An Oshkosh Corporation Company

Service and Maintenance Manual

Model

530LRT

PVC 2004

31217177

March 6, 2020 - Rev A

ANSI

AS/NZS

MidWestTech | JLG 530LRT Scissor Lift Service Manual | Publication 31217177

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

TABLE OF CONTENTS

SUBJECT - SECTION, PARAGRAPH **PAGE NO.**

SECTION A - INTRODUCTION - MAINTENANCE SAFETY PRECAUTIONS

General A-1
Hydraulic System Safety A-1
Maintenance A-1

SECTION 1 - SPECIFICATIONS

1.1 General Specifications 1-1
Operating Specifications 1-1
Generator Specifications (If Equipped) 1-1
Dimensional Data 1-2
Capacities 1-2
Drive Information 1-2
Steering Information 1-2
Tires 1-2
Critical Stability Weights 1-2
Major Component Weights 1-2
1.2 Serial Number Locations 1-3
1.3 Lubrication 1-3
Hydraulic Oil Specifications 1-3
1.4 Hydraulic Pressure Settings 1-4
1.5 Hydraulic Cylinder Specifications 1-4
1.6 Engine SPecifications 1-5
1.7 Platform Height/Tilt Limit Settings 1-6
1.8 ThreadLocking Compound 1-9
1.9 Torque Charts 1-10
SAE Fastener Torque Chart 1-10
SAE Fastener Torque Chart (Continued) 1-11
SAE Fastener Torque Chart (Continued) 1-12
SAE Fastener Torque Chart (Continued) 1-13
SAE Fastener Torque Chart (Continued) 1-14
SAE Fastener Torque Chart (Continued) 1-15
Metric Fastener Torque Chart 1-16
Metric Fastener Torque Chart (Continued) 1-17
Metric Fastener Torque Chart (Continued) 1-18
Metric Fastener Torque Chart (Continued) 1-19

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 Preventive Maintenance and Inspection Schedule 2-2
Maintenance and Inspection Schedule Codes 2-2
Footnotes 2-4

MidWestTech | JLG 530LRT Scissor Lift Service Manual | Publication 31217177 Order the manual at mid-west-tech.com >

2.3 Service and Guidelines 2-5
General 2-5
Safety and Workmanship 2-5
Cleanliness 2-5
Components Removal and Installation 2-5
Component Disassembly and Reassembly 2-5
Pressure-Fit Parts 2-5
Bearings 2-5
Gaskets 2-5
Bolt Usage and Torque Application 2-5
Hydraulic Lines and Electrical Wiring 2-6
Hydraulic System 2-6
Lubrication 2-6
Battery 2-6
Lubrication and Servicing 2-6
2.4 Lubrication and Information 2-6
Hydraulic System 2-6
Changing Hydraulic Oil 2-7
Lubrication Specifications 2-7
2.5 Service Maintenance components 2-7
Setting Scissor Arm Safety Prop 2-7
General Maintenance Tips 2-8
Fuel Tank 2-9
Drive Hub 2-9
Scissor Arms - Sliding Wear Pads 2-9
Hydraulic Oil Tank 2-9
Hydraulic Charge Filter 2-9
Oil Change with Filter 2-10
Fuel/Water Separator Filter (Diesel) - Kubota 2-10
Fuel Strainer (Diesel) - Kubota 2-10
Fuel Filter (Gas) - Kubota 2-11
Air Filter 2-11
Engine Coolant 2-11
2.6 Cylinder Drift Test 2-12
Platform Drift 2-12
Cylinder Drift 2-12
2.7 Pins and Composite Bearing Repair Guidelines 2-12

SECTION 3 - CHASSIS, PLATFORM & SCISSOR ARMS

3.1 Operating Characteristics 3-1
Leveling Jacks 3-1
Generator 3-1
Lift 3-1
Drive 3-1
3.2 Tires, Wheels & Drive Assembly 3-1
Tire Inflation 3-1
Tire Damage 3-1
Tire Replacement 3-1
Wheel Replacement 3-2
Wheel Installation 3-2
Drive Assembly 3-3

MidWestTech | JLG 530LRT Scissor Lift Service Manual | Publication 31217177 Order the manual at mid-west-tech.com >

