Genie®

Service Manual

Refer to inside cover for additional serial number information

Part No. 119987
Rev A
June 2007

Z™-34/22 IC

(from serial number 1187 to 3241)

Introduction

Important

Read, understand and obey the safety rules and operating instructions in the appropriate *Genie Z-34/22 IC Operator's Manual* before attempting any maintenance or repair procedure.

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

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

Technical Publications

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

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

Contact Us:

http://www.genieindustries.com
e-mail: techsup@genieind.com

Serial Number Information

Genie Industries offers the following Service Manual for this models:

Title	Part No.
Z-34/22 IC Service Manual, First Edition (from serial number 101 to 1186)	43037
Z-34/22 IC Service Manual (from serial number 3242 to 4799)	128267
Z-34/22 IC Service Manual (from serial number 4800)	128300

119987 Rev A June 2007
Second Edition, First Printing

Serial Number Legend

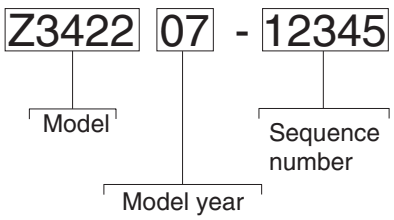
Genie

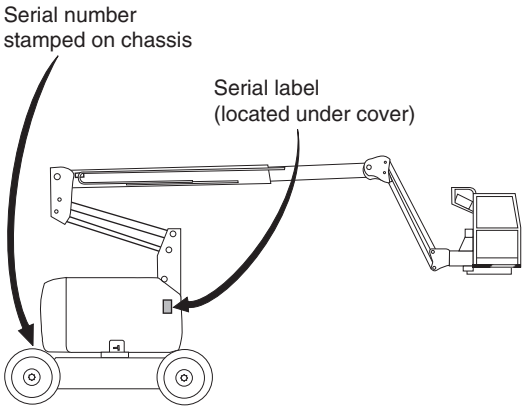
Model: Z-34/22
Serial number: Z342207-12345
Model year: 2007 **Manufacture date:** 02/01/07
Electrical schematic number: ESXXXX
Machine unladen weight:

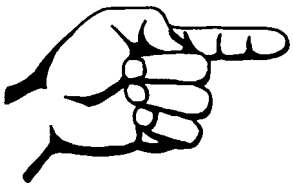
Rated work load (including occupants): XX kg
Maximum number of platfrm occupants: XX
Maximum allowable side force : XX N
Maximum allowable inclination of the chassis:
0 deg
Maximum wind speed : XX m/s
Maximum platform height : XX m
Maximum platform reach : XX m
Gradeability: N/A
Country of manufacture: USA
This machine complies with:
ANSI A92.5
CAN B.354.4

Genie Industries
18340 NE 76th Street
Redmond, WA 98052
USA

PN - 77055







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Safety Rules

Danger

Failure to obey the instructions and safety rules in this manual and the appropriate *Genie Z-34/22 IC Operator's Manual* 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 Used to indicate the presence of an imminently hazardous situation which, if not avoided, will result in death or serious injury.

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

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

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

NOTICE Used to indicate operation or maintenance information.

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

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

Workplace Safety

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

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

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

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

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

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

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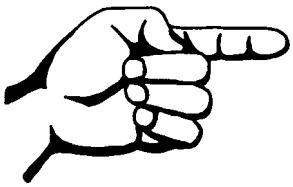

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Specifications

REV A

Machine Specifications

Tires and wheels	Rough terrain	Industrial
Tire size	10-16.5 NHS	9-14.5 LT
Tire ply rating		Tread 6 Sidewall 6
Overall tire diameter	30.5 in 77.5 cm	28 in 71.1 cm
Wheel diameter	16.5 in 42 cm	14.5 in 36.8 cm
Wheel width	10 in 25.4 cm	7 in 18 cm
Wheel lugs, 4WD	9 @ 5/8-18	
Wheel lugs, 2WD Front Rear	 8 @ 5/8-18 9 @ 5/8-18	 8 @ 5/8-18 9 @ 5/8-18
Tire pressure	45 psi 3.1 bar	100 psi 6.89 bar
Lug nut torque	125 ft-lbs 170 Nm	125 ft-lbs 170 Nm

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

Fluid capacities	
Fuel tank capacity	12 gallons 45.4 liters
Hydraulic tank capacity	18 gallons 68.1 liters
Hydraulic system capacity (including tank)	22 gallons 83.3 liters
Drive hubs	17 fl oz 0.5 liter
Drive hub oil type:	EP 80-90W gear oil API service classification GL5

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

SPECIFICATIONS REV A

Performance Specifications

Drive speeds (maximum)	2WD	4WD
Boom stowed, high range	4.5 mph 7.2 km/h 40 ft/6.1 sec 12.2 m/6.1 sec	4.0 mph 6.4 km/h 40 ft/6.8 sec 12.2 m/6.8 sec
Boom raised or extended	0.6 mph 1km/h 40 ft/40 sec 12.2 m/40 sec	0.6 mph 1km/h 40 ft/40 sec 12.2 m/40 sec
Gradeability	See Operator's Manual	

Boom function speeds, maximum from platform controls (with rated load in platform)	
Jib boom up	24 to 30 seconds
Jib boom down	15 to 21 seconds
Primary boom up	15 to 21 seconds
Primary boom down	13 to 19 seconds
Primary boom extend	24 to 30 seconds
Primary boom retract	14 to 20 seconds
Secondary boom up	15 to 21 seconds
Secondary boom down	11 to 17 seconds
Turntable rotate, 355°	62 to 68 seconds
Platform rotate, 160°	4 to 7 seconds

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

Hydraulic Specifications

Hydraulic fluid	Dexron equivalent
Drive pump	
Type:	bi-directional variable displacement piston pump
Displacement per revolution	1.71 cu in 28 cc
Flow rate @ 3000rpm	22 gpm 84 L/min
Function pump	
Type:	Fixed displacement gear pump
Displacement per revolution	0.24 cu in 4 cc
Flow rate @ 3000rpm	3 gpm 11.4 L/min
Drive manifold	
Hot oil shuttle relief pressure	250 psi 17.2 bar
Front drive motors, 4WD models	
Displacement per revolution	0.92 cu in 15 cc
Rear drive motors, all models	
Displacement per revolution	1.83 cu in 30 cc

Function manifold	
System relief valve pressure	3200 psi 220.7 bar
Primary boom down relief valve pressure (before serial number 2901)	1400 psi 96.5 bar
(after serial number 2900)	1600 psi 110 bar
Secondary boom down relief valve pressure	1600 psi 110 bar
Primary boom extend relief valve pressure (before serial number 2901)	1800 psi 124 bar
(from serial number 2901 to 3215)	2800 psi 193 bar
Auxiliary pump	
Type	Fixed displacement gear pump
Displacement	0.5 gpm 1.9 L/min
Auxiliary pump relief pressure	3400 psi 234.5 bar
Hydraulic filters	
Hydraulic tank return line filter	Beta 10 ≥ 200 with 25 psi / 1.7 bar bypass
Medium pressure filter	Beta 3 ≥ 200
Medium pressure filter bypass pressure	50 psi 3.45 bar

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

SPECIFICATIONS REV A

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

Valve Coil Resistance

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

Valve coil specifications	
2 position 3 way solenoid valve, 10V DC (schematic items V, S, Q, P, M, U, T, R, O, N, AA, AB, CA, CB, CC and CD)	6Ω
3 position 4 way solenoid valve, 10V DC (schematic item E, CH, CI)	6Ω
Proportional solenoid valve, 12V DC (schematic item D)	5Ω

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 bolts, GR 8 (dry)	44 ft-lbs 60 Nm
3/8 -16 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 motor and hubs	
Drive hub mounting bolts, lubricated	180 ft-lbs 244 Nm
Drive motor mounting bolts, lubricated	
3/8 -16, GR 5	23 ft-lbs 31 Nm
7/16 -14, GR 5	37 ft-lbs 50 Nm

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

REV A SPECIFICATIONS

Kubota D-905 Engine

Displacement	54.86 cu in 0.90 liters
Number of cylinders	3
Bore and stroke	2.83 x 2.90 inches 72 x 73.6 mm
Horsepower, gross intermittent	26 @ 3600 rpm 19.3kW
Firing order	1 - 2 - 3
Compression ratio	23:1
Compression pressure	412 to 469 psi 28.4 to 32.3 bar
Low idle	1300 rpm 260 hz
High idle	3000 rpm 600 hz
Governor	centrifugal mechanical
Valve clearance, cold	0.0057 to 0.0072 in 0.145 to 0.183 mm
Engine coolant	
Capacity	3.3 quarts 3.1 liters
Lubrication system	
Oil pressure	36 to 64 psi 2.48 to 4.41 bar
Oil capacity (including filter)	5.4 quarts 5.1 liters
Oil viscosity requirements	10W-30
Engine oil should have properties of API classification CD/SE or CD/SF grades.	

Injection system	
Injection pump make	Bocsh MD
Injection timing	13° to 25° BTDC
Injection pump pressure	1991 psi 137 bar
Fuel requirement	diesel number 2-D
Battery	
Type	12V DC
Group	34/78
Quantity	1
Ampere hour	75AH
Cold cranking ampere	900A
Reserve capacity @ 25A rate	125 minutes
Starter motor	
Brush length, new	0.5188 in 13 mm
Brush length, minimum	0.3346 in 8.5 mm
Alternator	
Output	30A, 14V DC
Fan belt deflection	1/4 to 3/8 inch 7 to 9 mm

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

SPECIFICATIONS REV A

Kubota DF-750 Engine

Displacement	45.21 cu in 0.74 liters
Number of cylinders	3
Bore & stroke	2.68 x 2.68 inches 68 x 68 mm
Horsepower, gross intermittent	23.8 @ 3600 rpm 17.7 kW @ 3600 rpm
Firing order	1 - 2 - 3
Low idle	1600 rpm 320 hz
High idle	3000 rpm 600 hz
Governor	centrifugal ball mechanical
Compression ratio	9:1
Compression pressure (approx.)	128 to 185 psi 8.8 to 12.7 bar

Pressure (psi) of lowest cylinder must be at least 90% of highest cylinder

Valve clearances, cold	0.0057 to 0.0072 inches 0.145 to 0.183 mm

Lubrication system	
Oil pressure (operating temp. @ 3850 rpm)	28 to 64 psi 1.9 to 4.4 bar
Oil capacity (including filter)	3.9 quarts 3.7 liters
Oil viscosity requirements Above 9°F / -13°C Below 10°F / -12°C	 10W-30 5W-30

Use oils meeting API classification SF (labeled SF/CC or SF/CD) for improved wear protection.

Fuel pump	
Static pressure	2.84 psi 0.19 bar
Fuel flow rate	0.125 gpm 0.47 L/min

Starter motor	
Brush length, new	0.669 in 17 mm
Brush length wear limit	0.453 in 11.5 mm
Brush spring tension	50 to 91 ounces 13.9 to 25.3 Newtons

Battery	
Type	12V DC
Group	34/78
Quantity	1
Ampere hour	75AH
Cold cranking ampere	900A
Reserve capacity @ 25A rate	125 minutes

Ignition System	
Ignition spark advance	18° BTDC
Ignition coil primary resistance	1.3 to 1.6Ω @ 75°F / 24°C
Ignition coil secondary resistance	10.7 to 14.5 kΩ @ 75°F / 24°C
Spark plug wire resistance	10 to 22 kΩ
Spark plug type	NGK BCP4ES-11
Spark plug gap	0.039 to 0.043 inches 1.0 to 1.1 mm

Engine coolant	
Capacity	3.1 quarts 2.9 liters

Alternator	
Output	30A, 14V DC

Fan belt deflection	1/4 to 3/8 inch 7 to 9 mm

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

REV A SPECIFICATIONS

Kubota DF-752 Engine

Displacement	45.21 cu in 0.74 liters
Number of cylinders	3
Bore & stroke	2.68 x 2.68 inches 68 x 68 mm
Horsepower, gross intermittent	24.8 @ 3600 rpm 18.5 kW @ 3600 rpm
Firing order	1 - 2 - 3
Low idle	1600 rpm 320 hz
High idle	3000 rpm 600 hz
Governor	centrifugal ball mechanical
Compression ratio	9.2:1
Compression pressure (approx.)	128 to 185 psi 8.8 to 12.7 bar
Valve clearances, cold	0.0057 to 0.0072 inches 0.145 to 0.183 mm

Lubrication system

Oil pressure (operating temp. @ 3850 rpm)	28 to 64 psi 1.9 to 4.4 bar
Oil capacity (including filter)	3.4 quarts 3.25 liters
Oil viscosity requirements Above 9°F / -13°C Below 10°F / -12°C	 10W-30 5W-30

Use oils meeting API classification SF (labeled SH/CC or SH/CD) for improved wear protection.

Fuel pump

Fuel pressure, static	2.84 psi 0.19 bar
Fuel flow rate	0.125 gpm 0.47 L/min

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

Starter motor

Brush length, new	0.669 in 17 mm
Brush length wear limit	0.453 in 11.5 mm
Brush spring tension	50 to 91 ounces 13.9 to 25.3 Newtons

Battery

Type	12V DC
Group	34/78
Quantity	1
Ampere hour	75AH
Cold cranking ampere	900A
Reserve capacity @ 25A rate	125 minutes

Ignition System

Ignition spark advance	18° BTDC
Ignition coil primary resistance	1.3 to 1.6Ω @ 75°F / 24°C
Ignition coil secondary resistance	10.7 to 14.5 kΩ @ 75°F / 24°C
#1 Spark plug wire resistance	2.81 to 4.79 kΩ
#2 Spark plug wire resistance	3.4 to 5.8 kΩ
#3 Spark plug wire resistance	3.57 to 6.09 kΩ
Spark plug type	NGK BKR4E-11
Spark plug gap	0.039 to 0.043 inches 1 to 1.1 mm

Engine coolant

Capacity	3.1 quarts 2.9 liters

Alternator

Output	30A, 14V DC
Fan belt deflection	1/4 to 3/8 inch 7 to 9 mm

SPECIFICATIONS REV A

Hydraulic Hose and Fitting Torque Specifications

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

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

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

Seal-Lok® fittings

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

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

2 Lubricate the O-ring before installation.

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

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

5 Tighten the nut or fitting to the appropriate torque per given size as shown in the table.

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

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

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

Seal-Lok® Fittings
(hose end)

SAE Dash size	Torque
-4	18 ft-lbs / 25 Nm
-6	30 ft-lbs / 40 Nm
-8	40 ft-lbs / 55 Nm
-10	60 ft-lbs / 80 Nm
-12	85 ft-lbs / 115 Nm
-16	110 ft-lbs / 150 Nm
-20	140 ft-lbs / 190 Nm
-24	180 ft-lbs / 245 Nm

SAE FASTENER TORQUE CHART

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

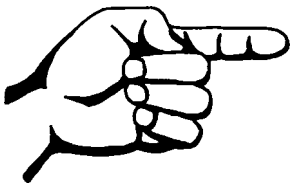
SIZE	THREAD	Grade 5				Grade 8				A574 High Strength Black Oxide Bolts	
		LUBED		DRY		LUBED		DRY		LUBED	
		in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm
1/4	20	80	9	100	11.3	110	12.4	140	15.8	130	14.7
	28	90	10.1	120	13.5	120	13.5	160	18	140	15.8
		LUBED		DRY		LUBED		DRY		LUBED	
		ft-lbs	Nm	ft-lbs	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 (mm)	Class 4.6				Class 8.8				Class 10.9				Class 12.9			
	LUBED		DRY		LUBED		DRY		LUBED		DRY		LUBED		DRY	
	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm
5	16	1.8	21	2.4	41	4.63	54	6.18	58	6.63	78	8.84	68	7.75	91	10.3
6	19	3.05	36	4.07	69	7.87	93	10.5	100	11.3	132	15	116	13.2	155	17.6
7	45	5.12	60	6.83	116	13.2	155	17.6	167	18.9	223	25.2	1.95	22.1	260	29.4
	LUBED		DRY		LUBED		DRY		LUBED		DRY		LUBED		DRY	
	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
8	5.4	7.41	7.2	9.88	14	19.1	18.8	25.5	20.1	27.3	26.9	36.5	23.6	32	31.4	42.6
10	10.8	14.7	14.4	19.6	27.9	37.8	37.2	50.5	39.9	54.1	53.2	72.2	46.7	63.3	62.3	84.4
12	18.9	25.6	25.1	34.1	48.6	66	64.9	88	69.7	94.5	92.2	125	81	110	108	147
14	30.1	40.8	40	54.3	77.4	105	103	140	110	150	147	200	129	175	172	234
16	46.9	63.6	62.5	84.8	125	170	166	226	173	235	230	313	202	274	269	365
18	64.5	87.5	86.2	117	171	233	229	311	238	323	317	430	278	377	371	503
20	91	124	121	165	243	330	325	441	337	458	450	610	394	535	525	713
22	124	169	166	225	331	450	442	600	458	622	612	830	536	727	715	970
24	157	214	210	285	420	570	562	762	583	791	778	1055	682	925	909	1233

REV A



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Scheduled Maintenance Procedures

Observe and Obey:

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

⚠WARNING Failure to perform each procedure as presented and scheduled could result in death, serious injury or substantial machine damage.

- ☑ Immediately tag and remove from service a damaged or malfunctioning machine.
- ☑ Repair any machine damage or malfunction before operating machine.
- ☑ Use only Genie approved replacement parts.
- ☑ Keep records on all inspections for three years.
- ☑ Unless otherwise specified, perform each procedure with the machine in the following configuration:
  - Machine parked on a firm, level surface
  - Boom in the stowed position
  - Turntable rotated with the boom between the non-steer wheels
  - Key switch in the off position with the key removed
  - Wheels chocked
  - All external AC power supply disconnected from the machine

About This Section

This section contains detailed procedures for each scheduled maintenance inspection.

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

Symbols Legend

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

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

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

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

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

NOTICE Used to indicate operation or maintenance information.

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

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

SCHEDULED MAINTENANCE PROCEDURES

Maintenance Symbols Legend

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

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

Indicates that dealer service is required to perform this procedure.

Pre-delivery Preparation Report

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

Make copies of the *Pre-delivery Preparation* report to use for each inspection. Store completed forms as required.

Maintenance Schedule

There are five types of maintenance inspections that must be performed according to a schedule—daily, quarterly, six months, annual, and two years. The *Scheduled Maintenance Procedures Section* and the *Maintenance Inspection Report* have been divided into five subsections—A, B, C, D and E. Use the following chart to determine which group(s) of procedures are required to perform a scheduled inspection.

Inspection	Checklist
Daily or every 8 hours	A
Quarterly or every 250 hours	A + B
Six months or every 500 hours	A + B + C
Annual or every 1000 hours	A + B + C + D
Two years or every 2000 hours	A + B + C + D + E

Maintenance Inspection Report

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

Make copies of the *Maintenance Inspection Report* to use for each inspection. Store completed forms for three years.

Pre-Delivery Preparation

Fundamentals

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

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

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

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

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

Instructions

Use the operator's manual on your machine.

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

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

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

Legend

Y = yes, completed
N = no, unable to complete
R = repaired

Comments

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

Model

Serial number

Date

Machine owner

Inspected by (print)

Inspector signature

Inspector title

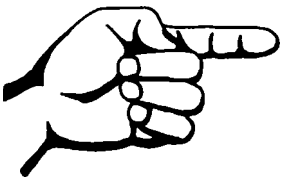
Inspector company

Genie®
A TEREX COMPANY

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

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

Rev B



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Maintenance Inspection Report

Model

Serial number

Date

Hour meter

Machine owner

Inspected by (print)

Inspector signature

Inspector title

Inspector company

Instructions

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

☐	**Daily or 8 hour Inspection:**	**A**
☐	**Quarterly or 250 hour Inspection:**	**A+B**
☐	**Six Month or 500 hour Inspection:**	**A+B+C**
☐	**Annual or 1000 hours Inspection:**	**A+B+C+D**
☐	**2 Year or 2000 hour Inspection:**	**A+B+C+D+E**

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

Legend

Y = yes, acceptable

N = no, remove from service

R = repaired

Checklist A - Rev A		Y	N	R
A-1	Manuals and decals			
A-2	Pre-operation inspection			
A-3	Function tests			
A-4	Engine maintenance			
Perform after 40 hours:				
A-5	30 Day Service			
Perform after 50 hours:				
A-6	Engine maintenance			
Perform every 50 hours:				
A-7	Engine maintenance			
Perform every 100 hours:				
A-8	Grease rotation bearing			
A-9	Engine maintenance			
A-10	Fuel filter/water separator			
Perform every 200 hours:				
A-11	Engine maintenance			

Checklist B - Rev A		Y	N	R
B-1	Engine choke - Gasoline/LPG models			
B-2	Exhaust system			
B-3	Battery			
B-4	Electrical wiring			
B-5	Tires, wheels and lug nut torque			
B-6	Brake configuration			
B-7	Drive hub oil level			
B-8	Glow plugs - Diesel models			
B-9	Engine RPM			
B-10	Ground control override			
B-11	Platform self leveling			
B-12	Engine idle select			
B-13	Fuel select - Gasoline/LPG models			
B-14	Drive brakes			
B-15	Drive speed - stowed			
B-16	Drive speed - raised or extended			
B-17	Fuel and hydraulic tank cap venting			
B-18	Hydraulic oil analysis			
B-19	Alarm and beacon			
B-20	Replace fuel filter/ separator - Diesel models			
Perform every 400 hours:				
B-21	Engine maintenance - Diesel models			

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 to be performed.

☐	**Daily or 8 hour Inspection: A**
☐	**Quarterly or 250 hour Inspection: A+B**
☐	**Six Month or 500 hour Inspection: A+B+C**
☐	**Annual or 1000 hours Inspection: A+B+C+D**
☐	**2 Year or 2000 hour Inspection: A+B+C+D+E**

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

Legend

Y = yes, acceptable

N = no, remove from service

R = repaired

Checklist C - Rev A		**Y**	**N**	**R**
C-1	Clean fuel tank - Diesel models			
C-2	Engine maintenance - Diesel models			
Perform every 800 hours:				
C-3	Engine maintenance - Diesel models			

Checklist D - Rev A		**Y**	**N**	**R**
D-1	Boom wear pads			
D-2	Free-wheel configuration			
D-3	Drive hub oil			
D-4	Replace hydraulic filters			
D-5	Turntable rotation bolts			
D-6	Turntable bearing wear			
D-7	Engine maintenance			

Checklist E - Rev A		**Y**	**N**	**R**
E-1	Replace hydraulic oil			
E-2	Grease wheel bearings			
E-3	Engine maintenance			

Comments

Checklist A Procedures

REV A

A-1
Inspect the Manuals and Decals

NOTICE Genie specifications require that this procedure be performed daily or every 8 hours, 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 are 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.

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

CHECKLIST A PROCEDURES REV A

A-2
Perform Pre-operation Inspection

NOTICE Genie specifications require that this procedure be performed daily or every 8 hours, 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 on how to perform this procedure is available in the appropriate *Genie Z-34/22 IC Operator's Manual* on your machine.

A-3
Perform Function Tests

NOTICE Genie specifications require that this procedure be performed daily or every 8 hours, 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 on how to perform this procedure is available in the appropriate *Genie Z-34/22 IC Operator's Manual* on your machine.

REV A CHECKLIST A PROCEDURES

A-4
Perform Engine Maintenance

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

Required maintenance procedures and additional engine information is available in the *Kubota DF750 Operator's Manual* (Kubota part number EG261-8916-1) OR the *Kubota DF752 Operator's Manual* (Kubota part number EG601-8916-1) OR the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5).

Kubota DF750 Operator's Manual	
Genie part number	97359
Kubota DF752 Operator's Manual	
Genie part number	84250
Kubota D905 Operator's Manual	
Genie part number	31743

A-5
Perform 30 Day Service

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

1 Perform the following maintenance procedures:
- A-11 Perform Engine Maintenance
- B-5 Inspect Tires, Wheels and Lug Nut Torque
- D-4 Replace the Hydraulic Filters
- D-5 Check the Turnable Rotation Bearing Bolts

CHECKLIST A PROCEDURES REV A

A-6
Perform Engine Maintenance

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

Required maintenance procedures and additional engine information is available in the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5) OR the *Kubota DF750 Operator's Manual* (Kubota part number EG261-8916-1) OR the *Kubota DF752 Operator's Manual* (Kubota part number EG601-8916-1).

Kubota D905 Operator's Manual Genie part number	31743
Kubota DF750 Operator's Manual Genie part number	97359
Kubota DF752 Operator's Manual Genie part number	84250

A-7
Perform Engine Maintenance

NOTICE Engine specifications require that this procedure be performed every 50 hours or weekly, whichever comes first.

Required maintenance procedures and additional engine information is available in the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5) OR the *Kubota DF750 Operator's Manual* (Kubota part number EG261-8916-1) OR the *Kubota DF752 Operator's Manual* (Kubota part number EG601-8916-1).

Kubota D905 Operator's Manual Genie part number	31743
Kubota DF750 Operator's Manual Genie part number	97359
Kubota DF752 Operator's Manual Genie part number	84250

A-8
Grease the Turntable Rotation Bearing and Worm Drive Gear

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

Yearly 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 gear will result in component damage.

1 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 secondary boom.

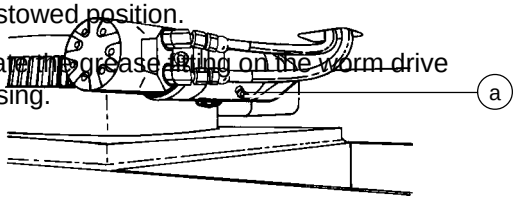
NOTICE The lift cylinder safety chock is available through Genie Service Parts (part number 36555).

2 Locate the grease fitting on the inside of the bearing in the middle of the turntable.

3 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.

4 Remove the safety chock. Lower the boom to the stowed position.

5 Locate the grease fitting on the worm drive housing.



a grease fitting

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

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

Grease Specification

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

A-9
Perform Engine Maintenance

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

Required maintenance procedures and additional engine information is available in the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5) OR the *Kubota DF750 Operator's Manual* (Kubota part number EG261-8916-1) OR the *Kubota DF752 Operator's Manual* (Kubota part number EG601-8916-1).

Kubota D905 Operator's Manual	
Genie part number	31743
Kubota DF750 Operator's Manual	
Genie part number	97359
Kubota DF752 Operator's Manual	
Genie part number	84250

A-10
Drain the Fuel Filter/ Water Separator - Diesel Models

NOTICE Engine specifications require that this procedure be performed every 100 hours. Poor fuel quality or very wet conditions may necessitate performing this procedure more often.

Proper maintenance of the fuel filter/water separator is essential for good engine performance. Failure to perform this procedure can lead to poor engine performance and component damage.

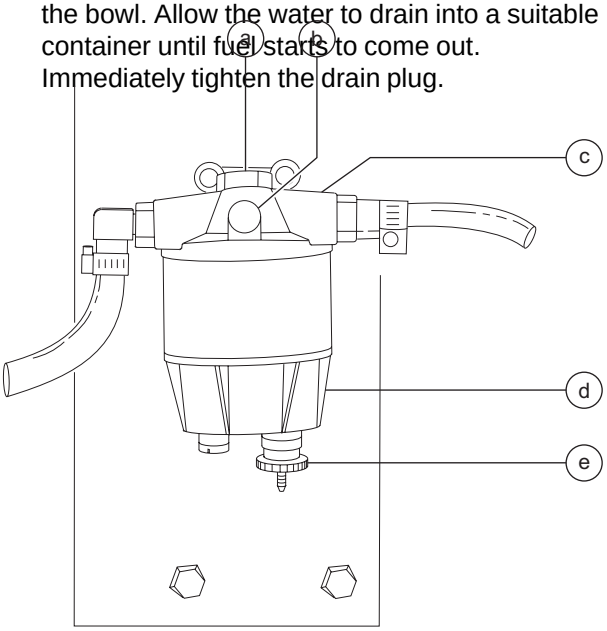
⚠ DANGER Explosion and fire hazard. Engine fuels are combustible. Perform this procedure in an open, well-ventilated area away from heaters, sparks, flames and lighted tobacco. Always have an approved fire extinguisher within easy reach.

NOTICE Perform this procedure with the engine off.

REV A CHECKLIST A PROCEDURES

1 Locate the fuel filter/water separator and loosen the vent plug located on the fuel filter/water separator head.

2 Loosen the drain plug located at the bottom of the bowl. Allow the water to drain into a suitable container until fuel starts to come out. Immediately tighten the drain plug.



a head bolt
b vent plug
c separator head
d filter bowl
e drain plug

3 Tighten the vent plug and clean up any spills or wet surfaces.

NOTICE If the fuel bowl is completely drained, you must prime, or bleed, the fuel filter/water separator before starting the engine. See step 5.

4 Start the engine from the ground controls and check the fuel filter/water separator for leaks.

Bleed the fuel system:

NOTICE Before bleeding the system, fill the fuel tank.

5 Loosen the vent plug/screw located on the filter head.

6 Operate the hand primer until fuel, free of air, flows from the vent plug/screw. Tighten the vent plug/screw on the filter head.

7 Loosen the vent screw, located on top of the fuel injection pump.

8 Operate the hand primer until fuel, free of air, flows from the vent plug/screw. Tighten the vent plug/screw on the injection pump.

9 Clean up any fuel that may have spilled.

10 Attempt to start the engine using the starter motor for a maximum of 15 seconds, resting the starter for 30 seconds before trying again.

11 Inspect the fuel filter/water separator for leaks.

⚠DANGER Explosion and fire hazard. If a fuel leak is discovered, keep any additional personnel from entering the area and do not operate the machine. Repair the leak immediately.

NOTICE Information to perform this procedure is also available in the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5).

Kubota D905 Operator's Manual
Genie part number 31743

CHECKLIST A PROCEDURES REV A

A-11
Perform Engine Maintenance

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

Required maintenance procedures and additional engine information is available in the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5) OR the *Kubota DF750 Operator's Manual* (Kubota part number EG261-8916-1) OR the *Kubota DF752 Operator's Manual* (Kubota part number EG601-8916-1).

Kubota D905 Operator's Manual	
Genie part number	31743
Kubota DF750 Operator's Manual	
Genie part number	97359
Kubota DF752 Operator's Manual	
Genie part number	84250

Checklist B Procedures

REV A

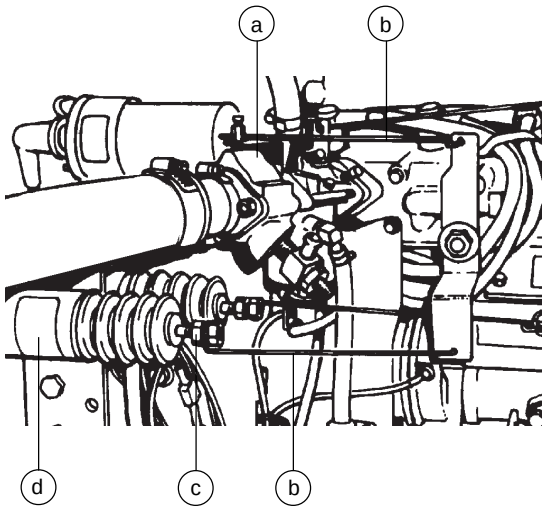
B-1
Check the Engine Choke - Gasoline/LPG Models

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

A properly functioning choke is essential to good engine performance. An improperly functioning choke will result in difficulty with engine starting.

NOTICE The manual choke is solenoid operated and is only operational in the gasoline mode. This choke will not operate in propane mode.

1 Check the choke linkage connections.



a carburetor
b linkage
c linkage lock nuts
d choke solenoid

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

3 While operating the choke switch, inspect the choke solenoid.

⊙ Result: The choke solenoid should be fully retracted when the choke switch is activated.

4 Turn the key switch to platform control.

5 Pull out the platform control red Emergency Stop button to the on position and then operate the choke switch and listen for choke solenoid operation.

CHECKLIST B PROCEDURES REV A

B-2
Check the Exhaust System

NOTICE Genie requires 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. Running 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 Bodily injury hazard. Beware of hot engine components. Contact with hot engine components may cause 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-3
Inspect the Battery

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

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

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

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

1 Put on protective clothing and eye wear.

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

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

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

4 Fully charge the battery. Allow the battery to rest 24 hours before continuing this procedure to allow the battery cells to equalize.

REV A CHECKLIST B PROCEDURES

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

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 / -12.2° C above 80° F / 26.7° C.
- Subtract 0.004 from the reading of each cell for every 10° F / -12.2° 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 10.

⊠ Result: One or more battery cells display a specific gravity of 1.217 or below. Proceed to step 7.

7 Perform an equalizing charge OR fully charge the battery and allow the battery 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 / -12.2° C above 80° F / 26.7° C.
- Subtract 0.004 from the reading of each cell for every 10° F / -12.2° 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 10.

⊠ 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 1.217. 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.

CHECKLIST B PROCEDURES REV A

B-4
Inspect the Electrical Wiring


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

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

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

1 Inspect the following areas for burnt, chafed, corroded and loose wires:
   - Engine compartment electrical panel
   - Engine wiring harness
   - Inside of the ground control box
   - Turntable manifold wiring
2 Start the engine from the ground controls.
3 Raise the secondary boom until the mid-pivot is 10 feet / 3 m off the ground.
4 Inspect the turntable center area for burnt, chafed and pinched cables.
5 Lower the boom to the stowed position and turn the engine off.
6 Inspect the following areas for burnt, chafed, corroded, pinched and loose wires:
   - Cable track on the primary, jib and secondary booms
   - Jib boom to platform cable harness
   - Inside of the platform control box

B-5
Inspect the Tires, Wheels and Lug Nut Torque

NOTICE Genie requires 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.

NOTICE 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 Section 2, *Specifications*.
4 Check the pressure in each air-filled tire. Refer to Section 2, *Specifications*.

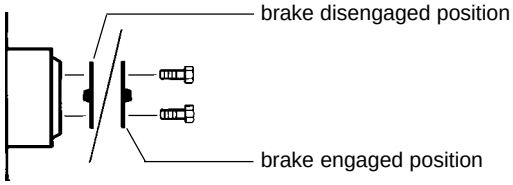
REV A CHECKLIST B PROCEDURES

B-6
Confirm the Proper Brake Configuration

NOTICE Genie requires 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. Hydraulically-released, spring-applied individual wheel brakes can appear to operate normally when they are actually not fully operational.

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

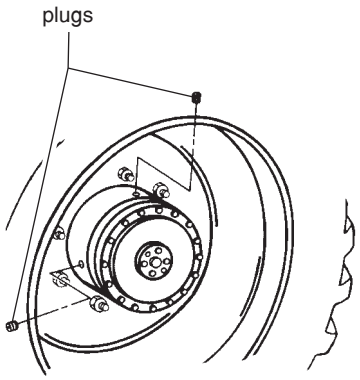


B-7
Check the Oil Level in the Drive Hubs

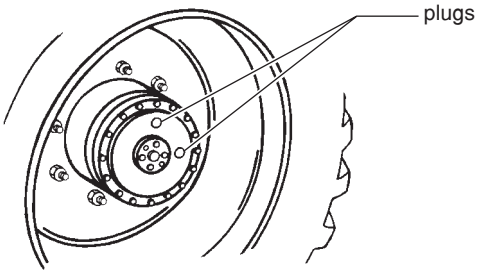
NOTICE Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

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.



Models with pipe plugs



Models with O-ring 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 Apply pipe thread sealant to the plugs, then install the plugs into the hub.

5 Repeat this procedure for each torque hub.

B-8
Check the Glow Plugs - Diesel Models


NOTICE Genie requires 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.

NOTICE Perform this procedure with the engine turned off.

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

⊙ Result: The resistance should be approximately 1.0Ω.

2 If the ohm reading is different than 1.0Ω, remove the wire and connector plate from the three individual glow plugs. Then, one glow plug at a time, check the resistance between the glow plug and machine 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 (+) lead from a volt meter to the number three glow plug. Connect the black (-) lead to ground.

5 Hold the glow plug switch in the on position.

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

B-9
Check and Adjust the Engine RPM

NOTICE Genie requires 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.

Gasoline/LPG Models:

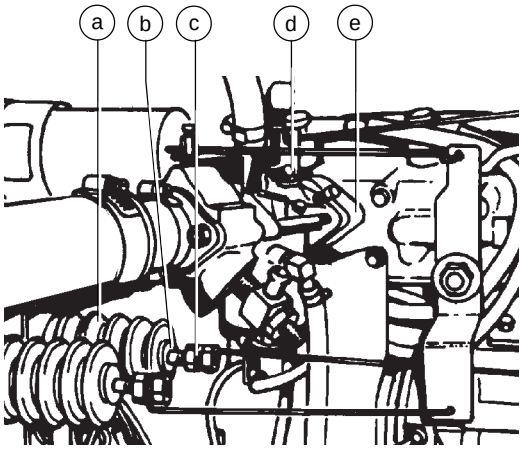
NOTICE Perform this procedure in gasoline mode with the engine at normal operating temperature.

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

⊙ Result: Low idle should be 1600 rpm.

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

2 Turn the low idle adjustment screw on the carburetor clockwise to increase rpm or counterclockwise to decrease rpm.



Gasoline/LPG idle adjustments
a solenoid boot
b high idle adjustment nut
c spring lock nut
d low idle adjustment
e carburetor

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 steps 4 through 6.

4 Loosen the spring lock nut.

5 Turn the high idle adjustment nut and spring lock nut clockwise to increase the rpm or counterclockwise to decrease the rpm.

6 Tighten the spring lock nut. Then recheck the rpm.

CHECKLIST B PROCEDURES REV A

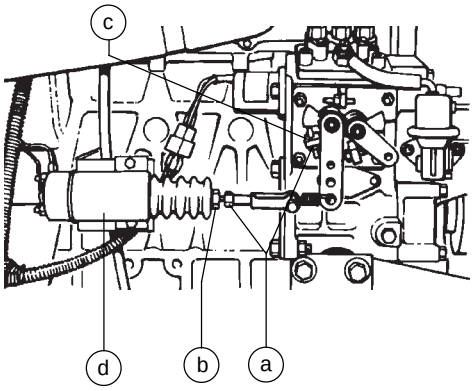
Diesel models:

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

Result: Low idle should be 1300 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.



Diesel idle adjustments
a lock nut
b high idle adjustment nut
c low idle adjustment screw
d rpm 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-10
Test the Ground Control Override

NOTICE Genie requires 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 red 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 Start the engine from the ground controls and operate each boom function through a partial cycle at the ground controls.

⊙ Result: All boom functions should operate.

REV A CHECKLIST B PROCEDURES

B-11
Test the Platform Self-leveling

NOTICE Genie requires 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 is controlled by the master cylinder located at the base of the primary boom. A platform self-leveling failure creates an unsafe working condition.

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 Adjust the platform to a level position using the platform leveling switch.

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

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

B-12
Test the Engine Idle Select

NOTICE Genie requires 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) allows the operator to control individual boom functions and to drive the machine at a reduced speed.

High idle (rabbit symbol) allows the operator to control multiple boom and/or drive functions simultaneously. This setting maintains a consistent high idle.

Foot switch activated high idle (rabbit and foot switch symbols) should be used for normal machine operation. This selection 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 At the platform controls, move the engine idle control switch to high idle (rabbit symbol).

⊙ Result: The engine should change to high idle.

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

⊙ Result: The engine should change to low idle.

7 Move the engine idle control switch to foot switch activated high idle (rabbit and foot switch symbol).

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

8 Press down the foot switch.

⊙ Result: The engine should change to high idle.

B-13
Test the Fuel Select Operation - Gasoline/LPG Models

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

The ability to select and switch between gasoline and LPG fuels as needed is essential to safe machine operation. A fuel selection can be made when the engine is running or not. Switching malfunctions and/or the failure of the engine to start and run properly in both fuel modes and through all idle speeds can indicate fuel system problems that could develop into a hazardous situation.

NOTICE Perform this test after checking the gasoline and LPG fuel levels, and warming the engine to normal operating temperature.

1 Move the fuel select switch to gasoline and then move the engine idle control switch to foot switch activated high idle (rabbit and foot switch symbol).

2 Start the engine from the platform controls and allow it to run at low idle.

3 Press down the foot switch to allow the engine to run at high idle.

⊙ Result: The engine should start promptly and operate smoothly in low and high idle.

4 Release the foot switch and stop the engine.

5 Move the fuel select switch to LPG.

6 Restart the engine and allow it to run at low idle.

7 Press down the foot switch to allow the engine to run at high idle.

⊙ Result: The engine should start promptly and operate smoothly in low and high idle.

NOTICE The engine may hesitate momentarily and then continue to run on the selected fuel if the fuel source is switched while the engine is running.

B-14
Test the Drive Brakes


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

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

⚠WARNING Bodily injury hazard. Be sure that the machine is not in free-wheel or partial free-wheel configuration. See B-6, *Confirm the Proper Brake Configuration*.

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

1 Mark a test line on the ground for reference.

2 Start the engine from the platform controls.

3 Select high range drive (machine on level surface symbol).

4 Move the engine idle control switch to foot switch activated high idle (rabbit and foot switch).

5 Lower the boom into the stowed position.

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

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

8 Measure the distance between the test line and your machine reference point.

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

B-15
Test the Drive Speed - Stowed Position

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

Proper drive function movement 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.

NOTICE 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 Start the engine from the platform controls.

3 Select high range drive (machine on level surface symbol).

4 Move the engine idle control switch to foot switch activated high idle (rabbit and foot switch).

5 Lower the boom into the stowed position.

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 passes over the finish line.

REV A CHECKLIST B PROCEDURES

B-16
Test the Drive Speed - Raised or Extended Position


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

Proper drive function movement 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.

NOTICE 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 Start the engine from the platform controls.

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

4 Press down the foot switch and raise the primary boom above horizontal.

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

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

7 Continue at full speed and note the time when the machine reference point crosses the finish line.

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

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

10 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.

11 Continue at top speed and note the time when the machine reference point crosses the finish line.

CHECKLIST B PROCEDURES REV A

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

NOTICE Genie requires 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.

1 Remove the cap from the fuel tank.

2 Check for proper venting.

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

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

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

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

4 Install the 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 fuel tank 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

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

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

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

B-19
Test the Alarm Package (if equipped)

NOTICE Genie requires 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 ground controls side turntable cover.

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

1 At the ground controls, pull out the red Emergency Stop button to the on position and turn the key switch to ground control.

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

2 Move the primary boom switch to the down position, hold for a moment and then release it. Move the secondary boom switch to the down position, hold for a moment and then release it.

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

3 Turn the key switch to platform control.

4 At the platform controls pull out the red Emergency Stop button to the on position.

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

5 Press down the foot switch. Move the primary boom switch to the down position, hold for a moment and then release it. Move the secondary boom switch to the down position, hold for a moment and then release it.

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

6 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.

