



# Service Manual

## Serial Number Range

**GS-1530/32**

from GS3010A-110000  
from GS3011C-10000

**GS-1930/32**

from GS3010A-110000  
from GS3011C-10000

**GS-2032**

from GS3211A-110000  
from GS3212C-10000

**GS-2632**

from GS3211A-110000  
from GS3212C-10000

**GS-3232**

from GS3211A-110000  
from GS3212C-10000

**GS-2046**

from GS4612A-110000  
from GS4612C-10000

**GS-2646**

from GS4612A-110000  
from GS4612C-10000

**GS-3246**

from GS4612A-110000  
from GS4612C-10000

**GS-4047**

from GS4712C-101

Part No. 228901

Rev D1

June 2014

# Introduction

## Important

Read, understand and obey the safety rules and operating instructions in the appropriate Operator's Manual on your machine before attempting any maintenance procedure.

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

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

## Compliance

### Machine Classification

Group A/Type 3 as defined by ISO 16368

### Machine Design Life

Unrestricted with proper operation, inspection and scheduled maintenance.

## Technical Publications

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

Readers are encouraged to notify Genie of errors and send in suggestions for improvement. All communications will be carefully considered for future printings of this and all other manuals.

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## Serial Number Information

Genie Industries offers the following Service Manuals for these models:

Title	Part No.
Genie GS-1530 and GS-1930 Service Manual, (before serial number 17408)	39528
Genie GS-1530 and GS-1930 Service Manual (from serial number 17408 to 59999)	72876
Genie GS-1530 and GS-1930 Service Manual (from serial number 60000 to 75999)	96316
Genie GS-1530 and GS-1930 Service Manual, (from serial number A-760000 to A-109999, B-760000 to B-98941 and C-101 to C-9999)	97385
Genie GS-2032 Service Manual (before serial number 17408)	46326
Genie GS-2032 and GS 2632 (from serial number 17408 to 59999)	72963
Genie GS-2032 and GS-2632 Service Manual (from serial number 60000 to 75406)	96316
Genie GS-2032, GS-2632 and GS-3232 Service Manual (from serial number 75407 to A-109999 and C-101 to C-9999)	97385
Genie GS-2046, GS-2646 and GS-3246 Service Manual (before serial number 17408)	48339
Genie GS-2046, GS-2646 and GS-3246 Service Manual (from serial number 17409 to 59999)	72972
Genie GS-2046, GS-2646 and GS-3246 Service Manual (from serial number 60000 to 75437)	96316
Genie GS-2046, GS-2646 and GS-3246 Service Manual (from serial number 75438 to A-109999 and C-101 to C-9999)	97385

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# Introduction

## Revision History

Revision	Date	Section	Procedure / Page / Description
A	04/2011		New Release
B	01/2012	Specifications	Machine, Performance, Hydraulic
		Maintenance	Inspection Report, B-1, B-3, B-17, C-1, D-1
		Repair	4-2, 4-12, 4-14, 4-20, 4-22, 4-25, 4-26, 4-27, 4-28, 4-29, 4-30, 4-32, 4-33, 4-60, 4-68, 4-78, 4-90, 4-103, 4-105, 4-108, 4-111, 4-115, 4-119, 4-120
		Diagnostics	5-2, 5-4, 5-5, 5-6, 5-7, 5-8, 5-10, 5-12, 5-15, 5-16
		Schematics	All legends, diagrams and schematics
B1	06/2012	Maintenance	C-1
C	07/2013	Specifications	Page 7, Page 8, Page 9
		Repair	Page 48, Page 56, Page 61, Page 63, Page 161, Page 174, Page 175
		Diagnostics	Page 190, Page 194, Page 199, Page 201, Page 204
		Schematics	Page 206, Page 209, Page 211 through Page 264, Page 268
D	09/2013	Maintenance	<a href="#">Page 23</a> , <a href="#">Page 45</a>
		Repair	<a href="#">Page 69</a> , <a href="#">Page 74</a> , <a href="#">Page 78</a> , <a href="#">Page 80</a> , <a href="#">Page 164</a> , <a href="#">Page 166</a> , <a href="#">Page 169</a> , <a href="#">Page 172</a>
		Diagnostics	<a href="#">Page 187</a> , <a href="#">Page 189</a>
D1	06-2014	Specifications	Page 3, Page 6, Page 7
		Maintenance	B-8, B-9, B-10, B11
		Diagnostics	FXXX Faults, CXXX Faults
<b>Reference Examples:</b>			
Section – Maintenance, B-3			<b>Electronic Version</b> Click on any procedure or page number highlighted in blue to view the update.
Section – Repair Procedure, 4-2			
Section – Fault Codes, All charts			
Section – Schematics, Legends and schematics			

# Introduction


## Revision History

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Section – Repair Procedure, 4-2			
Section – Fault Codes, All charts			
Section – Schematics, Legends and schematics			



# Introduction



## Serial Number Legend



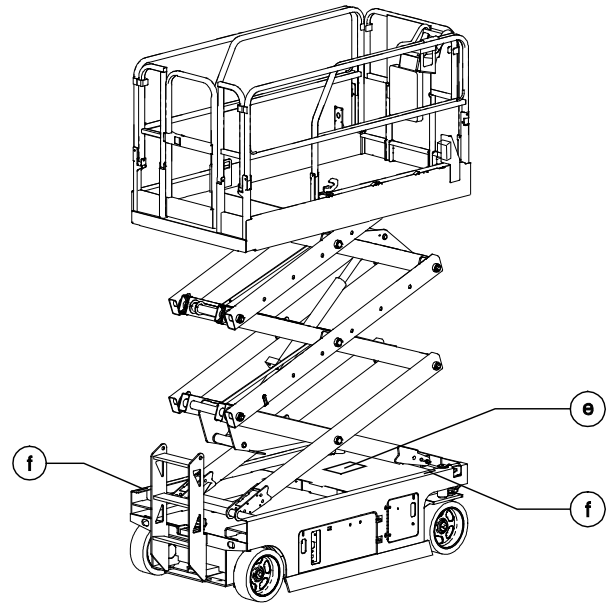
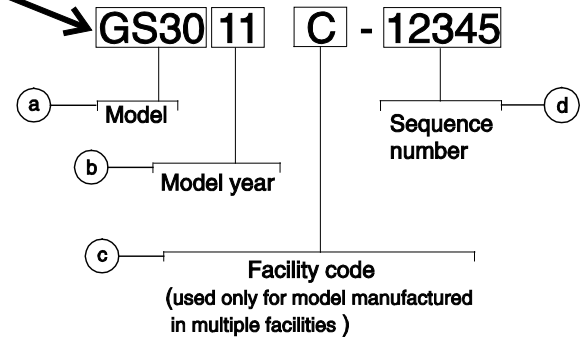
A TEREX COMPANY

**Model:** GS-1930  
**Serial number:** GS3011C-12345  
**Model year:** 2011      **Manufacture date:** 03/01/2011  
**Electrical schematic number:** ES0535  
**Machine unladen weight:** 3255 lbs / 1476 kg  
**Rated work load (including occupants):**  
 500 lbs / 227 kg  
**Maximum allowable inclination of the chassis:**  
 1.5° Side / 3° Front / 3° Rear  
**Outriggers retracted:**  
 N/A  
**Outriggers deployed:**  
 N/A  
**Gradeability:** 30° / 16.7%  
**Outdoor rating:**  
 Maximum allowable side force: N/A  
 Maximum wind speed: N/A  
 Maximum number of platform occupants: N/A  
**Indoor rating:**  
 Maximum allowable side force: 90 lbs / 400 N  
 Maximum wind speed: 0 mph / 0 m/s  
 Maximum number of platform occupants: 2  
**Nominal Power:**  
**Country of manufacture:**  
**Manufacturer:**  
 Genie Industries  
 18340 NE 76th Street  
 Redmond, WA 98052 USA  
**European Representative:**  
 Genie UK LTD  
 The Maltings  
 Wharf Road, Grantham, LIn  
 NG31 6BH United Kingdom

**This machine complies with:**  
 EN 280

P/N 77055



- a Model
- b Model year
- c Facility code (for models manufactured in multiple facilities)
- d Sequence number
- e Serial label
- f Serial number (stamped on chassis)

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# 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 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

### Batteries, Standard

#### All models except GS-4047

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 GS-4047

Voltage	12V DC
Group	GC2
Type	T-1275
Quantity	4
Battery capacity, maximum	C20 = 150AH
Reserve capacity @ 25A rate	280 minutes
Weight, each	82 lbs 37 kg

### Batteries, Maintenance-free (option)

#### All models except GS-4047

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

### Platform Overload Pressure Transducer

(if equipped) All models except GS-3232 and GS-4047

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

### Platform Overload Pressure Transducer (if equipped) GS-3232 and GS-4047

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

### Angle Sensor (if equipped)

Input voltage	8 to 30 VDC
Signal voltage	3 to 4 V, PMW output

### Outrigger Pressure Transducer, GS-3232 only

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

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

## Specifications

### Fluid capacities

Hydraulic tank	3.75 gallons
All models except GS-4047	14.2 liters
Hydraulic tank	6.5 gallons
GS-4047	24.6 liters
Hydraulic system (including tank)	5 gallons
GS-3232 and GS-3246	19 liters
Hydraulic system (including tank)	7.5 gallons
GS-4047	28.4 liters
Hydraulic system (including tank)	4.5 gallons
All other models	18 liters

### Tires and wheels

#### GS-1530, GS-1532, GS-1930, GS-1932

Tire size (solid rubber)	12 x 4.5 in 30.5 x 11.4 cm
Tire contact area	9 sq in 58 cm <sup>2</sup>
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-3246, GS-4047

Tire size (solid rubber)	15 x 5 in 38.1 x 12.7 cm
Tire contact area	15 sq in 96.7 cm <sup>2</sup>
Castle nut torque, dry	300 ft-lbs 406.7 Nm
Castle nut torque, lubricated	225 ft-lbs 305 Nm

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

# Specifications

## Performance Specifications (models without proportional lift)

### Drive speed, maximum

#### GS-1530, GS-1532, GS-1930, GS-1932

Platform stowed, fast	2.5 mph 40 ft / 10.7 sec 4 km/h 12.2 m / 10.7 sec
-----------------------	--

Platform stowed, slow	2.5 mph 40 ft / 24.8 sec 1.8 km/h 12.2 m / 24.8 sec
-----------------------	--

Platform raised	0.5 mph 40 ft / 55 sec 0.8 km/h 12.2 m / 55 sec
-----------------	--

#### GS-2032, GS-2632, GS-3232, GS-2046, GS-2646, GS-3246

Platform stowed, fast	2.2 mph 40 ft / 12.4 sec 3.5 km/h 12.2 m / 12.4 sec
-----------------------	--

Platform stowed, slow	1.1 mph 40 ft / 24.8 sec 1.8 km/h 12.2 m / 24.8 sec
-----------------------	--

Platform raised	0.5 mph 40 ft / 55 sec 0.8 km/h 12.2 m / 55 sec
-----------------	--

#### GS-4047

Platform stowed, fast	2.0 mph 40 ft / 13.7 sec 3.2 km/h 12.2 m / 13.7 sec
-----------------------	--

Platform stowed, slow	1.0 mph 40 ft / 27.4 sec 1.6 km/h 12.2 m / 27.4 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	24 in ± 12 in 61 cm ± 30 cm
-----------------------------	--------------------------------

### Gradeability

GS-1930, GS-1932, GS-2632, GS-3232, GS-3246 and GS-4047	25%
---	-----

GS-1530, GS-1532, GS-2032, GS-2046 and GS-2646	30%
--	-----

### Airborne noise emissions

Sound pressure level at ground workstation	< 70 dBA
--	----------

Sound pressure level at platform workstation	< 70 dBA
--	----------

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## Specifications

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

#### GS-1530 and GS-1532

Platform up (fast mode)	15 to 17 seconds
Platform up (slow mode)	31 to 33 seconds
Platform down	28 to 30 seconds

#### GS-1930 and GS-1932

Platform up (fast mode)	15 to 17 seconds
Platform up (slow mode)	31 to 33 seconds
Platform down	28 to 30 seconds

#### GS-2032 and GS-2046

Platform up (fast mode)	28 to 32 seconds
Platform up (slow mode)	58 to 62 seconds
Platform down	26 to 30 seconds

#### GS-2632 and GS-2646

Platform up (fast mode)	28 to 32 seconds
Platform up (slow mode)	58 to 62 seconds
Platform down	22 to 26 seconds

#### GS-3232 and GS-3246

Platform up (fast mode)	55 to 59 seconds
Platform up (slow mode)	108 to 112 seconds
Platform down	38 to 42 seconds

### GS-4047

Platform up (fast mode)	69 to 73 seconds
Platform up (slow mode)	118 to 122 seconds
Platform down	39 to 43 seconds

### Rated work load at full height, maximum

GS-1530 and GS-1532	600 lbs 272 kg
GS-1930, GS-1932, GS-2632 and GS-3232	500 lbs 227 kg
GS-2032	800 lbs 363 kg
GS-2046	1200 lbs 544 kg
GS-2646	1000 lbs 454 kg
GS-3246	700 lbs 317 kg
GS-4047	770 lbs 350 kg

### GS-3232 Outrigger leveling capacity, maximum

Side to side	5°
Front to rear	3°

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# Specifications

## Performance Specifications (models with proportional lift)

### Drive speed, maximum

#### GS-1530, GS-1532, GS-1930, GS-1932

Platform stowed, fast	2.5 mph 40 ft / 10.7 sec 4 km/h 12.2 m / 10.7 sec
-----------------------	--

Platform stowed, slow	2.5 mph 40 ft / 24.8 sec 1.8 km/h 12.2 m / 24.8 sec
-----------------------	--

Platform raised	0.5 mph 40 ft / 55 sec 0.8 km/h 12.2 m / 55 sec
-----------------	--

#### GS-2032, GS-2632, GS-3232, GS-2046, GS-2646, GS-3246

Platform stowed, fast	2.2 mph 40 ft / 12.4 sec 3.5 km/h 12.2 m / 12.4 sec
-----------------------	--

Platform stowed, slow	1.1 mph 40 ft / 24.8 sec 1.8 km/h 12.2 m / 24.8 sec
-----------------------	--

Platform raised	0.5 mph 40 ft / 55 sec 0.8 km/h 12.2 m / 55 sec
-----------------	--

### GS-4047

Platform stowed, fast	2.0 mph 40 ft / 13.7 sec 3.2 km/h 12.2 m / 13.7 sec
-----------------------	--

Platform stowed, slow	1.0 mph 40 ft / 27.4 sec 1.6 km/h 12.2 m / 27.4 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	24 in ± 12 in 61 cm ± 30 cm
-----------------------------	--------------------------------

### Gradeability

GS-1930, GS-1932, GS-2632, GS-3232, GS-3246 and GS-4047	25%
---	-----

GS-1530, GS-1532, GS-2032, GS-2046 and GS-2646	30%
---	-----

### Airborne noise emissions

Sound pressure level at ground workstation	< 70 dBA
---	----------

Sound pressure level at platform workstation	< 70 dBA
---	----------

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

## Specifications

---

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

---

#### GS-1530 and GS-1532

Platform Up (full speed)	15 to 17 seconds
Platform down	18 to 25 seconds

#### GS-1930, 1930PAR and GS-1932

Platform Up (full speed)	15 to 17 seconds
Platform down	18 to 25 seconds

#### GS-2032 and GS-2636

Platform Up (full speed)	28 to 32 seconds
Platform down	24 to 28 seconds

#### GS-2046 and GS-2646

Platform Up (full speed)	28 to 32 seconds
Platform down	28 to 32 seconds

#### GS-3232 and GS-3246

Platform Up (full speed)	55 to 59 seconds
Platform down	28 to 32 seconds

#### GS-4047

Platform Up (full speed)	71 to 76 seconds
Platform down	41 to 46 seconds

---



---

### Rated work load at full height, maximum

---

GS-1530 and GS-1532	600 lbs 272 kg
GS-1930, GS-1932, GS-2632 and GS-3232	500 lbs 227 kg
GS-1930PAR	400 lbs 181 kg
GS-2032	800 lbs 363 kg
GS-2046	1200 lbs 544 kg
GS-2646	1000 lbs 454 kg
GS-3246	700 lbs 317 kg
GS-4047	770 lbs 350 kg

---

### GS-3232 Outrigger leveling capacity, maximum

---

Side to side	5°
Front to rear	3°

---

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# Specifications

## Hydraulic 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
Water content, maximum	250 ppm

### Recommended Hydraulic Fluid

Hydraulic oil type	Chevron Rando HD Premium
Viscosity grade	32
Viscosity index	200

### Optional Hydraulic Fluids

Mineral based	Shell Tellus S2 V 32
	Shell Tellus S2 V 46
	Chevron 5606A
Biodegradable	Petro Canada Environ MV 46
Fire resistant	UCON Hydrolube HP-5046

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.

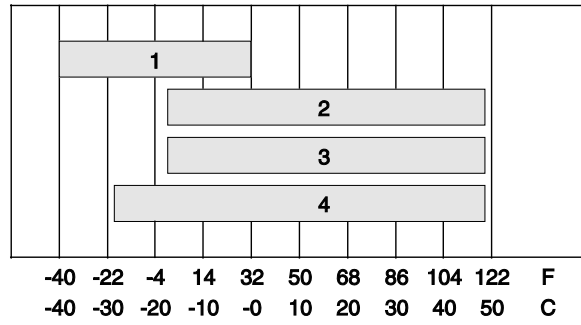
Note: Extended machine operation can cause the hydraulic fluid temperature to increase beyond it's maximum allowable range. If the hydraulic fluid temperature consistently exceeds 200°F / 90°C an optional oil cooler may be required.

### 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

## Specifications

### 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: An 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.

### 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

### 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

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# Specifications

## Hydraulic Component Specifications

### Function pump – GS-1530, GS1532, GS-1930 and GS-1932

Type	Gear
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 with 25 psi / 1.7 bar bypass

### Function pump – GS-2032, GS-2632, GS-3232, GS-2046, GS-2646, GS-3246 and GS-4047

Type	Gear
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 with 25 psi / 1.7 bar bypass

### Function manifold – All models except GS-4047

System relief valve pressure, maximum	3700 psi 255 bar
Lift relief valve pressure	1800 to 3700 psi 142 to 241 bar
Steer relief valve pressure	1500 psi 103 bar

### Function manifold – GS-4047

System relief valve pressure, maximum	3500 psi 241 bar
Platform relief valve pressure	3000 psi 206 bar
Steer relief valve pressure	1500 psi 103 bar

### Outrigger manifold

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

### Check valve manifold - GS-1530, GS-1532, GS-1930, GS-1932

Check valve pressure, maximum	200 psi 13.8 bar
-------------------------------	---------------------

### Lift pressure selector manifold - GS-4047

Platform relief valve pressure, maximum	2000 psi 138 bar
---	---------------------

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

## 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 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 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

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## Specifications

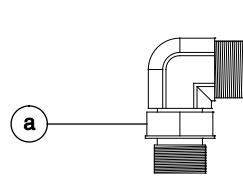
### Hydraulic Hose and Fitting Torque Specifications

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	10 ft-lbs / 13.6 Nm
-6	30 ft-lbs / 40.7 Nm
-8	40 ft-lbs / 54.2 Nm
-10	60 ft-lbs / 81.3 Nm
-12	85 ft-lbs / 115 Nm
-16	110 ft-lbs / 150 Nm
-20	140 ft-lbs / 190 Nm
-24	180 ft-lbs / 245 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 ¼
-8	3/4-16	1
-10	7/8-14	1
-12	1 1/16-12	1
-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 / 54.2 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

a 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.

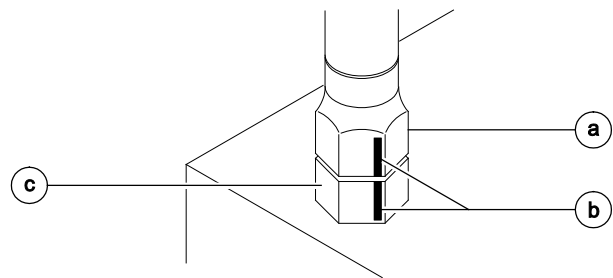


Illustration 1

- a hex nut
- b reference mark
- c 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.

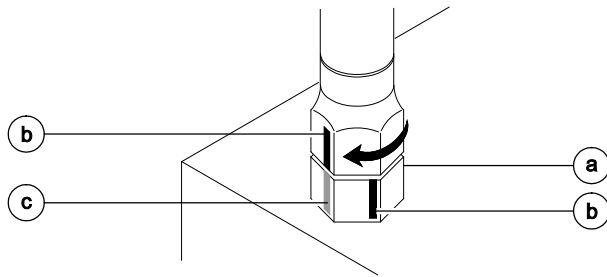








Illustration 2

- a body hex fitting
- b reference mark
- c 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.

# Specifications

<b>SAE FASTENER TORQUE CHART</b>											
• This chart is to be used as a guide only unless noted elsewhere in this manual •											
SIZE	THREAD	Grade 5 				Grade 8 				A574 High Strength Black Oxide Bolts	
		LUBED		DRY		LUBED		DRY		LUBED	
		in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm
1/4	20	80	9	100	11.3	110	12.4	140	15.8	130	14.7
	28	90	10.1	120	13.5	120	13.5	160	18	140	15.8
		LUBED		DRY		LUBED		DRY		LUBED	
		ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
5/16	18	13	17.6	17	23	18	24	25	33.9	21	28.4
	24	14	19	19	25.7	20	27.1	27	36.6	24	32.5
3/8	16	23	31.2	31	42	33	44.7	44	59.6	38	51.5
	24	26	35.2	35	47.4	37	50.1	49	66.4	43	58.3
7/16	14	37	50.1	49	66.4	50	67.8	70	94.7	61	82.7
	20	41	55.5	55	74.5	60	81.3	80	108.4	68	92.1
1/2	13	57	77.3	75	101.6	80	108.4	110	149	93	126
	20	64	86.7	85	115	90	122	120	162	105	142
9/16	12	80	108.4	110	149	120	162	150	203	130	176
	18	90	122	120	162	130	176	170	230	140	189
5/8	11	110	149	150	203	160	217	210	284	180	244
	18	130	176	170	230	180	244	240	325	200	271
3/4	10	200	271	270	366	280	379	380	515	320	433
	16	220	298	300	406	310	420	420	569	350	474
7/8	9	320	433	430	583	450	610	610	827	510	691
	14	350	474	470	637	500	678	670	908	560	759
1	8	480	650	640	867	680	922	910	1233	770	1044
	12	530	718	710	962	750	1016	990	1342	840	1139
1 1/8	7	590	800	790	1071	970	1315	1290	1749	1090	1477
	12	670	908	890	1206	1080	1464	1440	1952	1220	1654
1 1/4	7	840	1138	1120	1518	1360	1844	1820	2467	1530	2074
	12	930	1260	1240	1681	1510	2047	2010	2725	1700	2304
1 1/2	6	1460	1979	1950	2643	2370	3213	3160	4284	2670	3620
	12	1640	2223	2190	2969	2670	3620	3560	4826	3000	4067

<b>METRIC FASTENER TORQUE CHART</b>																
• This chart is to be used as a guide only unless noted elsewhere in this manual •																
Size (mm)	Class 4.6 				Class 8.8 				Class 10.9 				Class 12.9 			
	LUBED		DRY		LUBED		DRY		LUBED		DRY		LUBED		DRY	
	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm
5	16	1.8	21	2.4	41	4.63	54	6.18	58	6.63	78	8.84	68	7.75	91	10.3
6	19	3.05	36	4.07	69	7.87	93	10.5	100	11.3	132	15	116	13.2	155	17.6
7	45	5.12	60	6.83	116	13.2	155	17.6	167	18.9	223	25.2	1.95	22.1	260	29.4
	LUBED		DRY		LUBED		DRY		LUBED		DRY		LUBED		DRY	
	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
8	5.4	7.41	7.2	9.88	14	19.1	18.8	25.5	20.1	27.3	26.9	36.5	23.6	32	31.4	42.6
10	10.8	14.7	14.4	19.6	27.9	37.8	37.2	50.5	39.9	54.1	53.2	72.2	46.7	63.3	62.3	84.4
12	18.9	25.6	25.1	34.1	48.6	66	64.9	88	69.7	94.5	92.2	125	81	110	108	147
14	30.1	40.8	40	54.3	77.4	105	103	140	110	150	147	200	129	175	172	234
16	46.9	63.6	62.5	84.8	125	170	166	226	173	235	230	313	202	274	269	365
18	64.5	87.5	86.2	117	171	233	229	311	238	323	317	430	278	377	371	503
20	91	124	121	165	243	330	325	441	337	458	450	610	394	535	525	713
22	124	169	166	225	331	450	442	600	458	622	612	830	536	727	715	970
24	157	214	210	285	420	570	562	762	583	791	778	1055	682	925	909	1233



## Scheduled Maintenance Procedures



### Observe and Obey:

- ☑ Maintenance inspections shall be completed by a person trained and qualified on the maintenance of this machine.
- ☑ Scheduled maintenance inspections shall be completed daily, quarterly, semi-annually, annually and every 2 years as specified of the *Maintenance inspection Report*. The frequency and extent of periodic examinations and tests may also depend on national regulations.

### **⚠ WARNING**

Failure to perform each procedure as presented and scheduled may cause death, serious injury or substantial damage.

- ☑ Immediately tag and remove from service a damaged or malfunctioning machine.
- ☑ Repair any machine damage or malfunction before operating the machine.
- ☑ Use only Genie approved replacement parts.
- ☑ Machines that have been out of service for a period longer than 3 months must complete the quarterly inspection.

### Machine Configuration:

- ☑ Unless otherwise specified, perform each 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 ground and platform controls
  - Wheels chocked
  - All external AC power supply disconnected from the machine
  - Platform in the stowed position

---

# Scheduled Maintenance Procedures

## About This Section

This section contains detailed procedures for each scheduled maintenance inspection.

Each procedure includes a description, safety warnings and step-by-step instructions.

## 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.



# Scheduled Maintenance Procedures

## Maintenance Symbols Legend

Note: The following symbols have been used in this manual to help communicate the intent of the instructions. When one or more of the symbols appear at the beginning of a maintenance procedure, it conveys the meaning below.



Indicates that tools will be required to perform this procedure.



Indicates that new parts will be required to perform this procedure.



Indicates that dealer service will be required to perform this procedure.



Indicates that a cold motor or pump will be required to perform this procedure.

## Pre-delivery Preparation Report

The pre-delivery preparation report contains checklists for each type of scheduled inspection.

Make copies for each inspection. Store completed forms as required.

## Maintenance Schedule

The *Scheduled Maintenance Procedures* section and the *Maintenance Inspection Report* have been divided into subsections. Use the following chart to determine which group(s) of procedures are required to perform a scheduled inspection.

Inspection	Checklist
Daily or every 8 hours	A
Quarterly or every 250 hours	A + B
Semi-annually or every 500 hours	A + B + C
Annually or every 1000 hours	A + B + C + D
Two-year or every 2000 hours	A + B + C + D + E

## Maintenance Inspection Report

The maintenance inspection report contains checklists for each type of scheduled inspection.

Make copies of the *Maintenance Inspection Report* to use for each inspection. Maintain completed forms for a minimum of 4 years or in compliance with your employer, jobsite and governmental regulations and requirements.

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# Pre-Delivery Preparation Report

## Fundamentals

It is the responsibility of the dealer to perform the Pre-delivery Preparation.

The Pre-delivery Preparation is performed prior to each delivery. The inspection is designed to discover if anything is apparently wrong with a machine before it is put into service.

A damaged or modified machine must never be used. If damage or any variation from factory delivered condition is discovered, the machine must be tagged and removed from service.

Repairs to the machine may only be made by a qualified service technician, according to the manufacturer's specifications.

Scheduled maintenance inspections shall be performed by qualified service technicians, according to the manufacturer's specifications and the requirements listed in the responsibilities manual.

## Instructions

Use the operator's manual on your machine.

The Pre-delivery Preparation consists of completing the Pre-operation Inspection, the Maintenance items and the Function Tests.

Use this form to record the results. Place a check in the appropriate box after each part is completed. Follow the instructions in the operator's manual.

If any inspection receives an N, remove the machine from service, repair and re-inspect it. After repair, place a check in the R box.

### Legend

- Y = yes, acceptable
- N = no, remove from service
- R - repaired

### Comments

Pre-delivery Preparation	Y	N	R
Pre-operation inspection completed			
Maintenance items completed			
Function tests completed			

Model

Serial number

Date

Machine owner

Inspected by (print)

Inspector signature

Inspector title

Inspector company



**Terex South Dakota, Inc USA**  
 500 Oak Wood Road  
 PO Box 1150  
 Watertown, SD 57201-6150  
 (605) 882-4000

**Genie UK**  
 The Maltings, Wharf Road  
 Grantham, Lincolnshire  
 NG31- 6BH England  
 (44) 1476-584333

# Maintenance Inspection Report

**Model**  


---

**Serial number**  


---

**Date**  


---

**Hour meter**  


---

**Machine owner**  


---

**Inspected by (print)**  


---

**Inspector signature**  


---

**Inspector title**  


---

**Inspector company**  


---

## Instructions

- Make copies of this report to use for each inspection.
- Select the appropriate checklist(s) for the type of inspection(s) to perform.

<input type="checkbox"/>	Daily or every 8 hours	A
<input type="checkbox"/>	Quarterly or every 250 hours	A + B
<input type="checkbox"/>	Semi-annually or every 500 hours	A + B + C
<input type="checkbox"/>	Annually or every 1000 hours	A + B + C + D
<input type="checkbox"/>	Two-year or every 2000 hours	A + B + C + D + E

- Place a check in the appropriate box after each inspection procedure is completed.
- Use the step-by-step procedures in this section to learn how to perform these inspections.
- If any inspection receives an "N," tag and remove the machine from service, repair and re-inspect it. After repair, place a check in the "R" box.

## Legend

- Y = yes, acceptable
- N = no, remove from service
- R = repaired

Checklist A		Y	N	R
A-1	Inspect the manuals and decals			
A-2	Pre-operation inspection			
A-3	Function tests			

Perform after 40 hours:

A-4	30-day service			
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Perform after 100 hours:

A-5	Grease steer yokes			
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## Checklist B

Checklist B		Y	N	R
B-1	Batteries			
B-2	Electrical wiring			
B-3	Electrical contactor			
B-4	Tires and wheels			
B-5	Emergency stop			
B-6	Key switch			
B-7	Horn (if equipped)			
B-8	Drive brakes			
B-9	Drive speed - stowed			
B-10	Drive speed - raised			
B-11	Drive speed - slow			
B-12	Hydraulic oil analysis			
B-13	Tank venting system			
B-14	Latch components			
B-15	Voltage inverter (if equipped)			
B-16	Down limit switch and pothole limit switches			
B-17	Up limit switch and max. drive height limit switches (if equipped)			

Checklist C		Y	N	R
C-1	Pressure transducer and platform height sensor (if equipped)			
C-2	Platform overload (if equipped)			
C-3	Breather cap - models with optional oil			

## Checklist D

Checklist D		Y	N	R
D-1	Scissor arm wear pads			
D-2	Hydraulic filter			

## Checklist E

Checklist E		Y	N	R
E-1	Hydraulic oil			

## Comments

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## Checklist A Procedures

### A-1 Inspect the Manuals and Decals

Genie specifications require that this procedure be performed every 8 hours or daily, whichever comes first.

Maintaining the operator's and safety manuals in good condition is essential to safe machine operation. Manuals are included with each machine and should be stored in the container provided in the platform. An illegible or missing manual will not provide safety and operational information necessary for a safe operating condition.

In addition, maintaining all of the safety and instructional decals in good condition is mandatory for safe machine operation. Decals alert operators and personnel to the many possible hazards associated with using this machine. They also provide users with operation and maintenance information. An illegible decal will fail to alert personnel of a procedure or hazard and could result in unsafe operating conditions.

- 1 Check to make sure that the operator's and safety manuals are present and complete in the storage container on the platform.
- 2 Examine the pages of each manual to be sure that they are legible and in good condition.
  - ⦿ Result: The operator's manual is appropriate for the machine and all manuals are legible and in good condition.
  - ⊗ Result: The operator's manual is not appropriate for the machine or all manuals are not in good condition or is illegible. Remove the machine from service until the manual is replaced.

- 3 Open the operator's manual to the decals inspection section. Carefully and thoroughly inspect all decals on the machine for legibility and damage.
  - ⦿ Result: The machine is equipped with all required decals, and all decals are legible and in good condition.
  - ⊗ Result: The machine is not equipped with all required decals, or one or more decals are illegible or in poor condition. Remove the machine from service until the decals are replaced.
- 4 Always return the manuals to the storage container after use.

Note: Contact your authorized Genie distributor or Genie if replacement manuals or decals are needed.

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## Checklist A Procedures

### A-2 Perform Pre-operation Inspection

Genie specifications require that this procedure be performed every 8 hours or daily, whichever comes first.

Completing a Pre-operation Inspection is essential to safe machine operation. The Pre-operation Inspection is a visual inspection performed by the operator prior to each work shift. The inspection is designed to discover if anything is apparently wrong with a machine before the operator performs the function tests. The Pre-operation Inspection also serves to determine if routine maintenance procedures are required.

Complete information to perform this procedure is available in the appropriate operator's manual. Refer to the Operator's Manual on your machine.

### A-3 Perform Function Tests

Genie specifications require that this procedure be performed every 8 hours or daily, whichever comes first.

Completing the function tests is essential to safe machine operation. Function tests are designed to discover any malfunctions before the machine is put into service. A malfunctioning machine must never be used. If malfunctions are discovered, the machine must be tagged and removed from service.

Complete information to perform this procedure is available in the appropriate operator's manual. Refer to the Operator's Manual on your machine.

## Checklist A Procedures

### A-4 Perform 30-Day Service



The 30-day maintenance procedure is a onetime procedure to be performed after the first 30 days or 40 hours of usage. After this interval, refer to the maintenance tables for continued scheduled maintenance.

- 1 Perform the following maintenance procedures:
  - B-4 Inspect the Tires, Wheels and Castle Nut Torque
  - D-2 Replace the Hydraulic Tank Return Filter Element

### A-5 Grease the Steer Yokes



Genie specifications require that this procedure be performed every 100 hours of operation.

Regular application of lubrication to the steer yokes is essential to good machine performance and service life. Continued use of an insufficiently greased steer yoke will result in component damage.

- 1 Locate the grease fitting on the top of the steer yoke.
- 2 Pump multipurpose grease into the steer yoke until the steer yoke is full and grease is being forced past the bearings. Repeat this step for the other steer yoke.

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#### Grease Specification

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Chevron Ultra-duty grease, EP NLGI 1 (lithium based) or equivalent

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## Checklist B Procedures

### B-1

### Inspect the Batteries



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper battery condition is essential to good machine performance and operational safety. Improper fluid levels or damaged cables and connections can result in component damage and hazardous conditions.

#### **⚠ 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. Batteries contain acid. Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.

- 1 Put on protective clothing and eye wear.
- 2 Release the battery pack latch and rotate the battery pack out and away from the chassis.
- 3 Be sure that the battery cable connections are free of corrosion.

Note: Adding terminal protectors and a corrosion preventative sealant will help eliminate corrosion on the battery terminals and cables.

- 4 Be sure that the battery retainers and cable connections are tight.
- 5 Fully charge the batteries. Allow the batteries to rest 24 hours before performing this procedure to allow the battery cells to equalize.

#### **Models without maintenance-free or sealed batteries:**

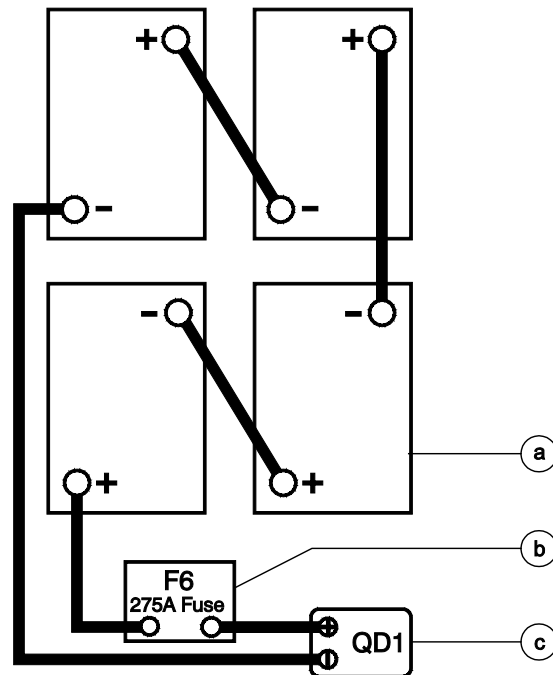
- 6 Remove the battery vent caps and check the specific gravity of each battery cell with a hydrometer. Note the results.
- 7 Check the ambient air temperature and adjust the specific gravity reading for each cell as follows:
  - Add 0.004 to the reading of each cell for every 10° / 5.5° C above 80° F / 26.7° C.
  - Subtract 0.004 from the reading of each cell for every 10° / 5.5° C below 80° F / 26.7° C.
- ⊙ Result: All battery cells display an adjusted specific gravity of 1.277 or higher. The battery is fully charged. Proceed to step 11.
- ⊗ Result: One or more battery cells display a specific gravity of 1.217 or below. Proceed to step 8.
- 8 Perform an equalizing charge OR fully charge the batteries and allow the batteries to rest at least 6 hours.
- 9 Remove the battery vent caps and check the specific gravity of each battery cell with a hydrometer. Note the results.



## Checklist B Procedures

- 10 Check the ambient air temperature and adjust the specific gravity reading for each cell as follows:
- Add 0.004 to the reading of each cell for every 10° / 5.5° C above 80° F / 26.7° C.
  - Subtract 0.004 from the reading of each cell for every 10° / 5.5° C below 80° F / 26.7° C.
- ⊙ Result: All battery cells display a specific gravity of 1.277 or greater. The battery is fully charged. Proceed to step 11.
- ⊗ Result: One or more battery cells display a specific gravity from 1.218 to 1.269. The battery is still usable, but at a lower performance. The battery will need to be recharged more often. Proceed to step 11.
- ⊗ Result: One or more battery cells display a specific gravity from 1.217 to 1.173. The battery is approaching the end of its life. Proceed to step 11.
- ⊗ Result: The difference in specific gravity readings between cells is greater than 0.1 OR the specific gravity of one or more cells is 1.172 or less. Replace the battery.
- 11 Check the battery acid level. If needed, replenish with distilled water to 1/8 inch / 3 mm below the bottom of the battery fill tube. Do not overfill.

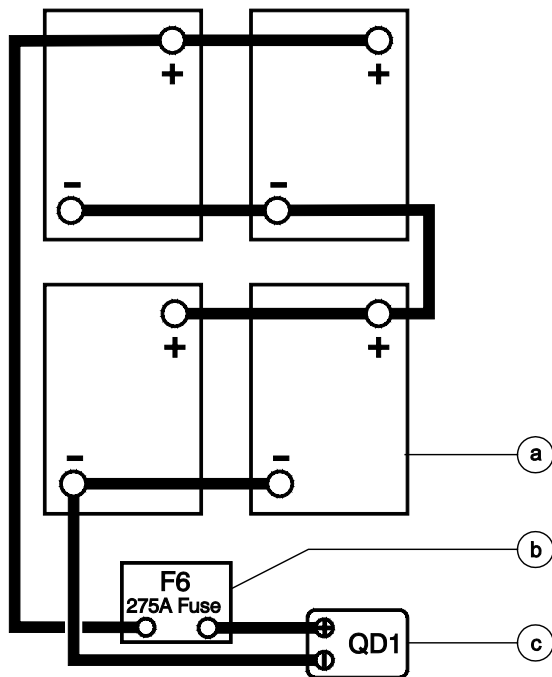
- 12 Install the vent caps and neutralize any electrolyte that may have spilled.



All models except GS-4047

- a batteries B5
- b 275A fuse F6
- c quick disconnect QD1

## Checklist B Procedures



GS-4047 only

- d batteries B5
- e 275A fuse F6
- f quick disconnect QD1

### All models:

- 13 Check each battery pack and verify that the batteries are wired correctly.
  - 14 Inspect the battery charger plug and pigtail for damage or excessive insulation wear. Replace as required.
  - 15 Connect the battery charger to a properly grounded single phase AC power supply.
- ⦿ Result: The charger should operate and begin charging the batteries.
  - ⊗ If, simultaneously, the charger alarm sounds and the LEDs blink one time, correct the charger connections at the fuse and battery. The charger will then operate correctly and begin charging the batteries.

If, simultaneously, the charger alarm sounds and the LEDs blink two times, the input voltage is too low or too high. Correct the voltage issue. The charger will then operate correctly and begin charging the batteries.

If, simultaneously, the charger alarm sounds and the LEDs blink three times, the charger is overheated. Allow the charger to cool. The charger will then operate correctly and begin charging the batteries.

Note: For best results, use an extension cord of adequate size with a length no longer than 50 feet / 15 m.

Note: If you have any further questions regarding the battery charger operation, please contact the Genie Scissor Service Department.

## Checklist B Procedures

### B-2 Inspect the Electrical Wiring



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining electrical wiring in good condition is essential to safe operation and good machine performance. Failure to find and replace burnt, chafed, corroded or pinched wires could result in unsafe operating conditions and may cause component damage.

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

- 1 Inspect the underside of the chassis for damaged or missing ground strap(s).
- 2 Inspect the following areas for burnt, chafed, corroded and loose wires:
  - Ground control panel
  - Hydraulic power unit module tray
  - Battery tray(s)
  - Scissor arms
  - Platform controls
- 3 Inspect for a liberal coating of dielectric grease in the following locations:
  - Between the ECM and platform controls
  - All wire harness connectors
  - Level sensor
- 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 Raise the platform approximately 8 feet / 2.4 m from the ground.
- 6 Rotate the safety arm away from the machine and let it hang down.
- 7 Lower the platform onto the safety arm.
 

**▲WARNING** Crushing hazard. Keep hands clear of the safety arm when lowering the platform.
- 8 Inspect the center chassis area and scissor arms for burnt, chafed and pinched cables.
- 9 Inspect the following areas for burnt, chafed, corroded, pinched and loose wires:
  - Scissor arms
  - ECM to platform controls
  - Power to platform wiring
- 10 Inspect for a liberal coating of dielectric grease in all connections between the ECM and the platform controls.
- 11 Raise the platform and return the safety arm to the stowed position.
- 12 Lower the platform to the stowed position and turn the machine off.

## Checklist B Procedures

### B-3 Inspect the Electrical Contactor



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining the electrical contactor in good condition is essential to safe machine performance. Failure to locate a worn or damaged contactor could result in unsafe operating conditions and may cause component damage.

- 1 At the ground controls, turn the key switch to the off position.
- 2 Push in the ground controls red Emergency Stop button to the off position.
- 3 Open the battery tray and disconnect the Anderson connector.
- 4 Locate the electrical contactor mounted on the fuse bracket.
- 5 Visually inspect the contact points of the contactor for the following items:
  - Excessive burns
  - Excessive arcs
  - Excessive pitting

#### **⚠ WARNING**

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

Note: Replace the contactor if any damage is found.

### B-4 Inspect the Tires and Wheels (including castle nut torque)



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining the tires and wheels in good condition is essential to safe operation and good performance. Tire and/or wheel failure could result in a machine tip-over. Component damage may also result if problems are not discovered and repaired in a timely fashion.

- 1 Check the tire surface and sidewalls for cuts, cracks, punctures and unusual wear.
- 2 Check each wheel for damage, bends and cracks.
- 3 Remove the cotter pin and check the castle nut for proper torque. Refer to Section 2, *Specifications*.

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

- 4 Install a new cotter pin. Bend the cotter pin to lock in place.

## Checklist B Procedures

### B-5 Test the Emergency Stop

Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

A properly functioning Emergency Stop button is essential for safe machine operation. An improperly operating red Emergency Stop button will fail to shut off power and stop all machine functions, resulting in a hazardous situation.

As a safety feature, selecting and operating the ground controls will override the platform controls, except the platform red Emergency Stop button.

- 1 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 2 Push in the red Emergency Stop button at the ground controls to the off position.
- ⊙ Result: No machine functions should operate.
- 3 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.
- 4 Push down the red Emergency Stop button at the platform controls to the off position.
- ⊙ Result: No machine functions should operate.

Note: The red Emergency Stop button at the ground controls will stop all machine operation, even if the key is switched to platform control.

Note: If in ground controls mode and the red Emergency Stop button at the platform controls is pushed in, the ground controls LCD will display, Platform EStop Depressed. The machine alarm will sound at 1 beep per second.

## Checklist B Procedures

### B-6

#### Test the Key Switch

Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper key switch action and response is essential to safe machine operation. The machine can be operated from the ground or platform controls and the activation of one or the other is accomplished with the key switch. Failure of the key switch to activate the appropriate control panel could cause a hazardous operating situation.

Perform this procedure from the ground using the platform controls. Do not stand in the platform.

- 1 Pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 2 Turn the key switch to **platform controls**.
- 3 Check the platform up/down function from the **ground controls**.
- ⊙ Result: The machine functions should not operate.
- 4 Turn the key switch to **ground control**.
- 5 Check the machine functions from the **platform controls**.
- ⊙ Result: The machine functions should **not** operate.
- 6 Turn the key switch to the off position.
- ⊙ Result: No function should operate.

### B-7

#### Test the Automotive-style Horn (if equipped)

Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

The horn is activated at the platform controls and sounds at the ground as a warning to ground personal. An improperly functioning horn will prevent the operator from alerting ground personal of hazards or unsafe conditions.

- 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 Push down the horn button at the platform controls
- ⊙ Result: The horn should sound.

## Checklist B Procedures

### B-8 Test the Drive Brakes



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

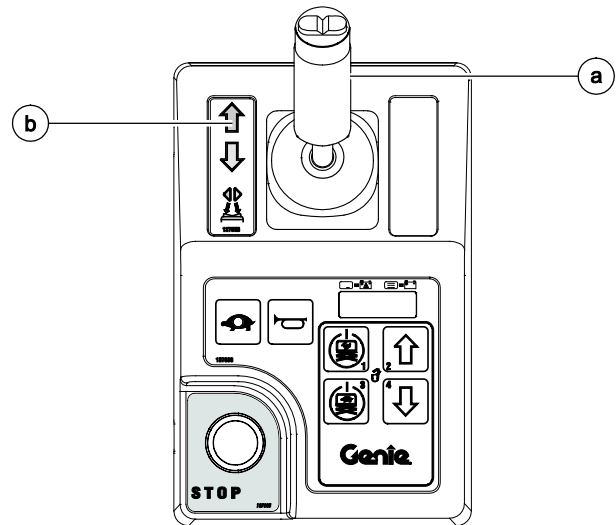
Proper brake action is essential to safe machine operation. The drive brake function should operate smoothly, free of hesitation, jerking and unusual noise. Hydraulically-released individual wheel brakes can appear to operate normally when not fully operational.

Note: Perform this procedure with the machine on a firm, level surface that is free of obstructions.

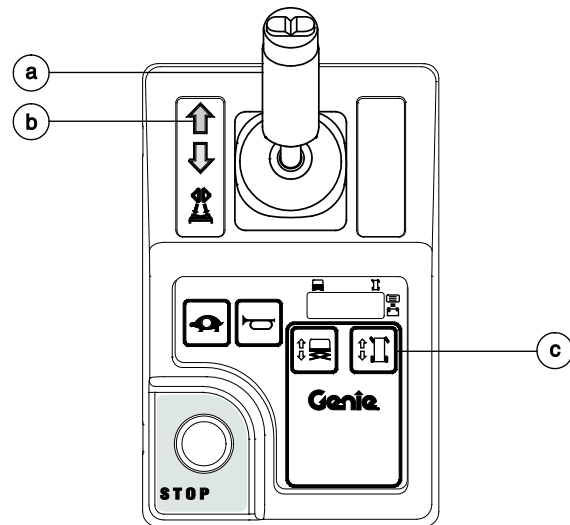
Note: Be sure the platform deck extension deck is fully retracted and the platform is in the stowed position.

- 1 Mark a test line on the ground for reference.
- 2 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.
- 3 Lower the platform to the stowed position.
- 4 Choose a point on the machine; i.e., contact patch of a tire, as a visual reference for use when crossing the test line.
- 5 Press the drive function button (if equipped).

- 6 Press and hold the drive/steer function enable switch on the control handle.



models without proportional lift



models with proportional lift

- a drive/steer function enable switch
- b blue arrow
- c drive function button

## Checklist B Procedures

- 7 Move the control handle in the direction indicated by the blue arrow on the control panel until the machine begins to move forward.
- 8 Bring the machine to top drive speed before reaching the test line. Release the drive/steer function enable switch or the joystick when your reference point on the machine crosses the test line.
- 9 Measure the distance between the test line and your machine reference point. Refer to Section 2, *Specifications*.

Note: The brakes must be able to hold the machine on any slope it is able to climb.

### B-9

#### Test the Drive Speed - Platform Stowed, Fast



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper drive functions are essential to safe machine operation. The drive function should respond quickly and smoothly to operator control. Drive performance should also be free of hesitation, jerking and unusual noise over the entire proportionally controlled speed range.

Note: Perform this procedure with the machine on a firm, level surface that is free of obstructions.

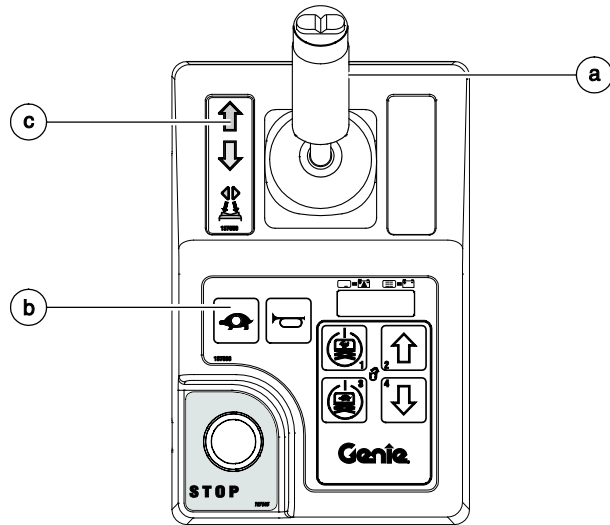
- 1 Create start and finish lines by marking two lines on the ground 40 feet / 12.2 m apart.
- 2 Turn the key switch to platform control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 3 Lower the platform to the stowed position.
- 4 Choose a point on the machine; i.e., contact patch of a tire, as a visual reference for use when crossing the test line.
- 5 Check to make sure the low drive speed light is off. If the low drive speed light is on, press the drive speed select button to turn off the low drive speed function.
- 6 Press the drive function button (if equipped).



# Checklist B Procedures

- 7 Press and hold the drive/steer function enable switch on the control handle.

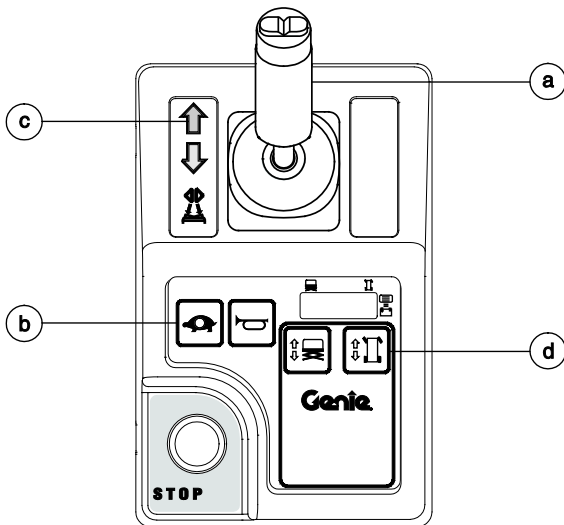
- 8 Move the control handle in the direction indicated by the blue arrow on the control panel until the machine begins to move forward.



models without proportional lift

- 9 Bring the machine to top drive speed before reaching the start line. Begin timing when the selected reference point on the machine crosses the start line.

- 10 Continue at full speed and note the time when your reference point on the machine passes the finish line. Refer to Section 2, *Specifications*.



models with proportional lift

- a drive/steer function enable switch
- b drive speed select button
- c blue arrow
- d drive function button



## Checklist B Procedures

### B-10

#### Test the Drive Speed - Platform Raised



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper drive functions are essential to safe machine operation. The drive function should respond quickly and smoothly to operator control. Drive performance should also be free of hesitation, jerking and unusual noise over the entire proportionally controlled speed range.

**Note:** Perform this procedure with the machine on a firm, level surface that is free of obstructions.

- 1 Create start and finish lines by marking two lines on the ground 40 feet / 12.2 m apart.
- 2 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.

#### Models without proportional lift:

- 3 Press and hold the high or low speed lift enable button. Or press the lift function button (if equipped).
- 4 Press the platform up button.

