Genie®
A TEREX BRAND

Service Manual

Serial Number Range

GR™-20J
GR™-26J

from GRJ10-101
to GRJ16-1151

from GRJ16L-1152
to GRJ16L-1999

from GRJL-2000
to GRJL-2297

Part No. 227656GT
Rev E
March 2022

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.

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

Compliance

Machine Classification
Group B/Type 3 as defined by ISO 16368

Machine Design Life
Unrestricted with proper operation, inspection and scheduled maintenance.

Technical Publications

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

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

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Revision History

Revision	Date	Section	Procedure / Schematic Page / Description
A	4/2011		New release
B	6/2011	4 - Repair	2-2
B1	9/2011	3 - Maint.	B-15
C	7/2012	2 - Spec.	2-1, 2-2, 2-4, 2-5, 2-6
		3 - Maint.	A-4, C-1
		6 - Schem.	6-2, 6-3, 6-4, 6-5, 6-6, 6-8
D	11/2012	4 - Repair	1-2
		6 - Schem.	6-7, 6-9, 6-11
D1	9/2016	Cover	Add serial ranges
		Introduction	Serial Number Ledgend
E	3/2022	Cover	Add ending serial break

REFERENCE EXAMPLES:

Section 3_Maintenance, B-3.
Section 4_Repair Procedure, 4-2.
Section 5_Diagnostic Codes, All charts.
Section 6_Schematics, Legends diagrams and schematics.

Electronic Version

REVISION HISTORY, CONTINUED

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Section 3_Maintenance, B-3.
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Section 5_Diagnostic Codes, All charts.
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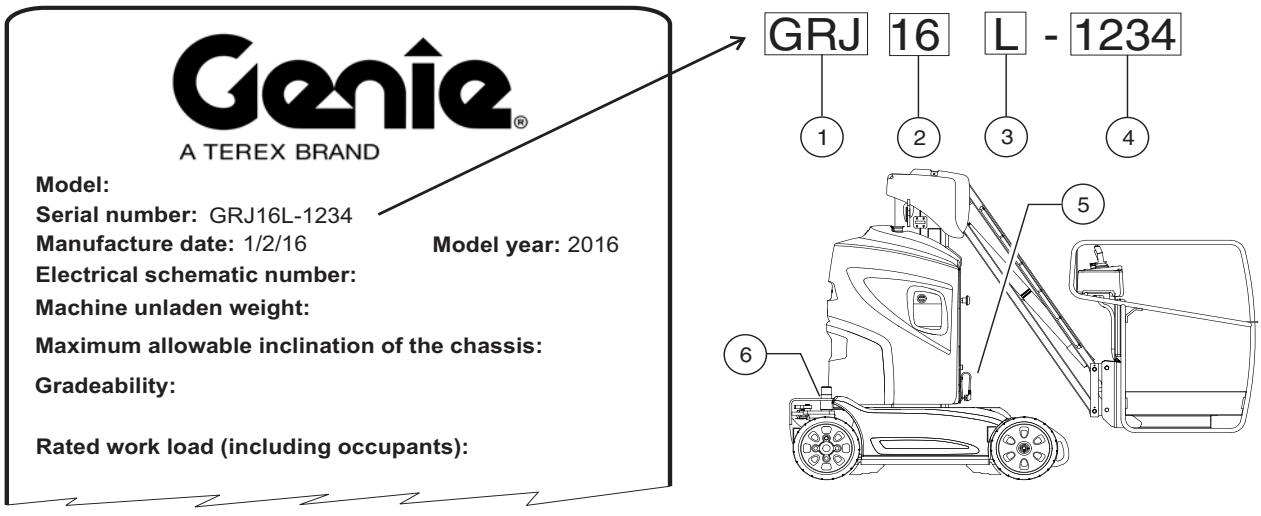
Electronic Version

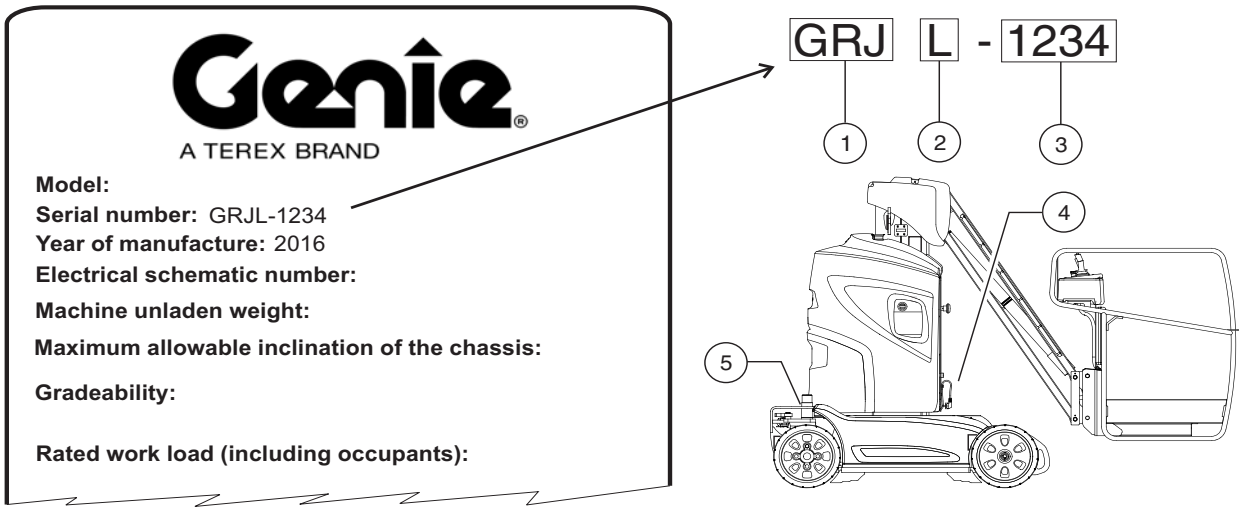
Serial Number Legend

To August 31, 2016



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

From September 1, 2016



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

Safety Rules

Danger

Failure to obey the instructions and safety rules in this manual and the appropriate Operator's Manual on your machine will result in death or serious injury.

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

Do not modify or alter a MEWP without prior written permission from the manufacturer.

Do Not Perform Maintenance Unless:

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

SAFETY RULES

Personal Safety

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

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

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

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

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

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

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

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

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

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

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

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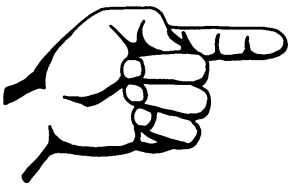

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Specifications

Machine Specifications

Battery, Standard	
Voltage	2V DC
Group	C5
Quantity	12
Battery capacity, maximum	ANSI - 280 AH CE - 250 AH

Fluid capacities	
Hydraulic tank	5.8 gallons 22 liters

Height, stowed maximum	
GR-20J (CE only) & GR-26J	78 in 1.99 m

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

Tires and wheels	
Tire size (solid rubber)	16 x 5 x 11 in 40.6 x 12.7 x 28 cm
Castle nut torque, dry (non-steer end)	89 ft-lbs 120 Nm
Castle nut torque, lubricated (non-steer end)	66 ft-lbs 90 Nm
Lug bolt torque, dry (steer end)	132 ft-lbs 180 Nm
Lug bolt torque, lubricated (steer end)	96 ft-lbs 130 Nm

SPECIFICATIONS

Performance Specifications

Drive speed, maximum	
Platform stowed	2.8 mph 40 ft / 9.8 sec 4.5 km/h 12.2 m / 9.8 sec
Platform raised	0.4 mph 40 ft / 54.8 sec 0.65 km/h 12.2 m / 54.8 sec
Braking distance, maximum	
High range on paved surface	60 in 152 cm
Gradeability	25%
Airborne noise emissions	
Sound pressure level at ground workstation	<70 dBA
Sound pressure level at platform workstation	<70 dBA
Function speed, maximum	
GR-20J	
Platform up	24 to 26 seconds
Platform down	19 to 21 seconds
GR-26J	
Platform up	54 to 56 seconds
Platform down	40 to 42 seconds
Rated work load at full height, maximum	
Platform, ANSI (GR-20J)	500 lbs 227 kg
Platform, CE (GR-20J & GR-26J)	440 lbs 200 kg

Hydraulic Specifications

Hydraulic Oil Specifications	
Hydraulic oil type	Shell PW 46
Viscosity grade	Multi-viscosity
Viscosity index	152
Cleanliness level, minimum	15/13
Water content, maximum	200 ppm

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

Optional fluids	
Biodegradable	Texaco Hydra 46 Shell Naturelle HF-E 46

Note: 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	0.256 cu in 4.2 cc
Function manifold	
System relief valve pressure, maximum	2030 psi 140 bar
Lift relief valve pressure	930 psi 64 bar
Filter cap torque	37 ft-lbs 50 Nm

SPECIFICATIONS

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

Grease Specification
RETINAX HDX2 grease, NLGI (lithium based) or equivalent

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

SPECIFICATIONS

Hydraulic Hose and Fitting Torque Specifications

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

Seal-Lok™ Fittings
(hose end - ORFS)

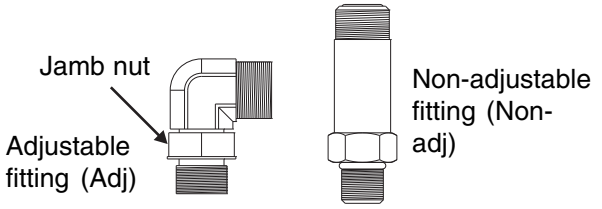
SAE Dash size	Torque
-4	10 ft-lbs / 13.6 Nm
-6	30 ft-lbs / 40.7 Nm
-8	40 ft-lbs / 54.2 Nm
-10	60 ft-lbs / 81.3 Nm
-12	85 ft-lbs / 115 Nm
-16	110 ft-lbs / 150 Nm
-20	140 ft-lbs / 190 Nm
-24	180 ft-lbs / 245 Nm

JIC 37° Fittings
(swivel nut or hose connection)

SAE Dash size	Thread Size	Flats
-4	7/16-20	2
-6	9/16-18	1 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 Aluminum)
(all types)

SAE Dash size	Torque
-4	14 ft-lbs / 19 Nm
-6	23 ft-lbs / 31.2 Nm
-8	36 ft-lbs / 54.2 Nm
-10	62 ft-lbs / 84 Nm
-12	84 ft-lbs / 114 Nm
-16	125 ft-lbs / 169.5 Nm
-20	151 ft-lbs / 204.7 Nm
-24	184 ft-lbs / 249.5 Nm



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

SAE Dash size		Torque
-4	ORFS / 37° (Adj)	15 ft-lbs / 20.3 Nm
	ORFS (Non-adj)	26 ft-lbs / 35.3 Nm
	37° (Non-adj)	22 ft-lbs / 30 Nm
-6	ORFS (Adj / Non-adj)	35 ft-lbs / 47.5 Nm
	37° (Adj / Non-adj)	29 ft-lbs / 39.3 Nm
-8	ORFS (Adj / Non-adj)	60 ft-lbs / 81.3 Nm
	37° (Adj / Non-adj)	52 ft-lbs / 70.5 Nm
-10	ORFS (Adj / Non-adj)	100 ft-lbs / 135.6 Nm
	37° (Adj / Non-adj)	85 ft-lbs / 115.3 Nm
-12	(All types)	135 ft-lbs / 183 Nm
-16	(All types)	200 ft-lbs / 271.2 Nm
-20	(All types)	250 ft-lbs / 339 Nm
-24	(All types)	305 ft-lbs / 413.5 Nm

Torque Procedure

Seal-Lok™ fittings

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

Note: The O-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 confirm that there are no leaks.

JIC 37° fittings

1 Align the tube flare (hex nut) against the nose of the fitting body (body hex fitting) and tighten the hex nut to the body hex fitting to hand-tight, approximately 30 in-lbs / 3.4 Nm.

2 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.

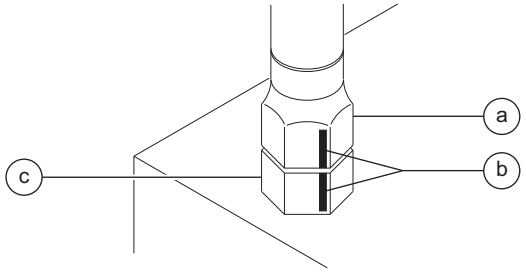


Figure 1

a hex nut
b reference mark
c 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.

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

Note: 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.

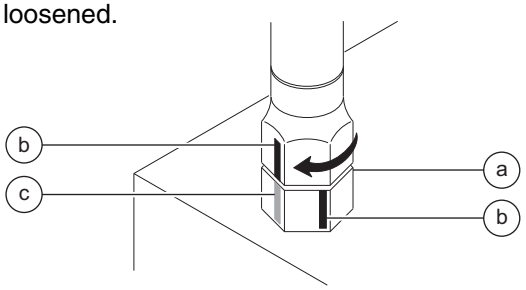


Figure 2

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

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

METRIC FASTENER TORQUE CHART

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

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

Scheduled Maintenance Procedures

Observe and Obey:

- ☑ Maintenance inspections shall be completed by a person trained and qualified on the maintenance of this machine.
- ☑ Scheduled maintenance inspections shall be completed daily, quarterly, semi-annually, annually and every 2 years as specified on the *Maintenance Inspection Report.*

⚠WARNING Failure to properly complete each inspection when required may cause death, serious injury or substantial machine damage.

- ☑ Immediately tag and remove from service a damaged or malfunctioning machine.
- ☑ Repair any machine damage or malfunction before operating the machine.
- ☑ Use only Genie approved replacement parts.
- ☑ Machines that have been out of service for a period longer than 3 months must complete the quarterly inspection.
- ☑ Unless otherwise specified, perform each 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 Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

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

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

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

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

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

SCHEDULED MAINTENANCE PROCEDURES

Maintenance Symbols Legend

Note: The following symbols have been used in this manual to help communicate the intent of the instructions. When one or more of the symbols 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. Maintain completed forms for a minimum of 4 years or in compliance with employer, jobsite and governmental regulations and requirements.

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 reinspect 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 BRAND

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

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

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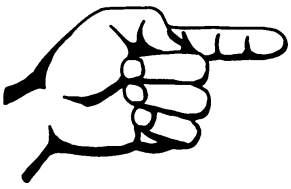

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Maintenance Inspection Report

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		**Y**	**N**	**R**
A-1	Inspect the manuals and decals			
A-2	Pre-operation inspection			
A-3	Function tests			
Perform after 40 hours:				
A-4	30 day service			
Perform every 100 hours:				
A-5	Hydraulic suction strainer			

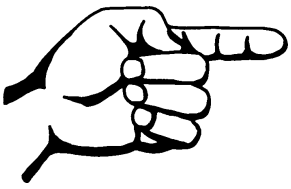
Checklist B		**Y**	**N**	**R**
B-1	Inspect the battery			
B-2	Electrical wiring			
B-3	Tires and wheels			
B-4	Emergency stop			
B-5	Horn			
B-6	Key switch			
B-7	Drive brakes			
B-8	Drive speed - stowed			
B-9	Drive speed - raised			
B-10	Flashing beacon (if equipped)			
B-11	Motion alarm			
B-12	Hydraulic oil analysis			
B-13	Breather cap			
B-14	Rear axle free-wheeling			
B-15	Lateral offset of the mast			
B-16	Mast wear pads			

Checklist C		**Y**	**N**	**R**
C-1	Calibrate platform overload (if equipped)			
C-2	Breather cap - models with optional oil			

Checklist D		**Y**	**N**	**R**
D-1	Tank return filter			

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

Comments



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Checklist A Procedures

A-1
Inspect the Manuals and Decals

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

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

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

1 Check to make sure that the operator's and safety manuals are present and complete in the storage container on the platform.

2 Examine the pages of each manual to be sure that they are legible and in good condition.

⊙ Result: The operator's manual is appropriate for the machine and all manuals are legible and in good condition.

⊠ Result: The operator's manual is not appropriate for the machine or all manuals are not in good condition or is illegible. Remove the machine from service until the manual is replaced.

3 Open the operator's manual to the decals inspection section. Carefully and thoroughly inspect all decals on the machine for legibility and damage.

⊙ Result: The machine is equipped with all required decals, and all decals are legible and in good condition.

⊠ Result: The machine is not equipped with all required decals, or one or more decals are illegible or in poor condition. Remove the machine from service until the decals are replaced.

4 Always return the manuals to the storage container after use.

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

CHECKLIST A PROCEDURES

A-2
Perform Pre-operation Inspection

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

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

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

A-3
Perform Function Tests

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

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

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

A-4
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-1 Replace the Hydraulic Tank Return Filter

A-5
Replace the Hydraulic Suction Strainer

Genie specifications require that this procedure be performed every 100 hours or monthly, whichever comes first.

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

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

Note: 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.*

Note: Perform this procedure with the machine in stowed position.

1 Disconnect the battery pack from the machine.

2 Open and remove the turntable cover at the hydraulic power unit side of the machine.

3 Working next to the hydraulic tank, remove the fasteners securing the chassis side cover to the chassis. Remove the side cover. Lay the side cover and fasteners to the side.

4 Tag and disconnect the wire harness connectors from the function manifold.

5 Tag and disconnect the cables from the motor.

6 Tag, disconnect and plug the hydraulic hoses at the function manifold. Cap the fittings on the manifold.

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

7 Place a suitable container under the hydraulic tank. Refer to Section 2, *Specifications.*

8 Locate and remove the hydraulic tank filler cap. Set the filler cap to the side.

9 Remove the drain plug and drain all of the oil into a suitable container.

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

11 Remove the fasteners securing the function manifold to the hydraulic tank. Set the fasteners to the side.

12 Loosen the clamp securing the hydraulic power unit to the hydraulic tank. Do not remove the clamp.

13 Remove the clamp securing the hydraulic power unit to the chassis. Set the clamp to the side.

14 Carefully remove the hydraulic power unit from the tank and place it on a clean work bench.

Note: If necessary, loosen the bottom connector of auxiliary pump to more easily remove the hydraulic power unit.

15 Remove the suction strainer from the end of the plastic tube.

16 Install the new suction strainer at the end of the plastic tube.

Checklist B Procedures

B-1
Inspect the Battery

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

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

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

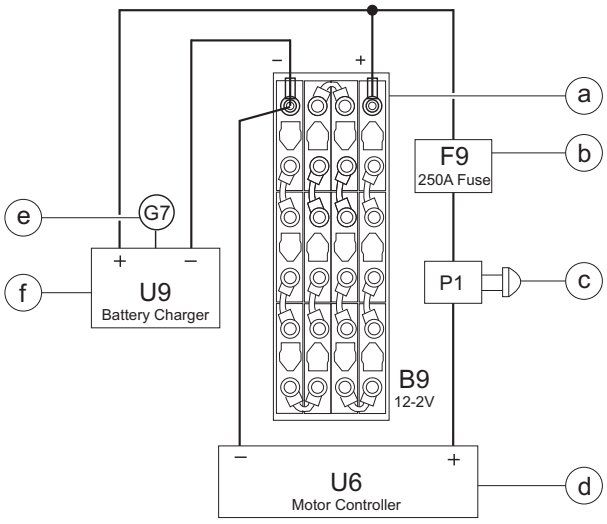
⚠WARNING Bodily injury hazard. Batteries contain acid. Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.

1 Open the turntable covers of the machine.

2 Confirm that the battery cable connections are tight and free of corrosion.

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

3 Locate the bolts between the battery pack and the counterweight. Confirm that the head of each bolt is firmly in contact with the battery pack so that the battery pack does not move.



a battery B9
b fuse 250A F9
c emergency stop button P1
d motor controller U6
e battery charger indicator G7
f battery charger U9

4 Put on protective clothing and eye wear.

5 Remove the battery vent caps and check the battery acid level. If needed, replenish with distilled water to 1/8 inch / 3 mm below the bottom of the battery fill tube. Do not overfill.

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

B-2
Inspect the Electrical Wiring

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

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

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

1 Open and remove the turntable covers from the machine.

2 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

3 Raise the jib boom until the platform is approximately 8 feet / 2.4 m from the ground.

4 Turn the key switch to off position and push in the red Emergency Stop button to the off position at the ground control.

5 Tag and disconnect the cables from the ground terminal of the battery.

6 Remove the fasteners securing the rear chassis cover to the chassis at the non-steer end of the machine. Remove the chassis cover. Lay the cover and fasteners to the side.

7 Inspect the drive motors connections for burnt, chafed, pinched cables and loose connections.

8 Install the rear chassis cover at the non-steer end of the machine and securely install the fasteners.

9 Install the cables onto the ground terminal of the battery, and securely tighten.

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

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

- Ground control panel
- Battery charger
- Hydraulic power unit

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

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

CHECKLIST B PROCEDURES

13 Lower the jib boom until the platform is approximately 2 feet / 0.5 m from the ground.

14 Turn the key switch to off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.

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

- Mast cable
- Platform controls
- Power to platform wiring

16 Inspect for a liberal coating of dielectric grease in all wiring connections between the ground control panel and the platform controls, and level sensor wiring.

17 Install both the turntable covers on the machine.

B-3
Inspect the Tires and Wheels

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

Maintaining the tires and wheels in good condition, including proper castle nut torque, 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 and unusual wear.

