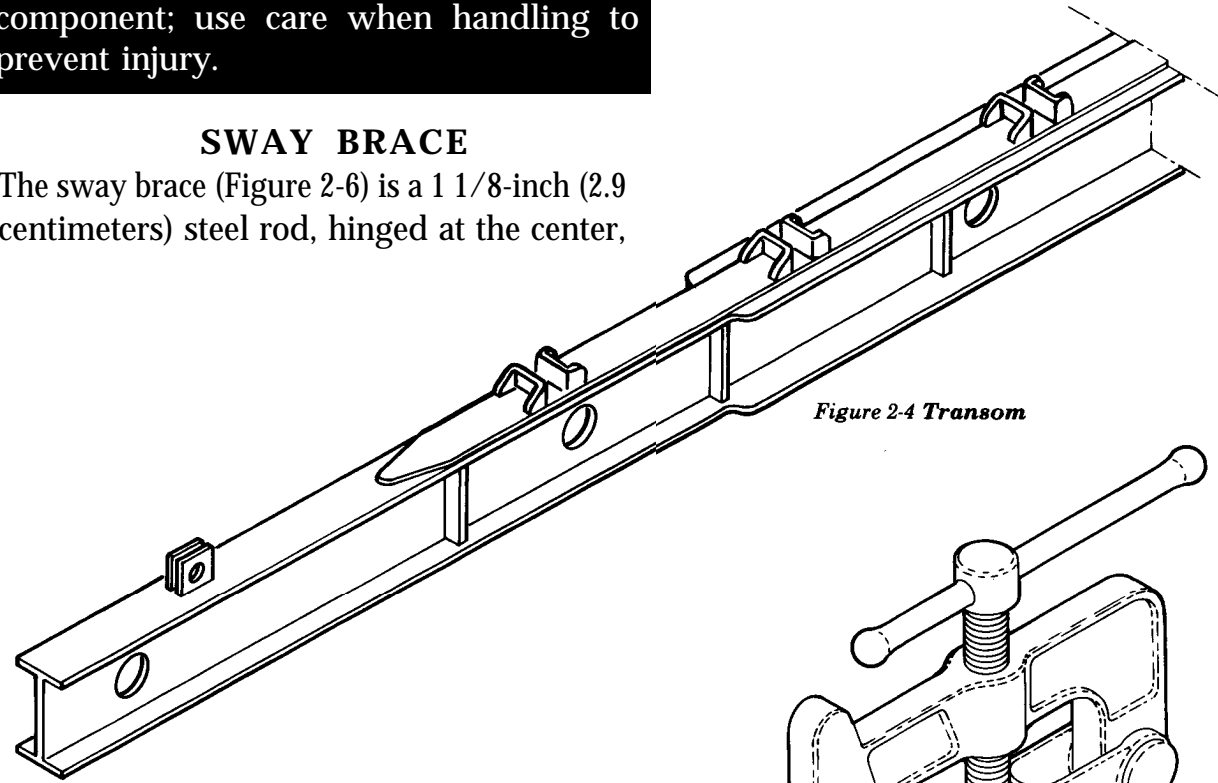


Figure 2-4 Transom

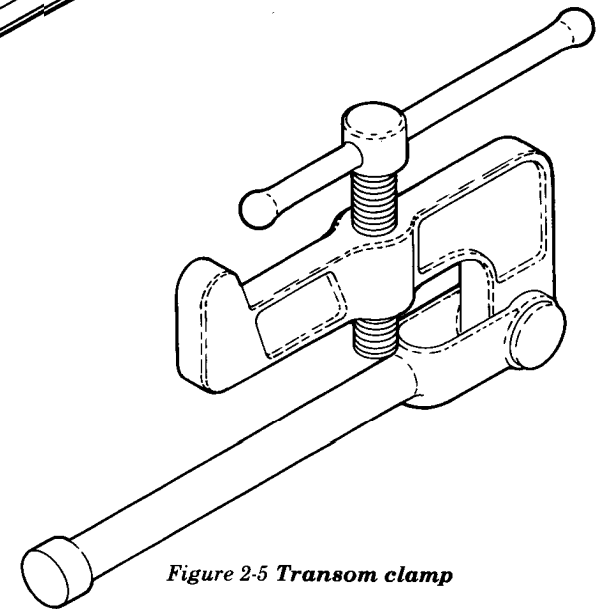


Figure 2-5 Transom clamp

and adjusted by a turnbuckle. It weighs 68 pounds (30.8 kilograms). At each end is an eye, and a chain with a pin attached. This pin is inserted through the eye to the sway brace to the panel. The sway brace is given the proper tension by inserting the tail of an erection wrench in the turnbuckle and screwing it tight. The locknut is then screwed up against the turnbuckle. Two sway braces are required in the lower chord of each bay of the bridge, except the first bay of the launching nose, and in each bay of overhead bracing.

RAKER

The raker (Figure 2-7) is a 3-inch (7.6 centimeters) steel beam with a 2 3/8-inch (6.0 centimeters) flange. It is 3 feet 8 5/16 inches (1.11 meters) long and weighs 22 pounds (10.0 kilograms). A raker connects the ends of the

transom to the top of one end of each panel of the inner truss. This prevents the panels from overturning. An additional raker is used at each end of the bridge. Both ends of the raker have hollow dowels for the bracing bolts. The dowels fit through a hole in the panel and a hole in the transom.

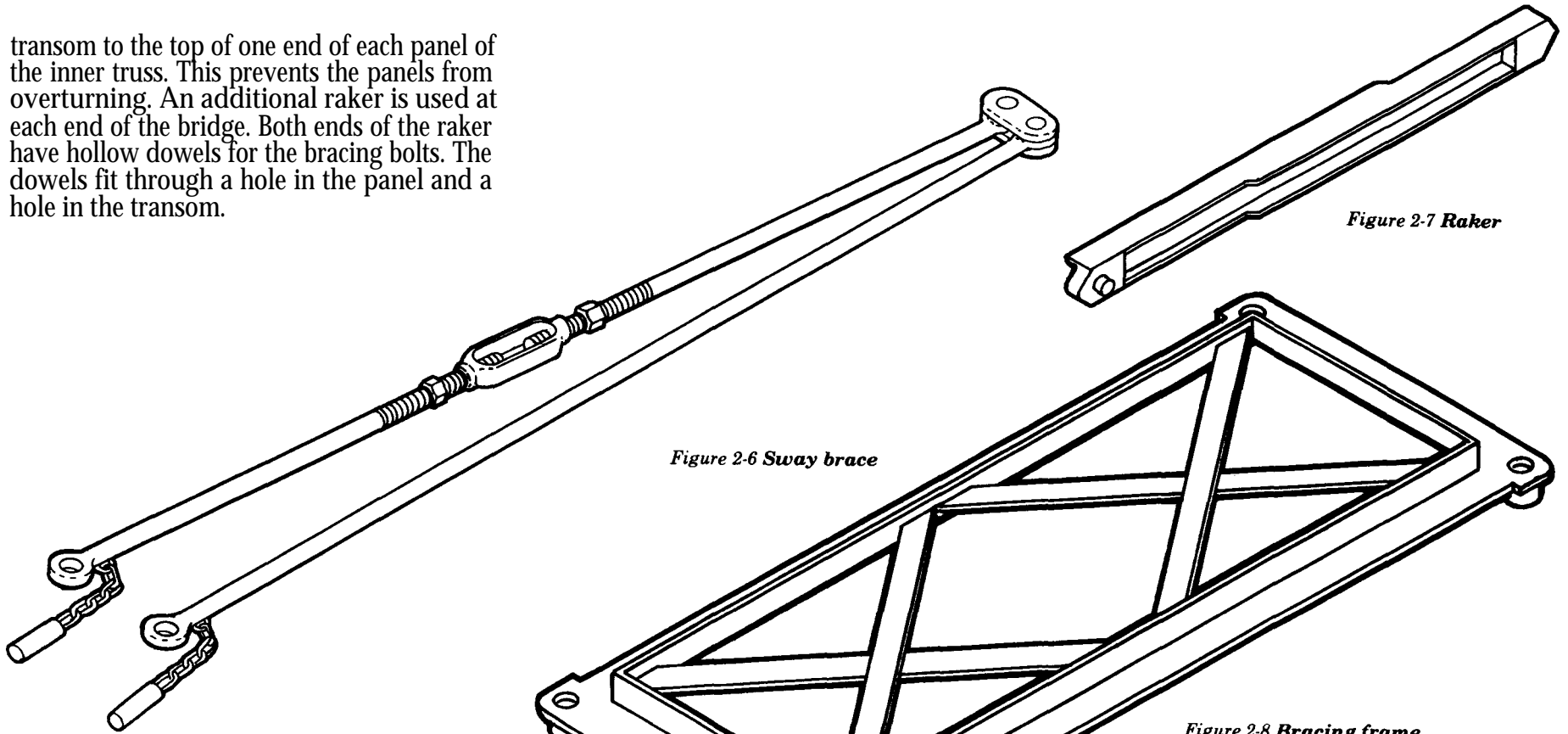


Figure 2-6 Sway brace

Figure 2-7 Raker

Figure 2-8 Bracing frame

BRACING FRAME

The bracing frame (Figure 2-8) is a rectangular frame, 4 feet 3 inches (1.3 meters) by 1 foot 8 inches (50.8 centimeters) with a hollow conical dowel in each corner. It weighs 44 pounds (20.0 kilograms). The bracing frame is used to brace the inner two trusses on each side of the double- and triple-truss bridge. Bracing bolts attach the bracing frames horizontally to the top chords of the

bridge, and vertically on one end of each panel in the second and third stories.

TIE PLATE

A tie plate (Figure 2-9, page 10) is a piece of flat steel 2 1/2 by 3/8 by 12 inches (6.4 by 1.0 by 30.5 centimeters) weighing 3 1/2 pounds (1.6 kilograms). It has a hollow conical dowel at each end. The tie plate is used only in triple-truss bridges. It secures the second truss to the third truss using the unoccupied raker holes in the panels at each joint and at the ends of the bridge.

BRACING BOLT

A bracing bolt (Figure 2-10) is $\frac{3}{4}$ inch (1.9 centimeters) in diameter, $3\frac{1}{2}$ inches (8.9 centimeters) long, and weighs about 1 pound (0.5 kilograms). A special lug on its head prevents rotation when the bolt is tightened. A $1\frac{1}{8}$ inch (2.9 centimeters) wrench is used to tighten it. The bracing bolt is used to attach rakers, bracing frames, and tie plates to panels. It is inserted into the hollow dowels of the braces to draw parts into proper alignment.

CHORD BOLT

A chord bolt (Figure 2-11) is $1\frac{3}{4}$ inches (4.4 centimeters) in diameter, $10\frac{1}{2}$ inches (26.7 centimeters) long, and weighs $7\frac{1}{2}$ pounds (3.4 kilograms). It is tapered through half its length to assist in drawing the panels into alignment. A $1\frac{7}{8}$ -inch (4.8 centimeters) wrench is used to tighten the bolt. Chord bolts join the panels, one above the other, to form double and triple-story bridges. Two bolts per panel pass upward through holes in the panel chords and are tightened with nuts on the lower chord of the upper story. They are also used to fasten overhead bracing supports to the top panel chord.

STRINGERS

Stringers (Figure 2-12) carry the bridge's roadway. Each stringer consists of three 4-inch (10.2 centimeters) steel beams, 10 feet (3.0 meters) long, joined by welded braces. There are two types of stringers: plain stringers weighing 260 pounds (118 kilograms) and button stringers weighing 267 pounds (122 kilograms). They are identical except that the latter has 12 buttons which

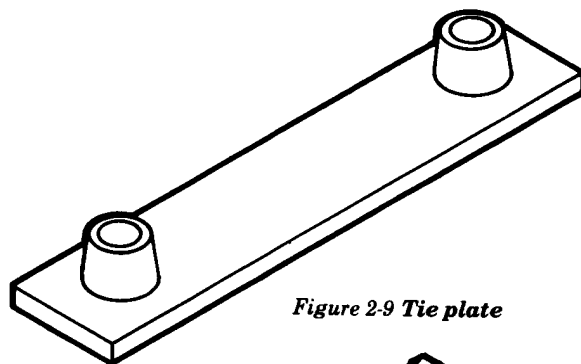


Figure 2-9 Tie plate

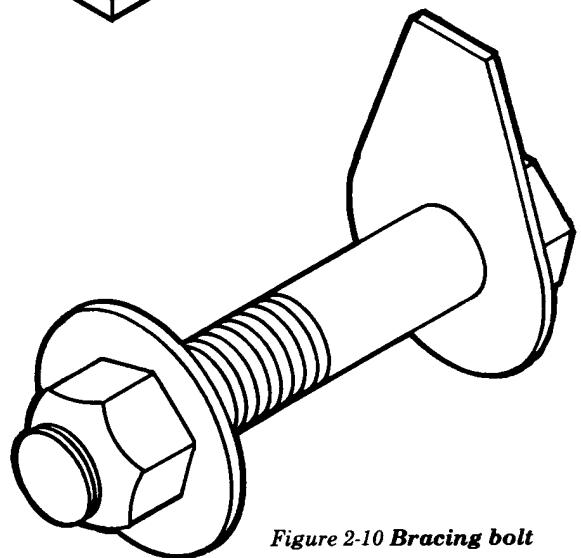


Figure 2-10 Bracing bolt

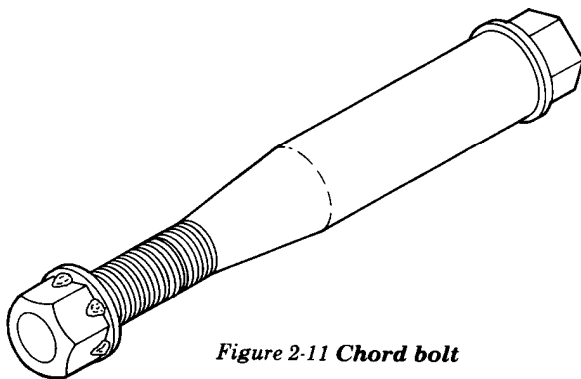


Figure 2-11 Chord bolt

hold the ends of the chess (roadway) in place. Each bay of the bridge has six stringers: four plain stringers in the middle, and a button stringer on each side. The stringers are positioned by the lugs on the top of the transoms.

CHESS

Chess (Figure 2-13), often referred to as deck or decking, form the road surface. A piece of chess is 2 inches (5.1 centimeters) by $8\frac{3}{4}$ inches (22.2 centimeters) by 13 feet 10 inches (4.2 meters). It is made of wood and weighs 65 pounds (29.5 kilograms). It is notched at the ends to fit between the buttons of the bottom stringer. Each bay of the bridge contains 13 chess, which lie across the stringers and are held in place by the buttons. Chess are held down by ribbands.