#### Models with proportional lift:

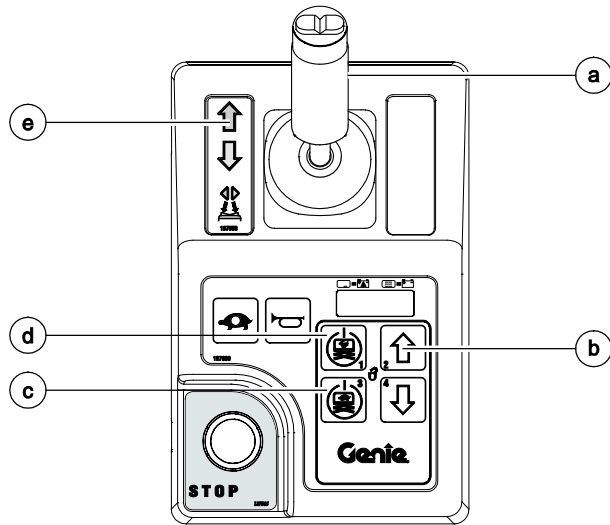
- 5 Press the lift function button
- 6 Press and hold the function enable switch on the control handle.
- 7 Move the control handle in the direction indicated by the blue arrow on the control panel.

#### All models:

- 8 Raise the platform approximately 4 feet / 1.2 m from the ground.
- 9 Choose a point on the machine; i.e., contact patch of a tire, as a visual reference for use when crossing the start and finish lines.
- 10 Press the drive function button (if equipped).

## Checklist B Procedures

- 11 Press and hold the drive/steer function enable switch on the control handle.

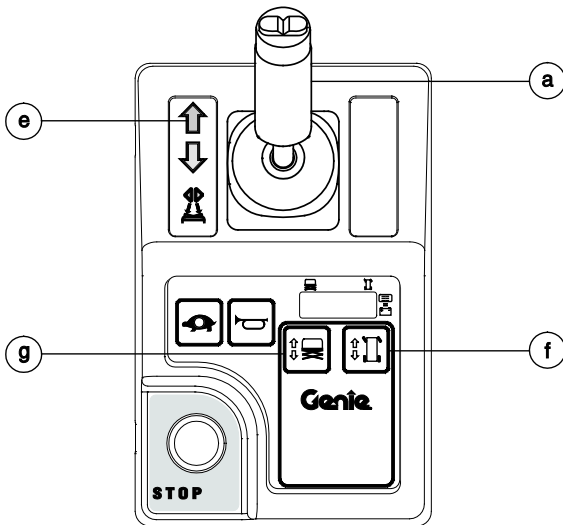


models without proportional lift

- 12 Move the control handle in the direction indicated by the blue arrow on the control panel until the machine begins to move forward.

- 13 Bring the machine to top drive speed before reaching the start line. Begin timing when the selected reference point on the machine crosses the start line.

- 14 Continue at full speed and note the time when your reference point on the machine passes the finish line. Refer to Section 2, *Specifications*.



models with proportional lift

- a drive/steer function enable switch
- b platform up button
- c slow speed lift enable button
- d high speed lift enable button
- e blue arrow
- f drive function button
- g lift function button



# Checklist B Procedures

## B-11 Test the Drive Speed - Platform Stowed, Slow



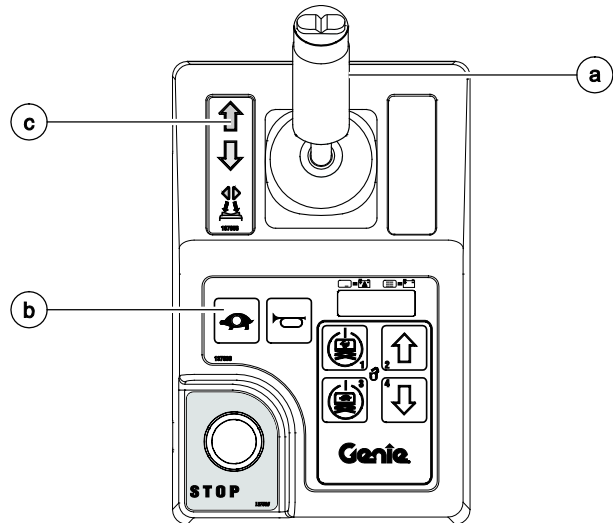
Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper drive functions are essential to safe machine operation. The drive function should respond quickly and smoothly to operator control. Drive performance should also be free of hesitation, jerking and unusual noise over the entire proportionally controlled speed range.

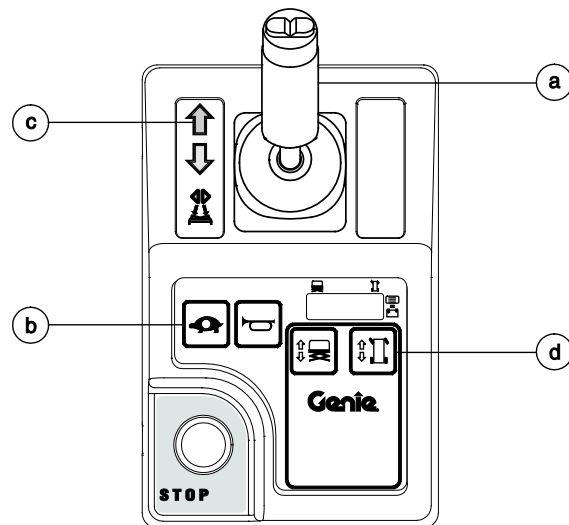
Note: Perform this procedure with the machine on a firm, level surface that is free of obstructions.

- 1 Create start and finish lines by marking two lines on the ground 40 feet / 12.2 m apart.
- 2 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.
- 3 Lower the platform to the stowed position.
- 4 Press the drive speed select button until the low drive speed light is on.
- 5 Choose a point on the machine; i.e., contact patch of a tire, as a visual reference for use when crossing the test line.
- 6 Press the drive function button (if equipped).

- 7 Press and hold the drive/steer function enable switch on the control handle.



models without proportional lift



models with proportional lift

- a drive/steer function enable switch
- b drive speed select button
- c blue arrow
- d drive function button

## Checklist B Procedures

- 8 Move the control handle in the direction indicated by the blue arrow on the control panel until the machine begins to move forward.
- 9 Bring the machine to top drive speed before reaching the start line. Begin timing when the selected reference point on the machine crosses the start line.
- 10 Continue at full speed and note the time when your reference point on the machine passes the finish line. Refer to Section 2, *Specifications*.

### B-12

#### Perform Hydraulic Oil Analysis



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Replacement or testing of the hydraulic oil is essential for good machine performance and service life. Dirty oil may cause the machine to perform poorly and continued use may cause component damage. Extremely dirty conditions may require oil changes to be performed more often. Refer to Section 2, *Specifications*.

Before replacing the hydraulic oil, the oil may be tested by an oil distributor for specific levels of contamination to verify that changing the oil is necessary.

**If the hydraulic oil is not replaced at the two year inspection, test the oil quarterly. Replace the oil when it fails the test.**

See E-1, *Test or Replace the Hydraulic Oil*.

## Checklist B Procedures

### B-13 Inspect the Hydraulic Tank Cap Venting System



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first. Perform this procedure more often if dusty conditions exist.

A free-breathing hydraulic tank cap is essential for good machine performance and service life. A dirty or clogged cap may cause the machine to perform poorly. Extremely dirty conditions may require that the cap be inspected more often.

- 1 Remove the breather cap from the hydraulic tank.
- 2 Check for proper venting.
- ⊙ Result: Air passes through the breather cap.
- ⊗ Result: If air does not pass through the cap, clean or replace the cap. Proceed to step 3.

Note: When checking for positive tank cap venting, air should pass freely through the cap.

- 3 Using a mild solvent, carefully wash the cap venting system. Dry using low pressure compressed air. Repeat step 2.
- 4 Install the breather cap onto the hydraulic tank.

### B-14 Check the Module Tray Latch Components



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining the module tray latch components in good condition is essential to good performance and service life. Failure to detect worn out latch components may result in module trays opening unexpectedly, creating an unsafe operating condition.

- 1 Inspect each module tray rotary latch and related components for wear. Tighten any loose fasteners.
- 2 Lubricate each module tray rotary latch. Using light oil, apply a few drops to each of the springs and to the sides of the rotary latch mechanism.

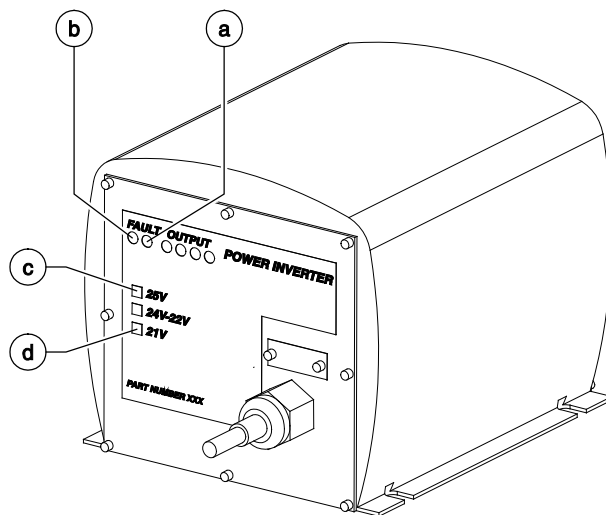
## Checklist B Procedures

### B-15 Inspect the Voltage Inverter (if equipped)



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first. Perform this procedure more often if dusty conditions exist.

- 1 Inspect the inverter plug and pigtail for damage or excessive insulation wear. Replace as required.
- 2 Turn the key switch to the on position and pull out the red Emergency Stop button to the on position at both the ground and platform controls.



- a right fault LED
- b left fault LED
- c 25V LED
- d 21V LED

- 3 Connect an appropriate power tool to the inverter. Activate the tool.

- Result: The power tool should operate. There may be a brief (0.5 second) delay if the power tool has not been used in the previous 10 minutes.
- ☒ If the left fault LED (REV\_POL) is illuminated, the inverter is connected to batteries with the incorrect polarity. Correct the polarity issue with the red wire to battery positive and the black wire to battery negative. The inverter will then operate correctly and begin supplying AC power.
- ☒ If the right fault LED (123) blinks one time, the power draw is too high. The tool being used requires too much power to operate or is being used at or near the limit of the inverter for an extended period of time. Reduce the power draw. The inverter will then operate correctly and begin supplying AC power.
- ☒ If the right fault LED (123) blinks two times, the Ground Fault Interrupt (GFI) has been activated. A short circuit or partial short exists between the AC hot and ground in the tool or outlet. Check the tool for burnt, chafed, corroded and loose wires, and inspect the tool for internal moisture. Correct the short circuit or moisture issue OR inspect the wiring in the power-to-platform box. The inverter will then operate correctly and begin supplying AC power.
- ☒ If right fault LED (123) blinks three times, the inverter is overheated. Allow the inverter to cool. The inverter will then operate correctly and begin supplying AC power.
- ☒ If the battery 25 volt fault LED (25V) blinks one time, the battery voltage is over 30V. Operate the machine to lower the voltage level. The inverter will then operate correctly and begin supplying AC power.
- ☒ If the battery 21 volt fault LED (21V) blinks one time, the battery voltage is less than 20V DC. The inverter will continue to operate until the battery voltage falls to 17.8V DC.

## Checklist B Procedures

### B-16

#### Test the Down Limit Switch, Level Sensor and Pothole Limit Switches



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining the limit switches is essential to safe operation and good machine performance. Operating the machine with a faulty limit switch could result in reduced machine performance and a potentially unsafe operating condition.

Note: Perform this procedure with the machine on a firm, level surface that is free of obstructions.

- 1 Remove the platform controls from the platform.
- 2 Raise the platform 7 to 8 feet / 2.1 to 2.4 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.

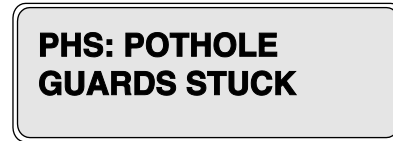
- 5 Turn the key switch to the off position.
- 6 Tag and disconnect the platform control box at the platform.
- 7 Follow the platform control cable down the scissor stack to the alarm bracket on the chassis deck. Tag and disconnect the platform control cable from the ECM cable at the 6-pin Deutsch connector.
- 8 Securely install the platform control box harness plug into the 6-pin Deutsch connector of the ECM cable.



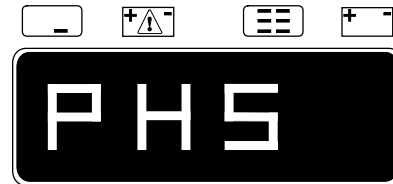
## Checklist B Procedures

### Down Limit Switch

- 9 Disable the down limit switch. Loosen the fastener securing the roller arm to the limit switch, and rotate the roller arm 90 degrees in a downwards direction. Do not activate the switch contacts.
- 10 Turn the key switch to platform control.
- 11 Raise the platform and return the safety arm to the stowed position.
- 12 Working at the platform controls, press the lift function select button. Lower the platform to the stowed position.
  - ⦿ Result: The ground controls LCD displays "PHS: POTHOLE GUARDS STUCK" and the platform controls LED displays "PHS". The alarm sounds and the lift function operates. The machine is functioning properly. Refer to the Operation Indicator Codes below.
  - ⊗ Result: The ground controls LCD does not display "PHS: POTHOLE GUARDS STUCK" and the platform controls LED does not display "PHS". The alarm does not sound and the lift function does not operate. Replace the down limit switch.



LCD display



LED display

- 13 Press and hold the drive/steer function enable switch on the control handle. Attempt to drive and steer the machine.
  - ⦿ Result: The ground controls LCD displays "PHS: POTHOLE GUARDS STUCK" and the platform controls LED displays "PHS". The alarm sounds, and the drive and steer functions do not operate. The machine is functioning properly.
  - ⊗ Result: The ground controls LCD does not display "PHS: POTHOLE GUARDS STUCK" and the platform controls LED does not display "PHS". The alarm does not sound, and the steer and drive functions operate. Replace the down limit switch.
- 14 Press and hold the high or low speed lift enable button.

## Checklist B Procedures

- 15 Press the platform up button. Raise the platform approximately 12 inches / 0.3 m.
  - ⊙ Result: The ground controls LCD displays "PHS: POTHOLE GUARDS STUCK" and the platform controls LED displays "PHS". The alarm sounds. The machine is functioning properly.
  - ⊗ Result: The ground controls LCD does not display "PHS: POTHOLE GUARDS STUCK" and the platform controls LED does not display "PHS". The alarm does not sound. Replace the down limit switch.
- 16 Raise the platform 7 to 8 feet / 2.1 to 2.4 m.
- 17 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 18 Lower the platform onto the safety arm.

### **⚠ WARNING**

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

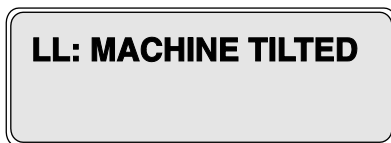
- 19 Turn the key switch to the off position.
- 20 Disconnect the platform controls from the ECM cable.
- 21 Securely install the connector of the ECM cable into the platform control cable.
- 22 Working at the platform, securely install the connector of the platform controls into the platform control cable.
- 23 Enable the down limit switch. Loosen the fastener securing the roller arm to the limit switch, and rotate the roller arm 90 degrees in a upwards direction. Do not activate the switch contacts.
- 24 Turn the key switch to platform control.
- 25 Raise the platform and return the safety arm to the stowed position.
- 26 Lower the platform to the stowed position.

### **Level Sensor**

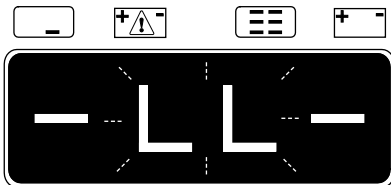
- 27 Move the machine onto a grade which exceeds the rating of the level sensor. Refer to the serial label on the machine.
- 28 Standing on the up-hill side of the machine, press and hold the high or low speed lift enable button.

## Checklist B Procedures

- 29 Press the platform up button and attempt to raise the platform to approximately 8 feet / 2.4 m.
- ⦿ Result: The ground controls LCD displays "LL: MACHINE TILTED" and the platform controls LED displays "LL". The alarm sounds and the platform stops lifting after the pothole guards are deployed. The machine is functioning properly. Refer to the Operation Indicator Codes below.
  - ⦿ Result: The ground controls LCD does not display "LL: MACHINE TILTED" and the platform controls LED does not display "LL". The alarm does not sound and the platform continues to lift after the pothole guards are deployed. Adjust or replace the level sensor.
- 30 Standing on the up-hill side of the machine, press and hold the drive/steer function enable switch on the control handle. Attempt to drive and steer the machine.
- ⦿ Result: The ground controls LCD displays "LL: MACHINE TILTED" and the platform controls LED displays "LL". The alarm sounds, and the machine will not steer or drive. The machine is functioning properly.
  - ✗ Result: The ground controls LCD does not display "LL: MACHINE TILTED" and the platform controls LED does not display "LL". The alarm does not sound and the steer and drive functions operate. Adjust or replace the level sensor.
- 31 Lower the platform to the stowed position. Move the machine onto a firm, level surface.



LCD display



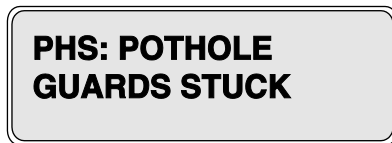
LED display

### Pothole Limit Switches

- 32 Place a wooden block approximately 2 inches / 5 cm tall under the right pothole guard.
- 33 Press and hold the high or low speed lift enable button.

## Checklist B Procedures

- 34 Press the platform up button and attempt to raise the platform to approximately 8 feet / 2.4 m.
- ⊙ Result: The pothole guard contacts the block and does not fully deploy. The ground controls LCD displays "PHS: POTHOLE GUARDS STUCK" and the platform controls LED displays "PHS". The alarm sounds and the platform will lift to 8 feet / 2.4 m or beyond. The machine is functioning properly. Refer to the Operation Indicator Codes below.
  - ⊗ Result: The pothole guard contacts the block and does not fully deploy. The ground controls LCD does not display "PHS: POTHOLE GUARDS STUCK" and the platform controls LED does not display "PHS". The alarm does not sound and the machine will continue to lift the platform after the pothole guards are deployed. Adjust or replace the pothole limit switch.
- 35 Press and hold the drive/steer function enable switch on the control handle. Attempt to drive and steer the machine.
- ⊙ Result: The ground controls LCD displays "PHS: POTHOLE GUARDS STUCK" and the platform controls LED displays "PHS". The alarm sounds, and the machine will not steer or drive. The machine is functioning properly.
  - ⊗ Result: The ground controls LCD does not display "PHS: POTHOLE GUARDS STUCK" and the platform controls LED does not display "PHS". The alarm does not sound and the steer and drive functions operate. Adjust or replace the down limit switch.
- 36 Lower the platform to the stowed position and remove the block under the right pothole guard.
- 37 Repeat this procedure beginning with step 33 for the left pothole guard.
- 38 Lower the platform to the stowed position, remove the block under the left pothole guard.
- 39 Turn off the machine.



LCD display



LED display

## Checklist B Procedures

### B-17

#### Test the Up Limit Switch (if equipped) and Maximum Drive Height Limit Switches (if equipped)



Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining the limit switches is essential to safe operation and good machine performance. Operating the machine with a faulty limit switch could result in reduced machine performance and a potentially unsafe operating condition.

Note: Perform this procedure with the machine on a firm, level surface that is free of obstructions.

#### Up Limit Switch (if equipped)

- 1 Turn the key switch to ground control and raise the platform approximately 8 feet / 2.4 m from the ground.
- 2 Rotate the safety arm away from the machine and let it hang down.
- 3 Lower the platform onto the safety arm.

#### **⚠ WARNING**

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

- 4 While raising the platform from the ground controls, push the arm of the up limit switch towards the steer end of the machine to activate the limit switch.
  - ⊙ Result: The platform stops rising. The machine is functioning properly.
  - ⊗ Result: The platform continues to rise. Adjust or replace the up limit switch.

#### Maximum Drive Height Limit Switches (if equipped)

- 5 Lower the platform onto the safety arm.
- 6 While raising the platform from the ground controls and working with the maximum drive height limit switch at the battery side of the machine, push the arm of the maximum drive height limit switch towards the steer end of the machine to activate the limit switch.
  - ⊙ Result: The platform stops rising. The machine is functioning properly.
  - ⊗ Result: The platform continues to rise. Adjust or replace the maximum drive height limit switch.

Note: Repeat this procedure for the maximum drive height limit switch at ground controls side of the machine.

- 7 Return the safety arm to the stowed position.
- 8 Lower the platform to the stowed position and turn off the machine.

## Checklist C Procedures

### C-1

### Test the Platform Overload Pressure Transducer and Platform Height Sensor (if equipped)



Genie requires that this procedure be performed every 500 hours or six months, whichever comes first OR when the machine fails to lift the maximum rated load.

Testing the platform overload pressure transducer and platform height sensor regularly is essential to safe machine operation. Continued use of an improperly operating platform overload pressure transducer or platform height sensor, could result in the system not sensing an overloaded platform condition. Machine stability could be compromised resulting in the machine tipping over.

Note: Perform this procedure with the machine on a firm, level surface that is free of obstructions.

- 1 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 2 Raise the platform 7 to 8 feet / 2.1 to 2.4 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.

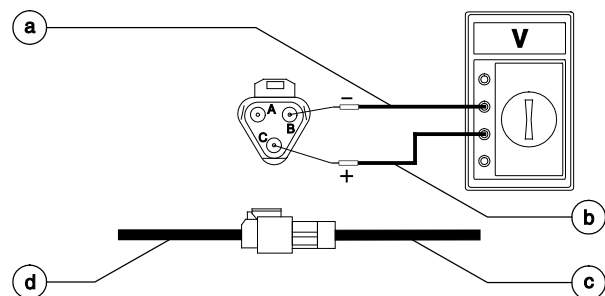
#### **⚠ WARNING**

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

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

#### Pressure Transducer

- 6 Working at the barrel end of the lift cylinder, follow the pressure transducer cable down the scissor stack to its end point, at the chassis deck.
- 7 Using the positive post of a multimeter probe, securely fit the post into pin C of the pressure transducer cable rubber boot. Refer to the illustration below.
- 8 Using the negative post of a multimeter probe, securely fit the post into pin B of the pressure transducer cable rubber boot. Refer to the illustration below.



- a negative post
- b positive post
- c pressure transducer cable
- d ECM pressure transducer wire harness

## Checklist C Procedures

- 9 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position.
- 10 Using the multimeter, measure the voltage reading of the pressure transducer at pin C and B.

### GS-1532, GS-1932, GS-2032, GS-2632, GS-2046, GS-2646 and GS-3246

- ⊙ Result: The voltage reading of the pressure transducer is between 1V and 5V. The pressure transducer is functioning properly.
- ⊗ Result: The voltage reading of the pressure transducer is between 0V and 1V. The pressure transducer is not functioning properly. Replace the pressure transducer. Refer to Repair Procedure 9-9, *How to Remove the Pressure Transducer (if equipped)*.

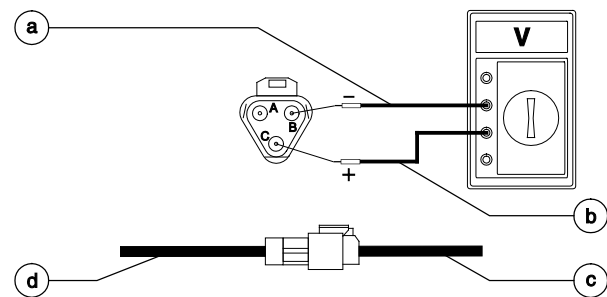
### GS-3232 and GS-4047

- ⊙ Result: The voltage reading of the pressure transducer is between 0.2V and 6.25V. The pressure transducer is functioning properly.
  - ⊗ Result: The voltage reading of the pressure transducer is between 0V and 0.2V or greater than 6.25V. The pressure transducer is not functioning properly. Replace the pressure transducer. Refer to Repair Procedure 9-9, *How to Remove the Pressure Transducer (if equipped)*.
- 11 At the ground control, turn the key switch to the off position and push in the red Emergency Stop button to the off position.

- 12 Remove the probes from the rubber boot of the pressure transducer cable.

### Platform Height Sensor

- 13 Working at platform height sensor assembly, follow the platform height sensor cable to its end point at the chassis deck.
- 14 Using the positive post of a multimeter probe, securely fit the post into pin C of the platform height sensor cable rubber boot. Refer to the illustration below.
- 15 Using the negative post of a multimeter probe, securely fit the post into pin B of the platform height sensor cable rubber boot. Refer to the illustration below.



- a negative post
- b positive post
- c platform height sensor cable
- d ECM platform height sensor wire harness

- 16 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position.

---

## Checklist C Procedures

- 17 Using the multimeter, measure the voltage reading of the pressure transducer at pin C and B.
  - ⊙ Result: The voltage reading of the platform height sensor is between 1V and 4V. The platform height sensor is functioning properly.
  - ⊗ Result: The voltage reading of the platform height sensor is 0V or above 5V. The platform height sensor is not functioning properly. Replace the platform height sensor. Refer to Repair Procedure 9-7, *How to Disassemble the Platform Height Sensor Assembly (if equipped)*.
- 18 At the ground control, turn the key switch to the off position and push in the red Emergency Stop button to the off position.
- 19 Remove the probes from the rubber boot of the platform height sensor cable.
- 20 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position.
- 21 Raise the platform 12 inches / 30.5 cm.
- 22 Return the safety arm to the stowed position.
- 23 Lower the platform to the stowed position.
- 24 Turn the key switch to the off position.



## Checklist C Procedures

### C-2 Calibrate the Platform Overload System (if equipped)



Genie requires that this procedure be performed every 500 hours or six months, whichever comes first OR when the machine fails to lift the maximum rated load.

Calibrating the platform overload system regularly is essential to safe machine operation. Continued use of an improperly operating platform overload system, could result in the system not sensing an overloaded platform condition. Machine stability could be compromised resulting in the machine tipping over.

The platform overload system is designed to prevent machine operation in the event the platform is overloaded. Models equipped with the platform overload option are provided with two additional machine control components: the overload pressure transducer and the platform height sensor.

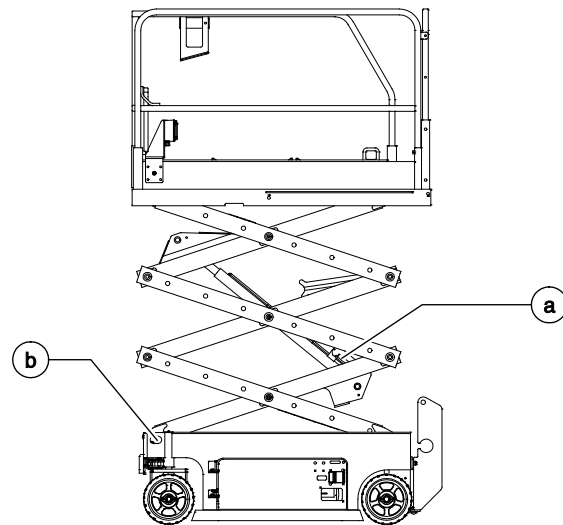
The overload pressure transducer, located at the barrel-end of the lift cylinder, is used to determine the pressure inside the lift cylinder.

The platform height sensor, located at the steer end of the chassis, battery side, is used to determine the height of the platform.

The overload pressure transducer and the platform height sensor provide the ECM with necessary information to determine the load in the platform.

Note: The overload system will not measure loads at, or below the height of the Down Limit Switch.

Refer to Repair Procedure 9-10, *How to Calibrate the Platform Overload System (if equipped)*.



a overload pressure transducer  
b platform height sensor

---

## Checklist C Procedures

### C-3

#### Replace the Hydraulic Tank Breather Cap – Models with Optional Hydraulic Oil



Genie requires that this procedure be performed every 500 hours or six months, whichever comes first.

The hydraulic tank is a vented-type tank. The breather cap has an internal air filter that can become clogged or, over time, can deteriorate. If the breather cap is faulty or improperly installed, impurities can enter the hydraulic system which may cause component damage. Extremely dirty conditions may require that the cap be inspected more often.

- 1 Remove and discard the hydraulic tank breather cap.
- 2 Install the new cap onto the tank.

## Checklist D Procedures

### D-1 Check the Scissor Arm Wear Pads



Genie requires that this procedure be performed every 1000 hours or annually, whichever comes first

Maintaining the condition of the scissor arm wear pads is essential to safe machine operation. Continued use of worn out wear pads may result in component damage and unsafe operating conditions.

Note: Perform this procedure with the machine on a firm, level surface that is free of obstructions.

#### GS-1530, GS-1532, GS-1930 and GS-1932:

- 1 Measure the distance between the number one inner arm cross tube and the chassis deck at the ground controls side of the non-steer end of the machine. Refer to illustration 1.
  - Result: The measurement is 0.90 inch / 22.9 mm or more. Proceed to step 2.
  - ☒ Result: The measurement is less than 0.90 inch / 22.9 mm. Replace both wear pads. Refer to Repair Procedure 9-1 or 9-2, *How to Replace the Scissor Arm Wear Pads*.

- 2 Measure the distance between the number one inner arm cross tube and the chassis deck at the battery pack side of the non-steer end of the machine. Refer to illustration 1.
  - Result: The measurement is 0.90 inch / 22.9 mm or more. Proceed to step 3.
  - ☒ Result: The measurement is less than 0.90 inch / 22.9 mm. Replace both wear pads. Refer to Repair Procedure 9-1 or 9-2, *How to Replace the Scissor Arm Wear Pads*.

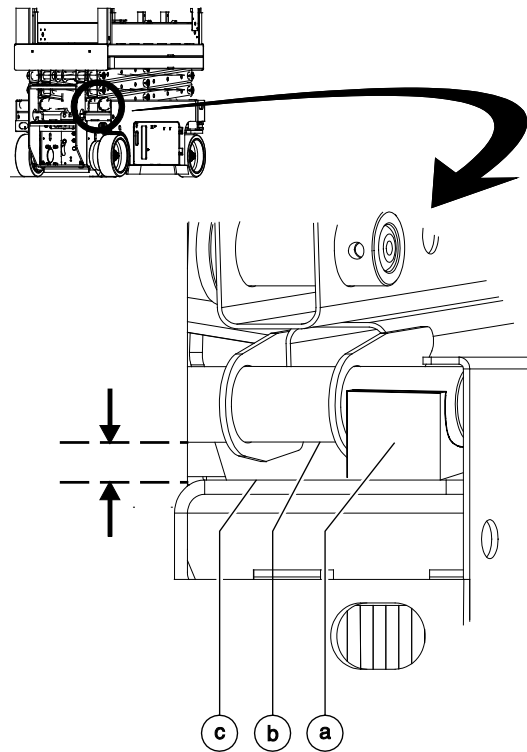


Illustration 1

- a wear pad
- b inner arm cross tube
- c chassis deck

# Checklist D Procedures

- 3 Apply a thin layer of dry film lubricant to the area of the chassis where the scissor arm wear pads make contact.

---

**Cross tube to chassis specification**

Measurement, minimum	0.90 inch 22.9 mm
----------------------	----------------------

**GS-2032, GS-2632, GS-3232, GS-2046, GS-2646, GS-3246 and GS-4047:**

- 4 Measure the distance between the number one outer arm cross tube and the fork lift tube at the ground controls side of the non-steer end of the machine. Refer to Illustration 2.

- ⊙ Result: The measurement is 0.88 inch / 22.4 mm or more. Proceed to step 2.
- ⊗ Result: The measurement is less than 0.88 inch / 22.4 mm. Replace both wear pads. Refer to Repair Procedure 9-3, 9-4, 9-5 or 9-6, *How to Replace the Scissor Arm Wear Pads*.

- 5 Measure the distance between the number one outer arm cross tube and the fork lift tube at the battery pack side of the non-steer end of the machine. Refer to Illustration 2.

- ⊙ Result: The measurement is 0.88 inch / 22.4 mm or more. Proceed to step 3.
- ⊗ Result: The measurement is less than 0.88 inch / 22.4 mm. Replace both wear pads. Refer to Repair Procedure 9-3, 9-4, 9-5 or 9-6 *How to Replace the Scissor Arm Wear Pads*.

- 6 Apply a thin layer of dry film lubricant to the area of the chassis where the scissor arm wear pads make contact.

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**Cross tube to chassis specification**

Measurement, minimum	0.88 inch 22.4 mm
----------------------	----------------------

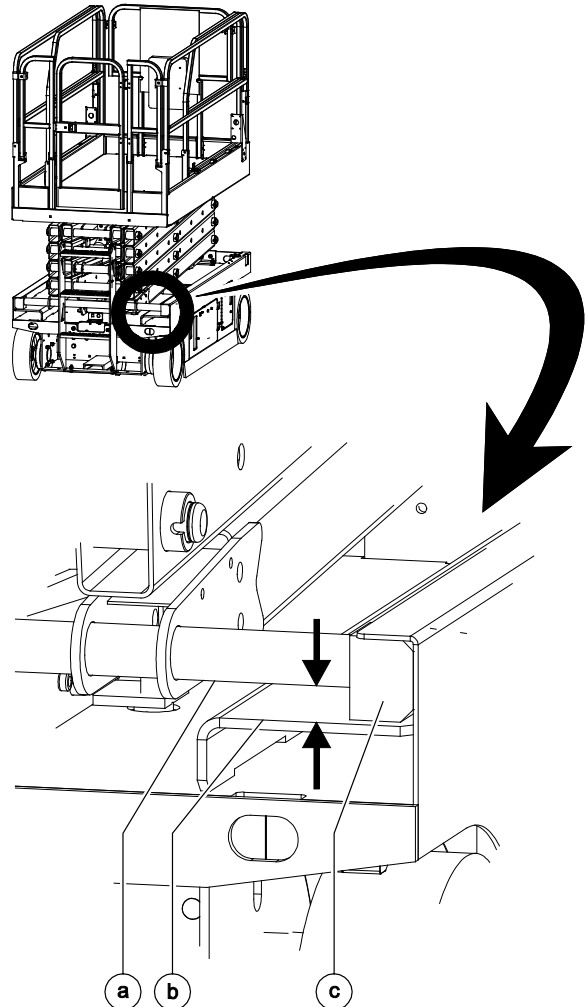


Illustration 2

- a Outer arm cross tube
- b fork lift tube
- c wear pad

## Checklist D Procedures

### D-2 Replace the Hydraulic Tank Return Filter Element



Genie requires that this procedure be performed every 1000 hours or annually, whichever comes first

Replacement of the hydraulic tank return filter is essential for good machine performance and service life. A dirty or clogged filter may cause the machine to perform poorly and continued use may cause component damage. Extremely dirty conditions may require that the filter be replaced more often.

**CAUTION** Beware of hot oil. Contact with hot oil may cause severe burns.

Note: The hydraulic tank return filter is mounted on the function manifold next to the hydraulic power unit.

- 1 Clean the area around the oil filter. Remove the filter with an oil filter wrench.
- 2 Apply a thin layer of oil to the new oil filter gasket.
- 3 Install the new filter and tighten it securely by hand.

- 4 Use a permanent ink marker to write the date and number of hours from the hour meter onto the filter.
- 5 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 6 Activate and hold the platform up toggle switch.
- 7 Inspect the filter and related components to be sure that there are no leaks.
- 8 Clean up any oil that may have spilled.

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#### Torque specifications

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Hydraulic drain plug, dry	40 in-lbs 4.5 Nm
Hydraulic drain plug, lubricated	30 in-lbs 3.4 Nm

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## Checklist E Procedures

### E-1

#### Test or Replace the Hydraulic Oil



Genie requires that this procedure be performed every 2000 hours or every two years, whichever comes first.

Replacement or testing of the hydraulic oil is essential for good machine performance and service life. Dirty oil may cause the machine to perform poorly and continued use may cause component damage. Extremely dirty conditions may require oil changes to be performed more often. Refer to Section 2, *Specifications*.

Before replacing the hydraulic oil, the oil may be tested by an oil distributor for specific levels of contamination to verify that changing the oil is necessary.

**If the hydraulic oil is not replaced at the two year inspection, test the oil quarterly. Replace the oil when it fails the test.**

- 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 Open the power unit module tray.

- 3 Tag and disconnect the hydraulic tank return hard line from the hydraulic filter head and remove the hard line from the tank. Cap the fitting on the filter head.
- 4 Tag and disconnect the hydraulic pump inlet hard line and remove the hard line from the tank. Cap the fitting on the pump.
- 5 Remove the hydraulic tank retaining fasteners and remove the hydraulic tank from the machine.
- 6 Drain all of the oil into a suitable container. Refer to Section 2, *Specifications*, for capacity information.

#### **⚠ 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 Clean up any oil that may have spilled. Properly discard the used oil.
- 8 Clean the inside of the hydraulic tank using a mild solvent. Allow the tank to dry completely.

## Checklist E Procedures

- 9 Install the hydraulic tank and install and tighten the hydraulic tank retaining fasteners. Torque to specification.

---

### Torque specifications

---

Hydraulic tank retaining fasteners, dry	35 in-lbs 4 Nm
Hydraulic tank retaining fasteners, lubricated	26 in-lbs 2.9 Nm

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- 10 Install the hydraulic pump inlet hard line into the tank. Install the fitting onto the pump and torque to specification. Refer to Section 2, *Specifications*.
- 11 Install the hydraulic pump return hard line into the tank. Install the fitting onto the hydraulic filter head and torque to specification. Refer to Section 2, *Specifications*.
- 12 Fill the tank with hydraulic oil until the fluid is at the full indicator on the hydraulic tank. Do not overfill.

- 13 Activate the pump to fill the hydraulic system with oil and bleed the system of air.

### NOTICE

Component damage hazard. The pump can be damaged if operated without oil. Be careful not to empty the hydraulic tank while in the process of filling the hydraulic system. Do not allow the pump to cavitate.

- 14 Repeat steps 12 through 13 until the hydraulic system and tank are both full.

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## 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 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.

### **⚠ DANGER**

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

### **⚠ WARNING**

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

### **⚠ CAUTION**

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

### **NOTICE**

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.

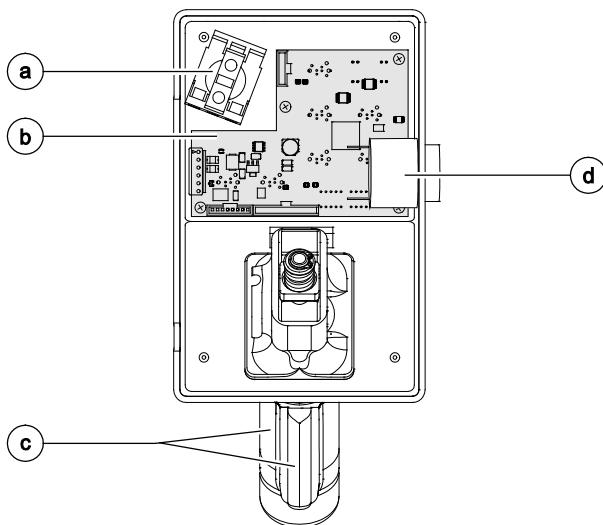
## Platform Controls

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, consult the Genie Product Support.



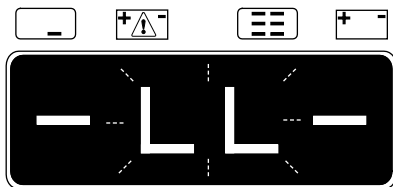
- a red Emergency Stop button P2
- b platform controls circuit board U3
- c proportional control handle and drive/steer enable switch JC9
- d alarm H1

## 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 (CE and Australia)
CH	Chassis Mode Operation
PHS	Pothole Guard Stuck
nd	No Drive (option)
Ld	Lifting Disabled (GS-3232 only)

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
--------------------------------	------------------------

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
--------------------	------------------

---

## Platform Controls

### 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.

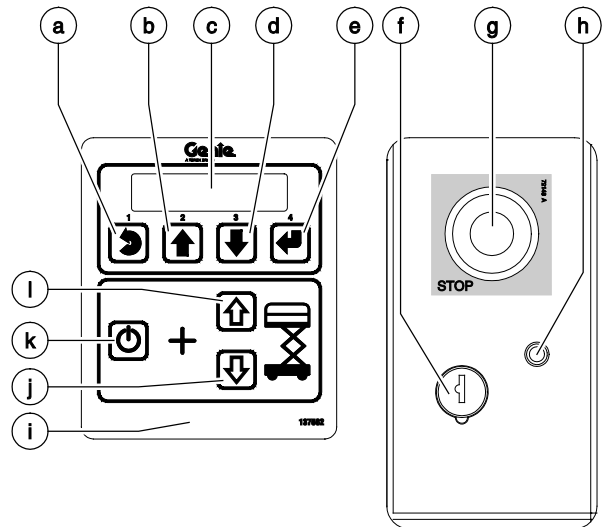
The ground controls consist of an Electronic Control Module (ECM), emergency stop button, key switch and circuit breaker.

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, consult the Genie Product Support.



- a machine setup escape button
- b machine setup scroll up button
- c LCD readout
- d machine setup scroll down button
- e machine setup enter button
- f Key switch KS1
- g red Emergency Stop P1
- h circuit breaker CB2
- i ECM U5
- j platform down button
- k lift function enable button
- l platform up button

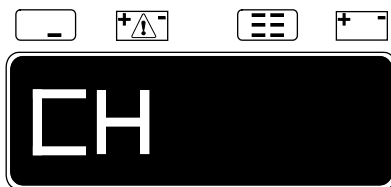
# Ground Controls

## 2-1 Software Revision Level

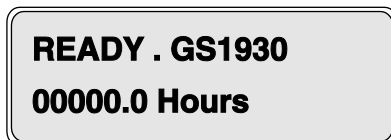
### How to Determine the Software Revision Level

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

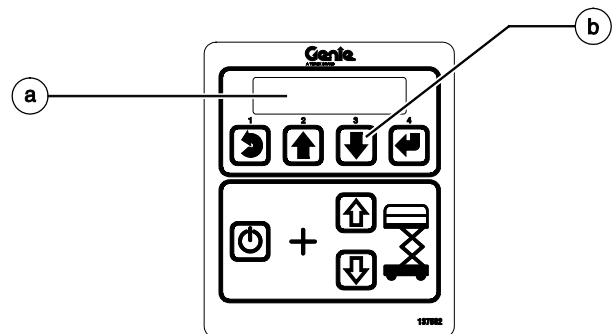
- 1 Turn the key switch to the ground controls or platform controls position. Pull out the red Emergency Stop button to the on position at both ground and platform controls.
- Result: The display at the platform controls will show "CH". See example below.



- Result: The display at the ground controls will show the machine model and hour meter information. After 3 seconds, the machine model will not show on the display. See example below.



- 2 Press the ground control scroll down button.
- Result: The ground control LCD display will indicate the software revision and hour meter information. After 5 seconds, the ground controls LCD display will display machine model and hour meter information again. See example below.
- 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.



a ground control LCD display  
b ground control 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.

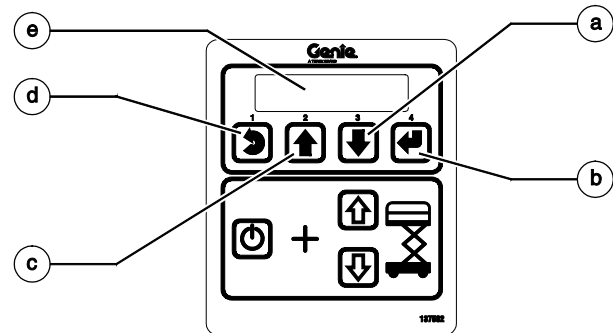
#### **⚠ DANGER**

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 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

- a scroll down button
- b enter button
- c scroll up button
- d escape button
- e 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.

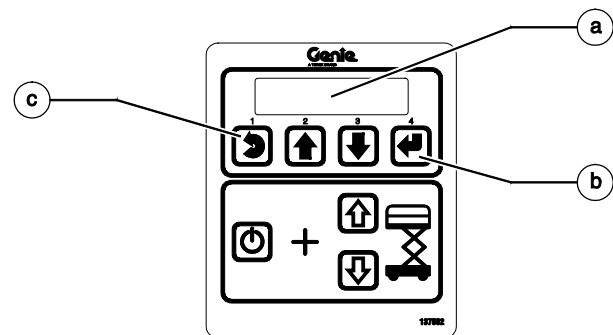
Choose this mode if the machine is operating correctly and you are updating the machine software.

### 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.



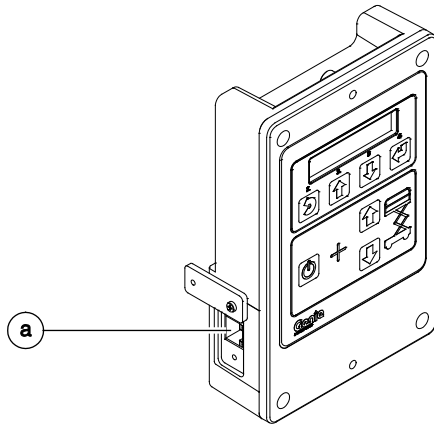
- a LCD display
- b enter button
- c escape button

- 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.



a diagnostic port

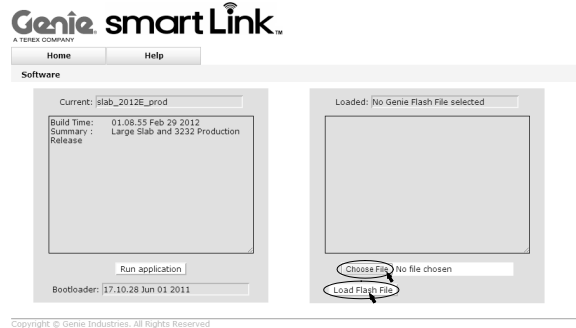
- 6 Connect one end of a CAT5 Ethernet cable into the diagnostic port. Connect the other end into a PC or laptop.
- Result: The ground controls LCD display will show the following:



- 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.

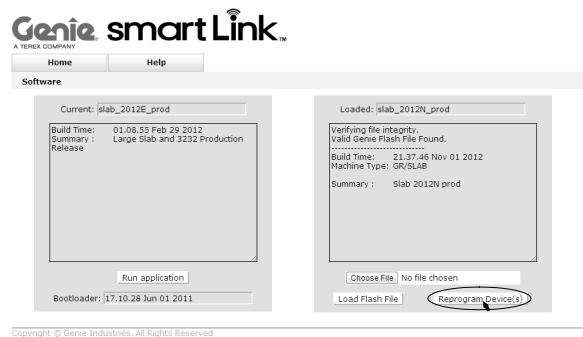


- 9 Select the **Choose File** button and navigate to the downloaded Genie Flash file (.gff).

Note: Verify it is the correct flash file.

- 10 Select the **Load Flash File** button to verify the file is a .gff file.

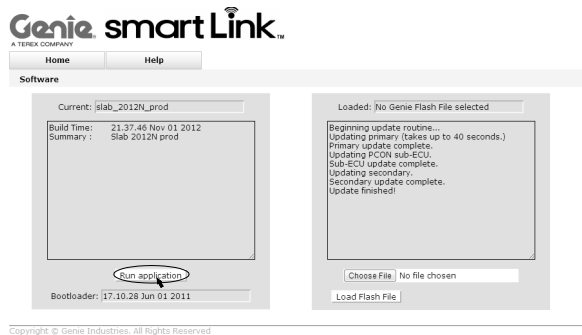
- Result: The following screen will be displayed.



## 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.



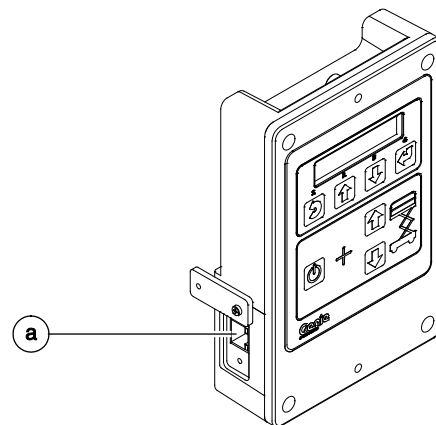
- 12 Select the **Run Application** button to exit the software update mode.
- 13 Push in the red Emergency Stop button and disconnect the CAT5 cable from the GCON.
- 14 Secure the diagnostic port cover using the retaining fasteners removed in step 5. Do not over tighten.
- 15 Perform a function test.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



a diagnostic port

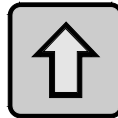
# Ground Controls

- 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:

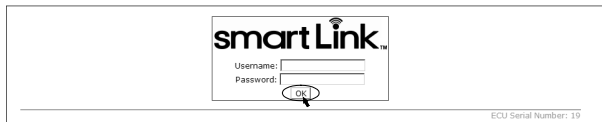


- 5 Read and record the IP address.

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.



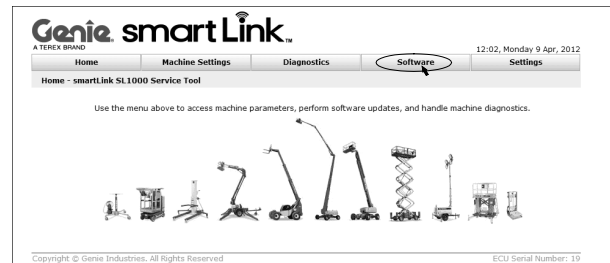
- 7 Enter the following username and password then select **OK**.

**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.



## Ground Controls

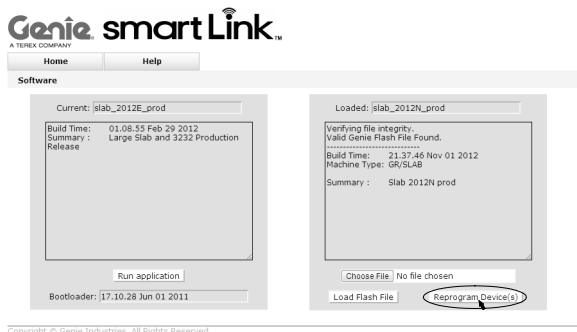
- 9 Select the **Update Machine Software** button.
- Result: The following screen will be displayed.



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

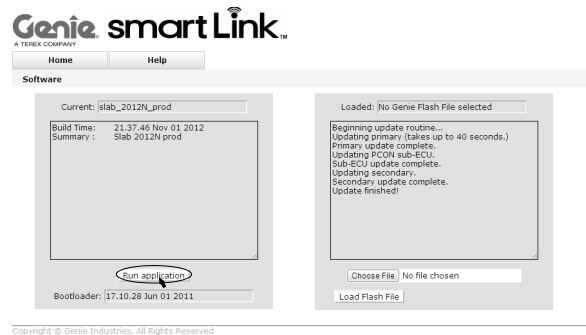
Note: Verify it is the correct flash file.

- 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.
- 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

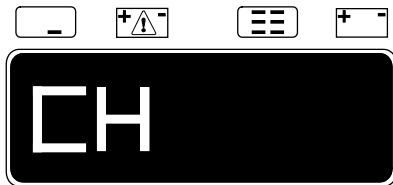
Note: Before using a portable wireless router to connect to the Smart Link Service Tool web site, the router must be configured to the type of connection desired. Refer to the portable wireless router users manual for set-up and configuration instructions.

- 1 Open the GCON compartment.

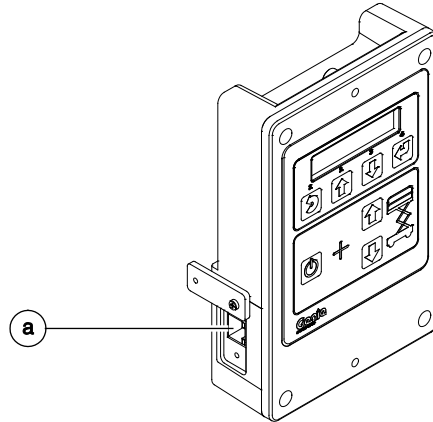
Note: Some models will require opening the ground control box to access the GCON.

- 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.



a 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:

**OPEN WEB BROWSER**  
**<IP ADDRESS>**

## 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.

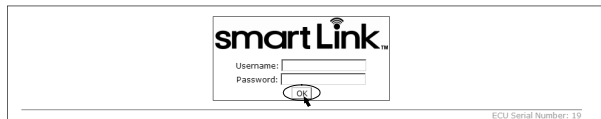
Note: Refer to the Operating System's procedure for connecting to a wireless network.

- 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.



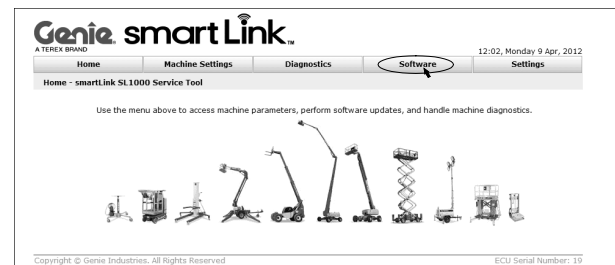
- 9 Enter the following username and password then select **OK**.

**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.

- 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 intended 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.

