Genie®

Service Manual

Part No. 72965
Rev B2
January 2007

GR™-8

(from serial number GR-101 to GR05-4999)

GR™-12

(from serial number GR-101 to GR05-4999)

GR™-15

(from serial number GR-101 to GR05-4999)

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.

Technical Publications

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

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

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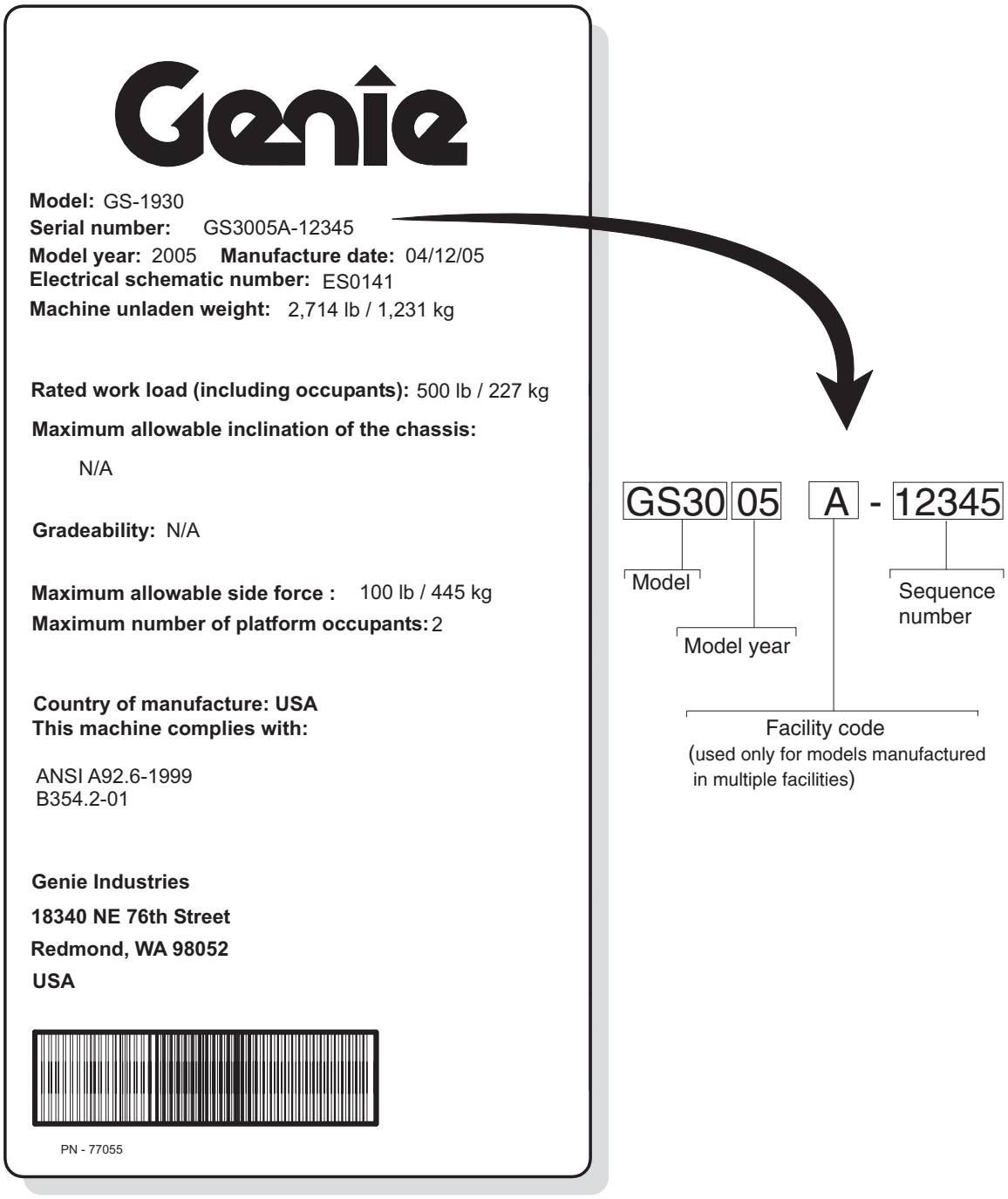
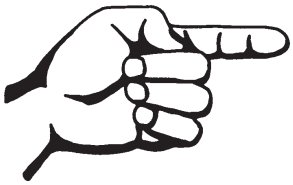
72965 Rev B August 2005
First Edition, Second Printing

Serial Number Legend

Serial Number Legend





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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.

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

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

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

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

NOTICE Green—used to indicate operation or maintenance information.

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

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

Workplace Safety

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

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

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

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

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

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

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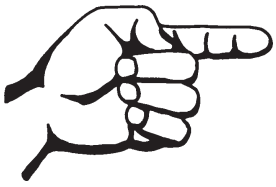

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Specifications

REV B

Machine Specifications

Batteries, Standard	
Voltage	6V DC
Group	GC2
Type	T-105
Quantity	4
Battery capacity, maximum	225AH
Reserve capacity @ 25A rate	447 minutes
Batteries, Maintenance-free (option)	
Voltage	6V DC
Group	GC2
Type	6V-AGM
Quantity	4
Battery capacity, maximum	200AH
Reserve capacity @ 25A rate	380 minutes
Fluid capacities	
Hydraulic tank	2.75 gallons 10.4 liters
Hydraulic system (including tank)	3.5 gallons 13.2 liters
Tires and wheels	
Tire size (solid rubber)	10 x 3 in 25.4 x 2.5 cm
Tire contact area	6 sq in 39 cm^2
Castle nut torque, dry	221 ft-lbs 300 Nm
Castle nut torque, lubricated	165 ft-lbs 225 Nm

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

Height, stowed maximum	
ANSI, CSA and Australia models including workstation tray	68 in 1.57 m
CE models including workstation tray	72.5 in 1.73 m
Platform capacity, maximum (GR-8 and GR-12)	
Standard platform	500 lbs 227 kg
Fiberglass platform	350 lbs 159 kg
Stockpicker platform	500 lbs 227 kg
Platform capacity, maximum (GR-15)	
Standard platform	350 lbs 159 kg
Fiberglass platform	350 lbs 159 kg
Stockpicker platform	450 lbs 204 kg

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

SPECIFICATIONS REV B

Performance Specifications

Drive speed, maximum	
Platform stowed, maximum	2.5 mph 40 ft / 10.7 sec 4 km/h 12.2 m / 10.7 sec
Platform raised or extended, maximum	0.5 mph 40 ft / 55 sec 0.8 km/h 12.2 m / 55 sec

Braking distance, maximum	
High range on paved surface	19 in ± 6 in 48 cm ± 15 cm

Function speed, maximum, from platform controls (with 1 person in platform)	
Platform up	30 to 31 seconds
Platform down	21 to 22 seconds

Gradeability	30%

Airborne noise emissions Maximum sound level at normal operation workstations (A-weighted)	70 dB

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

Hydraulic Specifications

Hydraulic Oil Specifications	
Before serial number GR02-1687	
Hydraulic oil type	Shell Donax TG (Dexron III)
After serial number GS02-1686	
Hydraulic oil type	Chevron Rykon MV equivalent
Approximate SAE grade	Multu-viscosity
Viscosity index rating	200
Cleanliness level, minimum	15/13
Water content, maximum	200 ppm

Chevron Rykon MV oil is fully compatible and mixable with Shell Donax TG (Dexron III) oils.
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 have a minimum viscosity index rating of 150. They should provide excellent antiwear, oxidation, corrosion inhibition, seal conditioning, and foam and aeration suppression properties.

Optional fluids	
Biodegradable	Petro Canada Premium ECO 46 Statoil Hydra Way Bio Pa 32 BP Biohyd SE-S
Fire resistant	UCON Hydrolube HP-5046 Quintolubric 822
Mineral based	Shell Tellus T32 Shell Tellus T46 Chevron Aviation A

NOTICE Use Chevron Aviation A hydraulic oil when in ambient temperatures consistently below 0°F / -17°C.

NOTICE Use Shell Tellus T46 hydraulic oil when oil temperatures consistently exceed 205°F / 96°C.

NOTICE Genie specifications require additional equipment and special installation instructions for the approved optional fluids. Consult the Genie Industries Service Department before use.

Function pump	
Type	Gear
Displacement per revolution	0.244 cu in 4 cc
Displacement	1.4 gpm @ 3000 psi 5.IL/m @ 206.8 bar
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	
System relief valve pressure, maximum	2700 psi 186 bar
Lift relief valve pressure	2200 psi 151.6 bar
Steer relief valve pressure	1000 psi 69 bar
Brake release pressure	265 psi 18.2 bar

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

Description	Specification
Solenoid valve, 3 position 4 way 20V DC with diode (schematic items C, AC and AE)	22 to 24 Ω
Solenoid valve, 2 position 4 way 20V DC with diode (schematic items D and AD)	23 to 26 Ω
Solenoid valve, 3 position 4 way 20V DC with diode (schematic item E)	23 to 26 Ω

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

SPECIFICATIONS REV B

Hydraulic Hose and Fitting Torque Specifications

Your machine is equipped with JIC 37° flared 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.

SAE O-ring Boss Port
(tube fitting - installed into Aluminum)

SAE Dash size	Torque
-4	11 ft-lbs / 14.9 Nm
-6	23 ft-lbs / 31.2 Nm
-8	40 ft-lbs / 54.2 Nm
-10	69 ft-lbs / 93.6 Nm
-12	93 ft-lbs / 126.1 Nm
-16	139 ft-lbs / 188.5 Nm
-20	172 ft-lbs / 233.2 Nm
-24	208 ft-lbs / 282 Nm

JIC 37° Fittings
(swivel nut or hose connection)

SAE Dash size	Thread Size	Flats
-4	7/16-20	2
-6	9/16-18	1 1/4
-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 Steel)

SAE Dash size	Torque
-4	16 ft-lbs / 21.7 Nm
-6	35 ft-lbs / 47.5 Nm
-8	60 ft-lbs / 81.3 Nm
-10	105 ft-lbs / 142.4 Nm
-12	140 ft-lbs / 190 Nm
-16	210 ft-lbs / 284.7 Nm
-20	260 ft-lbs / 352.5 Nm
-24	315 ft-lbs / 427.1 Nm

Seal-Lok® Fittings
(hose end)

SAE Dash size	Torque
-4	18 ft-lbs / 25 Nm
-6	30 ft-lbs / 40 Nm
-8	40 ft-lbs / 55 Nm
-10	60 ft-lbs / 80 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

Torque Procedure

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 Make a reference mark on one of the flats of the hex nut, and continue it on to the body hex fitting with a permanent ink marker. Refer to Figure 1.

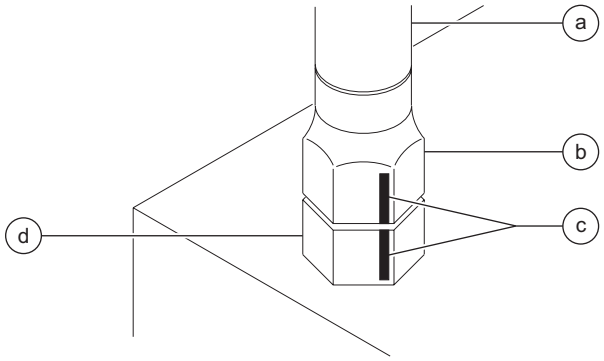


Figure 1

a hydraulic hose
b hex nut
c reference mark
d body hex fitting

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 Figure 2.

NOTICE Use the *JIC 37° Fittings* table on the previous page to determine the correct number of flats for the proper tightening position.

NOTICE The marks indicate that 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.

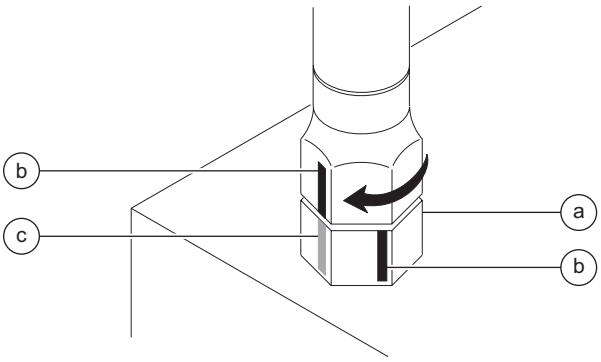


Figure 2

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 hoses and fittings and related components to confirm that there are no leaks.

SPECIFICATIONS REV B

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.

NOTICE The O-rings used in the Parker Seal Lok® fittings and hose ends are custom-size O-rings. They are not standard SAE 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 that the face seal O-ring 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 per given size as shown in the table.

6 Operate all machine functions and inspect the hoses and fittings and related components to

SAE FASTENER TORQUE CHART

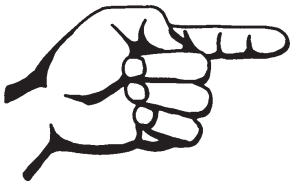
• This chart is to be used as a guide only unless noted elsewhere in this manual •

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	100	11.3	80	9	140	15.8	110	12.4	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

METRIC FASTENER TORQUE CHART

• 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



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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 and semi-annually, annually and every two years as specified on the *Maintenance Inspection Report.*

⚠WARNING Failure to perform each procedure as presented and scheduled could result in 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.
- ☑ Keep records on all inspections for three years.
- ☑ Machines that have been out of service for a period longer than 3 months must complete the quarterly inspection.
- ☑ Unless otherwise specified, perform each maintenance 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

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.

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

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

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

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

NOTICE Green—used to indicate operation or maintenance information.

⊙ 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

NOTICE The following symbols have been used in this manual to help communicate the intent of the instructions. When one or more of the symbols appears 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 a cold motor or pump will be required to perform this procedure.

Indicates that dealer service 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 of the *Pre-delivery Preparation* report to use for each inspection. Store completed forms as required.

Maintenance Schedule

There are five types of maintenance inspections that must be performed according to a schedule—daily, quarterly, semi-annually, annually, and two year. The *Scheduled Maintenance Procedures Section and the Maintenance Inspection Report* have been divided into five subsections—A, B, C, D, and E. 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. Store completed forms for three years.

Pre-Delivery Preparation

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, completed
N = no, unable to complete
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

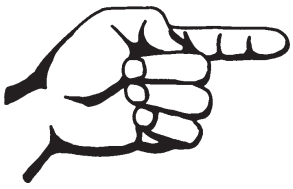
Inspector title

Inspector company

Genie®
A TEREX COMPANY

Genie Industries USA
18340 NE 76th Street
PO Box 97030
Redmond, WA 98073-9730
(425) 881-1800

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



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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 to be performed.

☐	**Daily or 8 hours Inspection:**	**A**
☐	**Quarterly or 250 hours Inspection:**	**A+B**
☐	**Semi-annually or 500 hours Inspection:**	**A+B+C**
☐	**Annually or 1000 hours Inspection:**	**A+B+C+D**
☐	**Two year or 2000 hours Inspection:**	**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 - Rev B		**Y**	**N**	**R**
A-1	Pre-operation inspection			
A-2	Function tests			
Perform after 40 hours:				
A-3	30 day service			
Perform every 100 hours:				
A-4	Grease steer yokes			

Checklist B - Rev B		**Y**	**N**	**R**
B-1	Batteries			
B-2	Electrical wiring			
B-3	Tires and wheels			
B-4	Lifting chain			
B-5	Clean columns			
B-6	Sequencing cables			
B-7	Emergency stop			
B-8	Key switch			
B-9	Horn (if equipped)			
B-10	Drive brakes			
B-11	Drive speed - stowed			
B-12	Drive speed - raised			
B-13	Flashing beacon (if equipped)			
B-14	Alarm (if equipped)			
B-15	Hydraulic oil analysis			
B-16	Breather cap			

Checklist C - Rev C		**Y**	**N**	**R**
C-1	Grease platform overload (if equipped)			
C-2	Test platform overload (if equipped)			

Checklist D - Rev C		**Y**	**N**	**R**
D-1	Inspect Mast			
D-2	Lubricate lifting chains			
D-3	Hydraulic filter			

Checklist E - Rev B		**Y**	**N**	**R**
E-1	Hydraulic oil			

Comments

Checklist A Procedures

REV B

A-1
Perform Pre-operation Inspection

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-2
Perform Function Tests

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.

A-3
Perform 30 Day Service

The 30 day maintenance procedure is a one time 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-3 Inspect the Tires and Wheels (including castle nut torque)
- D-4 Replace the Hydraulic Tank Return Filter

A-4
Grease the Steer Yokes

NOTICE 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.

Grease specification
Chevron Ultra-duty grease, EP NLGI 2 (lithium based) or equivalent

Checklist B Procedures

REV B

B-1
Inspect the Batteries

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 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.

NOTICE Perform this procedure after fully charging the batteries.

NOTICE For a more accurate determination of battery condition, fully charge the batteries and allow the batteries to rest 24 hours before performing this procedure to allow the battery cells to equalize.

1 Put on protective clothing and eye wear.

2 Be sure that the battery cable connections are free of corrosion.

3 Be sure that the battery retaining fasteners and cable connections are tight.

Models without maintenance-free or sealed batteries:

4 Remove the battery vent caps from all batteries and check the specific gravity of each battery cell with a hydrometer.

⊙ Result: If any battery cell displays a specific gravity of less than 1.026, the battery must be replaced.

5 Check the battery acid level of each battery. If needed, replenish with distilled water to the bottom of the battery fill tube. Do not overfill.

6 Install the battery vent caps.

All models:

7 Check each battery pack and verify that the batteries are wired correctly. Refer to the *Battery Connection Diagram* decal on the machine.

8 Inspect the battery charger plug and pigtail for damage or excessive insulation wear. Replace as required.

9 Connect the battery charger to a properly grounded 115V/60Hz or 230V/60Hz single phase AC power supply.

⊙ Result: The charger should operate and begin charging the batteries.

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

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

B-2
Inspect the Electrical Wiring

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 Electrocution hazard. Contact with hot or live 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 straps.

2 Inspect the following areas for burnt, chafed, corroded and loose wires:

- Mast cable
- Platform controls
- Power to platform wiring

3 Inspect the following areas for burnt, chafed, corroded and loose wires:

- Ground control panel
- Hydraulic power unit

4 Inspect for a liberal coating of dielectric grease in the following locations:

- Between the ECM and platform controls
- All wire harness connectors
- Level sensor

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 Raise the platform approximately 8 feet / 2.4 m from the ground.

7 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

8 Inspect the center chassis area for burnt, chafed and pinched cables.

9 Open the battery tray cover.

10 Inspect the battery tray for burnt, chafed and pinched cables.

11 Close the battery tray cover.

12 Remove the strap from the platform.

13 Lower the platform to the stowed position and turn the machine off.

CHECKLIST B PROCEDURES REV B

B-3
Inspect the Tires and Wheels (including castle nut torque)

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 each castle nut for proper torque. Refer to Section 2, *Specifications.*

NOTICE 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 it in place.

B-4
Check the Lifting Chain Adjustments

Maintaining proper adjustment of the lifting chains is essential to safe machine operation. Failure to maintain proper chain adjustment could result in an unsafe operating condition and may cause component damage.

1 Fully lower the platform and measure the maximum height of the machine. Refer to Section 2, *Specifications*.

☒ Result: The machine is not within specification. Adjust the chains. Refer to Repair Procedure 3-4, *How to Adjust the Lifting Chains.*

B-5
Clean and Lubricate the Columns

Clean and properly lubricated columns are essential to good machine performance and safe operation. Extremely dirty conditions may require that the columns be cleaned and lubricated more often.

1 Raise the platform to the maximum height.

2 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

3 Visually inspect the inner and outer channels of the columns for debris or foreign material. If necessary, use a mild cleaning solvent to clean the columns.

⚠WARNING Bodily injury hazard. This procedure will require the use of additional access equipment. Do not place ladders or scaffold on or against any part of the machine. Performing this procedure without the proper skills and tools could result in death or serious injury. Dealer service is strongly recommended.

4 If needed, apply a generous amount of Boe-lube wax to the inside and outside channels of each column.

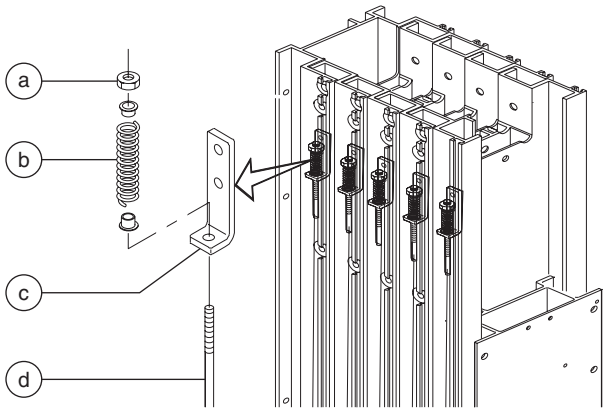
B-6
Adjust the Sequencing Cables

Maintaining proper adjustment of the sequencing cables is essential for safe machine operation. An unsafe working condition exists if the sequencing cables are improperly adjusted. A frequent check allows the inspector to identify changes in the sequencing cables operating condition that might indicate damage.

1 Fully lower the platform.

2 Locate the compression spring on each sequencing cable.

NOTICE The spring is located between the nylock nut and the upper sequencing bracket.



a nylock nut
b spring
c upper sequencing bracket
d sequencing cable

3 Confirm proper tension of each sequencing cable by measuring the height of the spring between the nylock nut and the upper sequencing bracket.

⊙ Result: The measurement is within specification. Proceed to step 7.

⊠ Result: The measurement is not within specification. Proceed to step 4.

Sequencing cable spring specification

Measurement, compressed	$^{15}/_{16}$ inch 2.4 cm

4 Adjust the spring compressed length by turning the nylock nut clockwise to decrease the spring length or counterclockwise to increase the spring length.

CAUTION Component damage hazard. Do not compress the spring to less than specification.

5 Raise and lower the platform through three complete cycles.

6 Repeat this procedure beginning with step 3.

7 Repeat steps 3 through 5 for each sequencing cable as required.

B-7
Test the Emergency Stop

A properly functioning Emergency Stop 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.

NOTICE 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.

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

B-8
Test the Key Switch

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.

NOTICE 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 control**.

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.

7 Test the machine functions from the ground and platform controls.

⊙ Result: No machine functions should operate.

B-9
Test the Automotive-style Horn (if equipped)

The horn is activated at the platform controls and sounds at the ground as a warning to ground personnel. An improperly functioning horn will prevent the operator from alerting ground personnel 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 REV B

B-10
Test the Drive Brakes

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.

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

NOTICE Be sure the platform 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 Move the lift/drive toggle switch to the drive position.

5 Press the drive speed button (if equipped) until the high speed (rabbit) light is illuminated.

6 Choose a point on the machine; i.e., contact patch of a tire, as a visual reference for use when crossing the test line.

7 Bring the machine to top drive speed before reaching the test line. Release the function enable switch or the joystick when your reference point on the machine crosses the test line.

8 Measure the distance between the test line and your machine reference point. Refer to Section 2, *Specifications*.

NOTICE The brakes must be able to hold the machine on any slope it is able to climb

B-11
Test the Drive Speed - Stowed Position

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.

NOTICE 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 Move the lift/drive toggle switch to the drive position.

5 Press the drive speed button (if equipped) until the high speed (rabbit) light is illuminated.

6 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.

7 Bring the machine to top drive speed before reaching the start line. Begin timing when your reference point on the machine crosses the start line.

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

REV B CHECKLIST B PROCEDURES

B-12
Test the Drive Speed - Raised Position

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.

NOTICE 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 Raise the platform approximately 4 feet / 1.2 m from the ground.

4 Move the lift/drive toggle switch to the drive position.

5 Press the drive speed button (if equipped) until the high speed (rabbit) light is illuminated..

6 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.

7 Bring the machine to top drive speed before reaching the start line. Begin timing when your reference point on the machine crosses the start line.

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

B-13
Test the Flashing Beacon (if equipped)

Flashing beacons are used to alert operators and ground personnel of machine proximity and motion. The flashing beacons are located on both sides of the mast.

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.

⊙ Result: The beacons should flash.

2 Turn the key switch to platform controls.

⊙ Result: The beacons should flash.

CHECKLIST B PROCEDURES REV B

B-14
Test the Alarm Package (if equipped)

The alarm package includes:

- Travel alarm
- Descent alarm
- Flashing beacons

Alarms and beacons are used to alert operators and ground personnel of machine proximity and motion. The descent alarm and travel alarm are located in the ground control box. The flashing beacons are located on both sides of the mast.

NOTICE The alarms and beacons will operate with key switch turned to either ground or platform controls.

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.

⊙ Result: Both flashing beacons should be on and flashing.

2 Activate the platform up/down toggle switch in the down position, hold for a moment and then release it.

⊙ Result: The descent alarm should sound when the toggle switch is held down.

3 Turn the key switch to platform controls.

⊙ Result: bopth flashing beacons should be on and flashing.

4 Move the lift/drive select switch to the lift position.

5 Press and hold the function enable switch on the joystick controller (joystick). Move the joystick in the direction indicated by the yellow arrow on the control panel, hold for a moment and then release it.

⊙ Result: The descent alarm should sound when the joystick is held down.

6 Move the lift/drive selector switch to the drive position.

7 Press and hold the function enable switch on the joystick. Move the joystick off center, hold for a moment and then release it. Move the joystick off center in the opposite direction, hold for a moment and then release it.

⊙ Result: The travel alarm should sound when the joystick is moved off center in either direction.

B-15
Perform Hydraulic Oil Analysis

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.

NOTICE 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.*

B-16
Inspect the Hydraulic Tank Cap Venting System

The hydraulic tank is a vented-type tank. The breather cap has an internal air filter that can become clogged and may cause the power unit to operate improperly. If the breather cap is damaged 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 the breather cap from the hydraulic tank.

2 Check for proper venting.

⊙ Result: Air passes through the fuel tank cap. Proceed to step 4.

⊠ Result: If air does not pass through the cap, clean or replace the cap. Proceed to step 3.

NOTICE 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 this procedure beginning with step 2.

4 Install the breather cap onto the hydraulic tank.

Checklist C Procedures

REV C

C-1
Replace the Hydraulic Tank Breather Cap - Models with Optional Hydraulic Oil

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 a new cap onto the tank.

C-2
Grease the Platform Overload Mechanism (if equipped)

NOTICE Genie specifications require that this procedure be performed every 500 hours or 6 months, whichever comes first. Perform this procedure more often if dusty conditions exist.

Application of lubrication to the platform overload mechanism is essential to safe machine operation. Continued use of an improperly greased platform overload mechanism could result in the system not sensing an overloaded platform condition and will result in component damage.

1 Locate the grease fittings on each pivot pin of the platform overload assembly.

2 Thoroughly pump grease into each grease fitting using a multi-purpose grease.

REV C CHECKLIST C PROCEDURES

C-3
Test the Platform Overload System (if equipped)

NOTICE Genie specifications require that this procedure be performed every 500 hours or 6 months, whichever comes first.

Testing 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.

NOTICE Perform this procedure with the machine on a firm, level surface.

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 Determine the maximum platform capacity. Refer to the machine serial plate.

3 Using a suitable lifting device, place an appropriate test weight equal to the maximum platform capacity in the center of the platform floor. Refer to Section 2, *Specifications*.

⊙ Result: The overload alarm at the platform controls should not sound, indicating a normal condition.

⊠ Result: The overload alarm at the platform controls sounds. The platform overload system is not operating properly. Refer to Repair Procedure 10-1, *Calibrate the Platform Overload System (if equipped).*

4 Add an additional weight to the platform not to exceed 20% of the maximum rated load. Refer to the machine serial plate.

⊙ Result: The overload alarm at the platform controls sounds. The platform overload system is operating properly.

⊠ Result: The overload alarm at the platform controls does not sound. The platform overload system is not operating properly. Refer to Repair Procedure 10-1, *Calibrate the Platform Overload System (if equipped).*

5 Test all machine functions from the platform controls.

⊙ Result: All platform control functions should not operate.

6 Turn the key switch to ground control.

7 Test all machine functions from the ground controls.

⊙ Result: All ground control functions should not operate.

