RR 5000

Service & Parts Manual

Crown PF11314-006

Electric Lift Truck Procedures

The preferred method of cleaning built up dirt and dust from electric material handling equipment is dry pressured air. For localized degreasing use of an appropriate solvent such as "TOUGH ON GREASE" (Crown P/N 063009-005) is recommended.

If these methods are not effective and power washing is the only alternative, extreme care must be exercised. Electrical components including connectors, terminal boards and wiring can be permanently damaged from water and/or cleaning solvents. Mineral and chemical residue left on or in components (i.e. circuit boards, contactors, encoders, switches, potentiometers, etc.) after washing is a proponent of oxidation and corrosion.

Functional integrity of contaminated components may be questionable. Nuisance fault logging, intermittent operation or immediate failure could be the resultant of power washing. For these reasons all electronic components including motors must be protected. Component removal is the best method to eliminate the risk of damage.

Power washing will also remove and/or destroy lubricants in or on the surface of shafts, unsealed bearings, hinges, exposed gears, bushings, chains, linkages, etc. These Items must also be protected or properly lubricated after cleaning.

Consideration must also be given to metal surfaces. The cleaning process can strip away paint and protective coatings applied to components (i.e. hydraulic lines, terminal strips, linkages) for freezer/corrosion environment. Paint and/or protective coating must be reapplied to these areas to reduce the chance of oxidation and corrosion.

Before installing removed components, lubricating or returning the equipment to service it must be free of solvent residue and thoroughly dry.

MA–1140–050

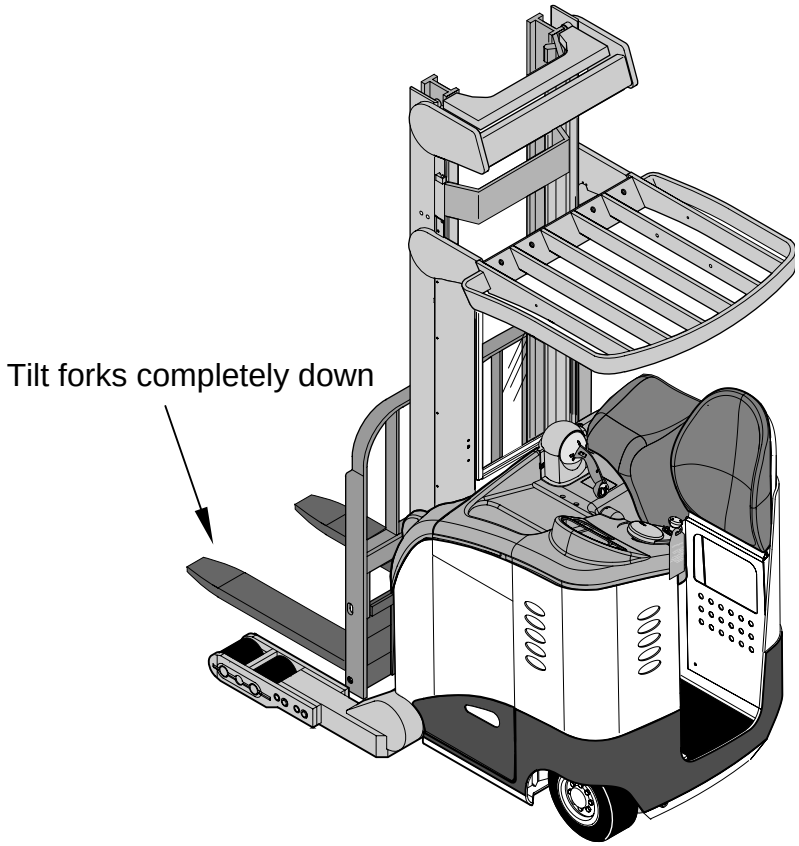
TILT

1. Move truck to a secure non traffic maintenance area with a level floor.

2. Chock wheels of truck. Refer to Lifting and Blocking in this section.

3. Tilt forks down so weight of carriage is not on the tilt cylinder.

4. Lockout or tagout truck as described in Battery - Lockout/Tagout in this section.



8261-01

INDEX	COMPONENT	LUBE TYPE	QTY.	30 da. 100 hr.	60 da. 250 hr.	90 da. 500 hr.	6 mo. 1000 hr.	12 mo. 2000 hr.
L-1	Mast Channels	E	As Required		Check			
L-2	Castor Axle & Pivot	B**	As Required		Lube			
L-3	Drive Unit Pivot	B	As Required		Lube			
L-4	Drive Unit Level	A*	1.5 pt. (0.7 Litre)			1st Change		Change
L-5	Multi-Task Handle (Ramps & Plunger)	M	As Required		Lube			
L-6	Door Hinge Pin(s)	C	As Required		Check			
L-7	Hydraulic Reservoir - Left (Shown)							
	• Oil	D	3.25 gal. (12.3 Litre)					Change
	• Breather	D	1					Change
	Hydraulic Reservoir - Right							
	• Oil	D	3.25 gal. (12.3 Litre)					Change
	• 10 Micron Filter Element	D	1					Change
	• Cap Breather Element	D	1					Change
L-8	All Lift Chain(s)	C	As Required		Check			
L-9	Load Wheel Axles (Left & Right Side)	B	As Required		Check			
L-10	Fork Slides	B	As Required		Check			
L-11	Mast Staging Bumpers (Bottom 2nd Stage Mast)	B	As Required			Check		
L-12	Steering Gears	B	As Required			Lube		
L-13	Lower Floorboard & Entry Bar Pivot Points	C	As Required		Lube			

LUBRICATION CHART 1-1

See Chart 1-1 and 1-2 for Lube Type designation explanation (M1.0-04.0-001). Lubrication intervals must be changed to a frequency that will minimize wear on moving shafts and parts on vehicles used in less desirable operating conditions.

Lubricaion intervals for Freezer/Corrosion trucks must be changed to a frequency that will minimize corrosion and wear on moving parts.

* In below freezing temperatures use Dextron II, Crown part number 063001-010.
** In below freezing temperatures use low temperature, multipurpose grease, Crown part number 063002-017.

FKS
Forks Tilted Switch

Location: reach carriage.

Purpose: monitor switch for control system. Informs control system when forks are tilted full up or down.

Data: wired normally open. Switch contacts open when forks tilted to maximum limits.

Adjustment: none required.

FLS
Free Lift Switch

Location: reach carriage.

Purpose: monitor switch for control system. Informs control system when mast is within free lift range.

Data: wired normally open. Switch is actuated when mast is in free lift range.

Adjustment: none required.

FNS
Fan Switch

Location: operator compartment panel.

Purpose: permit operator to control operator comfort fan with OFF, LOW and HIGH selections.

Data: three position selector switch.

Adjustment: none required.

FS
Forward Switch

Location: pivot point of multi-task control handle.

Purpose: informs control system forward travel direction is being requested by the operator.

Data: optic switch output 0 volts when forward travel direction selected. Output 5 volts when in neutral or reverse travel selected.

Adjustment: none required.

FU1
Main Control Fuse

Location: contactor panel.

Purpose: protect control circuitry from over current.

Data: see section 4.

Adjustment: none required.

FU2
Fan/Work Lights Fuse

Location: contactor panel.

Purpose: protect lights and associated wiring from over current.

Data: see section 4.

Adjustment: none required.

FU3
Options Fuse

Location: contactor panel.

Purpose: protect optional components and associated wiring from over current.

Data: see section 4.

Adjustment: none required.

FU4
Hydraulics Fuse

Location: contactor panel.

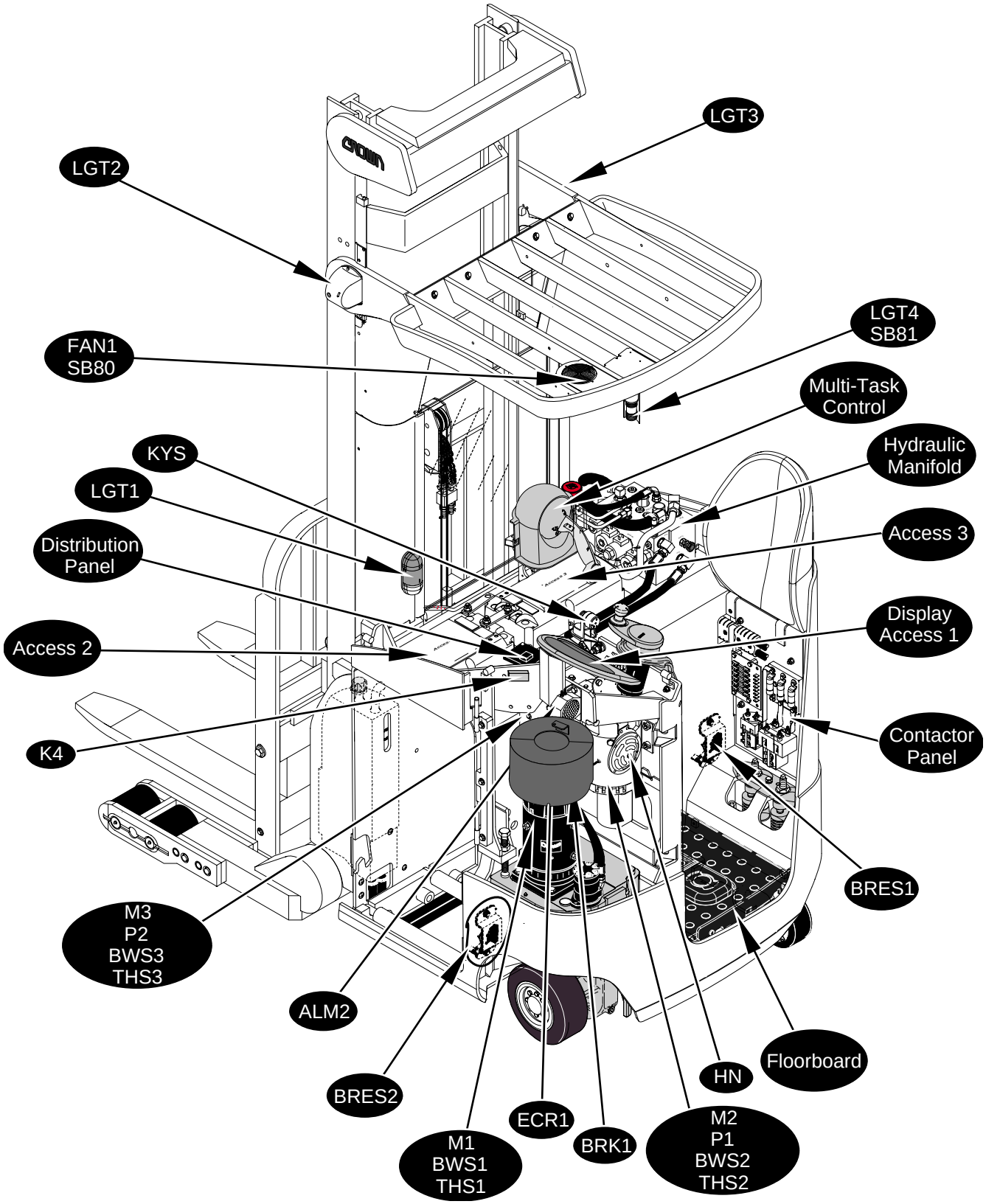
Purpose: protect componentry controlled by Access 2 and associated wiring from over current.

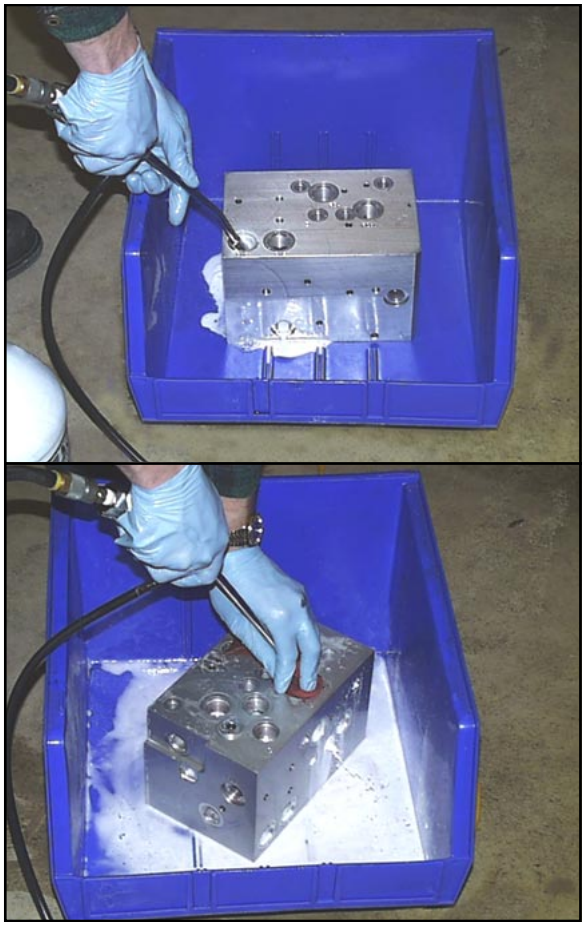
Data: see section 4.

Adjustment: none required.

Component Location Illustrations

6332-02



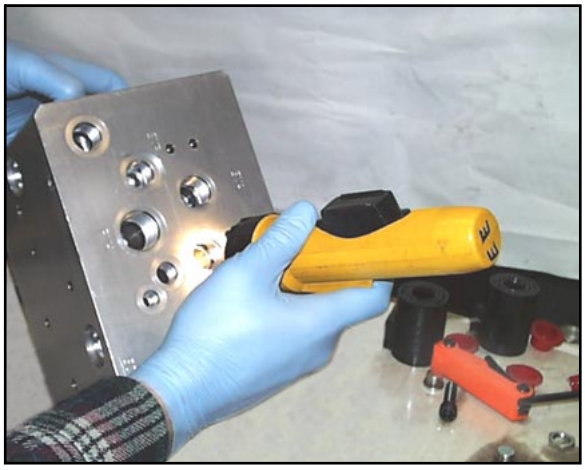


7937P ILLUSTRATION 10

22. Remove manifold block from container and place into clean container on top of clean block. Use compressed air nozzle to blow air over and through manifold block to completely remove any moisture, air pressure not to exceed 40 PSI. It is very important that the inside and outside of the block be totally dry and clean. See Illustration 11.

7938P ILLUSTRATION 11

23. Refer to Illustration 12 and look into each port with a flashlight and check for contamination that may not have been completely flushed out. If any is found flush block a second time as described in steps 21 and 22.



7939P ILLUSTRATION 12

24. Remove top o-ring seal from each valve, cover threads on valve with sleeve or tape to prevent damage to new seal, and carefully replace top o-ring seal supplied in kit. The top o-ring seal will be the one closest to the outside surface of the manifold block after the valve is installed in the manifold block. Visually inspect all other o-ring seals and back up rings, replace as required. These o-rings are not supplied in kit, but are listed on page 02.4-1450-001 of this manual, and are available through Crown.

25. Apply a light film of hydraulic oil to the o-ring and threads of all the valves and plugs before installing back into manifold block. When installing ORF4 and SVP in cavity, spread a clean light grease on FLAT side of ORF4 and stick on nose of SVP, then carefully insert into cavity. This will properly orient ORF4 and prevent it from changing position during installation.

26. Screw each valve and plug into manifold block by hand until snug.

Lower circuits will be the same for all versions of the 5000 and 5000S series reach trucks. The only difference is that the return oil flow will split into two paths for return to trucks with a dual reservoir system.

Lower is requested by the operator pushing down on multi-task handle. This action changes the voltage across the raise/lower potentiometer which signals Access 2 that lower has been requested. Access 2 will energize SVL and pulse PVH, with PVH opening in proportion to the operator command to control lower speed.

During lower, oil flows from lift cylinders to port C1 of the manifold assembly, through CV4, PVH, PCH, SVL, and out port T1 of the manifold assembly. From there it returns to reservoir(s).

PCH is the pressure compensator for the lower circuit. Pressure compensated lower control is accomplished in the following manner. As SVL is opened, any pressure in the circuit after PCH is dropped to tank pressure. With PVH still closed, a pilot pressure is delivered through ORF3, a 0.015 in. (0.4mm) orifice, to left side of PCH. ORF3's purpose is to slow PCH's response. When PVH is opened, the bias spring in PCH holds PCH open to allow lower. If flow across PVH increases to the point that the pressure differential is greater than PCH spring bias force, PCH will be gradually closed in response. To control lower flow, the maximum pressure drop across PVH is the only pressure needed to overcome 160 psi (11 bar) bias spring in PCH. Because of this, the flow across PVH and PCH will remain constant for a given command regardless of load or pressure at port C1 of the manifold assembly, providing pressure compensated lower control. Maximum lower speed is controlled by the maximum opening of PVH. PVH's position is electronically controlled by Access 2, giving Access 2 electronic control of lower speed. Lower speed, as controlled by Access 2, can be modified in the Performance menu.

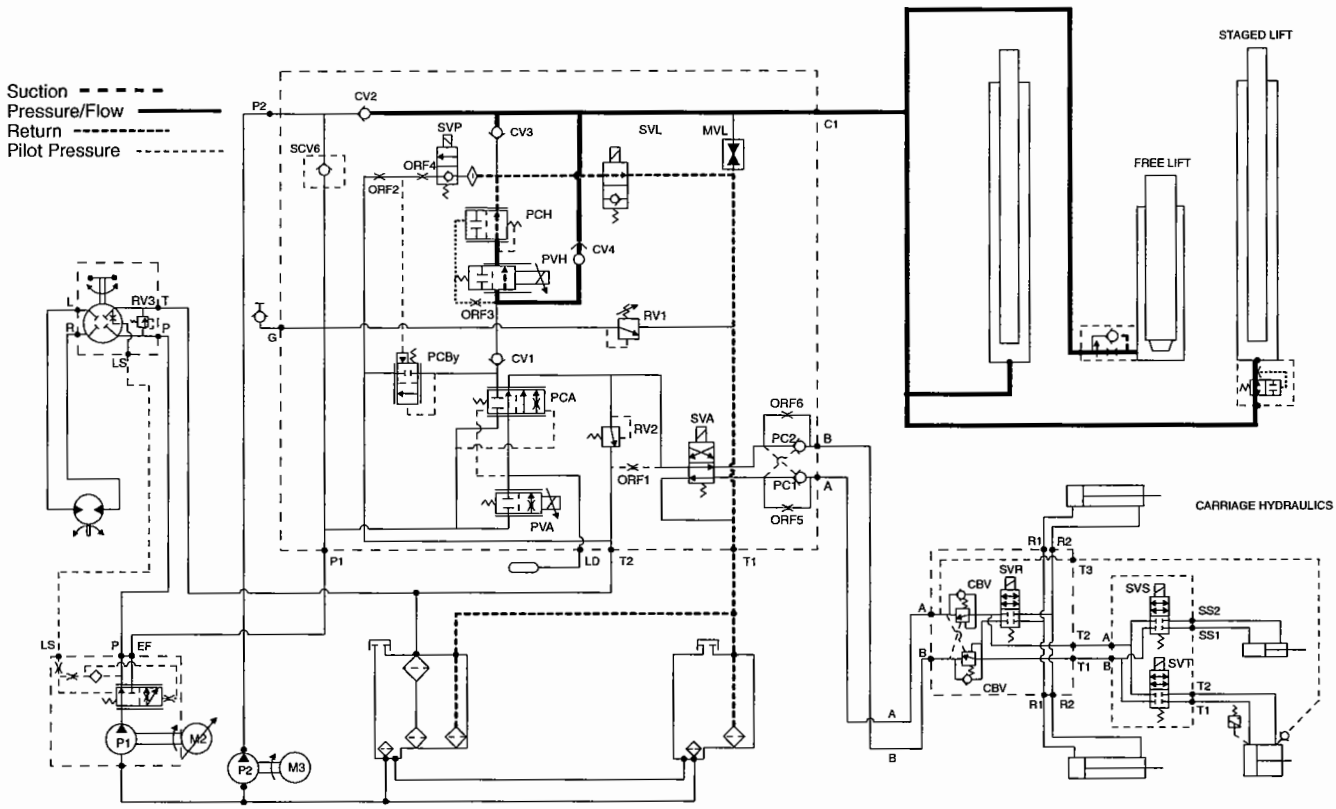


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ILLUSTRATION 7

HYDRAULIC SCHEMATIC SYMBOLS

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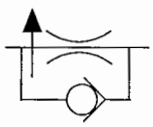
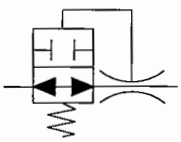
ORIFICE THROTTLE (FIXED)

ORIFICE THROTTLE (ADJUSTABLE)

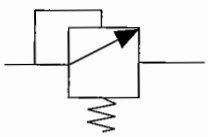
PRESSURE COMPENSATED FLOW CONTROL FIXED



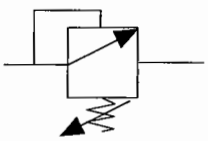
PRESSURE COMPENSATED FLOW CONTROL FIXED WITH REVERSE FLOW BYPASS



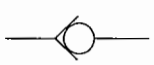
VELOCITY FUSE



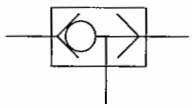
RELIEF VALVE (FIXED SETTING)



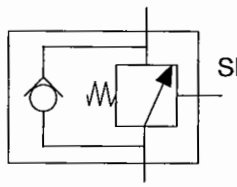
RELIEF VALVE ADJUSTABLE



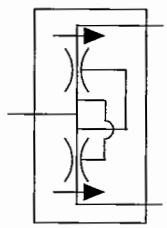
CHECK VALVE



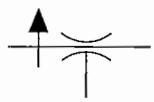
SHUTTLE VALVE



SINGLE COUNTERBALANCE VALVE ASSEMBLY IN MANIFOLD

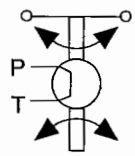


FLOW DIVIDER/COMBINER

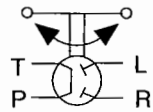


BYPASS FLOW CONTROL REGULATED FLOW PRESSURE COMPENSATED

MANUAL SHUTOFF VALVE



TORQUE GENERATOR



HYDROSTATIC STEER UNIT

Chart 1 lists the top o-ring part number for valves and plugs installed in the lift/accessory and reach carriage manifold blocks. Refer to this chart whenever installing a top replacement o-ring. Seal kits are available to replace all o-rings on each cartridge type valve. Refer to parts section 2.0 and 2.4 for seal kit part numbers.

Reference Designation	Valve/Plug Part No.	Location	O-Ring Part No.	O-Ring Dimensions (in.) W.	I.D.	O.D.
CV1, CV2, CV3	123255-001	Lift/Acc. Manifold	**064019-075**	0.103	1.987	2.19
CV4	123255-002		**064019-076**	0.116	1.171	–
CV6	125379		**064019-045**	0.097	0.755	–
SCV6	117304-003		**064019-045**	0.097	0.755	–
RV1	117913-002		**064019-045**	0.097	0.755	–
CBV	121819	Carriage Manifold	**064019-045**	0.097	0.755	–
SVR/SVS SVT	122167-001		**064019-030**	0.087	0.644	–
RV2	123334-002	Lift/Acc. Manifold	**064019-045**	0.097	0.755	–
MVL	177739		**064019-030**	0.087	0.644	–
PVA	123257-002		**064019-045**	0.097	0.755	–
PCA	123259		**064019-075**	0.103	1.987	2.19
PVH	123257-001		**064019-075**	0.103	1.987	2.19
PCH	123261		**064019-075**	0.103	1.987	2.19
PCby	123260		**064019-075**	0.103	1.987	2.19
SVL	117305-003		**064019-076**	0.116	1.171	–
SVP	123258		**064019-030**	0.087	0.644	–
SVA	117385-003		**064019-045**	0.097	0.755	–
PC1, PC2	123256		**064019-030**	0.087	0.644	–
#2 Plug	064091-004		**064019-074**	0.064	0.239	–
#4 Plug	064091-006		**064019-031**	0.072	0.351	–
#6 Plug	064091-002		**064019-099**	0.070	0.301	0.44
#8 Plug	064091-001		**064019-030**	0.087	0.644	–
#10 Plug	064091-007		**064019-045**	0.097	0.755	–

RR/RD 5000S SERIES

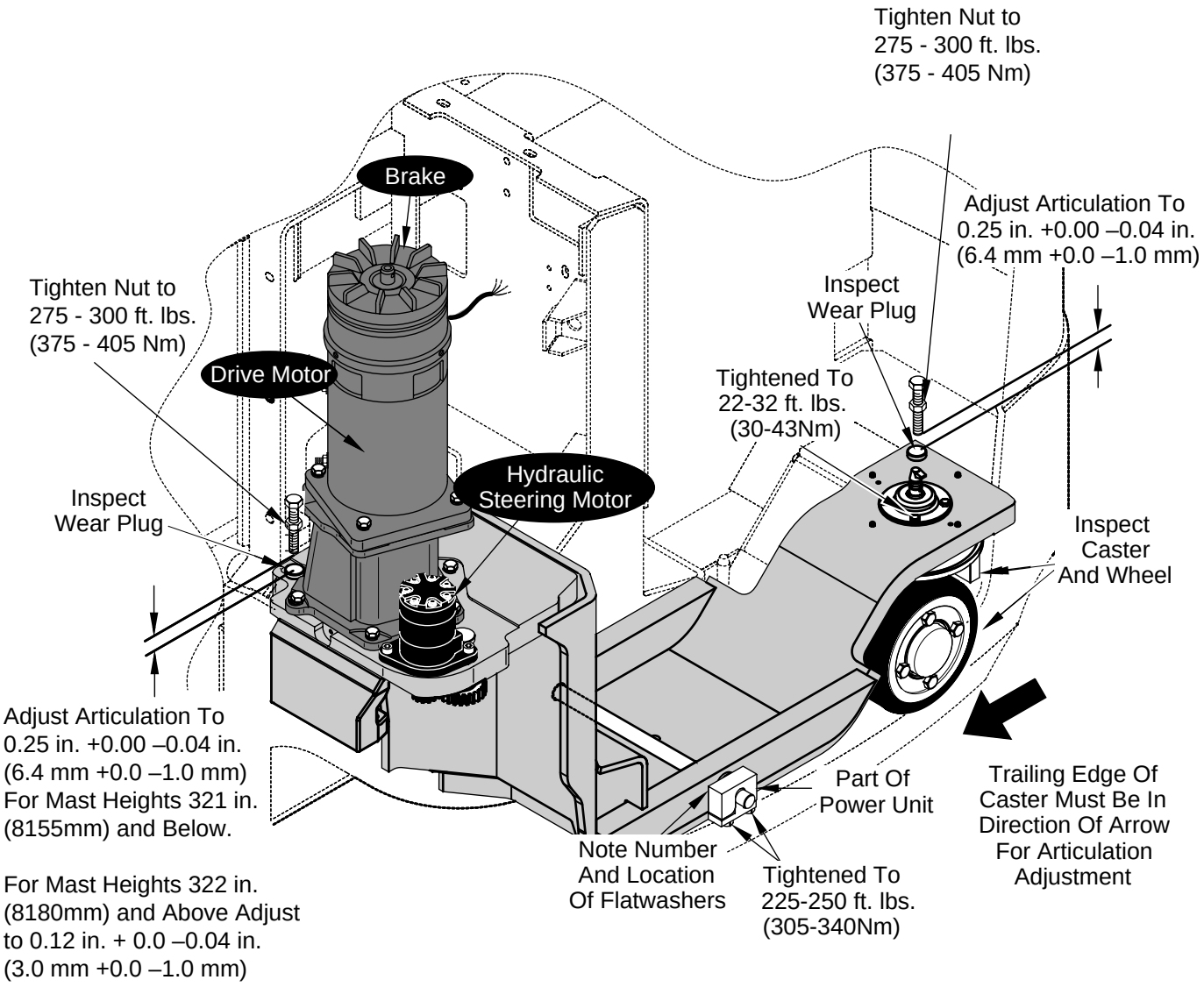


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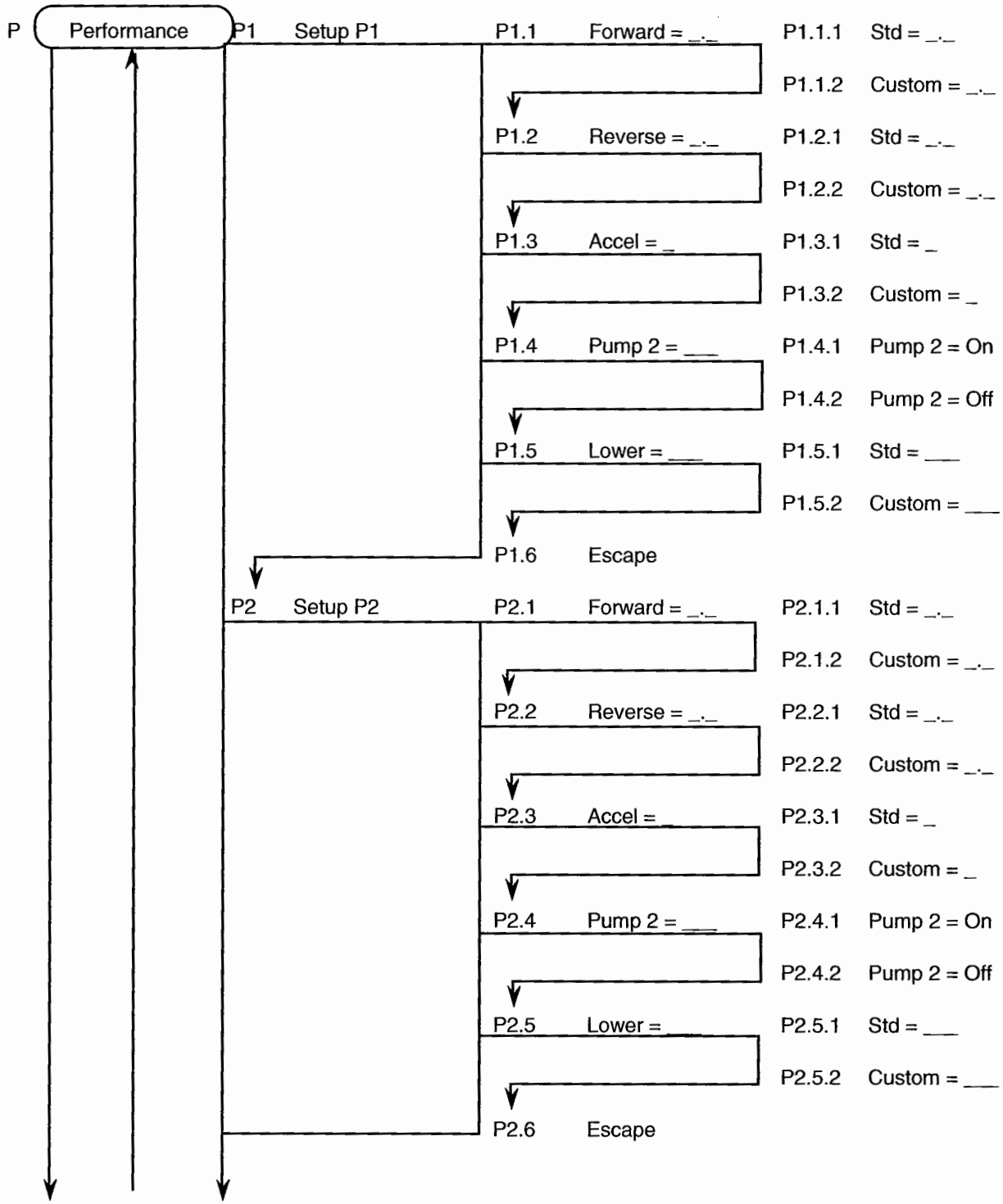
ILLUSTRATION 8

Press the ↵ key to move right and left in the menu and allow system to accept calibration values. Press the ▼ and ▲ to move up and down.

