Genie®
A TEREX BRAND

Service Manual

Serial Number Range

Z-34/22

from Z3406-4800 to
Z3414-9685

Bi-Energy Power

Part No. 139234
Rev B1
April 2016

Introduction

Important

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

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

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

Compliance

Machine Classification

Group 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.

Contact Us:

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

Find a Manual for this Model

Go to http://www.genielift.com

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

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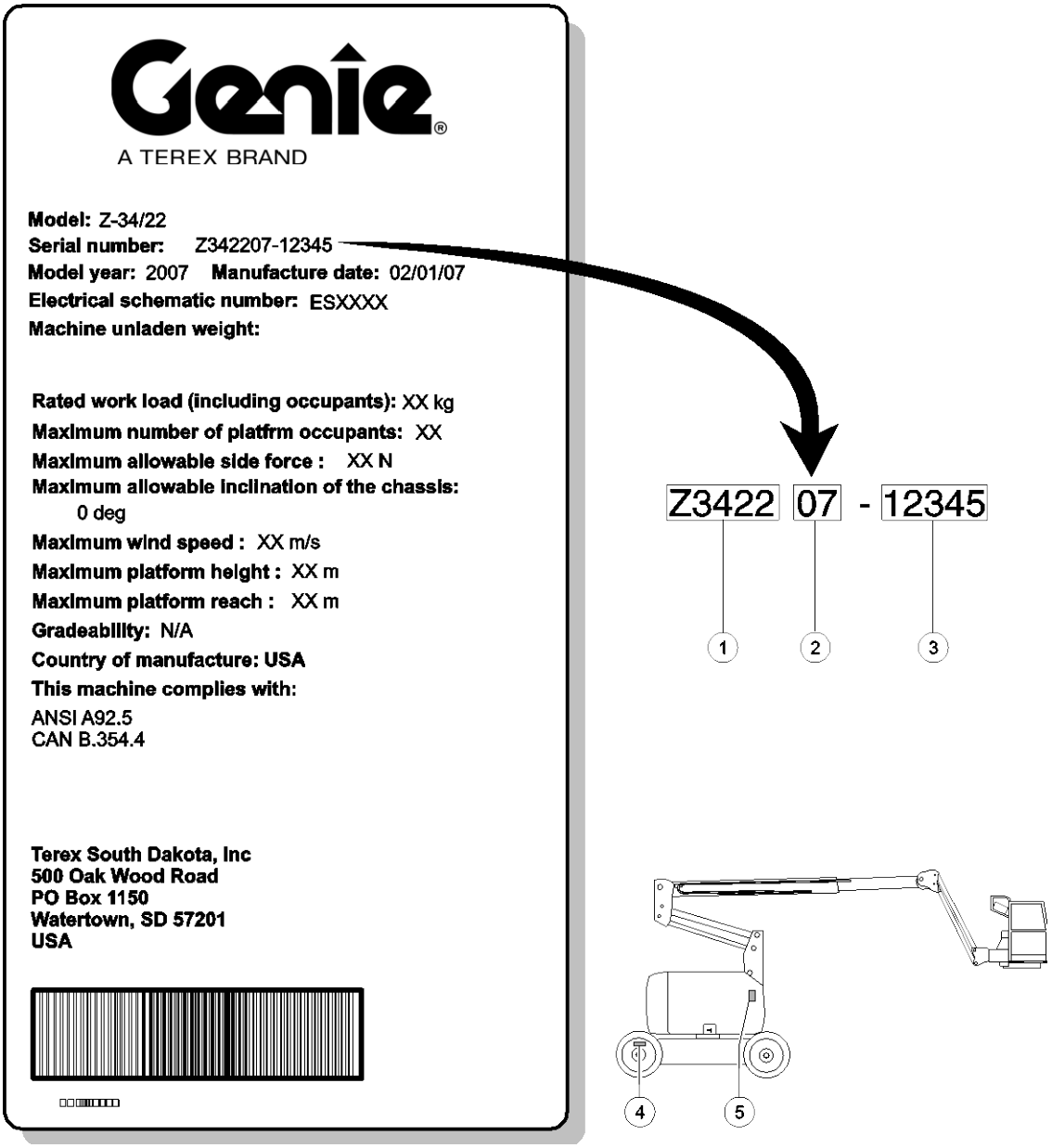
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Revision History

Revision	Date	Section	Procedure / Page / Description
A2	11/2014	Maint	Added B-20, Test the Emergency Power
B	9/2015		Added ending serial break to front cover.
B1	3/2016	Schematics	Updated serial breaks, added schematics and diagrams - from serial number 9442 to 9685
Reference Examples:			
Section – Maintenance, B-3			**Electronic Version** Click on any content or procedure in the Table of Contents to view the update.
Section – Repair Procedure, 4-2			
Section – Fault Codes, All charts			
Section – Schematics, Legends and schematics			

Introduction

Serial Number Legend



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

Safety Rules



Danger

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

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

Do Not Perform Maintenance Unless:

☑ You are trained and qualified to perform maintenance on this machine.

☑ You read, understand and obey:

- manufacturer's instructions and safety rules
- employer's safety rules and worksite regulations
- applicable governmental regulations

☑ You have the appropriate tools, lifting equipment and a suitable workshop.

Safety Rules

Personal Safety

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



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



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

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

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

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

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



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



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

Workplace Safety

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



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



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



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



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



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



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

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Specifications

Machine Specifications

Tires and wheels	Industrial
Tire size	9-14.5 LT
Tire ply rating	Tread 6 Sidewall 6
Tire weight, new foam-filled (minimum) (Rough terrain)	175 lbs 79 kg
Overall tire diameter	28 in 71.1 cm
Wheel diameter	14.5 in 36.8 cm
Wheel width	7 in 17.8 cm
Wheel lugs Front Rear	 8 @ 5/8 -18 9 @ 5/8 -18
Lug nut torque, dry	125 ft-lbs 170 Nm
Lug nut torque, lubricated	95 ft-lbs 129 Nm
Tire pressure	100 psi 6.89 bar
Fuel capacities	
Fuel tank	9.3 gallons 35.2 liters
Hydraulic tank	4 gallons 15.1 liters
Hydraulic system (including tank)	6 gallons 22.7 liters
Drive hubs	17 fl oz 503 cc

Drive hub oil type: SAE 90 multipurpose hypoid gear oil API service classification GL5

Performance Specifications

Drive speed, maximum	
Stowed position	3.7 mph 5.9 km/h 40 ft / 7.5 sec 12.2 m / 7.5 sec
Raised or extended	0.6 mph 0.98 km/h 40 ft / 45 sec 12.2 m / 45 sec
Gradeability	See Operator's Manual
Braking distance, maximum	
High range on paved surface	3 to 4 ft 0.9 to 1.2 m

Joystick function speeds, maximum from platform controls	
Primary boom up	15 to 21 seconds
Primary boom down	12 to 18 seconds
Primary boom extend	12 to 18 seconds
Primary boom retract	12 to 18 seconds
Secondary boom up	15 to 21 seconds
Secondary boom down	12 to 18 seconds
Jib boom up	23 - 29 seconds
Jib boom down	20 to 26 seconds
Turntable rotate, 355°	57 to 63 seconds
Platform rotate, 180°	6 - 11 seconds
Platform level up	10 to 20 seconds
Platform level down	10 to 20 seconds

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

Specifications

Hydraulic Oil Specifications

Hydraulic Fluid Specifications	
Genie specifications require hydraulic oils which are designed to give maximum protection to hydraulic systems, have the ability to perform over a wide temperature range, and the viscosity index should exceed 140. They should provide excellent antiwear, oxidation prevention, corrosion inhibition, seal conditioning, and foam and aeration suppression properties.	
Cleanliness level, minimum	ISO 15/13
Water content, maximum	250 ppm
Recommended Hydraulic Fluid	
Hydraulic oil type	Chevron Rando HD Premium
Viscosity grade	32
Viscosity index	200
Optional Hydraulic Fluids	
Mineral based	Shell Tellus S2 V 32 Shell Tellus S2 V 46 Shell Tellus S4 VX 32 Shell Shell Donax TG (Dexron III) Chevron 5606A
Biodegradable	Petro Canada Environ MV 46
Fire resistant	UCON Hydrolube HP-5046

Note: Genie specifications require additional equipment and special installation instructions for the approved optional fluids. Consult Genie Product Support before use.

NOTICE

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

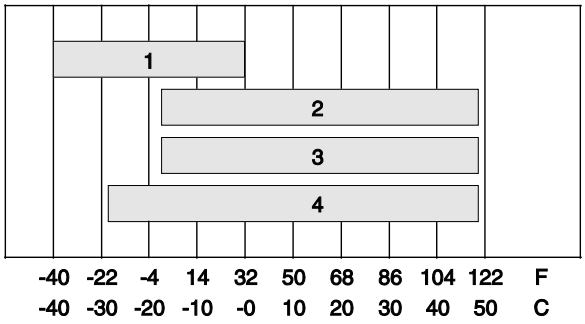
Note: Extended machine operation can cause the hydraulic fluid temperature to increase beyond it's maximum allowable range. If the hydraulic fluid temperature consistently exceeds 200°F / 90°C an optional oil cooler may be required.

NOTICE

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

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

Hydraulic Fluid Temperature Range



Ambient air temperature

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

Chevron Rando HD Premium Oil MV Fluid Properties

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

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

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

Chevron 5606A Hydraulic Oil Fluid Properties

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

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

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

Petro-Canada Environ MV 46 Fluid Properties

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

Shell Tellus S4 VX Fluid Properties

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

UCON Hydrolube HP-5046 Fluid Properties

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

Specifications

Hydraulic Component Specifications

Function pump	
Type: fixed displacement gear pump	
Displacement per revolution	0.183 cu in 3 cc
Auxiliary Pump	
Type: fixed displacement gear pump	
Displacement	0.75 gpm 2.8 L/min
Function manifold	
Function relief valve pressure	3200 psi 220.6 bar
Primary boom down relief function relief	1400 psi 96.5 bar
Secondary boom down relief valve pressure	1600 psi 110.3 bar
Primary boom extend relief valve pressure	1800 psi 124 bar
Turntable rotate relief valve pressures	1100 psi 75.8 bar
Hydraulic Filters	
Hydraulic tank return filter	10 micron with 25 psi / 1.7 bar bypass

Manifold Component Specifications

Plug torque	
SAE No. 2	36 in-lbs / 4 Nm
SAE No. 4	10 ft-lbs / 13 Nm
SAE No. 6	14 ft-lbs / 19 Nm
SAE No. 8	38 ft-lbs / 51 Nm
SAE No. 10	41 ft-lbs / 55 Nm
SAE No. 12	56 ft-lbs / 76 Nm

Specifications

Machine Torque Specifications

Platform Rotator	
3/4-10 center bolt, GR 8, dry	380 ft-lbs 515 Nm
3/4-10 center bolt, GR 8, lubricated	280 ft-lbs 379 Nm
3/8-16 outer bolts, GR 8, dry	44 ft-lbs 60 Nm
3/8-16 outer bolts, GR 8, lubricated	33 ft-lbs 45 Nm
Turntable rotate assembly	
Rotate bearing mounting bolts, lubricated	180 ft-lbs 244 Nm
Rotate bearing motor mounting bolts, lubricated	93 ft-lbs 126 Nm
Drive motors and hubs	
Drive hub mounting bolts, lubricated	180 ft-lbs 244 Nm
Drive motor mounting bolts, lubricated	
3/8-16, GR5	23 ft-lbs 31 Nm
7/16-14, GR5	37 ft-lbs 50 Nm

Machine Component Weights

Drive motor	64 lbs 29 kg
Torque hub	113 lbs 51 kg
Engine assembly	122 lbs 55 kg
Primary boom assembly (including extension boom)	647 lbs 293 kg
Primary boom cylinder	59 lbs 27 kg
Primary boom extend cylinder	75 lbs 34 kg
Secondary boom linkage	832 lbs 377 kg
Secondary boom cylinder	54 lbs 24 kg
Jib boom assembly	53lbs 24kg
Jib boom cylinder	34 lbs 15 kg
4 ft / 1.5 m platform	99 lbs 45 kg
5 ft / 2.4 m platform	105 lbs 48 kg
Battery 6volt (wet)	88 lbs 48 kg
Battery 6 volt (maintenance free)	105 lbs 48 kg

Specifications

Kubota Z482-E Engine

Displacement	29.23 cu in 0.48 liters
Number of cylinders	2
Bore and Stroke	2.64 x 2.68 inches 67 x 68 mm
Horsepower	13.3 @ 3600 rpm 9.9 kW
Firing order	1 - 2
Low idle	2000 rpm
High idle	3000 rpm
Governor	centrifugal mechanical
Valve clearance, cold	0.0057 to 0.0072 in 0.145 to 0.185 mm
Compression ratio	23:1
Compression pressure	412 to 469 psi 28.4 to 32.3 bar
Lubrication system	
Oil pressure	36 to 64 psi 2.48 to 4.41 bar
Oil capacity (including filter)	2.6 quarts 2.5 liters

Extreme operating temperatures may require the use of alternative engine oils. For oil requirements, refer to the Engine Operator Handbook on your machine.

Fuel requirement	
For fuel requirements, refer to the engine Operator Manual for your engine.	
Injection system	
Injection pump make	Bosch MD
Injection timing	21° BTDC
Injection pump pressure	1991 psi 137 bar
Starter motor	
Brush length, new	0.5188 in 13 mm
Brush length, minimum	0.3346 in 8.5 mm
Alternator	
Alternator output	12V DC, 150 watts
Fan belt deflection	1/4 to 3/8 inch 7 to 9 mm
Battery	
Type	12V DC, Group 70
Quantity	1
Cold cranking ampere	450A
Reserve capacity @ 25A rate	125 minutes

Generator

Generator output with engine @ 3000 rpm	54V DC, 100A
Generator pulley to engine pulley offset, maximum	1/16 inch 1.6 mm
Belt deflection, maximum	1/4 inch 6.5 mm

Generator Torque Specifications

Generator pulley retaining nut torque	80-90 ft-lbs 108-122 Nm
Engine pulley retaining bolts	108 in-lbs 12.2 Nm
#10 screw	25 in-lbs 2.8 Nm
#10 nut	25 in-lbs 2.8 Nm
#4 nut	8-10 in-lbs 0.9-1.1 Nm
Voltage regulator mounting fasteners	25 in-lbs 2.8 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

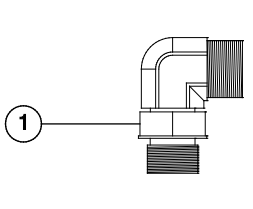
(swivel nut or hose connection)

SAE Dash Size	Thread Size	Flats
-4	7/16-20	2
-6	9/16-18	1 ¼
-8	3/4-16	1
-10	7/8-14	1
-12	1 1/16-12	1
-16	1 5/16-12	1
-20	1 5/8-12	1
-24	1 7/8-12	1

SAE O-ring Boss Port

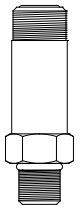
(tube fitting - installed into Aluminum)
(all types)

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



Adjustable Fitting

1 jam nut



Non-adjustable fitting

SAE O-ring Boss Port

(tube fitting - installed into Steel)

SAE Dash Size		Torque
-4	ORFS / 37° (Adj) ORFS (Non-adj) 37° (Non-adj)	15 ft-lbs / 20.3 Nm 26 ft-lbs / 35.3 Nm 22 ft-lbs / 30 Nm
-6	ORFS (Adj / Non-adj) 37° (Adj / Non-adj)	35 ft-lbs / 47.5 Nm 29 ft-lbs / 39.3 Nm
-8	ORFS (Adj / Non-adj) 37° (Adj / Non-adj)	60 ft-lbs / 81.3 Nm 52 ft-lbs / 70.5 Nm
-10	ORFS (Adj / Non-adj) 37° (Adj / Non-adj)	100 ft-lbs / 135.6 Nm 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-ring in Parker Seal Lok™ fittings and hose end are custom-size O-rings. They are not standard size O-rings. They are available in the O-ring field service kit (Genie part number 49612).

2 Lubricate the O-ring before installation.

3 Be sure the O-ring face seal is seated and retained properly.

4 Position the tube and nut squarely on the face seal end of the fitting, and tighten the nut finger tight.

5 Tighten the nut or fitting to the appropriate torque. Refer to the appropriate torque chart in this section.

6 Operate all machine functions and inspect the hose, fittings and related components to confirm there are no leaks.

JIC 37° fittings

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

2 Using a permanent ink marker, make a reference mark on one the flats of the hex nut and continue the mark onto the body of the hex fitting. Refer to Illustration 1.

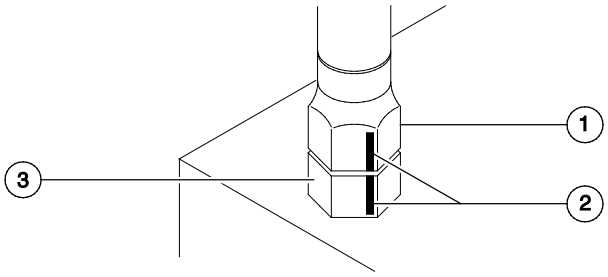


Illustration 1

1 hex nut
2 reference mark
3 body hex fitting

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

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

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

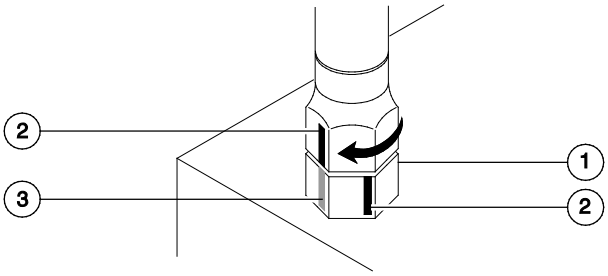


Illustration 2

1 body hex fitting
2 reference mark
3 second mark

4 Tighten the hex nut until the mark on the hex nut is aligned with the second mark on the body hex fitting.

5 Operate all machine functions and inspect the hose, fittings and related components to confirm there are no leaks.

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 (4.6)				Class 8.8 (8.8)				Class 10.9 (10.9)				Class 12.9 (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 of the *Maintenance inspection Report*. The frequency and extent of periodic examinations and tests may also depend on national regulations.

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

☑ Immediately tag and remove from service a damaged or malfunctioning machine.

☑ Repair any machine damage or malfunction before operating the machine.

☑ Use only Genie approved replacement parts.

☑ Machines that have been out of service for a period longer than 3 months must complete the quarterly inspection.

Machine Configuration:

☑ Unless otherwise specified, perform each procedure with the machine in the following configuration:

- Machine parked on a firm, level surface
- Key switch in the off position with the key removed
- The red Emergency Stop button in the off position at both the ground and platform controls
- Wheels chocked
- All external AC power supply disconnected from the machine
- Boom in the stowed position
- Turntable secured with the turntable rotation lock

Scheduled Maintenance Procedures

About This Section

This section contains detailed procedures for each scheduled maintenance inspection.

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

Symbols Legend



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

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

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

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

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

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

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

Scheduled Maintenance Procedures

Maintenance Symbols Legend

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



Indicates that tools will be required to perform this procedure.



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



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



Indicates that a cold engine will be required to perform this procedure.



Indicates that a warm engine will be required to perform this procedure.

Pre-delivery Preparation Report

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

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

Maintenance Schedule

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

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

Maintenance Inspection Report

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

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

Pre-Delivery Preparation Report

Fundamentals

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

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

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

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

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

Instructions

Use the operator's manual on your machine.

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

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

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

Legend

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

Comments

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

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

Model

Serial number

Date

Machine owner

Inspected by (print)

Inspector signature

Inspector title

Inspector company

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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(s) to perform.

	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**

- 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			
A-4	Engine maintenance			
A-5	Generator belts			
Perform after 40 hours:				
A-6	30-day service			
Perform after 50 hours:				
A-7	Engine maintenance			
Perform every 75 hours:				
A-8	Engine maintenance			
Perform every 100 hours:				
A-9	Engine maintenance			
A10	Rotation Bearing			
Perform after 150 hours:				
A-11	Drive hub oil			
Perform every 200 hours:				
A-12	Engine maintenance			

Checklist B		Y	N	R
B-1	Exhaust system			
B-2	Battery			
B-3	Electrical wiring			
B-4	Tires and wheels			
B-5	Brake configuration			
B-6	Drive hub oil			
B-7	Glow plugs			
B-8	Engine RPM			
B-9	Ground control override			
B-10	Platform leveling			
B-11	Engine idle select			
B-12	Drive brakes			
B-13	Drive speed - stowed			
B-14	Drive speed - raised or extended			
B-15	Alarm package			
B-16	Electrical contactors			
B-17	Fuel and hydraulic tank cap venting			
B-18	Hydraulic oil analysis			
B-19	Emergency power			
Perform every 400 hours:				
B-20	Engine maintenance			

Comments

Maintenance Inspection Report

Model
Serial number
Date
Hour meter
Machine owner
Inspected by (print)
Inspector signature
Inspector title
Inspector company

Instructions

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

☐	**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**

- 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 C		**Y**	**N**	**R**
C-1	Grease platform overload (if equipped)			
C-2	Test platform overload (if equipped)			
C-3	Engine maintenance			
Perform every 800 hours:				
C-4	Engine maintenance			

Checklist D		**Y**	**N**	**R**
D-1	Boom wear pads			
D-2	Turntable bearing bolts			
D-3	Turntable bearing wear			
D-4	Free-wheel configuration			
D-5	Drive hub oil			
D-6	Hydraulic filters			

Checklist E		**Y**	**N**	**R**
E-1	Hydraulic oil			
E-2	Grease steer axle wheel bearings			
E-3	Engine maintenance			
Perform every 3000 hours:				
E-4	Engine maintenance			

Comments

Checklist A Procedures

A-1
Inspect the Manuals and Decals

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

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

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

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

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

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

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

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

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

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

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

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

Checklist A Procedures

A-2
Perform Pre-operation Inspection

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

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

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

A-3
Perform Function Tests

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

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

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

Checklist A Procedures

A-4
Perform Engine Maintenance



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

- Oil level
- Coolant level
- Oil, fuel and coolant leaks

Required maintenance procedures and additional engine information are available in the following Operator and Maintenance manuals.

Kubota - Z482-E	
Genie part number	52958

A-5
Check the Generator Belts and Pulleys

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

Maintaining the generator belts and the pulleys is essential to good generator performance and service life. The generator will not operate properly with loose or defective belts and continued use may cause component damage.

⚠WARNING Bodily injury hazard. Do not inspect while the engine is running. Remove the key to secure from operation.

⚠CAUTION Bodily injury hazard. Beware of hot engine components. Contact with hot engine components may cause severe burns.

Note: Charging the batteries with the engine does not fully charge the batteries. Periodically, use the AC battery charger to fully charge the batteries.

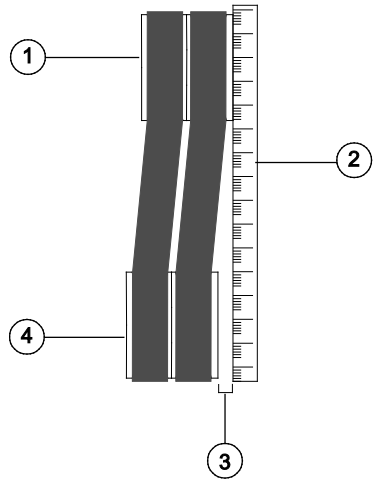
1 Be sure that all fasteners and cables on the generator are tight.

2 Remove the engine flywheel cover mounting fasteners, then remove the cover.

3 Be sure that the pulley mounting fasteners are tight and that the pulleys show no signs of damage or unusual wear.

Checklist A Procedures

4 Check to be sure the engine pulley and the generator pulley are aligned within specification using a straightedge.



1 engine pulley
2 straightedge
3 maximum pulley offset
4 generator pulley

Note: If alignment does not meet specification, Refer to Repair Procedure, *How to Install the Engine Drive Pulley* to adjust the pulley alignment.

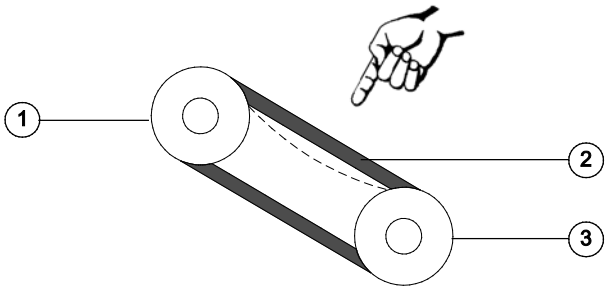
Pulley alignment, maximum offset	0.0625 inch 1.58 mm

5 Inspect the generator belts for:

- Cracking
- Glazing
- Separation
- Breaks

6 Replace both belts if any damage is found.

7 Check the generator belts for proper tension. If the belt deflection is not within specification, Refer to Repair Procedure, *How to Adjust the Generator Belts*.



1 engine pulley
2 generator belts
3 generator pulley

Belt deflection, maximum allowable	1/4 inch 6.5 mm

8 Check the torque of the pulley retaining nut on the generator.

Generator pulley retaining nut torque	80-90 ft-lbs 108-122 Nm
Engine pulley retaining bolts	108 in-lbs 12.2 Nm

Checklist A Procedures

A-6
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.

- A-10 Grease the Turntable Rotation Bearing and Worm Drive Gear
- B-4 Inspect the Tires, Wheels and Lug Nut Torque
- D-2 Check the Turntable Rotation Bearing Bolts
- D-6 Replace the Hydraulic Filters

A-7
Perform Engine Maintenance



Engine specifications require that this one–time procedure be performed after the first 50 hours of operation.

- Engine oil
- Oil filter
- Fuel hoses and clamp bands - check

Required maintenance procedures and additional engine information are available in the following Operator and Maintenance manuals.

Kubota - Z482-E	
Genie part number	52958

Checklist A Procedures

A-8
Perform Engine Maintenance



Engine specifications require that this procedure be performed every 75 hours.

- Engine oil
- Oil filter

Required maintenance procedures and additional engine information are available in the following Operator and Maintenance manuals.

Kubota - Z482-E	
Genie part number	52958

A-9
Perform Engine Maintenance



Engine specifications require that this procedure be performed every 100 hours.

- Fan belt tension and damage - check
- Air cleaner element - clean
- Fuel filter (element type) - clean

Required maintenance procedures and additional engine information are available in the following Operator and Maintenance manuals.

Kubota - Z482-E	
Genie part number	52958

Checklist A Procedures

A-10
Grease the Turntable Rotation Bearing and Worm Drive Gear

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

Frequent application of lubrication to the turntable bearing and worm drive gear is essential to good machine performance and service life. Continued use of an improperly greased bearing and gear will result in component damage.

1 **Before serial number 5204:** Raise the secondary boom and place a safety chock on the secondary boom lift cylinder. Carefully lower the boom onto the lift cylinder safety chock.

⚠WARNING Crushing hazard. Keep hands away from the cylinder and all moving parts when lowering the boom.

Note: The lift cylinder safety chock is available through Genie Parts Department.

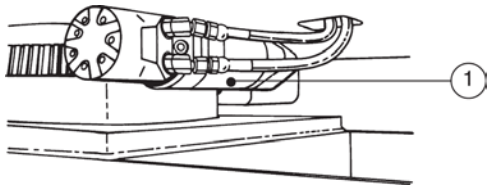
2 **Before serial number 5204:** Locate the grease fitting on the inside of the bearing in the middle of the turntable.

3 **After serial number 5203:** Locate the grease fitting in front of the function manifold below the ground control box.

4 Pump grease into the turntable rotation bearing. Rotate the turntable in increments of 4 to 5 inches / 10 to 13 cm at a time and repeat this step until the entire bearing has been greased.

5 Before serial number 5204: Remove the safety chock. Lower the boom to the stowed position.

6 Locate the grease fitting on the worm drive housing.



1 grease fitting

7 Pump grease into the gear until you see it coming out of the side of the gear housing.

8 Grease each tooth on the outside of the turntable rotation bearing.

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

A-11
Replace the Drive Hub Oil

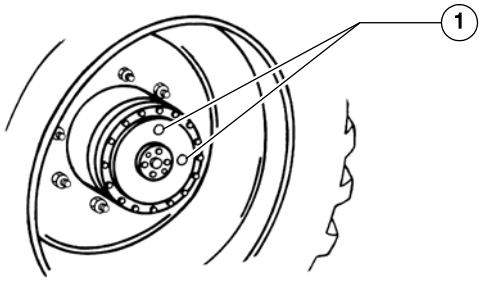
Drive hub specifications require that this one-time procedure be performed after the first 150 hours of usage. After this interval, refer to the maintenance checklist for continued scheduled maintenance.

Replacing the drive hub oil is essential for good machine performance and service life. Failure to replace the drive hub oil may cause the machine to perform poorly and continued use may cause component damage.

1 Select the drive hub to be serviced. Drive the machine until one of the two plugs is at the lowest point.

2 Remove the plugs and drain the oil into a suitable container.

3 Drive the machine until one of the two plugs is at the highest point.



1 drive hub plugs

4 Fill the hub until the oil level is even with the bottom of the lowest plug hole. Refer to Specifications, *Machine Specifications*.

5 Install the plugs into the drive hub.

6 Repeat this procedure for each drive hub.

Checklist A Procedures

A-12
Perform Engine Maintenance



Engine specifications require that this procedure be performed every 200 hours.

- Radiator hoses and clamps - check
- Intake air line - check

Required maintenance procedures and additional engine information are available in the following Operator and Maintenance manuals.

Kubota - Z482-E	
Genie part number	52958

Checklist B Procedures

B-1
Check the Exhaust System

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

Maintaining the exhaust system is essential to good engine performance and service life. Operating the engine with a damaged or leaking exhaust system can cause component damage and unsafe operating conditions.

⚠WARNING Bodily injury hazard. Do not inspect while the engine is running. Remove the key to secure from operation.

⚠CAUTION Burn hazard. Beware of hot engine components. Contact with hot engine components may result in severe burns.

1 Pull up on the pull pin on the engine pivot plate located under the pump. Swing the engine pivot plate away from the machine to access the exhaust system.

2 Be sure that all nuts and bolts are tight.

3 Inspect all welds for cracks.

4 Inspect for exhaust leaks; i.e., carbon buildup around seams and joints.

B-2
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 engine and machine performance and operational safety. Improper fluid levels or damaged cables and connections can result in engine and 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.

Note: Fully charge the batteries and allow the batteries to rest 24 hours before performing this procedure to allow the battery cells to equalize.

1 Open the side covers.

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

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

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

Models without maintenance-free or sealed batteries:

4 Put on protective clothing and eye wear.

5 Remove the battery vent caps and check the specific gravity of each battery cell with a hydrometer. Note the results.

Checklist B Procedures

6 Check the ambient air temperature and adjust the specific gravity reading for each cell as follows:

- Add 0.004 to the reading of each cell for every 10° F / 5.5° C above 80° F / 26.7° C.
- Subtract 0.004 from the reading of each cell for every 10° F / 5.5° C below 80° F / 26.7° C.

⊙ Result: All battery cells display an adjusted specific gravity of 1.277 or higher. The battery is fully charged. Proceed to step 11.

⊠ Result: One or more battery cells display a specific gravity of 1.276 or below. Proceed to step 8.

7 Perform an equalizing charge OR fully charge the battery(s) and allow the battery(s) to rest at least 6 hours.

8 Remove the battery vent caps and check the specific gravity of each battery cell with a hydrometer. Note the results.

9 Check the ambient air temperature and adjust the specific gravity reading for each cell as follows:

- Add 0.004 to the reading of each cell for every 10° F / 5.5° C above 80° F / 26.7° C.
- Subtract 0.004 from the reading of each cell for every 10° F / 5.5° C below 80° F / 26.7° C.

⊙ Result: All battery cells display a specific gravity of 1.277 or greater. The battery is fully charged. Proceed to step 11.

⊠ Result: One or more battery cells display a specific gravity from 1.218 to 1.269. The battery is still usable, but at a lower performance. The battery will need to be recharged more often. Proceed to step 11.

⊠ Result: One or more battery cells display a specific gravity from 1.217 to 1.173. The battery is approaching the end of it's life. Proceed to step 11.

⊠ Result: The difference in specific gravity readings between cells is greater than 0.1 OR the specific gravity of one or more cells is less than 1.177. Replace the battery.

10 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.

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

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

- Engine compartment
- Engine wiring harness
- Hydraulic manifold wiring
- Inside of the ground control box

2 Open the ground controls side turntable cover.

3 Start the engine from the ground controls and raise the secondary boom above the turntable covers.

4 Remove the center turntable cover retaining fasteners. Remove the center turntable cover from the machine.

5 Inspect the turntable area for burnt, chafed and pinched cables.

6 Lower the secondary boom to the stowed position and turn the engine off.

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

- Cable track on the primary boom
- Cables on the primary, secondary and jib booms
- Inside of the platform control box

8 Inspect for a lite, even coating of dielectric grease in the following locations:

- All wire harness connectors to platform control box

Note: Do not apply excessive amounts of dielectric grease to harness connectors, pins or sockets.

Note: Do not apply dielectric grease to a engine ECU/ECM or engine harness connectors.

Checklist B Procedures

B-4
Inspect the Tires, Wheels and Lug Nut Torque

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

Maintaining the tires and wheels, including proper wheel fastener 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.

⚠WARNING Bodily injury hazard. An over-inflated tire can explode and could cause death or serious injury.

⚠WARNING Tip-over hazard. Do not use temporary flat tire repair products.

Note: The tires on some machines are foam-filled and do not need air added to them.

1 Check all tire treads and sidewalls for cuts, cracks, punctures and unusual wear.

2 Check each wheel for damage, bends and cracked welds.

3 Check each lug nut for proper torque. Refer to Specifications, *Machine Specifications*.

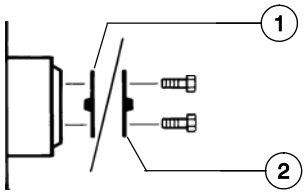
4 Check the pressure in each air-filled tire.

B-5
Confirm the Proper Brake Configuration

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

Proper brake configuration is essential to safe operation and good machine performance. Hydrostatic brakes and hydraulically-released, spring-applied individual wheel brakes can appear to operate normally when they are actually not fully operational.

1 Check each drive hub disconnect cap to be sure it is in the engaged position.



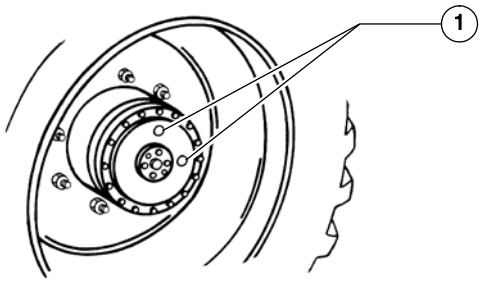
1 brake disengaged position
2 brake engaged position

B-6
Check the Oil Level in the Drive Hubs

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

Failure to maintain proper drive hub oil levels may cause the machine to perform poorly and continued use may cause component damage.

1 Drive the machine to rotate the hub until the plugs are located one on top and the other at 90 degrees.



1 drive hub plugs

2 Remove the plug located at 90 degrees and check the oil level.

⊙ Result: The oil level should be even with the bottom of the plug hole.

3 If necessary, remove the top plug and add oil until the oil level is even with the bottom of the side plug hole.

4 Install the plug(s) into the drive hub.

5 Check the torque of the drive hub mounting bolts. Refer to Specifications, *Machine Specifications*.

6 Repeat this procedure for each drive hub.

B-7
Check the Glow Plugs

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

Maintaining the glow plugs in good condition is essential to good engine performance and service life. Improperly functioning glow plugs will cause the engine to perform poorly and may result in component damage.

1 Connect the leads from an ohmmeter between the far left glow plug and ground.

⊙ Result: The resistance should be approximately 1Ω.

2 If the ohm reading is different than 1Ω, remove the wire and connector plate from the three individual glow plugs. Then, one glow plug at a time, measure the resistance between the glow plug and ground.

⊙ Result: The resistance should be approximately 1.8Ω for each individual glow plug.

