



BT Prime-Mover

PMX-1

● Service Manuals

300372-000 1988_November
300372-001 1991_February



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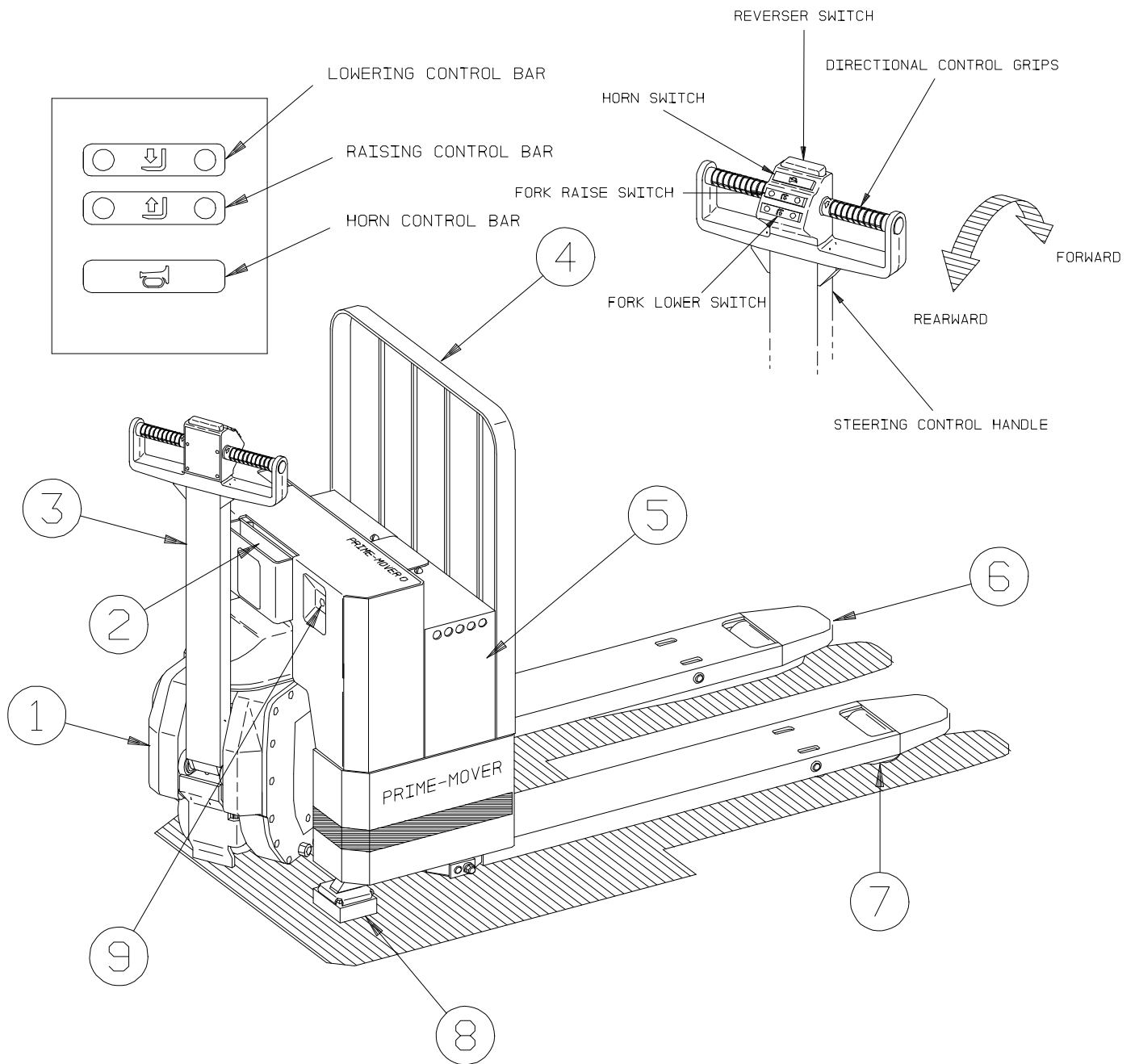
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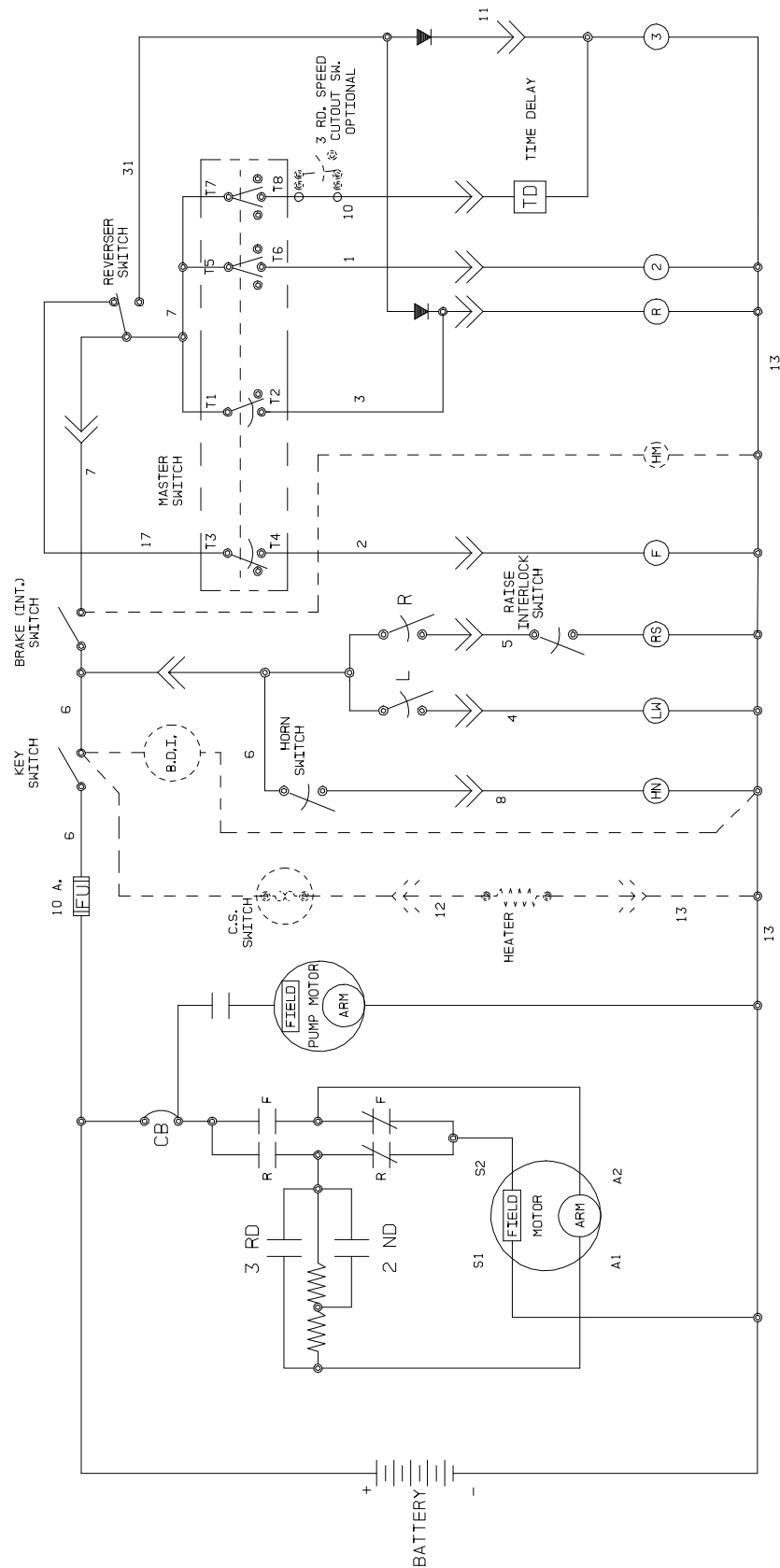
COMPONENT IDENTIFICATION



