SwingMast™

Model _____

Technical Manual

for

Customer_____

Truck Serial No. 15018-9-_____

OPERATION
PREVENTIVE MAINTENANCE
TROUBLESHOOTING
PARTS BREAKDOWN
MAINTENANCE

THIS TECHNICAL MANUAL CONTAINS INFORMATION PERTINENT TO THE SAFETY OF BOTH VEHICLE AND OPERATOR. READ IT THOROUGHLY!

LANDOLL MARYSVILLE, KANSAS ®

DREXEL Division

SAFETY PRECAUTIONS

Be certain that all directional and operational controls and levers are in neutral position and that the brakes are set before turning key switch on.

Travel in side pick-up position in creep speed only.

Release the parking brake before driving the vehicle.

Never lift or lower personnel on the forks or elevating mast.

Observe condition of all floors prior to entering trucks, trailers, railroad cars, and other vehicles. When operating in these, drive carefully and slowly.

Always look in the direction of travel. Keep a clear view and when load interferes with forward visibility, travel with load trailing, except on ramps.

Ramp operation requires special care. Always travel slowly. Always back down ramps when carrying a load. Always travel forward down ramps when not carrying a load. Do not turn on ramps.

Start, stop, change direction, travel, and brake smoothly. Do not "jam" on brakes. Slow down for all turns, especially on wet or slippery surfaces.

Never use the seat brake to stop a truck in motion.

Use care when traveling without a load. Avoid excessive speed and abrupt turns.

Always travel with the load at either side or front carry position.

Do not speed. Obey all speed limit signs. If none are posted, travel according to conditions.

SAFETY PRECAUTIONS

Undercharging and overcharging will both reduce battery life. Every effort should be made to ensure that the battery receives the proper amount of charge.

Charging the battery during lunch periods or rest breaks is not recommended.

tional control may also be used for vehicle reversal, known as plugging.

③ **HORN BUTTON:** The horn button assembly is located in the center of the steering wheel. To use the horn, the operator must press directly on the cover.

④ **LIFT CONTROL LEVER:** This control lever when pulled back will elevate the forks. When pushed forward, forks will lower. This lever is self-centering.

⑤ **TILT CONTROL LEVER:** The tilt control lever, when pulled back, will tilt the load back toward the operator. When pushed forward, the load will tilt forward, away from the operator. The lever is self-centering.

⑥ **SHIFT CONTROL LEVER:** This lever controls the shift motion of the mast assembly. When the lever is moved forward, the mast assembly will move to the operator's left. When the lever is pulled back, the mast assembly will move to the operator's right. The lever is self-centering.

⑦ **PIVOT CONTROL LEVER:** This lever controls the pivoting motion of the mast assembly. When the lever is pushed forward, the mast will rotate clockwise away from the operator. Pull the lever backward, the mast will rotate counter-clockwise toward the operator. The lever is self-centering.

⑧ **BRAKE PEDAL:** The brake pedal is located on the floor plate to the left of the accelerator pedal and is actuated by the operator's right foot. The brake pedal stops the forward or reverse motion of the vehicle. The operator should allow ample distance for gradual stopping. This will increase the life of the brake linings.

⑨ **PARKING BRAKE LEVER:** The parking brake is released by pushing down on the lever and engaged by pulling the lever up. The parking brake should be engaged when leaving the operator's seat.

CAUTION:

The seat brake is NOT to be used to stop a truck when in motion.

⑩ **SEAT BRAKE:** The seat brake is a spring loaded mechanism which keeps the parking brake de-energized when the operator is in the operator's seat. When the operator leaves the operator's seat, the spring mechanism energizes the parking brake.

The seat brake is designed to hold a parked loaded truck on a slope up to 15%.

⑪ **SEAT SWITCH:** The seat switch prevents operation of the truck unless the key switch is in the ON position AND the operator's seat is fully depressed (i.e., operator in position).

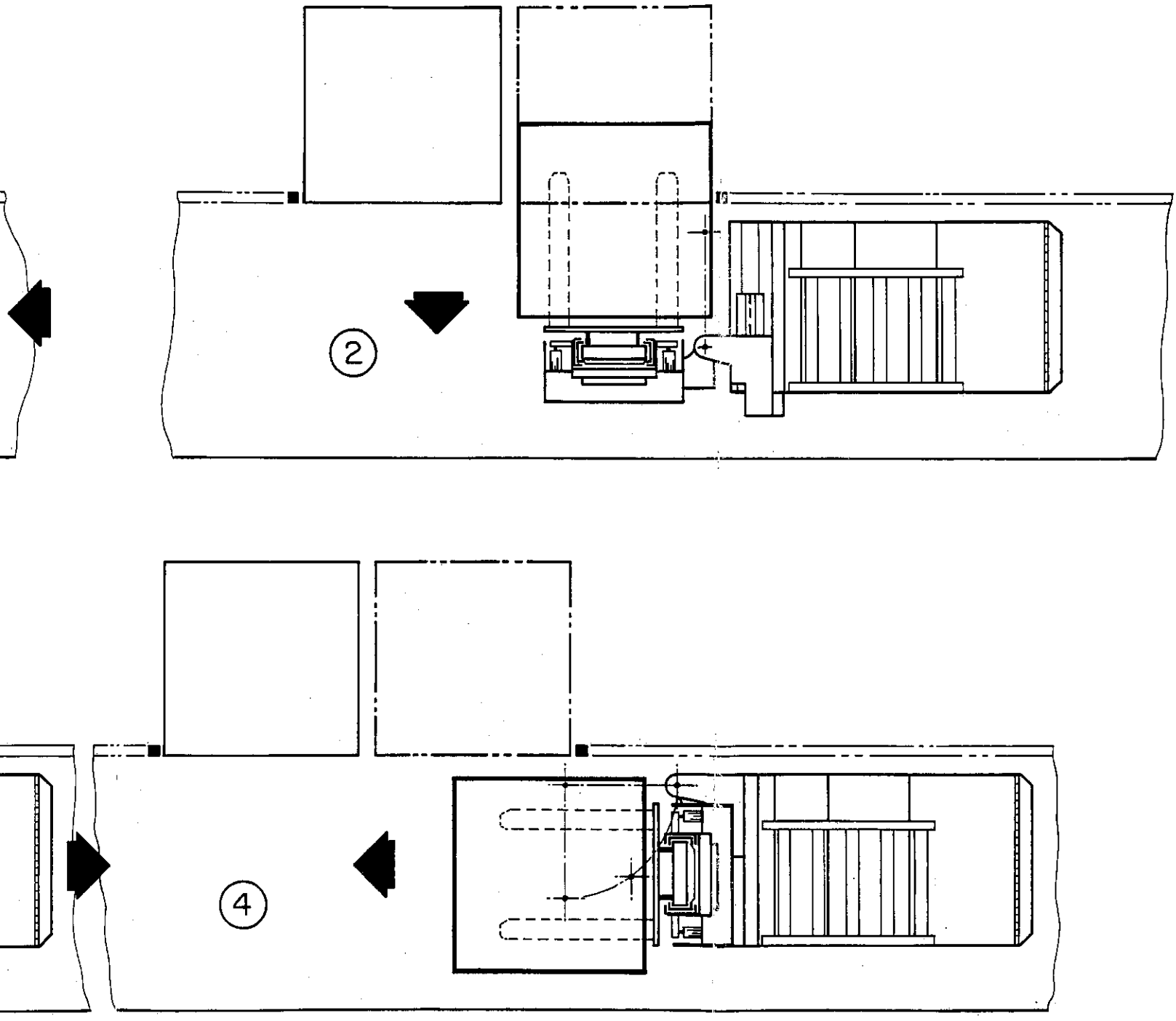
⑫ **KEY SWITCH:** The key switch is a two (2) position on-off switch located on the instrument panel.

⑬ **BATTERY CAPACITY INDICATOR:** The battery capacity indicator provides the vehicle operator with a visual means of determining the condition of the battery being used to power the traction and hydraulic systems.

It is designed to protect the battery from over discharge.

It provides the following operating features:

A. Meter always shows proportionate level of charge so operator can judge when to bring truck in.



LOAD RETRIEVAL (Follow Steps 1 thru 4)

LOAD DEPOSIT (Follow Steps 4 thru1)

Figure 1-17

PREVENTIVE MAINTENANCE

PREVENTIVE MAINTENANCE AND CHECKOUT SCHEDULE

Based on (1) Shift Basis	Hours	8	50	250	500	1000	2000	Reference Pg. No.
	Weeks			6	12	26	52	
1. Power Steer System		O			O			2-3
2. Pivot/Shift Interlock System		O			O			1-4 and 1-5
3. Electric Motors Pump-Brushes						O		5-45
Traction Brushes						O		5-22
4. Accelerator Assembly					O			3-6
5. Hyd. Circuit Time Delay		O						1-5
6. Electric Return to Neutral		O						1-5
7. Electric Connections						O		2-4
8. Major Bolt-on Connections					O			2-4
9. Hydraulic Oil Level Check			O					2-4
10. Change Hydraulic Oil							O	2-4
11. Steer Axle					O			2-5
12. Pivot Arm Racking			O					2-5
13. Mast Racking			O					2-5
14. Mast Inspection				O				2-5 , 2-11
15. Truck Lubrication				O				2-8
16. Front End Bearing Assembly Lubrication							O	2-5
17. Battery		O			O			5-33 and 5-34
18. Tires		O						2-6
19. Hydraulic Oil, Return Line Filter					O			5-53

PREVENTIVE MAINTENANCE

MAST OPERATION

CAUTION

Like any mechanical equipment, proper operation results in long life and minimum maintenance. Rules to follow when operating are:

1. Never overload the mast.

2. Raise and lower; stop and start, heavy or bulky loads slowly.

3. Always tilt mast slowly and carefully.

4. Do not carry passengers on mast or forks.

5. Do not use mast or forks as battering rams.

6. Center load as closely to mast centerline as possible.

7. Place load as close to carriage face bars as possible.

8. Transport loads with forks as close to ground as possible.

9. Do not jerk mast with tilt cylinders.

10. Whenever possible, raise and lower with mast straight, vertically or back tilted.

11. Do not apply heavy torsional loads or side loads to mast. Basically, the mast is designed to handle downward loads applied at or near the centerline of the carriage.

12. Lift and lower loads with mast tilted rearward.

13. When not in use, or unattended, rest forks on ground.

14. Keep all parts of your body out of the working zone of the mast. Do not stand under load or allow others to do so.

15. Inspect mast and lift hose daily.

MAST LUBRICATION

There are no grease fittings on the mast. All bearings are sealed. Lubrication is required as follows:

Every 50 hours:
Chains—Oil with brush.

Every 500 hours:
Light layer of grease in active rolling corners of each rail.
See Figure 1.

Every 1000 hours:
Remove chains—clean, soak in oil.

MAST INSPECTION

CHAIN WEAR

CAUTION

Replace chain when stretch exceeds dimensions shown.

Replace chain when limits shown in Figure 2 are equalled or exceeded. In severe or dusty applications, lubrication intervals should be shortened. Main rail, main carriage rollers, chain sheaves and cylinder head guide rollers are sealed for their life and require no relubrication. The life of bearings vary depending on severity of application. Because the carriage rollers are the closest together of the main rollers, their loading is higher and, consequently, have a shorter life.

Carriage outside thrust rollers must be maintained tight. Check frequently and tighten when necessary.

Some flaking of material from the carriage rolling surface of the inner rail can be expected after a few hundred hours of operation. Keep this flaked material removed via wire brush or burn off with torch. Keep rail greased per Figure 1. The flaking should diminish with further operation.

HYDRAULIC SYSTEM — PIVOT AND SHIFT

PROBABLE CAUSE CHECK LIST

PRIORITY			PARA.
8	9	COVER END SECTION OF PUMP DEFECTIVE	3.63
6	8	INTERLOCK SWITCHES DEFECTIVE, PIVOT & SHIFT	3.62
7	7	DAMAGED HYDRAULIC SOLENOID INTERLOCK VALVES	3.61
1	1	LOOSE INTERNAL PLUG, CARRYOVER PORT	3.52
2	2	FAULTY RELIEF VALVE CARTRIDGE	3.49
3		SHIFT CYLINDER SPACERS BLOCKING PORT	3.60
4		SHIFT CYLINDER ROD BENT	3.59
5		SHIFT CYLINDER SEALS DEFECTIVE	3.58
	3	PIVOT LINES CROSSED WITH TILT CYLINDER	3.57
	6	PIVOT CYLINDER CUSHION VALVE & RINGS DEFECTIVE	3.56
	4	PIVOT CYLINDER ROD BENT	3.55
	5	PIVOT CYLINDER SEALS DEFECTIVE	3.54

PIVOT FUNCTION DEFECTIVE

SHIFT FUNCTION DEFECTIVE

SYMPTOM

Remove one of the coil terminals from the solenoid and place an ohm-meter across the two coil terminals. A coil resistance measurement between 43 to 49 ohms is normal.

Replace the coil if resistance is below 43

3.12 Check the two leads from the hash filters on each solenoid. Remove one lead and place a volt-ohm-meter across the two terminal connectors. Place the volt-ohm-meter selector knob in the RX 10,000 range. The meter should deflect to 50 ohms then return to an infinite resistance position. Full meter deflection indicates a shorted hash filter. Remove and replace.

3.13 Loose control wiring will cause control fuses to open.

Check the control wire terminals on both sides of the two terminal strips, TS1 and TS2, for loose or missing binding screws. The terminal strips are located on the intermediate electrical panel inside the electrical compartment. Reference page 4-102, item 27.

3.14 Service brake, seat brake, or parking brake if over adjusted will cause the traction power fuse, 1FU, to open. Refer to maintenance section, (Pg. 5-30, 5-31, 5-32).

3.15.3 Control wiring is loose or dislodged.

3.16. The line circuit control fuse (3FU) may be open. Remove the fuse holder cap by pushing inward and twisting until the cap and fuse can be removed. Examine the ribbon for signs of overcurrent damage. Excessive fuse openings may be due to shorts in associated components or wiring (Fig. 3-4).

Access to the fuse may be obtained by opening the electrical door at the right side of the vehicle. The control circuit fuses are mounted on a panel together with the hour-meter and SCR cooling fan (Fig. 3-5). Twist and pull out the fuse and examine the ribbon for separations. Check the Hydraulic pump motor fuse now that the electric door has been opened (Fig. 3-5).