3.3 Drive Hub 3-4
Roll and Leak Testing 3-4
Tightening and Torquing Bolts 3-4
Oil Information 3-4
Main Disassembly for Drive Hub 3-8
Hub-Spindle Disassembly 3-8
Cover Disassembly 3-9
Carrier Disassembly 3-9
Carrier Assembly 3-9
Cover Sub-Assembly 3-11
Hub-Spindle Sub-Assembly 3-12
Main Assembly 3-14
Tool List 3-19
Re-Aligning Torque Hub Input Coupling 3-19
3.4 Drive Motor (Sauer) 3-20
Description 3-20
Shaft Seal Replacement 3-20
Loop Flushing Valve 3-21
Troubleshooting 3-22
Disassembly 3-23
Inspection 3-27
Assembly 3-29
Initial Start-Up Procedures 3-34
3.5 Axle Installation 3-35
Front Axle Assembly (Fixed) 3-35
Front Axle Assembly (Oscillating) 3-36
Steering Assembly 3-37
Axle Lockout Cylinder 3-38
3.6 Leveling Jacks 3-39
Cylinder Removal 3-39
Assembly Removal 3-40
3.7 Platform 3-41
Platform Control Station 3-42
Joystick Controller 3-43
3.8 Scissor Arms 3-44
Lift Cylinder Removal 3-44
Scissor Arms Removal 3-44
Scissor Arm Assembly Removal 3-44
3.9 Side Compartment Covers 3-48
Cover Removal 3-50
Cover installation 3-50
3.10 Ground Control Station 3-50
Control Station Removal 3-50
Ground Control Station Components 3-51
Options Control Module 3-52
3.11 Battery 3-53
3.12 Fuel Tank 3-54
3.13 Hydraulic Tank 3-55

MidWestTech | JLG 530LRT Scissor Lift Service Manual | Publication 31217177 Order the manual at mid-west-tech.com >

SECTION 1. SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS

Operating Specifications

Model	530LRT
Maximum Occupants	6
Maximum Workload (Capacity): Main Platform: Max. on Extension (Each):	 1500 lb (680 kg) 500 lb (227 kg)
Maximum Stowed Travel Grade - Gradeability:	40% (22°)
Maximum Stowed Travel Grade - Side slope:	5°
Maximum Platform Working Height	53 ft. (16.15 m)
Maximum Allowable Operating Slope (Platform Fully Elevated) Front to Back: Side to Side:	 1.25° 1.25°
Maximum Drive Height	32 ft. (9.8 m)
Maximum Drive Speed Platform Lowered: High Mid Low Platform Elevated (> 14 ft.)	 3.5 mph (5.6 kph) 1.5 mph (2.4 kph) 0.7 mph (1.1 kph) 0.5 mph (0.8 kph)
Lift Up Speed (No Load) (Stowed to Full Height)	65 seconds
Lift Down Speed (No Load) (Full Height to Stowed)	60 seconds
Maximum Wind Speed	28 mph (12.5 m/s)
Maximum Horizontal Manual Side Force: ANSI/ANSI EXPORT: CE:	 300 lb (1335 N) 90 lb (400 N)
Maximum Tire Load (Each)	5500 lb (2500 kg)
Ground Bearing Pressure w/Standard tires	26.5 psi (1.86 kg/cm^2)
Leveling Jack Bearing Pressure	70 psi (4.92 kg/cm^2)
Hydraulic System Pressure Main Relief: Steer Relief:	 2700 psi (186 bar) 2500 psi (172 bar)
Electrical System Voltage	12 Volt
Inside Turning Radius	109.7 in (2.79 m)
Outside Turning Radius	19.76 ft. (6.023 m)
Gross Vehicle Weight Dual Fuel/Diesel - ANSI/ANSI Export/CSA/CE w/One Extension: w/Two Extensions: w/MegaDeck: *Note: Certain options or country standards increase weight.*	 17,000 lb (7711 kg) 17,300 lb (7847 kg) 17,800 lb (8074 kg)

Generator Specifications (If Equipped)