Note: Feature setups must be established prior to modifying performance setups.



(continued on next page)

The feature menu is shown on the following pages. The first level of the menu shows the different areas of setup for this truck.

- F1 Voltage — select truck battery voltage.
- F2 Pedals — select "2 pedal" for 5000 truck and "5 pedal" for 5000S truck.
- F3 Hgt Encoder — select "yes" if truck is equipped with height encoder.
- F4 Trk Wt — enter truck weight with battery and without load from data plate.
- F5 Max Load — enter maximum capacity load from data plate.
- F6 Reach — select "single" for RR and "double" for RD or none.
- F7 Sideshift — select "yes" if truck is equipped with sideshifter.
- F8 Tilt — select "yes" if truck is equipped with tilt.
- F9 Capacity — information from the capacity data plate required if truck is equipped with a capacity data monitor.
- F10 Productive — select "no" if truck not equipped with productivity package. Select "switch" if truck is equipped with productivity package with pressure switch and select "capacity" on trucks equipped with CDM and pressure transducer.
- F11 Hi Lift — enables high speed option when equipped.
- F12 Metric — enables conversion of weight, height and speed measurements to metric units.
- F13 Brush/Temp — select "yes" if truck is equipped with brush wear and temperature sensors in the traction and lift motors.
- F14 Alarm — select travel alarm configuration required if truck is equipped with alarm 2.
- F15 Bat Retain — select "yes" if truck is equipped with battery retainer switches.
- F16 Speed Cut — traction speed cutback. Requires switch input at CA403-16.
- F17 Dashboard — makes selected items available on operator menu.
- F18 User Perf — select "yes" if user performance option is desired. If yes is selected, any user can select any performance level regardless of F19 settings.
- F19 User Codes — enter up to 25 user codes which can be applied to various performance levels. If F18 is yes, any user can select any performance level.
- F20 Lockout — disables truck operation.
- F21 Language — enables selection of English or German language for Level 1 display messages.
- F22 Save? — select "Y" if setups entered should be saved.

The performance menu follows the feature menu on the following pages. The first level of the menu shows the different areas of performance for this truck. The features must be set prior to setting the performance since the features turns on and off certain performance levels.

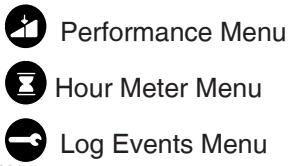
- P1, P2, P3 Setup P1, P2, P3 — performance settings for the user performance level of the feature menu (F18 and F19).
- P4 BDI — adjusts the individual cell voltage that the BDI uses as the definition of 0% state of charge.
- P5 Plug — adjusts the plugging force.
- P6 Drv Brake — adjusts the drive wheel braking force.
- P7 Cas Brake — adjusts the caster wheel braking force.
- P8 Accy>FLS — adjusts hydraulic accessory speed with lift height above free lift.
- P9 Accy<FLS — adjusts hydraulic accessory speed below free lift.
- P10 Trav>FLS — adjusts traction speed with lift height above free lift.
- P11 Trav>270 — adjusts traction speed above 270 in. (6.9 m) of lift height.
- P12 Coast — adjusts distance truck will coast when multi-task handle is returned to neutral.
- P13 Save? — select "Y" if setups entered should be saved.

Feature and Performance Access

When powering up the truck, press and maintain the arrow up key on the display. This enters service level two of Access 1 operation. Navigate to the F - Features or P - Performance menu and press the enter key. The message display now displays the message shown in the menu on the following page.

Setup Complete

When setup procedures are complete, scroll down to the Save? (F22) (P13) menu and press the enter key. If the setup completed is necessary to save into memory for future truck operation, select the Save? Y (F22.2) (P13.2) menu and press the enter key. This process will require less than a minute to complete. Do not operate any truck controls or display keys during this process.



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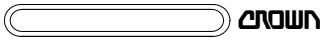

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These indicators on enhanced displays only:

Quick Reference Keys

- during truck operation, keys can be used to go directly to indicated operator menu.
- pressing key while in menu returns display to normal operation.

Extended Message Display (in place of 4 character display on standard)

- 16 character alpha numeric display.
- presents more comprehensive information to operator as necessary.
- visual interface with truck electronic system.

This indicator on enhanced display with CDM

6223

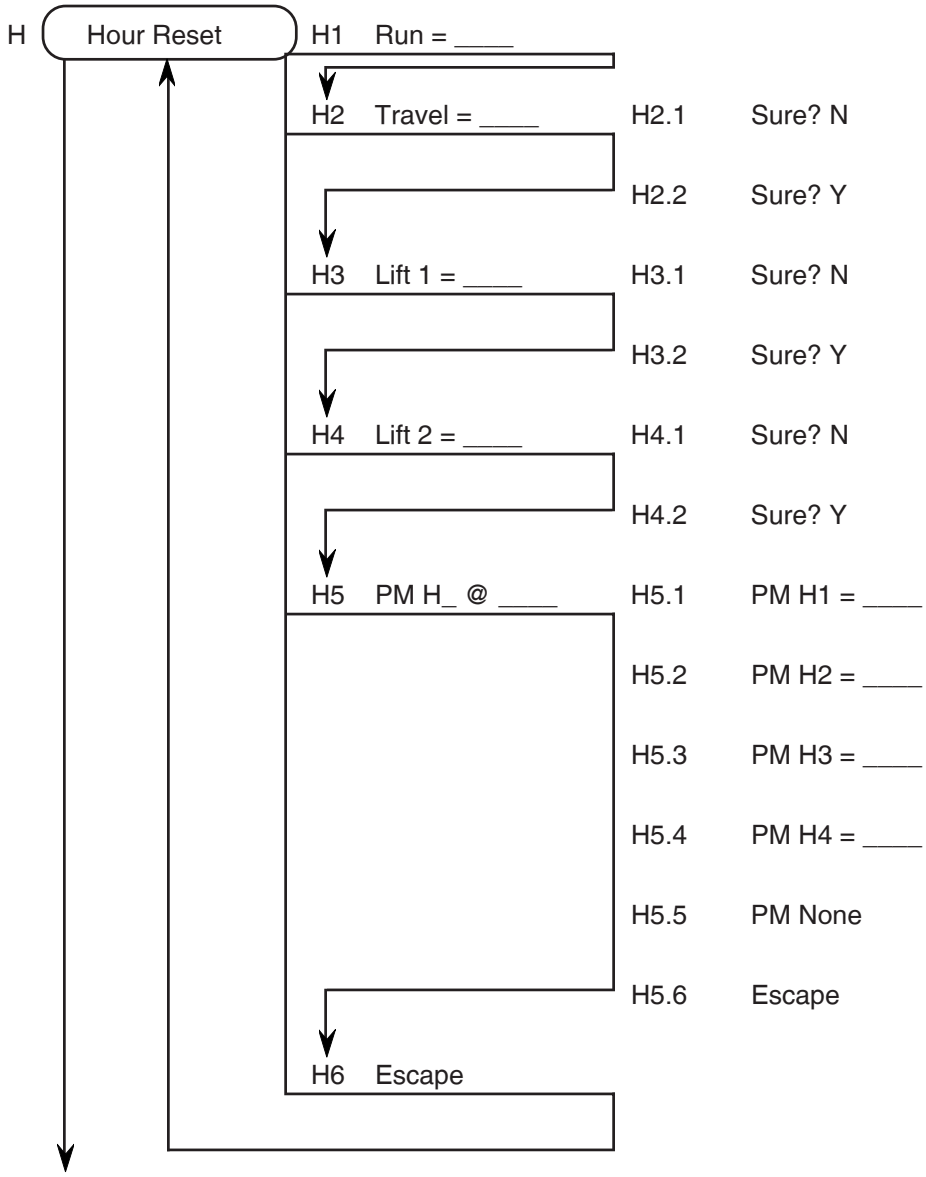
Capacity Data Monitor

- fork icon indicates approximate lift height of forks.
- bar left of fork icon indicates maximum recommended lift height for load on forks.
- circle to the left of the bar corresponds to data plate circles.
- for more information on the capacity monitor, refer to the M4.3 Capacity Monitor section of the service manual.

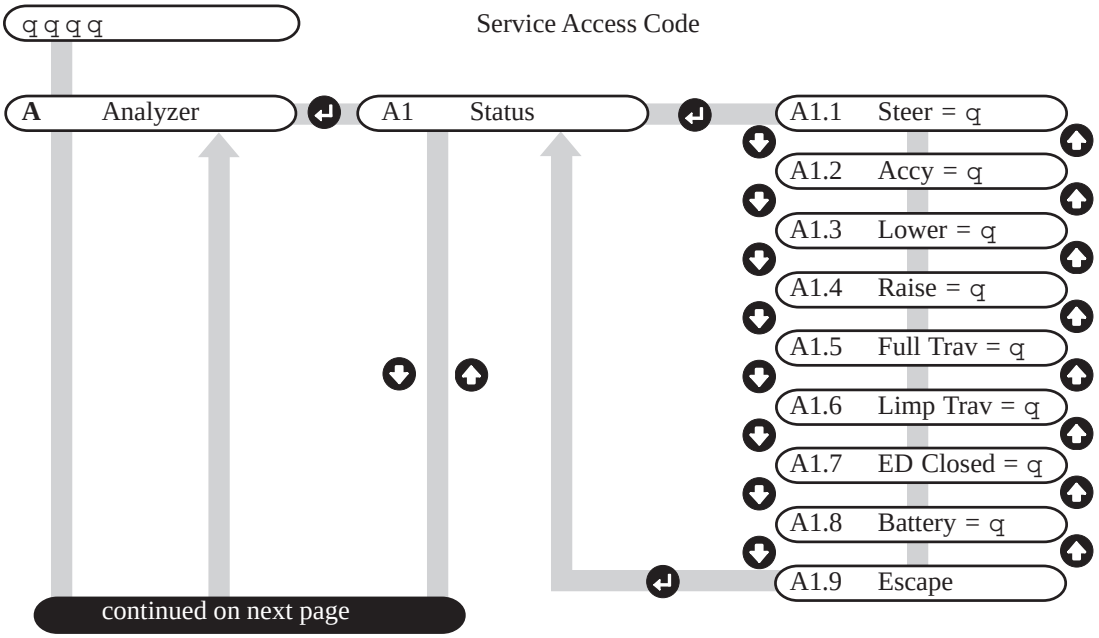
Printed in U.S.A.

M4.3–1450–003

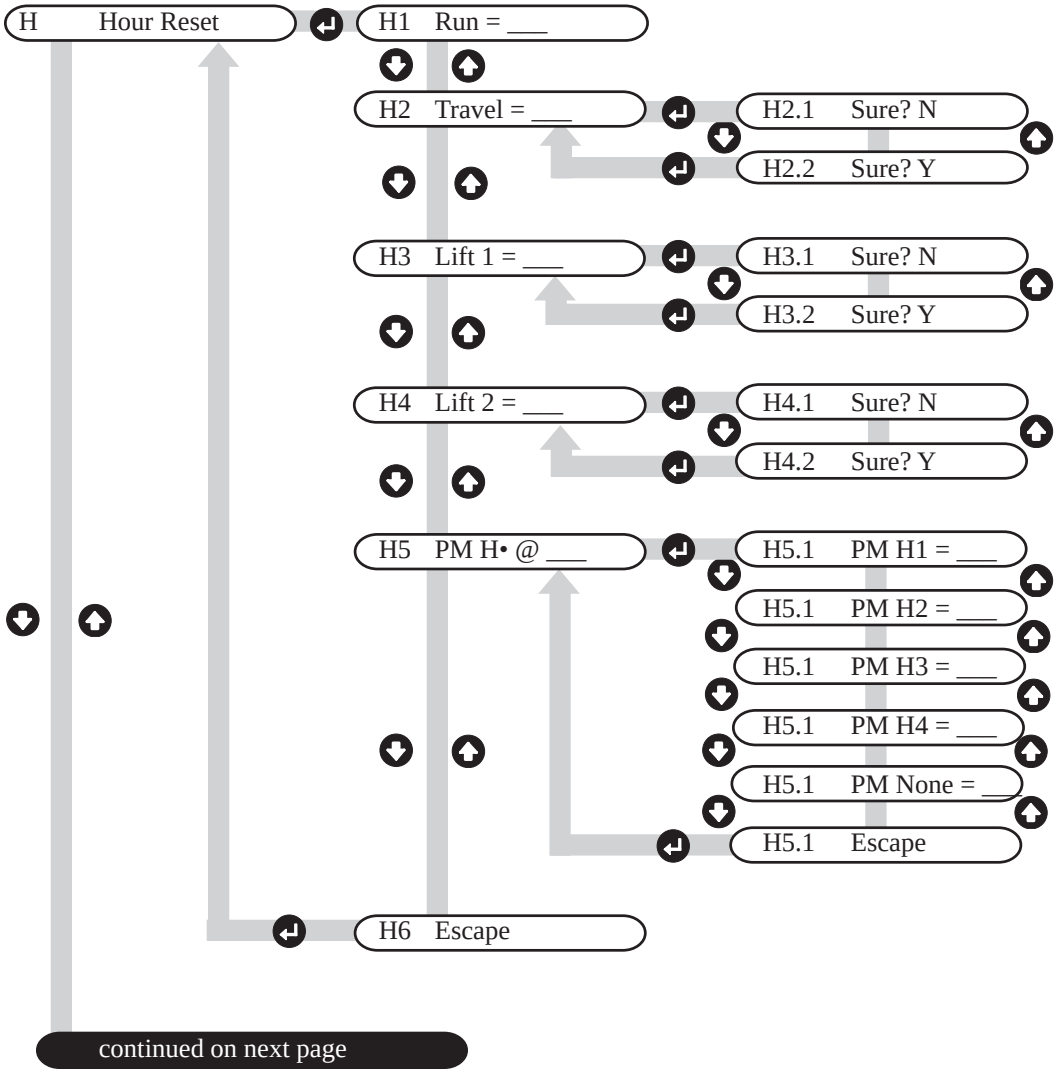
Press the ↵ key to move right and left in the menu and allow system to accept calibration values. Press the ↓ and ↑ to move up and down.

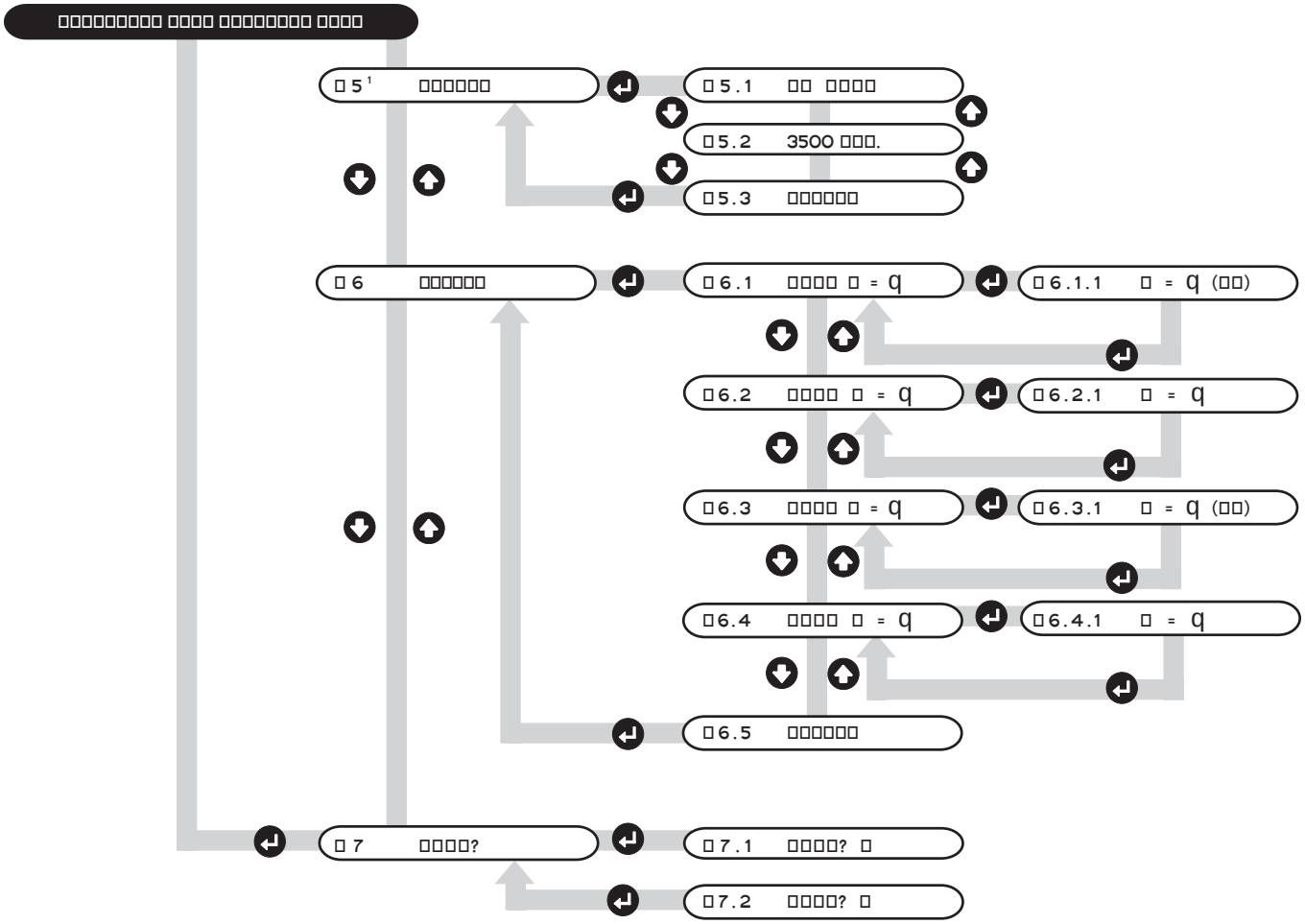


Press the ↵ key to move right and left in the menu and allow system to perform function requested. Press the ↓ and ↑ to move up and down.



Press the ↵ key to move right and left in the menu and allow system to accept changes to the hour reset menu. Press the ↓ and ↑ to move up and down.





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C1 Trav Handle (traction request potentiometer - POT1)

C1.1 (forward) - move the multi task handle to the full speed forward traction position and press ↵. The menu will then move to the next menu level.

C1.2 (center) - with the multi task handle in the neutral position, press ↵. The menu will then move to the next menu level.

C1.3 (reverse) - move the multi task handle to the full speed reverse traction position and press ↵. The menu will then return to the C1 menu level.

If no additional calibration procedures are to be performed, scroll to the C7 menu level, press ↵ and select the C7.2 menu. Calibration is complete and truck can be returned to operation. If additional calibration procedures are to be performed, scroll to the appropriate menu level and continue.

SVL (LOWER SOLENOID) Open external circuit. STATUS CODE 212

Step 1: Attach meter across coil terminals.

Leave wires connected.

Step 2: Turn key on while pressing the ▲ and ▼ buttons.

Select SVL (A4.5) on display menu.

Press and hold ◴. (drives component)

If: **Battery volts** coil open circuit.

Then replace solenoid coil.

If: **0 volts** positive or negative missing.

Then re-power up truck, move one test lead to B- on Access 2.

0 volts after standing on the operator pedals, Then positive missing. Use positive missing test.

Battery volts. Then negative missing. Use negative missing test.

If: **20 volts** correct functional reading.

Then problem likely an intermittent loose connection.

Check wiring condition. Wiring checks okay, replace Access 2. See note.

Note: *If truck operates, check connectors at module for corrosion and verify good electrical connections are being made. If connectors are okay this could be a random nuisance code. Monitor code frequency. If frequency gradually increases for no apparent reason, replace Access 2.*

Missing Positive and Negative Test

Missing Positive Test

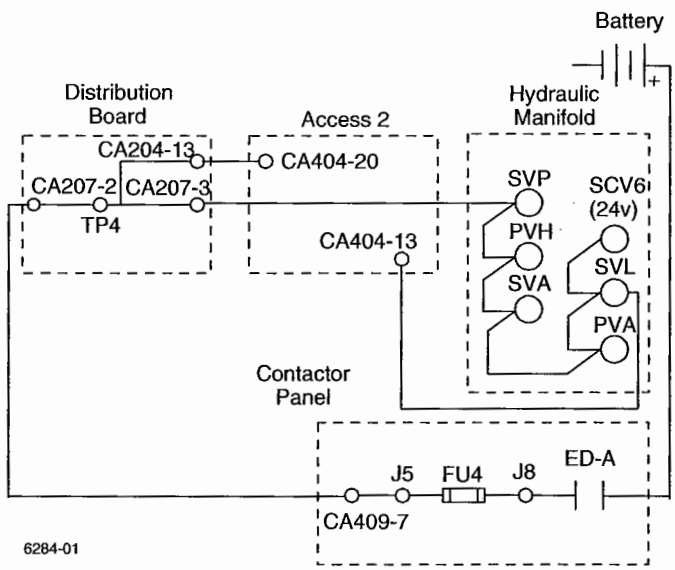
1. Check positive wire connected from SVL to PVA.

Missing Negative Test

1. Check negative output of Access 2 by attaching meter leads to SVL and CA404-13 of Access 2.
2. Turn key on while pressing the ▲ and ▼ buttons.
3. Select SVL (A4.5) on display menu.
4. Press and hold ◴. (drives component)

   Battery volts, wiring open circuit between Access 2 and SVL.

   0 volts, replace Access 2. See note.



PVA, PVH, ALM2, P2 Short circuit. STATUS CODE 225

Step 1: Remove one wire from PVA, PVH, ALM2, P2, SCV6 one component at a time, powering up truck and checking the last log entry after each component.

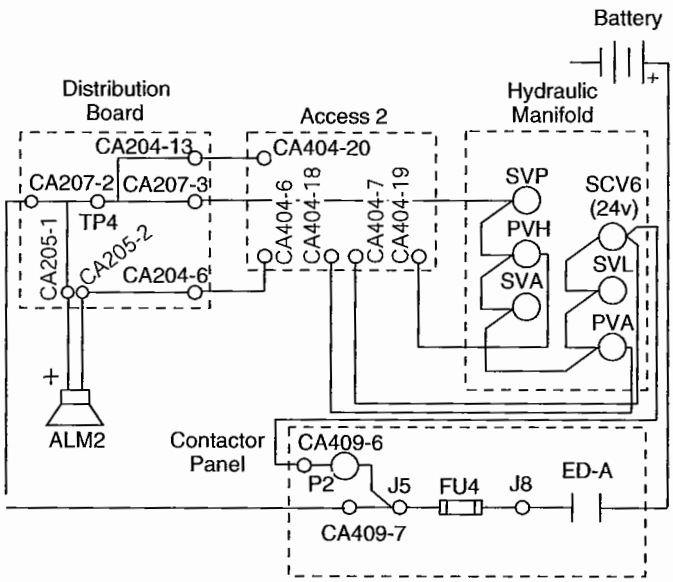
Step 2: Once faulted circuit is found, disconnect and isolate the component leads. Re-power the truck and observe fault code.

If: **Code 225** remains, check wiring and/or repeat component disconnections at CA404.

Code remains, replace Access 2. See note.

If: **If code changes,** short circuit has been found. Replace component or wiring that was isolated prior to this test.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If frequency gradually increases for no apparent reason, replace Access 2.*



6294-01

ACCESS 2 Not seen by Access 3 — STATUS CODE 291

Step 1: Check condition of fuse FU10 and FU11.

Fuse open circuit. Replace.

Step 2: Ensure the green LED on Access 2 is "on".

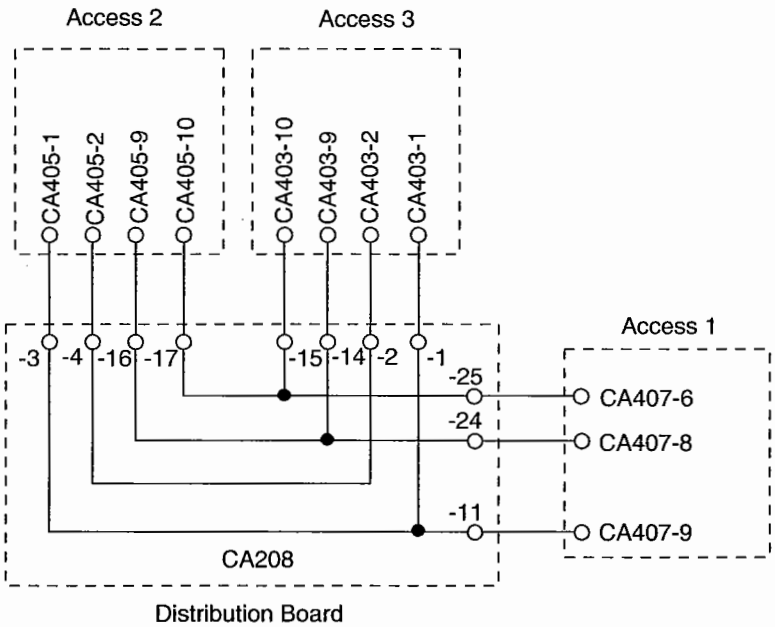
If: **Light is not "on"**, check input power source.

Step 3: View amber light on Access 2.

If: **LED is solid "on"**, replace Access 2.

If: **Flashing a code 14 or amber LED "off"**, the communications wiring harness or connectors for the CAN network is open or has a bad connection.

Repair/Replace.



6298

ACCESS 3 COMMAND TO MOTOR ARMATURE NOT SENSED WITHIN LIMITS. STATUS CODE 323

Step 1: Raise truck so drive tire is clear of floor and place hardwood blocks under truck frame.

Step 2: Check power cable connections between motor and Access 3.

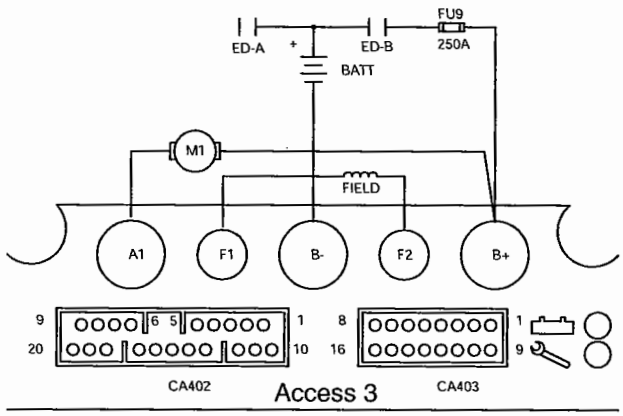
Step 3: (refer to capacitor discharge Caution on first page of section) Remove power cable from Access 3 A1 terminal.

