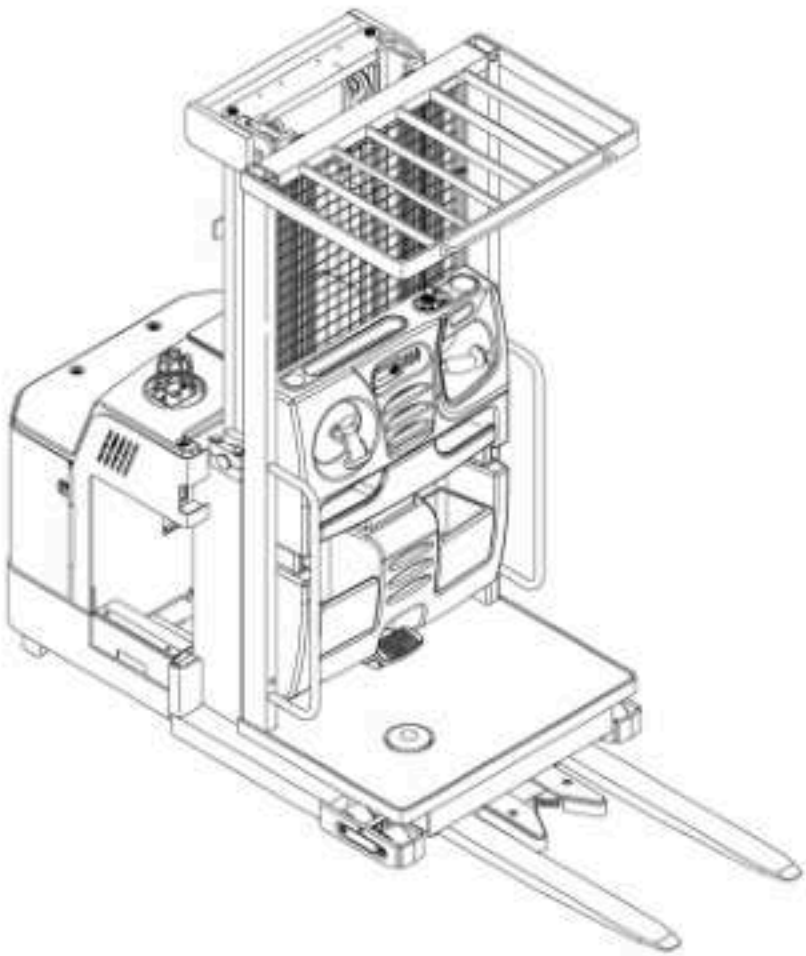
SERVICE MANUAL

A169 (R30XM3, R30XMA3, R30XMF3)



Rev. 08/14

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This section is for the following models:

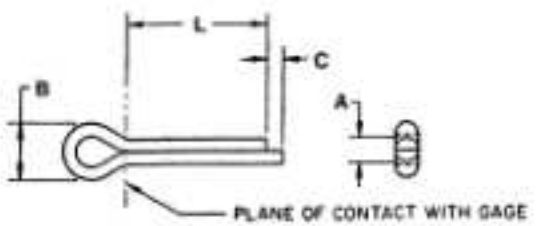
R30XMF3 [A169];
R30XMA3 [A185];
C1.0, C1.3 (V30XMU) [A463, A467];
C1.5B (V35XMU) [A464, A468];
C1.8X (V40XMU) [A465, A469];
C1.3 (V30ZMU) [B463];
C1.5 (V35ZMU) [B464]
R30ES [B174];
R30XMS [C174];
R30XMS2 [D174];
N30XMH2 [C210];
V30ZMD [D210];
R30F/FA/FF [E118];
R30XMS3 [E174];
R30XM/XMA/XMF [F118];
R30XM2/XMA2/XMF2 [G118];
R30XM3 [H118]

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Table 11. Cotter Pin Dimensional Data