Table 1-1. 7500W Generator Specifications

Type:	Brush Type, Synchronous, Revolving Field
Regulation: 3 Phase: 1 Phase: 1 Phase: Peak:	 240 Volt, 7.5 Kw, 18.3 Amps, 1.0 pf 240 Volt, 6 Kw, 26 Amps, 1.0 pf 120 Volt, 6 Kw, 50 Amps, 1.0 pf 3 Phase - 8.5 Kw, - 1 Phase - 6.0 Kw
Max Rated Temperature:	104 F (40C)

Table 1-2. 4000W Generator Specifications

Type:	Brush Type, Synchronous, Revolving Field
Regulation: 1 Phase: Peak:	 120/240 Volt, 4 Kw, 20 Amps, 1.0 pf 4.0 Kw
Max Rated Temperature:	104 F (40C)

MidWestTech | JLG 530LRT Scissor Lift Service Manual | Publication 31217177 Order the manual at mid-west-tech.com >

4.15 HYDRAULIC SCHEMATICS

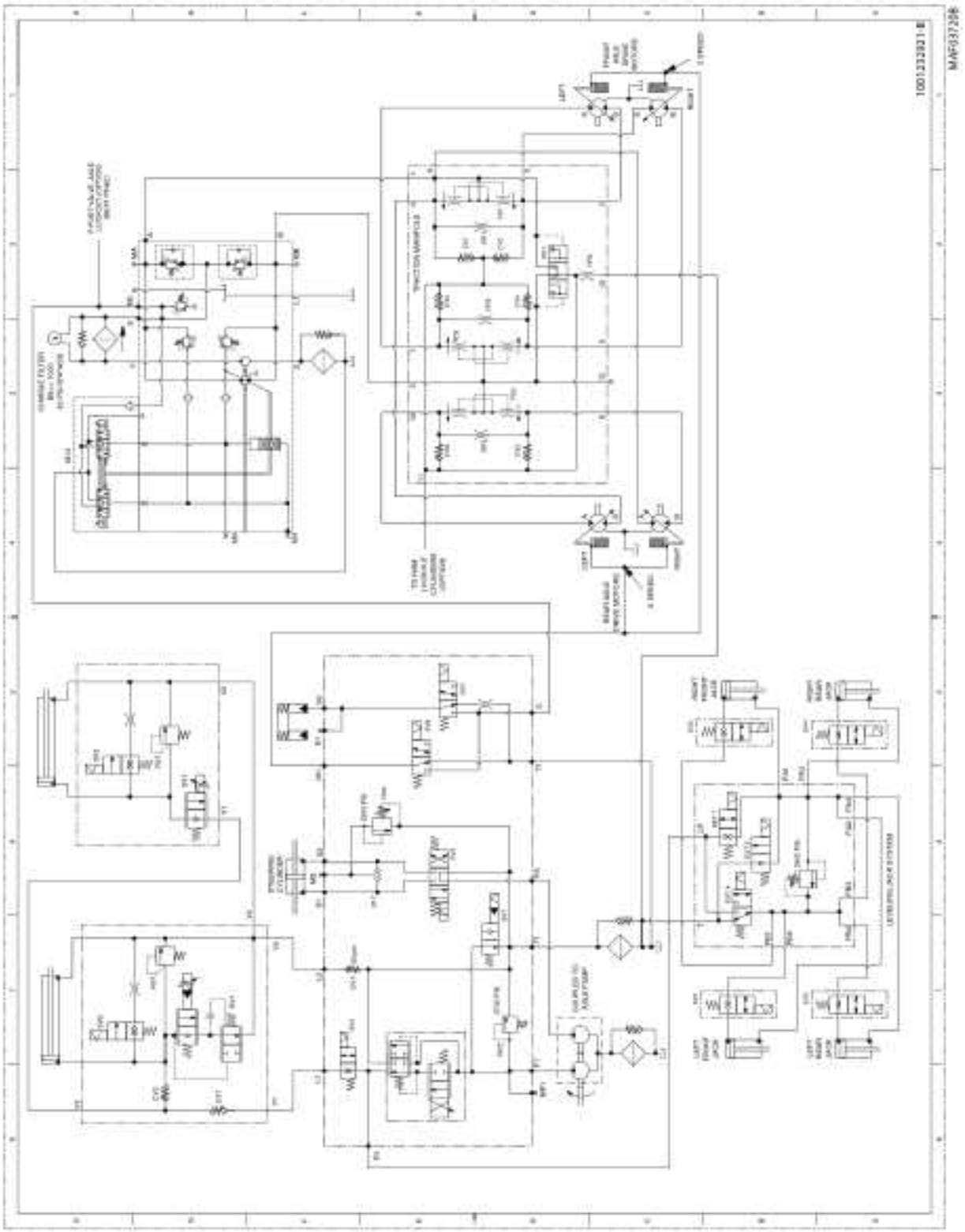


Figure 4-45. Hydraulic Schematic

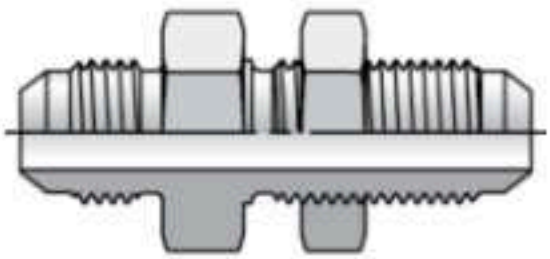
MidWestTech | JLG 530LRT Scissor Lift Service Manual | Publication 31217177 Order the manual at mid-west-tech.com >

Table 6-7. LSS Troubleshooting Chart - Measurement Performance

DIFFICULTY	POSSIBLE RESOLUTION
Empty Platform Weight (DIAGNOSTICS, PLTLOAD) is not within ±15lb (±7kg) of zero. **or** Platform Load readings (DIAGNOTICS, PLTLOAD) are unstable by more than ±2lb (±1kg) (without the influence of vibration or wind). **or** There are large variations in Platform Load (DIAGNOSTICS, PLTLOAD) based on the location of the load. Tolerance to variations is 40lb (18kg) for an evaluation using the technician's weight, and ±5% of Rated Load when using calibrated weights.	The LSS Module is unable to properly measure the platform weight. 1. One of the Shear Pin Load Cells is not properly plugged into the LSS Module. Since the connectors seal with an O-ring and are located in a crowded area, it is possible that the connectors are threaded together, but poor electrical contact is made. Attempt to wiggle the molded portion of each connector on J5-J8. If properly tightened, the molded portion should not move. Also, examined each Shear Pin Load Cell's readings via the JLG Analyzer. Proceed to the DIAGNOSTICS, CELL 1-4, LOAD displays and determine if the readings are reasonable. Note that it is possible to have only two sensors carrying all of the platform load due to fit between the platform and support structure (this is normal). 2. Wiring leading to one of the Shear Pin Load Cells is damaged. Examine each sensor's reading using the JLG Analyzer. Proceed to the DIAGNOSTICS, CELL 1-4, LOAD displays and determine if the readings are reasonable and responsive to slight downward pressure above the sensor being viewed. Carefully inspect sensor wiring where it passes through cable clamps for signs of damage. Inspect wiring where damage to the channel is apparent. If damage to the sensor's cordset is found, replace the appropriate Shear Pin Load Cell since the cordset is not serviceable (connector is molded for moisture resistance; cordset is soldered into sensor beneath welded stainless steel cover). If damage to the sensors extension cordset is found, unplug both ends and fit a replacement. 