An Oshkosh Corporation Company

Service and Maintenance Manual

Model

510AJ

P/N - 3121181

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ANSI

An Oshkosh Corporation Company

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1.6 TORQUE REQUIREMENTS

Table 1-10. Torque Specification

Description	Torque Value	Interval Hours
Wheel Lugs	170 ft. lbs. (230 Nm)	150
Swing Bearing (Loctite)	240 ft. lbs. (325 Nm)	50/600*
Starter Solenoid Contacts Coil	95 in. lbs. (9.5 Nm) 40 in. lbs. (4 Nm)	As required
Drive Hub to Axle	240 ft. lbs. (325 Nm)	As required
Drive Motor to Axle	120 ft. lbs. (163 Nm)	As required
*Check swing bearing bolts for security after first 50 hours of operation and every 600 hours thereafter.		

Table 1-11. Engine Torque Requirements

Description	Torque Value Ft. Lb.s	Torque Value Nm
Cylinder Head Cover	6	8.5
Cyinder Head Cover	6	8.5
Rocker Arm Adjustment Screw	15	21
Intake Manifold	6	8.5
Air Intake Pipe	15	21
Exhaust Manifold (F3M1011)	28.5	40
Exhaust Manifold (F3M2011)	16	22
Pump Coupling (dry)	26.5	37
Pump Coupling (Loctite #242)	28.5	40
Oil Drain Plug	39	55
Oil Pan (sheet metal)	15	21
Oil Pan (cast)	22	31
Injection Line Attachment	21	30
Injection Valve Attachment	15	21
Lube Oil Filter Cartridge	19	27

1.7 LUBRICATION

Hydraulic Oil

Table 1-12. Hydraulic Oil

Hydraulic System Operating Temperature Range	S.A.E. Viscosity Grade
+0° to + 180° F (-18° to +83° C)	10W
+0° to + 210° F (-18° to +99° C)	10W-20, 10W30
+50° to + 210° F (+10° to +99° C	20W-20

NOTE: *Hydraulic oils must have anti-wear qualities at least to API Service Classification GL-3, and sufficient chemical stability for mobile hydraulic system service. JLG Industries recommends Mobilfluid 424 hydraulic oil, with an SAE viscosity index of 152.*

NOTE: *When temperatures remain consistently below 20 degrees F. (-7 degrees C.), JLG Industries recommends the use of Mobil DTE13.*

Aside from JLG recommendations, it is not advisable to mix oils of different brands or types, as they may not contain the same required additives or be of comparable viscosities. If use of hydraulic oil other than Mobilfluid 424 is desired, contact JLG Industries for proper recommendations.

Table 1-13. Mobilfluid 424 Specs

SAE Grade	10W30
Gravity, API	29.0
Density, Lb/Gal. 60°F	7.35
Pour Point, Max	-46°F (-43°C)
Flash Point, Min.	442°F (228°C)
Viscosity	
Brookfield, cP at -18°C	2700
at 40° C	55 cSt
at 100° C	9.3 cSt
Viscosity Index	152

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Table 6-9. Help Fault Codes, Displayed Faults, and Descriptions

