



Service and Repair Manual

Serial Number Range

GS™-1330m

GS™-1432m/1932m

GS™-1932m Lite/1932m XH

GS™-1530/1532

GS™-1930/1932/1932 XH

GS™-2032/2632/3232

GS™-2046/2646/3246/4046

GS™-2646 XH/3246 XH

GS™-4655

Refer to inside cover

This manual includes:
Repair procedures
Fault Codes
Electrical and
Hydraulic Schematics

For detailed maintenance
procedures, refer to the
appropriate Maintenance
Manual for your machine.

Part No. 1309020GT
Rev B
August 2021

Introduction

Compliance

Machine Classification

Group A/Type 3 as defined by ISO 16368

Machine Design Life

Unrestricted with proper operation, inspection and scheduled maintenance.

Contact Us:

Internet: www.genielift.com
E-mail: awp.techpub@terex.com

Find a Manual for this Model

Go to <http://www.genielift.com>

Use the links to locate Service Manuals, Maintenance Manuals, Service and Repair Manuals, Parts Manuals and Operator's Manuals.

Serial Number Range

Use the following chart to identify the specific serial number for models included in this manual.

Models	Serial number
GS-1330m	from GS30MD-101
GS-1432m, GS-1932m GS-1932m XH, GS-1932m Lite	from GS32MD-101 from GS32MP-101
GS-1530/1532 GS-1930/1932, GS-1932 XH	from GS30D-40101 from GS30P-200101
GS-2032/2632/3232	from GS32D-10101 from GS32P-200101
GS-2046/2646/3246/4046 GS-2646 XH / GS-3246 XH	from GS46D-20101 from GS46P-200101
GS-4655	from GS55D-101 from GS55F-101

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Introduction

Revision History

Revision	Date	Section	Procedure / Page / Description
A	3/2021		Initial Release
B	6/2021	All Sections	Add GS1432m, 1932m, 1932m XH, 1932m Lite
Reference Examples:			Electronic Version Click on any content or procedure in the Table of Contents to view the update.
Section – Repair Procedure, 4-2			
Section – Fault Codes, All charts			
Section – Schematics, Legends and schematics			

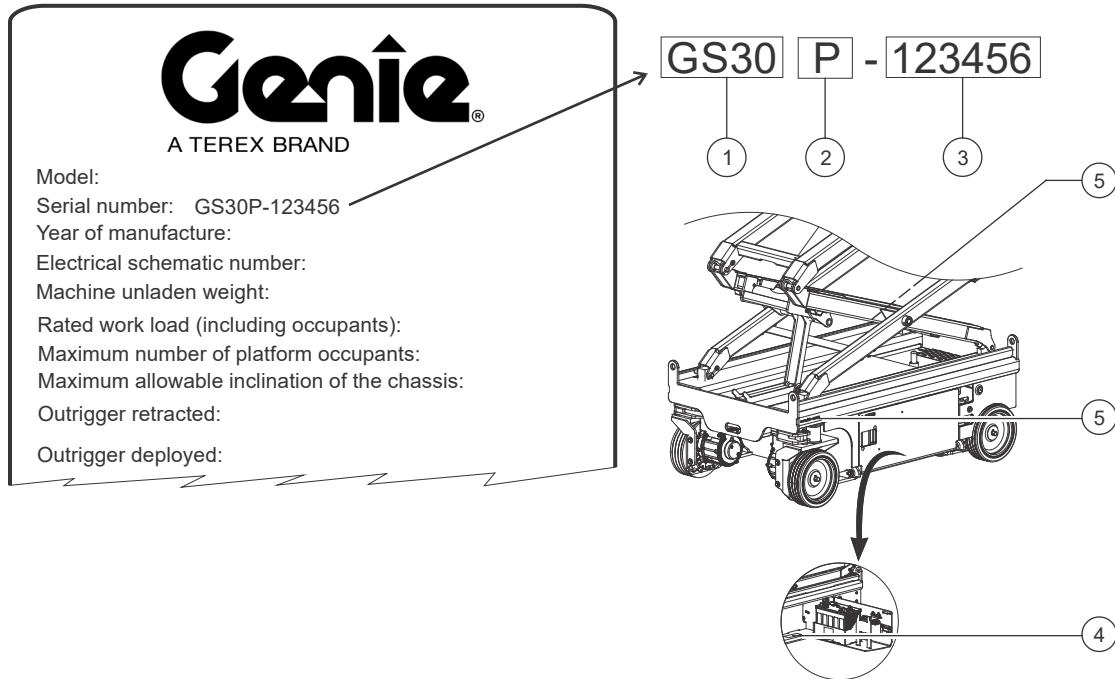
Introduction

Revision History(continued)

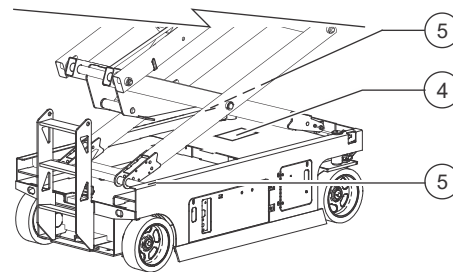
Revision	Date	Section	Procedure / Page / Description
Reference Examples:			Electronic Version Click on any content or procedure in the Table of Contents to view the update.
Section – Repair Procedure, 4-2			
Section – Fault Codes, All charts			
Section – Schematics, Legends and schematics			

Introduction

Serial Number Legend



GS-1432m, GS-1932m, GS-1932m XH, GS1932m Lite



All other models

- 1 Model
- 2 Facility code
- 3 Sequence number
- 4 Serial label located on chassis
- 5 Serial number (stamped on chassis)

Safety Rules



Danger

Failure to obey the instructions and safety rules in this manual and the appropriate Operator's Manual on your machine 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 modify or alter a MEWP without prior written permission from the manufacturer.

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.



Indicates a imminently hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.



Indicates a potentially hazardous situation which, if not avoided, may result in property damage.



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 when lifting or placing loads. Always wear approved steel-toed shoes.

Workplace 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.



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 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.



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

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Specifications

Machine Specifications

For operational specifications, refer to the Operator's Manual.

Batteries, Standard GS-1330m

Voltage	12V DC
Group	24
Type	24TMX
Quantity	2
Battery capacity, maximum	85AH
Reserve capacity @ 25A rate	140 minutes
Weight, each	46 lbs 21 kg

Batteries, Standard GS-1432m, GS-1932m, GS-1932m Lite, GS-1932 XH

Voltage	12V DC
Group	24
Type	27TMH
Quantity	2
Battery capacity, maximum	115AH
Reserve capacity @ 25A rate	131 minutes
Weight, each	62 lbs 28 kg

Batteries, Standard GS-4046, GS-4655

Voltage	12V DC
Group	GC12
Type	T1275
Quantity	4
Battery capacity, maximum	C20 = 150AH
Reserve capacity @ 25A rate	280 minutes
Weight, each	82 lbs 37 kg

Batteries, Standard All other models Models with hydraulic drive

Voltage	6V DC
Group	GC2
Type	T-105
Quantity	4
Battery capacity, maximum	C20 = 225AH
Reserve capacity @ 25A rate	447 minutes
Weight, each	62 lbs 28 kg

Batteries, Standard All other models Models with electric drive

Voltage	6V DC
Group	GC2
Type	T-605
Quantity	4
Battery capacity, maximum	C20 = 210AH
Reserve capacity @ 25A rate	383 minutes
Weight, each	58 lbs 26,5 kg

Batteries, Maintenance-free (option) GS-1330m

Voltage	12V DC
Group	24
Type	DC85-12
Quantity	2
Battery capacity, maximum	85AH
Reserve capacity @ 25A rate	145 minutes
Weight, each	57 lbs 26 kg

Specifications

Batteries, Maintenance-free (option)
GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

Voltage	12V DC
Group	24
Type	EV31A-B
Quantity	2
Battery capacity, maximum	115AH
Reserve capacity @ 25A rate	178 minutes
Weight, each	70 lbs 32 kg

Batteries, Maintenance-free (option)
GS-4046, GS-4655

Voltage	12V DC
Group	GC12
Type	DC150-12
Quantity	4
Battery capacity, maximum	150AH
Reserve capacity @ 25A rate	295 minutes
Weight, each	94 lbs 42,6 kg

Batteries, Maintenance-free (option)
All other models, Models with hydraulic drive

Voltage	6V DC
Group	GC2
Type	6V-AGM
Quantity	4
Battery capacity, maximum	200AH
Reserve capacity @ 25A rate	380 minutes
Weight, each	62 lbs 28 kg

Batteries, Maintenance-free (option)
All other models, Models with electric drive

Voltage	6V DC
Group	GC2
Type	DC224-6
Quantity	4
Battery capacity, maximum	224AH
Reserve capacity @ 25A rate	441 minutes
Weight, each	68.3 lbs 31 kg

Platform Overload Pressure Transducer
(if equipped) All models except GS-3232, GS-4046, GS-4655

Input voltage	8 to 30V DC
Signal voltage	1 to 5V DC

Platform Overload Pressure Transducer
(if equipped) GS-3232, GS-4046

Input voltage	8 to 30V DC
Signal voltage	0.25 to 6.25V DC

Angle Sensor (if equipped)

Input voltage	8 to 30V DC
Signal voltage	PWM output

Outrigger Pressure Transducer, GS-3232 only

Input voltage	8 to 30V DC
Signal voltage	1 to 5V DC

Specifications

Fluid capacities

Hydraulic tank GS-1330m, GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH	1.06 gallons 4 liters
Hydraulic system (including tank) GS-1330m, GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH	1.5 gallons 5,68 liters
Hydraulic tank Models with hydraulic drive GS-1530, GS-1532, GS-1930, GS- 1932, GS-1932 XH	3.4 gallons 12,9 liters
Hydraulic tank Models with electric drive GS-1530, GS-1532, GS-1930, GS- 1932, GS-1932 XH	1.0 gallons 3,8 liters
Hydraulic system (including tank) Models with hydraulic drive GS-1530, GS-1532, GS-1930, GS- 1932, GS-1932 XH	3.8 gallons 14,2 liters
Hydraulic system (including tank) Models with electric drive GS-1530, GS-1532, GS-1930, GS- 1932, GS-1932 XH	1.46 gallons 5,5 liters
Hydraulic tank Models with hydraulic drive GS-2032, GS-2632	3.4 gallons 12,9 liters
Hydraulic tank Models with electric drive GS-2032, GS-2632, GS-3232, GS- 2046, GS-2646, GS-2646 XH, GS-3246, GS-3246 XH	4.0 gallons 15,1 liters
Hydraulic system (including tank) Models with hydraulic drive GS-2032, GS-2632	4.5 gallons 17 liters
Hydraulic system (including tank) Models with electric drive GS-2032, GS-2632, GS-3232, GS- 2046, GS-2646, GS-2646 XH, GS-3246, GS-3246 XH	6.13 gallons 23,2 liters
Hydraulic tank GS-4046	4.9 gallons 18,5 liters
Hydraulic system (including tank) GS-4046	7.84 gallons 29,7 liters
Hydraulic tank GS-4655	5.9 gallons 22,4 liters
Hydraulic system (including tank) GS- 4655	7.94 gallons 30 liters

Tires and wheels

GS-1330m, GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

Tire size (solid rubber)	10 x 3 in 25,4 x 7,6 cm
Tire contact area	6.5 sq in 42 cm ²
Castle nut torque, dry	200 ft-lbs 271,2 Nm
Castle nut torque, lubricated	150 ft-lbs 203,4 Nm

GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH

Tire size (solid rubber)	12 x 4.5 in 30,5 x 11,4 cm
Tire contact area	9 sq in 58 cm ²
Castle nut torque, dry	300 ft-lbs 406,7 Nm
Castle nut torque, lubricated	225 ft-lbs 305 Nm

GS-2032, GS-2632

Models with hydraulic drive

Tire size (solid rubber)	15 x 5 in 38,1 x 12,7 cm
Tire contact area	17.22 sq in 117 cm ²
Castle nut torque, dry	300 ft-lbs 406,7 Nm
Castle nut torque, lubricated	225 ft-lbs 305 Nm

GS-2032, GS-2632, GS-3232, GS-2046, GS-2646, GS-2646 XH, GS-3246, GS-3246 XH, GS-4046, GS-4655

Models with electric drive

Tire size (solid rubber)	15 x 5 in 38,1 x 12,7 cm
Tire contact area	17.22 sq in 117 cm ²
Hex head cap screw, dry	90 ft-lbs 122 Nm
Hex head cap screw, lubricated	80 ft-lbs 108,5 Nm

Specifications

Performance Specifications

For operational specifications, refer to the Operator's Manual.

Drive speed, maximum

GS-2032, GS-2632 - Models with hydraulic drive

Platform stowed	2.0 mph 40 ft / 13.6 sec 4 km/h 12,2 m / 13,6 sec
-----------------	--

Platform raised	0.5 mph 40 ft / 55 sec 0,8 km/h 12,2 m / 55 sec
-----------------	--

GS-2032, GS-2632 - Models with electric drive

Platform stowed	2.5 mph 40 ft / 10.9 sec 4 km/h 12,2 m / 10,9 sec
-----------------	--

Platform raised	0.5 mph 40 ft / 55 sec 0,8 km/h 12,2 m / 55 sec
-----------------	--

All other models

Models with hydraulic or electric drive

Platform stowed	2.5 mph 40 ft / 10.9 sec 4 km/h 12,2 m / 10,9 sec
-----------------	--

Platform raised	0.5 mph 40 ft / 55 sec 0,8 km/h 12,2 m / 55 sec
-----------------	--

Braking distance, maximum

High range on paved surface	<1 ft <0,3 m
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Gradeability	See Operator's Manual
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Function speed, maximum from platform controls (with 1 person in platform)

Models with hydraulic drive

GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH

Platform up	15 to 21 seconds
Platform down	18 to 22 seconds

GS-2032, GS-2632

Platform up	28 to 35 seconds
Platform down	23 to 33 seconds

Models with electric drive

GS-1330m

Platform up	19 to 22 seconds
Platform down	20 to 24 seconds

GS-1432m

Platform up	17 to 21 seconds
Platform down	18 to 22 seconds

GS-1932m, GS-1932m Lite, GS-1932m XH

Platform up	24 to 28 seconds
Platform down	18 to 22 seconds

GS-1530, GS-1532

Platform up	19 to 21 seconds
Platform down	18 to 22 seconds

GS-1930, GS-1932, GS-1932 XH

Platform up	21 to 26 seconds
Platform down	18 to 22 seconds

GS-2032

Platform up	34 to 41 seconds
Platform down	23 to 33 seconds

GS-2632

Platform up	37 to 43 seconds
Platform down	23 to 33 seconds

GS-3232

Platform up	50 to 58 seconds
Platform down	28 to 32 seconds

Specifications

Function speed, maximum from platform controls (with 1 person in platform)

Models with electric drive

GS-2046

Platform up	34 to 41 seconds
Platform down	26 to 34 seconds

GS-2646, GS-2646 XH

Platform up	37 to 43 seconds
Platform down	26 to 34 seconds

GS-3246, GS-3246 XH

Platform up	53 to 61 seconds
Platform down	26 to 34 seconds

GS-4046

Platform up	62 to 72 seconds
Platform down	39 to 48 seconds

GS-4655

Platform up	91 to 95 seconds
Platform down	56 to 60 seconds

GS-3232 Outrigger leveling capacity, maximum

Side to side	5°
Front to rear	3°

Hydraulic Oil Specifications

Hydraulic Fluid Specifications

Genie specifications require hydraulic oils which are designed to give maximum protection to hydraulic systems, have the ability to perform over a wide temperature range, and the viscosity index should exceed 140. They should provide excellent antiwear, oxidation prevention, corrosion inhibition, seal conditioning, and foam and aeration suppression properties.

Cleanliness level, minimum	ISO 15/13
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Water content, maximum	250 ppm
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Recommended Hydraulic Fluid

Hydraulic oil type	Chevron Rando HD Premium
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Viscosity grade	32
-----------------	----

Viscosity index	200
-----------------	-----

Optional Hydraulic Fluids

Mineral based	Shell Tellus S2 V 32 Shell Tellus S2 V 46 Shell Tellus S4 VX 32 Shell Donax TG (Dexron III) Chevron 5606A
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Biodegradable	Petro Canada Environ MV 46
---------------	----------------------------

Fire resistant	UCON Hydrolube HP-5046
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Note: Genie specifications require additional equipment and special installation instructions for the approved optional fluids. Consult Genie Product Support before use.

NOTICE

Optional fluids may not have the same hydraulic lifespan and may result in component damage.

Note: Extended machine operation can cause the hydraulic fluid temperature to increase beyond its maximum allowable range. If the hydraulic fluid temperature consistently exceeds 200°F / 90°C an optional oil cooler may be required.

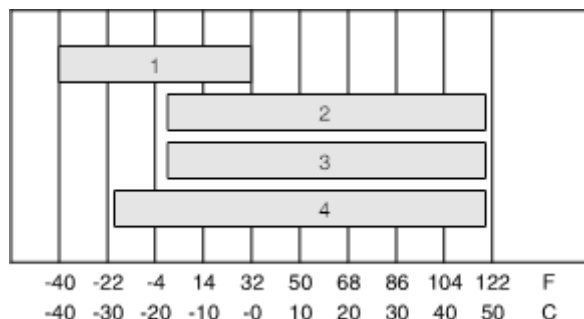
Specifications

NOTICE

Do not top off with incompatible hydraulic fluids. Hydraulic fluids may be incompatible due to the differences in base additive chemistry. When incompatible fluids are mixed, insoluble materials may form and deposit in the hydraulic system, plugging hydraulic lines, filters, control valves and may result in component damage.

Note: Do not operate the machine when the ambient air temperature is consistently above 120°F / 49°C.

Hydraulic Fluid Temperature Range



Ambient air temperature

- 1 Chevron hydraulic oil 5606A
- 2 Petro-Canada Environ MV 46
- 3 UCON Hydrolube HP-5046D
- 4 Chevron Rando HD premium oil MV

Chevron Rando HD Premium Oil MV Fluid Properties

ISO Grade	32
Viscosity index	200
Kinematic Viscosity	
cSt @ 200°F / 100°C	7.5
cSt @ 104°F / 40°C	33.5
Brookfield Viscosity	
cP @ -4°F / -20°C	1040
cP @ -22°F / -30°C	3310
Flash point	375°F / 190°C
Pour point	-58°F / -50°C
Maximum continuous operating temperature	171°F / 77°C

Note: A hydraulic oil heating system is recommended when the ambient temperature is consistently below 0°F / -18°C.

Note: Do not operate the machine when the ambient temperature is below -20°F / -29°C with Rando HD Premium MV.

Specifications

Chevron 5606A Hydraulic Oil Fluid Properties

ISO Grade	15
Viscosity index	300
Kinematic Viscosity	
cSt @ 200°F / 100°C	5.5
cSt @ 104°F / 40°C	15.0
cSt @ -40°F / -40°C	510
Flash point	180°F / 82°C
Pour point	-81°F / -63°C
Maximum continuous operating temperature	124°F / 51°C

Note: Use of Chevron 5606A hydraulic fluid, or equivalent, is required when ambient temperatures are consistently below 0°F / -17°C unless an oil heating system is used.

NOTICE

Continued use of Chevron 5606A hydraulic fluid, or equivalent, when ambient temperatures are consistently above 32°F / 0°C may result in component damage

Petro-Canada Environ MV 46 Fluid Properties

ISO Grade	46
Viscosity index	154
Kinematic Viscosity	
cSt @ 200°F / 100°C	8.0
cSt @ 104°F / 40°C	44.4
Flash point	482°F / 250°C
Pour point	-49°F / -45°C
Maximum continuous operating temperature	180°F / 82°C

Shell Tellus S4 VX Fluid Properties

ISO Grade	32
Viscosity index	300
Kinematic Viscosity	
cSt @ 200°F / 100°C	9
cSt @ 104°F / 40°C	33.8
Brookfield Viscosity	
cSt @ -4°F / -20°C	481
cSt @ -13°F / -25°C	702.4
cSt @ -40°F / -40°C	2624
Flash point	>100
Pour point	-76°F / -60°C
Maximum continuous operating temperature	103°F / 75°C

Specifications

UCON Hydrolube HP-5046 Fluid Properties

ISO Grade	46
Viscosity index	192
Kinematic Viscosity	
cSt @ 149°F / 65°C	22
cSt @ 104°F / 40°C	46
cSt @ 0°F / -18°C	1300
Flash point	None
Pour point	-81°F / -63°C
Maximum continuous operating temperature	189°F / 87°C

Specifications

Hydraulic Component Specifications

GS-1330m

Function Pump

Type	gear pump
Displacement per revolution	0.094 cu in 1,54 cc
Flow rate @ 1500 psi / 103 bar	1.3 gpm 4,9 L/min
Hydraulic tank return filter	10 micron 25 psi / 1,7 bar bypass

Function manifold

System relief valve pressure, maximum	2250 psi 155 bar
Steer relief valve pressure	1600 psi 110 bar

GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

Function Pump

Type	gear pump
Displacement per revolution	0.165 cu in 2,7 cc
Flow rate @ 2400 psi / 165 bar	1.7 gpm 6,5 L/min
Hydraulic tank return filter	10 micron 23 psi / 1,6 bar bypass

Function manifold

System relief valve pressure, maximum	
GS-1432m	1800 psi 124 bar
GS-1932m, GS-1932m Lite, GS-1932m XH	2400 psi 165 bar

GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH

Function Pump

Models with hydraulic drive

Type	gear pump
Displacement per revolution	0.244 cu in 4 cc
Flow rate @ 2500 psi / 172 bar	3 gpm 11,3 L/min
Hydraulic tank return filter	10 micron 25 psi / 1,7 bar bypass

Models with electric drive

Type	gear pump
Displacement per revolution	0.092 cu in 1,5 cc
Flow rate @ 2500 psi / 172 bar	1.2 gpm 4,5 L/min
Hydraulic tank return filter	10 micron 18 psi / 1,2 bar bypass

Function manifold

Models with hydraulic drive

System relief valve pressure, maximum	3700 psi 255 bar
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Models with electric drive

System relief valve pressure, maximum	
GS-1530, GS-1532	2700 psi 186 bar
GS-1930, GS-1932, GS-1932 XH	3500 psi 241 bar

Specifications

GS-2032, GS-2632, GS-3232

Function Pump

Models with hydraulic drive GS-2032, GS-2632

Type	gear pump
Displacement per revolution	0.355 cu in 5,5 cc
Flow rate @ 2500 psi / 172 bar	4 gpm 15 L/min
Hydraulic tank return filter	10 micron 25 psi / 1,7 bar bypass

Models with electric drive GS-2032, GS-2632, GS-3232

Type	gear pump
Displacement per revolution	0.177 cu in 2,9 cc
Flow rate @ 2500 psi / 172 bar	2.3 gpm 8,7 L/min
Hydraulic tank return filter	10 micron 18 psi / 1,2 bar bypass

Function manifold

Models with hydraulic drive

System relief valve pressure, maximum

GS-2032, GS-2632	3500 psi 241 bar
------------------	---------------------

Models with electric drive

System relief valve pressure, maximum

GS-2032	2400 psi 165 bar
GS-2632	2100 psi 145 bar
GS-3232	2300 psi 159 bar

Outrigger manifold GS-3232

Relief valve pressure, maximum	3500 psi 241 bar
--------------------------------	---------------------

GS-2046, GS-2646, GS-2646 XH, GS-3246, GS-3246 XH

Function Pump

Type	gear pump
Displacement per revolution	0.177 cu in 2,9 cc
Flow rate @ 2900 psi / 200 bar	2.3 gpm 8,7 L/min
Hydraulic tank return filter	10 micron 18 psi / 1,2 bar bypass

Function manifold

System relief valve pressure, maximum

GS-2046	2900 psi 200 bar
GS-2646, GS-2646 XH	2800 psi 193 bar
GS-3246, GS-3246 XH	2600 psi 179 bar

Specifications

GS-4046

Function Pump

Type	gear pump
Displacement per revolution	0.232 cu in 3,8 cc
Flow rate @ 2900 psi / 200 bar	3 gpm 11,4 L/min
Hydraulic tank return filter	10 micron 18 psi / 1,2 bar bypass

Function manifold

System relief valve pressure, maximum	2350 psi 162 bar
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GS-4655

Function Pump

Type	gear pump
Displacement per revolution	0.244 cu in 4 cc
Flow rate @ 2500 psi / 172 bar	3 gpm 11,4 L/min
Hydraulic tank return filter	10 micron 25 psi / 1,7 bar bypass

Function manifold

System relief valve pressure, maximum	2900 psi 200 bar
---------------------------------------	---------------------

Specifications

Manifold Component Specifications

Plug torque

SAE No. 2	50 in-lbs / 6 Nm
SAE No. 4	13 ft-lbs / 18 Nm
SAE No. 6	18 ft-lbs / 24 Nm
SAE No. 8	50 ft-lbs / 68 Nm
SAE No. 10	55 ft-lbs / 75 Nm
SAE No. 12	75 ft-lbs / 102 Nm

Valve coil resistance

Note: The following coil resistance specifications are at an ambient temperature of 68°F / 20°C. As valve coil resistance is sensitive to change in air temperature, the coil resistance will typically increase or decrease by 4% of each 18°F / -7.7°C that your air temperature increases or decreases from 68°F / 20°C.

Description	Specification
Solenoid valve, 3 position 4 way, 20V DC with diode (schematic items F, AC or DC)	27.2Ω
Solenoid valve, 3 position 4 way, 20V DC with diode (schematic item E)	19Ω
Solenoid valve, 2 position 4 way, 20V DC with diode (schematic items H, AI or DI)	19Ω
Solenoid valve, 2 position 2 way, N.C. 20V DC with diode (schematic item N)	25Ω
Solenoid valve, 2 position 4 way, 20V DC with diode (schematic items AE or DE)	19Ω
Solenoid valve, 3 position 5 way, 20V DC with diode (schematic items AG or DG)	19Ω
Solenoid valve, 2 position 2 way, 20V DC with diode (schematic items CA, CB, CC and CD)	27.2Ω
Solenoid valve, 3 position 4 way, 20V DC with diode (schematic item BA)	19Ω
Solenoid valve, 2 position 2 way, 20V DC with diode (schematic item DN)	23.9Ω
Solenoid valve, 3 position 4 way 24V DC with diode (schematic item EA)	33.75Ω
Solenoid valve, 2 position 4 way 24V DC with diode (schematic item EC)	33.75Ω
Solenoid valve, 2 position 4 way, 20V DC with diode (schematic items GC, HC)	24Ω
Solenoid valve, 3 position 4 way, 20V DC with diode (schematic items GA, HA)	24Ω

Specifications

Hydraulic Hose and Fitting Torque Specifications

Your machine is equipped with Parker Seal-Lok™ ORFS or 37° JIC fittings and hose ends. Genie specifications require that fittings and hose ends be torqued to specification when they are removed and installed or when new hoses or fittings are installed.

Seal-Lok™ Fittings

(hose end - ORFS)

SAE Dash Size	Torque
-4	18 ft-lbs / 25 Nm
-6	30 ft-lbs / 41 Nm
-8	40 ft-lbs / 55 Nm
-10	60 ft-lbs / 81 Nm
-12	85 ft-lbs / 115 Nm
-16	110 ft-lbs / 150 Nm
-20	150 ft-lbs / 205 Nm
-24	230 ft-lbs / 315 Nm

JIC 37° Fittings

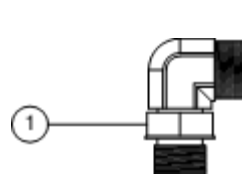
(swivel nut or hose connection)

SAE Dash Size	Thread Size	Flats
-4	7/16-20	2
-6	9/16-18	1 1/2
-8	3/4-16	1 1/2
-10	7/8-14	1 1/2
-12	1 1/16-12	1 1/4
-16	1 5/16-12	1
-20	1 5/8-12	1
-24	1 7/8-12	1

SAE O-ring Boss Port

(tube fitting - installed into Aluminum)
(all types)

SAE Dash Size	Torque
-4	14 ft-lbs / 19 Nm
-6	23 ft-lbs / 31,2 Nm
-8	36 ft-lbs / 49 Nm
-10	62 ft-lbs / 84 Nm
-12	84 ft-lbs / 114 Nm
-16	125 ft-lbs / 169,5 Nm
-20	151 ft-lbs / 204,7 Nm
-24	184 ft-lbs / 249,5 Nm



Adjustable Fitting

1 jam nut



Non-adjustable fitting

SAE O-ring Boss Port

(tube fitting - installed into Steel)

SAE Dash Size	Torque
-4 ORFS / 37° (Adj)	15 ft-lbs / 20,3 Nm
ORFS (Non-adj)	26 ft-lbs / 35,3 Nm
37° (Non-adj)	22 ft-lbs / 30 Nm
-6 ORFS (Adj / Non-adj)	35 ft-lbs / 47,5 Nm
37° (Adj / Non-adj)	29 ft-lbs / 39,3 Nm
-8 ORFS (Adj / Non-adj)	60 ft-lbs / 81,3 Nm
37° (Adj / Non-adj)	52 ft-lbs / 70,5 Nm
-10 ORFS (Adj / Non-adj)	100 ft-lbs / 135,6 Nm
37° (Adj / Non-adj)	85 ft-lbs / 115,3 Nm
-12 (All types)	135 ft-lbs / 183 Nm
-16 (All types)	200 ft-lbs / 271,2 Nm
-20 (All types)	250 ft-lbs / 339 Nm
-24 (All types)	305 ft-lbs / 413,5 Nm

Specifications

Torque Procedure

Seal-Lok™ fittings

- 1 Replace the O-ring. The O-ring must be replaced anytime the seal has been broken. The O-ring cannot be re-used if the fitting or hose end has been tightened beyond finger tight.

Note: The O-ring in Parker Seal Lok™ fittings and hose end are custom-size O-rings. They are not standard size O-rings. They are available in the O-ring field service kit (Genie part number 49612).

- 2 Lubricate the O-ring before installation.
- 3 Be sure the O-ring face seal is seated and retained properly.
- 4 Position the tube and nut squarely on the face seal end of the fitting, and tighten the nut finger tight.
- 5 Tighten the nut or fitting to the appropriate torque. Refer to the appropriate torque chart in this section.
- 6 Operate all machine functions and inspect the hose, fittings and related components to confirm there are no leaks.

JIC 37° fittings

- 1 Align the tube flare (hex nut) against the nose of the fitting body (body hex fitting) and tighten the hex nut to the body hex fitting to hand tight, approximately 30 in-lbs / 3.4 Nm.
- 2 Using a permanent ink marker, make a reference mark on one the flats of the hex nut and continue the mark onto the body of the hex fitting. Refer to Illustration 1.

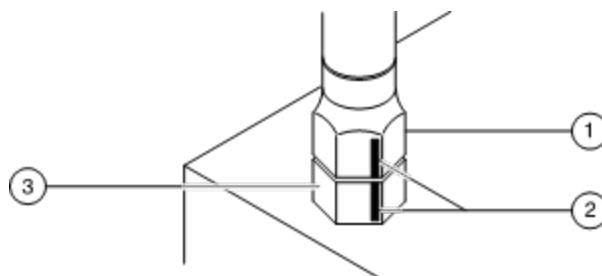


Illustration 1

- 1 hex nut
- 2 reference mark
- 3 body hex fitting

Specifications

- 3 Working clockwise on the body hex fitting, make a second mark with a permanent ink marker to indicate the proper tightening position. Refer to Illustration 2.

Note: Use the JIC 37° Fitting table in this section to determine the correct number of flats, for the proper tightening position.

Note: The marks indicate the correct tightening positions have been determined. Use the second mark on the body hex fitting to properly tighten the joint after it has been loosened.

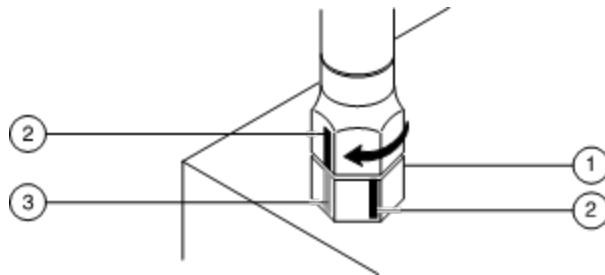


Illustration 2

- 1 body hex fitting
 - 2 reference mark
 - 3 second mark
- 4 Tighten the hex nut until the mark on the hex nut is aligned with the second mark on the body hex fitting.
 - 5 Operate all machine functions and inspect the hose, fittings and related components to confirm there are no leaks.

Repair Procedures



Observe and Obey:

- ☒ Repair procedures shall be completed by a person trained and qualified on the repair of this machine.
- ☒ Immediately tag and remove from service a damaged or malfunctioning machine.
- ☒ Repair any machine damage or malfunction before operating the machine.

Before Repairs Start:

- ☒ Read, understand and obey the safety rules and operating instructions in the appropriate operator's manual on your machine.
- ☒ Be sure that all necessary tools and parts are available and ready for use.
- ☒ Use only Genie approved replacement parts.
- ☒ Read each procedure completely and adhere to the instructions. Attempting shortcuts may produce hazardous conditions.

Machine Configuration:

- ☒ Unless otherwise specified, perform each repair procedure with the machine in the following configuration:
 - Machine parked on a firm, level surface
 - Key switch in the off position with the key removed
 - The red Emergency Stop button in the off position at both the ground and platform controls
 - Wheels chocked
 - All external AC power supply disconnected from the machine
 - Platform in the stowed position

Repair Procedures

About This Section

Most of the procedures in this section should only be performed by trained service professional in a suitably equipped workshop. Select the appropriate repair procedure after troubleshooting the problem.

Perform disassembly procedures to the point where repairs can be completed. Then to re-assemble, perform the disassembly steps in reverse order.

Symbols Legend



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.



Indicates a imminently hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.



Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

- ⦿ Indicates that a specific result is expected after performing a series of steps.
- ✗ Indicates that an incorrect result has occurred after performing a series of steps.

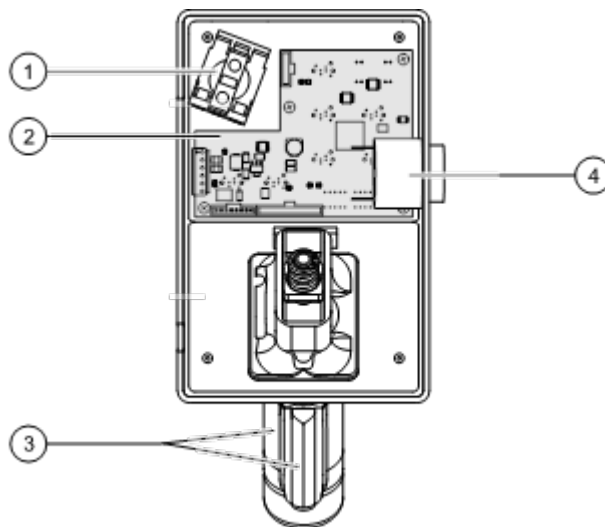
Platform Controls

The platform controls are used to operate the machine from the platform.

Activating a function button sends a signal to the Electronic Control Module (ECM). When the ECM is in the function mode, the platform controls are used to operate the various machine functions.

The platform controls consist of an Emergency Stop button, electronic circuit board, proportional control handle, drive/steer enable switch, alarm, function buttons and LED display.

For further information or assistance, contact Genie Product Support.



- 1 red Emergency Stop button P2
- 2 platform controls circuit board U2
- 3 proportional control handle and drive/steer enable switch JC1
- 4 alarm H3

Platform Controls

Operational Indicator Codes

These codes are generated by the electrical system to indicate machine operating status. During normal operation, a code will appear in the platform controls LED readout if a condition such as off-level, overload cutout, chassis mode operation or pothole guard stuck occurs.

If the platform controls LED readout displays an operational indicator code such as **LL**, the fault condition must be repaired or removed before resuming machine operation. Push in and pull out the red Emergency Stop button to reset the system.



Platform Controls LED Readout

Code	Condition
LL	Off-Level
OL	Platform Overload
CH	Chassis Mode Operation
PHS	Pothole Guard Stuck
nd	No Drive (option)
Ld	Lifting Disabled
br	Brake release
OHL	Outdoor Height Restriction

Note: The **Ld** Operation Indicator Code will appear when the outriggers are not fully retracted, the machine is not auto leveled, an outrigger has lost contact with the ground or either level sensor detects the machine is no longer level. When any of the above scenarios occur, the lift function is disabled.

The lift function will also be disabled while extending or retracting the outriggers and during the outrigger auto level procedure. While performing the above operations, the **Ld** Operation Indicator Code will appear.

Note: A code and a description of a code can also be viewed at the ground controls LCD display.

Platform Controls

1-1 Circuit Board

How to Remove the Platform Controls Circuit Board

- 1 Push in the red Emergency Stop button to the off position at both the ground and platform controls.
- 2 Disconnect the platform controls from the control cable at the platform.
- 3 Remove the fasteners securing the platform control box to the platform control bracket.
- 4 Remove the fasteners securing the bottom cover to the platform control box. Open the control box.
- 5 Remove the ties securing the wire harness.
- 6 Disconnect the red and black wires from the alarm.
- 7 Carefully remove the alarm from the platform control box.

- 8 Carefully disconnect all wire harness connectors from the platform controls circuit board.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

NOTICE

Component damage hazard. Electrostatic discharge (ESD) can damage printed circuit board components. Maintain firm contact with a metal part of the machine that is grounded at all times when handling printed circuit boards OR use a grounded wrist strap.

- 9 Carefully remove the platform controls circuit board fasteners.
- 10 Carefully remove the platform controls circuit board from the platform control box.
- 11 Remove the transparent caps from the platform controls circuit board and save.

Circuit board fastener torque specifications

Hand tighten until screws seat	< 5 in-lbs < 0.6 Nm
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Note: Before installing a circuit board, place the transparent caps removed in step 11, over the circuit board buttons.

Note: After installing the circuit board, check for proper button operation. Excessive torque of the circuit board fasteners will cause the buttons to bind. Moderate torque of the circuit board fasteners will not allow the buttons to engage.

Platform Controls

1-2 Joystick

How to Remove the Joystick

- 1 Push in the red Emergency Stop button to the off position at both the ground and platform controls.
- 2 Disconnect the platform controls from the control cable at the platform.
- 3 Remove the fasteners securing the platform control box to the platform control bracket.
- 4 Remove the fasteners securing the bottom cover to the platform control box. Open the control box.
- 5 Remove the ties securing the joystick wire harness.
- 6 Carefully disconnect the joystick wire harness from the platform controls circuit board.

▲ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

NOTICE

Component damage hazard. Electrostatic discharge (ESD) can damage printed circuit board components. Maintain firm contact with a metal part of the machine that is grounded at all times when handling printed circuit boards OR use a grounded wrist strap.

- 7 Carefully remove the joystick fasteners.
- 8 Carefully remove the joystick from the platform control box.

Torque specifications

Joystick fasteners	9 in-lbs 1 Nm
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1-3 Platform Controls Alarm

How to Remove the Platform Controls Alarm

- 1 Push in the red Emergency Stop button to the off position at both the ground and platform controls.
- 2 Disconnect the platform controls from the control cable at the platform.
- 3 Remove the fasteners securing the platform control box to the platform control bracket.
- 4 Remove the fasteners securing the bottom cover to the platform control box. Open the control box.
- 5 Disconnect the red and black wires from the alarm.

▲ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

NOTICE

Component damage hazard. Electrostatic discharge (ESD) can damage printed circuit board components. Maintain firm contact with a metal part of the machine that is grounded at all times when handling printed circuit boards OR use a grounded wrist strap.

- 6 Carefully remove the alarm from the platform control box.

Platform Controls

1-4 Platform Emergency Stop Button

How to Remove the Platform Controls Emergency Stop Button

- 1 Push in the red Emergency Stop button to the off position at both the ground and platform controls.
- 2 Disconnect the platform controls from the control cable at the platform.
- 3 Remove the fasteners securing the platform control box to the platform control bracket.
- 4 Remove the fasteners securing the bottom cover to the platform control box. Open the control box.

- 5 Disconnect the white wires from the Emergency Stop base.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

NOTICE

Component damage hazard. Electrostatic discharge (ESD) can damage printed circuit board components. Maintain firm contact with a metal part of the machine that is grounded at all times when handling printed circuit boards OR use a grounded wrist strap.

- 6 Carefully remove the Emergency Stop base from the Emergency Stop button.
- 7 Carefully remove the retaining ring from the Emergency Stop button.
- 8 Carefully remove the Emergency Stop button from the platform control box.

Ground Controls

The ground controls, used to operate the machine from the ground, can also be used to tune the performance of the machine.

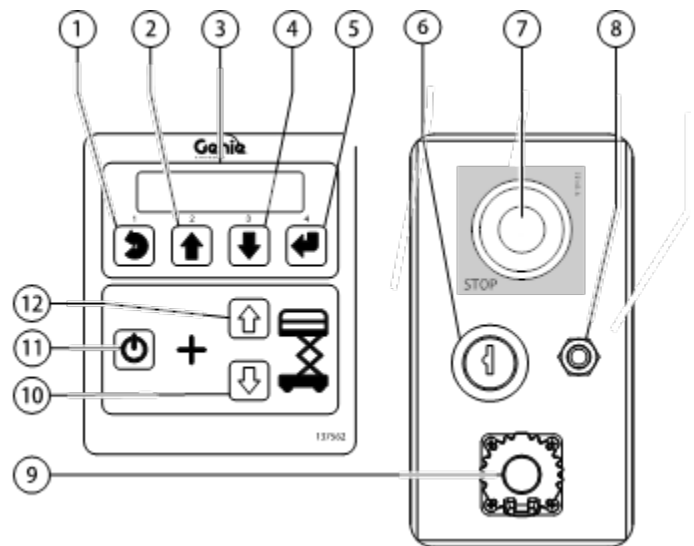
The ground controls consist of an Electronic Control Module (ECM), emergency stop button, key switch and circuit breaker.

Activating the function enable button and the up or down at the same time, sends a signal to the (ECM). This allows the platform to be raised or lowered at the ground controls.

Note: Steer and drive functions are not available at the ground controls.

When the ECM is in the set up mode, the ground controls are used to adjust the function speed parameters, machine models, or machine options.

For further information or assistance, contact Genie Product Support.



- 1 escape button
- 2 scroll up button
- 3 LCD display
- 4 scroll down button
- 5 enter button
- 6 Key switch
- 7 Red Emergency Stop button
- 8 circuit breaker
- 9 diagnostic port
- 10 platform down button
- 11 lift function enable button
- 12 platform up button

Ground Controls

2-1 Software Revision Level

How to Determine the Revision Level

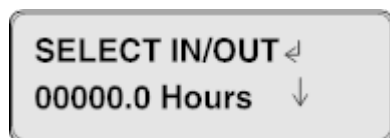
The machine software revision level is displayed at the ground controls LCD display.

- 1 Turn the key switch to the ground controls or platform controls position. Pull out the red Emergency Stop button to the on position at both ground and platform controls.

- Result: The display at the platform controls will show "CH". See example below.



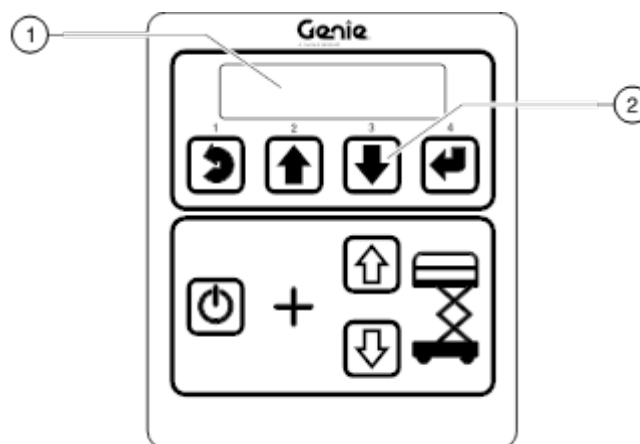
- Result: The display at the ground controls will show SELECT IN/OUT and machine hours.



- 2 Press the scroll down button twice.

Result: The ground control LCD display will indicate the machine model, software part number and software revision.

- 3 Push in the red Emergency Stop button to the off position at both the ground and platform controls and turn the key switch to the off position.



- 1 LCD display
- 2 scroll down button

Ground Controls

2-2 Machine Setup

How to Setup the Machine from Ground Controls

The ground controls can be used to setup the machine parameters from the ground. Features that can be adjusted from the ground controls include machine Model, Options and Speed setup. This menu can only be entered from ground controls with the key switch in the ground controls position.

⚠ DANGER

Tip-over hazard. Do not adjust function speeds higher than specified in this procedure. Setting the function speeds greater than specifications could cause the machine to tip over resulting in death or serious injury.

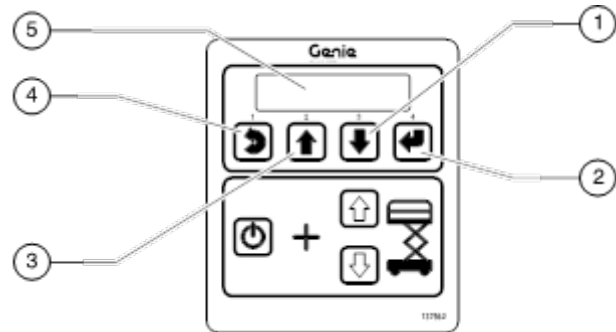
⚠ DANGER

Tip-over hazard. This procedure must only be performed by a trained service professional. Attempting this procedure without the necessary skills could result in death or serious injury.

Note: Select a test area that is firm, level and free of obstructions.

- 1 Turn the key switch to ground controls.

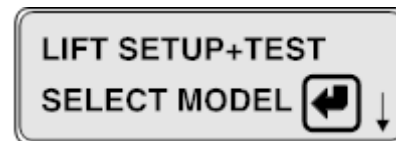
- 2 Press and hold the ground control scroll up and scroll down buttons.



Ground Control Menu Buttons

- 1 scroll down button
- 2 enter button
- 3 scroll up button
- 4 escape button
- 5 LCD display

- 3 Pull out the red Emergency Stop button to the on position at the ground controls.
- Result: The ground controls LCD display will show the following:



- 4 Use the ground control menu buttons to select machine Model, Options and Speed Setup parameters. Follow the menu structure indicated on the ground control LCD display.

Ground Controls

2-3

Loading or Updating Machine Software

Note: Before updating the machine software, open a web browser and navigate to the following location for the Genie Machine Software Download portal, <http://firmware.genielift.com>. Perform a search by applying the appropriate filters and download the machine software.

Note: There are two procedures available to update the machine software. These are **Bootloader Mode** and **Machine Application Mode**.

Bootloader Mode: The Bootloader mode is only available with the key switch in the GCON position. It allows the user to update or reinstall the machine software by directing the system into the Bootloader.

Choose this mode if the GCON ECM is not operating correctly.

Machine Application Mode: The machine Application mode is available with the key switch in the GCON or PCON position. This mode of machine software update requires the user to enter the Machine Service Tool.

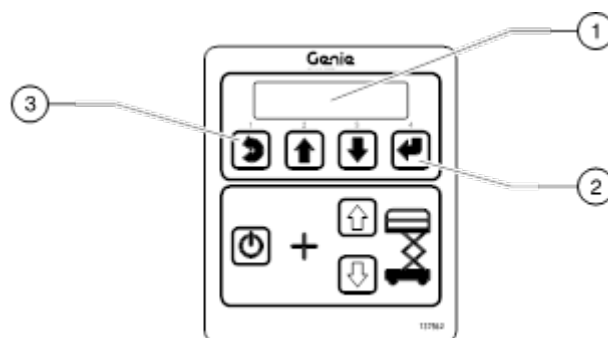
Choose this mode if the machine is operating correctly and you are updating the machine software.

Bootloader Mode

- 1 Open the GCON compartment.

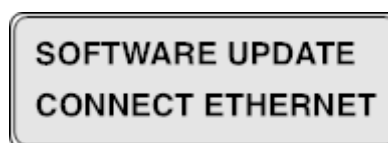
Note: Some models will require opening the ground control box to access the GCON.

- 2 Turn the key switch to the ground controls position and pull out the red Emergency Stop button to the on position at the platform controls.
- 3 At the ground controls, press and hold the Enter and Escape buttons.



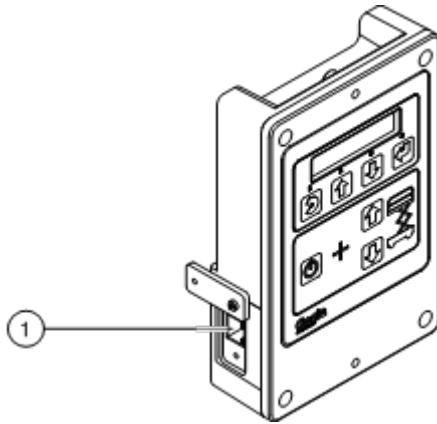
- 1 LCD display
- 2 enter button
- 3 escape button

- 4 Pull out the red Emergency Stop button to the on position at the ground controls.
- ⦿ Result: The ground controls LCD display will show the following:



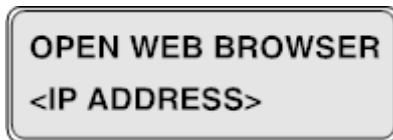
Ground Controls

- 5 Locate the diagnostic port on the side of the GCON. Remove one of the fasteners securing the cover and set aside. Loosen the other fastener. Do not remove it.



1 diagnostic port

- 6 Connect one end of a CAT5 Ethernet cable into the diagnostic port. Connect the other end into a PC or laptop.
- Result: The ground controls LCD display will show the following:



- 7 Read and record the IP address.

- 8 Launch a web browser such as Internet Explorer®, Chrome® or Firefox® on your PC or laptop. Type the IP address from step 7 into the web browser address bar and press enter.

- Result: The following screen will be displayed.



- 9 Select the **Choose File** button and navigate to the downloaded Genie Flash file (.gff).

Note: Verify it is the correct flash file.

- 10 Select the **Load Flash File** button to verify the file is a .gff file.
- Result: The following screen will be displayed.



Ground Controls

- 11 Select the **Reprogram Device(s)** button to start the ECM software update.
- ⦿ Result: The following screen will be displayed after the software update is complete.

Note: Do not turn off power while the ECM is being reprogrammed.



- 12 Select the **Run Application** button to exit the software update mode.
- 13 Push in the red Emergency Stop button and disconnect the CAT5 cable from the GCON.
- 14 Secure the diagnostic port cover using the retaining fasteners removed in step 5. Do not over tighten.

Note: Machines equipped with AGM batteries will need to select the AGM battery type using the GCON set parameters screen. Refer to the *Machine Setup* procedure in the Service and Repair manual that is appropriate for your machine.

⚠ WARNING

Tip over hazard. Updating the SmartLink software may have impacted the machines default drive speeds. Tipping over the machine will result in death or serious injury.

Perform drive speed test. Refer to the *Maintenance Manual* that is appropriate for your machine.

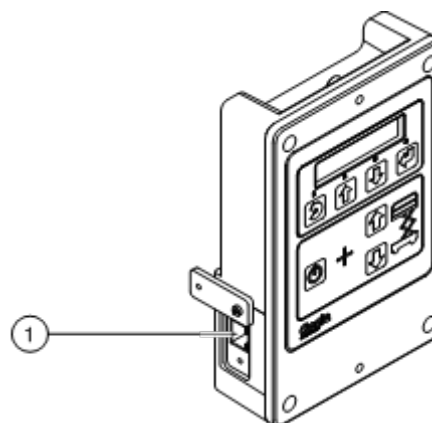
- 15 Perform a function test. Refer to the Operator's Manual on your machine.
- 16 Return the machine to service.

Machine Application Mode

- 1 Open the GCON compartment.

Note: Some models will require opening the ground control box to access the GCON.

- 2 Turn the key switch to ground controls or platform controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 3 Locate the diagnostic port on the side of the GCON. Remove one of the fasteners securing the cover and set aside. Loosen the other fastener. Do not remove it.



1 diagnostic port

- 4 Connect one end of a CAT5 Ethernet cable into the diagnostic port. Connect the other end into a PC or laptop.
- ⦿ Result: The ground controls LCD display will show the following:



Ground Controls

- 5 Read and record the IP address.

Note: The display will only show the IP address for 3 seconds. Press the scroll up button to display the IP address for another 3 seconds.



- 6 Launch a web browser such as Internet Explorer®, Chrome® or Firefox® on your PC or laptop. Type the IP address from step 5 into the web browser address bar and press enter.

- Result: The following screen will be displayed.



- 7 Enter the following username and password then select **OK**.

Username: smart.link

Password: SL1000

Note: The username and password are case sensitive.

- Result: The following screen will be displayed.



- 8 Select the **Software** tab at the header bar.

- Result: The following screen will be displayed.



- 9 Select the **Update Machine Software** button.

- Result: The following screen will be displayed.



- 10 Select the **Choose File** button and navigate to the downloaded Genie Flash file (.gff).

Note: Verify it is the correct flash file.

Ground Controls

- 11 Select the **Load Flash File** button to verify the file is a .gff file.
- ⦿ Result: The following screen will be displayed.



- 12 Select the **Reprogram Device(s)** button to start the ECM software update.
- ⦿ Result: The following screen will be displayed after the software update is complete.

Note: Do not turn off power while the ECM is being reprogrammed.



- 13 Select the **Run Application** button to exit the software update mode.
- 14 Push in the red Emergency Stop button and disconnect the CAT5 cable from the GCON.

- 15 Secure the diagnostic port cover using the retaining fasteners removed in step 5. Do not over tighten.

Note: Machines equipped with AGM batteries will need to select the AGM battery type using the GCON set parameters screen. Refer to the *Machine Setup* procedure in the Service and Repair manual that is appropriate for your machine.



WARNING

Tip over hazard. Updating the SmartLink software may have impacted the machines default drive speeds. Tipping over the machine will result in death or serious injury.

Perform drive speed test. Refer to the *Maintenance Manual* that is appropriate for your machine.

- 16 Perform a function test. Refer to the Operator's Manual on your machine.
- 17 Return the machine to service.

Ground Controls

2-4 Using a Wi-Fi Router to Connect to the SmartLink Web Service Tool

Note: Before using a portable wireless router to connect to the Smart Link Service Tool web site, the router must be configured to the type of connection desired. Refer to the portable wireless router users manual for set-up and configuration instructions.

- 1 Open the GCON compartment.

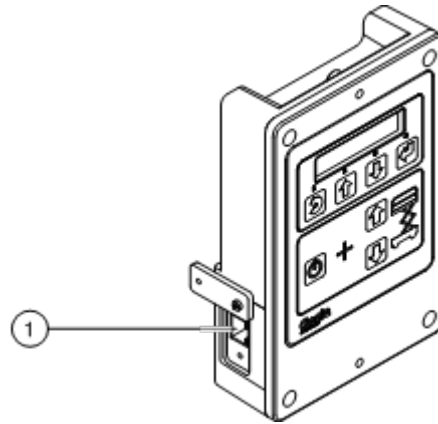
Note: Some models will require opening the ground control box to access the GCON.

- 2 Turn the key switch to ground controls or platform controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.

- ⦿ Result: The display at the platform controls will show "CH". See example below.



- 3 Locate the diagnostic port on the side of the GCON. Remove one of the fasteners securing the cover and set aside. Loosen the other fastener. Do not remove it.



1 diagnostic port

- 4 Connect one end of a CAT5 Ethernet cable into the diagnostic port. Connect the other end into the ethernet port of the portable wireless router.
- ⦿ Result: The ground controls LCD display will show the following:



Ground Controls

- 5 Read and record the IP address.

Note: The display will only show the IP address for 3 seconds. Press the scroll up button to display the IP address for another 3 seconds.



- 6 On a PC, laptop or mobile device, set up a wireless network for the portable router.

Note: Refer to the Operating System's procedure for connecting to a wireless network.

- 7 After establishing a new wireless network, select the appropriate network your portable wireless router.

Note: Refer to the Operating System's procedure for connecting to a wireless network.

- 8 Launch a web browser such as Internet Explorer®, Chrome® or Firefox® on your PC, laptop or mobile device. Type the IP address from step 5 into the web browser address bar and press enter.

- ⦿ Result: The following screen will be displayed.



- 9 Enter the following username and password then select **OK**.

Username: smart.link

Password: SL1000

Note: The username and password are case sensitive.

- ⦿ Result: The following screen will be displayed.



- 10 After using the Smart Link Service Tool web site, push in the red Emergency Stop button and disconnect the CAT5 cable from the GCON.

- 11 Secure the diagnostic port cover using the retaining fasteners removed in step 3. Do not over tighten.

Note: Machines equipped with AGM batteries will need to select the AGM battery type using the GCON set parameters screen. Refer to the *Machine Setup* procedure in the Service and Repair manual that is appropriate for your machine.

⚠ WARNING

Tip over hazard. Updating the SmartLink software may have impacted the machines default drive speeds. Tipping over the machine will result in death or serious injury.

Perform drive speed test. Refer to the *Maintenance Manual* that is appropriate for your machine.

- 12 Perform a function test. Refer to the Operator's Manual on your machine.

Ground Controls

2-5 Service Override Mode

The Electronic Control Module (ECM) is programmed with a Service Override mode. Service Override mode is only indented for certain circumstances and is not part of the normal machine operation. Service Override mode should only be accessed by trained personal to repair faults and/ or a malfunctioning machine.

Note: Service Override mode can only be entered at the ground controls and is intended to allow the platform to be raised or lowered. Once the platform has reached the maximum allowable height, the system will exit Service Override mode. Repeat this procedure to lower the platform.

Note: When in Service Override mode, an audible alarm will sound.

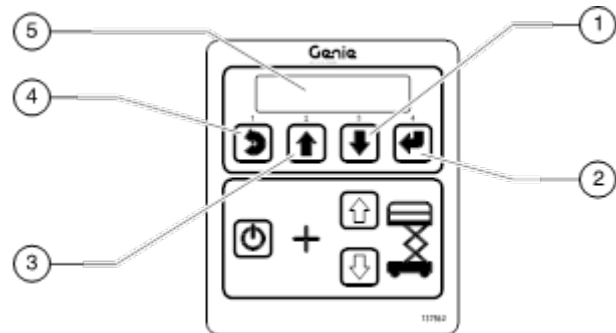
Note: Before entering Service Override mode, fault codes or the malfunction affecting the operation of the machine should be fully understood to ensure Service Override mode is required.

Note: Perform this operation on a firm, level surface and if equipped, with the outriggers auto leveled or fully retracted.

⚠ DANGER

Tip-over hazard. Operating the machine on a surface that is not level while in Service Override mode will result in death or serious injury. Follow proper operating procedures and safety precautions. Do not use Service Override mode if you are not trained and familiar with the operation of the machine.

- 1 Turn the key switch to the ground controls position and pull out the red Emergency Stop button to the on position at the platform controls.
- 2 Press and hold the ground control scroll up and scroll down buttons.



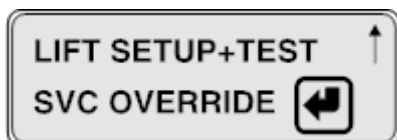
Ground Control Menu Buttons

- 1 scroll down button
- 2 enter button
- 3 scroll up button
- 4 escape button
- 5 LCD display

Ground Controls

- 3 Pull out the red Emergency Stop button to the on position at the ground controls.

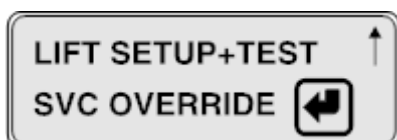
- Result: The ground controls LCD display will show the following:



- 4 Release the Scroll Up and Scroll Down buttons after the ground controller powers up.

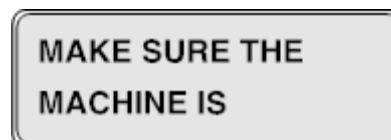
- 5 At the ground controls, use the Scroll Down button to scroll to **SVC Override**.

- Result: The ground controls LCD display will show the following:

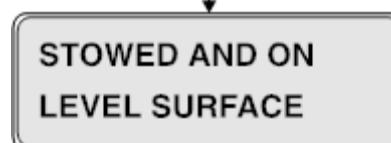


- 6 Press the **enter** button.

- Result: The ground controls LCD display will show an alternating message every 1.5 seconds.

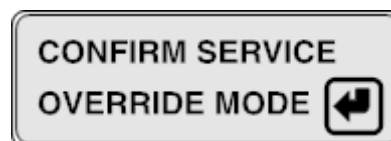


(alternating message)



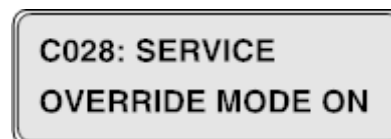
- 7 Press the **enter** button.

- Result: The ground controls LCD display will show the following:



- 8 Press the **enter** button.

- Result: The ground controls LCD display will show the following:



Ground Controls

2-6 Level Sensors

The Electronic Control Module (ECM) is programmed to deactivate the lift and drive functions and activate an alarm when a signal is received from the level sensor.

