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DEPARTMENT OF THE ARMY TECHNICAL MANUAL

N4-61

SEMI-TRAILER, LOW BED FRONT LOADING 20 TON

La Crosse

OPERATOR'S MANUAL
MAINTENANCE MANUAL AND
PARTS IDENTIFICATION LIST

201 Td. Groep	
Afd. Bevoorrading	
	
Parent	

**OPERATOR'S MANUAL
MAINTENANCE MANUAL**

and

PARTS IDENTIFICATION LIST

for

**SEMI-TRAILER, LOW BED
FRONT LOADING
20 TON**



DECEMBER 23, 1944

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**PART
I**

Operator's Manual

SECTION I

GENERAL

SCOPE

These instructions are published for the information and guidance of the personnel to whom this equipment is assigned. They contain information on operation and maintenance as well as descriptions of the major units and their functions in relation to the other components of the equipment. They apply only to the 20 ton front loading trailer and are arranged in four parts: Part One — Introduction; Part Two — Operating Instructions; Part Three — Maintenance Instructions; Part Four — Parts Identification List.

RECORDS

Maintenance instruction forms and record forms listed and briefly described in the following subparagraphs will be used in the maintenance of this equipment.

WD AGO Form No. 6 — Duty Roster. This form slightly modified will be used for recording operation and scheduling lubrication and preventive maintenance services at the proper intervals on individual items of equipment.

WD AGO Form No. 48. Driver's Trip Ticket and P.M. Service Record. This form will be used by equipment operators for reporting the accomplishment of daily preventive maintenance services and for reporting any deficiencies observed on the equipment during operation.

Lubrication Chart. This is a maintenance instruction form and is intended to instruct operators and personnel of the using organization as to the proper lubricants to be used and intervals to follow in lubricating individual items of equipment.

War Department Preventative Maintenance Services Engineer Equipment. This is a maintenance instruction form and prescribes daily maintenance services to be performed by the operator as well as the weekly and monthly services to be performed by mechanics of the using organization in providing proper maintenance on individual items of equipment.

WD AGO Form No. 464. Preventative Maintenance Services and Technical Inspection Work Sheet for Engineers Equipment. This form is used by personnel of the using organization and higher echelons for reporting the results of preventive maintenance services, command, and technical inspections.

WD AGO Form No. 7353. Spot Check Inspection Report for All Motor Vehicles. This form may be used as a check list for items to be inspected during spot check inspections in lieu of WD AGO Form No. 464.

WD AGO Form No. 478. MWO and Major Unit Assembly Replacement Record. Major repairs or rebuilding, the replacement of major unit assemblies and the accomplishment of equipment modifications will be recorded on this form.

SECTION II

DESCRIPTION AND DATA

DESCRIPTION. (Figs. 1, 2 and 3)

The 20 ton front loading semi-trailer is a four wheel trunnion axle vehicle equipped with dual tires. A hydraulically actuated landing gear is provided at the front end of the frame to support the semi-trailer when the truck or dolly is disconnected. The semi-trailer is designed to be pulled by a tractor-truck equipped with a suitable fifth wheel or it can be pulled with the dolly coupled to the semi-trailer and the drawbar of the dolly attached to the pintle hook of the towing vehicle. Air brakes are provided on the semi-trailer which receive their air supply from the tractor-truck through the conventional removable hoses. Two service clearance lights and two black out clearance lights are provided on each side of the semi-trailer frame, and one combination stop and tail light and one combination blackout service stop and black out tail light are installed on the rear cross member. The entire front kick up can be lowered to form a ramp for loading the trailer. This is accomplished by means of a hydraulic mechanism which can be operated by one man.

IDENTIFICATION (Fig. 4)

The semi-trailer can be identified by its drop frame construction and by the hinged front end which lowers to form the loading ramp. The name plates on the semi-trailer are located on the right front side of the main trailer frame.

DATA

Physical Characteristics:

Weight (total)	23,900 lbs.
Net chassis weight on king pin	8,000 lbs.
Net chassis weight on rear tires	15,900 lbs.
Maximum payload	20 tons
Length overall	35 ft. 4 in.
Length of main deck	14 ft. 6 in.
Width	9 ft. 7 in.
Height from ground to deck	3 ft. 2 in.
Height from ground to top of front kick up	5 ft. 9 in.
Height from ground to top of rear kick up	5 ft. 1 in.
Height of pintle hook	2 ft. 10 in.
Ground clearance (loaded)	2 ft. 0 in.

Tires:

Quantity	8
Size	14.00/20
Number of plies	12
Air pressure (Maximum)	40 lbs.
Allowable speed	40 m.p.h.

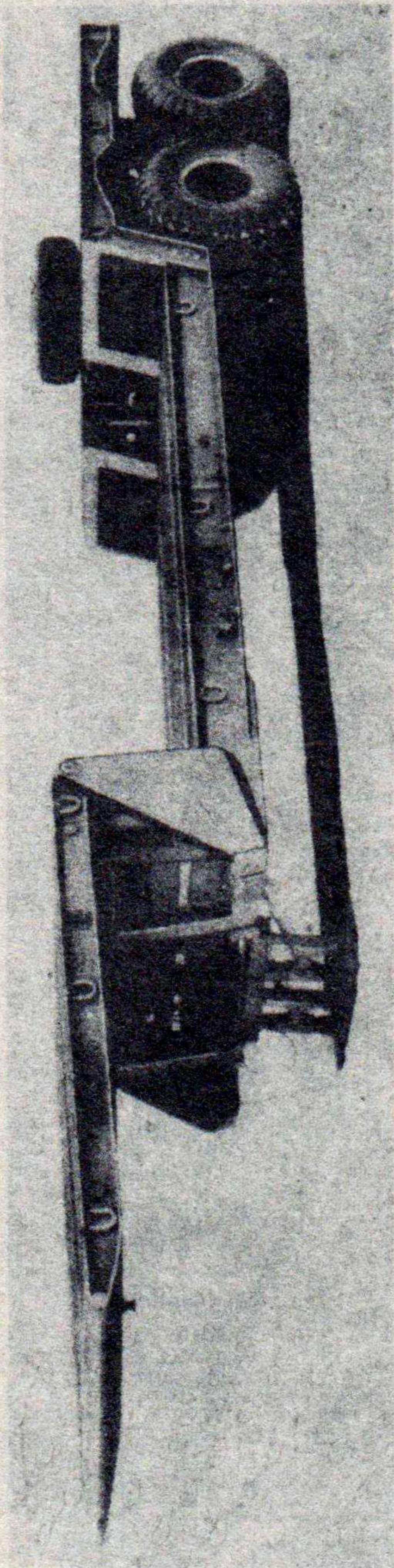


Figure 1. $\frac{3}{4}$ Front View - Ramp Up

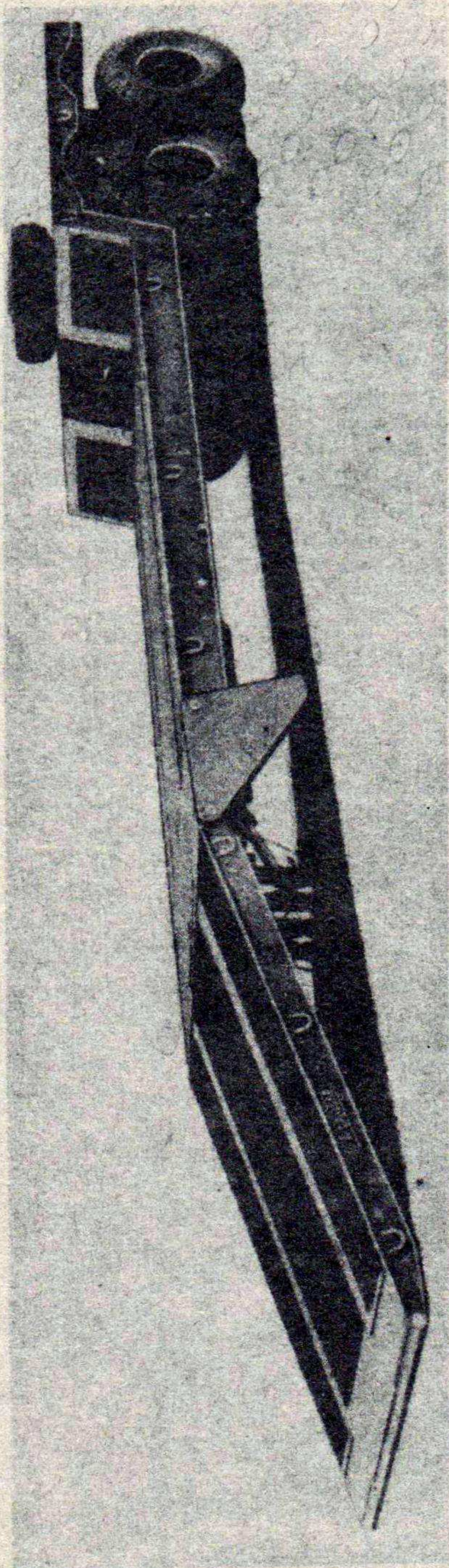


Figure 2. $\frac{3}{4}$ Front View - Ramp Down

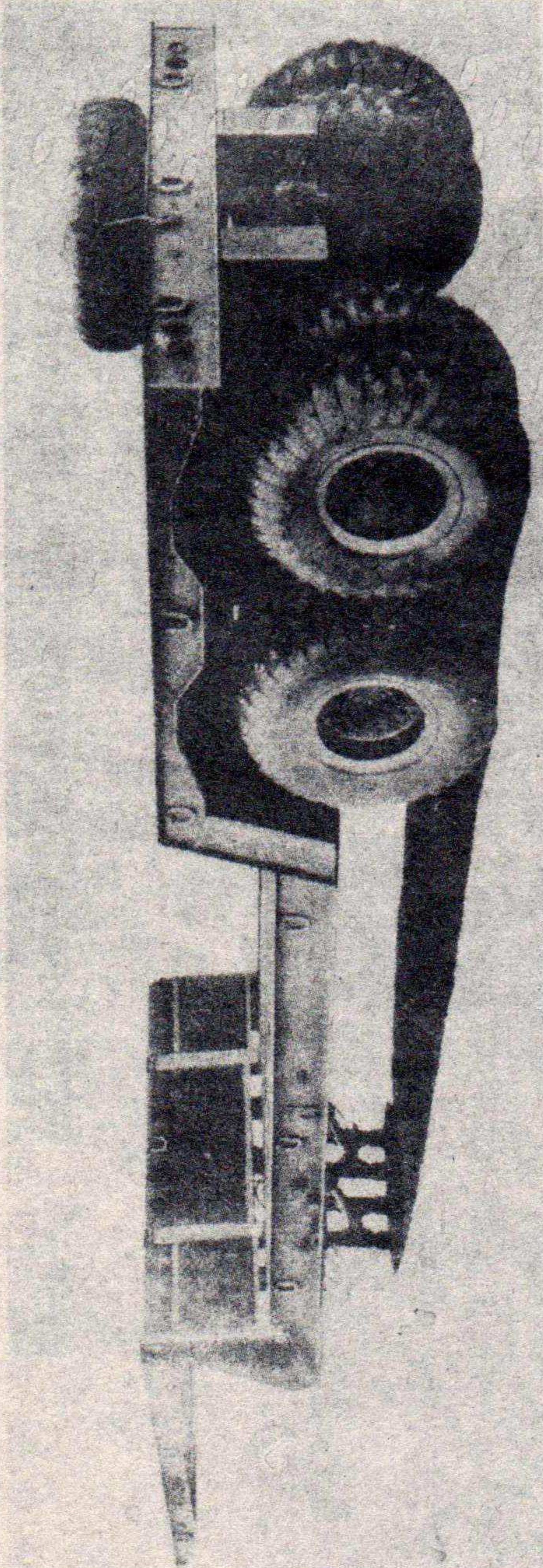


Figure 3. $\frac{3}{4}$ Rear View

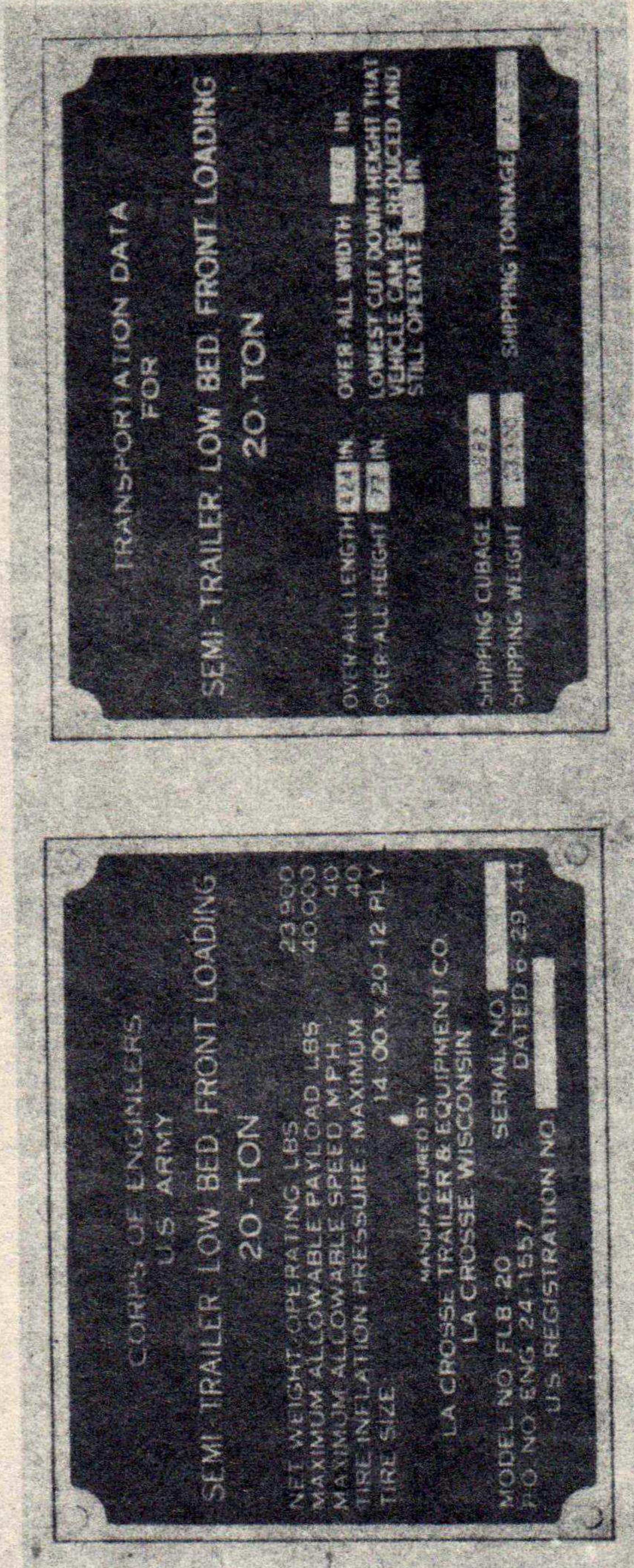


Figure 4. Name and Transportation Data Plates

SECTION III

TOOLS, ACCESSORIES AND FIRST ECHELON SPARE PARTS

1. LIST OF TOOLS: (Fig. 5)

Part No.	Part Name	Quantity
21T-6300	WRENCH, Seamless, Spindle Nut, with Handle, Octagonal Opening One End 3.267" - 3.287"; other end 3.833" - 3.856" (Measured Across Flats).....	1
21T-6302	WRENCH, Lug, with Handle to Fit Budd No. 43808E Inner Cap Nut Budd No. 43809E Inner Cap Nut Budd No. 43811E Outer Cap Nut Budd No. 43812E Outer Cap Nut.....	1
Budd 45867	WRENCH, Socket, for Divided Rim Wheels.....	1
21T-7008	BAR, Wrecking, 3/4" x 24" Forged Steel Gooseneck Claw and Pinch Type (41-1322.300-240).....	1
21T-7009	BAR, Crow, 5 1/2' Pinch Point.....	1
21T-7013	JACK, 25 Ton Mechanical, Height Closed 24" Rise 17" (Buda 224) Without Hook.....	1
16T-2412	SCREWDRIVER, 10" (41-7172.100-045).....	1
16T-2413	PLIERS, Combination 6" (41-5976.300-060).....	1
21T-7104	SLEDGE, Cross Pein 6 lbs. with 30" Hickory Handle (41-7531.300-060).....	1
16T-2415	WRENCH, Crescent, 10" Federal Spec. GGG-W-631 (41-9587.500-300).....	1
16T-2416	BAG, Tool 6" x 18".....	1
21T-7105	TOOL, Tire, 3/4" Stock, Taper End, 15" to 18" Long.....	1
	SOCKET, Blackhawk, No. 21014.....	1
	HANDLE, Socket Blackhawk No. 24999.....	1

