

PARTS MANUAL

ARTICULATING BOOMS

MODELS SJ46AJ SJ51AJ

160622AK June 2024

SKYJACK

MidWestTech | Skyjack SJ46AJ, SJ51AJ Articulating Boom Lift Parts Manual | Publication... Order the manual at mid-west-tech.com >

Table of Contents

Section 1 – PLATFORM RELATED PARTS

1.1 Platform Railing Assembly - Side Gate 8
1.2 Platform Base Assembly (ANSI/CSA) 10
1.3 Platform Base Assembly (CE&AS) 11
1.4 Platform Footswitch Assembly 12
1.5 Platform Gate Assembly 13
1.6 Platform Control Console Assembly 14
1.7 Boom / Turret Controller Assembly (Dual Axis) 18
1.8 Drive / Steer Controller Assembly (Single Axis) 20
1.9 Riser Boom Controller Assembly (Single Axis) 22
1.10 Platform Terminal Strip 23

Section 2 – BOOM RELATED PARTS

2.1 Main Boom Assembly 26
2.2 Fly Boom Assembly 31
2.3 Riser Boom Assembly 32
2.4 Power Track Carrier Assembly 36
2.5 Jib Boom Assembly (46/51AJ) 38
2.6 No Jib Boom Assembly (46A) 40
2.7 Rotary Actuator Hardware 41
2.8 Jib Lift / Platform Rotate Valve Assemblies 42

Section 3 – CYLINDER RELATED PARTS

3.1 Fly Boom Extension Cylinder Assembly 46
3.2 Main Boom Lift Cylinder Assembly 48
3.3 Riser Lift Assembly 49
3.4 Riser Cylinder Assembly 50
3.5 Master Cylinder Assembly 51
3.6 Slave Cylinder Assembly 52
3.7 Jib Cylinder Assembly 53
3.8 Axle Lock Cylinder Assembly 54

Section 4 – TURRET RELATED PARTS

4.1 Turret Assembly 56
4.2 Cowling Assembly 58
4.3 Counterweight Assembly 61
4.4 Engine Tray Assembly 62
4.5 Main Manifold Assembly 64
4.6 Brake Manifold Assembly 68
4.7 Rotary Manifold Assembly 70
4.8 Turret Swing Drive Assembly 72
4.9 Fuel Tank Assembly (Deutz engine) 73
4.10 Fuel Tank Assembly (GM Dual Fuel Engine) 74
4.11 Hydraulic Tank Assembly 76
4.12 High Pressure Filter Assembly 78
4.13 Charge Pump Filter Assembly 79
4.14 15 Degrees Limit Switch Assembly 80
4.15 Grease Line Hose Assembly 81
4.16 Battery Assembly 82
4.17 Emergency Power Unit 83

MidWestTech | Skyjack SJ46AJ, SJ51AJ Articulating Boom Lift Parts Manual | Publication... Order the manual at mid-west-tech.com >

Table of Contents

4.18 Base Control Console Assembly (Deutz) 84
4.19 Base Control Console Assembly (GM) 88
4.20 Base Terminal Strip 92

Section 5 – ELECTRICAL HARNESS RELATED PARTS
5.1 Main Electrical Harness and Fuel Level Switch Harness 94
5.2 Cable Harnesses 96
5.3 Control Cable Harnesses 98
5.4 Valve Harness and Limit Switches 99
5.5 110/220V Outlet Assembly 100
5.6 ECU Harnesses 101
5.7 Glow Plug Harness (Deutz Diesel Engine) 102
5.8 Engine Interface Harness (GM Dual Fuel Engine) 103

Section 6 – BASE RELATED PARTS
6.1 Base Assembly 106
6.2 Axle Assembly Hardware 107
6.3 Rear Axle Assembly with Gear Box 108
6.4 Differential Assembly - Rear Axle 110
6.5 Brakes Assembly - Rear Axle 112
6.6 Central Housing Assembly - Rear Axle 114
6.7 Gear Box - Rear Axle 116
6.8 Hydraulic Drive Motor 119
6.9 Front Axle Assembly 120
6.10 Differential Assembly - Front Axle 122
6.11 Central Housing Assembly - Front Axle 124
6.12 Steering Assembly 125
6.13 Trunnion Assembly - Front Axle 126
6.14 Axle Drive Shaft (4WD) 127
6.15 Propane Tank Assembly 128
6.16 Tires 130