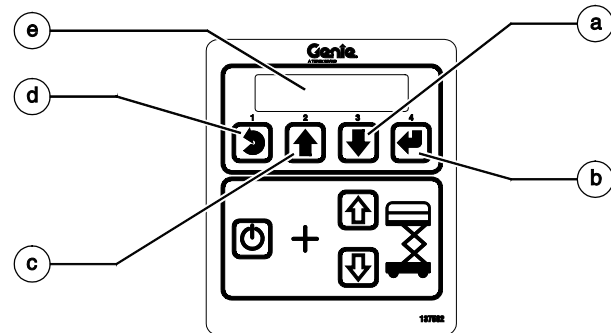
Note: Before entering Service Override mode, fault codes or the malfunction affecting the operation of the machine should be fully understood to ensure Service Override mode is required.

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

- a scroll down button
- b enter button
- c scroll up button
- d escape button
- e LCD display

# Ground Controls

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

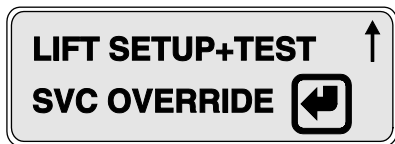
- Result: The ground controls LCD display will show the following:



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

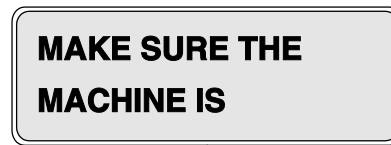
5 At the ground controls, use the Scroll Down button to scroll to **SVC Override**.

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

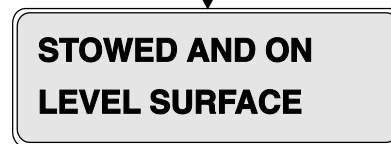


6 Press the Enter button.

- 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.

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 1.5° Level Sensor

#### **⚠ DANGER**

Tip-over hazard. Failure to install or calibrate 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 or calibrate the level sensor other than specified in this procedure.

- 1 Move the machine to an area that has a firm, level surface and is free of obstructions.
- 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 Raise the platform 7 to 8 feet / 2.1 to 2.4 m.
- 5 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 6 Lower the platform onto the safety arm.

#### **⚠ WARNING**

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

If you are not installing a new level sensor, proceed to step 15.

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

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

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

## Ground Controls

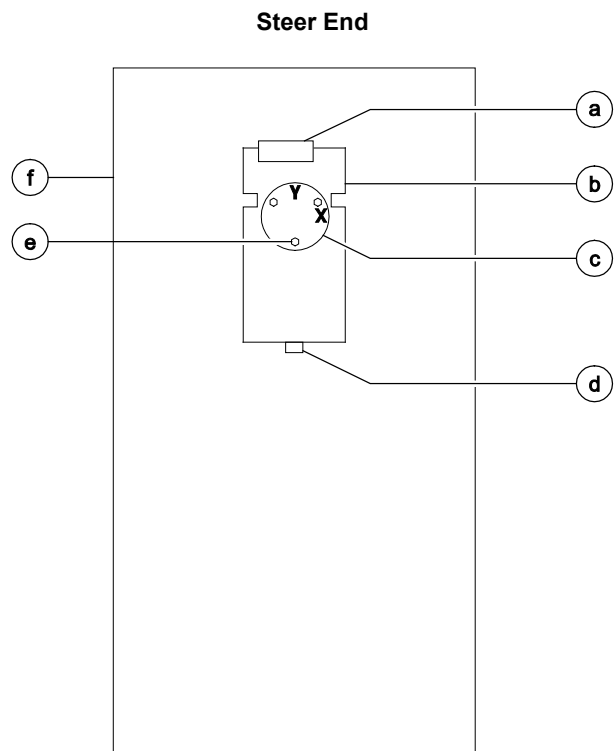
- 12 Place the new level sensor onto the level sensor mount bracket with the "X" on the level sensor base closest to the long side of the level sensor mount, and the "Y" on the level sensor base closest to the short side of the level sensor mount.

### **⚠ DANGER**

Tip-over hazard. The level sensor must be installed with the "X" on the level sensor base closest to the long side of the tilt level sensor box, and the "Y" on the level sensor base closest to the short side of the tilt level sensor box. Failure to install the level sensor as instructed, could result in the machine tipping over, causing death or serious injury.

- 13 Install the level sensor retaining fasteners through the level sensor and springs, and into the mount bracket. Tighten the fasteners and measure the distance between the level sensor and the level sensor mount bracket.
- ⦿ Result: The measurement should be approximately 0.375 inch / 10 mm.
- 14 Connect the chassis wire harness to the level sensor wire harness.
- 15 Turn the key switch to the ground control and pull out the red Emergency Stop button to the on position at the ground controls.
- 16 Adjust the level sensor retaining fasteners until the bubble at the top of the level sensor is centered in the circles.
- ⦿ Result: The tilt sensor alarm should not sound.

- 17 Raise the platform slightly.
- 18 Return the safety arm to the stowed position.
- 19 Lower the platform to the stowed position.
- 20 Center a lifting jack under the drive chassis at the ground controls side of the machine.
- 21 Raise the machine approximately 2 inches / 5 cm. Place blocks under the chassis for support.



- Steer End**
- Non-steer end**
- a limit switch
  - b level sensor mount bracket
  - c level sensor S7
  - d alarm H5
  - e level sensor retaining fasteners
  - f scissor chassis

## Ground Controls

- 22 **GS-1530 and GS-1930:** Place a 0.64 x 6 x 6 inch / 16.2 mm x 15 cm x 15 cm thick steel block under both wheels at the ground controls side of the machine.
- GS-1532 and GS-1932:** Place a 0.68 x 6 x 6 inch / 17.2 mm x 15 cm x 15 cm thick steel block under both wheels at the ground controls side of the machine.
- GS-2032, GS-2632 and GS-3232:** Place a 0.66 x 6 x 6 inch / 16.8 mm x 15 cm x 15 cm thick steel block under both wheels at the ground controls side of the machine.
- GS-2046, GS-2646, GS-3246 and GS-4047:** Place a 1 x 6 x 6 inch / 25.4 mm x 15 cm x 15 cm thick steel block under both wheels at the ground controls side of the machine.
- 23 Lower the machine onto the blocks.
- 24 Raise the platform 7 to 8 feet / 2.1 to 2.4 m.
- ⦿ Result: The level sensor alarm should not sound.
  - ⊗ Result: The level sensor alarm does sound and fault code LL appears in the diagnostic display. Adjust the level sensor retaining fasteners just until the level sensor alarm does not sound.
- 25 Lower the platform to the stowed position.
- 26 Raise the machine approximately 2 inches / 5 cm. Place blocks under the chassis for support.
- 27 Remove the blocks from under both wheels.
- 28 Lower the machine and remove the blocks.
- 29 Center a lifting jack under the drive chassis at the battery pack side of the machine.
- 30 Raise the machine approximately 2 inches / 5 cm. Place blocks under the chassis for support.
- 31 **GS-1530 and GS-1930:** Place a 0.77 x 6 x 6 inch / 19.6 mm x 15 cm x 15 cm thick steel block under both wheels at the battery pack side of the machine.
- GS-1532 and GS-1932:** Place a 0.83 x 6 x 6 inch / 21.1 mm x 15 cm x 15 cm thick steel block under both wheels at the battery pack side of the machine.
- GS-2032, GS-2632 and GS-3232:** Place a 0.8 x 6 x 6 inch / 20.3 mm x 15 cm x 15 cm thick steel block under both wheels at the battery pack side of the machine.
- GS-2046, GS-2646, GS-3246 and GS-4047:** Place a 1.22 x 6 x 6 inch / 31 mm x 15 cm x 15 cm thick steel block under both wheels at the battery pack side of the machine.
- 32 Lower the machine onto the blocks.
- 33 Raise the platform 7 to 8 feet / 2.1 to 2.4 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. Adjust the level sensor until the alarm just begins to sound OR the down limit switch may need to be adjusted.

## Ground Controls

- 34 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.
- 35 Lower the platform onto the safety arm.

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

- 36 Raise the platform 7 to 8 feet / 2.1 to 2.4 m.
- 37 Return the safety arm to the stowed position.
- 38 Lower the platform to the stowed position.
- 39 Raise the machine approximately 2 inches / 5 cm. Place blocks under the chassis for support.
- 40 Remove the blocks from under both wheels.
- 41 Lower the machine and remove the jack.

## How to Install the Outrigger Level Sensor

### ⚠ DANGER

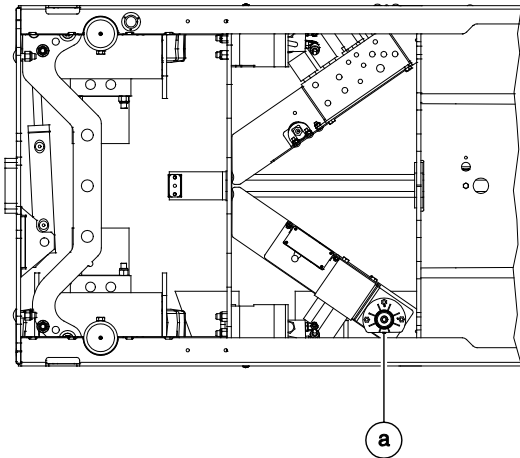
Tip-over hazard. Failure to install the outrigger level sensor as instructed will compromise machine stability and cause the machine to tip over, resulting in death or serious injury. Do not install the outrigger level sensor other than specified in this procedure.

- 1 Move the machine to an area that has a firm, level surface and is free of obstructions.
- 2 Turn the key switch to the off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.
- 3 Open the access door at the battery side of the machine.
- 4 Tag and disconnect the outrigger level sensor wire harness from the outrigger level sensor.
- 5 Remove the outrigger level sensor retaining fasteners and remove the outrigger level sensor from the machine.



## Ground Controls

- 6 Place the new outrigger level sensor onto the outrigger level sensor base with the flat side of the outrigger level sensor closest to the battery side access door. Refer to the illustration below.



a outrigger level sensor (GS-3232)

- 7 Secure the outrigger level sensor onto the base with the retaining fasteners removed in step 5.
- 8 Adjust the outrigger level sensor retaining fasteners until the bubble at the top of the level sensor is centered in the circles.
- 9 Connect the outrigger level sensor wire harness to the new outrigger level sensor.
- 10 Close the access door at the battery side of the machine.
- 11 Calibrate the new outrigger level sensor. Refer to Section 2-8, *How to Calibrate the Outrigger System*.

### 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 next to the ground controls.

#### How to Adjust the Manual Platform Lowering Cable

- 1 Raise the platform 7 to 8 feet / 2.1 to 2.4 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**

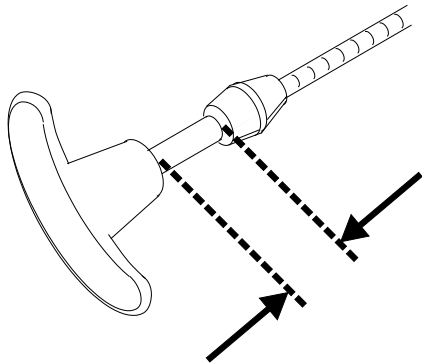
Crushing hazard. Keep hands clear of the safety arm when lowering the platform.

- 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.

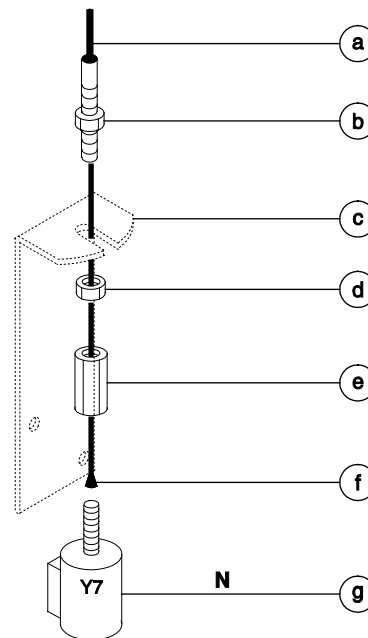
Note: Proceed to step 8 if measurement is correct.



Platform manual lowering cable specification	
Gap, lowering handle to mounting nut	0 to 0.125 inch 0 to 3 mm

**Skip to step 8 if the measurement is correct.**

- 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.



- a manual lowering cable sheath
- b upper lock nut
- c cable mounting bracket
- d lower lock nut
- e cable mounting nut
- f end of lowering cable
- g manual lowering valve (hydraulic schematic item N)

---

## Ground Controls

- 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.

### 2-8 Outrigger Calibration

---

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  $0^{\circ} \pm 0.5^{\circ}$  front to back and side to side, while the outriggers are deployed.

For further information or assistance, consult the 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. Use digital level to confirm.
- 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.

---

## Ground Controls

- 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.

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

Perform this procedure with the platform in the stowed position.

- 1 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.

- 2 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.
- 3 Tag and disconnect the hydraulic tank hard line from the pump. Remove the hard line from the machine. Cap the fitting on the pump.
- 4 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.

- 5 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 tank 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 Test the Hydraulic Pump

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

**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.

- 1 Tag, disconnect and plug the high pressure hydraulic hose from the hydraulic pump.
- 2 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the high pressure port on the pump.
- 3 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.

- 4 Activate the platform up function from the ground controls.
  - ⦿ Result: If the pressure gauge reads 3200 psi / 221 bar, immediately stop. The pump is good.
  - ⊗ Result: If the pressure gauge fails to reach 3200 psi / 221 bar, the pump is bad and will need to be serviced or replaced.

**NOTICE** Component damage hazard. There is no relief valve in the hydraulic pump and the pump can be damaged if the pressure is allowed to exceed 3200 psi / 221 bar. When testing the pump, activate the pump in one second intervals until 3200 psi / 221 bar is confirmed. Do not over-pressurize the pump.

- 5 Remove the pressure gauge and reconnect the hydraulic hose. Torque to specifications.

## Hydraulic Pump

### How to Remove the Hydraulic Pump

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Disconnect the battery pack from the machine.

**⚠ WARNING** Electrocutation/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.

- 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-1530, GS-1532, GS-1930 and GS-1932

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

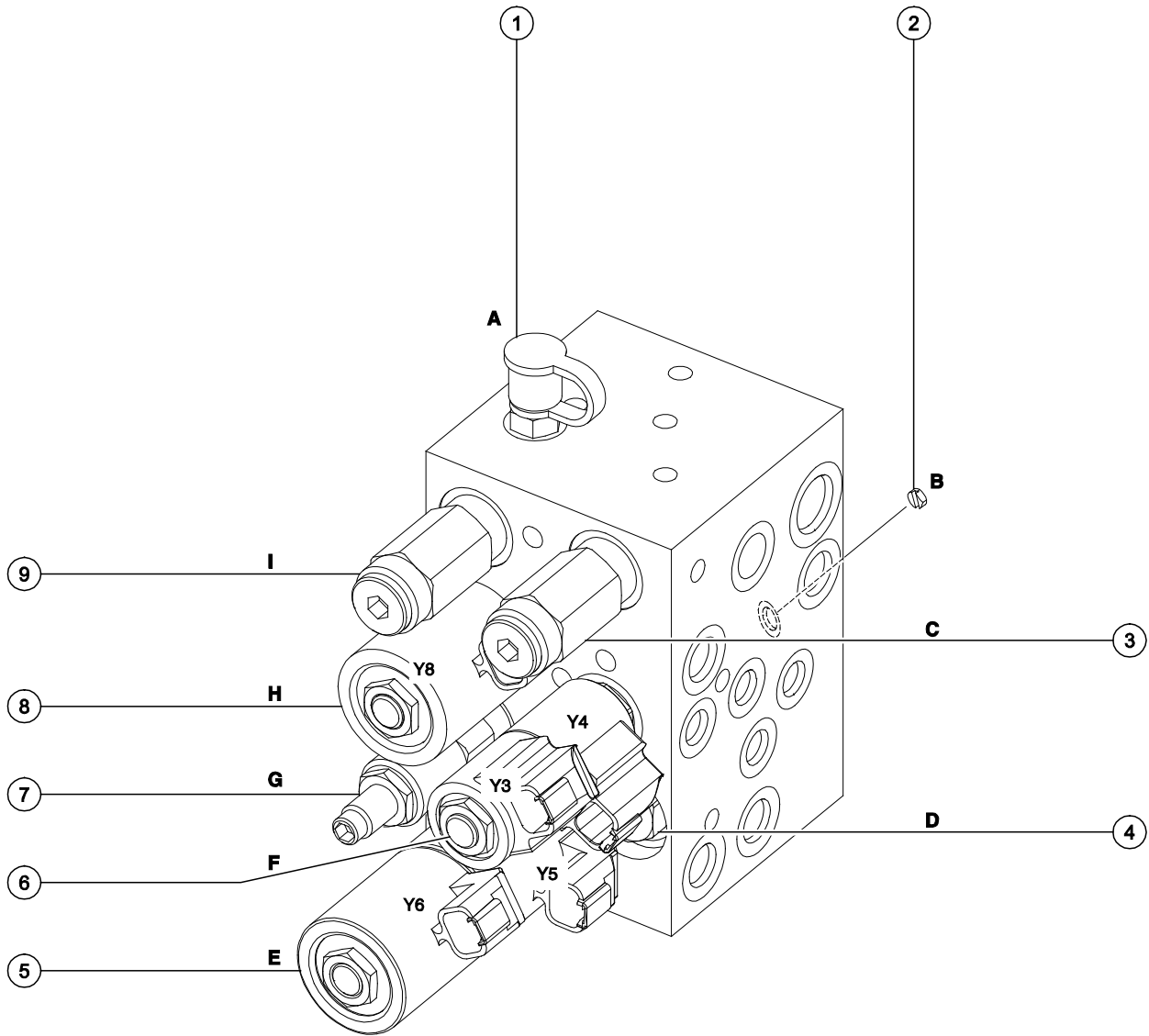
Index No.	Description	Schematic Item	Function	Torque
—	Coil Nut (item F)	—	—	4-5 ft-lbs / 5-7 Nm
—	Coil Nut (items E and H)	—	—	5-7 ft-lbs / 7-9 Nm
1	Diagnostic nipple	A	Testing	—
2	Check disc	B	Steer circuit	18 ft-lbs / 24 Nm
3	Relief valve, 1800 to 3700 psi / 124 to 255 bar	C	Lift relief	20 ft-lbs / 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 maximum	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' callouts refer to corresponding notes on the hydraulic schematic.

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

## Manifolds

### 5-2

#### Function Manifold Components –

#### GS-2032, GS-2632, GS-3232, GS-2046, GS-2646 and GS-3246

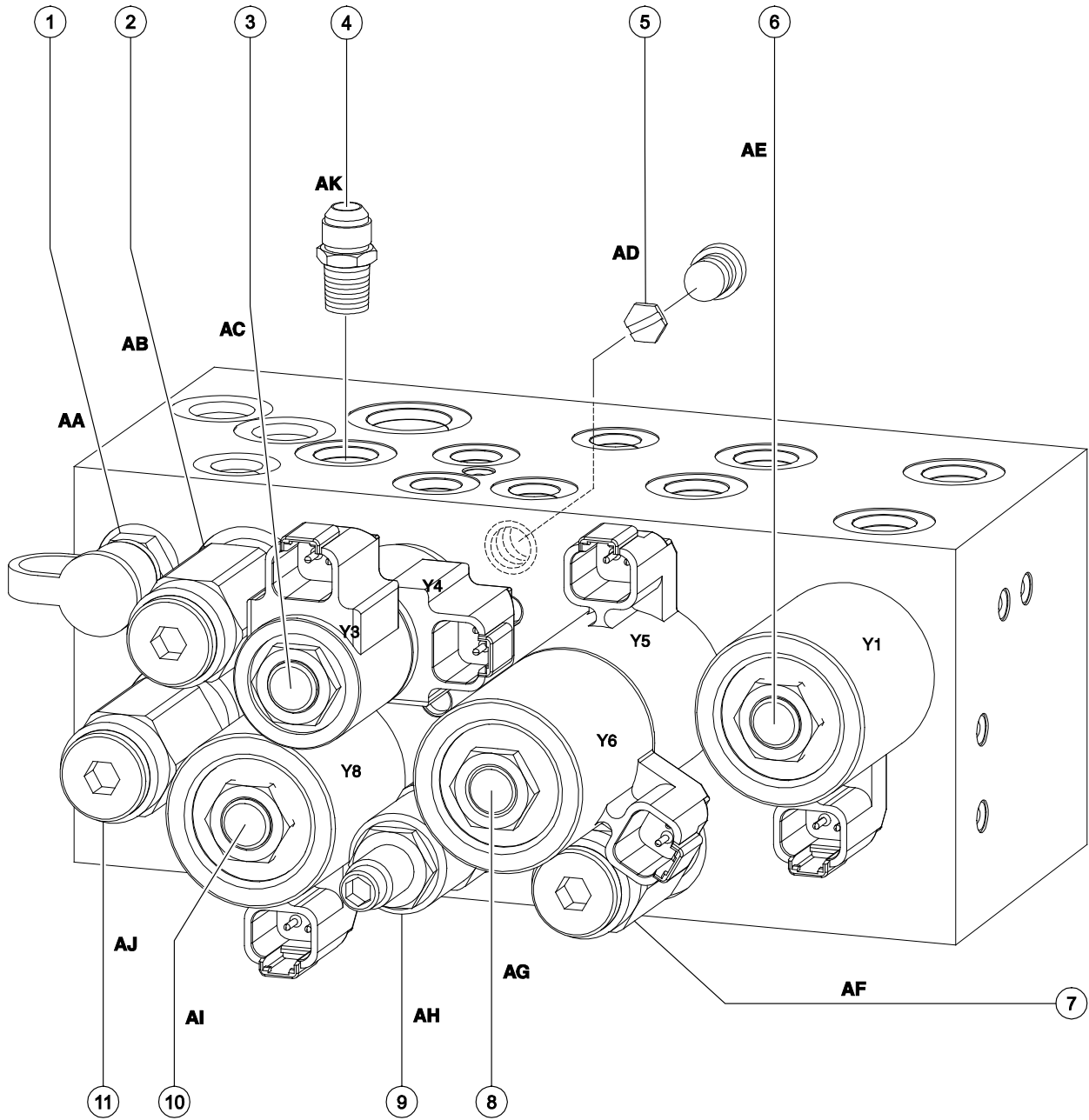
The function manifold is mounted behind an inspection door, at the ground control side of the machine.

Index No.	Description	Schematic Item	Function	Torque
—	Coil Nut (item AC)	—	—	4-5 ft-lbs / 5-7 Nm
—	Coil Nut (items AE, AG and AI)	—	—	5-7 ft-lbs / 7-9 Nm
1	Diagnostic nipple	AA	Testing	—
2	Relief Valve, 3700 psi / 255 bar maximum	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, (GS-3232 and GS-3246 with load sense installed)	AK	Lift	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	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	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



Note: 'alpha' callouts refer to corresponding notes on the hydraulic schematic.

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

## Manifolds

### 5-3 Function Manifold Components – GS-4047

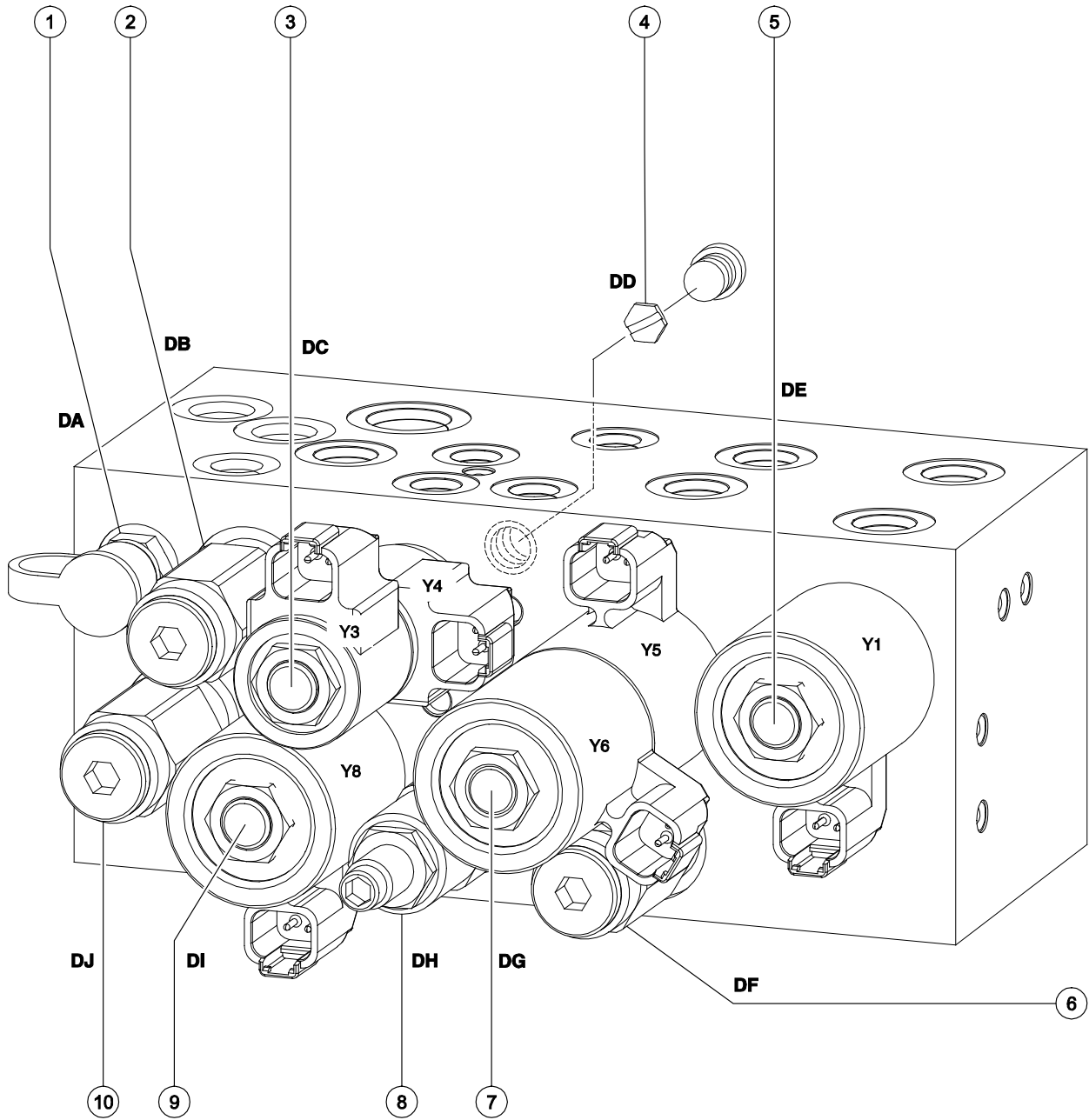
The function manifold is mounted behind an inspection door, at the ground control side of the machine.

Index No.	Description	Schematic Item	Function	Torque
—	Coil Nut (item DC)	—	—	4-5 ft-lbs / 5-7 Nm
—	Coil Nut (items DE, DG and DI)	—	—	5-7 ft-lbs / 7-9 Nm
1	Diagnostic nipple	DA	Testing	—
2	Relief Valve, 3500 psi / 241 bar maximum	DB	System relief	20 ft-lbs / 27 Nm
3	Solenoid valve, 3 position 4 way	DC	Steer left/right	25 ft-lbs / 34 Nm
4	Check disc	DD	Steer circuit	18 ft-lbs / 24 Nm
5	Solenoid valve, 2 position 4 way	DE	Drive speed select circuit	25 ft-lbs / 34 Nm
6	Relief valve	DF	Brake release	20 ft-lbs / 27 Nm
7	Solenoid valve, 3 position 5 way	DG	Drive forward/reverse	25 ft-lbs / 34 Nm
8	Flow regulator and relief valve, 0.75 gpm / 2.8 L/min, 1500 psi / 103 bar	DH	Steer circuit	26 ft-lbs / 35 Nm
9	Solenoid valve, 2 position 4 way	DI	Platform up	25 ft-lbs / 34 Nm
10	Relief valve	DJ	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



Note: 'alpha' callouts refer to corresponding notes on the hydraulic schematic.

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

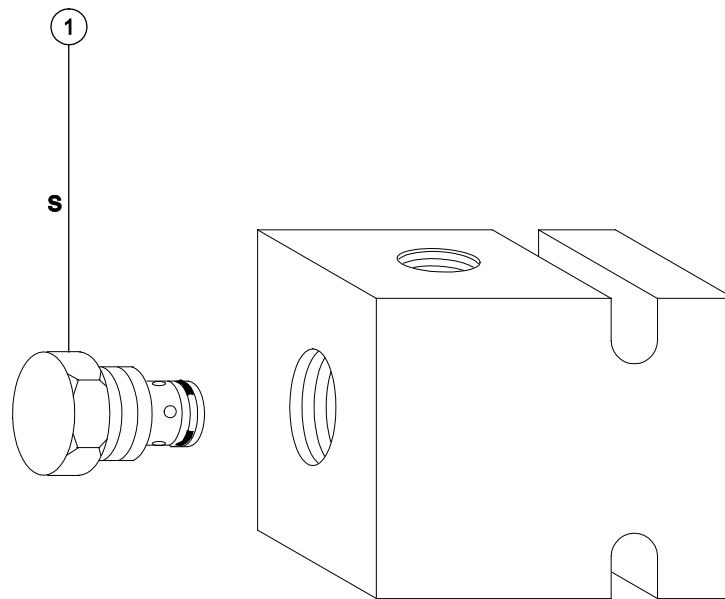


## Manifolds

### 5-4 Check Valve Manifold Components – GS-1530, GS-1532, GS-1930 and GS-1932

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



Note: 'alpha' callouts refer to corresponding notes on the hydraulic schematic.

### How to Install a Valve Cartridge

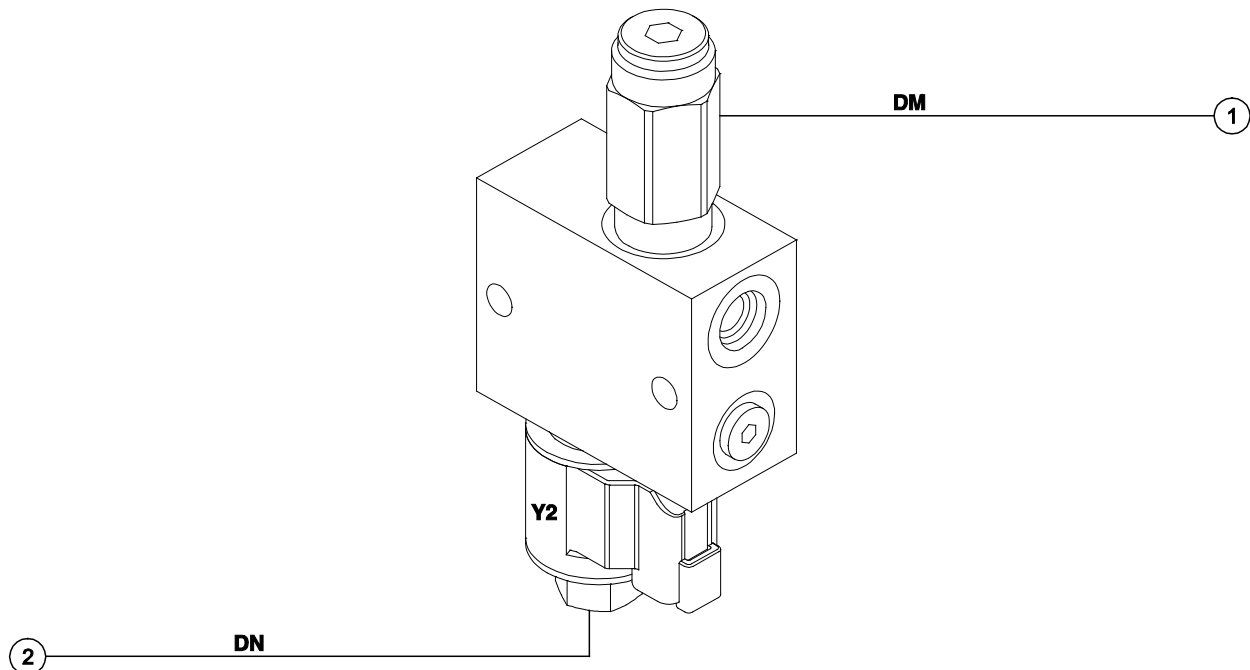
- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

# Manifolds

## 5-5 Lift Pressure Selector Manifold Components – GS-4047

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

Index No.	Description	Schematic Item	Function	Torque
—	Coil nut (item DN)	—	—	4-5 ft-lbs / 5-7 Nm
—	Plug	—	—	13 ft-lbs / 18 Nm
1	Lift pressure selector valve, 200 psi / 138 bar	DM	Lift relief	20 ft-lbs / 27 Nm
2	Solenoid valve, 2 position 2 way	DN	Lift circuit	20 ft-lbs / 27 Nm



Note: 'alpha' callouts refer to corresponding notes on the hydraulic schematic.

### How to Install a Valve Cartridge

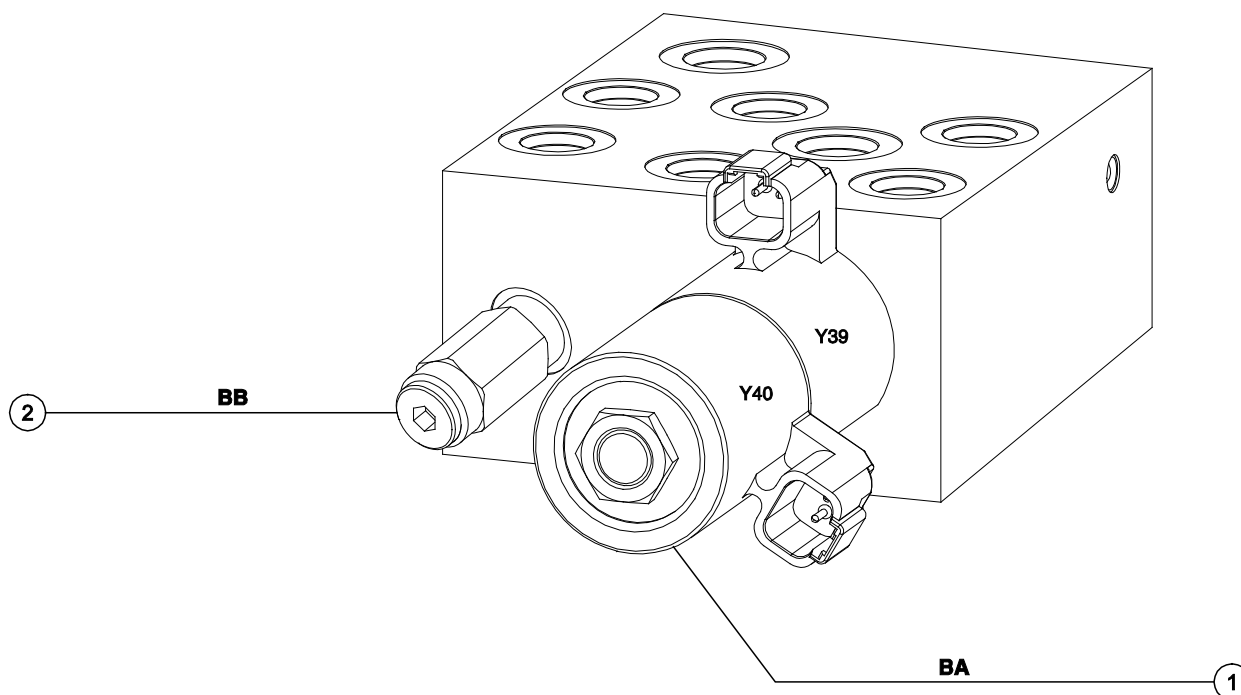
- 1 Dip the cartridge in clean oil to lube the O-rings.
- 2 Screw the cartridge in by hand until the top O-ring is met, then torque to specifications.
- 3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specifications.

## Manifolds

### 5-6 Outrigger Function Manifold Components – GS-3232

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

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



Note: 'alpha' callouts refer to corresponding notes on the hydraulic schematic.

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

### 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.

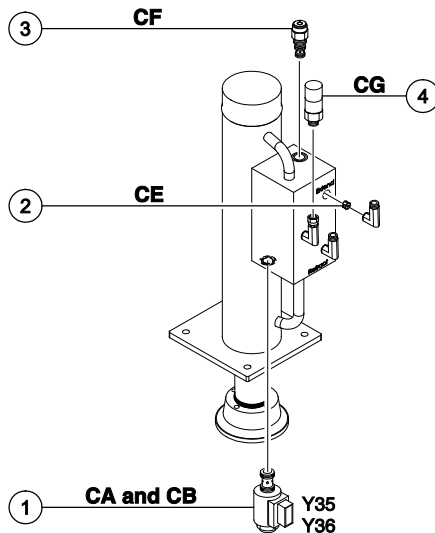


# Manifolds

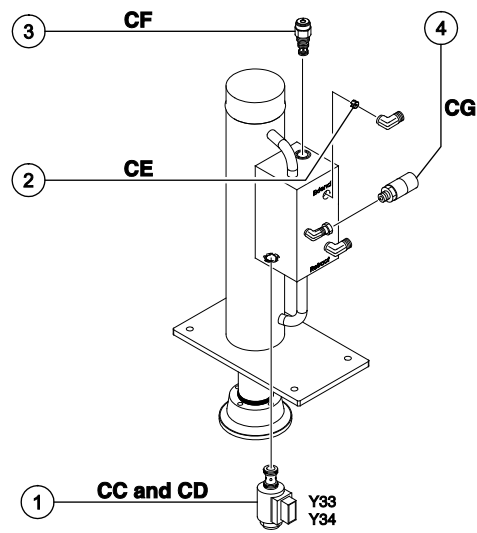
## 5-7 Outrigger Cylinder Manifold Components – GS-3232

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

Index No.	Description	Schematic Item	Function	Torque
—	Coil nut (item CA, CB, CC, CD)	—	—	4-5 ft-lbs / 5-7 Nm
1	Solenoid valve, 2 position 2 way	CA, CB, CC, CD	Outrigger 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 / 27.1 Nm
4	Pressure transducer	CG	Outrigger auto level	16 ft-lbs / 21.7 Nm



Front Outriggers



Rear Outriggers

Note: 'alpha' callouts refer to corresponding notes on the hydraulic schematic.

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

### 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

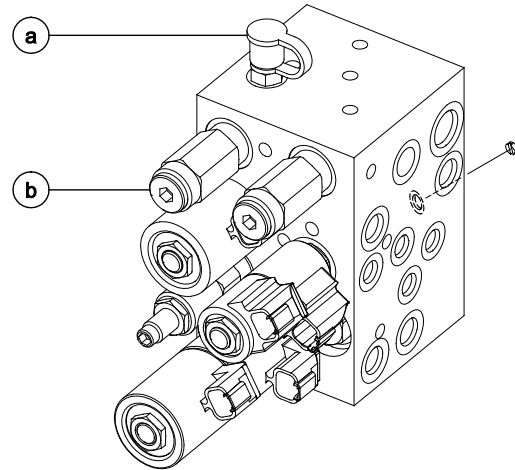
### 5-8 Valve Adjustments – Function Manifold

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

Be sure the hydraulic oil level is at the FULL mark on the hydraulic tank.

### How to Adjust the System Relief Valve

- 1 Locate the system relief valve on the function manifold (schematic item I, AB or DB).
- 2 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold (schematic item A, AA or DA).
- 3 Chock both sides of the wheels at the steer end of the machine.
- 4 Remove the platform controls from the platform.
- 5 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.
- 6 Move and hold the joystick fully in either direction while observing the pressure reading on the pressure gauge. Note the pressure. Refer to Section 2, *Specifications*.
- 7 Turn the machine off. Hold the system relief valve with a wrench and remove the cap (schematic item I, AB or DB).



GS-1530/32 and GS-1930/32

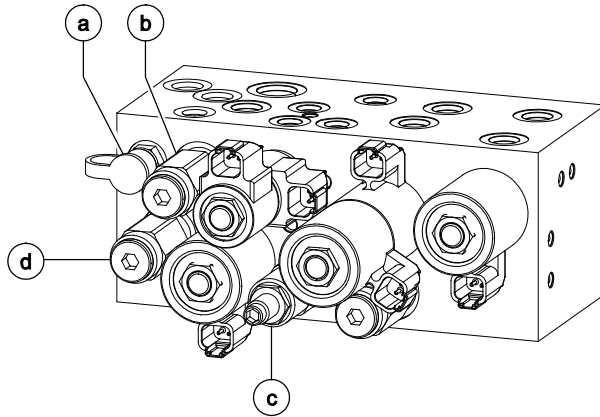
- a test port
- b system relief valve

## Manifolds

- 8 Adjust the internal hex socket. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure.

**⚠ 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.

- 9 Install the relief valve cap.  
10 Repeat steps 5 and 6 to confirm the relief valve pressure.



GS-32, GS-46 and GS-47

- a test port
- b system relief valve
- c steer relief valve
- d lift relief valve

### How to Adjust the Platform Lift Relief Valve

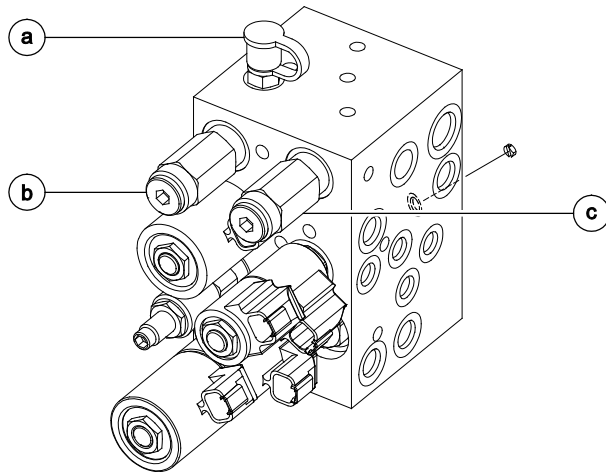
Perform this test from the ground with the platform controls. Do not stand in the platform.

Be sure the hydraulic oil level is at the FULL mark on the hydraulic tank.

- 1 Locate the system relief valve on the function manifold (schematic item I, AB or DB).
- 2 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold (schematic item A, AA or DA).
- 3 Chock both sides of the wheels at the steer end of the machine.
- 4 Remove the platform controls from the platform.

# Manifolds

- 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.



GS-1530/32 and GS-1930/32

- a test port
- b system relief valve
- c lift relief valve

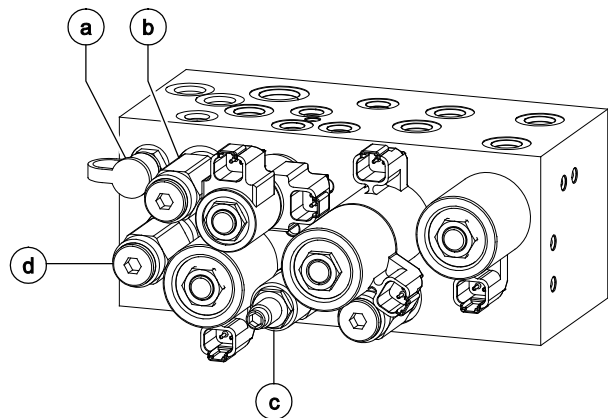
- Move and hold the joystick fully in either direction while observing the pressure reading on the pressure gauge. Note the pressure. Refer to Section 2, *Specifications*.
- Turn the machine off. Hold the system relief valve with a wrench and remove the cap (schematic item I, AB or DB).

- Adjust the internal hex socket. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure.

**⚠ 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.

- Install the relief valve cap.
- Repeat steps 5 and 6 to confirm the relief valve pressure.
- Place maximum rated load into the platform. Secure the load to the platform. Refer to Section 2, *Specifications*.



GS-32, GS-46 and GS-47

- a test port
- b system relief valve
- c steer relief valve
- d lift relief valve

## Manifolds

- 12 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.
- 13 Hold the lift relief valve with a wrench and remove the cap (schematic item C, AJ or DJ).
- 14 While activating the platform up function, adjust the internal hex socket clockwise, just until the platform fully rises.
- 15 Fully lower the platform to the stowed position.
- 16 Add an additional 50 pounds / 22.7 kg to the platform. Secure the additional weight.
- 17 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.
- 18 Install the relief valve cap.
- 19 Remove the weight from the platform.
- 20 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.

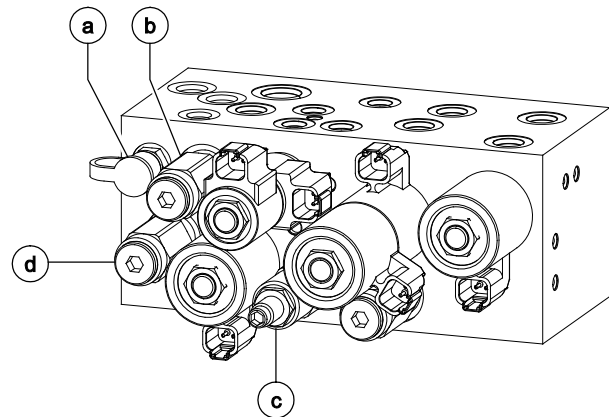
### How to Adjust the Lift Pressure Selector Valve (GS-4047 only)

Note: The System Relief Valve and Platform Lift Relief Valve must be adjusted before making an adjustment to the Lift Pressure Selector Valve. Refer to *How to Adjust the System Relief Valve* and *How to Adjust the Platform Lift Relief Valve* in this section.

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

Be sure the hydraulic oil level is at the FULL mark on the hydraulic tank.

- 1 Locate the pressure selector relief valve on the pressure selector manifold (schematic item DM).
- 2 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold (schematic item DA).



GS-32, GS-46 and GS-47

- a test port
- b system relief valve
- c steer relief valve
- d lift relief valve

## Manifolds

- 3 Using a suitable lifting device, place and secure the maximum rated load in the center of the platform deck.

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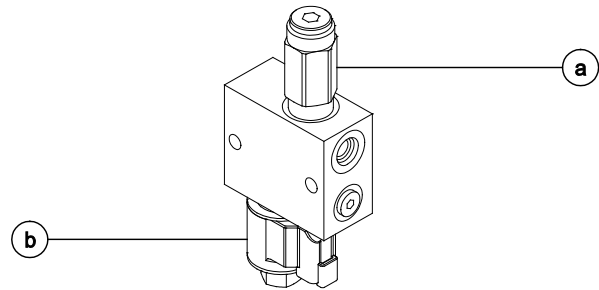
### Maximum load, GS-4047

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GS-4047	350 kg
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- 4 Remove the platform controls from the platform.
- 5 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.
- 6 Press and hold the lift function enable button and the press the platform up button to raise the platform 4 ft / 1.2 m above the stowed position.
  - ⊙ Result: The platform does not rise. Perform steps 7 through 10 to increase the pressure in small increments until the platform rises. Then proceed to step 12.
  - ⊙ Result: The platform rises. Perform steps 7 through 10 to decrease the pressure in small increments until the platform does not rise. Then follow steps 7 through 10 again to increase the pressure in small increments until the platform is able to rise.

- 7 Turn the machine off. Hold the lift pressure selector valve with a wrench and remove the cap (schematic item DM).



GS-4047

- a lift pressure selector valve
- b solenoid valve

- 8 Adjust the internal hex socket. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure.

### **⚠ 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.

- 9 Install the relief valve cap.
- 10 Fully lower the platform to the stowed position.
- 11 Using a suitable lifting device, add and secure an additional 150 lbs / 68 kg to the platform deck.

## Manifolds

- 12 Raise the platform.
  - ⦿ Result: The platform does not rise. Proceed to step 13.
  - ⦿ Result: The platform rises. Perform steps 7 through 10 to decrease the pressure in small increments until the platform does not rise.
- 13 Fully lower the platform to the stowed position.
- 14 Using a suitable lifting device, remove the weight from the platform.

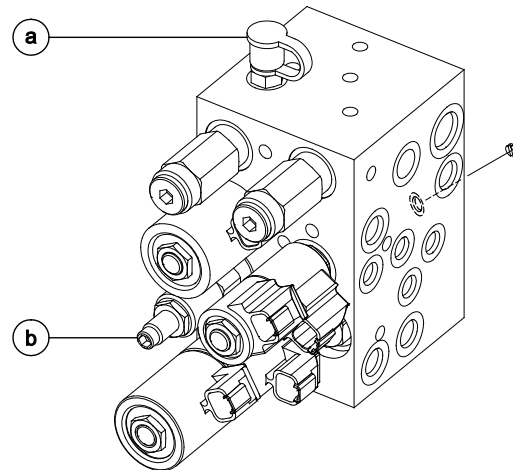
### How to Adjust the Steer Relief Valve

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

Be sure the hydraulic oil level is at the FULL mark on the hydraulic tank.

- 1 Locate the steer relief valve on the function manifold (schematic item G, AH or DH).
- 2 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold (schematic item A, AA or DA).
- 3 Remove the platform controls from the platform.

- 4 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.



GS-1530/32 and GS-1930/32

- a test port
- b steer relief valve

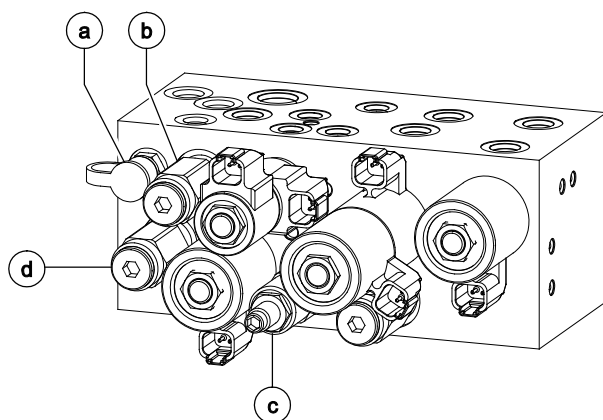
- 5 Activate the function enable switch and press and hold the steer thumb rocker switch to the right. Allow the wheels to completely turn to the right. Continue holding the switch while observing the pressure reading on the pressure gauge. Note the pressure. Refer to Section 2, *Specifications*.
- 6 Press and hold the steer thumb rocker switch to the left. Allow the wheels to completely turn to the left. Continue holding the switch while observing the pressure reading on the pressure gauge.

## Manifolds

- 7 Turn the machine off. Hold the steer relief valve with a wrench and remove the cap (schematic item G, AH or DH).
- 8 Adjust the internal hex socket. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure.

**NOTICE** Component damage hazard. Do not adjust the relief valve pressures higher than specifications.

- 9 Install the relief valve cap.
- 10 Repeat steps 5 and 6 to confirm the relief valve pressure.



GS-32, GS-46 and GS-47

- a test port
- b system relief valve
- c steer relief valve
- d lift relief valve

## 5-9 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** Electrocutation/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 Specifications

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 / -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 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

## 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. See 5-9, *How to Test a Coil* in this section.
- 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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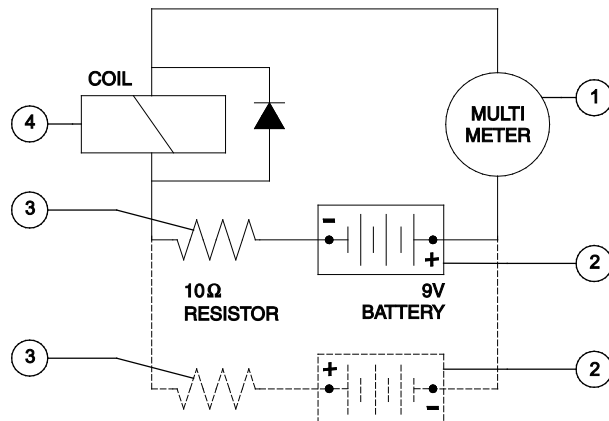
- 3 Set a multimeter to read DC amperage.

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.



- 1 multimeter
- 2 9V DC battery
- 3 10Ω resistor
- 4 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 and Drive Motor

#### How to Remove the Yoke and Drive Motor Assembly

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

- 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.

**⚠ WARNING** Crushing hazard. The chassis will fall if not properly supported.

- 6 Remove the wheel castle nut. Remove the wheel.

- 7 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.

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

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

**⚠ CAUTION** Bodily injury hazard. The yoke/motor assembly may fall if not properly supported when it is removed from the chassis.

## Steer Axle Components

### How to Remove a Drive Motor

- 1 Block the non-steer tires.
- 2 Remove the cotter pin from the wheel castle nut of the motor to be removed.
- 3 Note: Always replace the cotter pin with a new one when removing the castle nut.
- 4 Loosen the wheel castle nut. Do not remove it.
- 5 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.

- 6 Remove the wheel castle nut. Remove the wheel.

- 7 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.

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

- 8 Remove the drive motor mounting fasteners. Remove the motor.

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#### Torque specifications

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Drive motor mounting fasteners, dry	75 ft-lbs 101.7 Nm
Drive motor mounting fasteners, lubricated	56 ft-lbs 76.3 Nm

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## Steer Axle Components

### 6-2 Steer Cylinder

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#### How to Remove the Steer Cylinder

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *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.

## Steer Axle Components

### 6-3 Steer Bellcrank

#### How to Remove the Steer Bellcrank

- 1 Remove the steer cylinder. See 6-2, *How to Remove the Steer Cylinder*.
- 2 Remove the retaining fasteners from the steer links at each end of the bellcrank.

