An Oshkosh Corporation Company

Service and Maintenance Manual

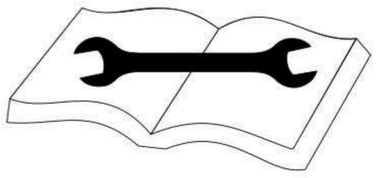
Model
450A Series II
450AJ Series II

S/N 0300160835
to Present

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October 4, 2013

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1.5 TIRES

Table 1-6. Tires

Size	Type	Pressure	Weight
12x16.5	Pneumatic	90 psi (6 Bar)	128 lb (58 kg)
12x16.5	Foam-Filled	N/A	328 lb (149 kg)
33/1550x16.5	Pneumatic	90 psi (6 Bar)	135 lb (61 kg)
33/1550x16.5	Foam-Filled	N/A	395 lb (179 kg)
14x17.5	Pneumatic	90psi (6 Bar)	170 lb (77.2 kg)
14x17.5	Foam-Filled	N/A	440 lb (200 kg)

1.6 ENGINE

NOTE: *RPM Tolerances are ± 100.*

Table 1-7. Deutz D2011L03

Fuel	Diesel
No. of Cylinders	3
Bore	3.7 in. (94 mm)
Stroke	4.4 in. (112 mm)
Displacement	142 cu. in. (2331 cm^3)
Oil Capacity crankcase cooler total capacity	 6.3 Qt (6 L) 4.75 Qt (4.5 L) 11 Qt (10.5 L)
Low RPM	1200
Mid RPM Tower Lift, Upper Lift, Tele Swing, Basket Level, Basket Rotate, Jib Lift	 1800 1500
High RPM	2800

Table 1-8. Deutz 2.9 L4

Fuel	Diesel
No. of Cylinders	4
BHP	48.8 hp (36.4 kW)
Bore	3.6 in. (92 mm)
Stroke	4.3 in. (110 mm)
Displacement	177 cu. in. (2.9L)
Oil Capacity w/filter	9.4 Qt (8.9 L)
Compression Ratio	18.4:1
Firing Order	1-3-4-2
Max. RPM	2600

Table 1-9. GM 3.0L

Fuel	Gasoline or Gasoline/LP Gas
No. of Cylinders	4
BHP Gasoline LP	 83 hp @ 3000 rpm 75 hp @ 3000 rpm
Bore	4.0 in. (101.6 mm)
Stroke	3.6 in. (91.44 mm)
Displacement	181 cu.in. (3.0 L, 2966 cc)
Oil Capacity w/filter	4.5 qts. (4.25 L)
Minimum Oil Pressure at idle Hot	 6 psi (0.4 Bar) @ 1000 rpm 18 psi (1.2 Bar) @ 2000 rpm
Compression Ratio	9.2:1
Firing Order	1-3-4-2
Max. RPM	2800

Table 1-10. Component Weights - 450

Component	Pounds	Kilograms
Frame (Bare)	1531	695
Turntable (Bare)	1355	615
Boom Link	180	82
Boom Timing Link	30	14
Upper Upright	217	98
Lower Upright	115	52
Lower Boom	497	225
Mid Boom	385	175
Upper Boom	1065	484
4 Wheel Drive Axle	266	121
2 Wheel Drive Axle	258	117
Counterweight	2297	1042

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Fault Code Broadcast

All diagnostic trouble codes are broadcast through EDIS for display on a PC. EDIS can acquire the data from the ECU via CAN using the EControls Inc. Proprietary Protocol (ECIPP). Faults may also be acquired over the CAN network through CAN J1939-based scan tools or multi-function display units.

Diagnostic Trouble Codes

Numeric diagnostic trouble codes assigned to faults in this manual are cross-referenced to SAE.s "Recommended Practice for Diagnostic Trouble Code Definitions" (SAE J2012). While these codes are recommended, customers may define their own codes by assigning a new number to the flash code in the diagnostic calibration. This assigns the DTC as displayed in EDIS and flash code output on the MIL output pin. EDIS may be used to connect to the DGC ECM via CAN.