Fault Flash Code	Analyzer Display	Description	Priority
None		No flash code is indicated for the following help messages. They are intended to hint at a possible problem if the vehicle is not behaving as expected.	1
	EVERYTHING OK	The "normal" help message in platform mode	
	GROUND MODE OK	The "normal" help message in ground mode	
	FSW OPEN	A drive or boom function has been selected but footswitch is open.	
	RUNNING AT CREEP – CREEP SWITCH OPEN	All function speeds limited to creep. Creep switch is open.	
	RUNNING AT CREEP – TILTED AND ABOVE ELEVATION	All boom function speeds limited to creep. Vehicle is tilted and above elevation.	
	RUNNING AT CUTBACK – OUT OF TRANSPORT POSITION	Drive speed is limited to "ELEVATED MAX" because the vehicle is out of transport position.	
	CHASSIS TILT SENSOR OUT OF RANGE	Chassis tilt sensor has indicated a tilt angle greater than 19 degrees for more than 4 seconds. Not reported during 2 second power-up.	
	LOAD SENSOR READING UNDER WEIGHT	The load sensor is reading 20% or more under the calibrated zero point. This fault may occur if the basket is resting on the ground. Not reported during 2 second power-up.	
	ENVELOPE ENCROACHED – HYDRAULICS SUSPENDED	Only occurs on machines with envelope control. The system has detected an envelope violation	
	OVER MOMENT – HYDRAULICS SUSPENDED	Only occurs on machines with moment control. The system has detected an over moment violation.	
	UNDER MOMENT – HYDRAULICS SUSPENDED	Only occurs on machines with moment control. The system has detected an under moment violation.	
1/1		**Flash code 1/1 indicates a "sleep" mode. NOT REQUIRED**	
2/1		**Flash code 2/1 indicates problems with footswitch.**	2
	FSW FAULTY	The two footswitch inputs have read the same state for more than one second. An EMS cycle is required.	
	KEYSWITCH FAULTY	Both platform and ground modes are selected simultaneously	

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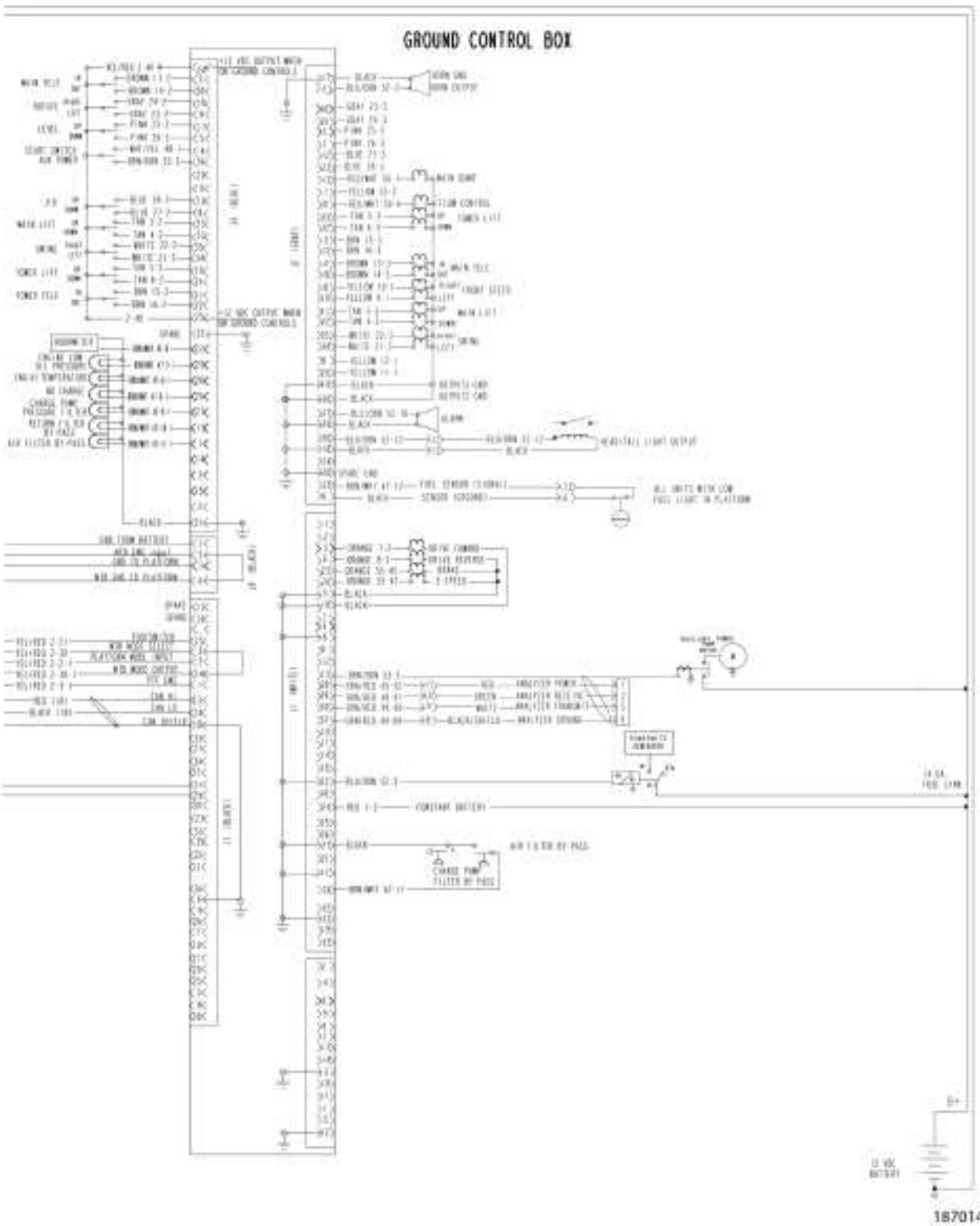
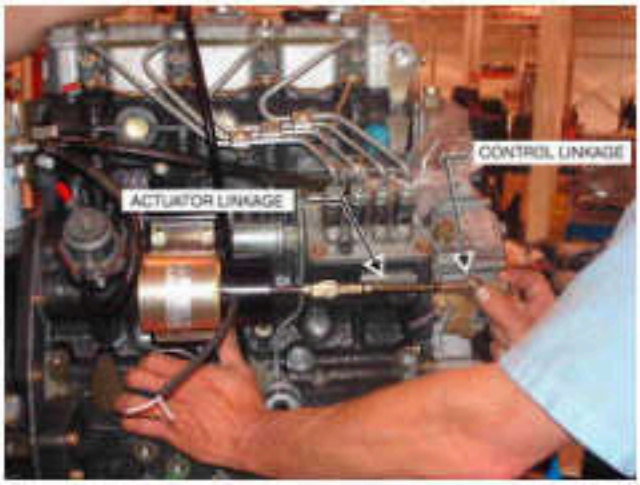