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

4 Connect the red positive (+) lead from a volt meter to one of the glow plugs. Connect the black negative (-) lead to ground.

5 Hold the glow plug switch in the on position.

⊙ Result: The volt meter should read 12V DC or more.

6 Repeat steps 4 and 5 for the other glow plug.

Checklist B Procedures

B-8
Check and Adjust the Engine RPM

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

Maintaining the engine rpm at the proper setting for both low and high idle is essential to good engine performance and service life. The machine will not operate properly if the rpm is incorrect and continued use may cause component damage.

Note: Two people will be required to perform this procedure.

Note: Perform this procedure with the engine at normal operating temperature.

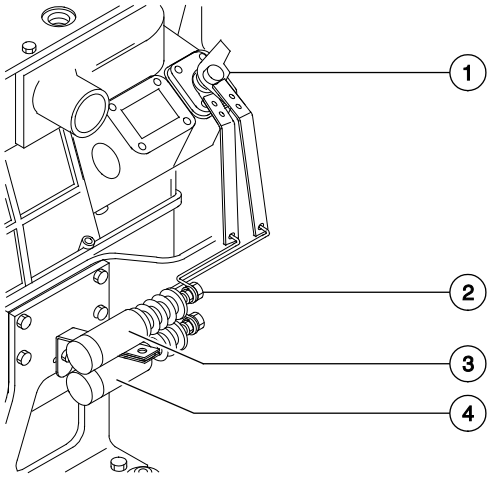
1 Connect an rpm gauge to the engine, and then start the engine from the ground controls.

⊙ Result: Low idle should be 2000 rpm.

Skip to step 3 if the low idle rpm is correct.

2 Loosen the lock nut, then turn the low idle adjustment screw clockwise to increase the rpm or counterclockwise to decrease the rpm. Tighten the lock nut and recheck the rpm.

Kubota Z482-E



1 low idle adjustment screw (not shown)
2 high idle adjustment nut
3 high idle solenoid
4 fuel shut off solenoid

3 Move the engine idle control switch to high idle (rabbit symbol) from the ground controls.

⊙ Result: High idle should be 3000 rpm.

If high idle rpm is correct, disregard adjustment step 4.

4 Loosen the lock nut on the solenoid, then turn the solenoid boot counterclockwise to increase the rpm or clockwise to decrease the rpm. Tighten the lock nut and recheck the rpm.

B-9
Test the Ground Control Override

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

A properly functioning ground control override is essential to safe machine operation. The ground control override function is intended to allow ground personnel to operate the machine from the ground controls whether or not the Emergency Stop button on the platform controls is in the on or off position. This function is particularly useful if the operator at the platform controls cannot return the boom to the stowed position.

1 Push in the platform red Emergency Stop button to the off position.

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

3 At the ground controls, operate each boom function through a partial cycle.

⊙ Result: All boom functions should operate.

B-10
Test the Platform Self-leveling



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

Automatic platform self-leveling throughout the full cycle of boom raising and lowering is essential for safe machine operation. The platform is maintained at level by the platform leveling slave cylinder which operates in a closed loop hydraulic circuit with the master cylinder located at the base of the boom. A platform self-leveling failure creates an unsafe working condition for platform and ground personnel.

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

2 Lower the boom to the stowed position.

3 Activate function enable and adjust the platform to a level position.

4 Raise and lower the primary boom through a full cycle.

⊙ Result: The platform should remain level at all times to within ±5 degrees.

Checklist B Procedures

B-11
Test the Engine Idle Select Operation

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

A properly operating engine idle select switch is essential to good engine performance and safe machine operation. There are three settings.

Low idle (turtle symbol): Low idle and slow battery charging.

High idle (rabbit symbol): High idle and quickest battery charging.

Foot switch activated high idle (rabbit and foot switch symbols): Activates high idle only when the foot switch is pressed down.

1 Pull out the red Emergency Stop button to the on position at both the ground and platform controls.

2 Start the engine from the ground controls. Then move the engine idle control switch to high idle (rabbit symbol) and hold in the on position.

⊙ Result: The engine should change to high idle.

3 Release the engine idle control switch.

⊙ Result: The engine should return to low idle.

4 Turn the key switch to platform controls.

5 Move the engine idle control switch to high idle (rabbit symbol).

6 Result: The engine should change to high idle.

7 Move the engine idle control switch to low idle (turtle symbol).

8 Result: The engine should return to low idle.

9 Move the engine idle select switch to foot switch activated high idle (rabbit and foot switch symbol).

⊙ Result: The engine should not change to high idle.

10 Press down the foot switch.

⊙ Result: The engine should change to high idle.

B-12
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 they are actually not fully operational.

⚠WARNING Collision hazard. Be sure that the machine is not in free-wheel or partial free-wheel configuration. Refer to maintenance procedure, *Confirm the Proper Brake Configuration*.

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

1 Mark a test line on the ground for reference.

2 Lower the boom to the stowed position.

3 Turn the key switch to platform controls.

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

5 Bring the machine to top drive speed before reaching the test line. Release the drive joystick when your reference point on the machine crosses the test line.

6 Measure the distance between the test line and your machine reference point. Refer to Specifications, *Performance Specifications*.

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

B-13
Test the Drive Speed – Stowed Position



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

Proper drive function is 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: Select a test area that is firm, level and free of obstructions.

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

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

3 Lower the boom to the stowed position.

4 Choose a point on the machine (i.e., contact patch of a tire) as a visual reference for use when crossing the start and finish lines.

5 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.

6 Continue at full speed and note the time when the machine reference point crosses the finish line. Refer to Specifications, *Performance Specifications*.

Checklist B Procedures

B-14
Test the Drive Speed – Raised or Extended Position



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

Proper drive function is 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: Select a test area that is firm, level and free of obstructions.

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

2 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.

3 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.

4 Continue at full speed and note the time when the machine reference point crosses the finish line. Refer to Specifications, *Performance Specifications*.

5 Lower the boom to the stowed position and extend the boom 1 foot / 30 cm.

6 Choose a point on the machine (i.e., contact patch of a tire) as a visual reference for use when crossing the start and finish lines.

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

8 Continue at full speed and note the time when the machine reference point crosses the finish line. Refer to Specifications, *Performance Specifications*.

B-15
Test the Alarm Package (if equipped)

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

The alarm package includes:

- Travel alarm
- Descent alarm
- Flashing beacon

Alarms and a beacon are installed to alert operators and ground personnel of machine proximity and motion. The alarm package is installed on the turntable covers.

Note: The alarms and beacon will operate with the engine running or not running.

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

⊙ Result: The flashing beacon should be on and flashing.

2 Move the function enable switch to either side and activate the primary boom toggle switch in the down position, hold for a moment and then release it.

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

3 Move the function enable switch to either side and activate the secondary boom toggle switch in the down position, hold for a moment and then release it.

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

4 Move the function enable toggle switch to either side and activate the jib boom toggle switch in the down position, hold for a moment and then release it.

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

5 Turn the key switch to platform controls.

⊙ Result: The flashing beacon should be on and flashing.

6 Press down the foot switch. Activate the primary boom toggle switch in the down position, hold for a moment and then release it.

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

7 Press down the foot switch. Activate the secondary boom toggle switch in the down position, hold for a moment and then release it.

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

8 Press down the foot switch. Activate the jib boom toggle switch in the down position, hold for a moment and then release it.

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

9 Press down the foot switch. Move the drive control handle off center, hold for a moment and then release it. Move the drive control handle off center in the opposite direction, hold for a moment and then release it.

10 Result: The travel alarm should sound when the drive control handle is moved off center in either direction.

Checklist B Procedures

B-16
Check the Electrical Contactors

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

Maintaining the electrical contactors in good condition is essential to safe machine operation. Failure to locate a worn or damaged contactor could result in an unsafe working condition and component damage.

1 Remove the non-steer drive chassis cover and locate the electrical contactors mounted on the component mounting panel.

2 Visually inspect the contact points of each contactor for the following items:

- Excessive burns
- Excessive arcs
- Excessive pitting

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

Note: Replace the contactors if any damage is found.

B-17
Inspect the Fuel and Hydraulic Tank Cap Venting Systems

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.

Free-breathing fuel and hydraulic tank caps are essential for good machine performance and service life. A dirty or clogged tank cap may cause the machine to perform poorly and continued use may cause component damage. Extremely dirty conditions may require that the caps be inspected more often.

⚠DANGER Explosion and fire hazard. Engine fuels are combustible. Perform this procedure in an open, well-ventilated area away from heaters, sparks, flames and lighted tobacco. Always have an approved fire extinguisher within easy reach.

Note: Perform this procedure with the engine off.

1 Remove the fuel filler cap from the tank.

2 Check for proper venting.

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

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

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

3 Using a mild solvent, carefully wash the cap venting system. Dry using low pressure compressed air. Repeat this procedure beginning with step 2.

4 Install the fuel tank cap onto the fuel tank.

5 Remove the breather cap from the hydraulic tank.

6 Check for proper venting.

⊙ Result: Air passes through the breather cap. Proceed to step 8.

⊠ Result: If air does not pass through the cap, clean or replace the cap. Proceed to step 7.

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

7 Using a mild solvent, carefully wash the cap venting system. Dry using low pressure compressed air. Repeat this procedure beginning with step 6.

8 Install the breather cap onto the hydraulic tank.

B-18
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 and a clogged suction strainer 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. For hydraulic oil specifications, Refer to Specifications, *Hydraulic Specifications*.

Note: 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. Refer to Maintenance Procedure, *Test or Replace the Hydraulic Oil*.

Checklist B Procedures

B-19
Test the Emergency Power System

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

Testing the emergency power system regularly is essential to safe machine operation if the primary power source fails.

Note: Perform this procedure with the engine off.

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

2 At the ground controls, break the security tie and lift the emergency power switch cover (if equipped).

3 Simultaneously hold the emergency power switch on and activate each boom function toggle switch.

Note: To conserve battery power, test each function through a partial cycle.

⊙ Result: All boom functions operate.

4 Close the emergency power switch cover and secure the cover with a security tie (if equipped).

5 Turn the key switch to platform controls.

6 At the platform controls, break the security tie and lift the emergency power switch cover (if equipped).

7 Press down on the foot switch and simultaneously hold the emergency power switch on and activate each boom function.

Note: To conserve battery power, test each function through a partial cycle.

⊙ Result: All boom functions operate.

8 Close the emergency power switch cover and secure the cover with a security tie (if equipped).

B-20
Perform Engine Maintenance



Engine specifications require that this procedure be performed every 400 hours.

- Fuel filter - replace

Required maintenance procedures and additional engine information are available in the following Operator and Maintenance manuals.

Kubota - Z482-E	
Genie part number	52958

Checklist C Procedures

C-1
Grease the Platform Overload Mechanism (if equipped)



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

Perform this procedure more often if dusty conditions exist.

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

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

2 Thoroughly pump grease into each grease fitting.

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

C-2
Test 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.

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

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

1 Remove all weight, tools, accessories and equipment from the platform.

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

2 Turn the key switch to platform controls and pull out the red Emergency Stop button to the on position at both the ground and platform controls. Start the engine from the platform controls and level the platform. Do not turn the engine off.

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

Checklist C Procedures

4 Using a suitable lifting device, place a test weight equal to that of the available capacity in one of the locations shown. Refer to Illustration 1.

⊙ Result: The platform overload indicator lights should be off at both the ground and platform controls, the alarm should not sound and the engine should continue to run.

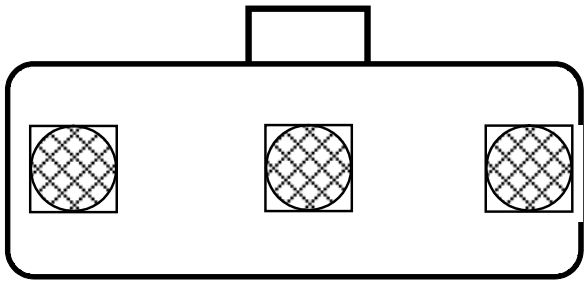


illustration 1

5 Carefully move the test weights to each remaining location on the platform. Refer to Illustration 1.

⊙ Result: The platform overload indicator lights should be off at both the ground and platform controls, the alarm should not sound and the engine should continue to run.

6 Add additional weight to the platform that is equal to, but does not exceed 15% of the maximum rated load. Secure the additional weight. Refer to the machine serial plate.

⊙ Result: The platform overload indicator lights should be flashing at both the ground and platform controls, the alarm should sound and the engine should turn off.

Note: There may be a 2 second delay before the overload indicator lights flash and the alarm sounds.

7 Carefully move the test weights to each remaining location on the platform. Refer to Illustration 1.

⊙ Result: The platform overload indicator lights should be flashing at both the ground and platform controls, the alarm should sound and the engine should not start and run.

Note: There may be a 2 second delay before the overload indicator lights flash and the alarm sounds.

8 Turn the key switch to ground control.

9 Using auxiliary power, test all machine functions from the ground controls.

⊙ Result: All ground control functions should not operate.

10 Using a suitable lifting device, lift the additional test weight from the platform.

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

Note: There may be an 2 second delay before the overload indicator lights and alarm turn off.

11 Start the engine and test all machine functions from the ground controls.

⊙ Result: All ground control functions should operate normally.

12 Using a suitable lifting device, remove all test weights from the platform.

Checklist C Procedures

C-3
Perform Engine Maintenance



Engine specifications require that this procedure be performed every 500 hours.

- Air cleaner element - replace
- Fan belt - replace
- Cleaning of water jacket (radiator interior)
- Removal of sediment in fuel tank
- Recharging battery
- Damage in electric wiring and loose connections - check

Required maintenance procedures and additional engine information are available in the following Operator and Maintenance manuals.

Kubota - Z482-E	
Genie part number	52958

C-4
Perform Engine Maintenance



Engine specifications require that this procedure be performed every 800 hours.

- Valve clearance - check

Required maintenance procedures and additional engine information are available in the following Operator and Maintenance manuals.

Kubota - Z482-E	
Genie part number	52958

Checklist D Procedures

D-1
Check the Boom Wear Pads

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

Maintaining the boom wear pads in good condition is essential to safe machine operation. Wear pads are placed on boom tube surfaces to provide a low friction, replaceable wear pad between moving parts. Improperly shimmed wear pads or continued use of extremely worn wear pads may result in component damage and unsafe operating conditions.

1 Measure each wear pad. Replace the wear pad once it reaches the minimum allowable thickness. If the wear pad is still within specification, shim as necessary to obtain minimum clearance with zero binding.

2 Extend and retract the boom through the entire range of motion to check for tight spots that may cause binding or scraping of the boom.

Note: Always maintain squareness between the outer and inner boom tubes.

D-2
Check the Turntable Rotation Bearing Bolts

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

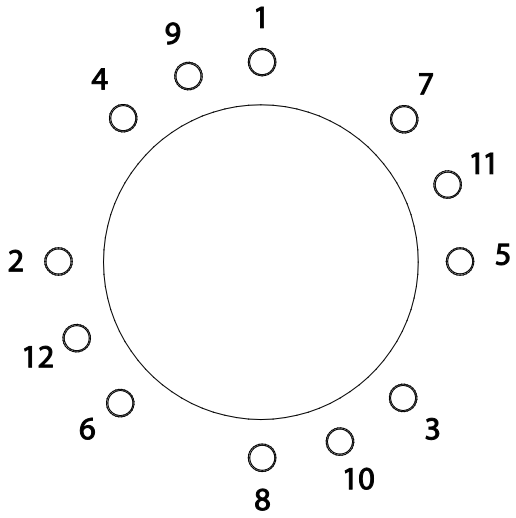
Maintaining proper torque on the turntable bearing bolts is essential to safe machine operation. Improper bolt torque could result in an unsafe operating condition and component damage

1 Raise the secondary boom and place a safety chock on the lift cylinder rods. Carefully lower the boom onto the lift cylinder safety chock.

⚠WARNING Crushing hazard. Keep hands away from the cylinder and all moving parts when lowering the boom.

Note: The lift cylinder safety chock is available through Genie Parts Department.

2 Confirm that each turntable mounting bolt is torqued in sequence to specification. Refer to Specifications, *Machine Torque Specifications.*



Bolt torque sequence

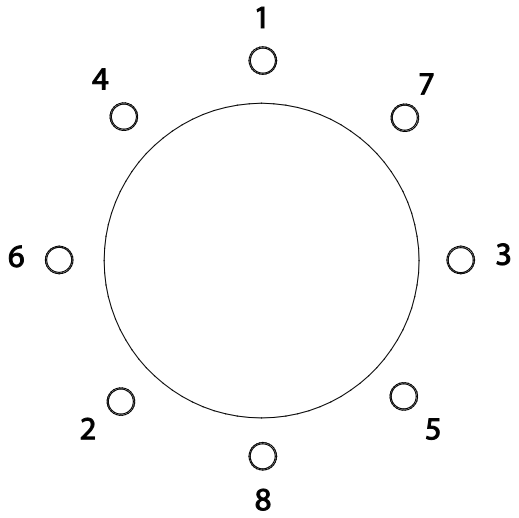
Checklist D Procedures

3 Raise the secondary boom and remove the safety chocks.

4 Lower the boom to the stowed position.

5 Access the turntable bearing bolts through the access hole on the side of the chassis.

6 Confirm that each turntable mounting bolt is torqued in sequence to specification. Refer to Specifications, *Machine Torque Specifications.*



Bolt torque sequence

D-3
Inspect for Turntable Bearing Wear

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

Periodic inspection of turntable bearing wear is essential to safe machine operation, good machine performance and service life. Continued use of a worn turntable bearing could create an unsafe operating condition, resulting in death or serious injury and component damage.

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

1 Grease the turntable bearing. Refer to Maintenance Procedure, *Grease the Turntable Bearing and Rotate Gear*.

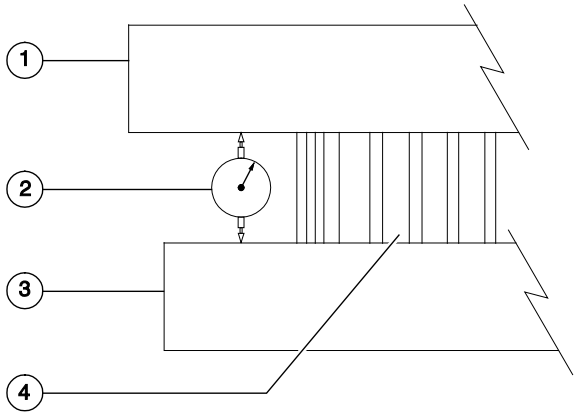
2 Torque the turntable bearing bolts to specification. Refer to Maintenance Procedure, *Check the Turntable Rotation Bearing Bolts*.

3 Raise the primary and secondary booms to full height using the ground controls. Do not extend the primary boom.

Checklist D Procedures

4 Place a dial indicator between the drive chassis and the turntable at a point that is directly under, or inline with, the boom and no more than 1 inch / 2.5 cm from the bearing.

Note: To obtain an accurate measurement, place the dial indicator no more than 1 inch / 2.5 cm from the turntable rotation bearing.



1 turntable
2 dial indicator
3 drive chassis
4 turntable rotation bearing

5 Adjust the dial indicator needle to the "zero" position.

6 Lower the secondary boom to the stowed position and lower the primary boom to a horizontal position. Fully extend the primary boom.

7 Note the reading on the dial indicator.

⊙ Result: The measurement is less than 0.055 inch / 1.4 mm. The bearing is good.

⊠ Result: The measurement is more than 0.055 inch / 1.4 mm. The bearing is worn and needs to be replaced.

8 Fully retract the primary boom. Raise the primary and secondary booms to full height. Visually inspect the dial indicator to be sure the needle returns to the "zero" position.

9 Remove the dial indicator and rotate the turntable 90°.

10 Repeat steps 4 through 9 until the rotation bearing has been checked in at least four equally spaced areas 90° apart.

11 Lower the primary and secondary booms to the stowed position and turn the machine off.

12 Remove the dial indicator from the machine.

Checklist D Procedures

D-4
Check the Free-wheel Configuration

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

Proper use of the free-wheel configuration is essential to safe machine operation. The free-wheel configuration is used primarily for towing. A machine configured to free-wheel without operator knowledge may cause death or serious injury and property damage.

⚠WARNING Collision hazard. Select a work site that is firm and level.

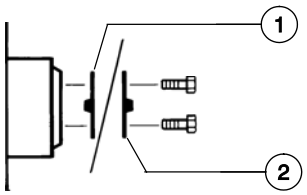
NOTICE Component damage hazard. If the machine must be towed, do not exceed 2 mph / 3.2 km/h.

1 Chock the steer wheels to prevent the machine from rolling.

2 Center a lifting jack of ample capacity (20,000 lbs / 10,000 kg) under the drive chassis between the non-steer tires.

3 Lift the wheels off the ground and then place jack stands under the drive chassis for support.

4 Disengage the drive hubs by turning over the drive hub disconnect caps on each non-steer wheel hub.



1 brake disengaged position
2 brake engaged position

5 Manually rotate each non-steer wheel.

⊙ Result: Each non-steer wheel should rotate with minimum effort.

6 Re-engage the drive hubs by turning over the hub disconnect caps. Rotate each wheel to check for engagement. Raise the machine, remove the jack stands and lower the machine.

⚠WARNING Collision hazard. Failure to re-engage the drive hubs could result in death or serious injury and property damage.

D-5
Replace the Drive Hub Oil

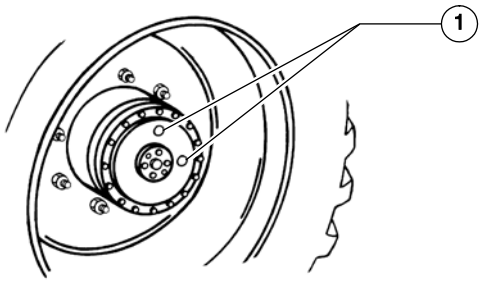
Genie specifications require that this procedure be performed every 1000 hours or annually, whichever comes first.

Replacing the drive hub oil is essential for good machine performance and service life. Failure to replace the drive hub oil at yearly intervals may cause the machine to perform poorly and continued use may result in component damage

1 Select the drive hub to be serviced. Drive the machine until one of the two plugs is at the lowest point.

2 Remove the plugs and drain the oil into a suitable container.

3 Drive the machine until one of the two plugs is at the highest point.



1 drive hub plugs

4 Fill the hub until the oil level is even with the bottom of the lowest plug hole. Refer to Specifications, *Machine Specifications*.

5 Repeat this procedure for each drive hub.

D-6
Replace the Hydraulic Return Filter

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

Perform this procedure more often if dusty conditions exist.

Replacement of the hydraulic filters 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 Bodily injury hazard. Beware of hot oil. Contact with hot oil may cause severe burns.

Note: Perform this procedure with the engine off.

1 Locate the hydraulic return filter housing on top of the hydraulic tank.

2 Clean the area around the oil filter housing cap located on top of the reservoir.

3 Remove the cap from the housing.

4 Lift the handle on the filter element and rotate the element counterclockwise to release the element from the housing.

5 Remove the filter element from the filter housing.

6 Install the new oil filter element into the filter housing.

Checklist D Procedures

7 Push the filter element down to be sure the o-ring on the element is fully seated into the housing.

8 Rotate the filter element clockwise to lock it in place.

9 Install the filter housing cap.

10 Clean up any oil that may have spilled during the replacement procedure.

11 Use a permanent ink marker to write the date and number of hours from the hour meter on the oil filter housing.

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

13 Move and hold the function enable toggle switch to either side and move and hold the primary boom toggle switch in the up direction.

14 Inspect the filter housing and related components to be sure that there are no leaks.

Checklist E Procedures

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.

Perform this procedure more often if dusty conditions exist.

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

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

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

1 Close the two hydraulic tank shut-off valves at the hydraulic tank.

NOTICE Component damage hazard. The machine must not be operated with the hydraulic tank shutoff valve in the closed position or component damage will occur. If the tank valve is closed, remove the key from the key switch and tag the machine to inform personnel of the condition.

2 Place a suitable container under the hydraulic tank. See capacity specifications.

3 Disconnect and plug the hydraulic hose from the hydraulic tank shutoff valve.

⚠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.

4 Open the valve on the hydraulic tank and drain the oil into a suitable container.

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

5 Tag, disconnect and plug the hydraulic hoses from the hydraulic tank filter. Cap the fittings on the filter.

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

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

Checklist E Procedures

6 Remove the hydraulic tank mounting fasteners.

7 Remove the hydraulic tank from the machine.

8 Remove the tank lid retaining fasteners then remove the lid from the tank.

9 Clean the suction strainer using a mild solvent.

10 Rinse out the inside of the tank with a mild solvent.

11 Install the lid onto the hydraulic tank.

12 Install the hydraulic tank on the machine. Install the hydraulic tank mounting fasteners and torque to 8 ft-lbs / 10.8 Nm.

NOTICE Component damage hazard. The hydraulic tank may become damaged if the tank mounting fasteners are over tightened.

13 Install the hydraulic hoses.

14 Fill the tank with hydraulic oil until the fluid until the fluid is within the full and add marks on the hydraulic tank. Refer to Specifications, Machine Specifications.

15 Clean up any oil that may have spilled. Properly discard of oil.

NOTICE Component damage hazard. Be sure to open the hydraulic tank shutoff valve after installing the hydraulic tank.

E-2
Grease the Steer Axle Wheel Bearings, 2WD Models



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

Perform this procedure more often if dusty conditions exist.

Maintaining the steer axle wheel bearings is essential for safe machine operation and service life. Operating the machine with loose or worn wheel bearings may cause an unsafe operating condition and continued use may result in component damage. Extremely wet or dirty conditions or regular steam cleaning and pressure washing of the machine may require that this procedure be performed more often.

1 Loosen the wheel lug nuts. Do not remove them.

2 Block the non-steer wheels, then center a lifting jack under the steer axle.

3 Raise the machine 6 inches / 15 cm and place blocks under the drive chassis for support.

4 Remove the lug nuts. Remove the tire and wheel assembly.

5 Check for wheel bearing wear by attempting to move the wheel hub side to side, then up and down.

⊙ Result: There should be no side to side or up and down movement.

Skip to step 10 if there is no movement.

Checklist E Procedures

6 Remove the dust cap from the hub. Remove the cotter pin from the castle nut.

7 Tighten the castle nut to 35 ft-lbs / 47 Nm to seat the bearings.

8 Loosen the castle nut and re-tighten to 8 ft-lbs / 11 Nm.

9 Check for wheel bearing wear by attempting to move the wheel hub side to side, then up and down.

⊙ Result: If there is no side to side or up and down movement, continue with step 11 and grease the wheel bearings.

☒ Result: If there is side to side or up and down movement, continue to step 11 and replace the wheel bearings with new ones.

Note: When replacing a wheel bearing, both the inner and outer bearings, including the pressed-in races, must be replaced.

10 Remove the dust cap from the hub. Remove the cotter pin from the castle nut.

11 Remove the castle nut.

12 Pull the hub off of the spindle. The washer and outer bearing should fall loose from the hub.

13 Place the hub on a flat surface and gently pry the bearing seal out of the hub. Remove the rear bearing.

14 Pack both bearings with clean, fresh grease.

15 Place the large inner bearing into the rear of the hub.

16 Install a new bearing grease seal into the hub by pressing it evenly into the hub until it is flush.

17 Slide the hub onto the yoke spindle.

NOTICE Component damage hazard. Do not apply excessive force or damage to the lip of the seal may occur.

18 Place the outer bearing into the hub.

19 Install the washer and castle nut.

20 Tighten the slotted nut to 35 ft-lbs / 47 Nm to seat the bearings.

21 Loosen the castle nut and re-tighten to 8 ft-lbs / 11 Nm.

22 Install a new cotter pin. Bend the cotter pin to lock it in.

Note: Always use a new cotter pin when installing a castle nut.

23 Install the dust cap, then the tire and wheel assembly. Torque the wheel lug nuts to specification. Refer to Specifications, *Machine Specifications*.

Checklist E Procedures

E-3
Perform Engine Maintenance



Engine specifications require that this procedure be performed every 2000 hours.

- Radiator coolant (L.L.C.) - replace
- Battery - replace
- Radiator hoses and clamp bands - replace
- Fuel pipes and clamp bands - replace
- Intake air line - replace

Required maintenance procedures and additional engine information are available in the following Operator and Maintenance manuals.

Kubota - Z482-E	
Genie part number	52958

E-4
Perform Engine Maintenance



Engine specifications require that this procedure be performed every 3000 hours.

- Turbo charger - check
- Injection pump - check
- Fuel injection timing - check

Required maintenance procedures and additional engine information are available in the following Operator and Maintenance manuals.

Kubota - Z482-E	
Genie part number	52958

Repair Procedures



Observe and Obey:

☑ Repair procedures shall be completed by a person trained and qualified on the repair of this machine.

☑ Immediately tag and remove from service a damaged or malfunctioning machine.

☑ Repair any machine damage or malfunction before operating the machine.

Before Repairs Start:

☑ Read, understand and obey the safety rules and operating instructions in the appropriate operator's manual on your machine.

☑ Be sure that all necessary tools and parts are available and ready for use.

☑ Use only Genie approved replacement parts.

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

Machine Configuration:

☑ Unless otherwise specified, perform each repair procedure with the machine in the following configuration:

- Machine parked on a firm, level surface
- Key switch in the off position with the key removed
- The red Emergency Stop button in the off position at both the ground and platform controls
- Wheels chocked
- All external AC power supply disconnected from the machine
- Boom in the stowed position
- Turntable secured with the turntable rotation lock

Repair Procedures

About This Section

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

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

Symbols Legend



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

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

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

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

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

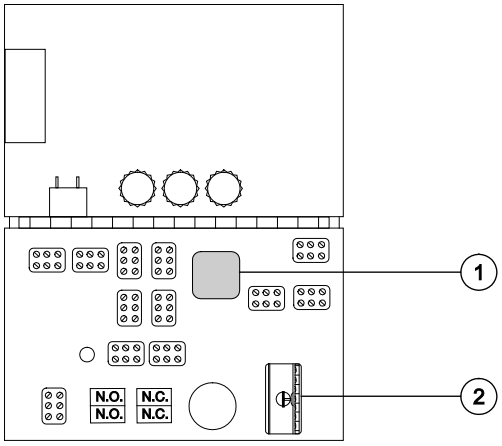
⊙ Indicates that a specific result is expected after performing a series of steps.

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

1-1 Controllers

Platform Controls

The drive joystick is connected to the drive motor controller located under the non-steer end drive chassis cover. The drive motor controller can also recognize machine drive malfunctions and display controller fault codes by flashing a LED at the ground controls. See the Troubleshooting section of this manual for a list of fault codes and additional information. There are no adjustments needed on the drive joystick controller. For further information or assistance, contact the Genie Product Support.



1 boom function speed controller
2 drive joystick

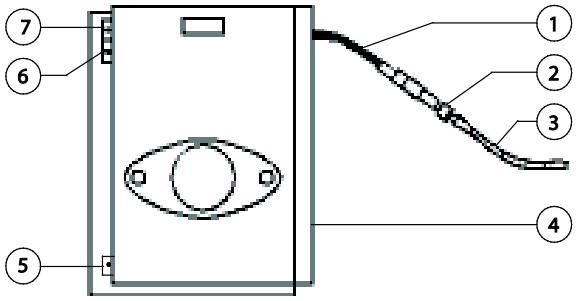
Boom Function Speed Controller Adjustments

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

Note: Do not adjust the boom function speed controller unless the static battery supply voltage is above 24V DC.

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

2 Open the platform control box lid and locate the boom function speed controller.



1 black/red wire
2 diode
3 white/red wire
4 boom function speed controller
5 ramp rate trimpot
6 threshold trimpot
7 max out trimpot

Platform Controls

3 Locate the diode between the black/red wire from the boom function speed controller and the white/red wire. Disconnect the white/red wire from the diode on the black/red wire.

4 Connect the negative lead from a multimeter set to measure amperage to the wire connector of the white/red wire. Connect the positive lead of the multimeter to the diode on the black/red wire.

5 Turn the boom function speed controller to the creep position.

6 Set the threshold: Press down the foot switch and move the primary boom toggle switch to the up position. Adjust the amperage to 0.28A. Turn the threshold trimpot adjustment screw clockwise to increase the amperage or counterclockwise to decrease the amperage.

7 Turn the boom function speed controller to the 9 position.

8 Set the max out: Press down the foot switch and move the primary boom toggle switch to the down position. Adjust the amperage to 0.65A. Turn the max out trimpot adjustment screw clockwise to increase the amperage or counterclockwise to decrease the amperage.

9 Start a timer and simultaneously press down the foot switch and move the primary boom toggle switch in the down direction. Note how long it takes to reach 0.65A.

10 Set the ramp rate: Turn the ramp rate trimpot to obtain a 2 second delay from 0 to 0.65A. Turn the trimpot clockwise to increase the time or counterclockwise to decrease the time.

11 Disconnect the leads from the multimeter and connect the white/red wire to the diode on the black/red wire.

Boom function speed controller specifications	
Threshold (controller turned to creep)	0.28A
Max out (controller turned to 9)	0.65A
Ramp rate	2 seconds

1-2 Diodes

How to Test a Diode

1 Connect the leads from an ohmmeter to each end of the diode.

2 Re-connect the leads from the ohmmeter to the opposite ends (from step 1) of the diode. The diode should have resistance in one direction and not the other.

1-3 Foot Switch

How to Test the Foot Switch

1 Turn the key switch to the off position. Remove the fasteners securing the foot switch to the platform and remove the bottom cover from the foot switch.

2 Do not press down the foot switch. Connect the leads from an ohmmeter or continuity tester to each wire combination listed on the next page and check for continuity.

Test	Desired result
red to black	continuity (zero Ω)
red to white	no continuity (infinite Ω)
black to white	no continuity

Note: Do not use the color of the connector as a guide for these tests. Use the actual wire color to identify which connector to use for testing.

3 Press down the foot switch. Connect the leads from an ohmmeter or continuity tester to each wire combination listed below and check for continuity.

Test	Desired result
red to black	no continuity (infinite Ω)
red to white	no continuity
black to white	continuity (zero Ω)

Platform Controls

1-4 Toggle Switches

Toggle switches used for single function switching are single pole double throw (SPDT) switches. Dual function switching requires a double pole double throw (DPDT) switch.

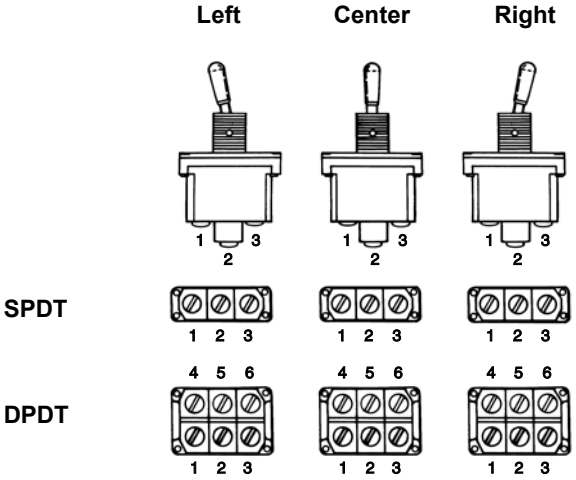
How to Test a Toggle Switch

Note: Continuity is the equivalent of 0 to 3 ohms. A simple continuity tester may not accurately test the switch.

This procedure covers fundamental switch testing and does not specifically apply to all varieties of toggle switches.

1 Turn the key switch to the off position. Tag and disconnect all wiring from the toggle switch to be tested.

2 Connect the leads of an ohmmeter to the switch terminals in the following combinations listed below to check for continuity.



