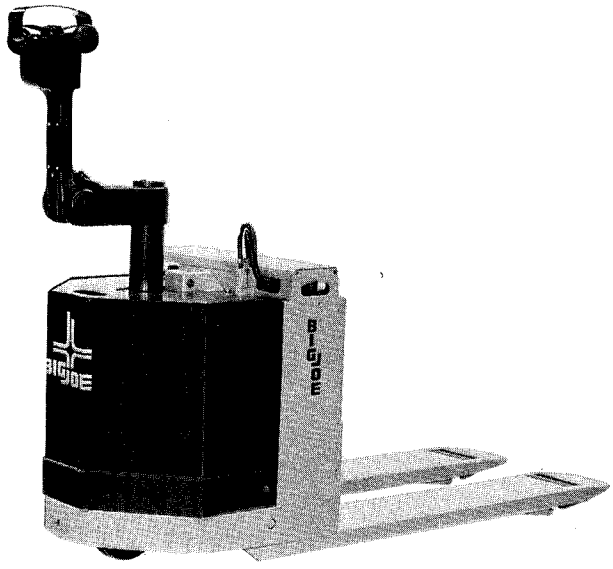
Operation • Maintenance • Repair parts list

SERIES • MANUAL PRICE $15.00



BIGJOE Manufacturing Company • Lincolnwood, IL 60646

BIG JOE MANUFACTURING COMPANY
7225 NORTH KOSTNER AVENUE
LINCOLNWOOD, ILLINOIS 60646

TECHNICAL MANUAL

POWERED
PALLET
TRUCK
PPT SERIES

*Contract*_____

Publication Number: PPT0278

*Model No.*_____ *Serial No.*_____

*Date of Issue*_____

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PREPARATION FOR USE

Upon receipt, visually inspect pallet truck and battery charger. If any damage is found, report it to the carrier and to your Big Joe dealer immediately.

Remove cardboard banded to forks. Check truck and battery charger for scratches and dents. Inspect for oil leaks and loose wiring connections. Make certain that all accessories and attachments that were ordered are supplied.

Before the truck is moved, the battery must be checked, recharged if necessary, and connected. If the truck was ordered without a battery, a freshly charged battery of adequate size and proper weight must be installed. Refer to "Battery Care" in Section III for battery checking instructions. Connect battery quick-disconnect plug to receptacle located near battery on the base of the truck.

Refer to Section II for operating instructions to test the following controls.

Steering Arm Return Spring
FORWARD Speed Control
Mechanical Brake
REVERSE Speed Control
Dynamic Brake (Stop Pushbutton)
Belly-Button Safety Switch
UP Control
DOWN Control

If you do not obtain the proper results, or if improper operation occurs, refer to "Troubleshooting" and "Repair" in Section III. The adjustment and repair procedures are supplemented with illustrations and parts list. All parts identification illustrations have been integrated with the text rather than separated into a special section.

SECTION I

DESCRIPTION

1-1. INTRODUCTION.

This manual describes the Model PPT-40 Powered Pallet Truck manufactured by Big Joe Manufacturing Company, Lincolnwood, Illinois 60646. The truck is described in detail, with instructions for operation, lubrication, adjustment, and repair.

By following the recommendations contained in this manual, you will receive many years of dependable service from your PPT-40.

1-2. DESCRIPTION.

1-3. General.

The PPT-40 efficiently lifts and moves heavy pallet-mounted loads. By using the simple steering controls and pushbutton or rocker switches located in the control head, the operator moves and stops the truck and operates the lift mechanism.

The battery-powered truck operates quietly and without exhaust fumes, allowing operation in closed areas without special provisions for ventilation.

1-4. Capabilities.

The lifting capacity of the PPT-40 is 4000 pounds, actuated by a 12-volt battery-powered hydraulic system. The lift height of the forks is 5 inches.

1-5. Safety Features.

The PPT-40 is designed and engineered to provide maximum safety for operator and payload. Some of the safety features incorporated into the design are:

Dead-man brake to apply mechanical brake and cut off drive power when steering arm is released.

Belly-button safety guard and switch to prevent the operator from accidently pinning himself against a wall or obstruction when backing up.

Externally accessible quick-disconnect battery plug.

Separately fused control circuits and power circuits.

Two independent braking systems.

Horn.

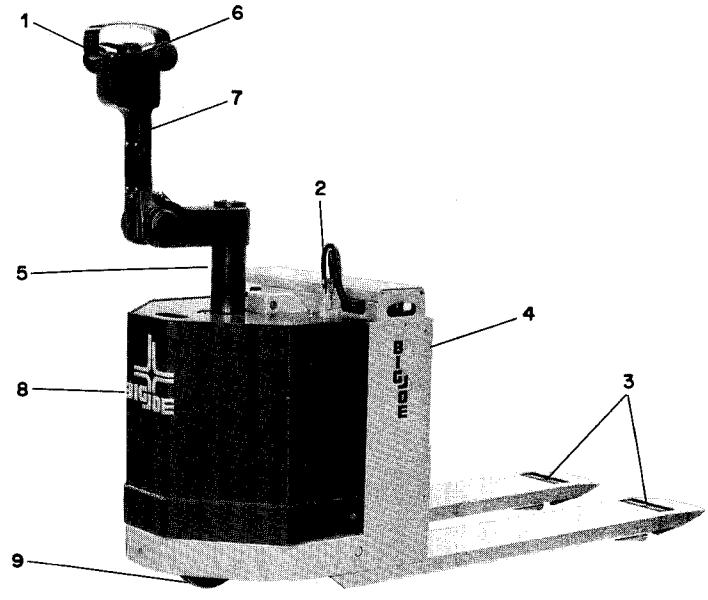
1-6. Options.

Big Joe offers options and accessories for the PPT-40 such as:

Skid adapter, for handling of skids in addition to pallets.

Larger capacity batteries with corresponding battery chargers.

Tandem rollers for rough travel surfaces.



1 CONTROL HEAD
2 QUICK DISCONNECT BATTERY PLUG
3 LOAD WHEELS
4 BATTERY COMPARTMENT
5 PIVOT TUBE ASSEMBLY
6 STEERING ARM CONTROLS
7 STEERING ARM
8 SERVICE COVER
9 DRIVE WHEEL

Figure 1-1. Powered Pallet Truck, Model PPT-40

SECTION II

OPERATION

2-1. GENERAL.

This section gives detailed operating instructions for the PPT-40 powered pallet truck. The instructions are divided into the various phases of operations, such as operating lift, driving, and stopping. Routine precautions are included to guarantee safe operation.

2-2. OPERATING PRECAUTIONS.

Improper operation of the PPT-40 may result in operator injury, or load damage to the truck and/or load. Observe the following precautions when operating the truck.

1. Do not exceed the rated capacity. Overloading may result in damage to the hydraulic system and structural components.

2. Center and carry the load as far back as possible. Do not pick up loads on the tips of the forks.

3. Pick up loads on both forks. Do not pick up loads on only one fork.

4. In tight quarters, never drive an unloaded or lightly loaded truck in third speed. (Turn THIRD SPEED rocker switch OFF.)

5. Never hold the dynamic brake pushbutton on longer than five seconds.

6. Use care when moving a load. Driving the truck too quickly around a turn may upset the balance of the load.

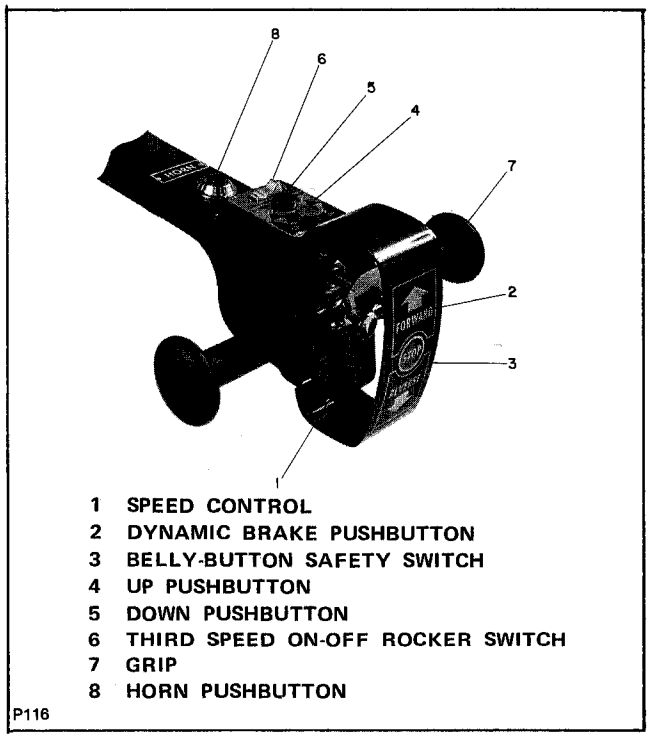
7. Apply the mechanical brake gently except in cases of emergency.

2-3. DRIVING AND STOPPING.

2-4. General.

The speed control (see figure 2-1) located inside the belly-button safety-guard provides fingertip control for driving the truck. As the upper portion of the speed control is pressed, it closes contacts for first speed in forward direction. Pressing the speed control farther closes contacts for second and then third speeds (see figure 2-2). The lower portion of the speed control governs the three reverse speeds in the same manner.

The truck will start in first speed even if the speed control is pressed immediately to its maximum position. The solid-



1 SPEED CONTROL
2 DYNAMIC BRAKE PUSHBUTTON
3 BELLY-BUTTON SAFETY SWITCH
4 UP PUSHBUTTON
5 DOWN PUSHBUTTON
6 THIRD SPEED ON-OFF ROCKER SWITCH
7 GRIP
8 HORN PUSHBUTTON

Figure 2-1. Steering Arm Controls

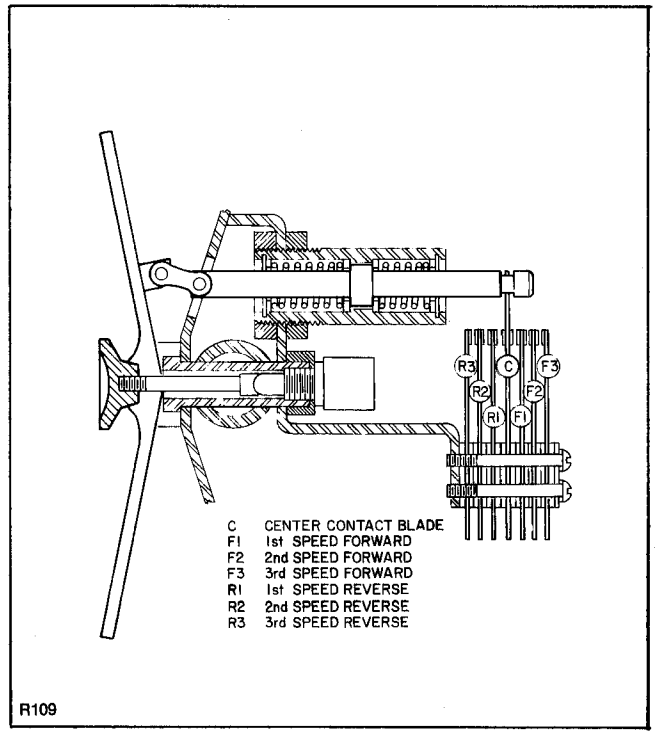


Figure 2-2. Speed Control

state speed control circuit delays the second-speed contactor until the truck has traveled in first speed for one full second. It also delays the third-speed contactor until the truck has traveled in second speed for a minimum of two seconds. The THIRD SPEED, ON/OFF rocker switch is provided to lock out third speed when the truck is being driven unloaded in limited space.

The service brake is either an internal expanding-shoe mechanical brake or a disc brake. Lowering the steering arm to horizontal or raising it to vertical applies the mechanical brake (see figure 2-3). All traction power is shut off when the mechanical brake is engaged. When the steering arm is in the upright position the mechanical brake acts as a parking brake. When released, the handle is raised to the upright position by spring action, so that dead-man braking occurs.

2-5. Driving and Stopping Procedures.

The following procedure describes driving and stopping the PPT-40.

1. If truck is carrying no load or a light load, turn THIRD SPEED rocker switch (6, figure 2-1) OFF.

2. If carrying no load, lower lift carriage fully for maximum stability when traveling.

3. Grasp the grips of the steering arm so that the speed control can be comfortably operated by either thumb.

4. Lower the steering arm to a comfortable position above horizontal to disengage the mechanical brake and to energize the electrical circuits.

NOTE Your PPT-40 is equipped with solid-state speed control, therefore a noticeable time lapse occurs between speed changes.

5. To move forward, slowly press the upper (FORWARD) portion of the speed control. Press this control farther to increase speed.

6. To stop, release the speed control and lower the steering arm to the horizontal position. At this position, the brake is lightly applied. Lowering the steering arm below horizontal increases the braking power and de-energizes electrical controls. Applying the mechanical brake in this position is particularly useful on ramps and while moving in tight areas. As noted earlier, the mechanical brake may also be applied by raising the steering arm to the upright position.

7. To travel in reverse, lower steering arm to a comfortable position and slowly press lower (REVERSE) portion of speed control. Press this control farther to increase speed in reverse.

NOTE Acceleration in reverse operates in the same manner as that in the forward direction.

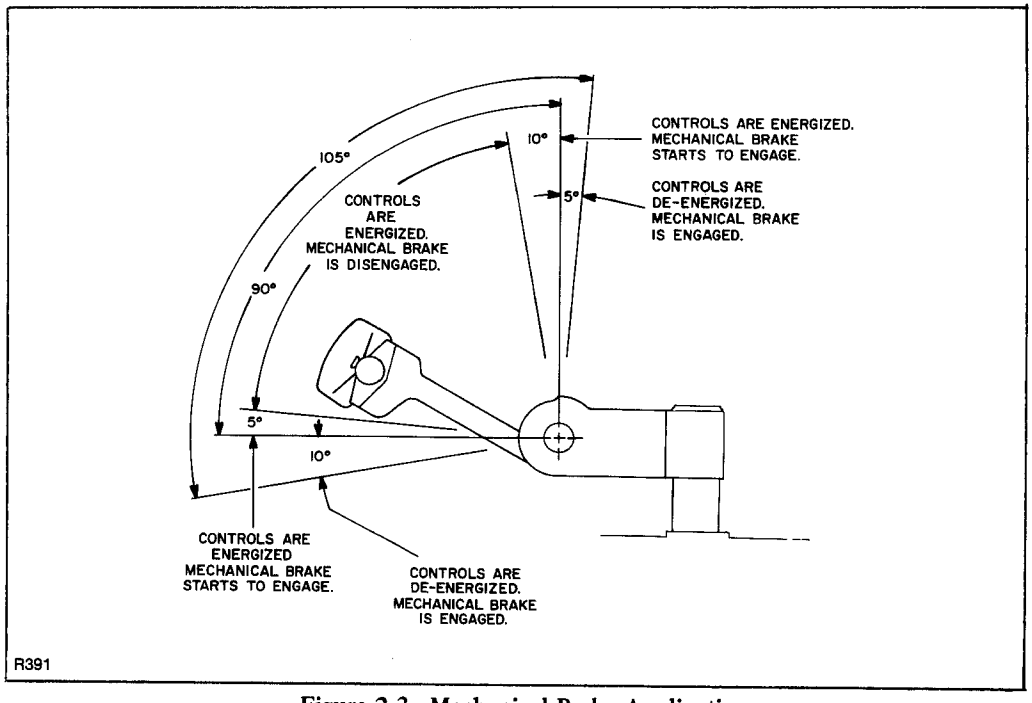


Figure 2-3. Mechanical Brake Application

2-6. Belly-Button Safety Guard.

The belly-button safety guard minimizes the possibility that the driver might be pinned by the steering arm while driving the truck in reverse. If the safety guard presses against the driver while the truck is being driven in reverse, the safety guard actuates a switch which immediately changes the direction of the truck to forward direction in low speed.

2-7. Dynamic Brake.

The dynamic brake is a secondary braking system, completely independent from the mechanical brake, operating only when the steering arm is away from the upright or horizontal positions. Pressing the STOP pushbutton applies a constant dc voltage across the drive motor field coils, stopping the motor. The dynamic brake will always bring the truck to a smooth, jar-free stop, except on inclines.

2-8. Steering Arm Return Spring.

The steering arm return spring automatically raises the steering arm to the upright position when the steering arm is released. If the steering arm snaps up abruptly, or does not return fully, the steering arm return spring requires adjustment. Refer to Section III for adjustment.

2-9. Various Stopping Methods.

There are four different methods for stopping the truck:

1. Release the speed control and allow the truck to coast to a stop.

2. Release speed control and lift or lower steering arm to engage the mechanical brake. The mechanical brake can stop the truck very abruptly if necessary. This brake is also an automatic parking brake.

3. Press the dynamic brake pushbutton. This stops the truck with minimum shock to the load. The dynamic brake is useful for most slowing and stopping functions.

4. While moving, press speed control to low speed in the opposite position. This permits stopping and changing direction very rapidly. This method is called plugging and should be used only for emergency stopping.

2-10. OPERATING LIFT.

Two pushbuttons regulate the raising and lowering of the lift carriage.

CAUTION To avoid excessive heating and aeration of hydraulic oil, always release UP pushbutton immediately when lift carriage reaches maximum elevation.

1. To raise the lift carriage, depress UP pushbutton and hold it until the lift carriage reaches the desired height, then release the pushbutton.

2. To lower the lift carriage, depress DOWN pushbutton and hold it until the lift carriage reaches the desired height, then release the pushbutton.

2-11. LOADING AND UNLOADING.

1. Lower lift carriage ALL THE WAY DOWN.

2. Lower steering arm and drive truck to the location where the load is to be picked up.

3. Move truck into position so that the forks are within the pallet uprights and the load is centered over the forks.

4. Move truck forward to enter pallet and place the load as far back as possible on the forks. Raise the lift carriage to lift the pallet.

CAUTION Avoid spilling the load. Move slowly and use extra care when turning.

5. Drive truck carefully to area where the load is to be placed.

6. Move truck to align the load with its new position.

7. When load is in position, lower the lift carriage to its lowest position, allowing pallet to rest on the floor.

8. Slowly move truck backward, making sure that the forks do not catch on the pallet.

9. Proceed to move the next load.

2-12. PARKING.

1. When finished moving loads, drive truck to its maintenance or storage area.

2. To park the truck, allow steering arm to return to its upright position which de-energizes the electrical circuits and engages the mechanical brake.

3. Charge battery as necessary. Refer to battery care instructions.

SECTION III

MAINTENANCE AND MAINTENANCE PARTS

3-1. GENERAL.

This section contains information and procedures for preventive and corrective maintenance of the PPT-40. Preventive maintenance includes periodic inspection, service, and lubrication. Corrective maintenance includes troubleshooting, adjustment, and repair.

This section also contains parts lists and illustrations identifying maintenance parts. The callouts on each illustration correspond to the index numbers in the applicable parts list. Each parts list provides the Big Joe Manufacturing Company part number, the part description, and the quantity of the part required in the assembly.

When identifying each part to be ordered, visually compare the part in the illustration with the actual part needed. To assure proper identification of each part being ordered, include your truck model number, your truck serial number (check nameplate), the part number, description, and quantity of the part(s) needed.

3-2. PART NUMBER IDENTIFICATION.

To determine the part number of a replacement part, identify the assembly in which the part is used and locate the illustration of the applicable assembly. Find the index number of the part on the illustration and refer to that index number in the parts list. If the part number is NP, order the next higher assembly. If the part number is VAR, order by part name with truck model number, capacity, lift height, and serial number.

If the part number is listed with more than one part number, select the proper part number by comparing the description in the parts list with the specifications of your truck. Refer to the Data Plate to determine application to your truck.

3-3. PREVENTIVE MAINTENANCE.

3-4. Inspection and Service.

The design of the PPT-40 provides a long and useful life with a minimum of maintenance. It is important to follow the operating instructions carefully and not to exceed the rated capacity of the truck. Follow the maintenance and lubrication procedures presented in this chapter to keep the equipment in top operating condition.

Table 3-1 is an inspection and service chart based on normal usage of equipment eight hours per day, five days per week. If the truck is used in excess of forty hours per week, the frequency of inspection and service should be increased accordingly.

Table 3-1. Inspection and Service Chart

INTERVAL	INSPECTION OR SERVICE	SERVICE REFERENCE
Daily	Check battery.	Paragraph 3-5
Daily	Check operation of belly-button safety switch.	Paragraph 2-6
Daily	Observe performance of truck. Investigate any improper operation.	- - - - - -
Weekly	Lubricate.	Paragraph 3-6
Monthly	Check transmission oil level.	Table 3-3
Monthly	Check seals and O-rings for oil leaks.	Figures 3-19, 3-22 thru 3-25
Monthly	Check hydraulic system oil level. Check hoses and fittings for leaks.	Table 3-3

Table 3-1. Inspection and Service Chart (Cont)

INTERVAL	INSPECTION OR SERVICE	SERVICE REFERENCE
Monthly	Check condition of drive motor commutator, brushes, and springs.	Paragraph 3-14
Monthly	Check condition of pump motor commutator, brushes, and springs.	Paragraph 3-22
Monthly	Check mechanical brake for proper operation. Inspect brake shoes or brake pads and replace if required.	Paragraph 3-13
Monthly	Check load wheels for wear.	Paragraph 3-18
Monthly	Check drive wheel for wear.	Paragraph 3-20
Monthly	Check caster wheels or saucer assemblies for wear.	Paragraph 3-17
Monthly	Inspect wiring for loose connections and damaged insulation.	------
Monthly	Inspect contactor tips for excessive pitting and wear.	Paragraph 3-24
Monthly	Check power cutoff switch for proper operation.	Figure 3-8
Quarterly	Check lift cylinder wiper ring and packing.	Paragraph 3-23
Quarterly	Check for excessive jerking of steering arm when starting or stopping.	Replace upper and lower pivot tube bearings (Figure 3-5)

3-5. Battery Care.

The life of the battery can be extended by giving it good care at the proper time. Perform a daily check of the battery whether or not equipment is in daily use. Check water level, and recharge to maximum capacity immediately after use rather than waiting until the next day. Perform the following procedures at end of each day.

1. Open battery cover and remove vent caps.

2. Check specific gravity of each cell. If the average specific gravity is less than 1.250, recharge the battery.

NOTE Battery specific gravity readings should agree within ±0.025 from cell to cell. If the variation is greater, the battery may have to be repaired or replaced.

3. Add enough distilled or filtered water to cover battery plates, but do not let electrolyte level rise higher than base of battery filler neck.

4. Charge battery, if necessary, according to the instructions packed with battery charger.

5. When battery is properly charged, return truck to operating readiness.

3-6. Lubrication.

Refer to table 3-2 for the recommended types of grease and oil. Table 3-3 in conjunction with figure 3-1 identifies the items requiring lubrication.

Table 3-2. Recommended Lubricants (See Table 3-3)

No. 1	Transmission oil - No. 80 automotive, Part No. 055780
No. 2	Grease - Lithium base, general purpose.
No. 3	Hydraulic oil - Viscosity of 150 Saybolt Universal Seconds. In temperatures below 20° F use 100 S. U. S. oil with foam suppressing agent, and rust and oxidation inhibitors.
No. 4	Engine lubricating oil - No. 20.

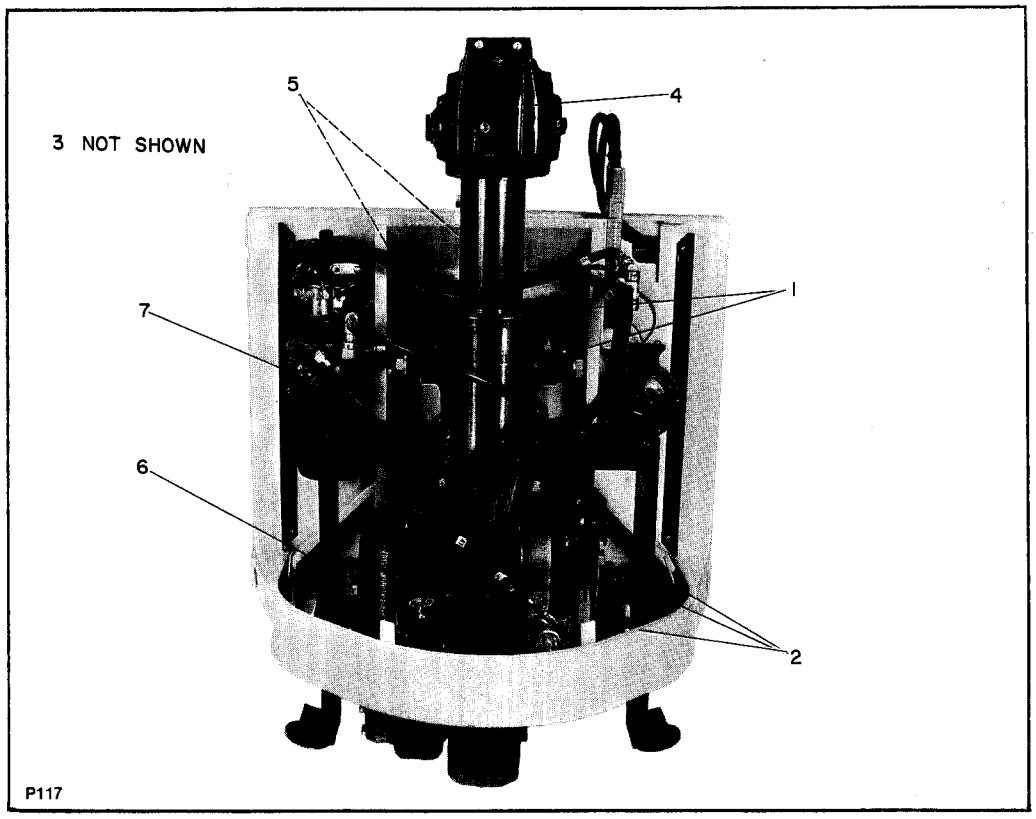


Figure 3-1. Lubrication Points

Table 3-3. Lubrication

FIG. 3-1 REF.	ITEM	METHOD OF APPLICATION	LUBRICANT (TABLE 3-2)	NOTES
1	Upper pivot assembly (3 places on early models, 4 places on current models)	Gun	No. 2	Grease with pressure gun.
2	Left-hand and right-hand pivot assembly (3 places each)	Gun	No. 2	Grease with pressure gun.
3	Wheel housings (2 places each)	Gun	No. 2	Grease with pressure gun.
4	Steering arm elbow	Can	No. 4	1 or 2 drops
5	Pivot tube	See note	No. 2	Repack bearings. Apply with brush on moving parts.
6	Transmission	Funnel	No. 1	Remove plug and check level. Fill to fill line.
7	Hydraulic System	Funnel	No. 3	Fill with hydraulic oil so that level is seen in street elbow of reservoir when forks are in lowest position.
–	Drive Motor, Pump Motor, Load Wheels, Casters	——	——	Bearings sealed. No lubrication required.

3-7. TROUBLESHOOTING.