Power up truck and attempt to travel.

If code does not change.

Then replace Access 3. See note.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases, replace Access 3.*



6301

DURING CALIBRATION, INSUFFICIENT VOLTAGE VARIATION IS OBTAINED FROM POT1. STATUS CODE 337

Step 1: Turn key on while pressing the ⏏ button.
Select POT1 (A2.3) on display menu.
View reading on display while moving multi task handle from full reverse to full forward.

Step 2: Voltage should be approximately 4.0 volts at full reverse, 2.5 volts at neutral and 1.2 volts at full forward.

If: Voltages higher or lower than listed then adjust potentiometer or linkage.

If: Voltage span less than listed, recalibrate POT1.

POT1 (ACCELERATOR POTENTIOMETER) indicates more movement than calibrated for in the reverse direction. STATUS CODE 338

Step 1: Check for any loose connections allowing POT1 to become misadjusted or linkage to change adjustment.

If: Loose, adjust, tighten and re-calibrate.

If: Tight, re-calibrate.

If: No problem found, replace potentiometer and recalibrate.

POT1 (ACCELERATOR POTENTIOMETER) indicates more movement than calibrated for in the forward direction. STATUS CODE 339

Step 1: Check for any loose connections allowing POT1 to become misadjusted or linkage to change adjustment.

If: Loose, adjust, tighten and re-calibrate.

If: Tight, re-calibrate.

If: No problem found, replace potentiometer and recalibrate.

INNER BRAKE COIL SHORT CIRCUIT. STATUS CODE 351

Step 1: Raise truck so drive tire is clear of floor and place hardwood blocks under truck frame.

Step 2: Check voltage at CA402-18 and CA402-19. Should read battery volts when power-up and attempt to travel.

If: 0 volts, check fuses and wiring.

If: Battery volts, continue with step 3.

Step 3: Remove coil leads from connector CA609-2 and CA609-3. Power up truck and attempt to travel.

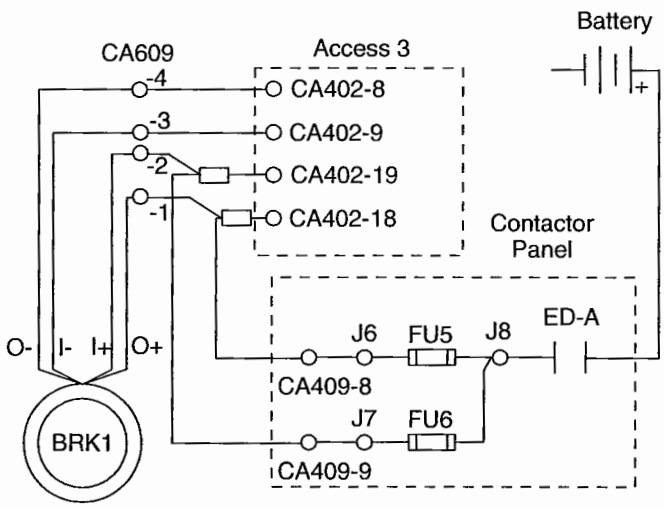
If: Different code displayed, short circuit exists in brake coil.

If: Code 351, disconnect CA402-19 and CA402-9. Power up truck and attempt to travel.

Code changes, short circuit in wiring between brake coil and Access 3.

Code 351, replace Access 3. See note.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases for no apparent reason, replace Access 3.*



6306

OUTER BRAKE COIL SHORT CIRCUIT OR ACCESS 3 OPEN CIRCUIT. STATUS CODE 352

Step 1: Check voltage at CA402-18 and CA402-19. Should read battery volts when power-up and attempt to travel.

If: 0 volts, check fuses FU5, FU6 and wiring.

If: Battery volts, continue with step 2.

Step 2: Remove coil leads from connector CA609-1 and CA609-4. Power up truck and attempt to travel.

If: Different code displayed, short circuit exists in brake coil.

If: Code 352, disconnect CA402-18 and CA402-8. Power up truck and attempt to travel.

Code changes, short circuit in wiring between brake coil and Access 3.

Code 352, replace Access 3. See note.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases for no apparent reason, replace Access 3.*

M1 (TRACTION MOTOR) Sensed field input exceeds limits for off condition. STATUS CODE 375

Step 1: If truck does not operate, check wiring.

Wiring okay, replace Access 3. See note.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases for no apparent reason, replace Access 3.*

ACCESS 3 Internal fault. STATUS CODE 376

Step 1: If truck does not operate, check wiring.

Wiring okay, replace Access 3. See note.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases for no apparent reason, replace Access 3.*

ACCESS 3 Internal fault. STATUS CODE 377

Step 1: If truck does not operate, check wiring.

Wiring okay, replace Access 3. See note.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases for no apparent reason, replace Access 3.*

M2 (PUMP MOTOR) Brush wear indication. STATUS CODE 828

Step 1: Check wear on brushes, reference service manual.

Step 2: Wire between Access 1 CA408-9 and motor open circuit. Repair or replace.

Step 3: Located next to the brush holders are spring taps used to make the brush wear indication. Verify both the brush holder and indicator spring taps are clean, and a good electrical connection exists.

M1 (TRACTION MOTOR) Brush wear indication. STATUS CODE 829

Step 1: Check wear on brushes, reference service manual.

Step 2: Wire between Access 1 CA408-10 and motor open circuit. Repair or replace.

Step 3: Located next to the brush holders are spring taps used to make the brush wear indication. Verify both the brush holder and indicator spring taps are clean, and a good electrical connection exists.

INVALID LIFT CUTOUT ZONE. STATUS CODE 831

Step 1: Turn key on while pressing the ▲ button.

Select ECR2 (A2.19) on display menu.

Raise and lower forks and watch counts.

If: Counts jump then check height sensor for wear, operation.

If condition okay, replace encoder.

If repair required, repair.

If: Counts smooth then recalibrate lift cutouts.

LOW BATTERY VOLTAGE LOCKOUT. STATUS CODE 832

Step 1: Battery completely discharged. Replace or recharge.

Step 2: Replace Access 3. See note.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases for no apparent reason, replace Access 3.*

SVT (TILT SOLENOID) Open external circuit. STATUS CODE 216

Step 1: Attach meter across coil terminals.

Leave wires connected.

Step 2: Turn key on while pressing the ▲ and ▼ buttons.

Select SVT (A4.9) on display menu.

Press and hold ↵. (drives component)

If: **Battery volts** coil open circuit.

Then replace solenoid coil.

If: **0 volts** positive or negative missing.

Then re-power up truck, move one test lead to B- on Access 2.

0 volts after standing on the operator pedals, positive missing. Use missing positive test.

Battery volts, negative missing. Use missing negative test.

If: **20 volts** correct functional reading.

Then problem likely an intermittent loose connection.

Check wiring condition. Wiring checks okay, replace Access 2. See note.

Note: *If truck operates, check connectors at module for corrosion and verify good electrical connections are being made. If connectors are okay this could be a random nuisance code. Monitor code frequency. If frequency gradually increases for no apparent reason, replace Access 2.*

Missing Positive and Negative Test

Missing Positive Test

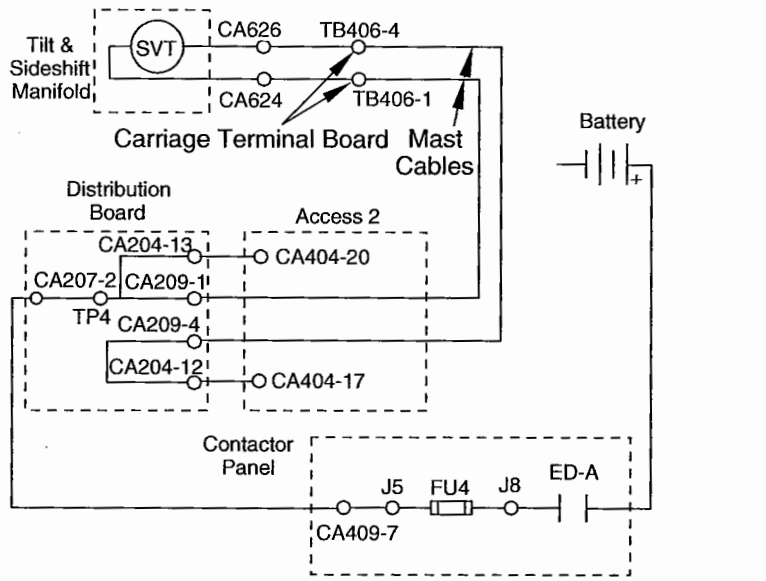
1. Trace the positive wiring by referring to the illustration.

Missing Negative Test

1. Check negative output of Access 2 by attaching meter leads to SVT and CA404-17 of Access 2.
2. Turn key on while pressing the ▲ and ▼ buttons.
3. Select SVT (A4.9) on display menu.
4. Press and hold ↵. (drives component)

   Battery volts , wiring open circuit between Access 2 and SVT.

   0 volts, replace Access 2. See note.



POT2 (RAISE/LOWER) Above electrical limit. STATUS CODE 245

Step 1: Turn key on while pressing the ▲ button.

Select POT2 (A2.4) on display menu.

Move control handle to confirm the following readings.

If: Approximately 5 volts. Open in circut between potentiometer and CA405-16 or CA405- 8 of Access 2.

Okay, replace potentiometer.

If: Approximately 2.5 volts raise/lower handle is in center position. Correct reading

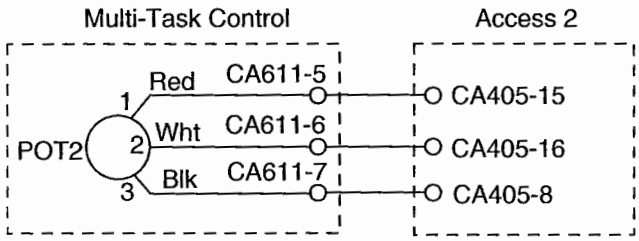
If: Approximately 1.2 volts raise/lower handle is in full up position. Correct reading

If: Approximately 3.8 volts raise/lower handle is in full lower position. Correct reading

Correct readings confirmed, intermittent connection likely in potentiometer circuit.

Then check connections and potentiometer.

Note: *(calibrate the potentiometer after repair)*



6297

POT2 (RAISE/LOWER) Below electrical limit . STATUS CODE 246

Step 1: Turn key on while pressing the ▲ button.

Select POT2 (A2.4) on display menu.

Move control handle to confirm the following readings.

If: Approximately 0 volts. Open in circut between potentiometer and CA405-16 or CA405- 8 of Access 2.

Okay, replace potentiometer. Refer to above illustration.

If: Approximately 2.5 volts raise/lower handle is in center position. Correct reading

If: Approximately 1.2 volts raise/lower handle is in full raise position. Correct reading

If: Approximately 3.8 volts raise/lower handle is in full lower position. Correct reading

Correct readings confirmed, intermittent connection likely in potentiometer circuit.

Then check connections and potentiometer.

Note: *(calibrate the potentiometer after repair)*

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M4.3–1450–498

OVER CURRENT CONDITION OCCURRED IN TRACTION MOTOR FIELD CIRCUIT. STATUS CODE 319

Step 1: Raise truck so drive tire is clear of floor and place hardwood blocks under truck frame.

Step 2: Check traction motor F1 and F2 power cable connections and cable condition between the motor and Access 3 module (refer to illustration on next page).

Check that F1 and F2 motor connections are not wired to B-, B+ terminals of Access 3.

Step 3: (refer to capacitor discharge Caution on first page of section) Disconnect and isolate drive motor F1, F2 terminals one at a time and power up truck. Depress the operator compartment pedals. Power down truck and turn key on while pressing the ▲ and ▼ buttons. Check last log event (L1).

If: Code changes to 324: Check or replace drive motor field or drive motor.

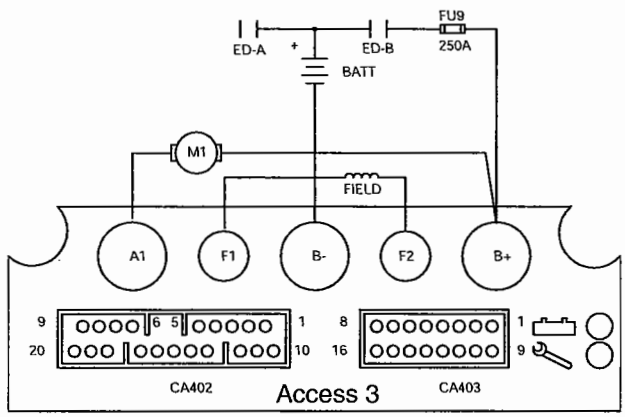
If: Code 319 remains: Disconnect and isolate Access 3 F1, F2 terminals one at a time and power up truck. Depress the operator pedals.

Power down truck and turn key on while pressing the ▲ and ▼ buttons.

Check last log event (L1).

If symptom and fault remain, replace Access 3. See note.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases, replace Access 3.*



6301

POT1 (TRACTION COMMAND POTENTIOMETER) Above electrical limit. STATUS CODE 333

Step 1: Turn key on while pressing the ◆ button.

Select POT1 (A2.3) on display menu. View reading on display.

If: Approximately 5 volts, open between potentiometer and CA403-7 or CA403- 8 on Access 3. Then repair/replace.

If wiring okay, replace potentiometer. (Refer to illustration for connections).

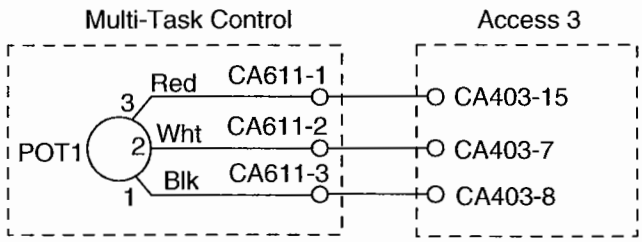
If: Approximately 2.5 volts, control handle is in center position.

If: Approximately 1.2 volts, control handle is in full forward travel position.

If: Approximately 3.8 volts, control handle is in full reverse position.

Correct readings confirmed, intermittent connection in potentiometer circuit. Check connections and potentiometer.

Note: *Calibrate potentiometer after repair.*



6304

POT1 (TRACTION COMMAND POTENTIOMETER) Below electrical limit. STATUS CODE 334

Step 1: Turn key on while pressing the ◆ button.

Select POT1 (A2.3) on display menu.

View reading on display.

If: Approximately 0 volts, open circuit between potentiometer and Access 2. Refer to above illustration.

Then check connection between the potentiometer and CA403-15 on Access 3.

Connection okay, replace potentiometer. (Refer to illustration for connections).

If: Approximately 2.5 volts, control handle is in center position.

If: Approximately 1.2 volts, control handle is in full forward travel position.

If: Approximately 3.8 volts, control handle is in full reverse position.

Correct readings confirmed, intermittent connection in potentiometer circuit. Check connections and potentiometer.

Note: *Calibrate potentiometer after repair.*

CASTER BRAKE RESISTANCE TOO HIGH. STATUS CODE 349

Step 1: Check FU6 for open circuit.

Step 2: Raise truck so drive tire and caster are clear of floor and place hardwood blocks under truck frame.

Step 3: Attach meter leads across CA628 and CA629 near brake coil.

Step 4: Turn key on while pressing the ▲ and ▼ buttons.

Select BRK2 (A4.14) on display menu.

Press and hold ↵. (drives component)

View reading on display and meter.

If: Battery volts on meter/ 0 amps on display: Open circuit in brake coil. Proceed with step 6.

If: 0 volts on meter and 0 amps on display: Check for battery positive at CA402-19.

If: 0 volts, double check FU6 and associated wiring.

If: Battery positive, select BRK2 (A4.14) on display, press and hold ↵ and measure voltage between CA402-19 and CA402-20.

Battery volts, open circuit in wiring between Access 3 and brake coil. Proceed with step 5.

0 volts, replace Access 3.

If: Less than 10 volts on meter and 3 to 6 amps on display. This could be an indication that the brake assembly is getting too hot during operation. Check for dragging brakes or improper adjustment.

If: Okay, check the resistance of the brake coil. The correct reading is between 3.35 to 7.43 ohms at 68 degrees Fahrenheit (20 degrees Celsius).

If: Neither of these two conditions exists, verify that this condition is not intermittent or occurs during extended use.

Step 5: Disconnect CA610 and CA614. Check brake coil resistance between connectors with caster in static condition and while rotating caster slowly for one full rotation to check for open spots in slip ring.

Resistance for acceptable temperature range is between 3.35 and 7.43 ohms. At 68 degrees fahrenheit, resistance should measure approximately 4.79 ohms.

Cold temperatures decrease the resistance of the coil.

If in a cold environment, warm the coil and recheck resistance.

If: Resistance is outside range listed, go to step 6.

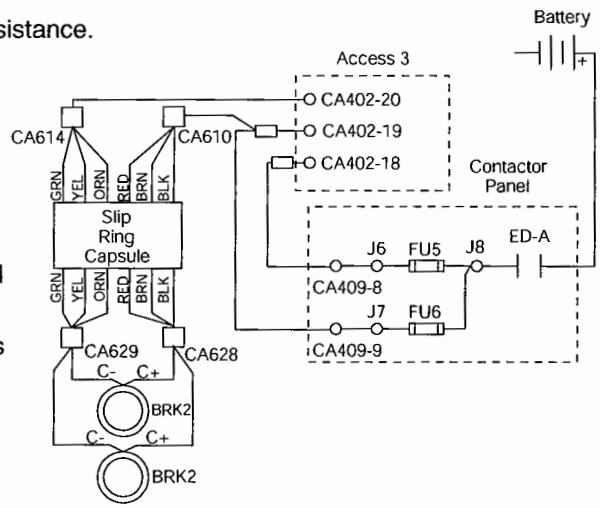
If: Coil checks okay or truck is not used in a cold environment, reconnect CA610 and CA614, recheck resistance at Access 3 CA402-19 and CA402-20.

Resistance out of range, check wiring between Access 3 and connectors CA610 and CA614.

Step 6: Disconnect CA628 and CA629, leave both brake wires of the brake side of the connector attached. Check brake coil resistance between CA628 and CA629.

If: Resistance is still outside range listed, replace caster brakes.

If: Coil checks okay, replace slip ring capsule.



Note: *If problem can not be found and truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases for no apparent reason, replace Access 3.*

M1 (TRACTION MOTOR) field current too high or too low. STATUS CODE 373

Step 1: Raise truck so drive tire is clear of floor and place hardwood blocks under truck frame.

Step 2: Turn key on while pressing the ▲ and ▼ buttons.

Select M1-F (A4.16) for forward direction or M1-R (A4.17) for reverse direction on display menu.

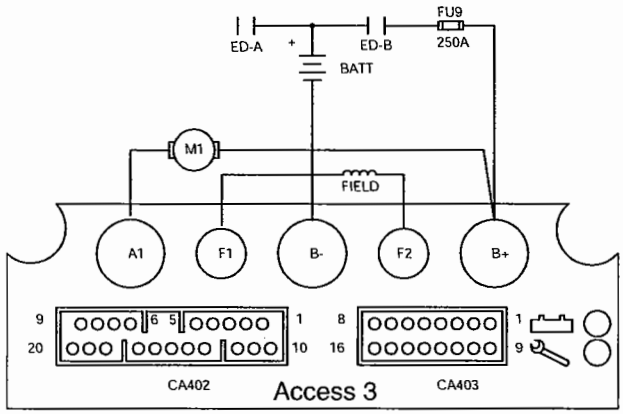
Press and hold ↵. (drives motor field)

Observe display current reading.

If: Field current above 50 amps, check for short circuit in motor field circuit. Repair or replace.

If: Field current below 30 amps, check for open circuit in motor field circuit. Repair or replace.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases for no apparent reason, replace Access 3.*



6301

M1 (TRACTION MOTOR) Armature open circuit. STATUS CODE 374

Step 1: Raise truck so drive tire is clear of floor and place hardwood blocks under truck frame.

Step 2: Attach meter across A1 and A2 terminals.

Turn key on while pressing the ▲ and ▼ buttons.

Select M1-A (A4.15) on display menu.

Press and hold ↵. (drives armature)

Observe meter voltage reading and display current reading.

If: Battery volts on meter and less than 50 amps on display: Open drive motor circuit.

Then check power cable connections, motor brushes and holder, and condition to M1. Repair or replace.

If: 0 volts on meter and less than 50 amps on display: Then check output of Access 3. Move meter leads to the A1 and A2 terminals of Access 3 and repeat test.

If battery volts, open circuit in power cables between the drive motor and Access 3.

If 0 volts on meter and less the 50 amps on display, replace Access 3. See note.

Note: *If truck operates, then this could be a random nuisance code. Monitor code frequency. If it gradually increases for no apparent reason, replace Access 3.*

M4.3–1450–538

M1 (TRACTION MOTOR) Over temperature. STATUS CODE 826

This code is registered each time Access 1 displays the message "Travel Overtemp."

Note: *Verify duty cycle of M1 traction motor is not excessive or unusual. In many cases the display message (Traction overtemp) will disappear once the travel speed increases. An occasional registering of this code could be considered normal in some applications.*

A problem exists when the display message "Traction Overtemp" remains on for an extended period of time during the trucks current duty cycle.

Step 1: Check for loose connections, corroded terminals and brush condition. Correct.

Step 2: Make sure M1 motor is clean.

Step 3: Check brake, traction motor, drive unit condition to ensure mechanical binding does not exist.

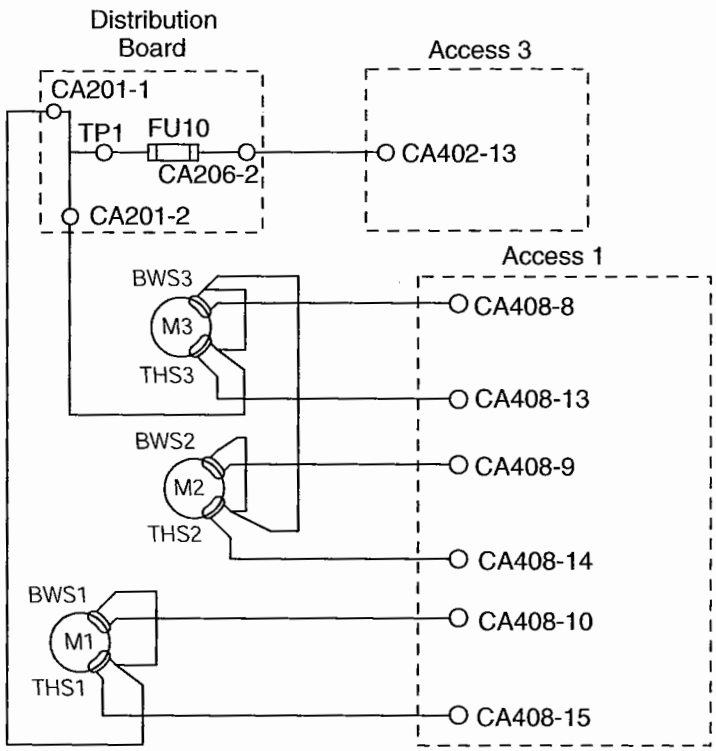
Step 4: Verify that the brake cover shroud is installed and properly mounted.

M3 (HIGH PERFORMANCE LIFT PUMP MOTOR) Brush wear indication. STATUS CODE 827

Step 1: Check wear on brushes, reference service manual.

Step 2: Wire between Access 1 CA408-8 and motor open circuit. Repair or replace.

Step 3: Located next to the brush holders are spring taps used to make the brush wear indication. Verify both the brush holder and indicator spring taps are clean, and a good electrical connection exists.



6309

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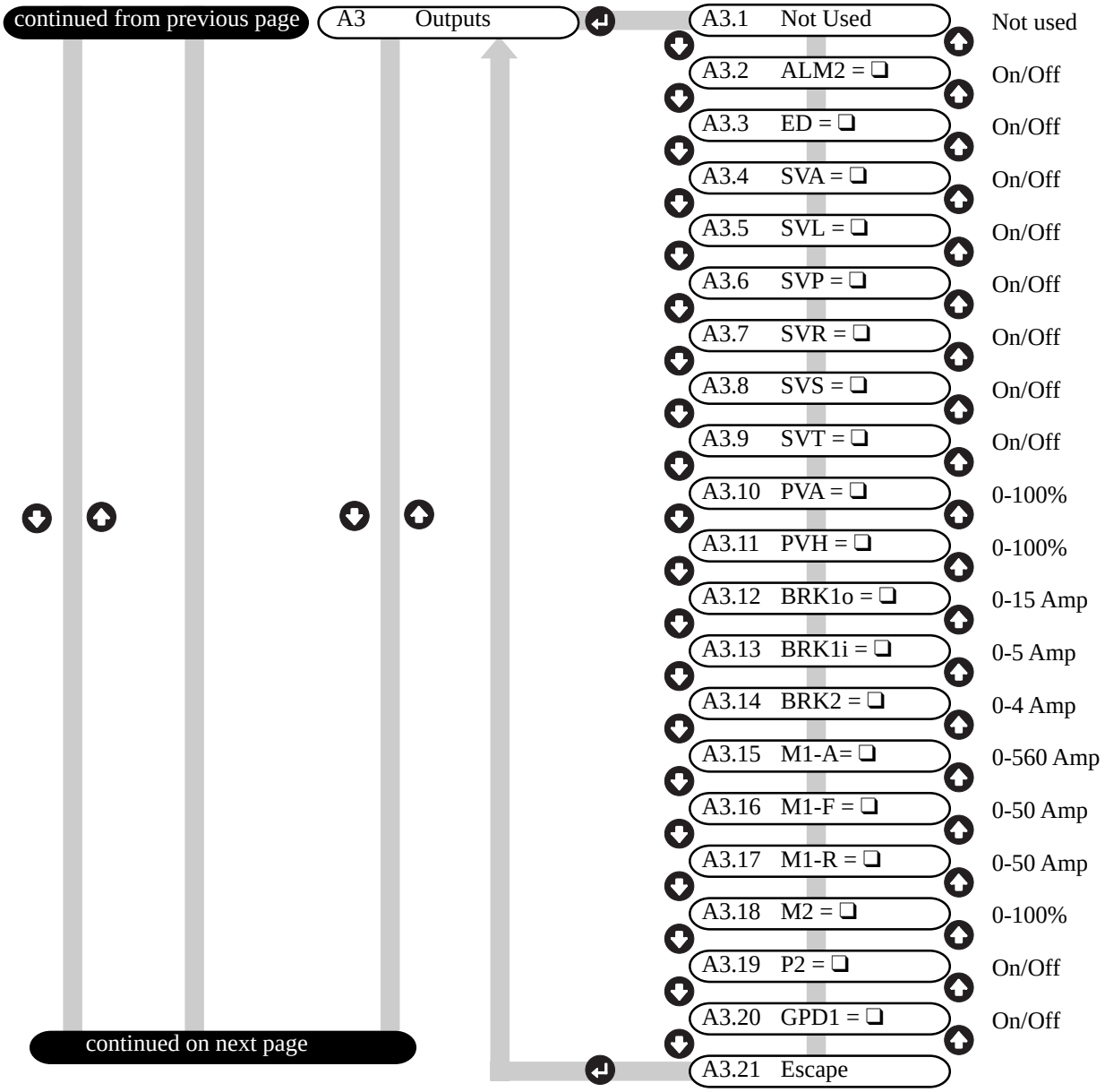
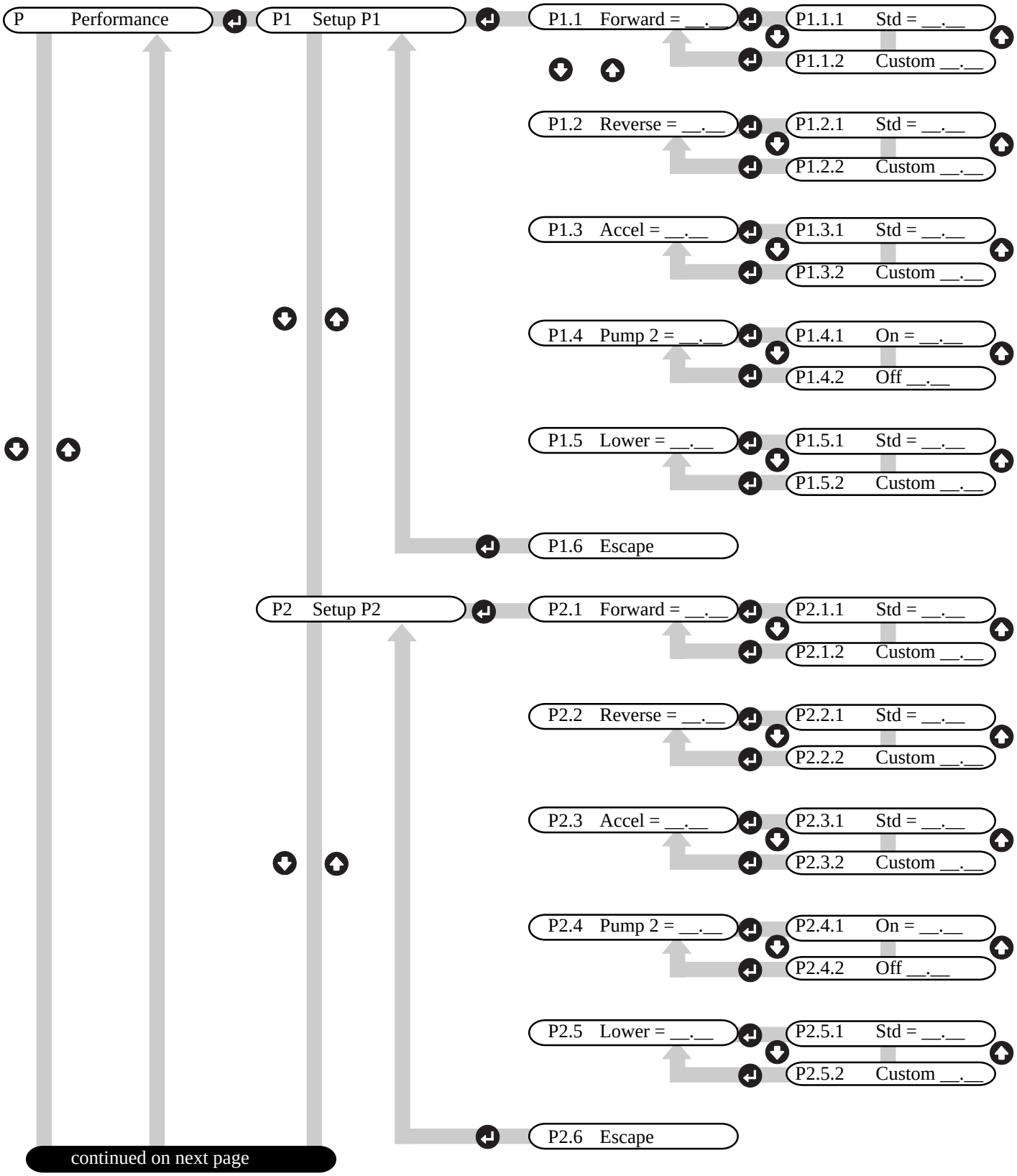
M4.3–1450–548


continued from previous page
A3 Outputs
A3.1 Not Used
Not used
A3.2 ALM2 = ❑
On/Off
A3.3 ED = ❑
On/Off
A3.4 SVA = ❑
On/Off
A3.5 SVL = ❑
On/Off
A3.6 SVP = ❑
On/Off
A3.7 SVR = ❑
On/Off
A3.8 SVS = ❑
On/Off
A3.9 SVT = ❑
On/Off
A3.10 PVA = ❑
0-100%
A3.11 PVH = ❑
0-100%
A3.12 BRK1o = ❑
0-15 Amp
A3.13 BRK1i = ❑
0-5 Amp
A3.14 BRK2 = ❑
0-4 Amp
A3.15 M1-A= ❑
0-560 Amp
A3.16 M1-F = ❑
0-50 Amp
A3.17 M1-R = ❑
0-50 Amp
A3.18 M2 = ❑
0-100%
A3.19 P2 = ❑
On/Off
A3.20 GPD1 = ❑
On/Off
A3.21 Escape
continued on next page

Press the ↵ key to move right and left in the menu and allow system to accept changes to the performance menu. Press the ↓ and ↑ to move up and down.