Figure 3-4

NOTES

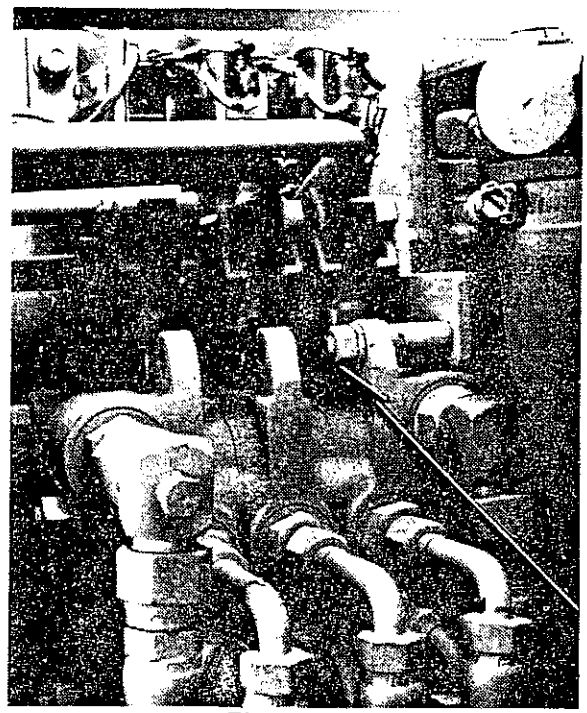


Figure 3-18

Vertical adjustment of the switch support bracket is shown in Fig. 3-19

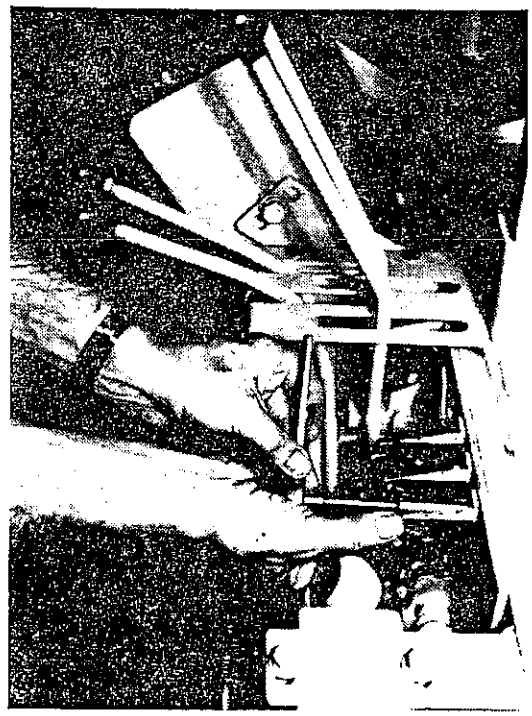


Figure 3-19

Loosen the two 1/4 inch Hex nuts with a 7/16 inch socket wrench, to allow the switch and bracket to move up or down.

Adjust each switch so that the roller plunger is centered in the notch. Do not place any pretension or loading on the switch arm or roller. Tighten the switch and bracket and recheck adjustment.

Switches should have an audible "click" when the tilt, pivot and shift handles are moved in the forward and rearward direction. The lift switch should "click" only when the handle is pulled back.

Loosen the two No. 6 Hex nuts with a 5/16 open end wrench to allow the switch to move forward and backward horizontally.

All handles must be in the normal, neutral position. Try each handle to determine if handle base rotates freely and each valve spool does not stick in the housing. Lubricate handle base and support shaft if required.

3.46 Loose control handle mounting to the hydraulic control valves can cause the electrical switches to remain closed after the operator releases the control handle.

3.46.1 Unplug battery from the vehicle (Fig. 5-97).

3.46.2 Remove the two covers at the right front of the operator's compartment to gain access to the four switches and the handle mounting (Pg. 4-4, items 3 and 4).

3.46.3 The hydraulic return filter may be moved for access to the control handle mounting hardware (Fig. 3-20).

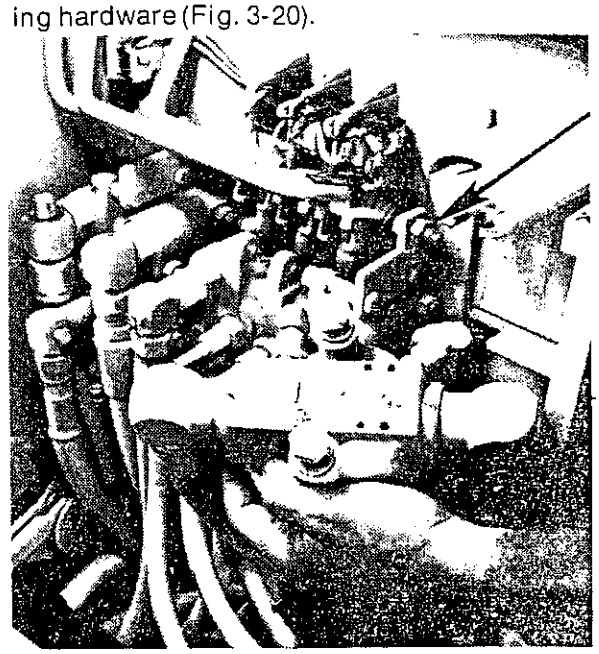


Figure 3-20

POWER STEERING SYSTEM

3.90 Loss of power steering control may be due to an opening of the hydraulic system control circuit fuse (4FU). This fuse may be examined by first opening the electrical compartment control door module and then removing the second fuse from the top, located on the auxiliary panel assembly (Ref. page 4-104).

Twist and pull out the fuse to examine the ribbon element for separation. Please note that when this fuse is open, the electrical control circuit for the lift, tilt, pivot and shift hydraulic system will not function either (Ref. Para. 3.35).

3.91 The power steering electrical system contains a power fuse element to protect against motor damage or a direct short. This fuse is located inside the electrical compartment, adjacent to the power steer contactor. A buss bar connects one end of this fuse to the contactor power terminal. Disconnect the truck battery and with the aid of a volt-ohm-meter check for continuity across the fuse terminals. (See Contactor and Fuse Assembly, Power Steer, Section V.)

3.92 Loose or open control circuit connectors may cause loss of control power to the power steering contactor. Examine connectors P12 and J12 which join the contactor coil to the intermediate panel assembly terminal strips. Check the ring terminal tightness at the contactor coil and the tightness of the fork connectors on terminal strips TS1 and TS2.

3.93 Examine power cable assemblies for continuity and tight connections. Wire terminal crimps should be secure and wire stranding must not be frayed or corroded. Tighten cable connections at the power fuse, contactor and pump motor terminals.

Examine two power cable connections on the SCR electric door assembly module. The first cable connects the battery positive terminal on the door to the pump motor power fuse. The second cable connects the battery negative terminal on the door to the steering motor.

3.94 The power steering pump contactor may be inoperative causing loss of power to the steer pump motor. Check the following conditions:

3.94.1 With the battery disconnected, push the contactor armature and contacts inward to check for restriction-free movement.

3.94.2 Check for loose contact tips, conductor bars, and coil assembly. Examine the condition of the contact tips and replace if badly worn.

3.94.3 Check for an open coil. Disconnect plug, P12, and use a volt-ohm-meter on both pins to determine if the coil has opened. Normal coil resistance is approximately 18 ohms.

3.95 The power steering pump motor may be damaged, defective or worn. This may cause a reduction in system performance which slows steering response. Severe conditions may cause a total loss of powered steering.

Common motor failures are described in paragraphs 3.9.1, 3.9.2 and 3.9.4, this chapter.

The power steering pump motor is constructed with permanent magnet field poles so that no field coil problems, as described in paragraph 3.9.3, can occur. Listen to the motor operate, without a load, to check for damaged armature shaft bearings. Normal motor performance may be determined by connecting an ammeter in series with the motor power cable. Current draw while idling should be approximately 20 amps. Current draw at the relief pressure setting of 1750 psi should be approximately 75 amps. Significantly higher current draw will require servicing or replacement of the motor.

used on high source inductance and/or low motor resistance applications. Because of the flyback current through 3 REC, the motor current usually runs 2 to 3 times the battery current. The (C/L) trimpot adjustment will produce little or no variation of battery current when used with high resistance motors.

- PLUGGING — Slowdown is accomplished when reversing by providing a small amount of retarding torque for deceleration. If the vehicle is moving and the directional lever is moved from forward to reverse, the motor field is reversed, the motor armature is driven by the inertia of the vehicle and acts as generator. This generated current passes through 4 REC and the current sensor. When the plug signal is initiated, the oscillator circuit regulates at a plug current limit level as set by the Plug trimpot on the control card. This controls the pulse rate of 1 REC to regulate the generated motor current and bring the truck to a smooth stop and reversal.

- RAMP START — This feature provides SCR torque to restart a vehicle on an incline. The memory for this function is the directional logic in the card. When stopping on an incline, the Directional switch must be left in its original or OFF position to allow the control to assume full power when restarting in the same direction. The "C/L" trimpot affects this torque.

- FULL-POWER TRANSITION — This built-in feature provides smooth transition from SCR to 1A bypass. This is accomplished by the SCR continuing to pulse until the 1A contactor power tips close.

- 1A CONTROL — The 1A contactor has 6 modes of control:

  1. DEMAND PICKUP (fixed feature of the card) — If the oscillator has attained a % ON time equivalent to a motor voltage of 80 to 85 percent of the available battery volts, the 1A contactor will automatically pick up. The 1A switch in the accelerator is not necessary for this function. On "H3" cards, this feature may be eliminated by adding a jumper from R9 to R4.

  2. TIMED PICKUP — This feature works with the 1A switch in the accelerator. The time-delay pickup of 1A is provided by a circuit in the card. This feature allows 1A to be picked up after a time delay without reaching the demand point, and is normally used to apply full power at near stall conditions. This time delay is adjustable by means of a 1A time trimpot on the card.

  3. 1A THERMAL HOLDOFF — This feature prevents the 1A contactor from closing as a function of time when the truck is in severe thermal cutback to avoid torque jumps. When a truck starts to go into thermal cutback, the 1A time will rapidly increase to infinity as the control goes deeper into thermal cutback. On "E" and later cards, this feature may be eliminated by adding a jumper from R2 to R4.

  4. 1A CURRENT HOLDOFF — This feature is obtained by not wiring in the 1A switch in the accelerator. 1A will not pick up until the vehicle can accelerate to a point where the demand pickup will close the 1A contactor.

  5. 1A PLUGGING HOLDOFF — This built-in feature is designed to prevent 1A closure anytime during plugging.

  6. 1A DROPOUT (1A DO) — This adjustable feature can be set to open the 1A contactor if the traction motor is subjected to excessive currents. The dropout is adjustable with the (1A DO) trimpot. The directional or Accelerator switch must be returned to NEUTRAL to unlock the dropout circuit. Using this feature will reduce the 1A contactor tip life, thus it should be used only where needed to protect the motor.

- PULSE MONITOR TRIP — This function contains three features: The look ahead, the look again, and the automatic look again reset.

If 1 REC is shorted or 1A is welded, PMT will look ahead and prevent F or R from closing if either condition exists.

If 1 REC fails to commutate, or if 1A power tips remain closed when they should be open, the control will open F or R contactor. PMT will then look again by testing for a fault and, if none, reclose F or R. If the fault still exists, the F or R will reopen and remain open.

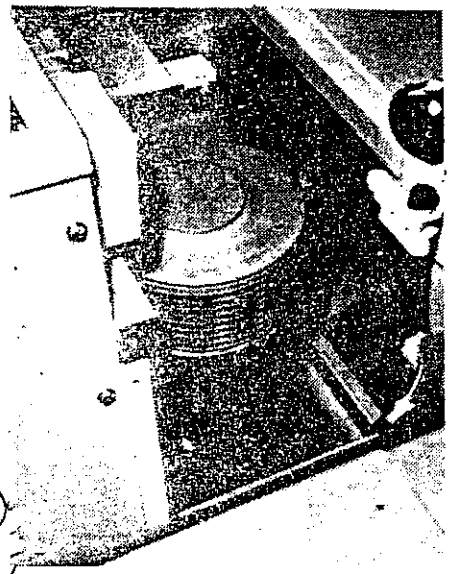
If 1A closes before a second commutation failure, the look again counter will automatically reset. This eliminates the inconvenience of resetting the PMT with the key switch if the tripping is due to random noise.

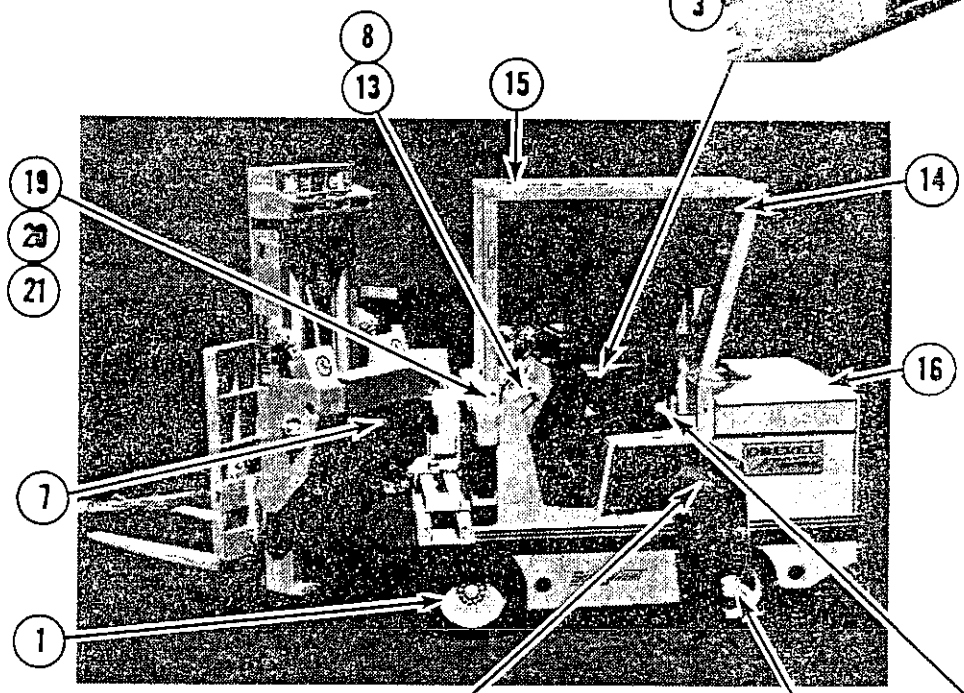
When the PMT circuit prevents F or R from closing, the PMT circuit can be reset only by opening the Key switch.

