An Oshkosh Corporation Company

Service and Maintenance Manual

Models

1200SJP
1350SJP

PVC 2007

31217406

July 16, 2020 - Rev A

ANSI

CE

AS/NZS

MOL70

An Oshkosh Corporation Company

MidWestTech | JLG 1200SJP, 1350SJP Boom Lift Service Manual | Publication 31217406

Order the manual at mid-west-tech.com >

SECTION NO.	TITLE	PAGE NO.
SECTION A - INTRODUCTION - MAINTENANCE SAFETY PRECAUTIONS		
A	General	A-1
B	Hydraulic System Safety	A-1
C	Maintenance	A-1
SECTION 1 - SPECIFICATIONS		
1.1	Capacities	1-1
1.2	Tires	1-1
1.3	Engine Data	1-1
	Deutz TD2011L4	1-1
	Deutz TCD2.9L4	1-1
	Deutz TCD2.9L4 GUOIII	1-1
1.4	Specifications and Performance Data	1-2
	Reach Specifications	1-2
	Dimensional Data	1-2
	Chassis Specifications	1-2
1.5	Torque Requirements	1-3
1.6	Hydraulic Oil Specifications	1-3
1.7	Major Component Weights	1-4
1.8	Pressure Settings	1-5
1.9	Lubrication and Maintenance	1-7
1.10	Threadlocking Compound	1-13
1.11	Torque Charts	1-14
	SAE Fastener Torque Chart	1-14
	SAE Fastener Torque Chart (Continued)	1-15
	SAE Fastener Torque Chart (Continued)	1-16
	SAE Fastener Torque Chart (Continued)	1-17
	SAE Fastener Torque Chart (Continued)	1-18
	SAE Fastener Torque Chart (Continued)	1-19
	Metric Fastener Torque Chart	1-20
	Metric Fastener Torque Chart (Continued)	1-21
	Metric Fastener Torque Chart (Continued)	1-22
	Metric Fastener Torque Chart (Continued)	1-23
SECTION 2 - GENERAL		
2.1	Machine Preparation, Inspection, and Maintenance	2-1
	General	2-1
	Preparation, Inspection, and Maintenance	2-1
	Pre-Start Inspection	2-1
	Pre-Delivery Inspection and Frequent Inspection	2-1
	Annual Machine Inspection	2-1
	Preventative Maintenance	2-1
2.2	Service and Guidelines	2-2
	General	2-2
	Safety and Workmanship	2-2
	Cleanliness	2-2
	Components Removal and Installation	2-2
	Component Disassembly and Reassembly	2-3
	Pressure-Fit Parts	2-3
	Bearings	2-3
	Gaskets	2-3
	Bolt Usage and Torque Application	2-3
	Hydraulic Lines and Electrical Wiring	2-3
	Hydraulic System	2-3
	Lubrication	2-4
	Battery	2-4
	Lubrication and Servicing	2-4

MidWestTech | JLG 1200SJP, 1350SJP Boom Lift Service Manual | Publication 31217406 Order the manual at mid-west-tech.com >