2. ACCESSORIES (Fig. 6)

	HOSE, Jumper Air Brake (215604).....	2
	CABLE, Jumper 8' Long Warner Elec. No. 3731.....	1
21T-7000	CHAIN, Loadbinder, 1/2" x 20' Long, BBB Quality, Grab Hook Each End.....	4
21T-7007	LOADBINDER, for 1/2" Chain (McKissick M42).....	4
21T-7002	CHAIN, Tow, 3/4" x 25' BBB, Quality Grab Hook One End Pear Link Other End.....	1
21T-7003	BLOCK, Snatch, 8" Quick Opening (For 5/8" Wire Rope. Swivel Hook One End Shackle Bar Other End (McKissick HD-1).....	1
	HANDLE, Hydraulic Pump.....	2
21T-7106	TAPE, Friction 1/2 lb. Roll (17-8848.200-500).....	1
	MANUAL, Technical.....	2

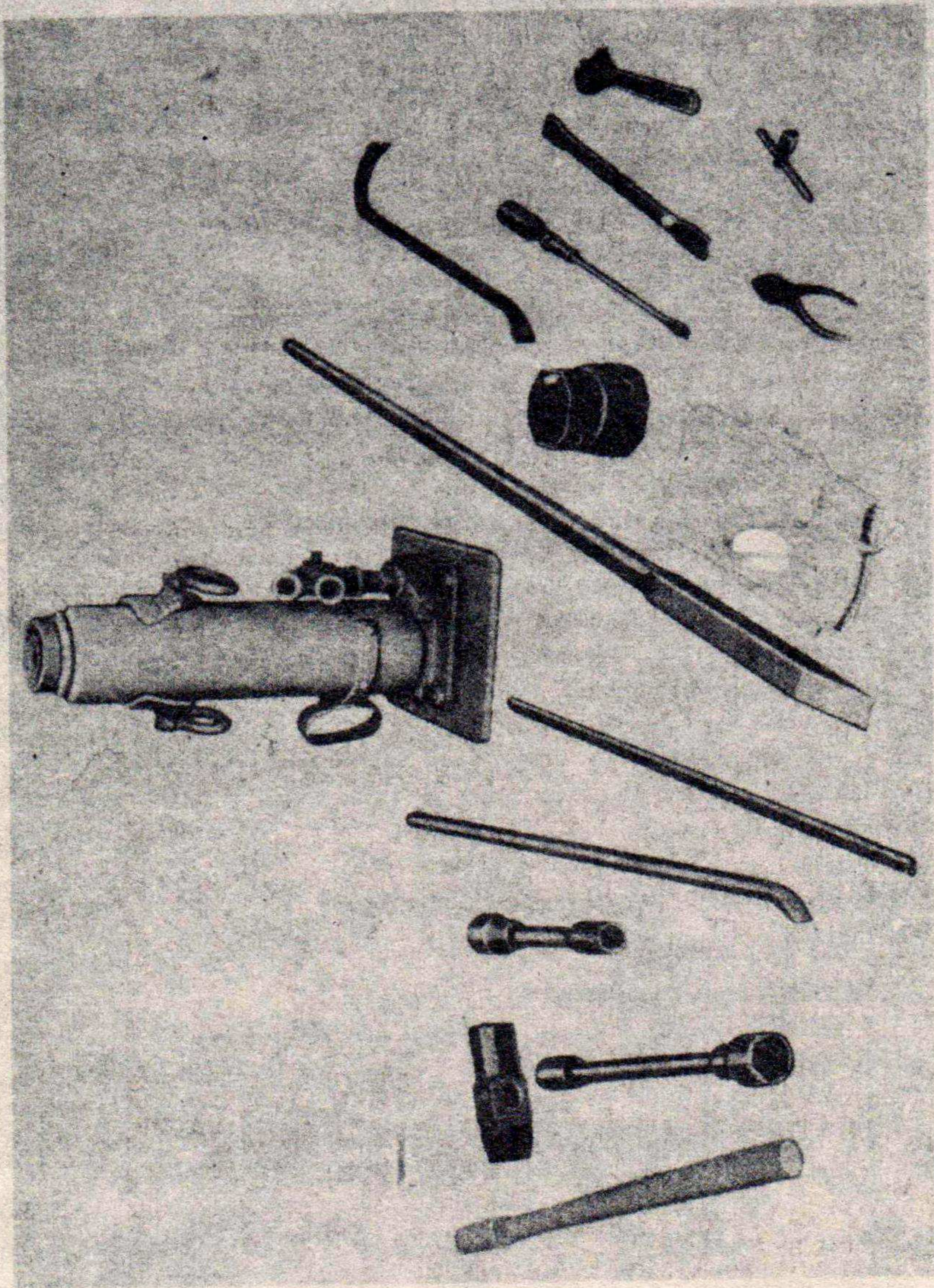


Figure 5. Tools

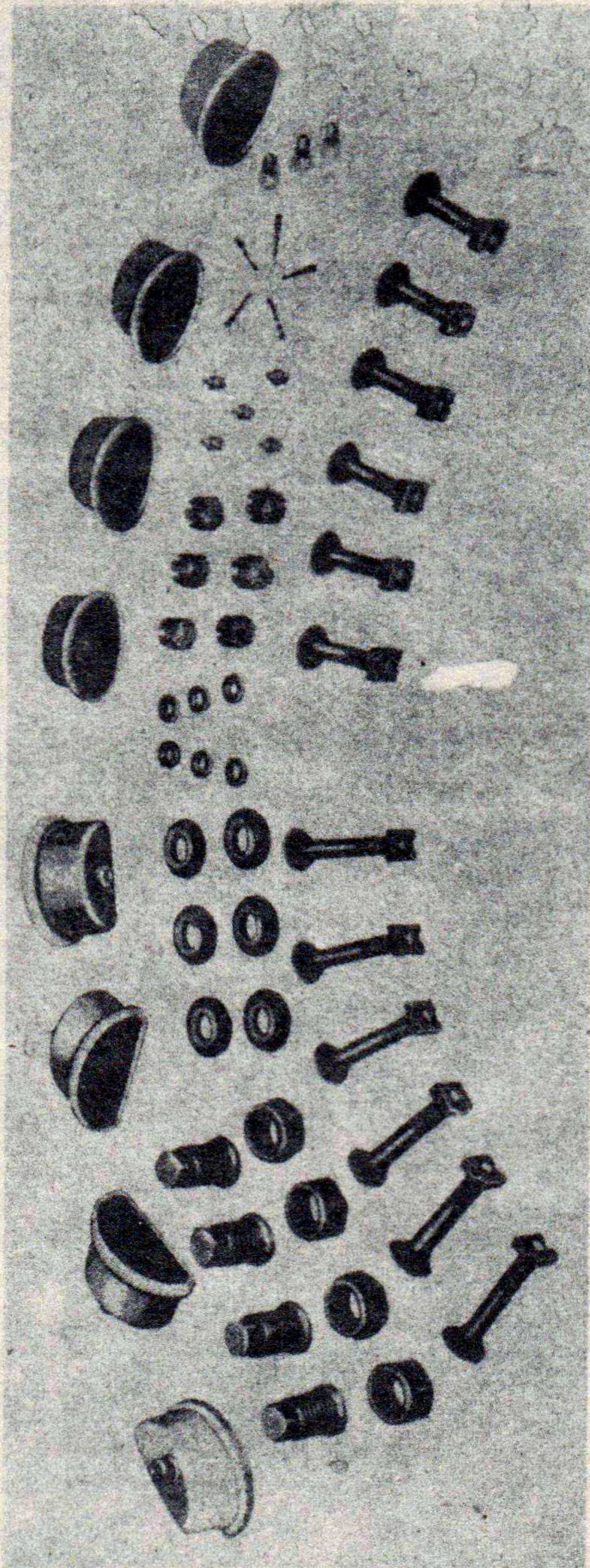


Figure 7. Spare Parts

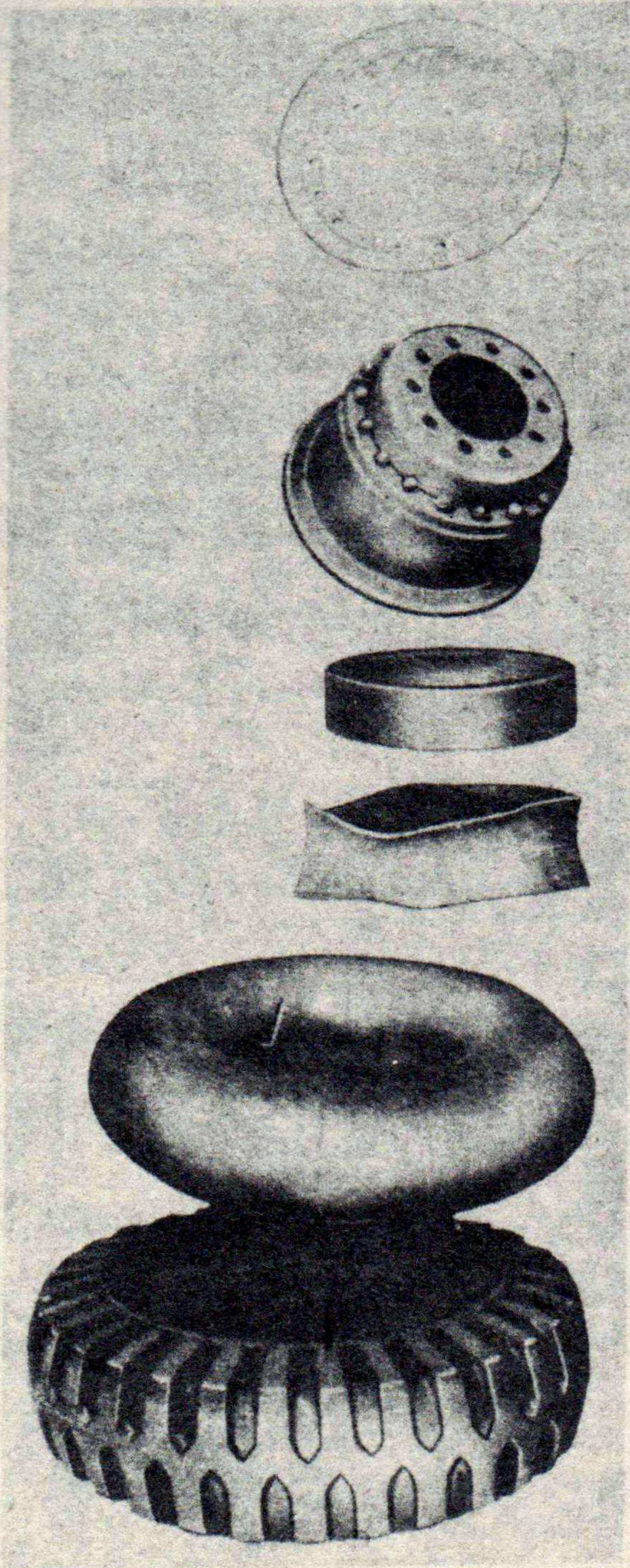


Figure 8 Wheel and Tire

OPERATING INSTRUCTIONS

3. SPARE PARTS: (Fig. 7)

Part No.	Part Name	Quantity
	SLEEVE, Hose (203610)	6
	GASKET (203608)	6
	PACKING, Ring (213630)	6
	NUT, Inner Cap R.H. (43808E)	2
	NUT, Inner Cap L.H. (43809E)	2
	NUT, Outer Cap R.H. (43811E)	2
	NUT, Outer Cap L.H. (43812E)	2
16T-1878	UNIT, Service Upper (KD-8039-6V)	2
16T-1874	UNIT, Blackout Lower (KD-8040-6V)	4
16T-1873	UNIT, Blackout Upper (KD-8041-6V)	2
21T-7010	BOLT, Car. Lewis Sealtite $\frac{1}{2}$ " x $3\frac{1}{2}$ " Complete with No. 2 Square Locktite Nut or Equal	6
21T-7011	BOLT, Car. Lewis Sealtite $\frac{1}{2}$ " x $2\frac{1}{2}$ " Complete with No. 2 Square Locktite Nut or Equal	6
16T-2742	CAP, Valve (Schrader 880)	5
16T-2743	CORE, Valve (Schrader 7611)	5
16T-1867	LAMP, (Mazda No. 55)	3

4. SPARE WHEEL AND TIRE: (Fig. 8)

	TIRE, 14:00 x 20, 12 Ply	1
	TUBE, 14:00 x 20, Heavy Duty	1
	FLAP, Thin	1
D11L	BEADLOCK	1
	WHEEL ASSEMBLY	1
	SIDE FLANGE	1

SECTION IV CONTROLS

BLACKOUT SWITCH

The blackout switch is located on the left hand side of the front kick up. By operating the switch with a coin, screwdriver or key, the operator can turn on either blackout or standard running lights. The face of the switch is marked with an arrow indicating which set of lights is in operation.

RAMP RELEASE AND LANDING GEAR RELEASE CONTROL (Fig. 9.)

This control is located on the left hand side of the trailer near the front of the main frame. It is operated by means of the hydraulic pump handle. Pushing the handle forward releases the ramp pins and pulling the handle backward releases the landing gear pins.

LANDING GEAR HYDRAULIC CONTROL VALVE (Fig. 9)

This valve is located adjacent to the ramp and landing gear release control. It serves to direct the flow of oil to the hydraulic cylinder which actuates the landing gear. Pushing the valve all the way in causes the landing gear to retract when the pump is operated. Centering the valve will lock the landing gear against motion in either direction. Pulling the valve all the way out will cause the landing gear to descend when the pump is operated.

RAMP HYDRAULIC CONTROL VALVE (Fig. 9)

This valve is located adjacent to the landing gear hydraulic control valve and serves to control the flow of oil to the hydraulic cylinder which actuates the ramp. Pushing the valve all the way in will cause the ramp to raise when the hydraulic pump is operated. Centering the valve will lock the ramp in any position. Pulling the valve all the way out will cause the ramp to descend.

TIRE INFLATION SUPPLY VALVE

This valve is located on the left hand side of the trailer approximately midway on the side channel. It may be used to inflate the trailer tires in combination with the inflation hose supplied with the tractor-truck.

PARKING BRAKE (Fig. 10)

The parking brake is located on the rear cross member of the trailer. It is applied by turning the crank handle clock-wise, and is released by turning the handle counter-clockwise. Pulling the handle down and giving it a quarter turn will allow it to fold out of the way.

PINTLE HOOK (Fig. 10)

The pintle hook is located in a frame between the rear bumpers and is used as a means for attaching another vehicle to be towed behind the trailer. It will also be found useful for towing the dolly when the trailer is used with a tractor-truck. The pintle hook is of the standard Army type.