- 1. Drive Unit
- 2. Operator's manual storage
- 3. Steering control handle
- 4. Removable Loadback Rest

- 5. Battery Compartment
- 6. Forks
- 7. Load wheels
- 8. Stabilizers
- 9. Key switch

ELECTRICAL SCHEMATIC



ELECTRICAL SCHEMATIC

DISASSEMBLY AND REPAIR

CONTROL HANDLE REMOVAL AND INSTALLATION

Control handle

The control handle is designed so that most repairs can be made without removing the entire handle. A wiring harness plug in the top of handle allows the head unit to be removed for bench repair.

HEAD UNIT REMOVAL

1. Remove four (4) Allen head screws from underneath hand guard. The head is now loose and may be removed from the handle by disconnecting wiring harness plug.

MASTER CONTROL SWITCH REMOVAL

2. The master switch is a non-repairable unit and must be replaced if repairs are needed. It is replaceable through the bottom opening of head unit by removing two mounting screws and withdrawing the switch.
3. Other repairs or switch replacement will require further disassembly of the head unit.

HEAD UNIT DISASSEMBLY

1. To disassemble the head unit, drive out the roll pin that hold hand grips to shaft. Force the hand grips outward through the gaurds to seperate them from shaft.
2. The hand gaurd can be unbolted from the head housing and switches are accessible by removing the back cover with reverser switch and button.
3. During reassembly be certain that switch plate return springs stay in place. The bevel gears should be shimmed for smooth operation.

CONTROL HANDLE REMOVAL

If removal of the entire control handle is needed you must first remove the control handle head. The wiring harness and return spring must be removed before removing the handle pivot pin.

1. The handle return spring can be easily disconnected with the chain master link at the transmission case.



WARNING The spring is under tension even with handle fully raised and may fly out of the handle if suddenly released.

2. Remove clamps and pull wiring harness out bottom of handle.

To reinstall use a piece of stiff wire to "FISH" the harness back up through handle.

3. Remove motor side cover. Drive the roll pin out of handle pivot pin and slide the pivot pin out.
4. During reassembly be certain that brake release cam is in correct position before installing roll pin.