SECTION NO.	TITLE	PAGE NO.
2.3	Lubrication and Information	2-4
	Hydraulic System	2-4
	Hydraulic Oil	2-4
	Changing Hydraulic Oil	2-4
	Lubrication Specifications	2-4
2.4	Cylinder Drift	2-5
	Theory	2-5
	Cylinder Leakage Test	2-5
	Cylinder Thermal Drift	2-5
2.5	Pins and Composite Bearing Repair Guidelines	2-6
2.6	Welding on JLG Equipment	2-6
	Do the Following When Welding on JLG Equipment	2-6
	Do Not Do the Following When Welding on JLG Equipment	2-6
SECTION 3 - CHASSIS & TURNTABLE		
3.1	Tires & Wheels	3-1
	Wheel and Tire Replacement	3-1
	Wheel Installation	3-1
3.2	Extending Axles	3-1
3.3	Axle Limit Switch Adjustment Procedure	3-2
3.4	Drive System	3-2
3.5	Steering Control System	3-3
3.6	Drive/Steering Speed Control	3-4
3.7	Traction Control System	3-4
3.8	Drive Orientation System	3-4
3.9	Oscillating Axle System	3-16
3.10	Oscillating Axle Bleeding Procedure and Lockout Test	3-16
	Lockout Cylinder Bleeding	3-16
	Oscillating Axle Lockout Test	3-17
3.11	Wheel Drive Assembly	3-18
	Removal	3-18
	Installation	3-18
3.12	Drive Hub	3-19
	Removal	3-19
	Installation	3-19
3.13	Drive Motor	3-20
	Removal	3-20
	Installation	3-20
3.14	Drive Hub - If Equipped With Bonfiglioli	3-22
	Product Identification	3-22
	Hydraulic Motor Installation	3-22
	Installation of the Wheel Drive on the Machine	3-22
	Start Up and Running In	3-22
	General Information	3-23
	Connecting the Brake	3-23
	Filling-up the Gearbox with Lubricating Oil	3-23
	Gearbox Disengagement	3-25
	Maintenance Information	3-27
	Changing the Lubricating oil	3-27
	Troubleshooting	3-28
	Disassembly Information	3-28
	Disassembly Procedure	3-28
	Inspection of Parts	3-36
	Assembly	3-37
	Final Test and Reinstallation	3-47

MidWestTech | JLG 1200SJP, 1350SJP Boom Lift Service Manual | Publication 31217406 Order the manual at mid-west-tech.com >

SECTION NO.	TITLE	PAGE NO.
3.15	Drive Hub - If Equipped With Reggiana Riduttori	3-52
	Symbol Nomenclature	3-52
	Tools	3-52
	Disassembly	3-57
	Assembly	3-61
3.16	Swing Drive	3-67
3.17	Swing Brake	3-71
3.18	Swing Motor	3-72
3.19	Procedure For Setting Gear Backlash	3-73
3.20	Swing Drive Lubrication	3-74
3.21	Swing Bearing	3-75
	Turntable Bearing Mounting Bolt Condition Check	3-75
	Wear Tolerance	3-78
	Swing Bearing Removal	3-78
	Swing Bearing Installation	3-80
	Swing Bearing Torque Values	3-81
3.22	Swing Speed Proportioning	3-82
3.23	Chassis Tilt Indicator System	3-82
3.24	Rotary Coupling	3-83
3.25	Generator	3-87
	Every 250 hours	3-87
	Every 500 hours	3-87
	Overload Protection	3-88
	Inspecting Brushes, Replacing Brushes, and Cleaning Slip Rings	3-88
3.26	Auxiliary Power System	3-90
3.27	Cold Weather Package	3-92
3.28	Engine	3-92
	Glow Plugs	3-92
	Checking Oil Level	3-92
	Changing Engine Oil	3-92
	Changing the Oil Filter	3-93
	Replacing the Fuel Filter	3-94
	Cleaning the Fuel Strainer	3-94
3.29	Deutz Engine - TD2.9L4	3-95
	Glow Plugs	3-95
	Check Oil Level	3-95
	Replacing Engine Oil	3-95
	Replacing the Oil Filter	3-96
	Replacing the Primary Fuel Filters	3-96
	Replacing the Fuel Pre-Filter	3-97
	Water in Fuel Sensing System (Optional)	3-98
	Draining Water	3-98
	Auxiliary Fuel Filter	3-98
3.30	Deutz TD2011 Engine	3-100
3.31	Deutz 2.9 L4 (Guo III) Engine	3-101
3.32	Deutz 2.9L4 Engine	3-103
3.33	Deutz EMR 2 (SN 87579 to Present)	3-105
3.34	Bio Fuel in Deutz Engines	3-118
	General	3-118
	Bio Fuel	3-118
	Biological Contamination In Fuels	3-119
3.35	Deutz Engine Fault Codes	3-120

MidWestTech | JLG 1200SJP, 1350SJP Boom Lift Service Manual | Publication 31217406 Order the manual at mid-west-tech.com >