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

B-20
Replace the Diesel Fuel Filter/ Water Separator Element - Diesel Models

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

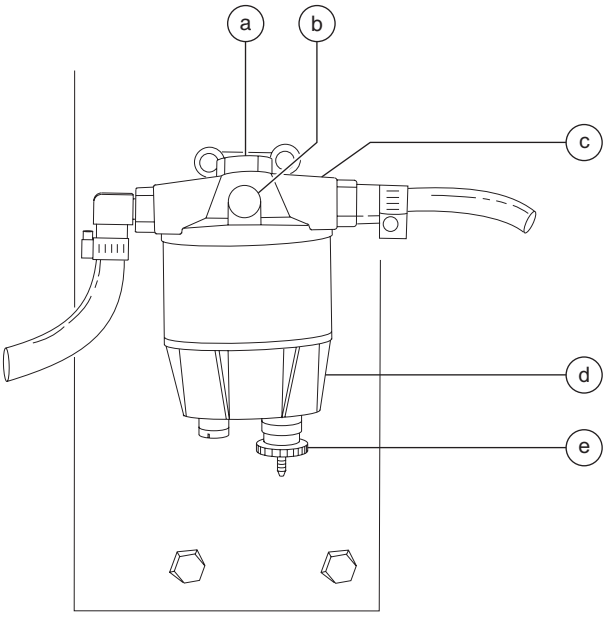
Replacing the diesel fuel filter is essential to good engine performance and service life. A dirty or clogged filter may cause the engine to perform poorly and continued use may cause component damage. Extremely dirty conditions may require that the filter be replaced more often.

⚠DANGER Explosion and fire hazard. Engine fuels are combustible. Replace the fuel filter in an open, well-ventilated area away from heater, sparks, flames and lighted tobacco. Always have an approved fire extinguisher within easy reach.

NOTICE Perform this procedure with the engine off.

1 Locate the fuel filter/water separator and loosen the vent plug located on the fuel filter/water separator head.

REV A CHECKLIST B PROCEDURES



a head bolt
b vent plug
c seperator head
d filter bowl
e drain plug

2 Place a container under the filter bowl. Loosen the drain plug located at the bottom of the bowl. Completely drain the fuel.

3 Loosen the head bolt then rotate the filter bowl counterclockwise and remove it.

4 Remove the filter element from the bowl.

5 Apply a thin layer of oil to the bowl gasket and then install the new filter element onto the bowl.

6 Tighten the drain plug and fill the bowl and filter assembly with clean diesel fuel.

7 Install the filter and bowl assembly onto the filter head. Torque the head bolt to 65 in lbs / 7 Nm.

8 Tighten the vent plug.

9 Clean up any diesel fuel that may have spilled during the installation procedure.

Bleed the fuel system:

NOTICE Before bleeding the system, fill the fuel tank.

10 Loosen the vent plug/screw located on the filter head.

11 Operate the hand primer until fuel, free of air, flows from the vent plug/screw. Tighten the vent plug/screw on the filter head.

12 Loosen the vent screw, located on top of the fuel injection pump.

13 Operate the hand primer until fuel, free of air, flows from the vent plug/screw. Tighten the vent plug/screw on the injection pump.

14 Clean up any fuel that may have spilled.

15 Attempt to start the engine using the starter motor for a maximum of 15 seconds, resting the starter for 30 seconds before trying again.

16 Inspect the fuel filter/water separator for leaks.

⚠ DANGER Explosion and fire hazard. If a fuel leak is discovered, keep any additional personnel from entering the area and do not operate the machine. Repair the leak immediately.

NOTICE Information to perform this procedure is also available in the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5).

Kubota D905 Operator's Manual
Genie part number 31743

CHECKLIST B PROCEDURES REV A

B-21
Perform Engine Maintenance - Kubota D905 Models

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

Required maintenance procedures and additional engine information is available in the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5).

Kubota D905 Operator's Manual	
Genie part number	31743

Checklist C Procedures

REV A

C-1
Clean the Fuel Tank - Diesel Models

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

Removing sediment from the fuel tank is essential to good engine performance and service life. A dirty fuel tank may cause the fuel filter to clog prematurely resulting in poor engine performance and possible component damage.

⚠DANGER Explosion and fire hazard. Engine fuels are combustible. Clean the fuel tank in an open, well-ventilated area away from heater, sparks, flames and lighted tobacco. Always have an approved fire extinguisher within easy reach.

NOTICE Immediately clean up any fuel that may have spilled during this procedure.

1 **Models with fuel shutoff valve:** Turn the manual fuel shutoff valve, located next to the tank, to the closed position.

2 Using an approved hand-operated pump, drain the fuel tank into a suitable container. Refer to Section 2, *Specifications*, for tank capacity.

⚠DANGER Explosion and fire hazard. When transferring fuel, connect a grounding wire between the machine and pump or container.

NOTICE Be sure to only use a hand operated pump suitable for use with gasoline and/or diesel fuel.

3 Tag, disconnect and plug the fuel supply and return hoses at the tank. Clean up any fuel that may have spilled.

4 **Models with metal fuel tank:** Remove the tank strap fasteners and remove the straps. Remove the tank from the machine.

Models with plastic fuel tank: Remove the tank retainer plate fasteners at the bulkhead. Remove the tank from the machine.

CAUTION Component damage hazard. The fuel tank is plastic and may become damaged if allowed to fall.

5 Rinse out the inside of the tank using a mild solvent.

6 **Models with metal fuel tank:** Install the tank onto the machine. Install the tank straps and tighten the tank strap retaining fasteners.

Models with plastic fuel tank: Install the tank onto the machine. Install the tank retainer plate fasteners at the bulkhead.

7 Install the fuel supply and return hoses to the tank. Tighten the clamps.

8 **Models with fuel shutoff valve:** Turn the manual fuel shutoff valve, located next to the tank, to the open position.

CHECKLIST C PROCEDURES REV A

C-2
Perform Engine Maintenance - Diesel Models

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

Required maintenance procedures and additional engine information is available in the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5).

Kubota D905 Operator's Manual	
Genie part number	31743

C-3
Perform Engine Maintenance - Diesel Models

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

Required maintenance procedures and additional engine information is available in the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5).

Kubota D905 Operator's Manual	
Genie part number	31743

Checklist D Procedures

REV A

D-1
Check the Primary Boom Wear Pads

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

Maintaining the primary 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 worn out wear pads may result in component damage and unsafe operating conditions.

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

2 Extend the primary boom approximately 10 inches / 25 cm.

3 Measure each wear pad. Replace the wear pad if it is less than 0.41 inch / 1 cm thick. If the wear pad is more than 0.41 inch / 1 cm thick, shim as necessary to obtain zero clearance and zero drag.

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

NOTICE Always maintain squareness between the primary boom outer and inner tubes.

D-2
Check the Free-wheel Configuration

NOTICE Genie requires 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.

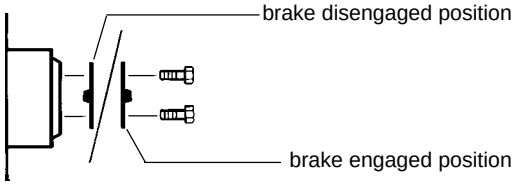
⚠WARNING Collision hazard. Select a work site that is firm and level.

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

2 Center a lifting jack of ample capacity (15000 lbs / 7000 kg) under the drive chassis between the non-steering wheels.

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

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



5 Manually rotate each non-steering wheel.

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

6 Re-engage the torque hubs by turning over the hub disconnect caps. Carefully remove the jack stands, lower the machine and remove the jack.

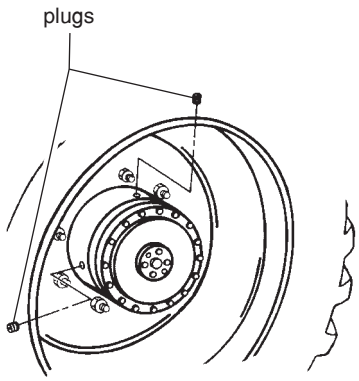
⚠WARNING Collision hazard. Failure to re-engage the torque hubs may cause death or serious injury and property damage.

D-3
Replace the Drive Hub Oil

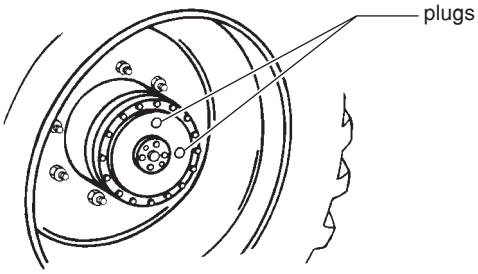
NOTICE Genie requires that this procedure be performed every 1000 hours or annually, whichever comes first.

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

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



Models with pipe plugs



Models with O-ring plugs

2 Remove both plugs and drain the oil.

3 Drive the machine until one plug is at the top and the other is at 90 degrees.

4 Fill the hub with oil from the top hole until the oil level is even with the bottom of the side hole. Refer to Section 2, *Specifications*.

5 **Models with pipe plugs:** Apply pipe thread sealant to the plugs. Install the plugs into the drive hub.

Models with O-ring plugs: Install the plugs into the drive hub.

6 Repeat this procedure for each torque hub.

D-4
Replace the Hydraulic Filters

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

Replacement of the hydraulic filters are 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.

Hydraulic Return Filter:

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

NOTICE The return hydraulic filter is mounted on the hydraulic tank.

1 Clean the area around the oil filter, then remove the filter with an oil filter wrench.

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

3 Install the new filter and tighten it securely by hand. Clean up any oil that may have spilled.

CHECKLIST D PROCEDURES REV A

Hydraulic Suction Filter (before serial number 1547):

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

NOTICE The suction hydraulic filter is mounted in the engine compartment.

4 Close the shut off valve behind the filter.

5 Clean the area around the oil filter, then remove the filter with an oil filter wrench.

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

7 Install the new filter and tighten it securely by hand. Clean up any oil that may have spilled.

8 Start the engine from the ground contols.

9 Activate any boom function and inspect the filters and related components to be sure that there are no leaks.

10 Use a permanent ink marker to write the date and number of hours from the hour meter on the filters.

Medium pressure filter (after serial number 1546):

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

NOTICE The medium pressure filter is mounted in the engine compartment.

4 Place a suitable container under the medium pressure filter.

5 Remove the filter housing by using a wrench on the nut provided on the bottom of the housing.

6 Remove the filter element from the housing.

7 Inspect the housing seal and replace it if necessary.

8 Install the new filter element into the housing and tighten securely.

9 Clean up any oil that may have spilled during the installation procecure.

10 Start the engine from the ground contols.

11 Activate any boom function and inspect the filters and related components to be sure that there are no leaks.

12 Use a permanent ink marker to write the date and number of hours from the hour meter on the filters.

REV A CHECKLIST D PROCEDURES

D-5
Check the Turntable Rotation Bearing Bolts

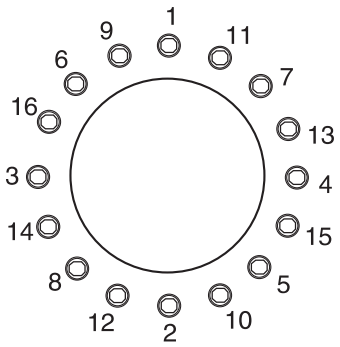
Maintaining proper torque on the turntable bearing bolts is essential to safe machine operation. Improper bolt torque could result in an unsafe operating condition and component damage.

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

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

NOTICE The lift cylinder safety chock is available through Genie (part number 36555).

2 Check to ensure that each turntable bearing bolt is torqued in specified order to 180 ft-lbs / 244 Nm.

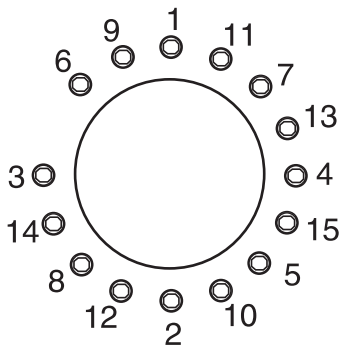


Bolt torque sequence

3 Remove the safety chock. Lower the boom to the stowed position.

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

5 Check to ensure that each bearing mounting bolt under the drive chassis is torqued in specified order to 180 ft-lbs / 244 Nm.



Bolt torque sequence

CHECKLIST D PROCEDURES REV A

D-6
Inspect for Turntable Bearing Wear

NOTICE Genie requires 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.

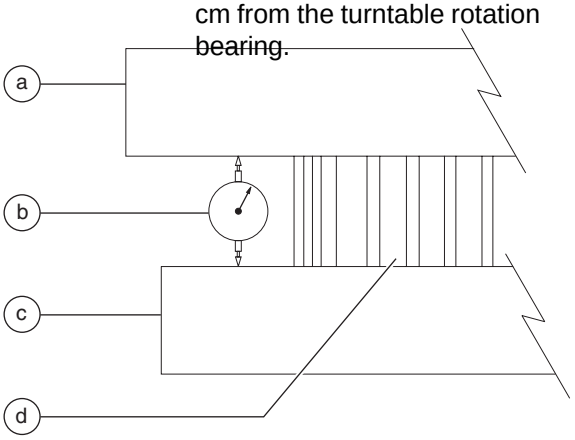
1 Grease the turntable bearing. See A-8, *Grease the Turntable Rotation Bearing and Worm Drive Gear.*

2 Torque the turntable bearing bolts to specification. See D-5, *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.

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

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



a turntable
b dial indicator
c drive chassis
d turntable rotation bearing

5 Adjust the dial indicator to "0".

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 the dial indicator to be sure the needle returns to the "0" 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.

D-7
Perform Engine Maintenance

NOTICE Engine specifications requires that this procedure be performed every 1000 hours or annually, whichever comes first.

Required maintenance procedures and additional engine information is available in the *Kubota DF750 Operator's Manual* (Kubota part number EG261-8916-1) OR the *Kubota DF752 Operator's Manual* (Kubota part number EG601-8916-1) OR the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5).

Kubota DF750 Operator's Manual	
Genie part number	97359
Kubota DF752 Operator's Manual	
Genie part number	84250
Kubota D905 Operator's Manual	
Genie part number	31743

Checklist E Procedures

REV A

E-1
Test or Replace the Hydraulic Oil

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

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

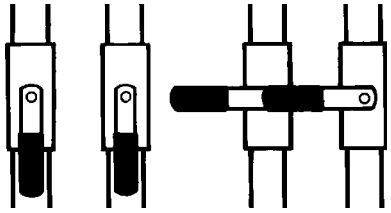
NOTICE The machine uses Dexron equivalent hydraulic oil. Before replacing the hydraulic oil, the oil may be tested by an oil distributor for specific levels of contamination to verify that changing the oil is necessary. **If the hydraulic oil is not replaced at the two year inspection, test the oil quarterly. Replace the oil when it fails the test.**

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

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

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

CAUTION Component damage hazard. The engine must not be started with the hydraulic tank shut-off valves in the closed position or component damage will occur. If the tank valves are closed, remove the key from the key switch and tag the machine to inform personnel of the condition.



3 Remove the drain plug from the hydraulic tank and completely drain the tank into a container of suitable capacity. Refer to Section 2, *Specifications*.

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

4 Tag, disconnect and plug the hoses from the return filter. Cap the fittings on the return filter.

5 Tag, disconnect and plug the suction hoses from the bottom of the tank. Cap the fittings.

6 Remove the fasteners from the hydraulic tank hold down straps. Remove the straps.

7 Remove the turntable cover using a suitable lifting device.

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

8 Support and secure the hydraulic tank to a suitable lifting device. Remove the hydraulic tank from the machine.

9 Remove the suction strainers and clean them using a mild solvent.

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

11 Install the suction strainers using a pipe thread sealant on the threads.

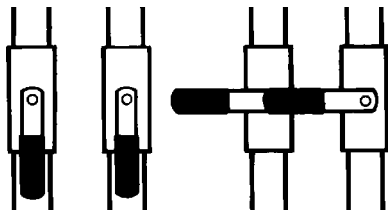
12 Install the drain plug into the tank using a pipe thread sealant on the threads.

13 Install the hydraulic tank on to the machine. Install the hydraulic tank hold down straps and tighten the retaining fasteners.

14 Fill the tank with hydraulic oil until the fluid until the fluid is within the top 2 inches / 5.1 cm of the sight gauge. Do not overfill.

15 Open the two hydraulic tank shut-off valves at the hydraulic tank.

CAUTION Component damage hazard. The engine must not be started with the hydraulic tank shut-off valves in the closed position or component damage will occur. If the tank valves are closed, remove the key from the key switch and tag the machine to inform personnel of the condition.



open closed

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

17 Start the engine and check for leaks.

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

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

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 and center a lifting jack of ample capacity under the steer axle.

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

⚠CAUTION Crushing damage. The machine may fall if not properly supported.

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 REV A

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

7 Tighten the castle nut to 158 ft-lbs / 214 Nm to seat the bearings.

NOTICE Rotate the hub by hand while torquing the castle nut to make sure the bearings seat properly.

8 Loosen the castle nut one full turn and then torque to 35 ft-lbs / 47 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 10 to grease the wheel bearings.

⊠ Result: If there is side to side or up and down movement, continue to step 10 and replace the wheel bearings with new ones.

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

10 Remove the castle nut.

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

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

13 Pack both bearings with clean, fresh grease.

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

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

NOTICE Always replace the bearing grease seal when removing the hub.

16 Slide the hub onto the yoke spindle.

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

17 Fill the hub cavity with clean, fresh grease.

18 Place the outer bearing into the hub.

19 Install the washer and castle nut.

20 Tighten the castle nut to 158 ft-lbs / 214 Nm to seat the bearings.

NOTICE Rotate the hub by hand while torquing the castle nut to make sure the bearings seat properly.

21 Loosen the castle nut one full turn and then torque to 35 ft-lbs / 47 Nm.

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

NOTICE 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 Section 2, *Specifications.*

REV A CHECKLIST E PROCEDURES

E-3
Perform Engine Maintenance

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

Required maintenance procedures and additional engine information is available in the *Kubota DF750 Operator's Manual* (Kubota part number EG261-8916-1) OR the *Kubota DF752 Operator's Manual* (Kubota part number EG601-8916-1) OR the *Kubota D905 Operator's Manual* (Kubota part number 16622-8916-5).

Kubota DF750 Operator's Manual	
Genie part number	97359
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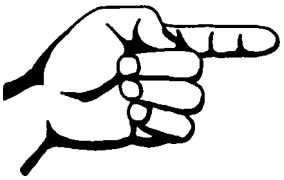
Genie part number	84250
Kubota D905 Operator's Manual	
Genie part number	31743



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Repair Procedures

Observe and Obey:

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

Before Repairs Start:

- ☑ Read, understand and obey the safety rules and operating instructions in the appropriate *Genie Z-34/22 IC Operator's Manual* on your machine.
- ☑ Be sure that all necessary tools and parts are available and ready for use.
- ☑ Use only Genie approved replacement parts.
- ☑ Read each procedure completely and adhere to the instructions. Attempting shortcuts may produce hazardous conditions.
- ☑ Unless otherwise specified, perform each repair procedure with the machine in the following configuration:
  - Machine parked on a firm, level surface
  - Boom in the stowed position
  - Turntable rotated with the boom between the non-steer wheels
  - Key switch in the off position with the key removed
  - Wheels chocked
  - All exernal AC power disconnected from the machine

About This Section

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

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

Symbols Legend

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

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

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

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

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

NOTICE Used to indicate operation or maintenance information.

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

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

Platform Controls

REV A

1-1
Horsepower Limiter Board (before serial number 1547)

The horsepower limiter board is responsible for governing drive pump output. It senses engine rpm from the alternator. The horsepower limiter board senses drops in rpm normally due to increased drive resistance (rough terrain or incline) and decreases voltage to the drive controller which in turn decreases voltage to the drive pump thereby reducing pump output to maintain optimum engine rpm and horsepower. Three adjustments are required for optimum performance.

How to Adjust the Horsepower Limiter Board

NOTICE The engine rpm must be correct before performing this procedure. Refer to Maintenance Procedure B-9, *Check and Adjust the Engine RPM.*

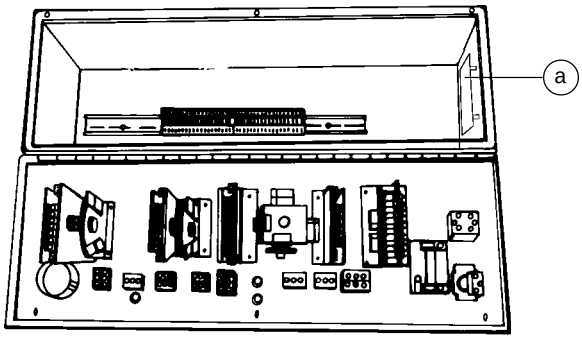
NOTICE Do not adjust the horsepower limiter board unless the static battery voltage is above 12V DC and the alternator is operating properly with 12.5 to 14.5V DC output.

NOTICE **Gasoline/LPG models:** Perform this procedure in gasoline mode.

1 Remove the fasteners from the platform control box lid.

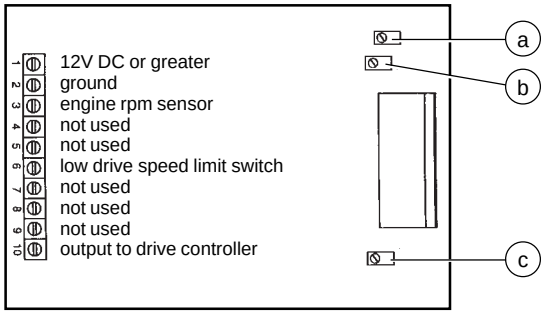
2 Open the control box lid and locate the horsepower limiter board.

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



a horsepower limiter board

3 Connect the black(-) lead from a DC volt meter to the no. 2 terminal, and the red(+) lead to the no. 10 terminal.



a "A" potentiometer: maximum voltage output to the controller in the stowed position
b "B" potentiometer: maximum voltage output to the drive controller in the boom raised position
c "C" potentiometer: reaction rate or how fast the voltage output reacts to the change in engine rpm

4 Start the engine from the platform controls.

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

6 Press down the foot switch and adjust the "A" potentiometer counterclockwise to increase voltage or clockwise to decrease voltage.

"A" potentiometer specifications - all models	
Voltage setting	8.5 V DC

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

8 Press down the foot switch and then adjust the "C" potentiometer counterclockwise to increase voltage or clockwise to decrese voltage to obtain a 0V DC voltage reading.

9 Move the engine idle control switch to foot switch activated high idle (rabbit and foot switch symbol). Move the drive select switch to high range (machine on level ground symbol).

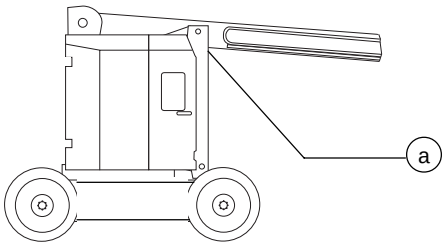
10 Press down the foot switch and re-adjust the "A" potentiometer to the previous voltage setting in step 6.

11 Be sure that the boom is in the stowed position, then drive the machine and observe how the engine rpm reacts to drive control handle movement. If the engine surges or hunts, adjust the "C" potentiometer counterclockwise until surging is minimized.

NOTICE Under an extreme load, an excessive counterclockwise adjustment to the "C" potentiometer will cause the engine to stall. The "C" potentiometer adjustment is a compromise between engine stability (surging) and engine rpm droop.

12 Disconnect the volt meter.

13 Raise the primary boom above the drive limit switch.



a drive limit switch

14 Drive the machine for 40 feet / 12 m and record the elapsed time. Repeat this step in the opposite drive direction.

15 Adjust the "B" potentiometer clockwise to increase voltage or counterclockwise to decrease voltage until raised drive speed meets specification. Refer to Section 2, *Specifications*.

16 Close the platform control box lid and install the fasteners.

1-2
Drive Joystick
(after serial number 1546)

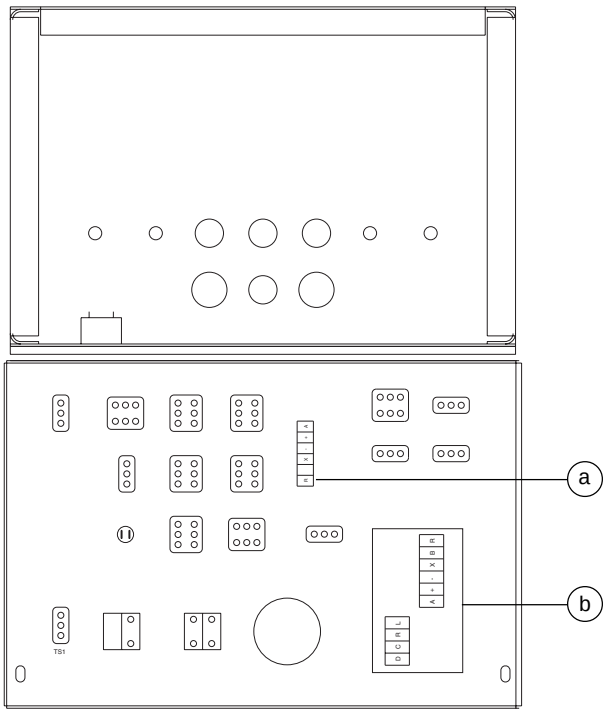
How to Adjust the Drive Joystick

NOTICE Perform this procedure with the engine off.

1 Remove the fasteners from the platform control box lid.

2 Open the control box lid and locate the drive joystick.

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



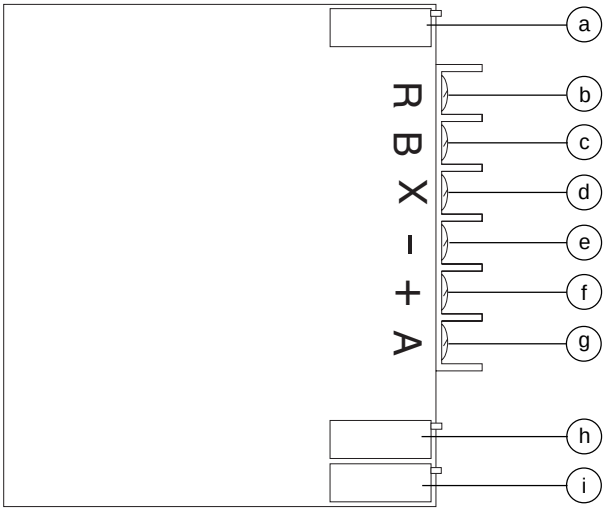
a boom function speed controller
b drive joystick

3 Locate and disconnect the wire connected to terminal "A" on the drive joystick circuit board.

4 Set a multimeter to read DC current.

NOTICE The multimeter, when set to read DC current, should be capable of reading up to 1200 mA.

5 Connect the black(-) lead from the multimeter to the wire that was just disconnected. Connect the red(+) lead of the multimeter to terminal "A" on the joystick.



a low range potentiometer
b terminal "R", activates low range
c terminal "B", drive reverse
d terminal "X", brake release
e terminal "-", ground
f terminal "+", positive
g terminal "A", drive forward
h threshold potentiometer
i high range potentiometer

6 Turn the keyswitch to platform controls and pull out the red Emergency Stop button out to the on position at both the ground and platform controls. Do not start the engine.

Set the threshold:

NOTICE The drive joystick adjustments are not final adjustments. Final adjustments will need to be made to meet drive speed specifications. Refer to Section 2, *Specifications.*

7 Press down the foot switch. Move the drive joystick off center in either direction just until a current reading appears on the mulitmeter display.

8 Hold the drive joystick in position and adjust the THRESHOLD potentiometer until the multimeter displays approximately 600 mA.

Set the high range:

9 Press down the foot switch. Move and hold the drive joystick full stroke in either direction.

10 Hold the drive joystick in position and adjust the HI RANGE potentiometer until the multimeter displays slightly higher than 1100 mA.

Set the low range:

11 Start the engine from the platform controls and raise the primary boom approximately 3 feet / 1 m. Turn the engine off.

12 Press down the foot switch. Move and hold the drive joystick full stroke in either direction.

13 Hold the drive joystick in position and adjust the LO RANGE potentiometer until the multimeter displays approximately 700 mA.

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

15 Disconnect the multimeter.

16 Connect the wire that was disconnected in step 3 to terminal "A" of the drive joystick.

Set the stowed drive speed:

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

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

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

19 Start the engine from the platform controls and move the engine idle select switch to foot switch activated high idle (rabbit and foot switch symbol).

20 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.

21 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.

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

⊙ Result: The stowed drive speed does not meet specification. Adjust the HI RANGE potentiometer on the drive joystick clockwise to increase the speed or counterclockwise to decrease the stowed drive speed. Continue to perform steps 20 through 22 until the stowed drive speed meets specification.

Set the raised drive speed:

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

23 Press down the foot switch and raise the primary boom approximately 3 feet / 1 m.

24 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.

25 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.

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

⊙ Result: The raised drive speed does not meet specification. Adjust the LO RANGE potentiometer on the drive joystick clockwise to increase the speed or counterclockwise to decrease the raised drive speed. Continue to perform steps 24 through 26 until the raised drive speed meets specification.

27 Lower the primary boom to the stowed position. Turn the engine off.

28 Close the platform control box lid and install the fasteners.

1-3 Boom Function Speed Controller

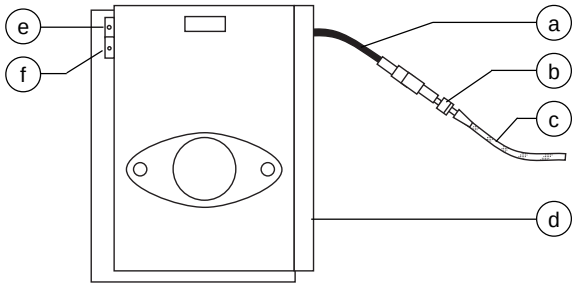
Boom Function Speed Controller Adjustments

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

NOTICE Do not adjust the controllers unless the static battery supply voltage is above 12V DC.

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

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



a black wire
b diode
c white/red wire
d boom function speed controller
e max-out adjustable trimpot
f threshold adjustable trimpot

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

4 Connect the red (+) lead from a volt meter to the wire connector of the white/red wire next to the diode. Connect the black (-) lead to ground.

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

6 **Set the threshold:** Press down the foot switch. Move the primary boom toggle switch in the up direction until the voltage reading appears. Adjust the voltage to 5.5 to 6V DC. Turn the threshold trimpot adjustment screw clockwise to increase the voltage or counterclockwise to decrease the voltage.

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

8 **Set the max-out:** Press down the foot switch. Move the primary boom toggle switch in the up direction. Adjust the voltage to 8.5 to 9V DC. Turn the max-out trimpot adjustment screw clockwise to increase the voltage or counterclockwise to decrease the voltage.

Boom function speed controller specifications	
Threshold	5 to 6V DC
Max-out	8.5 to 9V DC

Platform Components

REV A

2-1 Platform

How to Remove the Platform

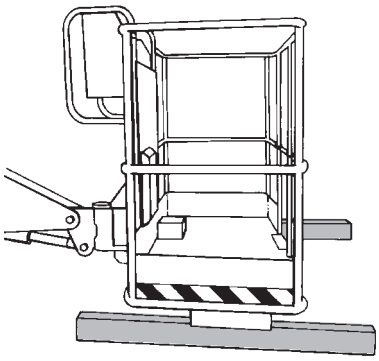
1 Separate the foot switch wiring quick disconnect plug from the platform toeboard.

2 Remove the platform control box mounting fasteners and lower the control box.

NOTICE If your machine is equipped with an air line to platform option, the air line must be disconnected from the platform before removal.

3 Place blocks under the platform for support. Carefully lower the platform onto the blocks.

4 Remove the platform mounting fasteners and remove the platform.



2-2 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 primary 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

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

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

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

2-3 Platform Rotator

The platform rotator is a hydraulically-activated helical gear assembly used to rotate the platform 160 degrees.

How to Remove the Platform Rotator

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

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

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

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.

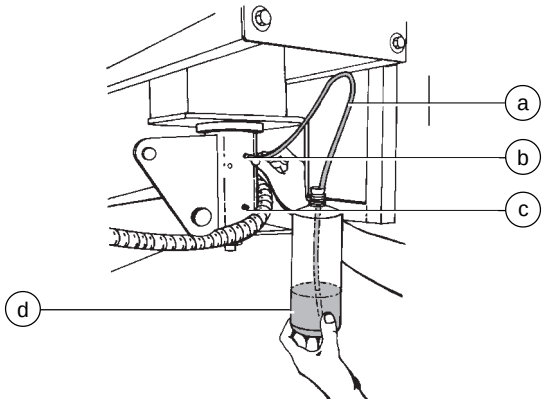
8 Support the jib boom and jib boom lift cylinder with an overhead crane.

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.

How to Bleed the Platform Rotator

1 Connect a clear hose to the top bleed screw. Place the other end of the hose in a container to collect any discharge.



a clear hose
b top bleed valve
c bottom bleed valve
d container

2 Open the top bleed screw, but do not remove it.

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

4 Hold the platform rotate toggle switch in the right direction for approximately 5 seconds, then release it. Repeat three times.

⚠CAUTION Crushing hazard. Keep hands clear of the platform pivot weldment during rotation.

5 Hold the platform rotate toggle switch in the left direction for approximately 5 seconds, then release it.

6 Fully rotate the platform to the left and continue holding the platform rotate toggle switch until air stops coming out of the bleed screw. Immediately release the platform rotate toggle switch and close the bleed screw.

7 Rotate the platform to the right until it is centered.

8 Connect the clear hose to the bottom bleed screw. Open the bottom bleed screw, but do not remove it.

9 Rotate the platform to the right and continue holding the platform rotate switch until air stops coming out of the bleed screw.

⚠CAUTION Crushing hazard. Keep hands clear of the platform pivot weldment during rotation.

10 Close the bleed screw and remove the hose.

11 Turn the key switch to the off position and clean up any hydraulic oil that may have spilled.

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

13 Rotate the platform full left and right and inspect the bleed screws for leaks.

Jib Boom Components

REV A

3-1
Jib Boom

How to Remove the Jib Boom

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

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

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

2 Remove the platform mounting weldment and the platform rotator. See 2-3, *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 could fall when the pin is removed if not properly supported by the overhead crane.

3-2
Jib Boom Bell Crank

How to Remove the Jib Boom Bell Crank

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

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

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

2 Remove the Jib Boom, See 3-1, *How to Remove the Jib Boom.*

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

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

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 bell crank could become unbalanced and fall when the pins are removed if not properly supported and secured to the lifting device.

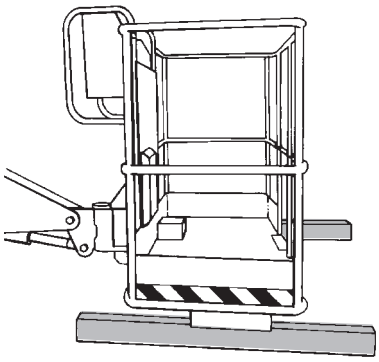
3-3
Jib Boom Lift Cylinder

How to Remove the Jib Boom Lift Cylinder

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

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

1 Raise the jib boom slightly and place blocks under the platform mounting weldment. Lower the jib boom until the platform is resting on the blocks.



2 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.

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

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.

⚠WARNING Crushing hazard. The jib boom and/or platform could fall when the pin is removed if not properly supported.

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 could fall when the pins are removed if not properly supported by the overhead crane.

Primary Boom Components

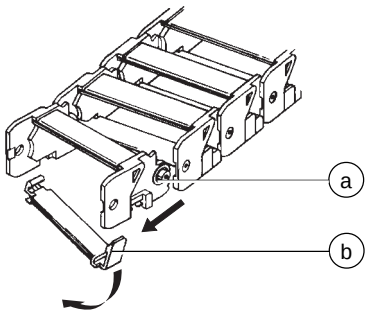
REV A

4-1
Plastic 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 Plastic Cable Track

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



a link separation point
b lower clip

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

2 Repeat step 1 for each link.

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

4-2
Primary Boom

How to Shim the Primary Boom

NOTICE Measure each wear pad. Replace the pad if it is less than 0.41 inch / 1 cm thick. If the pad is more than 0.41 inch / 1 cm thick, perform the following procedure.

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.

NOTICE 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.

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

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

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

2 Remove the platform rotator. See 2-3, *How to Remove the Platform Rotator*.

3 Remove the jib boom. See 3-1, *How to Remove the Jib Boom*.

4 Remove the jib boom bell crank. See 3-2, *How to Remove the Jib Boom Bell Crank*.

5 Support the slave cylinder.

6 Tag and disconnect the hydraulic hoses to the slave cylinder and connect them together using a connector. Plug the slave cylinder hoses from the cable track.

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

7 Remove the external snap ring from the slave cylinder barrel-end pivot pin.

8 Use a soft metal drift to remove the slave cylinder barrel-end pin.

9 Remove the slave cylinder from the primary boom.

10 Support the cable track with an overhead crane or similar lifting device.

11 Remove the cable track mounting fasteners, then remove the cable track from the boom and lay it off to the side.

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

12 Remove the turntable end cover.

13 Remove the pin retaining fasteners 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.

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

15 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.

16 Attach an overhead 5 ton / 5,000 kg crane to the center point of the boom.

17 Attach a similar lifting device to the primary boom lift cylinder.

18 Using the overhead crane, raise the primary boom to a horizontal position.

19 Place support blocks across the secondary boom to support the boom lift cylinder.

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

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

21 Lower the rod-end of the primary boom lift cylinder onto support blocks. Protect the cylinder rod from damage.

22 Remove the hose clamp brackets from the underside of the primary boom.

23 Remove the hose clamp from the side of the primary boom.

24 Remove the limit switch cam mounting fastener (if equipped).

NOTICE Note the position of the cam before removing it.

25 Remove the pin retaining fasteners from the primary boom pivot pin.

26 Use a soft metal drift to remove the primary boom pivot pin. Carefully remove the boom from the machine and place it on a structure capable of supporting it.

⚠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.

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

How to Disassemble the Primary Boom

NOTICE 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. See 4-4, *How to Remove the Extension Cylinder*.

1 Remove the boom. See 4-2, *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.

NOTICE 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.

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.

NOTICE 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.

NOTICE 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.

NOTICE Pay careful attention to the location of each wear pad.

4-3
Primary Boom Lift Cylinder

The lift cylinder raises and lowers the primary boom. The lift cylinder is equipped with counterbalance valves 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.

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

1 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.

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 4x4 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 Crushing hazard. The primary boom could fall when the primary boom lift cylinder rod-end pivot pin is removed if not properly supported by the overhead crane.

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.

⚠CAUTION Crushing hazard. The primary boom lift cylinder may fall when the barrel-end pivot pin is removed if not properly supported by 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.

4-4 Extension Cylinder

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

How to Remove the 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.

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

1 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.

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

⚠CAUTION Crushing hazard. The cylinder may become unbalanced and fall if not properly supported by the overhead crane when removed from the extension tube.

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

NOTICE To make installation of the extension cylinder easier, be sure that the cylinder rod is extended 3 to 4 feet /1 m.

4-5 Platform Leveling Master Cylinder

The master cylinder acts as a pump for the slave cylinder. It is part of the closed circuit hydraulic loop that keeps the platform level through the entire range of primary boom motion. The 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.

NOTICE Before cylinder removal is considered, bleed the cylinder to be sure that there is no air in the closed loop. See 2-2, *How to Bleed the Slave Cylinder.*

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

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.

NOTICE 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.

NOTICE 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.

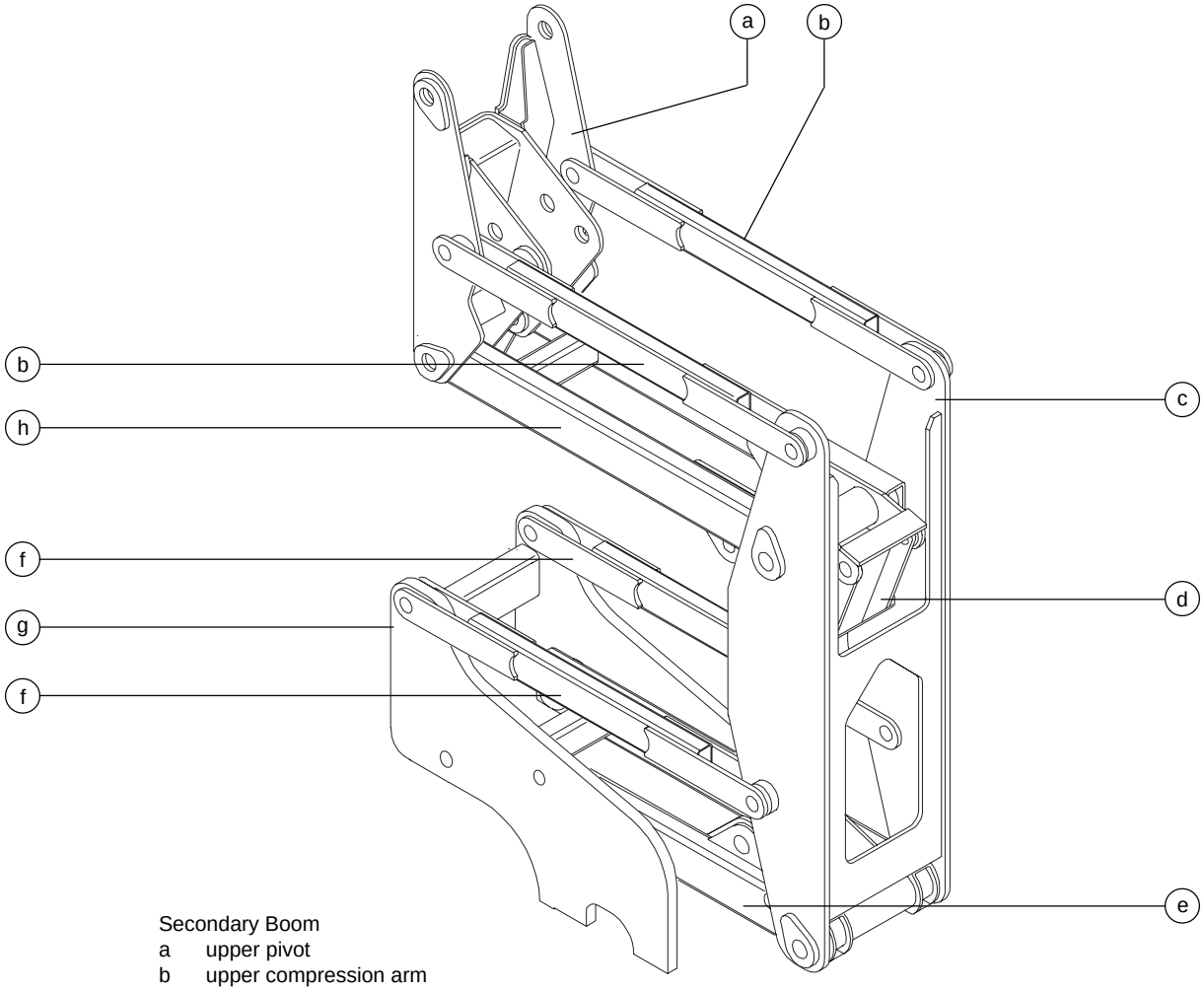
⚠CAUTION Crushing hazard. The upper secondary boom and the upper pivot may fall if the pivot pin is completely removed.

NOTICE 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

REV A



Secondary Boom
- a upper pivot
- b upper compression arm
- c mid-pivot
- d compression link
- e lower secondary boom
- f lower compression arm
- g turntable pivot
- h upper secondary boom

5-1
Secondary Boom

How to Disassemble the Secondary Boom

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

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

1 Remove the rear turntable cover.

2 Place a suitable lifting device under the platform for support.

3 Disconnect the battery.

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 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 Tag and disconnect each wire from the cables in the platform control box.