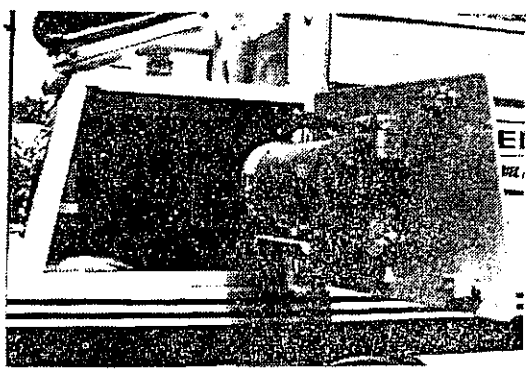
SYMPTOM	PROBABLE CAUSE
3G. FW contactor will not close after 1A pickup. (Cont'd.)	• Reconnect lead to R9 and check volts at R9 when FW should pick up. If near 8 volts, check lead from R9 to terminal 1 of FW driver and R2 to negative for open, then replace driver. If about 2 volts, check volts at terminal 3 of FW driver. Should be battery volts dropping to 2 volts or less when FW should pick up. If volts are near zero, check wiring from positive to FW coil, FW coil, and wiring to terminal 3 of FW driver. If volts remain greater than four volts, replace driver.
3H. FW contactor will not drop out with increasing load.	• Check dropout setting on card. (6) • Replace control card. (4A)
3J. Stiff plug. Severe reversal.	• Check plug adjustment setting on card. (6) • Check 4 REC for open circuit. (4H) • Replace control card. (4A)
3K. Very soft reversal.	• Check plug adjustment setting on card. (6) • Replace control card. (4A)
3L. Blown power fuse. Very hot power cables.	• Check 3 REC for short. (4H) (Possible damage also to 1 REC and transformer module.)
3M. Hourmeter feeder faults:	
(1) Pump contactor closes when either F or R direction is selected.	• Diode shorted 3 to 4. (4H) Replace hourmeter block.
(2) One direction okay; opposite direction picks up *both* F and R.	• Diode shorted 1 to 4 *or* 2 to 4. (4H) Replace hourmeter block.
(3) Either direction selected picks up *both* F and R.	• Diode shorted 1 to 4 *and* 2 to 4. (4H) Replace hourmeter block.

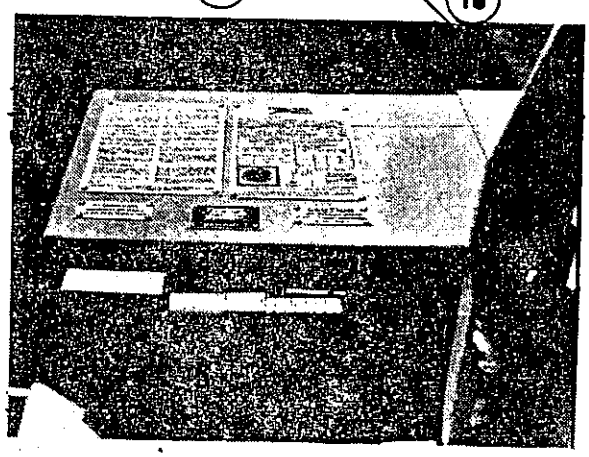
PARTS BREAKDOWN

TRUCK FEATURES

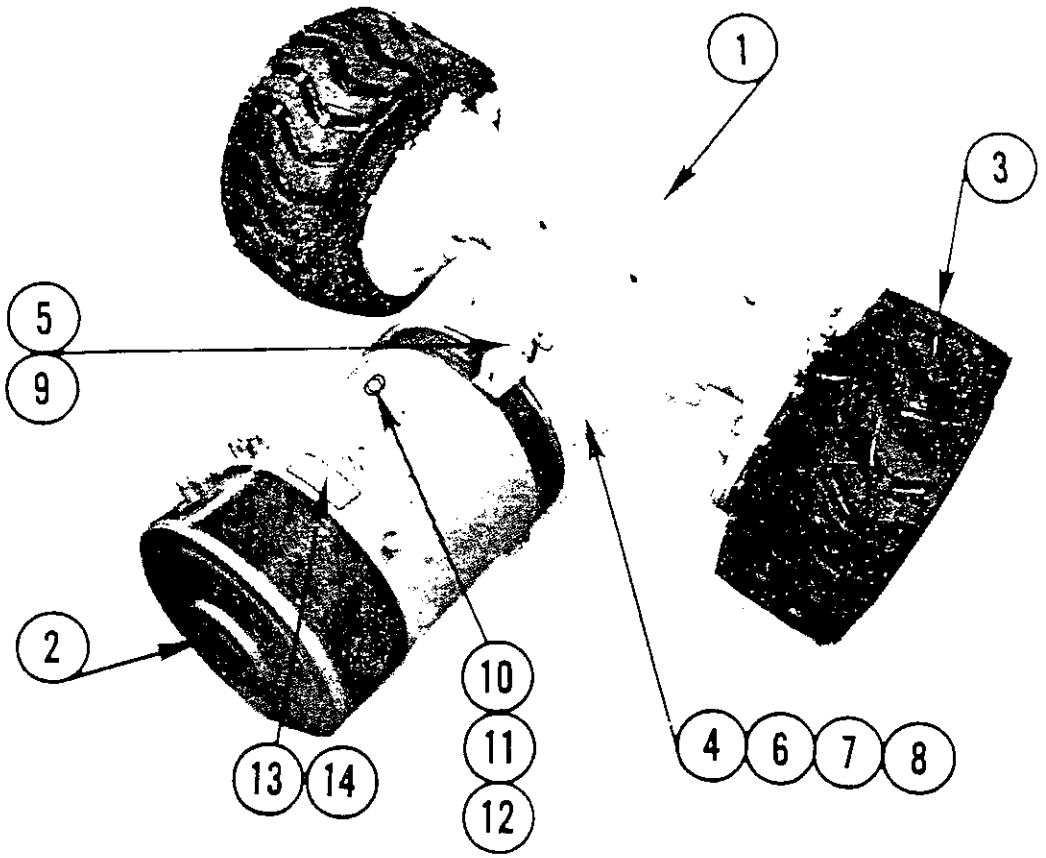








PARTS BREAKDOWN



DRIVE ASSEMBLY PART NO.—10712

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	**11877**	1	Axle Assembly, Drive
-2	50379	1	Motor, Traction
-3	*	2	Tire
-4	7095	1	Traction Motor Support
-5	6775	1	Crank, Brake
-6	MS90726-72	4	Screw, Cap, Hex. Hd. — (3/8-24 x 3-1/2 LG)
-7	MS90726-62	4	Screw, Cap, Hex. Hd. — (3/8-24 x 1-1/4 LG)
-8	AN935-616	8	Lockwasher — (3/8)
-9	25002	2	Yoke Pin w/Cotter Pin
EE MODELS ONLY -10	50390	1	Thermostat
EE MODELS ONLY -11	AN935-6	2	Lockwasher — (#6)
EE MODELS ONLY -12	MS35223-26	2	Screw, Pan Hd. (#6 — 32 UNC-2A x 1/4 LG)
-13	6726	1	Nameplate
-14	AN535-4-4	2	Screw, Drive (#4 x 1/4)

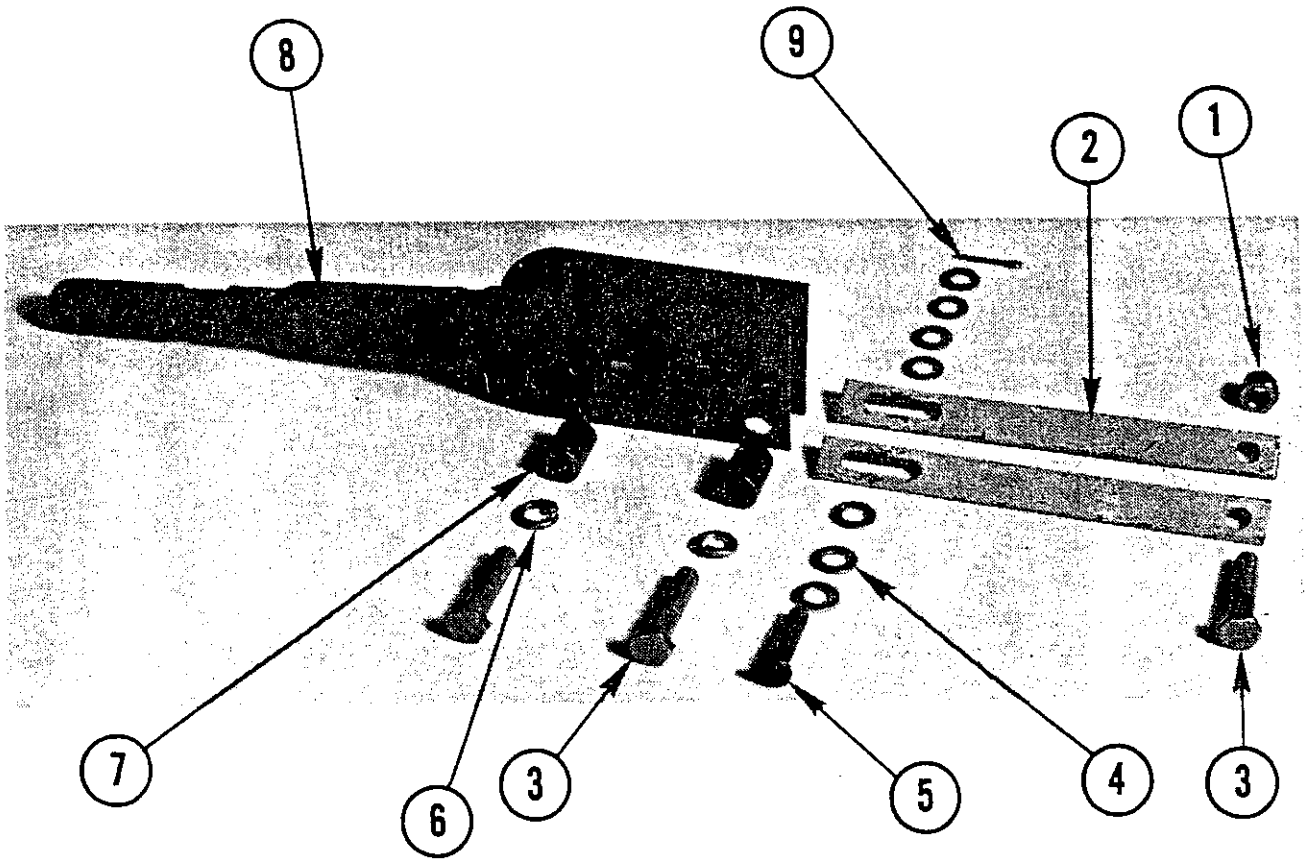
***See specification sheet, item 13, at the front of the operating section for tire specifications.**

DREXEL INDUSTRIES INC

PARTS BREAKDOWN

DRIVE AXLE, WHEEL END, PART OF PART NO.—11877

FIG./ ITEM	PART NUMBER	UNITS ASS'Y	DESCRIPTION
-1	20000	24	Nut
-2	20001	24	Washer, Lock
-3			Not Used
-4	20003	2	Drum Brake and Wheel
-5	50393	REF	Tire
-6	20004	2	Plug
-7	20005	2	Plug
-8	20006	2	Spring, Return
-9	20007	4	Rod
-10	20008	8	Retainer
-11	20009	4	Spring
-12			Not Used
-13	20010	4	Washer
-14	20011-1	4	Shoe and Lining Assy.
-15	20012	2	Spring, Retainer
-16	20013	2	Tube Assy. Brake Actuating
-17	20014	1	Tube Assy., Bleeder, RH
-18	20015	1	Tube Assy., Bleeder, LH
-19	20016	2	Adapter, Brake Bleeder Screw
-20	20017	6	Elbow
-21	20018	2	Adapter, Hyd Brake Cyl
-22	20019	2	Gasket, Hyd Inlet Adapter
-23			Not Used
-24	20020	1	Fitting, Brake Line, LH
-25	20021	1	Fitting, Brake Line, RH
-26	20022	4	Nut, Jam
-27	20023	4	Washer
-28	20024	4	Screw, Cap
-29			Not Used
-30	20025	1	Fitting, Brake Line, LH
-31	20026	1	Fitting, Brake Line, RH
-32	20027	2	Screw, Bleeder
-33			Not Used
-34			Not Used
-35			Not Used
-36	20028	6	Washer, Lock
-37	20029	6	Screw, Cap
-38	20030	2	Spacer
-39	20031	1	Cyl Assy.
-40	20032	1	Cyl Assy., Brake LH
-41	20033	4	Pushrod, Cyl
-42	20034	16	Nut
-43	20035	16	Washer, Lock
-44	20036	2	Plate, Backing
-45	20037	4	Dowel
-46	20038	4	Cam, Adj



PARKING BRAKE LEVER AND LINKAGE

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	MS51922-17	1	Nut, Hex., Self-Locking (3/8-16 UNC-2B)
-2	11080	2	Link, Brake Lever
-3	MS90725-66	3	Screw, Hex. Hd. (3/8-16 UNC-2A x 2" LG)
-4	MS27183-12	7	Washer, Flat (5/16)
-5	25609	1	Pin, Clevis (5/16 DIA x 1-17/64 EFF. LGTH)
-6	AN935-616	2	Lockwasher (3/8)
-7	25610	2	Spacer
-8	25171	1	Hand Brake Lever
-9	MS24665-300	1	Pin, Cotter (3/32 DIA x 3/4 LG)