Fault group	Fault no. (in SERDIA)	Fault locality/ Fault description	SPN	FMI	Cause	Remarks	Help
Hardware inputs/ outputs	60	Digital output 3 (Switch-off solenoid, pin M 2)	SID 51	2	Fault (short circuit / cable break) at digital output.	Driver level is switched off.	Check cable of digital output (cable break or short circuit).
	62	Digital output 6, pin M 7	SID 60	2		Fault message.	
	63	Excess voltage switch-off solenoid	SID 51	6			
	67	Error Hand Setp1	91	11			
	68	Error CAN Setp1	898	2			
Communi-cation	70	CAN-Bus controller	SID 231	12	CAN-controller for CAN-bus is faulty. Fault removal despite re-initialising continuously not possible	Application-dependent.	Check CAN connection, terminating resistor (see Chapter 12.4). Check control unit.
	71	CAN interface SAE J 1939	SID 231	9	Overflow in input buffer or a transmission cannot be placed on the bus.		
	74	Cable break, short circuit or bus-error	SID 231	14			Check CAN connection, cable connection. Check sensor and replace if required.
Memory	76	Parameter programming (write EEPROM)	SID 253	12	Fault in parameter programming in the governor fixed value memory.	Emergency switch-off: engine cannot be started.	Switch ignition off and on again. Check again. If faulty inform DEUTZ Service
	77	Cyclic program test	SID 240	12	Constant monitoring of program memory shows error (so-called "Flash-test").		
	78	Cyclic RAM test	SID 254	2	Constant monitoring of working memory shows error.		Note values of parameters (3866 and 3896). Switch ignition off and on again. Check again. If faulty inform DEUTZ Service.

NOTE: SID is equal to 512. To get SPN #, add 512 + number. For example, SID 254 would be 512+254 or an SPN of 766.

Figure 3-80. EMR2 Fault Codes - Sheet 4 of 5

MidWestTech | JLG 1200SJP, 1350SJP Boom Lift Service Manual | Publication 31217406 Order the manual at mid-west-tech.com >

4. After establishing the desired maximum displacement setting, hold adjusting screw in place and tighten the locknut. Torque to 23 Nm [17 lbft]. C

⚠ CAUTION

BE SURE SERVO CYLINDER DOES NOT ROTATE WHEN DISPLACEMENT LIMITER LOCKNUT (ES50) IS TORQUED.

5. One turn of the adjusting screw will change the maximum displacement approximately as follows.

Table 5-46. Displacement Limiter Adjustment Data

Displacement	Locknut wrench size and torque	Adjusting screw size	Approximate displacement change per revolution of adjusting screw
45	13 mm 23 Nm [17 lbft]	4 mm internal hex	5.1 cc / turn

CONTROL NEUTRAL ADJUSTMENT

All functions of the Electric Displacement Control (EDC) are preset at the factory. Adjust the pump to neutral with the pump running on a test stand or on the vehicle/machine with the prime mover operating. If adjustment fails to give satisfactory results, you may need to replace the control or coils.

1. Install a 50 bar [1000 psi] gauge in each of the two servo gauge ports (M4 and M5). Disconnect the external control input (electrical connections) from the control. Start the prime mover and operate at normal speed.
2. Use a 4mm internal hex wrench to hold the neutral adjusting screw stationary while loosening the locknut with a 13mm wrench.
3. Observe pressure gauges. If necessary, turn adjusting screw to reduce any pressure differential.

NOTE: *Adjustment of the EDC is very sensitive. Be sure to hold the hex wrench steady while loosening the locknut. Total adjustment is less than 120 degrees.*

4. Rotate the neutral adjusting screw clockwise until the pressure increases on the gauge. Note the angular position of the wrench. Then rotate the neutral adjusting screw counterclockwise until the pressure increases by an equal amount on the other gauge. Again note the angular position of the wrench.