⚠WARNING Electrocution 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 hydraulic hoses at the union located on the bottom side of the primary boom. Cap the fittings on the union.

⚠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 primary boom extend drive speed limit switch mounted on the side of the primary boom at the pivot end. Do not disconnect the wiring.

SECONDARY BOOM COMPONENTS REV A

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

16 Using the overhead crane, carefully lift the secondary and primary boom assembly until the master cylinder and primary boom 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. Cap the fittings on the cylinders.

⚠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 Using the overhead crane, lower the boom assembly to the fully stowed position.

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

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

21 Position a lifting strap from the overhead crane approximately 2 feet / 60 cm from the platform end of the primary boom. Measure from the platform end of the primary boom tube.

22 Remove the pin retaining fasteners from the upper pivot to upper secondary compression arm pivot pins. Place a rod through the compression arm pivot pin and twist to remove the pins.

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

24 Remove the pin retaining fasteners from the upper pivot to the 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. The primary boom assembly could become unbalanced and fall when removed from the machine if not properly supported by the overhead crane. Do not remove the assembly from the machine until it is properly balanced.

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

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

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

28 Position a lifting strap from an overhead crane at the center of the control box side upper compression arm.

29 Place a rod through the compression arm pivot pin and twist to remove the pin. Remove the compression arm from the machine.

⚠WARNING Crushing hazard. The upper compression arm could become unbalanced and fall when removed from the machine if not properly supported by the overhead crane.

30 Repeat step 29 for the engine side upper compression arm.

31 Remove the plastic plug in the bulkhead to access the secondary boom lift cylinder rod-end pivot pin.

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

33 Remove the pin retaining fasteners from the lower pivot pin of the compression link. Use a soft metal drift to remove the pin.

34 Attach a lifting strap from an overhead crane to the upper secondary boom.

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

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

⚠WARNING Crushing hazard. The upper secondary boom with compression link could become unbalanced and fall when removed from the machine if not properly supported by the overhead crane.

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

38 Remove the cable covers from the top of the lower secondary boom. Pull all the cables and hoses towards the counterweight end of the turntable.

39 **Gasoline/LPG models:** Remove the LPG hose from the tank and then remove the LPG tank.

40 Remove the battery hold down and battery.

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

42 Attach a lifting strap from an overhead crane to the lug on the rod-end of the secondary boom lift cylinder.

SECONDARY BOOM COMPONENTS REV A

43 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.

44 Use a slide hammer to remove the secondary boom lift cylinder barrel-end pivot pins. Remove the secondary boom lift cylinder from the machine.

⚠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.

NOTICE Access the pins using the access holes located in the bulkheads, one on each side.

45 Attach a lifting strap from an overhead crane to the mid-pivot for support. Do not lift it.

46 Remove the pin retaining fasteners from the mid-pivot to lower compression arm pivot pins. Place a rod through the compression arm pivot pins and twist to remove the pins.

47 Remove the pin retaining fasteners from the mid-pivot to lower secondary boom pivot pins. Use a soft metal drift to remove the pin.

48 Remove the mid-pivot from the machine.

⚠WARNING Crushing hazard. The mid-pivot could become unbalanced and fall when removed from the machine if not properly supported by the overhead crane.

49 Attach a lifting strap from an overhead crane to the control box side lower compression arm.

50 Remove the pin retaining fasteners from the lower compression arm to turntable pivot pins. Place a rod through the compression arm pivot pin and twist to remove the pin. Remove the compression arm from the machine.

⚠WARNING Crushing hazard. The lower compression arm could become unbalanced and fall when removed from the machine if not properly supported by the overhead crane.

51 Repeat step 50 for the engine side lower compression arm.

52 Attach a liftiing strap from an overhead crane to the lower secondary boom.

53 Remove the pin retaining fasteners from the lower secondary boom to turntable pivot pin. Use a soft metal drift to remove the pin.

54 Remove the lower secondary boom from the machine.

⚠WARNING Crushing hazard. The lower secondary boom could become unbalanced and fall when removed from the machine if not properly supported by the overhead crane.

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.

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

1 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. Turn the machine off.

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

4 Open the engine side turntable cover. Pull up on the engine tray lock pin and swing the engine tray out and away from the machine. Secure the engine tray from moving.

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

6 Use a slide hammer to remove the barrel-end pivot pins.

NOTICE Access the pins using the access holes located in the bulkheads, one on each side.

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

8 Carefully lower the cylinder down through the secondary boom, just enough to access the hydraulic hoses.

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

9 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.

10 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.

Kubota D-905 Engine

REV A

6-1
Timing Adjustment

Complete information to perform this procedure is available in the *Kubota D-905 Workshop Manual* (Kubota part number: 97897-02432).

Kubota D905 Workshop Manual	
Genie part number	31742

6-2
Glow Plugs

Refer to maintenance procedure B-8, *Check The Glow Plugs - Diesel Models.*

6-3
RPM Adjustment

See the scheduled maintenance procedure B-9, *Check and Adjust the Engine RPM.*

6-4
Flex Plate

The flex plate acts as a coupler between the engine and the pump. It is bolted to the engine flywheel and has a splined center to drive the pump.

How to Remove the Flex Plate

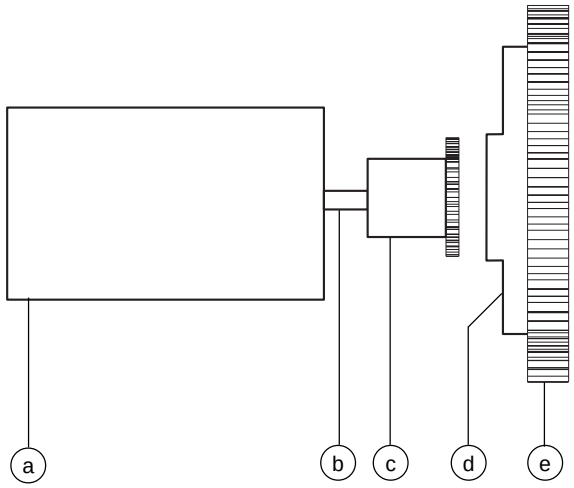
1 Support the drive pump with an appropriate lifting device. Then remove all of the pump mounting plate to engine bell housing bolts.

2 Carefully pull the pump away from the engine and secure it from moving.

3 Remove the flex plate mounting fasteners, then remove the flex plate from the engine.

How to Install the Flex Plate

1 Install the flex plate onto the flywheel with the raised spline away from the flywheel.



a pump
b pump shaft
c pump coupler
d flex plate
e flywheel

2 Install the coupler onto the pump shaft with the set screw towards the pump. Leave a 1/32 inch / 0.8 mm gap between the coupler and pump end plate.

3 Apply Loctite® removable thread sealant to the coupler set screw. Torque the set screw to 65-70 ft-lbs / 88-95 Nm.

CAUTION Component damage hazard. Do not force the drive pump during installation or the flex plate teeth may become damaged.

6-5 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.

CAUTION 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.

CAUTION Component damage hazard. Do not crank the engine with the low oil pressure light on.

Kubota DF750 / DF752 Engine

REV A

7-1 Choke Adjustments

The choke is solenoid-operated and functions only in the gasoline mode. This choke will not operate in LPG mode.

NOTICE Choke adjustments are affected by climate. Richer adjustment will be necessary in colder climates, leaner adjustment in warmer climates.

7-2 Timing Adjustment

NOTICE The ignition timing cannot be adjusted. The timing adjustment screw is factory sealed with a tamper resistant cap installed by the manufacturer. If service or repair is needed, contact your local Kubota dealer.

7-3 Carburetor Adjustment

NOTICE The carburetor cannot be adjusted. The carburetor mixture screws are factory sealed with tamper resistant caps installed by the manufacturer. If service or repair is needed, contact your local Kubota dealer.

7-4 RPM Adjustment

See the scheduled maintenance procedure B-9, *Check and Adjust the Engine RPM*.

7-5 Flex Plate

The flex plate acts as a coupler between the engine and the pump. It is bolted to the engine flywheel and has a splined center to drive the pump.

How to Remove the Flex Plate

1 Support the drive pump with a suitable lifting device.

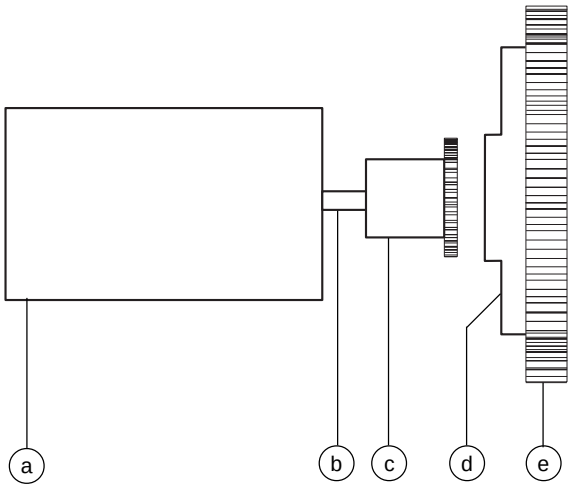
2 Remove all of the pump mounting plate to engine fasteners.

3 Carefully pull the pump assembly away from the engine and secure it from moving.

3 Remove the flex plate mounting fasteners. Remove the flex plate from the flywheel.

How to Install the Flex Plate

1 Install the flex plate onto the flywheel with the raised spline against the flywheel.



a pump
b pump shaft
c pump coupler
d flex plate
e flywheel

2 Apply removable Loctite® thread sealant to the flex plate mounting fasteners. Torque the flex plate mounting fasteners to 36 ft-lbs / 49 Nm.

3 Install the coupler onto the pump shaft with the set screw towards the pump. Leave a 1/32 inch / 0.8 mm gap between the coupler and pump end plate.

4 Apply removable Loctite® thread sealant to the coupler set screw. Torque the set screw to 65-70 ft-lbs / 88-95 Nm.

CAUTION Component damage hazard. Do not force the drive pump during installation or the flex plate teeth may become damaged.

7-6 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.

CAUTION 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.

CAUTION Component damage hazard. Do not crank the engine with the low oil pressure light on.

Hydraulic Pumps

REV A

8-1 Auxiliary Pump

How to Test the Auxiliary Pump

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

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

1 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.

8-2
Function Pump

How to Test the Function Pump

NOTICE When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *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 **Gasoline/LPG models:** Disconnect the ignition coil wire from the center of the ignition coil.

Diesel models: Hold the manual fuel shutoff lever clockwise to the closed position.

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

5 Observe the pressure gauge while cranking the engine. Immediately stop if the pressure reaches or exceeds 3000 psi / 206 bar.

⊙ Result: The pressure gauge reads 3000 psi / 206 bar, immediately stop cranking the engine. 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.

CAUTION Component damage hazard. Hydraulic pressure in excess of 3000 psi / 206 bar may result in severe component damage.

6 Remove the pressure gauge and install the hydraulic hose.

7 **Gasoline/LPG models:** Install the ignition coil wire to the center of the ignition coil.

Diesel models: Release the manual fuel shutoff lever.

How to Remove the Function Pump

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

8-3 Drive Pump

The drive pump is a bi-directional variable displacement piston pump. The pump output is controlled by an electronic displacement controller, located on the pump. The only adjustment that can be made to the pump is the neutral or null adjustment. Any internal service to the pump should only be performed at an authorized Sauer Danfoss service center.

NOTICE Models before serial number 1547 were equipped with an EDC (electrical displacement control) proportional control. Models after serial number 1546 were equipped with a NFPE (non-feedback proportional electrical) proportional control.

How to Remove the Drive Pump

CAUTION Component damage hazard. The work area and surfaces where this procedure will be performed must be clean and free of debris that could get into the hydraulic system that could result in severe component damage. Dealer service is recommended.

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

1 **Before serial number 1547:** Disconnect the electrical connection at the electronic displacement controller (EDC) located on the drive pump.

After serial number 1546: Disconnect the electrical connectors from the coils of the NFPE controller (NFPE) located on the drive pump.

2 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.

3 Support the pump with a suitable lifting device.

4 Remove the drive pump mounting bolts. Carefully remove the pump.

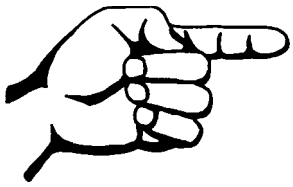
How to Prime the Pump

1 Connect a 0 to 6000 psi / 0 to 414 bar pressure gauge to the test port on the drive pump.

2 **Gasoline/LPG models:** Disconnect the ignition coil wire from the center of the ignition coil.

Diesel models: Hold the manual fuel shutoff lever clockwise to the closed position.

3 Crank the engine with the starter motor for 15 seconds, wait 15 seconds, then crank the engine an additional 15 seconds or until the pressure reaches 320 psi / 22 bar.



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Manifolds

REV A

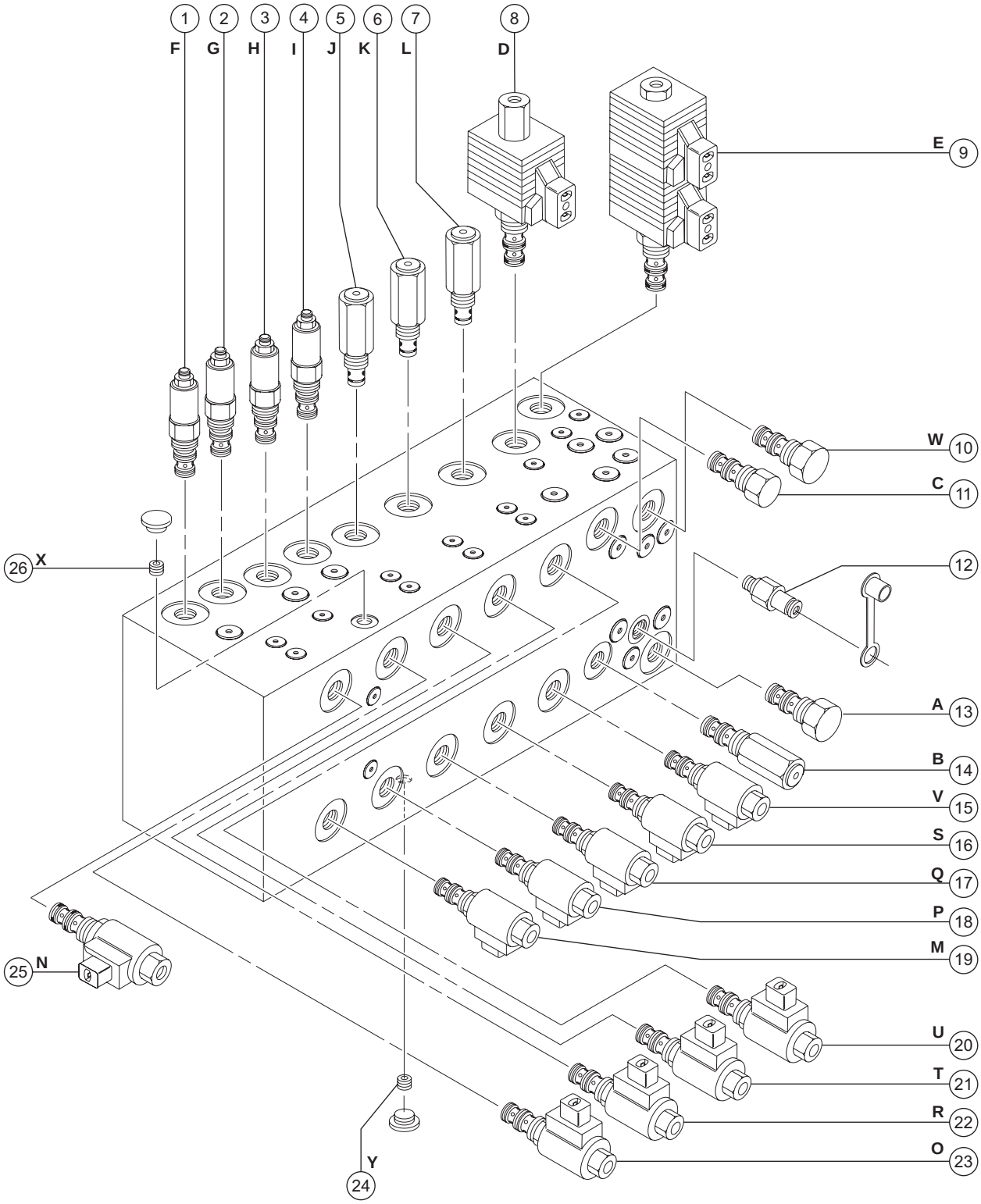
9-1
Function Manifold Components

The function manifold is mounted to the turntable under the ground control box.

Index No.	Description	Schematic Item	Function	Torque
1	Counterbalance valve, 3000 psi / 207 bar	F	Platform level up	25-30 ft-lbs / 34-41 Nm
2	Counterbalance valve, 3000 psi / 207 bar	G	Platform level down	25-30 ft-lbs / 34-41 Nm
3	Counterbalance valve, 1500 psi / 103 bar	H	Turntable rotate left	25-30 ft-lbs / 34-41 Nm
4	Counterbalance valve, 1500 psi / 103 bar (after serial number 673)	I	Turntable rotate right	25-30 ft-lbs / 34-41 Nm
5	Relief valve, 1600 psi / 110 bar	J	Secondary boom down	25-30 ft-lbs / 34-41 Nm
6	Relief valve, 1400 psi / 97 bar (before serial number 2901) Relief valve, 1600 psi / 110 bar (after serial number 2900)	K	Primary boom down	25-30 ft-lbs / 34-41 Nm
7	Relief valve, 1800 psi / 124 bar (before serial number 2901) Relief valve, 2800 psi / 193 bar (from serial number 2901 to 3215)	L	Primary boom extend	25-30 ft-lbs / 34-41 Nm
8	Proportional solenoid valve	D	System flow regulating circuit	35-40 ft-lbs / 47-54 Nm
9	Solenoid valve, 3 position 4 way	E	Steer left/right	10-12 ft-lbs / 14-16 Nm
10	Flow regulator valve, 0.1 gpm / 0.38 L/min	W	Differential sensing circuit	35-40 ft-lbs / 47-54 Nm
11	Differential sensing valve	C	All functions	35-40 ft-lbs / 47-54 Nm
12	Diagnostic fitting		Testing	
13	Priority flow regulator valve, 1 gpm / 4.5 L/min	A	Steering	34-40 ft-lbs / 47-54 Nm
14	Relief valve, 3200 psi / 221 bar	B	System relief	25-30 ft-lbs / 34-41 Nm
15	Solenoid valve, 2 position 3 way	V	Primary boom retract	8-10 ft-lbs / 11-14 Nm
16	Solenoid valve, 2 position 3 way	S	Primary boom up	8-10 ft-lbs / 11-14 Nm

This list continues. Please turn the page.

REV A MANIFOLDS

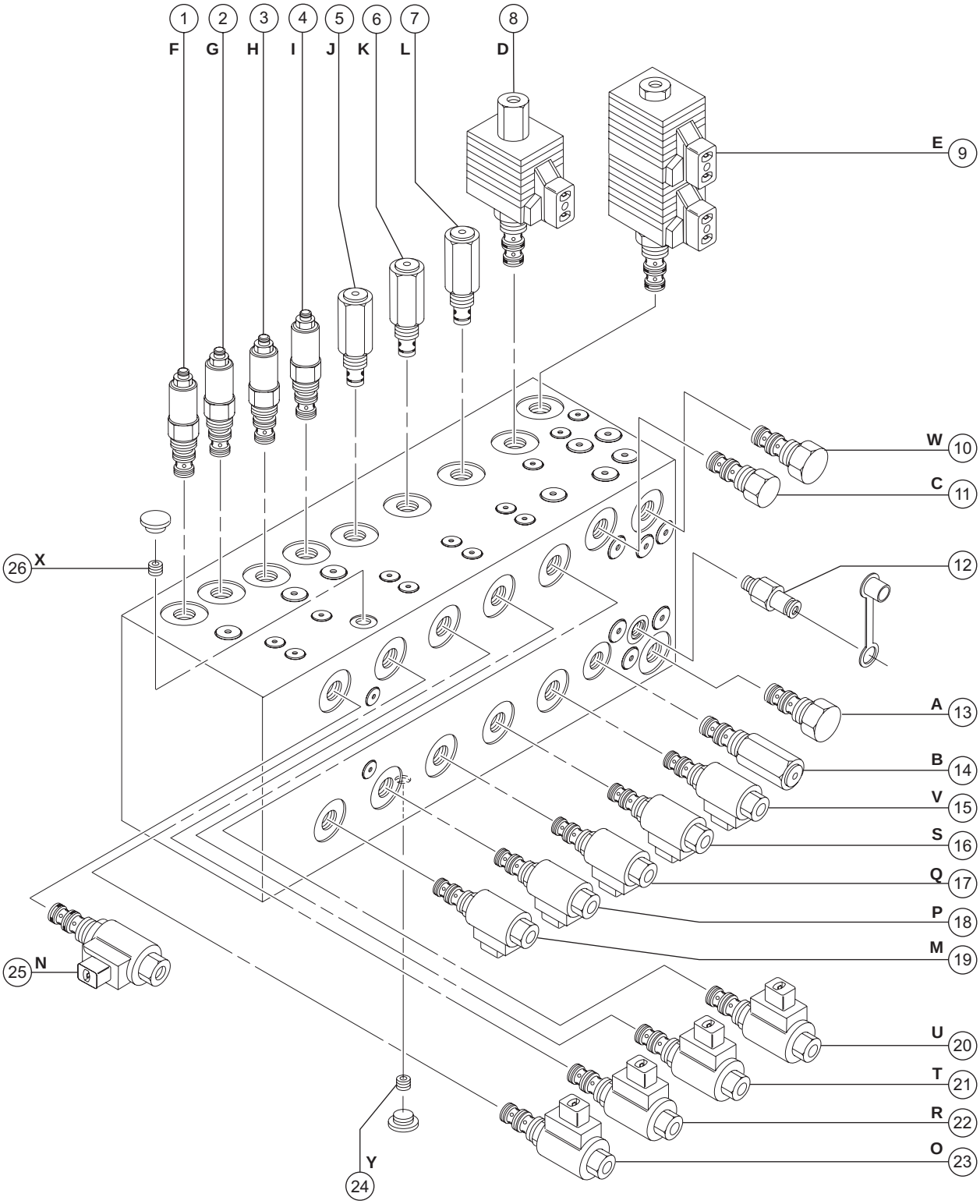


Function Manifold Components, continued

The function manifold is mounted to the turntable under the ground control box.

Index No.	Description	Schematic Item	Function	Torque
17	Solenoid valve, 2 position 3 way	Q	Secondary boom up	8-10 ft-lbs / 11-14 Nm
18	Solenoid valve, 2 position 3 way	P	Turntable rotate left	8-10 ft-lbs / 11-14 Nm
19	Solenoid valve, 2 position 3 way	M	Platform level up	8-10 ft-lbs / 11-14 Nm
20	Solenoid valve, 2 position 3 way	U	Primary boom extend	8-10 ft-lbs / 11-14 Nm
21	Solenoid valve, 2 position 3 way	T	Primary boom down	8-10 ft-lbs / 11-14 Nm
22	Solenoid valve, 2 position 3 way	R	Secondary boom down	8-10 ft-lbs / 11-14 Nm
23	Solenoid valve, 2 position 3 way	O	Turntable rotate right	8-10 ft-lbs / 11-14 Nm
24	Orifice, 0.052 inch / 1.32 mm	Y	Turntable rotate circuit	
25	Solenoid valve, 2 position 3 way	N	Platform level down	8-10 ft-lbs / 11-14 Nm
26	Orifice, 0.052 inch / 1.32 mm	X	Turntable rotate circuit	

REV A MANIFOLDS



9-2
Valve Adjustments - Function Manifold

How to Adjust the Primary Boom Down Relief Valve

1 Connect a 0 to 3000 psi / 0 to 206 bar pressure gauge to the test port on the function manifold.

2 Start the engine from the ground controls.

3 Hold the function enable/rpm select toggle switch to the high rpm position and activate and hold the primary boom toggle switch in the down direction with the primary boom fully lowered.

4 Observe the pressure reading on the pressure gauge. Refer to Section 2, *Specifications.*

5 Turn the machine off. Hold the relief valve and remove the cap (item K).

6 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.

7 Repeat steps 2 through 6 to confirm the relief valve pressure setting.

How to Adjust the Primary Boom Extend Relief Valve (before serial number 3216)

1 Connect a 0 to 3000 psi / 0 to 206 bar pressure gauge to the test port on the function manifold.

2 Start the engine from the ground controls.

3 Hold the function enable/rpm select toggle switch to the high rpm position and activate and hold the primary boom extend toggle switch in the extend direction with the primary boom fully extended.

4 Observe the pressure reading on the pressure gauge. Refer to Section 2, *Specifications.*

5 Turn the machine off. Hold the relief valve and remove the cap (item L).

6 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.

7 Repeat steps 2 through 6 to confirm the relief valve pressure setting.

How to Adjust the Secondary Boom Down Relief Valve

1 Connect a 0 to 3000 psi / 0 to 206 bar pressure gauge to the test port on the function manifold.

2 Start the engine from the ground controls.

3 Hold the function enable/rpm select toggle switch to the high rpm position and activate and hold the secondary boom toggle switch in the down direction with the secondary boom fully lowered.

4 Observe the pressure reading on the pressure gauge. Refer to Section 2, *Specifications.*

5 Turn the machine off. Hold the relief valve and remove the cap (item J).

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

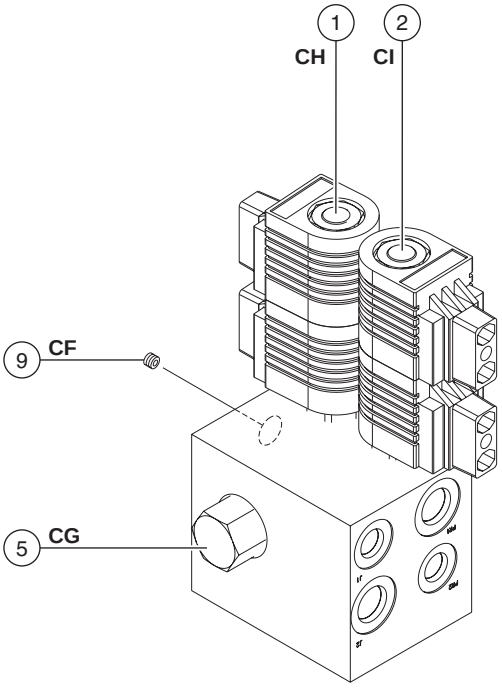
⚠WARNING Tip-over hazard. Do not adjust the relief valve higher than specified.

7 Repeat steps 2 through 6 to confirm the relief valve pressure setting.

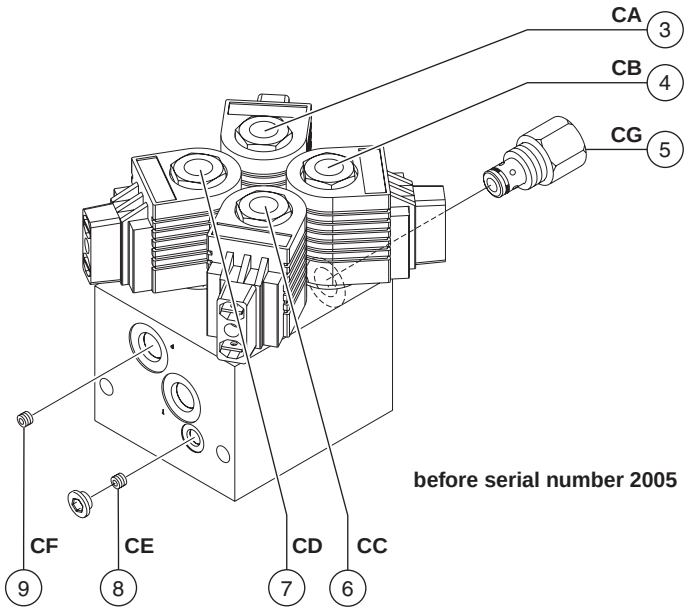
9-3
Jib Boom / Platform Rotate Manifold Components

The jib boom/platform rotate manifold is mounted to the jib boom.

Index No.	Description	Schematic Item	Function	Torque
1	Solenoid valve, 3 position 4 way	CH	Jib boom up/down	8-10 ft-lbs / 11-14 Nm
2	Solenoid valve, 3 position 4 way	CI	Platform rotate left/right	8-10 ft-lbs / 11-14 Nm
3	Solenoid valve, 2 position 3 way	CA	Jib boom down	8-10 ft-lbs / 11-14 Nm
4	Solenoid valve, 2 position 3 way	CB	Platform rotate left	8-10 ft-lbs / 11-14 Nm
5	Flow regulator valve, 0.3 gpm / 1.14 L/min	CG	Platform rotate circuit	8-10 ft-lbs / 11-14 Nm
6	Solenoid valve, 2 position 3 way	CC	Platform rotate right	8-10 ft-lbs / 11-14 Nm
7	Solenoid valve, 2 position 3 way	CD	Jib boom up	8-10 ft-lbs / 11-14 Nm
8	Orifice, 0.025 in / 0.64 mm (from serial number 1187 to 1891) Orifice, 0.022 in / 0.56 mm (from serial number 1892 to 1969)	CE	Platform rotate circuit	
9	Orifice, 0.028 in / 0.71 mm (located in "P" port)	CF	Platform rotate and jib boom circuit	



after serial number 2006

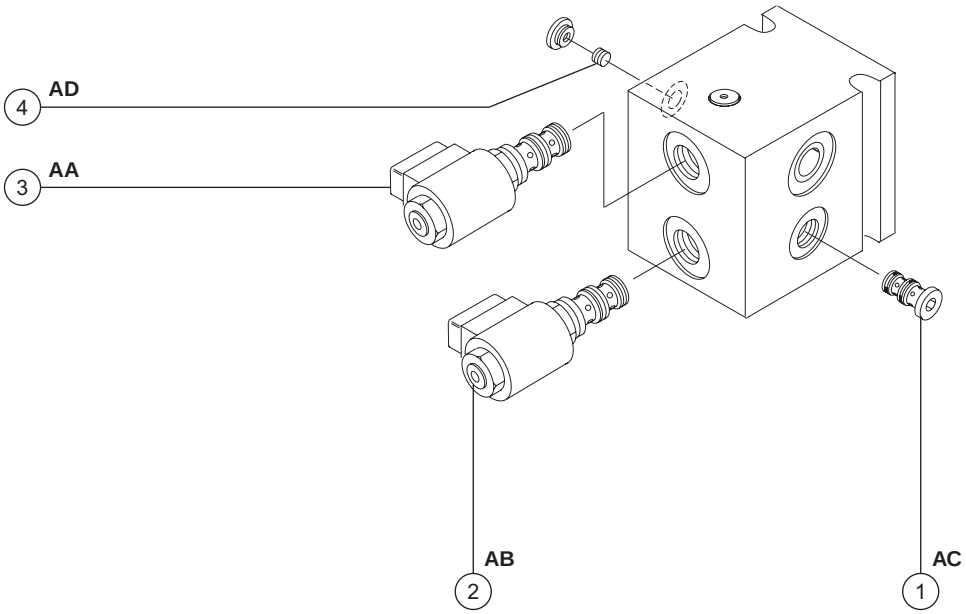


before serial number 2005

9-4
Brake / 2-speed Manifold Components

The brake / 2-speed manifold is located under the drive chassis cover at the non-steer end.

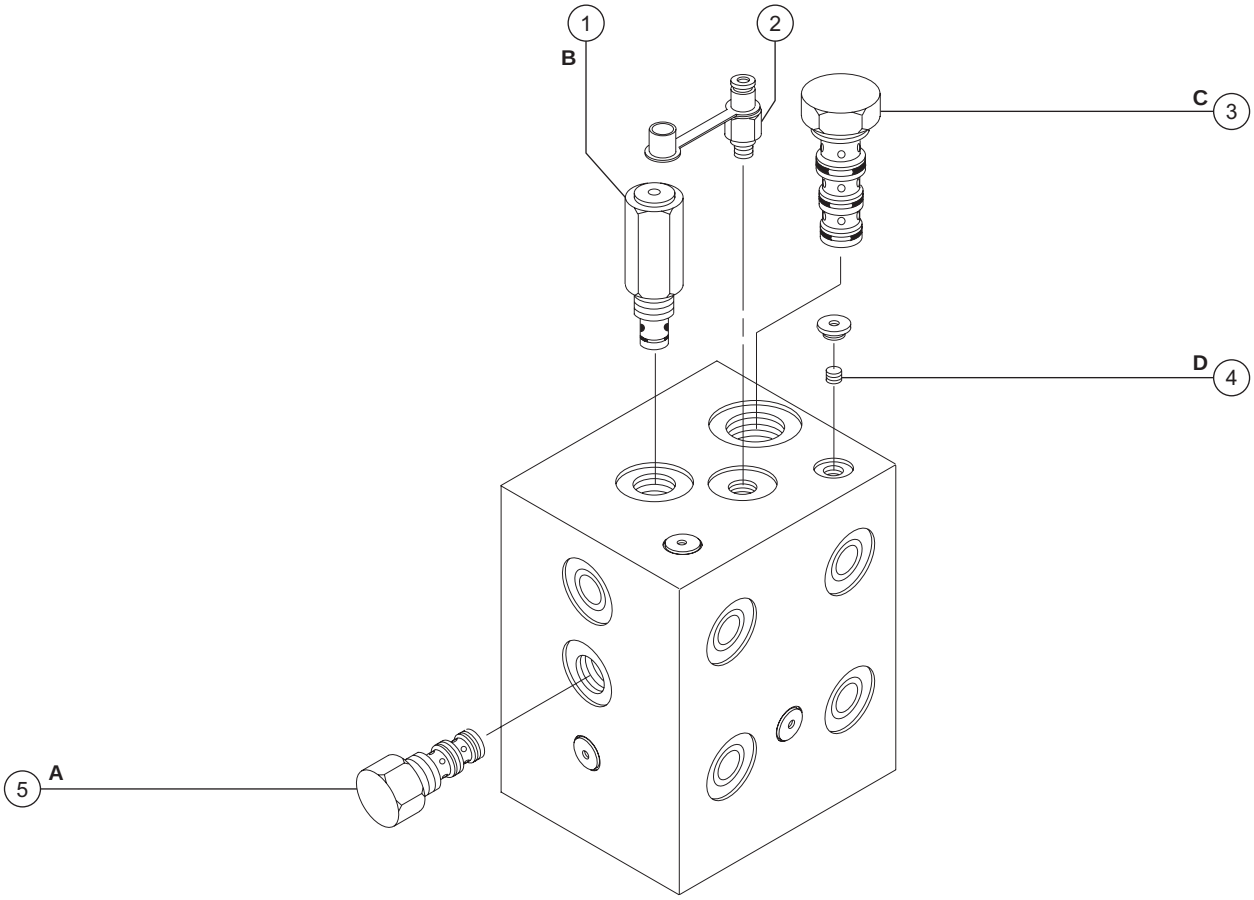
Index No.	Description	Schematic Item	Function	Torque
1	Check Valve	AC	Pressure circuit	8-10 ft-lbs / 10-15 Nm
2	Solenoid valve, 2 position 3 way	AB	2-speed motor shift	25-30 ft-lbs / 34-41 Nm
3	Solenoid valve, 2 position 3 way	AA	Brake	25-30 ft-lbs / 34-41 Nm
4	Orifice Plug, 0.025 inch / 0.64 mm	AD	Tank return circuit	



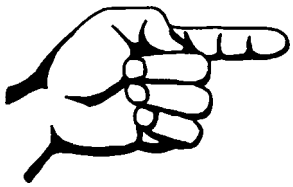
9-5
2WD Traction Manifold Components

The 2WD traction is mounted inside the drive chassis at the non-steer end.

Index No.	Description	Schematic Item	Function	Torque
1	Relief valve, 210 psi / 14.5 bar	B	Charge pressure circuit	35-40 ft-lbs / 47-54 Nm
2	Diagnostic fitting		Testing	
3	Flow divider/combiner valve	C	Controls flow to drive motors in forward and reverse	130-140 ft-lbs / 176-190 Nm
4	Orifice 0.070 inch / 1.78 mm	D	Equalizes pressure on both sides divider/combiner valve C.	
5	Shuttle valve, 3 position 3 way	A	Charge pressure circuit that gets hot oil out of low pressure side of drive pump and allows low pressure flow path for brake release and 2-speed motor shift	10-12 ft-lbs / 14-16 Nm



REV A MANIFOLDS



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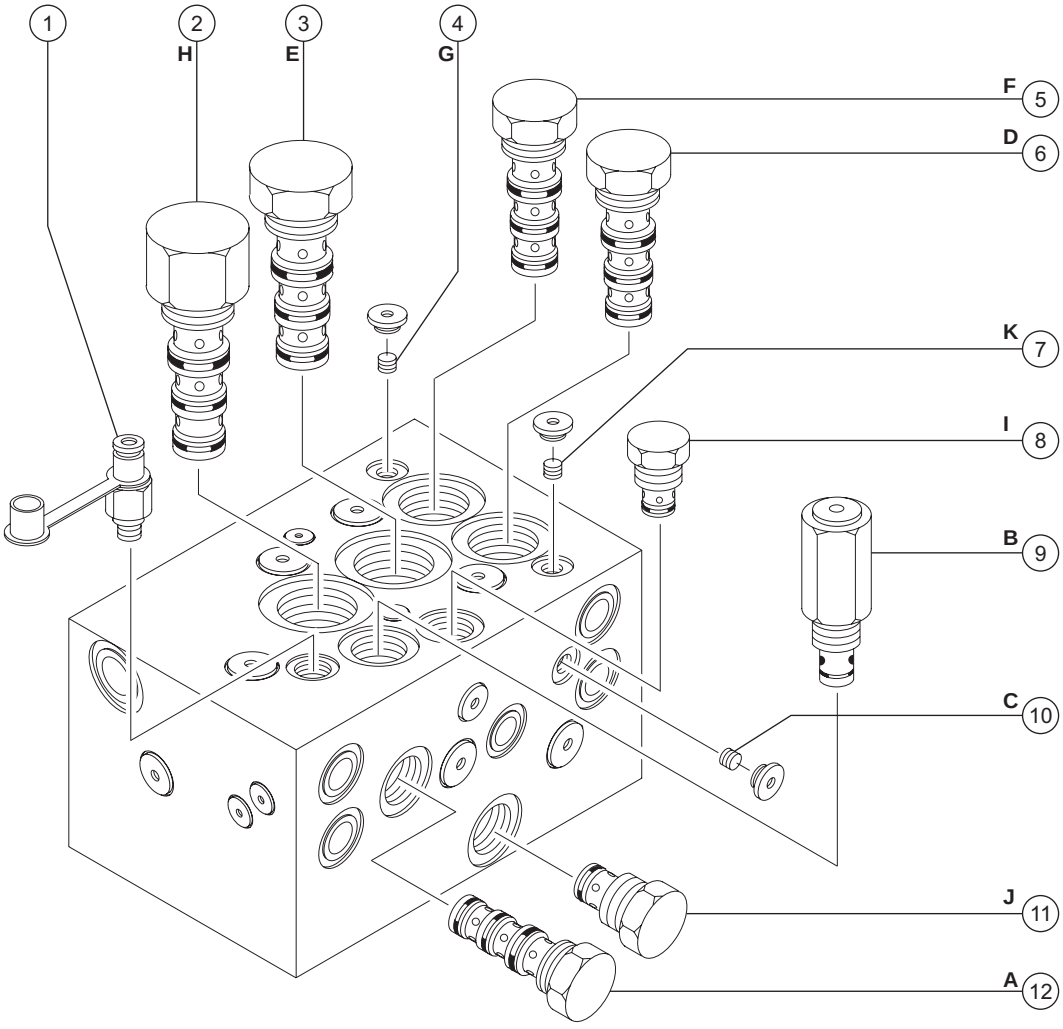
9-6
4WD Traction Manifold Components

The 4WD traction manifold is mounted inside the drive chassis at the non-steer end.

Index No.	Description	Schematic Item	Function	Torque
1	Diagnostic fitting		Testing	
2	Directional control valve, 2 position 3 way	H	Diverts all flow to steer end drive motors when in high range	130-140 ft-lbs / 176-190 Nm
3	Flow divider/combiner valve	E	Controls flow to flow divider/combiner valves D and F	130-140 ft-lbs / 176-190 Nm
4	Orifice plug, 0.052 inch / 1.32 mm	G	Equalizes pressure across flow divider/combiner valve F	
5	Flow divider/combiner valve	F	Controls flow to steer end drive motors in forward and reverse	15-18 ft-lbs / 20-24 Nm
6	Flow divider/combiner valve	D	Controls flow to non-steer end drive motors in forward and reverse	15-18 ft-lbs / 20-24 Nm
7	Orifice plug, 0.045 inch / 1.14 mm	K	Equalizes pressure across flow divider/combiner valve D	
8	Check valve	I	Direction control circuit	25-30 ft-lbs / 34-41 Nm
9	Relief valve, 210 psi / 14.5 bar	B	Charge pressure circuit	35-40 ft-lbs / 47-54 Nm
10	Orifice plug, 0.052 inch / 1.32 mm	C	Equalizes pressure across flow divider/combiner valve E	
11	Check valve, pilot operated	J	Smoothes the shift from low to high range	10-12 ft-lbs / 14-16 Nm
12	Shuttle valve, 3 position 3 way	A	Charge pressure circuit that gets hot oil out of low pressure side of drive pump and allows low pressure flow path for brake release and 2-speed motor shift	10-12 ft-lbs / 14-16 Nm

REV A MANIFOLDS



9-7 Valve Adjustments - Traction Manifold

How to Adjust the Charge Pressure Relief Valve

1 Connect a 0 to 600 psi / 0 to 41 bar pressure gauge to the test port located on the traction 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.

2 Start the engine from the platform controls.

3 Drive the machine slowly in either direction and observe the pressure reading on the pressure gauge. Refer to Section 2, *Specifications.*

4 Turn the engine off. Hold the relief valve and remove the cap (item B).

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

6 Start the engine. Drive the machine in either direction and check the relief valve pressure.

7 Turn the engine off and remove the pressure gauge.

9-8 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 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 Specification

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

Valve coil specifications	
2 position 3 way solenoid valve, 10V DC (schematic items V, S, Q, P, M, U, T, R, O, N, AA, AB, CA, CB, CC and CD)	6Ω
3 position 4 way solenoid valve, 10V DC (schematic item E, CH, CI)	6Ω
Proportional solenoid valve, 12V DC (schematic item D)	5Ω

How to Test a Coil Diode

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

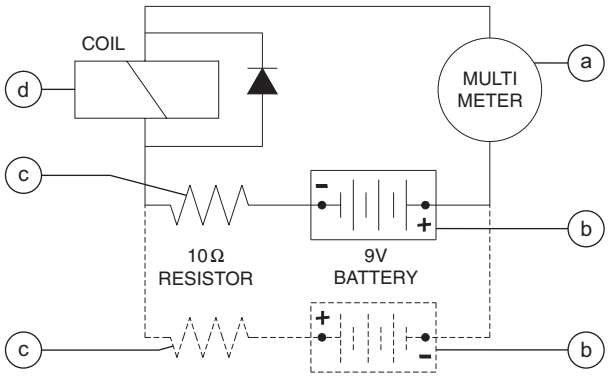
⚠WARNING Electrocution hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

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

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

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

Resistor, 10Ω
Genie part number 27287



a multimeter
b 9V DC battery
c 10Ω resistor
d coil

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

3 Set a multimeter to read DC current.

NOTICE 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.

