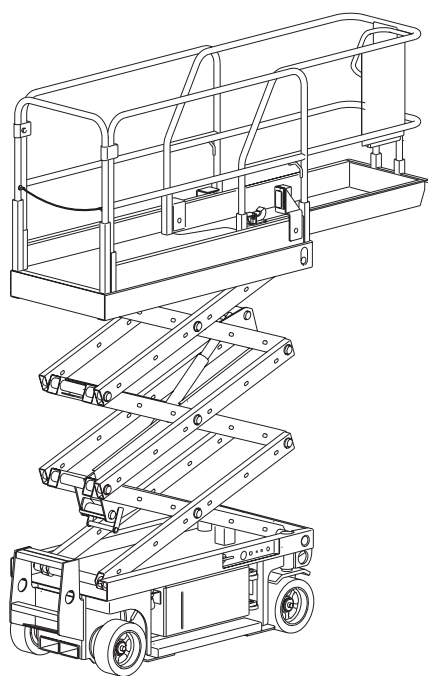




Genie GS-1530 Genie GS-1930

Service Manual

(before serial number 17408)



First Edition, Third Printing
Rev C2
Part No. 39528



Genie GS-1530

Genie GS-1930

Important

Read, understand and obey the safety rules and operating instructions in the appropriate *Genie GS-1530 & Genie GS-1930 Operator's Manual* before attempting any maintenance or repair procedure.

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 an authorized 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 97030, Redmond WA 98073-9730 USA.

If you have any questions, please call Genie Industries.

Genie North America

Telephone (425) 881-1800
Toll Free in U.S.A. 800 536-1800
Toll Free in Canada 800 426-8089
Fax (425) 882-9260
E-mail: techpub@genieind.com
<http://www.genielift.com>

Genie Europe

Office Telephone (44) 01636-605030
Office Fax (44) 01636-611090
Parts Telephone (44) 01636-605002
Parts Fax (44) 01636-611091

Genie Industries

Copyright © 1997 by Genie Industries

First Edition: First Printing August, 1997
 Second Printing February, 1998
 Third Printing September, 1999

"Genie" is a registered trademark of Genie Industries in the U.S.A. and many other countries. "GS" is a trademark of Genie Industries.

These machines comply with ANSI/SIA 92.6-1990.

 Printed on recycled paper

Printed in U.S.A.

Safety Rules



Danger

Failure to obey the instructions and safety rules in this manual and the appropriate *Genie GS-1530 & Genie GS-1930 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:



Safety alert symbol—used to alert personnel to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

▲ DANGER

Red—used to indicate the presence of an imminently hazardous situation which, if not avoided, will result in death or serious injury.

▲ WARNING

Orange—used to indicate the presence of a potentially hazardous situation which, if not avoided, could result in death or serious injury.

▲ CAUTION

Yellow with safety alert symbol—used to indicate the presence of a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.

CAUTION

Yellow without safety alert symbol—used to indicate the presence of a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

Green—used to indicate 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 and free swinging or unsecured components when 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 such as 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 .



Theory of Operation

Power Source

The Genie GS-1530 and GS-1930 machines are powered by four six-volt (255 AH) batteries. The four batteries are wired in series to produce 24 volts.

Hydraulic System

All machine functions are performed by the hydraulic system. The hydraulic system is powered by a single-section gear pump. When the pump is activated, it supplies hydraulic fluid under pressure to the function manifold, where the control valves are located. To protect from over-pressurization of the hydraulic system, the pump is provided with a pressure relief valve.

Activating a machine function is accomplished by actuating or moving a switch and/or control handle, which sends voltage to the ECM. The ECM then sends the signal to the appropriate directional control valve. The directional valve determines which direction the hydraulic fluid will travel. Computer software determines the volume of fluid in relation to the proportional valve input voltage.

Electrical System

Limit switches are found in various locations on the machine. The function of a limit switch is to communicate the operating position of the machine to the ECM (Electronic Control Module). When a change in signal is received from a limit switch, the ECM responds by limiting the drive speed to 0.5 miles per hour (0.8 km/h), according to the default settings in the ECM software.

Machine Controls

The GS-1530 and GS-1930 machines are equipped with operational controls which are found in two locations: the ground controls, located on the hydraulic tank side of the machine, and the platform controls, located in the platform. All lift and drive functions are available at the platform controls. Only platform up/down functions are available at the ground controls. The ECM uses input from the ground or platform

controls to activate the various machine functions. The ECM has predetermined settings for the various machine functions.

The joystick is fitted with a 5000 ohm potentiometer. With the joystick in the neutral position, the potentiometer will measure 2730 ohms. These signals are sent to the multiplex card, then down to the ECM to control the voltage supplied to the proportional valve. Two microswitches mounted on the joystick tell the ECM the drive direction desired. A thumb rocker switch on the top of the joystick is used for steering.

Mounted on the platform control box lid of machines before serial number 17408 are buttons and a switch that, when activated, sends a signal to the ECM through the multiplex card. On machines after serial number 17407, the platform control box lid has a decal/membrane pad. This is a touch-activated pad incorporating wiring, switches and LEDs that are resistant to the environment. Activating any of the buttons on the pad will send a signal to the ECM through the multiplex card.

A diagnostic display is located at the battery pack side of the machine to aid in troubleshooting. If the machine malfunctions, a fault code will be shown in the display window.

Washing electronic components is not suggested. Instead, use compressed air to remove debris from these components.

⚠ CAUTION Component damage hazard. Avoid shock or impact to the ECM. Internal damage may not be visible from the outside.