CAN

The DGC supports SAE J1939 CAN based diagnostic support. This includes:

- DM1: Active Diagnostic Trouble Codes
- DM2: Previously Active Diagnostic Trouble Codes
- DM3: Diagnostic Data Clear/Reset of Previously Active DTCs
- DM4: Freeze Frame Parameters
- DM5: Diagnostic Readiness (bytes 1, 2, and 3 are supported)
- DM11: Diagnostic Data Clear/Reset For Active DTCs
- DM12: Emissions-Related Active Diagnostic Trouble Codes
- DM19: Calibration Information

All diagnostic trouble codes broadcast over CAN are SAE J1939 DM1 and DM2 formatted messages. DGC ECMs are compliant with J1939 OBD-M, supporting the Diagnostic Messages above as well as user indicators and CAN data defined in the OBD-M protocol. Faults available for broadcast and their respective SPN/FMI numbers are dependent on the application and engine calibration. There are 4 CAN SPN/FMI lists available in the DGC software set, contact EControls Inc. for a list of CAN SPN/FMIs.

Data capture at occurrence of a fault, known in the ECM as fault snapshot (FSS), is available upon DM4 request. The following bytes are supported for DM4 if configured in ECM software:

- Byte 1: Freeze Frame Length
- Byte 2-6: SPN, FMI, SPN Conversion Method, and Occurrence
- Byte 7: Manifold Absolute Pressure
- Byte 8-9: Engine Speed
- Byte 10: Engine Load (MAP based estimate)
- Byte 11: Engine Coolant Temperature
- Byte 14: # of starts since fault was last active
- Byte 15: Index into FSS_storage table for Fault Snap Shot retrieval

Resetting active and previously active DTCs is handled through DM11 and DM3, respectively DM1 and DM2 lamp indicators are assigned to each fault based on the faults diagnostic action as defined in the calibration. Lamps are assigned based on configuration outlined in Table 3-15.

Table 3-15. J1939 Diagnostic Lamp Configuration

ECI DIAGNOSTIC ACTION	J1939 LAMP
MIL	MIL
Soft Warning	Amber
Hard Warning, Low Rev Limit, Shutdown	Red Stop
Power Derate 1 & 2	Protect
Forced Idle	None (use in combination with other action)

MIL Output

Malfunction Indicator Lamp (MIL) output displays fault information to the equipment operator. The MIL is always on (grounded) when the system is in a key-on (Vsw), engine-off state. This shows the output is functional. If a DTC is logged as previously-active (historic), the MIL sends a single flash for the "Blink on-time" every "Blink off-time."

Diagnostic Calibration Configuration and Corrective Actions

Each fault within the DGC is capable of being uniquely configured in the engines diagnostic calibration to cause one or more corrective actions while a given fault is active.

Table 2 identifies configuration options and corrective actions available for configuration of each fault.