3. One of the Shear Pin Load Cells was not assembled properly during installation. Examine each sensor's reading using the JLG Analyzer. Proceed to the DIAGNOSTICS, CELL 1-4, LOAD displays and determine if the readings are reasonable. It is often helpful to apply slight downward pressure above the sensor being examined and observe that its output increases (increasing force measurement; decreasing means the sensor is mounted upside-down). Compare the order of assembly to the detail on the Installation Drawing and ensure that the only contact between the platform and the support is through the sensor bodies (nothing else touches except wires). Re-assemble according to print if necessary. 4. Damage to the platform or arm structure has occurred or one of the components is out-of-tolerance.Twists in the platform, for instance, will cause huge off-axis forces to be applied to the Shear Pin Load Cells, disturbing their primary measurement axis readings. If Lift Up / Down is noisy or not smooth, examine this issue thoroughly. Resolution is to replace the damaged or faulty component. Watch for Shear Pin Load Cell damage (yield) as a result of this difficulty. 5. One of the Shear Pin Load Cells is contaminated by debris or moisture. Examine each sensor's reading using the JLG Analyzer. Proceed to the DIAGNOSTICS, CELL 1-4, LOAD displays and determine if the readings are reasonable and stable (not changing by more than ±2lb (±1kg) (without the influence of vibration or wind). Lack of measurement stability is a key indication of contamination. Unplug the appropriate connector (J5 is CELL 1, J6 is CELL 2, J7 is CELL 3, and J8 is CELL 4) and inspect for dirt or moisture. Look carefully into the female connector on the sensor's cordset for evidence of contamination. Debris should be brushed away with a soft bristle brush (do not introduce any cleaners as they will leave conductive residue). Moisture should be allowed to evaporate or accelerated with a heat-gun (use low heat and be carefully to not melt connector materials). Moisture intrusion into the molded portion of the connector (capillary action into the wire bundle) or the Shear Pin Load Cell itself will require replacement of the sensor. 6. One of the Shear Pin Load Cells has been mechanically damaged (yielded). Any Shear Pin Load Cell that is physically deformed or has damage to one of the stainless steel covers should be replaced immediately. It is also possible to have invisible mechanical damage resulting from an extreme overload (>4200lb [>1900kg] for 1.25 in diam.; >5700 lb or 2600 KG for 2 inch diam.). This can be detected by supporting the platform with an overhead crane and by removing the suspect sensor (no weight resting on the Shear Pin Load Cell). Examine the sensor's reading using the JLG Analyzer. Proceed to the DIAGNOSTICS, CELL 1-4, LOAD displays and observe whether the unloaded sensors read with ±15lb (±7kg) of zero (individually). Replace sensors that read excessive force when physically unloaded. 7. The LSS Module is suspect. Interchange the Shear Pin Load Cell connections (J5-J8) and observe the results via the JLG Analyzer. Proceed to the DIAGNOSTICS, CELL 1-4, LOAD displays and observe the readings. If the problem seems to remain with a particular sensor, carefully re-examine the issues above. If the problems seems to remain with a particular LSS Module channel, substitute another module.