Table 3-4 serves as a guide to determine possible causes of trouble. The table is divided into five main categories: Truck dead, trouble with travel, trouble with braking, trouble with lifting or lowering, and miscellaneous troubles. Refer to the electrical schematic for your truck (figure 3-2) as a supplement to the troubleshooting chart or when tracing an electrical circuit.

Table 3-4. Troubleshooting Chart

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
TRUCK DEAD		
Truck will not run forward or in reverse, nor will lift system operate.	a. Fuse is blown.	Check 300-A and 15-A fuses and replace if defective.
	b. Battery dead or disconnected.	Check battery quick-disconnect plug. Check battery (see paragraph 3-5).
	c. Defective wiring.	Check for open circuit. Repair as required.
TROUBLE WITH TRAVEL	A loose connection may be the cause of malfunction.	Check all wiring. Tighten all loose connections before further troubleshooting.
Truck does not run forward or reverse. Everything else is normal.	a. Shorted dynamic brake switch or dynamic brake relay.	Check brake switch and relay, and replace if defective.
	b. Defective power cutoff switch.	Check and replace if required.
	c. Center blade of speed control switch broken.	Check and replace blade or switch if required.
	d. Shorted optional travel cutout switch.	Check and replace if required.
Truck runs forward, but not in reverse.	Defective speed control switch or defective contactor.	Check for positive dc voltage at wire number 1 on reverse contactor. If not present when steering arm is in operating position and speed control is in reverse, speed control switch is defective. If voltage is present, contactor is defective.
Truck runs in reverse, but not forward.	Defective speed control switch or contactor.	Check for positive dc voltage at number 2 wire on forward contactor. If not present when steering arm is in operating position and speed control is pressed for forward travel, speed control switch is defective. If voltage is present, contactor is defective.
Truck runs forward and in reverse at slow speed; will not run at higher speeds.	a. Defective second and/or third speed contactors.	Check coils for continuity. Check contacts for excessive wear. (A black appearance where tips make contact is normal). Repair or replace as required.
	b. Defective optional time delay relay(s).	Check for continuity and replace as required.
Truck runs forward and in reverse at second or third speed only. Truck does not move when control is in first speed position. Everything else is normal.	Defective or open speed control resistor.	Check for clean, tight connections. Check resistor for continuity and replace or repair as required.

Table 3-4. Troubleshooting Chart (Cont)

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
TROUBLE WITH TRAVEL (CONT)		
Truck runs at third speed when control is in the first or second speed position. Everything else is normal.	a. Shorted speed control resistor.	Check wiring of resistor. Check for shorted contacts on high speed relay.
	b. Damaged speed control switch.	Check switch blades.
TROUBLE WITH BRAKING		
Mechanical brake does not stop truck properly.	a. Brake linkage in need of adjustment.	Adjust mechanical brake (see paragraph 3-13).
	b. Brake shoes or disc brake pads worn.	Replace shoes or pads and readjust mechanical brake.
Mechanical brake grabs when steering arm is in operating position.	Brake linkage overadjusted.	Adjust mechanical brake (see paragraph 3-13).
Dynamic brake does not stop truck.	Defective brake switch, brake relay, or brake resistor.	If click is heard when dynamic brake pushbutton is pressed, check brake resistor and relay contacts. If no click, check brake switch and coil of relay. Repair or replace defective part.
TROUBLE WITH LIFTING OR LOWERING		Check hydraulic oil level. Before further troubleshooting, fill hydraulic reservoir so that oil is seen in street elbow when forks are fully lowered. Tighten all electrical connections.
Lift carriage does not rise; everything else is normal.	a. Defect in electrical system.	If pump motor does not run when UP control is depressed, defect is in pump solenoid or pump motor. Check for positive dc voltage at pump motor to locate defect. Repair or replace defective part.
		Check UP switch. Replace if defective.
	b. Defect in hydraulic system.	Check for pinched hoses. Check pump for proper operation. Replace if necessary. Check for defect in lift cylinder.
Lift carriage does not lower; Everything else is normal.	Defect in hydraulic system.	Look for obstruction in the hydraulic line. Check DOWN switch for proper action. Repair as required.
Forks creep downward under load; everything else is normal.	Leak in hydraulic system, packing, or valve.	Look for loose fittings in the hydraulic line. Check solenoid-operated valve for obstructions. Check pump for leakage back into the reservoir. Repair fittings or replace pump as required.
Oil sprays or flows from top of the lift cylinder.	Defective packing in lift cylinder.	Overhaul the lift cylinder and install new packing, O-rings, and wiper ring.

Table 3-4. Troubleshooting Chart (Cont)

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
TROUBLE WITH LIFTING OR LOWERING (CONT)		
Oil splashes out of vent when lowering forks.	Oil level too high.	Drain, then refill reservoir when forks are in their lowest position.
Squealing sounds when forks are raised.	a. Oil level too low.	Add oil to reservoir.
	b. Aerated oil (foamy).	Drain and replace oil.
	c. Defective bearing in pump motor or pump.	Replace bearing or pump.
Forks do not lift to top.	Oil level too low.	Add oil to reservoir.
No motion, slow or jerky action of hydraulic system.	a. Load heavier than capacity.	Refer to data plate on side of mast for maximum lift capacity.
	b. Defective lift cylinder.	Rebuild or replace.
	c. Defective pump.	Check and repair or replace if necessary.
	d. Low battery charge.	Recharge battery.
MISCELLANEOUS		
Steering arm does not return to the upright position.	a. Return spring improperly adjusted.	Readjust spring tension (see paragraph 3-11).
	b. Binding brake linkage or electrical cable.	Check and free the binding item.
Truck moves forward in low speed when arm is pulled down.	a. Belly-button safety switch defective.	Check for short, and repair or replace as necessary.
	b. Short in control head.	Check wiring and repair as required.
	c. Handle guard tongue causing activation of switch.	Straighten handle guard tongue.
Steering arm jerks excessively when starting or stopping the truck.	a. Worn pivot tube bearings.	Replace upper and lower pivot tube bearings.
	b. Drive wheel tire worn.	Replace drive wheel.

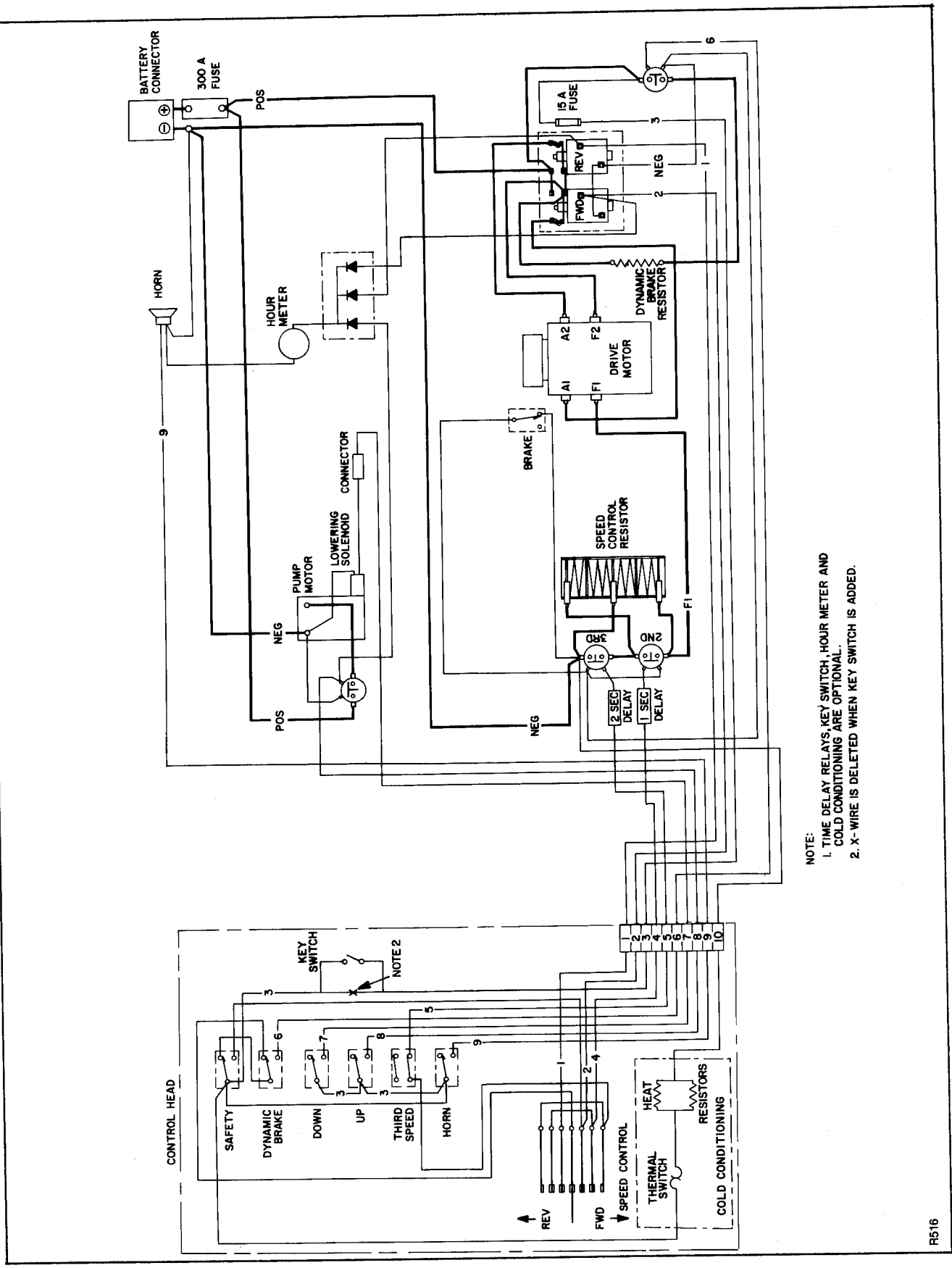


Figure 3-2. Schematic Diagram

3-8. ADJUSTMENT AND REPAIR.

The following procedures cover adjustments, part or assembly replacement, and repair of assemblies. The replacement procedures include reassembly where the procedures are not obvious from the disassembly procedures. The procedures are independent of each other unless specifically referenced.

3-9. Belly-Button Safety Switch Adjustment. (Figures 3-3 and 3-4)

To adjust the belly-button safety switch, the control head must be removed. Follow this procedure to remove the control head and to adjust the belly-button safety switch actuator gap.

1. Disconnect battery, remove steering arm access cover (13, figure 3-5) and disconnect electrical cable connectors.

NOTE When removing the control head assembly, two spacers and one spring (needed for reassembly) will fall free.

2. Being careful to catch and retain the spring (14, figure 3-4) and two spacers (21) that fall from the steering arm as the complete control head assembly is removed, remove the four socket head cap screws (27) and lock washers (28) that secure the control head assembly, strap, and safety guard to the steering arm (16).

3. Use two of the four socket head cap screws (27) and two 5/16-18 nuts (not parts of the assembly) to refasten the strap (18) and belly-button safety guard (13) to the control head, temporarily.

4. Refer to figure 3-3 and check gap between guard and switch plunger for 1/8- inch clearance.

NOTE Too small a gap may cause the actuator to damage the switch mechanism.

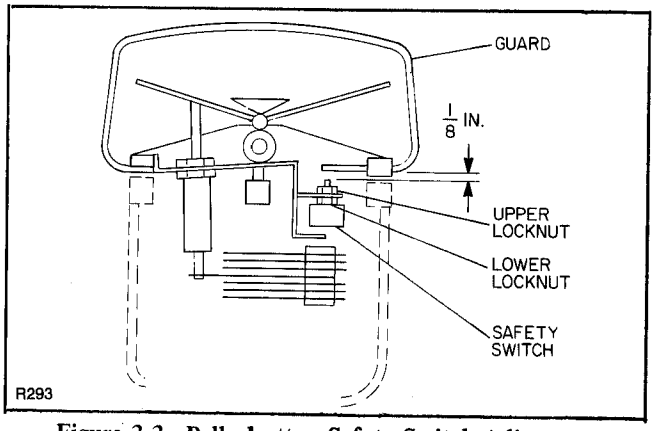


Figure 3-3. Belly-button Safety Switch Adjustment

5. To decrease the gap, back off lower locknut and then tighten upper locknut until switch is secure; to increase the gap, back off upper locknut and then tighten lower locknut until switch is secure.

6. Press the guard, and listen for the click than indicates that the guard has actuated the switch.

7. Repeat steps 4 and 5 until pressing the guard actuates the switch properly.

8. Recheck gap for 1/8-inch clearance.

9. Remove the nuts and socket head cap screws which have temporarily secured the guard and strap to the control head assembly.

10. Reinstall control head, guard, and strap on the steering arm, making certain that the spring and two spacers are back in place.

11. Reconnect electrical cable connectors, reinstall steering arm access cover, and reconnect the battery.

3-10. Control Head Switch Replacement. (Figure 3-4)

NOTE Replacements for third speed cutout switch (26, figure 3-4) are different than original equipment. The new switch uses two self tapping screws part number 068178 instead of the machine screws part number 068177. Also the switch opening in mounting plate part number 245734 must be enlarged from 1-3/8 inch to 1-7/16 inch to accomodate the new style switch.

1. Disconnect battery. Remove steering arm access cover (13, figure 3-5) and disconnect electrical cable connectors.

NOTE While removing the control head assembly, two spacers and one spring (needed for reassembly) will fall free.

2. Being careful to catch and retain the spring (14, figure 3-4) and two spacers (21) that fall from the steering arm as the complete control head assembly is removed, remove the four socket head screws (27) and lock washers (28) that secure the control head assembly, strap, and safety guard to the steering arm (16).

3. Replace the speed control switch (22), belly-button safety switch (29), and/or dynamic brake switch (19) as required.

NOTE If the belly-button safety switch is replaced, adjust it in accordance with paragraph 3-9 before reinstalling control head assembly.

4. After replacing defective switch(es), reinstall control head, strap, and safety guard, making certain that the spring (14) and two spacers (21) are put back in place.

5. Reconnect electrical cable connectors and reinstall steering arm access cover. Connect battery.

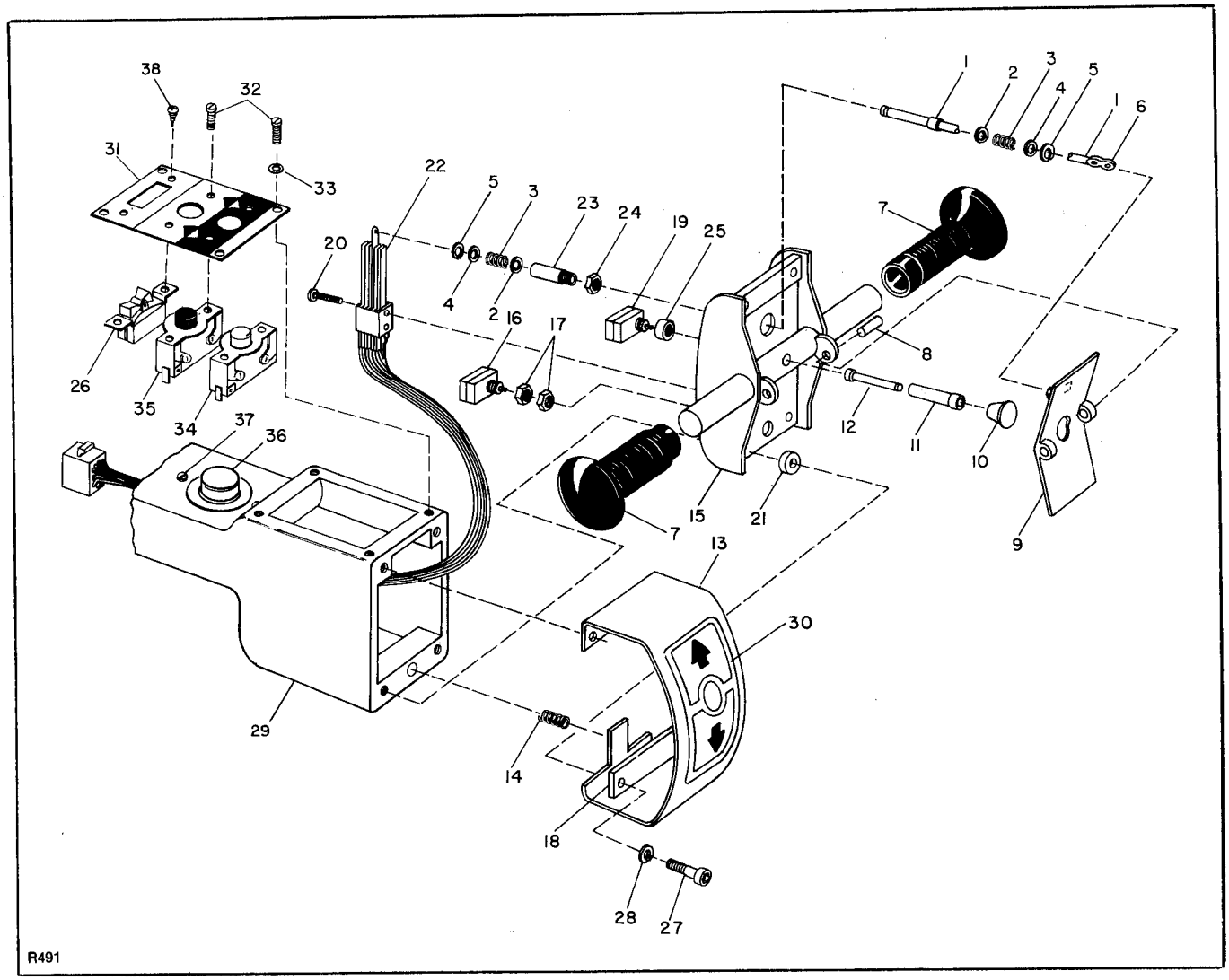


Figure 3-4. Control Head

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	502194	Control Head Assembly	1
1	061400*	Switch Plunger	1
2	077024*	Washer, 3/8 x 5/8 x 16 Ga	2
3	075023*	Spring	2
4	077025*	Washer, 3/8 x 5/8 x 5/64	2
5	061807*	Retaining Ring	2
6	058353*	Connecting Link	1
7	057502	Handle Grip	2
8	061002	Roll Pin, 1/4 x 3/4	2
9	500408	Speed Control	1
10	053200†	Dynamic Brake Pushbutton	1
11	057615†	Brake Switch Guide	1
12	060202†	Brake Switch Pin	1
13	101171	Belly-Button Safety Guard	1
14	075030	Belly-Button Safety Guard Spring	1
15	502920	Control Head Cover	1
16	020710	Pushbutton Switch (Belly-button safety)	1
17	059676	Locknut	2
18	245748	Strap	1
19	020710	Pushbutton Switch (Dynamic brake)	1
20	068185	Round Hd Machine Screw, 5-40 x 1-3/8	2
21	259103	Spacer	2
22	020651	Speed Control Switch Assy	1
	020682	Switch Only (Less harness)	1
	005612	Center Contact Blade	1
	005611	Outside Contact Blade	4
23	057613*	Plunger Guide	1
24	059674*	Locknut	2
25	074703†	Spacer	1
26**	020699	Rocker Switch	1
27	065555	Socket Hd Cap Screw, 5/16-18 x 1	4
28	077210	Lock Washer, 5/16	4
29	800066	Steering Arm (Also 12, fig. 3-5)	REF
30	076115	Decal	1
31**	245734	Mounting Plate	1
32	068177	Round Hd Machine Screw, 5-40 x 3/8	8
33	077203	Lock Washer, No. 5	4
34	020698	UP Switch (Red)	1
35	020697	DOWN Switch (Black)	1
36	501972	Horn Switch Assy	1
37	071376	Screw 10-32 x 1/2	2
38**	068178	Self Tapping Screw, 4-40 x 5/16	2
	068177	Round Head Machine Screw, 5-40 x 3/8	2

*Included in Speed Control Linkage Kit 900115

**See Note at beginning of paragraph 3-10.

†Included in Dynamic Brake Linkage Kit 900114

3-11. STEERING ARM (Figure 3-5).

The design of the steering arm clamp (10) has been changed and only the new version identified as part number 800204 will be supplied as a replacement. All trucks requiring replacement of the old style clamp will need the steering arm modified by enlarging the hole through which the socket head screw (15) is inserted. This hole is presently 5/8 inch and must be enlarged to 43/64 inch. Socket head screw (15) must also be replaced with a longer screw, part number 065569, which is a 7/16-14UNC-2A screw 2-1/4 inches long. The flanged bushing (16) part number 270508, will not be used and a new spacer (16), part number 401127, must be used. The new clamp also eliminates the need for the socket head screw (17) part number 065610.

a. Steering Arm Return Spring Adjustment.

The tension on the steering arm return spring should allow the steering arm to return gently to the upright position. Excessive Tension on the steering arm return spring will cause the steering arm to snap up and may cause damage to the electrical cable, brake linkage, or the spring itself. If the steering arm does not return fully, check for binding in the brake linkage or wiring harness before making any adjustments. If they do not bind, refer to figure 3-5 and proceed as follows to adjust the steering arm return spring tension.

NOTE On trucks still using clamp (10), part number 311401, screw (17) must be loosened to release the return spring assembly. On trucks using the new style clamp (10), part number 800204, screw (17) does not exist and the return spring is released by loosening screw (15).

NOTE The steering arm will have a tendency to fall when the tension on the return spring is released.

1. Hold the steering arm in upright position and make sure the arm cannot fall.

2. Insert a 5/16 allen wrench through hole in bottom of steering arm and loosen screw (15) or (17). The spring tube will rotate counterclockwise when screw is loosened.

3. With a pair of vise-grip pliers, grip the flat surfaces of spring tube assembly (1) and rotate clockwise 180 degrees.

4. Hold spring tube assembly in rotated position and tighten screw (15) or (17) to secure.

5. Check the spring action by lowering the steering arm and returning it to the upright position two or three times.

6. If necessary repeat steps 1 through 5, increasing or decreasing amount of rotation of the spring tube assembly until steering arm returns gently to full upright position.

b. Replacement.

The steering arm return spring is replaced while the steering arm is in the upright position.

1. Disconnect battery.

NOTE The steering arm has a tendency to fall downward when the tension on the return spring is released.

2. Hold steering arm in upright position and make sure the arm cannot fall.

3. With a piece of chalk or crayon, draw a straight line from center of spring tube assembly (1) into pivot cap (3), marking radial position of tube, to facilitate re-installation.

4. Insert a 5/16 allen wrench through hole in bottom of steering arm and loosen screw (15) or (17).

CAUTION Unless properly supported, steering arm will drop out of pivot cap when spring tube is removed.

5. Put a block under steering arm at pivot cap.

6. With a pair of vise-grip pliers, grip the flat surfaces of spring tube assembly (1), and slowly pull it free from the steering arm, pivot cap, and tube clamp.

NOTE Steering arm return spring (2) will remain inside the spring tube assembly.

7. Remove steering arm return spring (2) from spring tube assembly. If spring is severely jammed and will not come loose, use punch and drive the 1/4-inch diameter roll pin into the tube. Save pin for reuse. Remove the spring. Tap roll pin back into place.

8. Lubricate the ends and the outer surface of the new steering arm return spring with a lithium base general purpose grease.

9. Insert spring into spring tube assembly and press in, making sure that one spring loop eye fits over the 3/8-inch roll pin at the closed end of the spring tube assembly.

10. Slide spring tube assembly into pivot cap (3) and steering arm (12) through tube clamp (10) and through loop of electrical cable. Refer to figure 3-6 for internal view of steering arm with return spring installed.

11. Align radial position of spring tube assembly in accordance with line drawn in step 3. Slowly rotate spring tube assembly a few degrees each way until the steering arm return spring snaps into place over spring pin (6, figure 3-5); then tighten screw (15) or (17).