STEEL RIBBAND (CURBS)

A ribband (Figure 2-14) is a metal curb 8 inches (20.3 centimeters) high and 10 feet (3.0 meters) long. It weighs 162 pounds (73.5 kilograms). It is fastened to the button stringers by four J-type ribband bolts.

RIBBAND BOLT

A ribband bolt (Figure 2-15) is a J-type bolt, 1 inch (2.5 centimeters) in diameter and $8\frac{5}{8}$ inches (21.9 centimeters) long. It weighs $4\frac{1}{2}$ pounds (2.0 kilograms). A $1\frac{1}{2}$ -inch (3.8 centimeters) wrench is used to tighten it. The ribband bolt fastens the ribband to the button stringers and ramps. The hook end of the bolt grips the lower flange of the outer beam of the button stringer or ramp.

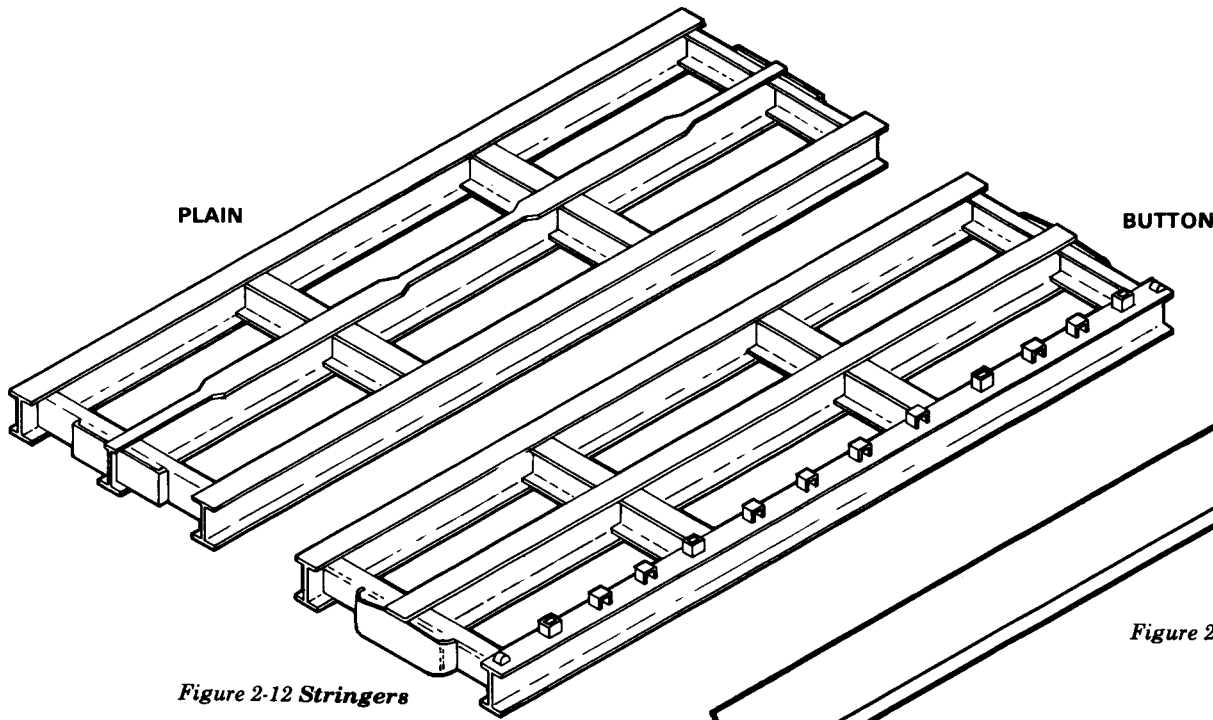


Figure 2-12 Stringers

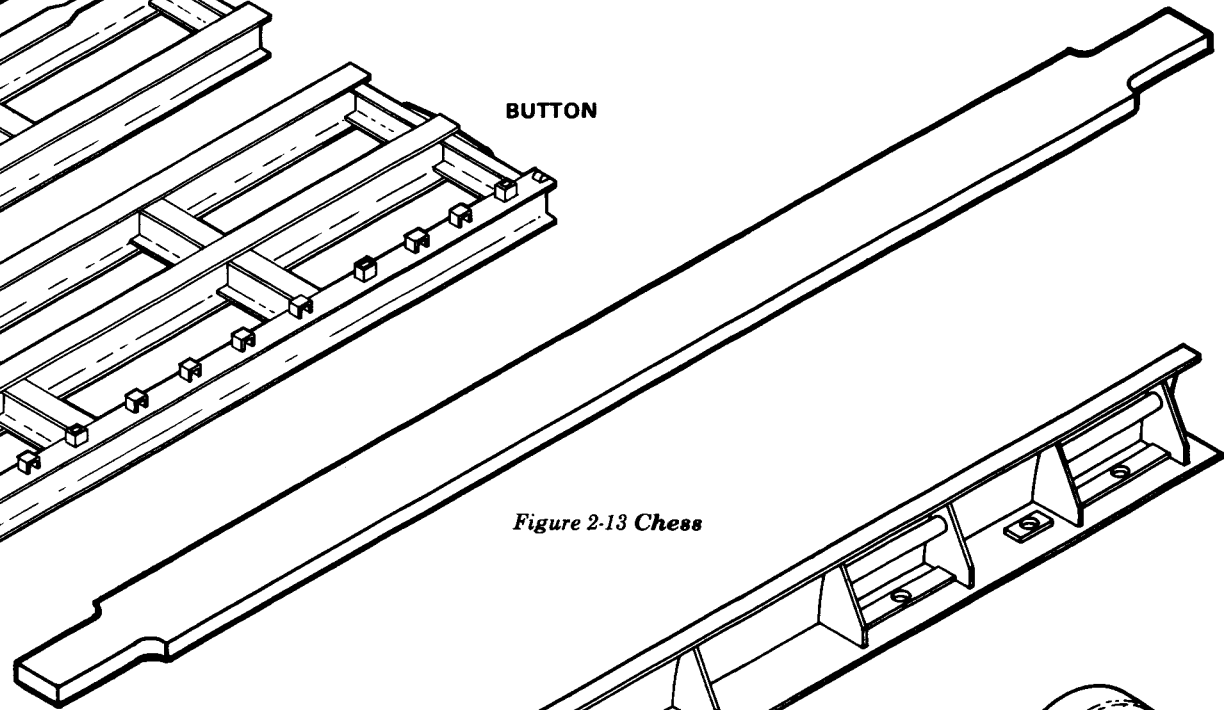


Figure 2-13 Chess

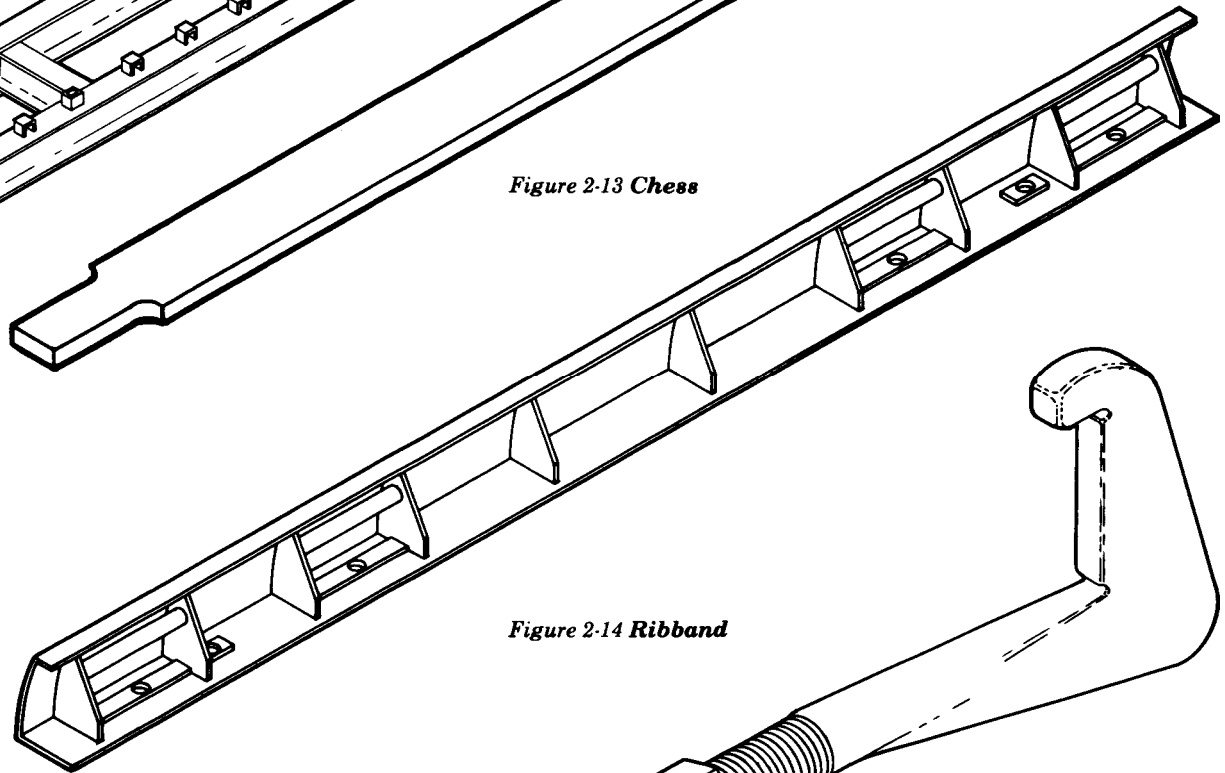


Figure 2-14 Ribband

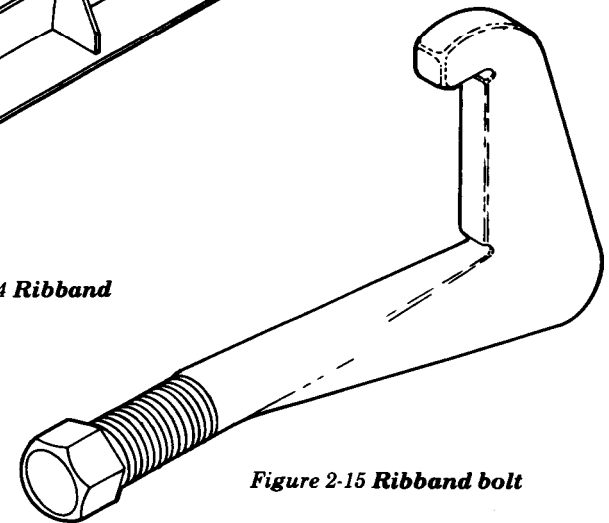


Figure 2-15 Ribband bolt

END POSTS

End posts (Figure 2-16, page 12) are used on both ends of each truss of the bridge to take the vertical shear. They are placed only on the story carrying the decking. They are 5-foot 8-inch (1.7 meters) columns made of two 4-inch (10.1 centimeters) channels and plates welded together. There are two types; male and female, having male and female lugs, respectively. These lugs are secured to the end panels of the bridge by panel pins placed through holes in the lugs. The male and female end posts weigh 121 and 130 pounds (54.9 and 59.0 kilograms), respectively. End posts have a step to support a transom outside

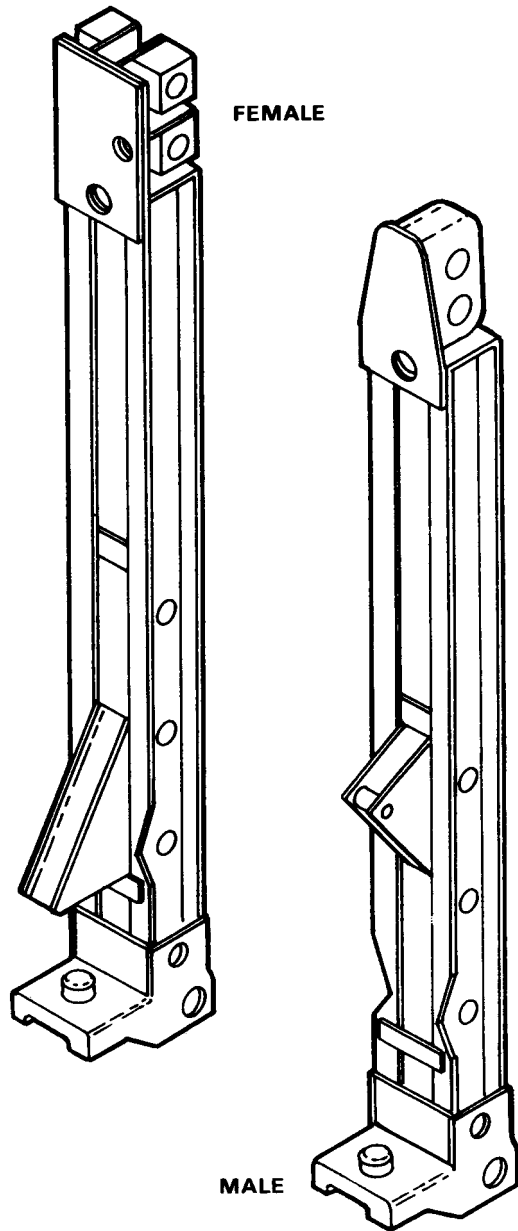


Figure 2-16 End posts

the panel at one end of the bridge. In jacking the bridge, the jack is placed under the step. The lower end of the end post has a bearing block with a semicircular groove which fits over the bearing.

BEARING

The bearing (Figure 2-17) spreads the load of the bridge to the base plate. A bearing is a welded steel assembly containing a round bar which, when the bridge is completed, supports the bearing blocks of the end posts. During assembly of the bridge, it supports the bearing block of the rocking roller (explained later in this chapter). The bar is divided into three parts by two intermediate sections that act as stiffeners. The bearing is 4 5/16 inches (11.9 centimeters) high and weighs 68 pounds (30.8 kilograms). One bearing is used at each corner of a single-truss bridge and two bearings per corner for a double- or triple-truss bridge.

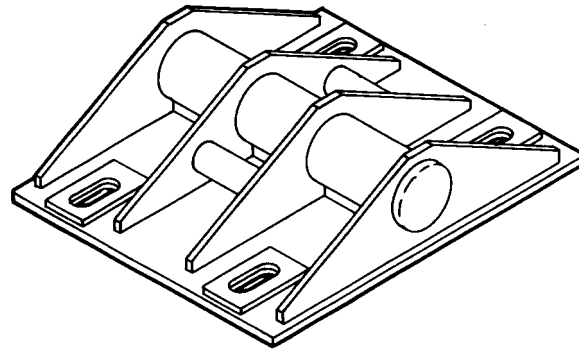


Figure 2-17 Bearing

BASE PLATE

The base plate (Figure 2-18) is a welded steel assembly with built-up sides and lifting-hook eyes on the top at each corner. It is used under the bearings to spread the load from the bearings over the ground or grillage. The bottom surface of the baseplate is 13 1/2 square feet (1.25 meters²). The base plate weighs 381 pounds (173 kilograms) and is large enough for the bearings at one corner of a single-, double-, or triple-truss bridge. Bearings can slide 9 inches (22.9 centimeters) longitudinally on the baseplate. The numbers 1, 2, and 3 are embossed on the edges of the base plate to indicate the position of the plate under the inner truss of single-, double-, and triple-truss bridges respectively.