2 Check each wheel for damage, bends and cracks.

Non-steer end:

3 Remove the lock washer flange from the slot of the castle nut. Check the castle nut for proper torque. Refer to Section 2, *Specifications.*

4 Install the lock washer flange into a slot of the castle nut.

Steer end:

5 Check each lug bolt for proper torque. Refer to Section 2, *Specifications.*

B-4
Test the Emergency Stop

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

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.

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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Push in the red Emergency Stop button at the ground controls to the off position.

3 Check the machine functions from the **ground controls.**

⊙ Result: The machine functions should not operate.

4 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.

5 Push the red Emergency Stop button at the platform controls to the off position.

6 Check the machine functions from the **platform controls.**

⊙ Result: The machine functions should not operate.

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

B-5
Test the Horn

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

The horn is activated at the platform controls and sounds at the ground as a warning to ground 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Push down the horn button at the platform controls.

⊙ Result: The horn should sound.

CHECKLIST B PROCEDURES

B-6
Test the Key Switch

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

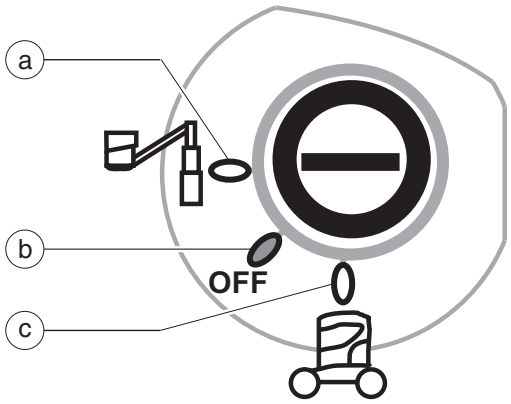
Proper key switch action and response is essential to safe machine operation. The machine can be operated from the ground or platform controls and the activation of one or the other is accomplished with the key switch. Failure of the key switch to activate the appropriate control panel could cause a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

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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Check the machine functions from the **ground controls.**

⊙ Result: The machine functions should not operate.



a platform control
b machine switch off
c ground control

3 Turn the key switch to ground control.

4 Check the machine functions from the **platform controls.**

⊙ Result: The machine functions should not operate.

5 Turn the key switch to the off position.

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

⊙ Result: The machine functions should not operate.

B-7
Test the Drive Brakes

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

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

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

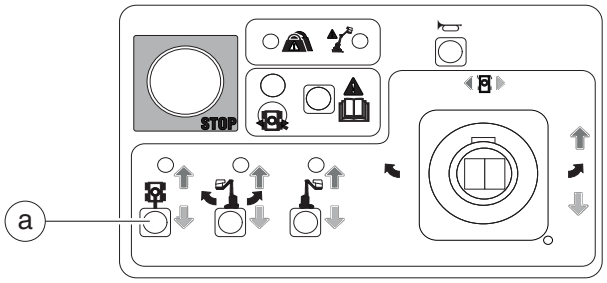
1 Mark a test line on the ground for reference.

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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

3 Lower the platform to the stowed position.

4 Press the drive function select button.



a drive function select button BN130

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

6 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.

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

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

CHECKLIST B PROCEDURES

B-8
Test the Drive Speed - Stowed Position

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

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

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

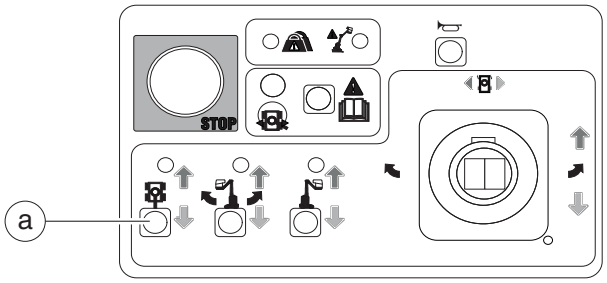
1 Create start and finish lines by marking two lines on the ground 40 feet / 12.2 m apart.

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

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

3 Lower the platform to the stowed position.

4 Press the drive function select button.



a drive function select button BN130

5 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.

6 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.

7 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-9
Test the Drive Speed - Raised Position

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

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

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

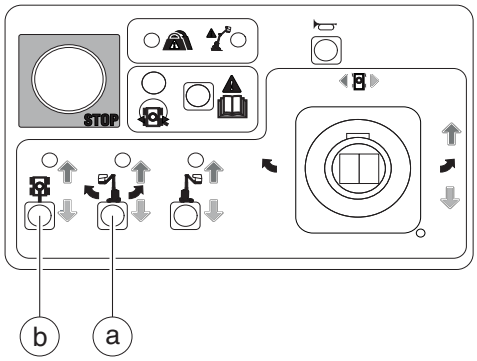
1 Create start and finish lines by marking two lines on the ground 40 feet / 12.2 m apart.

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

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

3 Press the lift function select button.

4 Press and hold the function enable switch on the joystick.



a lift function select button BN63
b drive function select button BN130

5 Raise the platform approximately 2 feet / 70 cm from the ground.

6 Press the drive function select button.

7 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.

8 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.

9 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*.

CHECKLIST B PROCEDURES

B-10
Test the Flashing Beacon (if equipped)

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

Flashing beacon is used to alert operators and ground personnel of machine proximity and motion.

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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Activate any machine function from the ground control (as indicated on the ground control box).

⊙ Result: The beacon should flash.

3 Turn the key switch to platform controls.

4 Activate any machine function from the platform control (as indicated on the platform control box).

⊙ Result: The beacon should flash.

Note: Beacon will flash only when you activate any machine function either from ground control or platform control.

B-11
Test the Motion Alarm

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

Alarm is used to alert operators and ground personnel of machine proximity and motion.

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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Raise the platform approximately 1 ft / 30.5 cm.

⊙ Result: When raising the platform, the motion alarm will sound.

3 Lower the platform to the stowed position.

⊙ Result: When lowering the platform, the motion alarm will sound.

4 Turn the key switch to platform controls.

5 Press the lift function select button.

6 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 motion alarm will sound when the joystick is moved off center in either direction.

7 Press the drive function select button.

8 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 motion alarm will sound when the joystick is moved off center in either direction.

9 Press and hold the function enable switch on the joystick. Press and hold the thumb rocker switch for a moment to the left position and then release it. Press and hold the thumb rocker switch for a moment to the right position and then release it.

⊙ Result: The motion alarm will sound when the rocker switch is moved off center in either direction.

CHECKLIST B PROCEDURES

B-12
Perform Hydraulic Oil Analysis

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

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

Before replacing the hydraulic oil, the oil may be tested by an oil distributor for specific levels of contamination to verify that changing the oil is necessary.
If the hydraulic oil is not replaced at the two year inspection, test the oil quarterly. Replace the oil when it fails the test. See E-1, *Test or Replace the Hydraulic Oil.*

B-13
Inspect the Breather Cap

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

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

1 Open the turntable cover at the hydraulic power unit side of the machine.

2 Locate and remove the breather cap from the hydraulic tank.

3 Check the breather cap for proper venting.

⊙ Result: Air passes through the breather cap. Proceed to step 5.

⊠ Result: If air does not pass through the cap, clean or replace the cap. Proceed to step 4.

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

4 Using a mild solvent, carefully wash the cap venting system. Dry using low pressure compressed air. Repeat this procedure beginning with step 3.

5 Install the breather cap onto the hydraulic tank.

B-14
Inspect the Rear Axle Free-wheeling

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

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

1 Secure the steer end of the machine to a forklift or similar device using a connecting bar no greater than 3 ft / 1 m in length. Set the brakes on forklift.

2 Open the turntable cover at the ground control side of the machine.

3 Using the illustration as a guide, locate the free-wheel selector switch on the top of the ground control box.

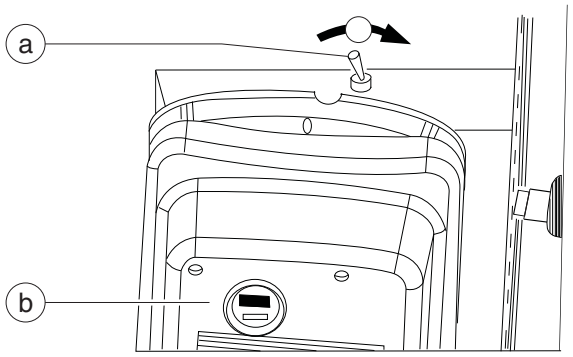
4 Move the free-wheel selector switch to the right to set the machine to free-wheel condition.

⊙ Result: The parking brakes will release and the horn will sound softly.

5 Remove the wheel chocks and, using a fork lift or similar device, apply force to the machine.

⊙ Result: The machine will move freely.

NOTICE Component damage hazard. The machine can be damaged if it breaks free from the forklift. Do not attempt to test the free-wheeling function unless a connecting bar of adequate size and strength is used to secure the GR-J to the forklift or similar device.



a free-wheel selector switch
b ground control box

6 Move the free-wheel selector switch to the left.

⊙ Result: The parking brakes will set and the horn will not sound.

7 Using a fork lift or similar device, apply force to the machine.

⊙ Result: The machine will not move freely.

CHECKLIST B PROCEDURES

B-15
Inspect the Lateral Offset of the Mast

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

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

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.

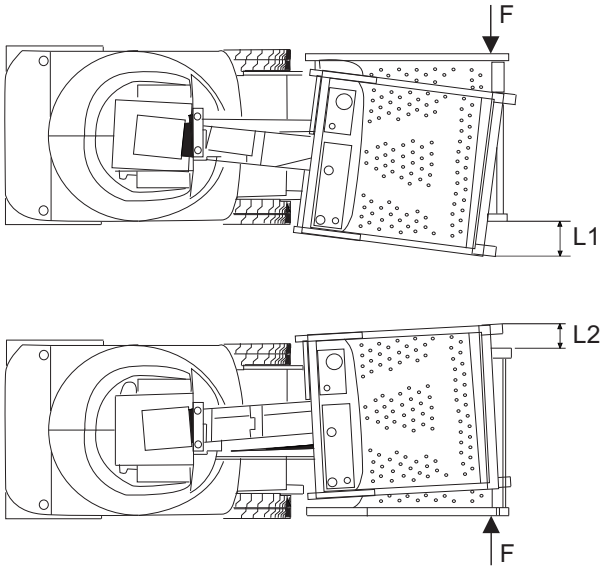
Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Raise the jib boom to a horizontal position.

3 Raise the mast head approximately 8 inches / 20 cm.

4 Using a suitable torque measuring device, apply a lateral force of 29.5 ft-lb / 40 Nm near the floor of the platform at location "F". Refer to the illustration.

⊙ Result: Lateral offset of the mast i.e. distance L1 and L2 as shown in the illustration should not exceed 13.75 inches / 350 mm.



B-16
Inspect the Mast Wear Pads

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

Mast wear pads should always be in good condition and greased for good machine performance and service life. A damaged wear pads may cause the unsafe machine operation.

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

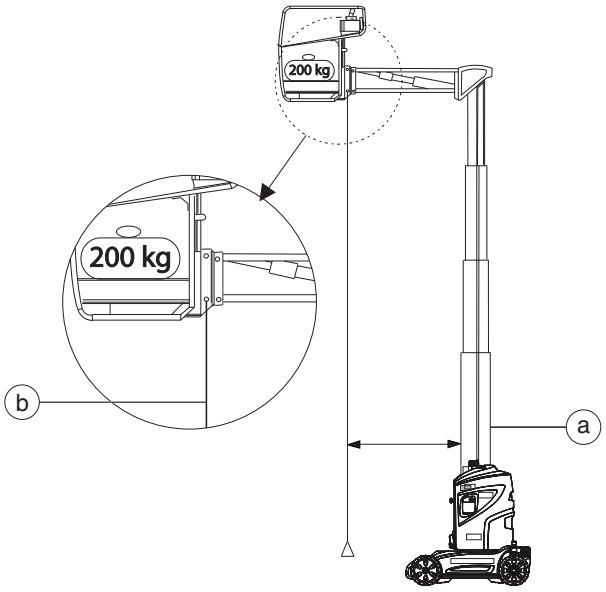
Note: Perform this procedure in a location that is sheltered from the wind.

1 Using the illustration as a guide, install a plumb line of a suitable length onto the platform.

2 Using a suitable lifting device, place a 440 lbs / 200 Kg test weight in the center of the platform. Secure the weight to the platform.

3 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.



a number 1 mast
b plumb line

4 Raise the jib boom to a horizontal position.

5 Activate the mast up function and fully raise the mast.

6 Using a suitable measuring device, measure the distance between plumb line and the face of the number 1 mast. Refer to illustration.

⊙ Result: The distance between the plumb line and the face of the number 1 mast does not exceed 66.9 inches / 1700 mm. The wear pads are in good condition.

⊠ Result: The distance between the plumb line and the face of the number 1 mast exceeds 66.9 inches / 1700 mm. The wear pads are not in good condition. Install new wear pads. Refer to Repair Procedure 4-1, *How to Remove the Mast Assembly.*

Checklist C Procedure

C-1
Calibrate the Platform Overload System (if equipped)

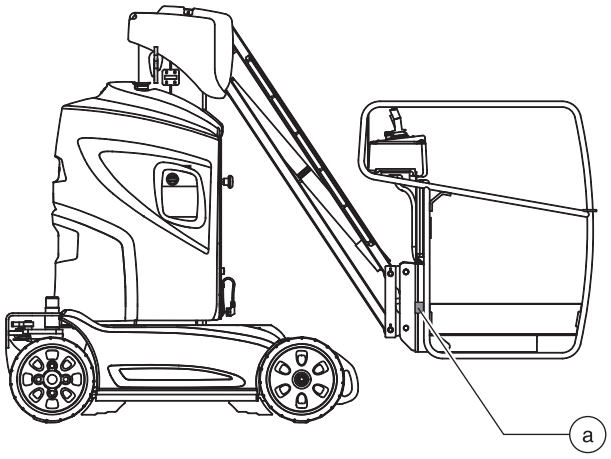
Genie specifications require that this procedure be performed every 500 hours or six months, whichever comes first OR when the machine fails to lift the maximum rated load.

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

The platform overload system is designed to prevent machine operation in the event the platform is overloaded. Models equipped with the platform overload option are provided with two overload pressure sensors.

Models equipped with the platform overload option are provided with additional machine components: an adjustable spring-loaded subassembly, a limit switch harness, an electronic module which receives the overload signal and interrupts power, and an audio/visual warning indication to alert the operator of the overload.

Refer to Repair Procedure 2-2, *How to Calibrate the Platform Overload System (if equipped).*



a adjustable spring-loaded subassembly and limit switch harness

C-2
Replace the Hydraulic Tank Breather Cap - Models with Optional Hydraulic Oil

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

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 breather cap from the hydraulic tank. Discard the breather cap.

Note: The tank filler cap and breather are one piece component.

2 Install a new breather cap onto the hydraulic tank.

Checklist D Procedure

D-1
Replace the Hydraulic Tank Return Filter

Genie specifications require that this procedure be performed every 1000 hours or annually, whichever comes first.

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

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

Note: Perform this procedure on a firm, level surface.

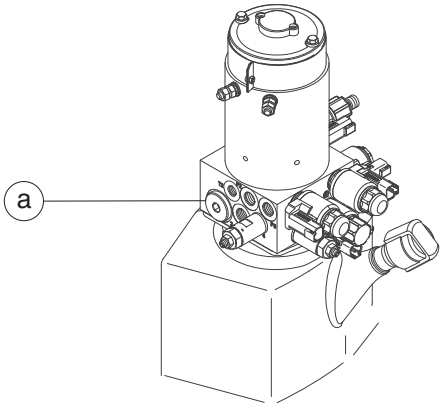
1 Turn the key switch to off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.

2 Using the illustration as a guide, locate the filter cap of the function manifold. Clean the area around the filter cap.

3 Remove the filter cap from the function manifold. Set it to the side.

4 Remove the oil filter placed underneath the filter cap.

5 Apply a thin layer of oil to the new oil filter gasket.



a filter cap

6 Install the new filter into the function manifold, and securely tighten.

7 Install the filter cap onto the function manifold and torque to specification. Refer to Section 2, *Specifications*.

8 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

9 Press and hold the function enable button.

10 Activate the mast up function and raise the mast slightly.

11 Inspect the filter and related components to be sure that there are no oil leaks.

12 Clean up any oil that may have spilled.

Checklist E Procedure

E-1
Test or Replace the Hydraulic Oil

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

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

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.**

Note: Perform this procedure with the machine in the stowed position.

1 Open the turntable covers of the machine.

2 Disconnect the battery pack from the machine.

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

3 Remove the fasteners securing the chassis side cover next to the tank to the chassis. Remove the side cover. Lay the side cover and fasteners to the side.

4 Place a suitable container under the hydraulic tank. Refer to Section 2, *Specifications.*

5 Locate and remove the hydraulic tank filler cap. Set the filler cap to the side.

6 Remove the drain plug and drain all of the oil into a suitable container.

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

Note: To clean the inside of the hydraulic tank using a mild solvent, it may be helpful to remove the hydraulic power unit from the tank. Refer to Repair Procedure 6-1, *How to Remove the Function Pump.*

8 Install the drain plug onto the hydraulic tank and torque to specification.

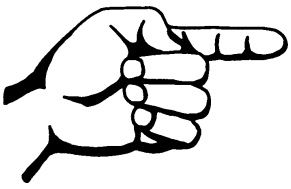
Torque specification	
Hydraulic tank drain plug	44 in-lbs 5 Nm

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

10 Install the filler cap onto the hydraulic tank, and securely tighten. Do not over tighten.

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

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



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Repair Procedures

Observe and Obey:

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

Before Repairs Start:

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

Symbols Legend

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

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

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

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

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

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

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

Platform Controls

The platform controls, used to operate the machine from the platform. The platform controls are used to operate the various machine functions.

The platform controls consist of an electronic circuit board, joystick, alarm, buttons and LEDs.

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

1-1 Circuit Boards

How to Remove the Platform Controls Circuit Board

1 Push in the red Emergency Stop button to the off position at both the ground and platform controls.

2 Remove the fasteners securing the top plate assembly to the platform control box. Carefully remove the top plate assembly from the box to expose the circuit boards.

3 Tag and disconnect the wire harness connectors from the platform controls circuit board.

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

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

4 Remove the fasteners securing the platform controls circuit board to the top plate assembly. Set the fasteners to the side.

5 Remove the platform controls circuit boards from the top plate assembly.

1-2 Controller Adjustments

How to Activate or Deactivate the Motion Alarm

The alarm is activated at the platform controls and sounds at the ground as a warning to ground personnel. An improperly functioning alarm 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Simultaneously press and hold all three function buttons for 3 seconds.

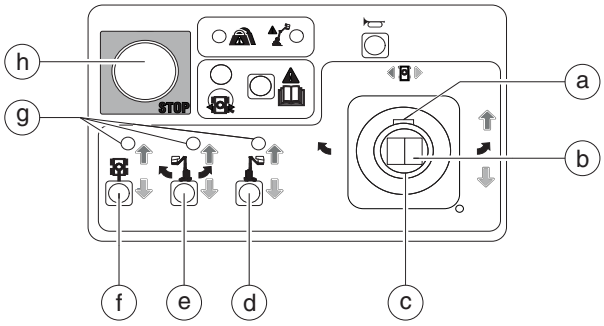
⊙ Result: A beep sounds and three function indicator lights will flash one after another.

3 Simultaneously press and hold the drive function and the lift function buttons for 3 seconds.

⊙ Result: All three function indicator lights will stop flashing.

4 Briefly press and release the drive function button to turn the motion alarm on or off.

⊙ Result: The drive indicator light will be on if the motion alarm is activated.It will be off if the motion alarm is deactivated.



a joystick function enable switch
b thumb rocker switch
c joystick
d jib boom function button BN97
e lift function and turntable rotate function button BN63
f drive function button BN130
g function indicator lights
h red Emergency Stop button P2

5 Press and hold the drive function button for 3 seconds.

⊙ Result: All 3 indicator lights will flash for 3 seconds and turn off.

6 Push in the red Emergency Stop button at platform controls to confirm the procedure.

⊙ Result: The motion alarm will sound during all machine movements.

Note: To deactivate the motion alarm, perform this procedure beginning with step 1.

PLATFORM CONTROLS

How to Activate or Deactivate the Flashing Beacon (if equipped)

The Flashing Beacon is installed to alert operators and ground personnel of machine proximity and motion. The Flashing Beacon is installed on the ground control side of the mast.

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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Simultaneously press and hold all three function buttons for 3 seconds.

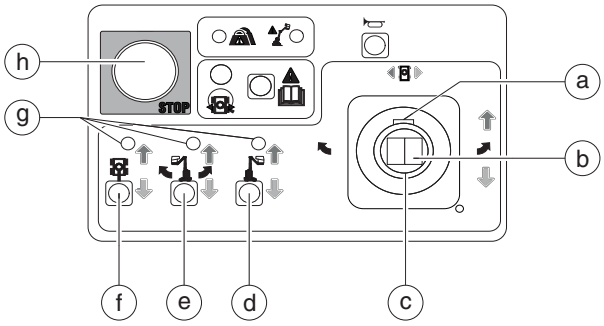
⊙ Result: A beep sounds and three function indicator lights will flash one after another.