Section 7 – ENGINE RELATED PARTS
7.1 Engine Assembly (Deutz Diesel) 134
7.2 Engine Coupling Assembly 139
7.3 Engine Assembly (GM Dual Fuel) 140
7.4 Drive and System Pump Assembly 144

Section 8 – HOSE CONNECTION RELATED PARTS
8.1 Standard Hose Numbering System 148
8.2 Hydraulic Hose Connection - Boom Cylinders 150
8.3 Hydraulic Hose Connection - Control Compartment 152
8.4 Hydraulic Hose Connection - Engine Compartment 154
8.5 Fuel Line Hose Connection - Deutz Diesel Engine 156
8.6 Fuel Line Hose Connection - GM Dual Fuel Engine 158
8.7 Hydraulic Hose Connection - Base and Axles 160

Section 9 – OPTIONAL EQUIPMENT
9.1 All Motion Alarm Assembly 164
9.2 Air Hose To Platform Option 165

MidWestTech | Skyjack SJ46AJ, SJ51AJ Articulating Boom Lift Parts Manual | Publication... Order the manual at mid-west-tech.com >

Table of Contents

9.3 Working Light Option - ANSI/CSA 166
9.4 Flashing Amber Light Option 167
9.5 Cold Start Option - ANSI/CSA 168
9.6 Arctic Package Option 169
9.7 Arctic Package Option - Arctic Rotary Actuator 170
9.8 Diesel Scrubber Option 171
9.9 Generator with Oil Cooler Option (SJ46AJ) 172
9.10 Hydraulic Hose Connection - Generator (SJ 46AJ) 175
9.11 Generator with Oil Cooler Option (SJ51AJ) 176
9.12 Hydraulic Hose Connection - Generator (SJ51AJ) 178
9.13 Generator Wiring 179
9.14 Cooler Wiring 180
9.15 Glazier Package Assembly 182
9.16 External Platform Railing Assembly 184

Section 10 – LABELS

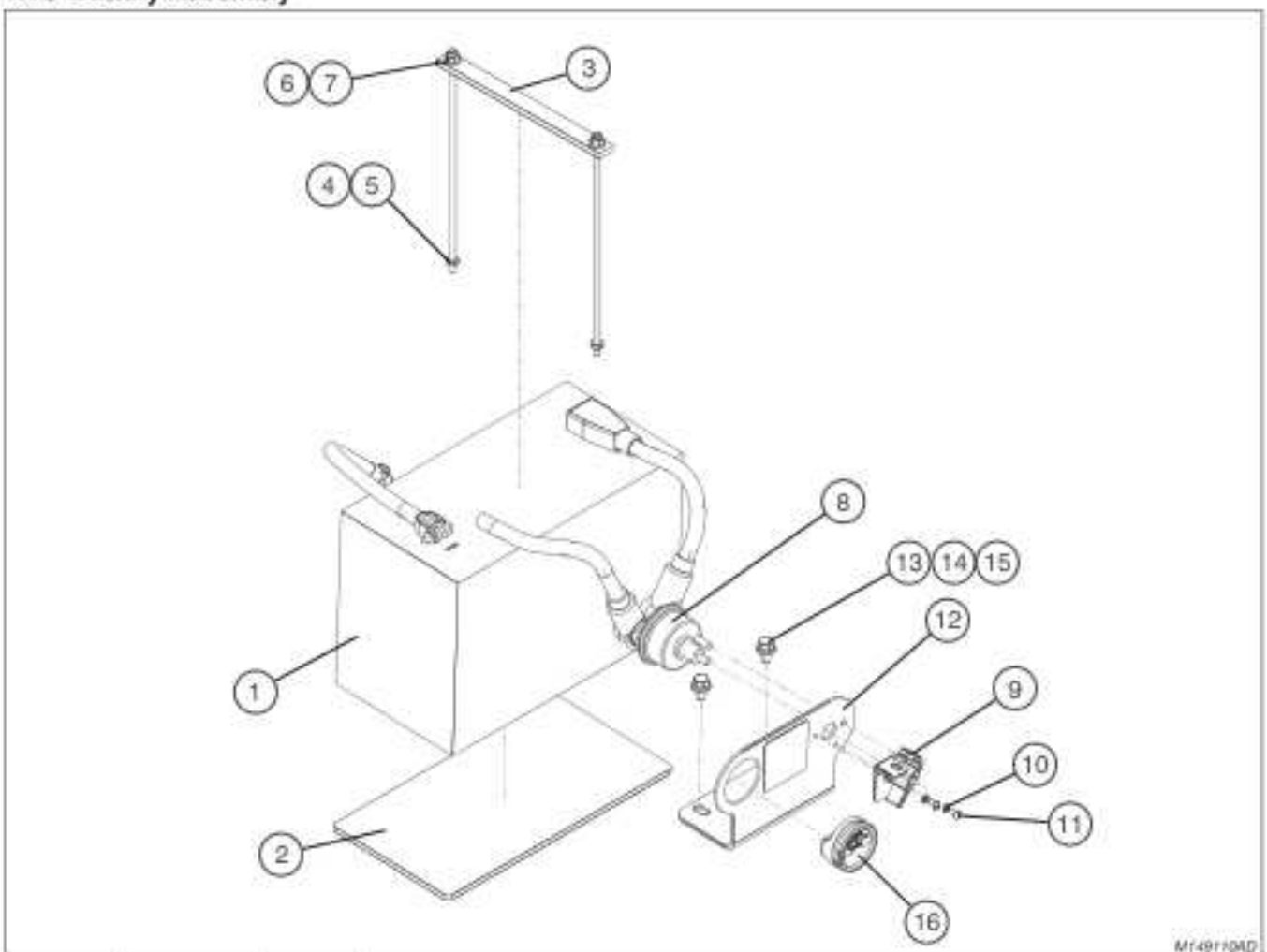
10.1 Label Kits 187
10.2 Labels - Platform Control Console 188
10.3 Labels - Front and Back 189
10.4 Labels - Engine Side 190
10.5 Labels - Controls Side 192
10.6 Labels - Controls Compartment 194
10.7 Labels - Engine Compartment 195
10.8 Labels - Operator Platform 196
10.9 Labels - Fuel 198