12. Remove block from under steering arm.

13. Refer to paragraph a, step 5 and, if necessary, adjust tension on steering arm return spring.

14. Reconnect battery.

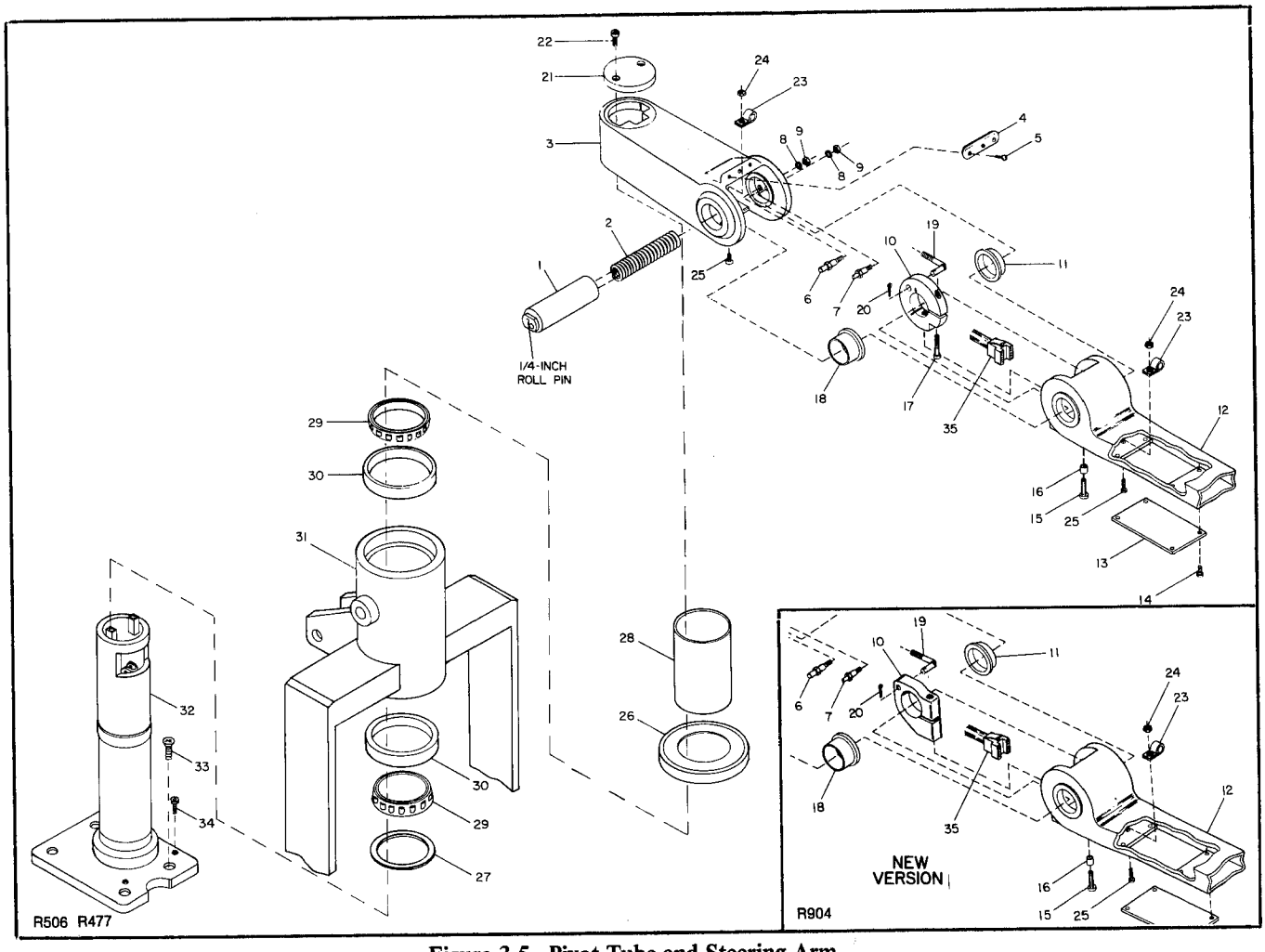


Figure 3-5. Pivot Tube and Steering Arm

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	501672	Steering Arm and Pivot Cap Assy	1
1	501371	Spring Tube Assy	1
2	075060	Steering Arm Return Spring	1
3	800064*	Pivot Cap	1
	800070†	Pivot Cap	1
4	052876	Bumper	1
5	062923	Pan Hd Screw, 10-32 x 3/8	3
6	285302	Spring Pin	1
7	285303	Spring Pin	1
8	077210	Lock Washer, 5/16	2
9	059426	Hex Nut, 5/16-18	2
10	311401▲	Tube Clamp	1
	800204	Tube Clamp	1
11	052922	Flanged Bushing	1
12	800066	Steering Arm (Also 16, fig. 3-4)	1
13	250718	Access Cover	1
14	071375	Truss Hd Screw	4
15	065605***	Socket Hd Screw, 3/8-16 x 1	1
	065569	Socket Hd Screw, 7/16-14 x 2-1/4	1
16	401127	Spacer	1
	270508***	Flanged Bushing	1
17	065610***	Socket Hd Screw	1
18	052925	Flanged Bushing	1
19	501396*	Upper Brake Rod	1
	501673†	Upper Brake Rod	1
20	060417	Cotter Pin, 3/32 x 3/4	1
21	191045	Pivot Cap Cover	1
22	065603	Socket Hd Screw, 3/8-16 x 3/4	2
23	056116*	Clamp	2
	502474†	Cable Clamp and Speed Nut	2
24	059421*	Hex Nut, 1/4-20	2
25	069478**	Flat Hd Screw, 1/4-20 x 3/4	2
	069484††	Phillips Flat Hd Screw, 1/4-20 x 2	2
26	800063	Dust Cover	1
27	073511	Seal	1
28	312101	Yoke Cap Tube	1
29	051193	Bearing Cone	2
30	051192	Bearing Cup	2
31	501485**	Yoke (Also 27, fig. 3-11, sheet 1)	REF
	502502††	Yoke (Also 27, fig. 3-11, sheet 2)	REF
32	501436	Pivot Tube and Mounting Base Assy	1
33	069710	Flat Hd Screw, 1/2-13 x 1-3/4	4
34	073480**	Socket Hd Cap Screw, 5/16-18 x 3/8	2
	065556††	Socket Hd Cap Screw, 5/16-18 x 1/2	2
35	023041*	Electrical Control Cable	1
	503201	Electrical Control Cable	1

*Serial Numbers below 74733 except 73324 and 73920

†Serial Numbers 73324, 73920, and 74734 and Higher

***Used with Tube Clamp 311401 only

▲Not available as a replacement part, use 800204 (See para. 3-11)

**Standard-Chassis Model

††Narrow-Straddle Model

3-12. Electrical Control Cable Replacement (Figure 3-6)

1. Disconnect battery.

2. Remove steering arm access cover (7).

3. Disconnect the connectors (8, 9).

4. Remove cable clamps (1, 2) and loosen loop of cable that is around the spring tube assembly (3).

5. Remove pivot cap cover (6).

6. Pull loose end of cable up, and let it extend through pivot cap cover opening.

7. Cut off connector (8) from end of cable.

8. Tape the cut end of the old cable to the terminal end of the new cable.

9. Grease the new cable with a lithium base grease or silicone spray.

NOTE Tag all wires with destination before disconnecting to insure proper reconnection.

10. Remove service cover and detach terminal end of old cable from all points of connection.

11. Draw new cable into pivot tube by pulling old cable out through the opening in transmission housing.

NOTE The cable leads are numbered consecutively.

12. Disconnect the old cable from the new cable and connect the new cable terminals sequentially.

13. Wipe off excess grease or silicone spray from exposed parts of the cable.

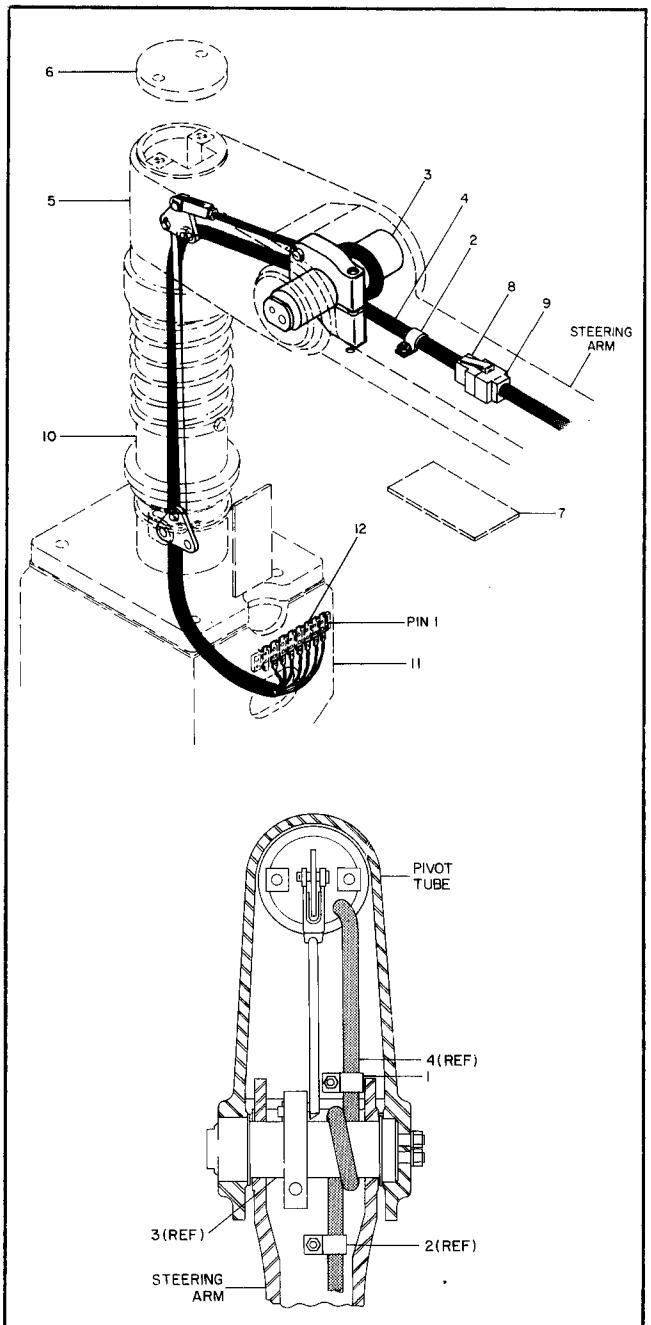
14. Pull the connector end of the cable under spring tube assembly (3) and out the opening at the elbow.

15. Eliminate cable slack in pivot tube; then secure cable with cable clamp (1).

16. Loop cable around spring tube assembly as illustrated and push connector end of cable into steering arm.

CAUTION Improper cable loop adjustment will damage the cable. If too tight, the cable will tear when the steering arm is in the up position. If too loose, the cable will buckle or be pinched when the steering arm is in the down position.

17. Pull the cable, grasping it through the steering arm access hole, until the cable is wrapped firmly around the spring tube assembly (3). Slack off approximately 1/2 inch and secure the cable in this position with cable clamp (2).



1 CABLE CLAMP
2 CABLE CLAMP
3 SPRING TUBE ASSEMBLY
4 ELECTRICAL CONTROL CABLE
5 PIVOT CAP
6 PIVOT CAP COVER
7 ACCESS COVER
8 FEMALE CONNECTOR
9 MALE CONNECTOR
10 PIVOT TUBE
11 TRANSMISSION HOUSING
12 TERMINAL BOARD

R905

Figure 3-6. Electrical Control Cable Replacement

18. Work steering arm up and down a few times to assure that the electrical control cable is not binding.

19. Connect the two cable connectors at the steering arm access opening.

20. Reinstall the steering arm access cover (7), pivot cap cover (6), and service cover.

21. Reconnect battery.

3-13 Mechanical Brakes.

Adjust the mechanical brake if it does not begin to hold when the steering arm is raised to within 15 degrees from its park position or lowered to within 15 degrees from its lowest position (See figure 3-7A). Proceed as follows:

a. Drum Brake Adjustment (figure 3-7A & B)

1. Disconnect battery.

2. Jack up the truck so the drive wheel is off the ground, then securely block the truck to prevent slipping.

3. Secure steering arm assembly in a position that is approximately 15 degrees down from its park position or 15 degrees up from its lowest position.

4. Remove service cover.

5. Loosen jam nut (1) on the brake rod (5).

6. While spinning the brake drum or drive wheel by hand, tighten the adjustment nut (2) against the tube (3) until you feel a noticeable drag.

7. Tighten jam nut. If the above adjustment is not adequate, proceed as follows:

8. Loosen castellated nut (6) that holds brake lever (4) to cam (8).

9. Rotate brake lever one or two grooves on the splined shaft of the cam.

10. Tighten the castellated nut.

11. Repeat steps 5 through 7.

NOTE It may now be necessary to back off on the adjusting nut slightly.

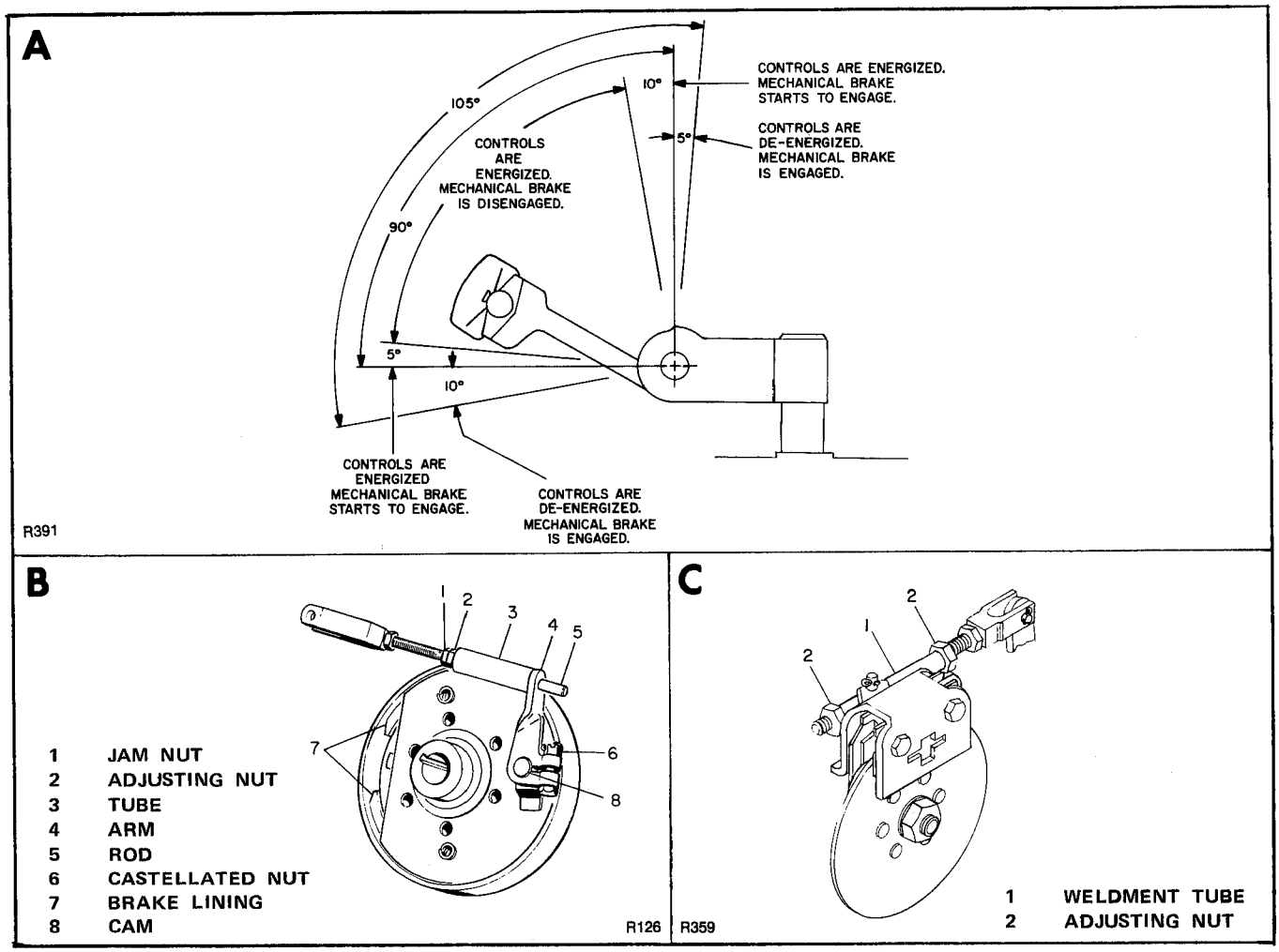


Figure 3-7. Mechanical Brake Adjustment

12. Resecure the steering arm in drive position and spin the drive wheel to be sure there is no drag.

13. Return the truck to operating condition.

b. Disc Brake Adjustment (Figure 3-7A & C)

1. Disconnect battery.

2. Jack up the truck so the drive wheel is off the ground, then securely block the truck to prevent slipping.

3. Secure steering arm assembly in a position that is approximately 15 degrees down from its park position or 15 degrees up from its lowest position.

4. Remove service cover.

5. Spin drive wheel by hand and position weldment tube (1) by adjusting nuts (2) until you feel a noticeable drag.

6. Tighten nuts (2) to secure adjustment.

7. Resecure the steering arm in drive position and spin the drive wheel to be sure there is no drag.

8. Return the truck to operating condition.

c. Replacement of Drum Brake Shoe (Figure 3-8)

1. Block the wheels to prevent the truck from rolling.

2. Remove service cover.

3. Secure the steering arm down from its park position so that the mechanical brake is disengaged.

4. Loosen and remove locknut (39) and lock washer (38).

5. Pull the brake drum (37) from the drive motor shaft, being careful to retain key (36).

6. Remove brake shoe return spring (32) and both brake shoe hold-down springs (29).

7. Remove both brake shoes (33).

8. Replace worn brake shoes and reverse disassembly procedure to assemble.

9. Release steering arm.

10. Refer to paragraph a and adjust brake.

d. Replacement of Disc Brake Parts. (Figure 3-9)

1. Block the wheels to prevent the truck from rolling.

2. Secure the steering arm down from its park position so that the mechanical brake is disengaged.

3. Remove service cover.

4. Remove two bolts (26) and nuts (25) to release brake pads (27).

5. If brake pads don't fall free, slide brake pads out from end of clamp (24).

6. Insert replacement brake pads in clamp assembly, one pad on each side of disc (30) with linings toward the disc, and secure pads and clamp with two bolts (26) and nuts (25).

7. Release steering arm.

8. Refer to paragraph a and adjust brake.

e. Brake Lever Replacement. (Figure 3-9)

1. Block the wheels to prevent the truck from rolling.

2. Remove service cover.

3. Position steering arm to the left as far as possible and secure the steering arm down from its park position so that the mechanical brake is disengaged.

NOTE The brake lever has a pin that fits into one of two slots on the inside of the clamp assembly.

4. Check position of brake lever (23) inside the clamp assembly so that you will be sure to place brake lever pin in correct slot during reassembly.

5. Release brake lever (23) from weldment tube (22) by removing cotter pin (3) from weldment tube stub.

NOTE The brake pads may fall free during the next step.

6. Remove two bolts (26) and nuts (25) to release brake clamp (24) from mounting plate (34).

7. If brake pads did not fall free, slide the brake pads (27) out from end of clamp and slide the brake lever (23) out through the brake lever access hole located on the opposite side of the clamp.

8. Check that replacement brake lever has pin tightly secured.

9. Slide the brake lever (23) through the brake lever access hole located on the opposite side of the clamp and align the brake lever so that the pin is in the proper pin slot.

10. Slide clamp (24) on mounting plate (34) so that mounting plate is at lever side of clamp, reinstall brake pads (27), one pad on each side of disc (30) with linings toward the disc, and check that pin in lever is in proper slot of the clamp.

11. Secure clamp to mounting plate with two bolts (26) and nuts (25).

12. Slide brake lever hole over weldment tube stub and secure with cotter pin.

13. Adjust the brake in accordance with paragraph b.

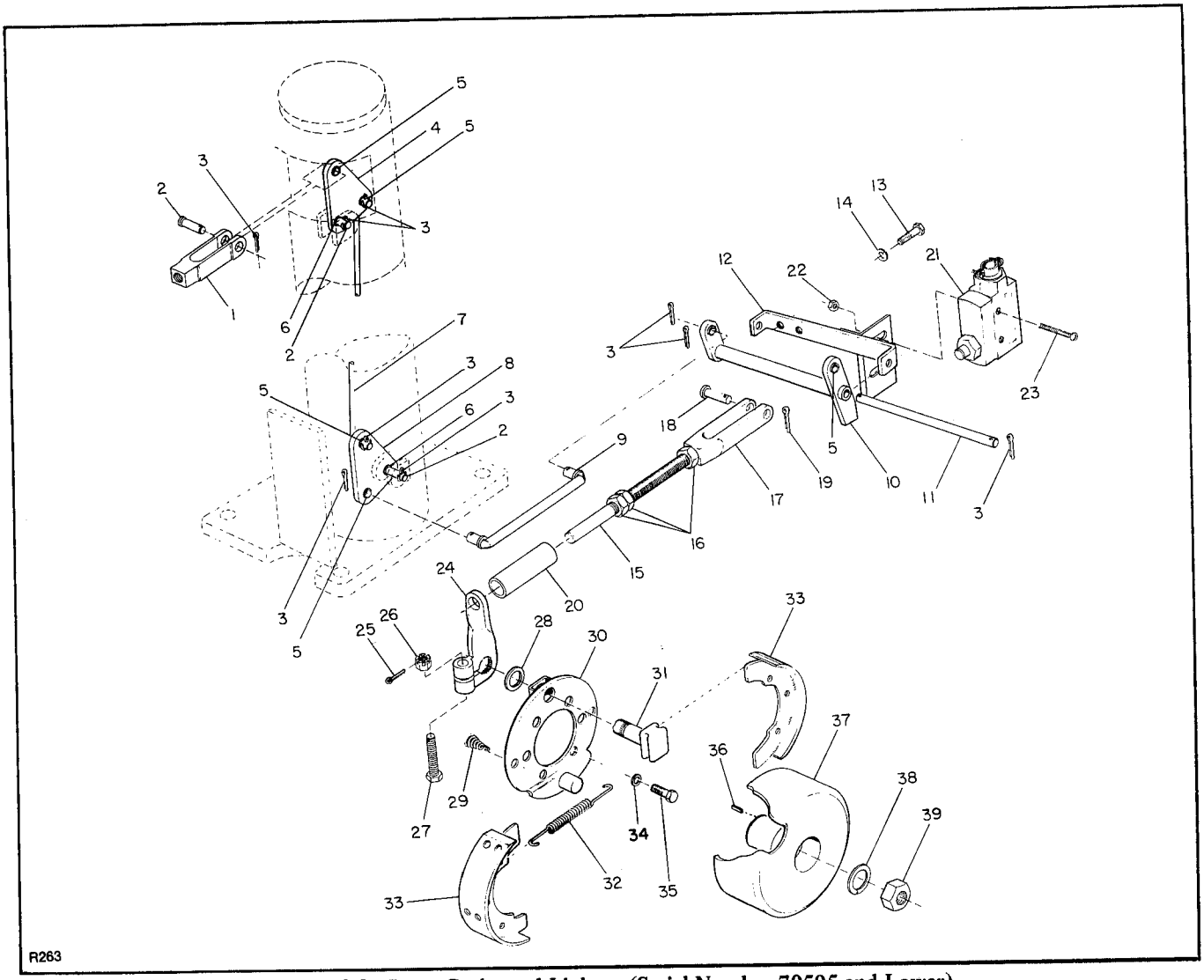


Figure 3-8. Drum Brake and Linkage (Serial Number 70595 and Lower)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	056200	Clevis	1
2	060300	Clevis Pin	3
3	060417	Cotter Pin	9
4	111104	Upper Pivot Plate	1
5	053109	Lock Bushing	6
6	053106	Flanged Bushing	2
7	500201	Tube Brake Rod	1
8	111105	Lower Pivot Plate	1
9	500202	Brake Rod	1
10	500424	Lower Lever Assy	1
11	258107	Pivot Pin	1
12	500197	Mounting Bracket Assy	1
13	063605	Hex Hd Cap Screw, 3/8-16 x 1	2
14	077211	Lock Washer, 3/8	2
	500508	Rod Assy	1
15	258108	Rod	1
16	059427	Hex Nut, 5/16-24	3
17	056200	Clevis	1
18	060300	Clevis Pin	1
19	060417	Cotter Pin	1
20	238508	Spacer	1
21	020729	Power Cutoff Switch	1

INDEX NO.	PART NO.	PART NAME	NO. REQD.
22	059412	Hex Nut, 6-32	2
23	068336	Round Hd Screw, 6-32 x 1-1/2	2
	052850	Mechanical Brake Assy	1
24	050602	Brake Lever	1
25	060403	Cotter Pin	1
26	059723	Slotted Hex Nut, 1/4-28	1
27	063531	Hex Hd Cap Screw, 1/4-28	1
28	077034	Flat Washer, 1/2	1
29	075029	Brake Shoe Hold-Down Spring	2
30	061308	Brake Backing Plate	1
31	053352	Cam Shaft	1
32	075028	Brake Shoe Return Spring	2
33	074401	Brake Shoe	2
34	077210	Lock Washer, 5/16	5
35	063552	Hex Hd Cap Screw, 5/16-18 x 5/8	5
36	057900	Key, 1/4 x 1/4 x 1-1/8	1
37	500406	Brake Drum	1
38	077215	Lock Washer, 5/8	1
39	059645	Locknut, 5/8-18	1

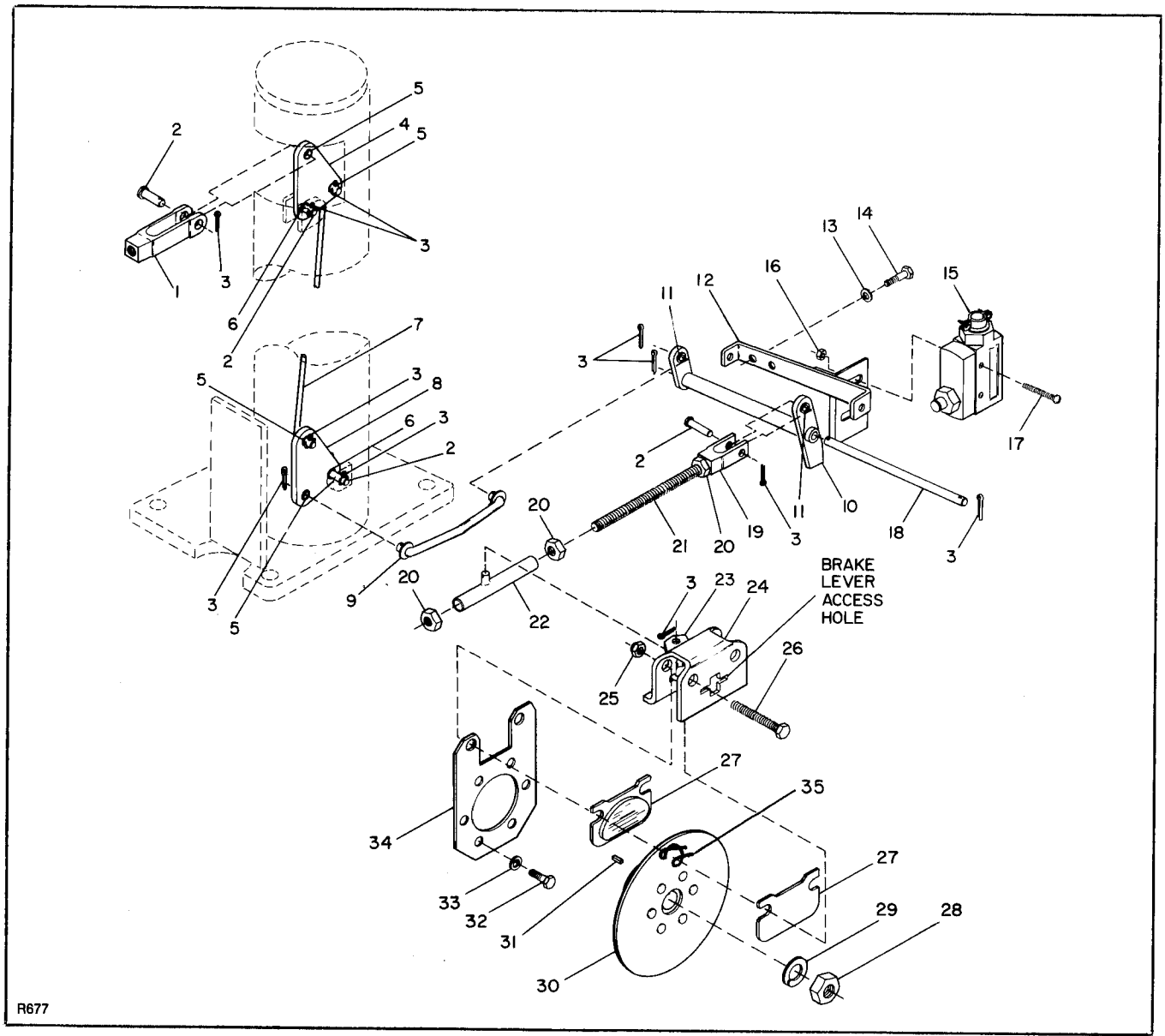


Figure 3-9. Disc Brake and Linkage (Serial Number 70596 and Higher)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	056200	Clevis	1
2	060300	Clevis Pin, 5/16 x 5/16	4
3	060417	Cotter Pin, 3/32 x 3/4	11
4	111104	Upper Pivot Plate	1
5	053109	Lock Bushing	4
6	053106	Flanged Bushing	2
7	500201	Tube Brake Rod	1
8	111105	Lower Pivot Plate	1
9	500202	Brake Rod	1
10	500424	Lower Lever Assy	1
11	053109	Lock Bushing	2
12	500197	Mounting Bracket Assy	1
13	077211	Lock Washer, 3/8	2
14	063605	Hex Hd Cap Screw, 3/8-16 x 1	2
15	020729	Power Cutoff Switch	1
16	059412	Hex Nut, 6-32	2
17	068336	Round Hd Screw, 6-32 x 1-1/2	2
18	258107	Pivot Pin	1
19	800119	Clevis	1
20	059427	Hex Nut, 5/16-24	3
21	258121	Rod	1
22	502814	Weldment Tube	1
	052857	Clamp Assy	1
23	052860	Brake Lever with Pin	1
24	052863	Brake Clamp	1
25	052862	Hex Nut	2
26	052861	Hex Hd Bolt	2
27	052859	Brake Pad	2
28	059645	Locknut, 5/8-18	1
29	077215	Lock Washer, 5/8	1
30	503083	Disc Assy	1
31	057900	Key, 1/4 x 1/4 x 1-1/8	1
32	063552	Hex Hd Cap Screw, 5/16-18 x 5/8	6
33	077210	Lock Washer, 5/16	6
34	111706	Mounting Plate	1
35	075070	Spring	2

3-14 Drive Motor Repair. (Figure 3-10)

The drive motor requires no periodic maintenance. If the truck does not run and the drive motor is at fault, remove cover band (12, figure 3-10) and then inspect brushes (9) and commutator (on armature). Replace brushes if they are worn. Clean commutator of rought spots with a fine emery cloth and remove accumulations of loose particles.