Note: Single pole double throw (SPDT). Double pole double throw (DPDT)

Test	Desired result
Left position	
terminal 1 to 2, 3, 4, 5 & 6	no continuity (infinite Ω)
terminal 2 to 3	continuity (zero Ω)
terminal 2 to 4, 5 & 6	no continuity
terminal 3 to 4, 5 & 6	no continuity
terminal 4 to 5 & 6	no continuity
terminal 5 to 6	continuity
Center position	There are no terminal combinations that will produce continuity (infinite Ω)
Right position	
terminal 1 to 2	continuity(zero Ω)
terminal 1 to 3, 4, 5 & 6	no continuity(infinite Ω)
terminal 2 to 3, 4, 5 & 6	no continuity
terminal 3 to 4, 5 & 6	no continuity
terminal 4 to 5	continuity
terminal 4 to 6	no continuity
terminal 5 to 6	no continuity

2-1 Platform Leveling Slave Cylinder

The slave cylinder and the rotator pivot are the two primary supports for the platform. The slave cylinder keeps the platform level through the entire range of boom motion. It operates in a closed-circuit hydraulic loop with the master cylinder. The slave cylinder is equipped with counterbalance valves to prevent movement in the event of a hydraulic line failure.

How to Remove the Platform Leveling Slave Cylinder

Note: Before cylinder removal is considered, bleed the slave cylinder to be sure there is no air in the closed loop.

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

1 Extend the boom until the slave cylinder barrel-end pivot pin is accessible.

2 Raise the boom slightly and place blocks under the platform for support. Lower the boom until the platform is resting on the blocks.

3 Remove the pin retainer fastener from the rod-end pivot pin.

4 Remove the external snap ring from the barrel-end pivot pin.

5 Use a soft metal drift to remove the rod-end pivot pin.

6 Use a soft metal drift to remove the barrel-end pivot pin.

7 Carefully pull the cylinder out of the boom.

8 Tag and disconnect the hydraulic hoses from the slave cylinder and connect them togetherwith a connector. 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.

How to Bleed the Slave Cylinder

1 Raise the jib boom to a horizontal position.

2 Move the platform level toggle switch up and down through two platform leveling cycles to remove any air that might be in the system.

Platform Components

2-2
Platform Rotator

How to Remove the Platform Rotator

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

1 Remove the platform.

2 Tag, disconnect and plug the hydraulic hoses from the platform rotate 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.

3 Support the platform mounting weldment with a suitable lifting device. Do not apply any lifting pressure.

4 Remove the six mounting bolts from the platform mounting weldment. Remove the center bolt and slide the platform mounting weldment off of the platform rotator.

5 Support the platform rotator with a suitable lifting device. Do not apply any lifting pressure.

6 Remove the pin retaining fasteners from the jib boom and leveling links to platform rotator pivot pins. Do not remove the pins.

7 Use a soft metal drift to remove the leveling link pivot pin. Lower the leveling links to the ground.

8 Support the jib boom and jib boom lift cylinder with an overhead crane.

9 Use a soft metal drift to drive both pins out and remove the platform rotator from the machine.

⚠WARNING Crushing hazard. The jib boom and jib boom lift cylinder could fall when when the platform rotator is removed if not properly supported by the overhead crane.

Note: When installing the platform rotator, be sure to torque the fasteners to specification. Refer to Specifications, *Machine Torque Specifications.*

How to Bleed the Platform Rotator

Note: This procedure will require two people.

1 Move the function enable toggle switch to either side and activate the platform rotate toggle switch to the right and then to the left through two platform rotation cycles. Then hold the switch to the right position until the platform is fully rotated to the right.

2 Place a suitable container underneath the platform rotator.

3 Open the top bleed screw on the rotator, but do not remove it.

⚠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.

4 Move the function enable toggle switch to either side and hold the platform rotate toggle switch to the left position until the platform is fully rotated to the left. Continue holding the toggle switch until air stops coming out of the bleed screw. Close the bleed screw.

⚠WARNING Crushing hazard. Keep clear of the platform during rotation.

5 Open the bottom bleed screw on the rotator, but do not remove it.

⚠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 Move the function enable toggle switch to either side and hold the platform rotate toggle switch to the right position until the platform is fully rotated to the right. Continue holding the toggle switch until air stops coming out of the bleed screw. Close the bleed screw.

⚠WARNING Crushing hazard. Keep clear of the platform during rotation.

7 Clean up any hydraulic oil that may have spilled.

8 Rotate the platform fully in both directions and inspect the bleed screws for leaks.

Platform Components

2-3
Platform Overload System

How to Calibrate the Platform Overload System

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.

1 Level the platform.

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

3 Using a suitable lifting device, place an appropriate test weight equal to that of the maximum platform capacity at the center of the platform floor.

Determine the limit switch trigger point:

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

⊙ Result: **The overload indicator light and the alarm is on**. Slowly tighten the load spring adjustment nut by turning it clockwise just until the overload indicator light and alarm turns off.

Note: The platform will need to be moved up and down and allowed to settle between adjustments.

Note: There may be an approximate 2 second delay before the overload indicator light turns on and the alarm sounds.

⊙ Result: **The overload indicator light and alarm is off**. Slowly loosen the load spring adjustment nut by turning it counterclockwise just until the overload indicator light and alarm turn on.

Note: There may be an approximate 2 second delay before the overload indicator light turns on and the alarm sounds.

Note: The platform will need to be moved up and down and allowed to settle between adjustments.

Confirm the setting:

5 Turn the key switch to platform control.

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

7 Place the test weight back onto the center of the platform floor using a suitable lifting device.

⊙ Result: The alarm should be off. The platform overload indicator light should be off at both the ground and platform controls.

Note: There may be an approximate 2 second delay before the overload indicator light and alarm turn off.

8 Add an additional 10 lb / 4.5 kg test weight to the original test weight to overload the platform.

⊙ Result: The alarm should sound. The platform overload indicator light should be flashing at both the ground and platform controls.

Note: There may be an approximate 2 second delay before the overload indicator light turns on and the alarm sounds.

9 Test all machine functions from the platform controls.

⊙ Result: All platform control functions should not operate.

10 Turn the key switch to ground control.

11 Test all machine functions from the ground controls.

⊙ Result: All ground control functions should not operate.

Note: If the platform overload system is not operating properly, repeat steps 1 through 4.

Jib Boom Components

3-1
Jib Boom

How to Remove the Jib Boom

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

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

1 Remove the platform.

2 Remove the platform mounting weldment and the platform rotator. Refer to Repair Procedure, *How to Remove the Platform Rotator*.

3 Tag, disconnect and plug the jib boom lift cylinder hydraulic hoses. Cap the fittings on the jib boom 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.

4 Remove the cable cover from the side of the jib boom.

5 Tag, disconnect and plug the hydraulic hoses from ports "T" and "P" of the jib boom 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 Tag and disconnect the electrical wiring from the jib boom manifold.

7 Attach a lifting strap from an overhead crane to the jib boom.

8 Remove the pin retaining fasteners from the jib boom pivot pin at the jib boom bellcrank.

9 Use a soft metal drift to remove the jib boom pivot pin. Remove the jib boom from the jib boom bellcrank.

⚠WARNING Crushing hazard. The jib boom could fall when the pin is removed if not properly supported by the overhead crane.

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

11 Remove both of the jib boom leveling links from the bellcrank.

12 Attach a lifting strap from an overhead crane to the rod-end of the jib boom lift cylinder.

13 Use a soft metal drift to remove the jib boom lift cylinder rod-end pivot pin. Remove the jib boom lift cylinder from the jib boom bellcrank.

⚠WARNING Crushing hazard. The jib boom lift cylinder may become unbalanced and fall when it is removed from the machine if it is not properly supported by the overhead crane.

3-2
Jib Boom Bell Crank

How to Remove the Jib Boom Bell Crank

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

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

1 Remove the jib boom. Refer to Repair Procedure, *How to Remove the Jib Boom.*

2 Support and secure the jib boom bell crank to an appropriate lifting device.

3 Remove the pin retaining fasteners from the slave cylinder rod-end pivot pin. Do not remove the pin.

4 Place a block of wood under the platform leveling slave cylinder for support. Protect the cylinder rod from damage.

5 Remove the pin retaining fasteners from the jib boom bell crank at the extension boom. Use a soft metal drift to remove the pin.

6 Use a soft metal drift to remove the slave cylinder rod-end pivot pin.

7 Remove the jib boom bell crank from the extension boom.

⚠WARNING Crushing hazard. The jib boom bellcrank may become unbalanced and fall if it is not properly supported when it is removed from the machine.

3-3
Jib Boom Lift Cylinder

How to Remove the Jib Boom Lift Cylinder

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

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

1 Raise the jib boom slightly and place blocks under the platform mounting weldment. Then lower the jib boom until the platform is resting on the blocks just enough to support the platform.

Note: Do not rest the entire weight of the boom on the blocks.

2 Tag, disconnect and plug the jib boom lift cylinder hydraulic hoses. Cap the fittings on the cylinder.

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

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

Jib Boom Components

4 Use a soft metal drift to tap the rod-end pivot pin half way out and lower one of the leveling links to the ground. Tap the pin the other direction and lower the opposite leveling link. Do not remove the pin.

5 Attach a lifting strap from an overhead crane to the rod end of the jib boom lift cylinder.

6 Remove the pin retaining fasteners from the jib boom lift cylinder barrel-end pivot pin. Use a soft metal drift to remove the barrel-end pivot pin.

7 Use a soft metal drift to remove the jib boom lift cylinder rod-end pivot pin. Remove the jib boom lift cylinder from the machine.

⚠WARNING Crushing hazard. The jib boom lift cylinder may become unbalanced and fall when it is removed from the machine if it is not properly supported by the overhead crane.

Primary Boom Components

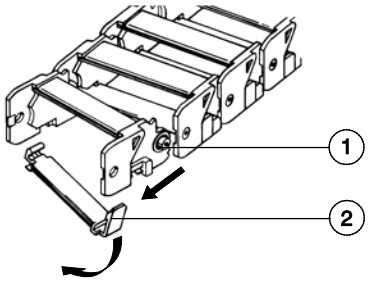
4-1
Cable Track

The primary boom cable track guides the cables and hoses running up the boom. It can be repaired link by link without removing the cables and hoses that run through it. Removing the entire primary boom cable track is only necessary when performing major repairs that involve removing the primary boom.

How to Repair the Primary Boom Cable Track

NOTICE Component damage hazard. The boom cable track can be damaged if it is twisted.

Note: A 7 link repair section of cable track is available through the Genie Service Parts Department.



1 link separation point
2 lower clip

1 Use a slotted screwdriver to pry down on the lower clip.

2 To remove a single link, open the lower clip and then use a screw driver to pry the link to the side.

3 Repeat steps 1 and 2 for each link.

4-2
Primary Boom

How to Shim the Primary Boom

1 Extend the boom until the wear pads are accessible.

2 Loosen the wear pad mounting fasteners.

3 Install the new shims under the wear pad to obtain zero clearance and zero drag.

4 Tighten the mounting fasteners.

5 Extend and retract the boom through an entire cycle. Check for tight spots that could cause scraping or binding.

Note: Always maintain squareness between the outer and inner boom tubes.

How to Remove the Primary Boom

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

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

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

1 Remove the platform.

Primary Boom Components

2 Remove the platform rotator. Refer to Repair Procedure, How to Remove the Platform Rotator.

3 Remove the jib boom. Refer to Repair Procedure, How to Remove the Jib Boom.

4 Locate the 4 cables from the primary boom cable track to the platform control box. Number each cable and its entry location at the platform control box.

5 Open the platform control box.

6 Label and disconnect each wire of the 4 cables in the platform control box.

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

7 Pull all of the cables out of the platform control box.

8 Tag, disconnect and plug the hydraulic hoses from the slave 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.

9 Tag, disconnect and plug the hydraulic hoses from the jib/rotate 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.

10 Remove the upper cable track mounting fasteners from the platform end of the boom.

11 Remove the cable track mounting fasteners, then remove the cable track from the boom and lay it flat on the ground.

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

12 Remove all of the hose and cable clamps from the underside of the primary boom.

13 Remove the turntable end cover.

14 Remove the extension boom drive limit switch from the side of the primary boom at the pivot end. Do not disconnect the wiring.

15 Pull all of the electrical cables and hydraulic hoses out of the plastic cable track.

16 Remove the pin retaining fastener from the master cylinder rod-end pivot pin. Use a soft metal drift to remove the pin. Pull the cylinder back and secure it from moving.

Primary Boom Components

17 Tag, disconnect and plug the extension 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.

18 Attach an overhead 5 ton / 5000 kg crane to the center point of the boom.

19 Attach a similar lifting device to the lift cylinder.

20 Place support blocks under the cylinder, across the secondary boom.

21 Remove the pin retaining fastener from the boom lift cylinder rod-end pivot pin. Use a soft metal drift to remove the pin.

⚠WARNING Crushing hazard. The boom lift cylinder will fall unless it is properly supported.

22 Lower the rod end of the lift cylinder onto support blocks.

23 Remove the pin retaining fastener from the primary boom pivot pin.

24 Remove the primary boom pivot pin with a soft metal drift, then carefully remove the boom from the machine.

⚠WARNING Crushing hazard. If the overhead crane is not properly attached, the boom could become unbalanced and fall when it is removed from the machine.

How to Disassemble the Primary Boom

Note: Complete disassembly of the boom is only necessary if the outer or inner boom tubes must be replaced. The extension cylinder can be removed without completely disassembling the boom. Refer to Repair Procedure, *How to Remove the Extension Cylinder.*

1 Remove the boom. Refer to Repair Procedure, *How to Remove the Primary Boom.*

2 Place blocks under the extension cylinder for support.

3 Remove the retaining fasteners from the extension cylinder barrel-end pivot pin. Use a soft metal drift to remove the pin.

4 Label the location of all wear pads from the outer boom tube at the platform end. Remove all wear pads, including shims, from the platform end of the boom.

Note: Pay careful attention to the location and amount of shims used with each wear pad.

5 Carefully rotate the barrel end of the extension cylinder until the pin mounting bore is in a vertical position.

6 Attach a lifting strap from an overhead crane to the extension tube at the platform end.

Primary Boom Components

7 Support and slide the extension tube out of the outer primary boom tube. Place the extension boom tube on blocks for support.

⚠WARNING Crushing hazard. The boom tubes could become unbalanced and fall if not properly supported by the overhead crane.

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

8 Remove the external snap rings from the extension cylinder rod-end pivot pins at the platform end of the extension tube. Use a soft metal drift to remove the pins.

9 Support and slide the extension cylinder out of the base end of the extension tube. Place the extension cylinder on blocks for support.

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

10 Remove and label the wear pads from the extension cylinder.

Note: Pay careful attention to the location of each wear pad.

4-3 Primary Boom Lift Cylinder

The primary boom lift cylinder raises and lowers the primary boom. The primary boom lift cylinder is equipped with a counterbalance valve to prevent movement in the event of a hydraulic line failure.

How to Remove the Primary Boom Lift Cylinder

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

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

1 Raise the primary boom enough to access the primary boom lift cylinder rod-end pivot pin.

2 Raise the secondary boom enough to access the primary boom lift cylinder barrel-end pivot pin.

3 Attach a lifting strap from an overhead crane to the primary boom for support. Do not apply any lifting pressure.

4 Place a block of wood across the upper secondary boom to support the cylinder when the rod-end pivot pin is removed.

Primary Boom Components

5 Attach a lifting strap from a second overhead crane or other similar lifting device to the primary boom lift cylinder.

6 Remove the rear turntable cover.

7 Place a 4 x4 inch / 10 x 10 cm block between the lower compression arms and the cross member of the upper secondary boom. Carefully lower the secondary boom onto the block.

⚠WARNING Crushing hazard. Keep hands away from the block and all moving parts when lowering the secondary boom.

8 Remove the pin retaining fasteners from the primary boom lift cylinder rod-end pivot pin. Use a soft metal drift to remove the pin.

⚠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.

9 Lower the rod end of the cylinder onto the blocks that were placed on the upper secondary boom.

10 Remove the pin retaining fasteners from the upper compression arm pivot pin (same side of machine as the primary boom lift cylinder barrel-end pivot pin retaining fasteners).

11 Place a rod through the compression arm pivot pin and twist to remove the pin.

12 Swing the compression arm up out of the way and secure it from moving.

13 Tag, disconnect and plug the primary boom lift cylinder hydraulic hoses. Cap the fittings on the cylinder.

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

14 Support the primary boom lift cylinder with straps or ropes to restrict it from swinging freely when the barrel-end pivot pin is removed.

15 Remove the pin retaining fasteners from the lift cylinder barrel-end pivot pin. Do not remove the pivot pin.

16 Use the overhead crane to raise the primary boom 1 inch / 2.5 cm. This will relieve pressure on the barrel-end pivot pin.

17 Place a rod through the barrel-end pivot pin and twist to remove the pin.

⚠WARNING Crushing hazard. The primary boom could become unbalanced and fall when removed from the machine if not properly attached to the overhead crane.

18 Attach a lifting strap from an overhead crane or similar lifting device to the rod end of the primary boom lift cylinder. Carefully loosen the straps and allow the barrel end of the primary boom lift cylinder to slowly swing down.

19 Carefully remove the cylinder from the machine.

Primary Boom Components

4-4
Primary Boom Extension Cylinder

The primary boom extension cylinder extends and retracts the primary boom extension tube. The primary boom extension cylinder is equipped with counterbalance valves to prevent movement in the event of a hydraulic line failure.

How to Remove the Primary Boom Extension Cylinder

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

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

1 Raise the primary boom to a horizontal position. Then extend the boom approximately 3 to 4 feet / 1 m until the extension cylinder rod-end pivot pins are accessible.

2 Remove the external snap rings from the extension cylinder rod-end pivot pins. Use a soft metal drift to remove the pins.

3 Remove the rear turntable cover.

4 Raise the secondary boom until the master cylinder rod-end pivot pin is accessible.

5 Remove the drive speed limit switch from the pivot end of the primary boom. Do not disconnect the wiring.

6 Remove the pin retaining fasteners from the master cylinder rod end pivot pin. Use a soft metal drift to remove the pin.

7 Manually retract the master cylinder and push it toward the platform end of the boom to obtain enough clearance for the extension cylinder removal.

8 Tag, disconnect and plug the extension 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.

9 Remove the pin retaining fasteners from the extension cylinder pivot pin. Use a soft metal drift to remove the pin.

Primary Boom Components

10 Carefully pull out and properly support the extension cylinder from the primary boom using a lifting strap from an overhead crane.

⚠WARNING Crushing hazard. The extension cylinder could fall when removed from the extension boom if not properly supported.

NOTICE Component damage hazard. Be careful not to damage the counterbalance valves on the primary boom extension cylinder when removing the cylinder from the primary boom.

NOTICE Component damage hazard. Hoses and cables can be damaged if the primary boom extension cylinder is dragged across them.

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

Note: Note the length of the cylinder after removal. The cylinder must be at the same length for installation.

4-5 Platform Leveling Master Cylinder

The platform leveling master cylinder acts as a pump for the slave cylinder. It is part of the closed-loop hydraulic circuit that keeps the platform level through the entire range of primary boom motion. The platform leveling master cylinder is located inside the upper mid-pivot at the pivot end of the primary boom.

How to Remove the Platform Leveling Master Cylinder

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

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

Note: Before cylinder removal is considered, bleed the cylinder to be sure that there is no air in the closed loop. Refer to Repair Procedure, *How to Bleed the Slave Cylinder*.

Primary Boom Components

1 Remove the rear turntable cover.

2 Raise the secondary boom until the master cylinder barrel-end pivot pin is above the turntable counterweights.

3 Raise the primary boom until the master cylinder rod-end pivot pin is accessible.

4 Attach a lifting strap from an overhead crane to the upper pivot for support. Do not apply any lifting pressure.

5 Secure the upper secondary boom to the pivot end of the primary boom with a strap.

Note: Securing the upper secondary boom to the pivot will prevent the upper secondary boom from falling when the master cylinder barrel-end pivot pin is removed from the cylinder.

6 Tag, disconnect and plug the master 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.

7 Tie a strap around the lug on the rod end of the master cylinder and secure the strap to the primary boom.

Note: The strap will be used to lower the cylinder out of the upper pivot.

8 Remove the pin retaining fasteners from the master cylinder rod-end pivot pin. Use a soft metal drift to remove the pin.

9 Remove the pin retaining fasteners from the master cylinder barrel-end pivot pin.

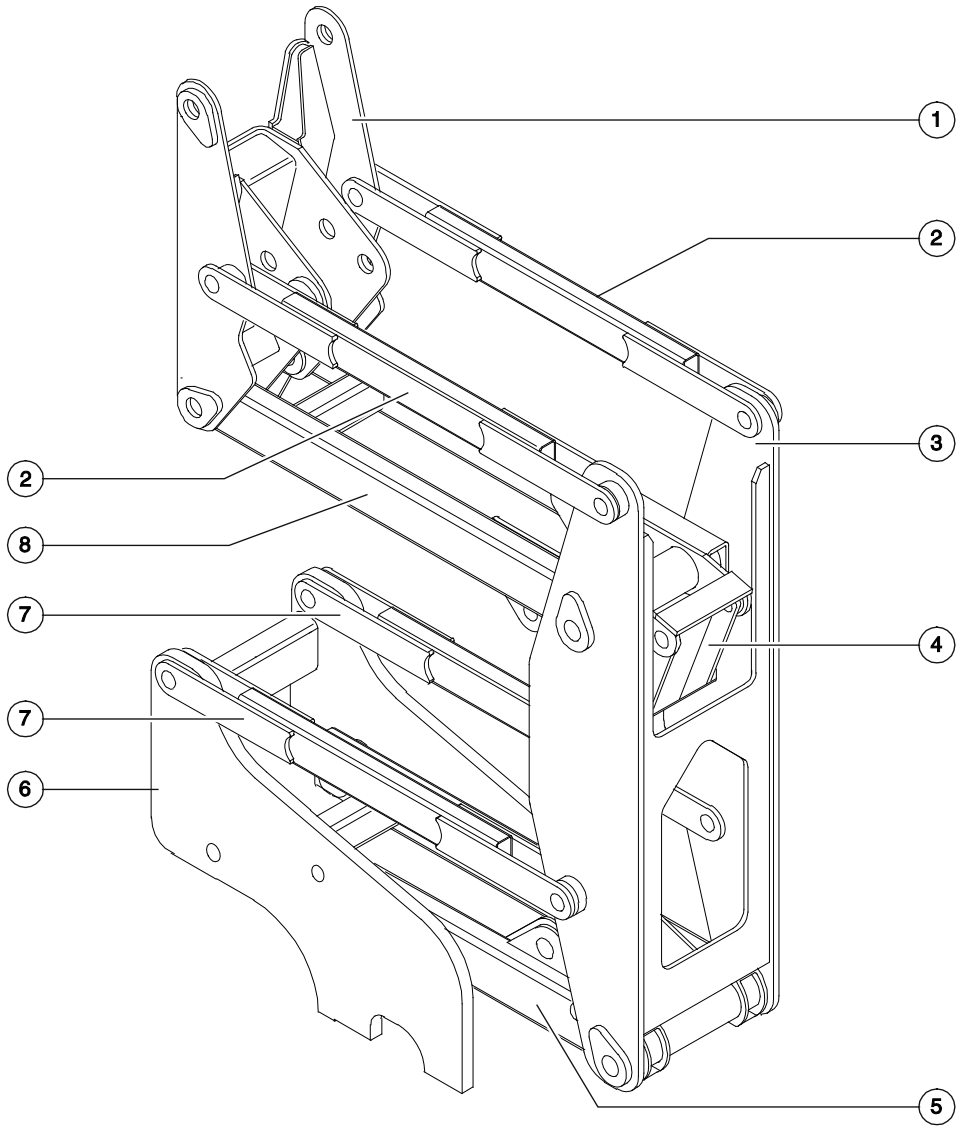
10 Use a soft metal drift to remove the pin from the cylinder. Do not remove the pin from the upper mid-pivot. Push the pin to one side, only far enough to remove the cylinder.

⚠WARNING Crushing hazard. The upper secondary boom and the upper pivot may fall if the pivot pin is completely removed.

Note: The pin should remain in one side of the upper secondary boom and upper mid-pivot.

11 Use the strap around the rod-end lug to lower the cylinder out of the machine.

Secondary Boom Components



Secondary Boom components

1 upper pivot
2 upper compression arm
3 mid-pivot
4 compression link
5 lower secondary boom
6 turntable pivot
7 lower compression arm
8 upper secondary boom

Secondary Boom Components

5-1
Secondary Boom

How to Disassemble the Secondary Boom

⚠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.

Follow the disassembly steps to the point required to complete the repair. Then re-assemble the secondary boom by following the disassembly steps in reverse order.

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

1 Lower the boom to the stowed position.

2 Place a lifting device under the front of the platform.

3 Remove the rear turntable cover.

4 Remove the cable cover from the side of the jib boom.

5 Remove the wire loom from the cables at the platform control box.

6 Locate the four cables from the primary boom cable track to the platform control box. Number each cable and its entry location at the platform control box.

7 Open the platform control box.

8 Label and disconnect each wire of the four cables in the platform control box.

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

9 Pull the cables out of the platform control box.

10 Pull all of the electrical cables out of the plastic cable track. Do not pull out the hydraulic hoses.

11 Remove the hose clamps from the bottom side of the primary boom.

12 Tag, disconnect and plug the platform rotator hydraulic hoses at the union, located on the bottom side of the primary boom.

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

13 Remove the hose clamp from the side of the primary boom at the pivot end.

14 Remove the drive speed limit switch mounted on the side of the pivot end of the primary boom. Do not disconnect the wiring.

15 Attach a strap from an overhead crane to the pivot end of the primary boom.

Secondary Boom Components

16 Carefully lift the secondary and primary boom assembly until the master and primary lift cylinder hydraulic hoses are accessible.

17 Remove the cable covers from the top of the upper secondary boom.

18 Tag, disconnect and plug the primary boom lift cylinder and master cylinder hydraulic hoses.

⚠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.

19 Lower the booms to the stowed position.

20 Pull all the cables and hoses through the upper mid-pivot.

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

21 Position the strap from the overhead crane approximately two feet from the platform end of the primary boom. Measure from the end of the primary boom tube.

22 Remove the pin retaining fasteners from the upper pivot to upper compression arm pivot pins. Use a soft metal drift to remove the pins.

23 Swing the compression arms down and out of the way. Secure them from moving.

24 Remove the pin retainers from the upper pivot to upper secondary boom pivot pin. Use a soft metal drift to remove the pin.

25 Carefully remove the entire primary boom assembly from the machine (primary boom assembly, jib boom assembly, platform, master cylinder, primary lift cylinder and upper pivot).

⚠WARNING Crushing hazard. If the overhead crane is not properly attached, the primary boom assembly could become unbalanced and fall when it is removed from the machine. Do not remove the assembly from machine until it is properly balanced.

26 Place the entire assembly onto a structure capable of supporting it.

27 Remove the pin retaining fasteners from the upper compression arm pivot pins. Do not remove the pins.

28 Position the lifting strap from an overhead crane at the center of the control box side upper compression arm, then remove it from the machine. Repeat this step for the engine side upper compression arm.

⚠WARNING Crushing hazard. If the overhead crane is not properly attached, the upper compression arm could become unbalanced and fall when it is removed from the machine.

29 Remove the pin retaining fastener from the rod end of the secondary boom lift cylinder. Use a soft metal drift to remove the pin. Secure the cylinder from moving.

30 Remove the pin retaining fastener from the lower pivot pin on the compression link. Use a soft metal drift to remove the pin.

31 Attach the strap from an overhead crane to the upper secondary boom.

Secondary Boom Components

32 Remove the pin retaining fastener from the upper secondary boom to mid-pivot pivot pin. Use a soft metal drift to remove the pin.

33 Remove the upper secondary boom with compression link from the machine.

⚠WARNING Crushing hazard. If the overhead crane is not properly attached, the upper secondary boom with compression link may become unbalanced and fall when it is removed from the machine.

34 Remove the drive speed limit switch mounted on the inside of the mid-pivot. Do not disconnect the wiring.

35 Remove the cable covers from the top of the lower secondary boom. Pull all the cables and hoses to the back of the turntable.

36 Remove the retaining fasteners from the secondary boom lift cylinder barrel-end pivot pins.

37 Attach the strap from the crane to the lug on the rod end of the secondary boom lift cylinder.

38 Tag, disconnect and plug the hydraulic hoses from the secondary boom lift cylinder. Cap the fittings on the cylinder.

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

39 Use a slide hammer to remove the barrel-end pins (access the pins from the access holes in the bulkheads, one on each side). Then remove the cylinder from the machine.

⚠WARNING Crushing hazard. If the overhead crane is not properly attached, the secondary boom lift cylinder may become unbalanced and fall when it is removed from the machine.

40 Attach the strap from the crane to the mid-pivot.

41 Remove the pin retainers from the mid-pivot to lower compression arm pivot pins. Use a slide hammer and remove the pin.

42 Remove the pin retainers from the mid-pivot to lower secondary boom pivot pins. Use a soft metal drift to remove the pin.

43 Remove the mid-pivot from the machine.

⚠WARNING Crushing hazard. If the overhead crane is not properly attached, the mid-pivot could become unbalanced and fall when it is removed from the machine.

44 Attach the strap from the crane to the control box side lower compression arm.

45 Remove the pin retainer from the lower compression arm to turntable pivot pin. Use a slide hammer and remove the pin. Remove the arm from the machine. Repeat for the engine side lower compression arm.

⚠WARNING Crushing hazard. If the overhead crane is not properly attached, the lower compression arms could become unbalanced and fall when it is removed from the machine.

46 Attach the strap from the crane to the lower secondary boom.

47 Remove the pin retainer from the lower secondary boom to turntable pivot pin. Use a soft metal drift to remove the pin.

48 Remove the lower secondary boom from the machine.

⚠WARNING Crushing hazard. If the overhead crane is not properly attached, the lower secondary boom could become unbalanced and fall when it is removed from the machine.

5-2 Secondary Boom Lift Cylinder

The secondary boom lift cylinder raises and lowers the secondary boom. The secondary boom lift cylinder is equipped with counterbalance valves to prevent movement in the event of a hydraulic line failure.

How to Remove the Secondary Boom Lift Cylinder

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

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

1 Rotate the turntable to the side until the boom is centered between the steer and non-steer tires.

2 Raise the primary boom to full height. Do not extend it.

3 Attach the strap from an overhead crane to the lug on the rod end of the secondary boom lift cylinder.

Secondary Boom Components

4 From the bottom side of the cylinder, remove the retaining fasteners from the secondary boom lift cylinder barrel-end pivot pins.

5 Use a slide hammer to remove the barrel-end pins (access the pins from the access holes in the bulkheads, one on each side).

6 Remove the pin retaining fastener from the secondary boom lift cylinder rod-end pivot pin. Then use a soft metal drift to remove the pin.

7 Carefully lower the cylinder down through the secondary boom, enough to access the hydraulic hoses. Do not pinch the hoses.

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

8 Tag, disconnect and plug the hydraulic hoses from the secondary boom lift cylinder. Cap the fittings on the cylinder.

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

9 Carefully remove the cylinder by raising it through the top of the secondary boom using the overhead crane.

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

6-1
Timing Adjustment

Complete information to perform this procedure is available in the Kubota Z482-E.

Kubota Z482-E3B Operator's Manual	
Genie part number	139420

6-2
RPM Adjustment

Refer to Maintenance Procedure in the appropriate Service or Maintenance Manual for your machine, *Check and Adjust the Engine RPM.*

6-3
Engine Drive Pulley

How to Remove the Engine Drive Pulley

1 Remove the engine pivot plate latch retainer.

2 Open the engine pivot plate latch and swing the engine out away from the machine to access the engine drive pulley.

3 Loosen the tension adjustment bolt on the generator.

4 Pull the generator away from the machine and remove the belts from the generator pulley.

5 Remove the 3 bolts that attach the engine drive pulley to the shaft bushing.

6 Install the same 3 bolts that were removed in step 5 into the threaded holes of the engine drive pulley.

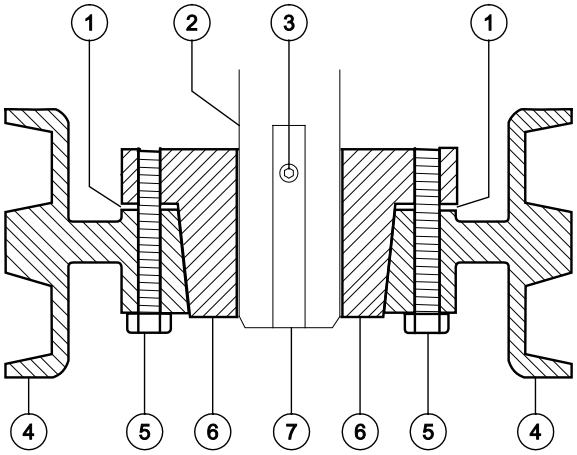
Engines

7 Carefully tighten each bolt evenly until the engine drive pulley slides off the shaft.

NOTICE

Component damage hazard. The engine drive pulley and/or shaft can be damaged if the bolts are not tightened evenly.

8 Loosen the set screw on the pulley bushing, then slide the pulley bushing off of the engine shaft.



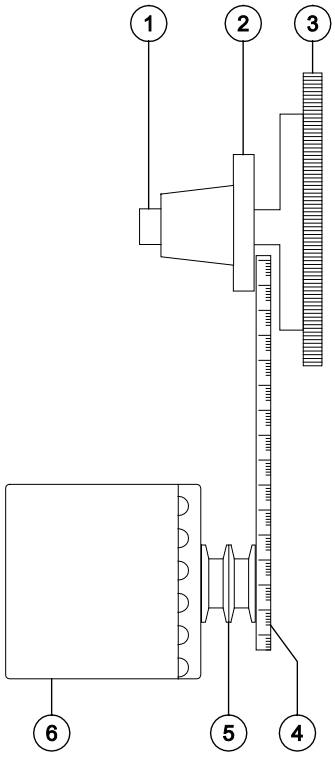
1 gap
2 shaft
3 set screw
4 engine drive pulley
5 engine drive pulley bolt
6 shaft bushing
7 woodruff key

How to Install the Engine Drive Pulley

Note: The generator pulley must already be installed before performing this procedure. Refer to Repair Procedure, *How to Install the Generator Pulley.*

1 Align the woodruff key on the engine shaft with the slot in the pulley bushing and slide the pulley bushing onto the engine shaft. Do not tighten the set screw.

2 Align the flywheel side of the pulley bushing on the engine shaft with the outer face of the generator pulley using a straightedge.



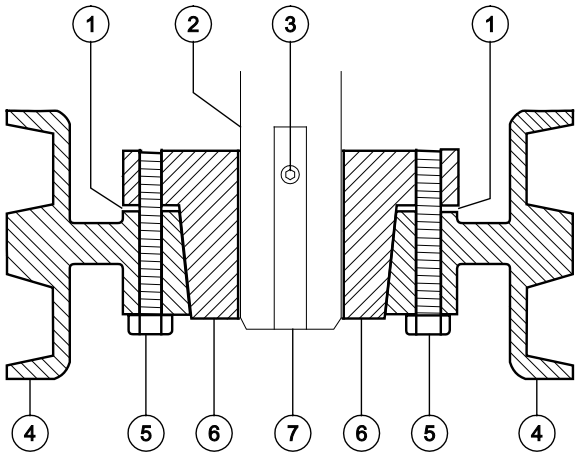
1 pulley shaft
2 pulley bushing
3 engine flywheel
4 straightedge
5 generator pulley
6 generator

3 Tighten the set screw on the pulley bushing hand tight.

4 Slide the engine pulley onto the pulley bushing.

5 Install the pulley mounting bolts and tighten them to specification. Refer to Specifications, *Generator Specifications*.

NOTICE Component damage hazard. Do not overtighten the pulley mounting bolts. There must be a gap visible between the engine drive pulley and the pulley bushing.



1 gap
2 shaft
3 set screw
4 engine drive pulley
5 engine drive pulley bolt
6 shaft bushing
7 woodruff key

6 Check the alignment between the engine drive pulley and the generator pulley using a straightedge. Refer to Specifications, *Generator.*

Note: If the pulley alignment is not within specification, remove the engine pulley and repeat steps 2 through 6. Refer to Repair Procedure, *How to Remove the Engine Drive Pulley.*

Coolant Temperature and Oil Pressure Switches

The engine coolant temperature switch is a normally open switch. The switch contacts close at approximately 225°F / 107°C. If the coolant temperature rises above the switch point, the switch contacts close and the engine will shut off to prevent damage. The engine will not start until the temperature drops below the switch point. An over-temperature indicator light at the ground controls should turn on when the switch closes.