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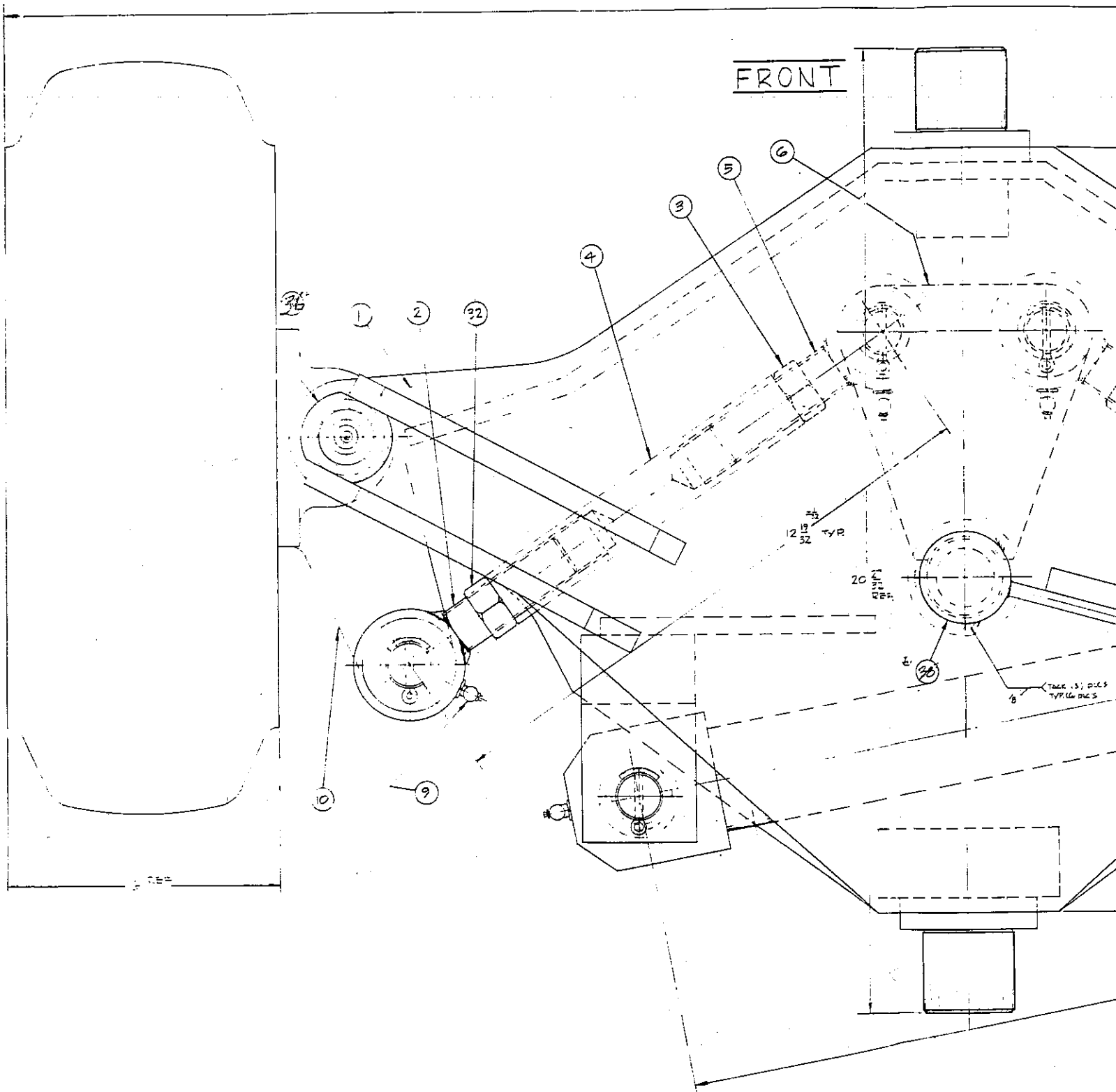
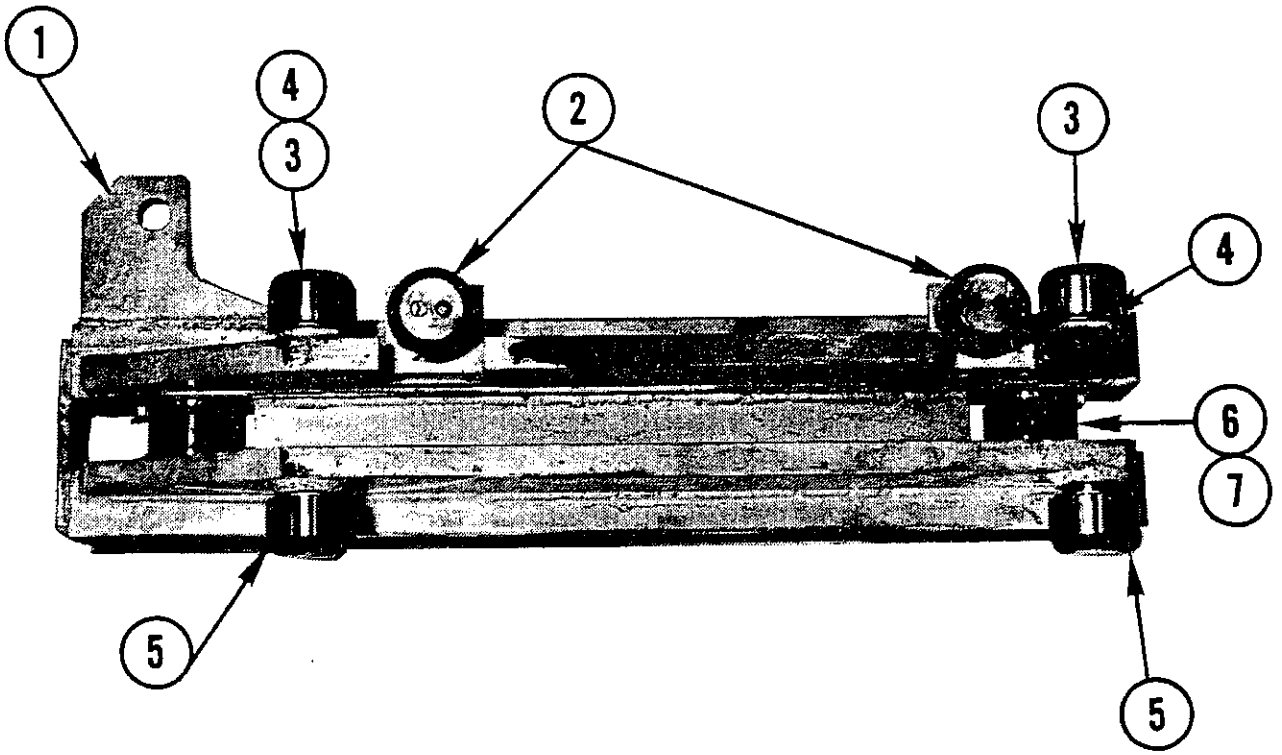


DREXEL INDUSTRIES, INC

PARTS BREAKDOWN



TELESCOPING SLIDE ASSEMBLY PART NO. — 25174

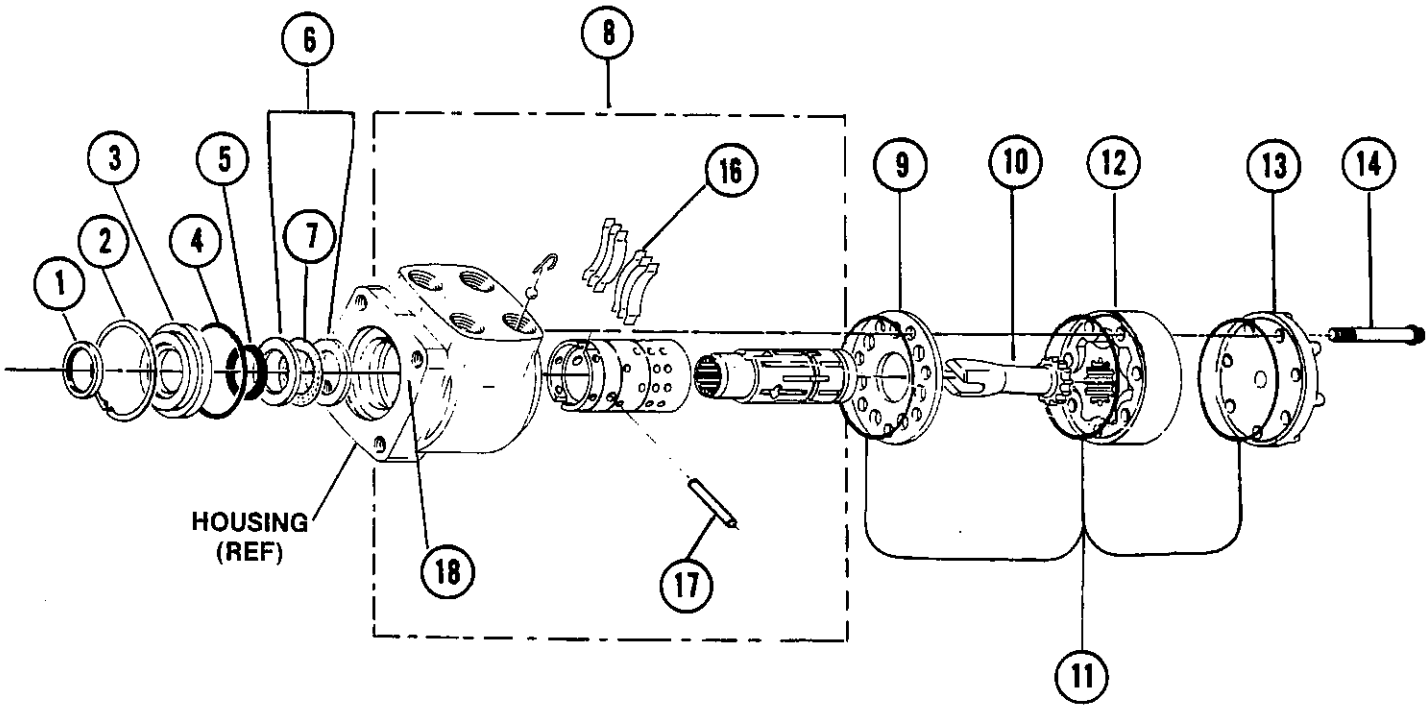
FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	10744	1	Slide, Telescoping
-2	25176	2	Bearing Assembly
-3	7971	2	Bearing, Roller
-4	25017	2	Washer, Thrust
-5	25177	2	Bearing Assembly
-6	8210	2	Follower, Cam
-7	10866	2	Shaft

PARTS BREAKDOWN

PIVOT SHAFT ASSEMBLY PART NO. — 9237

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	MS16997-65	8	Screw, Soc., HD (1/4-20 UNC-3A x 1-3/4 LG)
-2/-3	5510-2	2	Dust Cover
-4	5438	2	Gasket
-5	25154	3	Locknut, Bearing
-6	25155	2	Lockwasher, Bearing
-7	25151	2	Cone, Roller Bearing
-8	5423	1	Pivot Shaft
-9	9236	1	Spacer
-10	9235	1	Spacer
-11	25152	2	Cup, Roller Bearing
-12	MS15002-1	2	Lube fitting, straight

PARTS BREAKDOWN



ORBITROL UNIT PART NO.— 25715

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	25620	1	Seal, Oil
-2	25621	1	Ring, Snap
-3	25622	1	Bushing, Seal Gland
-4	25623	1	Seal, O-Ring
-5	25624	1	Seal, Quad Ring
-6	25625	2	Race Thrust
-7	25626	1	Bearing, Needle Thrust
-8	25764	1	Control Parts Assembly (NSS)
-9	25628	1	Plate, Spacer
-10	25629	1	Drive
-11	25765	3	Seal
-12	25631	1	Gear Set (Gerotor)
-13	25632	1	Cap, End
-14	25633	7	Screw, Cap-12 Pt Dr (5/16-24 UNF x 1-3/8 LG)
-15	50369	A/R	Kit, Seal (Consists of items 1, 4, 5, 11)
-16	25679	6	Spring, Centering
-17	25678	1	Pin
-18	25680	1	Check Valve (Located in Housing)

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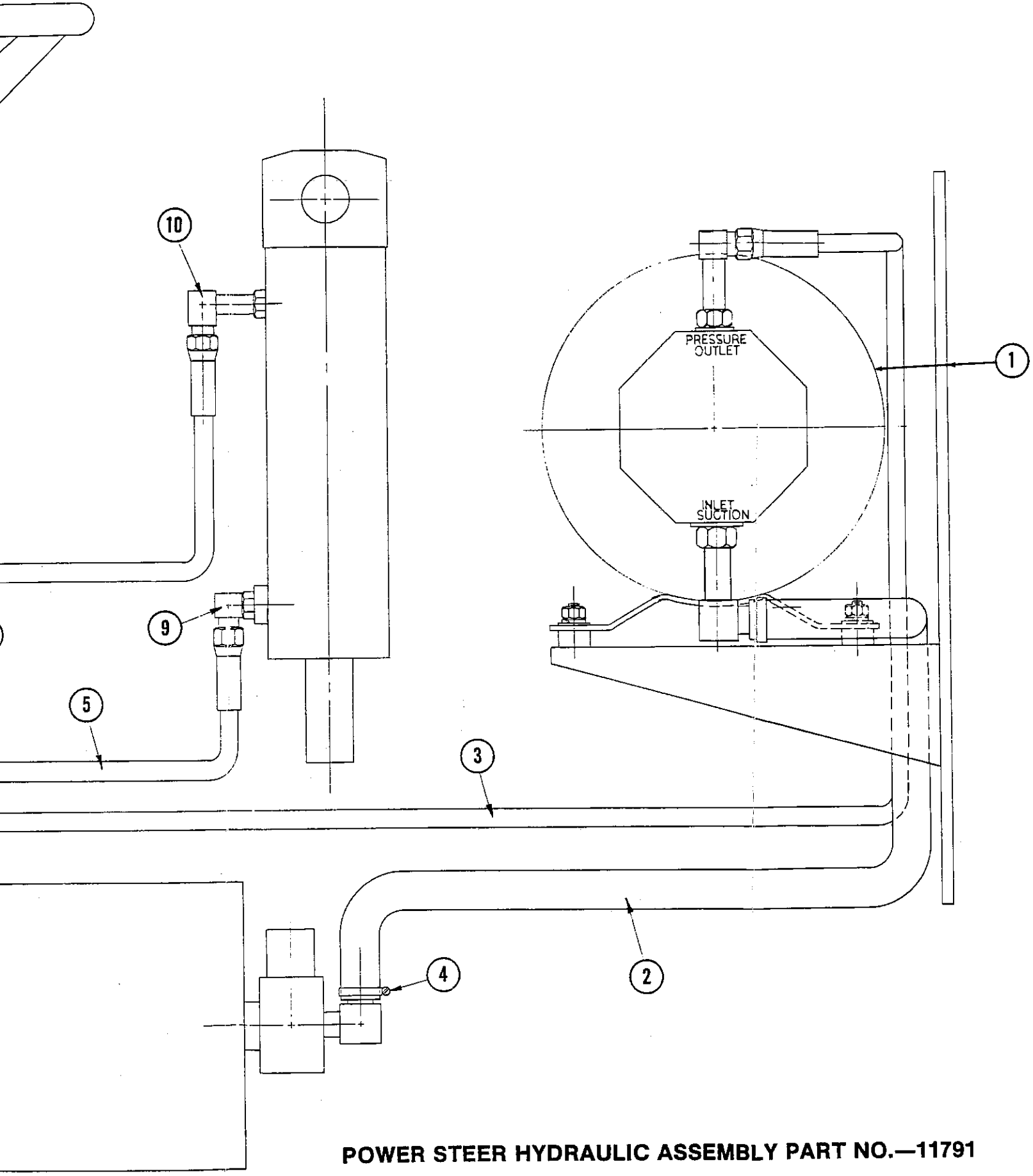