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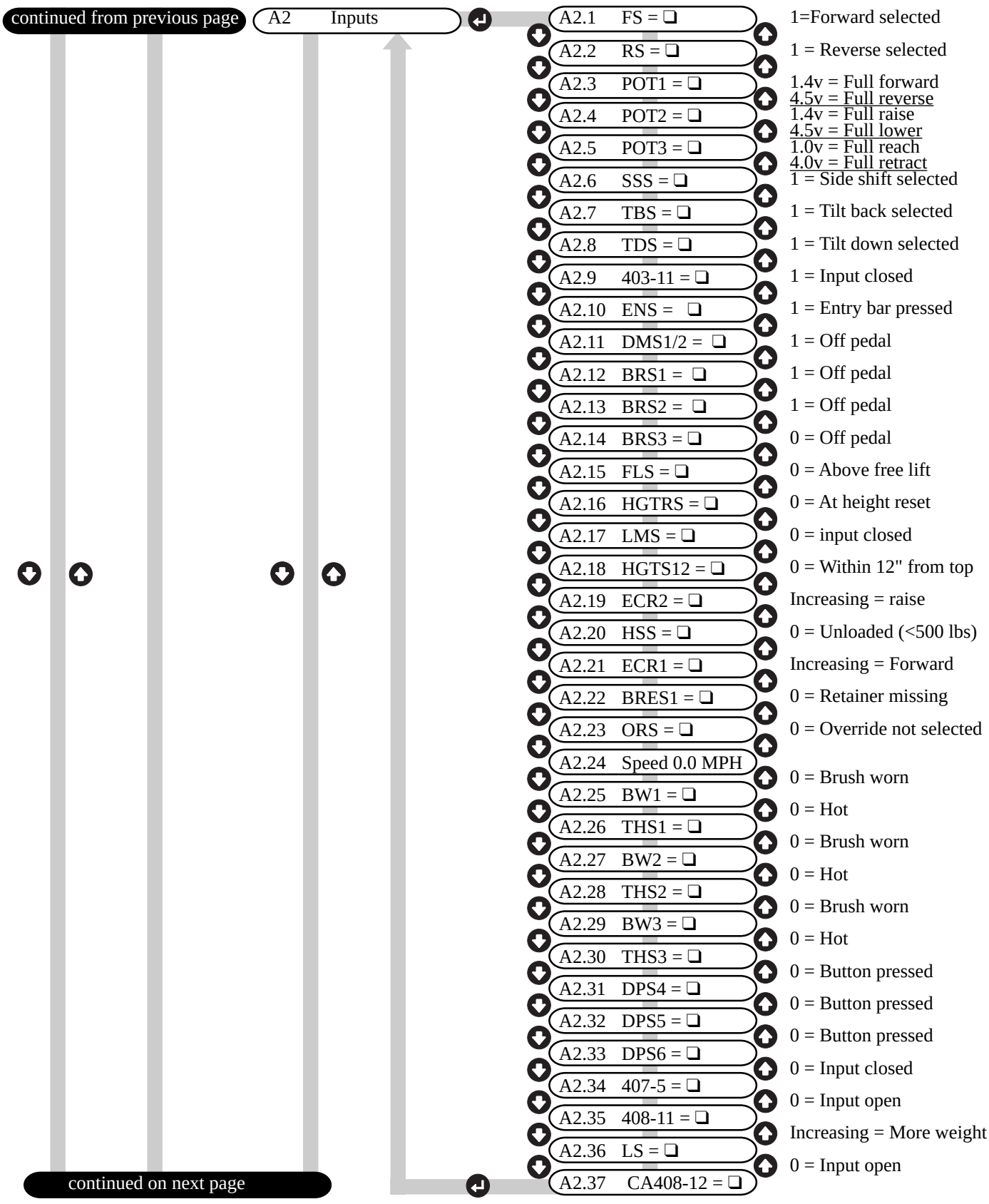
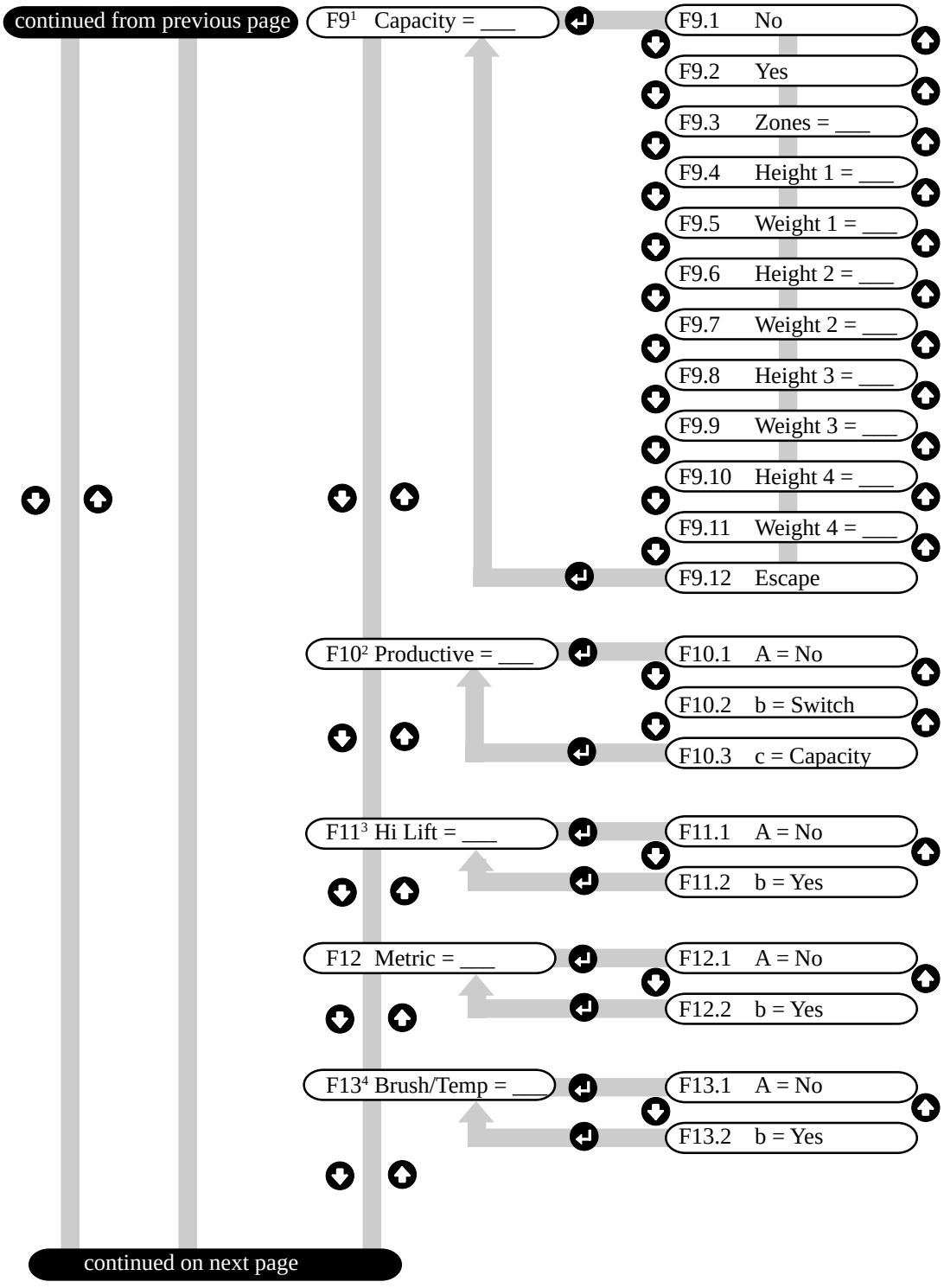
M4.3–1650–018


continued from previous page
A2 Inputs
A2.1 FS = ❑
A2.2 RS = ❑
A2.3 POT1 = ❑
A2.4 POT2 = ❑
A2.5 POT3 = ❑
A2.6 SSS = ❑
A2.7 TBS = ❑
A2.8 TDS = ❑
A2.9 403-11 = ❑
A2.10 ENS = ❑
A2.11 DMS1/2 = ❑
A2.12 BRS1 = ❑
A2.13 BRS2 = ❑
A2.14 BRS3 = ❑
A2.15 FLS = ❑
A2.16 HGTRS = ❑
A2.17 LMS = ❑
A2.18 HGTS12 = ❑
A2.19 ECR2 = ❑
A2.20 HSS = ❑
A2.21 ECR1 = ❑
A2.22 BRES1 = ❑
A2.23 ORS = ❑
A2.24 Speed 0.0 MPH
A2.25 BW1 = ❑
A2.26 THS1 = ❑
A2.27 BW2 = ❑
A2.28 THS2 = ❑
A2.29 BW3 = ❑
A2.30 THS3 = ❑
A2.31 DPS4 = ❑
A2.32 DPS5 = ❑
A2.33 DPS6 = ❑
A2.34 407-5 = ❑
A2.35 408-11 = ❑
A2.36 LS = ❑
A2.37 CA408-12 = ❑
1=Forward selected
1 = Reverse selected
1.4v = Full forward
4.5v = Full reverse
1.4v = Full raise
4.5v = Full lower
1.0v = Full reach
4.0v = Full retract
1 = Side shift selected
1 = Tilt back selected
1 = Tilt down selected
1 = Input closed
1 = Entry bar pressed
1 = Off pedal
1 = Off pedal
1 = Off pedal
0 = Off pedal
0 = Above free lift
0 = At height reset
0 = input closed
0 = Within 12" from top
Increasing = raise
0 = Unloaded (<500 lbs)
Increasing = Forward
0 = Retainer missing
0 = Override not selected
0 = Brush worn
0 = Hot
0 = Brush worn
0 = Hot
0 = Brush worn
0 = Hot
0 = Button pressed
0 = Button pressed
0 = Button pressed
0 = Input closed
0 = Input open
Increasing = More weight
0 = Input open
continued on next page



- number of spaces filled in on capacity data plate.
- first lift height on data plate.
- first capacity on data plate.
- second lift height on data plate.
- second capacity on data plate.
- third lift height on data plate.
- third capacity on data plate.
- fourth lift height on data plate.
- fourth capacity on data plate.

trucks with productivity package.

trucks with CDM.

[1] = menu available on trucks with enhanced display and height sensor.
[2] = 36 volt trucks with productivity package/CDM.
[3] = available on 5000S only.
[4] = menu available on trucks with enhanced display.

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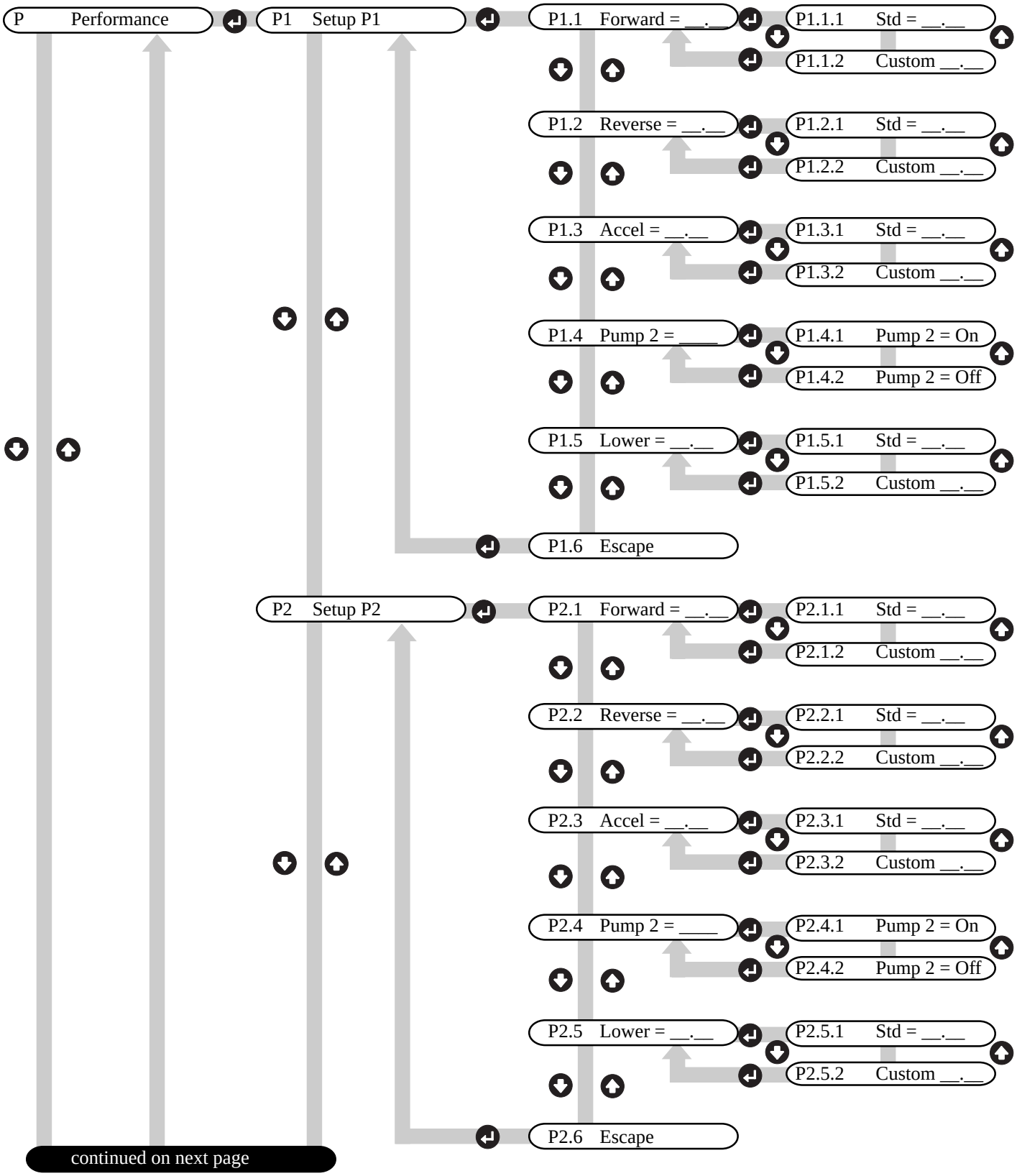
Press the ↵ key to move right and left in the menu and allow system to accept changes to the performance menu. Press the ↓ and ↑ to move up and down.



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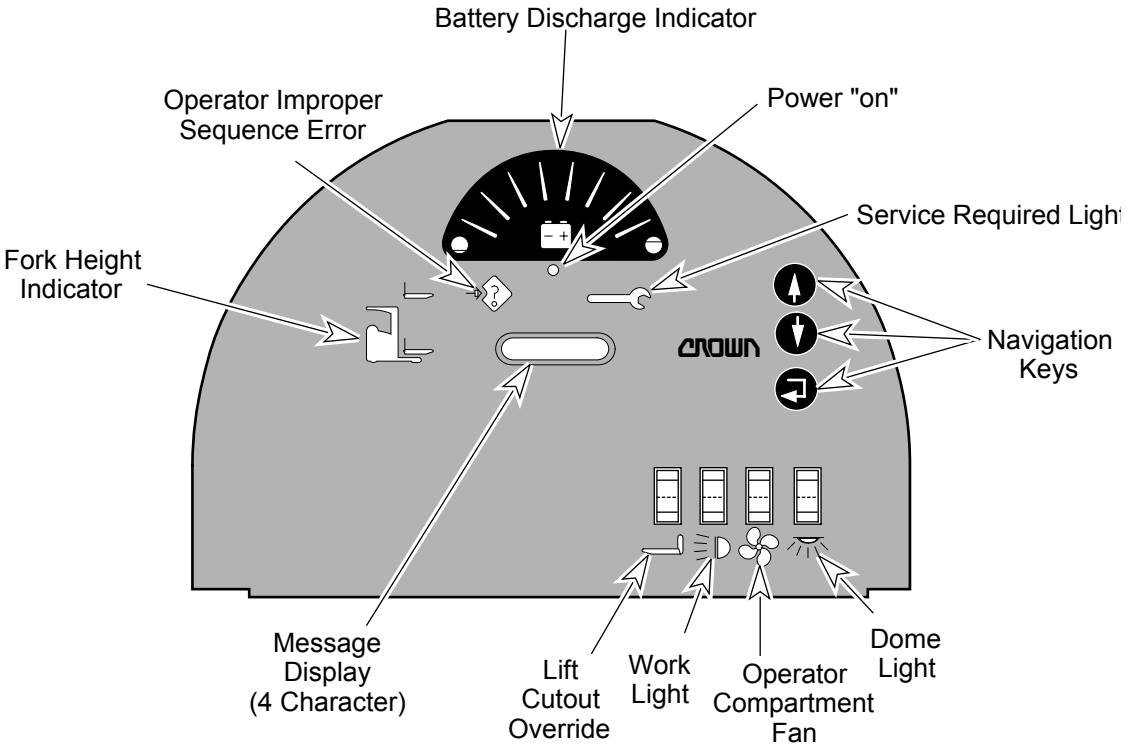
RR/RD 5000/5000S SERIES

The Access 1 module, commonly referred to as the display, is the interface between the operator or service technician and the truck electronic system. This section will cover the control components of the Access 1 module for monitoring and testing truck operation.

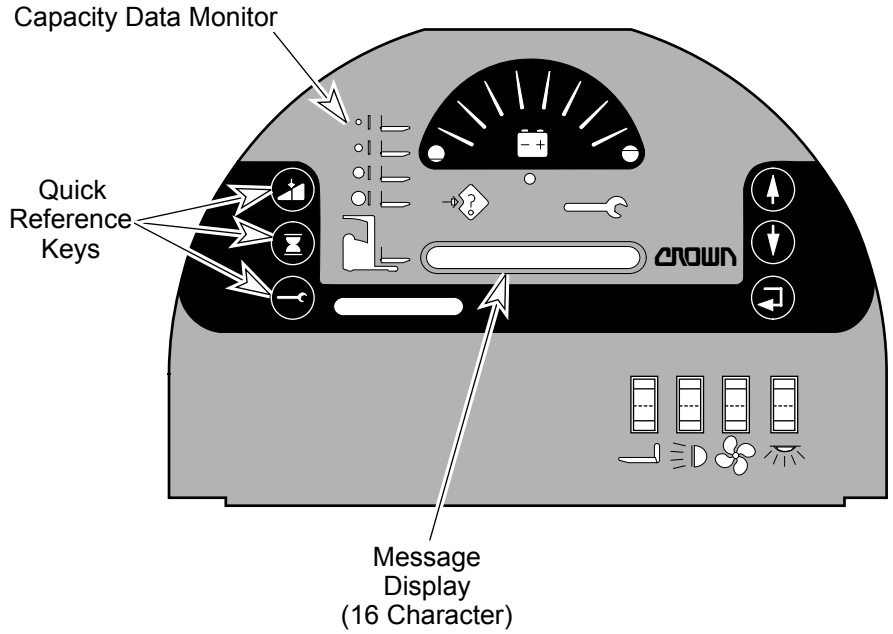
Controls and Indicators

Standard Display



6217

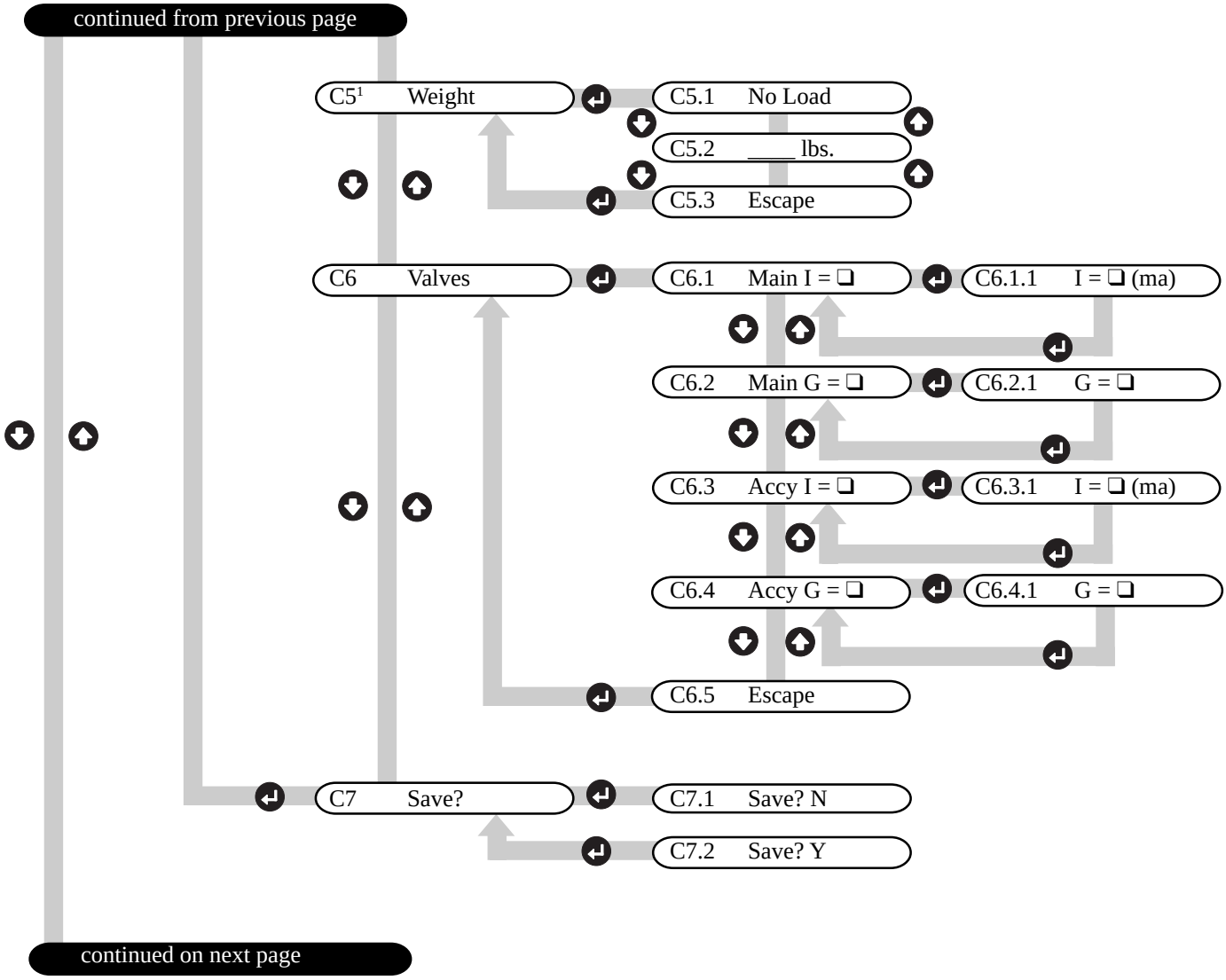
Enhanced Display



6218

990215

6385



[1] =menu available on trucks with enhanced display only. Capacity data monitor (CDM) must be enabled (F9).

- **F7 Sideshift = __**
  The current selection is displayed ("B" for trucks equipped with sideshifter, "A" for trucks not equipped with sideshifter). If selection is correct for truck, press ↓ to access F8. If selection is not correct, press ↵ to access F7.1.
  F7.1 A = No
  On trucks not equipped with sideshifter, press ↵. The display will return to the F7 menu. If truck is equipped with sideshifter, press ↓ to access F7.2.
  F7.2 b = Yes
  Trucks equipped with sideshifter, press ↵. The display will return to F7.

- **F8 Tilt = __**
  The current selection is displayed ("B" for trucks equipped with tilt, "A" for trucks not equipped with tilt). If selection is correct for truck, press ↓ to access F9. If selection is not correct, press ↵ to access F8.1.
  F8.1 A = No
  On trucks not equipped with tilt, press ↵. The display will return to the F8 menu. If truck is equipped with tilt, press ↓ to access F8.2.
  F8.2 b = Yes
  Trucks equipped with tilt, press ↵. The display will return to F8.

- **F9 Capacity = __**
  If truck is equipped with a capacity data monitor the display should show "B". Trucks not equipped with capacity data monitor should be "A". If message is correct, press ↓ to access F10. If message needs to be changed, press ↵.
  F9.1 A = No
  If truck is not equipped with capacity data monitor, press ↵. Display will return to F9. If this is not the correct choice press ↓ to access F9.2.
  F9.2 B = Yes
  On trucks equipped with capacity data monitor, press ↵. Display will return to F9.
  F9.3 Zones = __
  Enter the number of zones. This number is the number of spaces filled in on the capacity data plate. When entered press ↓.
  F9.4 Height 1 = __
  If the value displayed is not the first (highest) height listed on the capacity data plate, enter the correct value. Press ↓.
  F9.5 Weight 1 = __
  If the value displayed is not the first (lowest) weight listed on the capacity data plate, enter the correct value. Press ↓.
  F9.6 Height 2 = __
  If the value displayed is not the second height listed on the capacity data plate, enter the correct value. Press ↓.
  F9.7 Weight 2 = __
  If the value displayed is not the second weight listed on the capacity data plate, enter the correct value. Press ↓.
  F9.8 Height 3 = __
  If the value displayed is not the third height listed on the capacity data plate, enter the correct value. Press ↓.
  F9.9 Weight 3 = __
  If the value displayed is not the third weight listed on the capacity data plate, enter the correct value. Press ↓.
  F9.10 Height 4 = __
  If the value displayed is not the fourth (lowest) height listed on the capacity data plate, enter the correct value. Press ↓.
  F9.11 Weight 4 = __
  If the value displayed is not the fourth (greatest) weight listed on the capacity data plate, enter the correct value. Press ↓.
  F9.12 Escape
  When all values have been entered, press ↵. The display will return to F9.