CHECKLIST C PROCEDURES REV C

8 Lift the test weight off the platform floor using a suitable lifting device.

⊙ Result: The overload alarm at the platform controls should not sound, indicating a normal condition.

⊠ Result: The overload alarm at the platform controls sounds. The platform overload system is not operating properly. See D-1, *Calibrate the Platform Overload System (if equipped).*

9 Test all machine functions from the ground controls.

⊙ Result: All ground control functions should operate normally.

10 Turn the key switch to platform control.

11 Test all machine functions from the platform controls.

⊙ Result: All platform control functions should operate.

NOTICE If the platform overload system is not operating properly, see D-1, *Calibrate the Platform Overload System (if equipped).*

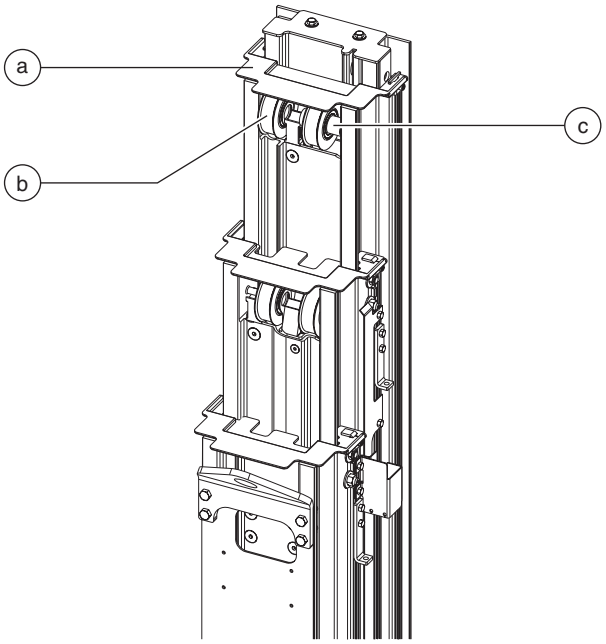
Checklist D Procedures

REV C

D-1
Inspect the Mast Assembly for Wear

Detection of excessive or unusual wear in the mast assembly is essential for safe machine operation. An unsafe working condition exists if the mast assembly has excessive wear and/or does not operate smoothly, free of hesitation and binding.

1 Remove the mast covers.



GR-15 shown

a mast cover
b idler wheel
c spacer

2 Raise the platform until approximately 4 inches / 10 cm of each column is visible.

3 Visually inspect the top of each column for clearance between the roller wheels and the adjacent column surface.

⊙ Result: There should be an equal amount of distance between the roller wheel/slider block and the column on each side.

NOTICE If mast inspection results in a measurement that is not within specification, refer to Repair procedure 3-2, *How to Adjust the Glide Pads.*

4 Loosen but do not remove the adjustment nut on the sequencing cable located at the top of the first column.

5 Raise the platform approximately 3 feet / 1 m above the top of the drive chassis.

6 Place piece of 0.75 inch / 1.9 cm thick plywood ont top of the drive chassis.

7 Place a jack stand on the top of the plywood, centered under the platform. Adjust the jack stand height to 24 inches / 61 cm.

8 Lower the platform onto the jack stand just enough to take the weight off the lifting chains.

⚠WARNING Crushing hazard. Keep hands clear of the jack stand when lowering the platform.

CHECKLIST D PROCEDURES REV C

9 Inspect each idler wheel for the following:

- Excessive wear on the side flanges
- Unusual wear
- Movement side to side in excess of 0.040 inch / 1 mm
- Any wheel movement front to back

NOTICE If idler wheel inspection results in a condition that is not within specification, refer to Repair Procedure 3-1, *How to Assemble the Mast.*

10 Raise the platform slightly and remove the jack stand and the piece of plywood. Lower the platform to the stowed position.

11 Install the mast covers and adjust the sequencing cable. See B-6, *Adjust the Sequencing Cables.*

D-2
Lubricate the Lifting Chains

Lubricated chains are essential to good machine performance and safe operation. Extremely dirty conditions may require that the chains be cleaned and lubricated more often.

1 Raise the platform to the maximum height.

2 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

3 Lubricate each chain with a dry-type spray lubricant.

⚠WARNING Bodily injury hazard. This procedure will require the use of additional access equipment. Do not place ladders or scaffold on or against any part of the machine. Performing this procedure without the proper skills and tools could result in death or serious injury. Dealer service is strongly recommended.

D-3
Replace the Hydraulic Tank Return Filter

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 Burn hazard. Beware of hot oil. Contact with hot oil may cause severe burns.

NOTICE 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.

Checklist E Procedure

REV B

E-1
Test or Replace the Hydraulic Oil

Replacement or testing of the hydraulic oil is essential for good machine performance and service life. Dirty oil and suction strainers 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 frequently.

NOTICE The machine uses Dexron equivalent hydraulic oil. 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.**

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

1 Raise the platform approximately 4 feet / 1.2 m.

2 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

3 Disconnect the battery pack from the machine.

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

4 Remove the drive chassis cover.

5 Remove the drain plug from the hydraulic tank and allow all of the oil to drain into a suitable container. Refer to Section 2, *Specifications*.

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

6 Tag, disconnect and plug the supply hose from the hydraulic power unit to the tank.

7 **Before serial number GR01-249:** Tag, disconnect and plug the return hose from the function manifold to tank at the return filter. Cap the fitting on the return filter housing.
After serial number GR01-248: Tag, disconnect and plug the return hose from the return filter to tank at the tank.

8 Remove the hydraulic tank mounting fasteners and remove the tank from the machine.

9 Remove the suction strainer from the tank and clean it using a mild solvent.

10 Clean the inside of the hydraulic tank using a mild solvent.

11 Install the suction strainer using thread sealant on the threads. Torque to specification.

12 Install and tighten the hydraulic tank drain plug using thread sealant on the threads. Torque to specification.

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

14 Connect the suction hose to the strainer and torque to specification.

15 **Before serial number GR01-249:** Connect the return hose to the return filter and torque to specification.
After serial number GR01-248: Connect the return hose to the tank and torque to specification.

16 Connect the battery pack to the machine.

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

17 Fill the tank with hydraulic oil until the fluid is at the FULL indicator on the hydraulic tank. Do not overfill.

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

CAUTION 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.

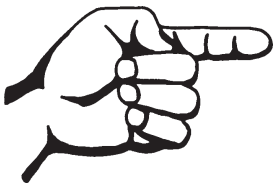
19 Repeat steps 17 through 18 until the hydraulic system and tank are both full.

20 Clean up any oil that may have spilled. Properly discard the used oil.

21 Install the drive chassis cover and securely tighten the fasteners. Do not over tighten.

22 Lower the platform to the stowed position.

Hydraulic tank torque specifications	
Hydraulic tank retaining fasteners, dry	35 in-lbs 4 Nm
Hydraulic tank retaining fasteners, lubricated	26 in-lbs 2.9 Nm
Hydraulic tank drain plug, dry	40 in-lbs 4.5 Nm
Hydraulic tank drain plug, lubricated	30 in-lbs 3.4 Nm



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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.
- ☑ Read each procedure completely and adhere to the instructions. Attempting shortcuts may produce hazardous conditions.
- ☑ 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

About This Section

Most of the procedures in this section should only be performed by a 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. 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 Red—used to indicate the presence of an imminently hazardous situation which, if not avoided, will result in death or serious injury.

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

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

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

NOTICE Green—used to indicate operation or maintenance information.

⊙ Indicates that a specific result is expected after performing a series of steps.

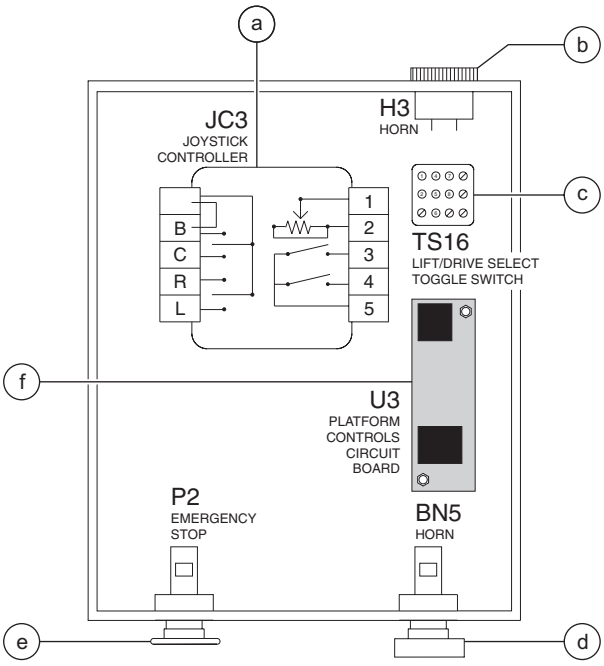
⊠ Indicates that an incorrect result has occurred after performing a series of steps.

Platform Controls

REV B

The joystick controller (joystick) should operate smoothly and provide proportional drive speed control over its entire range of motion.
The joystick is connected to the motor controller located in the drive chassis. There are no adjustments needed on the joystick. For further assistance, consult the Genie Industries Service Department.

For further information or assistance, consult the Genie Industries Service Department.



a joystick controller JC3
b horn H3
c lift/drive select toggle switch TS16
d horn button BN5
e red Emergency Stop button P2
f platform controls circuit board U3

1-1 Circuit Board

How to Remove the Circuit Board

1 Tag and disconnect the platform controls from the machine. Remove the control box from the machine and place it on a workbench.

2 Remove the fasteners securing the base to the platform control box. Open the box.

3 Remove the ties securing the wire harness.

4 Remove the alarm and horn assembly button from the platform control box (if equipped).

5 Tag and disconnect the wire harnesses connectors from the circuit board.

CAUTION 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 Remove the circuit board retaining fasteners and remove the circuit board from the box.

1-2 Controller Adjustments

How to Calibrate the Potentiometer

1 Tag and disconnect the platform controls from the machine. Remove the control box from the machine and place it on a workbench.

2 Remove the retaining fasteners securing the base to the platform control box. Open the box.

3 Remove the ties securing the wire harness.

4 Tag and disconnect the joystick from the wire harnesses.

CAUTION 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.

5 Remove the joystick retaining fasteners and remove the joystick from the control box.

6 Remove the circuit board from the joystick. Turn the circuit board over to access the potentiometer shaft.

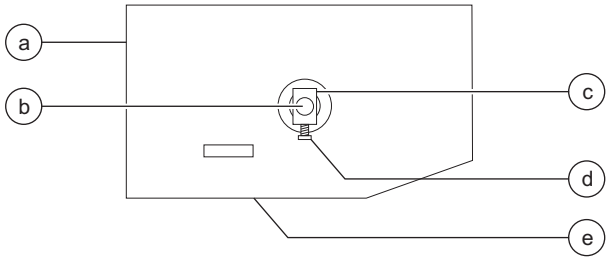
NOTICE When installed, the potentiometer shaft and joystick coupler engages the joystick slave gear.

7 Set a multimeter to read ohm resistance.

NOTICE The multimeter, when set to read ohm resistance, should be capable of reading 20k ohms.

8 Connect the leads from the multi meter to the yellow and red wires of the joystick harness at the harness connector.

9 Note the orientation of the joystick coupler installed onto the potentiometer shaft. Loosen the set-screw and remove the coupler. Set the coupler to the side.



a circuit board
b potentiometer shaft
c coupler
d set screw
e circuit board bottom edge

10 Using the multi meter as a guide, rotate the potentiometer shaft until reaching the highest reading on the meter. Note the result.

11 Install the coupler onto the potentiometer shaft in the same orientation as removed, with the set-screw side of the coupler installed parallel to the bottom edge of the circuit board.

12 Install the circuit board and fasteners onto the joystick. Securely tighten the fasteners. Do not over tighten.

13 Note the reading on the multi meter display.

⊙ Result: The reading is within 10% of the result from step 10.

⊠ Result: The reading is not within 10% of the result from step 10. Repeat this procedure beginning with step 11.

14 Install the joystick into the platform control box. Install and securely tighten the retaining fasteners. Do not over tighten.

15 Securely connect the joystick to the control box wire harness.

16 Install the base onto the control box. Install and securely tighten the retaining fasteners. Do not over tighten.

How to Calibrate the High Speed Trimpot (Adjusting the Stowed Drive Speed)

NOTICE To calibrate the raised drive speed, see 4-3, *How to Calibrate the Raised Drive Speed Trimpot (Adjusting the Raised Drive Speed).*

1 Remove the base from the platform control box.

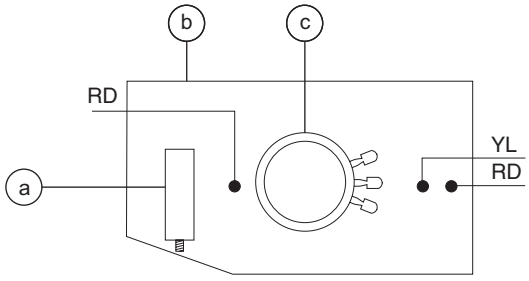
2 Locate the high speed trimpot on the circuit board of the joystick assembly.

NOTICE The high speed trimpot is located adjacent to the potentiometer and the single red wire on the circuit board of the joystick.

3 Adjust the trimpot to acheive the specified drive speed. Turn the trimpot screw clockwise to decrease the drive speed or counterclockwise to increase the drive speed.

4 Install the base onto the control box. Install and securely tighten the fasteners. Do not over tighten.

5 Confirm the stowed drive speed. Refer to Maintenance Procedure B-11, *Test the Drive Speed - Stowed Position*.



a high speed trimpot
b circuit board
c potentiometer

Platform Components

REV A

2-1 Platform

How to Remove the Platform

1 Raise the platform approximately 3 feet / 1 m.

2 Place support blocks between the platform and the drive chassis. Lower the platform onto the blocks.

⚠WARNING Crushing hazard. Keep away from the lowering platform.

3 Unlatch and remove the platform control box from the platform and set it aside.

4 Tag and disconnect the extension deck limit switch (if equipped) wiring at the junction box.

5 Remove the mounting fasteners from the platform.

6 Pull the platform away from the mast and remove it from the machine.

⚠WARNING Bodily injury hazard. If a platform is being replaced, be sure that all appropriate safety and instructional decals are applied to the new platform.

2-2 Platform Extension

How to Remove the Platform Extension

1 Remove the Platform, See 2-1, *How to Remove the Platform*.

2 Remove the outer platform railing assembly.

3 Remove the slide blocks from the outer platform.

4 Activate the foot release latch and slide the extension platform out from under the platform.

Mast Components

REV B

3-1 Mast

⚠WARNING Bodily injury hazard. This procedure requires specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is strongly recommended.

How to Remove the Mast Assembly

NOTICE Perform this procedure on a firm, level surface.

NOTICE Perform this procedure with the mast in the stowed position.

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

1 Remove the platform. See 2-1, *How to Remove the Platform*.

2 Open the battery covers.

3 Remove the fasteners securing the rear access cover to the chassis. Remove the cover.

4 Tag and disconnect the wire harness from the valve coil at the base of the lift cylinder.

5 Tag, disconnect and plug the lift cylinder hydraulic hoses. 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.

6 Remove the solenoid valve from the lift cylinder. Plug the opening in the cylinder manifold.

7 Remove the fasteners from the drive speed limit switch (LS5) mounted at the top of the number 1 column. Do not disconnect the wiring.

8 Remove the platform controls. Remove the fasteners from the power to platform junction box mounting bracket. Do not disconnect the wiring.

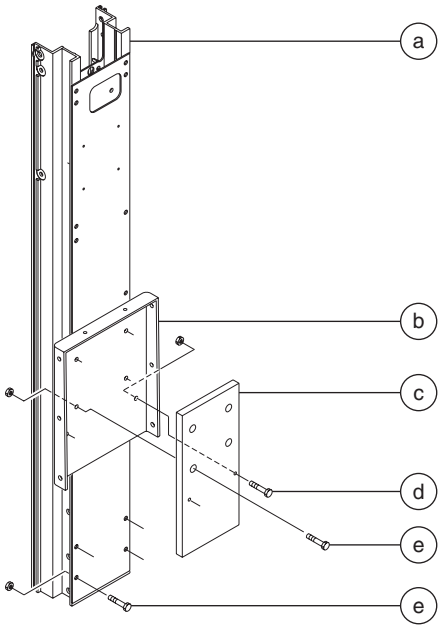
CAUTION Component damage hazard. Cables can be damaged if they are kinked or pinched.

9 Attach a lifting strap of suitable capacity from an overhead crane to the lifting eye at the top of the mast. Support the mast. Do not apply any lifting pressure.

10 Place two 4 x 4 x 24 inch / 10 x 10 x 60 cm blocks across the top of the drive chassis.

11 Remove the mast mounting fasteners and lower the mast assembly onto the blocks.

⚠WARNING Crushing hazard. The mast assembly could become unbalanced and fall if not properly supported when the fasteners are removed.



a number 1 column
b battery box brace
c counterweight (GR-15 models)
d counterweight fasteners (GR-15 models)
e mast mounting fasteners

12 Remove the control cable from the pulleys and set it aside.

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

13 With the carriage facing down, place the mast assembly on a suitable structure capable of supporting it.

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

How to Disassemble the Mast

⚠WARNING Bodily injury hazard. This procedure requires specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is strongly recommended.

1 Remove the mast. See 3-1. *How to Remove the Mast Assembly.*

2 Remove the lift cylinder. See 3-4, *How to Remove the Lift Cylinder.*

3 Rotate the mast until the carriage is facing up.

4 Remove the mast covers.

5 Remove the adjustment nuts from all of the sequencing cables.

6 Slide the carriage toward the top of the mast assembly enough to remove the tension on the lifting chains.

7 Slide the column below the carriage toward the top of the mast assembly approximately 6 inches / 15 cm to access the idler wheel mounting fasteners.

8 Hold the idler wheel axle from turning by placing a screwdriver through the hole in the axle. Remove the axle mounting fasteners and remove the idler wheel assembly.

NOTICE Label the location and orientation of each idler wheel assembly.

9 Remove the adjustment nuts from the chain tension rocker on the carriage.

10 Slide the carriage out the bottom of the mast assembly.

11 Lay the chains out on the floor at the top of the mast. Do not allow the chains to become twisted or dirty.

12 Remove the adjustment nuts from the chain tension rocker on the column.

13 Slide the column out the bottom of the mast.

14 Push the next column toward the top of the mast to access the idler wheel assembly mounting fasteners.

15 Hold the idler wheel axle from turning by placing a screwdriver through the hole in the axle. Remove the axle mounting fasteners, and remove the idler wheel assembly.

16 Remove the adjustment nuts from the chain tension rocker on the column.

17 Slide the column out the bottom of the mast.

18 Repeat steps 14 through 17 for each remaining column.

NOTICE If the chains are to be removed, mark the location and label each chain before removal.

How to Assemble the Mast

⚠WARNING Bodily injury hazard. This procedure requires specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is strongly recommended.

1 Thoroughly clean all columns.

2 Secure the number 1 column to the work table and lay the chains out on the floor. Do not allow the chains to become twisted or dirty.

3 Apply a generous amount of Boe-lube wax to the inside and outside channels of each column.

4 Slide the number 2 column into the number 1 column.

5 Lay the number 2 column chains on the floor. Do not allow the chains to become twisted or dirty.

6 Lay the number 1 column chains inside the number 2 column.

7 Slide the number 3 column into the number 2 column.

8 When the number 3 column is almost all the way in, guide the number 1 column chains into the chain tension rocker on the number 3 column.

9 Install the adjustment nuts on the number 1 column chains. Tighten the adjustment nuts until the lifting chains have equal tension and the chain tension rocker is centered in the inspection hole in the column.

10 Lay the number 3 column chains on the floor. Do not allow the chains to become twisted or dirty.

11 Lay the number 2 column chains inside the number 3 column.

12 Follow steps 4 through 11 for each remaining column and the carriage.

13 After all the columns are assembled, the idler wheel assemblies can be installed.

14 Remove the tension from the lifting chains on the number 2 column by pushing the number 3 column towards the top of the mast.

15 Install the idler wheel assembly in the top of the number 2 column. Tighten the mounting fasteners.

NOTICE Confirm that all idler wheels rotate smoothly with no excessive side movement. Confirm that they do not rub on the inside of the column. Replace worn shims if necessary.

16 Repeat steps 14 and 15 for each remaining idler wheel assembly.

17 Confirm that all of the idler wheel axle mounting fasteners are flush with the column.

CAUTION Component damage hazard. The roller wheels may be damaged if the idler wheel axle mounting fasteners are not flush with the column.

18 Install the mast assembly on the drive chassis. Adjust the lifting chains. See 3-3, *How to Adjust the Lifting Chains.*

3-2
Glide Pads

Glide pads are used to provide a uniform fit between the columns as the mast extends and retracts. Over time, it may be necessary to adjust the glide pads to ensure good machine performance.

Slide pads are not adjustable and do not require servicing.

1 Fully lower the platform. Turn the key switch to the off position and remove the key.

2 Locate the upper and lower glide pad adjustment bolts below each upper roller bolt, on both sides of each column.

3 Hold the glide pad adjustment bolt and loosen the lock nut on all glide pads.

4 Turn the glide pad adjustment bolt clockwise until the glide pad makes contact with the column. Adjust the glide pads on both sides of all columns. Be sure the sides of the columns are even to within 1/8 inch / 3.17 mm of each other.

5 Starting at the number 1 column, torque the upper and lower glide pad bolts to 12 in-lbs / 1.35 Nm. Hold the glide pad adjustment bolt and tighten the lock nut. Be sure the glide pad bolt does not turn.

6 Repeat step 5 for each remaining upper and lower glide pads on both sides of the mast. Start at the number 1 column and work toward the carriage.

7 Repeat step 5 for all of the upper and lower glide pads .

NOTICE Confirm that the glide pad bolts are adjusted evenly on each side to maintain squareness of the mast assembly.

3-3
Lifting Chains

How to Adjust the Lifting Chains

1 Mark the column to be adjusted.

2 Raise the platform approximately 6 feet / 2 m.

3 Place a lifting strap of suitable capacity from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

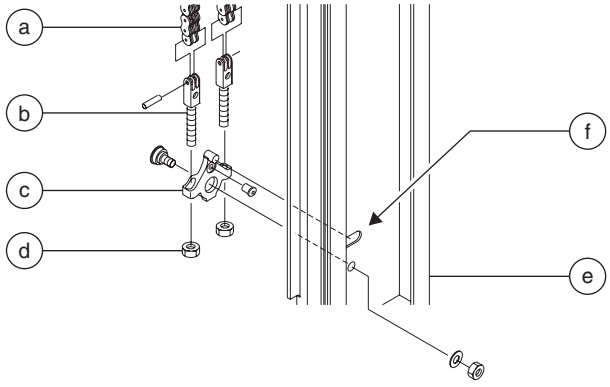
CAUTION Component damage hazard. The platform railings and platform extension deck (if equipped) can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings or the platform extension deck.

4 Turn the adjustment lock nuts evenly on both sides of the chain tension rocker clockwise to raise the column or counterclockwise to lower the column.

NOTICE The chain tensioner rocker is located near the bottom of each column.

5 Fully lower the platform and confirm the alignment of the columns. Repeat steps 2 through 5 if necessary.

6 Confirm that the chain tensioner bracket is centered in the inspection hole.



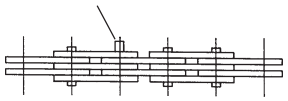
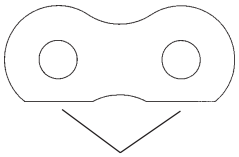
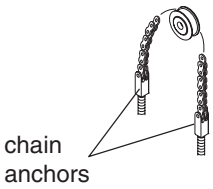
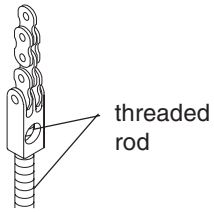
a lifting chain
b chain terminal
c chain tension rocker
d adjustment lock nut
e mast column
f inspection hole

How to Inspect the Lifting Chains

Inspection	Procedure	Inspection Failure	Inspection Remedy
Wear	Count out 16 chain links and measure pin to pin centerline dimension with a steel measuring tape. Note: Measure a section of chain that moves over the idler wheels.	When the length of the 16 links (pin to pin) measure more than 8.25 inches / 21 cm for 1/2 inch / 12.7 mm chain or 10.31 inches / 26.1 cm for 5/8 inch / 15.9 mm chain.	Replace both chains on that column. Replace entire chain. Do not repair just the affected portion of the chain.
Rust and Corrosion	Visually inspect the chains for rust and corrosion.	Evidence of rust or corrosion.	Remove chain and inspect for cracked plates (see inspection of cracked plates). If no cracks are found, lubricate chain with motor oil (SAE 40) and install chain.
	Visually inspect the chains for lubrication.	When external surfaces are not protected with a layer of oil.	Lubricate chain with motor oil (SAE 40W).
Tight Joints	Inspect chain link joints for easy movement.	Joints that do not flex freely or are binding.	If rust and corrosion is found, refer to Failure Remedy for rust and corrosion. If link plates or pins are bent or deformed, replace entire chain. Replace both chains on that column. Do not repair just the affected portion of the chain.

Continued to the next page

REV B MAST COMPONENTS

Inspection	Procedure	Inspection Failure	Inspection Remedy
Raised or Turned Pins	Visually inspect for raised pins.	Raised pins. 	Replace both chains on that column section. Do not repair just the affected portion of the chain.
	Visually inspect for turned pins by insuring all the flats on the "V" heads are aligned.	Misalignment of flats on all "V" heads.	Replace both chains on that column section. Do not repair just the affected portion of the chain.
Chain Side	Visually inspect for wear patterns on heads of link pins and outside link plates where they contact the idler wheel.	Wear on pin heads or noticeable wear in the profile of the outside link plate.  link plate wear	Replace both chains on that column section. Do not repair just the affected portion of the chain. Check alignment of chain anchors and idler wheels. Replace chain anchor.
Chain Anchors  chain anchors	Visually inspect chain anchors.  threaded rod	Broken chain anchor fingers.	Replace chain anchor.
		Bent or damaged anchor.	Replace chain anchor and threaded rod.
		Twisted or misaligned chain anchor.	Re-align chain anchor to ensure even loading of chain.
		Threaded rod not visible in inspection hole.	Replace idler wheel and check chain alignment.
Idler Wheels  idler wheel	Visually inspect chain idler wheels.	Idler wheels have badly worn flanges.	Replace idler wheel.
		Idler wheels have grooves worn into chain contact surface.	Replace both chains on that column section.
Cracked Link Plates	Visually inspect chain link plates for cracks.	Cracks in any chain link plate.	Replace entire chain. Do not repair just the affected portion of the chain.

3-4
Lift Cylinder

How to Remove the Lift Cylinder

⚠WARNING Bodily injury hazard. This procedure requires specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is strongly recommended.

NOTICE When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation.
Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications.*

1 Remove the mast. See 3-1, *How to Remove the Mast Assembly*.

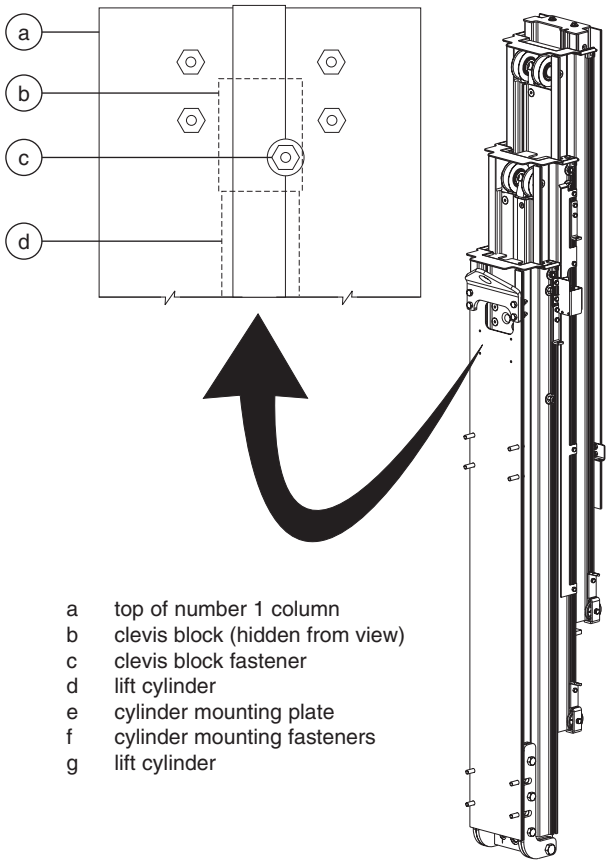
2 Remove the socket head retaining fastener from the clevis block on the lift cylinder rod end at the top of the number 1 column.