MidWestTech | JLG 530LRT Scissor Lift Service Manual | Publication 31217177 Order the manual at mid-west-tech.com >

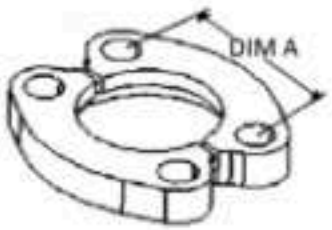
Table 4-10. Bulkhead Fittings (BH) - INCH

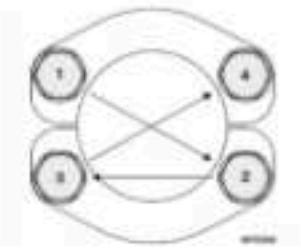


TYPE/FITTING IDENTIFICATION				FASTENING JAM NUT for Bulkhead Connectors					
MATERIAL	TYPE	Dash Size	Thread Size	Torque					
				[ft. lb.]			[N-m]		
			(UNF)	Min	Nom	Max	Min	Nom	Max
STEEL FITTINGS	O-RING FACE SEAL (ORFS) BULKHEAD FITTING	4	9/16-18	15	16	17	20	22	23
		6	11/16-16	25	27	28	34	37	38
		8	13/16-16	55	58	61	75	79	83
		10	1-14	85	90	94	115	122	127
		12	13/16-12	135	142	149	183	193	202
		14	15/16-12	170	179	187	230	243	254
		16	17/16-12	200	210	220	271	285	298
		20	1 11/16-12	245	258	270	332	350	366
		24	2-12	270	284	297	366	385	403
	TYPE	Dash Size	Thread Size	Torque					
				[ft. lb.]			[N-m]		
			(UNF)	Min	Nom	Max	Min	Nom	Max
	37° FLARE (JIC) BULKHEAD FITTING	3	3/8-24	8	9	9	11	12	12
		4	7/16-20	13	14	14	18	19	19
		5	1/2-20	20	21	22	27	28	30
		6	9/16-18	25	27	28	34	37	38
		8	3/4-16	50	53	55	68	72	75
		10	7/8-14	85	90	94	115	122	127
		12	1 1/16-12	135	142	149	183	193	202
		14	1 3/16-12	170	179	187	230	243	254
		16	1 5/16-12	200	210	220	271	285	298
		20	1 5/8-12	245	258	270	332	350	366
		24	1 7/8-12	270	284	297	366	385	403
		32	2 1/2-12	310	326	341	420	442	462