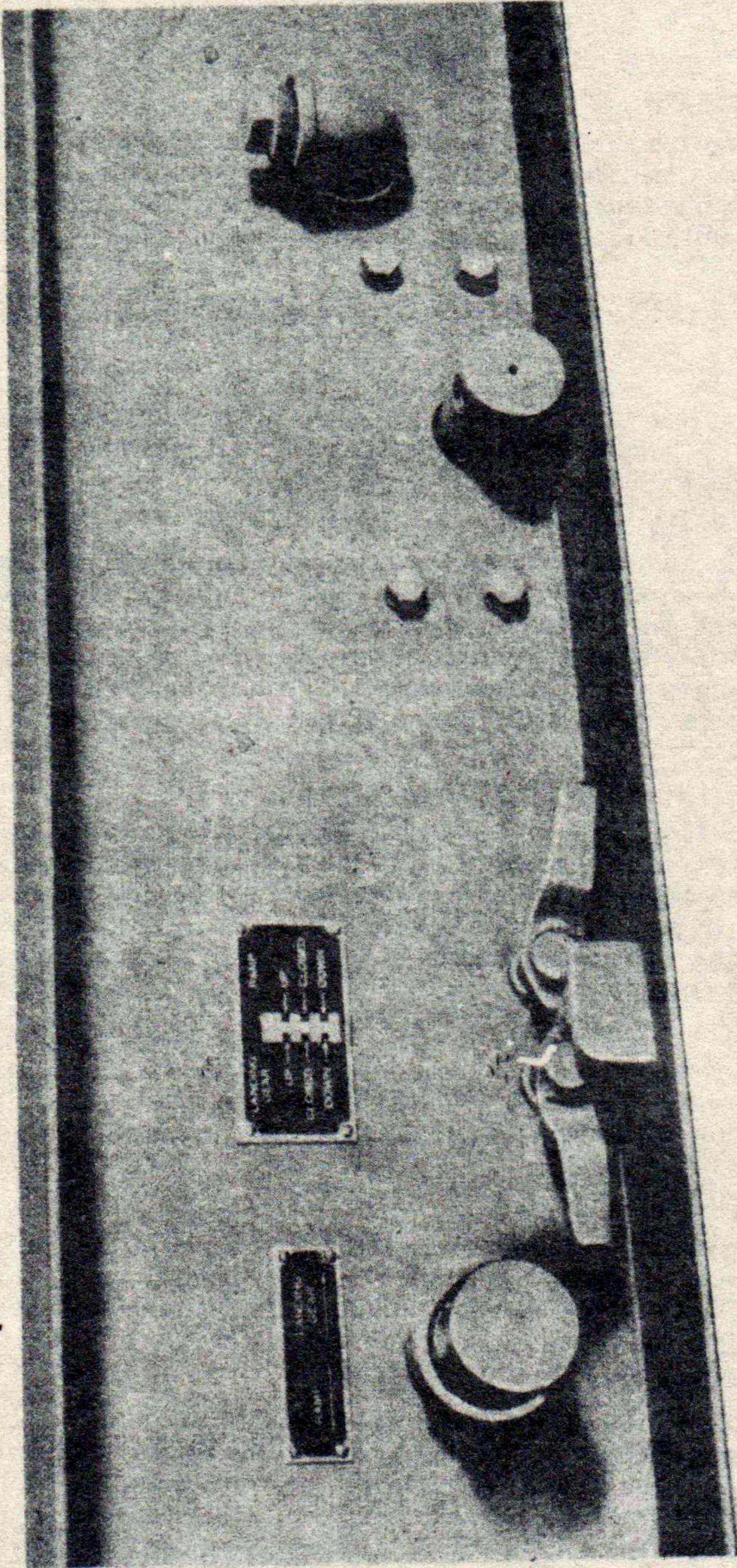


Figure 9. Controls

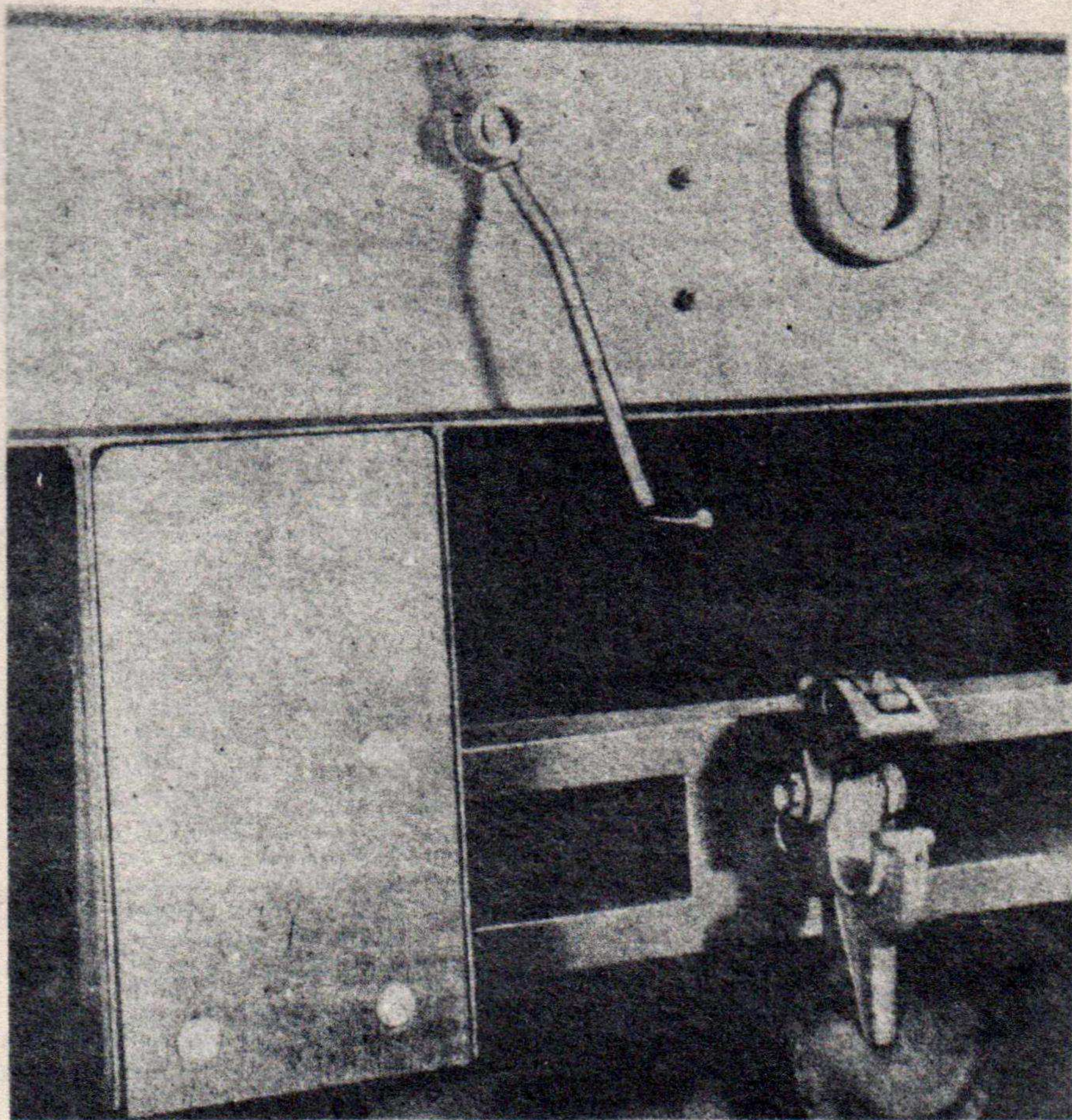


Figure 10. Parking Brake and Pintle Hook

SECTION V OPERATION

TO LOWER LANDING GEAR

Place the landing gear hydraulic control valve (Fig. 9) in the up position and give the hydraulic pump a few strokes. Then operate the landing gear release control by placing the pump handle in the socket provided for it, and pulling it all the way back. While holding the handle back, move the landing gear hydraulic control valve to the down position. Operate hydraulic pump until the landing gear reaches the down position. This will be apparent through the sudden increase in handle effort caused by a build up of oil pressure when the hydraulic cylinder bottoms. Move the hydraulic control valve to the closed position. **WARNING: NEVER PLACE THE LANDING GEAR HYDRAULIC CONTROL VALVE IN THE UP POSITION, UNLESS THE SEMI-TRAILER IS CONNECTED TO THE TRACTOR-TRUCK OR TO THE DOLLY.**

TO RAISE LANDING GEAR

After the tractor-truck or dolly is connected to the semi-trailer, place the landing gear hydraulic control valve in the up position. Operate the hydraulic pump until the landing gear is completely retracted. The retracted position will be apparent through the sharp click made by the landing gear locking pins snapping into position. Move the landing gear hydraulic control valve to the closed position.

TO LOWER RAMP

Place the ramp hydraulic control valve in the up position and give the hydraulic pump a few strokes. Then operate the ramp release control by placing the pump handle in the socket and pushing it all the way forward. While holding the handle in this position, move the ramp hydraulic control valve to the down position. The ramp will then fall under the influence of gravity. If, for any reason, the ramp refuses to fall, the pump may be operated with the spare handle, which will force the ramp down.

TO RAISE RAMP

Place the ramp hydraulic control valve in the up position and operate the hydraulic pump until the ramp is completely raised. This will be apparent through the sharp click made by the ramp locking pins snapping into position. If the semi-trailer is to be connected to the dolly or to the tractor-truck immediately it is not always necessary to raise the ramp all the way. If it is raised until the front end engages the slide leading up to the fifth wheel, the tractor-truck or dolly can be made to lift the ramp through a considerable portion of its travel. Whichever method is used, the ramp locking pins should always be inspected to be sure that they are completely seated.

COUPLING TRACTOR-TRUCK OR DOLLY TO SEMI-TRAILER

Set the hand brake and then raise the ramp as outlined above. Unlock the fifth wheel on the tractor-truck or dolly, as the case may be, and then back underneath the ramp until the king pin engages the fifth wheel. **CAUTION:** Care must be exercised to see that the king pin enters the jaws of the fifth wheel since the king pin is spring loaded and if improperly handled, the truck or dolly may be backed to such a position that the king pin will pass completely over the fifth wheel. If this should happen, it will be necessary to pry the king pin into its socket by means of a crowbar and block of wood in order to get it back over the fifth wheel. If an extra man is not available, the truck driver can accomplish the same result by using the truck jack to push the king pin into its socket.

The truck should always be pulled forward slightly after coupling to insure that the fifth wheel lock has functioned properly. Remove the air brake hoses from the dummy couplings on the trailer, attach them to the couplings on the truck, and open the cut out cocks. Be careful to see that the service line on the towing vehicle is connected to the service line on the trailer and that the emergency line on the towing vehicle is connected to the emergency line on the trailer. Identification tags are mounted on all connections. Connect the jumper cable between the trailer and towing vehicle by placing one end in the socket underneath the ramp and the other end in the socket provided at the rear of the towing vehicle. Release the hand brake and raise the landing gear as outlined above. The vehicle is now ready for travel.

UNCOUPLING TRACTOR-TRUCK OR DOLLY FROM SEMI-TRAILER

Apply hand brake by turning handle clock-wise. Close shut out cocks on towing vehicle and uncouple air hoses and attach them to the dummy couplings provided on either side of the main trailer frame (see Fig. 12). Remove jumper cable and place in tool compartment. Lower landing gear as outlined above. Unlock fifth wheel and drive towing vehicle forward until it is clear of the trailer. **NOTE:** In both coupling and uncoupling when the semi-trailer is heavily loaded, it may be found that the landing gear strikes the ground before it is completely lowered. If this is the case, the landing gear hydraulic control valve may be placed in the proper position and the trailer moved backward or forward over or off from the landing gear. This will save considerable pumping time.

LOADING AND UNLOADING

Experience will be the best teacher in loading both tractors and shovels. However, there are a few precautions which should be observed. In loading bulldozers, the tractor should be driven up the ramp frontwards, so that the blade will rest on the rear kick up. Shovels or cranes may be loaded more easily by driving up the ramp with the dipper or boom leading. The cab may be swung around after the cargo deck is reached in order to improve clearance on the road. If the trailer is on a slope, the ramp should always be pointed up hill in order to secure the

most favorable loading angle. When unloading crawler type vehicles, they should be allowed to roll freely down the ramp since setting the brakes will cause them to slide sideways. The opening provided in the front of the rear kick up will often times accommodate a tractor draw-bar, power control unit, pusher or some such projection thereby allowing a longer piece of equipment to be carried than is normally possible. In case of dead equipment which cannot travel under its own power, the front mounted winch on the 6 ton 6 x 6 truck may be used for loading. It will be found that the truck bumper is of such height that it will engage the trailer bumpers allowing the winch line to pass thru the opening in the rear kick up, thence through the snatch block attached to the dead equipment and back to the bull ring just over the opening in the rear kick up. If necessary, the truck snatch block may be used in combination with that furnished with the trailer to rig a triple line. With this arrangement any piece of equipment within the capacity of the truck winch may be loaded.

TIRE CHANGING

The spare tire is mounted on top of the rear kick up (Fig. 3). The jack is mounted in the opening at the front of the rear kick up. The jack handle, lug wrench and lug wrench handle will be found either in the tool box on the rear kick up or in the compartment on the left hand side of the main frame. Remove the hold down bolts on both the spare tire and hydraulic jack with the 10" crescent wrench. Place the jack underneath the pintle hook frame at the rear end of the trailer on the side where the flat tire is located. It will be found that the jack in this position will lift all tires, both front and rear, clear of the ground. The tire is changed in the conventional manner, although it should be noted that the studs on the left hand side of the vehicle are left hand thread and those on the right hand are right hand thread. In stowing the flat tire it will probably be found necessary to use the truck winch to hoist it to the top of the rear kick-up.

TIRE INFLATION

The 20 ton front loading semi-trailer is one of the first pneumatic tired Engineer Corps vehicles designed to secure maximum mobility off the highway. In sand or mud, the large, low pressure 14.00 x 20 tires have very much less rolling resistance than the conventional high pressure truck or trailer tires. In general the lower the inflation pressure the easier it will be to pull the trailer through soft terrain. The following inflation table is presented as a guide:

TABLE 1 — TIRE INFLATION

Operating Conditions	Inflation Pressure	
	Loaded Trailer	Empty Trailer
Emergency	16 lbs. Minimum	6 lbs. Minimum
10 M.P.H. Off-Road	20 lbs. Minimum	8 lbs. Minimum
25 M.P.H. Off-Road	25 lbs. Minimum	10 lbs. Minimum
40 M.P.H. Highway	40 lbs. Min. & Max.	12 lbs. Minimum

OPERATING INSTRUCTIONS

If necessary the loaded trailer may be run for considerable distances on the highway at any tire inflation above 16 lbs. provided the speeds indicated in the above table are not exceeded.

Experience will be the best guide as to the proper tire inflation under a given set of conditions and the operator may exercise his own judgment in this matter as long as the minimums given in the table are maintained. Tire inflation should be closely watched when operating in hot weather both to see that the 40 lbs. maximum is not exceeded and to see that the tires do not overheat from operating at too high a speed for the inflation pressure used.

The air supply valve (Fig. 12) is intended for use in inflating tires by means of the inflation hose supplied as standard equipment with the tractor truck. The cap nut is removed from the air supply valve and the tire inflation hose attached. Turning the valve handle at right angles to the trailer frame will supply air for tire inflation directly from the emergency system on the truck. **WARNING: ALWAYS TURN HANDLE PARALLEL TO FRAME WHEN AIR SUPPLY VALVE IS NOT BEING USED FOR TIRE INFLATION.** The emergency system on the trailer receives its air supply through the air supply valve and if the valve handle is not kept in the proper position the emergency system can lose its air pressure, thereby becoming inoperative.

**PART
II**

**Maintenance
Manual**

SECTION VI

GENERAL

SCOPE

Part Three contains information for the guidance of personnel of the using organizations responsible for the maintenance (1st & 2nd Echelon) of this equipment. It contains information needed for the performance of the scheduled lubrication and preventive maintenance services as well as descriptions of the major systems and units and their functions in relation to other components of the equipment.