3 Remove the lift cylinder barrel end mounting fasteners.

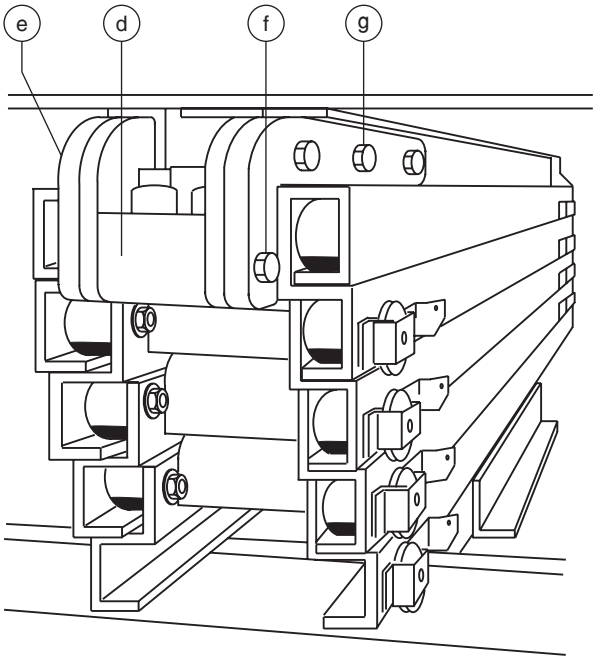
4 Loosen the lift cylinder mounting bracket fasteners.

5 Support the cylinder and carefully slide it out of the mast assembly.

⚠WARNING Crushing hazard. The lift cylinder could become unbalanced and fall if not properly supported when removed from the machine.



a top of number 1 column
b clevis block (hidden from view)
c clevis block fastener
d lift cylinder
e cylinder mounting plate
f cylinder mounting fasteners
g lift cylinder



Ground Controls

REV B

4-1
Control Relays

Relays used for dual function switching are double pole double throw (DPDT) relays.

How to Test a Double Pole Double Throw Relay

⚠WARNING Electrocution hazard. Contact with electrically charged circuits may cause death or serious injury. Remove all rings, watches and other jewelry.

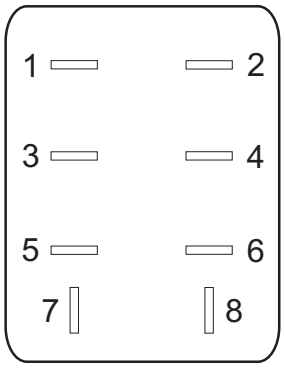
This procedure covers fundamental relay testing and does not specifically apply to all varieties of relays.

1 Turn the key switch to the off position and remove the key.

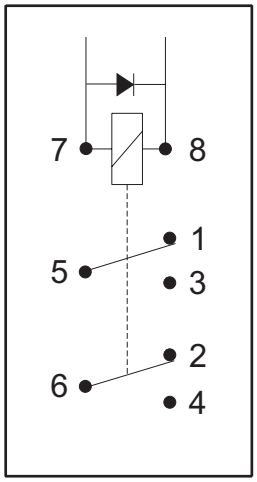
2 Remove the velcro strap and unplug the relay to be tested from its socket in the printed circuit board.

3 Connect the leads from an ohmmeter to each terminal combination and check for continuity. Terminals 7 and 8 represent the coil and should not be tested in any other combination.

Test	Desired result
terminal 7 to 8	155 to 158Ω
terminal 3 to 1 and 5	no continuity (infinite Ω)
terminal 4 to 2 and 6	no continuity (infinite Ω)
terminal 5 to 1	continuity (zero Ω)
terminal 6 to 2	continuity (zero Ω)



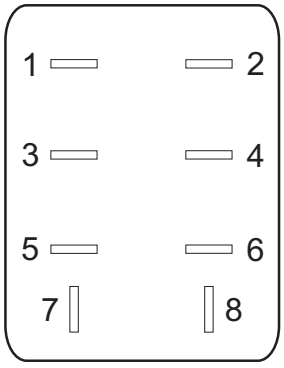
Terminal Numbers



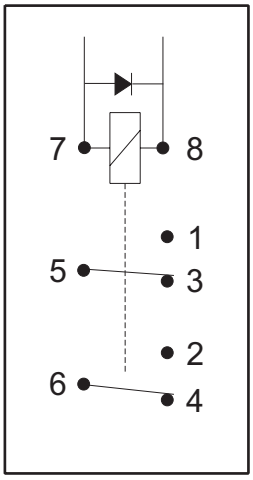
Control Relay Schematic
(Relay shown deactivated)

4 Connect 12V DC to terminal 7 and a ground wire to terminal 8, then test the following terminal combinations.

Test	Desired result
terminal 3 to 1 and 5	no continuity (infinite Ω)
terminal 2 to 4 and 6	no continuity (infinite Ω)
terminal 5 to 3	continuity (zero Ω)
terminal 6 to 4	continuity (zero Ω)



Terminal Numbers



Control Relay Schematic
(Relay shown activated)

4-2
Circuit Board

How to Remove the Circuit Board

1 Raise the platform approximately 4 feet / 1.2 m.

2 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

3 Remove the drive chassis cover.

4 Disconnect the battery pack from the machine.

⚠WARNING Electrocution hazard. Contact with electrically charged circuits may cause death or serious injury. Remove all rings, watches and other jewelry.

5 Tag and disconnect the machine wire harnesses from the ground control box at the control box.

6 Remove the control box mounting fasteners. Remove the control box from the machine and place it on a workbench.

7 Remove the fasteners securing the top to the ground control box. Open the box.

8 Tag and disconnect the wires from both terminal strips of the circuit board inside the control box.

CAUTION 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 Remove the circuit board retaining fasteners and remove the circuit board from the box.

4-3 Controller Adjustments

How to Calibrate the Raised Drive Speed Trimpot (Adjusting the Raised Drive Speed)

NOTICE To calibrate the stowed drive speed, see 1-2, *How to Calibrate the Stowed Drive Speed Trimpot (Adjusting the Stowed Drive Speed).*

1 Raise the platform approximately 4 feet / 1.2 m.

2 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

3 Remove the drive chassis cover.

4 Remove the ground control box cover. Locate the circuit board inside the control box.

5 Locate the raised drive speed trimpot on the circuit board.

NOTICE The raised drive speed trimpot is approximately 1/4 inch / 6 mm square, and is located next to the power LED on the circuit board.

6 Adjust the trimpot to acheive the specified drive speed. Turn the trimpot screw clockwise to decrease the drive speed or counterclockwise to increase the drive speed.

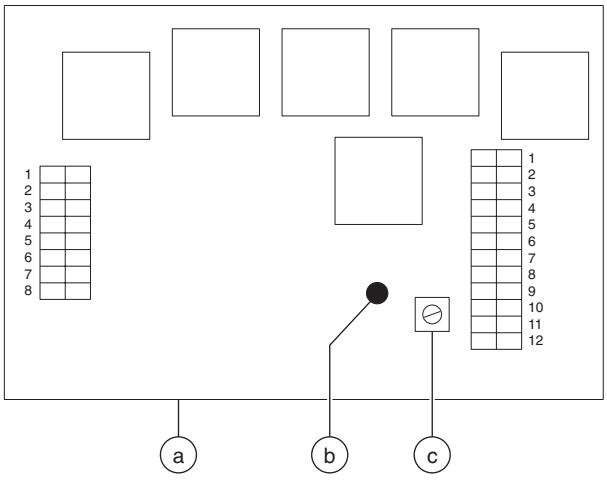
CAUTION Component damage hazard. The trimpot has a 270° range of movement, and requires a gentle touch during calibration. Use caution when adjusting the trimpot screw.

7 Install the cover onto the control box. Install and securely tighten the fasteners. Do not over tighten.

8 Install the cover onto the drive chassis. Install and securely tighten the fasteners. Do not over tighten.

9 Remove the strap from the platform. Lower the platform to the stowed position.

10 Confirm the raised drive speed. Refer to Maintenance Procedure B-12, *Test the Drive Speed - Raised Position*.



a circuit board
b LED
c raised drive speed trimpot

4-4
Level Sensor

The Genie Runabout is designed 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 2° to the side, 3° to the front or 5° to the rear.

How to Install and Calibrate the 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.

NOTICE 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 Turn the key switch to platform control and pull out the red Emergency Stop buttons to the ON position at both the ground and platform controls.

3 Block the wheels at the non-steer end of the machine.

4 Center a lifting jack under the drive chassis at the steer end of the machine.

5 Raise the machine approximately 2 inches / 5 cm.

6 Place a 0.75 x 6 x 6 inch / 19.1 mm x 15 cm x 15 cm thick steel block under both wheels at the steer end of the machine.

7 Lower the machine onto the blocks.

8 Raise the platform approximately 4 feet / 1.2 m.

9 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

10 Remove the drive chassis cover.

11 Locate the level sensor inside the chassis.

If you are not installing a new level sensor, proceed to step 17.

12 Tag and disconnect the wiring harness from the level sensor.

13 Remove the level sensor retaining fasteners and remove the level sensor from the machine.

14 Install the new level sensor into the chassis with the "X" on the level sensor base closest to the side of the machine and the "Y" on the level sensor base closest to the front of the machine.

⚠DANGER Tip-over hazard. The level sensor must be installed with the "X" on the level sensor base closest to the side of the machine and the "Y" on the level sensor base closest to the front of the machine. Failure to install the level sensor as instructed will compromise machine stability and cause the machine to tip over, resulting in death or serious injury. Do not install or calibrate the level sensor other than specified in this procedure.

15 Install and securely tighten the level sensor retaining fasteners. Do not over tighten.

16 Connect the wiring harness to the level sensor.

17 Adjust the level sensor retaining fasteners until the bubble in the top of the level sensor is centered in the circles.

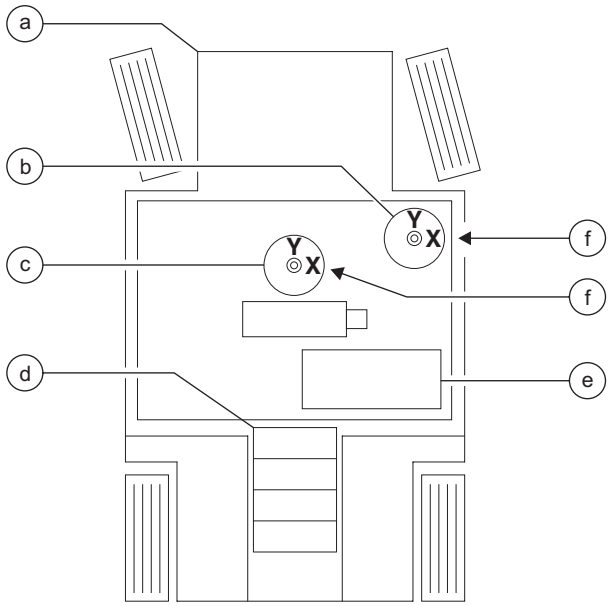
NOTICE Be sure there are threads showing through the top of the adjusting fasteners.

⊙ Result: The tilt sensor alarm should not sound.

18 Raise the platform slightly. Remove the lifting strap from the platform.

19 Lower the platform to the stowed position.

Steer end



Non-steer end

a chassis
b tilt level sensor (after serial number GR01-248)
c tilt level sensor (before serial number GR01-248)
d mast
e hydraulic tank
f "X" indicator

20 Raise the machine slightly.

21 Remove the blocks from under both wheels.

22 Lower the machine and remove the jack.

23 Remove the blocks from the wheels at the non-steer end of the machine.

24 Block the wheels at the steer end of the machine.

25 Center a lifting jack under the drive chassis at the non-steer end of the machine.

26 Raise the machine approximately 5 inches / 13 cm.

27 Place a 3.91 x 6 x 6 inch / 99.3 mm x 15 cm x 15 cm thick steel block under both wheels at the non-steer end of the machine.

28 Lower the machine onto the blocks.

⊙ Result: The tilt sensor alarm should sound.

29 Raise the machine slightly.

30 Remove the blocks from under both wheels.

31 Lower the machine and remove the jack.

32 Remove the blocks from the wheels at the steer end of the machine.

33 Center a lifting jack under the drive chassis at the ground controls side of the machine.

34 Raise the machine approximately 2 inches / 5 cm.

35 Place a 0.88 x 6 x 6 inch / 22.3 mm x 15 cm x 15 cm thick steel block under both wheels at the ground controls side of the machine.

36 Lower the machine onto the blocks.

37 Adjust the level sensor retaining fasteners just until the tilt sensor alarm does not sound.

38 Raise the machine slightly.

39 Remove the blocks from under both wheels.

40 Lower the machine and remove the jack.

41 Center a lifting jack under the drive chassis at the side of the machine opposite the ground controls.

42 Raise the machine approximately 2 inches / 5 cm.

43 Place a 1.02 x 6 x 6 inch / 25.9 mm x 15 cm x 15 cm thick steel block under both wheels at the side of the machine opposite the ground controls.

44 Lower the machine onto the blocks.

⊙ Result: The tilt sensor alarm should sound.

⊠ Result: If the tilt sensor alarm does not sound, adjust the level sensor until the alarm just begins to sound OR the level sensor may be faulty.

45 Raise the machine slightly.

46 Remove the blocks from under both wheels.

47 Lower the machine and remove the jack.

Hydraulic Pump

REV B

5-1
Function Pump

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

How to Test the Hydraulic Pump

NOTICE 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.*

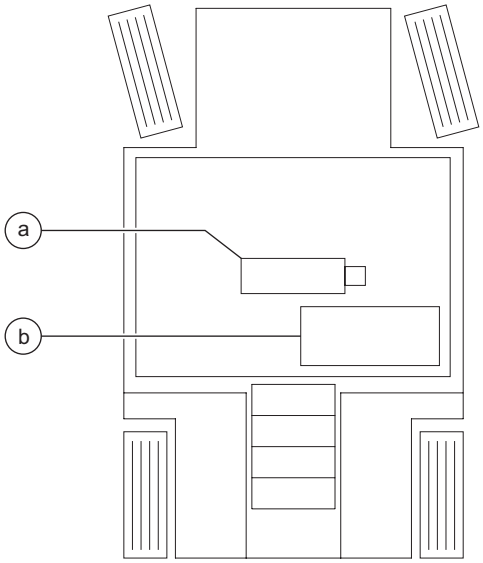
1 Raise the platform approximately 4 feet / 1.2 m.

2 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

3 Remove the drive chassis cover.

4 Locate the hydraulic power unit inside the chassis.



a hydraulic power unit
b hydraulic tank

5 Tag, disconnect and plug the high pressure hydraulic hose from the hydraulic 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.

6 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the high pressure port on the pump.

7 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.

8 Activate the platform up function from the ground controls.

⊙ Result: If the pressure gauge reads 3000 psi / 207 bar, immediately stop. The pump is good.

⊠ Result: If pressure fails to reach 3000 psi / 207 bar, the pump is bad and will need to be serviced or replaced.

CAUTION 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 3000 psi / 207 bar. When testing the pump, activate the pump in one second intervals until 3000 psi / 207 bar is confirmed. Do not over-pressurize the pump.

9 Remove the pressure gauge and reconnect the hydraulic hose. Torque to specification.

⚠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.

How to Remove the Hydraulic Pump

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

1 Raise the platform approximately 4 feet / 1.2 m.

2 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

3 Remove the drive chassis cover.

4 Locate the hydraulic power unit inside the chassis.

5 Tag, disconnect and plug the hydraulic hoses on the pump. Cap the fittings 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.

6 Remove the pump mounting bolts. Carefully remove the pump.

Manifolds

REV B

6-1
Function Manifold Components (before serial number GR01-225)

The function manifold is mounted under the drive chassis cover.

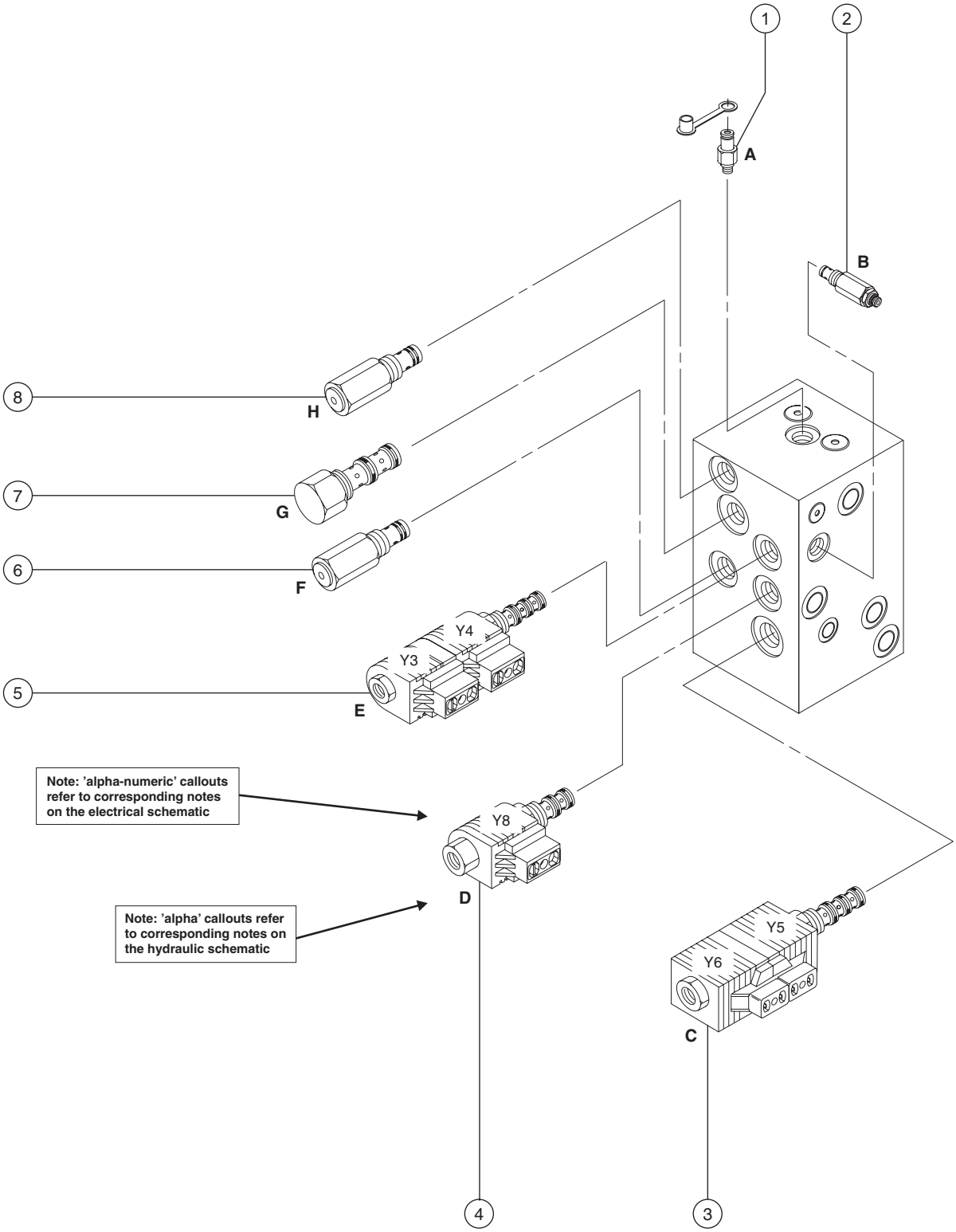
Index No.	Description	Schematic Item	Function	Torque
—	Coil nut (items C, D and E)			4-6 ft-lbs / 5-8 Nm
1	Diagnostic nipple	A	Testing	10 ft-lbs / 14 Nm
2	Relief valve, 1000 psi / 69 bar	B	Steer relief	20 ft-lbs / 27 Nm
3	Solenoid valve, 3 position 4 way	C	Drive forward/reverse	20 ft-lbs / 27 Nm
4	Solenoid valve, 2 position 4 way	D	Lift/drive select	25 ft-lbs / 34 Nm
5	Solenoid valve, 3 position 4 way	E	Steer left/right	20 ft-lbs / 27 Nm
6	Relief valve, 2200 psi / 151.6 bar	F	Lift relief	20 ft-lbs / 27 Nm
7	Flow regulator, 0.6 gpm / 2.27 L/min	G	Steer circuit	35 ft-lbs / 47 Nm
8	Relief valve, 2700 psi / 186 bar	H	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 specification.

3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specification.


1
2
A
B
8
H
7
G
6
F
Y4
Y3
5
E
Note: 'alpha-numeric' callouts refer to corresponding notes on the electrical schematic
Y8
D
Note: 'alpha' callouts refer to corresponding notes on the hydraulic schematic
Y5
Y6
C
4
3

6-2
Function Manifold Components (from serial number GR01-225 to GR01-248)

The function manifold is mounted under the drive chassis cover.

Index No.	Description	Schematic Item	Function	Torque
—	Coil nut (items C, D and E)			4-6 ft-lbs / 5-8 Nm
1	Diagnostic nipple	A	Testing	10 ft-lbs / 14 Nm
2	Relief valve, 1000 psi / 69 bar	B	Steer relief	20 ft-lbs / 27 Nm
3	Relief valve, 2200 psi / 151.6 bar	F	Lift relief	20 ft-lbs / 27 Nm
4	Relief valve, 2700 psi / 186 bar	H	System relief	20 ft-lbs / 27 Nm
5	Solenoid valve, 3 position 4 way	C	Drive forward/reverse	20 ft-lbs / 27 Nm
6	Solenoid valve, 2 position 4 way	D	Lift/drive select	25 ft-lbs / 34 Nm
7	Solenoid valve, 3 position 4 way	E	Steer left/right	20 ft-lbs / 27 Nm
8	Flow regulator, 0.6 gpm / 2.27 L/min	G	Steer circuit	35 ft-lbs / 47 Nm

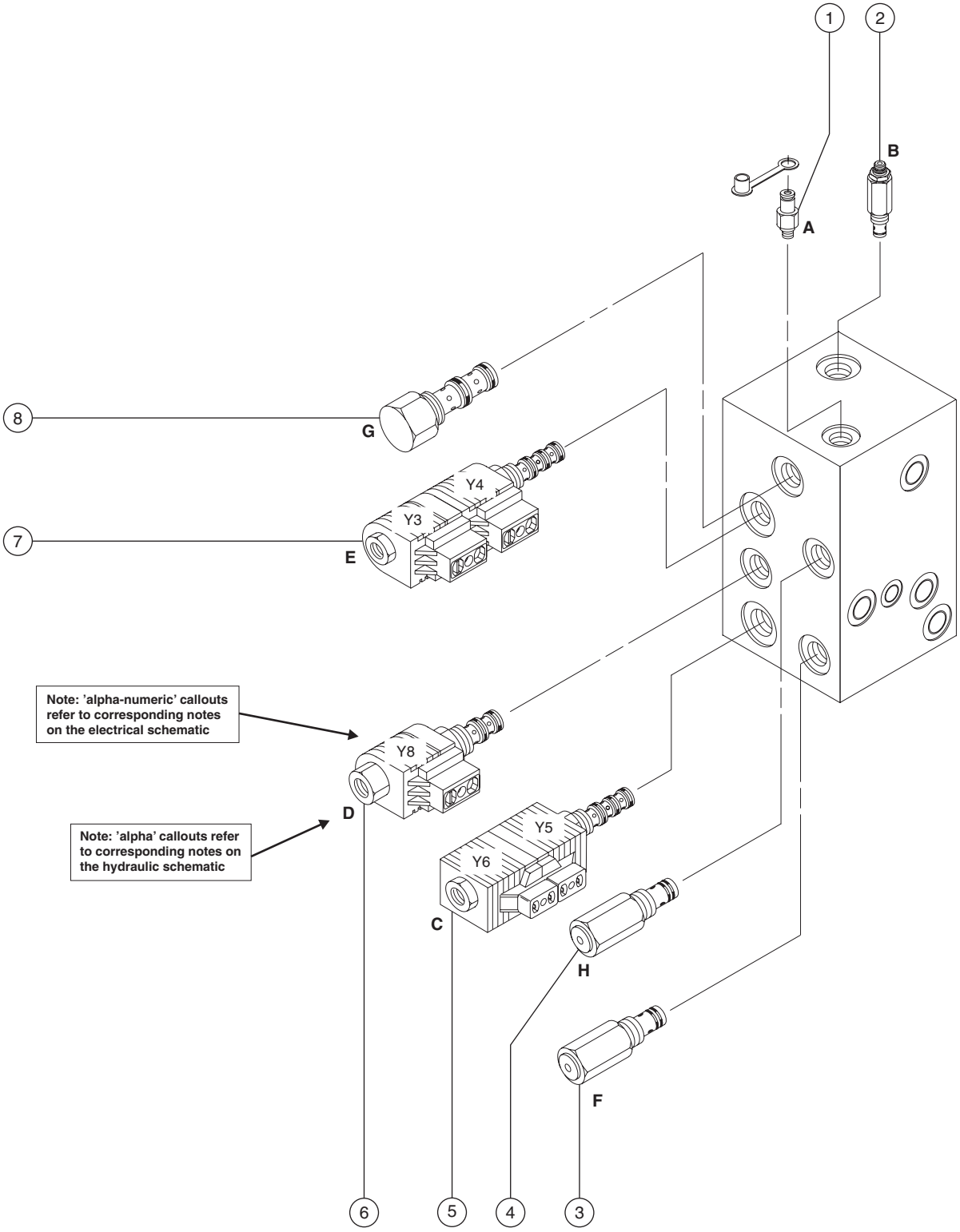
How to Install a Valve Cartridge

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 specification.

3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specification.

REV B MANIFOLDS



6-3
Function Manifold Components (after serial number GR01-248)

The function manifold is mounted under the drive chassis cover.