RAMPS

Ramps (Figure 2-19) are similar to stringers but consist of three 5-inch (12.7 centimeters), instead of 4-inch (10.2 centimeters), steel beams. They are 10 feet (3.0 meters) long and are joined by welded braces. The lower surface of the ramp tapers upward near the ends. There are two types of ramps: plain ramps weighing 338 pounds (153 kilograms), and button ramps weighing 349 pounds (158 kilograms). They are identical except that the latter have 12 buttons which hold the ends of the chess in place. The ends of the ramps fit into lugs on the transoms at the ends of the bridge.

RAMP PEDESTAL

Ramp pedestals (Figure 2-20) are built-up welded steel assemblies weighing 93 pounds (42.2 kilograms). They prevent the transoms supporting multiple-length ramps from over-

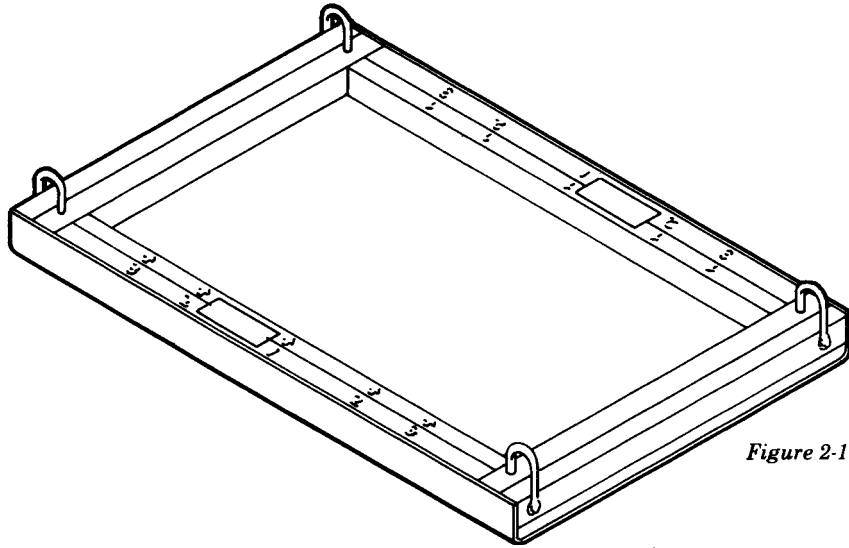


Figure 2-18 Base plate

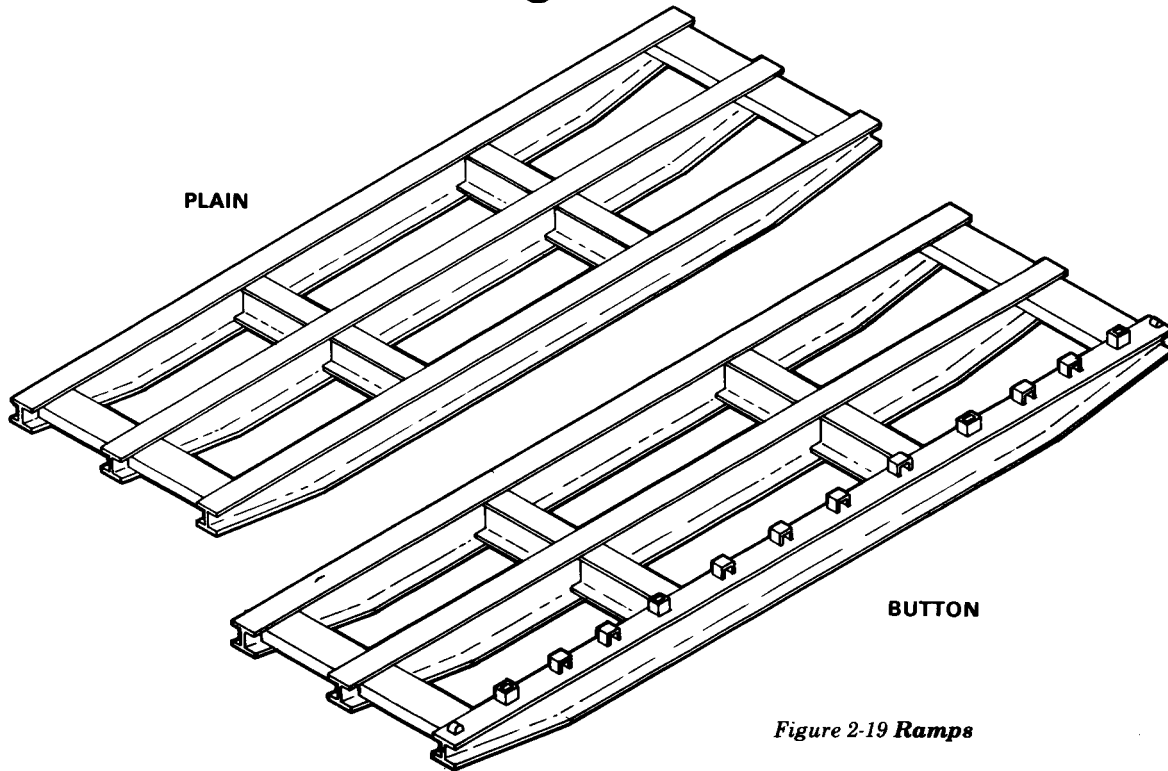


Figure 2-19 Ramps

turning and spread the transom load over the ground. They are held in place by spikes or pickets driven through holes in their base plates.

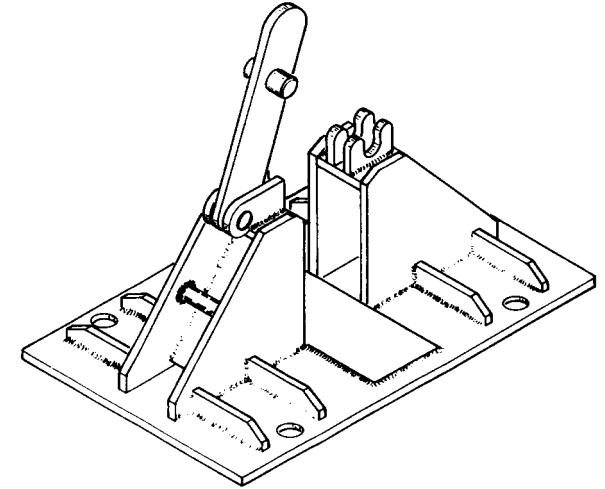


Figure 2-20 Ramp pedestal

FOOTWALK

The footwalk (Figure 2-21, page 14) may be of wood or aluminum. The wood footwalks are 2 feet 6 inches (0.8 meter) wide and 10 feet (3.0 meters) long. The aluminum footwalks are 25 3/4 inches (65.4 centimeters) wide and 9 feet 11 1/2 inches (3.0 meters) long. Supported on footwalk bearers, footwalks are laid along the outer sides of the bridge for use by foot troops.

FOOTWALK BEARER

A footwalk bearer (Figure 2-22) is a built-up beam of pressed steel 4 feet (1.2 meters) long,

weighing 23 pounds (10.4 kilo grams). Bearers are attached to all transoms and hold the footwalk post.

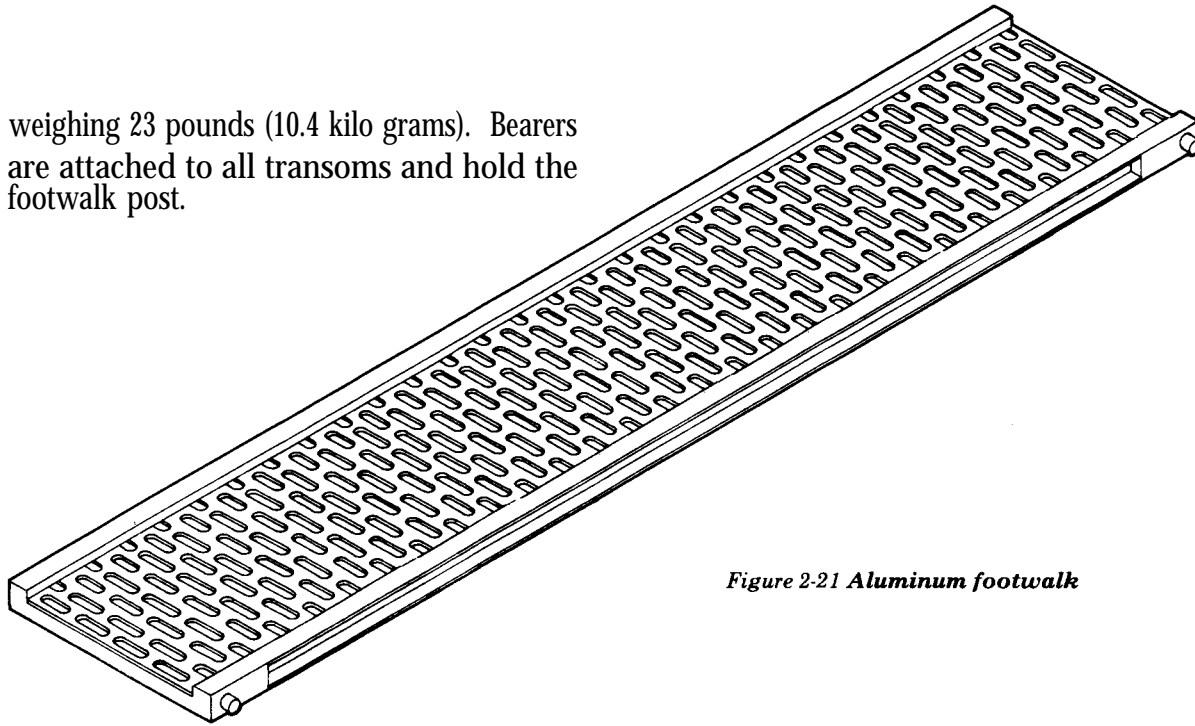


Figure 2-21 Aluminum footwalk

FOOTWALK POST

A footwalk post (Figure 2-23) is 4 feet (1.2 meters) high, weighs 10 pounds (4.5 kilograms), and is fitted into every footwalk bearer. Hand ropes are threaded through two eyes on each post and secured either to holdfasts on the banks or end footwalk posts.

OVERHEAD-BRACING SUPPORT

The overhead-bracing support (Figure 2-24) is used to clamp overhead transoms and

sway braces to trusses for overhead bracing of triple-story bridges. The support is a welded metal assembly that weighs 150 pounds (68.0 kilograms). It is fastened to the tops of third-story panels by chord bolts. A transom is seated over the pintles on top of the support and secured by cleats over the lower flange held by four nuts and bolts. One support per girder is placed on each bay of bridge.

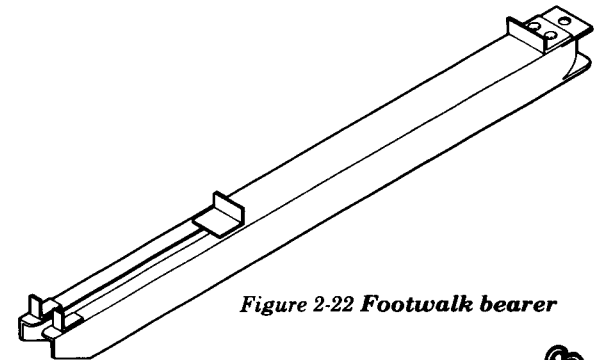


Figure 2-22 Footwalk bearer

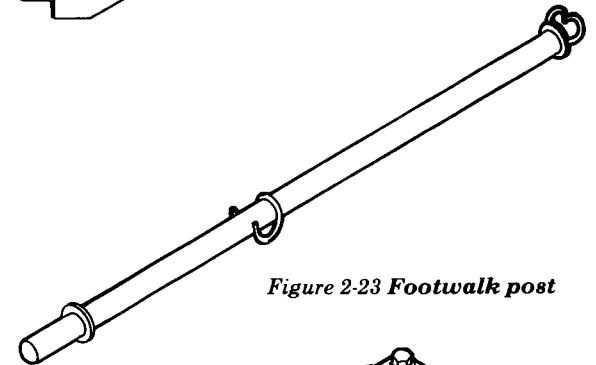


Figure 2-23 Footwalk post

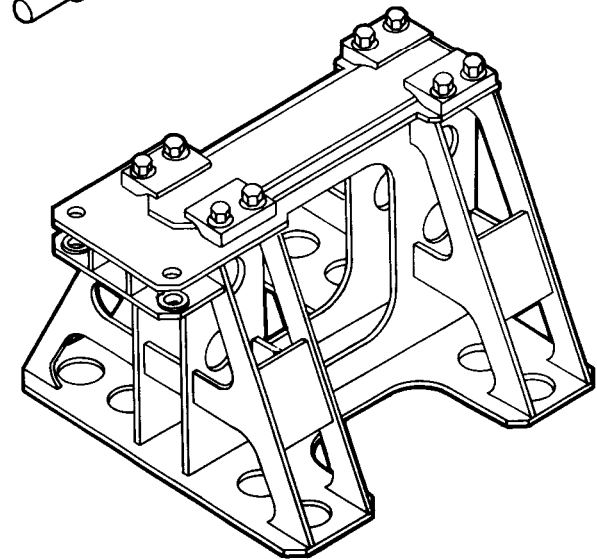


Figure 2-24 Overhead-bracing support

ERECTION EQUIPMENT

ROCKING ROLLER

The rocking roller (Figure 2-25), weighing 206 pounds (93.4 kilograms), consists of three rollers housed in a balanced arm which fits over the bearing, and is free to rock on it. Two side rollers on the flange on each side of the rocking roller frame act as guides for the trusses. The side rollers can be removed from the flanges by removing split pins from spindles underneath the flange; they then remain loosely attached to the frame by a chain. The rollers distribute the bridge load along the bottom chord during launching. The maximum allowable load on one rocking roller is 30 tons (27.2 metric tons).