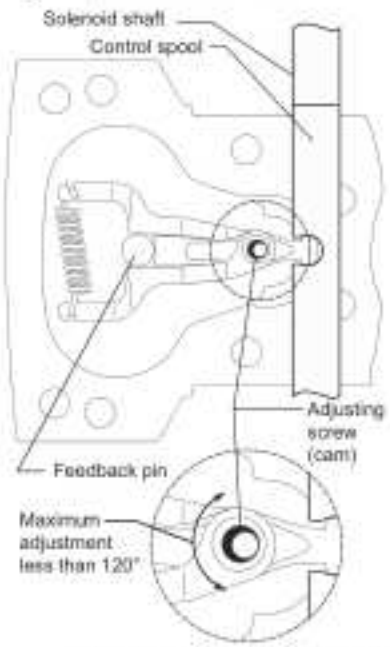


Illustration shows how eccentric cam on adjusting screw rotates to adjust neutral.

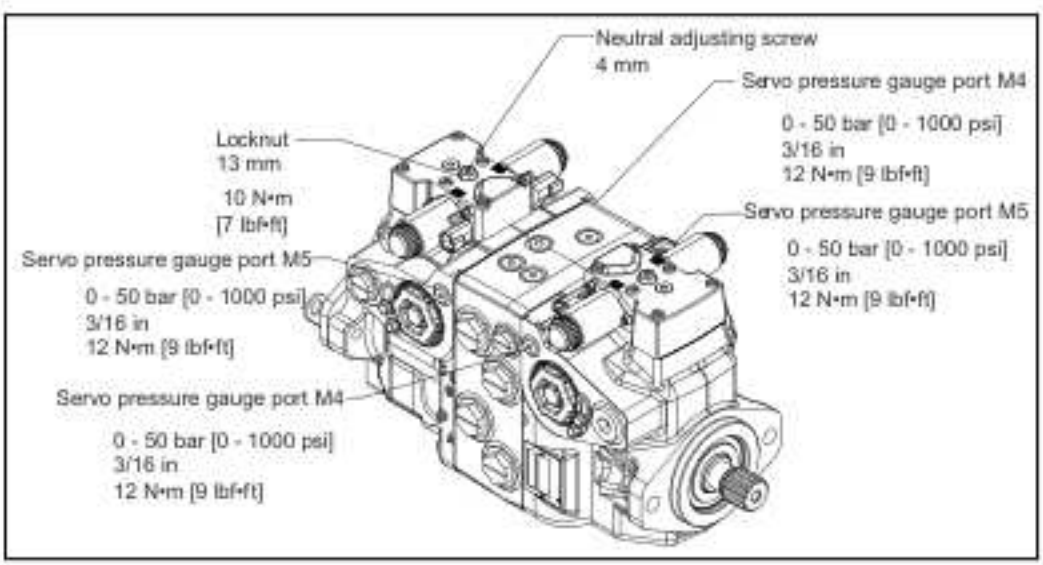


Figure 5-69. Control Neutral Adjustment

MidWestTech | JLG 1200SJP, 1350SJP Boom Lift Service Manual | Publication 31217406 Order the manual at mid-west-tech.com >