Nominal Length L	Length Range		Nominal Size - Part Numbers	
	max	min	13.0 mm (0.500 in.)	16.00 mm (0.625 in.)
19.05 mm (0.750 in.)	20.5 mm (0.807 in.)	18.3 mm (0.720 in.)		
25.4 mm (1.00 in.)	26.9 mm (1.060 in.)	23.9 mm (0.940 in.)		
31.75 mm (1.250 in.)	33.3 mm (1.310 in.)	29.2 mm (1.150 in.)		
38.1 mm (1.500 in.)	40.9 mm (1.610 in.)	36.6 mm (1.440 in.)		
44.45 mm (1.750 in.)	46.0 mm (1.810 in.)	42.9 mm (1.690 in.)	0221889	
50.8 mm (2.000 in.)	52.3 mm (2.060 in.)	49.3 mm (1.940 in.)	0221890	
57.15 mm (2.250 in.)	58.7 mm (2.310 in.)	55.1 mm (2.170 in.)	0221891	
63.5 mm (2.500 in.)	65.0 mm (2.560 in.)	62.0 mm (2.440 in.)	0221892	
69.85 mm (2.750 in.)	72.1 mm (2.840 in.)	68.3 mm (2.690 in.)	0221893	0221895
76.2 mm (3.000 in.)	81.3 mm (3.200 in.)	74.7 mm (2.940 in.)	0015291	0221896
88.9 mm (3.500 in.)	91.4 mm (3.600 in.)	87.4 mm (3.440 in.)	0015292	0221897
101.6 mm (4.000 in.)	113.3 mm (4.460 in.)	98.8 mm (3.890 in.)	0015293	0221898
127.0 mm (5.000 in.)	128.5 mm (5.060 in.)	123.7 mm (4.870 in.)	0015295	0221899
152.4 mm (6.000 in.)	153.9 mm (3.060 in.)	138.7 mm (5.460 in.)	0015297	0221900



EXTENDED PRONG

HM211587

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Table 3. Fault Codes (Continued)

AC Motor Controller	
Code	**Description**
8969 Node 2	The high side driver of the parking brake coil is shorted (24V system only).
8970 Node 2	Low side driver of the electric brake is shorted or open brake coil.
8971 Node 2	One of the traction motor phases has an open circuit.
8972 Node 2	The main line contactor coil or the parking brake coil has detected an overcurrent condition.
8973 Node 2	The lift /lower proportional valve coil circuit is open or shorted.
8974 Node 2	The load hold valve coil circuit is open.
8992 Node 6	Steer (EPS) power failure motor phase W or problems with steer speed encoder.
8993 Node 6	Steer (EPS) power failure motor phase V or problems with steer speed encoder.
8994 Node 6	Steer (EPS) power failure motor phase U or problems with steer speed encoder.
8996 Node 6	Steer (EPS) motor in a locked rotor condition.
12289 Node 2	Traction throttle voltage is out of range.
12290 Node 2	Lift throttle voltage is out of range (R30XM3/XMA3/XMF3 only).
12291 Node 2	A traction motor speed encoder fault has been detected.
12292 Node 2	A traction motor stall condition has been detected.
12293 Node 2	Lift and lower commands are being requested simultaneously (R30XMS3 only).
12321 Node 6	Steer (EPS) motor power phases output mismatch between EPS slave and EPS master.
12322 Node 6	Steer motor encoder mismatch between steer (EPS) master controller and steer (EPS) slave controller microprocessor.
12323 Node 6	Steer EPS controller has detected a position mismatch between the centering prox switch and the steer motor encoder.