NOTICE Component damage hazard.Do not crank the engine with the over-temperature light on.

The engine oil switch is a normally closed switch. The switch contacts open at approximately 7 psi / 0.48 bar. If the oil pressure drops below the switch point, the contacts open and the engine will shut off to prevent damage. A low oil pressure indicator light at the ground controls should turn on when the switch opens.

NOTICE Component damage hazard.Do not crank the engine with the low oil pressure light on.

Generator

7-1 Generator Pulley

How to Remove the Generator Pulley

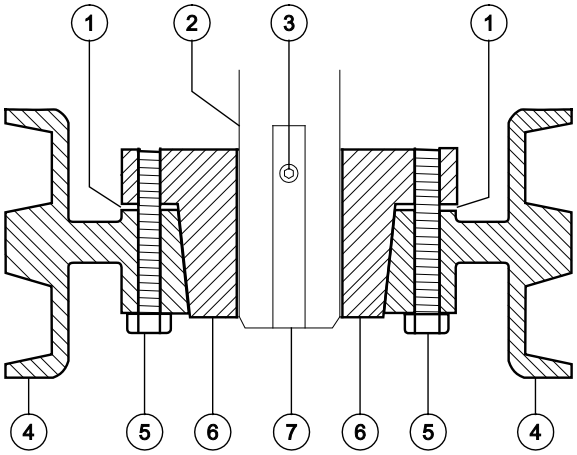
1 Loosen the tension adjustment bolt on the generator.

2 Push the generator towards the machine and remove the belts from the generator pulley.

3 Remove the generator pulley retaining nut from the generator shaft.

4 Slide the pulley off of the generator shaft.

5 Loosen the set screw on the pulley bushing, then slide the pulley bushing off of the generator shaft.



1 gap
2 shaft
3 set screw
4 engine drive pulley
5 engine drive pulley bolt
6 shaft bushing
7 woodruff key

How to Install the Generator Pulley

Note: The pulley on the generator must be installed before installing the engine drive pulley.

1 Align the woodruff key on the generator shaft with the slot in the pulley and slide the pulley all the way onto the generator shaft.

2 Install the flat washer and pulley retaining nut onto the generator shaft, then torque the nut to specification. Refer to Specifications, *Generator.*

3 Adjust the tension of the generator belts. Refer to Repair Procedure, *How to Adjust the Generator Belts.*

7-2
Generator Belts

How to Adjust the Generator Belts

1 Disconnect the battery packs.

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

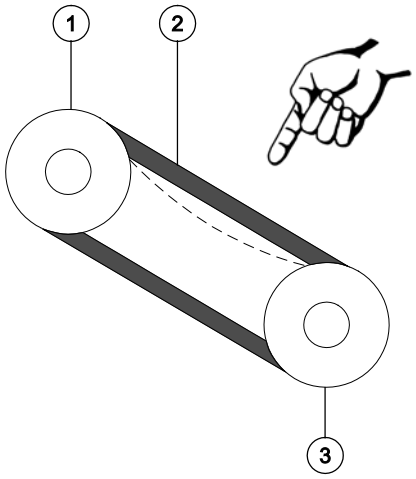
2 Remove the engine pivot plate latch retainer.

3 Open the engine pivot plate latch and swing the engine out away from the machine to access the generator belts.

4 Loosen the tension adjustment bolt on the generator.

5 Pull the generator away from the machine and tighten the adjustment bolt.

6 Check the generator belts for proper tension. If the belt deflection is not within specification, perform steps 4 and 5 and re-check the belt tension.



1 engine pulley
2 generator belts
3 generator pulley

Belt deflection, maximum allowable	0.25 inch 6.5 mm

Generator

7-3
Generator Voltage Regulator

How to Adjust the Generator Voltage Regulator

The voltage regulator regulates the output voltage of the generator. A properly adjusted voltage regulator is essential to good generator performance and service life. A defective or improperly adjusted voltage regulator could result in component damage.

Note: Be sure the batteries are fully charged before performing this procedure.

1 Remove the engine pivot plate latch retainer.

2 Open the engine pivot plate latch and swing the engine out away from the machine to access the generator.

3 Connect the positive lead of a voltmeter to the pos terminal on the generator and the negative lead of the voltmeter to the neg terminal on the generator.

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

4 Start the engine from the ground controls and move the rpm select toggle switch to the maintained high idle position. Check the voltage on the generator.

⊙ Result: The voltage should be 54V DC.

5 If the voltage reading is not 54V DC, insert a small flat blade screwdriver into the potentiometer located inside of the generator. Use the access hole on the back of the generator labeled volt adj.

NOTICE Component damage hazard. Be sure that the screwdriver is properly inserted into the potentiometer or the generator and/or voltage regulator may become damaged.

6 Carefully adjust the potentiometer to obtain a 54V DC voltage reading. Turn the potentiometer clockwise to increase the voltage or counterclockwise to decrease the voltage. Do not rotate the potentiometer past the internal stops.

NOTICE Component damage hazard. The voltage regulator inside the generator will become damaged if the potentiometer is rotated past the internal stops.

Note: The maximum range of motion of the potentiometer on the voltage regulator is 280° and the maximum allowed torque is 5 oz-in / 0.035 Nm.

How to Replace the Voltage Regulator

1 Disconnect the battery packs from the machine.

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

2 Remove the engine pivot plate latch retainer.

3 Open the engine pivot plate latch and swing the engine out away from the machine to access the generator.

4 Tag and disconnect the positive and negative battery cables from the generator.

5 Loosen the tension adjustment bolt on the generator.

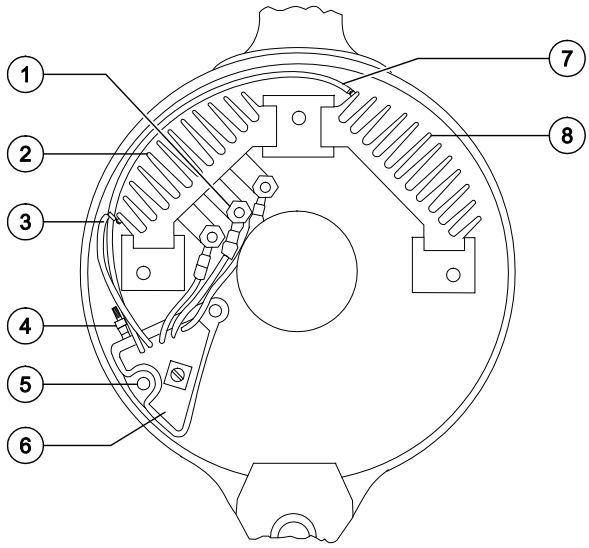
6 Pull the generator away from the machine and remove the belts from the generator pulley.

7 Remove the generator mounting fasteners then remove the generator from the machine.

8 Remove the 3 nuts from the battery cable terminal posts.

9 Remove the 3 screws that hold the plastic cover onto the generator. Carefully remove the cover.

10 Locate the 3 white wires that lead from the voltage regulator to the negative rectifier assembly.



1 white wires (#10 nuts)
2 negative rectifier assembly
3 black wire (#10 screw)
4 black wire (#4 nut)
5 voltage regulator mounting fastener (#8 screw)
6 voltage regulator
7 red wire (#10 screw)
8 positive rectifier assembly

11 Remove the nuts on those 3 wires from the negative rectifier assembly, then remove the wires.

Note: Do not remove the spacers from the underneath the wires on the negative rectifier assembly.

Generator

12 Locate the red wire that leads from the voltage regulator to the positive rectifier assembly.

13 Remove the screw that attaches the red wire to the positive rectifier assembly.

14 Remove the #4 nut that attaches the black wire to the voltage regulator.

15 Remove the voltage regulator mounting screws.

16 Remove the voltage regulator while carefully guiding the red and black wires from underneath the bottom support of the positive and negative rectifier assembly.

17 Install the new voltage regulator by following the previous steps in reverse order.

18 Apply Loctite® removable thread sealant onto the voltage regulator mounting fasteners and torque to specification. Refer to Specifications, *Machine Torque Specifications*.

19 Torque all other fasteners to specification. Refer to Specifications, *Machine Torque Specifications.*

20 Install the plastic cover onto the generator then install the generator onto the machine.

21 Adjust the generator belts. Refer to repair procedure, *How to Adjust the Generator Belts*.

22 Adjust the voltage regulator. See How to Adjust the Voltage Regulator.

NOTICE

Component damage hazard. The voltage regulator and/or generator may become damaged if the voltage regulator is not properly adjusted after replacement

8-1 Auxiliary Pump

How to Test the Auxiliary Pump

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

1 Tag, disconnect and plug the high pressure hydraulic hose from the auxiliary pump.

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

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

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

4 Activate any function using auxiliary power.

⊙ Result: The pressure gauge reads 2800 psi /193 bar, immediately stop. The pump is good.

⊠ Result: The pressure fails to reach 2800 psi /193 bar, the pump is faulty and will need to be serviced or replaced.

5 Remove the pressure gauge and install the hydraulic hose.

How to Remove the Auxiliary Pump

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

1 Tag, disconnect and plug the hydraulic hoses from the pump.

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

2 Remove the pump mounting fasteners. Carefully remove the pump.

Hydraulic Pumps

8-2 Function Pump

How to Test the Function Pump

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

1 Tag, disconnect and plug the high pressure hydraulic hose from the function pump.

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

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

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

4 Hold the function enable switch to either side and activate any boom function from the ground controls.

⊙ Result: The pressure gauge reads 3000 psi / 206 bar, immediately stop. The pump is good.

☒ Result: The pressure fails to reach 3000 psi / 206 bar, the pump is faulty and will need to be serviced or replaced.

NOTICE Component damage hazard. Hydraulic pressure in excess of 3000 psi / 206 bar may result in severe component damage.

5 Remove the pressure gauge and install the hydraulic hose.

How to Remove the Function Pump

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

1 Tag, disconnect and plug the hydraulic hoses from the pump.

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

Remove the pump mounting fasteners. Carefully remove the pump.

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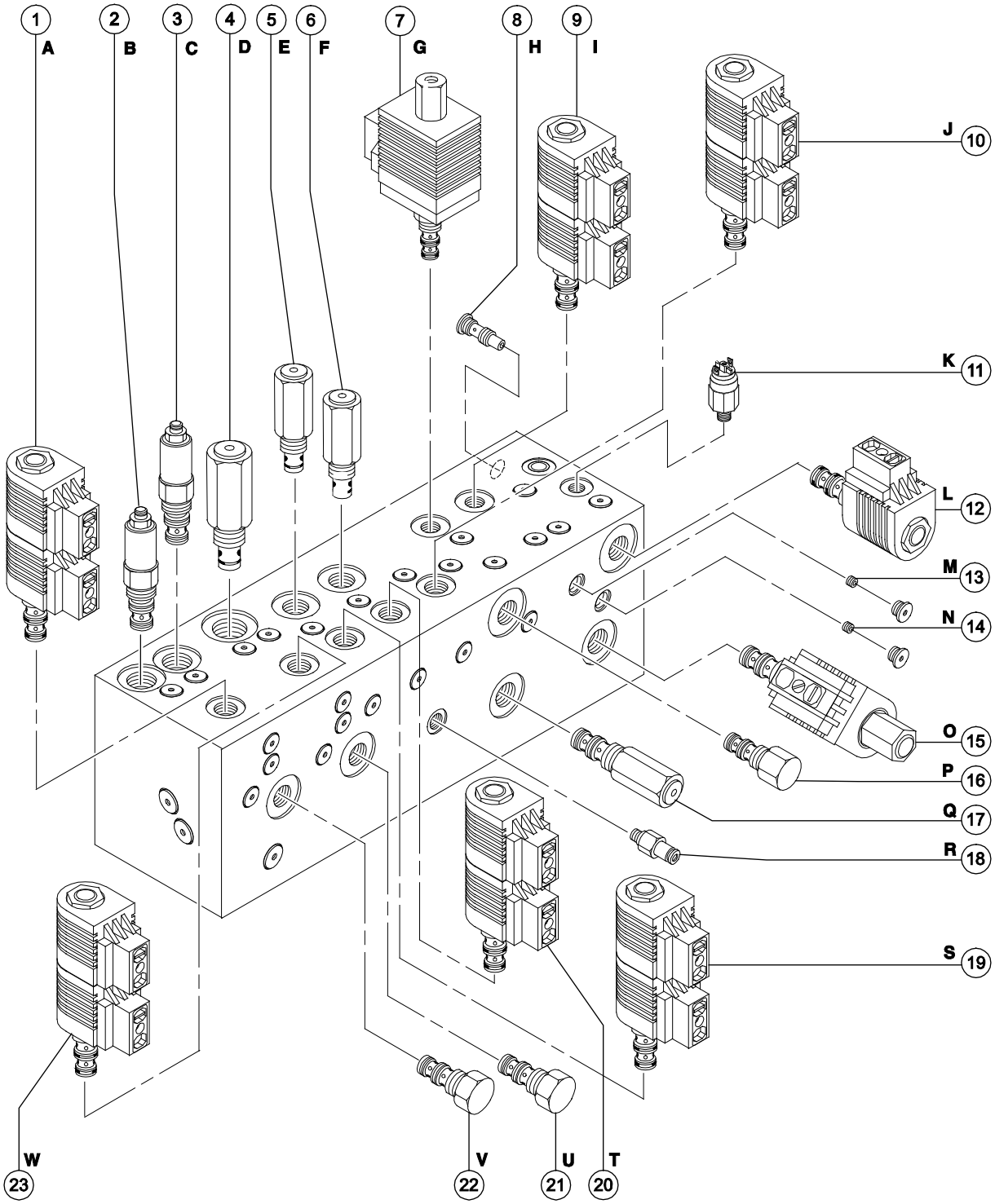
Manifolds

9-1 Function Manifold Components

The function manifold is mounted to the turntable under the ground control box.

Index No.	Description	Schematic Item	Function	Torque
1	3 position 4 way spool valve	A	Platform level up/down	10-12 ft-lbs / 14-16 Nm
2	Counterbalance valve	B	Platform level down	35-40 ft-lbs / 47-54 Nm
3	Counterbalance valve	C	Platform level up	35-40 ft-lbs / 47-54 Nm
4	Relief valve, 1100 psi / 75.8 bar	D	Turntable rotate left/right	25-30 ft-lbs / 34-41 Nm
5	Relief valve, 1600 psi / 110 bar	E	Secondary boom down	25-30 ft-lbs / 34-41 Nm
6	Relief valve, 1600 psi / 96.5 bar	F	Primary boom down	25-30 ft-lbs / 34-41 Nm
7	Proportional solenoid valve	G	System flow regulating circuit	10-12 ft-lbs / 14-16 Nm
8	Check valve	H	Brake circuit	25-30 ft-lbs / 34-41 Nm
9	Solenoid valve, 3 position 4 way	I	Steer left/right	10-12 ft-lbs / 14-16 Nm
10	3 position 4 way spool valve	J	Primary boom extend/retract	10-12 ft-lbs / 14-16 Nm
11	Pressure switch	K	Brake circuit	
12	Solenoid valve, N.C. poppet	L	Brake circuit	25-30 ft-lbs / 34-41 Nm
13	Orifice, 0.045 in / 1.02 mm	M	Steer circuit	
14	Orifice, 0.045 in / 1.02 mm	N	Brake circuit	
15	Solenoid valve, N.O. poppet	O	Brake circuit	25-30 ft-lbs / 34-41 Nm
16	Differential sensing valve	P	Differential sensing circuit	10-12 ft-lbs / 14-16 Nm
17	Relief valve, 3200 psi / 220.6 bar	Q	System relief	25-30 ft-lbs / 34-41 Nm
18	Diagnostic fitting	R	Testing	
19	3 position 4 way spool valve	S	Secondary boom up/down	10-12 ft-lbs / 14-16 Nm
20	3 position 4 way spool valve	T	Primary boom up/down	10-12 ft-lbs / 14-16 Nm
21	Flow regulator valve, 1.8 gpm / 6.8 L/min	U	Turntable rotate circuit	10-12 ft-lbs / 14-16 Nm
22	Flow regulator valve, 0.8 gpm / 3 L/min	V	Jib boom/platform rotate circuit	10-12 ft-lbs / 14-16 Nm
23	3 position 4 way spool valve	W	Turntable rotate left/right	10-12 ft-lbs / 14-16 Nm

Manifolds


1
A
2
B
3
C
4
D
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E
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F
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G
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H
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I
J
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Q
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S
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T
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U
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V
22
W
23

Manifolds

9-2 Valve Adjustments - Function Manifold

How to Adjust the System Relief Valve

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

Note: Refer to Function Manifold Component list to locate the system relief valve.

1 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold.

2 Move and hold the function enable toggle switch to either side and hold the primary boom extend/retract toggle switch in the retract direction with the primary boom fully retracted.

3 Observe the pressure reading on the pressure gauge. Refer to Specifications, *Hydraulic Specifications*.

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

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

⚠WARNING Tip-over hazard. Do not adjust the relief valve higher than specified.

6 Repeat steps 2 through 4 and recheck relief valve pressure.

7 Remove the pressure gauge.

How to Adjust the Primary Boom Down Relief Valve

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

Note: Refer to Function Manifold Component list to locate the primary boom down relief valve.

1 Connect a 0 to 3000 psi / 0 to 200 bar pressure gauge to the test port on the function manifold.

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

3 Move and hold the function enable toggle switch to either side and move and hold the primary boom up/down toggle switch in the down direction with the primary boom fully lowered. Observe the pressure reading on the pressure gauge. Refer to Specifications, *Manifold Component Specifications.*

4 Turn the machine off. Hold the primary down relief valve with a wrench and remove the cap.

5 Adjust the internal hex socket. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure. Then install the relief valve cap.

⚠WARNING Tip-over hazard. Do not adjust the relief valve higher than specified.

6 Repeat steps 2 and 3 to confirm the relief valve pressure setting.

7 Remove the pressure gauge.

How to Adjust the Secondary Boom Down Relief Valve

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

Note: Refer to Function Manifold Component list to locate the secondary boom down relief valve.

1 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the test port on the function manifold.

2 Move and hold the function enable toggle switch to either side and hold the secondary boom up/down toggle switch in the down direction with the secondary boom fully lowered.

3 Observe the pressure reading on the pressure gauge. Refer to Specifications, *Hydraulic Specifications*.

4 Turn the machine off. Hold the secondary boom down relief valve with a wrench and remove the cap.

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

⚠WARNING Tip-over hazard. Do not adjust the relief valve higher than specified.

6 Repeat steps 2 through 4 and recheck relief valve pressure.

7 Remove the pressure gauge.

How to Adjust the Turntable Rotate Relief Valve

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

Note: Refer to Function Manifold Component list to locate the turntable rotate relief valve.

1 Connect a 0 to 3000 psi / 0 to 200 bar pressure gauge to the test port on the function manifold.

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

3 Move and hold the function enable toggle switch to either side and move and hold the turntable rotate toggle switch in the right direction (until turntable stops against the rotation stop). Observe the pressure reading on the pressure gauge. Refer to Specifications, *Manifold Component Specifications.*

4 Turn the machine off. Hold the turntable relief valve(s) with a wrench and remove the cap.

5 Adjust the internal hex socket. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure. Then install the relief valve cap.

⚠WARNING Tip-over hazard. Do not adjust the relief valve higher than specified.

6 Repeat steps 2 and 3 to confirm the relief valve pressure setting.

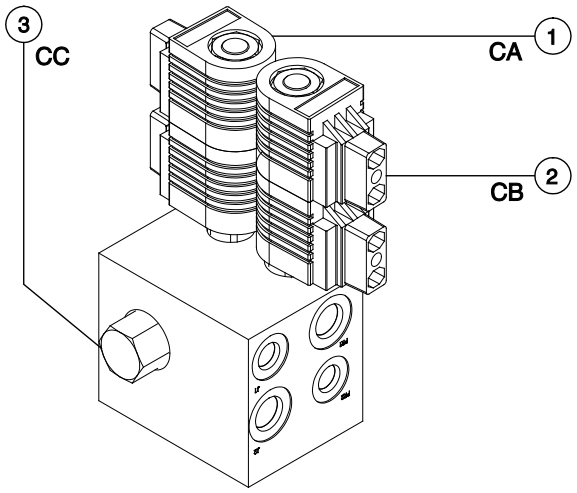
7 Remove the pressure gauge.

Manifolds

9-3
Jib Boom / Platform Rotate Manifold Components.

The jib boom/platform rotate manifold is mounted to the jib boom.

Index No.	Description	Schematic Item	Function	Torque
1	Solenoid valve, 2 position 3 way	CA	Jib boom circuit	25-30 ft-lbs / 34-41 Nm
2	Solenoid valve, 2 position 3 way	CB	Platform rotate circuit	25-30 ft-lbs / 34-41 Nm
3	Flow regulator, 0.3 gpm / 1.2 L/min	CC	Platform rotate circuit	25-30 ft-lbs / 34-41 Nm



9-4 Valve Coils

How to Test a Coil

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

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

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

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

1 Tag and disconnect the wiring from the coil to be tested.

2 Test the coil resistance.

Coils with 2 terminals: Connect the leads from the ohmmeter to the valve coil terminals.

Coils with 1 terminal: Connect the positive lead from the ohmmeter to the valve coil terminal, then connect the negative lead from the ohmmeter to the internal ring of the valve coil.

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

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

Valve Coil Resistance Specifications

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

Valve Coil Resistance Specification	
3 position 4 way solenoid valve - 20V (schematic items A, I, J, S, T, W, CA and CB)	22Ω
Normally open poppet valve - 20V (schematic item O)	22Ω
Normally closed poppet valve - 20V (schematic item L)	23.5Ω
Proportional solenoid valve - 24V (schematic item G)	19Ω

Manifolds

How to Test a Coil Diode

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

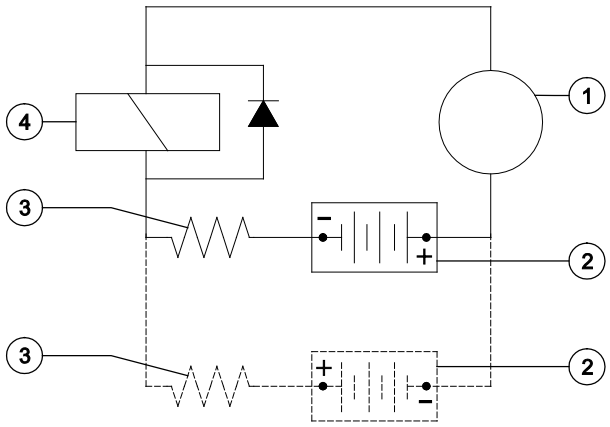
⚠WARNING Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

1 Test the coil for resistance. Refer to Repair Procedure, *How to Test a Coil*.

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

Resistor, 10Ω	
Genie part number	27287

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



1 multimeter
2 9V DC battery
3 10Ω resistor
4 coil

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

3 Set a multimeter to read DC current.

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

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

5 Momentarily connect the positive lead from the multimeter to the positive terminal on the 9V DC battery. Note and record the current reading.

6 At the battery or coil terminals, reverse the connections. Note and record the current reading.

⊙ Result: Both current readings are greater than 0 mA and are different by a minimum of 20%. The coil is good.

⊠ Result: If one or both of the current readings are 0 mA, or if the two current readings do not differ by a minimum of 20%, the coil and/or its internal diode are faulty and the coil should be replaced.

Fuel and Hydraulic Tanks

10-1 Fuel Tank

How to Remove the Fuel Tank

⚠ DANGER Explosion and fire hazard. Engine fuels are combustible. Perform this procedure in an open, well-ventilated area away from heaters, sparks, flames and lighted tobacco. Always have an approved fire extinguisher within easy reach.

⚠ DANGER Explosion and fire hazard. When transferring fuel, connect a grounding wire between the machine and pump or container.

⚠ DANGER Explosion and fire hazard. Never drain or store fuel in an open container due to the possibility of fire.

1 Using an approved hand-operated pump, drain the fuel tank into a suitable container. Refer to Specifications, *Machine Specifications*.

2 Remove the fuel tank retaining fastener located underneath the tank mounting tray at the bottom of the fuel tank.

NOTICE Component damage hazard. The fuel tank is plastic and may become damaged if allowed to fall.

NOTICE Component damage hazard. Do not overtighten the fuel tank mounting fasteners.

Note: Clean the fuel tank and inspect for cracks and other damage before installing.

10-2 Hydraulic Tank

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

How to Remove the Hydraulic Tank

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

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

1 Close the hydraulic shutoff valve located at the hydraulic tank.

NOTICE Component damage hazard. The machine must not be operated with the hydraulic tank shutoff valve in the closed position or component damage will occur. If the tank valve is closed, remove the key from the key switch and tag the machine to inform personnel of the condition.

Fuel and Hydraulic Tanks

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

3 Tag and disconnect and plug the hydraulic hose from the hydraulic tank shutoff valve.

⚠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.

4 Open the valve on the hydraulic tank and drain the oil into a suitable container.

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

5 Tag, disconnect and plug the hydraulic hoses from the hydraulic tank filter. Cap the fittings on the filter.

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

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

6 Remove the hydraulic tank mounting fasteners.

7 Remove the hydraulic tank from the machine.

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

11-1
Rotation Hydraulic Motor

How to Remove the Turntable Rotation Motor

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

Note: Do not allow the turntable to rotate until the hydraulic motor is installed.

1 Tag, disconnect and plug the hydraulic hoses from the turntable rotation motor. Cap the fittings on the motor.

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

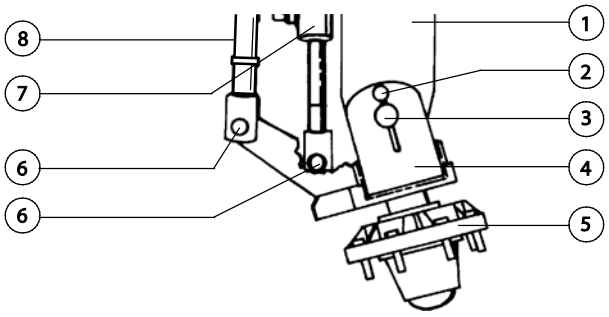
2 Remove the turntable rotation motor mounting bolts. Remove the motor from the machine.

Axle Components

12-1
Yoke and Hub

How to Remove the Yoke and Hub

1 Remove the pin retaining fastner and the clevis pin from both the steering cylinder and the tie rod.



1 axle
2 pin retaining fastener
3 king pin
4 yoke
5 hub
6 clevis pin
7 steering cylinder
8 tie rod

2 Loosen the wheel lug nuts. Do not remove them.

3 Block the non-steer wheels, and then center a lifting jack under the steering axle.

4 Raise the machine 6 inches / 15 cm and place blocks under the drive chassis for support.

5 Remove the lug nuts, then the tire and wheel assembly.

6 Remove the pin retaining fasteners from the upper and lower yoke pivot pins.

7 Support the yoke/hub assembly with a lifting device.

8 Place a rod through the yoke pivot pins and twist to remove the pins.

⚠ CAUTION Crushing hazard. The yoke/hub assembly may become unbalanced and fall when the yoke pivot pins are removed if it is not properly supported and secured to the lifting device.

How to Remove the Hub and Bearings, 2WD Models

1 Loosen the wheel lug nuts. Do not remove them.

2 Block the non-steer wheels and place a lifting jack of ample capacity under the steer axle.

3 Raise the machine 6 inches / 15 cm and place blocks under the chassis for support.

⚠ CAUTION Crushing hazard. The machine may fall if not properly supported.

4 Remove the lug nuts. Remove the tire and wheel assembly.

5 Remove the dust cap, cotter pin and castle nut.

Note: Always use a new cotter pin when installing a castle nut.

6 Pull the hub off the spindle. The washer and outer bearing should fall loose from the hub.

7 Place the hub on a flat surface and gently pry the bearing seal out of the hub.

8 Remove the rear bearing.

How to Install the Hub and Bearings, 2WD Models

Note: When replacing a wheel bearing, both the inner and outer bearings including the pressed-in races must be replaced.

1 Be sure that both bearings are packed with clean, fresh grease.

2 Place the large inner bearing into the rear of the hub.

3 Install a new bearing grease seal into the hub by pressing it evenly into the hub until it is flush.

Note: Always replace the bearing grease seal when removing the hub.

4 Slide the hub onto the yoke spindle.

NOTICE Component damage hazard. Do not apply excessive force or damage to the lip of the seal may occur.

5 Fill the hub cavity with clean, fresh grease.

6 Place the outer bearing into the hub.

7 Install the washer and castle nut.

8 Tighten the castle nut to 158 ft-lbs / 214 Nm to seat the bearings.

Note: Rotate the hub by hand while torquing the castle nut to make sure the bearings seat properly.

9 Loosen the castle nut one full turn and then torque to 35 ft-lbs / 47 Nm.

10 Install a new cotter pin. Bend the cotter pin to secure the castle nut.

Note: Always use a new cotter pin when installing a castle nut.

11 Install the dust cap, then the tire and wheel assembly. Torque the wheel lug nuts to specification. Refer to Specifications, *Machine Torque Specifications*.

12-2 Steer Cylinder

How to Remove a Steer Cylinder

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

1 Tag, disconnect and plug the hydraulic hoses from the steering cylinder. 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.

2 Remove the pin retaining fastener, then remove the clevis pin from each end of the steer cylinder.

3 Remove the steer cylinder.

Non-steer Axle Components

13-1 Drive Motor

How to Remove a Drive Motor

1 1 Disconnect the battery packs.

2 Tag and disconnect the power cables and relay wiring from the drive motor.

⚠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 drive motor mounting fasteners.

4 Guide the drive motor shaft out of the brake and then remove the drive motor.

13-2 Drive Hubs

How to Remove a Drive Hub

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

1 Remove the drive motor. Refer to Repair Procedure, *How to Remove a Drive Motor.*

2 Disconnect and plug the hydraulic hose from the brake. Remove the hydraulic fitting and the bleed valve.

⚠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.

3 Chock the steer wheels.

4 Loosen the wheel lug nuts. Do not remove them.

Non-steer Axle Components

5 Center a lifting jack under the non-steer axle. Raise the machine and place blocks under the chassis for support.

6 Remove the wheel lug nuts, then the tire and wheel assembly.

7 Place a second lifting jack under the drive hub for support. Secure the drive hub to the lifting jack.

8 Remove the bolts that attach the drive hub to the chassis, then remove the drive hub.

⚠WARNING Crushing hazard. The drive hub may become unbalanced and fall when the mounting fasteners are removed if it is not properly supported and secured to the lifting jack.

Motor Controller

14-1 Motor Controller

The drive motor controller is located under the non-steer end drive chassis cover. The drive motor controller can recognize machine drive malfunctions and display controller fault codes by flashing a LED at the ground controls and on the motor controller. See the Fault Code section of this manual for a list of fault codes and additional information. There are no adjustments needed on the drive joystick controller. For further information or assistance, consult the Genie Industries Service Department.

How to Test the Motor Controller

Note: Use the following procedure to test the motor controller. If the motor controller is found to be faulty, note which test failed and which fault code (if any) was present at the time of failure.

1 Turn the key switch to the off position and disconnect the battery packs from the machine.

2 Tag and disconnect all power cables from the motor controller.

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

3 Press the release tab on the motor controller harness connector and remove the motor controller harness connector from the motor controller.

4 Set an ohmmeter to diode test mode.

5 Connect the leads from an ohmmeter to test each motor controller terminal combination listed below and check the forward / reverse bias (diode test).

⊙ Result: All desired results must be within the specified range. If any test has a result not within the specified range, replace the motor controller.

Forward Bias:

Test		Desired result
Positive Lead	Negative Lead	
M-	B+	0.4 to 0.45
B-	M-	0.4 to 0.45
F1	B+	0.45 to 0.5
F2	B+	0.45 to 0.5
B-	F1	0.45 to 0.5
B-	F2	0.45 to 0.5

Reverse Bias:

Test		Desired result
Positive Lead	Negative Lead	
B+	M-	Rises to .0L V
M-	B-	Rises to .0L V
B+	F1	Rises to .0L V
B+	F2	Rises to .0L V
F1	B-	Rises to .0L V
F2	B-	Rises to .0L

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 procedure with the machine in the following configuration:
  - Machine parked on a firm, level surface
  - Key switch in the off position with the key removed
  - The red Emergency Stop button in the off position at both the ground and platform controls
  - Wheels chocked
  - All external AC power supply disconnected from the machine
  - Boom in the stowed position
  - Turntable secured with the turntable rotation lock
  - Welder disconnected from the machine (if equipped with the weld cable to platform option)

Before Troubleshooting:

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

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

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

Fault Codes

Fault Codes

Note: Additional troubleshooting of the fault codes may by accomplished by using the hand-held pendant motor controller programmer (Genie part number 56303).

For authorized service personnel only:

Note: When using the hand-held pendant motor controller programmer, the M1 MAX SPEED needs to be set to 33. If needed, adjust the M1 MAX SPEED higher or lower to achieve the maximum raised drive speed of 0.6 mph / 1Km/h or 40 feet / 45 seconds / 12.2 meters / 45 seconds.

⚠ DANGER Tip-over hazard. When adjusting the raised drive speed settings, the maximum raised drive speed must not exceed 0.6 mph / 1Km/h or 40 feet/45 seconds / 12.2 meters / 45 seconds. If the machine is allowed to drive faster than specification, the machine could become unstable and will tip over.

The controller status indicator light will flash a fault code to aid in troubleshooting. This indicator light is located on the front of the gound control box.

Fault codes are two digits. The controller status indicator light will blink the first digit of a two digit code, pause for 1 second, and then blink the second digit. There will be a 2 second pause between codes.

For example: the indicator light blinks 4 consecutive times, pauses for 1 second, and then blinks 1 time. That would indicate Fault Code 41.

Fault Code Chart

Fault Code	Programmer Diagnostic Display	Condition	Possible Causes	Solution
Fault code LED is off or is on, but not blinking	COMMUNICATION ERROR	Machine will not drive.	The key switch or Emergency Stop button(s) was cycled on and off faster than 5 seconds OR controller sensed an internal error during start up.	Push in the ground control red Emergency Stop button to the off position and wait for 5 seconds. Pull out the ground control red Emergency Stop button to the on position. If problem persists, replace the motor controller.
1		Normal operation.		
12	HW FAILSAFE 1-2-3	Machine will not drive.	The motor controller failed self test.	Replace the motor controller.
13	M- SHORTED	Machine will not drive.	The motor controller has a internal short between M- and B- terminals.	Test the motor controller. See Repair Section.
	FIELD OPEN	Machine will not drive.	Motor wiring is loose OR motor is defective OR motor controller has an internal short.	Check for loose or open connections at the drive motors and motor controller OR replace the defective drive motor OR test the motor controller. See Repair Section.
	ARM SENSOR	Machine will not drive.	Defective motor controller.	Replace the motor controller.
	FLD SENSOR	Machine will not drive.	Defective motor controller.	Replace the motor controller.

Fault Codes

Fault Code Chart

Fault Code	Programmer Diagnostic Display	Condition	Possible Causes	Solution
21	THROTTLE FAULT 1	Machine will not drive.	Open in wht/red wire #32 at pin 14 or red/wht wire #29 at pin 16 on the motor controller going from drive joystick to pins 14 and 16 at the motor controller OR pin 14 is internally shorted to power or ground OR the potentiometer on the drive joystick is defective.	Consult Genie Product Support.
	THROTTLE FAULT 2	Machine will not drive.	Pin 14 (wht/red #32) is shorted to power or ground OR the potentiometer on the drive joystick is defective.	Consult Genie Product Support.
31	CONT DRVR OC	Machine will not drive.	Main contactor (PR1) coil defective OR brake release relay CR5 defective.	Replace main contactor PR1 or brake release relay CR5 OR replace the motor controller.
32	MAIN CONT WELDED	Machine will not drive.	Main contactor (PR1) contacts stuck closed OR grn wire at pin 17 on motor controller shorted to ground OR open in motor armature wiring OR motor controller has an internal short to ground.	Consult Genie Product Support.
33	PRECHARGE FAULT	Machine will not drive.	External short between B+ terminal on motor controller and ground OR motor controller is defective.	Repair short between B+ terminal on motor controller and ground OR replace motor controller. Note: Short can be on any part of circuit connected to the B+ terminal on the motor controller.

