

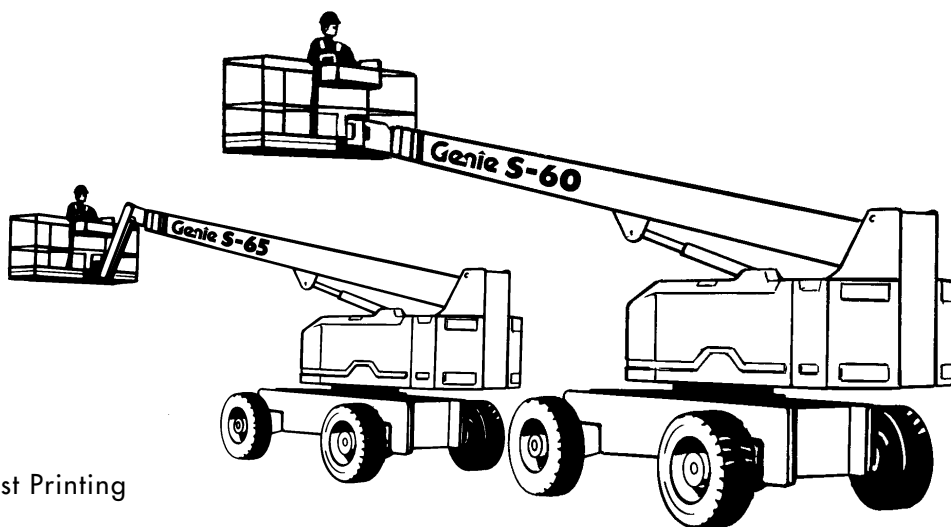
**Genie Industries**



# Genie® S-60

# Genie® S-65

## Service Manual



First Edition, First Printing  
Part No. 34476

# Genie S-60

# Genie S-65

## Important

Read, understand and obey the safety rules and operating instructions in the *Genie S-60 & Genie S-65 Operator's Manual* before attempting any maintenance or repair procedure.

This service manual covers the Genie S-60 and Genie S-65 2WD and 4WD models introduced in 1995.

This manual provides detailed scheduled maintenance information for the machine owner and user. It also provides troubleshooting and repair procedures for qualified service professionals.

Basic mechanical, hydraulic and electrical skills are required to perform most procedures. However, several procedures require specialized skills, tools, lifting equipment and a suitable workshop. In these instances, we strongly recommend that maintenance and repair be performed at a Genie dealer service center.

Genie Industries has endeavored to deliver the highest degree of accuracy possible. However, continuous improvement of our products is a Genie policy. Therefore product specifications are subject to change without notice.

Readers are encouraged to notify Genie of errors and send in suggestions for improvement. All communications will be carefully considered for future printings of this and other manuals. Please write to the technical publications team in care of Genie Industries, PO Box 69, Redmond WA 98073-0069 U.S.A.

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# Safety Rules



## Danger

Failure to obey the instructions and safety rules in this manual, and the *Genie S-60 & Genie S-65 Operator's Manual* will result in death or serious injury.

Many of the hazards identified in the operator's manual are also safety hazards when maintenance and repair procedures are performed.

## Do Not Perform Maintenance Unless:

- You are trained and qualified to perform maintenance on this machine.
- You read, understand and obey:
  - manufacturer's instructions and safety rules
  - employer's safety rules and worksite regulations
  - applicable governmental regulations
- You have the appropriate tools, lifting equipment and a suitable workshop.

## SAFETY RULES

**Personal Safety**

Any person working on or around a machine must be aware of all known safety hazards. Personal safety and the continued safe operation of the machine should be your top priority.



Read each procedure thoroughly. This manual and the decals, on the machine, use signal words to identify the following:

**▲ DANGER** Indicates the presence of a hazard that **will** cause death or serious injury.

**▲ WARNING** Indicates the presence of a hazard that **may** cause death or serious injury.

**▲ CAUTION** Indicates the presence of a hazard that **will** or **may** cause serious injury or damage to the machine.

**NOTICE** Indicates special operation or maintenance information.



Be sure to wear protective eye wear and other protective clothing if the situation warrants it.