BRAKE LINKAGE REMOVAL AND INSTALLATION

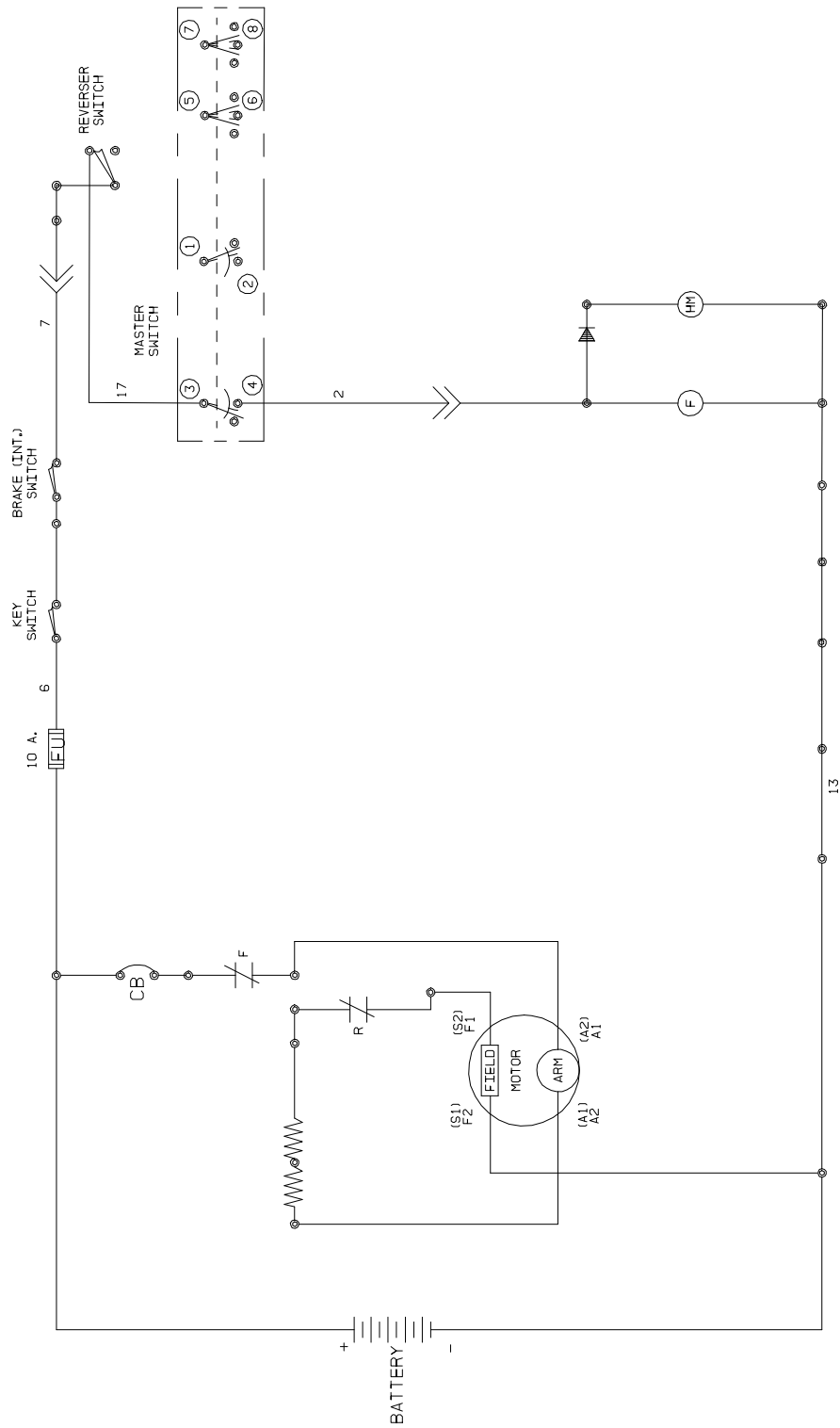
REMOVAL

1. Disconnect battery, and block truck with drive tire "OFF" floor (about 1 inch).
2. Remove side cover over drive tire.
3. Loosen brake interlock switch and side switch away from cam of brake arm.
4. Disconnect main spring and brake linkage at clevis and remove entire lever from case.

INSTALLATION

1. Thoroughly clean all parts with solvent or other non-corrosive cleaning fluid. Air dry all parts.

3.0 THEORY OF OPERATION - TRAVEL - FIRST SPEED FORWARD



ELECTRICAL SCHEMATIC

PMX-1 TROUBLE SHOOTING

2.4 NO REVERSE - CONTACTOR DOES NOT PICK UP, FORWARD OPERATES

NECESSARY: KEY SWITCH CLOSED, BRAKE SWITCH CLOSED

2.41 CHECK VOLTAGE AT:

2.411 WIRE 7 AT MASTER CONTROL SWITCH TERMINAL 1
0 - VOLTS; CHECK WIRE 7 FROM CONTINUITY FROM MASTER CONTROL SWITCH
TO BRAKE SWITCH

2.412 CLOSE REVERSE SWITCH, WIRE 3, TERMINAL 2 AT MASTER CONTROL SWITCH
0 - VOLTS; REPLACE MASTER CONTROL SWITCH

2.413 CLOSE REVERSE SWITCH, WIRE 3 AT REVERSE COIL
0 - VOLTS; CHECK CONTINUITY OF WIRE 3

2.413 CLOSE REVERSE SWITCH, WIRE 13 AT REVERSE COIL
0 - VOLTS; REPLACE COIL

2.517 REPLACE NEGATIVE WIRE FROM COIL

2.5 NO SECOND SPEED - FORWARD AND REVERSE OPERATE CORRECTLY

NECESSARY: KEY SWITCH CLOSED, BRAKE SWITCH CLOSED

2.51 CHECK VOLTAGE AT:

2.511 WIRE 7 AT TERMINAL 5 OF MASTER CONTROL SWITCH
0 - VOLTS; CHECK CONTINUITY WIRE 7 TO BRAKE SWITCH

2.512 CLOSE SECOND SEED SWITCH, WIRE 1 AT TERMINAL 6 OF MASTER CONTROL SWITCH
0 - VOLTS; REPLACE MASTER CONTROL SWITCH

2.513 CLOSE SECOND SEED SWITCH, WIRE 1 AT SECOND SPEED COIL
0 - VOLTS; CHECK CONTINUITY OF WIRE 1 FROM MASTER CONTROL SWITCH TO
SECOND SPEED COIL