Table of Contents

Introduction

Important Information	<i>ii</i>
-----------------------------	-----------

Section One Safety Rules

General Safety Rules	<i>iii</i>
Theory of Operation	<i>v</i>

Section Two Rev Specifications

D Machine Specifications	2 - 1
D Performance Specifications	2 - 2
D Hydraulic Specifications	2 - 2
D Hydraulic Hose and Fitting Torque Specifications	2 - 3

Section Three Scheduled Maintenance Inspections

Introduction	3 - 1
Table A	3 - 2
Table B	3 - 2
Table C	3 - 3
Table D	3 - 3
Maintenance Inspection Report	3 - 4

Section Four Scheduled Maintenance Procedures

Introduction	4 - 1
A-1 Inspect the Operator's and Safety Manuals	4 - 2
A-2 Inspect the Decals and Placards	4 - 2
A-3 Inspect for Damage and Loose or Missing Parts	4 - 3
A-4 Check the Hydraulic Oil Level	4 - 3
A-5 Check for Hydraulic Leaks	4 - 4
A-6 Test the Platform and Ground Controls	4 - 4
A-7 Test the Manual Platform Lowering Operation	4 - 5
A-8 Test the Tilt Sensor	4 - 6
A-9 Test the Pothole Guards	4 - 6
A-10 Test the Lift/Drive Select Switch (before serial number 17408)	4 - 7
A-11 Perform 30 Day Service	4 - 7

TABLE OF CONTENTS

Section Four	Scheduled Maintenance Procedures, continued	
B-1	Check the Batteries	4 - 8
B-2	Inspect the Electrical Wiring	4 - 9
B-3	Inspect the Tires and Wheels (including castle nut torque)	4 - 10
B-4	Test the Key Switch	4 - 10
B-5	Test the Emergency Stop Buttons	4 - 11
B-6	Test the Service Horn	4 - 11
B-7	Test the Drive Brakes	4 - 12
B-8	Test the Drive Speed - Stowed Position	4 - 14
B-9	Test the Drive Speed - Raised Position	4 - 14
B-10	Perform Hydraulic Oil Analysis	4 - 15
B-11	Check the Electrical Contactor (before serial number 6901)	4 - 15
C-1	Replace the Hydraulic Filter	4 - 16
D-1	Test or Replace the Hydraulic Oil	4 - 17

 TABLE OF CONTENTS

Section Five Troubleshooting Flow Charts and Fault Codes

Chart Number	Chart Title	Page
	Introduction	5 - 1
	Fault Code Chart Before Serial Number 17408	5 - 3
	Normal Operation Code Chart	5 - 6
	Fault Code Chart After Serial Number 17407	5 - 8
1	All Functions Will Not Operate	5 - 9
2	Pump Motor Will Not Operate	5 - 12
3	All Functions Inoperative, Power Unit Starts and Runs	5 - 14
4	Ground Controls Inoperative, Platform Controls Operate Normally	5 - 15
5	Platform Controls Inoperative, Ground Controls Operate Normally	5 - 16
6	Platform Up Function Inoperative	5 - 18
7	Platform Down Function Inoperative	5 - 19
8	Steer Left Function Inoperative	5 - 21
9	Steer Right Function Inoperative	5 - 23
10	All Drive Functions Inoperative, All Other Functions Operate Normally	5 - 25
10A	Brake Release Function Inoperative	5 - 27
11	Drive Forward Function Inoperative	5 - 28
12	Drive Reverse Function Inoperative	5 - 29
13	Machine Will Not Drive At Full Speed	5 - 30
14	Machine Drives At Full Speed With Platform Raised	5 - 32

TABLE OF CONTENTS

Section Six	Schematics	
	Introduction	6 - 1
	Electrical Components	6 - 2
	Module Tray Legend	6 - 3
	Electrical Symbols Legend	6 - 4
	Electrical Schematic (models before serial number 6901)	6 - 5
	Electrical Schematic (models from serial number 6901 to 8931)	6 - 7
	Electrical Schematic (models after serial number 8931)	6 - 9
	Ground Controls and Level Sensor Box Legend	6 - 11
	Platform Controls Legend (models before serial number 17408)	6 - 12
	Platform Controls Legend (models after serial number 17407)	6 - 13
	Hydraulic Symbols Legend	6 - 14
	Hydraulic Schematic	6 - 15

TABLE OF CONTENTS

Section Seven	Repair Procedures	
	Introduction	7 - 1
	Platform Controls	
1-1	Platform Controller	7 - 2
1-2	Software Configuration	7 - 3
1-3	Toggle Switches	7 - 6
	Platform Components	
2-1	Platform	7 - 8
2-2	Platform Extension	7 - 9
	Scissor Components	
3-1	Scissor Assembly, GS-1530 (machines before serial number 632)	7 - 10
3-2	Scissor Assembly, GS-1930 (machines before serial number 632)	7 - 16
3-3	Scissor Assembly, GS-1530 (machines after serial number 631)	7 - 22
3-4	Scissor Assembly, GS-1930 (machines after serial number 631)	7 - 28
3-3	Lift Cylinder	7 - 34
	Ground Controls	
4-1	Manual Platform Lowering Cable	7 - 36
4-2	Toggle Switches, See 1-3, <i>Toggle Switches</i>	7 - 6
	Hydraulic Pump	
5-1	Function Pump	7 - 37
	Manifolds	
6-1	Function Manifold Components	7 - 38
6-2	Valve Adjustment - Function Manifold	7 - 40
	Steering Axle Components	
7-1	Yoke and Drive Motor	7 - 42
7-2	Steering Cylinder	7 - 43
7-3	Steering Bellcrank (machines before serial number 2000)	7 - 44
7-4	Steering Bellcrank (machines after serial number 1999)	7 - 44
	Non-steering Axle Components	
8-1	Drive Brake	7 - 45
	Brake Release Hand Pump Components	
9-1	Brake Release Hand Pump	7 - 46