Genie®

Service Manual

refer to inside cover for serial number information

Part No. 72876
September 2006
Rev C2

GS™-1530
GS™-1930

Specifications

REV C

Machine Specifications, GS-1530

Batteries	
Type	6V DC
Group	T-105
Quantity	8
Battery capacity, maximum	225AH
Reserve capacity @ 25A rate	447 minutes
Fluid capacities	
Hydraulic tank	5 gallons 18.9 liters
Hydraulic system (including tank)	5.5 gallons 20.8 liters
Tires and wheels	
Tire size (solid rubber)	12 x 4.5 x 8.6 in 30.5 x 11.4 x 21.8 cm
Tire contact area	9 sq in 58 sq cm
Overall tire diameter	12 in 30.5 cm
Wheel diameter	8.6 in 21.8 cm
Wheel width	4.5 in 11.4 cm
Castle nut torque, dry	300 ft-lbs 406.7 Nm
Castle nut torque, lubricated	225 ft-lbs 305 Nm

For operational specifications, refer to the Operators Manual.

Performance Specifications, GS-1530

Drive speed, maximum	
Platform stowed	2.5 mph 40 ft / 10.7 sec 4 km/h 12.2 m / 10.7 sec
Platform raised	0.5 mph 40 ft / 55 sec 0.7 km/h 12.2 m / 55 sec
Braking distance, maximum	
High range on paved surface	2 ft 61 cm
Load capacity, maximum	
Platform retracted	600 lbs 272 kg
Platform only	350 lbs 159 kg
Extension only	250 lbs 113 kg
Function speed, maximum from platform controls (with 1 person in platform)	
Platform up	15 to 17 seconds
Platform down	16 to 18 seconds
Airborne noise emissions Maximum sound level at normal operation workstations (A-weighted)	<70 dB
Gradeability	30%

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

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 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 A

REV C CHECKLIST B PROCEDURES

10 Tag the forward and the reverse valve coils. Remove the coils from the valve.

NOTICE The forward valve coil has white and brown wires attached.

NOTICE The reverse valve coil has white/black and brown wires attached.

NOTICE For reassembly, it will be helpful to leave the wire harness attached to the valve coils.

11 Remove the drive forward/reverse valve from the function manifold. Cap the open port of the manifold.

12 Carefully inspect the hex portion of the valve for an identification stamp.

⊙ Result: SV10-4727 is stamped on the hex portion of the drive forward/reverse valve. This indicates the machine is equipped with a dynamic brake valve. Proceed to step 13.

⊠ Result: SV10-4727 is not stamped on the hex portion of the drive forward/reverse valve. This indicates the machine is not equipped with a dynamic brake valve. Proceed to step 18.

13 Install the drive forward/reverse valve removed in step 11 into the function manifold and securely tighten. Torque to 25 ft-lbs / 34 Nm.

14 In order, install the reverse valve coil (with white/black and brown wires), spacer washer and the forward valve coil (with white and brown wires) onto the valve.

NOTICE For the machine to function correctly, the reverse valve coil must be closest to the manifold.

15 Install the coil nut onto the valve and tighten. Torque to 60 in-lbs / 7 Nm.

16 Connect the battery pack to the machine.

17 Replace the brakes and repeat this procedure beginning with step 1. Refer to Repair Procedure 9-1, *How to Remove a Drive Brake.*

18 Contact the Genie Industries Service Parts Department and order kit part number 105457.

19 Install the new valve received in the kit and mark the new valve with a white paint pen to identify new valve installation.

20 Repeat this procedure beginning with step 1.

If the machine fails to stop within the specified stopping distance after installing new brakes, please contact the Genie Industries Scissors Service Department, 1-800-536-1800 Ext. 8710.

1-1
Circuit Boards

How to Remove the Platform Controls Circuit Board

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

2 Remove the platform control box lid retaining fasteners. Open the control box lid.

3 Locate the membrane circuit board mounted to the inside of the platform control box lid.

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

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

4 Carefully disconnect the three wire harness connectors from the platform controls circuit board.

5 Carefully remove the platform controls circuit board retaining fasteners.

6 Carefully remove the platform controls circuit board from the platform control box lid.

1-2
Joystick Controller

Maintaining the joystick at the proper setting is essential to safe machine operation. The joystick should operate smoothly over its entire range of motion.

A Hall-effect joystick controller was incorporated into the platform controls after serial number 51014. It does not require any calibration.

How to Calibrate the Joystick Controller (before serial number 51015)

NOTICE This procedure applies only to models with a potentiometer-equipped joystick.