POWER STEER HYDRAULIC ASSEMBLY PART NO.—11791

CONTROL PANEL MODULE PART NO.— 11917

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	11711*	REF	Handle, Pivot
-2	11709*	REF	Handle, Lift
-3	11712*	REF	Handle, Shift
-4	11710*	REF	Handle, Tilt
-5	11707	1	Plate, Mtg.
-6	MS35690-402	8	Nut, Hex. (1/4-20 UNC-2B)
-7	AN935-416	8	Lockwasher (1/4)
-8	MS27183-10	8	Washer, Flat (1/4)
-9	10978	4	Bracket, Switch
-10	4281-02	4	Retainer
-11	25229	4	Switch, Stack
-12	10977	4	Insulator
-13	MS35333-37	16	Lockwasher, Int. Tooth (#6)
-14	MS35649-62	16	Nut, Hex. (#6-32 NC-2B)
-15	10962-7	8	All Thread (#6-32 NC-2B x 1-5/8 LG)
-16	4281-01	4	Retainer
-17	MS35691-802	REF	Nut, Jam, Hex. (1/2-13 UNC-2B)
-18	10932*	REF	Shaft
-19	11708*	REF	Bracket, Mtg.
-20	MS35690-602	14	Nut, Hex. (3/8-16 UNC-2B)
-21	AN935-616	6	Lockwasher (3/8)
-22	MS90725-67	5	Screw, Hex. Hd. (3/8-16 UNC-2A x 2-1/4 LG)
-23	25511	1	Elbow
-24	11884	1	Harness, Wire
-25	50701	1	Valve Assembly, Control (Tilt-Pivot-Shift)
-26	25756	1	Elbow
-27	25520	5	Connector, Straight
-28	11779*	REF	Spacer
-29	25521	2	Plug, Pipe
-30	11774	1	Elbow (mod)
-31			Not Used
-32			Not Used
-33	50700	1	Valve Assembly, Control (Lift)
-34	25522	1	Elbow
-35	14065	1	Elbow (mod)
-36	11778*	REF	Spacer
-37	25724	1	Elbow
-38	MS90725-64	REF	Screw, Hex. HD (3/8-16 UNC-2A x 1-1/2 LG)
-39	25516	1	Elbow
-40	25079	1	Ty-Rap
-41	25080	1	Plate, Mounting

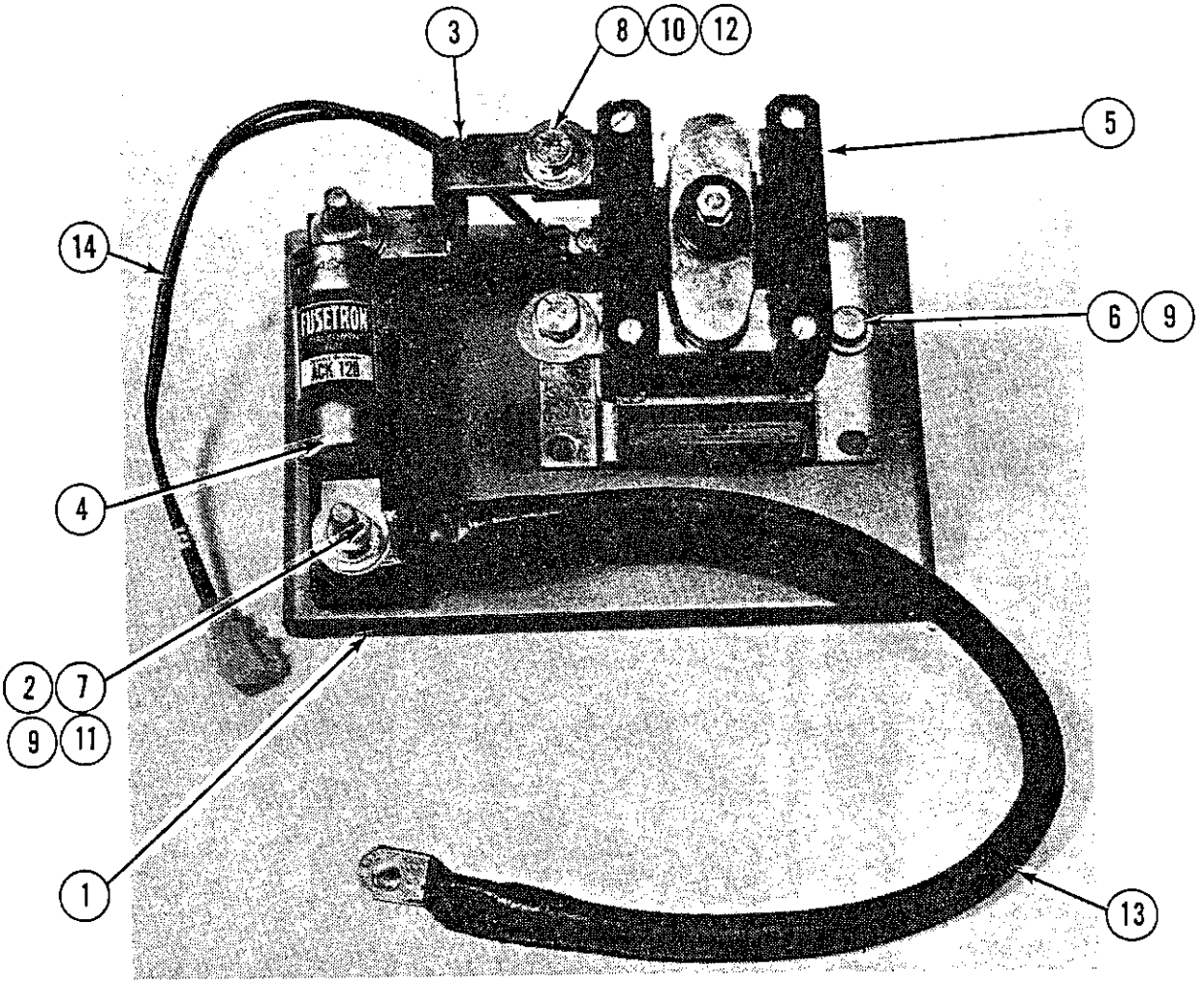
*See page 4-59

PARTS BREAKDOWN

HYDRAULIC GROUP, PIVOT ARM

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	6982	2	Cylinder, Tilt
-2	9934-01	REF	Pin, Pivot
-3	MS15003-1	REF	Fitting, Lub.
-4	MS90725-58	REF	Screw, Cap, Hex. Hd. (3/8-16 UNC-2A x 3/4 LG)
-5	AN935-616	REF	Washer, Lock, Spring (3/8)
-6	5039-1	2	Pin, Cylinder
-7	MS24665-513	4	Pin, Cotter (3/16 Dia x 1-1/2 LG)
-8	23705	4	Elbow, 90°, "O" Ring
-9	23706	1	Elbow, LG, 90°, "O" Ring
-10	50013-37	1	Hose Assembly, Pivot rod end
-11	50013-49	2	Hose Assembly
-12	25000	1	Nut, Swivel
-13	23704	3	Elbow, Bulkhead
-14	23707	2	Tee, Side—Swivel Nut (Not Shown)
-15	23708	1	Elbow, Bulkhead 90°
-16	50013-29	3	Hose Assembly - lift
-17	50013-30	4	Hose Assembly - Tilt and Pivot
-18	50013-50	2	Hose Assembly
-19	10864	REF	Cylinder, Pivot
-20	50016-08	REF	Hose Assembly
-21	25526	1	Adapter (Not Shown)
-22	11438	REF	Pivot Arm

PARTS BREAKDOWN



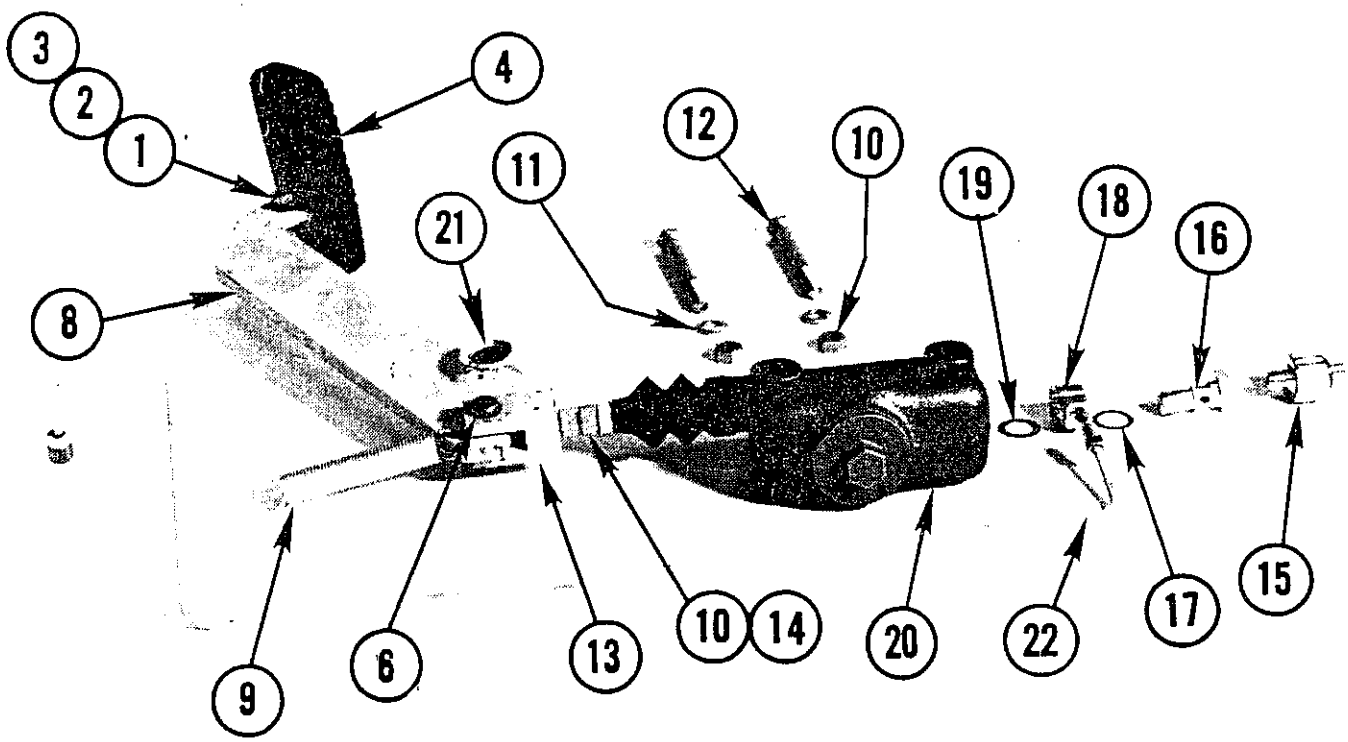
POWER STEER CONTACTOR ASSEMBLY PART NO.—11720

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	11719	REF	Base, Mtg.
-2	7014	1	Holder, Fuse
-3	11056	1	Bar, Bus
-4	25197	1	Fuse
-5	50401	1	Contactor Assy.
-6	MS90725-5	2	Screw, Hex. Hd. (1/4-20 UNC-2A x 5/8 LG)
-7	MS90725-7	2	Screw, Hex. Hd. (1/4-20 UNC-2A x 7/8 LG)
-8	MS90725-31	2	Screw, Hex. Hd. (5/16-18 UNC-2A x 5/8 LG)
-9	AN935-416	4	Lockwasher (1/4)
-10	AN935-516	2	Lockwasher (5/16)
-11	MS27183-10	4	Washer, Flat
-12	MS15795-613	2	Washer, Flat, Brass (5/16)
-13	10880-11	1	Power Cable
-14	11860	1	Control Cable Assy.

PIVOT CYLINDER PART NO. — 10864

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
	10864	REF	Pivot Cylinder
-1	10864-5	1	Shell Assembly
-2	10864-7	1	Nut
-3	25097	2	Piston Ring
-4	10864-6	1	Piston
-5	25098	1	Bearing
-6	25099	2	Ring, Nylon
-7	25100	2	Seal
-8	25101	1	"O" Ring
-9	25102	1	"O" Ring
-10	25103	1	Back-up Ring
-11	25104	1	Snap Ring
-12	10864-4	1	Bearing
-13	25105	1	Seal
-14	25106	1	Nylon Ring
-15	10864-3	1	Gland
-16	25107	1	Wiper Ring
-17	MS16997-102	1	Screw, Soc. Hd. (3/8-16 UNC-3A x 1-3/4 LG)
-18	9933	1	Rod End
-19	AN935-616	1	Lockwasher (3/8)
-20	MS35690-602	1	Nut, Hex. (3/8-16 UNC-2B)
-21	10864-2	1	Rod
-22	10864-8	1	Kit, Service (Consists of items 6, 7, 8, 9, 10, 13, 14, 16)
-23	*		**Spacer**
-24	*	1	Spacer

PARTS BREAKDOWN



SERVICE BRAKE ASSEMBLY PART NO. — 10861

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	MS35690-502	1	Nut, Hex. (5/16-18 UNC-2B)
-2	AN935-516	1	Lockwasher (5/16)
-3	MS90725-36	1	Screw, Hex. Hd. (5/16-18 UNC-2A x 1-1/4 LG)
-4	25022	1	Pad, Pedal
-5	MS24665-302	1	Pin, Cotter (3/32 DIA x 1 LG) (Not Shown)
-6	25081	1	Pin, Clevis (w/Cotter Pin)
-7	MS27183-23	1	Washer, Flat (3/4) (Not Shown)
-8	10826	1	Arm, Brake Pedal
-9	25021	1	Spring
-10	MS35691-602	3	Nut, Jam, Hex. (3/8-16 UNC-2B)
-11	AN935-616	2	Lockwasher (3/8)
-12	MS90725-71	2	Screw, Hex. Hd. (3/8-16 UNC-2A x 3-1/4 LG)
-13	10824	1	Yoke
-14	10825	1	Rod, Brake adjusting
-15	25023	1	Switch, stop light
-16	25024	1	Bolt, Swivel Fitting
-17	25026	1	Seal, Washer
-18	25028	1	Fitting, Swivel Bolt
-19	25025	1	Seal, Washer
-20	20210	1	Cylinder, Master Brake
-21	25027	1	Bearing
-22	10976	1	Tube Assembly