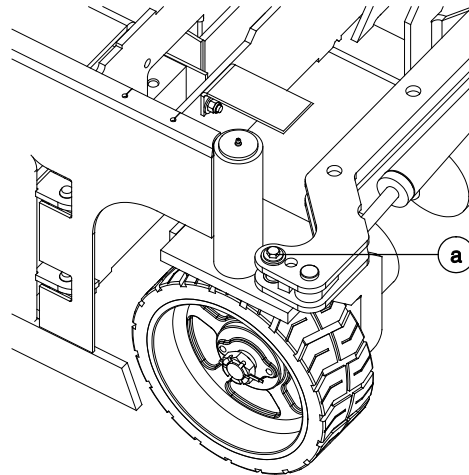
Note: While removing the retaining fasteners, take note of the quantity and location of the spacers between the bellcrank and the steer links.

- 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.
- 6 Remove the bellcrank from the machine.



a apply Loctite 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 Loctite onto the threads of the fasteners. Torque the fasteners to 31 ft-lbs / 42 Nm.

## Non-Steer Axle Components

### 7-1 Drive Brake

#### How to Remove the Drive Brake

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *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

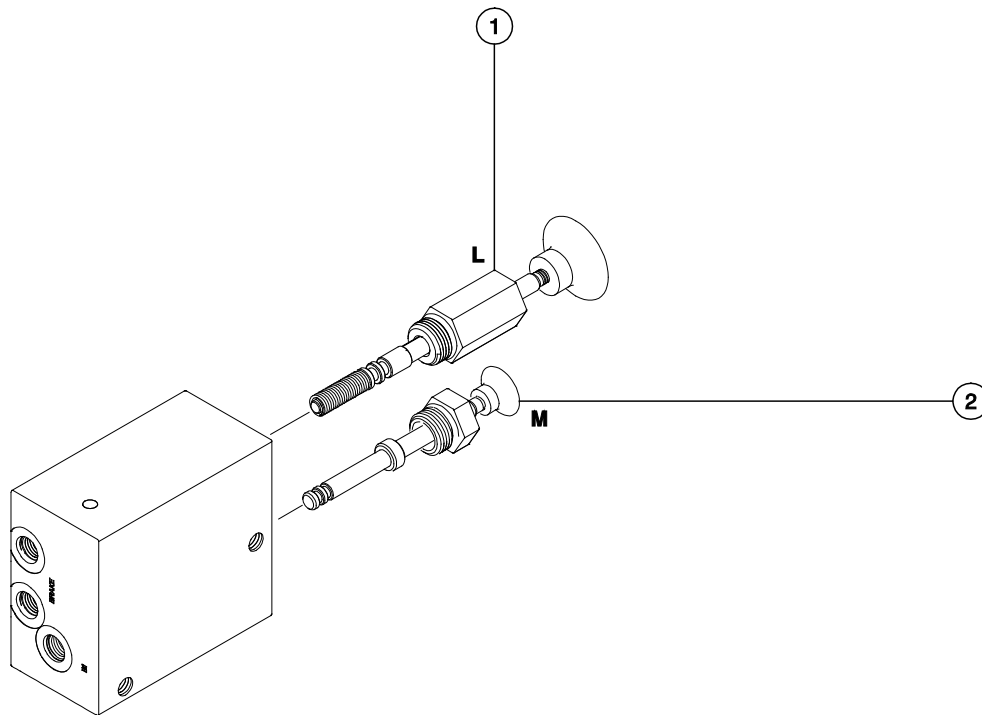
Brake mounting fasteners, dry	75 ft-lbs 102 Nm
Brake mounting fasteners, lubricated	56 ft-lbs 76 Nm

# Brake Release Hand Pump Components

## 8-1 Brake Release Hand Pump Components

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

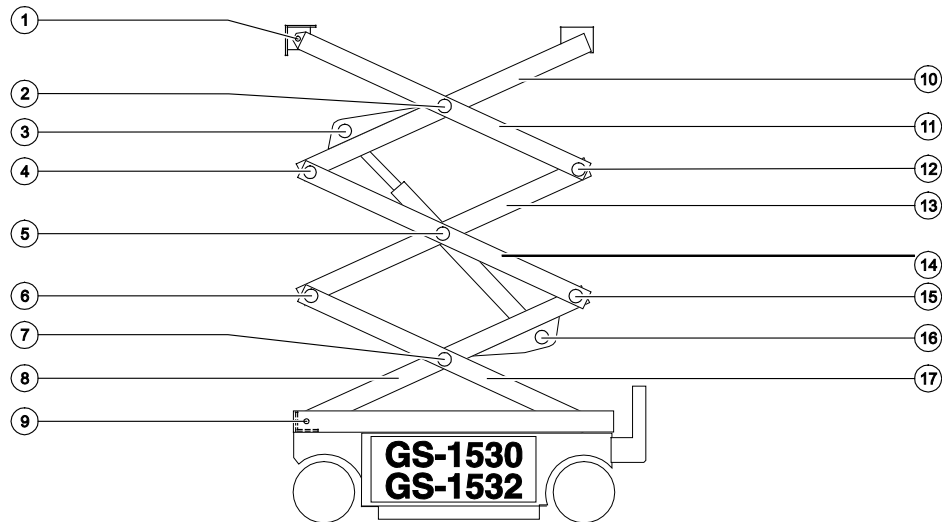
Index No.	Description	Schematic Item	Function	Torque
1	Hand pump	L	Manual brake release	30 ft-lbs / 41 Nm
2	Needle valve	M	Manual brake release enable	45-50 in-lbs / 5 Nm



Note: 'alpha' callouts refer to corresponding notes on the hydraulic schematic.



## Scissor Components



### Steer End

- 1 - Number 4 pivot pin
- 2 - Number 3 center pivot pin (2 pins)
- 3 - Lift cylinder rod-end pivot pin
- 4 - Number 3 pivot pin (steer end)
- 5 - Number 2 center pivot pin (2 pins)
- 6 - Number 2 pivot pin (steer end)
- 7 - Number 1 center pivot pin (2 pins)
- 8 - Number 1 inner arm
- 9 - Number 1 pivot pin

### Non-steer End

- 10 - Number 3 inner arm
- 11 - Number 3 outer arm
- 12 - Number 3 pivot pin (non-steer end)
- 13 - Number 2 inner arm
- 14 - Number 2 outer arm
- 15 - Number 2 pivot pin (non-steer end)
- 16 - Lift cylinder barrel-end pivot pin
- 17 - Number 1 outer arm

## Scissor Components

### 9-1

### Scissor Assembly, GS-1530 and GS-1532

#### How to Disassemble the Scissor Assembly, GS-1530 and GS-1532

**⚠ 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.

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

Note: Machines equipped with a Platform Height Sensor, begin the Scissor Disassembly procedure at step 1. Machines without a Platform Height Sensor, begin the Scissor Disassembly procedure at step 24.

- 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 8 feet / 2.1 to 2.4 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** Electrocutation/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.

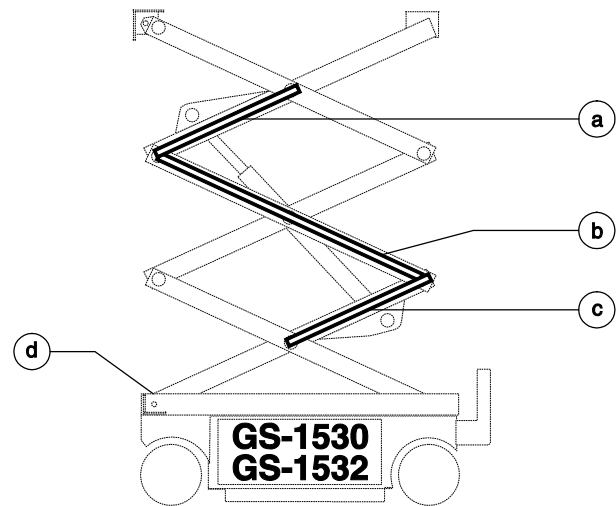
## Scissor Components

- 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.
- 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

- a cable bridge 3
- b cable bridge 2
- c cable bridge 1
- d platform height sensor

- 24 Remove the platform. See 10-1, *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.

## Scissor Components

- 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 crane 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 crane to the lug on the rod end of the lift cylinder for support. Do not apply any lifting pressure.

- 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 crane 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.

## Scissor Components

- 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 crane 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 crane 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.

- 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 crane 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.

## Scissor Components

- 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 crane 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 crane 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 **Models with platform overload option:** 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 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

- 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 crane 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 crane 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 crane to the number 1 inner arm (index #8). Do not lift it.

## Scissor Components

- 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.

## How to Replace the Scissor Arm Wear Pads

Note: Machines equipped with a Platform Height Sensor, begin at step 1. Machines without a Platform Height Sensor, begin at step 24.

- 1 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 2 Raise the platform 7 to 8 feet / 2.1 to 2.4 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 control, 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** Electrocutation/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.



## Scissor Components

- 7 Remove the fasteners securing the 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 the ground control position.
- 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.
- 22 Raise the platform and return the safety arm to the stowed position.
- 23 Fully lower the platform to the stowed position.
- 24 Remove the platform. See 10-1, *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.

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.

### **⚠ 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.

### **⚠ CAUTION**

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

## Scissor Components

- 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 crane 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.
- 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.

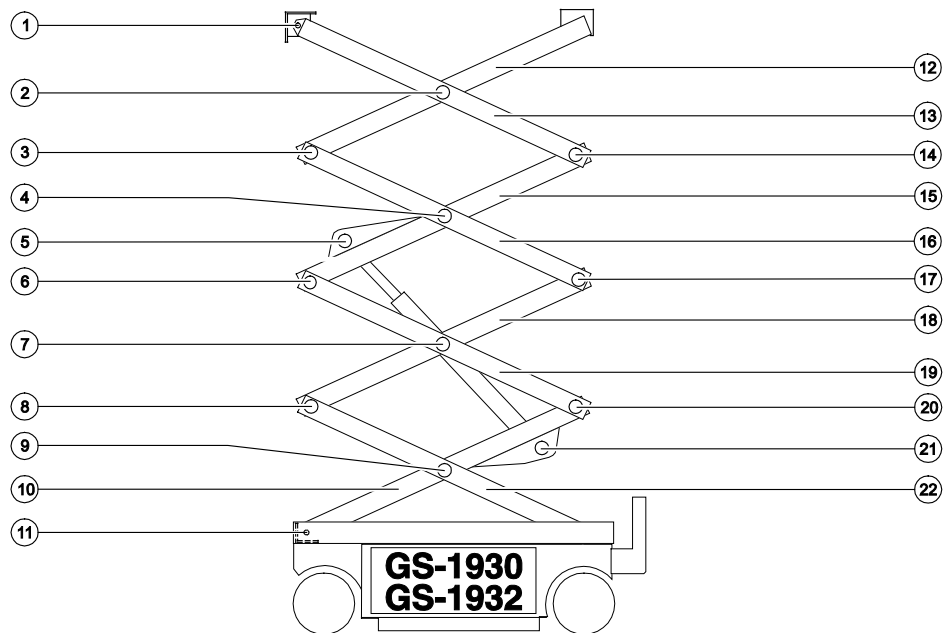
**⚠ DANGER**

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.

## Scissor Components



### Steer End

- 1 - Number 5 pivot pin
- 2 - Number 4 center pivot pin (2 pins)
- 3 - Number 4 pivot pin (steer end)
- 4 - Number 3 center pivot pin (2 pins)
- 5 - Lift cylinder rod-end pivot pin
- 6 - Number 3 pivot pin (steer end)
- 7 - Number 2 center pivot pin (2 pins)
- 8 - Number 2 pivot pin (steer end)
- 9 - Number 1 center pivot pin (2 pins)
- 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

### 9-2

### Scissor Assembly, GS-1930 and GS-1932

#### How to Disassemble the Scissor Assembly, GS-1930 and GS-1932

**⚠ 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.

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

Note: Machines equipped with a Platform Height Sensor, begin the Scissor Disassembly procedure at step 1. Machines without a Platform Height Sensor, begin the Scissor Disassembly procedure at step 24.

- 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 8 feet / 2.1 to 2.4 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** Electrocuting/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.

## Scissor Components

- 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**

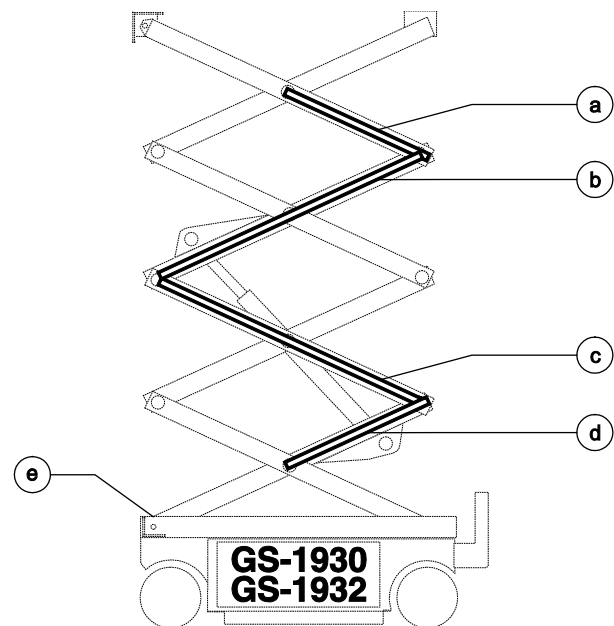
Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 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.

- 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

- a cable bridge 4
- b cable bridge 3
- c cable bridge 2
- d cable bridge 1
- e platform height sensor

## Scissor Components

- 24 Remove the platform. See 10-1, *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.

- 27 Attach a lifting strap from an overhead crane 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 crane 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 crane to the number 3 outer arm (index #4) at the ground controls side.

## Scissor Components

- 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 crane 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.
- 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 crane 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 crane 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.

## Scissor Components

- 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 crane 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.

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



## Scissor Components

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 crane 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 crane 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.

73 Tag and disconnect the wires and manual lowering cable from the solenoid valve on the cylinder.

74 **Models with platform overload option:** 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 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

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.

## Scissor Components

- 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 crane 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 crane 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.

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

## Scissor Components

- 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.

### How to Replace the Scissor Arm Wear Pads

Note: Machines equipped with a Platform Height Sensor, begin at step 1. Machines without a Platform Height Sensor, begin at step 24.

- 1 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 2 Raise the platform 7 to 8 feet / 2.1 to 2.4 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 control, 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** Electrocutation/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

## Scissor Components

- 7 Remove the fasteners securing the 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 the ground control position.
- 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.
- 22 Raise the platform and return the safety arm to the stowed position.
- 23 Fully lower the platform to the stowed position.
- 24 Remove the platform. See 10-1, *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.

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.

### **⚠ 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.

### **⚠ CAUTION**

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

## Scissor Components

- 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 crane 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.
- 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.

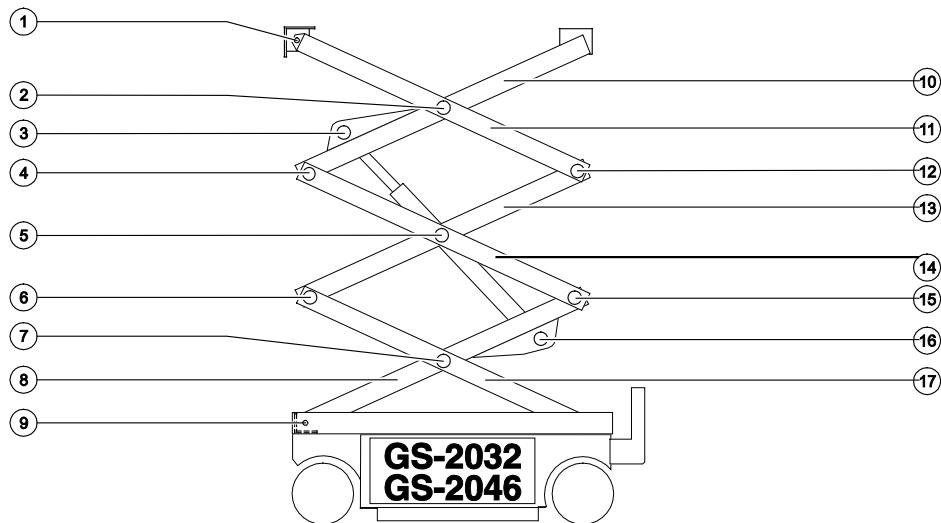
**⚠ DANGER**

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.

## Scissor Components



### Steer End

- 1 - Number 4 pivot pin
- 2 - Number 3 center pivot pin (2 pins)
- 3 - Lift cylinder rod-end pivot pin
- 4 - Number 3 pivot pin (steer end)
- 5 - Number 2 center pivot pin (2 pins)
- 6 - Number 2 pivot pin (steer end)
- 7 - Number 1 center pivot pin (2 pins)
- 8 - Number 1 inner arm
- 9 - Number 1 pivot pin

### Non-steer End

- 10 - Number 3 inner arm
- 11 - Number 3 outer arm
- 12 - Number 3 pivot pin (non-steer end)
- 13 - Number 2 inner arm
- 14 - Number 2 outer arm
- 15 - Number 2 pivot pin (non-steer end)
- 16 - Lift cylinder barrel-end pivot pin
- 17 - Number 1 outer arm

## Scissor Components

### 9-3 Scissor Assembly, GS-2032 and GS-2046

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#### How to Disassemble the Scissor Assembly, GS-2032 and GS-2046

**▲ 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.

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

Note: Machines equipped with a Platform Height Sensor, begin the Scissor Disassembly procedure at step 1. Machines without a Platform Height Sensor, begin the Scissor Disassembly procedure at step 24.

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 8 feet / 2.1 to 2.4 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** Electrocutation/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.

## Scissor Components

- 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**

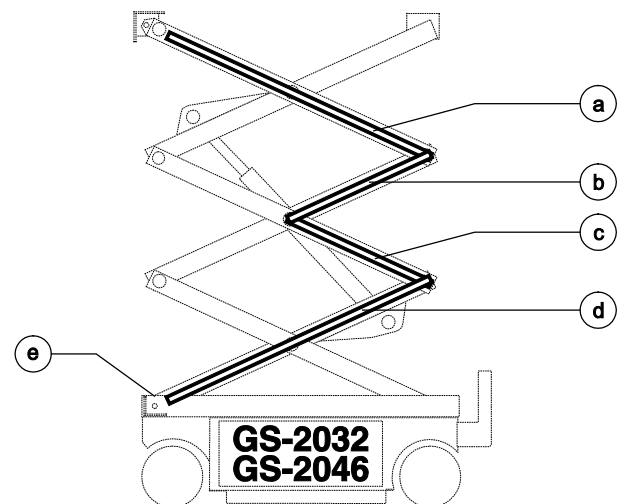
Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 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.

- 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

- a cable bridge 3
- b cable bridge 2A
- c cable bridge 2B
- d cable bridge 1
- e platform height sensor



## Scissor Components

- 24 Remove the platform. See 10-1, *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 crane 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 crane 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.

## Scissor Components

- 40 Attach a lifting strap from an overhead crane 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.

- 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 crane 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 crane 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.

## Scissor Components

- 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 crane 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.

- 59 Attach a lifting strap from an overhead crane 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 crane 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.

## Scissor Components

- 66 Attach a lifting strap from an overhead crane 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 **Models with platform overload option:** 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 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

- 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.

- 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 crane 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.

## Scissor Components

- 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.

### How to Replace the Scissor Arm Wear Pads

Note: Machines equipped with a Platform Height Sensor, begin at step 1. Machines without a Platform Height Sensor, begin at step 24.

- 1 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 2 Raise the platform 7 to 8 feet / 2.1 to 2.4 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 control, 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** Electrocutation/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

## Scissor Components

- 7 Remove the fasteners securing the 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 the ground control position.
- 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 return the safety arm to the stowed position.
- 23 Fully lower the platform to the stowed position.
- 24 Remove the platform. See 10-1, *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.

### **⚠ 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.

### **⚠ CAUTION**

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

## Scissor Components

- 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 crane 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.
- 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.

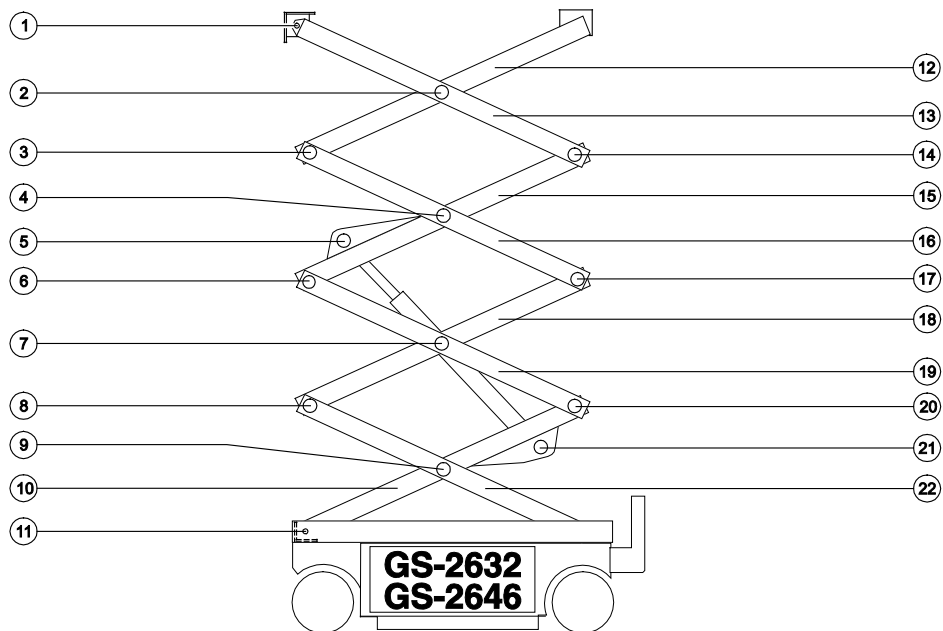
**⚠ DANGER**

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.

## Scissor Components



### Steer End

- 1 - Number 5 pivot pin
- 2 - Number 4 center pivot pin (2 pins)
- 3 - Number 4 pivot pin (steer end)
- 4 - Number 3 center pivot pin (2 pins)
- 5 - Lift cylinder rod-end pivot pin
- 6 - Number 3 pivot pin (steer end)
- 7 - Number 2 center pivot pin (2 pins)
- 8 - Number 2 pivot pin (steer end)
- 9 - Number 1 center pivot pin (2 pins)
- 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

### 9-4 Scissor Assembly, GS-2632 and GS-2646

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#### How to Disassemble the Scissor Assembly, GS-2632 and GS-2646

**▲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.

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

Note: Machines equipped with a Platform Height Sensor, begin the Scissor Disassembly procedure at step 1. Machines without a Platform Height Sensor, begin the Scissor Disassembly procedure at step 24.

- 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 8 feet / 2.1 to 2.4 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** Electrocuting/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.

## Scissor Components

- 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**

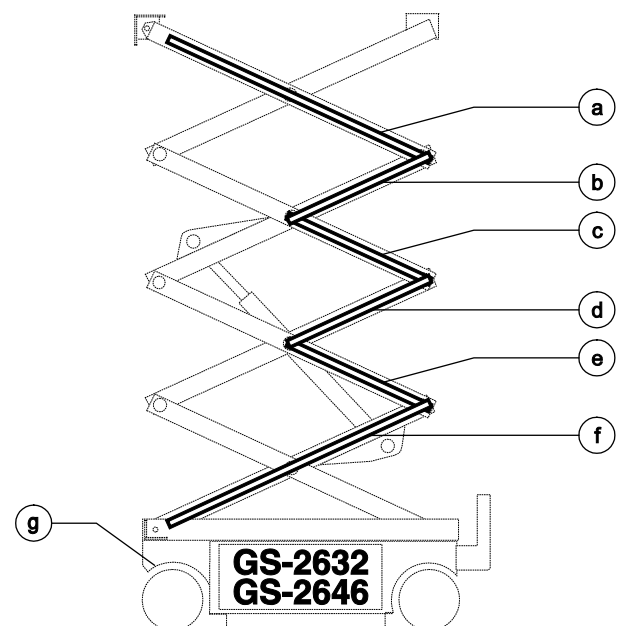
Tip-over hazard. Failure to install the fasteners securing the number 1 inner arm pivot bracket to the chassis, could result in the machine tipping over, causing death or serious injury.

- 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.

- 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

- a cable bridge 4
- b cable bridge 3A
- c cable bridge 3B
- d cable bridge 2A
- e cable bridge 2B
- f cable bridge 1
- g platform height sensor

## Scissor Components

- 24 Remove the platform. See 10-1, *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 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 crane 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 crane 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.

## Scissor Components

- 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 crane 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 crane to the number 3 outer arm at the ground control side (index #16).

- 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 crane to the number 3 outer arm at the battery side (index #16).

## Scissor Components

- 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 crane 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 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 crane 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 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.
- 64 Attach a lifting strap from an overhead crane to the number 2 outer arm at the ground control side (index #19).

## Scissor Components

- 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 crane 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 crane 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.

## Scissor Components

- 76 Attach a lifting strap from an overhead crane 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 crane to the lug of the rod end of the lower lift cylinder.
- 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 **Models with platform overload option:** 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 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

- 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 crane to the number 1 inner arm (index #10).
- 90 Raise the arm slightly and remove the block.

## Scissor Components

- 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.

## How to Replace the Scissor Arm Wear Pads

Note: Machines equipped with a Platform Height Sensor, begin at step 1. Machines without a Platform Height Sensor, begin at step 24.

- 1 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 2 Raise the platform 7 to 8 feet / 2.1 to 2.4 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 control, 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** Electrocuting/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.



## Scissor Components

- 7 Remove the fasteners securing the 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 the ground control position.
- 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.
- 22 Raise the platform and return the safety arm to the stowed position.
- 23 Fully lower the platform to the stowed position.
- 24 Remove the platform. See 10-1, *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.

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.

### **⚠ 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.

### **⚠ CAUTION**

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

## Scissor Components

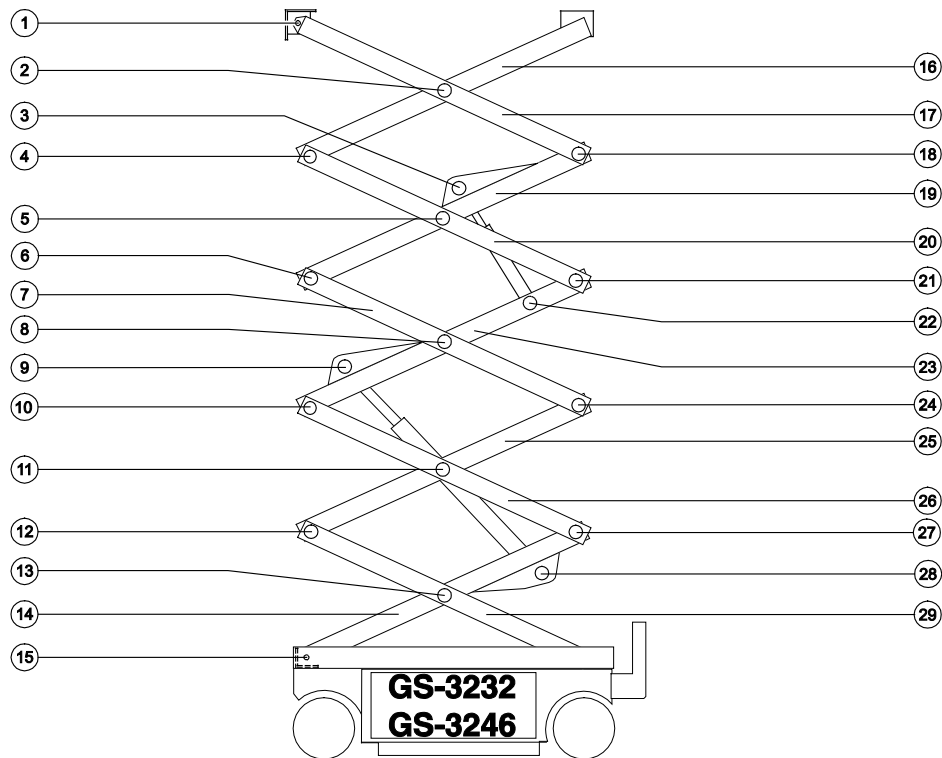
- 27 Secure the ends of the scissor arms together at the steer end of the machine with a strap or other suitable device.
- 28 Secure the ends of the scissor arms together at the non-steer end of the machine with a strap or other suitable device.
- 29 Remove the retaining fasteners securing the chassis mount bracket to the chassis at the steer end of the machine.
- 30 Attach a lifting strap from an overhead crane 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.
- 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.

**⚠ 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.

## Scissor Components



### Steer End

### Non-steer End

- |  |   |
|--|---|
| 1 - Number 6 pivot pin                       | 16 - Number 5 inner arm                       |
| 2 - Number 5 center pivot pin (2 pins)       | 17 - Number 5 outer arm                       |
| 3 - Upper lift cylinder rod-end pivot pin    | 18 - Number 5 pivot pin (non-steer end)       |
| 4 - Number 5 pivot pin (steer end)           | 19 - Number 4 inner arm                       |
| 5 - Number 4 center pivot pin (2 pins)       | 20 - Number 4 outer arm                       |
| 6 - Number 4 pivot pin (steer end)           | 21 - Number 4 pivot pin (non-steer end)       |
| 7 - Number 3 outer arm                       | 22 - Upper lift cylinder barrel-end pivot pin |
| 8 - Number 3 center pivot pin (2 pins)       | 23 - Number 3 inner arm                       |
| 9 - Lower lift cylinder rod-end pivot pin    | 24 - Number 3 pivot pin (non-steer end)       |
| 10 - Number 3 pivot pin (steer end)          | 25 - Number 2 inner arm                       |
| 11 - Number 2 center pivot pin (2 pins)      | 26 - Number 2 outer arm                       |
| 12 - Number 2 pivot pin (steer end)          | 27 - Number 2 pivot pin (non-steer end)       |
| 13 - Number 1 center pivot pin (2 pins)      | 28 - Lower lift cylinder barrel-end pivot pin |
| 14 - Number 1 inner arm                      | 29 - Number 1 outer arm                       |
| 15 - Number 1 pivot pin (steer end) (2 pins) |   |

## Scissor Components

### 9-5 Scissor Assembly, GS-3232 and GS-3246

#### How to Disassemble the Scissor Assembly, GS-3232 and GS-3246

**▲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.

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

Note: Machines equipped with a Platform Height Sensor, begin the Scissor Disassembly procedure at step 1. Machines without a Platform Height Sensor, begin the Scissor Disassembly procedure at step 24.

- 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 8 feet / 2.1 to 2.4 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** Electrocutation/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.

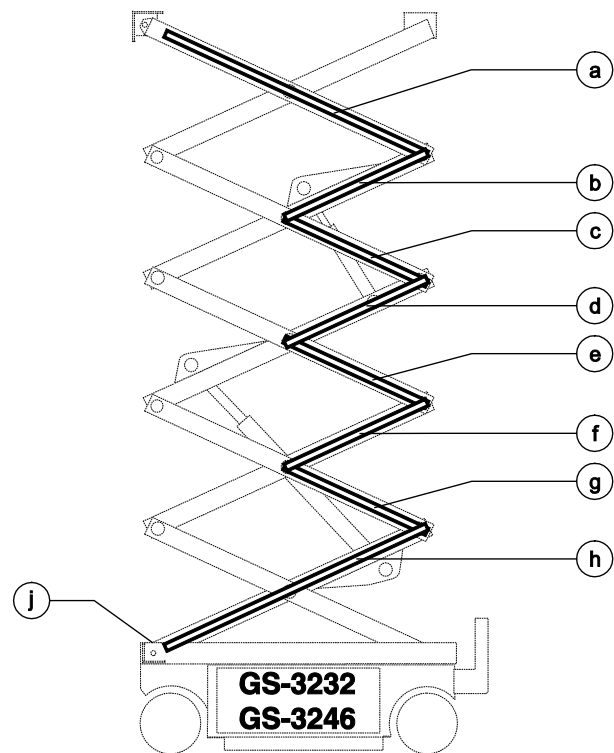
## Scissor Components

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

**⚠ 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.



Cable bridge and platform height sensor

- a cable bridge 5
- b cable bridge 4A
- c cable bridge 4B
- d cable bridge 3A
- e cable bridge 3B
- f cable bridge 2A
- g cable bridge 2B
- h cable bridge 1
- i platform height sensor

## Scissor Components

- 24 Remove the platform. See 10-1, *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 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 crane 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 crane 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.

## Scissor Components

- 40 Attach a lifting strap from an overhead crane 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.

- 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 crane 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 crane 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.

## Scissor Components

- 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 crane 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 crane 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.

- 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.



## Scissor Components

- 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 crane 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 crane 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 crane 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.

## Scissor Components

- 77 Attach a lifting strap from an overhead crane 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).
- 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 crane 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 crane 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.

## Scissor Components

- 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 crane 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 crane 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).
- 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 crane 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).

## Scissor Components

- 102 Lower the scissor arms onto the block that was placed across the

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

- 103 Attach a lifting strap from an overhead crane 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 **Models with platform overload option:** 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 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

- 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 crane to the number 1 inner arm (index #14).

- 112 Raise the arm slightly and remove the block.

- 113 Lower the arm to the stowed position.

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

## Scissor Components

- 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.

### How to Replace the Scissor Arm Wear Pads

Note: Machines equipped with a Platform Height Sensor, begin at step 1. Machines without a Platform Height Sensor, begin at step 24.

- 1 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 2 Raise the platform 7 to 8 feet / 2.1 to 2.4 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 control, 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** Electrocutation/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

## Scissor Components

- 7 Remove the fasteners securing the 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 the ground control position.
- 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.

### **⚠ 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.

### **⚠ CAUTION**

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

## Scissor Components

- 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 crane 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.
- 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.

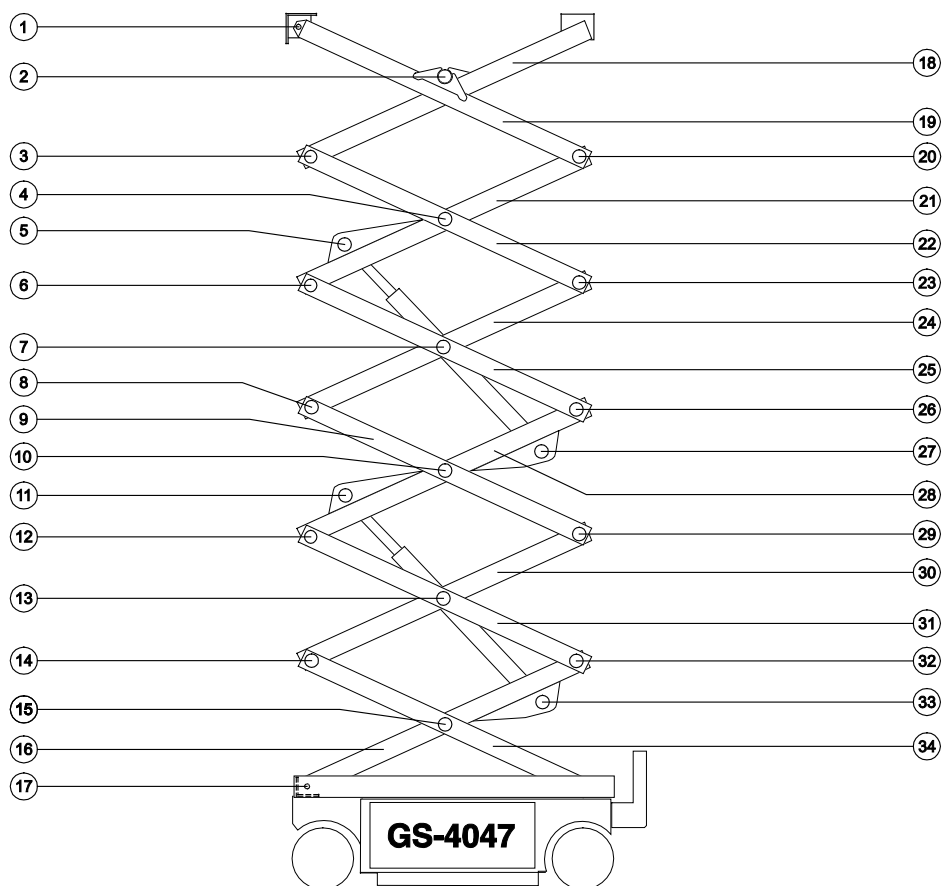
**⚠ DANGER**

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.

# Scissor Components



**Steer End**

**Non-steer End**

1 - Number 7 pivot pin	13 - Number 2 center pivot pin (2 pins)	25 - Number 4 outer arm
2 - Number 6 center pivot pin (2 pins)	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 (2 pins)	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) (2 pins)	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 (2 pins)	19 - Number 6 outer arm	31 - Number 2 outer 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 (2 pins)	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

### 9-6 Scissor Assembly, GS-4047

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#### How to Disassemble the Scissor Assembly, GS-4047

**▲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.

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

Note: Machines equipped with a Platform Height Sensor, begin the Scissor Disassembly procedure at step 1. Machines without a Platform Height Sensor, begin the Scissor Disassembly procedure at step 24.

- 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 8 feet / 2.1 to 2.4 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** Electrocutation/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.

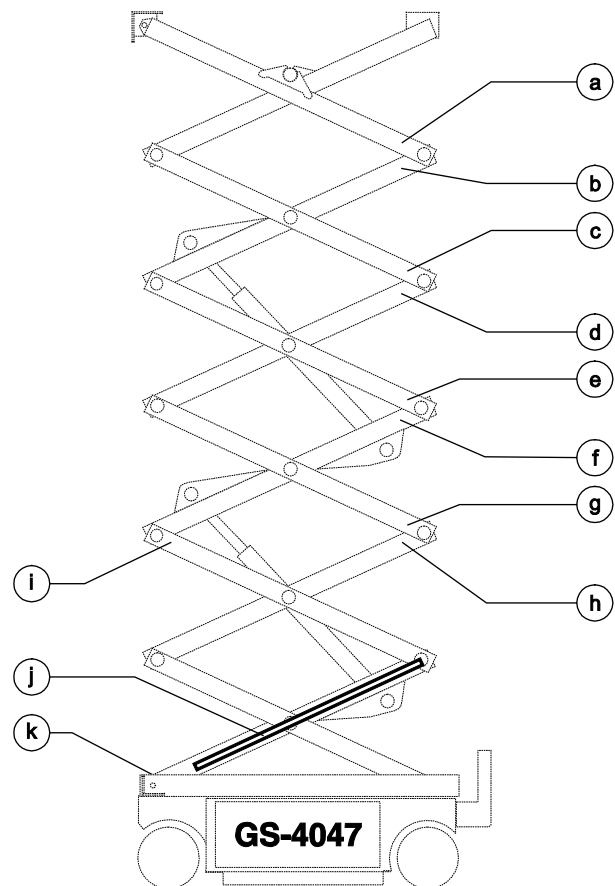
## Scissor Components

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

**⚠ 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.



Cable bridge and platform height sensor

- a number 6 outer link
- b number 5 inner link
- c number 5 outer link
- d number 4 inner link
- e number 4 outer link
- f number 3 inner link
- g number 3 outer link
- h number 2 inner link
- i number 2 outer link
- j number 1 cable bridge
- k platform height sensor

## Scissor Components

- 24 Remove the platform. See 10-1, *How to Remove the Platform*.
- 25 Remove the cables from links a, b and c.
- 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 crane 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.
- 33 Attach a lifting strap from an overhead crane 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.
- 37 Attach a lifting strap from an overhead crane 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 6 outer arm at the ground control side (index #19) may become unbalanced and fall if not properly supported when removed 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.

**CAUTION** Crushing hazard. The number 5 inner arm (index #16) may become unbalanced and fall if not properly supported when removed from the machine.

## Scissor Components

- 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 crane to the number 5 outer arm at the ground control side (index #22).
- 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 crane 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 crane 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.

## Scissor Components

53 Attach a lifting strap from an overhead crane 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 crane 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.

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 crane 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 links d and e.

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

## Scissor Components

- 66 Attach a lifting strap from an overhead crane 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 crane 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 crane 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 crane 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 crane 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 crane 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 crane 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.

## Scissor Components

- 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 crane 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.

- 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 crane 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 crane 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).



## Scissor Components

- 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 crane 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 **Models with platform overload option:** 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 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

- 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.

- 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.

## Scissor Components

113 Attach a lifting strap from an overhead crane 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.

## How to Replace the Scissor Arm Wear Pads

Note: Machines equipped with a Platform Height Sensor, begin at step 1. Machines without a Platform Height Sensor, begin at step 24.

- 1 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.
- 2 Raise the platform 7 to 8 feet / 2.1 to 2.4 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 control, 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** Electrocuting/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

## Scissor Components

- 7 Remove the fasteners securing the 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 the ground control position.
- 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.
- 22 Raise the platform and return the safety arm to the stowed position.
- 23 Fully lower the platform to the stowed position.
- 24 Remove the platform. See 10-1, *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.

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.

### **⚠ 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.

### **⚠ CAUTION**

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

## Scissor Components

- 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 crane 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.

## 9-7

### Platform Height Sensor

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#### How to Disassemble the Platform Height Sensor Assembly (if equipped)

Note: When a Platform Height Sensor Assembly is removed or replaced, the platform overload system must be calibrated. Refer to Repair Procedure 9-10, *How to Calibrate the Platform Overload System (if equipped)* and follow the no load calibration procedure.

- 1 Raise the platform 7 to 8 feet / 2.1 to 2.4 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.

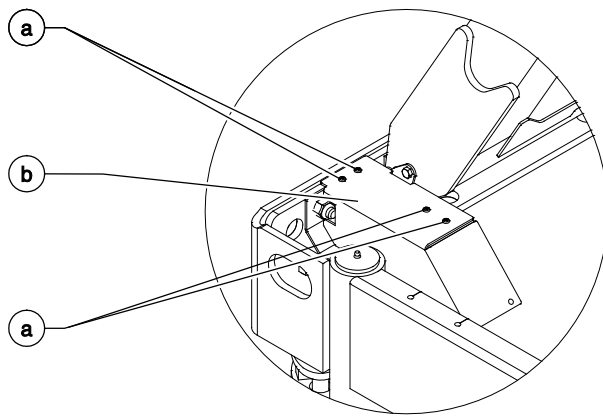
- 4 Turn the key switch to the off position.

## Scissor Components

- 5 Disconnect the battery pack from the machine.

**⚠ WARNING** Electrocutation/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 large platform height sensor cover to the large platform height sensor bracket.
- 7 Remove the platform height sensor cover.



Steer End

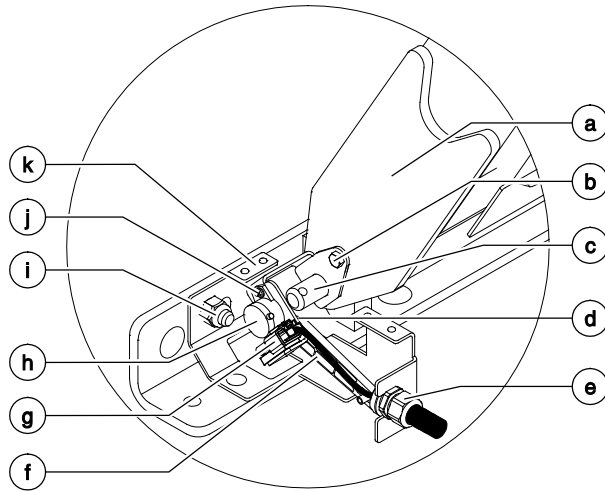
- a fasteners (platform height sensor cover)  
b platform height sensor cover

- 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 platform height sensor assembly from the number 1 pivot pin.
- 11 Remove the set screw securing the lever arm to the platform height sensor.
- 12 Remove the lever arm from the platform height sensor assembly.
- 13 Working with the platform height sensor assembly, remove the Deutsch connector from the plastic clip.
- 14 Remove the fasteners securing the platform height sensor to the small platform height sensor bracket.
- 15 Remove the platform height sensor from the small angle sensor bracket.
- 16 Remove the plastic nut securing the squeeze connector to the large platform height sensor bracket.

## Scissor Components

- 17 Remove the squeeze connector from the large platform height sensor bracket.



Steer End

- a number 1 inner arm
- b fastener (platform height sensor assembly)
- c number 1 pivot pin
- d lever arm retaining screw
- e squeeze connector
- f lever arm
- g platform height sensor harness connection
- h platform height sensor
- i fastener (large platform height sensor bracket)
- j fastener (platform height sensor)
- k platform height sensor assembly

- 18 Remove the fasteners securing the large platform height bracket to the number 1 inner arm pivot bracket.
- 19 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.

## Scissor Components

### 9-8 Lift Cylinder

#### 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.

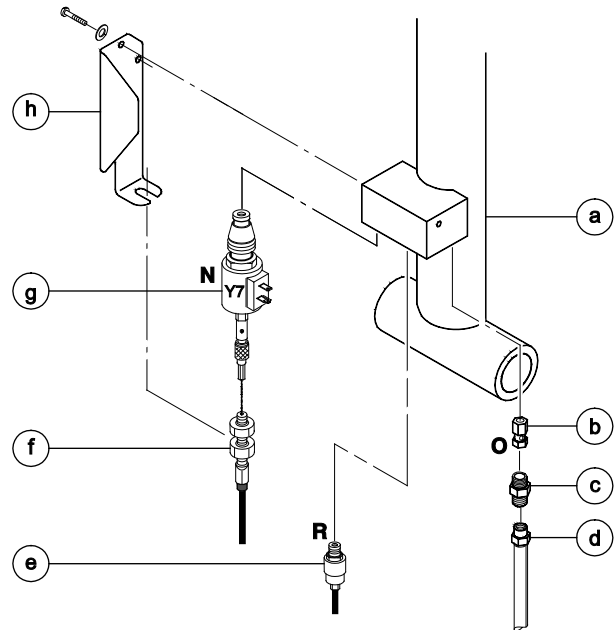
When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

#### GS-1530, GS-1532, GS-1930 and GS-1932:

Note: Models without a pressure transducer follow steps 1 through 23, 27 and 28. Models equipped with a pressure transducer follow steps 1 through 28.

- 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 8 feet / 2.1 to 2.4 m.

- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.



- a lift cylinder
- b orifice (schematic item O)
- c connector fitting
- d hydraulic hose
- e pressure transducer (schematic item R) (if equipped)
- f manual lowering cable
- g solenoid valve (schematic item N)
- h cable mount bracket

## Scissor Components

- 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 at the barrel end of the lift cylinder.
- 9 If equipped, tag and disconnect the three-pin connector from the pressure transducer harness. To remove the pressure transducer refer to Repair Procedure 9-9, *How to Remove the Pressure Transducer (if equipped)*.
- 10 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. See 2-7, *How to Adjust the Manual Platform Lowering Cable*.

- 11 Remove the fasteners securing the manual lowering cable mount bracket to the cylinder. Remove the bracket from the cylinder.
- 12 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.

- 13 Attach a lifting strap from an overhead crane to the rod end of the lift cylinder for support.
- 14 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.

- 15 Lower the cylinder onto the number 2 inner arm.
- 16 Attach a lifting strap from an overhead crane or similar lifting device to the barrel end of the lift cylinder for support.



## Scissor Components

- 17 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.

- 18 Support and secure the lift cylinder to an appropriate lifting device.
- 19 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.

- 20 Install new cylinder, fittings, hoses and pressure transducer (if equipped).

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### Torque specifications

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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

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- 21 Remove the lifting device supporting the link stack at the steer end of the machine.
- 22 Connect the battery pack to the machine.
- 23 Turn the key switch to ground control. **Models without a pressure transducer continue at step 27. Models with a pressure transducer continue at step 24.**
- 24 Press and hold the ground control scroll up and scroll down buttons.
- 25 Pull out the red Emergency Stop button to the on position at the ground controls.
- 26 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.

- 27 Raise the platform and rotate the safety arm to the stowed position.
- 28 Fully lower the platform to the stowed position.

Note: Models with a pressure transducer, calibrate the Platform Overload System. Refer to Repair Procedure 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

## Scissor Components

### GS-2032, GS-2632, GS-2046 and GS-2646

#### **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.

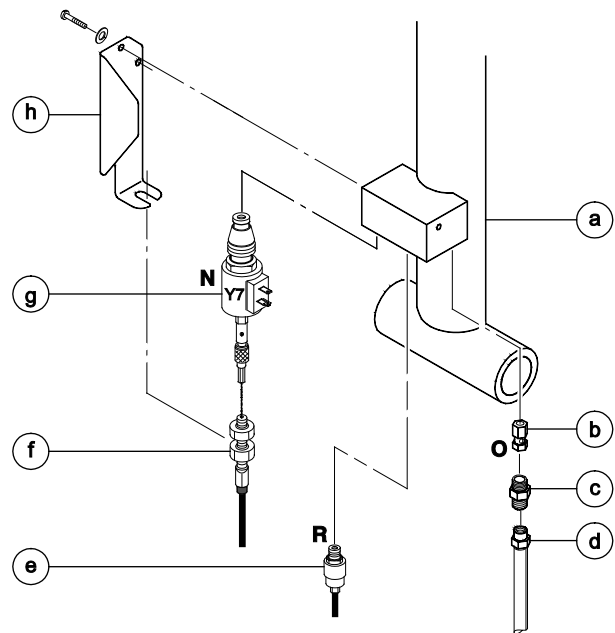
When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

Note: Models without a pressure transducer follow steps 1 through 23, 27 and 28.

Models equipped with a pressure transducer follow steps 1 through 28.

- 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 8 feet / 2.1 to 2.4 m.

- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.



- a lift cylinder
- b orifice (schematic item O)
- c connector fitting
- d hydraulic hose
- e pressure transducer (schematic item R) (if equipped)
- f manual lowering cable
- g solenoid valve (schematic item N)
- h cable mount bracket

## Scissor Components

- 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** Electrocutation/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 at the barrel end of the lift cylinder.
- 9 If equipped, tag and disconnect the three-pin connector from the pressure transducer harness. To remove the pressure transducer refer to Repair Procedure 9-9, *How to Remove the Pressure Transducer (if equipped)*.
- 10 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. See 2-7, *How to Adjust the Manual Platform Lowering Cable*.

- 11 Remove the fasteners securing the manual lowering cable mount bracket to the cylinder. Remove the bracket from the cylinder.

- 12 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.

- 13 Attach a lifting strap from an overhead crane to the rod end of the lift cylinder for support.

- 14 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.

- 15 Lower the cylinder onto the number 1 inner arm cylinder plate.
- 16 Attach a lifting strap from an overhead crane or similar lifting device to the barrel end of the lift cylinder for support.

## Scissor Components

- 17 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.

- 18 Support and secure the lift cylinder to an appropriate lifting device.
- 19 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.

- 20 Install new cylinder, fittings, hoses and pressure transducer (if equipped).

### 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

- 21 Remove the lifting device supporting the link stack at the steer end of the machine.
- 22 Connect the battery pack to the machine.
- 23 Turn the key switch to ground control. **Models without a pressure transducer continue at step 27. Models with a pressure transducer continue at step 24.**
- 24 Press and hold the ground control scroll up and scroll down buttons.
- 25 Pull out the red Emergency Stop button to the on position at the ground controls.
- 26 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.

- 27 Raise the platform and rotate the safety arm to the stowed position.
- 28 Fully lower the platform to the stowed position.

Note: Models with a pressure transducer, calibrate the Platform Overload System. Refer to Repair Procedure 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

## Scissor Components

### GS-3232 and GS-3246

#### **⚠ WARNING**

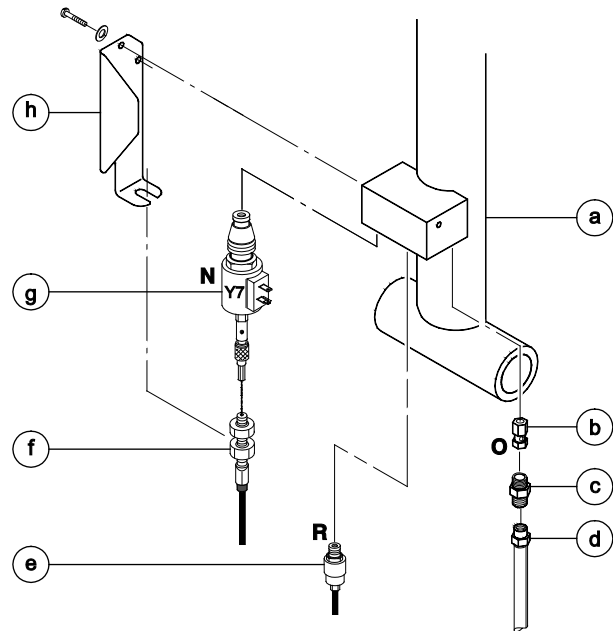
Bodily injury hazard. The procedures in this section require specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

Note: Models without a pressure transducer follow steps 1 through 21, 25 and 26. Models equipped with a pressure transducer follow steps 1 through 26.

- 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 8 feet / 2.1 to 2.4 m.

- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.