3 Simultaneously press and hold the drive function and lift function buttons for 3 seconds.

⊙ Result: All three function indicator lights will stop flashing.

4 Briefly press and release the lift function button to turn the flashing beacon on or off.

⊙ Result: The lift indicator light will be on if the flashing beacon is activated.It will be off if the flashing beacon is deactivated.



a joystick function enable switch
b thumb rocker switch
c joystick
d jib boom function button BN97
e lift function and turntable rotate function button BN63
f drive function button BN130
g function indicator lights
h red Emergency Stop button P2

5 Press and hold the drive function button for 3 seconds.

⊙ Result: All 3 indicator lights will flash for 3 seconds and turn off.

6 Push in the red Emergency Stop button at platform controls to confirm the procedure.

⊙ Result: The beacon will flash during all machine movements.

Note: To deactivate the flashing beacon option, perform this procedure beginning with step 1.

How to Calibrate the Joystick

Calibration of the joystick is essential for safe machine operation. The joystick on this machine utilize Hall Effect technology for proportional control. If a joystick is disconnected or replaced, it must be calibrated before operating the machine.

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

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Simultaneously press and hold all three function buttons for 3 seconds.

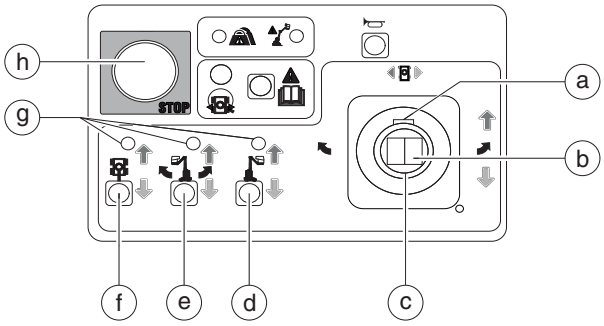
⊙ Result: A beep sounds and three function indicator lights will flash one after another.

3 Simultaneously press and hold the drive function and jib boom function buttons for 3 seconds.

⊙ Result: All three function indicator lights will stop flashing.

4 Using the illustration as a guide, move the joystick fully to the left, then return the joystick to the neutral position.

Note: Do not squeeze or activate the joystick function enable switch. No machine function should operate while performing the joystick calibration procedure.



a joystick function enable switch
b thumb rocker switch
c joystick
d jib boom function button BN97
e lift function and turntable rotate function button BN63
f drive function button BN130
g function indicator lights
h red Emergency Stop button P2

5 Move the joystick fully to the right, then return the joystick to the neutral position.

6 Move the joystick fully to the rear, then return the joystick to the neutral position.

7 Move the joystick fully to the front, then return the joystick to the neutral position.

8 Press and hold the drive function button for 3 seconds.

⊙ Result: All three function indicator lights will flash three times. Joystick calibration is complete.

PLATFORM CONTROLS

How to Calibrate the Steer Angle Sensor

Calibration of the Steer Angle Sensor is essential for safe machine operation. The Steer Angle Sensor controls the maximum steering angle that can be attained.

1 Adjust the wheels at the steer end of the machine so they are in straight driving position.

2 Turn the key switch to off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.

3 Tag and disconnect the steer angle sensor wire harness from the machine wire harness.

4 With a multimeter set to read 4K±0.2 ohms, connect the leads to the green and black wires of the potentiometer.

⊙ Result: The reading is 4K±0.2 ohms. Proceed to step 5.

⊠ Result: The reading is not 4K±0.2 ohms. See 10-4, *How to Replace the Steer Angle Sensor*.

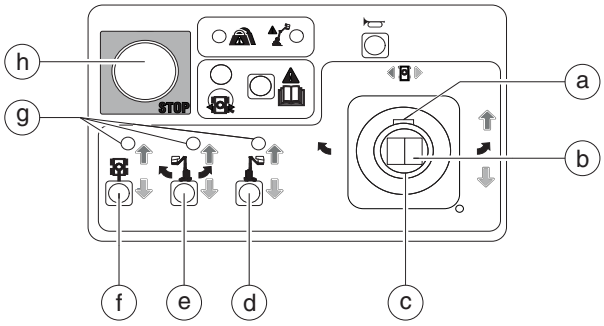
5 Connect the steer angle sensor wire harness to the machine wire harness.

6 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

7 Simultaneously press and hold all three function select buttons for 3 seconds.

⊙ Result: A beep sounds and three function indicator lights will flash one after another.



a joystick function enable switch
b thumb rocker switch
c joystick
d jib boom function button BN97
e lift function and turntable rotate function button BN63
f drive function button BN130
g function indicator lights
h red Emergency Stop button P2

8 Simultaneously press and hold the lift function and jib boom function buttons for 3 seconds.

⊙ Result: All three function indicator lights will stop flashing.

9 Press and hold the joystick function enable switch and activate the thumb rocker switch turning the wheels fully to the left.

10 Press the drive function button for 1 second to validate the left side steering limit.

11 Press and hold the joystick function enable switch and activate the thumb rocker switch turning the wheels fully to the right.

12 Press the jib boom function button for 1 second to validate the right side steering limit.

13 Press and hold the joystick function enable switch and activate the thumb rocker switch placing the wheels in line with the chassis.

14 Press the lift function button for 1 second.

15 Press the drive function button for 3 seconds. Steer Sensor calibration is complete.

Platform Components

2-1 Platform

How to Remove the Platform

1 Push in the red Emergency Stop button to the off position at both the ground and platform controls.

2 Disconnect the battery pack from the machine.

3 Remove the fasteners securing the top plate assembly to the platform control box.

4 Tag and disconnect the wire harness connectors from the platform controls circuit boards.

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

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

5 Tag and disconnect the wire harness connectors from the joystick. Set the top plate assembly to the side.

6 Remove the fasteners securing the bottom plate assembly to the platform control box. Lay the bottom plate assembly and fasteners to the side.

7 Remove the fasteners securing the outlet mounting plate to the platform. Set the mounting plate assembly and fasteners to the side.

8 Attach a lifting strap of suitable capacity from an overhead crane to the bottom of the platform. Support the platform. Do not apply any lifting pressure.

NOTICE 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 or put pressure on the railings.

9 Remove the platform mounting pins retaining fasteners. Set the fasteners to the side.

10 Remove the pins securing the platform to the jib boom.

11 Remove the platform from the machine.

⚠WARNING Crushing hazard. The platform could become unbalanced and fall when removed from the machine. Use caution when removing the platform from the machine.

Note: During platform removal, the overhead crane strap will need to be carefully adjusted for proper balancing.

PLATFORM COMPONENTS

2-2
Platform Overload System

How to Calibrate the Platform Overload System (if equipped)

Calibration of the platform overload system is essential to safe machine operation. Continued use of an improperly calibrated platform overload system could result in the system failing to sense an overloaded platform. The stability of the machine is compromised and it could tip over.

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

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

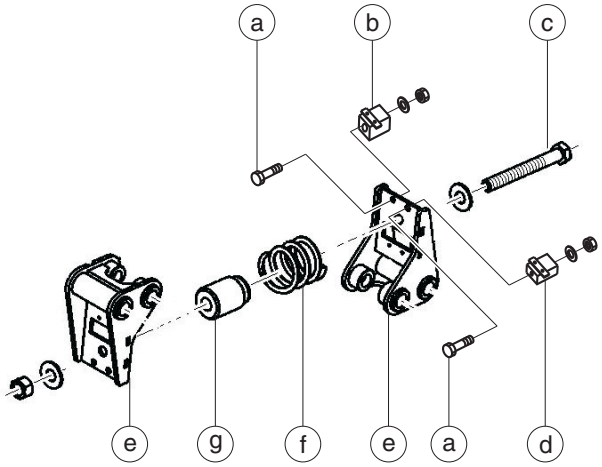
2 Remove all weight, tools and accessories from the platform.

Note: Failure to remove all weight, tools and accessories from the platform will result in an incorrect calibration.

3 Fully tighten the adjusting screws of both the overload sensors. Do not over tighten.

4 Using a suitable lifting device, place a 440 lbs / 200 Kg test weight in the center of the platform. Secure the weight to the platform.

5 Tighten the overload spring adjustment screw just until the screw and lock nut will rotate freely, and the clearance between the lock nut and sensor mounting bracket is minimal.



a adjusting screw
b overload sensor number 1
c overload spring adjustment screw
d overload sensor number 2
e overload sensor mounting bracket
f overload spring
g spacer

6 Place an additional 44 lbs / 20 kg test weight in the center of the platform. Secure the weight to 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

8 Turn the adjusting screw of the number 1 overload sensor 10° in a counterclockwise direction.

⊙ Result: The overload indicator lights are flashing at the ground and platform controls, and the alarm is sounding intermittently. Proceed to step 9.

⊠ Result: The overload indicator lights are off at the ground and platform controls and the alarm does not sound intermittently. Repeat the procedure beginning with step 8.

9 Turn the adjusting screw of the number 2 overload sensor 10° in a counterclockwise direction.

⊙ Result: The overload indicator lights are flashing at the ground and platform controls, and the alarm is sounding continuously. Proceed to step 10.

⊠ Result: The overload indicator lights are off at the ground and platform controls and the alarm does not sound continuously. Repeat the procedure beginning with step 9.

10 Test all machine functions from the platform controls.

⊙ Result: All platform control functions should not operate.

11 Turn the key switch to the ground control.

12 Test all machine functions from the ground controls.

⊙ Result: All ground control functions should not operate.

13 Using a suitable lifting device, remove the test weight from the platform.

⊙ Result: The platform overload indicator light should be off at both the ground and platform controls and the alarm should not sound.

14 Test all machine functions from ground controls.

⊙ Result: All ground control functions should operate normally.

15 Turn the key switch to the platform control.

16 Test all machine functions from the platform controls.

⊙ Result: All platform control functions should operate normally.

Jib Components

3-1
Jib Cylinder

How to Remove the Jib 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.

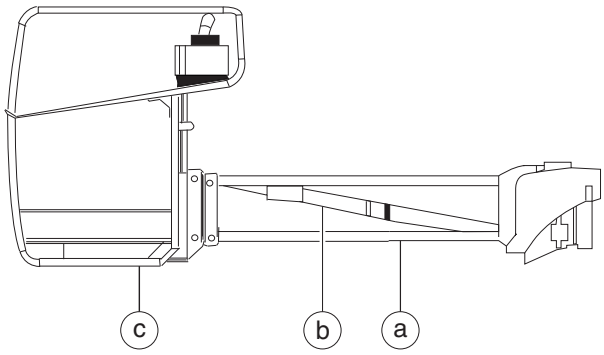
Note: When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section 2, *Hydraulic Hose and Fitting Torque Specifications.*

1 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Raise the jib boom to a comfortable working height and place blocks under the platform for support. Lower the jib boom until the platform is resting on the blocks.

3 Turn the key switch to off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.



a jib boom
b jib cylinder
c platform

4 Tag, disconnect and plug the jib 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.

5 Remove the pin retaining fasteners from the jib cylinder rod-end pivot pin. Do not remove the pin.

6 Remove the pin retaining fasteners from the jib cylinder barrel-end pivot pin. Do not remove the pin.

7 Attach a lifting strap from an overhead crane to the lug on the rod-end of the jib cylinder.

8 Place a block across both sides of the jib boom under the jib cylinder.

9 Use a soft metal drift to remove the barrel-end pivot pin and rod-end pivot pin.

10 Carefully remove the jib cylinder from the machine.

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

Mast Components

4-1
Mast Assembly

How to Remove the Mast Assembly

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

Note: When removing a hose assembly or fitting, the O-ring 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.*

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

1 Check the condition of the wear pads. Refer to Maintenance Procedure B-16, *Inspect the Mast Wear Pads.*

2 Using Illustration 1 as a guide, create a safety steel plate using the dimensions specified.

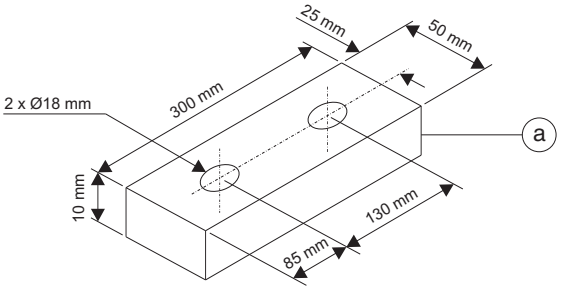


Illustration 1

a safety steel plate

3 Turn the key switch to off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.

4 Open and remove the turntable covers.

5 Remove the fasteners securing the mast head cover to the mast. Set the fasteners to the side.

6 Remove the mast head cover from the mast head.

7 Tag and disconnect the proximity sensor. Lay the proximity sensor to the side.

8 Tag, disconnect and plug the hydraulic hose at the top of the lift cylinder. Remove the hose connector from the lift cylinder. Plug the lift 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.

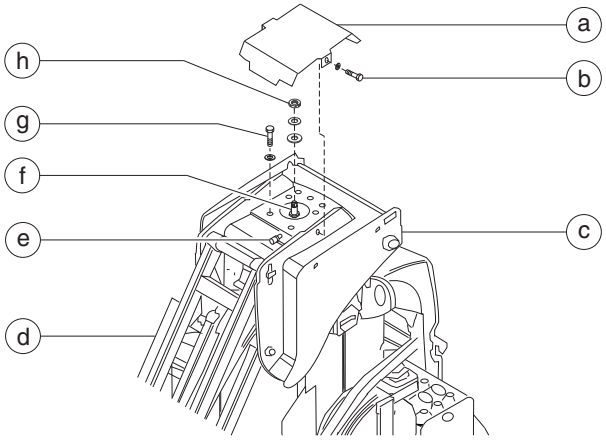


Illustration 2

a mast head cover
b mast head cover fasteners
c mast head
d jib boom
e proximity sensor
f lift cylinder
g mast head fasteners
h lift cylinder fasteners

MAST COMPONENTS

9 Attach a lifting strap of suitable capacity from an overhead crane to the mast head, jib boom and platform assembly. Support the assembly. Do not apply any lifting pressure.

NOTICE Component damage hazard. The platform railings can be damaged if they are used to lift the assembly. Do not attach the lifting strap to the platform railings or put pressure on the railings.

10 Remove the fasteners securing the mast head to the mast assembly. Set the fasteners to the side.

11 Raise the mast head, jib boom and platform assembly and move the assembly approximately 20 inches / 50 cm towards the non-steer end of the machine.

⚠WARNING Crushing hazard. The mast head, jib boom and platform assembly could become unbalanced and fall when removed from the machine.

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

Note: During removal the mast head, jib boom and platform assembly, the overhead crane strap will need to be carefully adjusted for proper balancing. A properly balanced lifting strap is essential when removing the assembly from the machine.

12 Remove the fasteners securing the lift cylinder to the mast head. Set the fasteners to the side.

13 Using Illustration 3 as a guide, remove the fasteners securing the stops to the mast assembly and remove the stops. Set the fasteners and stops to the side.

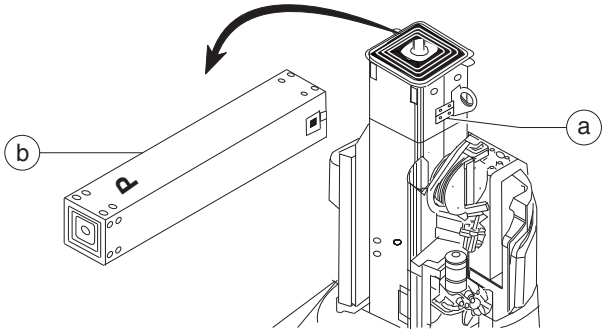


Illustration 3

a stops
b mast assembly

14 Using the mast head fasteners, install the safety steel plate onto the top of the mast assembly. Securely tighten the fasteners. Do not over tighten.

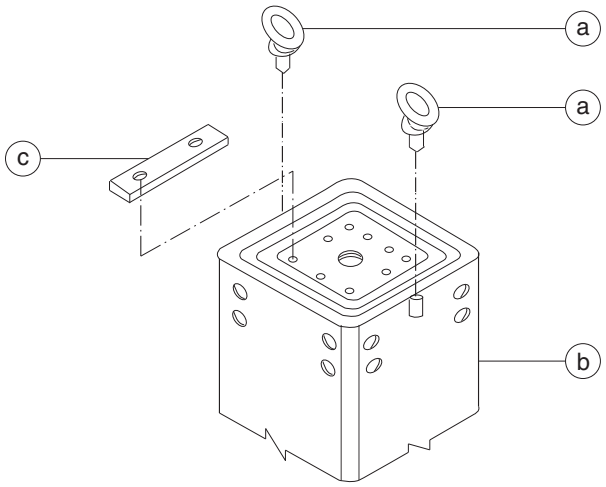


Illustration 4

a M16 shackles
b mast assembly
c safety steel plate

15 Using an overhead crane, attach a lifting strap of suitable capacity equipped with the M16 shackles to the threaded rings at the top of the outer mast.

16 Lift the mast assembly approximately 12 inches / 30 cm. Use a permanent marker to indicate the face closest to the platform with the mark 'P' on the number 1 mast. Refer to Illustration 3.

17 Remove the mast assembly from the machine, while carefully pulling the cables and hydraulic hose from the mast. With the 'P' mark facing upwards, place the mast assembly on a level workbench capable of supporting it.

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

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

MAST COMPONENTS

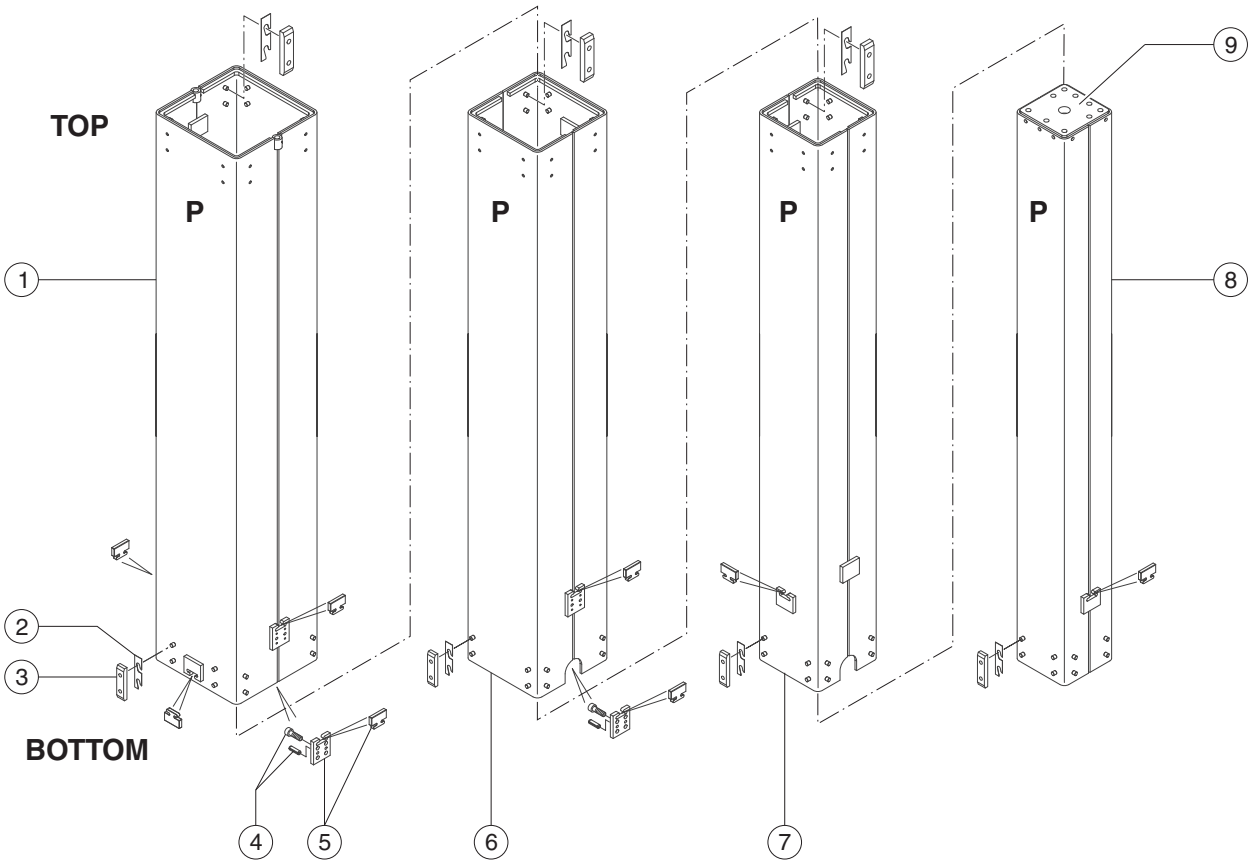


Illustration 1

1 number 1 mast
2 shims
3 wear pads
4 fasteners
5 stops
6 number 2 mast
7 number 3 mast
8 number 4 mast
9 cover plate

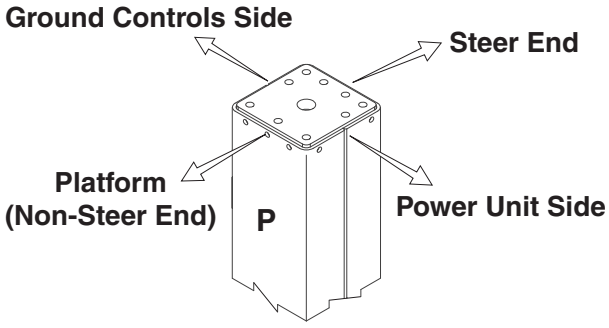


Illustration 2

How to Disassemble the Mast, GR-26J

⚠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 assembly. See 4-1, *How to Remove the Mast Assembly.*

2 With the 'P' mark facing upwards, use a clamp to secure the mast assembly to the workbench. Securely tighten the clamp. Do not over tighten.