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PARTS BREAKDOWN

ELECTRIC DOOR MODULE ASSEMBLY PART NO.—10860

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	10859	1	Door
-2	11888	1	Harness, Wire
-3	25213	1	Module, Time Delay (Top)
-4	25132	2	Latch
-5	50339	1	SCR Control
-6	50400	1	Contactor, Fwd
-7	50399	1	Contactor, Rev.
-8	50401	1	Contactor, Pump
-9	50402	1	Contactor, SC (1A)
-10	25071	4	Module, Coil Driver
-11	11066	1	Strip, Connector
-12	11065	1	Strip, Connector
-13	11110	1	Bus Bar
-14	11055	1	Bus Bar
-15	11056	1	Bus Bar
-16	11057	1	Bus Bar
-17	11111	1	Bus Bar
-18	11118	1	Bus Bar
-19	11113	1	Bus Bar
-20	11114	1	Bus Bar
-21	11115	1	Bus Bar
-22	11116	1	Bus Bar
-23	11064	2	Bus Bar
-24	11112	1	Bus Bar
-25	11117	1	Bus Bar
-26	MS90725-31	15	Screw, Hex. Hd. (5/16-18 UNC-2A x 5/8 LG)
-27	MS90725-33	6	Screw, Hex. Hd. (5/16-18 UNC-2A x 7/8 LG)
-28	MS16997-78	6	Screw, Soc. Hd. (5/16-18 UNC x 3/4 LG)
-29	MS35224-63	1	Screw, Pan Hd. (#10-32 UNF-2A x 1/2 LG)
-30	MS90725-5	24	Screw, Hex. Hd. (1/4-20 UNC-2A x 5/8 LG)
-31	10860-31	2	Stud, All Thread (#10-32 x 2-3/4 LG)
-32	MS35690-502	6	Nut, Hex. (5/16-18 UNC-2B)
-33	MS35690-511	5	Nut, Hex. Brass (5/16-18 UNC-2B)
-34	MS15795-613	10	Washer, Flat, Brass (5/16 x 7/8 O.D.)
-35	MS90725-59	3	Screw, Hex. Hd. (3/8-16 UNC-2A x 7/8 LG)
-36	MS15795-612	24	Washer, Flat, Brass (5/16 x 11/16 O.D.)
-37	MS27183-14	3	Washer, Flat (3/8)
-38	AN935-516	16	Lockwasher (5/16)
-39	MS35333-92	3	Washer, Int. Tooth, Bronze (5/16)
-40	MS27183-8	3	Washer, Flat (#10)
-41	AN935-10	5	Lockwasher (#10)
-42	AN935-416	24	Lockwasher (1/4)
-43	25203	2	Fuse, Power (ACK300)
-44	MS21919-G9	1	Clamp, Control Cable
-45	9640	1	Block, Fuse

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PARTS BREAKDOWN

CONTACTOR ASSEMBLY PART NO.—50490 (FW)

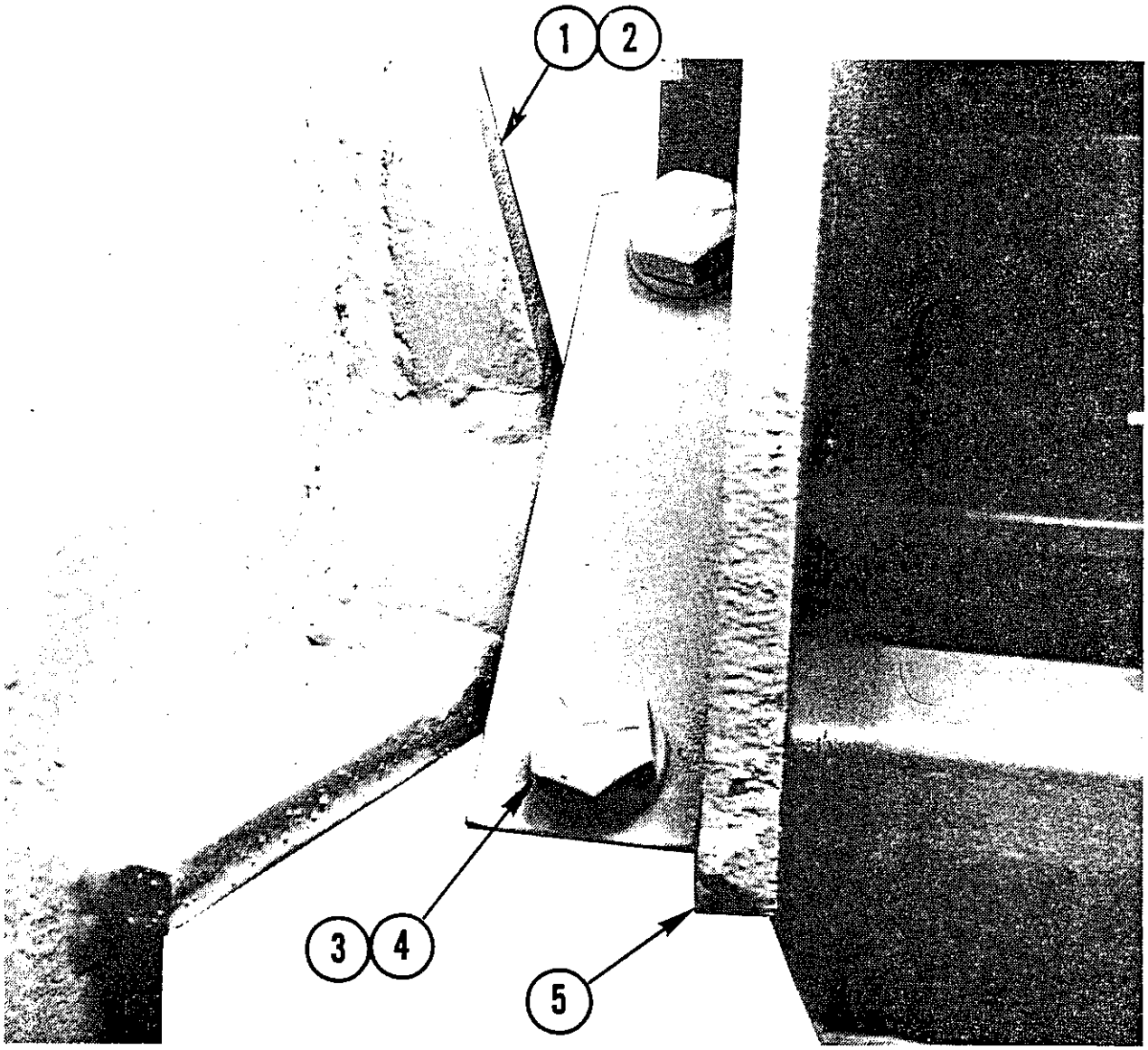
FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	21250	1	Coil
-2			Not Used
-3	21251	1	Magnet Assy.
-4	21252	1	Movable Tip Assy.
-5	21253	1	Spring for Movable Tip (Red)
-6	21254	1	Retainer, Spring (Not Shown)
-7	21255	1	Movable Tip Carrier
-8	21256	2	Tip Clamp, Lower
-9			Not Used
-10	21257	1	Tip Shim
-11	21258	1	Armature Assy.
-12	21259	1	Core Assy. (Included in #11)
-13	21260	1	Stud & Nut Assy. (Included in #11)
-14	21261	1	Core Head (Included in #11)
-15	21262	1	Shim for Core Head (Included in #11)
-16	21263	1	Bumper Plate (Included in #11)
-17	21264	1	Guide (Included in #11)
-18	21265	1	Return Spring for Armature (Red)
-19	21266	1	Magnet Frame
-20			Not Used
-21	21267	1	Stationary Tip Carrier
-22	21268	4	Screw, Pan Hd., Slotted (#8-32 x 3.56 Lg.)
-23	21269	2	Terminal
-24			Not Used
-25			Not Used
-26			Not Used
-27			Not Used
-28			Not Used
-29	50492	A/R	Kit, Contact (Includes Items #4 & #23)
-30	50489	A/R	Kit, Armature (Includes Items #4, 5, 6, 7, 10, 11, 18, & 21)

PARTS BREAKDOWN

AUXILIARY PANEL ASSEMBLY PART NO. — 14050

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	MS35223-34	4	Screw, Pan Hd. (6-32 NC-2A x 1" LG)
-2	AN935-6	6	Lockwasher (#6)
-3	MS27183-6	4	Washer, Flat (#6)
-4	MS35649-62	6	Nut, Hex. (6-32 NC-2B)
-5	25075	1	Fan
-6	AN535-10-6	4	Screw, Drive (#10 x 3/8 LG)
-7	50367	1	Nameplate, "CAUTION"
-8	25078	3	Fuseholder
-9	25052	3	Fuse
-10	25051	1	Meter, Hour
-11	MS35223-31	2	Screw, Pan Hd. (6-32 NC-2A x 5/8 LG)
-12	25076	1	Resistor
-13	25077	1	Strip, Terminal
-14	25079	1	Pad, Pressure
-15	25080	4	Ty-rap
-16	10321-1	1	Filter, Hash
-17	14053	1	Harness, Wire
-18	14052	1	Plate, Mounting
-19	MS90725-3	2	Screw, Hex. Hd. (1/4-20 UNC-2A x 1/2 LG)
-20	AN935-416	2	Lockwasher (1/4)
-21	MS27183-10	2	Washer, Flat (1/4)

PARTS BREAKDOWN



MOUNTING GROUP, MAST ASSEMBLY

FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
-1	*	1	Mast Assembly
-2	9952	REF	Bearing
-3	MS90725-118	4	Screw, Hex. Hd. (1/2-13 x 3" Lg)
-4	AN935-816	4	Lockwasher (1/2)
-5	11438	REF	Pivot Arm

*See Specification Sheet for your Mast Assembly Part Number.

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PARTS BREAKDOWN

PRIMARY LIFT CYLINDER ASSY. PART NO.—23267

REF. MAST ASSY. P/N	PRIMARY LIFT CYL. ASSY. P/N	FIG./ ITEM	PART NUMBER	UNITS/ ASS'Y.	DESCRIPTION
23000-01	23267-1	1	23268-1	1	Barrel
23200-02	23267-2	1	23268-2	1	Barrel
23200-03	23267-3	1	23268-3	1	Barrel
23200-04	23267-4	1	23268-4	1	Barrel
23200-05	23267-5	1	23268-5	1	Barrel
23200-01	23267-1	2	23269-1	1	Piston
23200-02	23267-2	2	23269-2	1	Piston
23200-03	23267-3	2	23269-3	1	Piston
23200-04	23267-4	2	23269-4	1	Piston
23200-05	23267-5	2	23269-5	1	Piston
All	All	3	23270	2	Bearing Ring
All	All	4	23271	1	Seal
All	All	5	23272	1	Wiper
All	All	6	23273	1	Gland Nut
All	All	7	23274	1	Bearing Ring
All	All	8	23275	1	O-Ring
All	All	9	23276	1	Back-Up Ring
All	All	10	23277	1	Base Plug
All	All	11	23278	1	Flow Protector
All	All	12	23279	1	Socket Head Screw
All	All	13	23280	1	Seal Washer
All	All	14	23281	1	Lock Wire
All	All	15	23203	1	Service Kit (Consists of Items 4, 5, 8, 9, 13 and 14)

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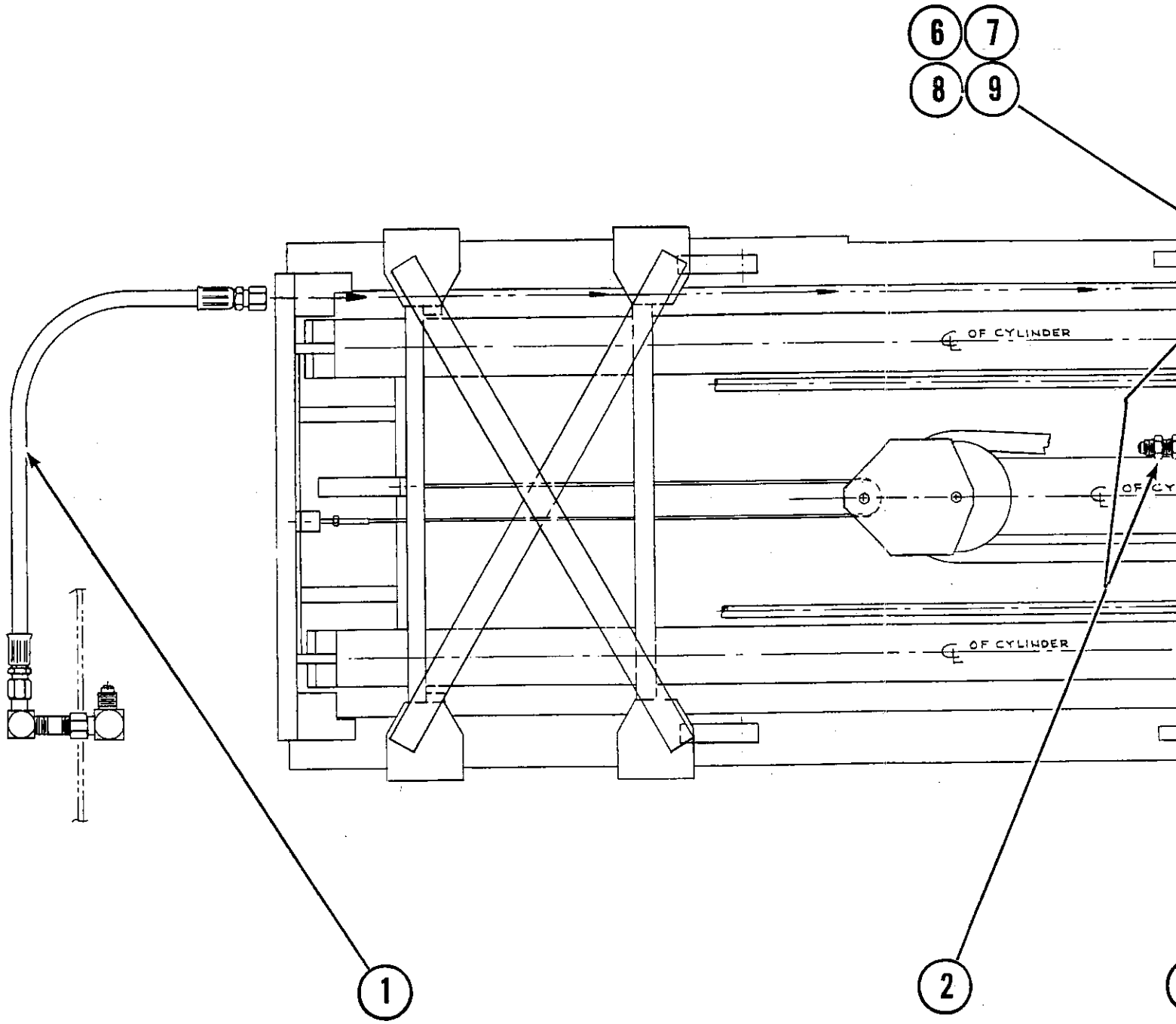
PARTS BREAKDOWN



MAST HYDRAULIC MOUNTING GROUP, PART NO.