- a lift cylinder
- b orifice (schematic item O)
- c connector fitting
- d hydraulic hose
- e pressure transducer (schematic item R) (if equipped)
- f manual lowering cable
- g solenoid valve (schematic item N)
- h cable mount bracket

## Scissor Components

- 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 at the barrel end of the lift cylinder.

### Skip to step 13 if removing the upper cylinder.

- 9 If equipped, tag and disconnect the three-pin connector from the pressure transducer harness. To remove the pressure transducer refer to Repair Procedure 9-9, *How to Remove the Pressure Transducer (if equipped)*.

- 10 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. See 2-7, *How to Adjust the Manual Platform Lowering Cable*.

- 11 Remove the fasteners securing the manual lowering cable mount bracket to the cylinder. Remove the bracket from the cylinder.
- 12 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.

- 13 Attach a lifting strap from an overhead crane or similar lifting device to the barrel end of the lift cylinder for support.
- 14 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.

## Scissor Components

- 15 Lower the cylinder onto the number 1 inner arm cylinder plate.
- 16 Attach a lifting strap from an overhead crane or similar lifting device to the barrel end of the lift cylinder for support.
- 17 Remove the fasteners from the lift cylinder barrel-end pivot pin. Use a soft metal drift to remove the pin.

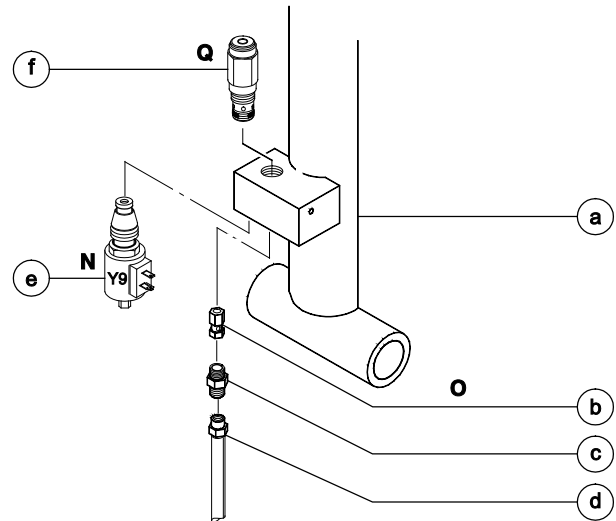
**CAUTION** Crushing hazard. The lift cylinder will fall if not properly supported when the pivot pin is removed.

- 18 Support and secure the lift cylinder to an appropriate lifting device.
- 19 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.

- 20 Install new cylinder, fittings, hoses and pressure transducer (if equipped).



Upper Lift Cylinder

- a lift cylinder
- b orifice fitting (schematic item O)
- c connector fitting
- d hydraulic hose
- e solenoid valve (schematic item N)
- f 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.

### 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
Pressure transducer (if equipped) (schematic item R)	27 ft-lbs 37 Nm

## Scissor Components

- 21 Remove the lifting device supporting the link stack at the steer end of the machine.
  - 22 Connect the battery pack to the machine.
  - 23 Turn the key switch to ground control. **Models without a pressure transducer continue at step 27. Models with a pressure transducer continue at step 24.**
  - 24 Press and hold the ground control scroll up and scroll down buttons.
  - 25 Pull out the red Emergency Stop button to the on position at the ground controls.
  - 26 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.
- 27 Raise the platform and rotate the safety arm to the stowed position.
  - 28 Fully lower the platform to the stowed position.

Note: Models with a pressure transducer, calibrate the Platform Overload System. Refer to Repair Procedure 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

### GS-4047

#### **⚠ 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.

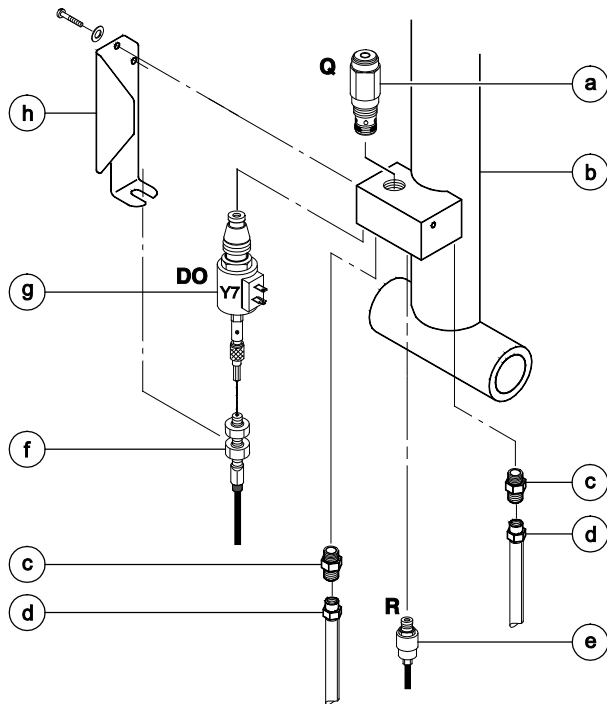
When removing a hose assembly or fitting, the fitting and/or hose end must be torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications*.

- 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 8 feet / 2.1 to 2.4 m.



## Scissor Components

- 3 Lift the safety arm, move it to the center of the scissor arm and rotate down to a vertical position.



- a relieve valve (schematic item Q)
- b lift cylinder
- c connector fitting
- d hydraulic hose
- e pressure transducer (schematic item R) (if equipped)
- f manual lowering cable
- g solenoid valve (schematic item DO)
- h 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 at the barrel end of the lift cylinder.

### Skip to step 13 if removing the upper cylinder.

- 9 If equipped, tag and disconnect the three-pin connector from the pressure transducer harness. To remove the pressure transducer refer to Repair Procedure 9-9, *How to Remove the Pressure Transducer (if equipped)*.

- 10 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. See 2-7, *How to Adjust the Manual Platform Lowering Cable*.

## Scissor Components

- 11 Remove the fasteners securing the manual lowering cable mount bracket to the cylinder. Remove the bracket from the cylinder.
- 12 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.

- 13 Attach a lifting strap from an overhead crane or similar lifting device to the barrel end of the lift cylinder for support.
- 14 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.

- 15 Lower the cylinder onto the number 1 inner arm cylinder plate.
- 16 Attach a lifting strap from an overhead crane or similar lifting device to the barrel end of the lift cylinder for support.

- 17 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.

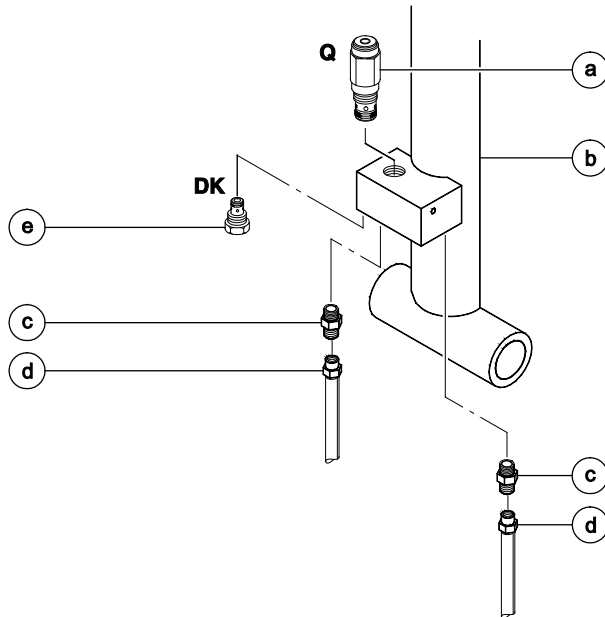
- 18 Support and secure the lift cylinder to an appropriate lifting device.
- 19 Remove the lift cylinder through the scissor arms at the steer end of the machine.

**⚠ 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.

## Scissor Components

- 20 Install new cylinder, fittings, hoses and pressure transducer (if equipped).



Upper Lift Cylinder

- a relief valve (schematic item Q)
- b lift cylinder
- c connector fitting
- d hydraulic hose
- e check valve (schematic item DK)

### 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
Pressure transducer (if equipped) (schematic item R)	27 ft-lbs 37 Nm
Check valve (schematic item DK)	20 ft-lbs 27 Nm

- 21 Remove the lifting device supporting the link stack at the steer end of the machine.
- 22 Connect the battery pack to the machine.
- 23 Turn the key switch to ground controls.
- 24 Press and hold the ground control scroll up and scroll down buttons.
- 25 Pull out the red Emergency Stop button to the on position at the ground controls.

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## Scissor Components

- 26 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.

- 27 Raise the platform and rotate the safety arm to the stowed position.
- 28 Fully lower the platform to the stowed position.

Note: Models with a pressure transducer, calibrate the Platform Overload System. Refer to Repair Procedure 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

### 9-9

## Pressure Transducer

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### How to Remove the Pressure Transducer (if equipped)

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 9-10, *How to Calibrate the Platform Overload System (if equipped)*

- 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 8 feet / 2.1 to 2.4 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.
- 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.

## Scissor Components

- 6 Disconnect the battery pack from the machine.

**⚠ WARNING** Electrocutation/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.

Note: After replacing the pressure transducer, calibrating the platform overload system is not required. If the machine begins to nuisance trip frequently, a no load calibration is recommended. Refer to Repair Procedure 9-10, *How to Calibrate the Platform Overload System (if equipped)*.

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### Torque specifications

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Pressure transducer (if equipped)	27 ft-lbs
(schematic item R)	37 Nm

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## Scissor Components

### 9-10 Platform Overload System

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#### How to Calibrate the Platform Overload System (if equipped)

Perform this procedure with the machine in the stowed position and on a firm, level surface that is free of obstructions.

Personnel are not allowed in the platform while calibrating the platform overload system.

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.

Perform this procedure after confirming that the platform height sensor is not damaged and functions correctly.

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.

Note: 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: 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.

Note: Ambient temperature must be above 32°F / 0°C before calibrating the Platform Overload System.

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 and platform, where the scissor arm wear pads make contact.
- 3 Chock both sides of the wheels at the steer end of the machine.
- 4 Using a suitable lifting device, place a test weight corresponding to the machine maximum load, in the center of the platform deck. Secure the weight to the platform. Refer to the chart below.

GS-1530 and GS-1532	272 kg
GS-1930 and GS-1932	227 kg
GS-2032	363 kg
GS-2632	227 kg
GS-3232	227 kg

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	544 kg
GS-2646	454 kg
GS-3246	317 kg
GS-4047	350 kg

- 5 Turn the key switch to ground control.
- 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 Use the Menu Up or Menu Down buttons to scroll to, Select Option. Press the Enter button.
- 10 Use the Menu Up or Menu Down buttons to scroll to Platform Overload.
- 11 Press the Enter button to select Platform Overload.
- 12 Use the Menu Up or Menu Down buttons to scroll to Platform Overload Calibrate.
- 13 Press the Enter button to select Platform Overload Calibrate.
- 14 Confirm the Platform Overload Calibrate selection by pressing the Enter button again.
- 15 Use the Menu Up or Menu Down buttons to select Full Load calibration.
- 16 Press the Enter button to select Full Load calibration.

## Scissor Components

- 17 Press the Enter button to confirm rated load is in the platform.
  - 18 At the ground controls, press and hold the Function Enable and Platform Up buttons until the platform reaches maximum height.
  - 19 **All Models except GS-4047:** When the platform reaches maximum height, press the ground controls Enter button. Allow the ground controls to gather data.  
**GS-4047 only:** 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. 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 18.
  - 20 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.
  - 21 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:** 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.
  - 22 Using a suitable lifting device, remove the test weight from the platform deck.
  - 23 After the weight is removed from the platform deck, press the Enter button to confirm the weight has been removed.
- ### Full Load Calibration: Part 2
- 24 At the ground controls, press and hold the Function Enable and Platform Up buttons until the platform reaches maximum height.



## Scissor Components

- 25 **All Models except GS-4047:** When the platform reaches maximum height, press the Enter button. Allow the ground controls to gather data. **GS-4047 only:** 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. 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 24.
- 26 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.
- 27 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.
- 28 When prompted, push the red Emergency Stop button in to complete the Platform Overload Calibration procedure.

### No Load Calibration

- 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 Turn the key switch to ground control.
- 5 At the ground controls, press and hold the Menu Up and Menu Down buttons.
- 6 While pressing both buttons down, pull out the red Emergency Stop Button.
- 7 Release the Menu Up and Menu Down buttons after the ground controller powers up.
- 8 At the ground controls, use the Menu Up or Menu Down buttons to scroll to Platform Overload.
- 9 Press the Enter button to select the Platform Overload.
- 10 Use the Menu Up or Menu Down buttons to scroll to Platform Overload Calibrate.
- 11 Press the Enter button to select Platform Overload Calibrate.

## Scissor Components

- 12 Confirm the Platform Overload Calibrate selection by pressing the Enter button again.
- 13 Use the Menu Up or Menu Down buttons to select No Load calibration.
- 14 Press the Enter button to select No Load calibration.
- 15 Press the Enter button to confirm no load is in the platform.
- 16 At the ground controls, press and hold the Function Enable and Platform Up buttons until the platform reaches maximum height.
- 17 **All Models except GS-4047:** When the platform reaches maximum height, press the ground controls Enter button. Allow the ground controls to gather data.  
**GS-4047 only:** 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. 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 16.
- 18 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.
- 19 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.
- 20 When prompted, push the red Emergency Stop button in to complete the No Load Calibration procedure.

## Platform Components

### 10-1 Platform

#### How to Remove the Platform

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** Electrocutation/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** Electrocutation/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-1530/32 and GS-1930/32:** 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.

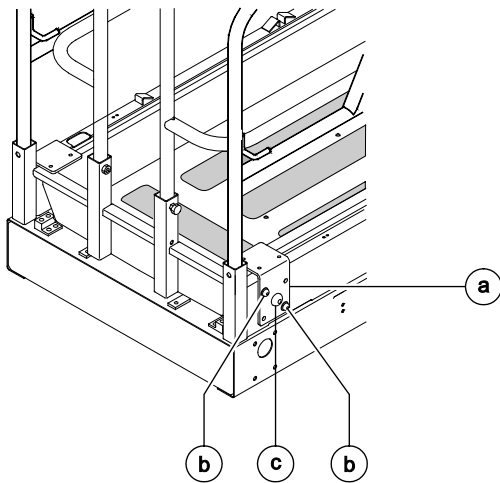
## Platform Components

### 10-2 Platform Extension

#### How to Remove the Platform Extension

- 1 Lower the platform to the stowed position.
- 2 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.



- a roller bracket assembly
- b assembly retaining fastener
- c 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 Wear Pads

- 1 Remove the Platform Extension. See 10-2, *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.

## Diagnosics



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

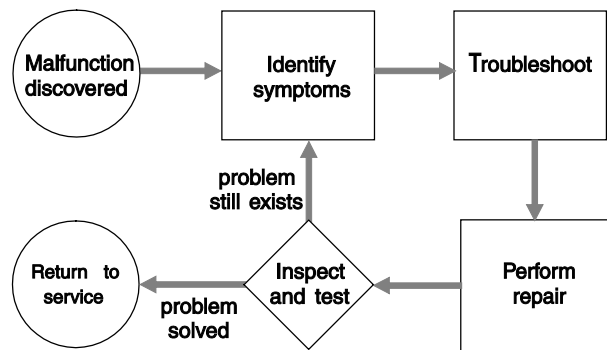
**⚠ WARNING** Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

# Diagnostics

## 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.

## General Repair Process



## Definitions

GSDS – Genie SmartLink™ Diagnostic System

ECM – Electronic Control Module

GCON – Ground Controls

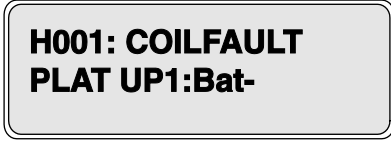
PCON – Platform Controls

OIC – Operational Indicator Codes

DTC – Diagnostic Trouble Codes

# Diagnostics

## GCON LCD Diagnostic Readout



The diagnostic readout displays alpha numeric codes that provide information about the machine operating status and about malfunctions.

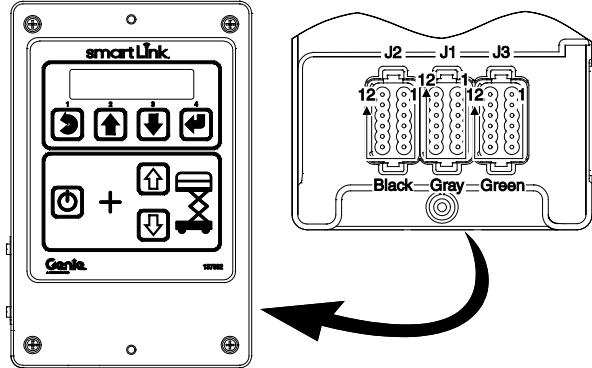
The codes listed in the Diagnostic Trouble Code Charts describe malfunctions and can aid in troubleshooting the machine by pinpointing the area or component affected.

Models are listed below each code to assist in the troubleshooting codes for a specific model.

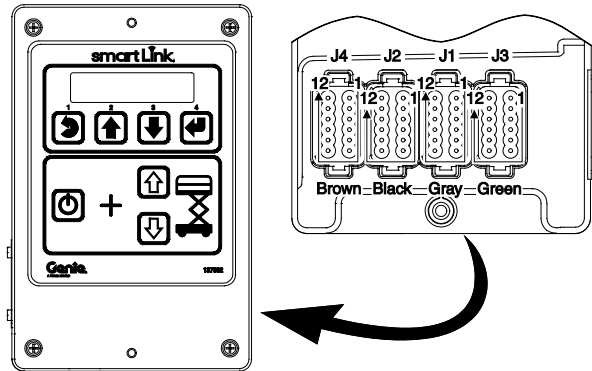
## Genie SmartLink Diagnostic System

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.

## GCON ECM Connector Layout



Rear of Ground Controls ECM (models without outriggers)



Rear of Ground Controls ECM (models with outriggers)

## Diagnostics

<b>GCON I/O Map without Load Sense (all models except GS-3232)</b>			
<b>GCON Pin Number</b>	<b>Circuit Function</b>	<b>I/O Type</b>	<b>Wire Gauge and Color</b>
<b>J1 Connector – Gray</b>			
J1-01	ECM Power	Power Input	14 RD
J1-02	PCON, E-Stop Power	Power Output	18 RD
J1-03	PCON, E-Stop Return	Power Input	18 WH
J1-04	Link to PCON — CANH	Data Bus	18GR
J1-05	Link to PCON — CANL	Data Bus	18 OR
J1-06	PCON — Ground	Ground Output	18 BR
J1-07	GCON — Ground	Ground Input	14 BR
J1-08	Key Switch — PCON Mode	Digital Input	18 BK
J1-09	Key Switch — GCON Mode	Digital Input	18 WH
J1-10	GCON — Emergency Mode	Digital Input	18 WH/BK
J1-11	No Circuit	N/A	N/A
J1-12	Driver Power	Power Input	14 RD
<b>J-2 Connector – Black</b>			
J2-01	Platform Up Coil	Digital Output	18 OR
J2-02	Platform Down Coil	Digital Output	18 OR/BK
J2-03	Steer Left Coil	Digital Output	18 BL/BK
J2-04	Steer Right Coil	Digital Output	18 BL
J2-05	Parallel Coil (GS-32 & GS-46)	Digital Output	18 RD/WH
J2-06	Drive Forward Coil	Digital Output	18 WH
J2-07	No Circuit	N/A	N/A
J2-08	Motor Controller Enable	Digital Output	18 GR/WH
J2-09	No Circuit	N/A	N/A
J2-10	Drive Reverse Coil	Digital Output	18 WH/BK
J2-11	Motor Controller Throttle	Analog Output	18 GR
J2-12	No Circuit	N/A	N/A
<b>J-3 Connector – Green</b>			
J3-01	No Circuit	N/A	N/A
J3-02	GCON — Alarm	Digital Output	18 BL
J3-03	Switch/Sensor Power	Digital Output	14 RD
J3-04	Automotive Horn	Digital Output	18 WH
J3-05	Pothole Limit Switch	Digital Input	18 OR/RD
J3-06	Ground	Ground Input	18 BR
J3-07	Down Limit Switch	Digital Input	18 OR
J3-08	Level Sensor	Digital Input	18 RD/BK
J3-09	Ground	Ground Input	18 BK
J3-10	Ground	Ground Input	18 BK
J3-11	No Circuit	N/A	N/A
J3-12	Load Sense — Ground	Ground Input	18 BK





# Diagnostics

<b>GCON I/O Map with Load Sense (all model except GS-3232)</b>			
<b>GCON Pin Number</b>	<b>Circuit Function</b>	<b>I/O Type</b>	<b>Wire Gauge and Color</b>
<b>J1 Connector – Gray</b>			
J1-01	ECM Power	Power Input	14 RD
J1-02	PCON, E-Stop Power	Power Output	18 RD
J1-03	PCON, E-Stop Return	Power Input	18 WH
J1-04	Link to PCON — CANH	Data Bus	18GR
J1-05	Link to PCON — CANL	Data Bus	18 OR
J1-06	PCON — Ground	Ground Output	18 BR
J1-07	GCON — Ground	Ground Input	14 BR
J1-08	Key Switch — PCON Mode	Digital Input	18 BK
J1-09	Key Switch — GCON Mode	Digital Input	18 WH
J1-10	GCON — Emergency Mode	Digital Input	18 WH/BK
J1-11	No Circuit	N/A	N/A
J1-12	Driver Power	Power Input	14 RD
<b>J-2 Connector – Black</b>			
J2-01	Platform Up Coil	Digital Output	18 OR
J2-02	Platform Down Coil	Digital Output	18 OR/BK
J2-03	Steer Left Coil	Digital Output	18 BL/BK
J2-04	Steer Right Coil	Digital Output	18 BL
J2-05	Parallel Coil (GS-32, GS-46 & GS-47)	Digital Output	18 RD/WH
J2-06	Drive Forward Coil	Digital Output	18 WH
J2-07	Ground (GS-4047)	Ground Input	18 BR
J2-08	Motor Controller Enable	Digital Output	18 GR/WH
J2-09	Lift Pressure Selector (GS-4047)	N/A	N/A
J2-10	Drive Reverse Coil	Digital Output	18 WH/BK
J2-11	Motor Controller Throttle	Analog Output	18 GR
J2-12	No Circuit	N/A	N/A
<b>J-3 Connector – Green</b>			
J3-01	No Circuit	N/A	N/A
J3-02	GCON — Alarm	Digital Output	18 BL
J3-03	Switch/Sensor Power	Digital Output	14 RD
J3-04	Automotive Horn	Digital Output	18 WH
J3-05	Pothole Limit Switch	Digital Input	18 OR/RD
J3-06	Ground	Ground Input	18 BR
J3-07	Down Limit Switch	Digital Input	18 OR
J3-08	Level Sensor	Digital Input	18 RD/BK
J3-09	Platform Overload Pressure Transducer	Ground Input	18 BL/WH
J3-10	Platform Height Sensor	Ground Input	18 OR/WH
J3-11	No Circuit	N/A	N/A
J3-12	Load Sense — Ground	Ground Input	18 BK



## Diagnostics

GCON I/O Map without Load Sense (GS-3232 only)			
GCON Pin Number	Circuit Function	I/O Type	Wire Gauge and Color
<b>J1 Connector – Gray</b>			
J1-01	ECM Power	Power Input	14 RD
J1-02	PCON, E-Stop Power	Power Output	18 RD
J1-03	PCON, E-Stop Return	Power Input	18 WH
J1-04	Link to PCON — CANH	Data Bus	18GR
J1-05	Link to PCON — CANL	Data Bus	18 OR
J1-06	PCON — Ground	Ground Output	18 BR
J1-07	GCON — Ground	Ground Input	14 BR
J1-08	Key Switch — PCON Mode	Digital Input	18 BK
J1-09	Key Switch — GCON Mode	Digital Input	18 WH
J1-10	GCON — Emergency Mode	Digital Input	18 WH/BK
J1-11	No Circuit	N/A	N/A
J1-12	Driver Power	Power Input	14 RD
<b>J-2 Connector – Black</b>			
J2-01	Platform Up Coil	Digital Output	18 OR
J2-02	Platform Down Coil	Digital Output	18 OR/BK
J2-03	Steer Left Coil	Digital Output	18 BL/BK
J2-04	Steer Right Coil	Digital Output	18 BL
J2-05	Parallel Coil (GS-32 & GS-46)	Digital Output	18 RD/WH
J2-06	Drive Forward Coil	Digital Output	18 WH
J2-07	No Circuit	N/A	N/A
J2-08	Motor Controller Enable	Digital Output	18 GR/WH
J2-09	No Circuit	N/A	N/A
J2-10	Drive Reverse Coil	Digital Output	18 WH/BK
J2-11	Motor Controller Throttle	Analog Output	18 GR
J2-12	No Circuit	N/A	N/A

# Diagnostics

<b>GCON I/O Map without Load Sense (GS-3232 only) continued</b>			
<b>GCON Pin Number</b>	<b>Circuit Function</b>	<b>I/O Type</b>	<b>Wire Gauge and Color</b>
<b>J-3 Connector – Green</b>			
J3-01	No Circuit	N/A	N/A
J3-02	GCON — Alarm	Digital Output	18 BL
J3-03	Switch/Sensor Power	Digital Output	14 RD
J3-04	Automotive Horn	Digital Output	18 WH
J3-05	Pothole Limit Switch	Digital Input	18 OR/RD
J3-06	Ground	Ground Input	18 GR
J3-07	Down Limit Switch	Digital Input	18 OR
J3-08	Level Sensor	Digital Input	18 RD/BK
J3-09	Ground	Ground Input	18 BK
J3-10	Ground	Ground Input	18 BK
J3-11	No Circuit	N/A	N/A
J3-12	Load Sense — Ground	Ground Input	18 BK
<b>J-4 Connector – Brown</b>			
J4-01	Left Front Pressure Transducer	Analog Input	18 WH
J4-02	Right Front Pressure Transducer	Analog Input	18 OR
J4-03	Left Rear Pressure Transducer	Analog Input	18 BL
J4-04	Right Rear Pressure Transducer	Analog Input	18 GR
J4-05	Lever Sensor — X Axis	Analog Input	18 OR
J4-06	Lever Sensor — Y Axis	Analog Input	18 BR
J4-07	Left Front Outrigger Coil	Digital Output	18 RD/WH
J4-08	Right Front Outrigger Coil	Digital Output	18 OR/WH
J4-09	Left Rear Outrigger Coil	Digital Output	18 BL/WH
J4-10	Right Rear Outrigger Coil	Digital Output	18 GR/WH
J4-11	Outrigger Extend Coil	Digital Output	18 GR
J4-12	Outrigger Retract Coil	Digital Output	18 GR/BK

## Diagnostics

GCON I/O Map with Load Sense (GS-3232 only)			
GCON Pin Number	Circuit Function	I/O Type	Wire Gauge and Color
<b>J1 Connector – Gray</b>			
J1-01	ECM Power	Power Input	14 RD
J1-02	PCON, E-Stop Power	Power Output	18 RD
J1-03	PCON, E-Stop Return	Power Input	18 WH
J1-04	Link to PCON — CANH	Data Bus	18GR
J1-05	Link to PCON — CANL	Data Bus	18 OR
J1-06	PCON — Ground	Ground Output	18 BR
J1-07	GCON — Ground	Ground Input	14 BR
J1-08	Key Switch — PCON Mode	Digital Input	18 BK
J1-09	Key Switch — GCON Mode	Digital Input	18 WH
J1-10	GCON — Emergency Mode	Digital Input	18 WH/BK
J1-11	No Circuit	N/A	N/A
J1-12	Driver Power	Power Input	14 RD
<b>J-2 Connector – Black</b>			
J2-01	Platform Up Coil	Digital Output	18 OR
J2-02	Platform Down Coil	Digital Output	18 OR/BK
J2-03	Steer Left Coil	Digital Output	18 BL/BK
J2-04	Steer Right Coil	Digital Output	18 BL
J2-05	Parallel Coil (GS-32, GS-46 & GS-47)	Digital Output	18 RD/WH
J2-06	Drive Forward Coil	Digital Output	18 WH
J2-07	Ground (GS-4047)	Ground Input	18 BR
J2-08	Motor Controller Enable	Digital Output	18 GR/WH
J2-09	Lift Pressure Selector (GS-4047)	N/A	N/A
J2-10	Drive Reverse Coil	Digital Output	18 WH/BK
J2-11	Motor Controller Throttle	Analog Output	18 GR
J2-12	No Circuit	N/A	N/A

# Diagnostics

<b>GCON I/O Map with Load Sense (GS-3232 only) continued</b>			
<b>GCON Pin Number</b>	<b>Circuit Function</b>	<b>I/O Type</b>	<b>Wire Gauge and Color</b>
<b>J-3 Connector – Green</b>			
J3-01	No Circuit	N/A	N/A
J3-02	GCON — Alarm	Digital Output	18 BL
J3-03	Switch/Sensor Power	Digital Output	14 RD
J3-04	Automotive Horn	Digital Output	18 WH
J3-05	Pothole Limit Switch	Digital Input	18 OR/RD
J3-06	Ground	Ground Input	18 GR
J3-07	Down Limit Switch	Digital Input	18 OR
J3-08	Level Sensor	Digital Input	18 RD/BK
J3-09	Platform Overload Pressure Transducer	Ground Input	18 BL/WH
J3-10	Platform Height Sensor	Ground Input	18 OR/WH
J3-11	No Circuit	N/A	N/A
J3-12	Load Sense — Ground	Ground Input	18 BK
<b>J-4 Connector – Brown</b>			
J4-01	Left Front Pressure Transducer	Analog Input	18 WH
J4-02	Right Front Pressure Transducer	Analog Input	18 OR
J4-03	Left Rear Pressure Transducer	Analog Input	18 BL
J4-04	Right Rear Pressure Transducer	Analog Input	18 GR
J4-05	Lever Sensor — X Axis	Analog Input	18 OR
J4-06	Lever Sensor — Y Axis	Analog Input	18 BR
J4-07	Left Front Outrigger Coil	Digital Output	18 RD/WH
J4-08	Right Front Outrigger Coil	Digital Output	18 OR/WH
J4-09	Left Rear Outrigger Coil	Digital Output	18 BL/WH
J4-10	Right Rear Outrigger Coil	Digital Output	18 GR/WH
J4-11	Outrigger Extend Coil	Digital Output	18 GR
J4-12	Outrigger Retract Coil	Digital Output	18 GR/BK

## Diagnostics

### Operation Indicator Codes (OIC)

These codes are generated by the electrical system to indicate machine operating status such as Off-level, Overload Cutout, Chassis Mode Operation and Pothole Guard Stuck, during normal operation. These codes are not indicators of a device malfunction in the electrical system.

Code	Condition
LL	Off-Level
OL	Platform Overloaded (CE and Australia)
CH	Chassis Mode Operation
PHS	Pothole Guard Stuck
nd	No Drive (option)
Ld	Lifting Disabled (GS-3232 only)

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.

### 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.

# Diagnostics

## Troubleshooting "HXXX" and "PXXX" Faults

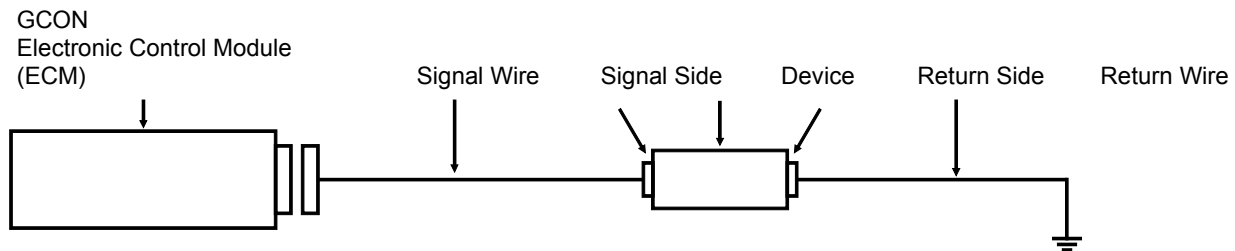
The procedure below illustrates typical steps for diagnosing and fixing faults of type "HXXX" and "PXXX".

### Diagnostic Chart

1	Check the faulted device for a short or open circuit.	<b>No Good</b> →	Replace faulted device.
<b>Good ↓</b>			
2	Check short or open circuit of the harness or connector between Ground Controls and faulted device.	<b>No Good</b> →	Repair or replace harness an/or connector.
<b>Good ↓</b>			
3	Check GCON Electronic Control Module (ECM).	<b>No Good</b> →	Replace ECM.

### Wiring Diagram

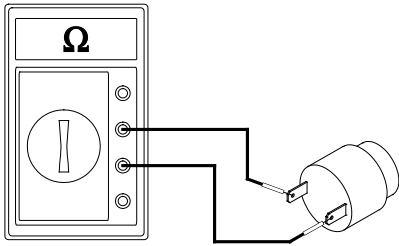
The wiring diagram shown below illustrates how fault type "HXXX" and "PXXX" devices are typically wired. The signal of these types of devices originates at the Ground Controls and terminates at system ground.

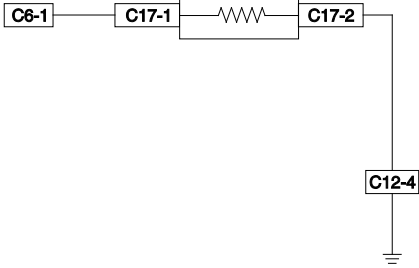


In order to successfully troubleshoot "HXXX" or "PXXX" type faults, the entire faulted out circuit must be investigated.

# Diagnostics

## Fault Inspection Procedure

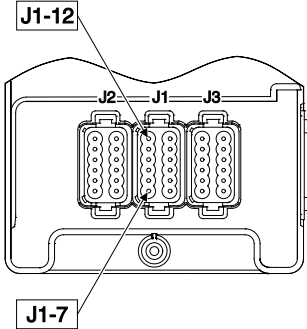
<b>1</b>	<b>Check the device associated with the faulted circuit</b>																						
	<ol style="list-style-type: none"> <li>1 Disconnect the faulted device connector.</li> <li>2 Using a multi-meter, measure resistance between the two terminals of the faulted device.</li> <li>3 Resistance should be as follows.</li> </ol> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Device</th> <th style="text-align: right;">Typical Resistance</th> </tr> </thead> <tbody> <tr> <td>Solenoid Valve, Drive</td> <td style="text-align: right;">27.2 Ω</td> </tr> <tr> <td>Solenoid Valve, Steer</td> <td style="text-align: right;">19 Ω</td> </tr> <tr> <td>Solenoid Valve, Platform Up</td> <td style="text-align: right;">25 Ω</td> </tr> <tr> <td>Solenoid Valve, Platform Down</td> <td style="text-align: right;">6.25 Ω</td> </tr> <tr> <td>GCON and PCON Alarm</td> <td style="text-align: right;">&gt;1M Ω</td> </tr> <tr> <td>Automotive Horn</td> <td style="text-align: right;">1.0 Ω</td> </tr> <tr> <td>Motor Controller – Enable</td> <td style="text-align: right;">5.7k Ω</td> </tr> <tr> <td>Motor Controller – Throttle</td> <td style="text-align: right;">5.7k Ω</td> </tr> <tr> <td>Contacting Coil</td> <td style="text-align: right;">47 Ω</td> </tr> </tbody> </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	Contacting Coil	47 Ω
	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																						
Contacting Coil	47 Ω																						
<b>OK</b>	<b>Go to step 2</b>	<b>No Good</b>	<b>Replace faulted device</b>																				

<b>2</b>	<b>Check the harness between the ground controls and the faulted device</b>		
	<ol style="list-style-type: none"> <li>1 Disconnect the GCON ECM connectors, J1, J2 and J3.</li> <li>2 Disconnect the faulted device connector.</li> <li>3 Check the continuity between the GCON ECM connector and the signal side of the faulted device.</li> </ol> <ul style="list-style-type: none"> <li>⊙ Result: Resistance should be close to 0 Ω</li> </ul> <ol style="list-style-type: none"> <li>4 Check the continuity between the return side of faulted device and system ground.</li> </ol> <ul style="list-style-type: none"> <li>⊙ Result: Resistance should be close to 0 Ω</li> </ul> <ol style="list-style-type: none"> <li>5 Check resistance between return side and signal side of the harness plug of faulted device.</li> </ol> <ul style="list-style-type: none"> <li>⊙ Result: Resistance should be 1M Ω or higher.</li> </ul>		
	<b>OK</b>	<b>Go to step 3</b>	<b>No Good</b>





# Diagnosics

<b>3</b>	<b>Check the GCON ECM</b>	
	<ol style="list-style-type: none"> <li>1 Disconnect the GCON ECM connectors, J1, J2 and J3.</li> <li>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.</li> <li>3 Short to ground resistance should be greater than 5k <math>\Omega</math>.</li> <li>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.</li> <li>5 Short to power resistance should be greater than 50k <math>\Omega</math>.</li> </ol>	
	<b>No Good</b>	<b>Replace GCON ECM</b>

# Diagnostics

## Type "HXXX" Faults

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
H001: GS30, GS32, GS46 & GS47	H001:COILFAULT PLAT UP1:BAT-	Short circuit of the platform up #1 circuit to battery negative.	<ul style="list-style-type: none"> <li>Short circuit in platform up #1 harness</li> <li>Platform up #1 coil short circuit</li> <li>GCON ECM</li> </ul>	Platform up function inhibited.
H002: GS30, GS32, GS46 & GS47	H002:COILFAULT PLAT UP1:OPEN	Open circuit in the platform up #1 circuit.	<ul style="list-style-type: none"> <li>Short circuit in platform up #1 harness</li> <li>Platform up #1 coil open circuit</li> <li>GCON ECM</li> </ul>	Platform up function inhibited.
H003: GS30, GS32, GS46 & GS47	H003:COILFAULT PLAT UP1:BAT+	Short circuit of the platform up #1 circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in platform up #1 harness</li> <li>Platform up #1 coil short circuit</li> <li>GCON ECM</li> </ul>	All functions inhibited except platform down.
H009: GS30, GS32, GS46 & GS47	H009:COILFAULT PLAT DOWN1:BAT+	Short circuit of the platform down #1 circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in platform up #1 harness</li> <li>Platform up #1 coil short circuit</li> <li>GCON ECM</li> </ul>	All functions inhibited.
H013: GS30, GS32, GS46 & GS47	H013:COILFAULT DRIVE FWD1:BAT-	Short circuit of the drive forward #1 circuit to battery negative.	<ul style="list-style-type: none"> <li>Short circuit in drive forward #1 harness</li> <li>Drive forward #1 coil short circuit</li> <li>GCON ECM</li> </ul>	Drive forward function inhibited.
H014: GS30, GS32, GS46 & GS47	H014:COILFAULT DRIVE FWD1:OPEN	Open circuit in the drive forward #1 circuit.	<ul style="list-style-type: none"> <li>Open circuit in drive forward #1 harness</li> <li>Drive forward #1 coil open circuit</li> <li>GCON ECM</li> </ul>	Drive forward function inhibited.
H015: GS30, GS32, GS46 & GS47	H015:COILFAULT DRIVE FWD1:BAT+	Short circuit of the drive forward #1 circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in drive forward #1 harness</li> <li>Drive forward #1 coil short circuit</li> <li>GCON ECM</li> </ul>	All functions inhibited except platform down.
H019: GS30, GS32, GS46 & GS47	H019:COILFAULT DRIVE REV1:BAT-	Short circuit of the drive forward #1 circuit to battery negative.	<ul style="list-style-type: none"> <li>Short circuit in drive reverse #1 harness</li> <li>Drive reverse #1 coil short circuit</li> <li>GCON ECM</li> </ul>	Drive reverse function inhibited.
H020: GS30, GS32, GS46 & GS47	H020:COILFAULT DRIVE REV1:OPEN	Open circuit in the drive reverse #1 circuit.	<ul style="list-style-type: none"> <li>Short circuit in drive reverse #1 harness</li> <li>Drive reverse #1 coil open circuit</li> <li>GCON ECM</li> </ul>	Drive reverse function inhibited.
H021: GS30, GS32, GS46 & GS47	H021:COILFAULT DRIVE REV1:BAT+	Short circuit of the drive reverse #1 circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in drive reverse #1 harness</li> <li>Drive reverse #1 coil short circuit</li> <li>GCON ECM</li> </ul>	All functions inhibited except platform down.
H027: GS30, GS32, GS46 & GS47	H027:COILFAULT DRIVE STEER RIGHT:BAT+	Short circuit of the steer right circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in steer right harness</li> <li>Steer right coil short circuit</li> <li>GCON ECM</li> </ul>	All functions inhibited except platform down.
H030: GS30, GS32, GS46 & GS47	H030:COILFAULT DRIVE STEER LEFT:BAT+	Short circuit of the steer left circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in steer left harness</li> <li>Steer left coil short circuit</li> <li>GCON ECM</li> </ul>	All functions inhibited except platform down.
H033: GS30, GS32, GS46 & GS47	H033:COILFAULT HI/LO SPEED:BAT+	Short circuit of the hi/lo speed coil to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in Hi/Lo speed coil harness</li> <li>Hi/Lo speed coil short circuit</li> <li>GCON ECM</li> </ul>	Hi/Lo speed coil disabled. Machine will operate in low speed mode.

# Diagnostics

## Type "HXXX" Faults, continued

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
<b>H049:</b> GS-3232	H049:COILFAULT O/R EXTEND:BAT-	Short circuit of the outrigger extend coil to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in outrigger extend coil harness</li> <li>• Outrigger extend coil short circuit</li> <li>• GCON ECM</li> </ul>	Only outrigger extend function disabled.
<b>H050:</b> GS-3232	H050:COILFAULT O/R EXTEND:OPEN	Open circuit in the outrigger extend coil circuit.	<ul style="list-style-type: none"> <li>• Open circuit in outrigger extend coil harness</li> <li>• Outrigger extend coil open circuit</li> <li>• GCON ECM</li> </ul>	Only outrigger extend function disabled.
<b>H051:</b> GS-3232	H051:COILFAULT O/R EXTEND:BAT+	Short circuit of the outrigger extend coil to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in outrigger extend coil harness</li> <li>• Outrigger extend coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down.
<b>H052:</b> GS-3232	H052:COILFAULT O/R RETRACT:BAT-	Short circuit of the outrigger retract coil to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in outrigger retract coil harness</li> <li>• Outrigger retract coil short circuit</li> <li>• GCON ECM</li> </ul>	Only outrigger retract function disabled.
<b>H053:</b> GS-3232	H053:COILFAULT O/R RETRACT:OPEN	Open circuit in the outrigger retract coil circuit.	<ul style="list-style-type: none"> <li>• Open circuit in outrigger retract coil harness</li> <li>• Outrigger retract coil open circuit</li> <li>• GCON ECM</li> </ul>	Only outrigger retract function disabled.
<b>H054:</b> GS-3232	H054:COILFAULT O/R RETRACT:BAT+	Short circuit of the outrigger retract coil to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in outrigger retract coil harness</li> <li>• Outrigger retract coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down.
<b>H057:</b> GS-3232	H057:COILFAULT LF RIGGER:BAT+	Short circuit of the left front outrigger coil to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in left front outrigger coil harness</li> <li>• Left front outrigger coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down.
<b>H060:</b> GS-3232	H060:COILFAULT LR RIGGER:BAT+	Short circuit of the left rear outrigger coil to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in left rear outrigger coil harness</li> <li>• Left rear outrigger coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down.
<b>H063:</b> GS-3232	H063:COILFAULT RF RIGGER:BAT+	Short circuit of the right front outrigger coil to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in right front outrigger coil harness</li> <li>• Right front outrigger coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down.
<b>H066:</b> GS-3232	H066:COILFAULT RR RIGGER:BAT+	Short circuit of the right rear outrigger coil to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in right rear outrigger coil harness</li> <li>• Right rear outrigger coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down.
<b>H067:</b> GS30, GS32, GS46 & GS47	H067:FAULT MC ENABLE:BAT-	Short circuit of the motor controller circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in motor controller enable wire</li> <li>• Motor Controller</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down.
<b>H069:</b> GS30, GS32, GS46 & GS47	H069:FAULT MC ENABLE:BAT+	Short circuit of the motor controller circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in motor controller enable wire</li> <li>• Motor Controller</li> <li>• GCON ECM</li> <li>• Contactor Coil</li> </ul>	All functions inhibited except platform down.
<b>H070:</b> GS30, GS32, GS46 & GS47	H070:FAULT MC THROTTLE:BAT-	Short circuit of the motor controller throttle circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in motor controller throttle wire</li> <li>• Motor Controller</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down.

# Diagnostics

## Type "HXXX" Faults, continued

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
<b>H072:</b> GS30, GS32, GS46 & GS47	H072:FAULT MC THROTTLE:BAT+	Short circuit of the motor controller throttle circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in motor controller throttle wire</li> <li>• Motor Controller</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down.
<b>H074:</b> GS-3232	H074:COILFAULT LF RIGGER	Short circuit of the left front outrigger circuit to battery positive/negative or open circuit.	<ul style="list-style-type: none"> <li>• Short or open circuit in left front outrigger harness</li> <li>• Left front outrigger coil short circuit or open circuit</li> <li>• GCON ECM</li> </ul>	Left front outrigger functions inhibited.
<b>H075:</b> GS-3232	H075:COILFAULT LR RIGGER	Short circuit of the left rear outrigger circuit to battery positive/negative or open circuit.	<ul style="list-style-type: none"> <li>• Short or open circuit in left rear outrigger harness</li> <li>• Left rear outrigger coil short circuit or open circuit</li> <li>• GCON ECM</li> </ul>	Left rear outrigger functions inhibited.
<b>H076:</b> GS-3232	H076:COILFAULT RF RIGGER	Short circuit of the right front outrigger circuit to battery positive/negative or open circuit.	<ul style="list-style-type: none"> <li>• Short or open circuit in right front outrigger harness</li> <li>• Right front outrigger coil short circuit or open circuit</li> <li>• GCON ECM</li> </ul>	Right front outrigger functions inhibited.
<b>H077:</b> GS-3232	H077:COILFAULT RR RIGGER	Short circuit of the right rear outrigger circuit to battery positive/negative or open circuit.	<ul style="list-style-type: none"> <li>• Short or open circuit in right rear outrigger harness</li> <li>• Right rear outrigger coil short circuit or open circuit</li> <li>• GCON ECM</li> </ul>	Right rear outrigger functions inhibited.
<b>H078:</b> GS30, GS32, GS46 & GS47	H078:COILFAULT PLAT DOWN1	Short circuit of the platform down #1 circuit to battery positive/negative or open circuit.	<ul style="list-style-type: none"> <li>• Short or open circuit in platform down #1 harness</li> <li>• Platform down #1 coil short or open circuit</li> <li>• GCON ECM</li> </ul>	Platform down function inhibited.
<b>H079:</b> GS32, GS46 & GS47	H079:COILFAULT HI/LO SPEED	Short circuit of the HI/LO speed circuit to battery positive/negative or open circuit.	<ul style="list-style-type: none"> <li>• Short circuit in HI/LO speed harness</li> <li>• HI/LO speed coil short or open circuit</li> <li>• GCON ECM</li> </ul>	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.
<b>H080:</b> GS30, GS32, GS46 & GS47	H080:COILFAULT STEER LEFT	Short circuit of the steer left circuit to battery negative or open circuit.	<ul style="list-style-type: none"> <li>• Short or open circuit in steer left harness</li> <li>• Steer left coil short or open circuit</li> <li>• GCON ECM</li> </ul>	Steer left function inhibited.
<b>H081:</b> GS30, GS32, GS46 & GS47	H081:COILFAULT STEER RIGHT	Short circuit of the steer right circuit to battery negative or open circuit.	<ul style="list-style-type: none"> <li>• Short or open circuit in steer right harness</li> <li>• Steer right coil short or open circuit</li> <li>• GCON ECM</li> </ul>	Steer right function inhibited.
<b>H102:</b> GS-4047	H102:COILFAULT RELIEF VALVE:BAT+	Short circuit of the relief valve circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in relief valve harness</li> <li>• Relief valve coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down while above limit switch.
<b>H103:</b> GS-4047	H103:COILFAULT RELIEF VALVE:BAT-	Short circuit of the relief valve circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in relief valve harness</li> <li>• Relief valve coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down while above limit switch.
<b>H104:</b> GS-4047	H104:COILFAULT RELIEF VALVE:OPEN	Relief valve circuit open.	<ul style="list-style-type: none"> <li>• Open circuit in relief valve harness</li> <li>• Relief valve coil open circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down while above limit switch.

# Diagnosics

## Type "HXXX" Faults, continued

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
<b>H106:</b> GS-2646AV	H106:COILFAULT DECK EXTEND:BAT-	Short circuit of the platform extend circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in PED harness</li> <li>• PED extend valve coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>H107:</b> GS-2646AV	H107:COILFAULT DECK EXTEND:OPEN	Open circuit in the platform extend circuit.	<ul style="list-style-type: none"> <li>• Open circuit in PED harness</li> <li>• PED extend valve coil open circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>H108:</b> GS-2646AV	H108:COILFAULT DECK EXTEND:BAT+	Short circuit of the platform extend circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in PED harness</li> <li>• PED extend valve coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>H109:</b> GS-2646AV	H109:COILFAULT DECK RETRACT:BAT-	Short circuit of the platform retract circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in PED harness</li> <li>• PED retract valve coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>H110:</b> GS-2646AV	H110:COILFAULT DECK RETRACT:OPEN	Open circuit in the platform retract circuit.	<ul style="list-style-type: none"> <li>• Open circuit in PED harness</li> <li>• PED retract valve coil open circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>H111:</b> GS-2646AV	H111:COILFAULT DECK RETRACT:BAT+	Short circuit of the platform retract circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in PED harness</li> <li>• PED retract valve coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>H114:</b> GS-2646AV	H114:COILFAULT DECK ENABLE:BAT+	Short circuit of the platform enable circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in PED harness</li> <li>• PED enable valve coil short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>H115:</b> GS-2646AV	H115:COILFAULT DECK ENABLE	Short circuit of the platform enable circuit.	<ul style="list-style-type: none"> <li>• Short circuit in PED harness</li> <li>• GCON ECM</li> </ul>	All functions inhibited.

# Diagnostics

## Type "PXXX" Faults

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
<b>P001:</b> GS30, GS32, GS46 & GS47	P001:PWR FAULT SW PWR1:BAT-	Short circuit of the switched power #1 circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in switched power #1, down limit switch, pothole limit switch, digital tilt switch harness</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>P003:</b> GS30, GS32, GS46 & GS47	P003:PWR FAULT SW PWR1:BAT+	Short circuit of the switched power #1 circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in switched power #1, down limit switch, pothole limit switch, digital tilt switch harness</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>P004:</b> GS30, GS32, GS46 & GS47	P004:DEVICEFAULT HORN:BAT-	Short circuit of the automotive horn circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in automotive horn harness</li> <li>• Automotive horn short circuit</li> <li>• GCON ECM</li> </ul>	Automotive horn inhibited.
<b>P005:</b> GS30, GS32, GS46 & GS47	P005:DEVICEFAULT HORN:OPEN	Open circuit of the automotive horn circuit.	<ul style="list-style-type: none"> <li>• Open circuit in automotive horn harness</li> <li>• Automotive horn open circuit</li> <li>• GCON ECM</li> </ul>	Automotive horn inhibited.
<b>P006:</b> GS30, GS32, GS46 & GS47	P006:DEVICEFAULT HORN:BAT+	Short circuit of the automotive horn circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in automotive horn harness</li> <li>• Automotive horn short circuit</li> <li>• GCON ECM</li> </ul>	Automotive horn inhibited.
<b>P007:</b> GS30, GS32, GS46 & GS47	P007:DEVICEFAULT GCON ALARM:BAT-	Short circuit of the GCON alarm circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in GCON alarm harness</li> <li>• GCON alarm short circuit</li> <li>• GCON ECM</li> </ul>	GCON alarm inhibited.
<b>P009:</b> GS30, GS32, GS46 & GS47	P009:DEVICEFAULT GCON ALARM:BAT+	Short circuit of the GCON alarm circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in GCON alarm harness</li> <li>• GCON alarm short circuit</li> <li>• GCON ECM</li> </ul>	GCON alarm inhibited.
<b>P013:</b> GS30, GS32, GS46 & GS47	P013:PWR FAULT PCON PWRET:BAT-	Short circuit of the PCON power return circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in PCON power return harness</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>P015:</b> GS30, GS32, GS46 & GS47	P015:PWR FAULT PCON PWRET:BAT+	Short circuit of the PCON power return circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in PCON power return harness</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>P018:</b> GS30, GS32, GS46 & GS47	018:PWR FAULT PCON POWER:BAT-	Short circuit of the PCON power circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in PCON power harness</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>P019:</b> GS30, GS32, GS46 & GS47	018:PWR FAULT PCON POWER:BAT+	Short circuit of the PCON power circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in PCON power harness</li> <li>• GCON ECM</li> </ul>	All functions inhibited.