Section 11 – TABLES

11.1 Boom Fluids Table 200
11.2 Boom Grease Locations - Axle Grease Table 201
11.3 Boom Grease Locations - Gear Grease Table 202

MidWestTech | Skyjack SJ46AJ, SJ51AJ Articulating Boom Lift Parts Manual | Publication... Order the manual at mid-west-tech.com >

4.16 Battery Assembly



Index No.	Skyjack Part No.	Qty.	Description
A	(Ref.)	1	BATTERY ASSEMBLY (ANSI/CSA)
B	(Ref.)	1	BATTERY ASSEMBLY (CE & AS - Deutz)
1	144676	1	BATTERY (12V, 950 CCA)
2	157646	1	PAD, Battery
3	138785	1	PLATE, Battery holdown
4	103983	2	NUT, Hex head Jam (1/4''-20, Grade 5)
5	138786	2	ROD, Threaded (1/4''- 20)
6	115649	2	NUT, Hex lock (1/4''- 20 Grade 5, nylon)
7	103995	2	WASHER, Flat (1/4")
8	119725	1	SWTICH, Main lockout
9	108714	1	Mount, Lockout switch
10	104185	2	WASHER, Lock (#10)
11	115545	2	SCREW, Round head machine (#10-32 x 3/8")
12	152327	1	MOUNT, Battery switch
13	101632	2	BOLT, Hex head (3/8"-16 x 3/4'' Grade 5)
14	125959	2	WASHER, Flat hardened (3/8")
15	103999	2	WASHER, Lock (3/8")
16	152323	1	CHARGE INDICATOR, 12V, B

MidWestTech | Skyjack SJ46AJ, SJ51AJ Articulating Boom Lift Parts Manual | Publication... Order the manual at mid-west-tech.com >

Index No.	Skyjack Part No.	Qty.	Description
-	148916	-	REAR AXLE ASSEMBLY (with gear box)
1	141078	2	• CASE, Axle
2	141079	32	• BOLT
3	141082	2	• SEAL
4	141018	2	• SEAL
5	141019	4	• BEARING
6	141021	16	• STUD, Wheel
7	141020	2	• HUB, Wheel
8	140970	2	• O-RING
9	154590	16	• NUT
10	140969	4	• PLUG
11	141033	4	• BOLT, Countersunk
12	141081	2	• PLATE, Locking
13	141027	16	• NUT
14	141026	16	• STUD
15	140968	2	• PLUG, Magnet
16	141080	2	• SHAFT, Half
-	(Ref.)	-	• DIFFERENTIAL ASSEMBLY (For components, refer to 6.4 Differential Assembly - Rear Axle)
-	(Ref.)	-	• BRAKES - REAR AXLE (For components, refer to 6.5 Brakes Assembly - Rear Axle)
-	(Ref.)	-	• CENTRAL HOUSING ASSEMBLY (For components, refer to 6.6 Central Housing Assembly - Rear Axle)
K1	141042	2	KIT, Ring gear support
K2	141034	2	KIT, Planet gear carrier