DREXEL INDUSTRIES, INC

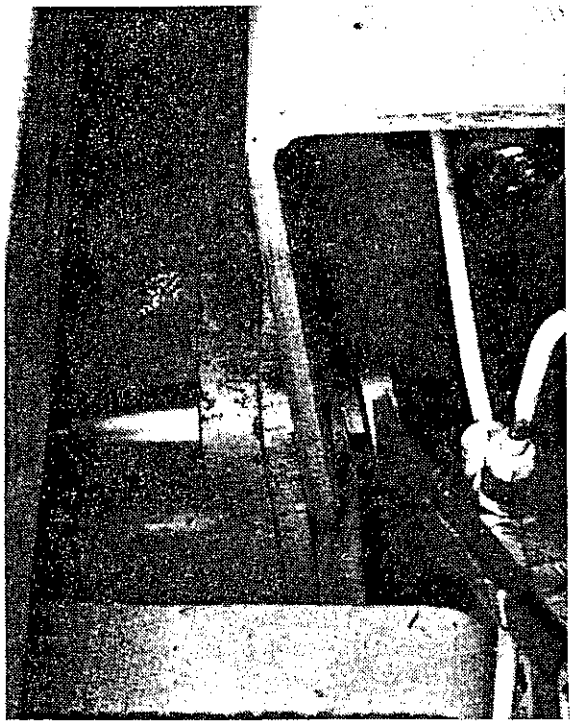


Figure 5-7

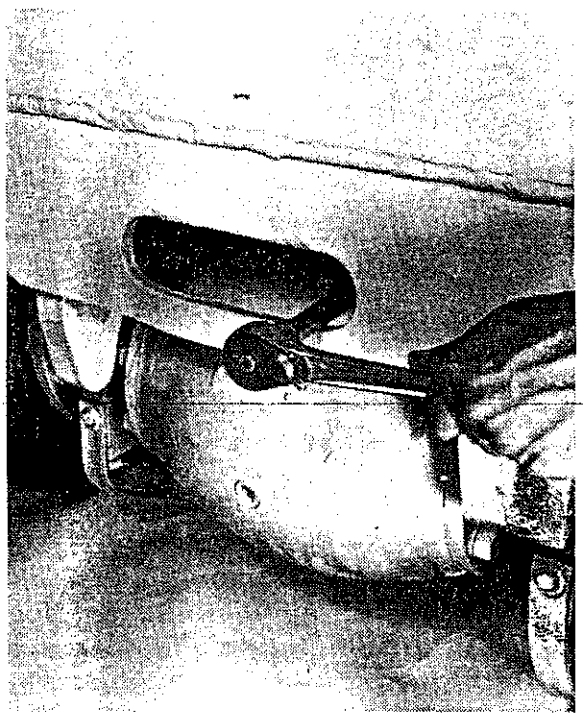


Figure 5-8

14. Remove the grounding strap if attached to the steer axle trunnion blocks (Fig. 5-9)

Figure 5-9

1. Remove the lockwire, if used and eight cap screws and separate the case halves.

2. Remove the no-spin differential as a complete assembly.

Always replace bevel gears in sets. Never use an old bevel pinion with a new bevel gear or vice versa. This will cause premature wear and damage to gears.

When replacing the bevel gear, drill out rivets. Never chop off rivets as you may damage the differential case flange (Fig. 5-51).

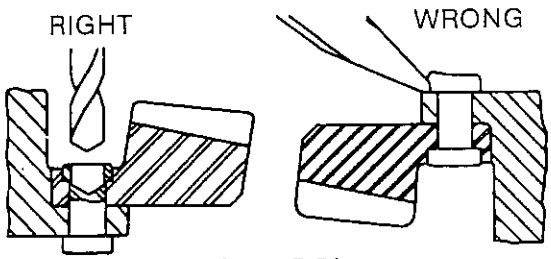


Figure 5-51

3. Carefully center punch rivets in center of head. Use a drill 1/32" smaller than body of rivet to drill through head. Always drill from the gear side, so drill cannot cut into differential case flange. Using a punch and hammer or press, press out rivet.

4. File face of differential flange to remove any burrs or nicks. With three or four bolts used as guides fasten new bevel gear to differential case. Use bevel gear provided in gear kit P/N 20102-1.

5. Attach twelve bolts from bolt set p/n 20080 (Provided in gear kit p/n 20102) washers and castellated nuts. Torque to value shown in list at end of maintenance section. Turn nut to expose hole at end of bolt. Install and secure cotter pin.

REASSEMBLY OF DIFFERENTIAL ASSEMBLY AND PINION GEAR.

1. Return the differential assembly to the final drive housing.

2. Install the axle housing tubes, reusing the original shims. When using a new bevel set it is advisable to start with the shim pack originally used. If this is not available, start with about .030 shimming on each side — between center section arms — and add to or remove until the proper preload is obtained.

The differential should be shimmed till there is no end play and just a little drag. If, when rebuilding the axle with the original shimming, it is found there is some end play, or the differential is unduly loose, it is advisable to remove one of the thinnest shims from the bevel end.

3. Install the pinion case assembly to the final drive housing reusing the original shims. Turn bevel pinion by hand. If pinion is too tight, add shims between pinion case and drive housing.

Add or subtract shims until .006 to .012 backlash is obtained. This done, check tooth contact area. With proper adjustment, the proper contact starts near the toe of the gear and extends 60 to 75% of the length of the tooth. This adjustment will distribute the load over the proper area of the tooth and will give a quiet running, long service gear set.

TOOTH CONTACT CHECK —

1. Apply oiled red lead lightly to the gear teeth. When the pinion is rotated, the red lead is squeezed away by the contact of the teeth, leaving bare areas the exact size, shape and location of the contacts.

2. Sharper impressions may be obtained by applying a small amount of resistance to the gear with a flat steel bar and using a wrench to rotate the pinion. When making adjustments, check the drive side of the gear teeth. Coast side should be automatically correct when drive side is correct. As a rule, coating about twelve teeth is sufficient for checking purposes.

Figure 5-52

9. After inspection or replacement of brushes, with both drive wheels off of floor operate motor, check brush seating and contact with commutator.

NOTE

If brushes show indication of arcing, seat brushes using a brush seater and commutator cleaner (Ideal Ind. Inc., Sycamore, Ill.) or equivalent.

CAUTION

Use of a dust mask is recommended.

To Seat Brush — With motor running, press down hard on the brush and apply the brush seater at heel of brush. Friction of the revolving commutator or ring releases the brush seater material and carries it under the brush.

To Clean Commutator — With motor running, hold the cleaner against the commutator (pressing lightly) and slowly move it back and forth across the face of the commutator.

Air blow commutator end to remove dust generated by seating and cleaning operations.

10. Install motor brush and access covers.

11. Install seat assembly.

12. Lower truck to floor and operate to check motor performance.

NOTES

4. With the operator's seat still in the operating position, again remove the clevis pin from the brake cable clevis. Turn the brake cable clevis counterclockwise one rotation. Reinstall the clevis pin attaching the brake cable clevis to the brake crank (Fig. 5-96).

5. Disengage the hand brake parking lever.

NOTE:

Check out of the brake system is as follows with rated load on forks.

1. Applying the service brakes brings the truck to a stop on a grade of 15%.

2. While still applying pressure to the foot brake pedal of the service brake system, raise off of the operator's seat so that the seat parking brake spring will apply pressure to the parking brake crank.

3. Release the foot pressure on the service brake system brake pedal. The truck should hold on the grade with rated load in a carry position on the forks.

REMOVAL OF BATTERY FROM VEHICLE

Drive the vehicle to an area having overhead lifting capability or obtain a lift truck of 3,000 lbs. capacity, with a jib-boom attachment.

The following steps are recommended for removal of the battery from the vehicle:

1. Place the unloaded vehicle in a clear work area. Lower the forks to the floor. Turn the key switch "OFF"

2. Apply the parking hand brake and position the operator's seat over the steering wheel.

3. Disconnect the battery connector (Fig. 5-97).

4. Open the battery cover and allow it to rest against the lifting eye on the rear counterweight.

5. Lift off right and left battery compartment side covers.

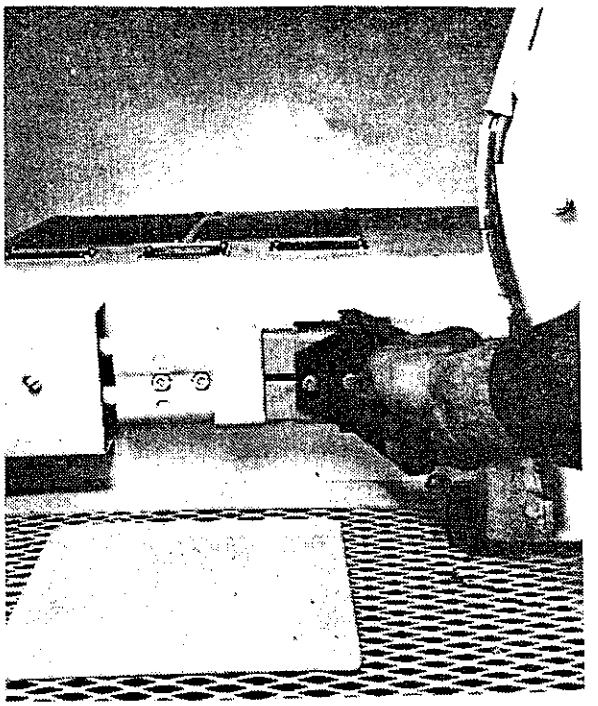


Figure 5-97

6. Remove the two battery retainer angles. One located at the left rear, the second at the right front of the compartment (Fig. 5-98). Use a 9/16" wrench to remove the two hex head bolts from each retainer.

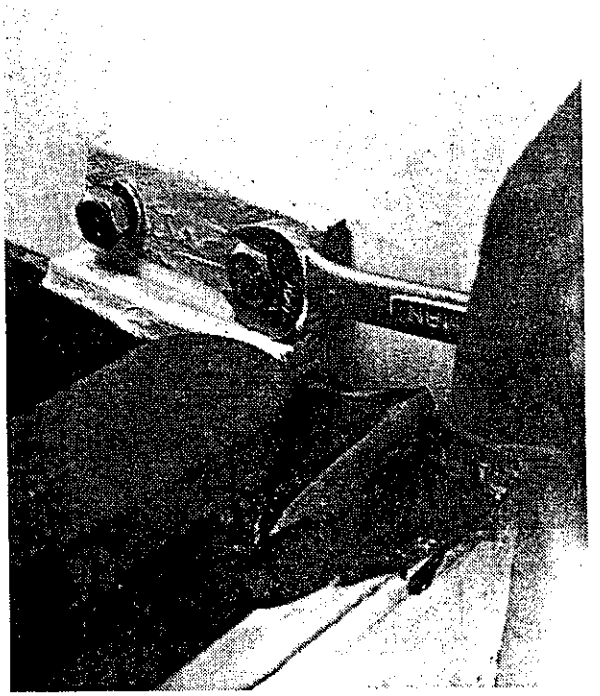


Figure 5-98

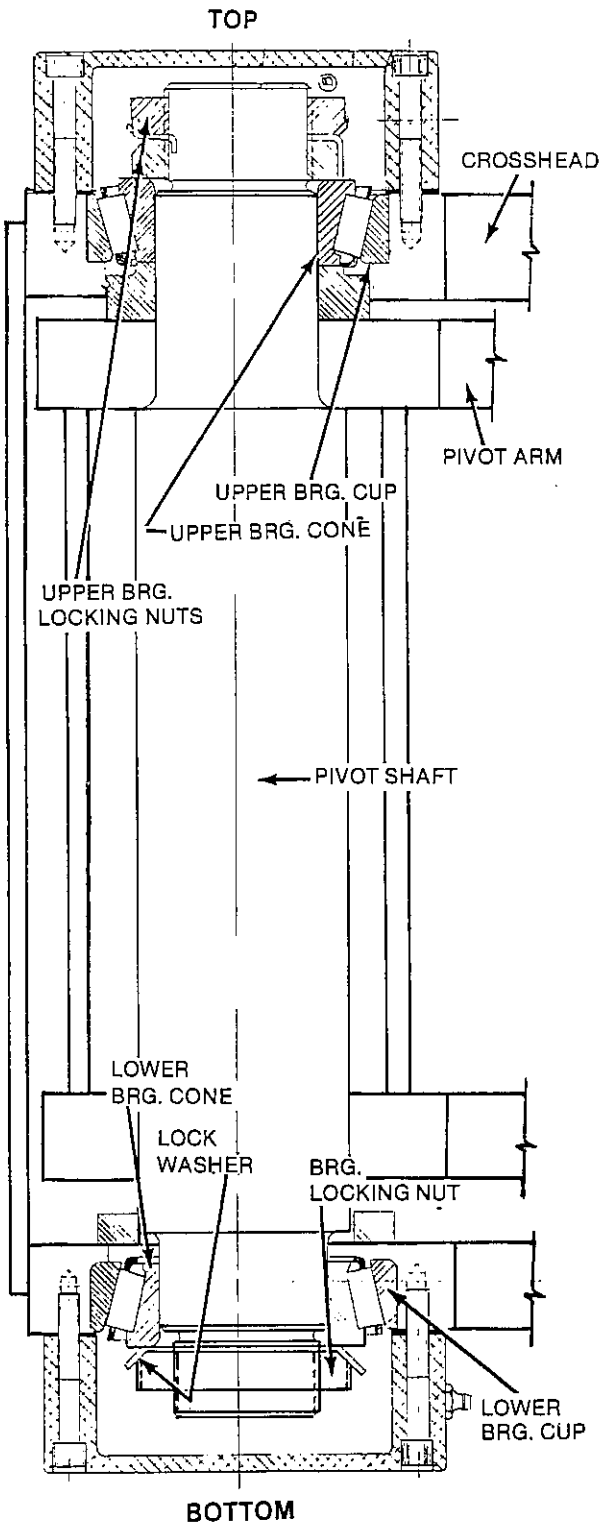


Figure 5-113

6. Holding bottom end of pivot shaft with a spanner wrench, tighten upper bearing nut to a torque of 90 foot pounds plus or minus 5 foot pounds (Fig. 5-112).