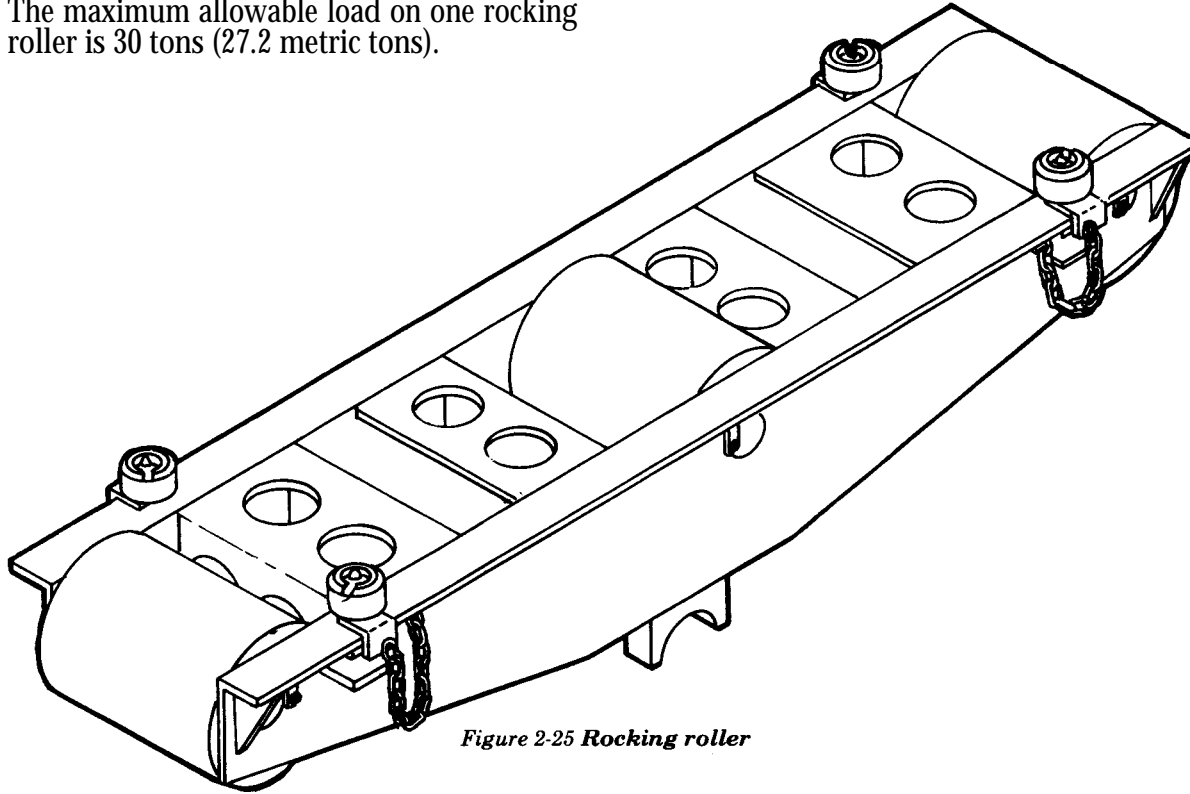


Figure 2-25 Rocking roller

PLAIN ROLLER

The plain roller (Figure 2-26) is 2 feet 1 1/2 inches (64.8 centimeters) wide and weighs 116 pounds (52.6 kilograms). It consists of a welded housing containing a single roller split in two. The maximum allowable load on one roller is 10 tons (9.1 metric tons). Trusses of single-truss bridges can be carried on either half of the roller. Second and third trusses of triple-truss bridges are carried on both halves.

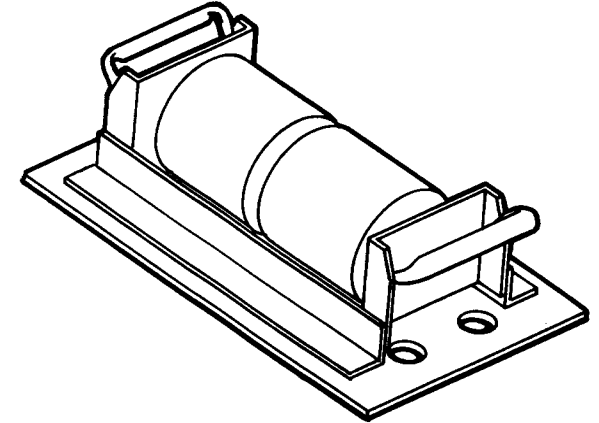


Figure 2-26 Plain roller

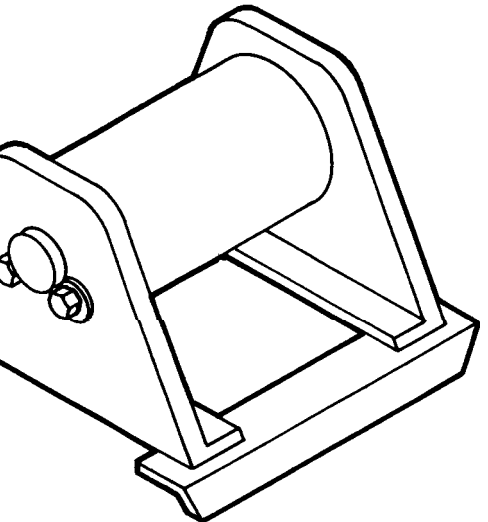


Figure 2-27 Transom roller

length of 6 5/8 inches (16.8 centimeters). The roller is fitted with bronze bushings at each end and revolves on a 1-inch (2.5 centimeters) diameter steel pin mounted in a steel frame which is built up from standard steel bars and angles. The roller assembly is 8 inches (20.3 centimeters) long, 7 5/8 inches (19.4 centimeters) wide, and 5 3/4 inches (14.6 centimeters) high overall. It weighs about 12 pounds (5.4 kilograms). The roller is used to make the placement and removal of transoms easier during the assembly and disassembly of the bridge.

WARNING: Two personnel are required on each jack handle to operate jack. These two persons must work together to prevent either from taking all of the load.

JACK

The jack (Figure 2-28) is used to lift the bridge on and off the rocking rollers. It is a mechanical lifting jack (the type normally used in rigging, railroad, and construction work). It has a lifting range of 15 inches (38.1 centimeters) and a capacity on the top of 15 tons (13.6 metric tons). When the weight is carried on its toe, its capacity is only 7 1/2 tons (6.8 metric tons). Jacks from different manufacturers have different spacing (pitch) between the teeth, as listed in Table 2-2. Where jacks are lifting at the same point, all jacks used must have the same tooth pitch so they can be operated in unison. The jack weighs 128 pounds (58.1 kilograms).

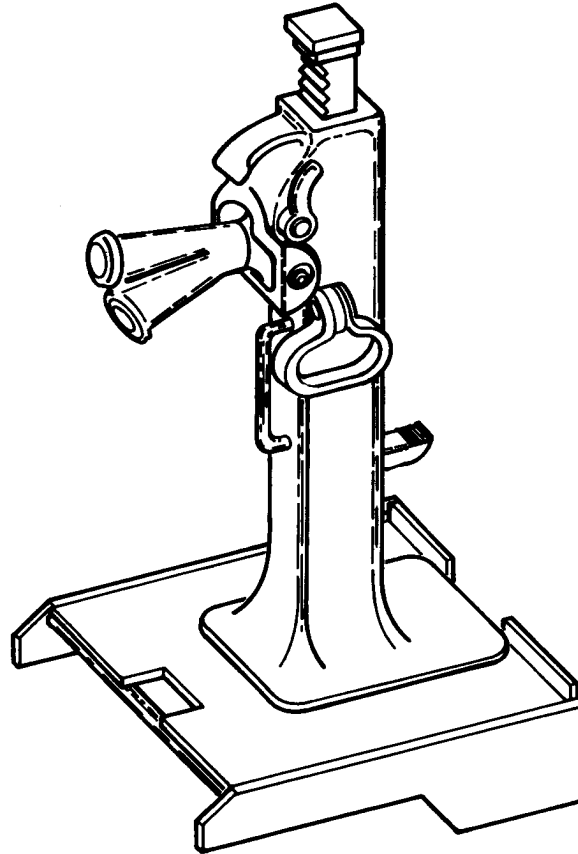


Figure 2-28 Jack and jack shoe

Table 2-2 Pitch of teeth in panel-bridge jacks

MANUFACTURER	MODEL	DISTANCE BETWEEN TEETH (pitch in inches)
Joyce	1928	7/16
Simplex	29	15/32
Buda	2815	5/16
Duff-Norton	2815	5/16

JACK SHOE

The jack shoe (Figure 2-28) is a welded assembly which fits over the bearing and supports the jack. In jacking under the step of the end posts, the bearing can be placed readily without removing the jack shoe. The shoe is 4 3/16 inches (10.6 centimeters) high and weighs 36 pounds (16.3 kilograms). It fits over the bearing on the base plate.

WRENCHES

The wrenches provided in the bridge set are shown and listed in Figure 2-29.

PANEL LEVER

The panel lever (Figure 2-30), used in assembling the second and third trusses after the first truss is in place over the gap, is a wooden bar 7 feet 9 inches (2.4 meters) long weighing 48 pounds (21.8 kilograms). It has a fulcrum near the center and a lifting link at the end. The lifting link has a swiveling crosspiece which can be readily attached to the top of a panel by passing it through the upper chord and turning it. The upper end of the link slides in a slot—the inner end of the slot is used when erecting the second truss, the outer end is used when erecting the third truss. The fulcrum is always placed on the top of the first truss. Two levers per panel are required, with two soldiers operating each lever.

CARRYING BAR AND TONGS

A wooden carrying bar (Figure 2-31) is 3 feet 6 inches (1.1 meters) long and reinforced by a steel band at the middle. It is used to carry panels and transoms. It weighs 8 pounds (3.6 kilograms). Carrying tongs are steel and

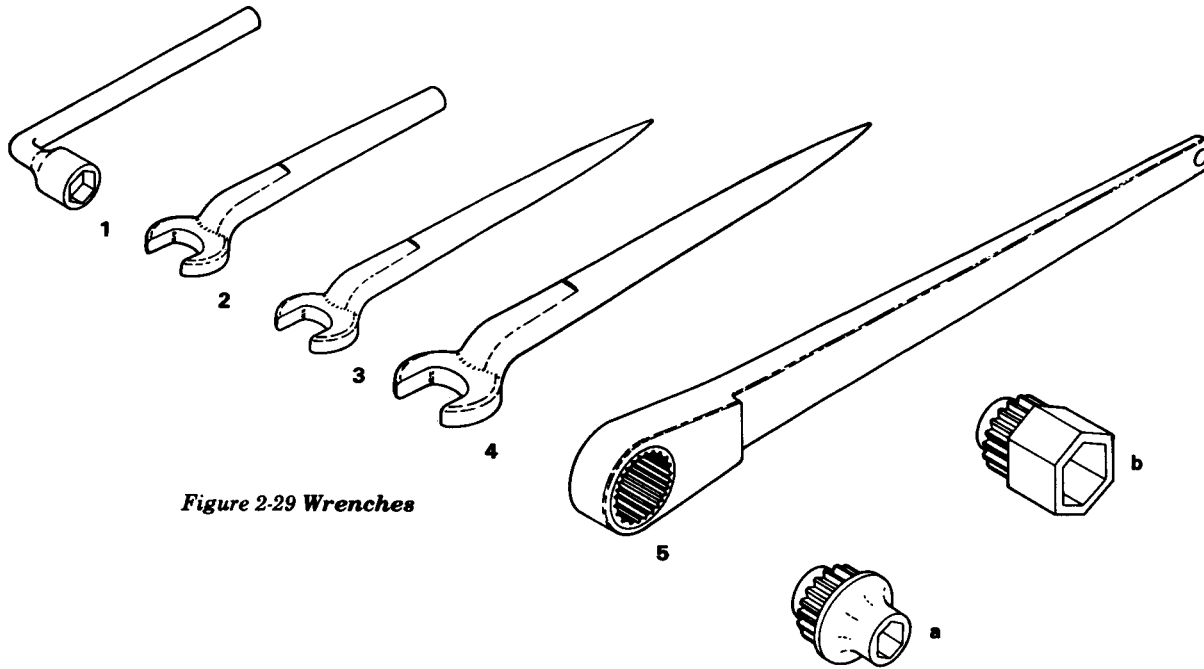


Figure 2-29 Wrenches

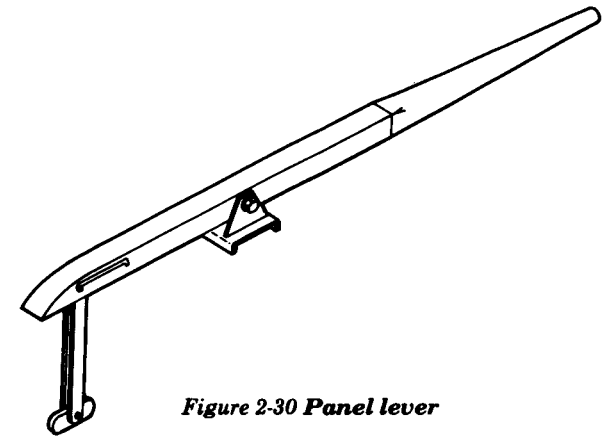


Figure 2-30 Panel lever

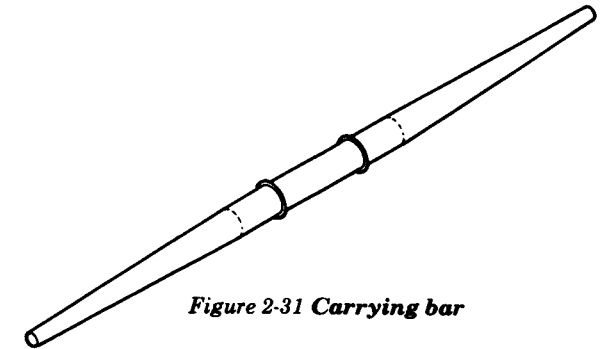


Figure 2-31 Carrying bar

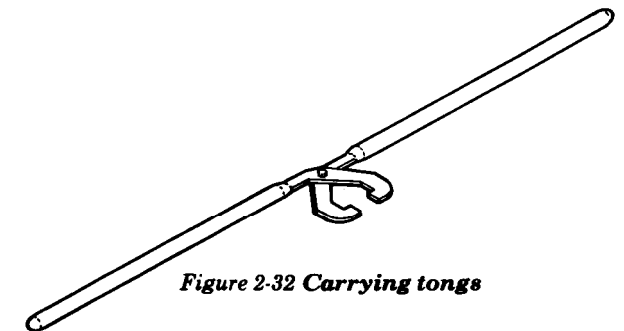


Figure 2-32 Carrying tongs

WRENCH	USE
1 1 1/8" offset 90° socket wrench	Tightening 3/4" (bracing) bolts
2 1 1/2" offset structural wrench	Tightening 3/4" (bracing, ribband) bolts
3 1 1/2" offset structural wrench	Tightening 1" (sway-brace) lock nut (use tail of wrench for tightening turnbuckle)
4 1 1/8" offset structural wrench	Tightening 1 1/4" (chord) bolts
5 Reversible ratchet-wrench with (a) 1 1/8" and (b) 1 1/8" sockets	(a) Tightening 1 1/4" (chord) bolts (b) Tightening 3/4" (bracing) bolts

shaped like railroad tongs, as shown in Figure 2-32. These tongs are used to carry transoms by clamping them over the top flange. One

soldier carries one of the two handles. Normally, four pair of tongs and eight soldiers are used to carry a transom.