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

5 Momentarily connect the positive lead from the multimeter to the positive terminal on the 9V DC battery. Note and record the amperage 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

REV A

10-1
Fuel Tank

How to Remove the Fuel Tank

1 Raise the secondary boom so the upper pivot is approximately 12 feet / 4 m off the ground.

2 **Gasoline/LPG models:** Turn the LPG shutoff valve to the closed position on the LPG tank.

3 **Gasoline/LPG models:** Remove the LPG hose from the tank and then remove the tank from the machine.

4 **Gasoline/LPG models:** Remove the mounting fasteners from the LPG bottle bracket then remove the bracket from the machine.

5 Turn the manual fuel shutoff valve (if equipped) to the closed position on the fuel tank.

6 Using an approved hand-operated pump, drain the fuel tank into a suitable container. Refer to Section 2, *Specifications*.

⚠DANGER Explosion and fire hazard. Engine fuels are combustible. Remove the fuel tank 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.

NOTICE Be sure to only use a hand-operated pump suitable for use with gasoline and diesel fuel.

7 Tag, disconnect and plug the fuel hoses from the fuel tank. Cap the fittings on the fuel tank. Clean up any fuel that may have spilled.

8 **Metal fuel tank:** Remove the fuel tank strap retaining fasteners located under the tank mounting tray.

Plastic fuel tank: Remove the fuel tank retaining plate fasteners at the bulkhead.

9 Remove the fuel tank from the machine using an appropriate lifting device.

NOTICE **Metal fuel tank:** Clean the fuel tank and inspect for rust and corrosion before installing.

NOTICE **Plastic fuel tank:** Clean the fuel tank and inspect for cracks and damage before installing.

10-2
Hydraulic Tank

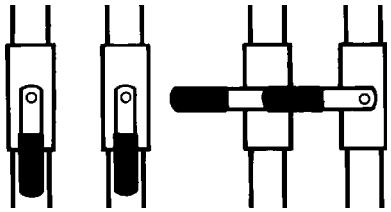
The primary functions of the hydraulic tank are to cool, clean and deaereate the hydraulic fluid during operation. It utilizes internal suction strainers for the pump supply suction lines and has an external return line filter.

How to Remove the Hydraulic Tank

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

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

CAUTION Component damage hazard. The engine must not be started with the hydraulic tank shut-off valves in the closed position or component damage will occur. If the tank valves are closed, remove the key from the key switch and tag the machine to inform personnel of the condition.



open closed

3 Remove the drain plug from the hydraulic tank and completely drain the tank into a container of suitable capacity. Refer to Section 2, *Specifications*.

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

4 Tag, disconnect and plug the hoses from the return filter. Cap the fittings on the return filter.

5 Tag, disconnect and plug the suction hoses from the bottom of the tank. Cap the fittings.

6 Remove the fasteners from the hydraulic tank hold down straps. Remove the straps.

7 Remove the turntable cover using a suitable lifting device.

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

8 Support and secure the hydraulic tank to a suitable lifting device. 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.

Turntable Rotation Components

REV A

11-1
Rotation Hydraulic Motor

The turntable rotation hydraulic motor is the only serviceable component of the turntable rotation assembly. The worm gear may not be removed from the housing. In order to remove the housing, the entire turntable assembly has to be removed.

How to Remove the Turntable Rotation Motor

NOTICE 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 fasteners. Remove the motor from the worm gear housing.

Axle Components

REV A

12-1
Hub and Bearings, 2WD Models

How to Remove the Hub and Bearings

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 drive chassis for support.

⚠CAUTION Crushing damage. 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.

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. Remove the rear bearing.

How to Install the Hub and Bearings

NOTICE 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.

NOTICE Always replace the bearing grease seal when removing the hub.

4 Slide the hub onto the yoke spindle.

CAUTION Component damage. 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.

NOTICE 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 lock it in.

NOTICE 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 Section 2, *Specifications*.

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 printed in the appropriate *Genie Z-34/22 IC Operator's Manual* on your machine.
- ☑ Be sure that all necessary tools and test equipment are available and ready for use.

About This Section

There are two groups of schematics in this section. An illustration legend precedes each group of drawings.

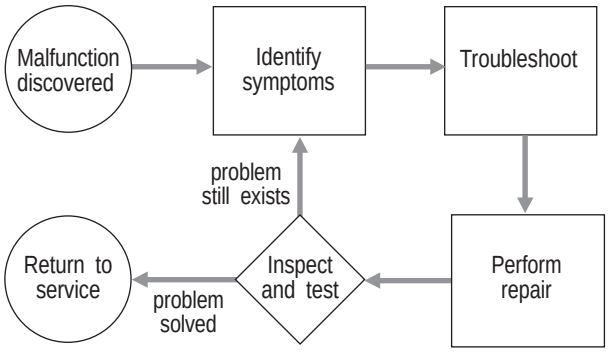
Electrical Schematics

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

Hydraulic Schematics

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

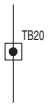
General Repair Process



Electrical Symbols Legend

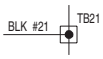
REV A

Wire color with cable number



Terminal

Quick disconnect terminal



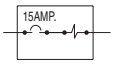
T-circuits connect at terminal

T-circuits connect

Connection no terminal

Circuits crossing no connection

Diode

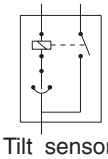


Circuit breaker

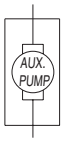
Solenoid or relay coil

Horn or alarm

Light

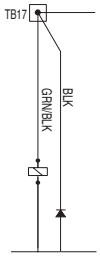


Tilt sensor

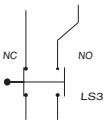


Auxiliary pump

12V Battery



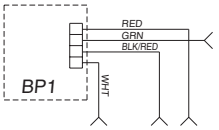
Ground supression circuit



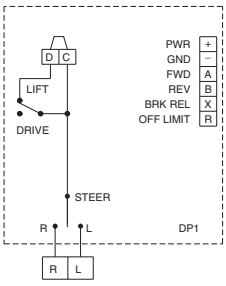
Limit switch

Limit switch normally closed held open

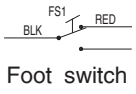
Limit switch normally open held closed



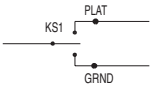
Rotary OEM flow control



Drive control



Foot switch

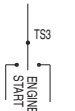


Key switch

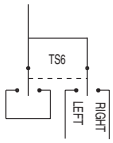
Horn button normally open

red Emergency Stop button normally closed

Relay contact normally open



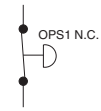
Toggle switch SPDT



Toggle switch DPDT

Spark plug

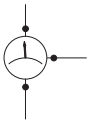
Water temperature switch, normally open



Oil pressure switch, normally closed

Vacuum switch normaly open

Resistor



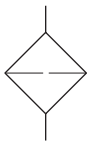
Gauge

Hour meter

Hydraulic Symbols Legend

REV A

Pressure gauge



Filter

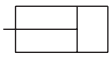
Fixed displacement pump

Bi-directional motor

Bi-directional, variable displacement pump

2-speed, bi-directional motor

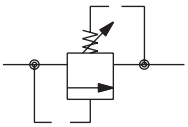
Pump prime mover engine or motor



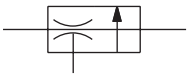
Double acting cylinder

Orifice with size

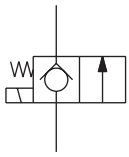
Check valve



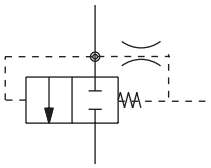
Relief valve



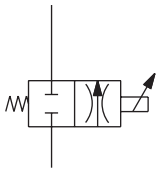
Priority flow divider



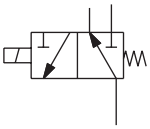
Solenoid operated dump valve



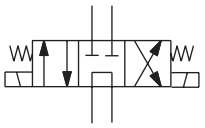
Differential sensing valve



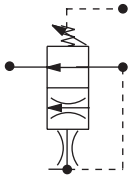
Solenoid operated proportional valve



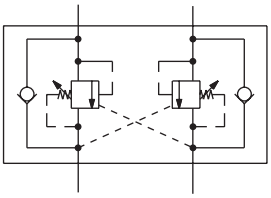
Solenoid operated 2 pos., 3 way, directional valve



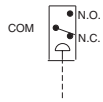
Solenoid operated 3 pos., 4 way, directional valve (D01)



Pilot operated flow control valve



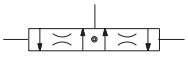
Counterbalance valve



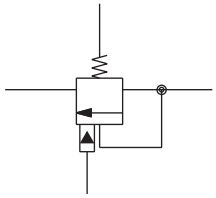
Pressure switch

Brake

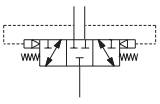
Variable orifice or shut off valve



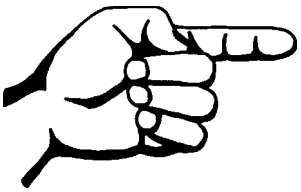
Flow divider combiner

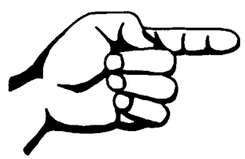


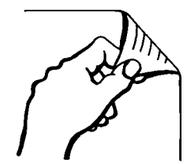
Sequencing valve



Shuttle valve

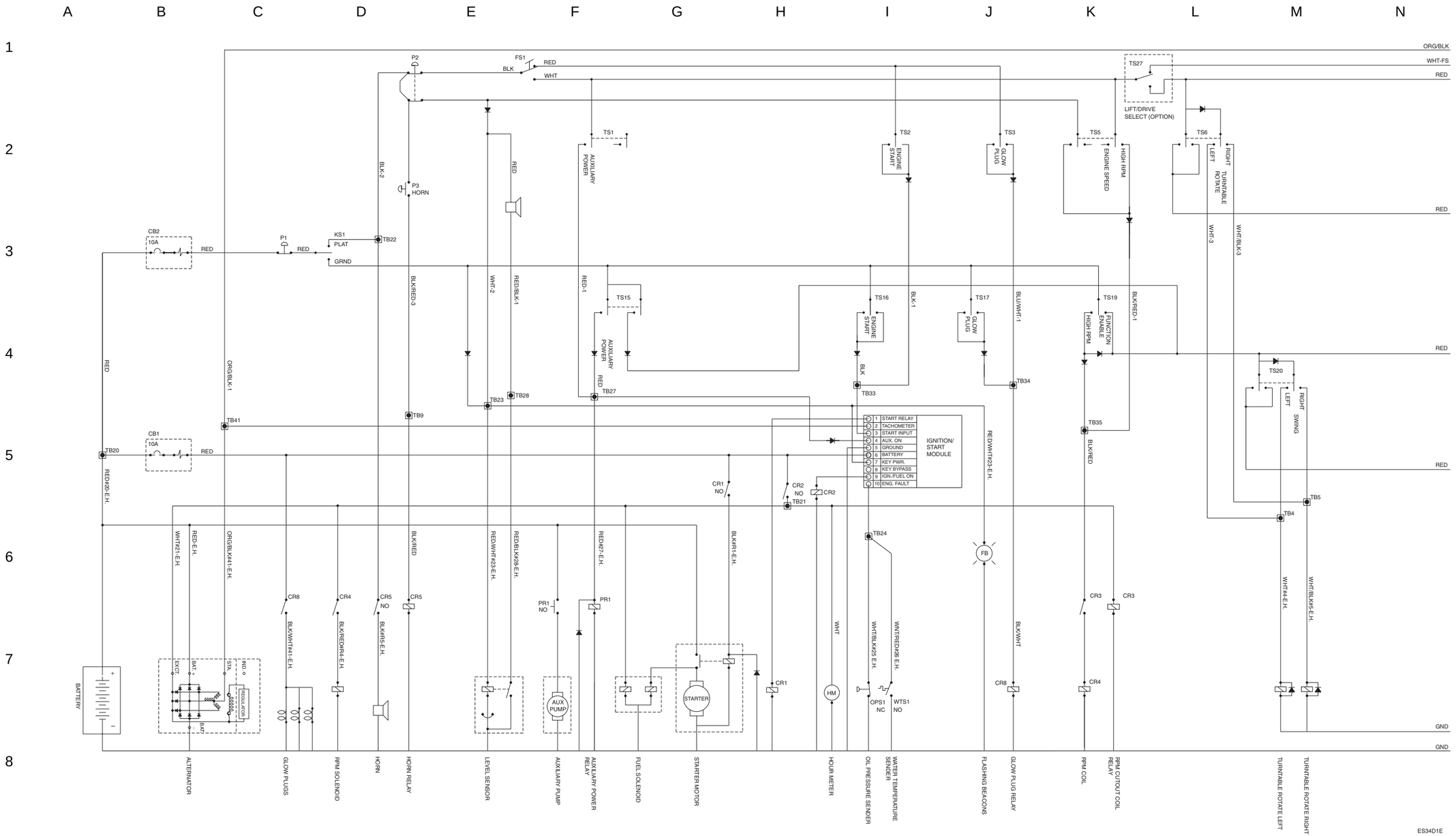






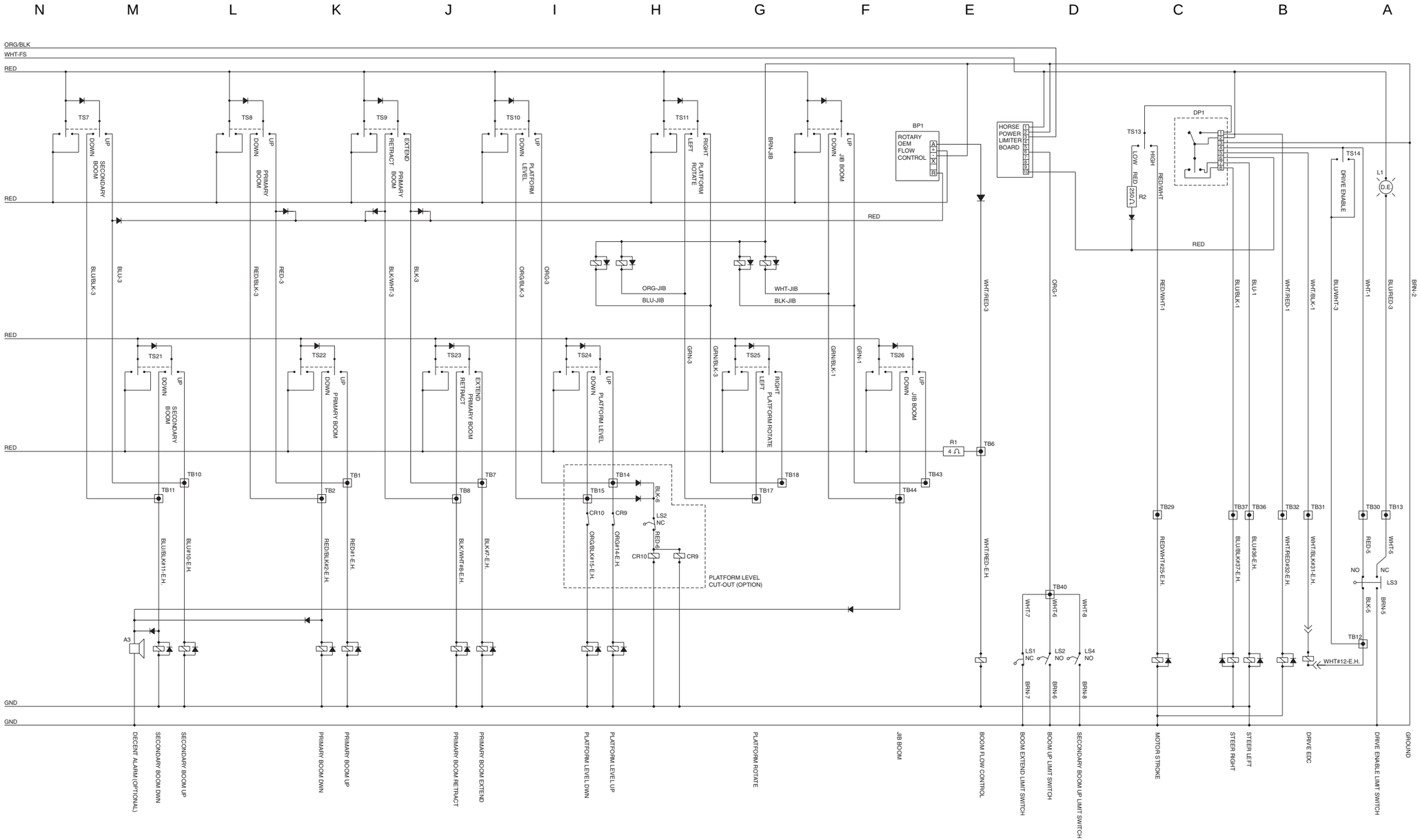
Electrical Schematic - Diesel Models (from serial number 1187 to 1546)

REV A

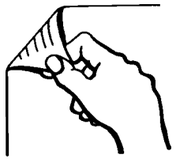


Electrical Schematic - Diesel Models (from serial number 1187 to 1546)

REV A

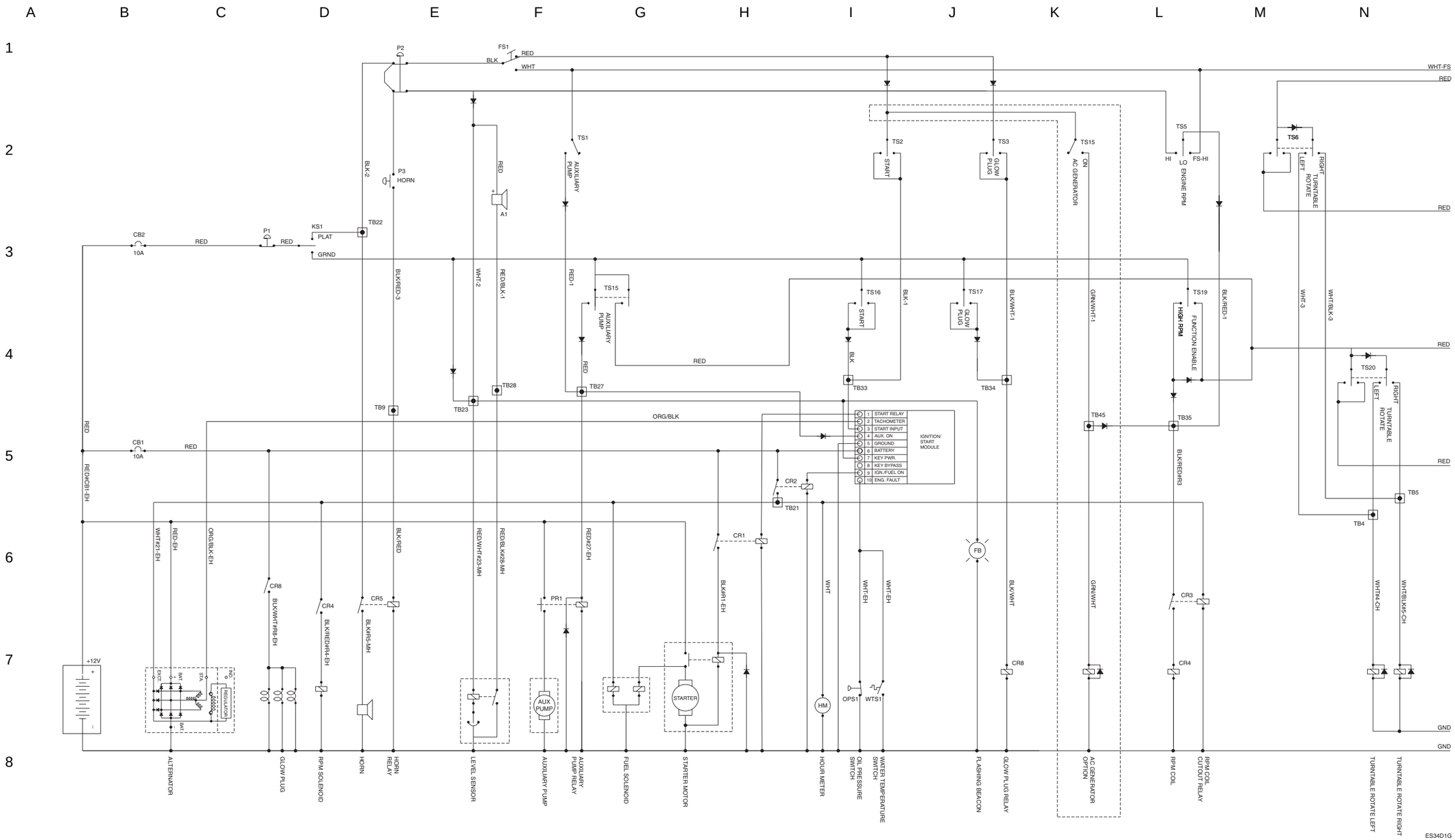


Electrical Schematic - Diesel Models (from serial number 1187 to 1546)



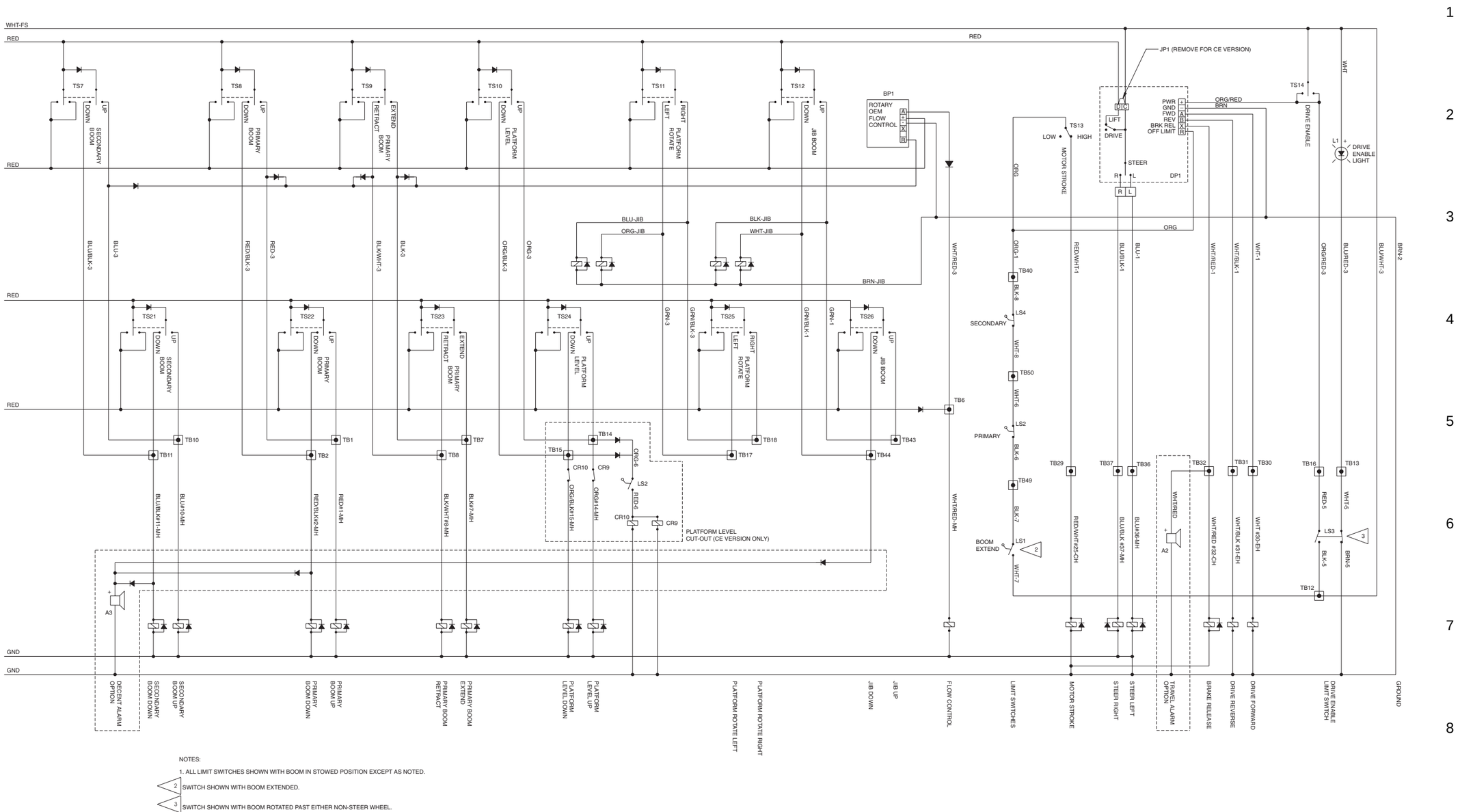
Electrical Schematic - Diesel Models (from serial number 1547 to 1996)

REV A



Electrical Schematic - Diesel Models (from serial number 1547 to 1996)

REV A



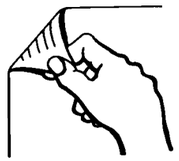
NOTES:

1. ALL LIMIT SWITCHES SHOWN WITH BOOM IN STOWED POSITION EXCEPT AS NOTED.

2 SWITCH SHOWN WITH BOOM EXTENDED.

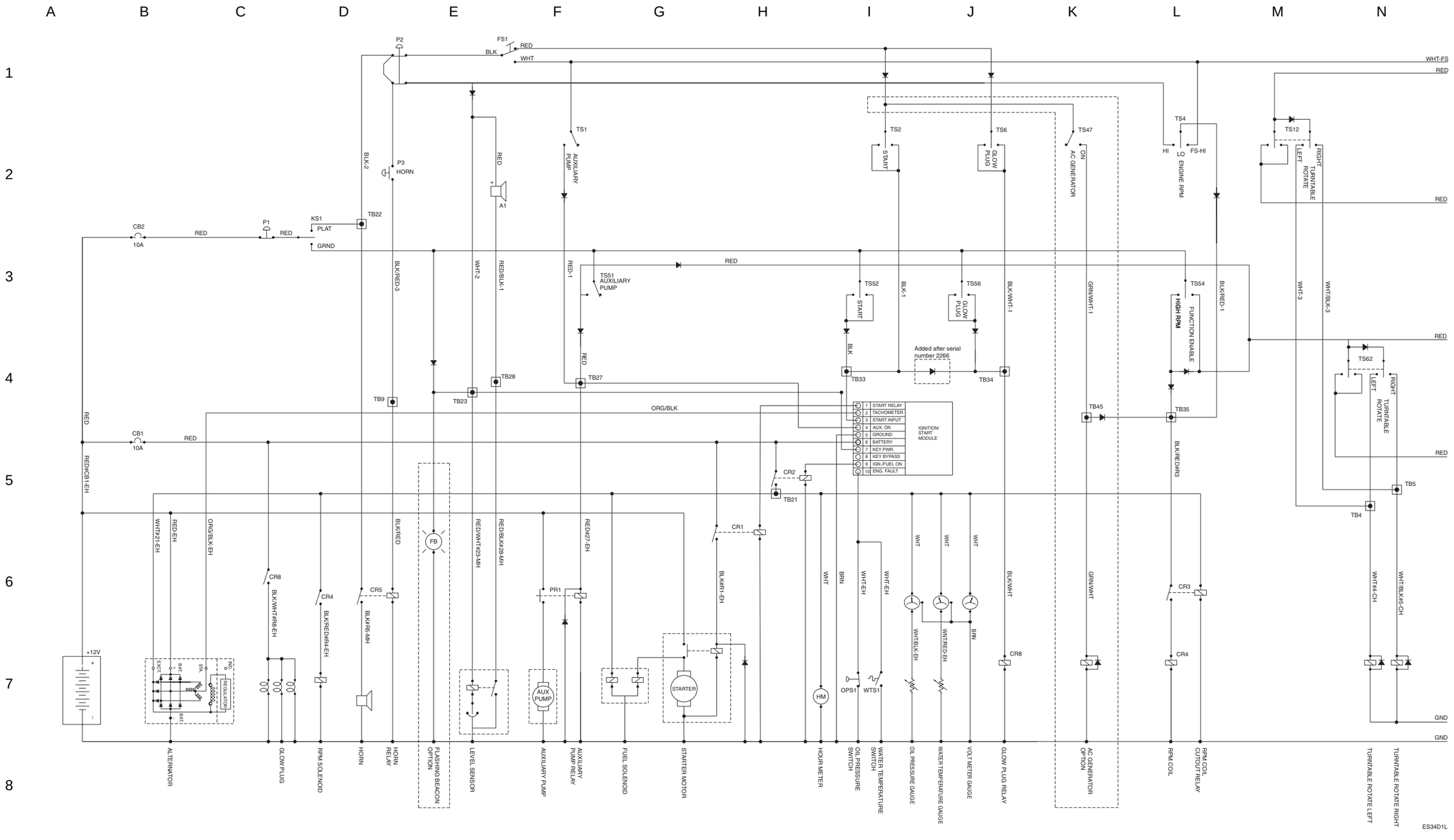
3 SWITCH SHOWN WITH BOOM ROTATED PAST EITHER NON-STEER WHEEL.

Electrical Schematic - Diesel Models (from serial number 1547 to 1996)



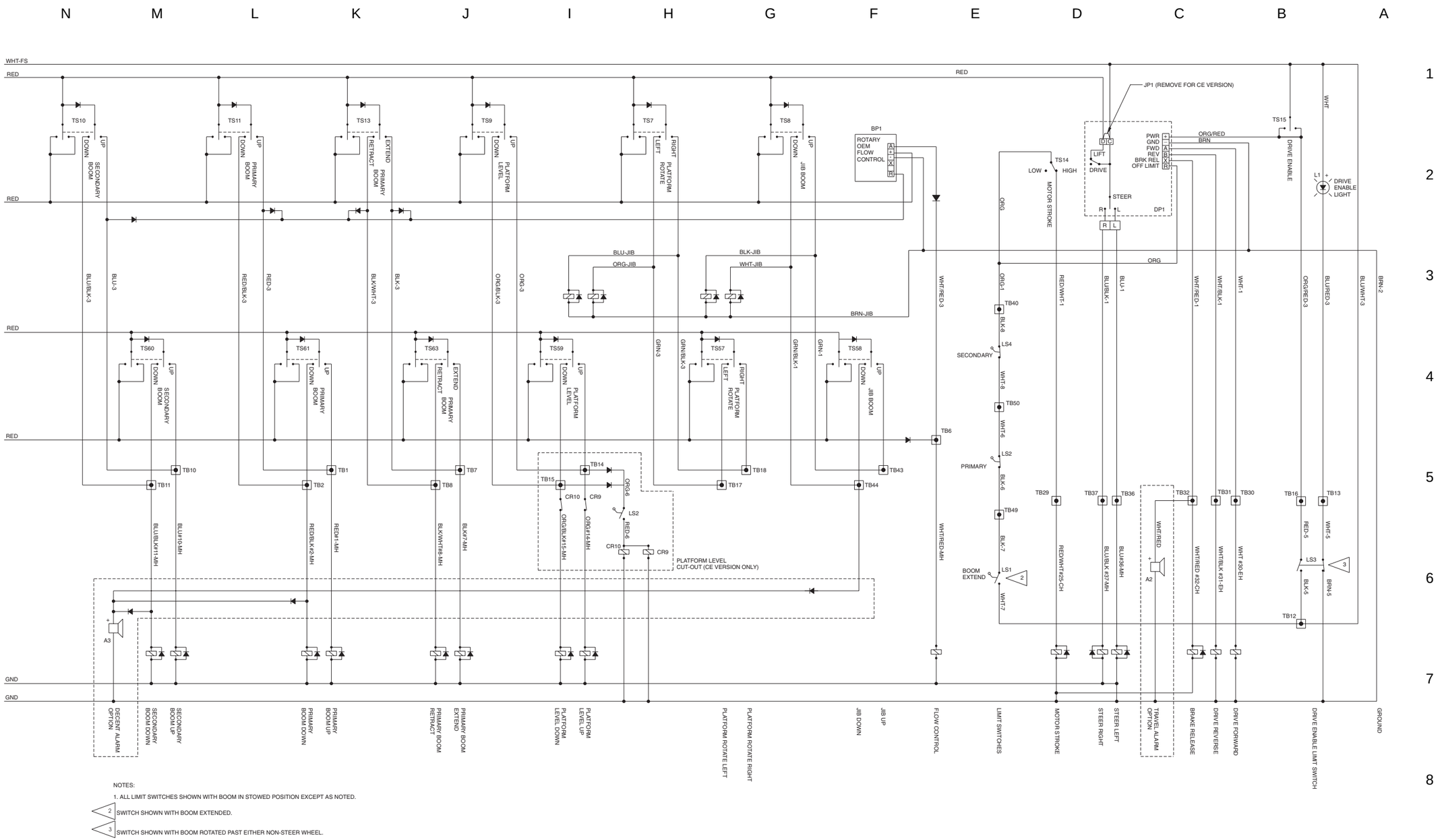
Electrical Schematic - Diesel Models (from serial number 1997 to 3241)

REV A



Electrical Schematic - Diesel Models (from serial number 1997 to 3241)

REV A



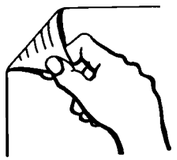
NOTES:

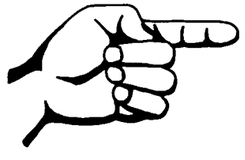
1. ALL LIMIT SWITCHES SHOWN WITH BOOM IN STOWED POSITION EXCEPT AS NOTED.

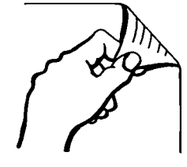
2 SWITCH SHOWN WITH BOOM EXTENDED.

3 SWITCH SHOWN WITH BOOM ROTATED PAST EITHER NON-STEER WHEEL.

Electrical Schematic - Diesel Models (from serial number 1997 to 3241)

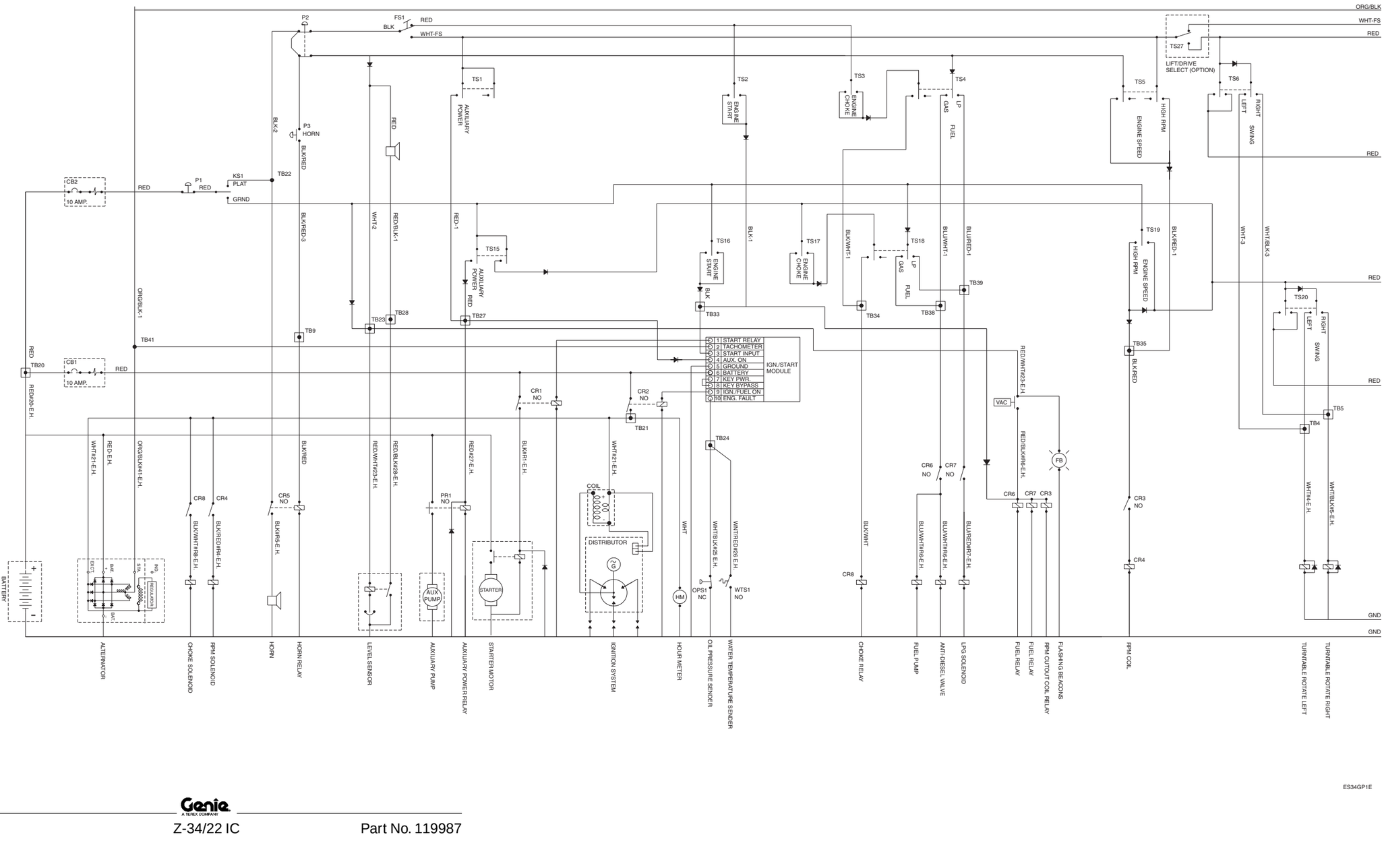






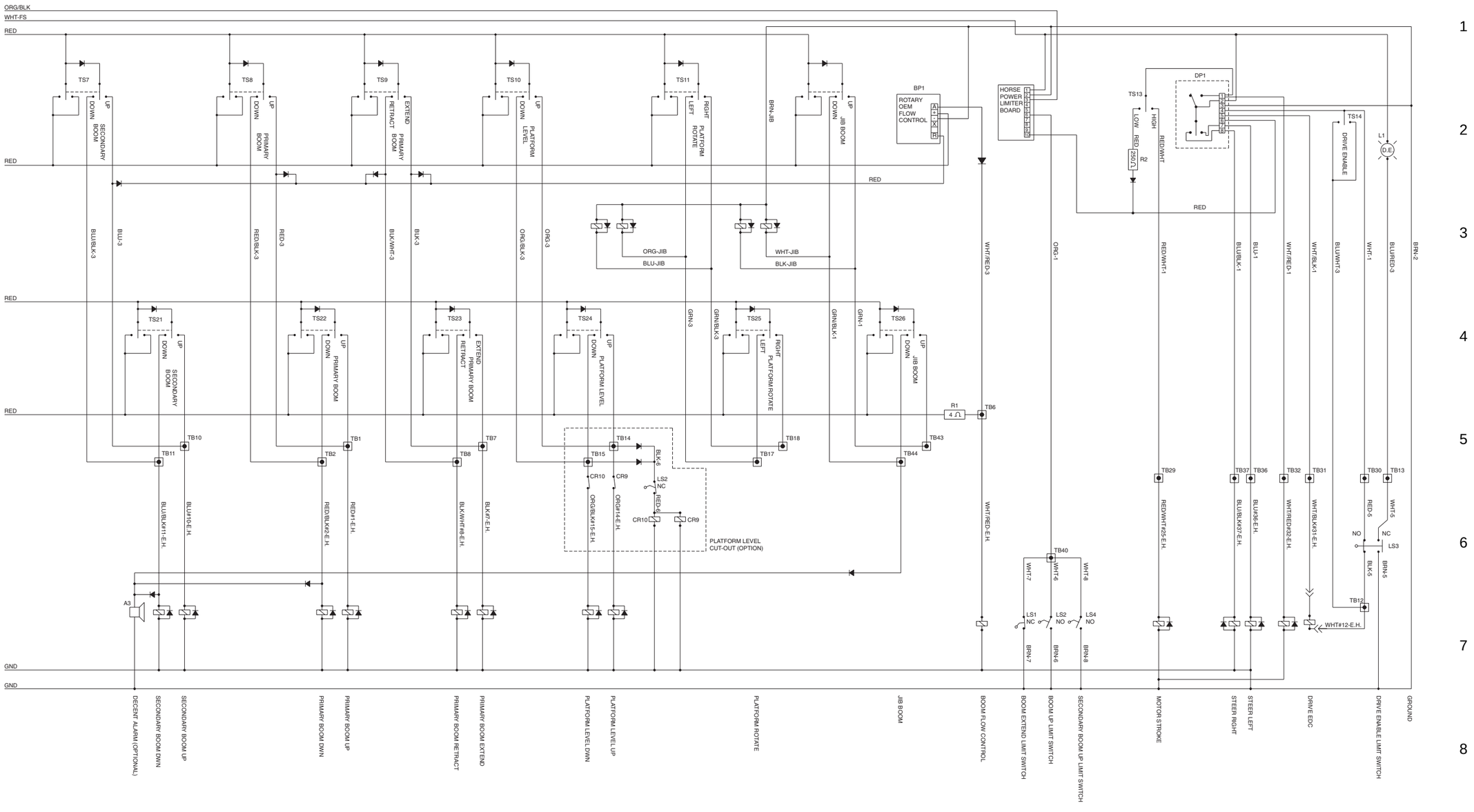
Electrical Schematic - Gasoline/LPG Models (from serial number 1187 to 1546)

REV A

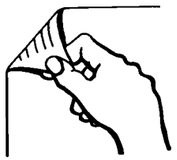


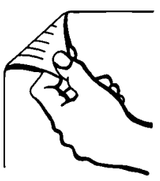
Electrical Schematic - Gasoline/LPG Models (from serial number 1187 to 1546)