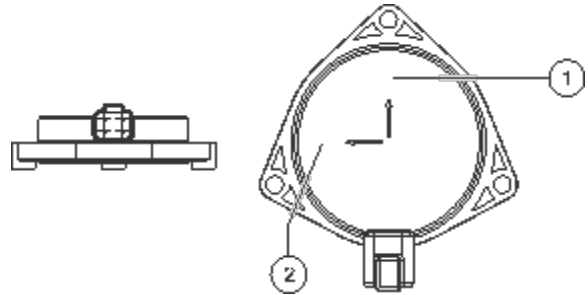
GS-1330m

The tilt alarm sounds when the incline of the chassis exceeds 1.5° to the side and 2.5° to the front or rear.

All other models

The tilt alarm sounds when the incline of the chassis exceeds 1.5° to the side and 3° to the front or rear.

How to Install and Calibrate the Level Sensor



Level sensor

- 1 X axis
- 2 Y axis



Tip-over hazard. Failure to install the level sensor as instructed will compromise machine stability and cause the machine to tip over, resulting in death or serious injury. Do not install the level sensor other than specified in this procedure.

Note: If you are **not** installing a new level sensor, proceed to step 14.

- 1 Move the machine to an area that has a firm, level surface and is free of obstructions.

Note: Use a digital level to verify the surface is level.

- 2 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 3 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 4 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.

Ground Controls

- 5 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 6 Turn the key switch to the off position and push in the red Emergency Stop button to the off position at the ground controls.
- 7 Tag and disconnect the level sensor wire harness from the chassis wire harness.

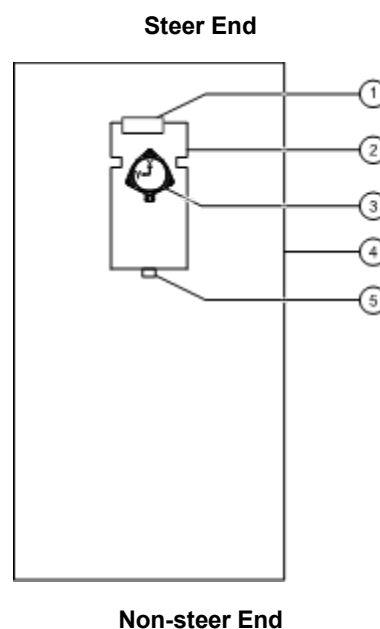
Note: The wire harness connection is located on the level sensor, on top of the chassis at the steer end of the machine.

- 8 Remove the level sensor retaining fasteners and remove the level sensor from the machine.
- 9 Securely install the wires of the new level sensor into the level sensor connector plug.

- 10 Place the new level sensor on to the level sensor bracket with the "Y" on the level sensor away from the ground controls of the machine and the "X" on the level sensor closest to the steer end of the machine.

⚠ DANGER

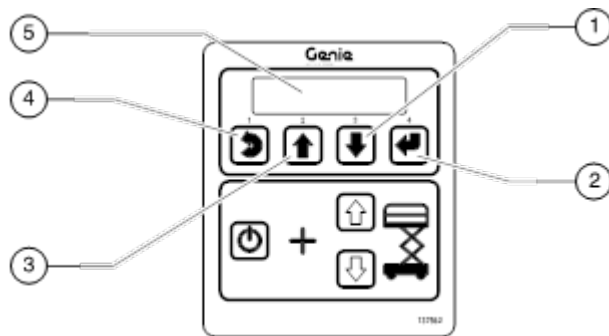
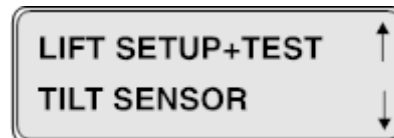
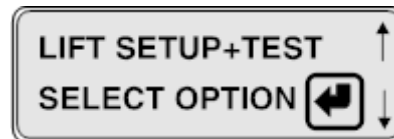
Tip-over hazard. Failure to install the level sensor as instructed, could result in the machine tipping over, causing death or serious injury.



- 1 limit switch
2 level sensor mount bracket
3 level sensor S7
4 scissor chassis
5 alarm H5

Ground Controls

- 11 Install the level sensor retaining fasteners through the level sensor and into the mount bracket.
- 12 Connect the chassis wire harness to the level sensor.
- 13 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- ⦿ Result: GCON will display a 'C051: SYSTEMFAULT, TILT:NoCal fault.
- 14 Push in the red Emergency Stop button to the off position at the ground controls.
- 15 Press and hold the ground control scroll up and scroll down buttons.
- 16 Pull out the red Emergency Stop button to the on position at the ground controls.
- ⦿ Result: The ground controls LCD display will show the following:
- 17 Release the Scroll Up and Scroll Down buttons after the ground controller powers up.
- 18 Use the Scroll Up or Scroll Down buttons to scroll to **Select Option**.



Ground Control Menu Buttons

- 1 scroll down button
- 2 enter button
- 3 scroll up button
- 4 escape button
- 5 LCD display

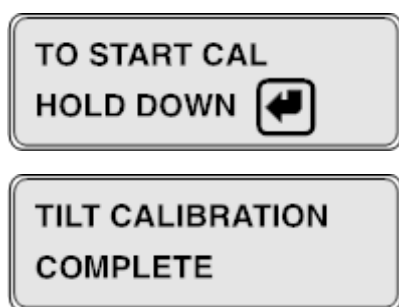
- 19 Press the **enter** button.
- 20 Use the Scroll Up or Scroll Down buttons to scroll to Tilt Sensor.
- 21 Press the **enter** button.

Ground Controls

- 22 Press and hold the Enter button to start calibration.
- ⦿ Result: An audible alarm will sound when calibration is complete.

Note: The machine will not calibrate if it is on a slope of one degree or greater.

Note: If the level sensor has been replaced, continue with step 23. If the level sensor was not replaced skip to step 26.

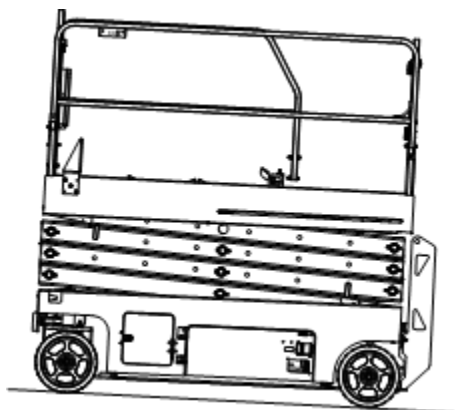


- 23 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 24 Return the safety arm to the stowed position.
- 25 Lower the platform to the stowed position.
- 26 Place a digital level on the ground control side of the drive chassis. Zero out the digital level.
- 27 GS-1330m:

Drive the steer end of the machine up a ramp until it is just under 2.5°.

All other models:

Drive the steer end of the machine up a ramp until it is just under 3°



- 28 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.

- ⦿ Result: No audible alarm is heard.
- ✗ Result: The platform stops, an audible alarm is heard and Fault LL is displayed. Repeat this procedure starting at step 15 on a firm level surface.

- 29 Lower the platform to the stowed position.

- 30 GS-1330m:

Drive the steer end of the machine up a ramp until it is just above 2.5°.

All other models:

Drive the steer end of the machine up a ramp until it is just above 3°.

- 31 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.

- ⦿ Result: The platform should stop, an alarm should sound and fault code LL appears in the diagnostic display.
- ✗ Result: The platform does not stop or the level sensor alarm does not sound. Repeat this procedure starting at step 15 on a firm level surface.

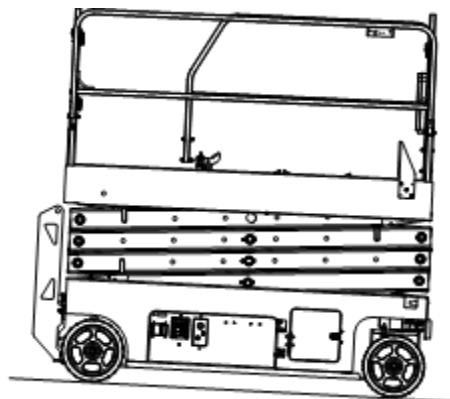
- 32 Lower the platform to the stowed position.

- 33 GS-1330m:

Drive the non-steer end of the machine up a ramp until it is just under 2.5°.

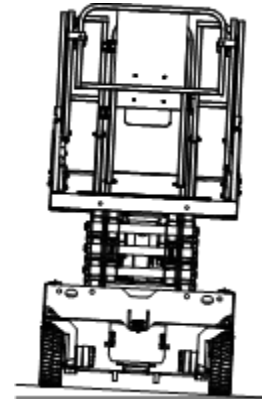
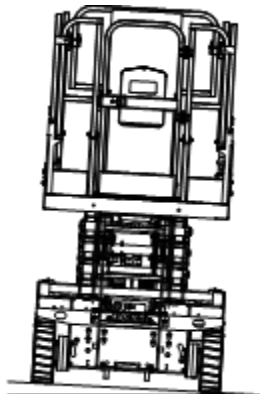
All other models:

Drive the non-steer end of the machine up a ramp until it is just under 3°.



Ground Controls

- 34 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- ⦿ Result: No audible alarm is heard.
 - ✗ Result: The platform stops, an audible alarm is heard and Fault LL is displayed. Repeat this procedure starting at step 15 on a firm level surface.
- 35 Lower the platform to the stowed position.
- 36 GS-1330m:
Drive the non-steer end of the machine up a ramp until it is just above 2.5°.
- All other models
Drive the non-steer end of the machine up a ramp until it is just above 3°.
- 37 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- ⦿ Result: The platform should stop, an alarm should sound and fault code LL appears in the diagnostic display.
 - ✗ Result: The platform does not stop or the level sensor alarm does not sound. Repeat this procedure starting at step 15 on a firm level surface.
- 38 Lower the platform to the stowed position.
- 39 Place a digital level on the steer end of the drive chassis. Zero out the digital level.
- 40 Drive the ground control side of the machine onto a ramp until it is just under 1.5°.
- 41 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- ⦿ Result: No audible alarm is heard.
 - ✗ Result: The platform stops, an audible alarm is heard and Fault LL is displayed. Repeat this procedure starting at step 15 on a firm level surface.
- 42 Lower the platform to the stowed position.
- 43 Continue driving the machine onto the ramp until it is just over 1.5°.
- 44 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- ⦿ Result: The platform should stop, an alarm should sound and fault code LL appears in the diagnostic display.
 - ✗ Result: The platform does not stop or the level sensor alarm does not sound. Repeat this procedure starting at step 15 on a firm level surface.
- 45 Lower the platform to the stowed position.
- 46 Drive the battery compartment side of the machine onto a ramp until it is just under 1.5°.



Ground Controls

- 47 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- ⦿ Result: No audible alarm is heard.
 - ✗ Result: The platform stops, an audible alarm is heard and Fault LL is displayed. Repeat this procedure starting at step 15 on a firm level surface.
- 48 Lower the platform to the stowed position.
- 49 Continue driving the machine onto the ramp until it is just over 1.5°.
- 50 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- ⦿ Result: The platform should stop, an alarm should sound and fault code LL appears in the diagnostic display.
 - ✗ Result: The platform does not stop or the level sensor alarm does not sound. Repeat this procedure starting at step 15 on a firm level surface.
- 51 Lower the platform to the stowed position.

2-7

Manual Platform Lowering Cable

The manual platform lowering cable lowers the platform in the event of a main power failure. The manual platform lowering cable is attached to the barrel end of the lift cylinder and is activated at the drive chassis.

How to Adjust the Manual Platform Lowering Cable

- 1 GS-4655: Raise the platform approximately 13 feet / 4 m.
All other models: Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 2 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 3 Lower the platform onto the safety arm.

WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

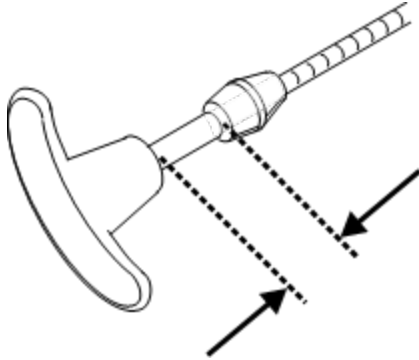
- 4 Pull the handle of the manual platform lowering cable out until considerable resistance is felt. Release the handle.

Ground Controls

- 5 Measure the distance between the base of the handle and cable mounting nut.

- ⊙ Result: The measurement should be no greater than 0.125 inch / 3 mm.

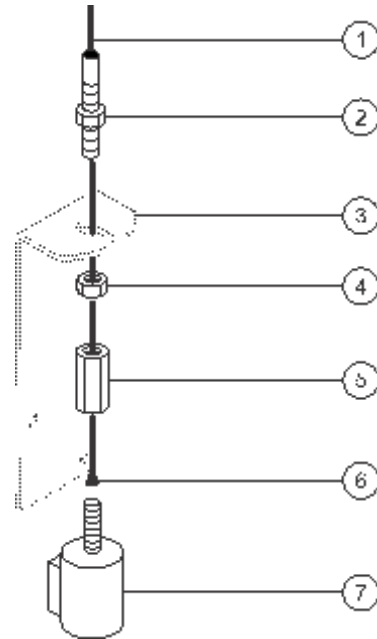
Note: Proceed to step 8 if measurement is correct.



Platform manual lowering cable specification

Gap, lowering handle to mounting nut	0 to 0.125 inch 0 to 3 mm
--------------------------------------	------------------------------

- 6 To adjust, loosen the upper lock nut on the cable mounting bracket at the cylinder. Turn the lower lock nut clockwise to decrease the distance or counterclockwise to increase the distance. Tighten the upper lock nut.



- 1 manual lowering cable sheath
- 2 upper lock nut
- 3 cable mounting bracket
- 4 lower lock nut
- 5 cable mounting nut
- 6 end of lowering cable
- 7 manual lowering valve

- 7 Repeat this procedure beginning with step 4.
- 8 Raise the platform and rotate the safety arm to the stowed position.
- 9 Pull the manual lowering handle at the ground controls 2 to 3 times to ensure it is functioning correctly.

Ground Controls

2-8

Outrigger Calibration - GS-3232

The Electronic Control Module (ECM) is programmed to deactivate the drive and steer functions while the outriggers are deployed and activate an alarm when a signal is received from the outrigger level sensor, indicating the outriggers are not deployed or the machine is out of level.

The ECM is also used to calibrate the outrigger level sensor to achieve a levelness of 0° +/- 0.5° front to back and side to side, while the outriggers are deployed.

For further information or assistance, contact Genie Product Support.

How to Calibrate the Outrigger System

- 1 Move the machine to an area that has a firm, level surface and is free of obstructions.
- 2 Turn the key switch to ground controls.
- 3 At the ground controls, press and hold the Menu Up and Menu Down buttons.
- 4 While pressing both buttons down, pull out the red Emergency Stop Button.
- 5 Release the Menu Up and Menu Down buttons after the ground controller powers up.
- 6 Use the Menu Up or Menu Down buttons to scroll to Machine Options.
- 7 Press the Enter button to select Machine Options.
- 8 Use the Menu Up or Menu Down buttons to scroll to Outriggers.
- 9 Press the Enter button to select Outriggers.
- 10 Use the Menu Up or Menu Down buttons to scroll to Calibrate Outriggers.
- 11 Press the Enter button to select Calibrate Outriggers.
- 12 Press and hold the Enter button while the system gathers data to calibrate the outrigger level sensor.

⚠ WARNING

Crushing hazard. Keep body parts away from outriggers during outrigger movement.

- 13 Continue holding the Enter button after the outrigger level sensor is calibrated. The outriggers will retract while the outrigger system gathers and saves data.
- 14 Continue holding the Enter button after the outriggers retract. The outriggers will now extend and the system will gather and save data to calibrate the outriggers.
- 15 Continue holding the Enter button after the outriggers extend. The outriggers will now retract while the outrigger system gathers and saves data.
- ⦿ **Result:** The alarms at the ground and platform controls should sound for 1 second. The outrigger system is calibrated.

Note: After installing a new outrigger level sensor, the new outrigger level sensor must be calibrated following this procedure.

Hydraulic Tank

3-1 Hydraulic Tank

The primary functions of the hydraulic tank are to cool and deaerate the hydraulic fluid during operation. It utilizes internal suction strainers for the pump supply lines and has an external return line filter.

How to Remove the Hydraulic Tank

NOTICE

Component damage hazard. The work area and surfaces where this procedure will be performed must be clean and free of debris that could get into the hydraulic system.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

Note: Perform this procedure on a firm, level surface with the machine in the stowed position.

Models with electric drive

Note: Does not include GS-4655.

- 1 Disconnect the battery pack from the machine.

WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 2 Tag, disconnect and plug the hydraulic hoses from the function manifold. Cap the fittings.
- 3 Tag and disconnect the electrical wires from the function manifold.

- 4 Remove the tank/pump/manifold assembly fasteners and remove the assembly from the machine.
- 5 Remove the hydraulic tank retaining fasteners and remove the hydraulic tank from the pump assembly.

WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 6 Remove the hydraulic tank cap and drain the tank into a suitable container.

Torque specifications

Hydraulic retaining fasteners, dry	26 in-lbs 2,9 Nm
Hydraulic retaining fasteners, lubricated	18 in-lbs 2 Nm

Hydraulic Tank

Models with hydraulic drive

Note: Includes GS-4655 electric drive.

- 1 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

Tag and disconnect the hydraulic tank return hard line from the filter. Remove the hard line from the machine. Cap the fitting on the filter head.

- 2 Tag and disconnect the hydraulic tank hard line from the pump. Remove the hard line from the machine. Cap the fitting on the pump.
- 3 Remove the hydraulic tank retaining fasteners and remove the hydraulic tank from the machine.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

Remove the hydraulic tank cap and drain the tank into a suitable container.

Torque specifications

Hydraulic retaining fasteners, dry	35 in-lbs 4 Nm
Hydraulic retaining fasteners, lubricated	26 in-lbs 2,9 Nm

Hydraulic Pump

4-1 Function Pump

The hydraulic pump is attached to the motor which makes up the hydraulic power unit.

How to Remove the Hydraulic Pump

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

Models with electric drive

- 1 Disconnect the battery pack from the machine.

WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 2 Refer to Repair Procedure, *How to Remove the Hydraulic Tank*.
- 3 Disconnect the filter head from the filter head mounting bracket. Rotate the filter out and away from the hydraulic power unit.
- 4 Tag, disconnect and plug the hoses from the power unit. Cap the fittings on the power unit.
- 5 Remove the hydraulic power unit mounting bolts, then remove the hydraulic power unit from the machine.
- 6 Tag and remove the hydraulic tank mounting bolts and clamps, then remove the hydraulic tank from the machine.
- 7 Disconnect the pump inlet line and remove the pump mounting bolts. Cap the fittings on the pump, manifolds and hydraulic tank.
- 8 Carefully remove the pump.

Models with hydraulic drive

- 1 Disconnect the battery pack from the machine.

WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 2 Tag and disconnect the hydraulic power unit cables at the motor controller.
- 3 Disconnect the filter head from the filter head mounting bracket. Rotate the filter out and away from the hydraulic power unit.
- 4 Remove the hydraulic power unit retaining fasteners.
- 5 Tag, disconnect and plug the hydraulic tank hard line from the pump. Cap the fitting on the pump.

Hydraulic Pump

- 6 Tag, disconnect and plug the high pressure hose from the pump. Cap the fitting on the pump.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 7 Remove the hydraulic power unit from the machine.
- 8 Remove the pump mounting bolts. Carefully remove the pump.

⚠ DANGER

Tip-over hazard. After replacing the hydraulic pump, it is critical to return the function speed settings to original factory specifications. Failure to restore the machine to original factory specifications could cause the machine to tip over resulting in death or serious injury.

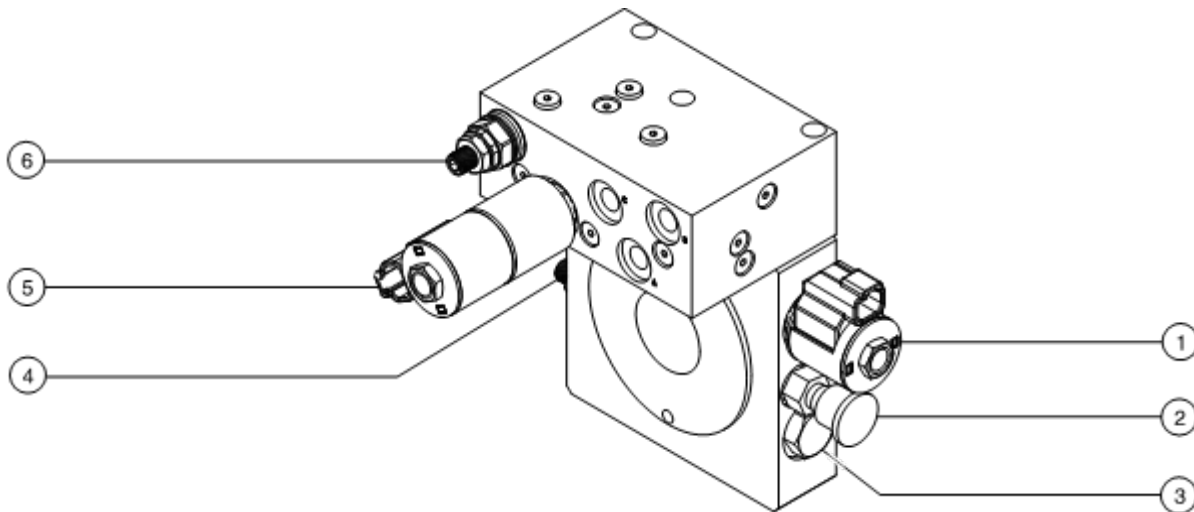
Manifolds

5-1

Function Manifold Components – GS-1330m

The function manifold is mounted on the hydraulic pump.

Index No.	Description	Schematic Item	Function	Torque
1	Solenoid valve, 2 position 4 way	EC	Platform up	20 ft-lbs / 27 Nm
2	Diagnostic port	EF	Test port	---
3	Check valve	EE	Drive circuit	25 ft-lbs / 34 Nm
4	Relief valve, 2250 psi / 155 bar	ED	System relief	22 ft-lbs / 30 Nm
5	Solenoid valve, 3 position 4 way	EA	Steer left/right	20 ft-lbs / 27 Nm
6	Relief valve, 1600 psi / 110 bar	EB	Steer relief	22 ft-lbs / 30 Nm
---	Coil nut	EA, EC	---	4-5 ft-lbs / 5-7 Nm



How to Install a Valve Cartridge

- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

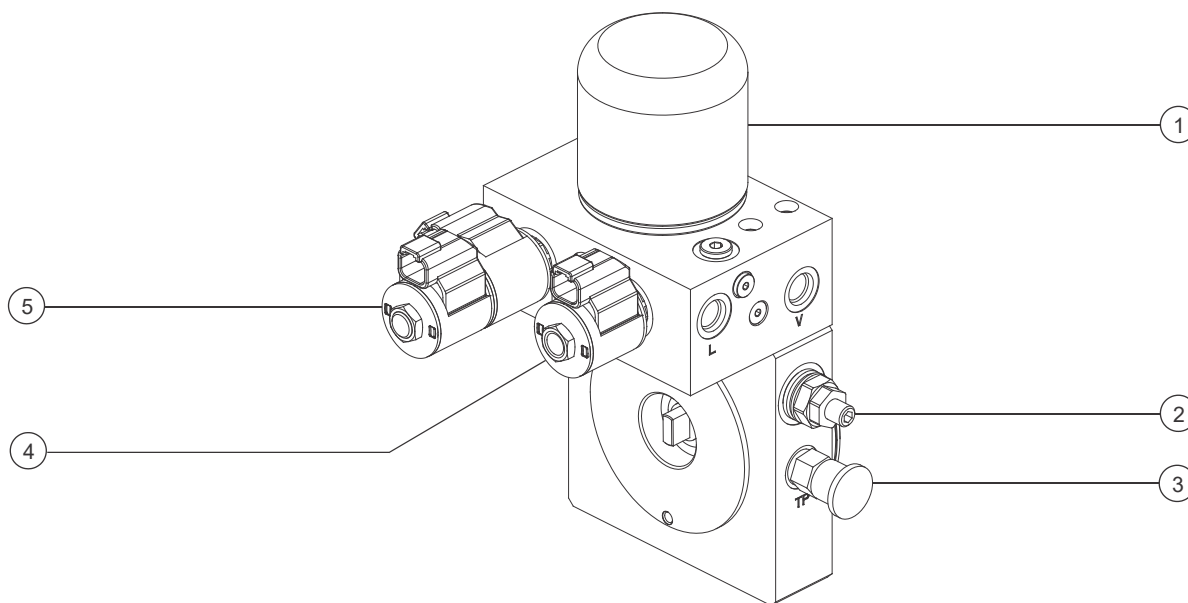
Manifolds

5-2

Function Manifold Components – GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

The function manifold is mounted on the hydraulic pump.

Index No.	Description	Schematic Item	Function	Torque
1	Hydraulic filter, 23 psi / 1,6 bar	HC	Filters hydraulic fluid	13-17 ft-lbs / 18-23 Nm
2	Relief valve, 1800 psi / 124 bar, GS-1432m	HA	System relief	22 ft-lbs / 30 Nm
2	Relief valve, 2400 psi / 165 bar, GS-1932m, GS-1932m Lite, GS-1932m XH	HA	System relief	22 ft-lbs / 30 Nm
3	Diagnostic port		Test port	
4	Solenoid valve, 2 position 4 way	HD	Platform up	20 ft-lbs / 27 Nm
5	Solenoid valve, 3 position 4 way	HB	Steer left/right	20 ft-lbs / 27 Nm
-	Coil nut	HB, HD	-	4-5 ft-lbs / 5-7 Nm



How to Install a Valve Cartridge

- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

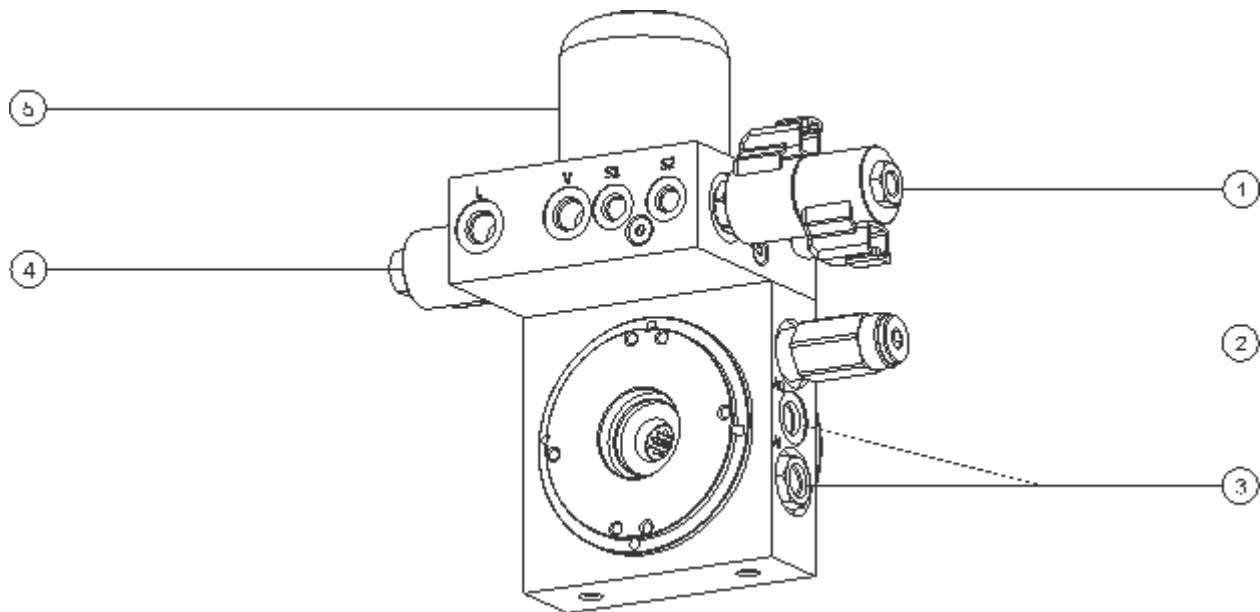
Manifolds

5-3

Function Manifold Components – GS-3232

The function manifold is mounted on the hydraulic pump.

Index No.	Description	Schematic Item	Function	Torque
1	Solenoid valve, 2 position 4 way	HB	Steer left/right	20 ft-lbs / 27 Nm
2	Relief valve, 2900 psi / 200 bar	HA	System relief	20 ft-lbs / 27 Nm
3	Outriggers extend / retract	HE	Outrigger circuit	---
4	Solenoid valve, 2 position 4 way	HD	Platform up	20 ft-lbs / 27 Nm
5	Hydraulic filter, 18 psi / 1,2 bar	HC	Filters hydraulic fluid	13-17 ft-lbs / 18-23 Nm
---	Coil nut	HB, HD	---	5-7 ft-lbs / 7-9 Nm



How to Install a Valve Cartridge

- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

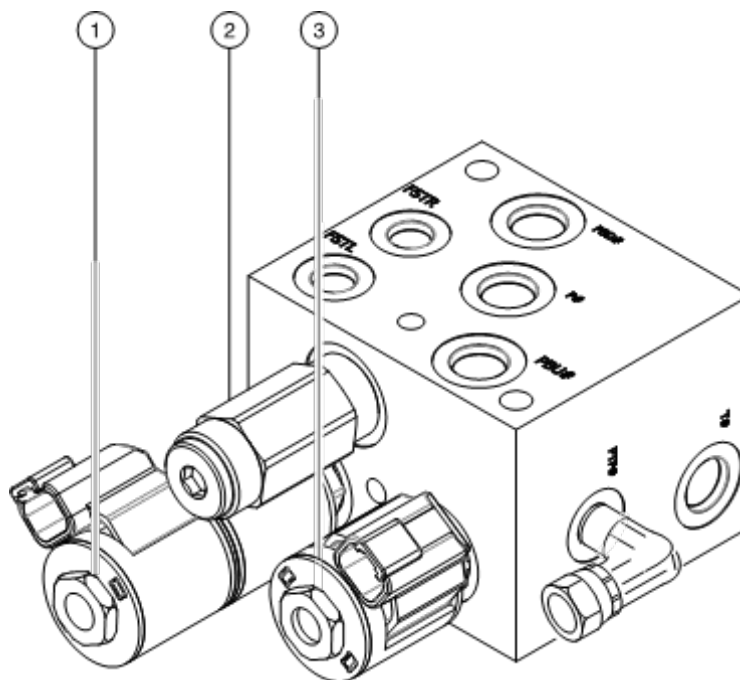
Manifolds

5-4

Function Manifold Components – GS-4655

The function manifold is mounted behind an inspection door, at the ground control side of the machine.

Index No.	Description	Schematic Item	Function	Torque
1	Solenoid valve, 3 position 4 way	GA	Steer left/right	20 ft-lbs / 27 Nm
2	Relief valve, 2900 psi / 200 bar	GB	System relief	20 ft-lbs / 27 Nm
3	Solenoid valve, 2 position 4 way	GC	Platform up	20 ft-lbs / 27 Nm
—	Coil nut	GA, GB	—	5-7 ft-lbs / 7-9 Nm



How to Install a Valve Cartridge

- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

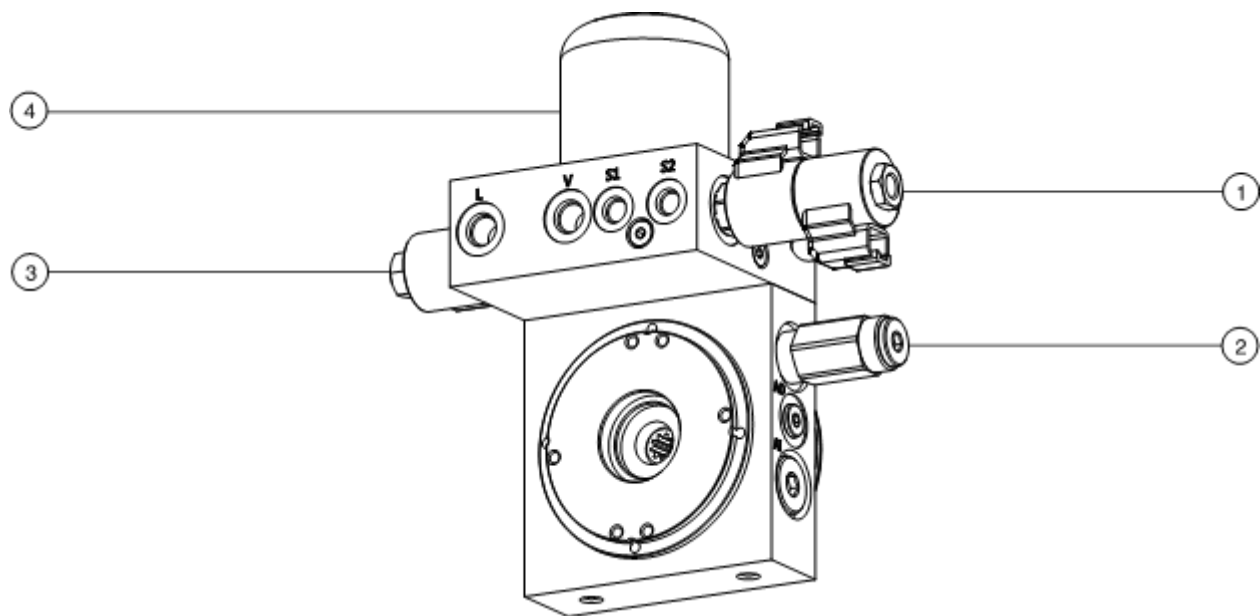
Manifolds

5-5

Function Manifold Components – Models with electric drive, All other models

The function manifold is mounted on the hydraulic pump.

Index No.	Description	Schematic Item	Function	Torque
1	Solenoid valve, 3 position 4 way	HB	Steer left/right	20 ft-lbs / 27 Nm
2	Relief valve, 2900 psi / 200 bar	HA	System relief	20 ft-lbs / 27 Nm
3	Solenoid valve, 2 position 4 way	HD	Platform up	20 ft-lbs / 27 Nm
4	Hydraulic filter, 18 psi / 1,2 bar	HC	Filters hydraulic fluid	13-17 ft-lbs / 18-23 Nm
-	Coil nut	HB, HD	-	5-7 ft-lbs / 7-9 Nm



How to Install a Valve Cartridge

- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

Manifolds

5-6

Function Manifold Components – Models with hydraulic drive, GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH

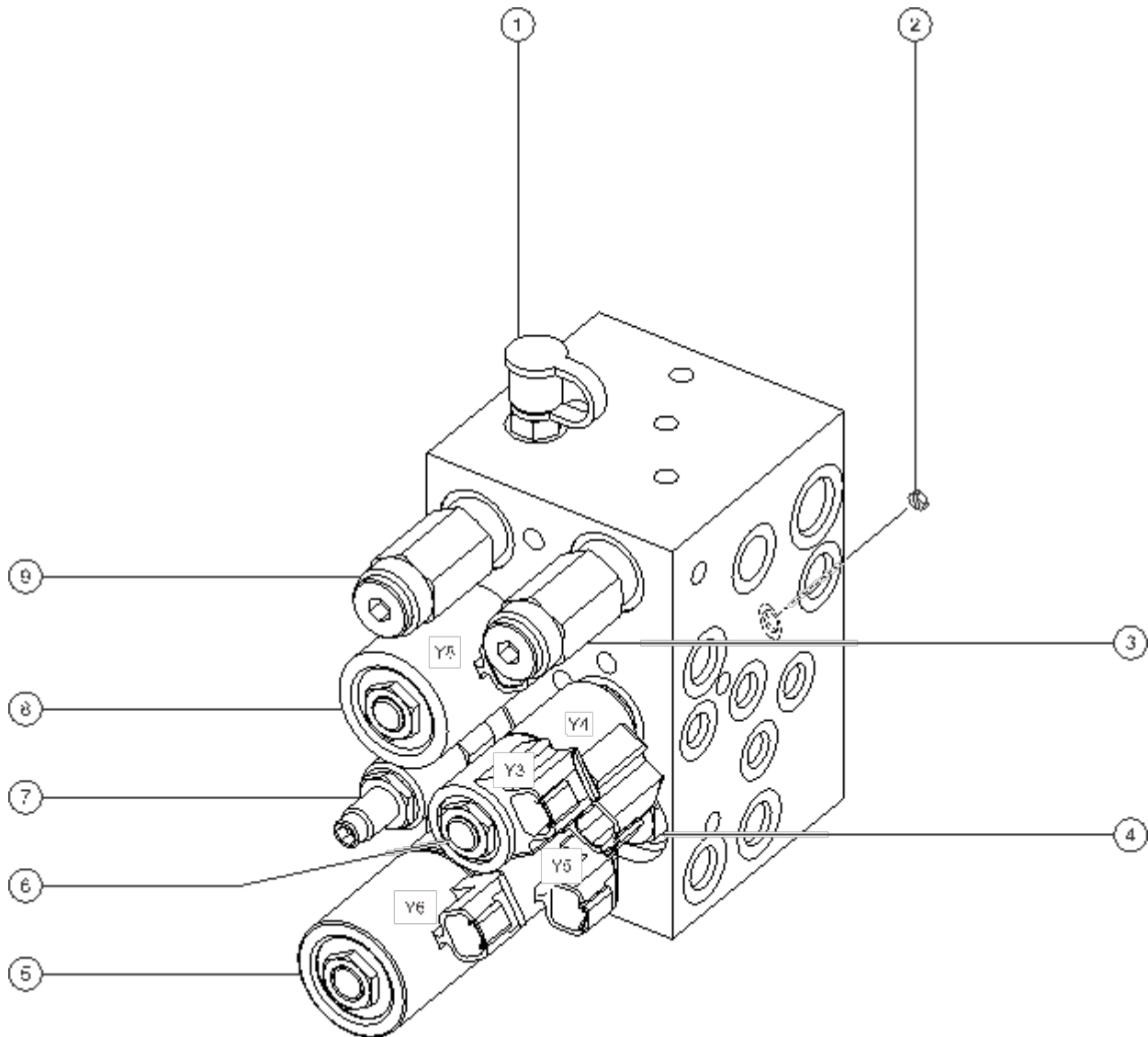
The function manifold is mounted under the machine, between the module trays.

Index No.	Description	Schematic Item	Function	Torque
—	Coil nut	F	—	4-5 ft-lbs / 5-7 Nm
—	Coil nut	E, H	—	5-7 ft-lbs / 7-9 Nm
1	Diagnostic port	A	Test port	—
2	Check disc	B	Steer circuit	18 ft-lbs / 24 Nm
3	Relief valve, 1800 to 3700 psi / 124 to 255 bar	C	Lift relief	20 ft-lbs / 27 Nm
4	Check valve, 10 psi / 0,7 bar	D	Drive circuit	20 ft-lbs / 27 Nm
5	Solenoid valve, 3 position 4 way	E	Drive forward/reverse	25 ft-lbs / 34 Nm
6	Solenoid valve, 3 position 4 way	F	Steer left/right	25 ft-lbs / 34 Nm
7	Flow regulator and relief valve, 0.75 gpm / 2,8 L/min, 1500 psi / 130 bar	G	Steer circuit	26 ft-lbs / 35 Nm
8	Solenoid valve, 2 position 4 way	H	Platform up	25 ft-lbs / 34 Nm
9	Relief valve, 3700 psi / 255 bar	I	System relief	20 ft-lbs / 27 Nm

How to Install a Valve Cartridge

- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

Manifolds



Note: 'alpha-numeric' callouts refer to corresponding notes on the electrical schematic.

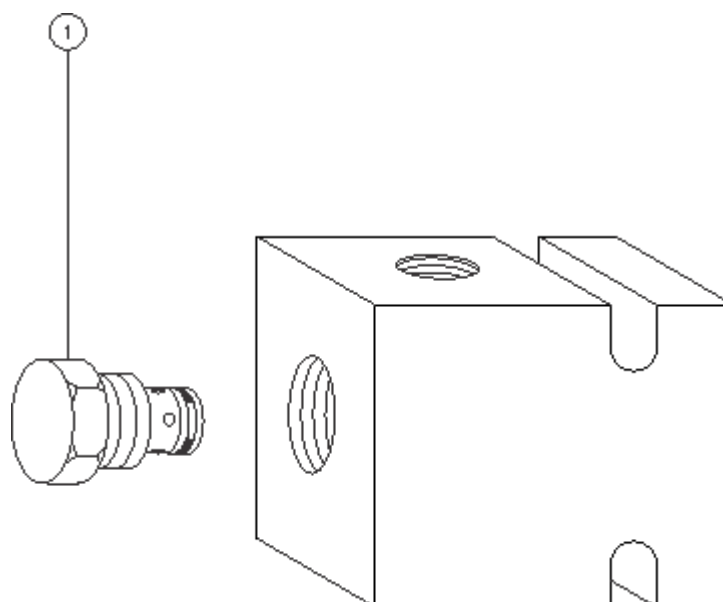
Manifolds

5-7

Check Valve Manifold Components – Models with hydraulic drive, GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH

The check valve manifold is mounted on the function manifold.

Index No.	Description	Schematic Item	Function	Torque
1	Check valve, 200 psi / 13,8 bar	S	Drive circuit	20 ft-lbs / 27 Nm



How to Install a Valve Cartridge

- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

Manifolds

5-8

Function Manifold Components – Models with hydraulic drive, GS-2032, GS-2632

The function manifold is mounted behind an inspection door, at the ground control side of the machine.

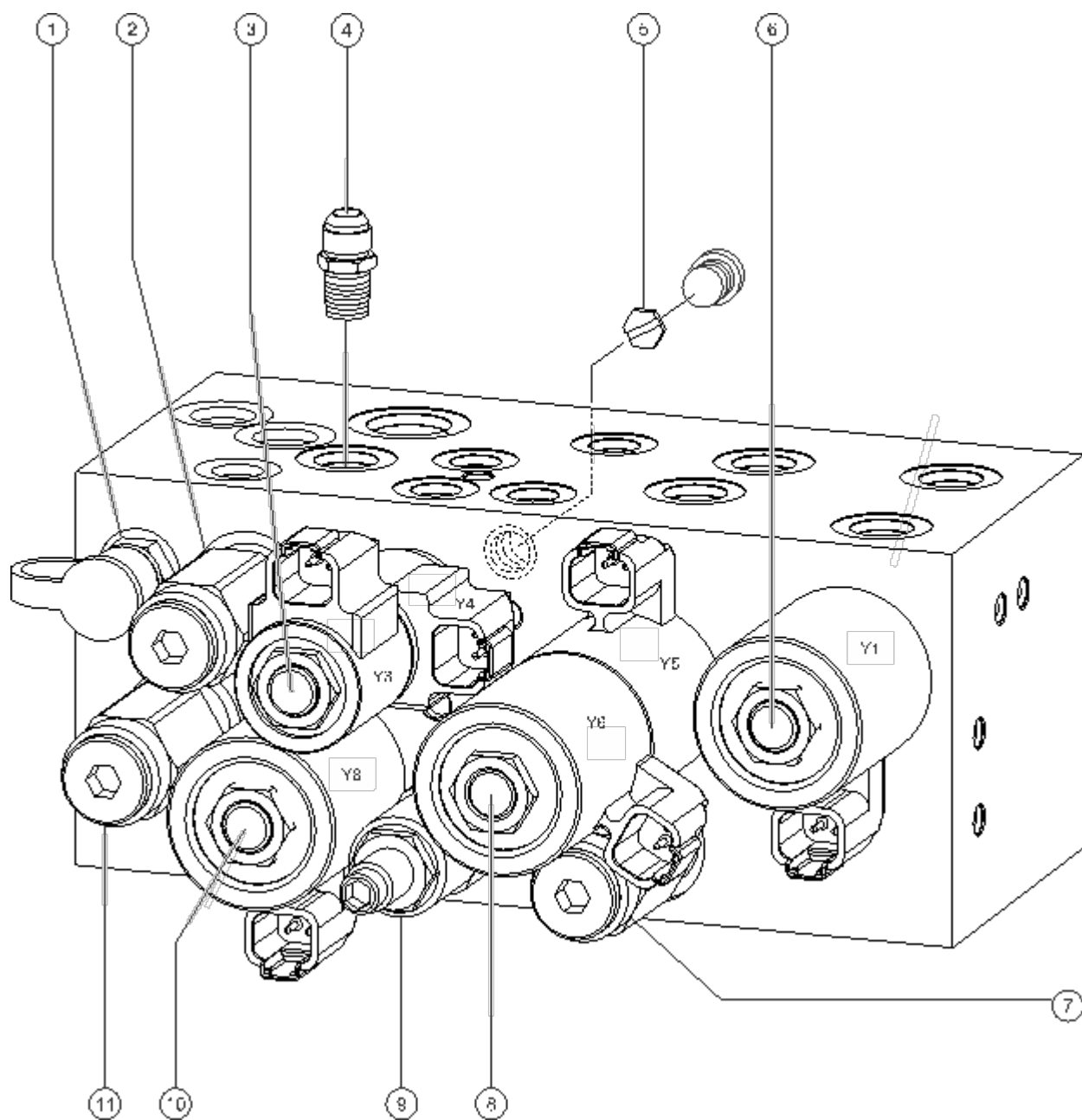
Note: 'alpha-numeric' callouts refer to corresponding notes on the electrical schematic.

Index No.	Description	Schematic Item	Function	Torque
—	Coil nut	AC	—	4-5 ft-lbs / 5-7 Nm
—	Coil nut	AE, AG, AI	—	5-7 ft-lbs / 7-9 Nm
1	Diagnostic port	AA	Test port	—
2	Relief valve, 3700 psi / 255 bar	AB	System relief	20 ft-lbs / 27 Nm
3	Solenoid valve, 3 position 4 way	AC	Steer left/right	25 ft-lbs / 34 Nm
4	Check valve	AK	Lift circuit	23 ft-lbs / 31 Nm
5	Check disc	AD	Steer circuit	18 ft-lbs / 24 Nm
6	Solenoid valve, 2 position 4 way	AE	Drive speed select circuit	25 ft-lbs / 34 Nm
7	Relief valve, 50 psi / 3,4 bar	AF	Brake release	20 ft-lbs / 27 Nm
8	Solenoid valve, 3 position 5 way	AG	Drive forward/reverse	25 ft-lbs / 34 Nm
9	Flow regulator and relief valve, 0.75 gpm / 2,8 L/min, 1500 psi / 103 bar	AH	Steer circuit	26 ft-lbs / 35 Nm
10	Solenoid valve, 2 position 4 way	AI	Platform up	25 ft-lbs / 34 Nm
11	Relief valve, 1800 to 3700 psi / 124 to 255 bar	AJ	Lift relief	20 ft-lbs / 27 Nm

How to Install a Valve Cartridge

- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

Manifolds



Manifolds

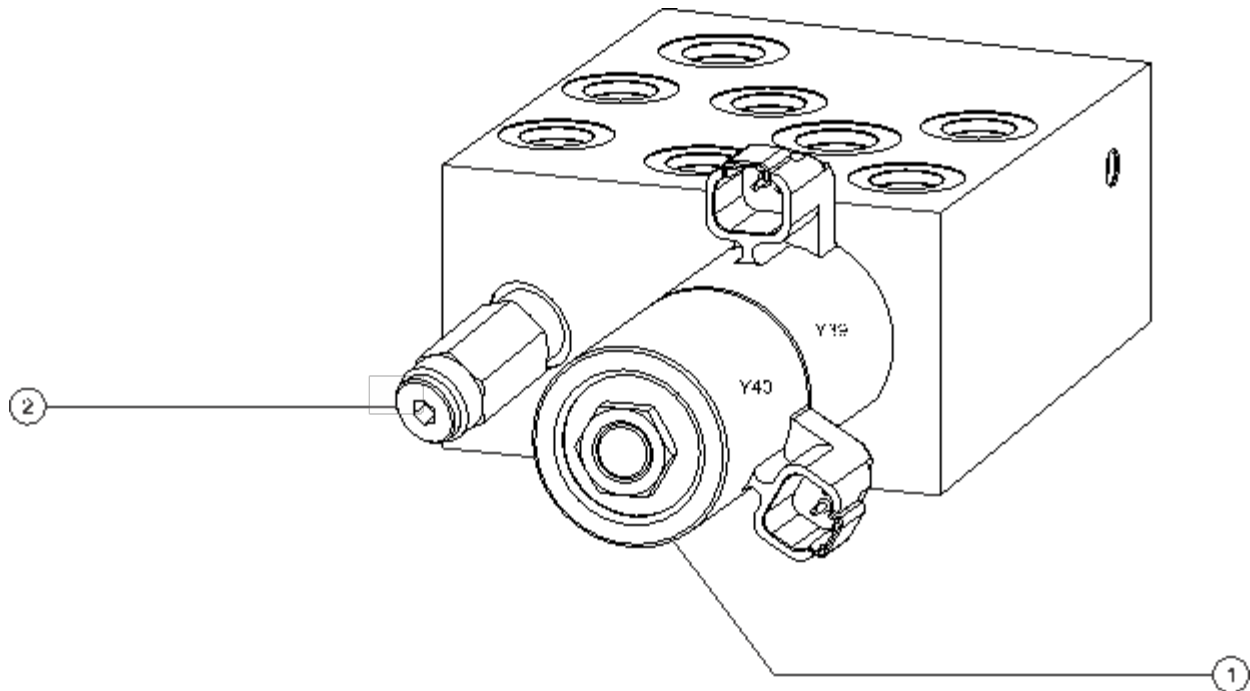
5-9

Outrigger Manifold Components – GS-3232

The outrigger function manifold is mounted behind an inspection door, at the battery side of the machine.

Note: 'alpha-numeric' callouts refer to corresponding notes on the electrical schematic.

Index No.	Description	Schematic Item	Function	Torque
1	Solenoid valve, 3 position 4 way	BA	Outriggers extend / retract	25 ft-lbs / 34 Nm
2	Relief valve, 3500 psi / 241 bar	BB	Outrigger circuit	20 ft-lbs / 27 Nm
—	Coil nut	BA	—	4-5 ft-lbs / 5-7 Nm



How to Install a Valve Cartridge

- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

Manifolds

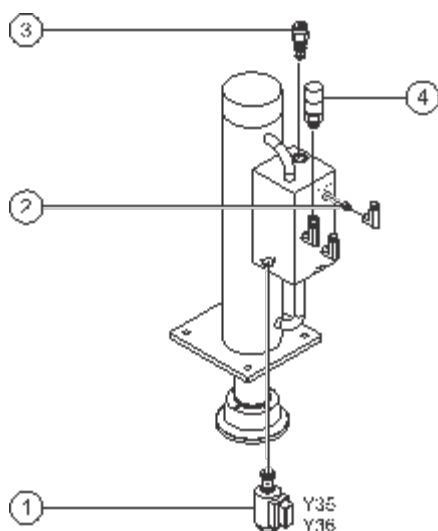
5-10

Outrigger Cylinder Manifold Components – GS-3232

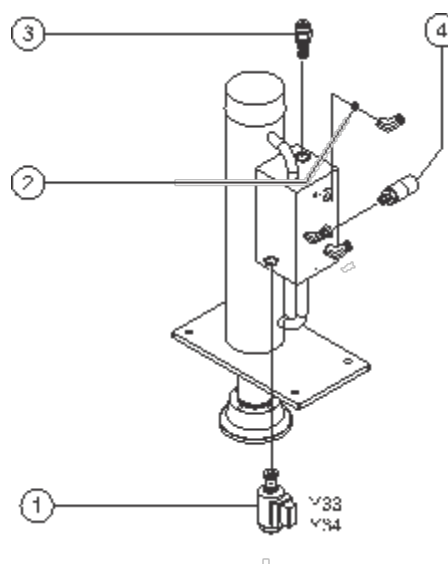
The outrigger function manifold is mounted behind an inspection door, at the battery side of the machine.

Note: 'alpha-numeric' callouts refer to corresponding notes on the electrical schematic.

Index No.	Description	Schematic Item	Function	Torque
1	Solenoid valve, 2 position 2 way	CA, CB, CC, CD	Outriggers extend / retract	25 ft-lbs / 34 Nm
2	Orifice Plug, 0.037 inch / 0,94 mm	CE	Outrigger retract	—
3	Check Valve, pilot operated	CF	Retract flow control	20 ft-lbs / 27 Nm
4	Pressure transducer	CG	Outrigger auto level	16 ft-lbs / 21,7 Nm
—	Coil nut	CA, CB, CC, CD	—	4-5 ft-lbs / 5-7 Nm



Front Outrigger Cylinder



Rear Outrigger Cylinder

How to Install a Valve Cartridge

- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

Manifolds

5-11 Valve Adjustments - Function Manifold

Note: Verify the hydraulic oil level is at the FULL mark on the hydraulic tank.

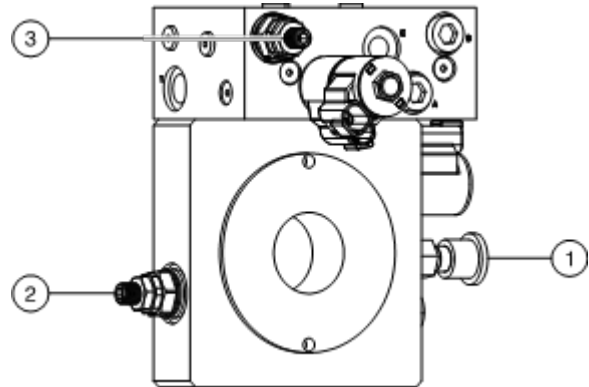
How to Adjust the System Relief Valve - Models with electric drive

Note: Perform this procedure with the machine on a firm, level surface with all weight, tools and equipment removed from the platform.

Note: Perform this procedure in an area that is free of overhead obstructions.

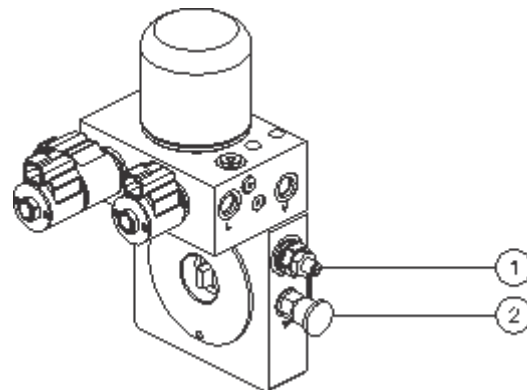
- 1 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold.
- 2 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 3 From the ground controls, fully elevate the platform. Continue holding platform up while observing the pressure reading on the pressure gauge. Note the pressure. Refer to Specifications, *Hydraulic Component Specifications*.
- 4 Turn the key switch to the off position.
- 5 Hold the valve stem with a hex key and loosen the jam nut.
- 6 Adjust the valve stem. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure. Tighten the jam nut.

- 7 Repeat this procedure beginning with step 3 to confirm the relief valve pressure.



GS-1330m

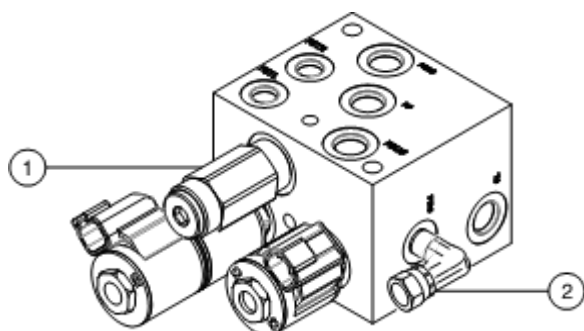
- 1 test port
- 2 system relief valve
- 3 steer relief valve



GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

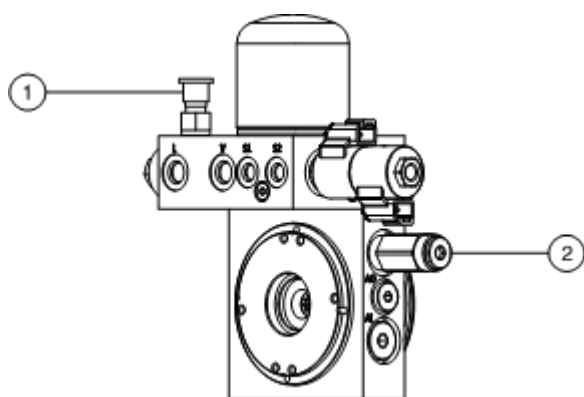
- 1 system relief valve
- 2 test port

Manifolds



GS-4655

- 1 system relief valve
- 2 test port



All other models

- 1 test port
- 2 system relief valve

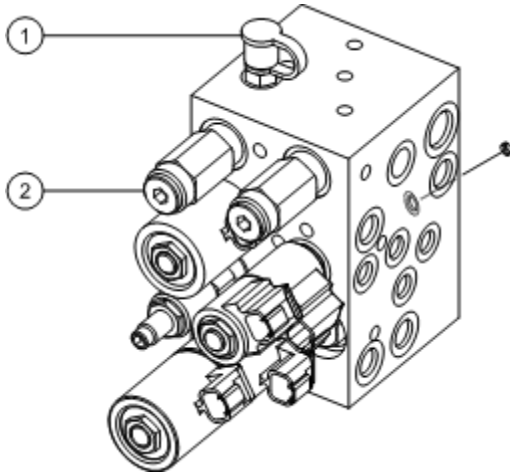
How to Adjust the System Relief Valve - Models with hydraulic drive

Note: Perform this test from the ground with the platform controls. Do not stand in the platform.

- 1 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold.
- 2 Remove the platform controls from the platform.
- 3 Turn the key switch to platform controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 4 Steer the machine fully to the right or left and hold. Note the pressure reading on the pressure gauge. Refer to Specifications, *Hydraulic Components Specifications*.
- 5 Turn the machine off. Hold the system relief valve with a wrench and remove the cap.
- 6 Adjust the internal hex socket. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure.

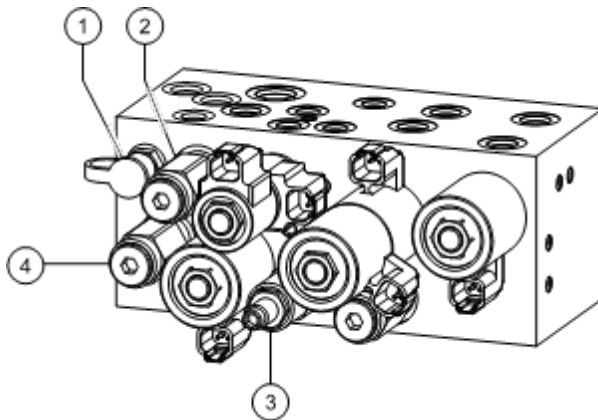
Manifolds

- 7 Install the relief valve cap.
- 8 Repeat this procedure beginning with step 4 to confirm the relief valve pressure.



GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH

- 1 test port
- 2 system relief valve



GS-2032, GS-2632

- 1 test port
- 2 system relief valve
- 3 steer relief valve
- 4 lift relief valve

How to Adjust the Platform Lift Relief Valve - Models with hydraulic drive

Note: Perform this test from the ground with the platform controls. Do not stand in the platform.

Note: Verify the hydraulic oil level is at the FULL mark on the hydraulic tank.

⚠ DANGER

Tip-over hazard. Failure to adjust the relief valves to specification could result in the machine tipping over, causing death or serious injury. Do not adjust the relief valve pressures higher than specifications.

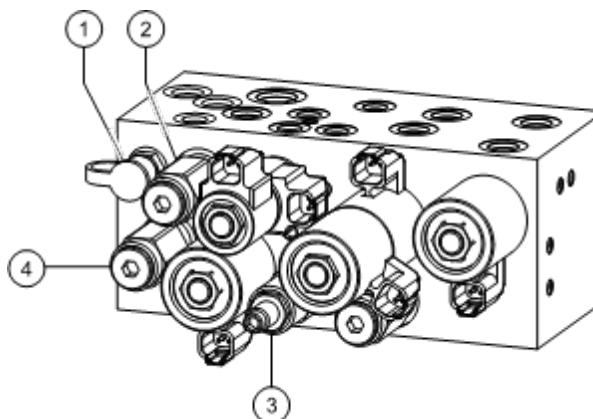
- 1 Confirm the system relief pressure is set to specification. Refer to Repair Procedure, *Valve Adjustments - Function Manifold*.

Note: The system relief valve pressure must be within specification before adjusting the lift relief valve pressure.

- 2 Place maximum rated load into the platform. Secure the load to the platform. Refer to Specifications, *Machine Specifications*.
- 3 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold.
- 4 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 5 Hold the lift relief valve with a wrench and remove the cap.
- 6 While activating the platform up function, adjust the internal hex socket clockwise, just until the platform fully rises.