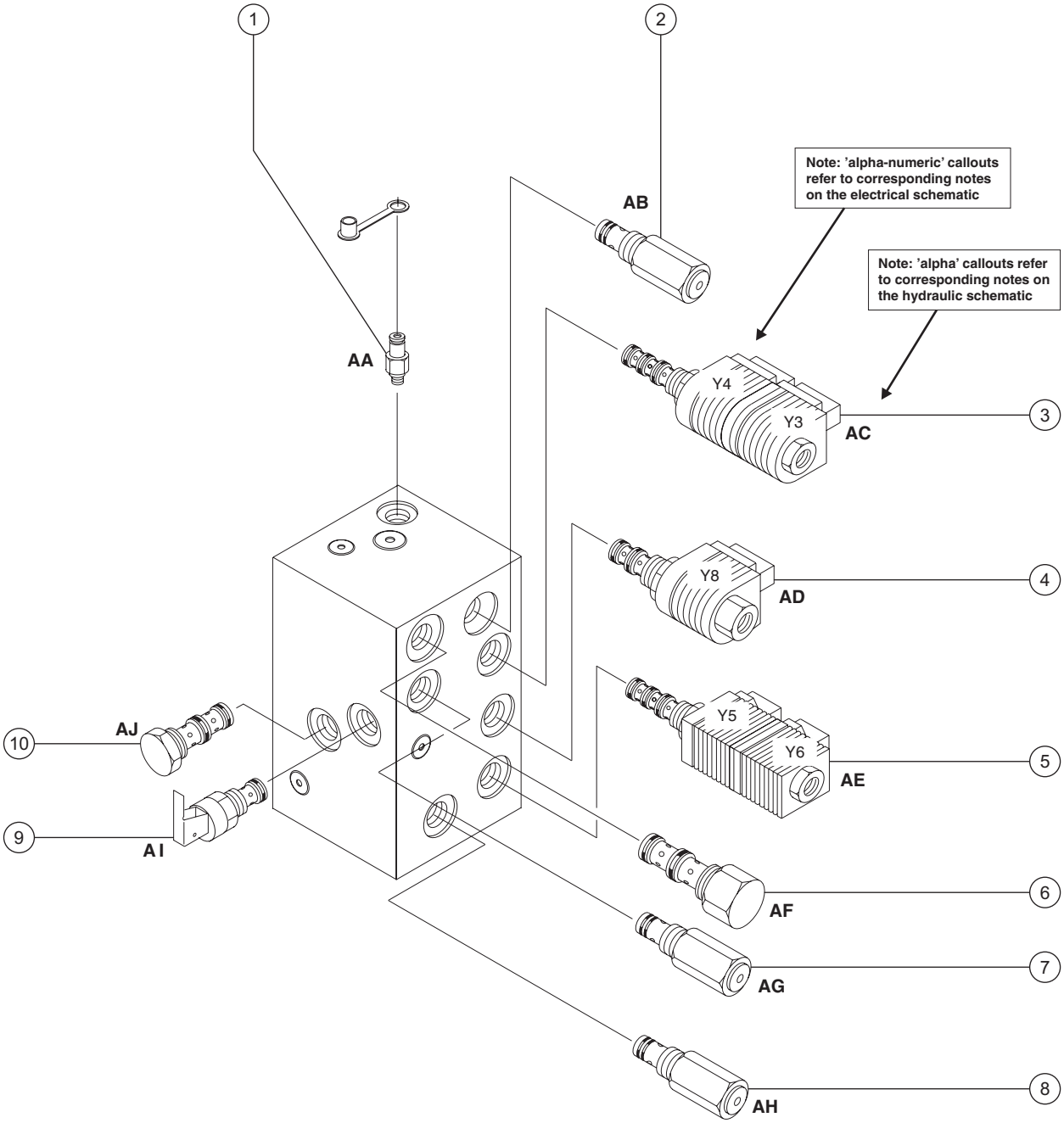
Index No.	Description	Schematic Item	Function	Torque
—	Coil nut (items AC, AD and AE)			4-6 ft-lbs / 5-8 Nm
1	Diagnostic nipple	AA	Testing	10 ft-lbs / 14 Nm
2	Relief valve, 2700 psi / 186 bar	AB	Steer relief	20 ft-lbs / 27 Nm
3	Solenoid valve, 3 position 4 way	AC	Steer left/right	20 ft-lbs / 27 Nm
4	Solenoid valve, 2 position 4 way	AD	Lift/drive select	25 ft-lbs / 34 Nm
5	Solenoid valve, 3 position 4 way	AE	Drive forward/reverse	25 ft-lbs / 27 Nm
6	Flow regulator, 0.6 gpm / 2.27 L/min	AF	Steer circuit	35 ft-lbs / 47 Nm
7	Relief valve, 1000 psi / 69 bar	AG	System relief	20 ft-lbs / 27 Nm
8	Relief valve, 2200 psi / 151.6 bar	AH	Lift relief	20 ft-lbs / 27 Nm
9	Needle valve, 2 position 2 way	AI	Brake circuit	20 ft-lbs / 27 Nm
10	Check valve, 200 psi / 13.8 bar	AJ	Brake circuit	25 ft-lbs / 34 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 specification.

3 If required, install the valve coil(s) onto the valve stem. Install the coil nut onto the valve stem and torque to specification.


1
2
Note: 'alpha-numeric' callouts refer to corresponding notes on the electrical schematic
Note: 'alpha' callouts refer to corresponding notes on the hydraulic schematic
AB
AA
Y4
Y3
AC
3
Y8
AD
4
10
AJ
Y5
Y6
AE
5
9
AI
AF
6
AG
7
AH
8

6-4
Valve Adjustments - Function Manifold

How to Adjust the System Relief Valve

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

1 Raise the platform approximately 4 feet / 1.2 m.

2 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

3 Remove the drive chassis cover.

4 Locate the system relief valve on the function manifold (item H or AG).

5 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold (item A or AA).

6 Chock both sides of the wheels at the steer end of the machine.

7 Remove the platform controls from the platform.

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

8 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.

9 Press and hold the function enable switch. Move the joystick in the full forward direction. while observing the pressure reading on the pressure gauge. Note the pressure. Refer to Section 2, *Specifications*.

10 Turn the machine off. Hold the system relief valve with a wrench and remove the cap.

11 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.

12 Install the relief valve cap.

13 Repeat steps 8 through 9 to confirm the relief valve pressure.

14 Install the relief valve cap. Remove the pressure gauge.

How to Adjust the Lift Relief Valve

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

1 Raise the platform approximately 4 feet / 1.2 m.

2 Remove the drive chassis cover.

3 Place two 4 x 4 x 48 inch / 10 x 10 x 120 cm blocks across the drive chassis to support the platform.

4 Locate the lift relief valve on the function manifold (item F or AH).

5 Hold the system relief valve with a wrench and remove the cap.

6 Lower the platform onto the blocks.

7 Place the maximum rated load in the platform. Secure the load to the platform. Refer to Section 2, *Specifications*.

8 While activating the platform up function, adjust the internal hex socket until the platform begins to raise.

9 Fully lower the platform.

10 Add an additional 50 pounds / 22.7 kg to the platform. Secure the additional weight.

11 Activate the platform up function.

⊙ Result: The platform does not raise.

⊠ Result: The platform raises. Adjust the internal hex socket of the lift relief valve just until the platform will not raise.

12 Install the relief valve cap.

13 Remove the weight from the platform.

14 Bleed the hydraulic system by raising the platform to full height. If the pump cavitates or if the platform fails to reach full height, add hydraulic oil until the pump is functioning correctly. Do not overfill the hydraulic tank.

⚠CAUTION Component damage hazard. Do not continue to operate the machine if the hydraulic pump is cavitating.

How to Adjust the Steer Relief Valve

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

1 Raise the platform approximately 4 feet / 1.2 m.

2 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

3 Remove the drive chassis cover.

4 Locate the steer relief valve on the function manifold (item B or AB).

5 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold (item A or AA).

6 Remove the platform controls from the platform.

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

7 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.

8 Press and hold 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*.

9 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.

10 Hold the steer relief valve with a wrench and remove the cap.

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

⚠WARNING Component damage hazard. Do not adjust the relief valve higher than specified.

12 Repeat steps 8 through 9 to confirm the relief valve pressure.

13 Install the relief valve cap. Remove the pressure gauge.

6-5 Valve Coils

How to Test a Coil

A properly functioning coil provides an electromotive force which operates the solenoid valve. Critical to normal operation is continuity within the coil that provides this force field.

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

1 Tag and disconnect the wire harness from the coil to be tested.

2 Test the coil resistance.

⊙ Result: The resistance should be within specification, plus or minus 30%.

⊠ Result: If the resistance is not within specification, plus or minus 30%, replace the coil.

Valve Coil Resistance Specifications

Description	Specification
Solenoid valve, 3 position 4 way 20V DC with diode (schematic items C, AC and AE)	22 to 24 Ω
Solenoid valve, 2 position 4 way 20V DC with diode (schematic items D and AD)	23 to 26 Ω
Solenoid valve, 3 position 4 way 20V DC with diode (schematic item E)	23 to 26 Ω

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.

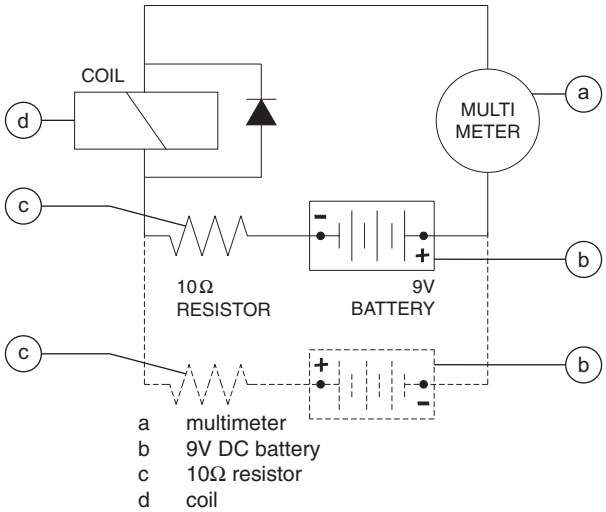
⚠WARNING Electrocution hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

1 Test the coil for resistance. See 6-5 *How to Test a Coil.*

2 Connect a 10Ω resistor to the negative terminal of a known good 9V DC battery. Connect the other end of the resistor to a terminal on the coil.

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

Resistor, 10Ω
Genie part number 27287



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

3 Set a multimeter to read DC amperage.

NOTICE 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.

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

5 Momentarily connect the positive lead from the multimeter to the positive terminal on the 9V battery. Note and record the current 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 of the current readings are 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.

Hydraulic Tank

REV B

7-1 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

CAUTION 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.

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

1 Raise the platform approximately 4 feet / 1.2 m.

2 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

3 Disconnect the battery pack from the machine.

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

4 Remove the drive chassis cover.

5 Remove the drain plug from the hydraulic tank and allow all of the oil to drain into a suitable container. Refer to Section 2, *Specifications*.

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

6 Tag, disconnect and plug the supply hose from the hydraulic power unit to the tank.

7 **Before serial number GR01-249:** Tag, disconnect and plug the return hose from the function manifold to tank at the return filter. Cap the fitting on the return filter housing.
After serial number GR01-248: Tag, disconnect and plug the return hose from the return filter to tank at the tank.

8 Remove the hydraulic tank mounting fasteners and remove the tank from the machine.

Torque specifications	
Hydraulic tank retaining fasteners, dry	35 in-lbs 4 Nm
Hydraulic tank retaining fasteners, lubricated	26 in-lbs 2.9 Nm
Hydraulic tank drain plug, dry	40 in-lbs 4.5 Nm
Hydraulic tank drain plug, lubricated	30 in-lbs 3.4 Nm

Steer Axle Components

REV B

8-1
Yoke and Drive Motor

How to Remove the Yoke and Drive Motor

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

1 Block the wheels at the non-steer end of the machine.

2 Center a lifting jack under the drive chassis at the steer end of the machine.

3 Remove the cotter pin from the wheel castle nut.

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

4 Loosen the wheel castle nut. Do not remove it.

5 Raise the machine approximately 14 inches / 36 cm. Place blocks under the chassis for support.

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

6 Remove the wheel castle nut. Remove the wheel.

7 Tag, disconnect and plug the hydraulic hoses 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.

CAUTION Component damage hazard. Cables and 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 drive chassis that secures the yoke assembly.

10 Remove the cotter pin from the steer link on the yoke pivot shaft.

NOTICE Always replace the cotter pin with a new one when removing a steer link.

11 Remove the steer link from the yoke..

12 Lower the yoke assembly out of the chassis.

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

How to Remove a Drive Motor

1 Block the wheels at the non-steer end of the machine.

2 Center a lifting jack under the drive chassis at the steer end of the machine.

3 Remove the cotter pin on the wheel castle nut of the motor to be removed.

NOTICE Always replace the cotter pin with a new one when removing the castle nut or when checking the torque of 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 it is 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.

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

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

Torque specifications	
Drive motor mounting fasteners, dry	35 in-lbs 4 Nm
Drive motor mounting fasteners, lubricated	26 in-lbs 2.9 Nm

8-2
Steer Cylinder

How to
Remove the Steer Cylinder

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

1 Block the wheels at the non-steer end of the machine.

2 Raise the platform approximately 4 feet / 1.2 m.

3 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

4 Remove the drive chassis cover.

5 Tag, disconnect and plug the hydraulic hoses from the steering 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.

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

6 Remove the cotter pins and the clevis pins from the steer links at both ends of the steer cylinder.

NOTICE Always replace the cotter pin with a new one when removing a steer link.

7 Remove the cylinder retaining fasteners from the steer cylinder. Remove the steer cylinder from the machine.

How to Perform the Toe-in Adjustment

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

1 Block the wheels at the non-steer end of the machine.

2 Raise the platform approximately 4 feet / 1.2 m.

3 Place a lifting strap from an overhead crane under the platform. Support the platform. Do not apply any lifting pressure.

CAUTION Component damage hazard. The platform railings can be damaged if they are used to lift the platform. Do not attach the lifting strap to the platform railings.

4 Remove the drive chassis cover.

5 Measure the steer tires, front to front and back to back, using a measuring fixture.

Toe-in specification

Range	0 ± 1/8 inch 0 ± 6 mm

6 Center a lifting jack under the 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 it is not properly supported.

8 Loosen the jam nut on the adjustable lugs at the ends of the steer cylinder.

9 Remove the cotter pins and the clevis pins from the steer links at both ends of the steer cylinder.

NOTICE Always replace the cotter pin with a new one when removing a steer link.

10 Rotate the lugs at the one or both ends of the cylinder to adjust the toe-in.

11 Install the cylinder lugs into both steer links. Install the clevis pins to secure.

12 Tighten the jam nut against the steer cylinder.

13 Lower the machine and measure the steer tires, front to front and back to back, using a measuring fixture.

⊙ Result: The machine is within specification. Proceed to step 14.

⊠ Result: The machine is not within specification. Repeat this procedure beginning with step 6.

14 Install the drive chassis cover. Install and securely tighten the drive cover retaining fasteners. Do not over tighten.

Non-steer Axle Components

REV A

9-1
Wheel Brake

How to Remove a Wheel Brake

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

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

1 Block the wheels at the steer end of the machine.

2 Center a lifting jack under the drive chassis at the non-steer end of the machine.

3 Remove the cotter pin from the wheel castle nut.

NOTICE Always replace the cotter pin with a new one when removing the castle nut or when checking the torque of 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 it is not properly supported.

6 Remove the wheel castle nut. Remove the wheel.

7 Remove the rear access cover fasteners at the non-steer end of the machine. Remove the cover.

8 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.

Platform Overload Components

REV A

10-1
Platform Overload System

Calibrate the Platform Overload System (if equipped)

NOTICE Perform this procedure with the machine on a firm, level surface.

1 Raise the platform approximately 2 feet / 70 cm.

2 Tag and disconnect the wire harness from the load sense limit switch.

NOTICE The load sense limit switch is located near the platform support.

3 Set a multi-meter to measure continuity. Connect the leads from the multi-meter to the black and red wires disconnected from the limit switch in step 2.

4 Determine the maximum platform capacity. Refer to the machine serial plate.

5 Using a suitable lifting device, place an appropriate test weight equal to that of the maximum platform capacity at the center of the platform floor. Refer to Section 2, *Specifications*.

Determine the limit switch trigger point:

6 Gently move the platform up and down by hand, so it bounces 1 to 2 inches / 2.5 to 5 cm.

7 Check the continuity between the black and red wires originating from the limit switch of the platform overload assembly.

⊙ Result: **There is no continuity.** Slowly tighten the load spring adjustment nut by turning it clockwise just until the limit switch closes and shows continuity.

⊙ Result: **There is continuity.** Slowly loosen the load spring adjustment nut by turning it counterclockwise just until the limit switch opens and shows no continuity.

NOTICE The platform will need to be continuously moved up and down while making adjustments.

Fine adjustment of the switch trigger point:

8 Continue moving the platform up and down and adjust the load spring adjustment nut clockwise or counterclockwise just until the limit switch is alternately opening and closing.

NOTICE When the limit switch is adjusted correctly, there will be continuity slightly longer than no continuity.

9 Remove the continuity tester from the limit switch wires. Securely install the wires onto the limit switch.

Confirm the setting:

10 Turn the key switch to platform control.

11 Lift the test weight off the platform floor using a suitable lifting device.

12 Place the test weight back onto the platform floor using a suitable lifting device.

⊙ Result: The overload alarm at the platform controls should not sound, indicating a normal condition.

13 Add an additional weight to the platform not to exceed 20% of the maximum rated load. Refer to the machine serial plate.

⊙ Result: The overload alarm at the platform controls sounds. The platform overload system is operating properly.

⊠ Result: The overload alarm at the platform controls does not sound. The platform overload system is not operating properly. Repeat this procedure beginning with step 1.

14 Test all machine functions from the platform controls.

⊙ Result: All platform control functions should not operate.

15 Turn the key switch to ground control.

16 Test all machine functions from the ground controls.

⊙ Result: All ground control functions should not

Troubleshooting Flow Charts

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 printed in the appropriate *Genie Runabout Operator's Manual.*
- ☑ Be sure that all necessary tools and test equipment are available and ready for use.
- ☑ Read each appropiate flow chart thoroughly. Attempting shortcuts may produce hazardous conditions.
- ☑ Be aware of the following hazards and follow generally accepted safe workshop practices.

⚠DANGER Crushing hazard. When testing or replacing any hydraulic component, always support the structure and secure it from movement.

⚠WARNING Electrocution 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.

NOTICE Perform all troubleshooting on a firm, level surface.

NOTICE Two persons will be required to safely perform some troubleshooting procedures.

TROUBLESHOOTING FLOW CHARTS

About This Section

When a malfunction is discovered, the flow 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.

The location of terminals mentioned in this section can be found on the appropriate electrical or hydraulic schematics provided in Section 7, *Schematics*.

Since various degrees of a particular function loss may occur, selecting the appropriate flow chart may be troublesome. When a function will not operate with the same speed or power as a machine in good working condition, refer to the flow chart which most closely describes the problem.

General Repair Process

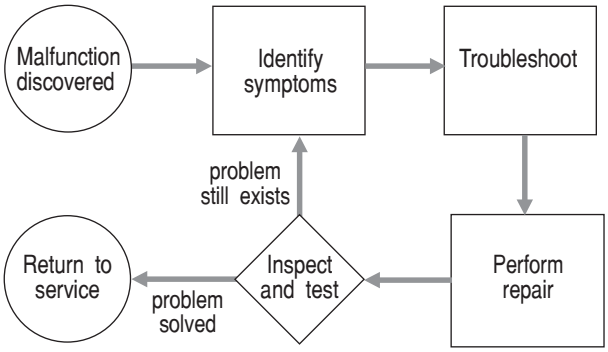


Chart 1

REV A

All Functions Will Not Operate

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure both Emergency Stop switches are pulled out to the ON position.

Be sure the batteries are fully charged and properly connected.

Be sure the hydraulic tank is filled to the correct level.

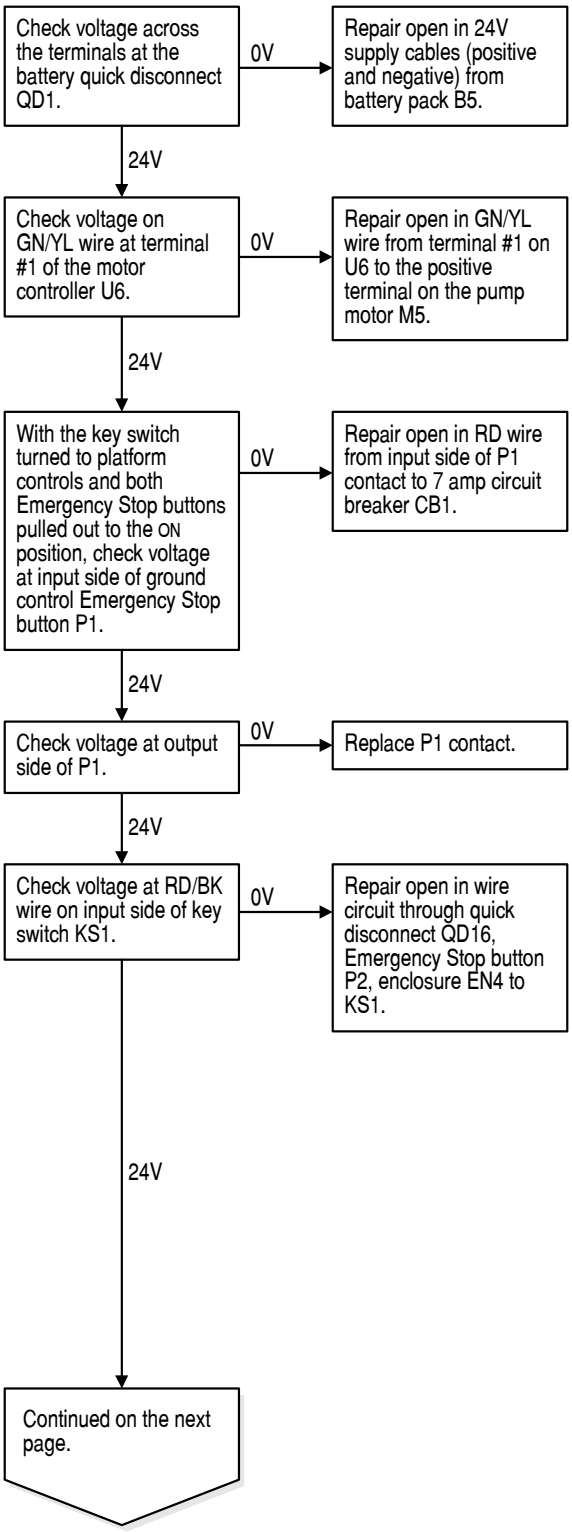


CHART 1 REV A

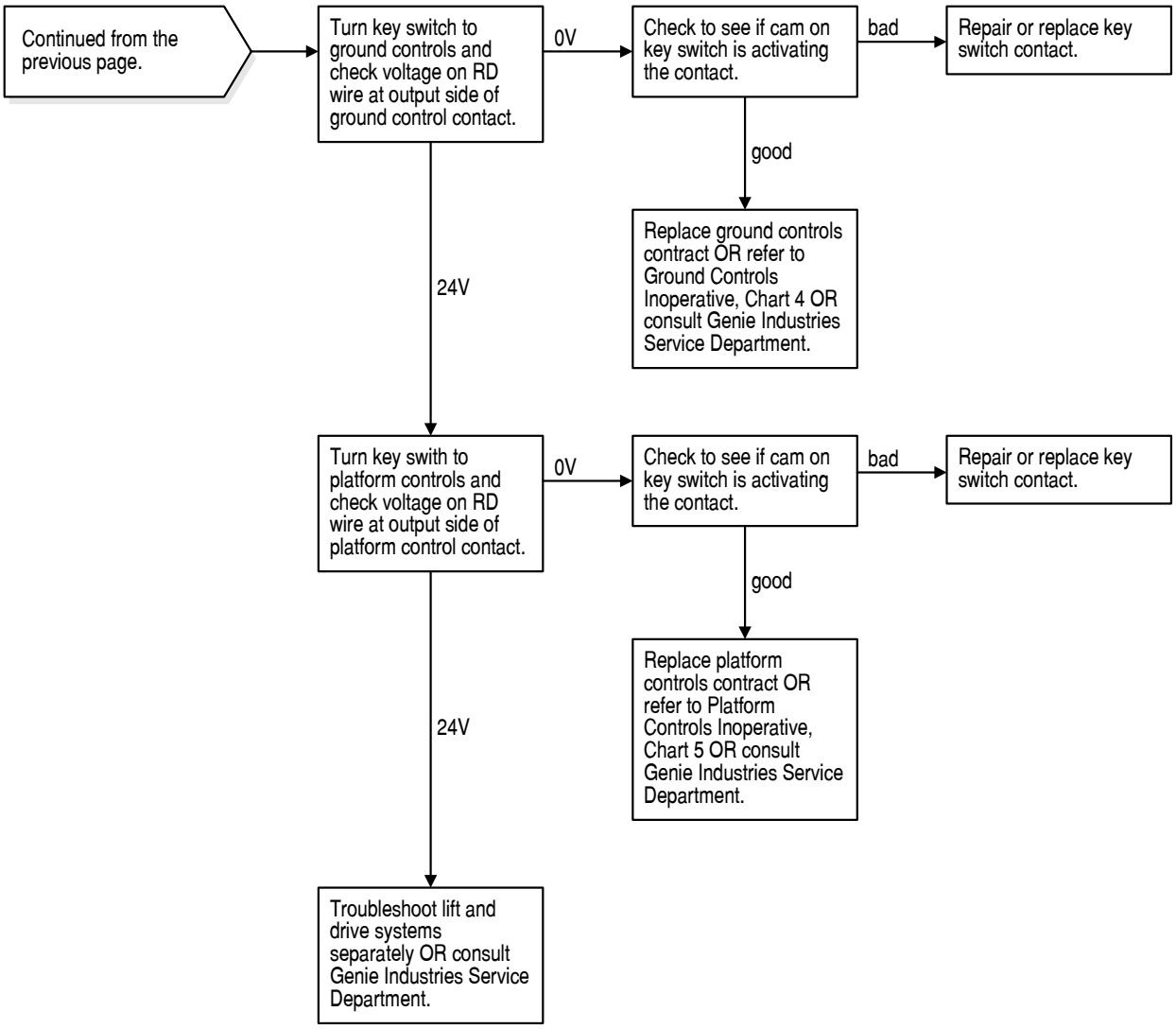

Continued from the previous page.
Turn key switch to ground controls and check voltage on RD wire at output side of ground control contact.
0V
Check to see if cam on key switch is activating the contact.
bad
Repair or replace key switch contact.
good
Replace ground controls contract OR refer to Ground Controls Inoperative, Chart 4 OR consult Genie Industries Service Department.
24V
Turn key swith to platform controls and check voltage on RD wire at output side of platform control contact.
0V
Check to see if cam on key switch is activating the contact.
bad
Repair or replace key switch contact.
good
Replace platform controls contract OR refer to Platform Controls Inoperative, Chart 5 OR consult Genie Industries Service Department.
24V
Troubleshoot lift and drive systems separately OR consult Genie Industries Service Department.

Chart 2

REV A

Pump Motor Will Not Operate

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

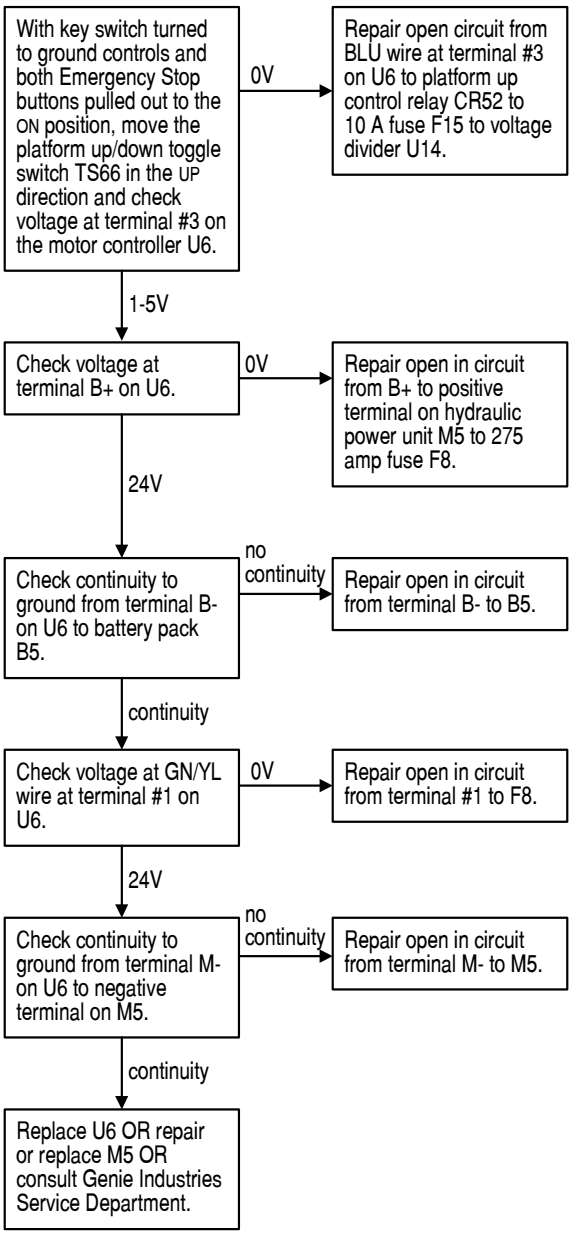


Chart 3

REV A

All Functions Inoperative, Power Unit Starts and Runs

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

Be sure the hydraulic tank is filled to the correct level.