Be aware of potential crushing hazards such as moving parts, free swinging or unsecured components, and lifting or placing loads. Always wear approved steel-toed shoes.

**Workplace Safety**

Be sure to keep sparks, flames and lighted tobacco away from flammable and combustible materials like battery gases and engine fuels. Always have an approved fire extinguisher within easy reach.



Be sure that all tools and working areas are properly maintained and ready for use. Keep work surfaces clean and free of debris that could get into machine components and cause damage.



Be sure that your workshop or work area is properly ventilated and well lit.



Be sure any forklift, overhead crane or other lifting or supporting device is fully capable of supporting and stabilizing the weight to be lifted. Use only chains or straps that are in good condition and of ample capacity.



Be sure that fasteners intended for one time use (i.e., cotter pins and self-locking nuts) are not reused. These components may fail if they are used a second time.



Be sure to properly dispose of old oil or other fluids. Use an approved container. Please be environmentally safe.

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# Specifications

## Machine Specifications

Stowed dimensions	S-60	S-65
Length	27 ft 2 in 8.3 m	30 ft 10 in 9.4 m
Width	8 ft 2.43 m	8 ft 2.43 m
Height	9 ft 2.74 m	9 ft 2.74 m
Weight	26,060 lbs 11,821 kg	28,400 lbs 12,882 kg
Ground clearance	12 in 30 cm	12 in 30 cm
<b>Operational dimensions</b>		
Maximum platform height	60 ft 18.3 m	65 ft 19.8 m
Maximum horizontal reach	51 ft 3 in 15.6 m	56 ft 4 in 17.2 m
Maximum turntable tailswing	3 ft 3 <sup>1</sup> / <sub>2</sub> in 100 cm	3 ft 3 <sup>1</sup> / <sub>2</sub> in 100 cm
Wheelbase	9 ft 0 in 2.7 m	9 ft 0 in 2.7 m
Minimum turning circle, inside	12 ft 1 in 3.7 m	12 ft 1 in 3.7 m
Turntable rotation	continuous	continuous
Platform rotation	160°	160°
Maximum capacity 6 foot platform	600 lbs 272 kg	500 lbs 227 kg
Maximum capacity 8 foot platform	500 lbs 227 kg	500 lbs 227 kg

**Continuous improvement of our products is a Genie policy. Product specifications are subject to change without notice.**

Platform dimensions	6 ft (Standard)	8 ft (Optional)
Length	6 ft 1.83 m	8 ft 2.44 m
Width	30 in 76.2 cm	36 in 91.4 cm
<b>Tires and wheels</b>		
Tire size	15-19.5 NHS	
Tire ply rating	12	
Tire contact area	71 sq in 458 sq cm	
Overall tire diameter	40 in 102 cm	
Tire pressure	85 psi 5.86 bar	
Wheel diameter	19 <sup>1</sup> / <sub>2</sub> in 49.5 cm	
Wheel width	12 <sup>1</sup> / <sub>4</sub> in 31 cm	
Wheel lugs	10 @ <sup>3</sup> / <sub>4</sub> -16	
Lug nut torque, dry bolts	420 ft-lbs 569.5 Nm	
Lug nut torque, wet bolts	320 ft-lbs 433.9 Nm	
<b>Fluid capacities</b>		
Fuel tank	30 gallons 114 liters	
LPG tank	33.5 pounds 15.2 kg	
Hydraulic tank	45 gallons 170 liters	
Hydraulic system (including tank)	55 gallons 208 liters	
Drive torque hubs	44 fl oz 1.30 liters	
Turntable rotation torque hub	17 fl oz 0.51 liters	