3 Working from the top of the mast assembly, pull the number 2, 3 and 4 mast sections approximately 12 inches / 30 cm. Out of mast 1, use a permanent marker to indicate the face closest to the platform with the 'P' mark on the number 2, 3 and 4 mast sections corresponding to the 'P' mark on mast 1. Refer to Illustration 3.

4 Working from the top of the mast assembly, push the number 2, 3 and 4 mast sections fully into the number 1 mast.

5 Remove the fasteners securing the safety steel plate to the mast assembly. Remove the safety steel plate. Set the fasteners and safety steel plate to the side.

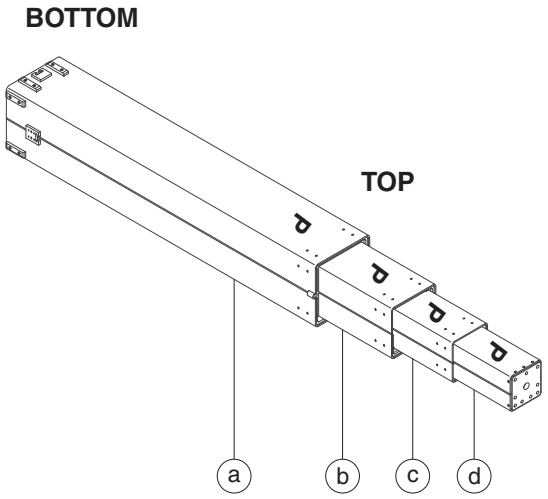


Illustration 3

a number 1 mast
b number 2 mast
c number 3 mast
d number 4 mast

6 Working from the bottom of the mast assembly, pull the number 4 mast half way out.

7 Attach a lifting strap from an overhead crane to the number 4 mast section. Remove the number 4 mast while carefully pulling it out from the bottom of the number 3 mast. With the 'P' mark facing upwards, place the number 4 mast on a level workbench capable of supporting it.

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

Note: During removal, the overhead crane strap will need to be carefully adjusted for proper balancing.

MAST COMPONENTS

8 Slide the number 2 mast and the number 3 mast towards the top of the number 1 mast to gain the access to the stops at the bottom of the number 1 mast.

9 Remove the fasteners securing stops to the inside of the number 1 mast. Remove the stops. Set the fasteners and stops to the side.

10 Push the number 3 mast fully into the number 2 mast. Working from the bottom of the number 1 mast, pull the number 2 mast and the number 3 mast half way out.

11 Attach a lifting strap from an overhead crane to the number 2 mast section. Remove both the number 2 mast and the number 3 mast while carefully pulling the assembly out from the bottom of the number 1 mast. With the 'P' mark facing upwards, place the number 2 mast and the number 3 mast assembly on a level workbench capable of supporting it.

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

Note: During removal, the overhead crane strap will need to be carefully adjusted for proper balancing.

12 Slide the number 3 mast towards the top of the number 2 mast to gain the access to the stops at the bottom of the number 2 mast.

13 Remove the fasteners securing stops to the inside of the number 2 mast. Remove the stops. Set the fasteners and stops to the side.

14 Working from the bottom of the number 2 mast, pull the number 3 mast half way out.

15 Attach a lifting strap from an overhead crane to the number 3 mast section. Remove the number 3 mast while carefully pulling the it out from the bottom of the number 2 mast. With the 'P' mark facing upwards, place the number 3 mast on a level workbench capable of supporting it.

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

Note: During removal, the overhead crane strap will need to be carefully adjusted for proper balancing.

16 Using Illustration 1 as a guide, tag and remove the outer wear pads and shims from the bottom of the number 4 mast section. Set the shims to the side. Discard the wear pads.

Note: For ease of mast reassembly, make careful note of the location, order and orientation of the shims.

Note: Use a hammer and chisel if necessary to gently loosen the wear pads from the mast.

17 Using Illustration 1 as a guide, carefully tag and remove the outer wear pads and shims from the bottom of the number 3 mast section. Set the shims to the side. Discard the wear pads.

Note: For ease of reassembly of the mast, make careful note of the location, order and orientation of the shims.

Note: Use a hammer and chisel if necessary to gently loosen the wear pads from the mast.

18 Using Illustration 1 as a guide, tag and remove the inner wear pads from the top of the number 3 mast section. Set the shims to the side. Discard the wear pads.

Note: For ease of mast reassembly, make careful note of the location, order and orientation of the shims.

Note: Use a hammer and chisel if necessary to gently loosen the wear pads from the mast.

19 Using Illustration 1 as a guide, tag and remove the outer wear pads and shims from the bottom of the number 2 mast section. Set the shims to the side. Discard the wear pads.

Note: For ease of mast reassembly, make careful note of the location, order and orientation of the shims.

Note: Use a hammer and chisel if necessary to gently loosen the wear pads from the mast.

20 Using Illustration 1 as a guide, tag and remove the inner wear pads from the top of the number 2 mast section. Set the shims to the side. Discard the wear pads.

Note: For ease of mast reassembly, make careful note of the location, order and orientation of the shims.

Note: Use a hammer and chisel if necessary to gently loosen the wear pads from the mast.

21 Using Illustration 1 as a guide, tag and remove the outer wear pads and shims from the bottom of the number 1 mast section. Set the shims to the side. Discard the wear pads.

Note: For ease of mast reassembly, make careful note of the location, order and orientation of the shims.

Note: Use a hammer and chisel if necessary to gently loosen the wear pads from the mast.

22 Using Illustration 1 as a guide, tag and remove the inner wear pads and shims from the top of the number 1 mast section. Set the shims to the side. Discard the wear pads.

Note: For ease of mast reassembly, make careful note of the location, order and orientation of the shims.

Note: Use a hammer and chisel if necessary to gently loosen the wear pads from the mast.

MAST COMPONENTS

How to Assemble the Mast, GR-26J

⚠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 Using Illustration 1 as a guide, install two 10 mm wear pads, and the corresponding shims removed in the mast disassembly process, onto the bottom of mast sections 1, 2, 3 and 4.

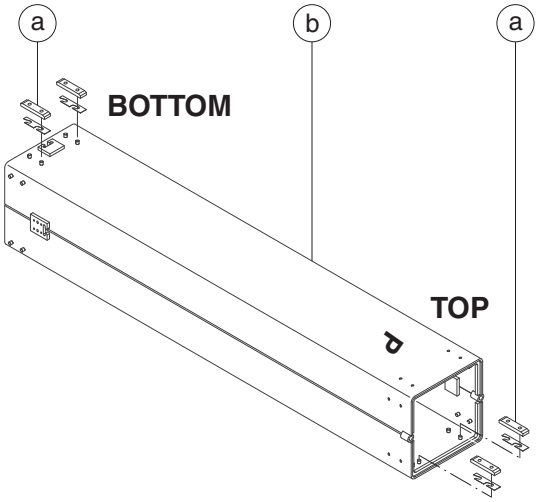


Illustration 1

a wear pad 10 mm
b mast section (mast 1 shown)

2 Install six 12 mm wear pads, and the corresponding shims removed in the mast disassembly process, onto the bottom of mast sections 1, 2, 3 and 4.

3 Using Illustration 1 as a guide, install two 10 mm wear pads, and the corresponding shims removed in the mast disassembly process, onto the top of mast sections 1, 2 and 3.

4 Install six 12 mm wear pads, and the corresponding shims removed in the mast disassembly process, onto the top of mast sections 1, 2 and 3.

5 Using Illustration 2 as a guide, apply grease onto the inner faces of the mast sections 1, 2 and 3.

Grease Specification
RETINAX HDX2 grease, NLGI (lithium based) or equivalent

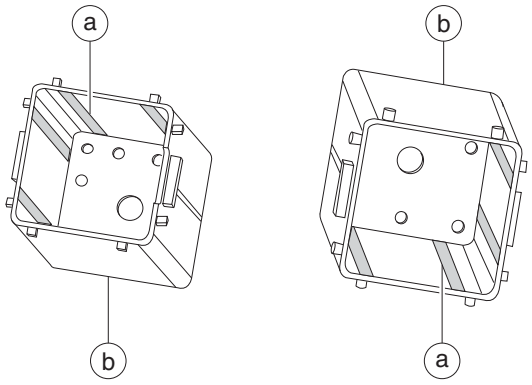


Illustration 2

a grease
b mast section (mast 1 shown)

6 Using Illustration 3 as a guide, apply grease onto the outer faces of the mast sections 1, 2, 3 and 4.

7 Carefully assemble the mast sections using the mast disassembly procedure in reverse order. See 4-1, *How to Disassemble the Mast, GR-26J.*

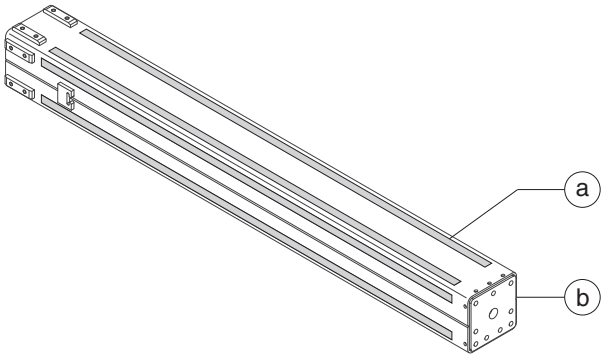


Illustration 3

a grease
b mast section (mast 4 shown)

MAST COMPONENTS

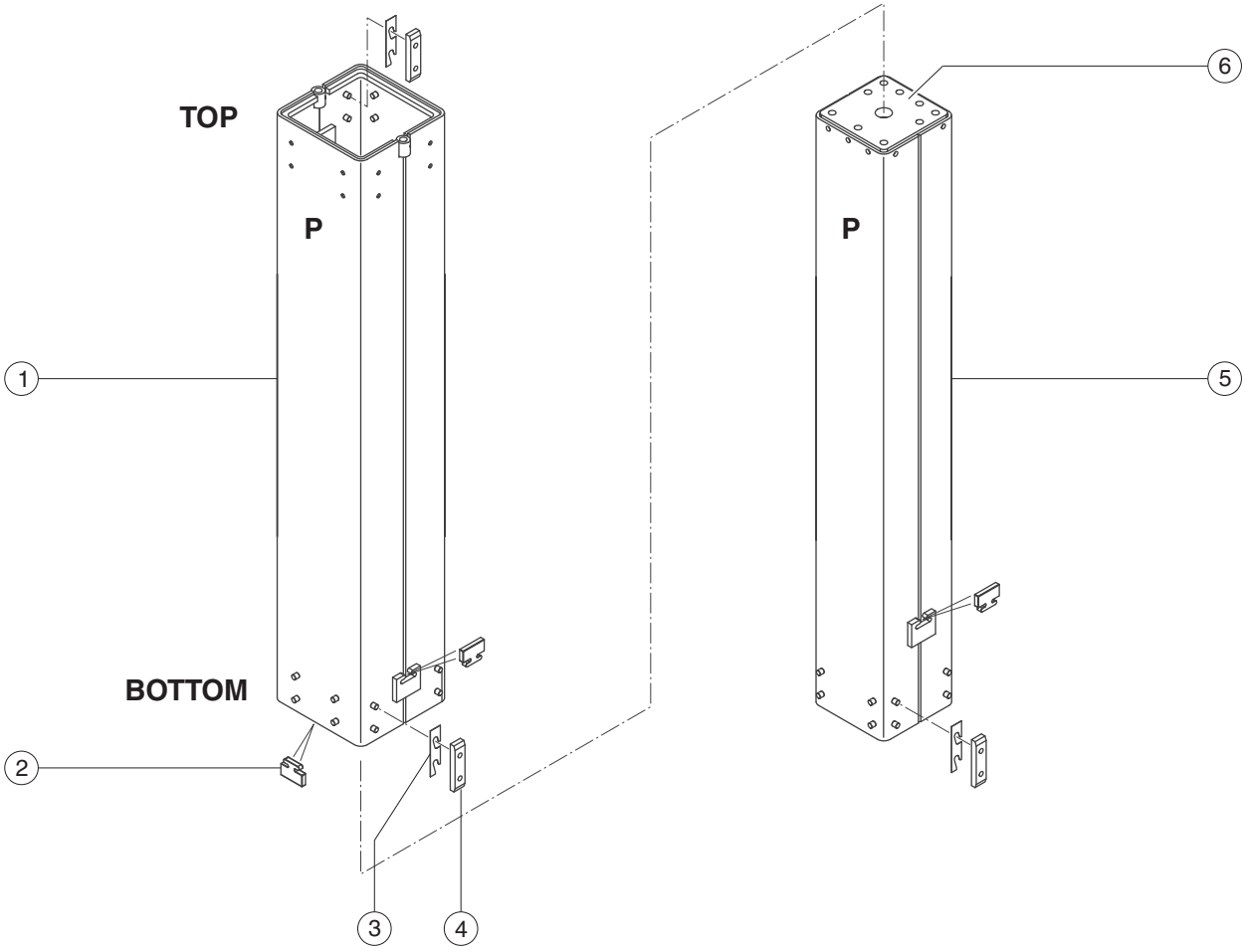


Illustration 1

1 number 1 mast
2 stops
3 shims
4 wear pads
5 number 2 mast
6 cover plate

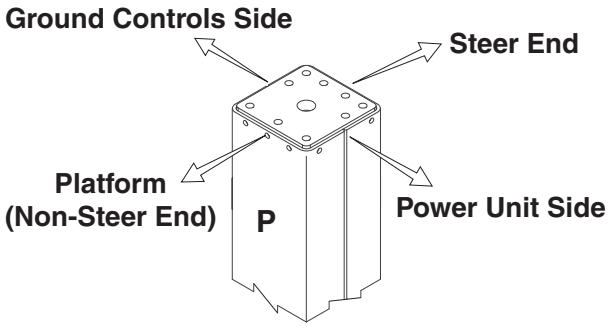


Illustration 2

How to Disassemble the Mast, GR-20J

⚠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 assembly. See 4-1, *How to Remove the Mast Assembly.*

2 With the 'P' mark facing upwards, use a clamp to secure the mast assembly to the workbench. Securely tighten the clamp. Do not over tighten.

3 Working from the top of the mast assembly, pull the number 2 mast section approximately 12 inches / 30 cm. Out of mast 1, use a permanent marker to indicate the face closest to the platform with the 'P' mark on the number 2 mast section corresponding to the 'P' mark on mast 1. Refer to Illustration 3.

4 Remove the fasteners securing the safety steel plate to the mast assembly. Remove the safety steel plate. Set the fasteners and safety steel plate to the side.

5 Remove the fasteners securing stops to the inside of the number 1 mast. Remove the stops. Set the fasteners and stops to the side.

6 Working from the bottom of the number 1 mast, pull the number 2 mast half way out.

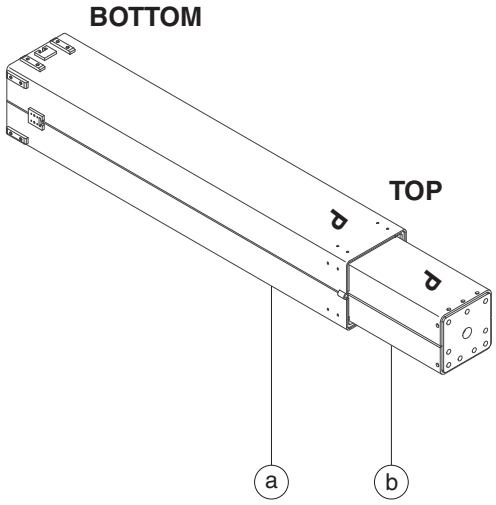


Illustration 3

a number 1 mast
b number 2 mast

7 Attach a lifting strap from an overhead crane to the number 2 mast section. Remove the number 2 mast while carefully pulling the it out from the bottom of the number 1 mast. With the 'P' mark facing upwards, place the number 2 mast on a level workbench capable of supporting it.

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

Note: During removal, the overhead crane strap will need to be carefully adjusted for proper balancing.

MAST COMPONENTS

8 Using Illustration 1 as a guide, tag and remove the outer wear pads and shims from the bottom of the number 2 mast section. Set the shims to the side. Discard the wear pads.

Note: For ease of mast reassembly, make careful note of the location, order and orientation of the shims.

Note: Use a hammer and chisel if necessary to gently loosen the wear pads from the mast.

9 Using Illustration 1 as a guide, tag and remove the outer wear pads and shims from the bottom of the number 1 mast section. Set the shims to the side. Discard the wear pads.

Note: For ease of mast reassembly, make careful note of the location, order and orientation of the shims.

Note: Use a hammer and chisel if necessary to gently loosen the wear pads from the mast.

10 Using Illustration 1 as a guide, tag and remove the inner wear pads and shims from the top of the number 1 mast section. Set the shims to the side. Discard the wear pads.

Note: For ease of mast reassembly, make careful note of the location, order and orientation of the shims.

Note: Use a hammer and chisel if necessary to gently loosen the wear pads from the mast.

How to Assemble the Mast, GR-20J

⚠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 Using Illustration 1 as a guide, install two 10 mm wear pads, and the corresponding shims removed in the mast disassembly process, onto the bottom of mast sections 1 and 2.

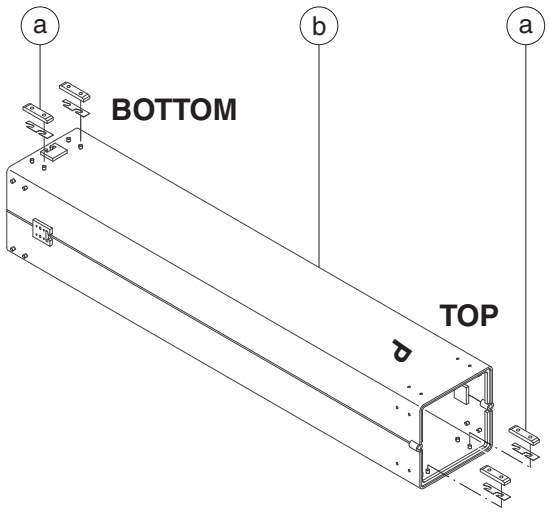


Illustration 1

a wear pad 10 mm
b mast section (mast 1 shown)

2 Install six 12 mm wear pads, and the corresponding shims removed in the mast disassembly process, onto the bottom mast sections 1 and 2.

3 Using Illustration 1 as a guide, install two 10 mm wear pads, and the corresponding shims removed in the mast disassembly process, onto the top of mast section 1.

4 Install six 12 mm wear pads, and the corresponding shims removed in the mast disassembly process, onto the top mast section 1.

5 Using Illustration 2 as a guide, apply the grease onto the inner faces of the mast section 1.

Grease Specification

RETINAX HDX2 grease, NLGI (lithium based) or equivalent

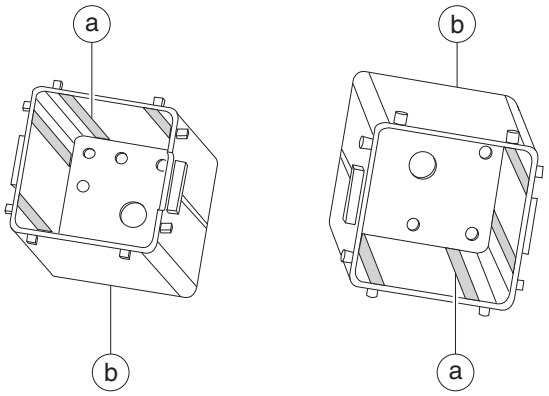


Illustration 2

a grease
b mast section (mast 1 shown)

6 Using Illustration 3 as a guide, apply grease onto the outer faces of the mast sections 1 and 2.

7 Carefully assemble the mast sections using the mast disassembly procedure in reverse order. See 4-1, *How to Disassemble the Mast, GR-20J.*

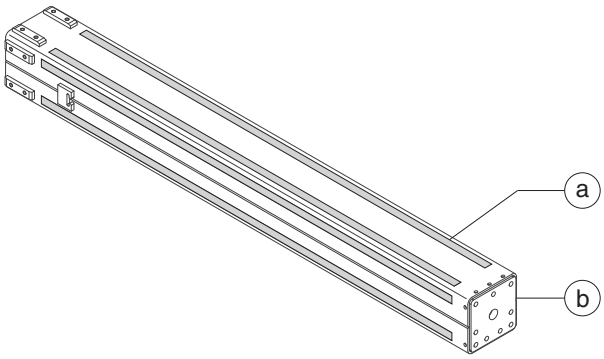


Illustration 3

a grease
b mast section (mast 2 shown)

MAST COMPONENTS

4-2
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.