Fault Code Chart

Fault Code	Programmer Diagnostic Display	Condition	Possible Causes	Solution
34	MISSING CONTACTOR	Machine will not drive.	Motor controller does not detect the main contactor PR1 or brake release relay CR5.	Consult Genie Product Support.
	MAIN CONT DNC	Machine will not drive.	Main contactor PR1 or brake release relay CR5 did not close OR open in org/red wire to PR1 and/or CR5 OR main contactor and/or brake release relay is defective.	Consult Genie Product Support.
41	LOW BATTERY	Machine will not drive.	Battery supply voltage to motor controller less than 32V DC.	Completely charge batteries OR check battery cable condition OR check for corrosion or loose connections at battery terminals and motor controller.
42	OVERVOLTAGE	Machine will not drive.	Battery supply voltage to motor controller more than 55V DC OR machine is being operated with the battery charger plugged in.	Be sure the battery charger is disconnected OR check for loose battery cables or poor connections.
43	THERMAL CUTBACK	Machine will not drive.	Machine being operated outside of temperature range of -13°F to 185°F / -25°C to 85°C OR machine being driven under excessive load OR motor controller is not being cooled sufficiently.	Operate machine within specified temperature limits OR check for debris around motor controller preventing proper cooling of the controller OR check for mechanical restrictions causing excessive load on the machine.

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Schematics



Observe and Obey:

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

Before Troubleshooting:

- ☑ Read, understand and obey the safety rules and operating instructions in the appropriate operator's manual on your machine.
- ☑ Be sure that all necessary tools and test equipment are available and ready for use.

About This Section

There are two groups of schematics in this section.

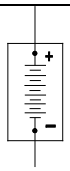
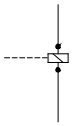
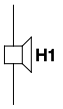
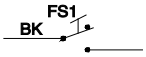
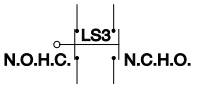
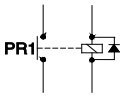
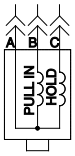
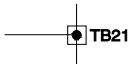
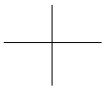
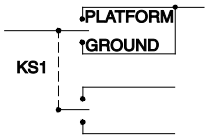
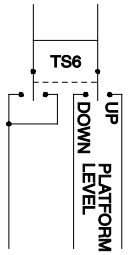
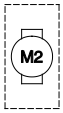
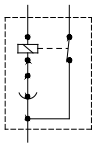
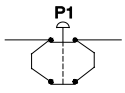
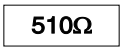
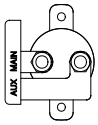
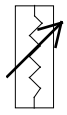
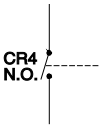
Electrical Schematics

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

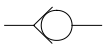
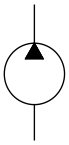
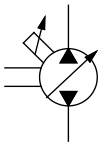
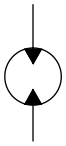
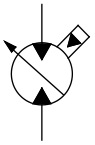
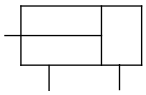
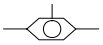
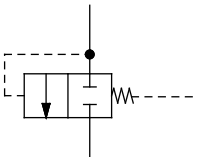
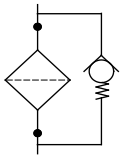
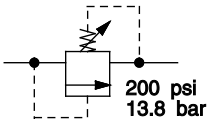
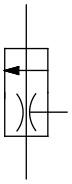
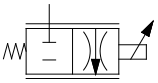
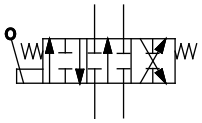
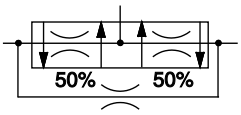
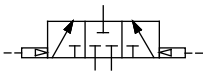
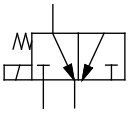
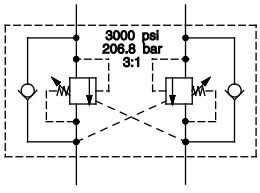
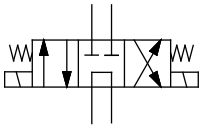
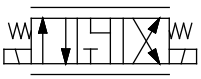
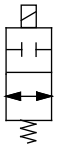
Hydraulic Schematics

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

Electrical Symbol Legend

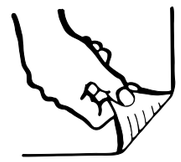
				
Battery	Coil, solenoid or relay	Horn or alarm	Flashing beacon	Gauge
				
Diode	Hour meter	LED	Fuse with amperage	Foot switch
				
T-circuits connect	Limit Switch	Power relay	Coil with suppression	Fuel or RPM solenoid
				
Connection - no terminal	T-circuits connect at terminal	Circuits crossing - no connection	Quick disconnect terminal	Circuit breaker with amperage
				
Key switch	Toggle switch DPDT	Toggle switch SPDT	Pump or Motor	Tilt sensor
				
Horn button - normally open	Emergency stop button - normally closed	Resistor with ohm value	Battery seperator	Gauge sending unit
				
Oil temperature switch normally open	Coolant temperature switch - normally open	Oil pressure switch normally closed	Control relay contact normally open	Diode starting aid, glow plug or flame ignitor

Hydraulic Symbols Legend

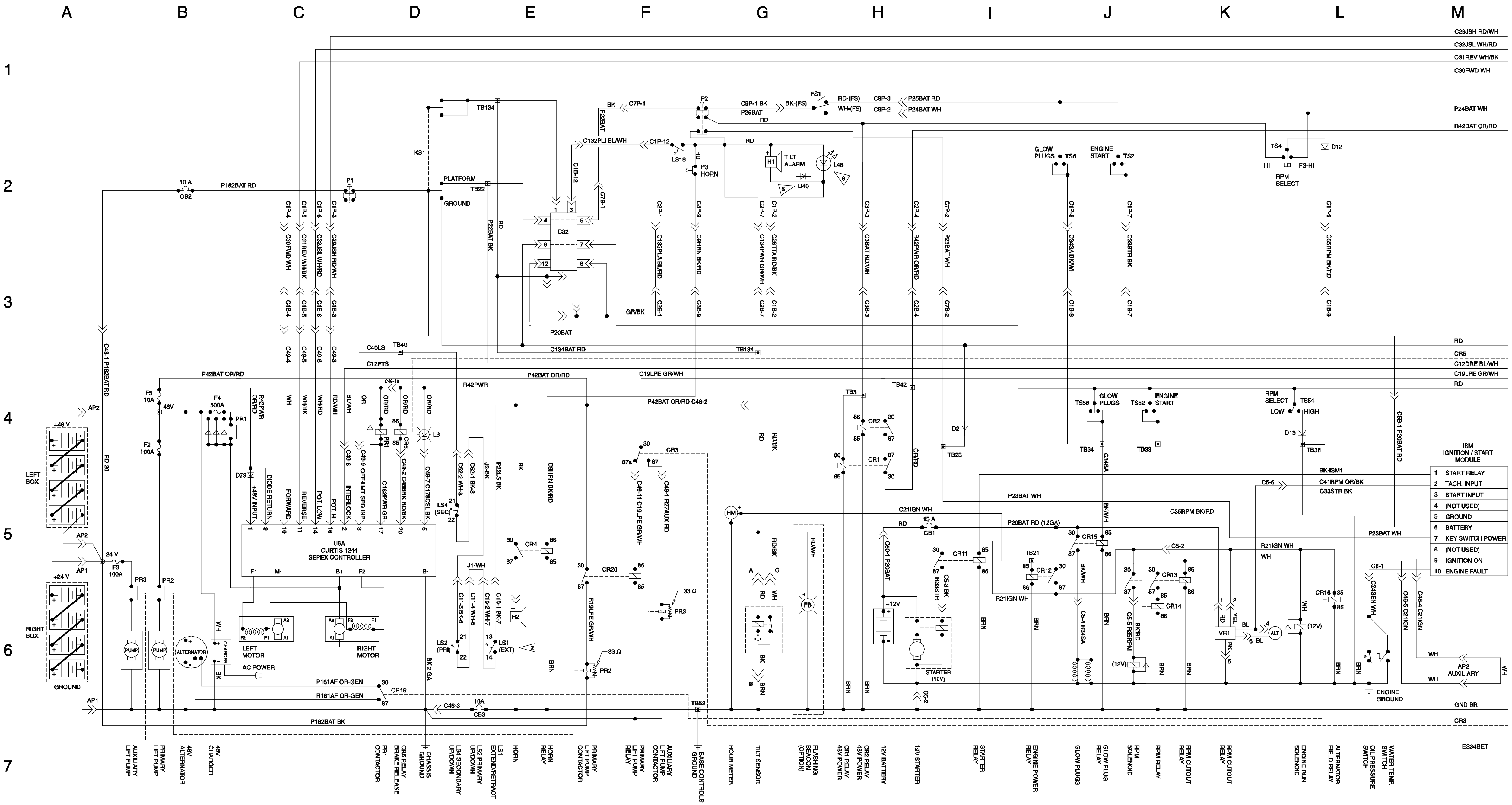
 Orifice with size	 Check valve	 Shut off valve	 Brake
 Pump, fixed displacement	 Pump, bi-directional variable displacement	 Motor, bi-directional	 Motor, 2 speed bi-directional
 Double acting cylinder	 Pump, prime mover (engine or motor)	 Shuttle valve. 2 position, 3 way	 Differential sensing valve
 Filter with bypass relief valve	 Relief valve with pressure setting	 Priority flow regulator valve	 Solenoid operated proportional valve
 Directional valve (mechanically activated)	 Flow divider/combiner valve	 Pilot operated 3 position, 3 way shuttle valve	 Solenoid operated 2 position, 3 way directional valve
 Counterbalance valve with pressure and pilot ratio	 Solenoid operated 3 position, 4 way directional valve	 Solenoid operated 3 position, 4 way proportional directional valve	 2 position, 2 way solenoid valve

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Electrical Schematic - from serial number 4800 to 5426 (ANSI / CSA)



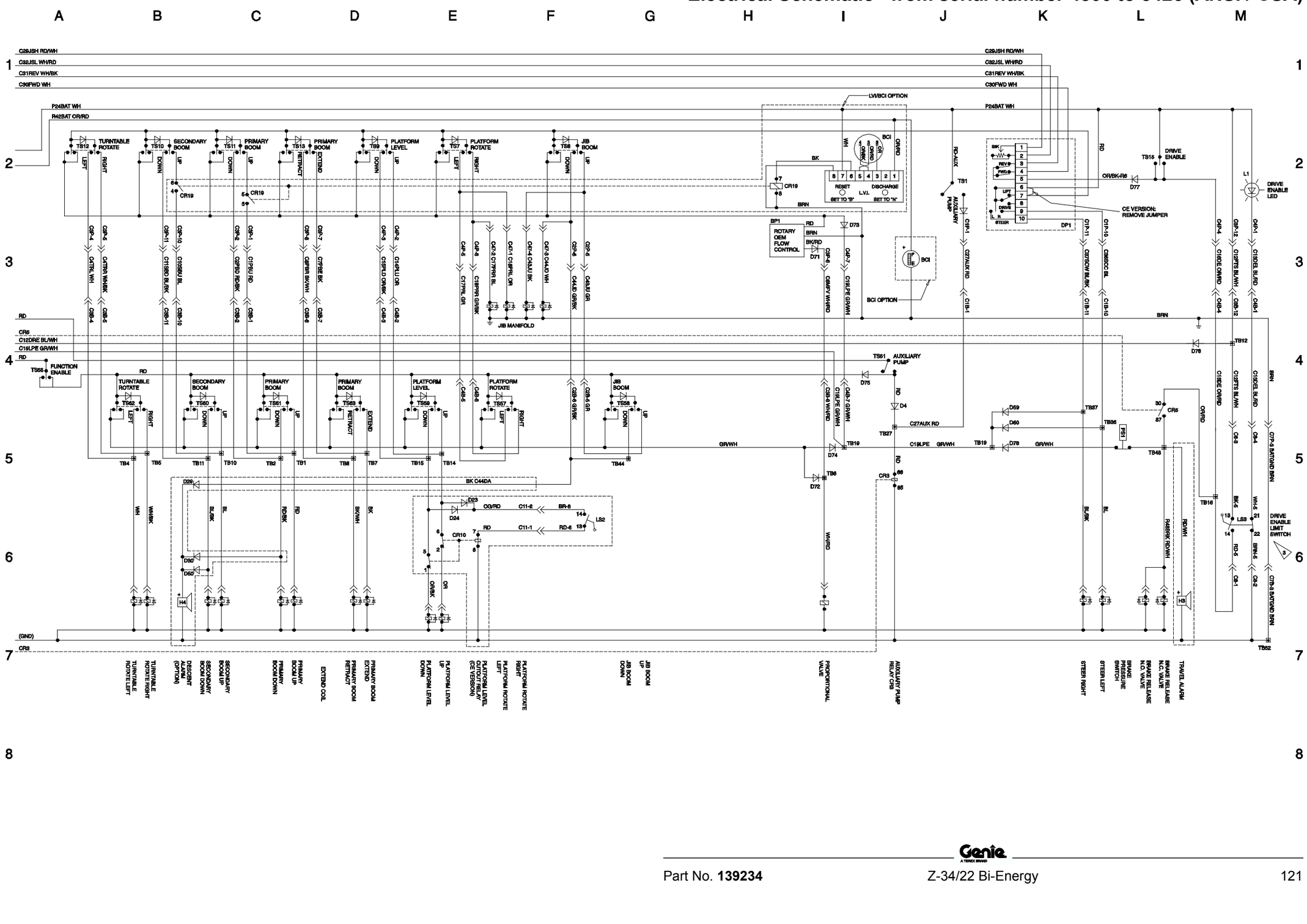
Electrical Schematic - from serial number 4800 to 5426 (ANSI / CSA)



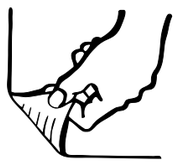
NOTES:

1. ALL LIMIT SWITCHES SHOWN WITH BOOM IN STOWED POSITION EXCEPT AS NOTED.
2. SWITCH SHOWN WITH BOOM EXTENDED.
3. SWITCH SHOWN WITH BOOM ROTATED PAST EITHER NON-STEER WHEEL.
4. ALL SOLENOID AND RELAY COILS ARE 24VDC EXCEPT WHERE NOTED.
5. ADD D40 ONLY IF UNIT HAS L4 AND L48.
6. ANSI/CSA
7. SEE E0276 SHEET 11 FOR PLATFORM LEVEL CUTOUT CTE OPTION.

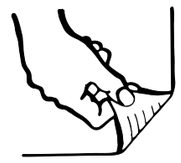
Electrical Schematic - from serial number 4800 to 5426 (ANSI / CSA)



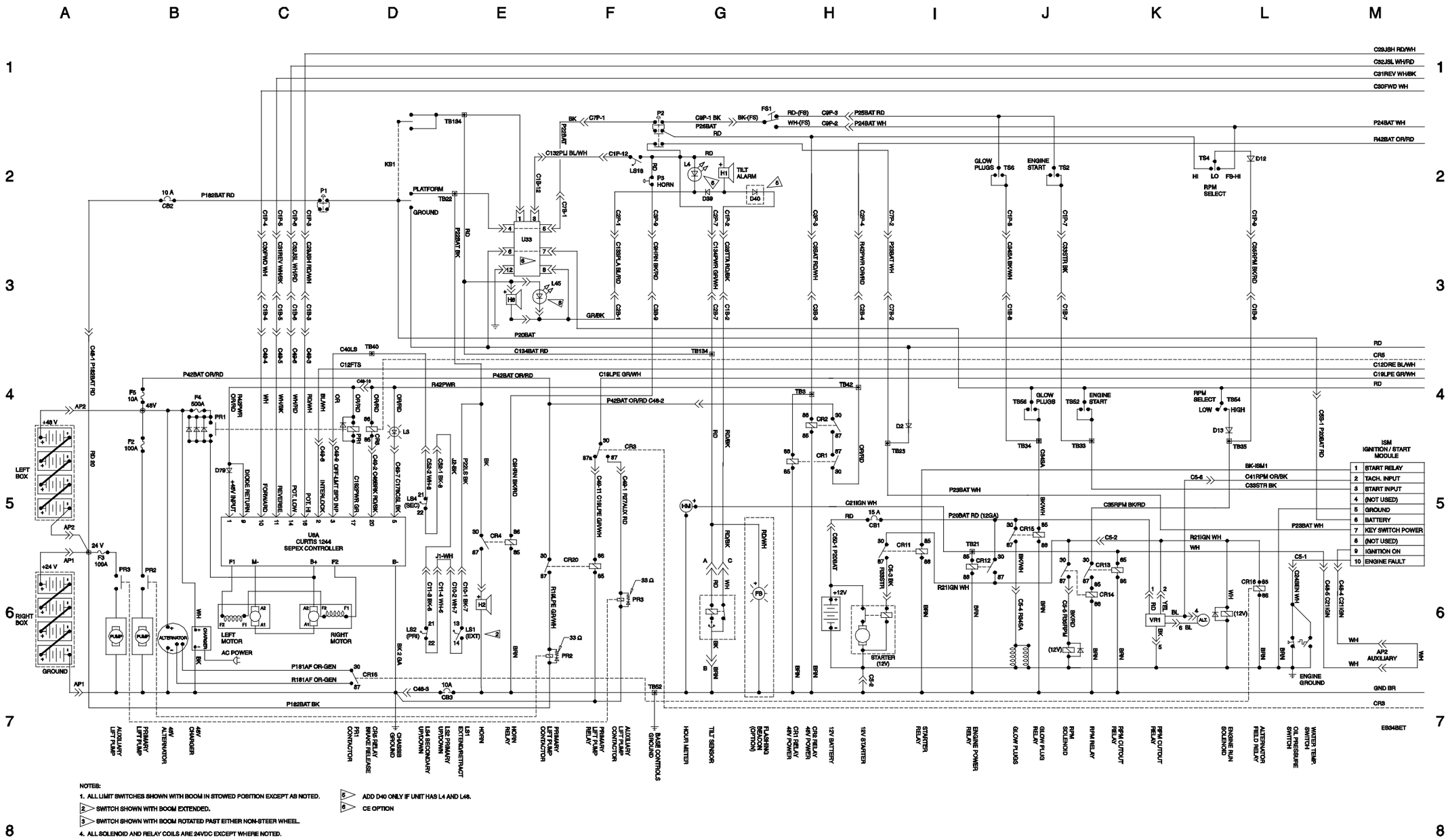
Electrical Schematic - from serial number 4800 to 5426 (ANSI / CSA)



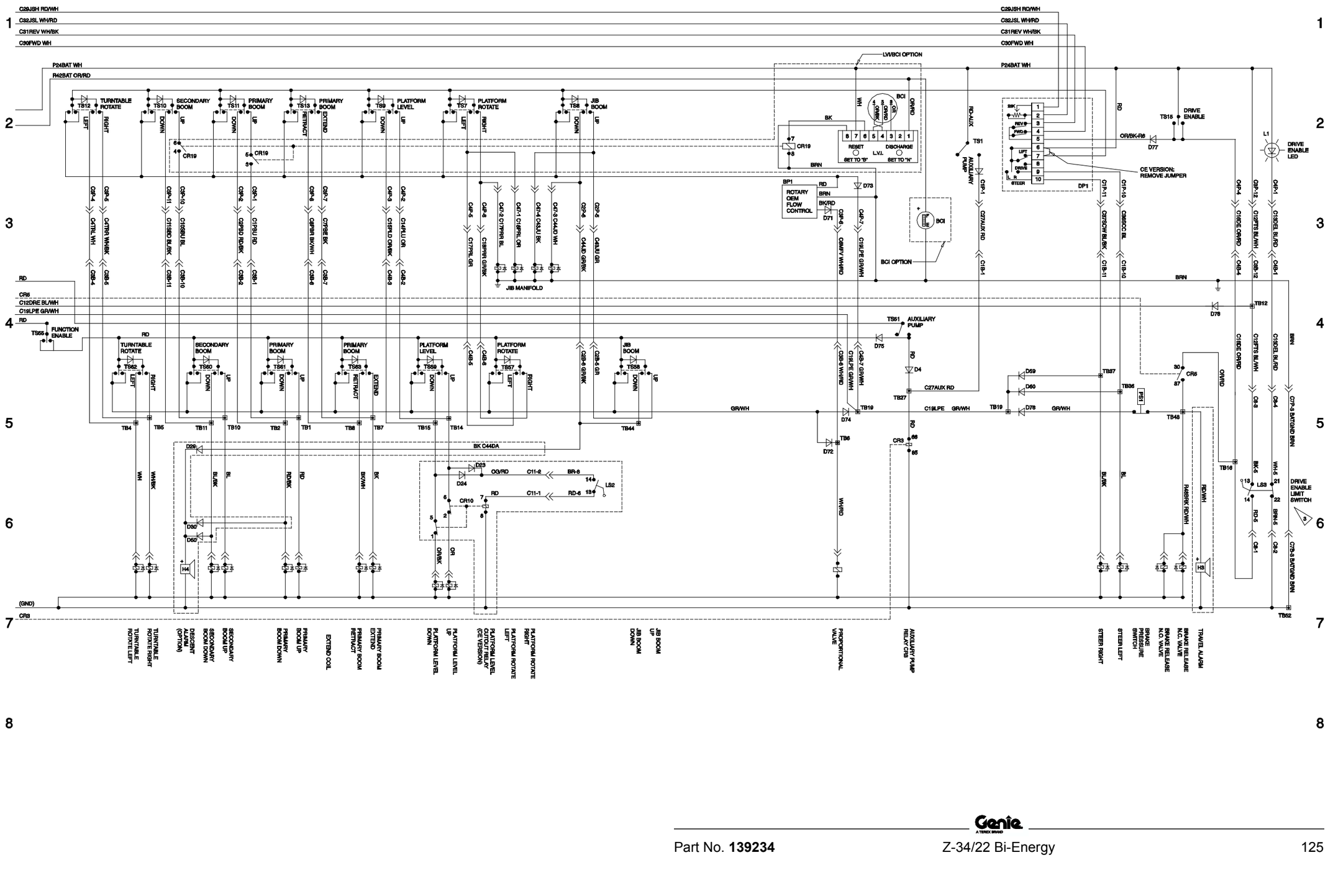
Electrical Schematic - from serial number 4800 to 5426 (CE)



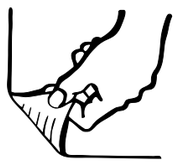
Electrical Schematic - from serial number 4800 to 5426 (CE)



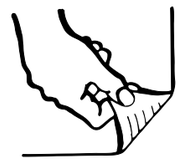
Electrical Schematic - from serial number 4800 to 5426 (CE)



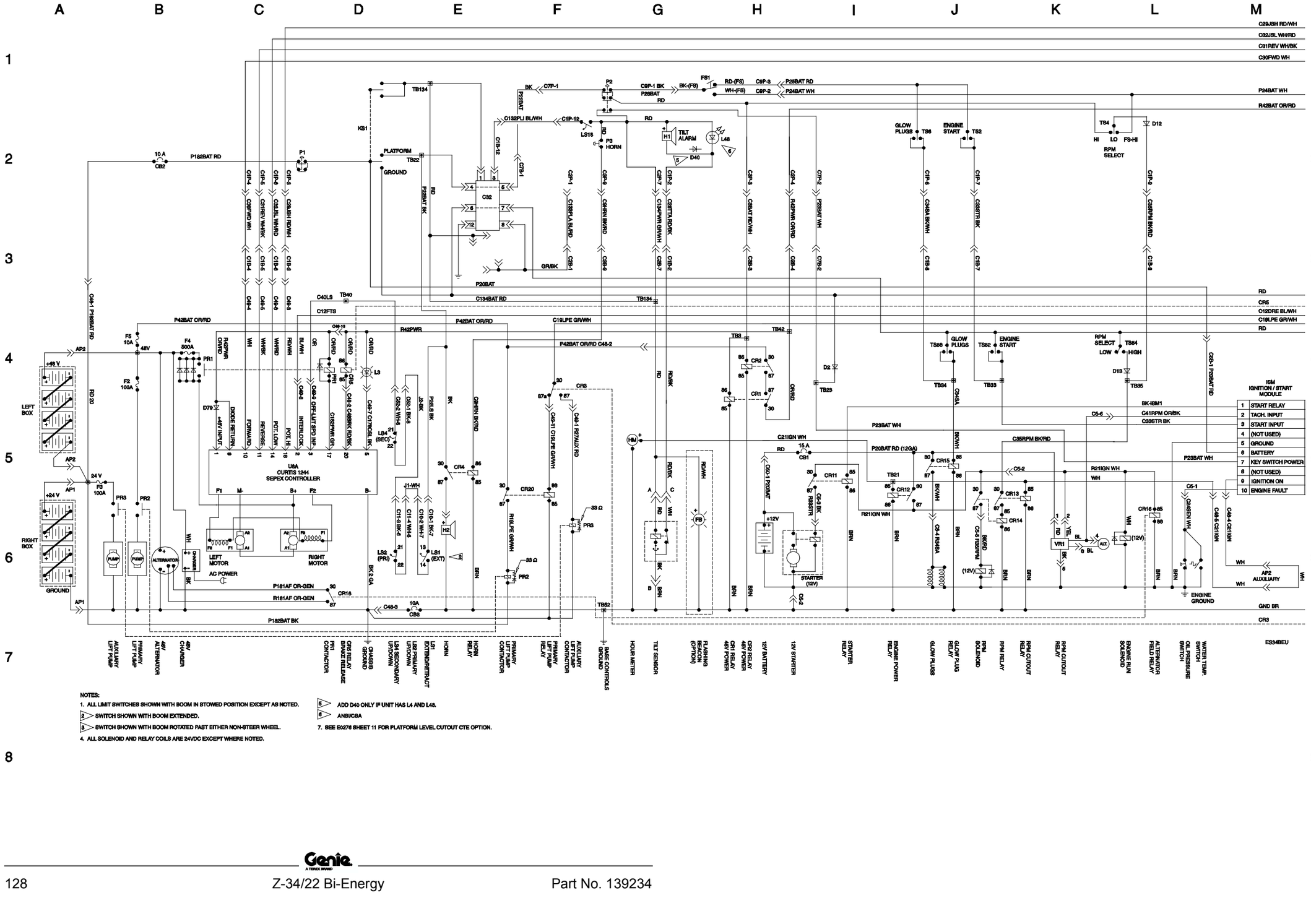
Electrical Schematic - from serial number 4800 to 5426 (CE)



Electrical Schematic - from serial number 5427 to 9441 (ANSI / CSA)



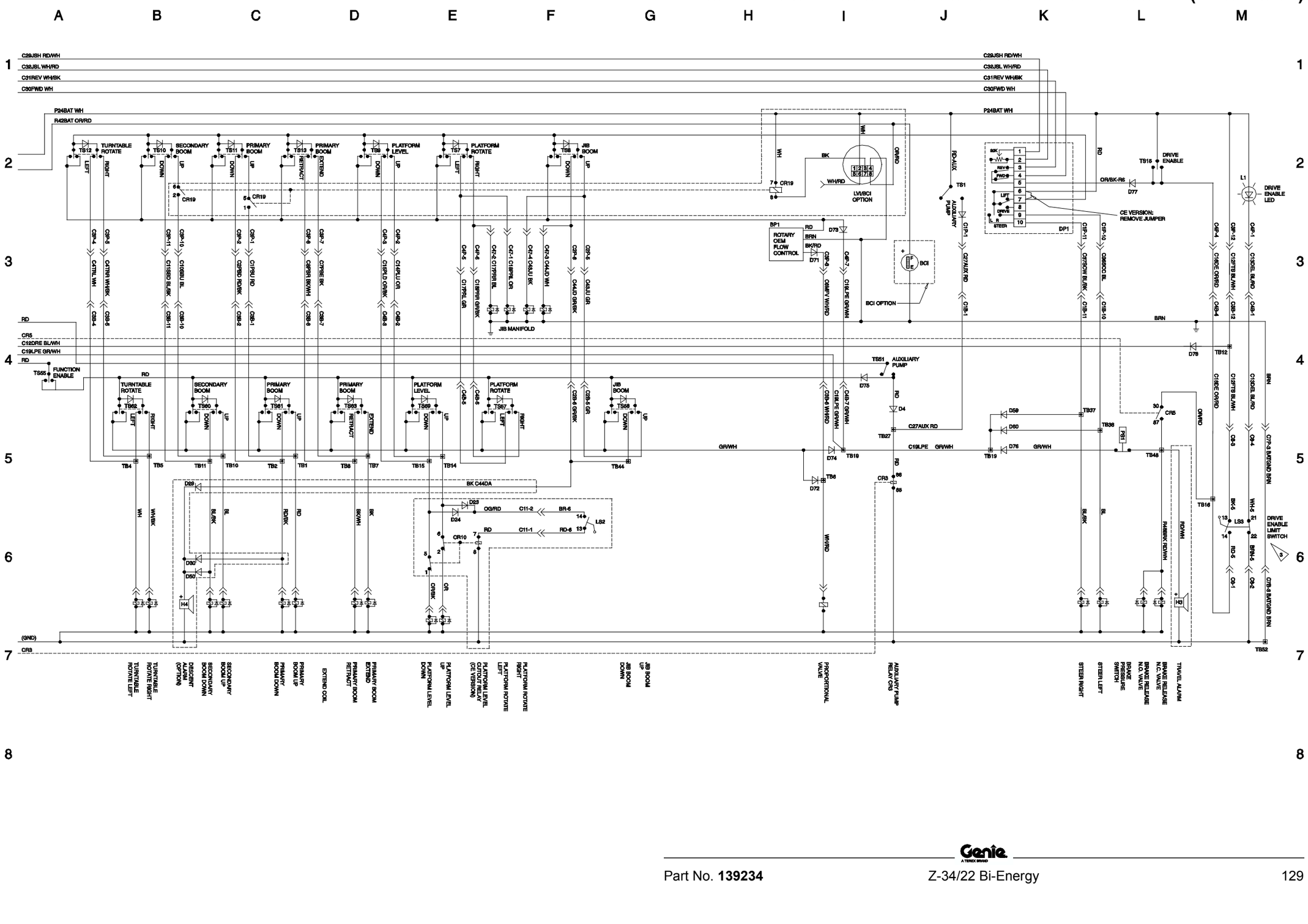
Electrical Schematic - from serial number 5427 to 9441 (ANSI / CSA)



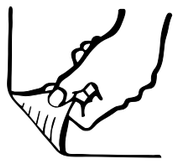
NOTES:

1. ALL LIMIT SWITCHES SHOWN WITH BOOM IN STOWED POSITION EXCEPT AS NOTED.
2. SWITCH SHOWN WITH BOOM EXTENDED.
3. SWITCH SHOWN WITH BOOM ROTATED PAST EITHER NON-STEER WHEEL.
4. ALL SOLENOID AND RELAY COILS ARE 24VDC EXCEPT WHERE NOTED.
5. ADD D40 ONLY IF UNIT HAS L4 AND L46.
6. ANSI/CSA
7. SEE E0276 SHEET 11 FOR PLATFORM LEVEL CUTOUT CTE OPTION.

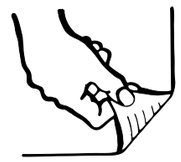
Electrical Schematic - from serial number 5427 to 9441 (ANSI / CSA)



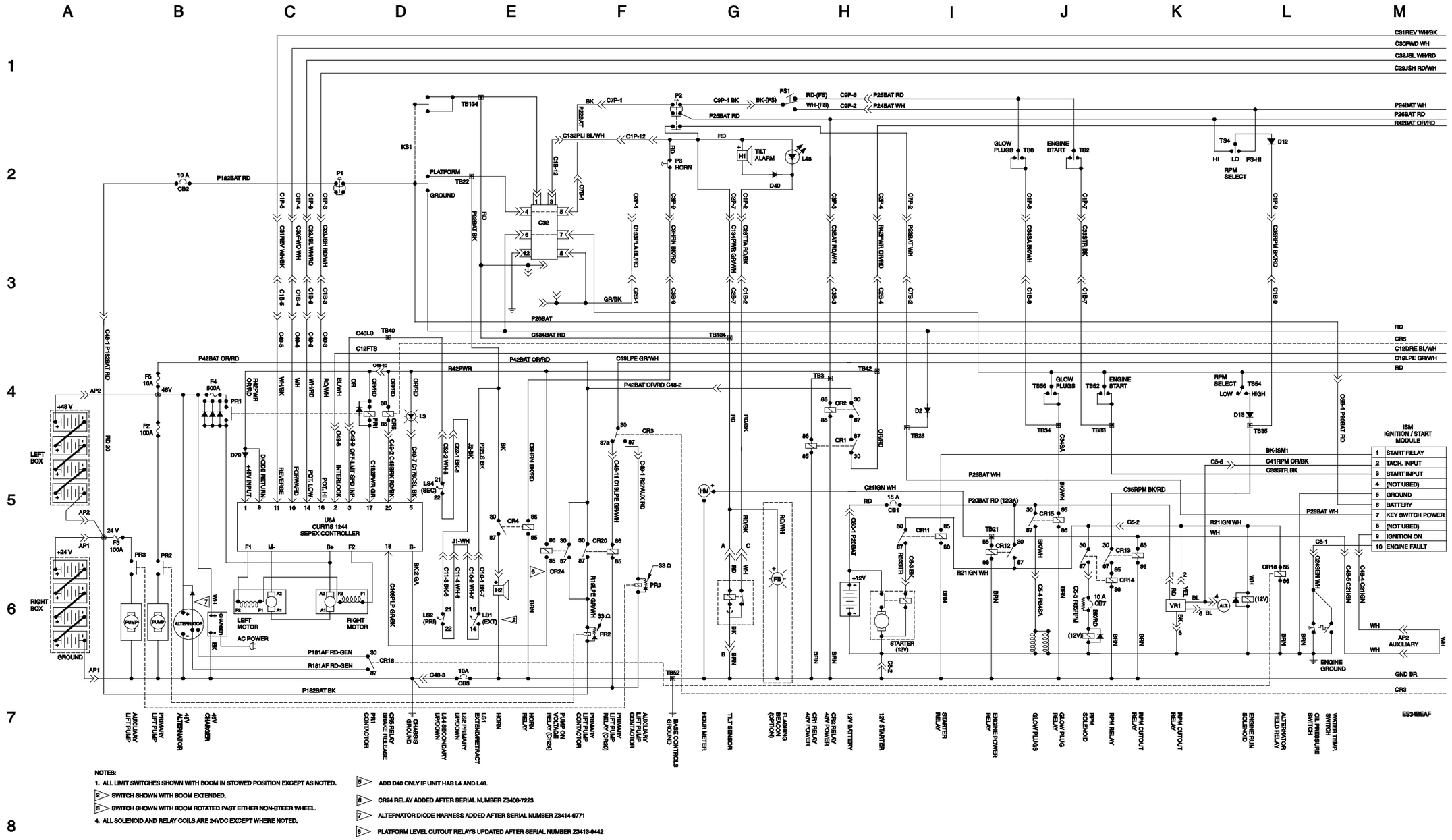
Electrical Schematic - from serial number 5427 to 9441 (ANSI / CSA)



Electrical Schematic - from serial number 9442 to 9685 (ANSI / CSA)



Electrical Schematic - from serial number 9442 to 9685 (ANSI / CSA)

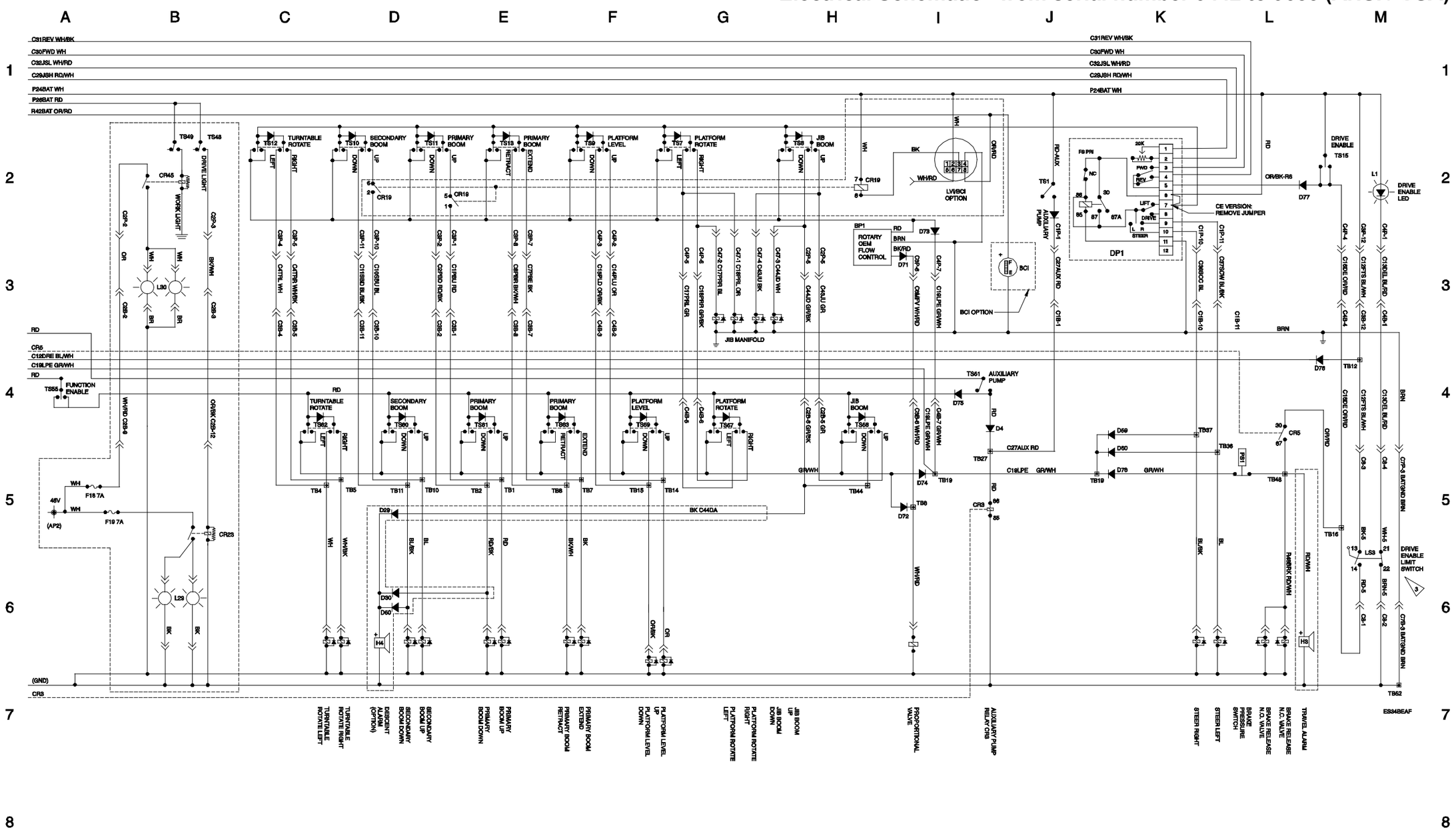


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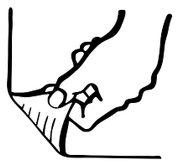
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3. SWITCH SHOWN WITH BOOM ROTATED PAST EITHER NON-STEER WHEEL.
4. ALL SOLENOID AND RELAY COILS ARE 24VDC EXCEPT WHERE NOTED.