If the motor is to be disassembled, remove it from the transmission as follows:

1. Disconnect battery.

2. Remove brake unit. For trucks with drum brake, remove shoes (paragraph 3-13c). Then remove cotter pin (19, figure 3-8) and clevis pin (18), separating the rod clevis from the lower liner assembly. For trucks with disc brake, remove pads (paragraph 3-13d). Then remove lock nut (28, figure 3-9) and lock washer (29). Pull disc (30) from drive motor shaft being careful to retain key (31).

3. Make sure the four cables to the drive motor are properly labeled A1, A2, F1, and F2; then disconnect the cables from the drive motor.

4. Remove the two screws and washers which secure the motor to the transmission housing.

5. Transfer motor and attached brake parts to suitable workbench.

6. Continue disassembly of motor, using figure 3-10 as a guide.

3-15. CHASSIS AND PIVOT ASSEMBLIES.

a. General

It is essential to proper truck operation that the pivot assemblies are in good working order and kept properly adjusted. Beginning with truck serial number 83307, all standard chassis trucks except those with tandem load wheels have the new style universal push rods. These push rods offer a greater range of adjustment and simplify determining push rod replacement part number. The older style eccentric-adjusted push rod (on trucks serial number 83306 and lower and on all trucks with tandem load wheels) has shown to be durable and long lasting, but does not offer the ease of service of the universal push rods. The following paragraphs detail procedures for removal, installation and adjustment of the yoke assembly, pivot assemblies and both style push rods.

If you wish to retrofit an older standard chassis PPT-40 truck with the universal push rods, follow the procedures for removing the eccentric type and for installing the universal type push rods. Trucks with tandem load wheels cannot be retrofitted. Procedures are also included for replacement of pivot blocks.

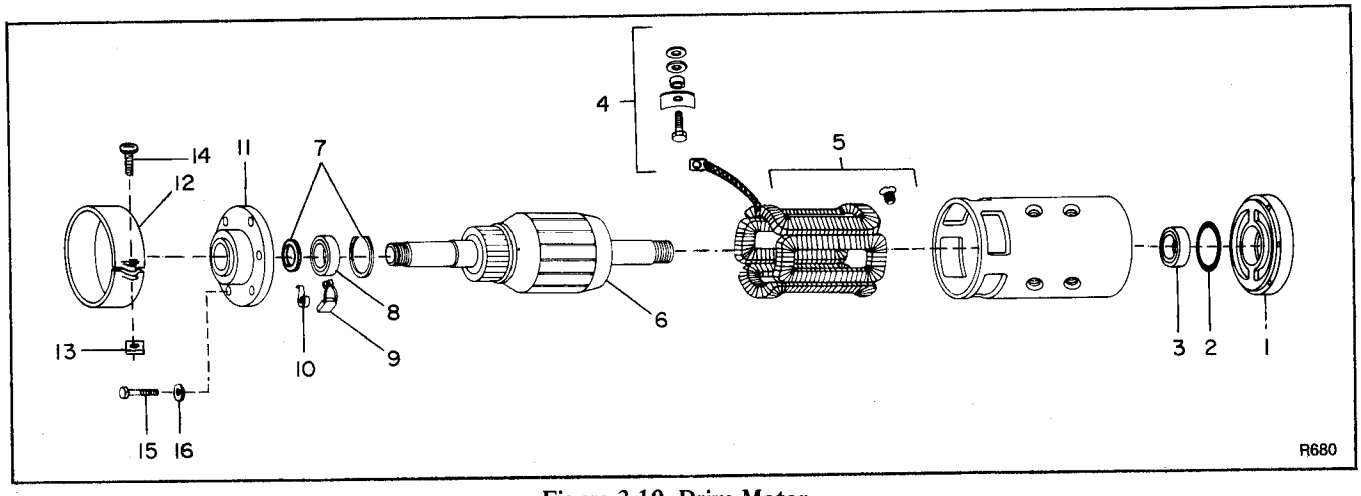


Figure 3-10. Drive Motor

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	016020	Drive Motor (MCP-4027)	1
1	009400	Drive End Head	1
2	042110	O-ring	1
3	051162	Drive End Bearing	1
4	900133	Terminal Stud and Lead Package	4
5	NP	Field Coil Package	1
6	001506	Armature	1
7	900135	Ring and Washer Package	1
8	051161	Commutator End Bearing	1
9	003709	Brush (Set of four)	1
10	900136	Brush Spring (Set of four)	1
11	900137	Commutator End Head	1
12	005951	Cover Band	1
13	059811	Square Nut, 10-32	1
14	068409	Round Hd Screw, 10-32 x 1-1/2	1
15	065477	Socket Hd Screw, 1/4-20 x 5/8	12
16	077209	Lock Washer, 1/4	12

b. Removal of Yoke and Pivot Assemblies.

The following procedure is recommended for disassembly of the pivot arms and yoke.

1. Disconnect battery. Leave steering arm in its park position.

2. Securely block load wheels. Remove service cover.

3. Disconnect the hose from the elbow attached to the pump.

NOTE Locate the harness passing in front of the pivot tube which contains the two heavy gauge battery cables and three small diameter wires.

4. Disconnect the two heavy gauge battery cables; one is connected to the negative battery connector and the other to the 300-ampere fuse terminal.

5. Disconnect the harness wires attached to the horn and to the solenoid.

6. Disconnect the remaining wire going to the motor. This can be disconnected at the inline connector which attaches the black wire to the red wire from the motor.

7. Disconnect the mechanical brake by removing the clevis pin that secures the rod clevis to the lower lever assembly.

8. Disconnect brake rod from lower lever assembly.

9. Disconnect the lift cylinder from the yoke by removing the bottom shaft (17, figure 3-24 or 3-25) and two snap rings (18) joining them.

10. Attach chains of overhead crane or similar equipment to horizontal bars of yoke on either side of its pivot tube bearing. Tighten chains to support the yoke.

NOTE Numbers in parenthesis ( ) refer to standard chassis figures 3-11 and 3-12 and numbers in brackets [ ] refer to narrow straddle of figure 3-13.

11. Raise the rear of the truck with jacks or other suitable means to provide access to the lower pivot arm shafts.

12. Remove shafts (23) [14] and (38) [30] their securing pins (8) [6], freeing pivot assemblies from chassis.

13. Use crane to raise the yoke a few inches for better access to pivot assemblies (19) [9] and (24) [33].

14. To disconnect push rod from lower pivot arm:

a. on eccentric-adjusted trucks, remove screw (17, fig. 3-11) being careful not to lose eccentric (18), bushing (21), and lock washer (15).

b. on universal push rod trucks, remove screw (21, figure 3-12) being sure to retain bushing (18).

c. on narrow straddle trucks, slide pivot arm (9, figure 3-13) off spindle on lug weldment (34) being sure to retain bushing (10).

15. Carefully move yoke clear of truck.

16. Further disassembly may be accomplished using figure 3-11, 3-12, or 3-13 as a guide.

c. Installation of Yoke.

Reinstall the yoke by reversing the removal procedure. On trucks with eccentric-adjusted push rods, lubricate the threads on screw (17, figure 3-11) before reconnecting the push rods to the lower pivot assembly. Tighten screw until just snug, and refer to paragraph 3-15f to adjust eccentric.

d. Removal of Eccentric-Adjusted Push Rod.

In order to perform the following procedure, the truck must be placed in a service position, either securely held off the floor, or carefully tipped on its side. If proper hoists or jacks are available, lower the lift carriage as far as it will go, raise the truck off the floor and proceed to step 5. If you must tip the truck, perform the following steps.

1. Lower the lift carriage all the way, and then disconnect and remove batteries.

2. Plug the hydraulic reservoir and transmission breather vents with 3/8 NPT pipe plugs.

3. Disconnect the high-pressure hydraulic hose at the pump and place the free end of hose in a clean container to catch the oil that may drain from lift cylinder.

4. Carefully tip truck onto its side.

5. Remove 1/2-inch screw (17, figure 3-11), nut and lock washer from rear end of push rod.

6. Detach push rod from lower pivot arm and remove and retain eccentric bushing (18), bushing (21), and lock washer (15).

NOTE Figure 3-18 illustrates tandem load wheel.

7. Remove roll pin (5) which secures the wheel housing pivot shaft (4) to the straddle.

8. Support push rod. Slowly remove pivot shaft and release wheel housing (9), roller (41) and exit rollers (45) (if applicable) from straddle. Retain exit rollers and roller.

9. To separate push rod and wheel housing, remove roll pin (12) and pivot shaft (11).

10. Repeat steps 5 through 9 to remove second push rod.

e. Installation of Eccentric-Adjusted Push Rod.

NOTE When replacing pushrods be sure to order correct part. Correct part number depends on straddle length, battery box size, and fork length as specified in parts list. For special length pushrods on eccentric-adjustment standard straddle trucks (serial number 83306 and lower) and all narrow straddle trucks refer to figure 3-16 for ordering information.

Before the push rod is installed, check pivot blocks for wear. If pivot blocks show signs of wear, refer to paragraph 3-16b to replace pivot blocks if necessary, and to modify wheel housings to accommodate exit rollers.

Replace worn pivot shafts with new ones and use new roll pins when replacing push rods. It will be necessary to drill out the roll pin holes in the pivot blocks and wheel housing pivot shafts to accommodate the larger roll pins now being supplied. Big Joe offers a kit (part number 900705) which includes a wheel housing pivot shaft with a 5/16-inch hole and the 5/16-inch roll pin.

1. Drill out holes in pivot blocks and wheel housing pivot shafts to 5/16-inch. When drilling holes in pivot block, drill holes all the way through straddle to facilitate future removal of roll pin.

2. Attach wheel housing to push rod with pivot shaft (11, figure 3-11) and secure with roll pin (12).

3. Reinstall wheel housing (9), roller (41) and exit rollers (45) into straddles. Install wheel housing pivot shaft (4) and secure with roll pin (5).

4. Attach push rod to lower pivot arm, making sure eccentric (18), bushing (21) and lock washer (15) are properly positioned. Secure with screw (17), lock washer (16) and nut (14). Tighten until just snug. Refer to paragraph 3-15f to adjust eccentric.

f. Adjustment of Eccentric-Adjusted Push Rod.

To obtain proper lift height and smooth operation of the forks, the eccentric must be properly positioned. Proceed as follows to adjust the eccentric-adjusted push rods.

1. Disconnect battery and remove service cover.

2. Jack up truck so load wheels and drive wheel clear the floor.

3. Loosen nut (14, figure 3-11) and turn eccentric (18) until all looseness in push rod linkage is taken up.

NOTE Refer to detail A

Torque applied = $\frac{(L+12)}{(12)}$ X (Torque Wrench Reading

L=Length of Box Wrench (inch)

4. While holding eccentric in adjusted position, tighten nut (14) to 135 ft.-lb.

5. Adjust other push rod in the same manner.

6. Lower the truck to the floor. Reconnect the battery and test truck for proper lift and lower operation. Lowered height of the forks should be no greater than 3-3/8 inches and lift height no less than 8 inches, measured from the floor to the top of the straddles. Operation should be smooth and even. If truck lifts more on one side than the other, push rods have been adjusted unevenly. If rear of truck lifts before straddle tips, there is still some looseness in the push rod linkage. Repeat adjustment until proper operation is achieved.

7. Replace service cover.

g. Removal of Universal Push Rod

In order to perform the following procedure, the truck must be placed in a service position. See paragraph 3-15d.

1. Remove screw (21, figure 3-12) and disconnect push rod from lower pivot arm.

2. Remove roll pin (5) which secures the wheel housing pivot shaft (4) to the straddle.

3. Support push rod. Slowly remove pivot shaft (4) and release wheel housing (9), roller (41), and exit rollers (45) from straddle. Retain exit rollers and roller.

4. To separate push rod and wheel housing, remove roll pin (12) and pivot shaft (11).

h. Installation of Universal Push Rod.

Before a new push rod is installed, inspect old pivot shafts for wear and replace if necessary. New roll pins should be used to insure snug fit. On trucks serial number 84035 and lower, it will be necessary to drill out the roll pin holes in the pivot blocks and wheel housing pivot shafts to accommodate the larger roll pins now being supplied. Big Joe offers a kit (part number 900705) which includes a wheel housing pivot shaft with a 5/16-inch hole and the 5/16 roll pin. To modify pivot blocks and install a universal push rod, refer to figure 3-12 and follow this procedure.

1. If the roll pin holes in the pivot blocks and wheel housing pivot shafts (4) are 3/16-inch, drill out holes to 5/16 inch. When drilling holes in pivot block, drill holes all the way through straddle to facilitate future removal of roll pin.

2. Note orientation of cross head (13) and attach it to wheel housing (9) by means of push rod pivot shaft (11) and roll pin (12).

3. Reinstall wheel housing, roller (41) and exit rollers (45) into straddles. Install wheel housing pivot shaft (4) and secure with roll pin (5).

NOTE Threaded stud (15) has a right-hand thread on one side and a left-hand thread on the other side.

4. Thread jam nuts (14, 16) all the way onto the appropriate sides of threaded stud (15).

5. Screw the left-hand end of threaded stud (15) into cross head (13) to about half the length of the stud end.

6. Thread new push rod (17) onto right-hand end of threaded stud to about half the length of the stud end.

7. Install spindle (18) into lower pivot arm.

NOTE The threaded stud (15) may have to be adjusted before rear end of push rod can be connected to lower pivot arm. Do not tighten jam nuts at this time.

8. Connect push rod (17) to lower pivot arm using screw (21), lock washer (46) and nut (47).

9. Repeat steps 1 through 7 to install second push rod.

10. When both push rods are installed, leave truck in service position and proceed to the adjustment paragraph.

i. Adjustment of Universal Push Rod.

To insure even raising and lowering of lift carriage, and correct lowered height of lift carriage, the push rods must be properly adjusted. Follow this procedure to adjust the universal push rods.

1. Place a clamp from the top of each straddle to the bottom of each wheel housing.

NOTE Clamping the wheel housing into the straddle will compress the lift cylinder. If the high-pressure hose has not been disconnected from the pump, it will be necessary to operate the lowering switch while tightening the clamps.

2. Tighten the clamps so that the wheel housings are pushed as far as they will go into the straddles.

3. Turn the threaded stud (15) in the direction that will shorten push-rod length. Continue to turn stud until push rod feels loose.

4. Check clamp and tighten if necessary.

5. With push rod loose, turn stud in opposite direction (lengthening push rod). Continue turning until the push rod begins to feel snug. At this point, all slack is taken up.

6. Tighten stud 1/6 of a turn (one flat on the hexagon center of stud) further, and while holding stud there, tighten down jam nuts against the threaded blocks in the cross head (13) and in the push rod (17).

7. Repeat the procedure for the other push rod.

8. Return truck to the normal operating position and restore it to operating condition. Add hydraulic oil if necessary.

9. Select a relatively smooth flat area free of debris to test the adjustment.

10. Without a load, raise and lower lift carriage several times and watch for rocking or tilting of truck. If truck lifts evenly, go to step 13.

11. If the rear of the truck lifts before the ends of the straddles, the push rods are too short. Return truck to service position and reclamp wheel housings to straddles. Loosen jam nuts and rotate threaded stud to lengthen the push rods. Make adjustments approximately 1/16 of a turn at a time, and recheck.

NOTE For minor adjustments, the wheel housings do not have to be clamped; the truck need not be put in service position.

12. If truck lifts more on one side, the push rod on the straddle that droops must be lengthened. For this minor adjustment jack up the one side enough to get wrenches on jam nuts and threaded stud. Lengthen push rod slightly and recheck.

13. Correct lowered height of truck should be 3-1/4 to 3-3/8 inches. If lowered height exceeds 3-3/8 inches shorten both push rods the same amount, one at a time.

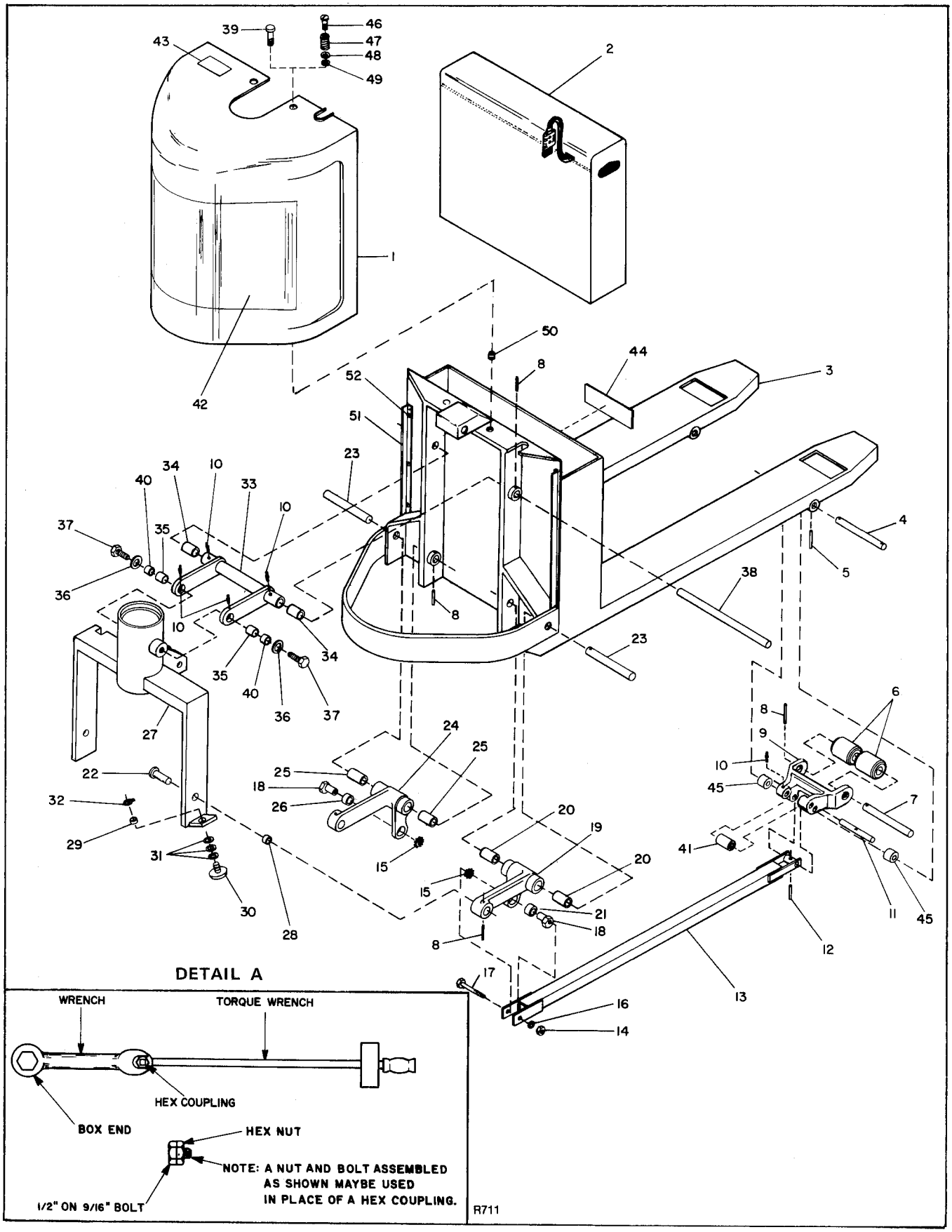


Figure 3-11. Standard Chassis and Pivot Assembly (Eccentric Adjusted Push Rods)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	------	Service Cover (Plastic service cover is no longer available, see paragraph 3-27 for metal cover conversion procedures and kit).	1
2	003108	Battery, 375A, 12 V	1
	003109	Battery, 450A, 12 V	1
	003124	Battery, 510A, 12 V	1
3	503155	Carriage Assy, 27 in. Wide Backrest, 48 in. Fork Length	1
	503495	Carriage Assy, 27 in. Wide Backrest, 42 in. Fork Length	1
	503496	Carriage Assy, 27 in. Wide Backrest, 36 in. Fork Length	1
4	294504	Shaft, 3/4 x 8-5/8	1
5	060974	Roll Pin, 3/16 x 1-1/4	2
6	501433	Wheel Assembly	4
	078255	Wheel	1
	051136	Bearing	2
7	312301	Axle	2
8	060976	Roll Pin, 3/16 x 1-1/2	7
9	800081	Wheel Housing	2
10	025712	Grease Fitting	6
11	294505	Shaft	2
12	060972	Roll Pin, 1/8 x 1	2
13	503289*	Push Rod, 36 in. Fork (8 in. Battery Box)	2
	503288*	Push Rod, 42 in. Fork (8 in. Battery Box)	2
	503214*	Push Rod, 48 in. Fork (8 in. Battery Box)	2
	501422**	Push Rod, 36 in. Fork (7-1/4 in. Battery Box)	2
	501421**	Push Rod, 42 in. Fork (7-1/4 in. Battery Box)	2
	501420**	Push Rod, 48 in. Fork (7-1/4 in. Battery Box)	2
14	059437	Hex Nut, 1/2 x 13	2
15	077412	Lock Washer, 1/2 External Tooth	2
16	077213	Lock Washer, 1/2, Split	2
17	064710	Hex Hd. Cap Screw, 1/2-13 x 3	2
18	400669	Eccentric Bushing	2
19	800168*	Pivot Arm, Lower Right Hand, Cast	1
	503429**	Pivot Arm, Lower Right Hand, Weldment	1
20	053103	Bushing	2
21	052939	Bushing	1
22	503391	Spindle	1
23	400458*	Shaft	2
	296404**	Shaft (With 025712 Grease Fitting)	2
24	800167*	Pivot Arm, Lower Left Hand	1
	503430**	Pivot Arm, Lower Left Hand	1
25	053103	Bushing	2
26	052939	Bushing	1
27	501485	Yoke (Also 31, fig. 3-5)	1
28	052923	Bushing	2
29	052926	Bushing	2
30	501507	Saucer Assy	2
31	077026	Flat Washer, 3/4	6
32	061719	Snap Ring	2
33	800078*	Pivot Arm Upper (Casting w/o Bushings)	1
	501432**	Pivot Arm Upper (Weldment with Bushings)	1
34	053103	Bushing	2
35	052923	Bushing	2
36	077082	Flat Washer, 13/16 I.D. x 1-1/2 O.D. x 9 Ga.	2
37	063869	Hex Head Cap Screw, 3/4-10 x 2	2
38	296403	Shaft, 1 in. dia x 15-1/2	1
39	070476††	Round Head Screw, 1/4-20 x 1/2	2
40	277607	Steel Bushing	2
41	313301	Roller	2
42	056475	Decal	1
43	056564	Maintenance Decal	1
44	056499	No-Riding Decal	1
45	401043†	Exit Roller	3
46	057182**	Stud (Plastic Service Cover)	2
47	057176**	Spring (Plastic Service Cover)	2
48	057177**	Nylon Wear Bushing (Plastic Service Cover)	2
49	057178**	Retainer (Plastic Service Cover)	2
50	057181**	Threaded Receptacle (Plastic Service Cover)	2
51	250736**	Trim (Plastic Service Cover)	2
52	071379**	Screw (Plastic Service Cover)	6

Note: For special length Push rods refer to Figure 3-16 for information on how to order replacement parts.

†Standard on trucks serial number 82242 and higher. Older trucks may be retrofitted.

*Used on trucks serial number 74870 through 83306.

**Used on trucks serial number 74869 and lower.

††Used with plastic service cover only (See paragraph 3-27 for metal cover attaching hardware).