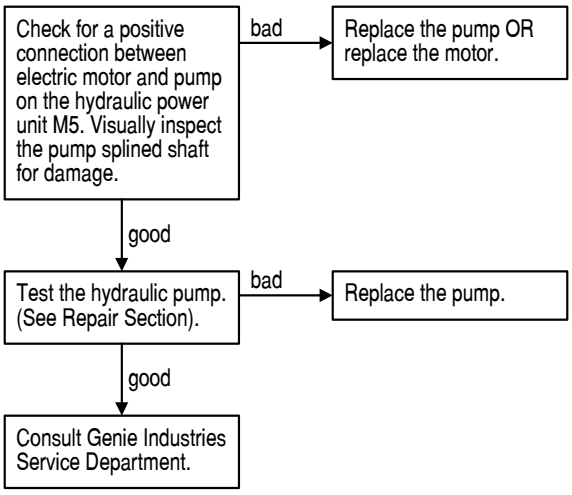


Chart 4

REV A

Ground Controls Inoperative, Platform Controls Operate Normally

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are properly connected.

Be sure the batteries are fully charged.

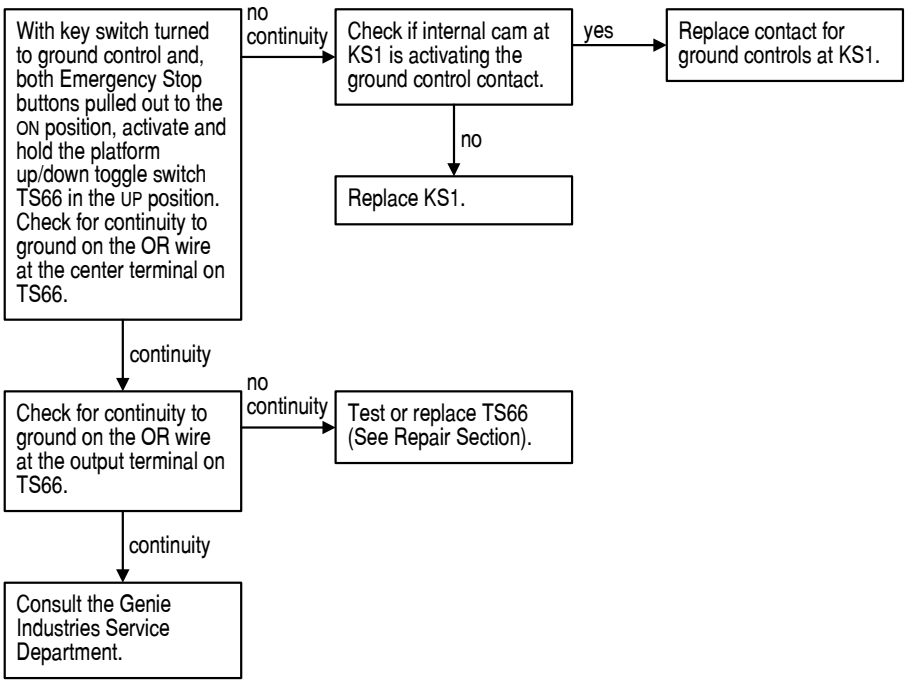


Chart 5

REV A

Platform Controls Inoperative, Ground Controls Operate Normally

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are properly connected.

Be sure the batteries are fully charged.

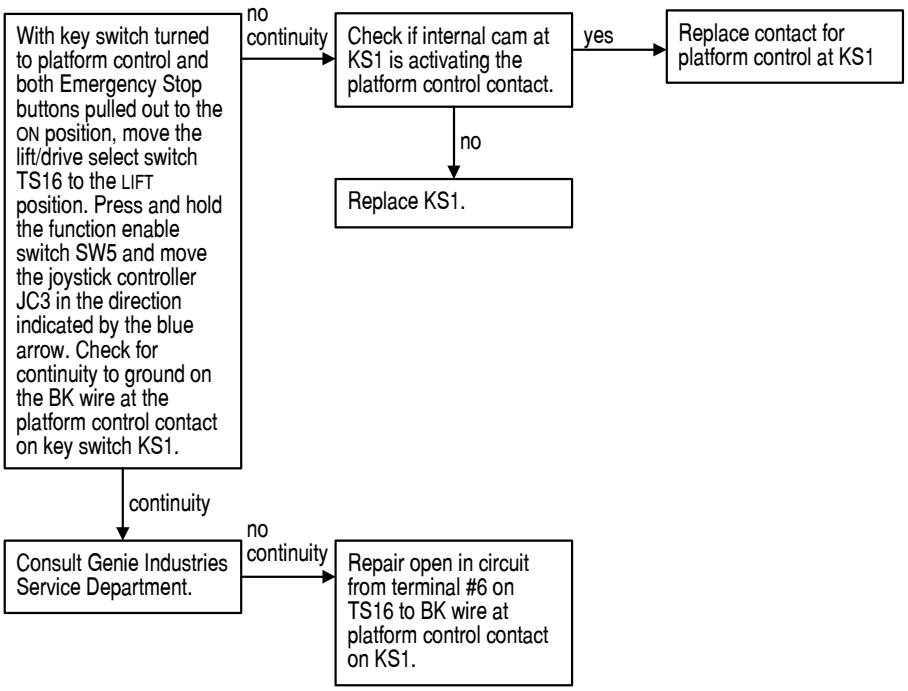


Chart 6

REV A

Platform Up Function Inoperative

Be sure all other functions operate normally.

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

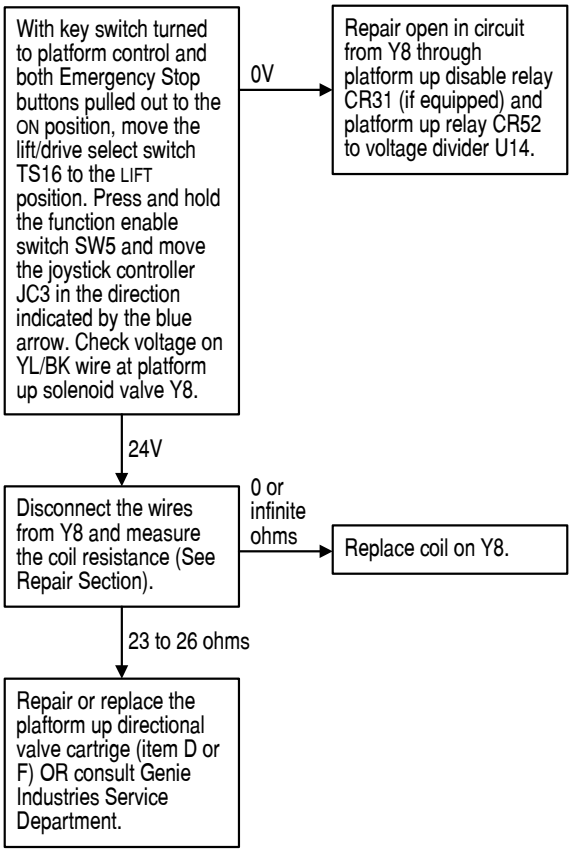


Chart 7

REV A

Platform Down Function Inoperative

Be sure all other functions operate normally.

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

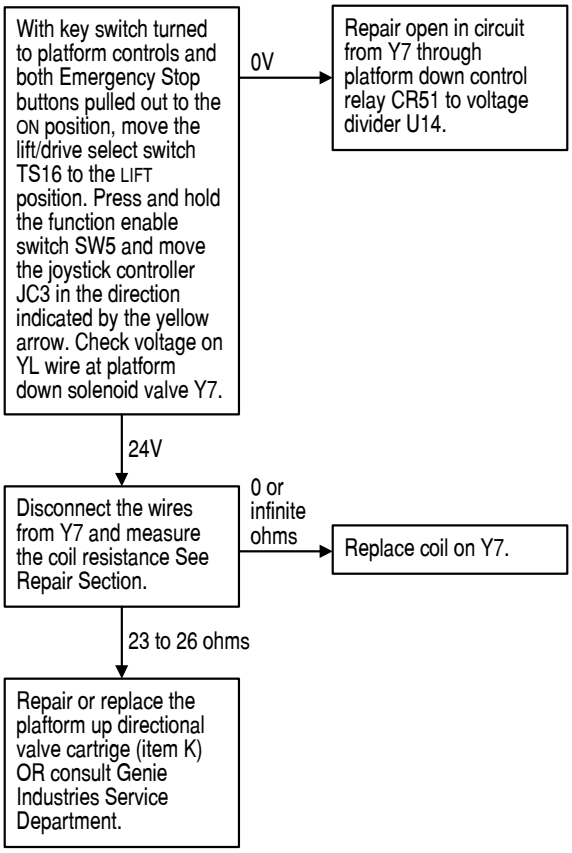


Chart 8

REV A

Steer Left Function Inoperative

Be sure all other functions operate normally.

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

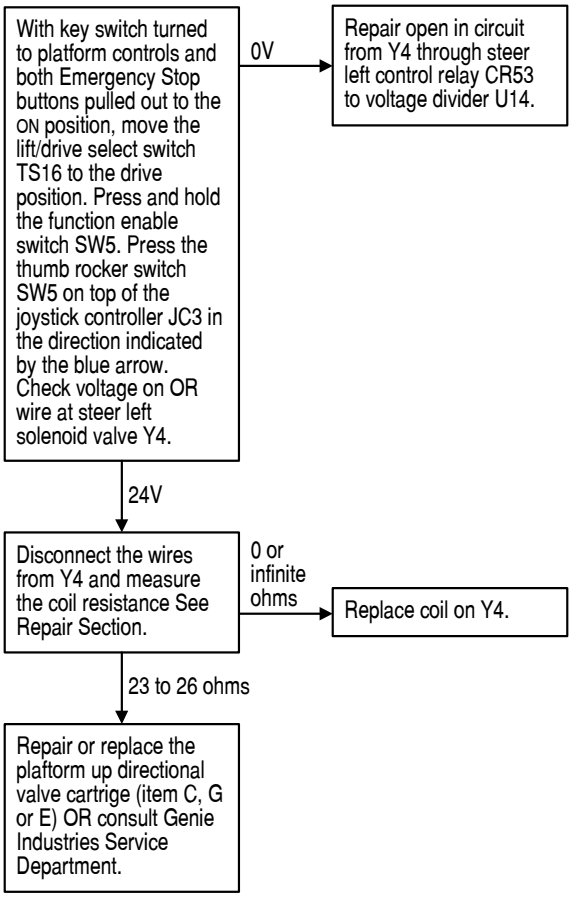


Chart 9

REV A

Steer Right Function Inoperative

Be sure all other functions operate normally.

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

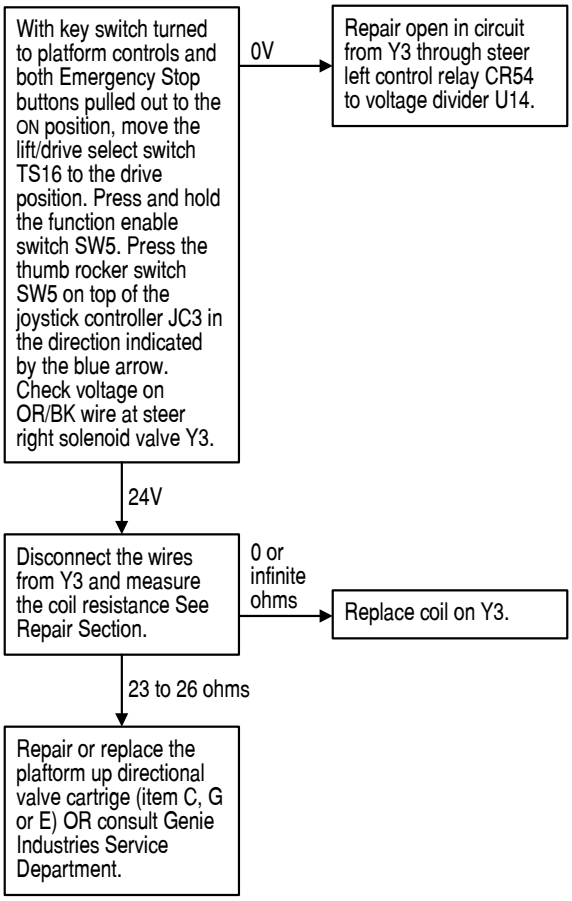


Chart 10

REV A

All Drive Functions Inoperative, All Other Functions Operate Normally

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

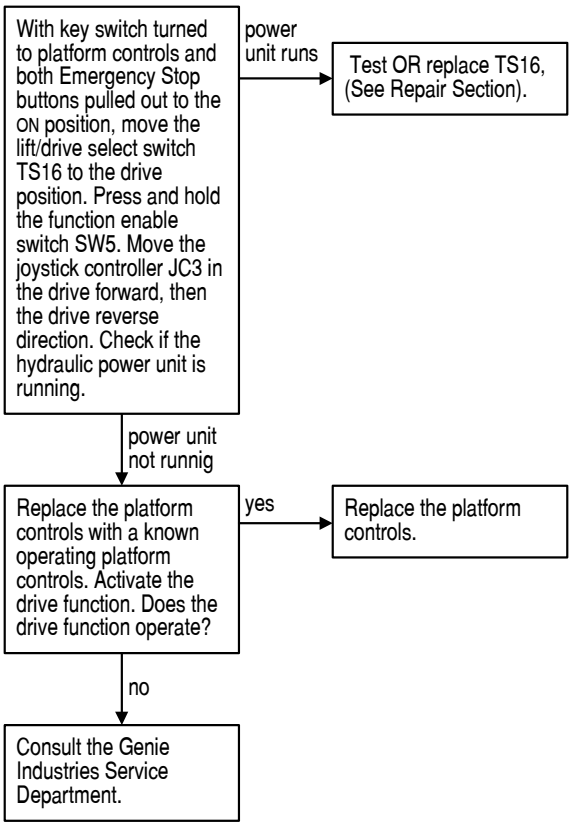


Chart 10A

REV A

Brake Release Function Inoperative

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

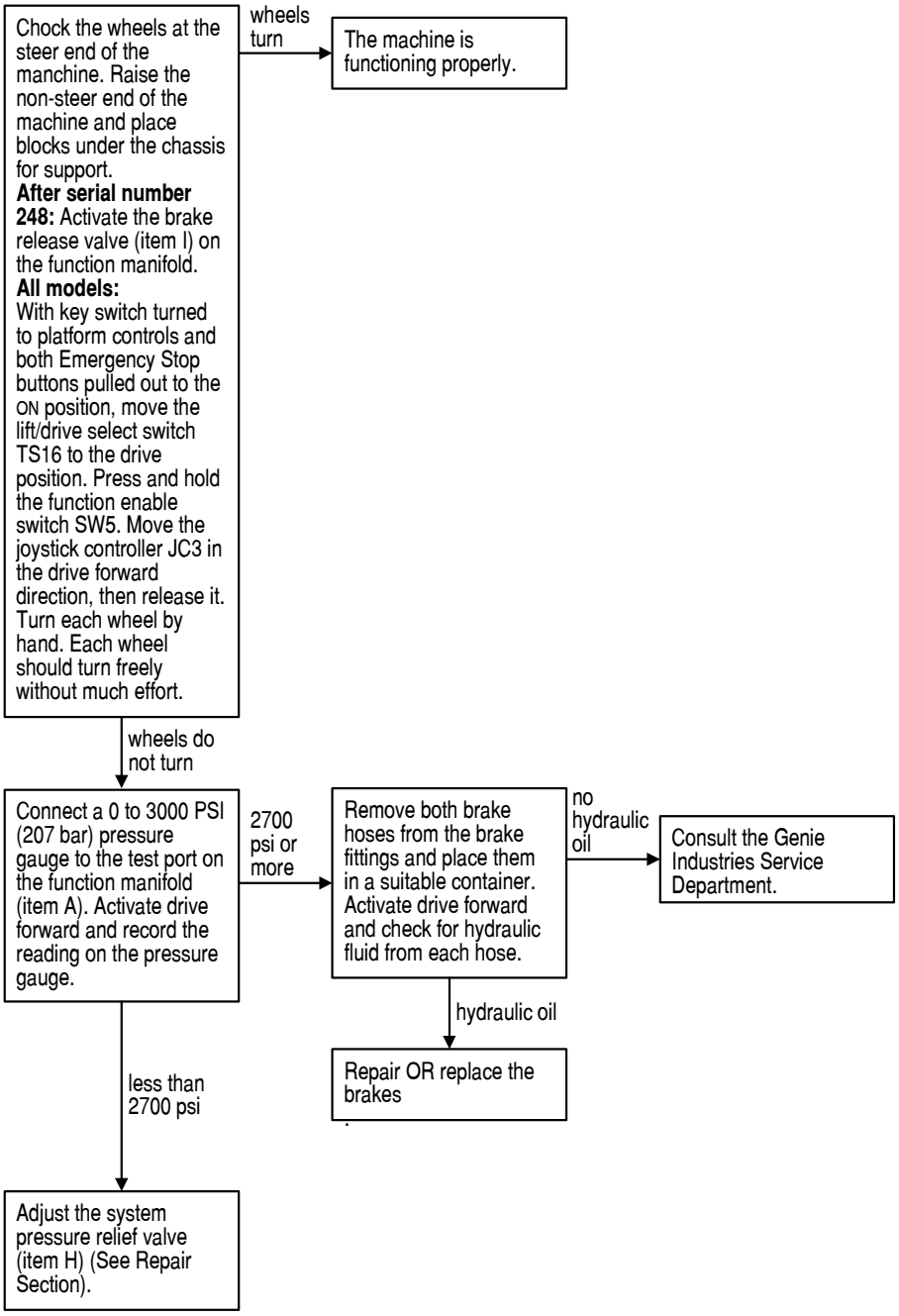


Chart 11

REV A

Drive Forward Function Inoperative

Be sure all other functions operate normally.

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

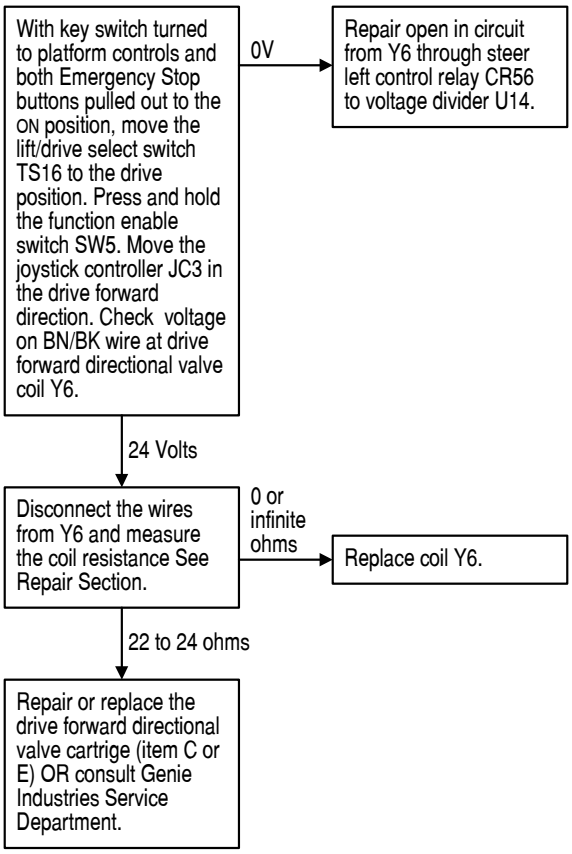


Chart 12

REV A

Drive Reverse Function Inoperative

Be sure all other functions operate normally.

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

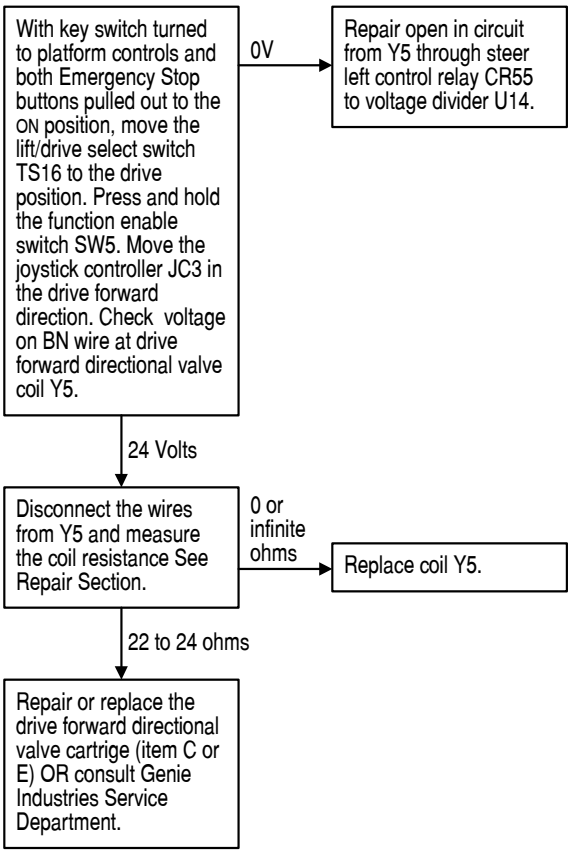


Chart 13

REV A

Machine Will Not Drive At Full Speed

Be sure all other functions operate normally.

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.

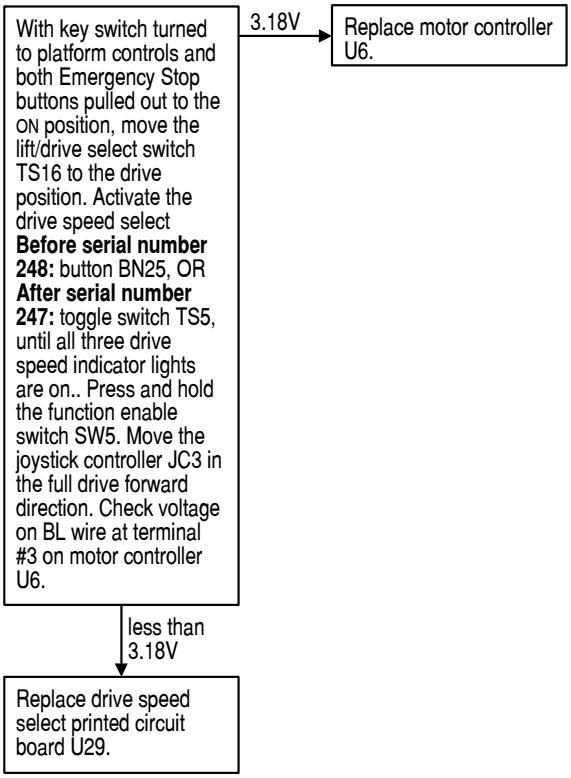


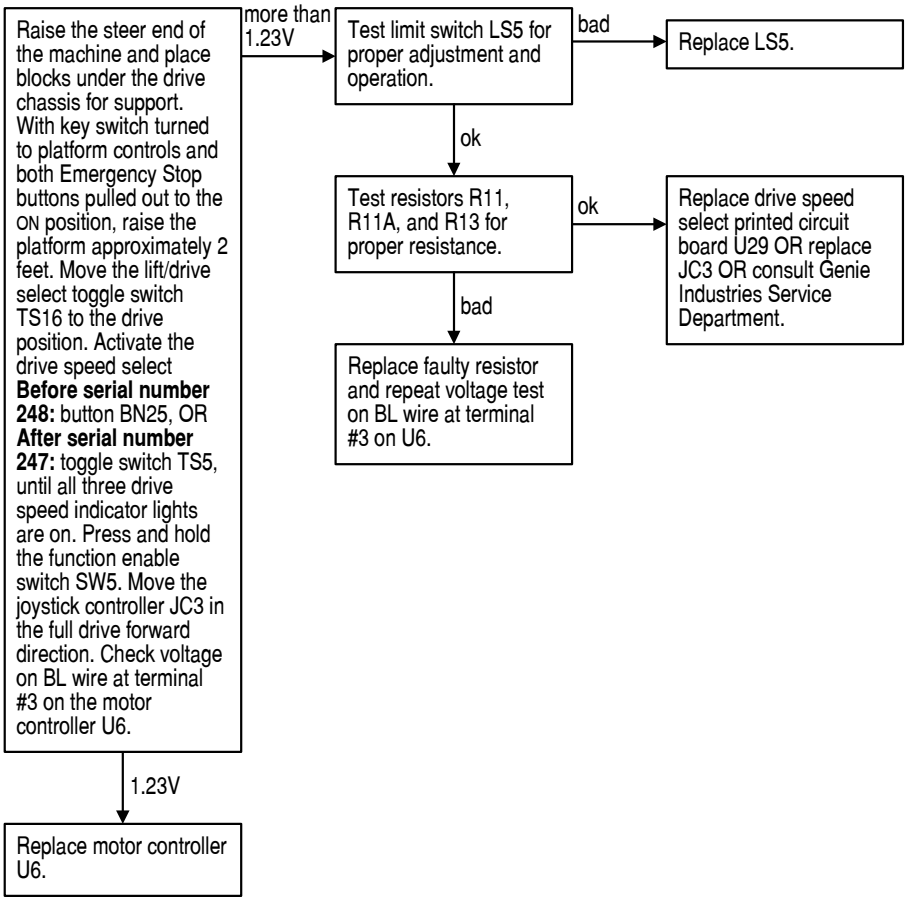
Chart 14

REV A

Machine Drives At Full Speed With Platform Raised

Be sure the circuit breaker and fuses are not tripped or blown.

Be sure the batteries are fully charged and properly connected.



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. An illustration legend precedes each group of drawings.