CHORD JACK

The chord jack (Figure 2-33) consists of two welded steel frames joined by a knuckle-threaded screw assembly. It is operated by a ratchet lever. The lever has a shackle at its end to which a rope can be attached, making operation easier. The chord jack is used to force the panels apart so the chord lug holes align and the chord bolts can be inserted.

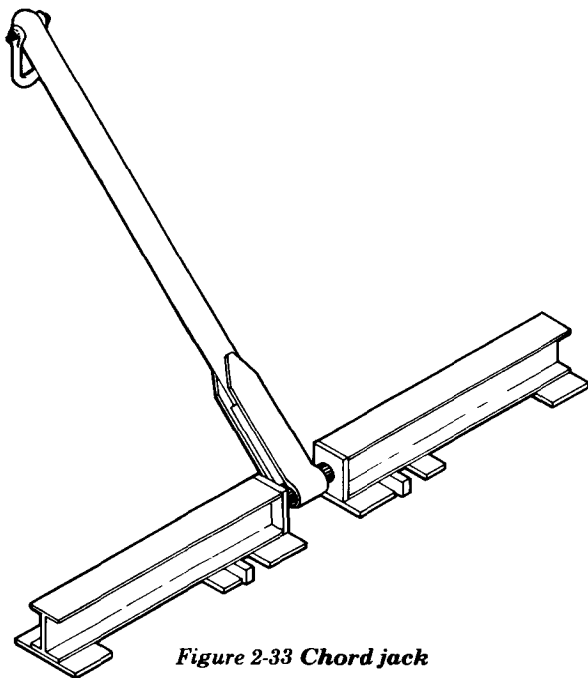


Figure 2-33 Chord jack

PIN EXTRACTOR

The pin extractor (Figure 2-34) assists in dismantling the bridge. After the pin has been driven part way out, and the recess under the head of the pin is exposed, the pin extractor grips the pin head and forces the pin out by a levering action. It is particularly

useful for dismantling the third truss of a triple-truss bridge where the closeness of the second truss makes it impossible to drive the pins out with a hammer.

LAUNCHING-NOSE LINK MK II

The launching-nose link Mk II (Figure 2-35) is about 10 inches (25.4 centimeters) long and 7 inches (17.8 centimeters) wide and weighs 28 pounds (12.7 kilograms). It consists of two steel frames welded back to back. The lugs of two panels fit into the link. The sides of the link have holes into which panel pins can be inserted. The links lie flush with the underside of the bottom chords and have a false flange welded on the bottom edge so the bridge can be rolled out on launching rollers. It also has a pintle on the top to seat a transom. Launching-nose links overcome the sag occurring when the launching nose is cantilevered over the gap. They are also used between the upper jaws of span junction posts during the launching of broken-span bridges.

TEMPLATES

Two types of templates are provided, one to locate the bearings for the rocking rollers and the other for the plain rollers. The rocking-roller template (Figure 2-36) weighs 78 pounds (35.4 kilograms) and consists of a timber base with timber strips on top forming two spaces large enough for rocking-roller bearings. At one end of the template are two angle cleats which are used as measuring points. The plain-roller template (Figure 2-37) weighs 22 pounds (10.0 kilograms). It consists of a timber base with timber strips on three sides

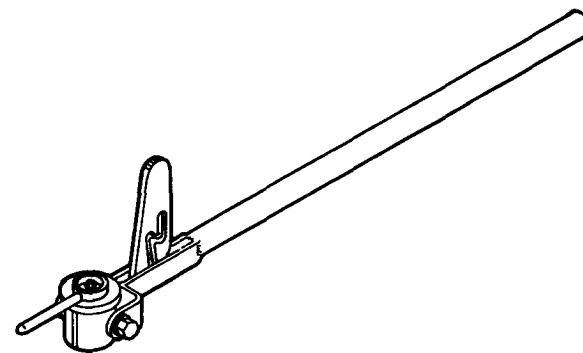


Figure 2-34 Pin extractor

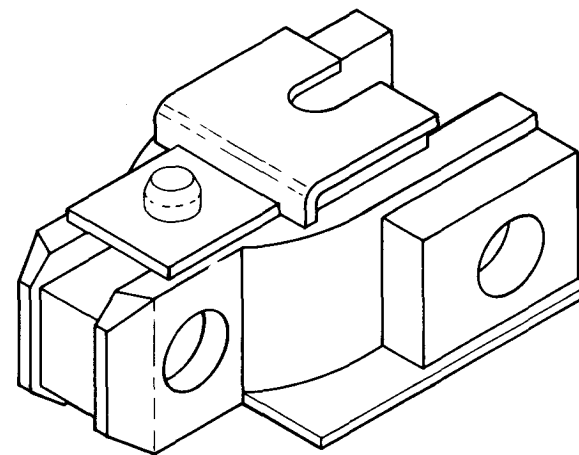


Figure 2-35 Launching-nose link Mk II

and a steel strip on the fourth. The strips surround a space large enough for the base of a single plain roller. The template also has two angle cleats at one end for measuring points.

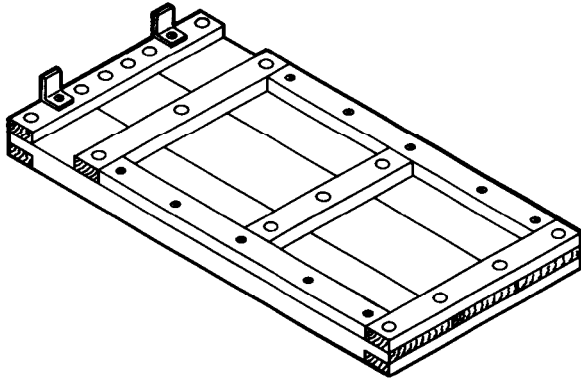


Figure 2-36 *Rocking-roller template*

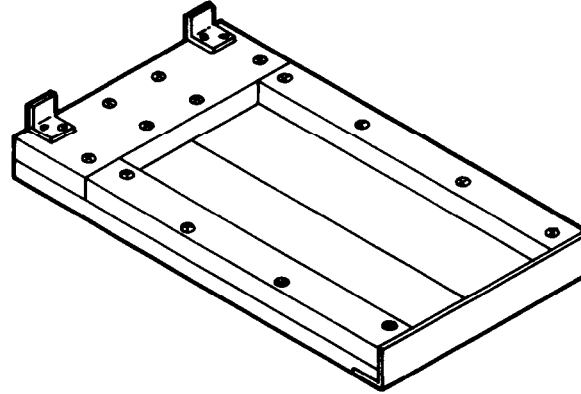


Figure 2-37 *Plain-roller template*

BRIDGING TRUCK LOADS

BASIC BRIDGE SET

Parts for standard truck loads are drawn from these basic sets. Tables A-2 and A-3 in Appendix A list components of the M2 panel bridge basic set. The set contains enough parts, and equipment to install two 80-foot (24.4 meters) *double-single* M2 bridges with launching nose or one 130-foot (39.0 meters) *double-double* bridge with launching nose.

Conversion Set No. 3, Panel Crib Pier, M2 is used with equipment from the basic set to build panel crib piers. Table A-4 in Appendix A lists component parts of conversion set No. 3. Enough parts are issued with each of these sets to provide the assembly of a triple-truss pier supporting two triple-truss broken spans and containing both horizontal and vertical stories.

RECOMMENDED BRIDGING LOADS

The engineer company (panel bridge) normally transports one set of the Bailey bridge on 5-ton dump trucks and 4-ton bolster trailers. The company has two platoons, each capable of transporting one 80-foot (24.4 meters) bridge (the most common bridge installed). The loads shown in Figures 2-38 through 2-47 and Tables 2-3 through 2-13 (pages 20 through 30) have the following features:

- All loads are within the rated capacity of the assigned vehicles.
- The loading lends itself to stockpiling or assembly on a restricted site. A launching nose can be started with only three loads on the site.

- The number of trailers is 40 percent of the number of trucks. This makes it possible to use trucks to tow trailers if necessary.
- Erection equipment is spread over four trucks and one trailer, thereby minimizing the effect of loss or breakdown.
- Trucks are loaded with all the female or all the male panel ends toward the rear of the vehicles.
- Steel cables are used for tiedowns on all truckloads.

Table 2-3 Truck load No. 1—parts and grillage load (5-ton truck)—(1 load per bridge platoon; 2 loads per company)

QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
4	Block, double, for 3/4" rope	8	32
2	Block, triple, for 1" rope	20	40
2	Block, snatch, for 3/4" rope	6.3	13
2	Box, wood	60	120
2	Extractor, pin	18	36
5	Hammer, rubber-faced	4	20
2	Jack, ratchet-lever, 15-ton	128	256
2	Jack, chord	82	164
4	Lever, panel	48	192
24	Lumber, 3" x 6" x 4'6"	18	432
72	Lumber, 6" x 6" x 4'6"	52	3,744
50	Marker, self-luminous	0.13	7
100 lb	Nail, wire, steel		100
6	Pickets, steel	12	72
19	Pin, connector, panel, 7 ⁹ / ₁₆ "	5.8	110
21	Plate, tie	3.5	74
4	Plate, base, bearing	381	1,524
4	Roller, plain	116	464
4	Roller, rocking	206	824
2	Roller, transom	12	24
8	Shoe, bearing, 4 ¹⁵ / ₁₆ "	68	528
4	Shoe, jack	36	144
4	Sledge, blacksmith, 8-lb	8	32
2	Sign box, interior-illuminated, electric	6	12
10	Spike, 3/8" x 8"		10
4	Template, rocking-roller	78	312
6	Template, plain-roller	22	132
8	Tongs, carrying	13	104
2	Wire rope assembly	12	24
6	Wrench, ratchet, reversible	13	78
8	Wrench, socket, offset 90°	12	96
12	Wrench, structural, 1 1/8" for 3/4" bolts	2	24
6	Wrench, structural, 1 1/2" for 1" bolts	4.7	27
8	Wrench, structural, 1 3/4" for 1 1/4" bolts	5.6	45
	Total		9,816

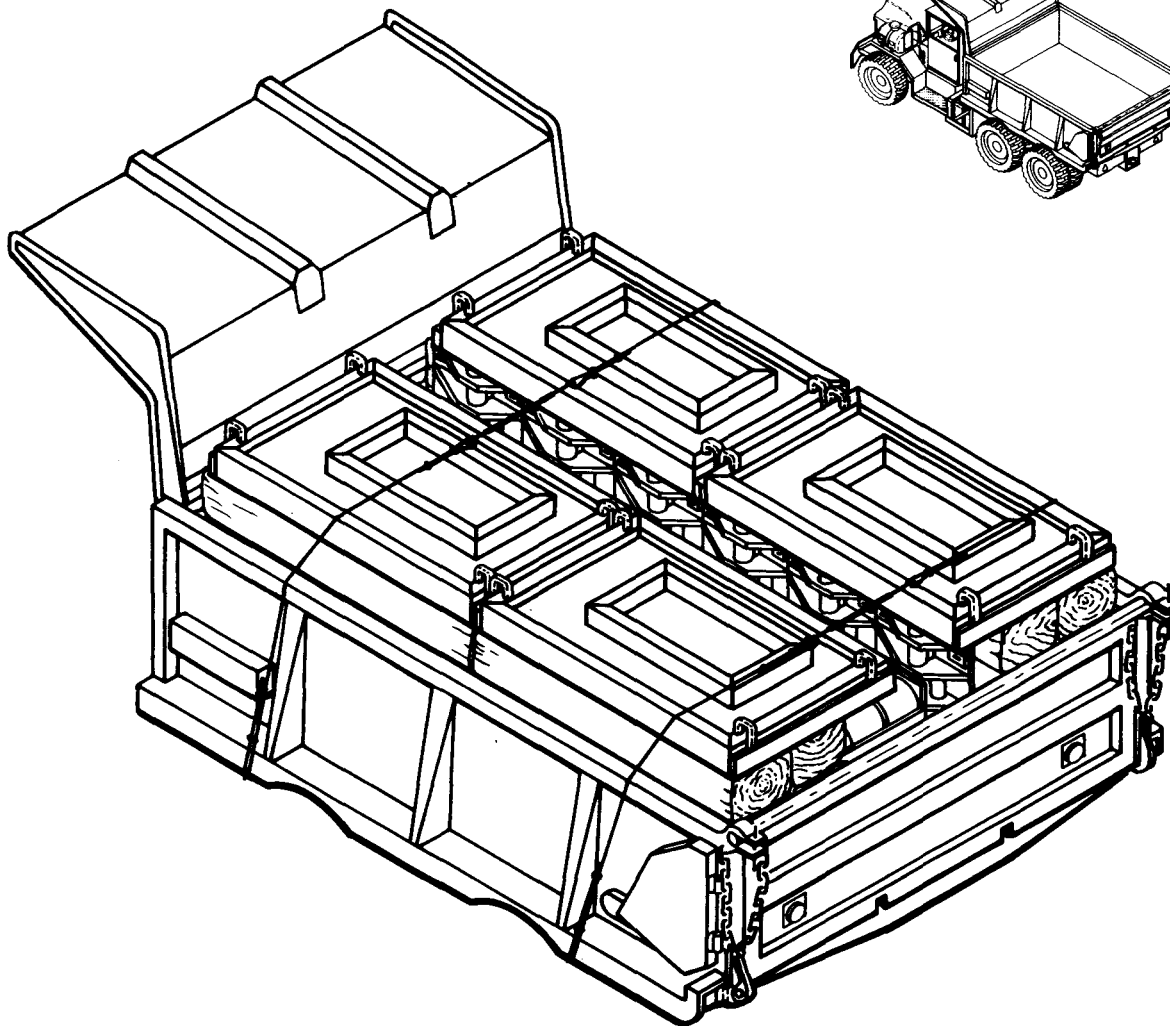
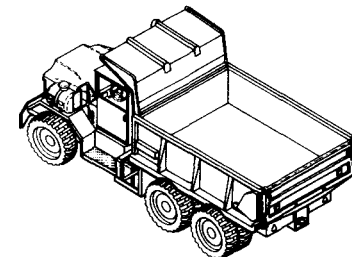
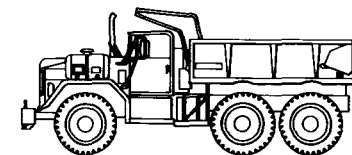