## PERFORMANCE SPECIFICATIONS

**Performance Specifications**

<b>Drive speeds, maximum</b>	<b>2WD</b>	<b>4WD</b>
Drive speed, stowed	4.4 mph	3.0 mph
Gasoline/LPG models	7.1 km/h 40 ft/6.2 sec 12.2 m/6.2 sec	4.8 km/h 40 ft/9.1 sec 12.2 m/9.1 sec
Drive speed, stowed	4.0 mph	2.8 mph
Deutz Diesel models	6.4 km/h 40 ft/6.8 sec 12.2 m/6.8 sec	4.5 km/h 40 ft/9.7 sec 12.2 m/9.7 sec
Drive speed, raised or extended - all models	0.6 mph 1.0 km/h 40 ft/40 sec 12.2 m/40 sec	0.6 mph 1.0 km/h 40 ft/40 sec 12.2 m/40 sec

<b>Gradeability (boom stowed)</b>	<b>2WD</b>	<b>4WD</b>
Rough terrain	28%	40%

<b>Boom function speeds, maximum from platform controls</b>	
Jib boom up	40 to 60 seconds
Jib boom down	50 to 80 seconds
Boom up	55 to 85 seconds
Boom down	90 to 120 seconds
Boom extend	100 to 130 seconds
Boom retract	55 to 85 seconds
Turntable rotate - 360° boom fully stowed	80 to 120 seconds
Turntable rotate - 360° boom extended	120 to 150 seconds
Platform rotate - 160°	10 to 20 seconds
Platform level up	35 to 65 seconds
Platform level down	25 to 55 seconds

HYDRAULIC SPECIFICATIONS

### Hydraulic Specifications

**Hydraulic fluid** Dexron II equivalent

**Drive pump**

Type: bi-directional variable displacement piston pump

Displacement - 2500 rpm 0 to 30.3 gallons per minute  
0 to 114.7 liters per minute

Maximum drive pressure 3500 psi  
241.3 bar

Charge pressure  
neutral position 340 psi 24 bar  
drive position 250 psi 17 bar

Medium pressure filter 3 micron

Medium pressure filter 50 psi  
bypass pressure 3.4 bar

**Drive manifold**

Brake 250 psi  
relief pressure 17.2 bar

**Steer end drive motors 4WD models**

Displacement 1.52 cu in  
per revolution 25 cc

**Non-steer end drive motors**

Displacement per revolution, variable 0.16 to 2.8 cu in  
4WD (2 speed motor) 2.62 to 45.9 cc

Displacement per revolution, variable 1.12 to 2.8 cu in  
2WD 18.4 to 45.9 cc

**Function pump**

Type: pressure balanced gear

Displacement - static 1.14 cu in  
19 cc

Displacement - 2500 rpm 0 to 12.3 gallons per minute  
0 to 46.6 liters per minute

Hydraulic tank circuit 10 micron with 25 psi  
return line filter (1.7 bar) bypass