MidWestTech | Skyjack SJ46AJ, SJ51AJ Articulating Boom Lift Parts Manual | Publication... Order the manual at mid-west-tech.com >

Index No.	Skyjack Part No.	Qty.	Description
			(To order a complete label kit, refer to Section 10.1 Label Kits)
1	137988	1	LABEL, Crush/Pinch point
2	147111	1	LABEL, Transportation tie down points (CE&AS)
3	139314	3	LABEL, Body crush
4	158554	1	LABEL, Skyjack logo
5	156441	1	LABEL, Annual inspection
6	143760	1	LABEL, Emergency lowering at base controls (ANSI/CSA)
	147100	1	LABEL, Emergency lowering at base controls (CE&AS)
7	148976	1	LABEL, Base control (Not included in kit)
8	159659	1	LABEL, Model number (Model 46AJ) (Not included in kit)
	159662	1	LABEL, Model number (Model 51AJ) (Not included in kit)
9	160458	1	LABEL, Skyjack logo and model number (Model 46AJ) (Not included in kit)
	160459	1	LABEL, Skyjack logo and model number (Model 51AJ) (Not included in kit)
10	124767	2	LABEL, Tie down/lift lugs
11	124631	2	LABEL, Wheel info
12	145990	2	LABEL, Wheel load 3530 kg/7775 lb (Model 46AJ) (Not included in kit)
	152491	2	LABEL, Wheel load 3842 kg/8470 lb (Model 51AJ) (Not included in kit)
13	402156	2	LABEL, Tire pressure (80 psi) (Not included in kit)
	142125	2	LABEL, Tire pressure (65 psi) (Not included in kit)
	144310	2	LABEL, Tire pressure (50 psi) (High flotation tires) (Not included in kit)
	142384	2	LABEL, Foam filled tire (Not included in kit)
14	117023	1	LABEL, "CE" mark (CE)
15	128226	1	LABEL, Sound power level (CE&AS)

MidWestTech | Skyjack SJ46AJ, SJ51AJ Articulating Boom Lift Parts Manual | Publication... Order the manual at mid-west-tech.com >

10.1 Label Kits

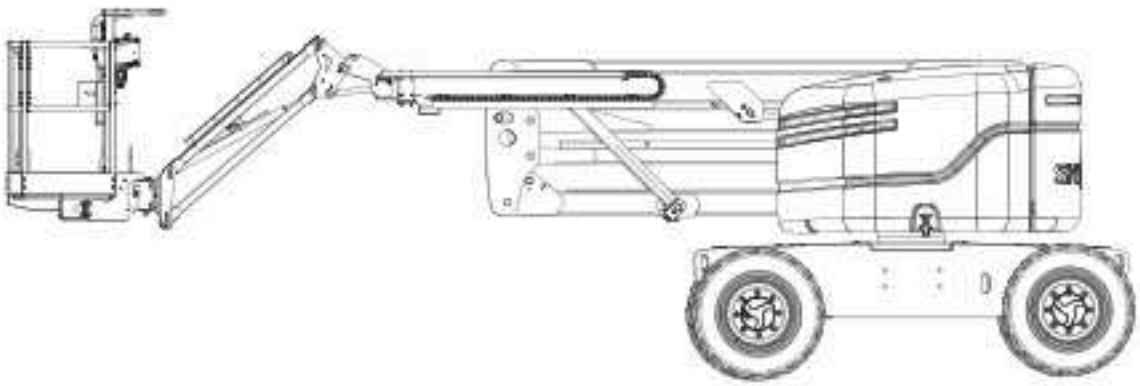
The following label kits are for models 46AJ and 51AJ. It contains labels that are common to both machines.

It excludes:

- Serial numbers
- Platform capacities
- Model designations
- Control consoles

Supply model number, country and language when ordering complete machine labels.