Figure 2-38 Truck load number 1—parts and grillage load on 5-ton truck

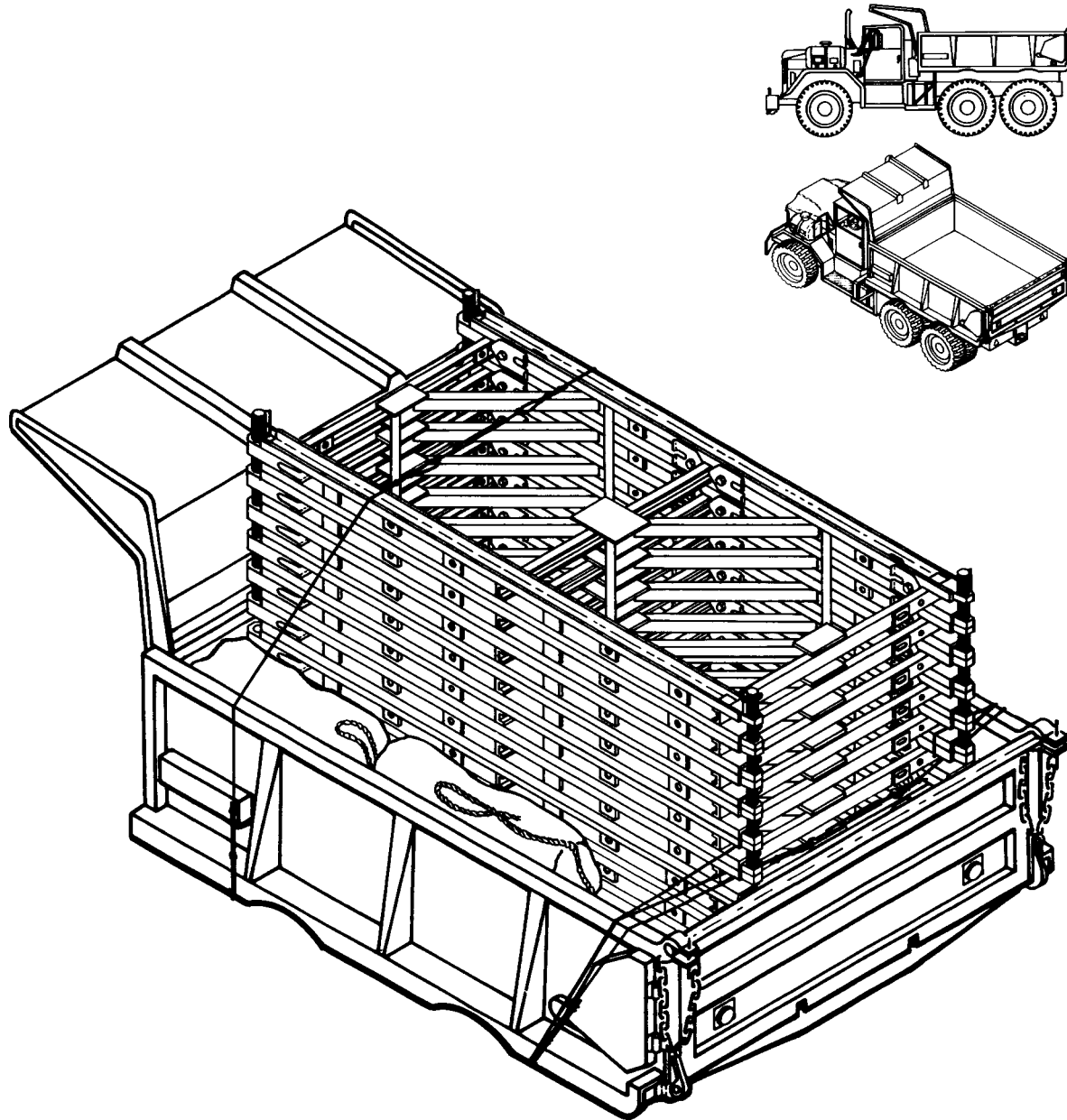


Table 2-4 Truck load No. 2—launching-nose load (5-ton truck)—(1 load per bridge platoon; 2 loads per company)

QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
3	Bag, Bailey bridge parts and tools	2	6
3	Bar, carrying	8	24
80	Bolt, bracing, bridge	1	80
26	Bolt, connector, chord	7.5	195
8	Brace, sway	68	544
40	Clamp, transom	7	280
65	Clip, retainer, steel	0.13	8.5
2	Hammer, rubber-faced	4	8
12	Link, launching-nose Mk II	28	336
9	Panel, truss, bridge	577	5,193
2	Picket, steel	12	24
30	Pin, connector, panel, 8 ¹⁵ / ₁₆ "	6.1	183
10	Raker, side, strut	22	220
6	Wrench, ratchet, reversible with 1½" and 1¼" sockets, for ¾" and 1¼" bolts	13	78
8	Wrench, socket, offset 90° 1½" for ¾" bolts	12	96
12	Wrench, structural, 1½" for ¾" bolts	2	24
6	Wrench, structural, 1½" for 1" bolts	4.7	28
8	Wrench, structural, 1½" for 1¼" bolts	5.6	45
	Total		7,373

Note:
One transom load No. 4 is towed by each launching-nose load

Figure 2-39 Truck load number 2—launching-nose load on 5-ton truck

Table 2-5 Truck load No. 3—panel load (5-ton truck)—(6 loads per bridge platoon; 12 loads per company)

QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
3	Bags, Bailey bridge parts and tools	2	6
3	Bar, carrying	8	24
30	Bolt, ribband, guardrail J	4.5	135
80	Bolt, bracing, bridge	1	80
26	Bolt, connector, chord	7.5	195
4	Brace, sway	68	272
40	Clamp, transom	7	280
65	Clip, retainer, steel	0.12	8.5
4	Frame, bracing, bridge	44	156
2	Hammer, rubber-faced	4	8
9	Panel, truss, bridge	577	5,193
2	Picket, steel	12	24
26	Pin, connector, panel, 8 ¹⁵ / ₁₆ "	6.1	159
4	Raker, side, strut	22	88
4	Ribband, guardrail	162	648
	Total		7,277

- Notes:
1. One load carries sufficient panels for two bays of DS bridge
 2. Ribband is carried on four trucks/platoon
 3. One truck/company carries no rakers or carrying bars
 4. Each panel load tows a transom load

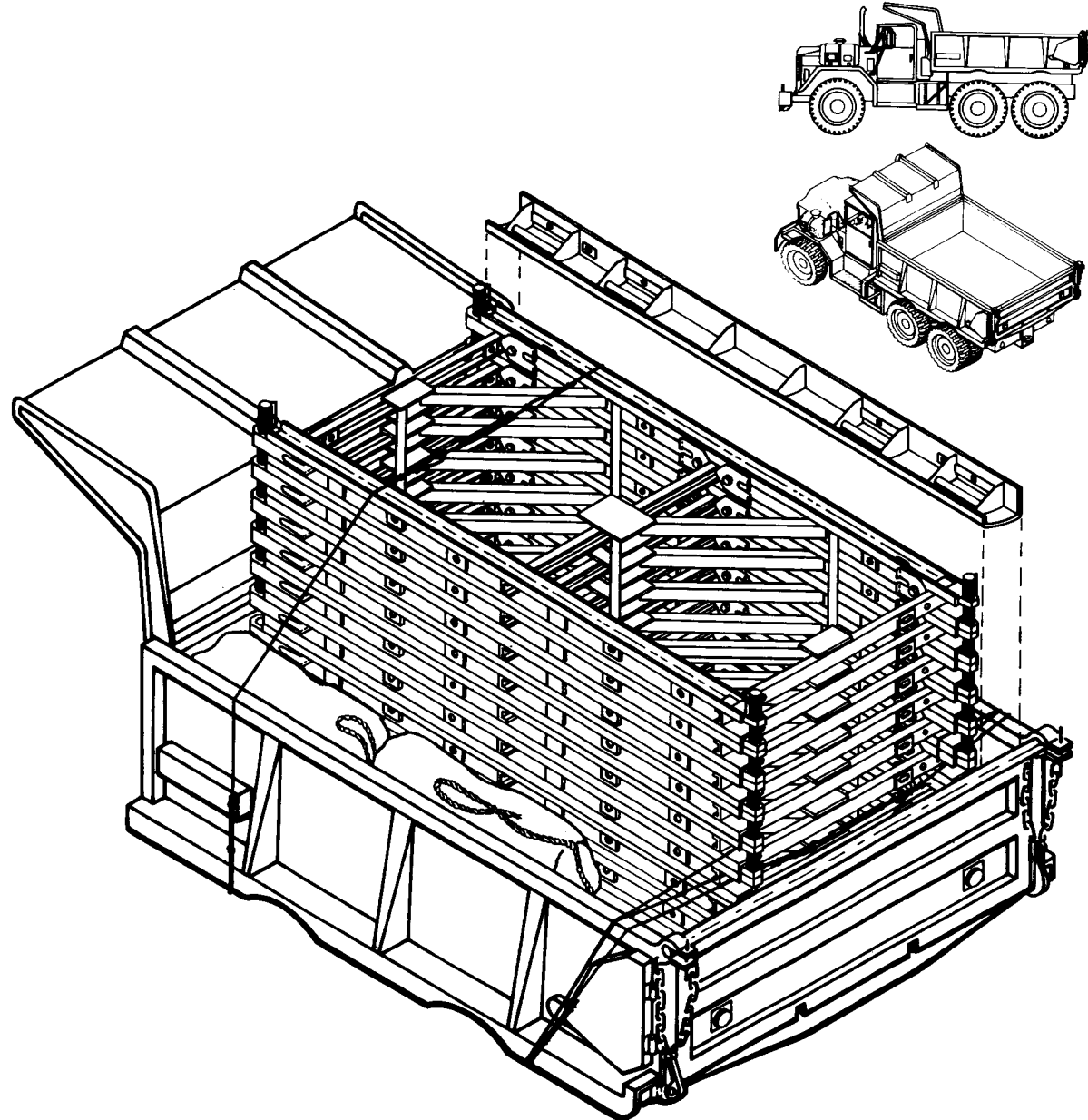
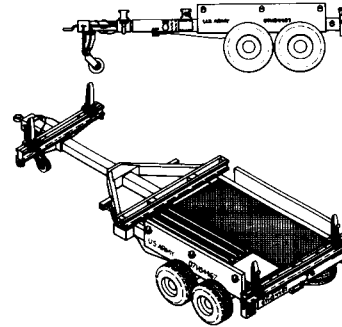


Figure 2-40 Truck load number 3—panel load on 5-ton truck

Table 2-6 Trailer load No. 4—transom load (4-ton bolster trailer)—(4 loads per bridge platoon; 8 loads per company)



QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
7	Transom, trestle	618	4,326
	Total		4,326

Note:
Ensure that tongue of trailer is extended to its maximum length to allow for easy turning of truck/trailer combination

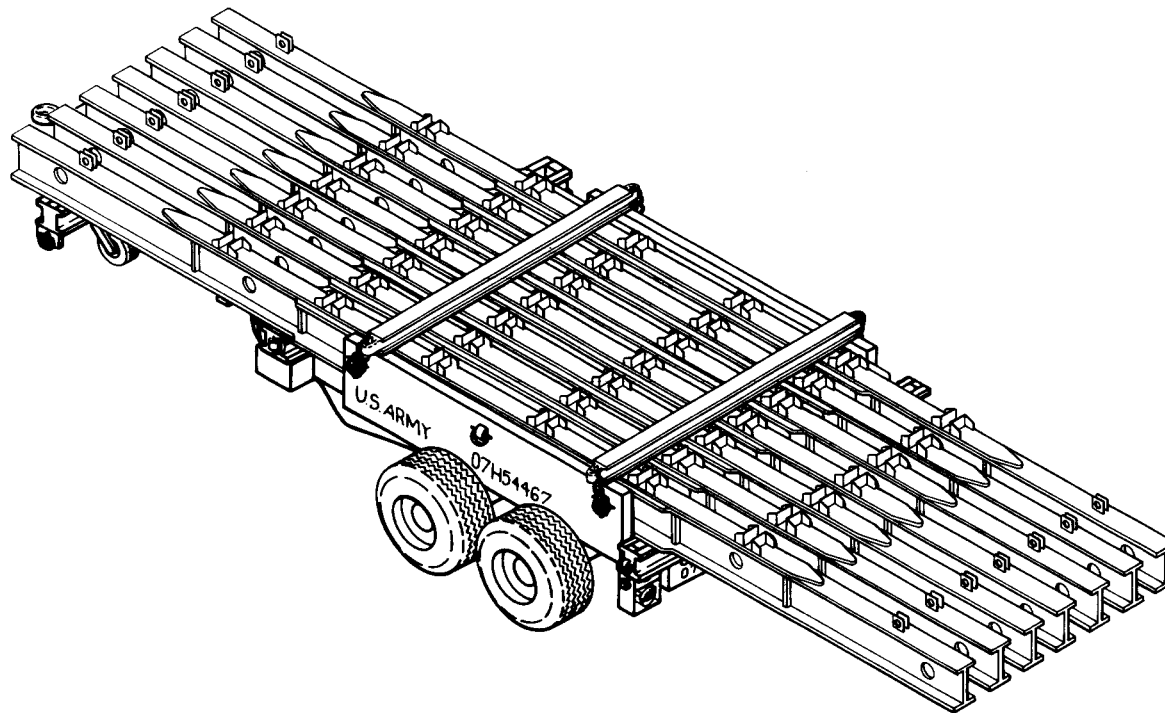


Figure 2-41 Trailer load number 4—transom load on 4-ton bolster trailer

Table 2-7 Truck load No. 5—deck load (5-ton truck)—(2 loads per bridge platoon; 4 loads per company)

QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
52	Chess, MZ	65	3,380
2	Frame, bracing, bridge	44	88
8	Stringer, button	267	2,136
16	Stringer, plain	260	4,160
	Total		9,764