2.514 CLOSE SECOND SEED SWITCH, WIRE 13 AT SECOND SPEED COIL
0 - VOLTS; REPLACE COIL

2.515 REPLACE NEGATIVE WIRE FROM COIL

2.6 NO THIRD SPEED - FORWARD, REVERSE AND SECOND OPERATE CORRECTLY

NECESSARY: KEY SWITCH CLOSED, BRAKE SWITCH CLOSED

2.61 CHECK VOLTAGE AT:

2.611 WIRE 7 AT TERMINAL 7 OF MASTER CONTROL SWITCH
0 - VOLTS; CHECK CONTINUITY WIRE 7 TO BRAKE SWITCH

2.612 CLOSE THIRD SPEED SWITCH, WIRE 10 AT TERMINAL 8 OF MASTER CONTROL SWITCH
0 - VOLTS; REPLACE MASTER CONTROL SWITCH

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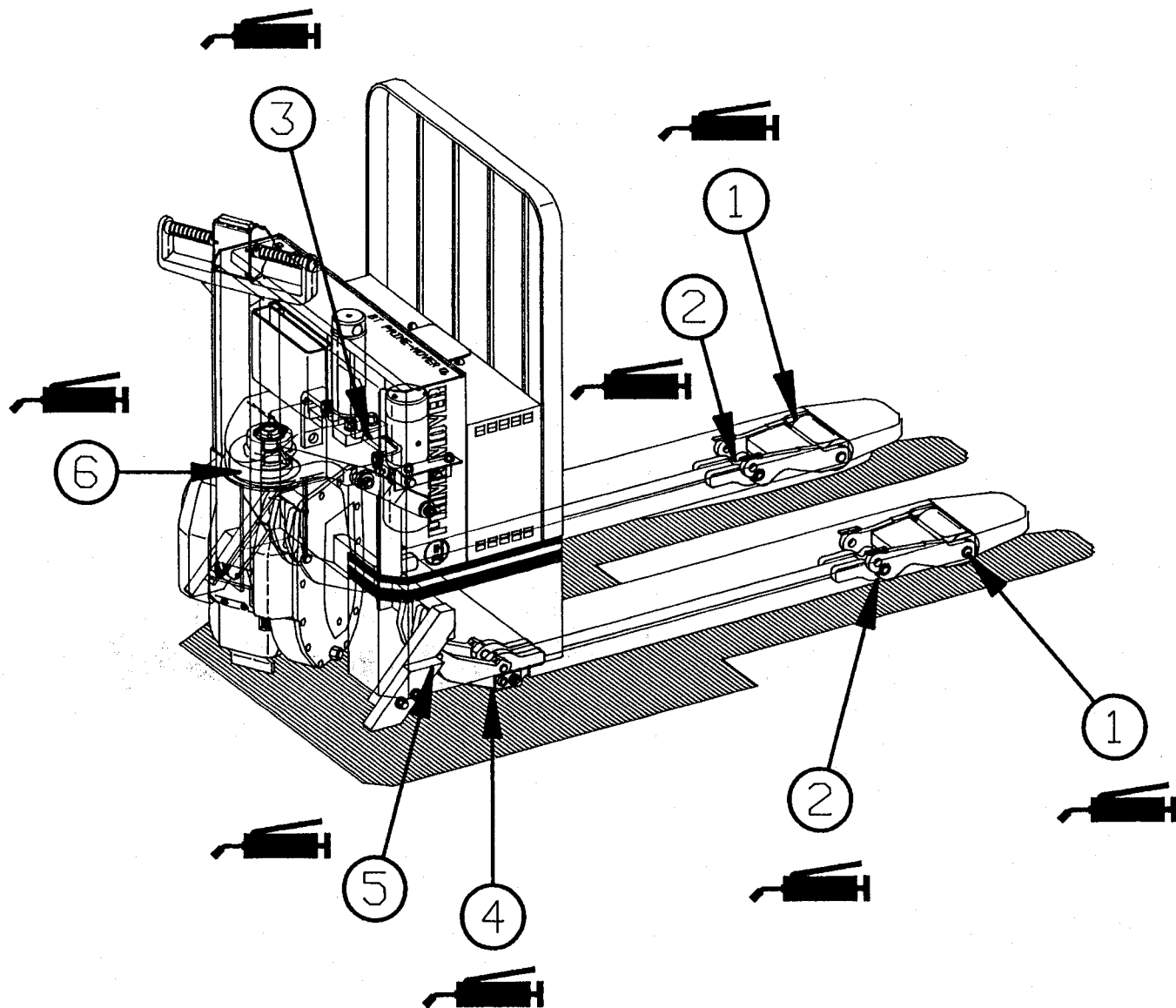
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TABLE OF CONTENTS