**Function manifold**

Function relief valve pressure  
S60 2600 psi 179 bar  
S65 2900 psi 200 bar

Boom down 2100 psi  
relief valve pressure 145 bar

Boom extend 2100 psi  
145 bar

Oscillate axle 950 psi  
65 bar

Steer regulator 3.5 gallons per minute  
13.2 liters per minute

**Auxiliary pump**

Type: fixed displacement gear pump



Displacement - static 0.152 cu in  
2.5 cc

Displacement 1.4 gallons per minute  
5.3 liters per minute

Auxiliary pump 3000 psi  
relief pressure 207 bar

## BOLT TORQUE SPECIFICATIONS

**Bolt Torque Specifications**

Size	Threads	SAE Grade 5 Bolts 			SAE Grade 8 Bolts 		
		Torque - Dry inch-pounds	Torque - Dry foot-pounds	Torque - Dry Newton meters	Torque - Dry inch-pounds	Torque - Dry foot-pounds	Torque - Dry Newton meters
No. 10	24	43		5	60		7
	32	49		6	68		8
1/4 inch	20	96		11	144		16
	28	120		14	168		19
5/16 inch	18		17	23		25	34
	24		19	28		25	34
3/8 inch	16		30	41		45	61
	24		35	48		50	68
7/16 inch	14		50	68		70	95
	20		55	75		80	109
1/2 inch	13		75	102		110	149
	20		90	122		120	163
9/16 inch	12		110	149		150	204
	18		120	163		170	231
5/8 inch	11		150	204		220	298
	18		170	231		240	326
3/4 inch	10		260	353		380	515
	16		300	407		420	570
7/8 inch	9		430	583		600	814
	14		470	637		660	895
1 inch	8		640	868		900	1221
	12		700	949		1000	1356

Torque specifications for lubricated bolts are 25% less than dry torque specifications for each bolt size.

These bolt torque specifications are for general use only. Specification may vary depending on application of bolt.



## FORD ENGINE LRG-423 SPECIFICATIONS

**Ford Engine LRG-423**

<b>Displacement</b>	140 cu in 2.3 liters
<b>Number of cylinders</b>	4
<b>Bore &amp; stroke</b>	3.781 x 3.126 inches 96.04 x 79.4 mm
<b>Horsepower</b>	63 @ 4000 rpm
<b>Firing order</b>	1 - 3 - 4 - 2
<b>Low idle - carburetor</b>	900 rpm
<b>Low idle - electronic governor</b>	1600 rpm
<b>High idle</b>	2500 rpm
<b>Governor</b>	electronic
<b>Compression ratio</b>	9.4:1
<b>Compression pressure (approx.)</b>	
Pressure (psi) of lowest cylinder must be at least 75% of highest cylinder	
<b>Valve clearances - collapsed tappet</b>	0.035 to 0.055 inches 0.889 to 1.397 mm
<b>Lubrication system</b>	
Oil pressure (operating temp. @ 2000 rpm)	40 to 60 psi 2.75 to 4.1 bar
Oil capacity (including filter)	5 quarts 4.7 liters
<b>Oil viscosity requirements</b>	
Temperature below 60°F / 15.5°C	5W-30
-10°F to 90°F / -23°C to 32°C	10W-30
Temperature above -10°F / -23°C	10W-40 to 10W-50
Temperature above 20°F / -6.6°C	20W-40 or 20W-50
Use oils meeting API classification SG (labeled SG/CC or SG/CD) as they offer improved wear protection. Units ship with 10W-40 SG/CC.	

<b>Starter motor</b>	
Normal engine cranking speed	200 to 250 rpm
Current draw, normal load	170A
Current draw, maximum load	200A
Current draw, minimum	140A
Maximum circuit voltage drop while starting (normal temperature)	0.5V DC
Brush length, new	0.66 in 16.8 mm
Brush length wear limit	0.25 in 6.35 mm
Brush spring tension	64 ounces 18 Newtons
Bolt torque through brush	45 to 84 inch-pounds 5.08 to 9.5 Nm
Brush mounting bolt torque	15 to 20 foot-pounds 20 to 27 Nm
Maximum commutator run-out	0.005 inches 0.127 mm
<b>Battery</b>	
Type	12V, Group 31
Quantity	1
Cold cranking ampere	1000A
Reserve capacity @ 25A rate	200 minutes
<b>Fuel pump</b>	
Electronic solenoid	7 psi 0.48 bar

## FORD ENGINE LRG-423 SPECIFICATIONS

**Ignition System**

Spark plug type	Motorcraft AWSF-52C
Spark plug gap	0.042 to 0.046 inches 1.07 to 1.18 mm

**Engine coolant**

Capacity	11 <sup>1</sup> / <sub>2</sub> quarts 10.9 liters
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**Alternator**

Output	95A, 14.5V
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**Bolt torque specifications**