SPECIAL TOOLS AND EQUIPMENT

The small socket wrench (Fig. 5) is provided for the removal and replacement of hydraulic grease fittings located in counter bores in the various pins.

SECTION VII

LUBRICATION

LUBRICATION CHART (Fig. 11)

The lubrication chart prescribes lubrication maintenance for the 20-ton semi-trailer.

Lubrication instructions on the chart are binding on all echelons of maintenance and there shall be no deviations from these instructions.

Service intervals specified on the chart are for normal operating conditions. Reduce these intervals under extreme conditions such as excessively high or low temperatures, prolonged periods of high speed, continued operation in sand or dust, immersion in water, or exposure to moisture, any one of which may quickly destroy the protective qualities of the lubricant and require servicing in order to prevent malfunctioning or damage.

Lubricants are prescribed in the "Key" in accordance with three temperature ranges: (Above thirty-two degrees Fahrenheit, thirty-two degrees to zero degrees Fahrenheit, and below zero degrees Fahrenheit). Determine the time to change grades of lubricants, by maintaining a close check on operation of the vehicle during the approach to change-over periods. Ordinarily, it will be necessary to change grades of lubricants only when air temperatures are consistently in the next higher or lower range, unless malfunctioning occurs sooner due to lubricants being too thin or too heavy.

NOTES ON INDIVIDUAL UNITS AND PARTS

The following instructions pertain to lubrication and service of individual units and parts.

WHEEL BEARINGS

Remove bearing cone assemblies from hub. Wash bearings, cones, spindle, and inside of hub, and dry thoroughly. Do not use compressed air. Inspect bearing races and replace if damaged. Coat the spindle and inside of hub and hub cap with Grease, general purpose No. 2, to a maximum thickness of $\frac{1}{16}$ inch, to retard rust. Lubricate bearings with Grease, general purpose No. 2 with a packer, or by hand, kneading lubricant into all spaces in the bearing. Use extreme care to protect the bearings from dirt, and immediately reassemble and replace wheel. Do not fill hub or hub cap. The lubricant in the bearing is sufficient to provide lubrication until the next service period. Any excess might result in leakage into the drum. Adjust bearings as follows:

Tighten adjusting nut using axle nut wrench until wheel binds, and at the same time rotate wheel to make certain all surfaces are in contact. Then back adjusting nut off about $\frac{1}{6}$ turn, or more, if necessary, making sure wheel rotates freely. Check hub bearing for end play by testing sidewise shake of wheel with hands or with a bar under tire. If bearings are correctly adjusted, shake of wheel will be just perceptible and wheel will turn freely with no drag. If bearing adjustment is too tight, bear-

LUBRICATION CHART

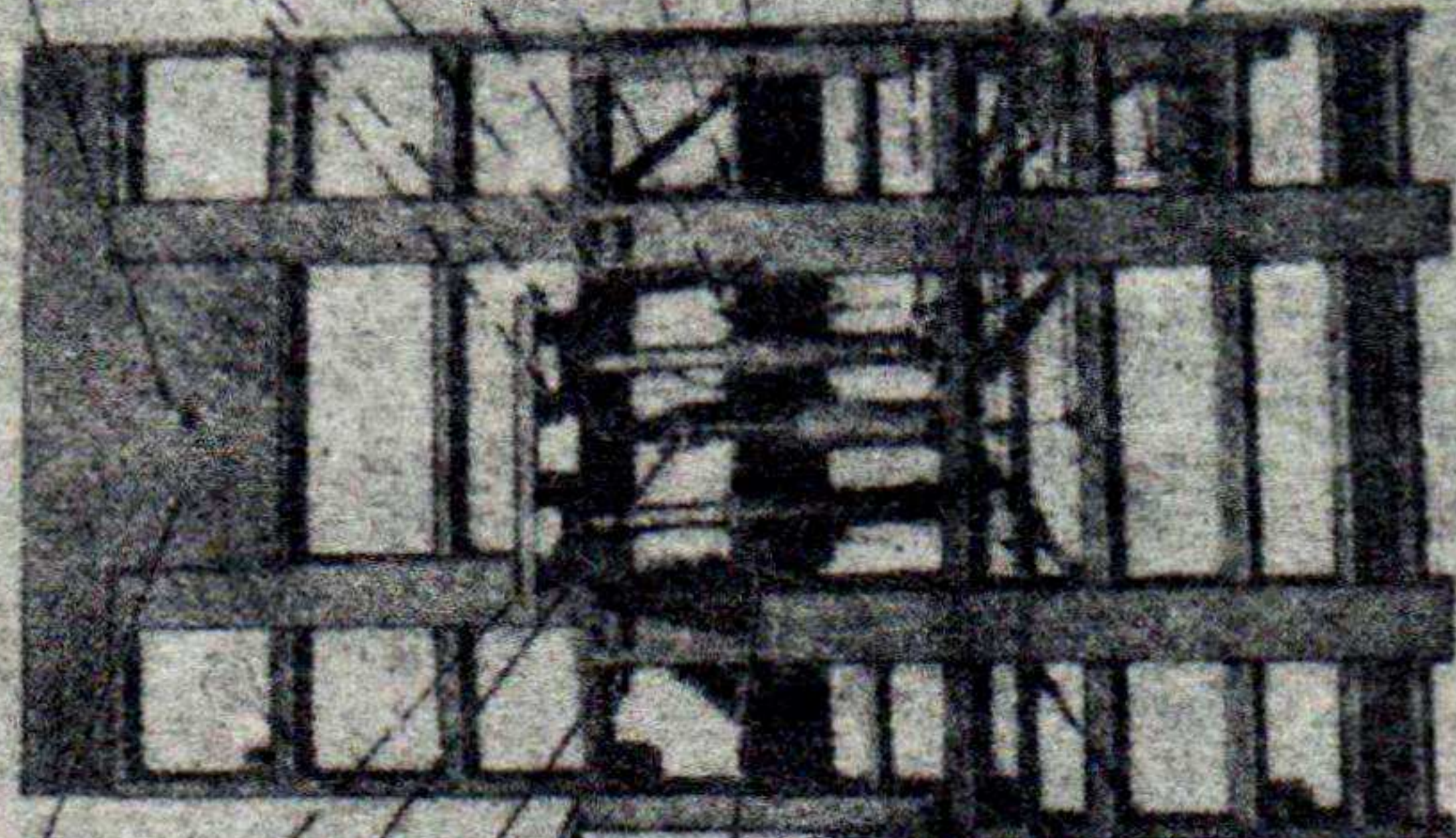
SEMI-TRAILER, LOW BED, 20 TON, FRONT LOADING

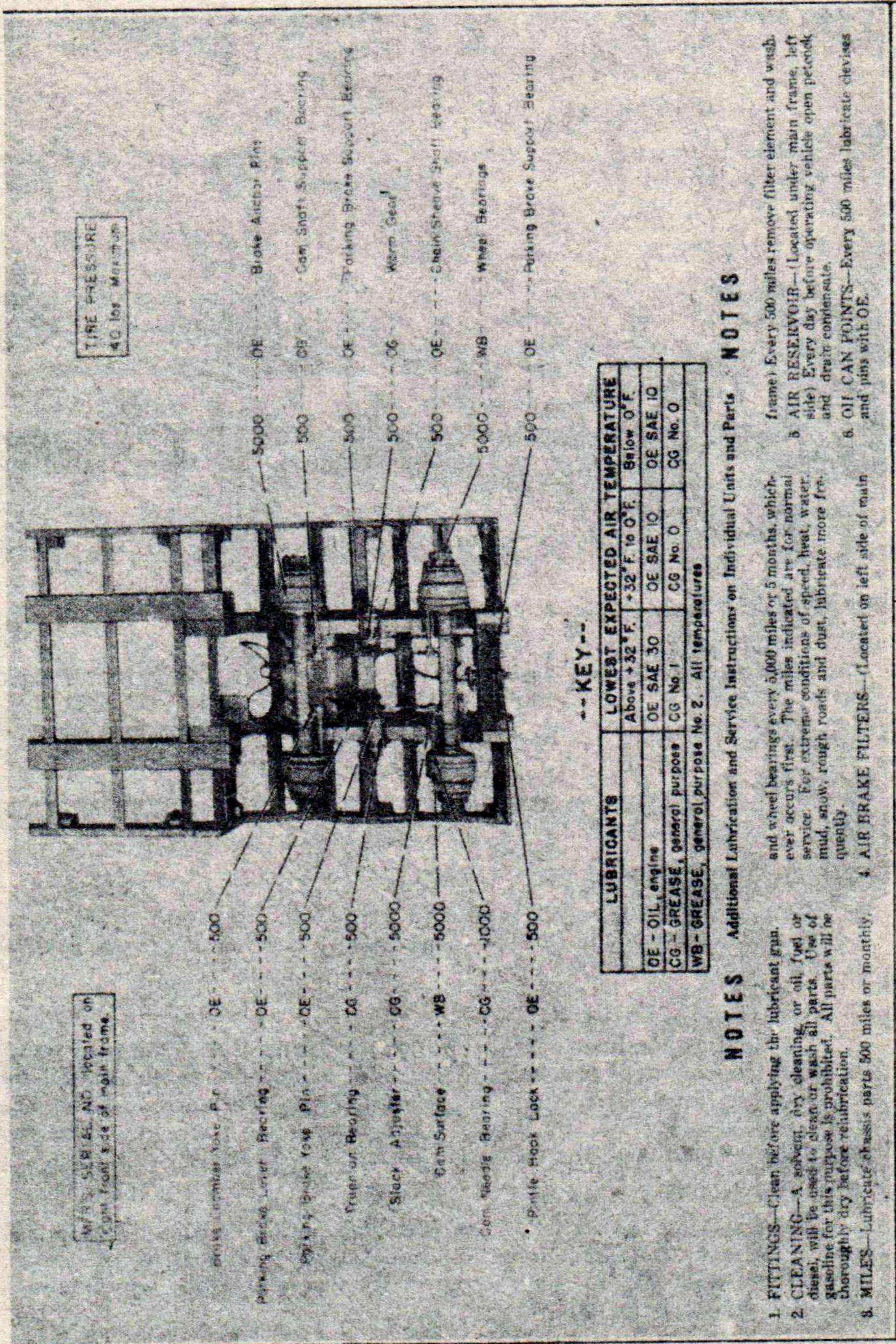
CAUTION Lubricate Dotted Arrow Points on BOTH SIDES

CAUTION Lubricate Dotted Arrow Points on BOTH SIDES

- | | LUBRICANT | MILES |
|-----------------------------------|-----------|-------|
| Fifth Wheel Plate | CG | 500 |
| Piston Rod End | CG | 500 |
| Piston Rod End | CG | 500 |
| Tension Member Rafter | CG | 500 |
| Tension Member Upper Pin | CG | 500 |
| Ramp Locking Pin | CG | 500 |
| Yoke Pins | OE | 500 |
| Compression Member Upper Side Pin | CG | 500 |
| Compression Member Lower Side Pin | CG | 500 |
| Yoke Pin | OE | 500 |
| Operating Shaft Bushings | OE | 500 |

- | MILES | LUBRICANT | |
|----------|-----------|-----------------------------------|
| 500 | CG | Kingpin |
| 500 | CG | Landing Gear Lower Pin |
| 500 | CG | Landing Gear Upper Pin |
| 500 | CG | Tension Member Lower Pin |
| 500 | CG | Landing Gear Locking Pin |
| 500 | CG | Compression Member Upper Main Pin |
| 500 | CG | Compression Member Lower Main Pin |
| 500 | OE | Trusion Pin Landing Gear Cylinder |
| 500 | OE | Trusion Pin Ramp Cylinder |
| 500 | OE | Control Valve Levers |
| as Req'd | OE SAE 10 | Hydraulic System Reserve Tank |





TIRE PRESSURE
40 lbs. Maximum

SERIAL NO. located on
Cam front side of main frame.

- Brake Lever Lock Pin - - - - OE - - - - 500
- Parking Brake Lever Bearing - - - - OE - - - - 500
- Parking Brake Cam Pin - - - - OE - - - - 500
- Frame on Bearing - - - - CG - - - - 500
- Slack Adjuster - - - - CG - - - - 5000
- Cam Surface - - - - WB - - - - 5000
- Cam Guide Bearing - - - - CG - - - - 1000
- Profile Hook Lock - - - - OE - - - - 500
- Brake Anchor Pin - - - - OE - - - - 5000
- Cam Shaft Support Bearing - - - - CG - - - - 500
- Parking Brake Support Bearing - - - - OE - - - - 500
- Worm Gear - - - - CG - - - - 500
- Chain Sprocket Shaft Bearing - - - - OE - - - - 500
- Wheel Bearings - - - - WB - - - - 5000
- Parking Brake Support Bearing - - - - OE - - - - 500

-- KEY --

LUBRICANTS	LOWEST EXPECTED AIR TEMPERATURE		
	Above +32° F.	+32° F. to 0° F.	Below 0° F.
OE - OIL, engine	OE SAE 30	OE SAE 10	OE SAE 10
CG - GREASE, general purpose	CG No. 1	CG No. 0	CG No. 0
WB - GREASE, general purpose No. 2. All temperatures			

NOTES

1. FITTINGS—Clean before applying the lubricant gun.
2. CLEANING—A solvent, dry cleaning, or oil, fuel or diesel, will be used to clean or wash all parts. Use of gasoline for this purpose is prohibited. All parts will be thoroughly dry before re-lubrication.
3. MILES—Lubricate chassis parts 500 miles or monthly.
4. AIR BRAKE FILTERS—(Located on left side of main frame) Every 500 miles remove filter element and wash.
5. AIR RESERVOIR—(Located under main frame, left side) Every day before operating vehicle open petcock and drain condensate.
6. OIL CAN POINTS—Every 500 miles lubricate clevises and pins with OE.

FIGURE 11

ings will become over-heated. Too loose adjustment will cause pounding. Install locking washer, making certain hole in locking washer fits into dowel on adjusting nut, install jam nut and tighten. Secure hub cap and hub cap gasket to hub.

CAM NEEDLE BEARINGS

When lubricating these points care must be exercised not to over-lubricate. Over-lubrication will cause grease to flow on to the brake shoes, causing faulty braking.

CAM SURFACE

Coat top and bottom side of the cam with Grease, general purpose No. 2, when wheels are removed for wheel bearing lubrication. Do not allow grease to come in contact with the brake lining.

SLACK ADJUSTER

Remove pipe plug from slack adjuster housing. Remove lubrication fitting from cam bracket or trunnion mounting bracket. Install the fitting into slack adjuster and then lubricate the slack adjuster. Remove the lubrication fitting from the slack adjuster and install the pipe plug. Install the lubrication fitting into trunnion mounting bracket or cam bracket.

KING PIN

To lubricate king pin, remove cover on top of ramp using care to prevent cover flying off as cap screws are removed, since it is loaded with a 200 lb. spring. Remove spring, remove king pin and clean king pin and housing thoroughly. Replace and lubricate with grease, general purpose No. 2. CAUTION: NEVER USE MORE THAN $\frac{3}{4}$ lb. OF GREASE IN KING PIN HOUSING OR HYDRAULIC PRESSURE WILL BE BUILT UP WHEN THE KING PIN STRIKES THE GROUND AND THE COVER IS VERY LIKELY TO BLOW OFF.

FIFTH WHEEL PLATE

Periodically remove all sand and grit from the upper fifth wheel plate, and lubricate the surface with a heavy coating of grease, general purpose No. 0.

TENSION MEMBER ROLLER

The tension member roller has a grease fitting located in a counter-bore in the center of the face. This roller may have to be rotated by hand during lubrication since the grease fitting is very apt to be on the back, this can be done by lowering the ramp until the end strikes the ground at which time the roller will be free to rotate.