REV A



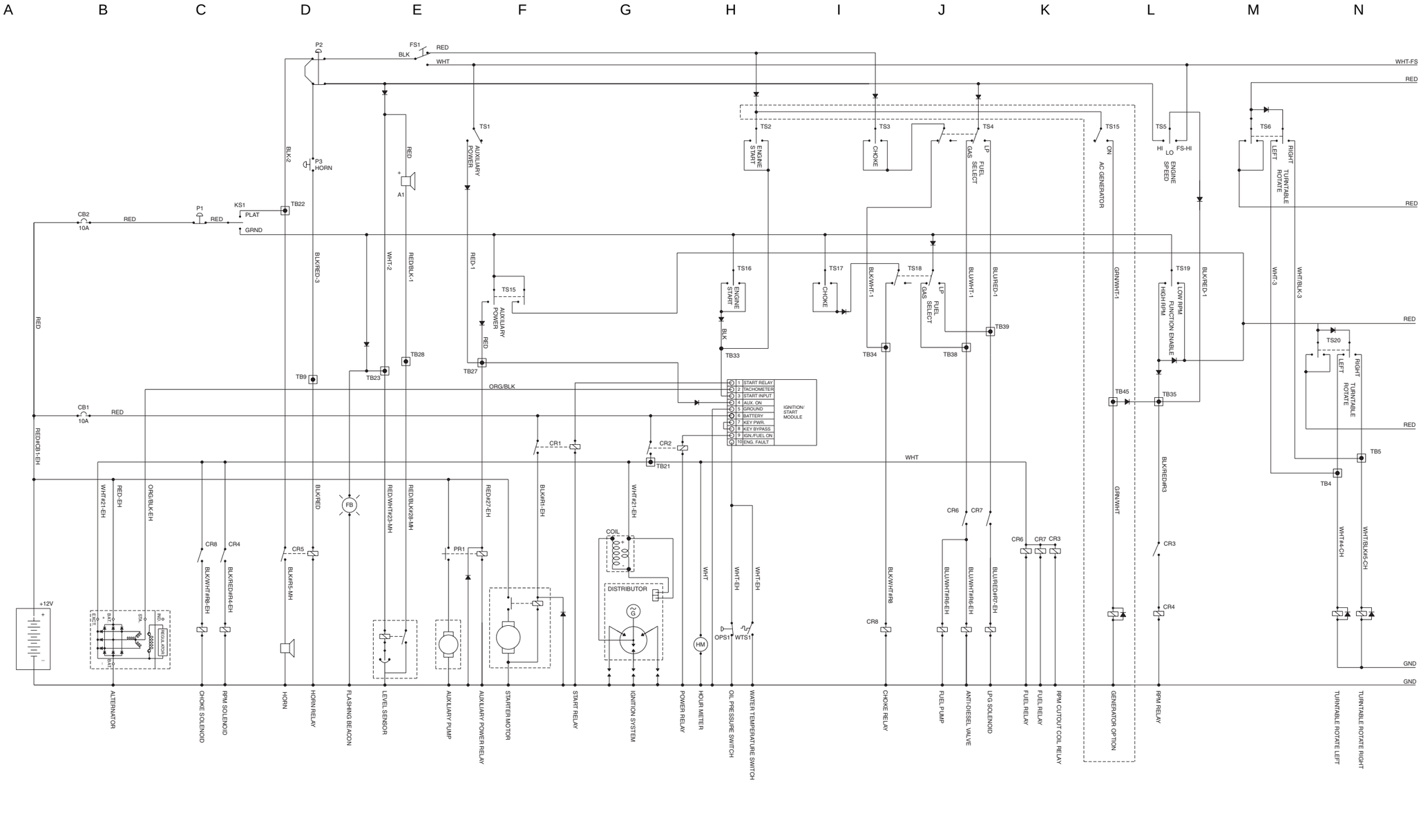
Electrical Schematic - Gasoline/LPG Models (from serial number 1187 to 1546)





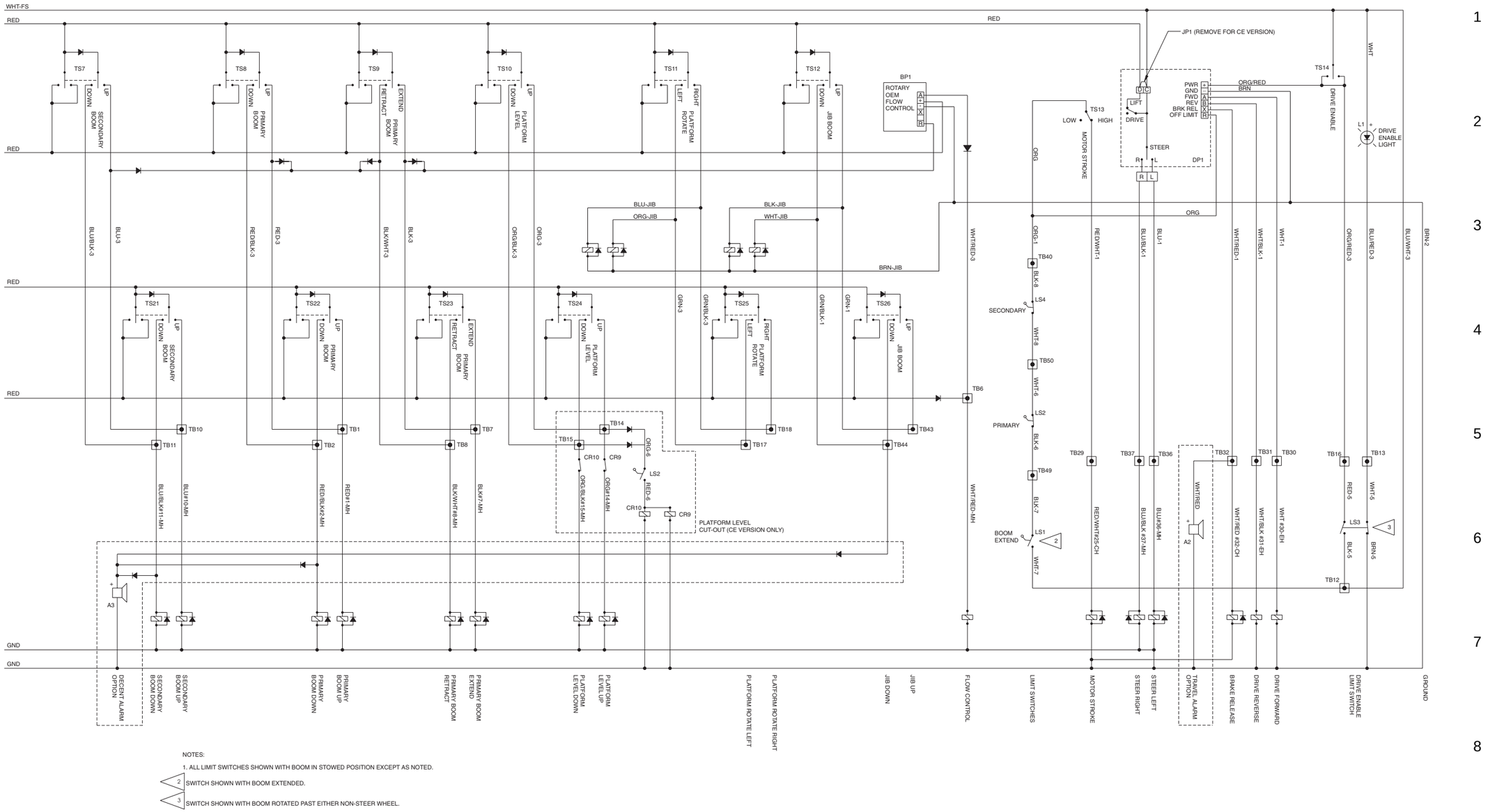
Electrical Schematic - Gasoline/LPG Models (from serial number 1547 to 1996)

REV A



Electrical Schematic - Gasoline/LPG Models (from serial number 1547 to 1996)

REV A



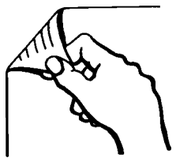
NOTES:

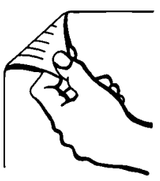
1. ALL LIMIT SWITCHES SHOWN WITH BOOM IN STOWED POSITION EXCEPT AS NOTED.

2 SWITCH SHOWN WITH BOOM EXTENDED.

3 SWITCH SHOWN WITH BOOM ROTATED PAST EITHER NON-STEER WHEEL.

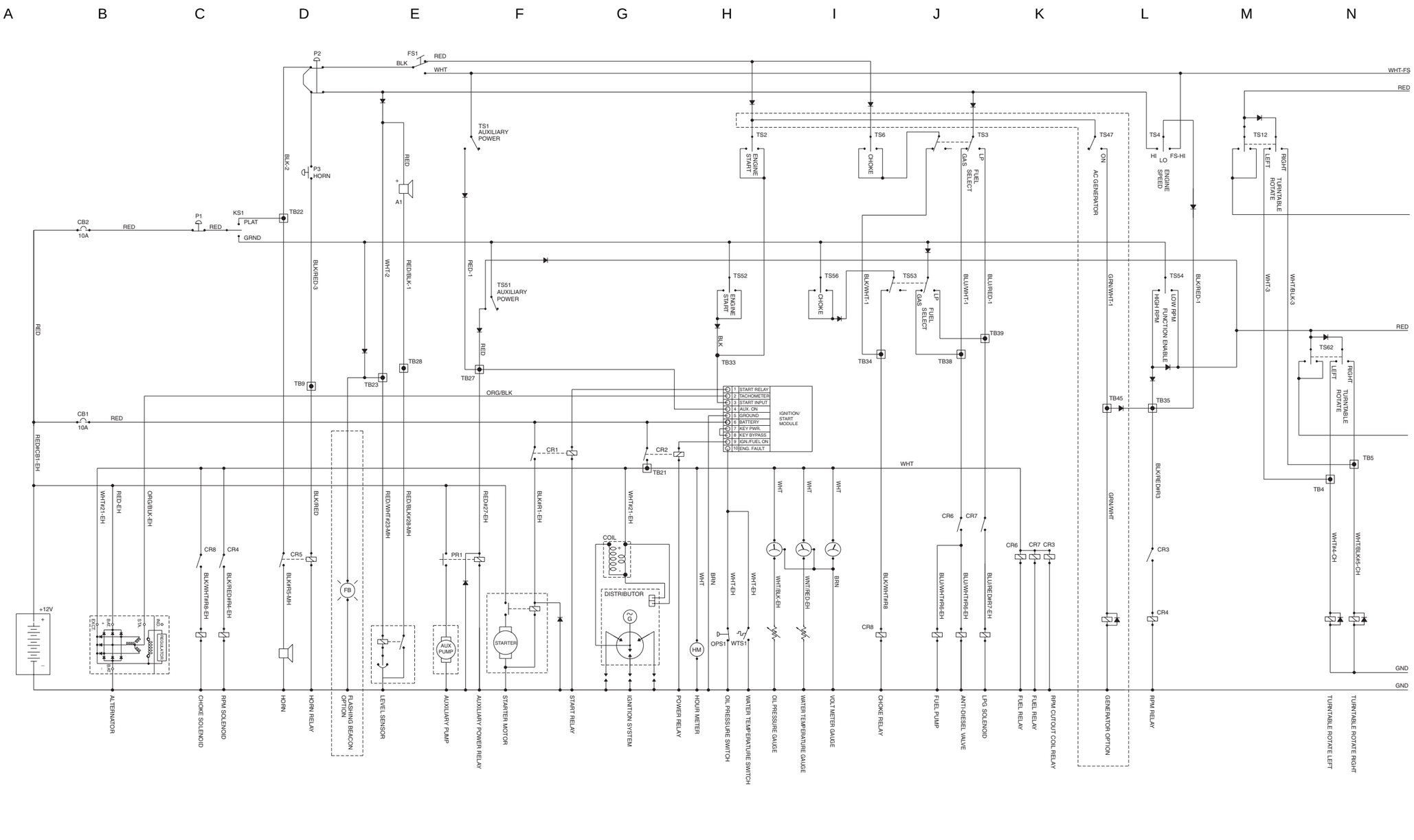
Electrical Schematic - Gasoline/LPG Models (from serial number 1547 to 1996)





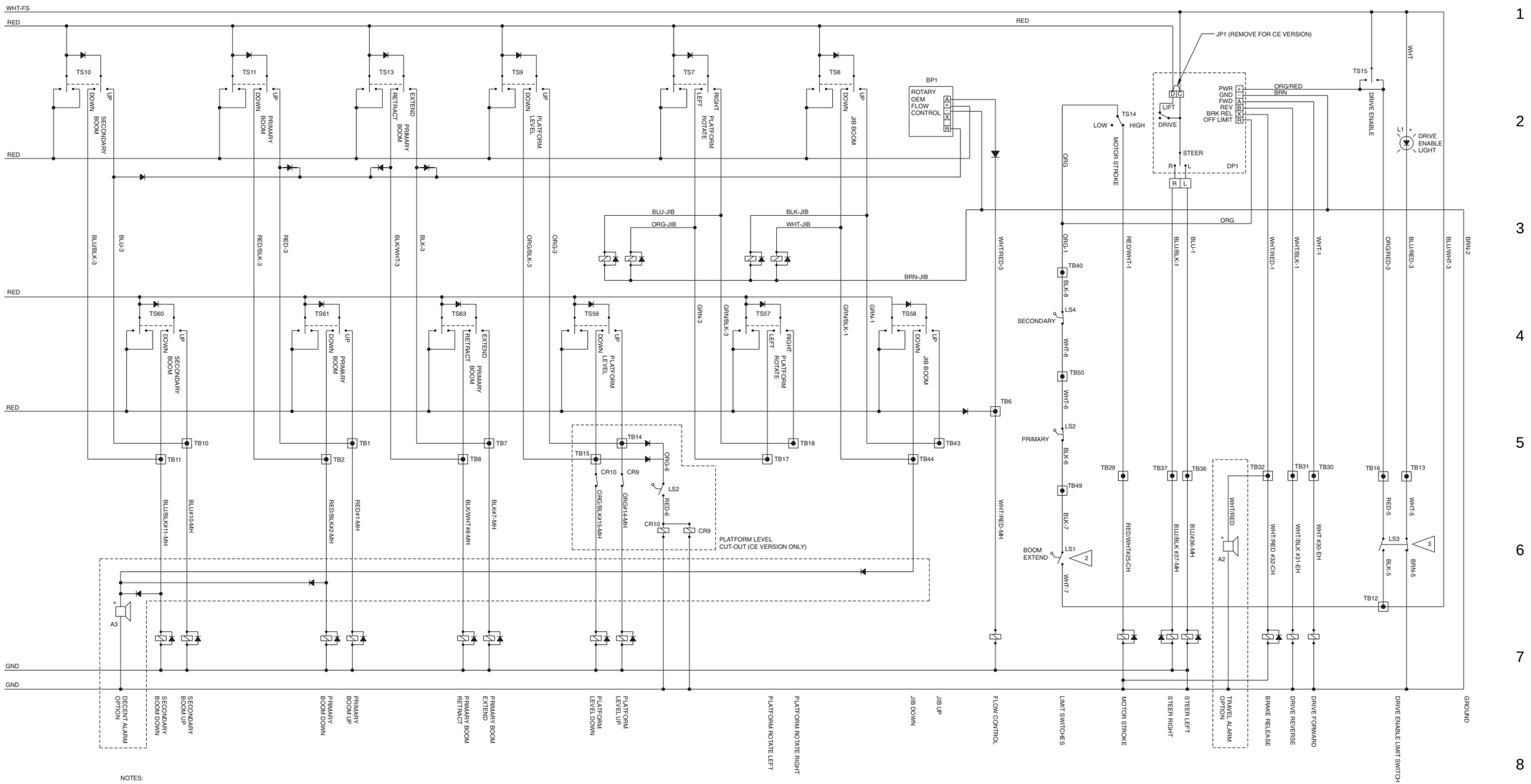
Electrical Schematic - Gasoline/LPG Models (from serial number 1997 to 3241)

REV A



Electrical Schematic - Gasoline/LPG Models (from serial number 1997 to 3241)

REV A



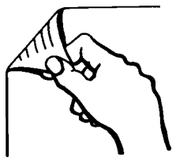
NOTES:

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.

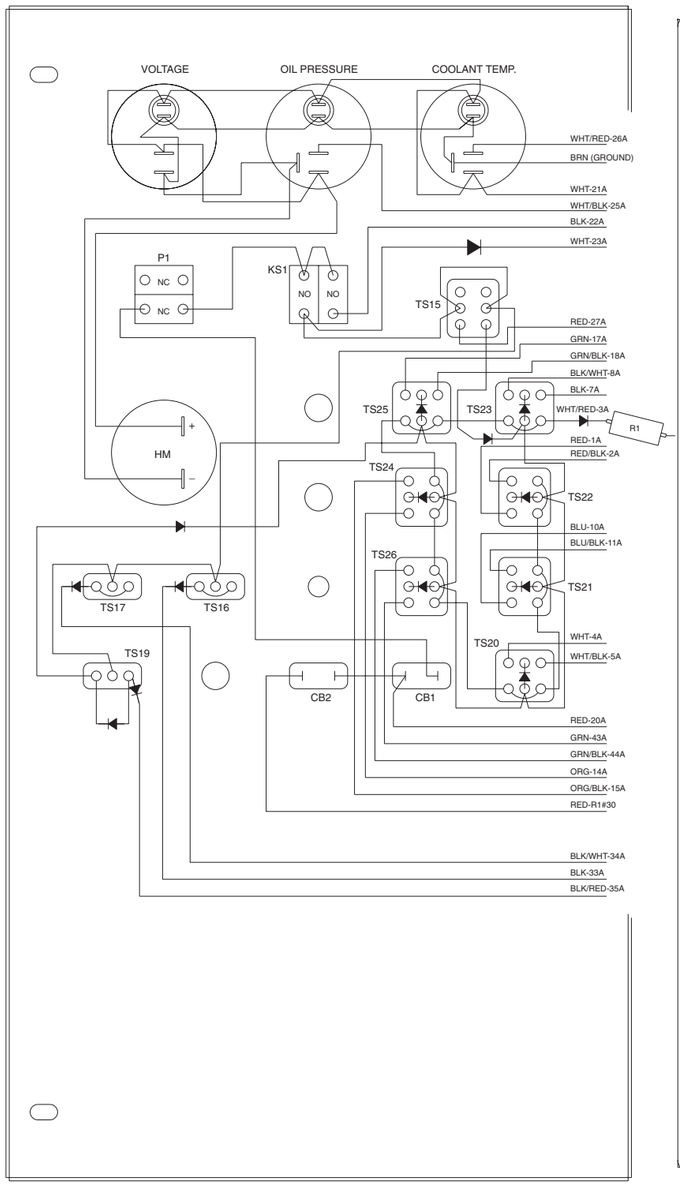
Electrical Schematic - Gasoline/LPG Models (from serial number 1997 to 3241)

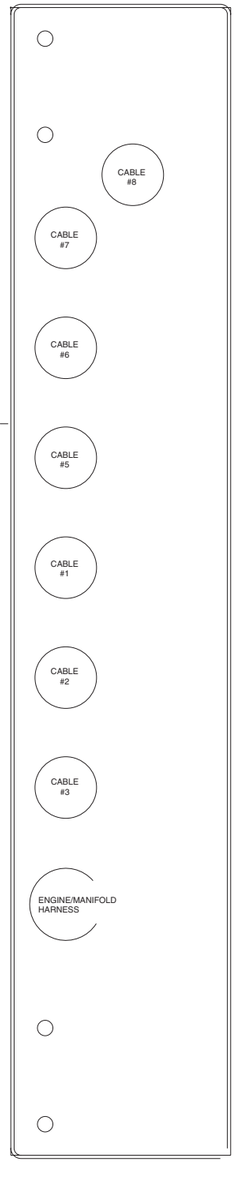


Ground Control Box Wiring Diagram - Diesel Models (from serial number 1187 to 1546)

Ground Control Box Wiring Diagram - Diesel Models (from serial number 1187 to 1546)

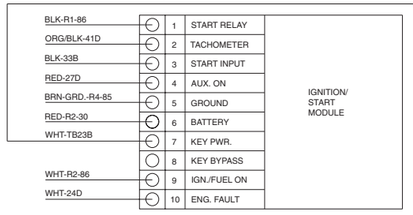
REV A

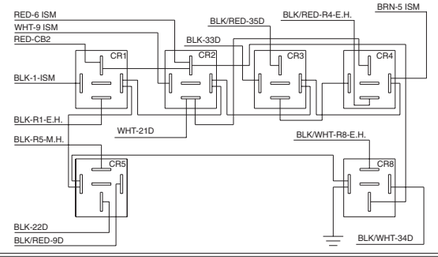




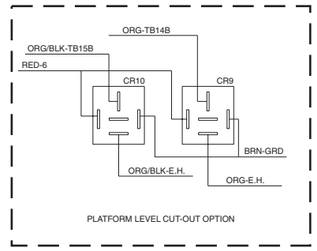
BLK-7	BRN-6	47	BRN	BRN-E.H.	GROUND
BRN-5	BRN-2	46	BRN	BRN-8	GROUND
	GRN/WHT-1	45			
	GRN/BLK-1	44		GR/BK-S.P.	JIB DOWN
	GRN-1	43		GRN-S.P.	JIB UP
	ORG/RED-1	42			
OG/BK-2ISM	ORG/BLK-1	41	OG/BK-E.H.		PULSE PICKUP
WHT-7	ORG-1	40	WHT-8	WHT-6	LIMIT SWITCH
	BLU/RED-1	39			L.P.
	BLU/WHT-1	38			GAS
	BLU/BLK-1	37	BLU/BK-M.H.		STEER LEFT
	BLU-1	36	BLU-M.H.		STEER RIGHT
BK/RD-CR3	BLK/RED-1	35		BK/RD-S.P.	RPM
BK/WT-CR8	BLK/WHT-1	34		BK/WT-S.P.	GLOW PLUG
BLK-CR3	BLK-1	33	BK-3-ISM	BLK-S.P.	START
	WHT/RED-1	32	WT/RD-E.H.		BRAKE
	WHT/BLK-1	31	WT/BK-E.H.		E.D.C.
RED-5	WHT-1	30			E.D.C.
	R/W-1	29	RD/WT-E.H.		2WD/4WD
	RED/BLK-1	28	RD/BK-M.H.		TILT ALARM
RD-4-ISM	RED-1	27	RED-E.H.	RED-S.P.	AUX. PWR.
		26	WT/RD-E.H.	WT/RD-S.P.	WATER TEMP. SENDER
		25	WT/BK-E.H.	WT/BK-S.P.	OIL PRESSURE SENDER
WT-10-ISM		24	WHT-E.H.		WARNING SENDER
RD/WT-M.H.	WHT-2	23		WHT-S.P.	KEYSWITCH PWR.
BLK-CR5	BLK-2	22		BLK-S.P.	PWR. TO PLAT.
WHT-CR2		21	WHT-E.H.	WHT-SP-DB	IGNITION PWR.
RED-CR17		20	RED-E.H.	RED-S.P.	12V BATT. SUPPLY
	GRN/WHT-3	19			
	GRN/BLK-3	18		GR/BK-S.P.	PLAT. ROT. R.
	GRN-3	17		GRN-S.P.	PLAT. ROT. L.
	ORG/RED-3	16			
(OPT) BLK-6	ORG/BLK-3	15	ORG/BLK-M.H.	OG/BK-S.P.	PLAT. LEVEL DN.
(OPT) BLK-6	ORG-3	14	ORG-M.H.	ORG-S.P.	PLAT. LEVEL. UP
WHT-5	BLU/RED-3	13			DRV. ENA. LT.
BLK-5	BLU/WHT-3	12	WHT-E.H.		DRV. ENA.
	BLU/BLK-3	11	BLU/BLK-M.H.	BLU/BK-S.P.	SEC. BOOM DN
	BLU-3	10	BLU-M.H.	BLU-S.P.	SEC. BOOM UP
BK/RD-CR5	BLK/RED-3	9			HORN
	BLK/WHT-3	8	BLK/WHT-M.H.	BK/WT-S.P.	BOOM RETRACT
	BLK-3	7	BLK-M.H.	BLK-S.P.	BOOM EXTEND
	WHT/RED-3	6	W/R-M.H.	WT/RD-S.P.	BOOM FUNCTION F.C.
	WHT/BLK-3	5	WHT/BLK-M.H.	WT/BK-S.P.	TURN. ROT. L
	WHT-3	4	WHT-M.H.	WHT-S.P.	TURN. ROT. R
	RED/WHT-3	3		RD/WT-S.P.	
	RED/BLK-3	2	RED/BLK-M.H.	RD/BK-S.P.	PRI. BOOM DOWN
	RED-3	1	RED-M.H.	RED-S.P.	PRI. BOOM UP

D C B A





LABEL	DESCRIPTION
P1	EMERGENCY STOP BUTTON
KS1	KEY SWITCH
TS15	AUXILIARY TOGGLE SWITCH
TS16	ENGINE START TOGGLE SWITCH
TS17	ENGINE GLOW PLUG TOGGLE SWITCH
TS19	ENGINE RPM TOGGLE SWITCH
TS20	TURNTABLE ROTATE TOGGLE SWITCH
TS21	SECONDARY BOOM UP/DOWN TOGGLE SWITCH
TS22	PRIMARY BOOM UP/DOWN TOGGLE SWITCH
TS23	BOOM EXTEND/RETRACT TOGGLE SWITCH
TS24	PLATFORM LEVEL TOGGLE SWITCH
TS25	PLATFORM ROTATE TOGGLE SWITCH
TS26	JIB UP/DOWN TOGGLE SWITCH
CB1	CIRCUIT BREAKER, CONTROLS, 10A
CB2	CIRCUIT BREAKER, ENGINE, 10A
HM	HOUR METER
R1	RESISTOR, 5 OHM, BOOM FUNCTIONS
EH	ENGINE HARNESS
MH	MANIFOLD HARNESS



ES34D5E

Ground Control Box Wiring Diagram - Diesel Models (from serial number 1547 to 1985)

REV A

N M L K J I H G F E D C B A

SPARE WIRE LIST

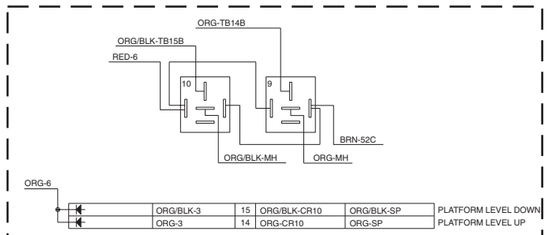
GRN/WHT-1 *
ORG/RED-1
ORG/BLK-1
GRN/WHT-3
RED/WHT-3

OPTION NUMBERS

1 - PLATFORM LEVEL CUTOUT
2 - FLASHING BEACON
3 - DESCENT ALARM
4 - AC GENERATOR

*AC GENERATOR OPTION

	GRN/WHT-1	45	GRN/WHT-EH	GRN/WHT-TB35	AC GENERATOR HIGH RPM
BLK/RED-CR3	BLK/RED-1	35	GRN/WHT-TB45	BLK/RED-SP	



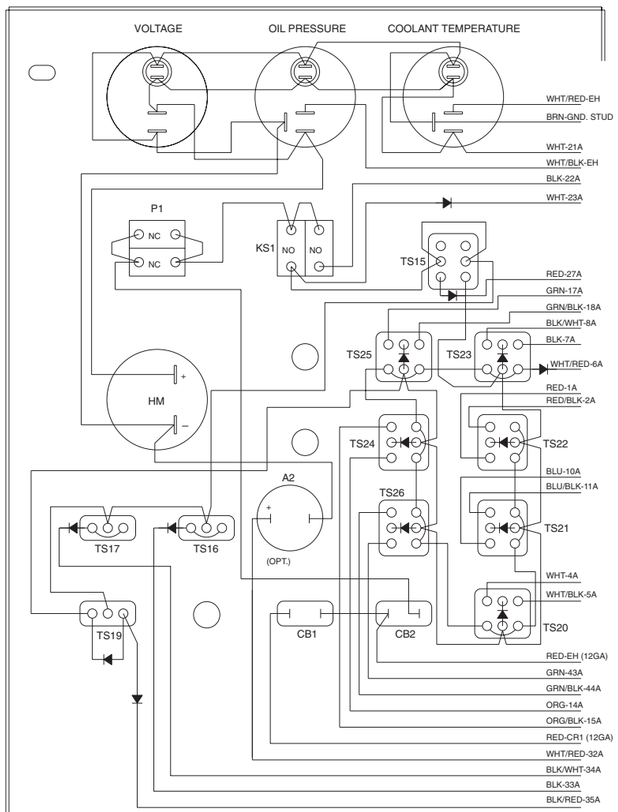
	ORG/BLK-3	15	ORG/BLK-CR10	ORG/BLK-SP	PLATFORM LEVEL DOWN
	ORG-3	14	ORG-CR10	ORG-SP	PLATFORM LEVEL UP

PLATFORM LEVEL CUTOUT (CE VERSION ONLY)

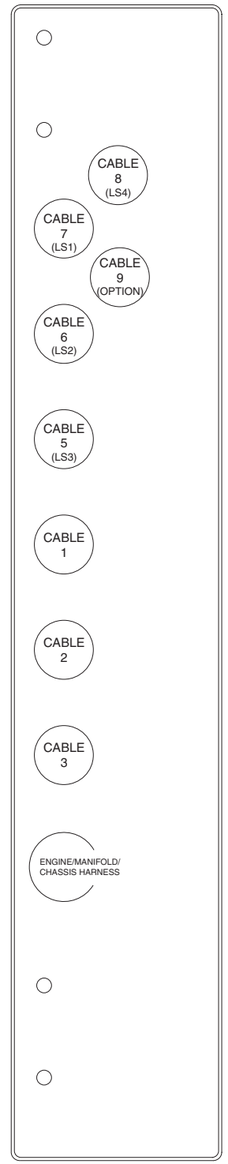
CONTROL RELAY I.D.

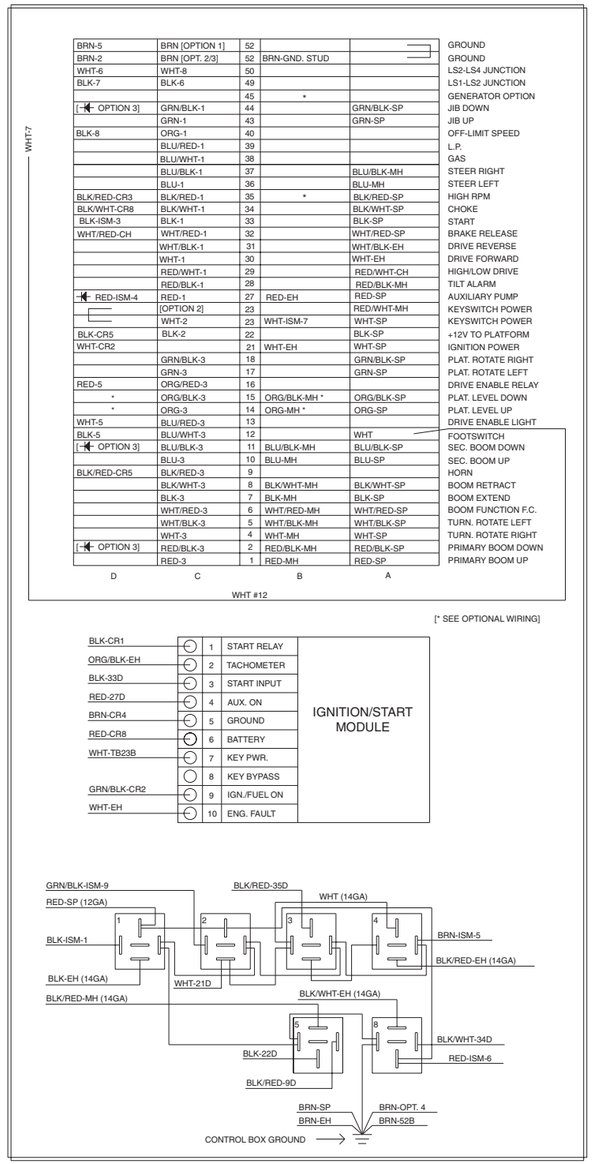
CR1-ENGINE START
CR2-ENGINE RUN
CR3-RPM CUTOUT
CR4-HIGH RPM
CR5-HORN
CR8-CHOKE

ES34D6J



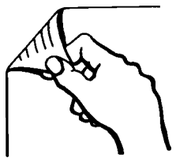
LABEL	DESCRIPTION
P1	EMERGENCY STOP BUTTON
KS1	KEY SWITCH
TS15	AUXILIARY TOGGLE SWITCH
TS16	ENGINE START TOGGLE SWITCH
TS17	ENGINE CHOKE TOGGLE SWITCH
TS18	
TS19	FUNCTION ENABLE/ENGINE RPM TOGGLE SWITCH
TS20	TURNTABLE ROTATE TOGGLE SWITCH
TS21	SECONDARY BOOM UP/DOWN TOGGLE SWITCH
TS22	PRIMARY BOOM UP/DOWN TOGGLE SWITCH
TS23	BOOM EXTEND/RETRACT TOGGLE SWITCH
TS24	PLATFORM LEVEL TOGGLE SWITCH
TS25	PLATFORM ROTATE TOGGLE SWITCH
TS26	JIB UP/DOWN TOGGLE SWITCH
CB1	CIRCUIT BREAKER, ENGINE, 10A
CB2	CIRCUIT BREAKER, CONTROLS, 10A
HM	HOUR METER
EH	ENGINE HARNESS
MH	MANIFOLD HARNESS
CH	CHASSIS HARNESS
SP	SWITCH PANEL
CR	CONTROL RELAY
ISM	IGNITION/START MODULE
A2	BRAKE RELEASE/TRAVEL ALARM (OPT.)





1 2 3 4 5 6 7 8

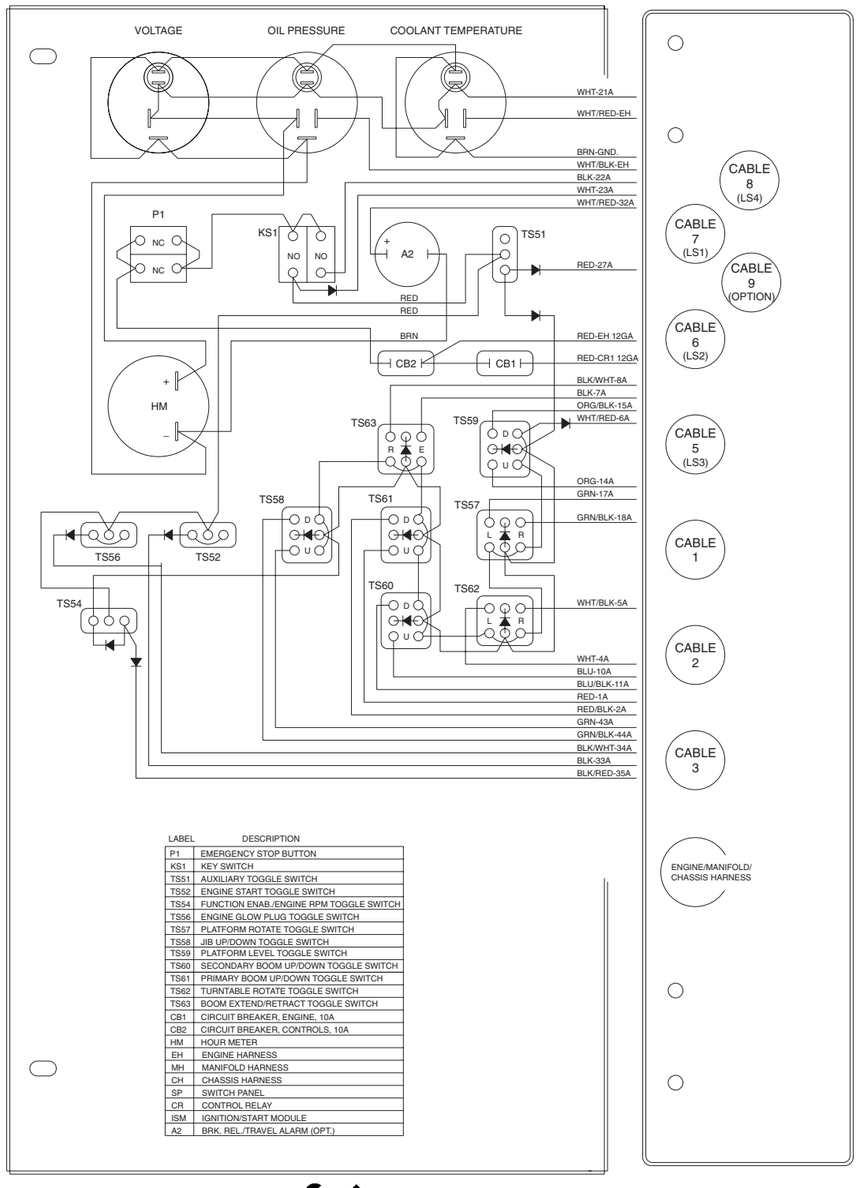
Ground Control Box Wiring Diagram - Diesel Models (from serial number 1547 to 1985)



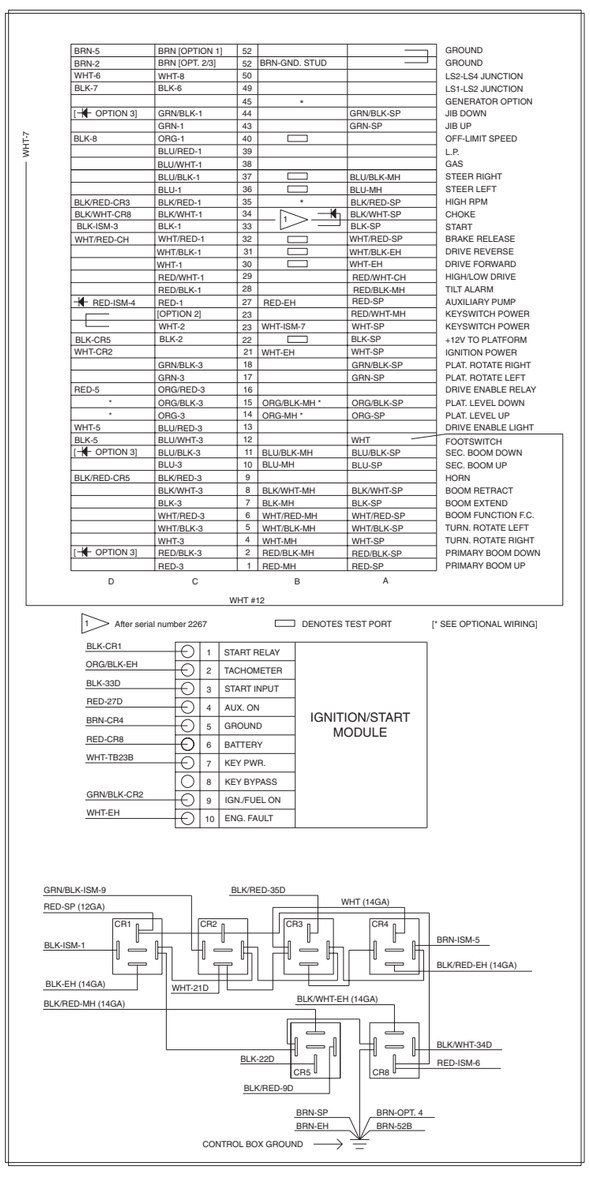
Ground Control Box Wiring Diagram - Diesel Models (from serial number 1986 to 3241)

Ground Control Box Wiring Diagram - Diesel Models (from serial number 1986 to 3241)

REV A



LABEL	DESCRIPTION
P1	EMERGENCY STOP BUTTON
KS1	KEY SWITCH
TS51	AUXILIARY TOGGLE SWITCH
TS52	ENGINE START TOGGLE SWITCH
TS54	FUNCTION ENAB./ENGINE RPM TOGGLE SWITCH
TS56	ENGINE GLOW PLUG TOGGLE SWITCH
TS57	PLATFORM ROTATE TOGGLE SWITCH
TS58	JIB UP/DOWN TOGGLE SWITCH
TS59	PLATFORM LEVEL TOGGLE 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, 10A
CB2	CIRCUIT BREAKER, CONTROLS, 10A
HM	HOUR METER
EH	ENGINE HARNESS
MH	MANIFOLD HARNESS
CH	CHASSIS HARNESS
SP	SWITCH PANEL
CR	CONTROL RELAY
ISM	IGNITION/START MODULE
A2	BRK. REL./TRAVEL ALARM (OPT.)



SPARE WIRE LIST

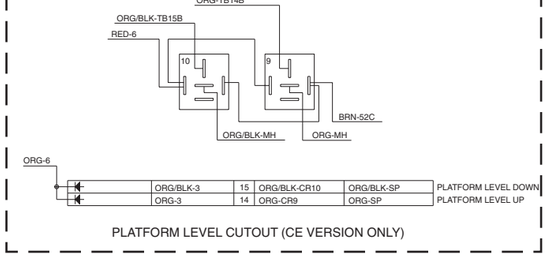
- GRN/WHT-1 *
- ORG/RED-1
- ORG/BLK-1
- GRN/WHT-3
- RED/WHT-3

OPTION NUMBERS

1 - PLATFORM LEVEL CUTOUT
2 - FLASHING BEACON
3 - DESCENT ALARM
4 - AC GENERATOR

*AC GENERATOR OPTION

	GRN/WHT-1	45	GRN/WHT-EH	GRN/WHT-TB35	AC GENERATOR
BLK/RED-CR3	BLK/RED-1	35	GRN/WHT-TB45	BLK/RED-SP	HIGH RPM



PLATFORM LEVEL CUTOUT (CE VERSION ONLY)

CONTROL RELAY I.D.