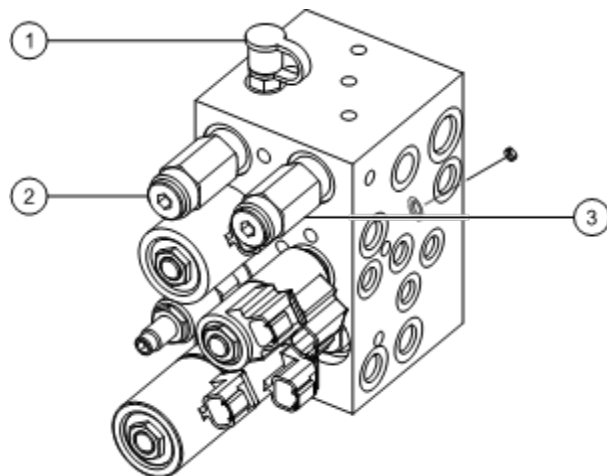
Manifolds

- 7 Fully lower the platform to the stowed position.
- 8 Add an additional 50 pounds / 22,7 kg to the platform. Secure the additional weight.
- 9 Attempt to raise the platform.
- ⦿ Result: The power unit should **not** be able to lift platform.
- ⊗ Result: If the power unit lifts the platform, adjust the internal hex nut socket counterclockwise until the platform will not rise.
- 10 Install the relief valve cap.
- 11 Remove the weight from the platform.
- 12 Bleed the hydraulic system by raising the platform to full height. If the pump cavitates or the platform fails to reach full height, add hydraulic oil until the pump is functioning correctly. Do not overfill the hydraulic tank.



GS-2032, GS-2632

- 1 test port
- 2 system relief valve
- 3 steer relief valve
- 4 lift relief valve



GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH

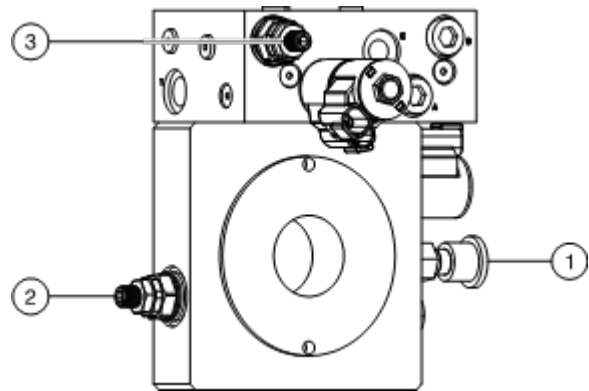
- 1 test port
- 2 system relief valve
- 3 lift relief valve

Manifolds

How to Adjust the Steer Relief Valve - Models with hydraulic drive (includes GS-1330m electric drive)

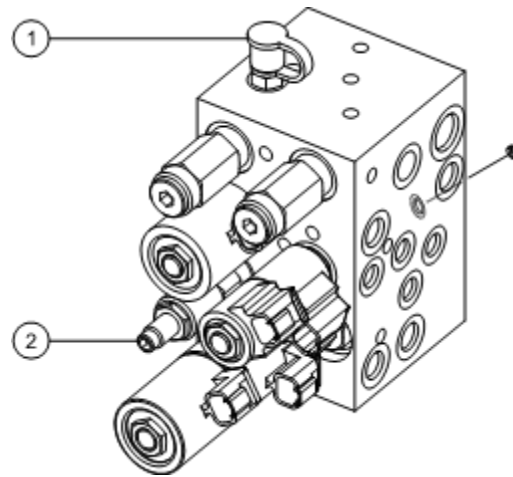
Note: Perform this test from the ground with the platform controls. Do not stand in the platform.

- 1 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold.
- 2 Remove the platform controls from the platform.
- 3 Turn the key switch to platform controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 4 Steer the machine fully to the right or left and hold. Note the pressure reading on the pressure gauge. Refer to Specifications, *Hydraulic Components Specifications*.
- 5 Turn the key switch to the off position.
- 6 Hold the valve stem with a hex key and loosen the jam nut.
- 7 Adjust the valve stem. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure. Tighten the jam nut.
- 8 Repeat this procedure beginning with step 4 to confirm the relief valve pressure.



GS-1330m

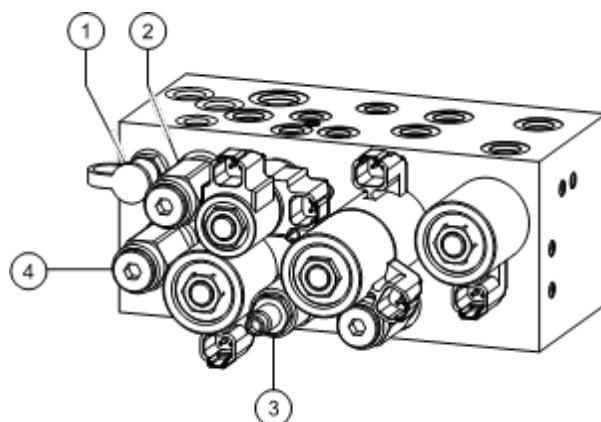
- 1 test port
- 2 system relief valve
- 3 steer relief valve



GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH

- 1 test port
- 2 steer relief valve

Manifolds



GS-2032, GS-2632

- 1 test port
- 2 system relief valve
- 3 steer relief valve
- 4 lift relief valve

5-12 Valve Coils

How to Test a Coil

A properly functioning coil provides an electromagnetic force which operates the solenoid valve. Critical to normal operation is continuity within the coil. Zero resistance or infinite resistance indicates the coil has failed.

Since coil resistance is sensitive to temperature, resistance values outside specification can produce erratic operation. When coil resistance decreases below specification, amperage increases. As resistance rises above specification, voltage increases.

While valves may operate when coil resistance is outside specification, maintaining coils within specification will help ensure proper valve function over a wide range of operating temperatures.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

Note: If the machine has been in operation, allow the coil to cool at least 3 hours before performing this test.

- 1 Tag and disconnect the wiring from the coil to be tested.
 - 2 Test the coil resistance using a multimeter set to resistance (W). Refer to the Valve Coil Resistance Specification table.
- ⦿ Result: If the resistance is not within the adjusted specification, plus or minus 10%, replace the coil.

Manifolds

Valve Coil Resistance Specification

Note: The following coil resistance specifications are at an ambient temperature of 68°F / 20°C. As valve coil resistance is sensitive to changes in air temperature, the coil resistance will typically increase or decrease by 4% for each 18°F / 10°C that your air temperature increases or decreases from 68°F / 20°C.

Description	Specification
Solenoid valve, 3 position 4 way, 20V DC with diode (schematic item F, AC or DC)	27.2Ω
Solenoid valve, 3 position 4 way, 20V DC with diode (schematic item E)	19Ω
Solenoid valve, 2 position 4 way, 20V DC with diode (schematic item H, AI or DI)	19Ω
Solenoid valve, 2 position 2 way, N.C. 20V DC with diode (schematic item N)	25Ω
Solenoid valve, 2 position 4 way, 20V DC with diode (schematic item AE or DE)	19Ω
Solenoid valve, 3 position 5 way, 20V DC with diode (schematic item AG or DG)	19Ω
Solenoid valve, 2 position 2 way, 20V DC with diode (schematic item CA, CB, CC and CD)	27.2Ω
Solenoid valve, 3 position 4 way, 20V DC with diode (schematic item BA)	19Ω
Proportional solenoid valve, 2 position 2 way, 20V DC with diode (schematic item DN)	23.9Ω
Solenoid valve, 3 position 4 way 24V DC with diode (schematic item EA, HD)	33.75Ω
Solenoid valve, 2 position 4 way 24V DC with diode (schematic item EC, HC)	33.75Ω

How to Test a Coil Diode

Genie incorporates spike suppressing diodes in all of its coils. Properly functioning coil diodes protect the electrical circuit by suppressing voltage spikes. Voltage spikes naturally occur within a function circuit following the interruption of electrical current to a coil. Faulty diodes can fail to protect the electrical system, resulting in a tripped circuit breaker or component damage.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 1 Test the coil resistance. Refer to Repair Procedure, *How to Test a Coil*.
- 2 Connect a 10Ω resistor to the negative terminal of a known good 9V DC battery. Connect the other end of the resistor to a terminal on the coil.

Note: The battery should read 9V DC or more when measured across the terminals.

Resistor, 10Ω

Genie part number	27287
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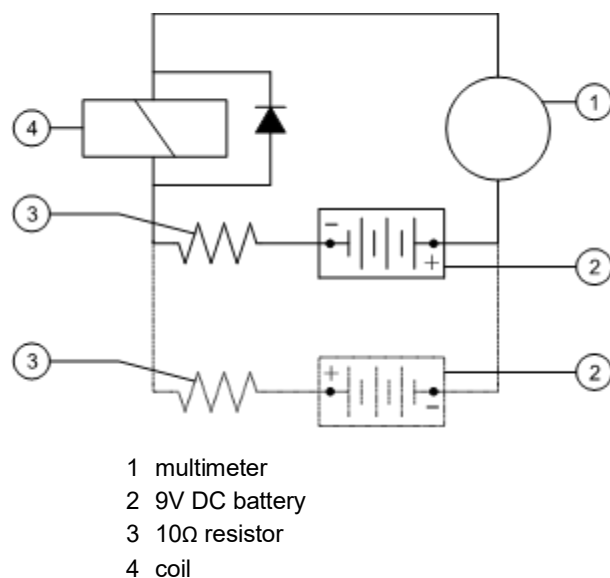
- 3 Set a multimeter to read DC amperage.

Note: The multimeter, when set to read DC amperage, should be capable of reading up to 800 mA.

- 4 Connect the negative lead to the other terminal on the coil.

Manifolds

Note: If testing a single terminal coil, connect the negative lead to the internal metallic ring at either end of the coil.



Note: Dotted lines in illustration indicate a reversed connection as specified in step 6.

- 5 Momentarily connect the positive lead from the multimeter to the positive terminal on the 9V battery. Note and record the reading.
 - 6 At the battery or coil terminals, reverse the connections. Note and record the current reading.
- ⊙ Result: Both current readings are greater than 0 mA and are different by a minimum of 20%. The coil is good.
 - ⊗ Result: if one or both current readings are greater than 0 mA, or if the two current readings do not differ by a minimum of 20%, the coil and/or its internal diode are faulty and the coil should be replaced.

Steer Axle Components

6-1 Yoke Assembly

How to Remove the Yoke Assembly

- 1 Block the non-steer tires.
 - 2 Remove the cotter pin from the wheel castle nut.
- Note: Always replace the cotter pin with a new one when removing the castle nut.
- 3 Loosen the wheel castle nut. Do not remove it.
 - 4 Center a lifting jack under the drive chassis at the steer end of the machine.
 - 5 Raise the machine approximately 6 inches / 15 cm. Place blocks under the chassis for support.
 - 6 Remove the wheel castle nut. Remove the wheel.
 - 7 Models with hydraulic drive: Tag, disconnect and plug the hydraulic hoses on the drive motor. Cap the fittings on the drive motor.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 8 Support and secure the yoke assembly to an appropriate lifting device.

⚠ CAUTION

Bodily injury hazard. The yoke assembly may fall if not properly supported when it is removed from the machine.

- 9 Remove the retaining fastener from the steer link at the yoke assembly.

Note: While removing the retaining fasteners, take note of the quantity and location of the spacers when disconnecting the steer link from the yoke assembly.

- 10 Remove the retaining fastener from the top of the yoke pivot shaft.

Note: The pivot shaft retaining fastener is located above the main deck.

- 11 Lower the yoke assembly out of the chassis.

Steer Axle Components

6-2 Drive Motors

How to Remove a Drive Motor

Models with electric drive

- 1 Block the steer wheels.
- 2 Remove the cotter pin from the wheel castle nut of the motor to be removed.

Note: Always replace the cotter pin with a new one when removing the castle nut.

- 3 Loosen the wheel castle nut. Do not remove it.
- 4 Raise the machine approximately 2 inches / 5 cm. Place blocks under the chassis for support.



Crushing hazard. The chassis will fall if not properly supported.

- 5 Remove the wheel castle nut. Remove the wheel.
- 6 Tag and disconnect the electrical wiring from the drive motor.
- 7 Remove the drive motor mounting fasteners. Remove the motor.

Torque specifications

GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

Drive motor mounting fasteners, dry	80 ft-lbs 108,5 Nm
-------------------------------------	-----------------------

Drive motor mounting fasteners, lubricated	63 ft-lbs 85,4 Nm
--	----------------------

All other models

Drive motor mounting fasteners, dry	43 ft-lbs 58,3 Nm
-------------------------------------	----------------------

Drive motor mounting fasteners, lubricated	32 ft-lbs 43,4 Nm
--	----------------------

Models with hydraulic drive

- 1 Block the non-steer tires.
- 2 Remove the cotter pin from the wheel castle nut of the motor to be removed.

Note: Always replace the cotter pin with a new one when removing the castle nut.

- 3 Loosen the wheel castle nut. Do not remove it.
- 4 Raise the machine approximately 2 inches / 5 cm. Place blocks under the chassis for support.



Crushing hazard. The chassis will fall if not properly supported.

- 5 Remove the wheel castle nut. Remove the wheel.
- 6 Tag, disconnect and plug the hydraulic hoses on the drive motor. Cap the fittings on the drive motor.
- 7 Remove the drive motor mounting fasteners. Remove the motor.

Torque specifications

Drive motor mounting fasteners, dry	75 ft-lbs 101,7 Nm
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Drive motor mounting fasteners, lubricated	56 ft-lbs 76,3 Nm
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Steer Axle Components

6-3 Steer Cylinder

How to Remove the Steer Cylinder

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Block the non-steer tires.
- 2 Remove the pin retaining fasteners from the rod-end pivot pin. Remove the pivot pin.

Note: While removing the pin retaining fasteners, take note of the quantity and location of the spacers when removing the pivot pin.

- 3 Remove the pin retaining fasteners from the barrel-end pivot pin. Remove the pin.

Note: While removing the pin retaining fasteners, take note of the quantity and location of the spacers when removing the pivot pin.

- 4 Remove the steer cylinder from the machine.
- 5 Tag, disconnect and plug the hydraulic hoses from the steer cylinder. Cap the fittings on the cylinder.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

NOTICE

Component damage hazard. Hoses can be damaged if they are kinked or pinched.

6-4 Steer Bellcrank

How to Remove the Steer Bellcrank

- 1 Remove the steer cylinder. Refer to Repair Procedure, *How to Remove the Steer Cylinder*.
- 2 Remove the retaining fasteners from the steer links at each end of the bellcrank.

Note: While removing the retaining fasteners, take note of the quantity and location of the spacers between the bellcrank and the steer links.

- 3 Center a lifting jack under the drive chassis at the steer end of the machine.
- 4 Raise the machine approximately 14 inches / 36 cm. Place blocks under the chassis for support.

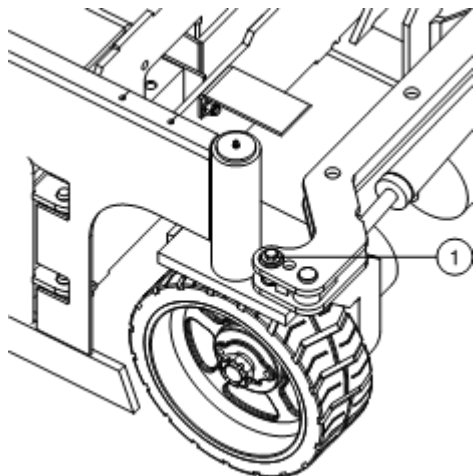
⚠ WARNING

Crushing hazard. The chassis will fall if not properly supported.

- 5 Turn the yokes to the side so the bellcrank can be removed.

Steer Axle Components

- 6 Remove the bellcrank from the machine.



- 1 apply removable thread lock to fastener threads

Note: While removing the bellcrank from the machine, take note of the quantity and location of the spacers between the bellcrank and the steer links.

Note: Before re-installing the steer bellcrank onto the machine, apply a small amount of removable thread lock onto the threads of the fasteners. Torque the fasteners to 31 ft-lbs / 42 Nm.

6-5

Manual Brake Release - Models with electric drive

How to Manually Release the Electric Brakes

⚠ This procedure should only be performed due to machine or battery failure.

⚠ DANGER

Bodily injury and crushing hazard. This procedure must only be performed by a trained service professional. Attempting this procedure without the necessary skills could result in death or serious injury.

- 1 Chock the wheels at both ends of the machine.

Note: If the machine is on an incline it is recommended that a secondary device such as a forklift and towing strap be used to secure the machine from rolling after the brakes have been released.

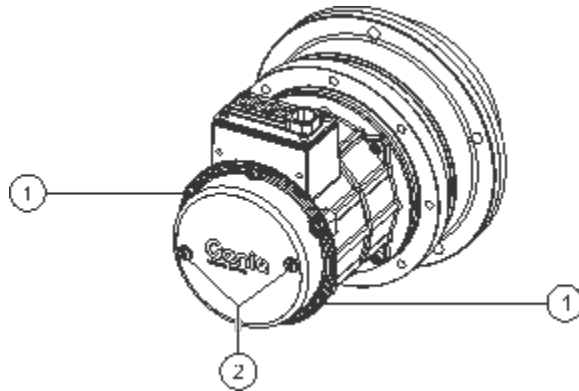
⚠ DANGER

Bodily injury and crushing hazard. Failure to properly secure the machine from rolling could result in property damage, death or serious injury.

Steer Axle Components

- 2 Locate and remove the two brake release access plugs on the front of the electric drive motors. Set the plugs aside.

Note: Do not misplace the plugs. Failure to not reinstalling the plugs will result in component damage.



- 1 retaining fasteners
- 2 brake release access plugs

- 3 Remove two of the retaining fasteners from opposite sides of the electric motor cover.
- 4 Install the retaining fasteners into the brake release access holes. Turn both fasteners in even increments until the brakes are released. Do not over tighten the fasteners.
- 5 Move the machine to an area that has a firm, level surface and is free of obstructions.
- 6 Chock the wheels at both ends of the machine.
- 7 Remove the retaining fasteners from the brake release access holes to reengage the brakes.
- 8 Install the retaining fasteners securing the motor cover and the brake release access plugs.

6-6

Thrust Washers - GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

How to Remove a Thrust Washer

- 1 Remove the drive motor. Refer to Repair Procedure, *How to Remove a Drive Motor*.
- 2 Remove the steer bellcrank. Refer to Repair Procedure, *How to Remove the Steer Bellcrank*.
- 3 Remove the snap rings and shims from the king pin.
- 4 Remove the yoke assembly from the machine.
- 5 Remove the thrust washer from the king pin.

Non-Steer Axle Components

7-1

Drive Brake - Models with hydraulic drive

How to Remove the Drive Brake

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Support and secure the entry ladder to an appropriate lifting device.
- 2 Remove the entry ladder mounting fasteners. Remove the entry ladder from the machine.

CAUTION

Crushing hazard. The entry ladder will fall if not properly supported and secured to the lifting device.

- 3 Block the steer wheels.
- 4 Remove the cotter pin from the wheel castle nut.

Note: Always replace the cotter pin with a new one when removing the castle nut.

- 5 Loosen the wheel castle nut. Do not remove it.
- 6 Center a lifting jack under the drive chassis at the non-steer end of the machine.

- 7 Raise the machine approximately 2 inches / 5 cm. Place blocks under the chassis for support.

WARNING

Crushing hazard. The chassis will fall if not properly supported.

- 8 Remove the wheel castle nut. Remove the wheel.
- 9 Tag, disconnect and plug the hydraulic hose from the brake. Cap the fitting on the brake.

WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 10 Place a lifting jack under the brake for support.
- 11 Remove the fasteners that attach the brake to the drive chassis. Remove the brake.

CAUTION

Crushing hazard. The brake will fall if not properly supported when the mounting fasteners are removed.

Torque specifications

Brake mounting fasteners, dry	75 ft-lbs 102 Nm
Brake mounting fasteners, lubricated	56 ft-lbs 76 Nm

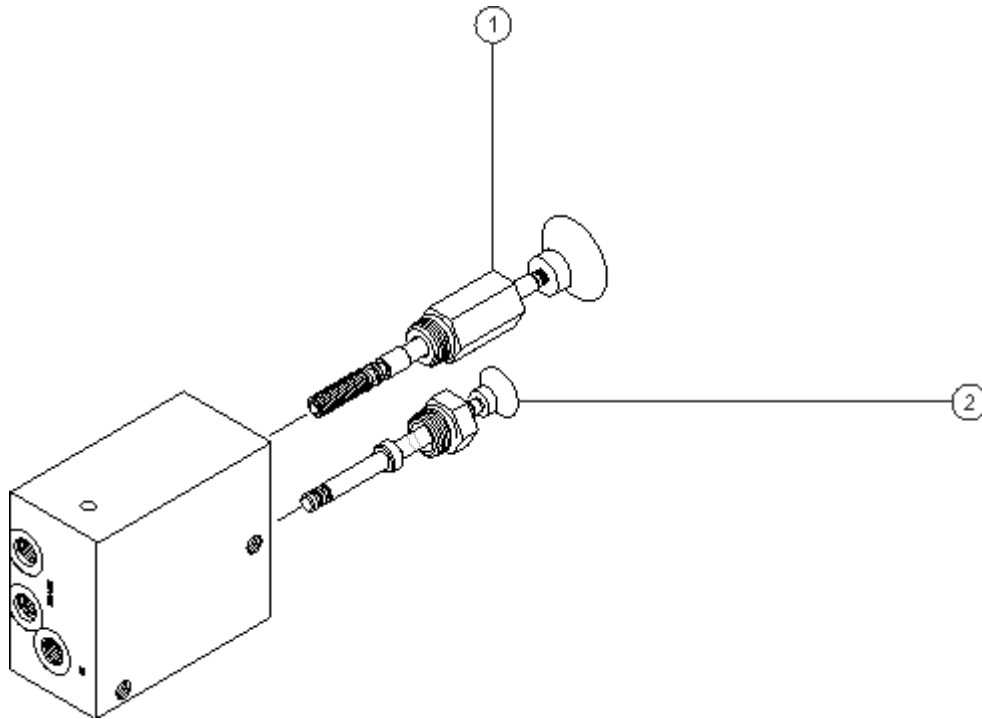
Brake Release Hand Pump Components

8-1

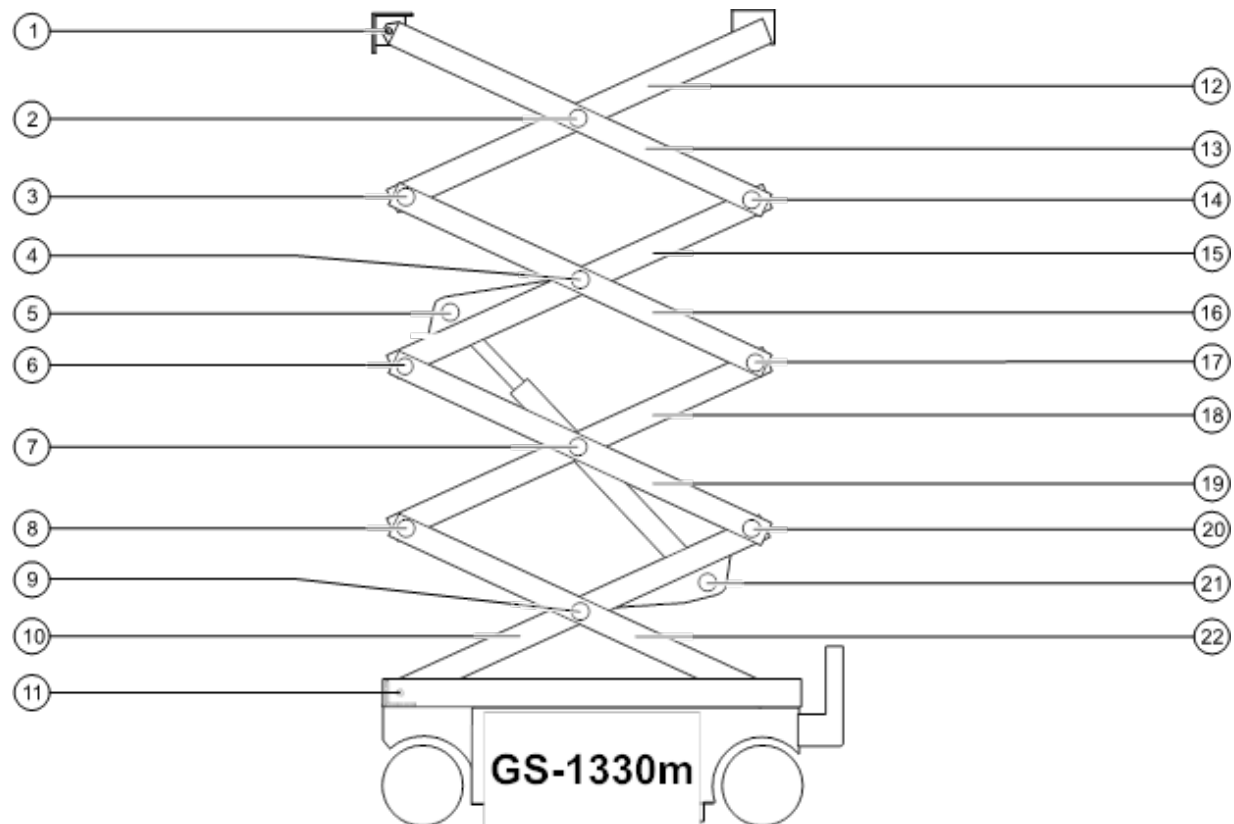
Brake Release Hand Pump Components - Models with hydraulic drive

The brake release hand pump manifold is mounted behind the entry ladder.

Index No.	Description	Schematic Item	Function	Torque
1	Hand pump	L	Manual brake release	30 ft-lbs / 41 Nm
2	Needle valve	M	Manual brake release enable	45-50 in-lbs / 5 Nm



Scissor Components



Steer End

- 1 - Number 5 pivot pin
- 2 - Number 4 center pivot pin (Qty. 2)
- 3 - Number 4 pivot pin (steer end)
- 4 - Number 3 center pivot pin (Qty. 2)
- 5 - Lower lift cylinder rod-end pivot pin
- 6 - Number 3 pivot pin (steer end)
- 7 - Number 2 center pivot pin (Qty. 2)
- 8 - Number 2 pivot pin (steer end)
- 9 - Number 1 center pivot pin (Qty. 2)
- 10 - Number 1 inner arm
- 11 - Number 1 pivot pin
- 11 - platform height sensor

Non-steer End

- 12 - Number 4 inner arm
- 13 - Number 4 outer arm
- 14 - Number 4 pivot pin (non-steer end)
- 15 - Number 3 inner arm
- 16 - Number 3 outer arm
- 17 - Number 3 pivot pin (non-steer end)
- 18 - Number 2 inner arm
- 19 - Number 2 outer arm
- 20 - Number 2 pivot pin (non-steer end)
- 21 - Lower lift cylinder barrel-end pivot pin
- 22 - Number 1 outer arm



Scissor Components

9-1

Scissor Assembly - GS-1330m

How to Disassemble the Scissor Assembly

⚠ WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.

- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 6 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Remove the fasteners securing the large platform height sensor cover to the large platform height sensor bracket. (index #11)
- 8 Remove the platform height sensor cover.
- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 10 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 11 Remove the platform height sensor assembly from the number 1 pivot pin.
- 12 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.
- 13 Remove the squeeze connector from the large platform height sensor bracket.
- 14 Remove the fasteners securing the large platform height sensor bracket to the number 1 inner arm pivot bracket.

Scissor Components

- 15 Remove the large platform height sensor bracket from the number 1 inner arm pivot bracket.

- 16 Install the fasteners removed in 14 to the number 1 inner arm pivot bracket and chassis.

▲ DANGER

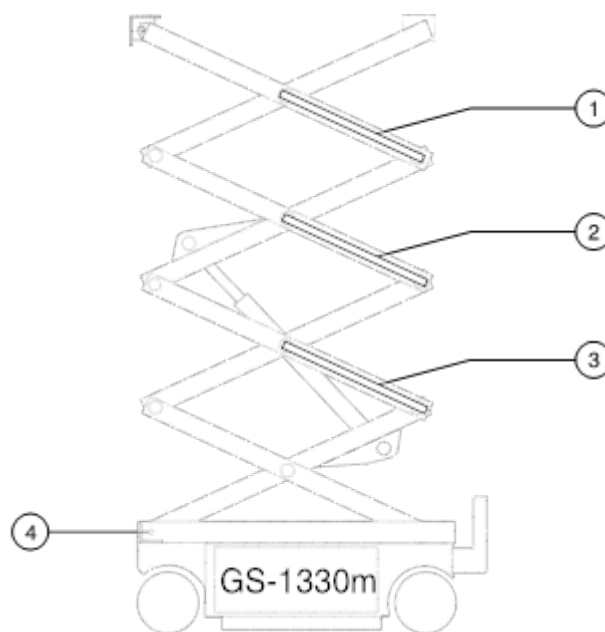
Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 17 Connect the battery pack to the machine.
18 Turn the key switch to ground controls.
19 Press and hold the ground control scroll up and scroll down buttons.
20 Pull out the red Emergency Stop button to the on position at the ground controls.
21 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 22 Raise the platform and rotate the safety arm to the stowed position.

- 23 Fully lower the platform to the stowed position.



Cable bridge and platform height sensor

- 1 cable bridge 4
- 2 cable bridge 3
- 3 cable bridge 2
- 4 platform height sensor

- 24 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
25 Remove the cables from the number 4 outer arm (index #13) at the ground controls side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 26 Remove the cables from the number 4 cable bridge and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

Scissor Components

- 27 Attach a lifting strap from an overhead supporting device to the number 4 outer arm (index #13).
- 28 Remove the external snap rings and retaining fasteners from the number 4 center pivot pins (index #2).
- 29 Use a soft metal drift to remove the number 4 center pivot pins (index #2).
- 30 Remove the retaining fasteners from the number 4 pivot pin (index #14) at the non-steer end of the machine.
- 31 Use a soft metal drift to remove the number 4 pivot pin (index #14) from the non-steer end of the machine. Remove the number 4 outer arm (index #13) from the machine.

▲ WARNING

Crushing hazard. The number 4 outer arm may become unbalanced and fall if not properly supported when removed from the machine.

- 32 Remove the number 4 cable bridge mounting fasteners and remove the cable bridge from the machine.
- 33 Attach a lifting strap from an overhead supporting device to the number 4 inner arm (index #12).
- 34 Remove the retaining fasteners from the number 4 pivot pin (index #3).
- 35 Use a soft metal drift to remove the number 4 pivot pin (index #3) at the steer end. Remove the number 4 inner arm (index #12) from the machine.

▲ CAUTION

Crushing hazard. The number 4 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

- 36 Remove the cables from the number 3 cable bridge and number 3 inner arm and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 37 Remove the number 3 cable from the machine.
- 38 Attach a lifting strap from an overhead supporting device to the number 3 outer arm (index #4) at the ground controls side.
- 39 Remove the external snap rings and retaining fasteners from the number 3 center pivot pin (index #4).
- 40 Use a soft metal drift to remove the number 3 center pivot pin (index #4) at the ground control side.
- 41 Use a soft metal drift to tap the number 3 pivot pin (index #17) halfway out at the non-steer end of the machine. Remove the number 3 outer arm (index #16) at the ground controls side from the machine.

▲ CAUTION

Bodily injury hazard. The number 3 outer arm at the ground controls side may become unbalanced and fall if not properly supported when removed from the machine.

- 42 Attach a lifting strap from an overhead supporting device to the number 3 outer arm (index #16) at the battery pack side.
- 43 Use a soft metal drift to tap the number 3 pivot pin (index #17) in the other direction. Remove the number 3 outer arm (index #16) from the battery pack side of the machine.

▲ CAUTION

Bodily injury hazard. The number 3 outer arm at the battery pack side may become unbalanced and fall if not properly supported when removed from the machine.

Scissor Components

- 44 Remove the number 3 pivot pin (index #17) from the non-steer end of the machine.
- 45 Attach a lifting strap from an overhead supporting device to the lug on the rod end of the lift cylinder for support. Do not apply any lifting pressure.
- 46 Remove the pin retaining fasteners from the lift cylinder rod-end pivot pin (index #5). Use a soft metal drift to remove the pin.

CAUTION Bodily injury hazard. The cylinder may fall when the rod-end pivot pin is removed if not properly supported.

- 47 Lower the cylinder onto the number 1 inner arm (index #9).

NOTICE Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 48 Attach a lifting strap from an overhead supporting device to the number 3 inner arm (index #15).
- 49 Remove the retaining fasteners from the number 3 pivot pin (index #6) at the steer end.
- 50 Use a soft metal drift to remove the number 3 pivot pin (index #6). Remove the number 3 inner arm (index #15) from the machine.

CAUTION Bodily injury hazard. The number 3 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

- 51 Remove the cables from the number 2 cable bridge and lay them off to the side.
- 52 Remove the external snap rings and retaining fasteners from the number 2 center pivot pin (index #7) at the ground controls side.

- 53 Remove the number 2 cable bridge mounting fasteners and remove the cable bridge from the machine.

- 54 Attach a lifting strap from an overhead supporting device to the number 2 outer arm (index #19) at the ground controls side.

- 55 Use a soft metal drift to remove the number 2 center pivot pin (index #7) at the ground controls side.

- 56 Remove the retaining fasteners from the number 2 pivot pin (index #20) at the non-steer end of the machine.

- 57 Use a soft metal drift to tap the number 2 pivot pin (index #20) halfway out at the non-steer end of the machine. Remove the number 2 outer arm (index #19) from the ground controls side of the machine.

CAUTION Bodily injury hazard. The number 2 outer arm at the ground controls side may become unbalanced and fall if not properly supported when removed from the machine.

- 58 Attach a lifting strap from an overhead supporting device to the number 2 outer arm (index #19) at the battery pack side.

- 59 Remove the external snap rings and retaining fasteners from the number 2 center pivot pin (index #7) at the battery pack side.

- 60 Use a soft metal drift to remove the number 2 center pivot pin (index #7) at the battery pack side.

CAUTION Bodily injury hazard. The number 2 outer arm at the battery pack side may become unbalanced and fall if not properly supported when removed from the machine.

Scissor Components

- 61 Use a soft metal drift to tap the number 2 pivot pin (index #20) in the other direction at the non-steer end. Remove the number 2 outer arm (index #19) from the battery pack side of the machine.

▲ CAUTION

Bodily injury hazard. The number 2 outer arm at the battery pack side may become unbalanced and fall if not properly supported when removed from the machine.

- 62 Remove the number 2 pivot pin (index #20) from the non-steer end of the machine.
- 63 Attach a lifting strap from an overhead supporting device to the number 2 inner arm (index #18).
- 64 Remove the retaining fasteners from the number 2 pivot pin (index #8) at the steer end of the machine.
- 65 Use a soft metal drift to remove the number 2 pivot pin (index #8). Remove the number 2 inner arm (index #18) from the machine.

▲ CAUTION

Bodily injury hazard. The number 2 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

- 66 Remove the safety arm from the number 2 inner arm (index #18) that was just removed.
- 67 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #10).

- 68 Raise the number 1 inner arm (index #10) approximately 2 feet / 60 cm and install the safety arm between the number 1 inner arm (index #10) and the number 1 outer arm (index #22) at the non-steer end of the machine. Lower the scissor arms onto the safety arm.

▲ CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms onto the safety arm.

- 69 Attach a lifting strap from an overhead supporting device to the lug on the rod end of the lift cylinder (index #5). Raise the lift cylinder approximately 3 ft / 1 m.
- 70 Tag, disconnect and plug the hydraulic hoses on the lift cylinder. Cap the fittings on the cylinder.

▲ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 71 Tag and disconnect the wires and manual lowering cable from the solenoid valve on the cylinder.
- 72 Tag and disconnect the wire harness from the platform overload pressure transducer.

Note: After replacing the scissor assembly, the platform overload system must be calibrated. Refer to Repair Procedure, *How to Calibrate the Platform Overload System*.

- 73 Raise the lift cylinder to a vertical position.

Scissor Components

- 74 Remove the pin retaining fasteners from the lift cylinder barrel-end pin (index #21). Use a soft metal drift to remove the pin. Remove the lift cylinder from the machine.

CAUTION

Crushing hazard. The lift cylinder will become unbalanced and fall if not properly supported and secured to the lifting device.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

- 75 Place a 4 x 4 x 48 inch / 10 cm x 10 cm x 1.2 m long block across both sides of the chassis under the number 1 center pivot pin (index #11).
- 76 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #10) at the non-steer end. Raise the number 1 inner arm and remove the safety arm. Lower the number 1 inner arm (index #10) onto the block that was placed across the chassis.

CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

- 77 Remove the cables from the number 1 cable bridge and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 78 Support and secure the entry ladder to an appropriate lifting device.

- 79 Remove the fasteners from the entry ladder and remove the entry ladder from the machine.

CAUTION

Crushing hazard. The entry ladder will fall if not properly supported and secured to the lifting device.

- 80 Attach a lifting strap from an overhead supporting device to the number 1 outer arm (index #22). Do not apply any lifting pressure.
- 81 Remove the external snap rings and retaining fasteners from the number 1 center pivot pins (index #11).
- 82 Remove the number 1 cable bridge from the machine.
- 83 Use a soft metal drift to remove the number 1 center pivot pins (index #9).

CAUTION

Bodily injury hazard. The number 1 outer arm may become unbalanced and fall if not properly supported when the pin is removed.

- 84 Slide the number 1 outer arm (index #22) to the non-steer end and remove it from the machine.

CAUTION

Bodily injury hazard. The number 1 outer arm may become unbalanced and fall if not properly supported when removed from the machine.

- 85 Attach the strap from an overhead supporting device to the number 1 inner arm (index #10). Do not lift it.

Scissor Components

- 86 Remove the upper fasteners securing the number 1 inner arm pivot bracket to the end of the chassis. Loosen the lower fasteners.
- 87 Remove the number 1 inner arm (index #10) from the machine.

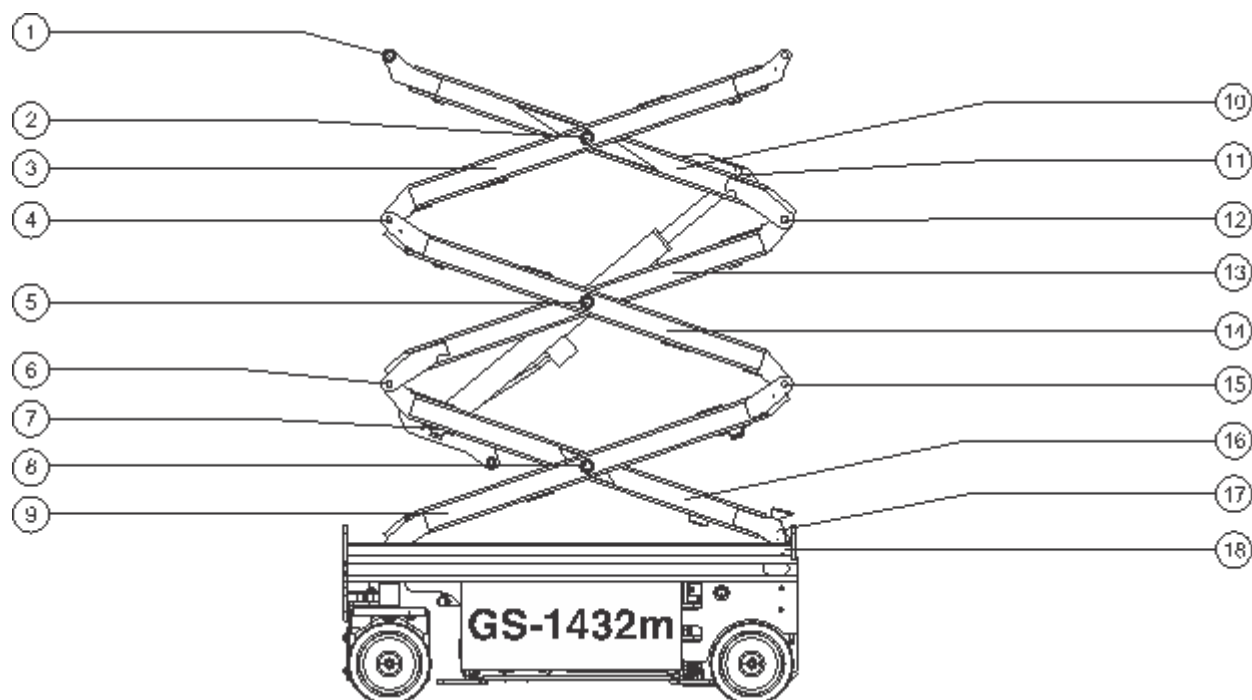
⚠ CAUTION

Bodily injury hazard. The number 1 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

NOTICE

Component damage hazard. Be sure not to damage the limit switch or level sensor components when the number 1 inner arm is removed from the machine.

Scissor Components



Steer End

- 1 - Number 3 pivot pin (steer end)
- 2 - Number 3 center pivot pin (Qty. 2)
- 3 - Number 3 outer arm
- 4 - Number 2 pivot pin (steer end)
- 5 - Number 2 center pivot pin (Qty. 2)
- 6 - Number 1 pivot pin (steer end)
- 7 - Lift cylinder barrel-end pivot pin
- 8 - Number 1 center pivot pin (Qty. 2)
- 9 - Number 1 outer arm

Non-steer End

- 10 - Number 1 inner arm
- 11 - Lower lift cylinder rod-end pivot pin
- 12 - Number 2 pivot pin (non-steer end)
- 13 - Number 2 inner arm
- 14 - Number 2 outer arm
- 15 - Number 1 pivot pin (non-steer end)
- 16 - Number 1 inner arm
- 17 - platform height sensor
- 18 - Number 1 pivot pin

Scissor Components

9-2

Scissor Assembly - GS-1432m

How to Disassemble the Scissor Assembly

⚠ WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Raise the safety arm from the drive chassis to a vertical position.
- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 6 Remove all cable ties securing the cable from the ground controls to the platform.

- 7 Remove the retaining fasteners and plates securing the lift cylinder barrel and rod end pivot pins.
- 8 Raise the platform slightly and return the safety arm to the stowed position.
- 9 Lower the platform to the stowed position.
- 10 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
- 11 Remove the cables from the number 3 inner and outer arms.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 12 Attach a lifting strap from an overhead supporting device to the rod-end of the lift cylinder.
- 13 Using a soft metal drift, remove the rod end pivot pin and set aside.
- 14 Lower the lift cylinder and remove the strap.
- 15 Support the number 3 inner and outer arms with an overhead supporting device.
- 16 Remove the pivot pins securing the number 3 arm assembly to the scissor stack. Remove the arm assembly.

⚠ WARNING

Crushing hazard. The linkage assembly could become unbalanced and fall if not properly supported when removed from the machine.

- 17 Remove the cables from the number 2 inner arm.
- 18 Support the number 2 inner and outer arms with an overhead supporting device.
- 19 Remove the pivot pins securing the number 2 arm assembly to the scissor stack. Remove the arm assembly.

Scissor Components

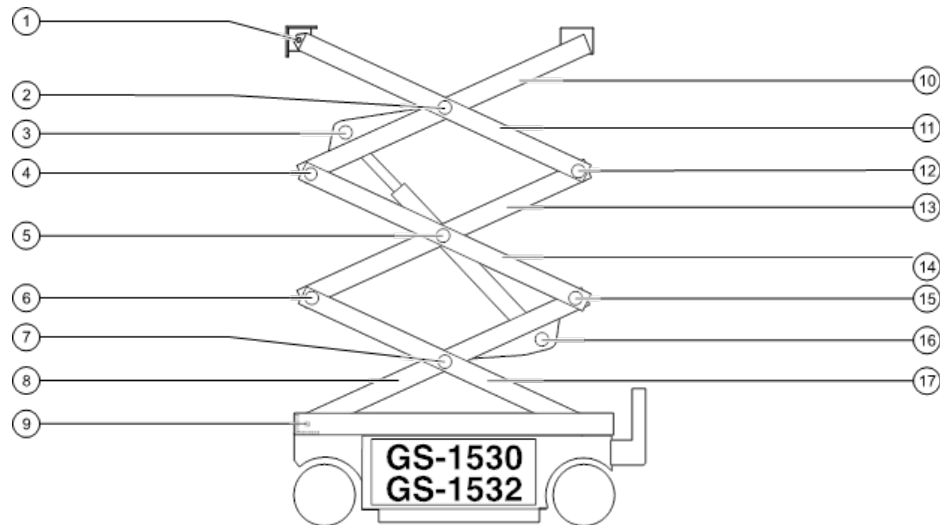
- 20 Tag, disconnect and plug the hydraulic hoses from the lift cylinder. Cap the fittings on the cylinder.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 21 Remove the cables from the lift cylinder and number 1 inner arm.
- 22 Remove the fasteners securing the platform height sensor cover to the chassis.
- 23 Remove the platform height sensor cover.
- 24 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 25 Remove the fasteners securing the platform height sensor short arm cover to the number 1 inner arm.
- 26 Remove the fasteners securing the platform height sensor to the chassis. Remove the sensor.
- 27 Support the number 1 inner and outer arms and lift cylinder with an overhead supporting device.
- 28 Remove the pivot pins securing the number 1 arm assembly to the chassis and slider blocks. Remove the arm assembly with the lift cylinder.

Scissor Components



Steer End

Non-steer End

- | | |
|--|---|
| 1 - Number 4 pivot pin | 10 - Number 3 inner arm |
| 2 - Number 3 center pivot pin (Qty. 2) | 11 - Number 3 outer arm |
| 3 - Lift cylinder rod-end pivot pin | 12 - Number 3 pivot pin (non-steer end) |
| 4 - Number 3 pivot pin (steer end) | 13 - Number 2 inner arm |
| 5 - Number 2 center pivot pin (Qty. 2) | 14 - Number 2 outer arm |
| 6 - Number 2 pivot pin (steer end) | 15 - Number 2 pivot pin (non-steer end) |
| 7 - Number 1 center pivot pin (Qty. 2) | 16 - Lift cylinder barrel-end pivot pin |
| 8 - Number 1 inner arm | 17 - Number 1 outer arm |
| 9 - Number 1 pivot pin | |

Scissor Components

9-3 Scissor Assembly - GS-1530, GS-1532

How to Disassemble the Scissor Assembly

⚠ WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

Note: After replacing the scissor assembly, the platform overload system must be calibrated. Refer to Repair Procedure, *How to Calibrate the Platform Overload System*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.

- 6 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

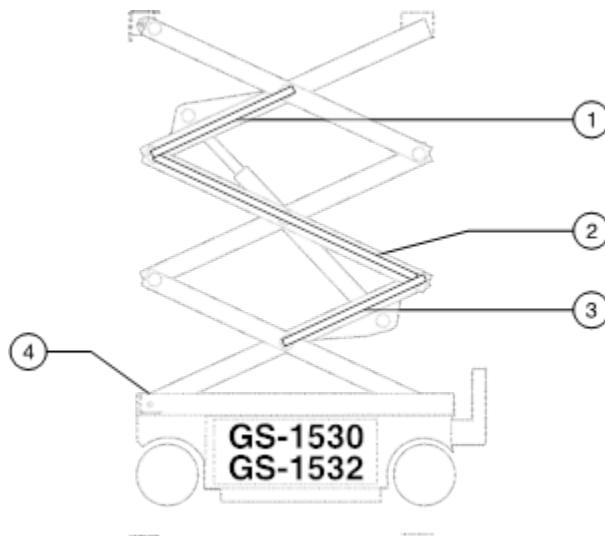
- 7 Remove the fasteners securing the large platform height sensor cover to the large platform height sensor bracket.
- 8 Remove the platform height sensor cover.
- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 10 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 11 Remove the platform height sensor assembly from the number 1 pivot pin.
- 12 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.
- 13 Remove the squeeze connector from the large platform height sensor bracket.
- 14 Remove the fasteners securing the large platform height sensor bracket to the number 1 inner arm pivot bracket.
- 15 Remove the large platform height sensor bracket from the number 1 inner arm pivot bracket.
- 16 Install the fasteners removed in 14 to the number 1 inner arm pivot bracket and chassis.
- 17 Connect the battery pack to the machine.
- 18 Turn the key switch to ground controls.
- 19 Press and hold the ground control scroll up and scroll down buttons.

Scissor Components

- 20 Pull out the red Emergency Stop button to the on position at the ground controls.
- 21 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 22 Raise the platform and rotate the safety arm to the stowed position.
- 23 Fully lower the platform to the stowed position.



Cable bridge and platform height sensor

- 1 cable bridge 3
- 2 cable bridge 2
- 3 cable bridge 1
- 4 platform height sensor

- 24 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
- 25 Remove the cables from the number 3 outer arm (index #11) at the ground controls side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 26 Remove the cables from the number 3 cable bridge and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 27 Attach a lifting strap from an overhead supporting device to the number 3 outer arm (index #11).
- 28 Remove the external snap rings and retaining fasteners from the number 3 center pivot pins (index #2).
- 29 Use a soft metal drift to remove the number 3 center pivot pins (index #2).
- 30 Remove the retaining fasteners from the number 3 pivot pin (index #12) at the non-steer end of the machine.
- 31 Use a soft metal drift to remove the number 3 pivot pin (index #12) from the non-steer end of the machine. Remove the number 3 outer arm (index #11) from the machine.

WARNING

Crushing hazard. The number 3 outer arm may become unbalanced and fall if not properly supported when removed from the machine.

- 32 Remove the number 3 cable bridge mounting fasteners and remove the cable bridge from the machine.
- 33 Attach a lifting strap from an overhead supporting device to the lug on the rod end of the lift cylinder for support. Do not apply any lifting pressure.

Scissor Components

- 34 Remove the pin retaining fasteners from the lift cylinder rod-end pivot pin (index #3). Use a soft metal drift to remove the pin.

CAUTION

Bodily injury hazard. The cylinder may fall when the rod-end pivot pin is removed if not properly supported.

- 35 Lower the cylinder onto the number 1 inner arm (index #8).

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 36 Attach a lifting strap from an overhead supporting device to the number 3 inner arm (index #10).
- 37 Remove the retaining fasteners from the number 3 pivot pin (index #4) at the steer end.
- 38 Use a soft metal drift to remove the number 3 pivot pin (index #4). Remove the number 3 inner arm (index #10) from the machine.

CAUTION

Bodily injury hazard. The number 3 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

- 39 Remove the cables from the number 2 cable bridge and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 40 Remove the external snap rings and retaining fasteners from the number 2 center pivot pin (index #5) at the ground controls side.
- 41 Remove the number 2 cable bridge mounting fasteners and remove the cable bridge from the machine.

- 42 Attach a lifting strap from an overhead supporting device to the number 2 outer arm (index #14) at the ground controls side.

- 43 Use a soft metal drift to remove the number 2 center pivot pin (index #5) at the ground controls side.

- 44 Remove the retaining fasteners from the number 2 pivot pin (index #15) at the non-steer end of the machine.

- 45 Use a soft metal drift to tap the number 2 pivot pin (index #15) halfway out at the non-steer end of the machine. Remove the number 2 outer arm (index #14) from the ground controls side of the machine.

CAUTION

Bodily injury hazard. The number 2 outer arm at the ground controls side may become unbalanced and fall if not properly supported when removed from the machine.

- 46 Attach a lifting strap from an overhead supporting device to the number 2 outer arm (index #14) at the battery pack side.

- 47 Remove the external snap rings and retaining fasteners from the number 2 center pivot pin (index #5) at the battery pack side.

- 48 Use a soft metal drift to remove the number 2 center pivot pin (index #5) at the battery pack side.

CAUTION

Bodily injury hazard. The number 2 outer arm at the battery pack side may become unbalanced and fall if not properly supported when removed from the machine.

Scissor Components

- 49 Use a soft metal drift to tap the number 2 pivot pin (index #15) in the other direction at the non-steer end. Remove the number 2 outer arm (index #14) from the battery pack side of the machine.

▲ CAUTION

Bodily injury hazard. The number 2 outer arm at the battery pack side may become unbalanced and fall if not properly supported when removed from the machine.

- 50 Attach a lifting strap from an overhead supporting device to the number 2 inner arm (index #13).
- 51 Remove the retaining fasteners from the number 2 pivot pin (index #6) at the steer end of the machine.
- 52 Use a soft metal drift to remove the number 2 pivot pin (index #6). Remove the number 2 inner arm (index #13) from the machine.

▲ CAUTION

Bodily injury hazard. The number 2 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

- 53 Remove the safety arm from the number 2 inner arm (index #13) that was just removed.
- 54 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #8).
- 55 Raise the number 1 inner arm (index #8) approximately 2 feet / 60 cm and install the safety arm between the number 1 inner arm (index #8) and the number 1 outer arm (index #17). Lower the scissor arms onto the safety arm.

▲ CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms onto the safety arm.

- 56 Attach a lifting strap from an overhead supporting device to the lug on the rod end of the lift cylinder (index #3). Raise the lift cylinder approximately 3 ft / 1 m.

- 57 Tag, disconnect and plug the hydraulic hoses on the lift cylinder. Cap the fittings on the cylinder.

▲ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 58 Tag and disconnect the wires and manual lowering cable from the solenoid valve on the cylinder.
- 59 Tag and disconnect the wire harness from the platform overload pressure transducer.
- 60 Raise the lift cylinder to a vertical position.
- 61 Remove the pin retaining fasteners from the lift cylinder barrel-end pin (index #16). Use a soft metal drift to remove the pin. Remove the lift cylinder from the machine.

▲ CAUTION

Crushing hazard. The lift cylinder will become unbalanced and fall if not properly supported and secured to the lifting device.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

Scissor Components

- 62 Place a 4 x 4 x 48 inch / 10 cm x 10 cm x 1.2 m long block across both sides of the chassis under the number 1 center pivot pin (index #7).

- 63 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #8) at the non-steer end. Raise the number 1 inner arm and remove the safety arm. Lower the number 1 inner arm (index #8) onto the block that was placed across the chassis.

CAUTION Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

- 64 Remove the cables from the number 1 cable bridge and lay them off to the side.

NOTICE Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 65 Support and secure the entry ladder to an appropriate lifting device.
- 66 Remove the fasteners from the entry ladder and remove the entry ladder from the machine.

CAUTION Crushing hazard. The entry ladder will fall if not properly supported and secured to the lifting device.

- 67 Attach a lifting strap from an overhead supporting device to the number 1 outer arm (index #17). Do not apply any lifting pressure.
- 68 Remove the external snap rings and retaining fasteners from the number 1 center pivot pins (index #7).
- 69 Remove the number 1 cable bridge from the machine.

- 70 Use a soft metal drift to remove the number 1 center pivot pins (index #7).

CAUTION Bodily injury hazard. The number 1 outer arm may become unbalanced and fall if not properly supported when the pin is removed.

- 71 Slide the number 1 outer arm (index #17) to the non-steer end and remove it from the machine.

CAUTION Bodily injury hazard. The number 1 outer arm may become unbalanced and fall if not properly supported when removed from the machine.

- 72 Attach the strap from an overhead supporting device to the number 1 inner arm (index #8). Do not lift it.

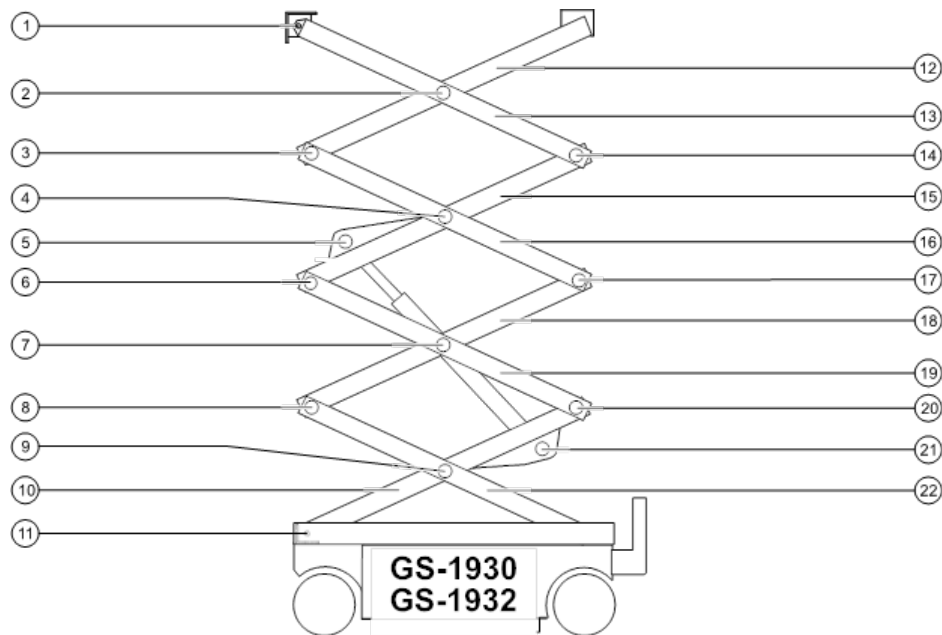
- 73 Remove the upper fasteners securing the number 1 inner arm pivot bracket to the end of the chassis. Loosen the lower fasteners.

- 74 Remove the number 1 inner arm (index #8) from the machine.

CAUTION Bodily injury hazard. The number 1 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

NOTICE Component damage hazard. Be sure not to damage the limit switch or level sensor components when the number 1 inner arm is removed from the machine.

Scissor Components



Steer End

Non-steer End

1 - Number 5 pivot pin	12 - Number 4 inner arm
2 - Number 4 center pivot pin (Qty. 2)	13 - Number 4 outer arm
3 - Number 4 pivot pin (steer end)	14 - Number 4 pivot pin (non-steer end)
4 - Number 3 center pivot pin (Qty. 2)	15 - Number 3 inner arm
5 - Lower lift cylinder rod-end pivot pin	16 - Number 3 outer arm
6 - Number 3 pivot pin (steer end)	17 - Number 3 pivot pin (non-steer end)
7 - Number 2 center pivot pin (Qty. 2)	18 - Number 2 inner arm
8 - Number 2 pivot pin (steer end)	19 - Number 2 outer arm
9 - Number 1 center pivot pin (Qty. 2)	20 - Number 2 pivot pin (non-steer end)
10 - Number 1 inner arm	21 - Lower lift cylinder barrel-end pivot pin
11 - Number 1 pivot pin	22 - Number 1 outer arm

Scissor Components

9-4

Scissor Assembly - GS-1930, GS-1932, GS-1932 XH

How to Disassemble the Scissor Assembly

▲ WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

Note: After replacing the scissor assembly, the platform overload system must be calibrated. Refer to Repair Procedure, *How to Calibrate the Platform Overload System*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 4 Lower the platform onto the safety arm.

▲ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 6 Disconnect the battery pack from the machine.

▲ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Remove the fasteners securing the large platform height sensor cover to the large platform height sensor bracket.
- 8 Remove the platform height sensor cover.
- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 10 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 11 Remove the platform height sensor assembly from the number 1 pivot pin.
- 12 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.
- 13 Remove the squeeze connector from the large platform height sensor bracket.
- 14 Remove the fasteners securing the large platform height sensor bracket to the number 1 inner arm pivot bracket.
- 15 Remove the large platform height sensor bracket from the number 1 inner arm pivot bracket.

Scissor Components

- 16 Install the fasteners removed in 14 to the number 1 inner arm pivot bracket and chassis.

⚠ DANGER

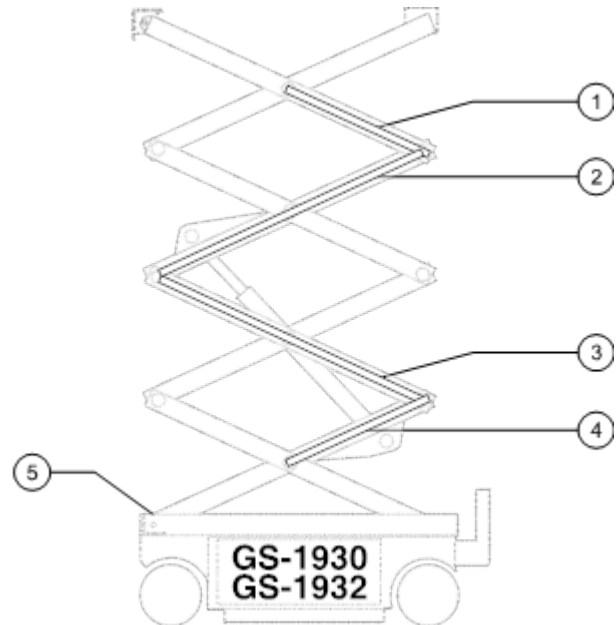
Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 17 Connect the battery pack to the machine.
 18 Turn the key switch to ground controls.
 19 Press and hold the ground control scroll up and scroll down buttons.
 20 Pull out the red Emergency Stop button to the on position at the ground controls.
 21 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 22 Raise the platform and rotate the safety arm to the stowed position.

- 23 Fully lower the platform to the stowed position.