PISTON RODS

When storing the trailer for an extended period of time, the exposed rods of the hydraulic cylinders should be given a coating of grease, general purpose No. 2. This is especially true where the equipment is exposed to salt air or salt water.

SECTION VIII

BRAKE SYSTEM (Fig. 12)

BRAKE ADJUSTMENT

Jack up rear of trailer until wheels clear the ground. Turn adjusting screw on slack adjuster clock-wise until wheel cannot be turned, then turn adjusting screw counter clockwise about two notches or more until wheel turns freely. Grasp the end of the push rod and slack adjuster and pull the push rod out of the brake chamber. The travel of the push rod must not exceed $1\frac{3}{4}$ " or be less than $\frac{3}{4}$ ".

BRAKE CHAMBERS

It will be noted that the axle brackets holding the brake chambers have two sets of mounting holes. The chambers are always mounted in the top set of holes on the semi-trailer. The bottom set of holes are intended for use when the axle is used under the dolly since the trailer and dolly axles are interchangeable. To remove the brake chamber, disconnect the connector nut from the connector body and pull hose out of chamber. Remove rod end pin. Remove nuts from studs and lift the chamber off the mounting bracket. Before disassembling the brake chamber, be sure to mark the pressure plate and non-pressure plate, so that the air inlet opening will be at the correct angle with the mounting bracket when the chamber is re-assembled. Remove all bolts and nuts, clamping the outer edges of the diaphragm between the pressure plate and the non-pressure plate, remove pressure plate and diaphragm, remove yoke from push rods. Clean all metal parts thoroughly using Solvent, dry-cleaning. Inspect rubber diaphragm for signs of damage or wear. Replace if any signs of damage are found. **CAUTION: DO NOT PERMIT SOLVENT, DRY-CLEANING, TO COME IN CONTACT WITH DIAPHRAGM.** When reassembling it is important that all bolts be tightened evenly but not excessively. Tighten the nuts sufficiently to insure an air tight seal between the pressure plate and the diaphragm, but not sufficiently to distort the diaphragm. Test for leaks by covering the connector nut and the outer circumference of the brake chamber with soapy water.

RELAY EMERGENCY VALVE (Fig. 12)

The relay emergency valve is bolted to the main beam on the right hand side of the trailer over the trunnion axle. It serves as a relay station to speed up the application or release of the trailer brakes and also provides a means of automatically applying the trailer brakes in case the trailer should become accidentally disengaged from the towing vehicle. Its function is to operate so as to deliver and maintain the same air pressure in the trailer brake chambers as delivered by the control valve on the towing vehicle.

AIR FILTER (Fig. 12)

Two air filters are provided on the semi-trailer. The air filters are located on the cross members directly over the trailing axle. One filter

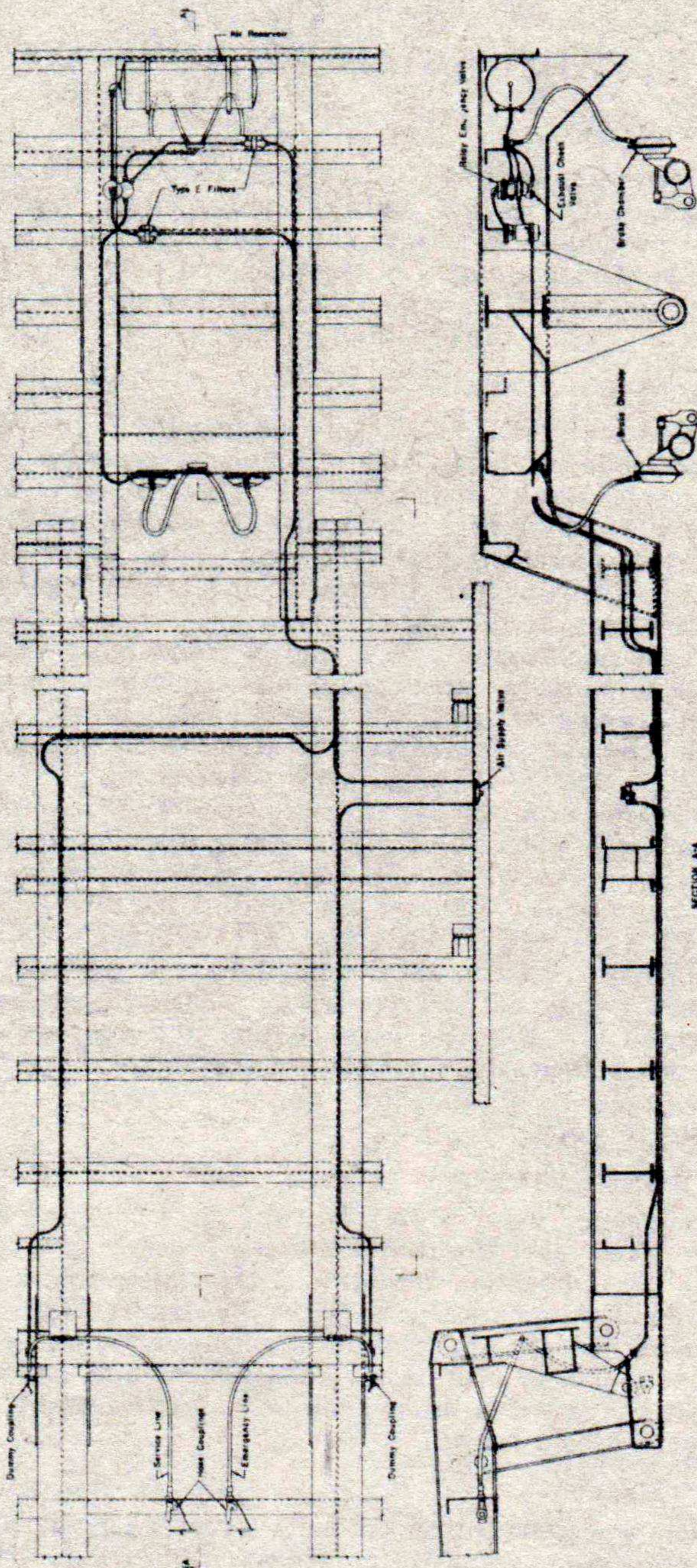


FIGURE 12. BRAKE SYSTEM

is installed in the emergency air line and the other in the service line. Air filters consist of a metal screen mounted in a housing and are designed to prevent dirt, water and other foreign matter from entering the relay-emergency valve. No adjustment is required to maintain efficient functioning of the filters. However, they must be drained every 1,000 miles and disassembled and thoroughly cleaned every 6,000 miles.

To disassemble shut off the air supply at towing vehicle. Disconnect the two lines which lead into filter body. Remove the two connector bodies. Remove the two cap screws holding filter to the mounting bracket and lift filter out.

Remove cap screws and lock washers attaching cover to body. Remove gasket, strainer support and strainer.

Clean all metal parts using SOLVENT, dry-cleaning. If strainer is merely dirty, clean by brushing. If an oily or gummy deposit is found, the strainer must be replaced.

Position strainer in body. Position gasket and strainer support on cover and install cover using four cap screws and four lock washers.

Place cleaner in position on mounting brackets and install two cap screws, but do not tighten. Install the two connector bodies on the air cleaner. Couple the two air lines to the connector bodies and tighten the two cap screws holding cleaner to mounting bracket. Open cut-out valves at rear of towing vehicle and test tubing connectors for leaks using soapy water. Should leaks appear, tighten tube connector bodies and nuts.

TUBING, TUBING FITTINGS AND HOSE COUPLINGS

General. Two sizes of metal tubing are used— $\frac{3}{8}$ inch outside diameter and $\frac{1}{2}$ inch outside diameter. Tubing fittings are used to connect the tubing to various devices of the brake system. Two hose couplings are used on the semi-trailer and four are used on the dolly. All hose couplings are identical. The hose couplings provide an easy and convenient method of connecting and disconnecting air lines between the towing vehicle and semi-trailer, and between the dolly and semi-trailer.

Tubing Inspection. If evidence is found indicating that brake chambers are not functioning properly, check all tubing lines for dents, kinks or other restrictions. Disconnect tubing lines and blow through the tubing; make certain that air passes freely. Replace tubing if necessary.

Tubing Removal. Close cut-out cocks at rear of towing vehicle. Open drain cock at end of air reservoir and allow all air to drain from trailer brake system. Remove the nuts from each end of damaged tubing. Pry open clips holding tubing to frame and pull tubing and loom out.

Tubing Installation. Thread copper tubing through loom and install the loom and tubing, forming it to fit the trailer frame. Install tubing connector nut on tubing and then place sleeve over tubing. Place end of tubing into tubing connector body, hold tubing firmly and straight in recess of connector body, and tighten the connector nut. Keep dirt and other foreign matter out of tubing. When making a cut, use a tubing cutter or a hack saw. If a hack saw is used, blow dust out of tubing as copper dust is detrimental to functional parts of the relay-emergency

valve. When cutting tubing with a tube cutter, feed cutting wheel into the tubing, a very small amount with each complete rotation until the tube is cut. If the cutter is fed too rapidly, the end of tubing may become beveled inward, reducing the inside diameter of the tube. Make certain all lines are properly anchored to frame members, using tubing clips. When a small portion of tubing becomes damaged, cut off the damaged section and replace using standard $\frac{3}{8}$ inch tubing unions at each end of the replacement tube. No attempt should be made to repair damaged $\frac{1}{2}$ inch tubing. Remove and replace.

CAUTION: IT IS VERY IMPORTANT THAT CARE BE USED WHEN BENDING AND FORMING TUBING TO FIT FRAME. A SHARP BEND WILL KINK TUBING AND RETARD BRAKE APPLICATION AND RELEASE.

Fittings. All tubing fittings used in the air brake system are of the three piece compression type. Two sizes are used — $\frac{3}{8}$ inch and $\frac{1}{2}$ inch.

HOSE COUPLINGS

Coupling Removal. With an adjustable wrench turn hose coupling counter-clockwise and remove coupling.

Coupling Disassembly. Remove gasket by prying it out with a screwdriver. Remove spring plug lock spring and lock plug.

Coupling Inspection. Discard old gasket and clean all other parts in Solvent, dry-cleaning. Examine lock spring and lock plug for wear or damage. Replace if necessary. When cleaning the hose coupling body, give particular attention to the groove into which the flange of the hose coupling gasket fits. This groove must be scraped thoroughly clean, otherwise the new gasket will not go into place properly.

Coupling Reassembly. To install a new gasket, partially collapse it with the fingers and enter one side of the gasket flange in the groove of the coupling. Then use a blunt nose screwdriver, or some similar instrument, to complete pushing the gasket in place. When properly installed, the exposed face of the gasket will be flat and not twisted or bulged at any point. With a new gasket installed, the assembly of the hose coupling is completed by installing the friction lock parts, when these parts are included in the assembly.

Coupling Installation. Coat the threaded portion of the pipe or nipple with shellac. Install hose coupling on nipple or pipe and tighten couplings. Note: After tubing has been replaced, open cut-out cocks at rear of towing vehicle and check for leaks using the soapy water method.

HOSE AND HOSE FITTINGS

General. Two air hose assemblies are provided for the semi-trailer. The purpose of the hoses is to furnish a connection between the brake system on the towing vehicle or dolly and the semi-trailer.

Disassembly. Remove nut from body of fitting and pull hose out of body. Do not remove sleeve from hose. If a new piece of hose is to be installed, use a new sleeve. Do not remove hose guide from body.

Cleaning and Inspection. Clean all metal parts in Solvent, dry-cleaning. Inspect hose for abrasions, swelling, or other damage. If hose is damaged, replace with a new piece and discard sleeve and gasket.

Springs, nuts and bodies may be used again unless they are damaged.

Reassembly. Cut hose to the desired length, being sure the cut is made at right angles to the outside wall of the hose and that the end of the hose is smooth. Blow out the hose to remove all cuttings. Position nut and sleeve, making sure that prongs on sleeve point toward the end of the hose. Position a new gasket over the end of the guide in the fitting body so the side with the removable protection cover will be next to the hose. Remove the protection cover from gasket. Push the end of the hose onto the fitting body, making certain the end of the hose and the gasket are against the bottom of the recess in the fitting body. Move the sleeve, if necessary, until it is against the edge of the fitting body. Then tighten the nut.

EXHAUST CHECK VALVE (Fig. 12)

General. The exhaust check valve is of the small rubber diaphragm type and is used in the exhaust port of relay-emergency valves to prevent the entrance of dirt or water. When air pressure is released through the exhaust port of the relay-emergency valve, it escapes through the exhaust check valve by deflecting the rubber diaphragm. Unless air pressure is passing through the exhaust check valve, sufficient tension is placed on the rubber diaphragm by the diaphragm washer to keep the diaphragm in contact with the body of the exhaust check valve, thus preventing the entrance of dirt or water into the relay-emergency valve.

Removal. Turn exhaust check valve counter-clockwise and lift out.

Cleaning and Inspection. Remove all dirt from exterior of valve using Solvent, dry-cleaning. Inspect for broken or damaged parts. If the body is damaged, the complete valve must be replaced.

Disassembly. Remove diaphragm screw, lock washer, and lift out diaphragm washer and diaphragm.

Cleaning and Inspection of Parts. Clean all metal parts in Solvent, dry-cleaning. Inspect diaphragm seat of body, washer and diaphragm for wear or damage. Replace if necessary.

Assembly. Position diaphragm and washer in place in body and install diaphragm screw.

Installation. Install exhaust check valve into exhaust port in bottom of relay-emergency valve. Apply the brakes several times and check to make certain air exhausts through the exhaust check valve.

PARKING BRAKE (Fig. 10)

The parking brake works on the trailing axle only and should be equalized when the brakes are adjusted. This is accomplished by turning the yoke which fastens to the slack adjuster up and down the threaded portion of the connecting rod until the arm of the connector just makes contact with the slack adjuster when the air brakes are completely released.

SECTION IX

ELECTRICAL SYSTEM (Fig. 13)

GENERAL

Electrical current is supplied to the semi-trailer through the jumper cable on the towing vehicle. Lights are controlled by the light switch on the tractor-truck. Wiring is done by means of seven individual harnesses in which each wire is number coded. The lighting equipment includes two amber, two red, two blackout amber and two blackout red clearance lights, one blackout stop and tail light and one service stop and tail and blackout tail light.

TO INSTALL A BURNED OUT UNIT

Remove the tail light by pulling out the wiring cable, and removing the two nuts and washers from the studs which hold the tail light to the mounting bracket. With a screw driver, remove the screws from the tail light cover and remove cover. Slide the sealed lamp unit from the light body. Insert a new unit, replace cover, replace tail light on bracket and re-connect the wiring.

TO REPLACE A BULB IN THE CLEARANCE LIGHT

Remove the two screws holding the lens housing to the light assembly, pull the clip which holds the lens to the housing towards the outer edge of the housing and lift the lens out. Replace bulb and re-install lens. Be sure the arrow on the lens of the blackout clearance light points downward and that the word bottom is at the bottom of the light.

COUPLING SOCKET

Removal. Remove the two stove bolts holding guard to members. Remove the guard. Remove nut and lock washer from stud, and remove the cover. Disconnect each wire from terminals. Remove the four bolts holding coupling socket to trailer cross-member and remove the coupling socket.

Disassembly. Remove nuts, washers and lock washers from terminal bolts. Lift off the fiber insulator and pull out the insert, bolts and blades.

Inspection. Inspect all threads for damage. Check blades for corrosion. Clean or replace if necessary.

Reassembly. Position blades in insert. Install insert into case. Place insulator over the bolts and fasten the bolts to the case using washer and nuts.