- **F10 Productive = __**
  The current selection will be displayed. Message "A" is displayed if truck is not equipped with the productivity package/capacity data monitor. Message "B" is displayed if truck is equipped with productivity package and pressure switch on the tilt cylinder. Message "C" is displayed on trucks equipped with Capacity Data Monitor and pressure transducer on the tilt cylinder. If the incorrect selection is present, press ↵ to access F10.1
  F10.1 A = No
  If truck is not equipped with the optional Productivity Package or Capacity Data Monitor, press ↵ to select "no" and return to menu F10. If truck is equipped with one of these options press ↓ to access F10.2.
  F10.2 b = Switch
  Press ↵ at this level if truck is equipped with the Productivity Package. Display will return to menu F10. If this is not the option on the truck, press ↓ to access F10.3.
  F10.3 c = Capacity
  Press ↵ if truck is equipped with the Capacity Data Monitor. Display will return to menu F10.

P1.3.1 Std = _____
The maximum allowable acceleration setting is displayed. If this is the desired setting and is the setting displayed in P1.3, press ↵ to return to P1.3. If a setting other than that displayed is desired, press ↓ to access P1.3.2.

P1.3.2 Custm =
If an acceleration rate other than the standard is desired, press ↵. Then use ↑ and ↓ to obtain the desired setting. When set, press ↵ to return to P1.3.

P1.4 Pump 2 = _____
If pump 2 is enabled for high speed lift, "on" will be displayed. If pump 2 is disabled, "off" will be displayed. To change/modify the status of pump 2 press ↵. Press ↓ to go to P1.5 Lower.

P1.4.1 Pump 2 = On
If it is necessary to have pump 2 enabled, press ↵ in this screen to select "on" and return to P1.4. If pump is to be disabled, press ↓ to access P1.4.2.

P1.4.2 Pump 2 = Off
If it is necessary to have pump 2 disabled, press ↵ in this screen to select "off" and return to P1.4.

P1.5 Lower = _____
The set lower speed of the forks in feet per minute will be displayed in this screen. The adjustment range is 70 to 90 feet per minute.
Note: Trucks with productivity package or capacity data monitor option, this setting represents the lowering speed with a capacity load. The fork empty lowering speed will be faster. To change/modify the lowering speed press ↵. Press ↓ to go to P1.6 Escape.

P1.5.1 Std = _____
The set allowable lower speed is displayed. If this is the desired setting and is the setting displayed in P1.5, press ↵ to return to P1.5. If a setting other than that displayed is desired, press ↓ to access P1.5.2.

P1.5.2 Cusm =
If a lower speed other than the standard is desired, press ↵. Then use ↑ and ↓ to obtain the desired setting. When set, press ↵ to return to P1.5. Then press ↓ to go to the P1.6 Escape menu.

P1.6 Escape
In this menu press ↵ to exit the P1 performance sub menus and return to P1.

- **P2 Setup P2**
Enter the parameters for the P2 performance level in this sub menu. Press ↵ to change the current P2 performance settings. Press ↓ to go to P3 setups.

P2.1 Fwd. = _____
The set traction speed in the forks first direction of travel in effect will be displayed. To change/modify this speed press ↵. Press ↓ to go to P2.2 Reverse.

P2.1.1 Std = _____
The set allowable traction speed in the forks first direction of travel is displayed. If this is the desired setting and is the setting displayed in P2.1, press ↵ to return to P2.1. If a setting other than that displayed is desired, press ↓ to access P2.1.2.

P2.1.2 Custm =
If a maximum traction speed in the forks first direction of travel different than the standard is desired, press ↵. Then use ↑ and ↓ to display the speed required. Once the desired speed is displayed, press ↵ to return to P2.1.

P2.2 Rev. = _____
The set traction speed in the power unit first direction of travel in effect will be displayed. To change/modify this speed press ↵. Press ↓ to go to P2.3 Accel.

P2.2.1 Std _____
The set allowable traction speed in the power unit first direction of travel is displayed. If this is the desired setting and is the setting displayed in P2.2, press ↵ to return to P2.2. If a setting other than that displayed is desired, press ↓ to access P2.2.2.

P2.2.2 Custm =
If a maximum traction speed in the power unit first direction of travel different than the standard is desired, press ↵. Then use ↑ and ↓ to display the speed required. Once the desired speed is displayed, press ↵ to return to P2.2.

P2.3 Accel = _____
The setting of the acceleration rate (time for truck to go from stop the top speed) is displayed here. The adjustment range is 1 for the longest acceleration time to 9 for the shortest acceleration time. To change/modify the status of acceleration rate press ↵. Press ↓ to go to P2.4 Pump 2.

P2.3.1 Std = _____
The current allowable acceleration setting is displayed. If this is the desired setting and is the setting displayed in P2.3, press ↵ to return to P2.3. If a setting other than that displayed is desired, press ↓ to access P2.3.2.

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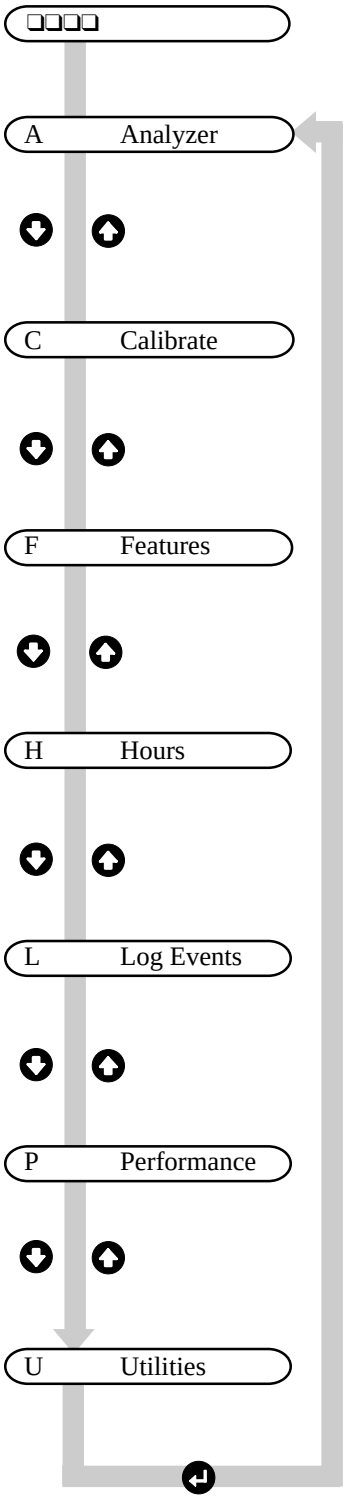
The service technician has access to various portions of the following menu depending on the access level selected.

- Level two service menu is accessed by pressing the "up" arrow key during power up of the truck. This level allows truck operation.
- Level three menu is accessed by pressing the "up" and "down" arrow keys simultaneously during truck power up.This level does not permit truck operation.



Service Access Code

- Level two (except the A4 menu level) and level three menu.
- In A1 menu the truck status can be checked which will match the truck status listed with each status code. A2 menu permits checking inputs to the Access 2 and 3 modules as seen by the modules. A3 menu permits checking the outputs of the Access 2 and 3 modules as seen by the modules. A4 is the test output menu which allows the system to power the output components, without truck operation, for troubleshooting.

- Level two menu only.
- Truck components requiring calibration to the Access 1 - 2 - 3 system are contained in this menu.

- Level two and level three menu.
- In the features menu, programming is performed to set truck operation and performance to customer specifications and truck configuration.

- Level two menu only.
- Ability to check hour meters available in this menu.

- Level two and level three menu.
- The last 16 codes in order of occurance and the accumulative count for each code can be viewed in this menu. Resetting log event counts available.

- Level two menu only.
- Truck performance for operator code is set in this menu with additional overall performance adjustments available.

- Level two and level three menu.
- Part numbers of the Access 1, Access 2 and Access 3 modules and software version number accessable in U1 menu. The U2 menu provides the tool for copying setup values from one module to the other. The U3 menu provides the capability to enter hour meter readings when Access 3 is replaced and to reset the travel, lift 1 or lift 2 hour meter after corresponding motor replacement.

C6.3 (accy I) press ↵. Menu advances to the sub menu level.
C6.3.1 (I) enter the value etched in the nut on the valve end, if present, or enter 225. Press ↵ and scroll to the next menu level.

Navigate to the A3.18 menu and monitor the steering/lift motor amperage (M2) while standing on the operator compartment pedals. Rotate the steering tiller and release.

After the steering tiller is neutral, watch the display for at least 5 - 10 seconds and determine if the pump motor current stays above or below the steer idle threshold current level. Scroll to the C7 menu level and select the C7.2 menu level to save the calibration values into truck memory and press ↵.

Model	Approximate Steer Idle Current Threshold
RR5010	110
RR5020, RR5060, RR5080	65
RR5060, RR5080 with 7.5" lift motors	95

If the current does not stay above the threshold level, increase the setting of Accy I (C6.3.1) by **20** unit increments and repeat previous steps until the current stays above the threshold level.

After the pump motor current has been seen to stay above the steer idle current threshold, begin to reduce the setting of Accy I (C6.3.1) by 10 unit increments and repeat previous steps until the pump motor current drops below the steer idle current threshold, approximately 10 - 15 Amps. When the correct setting is accomplished, you will notice a decrease in M2 motor (steering/lift) speed approximately 5 - 10 seconds after the tiller is released. Verify the amperage is consistent with the above chart.

Measure the speed of the reach function with the empty forks below the free lift switch.

C6.4 (accy G) press ↵. Menu advances to the sub menu level.
C6.4.1 (G) forks must be below freelift. Measure the time required to reach from one limit to the next.

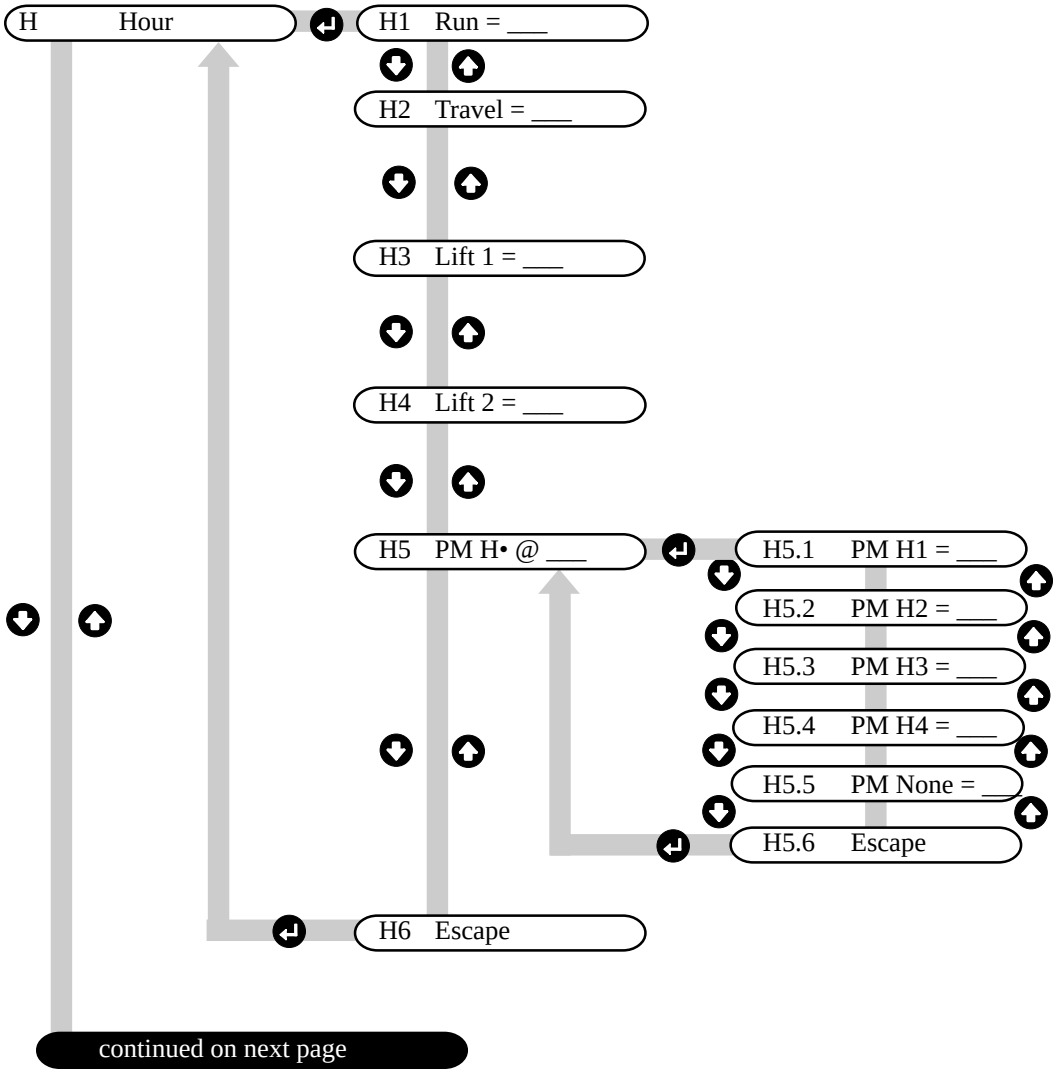
The target time is 2.5 seconds (2.3 to 2.7 seconds) for an RR and 5 seconds (4.8 to 5.2 seconds) for an RD. Calculate the difference between the measured time and the target time. For every 0.1 second the time is less than the target time, add 20 units from the set gain. For every 0.1 second the measured time is greater than the target time, subtract 20 units to the set gain. Repeat this process until the measured time is within the acceptable time limits, preferably close to the target time.

NOTE: The C6.4 (accy G) adjustment is integral to the C6.3 (accy I) adjustment parameter. Therefore, adjustment made outside of the ranges called out in the service manual may result in unsatisfactory performance. After adjusting C6.4 (accy G) some fine adjustment of C6.3 (accy I) will be required if the steering/lift pump does not decrease in speed after approximately 5 - 10 seconds since the last steering or accessory command.

When the gain is set press ↵. Scroll to menu level C6.5 and press ↵. Scroll to the C7 menu level and select the C7.2 menu level to save the calibration values into truck memory and press ↵.

Calibration is now complete and the truck can be returned to operation.

Press the ↵ key to move right and left in the menu and allow system to accept changes to the hour reset menu. Press the ▼ and ▲ to move up and down.



- **P11 Trav>270 = _____**
  This affects traction speed when the forks are above 270 inches (6.9 m). The current setting will be displayed. Adjustment range is dependant on the truck configuration. To change/modify travel speed above 270 inches (6.9m) press ↵. Press ↓ to go to P12 Coast.

  P11.1 Std = _____
  The value displayed is a setting that is acceptable for optimum truck and installation conditions. If this setting is the desired setting and is the value displayed in P11, press ↵ to return to P11. If a value different than this is desired, press ↓ to access P11.2.

  P11.2 Custm =
  Press ↵. Then use ↑ and ↓ to obtain the desired setting. When set, press ↵ to return to P11.

- **P12 Coast = _____**
  This affects the coasting effort of the truck when the operator returns the multi-task handle to neutral while the truck is in motion. The current setting will be displayed. Adjustment range is 1 to 9. 9 will provide the longest coast distance and 1 the shortest. To change/modify coasting effort press ↵. Press ↓ to go to P13 Save.

  P12.1 Std = _____
  The value displayed is a setting that is acceptable for optimum truck and installation conditions. If this setting is the desired setting and is the value displayed in P12, press ↵ to return to P12. If a value different than this is desired, press ↓ to access P12.2.

  P12.2 Custm =
  Press ↵. Then use ↑ and ↓ to obtain the desired setting. When set, press ↵ to return to P12.

- **P13 Acc Pump**
  This adjustment effects the ramp time of the accessory valve. Increasing this setting numerically makes the accessory hydraulic functions more reactive. A setting of 1 will provide smoother reaction, while a setting of 9 will be more reactive.

  NOTE: Unsatisfactory accessory hydraulic performance could be the result of air trapped in the accessory circuit. Refer to section M2 for more information.

- **P14 Save?**
  Entering this menu level permits saving the changes made or discarding changes and returning to the previously saved performance parameters. Press ↵ to access P14.1.

  P14.1 Save? N
  Press ↵ at this menu level to discard any changes made and return to previously saved performance parameters. Press ↓ to access the P14.2 menu.

  P14.2 Save? Y
  Press ↵ at this menu level to save changes made. During the save process, do not operate any truck controls to avoid corrupting data being saved. When data is saved, the system will return to the P Performance menu.

Setup Complete

When setup procedures are complete, scroll down to the Save? (P14) menu and press ↵. If the setup completed is necessary to save into memory for future truck operation, select the Save? Y (P14.2) menu and press ↵. This process will require less than a minute to complete. Do not operate any truck controls or display keys during this process.

Component Replacement

Refer to parts breakdown in Illustration 4.4-2 when replacing components.

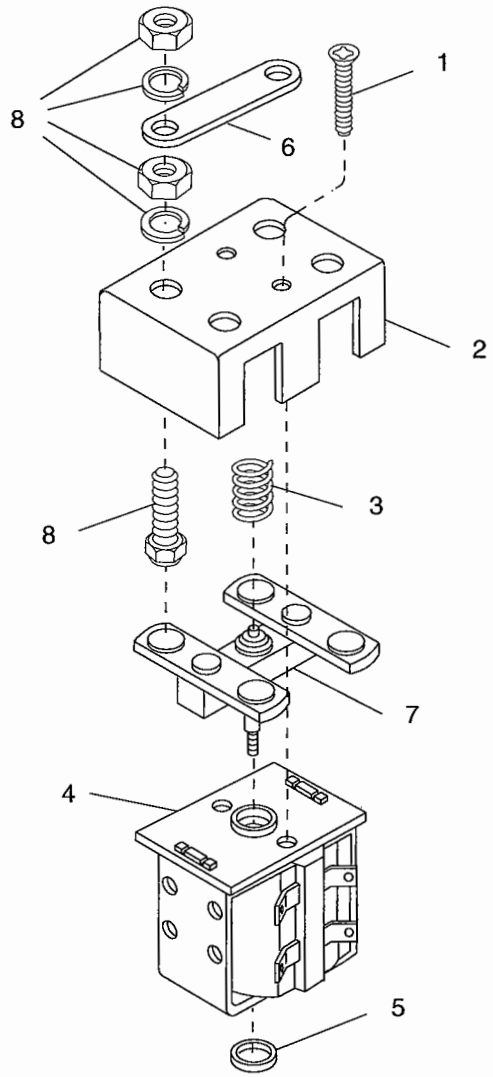


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ILLUSTRATION 4.4-2

Index	Part Name
1	Screw
2	Cover Top
3	Spring Return
4	Coil
5	Cap End
6	Link Terminal
7	Contact Moving
8	Contact Fixed

CONTACT REPLACEMENT

Disconnect all electrical wiring from contactor. Note order of hardware. Remove bolts from mounting bracket and lift contactor from truck. Remove two (2) screws (Index 1) from top cover of contactor. Lift off top cover (Index 2). Remove return spring (Index 3) and the four (4) fixed contacts (Index 8) from the contactor assembly.

Select a replacement moving contact (Index 7). Position on the coil assembly (Index 4). Locate the return spring (Index 3) on the moving contact.

Locate the fixed contacts (Index 8) into the top cover (Index 2). Holding carefully, turn top side up onto moving contact and coil assembly. Ensure correct location of return spring. Secure with screws (Index 1). Torque up to 1.8 ft. lbs. (2.4 Nm). Install contactor on mounting bracket of traction panel with mounting bolts. Connect electrical wiring.

COIL REPLACEMENT

Disconnect all electrical wiring from contactor. Note order of hardware. Remove bolts from mounting bracket and lift contactor from truck. Remove two (2) screws (Index 1) from top cover of contactor. Lift off top cover (Index 2). Remove return spring (Index 3) and the four (4) fixed contacts (Index 8) from the contactor assembly. Remove the moving contact (Index 7) from the coil assembly.

Select a replacement coil assembly (Index 4). Locate the return spring (Index 3) and the moving contact (Index 7) on the coil assembly.

Locate the fixed contacts (Index 8) into the top cover (Index 2). Holding carefully, turn top side up onto moving contact and coil assembly. Ensure correct location of return spring. Secure with screws (Index 1). Torque up to 1.8 ft. lbs. (2.4 Nm). Install contactor on mounting bracket of traction panel with mounting bolts. Connect electrical wiring.

	TRACTION 020616 (36 V.) 020616-002 (36 V.) without sensors	TRACTION 020513 (36 V.) 020513-002 (36 V.) with sensors
Brushes:	**8**	**8**
No. of Brush Holders	1	1
No. of Brush Assemblies	8	8
No. of Brush Springs	8	8
Brush Length - New	1.30 inches (33.1 mm)	1.30 inches (33.1 mm)
Spring Tension on New Brushes	48 ounces (1360 grams)	48 ounces (1360 grams)
Min. Brush Length - Replace	0.62 inches (16 mm)	0.62 inches (16 mm)
Spring Tension Before Replacement	32 ounces (907 grams)	32 ounces (907 grams)
Commutator:		
Max. Diameter - New	3.36 inches (85.3 mm)	3.36 inches (85.3 mm)
Min. Diameter - Reslotting	3.24 inches (82.3 mm)	3.24 inches (82.3 mm)
Min. Diameter - Replace	3.19 inches (81.0 mm)	3.19 inches (81.0 mm)
Bearings:		
Lubricant	Hi Temp 25-30% fill Chevron SRI-2 or equivalent	Hi Temp 25-30% fill Chevron SRI-2 or equivalent
Cond. of Performance:		
(No Load)		
Volts	12	12
Max. Amperes	10	10
RPM	510	510
Field Resistance:		
(each at 75° F [24° C])		
Series Ohms	0.59	0.59
Armature Resistance:		
(each at 77° F [25° C])		
Ohms	0.0038	0.0038
Measured Between Bars	1 and 12	1 and 12
Frame Diameter:	7.25 inches (184 mm)	7.25 inches (184 mm)
Wound in:		
Direction of Rotation:	Reversible	Reversible

Caster Brake

Two Electromagnetically applied friction brakes are located in the caster wheel assembly. Caster brakes on all RR/RD 5000S Models are factory preset and no adjustments to componetry can be made. Refer to Stopping Distance in this section for detailed instructions on adjusting braking via Access 1.

Should a status code for the caster brake be shown, check for the minimum component thickness (Illustration 7). If the caster brake dimension falls below the minimum thickness of 1.1 inch (28 mm), replacement of both the friction plate and electromagnetic coil is required.

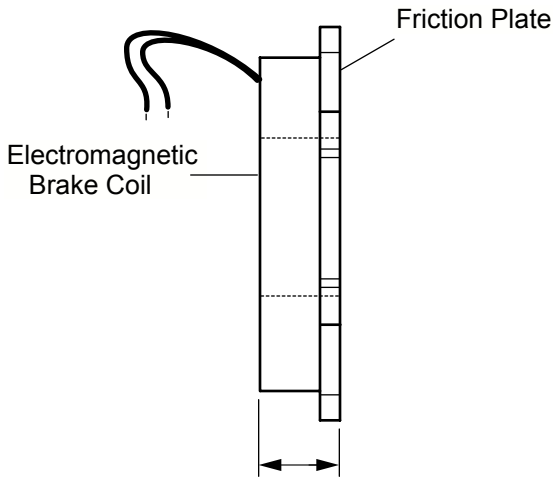

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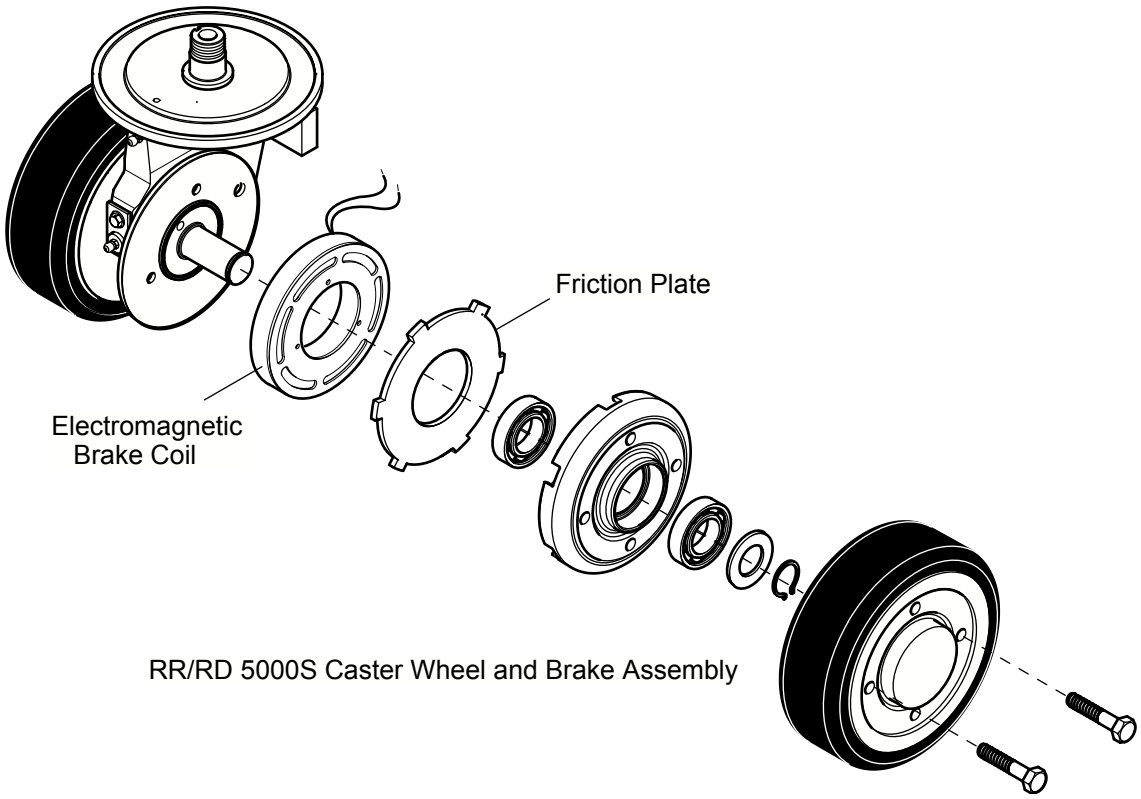
ILLUSTRATION 7



RR/RD 5000S Caster Wheel and Brake Assembly

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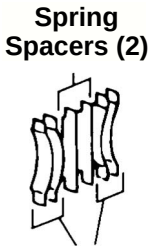
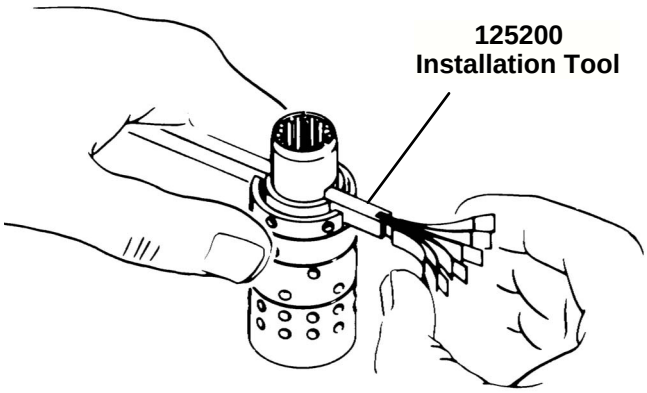
2. Bring spring slots of both parts in line and stand parts on end of bench. Insert spring installation tool (part no. 125200) through spring slots of both parts. Insert one pair of spring spacers between two pairs of centering springs, refer to Illustration 6.3-15. Position springs and spacers on bench so that extended edge is down. In this position, insert one end of entire spring/spacer set into spring installation tool, as shown in Illustration 6.3-16, with spring and spacer notches facing sleeve.



5964S ILLUSTRATION 6.3-15

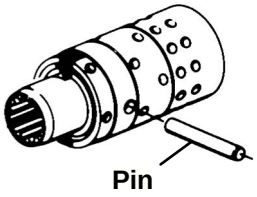


5965S ILLUSTRATION 6.3-16

3. Compress extended end of centering spring/spacer set and push into spool sleeve assembly withdrawing installation tool at the same time.

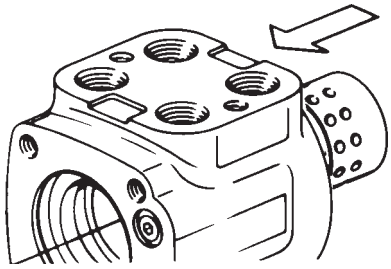
4. Center the spring/spacer set in the parts so that they push down evenly and flush with the upper surface of the spool and sleeve.

5. Install pin through spool and sleeve assembly until pin becomes flush at both sides of sleeve.



5966S ILLUSTRATION 6.3-17

6. Position the spool and sleeve assembly so that the splined end of the spool enters the 14 hole end of housing first, see Illustration 6.3-18.