Cable bridge and platform height sensor

- 1 cable bridge 4
- 2 cable bridge 3
- 3 cable bridge 2
- 4 cable bridge 1
- 5 platform height sensor

- 24 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
 25 Remove the cables from the number 4 outer arm (index #13) at the ground controls side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 26 Remove the cables from the number 4 cable bridge and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

Scissor Components

- 27 Attach a lifting strap from an overhead supporting device to the number 4 outer arm (index #13).
- 28 Remove the external snap rings and retaining fasteners from the number 4 center pivot pins (index #2).
- 29 Use a soft metal drift to remove the number 4 center pivot pins (index #2).
- 30 Remove the retaining fasteners from the number 4 pivot pin (index #14) at the non-steer end of the machine.
- 31 Use a soft metal drift to remove the number 4 pivot pin (index #14) from the non-steer end of the machine. Remove the number 4 outer arm (index #13) from the machine.

▲ WARNING Crushing hazard. The number 4 outer arm may become unbalanced and fall if not properly supported when removed from the machine.

- 32 Remove the number 4 cable bridge mounting fasteners and remove the cable bridge from the machine.
- 33 Attach a lifting strap from an overhead supporting device to the number 4 inner arm (index #12).
- 34 Remove the retaining fasteners from the number 4 pivot pin (index #3).
- 35 Use a soft metal drift to remove the number 4 pivot pin (index #3) at the steer end. Remove the number 4 inner arm (index #12) from the machine.

▲ CAUTION Crushing hazard. The number 4 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

- 36 Remove the cables from the number 3 cable bridge and lay them off to the side.

NOTICE Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 37 Remove the number 3 cable bridge mounting fasteners and remove the cable bridge from the machine.
- 38 Attach a lifting strap from an overhead supporting device to the number 3 outer arm (index #4) at the ground controls side.
- 39 Remove the external snap rings and retaining fasteners from the number 3 center pivot pins (index #4).
- 40 Use a soft metal drift to remove the number 3 center pivot pin (index #4) at the ground control side.
- 41 Remove the retaining fasteners from the number 3 pivot pin (index #17) at the non-steer end of the machine.
- 42 Use a soft metal drift to tap the number 3 pivot pin (index #17) halfway out at the non-steer end of the machine. Remove the number 3 outer arm (index #16) at the ground controls side from the machine.

▲ CAUTION Bodily injury hazard. The number 3 outer arm at the ground controls side may become unbalanced and fall if not properly supported when removed from the machine.

- 43 Attach a lifting strap from an overhead supporting device to the number 3 outer arm (index #16) at the battery pack side.
- 44 Use a soft metal drift to remove the number 3 center pivot pin (index #4) at the battery pack side of the machine.

Scissor Components

- 45 Use a soft metal drift to tap the number 3 pivot pin (index #17) in the other direction. Remove the number 3 outer arm (index #16) from the battery pack side of the machine.

CAUTION Bodily injury hazard. The number 3 outer arm at the battery pack side may become unbalanced and fall if not properly supported when removed from the machine.

- 46 Remove the number 3 pivot pin (index #17) from the non-steer end of the machine.
- 47 Attach a lifting strap from an overhead supporting device to the lug on the rod end of the lift cylinder for support. Do not apply any lifting pressure.
- 48 Remove the pin retaining fasteners from the lift cylinder rod-end pivot pin (index #5). Use a soft metal drift to remove the pin.

CAUTION Bodily injury hazard. The cylinder may fall when the rod-end pivot pin is removed if not properly supported.

- 49 Lower the cylinder onto the number 1 inner arm (index #9).

NOTICE Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 50 Attach a lifting strap from an overhead supporting device to the number 3 inner arm (index #15).
- 51 Remove the retaining fasteners from the number 3 pivot pin (index #6) at the steer end.

- 52 Use a soft metal drift to remove the number 3 pivot pin (index #6). Remove the number 3 inner arm (index #15) from the machine.

CAUTION Bodily injury hazard. The number 3 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

- 53 Remove the cables from the number 2 cable bridge and lay them off to the side.

NOTICE Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 54 Remove the external snap rings and retaining fasteners from the number 2 center pivot pin (index #7) at the ground controls side.
- 55 Remove the number 2 cable bridge mounting fasteners and remove the cable bridge from the machine.
- 56 Attach a lifting strap from an overhead supporting device to the number 2 outer arm (index #19) at the ground controls side.
- 57 Use a soft metal drift to remove the number 2 center pivot pin (index #7) at the ground controls side.
- 58 Remove the retaining fasteners from the number 2 pivot pin (index #20) at the non-steer end of the machine.
- 59 Use a soft metal drift to tap the number 2 pivot pin (index #20) halfway out at the non-steer end of the machine. Remove the number 2 outer arm (index #19) from the ground controls side of the machine.

CAUTION Bodily injury hazard. The number 2 outer arm at the ground controls side may become unbalanced and fall if not properly supported when removed from the machine.

Scissor Components

- 60 Attach a lifting strap from an overhead supporting device to the number 2 outer arm (index #19) at the battery pack side.

- 61 Remove the external snap rings and retaining fasteners from the number 2 center pivot pin (index #7) at the battery pack side.

- 62 Use a soft metal drift to remove the number 2 center pivot pin (index #7) at the battery pack side.

CAUTION

Bodily injury hazard. The number 2 outer arm at the battery pack side may become unbalanced and fall if not properly supported when removed from the machine.

- 63 Use a soft metal drift to tap the number 2 pivot pin (index #20) in the other direction at the non-steer end. Remove the number 2 outer arm (index #19) from the battery pack side of the machine.

CAUTION

Bodily injury hazard. The number 2 outer arm at the battery pack side may become unbalanced and fall if not properly supported when removed from the machine.

- 64 Remove the number 3 pivot pin (index #17) from the non-steer end of the machine.

- 65 Attach a lifting strap from an overhead supporting device to the number 2 inner arm (index #18).

- 66 Remove the retaining fasteners from the number 2 pivot pin (index #8) at the steer end of the machine.

- 67 Use a soft metal drift to remove the number 2 pivot pin (index #8). Remove the number 2 inner arm (index #18) from the machine.

CAUTION

Bodily injury hazard. The number 2 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

- 68 Remove the safety arm from the number 2 inner arm (index #18) that was just removed.

- 69 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #10).

- 70 Raise the number 1 inner arm (index #10) approximately 2 feet / 60 cm and install the safety arm between the number 1 inner arm (index #10) and the number 1 outer arm (index #22) at the non-steer end of the machine. Lower the scissor arms onto the safety arm.

CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms onto the safety arm.

- 71 Attach a lifting strap from an overhead supporting device to the lug on the rod end of the lift cylinder (index #5). Raise the lift cylinder approximately 3 ft / 1 m.

- 72 Tag, disconnect and plug the hydraulic hoses on the lift cylinder. Cap the fittings on the cylinder.

WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

Scissor Components

- 73 Tag and disconnect the wires and manual lowering cable from the solenoid valve on the cylinder.
- 74 Tag and disconnect the wire harness from the platform overload pressure transducer.
- 75 Raise the lift cylinder to a vertical position.
- 76 Remove the pin retaining fasteners from the lift cylinder barrel-end pin (index #21). Use a soft metal drift to remove the pin. Remove the lift cylinder from the machine.

CAUTION

Crushing hazard. The lift cylinder will become unbalanced and fall if not properly supported and secured to the lifting device.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

- 77 Place a 4 x 4 x 48 inch / 10 cm x 10 cm x 1.2 m long block across both sides of the chassis under the number 1 center pivot pin (index #11).
- 78 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #10) at the non-steer end. Raise the number 1 inner arm and remove the safety arm. Lower the number 1 inner arm (index #10) onto the block that was placed across the chassis.

CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

- 79 Remove the cables from the number 1 cable bridge and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 80 Support and secure the entry ladder to an appropriate lifting device.
- 81 Remove the fasteners from the entry ladder and remove the entry ladder from the machine.

CAUTION

Crushing hazard. The entry ladder will fall if not properly supported and secured to the lifting device.

- 82 Attach a lifting strap from an overhead supporting device to the number 1 outer arm (index #22). Do not apply any lifting pressure.
- 83 Remove the external snap rings and retaining fasteners from the number 1 center pivot pins (index #11).
- 84 Remove the number 1 cable bridge from the machine.
- 85 Use a soft metal drift to remove the number 1 center pivot pins (index #9).

CAUTION

Bodily injury hazard. The number 1 outer arm may become unbalanced and fall if not properly supported when the pin is removed.

- 86 Slide the number 1 outer arm (index #22) to the non-steer end and remove it from the machine.

CAUTION

Bodily injury hazard. The number 1 outer arm may become unbalanced and fall if not properly supported when removed from the machine.

Scissor Components

- 87 Attach the strap from an overhead supporting device to the number 1 inner arm (index #10). Do not lift it.
- 88 Remove the upper fasteners securing the number 1 inner arm pivot bracket to the end of the chassis. Loosen the lower fasteners.
- 89 Remove the number 1 inner arm (index #10) from the machine.

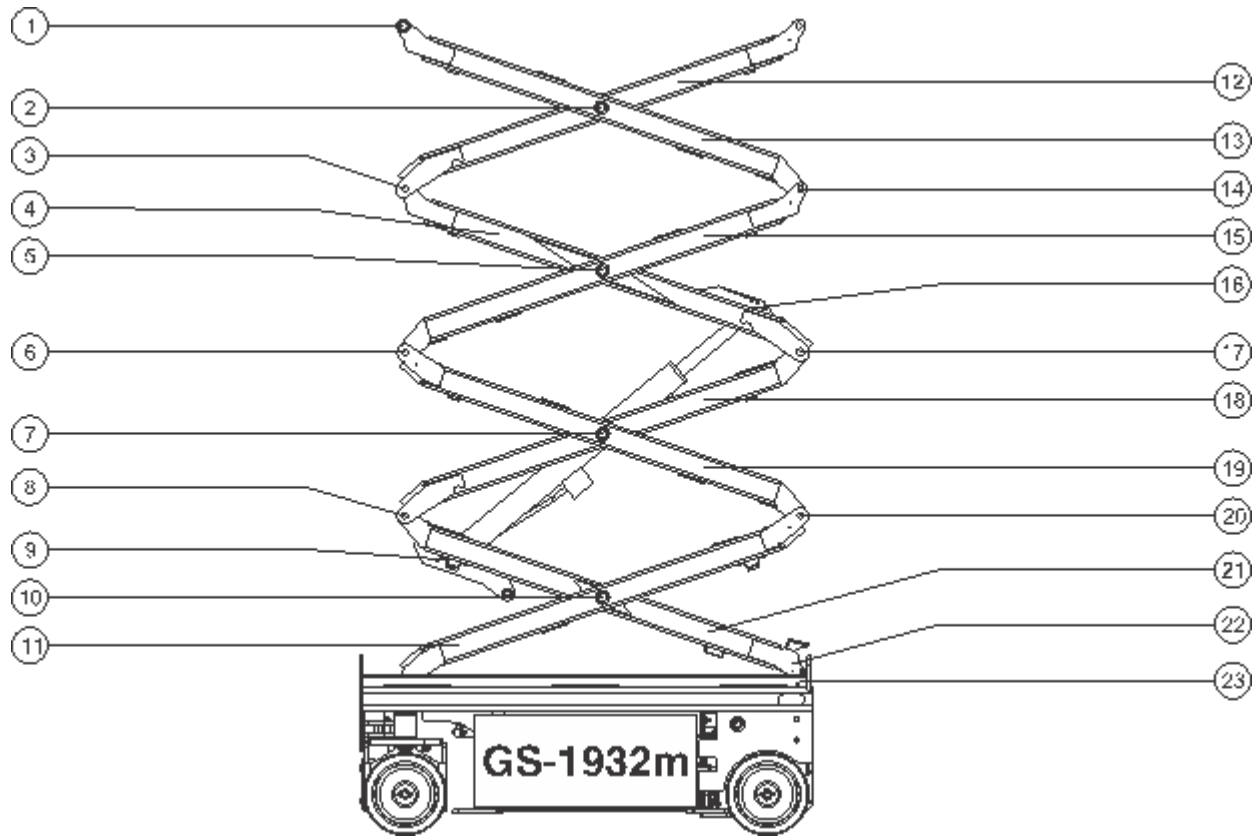
⚠ CAUTION

Bodily injury hazard. The number 1 inner arm may become unbalanced and fall if not properly supported when removed from the machine.

NOTICE

Component damage hazard. Be sure not to damage the limit switch or level sensor components when the number 1 inner arm is removed from the machine.

Scissor Components



Steer End

- 1 - Number 4 pivot pin
- 2 - Number 4 center pivot pin (Qty. 2)
- 3 - Number 3 pivot pin (steer end)
- 4 - Number 3 inner arm
- 5 - Number 3 center pivot pin (Qty. 2)
- 6 - Number 2 pivot pin (steer end)
- 7 - Number 2 center pivot pin (Qty. 2)
- 8 - Number 1 pivot pin (steer end)
- 9 - Lift cylinder barrel-end pivot pin
- 10 - Number 1 center pivot pin (Qty. 2)
- 11 - Number 1 outer arm

Non-steer End

- 12 - Number 4 inner arm
- 13 - Number 4 outer arm
- 14 - Number 3 pivot pin (non-steer end)
- 15 - Number 3 outer arm
- 16 - Lift cylinder rod-end pivot pin
- 17 - Number 2 pivot pin (non-steer end)
- 18 - Number 2 inner arm
- 19 - Number 2 outer arm
- 20 - Number 1 pivot pin (non-steer end)
- 21 - Number 1 inner arm
- 22 - platform height sensor
- 23 - Number 1 pivot pin



Scissor Components

9-5

Scissor Assembly - GS-1932m, GS-1932m Lite, GS-1932m XH

How to Disassemble the Scissor Assembly

⚠ WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Raise the safety arm from the drive chassis to a vertical position.
- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 6 Remove all cable ties securing the cable from the ground controls to the platform.

- 7 Remove the retaining fasteners and plates securing the lift cylinder barrel and rod end pivot pins.
- 8 Raise the platform slightly and return the safety arm to the stowed position.
- 9 Lower the platform to the stowed position.
- 10 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
- 11 Remove the cables from the number 4 inner arm.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 12 Support the number 4 inner and outer arms with an overhead supporting device.
- 13 Remove the pivot pins securing the number 4 arm assembly to the scissor stack. Remove the arm assembly.

⚠ WARNING

Crushing hazard. The linkage assembly could become unbalanced and fall if not properly supported when removed from the machine.

- 14 Remove the cables from the number 3 inner arm.
- 15 Attach a lifting strap from an overhead supporting device to the rod-end of the lift cylinder.
- 16 Using a soft metal drift, remove the rod end pivot pin and set aside.
- 17 Lower the lift cylinder and remove the strap.
- 18 Support the number 3 inner and outer arms with an overhead supporting device.
- 19 Remove the pivot pins securing the number 3 arm assembly to the scissor stack. Remove the arm assembly.
- 20 Remove the cables from the number 2 inner arm.
- 21 Support the number 2 inner and outer arms with an overhead supporting device.

Scissor Components

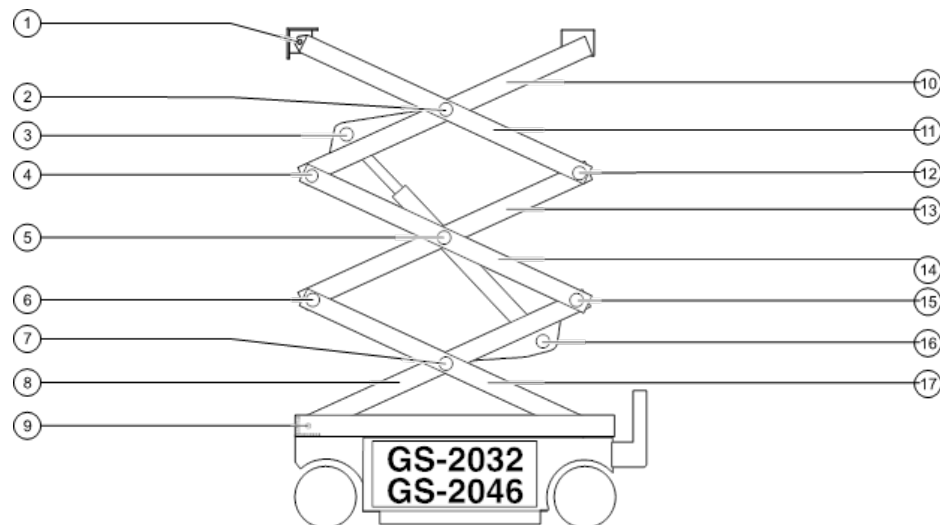
- 22 Remove the pivot pins securing the number 2 arm assembly to the scissor stack. Remove the arm assembly.
- 23 Tag, disconnect and plug the hydraulic hoses from the lift cylinder. Cap the fittings on the cylinder.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 24 Remove the cables from the lift cylinder and number 1 inner arm.
- 25 Remove the fasteners securing the platform height sensor cover to the chassis.
- 26 Remove the platform height sensor cover.
- 27 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 28 Remove the fasteners securing the platform height sensor short arm cover to the number 1 inner arm.
- 29 Remove the fasteners securing the platform height sensor to the chassis. Remove the sensor.
- 30 Support the number 1 inner and outer arms and lift cylinder with an overhead supporting device.
- 31 Remove the pivot pins securing the number 1 arm assembly to the chassis and slider blocks. Remove the arm assembly with the lift cylinder.

Scissor Components



Steer End

Non-steer End

- | | |
|--|---|
| 1 - Number 4 pivot pin | 10 - Number 3 inner arm |
| 2 - Number 3 center pivot pin (Qty. 2) | 11 - Number 3 outer arm |
| 3 - Lift cylinder rod-end pivot pin | 12 - Number 3 pivot pin (non-steer end) |
| 4 - Number 3 pivot pin (steer end) | 13 - Number 2 inner arm |
| 5 - Number 2 center pivot pin (Qty. 2) | 14 - Number 2 outer arm |
| 6 - Number 2 pivot pin (steer end) | 15 - Number 2 pivot pin (non-steer end) |
| 7 - Number 1 center pivot pin (Qty. 2) | 16 - Lift cylinder barrel-end pivot pin |
| 8 - Number 1 inner arm | 17 - Number 1 outer arm |
| 9 - Number 1 pivot pin | |

Scissor Components

9-6

Scissor Assembly - GS-2032, GS-2046

How to Disassemble the Scissor Assembly

⚠ WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

Note: After replacing the scissor assembly, the platform overload system must be calibrated. Refer to Repair Procedure, *How to Calibrate the Platform Overload System*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.

- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 6 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Remove the fasteners securing the large platform height sensor cover to the large platform height sensor bracket.
- 8 Remove the platform height sensor cover.
- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 10 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 11 Remove the platform height sensor assembly from the number 1 pivot pin.
- 12 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.
- 13 Remove the squeeze connector from the large platform height sensor bracket.
- 14 Remove the fasteners securing the large platform height sensor bracket to the number 1 inner arm pivot bracket.

Scissor Components

- 15 Remove the large platform height sensor bracket from the number 1 inner arm pivot bracket.

- 16 Install the fasteners removed in 14 to the number 1 inner arm pivot bracket and chassis.

⚠ DANGER

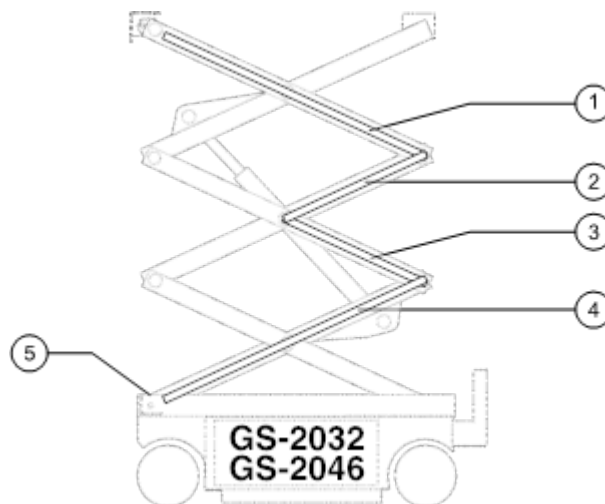
Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 17 Connect the battery pack to the machine.
 18 Turn the key switch to ground controls.
 19 Press and hold the ground control scroll up and scroll down buttons.
 20 Pull out the red Emergency Stop button to the on position at the ground controls.
 21 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 22 Raise the platform and rotate the safety arm to the stowed position.

- 23 Fully lower the platform to the stowed position.



Cable bridge and platform height sensor

- 1 cable bridge 3
- 2 cable bridge 2A
- 3 cable bridge 2B
- 4 cable bridge 1
- 5 platform height sensor

Scissor Components

- 24 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
- 25 Support and secure the entry ladder to an appropriate lifting device.
- 26 Remove the fasteners from the entry ladder and remove the entry ladder from the machine.

CAUTION

Crushing hazard. The entry ladder will fall if not properly supported and secured to the lifting device.

- 27 Remove the cables from the number 3 cable bridge and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 28 Disconnect the number 3 cable bridge from the number 3 outer arm (index #11) and remove the cable bridge from the machine.
- 29 Remove the retaining fasteners from the number 4 pivot pin (index #1).
- 30 Use a soft metal drift to remove the number 4 pivot pin (index #1). Remove the platform mount bracket from the machine.
- 31 Attach a lifting strap from an overhead supporting device to the number 3 outer arm at the ground control side (index #11).
- 32 Remove the retaining fasteners from the number 3 center pivot pin (index #2) at the ground control side.
- 33 Place a rod through the number 3 center pivot pin at the ground control side (index #2) and twist to remove the pin.
- 34 Remove the retaining fasteners from the number 3 pivot pin (index #12) at the non-steer end.

- 35 Use a soft metal drift to remove the number 3 pivot pin (index #12) from the non-steer end of the machine. Remove the number 3 outer arm at the ground control side (index #11) from the machine.

CAUTION

Crushing hazard. The number 3 outer arm at the ground control side (index #11) may become unbalanced and fall if not properly supported when removed from the machine.

- 36 Attach a lifting strap from an overhead supporting device to the number 3 outer arm at the battery side (index #11).
- 37 Remove the retaining fasteners from the number 3 center pivot pin (index #2) at the battery side.
- 38 Place a rod through the number 3 center pivot pin at the battery side (index #2) and twist to remove the pin.
- 39 Remove the number 3 outer arm (index #11) from the machine.

CAUTION

Crushing hazard. The number 3 outer arm (index #11) may become unbalanced and fall if not properly supported when removed from the machine.

- 40 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the lift cylinder.
- 41 Remove the retaining fasteners from the lift cylinder rod end pivot pin (index #3).
- 42 Use a soft metal drift to remove the lift cylinder rod end pivot pin (index #3) from the machine.

CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

Scissor Components

- 43 Place a 4 x 4 x 10 inch / 10 x 10 x 25 cm block onto the number 1 inner arm cylinder plate (index #8).

- 44 Lower the cylinder onto the block.

CAUTION Bodily injury hazard. Keep hands clear of moving parts when lowering the cylinder.

- 45 Attach a lifting strap from an overhead supporting device to the number 3 inner arm (index #10). Raise the arm to a vertical position.
- 46 Remove the retaining fasteners from the number 3 pivot pin at the steer end of the machine (index #4).
- 47 Use a soft metal drift to remove the number 3 pivot pin (index #4) from the steer end of the machine. Remove the number 3 inner arm (index #10) from the machine.

CAUTION Crushing hazard. The number 3 inner arm (index #10) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 48 Remove the cables from the number 2A and 2B cable bridges and lay them off to the side.

NOTICE Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 49 Disconnect the number 2A and 2B cable bridges from the scissor linkset and remove both cable bridges from the machine.
- 50 Attach a lifting strap from an overhead supporting device to the number 2 outer arm at the ground control side (index #14).
- 51 Remove the retaining fasteners from the number 2 center pivot pin (index #5) at the ground control side.

- 52 Place a rod through the number 2 center pivot pin at the ground control side (index #5) and twist to remove the pin.

- 53 Remove the retaining fasteners from the number 2 pivot pin (index #15) at the non-steer end.

- 54 Use a soft metal drift to remove the number 2 pivot pin (index #15) from the non-steer end of the machine. Remove the number 2 outer arm at the ground control side (index #14) from the machine.

CAUTION The number 2 outer arm at the ground control side (index #14) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 55 Attach a lifting strap from an overhead supporting device to the number 2 outer arm at the battery side (index #14).

- 56 Remove the retaining fasteners from the number 2 center pivot pin (index #5) at the battery side.

- 57 Place a rod through the number 2 center pivot pin at the battery side (index #5) and twist to remove the pin.

CAUTION Crushing hazard. The number 2 outer arm (index #14) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 58 Remove the number 2 outer arm (index #14) from the machine.

CAUTION Crushing hazard. The number 2 outer arm (index #14) may become unbalanced and fall if not properly supported when removed from the machine.

Scissor Components

- 59 Attach a lifting strap from an overhead supporting device to the number 2 inner arm (index #13). Raise the arm to a vertical position.
- 60 Remove the retaining fasteners from the number 2 pivot pin at the steer end of the machine (index #6).
- 61 Use a soft metal drift to remove the number 2 pivot pin (index #6) from the steer end of the machine. Remove the number 2 inner arm (index #13) from the machine.

CAUTION

Crushing hazard. The number 2 inner arm (index #13) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 62 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #8).
- 63 Raise the number 1 inner arm (index #8) approximately 2 feet / 60 cm.
- 64 Place a 4 x 4 x 48 inch / 10 cm x 10 cm x 1.2 m long block across both sides of the chassis under the number 1 center pivot pin (index #7).
- 65 Lower the scissor arms onto the block that was placed across the chassis.

CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

- 66 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the lower lift cylinder.

- 67 Tag, disconnect and plug the hydraulic hose on the lower lift cylinder. Cap the fittings on the cylinder.

WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 68 Tag and disconnect the wire harness from the solenoid valve on the cylinder.
- 69 Tag and disconnect the wires and manual lowering cable from the solenoid valve on the cylinder.
- 70 Tag and disconnect the wire harness from the platform overload pressure transducer.
- 71 Raise the lift cylinder to a vertical position.
- 72 Remove the pin retaining fasteners from the lift cylinder barrel-end pin (index #16). Use a soft metal drift to remove the pin. Remove the lift cylinder from the machine.

CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

Scissor Components

- 73 Remove the cables from the number 1 cable bridge and lay them off to the side.

NOTICE Component damage hazard.
Cables can be damaged if they are kinked or pinched.

- 74 Disconnect the number 1 cable bridge from the number 1 outer arm (index #17) and remove the cable bridge from the machine.
- 75 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #8).
- 76 Raise the arm slightly and remove the block.
- 77 Lower the arm to the stowed position.

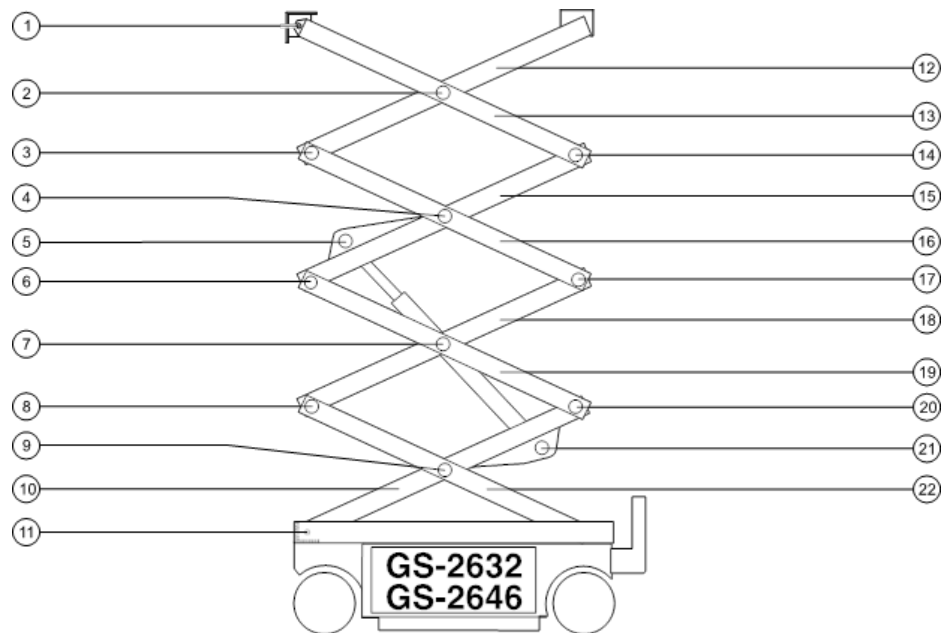
CAUTION Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

- 78 Secure the ends of the scissor arms together at the steer end of the machine with a strap or other suitable device.
- 79 Secure the ends of the scissor arms together at the non-steer end of the machine with a strap or other suitable device.
- 80 Remove the retaining fasteners securing the chassis mount bracket to the chassis.
- 81 Remove the linkset from the machine

CAUTION Bodily injury hazard. The number 1 inner and outer arms (index #8 and #17) may become unbalanced and fall if not properly supported when removed from the machine.

NOTICE Component damage hazard. Be sure not to damage the limit switch or level sensor components when the number 1 inner and outer arms (index #8 and #17) are removed from the machine.

Scissor Components



Steer End

- 1 - Number 5 pivot pin
- 2 - Number 4 center pivot pin (Qty. 2)
- 3 - Number 4 pivot pin (steer end)
- 4 - Number 3 center pivot pin (Qty. 2)
- 5 - Lift cylinder rod-end pivot pin
- 6 - Number 3 pivot pin (steer end)
- 7 - Number 2 center pivot pin (Qty. 2)
- 8 - Number 2 pivot pin (steer end)
- 9 - Number 1 center pivot pin (Qty. 2)
- 10 - Number 1 inner arm
- 11 - Number 1 pivot pin

Non-steer End

- 12 - Number 4 inner arm
- 13 - Number 4 outer arm
- 14 - Number 4 pivot pin (non-steer end)
- 15 - Number 3 inner arm
- 16 - Number 3 outer arm
- 17 - Number 3 pivot pin (non-steer end)
- 18 - Number 2 inner arm
- 19 - Number 2 outer arm
- 20 - Number 2 pivot pin (non-steer end)
- 21 - Lift cylinder barrel-end pivot pin
- 22 - Number 1 outer arm

Scissor Components

9-7

Scissor Assembly - GS-2632, GS-2646, GS-2646 XH

How to Disassemble the Scissor Assembly

⚠ WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

Note: After replacing the scissor assembly, the platform overload system must be calibrated. Refer to Repair Procedure, *How to Calibrate the Platform Overload System*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.

- 6 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Remove the fasteners securing the large platform height sensor cover to the large platform height sensor bracket.
- 8 Remove the platform height sensor cover.
- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 10 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 11 Remove the platform height sensor assembly from the number 1 pivot pin.
- 12 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.
- 13 Remove the squeeze connector from the large platform height sensor bracket.
- 14 Remove the fasteners securing the large platform height sensor bracket to the number 1 inner arm pivot bracket.
- 15 Remove the large platform height sensor bracket from the number 1 inner arm pivot bracket.

Scissor Components

- 16 Install the fasteners removed in 14 to the number 1 inner arm pivot bracket and chassis.

⚠ DANGER

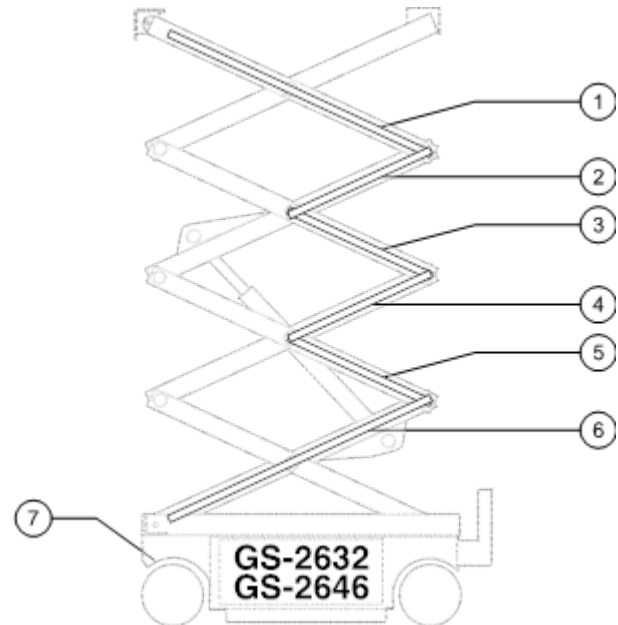
Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 17 Connect the battery pack to the machine.
 18 Turn the key switch to ground controls.
 19 Press and hold the ground control scroll up and scroll down buttons.
 20 Pull out the red Emergency Stop button to the on position at the ground controls.
 21 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 22 Raise the platform and rotate the safety arm to the stowed position.

- 23 Fully lower the platform to the stowed position.



Cable bridge and platform height sensor

- 1 cable bridge 4
- 2 cable bridge 3A
- 3 cable bridge 3B
- 4 cable bridge 2A
- 5 cable bridge 2B
- 6 cable bridge 1
- 7 platform height sensor

- 24 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
 25 Support and secure the entry ladder to an appropriate lifting device.
 26 Remove the fasteners from the entry ladder and remove the entry ladder from the machine.

⚠ CAUTION

Crushing hazard. The entry ladder will fall if not properly supported and secured to the lifting device.

Scissor Components

- 27 Remove the cables from the number 4 cable bridge and lay them off to the side.

NOTICE Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 28 Disconnect the number 4 cable bridge from the number 4 outer arm (index #13) and remove the cable bridge from the machine.
- 29 Remove the retaining fasteners from the number 5 pivot pin (index #1).
- 30 Use a soft metal drift to remove the number 5 pivot pin (index #1). Remove the platform mount bracket from the machine.
- 31 Attach a lifting strap from an overhead supporting device to the number 4 outer arm at the ground control side (index #13).
- 32 Remove the retaining fasteners from the number 4 center pivot pin (index #2) at the ground control side.
- 33 Place a rod through the number 4 center pivot pin at the ground control side (index #2) and twist to remove the pin.
- 34 Remove the retaining fasteners from the number 4 pivot pin (index #15) at the non-steer end.
- 35 Use a soft metal drift to remove the number 4 pivot pin (index #14) from the non-steer end of the machine. Remove the number 4 outer arm at the ground control side (index #13) from the machine.

CAUTION Crushing hazard. The number 4 outer arm at the ground control side (index #13) may become unbalanced and fall if not properly supported when removed from the machine.

- 36 Attach a lifting strap from an overhead supporting device to the number 4 outer arm at the battery side (index #13).

- 37 Remove the retaining fasteners from the number 4 center pivot pin (index #2) at the battery side.
- 38 Place a rod through the number 4 center pivot pin at the battery side (index #2) and twist to remove the pin.
- 39 Remove the number 4 outer arm (index #13) from the machine.

CAUTION Crushing hazard. The number 4 outer arm (index #13) may become unbalanced and fall if not properly supported when removed from the machine.

- 40 Attach a lifting strap from an overhead supporting device to the number 4 inner arm (index #12). Raise the arm to a vertical position.
- 41 Remove the retaining fasteners from the number 4 pivot pin at the steer end of the machine (index #3).
- 42 Use a soft metal drift to remove the number 4 pivot pin (index #3) from the steer end of the machine. Remove the number 4 inner arm (index #12) from the machine.

CAUTION Crushing hazard. The number 4 inner arm (index #12) may become unbalanced and fall if not properly supported when removed from the machine.

- 43 Remove the cables from the number 3A and 3B cable bridge and lay them off to the side.

NOTICE Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 44 Disconnect the number 3A and 3B cable bridges from the scissor linkset and remove both cable bridges from the machine.
- 45 Attach a lifting strap from an overhead supporting device to the number 3 outer arm at the ground control side (index #16).

Scissor Components

- 46 Remove the retaining fasteners from the number 3 center pivot pin (index #4) at the ground control side.
- 47 Place a rod through the number 3 center pivot pin at the ground control side (index #4) and twist to remove the pin.
- 48 Remove the retaining fasteners from the number 3 pivot pin (index #17) at the non-steer end.
- 49 Use a soft metal drift to remove the number 3 pivot pin (index #17) from the non-steer end of the machine. Remove the number 3 outer arm at the ground control side (index #16) from the machine.

▲ CAUTION

Crushing hazard. The number 3 outer arm at the ground control side (index #16) may become unbalanced and fall if not properly supported when removed from the machine.

- 50 Attach a lifting strap from an overhead supporting device to the number 3 outer arm at the battery side (index #16).
- 51 Remove the retaining fasteners from the number 3 center pivot pin (index #4) at the battery side.
- 52 Place a rod through the number 3 center pivot pin at the battery side (index #4) and twist to remove the pin.
- 53 Remove the number 3 outer arm (index #16) from the machine.

▲ CAUTION

Crushing hazard. The number 3 outer arm (index #16) may become unbalanced and fall if not properly supported when removed from the machine.

- 54 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the lift cylinder.

- 55 Remove the retaining fasteners from the lift cylinder rod end pivot pin (index #5).
- 56 Use a soft metal drift to remove the lift cylinder rod end pivot pin (index #5) from the machine.

▲ CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 57 Place a 4 x 4 x 10 inch / 10 x 10 x 25 cm block onto the number 1 inner arm cylinder plate (index #10).
- 58 Lower the cylinder onto the block.

▲ CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the cylinder.

- 59 Attach a lifting strap from an overhead supporting device to the number 3 inner arm (index #15). Raise the arm to a vertical position.
- 60 Remove the retaining fasteners from the number 3 pivot pin at the steer end of the machine (index #6).
- 61 Use a soft metal drift to remove the number 3 pivot pin (index #6) from the steer end of the machine. Remove the number 3 inner arm (index #15) from the machine.

▲ CAUTION

Crushing hazard. The number 3 inner arm (index #15) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 62 Remove the cables from the number 2A and 2B cable bridge and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 63 Disconnect the number 2A and 2B cable bridges from the scissor linkset and remove both cable bridges from the machine.

Scissor Components

- 64 Attach a lifting strap from an overhead supporting device to the number 2 outer arm at the ground control side (index #19).
- 65 Remove the retaining fasteners from the number 2 center pivot pin (index #7) at the ground control side.
- 66 Place a rod through the number 2 center pivot pin at the ground control side (index #7) and twist to remove the pin.
- 67 Remove the retaining fasteners from the number 2 pivot pin (index #20) at the non-steer end.
- 68 Use a soft metal drift to remove the number 2 pivot pin (index #20) from the non-steer end of the machine. Remove the number 2 outer arm at the ground control side (index #19) from the machine.

▲ CAUTION

The number 2 outer arm at the ground control side (index #19) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 69 Attach a lifting strap from an overhead supporting device to the number 2 outer arm at the battery side (index #19).
- 70 Remove the retaining fasteners from the number 2 center pivot pin (index #7) at the battery side.
- 71 Place a rod through the number 2 center pivot pin at the battery side (index #7) and twist to remove the pin.

▲ CAUTION

Crushing hazard. The number 2 outer arm (index #19) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 72 Remove the number 2 outer arm (index #19) from the machine.

▲ CAUTION

Crushing hazard. The number 2 outer arm (index #19) may become unbalanced and fall if not properly supported when removed from the machine.

- 73 Attach a lifting strap from an overhead supporting device to the number 2 inner arm (index #18). Raise the arm to a vertical position.
- 74 Remove the retaining fasteners from the number 2 pivot pin at the steer end of the machine (index #8).
- 75 Use a soft metal drift to remove the number 2 pivot pin (index #8) from the steer end of the machine. Remove the number 2 inner arm (index #18) from the machine.

▲ CAUTION

Crushing hazard. The number 2 inner arm (index #18) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 76 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #10).
- 77 Raise the number 1 inner arm (index #10) approximately 2 feet / 60 cm.
- 78 Place a 4 x 4 x 48 inch / 10 cm x 10 cm x 1.2 m long block across both sides of the chassis under the number 1 center pivot pin (index #9).
- 79 Lower the scissor arms onto the block that was placed across the chassis.

▲ CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

- 80 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the lower lift cylinder.

Scissor Components

- 81 Tag, disconnect and plug the hydraulic hose on the lower lift cylinder. Cap the fittings on the cylinder.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 82 Tag and disconnect the wire harness from the solenoid valve on the cylinder.
- 83 Tag and disconnect the wires and manual lowering cable from the solenoid valve on the cylinder.
- 84 Tag and disconnect the wire harness from the platform overload pressure transducer.
- 85 Raise the lift cylinder to a vertical position.
- 86 Remove the pin retaining fasteners from the lift cylinder barrel-end pin (index #21). Use a soft metal drift to remove the pin. Remove the lift cylinder from the machine.

⚠ CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

- 87 Remove the cables from the number 1 cable bridge and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 88 Disconnect the number 1 cable bridge from the number 1 outer arm (index #22) and remove the cable bridge from the machine.
- 89 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #10).
- 90 Raise the arm slightly and remove the block.
- 91 Lower the arm to the stowed position.

⚠ CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

- 92 Secure the ends of the scissor arms together at the steer end of the machine with a strap or other suitable device.
- 93 Secure the ends of the scissor arms together at the non-steer end of the machine with a strap or other suitable device.
- 94 Remove the retaining fasteners securing the chassis mount bracket to the chassis.
- 95 Remove the linkset from the machine

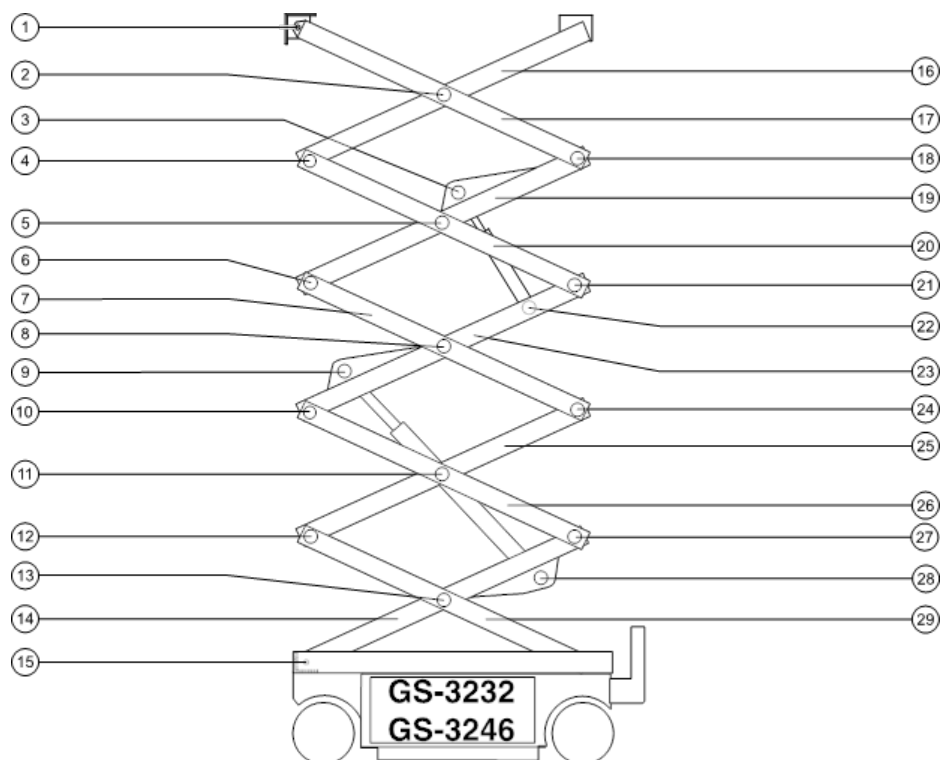
⚠ CAUTION

Bodily injury hazard. The number 1 inner and outer arms (index #10 and #22) may become unbalanced and fall if not properly supported when removed from the machine.

NOTICE

Component damage hazard. Be sure not to damage the limit switch or level sensor components when the number 1 inner and outer arms (index #10 and #22) are removed from the machine.

Scissor Components



Steer End

Non-steer End

- 1 - Number 6 pivot pin
- 2 - Number 5 center pivot pin (Qty. 2)
- 3 - Upper lift cylinder rod-end pivot pin
- 4 - Number 5 pivot pin (steer end)
- 5 - Number 4 center pivot pin (Qty. 2)
- 6 - Number 4 pivot pin (steer end)
- 7 - Number 3 outer arm
- 8 - Number 3 center pivot pin (Qty. 2)
- 9 - Lift cylinder rod-end pivot pin
- 10 - Number 3 pivot pin (steer end)
- 11 - Number 2 center pivot pin (Qty. 2)
- 12 - Number 2 pivot pin (steer end)
- 13 - Number 1 center pivot pin (Qty. 2)
- 14 - Number 1 inner arm
- 15 - Number 1 pivot pin (steer end) (Qty. 2)

- 16 - Number 5 inner arm
- 17 - Number 5 outer arm
- 18 - Number 5 pivot pin (non-steer end)
- 19 - Number 4 inner arm
- 20 - Number 4 outer arm
- 21 - Number 4 pivot pin (non-steer end)
- 22 - Upper lift cylinder barrel-end pivot pin
- 23 - Number 3 inner arm
- 24 - Number 3 pivot pin (non-steer end)
- 25 - Number 2 inner arm
- 26 - Number 2 outer arm
- 27 - Number 2 pivot pin (non-steer end)
- 28 - Lift cylinder barrel-end pivot pin
- 29 - Number 1 outer arm



Scissor Components

9-8

Scissor Assembly - GS-3232, GS-3246, GS-3246 XH

How to Disassemble the Scissor Assembly

▲ WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

Note: After replacing the scissor assembly, the platform overload system must be calibrated. Refer to Repair Procedure, *How to Calibrate the Platform Overload System*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 4 Lower the platform onto the safety arm.

▲ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.

- 6 Disconnect the battery pack from the machine.

▲ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Remove the fasteners securing the large platform height sensor cover to the large platform height sensor bracket.
- 8 Remove the platform height sensor cover.
- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 10 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 11 Remove the platform height sensor assembly from the number 1 pivot pin.
- 12 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.
- 13 Remove the squeeze connector from the large platform height sensor bracket.
- 14 Remove the fasteners securing the large platform height sensor bracket to the number 1 inner arm pivot bracket.
- 15 Remove the large platform height sensor bracket from the number 1 inner arm pivot bracket.

Scissor Components

- 16 Install the fasteners removed in 14 to the number 1 inner arm pivot bracket and chassis.

⚠ DANGER

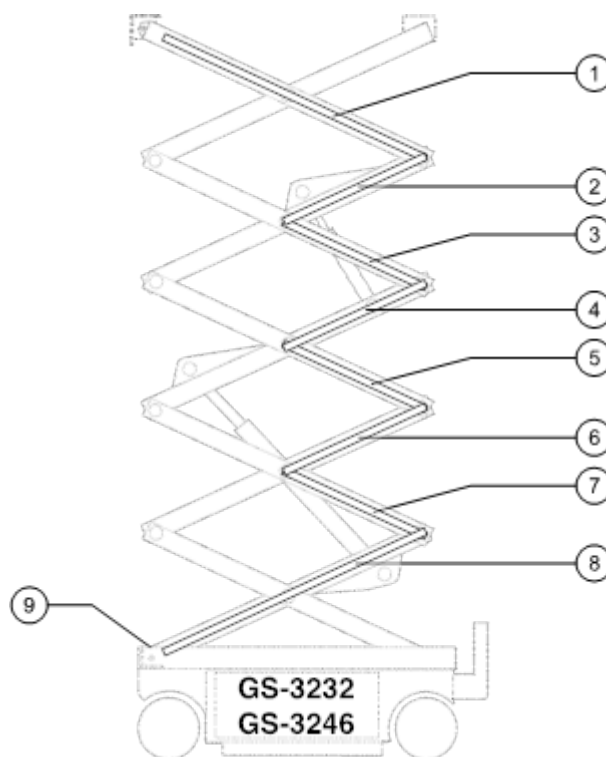
Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 17 Connect the battery pack to the machine.
 18 Turn the key switch to ground controls.
 19 Press and hold the ground control scroll up and scroll down buttons.
 20 Pull out the red Emergency Stop button to the on position at the ground controls.
 21 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 22 Raise the platform and rotate the safety arm to the stowed position.

- 23 Fully lower the platform to the stowed position.



Cable bridge and platform height sensor

- 1 cable bridge 5
- 2 cable bridge 4A
- 3 cable bridge 4B
- 4 cable bridge 3A
- 5 cable bridge 3B
- 6 cable bridge 2A
- 7 cable bridge 2B
- 8 cable bridge 1
- 9 platform height sensor

- 24 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
 25 Support and secure the entry ladder to an appropriate lifting device.

Scissor Components

- 26 Remove the fasteners from the entry ladder and remove the entry ladder from the machine.

⚠ CAUTION

Crushing hazard. The entry ladder will fall if not properly supported and secured to the lifting device.

- 27 Remove the cables from the number 5 cable bridge and lay them off to the side.
- 28 Disconnect the number 4 cable bridge from the number 5 outer arm (index #17) and remove the cable bridge from the machine.
- 29 Remove the retaining fasteners from the number 6 pivot pin (index #1).
- 30 Use a soft metal drift to remove the number 6 pivot pin (index #1). Remove the platform mount bracket from the machine.
- 31 Attach a lifting strap from an overhead supporting device to the number 5 outer arm at the ground control side (index #17).
- 32 Remove the retaining fasteners from the number 5 center pivot pin (index #2) at the ground control side.
- 33 Place a rod through the number 5 center pivot pin at the ground control side (index #2) and twist to remove the pin.
- 34 Remove the retaining fasteners from the number 5 pivot pin (index #18) at the non-steer end.
- 35 Use a soft metal drift to remove the number 5 pivot pin (index #18) from the non-steer end of the machine. Remove the number 5 outer arm at the ground control side (index #17) from the machine.

⚠ CAUTION

Crushing hazard. The number 5 outer arm at the ground control side (index #17) may become unbalanced and fall if not properly supported when removed from the machine.

- 36 Attach a lifting strap from an overhead supporting device to the number 5 outer arm at the battery side (index #17).

- 37 Remove the retaining fasteners from the number 5 center pivot pin (index #2) at the battery side.
- 38 Place a rod through the number 5 center pivot pin at the battery side (index #2) and twist to remove the pin.
- 39 Remove the number 5 outer arm (index #17) from the machine.

⚠ CAUTION

Crushing hazard. The number 5 outer arm (index #17) may become unbalanced and fall if not properly supported when removed from the machine.

- 40 Attach a lifting strap from an overhead supporting device to the number 5 inner arm (index #16). Raise the arm to a vertical position.
- 41 Remove the retaining fasteners from the number 5 pivot pin at the steer end of the machine (index #4).
- 42 Use a soft metal drift to remove the number 5 pivot pin (index #18) from the steer end of the machine. Remove the number 5 inner arm (index #16) from the machine.

⚠ CAUTION

Crushing hazard. The number 5 inner arm (index #16) may become unbalanced and fall if not properly supported when removed from the machine.

- 43 Tag, disconnect and plug the hydraulic hose on the upper lift cylinder. Cap the fittings on the cylinder.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 44 Tag and disconnect the wire harness from the solenoid valve on the cylinder.

Scissor Components

- 45 Remove the cables from the number 4A and 4B cable bridges and lay them off to the side.

NOTICE Component damage hazard.
Cables can be damaged if they are kinked or pinched.

- 46 Disconnect the number 4A and 4B cable bridges from the scissor linkset and remove both cable bridges from the machine.
- 47 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the upper lift cylinder.
- 48 Remove the retaining fasteners from the upper lift cylinder rod end pivot pin (index #3).
- 49 Use a soft metal drift to remove the upper lift cylinder rod end pivot pin (index #3) from the machine.

CAUTION Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 50 Lower the cylinder onto the linkset.
- 51 Attach a lifting strap from an overhead supporting device to the number 4 outer arm at the ground control side (index #20).
- 52 Remove the retaining fasteners from the number 4 center pivot pin (index #5) at the ground control side.
- 53 Place a rod through the number 4 center pivot pin at the ground control side (index #5) and twist to remove the pin.
- 54 Remove the retaining fasteners from the number 4 pivot pin (index #21) at the non-steer end.

- 55 Use a soft metal drift to remove the number 4 pivot pin (index #21) from the non-steer end of the machine. Remove the number 4 outer arm at the ground control side (index #20) from the machine.

CAUTION Crushing hazard. The number 4 outer arm at the ground control side (index #20) may become unbalanced and fall if not properly supported when removed from the machine.

- 56 Attach a lifting strap from an overhead supporting device to the number 4 outer arm at the battery side (index #20).
- 57 Remove the retaining fasteners from the number 4 center pivot pin (index #5) at the battery side.
- 58 Place a rod through the number 4 center pivot pin at the battery side (index #5) and twist to remove the pin.
- 59 Remove the number 4 outer arm (index #20) from the machine.

CAUTION Crushing hazard. The number 4 outer arm (index #20) may become unbalanced and fall if not properly supported when removed from the machine.

- 60 Attach a lifting strap from an overhead supporting device to the number 4 inner arm (index #19). Raise the arm to a vertical position.
- 61 Remove the retaining fasteners from the number 4 pivot pin at the steer end of the machine (index #6).
- 62 Use a soft metal drift to remove the number 4 pivot pin (index #6) from the steer end of the machine. Remove the number 4 inner arm (index #19) from the machine.

CAUTION Crushing hazard. The number 4 inner arm (index #19) may become unbalanced and fall if not properly supported when removed from the machine.

Scissor Components

- 63 Remove the cables from the number 3A and 3B cable bridges and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 64 Disconnect the number 3A and 3B cable bridges from the scissor linkset and remove both cable bridges from the machine.
- 65 Attach a lifting strap from an overhead supporting device to the number 3 outer arm at the ground control side (index #7).
- 66 Remove the retaining fasteners from the number 3 center pivot pin (index #8) at the ground control side.
- 67 Place a rod through the number 3 center pivot pin at the ground control side (index #8) and twist to remove the pin.
- 68 Remove the retaining fasteners from the number 3 pivot pin (index #24) at the non-steer end.
- 69 Use a soft metal drift to remove the number 3 pivot pin (index #24) from the non-steer end of the machine. Remove the number 3 outer arm at the ground control side (index #7) from the machine.

CAUTION

Crushing hazard. The number 3 outer arm at the ground control side (index #7) may become unbalanced and fall if not properly supported when removed from the machine.

- 70 Attach a lifting strap from an overhead supporting device to the number 3 outer arm at the battery side (index #7).
- 71 Remove the retaining fasteners from the number 3 center pivot pin (index #8) at the battery side.
- 72 Place a rod through the number 3 center pivot pin at the battery side (index #8) and twist to remove the pin.

- 73 Remove the number 3 outer arm (index #7) from the machine.

CAUTION

Crushing hazard. The number 3 outer arm (index #7) may become unbalanced and fall if not properly supported when removed from the machine.

- 74 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the upper lift cylinder.
- 75 Raise the lift cylinder to a vertical position.
- 76 Remove the pin retaining fasteners from the lift cylinder barrel-end pivot pin (index #22). Remove the lift cylinder from the machine.

CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

- 77 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the lower lift cylinder.
- 78 Remove the retaining fasteners from the lower lift cylinder rod end pivot pin (index #9).
- 79 Use a soft metal drift to remove the lower lift cylinder rod end pivot pin (index #9) from the machine.

CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 80 Place a 4 x 4 x 10 inch / 10 x 10 x 25 cm block onto the number 1 inner arm cylinder plate (index #14).

Scissor Components

- 81 Lower the cylinder onto the block.

CAUTION Bodily injury hazard. Keep hands clear of moving parts when lowering the cylinder.

- 82 Attach a lifting strap from an overhead supporting device to the number 3 inner arm (index #23). Raise the arm to a vertical position.
- 83 Remove the retaining fasteners from the number 3 pivot pin at the steer end of the machine (index #10).
- 84 Use a soft metal drift to remove the number 3 pivot pin (index #10) from the steer end of the machine. Remove the number 3 inner arm (index #23) from the machine.

CAUTION Crushing hazard. The number 3 inner arm (index #23) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 85 Remove the cables from the number 2A and 2B cable bridges and lay them off to the side.

NOTICE Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 86 Disconnect the number 2A and 2B cable bridges from the scissor linkset and remove both cable bridges from the machine.
- 87 Attach a lifting strap from an overhead supporting device to the number 2 outer arm at the ground control side (index #26).
- 88 Remove the retaining fasteners from the number 2 center pivot pin (index #11) at the ground control side.
- 89 Place a rod through the number 2 center pivot pin at the ground control side (index #11) and twist to remove the pin.
- 90 Remove the retaining fasteners from the number 2 pivot pin (index #27) at the non-steer end.

- 91 Use a soft metal drift to remove the number 2 pivot pin (index #27) from the non-steer end of the machine. Remove the number 2 outer arm at the ground control side (index #26) from the machine.

CAUTION The number 2 outer arm at the ground control side (index #26) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 92 Attach a lifting strap from an overhead supporting device to the number 2 outer arm at the battery side (index #26).
- 93 Remove the retaining fasteners from the number 2 center pivot pin (index #11) at the battery side.
- 94 Place a rod through the number 2 center pivot pin at the battery side (index #11) and twist to remove the pin.

CAUTION Crushing hazard. The number 2 outer arm (index #26) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 95 Remove the number 2 outer arm (index #26) from the machine.

CAUTION Crushing hazard. The number 2 outer arm (index #26) may become unbalanced and fall if not properly supported when removed from the machine.

- 96 Attach a lifting strap from an overhead supporting device to the number 2 inner arm (index #25). Raise the arm to a vertical position.
- 97 Remove the retaining fasteners from the number 2 pivot pin at the steer end of the machine (index #12).

Scissor Components

- 98 Use a soft metal drift to remove the number 2 pivot pin (index #12) from the steer end of the machine. Remove the number 2 inner arm (index #25) from the machine.

CAUTION

Crushing hazard. The number 2 inner arm (index #25) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 99 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #14).
- 100 Raise the number 1 inner arm (index #14) approximately 2 feet / 60 cm.
- 101 Place a 4 x 4 x 48 inch / 10 cm x 10 cm x 1.2 m long block across both sides of the chassis under the number 1 center pivot pin (index #13).
- 102 Lower the scissor arms onto the block that was placed across the chassis.

CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

- 103 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the lower lift cylinder.
- 104 Tag, disconnect and plug the hydraulic hose on the lower lift cylinder. Cap the fittings on the cylinder.

WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 105 Tag and disconnect the wire harness from the solenoid valve on the cylinder.

- 106 Tag and disconnect the wire harness from the platform overload pressure transducer.
- 107 Raise the lift cylinder to a vertical position.
- 108 Remove the pin retaining fasteners from the lift cylinder barrel-end pin (index #28). Use a soft metal drift to remove the pin. Remove the lift cylinder from the machine.

CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

- 109 Remove the cables from the number 1 cable bridge and lay them off to the side.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 110 Disconnect the number 1 cable bridge from the number 1 outer arm (index #29) and remove the cable bridge from the machine.
- 111 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #14).
- 112 Raise the arm slightly and remove the block.

Scissor Components

113 Lower the arm to the stowed position.

⚠ CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

114 Secure the ends of the scissor arms together at the steer end of the machine with a strap or other suitable device.

115 Secure the ends of the scissor arms together at the non-steer end of the machine with a strap or other suitable device.

116 Remove the retaining fasteners securing the chassis mount bracket to the chassis.

117 Remove the linkset from the machine.

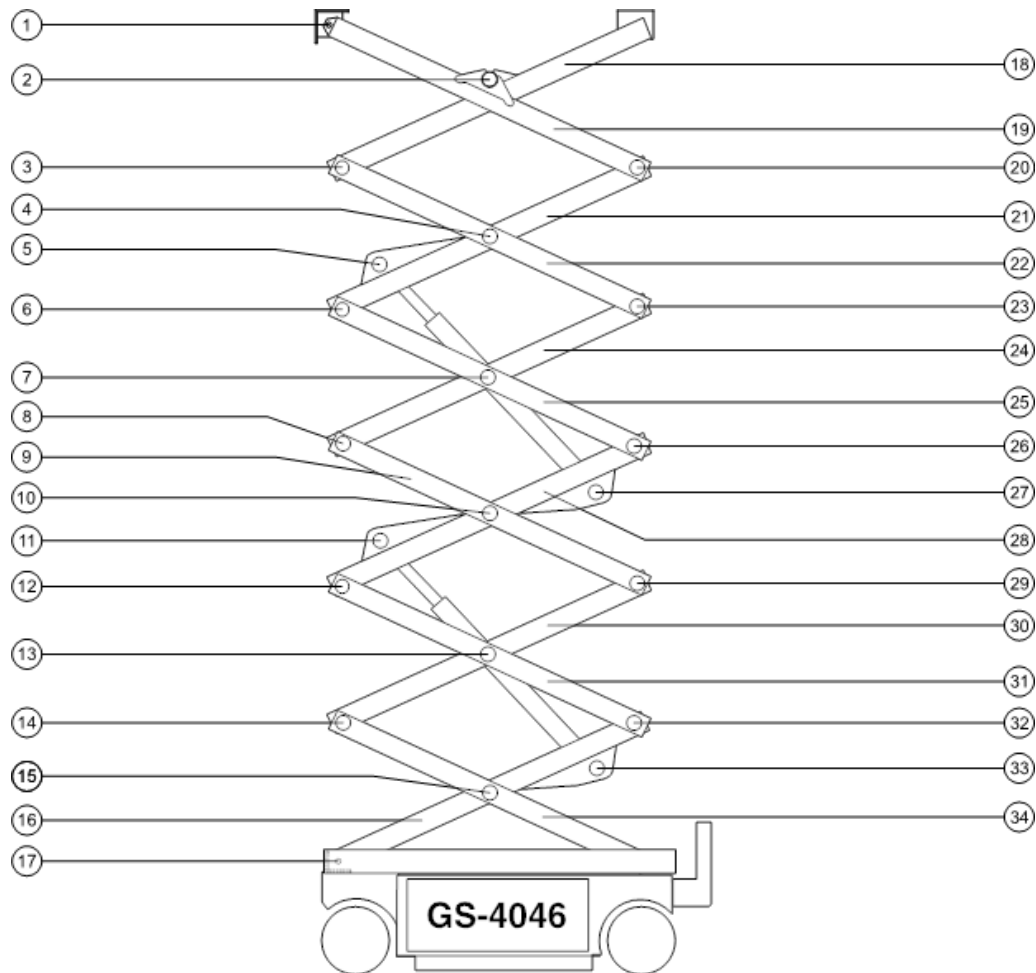
⚠ CAUTION

Bodily injury hazard. The number 1 inner and outer arms (index #14 and #29) may become unbalanced and fall if not properly supported when removed from the machine.