Installation. Place coupling socket assembly through hole in front cross-member with the guide down. Place cover in position at the two top holes. Fasten cover and coupling socket assembly to the cross-member using four bolts, lock washers and nuts. Couple the wire to the terminals in accordance with wiring diagram (Fig. 13). Place coupling socket

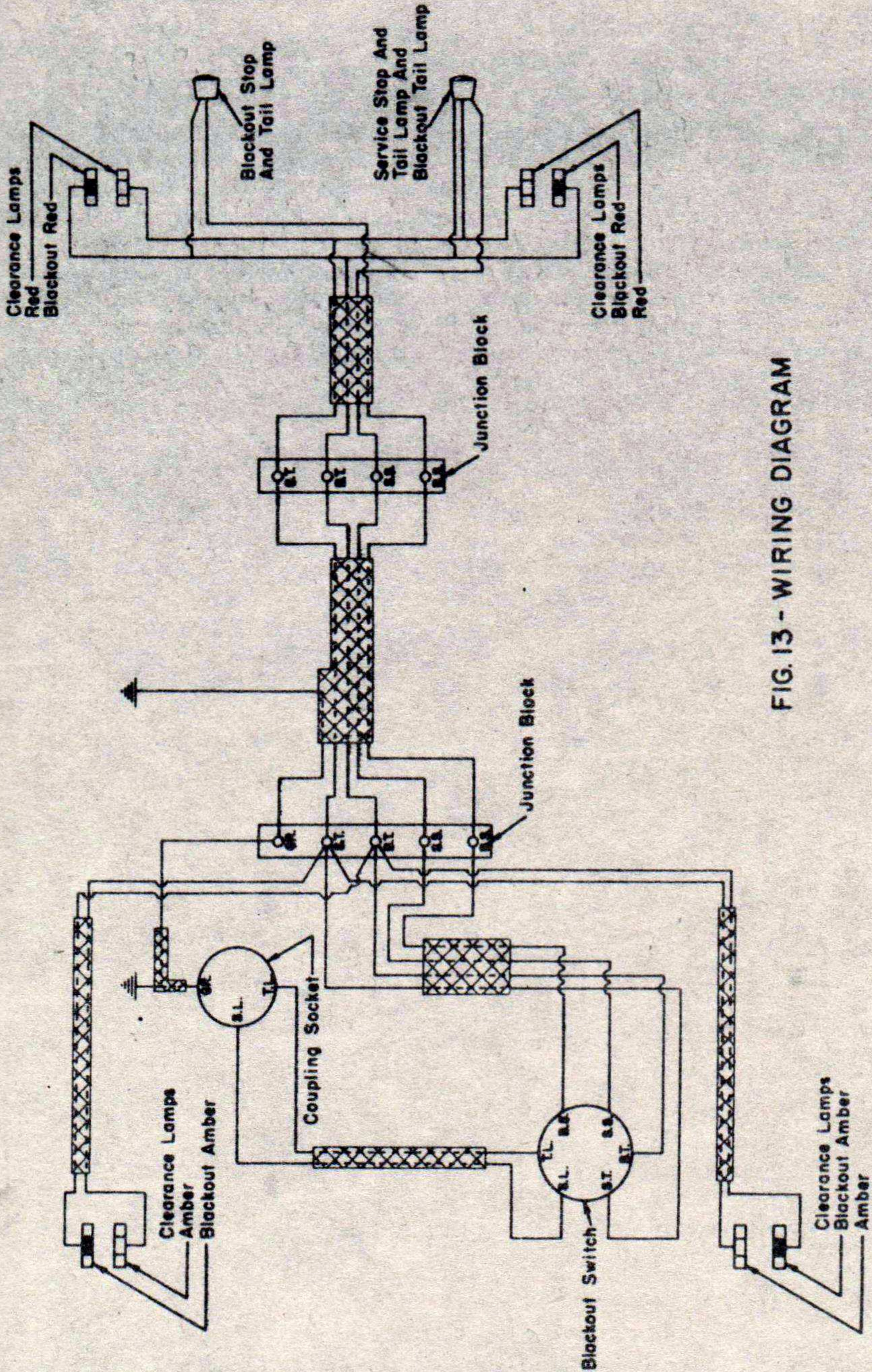


FIG. 13 - WIRING DIAGRAM

cover over coupling socket and fasten using lock washer and nut. Install the guard using two stove bolts.

BLACKOUT SWITCH

Removal. Remove two stove bolts holding guard to members. Remove the guard. Remove nut and lock washer from blackout switch end which extends through trailer cross-member. Pull out the blackout switch. Remove three bolts from cover and remove screws and lock washers from terminal.

Installation. Place ends of wires through hole in side of switch. Fasten the wires to the terminals, according to wiring diagram. Secure cover to switch using three bolts. Place the switch through the hole in cross-member and install lock washer and nut. Check lighting operations, then install guard over the switch.

SECTION X

HYDRAULIC SYSTEM (Fig. 14)

The Hydraulic system consists of a hand pump, two control valves, three cylinders, one reserve tank and one overload relief valve. All piping is done with flexible hose or $\frac{1}{2}$ " extra strong steel pipe. In making repairs to any part of the system, it is extremely important that no dirt be allowed to enter. All caps, covers or piping connections should be thoroughly cleaned with Solvent — dry-cleaning before disassembly.

PUMP

The only difficulty likely to be encountered in the pump is failure of a check valve owing to dirt or other foreign matter lodging in the ball seat. To inspect the exhaust valves, remove hexagonal caps on top of pump, remove gaskets, remove springs and ball checks. This will usually be sufficient, but in case closer inspection is necessary, the entire ball seat may be removed by unscrewing from the housing. Reassembly is a reverse of the above process, except that new copper gaskets should be installed under the hexagonal covers. To inspect the inlet valves, remove bottom cover from pump. By means of a large screwdriver remove the inlet valve seats at either end of the pump housing. These seats are located in the sloping portion of the housing. Clean seat and ball and replace in reverse order.

On both exhaust and inlet valves, when valve seats are removed, it is advisable to thoroughly flush all passages with Solvent — dry-cleaning, followed by oil engine SAE No. 10. Very rarely it may be found that oil is leaking from the front of the pump around the drive shaft. This indicates failure of the oil seals. To replace the oil seals, disconnect hoses from pump, remove bolts holding pump to side channel of trailer. Remove pump from frame, remove bottom cover and remove the two $\frac{3}{8}$ " bolts holding drive fork to pump shaft. Remove pump shaft and inspect the oil seals replacing if necessary. Oil seals are located at the front of the pump shaft, and under no conditions should the welsh plug at the back of the pump shaft be removed.

NOTE: The piston is fitted to the pump body and is not to be removed. If the unit becomes inefficient through leakage around the piston it will be necessary to install a new pump.

CONTROL VALVE

Both control valves are incorporated in one assembly and ordinarily no maintenance will be required. Very rarely it may be found that oil leakage develops around the front of one of the valve spools. This will require replacement of the oil seal. This is accomplished by disconnecting the hoses from the valve body, removing the control handle connections, unbolting the hold down bolts and removing the valve assembly from the trailer. With a screwdriver remove the screws holding the cover to the front of the valve body. Remove the cover and replace the oil seal. No other maintenance is required in the control valve since each spool is fitted to its own valve body. If the valve becomes inoperative

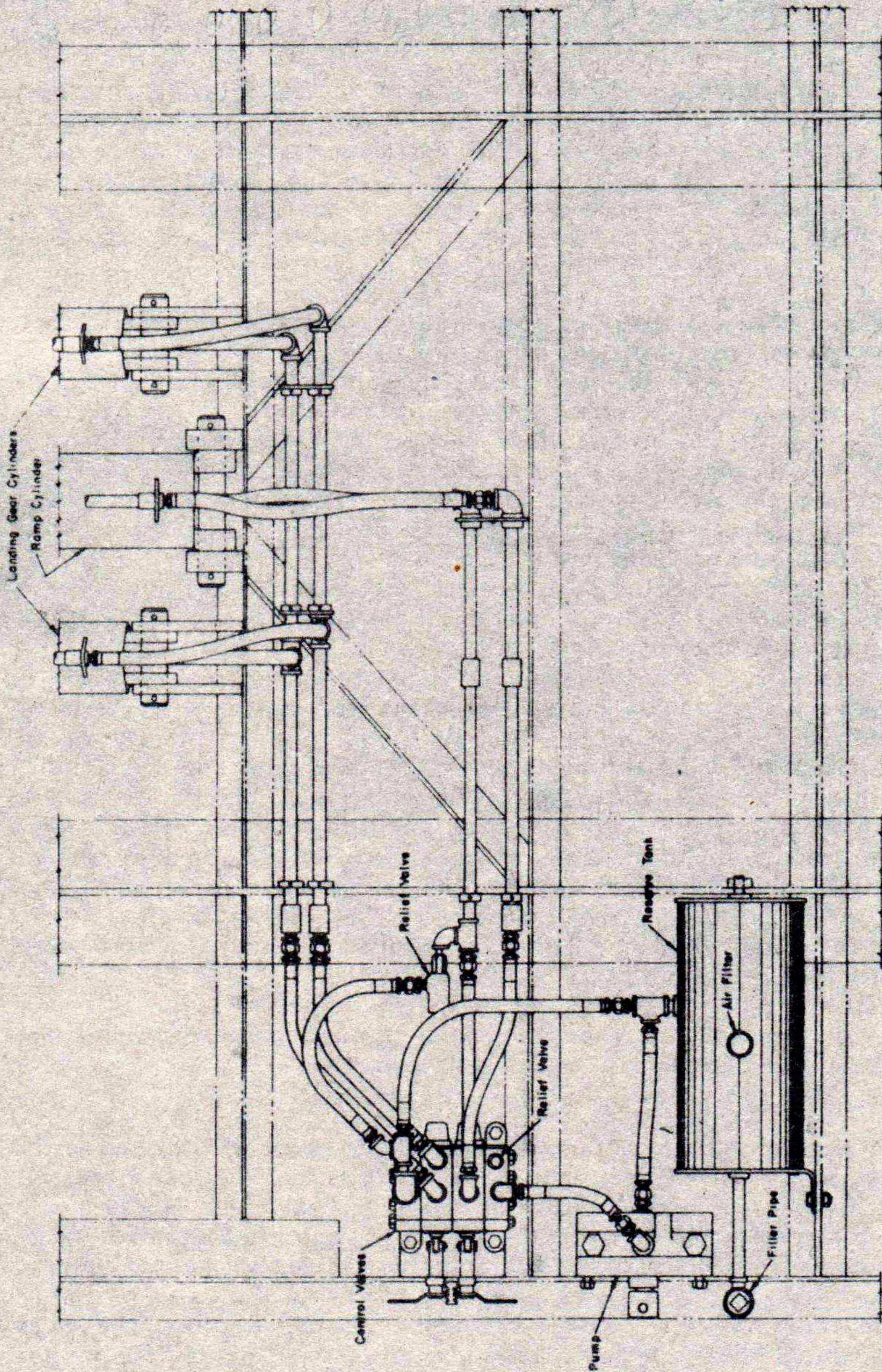


FIGURE 14. HYDRAULIC SYSTEM

through scoring of the spool or valve body, it will be necessary to replace the faulty unit. This is accomplished by removing the five through bolts holding the end plates and valves together. Either unit may then be replaced using new gaskets if necessary. The acorn nut in the right rear corner of the valve assembly conceals a built in relief valve. This is set at 1500 lbs. per square inch at the factory and should not be tampered with. In the event that the setting has been changed, it may be found that the ramp cannot be raised because the relief valve allows the oil to by-pass at too low a pressure. This will be apparent through the audible rush of oil or chatter of the ball on the seat when the pump is operated. To adjust the valve, remove the acorn nut and loosen the jam nut. With a small wrench, screw the relief valve down until the ramp can be raised without the oil by-passing. It is not necessary to replace the acorn nut until final adjustment has been made.

CYLINDERS

The only maintenance necessary on the cylinders is replacement of the V leather packing if oil leakage occurs around the piston rod. To replace packing, remove cap screws holding the packing gland to the cylinder head. Remove packing gland using care to prevent damage to the gasket. Remove packing. If the packing has never been replaced, it will be found in continuous rings around the piston rod. These may be cut with a pocket knife and discarded. In replacing the packing, it may be cut at a 45° angle with a sharp razor blade to make installation possible without removing the piston rod end. Six packing rings are required and they should be carefully slipped into the cylinder head with the open end of the V toward the back of the cylinder, using great care to see that the feather edges are not damaged. Joints where the packing is cut with a razor blade should be staggered equally around the piston rod. The packing is spring loaded from inside the cylinder and it may be necessary to use considerable force when reinstalling the packing gland.

RESERVE TANK

The only maintenance required on the reserve tank is the occasional removal and cleaning of the air filter by washing with Solvent — dry-cleaning, followed by oil engine SAE No. 10. Frequency with which this is done, depends entirely on operating conditions and is left to the judgment of the operator.

OVERLOAD RELIEF VALVE

This valve is located at the end of the pipe leading to the ramp operating cylinder. It is set at 1500 lbs. per square inch at the factory and should require no further attention. In the event that the setting becomes accidentally changed, and the ramp will not operate, it may be adjusted as outlined above for the relief valve contained in the control valve body, except that adjustment must be made with an Allen wrench.

FILLING SYSTEM WITH OIL

The oil is replenished when necessary through the filler pipe (Fig. 14) on the left hand side of the trailer, adjacent to the control valves. The

system should be filled to the level of the spout with oil, engine SAE No. 10, or 10W using great care to prevent dirt or other foreign matter from entering the system. At average temperatures lower than 10° below zero, it will be necessary to drain the system and dilute the oil with diesel oil or kerosene. This is done as follows: Lower the ramp and drain the reserve tank discarding the drainings. Fill the tank with a mixture of SAE No. 10 engine oil and either diesel oil or kerosene according to Table 2. Raise the ramp and again drain the tank refilling with the proper mixture. Lower the landing gear and again drain and refill the reserve tank. Retract the landing gear. This completes the process.

TABLE 2

Temperature Range (Fahrenheit)	Dilution
0°-10° Below	1 Gallon Diesel oil or kerosene to 6 Gallons SAE No. 10 oil.
10°-20° Below	2 Gallons Diesel oil or kerosene to 5 Gallons SAE No. 10 oil.
20°-40° Below	3 Gallons Diesel oil or kerosene to 4 Gallons SAE No. 10 oil.

In case difficulty is experienced in getting the pump to operate before diluted oil can be worked into it a blow torch may be used to warm the bottom plate but care must be exercised to avoid overheating the pump. Another method for securing operation of the pump is to remove the ½ inch pipe plug located in the center of the back of the pump 4¼ inches from the bottom, and feed fuel oil or kerosene through the pipe plug opening while operating the pump handle. The plug may be alternately replaced and removed adding diesel oil or kerosene each time until the diluted mixture is worked through from the reserve tank.

SECTION XI

SPECIAL NOTES ON SHIPMENT

It will be noted (Fig. 15) that the rear kick up of the trailer may be removed by taking out the four large pins which form the frame connections. The air brake lines and wiring may be disconnected at points provided for this purpose. The ramp may be removed by driving out the connecting pins and disconnecting the air lines and wiring. These features will often facilitate shipment by boat, but will require the use of a crane for reassembly.