5967SI ILLUSTRATION 6.3-18

CAUTION

Be extremely careful that the parts do not tilt out of position while inserting. Push parts gently in place with slight rotating action, keep pin nearly horizontal. Bring the spool assembly entirely within the housing bore until the parts are flush at the 14 hole end of housing. Do not pull the spool assembly beyond this point to prevent the cross pin from dropping into the discharge groove of the housing. With the spool assembly in this flush position, check for free rotation within the housing by turning with light finger tip force at the splined end.

35. Raise until the top roller of the reach assembly is about 12 in. (300 mm) below the top of the third stage mast. Use a pry bar to shift the reach assembly to one side, then pry on the opposite side to shift it against the other side, then go back and pry on the original side to shift it one more time. This will seat the rollers and force the opposite side tight against the third stage mast channel. Once the reach assembly has been shifted, retain light pressure to hold the reach assembly from slipping back.

36. Measure the distance between the channel and the roller as described in step 12. Lower the reach assembly and remove from mast if shims need to be changed. Install reach assembly back into third stage mast and check clearances.

37. Brush grease, Crown No. 063002-024 for standard or 063002-017 for freezer/corrosion application, on third stage rails.

38. Attach free lift chains to reach assembly.

39. Install yoke on top of free lift cylinder, route free lift chain back to mast, connect to mast.

40. Refer to Illustration 7-4. Make connections of reach hoses to third stage mast, route thru yoke and make connections to reach assembly.

41. Refer to Illustration 7-5. Install control cable grip springs and harness clamps to third stage mast, route control cable(s) thru yoke and make connections to reach assembly.

42. Refer to Illustration 7-2. Assemble guard, index 60, over hydraulic tubes.

43. Install load backrest and forks to carriage.

44. Install safety shield

45. Remove hoist, install battery and check truck operation.

CAUTION

Be sure all stops and safety devices are in place before cycling mast to check for proper operation.

7. Wrap and secure a large chain around the 2nd stage cross brace and the third stage cross brace as shown in Illustration 2 as a safety precaution. When removing a lift cylinder, one of the two mast chains must also be disconnected, leaving the remaining mast chain holding the third stage mast in position.

8. Turn key switch OFF and disconnect battery. Remove console and open Manual Lowering Valve (MVL) on manifold block to relieve system pressure, see Illustration 3.

7815P ILLUSTRATION 3

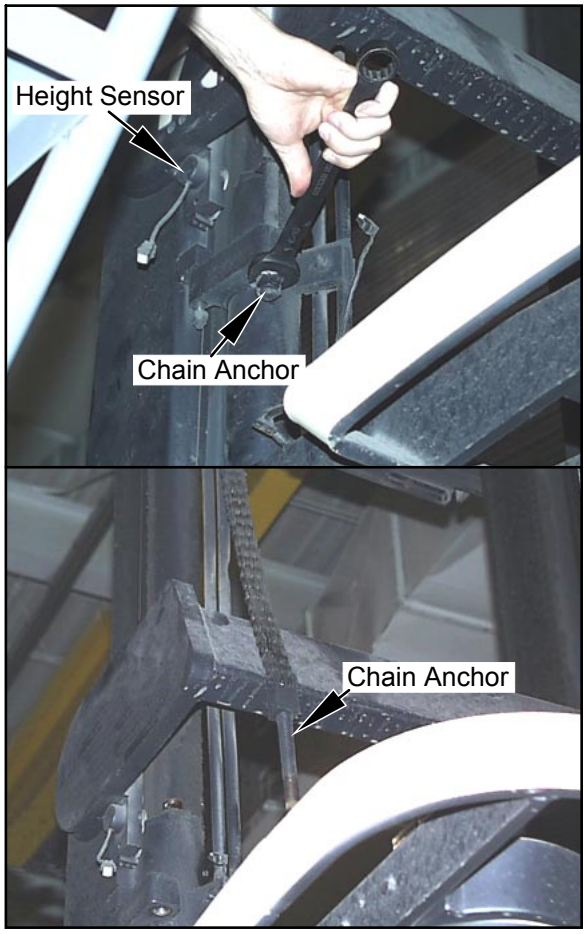
WARNING

AVOID HIGH PRESSURE FLUIDS—Escaping fluid under high pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes which could eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

Any fluid injected into the skin under high pressure should be considered as a serious medical emergency despite an initial normal appearance of the skin. There is a delayed onset of pain, and serious tissue damage may occur. Medical attention should be sought immediately by a specialist who has had experience with this type of injury.

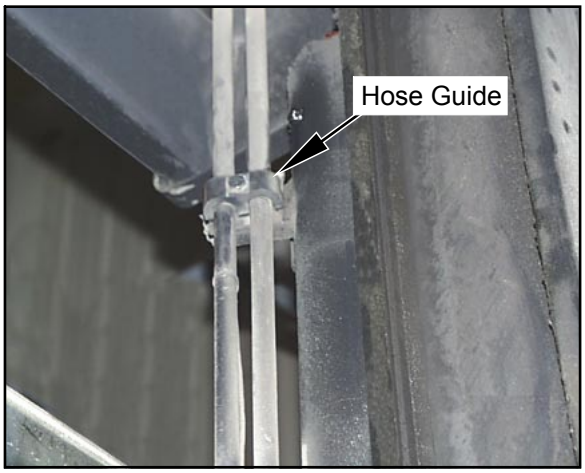
9. Place a shallow pan beneath the main frame and below the cylinder to be removed. Remove hydraulic line from bottom of cylinder. Cap cylinder fitting and line fitting to prevent contamination of hydraulic fluid, to protect fittings from damage, and to help contain hydraulic fluid.

10. Unplug height sensor and move wires to side. Remove chain anchor from main frame mount and drape over cross brace. See Illustration 4.



8163P ILLUSTRATION 4

11. Remove hose guide at top of lift cylinder. See Illustration 5.



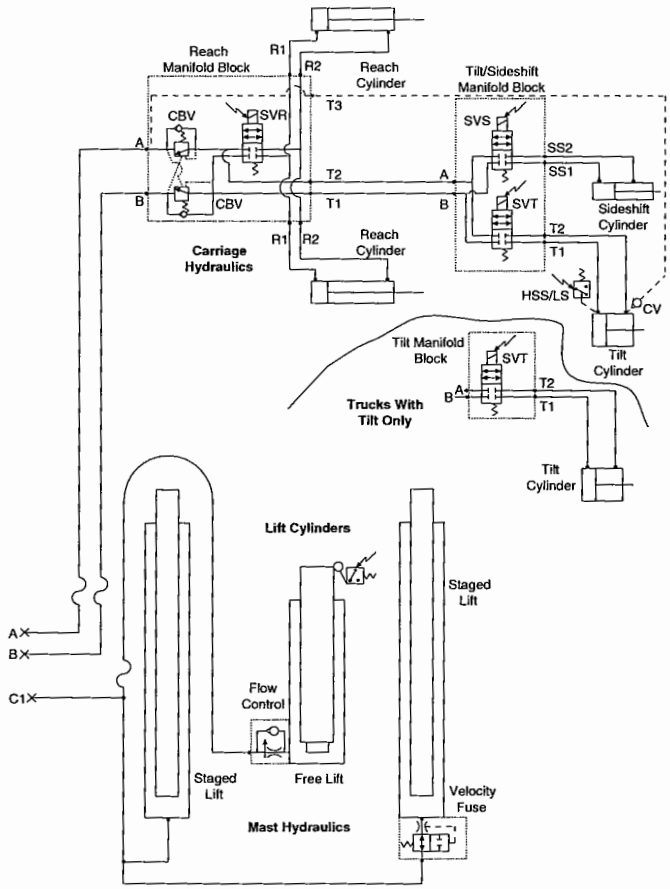
8164P ILLUSTRATION 5

Flushing

- Remove hoses from sideshift cylinder and connect them together using a male connector.
- Energize **SVS** sideshift solenoid selector valve, actuate manual valve at full speed in order to pump hydraulic oil through carriage hydraulics and then back through the filter.
- Flush carriage hydraulics for at least 2 minutes, reversing flow frequently.
- Reconnect hoses to sideshift cylinder.

Bleeding

- Fully extend tilt cylinder and tilt forks up.
- Block carriage so it can not tilt down.
- Loosen fitting at port **T2** on tilt manifold and remove hose from rod side of tilt cylinder.
- Energize **SVT** tilt solenoid selector valve, actuate the manual valve to pressurize **"A"** port to the carriage, and hold until a solid stream of hydraulic fluid flows out through the hose. This is passing hydraulic fluid through mast hoses, reach manifold and through the tilt-sideshift manifold.
- Connect hose at tilt cylinder and tighten fitting in port **T2** on the tilt-sideshift manifold.
- Fully retract tilt cylinder and tilt forks down.
- Loosen fitting at port **T1** on the tilt manifold and remove hose from piston side of tilt cylinder.
- Energize **SVT** tilt solenoid selector valve, actuate the manual valve to pressurize **"B"** port to the carriage, and hold until a solid stream of hydraulic fluid flows out through the hose. This is passing hydraulic fluid through mast hoses, reach manifold and through the tilt-sideshift manifold.
- Connect hose at tilt cylinder and tighten fitting in port **T1** on the tilt-sideshift manifold.



7394

ILLUSTRATION 2

Bushing Replacement (Reach Assembly Components)

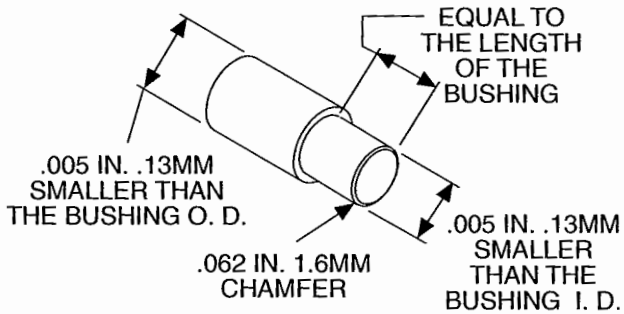
When removing old bushing be sure seating area of bushing is not damaged in any manner. If damage does occur remove all burrs and rough edges completely.

When installing new bushings in a lubricated area be sure hole in bushing is in proper alignment with the lubrication fitting to allow proper lubrication flow.

Apply a light coat of grease to bushing seat to ease installation and reduce possibility of damage to new bushings.

A bushing installation tool, shown in Illustration 9-3, will aid greatly in proper installation of new bushings.

BUSHING INSTALLATION TOOL



3627 ILLUSTRATION 9-3

NOTE

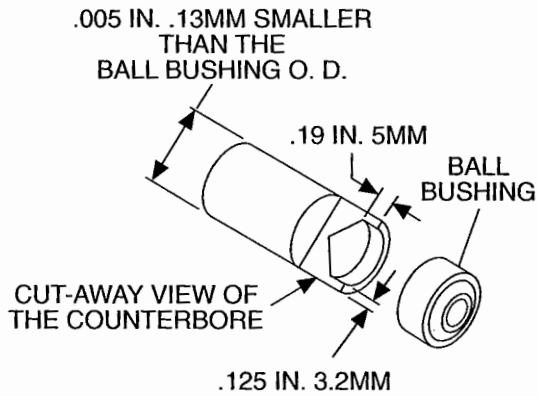
The installation tool can also be used effectively to remove worn or damaged bushings. Various sizes of bushings will necessitate use of various sizes of installation tools.

Ball bushings are removed and installed with greater ease when using an installation tool similar to the one shown in Illustration 9-4.

NOTE

Close inspection of all new bushings after installation is necessary to be sure wear surfaces are intact.

BALL BUSHING INSTALLATION TOOL



3628 ILLUSTRATION 9-4

Center Pivot Repair and Adjustment

When replacing thrust washers (24, 27, 51) on both sides of the outer arm assembly, apply a light coat of grease to all surfaces.

NOTE

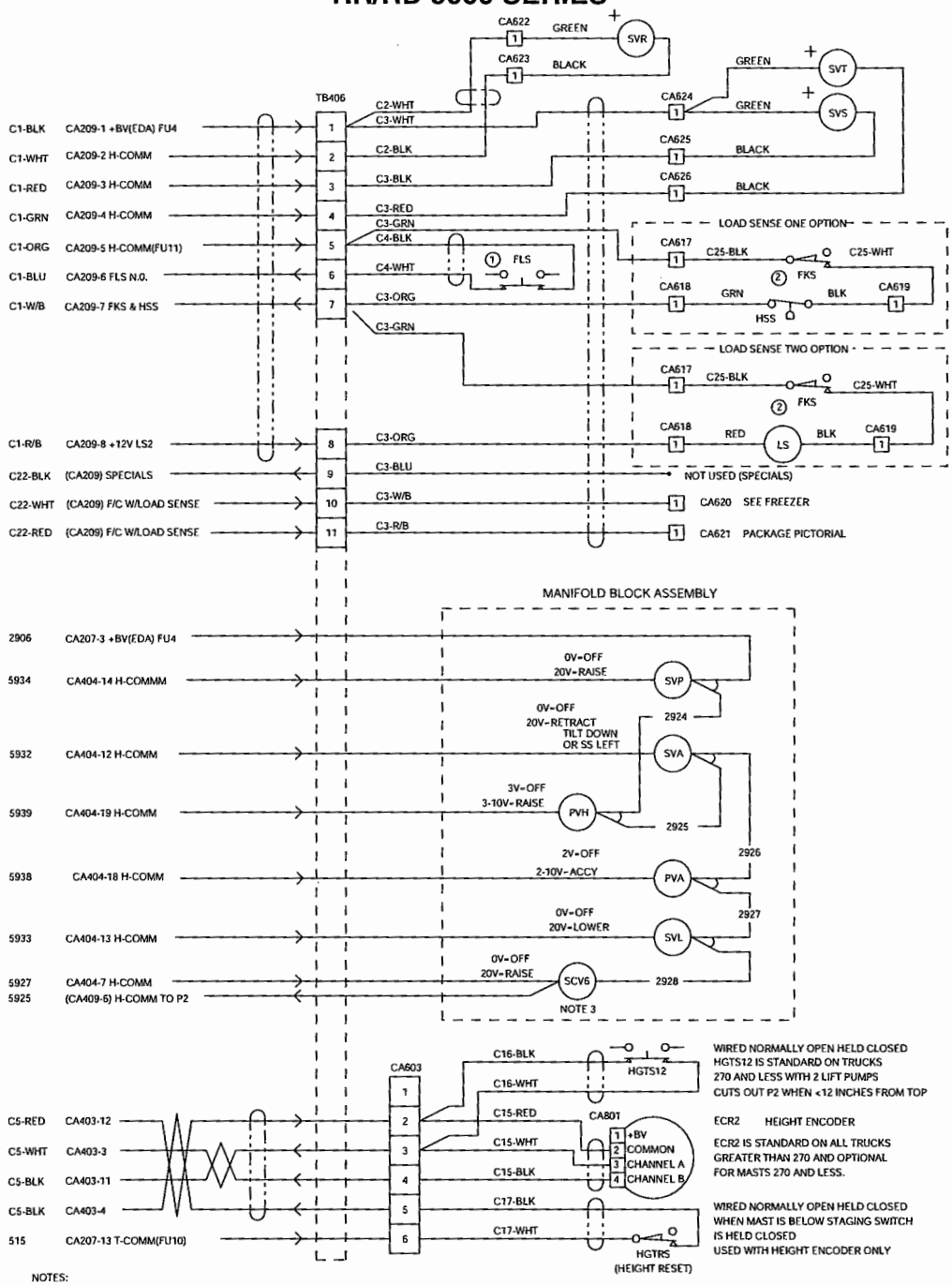
Be sure all areas of contact are thoroughly cleaned and free of any burrs or debris that could damage new thrust washers.

To properly adjust, tighten the nut on the center pivot assembly snug to eliminate any abnormal drag. Loosen nut and retighten to 65 in. lbs., then continue to tighten to next nearest groove pin location.

SWITCHES

	Location	Function	Diagram	Parts Page
BRES1	Battery Compartment	RH Battery Gate In Place	DIA–1450–002 (B-1) DIA–1450–003 (B-1) DIA–1450–005 (A-3)	01.2–1450–100 (9)
BRES2	Battery Compartment	LH Battery Gate In Place	DIA–1450–002 (B-1) DIA–1450–003 (B-1) DIA–1450–005 (A-3)	01.2–1450–100 (9)
BRS1	Floorboard	Brake Switch 1	DIA–1450–002 (B-3) DIA–1450–003 (B-3) DIA–1450–013 (C-1)	01.0–1450–050 (23)
BWS1	M1	Brush Wear	DIA–1450–003 (C-3) DIA–1450–010 (B-3)	
BWS2	M2	Brush Wear	DIA–1450–003 (C-3) DIA–1450–010 (B-3)	
BWS3	M3	Brush Wear	DIA–1450–003 (C-3) DIA–1450–010 (A-3)	
DMS1	Floorboard	Foot Break	DIA–1450–002 (B-3) DIA–1450–003 (B-3) DIA–1450–013 (C-1)	01.0–1450–050 (23)
DPS1	Access 1	Up Arrow	DIA–1450–002 (C-4) DIA–1450–003 (C-4) DIA–1450–009 (A-2) DIA–1450–010 (A-1)	04.8–1450–001 (9)
DPS2	Access 1	Down Arrow	DIA–1450–002 (C-4) DIA–1450–003 (C-4) DIA–1450–009 (A-2) DIA–1450–010 (A-1)	04.8–1450–001 (9)
DPS3	Access 1	Enter	DIA–1450–002 (C-4) DIA–1450–003 (C-4) DIA–1450–009 (A-2) DIA–1450–010 (A-1)	04.8–1450–001 (9)
DPS4	Access 1	Performance	DIA–1450–003 (C-4) DIA–1450–010 (A-2)	04.8–1450–001 (9)
DPS5	Access 1	Truck Hours	DIA–1450–003 (C-4) DIA–1450–010 (A-2)	04.8–1450–001 (9)
DPS6	Access 1	Service Codes	DIA–1450–003 (C-4) DIA–1450–010 (A-2)	04.8–1450–001 (9)
EDS	RH Side of Multi-Task Brkt	Emergency Disconnect	DIA–1450–002 (A-4) DIA–1450–003 (B-4) DIA–1450–005 (C-2) DIA–1450–018 (A-4)	04.6–1450–001(7)
ENS	Floorboard	Oper Comp Entry Switch	DIA–1450–002 (B-3) DIA–1450–003 (b-3) DIA–1450–013 (C-1)	01.0–1450–050 (10)
FKS	Fork Carriage	Forks Tilted Up/Down	DIA–1450–002 (B-2) DIA–1450–003 (B-2) DIA–1450–008 (C-1, C-2)	04.8–1450–500 (7)
FLS	Fork Carriage	Free Lift Switch	DIA–1450–002 (B-2) DIA–1450–003 (B-2) DIA–1450–008 (B-1)	07.2–1450–001 (69) 07.2–1450–100 (69)
FNS	Access 1	Operator Fan Switch	DIA–1450–011 (B-3)	04.8–1450–001 (3)

RR/RD 5000 SERIES



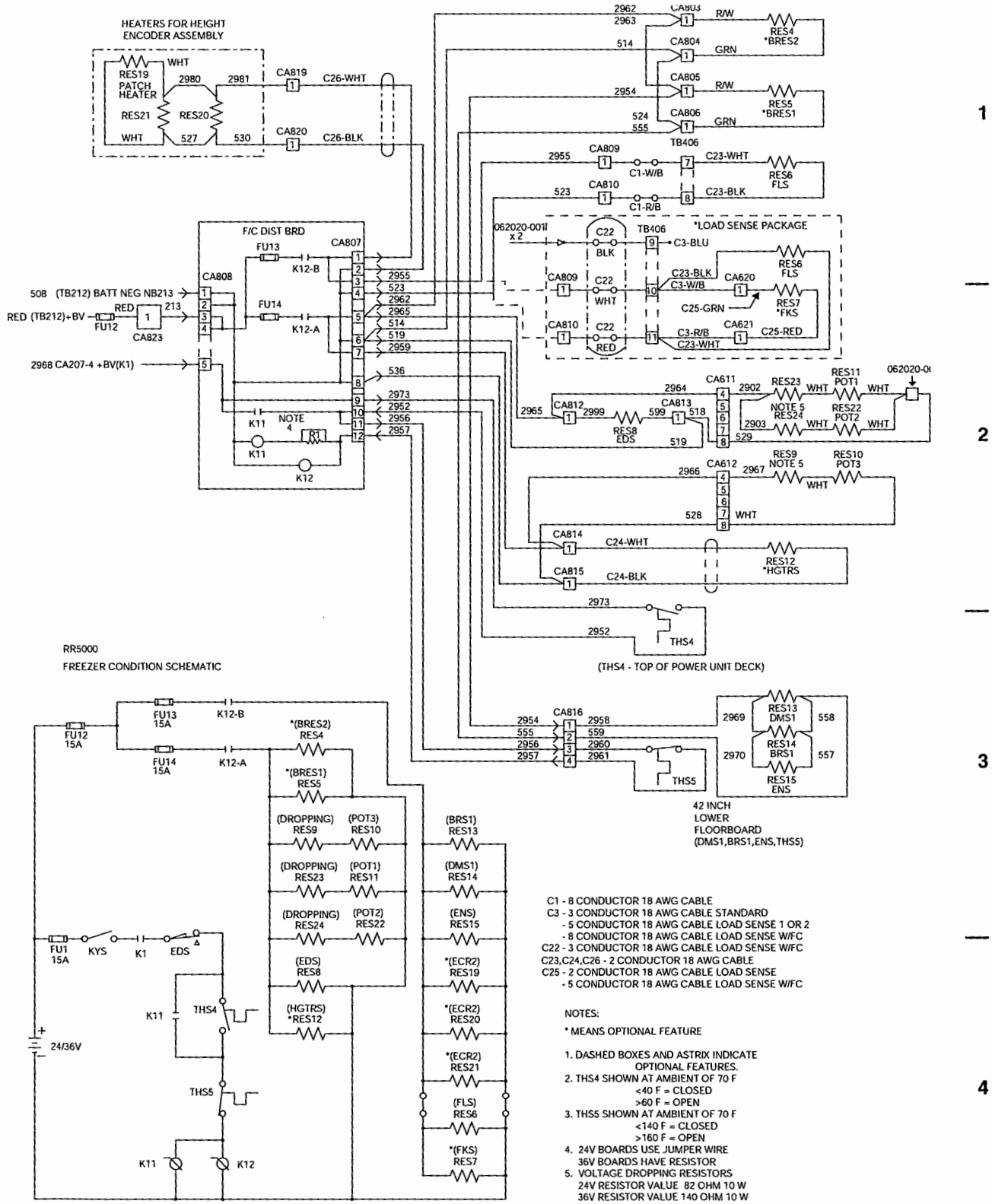
NOTES:

1. FREE LIFT SWITCH (FLS)
   WIRED NORMALLY OPEN HELD CLOSED.
   WHEN MAST IS BELOW FREELIFT
   CONTACTS ARE CLOSED AND TRUCK
   OPERATION IS -NOT- INHIBITED
2. FORK SWITCH (FKS)
   WIRED NORMALLY OPEN HELD CLOSED
   SWITCH CONTACTS ARE CLOSED ANYWHERE
   BETWEEN FULLY TILTED UP OR DOWN
3. SOLENOID SCV6 IS PRESENT ONLY ON 24 VOLT TRUCKS

C1 - 8 CONDUCTOR 18 AWG CABLE
C2 - 2 CONDUCTOR 18 AWG CABLE
C3 - 3 CONDUCTOR 18 AWG CABLE STANDARD
- 5 CONDUCTOR 18 AWG CABLE LOAD SENSE 1 OR 2
- 8 CONDUCTOR 18 AWG CABLE LOAD SENSE W/FC
C4 - 2 CONDUCTOR 18 AWG CABLE
C5 - 4 CONDUCTOR TWISTED PAIR CABLE

C15 - 3 CONDUCTOR SHIELDED CABLE
WITH DRAIN WIRE
C16 - 2 CONDUCTOR 18 AWG CABLE
C17 - 2 CONDUCTOR 18 AWG CABLE
C22 - 3 CONDUCTOR 18 AWG CABLE LOAD SENSE W/FC
C25 - 2 CONDUCTOR 18 AWG CABLE LOAD SENSE
- 5 CONDUCTOR 18 AWG CABLE LOAD SENSE W/FC

RR/RD 5000 SERIES



C1 - 8 CONDUCTOR 18 AWG CABLE
C3 - 3 CONDUCTOR 18 AWG CABLE STANDARD
- 5 CONDUCTOR 18 AWG CABLE LOAD SENSE 1 OR 2
- 8 CONDUCTOR 18 AWG CABLE LOAD SENSE W/FC
C22 - 3 CONDUCTOR 18 AWG CABLE LOAD SENSE W/FC
C23,C24,C26 - 2 CONDUCTOR 18 AWG CABLE
C25 - 2 CONDUCTOR 18 AWG CABLE LOAD SENSE
- 5 CONDUCTOR 18 AWG CABLE LOAD SENSE W/FC

NOTES:

* MEANS OPTIONAL FEATURE

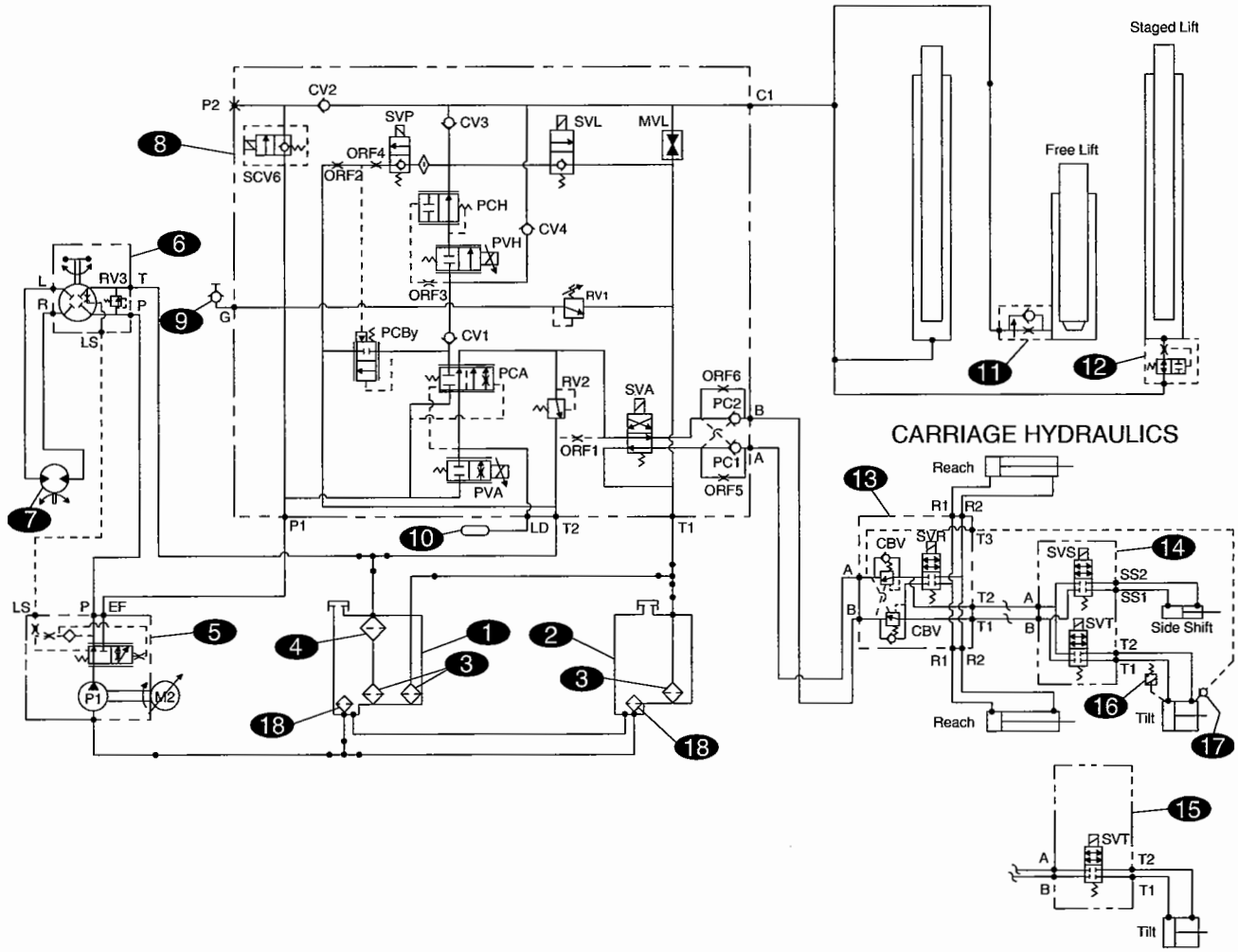
1. DASHED BOXES AND ASTRIX INDICATE OPTIONAL FEATURES.
2. THS4 SHOWN AT AMBIENT OF 70 F
   <40 F = CLOSED
   >60 F = OPEN
3. THS5 SHOWN AT AMBIENT OF 70 F
   <140 F = CLOSED
   >160 F = OPEN
4. 24V BOARDS USE JUMPER WIRE
   36V BOARDS HAVE RESISTOR
5. VOLTAGE DROPPING RESISTORS
   24V RESISTOR VALUE 82 OHM 10 W
   36V RESISTOR VALUE 140 OHM 10 W