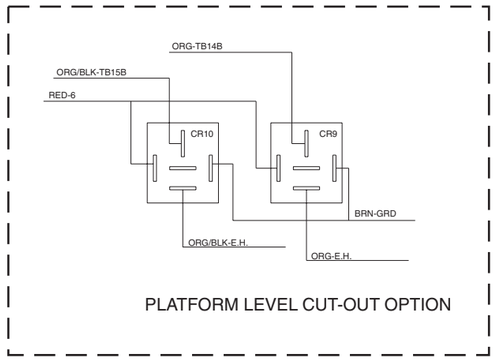
- CR1-ENGINE START
- CR2-ENGINE RUN
- CR3-RPM CUTOUT
- CR4-HIGH RPM
- CR5-HORN
- CR8-CHOKE

ES34D6L

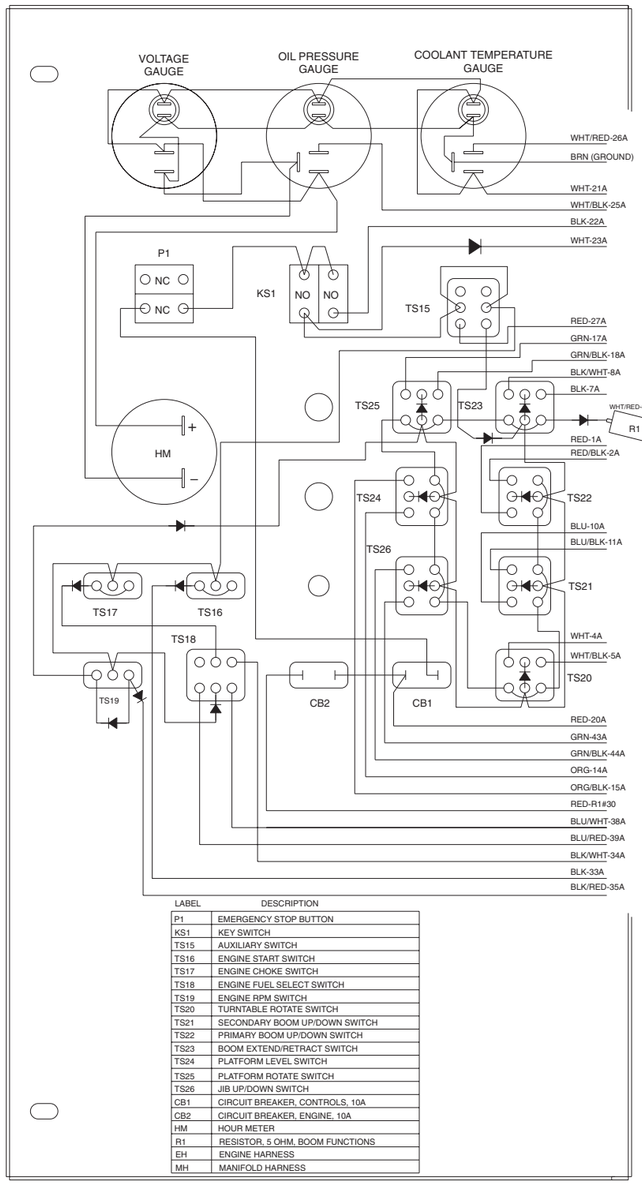
REV A

Ground Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1187 to 1546)

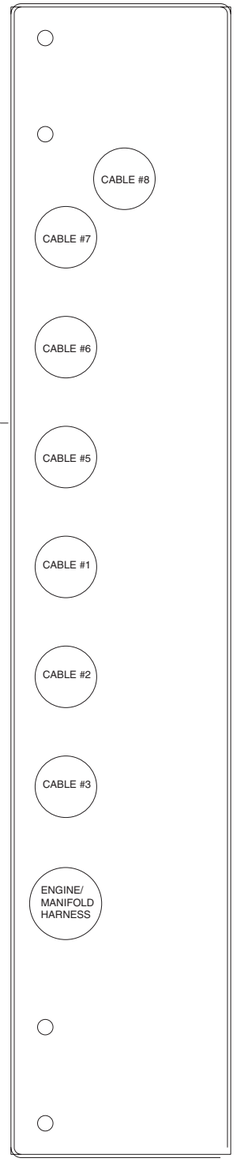
N M L K J I H G F E D C B A



PLATFORM LEVEL CUT-OUT OPTION

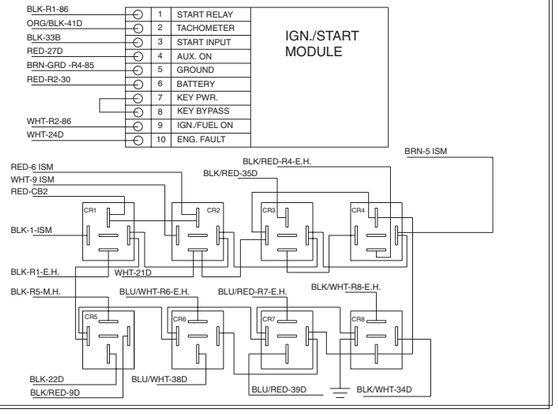


LABEL	DESCRIPTION
P1	EMERGENCY STOP BUTTON
KS1	KEY SWITCH
TS15	AUXILIARY SWITCH
TS16	ENGINE START SWITCH
TS17	ENGINE CHOKE SWITCH
TS18	ENGINE FUEL SELECT SWITCH
TS19	ENGINE RPM SWITCH
TS20	TURNTABLE ROTATE SWITCH
TS21	SECONDARY BOOM UP/DOWN SWITCH
TS22	PRIMARY BOOM UP/DOWN SWITCH
TS23	BOOM EXTEND/RETRACT SWITCH
TS24	PLATFORM LEVEL SWITCH
TS25	PLATFORM ROTATE SWITCH
TS26	JIB UP/DOWN SWITCH
CB1	CIRCUIT BREAKER, CONTROLS, 10A
CB2	CIRCUIT BREAKER, ENGINE, 10A
HM	HOUR METER
R1	RESISTOR, 5 OHM, BOOM FUNCTIONS
EH	ENGINE HARNESS
MH	MANIFOLD HARNESS



BLK-7	BRN-6	47	BRN	BRN-E.H.	GROUND
BRN-5	BRN-2	46	BRN	BRN-8	GROUND
	GRN/WHT-1	45			
	GRN/BLK-1	44		GR/BK-S.P.	JIB DOWN
	GRN-1	43		GRN-S.P.	JIB UP
	ORG/RED-1	42			
OG/BK-2ISM	ORG/BLK-1	41	OG/BK-E.H.		PULSE PICKUP
WHT-7	ORG-1	40	WHT-8	WHT-6	LIMIT SWITCH
BLU/RED-CR7	BLU/RED-1	39		BU/RD-S.P.	L.P.
BU/WT-CR6	BLU/WHT-1	38		BU/WT-S.P.	GAS
	BLU/BLK-1	37	BU/BK-M.H.		STEER LEFT
	BLU-1	36	BLU-M.H.		STEER RIGHT
BK/RD-CR3	BLK/RED-1	35		BK/RD-S.P.	RPM
BLK/WHT-CR8	BLK/WHT-1	34			GLOW PLUG
	BLK-1	33	BK-3-ISM	BLK-S.P.	ENGINE START
	WHT/RED-1	32	WT/RD-E.H.		BRAKE
	WHT/BLK-1	31	WT/BK-E.H.		E.D.C.
RED-5	WHT-1	30			E.D.C.
	R/W-1	29	RD/WT-E.H.		2WD/4WD
	RED/BLK-1	28	RD/BK-M.H.		TILT ALARM
RD-4-ISM	RED-1	27	RED-E.H.	RED-S.P.	AUILIARY POWER
		26	WT/RD-E.H.	WT/RD-S.P.	WATER TEMP. SENDER
		25	WT/BK-E.H.	WT/BK-S.P.	OIL PRESSURE SENDER
WT-10-ISM		24	WHT-E.H.		WARNING SENDER
RD/WT-M.H.	WHT-2	23		WHT-S.P.	KEYSWITCH POWER
BLK-CR5	BLK-2	22		BLK-S.P.	POWER TO PLATFORM
WHT-CR2		21	WHT-E.H.	WHT-SP-DB	IGNITION POWER
RED-CR17		20	RED-E.H.	RED-S.P.	12V BATTERY SUPPLY
	GRN/WHT-3	19			
	GRN/BLK-3	18		GR/BK-S.P.	PLATFORM ROTATE RIGHT
	GRN-3	17		GRN-S.P.	PLATFORM ROTATE LEFT
	ORG/RED-3	16			
(OPT) BLK-6	ORG/BLK-3	15	ORG/BLK-M.H.	OG/BK-S.P.	PLATFORM LEVEL DOWN
(OPT) BLK-6	ORG-3	14	ORG-M.H.	ORG-S.P.	PLATFORM LEVEL UP
WHT-5	BLU/RED-3	13			DRIVE ENABLE LIGHT
BLK-5	BLU/WHT-3	12	WHT-E.H.		DRIVE ENABLE
	BLU/BLK-3	11	BLU/BLK-M.H.	BU/BK-S.P.	SECONDARY BOOM DOWN
	BLU-3	10	BLU-M.H.	BLU-S.P.	SECONDARY BOOM UP
BK/RD-CR5	BLK/RED-3	9			HORN
	BLK/WHT-3	8	BLK/WHT-M.H.	BK/WT-S.P.	BOOM RETRACT
	BLK-3	7	BLK-M.H.	BLK-S.P.	BOOM EXTEND
	WHT/RED-3	6	W/R-M.H.	WT/RD-S.P.	BOOM FUNCTION FLOW CONTROL
	WHT/BLK-3	5	WHT/BLK-M.H.	WT/BK-S.P.	TURNTABLE ROTATE LEFT
	WHT-3	4	WHT-M.H.	WHT-S.P.	TURNTABLE ROTATE RIGHT
	RED/WHT-3	3		RD/WT-S.P.	
	RED/BLK-3	2	RED/BLK-M.H.	RD/BK-S.P.	PRIMARY BOOM DOWN
	RED-3	1	RED-M.H.	RED-S.P.	PRIMARY BOOM UP

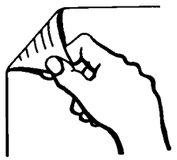
D C B A



1 2 3 4 5 6 7 8

ES34GP5F

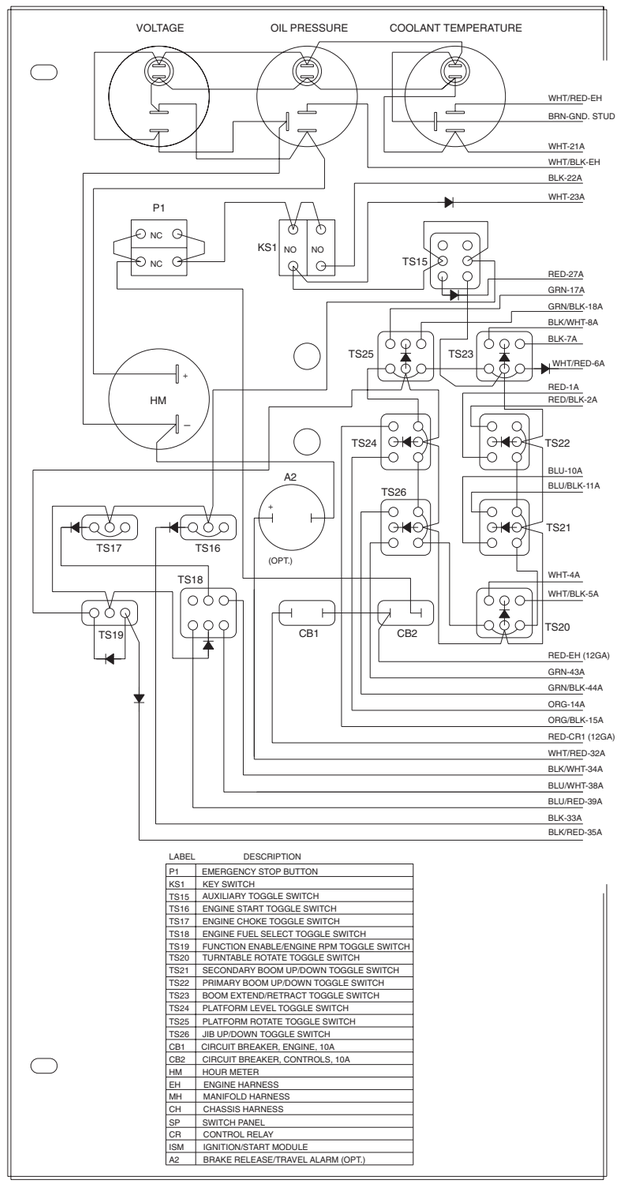
Ground Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1187 to 1546)



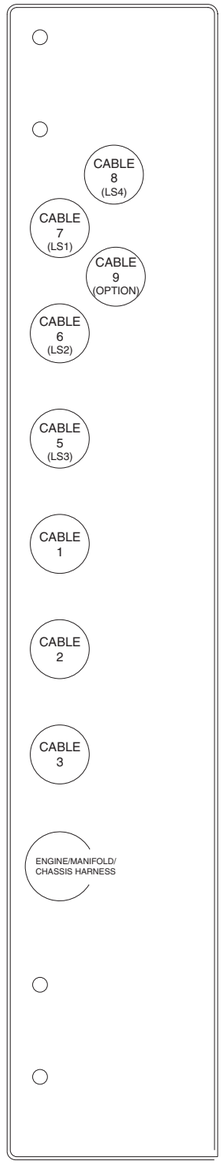
Ground Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1547 to 1985)

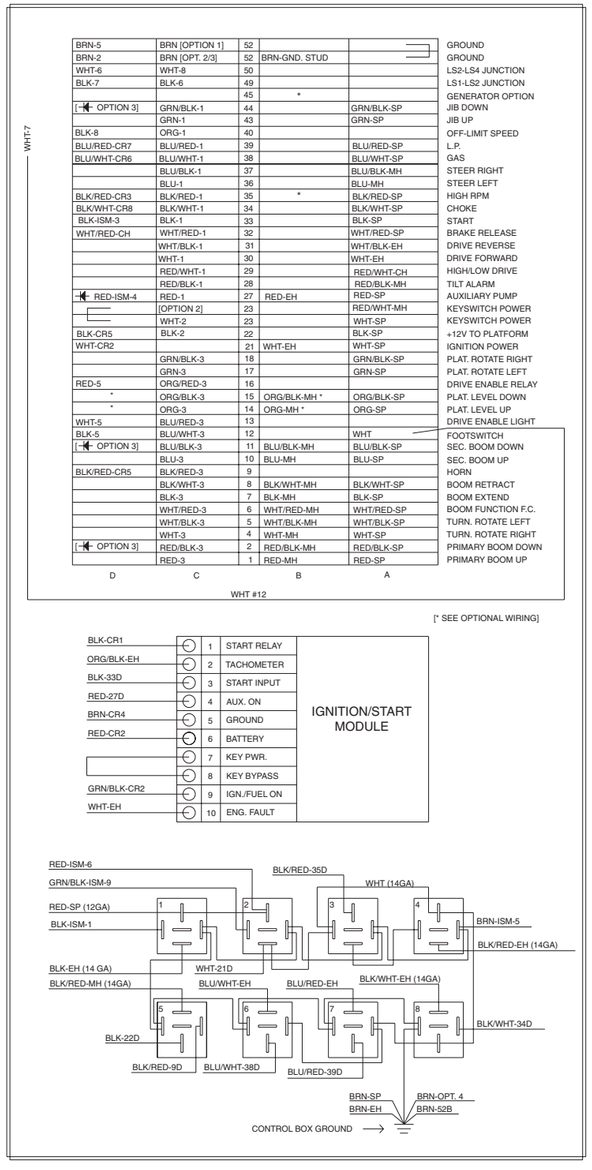
Ground Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1547 to 1985)

REV A



LABEL	DESCRIPTION
P1	EMERGENCY STOP BUTTON
KS1	KEY SWITCH
TS15	AUXILIARY TOGGLE SWITCH
TS16	ENGINE START TOGGLE SWITCH
TS17	ENGINE CHOKE TOGGLE SWITCH
TS18	ENGINE FUEL SELECT TOGGLE SWITCH
TS19	FUNCTION ENABLE/ENGINE RPM TOGGLE SWITCH
TS20	TURNTABLE ROTATE TOGGLE SWITCH
TS21	SECONDARY BOOM UP/DOWN TOGGLE SWITCH
TS22	PRIMARY BOOM UP/DOWN TOGGLE SWITCH
TS23	BOOM EXTEND/RETRACT TOGGLE SWITCH
TS24	PLATFORM LEVEL TOGGLE SWITCH
TS25	PLATFORM ROTATE TOGGLE SWITCH
TS26	JIB UP/DOWN TOGGLE SWITCH
CB1	CIRCUIT BREAKER, ENGINE, 10A
CB2	CIRCUIT BREAKER, CONTROLS, 10A
HM	HOUR METER
EH	ENGINE HARNESS
MH	MANIFOLD HARNESS
CH	CHASSIS HARNESS
SP	SWITCH PANEL
CR	CONTROL RELAY
ISM	IGNITION/START MODULE
A2	BRAKE RELEASE/TRAVEL ALARM (OPT.)





BRN-5	BRN [OPTION 1]	52			GROUND
BRN-2	BRN [OPT. 2/3]	52	BRN-GND. STUD		GROUND
WHT-6	WHT-6	50			LS2-LS4 JUNCTION
BLK-7	BLK-6	49			LS1-LS2 JUNCTION
		45	*		GENERATOR OPTION
[OPTION 3]	GRN/BLK-1	44		GRN/BLK-SP	JIB DOWN
	GRN-1	43		GRN-SP	JIB UP
BLK-8	ORG-1	40			OFF-LIMIT SPEED
BLU/RED-CR7	BLU/RED-1	39		BLU/RED-SP	L.P.
BLU/WHT-CR6	BLU/WHT-1	38		BLU/WHT-SP	GAS
	BLU/BLK-1	37		BLU/BLK-MH	STEER RIGHT
	BLU-1	36		BLU-MH	STEER LEFT
BLK/RED-CR3	BLK/RED-1	35	*	BLK/RED-SP	HIGH RPM
BLK/WHT-CR8	BLK/WHT-1	34		BLK/WHT-SP	CHOKE
BLK-ISM-3	BLK-1	33		BLK-SP	START
WHT/RED-CH	WHT/RED-1	32		WHT/RED-SP	BRAKE RELEASE
	WHT/BLK-1	31		WHT/BLK-EH	DRIVE REVERSE
	WHT-1	30		WHT-EH	DRIVE FORWARD
	RED/WHT-1	29		RED/WHT-CH	HIGH/LOW DRIVE
	RED/BLK-1	28		RED/BLK-MH	TILT ALARM
RED-ISM-4	RED-1	27	RED-EH	RED-SP	AUXILIARY PUMP
	[OPTION 2]	23		RED/WHT-MH	KEYSWITCH POWER
	WHT-2	23		WHT-SP	KEYSWITCH POWER
BLK-CR5	BLK-2	22		BLK-SP	+12V TO PLATFORM
WHT-CR2		21	WHT-EH	WHT-SP	IGNITION POWER
	GRN/BLK-3	18		GRN/BLK-SP	PLAT. ROTATE RIGHT
	GRN-3	17		GRN-SP	PLAT. ROTATE LEFT
RED-5	ORG/RED-3	16			DRIVE ENABLE RELAY
*	ORG/BLK-3	15	ORG/BLK-MH *	ORG/BLK-SP	PLAT. LEVEL DOWN
*	ORG-3	14	ORG-MH *	ORG-SP	PLAT. LEVEL UP
WHT-5	BLU/RED-3	13			DRIVE ENABLE LIGHT
BLK-5	BLU/WHT-3	12		WHT	FOOTSWITCH
[OPTION 3]	BLU/BLK-3	11	BLU/BLK-MH	BLU/BLK-SP	SEC. BOOM DOWN
	BLU-3	10	BLU-MH	BLU-SP	SEC. BOOM UP
BLK/RED-CR5	BLK/RED-3	9			HORN
	BLK/WHT-3	8	BLK/WHT-MH	BLK/WHT-SP	BOOM RETRACT
	BLK-3	7	BLK-MH	BLK-SP	BOOM EXTEND
	WHT/RED-3	6	WHT/RED-MH	WHT/RED-SP	BOOM FUNCTION F.C.
	WHT/BLK-3	5	WHT/BLK-MH	WHT/BLK-SP	TURN. ROTATE LEFT
	WHT-3	4	WHT-MH	WHT-SP	TURN. ROTATE RIGHT
[OPTION 3]	RED/BLK-3	2	RED/BLK-MH	RED/BLK-SP	PRIMARY BOOM DOWN
	RED-3	1	RED-MH	RED-SP	PRIMARY BOOM UP
D	C	B	A		

[* SEE OPTIONAL WIRING]

SPARE WIRE LIST

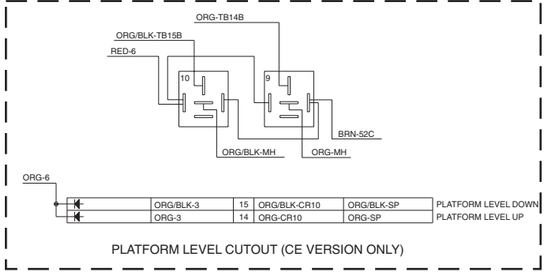
GRN/WHT-1 *
ORG/RED-1
ORG/BLK-1
GRN/WHT-3
RED/WHT-3

OPTION NUMBERS

1 - PLATFORM LEVEL CUTOUT
2 - FLASHING BEACON
3 - DESCENT ALARM
4 - AC GENERATOR

*AC GENERATOR OPTION

	GRN/WHT-1	45	GRN/WHT-EH	GRN/WHT-TB35	AC GENERATOR
BLK/RED-CR3	BLK/RED-1	35	GRN/WHT-TB45	BLK/RED-SP	HIGH RPM



	ORG/BLK-3	15	ORG/BLK-CR10	ORG/BLK-SP	PLATFORM LEVEL DOWN
	ORG-3	14	ORG-CR10	ORG-SP	PLATFORM LEVEL UP

PLATFORM LEVEL CUTOUT (CE VERSION ONLY)

CONTROL RELAY I.D.

CR1-ENGINE START
CR2-ENGINE RUN
CR3-RPM CUTOUT
CR4-HIGH RPM
CR5-HORN
CR6-FUEL PUMP (GAS)
CR7-LPG SOLENOID
CR8-CHOKE

ES34GP6H

Ground Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1986 to 3241)

REV A

N M L K J I H G F E D C B A

SPARE WIRE LIST

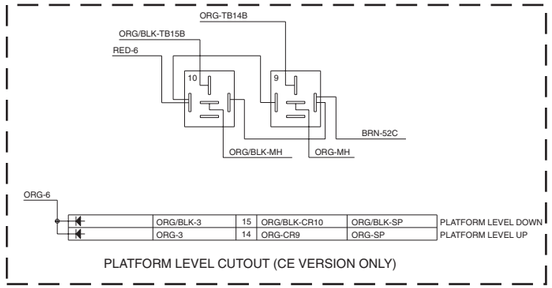
GRN/WHT-1 *
ORG/RED-1
ORG/BLK-1
GRN/WHT-3
RED/WHT-3

OPTION NUMBERS

1 - PLATFORM LEVEL CUTOUT
2 - FLASHING BEACON
3 - DESCENT ALARM
4 - AC GENERATOR

*AC GENERATOR OPTION

	GRN/WHT-1	45	GRN/WHT-EH	GRN/WHT-TB35	AC GENERATOR
BLK/RED-CR3	BLK/RED-1	35	GRN/WHT-TB45	BLK/RED-SP	HIGH RPM



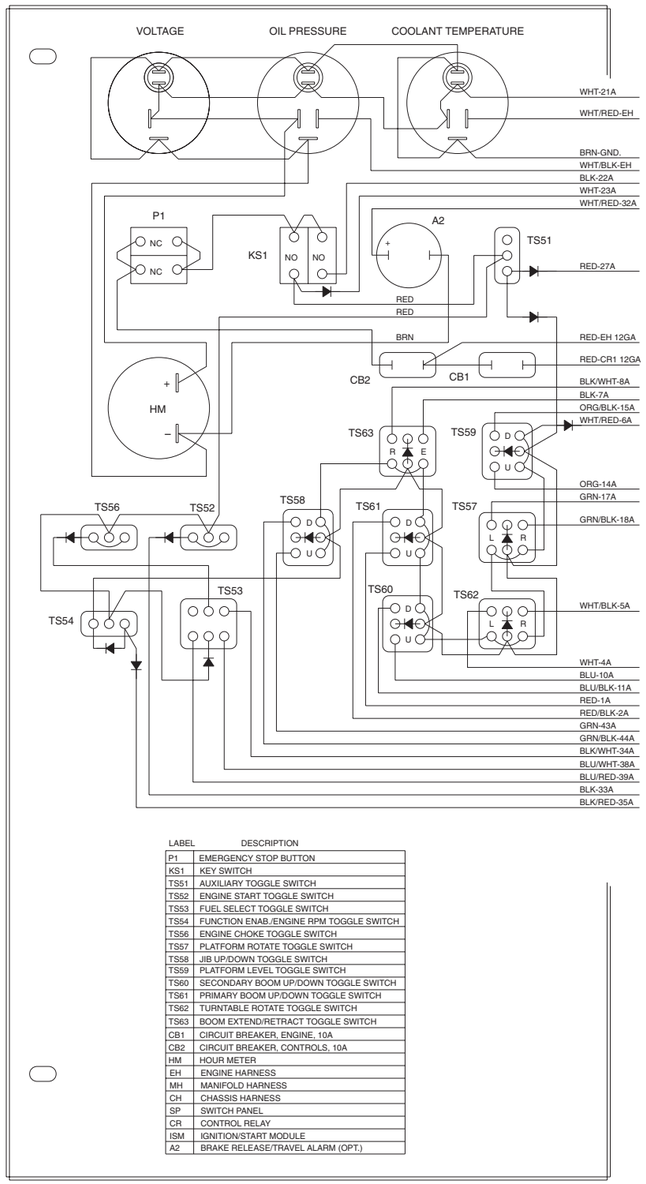
	ORG/BLK-3	15	ORG/BLK-CR10	ORG/BLK-SP	PLATFORM LEVEL DOWN
	ORG-3	14	ORG-CR9	ORG-SP	PLATFORM LEVEL UP

PLATFORM LEVEL CUTOUT (CE VERSION ONLY)

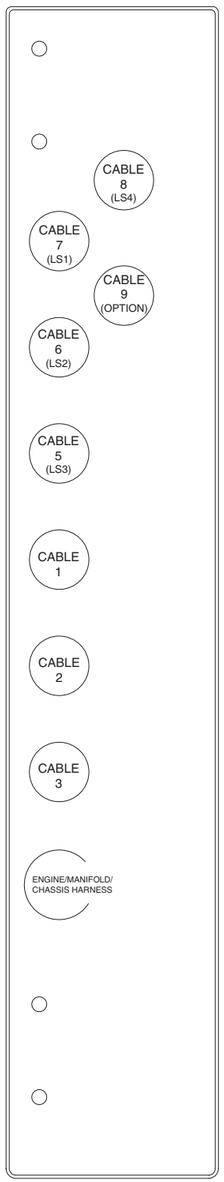
CONTROL RELAY I.D.

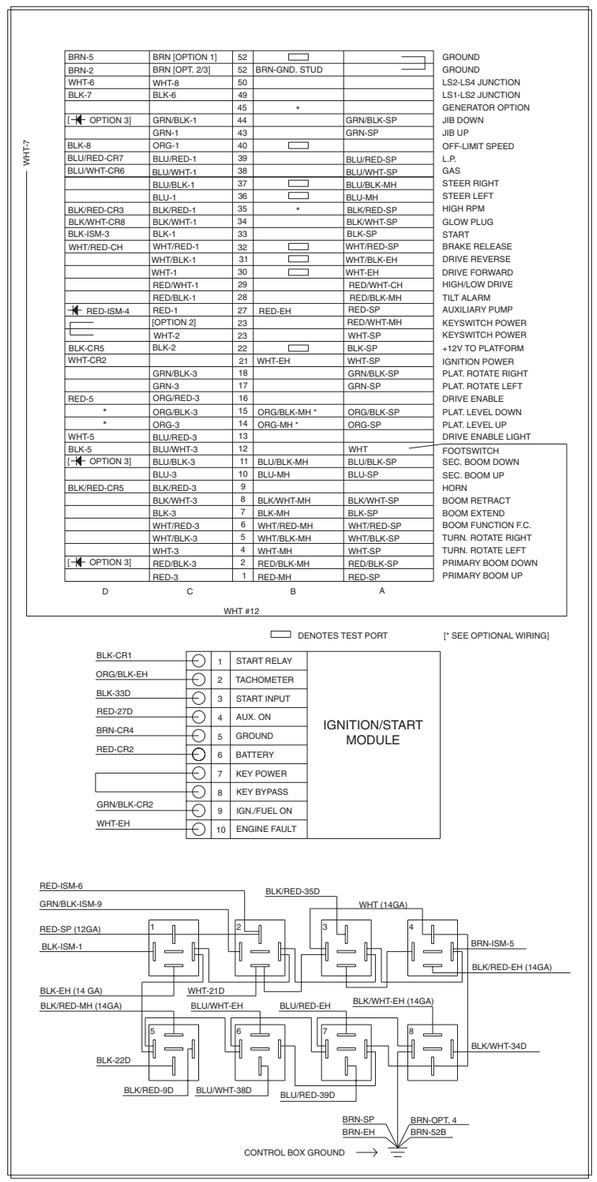
CR1-ENGINE START
CR2-ENGINE RUN
CR3-RPM CUTOUT
CR4-HIGH RPM
CR5-HORN
CR6-FUEL PUMP (GAS)
CR7-LPG SOLENOID
CR8-CHOKE

ES34GP5L

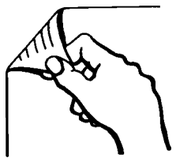


LABEL	DESCRIPTION
P1	EMERGENCY STOP BUTTON
KS1	KEY SWITCH
TS51	AUXILIARY TOGGLE SWITCH
TS52	ENGINE START TOGGLE SWITCH
TS53	FUEL SELECT TOGGLE SWITCH
TS54	FUNCTION ENAB./ENGINE RPM TOGGLE SWITCH
TS56	ENGINE CHOKE TOGGLE SWITCH
TS57	PLATFORM ROTATE TOGGLE SWITCH
TS58	JIB UP/DOWN TOGGLE SWITCH
TS59	PLATFORM LEVEL TOGGLE 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, 10A
CB2	CIRCUIT BREAKER, CONTROLS, 10A
HM	HOUR METER
EH	ENGINE HARNESS
MH	MANIFOLD HARNESS
CH	CHASSIS HARNESS
SP	SWITCH PANEL
CR	CONTROL RELAY
ISM	IGNITION/START MODULE
A2	BRAKE RELEASE/TRAVEL ALARM (OPT.)





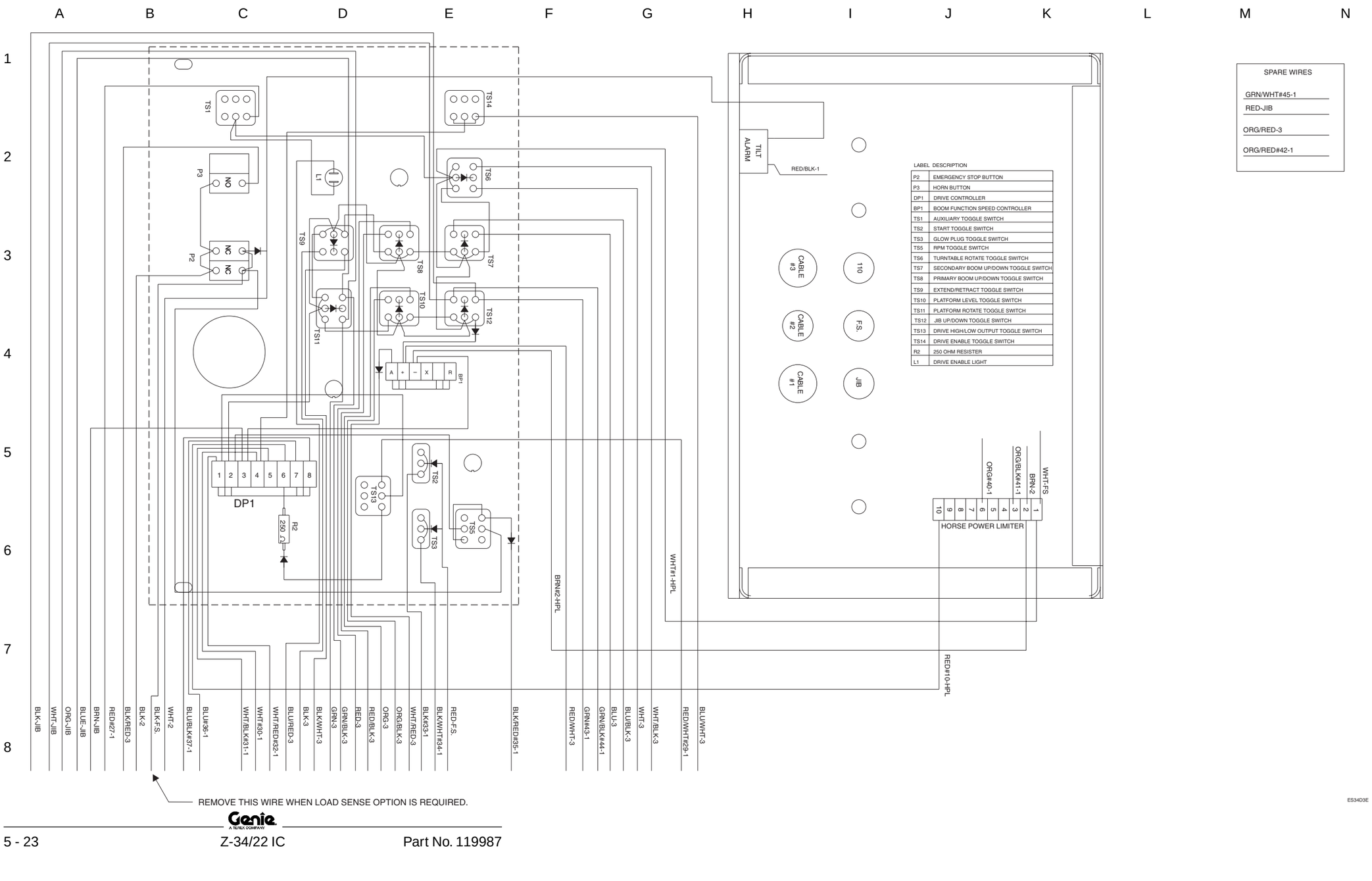
Ground Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1986 to 3241)



Platform Control Box Wiring Diagram - Diesel Models (from serial number 1187 to 1546)

Platform Control Box Wiring Diagram - Diesel Models (from serial number 1187 to 1546)

REV A



ES34D3E

Platform Control Box Wiring Diagram - Diesel Models (from serial number 1547 to 1996)

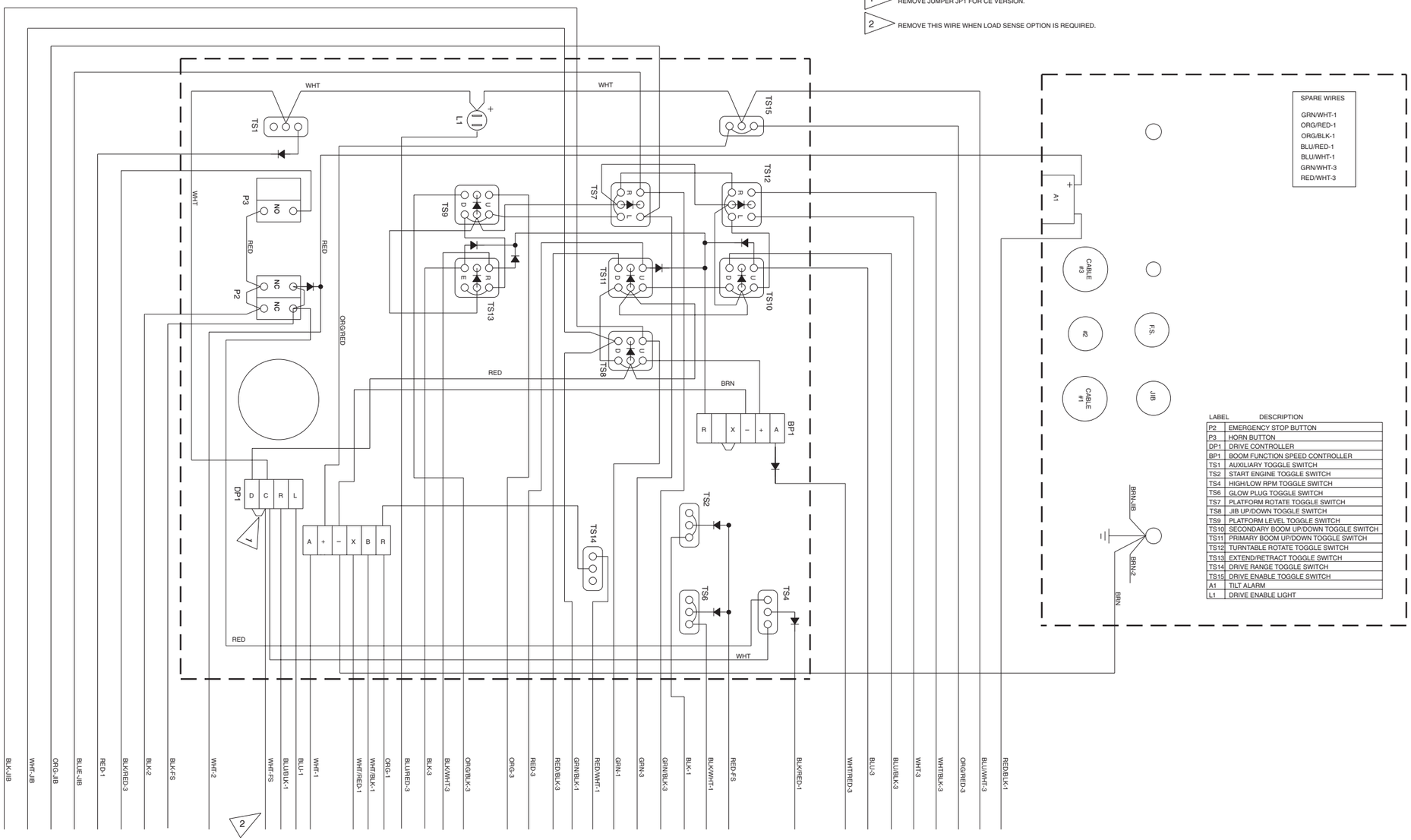
REV A

N M L K J I H G F E D C B A

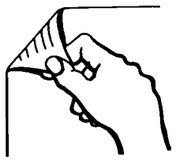
1 2 3 4 5 6 7 8

NOTES:

1. REMOVE JUMPER JP1 FOR CE VERSION.
2. REMOVE THIS WIRE WHEN LOAD SENSE OPTION IS REQUIRED.



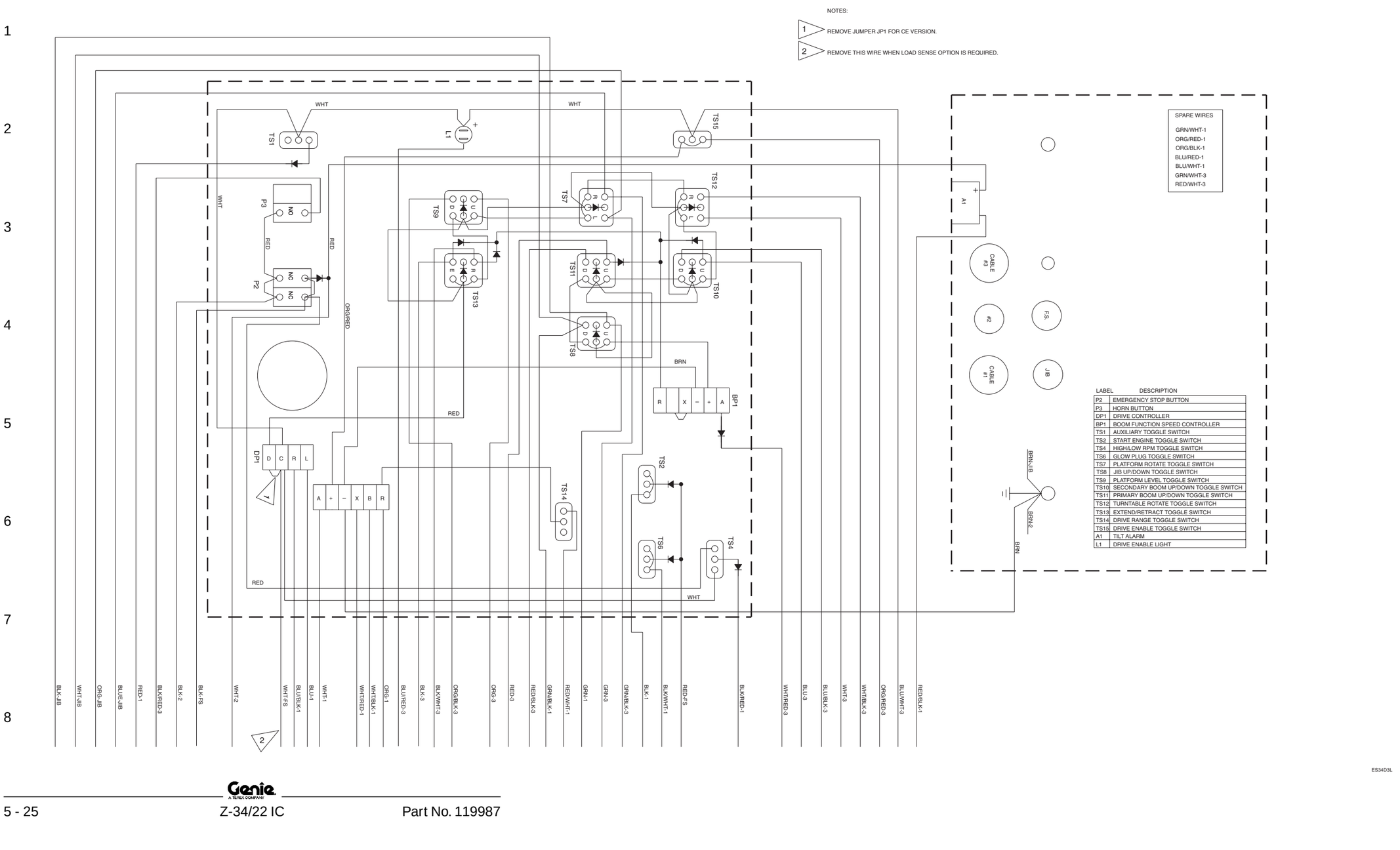
Platform Control Box Wiring Diagram - Diesel Models (from serial number 1547 to 1996)



Platform Control Box Wiring Diagram - Diesel Models (from serial number 1997 to 3241)

Platform Control Box Wiring Diagram - Diesel Models (from serial number 1997 to 3241)

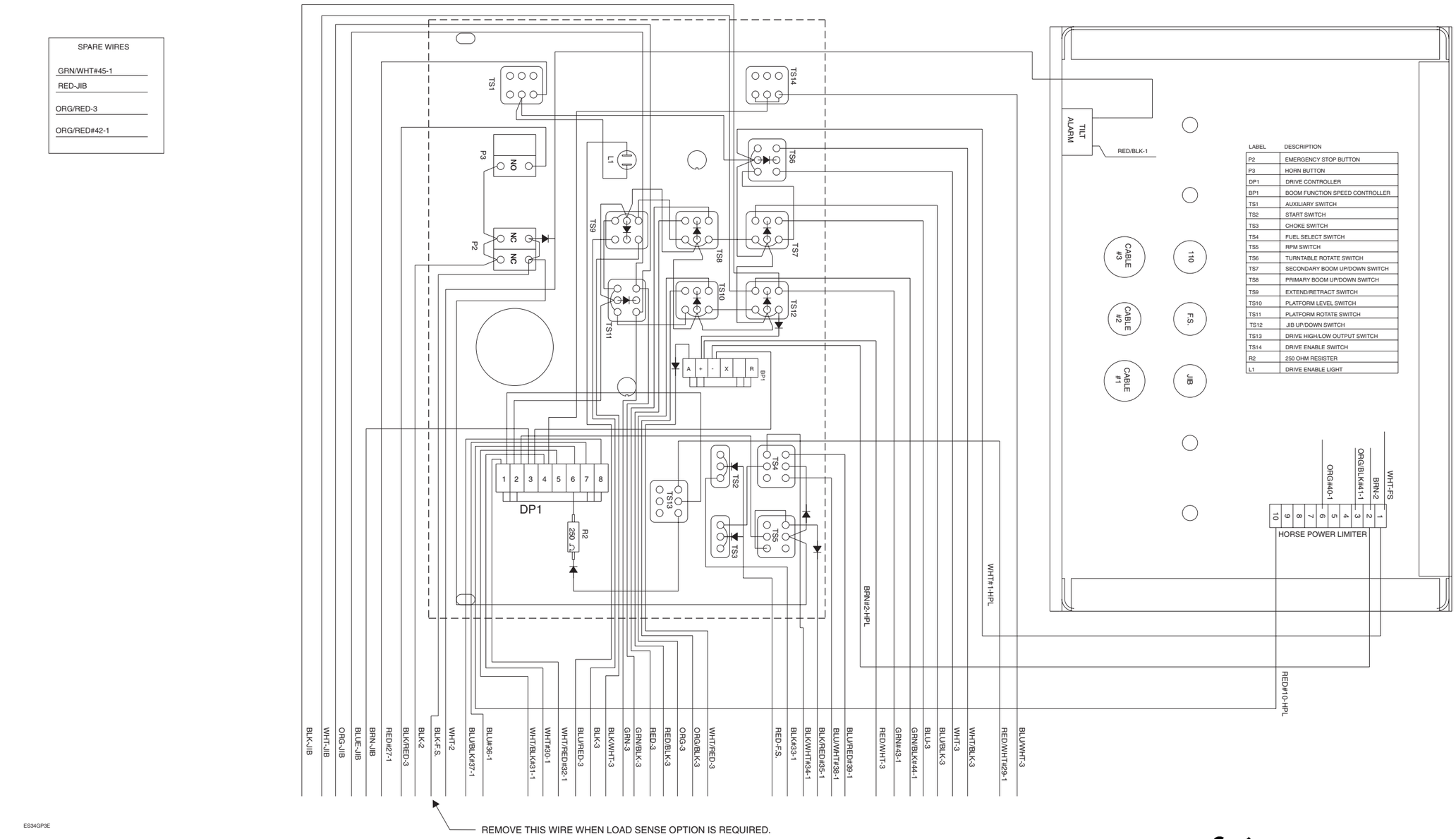
REV A



ES34D3L

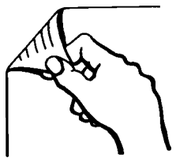
Platform Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1187 to 1546)