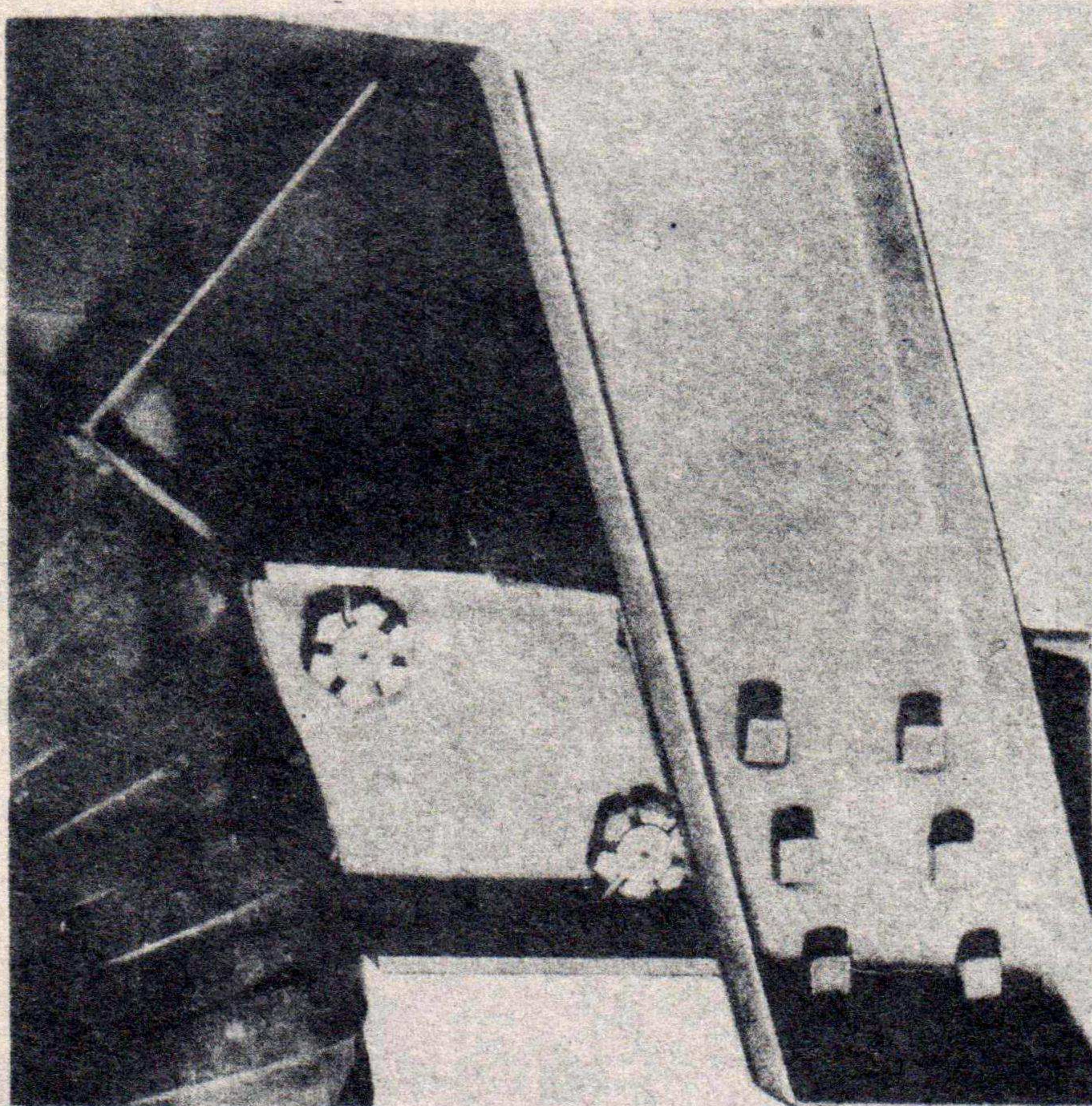


Figure 15. Rear Kickup Connecting Pins

**PART
III**

**Parts Identification
List**

PARTS IDENTIFICATION LIST

U. S. Part No.	Quan.	Nomenclature
RAMP ASSEMBLY		
5231-2-1	1	Assembly, Ramp, Complete
5231-2-2	7	Lashing Ring Clip
5231-2-3	7	Lashing Ring
5231-2-12	4	Bushing 2.5" I.D. x 3.0" O.D. x 2" Long
5231-2-13	91	Car. Bolts 1/2" x 3" Lewis Sealtite (Or Equal)
5231-2-14	91	Nuts, 1/2" Lewis No. 2 Square Locktite (Or Equal)
5231-6-13	2	Keeper Plate
5231-6-14	4	Cap Screw 1/2" N.F. 20 x 1" Hex. Hd.
5231-7-3	1	King Pin
5231-7-4	1	Cover Plate
5231-7-5	1	Spring
5231-7-6	4	Mach. Screws Fl. Hd. 5/16" x 24 N.F. x 3/4" Hex. Head Cap Screws
5231-7-7	1	Pipe Plug 3/4" Std.
5231-7-8	4	5/16" Lock Washers SAE Std.

TENSION MEMBER ASSEMBLY

5231-8-5	2	Lower Shaft
5231-8-6	2	Roller
5231-8-7	2	Roller Shaft
5231-8-8	2	Upper Shaft
5231-8-9	4	Cotter Pin 5/16" x 3 1/2"
5231-8-10	6	Grease Fitting 1/8" Alemite No. 1610
5231-8-11	4	Set Screw Sq. Hd. or Socket Hd. Full Dog Pt. 5/8", 18 N.F., 1 3/4" Long

COMPRESSION MEMBER ASSEMBLY

5231-9-6	1	Keeper Plate
5231-9-7	2	Cap Screw 1/2" N.F. 20 x 1" Hex. Hd.
5231-9-8	8	Set Screw 5/8" N.F. 18 x 1 3/4" Sq. Hd. or Socket Hd. Full Dog Point
5231-11-1	2	Side Upper Pin
5231-11-2	2	Side Lower Pin
5231-11-6	4	Bushings 2.5" I.D. x 3.0" O.D. x 2 3/8" Long
5231-11-6	4	Bushings
5231-11-9	12	Grease Fitting 1/8" Alemite No. 1610
5231-11-10	4	Cotter Pin 3/8" x 3 1/2"
5231-12-1	2	Main Upper Pin
5231-12-2	2	Main Lower Pin
5231-12-3	1	Hydraulic Cylinder Pin
5231-12-6	55	Car. Bolts 1/2" x 3" Lewis Sealtite (Or Equal)
5231-12-7	55	Nuts 1/2" Lewis No. 2 Square Locktite (Or Equal)
5231-13-1	1	Cylinder Assembly, Ramp
5231-13-2	1	Rod End Bushing
5231-13-3	1	Rod End
5231-13-6	1	Gland
5231-13-13	1	Rivet 1/4" x 2 3/4" for Rod End
5231-13-15	3	Cap Screw 1/8" x 1 1/4" 20 N.F.
5231-13-16	3	Lock Washer 1/8"
5231-13-17	1	Grease Fitting 1/8" Alemite No. 1610 for Rod End
5231-14-3	1	Packing Spring
5231-14-4	8	"V" Packing
5231-14-5	1	Packing Ring
5231-14-6	1	Gland Gasket

LANDING GEAR ASSEMBLY

5231-15-1	1	Frame Assembly, Landing Gear, Complete
5231-15-3	2	Bushing 2.5" I.D. x 3.0" O.D. x 2" Long
5231-15-5	4	Set Screw 1/2" N.F. 20 x 1 1/4" Sq. Hd. or Socket Hd. Full Dog Point

PARTS IDENTIFICATION LIST

U. S. Part No.	Quan.	Nomenclature
LANDING GEAR ASSEMBLY (Cont.)		
5231-15-6	2	Grease Fitting $\frac{1}{8}$ " Alemite No. 1611
5231-16-5	2	Pin
5231-17-1	1	Pad Assembly, Landing Gear
5231-17-3	4	Pin
5231-17-5	4	Grease Fitting $\frac{1}{8}$ " Alemite No. 1610 for Landing Gear
5231-17-6	4	Cotter Pin $\frac{5}{16}$ " x 3" for Landing Gear
5231-19-1	2	Cylinder Assembly, Landing Gear
5231-19-2	2	Rod End Bushing
5231-19-3	2	Rod End
5231-19-8	2	Gland
5231-19-14	12	Cap Screw $\frac{1}{8}$ " x $1\frac{1}{4}$ ", 20 N.F.
5231-19-15	12	Lock Washer $\frac{1}{8}$ "
5231-19-16	4	Set Screw, Cup Point, Allen-Head $\frac{3}{16}$ " x $\frac{1}{2}$ ", 24 N.F.
5231-19-17	2	Grease Fitting, $\frac{1}{8}$ " Alemite No. 1610 for Rod End
5231-20-4	12	"V" Packing
5231-20-5	2	Packing Ring
5231-20-6	2	Packing Spring
5231-20-7	2	Gland Gasket
CARGO DECK ASSEMBLY		
5231-21-1	1	Assembly, Cargo Deck, Complete
5231-22-3	6	Lashing Ring
5231-22-5	4	Bushing 2.5" I.D. x 3.0" O.D. x $2\frac{3}{4}$ " Long
5231-22-6	4	Bushing 2.5" I.D. x 3.0" O.D. x $2\frac{7}{8}$ " Long
5231-24-18	6	Lashing Ring Clip
5231-26-6	165	Car. Bolts $\frac{1}{2}$ " x $3\frac{1}{2}$ " Lewis Sealtite (Or Equal)
5231-26-7	165	Nuts $\frac{1}{2}$ " Lewis No. 2 Sq. Locktite (Or Equal)
5231-26-8	1	Ramp Cylinder Pin
5231-26-9	2	Landing Gear Pin
5231-26-10	6	Cotter Pin $\frac{5}{16}$ " x $2\frac{1}{2}$ "
5231-27-4	2	Cover
5231-27-9	1	Valve Positioning Plate
5231-27-10	8	Round Head Machine Screws $\frac{1}{4}$ " N.F. 20 x $\frac{1}{2}$ " Long
5231-28-2	2	Locking Pin, Landing Gear
5231-28-3	2	Locking Pin Spring, Landing Gear
5231-28-7	2	Yoke Pin
5231-28-8	2	Operating Rod, Landing Gear Lock Pin
5231-28-9	2	Yoke Pin
5231-28-10	4	Plain Washer $\frac{11}{16}$ " I.D. x $\frac{13}{16}$ " O.D. x $\frac{1}{16}$ " SAE Std.
5231-28-11	4	Cotter Pin $\frac{3}{16}$ " Dia. x $\frac{5}{8}$ " Long
5231-28-12	4	Nut $\frac{3}{8}$ ", Regular Hex. Semi-Fin. N.F. 24
5231-28-13	6	Nut $\frac{5}{16}$ ", Regular Hex. Semi-Fin. N.F. 18
5231-28-14	1	Locking Pin Instruction Plate
5231-29-1	2	Adjustable Yoke
5231-29-2	2	Lever, Landing Gear Lock Pin
5231-29-3	1	Lever, Ramp Lock Pin, Left Side
5231-29-4	1	Operating Shaft Lock Pin
5231-29-5	2	Locking Pin, Ramp
5231-29-6	2	Locking Pin Collar, Ramp
5231-29-7	2	Locking Pin Spring, Ramp
5231-29-9	2	Operating Rod, Ramp Lock Pin
5231-29-10	2	Adjustable Yoke
5231-29-11	2	Yoke Pin
5231-29-12	2	Yoke Pin
5231-29-13	1	Lever, Ramp Lock Pin, Right Side
5231-29-14	1	Operating Handle or Hydraulic Pump Handle
5231-29-15	2	Pin $\frac{5}{8}$ " Dia. x $3\frac{1}{2}$ " Long
5231-29-16	4	Plain Washer, $\frac{31}{32}$ " I.D. x $1\frac{5}{16}$ " O.D. x $\frac{3}{32}$ " SAE Std.
5231-29-17	2	Cotter Pins $\frac{1}{8}$ " Dia. x 1" Long
5231-29-18	4	Bolts $\frac{1}{2}$ " x $3\frac{1}{2}$ ", Hex. Head, Semi-Fin. N.F. 20
5231-29-19	4	Nuts $\frac{1}{2}$ " N.F. 20, Hex. Semi-Fin.

PARTS IDENTIFICATION LIST

U. S. Part No.	Quan.	Nomenclature
REAR KICK UP ASSEMBLY		
5231-30-1	1	Assembly, Rear Kick Up Frame Complete
5231-30-2	1	Pintle Hook Assembly, Ord. Std. C-57093-X
5231-34-16	6	Bolt $\frac{3}{8}$ " Dia. x $1\frac{1}{2}$ " Long, N.F. 18 for Tool Box Cover
5231-34-17	6	Nut $\frac{3}{8}$ " N.F. 18, Regular for Tool Box Cover
5231-35-2	44	Car. Bolts $\frac{1}{2}$ " x 3" Lewis Sealtite (Or Equal)
5231-35-3	188	Nuts $\frac{1}{2}$ " Lewis No. 2 Square Locktite (Or Equal)
5231-35-4	20	Car. Bolts $\frac{1}{2}$ " x 2" Lewis Sealtite (Or Equal)
5231-35-5	124	Car. Bolts $\frac{1}{2}$ " x $2\frac{1}{2}$ " Lewis Sealtite (Or Equal)
5231-36-9	4	Pin, Rear Kick Up to Main Frame
5231-36-10	4	Nut, Slotted Timken K10339, $2\frac{1}{4}$ " N.F. 12
5231-36-11	4	Cotter Pin $\frac{3}{8}$ " x 4"
5231-36-17	7	Lashing Ring, Rear Kick Up
5231-37-2	2	Lever Parking Brake
5231-37-3	2	Chain Assembly Parking Brake
5231-37-4	2	Control Rod Assembly Parking Brake
5231-37-5	4	Yoke Pin, Slack Adjuster, B.W. No. 200853
5231-37-6	1	Crank Socket
5231-37-8	1	Crank
5231-37-9	1	Crank Socket Spring
5231-37-10	1	Pin $\frac{1}{4}$ " x 1" Long
5231-37-11	4	Cotter Pin $\frac{1}{8}$ " x 1" Long
5231-37-12	2	Cotter Pin $\frac{1}{4}$ " x $1\frac{1}{4}$ " Long
5231-37-13	2	Nut $\frac{3}{8}$ " Regular Hex. Semi-Fin N.F. 18
5231-37-14	1	Cotter Pin $\frac{3}{16}$ " x 1" Long
5231-37-15	1	Crank Washer
5231-38-1	1	Drive Shaft Parking Brake
5231-38-2	4	Adjusting Washer
5231-38-3	2	Retaining Washer
5231-38-4	3	Collar
5231-38-5	1	Chain Sheave Shaft
5231-38-6	4	Lever Shaft Washer
5231-38-7	1	Worm
5231-38-8	2	Slack Adjuster Extension
5231-38-9	1	Worm Gear
5231-38-10	2	Chain Sheave
5231-38-11	2	Chain Sheave Bolt
5231-38-12	2	Bolt $\frac{3}{8}$ ", 24 N.F. x 1" Hex. Hd. Semi-Fin.
5231-38-13	2	Lock Washer $\frac{3}{8}$ " SAE Std.
5231-38-14	1	Taper Pin No. 6 ($\frac{11}{16}$ ") x 2" Long
5231-38-15	6	Set Screw, $\frac{3}{8}$ ", 24 N.F. x $\frac{3}{8}$ " Lg., Socket—Cup point
5231-38-16	2	Cotter Pin $\frac{1}{8}$ " x $\frac{7}{8}$ " Long
5231-38-18	2	Key $\frac{1}{4}$ " x $\frac{1}{4}$ " x $1\frac{11}{16}$ " Long
5231-38-19	1	Key $\frac{1}{4}$ " x $\frac{1}{4}$ " x $1\frac{15}{16}$ " Long
5231-38-20	1	Key $\frac{1}{4}$ " x $\frac{1}{4}$ " x $2\frac{1}{8}$ " Long