5. ADD D40 ONLY IF UNIT HAS L4 AND L46.
6. CR24 RELAY ADDED AFTER SERIAL NUMBER Z3408-7223
7. ALTERNATOR DIODE HARNESS ADDED AFTER SERIAL NUMBER Z3414-9771
8. PLATFORM LEVEL CUTOUT RELAYS UPDATED AFTER SERIAL NUMBER Z3413-9442

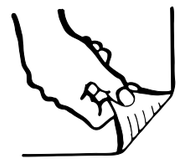
Electrical Schematic - from serial number 9442 to 9685 (ANSI / CSA)



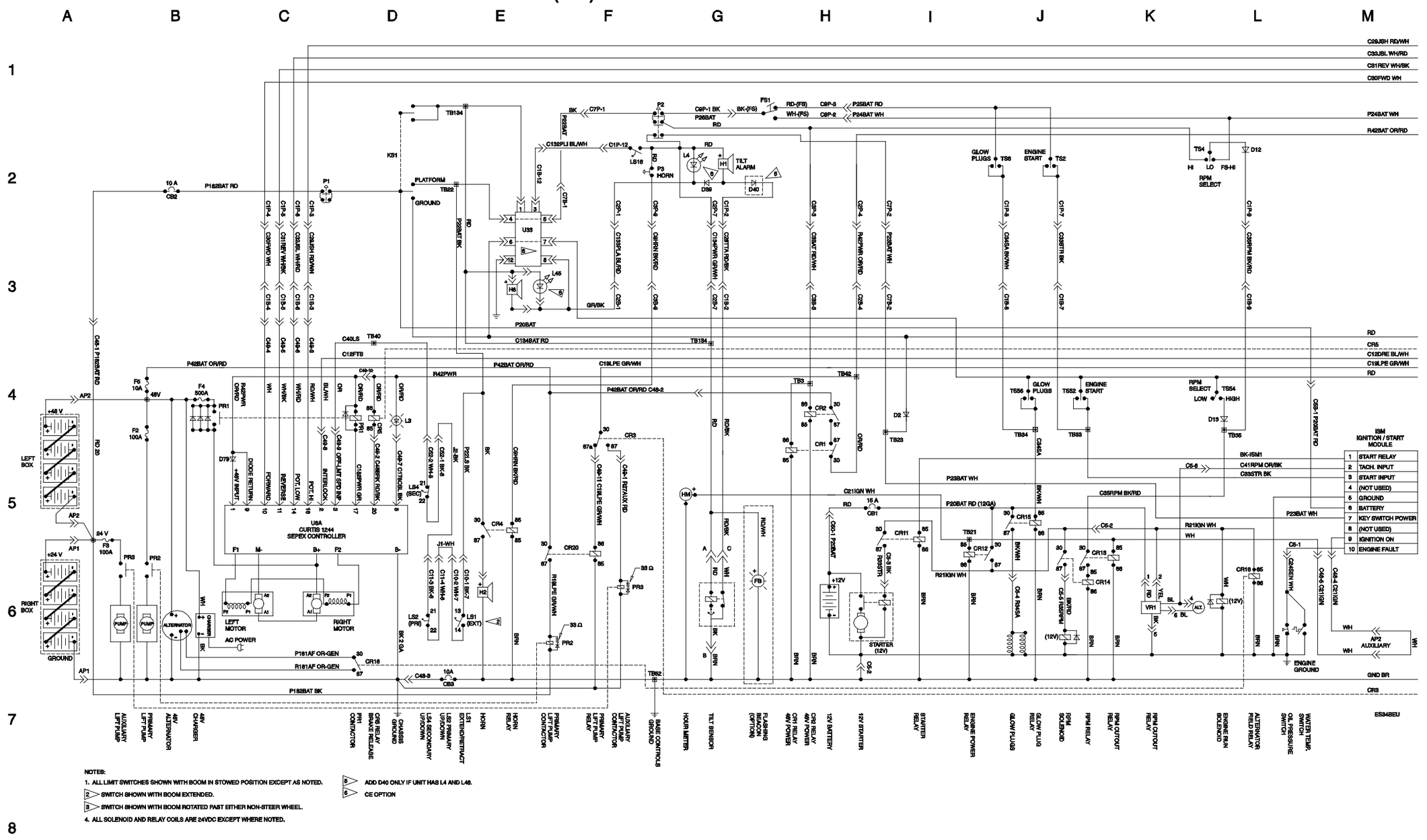
Electrical Schematic - from serial number 9442 to 9685 (ANSI / CSA)



Electrical Schematic - from serial number 5247 to 9441 (CE)



Electrical Schematic - from serial number 5427 to 9441(CE)

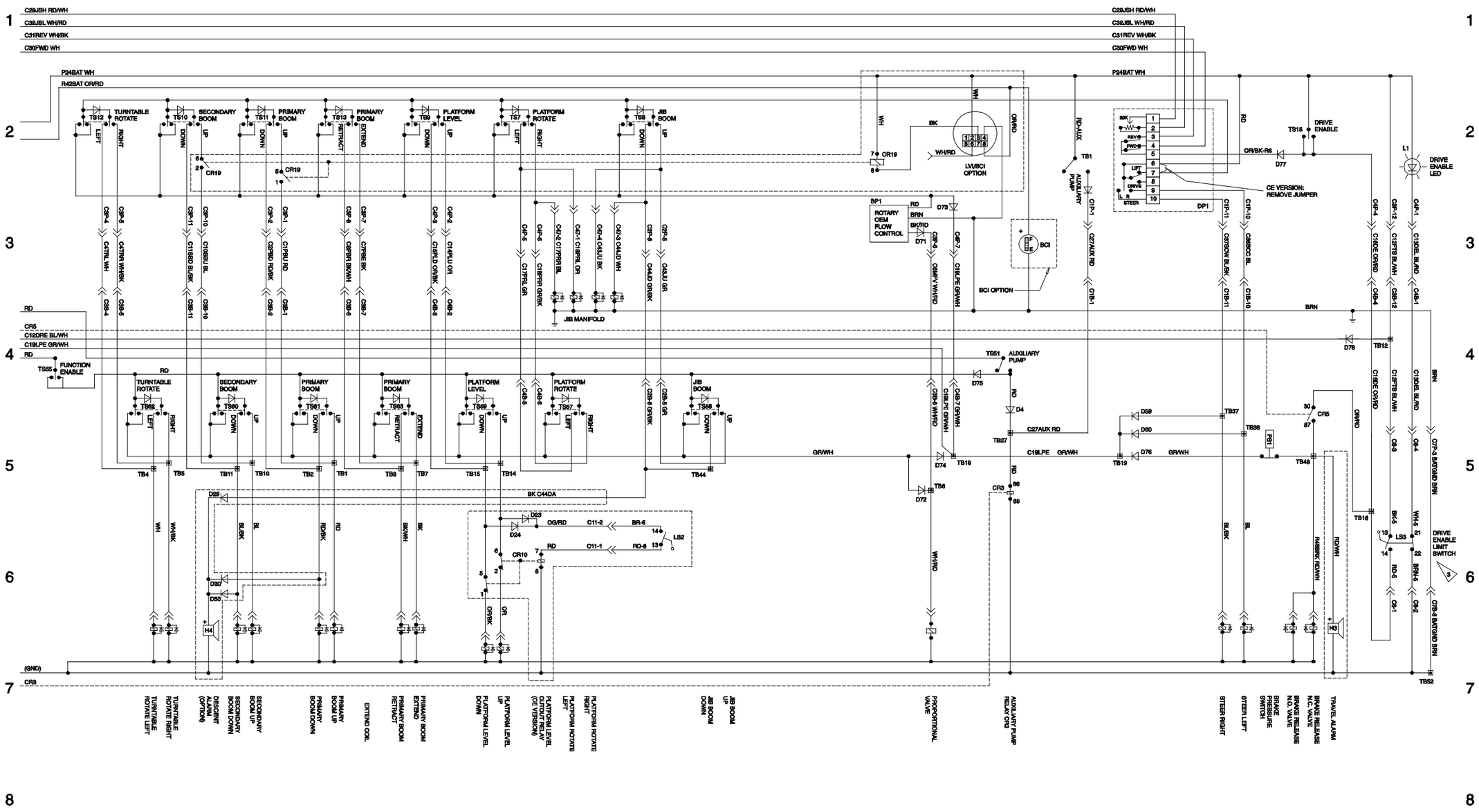


NOTES:

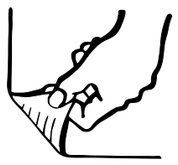
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4. ALL SOLENOID AND RELAY COILS ARE 24VDC EXCEPT WHERE NOTED.

ADD D40 ONLY IF UNIT HAS L4 AND L46.
CE OPTION

Electrical Schematic - from serial number 5427 to 9441 (CE)

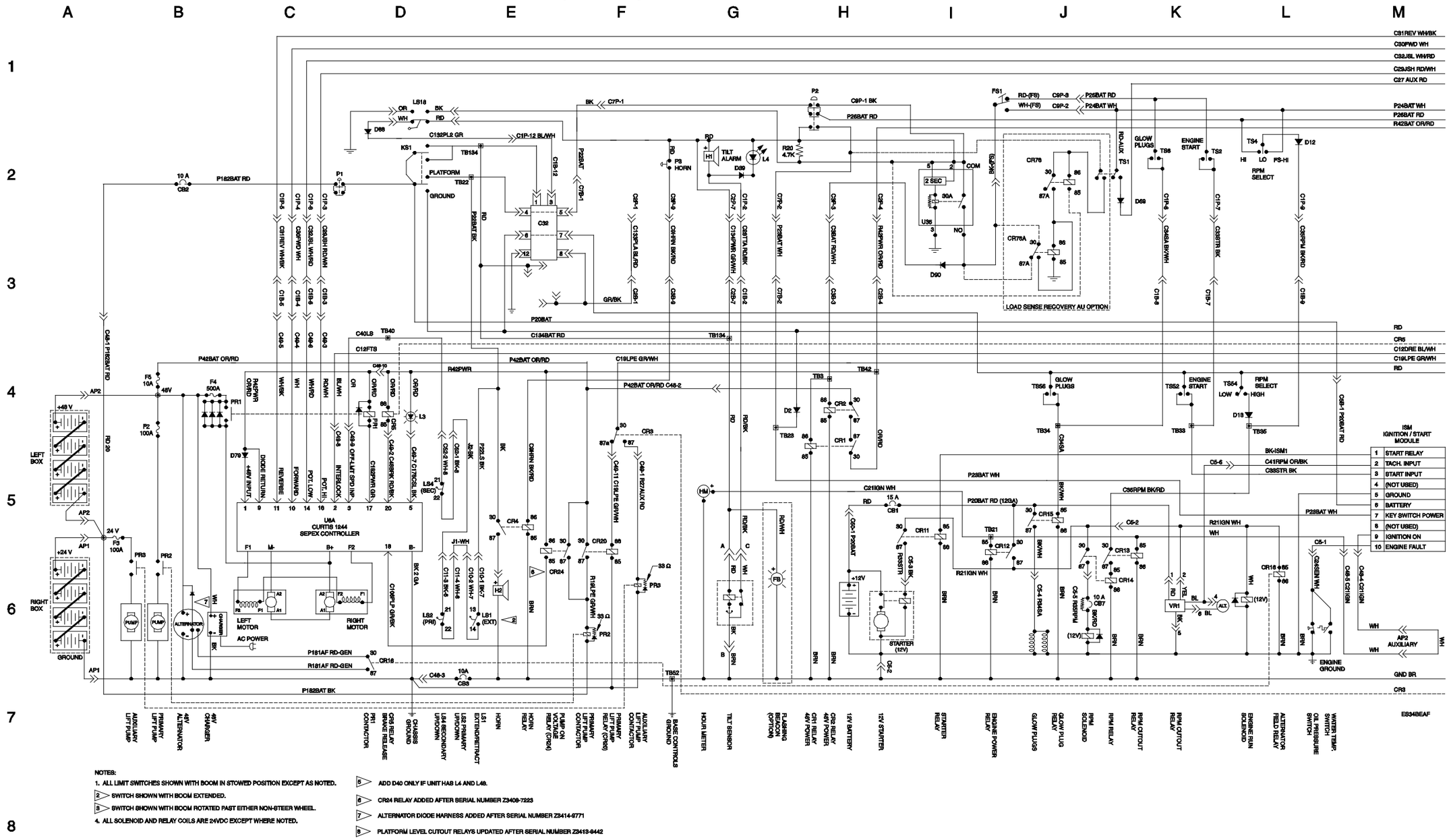


Electrical Schematic - from serial number 5427 to 9441(CE)



Electrical Schematic - from serial number 9442 to 9685 (CE /AS)

Electrical Schematic - from serial number 9442 to 9685 (CE /AS)

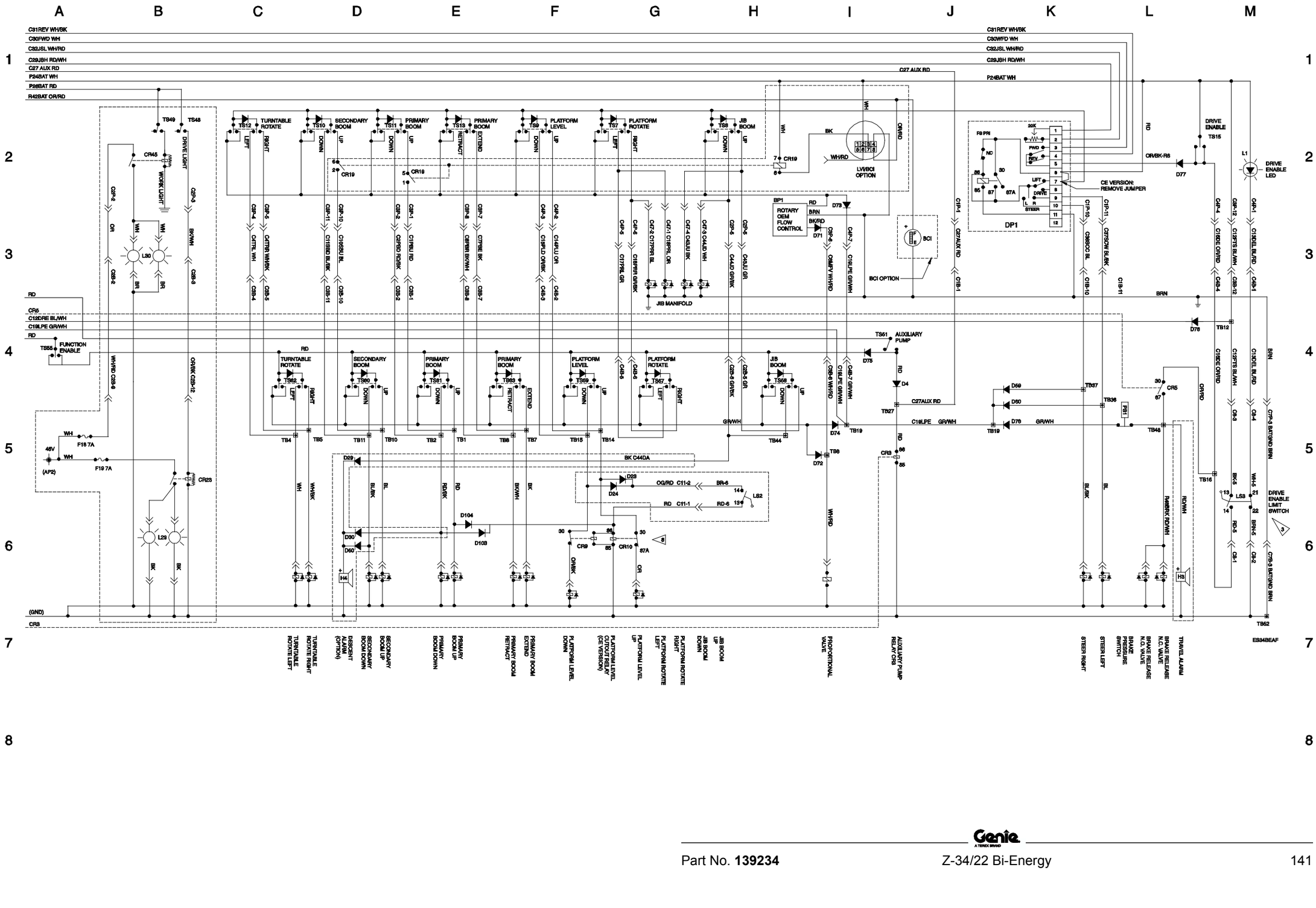


NOTES:

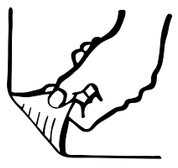
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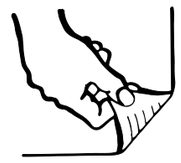
Electrical Schematic - from serial number 9442 to 9685 (CE /AS)



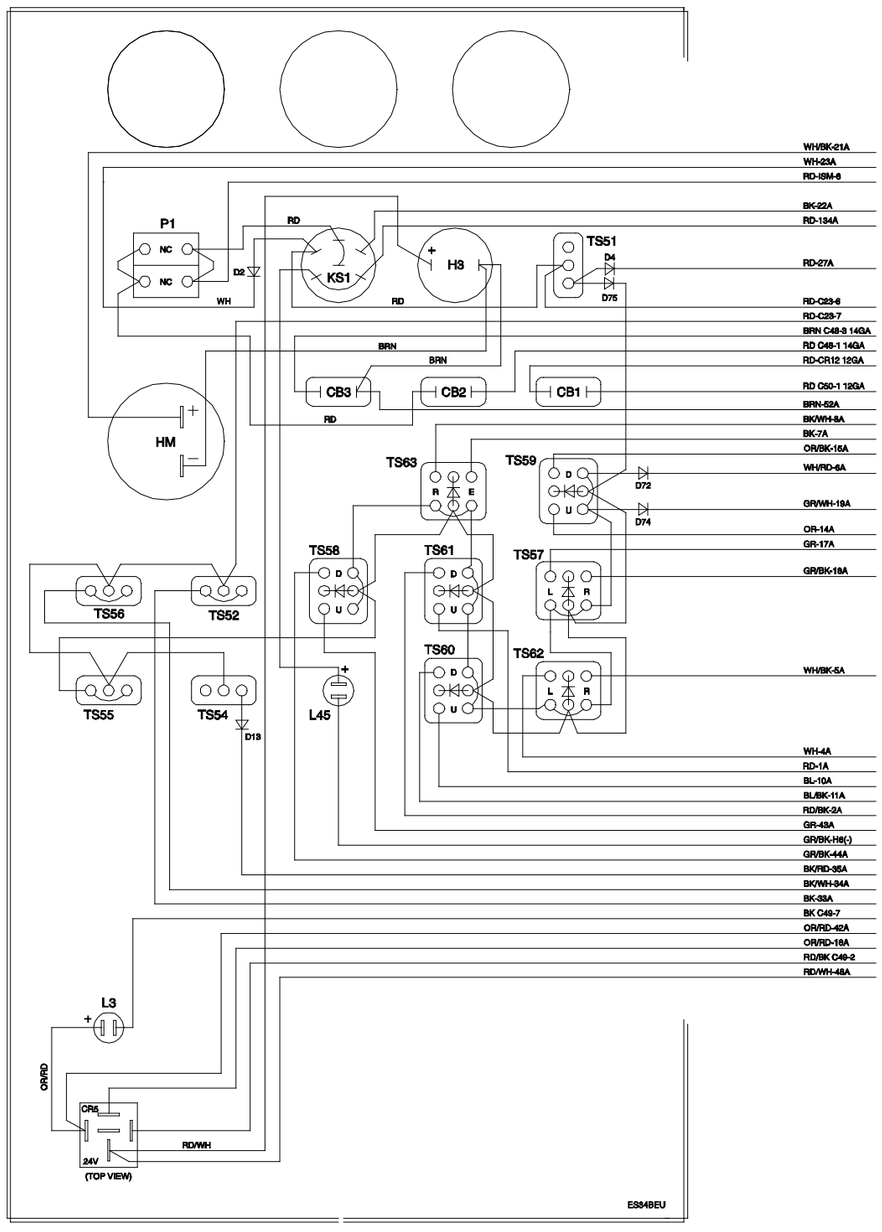
Electrical Schematic - from serial number 9442 to 9685 (CE /AS)



Ground Control Box Switch Panel Wiring Diagram

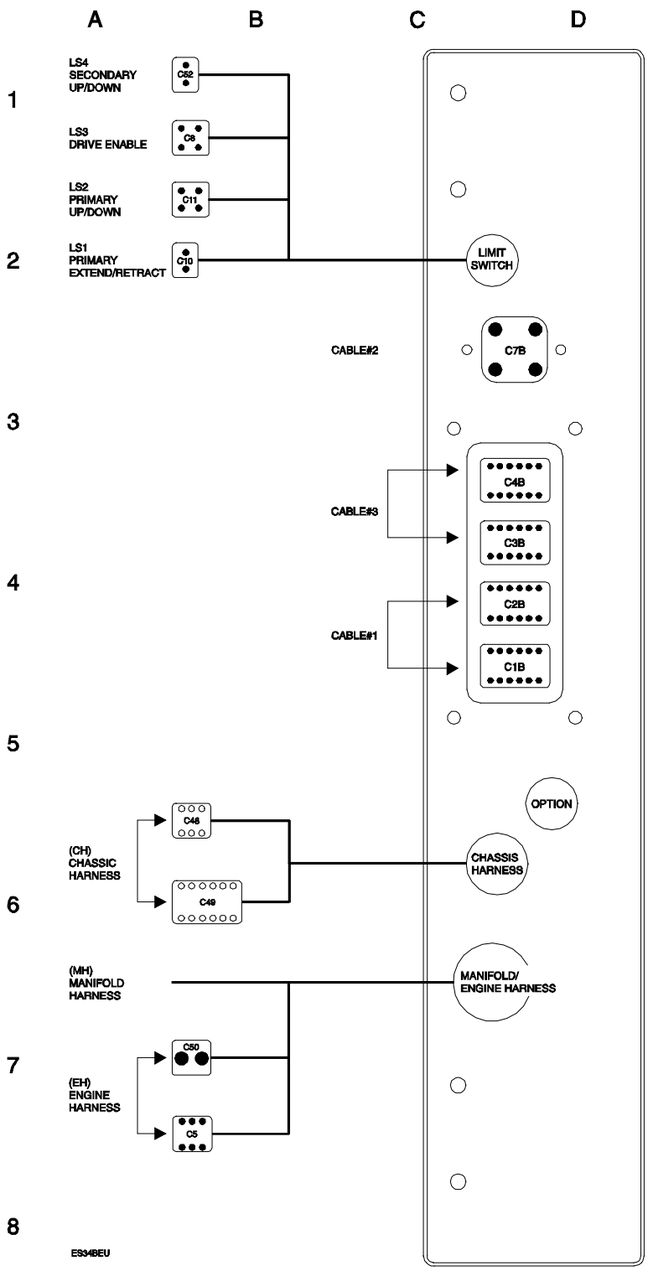


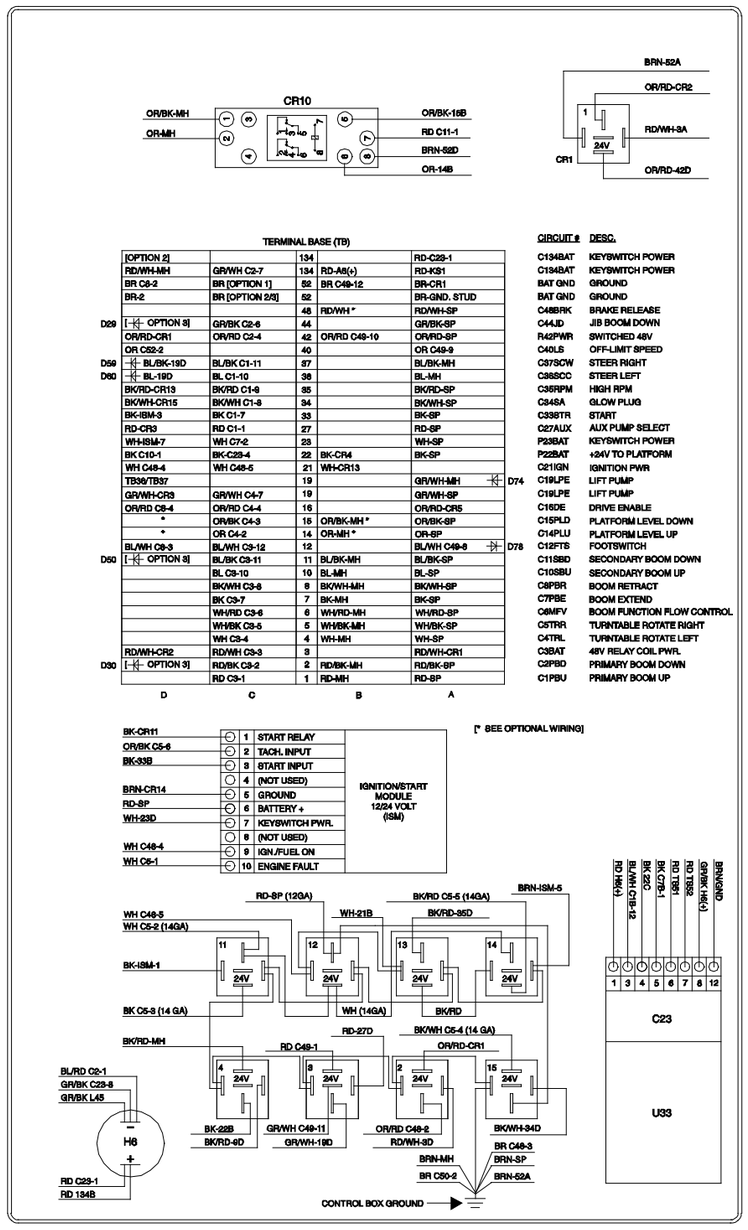
Ground Control Box Switch Panel Wiring Diagram



LABEL	DESCRIPTION
P1	EMERGENCY STOP BUTTON
KS1	KEY SWITCH
TS51	AUXILIARY TOGGLE SWITCH
TS52	ENGINE START TOGGLE SWITCH
TS54	ENGINE RPM TOGGLE SWITCH
TS55	FUNCTION ENABLE TOGGLE SWITCH
TS56	ENGINE GLOW PLUG TOGGLE SWITCH
TS57	PLATFORM ROTATE TOGGLE SWITCH
TS58	JIB BOOM UP/DOWN TOGGLE SWITCH
TS59	PLATFORM LEVEL TOGLE SWITCH
TS60	SECONDARY BOOM UP/DOWN TOGGLE SWITCH
TS61	PRIMARY BOOM UP/DOWN TOGGLE SWITCH
TS62	TURNTABLE ROTATE TOGGLE SWITCH
TS63	BOOM EXTEND/RETRACT TOGGLE SWITCH
CB1	CIRCUIT BREAKER, ENGINE, 15A
CB2	CIRCUIT BREAKER, CONTROL3, 10A
CB3	CIRCUIT BREAKER, CONTROL3 (GROUND),10A
L3	CONTROLLER STATUS LED
HM	HOUR METER
EH	ENGINE HARNESS
MH	MANIFOLD HARNESS
CH	CHASSIS HARNESS
SP	SWITCH PANEL
CR_	CONTROL RELAY
ISM	IGNITION/START MODULE
H3	TRAVEL ALARM (OPTION)
H6	PLATFORM OVERLOAD ALARM
L45	PLATFORM OVERLOAD LED

Ground Control Box Terminal Strip Wiring Diagram





TERMINAL BASE (TB)

	[OPTION 2]		134		RD-C23-1
	RD/WH-MH	GR/WH C2-7	134	RD-A8(+)	RD-K31
	BR C8-2	BR [OPTION 1]	52	BR C49-12	BR-CR1
	BR-2	BR [OPTION 2/3]	52		BR-GND. STUD
			48	RD/WH *	RD/WH-SP
D29	[-||- OPTION 3]	GR/BK C2-6	44		GR/BK-SP
	OR/RD-CR1	OR/RD C2-4	42	OR/RD C49-10	OR/RD-SP
	OR C62-2		40		OR C49-9
D59	-||- BL/BK-19D	BL/BK C1-11	87		BL/BK-MH
D60	-||- BL-19D	BL C1-10	86		BL-MH
	BK/RD-CR13	BK/RD C1-6	85		BK/RD-SP
	BK/WH-CR15	BK/WH C1-8	84		BK/WH-SP
	BK-IBM-3	BK C1-7	33		BK-SP
	RD-CR3	RD C1-1	27		RD-SP
	WH-ISM-7	WH C7-2	28		WH-SP
	BK C10-1	BK-C23-4	22	BK-CR4	BK-SP
	WH C48-4	WH C48-5	21	WH-CR13	
	TB36/TB37		19		GR/WH-MH -||- D74
	GR/WH-CR3	GR/WH C4-7	19		GR/WH-SP
	OR/RD C8-4	OR/RD C4-4	16		OR/RD-CR5
	*	OR/BK C4-3	16	OR/BK-MH *	OR/BK-SP
	*	OR C4-2	14	OR-MH *	OR-SP
	BL/WH C9-3	BL/WH C9-12	12		BL/WH C49-8 -||- D78
D50	[-||- OPTION 3]	BL/BK C9-11	11	BL/BK-MH	BL/BK-SP
		BL C9-10	10	BL-MH	BL-SP
		BK/WH C3-8	8	BK/WH-MH	BK/WH-SP
		BK C3-7	7	BK-MH	BK-SP
		WH/RD C3-6	6	WH/RD-MH	WH/RD-SP
		WH/BK C3-5	5	WH/BK-MH	WH/BK-SP
		WH C3-4	4	WH-MH	WH-SP
	RD/WH-CR2	RD/WH C3-3	3		RD/WH-CR1
D30	[-||- OPTION 3]	RD/BK C3-2	2	RD/BK-MH	RD/BK-SP
		RD C3-1	1	RD-MH	RD-SP

D C B A

CIRCUIT #	DESC.
C134BAT	KEYSWITCH POWER
C134BAT	KEYSWITCH POWER
BAT GND	GROUND
BAT GND	GROUND
C46BRK	BRAKE RELEASE
C44JD	JIB BOOM DOWN
R42PWR	SWITCHED 48V
C40LS	OFF-LIMIT SPEED
C37SCW	STEER RIGHT
C38SCC	STEER LEFT
C35RPM	HIGH RPM
C34GA	GLOW PLUG
C33STR	START
C27AUX	AUX PUMP SELECT
P23BAT	KEYSWITCH POWER
P22BAT	+24V TO PLATFORM
C21IGN	IGNITION PWR
C19LPE	LIFT PUMP
C19LPE	LIFT PUMP
C16DE	DRIVE ENABLE
C15PLD	PLATFORM LEVEL DOWN
C14PLU	PLATFORM LEVEL UP
C12FTS	FOOTSWITCH
C11SBD	SECONDARY BOOM DOWN
C10SBU	SECONDARY BOOM UP
C8PBR	BOOM RETRACT
C7PBE	BOOM EXTEND
C6MFV	BOOM FUNCTION FLOW CONTROL
C5TRR	TURNTABLE ROTATE RIGHT
C4TRL	TURNTABLE ROTATE LEFT
C3BAT	48V RELAY COIL PWR.
C2PBD	PRIMARY BOOM DOWN
C1PBU	PRIMARY BOOM UP

WIRES FROM CONNECTOR TO CONNECTOR

WIRE#	CIRCUIT #	FROM	TO	DESCRIPTION
BL/RD	C133PLA	C2-1	H6(+)	PLATFORM OVERLOAD INPUT
BL/WH	C132PLI	C1-12	C23-8	PLATFORM OVERLOAD ALARM
BK	J2	C62-1	C11-8	LS2-LS4 JUNCTION
WH	J1	C10-2	C11-4	LS1-LS2 JUNCTION
GR-1	C43JU	C2-5	SP	JIB BOOM UP
WH/RD-1	C32JSL	C1-6	C49-6	JOYSTICK POT. LOW
WH/BK-1	C31REV	C1-5	C49-5	REVERSE
WH-1	C30FWD	C1-4	C49-4	FORWARD
RD/WH-1	C29JSH	C1-3	C49-3	2-WIRE POT.
RD/BK-1	C28TTA	C1-2	MH	TILT ALARM
GR/BK-8	C18PRR	C4-8	SP	PLATFORM ROTATE RIGHT
GR-3	C17PRL	C4-5	SP	PLATFORM ROTATE LEFT
BL/RD-3	C13DEL	C4-1	C8-1	DRIVE ENABLE LIGHT
BK/RD-8	C9HRN	C8-9	MH	HORN
OR-1	SPARE			
OR/BK-1	SPARE			

PLATFORM LEVEL CUT-OUT (CE VERSION ONLY)

C11-2 OR/BK

	OR/BK C4-3	15	OR/BK-CR10	OR/BK-SP	PLAT. LEVEL DN.
	OR C4-2	14	OR-CR10	OR-SP	PLAT. LEVEL UP

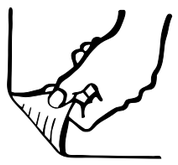
CONTROL RELAY ID.