Note: 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.*

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

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

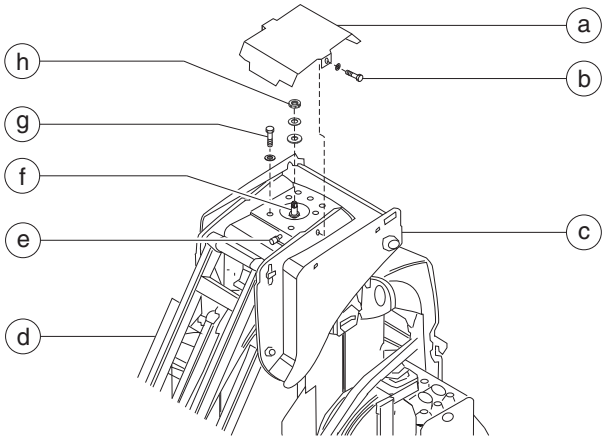
2 Open and remove the turntable covers of the machine.

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

4 Raise the steer end of the machine approximately 10 inches / 25 cm to access the nut at the bottom of the lift cylinder.

5 Place blocks under the chassis for support. Lower the machine onto the blocks.

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



a mast head cover
b mast head cover fasteners
c mast head
d jib boom
e proximity sensor
f lift cylinder
g mast head fasteners
h lift cylinder fasteners

6 Remove the nut securing the bottom of the lift cylinder to the chassis. Set it to the side.

7 Raise the machine slightly. Remove the blocks from under the chassis and lower the machine onto the ground. Remove the jack.

8 Remove the fasteners securing the mast head cover to the mast. Remove the mast head cover. Set the mast head cover and fasteners to the side.

9 Tag and disconnect the proximity sensor. Lay the proximity sensor to the side.

10 Tag, disconnect and plug the hydraulic hose at the top of the lift cylinder. Remove the hose connector from the lift cylinder. Plug the lift 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.

11 Attach a lifting strap of suitable capacity from an overhead crane to the mast head, jib boom and platform assembly. Support the assembly. Do not apply any lifting pressure.

NOTICE Component damage hazard. The platform railings can be damaged if they are used to lift the assembly. Do not attach the lifting strap to the platform railings or put pressure on the railings.

12 Remove the fasteners securing the mast head to the mast assembly. Set the fasteners to the side.

13 Raise the mast head, jib boom and platform assembly and move the assembly approximately 20 inches / 50 cm towards the non-steer end of the machine.

⚠WARNING Crushing hazard. The mast head, jib boom and platform assembly could become unbalanced and fall when removed from the machine.

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

Note: During removal the mast head, jib boom and platform assembly, the overhead crane strap will need to be carefully adjusted for proper balancing.

14 Remove the fasteners securing the lift cylinder to the mast head. Set the fasteners to the side.

15 Attach a lifting strap from an overhead crane to the lift cylinder.

16 Carefully remove the lift cylinder from the machine.

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

NOTICE Component damage hazard. The lift cylinder can be damaged if it falls.

Ground Controls

5-1
Level Sensor

The tilt alarm sounds when the incline of the chassis exceeds 2° to the side, front or 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.

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

1 Open the turntable cover at the ground control side of the machine.

2 Locate the level sensor which is mounted on the turntable base below the battery charger.

3 Tag and disconnect the level sensor pigtail from the machine wire harness.

4 After noting the orientation of level sensor assembly, remove the fasteners securing the base of level sensor assembly to the chassis.

5 Install the new level sensor onto the machine. Install and securely tighten the fasteners. Do not over tighten.

6 Securely install the level sensor pigtail into the machine wire harness, disconnected in step 3.

7 Remove the plastic cap from the end of the level sensor calibration wire.

8 Using a length of wire approximately 40 inches / 1 m long, connect the level sensor calibration wire to the negative post of the battery.

⊙ Result: The green LED underneath the level sensor flashes several times and stops. The level sensor calibration is complete.

⊠ Result: The green LED underneath the level sensor does not flash. Check the calibration wire connection. Contact Genie Industries Service Department.

Note: The green LED is on during normal machine operation and it only goes out when the tilt angle of the machine exceeds 2°.

9 After the green LED stops flashing, disconnect the calibration wire from the battery, and securely install the plastic cap removed in step 7.

Hydraulic Pump

6-1 Function Pump

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

How to Test the Function Pump

See 7-2, *How to Adjust the System Relief Valve.*

How to Remove the Function Pump

Note: 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.*

Note: Perform this procedure with the machine in stowed position.

1 Disconnect the battery pack from the machine.

2 Open and remove the turntable cover at the hydraulic power unit side of the machine.

3 Tag and disconnect the wire harness connectors from the function manifold.

4 Tag and disconnect the cables from the motor.

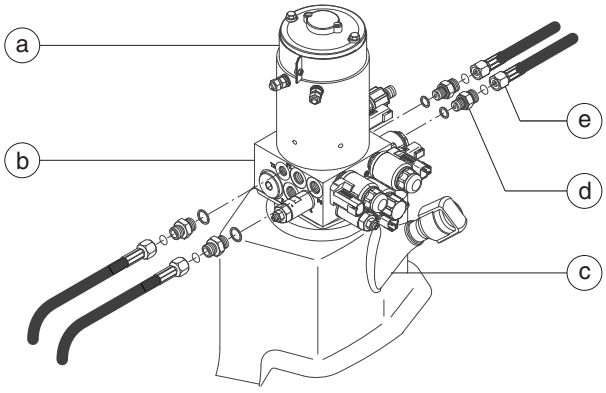


Illustration 1

a motor
b function manifold
c hydraulic tank
d connector fittings
e hydraulic hoses

HYDRAULIC PUMP

5 Tag, disconnect and plug the hydraulic hoses at the function manifold. Cap the fittings on the manifold.

⚠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 fasteners securing the function manifold to the hydraulic tank. Set the fasteners to the side.

7 Loosen the clamp securing the hydraulic power unit to the hydraulic tank. Do not remove the clamp.

8 Remove the clamp securing the hydraulic power unit to the chassis. Set the clamp to the side.

9 Carefully remove the hydraulic power unit from the tank and place it on a clean work bench.

Note: If necessary, loosen the bottom connector of auxiliary pump to more easily remove the hydraulic power unit.

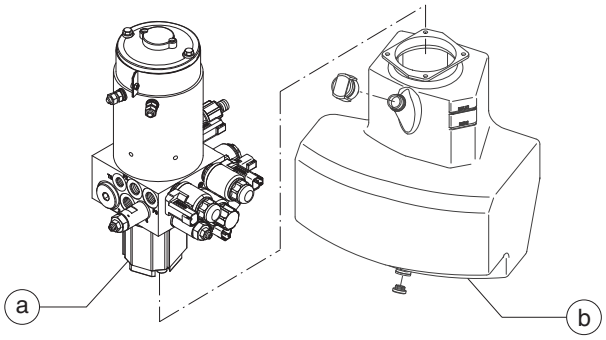


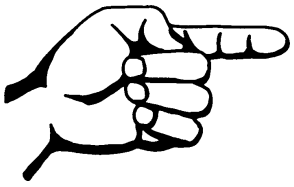
Illustration 2

a function pump
b hydraulic tank

10 Remove the fasteners securing the function pump to the function manifold. Set the fasteners to the side.

11 Carefully remove the function pump from the hydraulic power unit.

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



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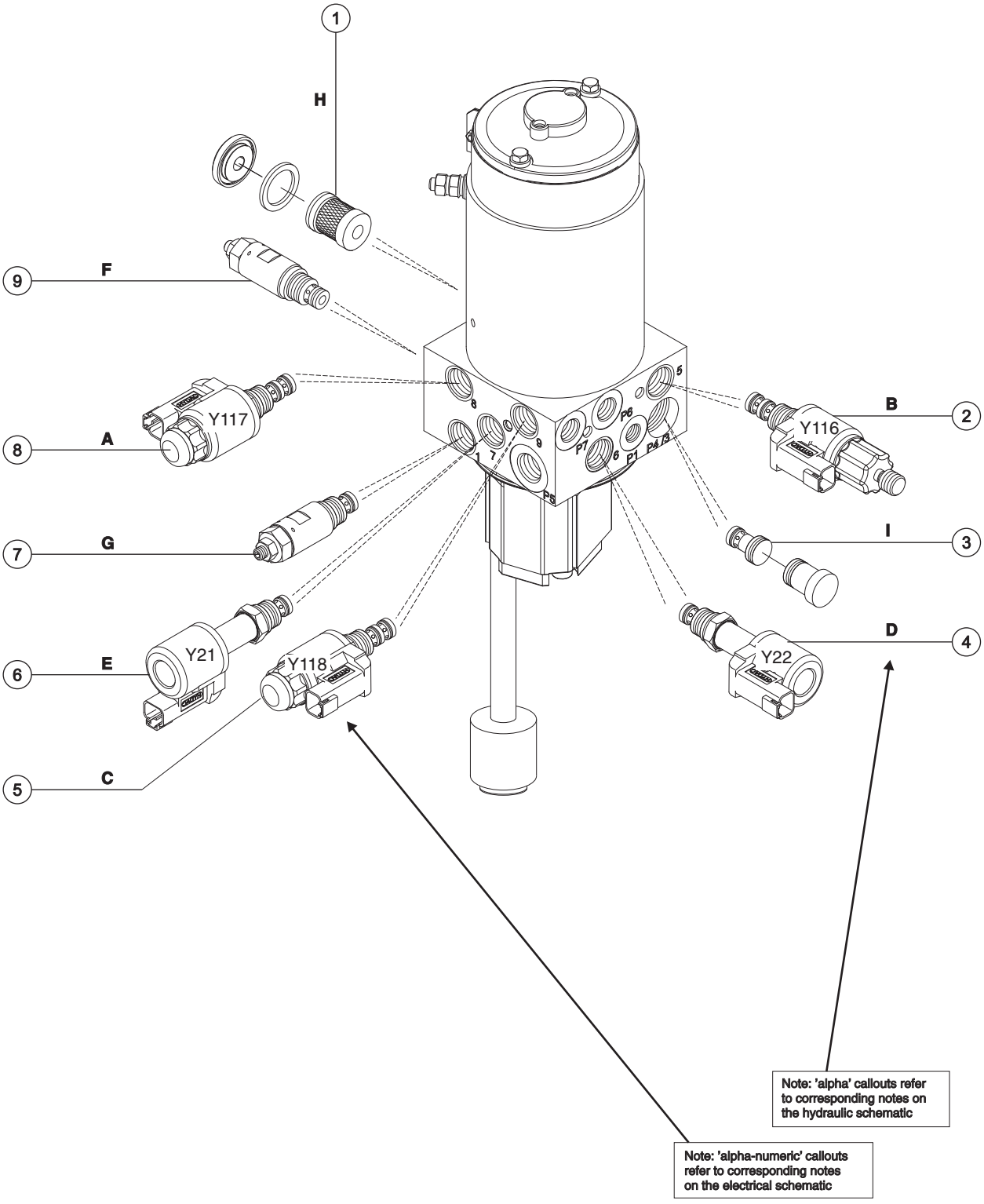
Function Manifold

7-1
Function Manifold Components

The function manifold is mounted underneath the hydraulic power unit.

Index No.	Description	Schematic Item	Function	Torque
1	Filter, Filter cap	H	Suction filter	37 ft-lbs / 50 Nm
2	Solenoid valve, 2 position 4 way	B	Steer/Turntable directional	18 ft-lbs / 25 Nm
3	Check valve	I	Blocks flow from auxiliary pump to function pump	29 ft-lbs / 40 Nm
4	Solenoid valve, 2 position 2 way	D	Platform up	18 ft-lbs / 25 Nm
5	Solenoid valve, 2 position 4 way	C	Turntable rotate left/right	18 ft-lbs / 25 Nm
6	Solenoid valve, 2 position 2 way	E	Platform down and jib down	18 ft-lbs / 25 Nm
7	Relief valve, 930 psi / 64 bar	G	Platform up	18 ft-lbs / 25 Nm
8	Solenoid valve, 2 position 4 way	A	Steer left/right	18 ft-lbs / 25 Nm
9	Relief valve, 2030 psi / 140 bar	F	System relief	18 ft-lbs / 25 Nm

FUNCTION MANIFOLD



FUNCTION MANIFOLD

7-2 Valve Adjustments - Function Manifold

How to Adjust the System Relief Valve

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

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

2 Open the turntable cover at the hydraulic power unit side of the machine.

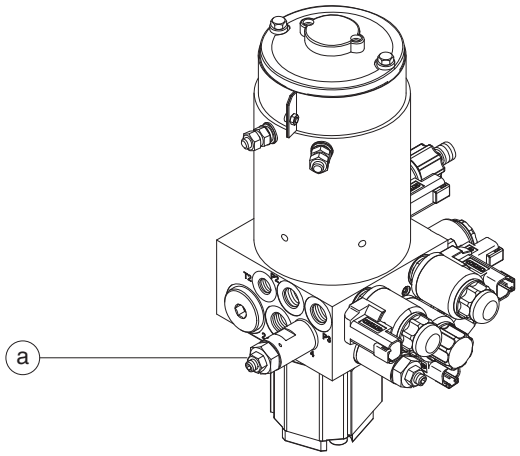
3 Remove the fasteners securing the function manifold to the hydraulic tank. Set the fasteners to the side.

4 Loosen the clamp securing the hydraulic power unit to the hydraulic tank. Do not remove the clamp.

5 Remove the clamp securing the hydraulic power unit to the chassis. Set the clamp to the side.

6 Rotate the function manifold and locate the system relief valve on the function manifold (schematic item F).

7 Connect a 0 to 2500 psi / 0 to 175 bar pressure gauge to the test port on the hydraulic hose reel.



a system relief valve

8 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

9 At the ground controls, press and hold the function enable button.

10 Press and hold the jib function button to fully raise the jib boom, then continue to activate the jib lift function while observing the pressure reading on the pressure gauge. Note the pressure. Refer to Section 2, *Specifications*.

11 Turn the key switch to the off position.

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

13 Adjust the internal hex socket. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure. Install the relief valve cap.

⚠ 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.

14 Turn the key switch to the ground controls.

15 Repeat this procedure, beginning with step 8, to confirm the system relief valve pressure.

16 Turn the key switch to the off position.

17 Install and tighten the fasteners securing the function manifold to the hydraulic tank.

18 Install and securely tighten the hydraulic power unit clamps. Do not over tighten.

FUNCTION MANIFOLD

How to Adjust the Platform Lift Relief Valve

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

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

2 Using a suitable lifting device, place a 660 lbs / 300 Kg test weight in the center of the platform. Secure the weight to the platform.

3 Locate the lift relief valve on the function manifold (schematic item G).

4 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

5 Press and hold the function enable button.

6 Press and hold the lift function button and raise the platform approximately 12 inches / 30 cm.

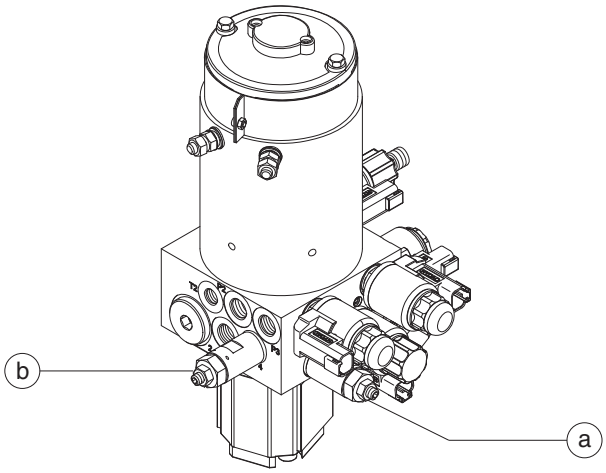
⊙ Result: The platform should lift the weight. Proceed to step 12.

⊠ Result: The platform does not lift the weight. Proceed to step 7.

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

7 Turn the key switch to the off position.

8 Hold the lift relief valve with a wrench and remove the cap (schematic item G).



a lift relief valve
b system relief valve

9 Adjust the internal hex socket. Turn it clockwise to increase the pressure. Install the relief valve cap.

10 Turn the key switch to ground control.

11 Repeat the procedure beginning with step 5.

12 Lower the platform to the stowed position.

13 Turn the key switch to the off position.

14 Adjust the internal hex socket. Turn it counterclockwise to decrease the pressure just until the platform will not lift the weight. Install the relief valve cap.

15 Turn the key switch to the ground control.

16 Activate the platform up function and attempt to raise the platform.

⊙ Result: The platform does not lift the weight. Proceed to step 18.

⊠ Result: The platform lifts the weight. Proceed to step 12.

17 Turn the key switch to the off position and remove the weight from the platform.

Hydraulic Tank

8-1 Hydraulic Tank

The primary functions of the hydraulic tank are to cool and deaerate the hydraulic fluid during operation.

How to Remove the Hydraulic Tank

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

Note: Perform this procedure with the machine in stowed position.

1 Disconnect the battery pack from the machine.

2 Open and remove the turntable cover at the hydraulic power unit side of the machine.

3 Working next to the hydraulic tank, remove the fasteners securing the chassis side cover to the chassis. Remove the side cover. Lay the side cover and fasteners to the side.

4 Tag and disconnect the wire harness connectors from the function manifold.

5 Tag and disconnect the cables from the motor.

6 Tag, disconnect and plug the hydraulic hoses at the function manifold. Cap the fittings on the manifold.

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

7 Place a suitable container under the hydraulic tank. Refer to Section 2, *Specifications.*

8 Locate and remove the hydraulic tank filler cap. Set the filler cap to the side.

9 Remove the drain plug and drain all of the oil into a suitable container.

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

11 Install the drain plug onto the hydraulic tank and tighten to finger tight.

12 Install the filler cap onto the hydraulic tank and tighten to finger tight.

13 Remove the clamp securing the hydraulic power unit to the chassis. Set the clamp to the side.

14 Carefully remove the hydraulic tank along with hydraulic power unit from the machine and place it on a clean work bench.

15 Remove the fasteners securing the function manifold to the hydraulic tank. Set the fasteners to the side.

16 Remove the clamp securing the hydraulic power unit to the hydraulic tank. Set the clamp to the side.

17 Remove the hydraulic power unit from the hydraulic tank.

Torque specifications	
Hydraulic oil reservoir drain plug	44 in-lbs 5 Nm
Manifold to tank fasteners	40 in-lbs 4.5 Nm

Turntable Components

9-1
Turntable Rotation Motor

How to Remove the Turntable Rotation Motor

Note: 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.*

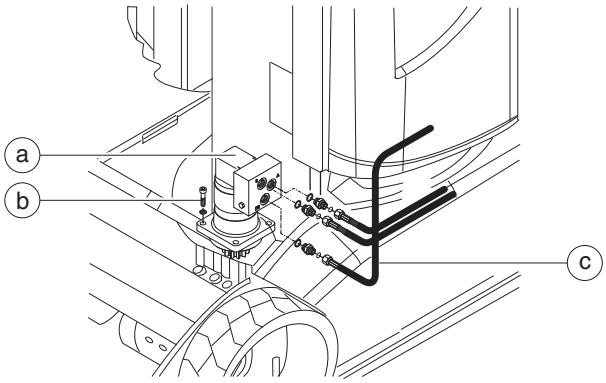
⚠WARNING Bodily injury hazard. This procedure requires specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is strongly recommended.

1 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Raise the jib boom to the maximum height.

3 Turn the key switch to off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.



a turntable rotation motor
b fasteners
c hydraulic hoses

4 Remove the fasteners securing the rear chassis cover to the chassis at the non-steer end of the machine. Remove the chassis cover. Lay the cover and fasteners to the side.

5 Remove the fasteners securing the side covers to the chassis. Remove the side covers from the machine. Lay the side covers and fasteners to the side.

6 Remove the fasteners securing the turntable motor protection plate to the chassis. Remove the protection plate from the machine. Lay the protection plate and fasteners to the side.

Note: The turntable motor protection plate is located above the turntable rotation motor.

7 Tag, disconnect and plug the hydraulic hoses at the turntable rotation motor. Cap the fittings.

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

8 Remove fasteners securing the turntable rotation motor to the chassis. Set the fasteners to the side.

9 Carefully remove the turntable rotation motor from the machine.

⚠CAUTION Bodily injury hazard. The turntable rotation motor may fall if not properly supported when removed from the machine.

TURNTABLE COMPONENTS

9-2 Battery

How to Remove the Battery

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

⚠WARNING Bodily injury hazard. Batteries contain acid. Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.

Note: Perform this procedure with the machine in stowed position.

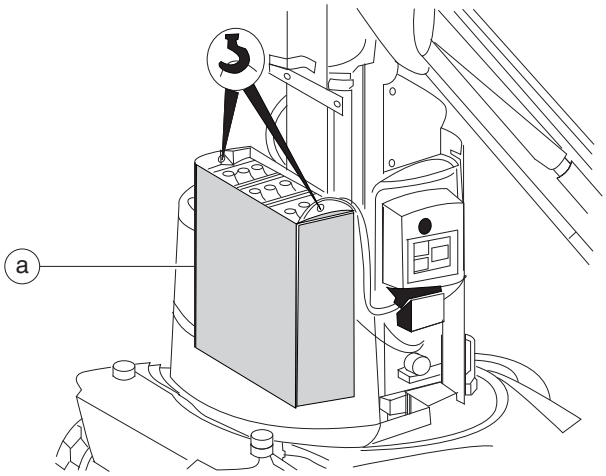
1 Turn the key switch to off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.