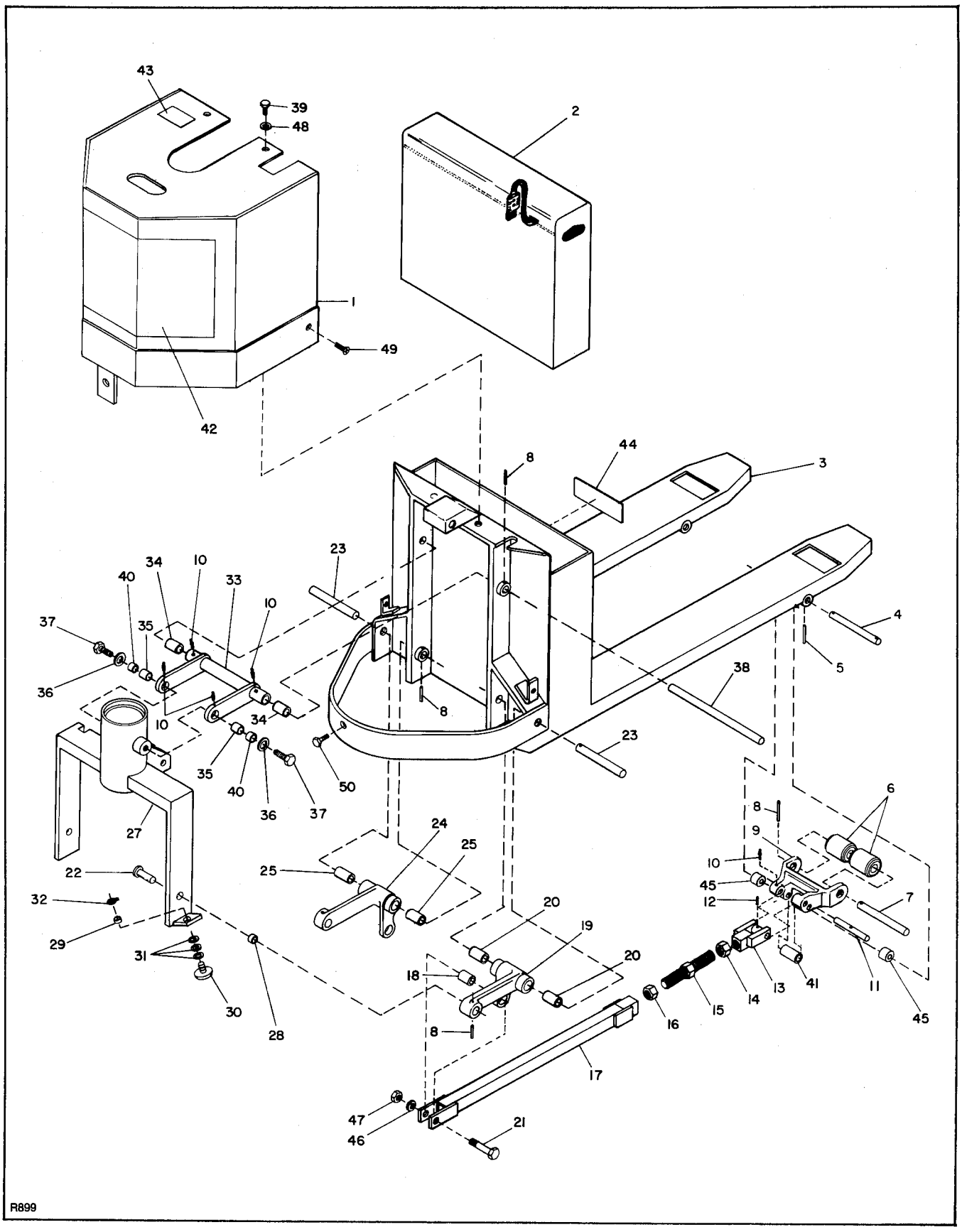


Figure 3-12. Standard Chassis and Pivot Assembly (Universal Push Rods)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	503731	Metal Service Cover	1
2	------	Battery (See 2, fig. 3-11)	1
3	503155	Carriage Assy, 27 in. Wide Backrest, 48 in. Fork Length	1
	503495	Carriage Assy, 27 in. Wide Backrest, 42 in. Fork Length	1
	503496	Carriage Assy, 27 in. Wide Backrest, 36 in. Fork Length	1
4	294504	Shaft, 3/4 x 8-5/8	1
5	061025	Roll Pin, 5/16 x 1	2
6	501433	Wheel Assembly	4
	078255	Wheel	1
	051136	Bearing	2
7	312301	Axle	2
8	060976	Roll Pin, 3/16 x 1-1/2	7
9	800081	Wheel Housing	2
10	025712	Grease Fitting	6
11	294505	Shaft	2
12	060972	Roll Pin, 1/8 x 1	2
	900697	Universal Push Rod Kit (48-in. straddles)	2
	900698	Universal Push Rod Kit (42 in. straddles)	2
	900699	Universal Push Rod Kit (36-in. straddles)	2
13	503720	Cross Head	1
14	401080	Left Hand Hex Jam Nut, 1-8 UNC	1
15	401078	Threaded Stud	1
16	401079	Right Hand Hex Jam Nut, 1-8 UNC	1
17	503719	Push Rod (48 in. straddles)	1
	503732	Push Rod (42 in. straddles)	1
	503733	Push Rod (36 in. straddles)	1
18	401101	Bushing	1
19	800168	Pivot Arm, Lower Right Hand Cast	1
20	053103	Bushing	2
21	064714	Hex Head Screw, 1/2-13 x 3	2
22	503391	Spindle	1
23	400458	Shaft	2
24	800167	Pivot Arm, Lower Left Hand	1
25	053103	Bushing	2
26	052939	Bushing	1
27	501485	Yoke (Also 31, fig. 3-5)	1
28	052923	Bushing	2
29	052926	Bushing	2
30	501507	Saucer Assy	2
31	077026	Flat Washer, 3/4	6
32	061719	Snap Ring	2
33	800078	Pivot Arm Upper (Casting w/o Bushings)	1
34	053103	Bushing	2
35	052923	Bushing	2
36	077082	Flat Washer, 13/16 I.D. x 1-1/2 O.D. x 9 Ga.	2
37	063869	Hex Head Cap Screw 3/4-10 x 2	2
38	296403	Shaft, 1 in. dia x 15-1/2	1
39	063555	Hex Head Screw, 5/16-18 x 1	2
40	277607	Steel Bushing	2
41	313301	Roller	2
42	056475	Decal 056631 Hood decal	1
43	056564	Maintenance Decal Caution	1
44	056499	No-Riding Decal	1
45	401043	Exit Roller	4
46	077217	Split Lock Washer, 1/2	2
47	059437	Hex Nut, 1/2-13	2
48	077210	Lock Washer, 5/16	2
49	069705	Flat Head Screw, 1/2-13 x 1	2
50	063705	Hex Head Screw, 1/2-13 x 1	1

decal kit 900928

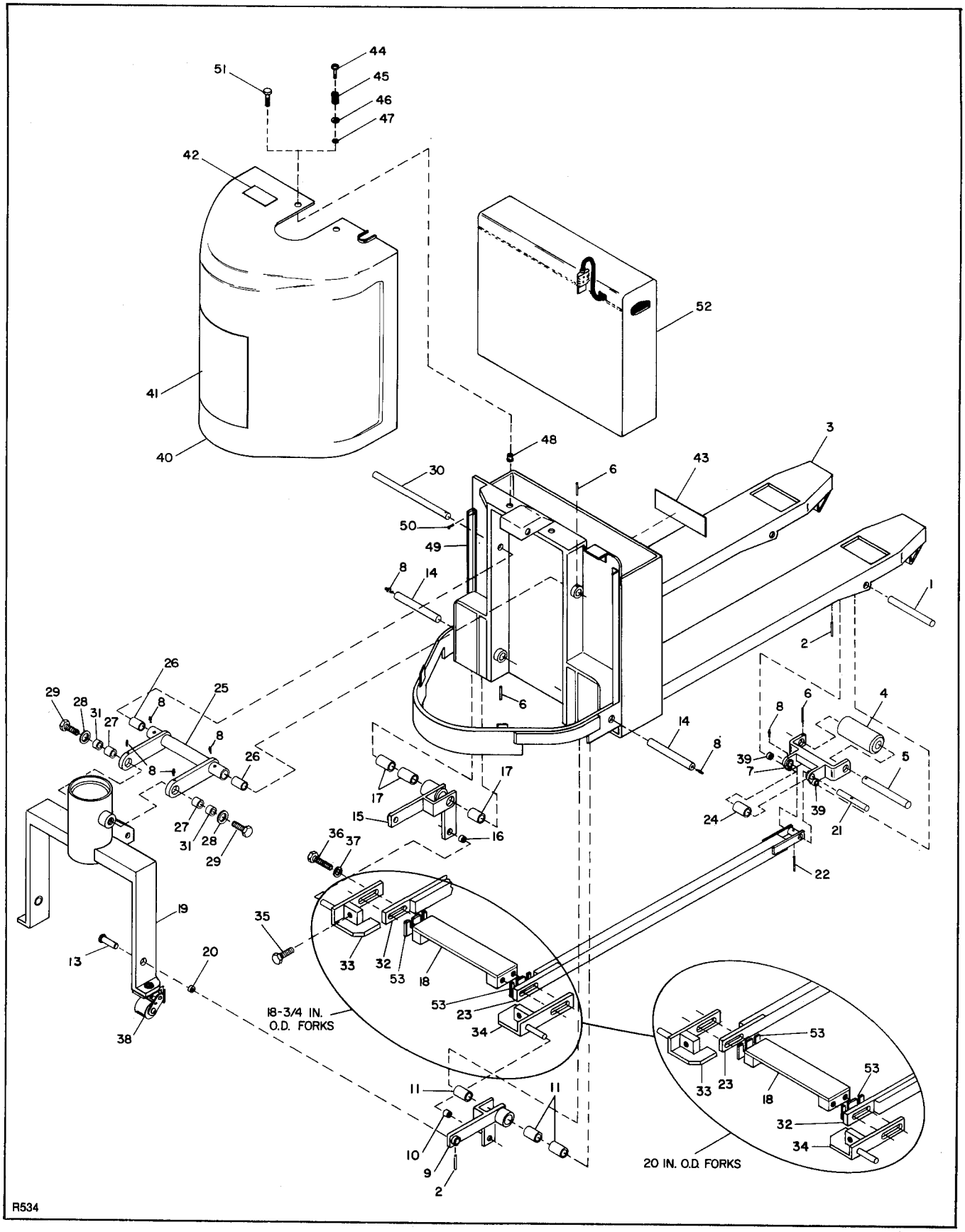


Figure 3-13. Narrow Straddle Chassis & Pivot Assembly

INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	294510	Shaft	2
2	060974	Roll Pin, 3/16 dia x 1-1/4	2
3	503582	Carriage Assembly, 27 in. Wide Backrest, 18-3/4 Fork O.D.	1
4	501692	Wheel Assembly	2
	078257	Wheel	1
	051136	Bearing	2
5	312304	Axle	2
6	060976	Roll Pin, 3/16 dia x 1-1/2	7
7	800195	Wheel Housing (Cast, New Style)	2
	501924	Wheel Housing (Weldment, Old Style)	2
8	025712	Grease Fitting	10
9	800194*	Pivot Arm Lower Right Hand (Cast, New Style)	1
	502508**	Pivot Arm Lower Right Hand (Weldment, Old Style)	1
10	052939*	Bushing (Used with Pivot Arm P/N 800194)	1
	052923**	Bushing (Used with Pivot Arm P/N 502508)	1
11	052929**	Bushing (Used with Pivot Arm P/N 502508)	3
12	052923	Bushing	A/R
13	503391	Spindle	2
14	296409	Shaft	2
15	800193*	Pivot Arm, Lower Left Hand (Cast, New Style)	1
	502509**	Pivot Arm, Lower Left Side (Weldment with Bushings)	1
16	052939**	Bushing (Used with P/N 502509)	1
	052923	Bushing (Used with P/N 502509)	1
17	052929	Bushing	3
18	501928	Push Rod Yoke	1
19	502502	Yoke (Also 31, fig. 3-5)	1
20	052939	Bushing	2
21	294510	Shaft	2
22	060972	Roll Pin, 3/16 dia x 1 in.	2
23	503626*	Push Rod, Right Hand, 36 in. Forks (8 in. Battery Box) (18-3/4 in. straddle)	1
	503624*	Push Rod, Right Hand, 42 in. Forks (8 in. Battery Box) (18-3/4 in. straddle)	1
	503589*	Push Rod, Right Hand, 48 in. Forks (8 in. Battery Box) (18-3/4 in. straddle)	1
	503630**	Push Rod, Right Hand, 36 in. Forks (7-1/4 in. Battery Box) (18-3/4 in. straddle)	1
	503628**	Push Rod, Right Hand, 42 in. Forks (7-1/4 in. Battery Box) (18-3/4 in. straddle)	1
	501926**	Push Rod, Right Hand, 48 in. Forks (7-1/4 in. Battery Box) (18-3/4 in. straddle)	1
	503629	Push Rod, Right Hand, 36 in. Forks (7-1/4 in. Battery Box) (20 in. straddle)	1
	503627	Push Rod, Right Hand, 42 in. Forks (7-1/4 in. Battery Box) (20 in. straddle)	1
	503927	Push Rod, Right Hand, 48 in. Forks (7-1/4 in. Battery Box) (20 in. straddle)	1
24	313301	Exit Roller	2
25	800078*	Upper Pivot Arm (Cast New Style w/o Bushings)	1
	501432**	Upper Pivot Arm (Weldment Old Style with Bushings)	1
26	053103	Bushing	2
27	052923	Bushing	2
28	077082	Flat Washer, 13/16 I.D. x 1-1/2 O.D. x 9 Ga.	2
29	063869	Hex Hd Cap Screw, 3/4-10 x 2	1
30	296403	Shaft	1
31	277607	Bushing, Steel	2
32	503625*	Push Rod,Left Hand, 36 in. Forks (8 in. Battery Box) (18-3/4 in. straddle)	1
	503623*	Push Rod,Left Hand, 42 in. Forks (8 in. Battery Box) (18-3/4 in. straddle)	1
	503588*	Push Rod,Left Hand, 48 in. Forks (8 in. Battery Box) (18-3/4 in. straddle)	1
	503629**	Push Rod,Left Hand, 36 in. Forks (7-1/4 in. Battery Box) (18-3/4 in. straddle)	1
	503627**	Push Rod,Left Hand, 42 in. Forks (7-1/4 in. Battery Box) (18-3/4 in. straddle)	1
	501927**	Push Rod,Left Hand, 48 in. Forks (7-1/4 in. Battery Box) (18-3/4 in. straddle)	1
	503630	Push Rod, Left Hand, 36 in. Forks (7-1/4 in. Battery Box) (20 in. straddle)	1
	503628	Push Rod, Left Hand, 42 in. Forks (7-1/4 in. Battery Box) (20 in. straddle)	1
	503926	Push Rod, Left Hand, 48 in. Forks (7-1/4 in. Battery Box) (20 in. straddle)	1
33	502116	Lug Weldment, Left Hand	1
34	502115	Lug Weldment, Right Hand	1
35	065620	Hex Head Cap Screw, 3/4 x 2	2
36	063870	Hex Head Cap Screw, 3/4 x 2-1/2	4
37	077217	Lock Washer, 3/4	4
38	502331	Caster Assembly (See fig. 3-11)	REF
39	313307	Spacer	2
40	------	Service Cover (Plastic Service Cover is no longer available, see paragraph 3-27 for conversion procedures and kit).	1
41	056475	Decal	1
42	056564	Maintenance Decal	1
43	056499	No Riding Decal	1
44	057182**	Stud (Plastic Service Cover)	2
45	057176**	Spring (Plastic Service Cover)	2
46	057177**	Nylon Wear Bushing (Plastic Service Cover)	2
47	057178**	Retainer (Plastic Service Cover)	2
48	057181**	Threaded Receptacle (Plastic Service Cover)	2
49	250736**	Trim (Plastic Service Cover)	2
50	071379**	Screw (Plastic Service Cover)	6
51	------††	Round Head Screw, 1/4-20 x 1/7	2
52	------	Battery (See 2, fig. 3-11)	1
53	400612	Spacer	A/R

††Used with plastic service cover. (See paragraph 3-27 for metal cover attaching hardware.

Note: For special length Pushrods, refer to Fig. 3-16 for information on ordering replacement parts.

*Used on trucks serial number 74870 and higher.

**Used on trucks serial number 74869 and lower.

3-16. WHEEL HOUSINGS AND EXIT ROLLERS

a. General.

Excessive wear of pivot blocks has occured on some standard chassis pallet trucks under severe operating conditions such as loading or unloading heavy loads from trucks on inclined ramps. Incorporation of new exit rollers between the standard wheel housing and pivot blocks will greatly reduce wear.

The standard wheel housings on trucks prior to serial number 82242 must be modified to accommodate the new exit rollers. Trucks with tandem load wheels cannot be modified. Procedures are provided for accomplishing this modification also for the replacement of the pivot blocks. It is suggested that the pivot blocks be replaced on any truck showing enlargement of the shaft hole in the pivot blocks.

b. Pivot Block Replacement.

The following parts are required when replacing pivot blocks:

PART NO.	PART NAME	QTY.
294504	Pivot Shaft	2
201127	Pivot Block	2
201128	Pivot Block	2
400065	Bar	4
061025	Roll Pin, 5/16 X 1	2
401043	Exit Rollers	4
----	Shaft 3/4 in. dia X 36 in.	1

1. Refer to figure 3-14, and cut pivot blocks from both straddles with a torch then clean off slag to assure proper fit of new parts.

NOTE One pivot block P/N 201127 and one pivot block 201128 are used in each straddle. The pivot block P/N 201127 is always mounted on the right side of the fork looking from the rear of the truck. The 3/4-inch diameter by 36-inch long shaft is used to align the four pivot blocks.

2. Position the pivot blocks in the straddle using the 36-inch long shaft (see section A-A, figure 3-14) and adjust the position of the blocks for the 3-1/8 + 1/16-0 dimension shown in the bottom view and the 1-15/16 dimension shown in section A-A.

3. Weld pivot blocks in place.

4. Install the four bars P/N 400065 and weld as shown. Remove the 36-inch long shaft.

5. Modify the wheel housing and install in accordance with the following procedure.

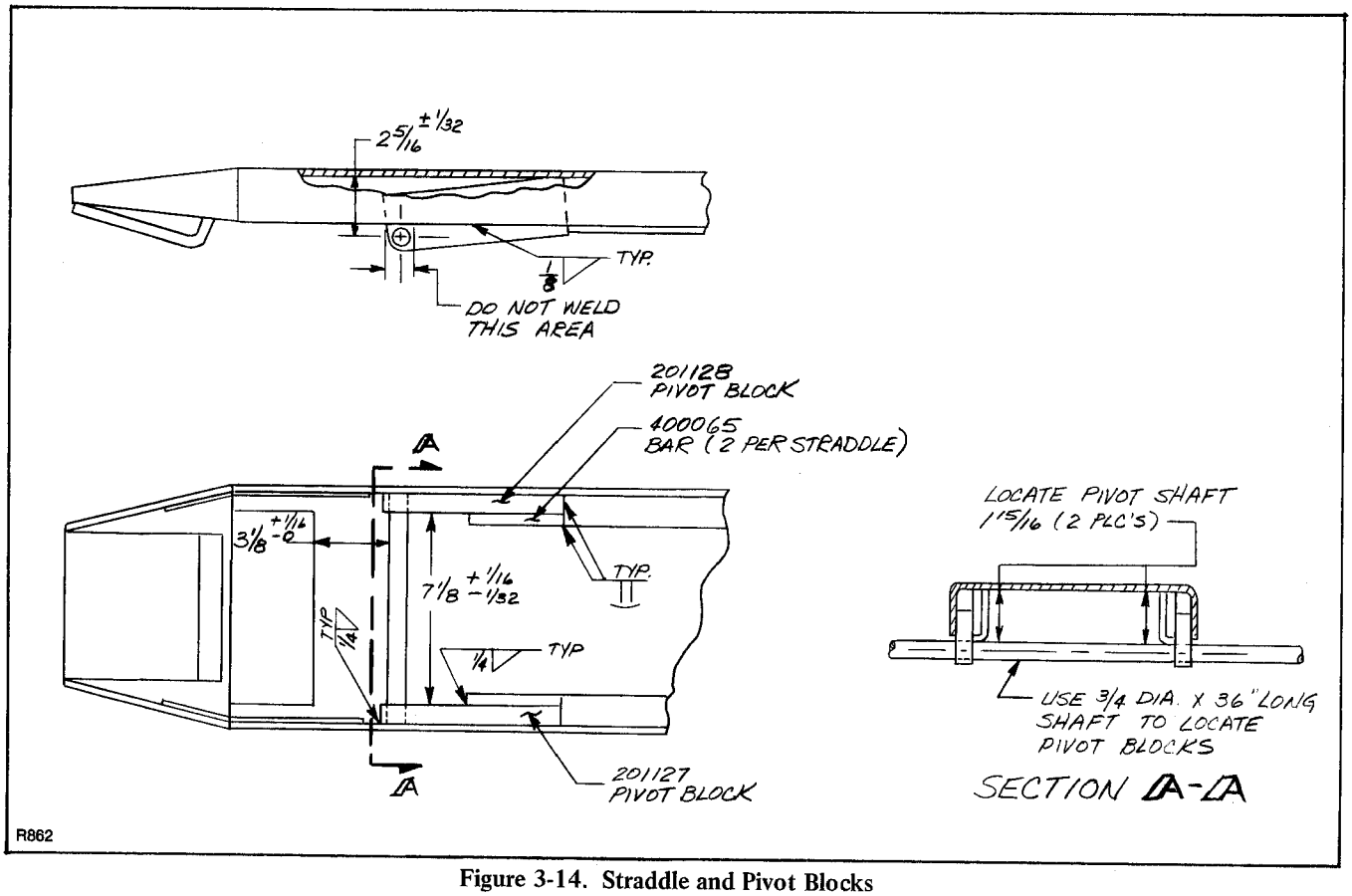


Figure 3-14. Straddle and Pivot Blocks

c. Modifying and Installing Wheel Housing.

1. Disassemble the wheel housing.

2. Cut away the wheel housing casting as shown in figure 3-15, using a band saw and grinder. Grind surface "A" as smooth as possible. This surface will be in contact with the new exit rollers.

3. Reassemble wheel housing.

4. Attach assembled wheel housing to push rod.

5. Install wheel housing into straddle being sure that exit rollers are in place on wheel housing pivot shaft.

6. Secure pivot shaft to straddle with 5/16 roll pin.

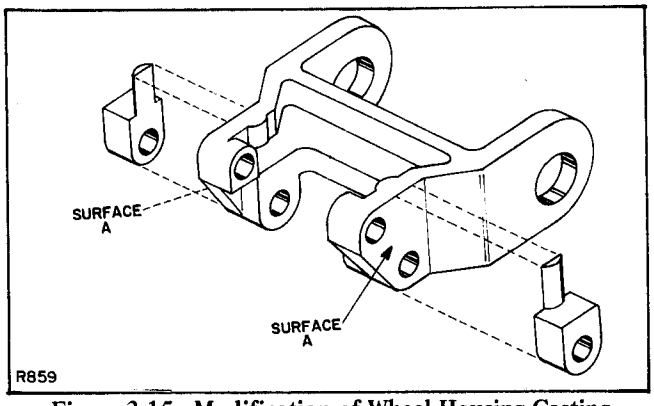


Figure 3-15. Modification of Wheel Housing Casting

3-17. SAUCER ASSEMBLY AND CASTER REPLACEMENT.

1. Disconnect battery.

2. Securely block the load wheels to prevent the truck from moving.

3. Remove service cover.

4. Use a jack to raise the rear of the lift truck so that the drive wheel clears the ground.

5. Lower the truck on blocks, making certain the drive wheel is still clear of the ground.

6. Refer to the figure 3-11 or 3-12 as a guide in replacing the saucer assemblies (of standard-chassis trucks) when required.

7. Refer to figure 3-13 as a guide in replacing the casters (of narrow-straddle trucks) when required.

NOTE The caster assembly illustrated in figure 3-17 is interchangeable with the older style caster assembly which is no longer available. If you are replacing an older style caster, it is recommended that both casters be replaced.

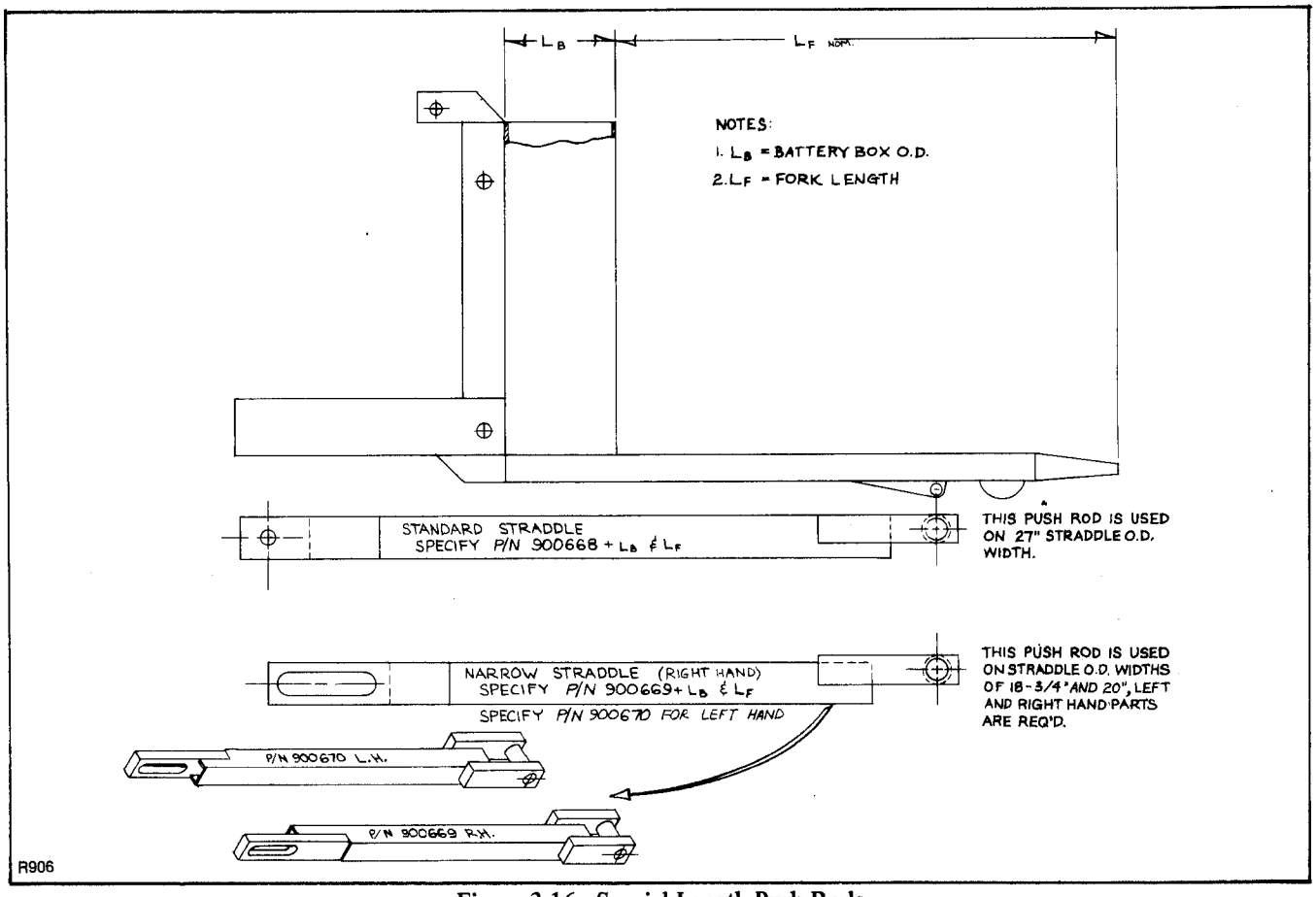


Figure 3-16. Special Length Push Rods.