CR1 - 48V POWER
CR2 - 48V POWER
CR3 - AUXILIARY PUMP
CR4 - HORN
CR8 - BRAKE RELEASE
CR10 - PLATFORM LEVEL CUT-OUT (CE VERSION ONLY)
CR11 - ENGINE START
CR12 - ENGINE RUN
CR13 - RPM CUT-OUT
CR14 - HIGH RPM
CR15 - GLOW PLUG

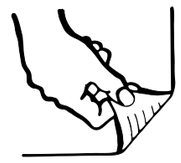
OPTION NUMBERS

1 - PLATFORM LEVEL CUT-OUT
2 - FLASHING BEACON
3 - DESCENT ALARM
4 - TRAVEL ALARM

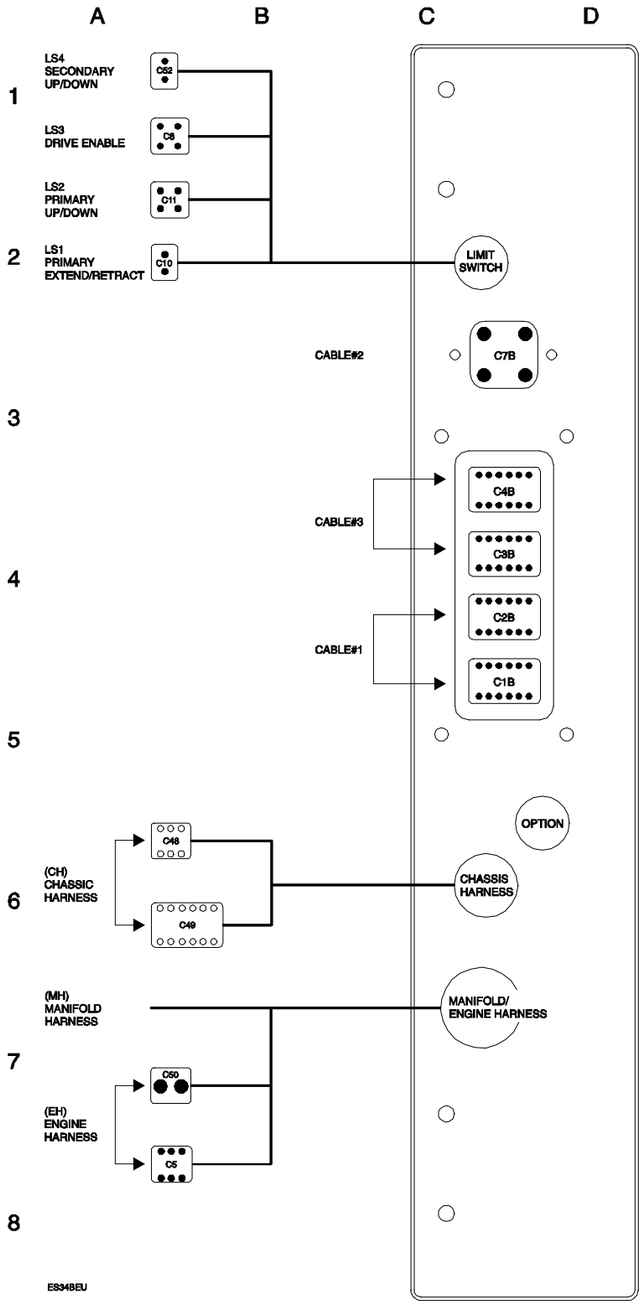
Ground Control Box Terminal Strip Wiring Diagram

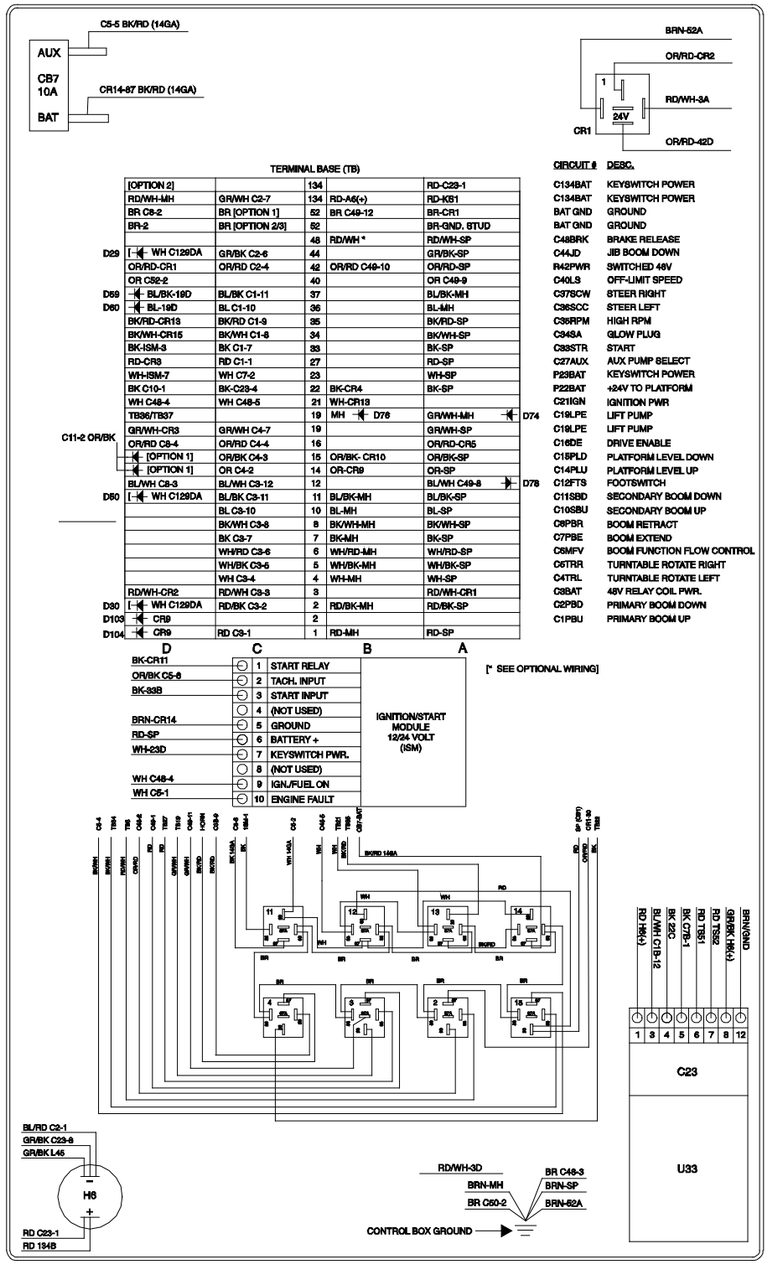


Ground Control Box Terminal Strip Wiring Diagram - from serial number 9442 to 9685 (ANSI / CSA)



Ground Control Box Terminal Strip Wiring Diagram - from serial number 9442 to 9685 (ANSI / CSA)





WIRES FROM CONNECTOR TO CONNECTOR

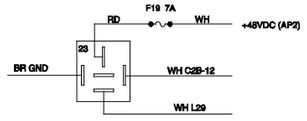
WIRES	CIRCUIT #	FROM	TO	DESCRIPTION
BL/RD	C133PLA	C2-1	H6(+)	PLATFORM OVERLOAD INPUT
BL/WH	C132PLI	C1-12	C23-3	PLATFORM OVERLOAD ALARM
BK	J2	C52-1	C11-3	LS2-LS4 JUNCTION
WH	J1	C10-2	C11-4	LS1-LS2 JUNCTION
GR-1	C48JU	C2-5	SP	JIB BOOM UP
WH/RD-1	C32JSL	C1-6	C49-6	JOYSTICK POT. LOW
WH/BK-1	C31REV	C1-5	C49-5	REVERSE
WH-1	C30FWD	C1-4	C49-4	FORWARD
RD/WH-1	C29JSH	C1-3	C49-3	2-WIRE POT.
RD/BK-1	C28TTA	C1-2	MH	TILT ALARM
GR/BK-3	C16PRR	C4-6	SP	PLATFORM ROTATE RIGHT
GR-3	C17PRL	C4-5	SP	PLATFORM ROTATE LEFT
BL/RD-3	C13DEL	C4-1	C8-1	DRIVE ENABLE LIGHT
BK/RD-3	C9HRN	C3-9	MH	HORN
OR-1	SPARE			
OR/BK-1	SPARE			

CONTROL RELAY ID.

CR1 - 48V POWER
CR2 - 48V POWER
CR3 - AUXILIARY PUMP
CR4 - HORN
CR5 - BRAKE RELEASE
CR9 - PLATFORM LEVEL CUT-OUT
CR10 - PLATFORM LEVEL CUT-OUT
CR11 - ENGINE START
CR12 - ENGINE RUN
CR13 - RPM CUT-OUT
CR14 - HIGH RPM
CR15 - GLOW PLUG
CR23 - DRIVE LIGHT (OPTION)

OPTION NUMBERS

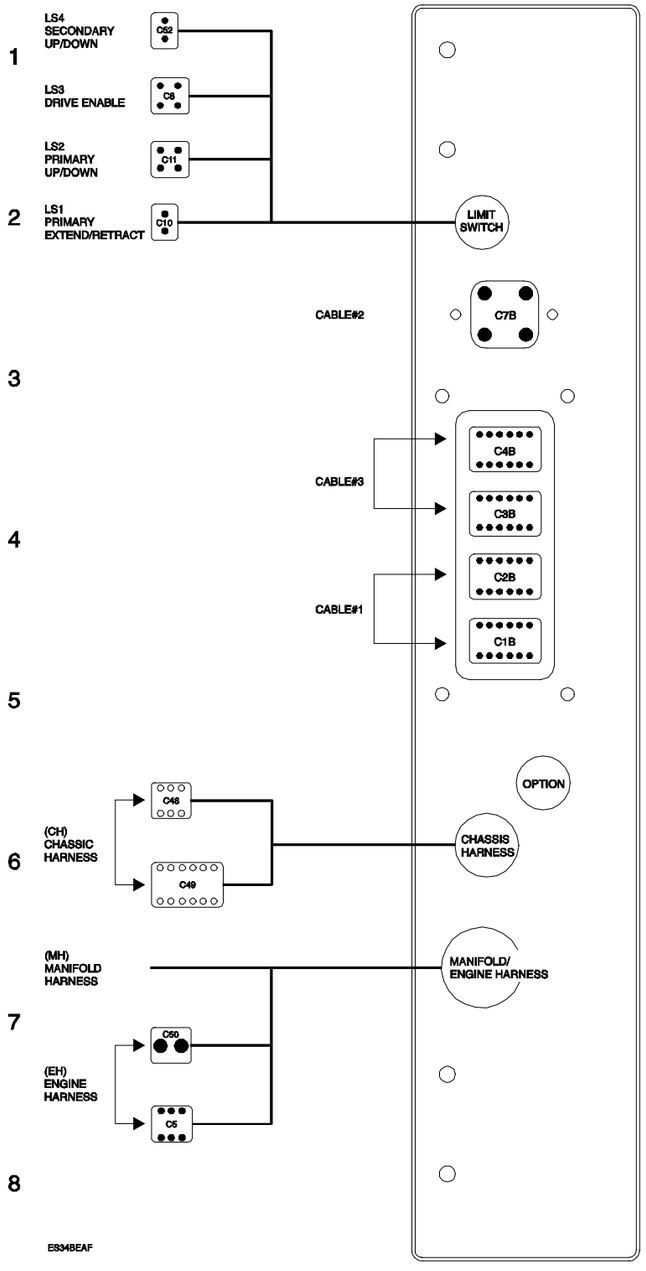
1 - PLATFORM LEVEL CUT-OUT
2 - FLASHING BEACON

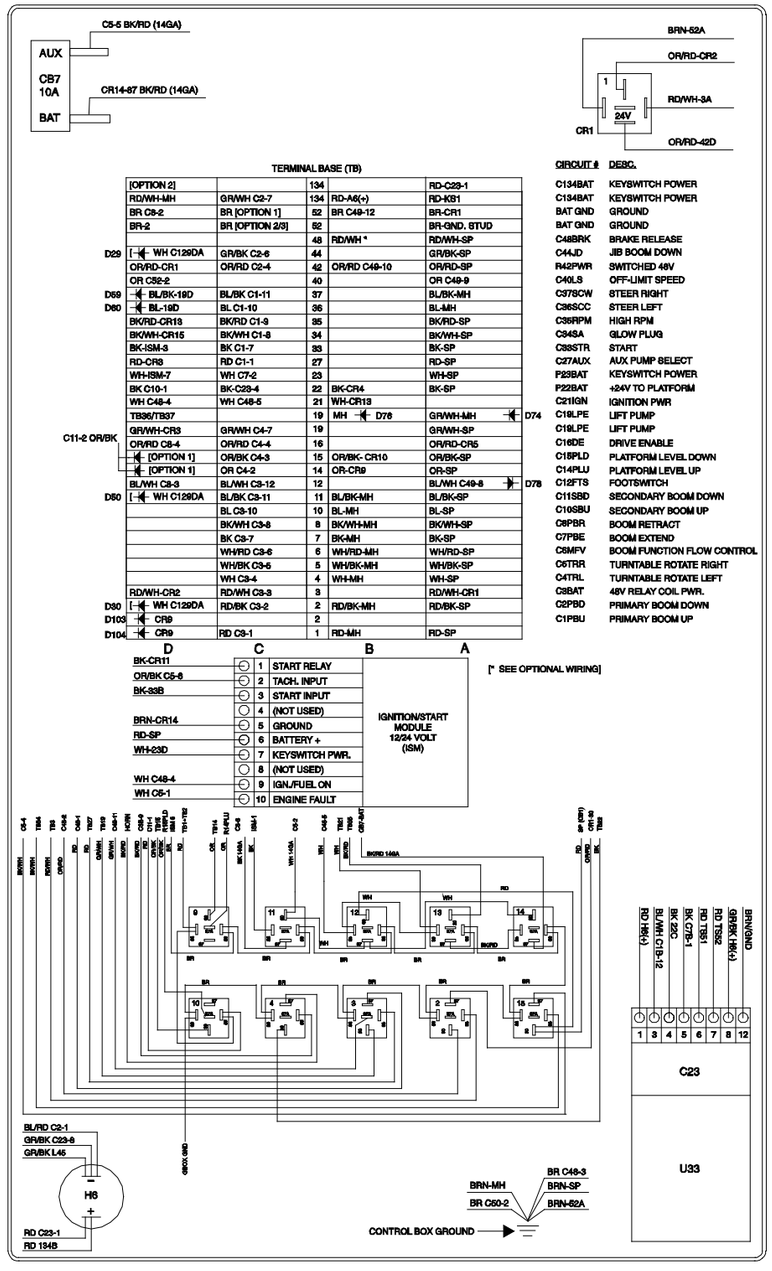


DRIVE LIGHT (OPTION)

ES34BEAF

Ground Control Box Terminal Strip Wiring Diagram - from serial number 9442 to 9685 (CE /AS)





TERMINAL BASE (TB)

[OPTION 2]		134		RD-C23-1
RD/WH-MH	GR/WH C2-7	134	RD-A5(+)	RD-KS1
BR C8-2	BR [OPTION 1]	52	BR C49-12	BR-CR1
BR-2	BR [OPTION 2/3]	52		BR-GND, STUD
		48	RD/WH *	RD/WH-SP
D29 WH C129DA	GR/BK C2-6	44		GR/BK-SP
OR/RD-CR1	OR/RD C2-4	42	OR/RD C49-10	OR/RD-SP
OR C52-2		40		OR C49-9
D69 BL/BK-19D	BL/BK C1-11	37		BL/BK-MH
D60 BL-19D	BL C1-10	36		BL-MH
BK/RD-CR13	BK/RD C1-9	35		BK/RD-SP
BK/WH-CR15	BK/WH C1-8	34		BK/WH-SP
BK-ISM-3	BK C1-7	33		BK-SP
RD-CR8	RD C1-1	27		RD-SP
WH-ISM-7	WH C7-2	23		WH-SP
BK C10-1	BK-C23-4	22	BK-CR4	BK-SP
WH C48-4	WH C48-5	21	WH-CR13	
TB36/TB37		19	MH D76	GR/WH-MH D74
GR/WH-CR3	GR/WH C4-7	19		GR/WH-SP
C11-2 OR/BK	OR/RD C4-4	16		OR/RD-CR5
[OPTION 1]	OR/BK C4-3	15	OR/BK- CR10	OR/BK-SP
[OPTION 1]	OR C4-2	14	OR-CR9	OR-SP
BL/WH C8-3	BL/WH C8-12	12		BL/WH C49-8 D78
D80 WH C129DA	BL/BK C8-11	11	BL/BK-MH	BL/BK-SP
	BL C8-10	10	BL-MH	BL-SP
	BK/WH C3-8	8	BK/WH-MH	BK/WH-SP
	BK C8-7	7	BK-MH	BK-SP
	WH/RD C8-6	6	WH/RD-MH	WH/RD-SP
	WH/BK C8-5	5	WH/BK-MH	WH/BK-SP
	WH C8-4	4	WH-MH	WH-SP
RD/WH-CR2	RD/WH C8-3	3		RD/WH-CR1
D90 WH C129DA	RD/BK C8-2	2	RD/BK-MH	RD/BK-SP
D103 CR9		2		
D104 CR9	RD C8-1	1	RD-MH	RD-SP

CIRCUIT #	DESC.
C134BAT	KEYSWITCH POWER
C134BAT	KEYSWITCH POWER
BAT GND	GROUND
BAT GND	GROUND
C48BRK	BRAKE RELEASE
C44JD	JIB BOOM DOWN
R42PWR	SWITCHED 48V
C40LS	OFF-LIMIT SPEED
C37SCW	STEER RIGHT
C36SCC	STEER LEFT
C35RPM	HIGH RPM
C34GA	GLOW PLUG
C33STR	START
C27AUX	AUX PUMP SELECT
P23BAT	KEYSWITCH POWER
P22BAT	+24V TO PLATFORM
C21IGN	IGNITION PWR
C19LPE	LIFT PUMP
C19LPE	LIFT PUMP
C16DE	DRIVE ENABLE
C15PLD	PLATFORM LEVEL DOWN
C14PLU	PLATFORM LEVEL UP
C12FTS	FOOTSWITCH
C11SBD	SECONDARY BOOM DOWN
C10SBU	SECONDARY BOOM UP
C8PBR	BOOM RETRACT
C7PBE	BOOM EXTEND
C5MFV	BOOM FUNCTION FLOW CONTROL
C5TRR	TURNTABLE ROTATE RIGHT
C4TRL	TURNTABLE ROTATE LEFT
C3BAT	48V RELAY COIL PWR.
C2PBD	PRIMARY BOOM DOWN
C1PBU	PRIMARY BOOM UP

BK-CR11	1	START RELAY
OR/BK C5-6	2	TACH. INPUT
BK-33B	3	START INPUT
	4	(NOT USED)
BRN-CR14	5	GROUND
RD-SP	6	BATTERY +
WH-23D	7	KEYSWITCH PWR.
	8	(NOT USED)
WH C48-4	9	IGN./FUEL ON
WH C5-1	10	ENGINE FAULT

IGNITION/START MODULE 12/24 VOLT (ISM)

[* SEE OPTIONAL WIRING]

WIRES FROM CONNECTOR TO CONNECTOR

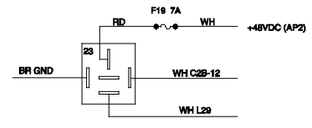
WIRES	CIRCUIT #	FROM	TO	DESCRIPTION
BL/RD	C133PLA	C2-1	H6(+)	PLATFORM OVERLOAD INPUT
BL/WH	C132PLI	C1-12	C23-3	PLATFORM OVERLOAD ALARM
BK	J2	C52-1	C11-3	LS2-LS4 JUNCTION
WH	J1	C10-2	C11-4	LS1-LS2 JUNCTION
GR-1	C43JU	C2-5	SP	JIB BOOM UP
WH/RD-1	C32JSL	C1-6	C49-6	JOYSTICK POT. LOW
WH/BK-1	C31REV	C1-5	C49-5	REVERSE
WH-1	C30FWD	C1-4	C49-4	FORWARD
RD/WH-1	C29JSH	C1-3	C49-3	2-WIRE POT.
RD/BK-1	C28TTA	C1-2	MH	TILT ALARM
GR/BK-3	C16PRR	C4-6	SP	PLATFORM ROTATE RIGHT
OR-3	C17PRL	C4-5	SP	PLATFORM ROTATE LEFT
BL/RD-3	C13DEL	C4-1	C8-1	DRIVE ENABLE LIGHT
BK/RD-3	C9HRN	C3-9	MH	HORN
OR-1	SPARE			
OR/BK-1	SPARE			

CONTROL RELAY ID.

CR1 - 48V POWER
CR2 - 48V POWER
CR3 - AUXILIARY PUMP
CR4 - HORN
CR5 - BRAKE RELEASE
CR9 - PLATFORM LEVEL CUT-OUT
CR10 - PLATFORM LEVEL CUT-OUT
CR11 - ENGINE START
CR12 - ENGINE RUN
CR13 - RPM CUT-OUT
CR14 - HIGH RPM
CR15 - GLOW PLUG
CR23 - DRIVE LIGHT (OPTION)

OPTION NUMBERS

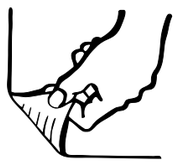
1 - PLATFORM LEVEL CUT-OUT.
2 - FLASHING BEACON



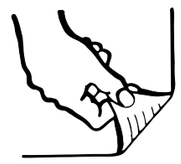
DRIVE LIGHT (OPTION)

ES34BEAF

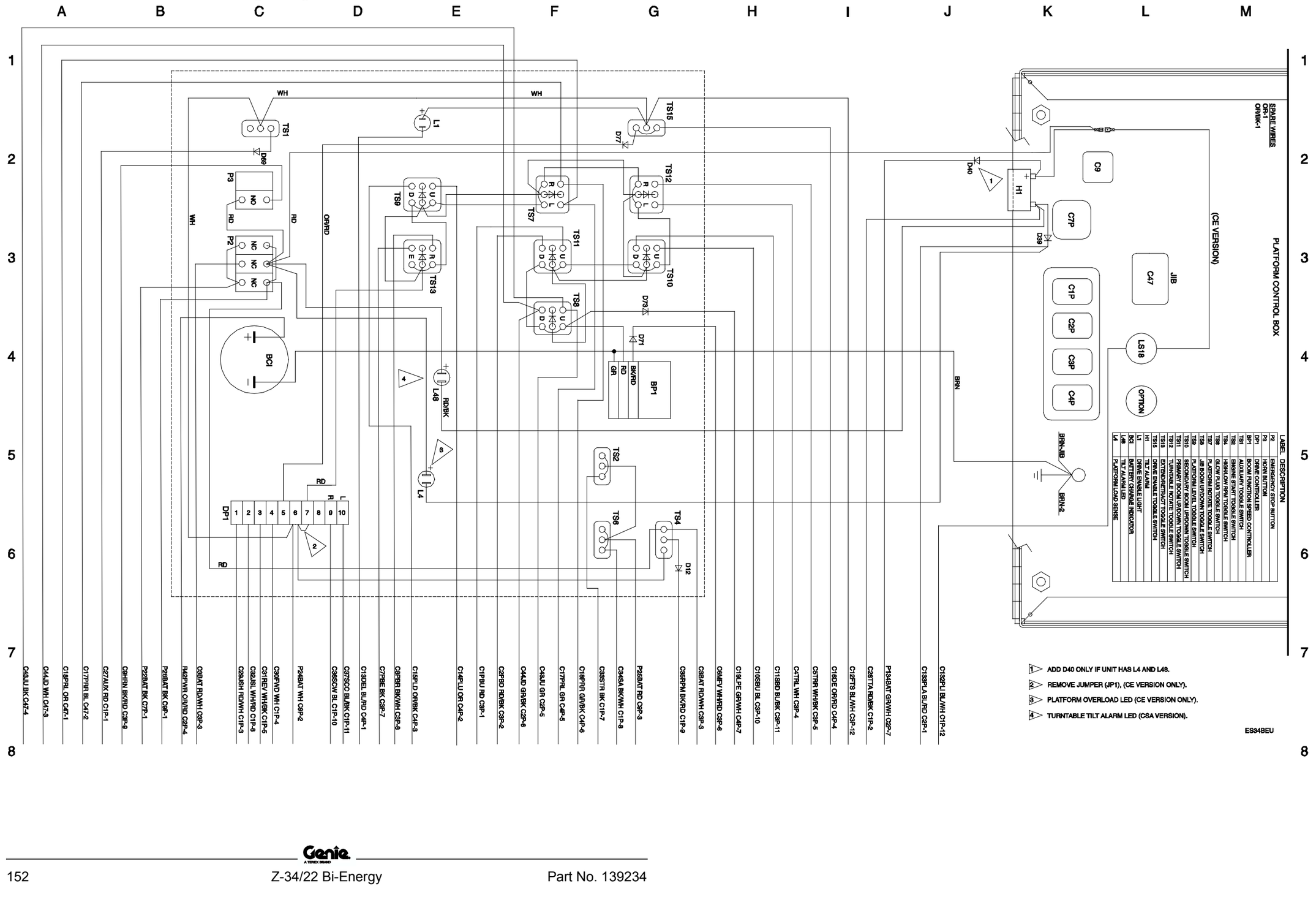
Ground Control Box Terminal Strip Wiring Diagram - from serial number 9442 to 9685 (CE /AS)



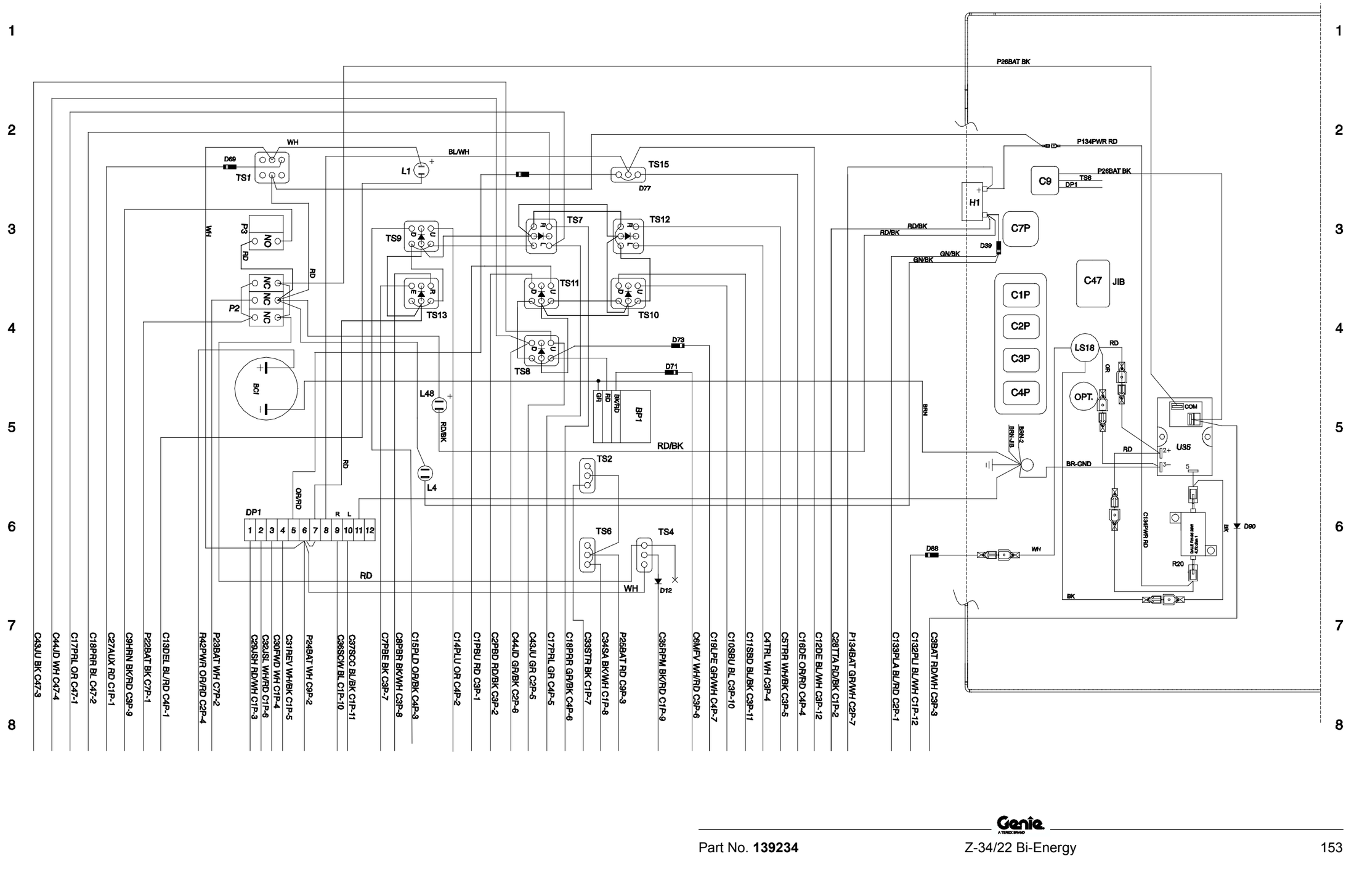
Platform Control Box Wiring Diagram - to serial number 9441



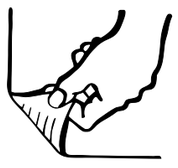
Platform Control Box Wiring Diagram - to serial number 9441



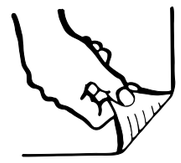
Platform Control Box Wiring Diagram - from serial number 9442 (CE)



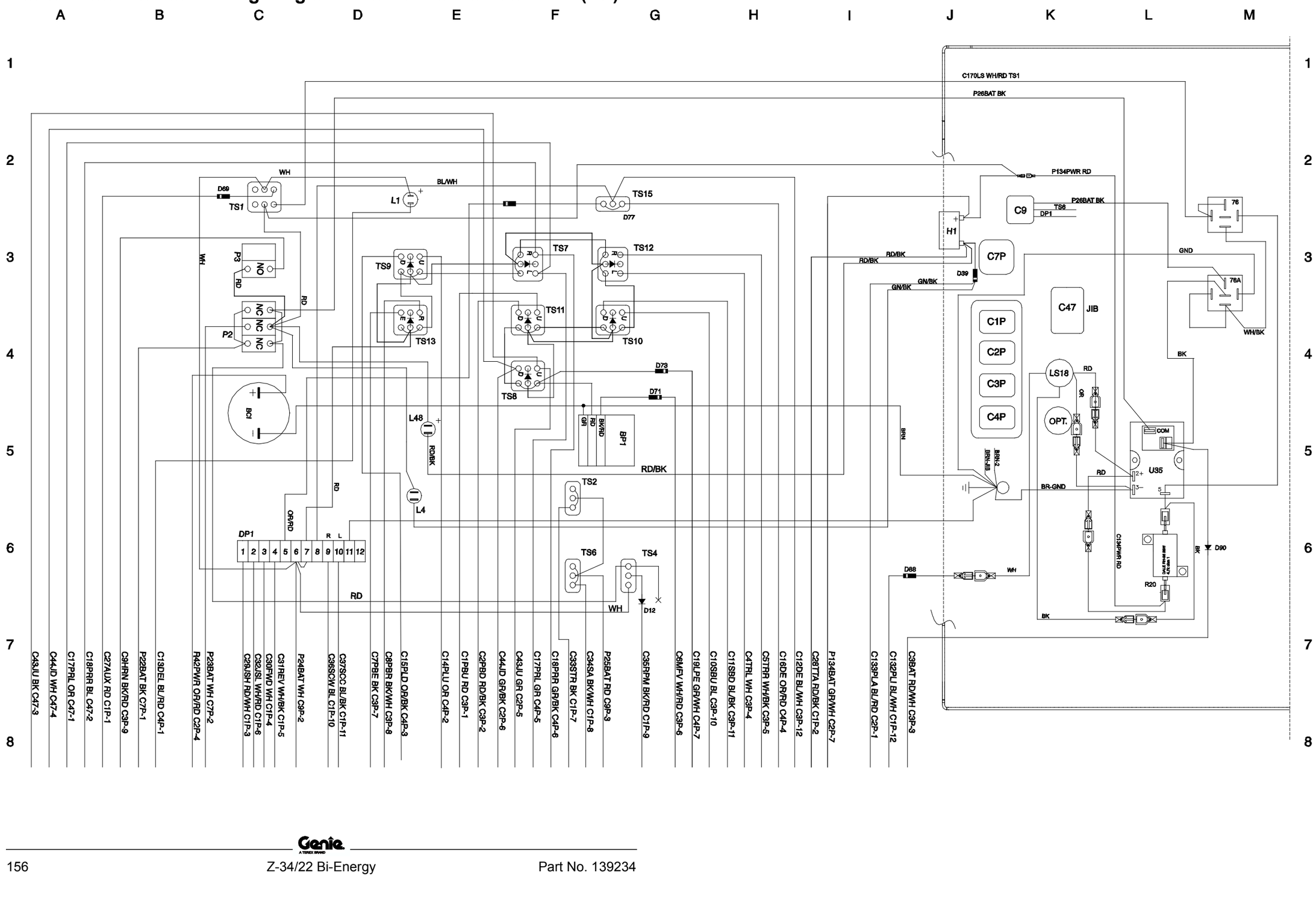
Platform Control Box Wiring Diagram - from serial number 9442 (CE)



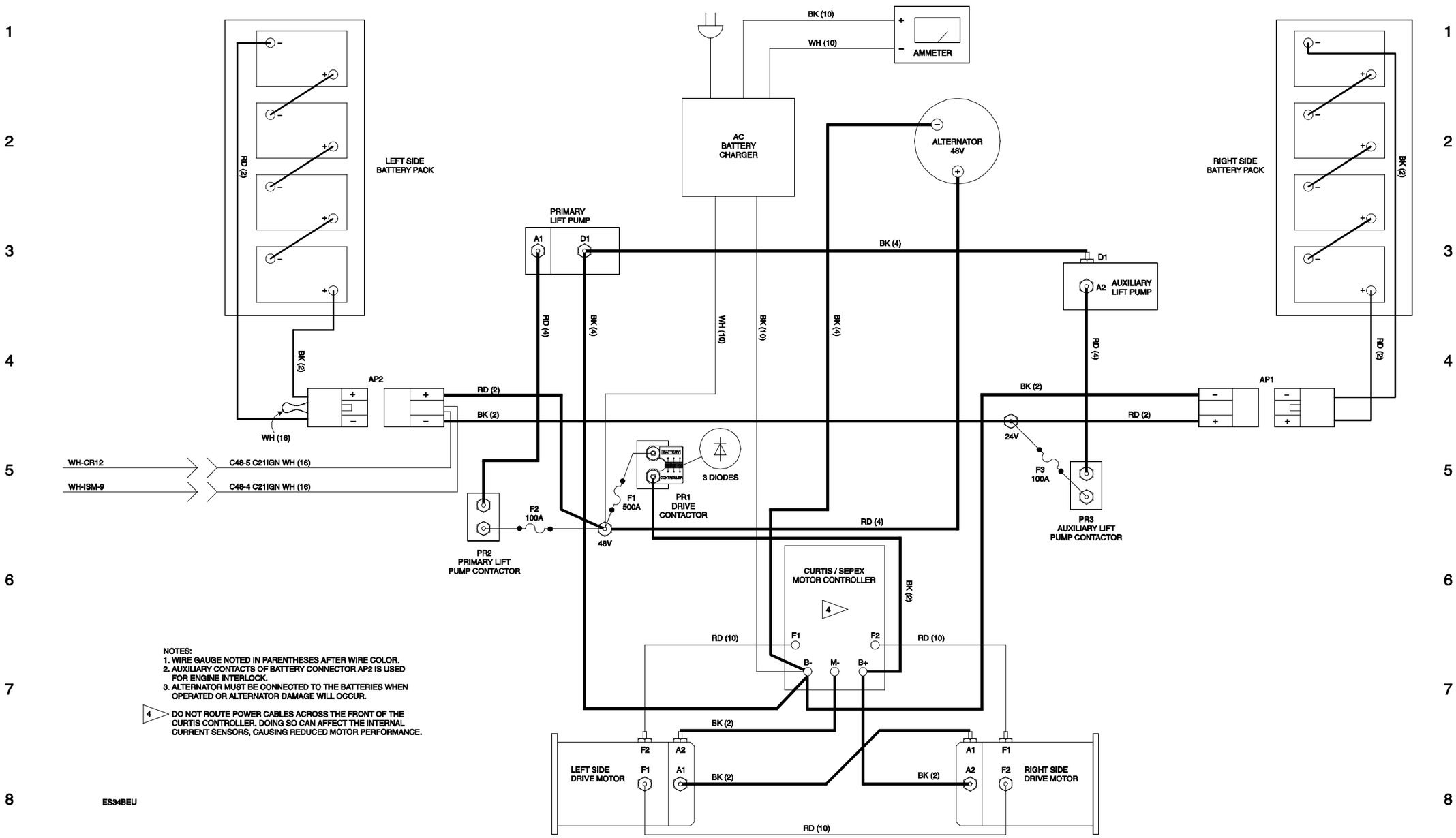
Platform Control Box Wiring Diagram - from serial number 9442 (AS)



Platform Control Box Wiring Diagram - from serial number 9442 (AS)



Power Cable Wiring Diagram

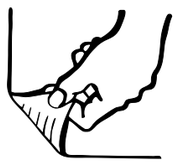


NOTES:
1. WIRE GAUGE NOTED IN PARENTHESES AFTER WIRE COLOR.
2. AUXILIARY CONTACTS OF BATTERY CONNECTOR AP2 IS USED FOR ENGINE INTERLOCK.
3. ALTERNATOR MUST BE CONNECTED TO THE BATTERIES WHEN OPERATED OR ALTERNATOR DAMAGE WILL OCCUR.