MidWestTech | JLG 530LRT Scissor Lift Service Manual | Publication 31217177 Order the manual at mid-west-tech.com >

Table 4-32. Flange Code (FL61 & FL62) - Metric Fasteners





TYPE/FITTING IDENTIFICATION						STEEL 4-BOLT FLANGE SAE J518 (INCH FASTENERS)											
TYPE	Inch Flange SAE Dash Size	Flange Size		A*		Bolt Thread Size	Fastener Torque for Flanges Equipped with CLASS 8.8 Screws						Fastener Torque for Flanges Equipped with CLASS 10.9 Screws					
							[ft. lb.]			[N-m]			[ft. lb.]			[N-m]		
		(in)	(mm)	(in)	(mm)	(Metric)	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
CODE 61 SPLIT FLANGE (FL61)	8	0.50	13	1.50	38.10	(Metric)	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
	12	0.75	19	1.88	47.75	M8x1.25	18	19	19	24	25	26	18	19	19	24	25	26
	16	1.00	25	2.06	52.32	M10x1.5	37	39	41	50	53	55	37	39	41	50	53	55
	20	1.25	32	2.31	58.67	M10x1.5	37	39	41	50	53	55	37	39	41	50	53	55
	24	1.50	38	2.75	69.85	M10x1.5	37	39	41	50	53	55	37	39	41	50	53	55
	32	2.00	51	3.06	77.72	M12x1.75	68	71	75	92	97	101	68	71	75	92	97	101
	40	2.50	64	3.50	88.90	M12x1.75	68	71	75	92	97	101	68	71	75	92	97	101
	48	3.00	76	4.19	106.43	M12x1.75	68	71	75	92	97	101	68	71	75	92	97	101
	56	3.50	89	4.75	120.65	M16x2	155	163	170	210	221	231	155	163	170	210	221	231
	64	4.00	102	5.13	130.30	M16x2	155	163	170	210	221	231	155	163	170	210	221	231
	80	5.00	127	6.00	152.40	M16x2	155	163	170	210	221	231	155	163	170	210	221	231
TYPE	Inch Flange SAE Dash Size	Flange Size		A*		Bolt Thread Size	Fastener Torque for Flanges Equipped with CLASS 8.8 Screws						Fastener Torque for Flanges Equipped with CLASS 10.9 Screws					
							[ft. lb.]			[N-m]			[ft. lb.]			[N-m]		
		(in)	(mm)	(in)	(mm)	(Metric)	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
CODE 62 SPLIT FLANGE (FL62)	8	0.50	13	1.59	40.39	M8x1.25	--	--	--	--	--	--	24	25	26	32	34	35
	12	0.75	19	2.00	50.80	M10x1.5	--	--	--	--	--	--	52	54	57	70	74	77
	16	1.00	25	2.25	57.15	M12x1.75	--	--	--	--	--	--	96	101	105	130	137	143
	20	1.25	32	2.62	66.55	M12x1.75	--	--	--	--	--	--	96	101	105	130	137	143
	20	1.25	32	2.62	66.55	M14x2	--	--	--	--	--	--	133	139	146	180	189	198
	24	1.50	38	3.12	79.25	M16x2	--	--	--	--	--	--	218	228	239	295	310	325
	32	2.00	51	3.81	96.77	M20x2.5	--	--	--	--	--	--	406	426	446	550	578	605

* A dimension for reference only.

MidWestTech | JLG 530LRT Scissor Lift Service Manual | Publication 31217177 Order the manual at mid-west-tech.com >