Bolt description (size)	torque ft-lbs	torque Nm
Timing belt tensioner pivot bolt (M-10)	29 to 40	40 to 55
Timing belt tensioner adjusting bolt (M-8)	25 to 29	35 to 40
Camshaft gear bolt (M-12)	52 to 66	70 to 90
Camshaft thrust plate bolt (M-6)	6 to 9	8 to 12
Carburetor to spacer stud (M-8)	7.5 to 15	10 to 20
Carburetor spacer to manifold bolt (M-8)	10 to 14	14 to 19
Crankshaft damper bolt (M-14)	92 to 122	125 to 165
Cylinder head bolt (M-12): torque in sequence		
first step	50 to 60	68 to 81
second step	80 to 90	108 to 122

**Bolt torque specifications**

Bolt description (size)	torque ft-lbs	torque Nm
Exhaust manifold to cylinder head bolt or nut (M-10): torque in sequence		
first step	14 to 19	19 to 26
second step	35 to 50	47 to 68
Flywheel to crankshaft bolt (M-10)	54 to 64	73 to 87
Intake manifold to cylinder head bolt or nut (M-8)	15 to 22	20 to 30
Oil pressure sending unit to block	8 to 18	11 to 24
Oil pan drain plug to pan (M-14)	15 to 25	20 to 34
Oil pan to block (M-6)	10 to 13.5	14 to 18
Oil filter insert to block	21 to 26	28 to 35
Rocker arm cover to cylinder head (M-6)	7 to 10	9 to 13
Spark plug to cylinder head (M-14)	7 to 15	9 to 20
Temperature sending unit to block (M-14)	8 to 18	11 to 24
Water jacket drain plug to block	12 to 18	16 to 24
Water pump to block bolt (M-8)	15 to 22	20 to 30
Water outlet connection bolt (M-8)	15 to 22	20 to 30
Cylinder front cover bolt (M-6)	10 to 12	13 to 16
Inner timing belt cover stud (M-8)	15 to 22	20 to 30
Outer timing belt cover bolt (M-6)	6 to 9	8 to 12

## DEUTZ ENGINE F4L 1011 SPECIFICATIONS

**Deutz Engine F4L 1011**

<b>Displacement</b>	166.7 cu in 2.732 liters
<b>Number of cylinders</b>	4
<b>Bore and stroke</b>	3.58 x 4.13 inches 91 x 105 mm
<b>Horsepower</b>	56 @ 3000 rpm
<b>Firing order</b>	1 - 3 - 4 - 2
<b>Compression ratio</b>	18.5:1
<b>Compression pressure</b>	362 to 435 psi 25 to 30 bar
<b>Low idle</b>	1300 rpm
<b>High idle</b>	2300 rpm
<b>Governor</b>	centrifugal mechanical
<b>Valve clearance, cold</b>	
Intake	0.012 in 0.3 mm
Exhaust	0.020 in 0.5 mm
<b>Lubrication system</b>	
Oil pressure	26 to 87 psi 1.8 to 6.0 bar
Oil capacity (including filter)	11 quarts 10.5 liters
<b>Oil viscosity requirements</b>	
Temperature below 60°F / 15.5°C (synthetic)	5W-30
-10°F to 90°F / -23°C to 32°C	10W-40
Temperature above -4°F / -34°C	15W-40
Engine oil should have properties of API classification CC/SG or CD/SG grades. Units ship with 10W-40 SG/CC.	
<b>Injection system</b>	
Injection pump make	OMAP