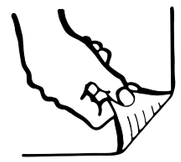
4 DO NOT ROUTE POWER CABLES ACROSS THE FRONT OF THE CURTIS CONTROLLER. DOING SO CAN AFFECT THE INTERNAL CURRENT SENSORS, CAUSING REDUCED MOTOR PERFORMANCE.

ES34BEU

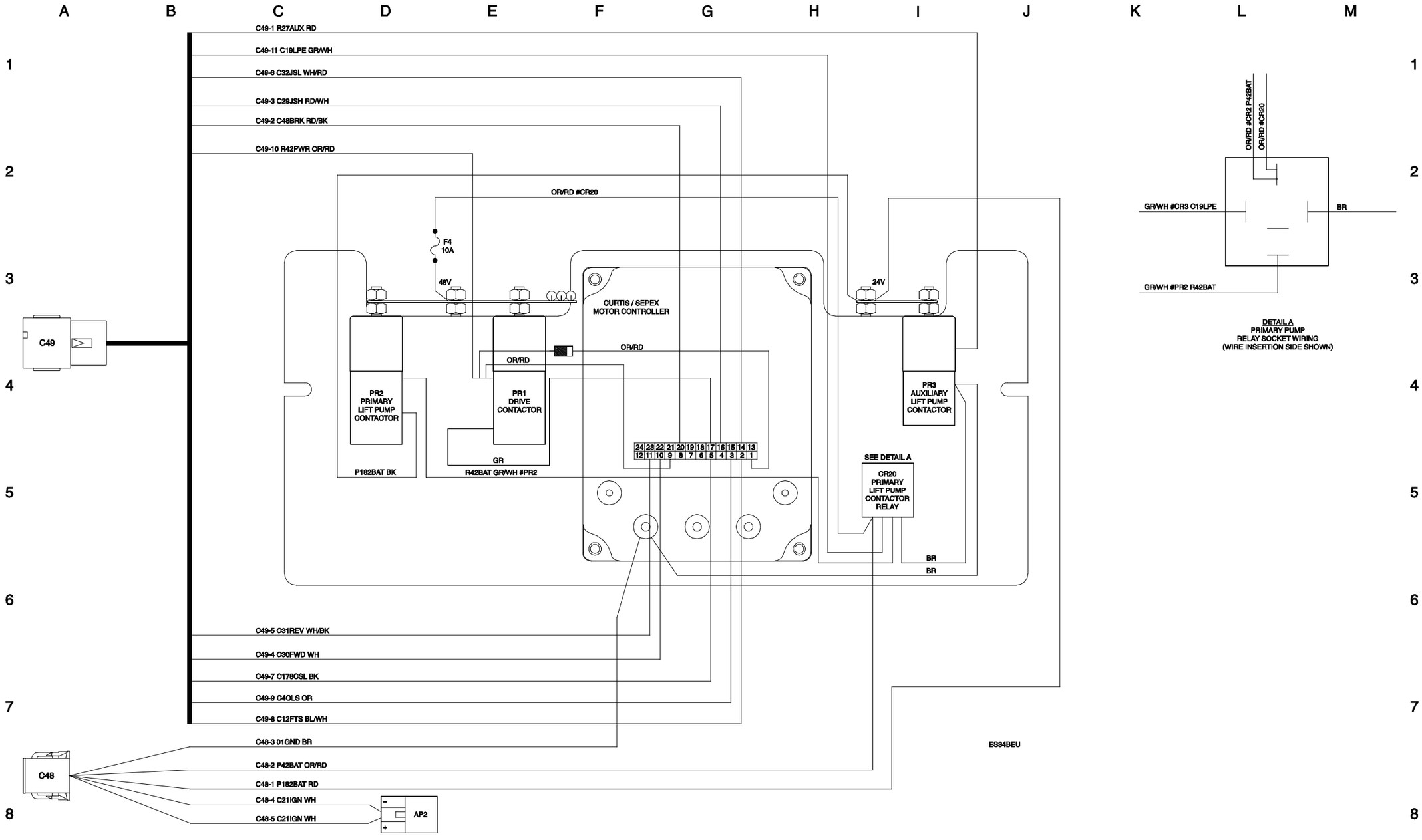
Power Cable Wiring Diagram



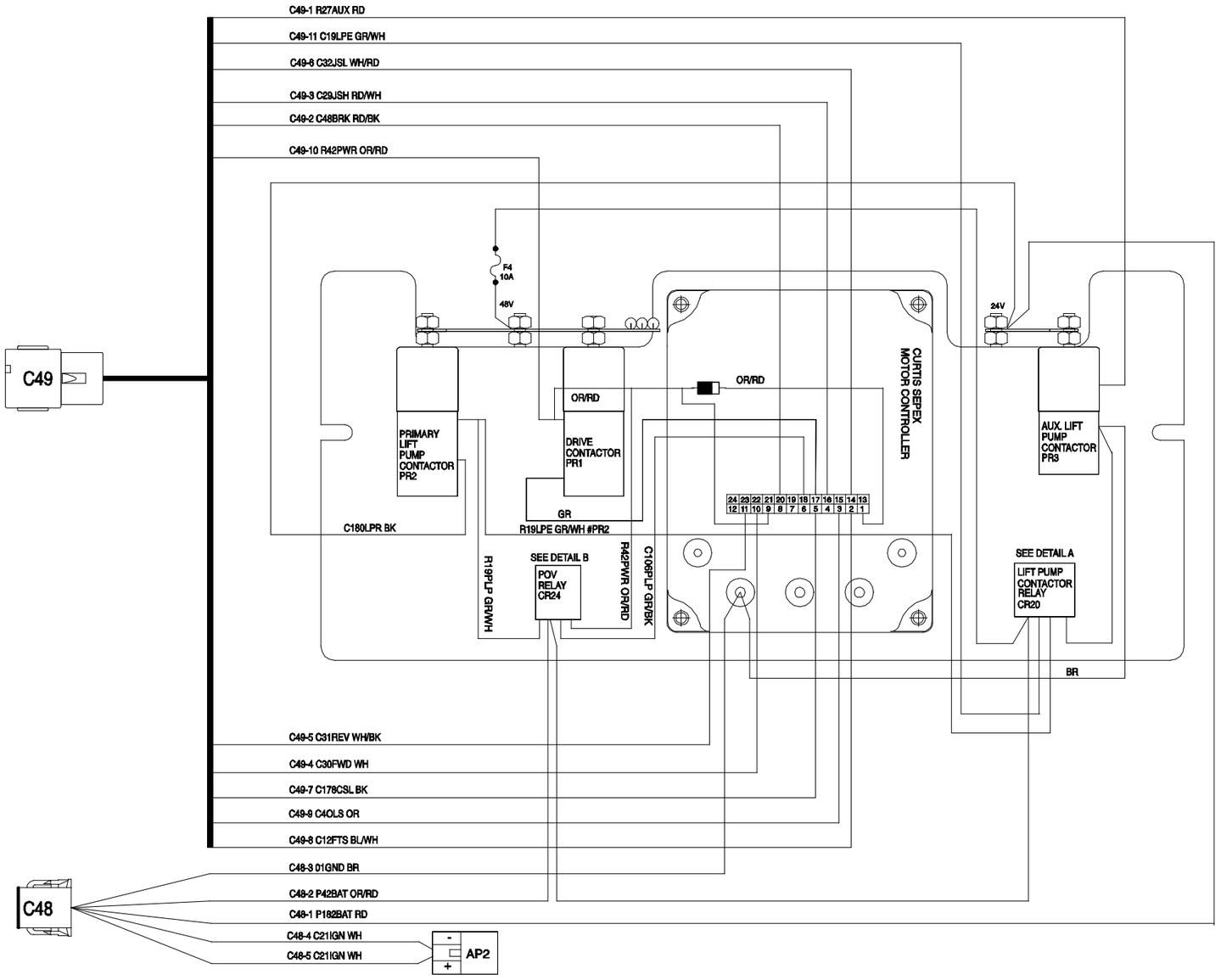
Drive Contactor Panel Wiring Diagram

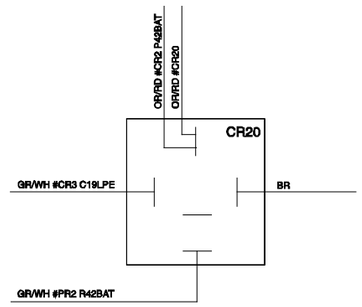


Drive Contactor Panel Wiring Diagram

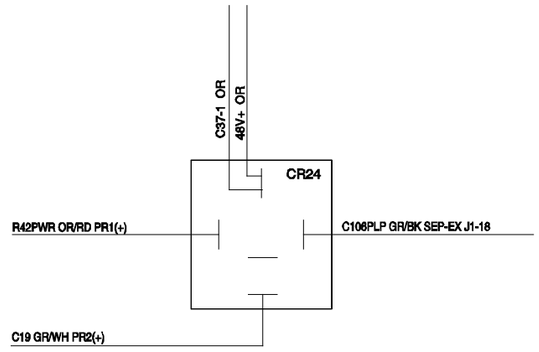


Drive Contactor Panel Wiring Diagram - from serial number 7223





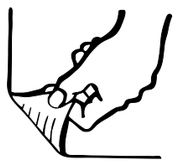
DETAIL A
PRIMARY PUMP
RELAY SOCKET WIRING
(WIRE INSERTION SIDE SHOWN)



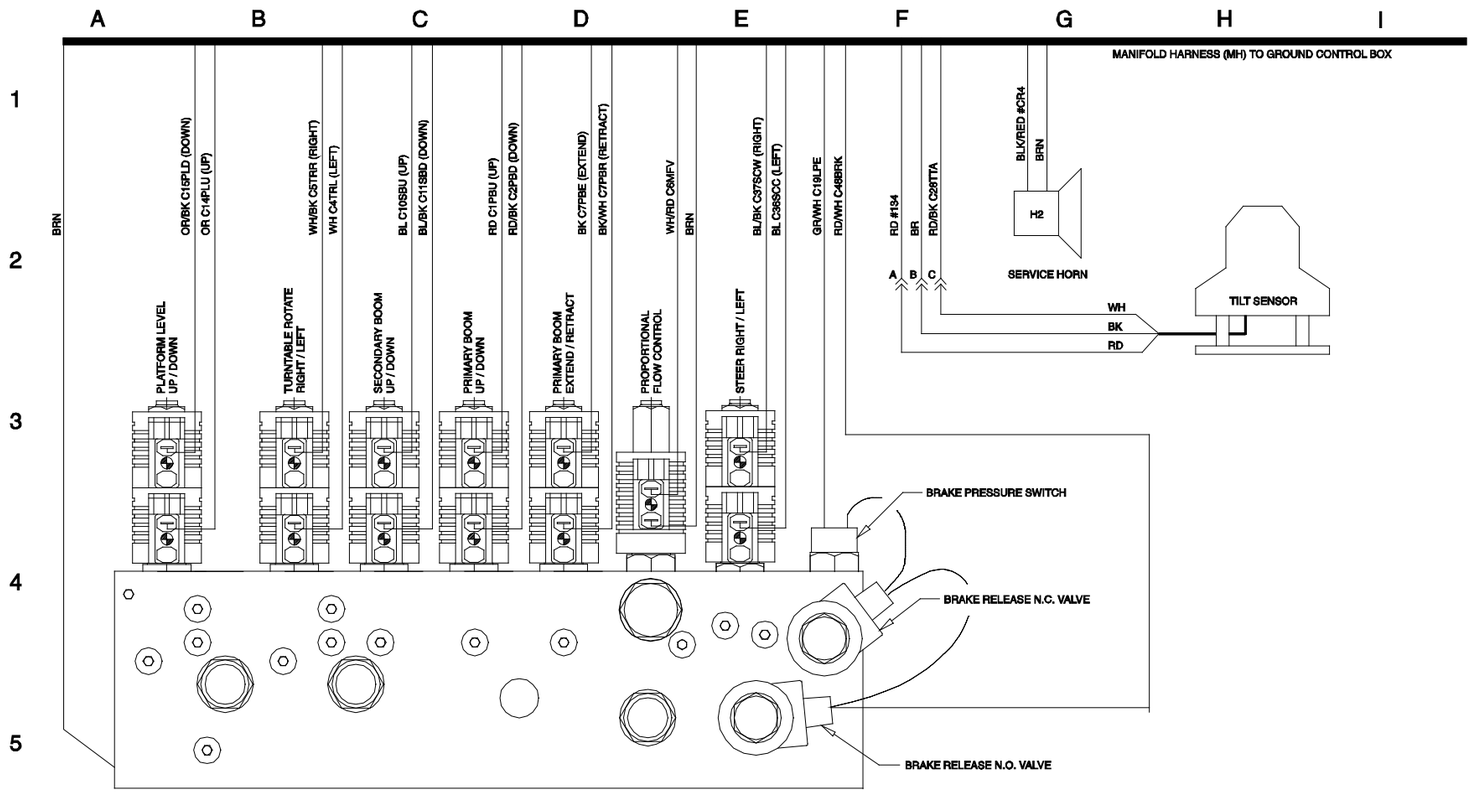
DETAIL B
PUMP ON VOLTAGE (POV)
RELAY SOCKET WIRING
(WIRE INSERTION SIDE SHOWN)

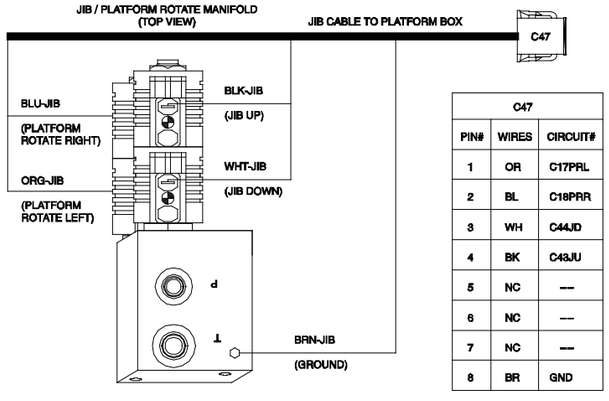
ES34BAF

Drive Contactor Panel Wiring Diagram - from serial number 7223



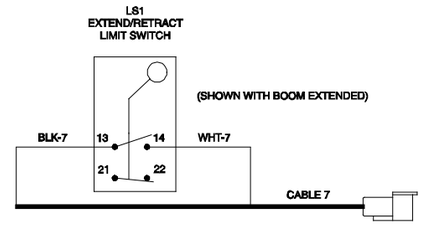
Manifold and Limit Switch Wiring Diagram



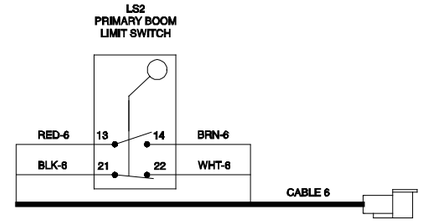


C47		
PIN#	WIRES	CIRCUIT#
1	OR	C17PRL
2	BL	C18PRR
3	WH	C44JD
4	BK	C43JU
5	NC	---
6	NC	---
7	NC	---
8	BR	GND

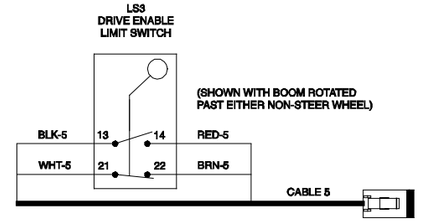
ES34BEU



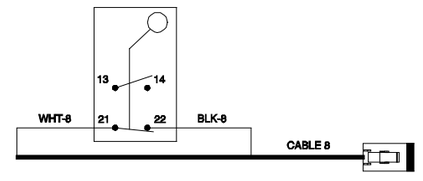
C10	
PIN#	WIRES
1	BK
2	WH



C11	
PIN#	WIRES
1	RD
2	BR
3	BK
4	WH



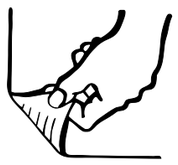
C8	
PIN#	WIRES
1	RD
2	BR
3	BK
4	WH



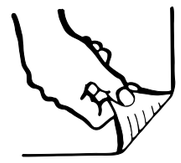
C52	
PIN#	WIRES
1	BK
2	WH

NOTE:
ALL LIMIT SWITCHES SHOWN WITH THE BOOM IN THE STOWED POSITION EXCEPT WHERE NOTED.

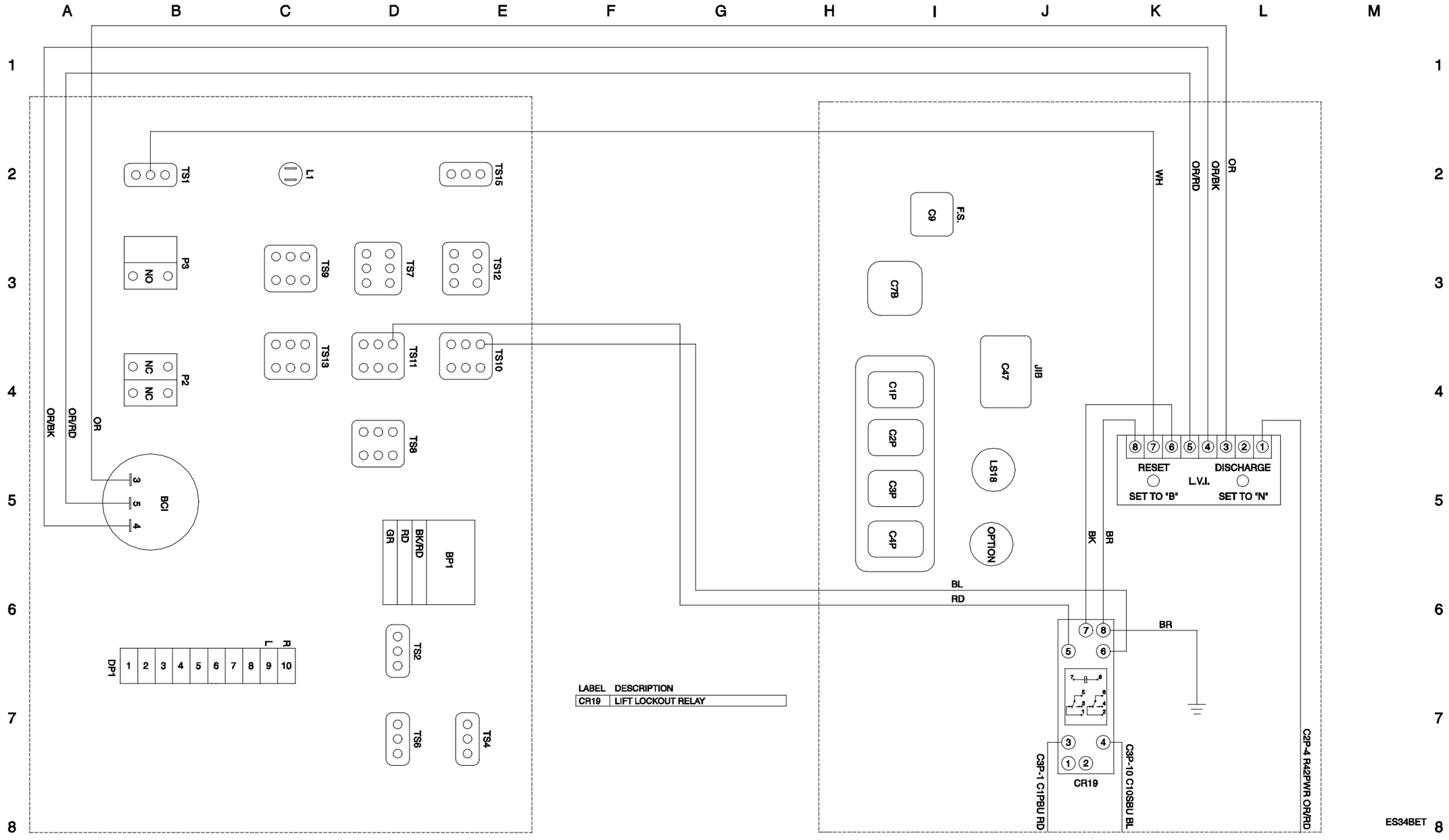
Manifold and Limit Switch Wiring Diagram



LVI / BCI Option Wiring Diagram, from serial number 4800 to 5426

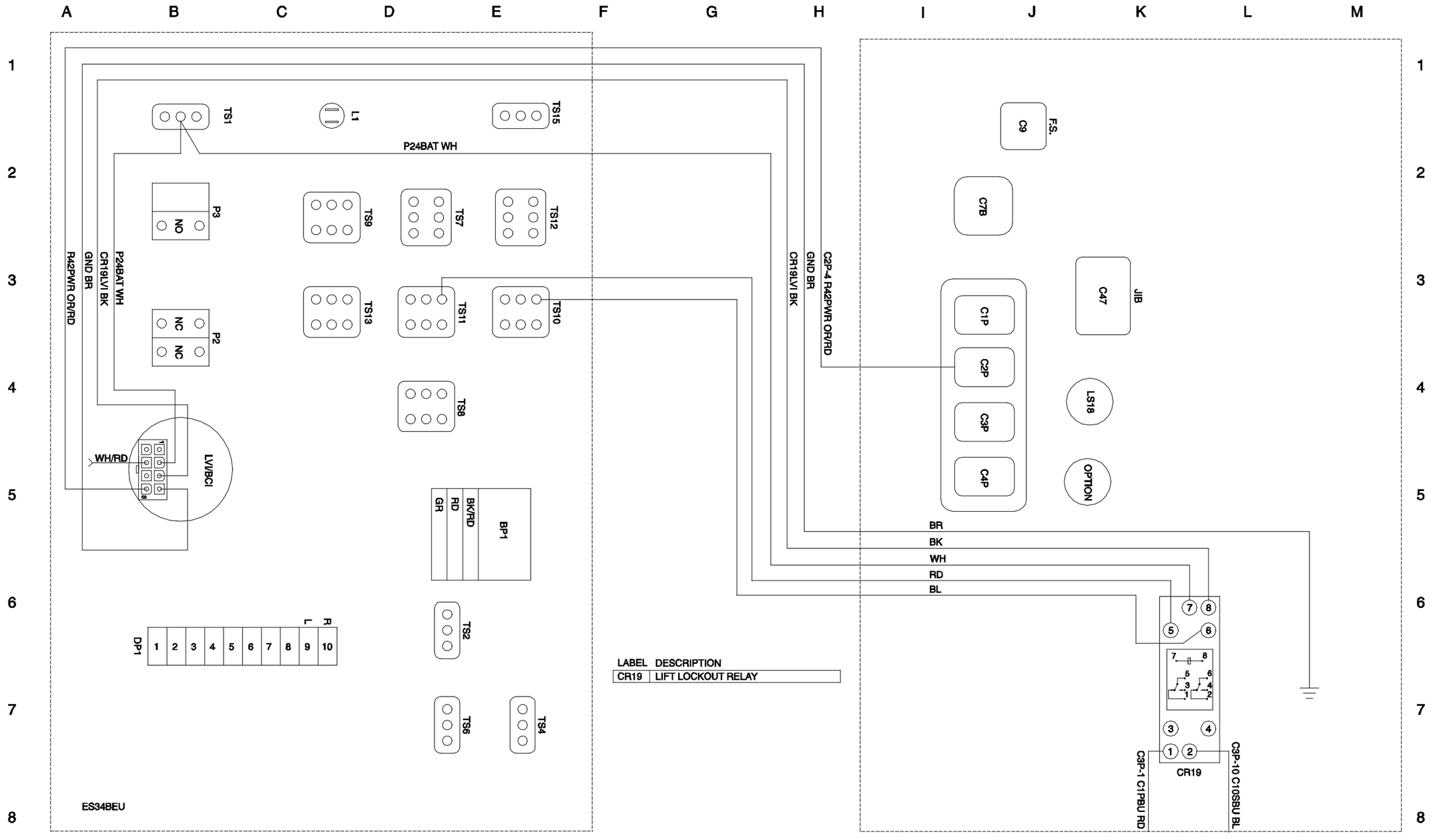


LVI / BCI Option Wiring Diagram, from serial number 4800 to 5426



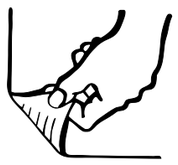
LABEL	DESCRIPTION
CR19	LIFT LOCKOUT RELAY

LVI / BCI Option Wiring Diagram, from serial number 5427

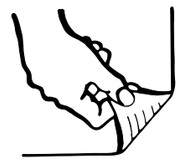


LABEL	DESCRIPTION
CR19	LIFT LOCKOUT RELAY

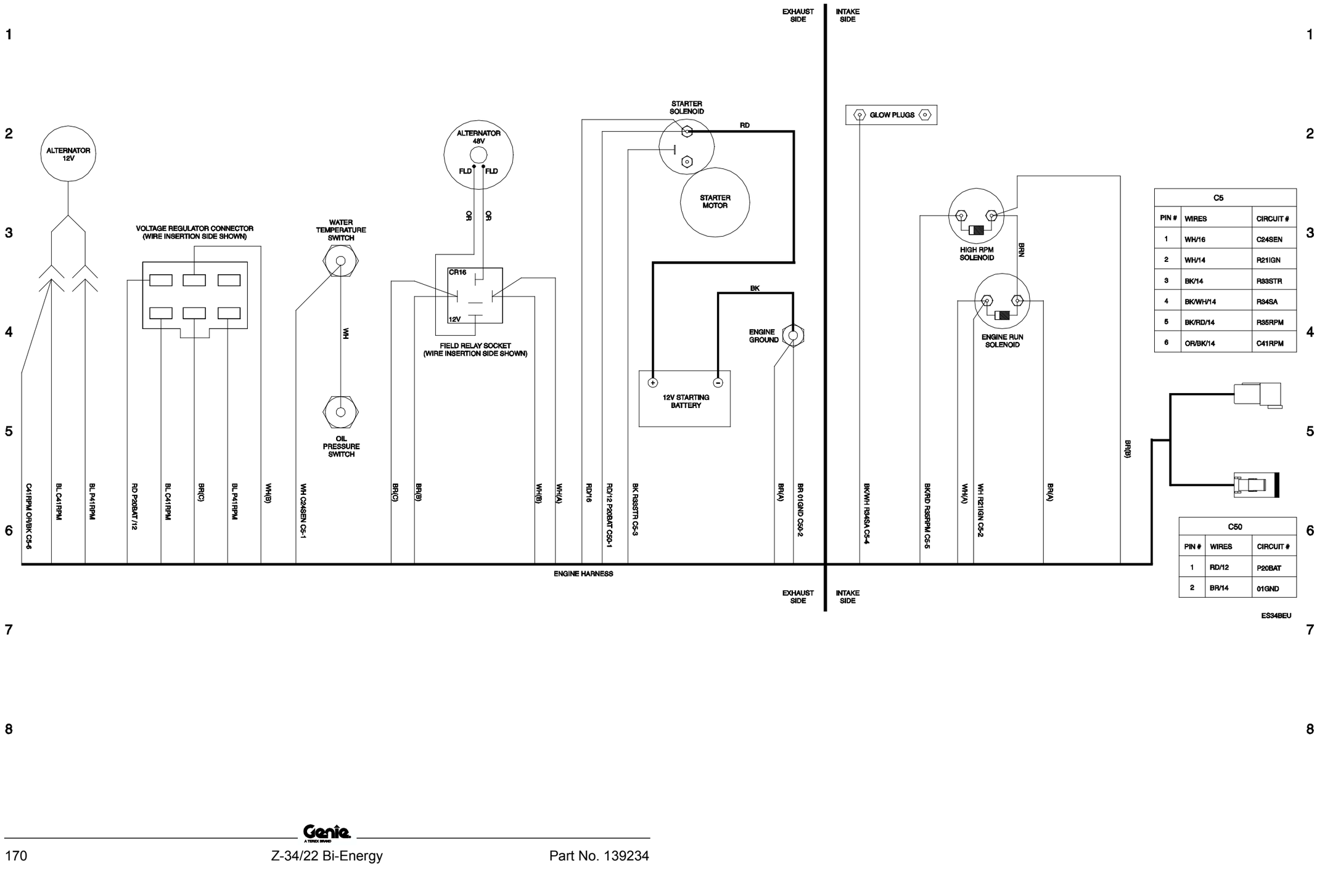
LVI / BCI Option Wiring Diagram, from serial number 5427



Engine Wiring Diagram



Engine Wiring Diagram



C5		
PIN #	WIRES	CIRCUIT #
1	WH/16	C24SEN
2	WH/14	R21IGN
3	BK/14	R33STR
4	BK/WH/14	R34SA
5	BK/RD/14	R35RPM
6	OR/BK/14	C41RPM

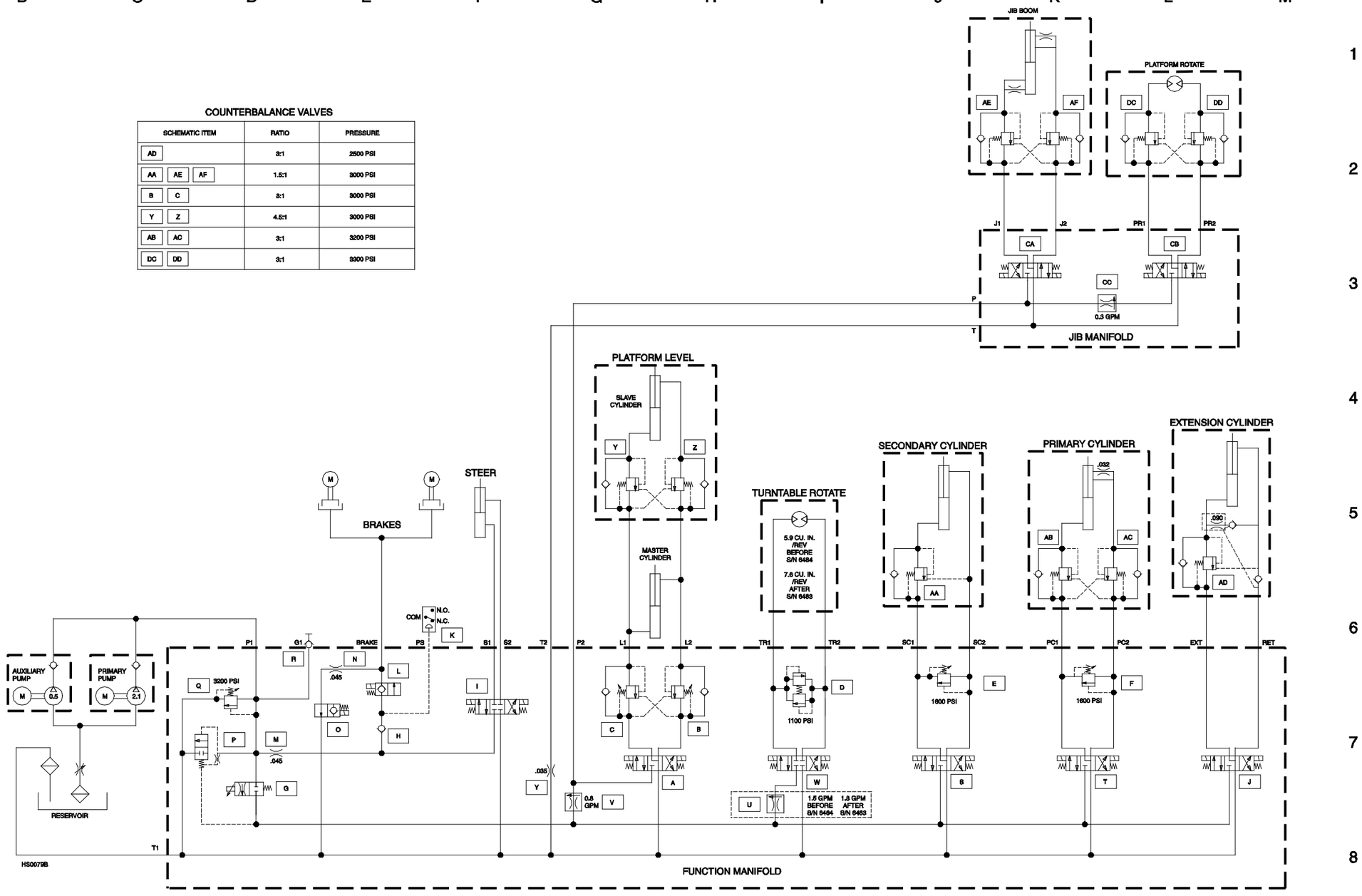
C50		
PIN #	WIRES	CIRCUIT #
1	RD/12	P20BAT
2	BR/14	01GND

ES34BEU

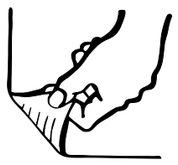
Hydraulic Schematic

COUNTERBALANCE VALVES

SCHEMATIC ITEM	RATIO	PRESSURE
AD	3:1	2500 PSI
AA AE AF	1.5:1	3000 PSI
B C	3:1	3000 PSI
Y Z	4.5:1	3000 PSI
AB AC	3:1	3200 PSI
DC DD	3:1	3300 PSI



Hydraulic Schematic



California Proposition 65

Warning

The exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

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