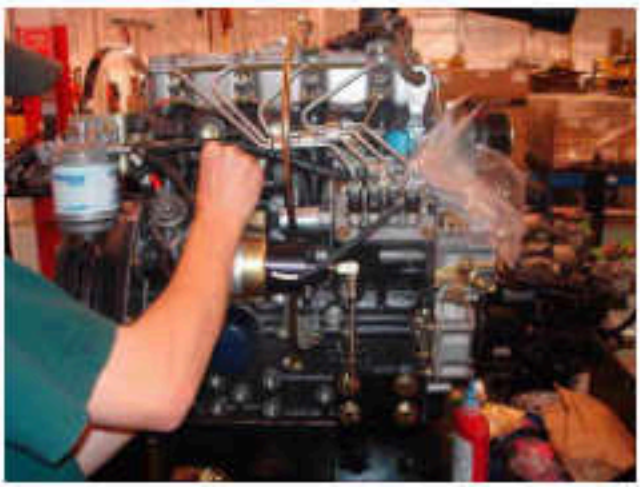
Figure 7-21. Electrical Schematic - Sheet 2 of 4

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Setting the Actuator

1. Remove bolt from control linkage



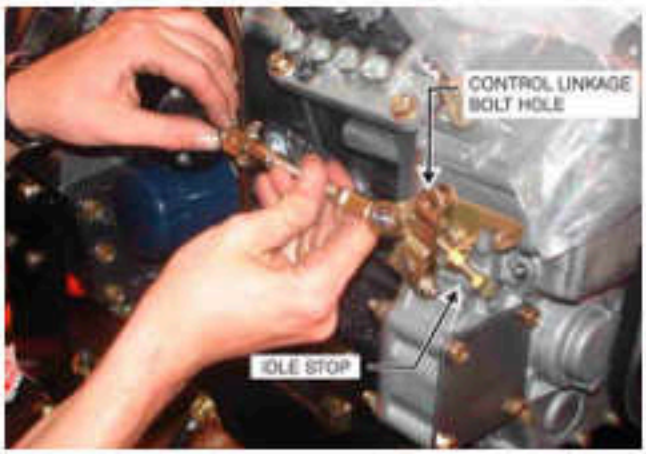


2. With control linkage pushed against idle stop, begin to make adjustments to actuator linkage to align bearing of spherical rod end with control linkage bolt hole. When making linkage adjustments, thread spherical rod end and threaded rod evenly (for every turn of spherical rod end, turn threaded rod.)

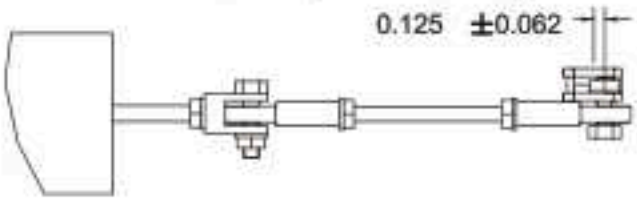


NOTICE

DURING THIS PROCEDURE IT IS VERY IMPORTANT TO KEEP CONTROL LINKAGE PUSHED AGAINST THE STOP.



3. Once the adjustments have been made to align the spherical rod end bearing with the control linkage bolt hole, lengthen the actuator linkage by continuing to turn the spherical rod end and threaded rod 2-2 ½ turns (1-1 ¼ turns of spherical rod end and 1-1 ¼ turns of threaded rod.) This will provide 1/8" (3 mm) preload.



Use a measuring device to ensure the preload is approximately 1/8" (3 mm), then secure the actuator linkage to the control linkage with original bolt and nut. Make sure the spherical ball is seated in the control linkage bolt hole. Tighten two nuts on the threaded rod of the actuator linkage and using two wrenches to prevent binding of clevis heads.



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SECTION 5. HYDRAULICS AND HYDRAULIC SCHEMATICS

NOTE: *Hydraulic Schematics located at back of this section.*

5.1 O-RING LUBRICATION

When assembling connectors, all fittings with O-rings must be lubricated with hydraulic oil before assembly. There are four methods of lubricating O-rings:

1. Cup and Brush
2. Dip
3. Spray
4. Brush-On

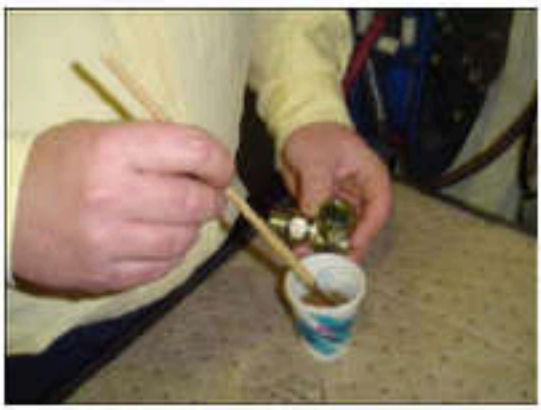
Cup and Brush

Tools needed:

- Small container for hydraulic oil
- Small paint brush



1. Hold fitting in one hand and dip brush into container with other hand. Remove excess hydraulic oil from brush so an even film of oil is applied to O-ring.



2. Hold fitting over hydraulic oil container and brush an even film of oil around entire O-ring in fitting. Make sure O-ring is completely saturated.



3. Turn fitting over and repeat previous step to O-ring on other side of fitting. Make sure entire O-ring is coated with hydraulic oil.



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