2 Open and remove the turntable covers.

3 Tag and disconnect the cables connected to the ground terminal of the battery.

4 Tag and disconnect the cables connected to the positive terminal of the battery.

5 Locate the bolts between the battery pack and the counterweight. Loosen the bolts holding the battery pack in position.



a battery

6 Attach a lifting strap from an overhead 1100 lbs / 500 Kg crane to the battery pack.

7 Carefully remove the battery pack from the machine.

⚠WARNING Crushing hazard. The battery pack could become unbalanced and fall if not properly supported.

NOTICE Component damage hazard. The battery pack can be damaged if it falls.

9-3
Battery Charger

How to Remove the Battery Charger

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

1 Turn the key switch to off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.

2 Open and remove the turntable cover at the ground control side of the machine.

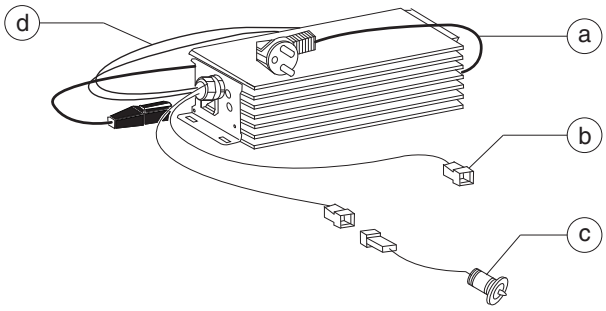
3 Tag and disconnect the cables connected to the ground terminal of the battery.

4 Tag and disconnect the black and red battery charger wires from the battery.

5 Tag and disconnect the power cable from the battery charger.

6 Locate the LED at the bottom of the bulkhead. Tag and disconnect the LED wire harness connector.

7 Tag and disconnect the charger cutout harness connector.



a power cable
b charger cutout harness connector
c LED
d charger-to-battery wires

8 Locate and remove the nut holding the ground control box closed, and open the ground control box.

9 Remove the fasteners securing the top of the battery charger to the machine. Set the fasteners to the side.

10 Close the ground control box and install the nut.

11 Remove the fasteners securing the bottom of the battery charger to the machine. Set the fasteners to the side.

12 Lower the battery charger towards the tilt sensor, and remove the battery charger from the machine.

Steer Axle Components

10-1
Yoke

How to Remove the Yoke

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

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

2 Loosen the bolts of the wheel at the steer end of the machine. Do not remove the bolts.

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

4 Raise the machine approximately 6 inches / 15 cm. Place blocks under the chassis for support. Lower the chassis onto blocks.

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

5 Remove the bolts from the wheel at the steer end of the machine. Remove the wheel from the machine.

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

7 Remove the top cir-clip from the pin at the steering rod.

8 Remove the plastic cap above the yoke pivot shaft. Set the cap to the side.

9 **Ground control side:** Remove the steer sensor from the yoke pivot.

10 Remove the retaining fasteners from the yoke pivot shaft. Set the fasteners to the side.

11 Remove the yoke assembly from the machine.

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

10-2
Steer Cylinder

How to Remove the Steer Cylinder

Note: 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 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

2 Turn the wheels at the steer end of the machine, 20° to 25° to the right.

3 Turn the key switch to off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.

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

5 Remove the pin retaining fasteners from the top of the steer cylinder barrel-end pivot pin.

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

7 Raise the machine approximately 6 inches / 15 cm. Place blocks under the chassis for support.

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

8 Turn the wheels at the steer end of the machine fully to the left.

9 Tag, disconnect and plug the steer 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.

10 Remove the pin retaining fasteners from the steer cylinder rod-end pivot pin. Set the washers to the side. Discard the cotter pin.

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

11 Carefully remove the steer cylinder from the machine.

STEER AXLE COMPONENTS

10-3 Steering Rod

How to Remove the Steering Rod

1 Remove the steer cylinder. See 10-2, *How to Remove the Steer Cylinder.*

2 Remove the top cir-clips securing the steering rod to the steer yoke at both the ends of the steering rod.

3 Lift the steering rod up and off of the yoke, and remove the steering rod from the machine.

10-4 Steer Angle Sensor

How to Replace the Steer Angle Sensor

1 Adjust the wheels at the steer end of the machine so they are in straight driving position.

2 Turn the key switch to off position and push in the red Emergency Stop button to the off position at both the ground and platform controls.

3 Tag and disconnect the steer angle sensor wire harness from the machine wire harness.

4 Remove the plastic cap above the steer yoke pivot. Set the cap to the side.

5 Carefully remove the sensor activator pin from the steer yoke pivot. Set the pin to the side.

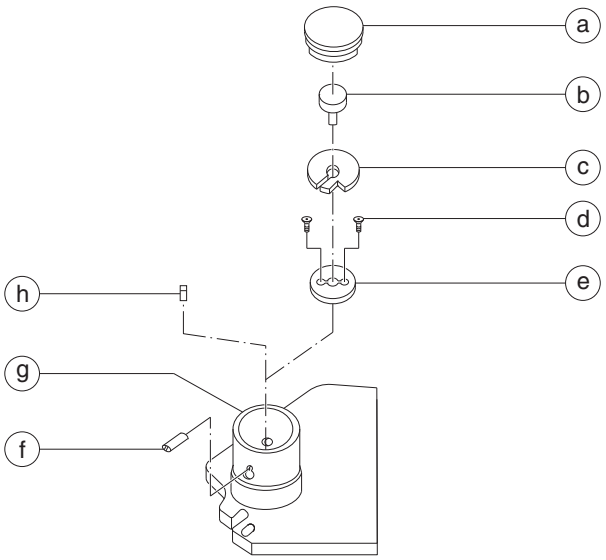
Note: Inspect the sensor activator pin to confirm it is not broken or twisted. If the sensor activator pin is broken or twisted, it must be replaced. Note the installation and orientation of the old sensor to be sure the new one is installed correctly.

6 Remove the steer angle sensor retaining fasteners. Remove the steer angle sensor assembly.

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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

8 Using the illustration as a guide, mount the potentiometer on to the plate and securely tighten with the nut.



a steer yoke pivot cap
b potentiometer
c potentiometer mounting plate
d fasteners
e bottom plate
f sensor activator pin
g chassis
h screw

9 With a multimeter set to read 4K±0.2 ohms, connect the leads to the green and black wires of the potentiometer.

10 Adjust the potentiometer until a reading of 4K±0.2 ohms is obtained.

11 Install the bottom plate and it's fasteners on the steer yoke pivot.

12 Install the sensor activator pin on to the steer yoke pivot.

Note: Be sure the sensor activator pin is engaged into the sensor.

13 Install the plate along with potentiometer on the steer yoke pivot and securely tighten the potentiometer stem with the screw. Do not over tighten.

14 Install the plastic cap on to the steer yoke pivot.

15 Connect the steer angle sensor wire harness to the machine wire harness.

16 Calibrate the steer sensor. See 1-2, *Controller Adjustments* for How to Calibrate the Steer Sensor.

Non-steer Axle Components

11-1
Drive Motors

How to Remove the Drive Motors

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

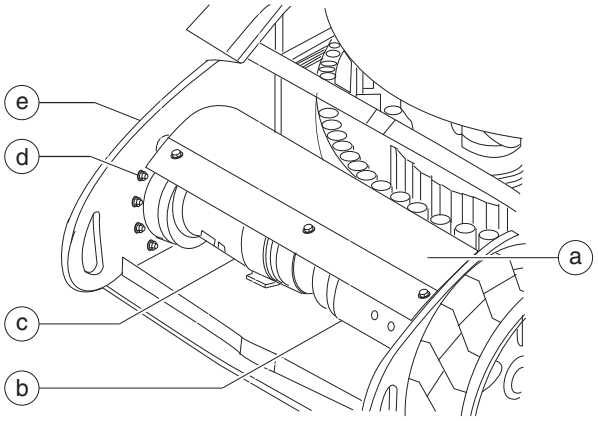
2 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

3 Raise the jib boom to the maximum height.

4 Turn the key switch to off position and push in the red Emergency Stop button to the off position at the ground control.

5 Open the turntable cover at the ground control side of the machine.



a cable guard
b right drive motor assembly
c left drive motor assembly
d fasteners
e chassis

6 Tag and disconnect the cables from the ground terminal of the battery.

7 Remove the fasteners securing the rear chassis cover to the chassis at the non-steer end of the machine. Remove the chassis cover. Lay the cover and fasteners to the side.

8 Tag and disconnect the two wire harness connectors at the steel bar above the drive motors.

9 Remove the fasteners securing the steel bar to the chassis. Set the fasteners to the side.

10 Turn over the steel bar and cut the zip ties attaching the two wire harness connectors to the steel bar. Lay the steel bar to the side.

11 Tag and disconnect the cables from the drive motor assembly.

12 Loosen the castle nut of the wheel at the non-steer end of the machine. Do not remove the castle nut.

Note: To remove the right drive motor assembly, first it is necessary to remove the left drive motor assembly.

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

14 Raise the machine approximately 6 inches / 15 cm. Place blocks under the chassis for support. Lower the chassis onto the blocks.

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

15 Remove the castle nut from the wheel at the non-steer end of the machine. Remove the wheel from the machine.

Note: A properly sized puller may be needed to remove the wheel from the tapered shaft.

16 Place a 2 x 4 x 6 inch / 5 x 10 x 15 cm long wood block under the left drive motor.

Note: The wood block will support to the drive motor assembly when the fasteners are removed.

17 Remove the fasteners securing the left drive motor assembly to the chassis. Set the fasteners to the side.

18 Carefully remove the left drive motor assembly from the machine. Place it onto a suitable workbench capable of supporting it.

⚠CAUTION Bodily injury hazard. The drive motor assembly may fall if not properly supported when removed from the machine.

NON-STEER AXLE COMPONENTS

11-2
Drive Brake

How to Remove the Drive Brake

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

2 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.

Note: Rotate the red Emergency Stop button at platform control one quarter turn in a clockwise direction to restore the power supply. The red Emergency Stop button returns automatically to the out, or on position.

3 Raise the jib boom to the maximum height.

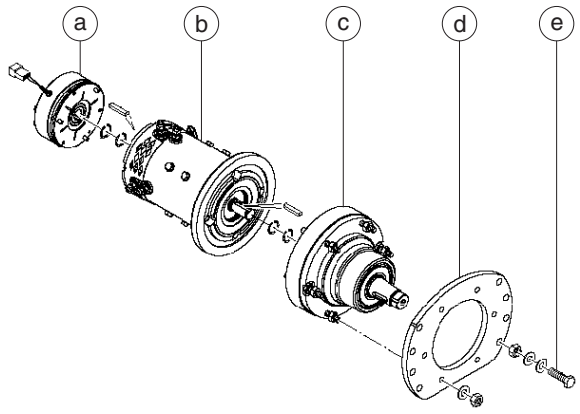
4 Turn the key switch to off position and push in the red Emergency Stop button to the off position at the ground control.

5 Open the turntable cover at the ground control side of the machine.

6 Tag and disconnect the cables from the ground terminal of the battery.

7 Remove the fasteners securing the rear chassis cover to the chassis at the non-steer end of the machine. Remove the chassis cover. Lay the cover and fasteners to the side.

8 Tag and disconnect the two wire harness connectors at the steel bar.



a drive brake
b drive motor assembly
c speed reducer assembly
d mounting plate
e fasteners

9 Remove the fasteners securing the steel bar to the chassis. Set the fasteners to the side.

10 Turn over the steel bar and cut the zip ties attaching the two wire harness connectors to the steel bar. Lay the steel bar to the side.

11 Remove the fasteners securing the drive brake to the drive motor assembly. Set the fasteners to the side.

12 Carefully remove the drive brake from the drive motor assembly.

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

Fault Codes

Observe and Obey:

- ☑ Troubleshooting and repair procedures shall be completed by a person trained and qualified on the repair of this machine.
- ☑ Immediately tag and remove from service a damaged or malfunctioning machine.
- ☑ Repair any machine damage or malfunction before operating the machine.
- ☑ Unless otherwise specified, perform each repair procedure with the machine in the following configuration:
  - Machine parked on a firm, level surface
  - Platform in the stowed position
  - Key switch in the off position with the key removed
  - The red Emergency Stop button in the off position at both ground and platform controls
  - Wheels chocked
  - All external AC power supply disconnected from the machine

Before Troubleshooting:

- ☑ Read, understand and obey the safety rules and operating instructions in the appropriate operator's manual on your machine.
- ☑ Be sure that all necessary tools and test equipment are available and ready for use.
- ☑ Be aware of the following hazards and follow generally accepted safe workshop practices.

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

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

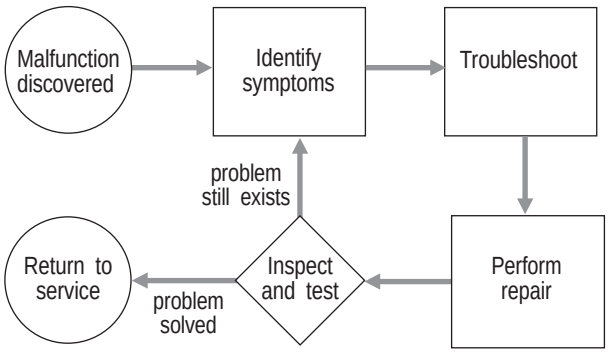
⚠WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

FAULT CODES

About This Section

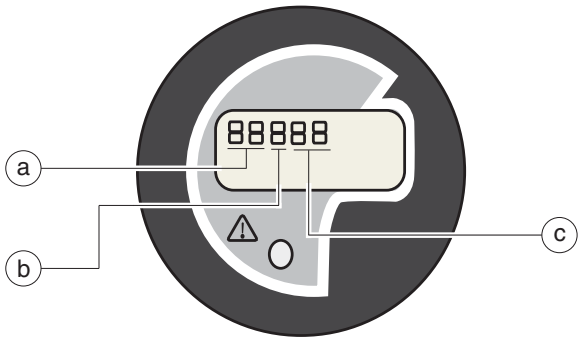
When a malfunction is discovered, the fault code chart in this section will help a service professional pinpoint the cause of the problem. To use this section, basic hand tools and certain pieces of test equipment are required—voltmeter, ohmmeter, pressure gauges.

General Repair Process



LED Diagnostic Readout

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



a **Error Source:** First two digits indicates the affected machine area or component.

- '01' Controller interface board
- '02' Controller logic board
- '08' Platform controls circuit board
- '16' Diagnostic display

b Third digit always an alphabet "A" when fault code is displayed.

c **Error Type:** Last two digits indicates the fault number.

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

Fault Code Chart

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
01	**Controller interface board**	02	Logic fault #1	The base board is waiting for the controller to complete its internal test.	This alarm may appear from time to time upon starting. Any initialization delay can cause this alarm to appear. If the alarm appears too often or if it is permanent, there is an internal error. Check the current software version or replace the controller.
		03	Valv. Drv. off line	The internal device which controls all the auxiliary outputs has a problem and is not communicating correctly with the microcontroller.	Replace the controller.
		04	Output mismatch overcharge	This alarm is due to a disparity between the operating states detected by the two computers. The controller has asked the base board to activate the output for the drive or the pump but the interface does not identify a command or an operating state where the drive or pump must be allowed.	Check whether the software versions installed on the two consoles are correct. If so, there must be an internal fault.
		05	EEPROM	There is a fault in the management/verification of the internal EEPROM.	It is an internal fault. Replace the controller. The platform can still function but the controller will use default values for the internal parameters.
		06	Wrong RAM memory	The algorithm used to verify the main memory is working with erroneous data.	Try to break the contact. If the alarm is still present, replace the controller.
		10	Flash check	Incorrect software downloaded or the Flash memory is corrupted.	Check the installed software version or replace the controller.
		15	Analog input	There is a fault in the A/D converter of the micro-controller.	Replace the controller.

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
01	**Controller interface board**	19	Serial error #1	The controller has not responded to the request from the base board as expected.	Replace the controller.
		32	Logic failure #1	Under-voltage or over-voltage has been detected.	If the fault occurs on starting or during an alarm, the fault is most likely to be linked to an under-voltage. Check whether the main voltage SI is stable. If the fault occurs on acceleration of the motor or activation of the pump, the fault may be due to under-voltage. Check the charge and the battery connections. If the fault is detected during braking, the fault may be due to over-voltage: Check the battery voltage during braking. In any other case, the fault may be due to an internal fault of the controller then replace it. Check whether there is contact or low impedance between pin A12 and the battery. Otherwise the circuit is damaged.
		33	Eb. Drv. Shorted	The electric cable of the brake is in short-circuit.	Check whether there is a short circuit or low impedance between pin A10 and the battery.
		34	Driver shorted	The main conductor of the driver is short-circuited.	Check whether there is a short circuit in parallel with the brake solenoid valve coil. Otherwise the conductor circuit is damaged and the controller must be replaced.
		36	Emergency button wire	Excitation wire on emergency button is disconnected.	Repair wire on the emergency button.
		37	Eb. Drv. / coil fail	The electric circuit of the break is open.	Replace the controller.
		40	Mc enable short.	The EB coil can not activate.	Replace the controller.
		41	Eb. enable short	The power contactor is short-circuited.	Check the wiring or change the controller.

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
01	**Controller interface board**	50	Multi selection	The electric brake is short-circuited. Several movements activated simultaneously.	Check the conformity of the control selectors.
		51	Plat. double required	The controller receives several commands simultaneously from the platform controls circuit board.	Check the wiring or change the controller.
		52	GND double required	The controller receives several commands simultaneously from the platform controls circuit board.	Check the wiring or change the controller.
		53	Tilted	Tilt triggers audible warning beep.	Check the conformity of the tilt sensor and its connection or change the controller.
		54	Overload HBT	Overload of HBT2 and HBT1 signals Overload incoherence.	Check the condition of the overload sensors or change the controller.
		55	Overcharge	Overload fault.	Check the condition of the overload sensors or change the controller.
		56	Battery low	Low battery voltage.	If the alarm is triggered when the battery is fully charged, change the controller.
		57	No CAN signal	The interface board has not received the CAN signal.	Check the BUSCAN connection between the modules or change the controller.
		58	No alarm on the console	There is a large disparity between the hour counter stored in the diagnostic display and the hour counter stored in the controller. The maximum acceptable difference is 10 hours. If it is greater, this alarm will appear.	After two minutes, the hour counter of the controller will automatically find the diagnostic display.
		59	Temperature of pump high	The temperature sensor of the pump has detected a high temperature.	The alarm should disappear as soon as the pump motor cools down. If this does not happen, there is a problem with the connection of terminal A16 or the temperature sensor.

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
01	**Controller interface board**	61	Joystick	Joystick is pushed when machine is switching on.	Repair or replace the joystick.
		62	Short-circuit on function switches	The function switch has been closed for more than 2.5 seconds.	It should be possible to stop the alarm by stopping the main contactor or via the emergency stop. If the problem persists, check the wiring connection. If there is no problem, the alarm is due to an internal fault.
		63	Battery out of adjustment	The battery parameter differs by more than 20% from the nominal battery voltage.	Check the battery type parameter.
		64	Charge in progress	The platform has been started up with the battery charger in operation.	If the alarm appears with the charger disconnected from the mains, there may be a problem with the connection of terminal A17. Otherwise, it is an internal fault of the controller.
		65	Value of angle sensor incorrect	The value read by the potentiometer is different from the programmed value.	Check that the angle sensor potentiometer is functioning correctly. Otherwise, check the wiring.
		80	Lifting valve	There is a problem on one of the following outputs: terminal A32, terminal A26.	Check the condition of the valves and their connections. Otherwise, it is an internal fault of the controller.

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
01	**Controller interface board**	81	Descent valve	There is a problem on one or other of the following outputs: terminal A30, terminal A26.	Check the condition of the valves and their connections. Otherwise, it is an internal fault of the controller.
		82	Rotation valve	There is a problem on one or other of the following outputs: terminal A34, terminal A25.	Check the condition of the valves and their connections. Otherwise, it is an internal fault of the controller.
		83	Steering valve	There is a problem on one or other of the following outputs: terminal A34, terminal A26.	Check the condition of the valves and their connections. Otherwise, it is an internal fault of the controller.
		84	Aux. Valve	There is a problem on one or other of the following outputs: "FLASHING LIGHT" and "TILT LAMP"	Repair or replace the option.
		86	Brake coil open	The main driver coil is not connected to pin A12 of NEB.	Check the connections of the BRAKE coil. Otherwise the conductor circuit is damaged and the controller must be replaced.
		89	Horn conductor	There is a problem (short-circuit to negative or positive, to absent horn) on the "WARNING" product.	Check the horn and its wiring. If the wiring is correct and the alarm persists, there is an internal fault.