SPRING, BRAKE, AXLE AND WHEEL ASSEMBLY

5231-39-1	1	Assembly—Bogie Complete
5231-40-1	2	Spring Assembly
5231-40-2	4	Spring Clip
5231-40-3	4	Spacer—Spring Clip
5231-40-4	2	Spring Bolt $\frac{1}{2}$ ", 20 N.F., $8\frac{1}{4}$ " Long
5231-40-5	4	Rubber Spacer (Bottom)
5231-40-6	4	Rubber Spacer (Top)
5231-40-7	8	Rubber Spacer (Side)
5231-40-8	2	Nut, Hex. $\frac{1}{2}$ ", 20 N.F. Semi-Fin
5231-40-9	4	Bolt, Hex. Hd. $\frac{7}{16}$ ", 14 N.C. x $6\frac{1}{4}$ " Long
5231-40-10	4	Nut, Hex. $\frac{7}{16}$ ", 14 N.C. Semi-Fin
5231-40-11	4	Lock Washer $\frac{7}{16}$ " Std.
5231-40-12	4	Rivet $\frac{3}{8}$ " Std. 1" Long for Spring Clip
5231-41-1	4	Spring Box

PARTS IDENTIFICATION LIST

U. S. Part No.	Quan.	Nomenclature
SPRING, BRAKE, AXLE AND WHEEL ASSEMBLY (Cont.)		
5231-41-2	4	Spring Box Cover
5231-41-3	4	U-Bolt Axle Cap
5231-41-4	8	U-Bolt $\frac{7}{8}$ " , 14 N.F. x $31\frac{3}{4}$ " O.A. Length
5231-41-5	32	Nut, Hex. $\frac{7}{8}$ " , 14 N.F. Semi-Fin. Regular
5231-41-6	12	Bolt, Hex. Hd. $\frac{5}{8}$ " , 18 N.F., $2\frac{1}{4}$ " Long, Semi-Fin.
5231-41-7	12	Nut, Hex., $\frac{5}{8}$ " , 18 N.F. Semi-Fin. Regular
5231-41-8	12	Lock Washer $\frac{5}{8}$ " Std.
5231-42-1	2	Spring Saddle
5231-42-2	2	Bushing $3\frac{5}{8}$ " I.D. x $4\frac{1}{8}$ " O.D. x $6\frac{3}{8}$ " Long
5231-42-2	2	Bushing
5231-42-3	4	Spring Saddle Wedge
5231-42-4	2	Spring Saddle Bolt
5231-42-5	4	Spring Saddle Bolt Nut
5231-42-6	4	Thrust Washer
5231-42-7	2c	Grease Fitting, $\frac{1}{8}$ " Alemite No. 1610
5231-42-8	2	Trunnion Pin
5231-42-9	2	Trunnion Washer
5231-42-10	2	Nut Slotted $2\frac{1}{4}$ " , 12 N.F.
5231-42-11	2	Cotter Pin $\frac{3}{8}$ " x 4"
5231-42-12	2	Keeper Pl. $\frac{1}{2}$ " x $\frac{1}{2}$ " x $3\frac{1}{2}$ "
5231-43-1	1	Assembly, R.H. Springs, Brakes, Axles and Wheels
5231-43-2	1	Assembly, L.H. Springs, Brakes, Axles and Wheels
5231-43-3	4	B-W Type "G" Brake Chamber No. 221847
5231-43-4	4	Slack Adjuster, B.W. No. 220941
5231-44-1	4	Hub Cap
5231-44-2	4	Outer Jam Nut
5231-44-3	4	Lock Washer
5231-44-4	4	Axle Jam Nut, Inner
5231-44-5	4	Grease Retainer Ring
5231-44-6	4	Felt Strip, For Grease Retainer Ring
5231-44-7	32	Hub Cap Bolt
5231-44-8	32	Lock Washer, Hub Cap Bolt
5231-44-9	24	Brake Mounting Bolt
5231-44-10	24	Nut, Brake Mounting Bolt
5231-44-11	24	Lock Washer, Brake Mounting Bolt
5231-44-15	2	Axle Beam Assembly
5231-45-1	4	Brake Spider
5231-45-2	8	Cap Screw for Anchor Pin
5231-45-3	2	Cam & Shaft, R.H.
5231-45-3	2	Cam & Shaft, L.H.
5231-45-4	4	Flat Head Machine Screw $\frac{5}{16}$ " x $\frac{7}{8}$ " N.C.
5231-45-5	4	Grease Fitting, $\frac{1}{8}$ " Alemite No. 1611
5231-46-1	8	Anchor Pin Grease Retainer Felt
5231-46-2	4	Needle Bearing, Cam Shaft
5231-46-3	4	Washer, Cam Shaft—Spacing
5231-46-4	8	Brake Shoe
5231-46-5	4	Lock Ring, Cam Shaft
5231-46-6	4	Slack Adjuster Washer
5231-46-7	16	Brake Lining
5231-46-8	4	Set Screw, Cam Shaft
5231-47-1	64	Brake Lining, Bolt & Nut
5231-47-2	4	Retracting Spring for Brake Shoes
5231-47-3	4	Roller, Brake Shoe
5231-47-4	4	Roller Shaft
5231-47-5	8	Brake—Anchor Pin
5231-47-6	16	Brake Shoe—Bushing
5231-47-7	16	Grease Retainer Felt
5231-47-8	16	Grease Retainer Washer
5231-47-9	16	Grease Retainer—Lock Ring
5231-47-11	4	Dust Shield

PARTS IDENTIFICATION LIST

U. S. Part No.	Quan.	Nomenclature
SPRING, BRAKE, AXLE AND WHEEL ASSEMBLY (Cont.)		
5231-47-12	24	Dust Shield—Spacer
5231-47-13	24	Dust Shield—Bolt
5231-47-14	24	Dust Shield Bolt—Lock Washer
5231-48-1	4	Washer, Cam Shaft Spacing Washer
5231-48-2	4	Washer, Cam Shaft
5231-48-3	4	Bushing, Cam Shaft Bracket
5231-48-4	4	Air Chamber Bracket
5231-48-5	4	Cam Shaft Bracket
5231-48-6	4	Bearing, Roller, Timken 759-752
5231-48-7	4	Bearing, Roller, Timken 749-742
5231-48-8	4	Fitting, Lubricating, 1/8, Ord. Dwg. No. CLD x 6A

Budd Wheel Company Part No.'s

44835-B		Hub
48739-E		Drum and Oil Slinger Assembly
F 47510-D-1		Disc and Rim Assembly
47693-E-7 (Ord. No. A240342)		Jam Nut
19004-E (Ord. No. 537867)		Stud, R.H.
19005-E (Ord. No. 537868)		Stud, L.H.
43808-E (Ord. No. 537811)		Cap Nut, Inner R.H.
43809-E (Ord. No. 537812)		Cap Nut, Inner L.H.
43811-E (Ord. No. 537807)		Cap Nut, Outer R.H.
43812-E (Ord. No. 537808)		Cap Nut, Outer L.H.
		14.00 x 20—12 Ply Non Directional Mud & Snow Tires
		14.00 x 20 Heavy Duty Tube
		14.00 x 20 Thin Flap
Goodyear D-11-L		Beadlock
45511-E-7 (Ord. No. A-233035)		Wheel Flange Nut
44894-D-4 (Ord. No. C-91161)		Wheel Flange

AIR BRAKE EQUIPMENT

Bendix-Westinghouse Part No.'s

B-W 220353	1	Relay Emergency Valve
B-W 221087	1	Exhaust Check Valve
B-W 221395	1	9 1/2" x 27" Reservoir
B-W 221399	2	8 1/2" Reservoir Brackets
B-W 215310	1	Drain Cock
B-W 220165	2	Hose Couplings
B-W 220636	2	Dummy Couplings
B-W 201500	1	Service Tag
B-W 201499	1	Emergency Tag
B-W 205730	2	Clamping Studs
B-W 205465	4	Anchor Couplings
B-W 221474	2	Type "E" Filters
B-W 215536	14	Hose Connectors, 1/4" P.T.
B-W 217525	1	1/2" Connector, 3/8" P.T.
B-W 205053	12	3/8" Connectors, 1/4" P.T.
B-W 205102	3	1/8" Elbows, 1/4" P.T.
B-W 214253	1	3/8" Street Elbow
B-W 205824	1	3/8" Connector, 3/8" P.T.
B-W 101-M	24'	Hose (50' Rolls)
	6'	1/2" O.D. Copper Tubing
	6'	1/8" I.D. Loom
	72'	3/8" O.D. Copper Tubing (1-24', 3-16' Lengths)
B-W 201938	2	Tubing Tees
	60'	1/8" I.D. Loom
B-W 215604	2	Hose Assemblies
B-W 200661	2	Hose Suspension Springs
B-W 212227	2	Dummy Couplings
B-W 217689	1	1/2" Tubing Connector, 1/4" P.T.

PARTS IDENTIFICATION LIST

U. S. Part No. Quan. Nomenclature

AIR BRAKE EQUIPMENT (Cont.)

B-W 202639	15	3/8" Tubing Clamps
B-W 200400	1	1/2" Tubing Clamp
B-W 203098	2	3/8" Pipe Plugs
B-W 204514	1	3/4" Pipe Plugs
B-W 221192	1	Air Supply Valve
	2	1/4" x 45° Street Ell
	2	1/4" x 90° Street Ell
	1	3/4" x 90° Street Ell

HYDRAULIC ASSEMBLY

5231-55-2	1	Safety Overload Valve, Barnes, Pa., 1841-A-1 or Equal
5231-55-3	1	Hydraulic Valve, Vickers, Inc., C-2320 RDDDL or Equal
5231-55-4	4	Bolt 1/2", 20 N.F. x 2" Long
5231-55-5	4	Lock Washer 1/2" SAE Std.
5231-55-6	1	Hydraulic Hose 1/2" x 26" Anchor 8C-8MS or Equal
5231-55-7	3	Hydraulic Hose 1/2" x 22 3/4" Anchor 8C-8MS or Equal
5231-55-8	1	Hydraulic Hose 1/2" x 13 1/4" Anchor 8C-8MS or Equal
5231-55-9	14	Adapter Union, Male x Female 1/2" Anchor 8M-8UFS or Equal
5231-55-10	1	Air Filter 1/2 Pt. Midland Steel Pro. N1120 or Equal
5231-55-11	3	Bolt 5/8", N.F. 18 x 1 1/2" Long
5231-55-12	3	Lockwasher 5/8" SAE Std.
5231-55-13	8	Elbow 1/2" x 90°, 3000 lbs.
5231-55-14	4	Tee 1/2", 3000 lbs.
5231-55-15	1	Elbow 90°, 1" x 1/2", 3000 lbs.
5231-55-16	1	Street Ell 3/8" x 90°, 3000 lbs.
5231-55-17	1	Street Ell 1/2" x 90°, 3000 lbs.
5231-55-18	1	Street Ell 1/2" x 45°, 3000 lbs.
5231-55-19	1	Tee 1/2" x 1/2" x 3/8", 3000 lbs.
5231-55-20	1	Reducing Coupling 1/2" x 3/8", 3000 lbs.
5231-55-21	1	1/2" Plug
5231-55-22	5	1/2" Coupling, 3000 lbs.
5231-55-23	1	Elbow Reducing 1 1/4" x 1/2", 150 lbs.
5231-55-24	1	Plug 1 1/4" Square Head, 150 lbs.
5231-55-25	1	Pipe 1/2" x 7 1/2", Extra Strong
5231-55-26	2	Pipe 1/2" x 20 1/2", Extra Strong
5231-55-27	2	Pipe 1/2" x 11", Extra Strong
5231-55-28	2	Pipe 1/2" x 17 1/2", Extra Strong
5231-55-29	1	Pipe 1" x 3 5/8", Extra Strong
5231-55-30	4	Pipe 1/2" x 1 1/2", Extra Strong
5231-55-31	2	Pipe 1/2" x 3 1/8", Extra Strong
5231-55-32	2	Pipe 3/8" x 1", Extra Strong
5231-55-33	1	Hydraulic Hose 1/2" x 15 1/4" Anchor 8C-8MS or Equal
5231-55-34	1	Hydraulic Hose 1/2" x 12" Anchor 8C-8MS or Equal
5231-55-35	1	Pipe 3/2" x 17", Extra Strong
5231-55-36	2	Hydraulic Hose 1/2" x 16" Anchor 8C-8MS or Equal
5231-55-37	1	Hydraulic Hose 1/2" x 17 1/2" Anchor 8C-8MS or Equal
5231-55-39	4	Hydraulic Hose 1/2" x 20 1/2" Anchor 8C-8MS or Equal
5231-55-40	1	Pipe 1/2" x 18 1/2", Extra Strong
5231-56	1	Pump, Complete
5231-56-1	2	Valve Cap
5231-56-2	2	Ball Seat
5231-56-3	2	Valve Cap Gasket
5231-56-4	1	Yoke Washer
5231-56-5	2	Yoke Wear Block
5231-56-6	2	Wear Block Washer
5231-56-7	2	Plug Ball Seat
5231-56-8	1	Piston Pin
5231-56-10	2	3/8", 24 N.F., 2" Hex. Nut (Elastic Stop Nut)

PARTS IDENTIFICATION LIST

U. S. Part No.	Quan.	Nomenclature
HYDRAULIC ASSEMBLY (Cont.)		
5231-56-11	14	$\frac{5}{16}$ " 24 N.F. 2" x $\frac{3}{4}$ " Long Hex. Hd. Cap Screw
5231-56-12	2	$\frac{3}{8}$ " 24 N.F. 2" x 2 $\frac{1}{2}$ " Long Hex. Hd. Cap Screw
5231-56-13	4	$\frac{1}{2}$ " 20 N.F. 2" x 1" Long Hex. Hd. Cap Screw
5231-56-14	4	$\frac{1}{2}$ " Steel Ball
5231-56-15	1	$\frac{1}{4}$ " Std. Pipe Plug (Socket Head)
5231-56-16	2	$\frac{1}{2}$ " Std. Pipe Plug (Socket Head)
5231-56-17	2	1" Std. Pipe Plug (Socket Head)
5231-56-18	1	1 $\frac{1}{4}$ " Dia. Welch Plug
5231-56-19	2	1 $\frac{1}{2}$ " O.D. x 1" I.D. x 25/64" Wide Oil Seal
5231-56-20	1	$\frac{1}{16}$ " Dia. x $\frac{3}{4}$ " Long Cotter Pin
5231-58-1	1	Bottom Plate
5231-58-2	1	Bottom Plate Gasket
5231-58-3	1	Drive Yoke
5231-58-4	1	Drive Socket
5231-58-5	1	Pump Handle
5231-58-6	1	Valve Control Handle R.H.
5231-58-7	1	Valve Control Handle L.H.
5231-58-8	1	Tank
5231-58-9	2	Control Handle Pin
5231-58-10	1	Valve Instruction Plate
5231-58-12	2	Cotter Pin $\frac{3}{32}$ " x $\frac{3}{4}$ " Long
5231-58-15	10	Set Screw $\frac{1}{16}$ " x 18 N.C. Square Head
5231-60-1	1	Coupler to Switch—Wiring Harness
5231-60-2	1	Coupler to Junction Block—Wiring Harness
5231-60-3	1	Junction Block to Ramp Clearance Lamps — R.H. Wiring Harness
5231-60-4	1	Junction Block to Ramp Clearance Lamps—L.H. Wiring Harness
5231-60-5	1	Switch to Junction Block — Wiring Harness
5231-60-6	1	Junction Block to Rear Lamps — Wiring Harness
5231-60-7	1	Coupling Socket
5231-60-8	1	Blackout Switch
5131-60-9	2	Clearance Lamp—Red
5231-60-10	2	Clearance Lamp—Amber
5231-60-11	2	Clearance Lamp—Blackout Red
5231-60-12	2	Clearance Lamp—Blackout Amber
5231-60-13	1	Blackout Stop & Tail Lamp
5231-60-14	1	Service Stop & Tail Lamp & Blackout Tail Lamp
5231-60-15	1	Junction Block 5 Post JB 5CB
5231-60-16	1	Junction Block to Junction Block—Wiring Harness
5231-60-17	1	Junction Block 4 Post JB 4CB