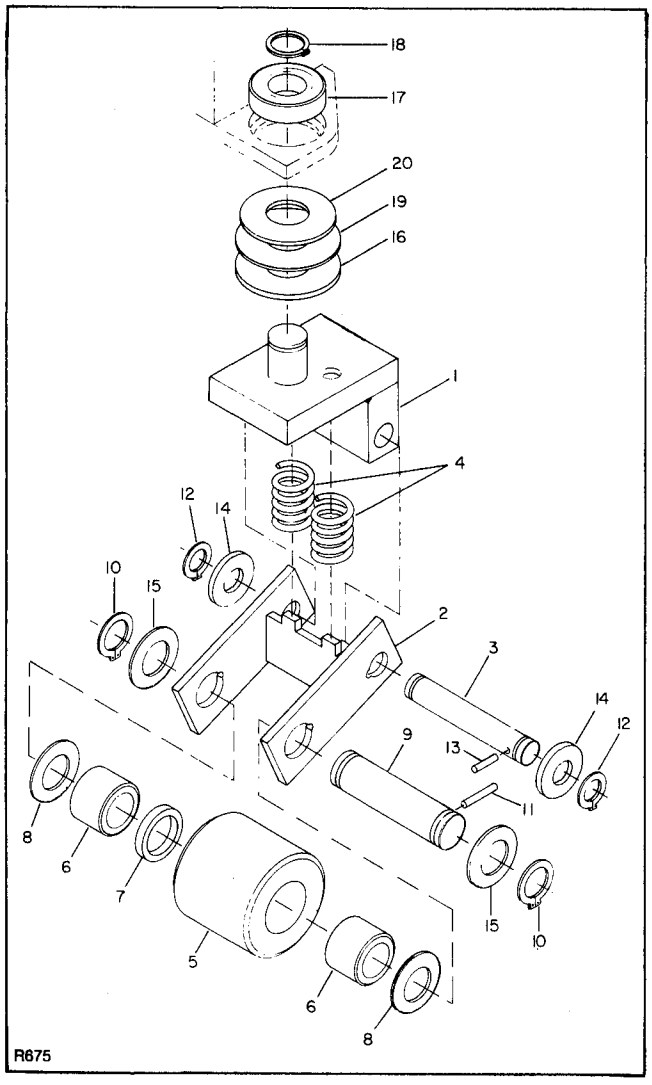


Figure 3-17. Caster Assembly

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	502331	Caster Assy (38, fig. 3-13)	2
1	502323	Support	1
2	502330	Fork	1
3	400436	Shaft	1
4	075005	Spring	2
	078256	Wheel Assy	1
5	078230	Wheel	1
6	051130	Bearing	2
7	260407	Spacer	1
8	077023	Washer	2
9	270306	Pin, 1 x 4	1
10	061725	Snap Ring	2
11	060973	Roll Pin, 3/16 x 1-1/8	1
12	061719	Snap Ring, 3/4	2
13	060971	Roll Pin, 3/16 x 7/8	1
14	077010	Washer	2
15	077015	Washer	2
16	077029	Washer	1
17	051136	Ball Bearing	1
18	061726	Snap Ring	1
19	053016	Bearing Thrust	1
20	800172	Washer	1

3-18. LOAD WHEEL REPLACEMENT.

The standard wheel assembly is illustrated in figures 3-11 and 3-12) and the tandem wheel assembly is illustrated in figure 3-18.

1. Disconnect battery.

2. Block the drive wheel to prevent the truck from moving.

3. Place a hydraulic jack under each straddle at reinforced section behind the load wheel and under the pushrod. Raise the straddles until the load wheels clear the floor.

4. Remove roll pin securing wheel housing pivot shaft and pull shaft out of straddle.

5. Refer to exploded views to disassemble the wheel assembly.

3-19. Transmission Repair. (Figure 3-19)

To remove and disassemble the transmission (complete with drive wheel) proceed as follows:

1. Disconnect battery.

2. Securely block load wheels. Remove service cover.

3. Label all wire and cable leads connected to terminals mounted on the transmission; then disconnect the leads.

4. Make sure the four cables to the drive motor are properly labeled A1, A2, F1, and F2; then disconnect the cables from the drive motor.

5. Disconnect the mechanical brake by removing clevis pin that secures the rod clevis to the lower level assembly.

6. Remove the drain plug (12) and drain the transmission oil.

7. Remove the two screws (39) and lock washers (29) which secure the motor to the transmission housing. Lay motor and attached brake parts aside until reassembly.

8. Disconnect brake rod from lower lever assembly.

9. Remove the four screws and washers that secure the transmission to the pivot tube assembly.

10. Remove the transmission and drive wheel from the truck by raising the rear of the lift truck with jacks or other suitable means and sliding the assembly out from under the truck.

11. Remove the four hex head cap screws (35) and lock washers (34), bearing cap (33) and gasket (32).

12. Remove bearing spacer (26).

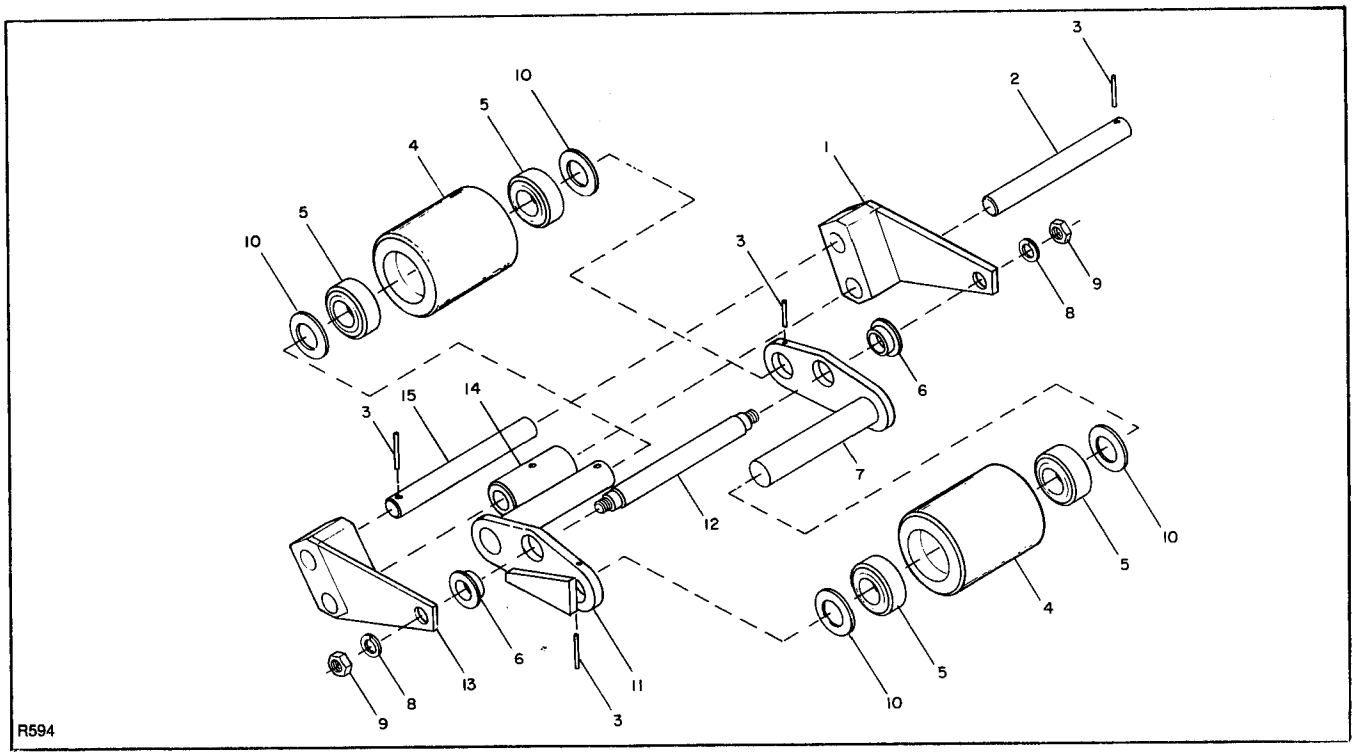


Figure 3-18. Tandem Load Wheels

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	501691	Tandem Load Wheels	2
1	502592	Lift Arm, L. H.	1
2	294504	Shaft	1
3	060976	Roll Pin	4
	501692	Load Wheel Assy	2
4	078257	Wheel (Poly)	1
5	051136	Ball Bearing	2
6	800157	Bushing	2
7	501690	Side Plate with Axle	1
8	077213	Lock Washer, 1/2	2
9	059537	Jam Nut, 1/2-13	2
10	077033	Flat Washer, 1-inch	4
11	501813	Stop Block	1
12	240634	Shaft	1
13	502593	Lift Arm, R.H.	1
14	400697	Spacer	1
15	294508	Shaft	1

13. Remove seven screws (30), two screws (38), and their lock washers (29); pry off transmission cover (28) and pull off cover gasket (27).

14. Remove ball bearing (25) and pinion spacer (24).

15. Remove intermediate gear (23) and square key (22).

16. Remove spur pinion (21).

17. Remove locknut (15) and lock washer (14).

18. Remove drive wheel and axle shaft (6) to free gear (13), roller bearing cones (8) and cups (9), and oil seal (7).

19. Remove ball bearing (20).

20. Refer to the disassembly instructions as a guide, and reverse the individual procedures of steps 19 through 1 to reassemble and reinstall the transmission.

21. Fill with transmission oil to fill plug.

3-20. DRIVE WHEEL REPLACEMENT.

1. Disconnect battery.

2. Securely block the load wheels to prevent the truck from moving.

3. Remove service cover.

4. Use a jack to raise the rear of the lift truck so that the drive wheel clears the ground.

5. Lower the truck on blocks, making certain the drive wheel is still clear of the ground.

6. Remove the five retaining screws and lock washers that secure the drive wheel to the axle shaft and then pry off the wheel.

7. Reverse the above procedure to install new drive wheel.

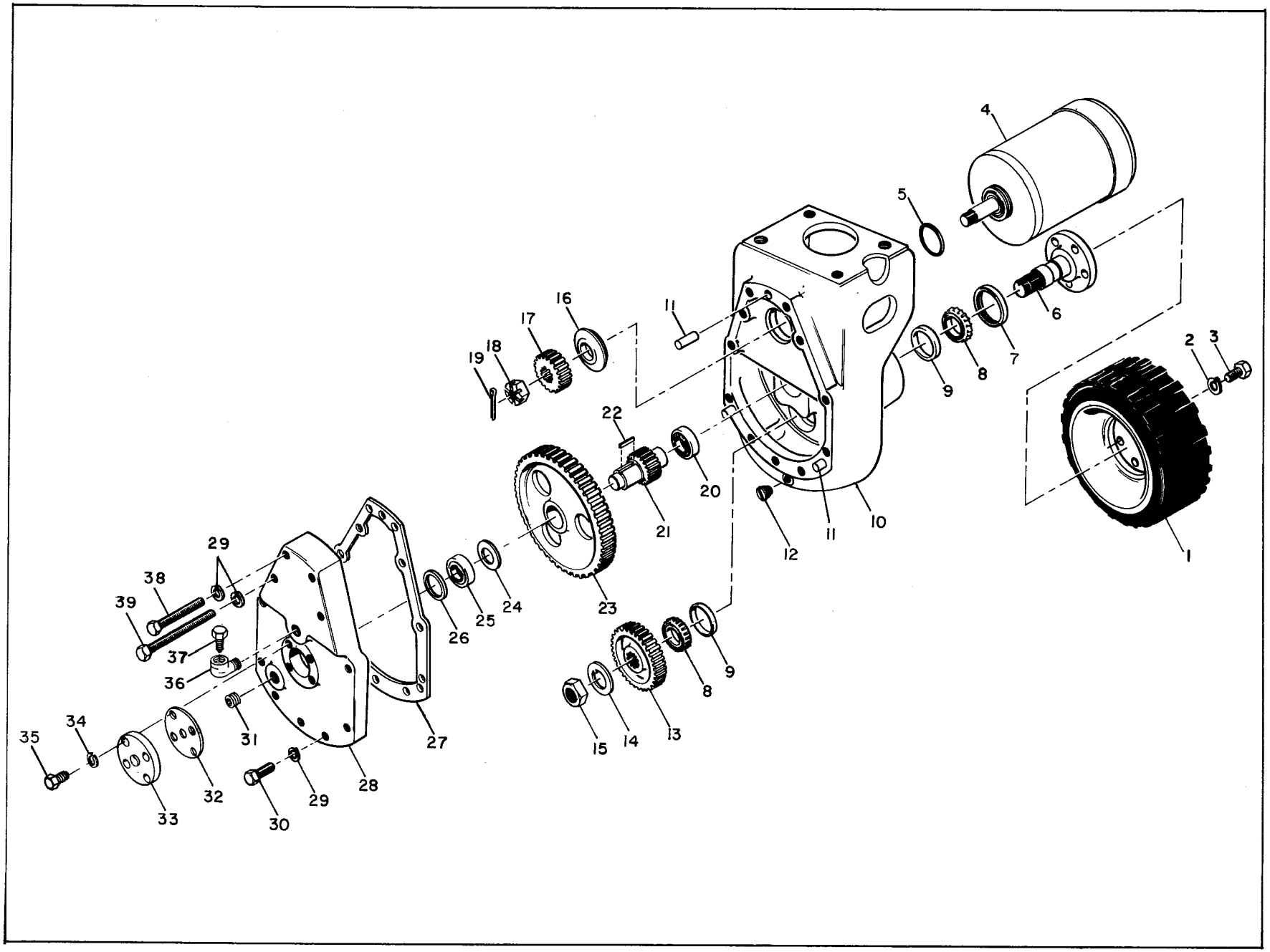


Figure 3-19. Transmission and Drive Wheel

INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	501600	Drive Wheel, Rubber Lug	1
2	077215	Lock Washer, 5/8	5
3	064828	Hex Hd Cap Screw	5
4	016020	Drive Motor (See fig. 3-9)	1
	501596	Transmission Assy	1
5	042114	O-ring	1
6	050700	Axle Shaft	1
7	073504	Oil Seal	1
8	051112	Roller Bearing Cone	2
9	051111	Roller Bearing Cup	2
10	800072	Housing	1
11	060585	Dowel Pin	3
12	026302	Drain Plug	1
13	057210	Gear	1
14	077600	Lock Washer	1
15	059680	Locknut	1
16	074702	Motor Pinion Spacer	1
17	057234	Motor Pinion Spur	1
18	059745	Hex Nut, 5/8-18	1
19	060428	Cotter Pin	1
20	051126	Ball Bearing	1
21	057211	Spur Pinion	1
22	057902	Square Key, 5/16 x 1-3/8	1
23	057233	Intermediate Gear	1
24	074701	Pinion Spacer	1
25	051125	Bearing	1
26	074706	Bearing Spacer	1
27	036105	Cover Gasket	1
28	800073	Transmission Cover	1
29	077211	Lock Washer, 3/8	11
30	064611	Hex Hd Cap Screw, 3/8-16 x 1-3/4	7
31	026304	Fill Plug, 3/8 Pipe Thread	1
32	036106	Bearing Cap Gasket	1
33	051159	Bearing Cap	1
34	077210	Lock Washer, 5/16	4
35	063555	Hex Hd Cap Screw, 5/16-18 x 1	4
36	026704	Street Elbow	1
37	076701	Vent	1
38	064615	Hex Hd Cap Screw, 3/8-16 x 2-1/4	2
39	064620	Hex Hd Cap Screw, 3/8-16 x 3-3/4	2

3-21. HYDRAULIC SYSTEM REPAIR (Figure (Figure 3-20 or 3-21)

Figure 3-20 illustrates the complete hydraulic systems for trucks with serial number 81936 and lower. The hydraulic system for newer trucks is shown in figure 3-21. The pump-motor-reservoir assembly (1) and the lift cylinder are repairable. Refer to paragraphs 3-22 and 3-23 for instructions for removing, disassembling, and repairing these assemblies.

WARNING Before disconnecting hydraulic lines, make certain that the system is not under pressure.

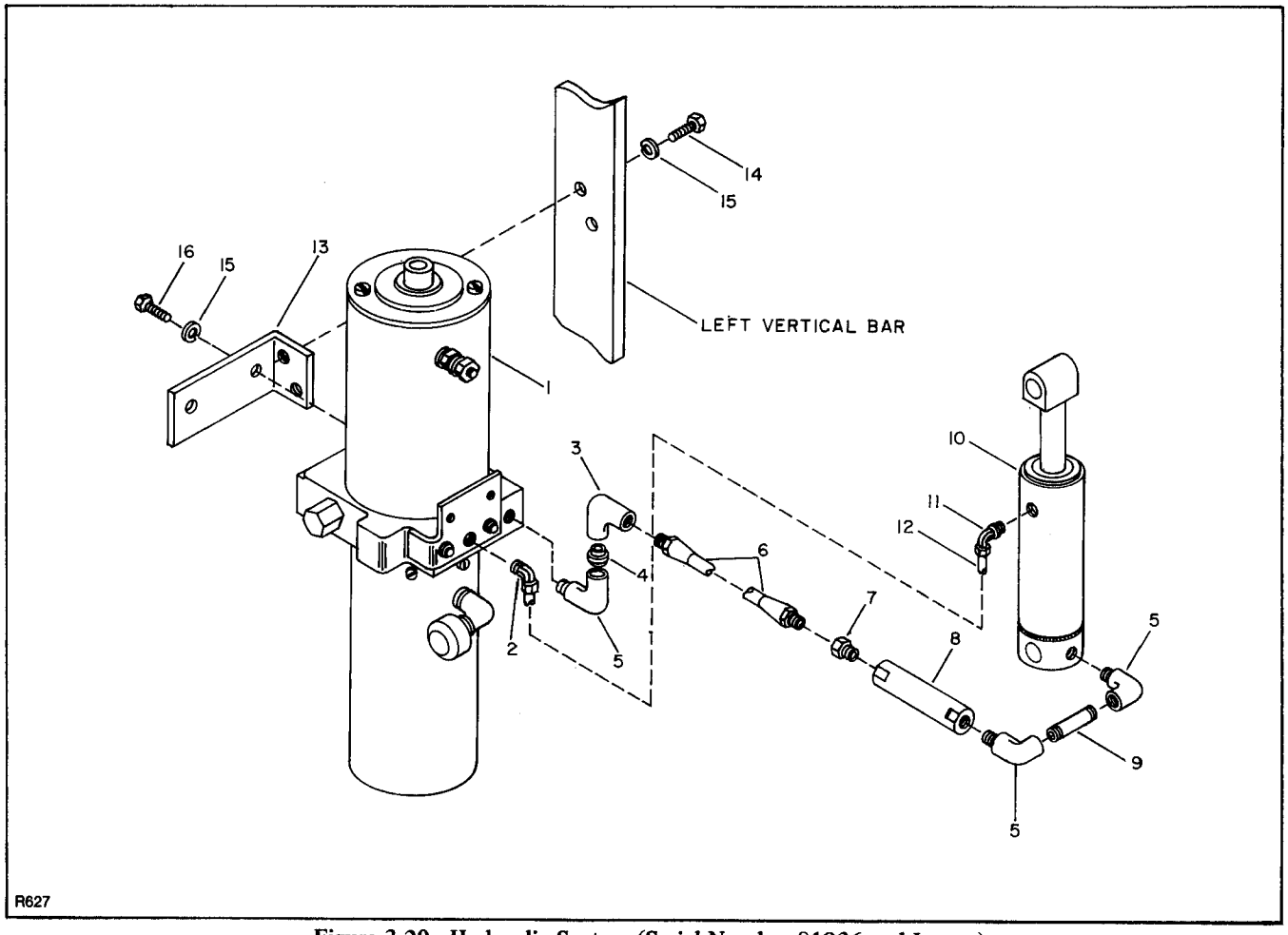


Figure 3-20. Hydraulic System (Serial Number 81936 and Lower)

INDEX NO.	PART NO.	PART NAME	NO. REQD.	INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	016575	Pump-Motor-Reservoir Assy (See fig. 3-22)	1	9	026135	Nipple	1
2	025532	90° Adapter	1	10	047552	Lift Cylinder (See fig. 3-24)	1
3	025521	Elbow	1	11	025501	90° Adapter	1
4	026110	Nipple	1	12	282515	Vinyl Tube	1
5	026708	Street Elbow	3	13	161295†	Bracket	1
6	501498	Hose Assy	1	14	064607†	Hex Hd Cap Screw, 3/8-16 x 1-1/4	2
7	025313	Adapter	1	15	077211††	Lock Washer, 3/8	2
8	047110	Flow Regulator	1	16	063603	Hex Hd Cap Screw, 3/8-16 x 3/4	2

† Used on trucks serial numbers 74870 to 81937.

††Four used on trucks serial number 74869 and lower.

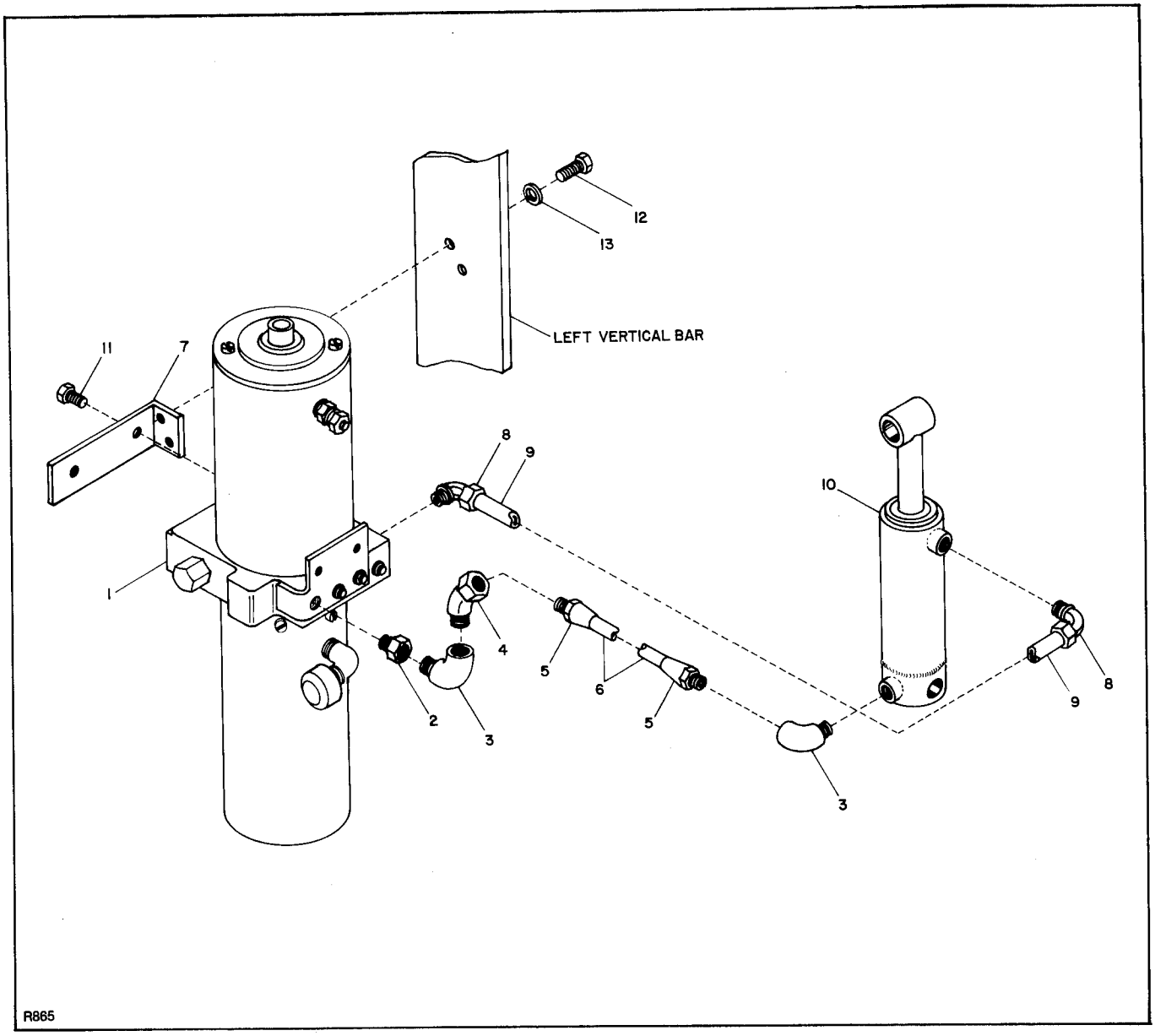


Figure 3-21. Hydraulic System.
(Serial Numbers 81937 and Higher)

INDEX NO	PART NO.	PART NAME	NO. REQD.
1	016580	Pump-Motor-Reservoir Assy (See fig. 3-23)	1
2	026500	3/8 to 1/4 Reducing Bushing	1
3	026708	Street Elbow	2
4	025303	45° Swivel Elbow	1
5	026913	Hose Coupling, 1/4 Male	2
6	282700	Hose	3.5 ft.
7	401007	Bracket	1
8	025501	90° Adapter	2
9	282515	Vinyl Tube	1
10	047564	Lift Cylinder (See fig. 3-25)	1
11	069719	Self Locking Screw, 3/8	2
12	064607	Hex Head Cap Screw, 3/8-16 x 1-1/4	2
13	077211	Lock Washer, 3/8	2

3-22. HYDRAULIC PUMP-MOTOR-RESERVOIR ASSEMBLY. (Figures 3-22 and 3-23)

The hydraulic pump-motor-reservoir assembly may be repaired. The motor can be rebuilt, but a defective pump has to be replaced as complete unit. Refer to figure 3-22 for breakdown of motor. Proceed as follows to remove and disassemble hydraulic pump-motor-reservoir assembly:

1. Lower lift carriage fully and disconnect battery.

WARNING Before disconnecting hydraulic lines, make certain that the system is not under pressure.

2. Remove service cover.

3. Unscrew breather cap and drain the hydraulic oil from the reservoir into a clean bucket or suitable container.

NOTE A few feet of 1/2-inch hose will facilitate draining oil from the reservoir.

4. Remove hydraulic lines from pump and electric wires from motor, labeling each wire to assure proper reassembly.

5. Remove assembly from truck by removing the screws and lock washers that secure it and its mounting bracket to the left vertical bar of the carriage assembly.

6. Disassemble using figure 3-22 as a guide for pump-motor-reservoir assembly 016575 and 3-23 for assembly 016580.

NOTE Before reassembling pump-motor-reservoir assembly, it is recommended that all O-rings and gaskets be replaced.