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
02	**Controller logic board**	7	Type disparity	The controller and the base board are not suitable for the type of operation chosen by the operator.	It is an internal fault. Replace the controller.
		8	HBT disparity	The HBT status is verified by the controller and the base board. If a difference is found between the two, this alarm appears.	It is an internal fault. Replace the controller.
		9	Faulty RAM	The algorithm used to verify the main memory detects an error. The file is corrupt.	Disconnect the key and then, if the alarm is still present, replace the controller.
		10	Instantaneous sum	The instantaneous sum is different from that expected. Incorrect software has been downloaded or the flash memory is corrupted.	It is an internal fault. Replace the controller.
		11	Thermal sensor faulty	The thermal sensor is not functioning correctly: its output voltage is outside the acceptable range.	It is an internal fault. Replace the controller.
		12	Stand by motor right	The right armature current sensor detects a current other than zero when the right motor is not running.	It is an internal fault. Replace the controller.
		13	Stand by motor left	The left armature current sensor detects a current other than zero when the left motor is not running.	It is an internal fault. Replace the controller.
		14	High field current	A current other than zero passes through the field circuit even if the field conductor is not active.	It is an internal fault. Replace the controller.
		15	Analog input	There is a fault in the A/D converter of the microcontroller.	It is an internal fault. Replace the controller.
		16	Trac. I sensor	The current sensor for the armature of motor 1 and/or motor 2 is not functioning correctly: its output voltage is outside the acceptable range.	It is an internal fault. Replace the controller.

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
02	**Controller logic board**	17	Stand by pump	The current sensor of the pump detects a current other than zero when the pump is not working.	It is an internal fault. Replace the controller.
		18	Pump I=0	The current sensor of the pump detects a current of zero even though the pump is working.	Check the connection of the pump: if the pump is not connected, current cannot flow and the diagnostic fails. Otherwise, it is an internal problem.
		19	Periodic error #1	The base board has not responded to the request as expected. The controller board has asked the base board to leave its drive input inactive but it is active.	It is an internal fault. Replace the controller.
		20	Capacitor charge	1) An external charge is in parallel with the capacitor and reduces the current of the recharge circuit, thereby preventing the capacitors from charging. 2) There is a problem with the charging circuit and the controller must be replaced.	When the key is connected, the controller tries to charge the power capacitors via a resistor and checks whether the capacitors are charged. If they do not charge, an alarm is generated. The main driver is not closed.
		21	Charge control lamp incorrect	During stand-by the field voltage should be approx. ½ V. This alarm is generated if the field voltage differs from this value.	The possible external causes are: incorrect connection of the excitation wires, leakage to the framework of the platform. Otherwise, it is an internal fault.
		22	VMN low	The VMN voltage of one of the drive motors is low.	This alarm appears during stand-by. Check : internal motor connections; electric cable connections; leakage from the motor to the framework of the platform. If everything is OK, the controller has an internal fault

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
02	**Controller logic board**	23	VMN high	The VMN voltage of one of the motors is high when it should be low.	This alarm appears only on start-up. Check: internal motor connections. Electric cable connections, leakage from the motor to the framework of the lorry. If everything is OK, the controller has an internal fault.
		24	Pump VMN low	The VMN voltage of the pump is low when it should be high.	This alarm may appear during stand-by or during pump operation. Check: internal pump connections. Electric cable connections, leakage from the pump to the framework of the platform. If everything is OK, the controller has an internal fault.
		25	Pump VMN high	The VMN voltage of the pump is high when it should be low.	This alarm appears while the pump is working. Check: internal pump connections. Electric cable connections, leakage from the pump to the framework of the platform. If everything is OK, the controller has an internal fault.
		26	VMN right low	The VMN voltage of the right motor is low when it should be high.	This alarm only appears when the drive motors are activated. Check: internal motor connections. Electric cable connections, leakage from the motors to the framework of the platform. If everything is OK, the controller has an internal fault.
		27	VMN right high	The VMN voltage of the right motor is high when it should be low.	This alarm only appears when the drive motors are activated. Check: internal motor connections. Electric cable connections, leakage from the motor to the framework of the platform. If everything is OK, the controller has an internal fault.

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
02	Controller logic board	28	VMN left low	The VMN voltage of the left motor is low when it should be high.	This alarm only appears when the drive motors are activated. Check: internal motor connections. Electric cable connections, leakage from the motor to the framework of the platform. If everything is OK, the controller has an internal fault.
		29	VMN left high	The VMN voltage of the left motor is high when it should be low.	This alarm only appears when the drive motors are activated. Check: internal motor connections. Electric cable connections, leakage from the motor to the framework of the platform. If everything is OK, the controller has an internal fault.
		30	Driver closed	Before activating the power relay, the controller checks whether the driver is closed. If the test is not conclusive, this alarm appears.	Check the contacts of the power relay. Replace the power relay if necessary.
		31	Driver open	The power relay is controlled by the controller, but this will not close.	The power relay is probably not working. Replace it.
		32	Logic fault #1	Under-voltage or over-voltage has been detected	If the fault is detected on starting or during an alarm, it is most likely to be under-voltage. Check whether the main voltage SI is stable. If the fault is detected during acceleration of the drive motors or pump, the fault may be due to under-voltage: check the battery charge and connections. If the fault is detected during braking, the fault may be due to over-voltage: check the battery voltage during braking.

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
02	**Controller logic board**	42	Drive shorted	The drive output of the base board is short-circuited.	It is an internal fault. Replace the controller.
		42	Driver 3	The base board and the controller have performed a check of the signals for the drive conductor. If the controller board detects a problem in its own control circuit (right or left motor), this alarm will appear.	It is an internal fault. Replace the controller.
		43	Driver2	The base board and the controller perform a check of the signals for the pump. If the controller board detects a problem in its own control circuit, this alarm appears.	It is an internal fault. Replace the controller.
		44	Driver1	The interface and logic board performs a counter-check of signals for the steering choice. If the logic detects a problem in its own control circuit (field conductor circuit), this alarm appears.	It is an internal fault. Replace the controller.
		46	No ground current	Although the ground conductor is active, no current through the field is detected.	Check the connection of the motor to the controller or look for possible leakage to the framework of the platform. If everything is OK, the controller has an internal fault.
		47	Pump sensor	The current sensor of the pump is not working correctly. Its output voltage is outside the acceptable range.	It is an internal fault. Replace the controller.

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
02	**Controller logic board**	49	Pump shorted	The pump inputs of the base board are short-circuited.	It is an internal fault. Replace the controller.
		57	No CAN message	The interface board has not received the message from CAN "N" (1= CMD+TRAC 2=MESG_EV+INTERFACE 5 = MESG_EV +IN_TRAC)	Check the BUSCAN connection between the modules. Otherwise, there is an internal fault in a module which causes a transmission error, or there is excessive noise on the BUSCAN line which is interfering with the signal.
		60	High temperatures	The power section of the fuse has reached the temperature limit: the maximum current is automatically reduced.	The alarm disappears as soon as the cutout cools down. If this does not happen, there is a problem with the internal temperature sensor.
		65	Value of angle sensor incorrect	The value read by the potentiometer is different from the programmed value.	Check that the angle sensor potentiometer is functioning correctly. Otherwise, check the wiring.
		87	Time delay	The controller board asks the base board to activate the drive motors or the pump. If they are not activated after 400 ms, this alarm is activated.	Check the software versions installed on the interface and logic board. This alarm may be due to a software disparity. Otherwise, there is an internal fault.

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
08	**Platform controls circuit board**	70	System surveillance	Internal system surveillance has been put into operation. If the surveillance detects a fault in the execution of this surveillance, this alarm appears.	It is an internal fault. Replace the controller.
		72	SV1 incorrect	There is a problem (short-circuit to ground or to positive) on output CNE-10.	Check the wiring. If the wiring is correct and the alarm persists, there is an internal fault.
		73	SV2 incorrect	There is a problem (short-circuit to ground or to positive) on output CNE-5.	Check the wiring. If the wiring is correct and the alarm persists, there is an internal fault.
		74	SV3-4 incorrect	There is a problem (short-circuit to negative or to positive) on output CNE-1 or CNE-3.	Check the wiring. If the wiring is correct and the alarm persists, there is an internal fault.
		75	BUSCAN incorrect	The platform controls circuit board is not receiving the CAN signal from the controller.	There may be an interruption of the BUSCAN signal. Check the connection of the BUSCAN between the modules. Otherwise, there is an internal fault in a module which causes a transmission error, or there is excessive noise on the BUSCAN line.

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
16	**Diagnostic display**	06	No communication	The diagnostic display is not working properly.	Check wire connections. Repair or replace the diagnostic display.

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.

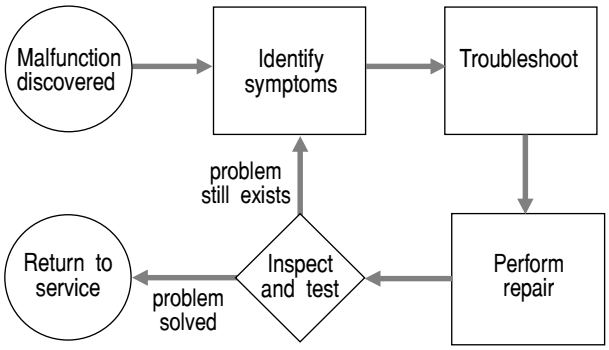
Electrical Schematics

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

Hydraulic Schematics

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

General Repair Process



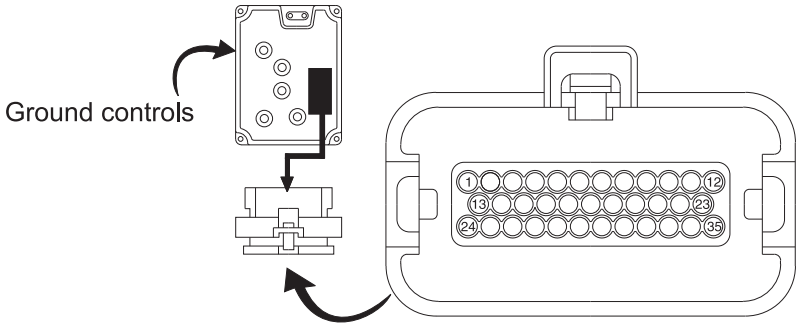
Electrical Schematic Abbreviation and Wire Color Legends

ELECTRICAL COMPONENT LEGEND	
Item	**Description**
B9	Battery
BN	Button
	BN5 = Horn BN8 = Drive enable BN9 = Lift enable/select BN57 = Turntable rotate enable BN63 = Mast enable BN97 = Jib enable BN128 = Descend/Rotate left enable BN129 = Lift/Rotate right enable BN130 = Drive select
CR89	Parking Brake Relay
F	Fuse
	F6 = Fuse, 250A F9 = Fuse, 5A F9A = Fuse F9B = Fuse
FB1	Flashing beacon
G6/G7/G8	Hour meter/Battery charge indicator/Fault code display
GND	Ground
H	Horn or Alarm
	H1 = Horn H2 = Automotive-style horn
JC1	Joystick controller
KS1	Key switch
L	LED or Indicator light
	L1 = Drive enable L4 = Platform overload L17 = Drive select L30 = Work light (Option) L48 = Machine level L68 = Platform overload L79 = Out of level L81 = Mast up-down/turntable rotate L82 = Jib
LS	Limit switch
	LS3 = Drive enable LS11 = Jib boom LS18 = Mast down LS31 = Platform overload

ELECTRICAL COMPONENT LEGEND cont.	
M	Motor
	M5 = Hydraulic power unit M7 = Left motor M7A = Right motor
P	Power switch
	P1 = Emergency Stop button at ground controls P2 = Emergency Stop button at platform controls
R29	Resistor (1500 ohm)
SW	Switch
	SW5 = Function enable SW6L = Steer left SW6R = Steer right
S7	Sensor
	S4 = Hydraulic oil temperature S7 = Tilt level S21 = Steer angle
TS75	Parking brake release toggle switch
U	Electronic component
	U3A = Platform controls printed circuit board U3B = Electronic control module U6 = Motor controller U9 = Battery charger U10 = Machine functions printed circuit board U53 = Parking brake, left U54 = Parking brake, right
Y	Valve coil
	Y21 = Mast down Y22 = Mast up Y101 = Jib up Y102 = Jib down Y116 = Steer/Turntable rotate directional Y117 = Steer select Y118 = Turntable rotate select Y121 = Base of the mast

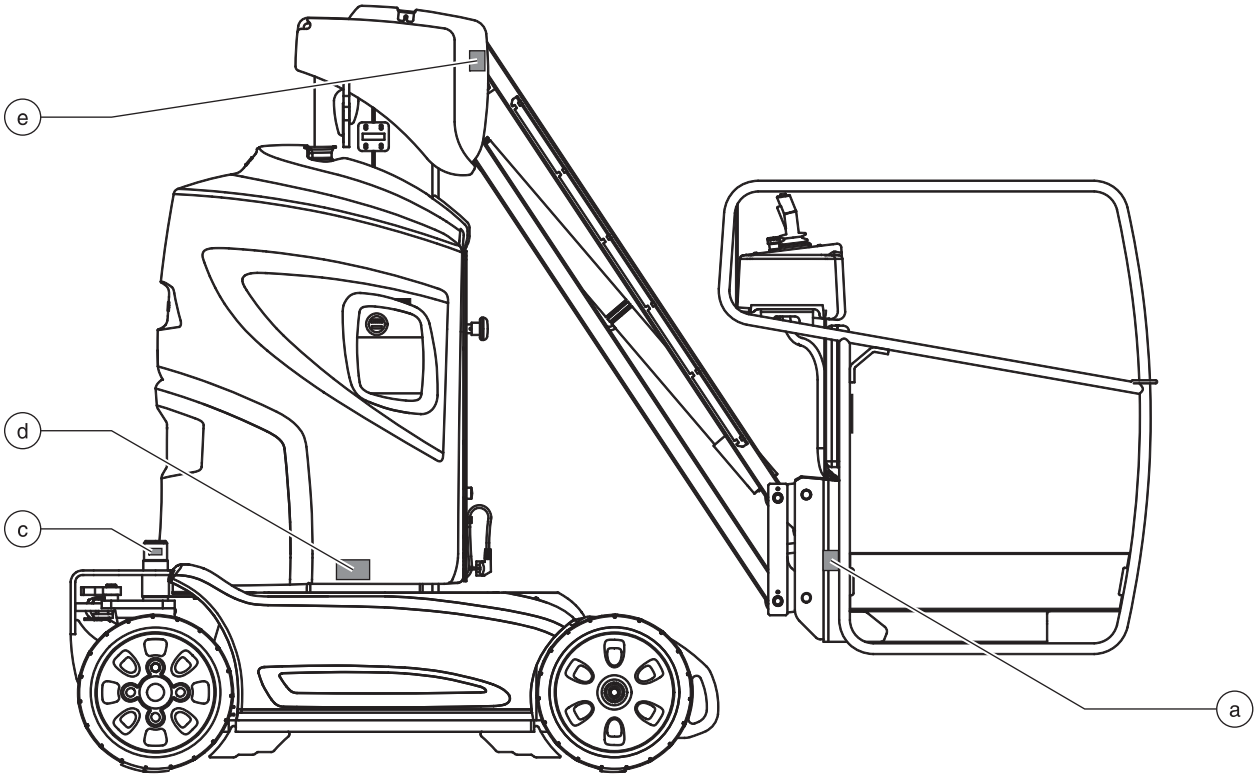
WIRE COLOR LEGEND	
Color	**Description**
BK	Black
BL	Blue
BR	Brown
GR	Green
GR/YL	Green/Yellow
GY	Gray
OR	Orange
OR/BK	Orange/Black
PP	Purple
RD	Red
WH	White
YL	Yellow

ECM Pin-out Legend



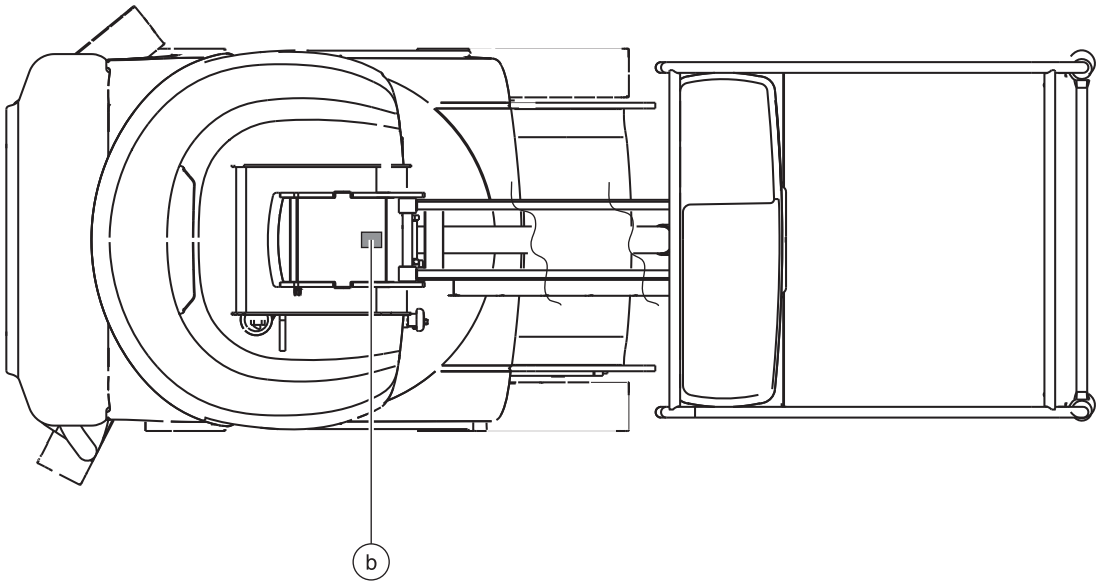
ECM PIN-OUT LEGEND			
Item	**Item Description**	**Not activated**	**Activated**
1	+24V Ground control selection supply	0	24V
2	+24VDC power supply (Red wire at platform controls)		
3	Tilt signal (output)	0	12V
4			
5			
6	+12V power supply	0	12V
7	Steering signal	0	2.5V
8	CAN-L signal		
9	CAN-H signal		
10	0V AU coil/power contact		
11	24V supply	0	24V
12	0V braking/debraking solenoid	24V	0
13	Platform control +24V singal	0	24V
14	Overload sensor 2		
15	Overload sensor 1		
16	Hydraulic temperature sensor, S4 (Pump temperature sensor information)		
17	Battery charger indicator, G7	0	24V
18	Mast down/turntable rotate left switch	0	24V
19	Mast up/turntable rotate right switch	0	24V
20	Mast up/down selection switch	0	24V
21	Jib select switch	0	24V
22	Turntable rotate switch	0	24V
23	+24V solenoid valve/fuse F6 supply	0	24V
24	Machine level LED, L48	24V	0
25	Solenoid valve, turntable rotate Y118	24V	0
26	Solenoid valve, mast foot Y121	24V	0
27			
28	Solenoid valve, steering Y117	24V	0
29	Horn	24V	0
30	Solenoid valve, mast down Y22	24V	0
31	Mast up LED, L81	24V	0
32	Solenoid valve, mast up Y21	24V	0
33			
34	Solenoid valve, turntable rotate/steer select	24V	0
35	Flashing beacon, FB1	24V	0

Limit Switch and Sensor Legend



Limit and Sensor Legend

a Platform overload LS31
b Mast down LS18
c Steer angle S21
d Tilt sensor S7
e Jib down LS11



Electrical Symbols Legend


Circuits Crossing
(no connection)


Diode


Connection
(no terminal)


Connector

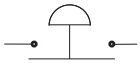

Fuse

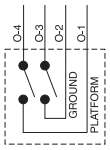

Flashing Beacon


LED


Switch or Button


Toggle Switch


Emergency Stop Button

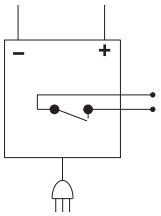


Key Switch


Horn or Alarm

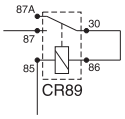

Sensor
(hydraulic oil temperature)