6197-02

RR 5000 SERIES

SINGLE PUMP, 24 VOLT

LIFT CYLINDERS



1. Reservoir Right Hand
2. Reservoir Left Hand
3. Diffuser
4. Return Filter 10 Micron
5. Hydraulic Pump P1, and Motor M2
6. Steer Unit Control
7. Steering Hydraulic Motor
8. Manifold Assembly Contains - CV1,CV2, CV3, CV4, MVL, PC1, PC2, PCA, PCBy, PCH, PVA, PVH, RV1, RV2, SCV6, SVA, SVL, & SVP
9. Quick Disconnect Test Point
10. Hydraulic Expansion Chamber
11. Flow Control
12. Velocity Fuse
13. Reach Manifold - Contains CBV & SVR
14. Tilt/Side Shift Manifold - Contains SVS & SVT
15. Tilt Manifold - Contains SVT
16. Pressure Switch HSS/Pressure Transducer LS
17. Check Valve CV (Used with Pressure Switch/Pressure Transducer)
18. Strainer

Index	Part No.	Part Name	No. Req.
1	123134	Mat RR/RD 5000 Shown	1
	125127	Mat RR/RD 5000S	1
2	126614	Pedal	1
	065038-009	Bearing	2
	076048-001	Fitting Lubrication	1
3	122834	Spring	2
	123482	Stop	2
4	123724	Slide	2
5	126613	Brake Pedal	1
	065038-009	Bearing	2
	076048-001	Fitting Lubrication	1
6	122807	Pin	1
	060038-017	Cotter Pin	2
7	060031-016	Speed Nut	6
8	123009	Floorboard RR/RD 5000 Shown	1
	125107	Floorboard RR/RD 5000S	1
9	123852	Cushion	2
	060015-006	Screw	2
	060005-022	Lockwasher	2
10	060011-003	Screw	2
	060005-049	Lockwasher	2
11	126435	Stop	1
	123135	Spring RR/RD 5000 Shown	1
	125172	Spring RR/RD 5000S	1
	060016-004	Screw	2
	060005-008	Lockwasher	2
12	060016-018	Screw	3
	060005-020	Lockwasher	3
13	123037	Pin	1
	060038-017	Cotter Pin	2
14	127699	Entry Bar RR/RD 5000 Shown	1
	127700	Entry Bar RR/RD 5000S	1
	065038-009	Bearing	2
15	127648	Bar RR/RD 5000 Shown	1
	127647	Bar RR/RD 5000S	1
	123724	Slide	2
16	123872-002	Cover R.H.	1
	060015-003	Screw	1
	060005-007	Lockwasher	1
	060030-010	Flatwasher	1
17	060009-001	Retaining Ring	2
18	060030-037	Flatwasher	2
19	124005	Actuator R.H.	1
20	060030-161	Flatwasher	2
21	065007-084	Bearing Sleeve	4
22	123859	Actuator	2
23	060011-027	Screw	2
	060005-049	Lockwasher	2
	060021-023	Nut	2
24	060000-075	Pin	3
25	123965	Spring	2
	123871	Spacer RR/RD 5000 Only	2
26	123986	Actuator L.H.	1
27	061021-004	Snap Bushing	1
28	123872-001	Cover L.H.	1
	060015-003	Screw	1
	060005-007	Lockwasher	1
	060030-010	Flatwasher	1
29	127716	Harness RR/RD 5000, RR/RD 5000S Floorboard, Includes Connector JC607, and Switches DMS1, BRS1 and ENS	1
	105606-607	Label JC607	1
30	127642	Bracket Harness Mount	1
31	127575	Cover Harness Mount	1
	060014-087	Screw	1
32	062749-001	Clip Attachment Std Truck	1
	062749-001	Clip Attachment Freezer Condition Truck	2
	060014-088	Screw Std Truck	1
	060014-088	Screw Freezer Condition Truck	2

Always Specify Model, Data & Serial Numbers

061003-003	Tie Cable 190 mm (7.44 in.) Long	2
061003-004	Tie Cable 140 mm (5.60 in.) Long	4

INDEX 20 – Battery - 24V

Part No.	‡‡Code No.	Battery Comp. Size	Max. Battery Size (+.00/-.25 in.)	Amp Hour Range	Battery Wgt. (lbs.) Min. - Max.
087214-001	01	A	12.19 x 38.38 x 31.00	700 - 840	1240 - 1870
087214-002	02	A	11.75 x 36.38 x 31.00	520 - 680	1240 - 1870
087214-003	03	A	11.12 x 35.38 x 31.00	580 - 640	1240 - 1870
087215-001	06	B	14.25 x 36.38 x 31.00	650 - 850	1410 - 2110
087215-002	07	B	13.62 x 38.38 x 31.00	880	1410 - 2110
087215-003	08	B	13.38 x 35.38 x 31.00	725 - 875	1410 - 2110
087216-001	11	C	16.25 x 36.38 x 31.00	780 - 1020	1710 - 2400
087216-002	12	C	15.62 x 35.38 x 31.00	870 - 960	1710 - 2400
087216-003	13	C	15.12 x 38.38 x 31.00	990 - 1080	1710 - 2400

Battery - 36V

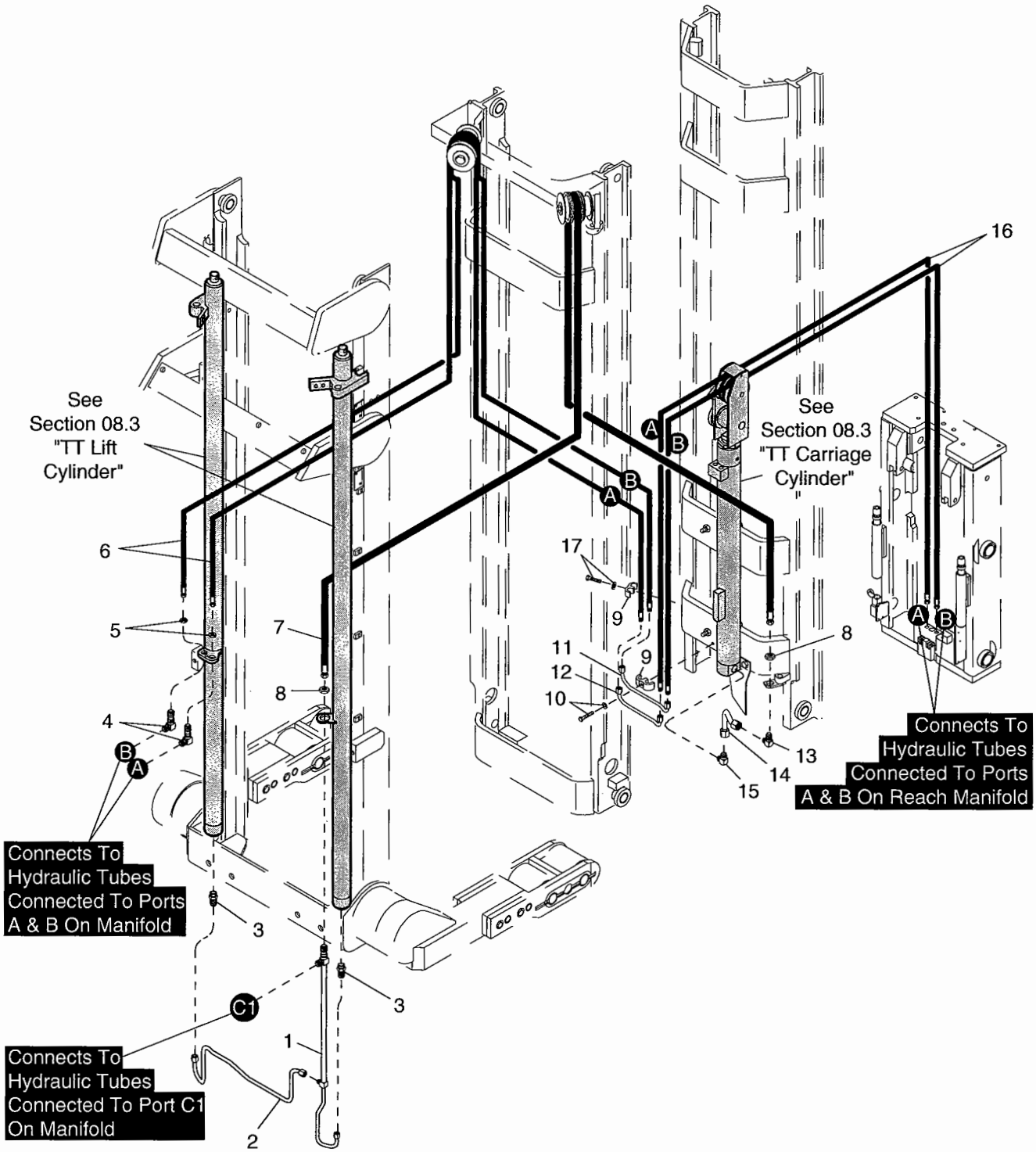
087217-001	04	A	11.12 x 38.38 x 31.00	400 - 480	1305 - 1725
087218-001	07	B	14.25 x 38.38 x 31.00	500 - 550	1595 - 2090
087218-002	09	B	14.25 x 38.38 x 31.00	550 - 600	1595 - 2090
087219-001	10	C	16.25 x 38.38 x 31.00	600 - 720	1880 - 2490
087219-002	14	C	15.88 x 38.38 x 31.00	600 - 660	1880 - 2585
087219-003	15	C	15.62 x 38.38 x 31.00	660 - 720	1880 - 2490
094072-001	24	D	18.00 x 38.69 x 31.00	700 - 1000	2120 - 2980
094072-002	25	D	17.75 x 38.69 x 31.00	770 - 875	2120 - 2800
094072-003	26	D	18.00 x 38.44 x 31.00	770 - 1085	2120 - 2980
094072-004	27	D	17.75 x 38.44 x 31.00	770 - 875	2120 - 2800
102823-001	28	E	20.75 x 38.69 x 31.00	880 - 1120	2400 - 3070
102823-002	29	E	20.50 x 38.69 x 31.00	840 - 1120	2400 - 3070
102823-003	30	E	20.25 x 38.69 x 31.00	800 - 1000	2400 - 3070
102823-004	31	E	20.50 x 38.44 x 31.00	880 - 1000	2400 - 3070
102823-005	32	E	20.25 x 38.44 x 31.00	880 - 1000	2400 - 3070

Battery Connectors

Part No.	Description	Qty.
078723-001	SB-350 Connector Gray	1
078723-002	SB-175 Connector Gray	1
078723-003	SB-350 Connector Red	1
078723-004	SB-175 Connector Yellow	1
078723-006	SB-350 Connector Blue	1
078723-007	SB-175 Connector Red	1
078723-008	SB-175 Connector Blue	1
078723-009	SB-350 Connector Yellow	1
078724-001	Contacts	2
108801-001	SBE-320 EEC Connector Gray	1
108801-003	SBE-320 EEC Connector Red	1
108801-006	SBE-320 EEC Connector Blue	1
108801-008	SBE-320 EEC Connector Yellow	1
108802-001	EEC Contacts	2

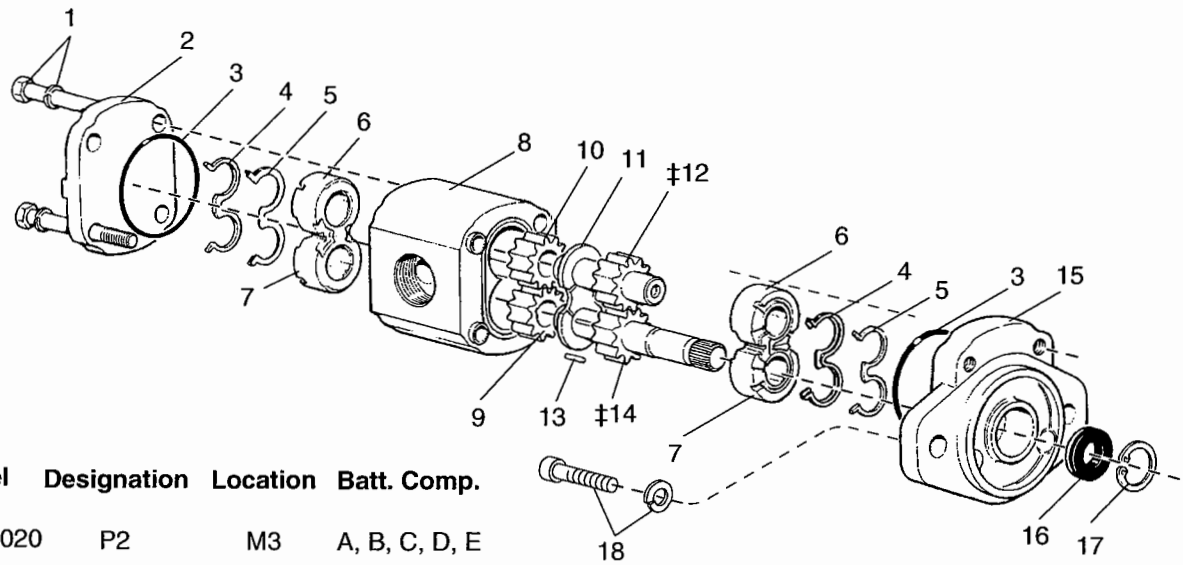
‡‡ Retainer and Spacers Part No. Dependent on Battery Code No.

RR/RD 5000/5000S SERIES



02.0–1450–400

RR/RD 5000 SERIES
36V NO LOAD SENSING
(10cc DISPLACEMENT)



Model	Designation	Location	Batt. Comp.
RR/RD5020	P2	M3	A, B, C, D, E

‡ Position of Gears Shown With Counterclockwise Rotation.

123991 LIFT PUMP

Index	Part No.	Part Name	No. Req.
1	†	Screw Tighten to 34 - 38 ft. lbs. (45 - 50 Nm)	2
	†	Lockwasher	2
2	†	End Cover	1
3	*	O-Ring	2
4	*	Back-Up Seal	2
5	*	Seal	2
6	†	Bushing	2
7	†	Bushing	2
8	†	Body	1
9	†	Keyed Gear	1
10	†	Floating Gear	1
11	†	Balance Plate	1
12	†	Driven Gear	1
13	†	Key	1
14	†	Drive Shaft And Gear	1
15	†	Mounting Flange	1
16	*	Seal	1
17	†	Retaining Ring	1
18	060017-054	Screw	2
	060005-009	Lockwasher	2

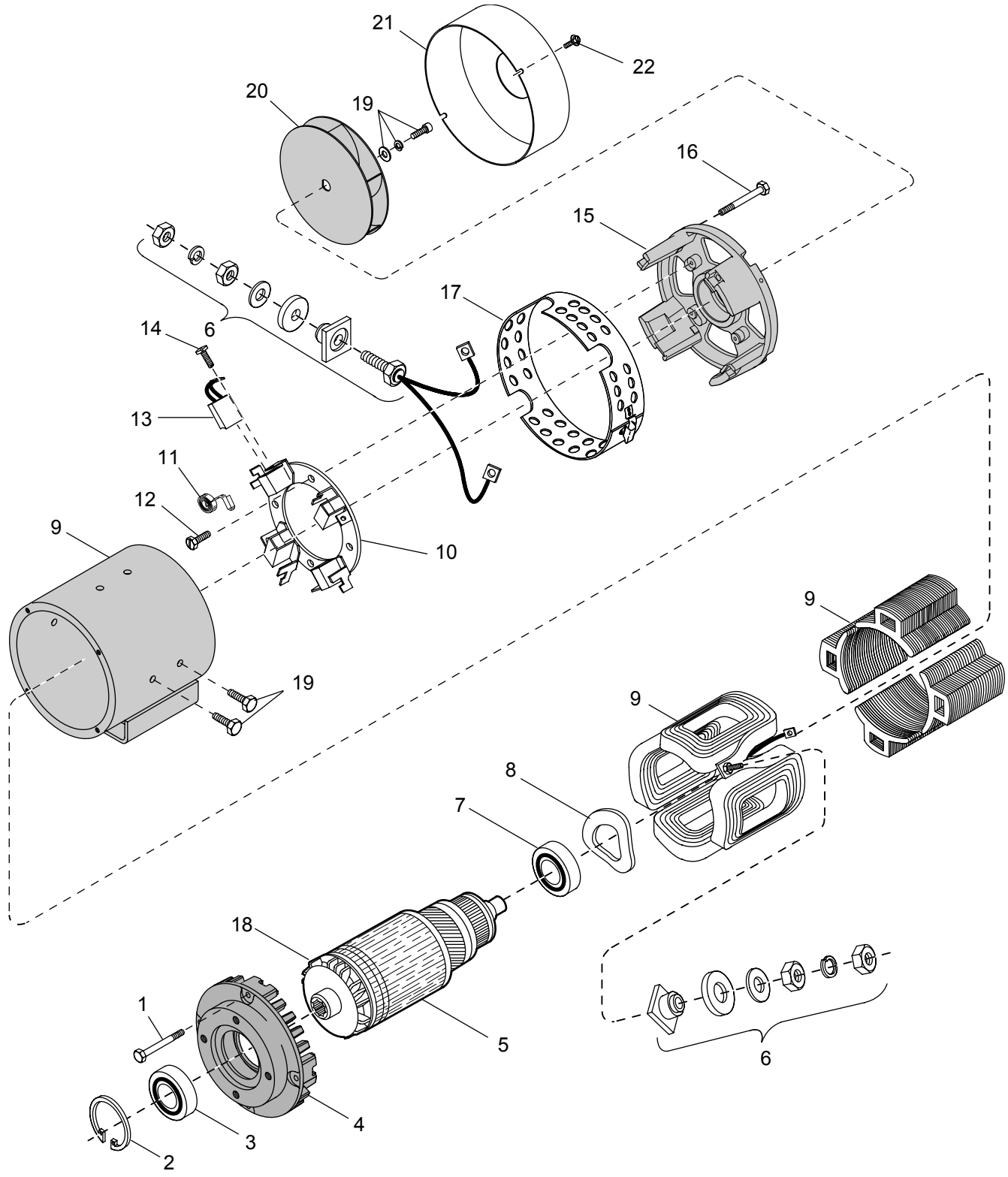
* 125864 Kit Pump Seal Includes Index 3, 4, 5 & 16 — 1

Always Specify Model, Data & Serial Numbers

† Internal pump components are not available, except seals, due to matched set requirements. Since components must be replaced as matched sets, pump replacement is more economical.

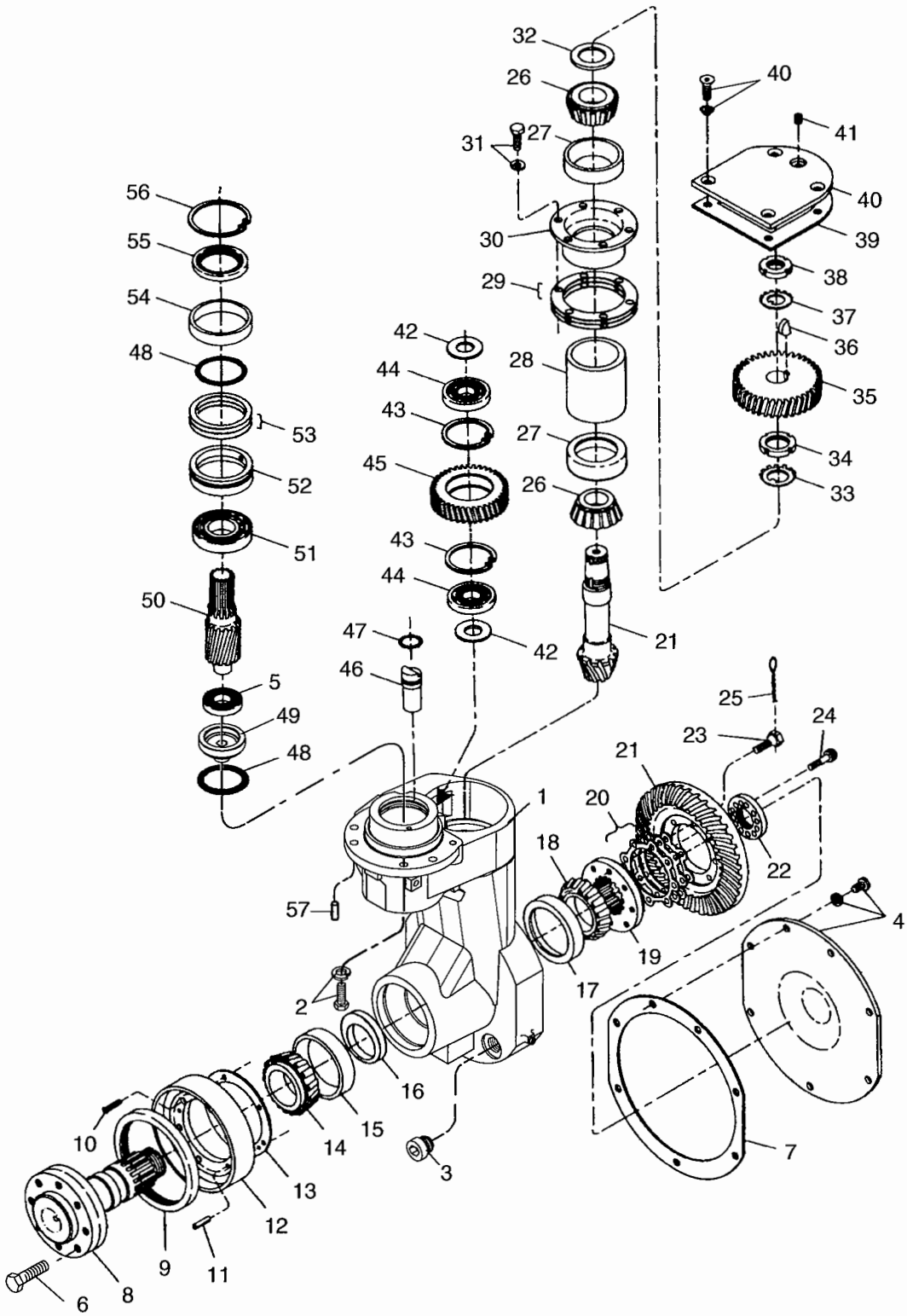
6640

RR 5000 - 24 VOLT
Standard Performance
No Sensors



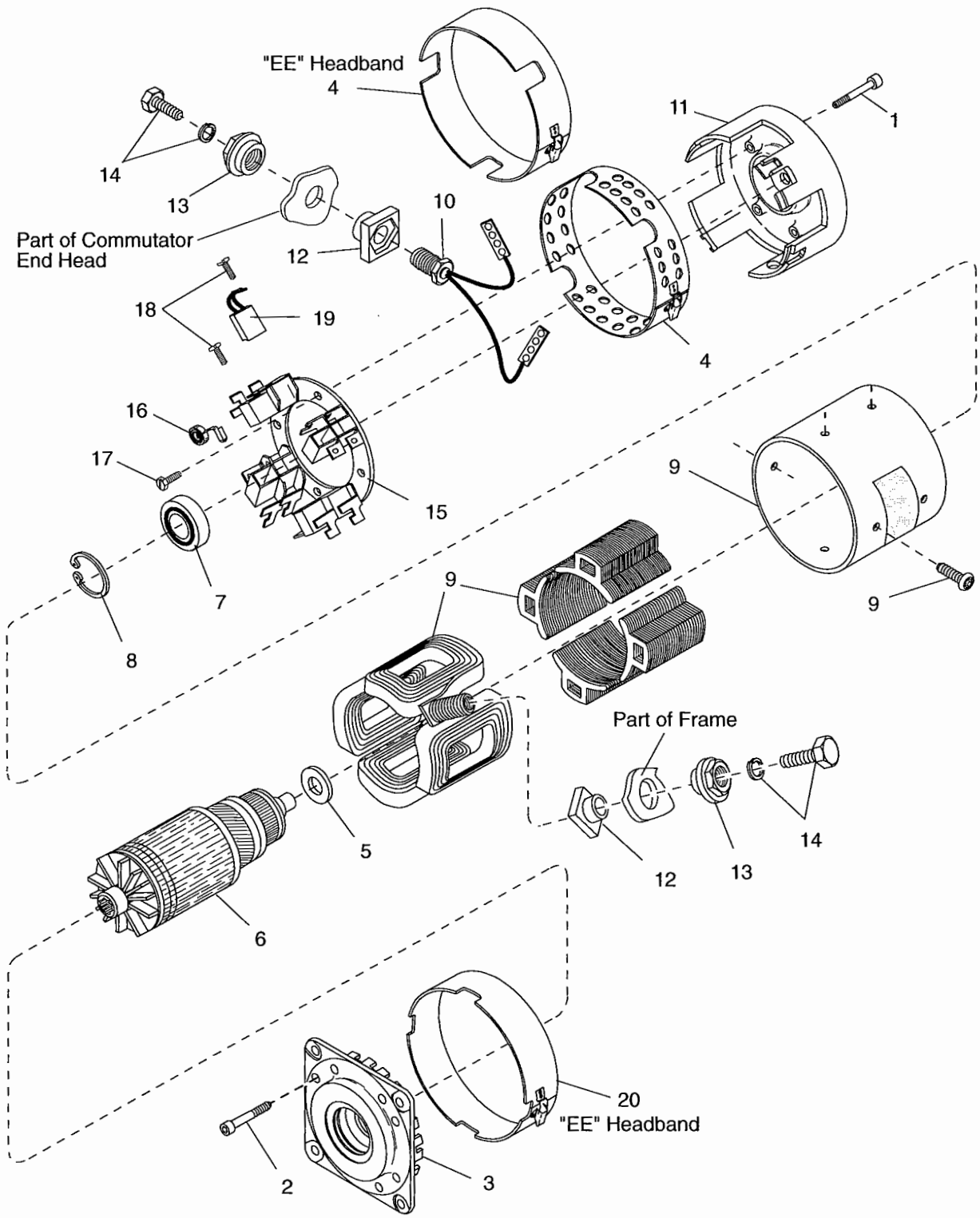
5814S-01

RR/RD 5000/5000S SERIES



5817-01

RR/RD 5000 SERIES 36V



Index	Part No.	Part Name	No. Req.
1	121607-001	ACCESS 3 Standard Trucks	1
	121607-002	ACCESS 3 Trucks with Remote Raise/Lower	1
	121607-004	ACCESS 3 EE Trucks Only	1
	063002-029	Lubricant 5 oz.	1
2	060015-016	Screw	12
3	060091-001	Insert Nut	12
4	060021-053	Nut	2
	060005-054	Lockwasher	2
5	060014-005	Screw	2
	060005-005	Lockwasher	2
6	060021-009	Nut	4
	060005-008	Lockwasher	4
7	123287	Bar Bus	1
8	123893	Bar Bus	1
9	060016-003	Screw	1
	060005-008	Lockwasher	1
	060021-009	Nut	1
10	121611	ACCESS 2	1
	063002-029	Lubricant 5 oz.	1
11	123757	Mount	1
12	123455	Switch Key Includes Switch, Connector & Contacts	1
	105606-401	Label JC	1
	123537	Switch Key	1
	062037-012	Connector	1
	062036-003	Contact	4
	107739	Keys (2) & Ring	1
	107151-002	Key	1
	107763	Ring Key	1
13	060030-026	Flatwasher	6
14	060005-009	Lockwasher	2
15	060021-011	Nut	2
16	060017-041	Screw	2
17	062623	Switch Keyless	1
	123343	Harness	1
18	119240	Insert	1
19	078708-002	Horn 24 V	1
	078708-003	Horn 36 V	1
20	060016-004	Screw	1
	060030-017	Flatwasher	1
	060005-008	Lockwasher	1
	060021-019	Nut	1
21	115565	Alarm Travel	1
22	060015-012	Screw	1
	060005-022	Lockwasher	1
	060091-001	Insert Nut	2
23	060017-033	Screw	8
24	123165	Encoder Traction	1
25	122396	Plate	1
26	060014-023	Screw	1
	060005-005	Lockwasher	1
	060021-005	Nut	1
27	062488-004	Spacer	1
28	122293	Bracket 24 V	1
29	060014-060	Screw 24 V	2
	060005-005	Lockwasher 24 V	2
30	123838	Cover Back 36 V	1
31	123844-001	Cover Front 36 V	1
32	060091-001	Nut Insert 36 V	2
33	060015-003	Screw 36 V	3
	060005-007	Lockwasher 36 V	3
	060030-012	Flatwasher 36 V	3
34	065004-043	Grommet 36 V	1
35	060015-003	Screw 36 V	3
	060005-007	Lockwasher 36 V	3
	060030-012	Flatwasher 36 V	3
36	125024	Suppressor Key Switch	1
37	060015-008	Screw	1
38	060091-001	Nut Insert	1
39	060013-001	Set Screw	1
40	069195	ACCESS 3 Label	1
41	069173	Traction Module Label	1
42	069171	Warning Module	2
43	069159	Security Label	2
44	069194	ACCESS 2 Label	1
45	069172	Hydraulic Module Label	1