NAME	PAGE #	NAME	PAGE #
PARTS ORDERING INSTRUCTIONS	4	TRANSMISSION	
FIELD MODIFICATIONS	4	TRANSMISSION REMOVAL AND INSTALLATION	32
SAFETY MESSAGES	6-7	AXLE SEAL REMOVAL AND INSTALLATION	32
WARNING (fast reference)	8-9	TRANSMISSION REPAIR	33-34
OWNER SAFE MAINTENANCE PRACTICES		ELECTRICAL	
COMPONENT IDENTIFICATION	10	CONTACTOR TIP REMOVAL AND INSTALLATION	34
GREASE POINT IDENTIFICATION	12	PUMP MOTOR REMOVAL AND INSTALLATION	34
FILL POINT IDENTIFICATION	13	PUMP MOTOR BRUSH REPLACEMENT	35
PLANNED MAINTENANCE PROCEDURES	14-15	DRIVE MOTOR REMOVAL AND INSTALLATION	35
DAILY INSPECTION	14	DRIVE MOTOR BRUSH REPLACEMENT	35
MONTHLY PM SERVICE	14	DRIVE MOTOR REPAIR	35
SEMI-ANNUAL SERVICE OR 500 HOURS	14	HYDRAULIC	
ANNUAL SERVICE OR 1000 HOURS	15	PUMP ASSEMBLY REMOVAL AND INSTALLATION	36
PLANNED MAINTENANCE SCHEDULE	16	PUMP ASSEMBLY REPAIR	36-37
SPECIFICATIONS		CYLINDER ASSEMBLY REMOVAL AND INSTALLATION	38
HYDRAULIC SCHEMATIC	18	CYLINDER ASSEMBLY REPAIR	39
HYDRAULIC SCHEMATIC SYMBOLS	19	THEORY OF OPERATION INDEX	41
ELECTRICAL SCHEMATIC	20	TROUBLE SHOOTING INDEX	67
ELECTRICAL SCHEMATIC SYMBOLS	21	CHARGE PMX-1 BATTERY PACK	78
SPECIFICATIONS	22-23		
ADJUSTMENTS	24-25		
BRAKE THEORY OF OPERATION	24		
BRAKE ADJUSTMENT	24		
BRAKE INTERLOCK SWITCH	24		
LIFT LIMIT SWITCH	24		
TRANSMISSION PIVOT BEARING	25		
LOAD WHEEL SHIMMING	25		
SPECIAL TOOLS	26		
DISASSEMBLY AND REPAIR	28-39		
FRAME			
LOAD WHEEL REPLACEMENT	28		
PULL ROD BUSHINGS	28		
LIFT FRAME LINKAGE AND BUSHINGS	28		
DRIVE TIRE REMOVAL AND INSTALLATION	29		
CONTROL			
CONTROL HANDLE REMOVAL AND INSTALLATION	30		
CONTROL HANDLE REPAIR	30		
MASTER SWITCH REMOVAL AND INSTALLATION	30		
BRAKE LINKAGE	30-31		
BRAKE SHOES REMOVAL AND INSTALLATION	31		

GREASE POINTS



1. Load wheel axle
2. Pull rod load wheel rod end (on cold storage package only)
3. Hydraulic lift cylinder rod end (on cold storage package only)
4. Pull rod lift link end (on cold storage package only)
5. Lift link (on cold storage package only)
6. Transmission pivot bearings (on cold storage package only)

SPECIFICATIONS

MODEL: PMX-1
BATTERY VOLTAGE: 12/24
WHEEL:
 DRIVE: 10.5 x 5" RUBBER
 LOAD: 3.25 x 5" POLYURETHANE
 Install load wheels with at least 1 shim
 on each side and a maximum of 1/16" end play.
TRANSMISSION: 22:1
FLUID: 80W-90W STANDARD
 ATF "DEXRON II" COLD STORAGE
FLUID CAPACITY: 1 QUART
TORQUE, DRIVE TIRE RETAINING NUT TO: 250 FT./LBS.
 (While rotating drive tire)
TORQUE, PIVOT BEARING RETAINING NUT TO: (Zero (0) end
 play on pivot bearings while pivoting transmission)

TRAVEL:	12 VOLTS		AMP DRAWS
	EMPTY TRUCK		
1st SPEED	2.3 MPH		55 AMPS, BATTERY
2st SPEED	3.1 MPH		55 AMPS, BATTERY
3st SPEED	3.9 MPH		55 AMPS, BATTERY
	4000 LBS. LOAD		
1st SPEED	.95 MPH		85 AMPS, BATTERY
2st SPEED	1.6 MPH		85 AMPS, BATTERY
3st SPEED	2.7 MPH		85 AMPS, BATTERY
TRAVEL:	24 VOLTS		AMP DRAWS
	EMPTY TRUCK		
1st SPEED	3.1 MPH		35 AMPS, BATTERY
2st SPEED	3.4 MPH		35 AMPS, BATTERY
3st SPEED	3.9 MPH		35 AMPS, BATTERY
	4000 LBS. LOAD		
1st SPEED	1.9 MPH		55 AMPS, BATTERY
2st SPEED	2.5 MPH		55 AMPS, BATTERY
3st SPEED	2.8 MPH		55 AMPS, BATTERY

DRIVE MOTOR:
12 VOLT: PART # 23000-00 (MVL-4001)
 MINIMUM BRUSH LENGTH: .51"
 MINIMUM COMM. DIAMETER: 2.83"
 BRUSH SPRING TENSION: 20 OZ. w/new brushes

24 VOLT: PART # 23126-00 (MVM-4001)
 MINIMUM BRUSH LENGTH: .51"
 MINIMUM COMM. DIAMETER: 2.83"
 BRUSH SPRING TENSION: 20 OZ. w/new brushes

DISASSEMBLY AND REPAIR

TRANSMISSION REMOVAL AND INSTALLATION

REMOVAL

1. Disconnect the battery and remove from truck. Block truck with drive tire off floor (about 1 inch).
2. Remove sheet metal cover and plastic cover from truck.
3. Disconnect control wiring harness and power cables from electrical panel.
4. Use special socket to remove pivot bearing retaining nut.