REV A



ES34GP3E

Platform Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1187 to 1546)



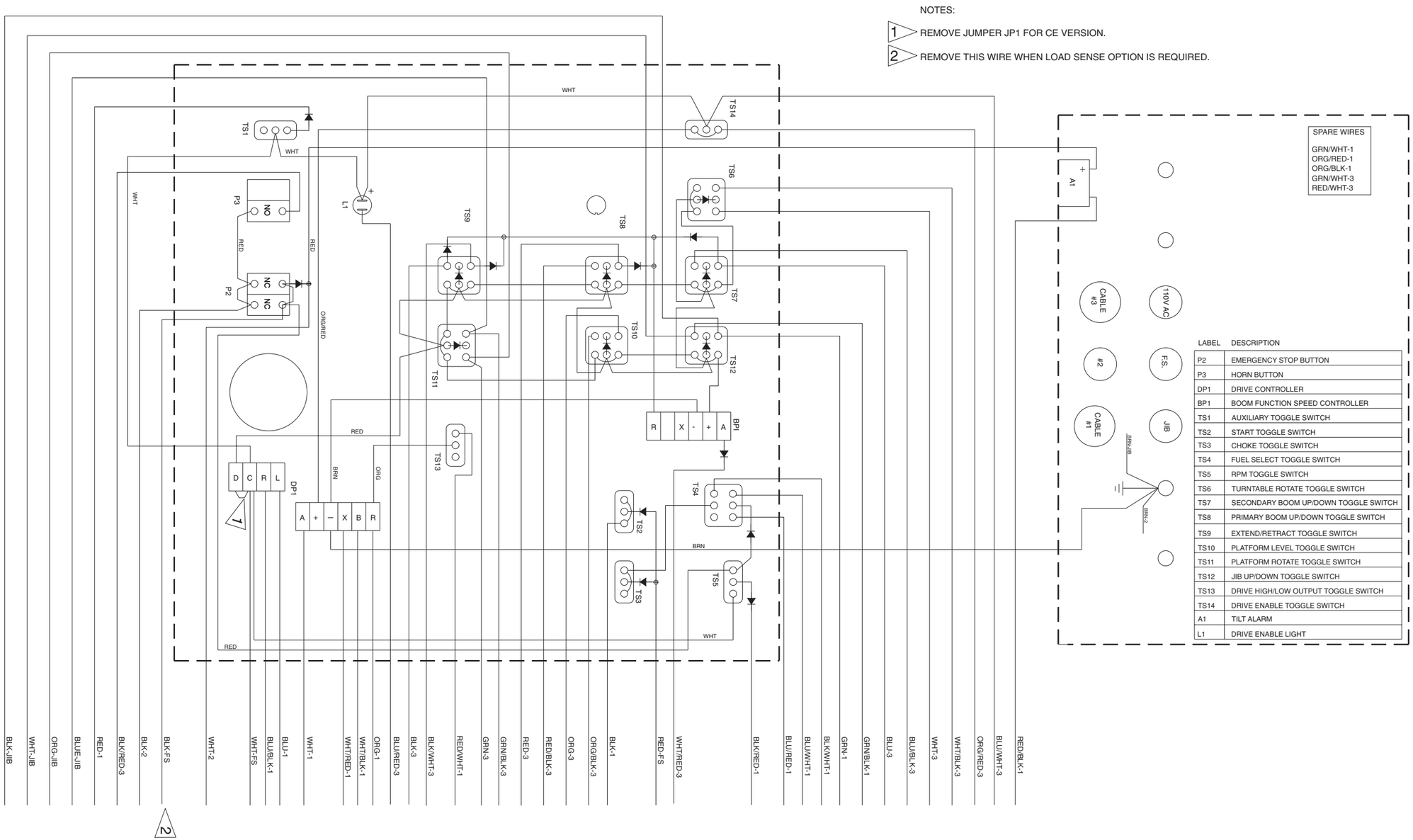
Platform Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1547 to 1996)

Platform Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1547 to 1996)

REV A

NOTES:

1. REMOVE JUMPER JP1 FOR CE VERSION.
2. REMOVE THIS WIRE WHEN LOAD SENSE OPTION IS REQUIRED.



LABEL	DESCRIPTION
P2	EMERGENCY STOP BUTTON
P3	HORN BUTTON
DP1	DRIVE CONTROLLER
BP1	BOOM FUNCTION SPEED CONTROLLER
TS1	AUXILIARY TOGGLE SWITCH
TS2	START TOGGLE SWITCH
TS3	CHOKE TOGGLE SWITCH
TS4	FUEL SELECT TOGGLE SWITCH
TS5	RPM TOGGLE SWITCH
TS6	TURNTABLE ROTATE TOGGLE SWITCH
TS7	SECONDARY BOOM UP/DOWN TOGGLE SWITCH
TS8	PRIMARY BOOM UP/DOWN TOGGLE SWITCH
TS9	EXTEND/RETRACT TOGGLE SWITCH
TS10	PLATFORM LEVEL TOGGLE SWITCH
TS11	PLATFORM ROTATE TOGGLE SWITCH
TS12	JIB UP/DOWN TOGGLE SWITCH
TS13	DRIVE HIGH/LOW OUTPUT TOGGLE SWITCH
TS14	DRIVE ENABLE TOGGLE SWITCH
A1	TILT ALARM
L1	DRIVE ENABLE LIGHT

ES34GP3J

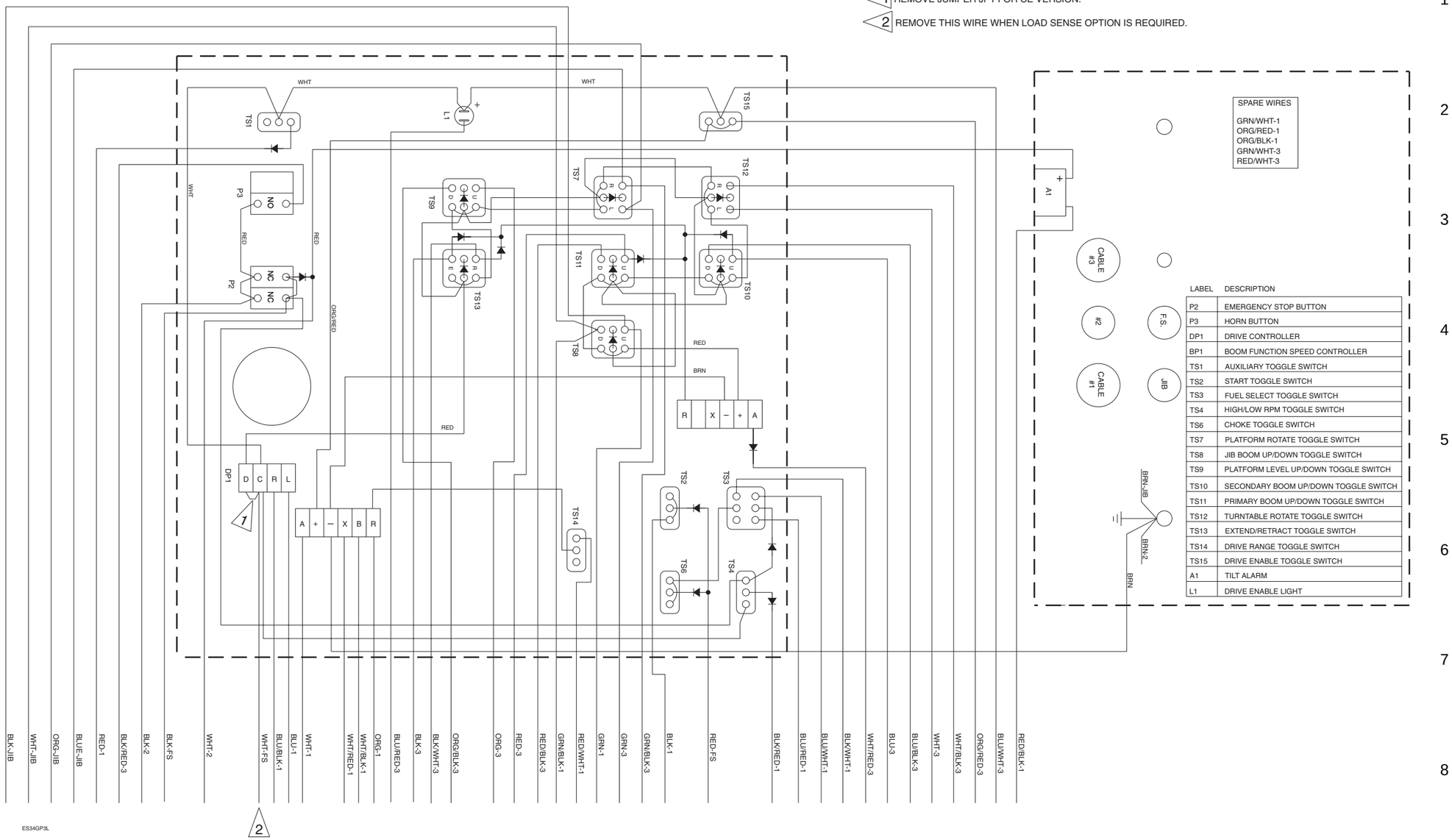
Platform Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1997 to 3241)

REV A

N M L K J I H G F E D C B A

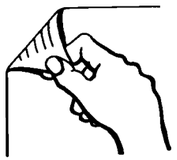
NOTES:

1. REMOVE JUMPER JP1 FOR CE VERSION.
2. REMOVE THIS WIRE WHEN LOAD SENSE OPTION IS REQUIRED.



ES34GP3L

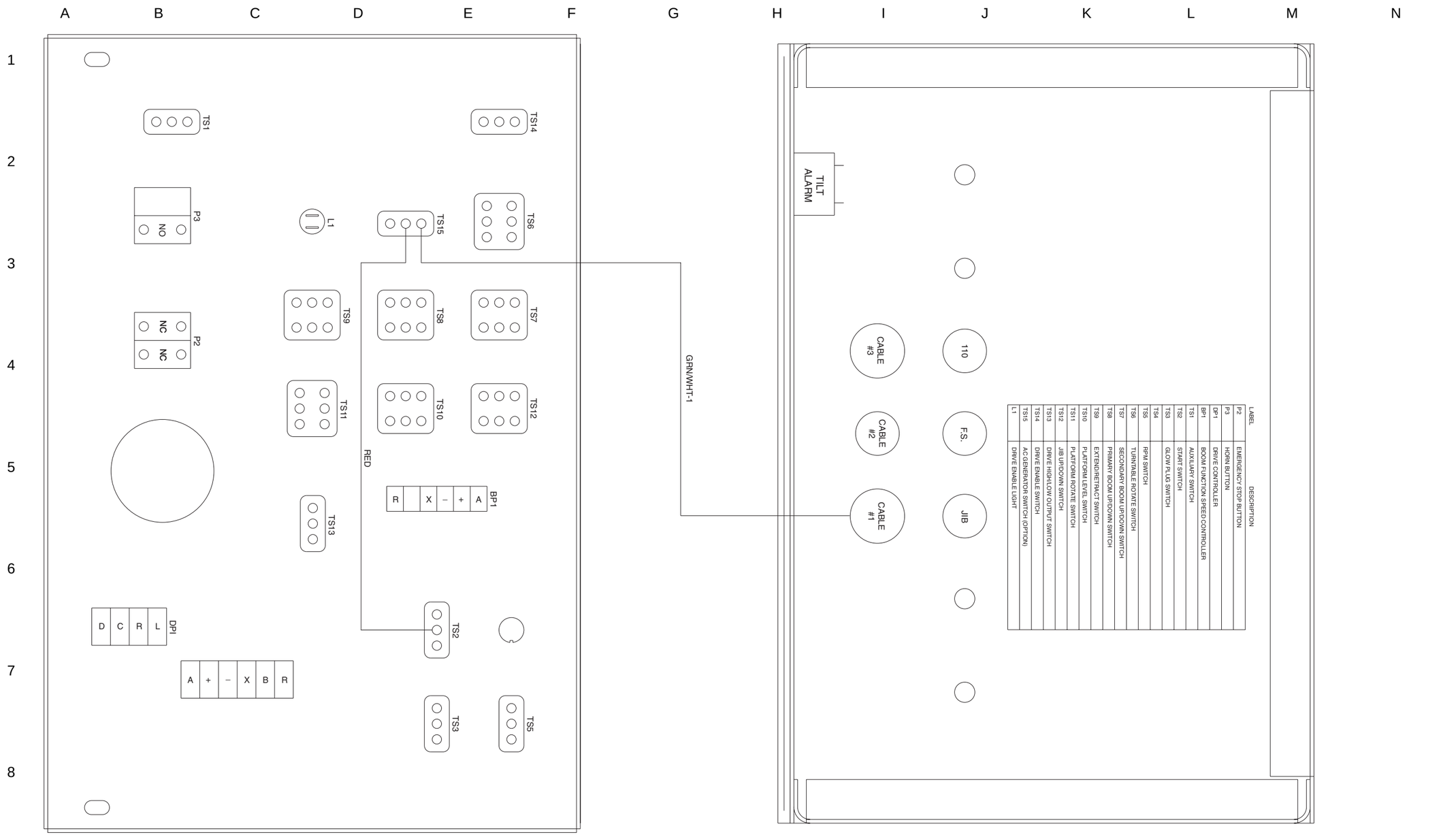
Platform Control Box Wiring Diagram - Gasoline/LPG Models (from serial number 1997 to 3241)



Generator Option Wiring Diagram (from serial number 1547 to 1996)

Generator Option Wiring Diagram (from serial number 1547 to 1996)

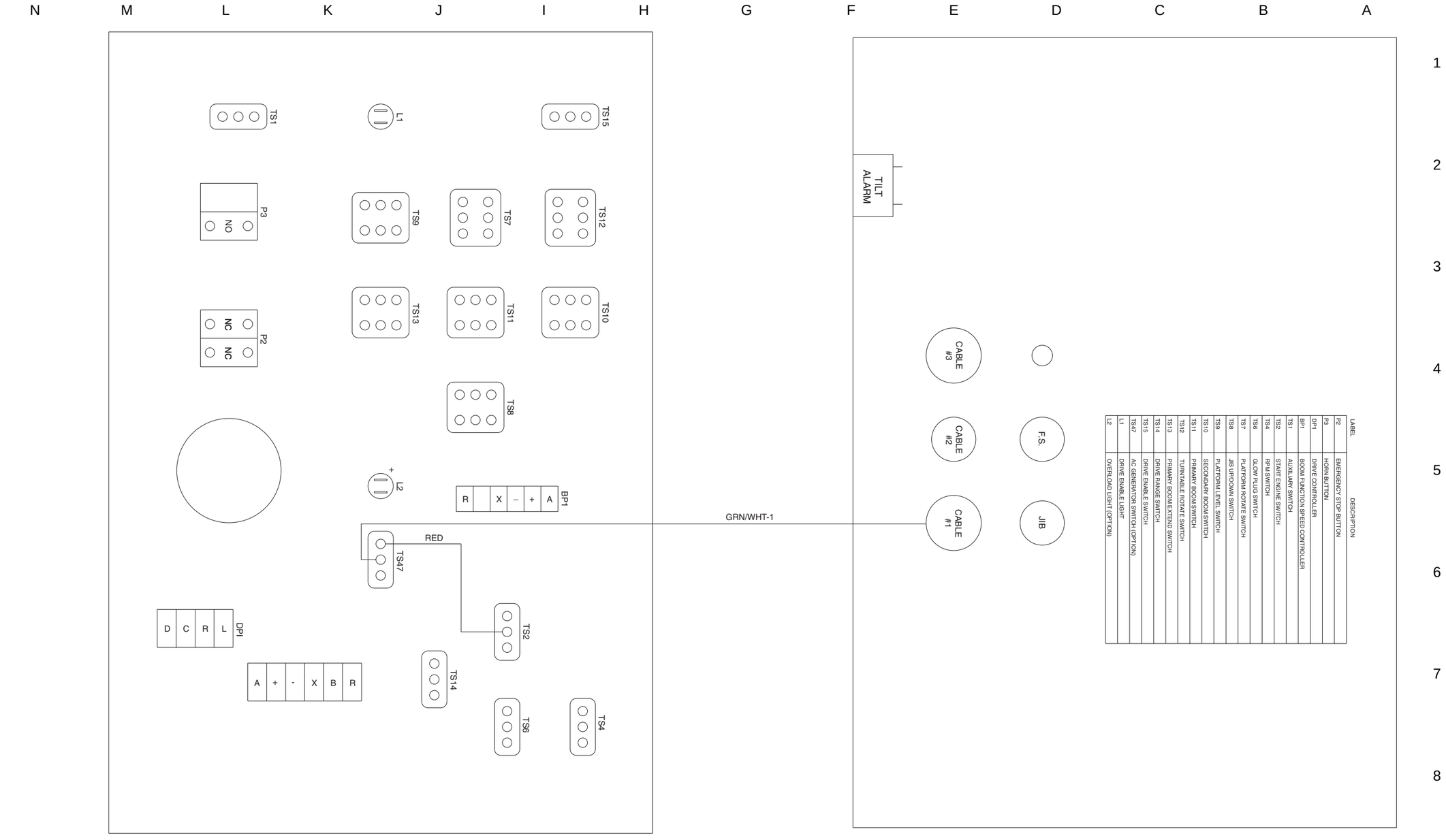
REV A



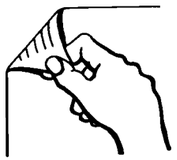
LABEL	DESCRIPTION
P2	EMERGENCY STOP BUTTON
P3	HORN BUTTON
DP1	DRIVE CONTROLLER
BP1	BOOM FUNCTION SPEED CONTROLLER
TS1	AUXILIARY SWITCH
TS2	START SWITCH
TS3	GLOW PLUG SWITCH
TS4	
TS5	RPM SWITCH
TS6	TURNTABLE ROTATE SWITCH
TS7	SECONDARY BOOM UP/DOWN SWITCH
TS8	PRIMARY BOOM UP/DOWN SWITCH
TS9	EXTEND/RETRACT SWITCH
TS10	PLATFORM LEVEL SWITCH
TS11	PLATFORM ROTATE SWITCH
TS12	JIB UP/DOWN SWITCH
TS13	DRIVE HIGH/LOW OUTPUT SWITCH
TS14	DRIVE ENABLE SWITCH
TS15	AC GENERATOR SWITCH (OPTION)
L1	DRIVE ENABLE LIGHT

Generator Option Wiring Diagram (from serial number 1997 to 3241)

REV A



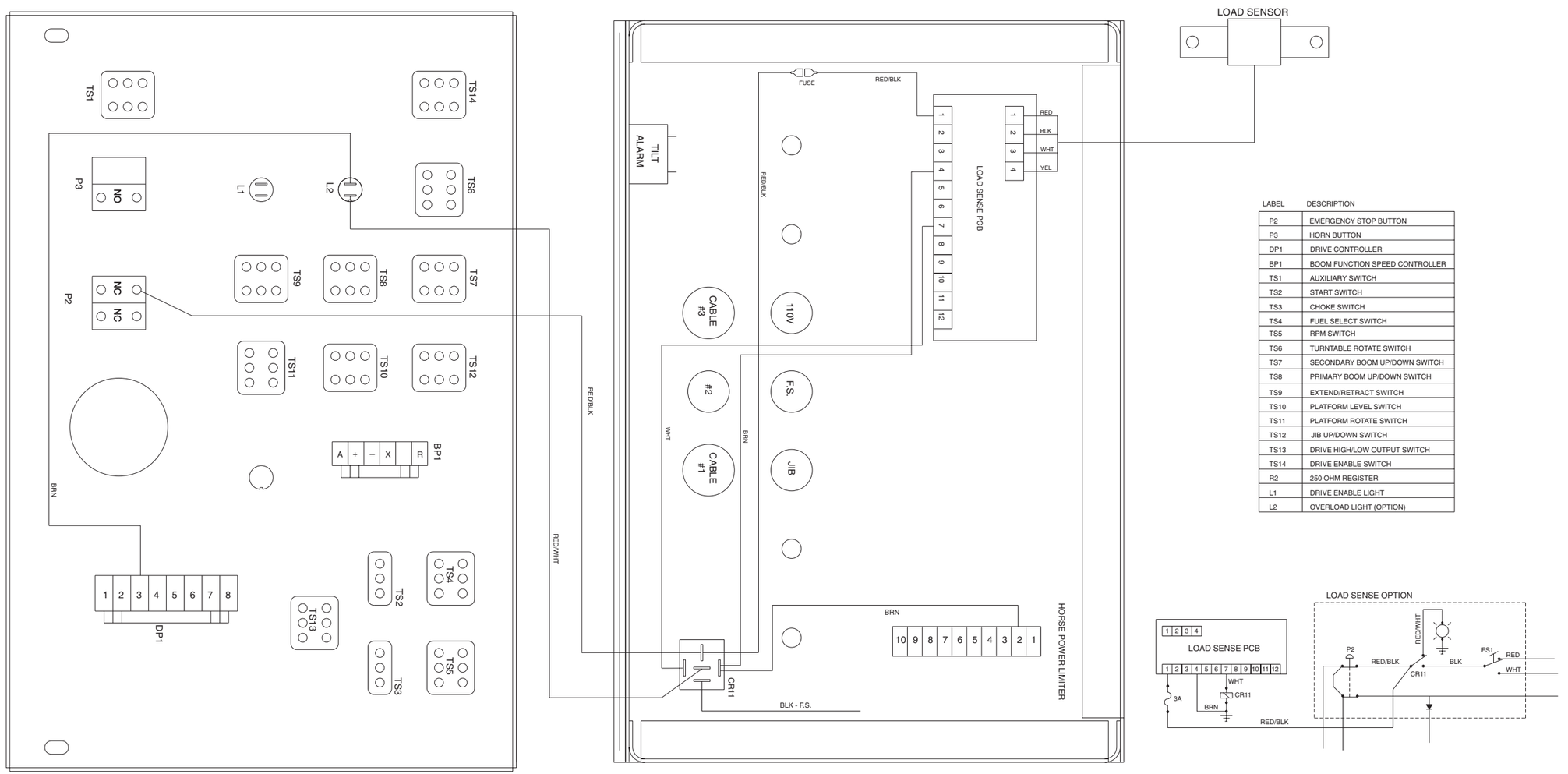
Generator Option Wiring Diagram (from serial number 1997 to 3241)



Load Sense Option Wiring Diagram (from serial number 1187 to 1546)

Load Sense Option Wiring Diagram (from serial number 1187 to 1546)

REV A



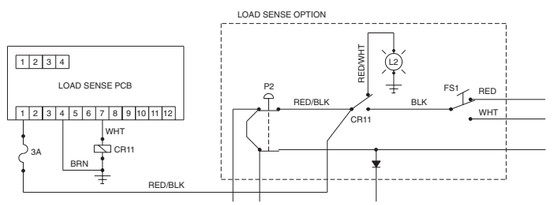
LABEL	DESCRIPTION
P2	EMERGENCY STOP BUTTON
P3	HORN BUTTON
DP1	DRIVE CONTROLLER
BP1	BOOM FUNCTION SPEED CONTROLLER
TS1	AUXILIARY SWITCH
TS2	START SWITCH
TS3	CHOKE SWITCH
TS4	FUEL SELECT SWITCH
TS5	RPM SWITCH
TS6	TURNTABLE ROTATE SWITCH
TS7	SECONDARY BOOM UP/DOWN SWITCH
TS8	PRIMARY BOOM UP/DOWN SWITCH
TS9	EXTEND/RETRACT SWITCH
TS10	PLATFORM LEVEL SWITCH
TS11	PLATFORM ROTATE SWITCH
TS12	JIB UP/DOWN SWITCH
TS13	DRIVE HIGH/LOW OUTPUT SWITCH
TS14	DRIVE ENABLE SWITCH
R2	250 OHM REGISTER
L1	DRIVE ENABLE LIGHT
L2	OVERLOAD LIGHT (OPTION)

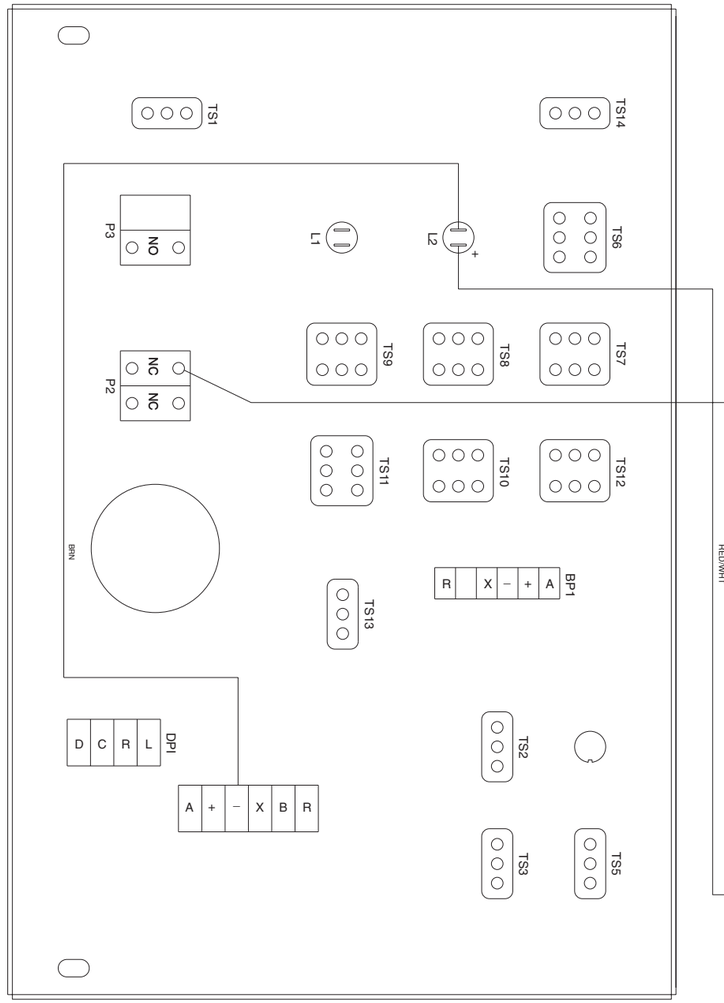
ES34GP4E

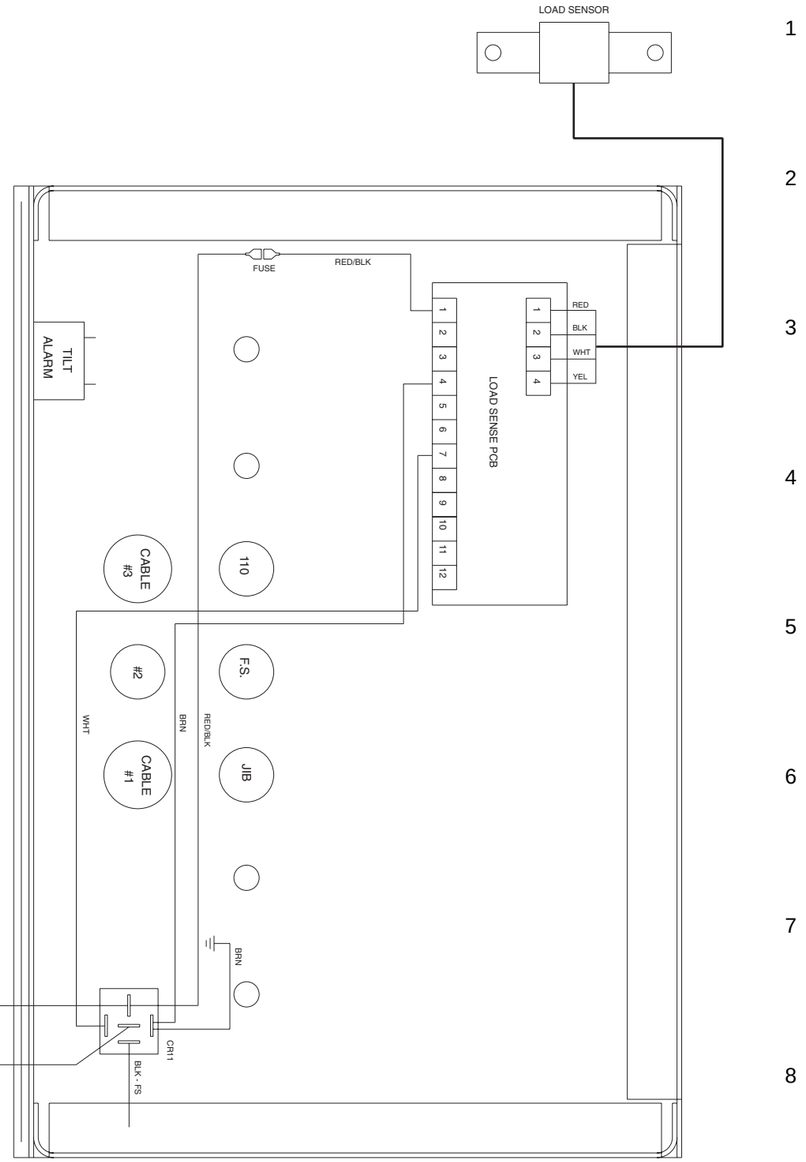
Load Sense Option Wiring Diagram (from serial number 1547 to 1996)

REV A

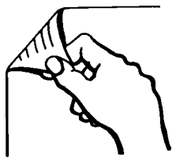
LABEL	DESCRIPTION
P2	EMERGENCY STOP BUTTON
P3	HORN BUTTON
DP1	DRIVE CONTROLLER
BP1	BOOM FUNCTION SPEED CONTROLLER
TS1	AUXILIARY SWITCH
TS2	START SWITCH
TS3	GLOW PLUG SWITCH
TS4	
TS5	RPM SWITCH
TS6	TURNTABLE ROTATE SWITCH
TS7	SECONDARY BOOM UP/DOWN SWITCH
TS8	PRIMARY BOOM UP/DOWN SWITCH
TS9	EXTEND/RETRACT SWITCH
TS10	PLATFORM LEVEL SWITCH
TS11	PLATFORM ROTATE SWITCH
TS12	JIB UP/DOWN SWITCH
TS13	DRIVE HIGH/LOW OUTPUT SWITCH
TS14	DRIVE ENABLE SWITCH
L1	DRIVE ENABLE LIGHT
L2	OVERLOAD LIGHT (OPTION)







Load Sense Option Wiring Diagram (from serial number 1547 to 1996)



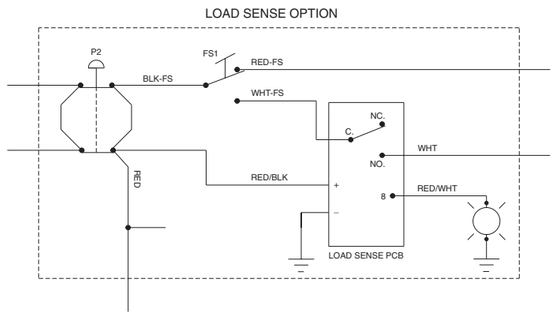
Load Sense Option Wiring Diagram (from serial number 1997 to 3241)

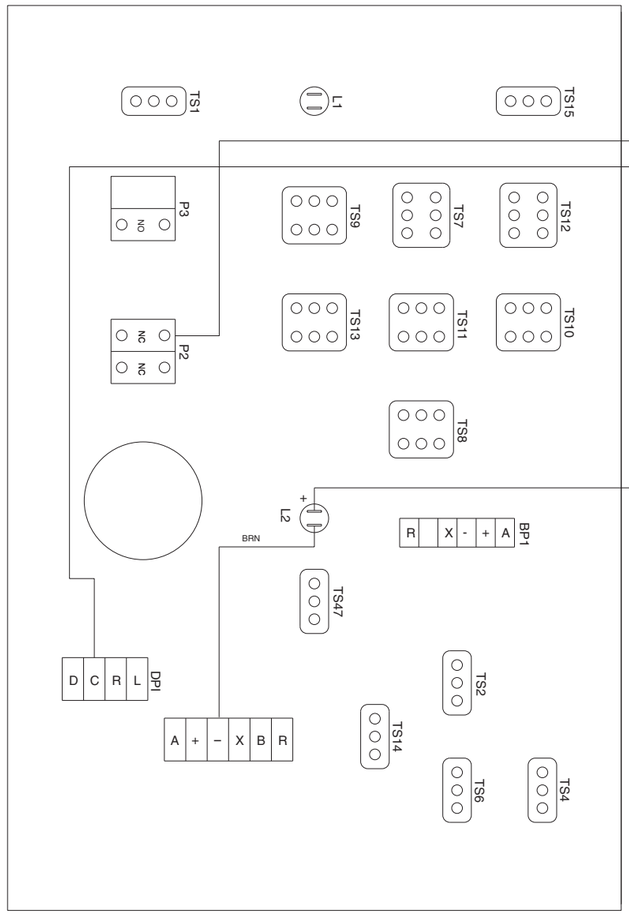
REV A

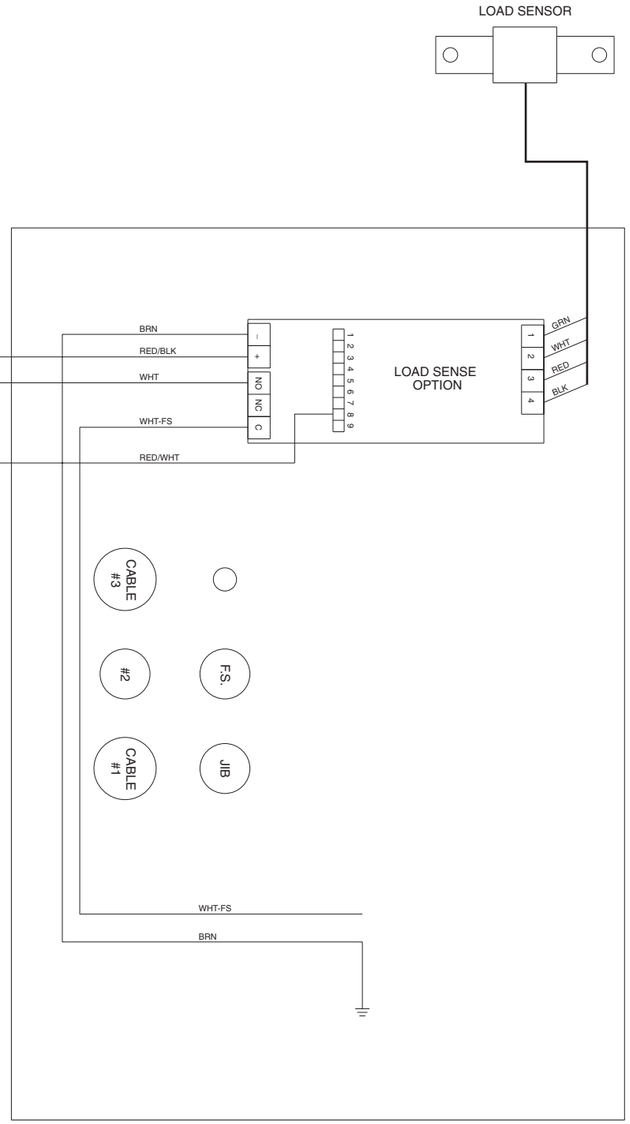
N M L K J I H G F E D C B A

LABEL	DESCRIPTION
P2	EMERGENCY STOP BUTTON
P3	HORN BUTTON
DP1	DRIVE CONTROLLER
BP1	BOOM FUNCTION SPEED CONTROLLER
TS1	AUXILIARY SWITCH
TS2	START ENGINE SWITCH
TS4	RPM SWITCH
TS6	GLOW PLUG SWITCH
TS7	PLATFORM ROTATE SWITCH
TS8	JIB UP/DOWN SWITCH
TS9	PLATFORM LEVEL SWITCH
TS10	SECONDARY BOOM SWITCH
TS11	PRIMARY BOOM SWITCH
TS12	TURNTABLE ROTATE SWITCH
TS13	PRIMARY BOOM EXTEND SWITCH
TS14	DRIVE RANGE SWITCH
TS15	DRIVE ENABLE SWITCH
TS47	AC GENERATOR SWITCH (OPTION)
L1	DRIVE ENABLE LIGHT
L2	OVERLOAD LIGHT (OPTION)

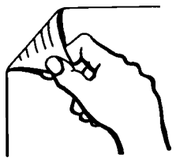
LOAD SENSE OPTION

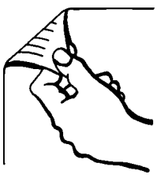






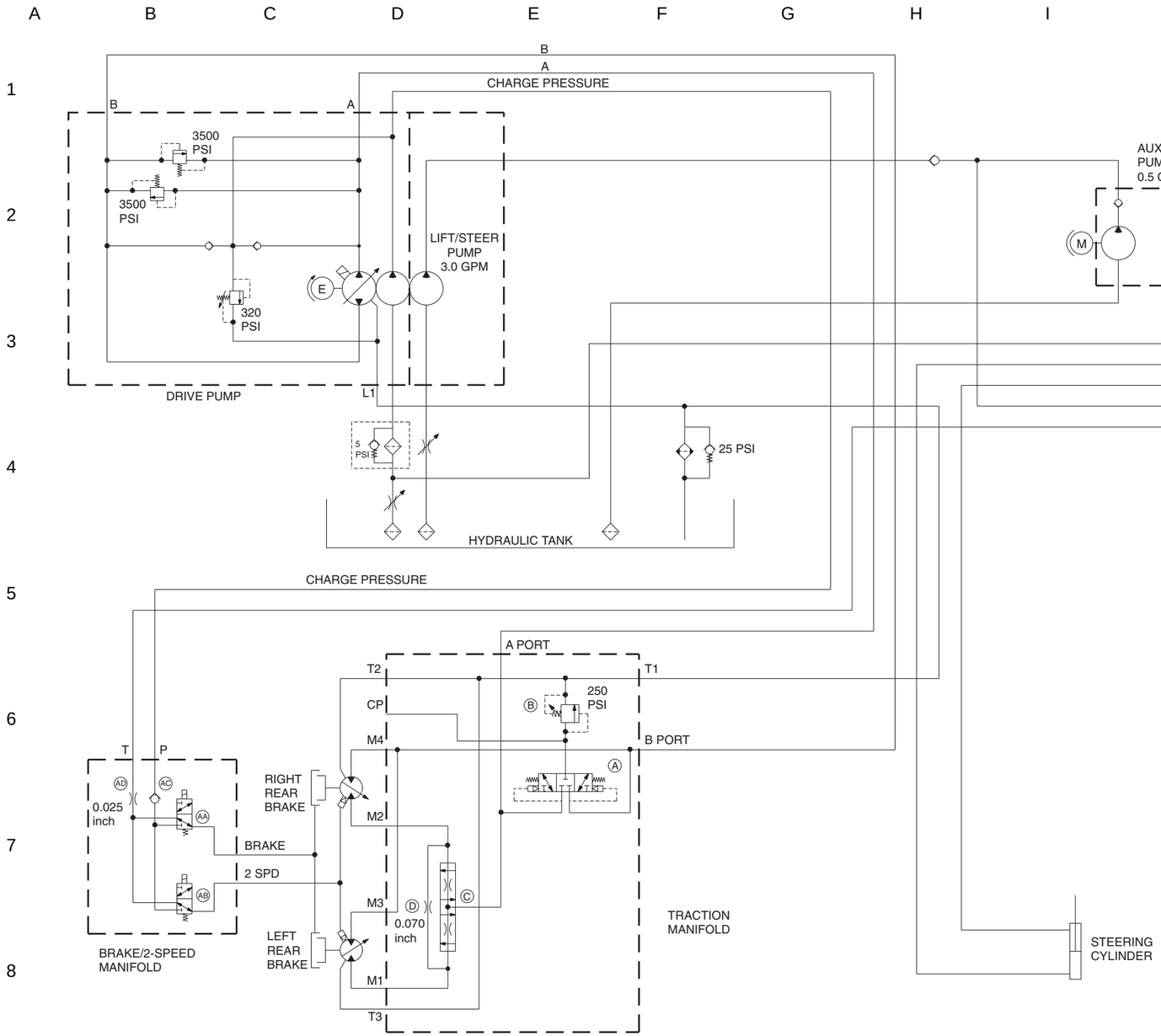
Load Sense Option Wiring Diagram (from serial number 1997 to 3241)





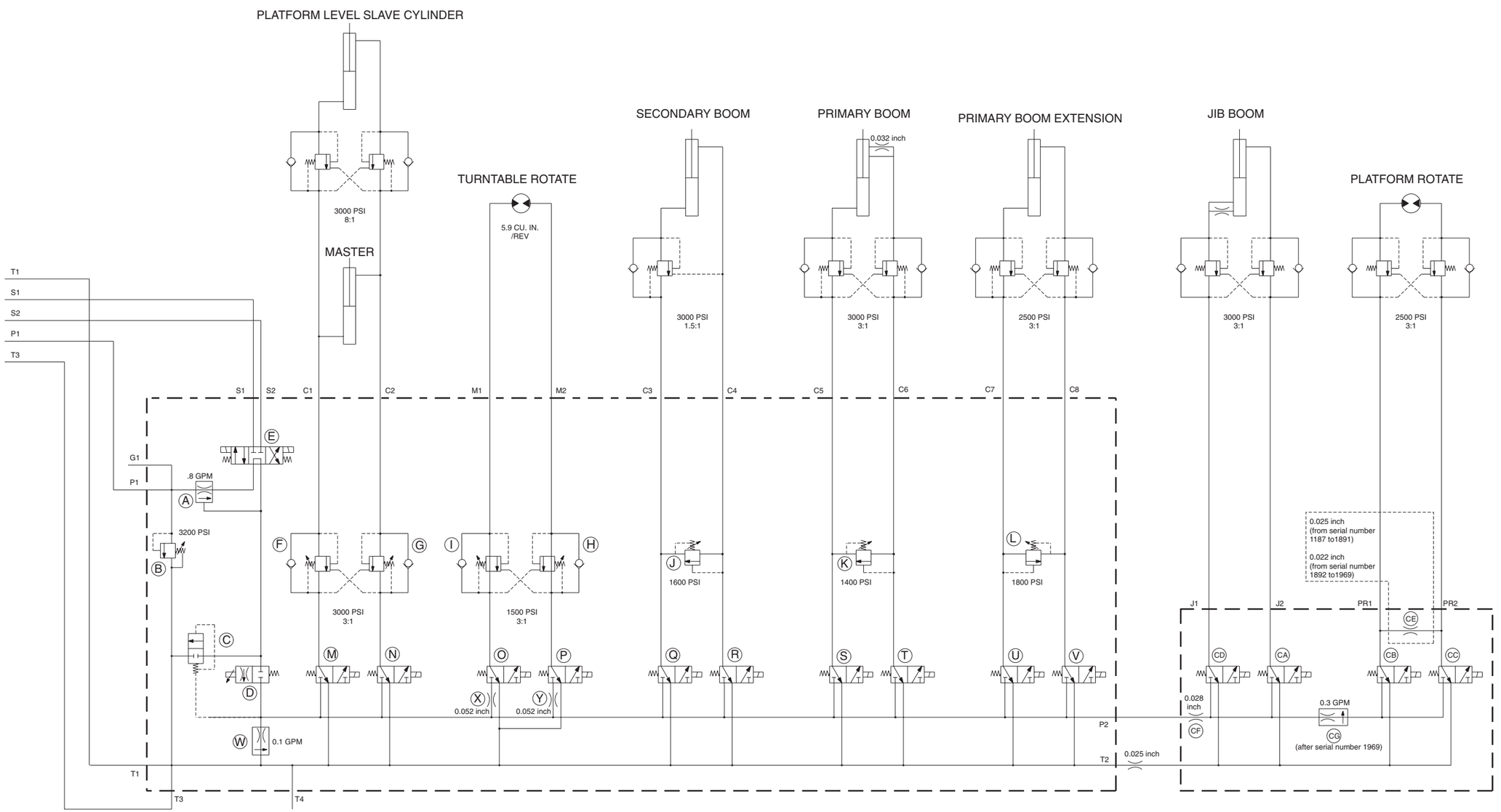
Hydraulic Schematic, 2WD Models (from serial number 1187 to 1546)