# Diagnostics

## Type "UXXX" Faults

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
<b>U001:</b> GS30, GS32, GS46 & GS47	U001:SWITCHFAULT GCON MAIN FTN EN	Short circuit of the GCON main function enable switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the GCON main function enable switch</li> <li>GCON ECM</li> </ul>	All GCON functions inhibited.
<b>U002:</b> GS30, GS32, GS46 & GS47	U002:SWITCHFAULT GCON PLAT UP	Short circuit of the GCON up directional switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the GCON up directional switch</li> <li>GCON ECM</li> </ul>	All GCON functions inhibited except platform down.
<b>U003:</b> GS30, GS32, GS46 & GS47	U003:SWITCHFAULT GCON PLAT DOWN	Short circuit of the GCON down directional switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the GCON down directional switch</li> <li>GCON ECM</li> </ul>	All GCON functions inhibited except platform up.
<b>U004:</b> GS30, GS32, GS46 & GS47	U004:SWITCHFAULT GCON LCD UP	Short circuit of the GCON LCD scroll up switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the GCON LCD scroll up switch</li> <li>GCON ECM</li> </ul>	All GCON LCD menu functions inhibited.
<b>U005:</b> GS30, GS32, GS46 & GS47	U005:SWITCHFAULT GCON LCD DOWN	Short circuit of the GCON LCD scroll down switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the GCON LCD scroll down switch</li> <li>GCON ECM</li> </ul>	All GCON LCD menu functions inhibited.
<b>U006:</b> GS30, GS32, GS46 & GS47	U006:SWITCHFAULT GCON LCD ENTER	Short circuit of the GCON LCD enter switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the GCON LCD enter switch</li> <li>GCON ECM</li> </ul>	All GCON LCD menu functions inhibited.
<b>U007:</b> GS30, GS32, GS46 & GS47	U007:SWITCHFAULT GCON LCD ESCAPE	Short circuit of the GCON LCD escape switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the GCON LCD escape switch</li> <li>GCON ECM</li> </ul>	All GCON LCD menu functions inhibited.
<b>U014:</b> GS30, GS32, GS46 & GS47	U014:SWITCHFAULT PCON DRIVE EN	Short circuit of the PCON drive enable switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the PCON drive enable switch</li> <li>GCON ECM</li> </ul>	All PCON drive and steer functions inhibited.
<b>U015:</b> GS30, GS32, GS46 & GS47	U015:SWITCHFAULT PCON STEER LEFT	Short circuit of the PCON steer left switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the PCON steer left switch</li> <li>GCON ECM</li> </ul>	All PCON drive and steer functions inhibited.
<b>U016:</b> GS30, GS32, GS46 & GS47	U016:SWITCHFAULT PCON STEER RIGHT	Short circuit of the PCON steer right switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the PCON steer right switch</li> <li>GCON ECM</li> </ul>	All PCON drive and steer functions inhibited.
<b>U017:</b> GS30, GS32, GS46 & GS47	U017:SWITCHFAULT PCON HORN	Short circuit of the PCON horn switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the PCON horn switch</li> <li>GCON ECM</li> </ul>	PCON horn switch function inhibited.
<b>U018:</b> GS30, GS32, GS46 & GS47	U018:SWITCHFAULT PCON LO DRIV SPD	Short circuit of the PCON low drive speed switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the PCON low drive speed switch</li> <li>GCON ECM</li> </ul>	The machine is limited to low drive speed.
<b>U019:</b> GS30, GS32, GS46 & GS47	U019:SWITCHFAULT PCON LO LIFT SPD	Short circuit of the PCON low lift speed switch at system startup.	<ul style="list-style-type: none"> <li>Short circuit of the PCON low lift speed switch</li> <li>GCON ECM</li> </ul>	PCON platform up & down functions inhibited.

# Diagnostics

## Type "UXXX" Faults, continued

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
<b>U020:</b> GS30, GS32, GS46 & GS47	U020:SWITCFULT PCON HI LIFT SPD	Short circuit of the PCON high lift speed switch at system startup.	<ul style="list-style-type: none"> <li>• Short circuit of the PCON hi lift speed switch</li> <li>• GCON ECM</li> </ul>	PCON platform up & down functions inhibited.
<b>U021:</b> GS30, GS32, GS46 & GS47	U021:SWITCFULT PCON UP	Short circuit of the PCON up directional switch at system startup.	<ul style="list-style-type: none"> <li>• Short circuit of the PCON up directional switch</li> <li>• GCON ECM</li> </ul>	PCON platform up function inhibited.
<b>U022:</b> GS30, GS32, GS46 & GS47	U022:SWITCFULT PCON DOWN	Short circuit of the PCON down directional switch at system startup.	<ul style="list-style-type: none"> <li>• Short circuit of the PCON down directional switch</li> <li>• GCON ECM</li> </ul>	PCON platform down functions inhibited.
<b>U023:</b> GS-3232	U023:SWITCFULT PCON O/R ENABLE	Short circuit of the PCON outrigger enable switch at system startup.	<ul style="list-style-type: none"> <li>• Short circuit of the PCON outrigger enable switch</li> <li>• GCON ECM</li> </ul>	All outrigger functions inhibited.
<b>U033:</b> GS30, GS32, GS46 & GS47	U033:JSTICKFAULT OUT OF CAL RANGE	PCON drive joystick signal is outside acceptable calibration range at system startup.	<ul style="list-style-type: none"> <li>• PCON drive joystick is not in neutral position at startup</li> <li>• PCON joystick</li> <li>• GCON ECM</li> </ul>	All PCON drive and steer functions inhibited.
<b>U034:</b> GS30, GS32, GS46 & GS47	U034:JSTICKFAULT OUT OF RANGE:HI	Short circuit of the PCON drive joystick signal to battery positive at system startup.	<ul style="list-style-type: none"> <li>• Short circuit of PCON drive joystick signal circuit</li> <li>• PCON joystick</li> <li>• GCON ECM</li> </ul>	All PCON drive and steer functions inhibited.
<b>U035:</b> GS30, GS32, GS46 & GS47	U035:JSTICKFAULT OUT OF RANGE:LO	Short circuit of the PCON drive joystick signal to battery negative at system startup.	<ul style="list-style-type: none"> <li>• Short circuit of PCON drive joystick signal circuit</li> <li>• PCON joystick</li> <li>• GCON ECM</li> </ul>	All PCON drive and steer functions inhibited.
<b>U036:</b> GS30, GS32, GS46 & GS47	U036:SWITCFULT GCON + PCON:ON	Mis-wiring or short circuit of GCON key switch.	<ul style="list-style-type: none"> <li>• Short circuit of the PCON drive enable switch</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>U037:</b> GS30, GS32, GS46 & GS47	U037:SWITCFULT FOOTSW PRESSED	Foot switch pressed at machine startup.	<ul style="list-style-type: none"> <li>• Short circuit in the foot switch harness</li> <li>• Foot switch</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>U038:</b> GS30, GS32, GS46 & GS47	U038:SWITCFULT FOOTSWITCH:BAT+	Mis-wiring or short circuit of foot switch to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in the foot switch harness</li> <li>• Foot switch</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>U039:</b> GS30, GS32, GS46 & GS47	U039:SWITCFULT FOOTSW:OPEN/BAT-	Mis-wiring, open or short circuit of foot switch to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in the foot switch harness</li> <li>• Foot switch</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>U040:</b> GS30, GS32, GS46 & GS47 (GS-3232 excluded)	U040:SWITCFULT FOOTSW:TIMEOUT	PCON deck switch pressed at machine startup.	<ul style="list-style-type: none"> <li>• Short circuit in the foot switch harness</li> <li>• Foot switch</li> <li>• GCON ECM</li> </ul>	All functions inhibited.



# Diagnostics

## Type "FXXX" Faults

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
<b>F001:</b> GS-3232	F001:SWITCHFAULT UP LIMIT1:BAT+	Short circuit of the up limit #1 switch at system startup.	<ul style="list-style-type: none"> <li>• Short circuit of the up limit switch circuit.</li> <li>• Up limit #1 switch short circuit</li> <li>• GCON ECM</li> </ul>	Platform up function inhibited.
<b>F003:</b> GS30, GS32, GS46 & GS47	F003:SWITCHFAULT DOWN LIMIT1:BAT+	Short circuit of the down limit #1 switch at system startup.	<ul style="list-style-type: none"> <li>• Short circuit of the down limit switch circuit.</li> <li>• Down limit #1 switch short circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited except platform down.
<b>F005:</b> GS30, GS32, GS46 & GS47	F005:SWITCHFAULT POTHOLE:BAT+	Short circuit of the pothole limit #1 switch at system startup.	<ul style="list-style-type: none"> <li>• Short circuit of the pothole switch circuit.</li> <li>• Pothole limit #1 switch short circuit</li> <li>• GCON ECM</li> </ul>	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.
<b>F007:</b> GS30, GS32, GS46 & GS47	F007:SWITCHFAULT CHASSISTILT:BAT+	Short circuit of the chassis digital tilt switch at system startup.	<ul style="list-style-type: none"> <li>• Short circuit of the chassis digital tilt switch circuit.</li> <li>• Chassis digital tilt switch short circuit</li> <li>• GCON ECM</li> </ul>	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.
<b>F008:</b> GS30, GS32, GS46 & GS47	F008:SENSORFAULT OVL D X DUCER:BAT+	Short circuit of the Platform Overload Transducer circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in the transducer circuit.</li> <li>• Faulty pressure transducer</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>F009:</b> GS30, GS32, GS46 & GS47	F009:SENSORFAULT OVL D X DUCER:BAT-	Short circuit of the Platform Overload Transducer circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in the transducer circuit.</li> <li>• Faulty pressure transducer</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>F010:</b> GS30, GS32, GS46 & GS47	F010:SENSORFAULT PLAT HEIGHT:BAT+	Short circuit of the Platform Height Sensor circuit to battery positive.	<ul style="list-style-type: none"> <li>• Short circuit in the platform height circuit.</li> <li>• Faulty platform height sensor</li> <li>• GCON ECM</li> </ul>	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.
<b>F011:</b> GS30, GS32, GS46 & GS47	F011:SENSORFAULT PLAT HEIGHT:BAT-	Short circuit of the Platform Height Sensor circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in the platform height circuit.</li> <li>• Faulty platform height sensor</li> <li>• GCON ECM</li> </ul>	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.

# Diagnostics

## Type "FXXX" Faults, continued

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
<b>F012:</b> GS-3232	F012:SENSORFAULT LEVEL PITCH:BAT+	Short circuit of the Level Pitch Sensor circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in the level pitch sensor circuit.</li> <li>Faulty level sensor</li> <li>GCON ECM</li> </ul>	All functions inhibited.
<b>F013:</b> GS-3232	F013:SENSORFAULT LEVEL PITCH:BAT-	Short circuit of the Level Pitch Sensor circuit to battery negative.	<ul style="list-style-type: none"> <li>Short circuit in the level pitch sensor circuit.</li> <li>Faulty level sensor</li> <li>GCON ECM</li> </ul>	All functions inhibited.
<b>F014:</b> GS-3232	F014:SENSORFAULT LEVEL ROLL:BAT+	Short circuit of the Level Roll Sensor circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in the level roll sensor circuit.</li> <li>Faulty level sensor</li> <li>GCON ECM</li> </ul>	All functions inhibited.
<b>F015:</b> GS-3232	F015:SENSORFAULT LEVEL ROLL:BAT-	Short circuit of the Level Roll Sensor circuit to battery negative.	<ul style="list-style-type: none"> <li>Short circuit in the level roll sensor circuit.</li> <li>Faulty level sensor</li> <li>GCON ECM</li> </ul>	All functions inhibited.
<b>F016:</b> GS-3232	F016:SENSORFAULT LF RIGGER:BAT+	Short circuit of the Left Front Outrigger Sensor circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in the left front outrigger sensor circuit.</li> <li>Faulty pressure transducer</li> <li>GCON ECM</li> </ul>	Left front outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
<b>F017:</b> GS-3232	F017:SENSORFAULT LF RIGGER:BAT-	Short circuit of the Left Front Outrigger Sensor circuit to battery negative.	<ul style="list-style-type: none"> <li>Short circuit in the left front outrigger sensor circuit.</li> <li>Faulty pressure transducer</li> <li>GCON ECM</li> </ul>	Left front outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
<b>F018:</b> GS-3232	F018:SENSORFAULT RF RIGGER:BAT+	Short circuit of the Right Front Outrigger Sensor circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in the right front outrigger sensor circuit.</li> <li>Faulty pressure transducer</li> <li>GCON ECM</li> </ul>	Right front outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
<b>F019:</b> GS-3232	F019:SENSORFAULT RF RIGGER:BAT-	Short circuit of the Right Front Outrigger Sensor circuit to battery negative.	<ul style="list-style-type: none"> <li>Short circuit in the right front outrigger sensor circuit.</li> <li>Faulty pressure transducer</li> <li>GCON ECM</li> </ul>	Right front outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
<b>F020:</b> GS-3232	F020:SENSORFAULT LR RIGGER:BAT+	Short circuit of the Left Rear Outrigger Sensor circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in the left rear outrigger sensor circuit.</li> <li>Faulty pressure transducer</li> <li>GCON ECM</li> </ul>	Left rear outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
<b>F021:</b> GS-3232	F021:SENSORFAULT LR RIGGER:BAT-	Short circuit of the Left Rear Outrigger Sensor circuit to battery negative.	<ul style="list-style-type: none"> <li>Short circuit in the left rear outrigger sensor circuit.</li> <li>Faulty pressure transducer</li> <li>GCON ECM</li> </ul>	Left rear outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
<b>F022:</b> GS-3232	F022:SENSORFAULT RR RIGGER:BAT+	Short circuit of the Right Rear Outrigger Sensor circuit to battery positive.	<ul style="list-style-type: none"> <li>Short circuit in the right rear outrigger sensor circuit.</li> <li>Faulty pressure transducer</li> <li>GCON ECM</li> </ul>	Right rear outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.

## Diagnosics

### Type "FXXX" Faults, continued

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
<b>F023:</b> GS-3232	F023:SENSORFAULT RR RIGGER:BAT-	Short circuit of the Right Rear Outrigger Sensor circuit to battery negative.	<ul style="list-style-type: none"> <li>• Short circuit in the right rear outrigger sensor circuit.</li> <li>• Faulty pressure transducer</li> <li>• GCON ECM</li> </ul>	Right rear outrigger inhibited if outrigger extend is activated. Outrigger can still be retracted.
<b>F034:</b> GS30, GS32, GS46 & GS47	F034:SENSORFAULT OVL:PLAT HEIGHT	Height Sensor settings are not calibrated correctly.	<ul style="list-style-type: none"> <li>• Short circuit in the level roll sensor circuit.</li> <li>• Faulty level sensor</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>F035:</b> GS30, GS32, GS46 & GS47	F035:SENSORFAULT OVL:RANGE:LOW	Height Sensor setting is lower than calibrated stowed height.	<ul style="list-style-type: none"> <li>• Short circuit in the level roll sensor circuit.</li> <li>• Faulty level sensor</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>F036:</b> GS30, GS32, GS46 & GS47	F036:SENSORFAULT OVL:RANGE:HI	Height Sensor setting is higher than calibrated maximum height.	<ul style="list-style-type: none"> <li>• Short circuit in the left front outrigger sensor circuit.</li> <li>• Faulty pressure transducer</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>F072:</b> GS-2646AV	F072:SENSORFAULT FUNCTION CUT B+	Function Cutout sensor B+ fault.	<ul style="list-style-type: none"> <li>• Short circuit in the left front outrigger sensor circuit.</li> <li>• Faulty pressure transducer</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>F073:</b> GS-2646AV	F073:SENSORFAULT DECK SENSOR B+	Power Deck sensor B+ fault.	<ul style="list-style-type: none"> <li>• Short circuit in the right front outrigger sensor circuit.</li> <li>• Faulty pressure transducer</li> <li>• GCON ECM</li> </ul>	All functions inhibited.

# Diagnostics

## Type "CXXX" Faults

DTC Number	Message on GCON LCD	Problem Description	Possible Causes	Failure Mode
<b>C001:</b> GS30, GS32, GS46 & GS47	C001:GCON ECM FAULT TYPE 1	GCON ECM CRC check error.	<ul style="list-style-type: none"> <li>• Incorrect software file</li> <li>• GCON ECM internal failure</li> </ul>	All functions inhibited.
<b>C004:</b> GS30, GS32, GS46 & GS47	C004:GCON ECM FAULT TYPE 4	GCON ECM master switch error.	<ul style="list-style-type: none"> <li>• Short circuit in the master switch circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>C005:</b> GS30, GS32, GS46 & GS47	C005:GCOM ECM FAULT TYPE 5	GCON ECM safety switch error.	<ul style="list-style-type: none"> <li>• Short circuit in the safety switch circuit</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>C006:</b> GS30, GS32, GS46 & GS47	C006:GCON ECM FAULT TYPE 6	GCON input redundancy error.	<ul style="list-style-type: none"> <li>• Input conditioning circuit failure</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>C007:</b> GS30, GS32, GS46 & GS47	C007:GCON ECM FAULT TYPE 7	GCON ECM inter-processor communication error.	<ul style="list-style-type: none"> <li>• Incorrectly programmed device</li> <li>• Error in loading software device</li> <li>• GCON ECM</li> </ul>	All functions inhibited.
<b>C009:</b> GS30, GS32, GS46 & GS47	C009:GCON ECM FAULT FAULT TYPE 9	GCON fault type 9	<ul style="list-style-type: none"> <li>• Contact Genie support</li> </ul>	All functions inhibited.
<b>C021:</b> GS30, GS32, GS46 & GS47	C021:PCON NOT DETECTED	PCON not detected error.	<ul style="list-style-type: none"> <li>• PCON is missing</li> <li>• Communication bus failure</li> <li>• GCON or PCON ECM</li> </ul>	All functions inhibited.
<b>C023:</b> GS30, GS32, GS46 & GS47	C023:MACHINE MODEL FAULT	Discrepancy between model detected and model programmed.	<ul style="list-style-type: none"> <li>• Incorrect machine model programmed</li> <li>• GCON or PCON ECM</li> </ul>	All functions inhibited.
<b>C024:</b> GS30, GS32, GS46 & GS47	C024:PARAMETER PROGRAM FAULT	Discrepancy between model detected and model programmed.	<ul style="list-style-type: none"> <li>• Incorrect machine model programmed</li> <li>• GCON or PCON ECM</li> </ul>	All functions inhibited except for down function.
<b>C025:</b> GS30, GS32, GS46 & GS47	C025:SYSTEMFAULT PLAT OVLD:NOCAL	Platform overload system not calibrated.	<ul style="list-style-type: none"> <li>• Platform overload system not calibrated</li> <li>• GCON or PCON ECM</li> </ul>	All functions inhibited.

# 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**

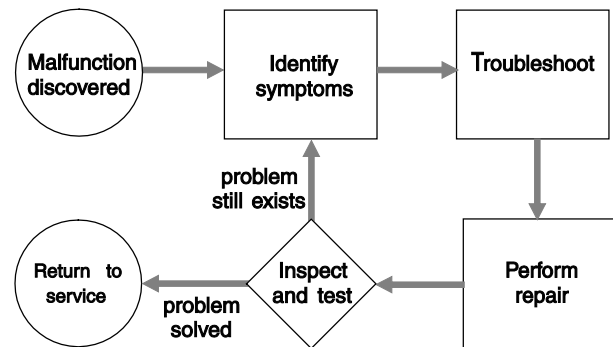
Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

### 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.

## General Repair Process



## Electrical Component and Wire Color Legends

ELECTRICAL COMPONENT LEGEND	
Item	Description
B5	Batteries B5 = Battery Pack 24V DC, 4 each @ 6V DC (all machines except GS-4047) B10 = Battery Pack 24 V DC Wired in Parallel, 4 each @ 12 V DC (GS-4047)
C	Connector C1 = Anderson Connector C2 = PCON Cable Connector C3 = PCON Coil Cord Connector C4 = Power Control (J1) C5 = Sensors & Switches (J3) C6 = Function Manifold (J2) C7 = Sensor Power Bus C8 = Sensor Ground Bus C9 = Pot Hole Limit Switch C10 = Down Limit Switch C11 = Level Sensor C12 = Function Manifold Ground Bus C13 = Drive Reverse Coil C14 = Drive Forward Coil C15 = Steer Right Coil C16 = Steer Left Coil C17 = Platform Up Coil C18 = Platform Down Coil C19 = Load Sense Cable C20 = Platform Height Cable C21 = Load Sense Ground Cable C22 = Parallel Coil C23 = Platform Height Sensor C24 = Platform Overload Transducer C25 = Outrigger (J4) (GS-3232) C26 = Outrigger Retract Coil (GS-3232) C27 = Outrigger Extend Coil (GS-3232) C28 = Right Rear Outrigger Coil (GS-3232) C29 = Left Rear Outrigger Coil (GS-3232) C30 = Right Front Outrigger Coil (GS-3232) C31 = Left Front Outrigger Coil (GS-3232) C32 = Outrigger Manifold Ground Bus (GS-332) C33 = Outrigger Sensor Power Bus (GS-3232) C34 = Outrigger Level Sensor Ground Bus (GS-3232) C35 = Left Front Outrigger Pressure Transducer (GS-3232) C36 = Right Front Outrigger Pressure Transducer (GS-3232)

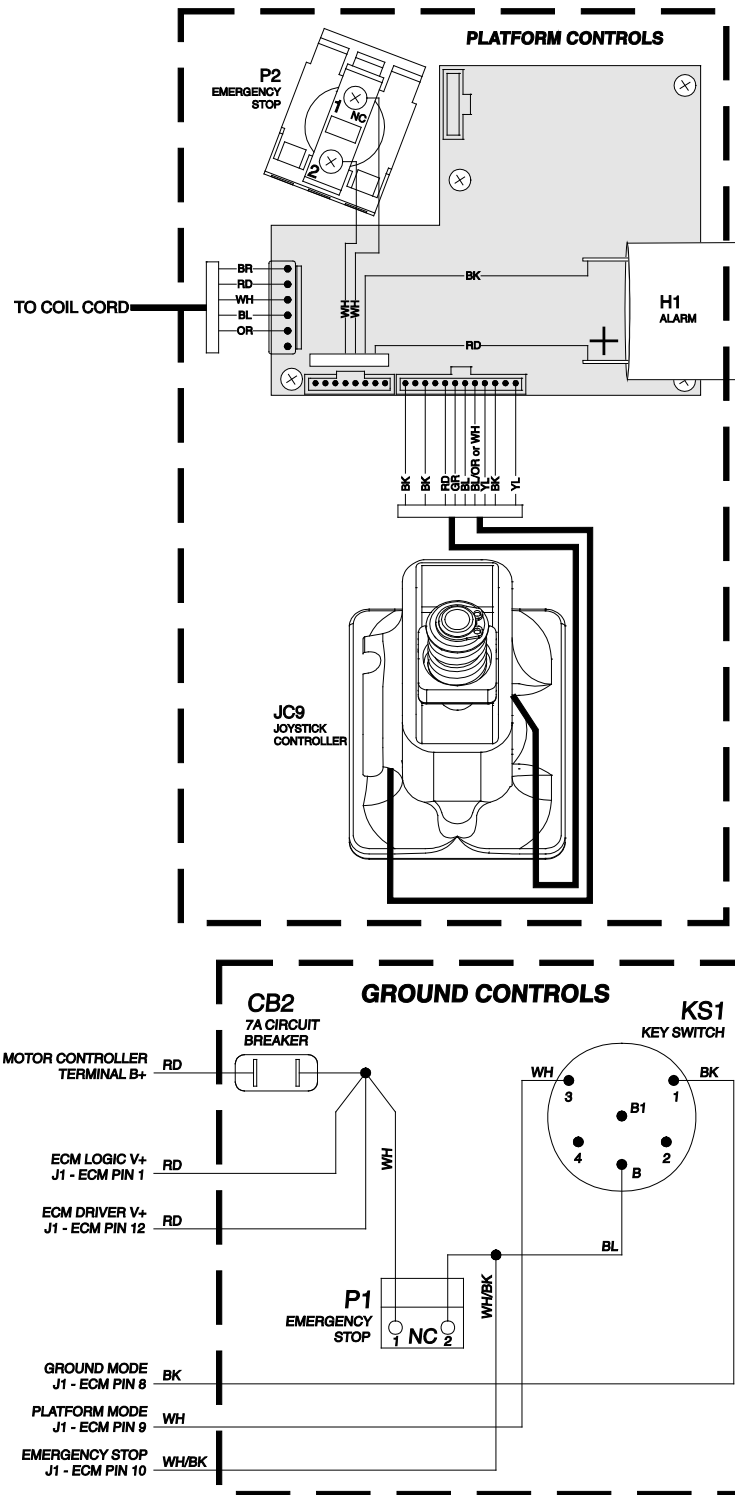
ELECTRICAL COMPONENT LEGEND cont.	
Item	Description
C	Connector C37 = Left Rear Outrigger Pressure Transducer (GS-3232) C38 = Right Rear Outrigger Pressure Transducer (GS-3232) C39 = Outrigger Sensor Power (GS-3232) C40 = Up Limit Switch (GS-3232) C41 = Platform Control Bus C43 = Key Switch, Platform Mode C44 = Key Switch, Emergency Stop C45 = Automotive Style Horn + C46 = Emergency Stop C47 = GCON Alarm + C48 = Circuit Breaker, MTR V+ C49 = Emergency Stop, ECM Driver V+ C50 = Circuit Breaker, ECM Driver V+ C51 = Key Switch, Ground Mode C52 = GCON Alarm - C53 = Automotive Style Horn - C70 = Platform Down Coil + (GS-3232 & GS-3246) C71 = Platform Down Coil - (GS-3232 & GS-3246) C84 = Lift Pressure Selector Coil (GS-4047)
CB2	Circuit Breaker, 7A
E	Enclosure EN1 = Platform Control Box EN4 = AC Outlet Box
FB	Flashing Beacon (option)
FS1	Foot Switch (option)
GND	Ground Stud
H	Horn or Alarm H1 = Horn or Alarm H2 = Automotive Style Horn (option) H5 = Multifunction Alarm
J	Connector Plug J1 = Power Control (U5) J2 = Function Manifold (U5) J3 = Sensors & Switches (U5) J4 = Outriggers (U5) GS-3232 J5 = PCON Coil Cord to Platform Controls PC Board J6 = PCON Emergency Stop & Alarm to Platform Controls PC Board J7 = Joystick to Platform Controls PC Board

## Electrical Component and Wire Color Legends

ELECTRICAL COMPONENT LEGEND cont.	
Item	Description
JC9	Joystick Controller
K1	Contactora, Motor Controller Power, N.O.H.C.
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	Power Switch
	P1 = Emergency Stop Button at Ground Controls P2 = Emergency Stop Button at Platform Controls
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 (option)
R30	Resistor, 20 Ohm, 10W
S	Sensor
	S7 = Level Sensor S8 = Outrigger Level Sensor (GS-3232) S14 = Platform Height Sensor
U	Electronic Component
	U3 = PCON Printed Circuit Board U5 = Electronic Control Module U6 = Motor Controller U9 = Battery Charger U13 = Voltage Inverter (option)
Y	Valve Coil
	Y1 = Parallel (GS-32, GS-46 & GS47 models) Y2 = Lift Pressure Selector (GS-4047) 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)

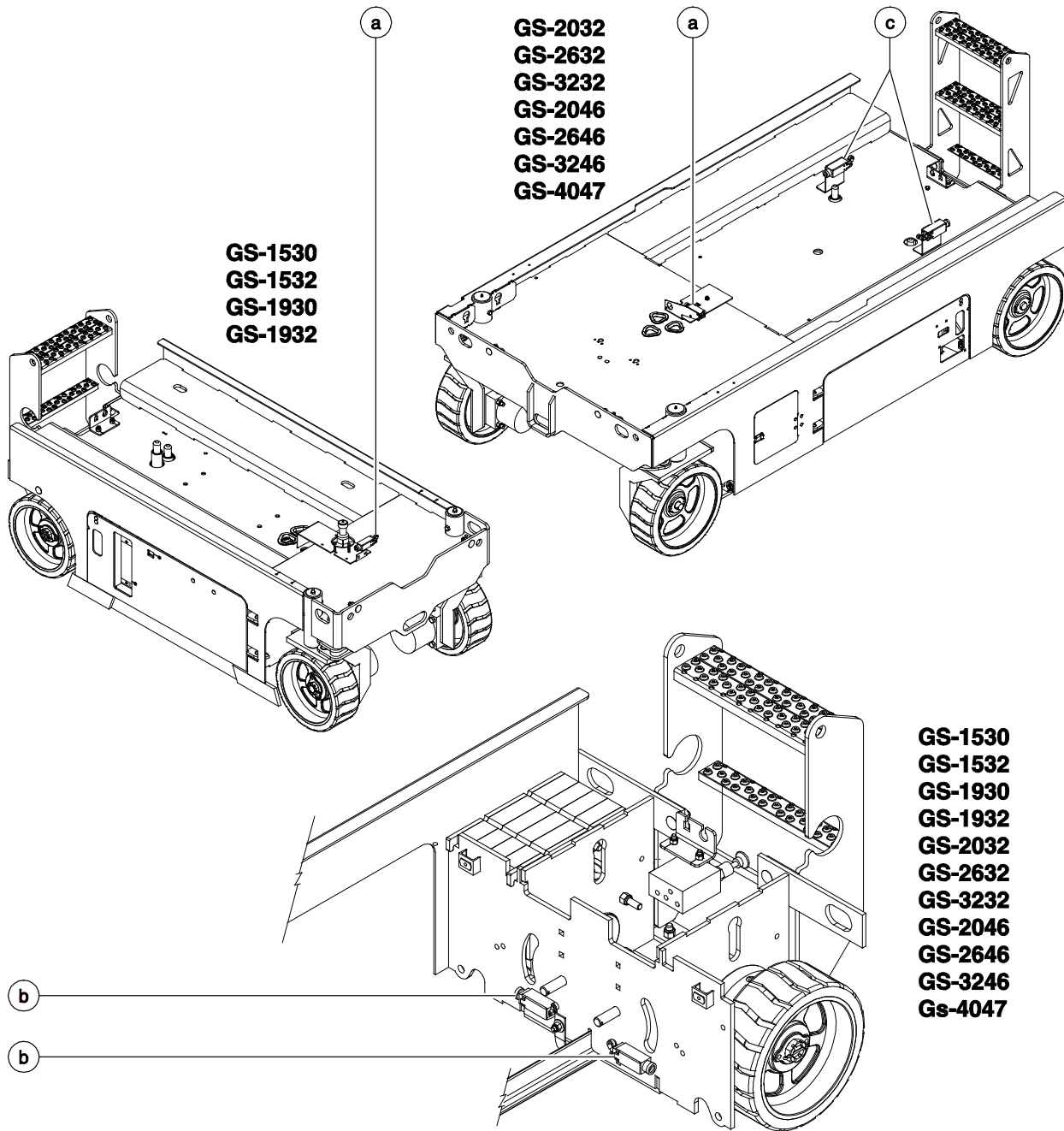
WIRE COLOR LEGEND	
Color	Description
BK	Black
BK/RD	Black/Red
BL	Blue
BL/BK	Blue/Black
BL/OR	Blue/Orange
BL/WH	Blue/White
BR	Brown
GR	Green
GR/BK	Green/Black
GR/WH	Green/White
GR/YL	Green/Yellow
LB	Light Blue
OR	Orange
OR/BK	Orange/Black
OR/RD	Orange/Red
OR/WH	Orange/White
RD	Red
RD/BK	Red/Black
RD/WH	Red/White
WH	White
WH/BK	White/Black
YL	Yellow

# Wiring Diagram Ground and Platform Controls





# Limit Switch Legend


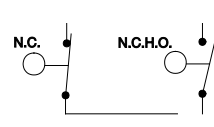
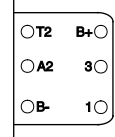
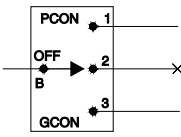
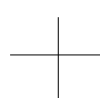
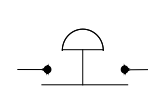
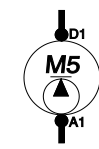
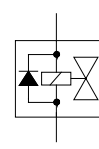

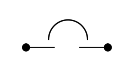
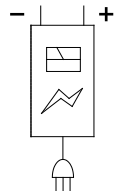
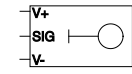
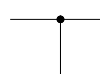

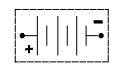
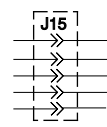
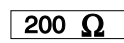
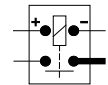






Limit Switch Legend

- a down limit switch LS6
- b pothole limit switches LS7, LS8
- c 22ft / 6.7 m maximum drive height when outriggers are not deployed (LS1, LS10 GS-3232)

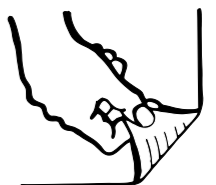


# Electrical Symbol Legend

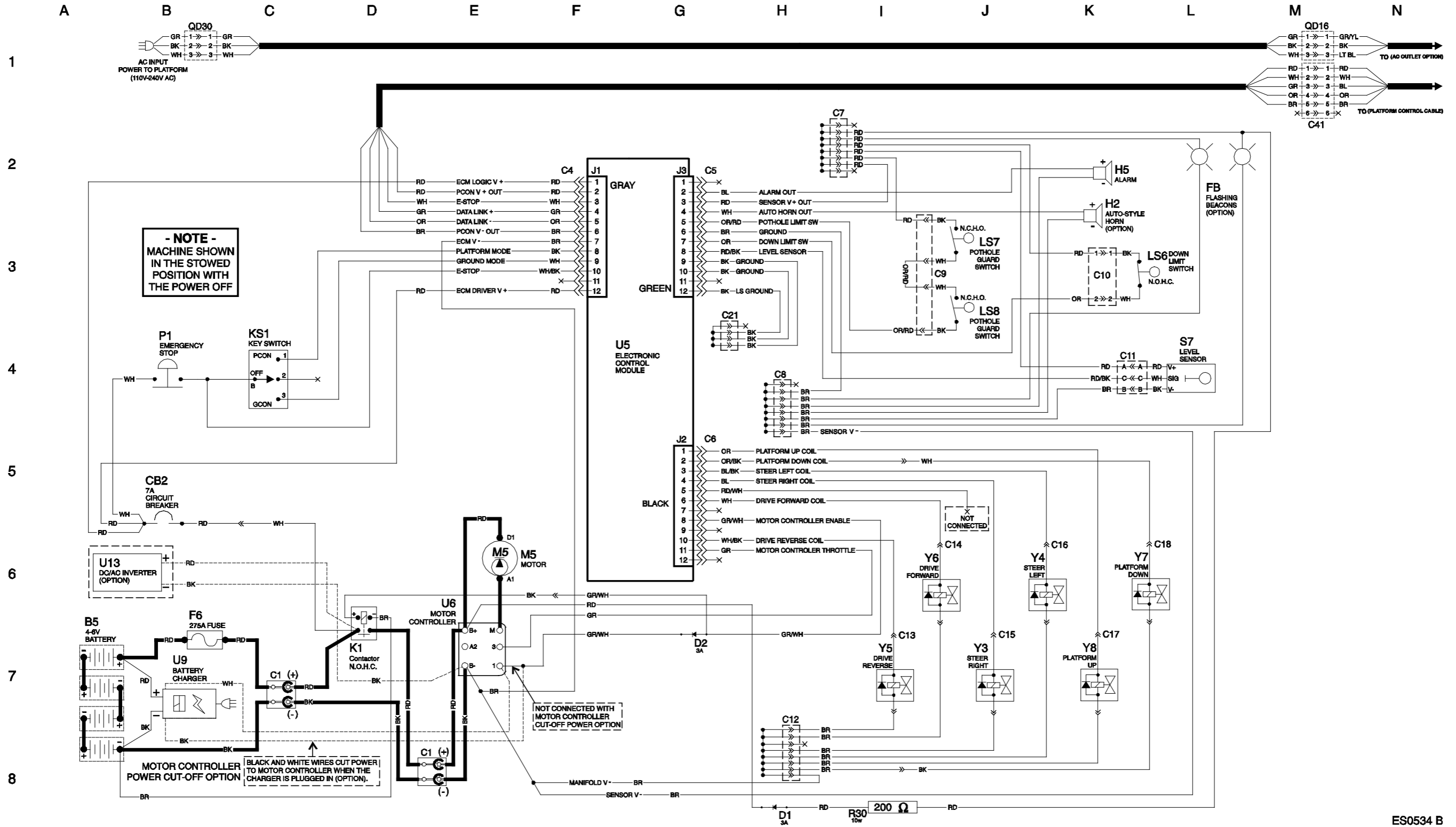
			
<p>Wire with description or color</p>	<p>Limit Switch</p>	<p>Motor Controller</p>	<p>Key switch</p>
			
<p>Circuits crossing no connection</p>	<p>Emergency Stop button</p>	<p>Motor</p>	<p>Solenoid valve with diode</p>
			
<p>Diode</p>	<p>Circuit breaker</p>	<p>Battery charger</p>	<p>Level sensor</p>
			
<p>Circuit connection</p>	<p>Fuse</p>	<p>6V or 12V DC battery</p>	<p>Deutsch connector</p>
			
<p>Resistor</p>	<p>Contactor</p>	<p>Horn or alarm</p>	<p>Flashing beacon</p>
			
<p>Platform height sensor</p>	<p>Pressure transducer</p>		

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**Electrical Schematic • GS-1530/32 and GS-1930/32**  
ANSI and CSA Models (from serial number GS3010A-110000 to GS3011A-110827)

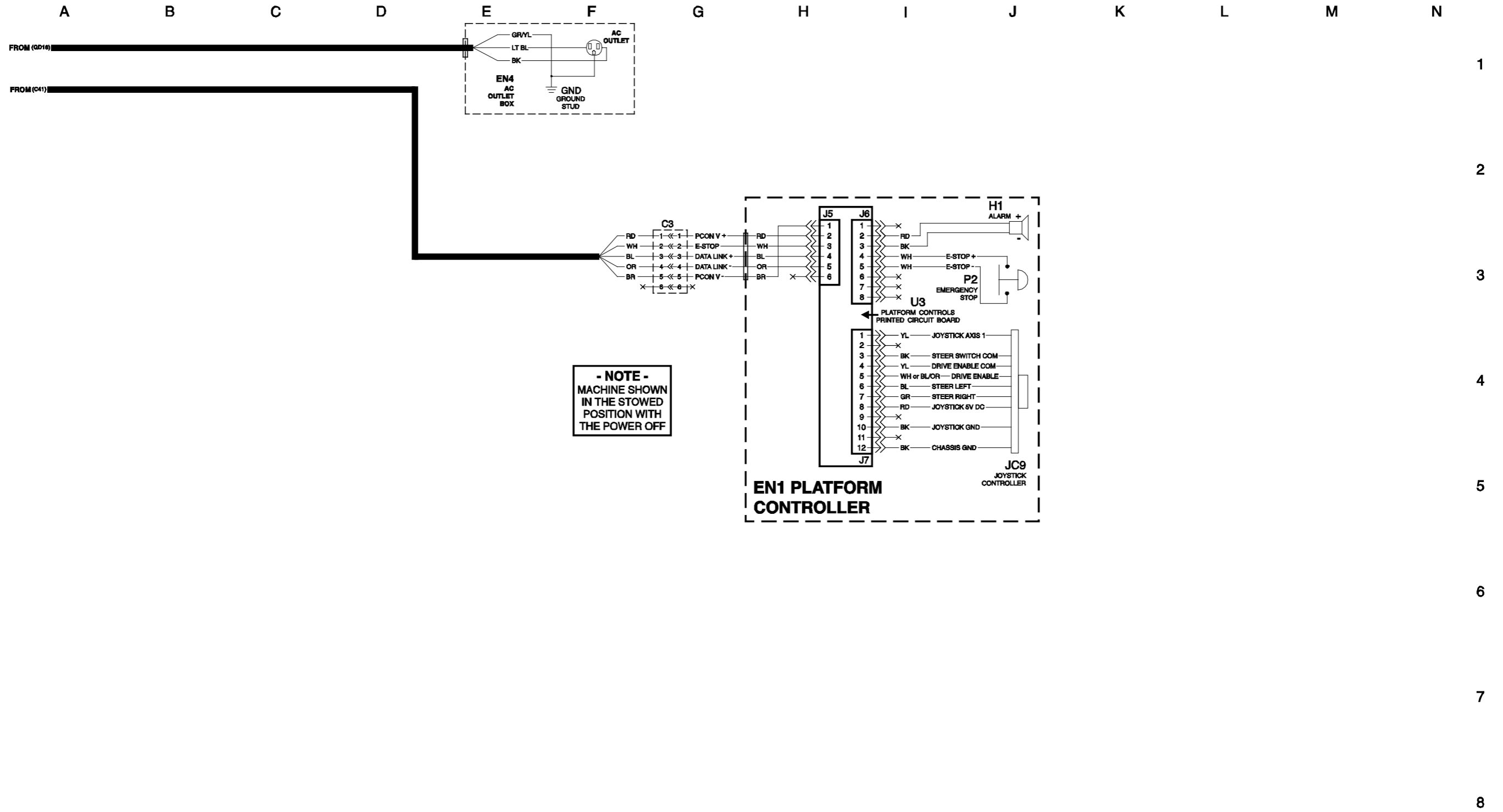


# Electrical Schematic • GS-1530/32 and GS-1930/32ANSI and CSA Models (from serial number GS3010A-110000 to GS3011A-110827)



ES0534 B

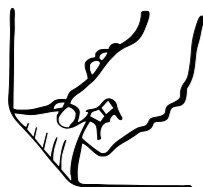
**Electrical Schematic • GS-1530/32 and GS-1930/32 ANSI and CSA Models**  
 (from serial number GS3010-110000 to GS3011A-110827)



ES0534 B

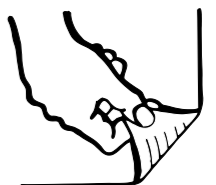
**Electrical Schematic • GS-1530/32 and GS-1930/32**

**ANSI and CSA Models (from serial number GS3010A-110000 and GS3011A-110827)**



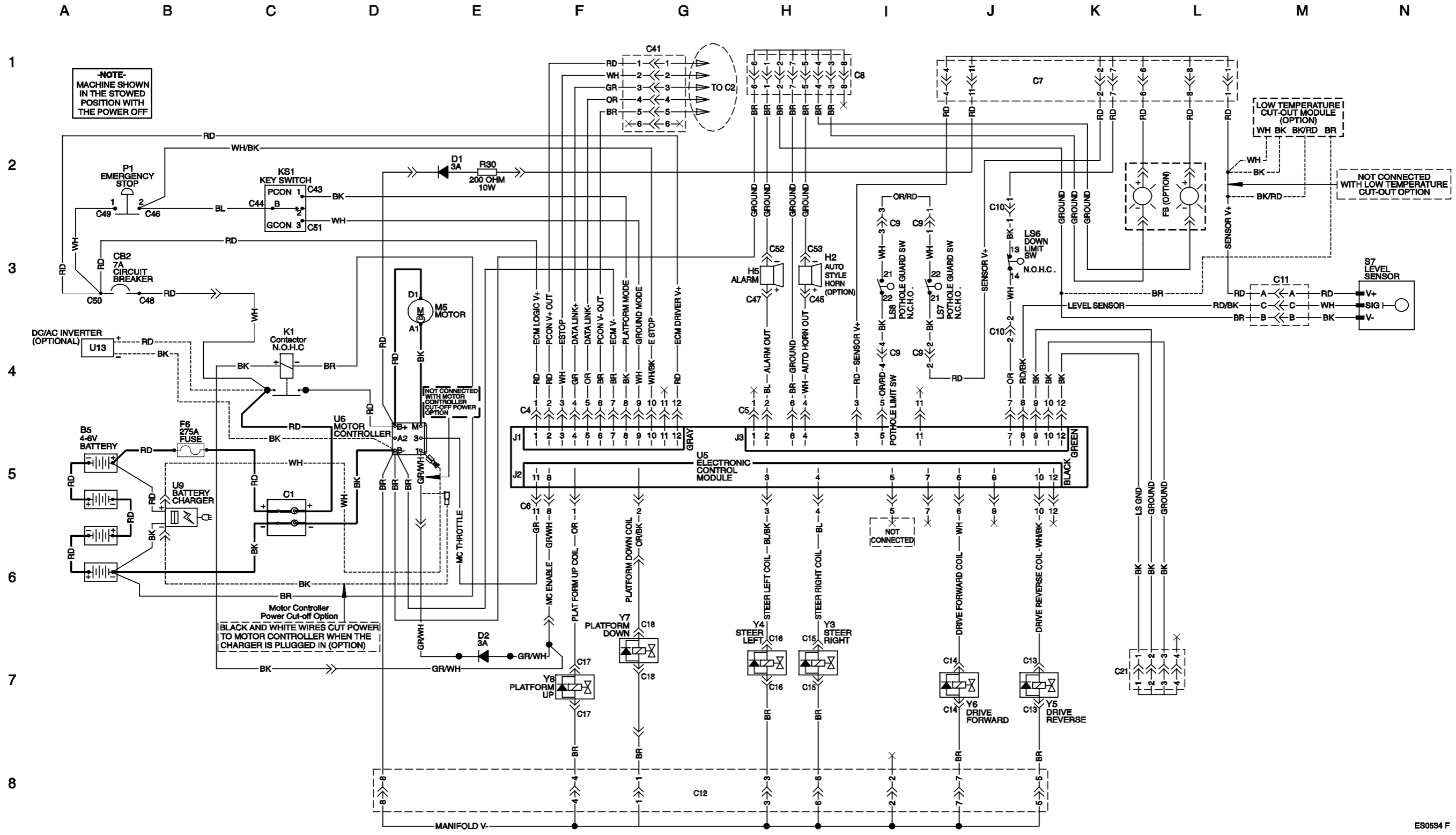
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**Electrical Schematic • GS-1530/32 and GS-1930/32**  
ANSI and CSA Models (from serial number GS3011A-110828)



# Electrical Schematic • GS-1530/32 and GS-1930/32 ANSI and CSA Models

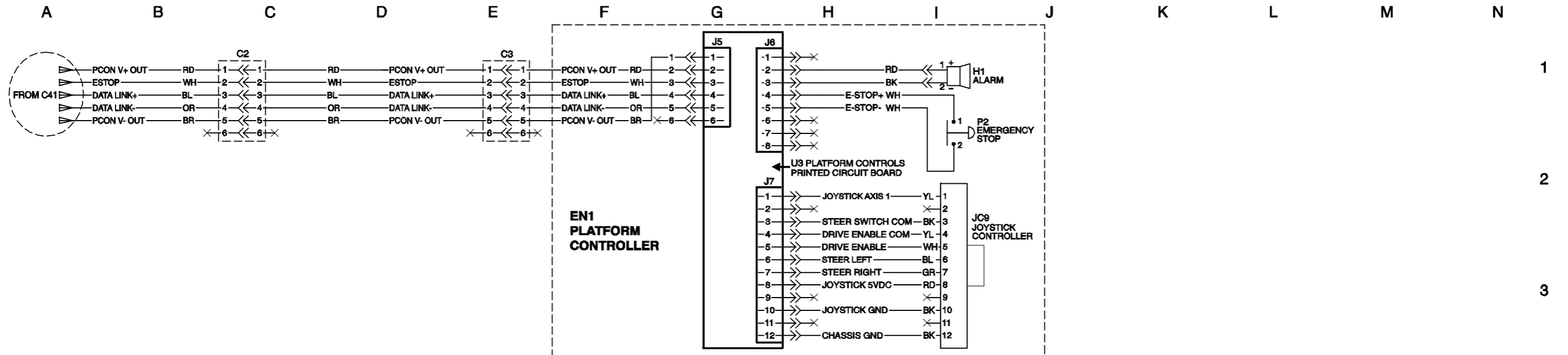
(from serial number GS3011A-110828)



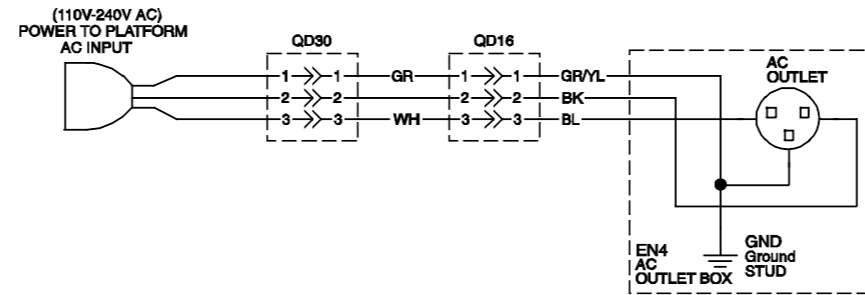
ES0584 F



### Electrical Schematic • GS-1530/32 and GS-1930/32 ANSI and CSA Models (from serial number GS3011A-110828)

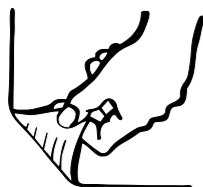


**-NOTE-**  
MACHINE SHOWN  
IN THE STOWED  
POSITION WITH  
THE POWER OFF



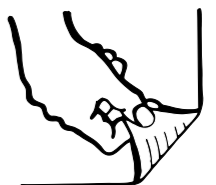
**Electrical Schematic • GS-1530/32 and GS-1930/32**

**ANSI and CSA Models (from serial number GS3011A-110828)**



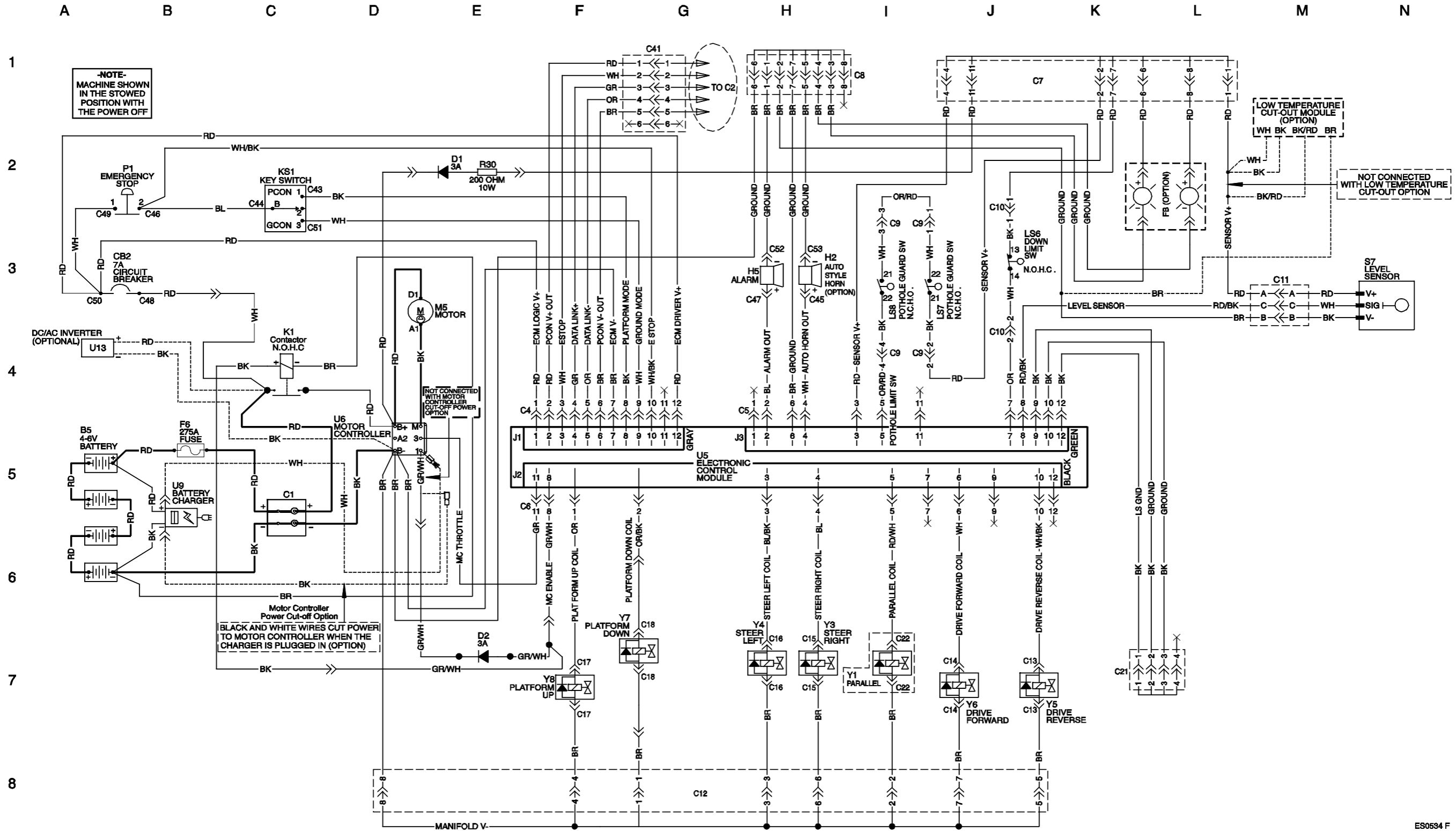
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**Electrical Schematic • GS-2032 and GS-2632**  
ANSI and CSA Models (from serial number GS3211A-110000)