NOTICE

Component damage hazard. Be sure not to damage the limit switch or level sensor components when the number 1 inner and outer arms (index #14 and #29) are removed from the machine.

Scissor Components



Steer End

Non-steer End

1 - Number 7 pivot pin	13 - Number 2 center pivot pin (Qty. 2)	25 - Number 4 outer arm
2 - Number 6 center pivot pin (Qty. 2)	14 - Number 2 pivot pin (steer end)	26 - Number 4 pivot pin (non-steer end)
3 - Number 6 pivot pin (steer end)	15 - Number 1 center pivot pin (Qty. 2)	27 - Upper lift cylinder barrel-end pivot pin
4 - Number 5 center pivot pin	16 - Number 1 inner arm	28 - Number 3 inner arm
5 - Upper lift cylinder rod-end pivot pin	17 - Number 1 pivot pin (steer end) (Qty. 2)	29 - Number 3 pivot pin (non-steer end)
6 - Number 5 pivot pin (steer end)	18 - Number 6 inner arm	30 - Number 2 inner arm
7 - Number 4 center pivot pin (Qty. 2)	19 - Number 6 outer arm	31 - Number 2 inner arm
8 - Number 4 pivot pin (steer end)	20 - Number 6 pivot pin (non-steer end)	32 - Number 2 pivot pin (non-steer end)
9 - Number 3 outer arm	21 - Number 5 inner arm	33 - Lower lift cylinder barrel-end pivot pin
10 - Number 3 center pivot pin (Qty. 2)	22 - Number 5 outer arm	34 - Number 1 outer arm
11 - Lower lift cylinder rod-end pivot pin	23 - Number 5 pivot pin (non-steer end)	
12 - Number 3 pivot pin (steer end)	24 - Number 4 inner arm	

Scissor Components

9-9

Scissor Assembly - GS-4046

How to Disassemble the Scissor Assembly

⚠ WARNING

Bodily injury hazard. This procedure requires specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is strongly recommended.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

Note: After replacing the scissor assembly, the platform overload system must be calibrated. Refer to Repair Procedure, *How to Calibrate the Platform Overload System*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.

- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.

- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 6 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Remove the fasteners securing the large platform height sensor cover to the large platform height sensor bracket.
- 8 Remove the platform height sensor cover.
- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 10 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 11 Remove the platform height sensor assembly from the number 1 pivot pin.
- 12 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.

Scissor Components

- 13 Remove the squeeze connector from the large platform height sensor bracket.
- 14 Remove the fasteners securing the large platform height sensor bracket to the number 1 inner arm pivot bracket.
- 15 Remove the large platform height sensor bracket from the number 1 inner arm pivot bracket.
- 16 Install the fasteners removed in 14 to the number 1 inner arm pivot bracket and chassis.

⚠ DANGER

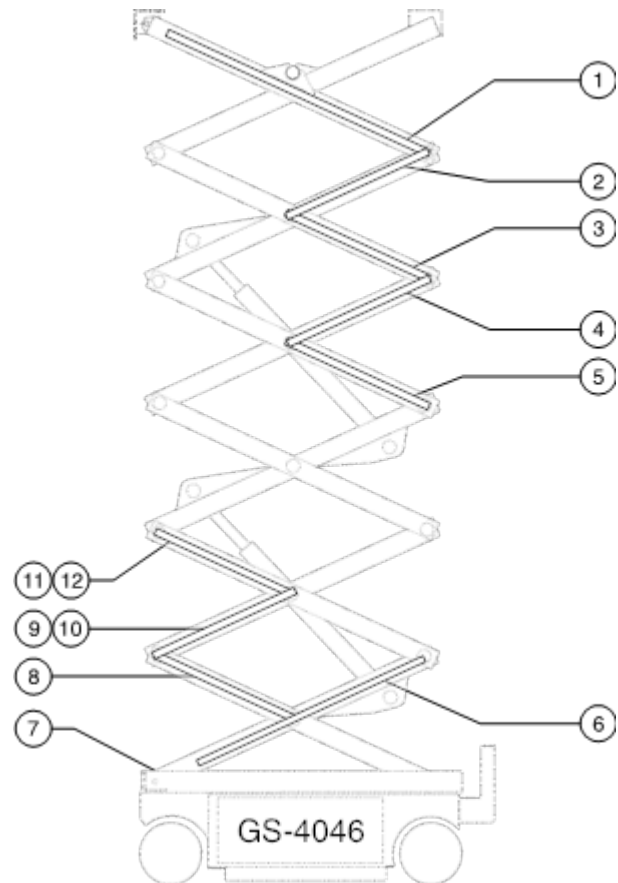
Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 17 Connect the battery pack to the machine.
- 18 Turn the key switch to ground controls.
- 19 Press and hold the ground control scroll up and scroll down buttons.
- 20 Pull out the red Emergency Stop button to the on position at the ground controls.
- 21 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 22 Raise the platform and rotate the safety arm to the stowed position.

- 23 Fully lower the platform to the stowed position.



Cable bridge and platform height sensor

- 1 cable bridge 6
- 2 cable bridge 5B
- 3 cable bridge 5A
- 4 cable bridge 4B
- 5 cable bridge 4A
- 6 cable bridge 1A
- 7 platform height sensor
- 8 cable bridge 1B
- 9 cable bridge 2A
- 10 cable bridge 2B
- 11 cable bridge 2C
- 12 cable bridge 2D

Scissor Components

- 24 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
 - 25 Remove the cables from cable bridges a, b, c, d and e.
 - 26 Remove the retaining fasteners from the number 7 pivot pin (index #1).
 - 27 Use a soft metal drift to remove the number 7 pivot pin (index #1). Remove the platform mount bracket from the machine.
 - 28 Attach a lifting strap from an overhead supporting device to the number 6 outer arm at the ground control side (index #19).
 - 29 Remove the retaining fasteners from the number 6 center pivot pin (index #2) at the ground control side.
 - 30 Place a rod through the number 6 center pivot pin at the ground control side (index #2) and twist to remove the pin.
 - 31 Remove the retaining fasteners from the number 6 pivot pin (index #20) at the non-steer end.
 - 32 Use a soft metal drift to remove the number 6 pivot pin (index #20) from the non-steer end of the machine. Remove the number 6 outer arm at the ground control side (index #19) from the machine.
- CAUTION** Crushing hazard. The number 6 outer arm at the ground control side (index #19) may become unbalanced and fall if not properly supported when removed from the machine.
- 33 Attach a lifting strap from an overhead supporting device to the number 6 outer arm at the battery side (index #19).
 - 34 Remove the retaining fasteners from the number 6 center pivot pin (index #2) at the battery side.
 - 35 Place a rod through the number 6 center pivot pin at the battery side (index #2) and twist to remove the pin.
 - 36 Remove the number 6 outer arm (index #19) from the machine.
- CAUTION** Crushing hazard. The number 6 outer arm (index #19) may become unbalanced and fall if not properly supported when removed from the machine.
- 37 Attach a lifting strap from an overhead supporting device to the number 6 inner arm (index #18). Raise the arm to a vertical position.
 - 38 Remove the retaining fasteners from the number 6 pivot pin at the steer end of the machine (index #3).
 - 39 Use a soft metal drift to remove the number 6 pivot pin (index #3) from the steer end of the machine. Remove the number 6 inner arm (index #18) from the machine.
- CAUTION** Crushing hazard. The number 5 inner arm (index #16) may become unbalanced and fall if not properly supported when removed from the machine.
- 40 Tag, disconnect and plug the hydraulic hose on the upper lift cylinder. Cap the fittings on the cylinder.
- WARNING** Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.
- 41 Attach a lifting strap from an overhead supporting device to the number 5 outer arm at the ground control side (index #22).

Scissor Components

- 42 Remove the retaining fasteners from the number 5 center pivot pin (index #4) at the ground control side.
- 43 Place a rod through the number 5 center pivot pin at the ground control side (index #4) and twist to remove the pin.
- 44 Remove the retaining fasteners from the number 5 pivot pin (index #23) at the non-steer end.
- 45 Use a soft metal drift to remove the number 5 pivot pin (index #23) from the non-steer end of the machine. Remove the number 5 outer arm at the ground control side (index #22) from the machine.

CAUTION

Crushing hazard. The number 5 outer arm at the ground control side (index #22) may become unbalanced and fall if not properly supported when removed from the machine.

- 46 Attach a lifting strap from an overhead supporting device to the number 5 outer arm at the battery side (index #22).
- 47 Remove the number 5 outer arm (index #22) from the machine.

CAUTION

Crushing hazard. The number 5 outer arm at the battery side (index #22) may become unbalanced and fall if not properly supported when removed from the machine.

- 48 Tag and disconnect the wire harness from the solenoid valve on the cylinder.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 49 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the upper lift cylinder.
- 50 Remove the retaining fasteners from the upper lift cylinder rod end pivot pin (index #5).

- 51 Use a soft metal drift to remove the upper lift cylinder rod end pivot pin (index #5) from the machine.

CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 52 Lower the cylinder onto the linkset.
- 53 Attach a lifting strap from an overhead supporting device to the number 4 outer arm at the ground control side (index #25).
- 54 Remove the retaining fasteners from the number 4 center pivot pin (index #7) at the ground control side.
- 55 Place a rod through the number 4 center pivot pin at the ground control side (index #7) and twist to remove the pin.
- 56 Remove the retaining fasteners from the number 4 pivot pin (index #26) at the non-steer end.
- 57 Use a soft metal drift to remove the number 4 pivot pin (index #26) from the non-steer end of the machine. Remove the number 4 outer arm at the ground control side (index #25) from the machine.

CAUTION

Crushing hazard. The number 4 outer arm at the ground control side (index #25) may become unbalanced and fall if not properly supported when removed from the machine.

- 58 Attach a lifting strap from an overhead supporting device to the number 4 outer arm at the battery side (index #25).
- 59 Remove the retaining fasteners from the number 4 center pivot pin (index #7) at the battery side.
- 60 Place a rod through the number 4 center pivot pin at the battery side (index #7) and twist to remove the pin.

Scissor Components

- 61 Remove the number 4 outer arm (index #25) from the machine.

▲ CAUTION

Crushing hazard. The number 4 outer arm (index #25) may become unbalanced and fall if not properly supported when removed from the machine.

- 62 Attach a lifting strap from an overhead supporting device to the number 4 inner arm (index #24). Raise the arm to a vertical position.

- 63 Remove the retaining fasteners from the number 4 pivot pin at the steer end of the machine (index #8).

- 64 Use a soft metal drift to remove the number 4 pivot pin (index #8) from the steer end of the machine. Remove the number 4 inner arm (index #24) from the machine.

▲ CAUTION

Crushing hazard. The number 4 inner arm (index #24) may become unbalanced and fall if not properly supported when removed from the machine.

- 65 Remove the cables from cable bridges f,h,i,j,k and l.

NOTICE

Component damage hazard. Cables can be damaged if they are kinked or pinched.

- 66 Attach a lifting strap from an overhead supporting device to the number 3 outer arm at the ground control side (index #9).

- 67 Remove the retaining fasteners from the number 3 center pivot pin (index #10) at the ground control side.

- 68 Place a rod through the number 3 center pivot pin at the ground control side (index #10) and twist to remove the pin.

- 69 Remove the retaining fasteners from the number 3 pivot pin (index #29) at the non-steer end.

- 70 Use a soft metal drift to remove the number 3 pivot pin (index #29) from the non-steer end of the machine. Remove the number 3 outer arm at the ground control side (index #9) from the machine.

▲ CAUTION

Crushing hazard. The number 3 outer arm at the ground control side (index #9) may become unbalanced and fall if not properly supported when removed from the machine.

- 71 Attach a lifting strap from an overhead supporting device to the number 3 outer arm at the battery side (index #9).

- 72 Remove the number 3 outer arm (index #9) from the machine.

▲ CAUTION

Crushing hazard. The number 3 outer arm (index #9) may become unbalanced and fall if not properly supported when removed from the machine.

- 73 Attach a lifting strap from an overhead crane to the number 3 inner arm (index #28). Raise the number 3 inner arm and place a 4 x 4 x 48 inch / 10 cm x 10 cm x 1.2 m block across the link stack to gain access to the barrel end pivot pin (index 27).

- 74 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the upper lift cylinder.

- 75 Raise the lift cylinder to a vertical position.

▲ CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

- 76 Use a soft metal drift to remove the upper lift cylinder barrel end pivot pin (index #27) from the machine.

Scissor Components

- 77 Attach a lifting strap from an overhead supporting device to the number 3 inner arm (index #28). Raise the number 3 inner arm and remove the 4 x 4 x 48 inch / 10 cm x 10 cm x 1.2 m block from the link stack.
- 78 Lower the number 3 inner arm (index #28) and remove the lifting strap.
- 79 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the lower lift cylinder.
- 80 Remove the retaining fasteners from the lower lift cylinder rod end pivot pin (index 11).
- 81 Use a soft metal drift to remove the lower lift cylinder rod end pivot pin (index 11) from the machine.

▲ CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 82 Place a 4 x 4 x 10 inch / 10 x 10 x 25 cm block onto the number 1 inner arm cylinder plate (index #16).
- 83 Lower the cylinder onto the block.

▲ CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the cylinder.

- 84 Attach a lifting strap from an overhead supporting device to the number 3 inner arm (index #28). Raise the arm to a vertical position.
- 85 Remove the retaining fasteners from the number 3 pivot pin at the steer end of the machine (index #12).
- 86 Use a soft metal drift to remove the number 3 pivot pin (index #12) from the steer end of the machine. Remove the number 3 inner arm (index #28) from the machine.

▲ CAUTION

Crushing hazard. The number 3 inner arm (index #28) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 87 Attach a lifting strap from an overhead supporting device to the number 2 outer arm at the ground control side (index #31).
- 88 Remove the retaining fasteners from the number 2 center pivot pin (index #13) at the ground control side.
- 89 Place a rod through the number 2 center pivot pin at the ground control side (index #13) and twist to remove the pin.
- 90 Remove the retaining fasteners from the number 2 pivot pin (index #32) at the non-steer end.
- 91 Use a soft metal drift to remove the number 2 pivot pin (index #32) from the non-steer end of the machine. Remove the number 2 outer arm at the ground control side (index #31) from the machine.

▲ CAUTION

Crushing hazard. The number 2 outer arm at the ground control side (index #31) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 92 Attach a lifting strap from an overhead supporting device to the number 2 outer arm at the battery side (index #31).
- 93 Remove the retaining fasteners from the number 2 center pivot pin (index #13) at the battery side.
- 94 Place a rod through the number 2 center pivot pin at the battery side (index #13) and twist to remove the pin.

▲ CAUTION

Crushing hazard. The number 2 outer arm (index #31) may become unbalanced and fall if not properly supported when the pivot pin is removed.

Scissor Components

- 95 Remove the number 2 outer arm (index #31) from the machine.

CAUTION Crushing hazard. The number 2 outer arm (index #31) may become unbalanced and fall if not properly supported when removed from the machine.

- 96 Attach a lifting strap from an overhead supporting device to the number 2 inner arm (index #30). Raise the arm to a vertical position.
- 97 Remove the retaining fasteners from the number 2 pivot pin at the steer end of the machine (index #14).
- 98 Use a soft metal drift to remove the number 2 pivot pin (index #14) from the steer end of the machine. Remove the number 2 inner arm (index #30) from the machine.

CAUTION Crushing hazard. The number 2 inner arm (index #30) may become unbalanced and fall if not properly supported when the pivot pin is removed.

- 99 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #16).
- 100 Raise the number 1 inner arm (index #16) approximately 2 feet / 60 cm.
- 101 Place a 4 x 4 x 48 inch / 10 cm x 10 cm x 1.2 m long block across both sides of the chassis under the number 1 center pivot pin (index #15).
- 102 Lower the scissor arms onto the block that was placed across the chassis.

CAUTION Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

- 103 Attach a lifting strap from an overhead supporting device to the lug of the rod end of the lower lift cylinder.

- 104 Tag, disconnect and plug the hydraulic hose on the lower lift cylinder. Cap the fittings on the cylinder.

WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 105 Tag and disconnect the wire harness from the solenoid valve on the cylinder.
- 106 Tag and disconnect the wires and manual lowering cable from the solenoid valve on the cylinder.
- 107 Tag and disconnect the wire harness from the platform overload pressure transducer.
- 108 Raise the lift cylinder to a vertical position.
- 109 Remove the pin retaining fasteners from the lift cylinder barrel-end pivot pin (index #28). Use a soft metal drift to remove the pin. Remove the lift cylinder from the machine.

CAUTION Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

NOTICE Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

- 110 Remove the cables from the number 1 cable bridge and lay them off to the side.

NOTICE Component damage hazard. Cables can be damaged if they are kinked or pinched.

Scissor Components

- 111 Remove the cables from the number 1 cable bridge and lay them off to the side.
- 112 Disconnect the number 1 cable bridge from the number 1 outer arm (index #34) and remove the cable bridge from the machine.
- 113 Attach a lifting strap from an overhead supporting device to the number 1 inner arm (index #16).
- 114 Raise the arm slightly and remove the block.
- 115 Lower the arm to the stowed position.

CAUTION

Bodily injury hazard. Keep hands clear of moving parts when lowering the scissor arms.

- 116 Secure the ends of the scissor arms together at the steer end of the machine with a strap or other suitable device.
- 117 Secure the ends of the scissor arms together at the non-steer end of the machine with a strap or other suitable device.
- 118 Remove the retaining fasteners securing the chassis mount bracket to the chassis.
- 119 Remove the linkset from the machine.

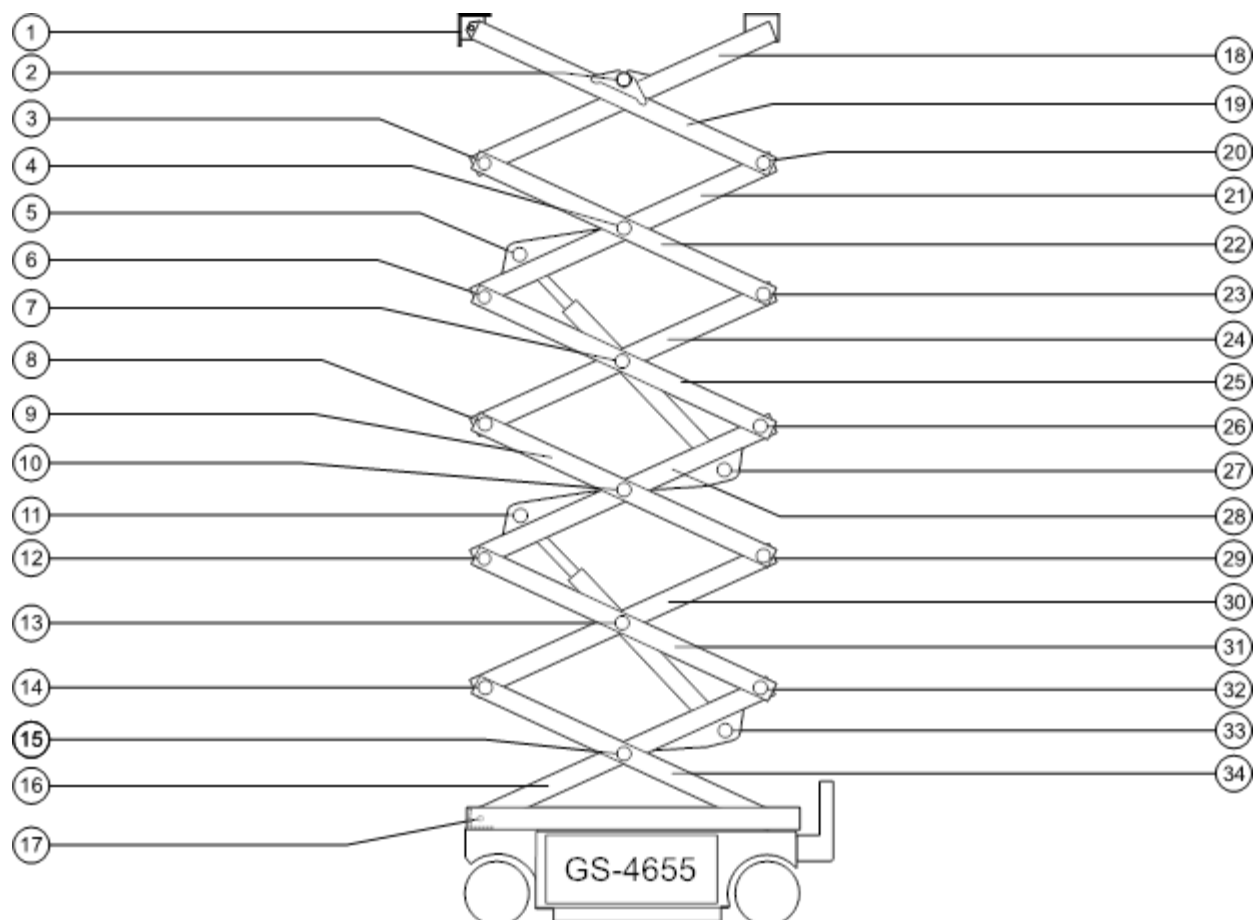
CAUTION

Bodily injury hazard. The number 1 inner and outer arms (index #16 and #34) may become unbalanced and fall if not properly supported when removed from the machine.

NOTICE

Component damage hazard. Be sure not to damage the limit switch or level sensor components when the number 1 inner and outer arms (index #16 and 34) are removed from the machine.

Scissor Components



Steer End

- 1 - Number 7 pivot pin
- 2 - Number 6 center pivot pin (Qty. 2)
- 3 - Number 6 pivot pin (steer end)
- 4 - Number 5 center pivot pin
- 5 - Upper lift cylinder rod-end pivot pin
- 6 - Number 5 pivot pin (steer end)
- 7 - Number 4 center pivot pin (Qty. 2)
- 8 - Number 4 pivot pin (steer end)
- 9 - Number 3 outer arm
- 10 - Number 3 center pivot pin (Qty. 2)
- 11 - Lower lift cylinder rod-end pivot pin
- 12 - Number 3 pivot pin (steer end)

- 13 - Number 2 center pivot pin (Qty. 2)
- 14 - Number 2 pivot pin (steer end)
- 15 - Number 1 center pivot pin (Qty. 2)
- 16 - Number 1 inner arm
- 17 - Number 1 pivot pin (steer end) (Qty. 2)
- 18 - Number 6 inner arm
- 19 - Number 6 outer arm
- 20 - Number 6 pivot pin (non-steer end)
- 21 - Number 5 inner arm
- 22 - Number 5 outer arm
- 23 - Number 5 pivot pin (non-steer end)
- 24 - Number 4 inner arm

Non-steer End

- 25 - Number 4 outer arm
- 26 - Number 4 pivot pin (non-steer end)
- 27 - Upper lift cylinder barrel-end pivot pin
- 28 - Number 3 inner arm
- 29 - Number 3 pivot pin (non-steer end)
- 30 - Number 2 inner arm
- 31 - Number 2 inner arm
- 32 - Number 2 pivot pin (non-steer end)
- 33 - Lower lift cylinder barrel-end pivot pin
- 34 - Number 1 outer arm



Scissor Components

9-10

Scissor Assembly - GS-4655

How to Disassemble the Scissor Assembly

⚠ WARNING

Bodily injury hazard. This procedure requires specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is strongly recommended.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

Note: This procedure will require an overhead supporting device capable of supporting 1000 lbs / 454 kg.

Note: After replacing the scissor assembly, the platform overload system must be calibrated. Refer to Repair Procedure, *How to Calibrate the Platform Overload System*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 16 to 17 feet / 4,9 to 5,2 m.

- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 6 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Remove the fasteners securing the large platform height sensor cover to the large platform height sensor bracket.
- 8 Remove the platform height sensor cover.
- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 10 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 11 Remove the platform height sensor assembly from the number 1 pivot pin.
- 12 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.
- 13 Remove the squeeze connector from the large platform height sensor bracket.
- 14 Remove the fasteners securing the large platform height sensor bracket to the number 1 inner arm pivot bracket.
- 15 Remove the large platform height sensor bracket from the number 1 inner arm pivot bracket.

Scissor Components

- 16 Install the fasteners removed in 14 to the number 1 inner arm pivot bracket and chassis.

⚠ DANGER

Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 17 Connect the battery pack to the machine.
 18 Turn the key switch to ground controls.
 19 Press and hold the ground control scroll up and scroll down buttons.
 20 Pull out the red Emergency Stop button to the on position at the ground controls.
 21 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 22 Raise the platform and rotate the safety arm to the stowed position.
 23 Fully lower the platform to the stowed position.
 24 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
 25 Remove the retaining fasteners that attach the ladder to the drive chassis. Remove the ladder and set aside.

- 26 Remove the cables from the linkage assembly.

- 27 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.

- 28 Remove the retaining fasteners that attach the ladder to the drive chassis. Remove the ladder and set aside.

- 29 Remove the cables from the linkage assembly.

NOTICE

Component damage hazard. Cables and hoses can be damaged if they are kinked or pinched.

- 30 Using an overhead supporting device attach a 4 hook sling chain to the ends of the number 6 inner arm. Make the chains tight but do not apply lifting pressure.

⚠ WARNING

Crushing hazard. The linkage assembly could become unbalanced and fall if not properly supported when removed from the machine.

- 31 Remove the retaining fasteners from the number 6 pivot pins.

Note: Do not remove the external snap ring.

- 32 Using a soft metal drift, remove the pivot pins and set aside.
 33 Carefully lift the linkage assembly off of the machine and place it on a structure capable of supporting it.
 34 Using a suitable supporting device, attach a strap to the rod end of the upper lift cylinder. Do not apply pressure.
 35 Remove the upper cylinder rod end pivot pin retaining fasteners.
 36 Using a soft metal drift, remove the pivot pin.
 37 Lower the lift cylinder and remove the strap.

Scissor Components

- 38 Using an overhead supporting device attach a 4 hook sling chain to the ends of the number 5 inner arm. Make the chains tight but do not apply lifting pressure.

⚠ WARNING

Crushing hazard. The linkage assembly could become unbalanced and fall if not properly supported when removed from the machine.

- 39 Remove the retaining fasteners from the number 5 pivot pins.

Note: Do not remove the external snap ring.

- 40 Using a soft metal drift, remove the pivot pins and set aside.
- 41 Carefully lift the linkage assembly off of the machine and place it on a structure capable of supporting it.
- 42 Using an overhead supporting device attach a 4 hook sling chain to the ends of the number 4 inner arm. Make the chains tight but do not apply lifting pressure.

⚠ WARNING

Crushing hazard. The linkage assembly could become unbalanced and fall if not properly supported when removed from the machine.

- 43 Remove the retaining fasteners from the number 4 pivot pins.

Note: Do not remove the external snap ring.

- 44 Using a soft metal drift, remove the pivot pins and set aside.
- 45 Carefully lift the linkage assembly off of the machine and place it on a structure capable of supporting it.
- 46 Tag and disconnect the harness from the upper lift cylinder valve block.

- 47 Tag and disconnect the hydraulic hoses from the upper lift cylinder. Plug the hoses and cap the fittings.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 48 Remove the cables and hoses from the linkage assembly.

NOTICE

Component damage hazard. Cables and hoses can be damaged if they are kinked or pinched.

- 49 Using a suitable supporting device remove the retaining fasteners from the upper lift cylinder. Remove the cylinder.
- 50 Using a suitable supporting device, attach a strap to the rod end of the lower lift cylinder. Do not apply pressure.
- 51 Remove the lower cylinder rod end pivot pin retaining fasteners.
- 52 Using a soft metal drift, remove the pivot pin.
- 53 Lower the lift cylinder and remove the strap.
- 54 Using an overhead supporting device attach a 4 hook sling chain to the ends of the number 3 inner arm. Make the chains tight but do not apply lifting pressure.

⚠ WARNING

Crushing hazard. The linkage assembly could become unbalanced and fall if not properly supported when removed from the machine.

- 55 Remove the retaining fasteners from the number 3 pivot pins.

Note: Do not remove the external snap ring.

- 56 Using a soft metal drift, remove the pivot pins and set aside.

Scissor Components

- 57 Carefully lift the linkage assembly off of the machine and place it on a structure capable of supporting it.

- 58 Using an overhead supporting device attach a 4 hook sling chain to the ends of the number 2 inner arm. Make the chains tight but do not apply lifting pressure.

⚠ WARNING

Crushing hazard. The linkage assembly could become unbalanced and fall if not properly supported when removed from the machine.

- 59 Remove the retaining fasteners from the number 2 pivot pins.
- 60 Using a soft metal drift, remove the pivot pins and set aside.
- 61 Carefully lift the linkage assembly off of the machine and place it on a structure capable of supporting it.
- 62 Tag and disconnect the harness from the lower lift cylinder valve block.
- 63 Tag and disconnect the hydraulic hoses from the lower lift cylinder. Plug the hoses and cap the fittings.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 64 Remove the hose clamps and hoses from the number 1 inner arm.
- 65 Using an overhead supporting device attach a 4 hook sling chain to the ends of the number 1 inner arm. Make the chains tight but do not apply lifting pressure.

⚠ WARNING

Crushing hazard. The linkage assembly could become unbalanced and fall if not properly supported when removed from the machine.

- 66 Remove the four carriage bolts that secure the inner arm and chassis pivot to the steer end of the drive chassis.
- 67 Move the linkage towards the non-steer end of the machine until the slider feet are clear of the slider channel.
- 68 Carefully lift the linkage assembly off of the machine and place it on a structure capable of supporting it.

Separate the link sets:

- 1 Using an overhead supporting device attach a 4 hook sling chain to the ends of the inner arm. Make the chains tight but do not apply lifting pressure.

⚠ WARNING

Crushing hazard. The linkage assembly could become unbalanced and fall if not properly supported when removed from the machine.

- 2 Remove the retaining fasteners from the center pivot pins.

Note: Do not remove the external snap ring.

- 3 Using a soft metal drift, remove the center pivot pins and set aside.
- 4 Carefully lift and separate the linkage assembly apart and place it on a structure capable of supporting it.

Scissor Components

9-11

Scissor Arm Wear Pads

How to Replace the Scissor Arm Wear Pad - GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

- 1 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Raise the safety arm from the drive chassis to a vertical position.
- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 6 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Remove the fasteners securing the platform height sensor cover to the chassis.
- 8 Remove the platform height sensor cover.
- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.

- 10 Remove the fasteners securing the platform height sensor short arm cover to the number 1 inner arm.
- 11 Remove the fasteners securing the platform height sensor to the chassis. Remove the sensor.
- 12 Connect the battery pack to the machine.
- 13 Turn the key switch to ground controls.
- 14 Press and hold the ground control scroll up and scroll down buttons.
- 15 Pull out the red Emergency Stop button to the on position at the ground controls.
- 16 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.
- 17 Raise the platform and rotate the safety arm to the stowed position.
- 18 Fully lower the platform to the stowed position.
- 19 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
- 20 Remove the pins, shims and snap rings from the number 1 inner arm at the steer end of the machine.
- 21 Attach a lifting strap from an overhead supporting device to the steer end of scissor assembly.

⚠ DANGER

Crushing hazard. The scissor assembly will fall if not properly supported when removed from the drive chassis.

- 22 Replace the wear pads.

Scissor Components

How to Replace the Scissor Arm Wear Pad - All other models

- 1 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 GS-4655: Raise the platform approximately 13 feet / 4 m.

All other models: Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 6 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Remove the fasteners securing the large platform height sensor cover to the large platform height sensor bracket.
- 8 Remove the platform height sensor cover.
- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.

- 10 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 11 Remove the platform height sensor assembly from the number 1 pivot pin.
- 12 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.
- 13 Remove the squeeze connector from the large platform height sensor bracket.
- 14 Remove the fasteners securing the large platform height sensor bracket to the number 1 inner arm pivot bracket.
- 15 Remove the large platform height sensor bracket from the number 1 inner arm pivot bracket.
- 16 Install the fasteners removed in 14 to the number 1 inner arm pivot bracket and chassis.

⚠ DANGER

Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 17 Connect the battery pack to the machine.
- 18 Turn the key switch to ground controls.
- 19 Press and hold the ground control scroll up and scroll down buttons.
- 20 Pull out the red Emergency Stop button to the on position at the ground controls.

Scissor Components

- 21 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 22 Raise the platform and rotate the safety arm to the stowed position.
- 23 Fully lower the platform to the stowed position.
- 24 Remove the platform. Refer to Repair Procedure, *How to Remove the Platform*.
- 25 Support and secure the entry ladder to an appropriate lifting device.
- 26 Remove the entry ladder mounting fasteners. Remove the entry ladder from the machine.

CAUTION

Crushing hazard. The entry ladder will fall if not properly supported and secured to the lifting device.

- 27 Secure the ends of the scissor arms together at the steer end of the machine with a strap or other suitable device.
- 28 Secure the ends of the scissor arms together at the non-steer end of the machine with a strap or other suitable device.
- 29 Remove the retaining fasteners securing the chassis mount bracket to the chassis at the steer end of the machine.
- 30 Attach a lifting strap from an overhead supporting device to the scissor arm assembly.

- 31 Raise the scissor arm assembly at the steer end with the overhead crane until the chassis mount bracket will clear the level sensor.

- 32 Remove the scissor assembly from the machine just enough to access both wear pads.

DANGER

Crushing hazard. The scissor assembly will fall if not properly supported when removed from the drive chassis.

NOTICE

Component damage hazard. Be careful not to damage the level sensor or limit switch while moving the scissor assembly.

- 33 Remove both old wear pads.
- 34 Install two new wear pads.
- 35 Slide the scissor assembly back into the drive chassis.
- 36 Lower the scissor assembly into position and install the chassis mount bracket onto the chassis. Securely install and tighten the fasteners. Do not over tighten.

NOTICE

Component damage hazard. Be careful not to damage the level sensor or limit switch while moving the scissor assembly.

Scissor Components

9-12

Platform Height Sensor

How to Disassemble the Platform Height Sensor Assembly - GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

Note: When a Platform Height Sensor Assembly is removed or replaced, the platform overload system must be calibrated. Refer to Repair Procedure, *How to Calibrate the Platform Overload System* and perform the no load calibration procedure.

- 1 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 2 Raise the safety arm from the drive chassis to a vertical position.
- 3 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

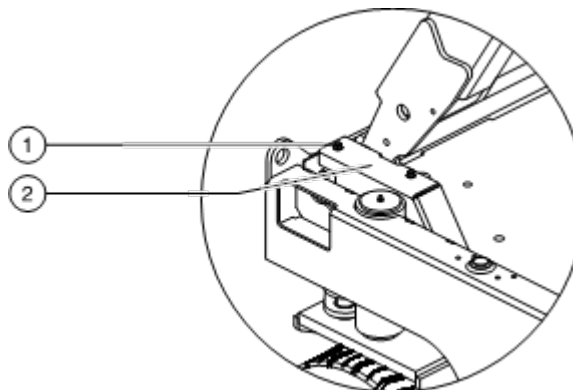
- 4 Turn the key switch to the off position.
- 5 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 6 Remove the fasteners securing the platform height sensor cover to the chassis.

- 7 Remove the platform height sensor cover.



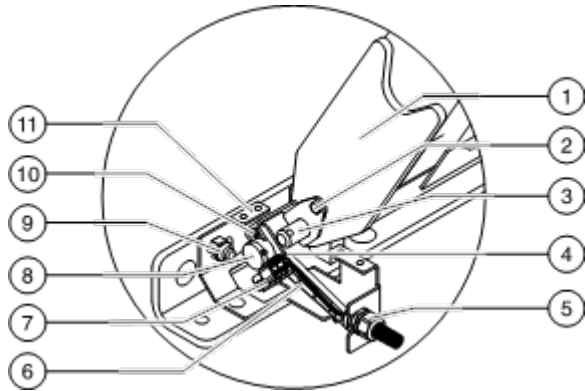
1 retaining fasteners

2 cover

- 8 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 9 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 10 Remove the fasteners securing the platform height sensor assembly to the platform height sensor plate.
- 11 Remove the set screw securing the lever arm to the platform height sensor.

Scissor Components

- 12 Remove the lever arm from the platform height sensor assembly.



- 1 number 1 inner arm
- 2 fastener (platform height sensor assembly)
- 3 number 1 pivot pin
- 4 lever arm retaining screw
- 5 squeeze connector
- 6 lever arm
- 7 platform height sensor harness connection
- 8 platform height sensor
- 9 fastener (platform height sensor bracket)
- 10 fastener (platform height sensor)
- 11 platform height sensor assembly

How to Disassemble the Platform Height Sensor Assembly - All other models

Note: When a Platform Height Sensor Assembly is removed or replaced, the platform overload system must be calibrated. Refer to Repair Procedure, *How to Calibrate the Platform Overload System* and perform the no load calibration procedure.

- 1 GS-4655: Raise the platform approximately 13 feet / 4 m.
- 2 All other models: Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 Turn the key switch to the off position.
- 6 Disconnect the battery pack from the machine.

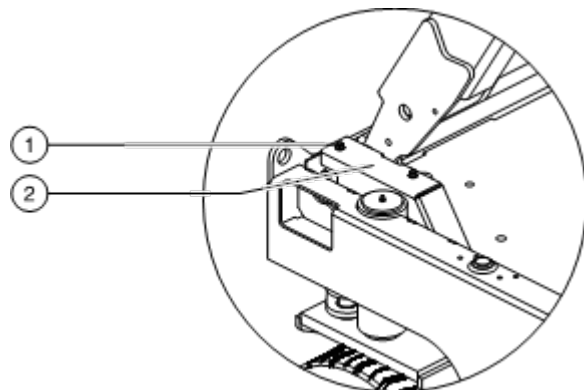
⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Remove the fasteners securing the large platform height sensor cover to the large platform height sensor bracket.

Scissor Components

- 8 Remove the platform height sensor cover.

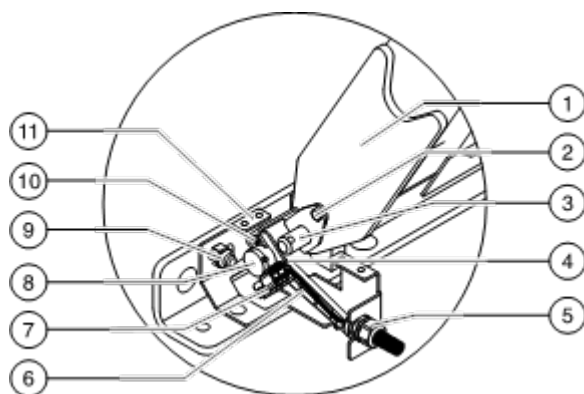


1 retaining fasteners

2 cover

- 9 Tag and disconnect the platform height sensor from the platform height sensor harness.
- 10 Remove the fastener securing the platform height sensor assembly to the number 1 inner arm.
- 11 Remove the platform height sensor assembly from the number 1 pivot pin.
- 12 Remove the set screw securing the lever arm to the platform height sensor.
- 13 Remove the lever arm from the platform height sensor assembly.
- 14 Working with the platform height sensor assembly, remove the Deutsch connector from the plastic clip.
- 15 Remove the fasteners securing the platform height sensor to the small platform height sensor bracket.

- 16 Remove the platform height sensor from the small angle sensor bracket.
- 17 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.
- 18 Remove the squeeze connector from the large platform height sensor bracket.



1 number 1 inner arm

2 fastener (platform height sensor assembly)

3 number 1 pivot pin

4 lever arm retaining screw

5 squeeze connector

6 lever arm

7 platform height sensor harness connection

8 platform height sensor

9 fastener (large platform height sensor bracket)

10 fastener (platform height sensor)

11 platform height sensor assembly

Scissor Components

- 19 Remove the fasteners securing the large platform height bracket to the number 1 inner arm pivot bracket.
- 20 Remove the large platform height sensor bracket from the number 1 inner arm pivot bracket.

▲ DANGER

Tip-over hazard. Failure to install the fasteners securing the large platform height sensor bracket and number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

9-13

Lift Cylinders

How to Remove the Lift Cylinder

▲ WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

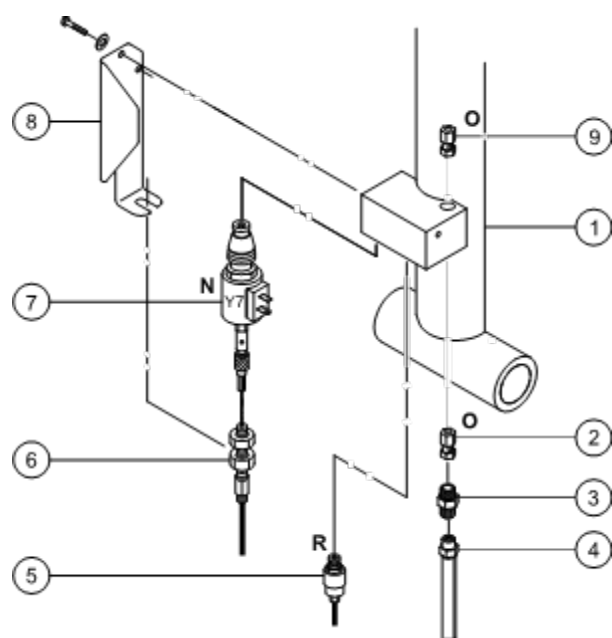
GS-1330m, GS-1432m, GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH, GS-1932m, GS-1932m Lite, GS-1932m XH

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.

Scissor Components

- 3 GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH: Raise the safety arm from the drive chassis to a vertical position.

All other models: Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.



- 1 lift cylinder
- 2 orifice, (schematic item O) GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH
- 3 connector fitting
- 4 hydraulic hose
- 5 pressure transducer, (schematic item R)
- 6 manual lowering cable
- 7 solenoid valve, (schematic item N)
- 8 cable mount bracket
- 9 orifice, (schematic item O) GS-1330m, GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 Using a suitable lifting device, support the link stack at the steer end of the machine.
- 6 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 7 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 8 Tag and disconnect the wiring from the solenoid valve coil and the pressure transducer at the barrel end of the lift cylinder.
- 9 Loosen the adjustment nuts on the solenoid valve and disconnect the manual lowering cable from the valve.

Note: During assembly, the manual platform lowering cable needs to be properly adjusted. Refer to Repair Procedure, *How to Adjust the Manual Platform Lowering Cable*.

- 10 Remove the fasteners securing the manual lowering cable mount bracket to the cylinder. Remove the bracket from the cylinder.
- 11 Tag, disconnect and plug the hydraulic hoses on the lift cylinder. Cap the fittings on the cylinder.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 12 Attach a lifting strap from an overhead supporting device to the rod-end of the lift cylinder.

Scissor Components

- 13 Remove the fasteners from the lift cylinder rod-end pivot pin. Use a soft metal drift to remove the pin.

CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 14 Lower the cylinder onto the lower scissor arm.
- 15 Attach a lifting strap from an overhead supporting device to the barrel-end of the lift cylinder.
- 16 Remove the fasteners from the lift cylinder barrel-end pivot pin. Use a soft metal drift to remove the pin.

CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 17 Support and secure the lift cylinder to an appropriate lifting device.
- 18 Remove the lift cylinder through the scissor arms at the steer end of the machine.

CAUTION

Crushing hazard. The lift cylinder will become unbalanced and fall if not properly supported and secured to the lifting device.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

- 19 Install new cylinder, fittings, hoses and pressure transducer.

Torque specifications

Solenoid valve, 2 position 2 way, N.C. (schematic item N)	20 ft-lbs 27 Nm
Coil nut	5 ft-lbs 7 Nm
Pressure transducer (schematic item R)	27 ft-lbs 37 Nm

- 20 Remove the lifting device supporting the link stack at the steer end of the machine.

- 21 Connect the battery pack to the machine.
- 22 Press and hold the ground control scroll up and scroll down buttons.
- 23 Pull out the red Emergency Stop button to the on position at the ground controls.
- 24 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 25 Raise the platform and rotate the safety arm to the stowed position.
- 26 Fully lower the platform to the stowed position.
- 27 Calibrate the platform overload system. Refer to Repair Procedure *How to Calibrate the Platform Overload System*.

Scissor Components

GS-2032, GS-2632, GS-2046, GS-2646, GS-2646 XH

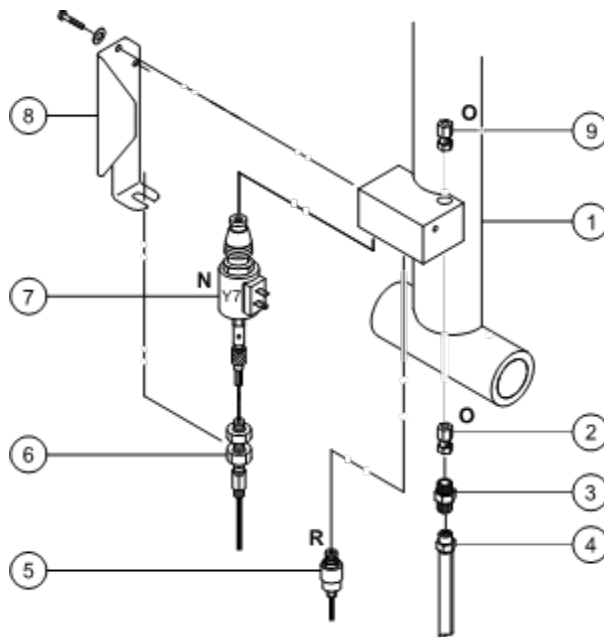
⚠ WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.

- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.



- 1 lift cylinder
- 2 orifice, (schematic item O)
- 3 connector fitting
- 4 hydraulic hose
- 5 pressure transducer, (schematic item R)
- 6 manual lowering cable
- 7 solenoid valve, (schematic item N)
- 8 cable mount bracket

- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 Using a suitable lifting device, support the link stack at the steer end of the machine.

Scissor Components

- 6 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.

- 7 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 8 Tag and disconnect the wiring from the solenoid valve coil and the pressure transducer at the barrel end of the lift cylinder.
- 9 Loosen the adjustment nuts on the solenoid valve and disconnect the manual lowering cable from the valve.

Note: During assembly, the manual platform lowering cable needs to be properly adjusted. Refer to Repair Procedure, *How to Adjust the Manual Platform Lowering Cable*.

- 10 Remove the fasteners securing the manual lowering cable mount bracket to the cylinder. Remove the bracket from the cylinder.
- 11 Tag, disconnect and plug the hydraulic hoses on the lift cylinder. Cap the fittings on the cylinder.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 12 Attach a lifting strap from an overhead supporting device to the rod-end of the lift cylinder.

- 13 Remove the fasteners from the lift cylinder rod-end pivot pin. Use a soft metal drift to remove the pin.

⚠ CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 14 Lower the cylinder onto the number 1 inner arm cylinder plate.
- 15 Attach a lifting strap from an overhead supporting device to the barrel-end of the lift cylinder.
- 16 Remove the fasteners from the lift cylinder barrel-end pivot pin. Use a soft metal drift to remove the pin.

⚠ CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 17 Support and secure the lift cylinder to an appropriate lifting device.
- 18 Remove the lift cylinder through the scissor arms at the steer end of the machine.

⚠ CAUTION

Crushing hazard. The lift cylinder will become unbalanced and fall if not properly supported and secured to the lifting device.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

- 19 Install new cylinder, fittings, hoses and pressure transducer.

Torque specifications

Solenoid valve, 2 position 2 way, N.C. (schematic item N)	20 ft-lbs 27 Nm
Coil nut	5 ft-lbs 7 Nm
Pressure transducer (if equipped) (schematic item R)	27 ft-lbs 37 Nm

Scissor Components

- 20 Remove the lifting device supporting the link stack at the steer end of the machine.
- 21 Connect the battery pack to the machine.
- 22 Press and hold the ground control scroll up and scroll down buttons.
- 23 Pull out the red Emergency Stop button to the on position at the ground controls.
- 24 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 25 Raise the platform and rotate the safety arm to the stowed position.
- 26 Fully lower the platform to the stowed position.
- 27 Calibrate the platform overload system. Refer to Repair Procedure *How to Calibrate the Platform Overload System*.

GS-3232, GS-3246, GS-3246 XH

WARNING

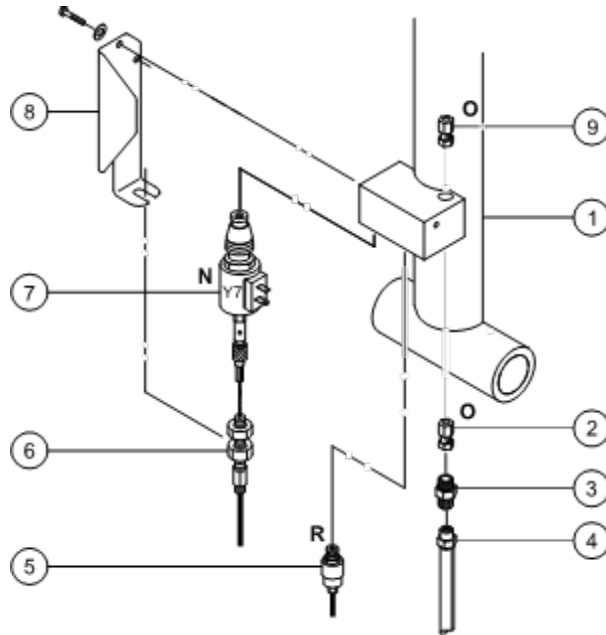
Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 Raise the platform 7 to 9 feet / 2,1 to 2,8 m.

Scissor Components

- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.



- 1 lift cylinder
- 2 orifice, (schematic item O)
- 3 connector fitting
- 4 hydraulic hose
- 5 pressure transducer, (schematic item R)
- 6 manual lowering cable
- 7 solenoid valve, (schematic item N)
- 8 cable mount bracket

- 4 Lower the platform onto the safety arm.

⚠ WARNING

Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 Using a suitable lifting device, support the link stack at the steer end of the machine.
- 6 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 7 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

Note: At the lower lift cylinder, install the orifice fitting with the small opening of the orifice fitting closest to the supply hose.

- 8 Tag and disconnect the wiring from the solenoid valve coil and the pressure transducer at the barrel end of the lift cylinder.

Skip to step 11 if removing the upper cylinder.

- 9 Loosen the adjustment nuts on the solenoid valve and disconnect the manual lowering cable from the valve.

Note: During assembly, the manual platform lowering cable needs to be properly adjusted. Refer to Repair Procedure, *How to Adjust the Manual Platform Lowering Cable*.

- 10 Remove the fasteners securing the manual lowering cable mount bracket to the cylinder. Remove the bracket from the cylinder.

Scissor Components

- 11 Tag, disconnect and plug the hydraulic hoses on the lift cylinder. Cap the fittings on the cylinder.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 12 Attach a lifting strap from an overhead supporting device to the rod-end of the lift cylinder.

- 13 Remove the fasteners from the lift cylinder rod-end pivot pin. Use a soft metal drift to remove the pin.

⚠ CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 14 Lower the cylinder onto the number 1 inner arm cylinder plate.
- 15 Attach a lifting strap from an overhead supporting device to the barrel-end of the lift cylinder.
- 16 Remove the fasteners from the lift cylinder barrel-end pivot pin. Use a soft metal drift to remove the pin.

⚠ CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 17 Support and secure the lift cylinder to an appropriate lifting device.

- 18 Remove the lift cylinder through the scissor arms at the steer end of the machine.

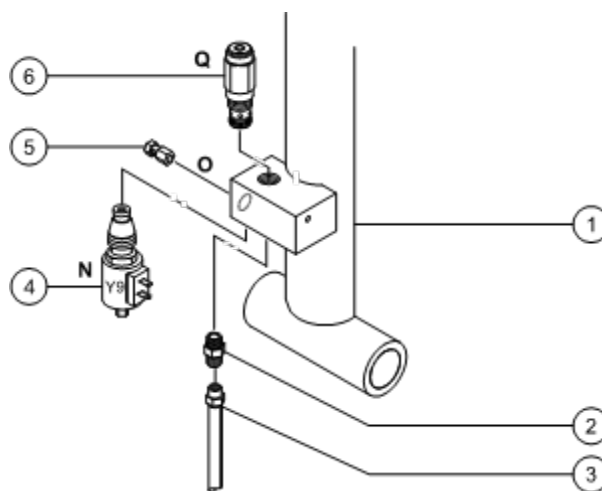
⚠ CAUTION

Crushing hazard. The lift cylinder will become unbalanced and fall if not properly supported and secured to the lifting device.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

- 19 Install new cylinder, fittings, hoses and pressure transducer.



Upper Lift Cylinder

- 1 lift cylinder
- 2 connector fitting
- 3 hydraulic hose
- 4 solenoid valve, (schematic item N)
- 5 orifice, (schematic item O)
- 6 relief valve, (schematic item Q)

Note: At the upper lift cylinder, install the orifice fitting with the small opening of the orifice fitting closest to the supply hose.

Scissor Components

Torque specifications

Solenoid valve, 2 position 2 way, N.C. (schematic item N)	20 ft-lbs 27 Nm
Relief valve, (schematic item Q)	20 ft-lbs 27 Nm
Coil nut	5 ft-lbs 7 Nm

- 20 Remove the lifting device supporting the link stack at the steer end of the machine.
- 21 Connect the battery pack to the machine.
- 22 Press and hold the ground control scroll up and scroll down buttons.
- 23 Pull out the red Emergency Stop button to the on position at the ground controls.
- 24 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 25 Raise the platform and rotate the safety arm to the stowed position.
- 26 Fully lower the platform to the stowed position.
- 27 Calibrate the platform overload system. Refer to Repair Procedure *How to Calibrate the Platform Overload System*.

GS-4046, GS-4655

WARNING

Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

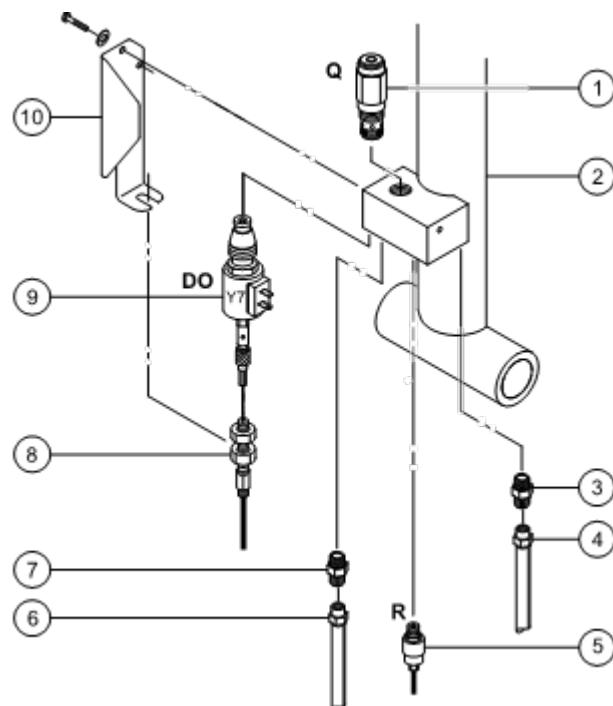
Note: When removing a hose assembly or fitting, the O-ring (if equipped) on the fitting and/or hose end must be replaced. All connections must be torqued to specification during installation. Refer to Specifications, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 GS-4046: Raise the platform 7 to 9 feet / 2,1 to 2,8 m.

GS-4655: Raise the platform approximately 13 feet / 4 m.

Scissor Components

- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.



- 1 relief valve, (schematic item Q)
- 2 lift cylinder
- 3 connector fitting
- 4 hydraulic hose
- 5 pressure transducer, (schematic item R)
- 6 manual lowering cable
- 7 solenoid valve, (schematic item DO)
- 8 cable mount bracket

- 4 Lower the platform onto the safety arm.

▲ WARNING Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 5 Using a suitable lifting device, support the link stack at the steer end of the machine.
- 6 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 7 Disconnect the battery pack from the machine.

▲ WARNING Electrocuting/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 8 Tag and disconnect the wiring from the solenoid valve coil and the pressure transducer at the barrel end of the lift cylinder.

Skip to step 11 if removing the upper cylinder.

- 9 Loosen the adjustment nuts on the solenoid valve and disconnect the manual lowering cable from the valve.

Note: During assembly, the manual platform lowering cable needs to be properly adjusted. Refer to Repair Procedure, *How to Adjust the Manual Platform Lowering Cable*.

- 10 Remove the fasteners securing the manual lowering cable mount bracket to the cylinder. Remove the bracket from the cylinder.

Scissor Components

- 11 Tag, disconnect and plug the hydraulic hoses on the lift cylinder. Cap the fittings on the cylinder.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 12 Attach a lifting strap from an overhead supporting device to the rod-end of the lift cylinder.

- 13 Remove the fasteners from the lift cylinder rod-end pivot pin. Use a soft metal drift to remove the pin.

⚠ CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 14 Lower the cylinder onto the number 1 inner arm cylinder plate.
- 15 Attach a lifting strap from an overhead supporting device to the barrel-end of the lift cylinder.
- 16 Remove the fasteners from the lift cylinder barrel-end pivot pin. Use a soft metal drift to remove the pin.

⚠ CAUTION

Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 17 Support and secure the lift cylinder to an appropriate lifting device.

- 18 Remove the lift cylinder through the scissor arms at the steer end of the machine.

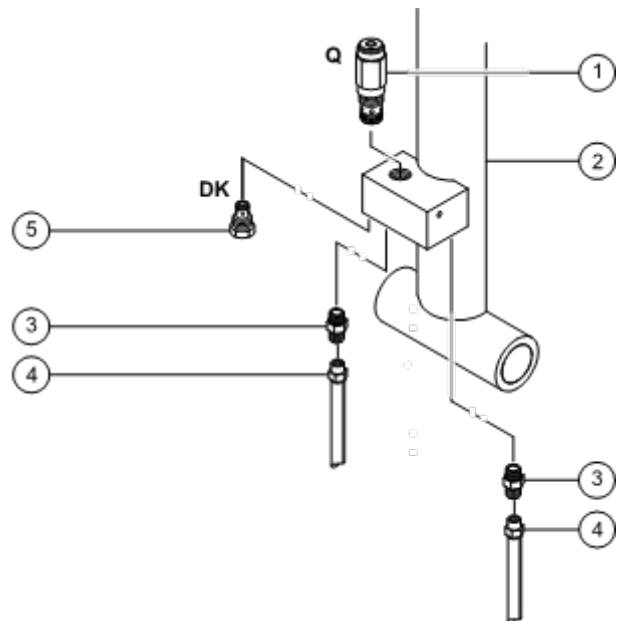
⚠ CAUTION

Crushing hazard. The lift cylinder will become unbalanced and fall if not properly supported and secured to the lifting device.

NOTICE

Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

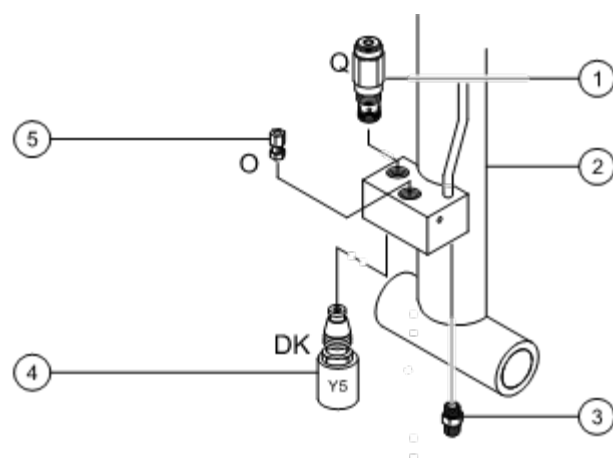
- 19 Install new cylinder, fittings, hoses and pressure transducer.