Motor

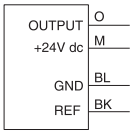


Battery Charger

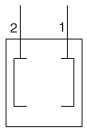
Battery



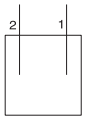
Control Relay



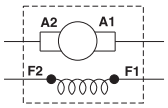
Level Sensor



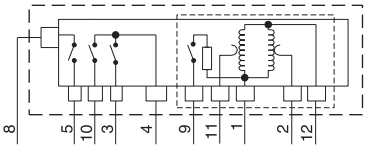
Solenoid Valve



Parking Brake



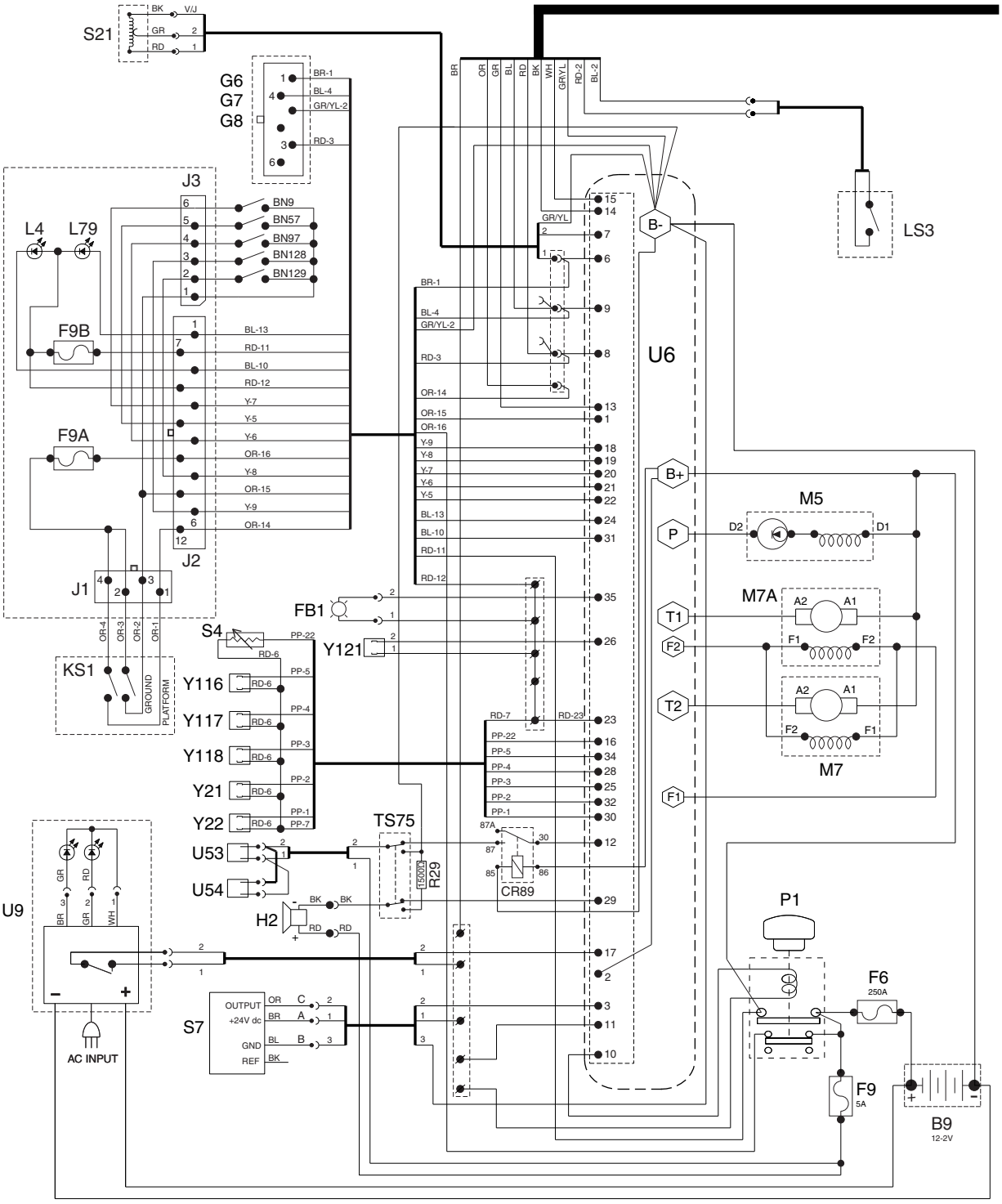
Electric Motor



Joystick Controller

Electrical Schematic - GR-26J

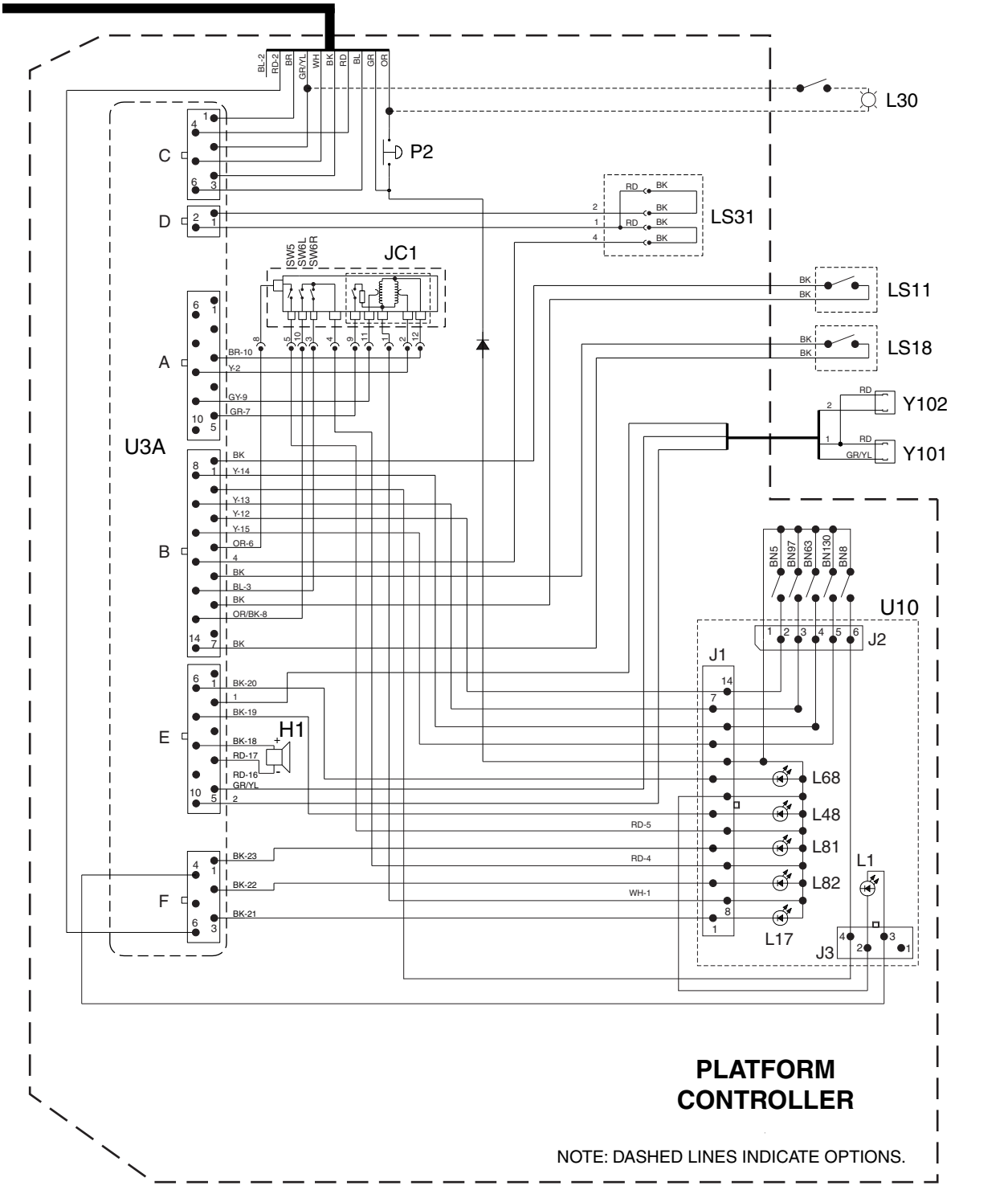
ANSI - Part 1 of 2



ES0525C

Electrical Schematic - GR-26J

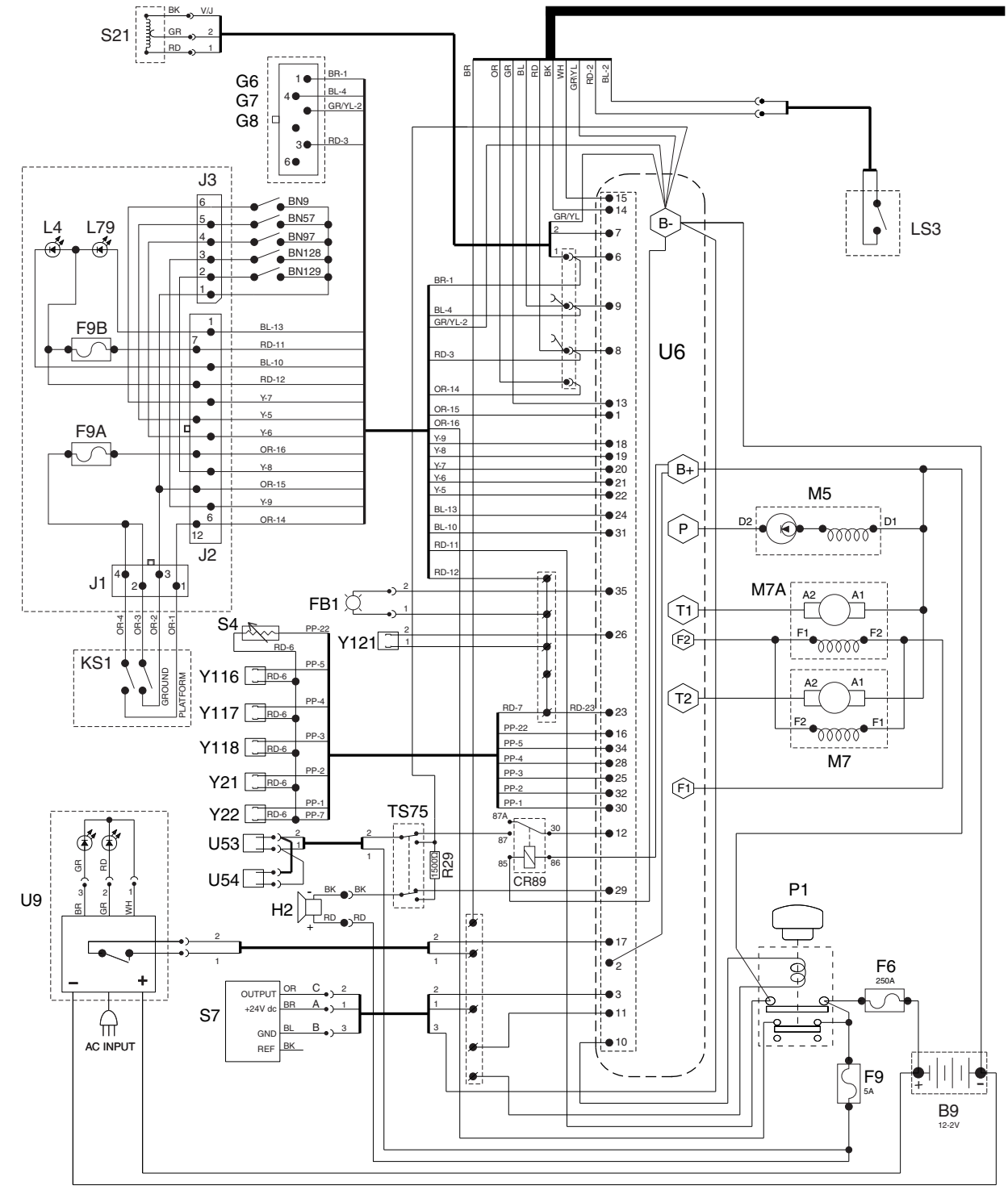
ANSI - Part 2 of 2



ES0525C

Electrical Schematic - GR-20J and GR-26J

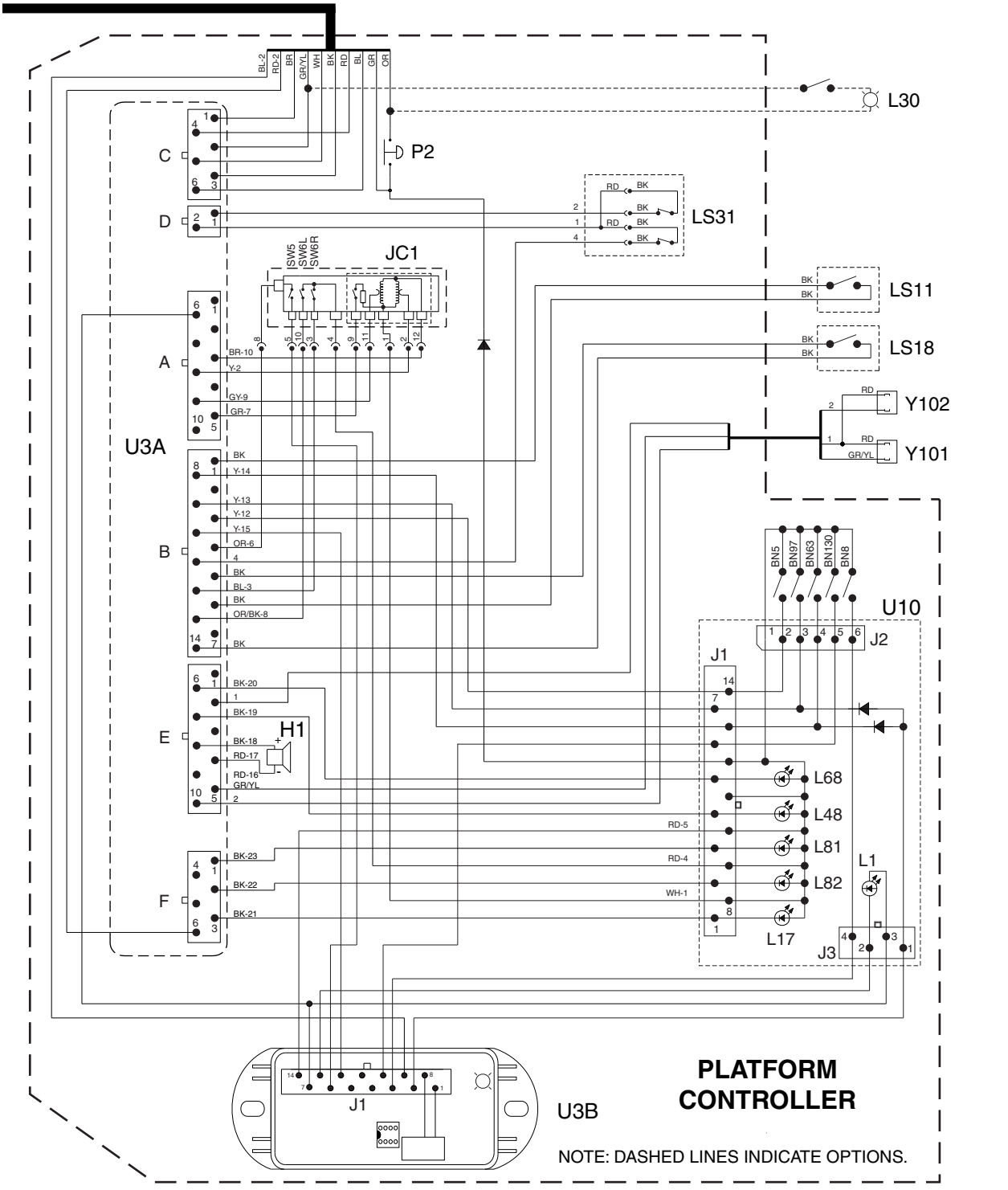
CE - Part 1 of 2



ES0525C

Electrical Schematic - GR-20J and GR-26J

CE - Part 2 of 2



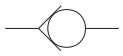
ES0525C

Hydraulic Component Reference and Symbols Legend

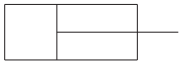
Auxiliary pump

Variable speed motor

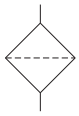
Fixed displacement pump



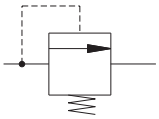
Check valve



Hydraulic cylinder

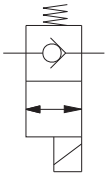


Filter

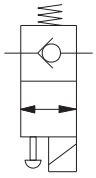


Relief valve

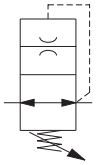
Bi-directional motor



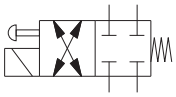
Solenoid operated 2 position 2 way directional valve



Solenoid operated 2 position 2 way directional valve

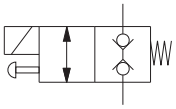


Solenoid operated 2 position 2 way directional valve



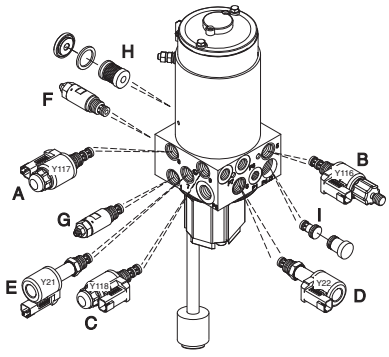
Solenoid operated 2 position 4 way directional valve

Hose reel



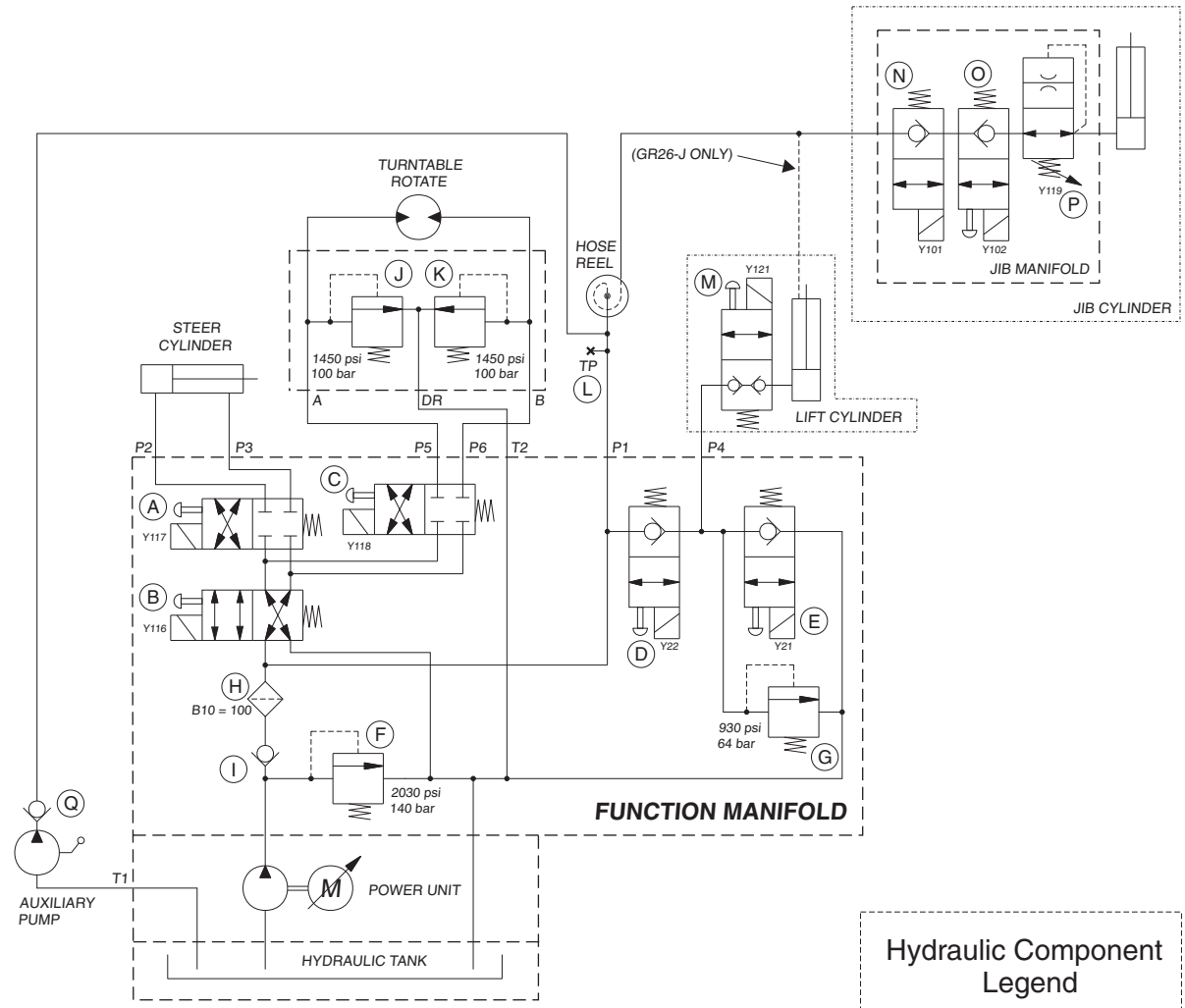
Solenoid operated 2 position 2 way directional valve

Solenoid operated 2 position 4 way directional valve



Fucntion pump and manifold

Hydraulic Schematic



FUNCTION	VALVE ACTIVATION							
	Y21	Y22	Y101	Y102	Y116	Y117	Y118	Y121
STEER RIGHT						●		
STEER LEFT					●	●		
TURNTABLE ROTATE RIGHT							●	
TURNTABLE ROTATE LEFT					●		●	
MAST CYLINDER RAISE		●						●
MAST CYLINDER LOWER	●							●
JIB CYLINDER RAISE			●					
JIB CYLINDER LOWER	●	●		●				

Hydraulic Component Legend

A = Steer select
B = Steer/Turntable Directional
C = Turntable select
D = Platform up
E = Platform down
F = System relief
G = Platform up/down relief
H = Filter
I = Check valve
J = Turntable rotate right relief
K = Turntable rotate left relief
L = Test port
M = Lift cylinder select
N = Jib up
O = Jib down
P = Jib up/down flow control
Q = Check valve

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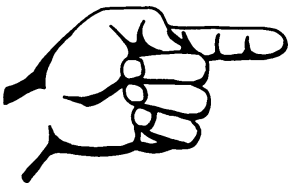

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California Proposition 65

WARNING

Operating, servicing and maintaining this equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. These chemicals can be emitted from or contained in other various parts and systems, fluids and some component wear by-products. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your equipment and vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your equipment or vehicle and after operation. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

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