7. Install upper lockwasher and second upper bearing nut. Tighten to a torque of 15 foot pounds plus or minus 2 foot pounds (Fig. 5-112).

8. Holding top end of pivot shaft with a spanner wrench, and as oscillating bearing, tighten lower bearing locking nut to a torque of 185 foot pounds plus or minus 9 foot pounds.

9. Pack both upper and lower dust covers with MIL-G 10924C grease.

10. Install dust covers with grease fittings pointing towards rear of truck. Apply Loctite safety solvent and Loctite sealant 271-31 (red) No. 559 to mounting hardware.

NOTE

For disassembly of the pivot shaft assembly reverse the outlined procedure, steps 1 through 10 above, after securing the assembly as outlined in step 2.

PIVOT ARM RACKING ADJUSTMENT

1. Adjust pivot arm closed position by lengthening or shortening closed length of pivot cylinder so that the pivot arm meets the crosshead stop as the pivot cylinder bottoms.

2. Loosen the clevis locking screw with a 5/16" allen wrench.

3. Adjust the pivot cylinder rod with a 1-1/8" open end wrench (C.W. to shorten — C.C.W. to lengthen) until the cylinder stroke bottoms out as the pivot arm meets the crosshead stop (Fig. 5-114 and Fig. 5-115).

REMOVAL OF THE POWER STEERING SYSTEM PUMP AND MOTOR ASSEMBLY

1. Disconnect the battery before removing any hydraulic hoses or electrical cables.

2. Open the hydraulic door at the left side of the vehicle. The power steering pump and motor assembly is mounted to the inside of the door.

3. Remove the two electrical cables from the pump motor terminals. Remove the upper pressure hose coupling from the power steering pump. Remove the band clamp from the lower suction hose. Remove the hose from the elbow hose nipple.

CAUTION

Plug the pump suction hose and keep the end of the hose above the top level of the reservoir to avoid loss of hydraulic oil.

4. Unfasten the four pump motor isolation mounts from the support bracket on the door (Fig. 5-126). Lift the pump motor assembly from the support bracket.

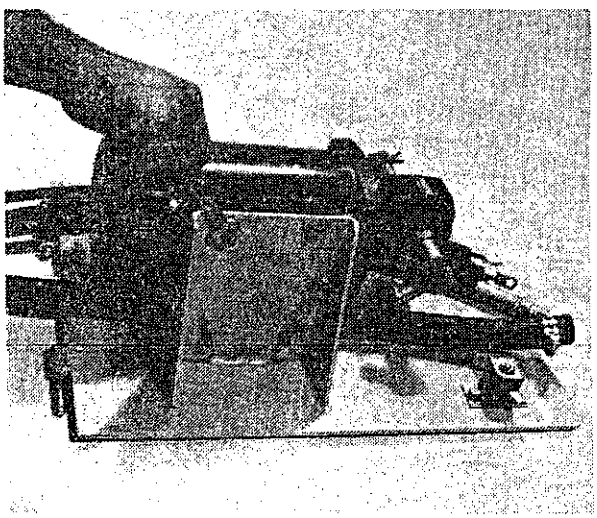


Figure 5-126

REMOVAL OF THE POWER STEERING HYDRAULIC PUMP

NOTE

Prior removal of the power steering motor from the support bracket is not necessary when removing the hydraulic pump.

1. Disconnect the battery before removing any hydraulic hoses.

2. Remove the upper pressure hose coupling and the lower suction hose from the hydraulic pump.

3. Remove the four hex head cap screws holding the pump to the motor.

4. Tap the pump with a soft tip mallet to separate the pump housing pilot from the bore in the motor end plate.

5. Remove the oldham coupling from the end of the motor armature shaft.

6. Remove the fiber gasket from the pump housing.

7. Clean the grease lubricant from the motor shaft end, pump shaft and coupling. Examine for excessive wear or damage. Rotate the pump shaft. Listen for any unusual bearing or gear noise and roughness. (Final disassembly is shown in Fig. 5-127).

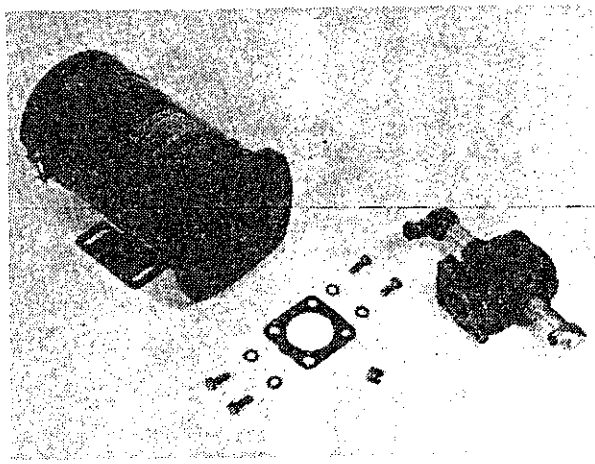


Figure 5-127

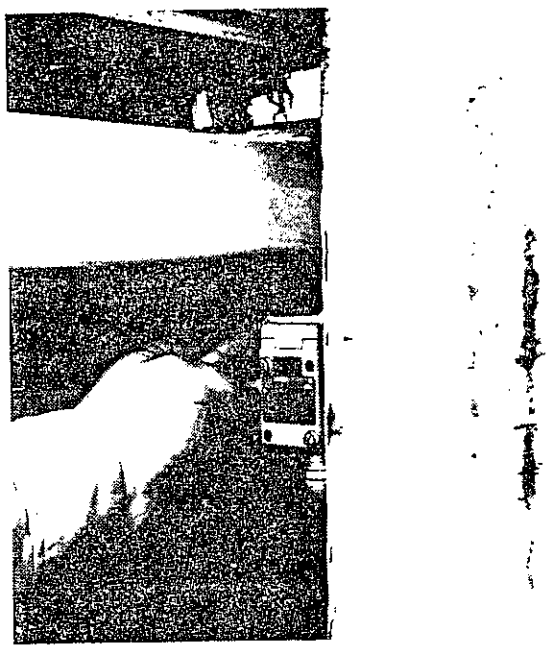


Figure 5-145

SHIFT INTERLOCK LIMIT SWITCH

The shift interlock limit switch is located at the right, rear of the side shift crosshead below the tail guide channels. It is attached by a bracket to the crosshead weldment (Fig. 5-145). This position allows the switch roller lever arm to contact the raised cam bar. The cam bar is permanently attached to the underside of the bottom tail guide channel.

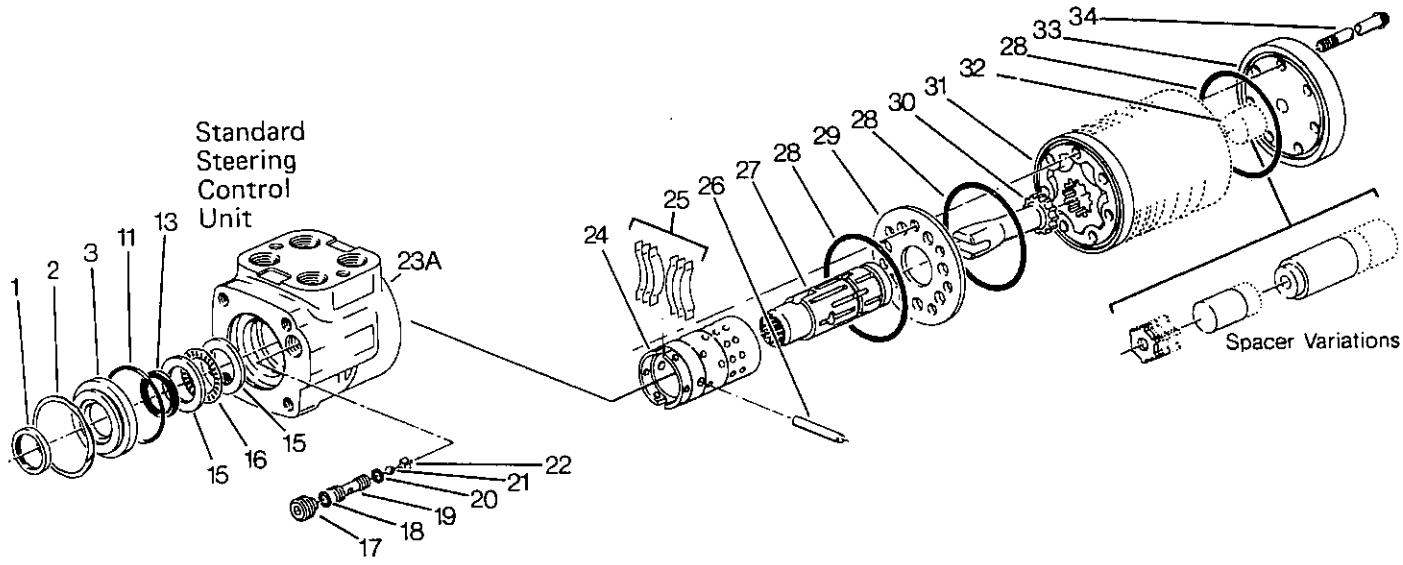
Beginning at the extreme right shift position and up to 17 inches of left shift travel, the cam must hold the interlock switch roller lever arm in a downward position.

NOTE:

Check the shift interlock for functional operation using the following procedure:

NOTES

MAINTENANCE SECTION



1. Dust Seal
2. Retaining Ring
3. Seal Gland Bushing
4.
5.
6.
7.
8.
9.
10.
11. Seal, 2-1/8"OD
12.
13. Quad Ring Seal
14.
15. Bearing Race
16. Needle Thrust Bearing
17. Set Screw
18. Seal, 5/8" OD
19. Check Ball Seat
20. Seal, 7/16" OD
21. Check Ball
22. Check Ball Retainer
23A. Standard Housing
23B. ITEM DELETED
24. Control Sleeve
25. Centering Springs
26. Pin
27. Control Spool
28. Seal, 3" OD
29. Spacer Plate
30. Drive
31. Meter (Gerotor)
32. Spacer(s)
33. End Cap
34. Cap Screw

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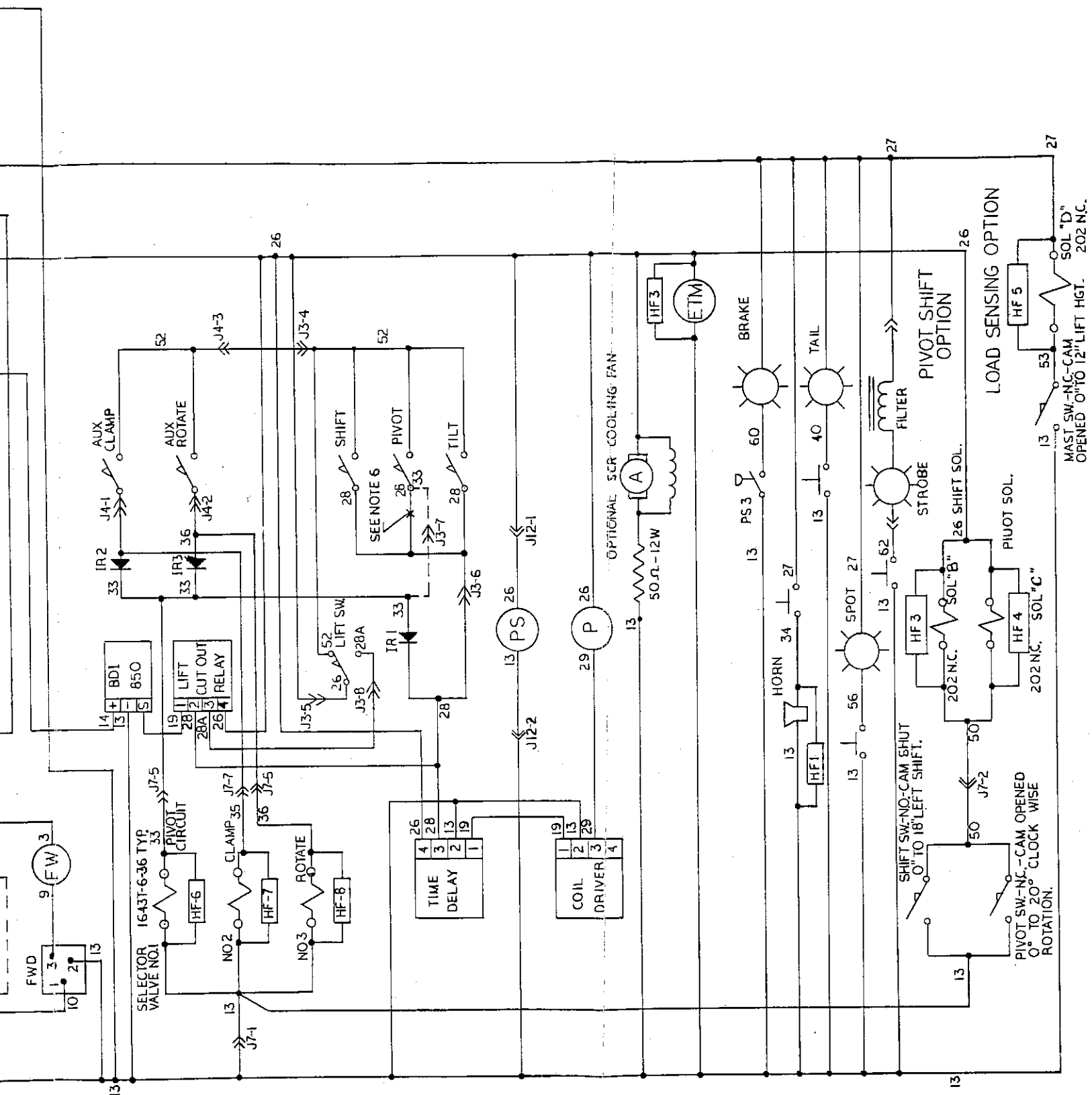

RIC SCHEMATIC

Figure 5-161