WARNING Transmission assembly may fall free from mounting.

5. Remove transmission assembly by lowering through mounting bracket.
6. Remove control wiring harness and power cable through transmission pivot mount.

INSTALLATION

1. Install bearing cups in mounting barcket.
2. Install larger of the two (2) nilose rings over pivot tube on top of transmission assembly and install bearing cone.
3. Pull control wiring harness and power cables up through transmission pivot mount.
4. Install transmission assembly through transmission mounting bracket. Install smaller bearing cone and nilos ring.
5. Use loctite thread lock on nut and install nut on transmission pivot tube. The nut should be tightened until all end play is removed from pivot bearing.
6. Lower truck and connect battery, turn key switch "ON" and test operation of truck.
7. Install sheet metal cover and plastic cover on truck.

AXLE SEAL REMOVAL AND INSTALLATION

REMOVAL

The drive axle seal can be repaired without removing the gear case cover by following these steps:

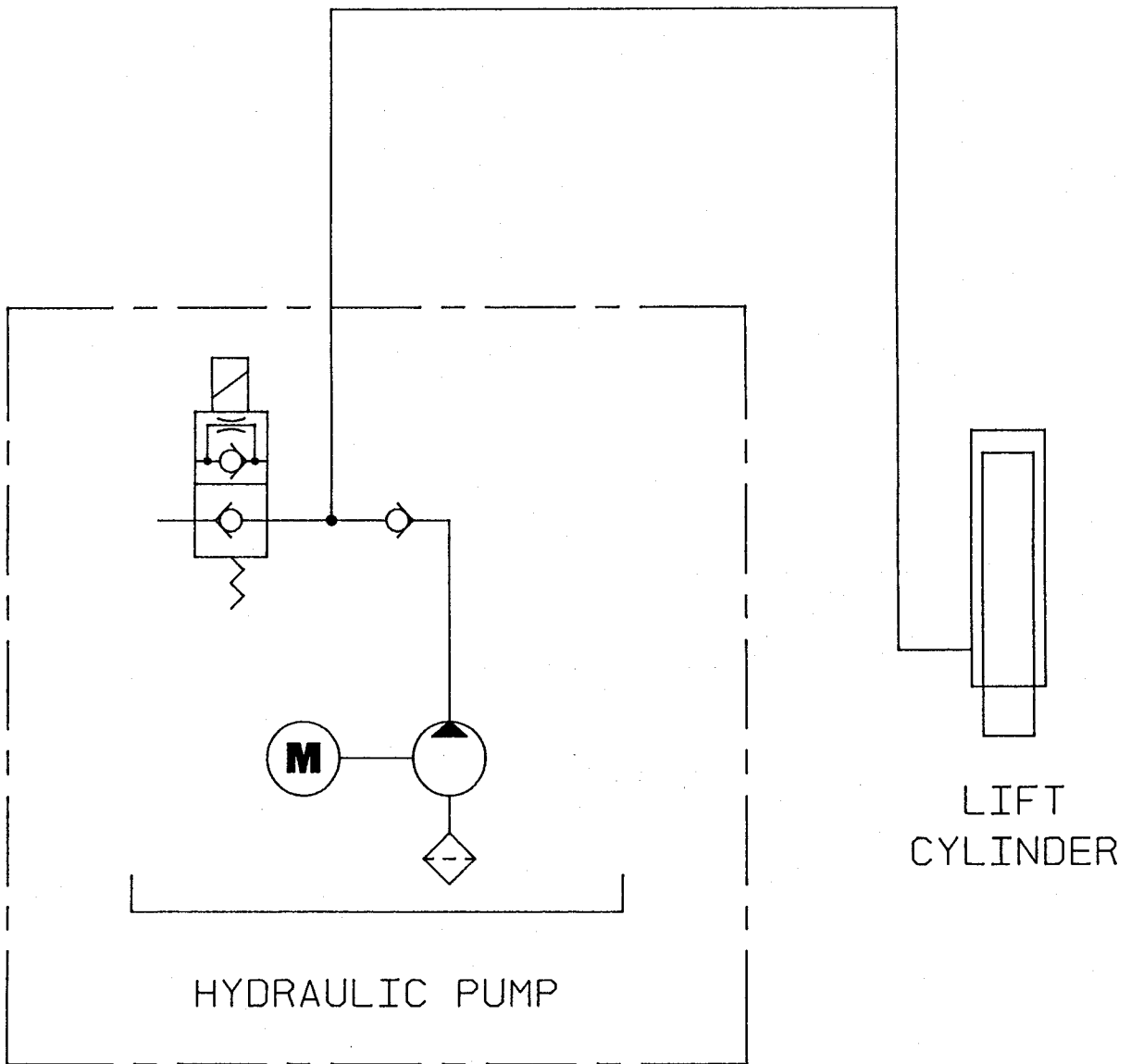
Before starting disassembly of any parts thoroughly clean out side of assemble with solvent or other non-corrosive cleaning fluid. Air dry all parts.