Injection pump pressure	4351 psi 300 bar	
Injector opening pressure	3626 psi 250 bar	
Fuel requirement	diesel number 2-D	
<b>Alternator output</b>	55A, 14V	
<b>Starter motor</b>		
Current draw, no load	90A	
Brush length, new	0.7480 in 19 mm	
Brush length, minimum	0.5 in 12.7 mm	
<b>Battery</b>		
Type	12V, Group 31	
Quantity	1	
Cold cranking ampere	1000A	
Reserve capacity @ 25A rate	200 minutes	
<b>Fan belt deflection</b>	<sup>3</sup> / <sub>8</sub> to <sup>1</sup> / <sub>2</sub> inch 9 to 12 mm	
<b>Bolt tightening specifications</b>		
Bolt description (size, grade)	torque ft-lbs	torque Nm
Camshaft/thrust bearing bolt (M-8 x 35, 8.8)	15 to 18	20 to 24
Rocker arm bolts (M-8 x 45, 8.8)	15 to 18	20 to 24
Rocker arm set screw nut	15 to 18	20 to 24
Cylinder head cover	6 to 7	8 to 10
Blower rotor nut (M-17 Valeo or M-18 Bosch)	33 to 41	45 to 55
Blower carrier bolts (M-8 x 50 Torx, 8.8)	15 to 18	20 to 24
V-belt pulley bolts (M-10 x 16, 8.8)	28 to 34	38 to 46

## DEUTZ ENGINE F4L 1011 SPECIFICATIONS

Bolt tightening specifications, continued Bolt description (size, grade)	torque		torque		torque	
	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
Idle pulley/V-belt pulley bolt (M-10 x 25, 8.8)	27 to 32	36 to 44				
Idle pulley for toothed belt (M-10 x 50, 8.8)	30 to 36	41 to 49				
Oil pump bolts (M-8 x 35 Torx)	15 to 18	20 to 24				
Oil filter bracket bolts (M-8 x 20 Torx, 8.8)	7 to 8	9 to 11				
Oil intake housing bolts (M-8 x 75 Torx)	15 to 18	20 to 24				
Fuel pump bolts	15 to 18	20 to 24				
Injection pump bolts	15 to 18	20 to 24				
Injector cap nut	30 to 37	40 to 50				
Injector fastening bolt	15 to 18	20 to 24				
Injection line	10 to 12	13.5 to 16.5				
Air intake manifold bolts (M-8 x 30, 8.8)	15 to 18	20 to 24				
Air intake manifold, 3-hole flange bolts (M-8 x 35 Torx, 8.8)	15 to 18	20 to 24				
Exhaust manifold bolts (M-10 x 30 Torx, 10.9)	27 to 32	36 to 44				
Starter fastening bolts (M-10 x 28, 8.8)	28 to 34	38 to 46				
Starter carrier bolts (M-12 x 28, 8.8)	50 to 60	68 to 82				
Oil pan bolts (M-8 x 16 Torx, 8.8)	15 to 18	20 to 24				
Oil drain bolts	37 to 44	50 to 60				
Oil thermostat housing screw plug (M-38 x 1.5)			37 to 44		50 to 60	
Oil thermostat housing bolts (M-6 x 35 Torx, 8.8)			5.5 to 7		7.5 to 9	
Oil thermostat housing bolts (M-6 x 80 Torx, 8.8)			5.5 to 7		7.5 to 9	
Oil thermostat housing bolts (M-6 x 105 Torx, 8.8)			14 to 16		19 to 22	
Valve plunger housing bolts (M-8 x 30 Torx, 8.8)			14 to 16		19 to 22	
Alternator nuts (M-5)			3		4	
Fuel bracket bolts (M-8 x 20, 8.8)			15		20	
Adapter housing bolts (M-12 x 35, 10.9 or M-12 x 75, 10.9)			70 to 77		95 to 105	
			first step tightening torque		second step tightening angles	
			ft-lbs	Nm	1st	2nd
Main bearing bolts			37	50	60°	45°
Big end bolts			22	30	60°	60°
Flywheel bolts			22	30	60°	30°
Cylinder head studs	step 1		22	30		
	step 2		59	80		
	step 3		118	160	120°	NA
Camshaft/central bolt			22	30	150°	NA
Crankshaft/central bolt			96	130	210°	NA