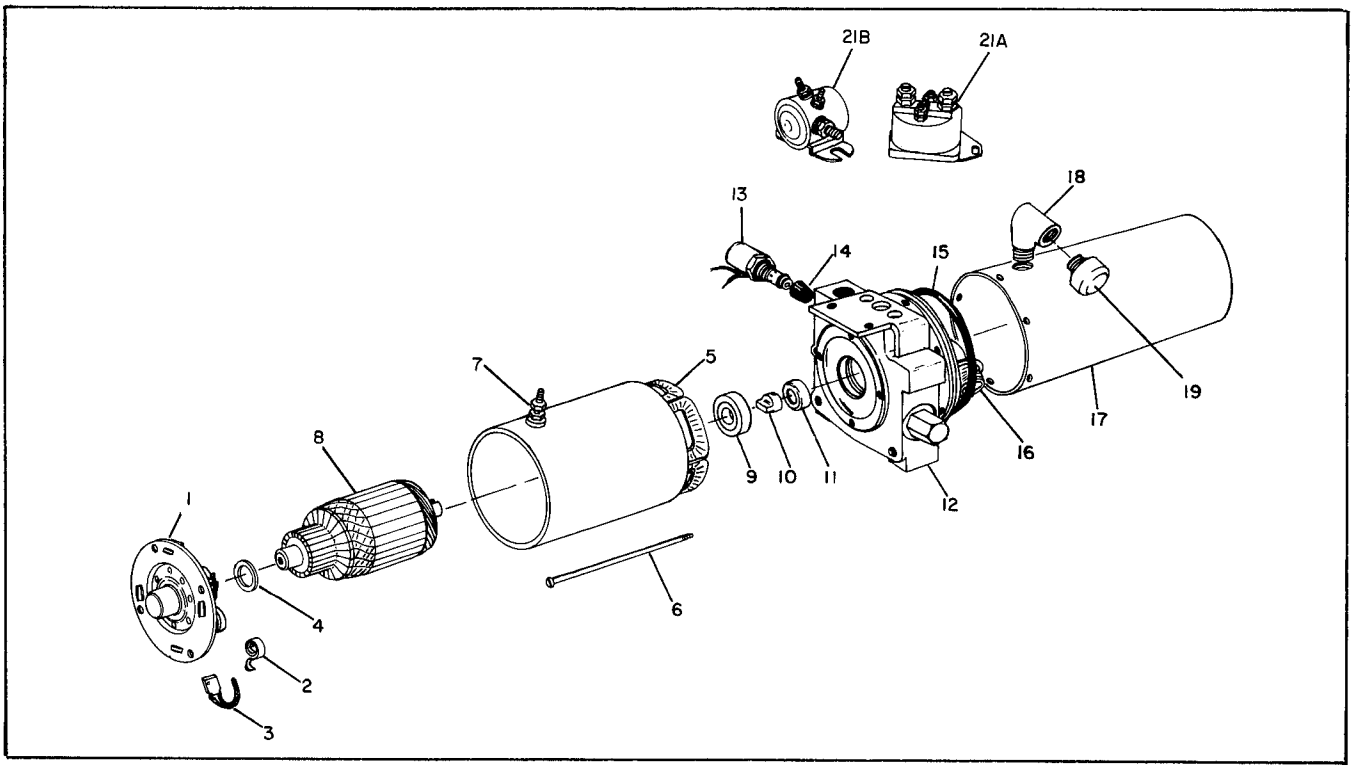


Figure 3-22 Pump-Motor-Reservoir Assembly. (Serial Numbers 81936 and Lower)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	016575	Pump-Motor-Reservoir Assy (1, fig. 3-20)	REF
	900271	Pump Motor	1
1	009305	Commutator End Head	1
2	003501	Brush Spring & Holder Package	1
3	003702	Brush Set	1
4	900172	Thrust Washer	1
5	900171	Field Coil Package	1
6	900170	Thru Bolt Package	1
7	900173	Terminal Stud Package	1
8	900280	Armature	1
9	051168	Drive End Bearing	1
10	900275	Coupling	1
11	900274	Oil Seal	1
	900282	Pump Assy with Solenoid Cartridge	1
12	900281	Pump Assy	1
13	900272	Solenoid Cartridge	1
14	900273	Solenoid Strainer	1
15	900276	O-ring	1
16	900270	Strainer	1
17	900268	Reservoir	1
18	026704	Street Elbow	1
19	029102	Breather (Supplied with pump)	1
20	900279	Magnet	1
21A	900266	Solenoid Start Switch (Early models)	1
21B	020419	Solenoid Start Switch (Late models)	1

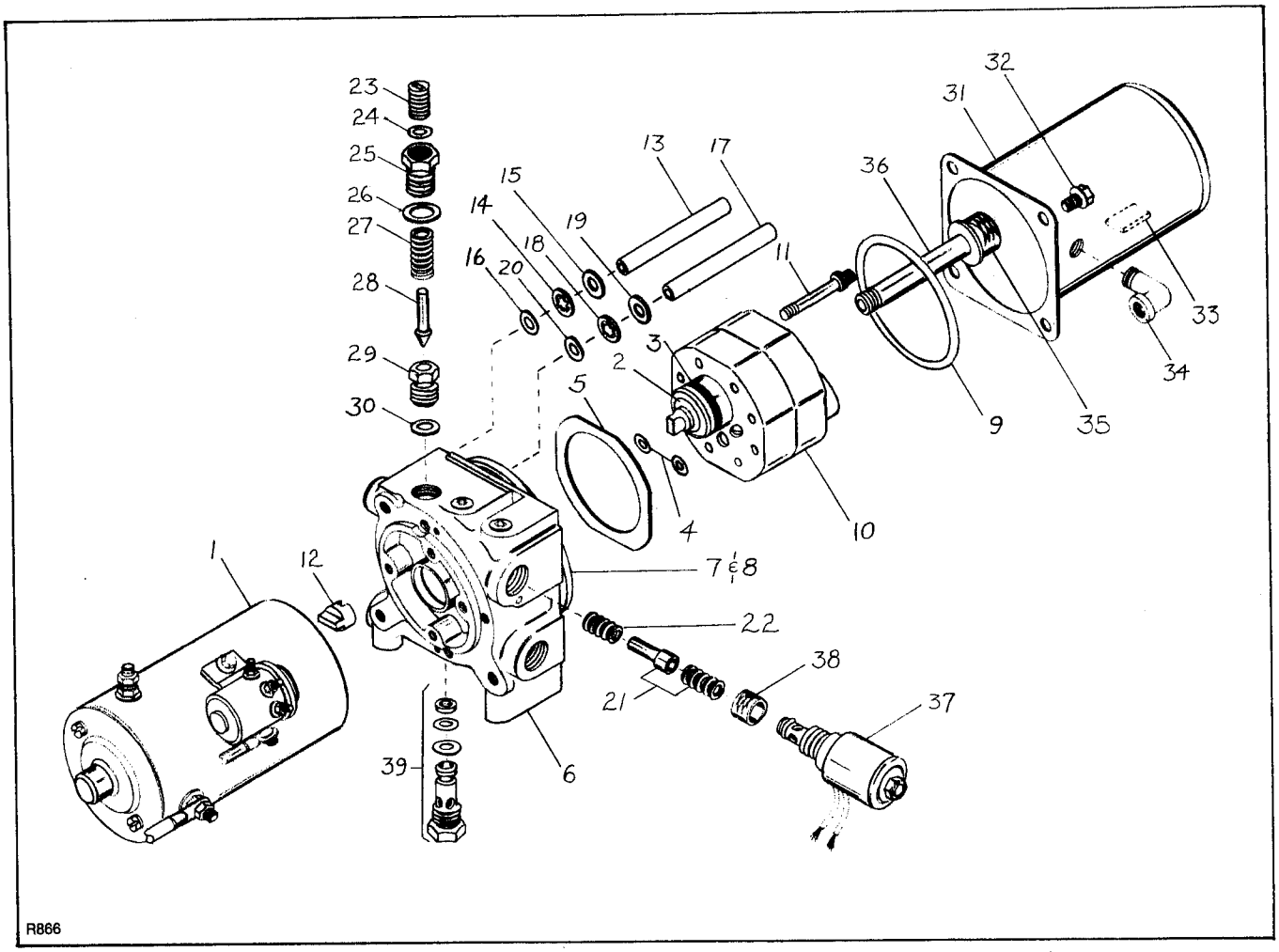


Figure 3-23 Pump-Motor-Reservoir Assembly. (Serial Numbers 81937 and Higher)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	016580	Pump-Motor-Reservoir Assy (1, fig. 3-22)	1
1	900271	Pump Motor (See fig. 3-22, items 1 through 9)	REF
	900682	Pump Seal Kit	1
2		Oil Seal	1
3		O-Ring	1
4		O-Ring	2
5		Gasket	1
	900683	Adapter Kit	1
6		Adapter	1
7		Retainer	1
8		Screw	2
9		O-Ring	1
	900684	Pump Kit	1
4		O-Ring	1
5		Gasket	2
10		Pump	1
11		Screw	4
12		Coupling	1
	900685	By-Pass Tube Assy	1
13		Return Tube	1
14		Push On Ring	1
15		Shim	1
16		O-Ring	1
	900686	Return Tube Assy	1
17		Return Tube	1
18		Push On Ring	1
19		Washer	1
20		O-Ring	1
	900688	Flow Regulator Kit	1
21		Flow Control Spool	1
22		Spring	1
	900692	Relief Valve Kit	1
23		Adjusting Screw	1
24		O-Ring	1
25		Hex Cap Nut	1
26		Gasket	1
27		Spring	1
28		Plunger	1
29		Relief Valve Seat	1
30		O-Ring (Relief Valve Seat)	1
31	900693	Reservoir	1
32	900694	Hex Hd Screw, Thread Forming, 1/4-20 x 3/8	6
33	900279	Magnet	1
34	026703	Street Elbow	1
35	900270	Strainer (Reservoir)	1
36	026129	3/8 Pipe Nipple, 5-in. Long (Inlet)	1
37	900700	12-volt Solenoid Release Valve	1
38	900273	Solenoid Strainer	1
39	900695	Check Valve Assy	1

3-23. LIFT CYLINDER REPAIR

Two different lift cylinders are used on the PPT-40. When disassembling lift cylinder, be sure to refer to the correct procedure. The cylinder can easily be identified by the inlet and outlet parts. On lift cylinder P/N 047552 (figure 3-24) the parts are flush with the barrel assembly. On lift cylinder P/N 047654 (figure 3-25) the parts protrude from the barrel assembly. Refer to paragraph 3-23b to disassemble lift cylinder P/N 047552, and to paragraph 3-23c for lift cylinder P/N 047654.

a. Removal from Truck.

1. Fully lower the lift carriage.
2. Disconnect battery.
3. Remove service cover.

WARNING Before disconnecting any hydraulic lines, make certain the system is not under pressure.

4. Disconnect overflow hose from top of lift cylinder.
5. Remove snap rings (18).
6. Remove top shaft (16) and bottom shaft (17); then withdraw lift cylinder down and away from the lift carriage.

b. Disassembly of Lift Cylinder P/N 047552 (Figure 3-24)

1. Secure lift cylinder in a vise; then remove lock wire (4) and spacer (5).
2. Remove retaining ring (6).
3. Pull out eye (1), withdrawing rod (9), cylinder head (7), and attached parts.

CAUTION Use proper pipe-clamp vise with non-marring jaws to prevent damaging the finish on the rod.

4. Secure rod in vise; then remove retaining ring (13) and packing (12).
5. Remove screw (14), piston (11), and O-ring (10).
6. Loosen nut (2) and remove it and eye (1) from rod (9).

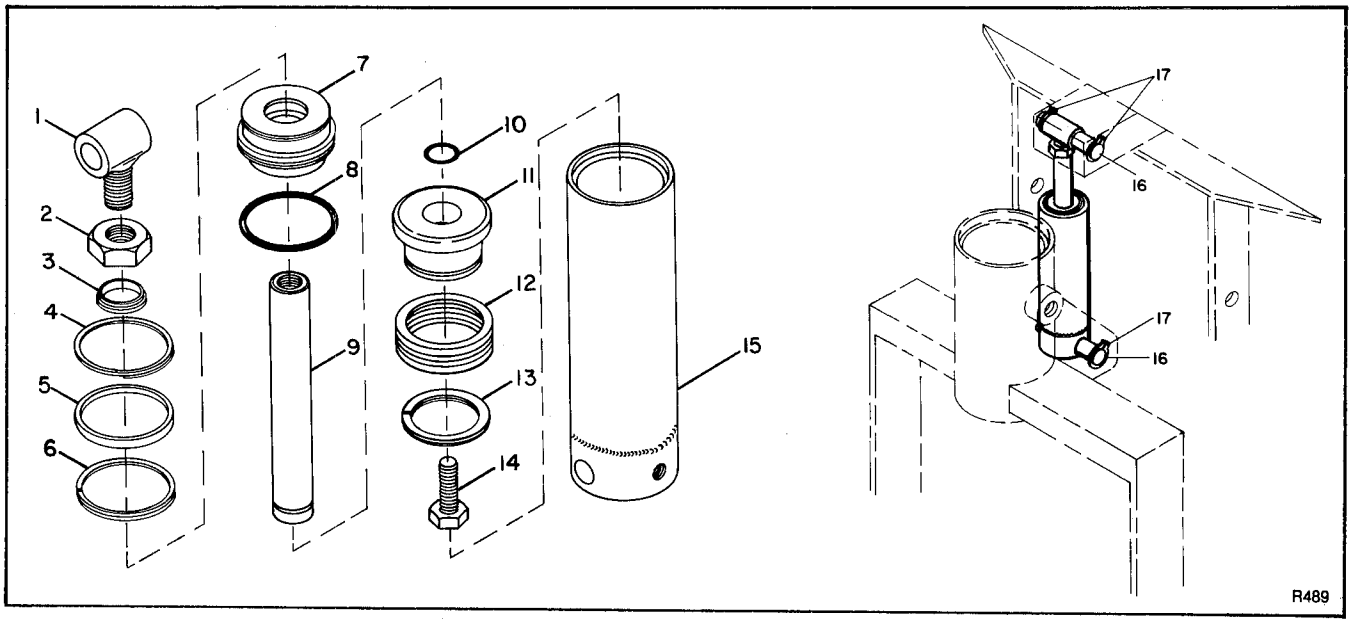


Figure 3-24. Lift Cylinder P/N 047552

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	047552	Lift Cylinder (10, fig. 3-13)	REF
1	900264	Eye	1
2	900263	Jam Nut, 3/4-10	1
3	900262*	Wiper	1
4	900265*	Lock Wire	1
5	900261*	Spacer	1
6	900260*	Head Retaining Ring	1
7	900258	Head	1
8	900259*	Head O-ring	1
9	900257	Rod	1
10	900256*	Rod O-ring	1
11	900255	Piston	1
12	900254*	Packing	1
13	900253*	Packing Retaining Ring	1
14	900252	Hex Head Cap Screw	1
15	900251	Barrel Assembly	1
16	294519	Shaft	2
17	061719	Snap Ring	4

*Included in 900547 repacking kit.

7. Withdraw cylinder head (7) from rod.

8. Remove O-ring (8) and wiper (3).

NOTE Before reassembling the hydraulic lift cylinder, it is recommended that the O-rings (8, 10) and packing (12) be replaced.

c. Disassembly of Lift Cylinder P/N 047564 (Figure 3-25)

1. Secure lift cylinder barrel in a vise.

2. Locate hole in side of lift cylinder where lock wire (6) is visible.

3. Rotate gland (5) clockwise and lock wire (6) should exit through hole. Remove lock wire.

4. Pull up on eye (1) to extract rod (8) piston (10) and attaching parts from barrel (15).

CAUTION Use proper pipe clamp vise with non-marring jaws to prevent damaging the finish of the rod.

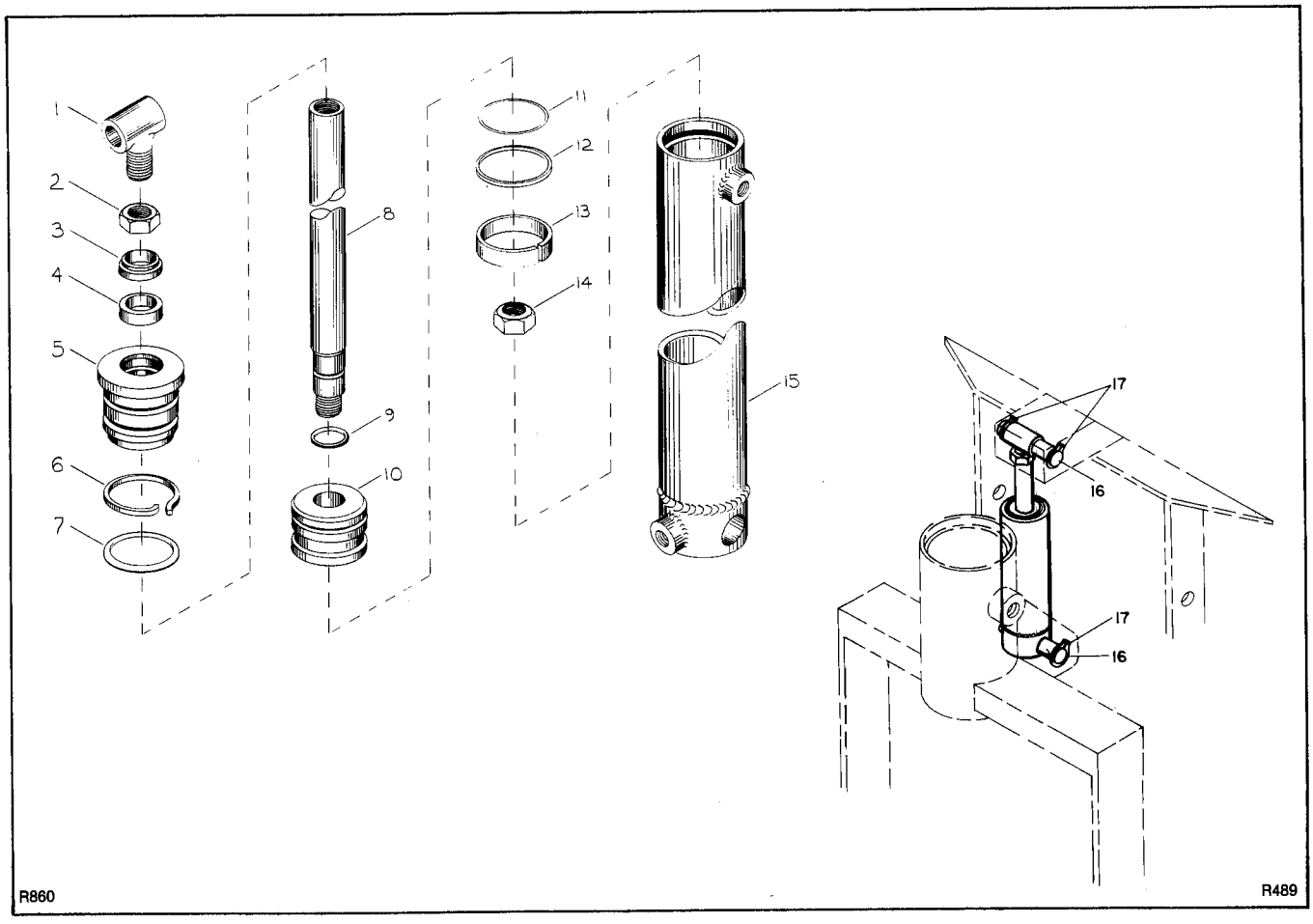


Figure 3-25. Lift Cylinder P/N 047564

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	047564	Lift Cylinder	REF
1	900576	Eye	1
2	900577	Jam Nut, 3/4-10	1
3	900578*	Wiper	1
4	900579*	Seal	1
5	900680	Gland	1
6	900677*	Lock Wire	1
7	900672*	Gland Static	1
8	900679	Rod	1
9	900673*	Rod Static Seal	1
10	900681	Piston	1
11	900674*	O-ring Piston	1
12	900675*	Piston Seal	1
13	900676*	Wear Strip	1
14	900587	Hex Nut, Self Locking	1
15	900678	Barrel Assembly	1
16	294519	Shaft	2
17	061719	Snap Ring	4

*Part of cylinder rebuilding kit P/N 900671

5. Secure rod in vise; then remove nut (14), piston (10) and rod static seal (9).

6. Remove nut (2) and eye (1) from rod (8).

7. Withdraw gland (5) from rod.

NOTE Use parts in rebuilding kit P/N 900671 to replace items 3, 4, 6, 7, 9, 11, 12 and 13 before reassembly.

8. Reassemble in reverse order of disassembly. Insert lock wire (6) through slot in side of barrel and rotate gland (5) counterclockwise until lock wire is wrapped into barrel to lock assembly together.

3-24. Contactor Tip Replacement. (Figure 3-26 through 3-29)

The contactor tips (forward and reverse) should be replaced if they are badly pitted or worn. It is advisable to replace the movable and stationary contact tips at the same time. (Refer to Figure 3-27 part number identification of replacement parts). Proceed as follows:

1. Disconnect battery.

2. If they are not clearly marked, label the wires connected to the contactor tips (see figure 3-26).

3. Refer to figure 3-27. Replace the movable contactor tips and reinstall hardware and insulators as illustrated. (Kit No. 900140 is available for replacement hardware.)

4. Remove hex head screws that secure wires, jumpers, and stationary contacts. Replace stationary contacts and reinstall jumpers. Refer to figure 3-26 to reconnect wires. Reinstall screws.

5. Check that contact gap is at least 3/16 inch at contact tip center.

6. Connect battery.

3-25. Speed Control Resistor Adjustment. (Figures 3-28 and 3-30)

Each half of the speed control resistor is switched in series with the drive motor and the negative side of the battery during one or more steps of acceleration. Moving the terminals on the speed control resistor changes the resistance in the circuit, which changes the rate of travel of the truck in first and second speed.

NOTE The speed control resistor is adjusted at the factory for a reasonable set of speed increments. Do not alter this setting without a good reason.

1. Referring to the schematic diagram, locate the end terminal that supplies current to the speed control resistor in first speed.

2. Move this terminal away from the center terminal, lengthening the effective resistance strip, to decrease the rate of travel in first speed.

3. Move both end terminals away from the center terminal to decrease the rate of travel in first and second speeds.

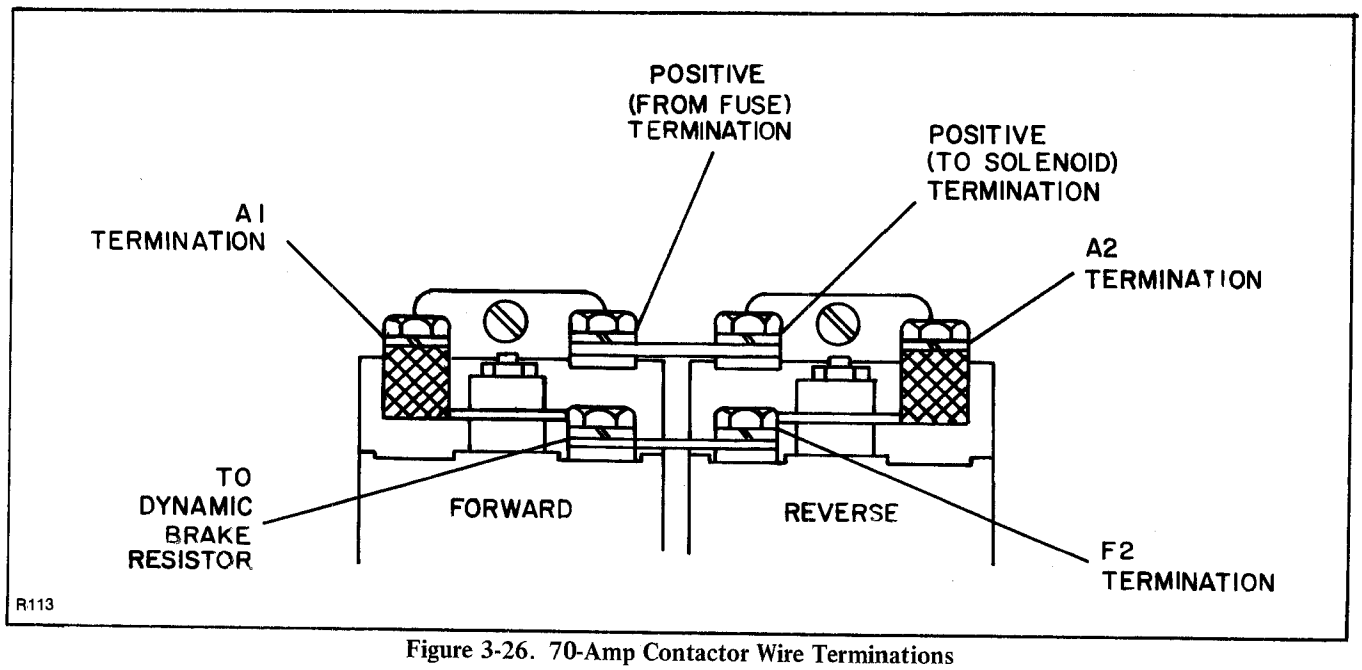


Figure 3-26. 70-Amp Contactor Wire Terminations

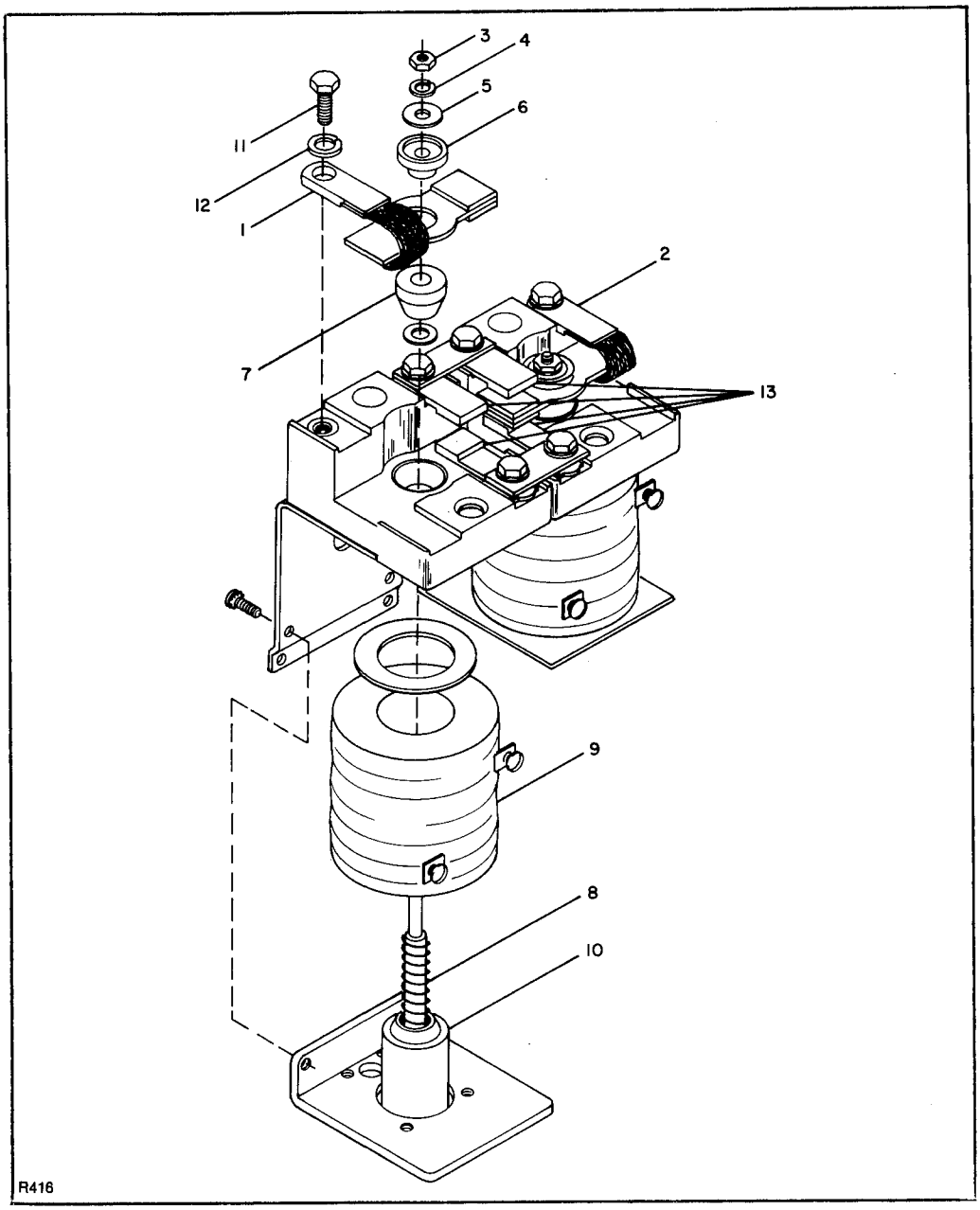


Figure 3-27. 70-Amp Contactor Tip Replacement

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	005604	Contactor Assembly 70-Amp (12V)	1
1	005610	Contactor Bar Assy L. H.	1
2	005609	Contactor Bar Assy R. H.	1
	900140	Plunger Tip Assy	1
3	NP	Nut	1
4	NP	Lock Washer	1
5	NP	Flat Washer	1
6	NP	Insulator	1
7	NP	Insulator	1
8	NP	Spring	1
9	005113	Coil (12V)	1
10	017821	Plunger	1
11	062921	Hex Screw 1/4-20 x 1/2	4
12	077219	Lock Washer, 1/4	4
13	005608	Stationary Contact Tip	4