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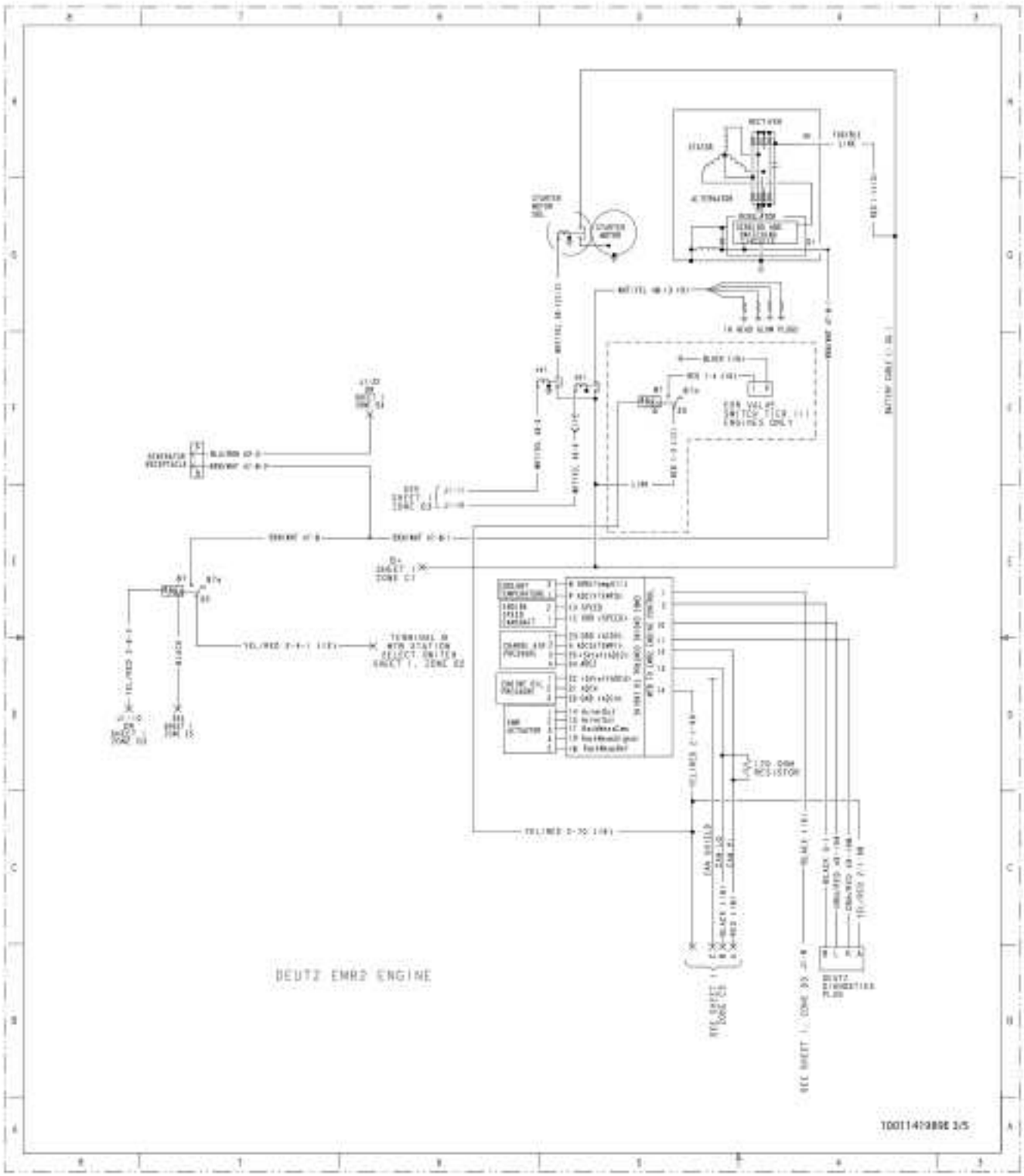
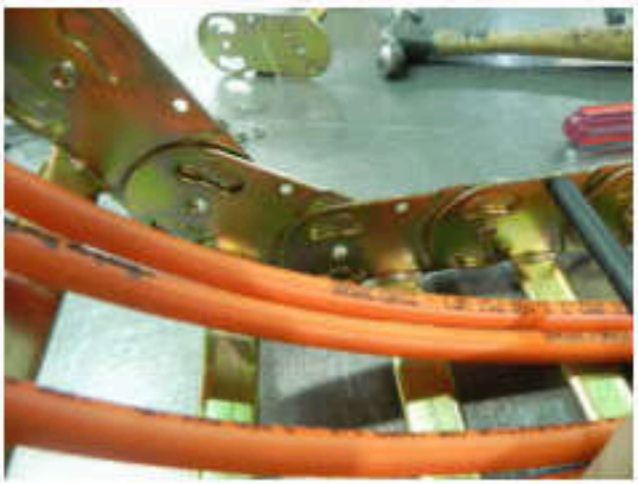