# Electrical Schematic • GS-2032 and GS-2632 ANSI and CSA Models

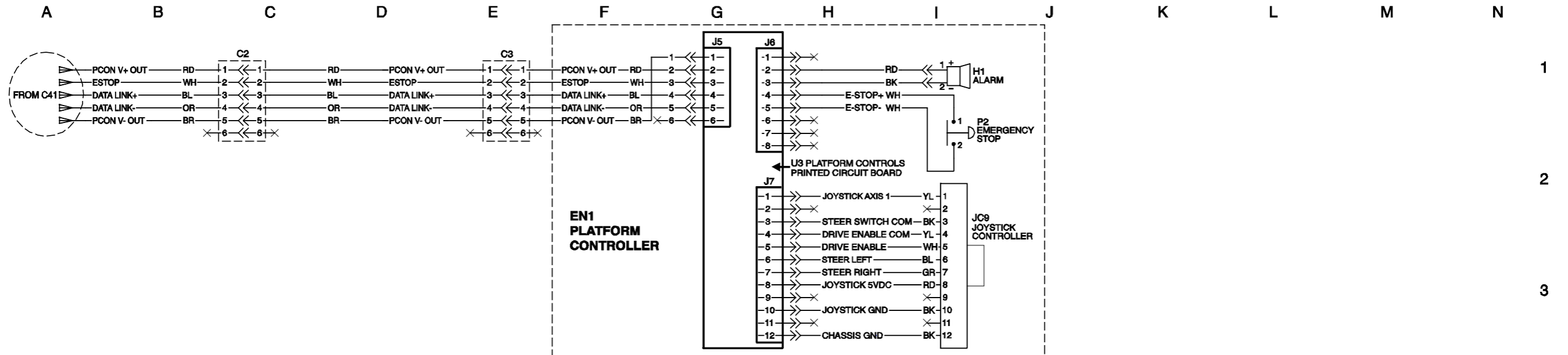
(from serial number GS3211A-110000)



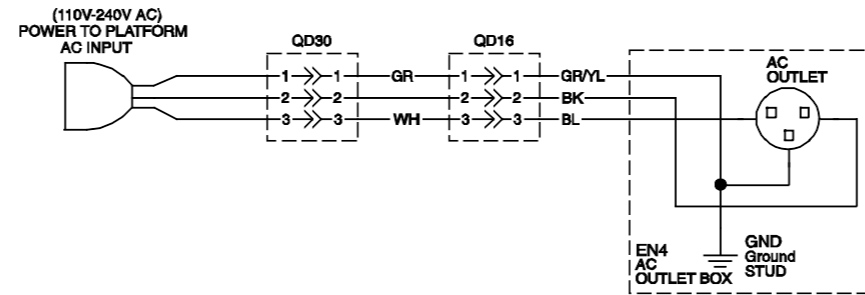
ES0584 F



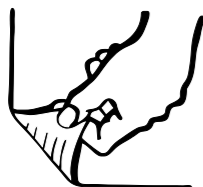
### Electrical Schematic • GS-2032 and GS-2632 ANSI and CSA Models (from serial number GS3211A-110000)



**-NOTE-**  
MACHINE SHOWN  
IN THE STOWED  
POSITION WITH  
THE POWER OFF

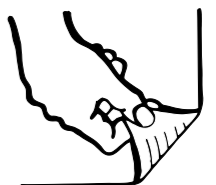


**Electrical Schematic • GS-2032 and GS-2632**  
**ANSI and CSA Models (from serial number GS3211A-110000)**



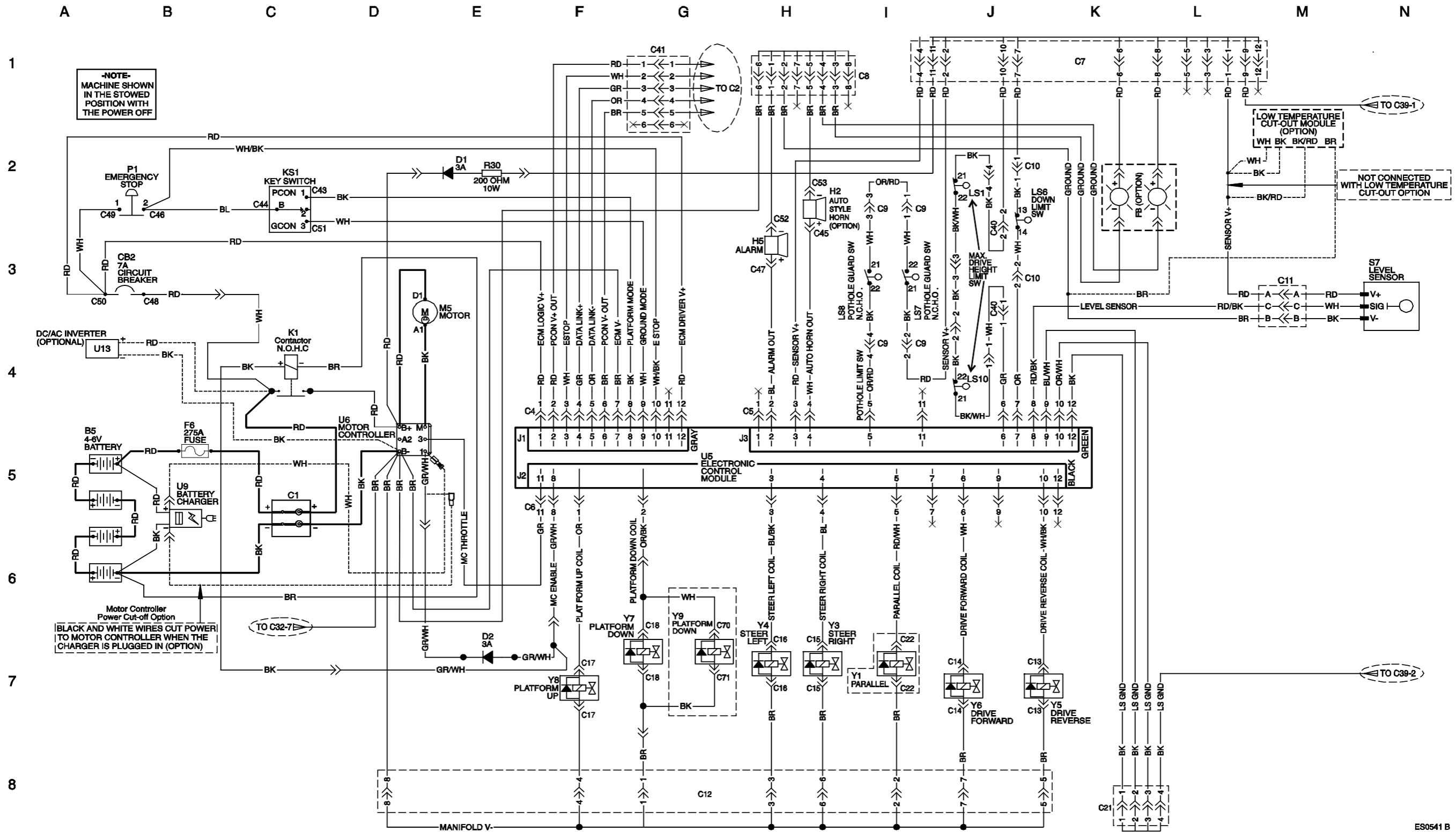
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**Electrical Schematic • GS-3232**  
ANSI and CSA Models (from serial number GS3211A-110000)



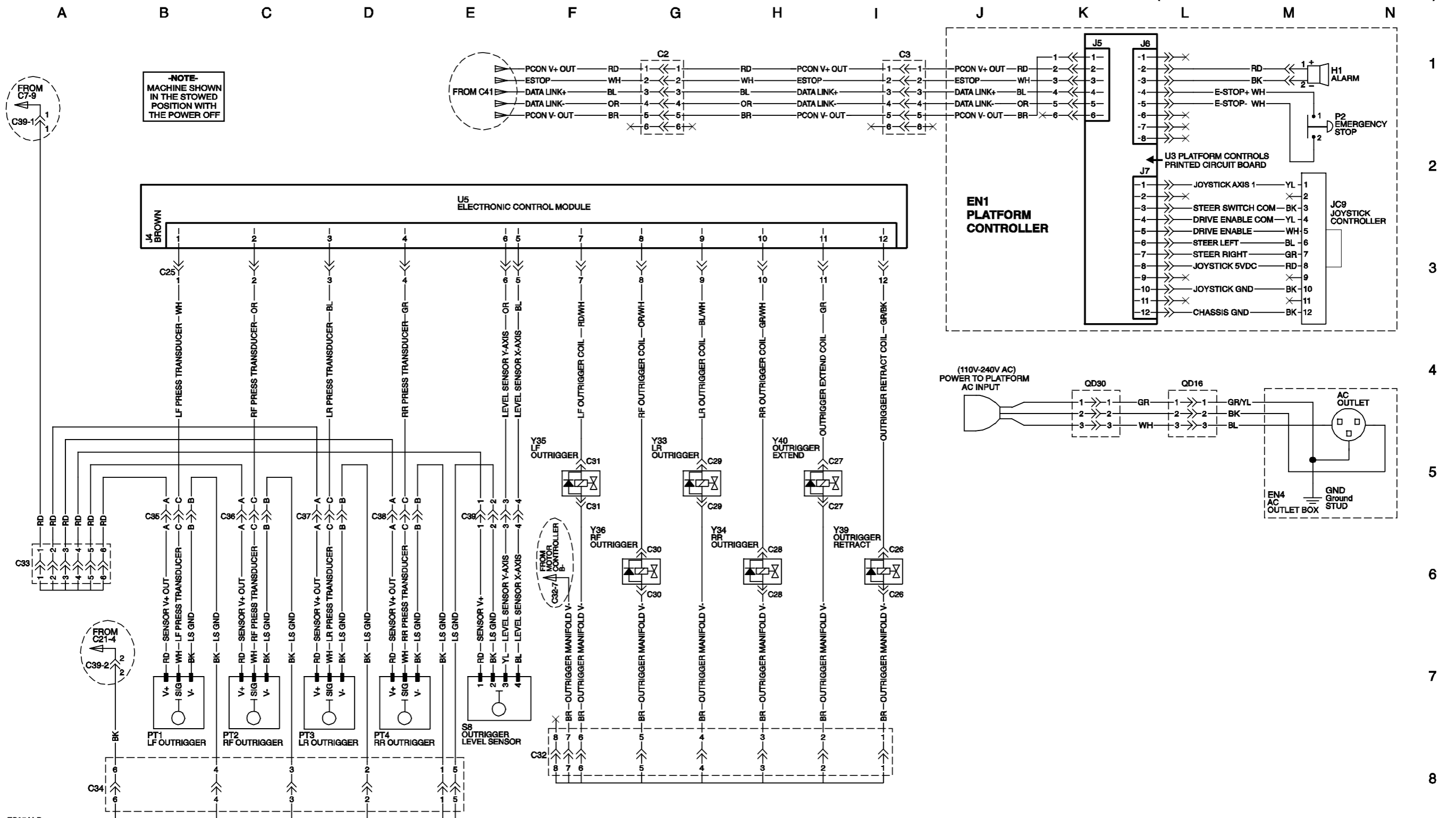
# Electrical Schematic • GS-3232 ANSI and CSA Models

(from serial number GS3211A-110000)





# Electrical Schematic • GS-3232 ANSI and CSA Models (from serial number GS3211A-11000)

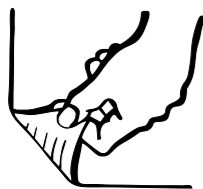


ES0541 B



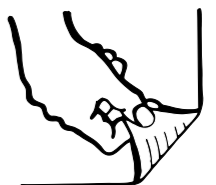
## Electrical Schematic • GS-3232

ANSI and CSA Models (from serial number GS3211A-110000)



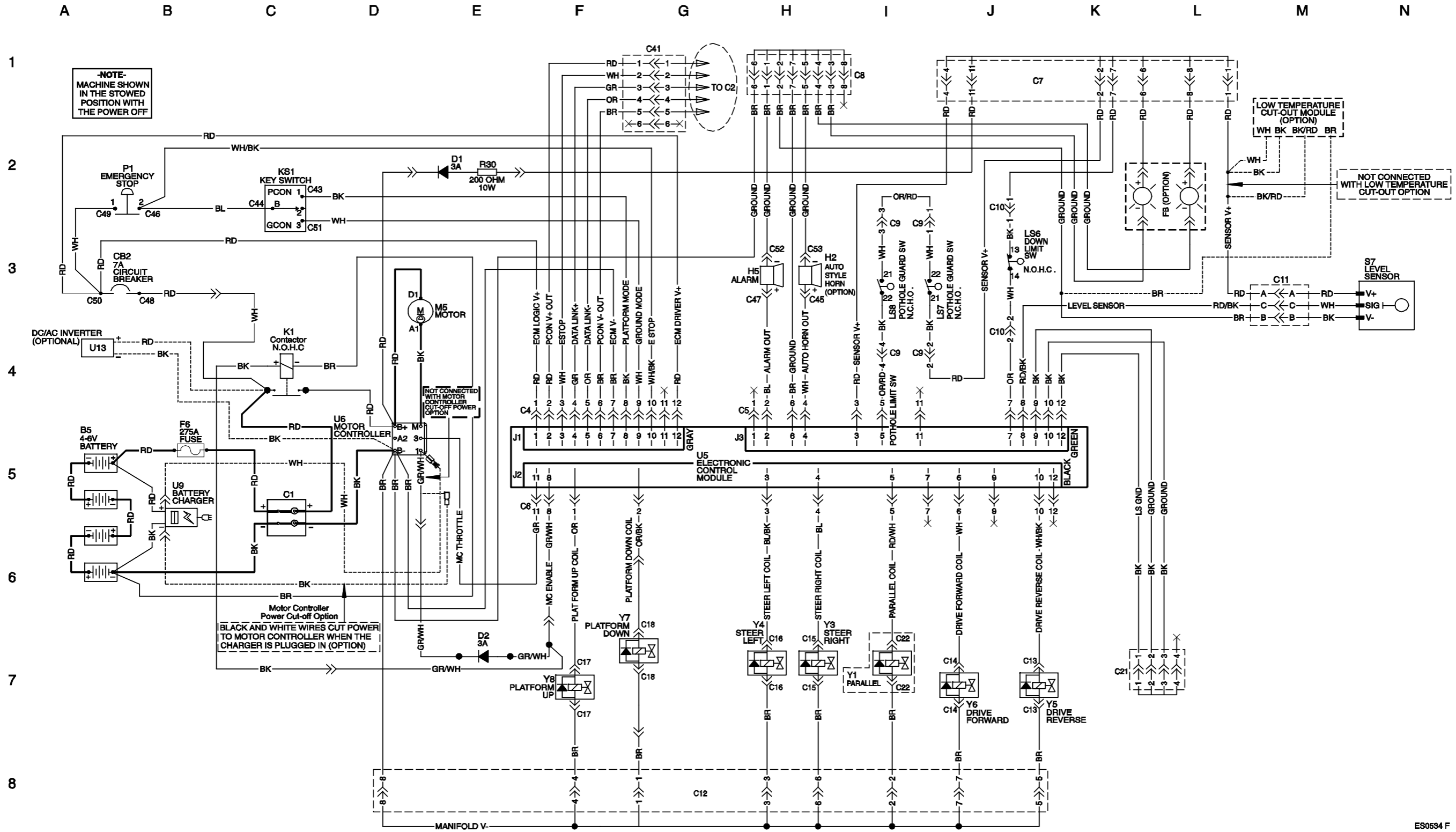
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**Electrical Schematic • GS-2046 and GS-2646**  
ANSI and CSA Models (from serial number GS4612A-110000)



# Electrical Schematic • GS-2046 and GS-2646 ANSI and CSA Models

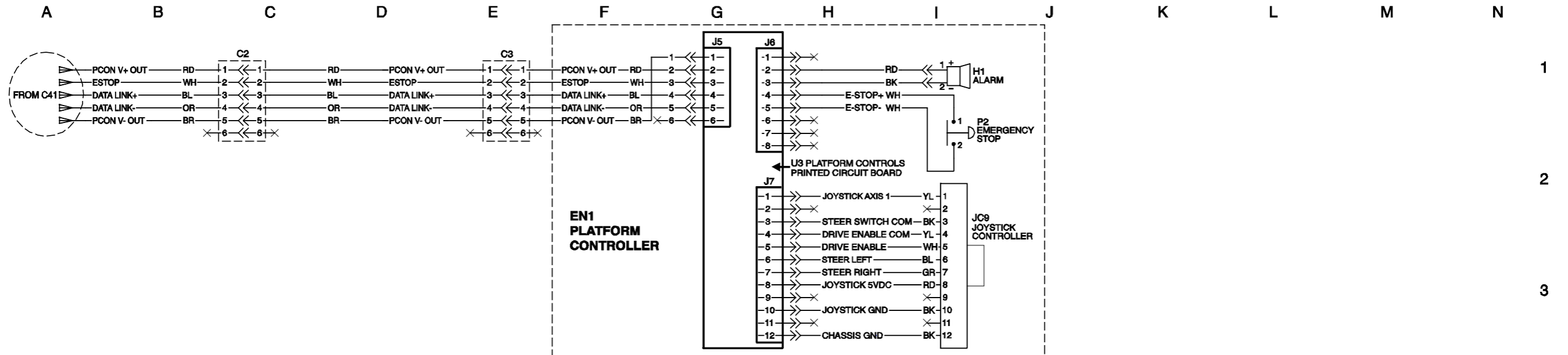
(from serial number GS4612A-110000)



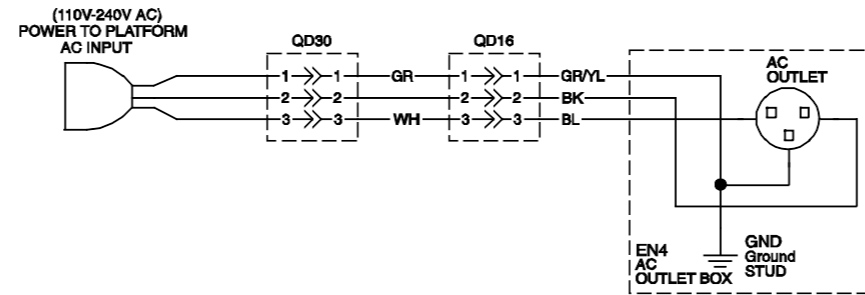
ES0584 F



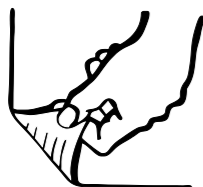
### Electrical Schematic • GS-2046 and GS-2646 ANSI and CSA Models (from serial number GS4612A-110000)



**-NOTE-**  
MACHINE SHOWN  
IN THE STOWED  
POSITION WITH  
THE POWER OFF

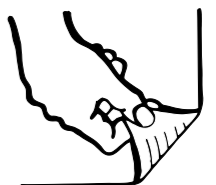


**Electrical Schematic • GS-2046 and GS-2646**  
**ANSI and CSA Models (from serial number GS4612A-110000)**



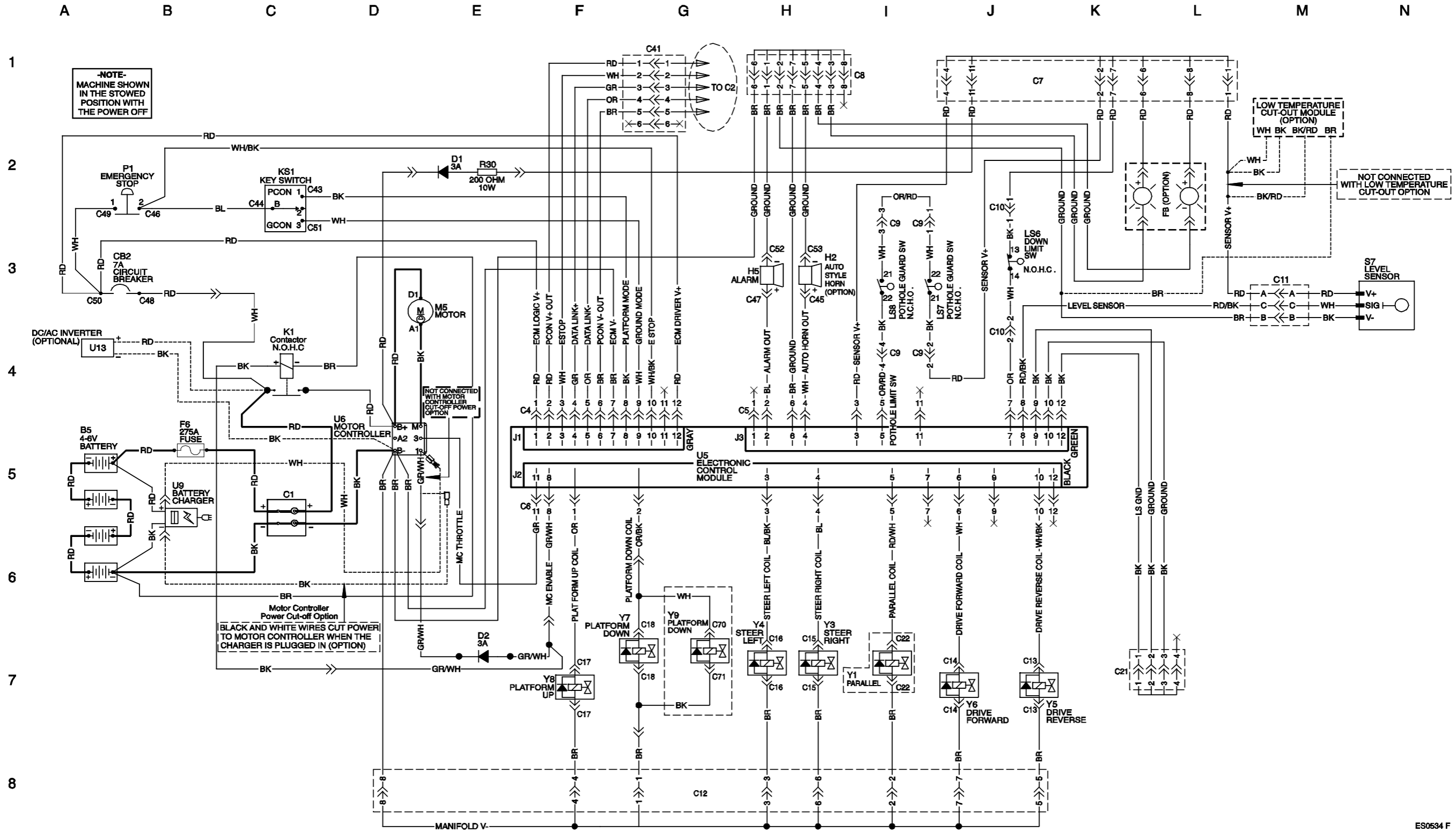
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**Electrical Schematic • GS-3246**  
ANSI and CSA Models (from serial number GS4612A-110000)



# Electrical Schematic • GS-3246 ANSI and CSA Models

(from serial number GS4612A-110000)

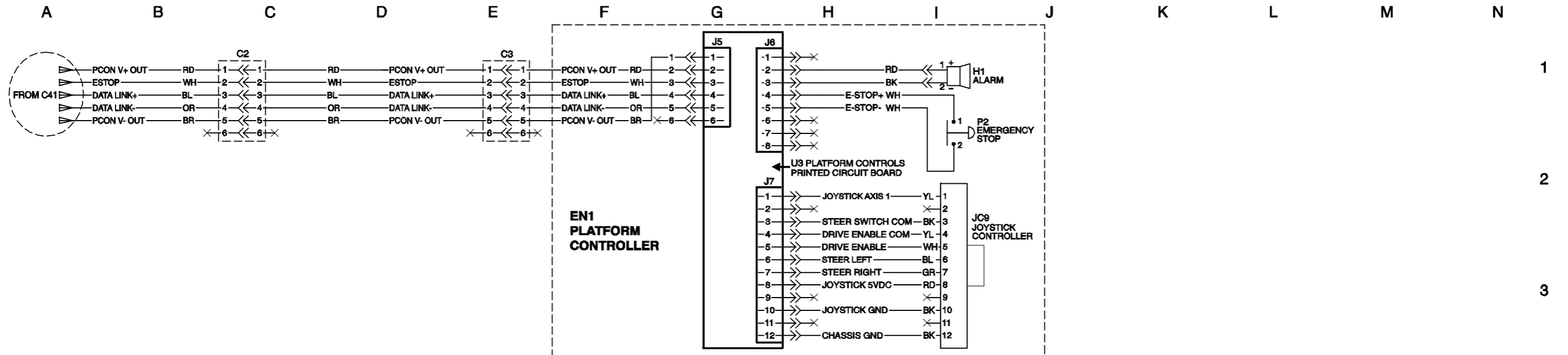


ES0634 F

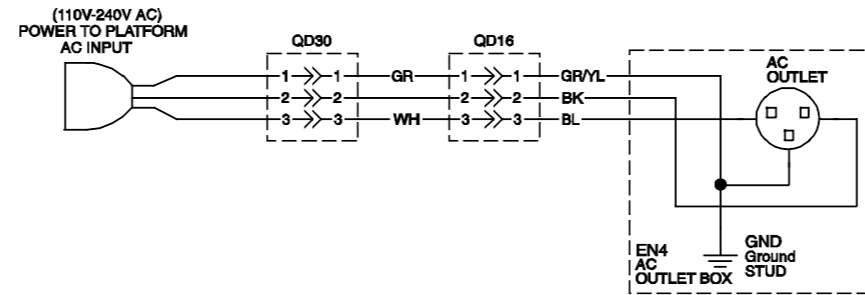




**Electrical Schematic • GS-3246 ANSI and CSA Models**  
(from serial number GS4612A-110000)

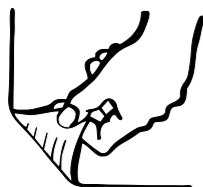


**-NOTE-**  
MACHINE SHOWN  
IN THE STOWED  
POSITION WITH  
THE POWER OFF

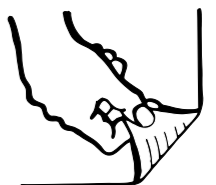


## Electrical Schematic • GS-3246

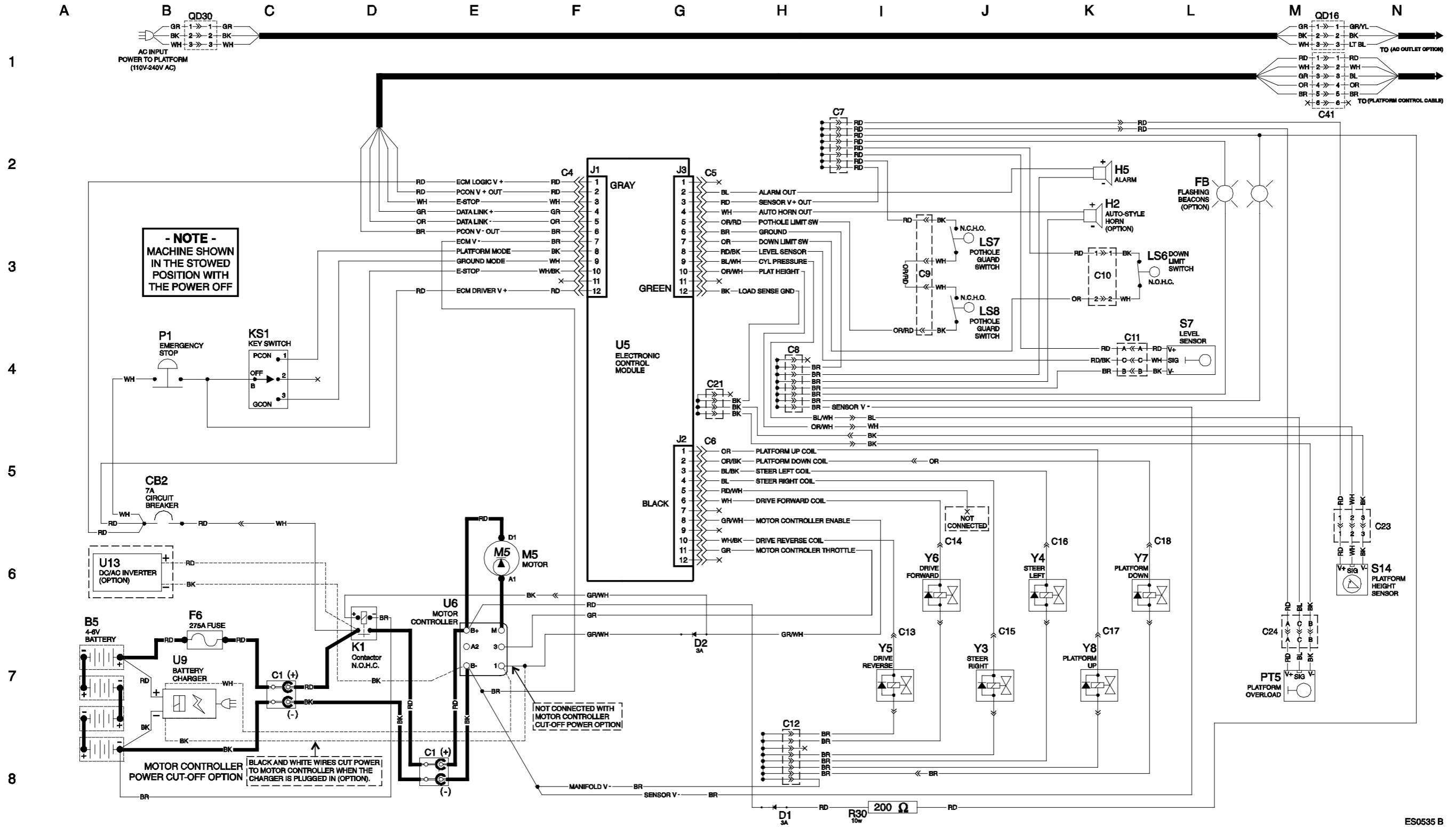
ANSI and CSA Models (from serial number GS4612A-110000)



**Electrical Schematic • GS-1530/32 and GS-1930/32**  
CE and AUS Models (from serial number GS3010A-110000 to GS3011A-110827)

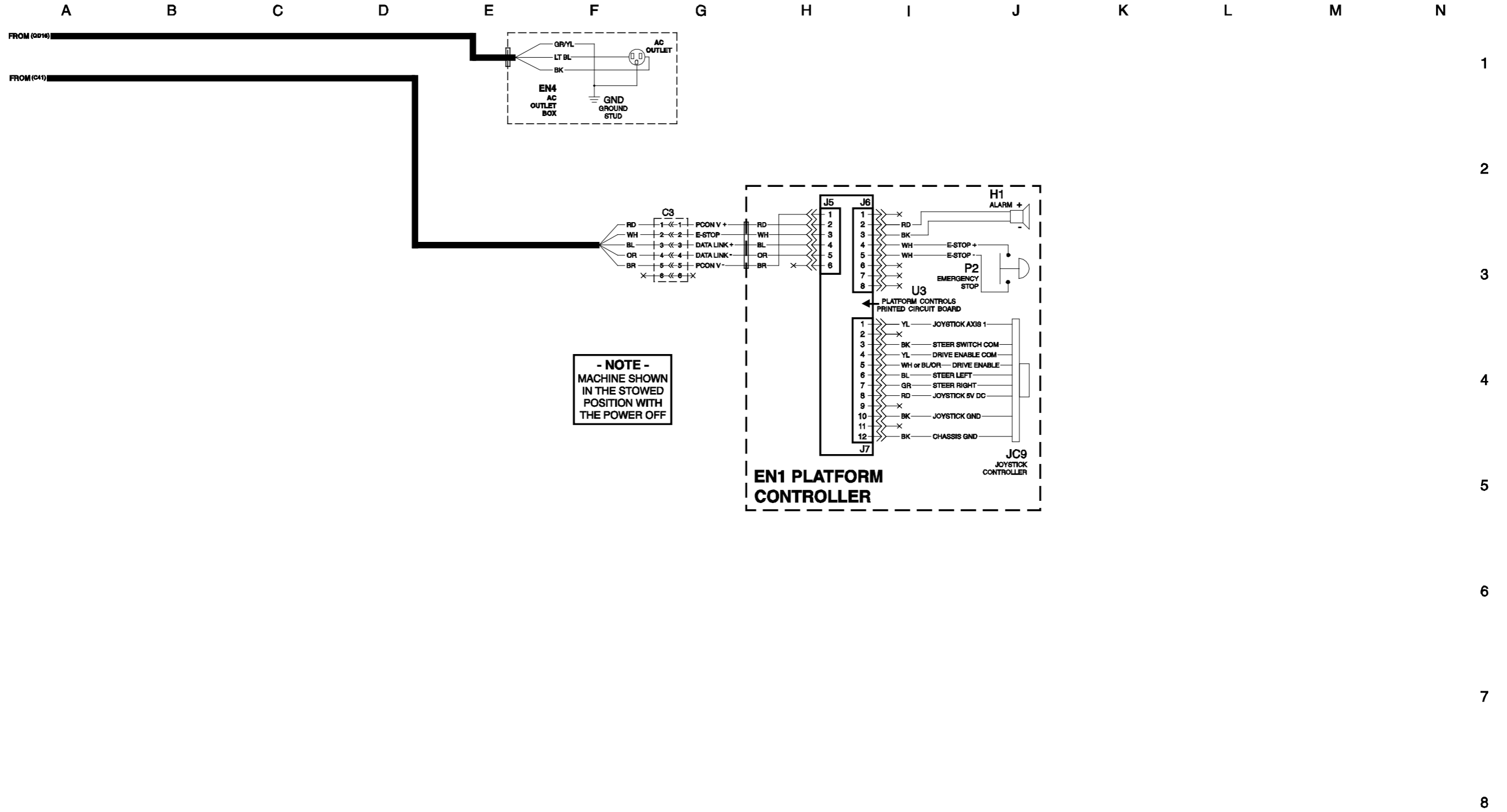


# Electrical Schematic • GS-1530/32 and GS-1930/32 CE and AUS Models (from serial number GS3010A-110000 to GS3011A-110827)



### Electrical Schematic • GS-1530/32 and GS-1930/32 CE and AUS Models

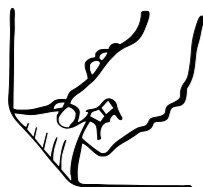
(from serial number GS3010-110000 to GS3011A-110827)



ES0535 B

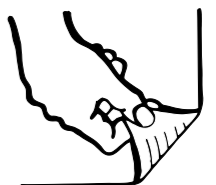
**Electrical Schematic • GS-1530/32 and GS-1930/32**

**CE and AUS Models (from serial number GS3010A-110000 and GS3011A-110827)**



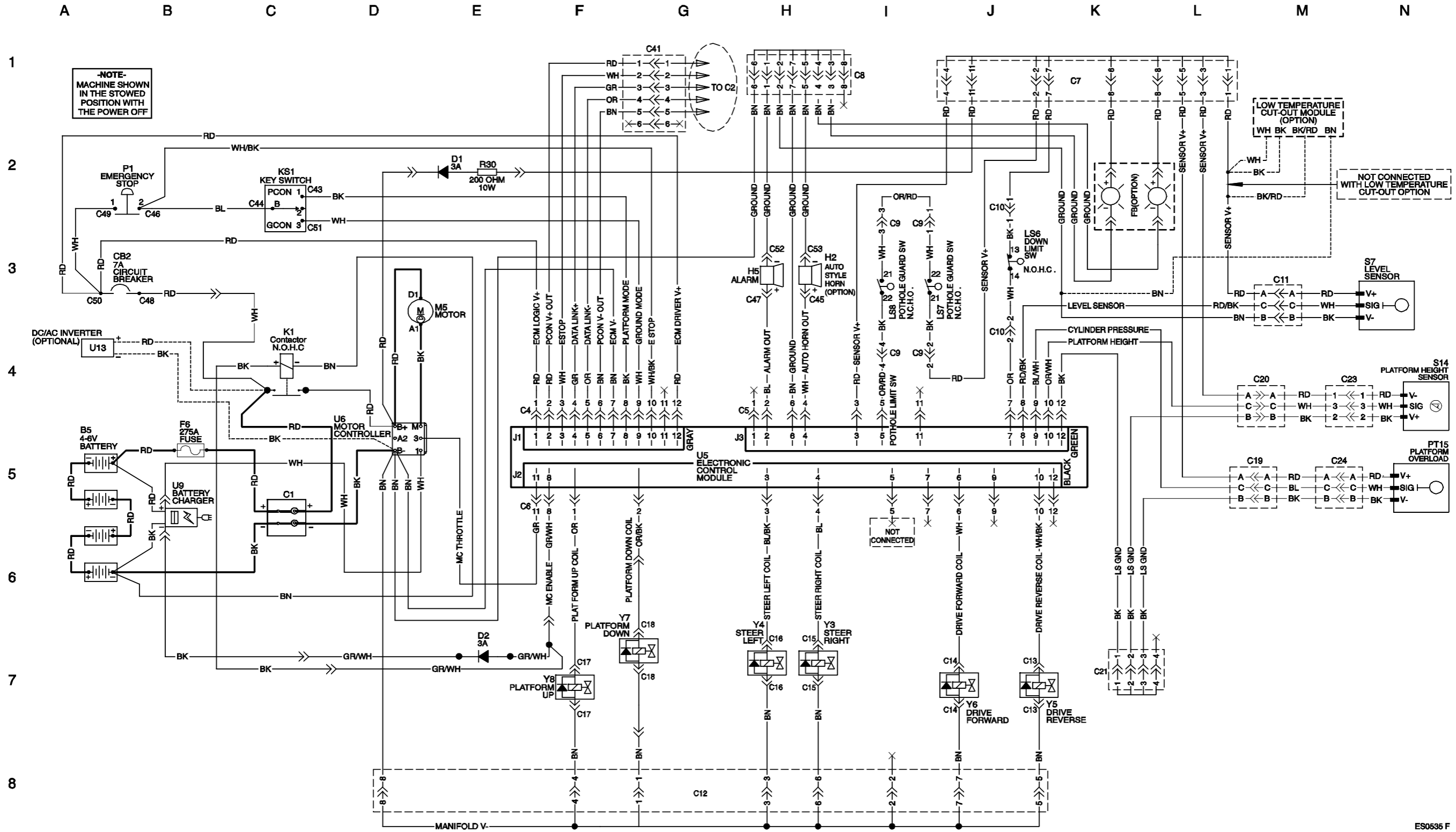
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**Electrical Schematic • GS-1530/32 and GS-1930/32**  
CE and AUS Models (from serial numbers GS3011A-110828 and GS3011C-10000)



# Electrical Schematic • GS-1530/32 and GS-1930/32 CE and AUS Models

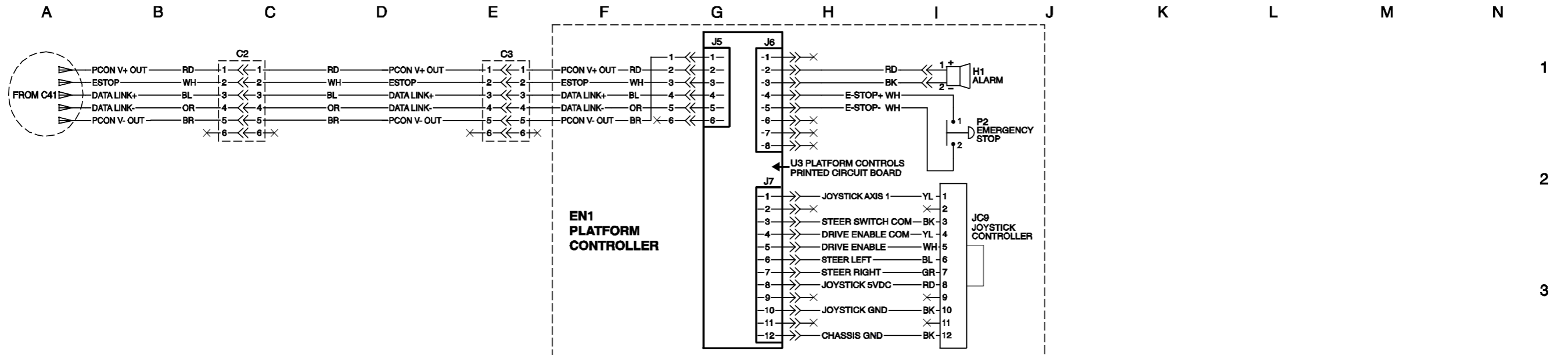
(from serial numbers GS3011A-110828 and GS3011C-10000)



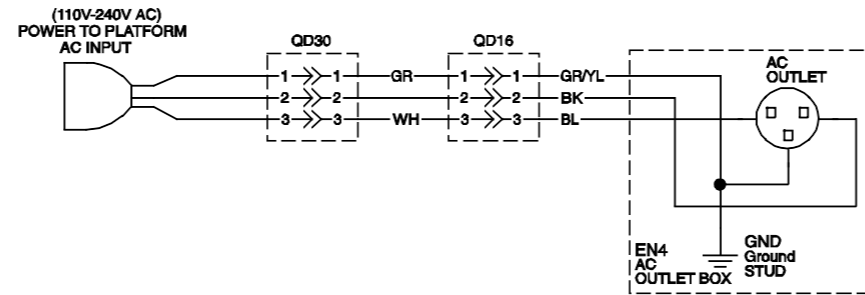


### Electrical Schematic • GS-1530/32 and GS-1930/32 CE and AUS Models

(from serial numbers GS3011A-110828 and GS3011C-10000)

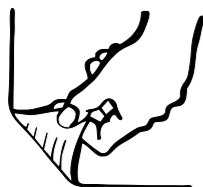


**-NOTE-**  
MACHINE SHOWN  
IN THE STOWED  
POSITION WITH  
THE POWER OFF



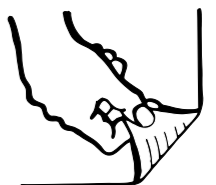
**Electrical Schematic • GS-1530/32 and GS-1930/32**

**CE and AUS Models (from serial numbers GS3011A-110828 and GS3011C-10000)**



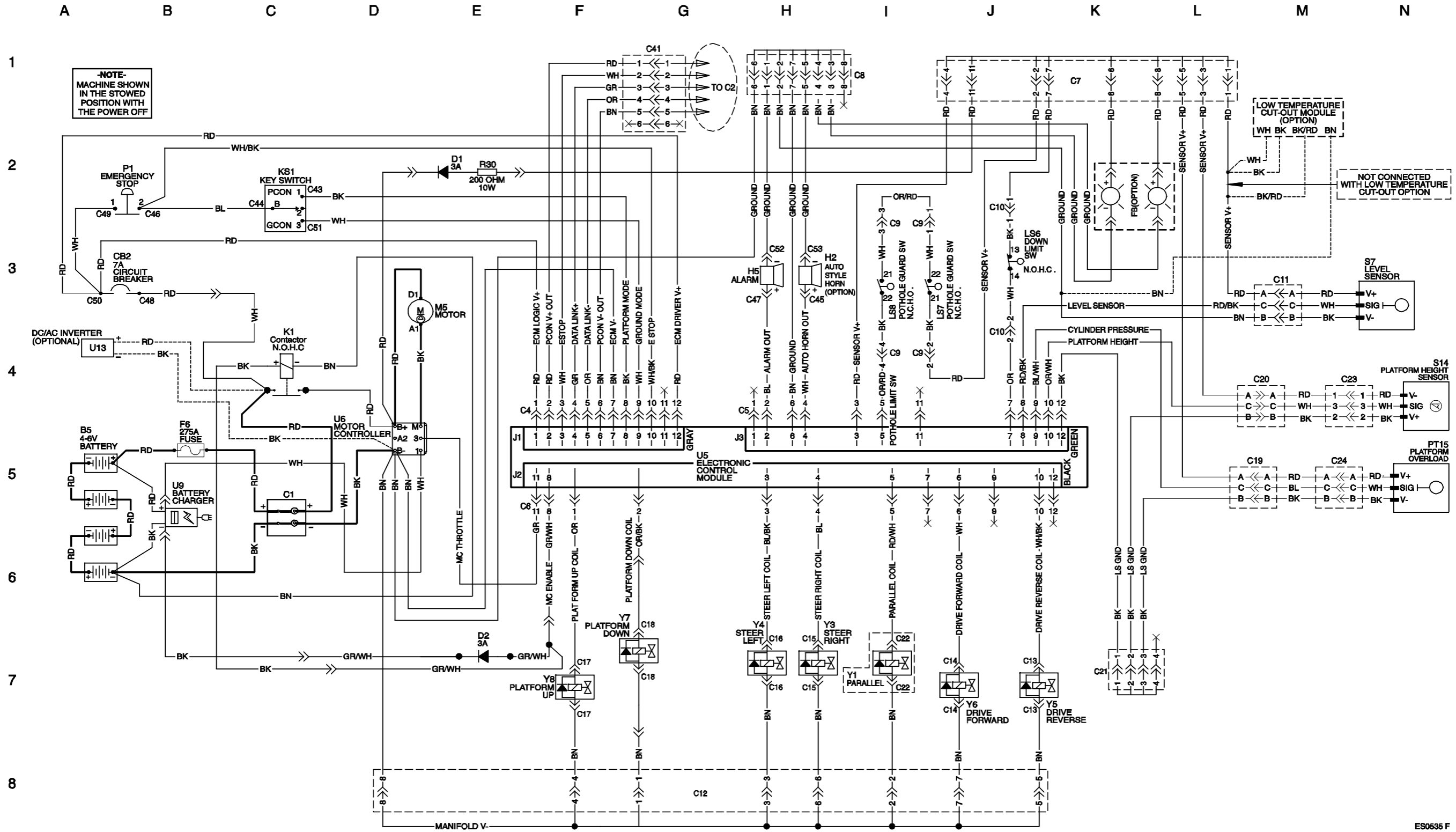
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**Electrical Schematic • GS-2032 and GS-2632**  
CE and AUS Models (from serial numbers GS3211A-110000 and GS3212C-10000)



# Electrical Schematic • GS-2032 and GS-2632 CE and AUS Models

(from serial numbers GS3211A-110000 and GS3212C-10000)

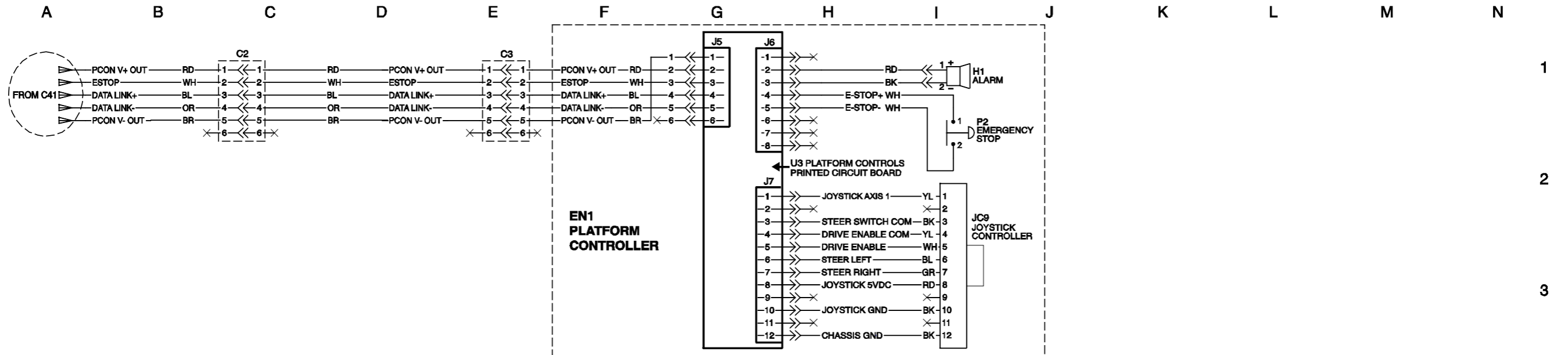


ES0535 F

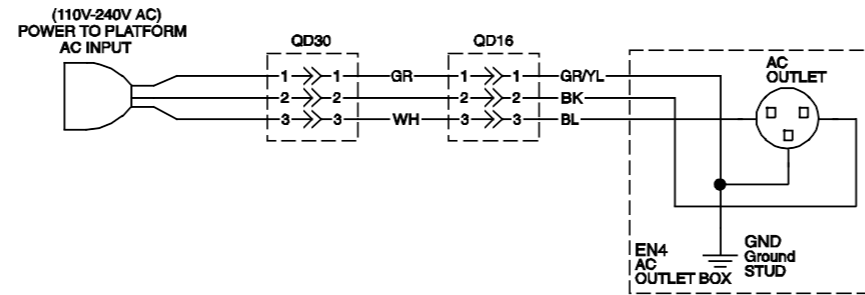


### Electrical Schematic • GS-2032 and GS-2632 CE and AUS Models

(from serial numbers GS3211A-110000 and GS3212C-10000)

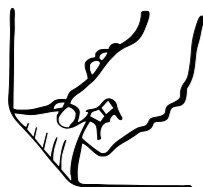


**-NOTE-**  
MACHINE SHOWN  
IN THE STOWED  
POSITION WITH  
THE POWER OFF



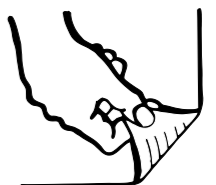
**Electrical Schematic • GS-2032 and GS-2632**

**CE and AUS Models (from serial numbers GS3211A-110000 and GS3212C-10000)**



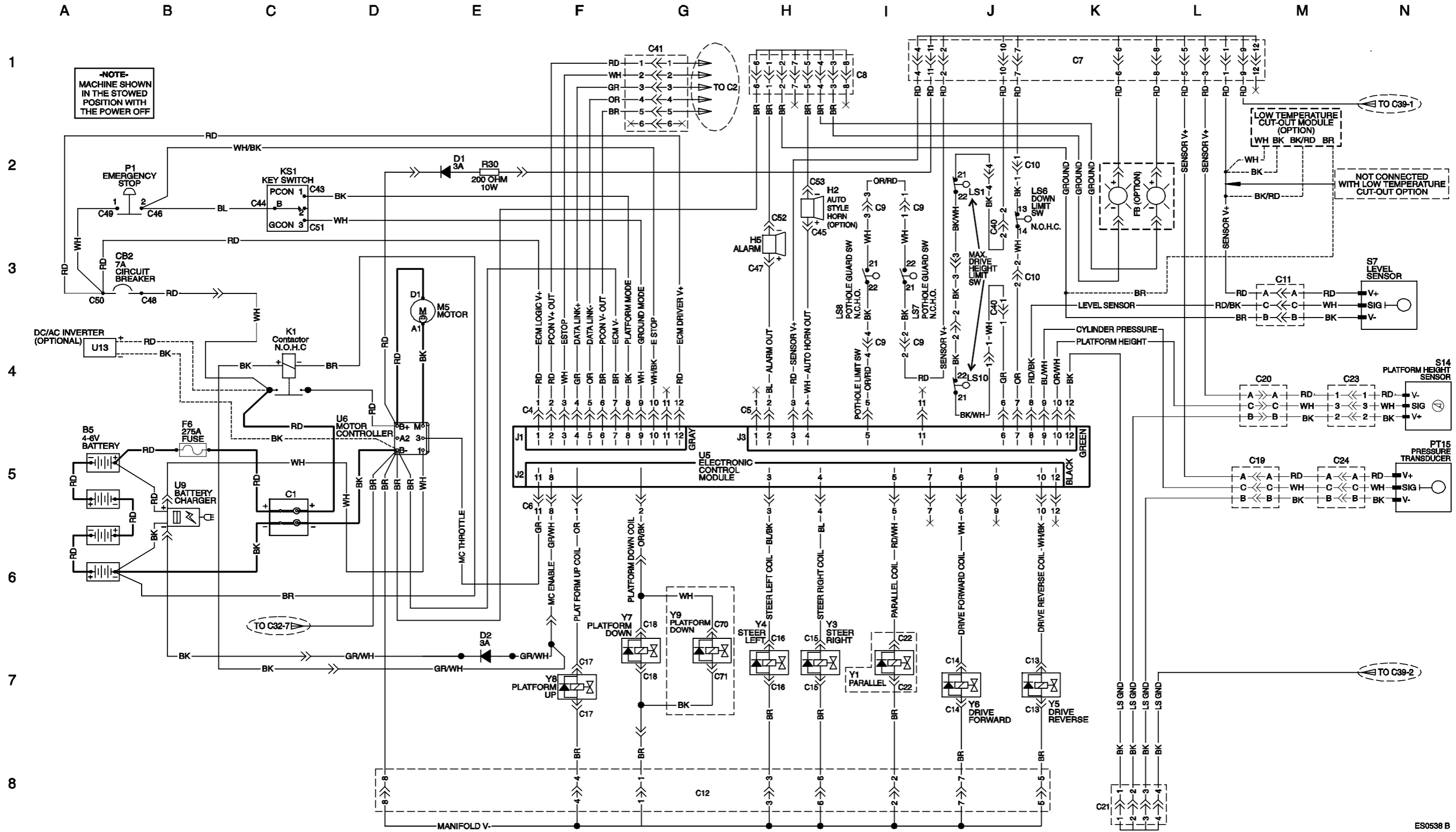
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**Electrical Schematic • GS-3232**  
CE and AUS Models (from serial numbers GS3211A-110000 and GS3212C-10000)