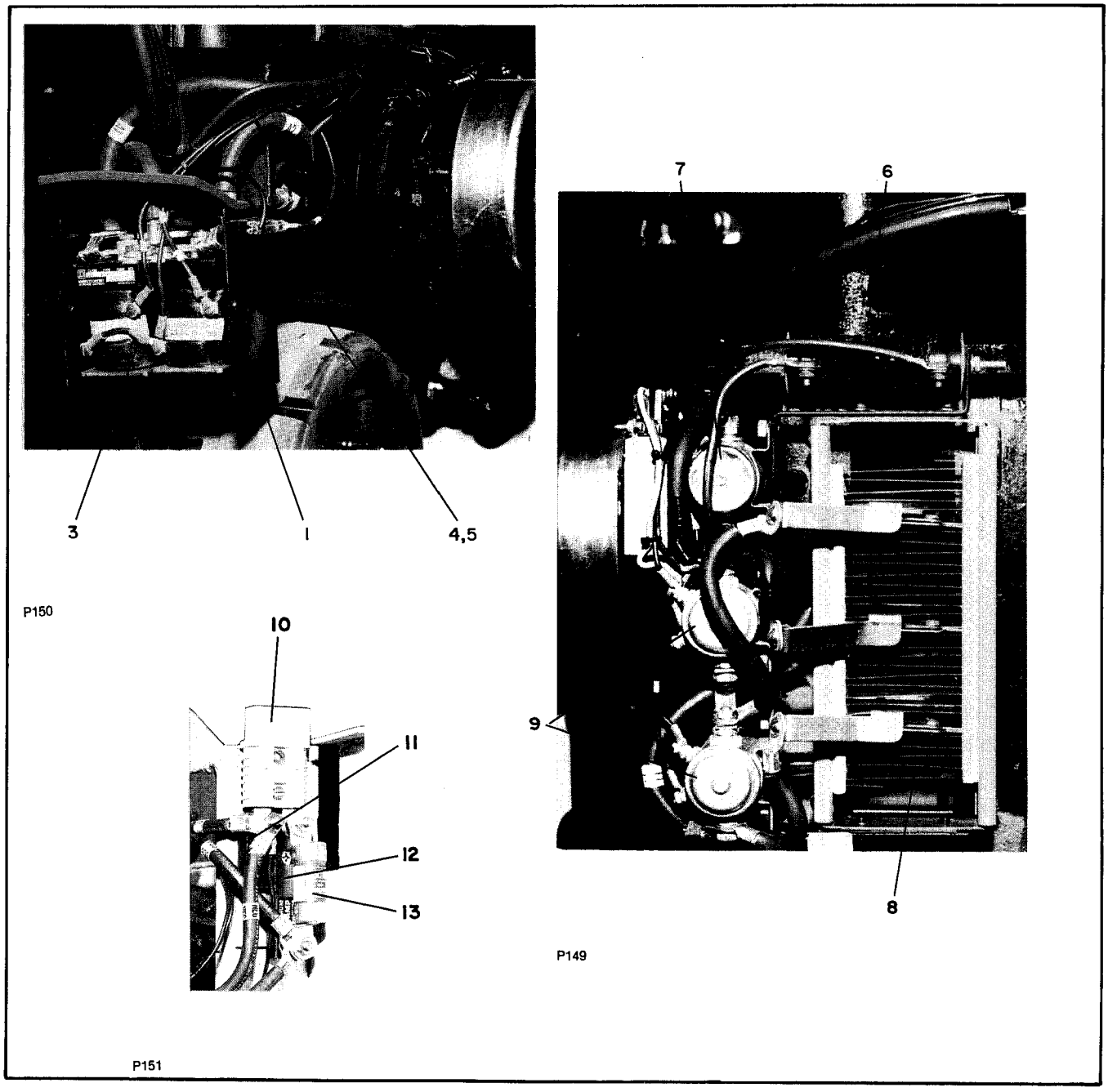


Figure 3-28. Electrical Control Components and Battery Connector Group (Serial Number 67146 to 70874)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	502382	Contactor Panel Assy	1
1	502358	Enclosure	1
2	250743	Cover (not shown)	1
3	005604	Contactor Assy	1
4	008904	Fuse Receptacle	1
5	008910	Fuse, 15-A	1
	502370	Resistor Assy	1
6	018907	Dynamic Brake Resistor	1
7	020719	Dynamic Brake Solenoid	1
8	018900	Speed Control Resistor	1
9	020419	Solenoid	2
	501607	Battery Connector Group	1
10	005410	Battery Connector	1
11	800069	Fuse Block (one stud)	1
12	008902	Fuse Block (two studs)	1
13	008906	Fuse, 300-A	1
14	012707	Time Dealy Relay, One Second (optional) (not shown)	1
15	021708	Time Delay Relay, Two Second (optional) (not shown)	1

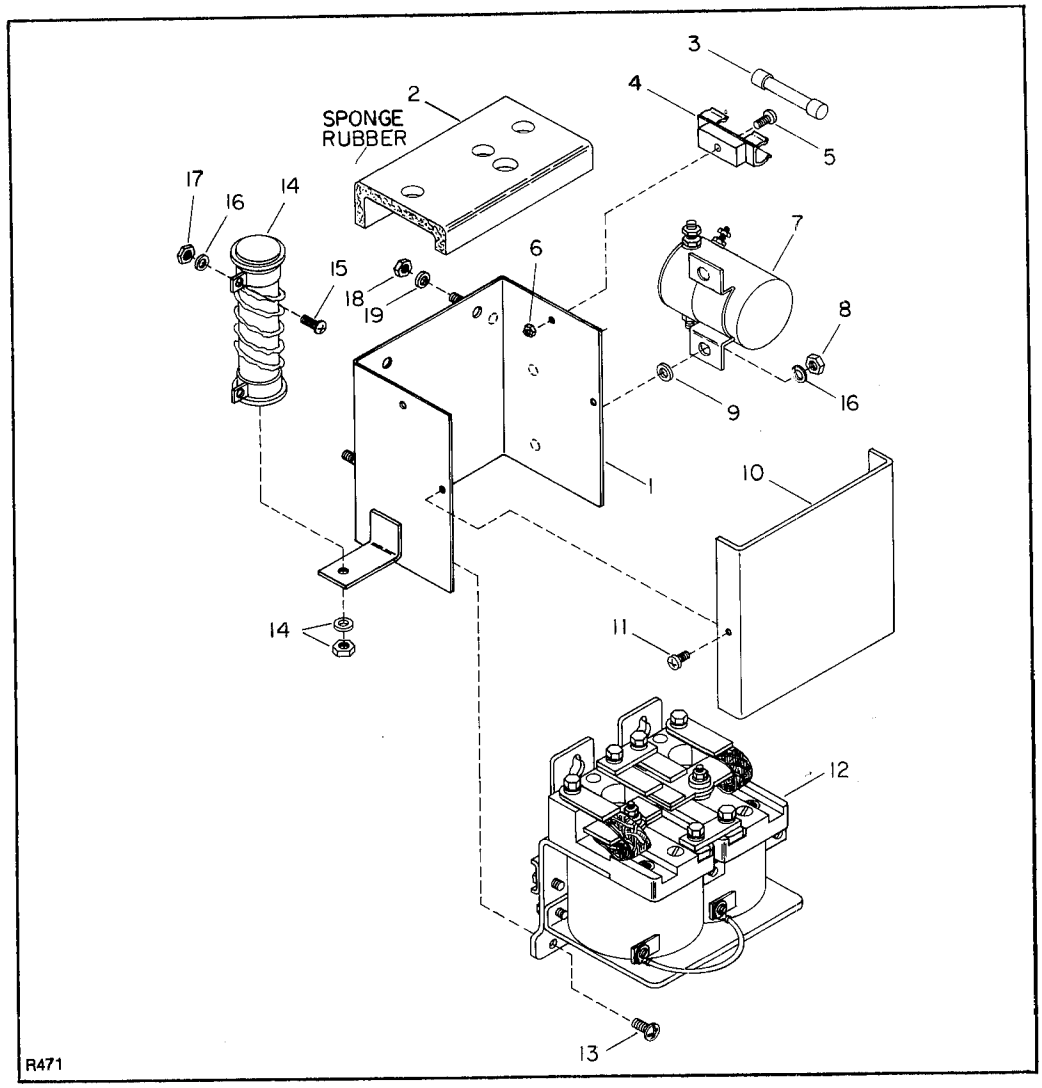


Figure 3-29. Contactor Panel (Serial Number 70875 and Higher)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	502382	Contactor Panel Assy	1
1	502358	Enclosure	1
2	306201	Dust Cover	1
3	008910	Fuse, 15-Amp	1
4	008904	Fuse Block	1
5	068230	Round Hd Screw, 6-32 x 3/8	1
6	059412	Hex Nut, 6-32	1
7	020719	Dynamic Brake Solenoid	1
8	059416	Hex Nut, 1/4-20	2
9	077011	Washer, 5/16	2
10	250743	Cover	1
11	071379	Screw	2
12	005604	Contactor Assy	1
13	071379	Screw	4
14	018907	Dynamic Brake Resistor, with Mounting Hardware	1
15	068407	Lock Washer, No. 10	2
16	077208	Hex Nut, 10-32	4
17	059416	Hex Nut, 1/4-32	2
18	059421	Hex Nut, 1/4-20	2
19	077209	Lock Washer, 1/4	2

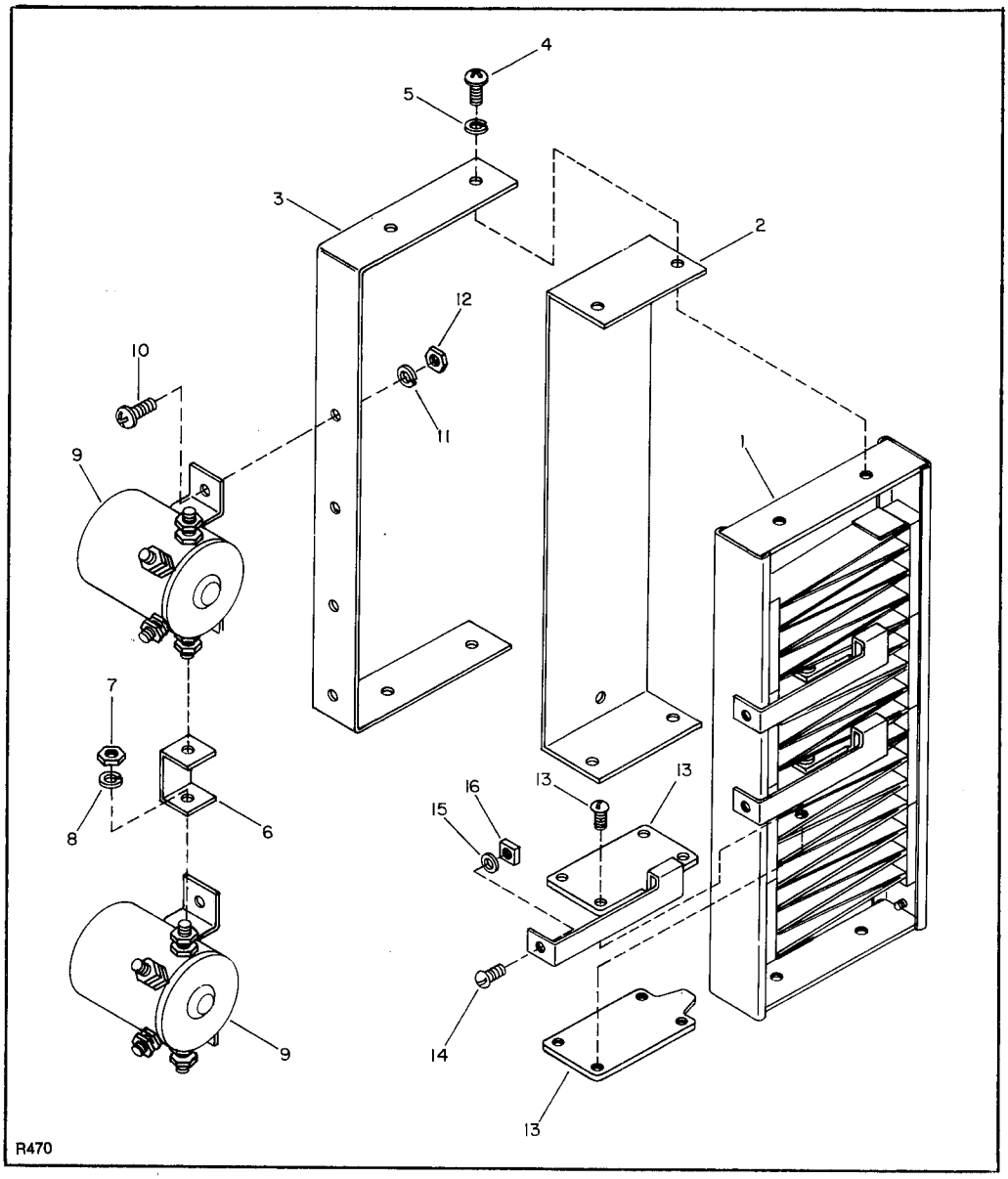


Figure 3-30. Speed Control Resistor Assembly (Serial Number 70875 and Higher)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	502370	Resistor Assembly	1
1	018900	Speed Control Resistor	1
2	250731	Speed Control Bracket	1
3	101284	Bracket	1
4	070476	Round Hd Phillips Screw, 1/4-20 x 1/2	4
5	077209	Lock Washer, 1/4	4
6	305407	Bus Bar	1
7	059427	Hex Nut, 5/16-18	6
8	077210	Lock Washer, 5/16	6
9	020419	Solenoid	2
10	070476	Round Hd Phillips Screw, 1/4-20 x 1/2	4
11	077209	Lock Washer, 1/4	4
12	059421	Hex Nut, 1/4-20	4
13	021221	Terminal Assy with Screw	3
14	068475	Round Hd Screw, 1/4-20 x 3/8	3
15	077209	Lock Washer, 1/4	3
16	059813	Square Nut, 1/4-20	3

3-26. Battery Connector Group Replacement. (Figure 3-31)

The battery connector group makes it possible to quickly disconnect the entire electrical circuitry from the battery by means of the quick-disconnect plug. Refer to figures 3-28 or 3-31 for location and replacement of parts in this group.

3-27. METAL SERVICE COVER

a. This paragraph covers modification procedures to adapt pallet trucks (serial number 83008 and lower) to accomodate the new metal service cover (503731). All the parts necessary for the modification are contained in kit number 900696.

The plastic service cover (056556) will not be available as a replacement part.

b. Modification Procedure

In order to fit the metal service cover to trucks supplied with the plastic cover, refer to figures 3-32 through 3-35 and follow this procedure:

1. Remove plastic service cover.

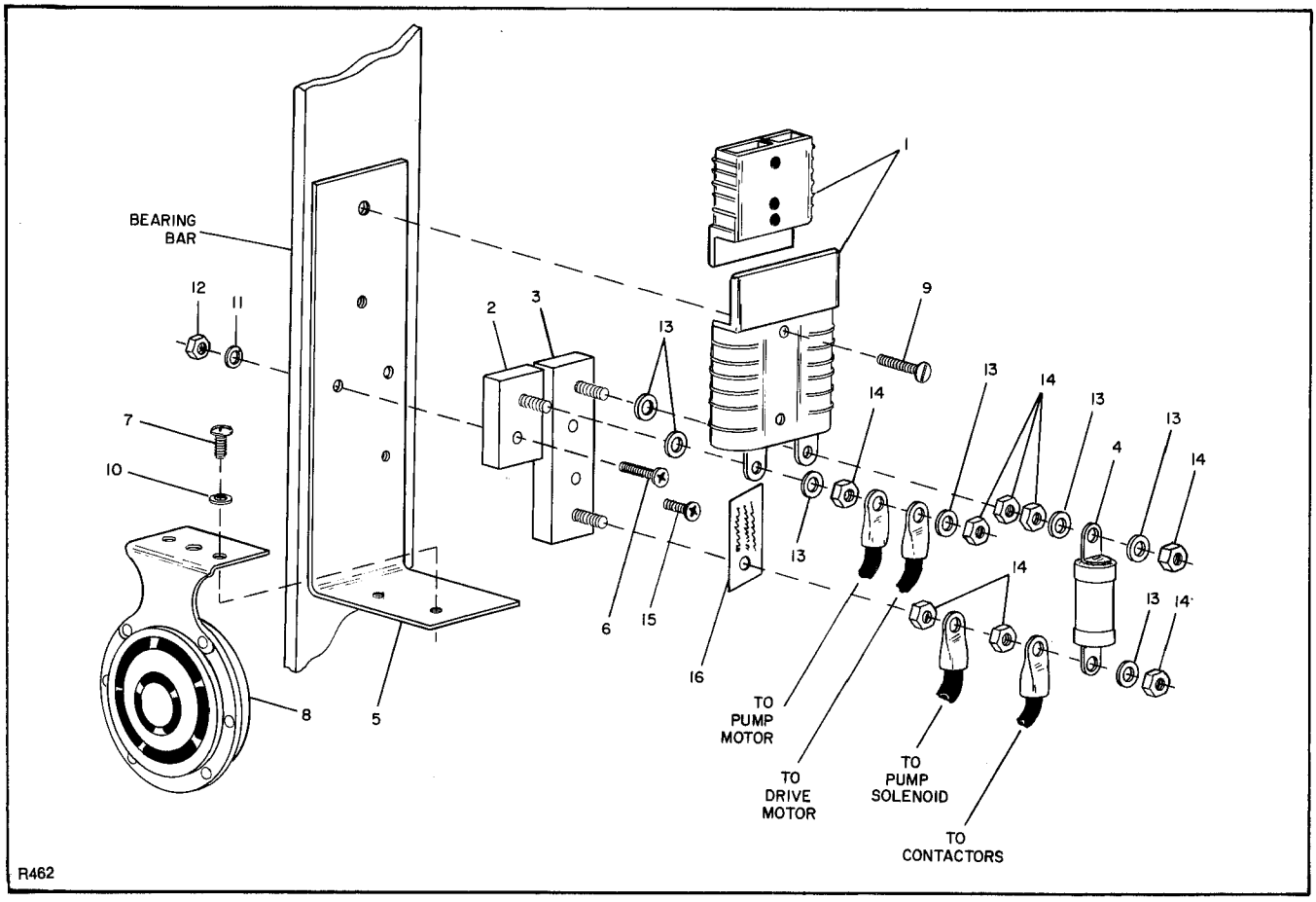


Figure 3-31. Battery Connector Group and Horn (Serial Number 70875 and Higher)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
	501607	Battery Connector Group	1
1	005401	Battery Connector	1
2	800069	Fuse Block (One stud)	1
3	008902	Fuse Block (Two studs)	1
4	008906	Fuse, 300-A	1
5	111765	Bracket	1
6	069484	Flat Hd Phillips Screw, 1/4-20 x 2	2
7	070476	Round Hd Phillips Screw, 1/4-20 x 1/2	2
8	009600	Horn	1
9	068480	Round Hd Screw, 1/4-28 x 1	2
10	077209	Lock Washer, 1/4	2
11	077209	Lock Washer, 1/4	2
12	059421	Hex Nut, 1/4-20	2
13	077105	Washer	7
14	059425	Hex Nut	8
15	069478	Flat Hd Phillips Screw, 1/4-20 x 3/4	1
16	056507	Label	1

NOTE Cover brackets (401106) are not used on narrow-straddle models. Proceed to step 3 if fitting metal cover to narrow straddle truck.

2. Refer to figure 3-32. Place a cover bracket on a side brace. Be certain that outside of bracket is flush with inside of bumper, and mark location. Either weld bracket to side brace, or drill 5/8-inch hole in side brace and attach bracket with 1/2-13 x 1 hex head screw, lock washer, and nut. Attach second cover bracket to other side brace.

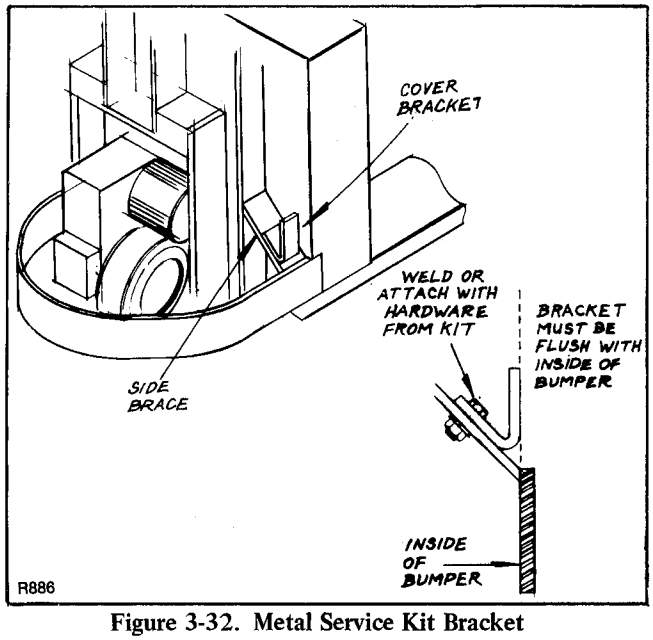


Figure 3-32. Metal Service Kit Bracket

3. Place metal cover onto truck. Since the cover will be used as a template for drilling mounting holes, be certain that the cover is straight, that tab at bottom is tight against **inside** of bumper, and that holes at the side of cover line up with cover brackets (side braces on narrow-straddle trucks).

4. Using metal cover as a template, drill two 1/4-inch holes at bottom as shown in figure 3-33. Then at the rear of bumper, measure two inches down from cover and drill 27/64-inch hole through bumper and tab.

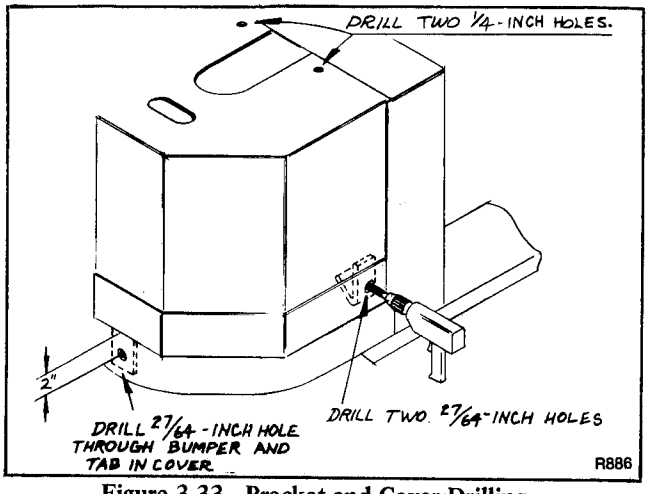
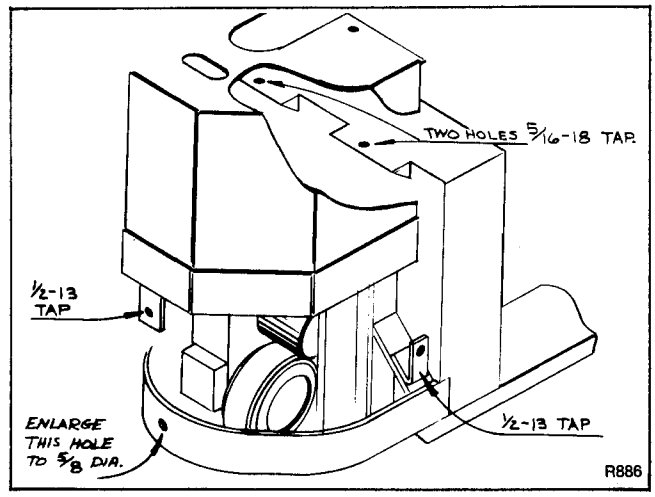


Figure 3-33. Bracket and Cover Drilling

5. Remove cover and tap hole in tab with 1/2-13 tap. See figure 3-34.

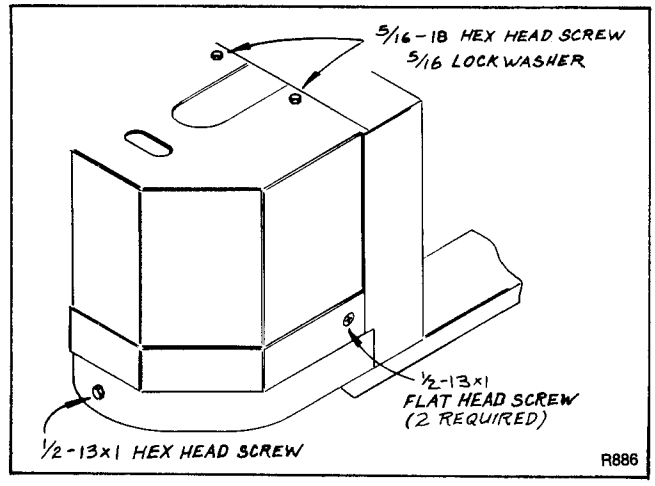
6. Enlarge hole in bumper to 5/8 inch. Tap holes in cover brackets (side braces on narrow-straddle trucks) with 1/2-13 tap. Tap holes at top with 5/16-18 tap. (Figure 3-34)



3-34. Tapping Diagram.

7. Place cover on truck and attach with hardware as shown in figure 3-35.

8. Apply Big Joe Decal to service cover.



3-35. Service Cover Assembly

PART NO.	PART NAME	NO. REQD.
900696	Metal Cover Service Kit	1
503731	Metal Cover	1
401106	Cover Bracket	2
------	1/2-13 x 1 Hex Head Screw	3
------	1/2-13 x 1 Flat Head Screw	2
------	1/2 Lock Washer	2
------	1/2-13 Hex Nut	2
------	5/16-18 x 1 Hex Head Screw	2
------	5/16 Lock Washer	2
056475	Decal	1

NOTES

NOTES

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Lincolnwood, Illinois 60646

1M-02/78