Figure 7-30. Deutz Engine Electrical Schematic

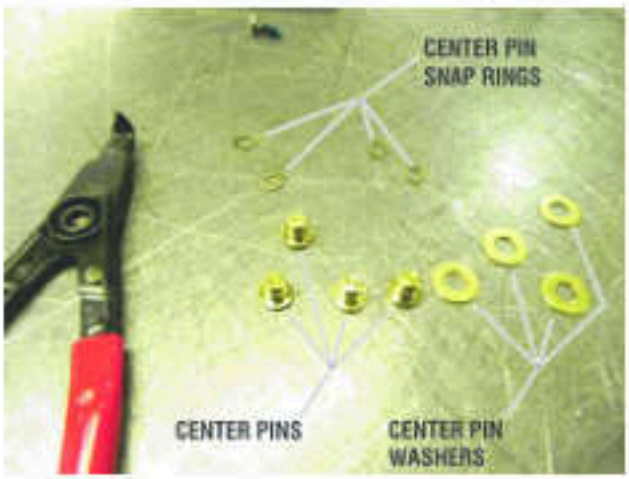
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4. Pull moving end over track so new connection is positioned in curve of powertrack. Round half-shears will rotate into cut-outs.





5. Parts shown below connect new link to powertrack.



6. Push pin through center hole then slide washer on pin.





7. Install snap ring in groove on pin. Repeat pin installation steps for all center holes with rivets removed.



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AMP Mate-N-Lok

Follow manufacturer installation instructions.

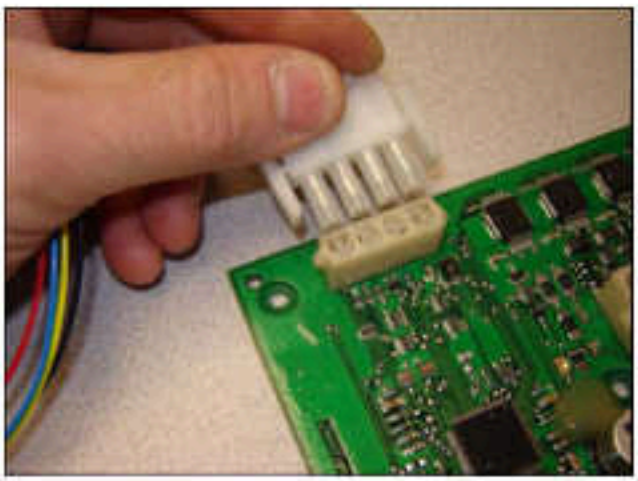


Figure 7-9. AMP Mate-N-Lok Connector

DIN Connectors

This connector is typically used on hydraulic valves. Follow manufacturer installation instructions.



Figure 7-10. DIN Connector

Exclusions

Some connectors do not require or may be permanently damaged by application of dielectric grease. Dielectric grease may not be required in properly sealed enclosures.

NOTICE

DO NOT USE DIELECTRIC GREASE ON BRAD HARRISON/PHOENIX CONTACT M12 OR AMP JUNIOR TIMER CONNECTORS. LOW-FORCE CONTACTS CANNOT DISPLACE DIELECTRIC GREASE AND CREATE ELECTRICAL CONTACT.

BRAD HARRISON/PHOENIX CONTACT M12

This connector uses gold contact material to resist corrosion and an O-ring seal for moisture integrity. Low-force contacts cannot displace dielectric grease to achieve electrical contact. Once contaminated, replacement of female contacts is required. The JLG Load Sensing System and 1250AJP Rotary Angle Sensors are examples of components with the M12 connector system.



Figure 7-11. Brad Harrison/Phoenix Connectors

AMP JUNIOR TIMER

This type of connector uses back-seals to keep out moisture. Low-force contacts cannot displace dielectric grease and create electrical contact. Use solvents (i.e. contact cleaner or mineral spirits) to remove dielectric grease. The Deutz EMR2 engine control module uses this connector.



Figure 7-12. AMP Junior Timer

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