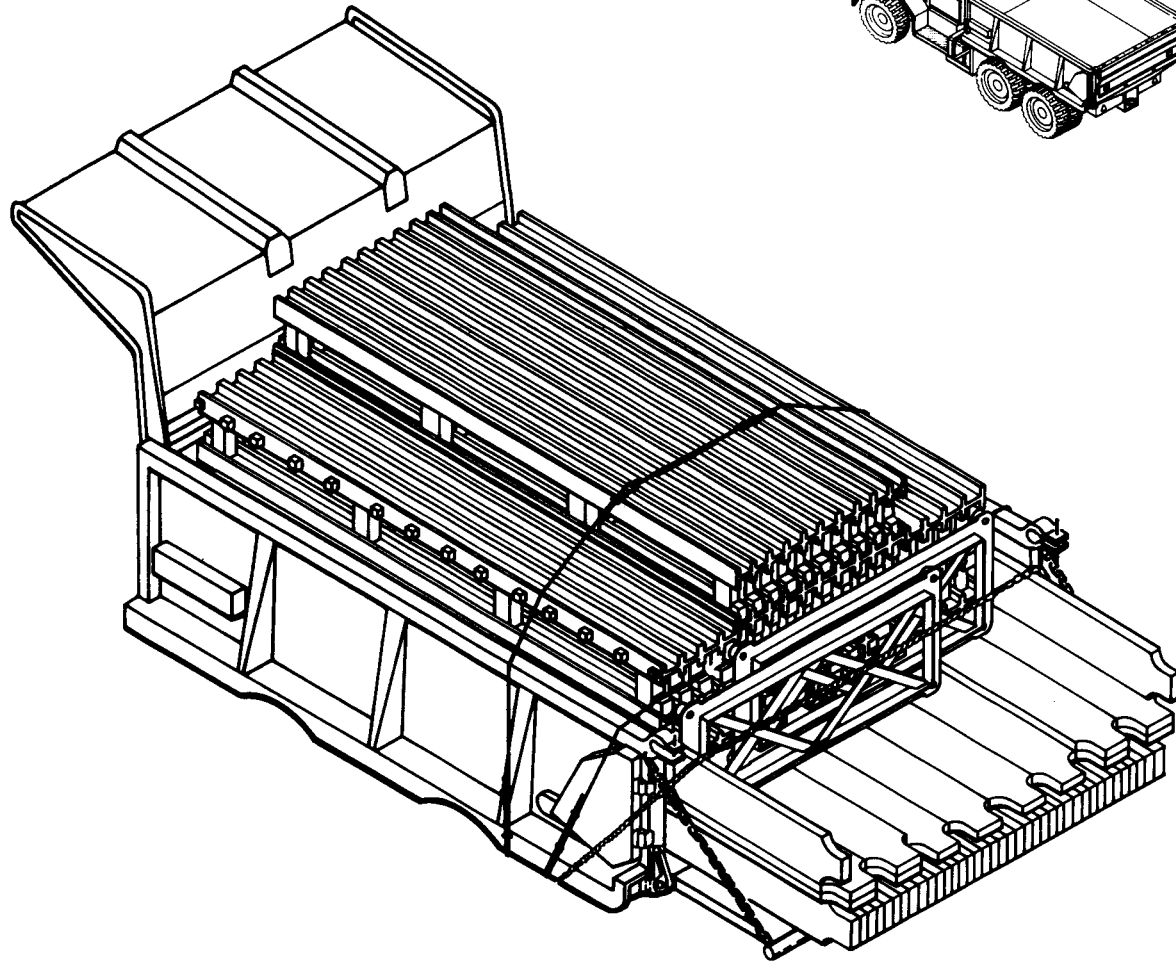
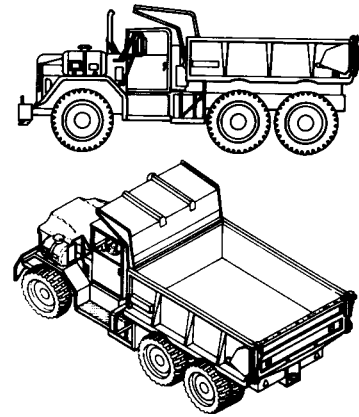


Figure 2-42 Truck load number 5—deck load on 5-ton truck

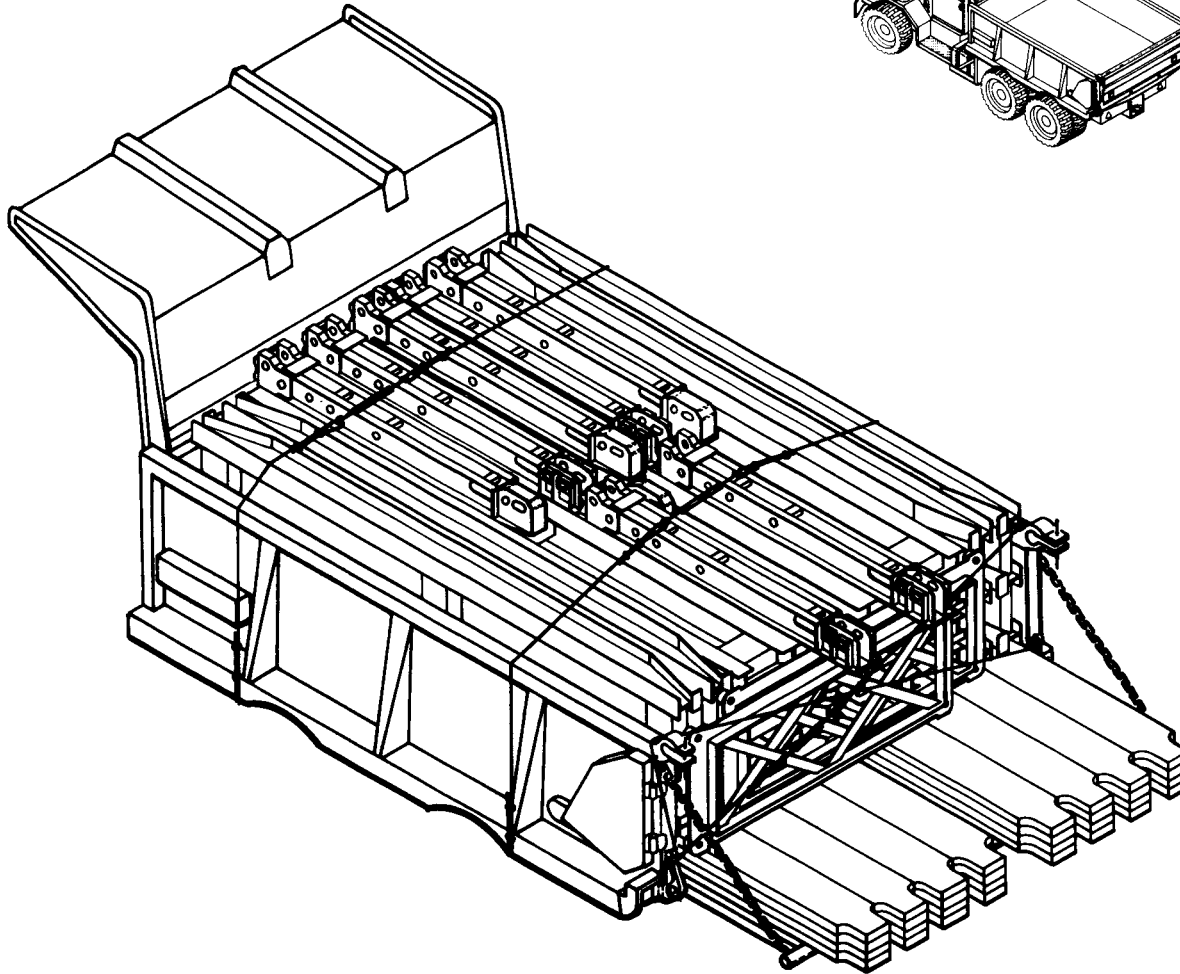
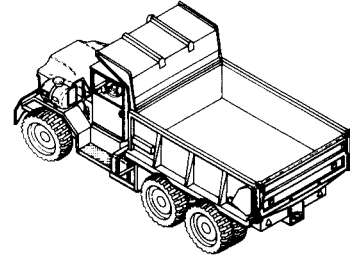
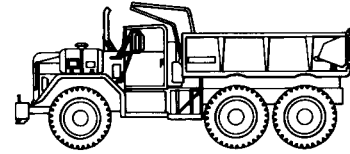


Table 2-8 Truck load No. 6—ramp load (5-ton truck)—(2 loads per bridge platoon; 4 loads per company)

QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
2	Bag, Bailey bridge parts and tools	2	4
20	Bolts, ribband, guardrail J	4.5	90
32	Chess, M2	65	2,080
2	Frame, bracing, bridge	44	88
2	Jacks, ratchet-level, 15-ton	128	256
4	Pedestal, ramp	93	372
4	Post, end, female	130	520
4	Post, end, male	121	484
4	Ramp, button	348	1,392
8	Ramp, plain	338	2,704
4	Ribband, guardrail	162	648
4	Wedge, wood	12	48
	Total		8,686

Figure 2-43 Truck load number 6—ramp load on 5-ton truck

Table 2-9 Trailer load No. 7—footwalk load (4-ton bolster trailer)—(1 load per bridge platoon; 2 loads per company)

QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
40	Bearer, footwalk	23	920
16	Footwalk	104	1,664
40	Post, footwalk	10	400
2	Rope, sisal 5/8" x 150", handrail	20	40
	Total		3,024

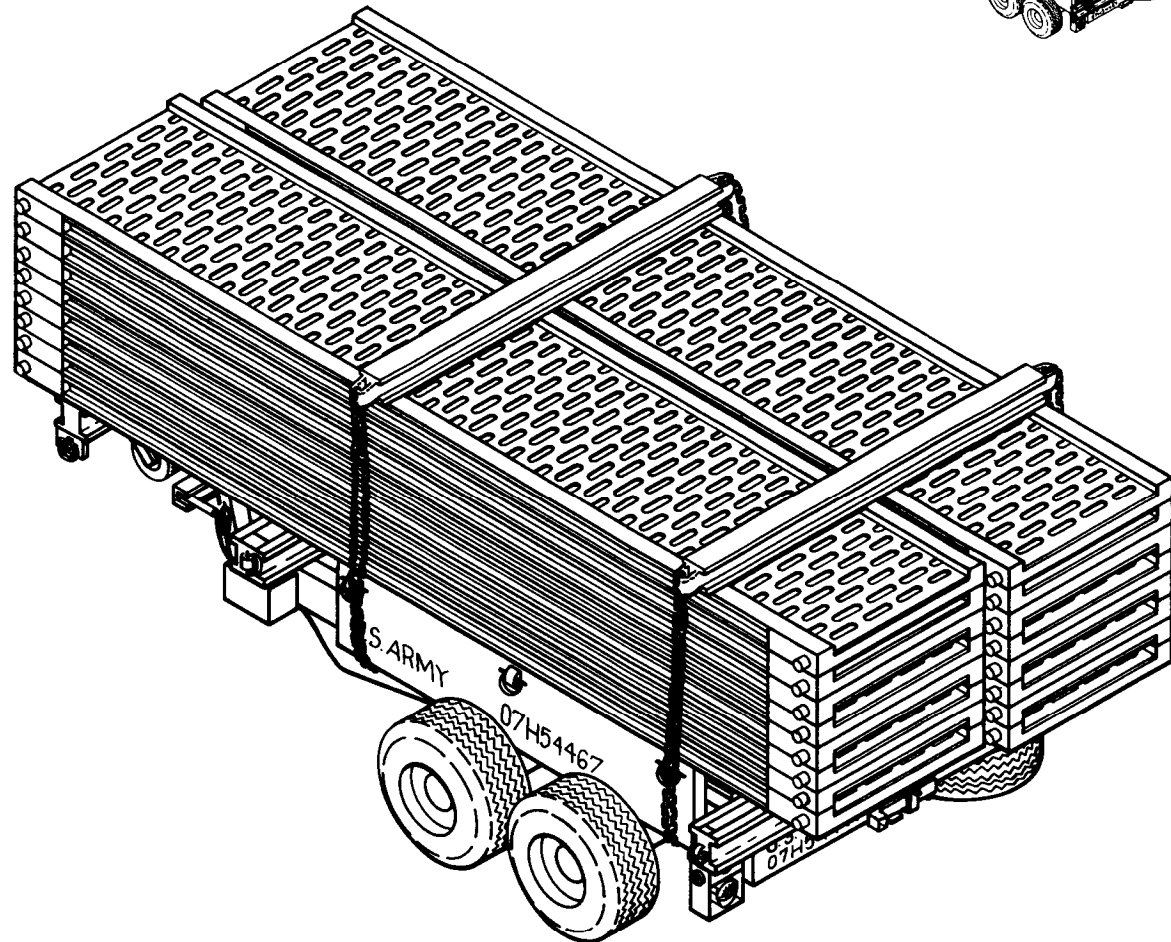
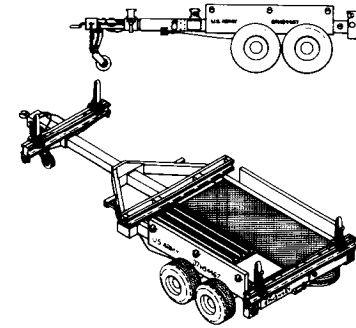


Figure 2-44 Trailer load number 7—footwalk load on 4-ton bolster trailer

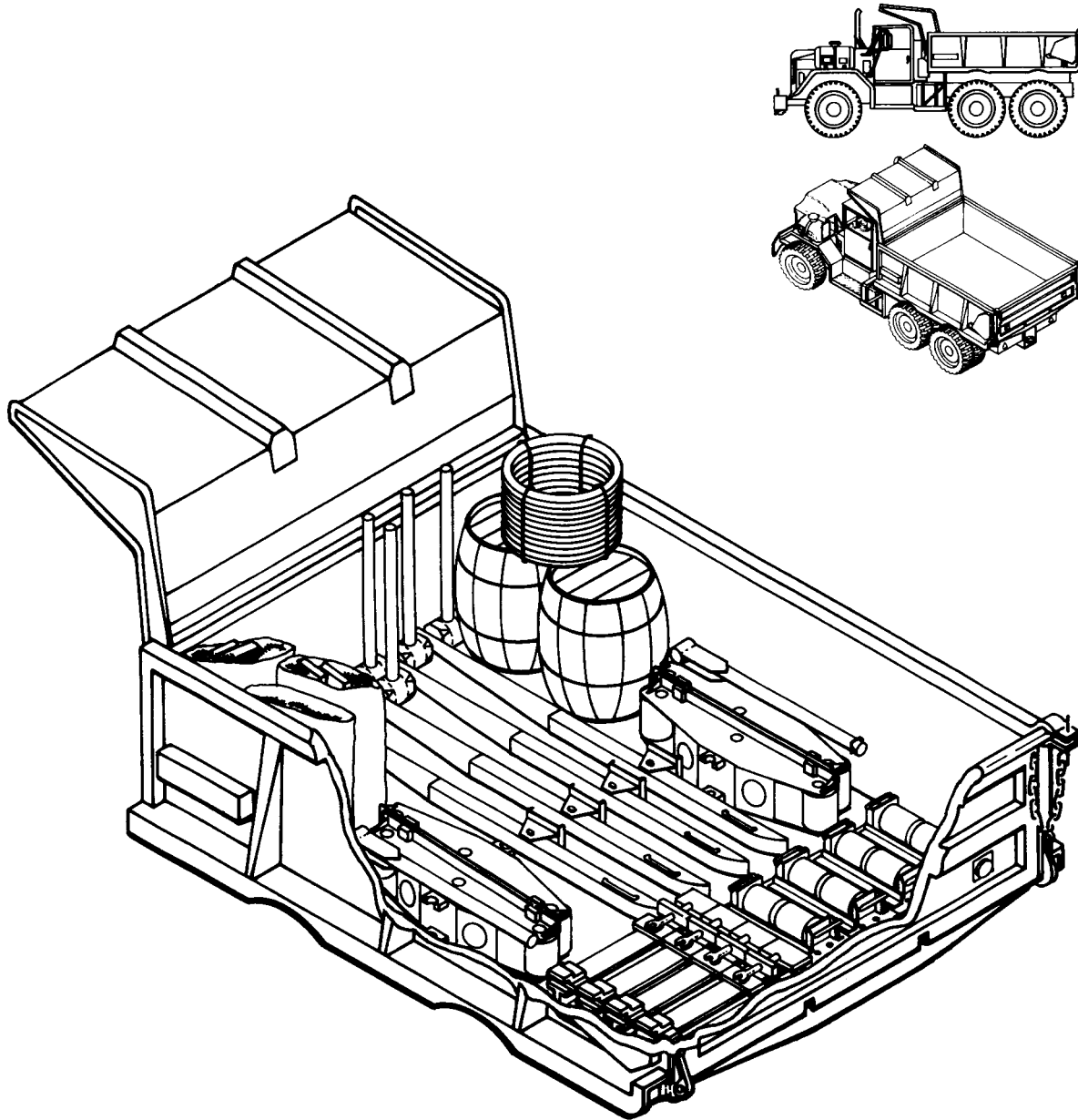


Table 2-10 Truck load No. 8—spares load (5-ton truck)—(1 load per headquarters platoon; 1 load per company)

QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
1	Bar, carrying	8	8
80	Bolt, bracing, bridge	1	80
36	Bolt, connector, chord	7.5	270
24	Bolt, end-post, spares	0.75	18
40	Clamp, transom	7	280
90	Clip, retainer, steel	0.13	12
7	Hammer, rubber-faced	4	28
12	Holdfast, w/9 pickets	160	1,920
8	Jack, chord	82	656
4	Lever, panel	48	192
100 lb	Nail, wire, steel		100
28	Pin, connector, panel, 8 ¹⁵ / ₁₆ "	6.1	171
50	Pin, sway-brace	1.1	55
4	Roller, plain	116	464
4	Roller, rocking	206	824
2	Rope, sisal, 3/4" x 600"	102	204
2	Rope, sisal, 1" x 600"	156	312
88	Rope, sisal, lashing, 5/8" x 25"	3.3	290
4	Shackle, anchor-type	5	20
4	Sledge, blacksmith, 8-lb	8	32
4	Tongs, carrying, bridge-erection	13	42
6	Wrench, ratchet, reversible	13	78
8	Wrench, socket, offset 90°	12	96
12	Wrench, structural, 1 1/4" for 3/4" bolts	2	24
6	Wrench, structural, 1 1/2" for 1" bolts	4.7	29
8	Wrench, structural, 1 3/4" for 1 1/4" bolts	5.6	45
	Total		6,250

Figure 2-45 Truck load number 8—spares load on 5-ton truck

*Table 2-11 Truck load No. 9—
overhead-bracing load (5-ton truck)*

QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
13	Bag, transport	2	26
60	Bolt, bracing (in bag)	1	60
144	Bolt, chord (12 per bag)	7.5	1,080
16	Brace, sway M2	68	1,088
10	Frame, bracing	44	440
20	Support, overhead-bracing	150	3,000
	Total		5,694

Notes:

1. Two loads required for a triple-story bridge; 200' long (wo spares)
2. Overhead-bracing supports, set stock number 79.8361.500.500, are not included in bridge sets; They are class IV equipment and must be requisitioned separately; When overhead-bracing supports are not used, and triple-story bridges are braced by underlung transoms in inverted third-story panels, overhead-bracing loads are eliminated, and 13 sway braces are added to each transom load; Total transom load then weighs 6,220 pounds

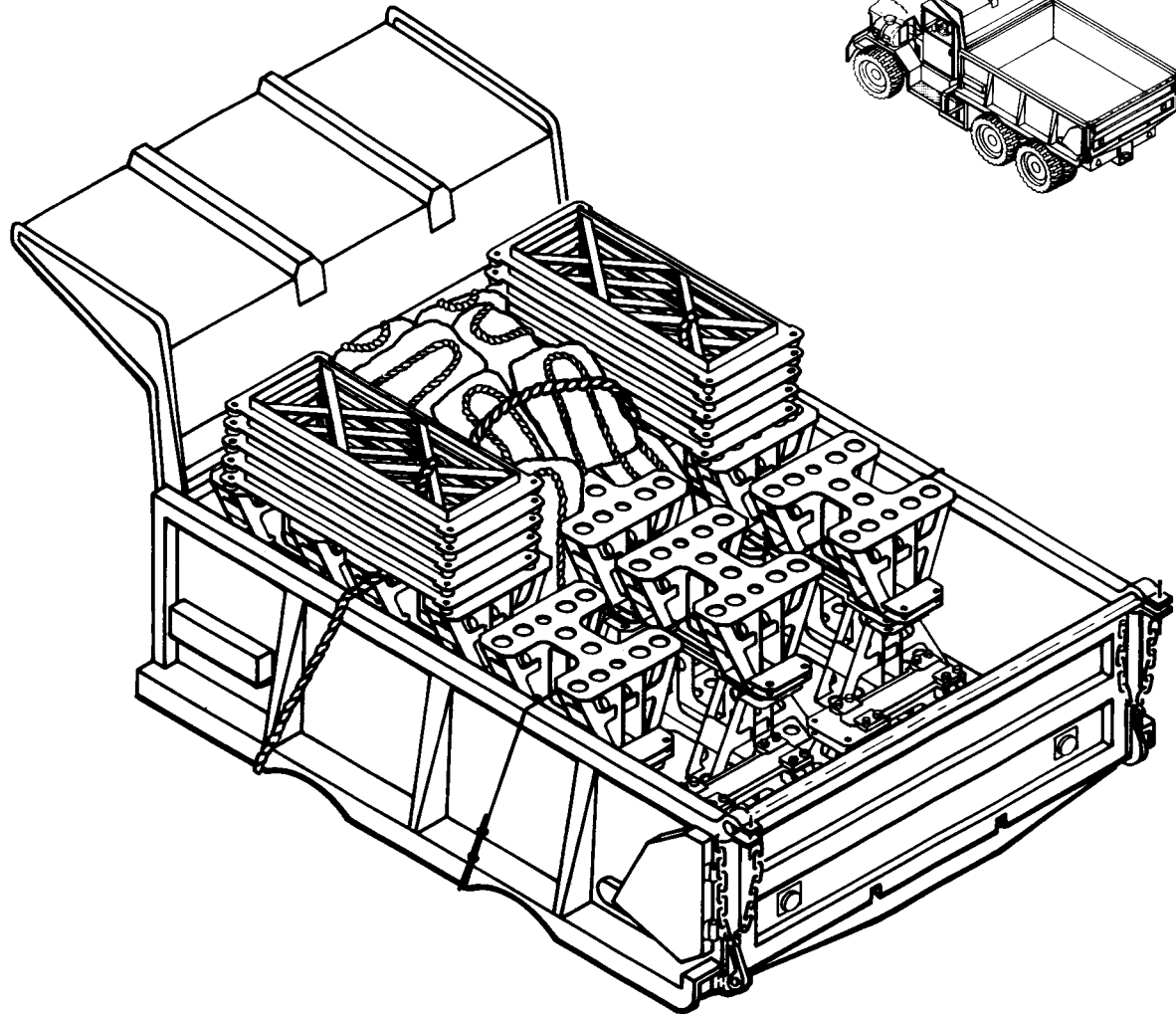
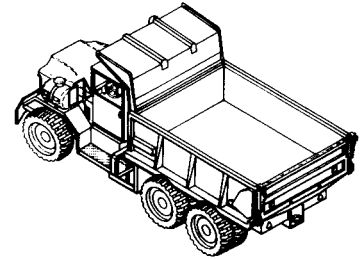
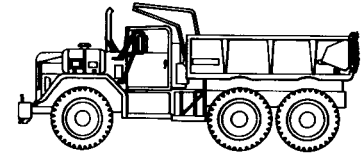


Figure 2-46 Truck load number 9—overhead-bracing load on 5-ton truck

Conversion set No. 3 is carried in 2 crib-pier loads. Information on the capabilities of different standard truck loads is given in Table 2-13, and Tables A-5 and A-6 in Appendix A.

BAY LOADS

The recommended bridge load for combat operations is the bay load (Figure 2-47, page 30). Each bay load truck contains all the parts, except transoms, required for one bay (10 feet) (3.0 meters) of *double-single* Bailey bridge. This loading lends itself well to most combat engineer Bailey bridge missions. Table 2-14 (page 30) lists the parts found in the bay load. Four-ton bolster trailers carry the transoms with the bridge load mentioned earlier. The bay load is designed to be easily unloaded by crane. However, the load may also be unloaded by hand or dumped if a crane is not available. If the load is dumped, take care not to damage the chess. For a complete bridge, parts and grillage, launching nose, ramp, footwalk, spares, and overhead-bracing loads must also be included.

Table 2-12 Truck load No. 10—crib-pier load (5-ton truck)

QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
15	Bag, transport	2	30
12	Bearing, crib	37	444
3	Bearing, junction-link	217	651
18	Bolt, bracing (in bag)	1	18
4	Bolt, chord (in bag)	7.5	30
6	Brace, sway, M2	68	408
6	Capsill, crib	251	1,506
2	Chess, junction, M2	149	298
16	Clamp, chord (in 5 bags)	11	176
16	Clamp, transom (in 2 bags)	7	112
100	Clip, retainer (in bag)	0.1	10
2	Frame, bracing	44	88
3	Link, junction	36	108
3	Link, launching-nose, MkII	28	84
60	Pin, panel (in 5 bags)	6	360
1	Pin, sway-brace, spare (in bag with chord bolts)	1	1
8	Plate, tie	3.5	28
3	Post, junction, span, female	202	606
3	Post, junction, span, male	194	582
8	Raker	22	176
	Total		5,916

Note:
Two loads transport one conversion set No. 3 which combined with standard bridge parts provides one panel crib pier

Table 2-13 Capabilities of standard truck loads

NO	LOAD	LOADS REQUIRED
1	Parts and grillage	Provides site layout and erection equipment
2	Launching-nose	Provides sufficient equipment for launching nose for 80' DS bridge, with erection tools (less one panel)
3	Panel	Provides sufficient panels for two bays DS bridge
4	Transom	Has sufficient transoms for three bays DS bridge
5	Deck	Provides sufficient stringers and chess for four bays
6	Ramp	two per bridge (20' of ramp at each end)
7	Footwalk	one per 80' of bridge (one walk on each side)
8	Spares	one per bridge 30'-70' long; two per bridge 80'-150' long; three per bridge 160'-200' long
9	Overhead bracing	two per triple-story bridge
10	Crib-pier	See Table A-6, Appendix A

Table 2-14 Bay load (5-ton truck)—(8 loads per bridge platoon; 16 loads per company)

QUANTITY	ITEM	WEIGHT (lb)	
		UNIT	TOTAL
12	Bolt, bracing, bridge	1	12
8	Bolt, ribband	4	36
2	Brace, sway	68	136
13	Chess, M2	65	845
8	Clamp, transom	7	56
8	Clip, retainer, steel	0.13	1.04
2	Frame, bracing, bridge	44	88
4	Panel, truss-bridge	577	2,308
8	Pin, connector, panel, long	6.1	48.8
2	Raker, side, strut	22	44
2	Ribband, guardrail	162	324
2	Stringer, button	267	534
4	Stringer, plain	260	1,040
	Total		5,473

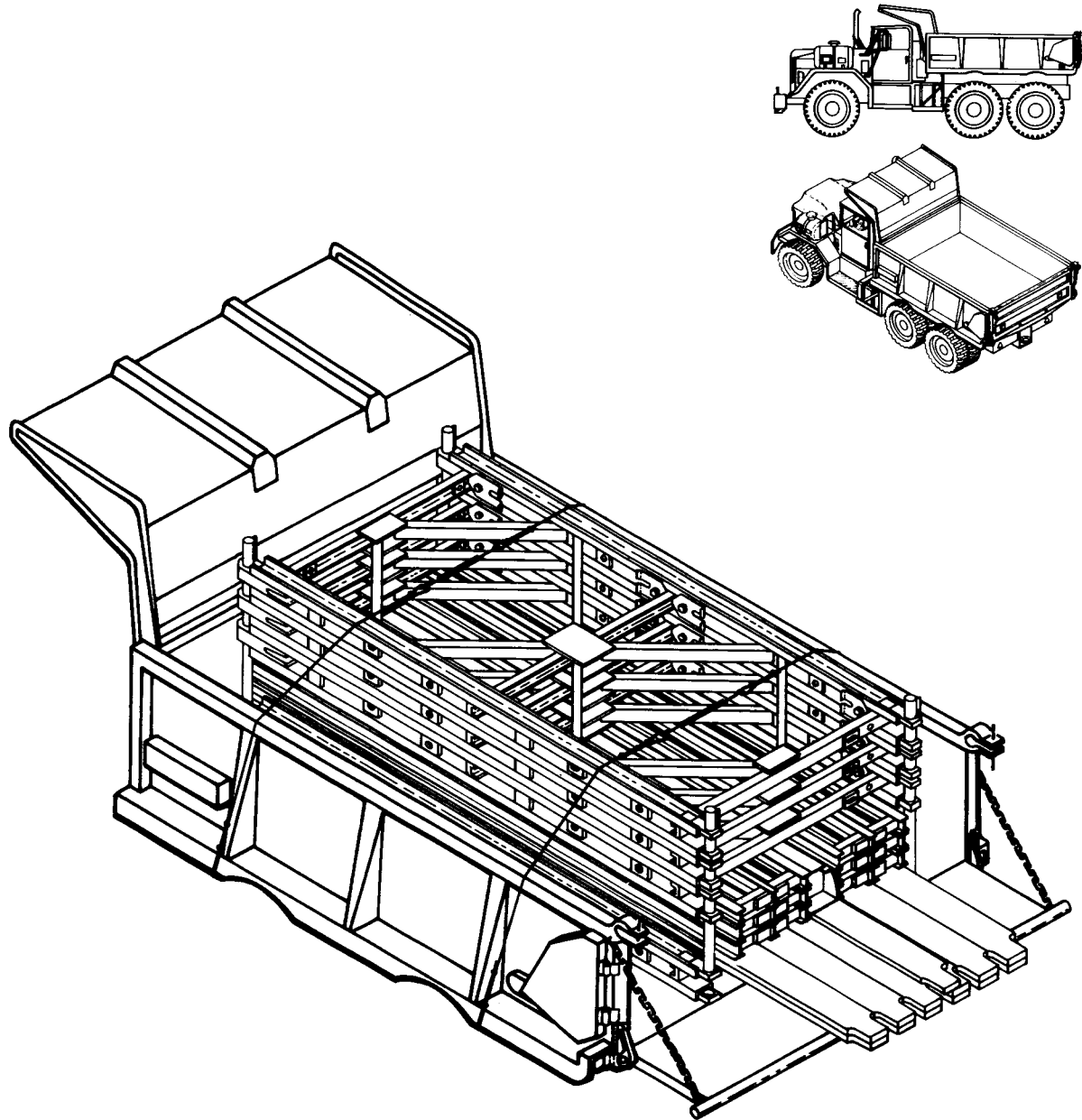


Figure 2-47 Bay load