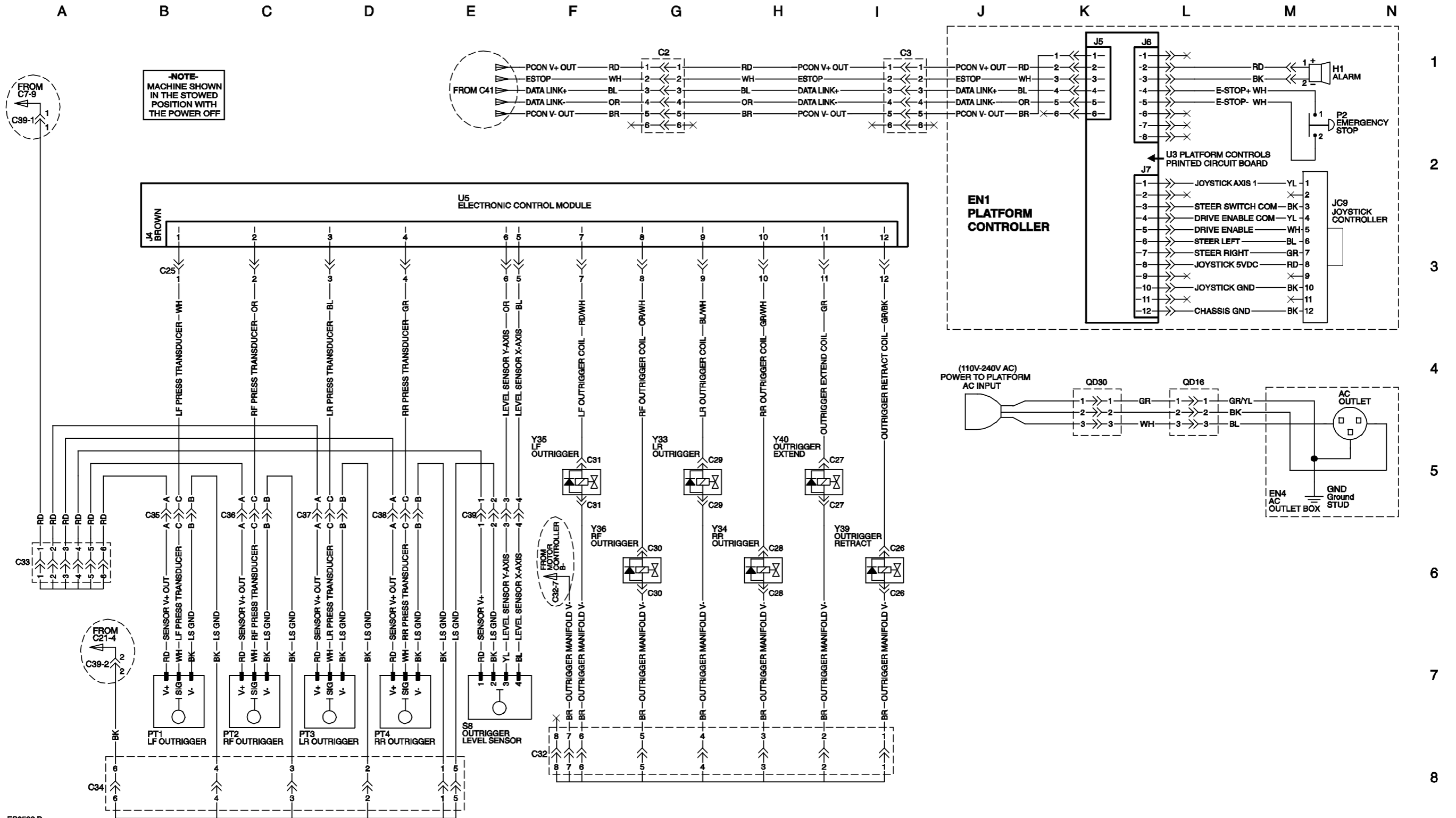
# Electrical Schematic • GS-3232 CE and AUS Models

(from serial numbers GS3211A-110000 and GS3212C-10000)





### Electrical Schematic • GS-3232 CE and AUS Models (from serial numbers GS3211A-110000 and GS3212C-10000)

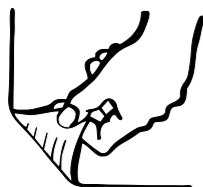


ES0538 B



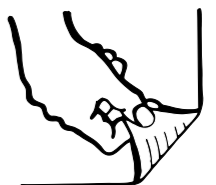
## Electrical Schematic • GS-3232

CE and AUS Models (from serial numbers GS3211A-110000 and GS3212C-10000)



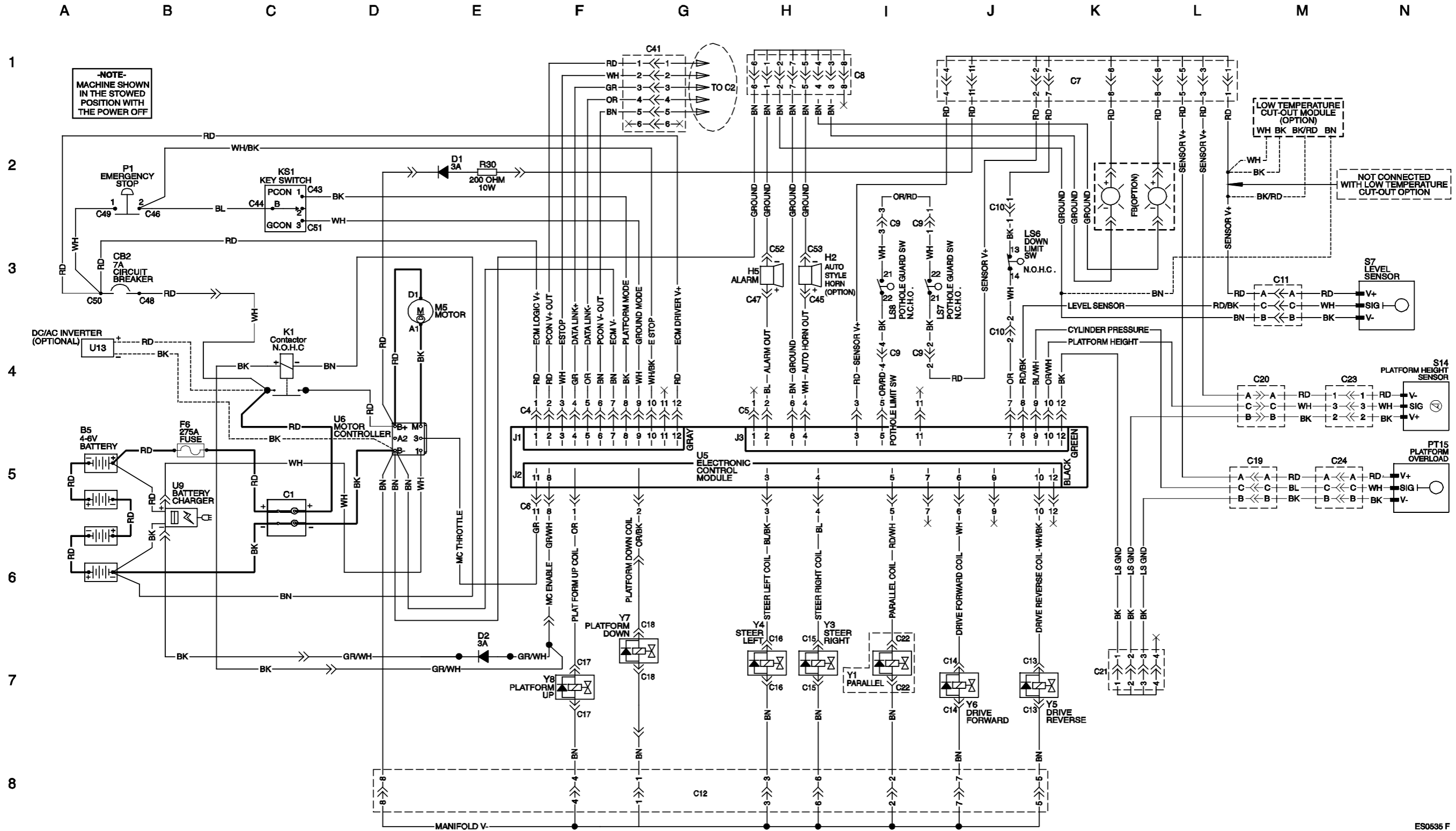
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**Electrical Schematic • GS-2046 and GS-2646**  
CE and AUS Models (from serial numbers GS4612A-110000 and GS4612C-10000)



# Electrical Schematic • GS-2046 and GS-2646 CE and AUS Models

(from serial numbers GS4612A-110000 and GS4612C-10000)

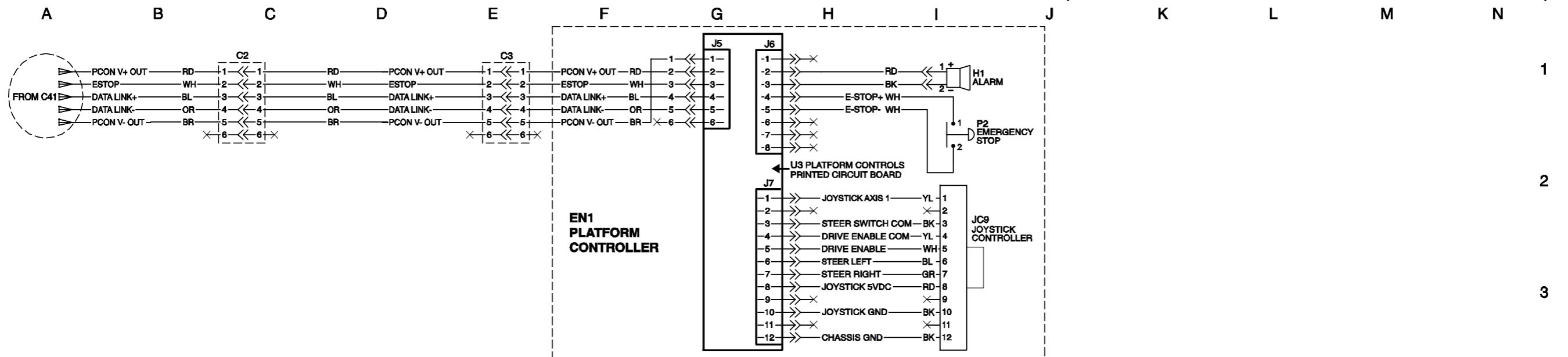


ES0535 F

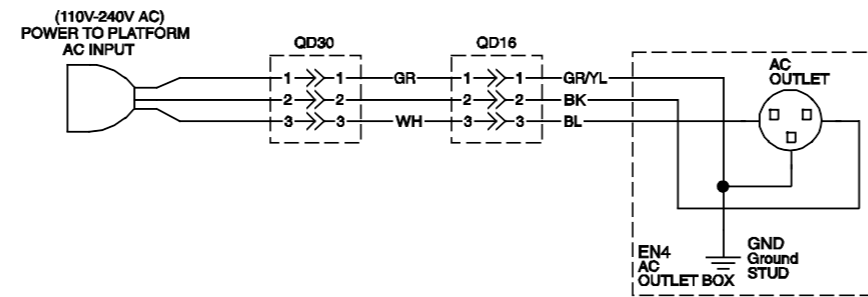


### Electrical Schematic • GS-2046 and GS-2646 CE and AUS Models

(from serial numbers GS4612A-110000 and GS4612C-10000)

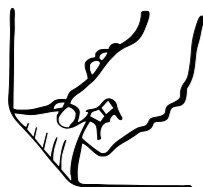


**-NOTE-**  
MACHINE SHOWN  
IN THE STOWED  
POSITION WITH  
THE POWER OFF



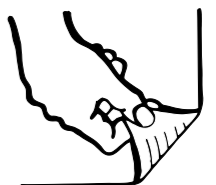
**Electrical Schematic • GS-2046 and GS-2646**

**CE and AUS Models (from serial numbers GS4612A-110000 and GS4612C-10000)**



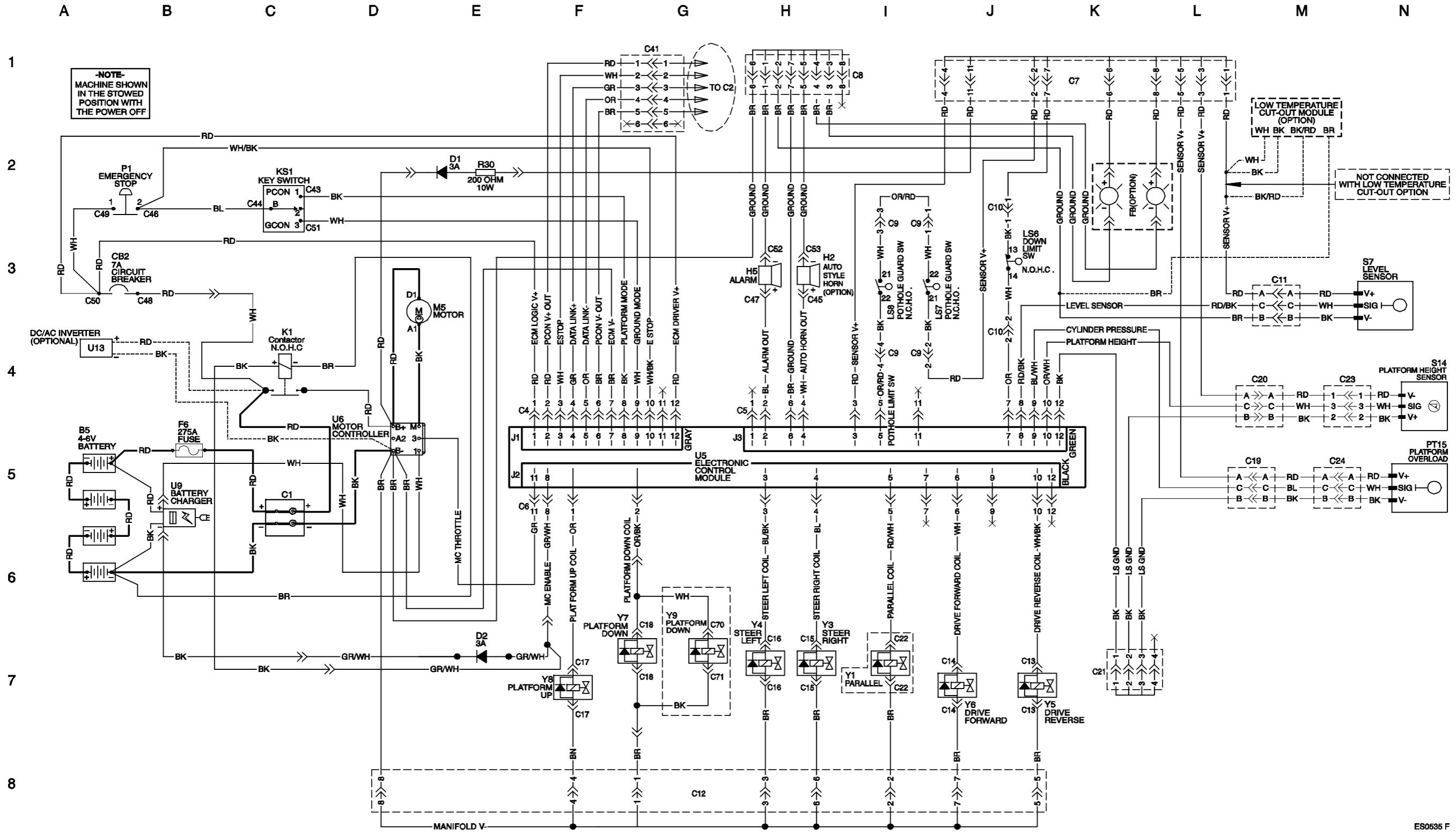
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**Electrical Schematic • GS-3246**  
CE and AUS Models (from serial numbers GS4612A-110000 and GS4612C-10000)



# Electrical Schematic • GS-3246 CE and AUS Models

(from serial numbers GS4612A-110000 and GS4612C-10000)



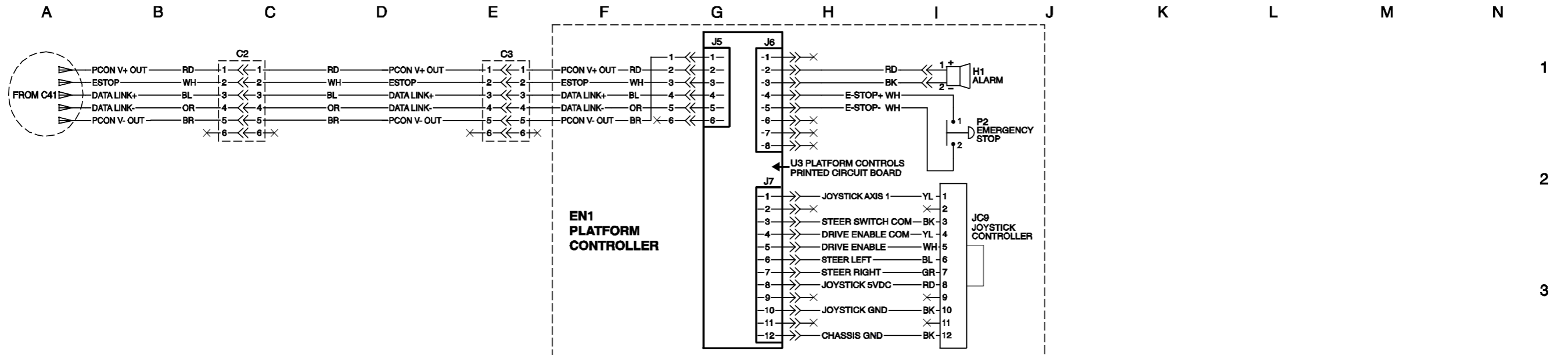
ES0535 F



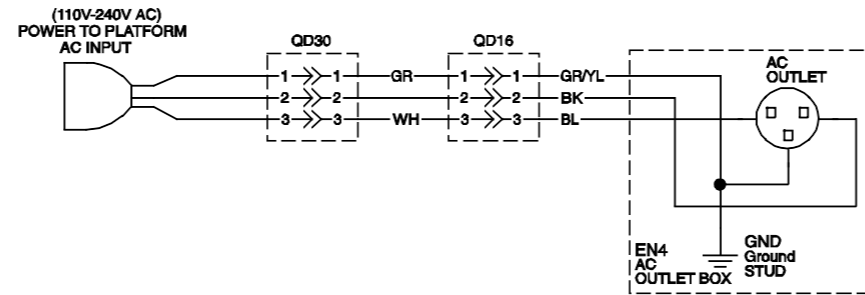


### Electrical Schematic • GS-3246 CE and AUS Models

(from serial numbers GS4612A-110000 and GS4612C-10000)

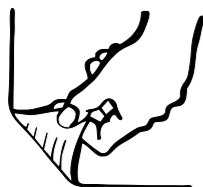


**-NOTE-**  
MACHINE SHOWN  
IN THE STOWED  
POSITION WITH  
THE POWER OFF



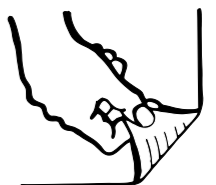
## Electrical Schematic • GS-3246

CE and AUS Models (from serial numbers GS4612A-110000 and GS4612C-10000)



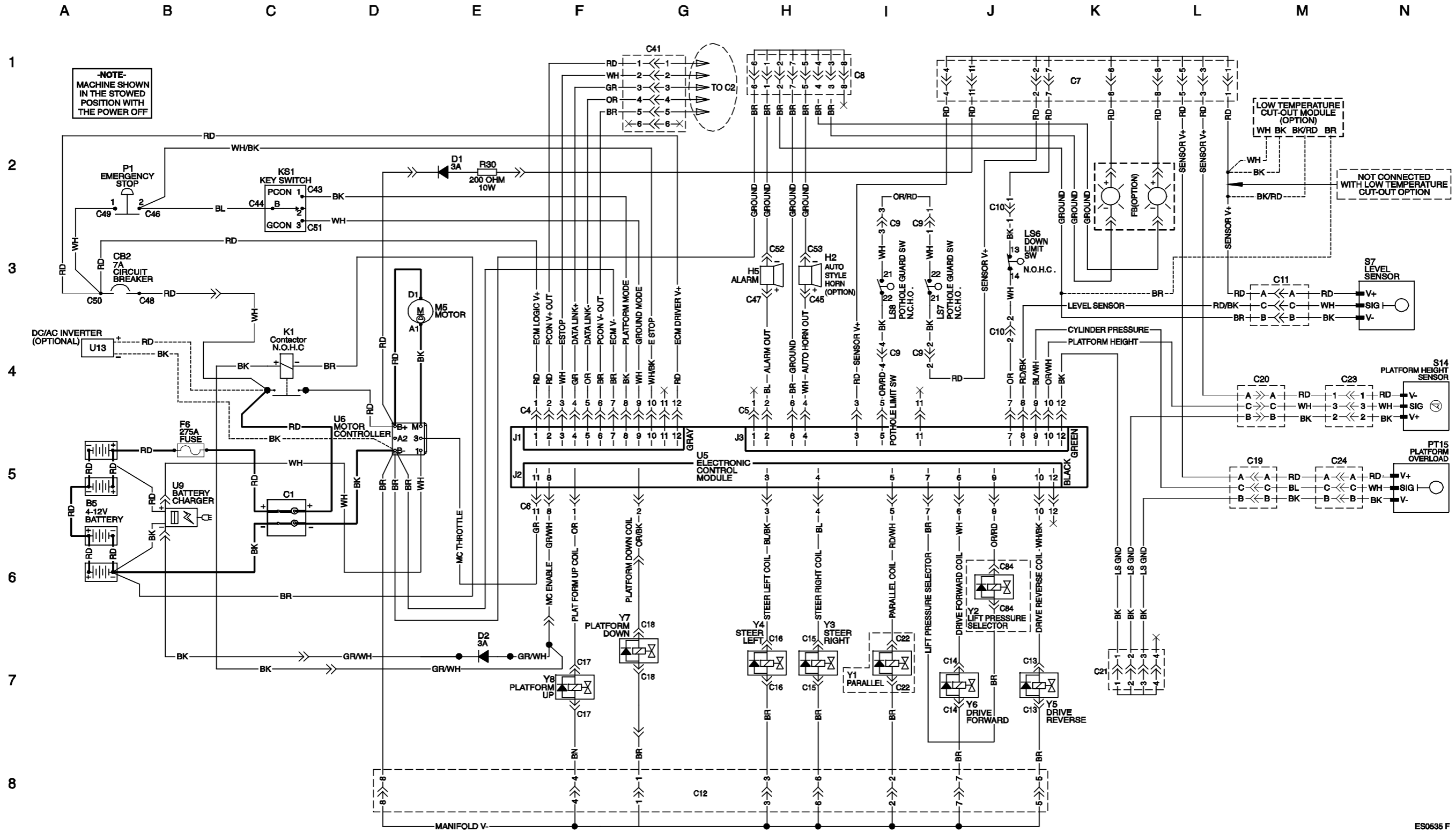
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**Electrical Schematic • GS-4047**  
CE and AUS Models (from serial number GS4712C-101)



# Electrical Schematic • GS-4047 CE and AUS Models

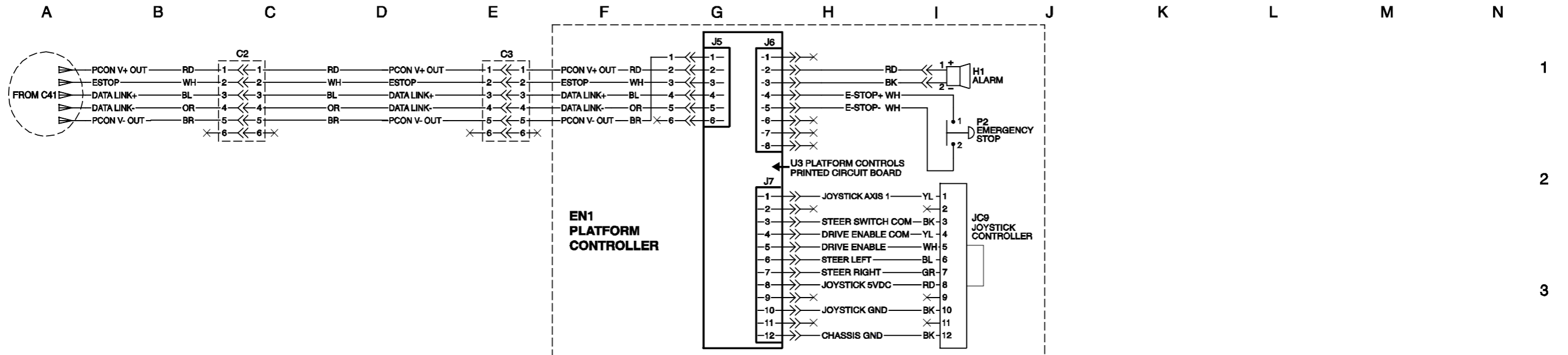
(from serial number GS4712C-101)



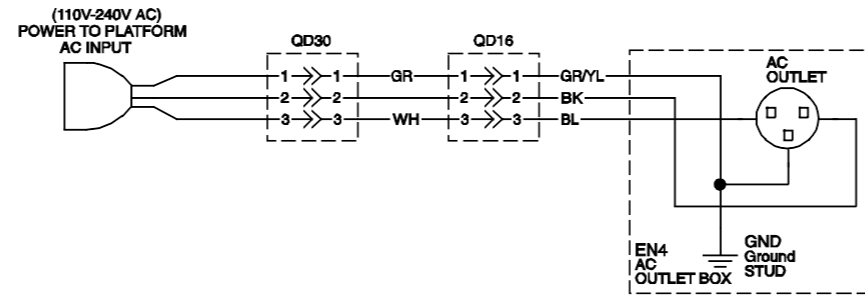
ES0535 F



**Electrical Schematic • GS-4047 CE and AUS Models**  
(from serial number GS4712C-101)

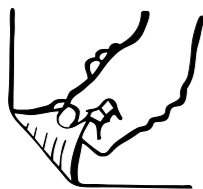


**-NOTE-**  
MACHINE SHOWN  
IN THE STOWED  
POSITION WITH  
THE POWER OFF



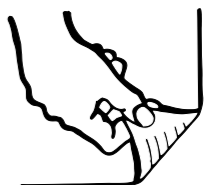
## Electrical Schematic • GS-4047

CE and AUS Models (from serial number GS4712C-101)



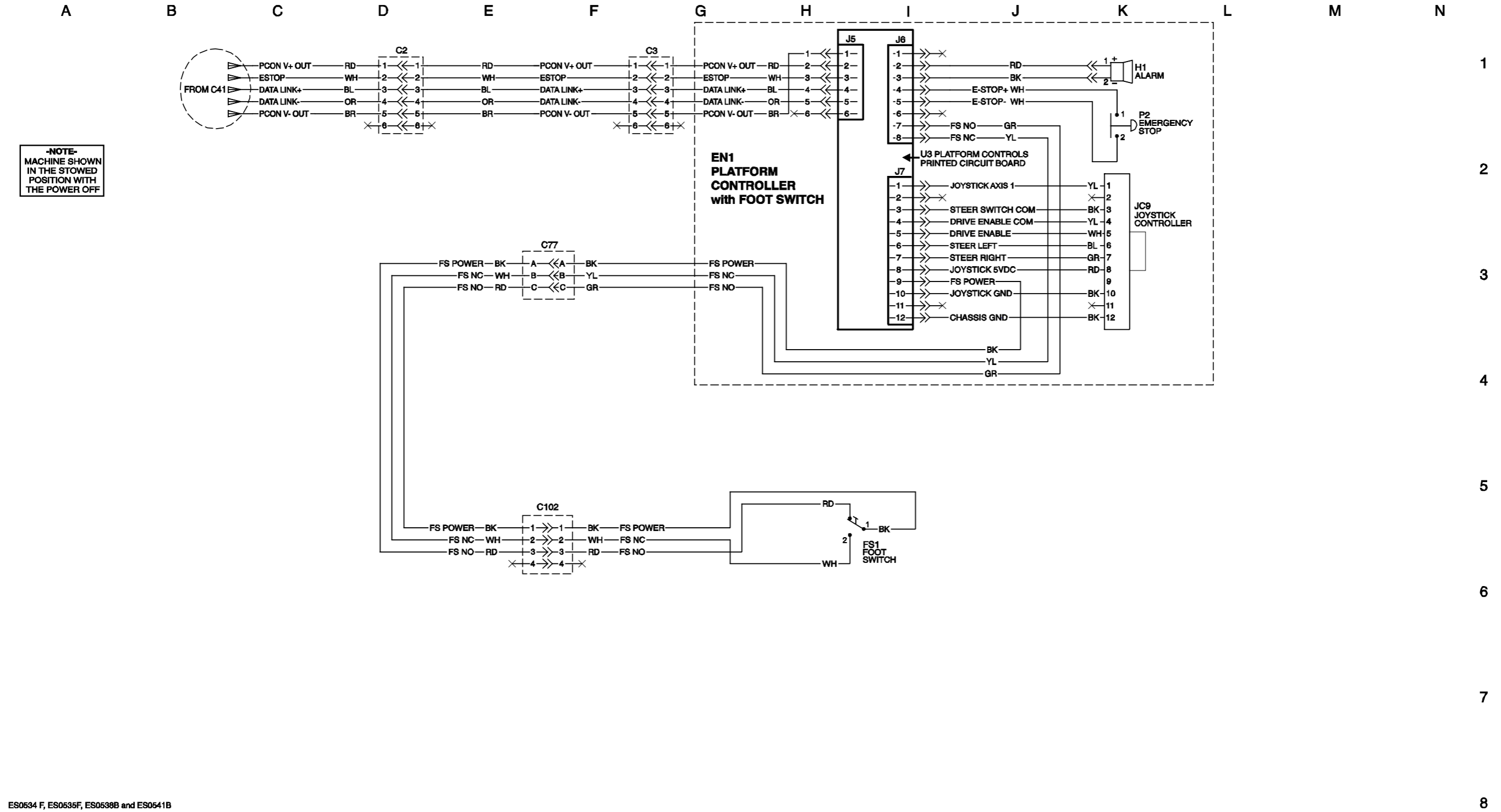
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**Electrical Schematic • Foot Switch (option) All Models**  
(from serial number GS3010A-110000, GS3011C-10000, GS3211A-110000,  
GS3212C-10000, GS4612A-110000, GS4612C-10000 and GS4712C-101)



### Electrical Schematic • Foot Switch (option) All Models

(from serial number GS3010A-110000, GS3011C-10000, GS-3211A-110000, GS3212C-10000, GS4612A-110000, GS4612C-10000 and GS4712C-101)

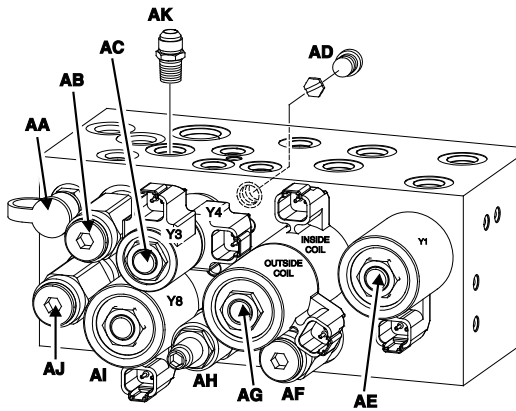




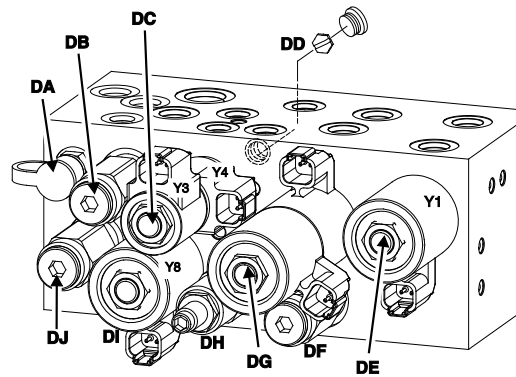
# Hydraulic Symbols Legend

<p>Hydraulic cylinder</p>	<p>Variable speed motor</p>	<p>Pressure transducer</p>	<p>Solenoid operated 2 position 4 way directional valve</p>
<p>Relief valve</p>	<p>Bi-directional motor</p>	<p>Solenoid operated 2 position 2 way blocking valve normally open</p>	<p>Solenoid operated 2 position 4 way directional valve</p>
<p>Priority flow regulator</p>	<p>Brake</p>	<p>Solenoid operated 2 position 2 way valve normally closed</p>	<p>Proportional solenoid operated 2 position 2 way directional valve normally closed</p>
<p>Accumulator</p>	<p>Check valve</p>	<p>Solenoid operated 2 position 2 way directional valve normally closed</p>	<p>Solenoid operated 3 position 5 way directional valve</p>
<p>Fixed displacement pump</p>	<p>Shuttle valve</p>	<p>Solenoid operated 3 position 4 way directional valve</p>	<p>Solenoid operated 3 position 4 way directional valve</p>
<p>Filter</p>	<p>Orifice with size</p>		

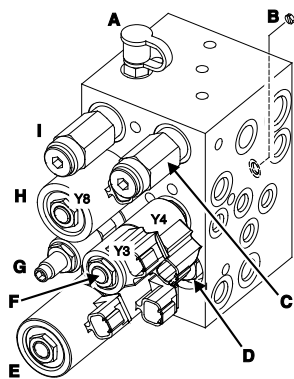
# Hydraulic Component Reference Legend



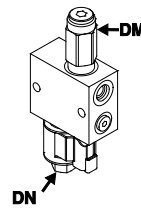
Function Manifold  
GS-2032, GS-2632, GS-3232, GS-2046, GS-2646 and  
GS-3246



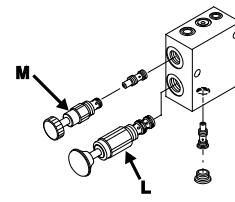
Function Manifold  
GS-4047



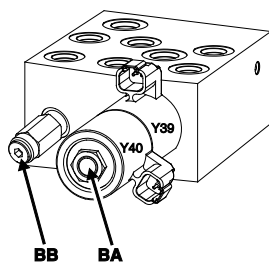
Function Manifold  
GS-1530, GS-1532, GS-1930 and GS-1932



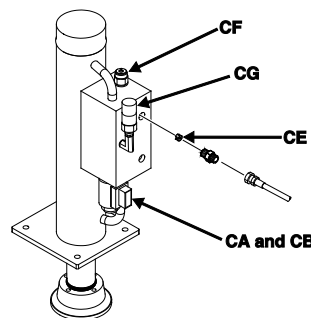
Lift Pressure Selector  
Manifold  
GS-4047



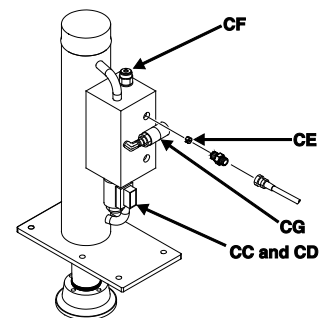
Brake Release Manifold  
All Models



Outrigger Manifold  
GS-3232



Front Outrigger Cylinder  
GS-3232



Rear Outrigger Cylinder  
GS-3232

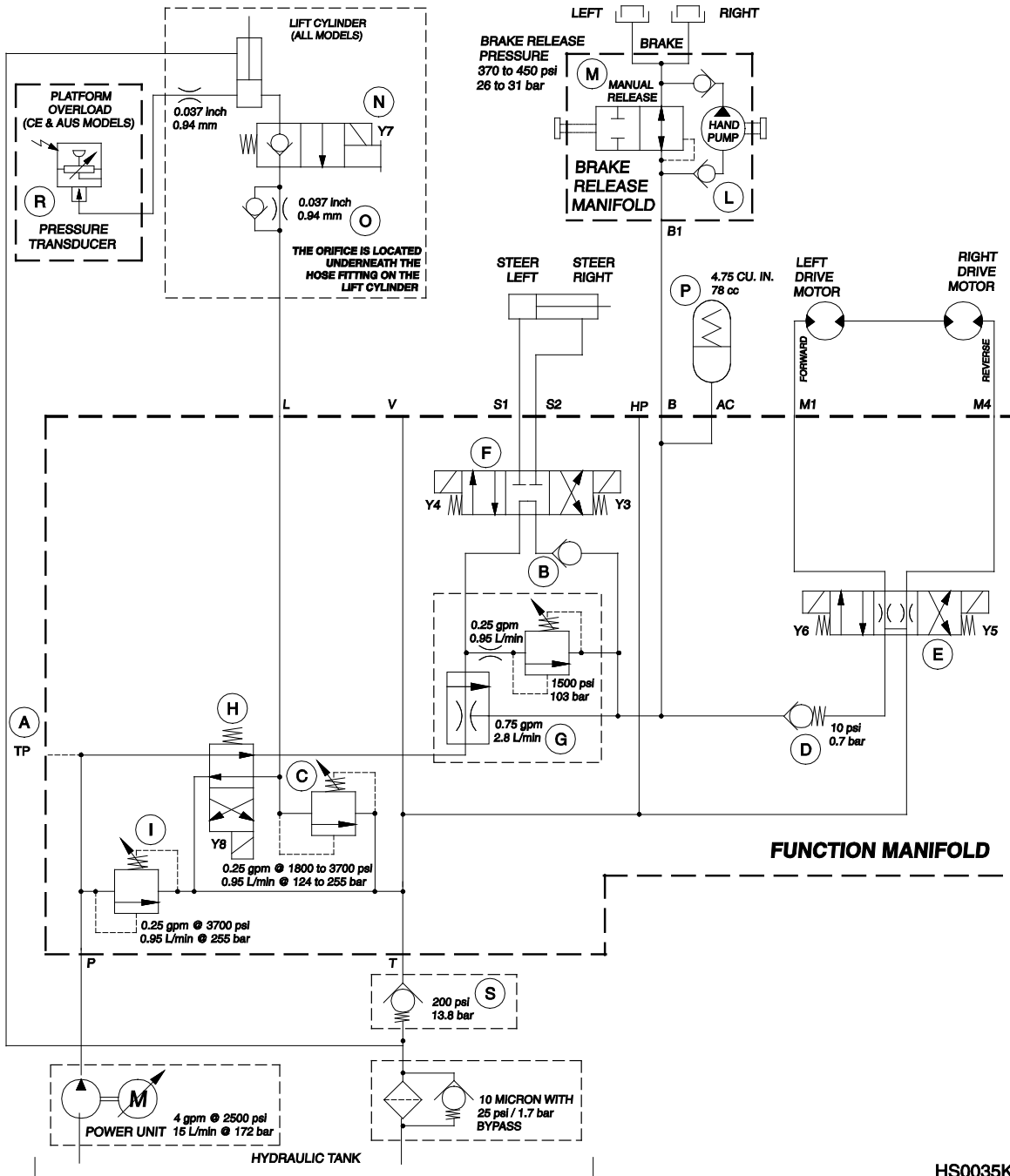
## Hydraulic Component Abbreviation Legend

Item	Description
A	Test port
B	Check valve, steer circuit
C	Relief valve, lift
D	Check valve, drive circuit
E	Drive forward/reverse
F	Steer left/right
G	Flow regulator/relief valve
H	Platform up
I	Relief valve, system
L	Hand pump, manual brake release
M	Needle valve, manual brake release
N	Platform lowering valve
O	Orifice, platform down circuit
P	Accumulator
Q	Relief valve, platform down
R	Pressure transducer, platform overload (CE only)
S	Check valve, drive circuit
AA	Test Port
AB	Relief valve, system
AC	Steer left/right
AD	Check dics, steer circuit
AE	Drive speed
AF	Relief valve, brake circuit
AG	Drive forward/reverse
AH	Flow regulator/relive valve
AI	Platform up
AJ	Relief valve, lift
AK	Check valve, lift (GS-3232 and GS-3246 equipped with load sense only)

Item	Description
BA	3 position, 4 way directional valve – outrigger cylinder extend/retract
BB	Relief valve, outrigger circuit
CA	Right front outrigger extend/retract
CB	Left front outrigger extend/retract
CC	Right rear outrigger extend/retract
CD	Left rear outrigger extend/retract
CE	Orifice plug – outrigger retract
CF	Check valve, pilot operated
CG	Pressure transducer
DA	Test port
DB	Relief valve, system
DC	Steer left/right
DD	Check valve steer circuit
DE	Drive speed
DF	Relief valve, brake release
DG	Drive forward/reverse
DH	Flow regulator/relief valve
DI	Platform up
DJ	Relief valve, lift
DK	Check valve, upper cylinder
DL	Check valve, lower cylinder
DM	Relief valve, lift
DN	Lift circuit
DO	Platform lowering valve

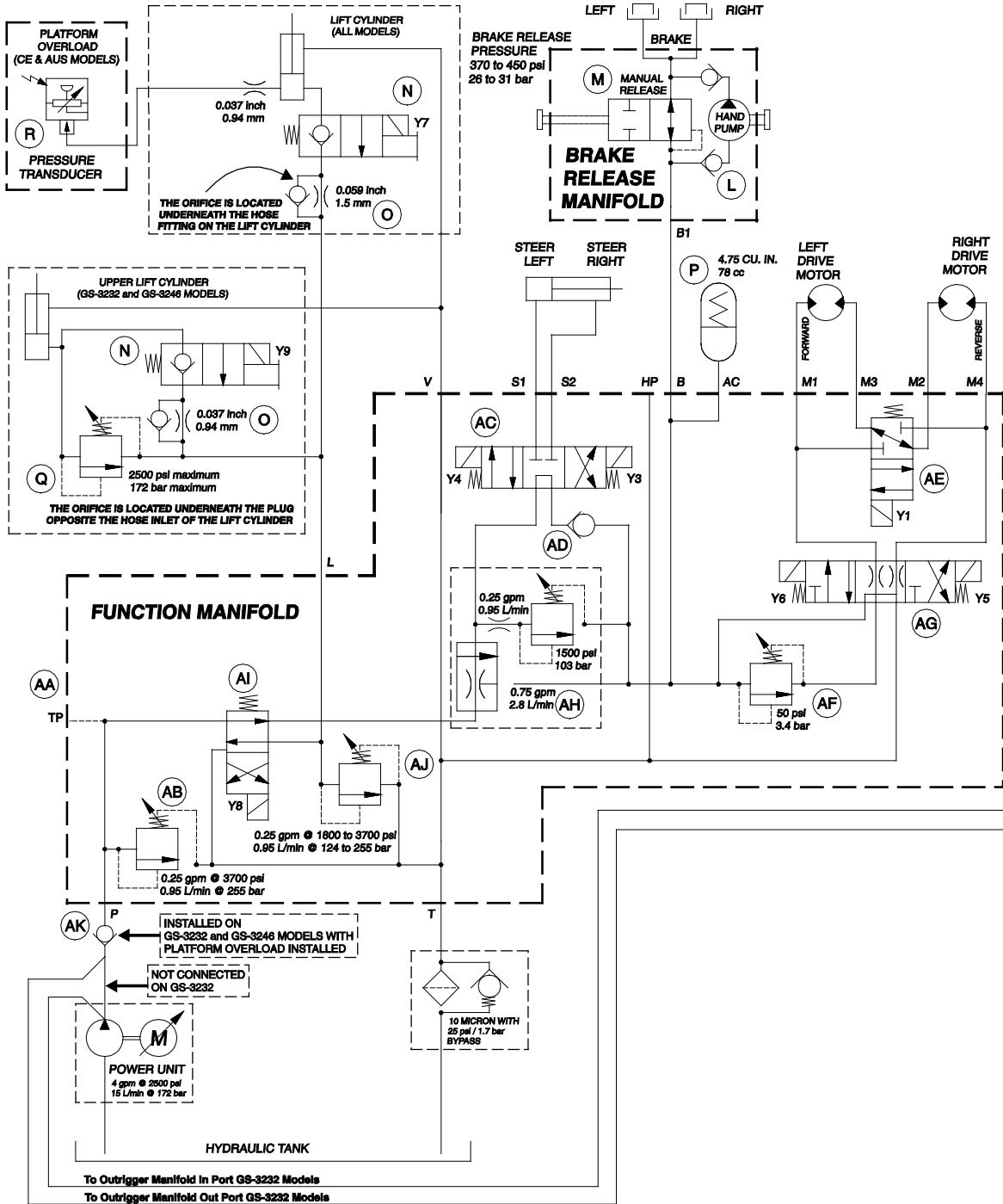
# Hydraulic Schematics

## Hydraulic Schematic GS-1530/1532/1930/1932 (from serial number GS3010A-110000 and GS3011C-10000)



# Hydraulic Schematics

**GS-2032/2632/3232 (from serial number GS3211A-110000 and GS3212C-10000)**  
**GS-2046/2646/3246 (from serial number GS4612A-110000 and GS4612C-10000)**

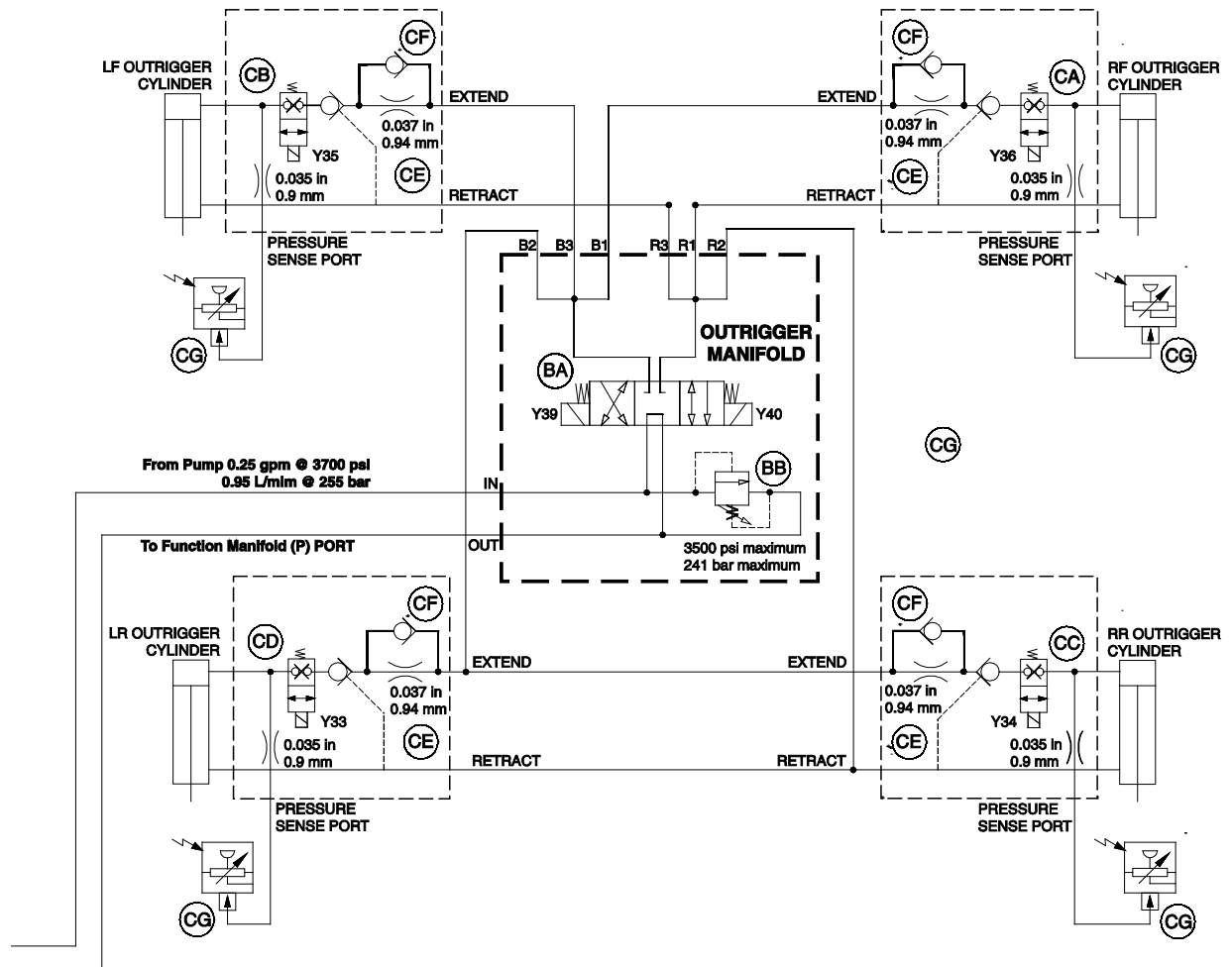


HS0036R



# Hydraulic Schematics

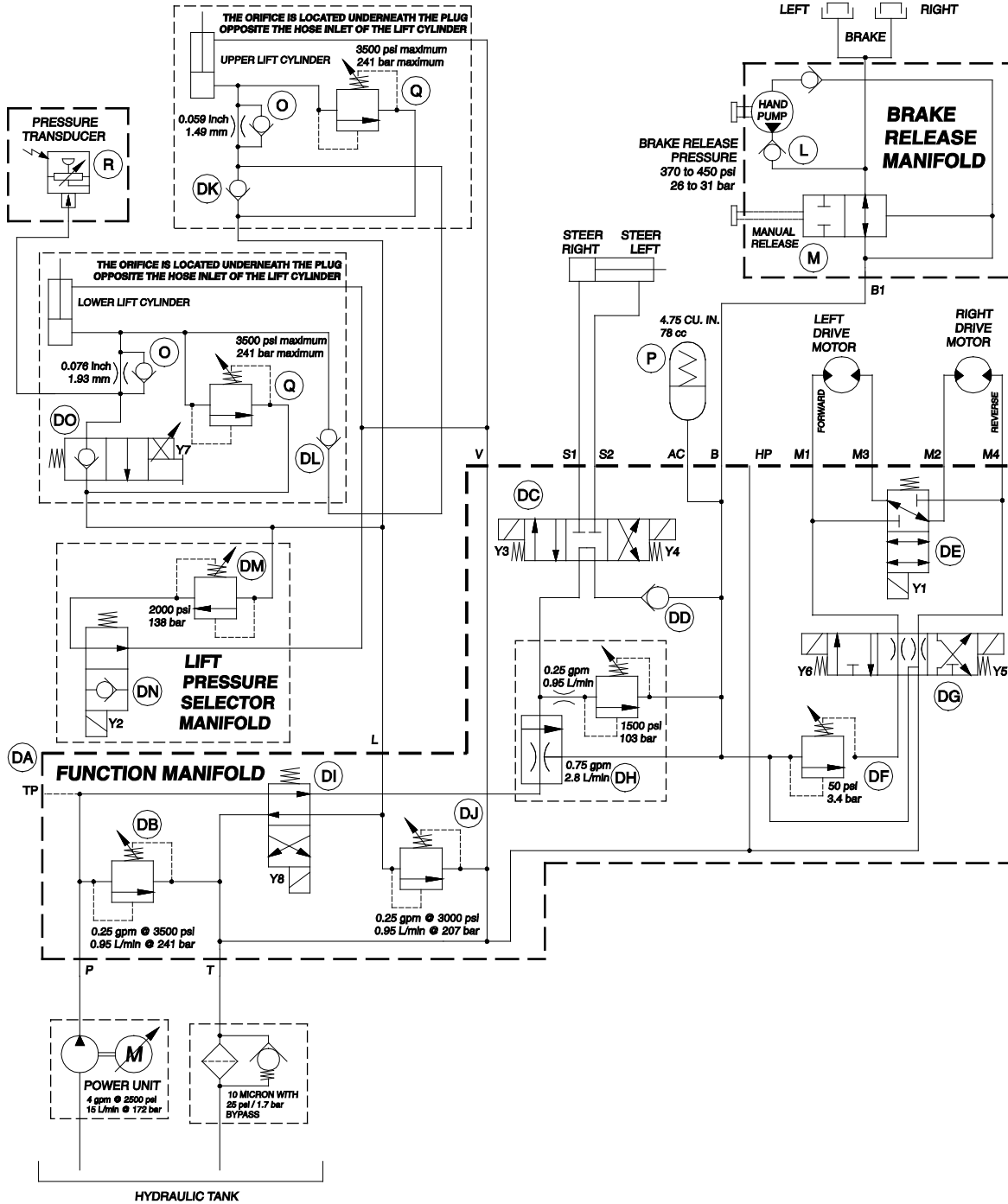
GS-3232 (from serial number GS3211A-110000 and GS3212C-10000)



HS0040C

# Hydraulic Schematics

GS-4047 (from serial number GS4712C-101)



HS0254B



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