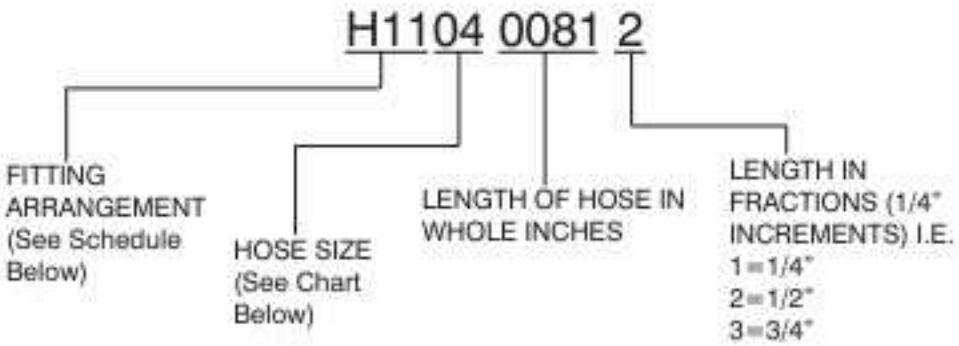
Label Kits			
MODELS	ANSI/CSA	CE	AS
	Part # 160628	Part # 160629	Part # 160630
SJ 46AJ	95,000,343 to 95,000,509 Including: 95,000,336, 95,000,341	95,000,343 to 95,000,509 Including: 95,000,336, 95,000,341	95,000,343 to 95,000,509 Including: 95,000,336, 95,000,341
SJ 51AJ	Not Used	95,000,343 to 95,000,509 Including: 95,000,336, 95,000,341	95,000,343 to 95,000,509 Including: 95,000,336, 95,000,341



SKYJACK

MidWestTech | Skyjack SJ46AJ, SJ51AJ Articulating Boom Lift Parts Manual | Publication... Order the manual at mid-west-tech.com >

8.1 Standard Hose Numbering System



Using the number above as an example (H1104 0081 2). This hose requires a 37° JIC, female swivel fitting on one end. A medium length 90° JIC, female swivel fitting for the other end. The Hose must meet or exceed S.A.E. 100R13 hose specification, and be a total of 81-1/2" long. NOTE: Hose ends and hose must be from same manufacturer per S.A.E. J1273 Nov. '91, Sections 3.10 and 4.2. Hose ends and hose must be of the same size i.e. #4 size fittings must be used with #4 size hose.

Hose Size Chart

SIZE	03	04	06	08	10	12	16	20	24	32	40	48	56	64
ID	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"

Fitting Arrangement Schedule **(Continued on the following page)**

HOSE PREFIX	HOSE END FITTING	HOSE END FITTING	S.A.E. HOSE SPECIFICATION
H01	FEMALE, 37º JIC, SWIVEL	FEMALE, 37º JIC, SWIVEL	100R17
H02	FEMALE, 37º JIC, SWIVEL	FEMALE, 37º JIC, SWIVEL	100R13
H03	FEMALE, 37º JIC, SWIVEL	45º, FEMALE, 37º JIC, SWIVEL	100R17
H04	FEMALE, 37º JIC, SWIVEL	45º, FEMALE, 37º JIC, SWIVEL	100R13
H05	FEMALE, 37º JIC, SWIVEL	LONG 90º, FEMALE, 37º JIC, SWIVEL	100R17
H06	FEMALE, 37º JIC, SWIVEL	SHORT 90º, FEMALE, 37º JIC, SWIVEL	100R17
H07	LONG 90º, FEMALE, 37º JIC, SWIVEL	LONG 90º, FEMALE, 37º JIC, SWIVEL	100R17
H08	FEMALE, 37º JIC, SWIVEL	FEMALE, 37º JIC, SWIVEL	100R4
H09	FEMALE, 37º JIC, SWIVEL	45º, FEMALE, 37º JIC, SWIVEL	100R4
H10	FEMALE, 37º JIC, SWIVEL	MALE PIPE THREAD FITTING	100R17
H11	FEMALE, 37º JIC, SWIVEL	MEDIUM 90º, FEMALE, 37º JIC, SWIVEL	100R13
H12	SHORT 90º, FEMALE, 37º JIC, SWIVEL	SHORT 90º, FEMALE, 37º JIC, SWIVEL	100R17
H13	FEMALE, 37º JIC, SWIVEL	REUSABLE MALE PIPE THREAD FITTING	300 PSI
H14	REUSABLE MALE PIPE THREAD FITTING	NO FITTING	300 PSI
H15	REUSABLE, FEMALE, 37º JIC, SWIVEL	REUSABLE, FEMALE, 37º JIC, SWIVEL	300 PSI

MidWestTech | Skyjack SJ46AJ, SJ51AJ Articulating Boom Lift Parts Manual | Publication... **Order the manual at mid-west-tech.com >**