Always Specify Model, Data & Serial Numbers

126096 CONTACTOR PANEL ASSEMBLY ELECTRICALLY ENCLOSED (EE) 36 VOLT 2 PUMPS

Index	Part No.	Part Name	No. Req.
1	123851	Plate	1
2	060030-119	Flatwasher	3
	060005-009	Lockwasher	3
	060021-011	Nut	3
3	123090	Box	1
4	060015-003	Screw	2
	060005-007	Lockwasher	2
5	060021-043	Nut	6
	060005-031	Lockwasher	6
6	126176	Bus Bar	2
7	123050	Stud	6
8	060030-017	Flatwasher	6
9	119323	Insulator	12
10	126104	Bus Bar	6
11	076924-020	Fuse ACK/ECK-250	1
12	060015-089	Screw	5
	060005-026	Lockwasher	5
13	060015-066	Screw	1
	060005-026	Lockwasher	1
14	076924-009	Fuse AOK/ALS-250	1
15	076924-009	Fuse AOK/ALS-250	1
16	123089	Cover	1
17	060015-003	Screw	4
	060005-007	Lockwasher	4
18	060091-001	Insert Nut	4
19	060059-003	Nut M8	6
20	126047	Bus Bar	1
	065003-175	Sleeving	1
21	123095	Bus Bar	1
22	123096	Bus Bar	1
23	119784	Contactor See Section 04.4	1
24	114285	Suppressor Diode	1
25	060061-007	Screw M5	4
	060005-005	Lockwasher	4
26	123084	Bracket	2
27	060015-003	Screw	4
	060005-007	Lockwasher	4
28	118280-003	Contactor See Section 04.4	1
29	123524	Panel	1
30	060013-040	Screw	2
31	104401-014	Spacer	6
	060005-004	Lockwasher	6
32	060013-011	Screw	4
	060005-004	Lockwasher	4
	060030-096	Flatwasher	4
33	125713	Enclosure	1
34	094362-002	Fuse 15A, ABC-15	1
35	094362-002	Fuse 15A, ABC-15	1
36	094362-002	Fuse 15A, ABC-15	1
37	094362-002	Fuse 15A, ABC-15	1
38	094362-002	Fuse 15A, ABC-15	1
39	094362-002	Fuse 15A, ABC-15	1
40	113729-001	Label ABC-15	1
41	113729-017	Label ACK/ECK-250	1
42	079566-051	Label	1
43	079566-065	Label	1
44	079566-064	Label	1
45	113729-018	Label ALS/AOK-250	2

Always Specify Model, Data & Serial Numbers

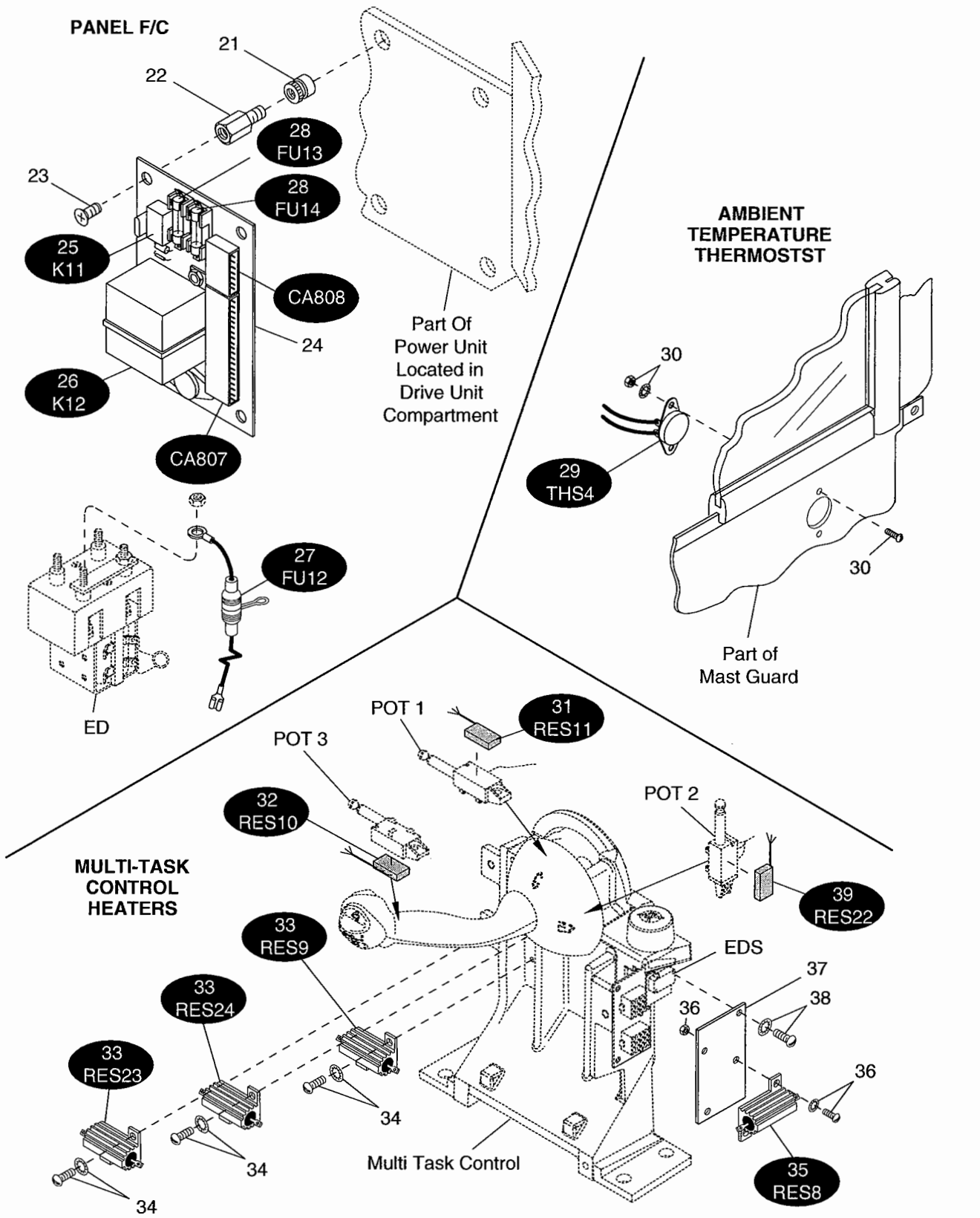
125588-001	Boot	1
061003-005	Cable Tie	4

122315 STANDARD DISPLAY ASSEMBLY (Includes Index 1, 6 thru 10, 12, 17, 18 & 19)
122316 ENHANCED DISPLAY ASSEMBLY (Includes Index 1, 6 thru 10, 12, 15, 16, 18 & 19)
123337 ENHANCED DISPLAY W/CDM ASSEMBLY (Includes Index 1, 6 thru 10, 12, 15, 16, 18 & 19)

Index	Part No.	Part Name	No. Req.
1	122858	Overlay Standard	1
	122860	Overlay Enhanced	1
	123338	Overlay Enhanced with CDM	1
2	062595-002	Switch Dome Light	1
3	062595-001	Switch Fan	1
4	062595-002	Switch Work Lights	1
5	062595-003	Switch Lift Cutout Override	1
6	122855-001	Panel Interface Standard	1
	122855-002	Panel Interface Enhanced & Enhanced with CDM	1
7	123151	Mount Cushion	2
8	060021-086	Nut	2
9	125416	Board PCB Switch Standard Display	1
	125416	Board PCB Switch Enhanced & Enhanced with CDM	2
10	060012-074	Screw Standard	2
	060012-074	Screw Enhanced & Enhanced with CDM	4
11	060012-074	Screw	8
12	124014	Board Display Standard	1
	124015	Board Display Enhanced & Enhanced with CDM	1
13	062666-001	Post Support Enhanced & Enhanced with CDM	5
14	060012-020	Screw Enhanced & Enhanced with CDM	2
15	117774-003	Retainer Enhanced & Enhanced with CDM	1
16	062580-004	Strap Grounding Enhanced & Enhanced with CDM	1
17	062686-001	Tape Conductive Foil Enhanced & Enhanced with CDM	1
18	122856-001	Cover Standard	1
	122859	Cover Enhanced & Enhanced with CDM	1
19	065004-042	Grommet	1
20	123191	Bracket Display Mounting 5000 Series	1
21	060015-006	Screw	2
	060030-012	Flatwasher	4
	060031-026	Nut	2
22	060017-014	Screw	2
	060030-080	Flatwasher	2
	060005-009	Lockwasher	2
	060021-011	Nut	2
23	122246	Bracket Display Mounting 5000S Series	1
24	060015-006	Screw	2
	060030-012	Flatwasher	2
	060031-026	Nut Speed	2
25	060017-019	Screw	2
	060005-009	Lockwasher	2
	060030-026	Flatwasher	2
26	060017-014	Screw	2
	060005-009	Lockwasher	2
	060030-026	Flatwahser	2
	060021-011	Nut	2
27	062337-008	Relay 24V	1
	062337-009	Relay 36V	1
28	060012-016	Screw	2
	060005-048	Lockwasher	2
	060021-003	Nut	2
29	062033-049	Resistor 24V	1
	062033-050	Resistor 36V	1
30	062033-032	Resistor 36V Only	1
31	062033-032	Resistor 24V	1
	062033-034	Resistor 36V	1
32	060011-012	Screw	6
	060005-036	Lockwasher	6
	060021-031	Nut	6
33	104401-018	Spacer	2

Always Specify Model, Data & Serial Numbers

6269-02


PANEL F/C
21
22
28
FU13
28
FU14
23
25
K11
CA808
24
26
K12
CA807
Part Of
Power Unit
Located in
Drive Unit
Compartment
27
FU12
ED
AMBIENT
TEMPERATURE
THERMOSTST
30
29
THS4
30
Part of
Mast Guard
MULTI-TASK
CONTROL
HEATERS
POT 1
31
RES11
POT 3
32
RES10
POT 2
39
RES22
33
RES9
EDS
37
38
36
33
RES24
33
RES23
34
34
34
Multi Task Control
36
35
RES8

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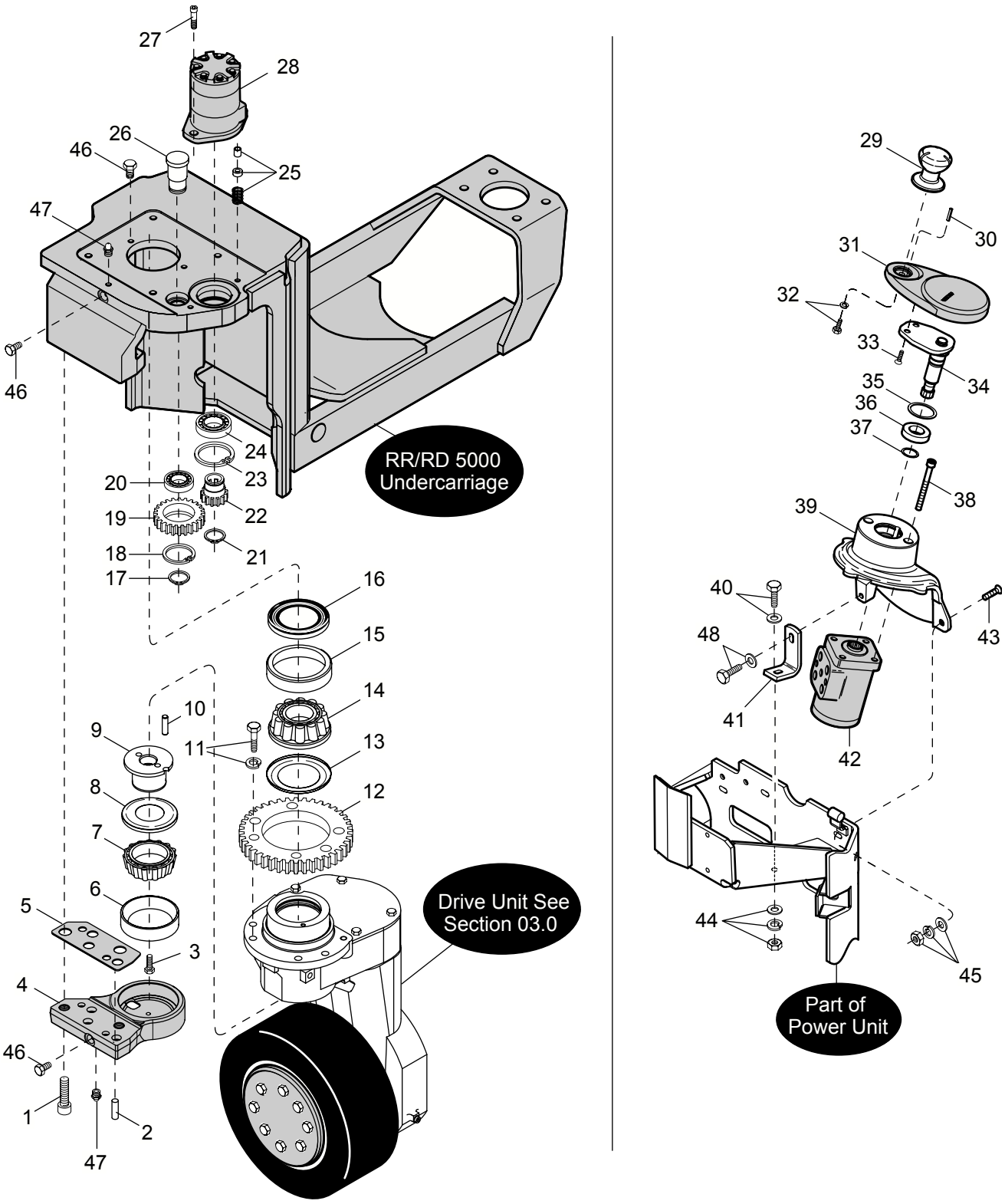
RR/RD 5000 SERIES



INDEX 34 CHAIN — MAST

Collapsed Height mm	Collapsed Height in	Lift Height mm	Lift Height in	Length Required in	Length Required links	ORDER NUMBER	MINIMUM ORDER QUANTITY EACH	MINIMUM ORDER QUANTITY PER TRUCK
2260	89	5030	198	83.25	111	**073991-067**	**7**	**14**
2415	95	5335	210	89.25	119	**073991-067**	**8**	**15**
2720	107	6095	240	113.25	151	**073991-067**	**10**	**19**
3025	119	6860	270	113.25	151	**073991-067**	**10**	**19**

INDEX 65 CHAIN — CARRIAGE

Collapsed Height mm	Collapsed Height in	Lift Height mm	Lift Height in	Length Required in	Length Required links	ORDER NUMBER	MINIMUM ORDER QUANTITY EACH	MINIMUM ORDER QUANTITY PER TRUCK
2260	89	5030	198	54.75	73	**073991-067**	**5**	**10**
2415	95	5335	210	57.75	77	**073991-067**	**5**	**10**
2720	107	6095	240	63.75	85	**073991-067**	**6**	**11**
3025	119	6860	270	69.75	93	**073991-067**	**6**	**12**

When ordering Chain, order the number of feet required for your particular truck. The appropriate minimum order quantity is listed in the above chart. Cut the chain to the length required for your truck.

INDEX 48 SPRING - MAST

Collapsed Height mm	Collapsed Height in	Lift Height mm	Lift Height in	ONE EACH REQUIRED Spring	ONE EACH REQUIRED Spring
2260	89	5030	198	**122399 (Bronze)**	**128011 (Red)**
2415	95	5335	210	**122399 (Bronze)**	**122399 (Bronze)**
2720	107	6095	240	**122399 (Bronze)**	**119031 (Gray)**
3025	119	6860	270	**119031 (Gray)**	**119031 (Gray)**
3325	131	7620	300	**119031 (Gray)**	**119031 (Gray)**

INDEZ 77 SPRING - CARRIAGE

Collapsed Height mm	Collapsed Height in	Lift Height mm	Lift Height in	ONE EACH REQUIRED Spring	ONE EACH REQUIRED Spring
2260	89	5030	198	**128012 (Red)**	**119049 (Gray)**
2415	95	5335	210	**128012 (Red)**	**119049 (Gray)**
2720	107	6095	240	**119049 (Gray)**	**119049 (Gray)**
3025	119	6860	270	**119049 (Gray)**	**119049 (Gray)**
3325	131	7620	300	**119049 (Gray)**	**119049 (Gray)**

RD5000/5000S 3000 LB. (1360kg) CAPACITY

Index	Part No.	Load Wheel Size						1st Dash No. Collapsed Height/Lift Height									*2nd Dash No.
		100 x 70mm (4.0 x 2.88 in)	100 x 105mm (4.0 x 4.12 in)	125 x 70mm (5.0 x 2.88 in)	125 x 105mm (5.0 x 4.12 in)	150 x 70mm (6.0 x 2.88 in)	150 x 105mm (6.0 x 4.12 in)	2260mm/5025mm 89 in./198 in.	2415mm/5335mm 95 in./210 in.	2720mm/6100mm 107 in./240 in.	3025mm/6860mm 119 in./270 in.	3325mm/7620mm 131 in./300 in.	3555mm/8155mm 140 in./321 in.	3785mm/8660mm 149 in./341 in.	4065mm/9300mm 160 in./366 in.	4370mm/10160mm 172 in./400 in.	34 thru 61
4	Non-removable Outrigger Ends (Tapered)																
	123407-	X						**104**	**105**	**106**	**107**	**108**	**109**				
	123407-		X					**304**	**305**	**306**	**307**	**308**	**309**				
	123407-			X				**204**	**205**	**206**	**207**	**208**	**209**				
	123407-				X			**404**	**405**	**406**	**407**	**408**	**409**				
	125057-					X								**310**	**311**	**312**	
	125057-						X							**410**	**411**	**412**	
	Removable Outrigger Ends (Tapered)																
	123407-	X						**604**	**605**	**606**	**607**	**608**	**609**				
	123407-		X					**804**	**805**	**806**	**807**	**808**	**809**				
	123407-			X				**704**	**705**	**706**	**707**	**708**	**709**				
	123407-				X			**904**	**905**	**906**	**907**	**908**	**909**				
	125057-					X								**810**	**811**	**812**	
	125057-						X							**910**	**911**	**912**	
45	**121761-**							**004**	**005**	**006**	**007**	**008**	**009**	**010**	**011**	**012**	
55	**121762-**							**004**	**005**	**006**	**007**	**008**	**009**	**010**	**011**	**012**	
79	**123233-**							**004**	**005**	**006**	**007**	**008**	**009**	**010**	**011**	**012**	

*** The 2nd dash number is the same as the truck's inside straddle dimension in inches.**

Index	Part No.	Part Name	No. Req.
5 in. (125mm) O.D. Load Wheels			
12	073962-006	Axle 2.88 in. (75mm) Load Wheel Width	4
	073962-003	Axle 4.12 in. (105mm) Load Wheel Width	4
	076048-001	Fitting Lubrication	4
13	060030-127	Flatwasher .03 in. (0.8mm) Thick, 2.00 in. (50mm) O.D.	8
14	060030-278	Flatwasher .12 in. (3.0mm) Thick, 3.00 in. (76mm) O.D.	8
15	060030-093	Flatwasher 0.6 in. (1.5mm) Thick, 1.50 in. (38mm) O.D.	8
16	060030-289	Flatwasher .03 in. (0.8mm) Thick, 1.50 in. (38mm) O.D.	AR
17	065081-057	Bearing Ball	8
18	115032-*	Wheel Poly 5.0 in. x 2.88 in. (125mm x 73mm)	4
	115033-*	Wheel Poly 5.0 in. x 4.12 in. (125mm x 105mm)	4
19	060000-030	Pin Roll	4
20	121786-002	Plate Pivot Includes 21, 2.88 in. (75mm) & 4.12 in. (105mm)	2
21	065084-015	Bearing	4
22	111858-002	Sleeve	4
	061004-027	Adhesive	1
23	121786-001	Plate Pivot Includes 21, 2.88 in. (75mm) & 4.12 in. (105mm)	2

Index	Part No.	Part Name	No. Req.
6 in. (150mm) O.D. Load Wheels			
24	074659-006	Axle 2.88 in. (75mm) Load Wheel Width	4
	074659-004	Axle 4.12 in. (105mm) Load Wheel Width	4
	076048-001	Fitting Lubrication	4
25	060030-317	Flatwasher .03 in. (0.8mm) Thick, 1.87 in. (47mm) O.D.	AR
26	060030-315	Flatwasher .16 in. (4.1mm) Thick, 3.75 in. (95mm) O.D.	8
27	060030-316	Flatwasher .06 in. (1.5mm) Thick, 1.87 in. (47mm) O.D.	8
28	065081-008	Bearing Ball	8
29	125069-*	Wheel Poly 6.0 in. x 2.88 in. (150mm x 75mm)	4
	125070-*	Wheel Poly 6.0 in. x 4.12 in. (150mm x 105mm)	4
30	060000-051	Pin Roll	4
	061004-027	Adhesive	1
31	125205	Pivot Plate Includes 32, 2.88 in. (75mm) & 4.12 in. (105mm)	2
32	065084-015	Bearing	4
33	111858-002	Sleeve	2
34	125204	Pivot Plate Includes 32, 2.88 in. (75mm) & 4.12 in. (105mm)	2

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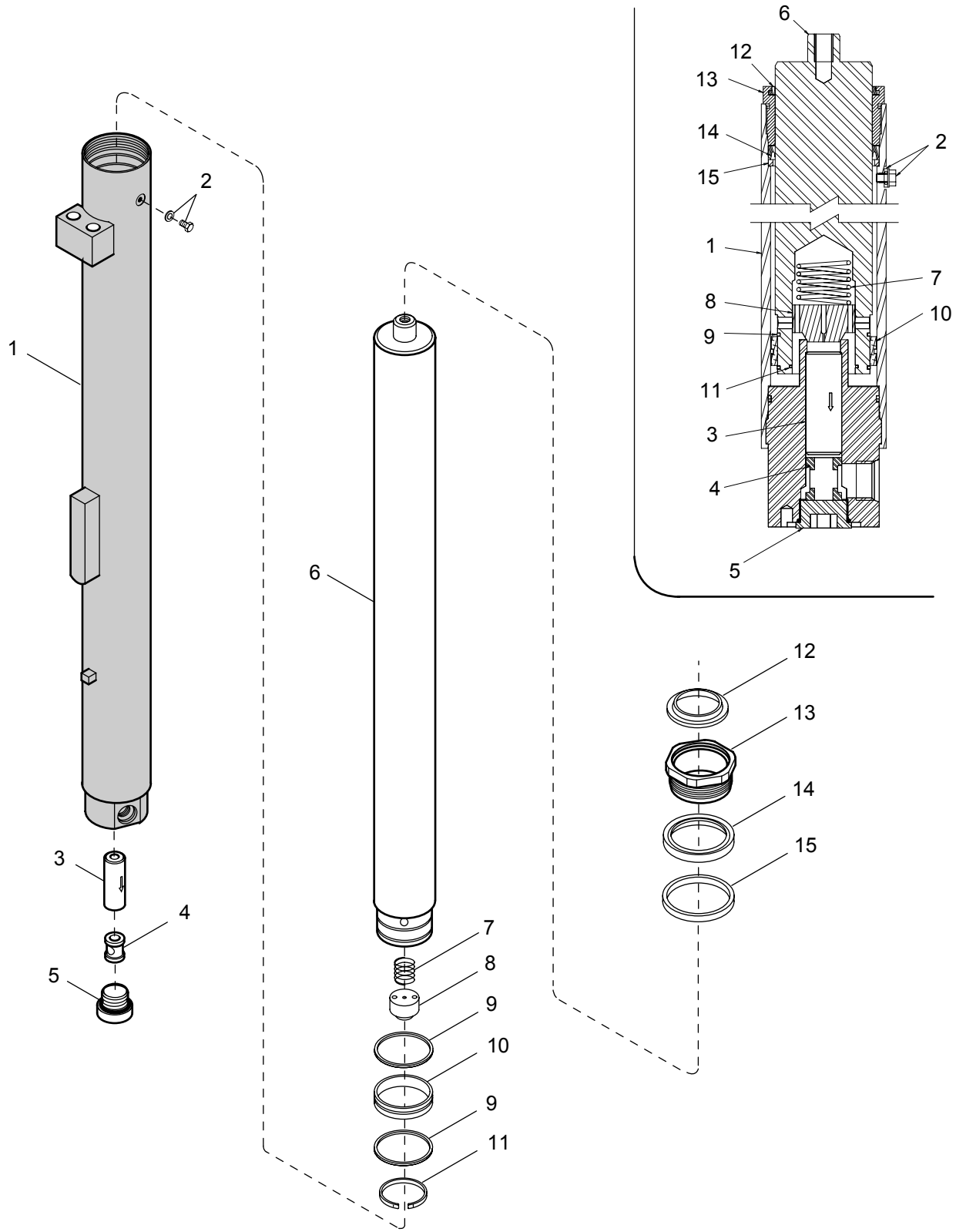
RR/RD 5000/5000S SERIES



Index	Part No.	Description	No. Req.
1	122273-002	Reach Support 3500	1
	122159-002	Reach Support 4500	1
2	074481-001	Shim	AR
	074481-004	Shim	AR
	074481-005	Shim	AR
3	092746-001	Bracket	1
	092747-001	Stop Poly	1
4	060015-068	Screw	1
	061004-019	Adhesive Thread Locking	1
5	060000-104	Pin Roll	2
6	113516	Shaft Pivot	2
7	093680	Shaft	2
	093735	Shaft Freezer/Corrosion	2
8	060000-029	Pin Roll	2
9	060016-065	Screw	2
	060005-008	Lockwasher	2
10		Cylinder Reach See Section 08.5	2
11	082579	Shaft Pivot	2
	088892	Shaft Pivot Freezer/Corrosion	2
12	060000-090	Pin Roll	2
13	060016-088	Screw	2
	060005-008	Lockwasher	2
	060021-009	Nut	2
14	122168	Hose Guide	1
15	065012-007	Bushing Ball	4
	124018	Stop Poly	2
16	060017-050	Screw Cap	2
	061004-019	Adhesive Thread Locking	1
17	060030-279	Flatwasher	2
18	123474-001	Pulley	1
19	060015-079	Screw	2
	060005-007	Lockwasher	2
	060021-006	Nut	2
20	122927	Pin Mounting	1
21	065012-001	Bushing Ball	2
22	122922-001	Arm Inner	1
23	082381	Washer Thrust	2
24	076293	Roller Carriage	2
25	076143	Cap	2
26	060016-022	Screw	2
	061004-019	Adhesive Thread Locking	1
27	060030-085	Flatwasher	AR
28	074668-001	Roller Column	2
29	065007-052	Bushing	2
30	082381	Washer Thrust	2
31	082384	Nut Lock	2
32	060009-049	Ring Retaining	2
33	060077-002	Pin Roll	2
34	100116-001	Arm Outer	2
35	060015-050	Screw Set	2
36	076048-002	Fitting Lubrication	6
37	060015-064	Screw	2
	060015-069	Screw	1
38	123402	Guide	1
39	093680	Shaft	2
40	060000-029	Pin Roll	2
41	125609-001	Cover	1
42	060015-004	Screw	2
43		Cylinder Tilt See Section 08.6	1
44	065007-018	Bearing Sleeve	2
45	065012-004	Bushing Ball	1
46	060009-030	Ring Retaining	2
47	123393-001	Carriage	1
48	060019-039	Screw	4
	060005-029	Lockwasher	4
49	085144	Hanger Lower	2
50	060000-066	Pin Roll	1
51	093554	Shaft Cylinder	1
	093736	Shaft Cylinder Freezer/Corrosion	1
52	060000-054	Pin Roll	2
53	082205	Shaft Pivot	2
	088891	Shaft Pivot Freezer/Corrosion	2
54	060017-007	Screw	1
	060005-009	Lockwasher	1
	060030-078	Flatwasher	1
55		Cylinder Sideshift See Section 08.7	1
56	085188	Slide	6
57	093560-002	Fork Plate	1
58	060015-019	Screw	1
	060005-007	Lockwasher	1
	060021-006	Nut	1
59	085143	Shaft	4
	088910	Shaft Freezer/Corrosion	4
60	060000-030	Pin Roll	4
61	085137-001	Support Lower	2
	085137-002	Support Upper	2
62	065007-026	Bushing	8
	085142	Roller	4
63	085239	Shaft	2
	088909	Shaft Freezer/Corrosion	2
64	060000-018	Pin Roll	2
65	085152	Fork Carriage	1
66	076235-003	Shaft Pivot	1
	088893-002	Shaft Pivot Freezer/Corrosion	1
	060009-005	Ring Retaining	2
67	065007-017	Bearing Sleeve	4
68	060015-003	Screw	2
69		Tilt Switch See Section 04.8	1
70	079564-001	Block Terminal	1
	079565-001	Strip Marking	1
	105605-406	Label TB	1
	060013-017	Screw	2
	060005-004	Lockwasher	2

Always Specify Model, Data & Serial Numbers