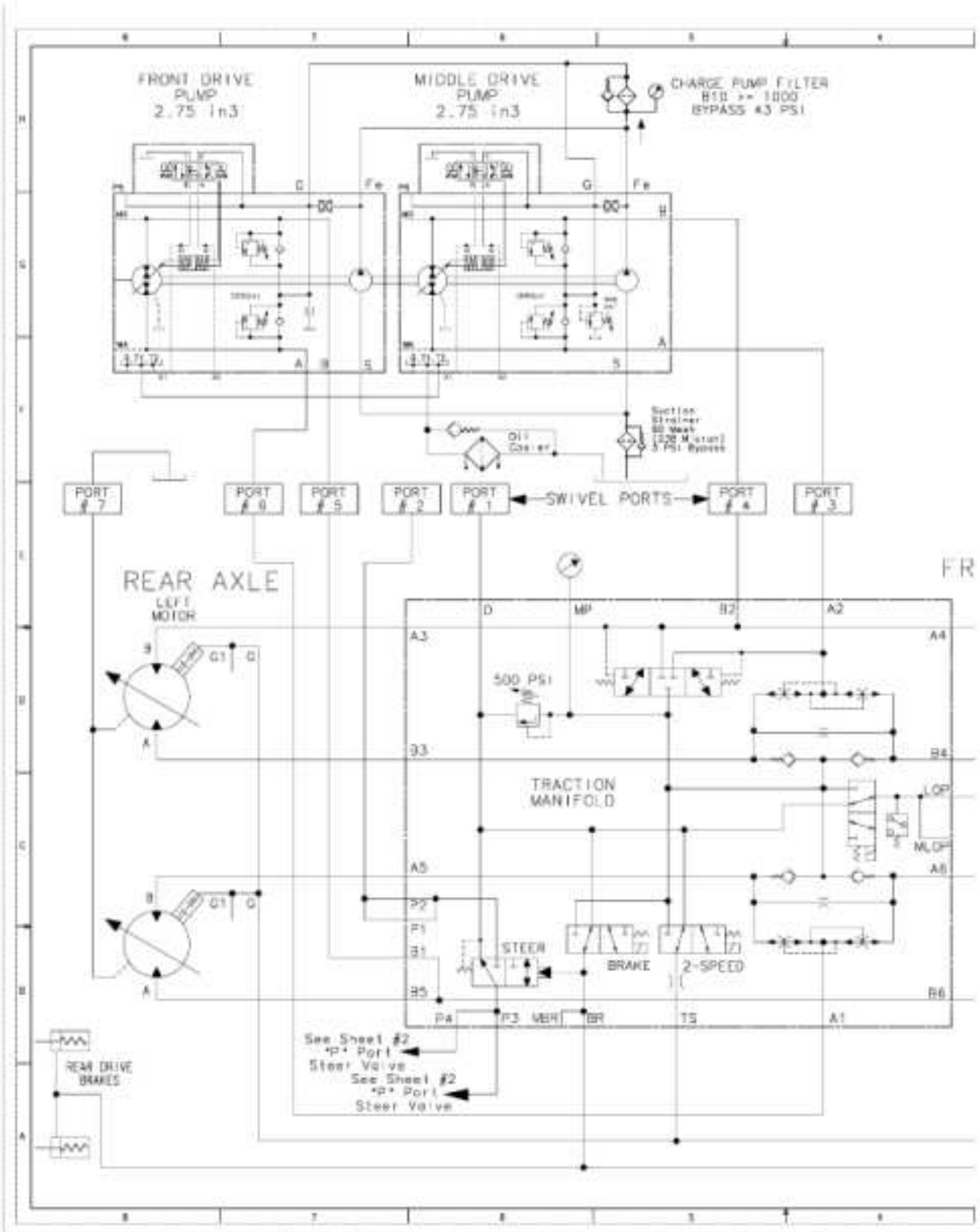
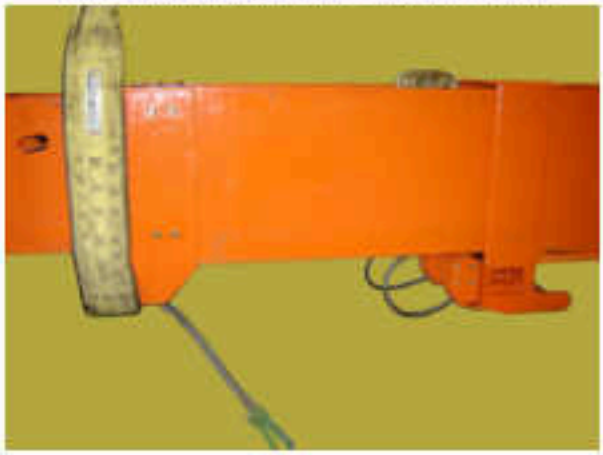


Figure 5-83. Hydraulic Schematic - Drive System Bosch/Rexroth Pumps - Sheet 1 of 2