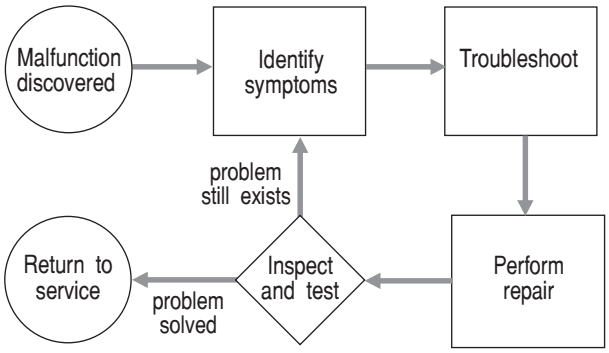
Electrical Schematics

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

Hydraulic Schematics

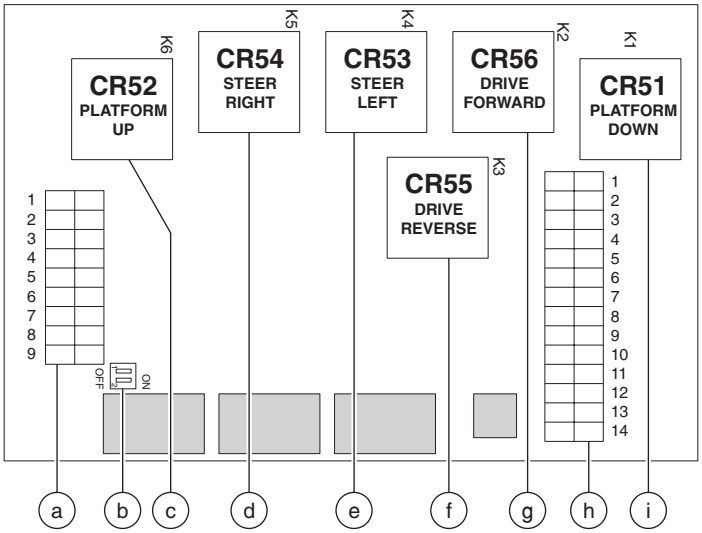
⚠WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

General Repair Process



Ground Controls Layout and Electrical Component Legend

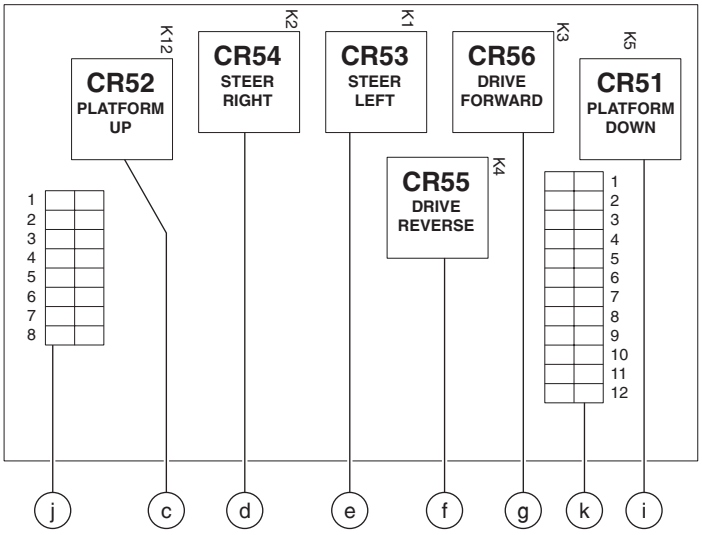
REV B



Ground Controls Circuit Board
(after serial number GR02-1799)

Circuit Board Legend

a	9-pin terminal strip W4	g	relay - drive forward CR56
b	DIP switch	h	14-pin terminal strip W3
c	relay - platform up CR52	i	relay - platform down CR51
d	relay - steer right CR54	j	8-pin terminal strip W4
e	relay - steer left CR53	k	12-pin terminal strip W3
f	relay - drive reverse CR55		

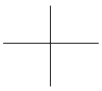


Ground Controls Circuit Board
(before serial number GR02-1800)

ELECTRICAL COMPONENT LEGEND	
Item	**Description**
B5	Battery
BN5	Horn button
C3	Capacitor, 1.0 uF
CB2	Circuit breaker, 7A
CR	Control relay CR51 = Platform down CR52 = Platform up CR53 = Steer left CR54 = Steer right CR55 = Drive reverse CR56 = Drive forward CR57 = Tilt alarm
D6	AC power outlet
EN4	Enclosure, junction box
F8	Fuse, 275A
FB1	Flashing beacons
G	G6 = Hour meter
GND	Ground
H	Horn or alarm H1 = Horn H2 = Automotive-style horn (option) H5 = Multifunction alarm
JC3	Joystick controller
KS1	Key switch
LS	Limit switch LS1 = Platform extend LS5 = Platform up (option) LS16 = Drive cut out
M5	Hydraulic power unit
NC	Normally closed
NCHO	Normally closed held open
NOHC	Normally open held closed
P	Power switch P1 = Emergency Stop button at ground controls P2 = Emergency Stop button at platform controls
QD	Quick disconnect QD1 = Battery quick disconnect QD5 = Battery charger QD16 = AC box to platform control box
R	Resistor R8 = 2500 ohms, lift speed R9 = 3000 ohms, steer speed R10 = 250 ohms, motor controller R11 = 1000 ohms, drive R12 = 0 to 2000 ohms, drive speed R13 = 1800 ohms, platform raised drive speed
SW	Switch SW5 = Function enable SW6 = Steer left/right
S7	Tilt level sensor
TS	Toggle switch TS16 = Lift/drive select TS66 = Platform up/down
U	Electronic component U6 = Motor controller U10 = Machine functions printed circuit board U11 = Battery charger U14 = Voltage divider U29 = Drive speed select printed circuit board U31 = 1000W charger/inverter U32 = Inverter remote panel
Y	Valve coil Y3 = Steer right Y4 = Steer left Y5 = Drive reverse Y6 = Drive forward Y7 = Platform down Y8 = Platform up

Electrical Symbols and Wire Color Legends

REV B



Circuits crossing no connection

Diode

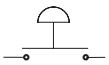
Circuit connection

Connector

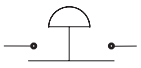
Hour meter

Limit switch

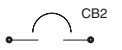
Toggle switch



Switch or button

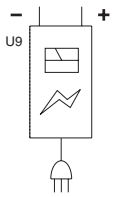


Emergency Stop button



Circuit breaker

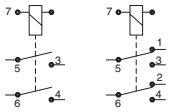
Motor



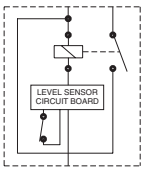
Battery charger

Battery

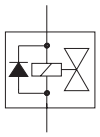
Fuse



Control relay



Level sensor



Solenoid valve

Capacitor

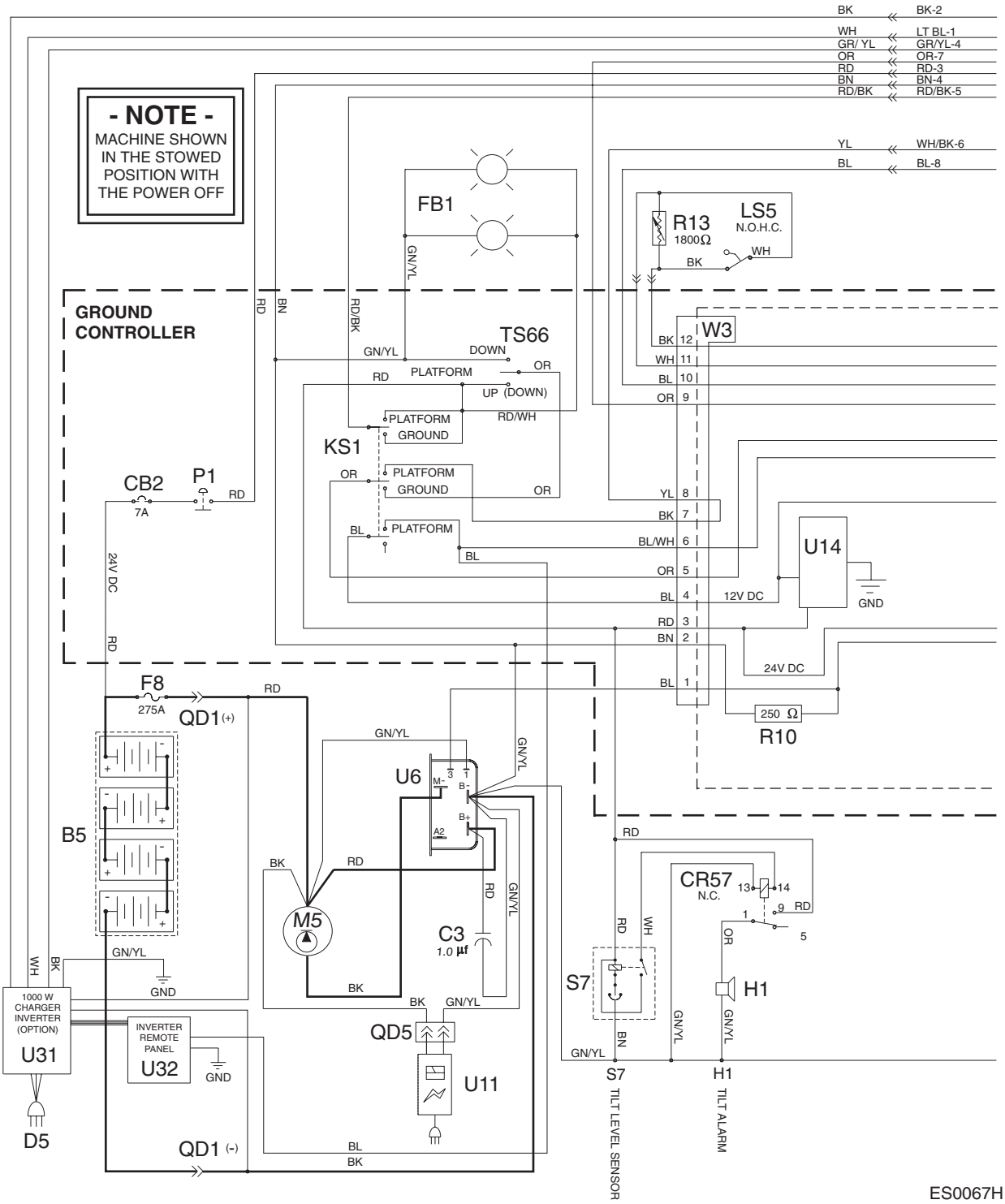
Horn or alarm

Flashing beacon

WIRE COLOR LEGEND	
Color	**Description**
BK	Black
BL	Blue
BN	Brown
GN	Green
sLT BL	Light Blue
OR	Orange
RD	Red
WH	White
YL	Yellow

Electrical Schematic

ANSI Models (before serial number GR02-1800) REV C
Part 1 of 2

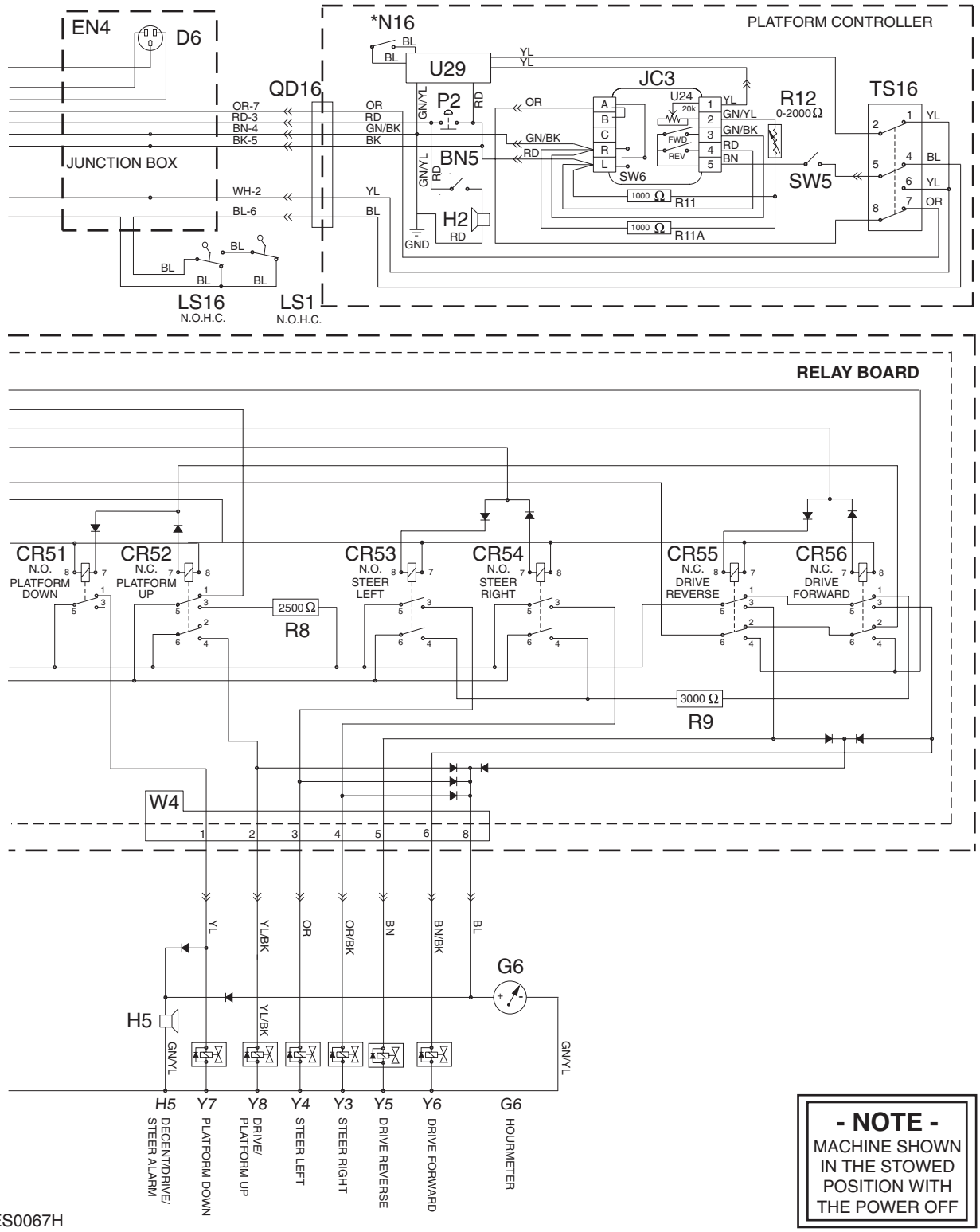


ES0067H

Electrical Schematic

REV C

ANSI Models (before serial number GR02-1800)
Part 2 of 2

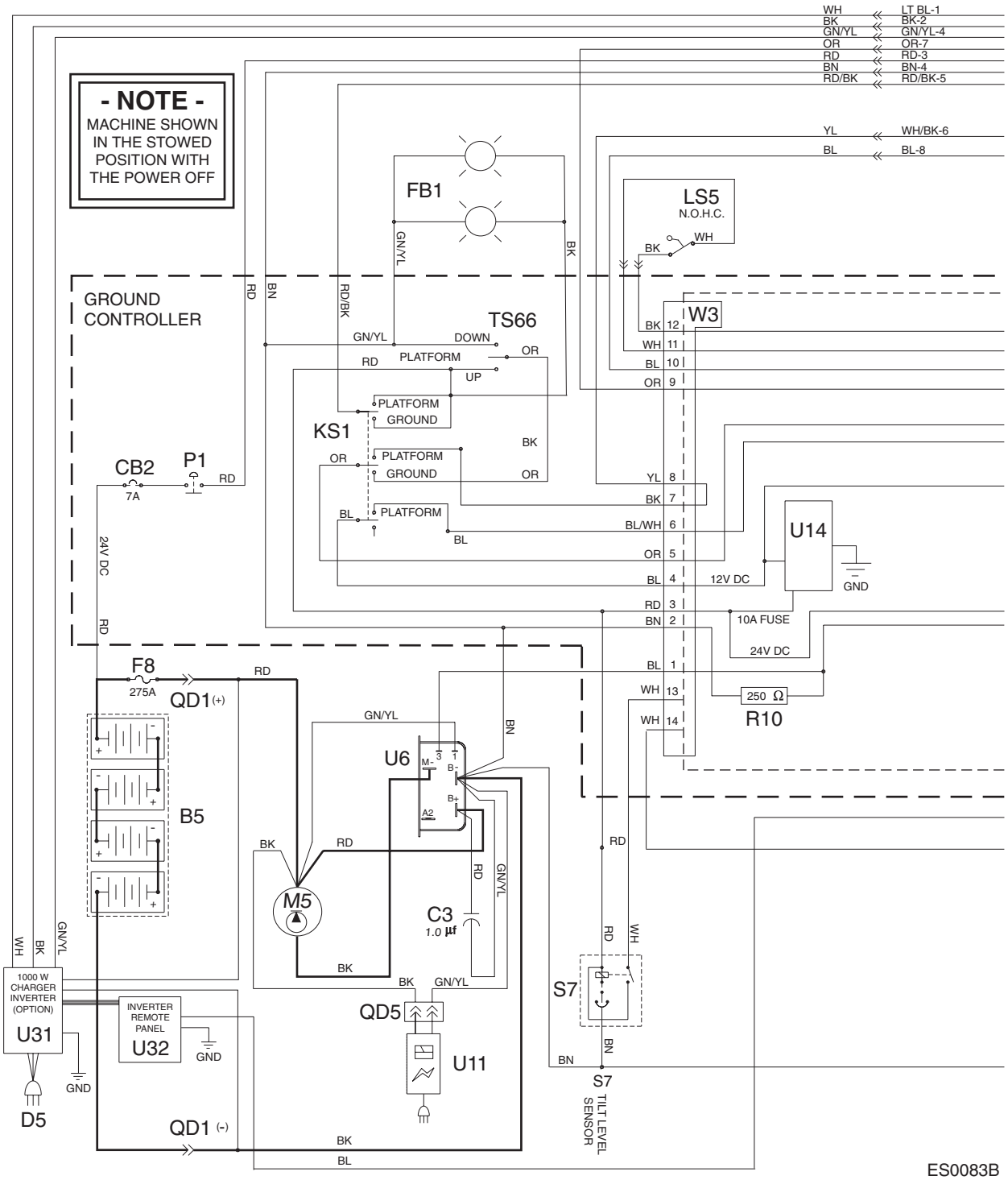


ES0067H

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

Electrical Schematic

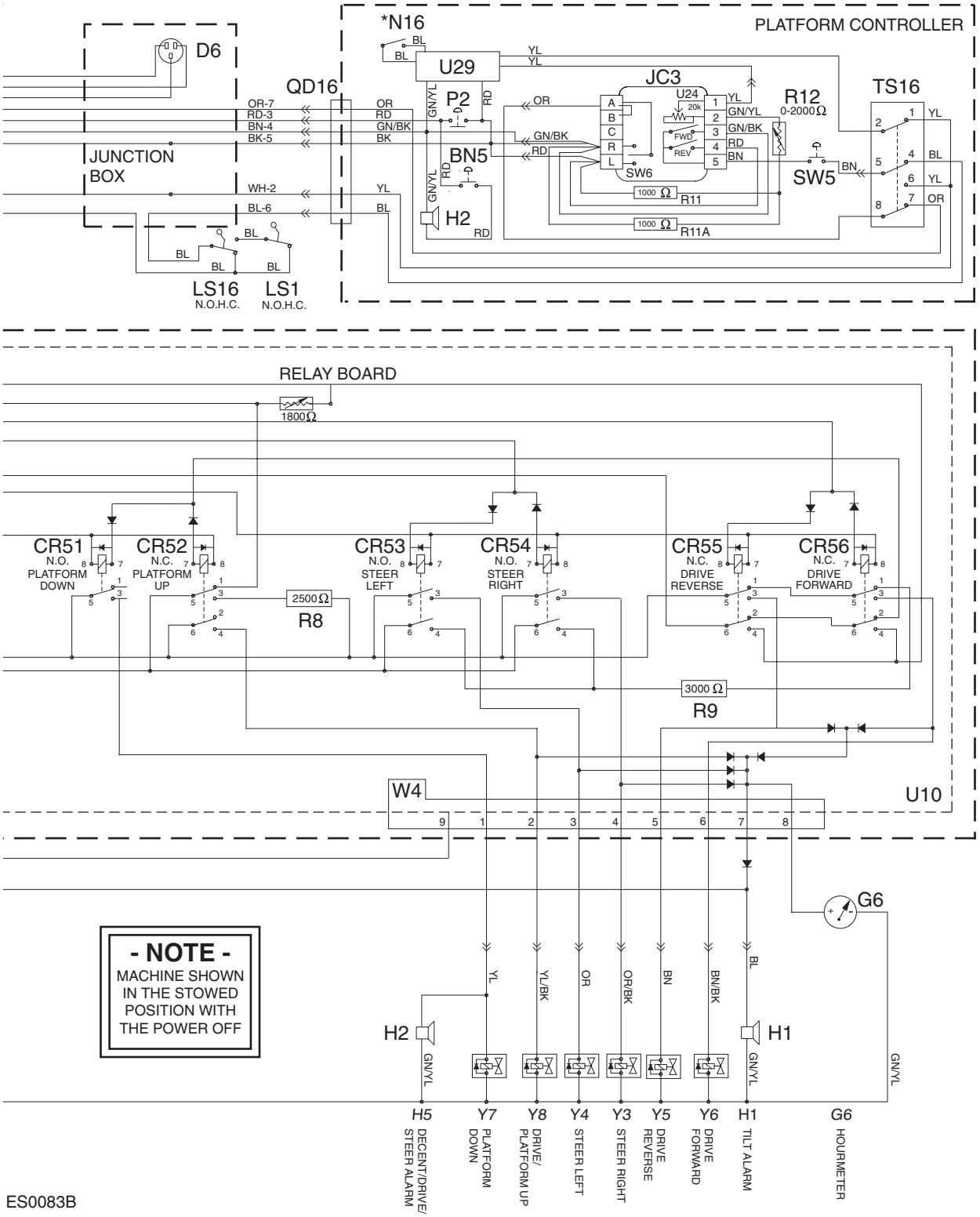
ANSI and CSA Models (from serial number GR02-1800 to GR03-2407) REV C
Part 1 of 2



Electrical Schematic

REV C

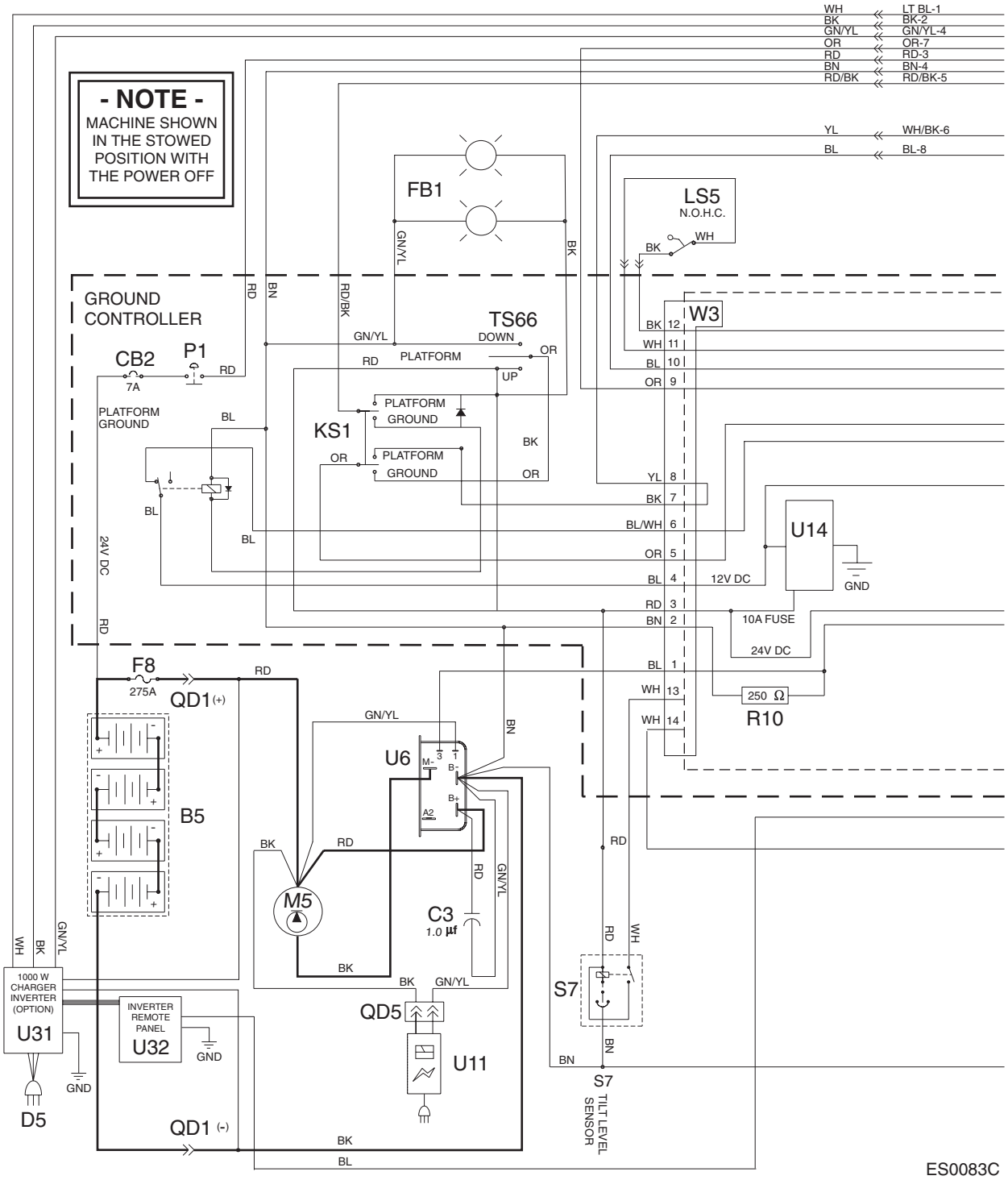
ANSI and CSA Models (from serial number GR02-1800 to GR03-2407)
Part 2 of 2



ES0083B

Electrical Schematic

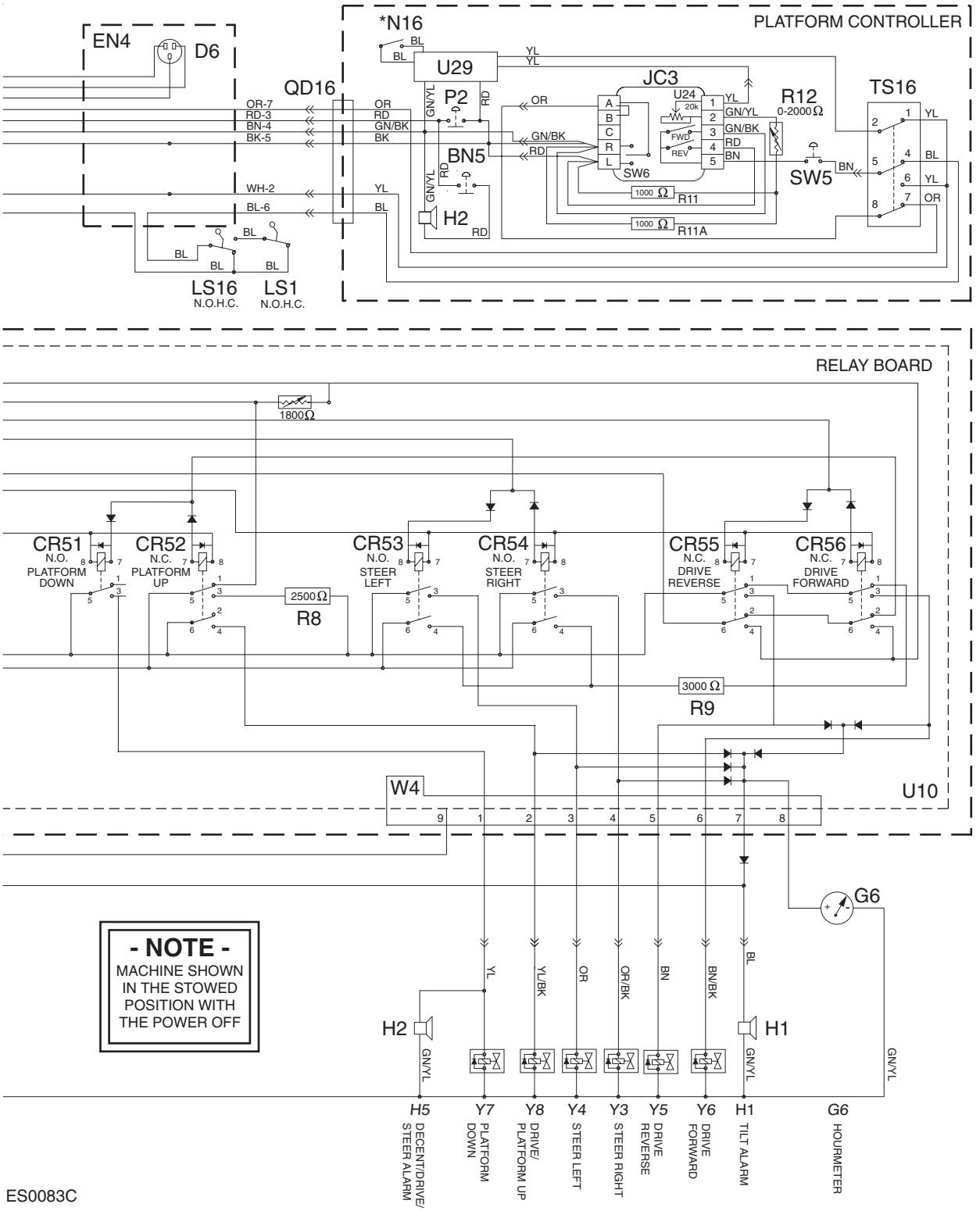
ANSI and CSA Models (from serial number GR03-2408 to GR03-2432) REV B
Part 1 of 2