1. Drain transmission oil.
2. Disconnect the battery, block truck with drive tire off floor (about 1 inch).
3. Remove side cover over drive tire.
4. Remove drive tire by hand or if wheel is stubborn use three bolts from side cover over drive tire and thread in hub to push drive tire off drive axle.
5. Remove axle seal with seal puller or pry out with pry bar. Take care not to damage sealing surface or mounting bore.

INSTALLATION

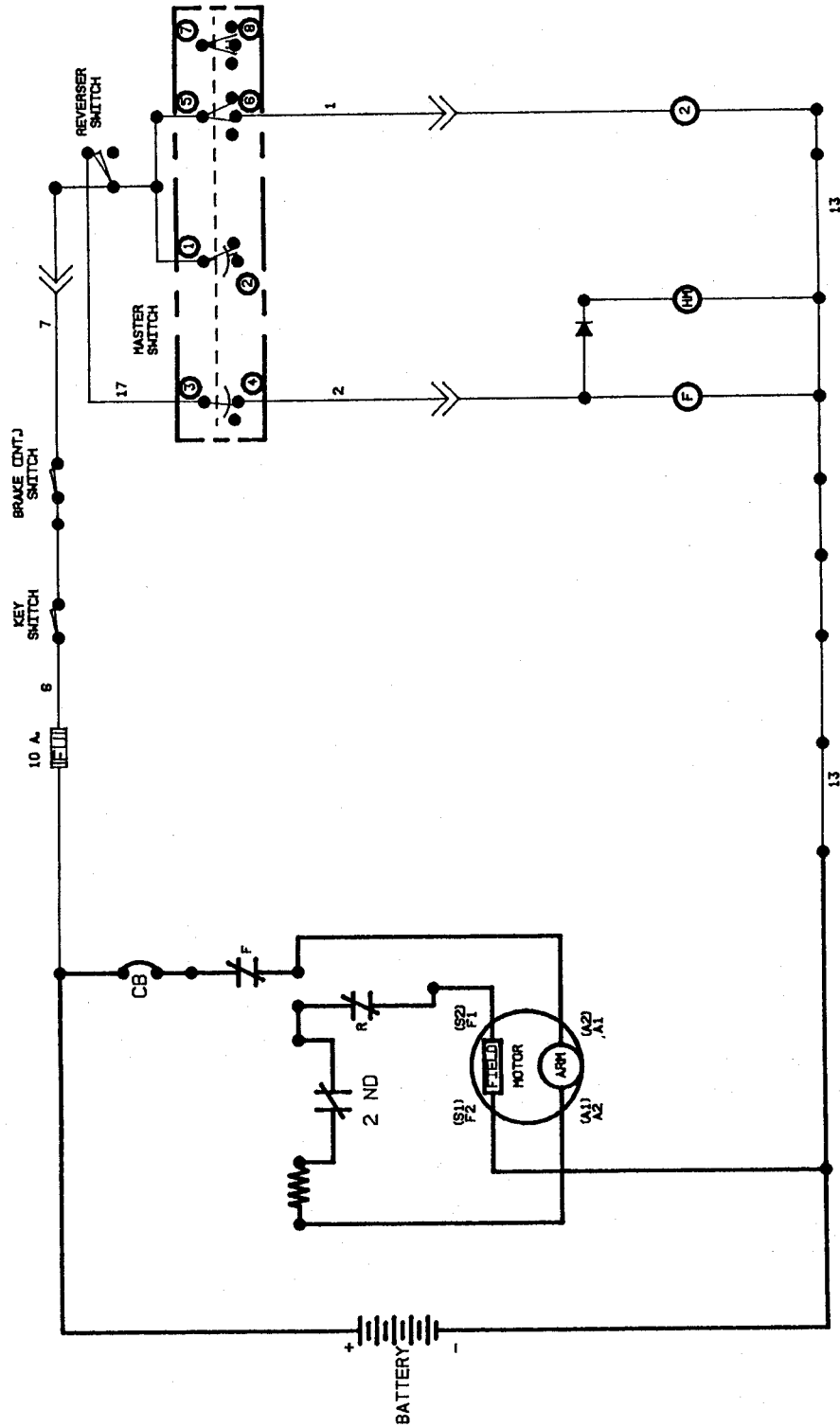
1. Install new oil seal.
2. Install toe guard and drive tire. The drive tire retaining nut should be torque to 250 ft./lbs.
3. Install side cover over drive tire. Torque to 35 ft./lbs.
4. Refull transmission case with new oil.