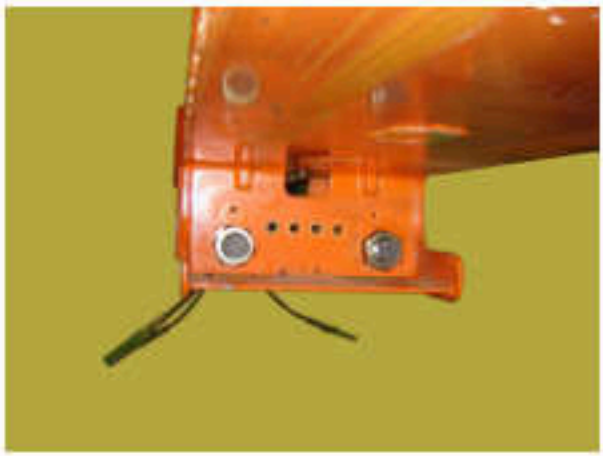
MidWestTech | JLG 1200SJP, 1350SJP Boom Lift Service Manual | Publication 31217406 Order the manual at mid-west-tech.com >

21. Push the outer mid assembly into the inner mid while pulling the boom cables out the back fo the inner mid section at the same time. Leave 3 to 4 feet of the outer mid section sticking out of the inner mid section.



22. Push the retract cable ends into the mounting receptacles and install the cable sheaves and adjustment nuts.





23. Push the outer mid assembly almost completely into the inner mid boom section.



24. Install the cable retainer blocks over the fly boom retract cables and insert the fly boom extend cable into the mounting receptacles.

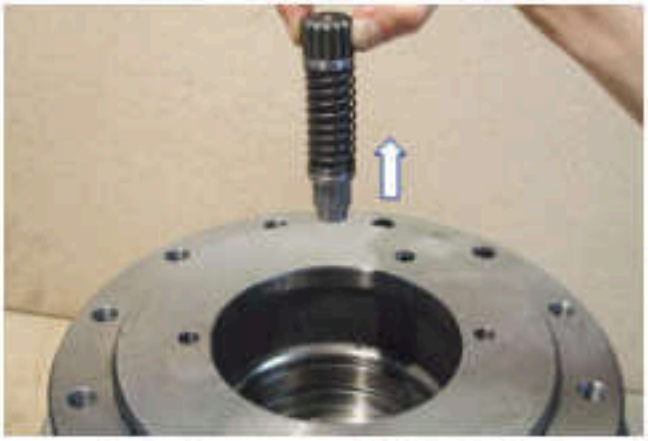




25. Apply Medium Strength Threadlocking Compound the bolts and install the side and top wear pads into the

MidWestTech | JLG 1200SJP, 1350SJP Boom Lift Service Manual | Publication 31217406 Order the manual at mid-west-tech.com >

13. Remove the disengagement shaft kit (15).



14. Place the disengagement shaft kit (15) inside the special tool (6689960240).



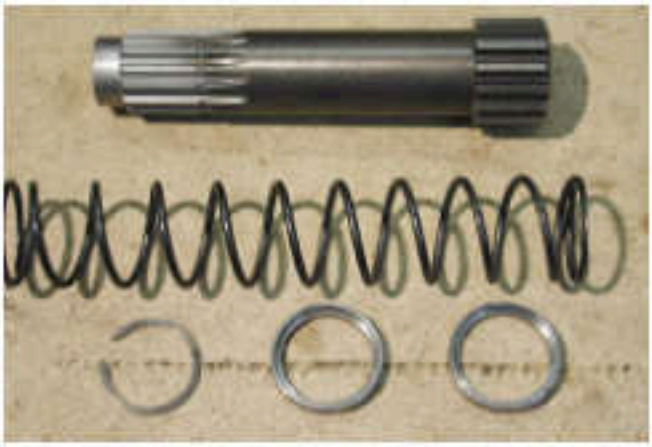
15. Tighten the 2 screws M5x16, grade 8.8, of the cover by a torque wrench to 18.4 ft.lbs. (25 Nm).



16. By using pliers remove the elastic ring (11) from the splined shaft (14).



17. Remove the special tool and remove the spring (13) and the washers (12).



18. Turn the gearbox upside down and unscrew the 2 screws M8x16 (4), grade 8.8, of the end cover (7).



MidWestTech | JLG 1200SJP, 1350SJP Boom Lift Service Manual | Publication 31217406 Order the manual at mid-west-tech.com >