Upper Lift Cylinder GS-4046

- 1 relief valve, (schematic item Q)
- 2 lift cylinder
- 3 connector fitting
- 4 hydraulic hose
- 5 check valve, (schematic item DK)

Scissor Components



Upper Lift Cylinder GS-4655

- 6 relief valve, (schematic item Q)
- 7 lift cylinder
- 8 connector fitting
- 9 solenoid valve, (schematic item DK)
- 10 orifice, (schematic item O)

Torque specifications

Solenoid valve, 2 position 2 way, N.C. (schematic item DK)	20 ft-lbs 27 Nm
Relief valve, (schematic item Q)	20 ft-lbs 27 Nm
Coil nut	5 ft-lbs 7 Nm

- 20 Remove the lifting device supporting the link stack at the steer end of the machine.
 - 21 Connect the battery pack to the machine.
 - 22 Turn the key switch to ground controls.
 - 23 Press and hold the ground control scroll up and scroll down buttons.
 - 24 Pull out the red Emergency Stop button to the on position at the ground controls.
 - 25 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.
- Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.
- 26 Raise the platform and rotate the safety arm to the stowed position.
 - 27 Fully lower the platform to the stowed position.
 - 28 Calibrate the platform overload system. Refer to Repair Procedure *How to Calibrate the Platform Overload System*.

Scissor Components

9-14

Pressure Transducer

How to Remove the Pressure Transducer

Note: Calibrating the platform overload system is not required if the pressure transducer is the only component replaced on the machine lift structure.

In the event of frequent nuisance trips occurring after a pressure transducer is replaced, a no load calibration is recommended. Refer to Repair Procedure, *How to Calibrate the Platform Overload System*.

- 1 Turn the key switch to ground controls and pull out the red Emergency Stop button to the on position at both ground and platform controls.
- 2 GS-4655: Raise the platform approximately 13 feet / 4 m.

All other models: Raise the platform 7 to 9 feet / 2,1 to 2,8 m.
- 3 GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH: Raise the safety arm from the drive chassis to a vertical position.

All other models Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 4 Lower the platform onto the safety arm.
- 5 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 6 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Pull the manual lowering cable and hold for 3 seconds.

- 8 Tag and disconnect the three-pin connector from the pressure transducer harness.
- 9 Slowly loosen the pressure transducer from the lift cylinder and remove. Discard the pressure transducer.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 10 Connect the battery pack to the machine.
- 11 Turn the key switch to ground controls.
- 12 Press and hold the ground control scroll up and scroll down buttons.
- 13 Pull out the red Emergency Stop button to the on position at the ground controls.
- 14 Using the ground control menu buttons, navigate to Service Override Mode. Select Service Override Mode.

Note: The machine must be in Service Override Mode to raise the platform. While in Service Override Mode, only the GCON will operate with limited functionality. The platform will raise a predetermined amount of time and stop.

- 15 Raise the platform and rotate the safety arm to the stowed position.
- 16 Fully lower the platform to the stowed position.

Torque specifications

Pressure transducer	27 ft-lbs 37 Nm
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Scissor Components

9-15 Platform Overload System

How to Calibrate the Platform Overload System

Note: Perform this procedure with the machine on a firm, level surface that is free of obstructions.

Note: Perform this procedure with all weight, tools, equipment and personnel removed from the platform.

Note: Perform this procedure after confirming that the platform height sensor is not damaged and functions correctly.

Perform this procedure in an environment that allows the platform to be fully raised. Models rated for indoor use only, should be calibrated inside a facility with enough ceiling height to fully raise the platform. If the facility height is not suitable to fully raise the platform, then an indoor only rated model may be calibrated outdoors if wind speeds are less than 28 mph / 12,5 m/s. Only use flat weights while calibrating indoor only rated machines outdoors.

If a new Ground Controller is installed on a machine, the Full Load Calibration procedure is required to maintain rated load platform capacity. If a No Load Calibration is performed, machine lifting performance will be significantly reduced.

The ambient temperature must be above 32°F / 0°C before calibrating the Platform Overload System.

There are two options to the platform overload calibration procedure in this section, Full Load Calibration and No Load Calibration. Full Load Calibration has two steps requiring calibration with and without rated load in the platform. No Load Calibration does not require rated load in the platform.

No Load Calibration can be completed stand alone to fulfill the C-2 overload calibration requirements, if the machine has completed the Full Load Calibration procedure.

Note: To calibrate the platform overload system, follow the menu structure indicated on the ground control LCD display.

Scissor Components

Full Load Calibration: Part 1

- 1 Fully charge the batteries and check the hydraulic fluid level.

Note: The hydraulic fluid level must be between the FULL and ADD marks on the hydraulic tank.

- 2 Apply a thin layer of dry film lubricant to the area of the chassis where the scissor arm wear pads make contact.
- 3 Chock both sides of the wheels at the steer end of the machine.
- 4 Place the maximum rated load in the platform. Secure the load to the platform.

GS-1330m, GS-1432m, GS-1930, GS-1932, GS-1932 XH, GS-1932m, GS-1932m Lite, GS-1932m XH, GS-2632, GS-3232	500 lbs / 227 kg
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GS-1530, GS-1532	600 lbs / 272 kg
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GS-2032	800 lbs / 363 kg
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Note: In the event of frequent nuisance trips occurring after calibrating a GS-3232 machine, it is recommended to recalibrate the machine, full load and no load, with 250 kg of weight in the platform.

GS-2046	1200 lbs / 544 kg
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GS-2646, GS-2646 XH	1000 lbs / 454 kg
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GS-3246, GS-3246 XH	700 lbs / 317 kg
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GS-4046, GS-4655	770 lbs / 350 kg
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- 5 Turn the key switch to ground controls.
- 6 At the ground controls, press and hold the Menu Up and Menu Down buttons.
- 7 While pressing both buttons down, pull out the red Emergency Stop Button.

- 8 Release the Menu Up and Menu Down buttons after the ground controller powers up.
- 9 Press the Menu Up or Menu Down buttons to scroll to, Select Option. Press the Enter button.
- 10 Press the Menu Up or Menu Down buttons to scroll to Platform Overload. Press the Enter button.
- 11 Press the Menu Up or Menu Down buttons to scroll to Platform Overload Calibrate. Press the Enter button.
- 12 Confirm the Platform Overload Calibrate selection by pressing the Enter button again.
- 13 Press the Menu Up or Menu Down buttons to select Full Load calibration. Press the Enter button.
- 14 Press the Enter button to confirm rated load is in the platform.
- 15 At the ground controls, press and hold the Function Enable and Platform Up buttons until the platform reaches maximum height.
- 16 GS-4046: Press and hold the Menu Enter button to determine the maximum height. The machine will lower for 1.2 seconds and then raise in 1.2 second durations, until maximum height is reached. When the platform reaches the maximum height, a message will appear on the LCD screen to release the Menu Enter button.

Note: Do not release the Menu Enter button before the message appears on the LCD screen.

All other models: When the platform reaches maximum height, press the ground controls Enter button. Allow the ground controls to gather data.

Scissor Components

17 When prompted, press and hold the Function Enable and Platform Down buttons. The platform will lower, then automatically stop at a predetermined point to gather data. Allow the ground controls to gather data.

18 Continue pressing the Function Enable and Platform Down buttons throughout the lowering and data gathering sequence. The machine will stop to gather data and lower several times before the machine reaches the stowed position. When the platform reaches the stowed position. Press the enter button.

Note: GS-3032, GS-2646, GS-2646 XH, GS-4046 models, continue to step 21.

Note: All other models, continue with step 19.

19 When prompted, press and hold the Function Enable and Platform Up buttons until the platform reaches full height. When the platform reaches full height, press the enter button.

Note: If the Function Enable or Platform Up buttons are released while the machine is collecting data, the GCON LCD will prompt the user to lower the platform for 5 seconds before prompting to raise the platform to full height again.

20 When prompted, press and hold the Function Enable and Platform Down buttons until the platform is fully stowed. When the platform reaches the stowed position, press the enter button.

Note: If the Function Enable or Platform Down buttons are released while the machine is collecting data, the GCON LCD will prompt the user to raise the platform for 5 seconds before prompting to lower the platform to the stowed position again.

Note: If the machine is switched to PCON mode to drive the machine to an area for weight removal, step 3 and steps 5 through 14 will have to be repeated before Full Load Calibration: Part 2 is performed. Additionally, the CO25 fault will appear. This is expected and the data collected in Full Load Calibration: Part 1 has not been lost.

21 Using a suitable lifting device, remove all test weights from the platform.

22 After the weight is removed from the platform deck, press the Enter button to confirm the weight has been removed.

Scissor Components

Full Load Calibration: Part 2

- 23 At the ground controls, press and hold the Function Enable and Platform Up buttons until the platform reaches maximum height.
- 24 GS-4046: Press and hold the Menu Enter button to determine the maximum height. The machine will lower for 1.2 seconds and then raise in 1.2 second durations, until maximum height is reached. When the platform reaches the maximum height, a message will appear on the LCD screen to release the Menu Enter button.

All other models: When the platform reaches maximum height, press the Enter button. Allow the ground controls to gather data.

Note: If at any point the Menu Enter button is released before the message appears on the LCD screen, the calibration procedure will restart at step 26.

- 25 When prompted, press and hold the Function Enable and Platform Down buttons to lower the platform. The platform will move down, then automatically stop at a predetermined point to gather data. Allow the ground controls to gather data.
- 26 Continue pressing the Function Enable and Platform Down buttons throughout the lowering and data gathering sequence. The machine will stop to gather data and lower several times before the machine reaches the stowed position. When the platform reaches the stowed position, press the Enter button.

Note: GS-2032, GS-2646, GS-2646 XH, GS-4046 models, continue to step 32.

Note: All other models, continue with step 30.

- 27 When prompted, press and hold the Function Enable and Platform Up buttons until the platform reaches full height. When the platform reaches full height, press the enter button.

Note: If the Function Enable or Platform Up buttons are released while the machine is collecting data, the GCON LCD will prompt the user to lower the platform for 5 seconds before prompting to raise the platform to full height again.

- 28 When prompted, press and hold the Function Enable and Platform Down buttons until the platform is fully stowed. When the platform reaches the stowed position, press the enter button.

Note: If the Function Enable or Platform Down buttons are released while the machine is collecting data, the GCON LCD will prompt the user to raise the platform for 5 seconds before prompting to lower the platform to the stowed position again.

- 29 When prompted, push the red Emergency Stop button in to complete the Platform Overload Calibration procedure.

Scissor Components

No Load Calibration

- 30 Fully charge the batteries and check the hydraulic fluid level.

Note: The hydraulic fluid level must be between the FULL and ADD marks on the hydraulic tank.

- 31 Apply a thin layer of dry film lubricant to the area of the chassis where the scissor arm wear pads make contact.
- 32 Chock both sides of the wheels at the steer end of the machine.
- 33 Turn the key switch to ground controls.
- 34 At the ground controls, press and hold the Menu Up and Menu Down buttons.
- 35 While pressing both buttons down, pull out the red Emergency Stop Button.
- 36 Release the Menu Up and Menu Down buttons after the ground controller powers up.
- 37 Press the Menu Up or Menu Down buttons to scroll to, Select Option. Press the Enter button.
- 38 Press the Menu Up or Menu Down buttons to scroll to Platform Overload. Press the Enter button.
- 39 Press the Menu Up or Menu Down buttons to scroll to Platform Overload Calibrate. Press the Enter button.
- 40 Confirm the Platform Overload Calibrate selection by pressing the Enter button again.
- 41 Press the Menu Up or Menu Down buttons to select No Load calibration. Press the Enter button.

- 42 Press the Enter button to confirm no load is in the platform.

- 43 At the ground controls, press and hold the Function Enable and Platform Up buttons until the platform reaches maximum height.

- 44 GS-4046: Press and hold the Menu Enter button to determine the maximum height. The machine will lower for 1.2 seconds and then raise in 1.2 second durations, until maximum height is reached. When the platform reaches the maximum height, a message will appear on the LCD screen to release the Menu Enter button.

Note: Do not release the Menu Enter button before the message appears on the LCD screen.

All other models: When the platform reaches maximum height, press the ground controls Enter button. Allow the ground controls to gather data.

- 45 When prompted, press and hold the Function Enable and Platform Down buttons. The platform will lower, then automatically stop at a predetermined point to gather data. Allow the ground controls to gather data.

- 46 Continue pressing the Function Enable and Platform Down buttons throughout the lowering and data gathering sequence. The machine will stop to gather data and lower several times before the machine reaches the stowed position. When the platform reaches the stowed position. Press the enter button.

Note: GS-2032, GS-2646, GS-2646 XH, GS-4046 models, continue to step 49.

Note: All other models, continue with step 47.

Scissor Components

- 47 When prompted, press and hold the Function Enable and Platform Up buttons until the platform reaches full height. When the platform reaches full height, press the enter button.

Note: If the Function Enable or Platform Up buttons are released while the machine is collecting data, the GCON LCD will prompt the user to lower the platform for 5 seconds before prompting to raise the platform to full height again.

- 48 When prompted, press and hold the Function Enable and Platform Down buttons until the platform is fully stowed. When the platform reaches the stowed position, press the enter button.

Note: If the Function Enable or Platform Down buttons are released while the machine is collecting data, the GCON LCD will prompt the user to raise the platform for 5 seconds before prompting to lower the platform to the stowed position again.

- 49 When prompted, push the red Emergency Stop button in to complete the No Load Calibration procedure.

9-16

Platform Overload Recovery Message

If the ground controls LCD screen displays **OL: PLATFORM OVERLOADED**, the emergency lowering system has been used while the platform was overloaded.

How to Clear the Platform Overload Recovery Message

Note: This message shall be cleared by a person trained and qualified on the troubleshooting and repair of this machine.

Note: Use the following chart to identify the description of each LCD screen control button used in this procedure.



Escape

Scroll up

Scroll down

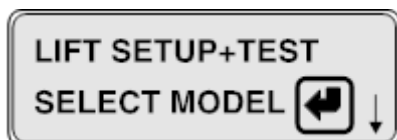
Enter

- 1 Turn the key switch to the ground controls position and pull out the red Emergency Stop button to the on position at the platform controls.
- 2 Press and hold the ground control **scroll up** and **scroll down** buttons.

Scissor Components

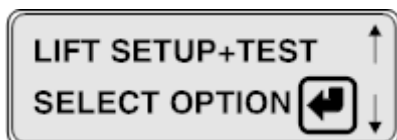
- 3 Pull out the red Emergency Stop button at the ground controls.

- Result: The ground control LCD display will show the following.



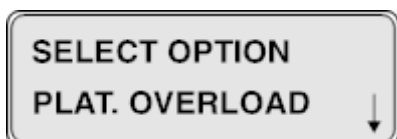
- 4 Press the **scroll down** button.

- Result: The ground control LCD display will show the following.



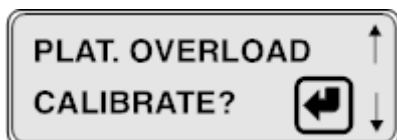
- 5 Press the **enter** button.

- Result: The ground control LCD display will show the following.



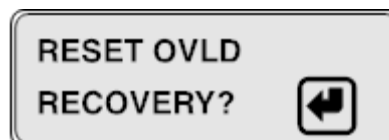
- 6 Press the **enter** button.

- Result: The ground control LCD display will show the following.



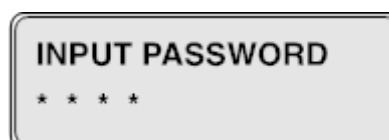
- 7 Press and hold the **scroll down** button for 5 seconds.

- Result: The ground control LCD display will show the following.



- 8 Press the **enter** button.

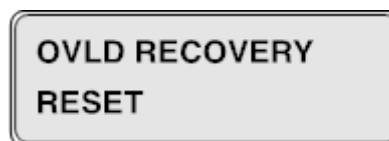
- Result: The ground control LCD display will show the following.



- 9 Press the buttons in the following sequence: **(down)(down)(up)(enter)**.

Note: After each key press an asterisk (*) will appear on the second line of the LCD display.

- Result: The ground control LCD display will show the following.



Note: After 3 seconds the LCD display will return to **SELECT OPTION PLAT. OVERLOAD**.

- 10 Push in the red Emergency stop button.

Scissor Components

9-17

Outdoor Height Limiting

How to Calibrate the Outdoor Height Limiting

Note: This procedure does not apply to the following models: **GS-1932m XH, GS-1932 XH, GS-2646 XH, GS-3246 XH**

Note: Perform this procedure with the machine on a firm, level surface.

Note: Perform this procedure in an area that is free of overhead obstructions.

Note: Use the following chart to identify the description of each LCD screen control button used in this procedure.



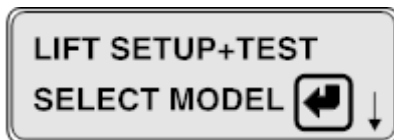
escape
button

scroll up
button

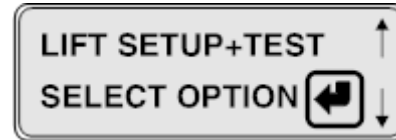
scroll down
button

enter button

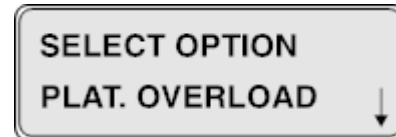
- 1 Attach the end of a 50 ft / 15 m measuring tape to the side of the platform deck.
 - 2 Turn the key switch to the ground controls position and pull out the red Emergency Stop button to the on position at the platform controls.
 - 3 Press and hold the ground control scroll up and scroll down buttons.
 - 4 Pull out the red Emergency Stop button to the on position at the ground controls.
- ⦿ Result: The ground control LCD display will show the following.



- 5 Press the **scroll down** button.
- ⦿ Result: The ground control LCD display will show the following.



- 6 Press the **enter** button.
- ⦿ Result: The ground control LCD display will show the following.



- 7 Use the scroll down button to scroll to **OHL CALIBRATION**. Press the **enter** button.
- 8 When the LCD displays **RAISE TO OUTDOOR HEIGHT LIMIT**, press the **enter** button.
- 9 Fully elevate the platform until it stops.

Scissor Components

- 10 Verify the distance from the surface to the platform deck is appropriate for your machine.
- 11 Press the **enter** button.
- 12 Cycle the red Emergency Stop button off, then back on.
- 13 Lower the platform to the stowed position.

Model	Height, platform maximum	Model	Height, platform maximum
GS-1330m	10 ft 6 in 3,2 m	GS-3232	15 ft 9 in 4,8 m
GS-1432m GS-1530 GS- 1532	12 ft 3,66 m	GS-2046	16 ft 4 in 4,98 m
GS-1932m	15 ft 4,57 m	GS-2646	19 ft 8 in 5,99 m
GS-1932m Lite	9 ft 5 in 2,9 m	GS-3246	22 ft 6,71 m
GS-1930 GS- 1932	14 ft 8 in 4,47 m	GS-4046	23 ft 7 m
GS-2032	16 ft 4,88 m	GS-4655	21 ft 6 in 6,55 m
GS-2632	19 ft 5,79 m		

Note: GS-3232 is shown with the outriggers fully retracted.

Platform Components

10-1 Platform

How to Remove the Platform - GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

Perform this procedure with the platform extension fully retracted and locked in position.

Note: Perform this procedure with all external AC power disconnected from the machine.

- 1 Raise the platform to approximately 3 ft / 1 m.
- 2 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 3 Disconnect the platform controls from the control cable at the platform.
- 4 Remove the cover from the AC outlet. Tag and disconnect the wiring from the outlet.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 5 Disconnect the wiring from the platform and pull the wiring free of the platform.

Models with air line to platform option:
Disconnect the air line from the platform. Pull the air line free of the platform.

- 6 Attach straps from an overhead supporting device to the lanyard anchorage points on the platform railings at the non-steer end of the machine. Apply slight lifting pressure.
- 7 Remove the pivot pins securing the platform to the scissor assembly.
- 8 Attach straps from an overhead supporting device to the lanyard anchorage points on the platform railings at the steer end of the machine.

⚠ WARNING

Crushing hazard. The platform will fall if not properly supported.

- 9 Apply just enough lifting pressure to separate the slide wear pads from the platform.
- 10 Carefully rotate the platform approximately 30° in either direction.
- 11 Carefully lift the platform off of the machine and place it on a structure capable of supporting it.

Note: Take notice of the wear pad position before the platform is removed. Correct wear pad position is essential for proper platform functionality.

Platform Components

How to Remove the Platform - All other models

Perform this procedure with the platform extension fully retracted and locked in position.

- 1 Raise the platform to approximately 3 ft / 1 m.
- 2 Remove the retaining fasteners securing the platform to the platform mount at the steer end of the machine.
- 3 Lower the platform to the stowed position.
- 4 Disconnect the battery pack from the machine.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 5 Disconnect the platform controls from the control cable at the platform.
- 6 Remove the cover from the AC outlet. Tag and disconnect the wiring from the outlet.

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 7 Disconnect the wiring from the platform and pull the wiring free of the platform.
- 8 Models with air line to platform option: Disconnect the air line from the platform. Pull the air line free of the platform.

- 9 Support the platform with a forklift at the non-steer end. Do not apply any lifting pressure.
- 10 Attach a strap from the lanyard anchorage point on the platform railings to the carriage on the forklift to help support the platform.
- 11 **GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH:** Lift the steer end of the platform slightly to clear the platform mount and slide the platform towards the non-steer end of the machine until the platform slide blocks at the non-steer end of the machine are visible through the access holes in the bottom of the platform.

All other models: Lift the steer end of the platform slightly to clear the platform mount and slide the platform towards the steer end of the machine until the platform slide blocks at the non-steer end of the machine are visible through the access holes in the bottom of the platform.

⚠ WARNING

Crushing hazard. The platform will fall if not properly supported.

- 12 Carefully lift the platform off of the machine and place it on a structure capable of supporting it.

Note: Take notice of the wear pad position before the platform is removed. Correct wear pad position is essential for proper platform functionality.

Platform Components

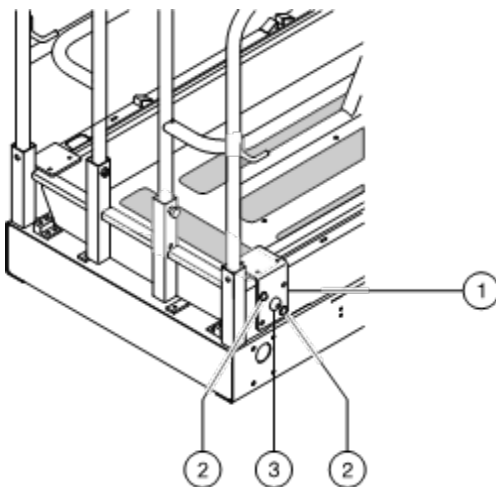
10-2 Platform Extension Deck

How to Remove the Platform Extension Deck

- 1 Lower the platform to the stowed position.
- 2 GS-4655: Fully extend the platform extension deck.

All other models: Extend the platform approximately 3 ft / 1 m.
- 3 Remove the platform controls from the platform.
- 4 Support the platform extension with a forklift at the steer end of the machine. Do not apply any lifting pressure.
- 5 Attach a strap from the platform extension railings to the carriage on the forklift to help support the platform extension.
- 6 Remove the fasteners from each platform extension roller bracket assembly. Remove each assembly from the machine.

Note: Do not remove the platform roller bolt.



- 1 roller bracket assembly
- 2 retaining fasteners
- 3 platform roller bolt

- 7 Remove the platform roller wheels from the machine.
- 8 Carefully slide the platform extension out from the platform and place it on a structure capable of supporting it.

How to Replace the Platform Extension Deck Wear Pads

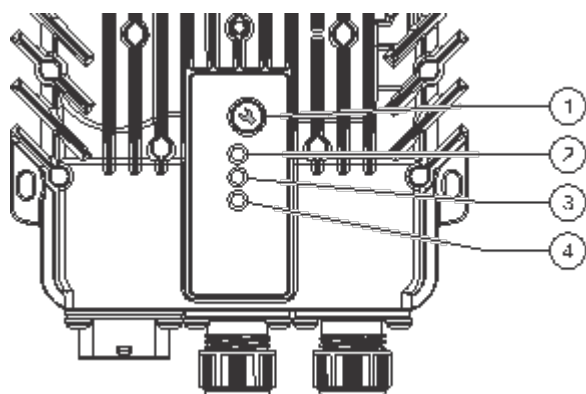
- 1 Remove the Platform Extension Deck. Refer to Repair Procedure, *How to Remove the Platform Extension*.
- 2 Drill out the rivets which hold the wear pads in place.
- 3 Install the new wear pads using new rivets. When installing the new rivets, make sure the rivet heads are not above the surface of the wear pad.

Battery Charger

11-1

Battery Charger

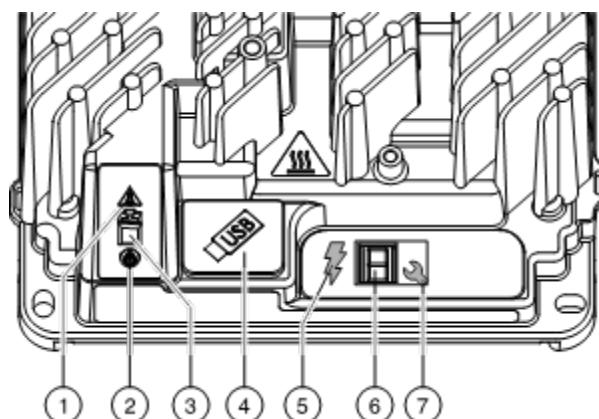
The charger contains selectable charging profiles stored in its internal memory to charge batteries. These profiles are specific to each battery type. The charging profile must be programmed to match the specific battery type on the machine.



Charger status indicators

GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH

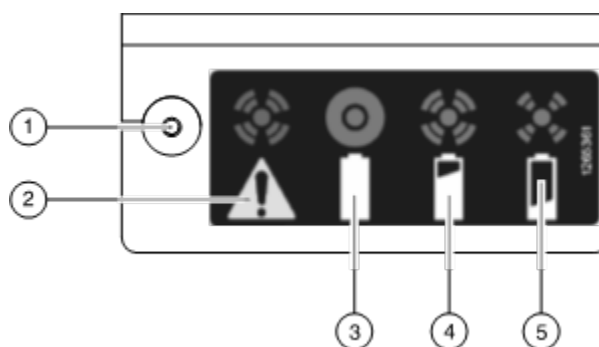
- 1 Charge profile selection button
- 2 Battery charging indicator
- 3 Error / Fault indicator
- 4 AC power indicator



Charger status indicators

All other models

- 1 Error / Fault / USB indicator
- 2 AC power indicator
- 3 Battery charging indicator
- 4 USB port
- 5 Charging output indicator
- 6 Charger profile / Error display
- 7 Charge profile selection button



Remote charger status indicators

- 1 Error / Fault / USB indicator
- 2 Error / Fault
- 3 Charge complete
- 4 Charging, high state of charge
- 5 Charging, low state of charge

Battery Charger

Selecting a Charge Profile

WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 1 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 2 Open the battery compartment.
- 3 Press and hold the charge profile selection button and plug the battery charger into an AC power source. Continue to hold the button until the amber error indicator is on and the green charging indicator light is flashing. Release the button.
- 4 Press and release the charge profile selection button to navigate to the charge profile appropriate for your machine and battery type. Refer to the chart below.

- 5 Press and hold the charge profile selection button until the error indicator and charging indicator lights turn off and the AC status indicator light turns on to confirm selection and exit charge profile mode. Release the button.

Note: Charge profile mode will time out and exit if there is 15 seconds of inactivity, the charge profile number has been displayed three times or the AC power source had been disconnected.

- 6 Press and release the charge profile selection button to confirm the correct charge profile has been selected.

Profile	Description
P001	Flooded lead acid batteries - Temperature compensated * (does not include GS-4046, GS-4655)
P003	Flooded lead acid batteries - Not temperature compensated ** (does not include GS-4046, GS-4655)
P007	GS-4046, GS-4655 Flooded lead acid batteries - Not temperature compensated **
P043	All scissor models AGM batteries - Temperature compensated *

* Temperature compensated: Battery temperature sensor has been installed on the machine.

** Not temperature compensated: Battery temperature sensor has not been installed on the machine.

Power Cables

12-1 Drive Motor Power Cables

How to Replace a Drive Motor Power Cable - Models with electric drive

Note: Perform this procedure on a firm, level surface with the machine in the stowed position.

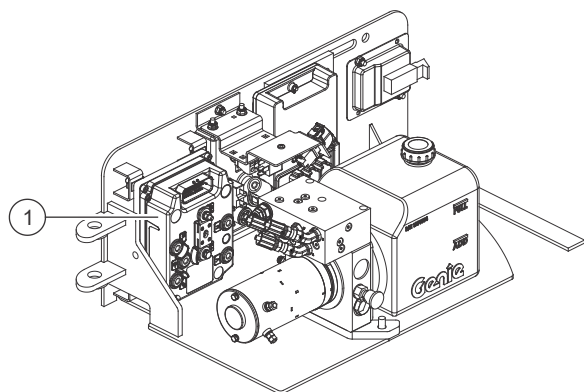
Note: Perform this procedure with all external AC power disconnected from the machine.

- 1 Turn the key switch to platform control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 2 Steer the machine in the direction of the drive motor power cable to be replaced.
- 3 At the ground controls, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 4 Disconnect the battery pack from the machine.

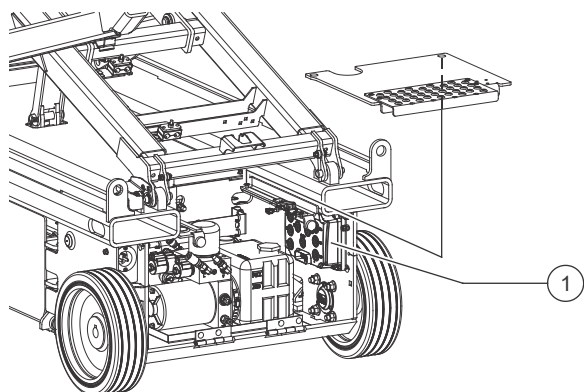
WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

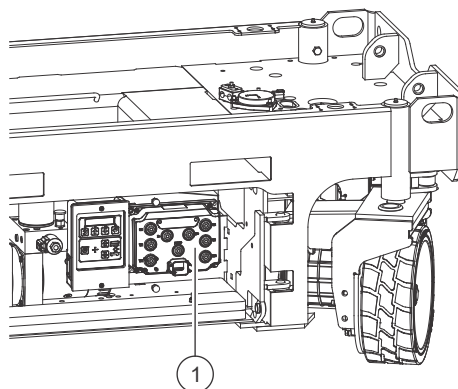
- 5 Locate the motor controller on the machine.



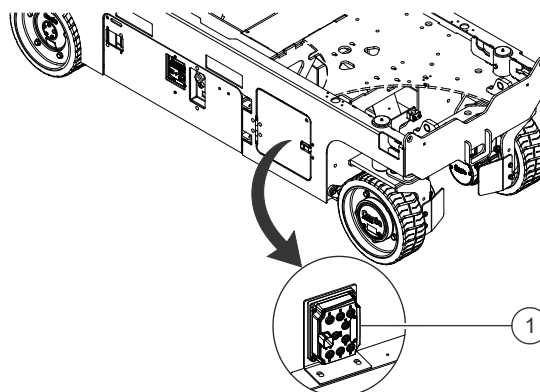
GS-1330m



GS-1432m, GS-1932m



GS-1530/1532, GS-1930/1932

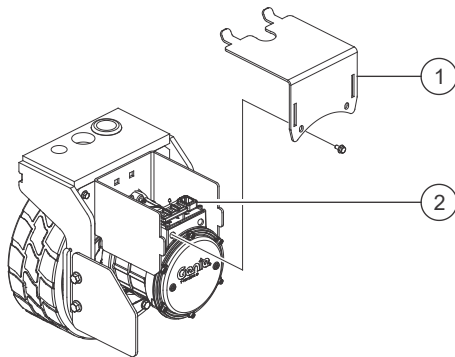


GS-32, GS-46, GS-55

1 motor controller

Power Cables

- 6 Disconnect the power cable to be replaced from the motor controller.
- 7 Remove all cable ties and clamps securing the power cable between the motor controller and drive motor. Note the location of the cable ties.
- 8 Remove the terminal cover from the drive motor.



- 1 terminal cover
2 drive motor cable terminal

- 9 Disconnect the power cable from the drive motor.
- 10 Remove the power cable from the machine.
- 11 Lay the replacement power cable on the surface in a straight line at the steer end of the machine so there are no bends or twist.
- 12 Route the power cable into the chassis to the motor controller.

Note: Verify the cable is not being twisted while routing through the chassis.

- 13 Connect the power cable to the drive motor.
- 14 Install the terminal cover to the drive motor.

- 15 Install all cable clamps securing the power cable to the chassis.

Note: The routing line on the power cable must be aligned with the top center of the cable clamp during installation.

Note: Refer to, *Cable Routing Diagram*.

- 16 Secure the power cable using cable ties.

Note: Verify the cable is straight and does not rub on any metal edges.

- 17 Connect the power cable to the motor controller.
- 18 Connect the battery pack to the machine.

⚠ WARNING

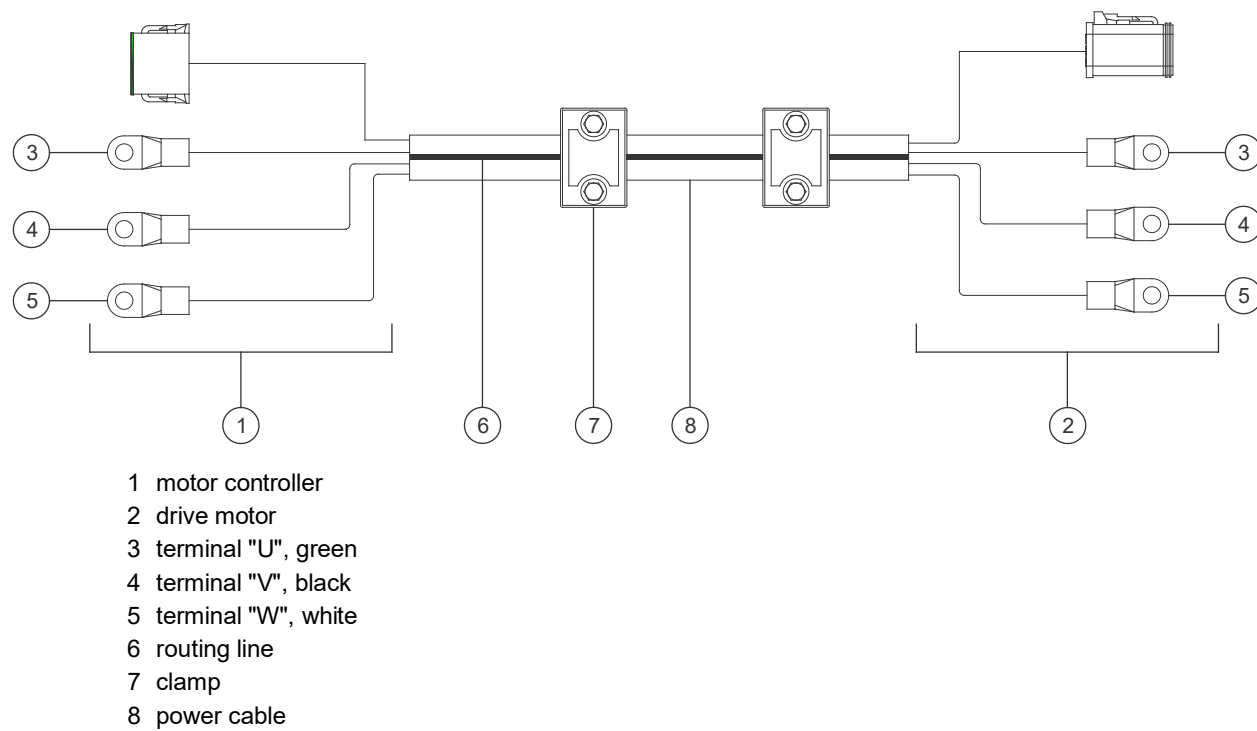
Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 19 Fully steer the machine in both directions and verify the power cable does not get pinched or rub.

Note: Repeat this procedure if the other power cable is being replaced.

Repair Procedures

Power Cable Diagram



Diagnostics



Observe and Obey:

- ✓ Troubleshooting and repair procedures shall be completed by a person trained and qualified on the repair of this machine
- ✓ Immediately tag and remove from service a damaged or malfunctioning machine.
- ✓ Repair any machine damage or malfunction before operating the machine.
- ✓ Unless otherwise specified, perform each repair procedure with the machine in the following configuration:
 - Machine parked on a firm, level surface
 - Platform in the stowed position
 - Key switch in the off position with the key removed
 - The red Emergency Stop button in the off position at both ground and platform controls
 - Wheels chocked
 - All external AC power supply disconnected from the machine

Before Troubleshooting:

- ✓ Read, understand and obey the safety rules and operating instructions in the appropriate operator's manual on your machine.
- ✓ Be sure that all necessary tools and test equipment are available and ready for use.
- ✓ Read each appropriate fault code thoroughly. Attempting short cuts may produce hazardous conditions.
- ✓ Be aware of the following hazards and follow generally accepted safe workshop practices.

⚠ DANGER

Crushing hazard. When testing or replacing any hydraulic component, always support the structure and secure it from movement

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

About This Section

When a malfunction is discovered, the fault code charts in this section will help a service professional pinpoint the cause of the problem. To use this section, basic hand tools and certain pieces of test equipment are required — voltmeter, ohmmeter, pressure gauges.

Diagnostics

Definitions

GSDS – Genie SmartLink™ Diagnostic System

ECM – Electronic Control Module

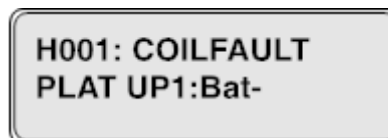
GCON – Ground Controls

PCON – Platform Controls

OIC – Operational Indicator Codes

DTC – Diagnostic Trouble Codes

GCON LCD Diagnostic Readout



The diagnostic readout displays alpha numeric codes that provide information about the machine operating status and about malfunctions.

The codes listed in the Diagnostic Trouble Code Charts describe malfunctions and can aid in troubleshooting the machine by pinpointing the area or component affected.

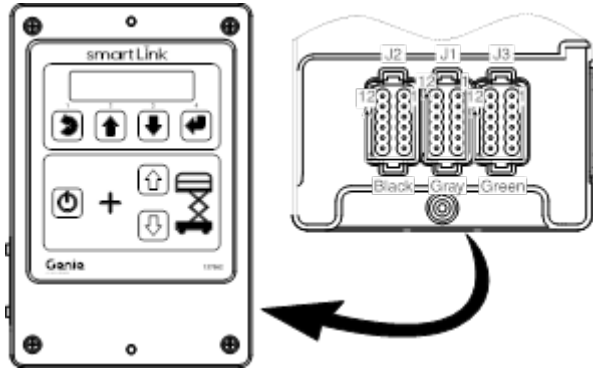
Models are listed below each code to assist in the troubleshooting codes for a specific model.

Genie® SmartLink™ Diagnostic System

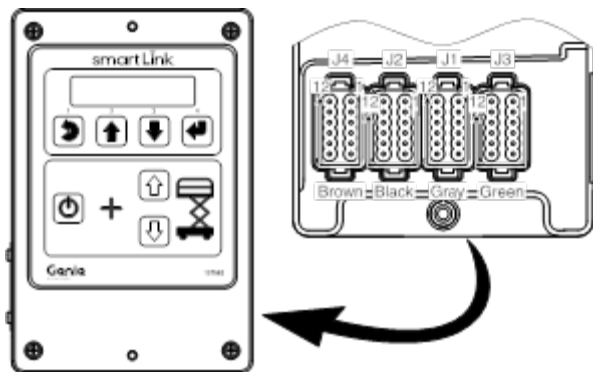
This machine is equipped with the Genie SmartLink™ Diagnostic System (GSDS). The GSDS indicates a machine malfunction has happened by displaying Operational Indicator Codes (OIC) and Diagnostic Trouble Codes (DTC). These codes are displayed at the Platform Controls and the Ground Controls. The Ground Controls will display a brief description of the code at the LCD display as well. Refer to the GCON I/O Maps, Operational Indicator Codes (OIC) and Diagnostic Trouble Codes (DTC) in this section, to assist in troubleshooting faults.

Diagnostics

GCON ECM Connector Layout



Rear of Ground Controls ECM (models without outriggers)



Rear of Ground Controls ECM (models with outriggers)

Diagnostics

GCON I/O Map - Models without outriggers			
Pin number	Circuit function	I/O Type	Wire color
J1 – Grey			
J1-01	Power, ECM	Power Input	Red
J1-02	Power, PCON	Power Output	Red
J1-03	Emergency stop, PCON	Power Input	White
J1-04	CAN High, PCON	Data Bus	Yellow
J1-05	CAN Low, PCON	Data Bus	Green
J1-06	Ground, PCON	Ground Output	Brown
J1-07	Ground, ECM	Ground Input	Brown
J1-08	Key switch, PCON	Digital Input	Black
J1-09	Key switch, GCON	Digital Input	White
J1-10	Emergency stop, GCON	Digital Input	White / Black
J1-11	Contact Alarm - Models with hydraulic drive	Digital Input	Black
J1-12	Power, ECM Driver	Power Input	Red
J2 – Black			
J2-01	Platform up coil	Digital Output	Orange
J2-02	Platform down coil - Models with electric drive	Digital Output	Orange / Black
J2-03	Steer left coil	Digital Output	Blue / Black
J2-04	Steer right coil	Digital Output	Blue
J2-05	Not used	---	---
J2-06	Drive forward coil - Models with hydraulic drive	Digital Output	White
J2-07	Not used	---	---
J2-08	Motor controller enable	Digital Output	Green / White
J2-09	Not used	---	---
J2-10	Drive reverse coil - Models with hydraulic drive	Digital Output	White / Black
J2-11	Motor controller throttle - Models with hydraulic drive	Analog Output	Green
J2-12	Not used	---	---
J3 – Green			
J3-01	Flashing beacon, PWM	Digital Output	Red / Black
J3-02	Alarm, GCON	Digital Output	Blue
J3-03	Sensor power	Digital Output	Red
J3-04	Automotive horn	Digital Output	White
J3-05	Pothole limit switch - Models with electric drive	Digital Input	Orange / Red
J3-06	Ground	Ground Input	Brown
J3-07	Down limit switch	Digital Input	Orange
J3-08	Brake release - Models with electric drive	Digital Input	White / Red
J3-09	Pressure transducer	Ground Input	Blue / White
J3-10	Platform height sensor	Ground Input	Orange / White
J3-11	Not used	---	---
J3-12	Sensor ground	Ground Input	Black

Diagnostics

GCON I/O Map - Models with outriggers			
Pin number	Circuit function	I/O Type	Wire color
J1 – Grey			
J1-01	Power, ECM	Power Input	Red
J1-02	Power, PCON	Power Output	Red
J1-03	Emergency stop, PCON	Power Input	White
J1-04	CAN High, PCON	Data Bus	Yellow
J1-05	CAN Low, PCON	Data Bus	Green
J1-06	Ground, PCON	Ground Output	Brown
J1-07	Ground, GCON	Ground Input	Brown
J1-08	Key switch, PCON	Digital Input	Black
J1-09	Key switch, GCON	Digital Input	White
J1-10	Emergency stop, GCON	Digital Input	White / Black
J1-11	Contact Alarm	Digital Input	Black
J1-12	Power, ECM Driver	Power Input	Red
J2 – Black			
J2-01	Platform up coil	Digital Output	Orange
J2-02	Platform down coil	Digital Output	Orange / Black
J2-03	Steer left coil	Digital Output	Blue / Black
J2-04	Steer right coil	Digital Output	Blue
J2-05	Not used	---	---
J2-06	Not used	---	---
J2-07	Not used	---	---
J2-08	Motor controller enable	Digital Output	Green / White
J2-09	Not used	---	---
J2-10	Not used	---	---
J2-11	Not used	---	---
J2-12	Not used	---	---

Diagnostics

GCON I/O Map - Models with outriggers, (continued)			
Pin number	Circuit function	I/O Type	Wire color
J3 – Green			
J3-01	Flashing beacon. PWM	Digital Output	Red / Black
J3-02	Alarm, GCON	Digital Output	Blue
J3-03	Sensor power	Digital Output	Red
J3-04	Not used	---	---
J3-05	Pothole limit switch - Models with electric drive	Digital Input	Orange / Red
J3-06	Not used	---	---
J3-07	Down limit switch	Digital Input	Orange
J3-08	Brake release - Models with electric drive	Digital Input	White / Red
J3-09	Pressure transducer	Ground Input	Blue / White
J3-10	Platform height sensor	Ground Input	Orange / White
J3-11	Not used	---	---
J3-12	Sensor ground	Ground Input	Black
J4 – Brown			
J4-01	Left front outrigger pressure transducer	Analog Input	White
J4-02	Right front outrigger pressure transducer	Analog Input	Orange
J4-03	Left rear outrigger pressure transducer	Analog Input	Blue
J4-04	Right rear outrigger pressure transducer	Analog Input	Green
J4-05	Level sensor, X Axis	Analog Input	Blue / Black
J4-06	Level sensor, Y Axis	Analog Input	Blue / Red
J4-07	Left front outrigger coil	Digital Output	Red / White
J4-08	Right front outrigger coil	Digital Output	Orange / White
J4-09	Left rear outrigger coil	Digital Output	Blue / White
J4-10	Right rear outrigger coil	Digital Output	Green / White
J4-11	Outrigger extend coil	Digital Output	Green
J4-12	Outrigger retract coil	Digital Output	Green / Black

Diagnostics

Operational Indicator Codes (OIC)

These codes are generated by the electrical system to indicate machine operating status. During normal operation a code will appear in the platform controls LED readout if a condition such as off-level, overload cutout, chassis mode operation or pothole guards stuck occurs. These codes are not indicators of a device malfunction in the electrical system.

Code	Condition
LL	Off-Level
OL	Platform Overload
CH	Chassis Mode Operation
PHS	Pothole Guard Stuck
nd	No Drive (option)
Ld	Lifting Disabled (GS-3232)
CHrg	Charger Interlock (option)
LoHt	Lift Height Limited (CE / AS models)
FLHt	Limited Lift Height Cleared
ObS	Obstruction (option)
br	Brake release by manual (GS-1330m, GS-4655)
OHL	Outdoor Height Restriction

Note: The **Ld** Operation Indicator Code will appear when the outriggers are not fully retracted, the machine is not auto leveled, an outrigger has lost contact with the ground or either level sensor detects the machine is no longer level. When any of the above scenarios occur, the lift function is disabled.

The lift function will also be disabled while extending or retracting the outriggers and during the outrigger auto level procedure. While performing the above operations, the **Ld** Operation Indicator Code will appear.

Note: The CHrg code indicates the charger is connected to an AC power source and functionality is limited. To clear the code, disconnect the charger from the AC power source.

Note: The LoHt code indicates the platform has reached the maximum working height or a maximum working height has been activated by the operator.

Note: The FLHt code indicates the operator has deactivated the maximum working height LoHt code.

Note: The ObS code indicates the contact alarm has been actuated by an obstruction. Move the machine away from the obstruction to clear the code.

Note: The br operation indicator code will appear when the drive brake was release by manual. When the code appears, drive and lift functions are disabled.

Diagnostics

Diagnostic Trouble Codes (DTC)

These codes are generated by the system to indicate that a device or circuit malfunction has been detected in the electrical system.

The types of Diagnostic Trouble Codes that may occur are explained below.

Type "HXXX" – Indicate a malfunction associated with devices that control hydraulic functions in the electrical system. The "HXXX" faults are divided into short circuit battery negative, short circuit to battery positive, open circuit and generic shorts. Examples of these devices are solenoid controlled hydraulic valves and motor controller.

Type "PXXX" – Indicate a malfunction associated with power type devices in the electrical system. The "PXXX" faults are divided into short circuit to battery negative, short circuit to battery positive, open circuit and generic shorts. Examples of these devices are horns, sensor power and alarms.

Type "UXXX" – Indicate a malfunction associated with user interface devices in the electrical system. The "UXXX" faults are divided into short circuit to battery negative, short circuit to battery positive, open circuit and generic shorts. Examples of these devices are GCON up and down switches and PCON drive joystick.

Type "FXXX" – Indicate a malfunction associated with machine feedback devices in the electrical system. The "FXXX" faults are divided into short circuit to battery negative, short circuit to battery positive, open circuit and generic shorts. Examples of these devices are limit switches, height sensors and pressure transducers.

Type "CXXX" – Indicate a malfunction associated with controls devices in the electrical system. Examples of these devices are platform controls and ground controls ECM.

Troubleshooting "HXXX" and "PXXX" Faults

Troubleshooting "HXXX" and "PXXX" Faults

The procedure below illustrates typical steps for diagnosing and fixing faults of type "HXXX" and "PXXX".

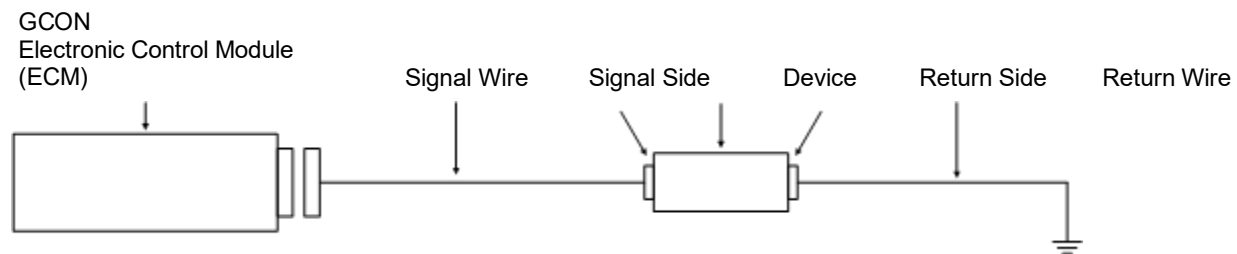
Diagnostic Chart

1	Check the faulted device for a short or open circuit.	No Good →	Replace faulted device.
Good ↓			
2	Check short or open circuit of the harness or connector between Ground Controls and faulted device.	No Good →	Repair or replace harness an/or connector.
Good ↓			
3	Check GCON Electronic Control Module (ECM).	No Good →	Replace ECM.

Wiring Diagram

The wiring diagram shown below illustrates how fault type "HXXX" and "PXXX" devices are typically wired.

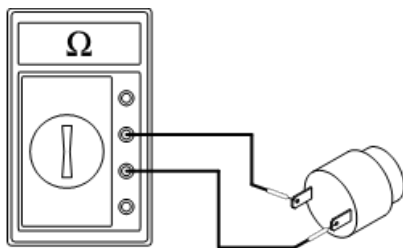
The signal of these types of devices originates at the Ground Controls and terminates at system ground.

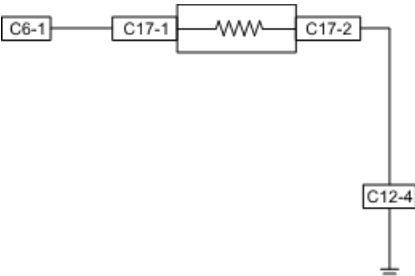


In order to successfully troubleshoot "HXXX" or "PXXX" type faults, the entire faulted out circuit must be investigated.

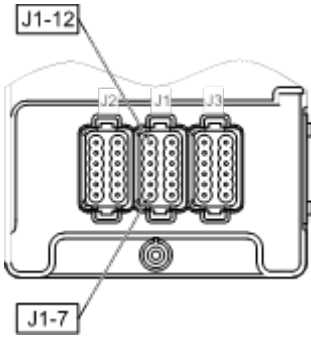
Fault Inspection Procedure

Fault Inspection Procedure

1	Check the device associated with the faulted circuit																					
	1 Disconnect the faulted device connector. 2 Using a multi-meter, measure resistance between the two terminals of the faulted device. 3 Resistance should be as follows.																					
	<table><tr><th>Device</th><th>Typical Resistance</th></tr><tr><td>Solenoid Valve, Drive</td><td>27.2 Ω</td></tr><tr><td>Solenoid Valve, Steer</td><td>19 Ω</td></tr><tr><td>Solenoid Valve, Platform Up</td><td>25 Ω</td></tr><tr><td>Solenoid Valve, Platform Down</td><td>6.25 Ω</td></tr><tr><td>GCON and PCON Alarm</td><td>>1M Ω</td></tr><tr><td>Automotive Horn</td><td>1.0 Ω</td></tr><tr><td>Motor Controller – Enable</td><td>5.7k Ω</td></tr><tr><td>Motor Controller – Throttle</td><td>5.7k Ω</td></tr><tr><td>Contactors Coil</td><td>47 Ω</td></tr></table>			Device	Typical Resistance	Solenoid Valve, Drive	27.2 Ω	Solenoid Valve, Steer	19 Ω	Solenoid Valve, Platform Up	25 Ω	Solenoid Valve, Platform Down	6.25 Ω	GCON and PCON Alarm	>1M Ω	Automotive Horn	1.0 Ω	Motor Controller – Enable	5.7k Ω	Motor Controller – Throttle	5.7k Ω	Contactors Coil
Device	Typical Resistance																					
Solenoid Valve, Drive	27.2 Ω																					
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Solenoid Valve, Platform Down	6.25 Ω																					
GCON and PCON Alarm	>1M Ω																					
Automotive Horn	1.0 Ω																					
Motor Controller – Enable	5.7k Ω																					
Motor Controller – Throttle	5.7k Ω																					
Contactors Coil	47 Ω																					
OK	Go to step 2	No Good	Replace faulted device																			

2	Check the harness between the ground controls and the faulted device		
	1 Disconnect the GCON ECM connectors, J1, J2 and J3. 2 Disconnect the faulted device connector. 3 Check the continuity between the GCON ECM connector and the signal side of the faulted device.		
	⊙ Result: Resistance should be close to 0 Ω 4 Check the continuity between the return side of faulted device and system ground. ⊙ Result: Resistance should be close to 0 Ω 5 Check resistance between return side and signal side of the harness plug of faulted device. ⊙ Result: Resistance should be 1M Ω or higher.		
OK	Go to step 3	No Good	Replace or repair harness

Fault Inspection Procedure

3	Check the GCON ECM	
	1 Disconnect the GCON ECM connectors, J1, J2 and J3. 2 For short to B- type faults, measure resistance between pins J1-7 (ground) and the GCON pin associated with the fault code. Refer to the GCON I/O Map in this section to identify the faulted out circuit pin. 3 Short to ground resistance should be greater than 5k Ω. 4 For short to B+ type faults, measure resistance between pins J1-12 (driver power) and the GCON pin associated with the fault code. Refer to the GCON I/O Map in this section to identify the faulted out circuit pin. 5 Short to power resistance should be greater than 50k Ω.	
	No Good	Replace GCON ECM

Type "HXXX" Faults

Type "HXXX" Faults

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
H001:	H001:COILFAULT PLAT UP1:BAT-	Short circuit of the platform up #1 circuit to battery negative.	• Short circuit in platform up #1 harness. • Platform up #1 coil short circuit. • GCON ECM.	Platform up function inhibited.
H002:	H002:COILFAULT PLAT UP1:OPEN	Open circuit in the platform up #1 circuit.	• Short circuit in platform up #1 harness. • Platform up #1 coil open circuit. • GCON ECM.	Platform up function inhibited.
H003:	H003:COILFAULT PLAT UP1:BAT+	Short circuit of the platform up #1 circuit to battery positive.	• Short circuit in platform up #1 harness. • Platform up #1 coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H009:	H009:COILFAULT PLAT DOWN1:BAT+	Short circuit of the platform down #1 circuit to battery positive.	• Short circuit in platform down #1 harness. • Platform down #1 coil short circuit. • GCON ECM.	All functions inhibited.
H013:	H013:COILFAULT DRIVE FWD1:BAT-	Short circuit of the drive forward #1 circuit to battery negative.	• Short circuit in drive forward #1 harness. • Drive forward #1 coil short circuit. • GCON ECM.	Drive forward function inhibited.
H014:	H014:COILFAULT DRIVE FWD1:OPEN	Open circuit in the drive forward #1 circuit.	• Open circuit in drive forward #1 harness. • Drive forward #1 coil open circuit. • GCON ECM.	Drive forward function inhibited.
H015:	H015:COILFAULT DRIVE FWD1:BAT+	Short circuit of the drive forward #1 circuit to battery positive.	• Short circuit in drive forward #1 harness. • Drive forward #1 coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H019:	H019:COILFAULT DRIVE REV1:BAT-	Short circuit of the drive reverse #1 circuit to battery negative.	• Short circuit in drive reverse #1 harness. • Drive reverse #1 coil short circuit. • GCON ECM.	Drive reverse function inhibited.
H020:	H020:COILFAULT DRIVE REV1:OPEN	Open circuit in the drive reverse #1 circuit.	• Open circuit in drive reverse #1 harness. • Drive reverse #1 coil open circuit. • GCON ECM.	Drive reverse function inhibited.
H021:	H021:COILFAULT DRIVE REV1:BAT+	Short circuit of the drive reverse #1 circuit to battery positive.	• Short circuit in drive reverse #1 harness. • Drive reverse #1 coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H027:	H027:COILFAULT DRIVE STEER RIGHT:BAT+	Short circuit of the steer right circuit to battery positive.	• Short circuit in steer right harness. • Steer right coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H030:	H030:COILFAULT DRIVE STEER LEFT:BAT+	Short circuit of the steer left circuit to battery positive.	• Short circuit in steer left harness. • Steer left coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H033:	H033:COILFAULT HI/LO SPEED:BAT+	Short circuit of the hi/lo speed coil to battery positive.	• Short circuit in Hi/Lo speed coil harness. • Hi/Lo speed coil short circuit. • GCON ECM.	Hi/Lo speed coil disabled. Machine will operate in low speed mode.

Type "HXXX" Faults

Type "HXXX" Faults, (continued)

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
H043:	H043:COILFAULT BRAKE REL:BAT-	Short circuit of the brake circuit to battery negative.	• Short circuit in brake release enable harness. • Brake release relay short circuit. • GCON ECM.	All functions inhibited except platform down.
H045:	H045:COILFAULT BRAKE REL:BAT+	Short circuit of the brake circuit to battery positive.	• Short circuit in brake release enable harness. • Brake release relay short circuit. • GCON ECM.	All functions inhibited except platform down.
H049:	H049:COILFAULT O/R EXTEND:BAT-	Short circuit of the outrigger extend coil to battery negative.	• Short circuit in outrigger extend coil harness. • Outrigger extend coil short circuit. • GCON ECM.	Only outrigger extend function disabled.
H050:	H050:COILFAULT O/R EXTEND:OPEN	Open circuit in the outrigger extend coil circuit.	• Short circuit in outrigger extend coil harness. • Outrigger extend coil open circuit. • GCON ECM.	Only outrigger extend function disabled.
H051:	H051:COILFAULT O/R EXTEND:BAT+	Short circuit of the outrigger extend coil to battery positive.	• Short circuit in outrigger extend coil harness. • Outrigger extend coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H052:	H052:COILFAULT O/R RETRACT:BAT-	Short circuit of the outrigger retract coil to battery negative.	• Short circuit in outrigger retract coil harness. • Outrigger retract coil short circuit. • GCON ECM.	Only outrigger retract function disabled.
H053:	H053:COILFAULT O/R RETRACT:OPEN	Open circuit in the outrigger retract coil circuit.	• Short circuit in outrigger retract coil harness. • Outrigger retract coil open circuit. • GCON ECM.	Only outrigger retract function disabled.
H054:	H054:COILFAULT O/R RETRACT:BAT+	Short circuit of the outrigger retract coil to battery positive.	• Short circuit in outrigger retract coil harness. • Outrigger retract coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H057:	H057:COILFAULT LF RIGGER:BAT+	Short circuit of the left front outrigger coil to battery positive.	• Short circuit in left front outrigger coil harness. • Left front outrigger coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H060:	H060:COILFAULT LR RIGGER:BAT+	Short circuit of the left rear outrigger coil to battery positive.	• Short circuit in left rear outrigger coil harness. • Left rear outrigger coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H063:	H063:COILFAULT RF RIGGER:BAT+	Short circuit of the right front outrigger coil to battery positive.	• Short circuit in right front outrigger coil harness. • Right front outrigger coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H066:	H066:COILFAULT RR RIGGER:BAT+	Short circuit of the right rear outrigger coil to battery positive.	• Short circuit in right rear outrigger coil harness. • Right rear outrigger coil short circuit. • GCON ECM.	All functions inhibited except platform down.
H067:	H067:FAULT MC ENABLE:BAT-	Short circuit of the motor controller circuit to battery negative.	• Short circuit in motor controller enable wire. • Motor Controller. • Contactor coil shorted to battery negative. • GCON ECM.	All functions inhibited except platform down.
H069:	H069:FAULT MC ENABLE:BAT+	Short circuit of the motor controller circuit to battery positive.	• Short circuit in motor controller enable wire. • Motor Controller. • Contactor Coil. • GCON ECM.	All functions inhibited except platform down.
H070:	H070:FAULT MC THROTTLE:BAT-	Short circuit of the motor controller throttle circuit to battery negative.	• Short circuit in motor controller throttle wire. • Motor Controller. • GCON ECM.	All functions inhibited except platform down.