1.0 THEORY OF OPERATION - LIFT MODE



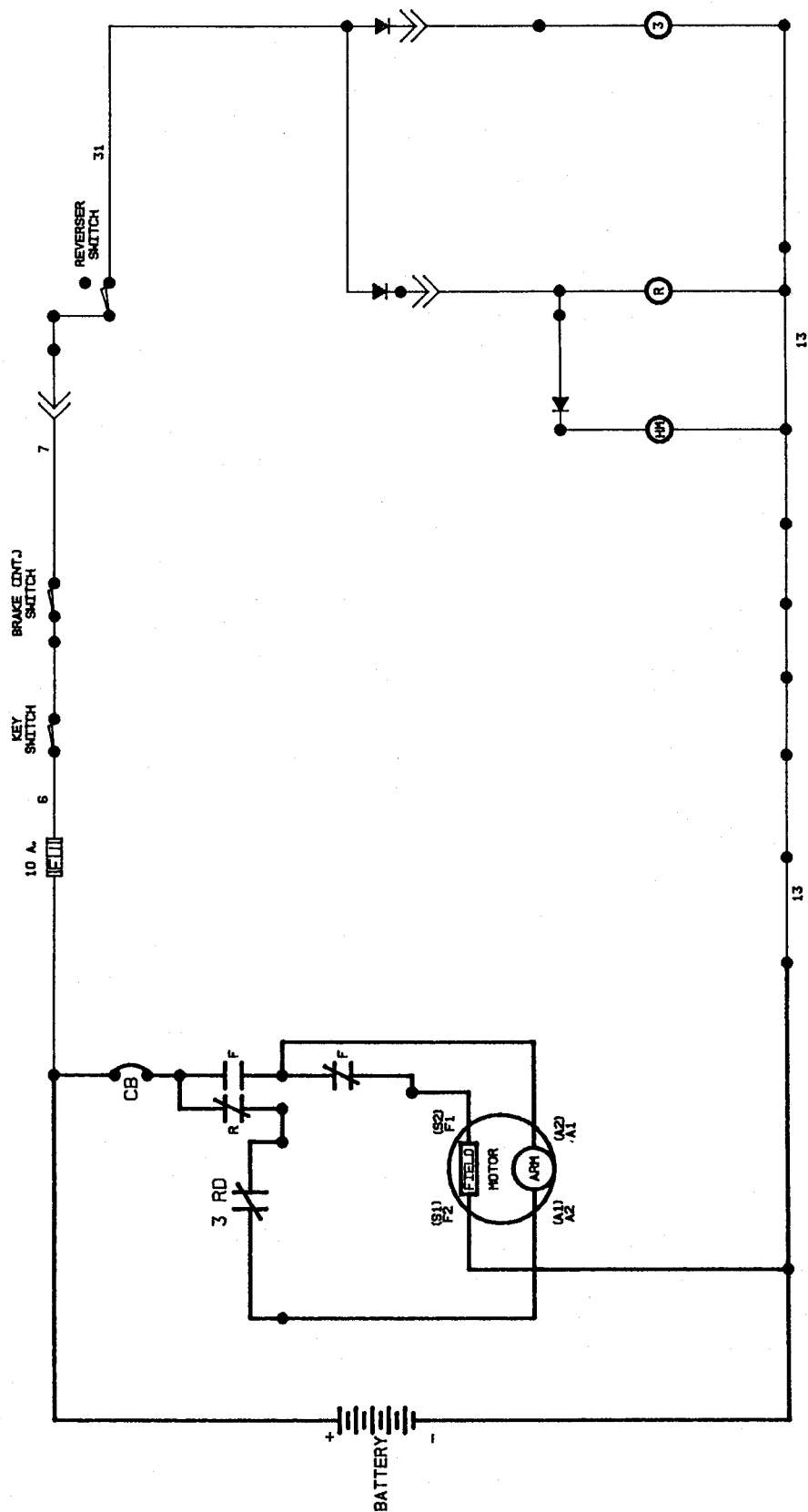
LIFT CONTROL SYSTEM SCHEMATIC

4.0 THEORY OF OPERATION - TRAVEL - SECOND SPEED FORWARD



ELECTRICAL SCHEMATIC

9.0 THEORY OF OPERATION - REVERSER SWITCH



ELECTRICAL SCHEMATIC

PMX-1 TROUBLE SHOOTING

2.815 REPLACE NEGATIVE WIRE TO SOLENOID

2.9 NO RAISE

NECESSARY: KEY SWITCH CLOSED

2.91 CHECK VOLTAGE AT:

2.911 WIRE 6 AT RAISE SWITCH

0 - VOLTS; CHECK CONTINUITY OF WIRE 6 TO KEY SWITCH TO RAISE SWITCH

2.912 CLOSE RAISE SWITCH. WIRE 5 ON RAISE SWITCH

0 - VOLTS; REPLACE SWITCH

2.913 CLOSE RAISE SWITCH. WIRE 5 ON RAISE INTERLOCK SWITCH

0 - VOLTS; CHECK CONTINUITY OF WIRE 5 FROM RAISE SWITCH TO RAISE INTERLOCK SWITCH

NECESSARY: KEY SWITCH CLOSED, RAISE SWITCH CLOSE, RAISE INTERLOCK SWITCH CLOSED

2.914 WIRE 5 NORMALLY OPEN TERMINAL OF RAISE INTERLOCK SWITCH

0 - VOLTS; REPLACE SWITCH

2.915 WIRE 5 ON RAISE CONTACTOR COIL

0 - VOLTS; CHECK CONTINUITY OF 5 FROM RAISE INTERLOCK TO RAISE COIL

2.916 WIRE 13 ON RAISE SOLENOID

0 - VOLTS; REPLACE SOLENOID COIL

2.917 REPLACE NEGATIVE WIRE TO RAISE SOLENOID

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