Electrical Schematic

REV B

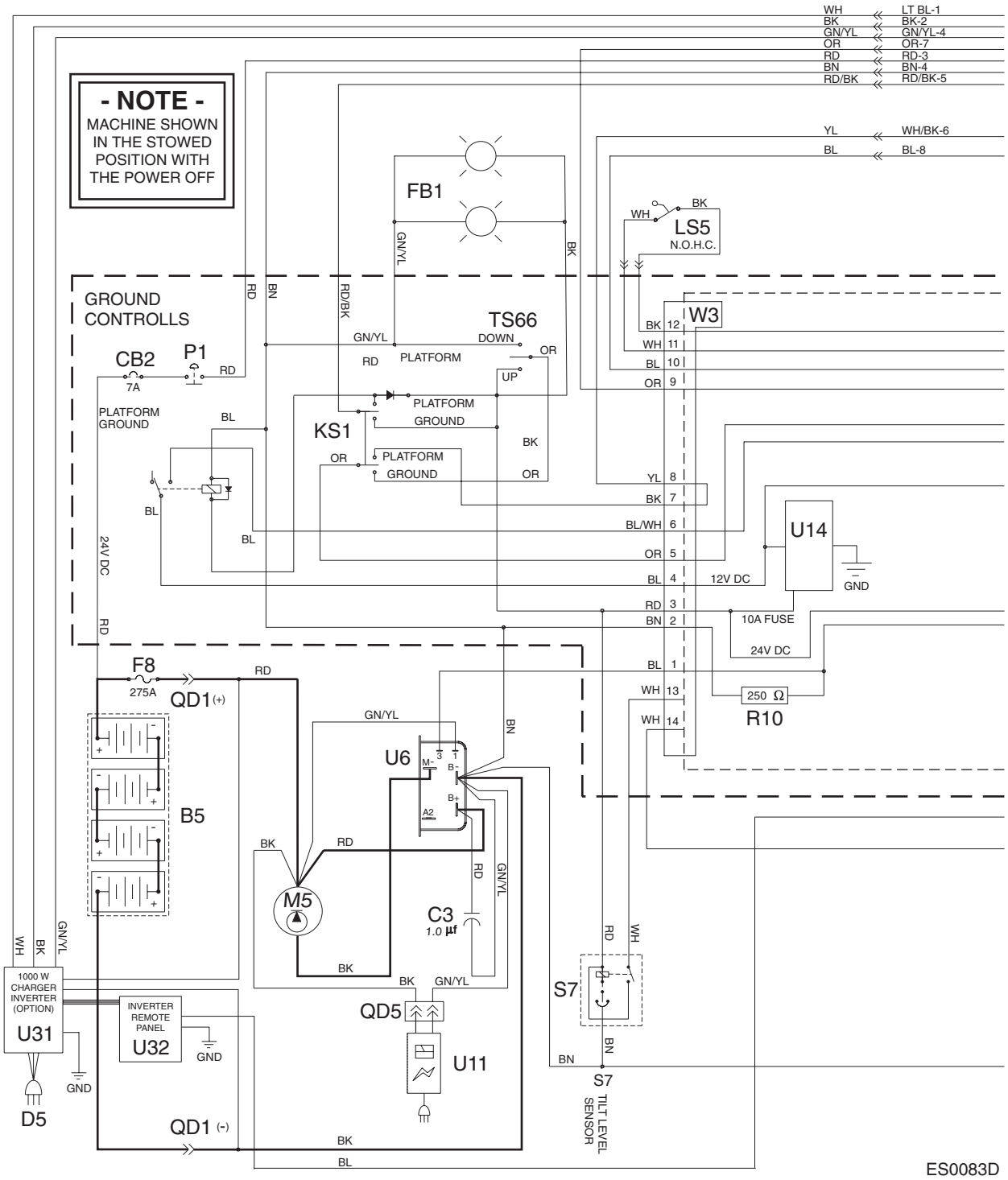
ANSI and CSA Models (from serial number GR03-2408 to GR03-2432)
Part 2 of 2



ES0083C

Electrical Schematic

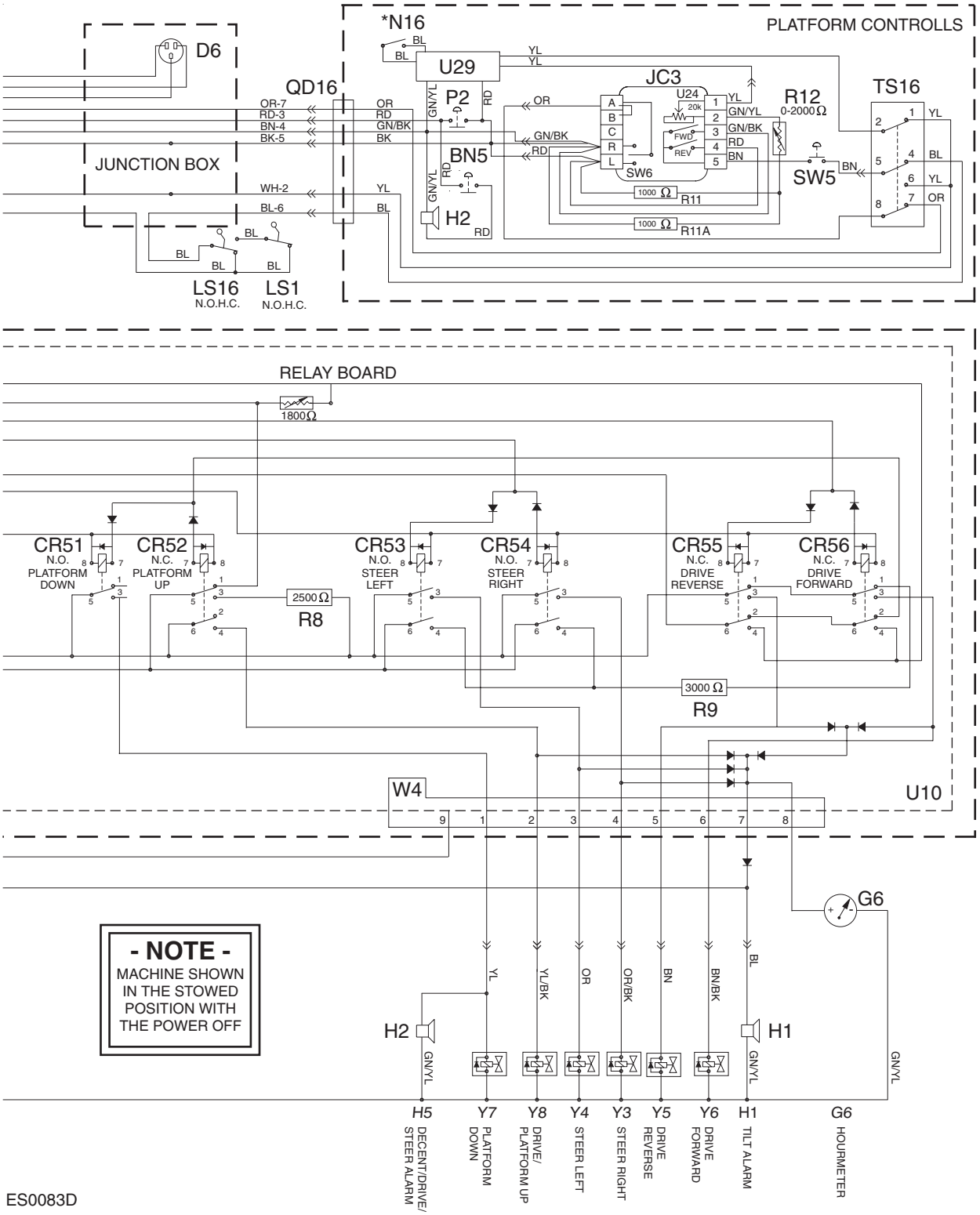
ANSI and CSA Models (after serial number GR03-2432) REV B
Part 1 of 2



Electrical Schematic

REV B

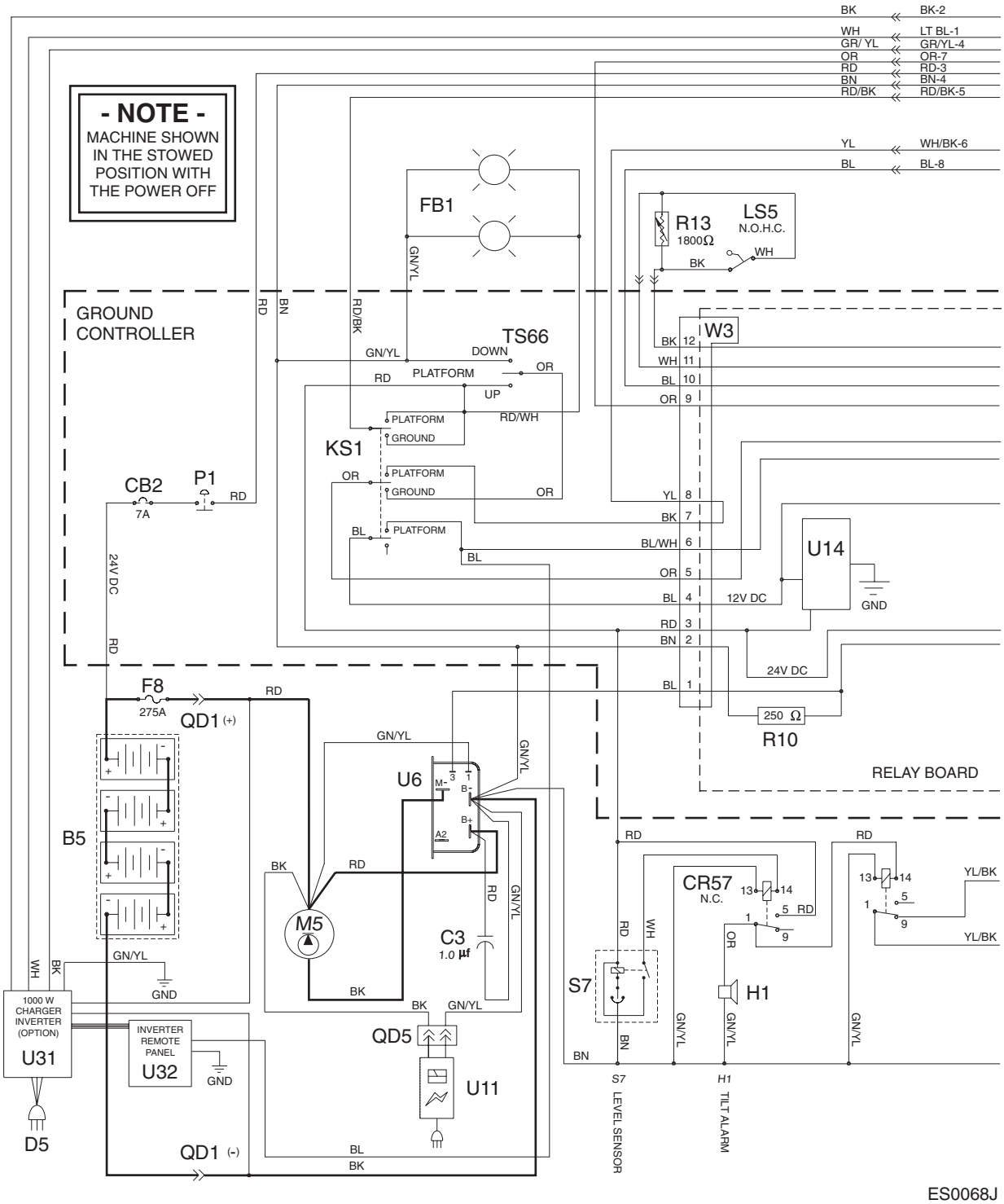
ANSI and CSA Models (after serial number GR03-2432)
Part 2 of 2



ES0083D

Electrical Schematic

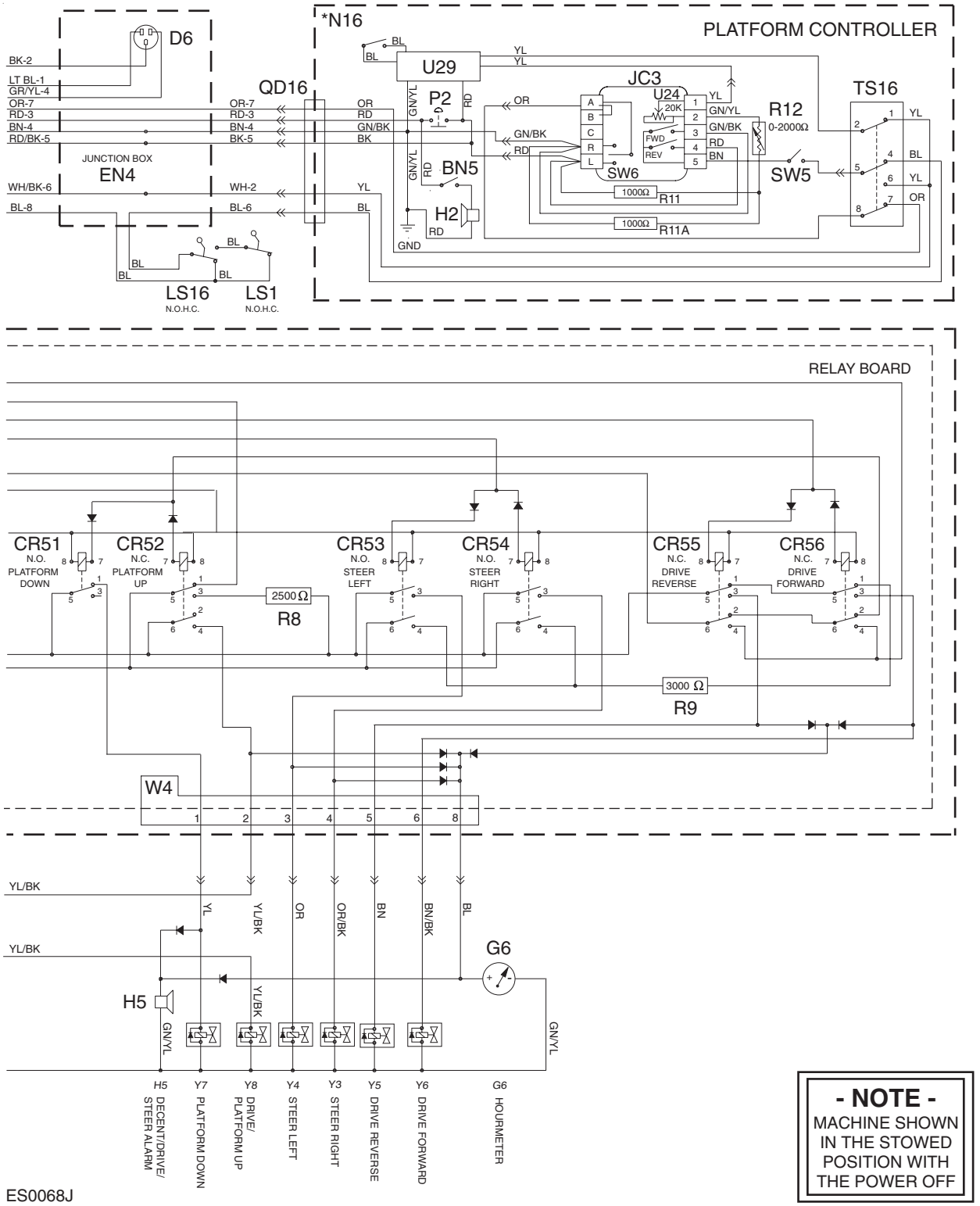
CE Models (before serial number GR02-1800) REV C
Part 1 of 2



Electrical Schematic

REV C

CE Models (before serial number GR02-1800)
Part 2 of 2

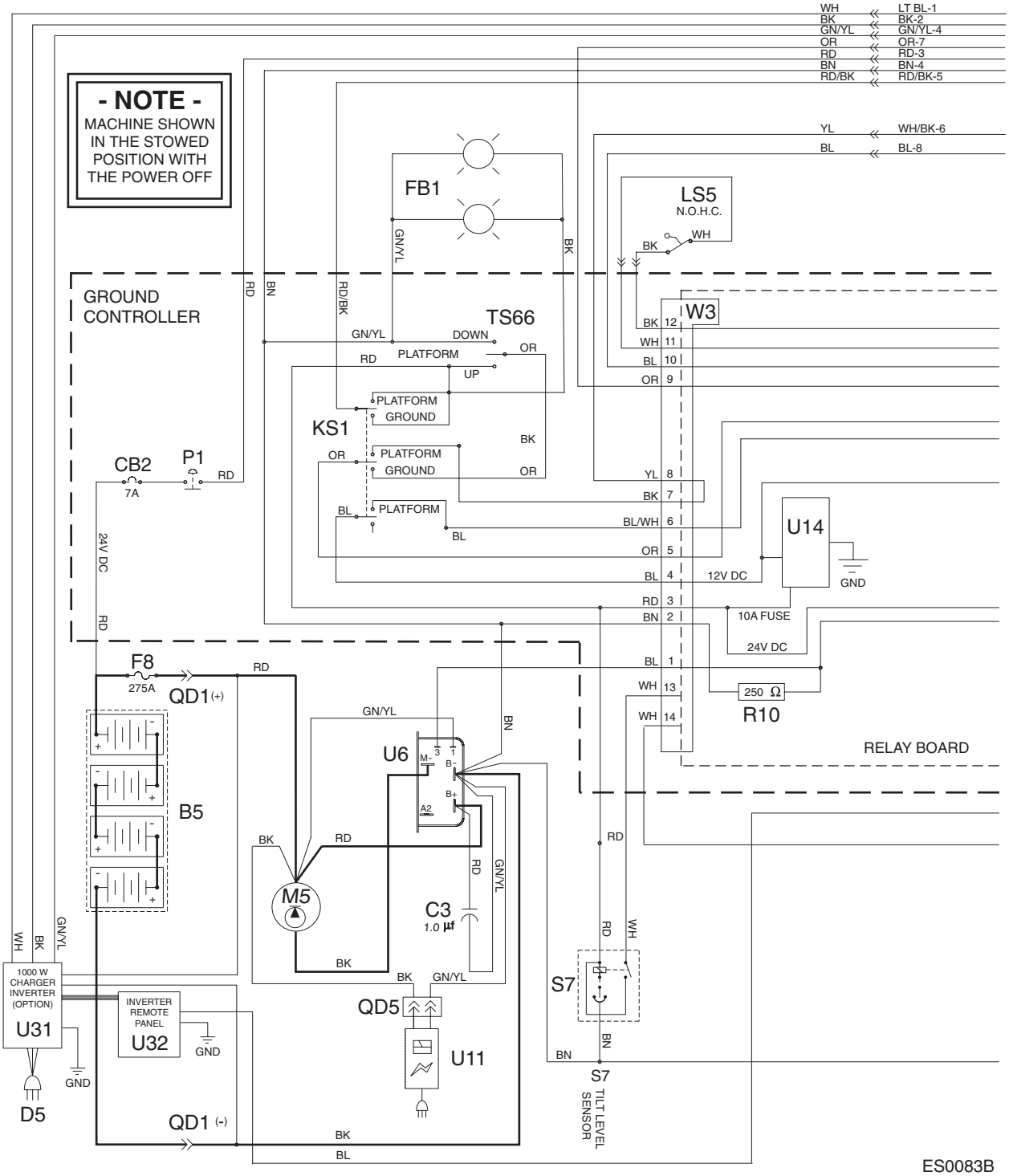


ES0068J

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

Electrical Schematic

CE Models (from serial number GR02-1800 to GR03-2407) REV C
Part 1 of 2

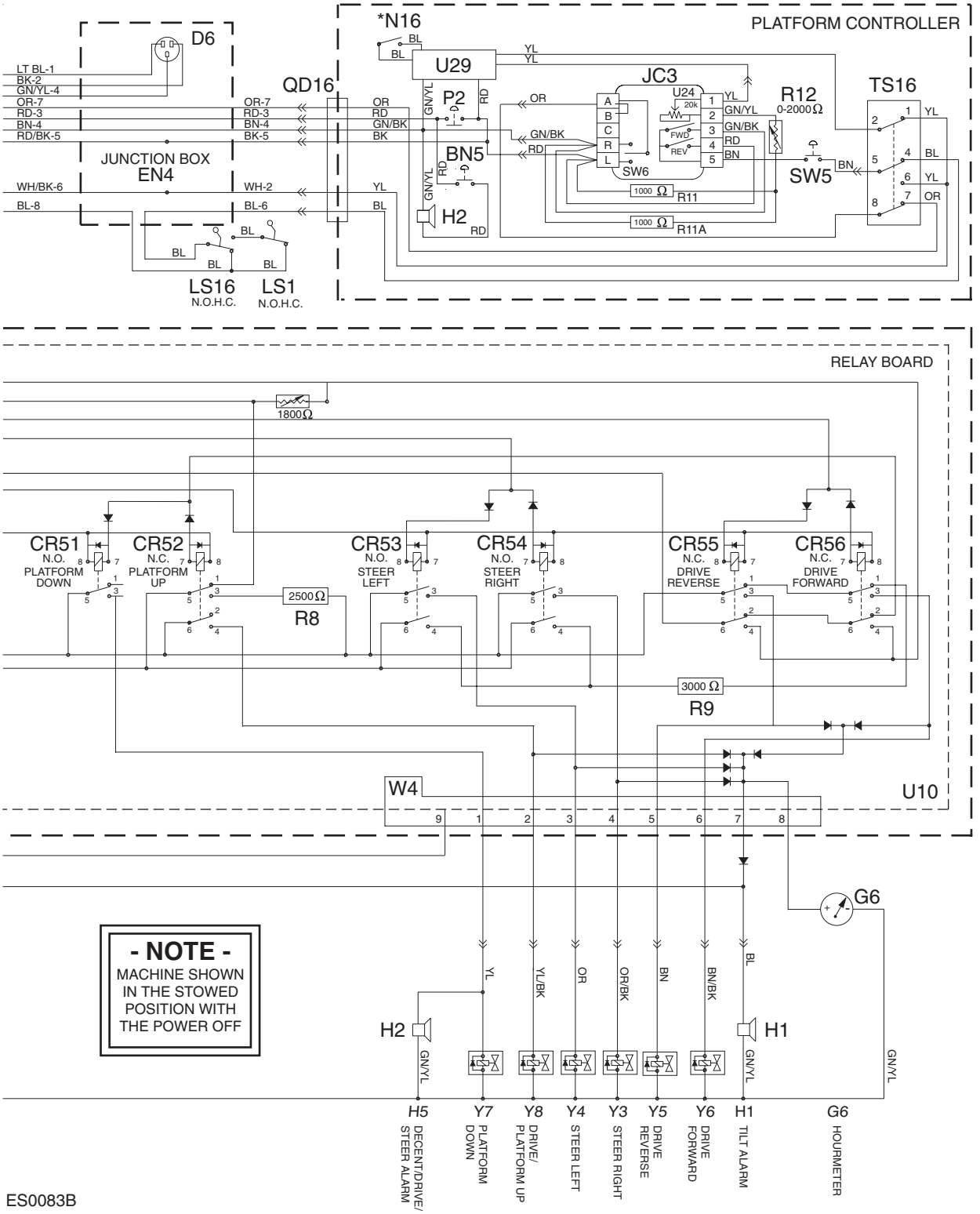


ES0083B

Electrical Schematic

REV C

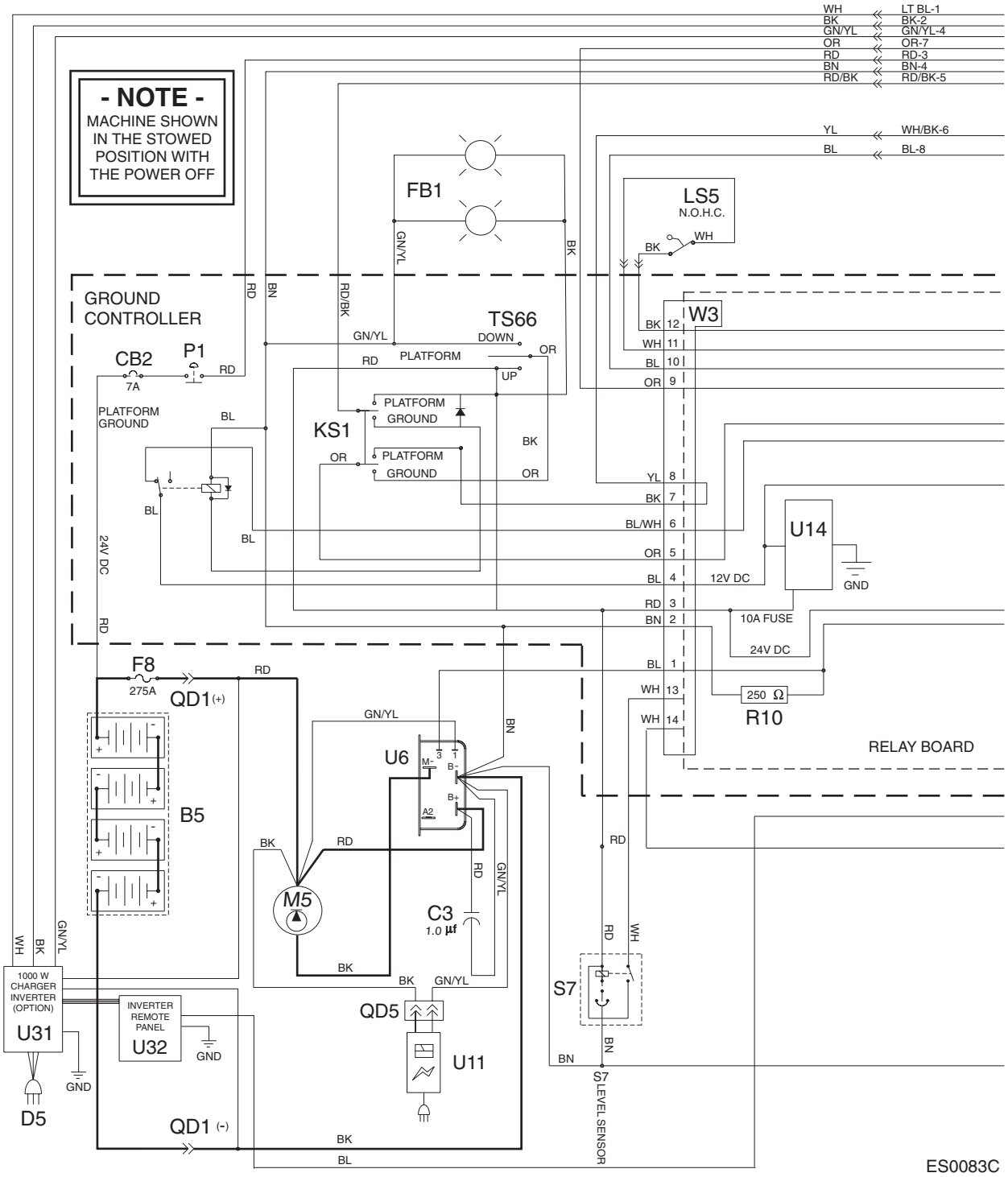
CE Models (from serial number GR02-1800 to GR03-2407)
Part 2 of 2