Type "HXXX" Faults

Type "HXXX" Faults, (continued)

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
H072:	H072:FAULT MC THROTTLE:BAT+	Short circuit of the motor controller throttle circuit to battery positive.	• Short circuit in motor controller throttle wire. • Motor Controller. • GCON ECM.	All functions inhibited except platform down.
H074:	H074:COILFAULT LF RIGGER	Short circuit of the left front outrigger circuit to battery positive/negative or open circuit.	• Short or open circuit in left front outrigger harness. • Left front outrigger coil short or open circuit. • GCON ECM.	Left front outrigger function inhibited.
H075:	H075:COILFAULT LR RIGGER	Short circuit of the left rear outrigger circuit to battery positive/negative or open circuit.	• Short or open circuit in left rear outrigger harness. • Left rear outrigger coil short or open circuit. • GCON ECM.	Left rear outrigger function inhibited.
H076:	H076:COILFAULT RF RIGGER	Short circuit of the right front outrigger circuit to battery positive/negative or open circuit.	• Short or open circuit in right front outrigger harness. • Right front outrigger coil short or open circuit. • GCON ECM.	Right front outrigger function inhibited.
H077:	H077:COILFAULT RR RIGGER	Short circuit of the right rear outrigger circuit to battery positive/negative or open circuit.	• Short or open circuit in right rear outrigger harness. • Right rear outrigger coil short or open circuit. • GCON ECM.	Right rear outrigger function inhibited.
H078:	H078:COILFAULT PLAT DOWN1	Short circuit of the platform down #1 circuit to battery positive/negative or open circuit.	• Short or open circuit in platform down #1 harness. • Platform down #1 coil short or open circuit. • GCON ECM.	Platform down function inhibited.
H079:	H079:COILFAULT HI/LO SPEED	Short circuit of the HI/LO speed circuit to battery positive/negative or open circuit.	• Short circuit in HI/LO speed harness. • HI/LO speed coil short or open circuit. • GCON ECM.	Hi/Lo speed coil disabled. Machine will operate in high speed mode if open circuit or short with battery negative. Machine will operate in low speed mode if short with battery positive.
H080:	H080:COILFAULT STEER LEFT	Short circuit of the steer left circuit to battery negative or open circuit.	• Short or open circuit in steer left harness. • Steer left coil short or open circuit. • GCON ECM.	Steer left function inhibited.
H081:	H081:COILFAULT STEER RIGHT	Short circuit of the steer right circuit to battery negative or open circuit.	• Short or open circuit in steer right harness. • Steer right coil short or open circuit. • GCON ECM.	Steer right function inhibited.
H102:	H102:COILFAULT RELIEF VALVE:BAT+	Short circuit of the relief valve circuit to battery positive.	• Short circuit in relief valve harness. • Relief valve coil short circuit. • GCON ECM.	All functions inhibited except platform down while above limit switch.
H103:	H103:COILFAULT RELIEF VALVE:BAT-	Short circuit of the relief valve circuit to battery negative.	• Short circuit in relief valve harness. • Relief valve coil short circuit. • GCON ECM.	All functions inhibited except platform down while above limit switch.
H104:	H104:COILFAULT RELIEF VALVE:OPEN	Relief valve circuit open.	• Open circuit in relief valve harness. • Relief valve coil open circuit. • GCON ECM.	All functions inhibited except platform down while above limit switch.

Type "HXXX" Faults

Type "HXXX" Faults, (continued)

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
H106:	H106:COILFAULT DECK EXTEND:BAT-	Short circuit of the platform extend circuit to battery negative.	• Short circuit in PED harness. • PED extend valve coil short circuit. • GCON ECM.	All functions inhibited.
H107:	H107:COILFAULT DECK EXTEND:OPEN	Open circuit in the platform extend circuit.	• Open circuit in PED harness. • PED extend valve coil open circuit. • GCON ECM.	All functions inhibited.
H108:	H108:COILFAULT DECK EXTEND:BAT+	Short circuit of the platform extend circuit to battery positive.	• Short circuit in PED harness. • PED extend valve coil short circuit. • GCON ECM.	All functions inhibited.
H109:	H109:COILFAULT DECK RETRACT:BAT-	Short circuit of the platform retract circuit to battery negative.	• Short circuit in PED harness. • PED retract valve coil short circuit. • GCON ECM.	All functions inhibited.
H110:	H110:COILFAULT DECK RETRACT:OPEN	Open circuit in the platform retract circuit.	• Open circuit in PED harness. • PED retract valve coil open circuit. • GCON ECM.	All functions inhibited.
H111:	H111:COILFAULT DECK RETRACT:BAT+	Short circuit of the platform retract circuit to battery positive.	• Short circuit in PED harness. • PED retract valve coil short circuit. • GCON ECM.	All functions inhibited.
H114:	H114:COILFAULT DECK ENABLE:BAT+	Short circuit of the platform enable circuit to battery positive.	• Short circuit in PED harness. • PED enable valve coil short circuit. • GCON ECM.	All functions inhibited.
H115:	H115:COILFAULT DECK ENABLE	Short circuit of the platform enable circuit.	• Short circuit in PED harness. • GCON ECM.	All functions inhibited.

Type "PXXX" Faults

Type "PXXX" Faults

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
P001:	P001:PWR FAULT SW PWR1:BAT-	Short circuit of the switched power #1 circuit to battery negative.	• Short circuit in switched power #1, down limit switch, pothole limit switch, digital tilt switch harness. • GCON ECM.	All functions inhibited.
P003:	P003:PWR FAULT SW PWR1:BAT+	Short circuit of the switched power #1 circuit to battery positive.	• Short circuit in switched power #1, down limit switch, pothole limit switch, digital tilt switch harness. • GCON ECM.	All functions inhibited.
P004:	P004:DEVICEFAULT HORN:BAT-	Short circuit of the automotive horn circuit to battery negative.	• Short circuit in automotive horn harness. • Automotive horn short circuit. • GCON ECM.	Automotive horn inhibited.
P005:	P005:DEVICEFAULT HORN:OPEN	Open circuit of the automotive horn circuit.	• Open circuit in automotive horn harness. • Automotive horn open circuit. • GCON ECM.	Automotive horn inhibited.
P006:	P006:DEVICEFAULT HORN:BAT+	Short circuit of the automotive horn circuit to battery positive.	• Short circuit in automotive horn harness. • Automotive horn short circuit. • GCON ECM.	Automotive horn inhibited.
P007:	P007:DEVICEFAULT GCON ALARM:BAT-	Short circuit of the GCON alarm circuit to battery negative.	• Short circuit in GCON alarm harness. • GCON alarm short circuit. • GCON ECM.	GCON alarm inhibited.
P009:	P009:DEVICEFAULT GCON ALARM:BAT+	Short circuit of the GCON alarm circuit to battery positive.	• Short circuit in GCON alarm harness. • GCON alarm short circuit. • GCON ECM.	GCON alarm inhibited.
P013:	P013:PWR FAULT PCON PWRET:BAT-	Short circuit of the PCON power return circuit to battery negative.	• Short circuit in PCON power return harness. • GCON ECM.	All functions inhibited.
P015:	P015:PWR FAULT PCON PWRET:BAT+	Short circuit of the PCON power return circuit to battery positive.	• Short circuit in PCON power return harness. • GCON ECM.	All functions inhibited.
P018:	018:PWR FAULT PCON POWER:BAT-	Short circuit of the PCON power circuit to battery negative.	• Short circuit in PCON power harness. • GCON ECM.	All functions inhibited.
P019:	018:PWR FAULT PCON POWER:BAT+	Short circuit of the PCON power circuit to battery positive.	• Short circuit in PCON power harness. • GCON ECM.	All functions inhibited.

Type "PXXX" Faults

Type "PXXX" Faults, (continued)

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
P023:	P023:PUMP MOTOR VOLTAGE NOT OK	Pump motor voltage out of range.	• Pump voltage to low. • Pump voltage to high. • DCON ECM.	All functions inhibited.
P025:	P025:PUMP MOTOR CURRENT FEEDBK+	Open or short circuit of the P-circuit from the right rear drive controller to the pump motor.	• Open or short circuit in pump motor P-cable. • Faulty pump. • DCON ECM.	All functions inhibited.
P026:	P026:MOTOR RIGHT REAR VOLTAGE NOT OK	Open or short circuit of the U or W circuit from the right rear drive controller to the right rear drive motor.	• Open circuit. in right rear drive motor U or W cable. • Drive motor. • DCON ECM.	All functions inhibited.
P028:	P028:CONTACTOR STUCK CLOSED	Main contactor stuck in the closed position.	• Short circuit in main contactor harness. • Faulty contactor. • DCON ECM.	All functions inhibited.
P029:	P029:CONTACTOR DOES NOT CLOSE	Main contactor stuck in the open position.	• Open circuit in main contactor harness. • Faulty contactor. • DCON ECM.	All functions inhibited.
P030:	P030:COIL FAULT	Short circuit of the main contactor coil to battery negative or open circuit.	• Open or short circuit in main contactor harness. • Faulty contactor. • DCON ECM.	All functions inhibited.
P037:	P037:BATTERY OUT OF RANGE	Battery voltage is out of range at startup.	• Open or short circuit in voltage sensor circuits. • Low batteries. • Faulty battery. • Battery charger connected to AC power source. • DCON ECM.	All functions inhibited.
P039:	P039:DEVICE FAULT BRAKE PWR RELAY	Open or short circuit of the brake relay contact or coil.	• Open or short circuit in brake relay harness. • Brake relay contact stuck closed. • Faulty brake relay. • GCON ECM.	All functions inhibited.
P040:	P040:COIL FAULT BRAKE PWR OPEN	Open or short circuit of the brake relay contact or coil to battery negative.	• Open or short circuit in brake relay harness. • Faulty brake relay. • Left or right DCON ECM. • GCON ECM.	All functions inhibited.

Type "PXXX" Faults

Type "PXXX" Faults, (continued)

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
P053:	P053:COIL FAULT BRAKE/LC:Bat+	Open or short circuit of the brake circuit to battery positive.	• Open or short on driver load. • Faulty connections or harness. • DCON ECM.	All functions inhibited except platform down.
P054:	P054:COIL FAULT MC:OPEN	Open or short circuit of the motor controller.	• Open or short on driver load. • Faulty connections or harness. • DCON ECM.	All functions inhibited except platform down.
P056:	P056:MOTOR CURRENT FEEDBACK	Short circuit of the motor controller circuit to battery negative.	• Leakage to chassis frame from phase U, V or W. • Drive motor. • DCON ECM.	All functions inhibited except platform down.
P057:	P057:MOTOR CURRENT OVERLOAD	Short circuit of the drive motor circuit.	• External short of U, V or W motor connection. • Speed encoder noise. • Motor parameters out of range. • DCON ECM.	All functions inhibited except platform down.
P059:	P059:MOTOR RF PHASE OPEN	Open circuit of the right front drive motor.	• Open circuit. • Faulty connections or harness.	All functions inhibited except platform down.
P060:	P060:MOTOR LF PHASE OPEN	Open circuit of the left front drive motor.	• Open circuit. • Faulty connections or harness.	All functions inhibited except platform down.
P061:	P061:COIL FAULT SUPPLY: Bat-		• Coil supply shorted.	All functions inhibited except platform down.
P070:	P070:COIL FAULT BRAKE RF:B+		• Open or short on driver load. • Faulty connector pins at controller or contactor coil. • Faulty connections or harness.	All functions inhibited except platform down.
P071:	P071:COIL FAULT BRAKE LF:B+		• Open or short on driver load. • Faulty connector pins at controller or contactor coil. • Faulty connections or harness.	All functions inhibited except platform down.
P072:	P072:COIL FAULT BRAKE RF:B-		• Open or short on driver load. • Faulty connector pins at controller or contactor coil. • Faulty connections or harness.	All functions inhibited except platform down.
P073:	P073:COIL FAULT BRAKE LF:B-		• Open or short on driver load. • Faulty connector pins at controller or contactor coil. • Faulty connections or harness.	All functions inhibited except platform down.

Type "UXXX" Faults

Type "UXXX" Faults

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
U001:	U001:SWITCHFAULT GCON MAIN FTM EN	Short circuit of the GCON main function enable switch at system startup.	• Short circuit of the GCON main function enable switch. • GCON ECM.	All GCON functions inhibited.
U002:	U002:SWITCHFAULT GCON PLAT UP	Short circuit of the GCON up directional switch at system startup.	• Short circuit of the GCON up directional switch. • GCON ECM.	All GCON functions inhibited except platform down.
U003:	U003:SWITCHFAULT GCON PLAT DOWN	Short circuit of the GCON down directional switch at system startup.	• Short circuit of the GCON down directional switch. • GCON ECM.	All GCON functions inhibited except platform up.
U004:	U004:SWITCHFAULT GCON LCD UP	Short circuit of the GCON LCD scroll up switch at system startup.	• Short circuit of the GCON LCD scroll up switch. • GCON ECM.	All GCON LCD menu functions inhibited.
U005:	U005:SWITCHFAULT GCON LCD DOWN	Short circuit of the GCON LCD scroll down switch at system startup.	• Short circuit of the GCON LCD scroll down switch. • GCON ECM.	All GCON LCD menu functions inhibited.
U006:	U006:SWITCHFAULT GCON LCD ENTER	Short circuit of the GCON LCD enter switch at system startup.	• Short circuit of the GCON LCD enter switch. • GCON ECM.	All GCON LCD menu functions inhibited.
U007:	U007:SWITCHFAULT GCON LCD ESCAPE	Short circuit of the GCON LCD escape switch at system startup.	• Short circuit of the GCON LCD escape switch. • GCON ECM.	All GCON LCD menu functions inhibited.
U014:	U014:SWITCHFAULT PCON DRIVE EN	Short circuit of the PCON drive enable switch at system startup.	• Short circuit of the PCON drive enable switch. • GCON ECM.	All PCON drive and steer functions inhibited.
U015:	U015:SWITCHFAULT PCON STEER LEFT	Short circuit of the PCON steer left switch at system startup.	• Short circuit of the PCON steer left switch. • GCON ECM.	All PCON drive and steer functions inhibited.
U016:	U016:SWITCHFAULT PCON STEER RIGHT	Short circuit of the PCON steer right switch at system startup.	• Short circuit of the PCON steer right switch. • GCON ECM.	All PCON drive and steer functions inhibited.
U017:	U017:SWITCHFAULT PCON HORN	Short circuit of the PCON horn switch at system startup.	• Short circuit of the PCON horn switch. • GCON ECM.	PCON horn switch function inhibited.
U018:	U018:SWITCHFAULT PCON LO DRIV SPD	Short circuit of the PCON low drive speed switch at system startup.	• Short circuit of the PCON low drive speed switch. • GCON ECM.	The machine is limited to low drive speed.
U019:	U019:SWITCHFAULT PCON LO LIFT SPD	Short circuit of the PCON low lift speed switch at system startup.	• Short circuit of the PCON low lift speed switch. • GCON ECM.	PCON platform up and down functions inhibited.

Type "UXXX" Faults

Type "UXXX" Faults, (continued)

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
U020:	U020:SWITCHFAULT PCON HI LIFT SPD	Short circuit of the PCON high lift speed switch at system startup.	• Short circuit of the PCON hi lift speed switch. • GCON ECM.	PCON platform up and down functions inhibited.
U021:	U021:SWITCHFAULT PCON UP	Short circuit of the PCON up directional switch at system startup.	• Short circuit of the PCON up directional switch. • GCON ECM.	PCON platform up function inhibited.
U022:	U022:SWITCHFAULT PCON DOWN	Short circuit of the PCON down directional switch at system startup.	• Short circuit of the PCON down directional switch. • GCON ECM.	PCON platform down functions inhibited.
U023:	U023:SWITCHFAULT PCON O/R ENABLE	Short circuit of the PCON outrigger enable switch at system startup.	• Short circuit of the PCON outrigger enable switch. • GCON ECM.	All outrigger functions inhibited.
U033:	U033:JSTICKFAULT OUT OF CAL RANGE	PCON drive joystick signal is outside acceptable calibration range at system startup.	• PCON drive joystick is not in neutral position at startup. • PCON joystick. • GCON ECM.	All PCON drive and steer functions inhibited.
U034:	U034:JSTICKFAULT OUT OF RANGE:HI	Short circuit of the PCON drive joystick signal to battery positive at system startup.	• Short circuit of the PCON drive joystick signal circuit. • PCON joystick. • GCON ECM.	All PCON drive and steer functions inhibited.
U035:	U035:JSTICKFAULT OUT OF RANGE:LO	Short circuit of the PCON drive joystick signal to battery negative at system startup.	• Short circuit of the PCON drive joystick signal circuit. • PCON joystick. • GCON ECM.	All PCON drive and steer functions inhibited.
U036:	U036:SWITCHFAULT GCON + PCON:ON	Mis-wiring or short circuit of GCON key switch.	• GCON key switch. • GCON ECM.	All functions inhibited.
U037:	U037:SWITCHFAULT FOOTSW PRESSED	Foot switch pressed at machine startup.	• Short circuit in the foot switch harness. • Foot switch. • GCON ECM.	All functions inhibited.
U038:	U038:SWITCHFAULT FOOTSW:BAT+	Mis-wiring or short circuit of foot switch to battery positive.	• Short circuit in the foot switch harness. • Foot switch. • GCON ECM.	All functions inhibited.
U039:	U039:SWITCHFAULT FOOTSW:OPEN/BAT-	Mis-wiring, open or short circuit of foot switch to battery negative.	• Short circuit in the foot switch harness. • Foot switch. • GCON ECM.	All functions inhibited.
U040:	U040:SWITCHFAULT FOOTSW:TIMEOUT	PCON deck switch pressed at machine startup.	• Short circuit in the foot switch harness. • Foot switch. • GCON ECM.	All functions inhibited.

Type "UXXX" Faults

Type "UXXX" Faults, (continued)

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
U041:	U041:SWITCHFAULT GCON DECK ENABLE	GCON deck enable switch stuck closed, or depressed at system startup.	• GCON deck enable switch stuck closed. • GCON deck enable switch depressed at system startup. • GCON ECM.	All functions inhibited.
U042:	U042:SWITCHFAULT PCON DRIVE MODE	PCON drive mode switch stuck closed, or depressed at system startup.	• PCON drive mode switch stuck closed. • PCON drive mode switch depressed at system startup. • PCON ECM.	Drive functions inhibited.
U043:	U043:SWITCHFAULT PCON OR MODE	PCON outrigger mode switch stuck closed, or depressed at system startup.	• PCON outrigger mode switch stuck closed. • PCON outrigger mode switch depressed at system startup. • PCON ECM.	Outrigger extend/retract functions inhibited.
U045:	U045:SWITCHFAULT PCON FUNCTION EN	PCON function enable switch stuck closed, or depressed at system startup.	• PCON function enable switch stuck closed. • PCON function enable switch depressed at system startup. • PCON ECM.	All drive and steer functions inhibited.
U046:	U046:SWITCHFAULT PCON LIFT MODE	PCON Lift mode switch stuck closed, or depressed at system startup.	• PCON lift mode switch stuck closed. • PCON lift mode switch depressed at system startup. • PCON ECM.	All functions operate except platform up/down.

Type "FXXX" Faults

Type "FXXX" Faults

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
F001:	F001:SWITCHFALT UP LIMIT1:BAT+	Short circuit of the up limit #1 switch at system startup.	• Short circuit of the up limit switch circuit. • Up limit #1 switch short circuit. • GCON ECM.	Platform up function inhibited.
F003:	F003:SWITCHFALT DOWN LIMIT1:BAT+	Short circuit of the down limit #1 switch at system startup.	• Short circuit of the down limit switch circuit. • Down limit #1 switch short circuit. • GCON ECM.	All functions inhibited except platform down.
F005:	F005:SWITCHFALT POTHOLE:BAT+	Short circuit of the pothole limit #1 switch at system startup.	• Short circuit of the pothole switch circuit. • Pothole limit #1 switch short circuit. • GCON ECM.	All functions inhibited except platform down as long as machine is in the elevated position. If machine is in stowed position, all functionality is resumed.
F007:	F007:SWITCHFALT CHASSISTILT:BAT+	Short circuit of the chassis digital tilt switch at system startup.	• Short circuit of the chassis digital tilt switch circuit. • Chassis digital tilt switch short circuit. • GCON ECM.	All functions inhibited except platform down as long as machine is in the elevated position. If machine is in stowed position, all functionality is resumed.
F008:	F008:SENSORFAULT OVL D XDUCER:BAT+	Short circuit of the Platform Overload Transducer circuit to battery positive.	• Short circuit in the transducer circuit. • Faulty pressure transducer. • GCON ECM.	All functions inhibited.
F009:	F009:SENSORFAULT OVL D XDUCER:BAT-	Short circuit of the Platform Overload Transducer circuit to battery negative.	• Short circuit in the transducer circuit. • Faulty pressure transducer. • GCON ECM.	All functions inhibited.
F010:	F010:SENSORFAULT PLAT HEIGHT:BAT+	Short circuit of the Platform Height Sensor circuit to battery positive.	• Short circuit in the platform height circuit. • Faulty platform height sensor. • GCON ECM.	All functions inhibited except platform down as long as machine is in the elevated position. If machine is in stowed position, all functionality is resumed.
F011:	F011:SENSORFAULT PLAT HEIGHT:BAT-	Short circuit of the Platform Height Sensor circuit to battery negative.	• Short circuit in the platform height circuit. • Faulty platform height sensor. • GCON ECM.	All functions inhibited except platform down as long as machine is in the elevated position. If machine is in stowed position, all functionality is resumed.

Type "FXXX" Faults

Type "FXXX" Faults, (continued)

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
F012:	F012:SENSORFAULT LEVEL PITCH:BAT+	Short circuit of the Level Pitch Sensor circuit to battery positive.	• Short circuit in the level pitch sensor circuit. • Faulty level sensor. • GCON ECM.	All functions inhibited.
F013:	F013:SENSORFAULT LEVEL PITCH:BAT-	Short circuit of the Level Pitch Sensor circuit to battery negative.	• Short circuit in the level pitch sensor circuit. • Faulty level sensor. • GCON ECM.	All functions inhibited.
F014:	F014:SENSORFAULT LEVEL ROLL:BAT+	Short circuit of the Level Roll Sensor circuit to battery positive.	• Short circuit in the level roll sensor circuit. • Faulty level sensor. • GCON ECM.	All functions inhibited.
F015:	F015:SENSORFAULT LEVEL ROLL:BAT-	Short circuit of the Level Roll Sensor circuit to battery negative.	• Short circuit in the level roll sensor circuit. • Faulty level sensor. • GCON ECM.	All functions inhibited.
F016:	F016:SENSORFAULT LF RIGGER:BAT+	Short circuit of the Left Front Outrigger Sensor circuit to battery positive.	• Short circuit in the left front outrigger sensor circuit. • Faulty pressure transducer. • GCON ECM.	Left front outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
F017:	F017:SENSORFAULT LF RIGGER:BAT-	Short circuit of the Left Front Outrigger Sensor circuit to battery negative.	• Short circuit in the left front outrigger sensor circuit. • Faulty pressure transducer. • GCON ECM.	Left front outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
F018:	F018:SENSORFAULT RF RIGGER:BAT+	Short circuit of the Right Front Outrigger Sensor circuit to battery positive.	• Short circuit in the right front outrigger sensor circuit. • Faulty pressure transducer. • GCON ECM.	Right front outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
F019:	F019:SENSORFAULT RF RIGGER:BAT-	Short circuit of the Right Front Outrigger Sensor circuit to battery negative.	• Short circuit in the right front outrigger sensor circuit. • Faulty pressure transducer. • GCON ECM.	Right front outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
F020:	F020:SENSORFAULT LR RIGGER:BAT+	Short circuit of the Left Rear Outrigger Sensor circuit to battery positive.	• Short circuit in the left rear outrigger sensor circuit. • Faulty pressure transducer. • GCON ECM.	Left rear outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
F021:	F021:SENSORFAULT LR RIGGER:BAT-	Short circuit of the Left Rear Outrigger Sensor circuit to battery negative.	• Short circuit in the left rear outrigger sensor circuit. • Faulty pressure transducer. • GCON ECM.	Left rear outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
F022:	F022:SENSORFAULT RR RIGGER:BAT+	Short circuit of the Right Rear Outrigger Sensor circuit to battery positive.	• Short circuit in the right rear outrigger sensor circuit. • Faulty pressure transducer. • GCON ECM.	Right rear outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.

Type "FXXX" Faults

Type "FXXX" Faults, (continued)

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
F023:	F023:SENSORFAULT RR RIGGER:BAT-	Short circuit of the Right Rear Outrigger Sensor circuit to battery negative.	- Short circuit in the right rear outrigger sensor circuit. - Faulty pressure transducer. - GCON ECM.	Right rear outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
F034:	F034:SENSORFAULT OVLID:PLAT HEIGHT	Height Sensor settings are not calibrated correctly.	- Height sensor needs calibration for stowed height and maximum height settings. - GCON or PCON ECM.	All functions inhibited.
F035:	F035:SENSORFAULT OVLID RANGE:LOW	Height Sensor setting is lower than calibrated stowed height.	- Height sensor not calibrated for stowed height correctly. - GCON or PCON ECM.	All functions inhibited.
F036:	F036:SENSORFAULT OVLID RANGE:HI	Height Sensor setting is higher than calibrated maximum height.	- Height sensor not calibrated for maximum height correctly. - GCON or PCON ECM.	All functions inhibited.
F072:	F072:SENSORFAULT FUNCTION CUT B+	Function Cutout sensor B+ fault.	- Faulty extension deck limit switch. - Faulty gate proximity switch. - GCON ECM.	All functions inhibited.
F073:	F073:SENSORFAULT DECK SENSOR B+	Power Deck sensor B+ fault.	- Short circuit in deck sensor input circuit. - GCON ECM.	All functions inhibited.
F081:	F081:DCON ECM THERM PROTECTION		- Controller is operating in an extreme environment. - Excessive load on vehicle. - Improper mounting of controller which is preventing controller cooling. - Controller is performance-limited at this temperature.	All functions inhibited except platform down.
F082:	F082:MOTOR RF ENCODER FAULT		- Encoder Steps parameter does not match the actual motor encoder. - Verify parameter settings: AC Motor Setup >> Quadrature Encoder>> Encoder Steps. - Motor encoder failure. - Bad crimps or faulty wiring. - External load impedance on the +5V supply is too low.	All functions inhibited except platform down.
F083:	F083:MOTOR LF ENCODER FAULT		- Encoder Steps parameter does not match the actual motor encoder. - Verify parameter settings: AC Motor Setup >> Quadrature Encoder>> Encoder Steps. - Motor encoder failure. - Bad crimps or faulty wiring. - External load impedance on the +5V supply is too low.	All functions inhibited except platform down.
F084:	F084:MOTOR RF STALL/ENCODER		- Stalled motor. - Motor encoder failure. - Bad crimps or faulty wiring. - Problems with power supply for the motor encoder.	All drive and steer functions inhibited.
F085:	F085:MOTOR LF STALL/ENCODER		- Stalled motor. - Motor encoder failure. - Bad crimps or faulty wiring. - Problems with power supply for the motor encoder.	All drive and steer functions inhibited.
F086:	F086:RH BRAKE FAIL SET		- Vehicle movement sensed after EM Brake has been commanded to set. - EM Brake will not hold the motor from rotating.	All functions inhibited except platform down.
F087:	F087:MOTOR LIMIT RUN		- Limited Operating Strategy (LOS) control mode has been activated. - Motor encoder failure. - Bad crimps or faulty wiring. - Vehicle is stalled.	All drive and steer functions inhibited.
F088:	F088: LH BRAKE FAIL SET		- Vehicle movement sensed after EM Brake has been commanded to set. - EM Brake will not hold the motor from rotating.	All functions inhibited except platform down.
F129:	F129:TILT SENSOR FAULT	UTS mismatch fault. Two accelerometers inside UTS mismatch.(universal tilt sensor)	Faulty UTS.	All functions inhibited.

Type "CXXX" Faults

Type "CXXX" Faults

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
C001:	C001:GCON ECM FAULT TYPE 1	GCON ECM CRC check error.	• Incorrect software file. • GCON ECM internal failure.	All functions inhibited.
C004:	C004:GCON ECM FAULT TYPE 4	GCON ECM master switch error.	• Short circuit in the master switch circuit. • GCON ECM.	All functions inhibited.
C005:	C005:GCON ECM FAULT TYPE 5	GCON ECM safety switch error.	• Short circuit in the safety switch circuit. • GCON ECM.	All functions inhibited.
C006:	C006:GCON ECM FAULT TYPE 6	GCON input redundancy error.	• Input conditioning circuit failure. • GCON ECM.	All functions inhibited.
C007:	C007:GCON ECM FAULT TYPE 7	GCON ECM inter-processor communication error.	• Incorrectly programmed device. • Error in loading software on device. • GCON ECM.	All functions inhibited.
C009:	C009:GCON ECM FAULT TYPE 9	GCON ECM fault type 9.	• Contact Genie support.	All functions inhibited.
C010:	C010:SECONDARY NOT PROGRAMMED	GCON secondary processor not programmed.	• Incorrectly programmed device. • Error in loading software on device. • GCON ECM.	All functions inhibited.
C021:	C021:PCON NOT DETECTED	PCON not detected error.	• PCON disconnected. • CAN communication failure. • GCON or PCON ECM.	All functions inhibited.
C023:	C023:MACHINE MODEL FAULT	Discrepancy between model detected and model programmed.	• Incorrect machine model programmed. • GCON or PCON ECM.	All functions inhibited.
C025:	C025:SYSTEMFAULT PLAT OVLD:NOCAL	Platform overload system not calibrated.	• Platform overload system not calibrated. • GCON or PCON ECM.	All functions inhibited.
C028:	C028:SERVICE OVERRIDE MODE ON	Machine is in service override mode.	• Machine programmed for use in service override mode.	All functions inhibited except for down function and up function. Platform can be elevated only once with the maximum elevate time of XX seconds. Elevate time XX depends on machine model.

Type "CXXX" Faults

Type "CXXX" Faults, (continued)

DTC Number	Message on GCON LCD	Description	Possible Causes	Failure Mode
C029:	C029:SYSTEMFAULT O/R SENSOR:NOCAL	Outtrigger not calibrated.	• Outtrigger not calibrated. • GCON ECM.	All functions operate. Will not lift above the down limit switch.
C053:	C053:PCON-GCOM SOFTWARE MISMATCH	Software revisions do not match between the PCON and GCON.	• Short circuit in the safety switch circuit. • GCON ECM.	All functions inhibited.
C055:	C055:DCON ECM Fault Type 01	Hardware failure of drive controller.	• DCON ECM.	Performance reduced or all functions inhibited.
C056:	C056:DCON ECM Fault Type 02	Setup initialization failure of the drive controller at system startup.	• Drive input active at system startup. • Faulty drive joystick. • Incorrect software.D14 • DCON ECM.	Performance reduced or all functions inhibited.
C058:	C058:DCON ECM Fault Type 04	Drive controller voltage out of range.	• Battery charger connected to AC power source. • Batteries to low. • DCON ECM.	All functions inhibited.
C059:	C059:DCON ECM Fault Type 05	Capacitor charge failure of the drive controller.	• Open on B+ or B- to the drive controller. • DCON ECM.	All functions inhibited.
C061:	C061:DCON ECM Fault Type 07	Open circuit of the key switch circuit or battery positive / negative of the drive controller.	• Open circuit of the motor controller harness. • Open circuit to B+ and/or B-. • Key switch relay power not closed. • DCON or GCON ECM.	All functions inhibited.
C063:	C063:DCON ECM Fault Type 09	Communication error of the CAN circuit between the GCON and the motor controller.	• Open circuit of the motor controller harness. • DCON or GCON ECM.	All functions inhibited.
C064:	C064:DCON ECM Fault Type 10	Output error of the thermal sensor circuit of the motor controller.	• DCON ECM.	All functions inhibited.
C079:	C079:MOTOR SPEED MONITOR		• Motor speed detected exceeding the limit set by the Max Speed Supervision parameter. • Mis-adjusted Max Speed Supervision parameters.	All functions inhibited except platform down.
C080:	C080:MOTOR TRAVEL MONITOR		• With the vehicle in the stopped state, the motor frequency and/or phase current detected exceeding the limit set by the Travel Control Supervision parameter. • Mis-adjusted Travel Control Supervision parameters.	All functions inhibited except platform down.
C081:	C081: MOTOR INTERLOCK FAULT		• During an interlock braking event, the motor speed exceeded the limit set by the Interlock Braking Supervision parameters.	All functions inhibited except platform down.
C082:	C082:SYSTEMFAULT OHL:NoCal	Outdoor height limit not calibrated.	• OHL not Calibrated.	All functions inhibited except platform down.
C083:	C083:DCON ECM SETUP INVALID		• Parameter is not modified successfully by GCON.	All drive and steer functions inhibited.

Note: An error code C053 will be displayed if an updated PCON is installed on a machine that has not had the GCON updated. The GCON must be updated, or the original PCON must be installed back on the machine.

Battery Charger

Battery Charger

The charger continuously monitors internal and external conditions. Fault and Error codes are generated by the charger to indicate that an internal or external malfunction has been detected in the electrical system. The types of Diagnostic Trouble Codes that may occur are explained below.

Type "F" codes – Indicate an internal fault condition has occurred and caused charging to stop.

Type "E" codes - Indicate an external fault condition has occurred and caused charging to stop.

Type "P" code - Indicates charger programming mode is active. This will occur when the charger profile is being configured.

Type "USB" code - Indicates the USB interface is active, and the USB should not be removed. This will occur when the charger firmware is being updated.



Solid red - Internal fault condition. Type "F" fault code.



Flashing amber - External fault condition. Type "E" error code.



Flashing green - USB interface is active.

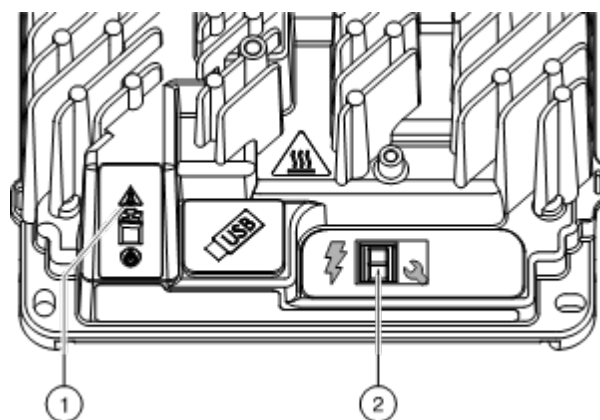


Solid green - Firmware update is complete. Remove USB from charger.

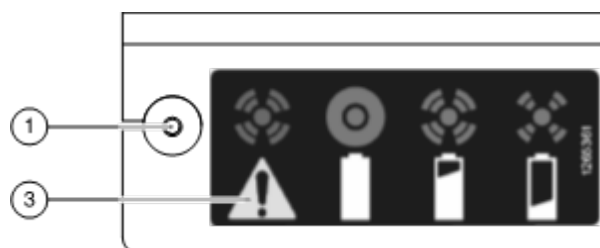
Codes are displayed as F, E or P and followed by three numbers and a period (example: E-0-0-4). The charger can display multiple codes.

If the batteries are changed from one type to another, (example: flooded lead acid to AGM), the charger profile must be programmed. Refer to Repair Procedure, *Programming the Charger Profile*.

Battery Charger



Charger status indicators



Remote charger status indicators

- 1 Error / Fault / USB indicator
- 2 Charger profile / Error display
- 3 Error / Fault

Charger Fault Codes

Fault Code	Description	Possible Causes	Solution
F-0-0-1	DC-DC failure: LLC excessive leakage fault.	Internal charger fault.	Disconnect AC input and battery pack for 30 seconds. If fault does not clear, contact Genie Product Support.
F-0-0-2	PFC failure: PFC excessive leakage fault.		
F-0-0-3	PFC taken too long to boost.		
F-0-0-4	Charger unable to calibrate current offset.		
F-0-0-5	Output relay voltage too high when closed.		

Battery Charger

Charger Error Codes

Error Code	Description	Condition	Possible Causes
E-0-0-1	High battery voltage	Battery voltage too high to charge.	Check battery voltage and cable connections. Self clearing when condition has been corrected.
E-0-0-2	Low battery voltage detected prior to starting charge cycle	Battery voltage too low to charge.	Check battery voltage and cable connections. Check battery condition. Self clearing when condition has been corrected.
E-0-0-3	Charge timeout	Charge timeout caused by battery pack not reaching required voltage within safe time limit.	Charge output reduced due to high temperature. Charge at lower temperature. Check battery condition. Replace damaged battery. Check battery connections. Battery pack deep discharge. Disconnect battery pack for 30 seconds to clear fault when condition has been corrected.
E-0-0-4	Defective battery	Battery pack could not be trickle charged up to the minimum voltage.	Check battery condition. Replace damaged battery. Check battery connections. Disconnect battery pack for 30 seconds to clear fault when condition has been corrected.
E-0-0-7	Amp hour limit exceeded	Safety limit exceeded.	Check battery condition. Replace damaged battery. Check battery connections. Battery pack deep discharge. High parasitic loads on battery pack while charging. Disconnect parasitic loads. Disconnect battery pack for 30 seconds to clear fault when condition has been corrected.

Battery Charger

Charger Error Codes

Error Code	Description	Condition	Possible Causes
E-0-0-8	Battery temperature out of range	Battery temperature sensor.	Check temperature sensor and electrical connections. Rest charger. Disconnect AC power for 30 seconds. Self clearing when condition has been corrected.
E-0-1-1	Charger disabled by external command	Battery pack not being charged..	Power outage. AC power disconnected before charging complete.
E-0-1-2	Reverse polarity	Battery connected incorrectly.	Check battery connections. Self clearing when condition has been corrected.
E-0-1-3	Battery does not take current	Battery voltage is detected, but charger is unable to charge the battery pack..	Incorrect profile for battery type. Installed from a different machine with different battery type. Disconnect battery pack for 30 seconds to clear fault when condition has been corrected.
E-0-1-6	Software update failed	Software update failed.	Confirm USB Flash Drive is formatted with correct software. If software update continues to fail, contact Genie Product support.
E-0-1-7	USB error	USB not connected correctly.	Remove and re-insert USB Flash Drive. Disconnect AC input and battery pack for 30 seconds.
E-0-1-8	Slot CRC error	Software update failed.	Confirm USB Flash Drive is formatted with correct software. If software update continues to fail, contact Genie Product support.
E-0-1-9	Hardware does not support software	Charger hardware does not support software version being programmed.	Confirm USB Flash Drive is formatted with correct software. If software update continues to fail, contact Genie Product support.
E-0-2-0	No algorithm selected	Charger profile not programmed.	Program the charger for the proper battery profile.

Battery Charger

Charger Error Codes

Error Code	Description	Condition	Possible Causes
E-0-2-1	High battery voltage detected while charging	Battery voltage too high as detected by charger profile.	Check battery voltage and cable connections. Confirm charger profile is programmed for correct battery type. Self clearing when condition has been corrected.
E-0-2-2	Low battery voltage detected while charging	Battery voltage too low as detected by charger profile.	Check battery voltage and cable connections. Confirm charger profile is programmed for correct battery type. Self clearing when condition has been corrected.
E-0-2-3	High AC voltage	AC voltage greater than 270 VAC.	Connect to a stable AC source between 85 - 270 VAC / 45 - 65 Hz. Self clearing when condition has been corrected.
E-0-2-4	Failure to initialize	Charger failed to turn on correctly.	Disconnect AC input and battery pack for 30 seconds. Contact Genie Product Support.
E-0-2-5	Low AC voltage oscillation	AC voltage unstable.	Connect to a stable AC source between 85 - 270 VAC / 45 - 65 Hz. Using an undersized generator. Self clearing when condition has been corrected.
E-0-2-6	Script failure	Software update failed.	Confirm USB Flash Drive is formatted with correct software. If software update continues to fail, contact Genie Product support.
E-0-2-7	USB over current fault	USB over current protection has been tripped.	Remove and re-insert USB Flash Drive. Use different USB Flash drive.
E-0-2-8	Charge profile incompatibility	Selected charger profile is not compatible with charger software.	Update charger software. Confirm charger profile is programmed for correctly. Updating current firmware and error occurs, contact Genie Product Support.

Battery Charger

Charger Error Codes

Error Code	Description	Condition	Possible Causes
E-0-2-9	CAN Bus error	CAN Bus network error.	Check CAN Bus connections. CAN modules not functioning correctly. Termination resistance is ~60 ohms.
E-0-3-0	COMM battery module error	CAN Bus battery module error.	CAN Buss battery module not functioning correctly.
E-0-3-1	Vref for ADC measurements triggered alarm	Internal charger error.	Disconnect AC input and battery pack for 30 seconds. Contact Genie Product Support.
E-0-3-2	CAN Bus heartbeat error	CAN Bus heartbeat error.	CAN Bus devices not functioning correctly.
E-0-3-6	Battery temperature sensor charge profile	Battery temperature sensor is required by charger profile but is not installed.	Check battery temperature sensor connections. Check charger profile and confirm battery temperature sensor is installed.
E-0-3-8	CAN Open Error	CAN Open reprogramming failed.	Download CAN Open software. Reprogram charger using USB Flash Drive.

Schematics



Observe and Obey:

- ☑ Troubleshooting and repair procedures shall be completed by a person trained and qualified on the repair of this machine
- ☑ Immediately tag and remove from service a damaged or malfunctioning machine.
- ☑ Repair any machine damage or malfunction before operating the machine.

Before Troubleshooting:

- ☑ Read, understand and obey the safety rules and operating instructions in the appropriate operator's manual on your machine.
- ☑ Be sure that all necessary tools and test equipment are available and ready for use.

About This Section

There are two groups of schematics in this section.

Electrical Schematics

⚠ WARNING

Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

Hydraulic Schematics

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

Electrical Component and Wire Color Legends

Electrical Component Legend	
Item	Description
B5	Batteries
	B5 = Battery pack 24V DC, 4 each @ 6V DC (all other models) B10 = Battery pack 24 V DC, 2 each @ 12 V DC (GS-4046)
C	Connector
	C1 = Battery quick disconnect C2 = Cable connector, PCON C3 = Coil cord connector, PCON C4 = Power control (J1) C5 = Sensors and switches (J3) C6 = Function manifold (J2) C7 = Sensor power C8 = Sensor ground C9 = Pothole limit switch C10 = Down limit switch C11 = Level sensor C12 = Function manifold ground C13 = Drive reverse C14 = Drive forward C15 = Steer right C16 = Steer left C17 = Platform up C18 = Platform down C19 = Platform Overload C20 = Platform height sensor C21 = Platform Overload C22 = Parallel C23 = Platform height sensor C24 = Platform overload transducer C25 = Outriggers (J4) (GS-3232) C26 = Outrigger retract (GS-3232) C27 = Outrigger extend (GS-3232) C28 = Right rear outrigger (GS-3232) C29 = Left rear outrigger (GS-3232) C30 = Right front outrigger (GS-3232) C31 = Left front outrigger (GS-3232) C32 = Outrigger manifold - (GS-332) C33 = Outrigger level sensor + (GS-3232) C34 = Outrigger level sensor - (GS-3232) C35 = Left front outrigger pressure transducer (GS-3232) C36 = Right front outrigger pressure transducer (GS-3232)

Electrical Component Legend, continued	
Item	Description
C	Connector
	C37 = Left rear outrigger pressure transducer (GS-3232) C38 = Right rear outrigger pressure transducer (GS-3232) C39 = Outrigger level sensor + (GS-3232) C40 = Limit switch (GS-3232) C41 = Platform controls C43 = Key switch C44 = Key switch C45 = Automotive horn + C46 = Emergency Stop button C47 = Alarm + C48 = Circuit breaker C49 = Emergency Stop button C50 = Circuit breaker C51 = Key switch C52 = Alarm - C53 = Automotive horn - C70 = Platform down + (GS-3232, GS-3246) C71 = Platform down - (GS-3232, GS-3246) C84 = Lift pressure selector (GS-4046)
CB2	Circuit breaker
E	Enclosure
	EN1 = Platform controls EN4 = AC outlet
FB	Flashing beacon (option)
FS1	Foot switch (option)
GND	Ground
H	Horn or alarm
	H1 = Horn or alarm H2 = Automotive horn (option) H5 = Multifunction Alarm
J	Connector plug
	J1 = Power control (U5) J2 = Function manifold (U5) J3 = Sensors and switches (U5) J4 = Outriggers (U5) (GS-3232) J5 = Coil cord to platform controls J6 = Emergency Stop and alarm to platform controls J7 = Joystick to PCON board

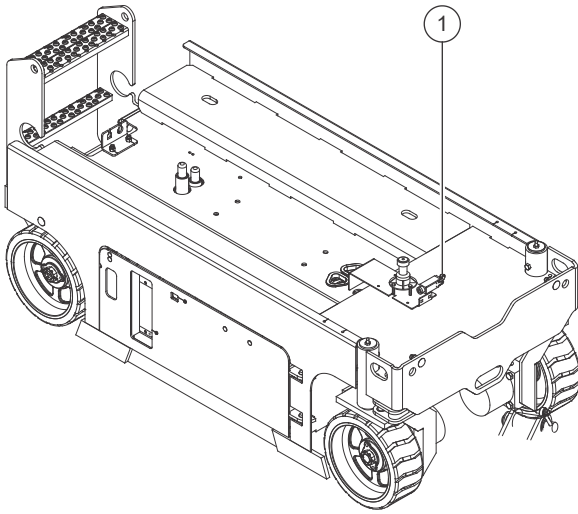
Electrical Component and Wire Color Legends

Electrical Component Legend, continued	
Item	Description
JC9	Joystick
K1	Contactors
KS1	Key switch
LS	Limit switch
	LS1 = Maximum drive height (GS-3232) LS6 = Platform down LS7 = Pothole LS8 = Pothole LS10 = Maximum drive height (GS-3232)
M5	Hydraulic power unit
N.C.	Normally closed
N.C.H.O	Normally closed held open
N.O.H.C.	Normally open held closed
P	Emergency power switch
	P1 = Emergency Stop button, GCON P2 = Emergency Stop button, PCON
PT	Pressure transducer
	PT1 = Left front outrigger (GS-3232) PT2 = Right front outrigger (GS-3232) PT3 = Left rear outrigger (GS-3232) PT4 = Right rear outrigger (GS-3232) PT15 = Platform Overload
R30	Resistor
S	Sensor
	S7 = Level sensor S8 = Outrigger level sensor (GS-3232) S14 = Platform height sensor
U	Electronic component
	U3 = Printed circuit board, PCON U5 = ECM - Electronic Control Module U6 = Motor controller U9 = Battery charger U13 = Inverter (if equipped)
Y	Valve coil
	Y1 = Parallel (GS-32, GS-46) Y2 = Lift pressure selector (GS-4046) Y3 = Steer right Y4 = Steer left Y5 = Drive reverse Y6 = Drive forward Y7 = Platform down Y8 = Platform up Y9 = Platform down (GS-3232, GS-3246) Y33 = Left rear outrigger (GS-3232) Y34 = Right rear outrigger (GS-3232) Y35 = Left front outrigger (GS-3232) Y36 = Right front outrigger (GS-3232) Y39 = Outrigger retract (GS-3232) Y40 = Outrigger extend (GS-3232)

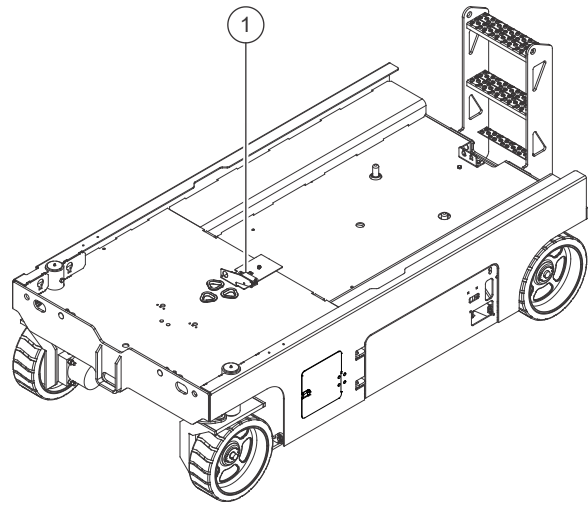
WIRE COLOR LEGEND	
Color	Description
BK	Black
BK/RD	Black/Red
BL	Blue
BL/BK	Blue/Black
BL/OR	Blue/Orange
BL/WH	Blue/White
BR	Brown
GR	Green
GR/BK	Green/Black
GR/WH	Green/White
GR/YL	Green/Yellow
LB	Light Blue
OR	Orange
OR/BK	Orange/Black
OR/RD	Orange/Red
OR/WH	Orange/White
RD	Red
RD/BK	Red/Black
RD/WH	Red/White
WH	White
WH/BK	White/Black
YL	Yellow

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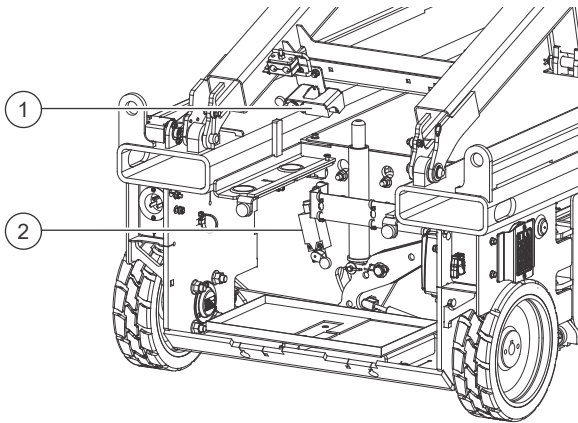
Limit Switch Legend



GS-1330m, GS-1530, GS-1532, GS-1930, GS-1932

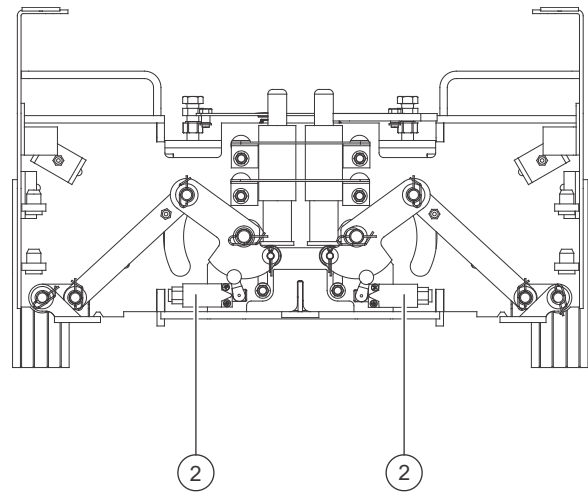


GS-2032, GS-2632, GS-3232, GS-2046, GS-2646, GS-3246, GS-4046, GS-4655



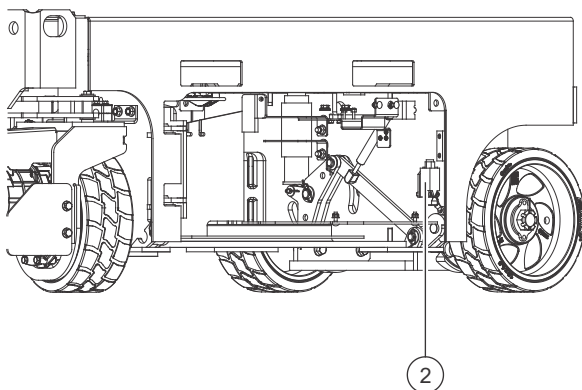
GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XC

- 1 down limit switch LS6
- 2 pothole limit switches LS7, LS8

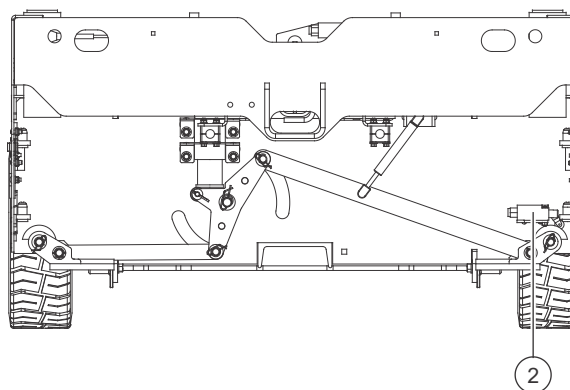


GS-1330m

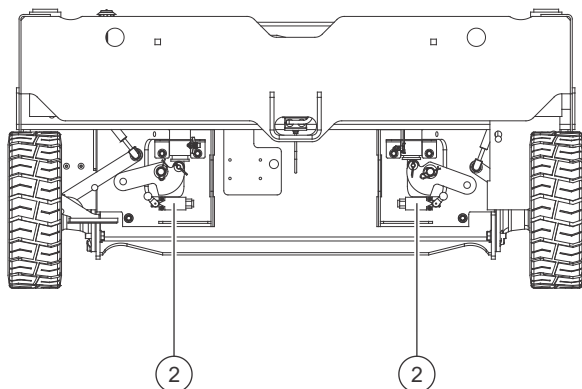
Limit Switch Legend



GS-1530, GS-1532, GS-1930, GS-1932, 2032, 2632, 3232



GS-2046, GS-2646, GS-3246, GS-4046



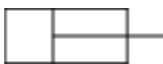
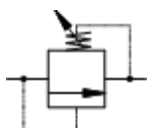
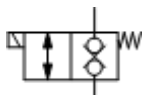
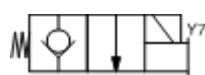
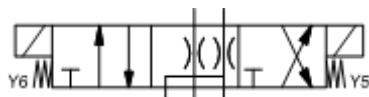
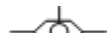
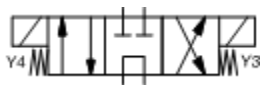
GS-4655

- 1 down limit switch LS6
- 2 pothole limit switches LS7, LS8

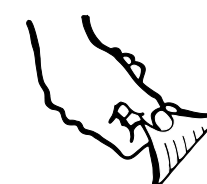
Electrical Symbol Legend

Wire with description or color	Limit switch	Motor controller	Key switch
Circuits crossing no connection	Emergency Stop button	Motor	Solenoid valve with diode
Diode	Circuit breaker	Battery charger	Level sensor
Circuit connection	Fuse	6V or 12V DC battery	Deutsch connector
Resistor	Contactor	Horn or alarm	Flashing beacon
Platform height sensor	Pressure transducer		

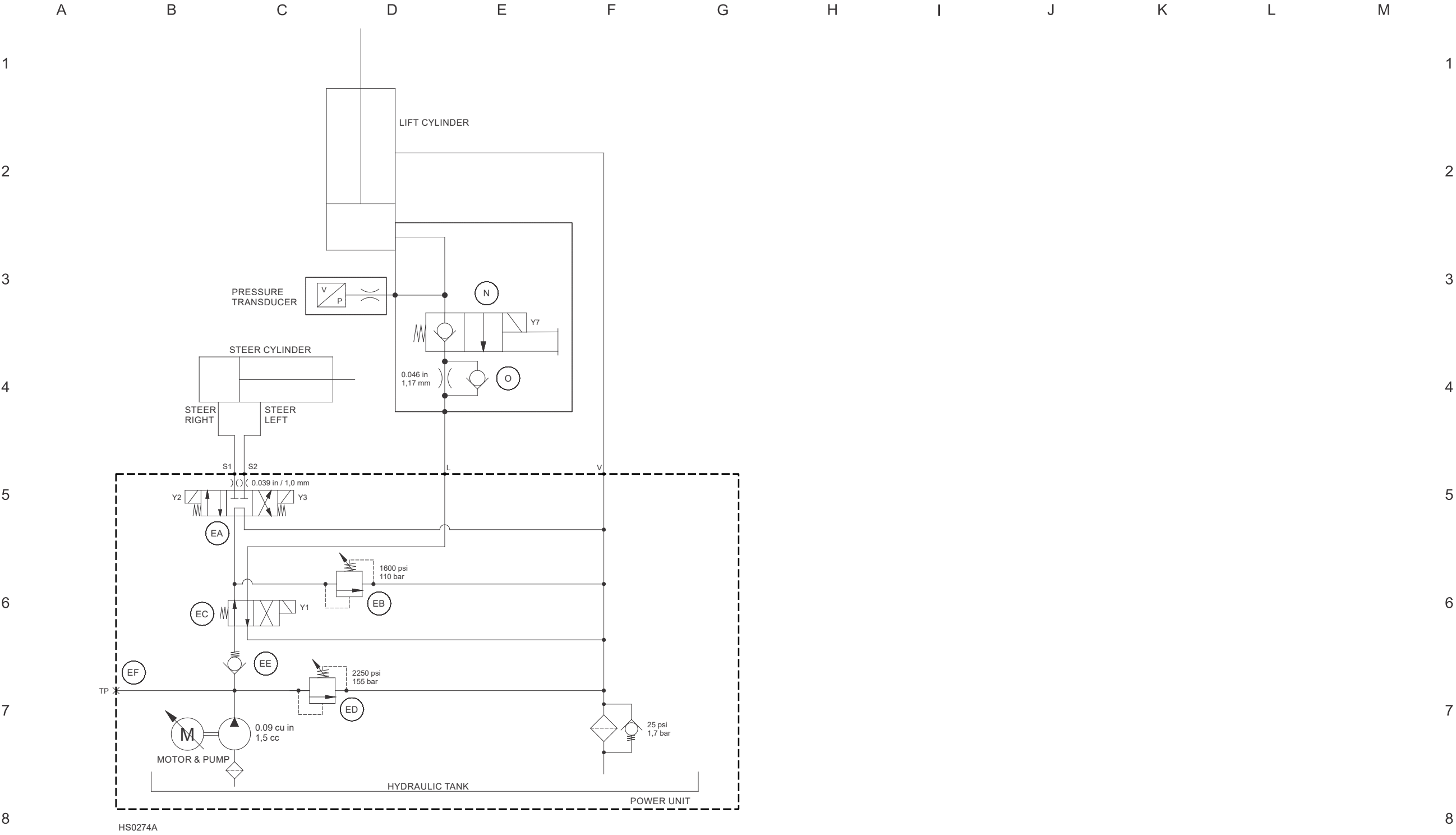
Hydraulic Symbols Legend

			
Hydraulic cylinder	Variable speed motor	Pressure transducer	Solenoid operated 2 position 4 way directional valve
			
Relief valve	Bi-directional motor	Solenoid operated 2 position 2 way blocking valve normally open	Solenoid operated 2 position 4 way directional valve
			
Priority flow regulator	Brake	Solenoid operated 2 position 2 way valve normally closed	Proportional solenoid operated 2 position 2 way directional valve normally closed
			
Accumulator	Check valve	Solenoid operated 2 position 2 way directional valve normally closed	Solenoid operated 3 position 5 way directional valve
			
Fixed displacement pump	Shuttle valve	Solenoid operated 3 position 4 way directional valve	Solenoid operated 3 position 4 way directional valve
			