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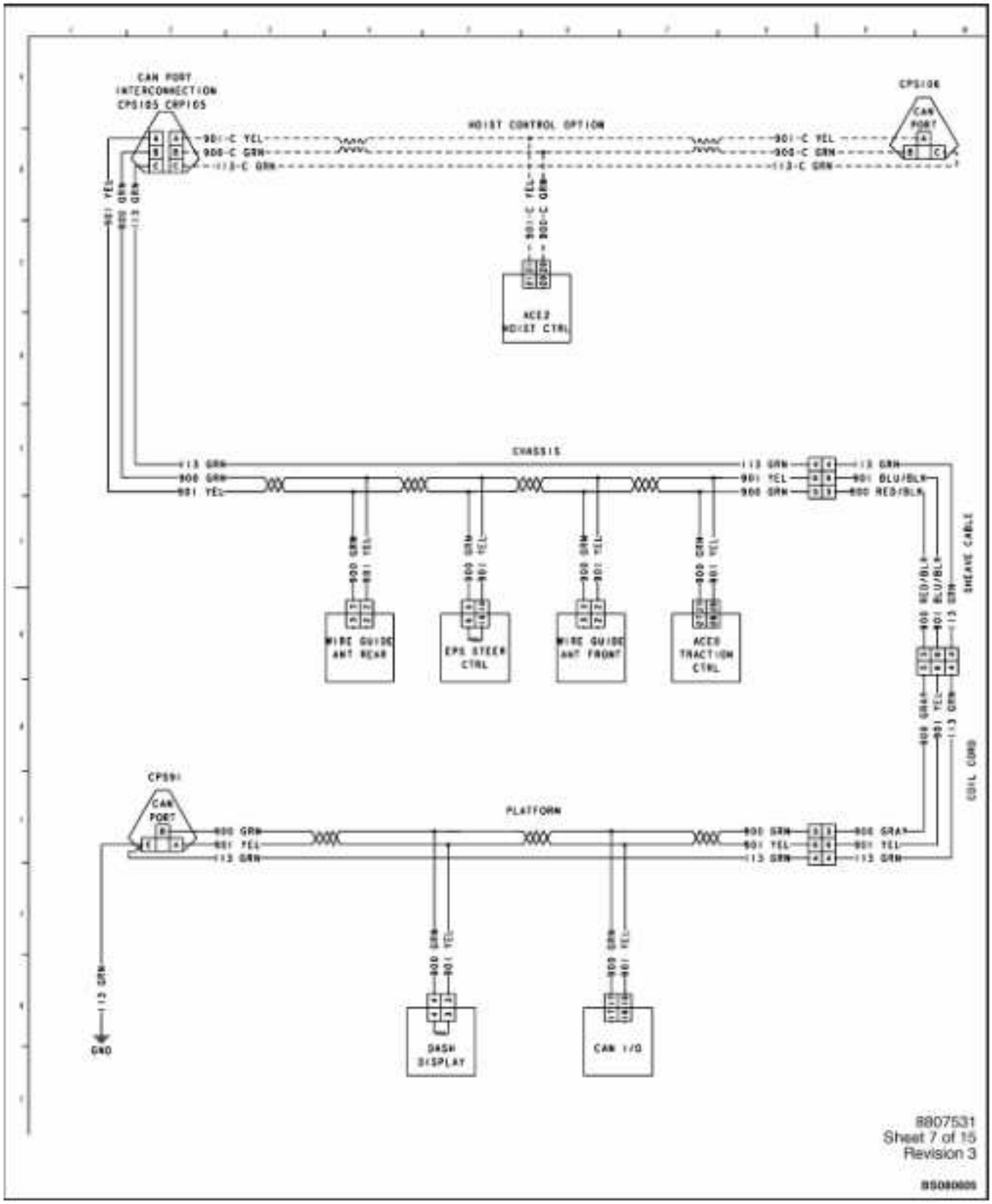


Figure 1. Wiring Schematic (Sheet 7 of 7)

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Traction Motor

CODES

DTC 30060 - Traction - Motor - Circuit
DTC 30061 - Traction - Motor - Open

POSSIBLE CAUSE

A. TRACTION MOTOR CABLE FAULT
B. TRACTION MOTOR FAULT
C. FAULTY TRACTION CONTROLLER

NOTE

Please refer to the end of this procedure for supporting diagrams.

COMPONENT OPERATIONAL CHECK

NOTE: Always check battery condition and state of charge before performing electrical troubleshooting. A faulty or low charged battery will cause electrical features to not operate as designed and give incorrect readings while performing electrical tests.

PROCEDURE OR ACTION:

1. Conduct a visual inspection of all connectors/wiring associated with the fault code.
   Are any faults detected/observed?
   YES: Repair/replace connector or wiring associated with faults found. Refer to the appropriate **Electrical System** SRM.
   NO: Proceed to Step 2.
2. Re-key the vehicle.
   Is the code still present?
   YES: Proceed to Cause A.
   NO: Problem may be intermittent.

CAUSE A - TRACTION MOTOR CABLE FAULT

PROCEDURE OR ACTION:

NOTE: Disconnect battery.

1. Disconnect the traction motor cables from the traction controller and traction motor. Measure continuity of individual cables to isolate fault.
   Is continuity present?
   YES: Proceed to Cause B.
   NO: Repair or replace faulty phase cable.

CAUSE B - TRACTION MOTOR FAULT

PROCEDURE OR ACTION:

NOTE: Disconnect battery.

1. Measure resistance between the traction motor terminals U and V.
   Is resistance between .322 and .383 ohms?
   YES: Proceed to Step 1.

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