ES0083B

Electrical Schematic

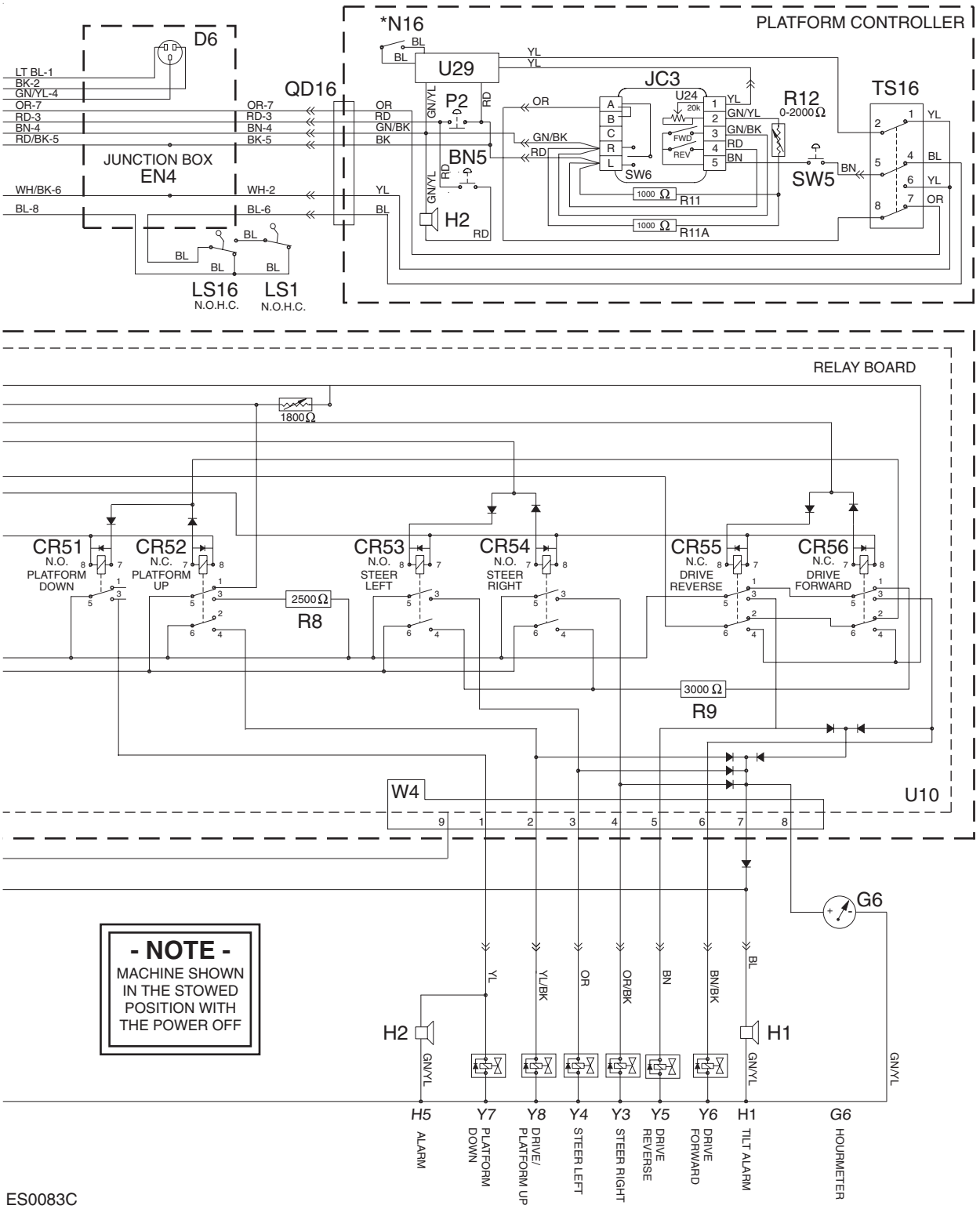
CE Models (from serial number GR03-2408 to GR03-2432) REV B
Part 1 of 2



Electrical Schematic

REV B

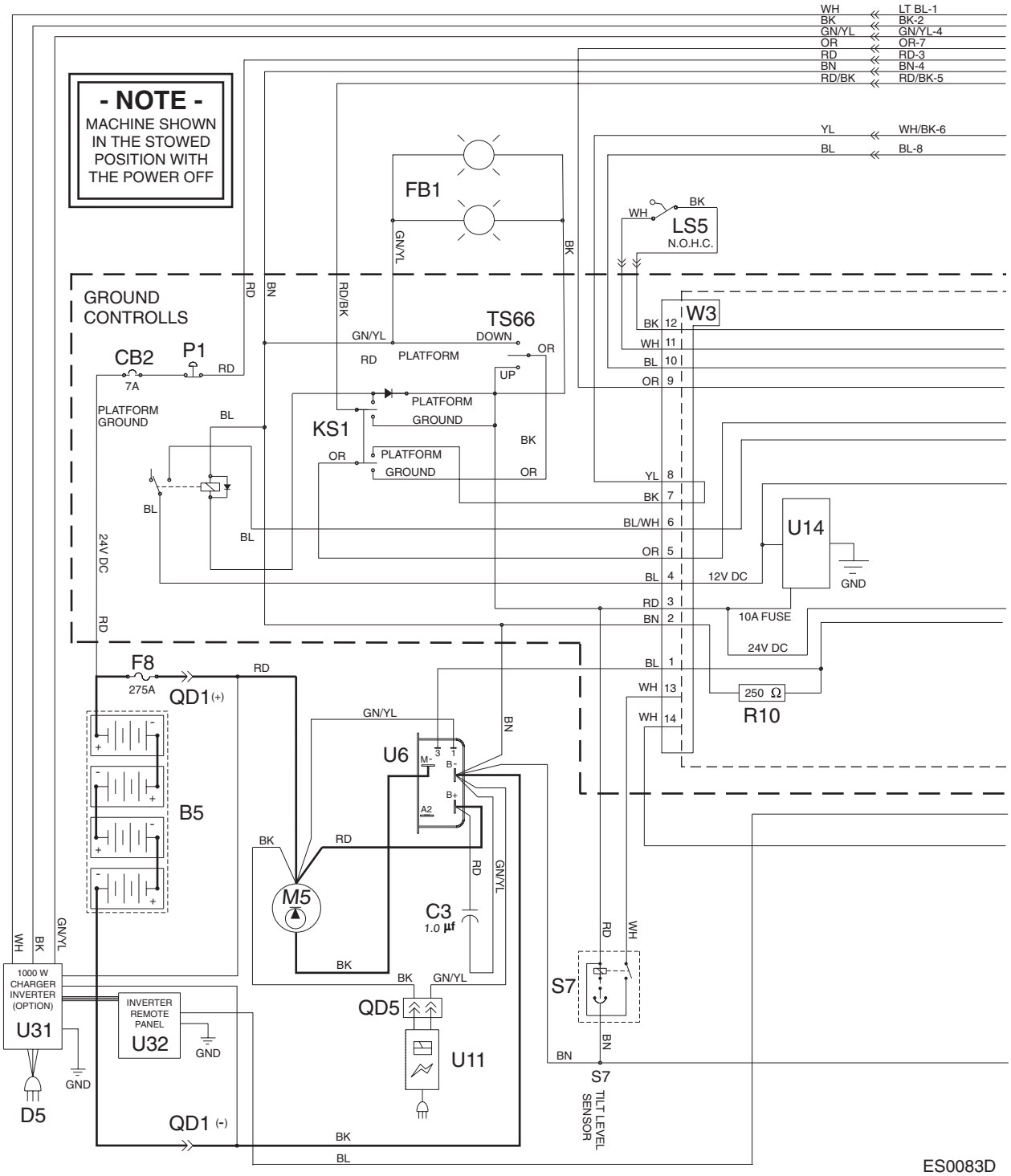
CE Models (from serial number GR03-2408 to GR03-2432)
Part 2 of 2



ES0083C

Electrical Schematic

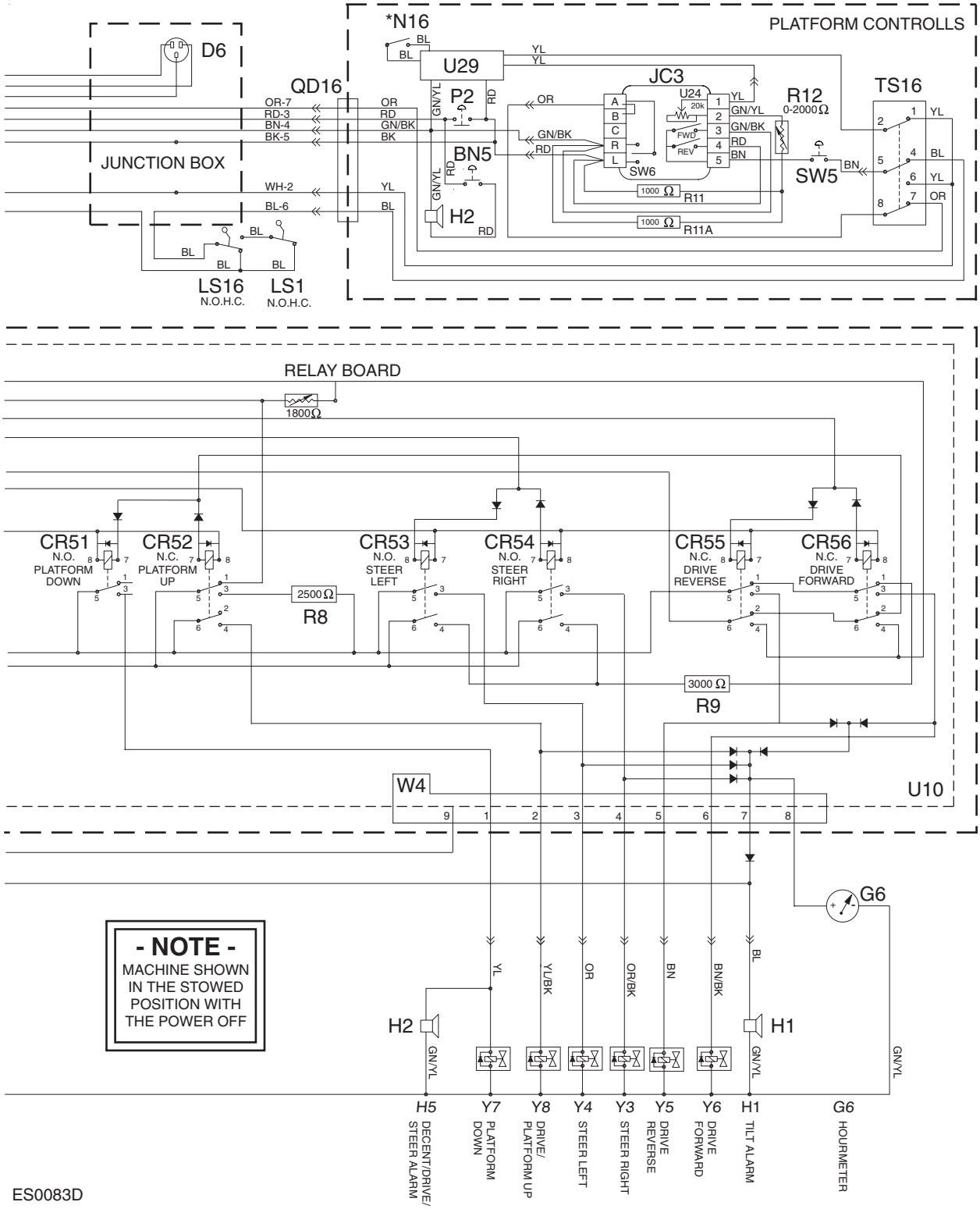
CE Models (from serial number GR03-2433 to GR04-4000) REV B
Part 1 of 2



Electrical Schematic

REV B

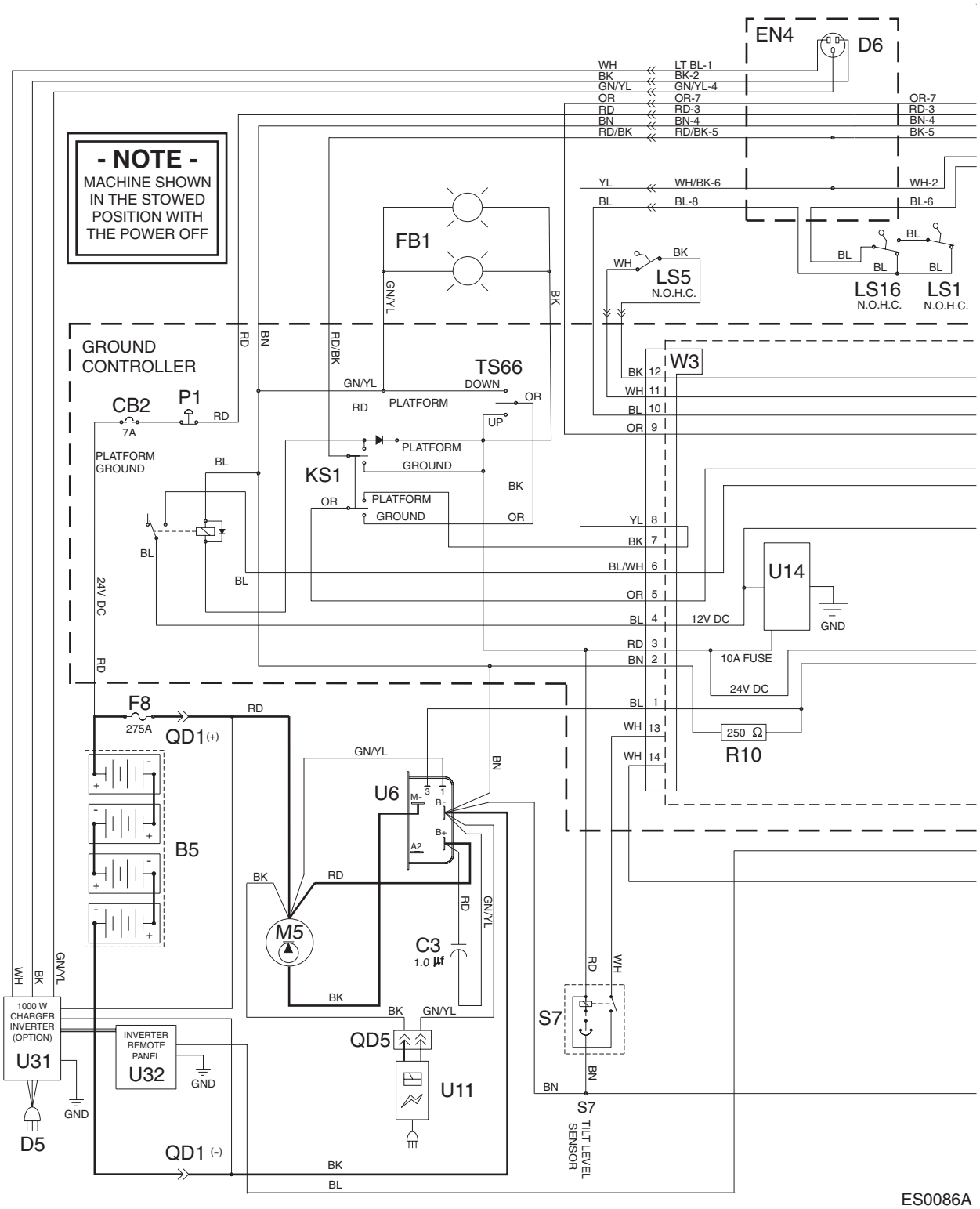
CE Models (from serial number GR03-2433 to GR04-4000)
Part 2 of 2



ES0083D

Electrical Schematic

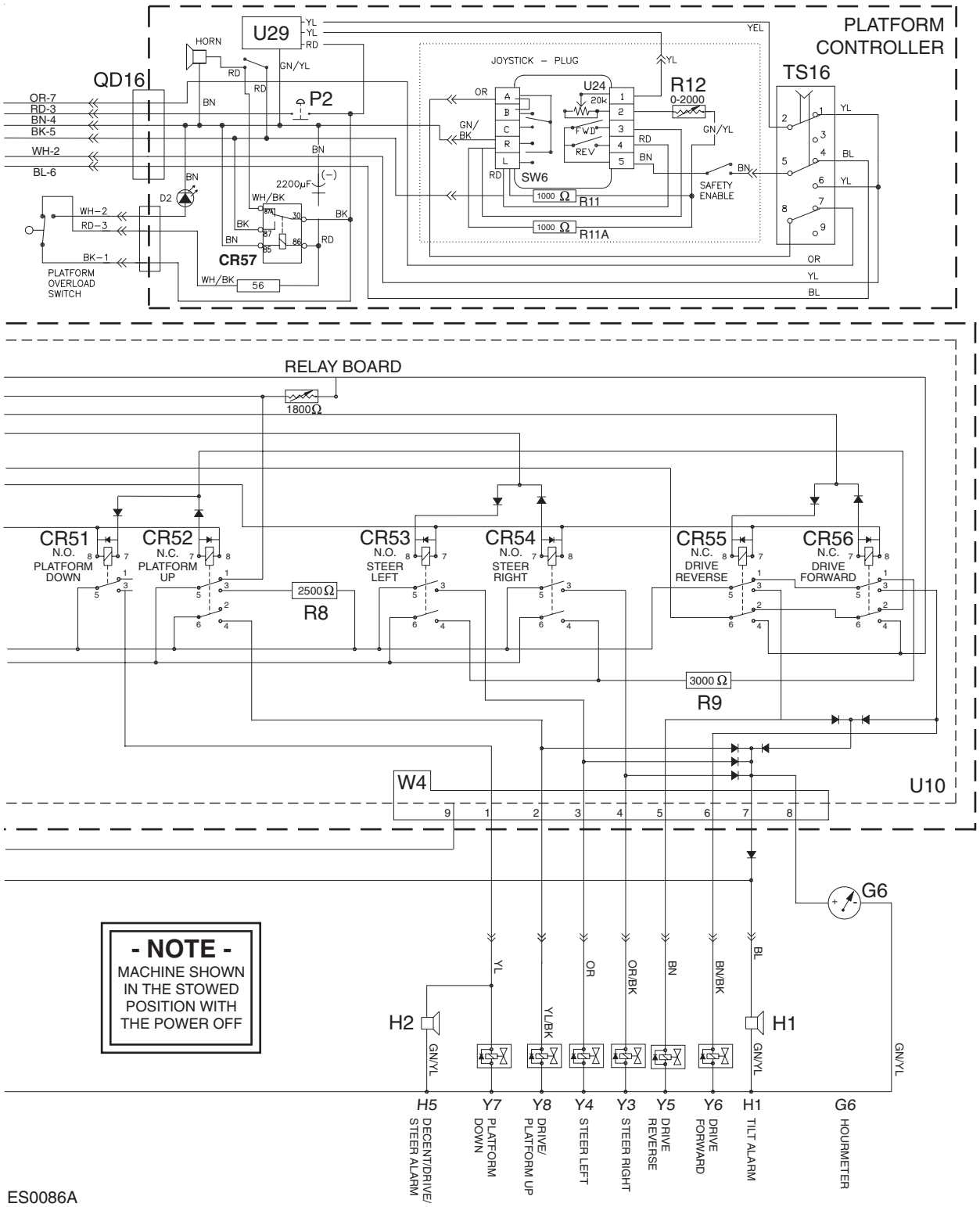
CE Models (after serial number GR04-4000) REV B
Part 1 of 2



Electrical Schematic

REV B

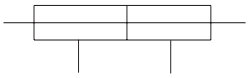
CE Models (after serial number GR04-4000)
Part 2 of 2



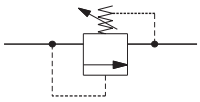
ES0086A

Hydraulic Symbols Legend

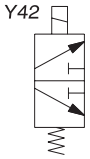
REV B



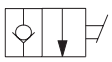
Double acting cylinder



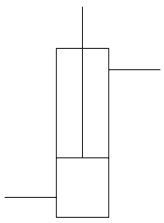
Relief Valve



Solenoid operated 2 position 2 way directional valve

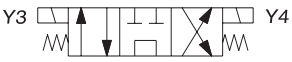


Brake release valve

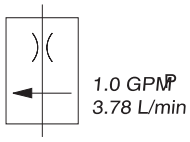


Single acting cylinder

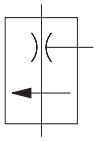
Solenoid operated 3 position 4 way directional valve



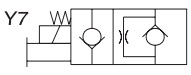
Solenoid operated 3 position 4 way directional valve



Flow regulator

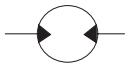


Priority flow regulator



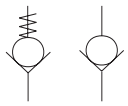
Solenoid operated 2 position 2 way directional valve with manual over ride

Brake

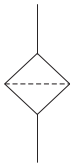


Bi-directional motor

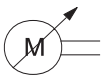
Fixed displacement pump



Check valve



Filter



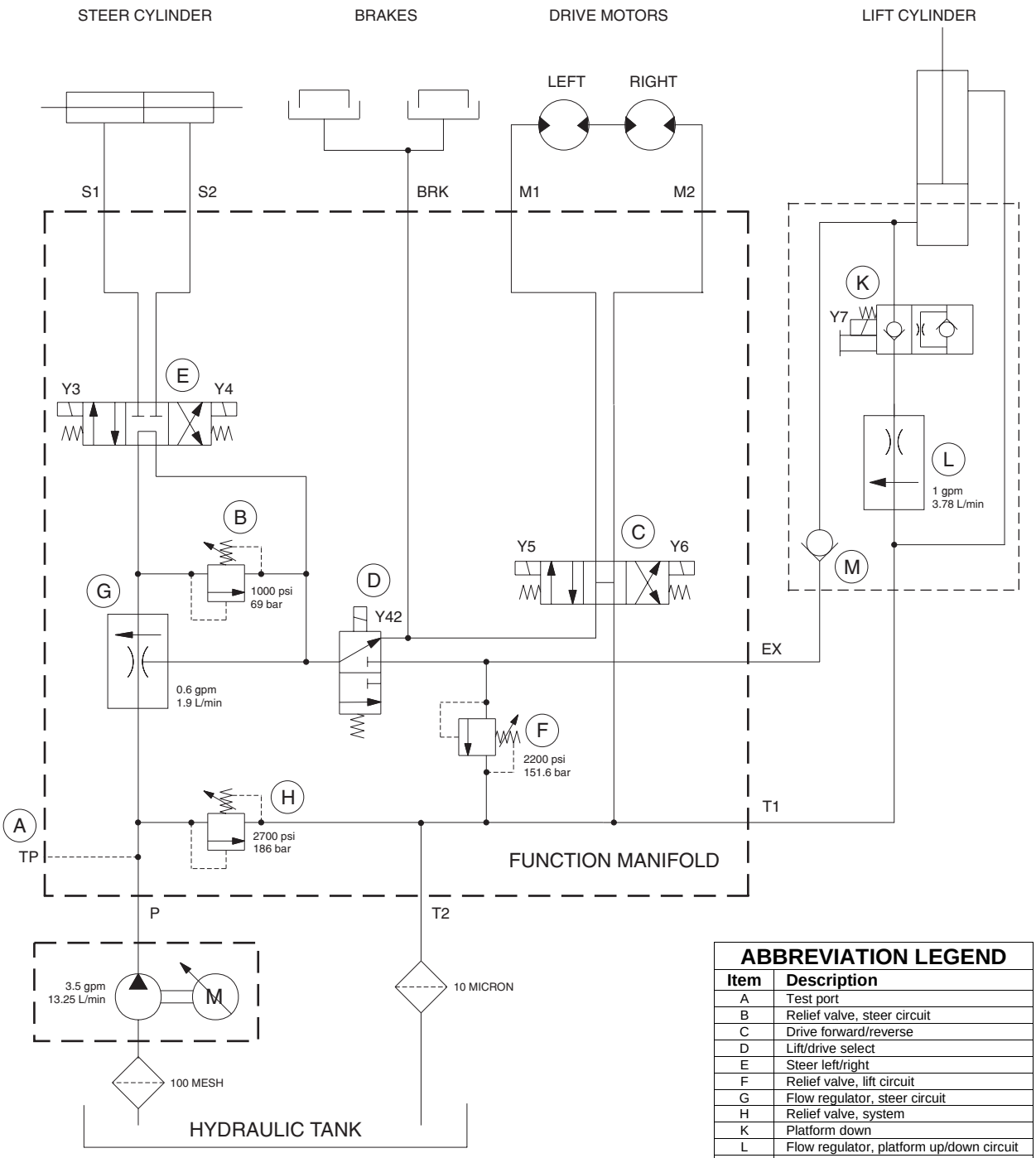
Variable speed motor

Orifice

Hydraulic Schematic

REV B

(before serial number GR01-249)



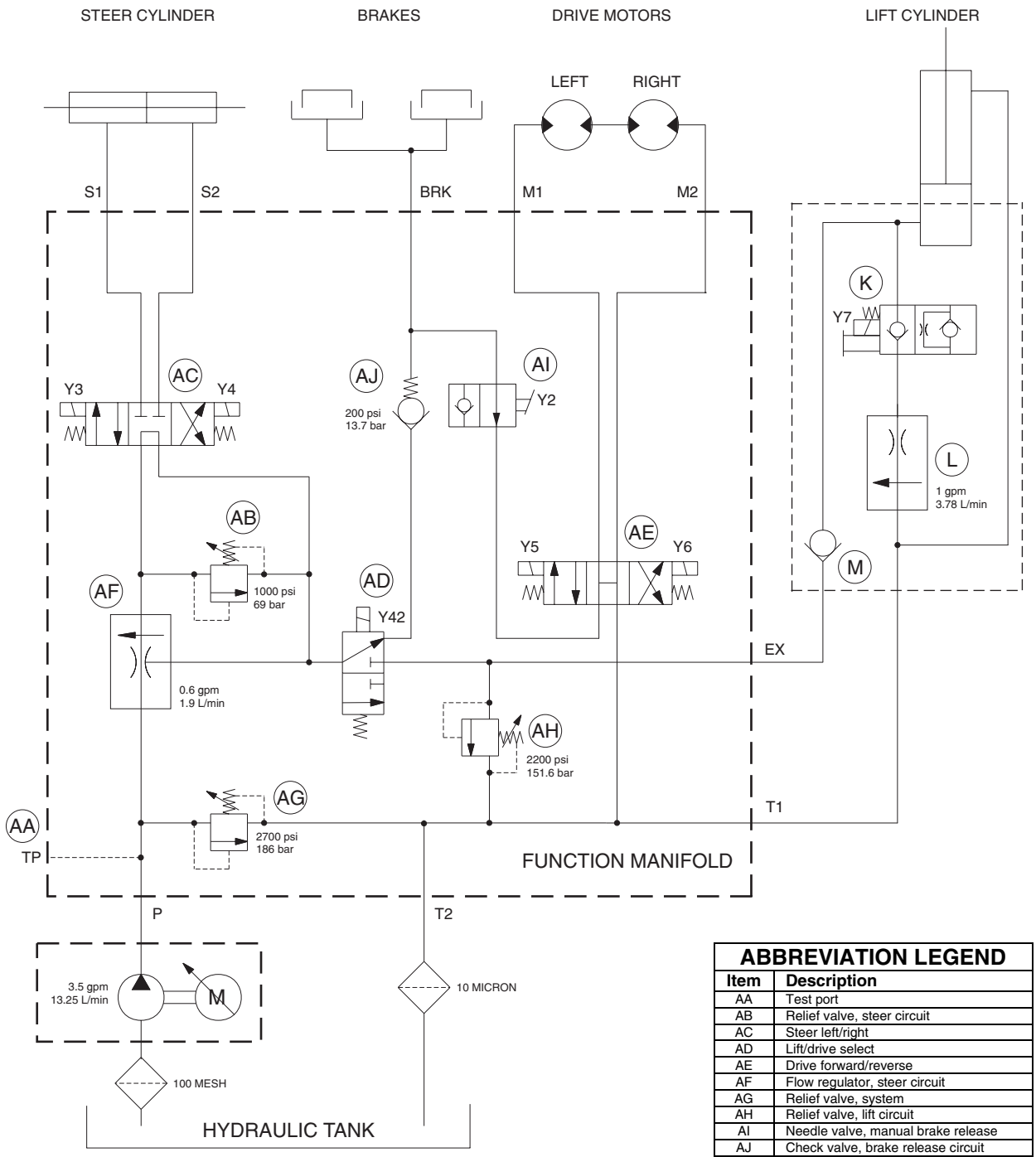
ABBREVIATION LEGEND	
Item	**Description**
A	Test port
B	Relief valve, steer circuit
C	Drive forward/reverse
D	Lift/drive select
E	Steer left/right
F	Relief valve, lift circuit
G	Flow regulator, steer circuit
H	Relief valve, system
K	Platform down
L	Flow regulator, platform up/down circuit
M	Check valve, platform up circuit

HS0051C

Hydraulic Schematic

(after serial number GR01-248)

REV B



ABBREVIATION LEGEND	
Item	**Description**
AA	Test port
AB	Relief valve, steer circuit
AC	Steer left/right
AD	Lift/drive select
AE	Drive forward/reverse
AF	Flow regulator, steer circuit
AG	Relief valve, system
AH	Relief valve, lift circuit
AI	Needle valve, manual brake release
AJ	Check valve, brake release circuit
K	Platform down
L	Flow regulator, platform up/down circuit
M	Check valve, platform up circuit

HS0051D

Service Manual
GR-8 • GR-12 • GR-15

(from serial number GR-101 to GS05-4999)

Part No.
72965

Rev B2

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