Filter	Orifice with size		

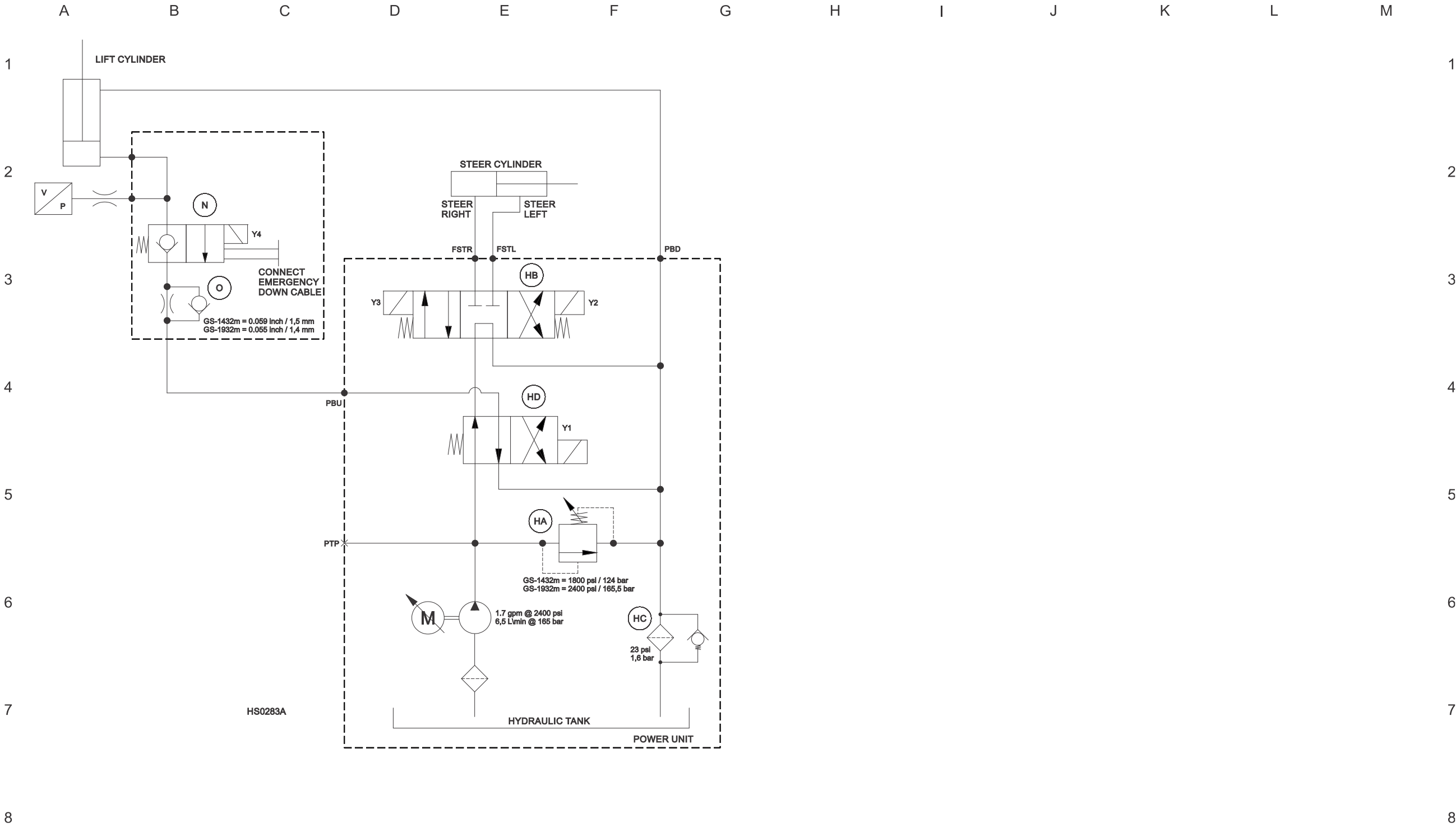
**Hydraulic Schematic,
GS-1330m (from GS30MD-101)**



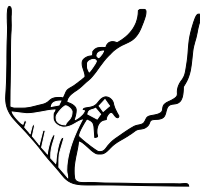
Hydraulic Schematic,
GS-1330m (from GS30MD-101)



Hydraulic Schematic,
GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH
(from GS32MD-101)

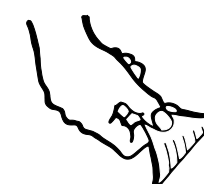


Hydraulic Schematic,
GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH
(from GS32MD-101)



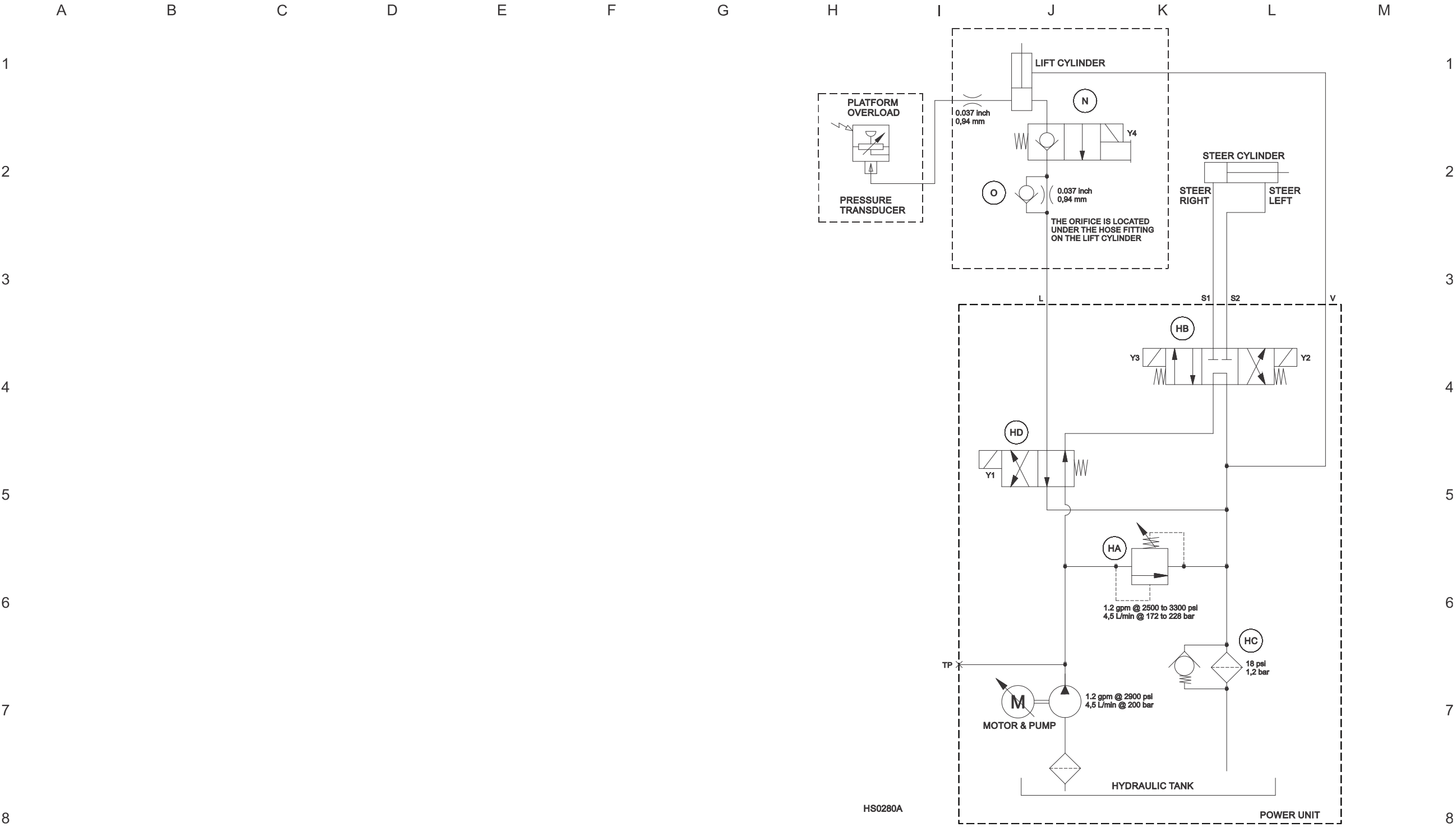
Hydraulic Schematic, Models with electric drive

GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH
(from GS30D-40101, GS30P-200101)

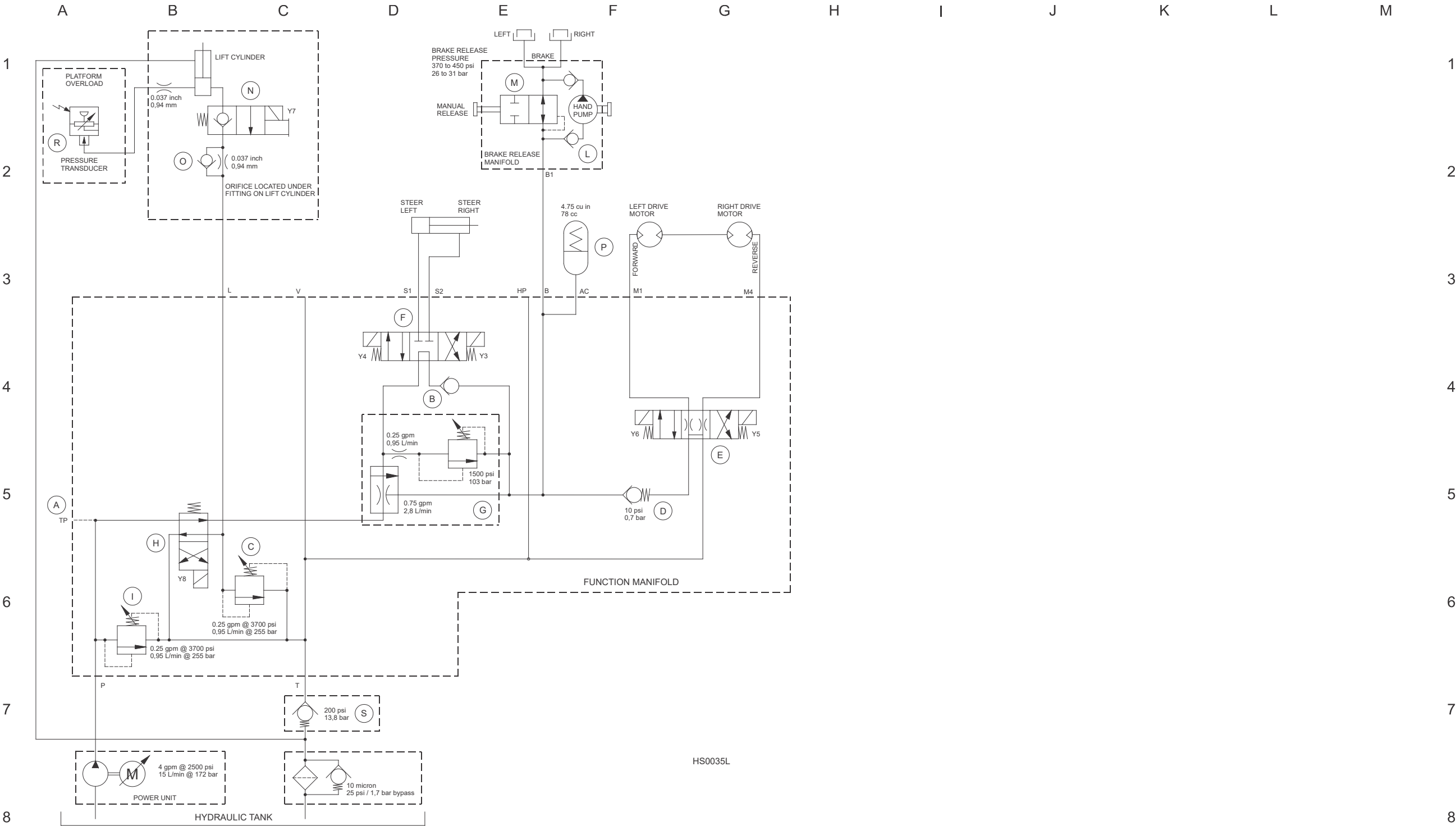


Hydraulic Schematic, Models with electric drive

GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH
(from GS30D-40101, GS30P-200101)

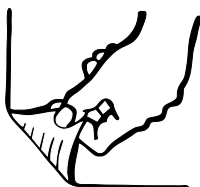


Hydraulic Schematic, Models with hydraulic drive
GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH
(from GS30D-40101, GS30P-200101)



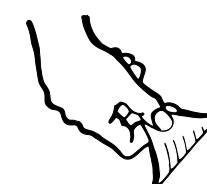
Hydraulic Schematic, Models with hydraulic drive

GS-1530, GS-1532, GS-1930, GS-1932, GS-1932 XH
(from GS30D-40101, GS30P-200101)



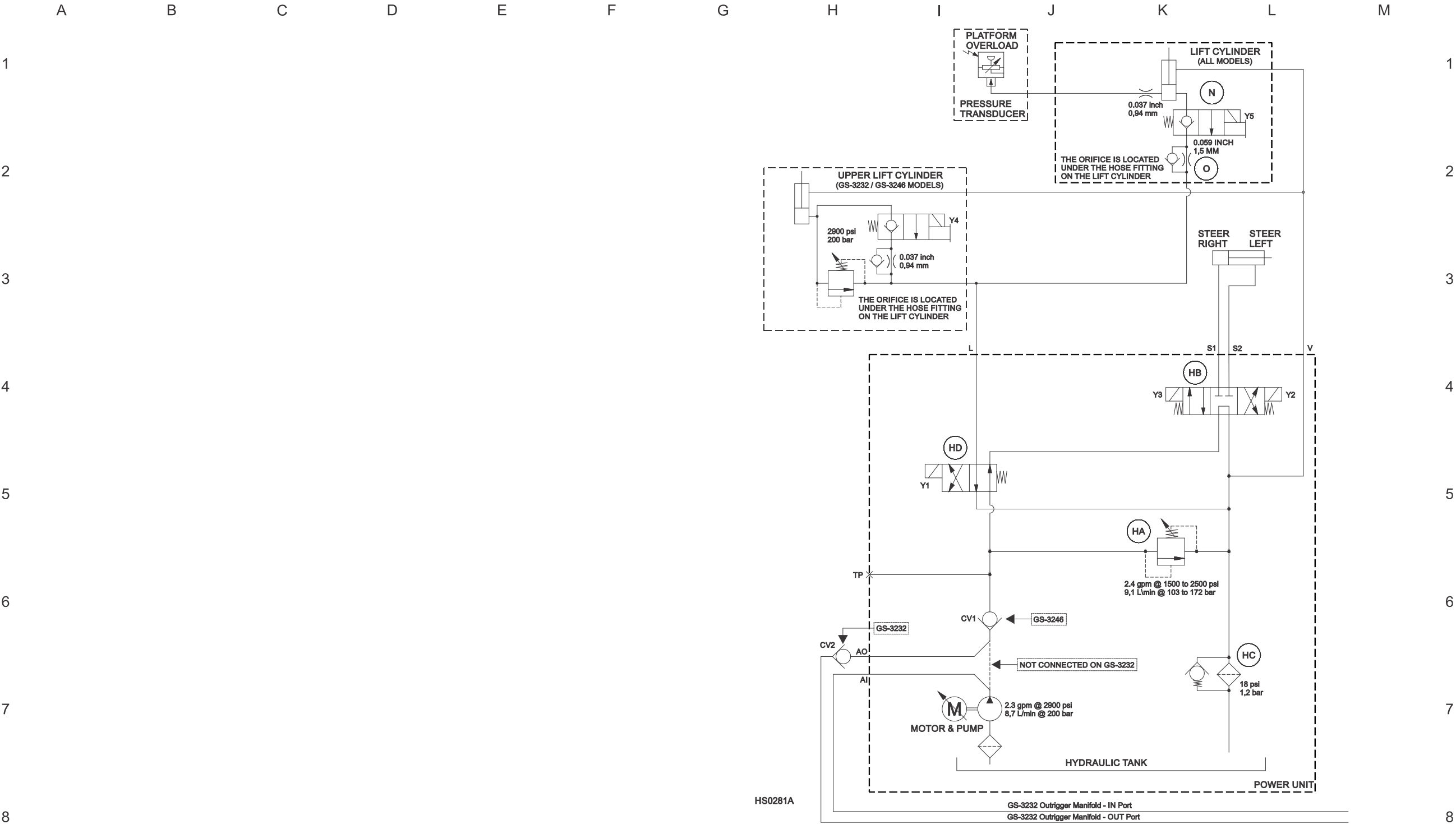
Hydraulic Schematic, Models with electric drive

GS-2032, GS-2632, GS-3232, GS-2046, GS-2646, GS-2646 XH, GS-3246, GS-3246 XH
(from GS32D-10101, GS32P-200101, GS46D-20101, GS46P-200101)

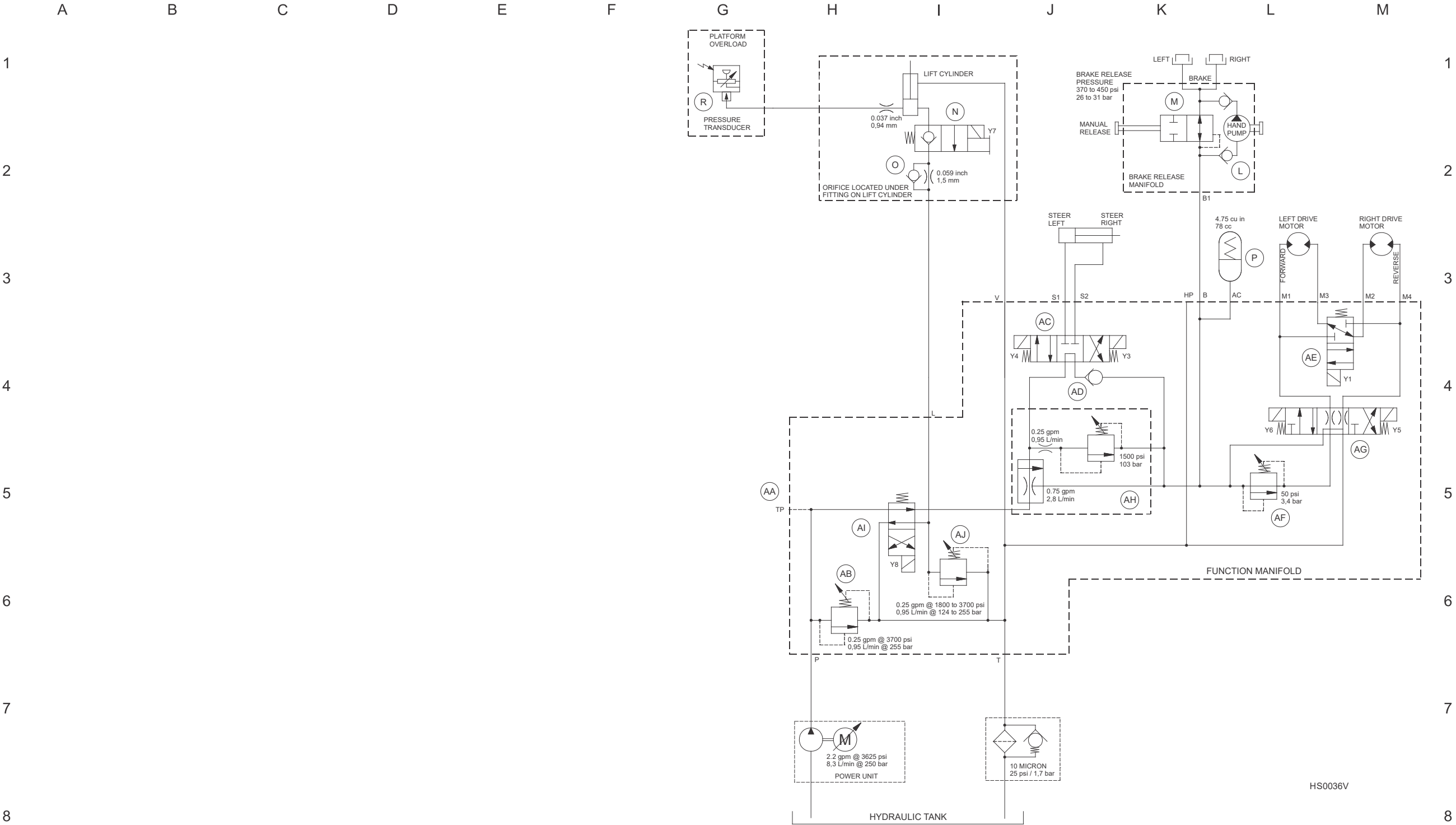


Hydraulic Schematic, Models with electric drive

GS-2032, GS-2632, GS-3232, GS-2046, GS-2646, GS-2646 XH, GS-3246, GS-3246 XH
(from GS32D-10101, GS32P-200101, GS46D-20101, GS46P-200101)



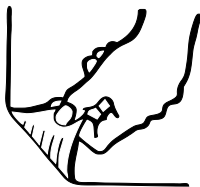
Hydraulic Schematic, Models with hydraulic drive
GS-2032, GS-2632 (from GS32D-10101, GS32P-200101)



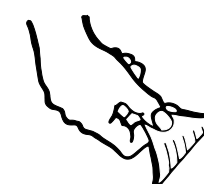
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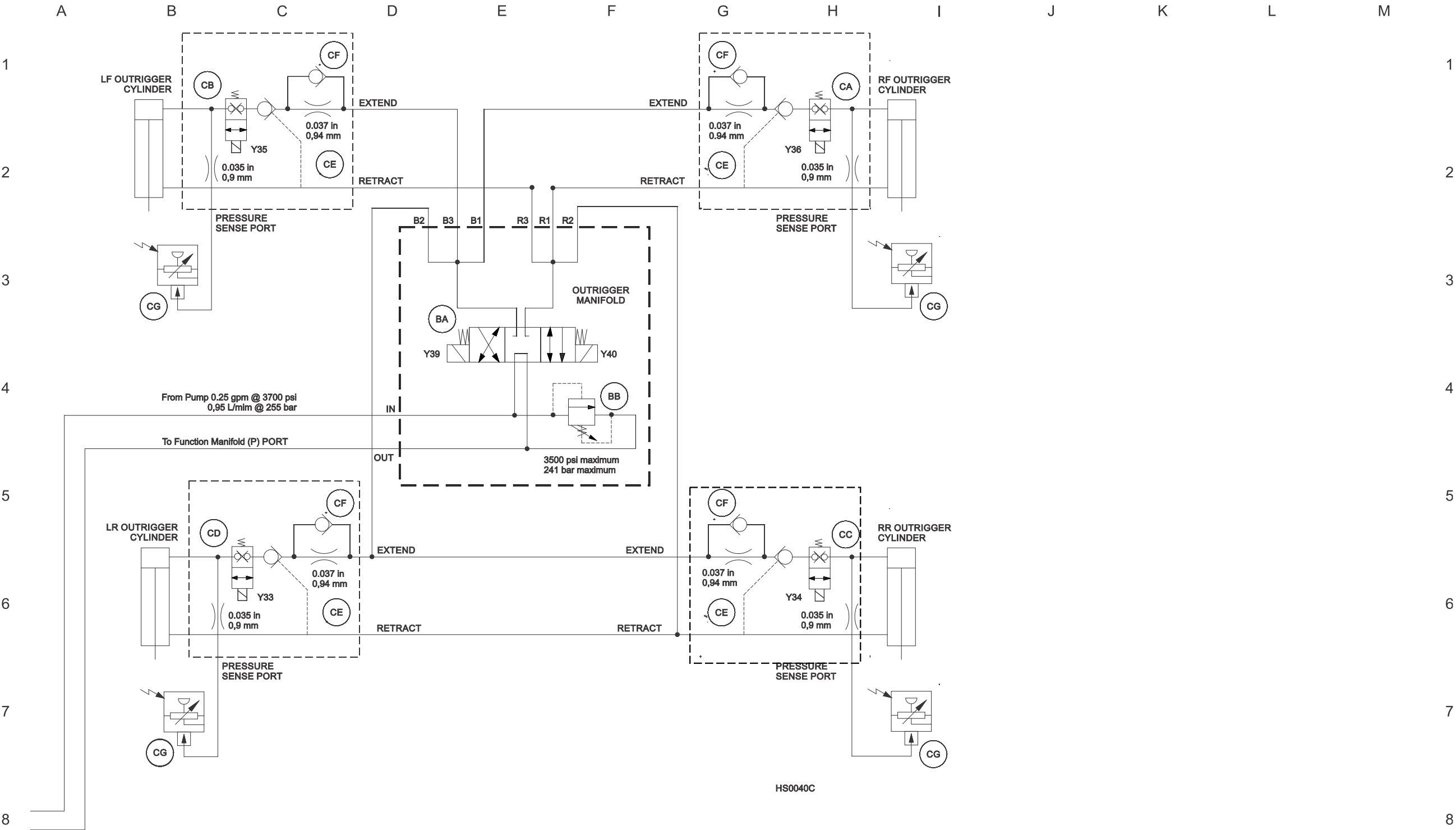
Hydraulic Schematic, Models with hydraulic drive
GS-2032, GS-2632 (from GS32D-10101, GS32P-200101)



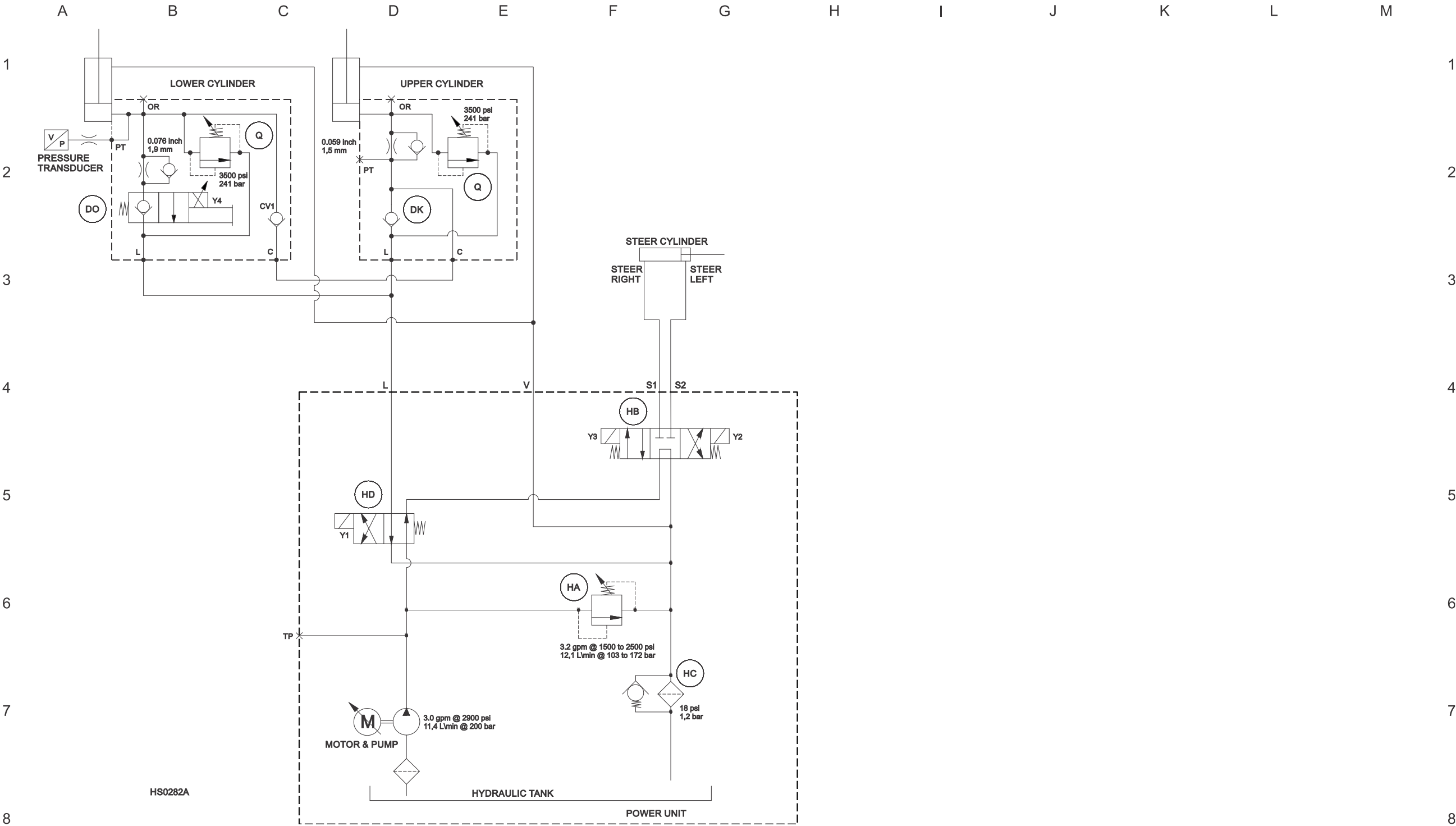
Hydraulic Schematic, Outriggers
GS-3232 (from GS32D-10101, GS32P-200101)



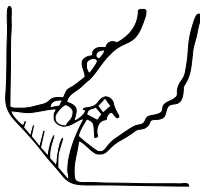
Hydraulic Schematic, Outriggers
GS-3232 (from GS32D-10101, GS32P-200101)



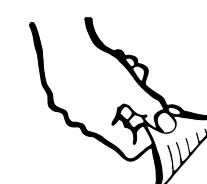
Hydraulic Schematic,
GS-4046 (from GS46D-20101, GS46P-200101)



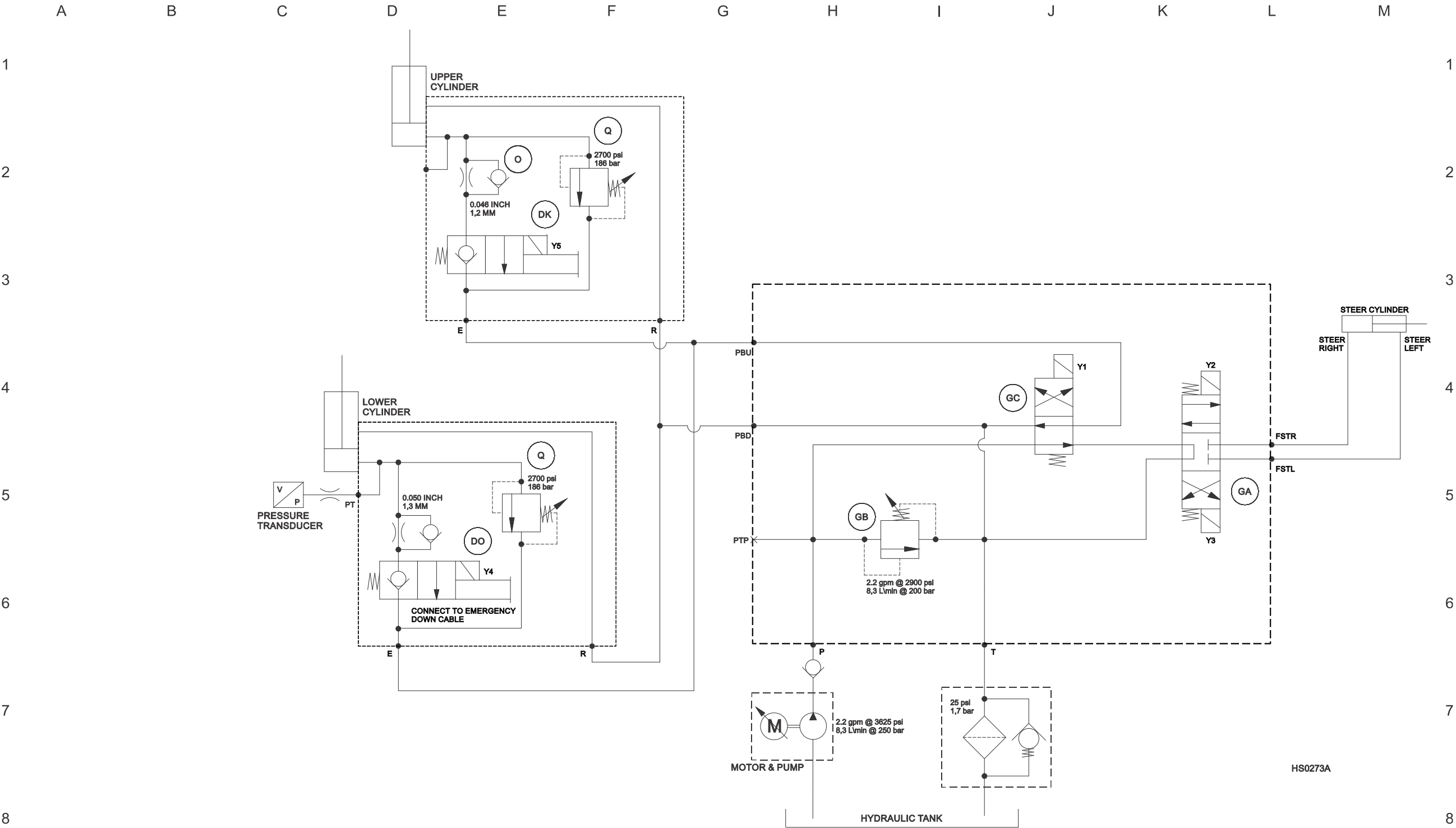
Hydraulic Schematic,
GS-4046 (from GS46D-20101, GS46P-200101)



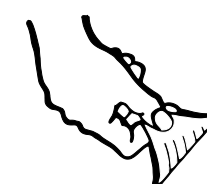
**Hydraulic Schematic,
GS-4655 (from GS55D-101)**



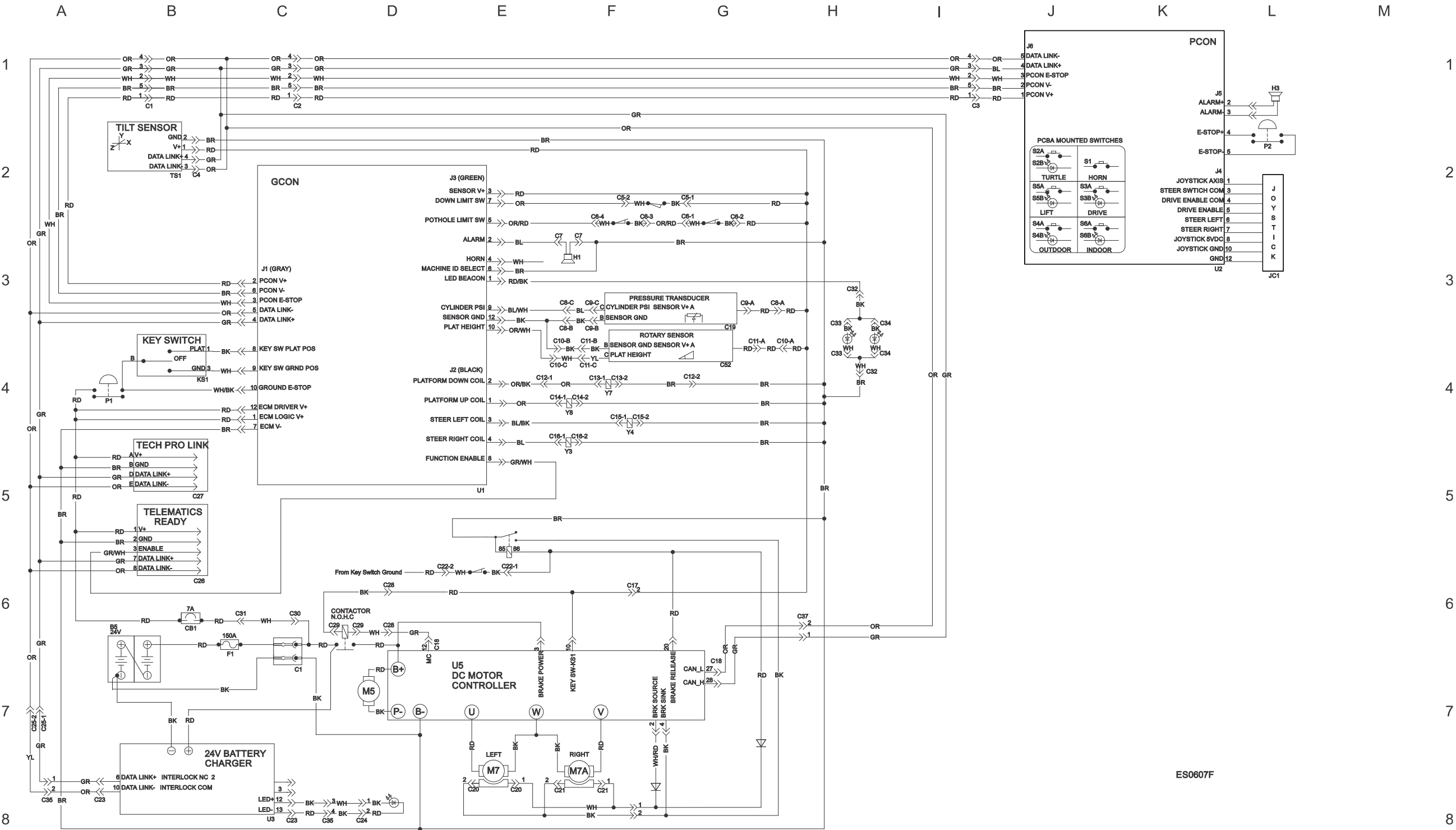
Hydraulic Schematic,
GS-4655 (from GS55D-101)



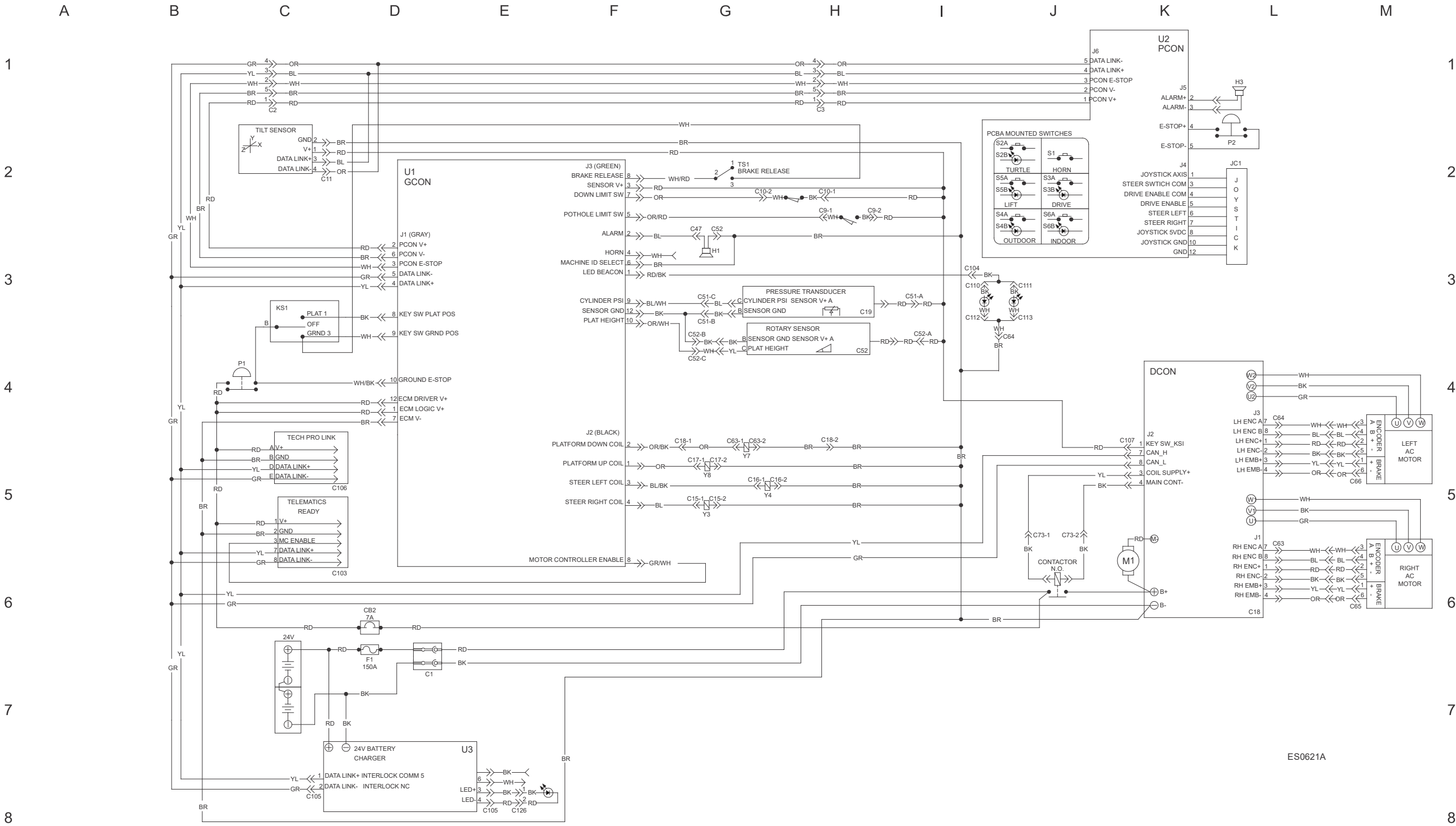
Electrical Schematic,
GS-1330m (from GS30MD-40101)



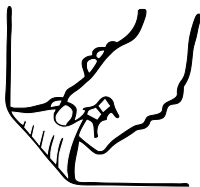
Electrical Schematic,
GS-1330m (from GS30MD-40101)



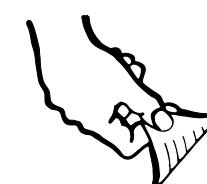
Electrical Schematic,
GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH (from GS32MD-101)



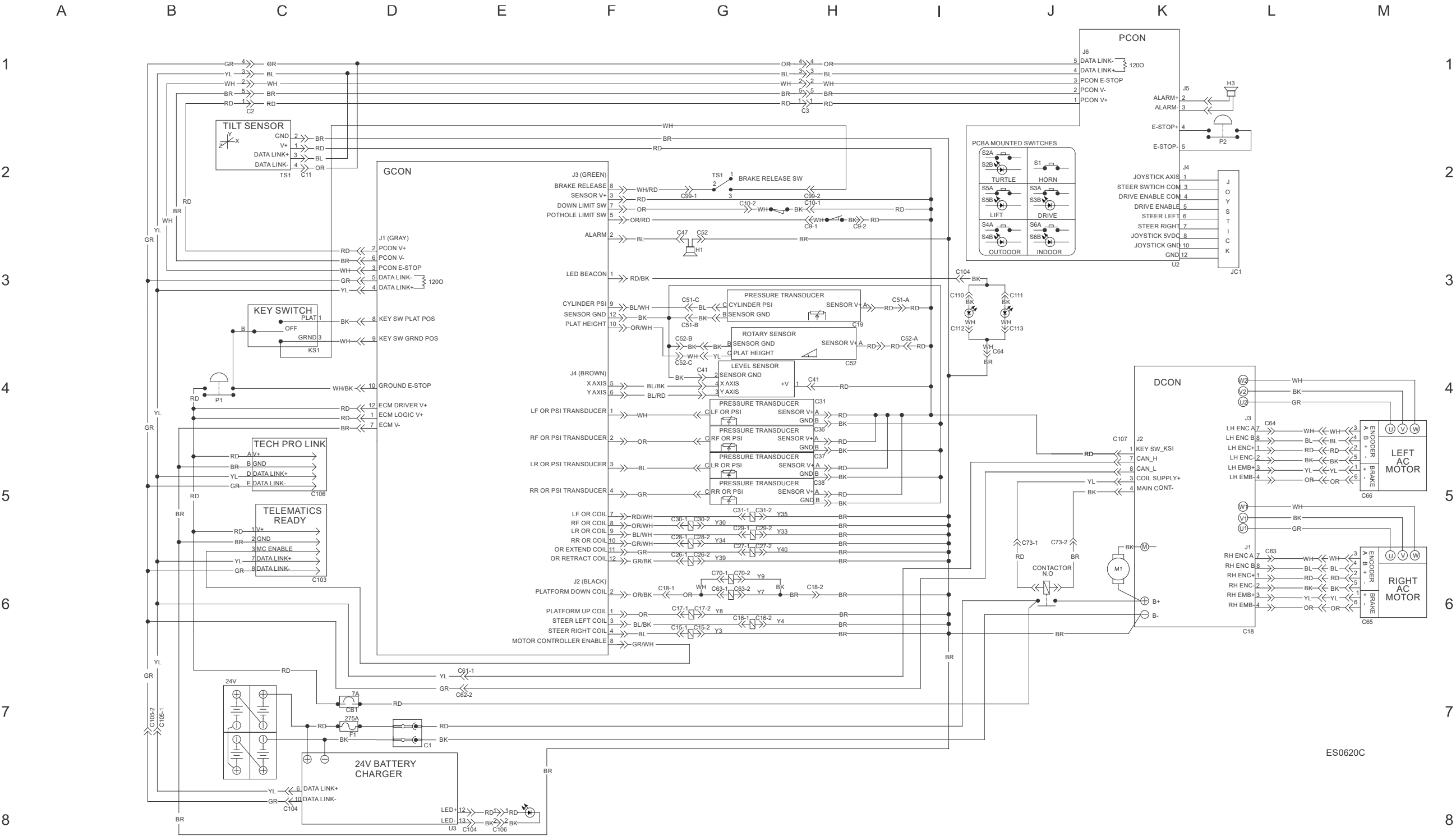
Electrical Schematic,
GS-1432m, GS-1932m, GS-1932m Lite, GS-1932m XH (from GS32MD-101)



Electrical Schematic,
GS-3232 (from GS32D-10101, GS32P-200101)

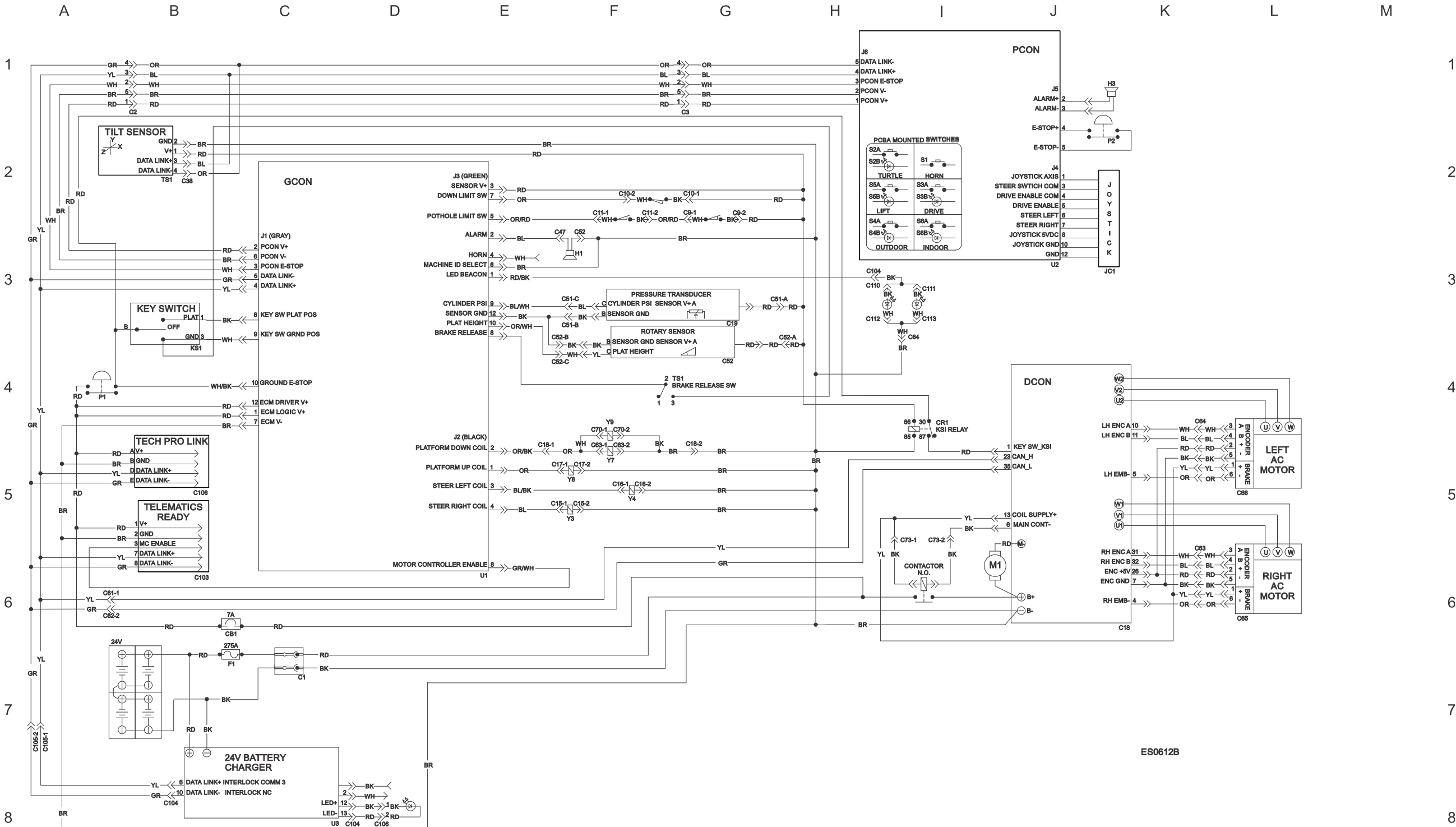


Electrical Schematic,
GS-3232 (from GS32D-10101, GS32P-200101)

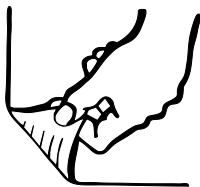


ES0620C

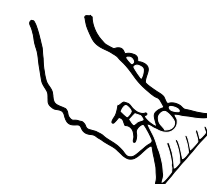
Electrical Schematic,
GS-4655 (from GS55D-10101)



Electrical Schematic,
GS-4655 (from GS55D-10101)

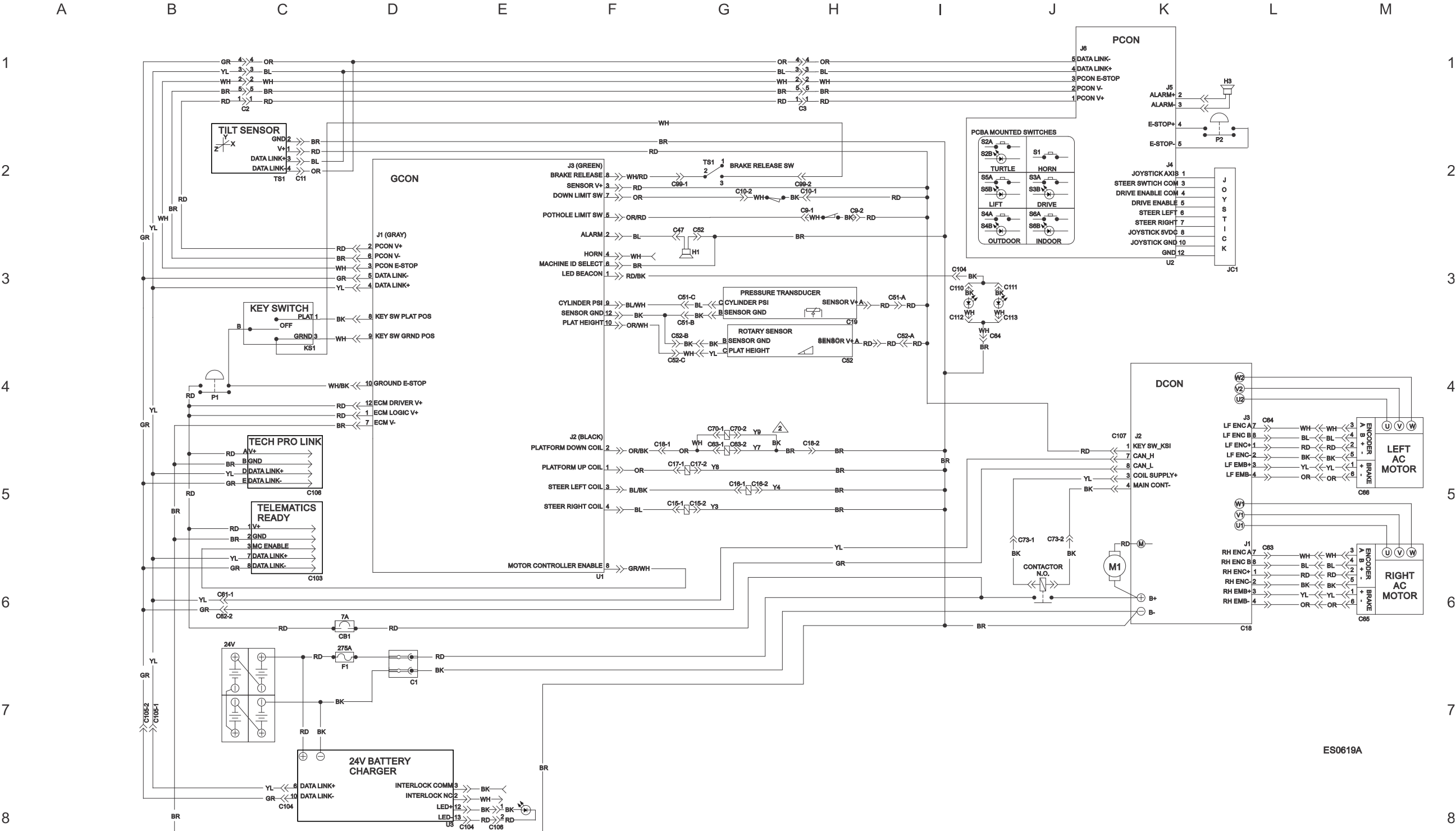


Electrical Schematic, All other models
Models with electric drive
(from GS30D-40101, GS30P-200101, GS32D-10101, GS32P-200101, GS46D-20101, GS46P-200101)



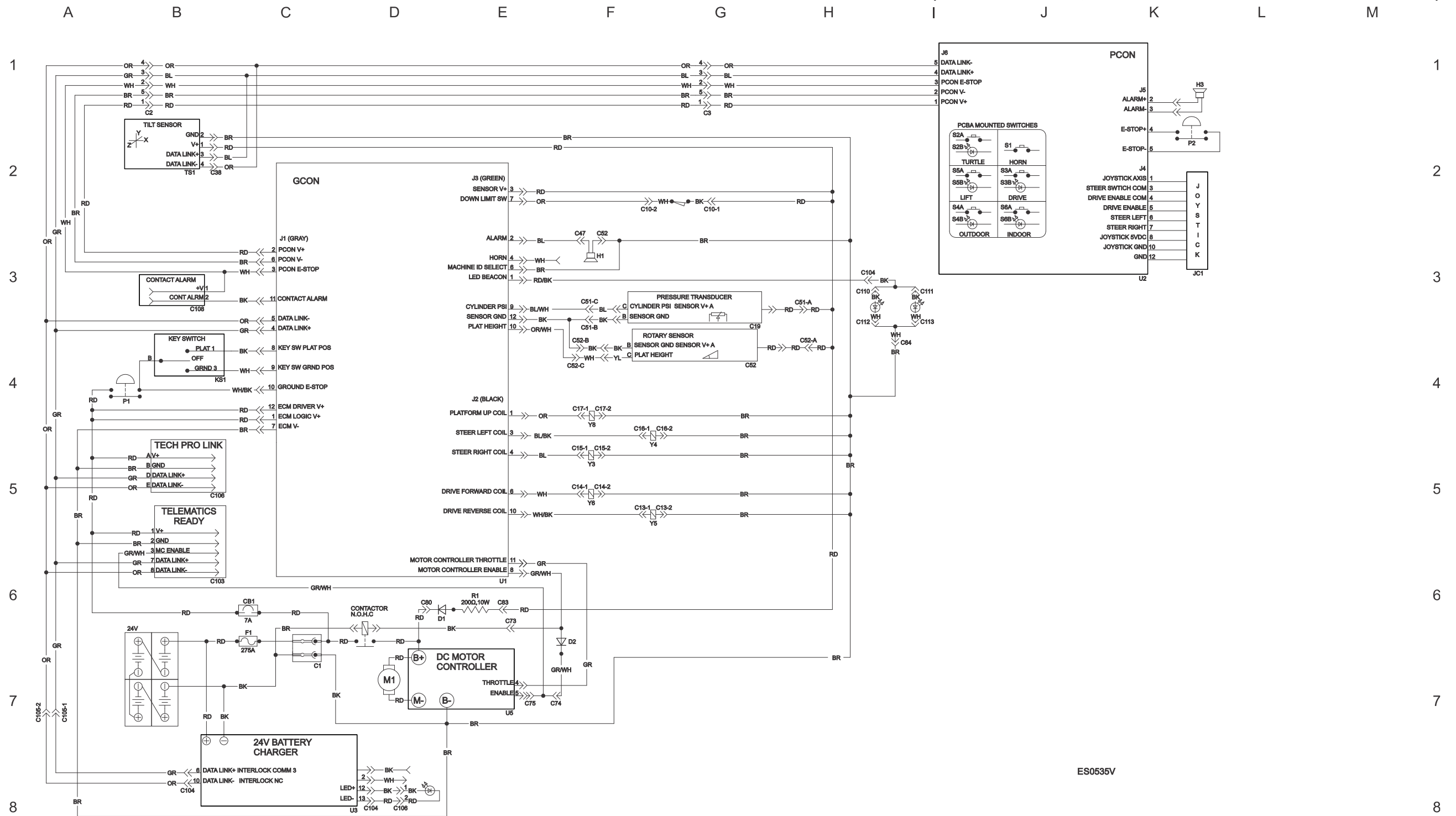
Electrical Schematic, All other models
Models with electric drive

(from GS30D-40101, GS30P-200101, GS32D-10101, GS32P-200101, GS46D-20101, GS46P-200101)



ES0619A

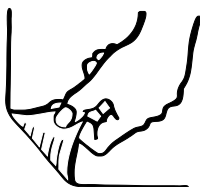
I J K L M



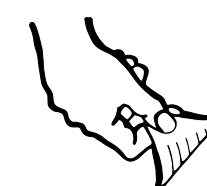
Electrical Schematic, All other models

Models with hydraulic drive

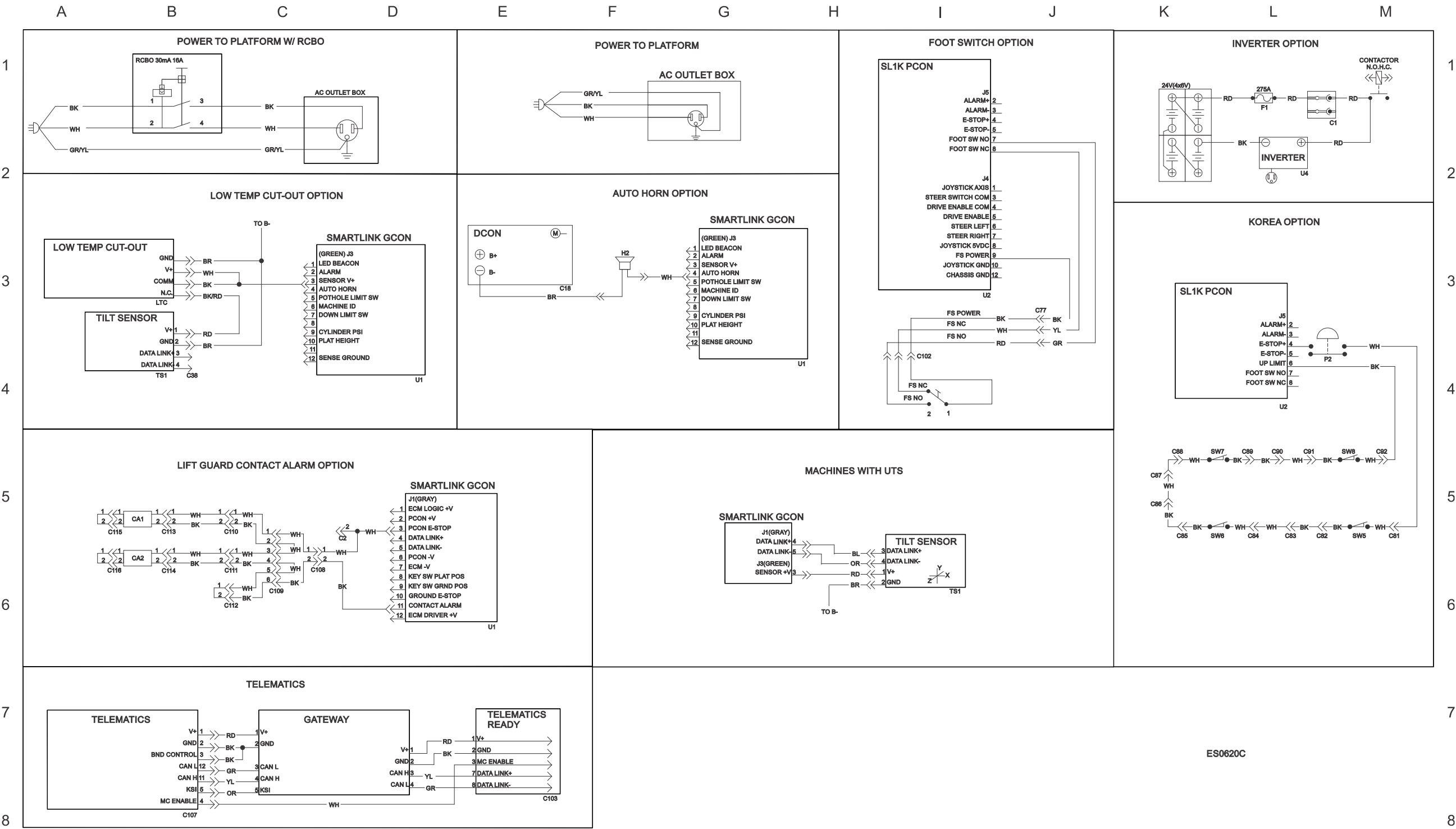
(from GS30D-40101, GS30P-200101, GS32D-10101, GS32P-200101)



Electrical Schematic, Options



Electrical Schematic, Options



California Proposition 65



WARNING

Operating, servicing and maintaining this equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. These chemicals can be emitted from or contained in other various parts and systems, fluids and some component wear by-products. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your equipment and vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your equipment or vehicle and after operation. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.