REV A

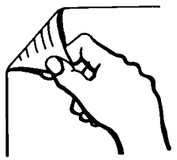


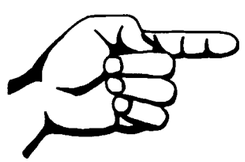
REV A

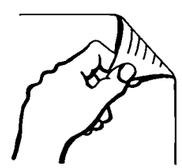
Hydraulic Schematic, 2WD Models (from serial number 1187 to 1546)



Hydraulic Schematic, 2WD Models (from serial number 1187 to 1546)

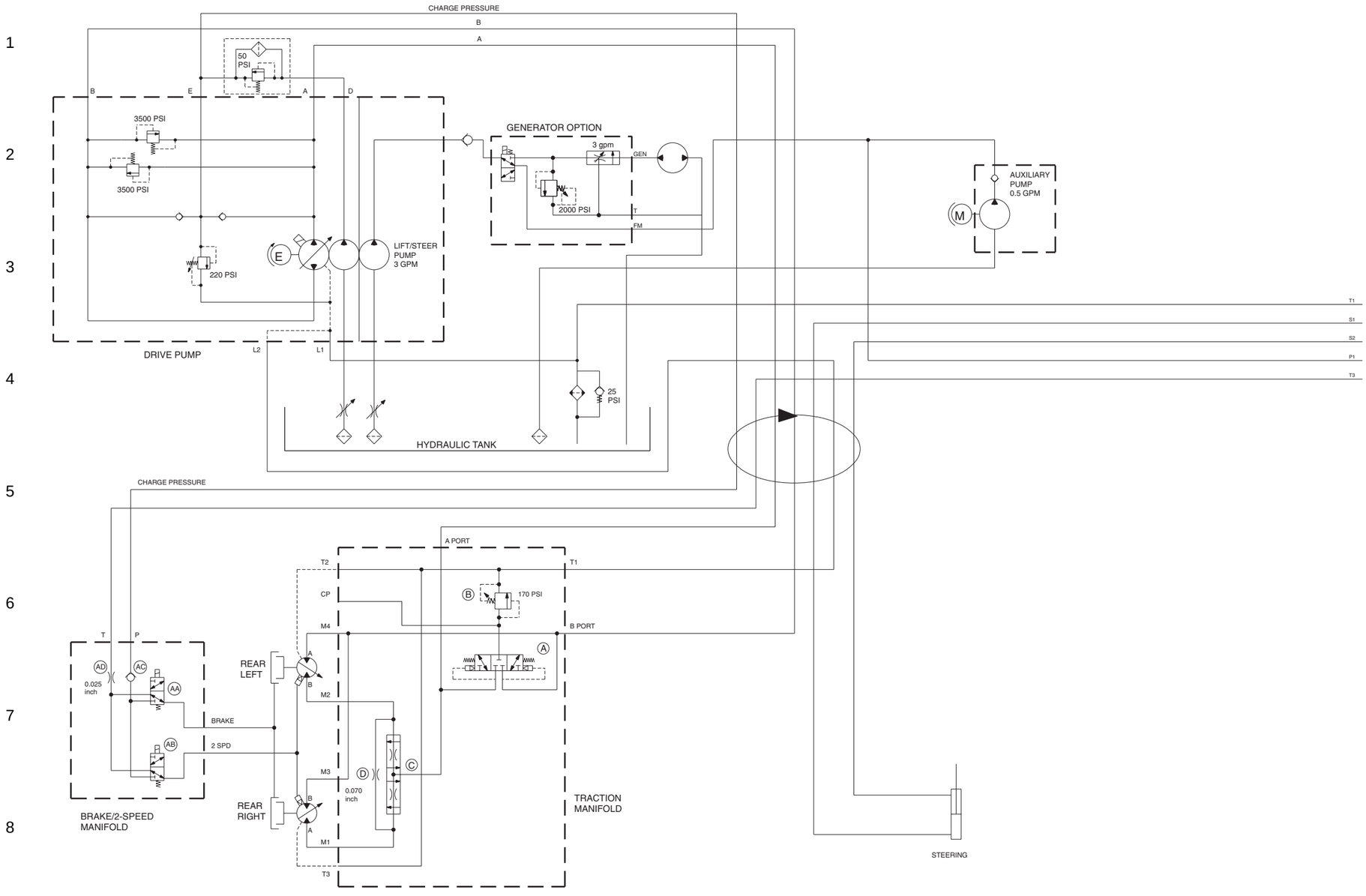






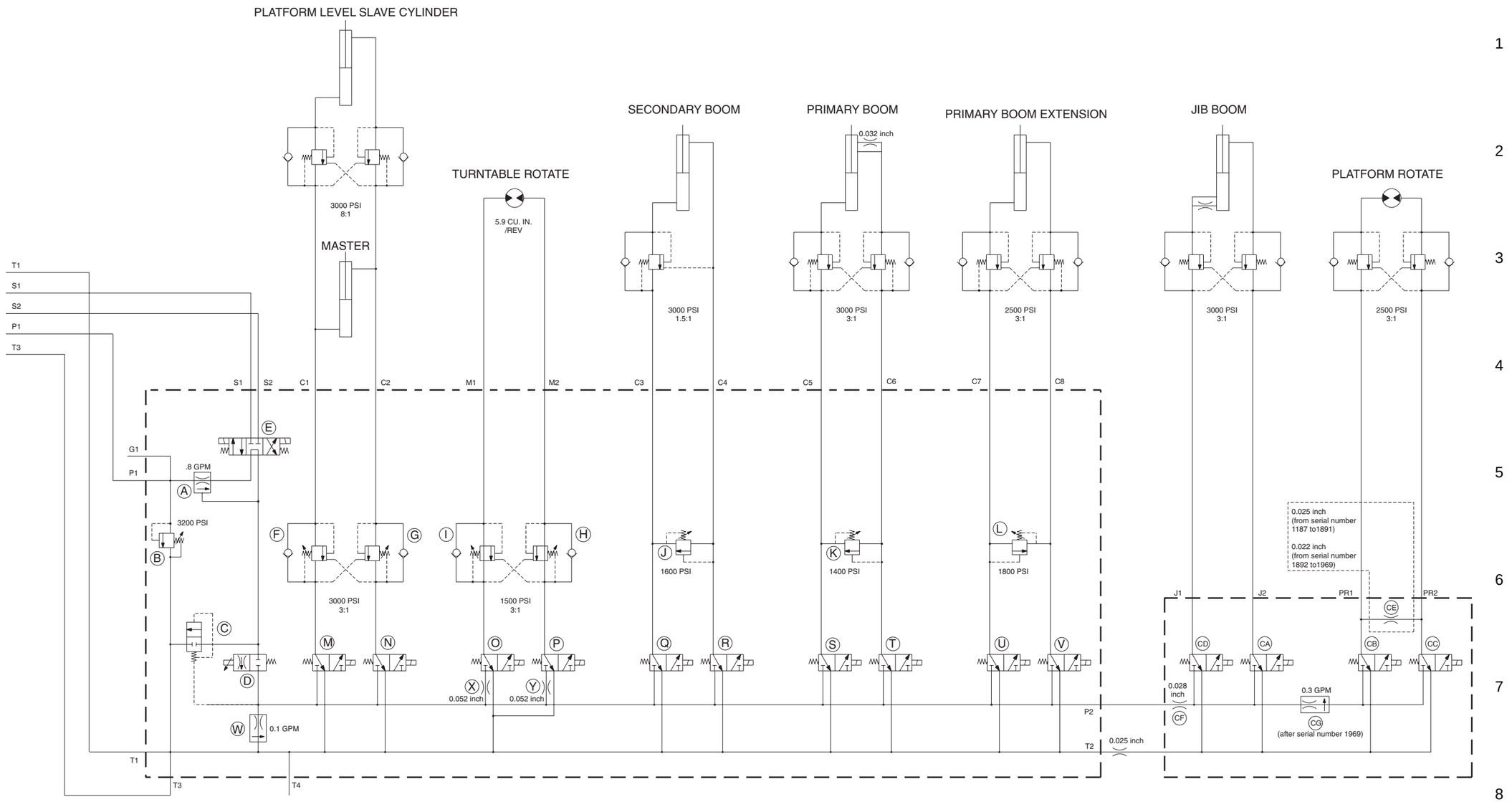
Hydraulic Schematic, 2WD Models (from serial number 1547 to 2900)

REV A

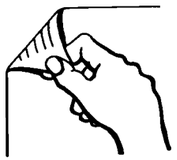


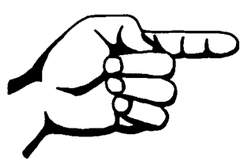
Hydraulic Schematic, 2WD Models (from serial number 1547 to 2900)

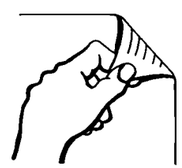
REV A



Hydraulic Schematic, 2WD Models (from serial number 1547 to 2900)

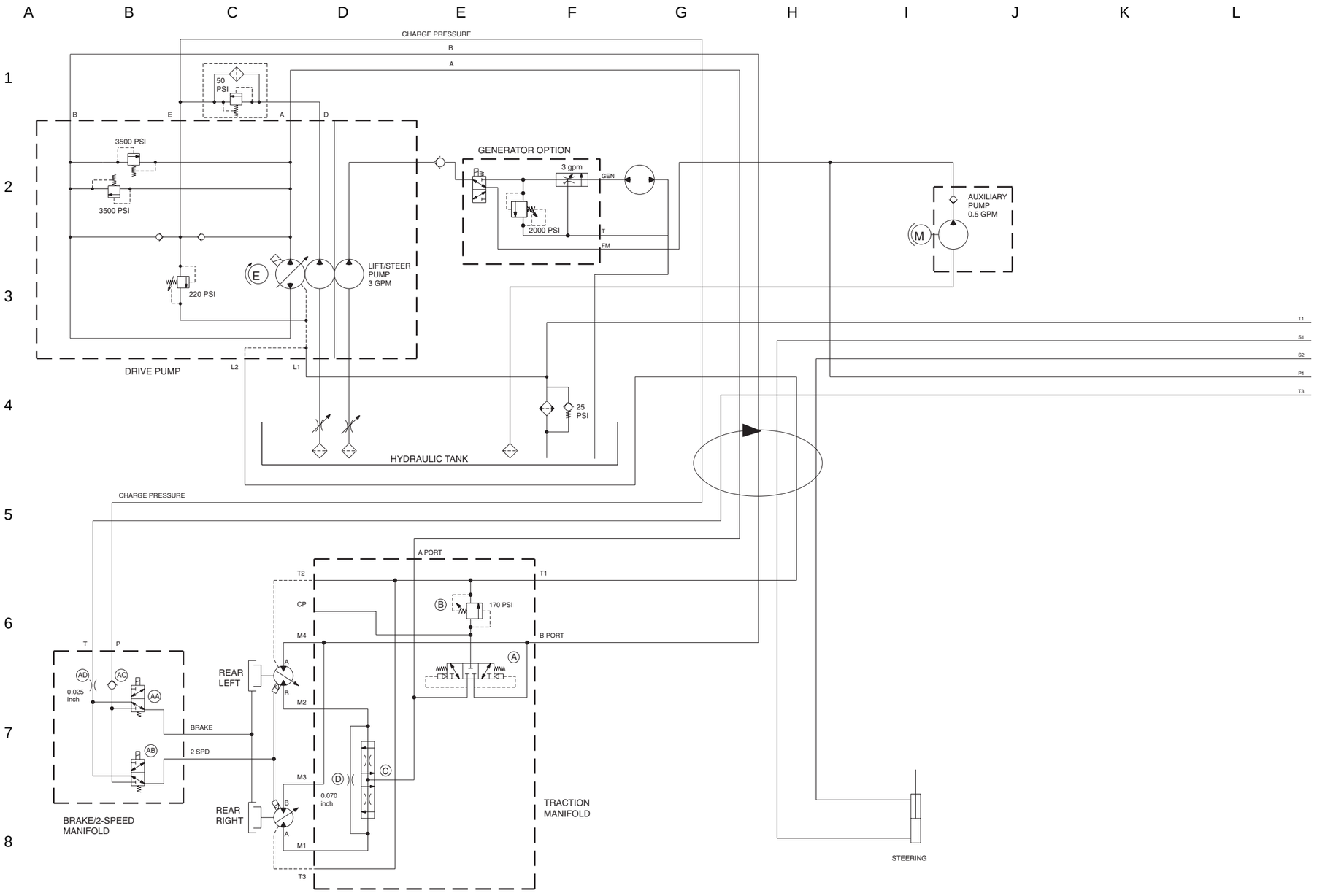






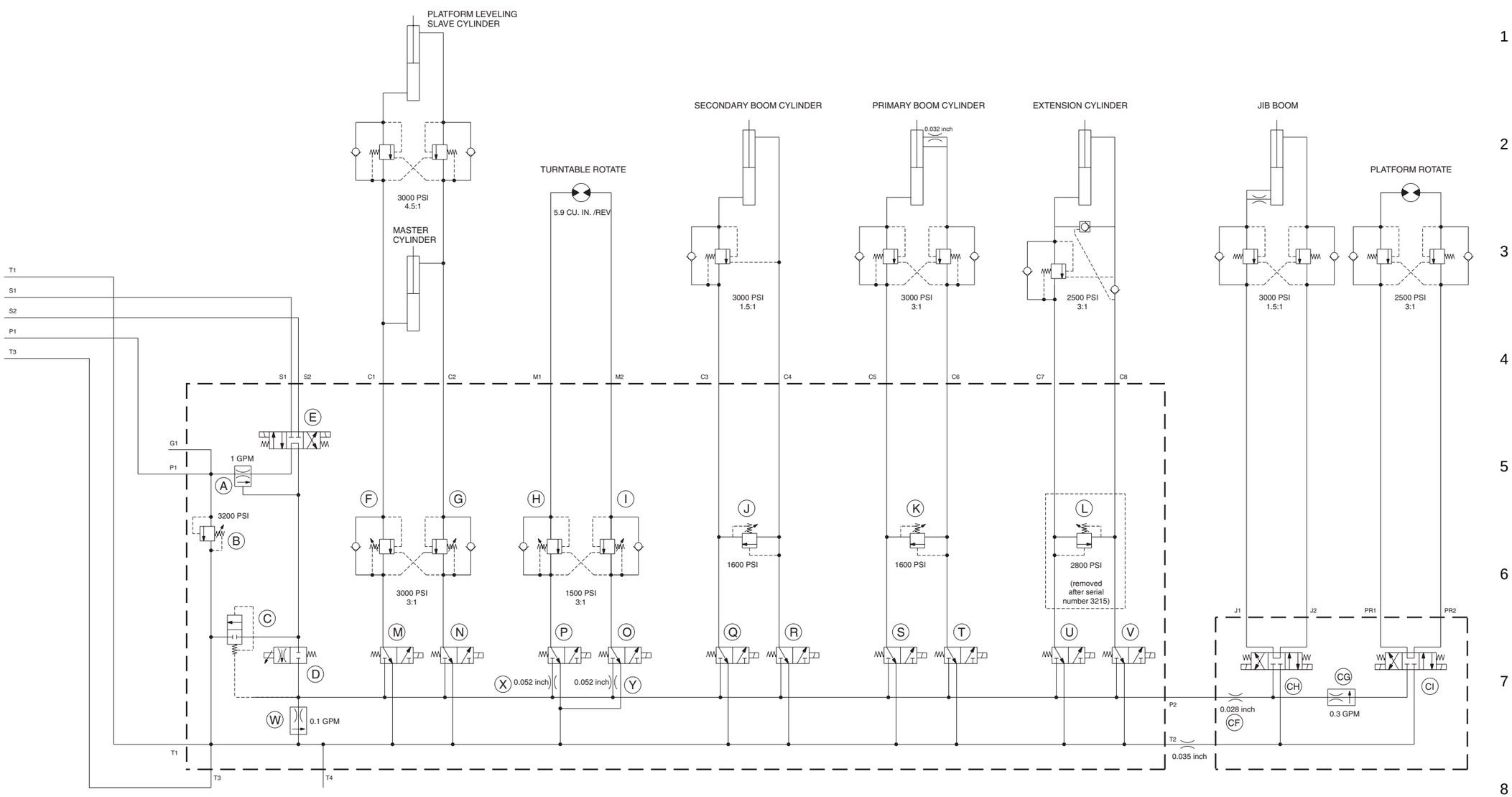
Hydraulic Schematic, 2WD Models (from serial number 2901 to 3241)

REV A

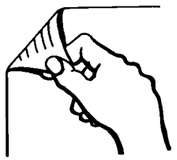


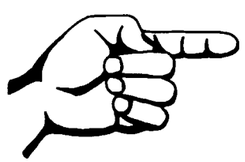
Hydraulic Schematic, 2WD Models (from serial number 2901 to 3241)

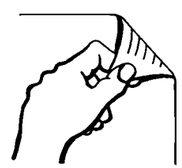
REV A



Hydraulic Schematic, 2WD Models (from serial number 2901 to 3241)

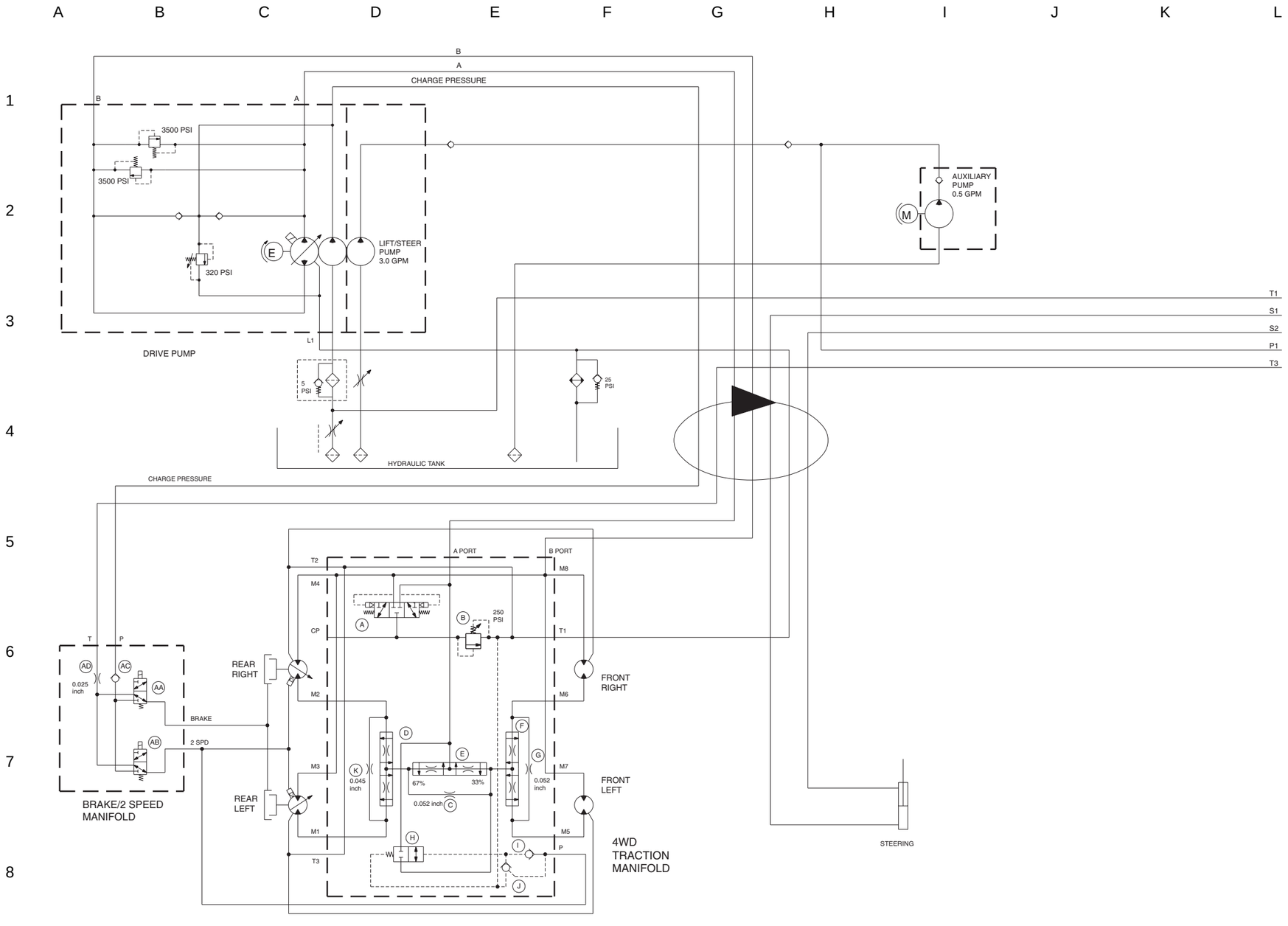






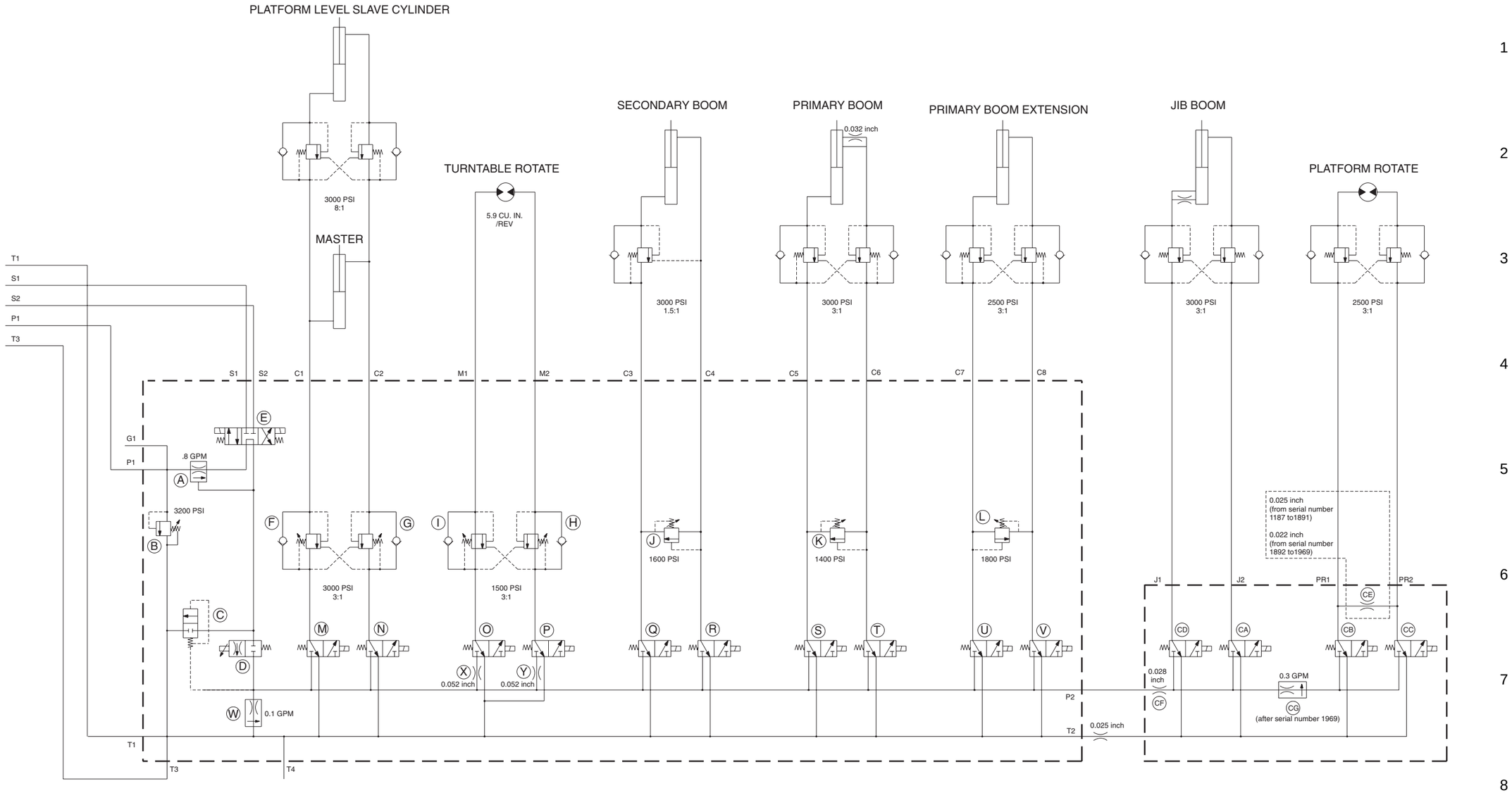
Hydraulic Schematic, 4WD Models (from serial number 1187 to 1546)

REV A

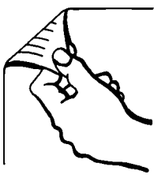


Hydraulic Schematic, 4WD Models (from serial number 1187 to 1546)

REV A

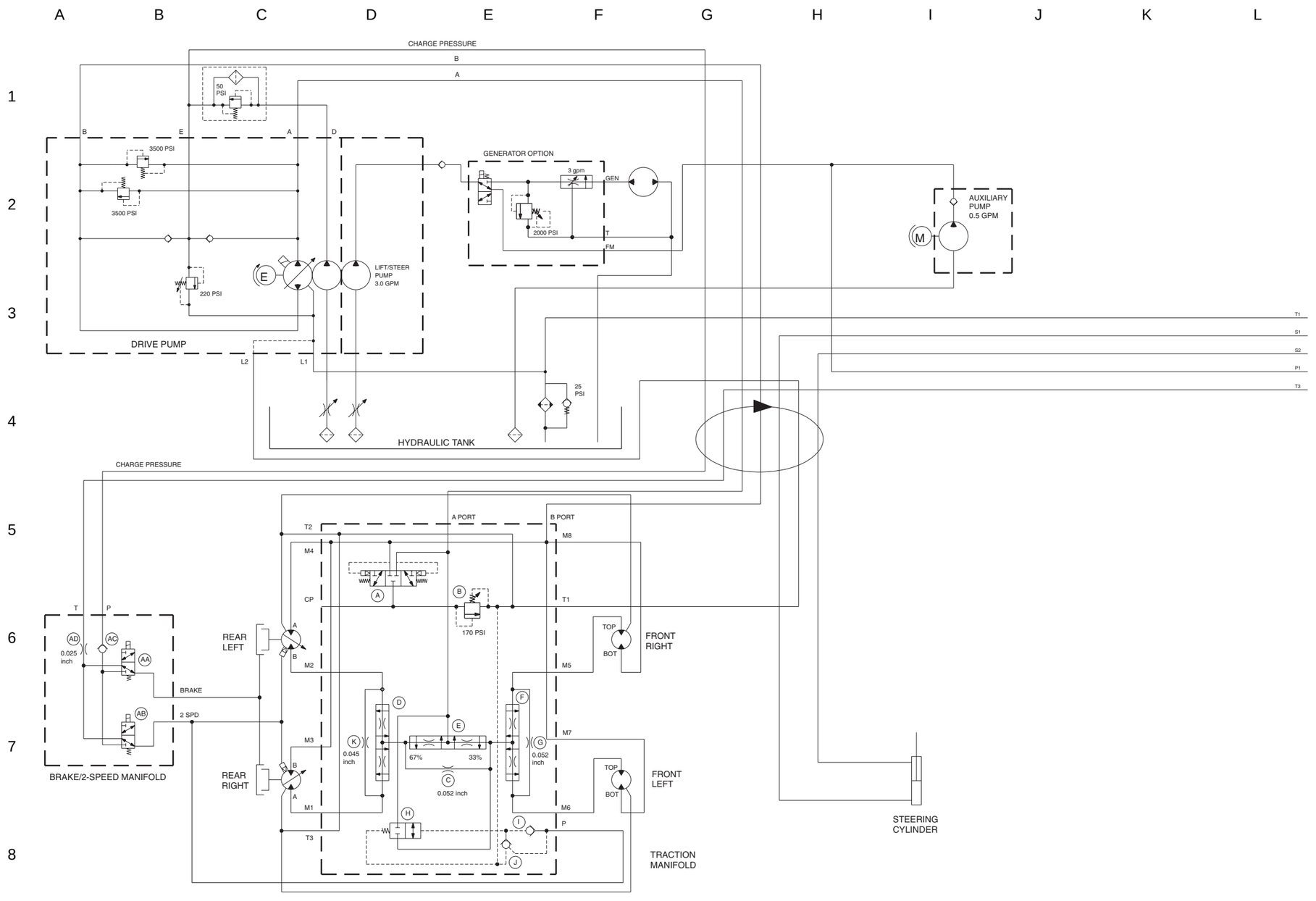


Hydraulic Schematic, 4WD Models (from serial number 1187 to 1546)



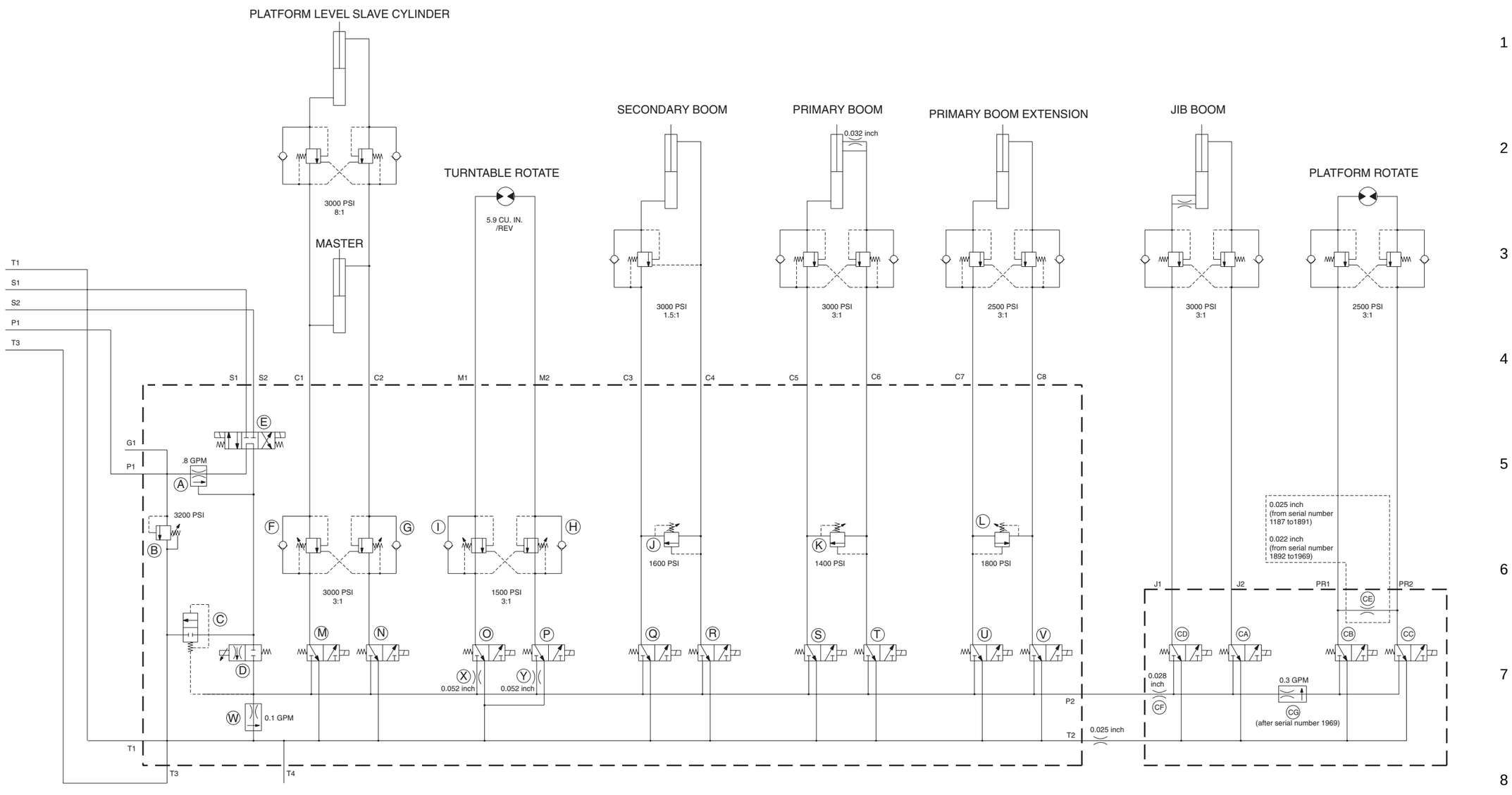
Hydraulic Schematic, 4WD Models (from serial number 1547 to 2900)

REV A

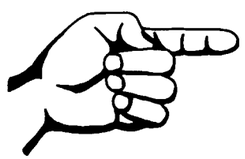


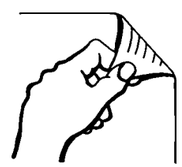
Hydraulic Schematic, 4WD Models (from serial number 1547 to 2900)

REV A



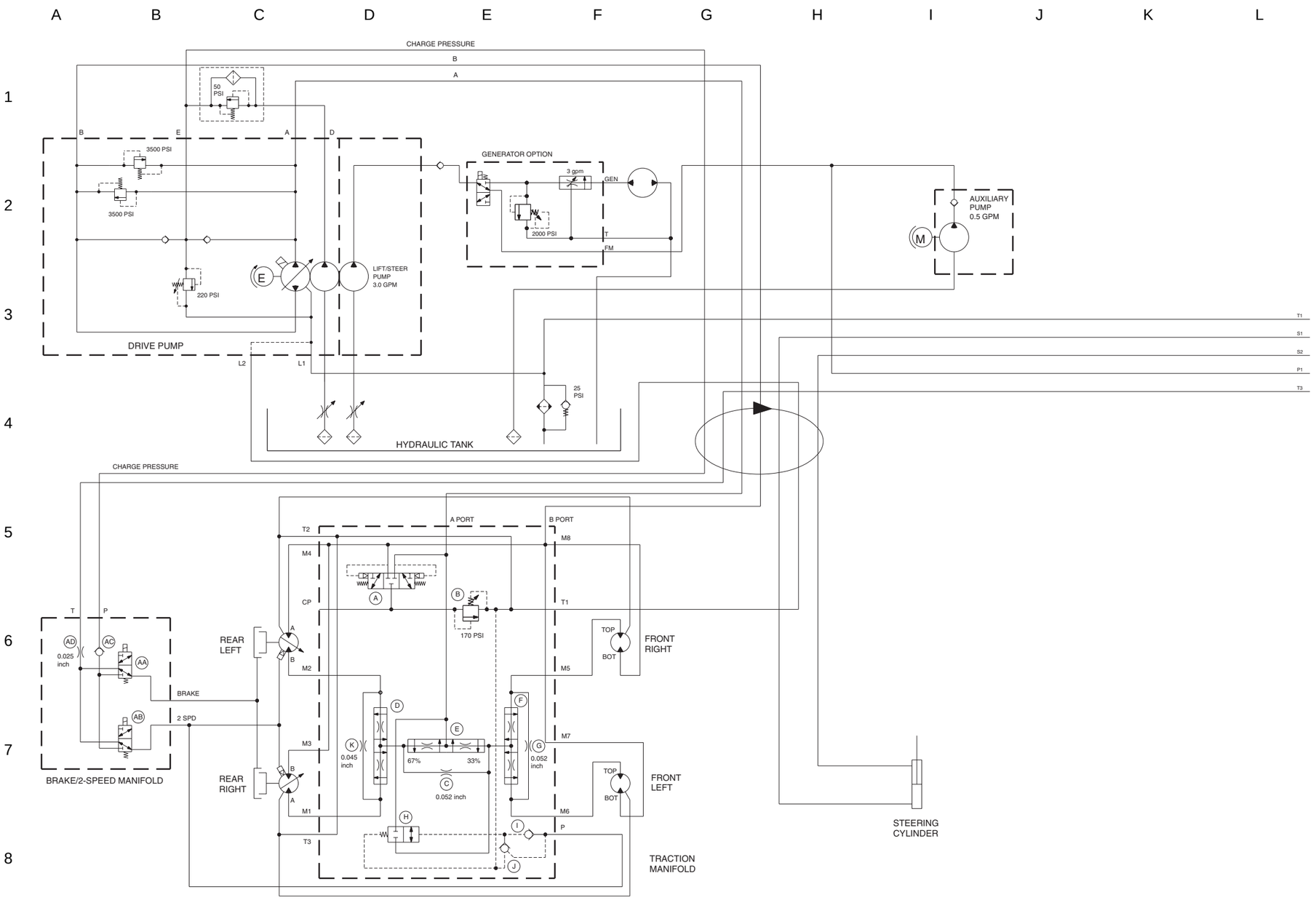
Hydraulic Schematic, 4WD Models (from serial number 1547 to 2900)





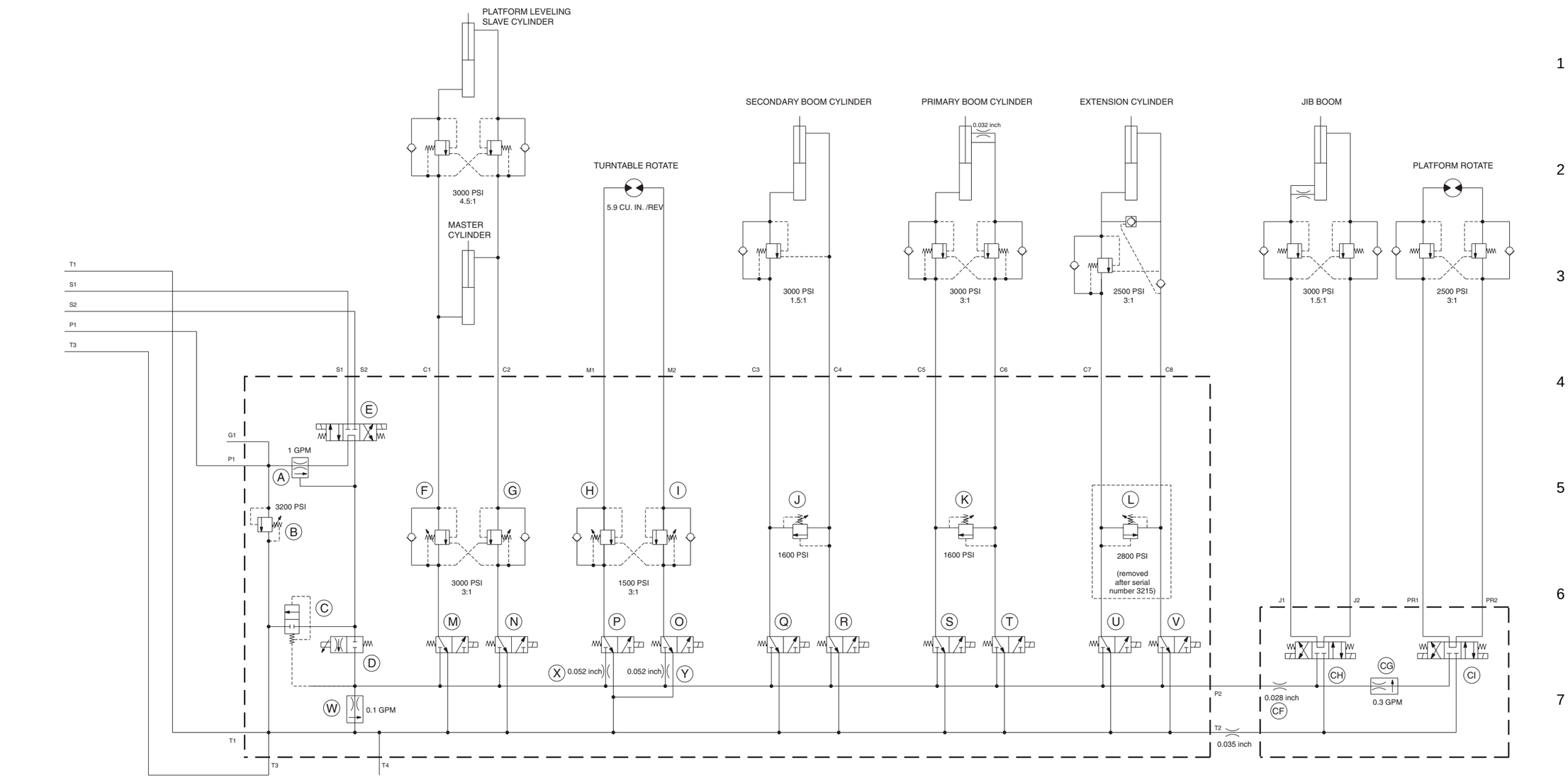
Hydraulic Schematic, 4WD Models (from serial number 2901 to 3241)

REV A

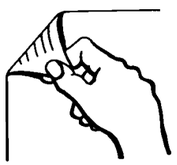


Hydraulic Schematic, 4WD Models (from serial number 2901 to 3241)

REV A



Hydraulic Schematic, 4WD Models (from serial number 2901 to 3241)



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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Phone 425.881.1800
Toll Free USA and Canada 800.536.1800
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Genie Australia Pty Ltd.
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Fax +61 7 3375 1002

Genie China
Phone +86 21 53852570
Fax +86 21 53852569

Genie Malaysia
Phone +65 98 480 775
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Fax +81 3 3453 6083

Genie Korea
Phone +82 25 587 267
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Phone +34 93 579 5042
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Genie Germany
Phone 0800 180 9017
Phone +49 422 149 1818
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Genie U.K.
Phone +44 (0)1476 584333
Fax +44 (0)1476 584334

Genie Mexico City
Phone +52 55 5666 5242
Fax +52 55 5666 3241