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

2 Remove the platform control box lid retaining fasteners. Open the control box lid.

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

How to Set the DIP Switch Codes

⚠DANGER Tip-over hazard. Do not adjust the DIP switch settings to other than what is specified in this procedure. Exceeding specifications could cause the machine to tip over resulting in death or serious injury.

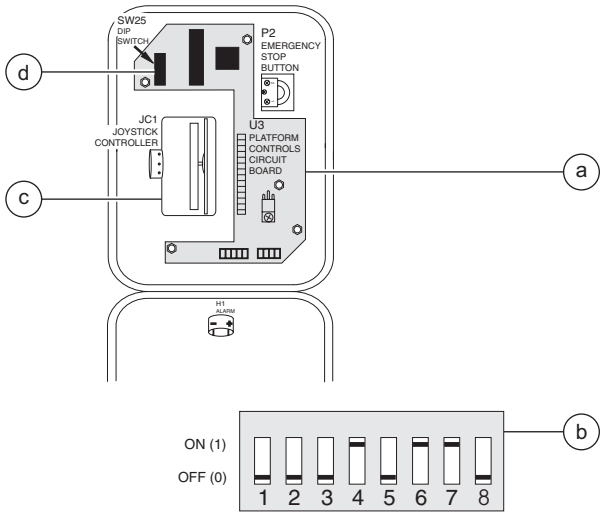
NOTICE If replacing the circuit board, note the toggle positions on the DIP switch. Set the DIP switch on the new circuit board to the same configuration as the old board.

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

2 Remove the fasteners securing the top of the platform controls and open the platform control box.

3 Rotate the platform control box to the position shown to correctly identify the configuration of the DIP switch settings.

4 Locate the DIP switch on the circuit board. Move the DIP switch settings to correspond with the configuration of the machine options, indicated in the *DIP Switch Code Chart*.



a platform controls circuit board U3
b enlarged view of DIP switch SW25
c joystick controller JC1
d DIP switch SW25

5 Close the lid and install the fasteners.

6 Confirm the settings. See 1-3, *How to Determine the DIP Switch Configuration*.

7 Push in the red Emergency Stop button to the off position at both the ground and platform controls and turn the key switch to the off position.

NOTICE Any change in DIP settings will not take effect until the key switch is turned to the off position.

10 Mark the mounting position of the level sensor on the level sensor box.

11 Remove the level sensor box mounting fasteners and slide the box towards the non-steer end of the machine as far as it can go.

CAUTION Component damage hazard. Be careful not to damage the level sensor box, limit switch, level sensor or wiring while moving the level sensor box.

12 Secure the ends of the scissor arms together at both ends of the machine with a strap or other suitable device.

13 Remove the pin retaining fasteners from the number 1 inner arm pivot pins (item #11) at the steer end of the machine. Use a slide hammer to remove the pins.

14 Attach a lifting strap from an overhead crane to the steer end of the scissor arms.

15 Slide the forks from a forklift under the scissor arms at the non-steer end of the machine.

16 Raise the scissor arms up with the overhead crane until the number 1 inner arm will clear the level sensor box.

CAUTION Component damage hazard. Be careful not to damage the level sensor box, limit switch or level sensor while moving the scissor assembly.

17 Move the scissor assembly towards the non-steer end of the machine slightly and to one side of the machine until one of the scissor arm wear pads is accessible. Do not allow both wear pads to slide out of the drive chassis.

⚠DANGER Crushing hazard. The scissor assembly will fall if both wear pads are allowed to slide out of the drive chassis.

18 Remove the old wear pad.

NOTICE Note the position of the wear pad before it is removed so when the new one is installed it will be in the correct position.

19 Install the new wear pad.

20 Move the scissor assembly towards the other side of the machine until the other scissor arm wear pad is accessible.

⚠DANGER Crushing hazard. The scissor assembly will fall if both wear pads are allowed to slide out of the drive chassis.

21 Remove the old wear pad.

NOTICE Note the position of the wear pad before it is removed so when the new one is installed it will be in the correct position.

22 Install the new wear pad.

23 Slide the scissor assembly back into the drive chassis.

24 Lower the scissor assembly into position and install the pivot pins.

CAUTION Component damage hazard. Be careful not to damage the level sensor box, limit switch or level sensor while installing the scissor assembly.

5 Loosen the adjustment nuts on the solenoid, then disconnect the manual lowering cable from the solenoid.

NOTICE During assembly, the manual platform lowering cable needs to be properly adjusted. See 4-1, *How to Adjust the Manual Platform Lowering Cable*.

6 Remove the mounting fasteners from the manual lowering cable mounting bracket. Remove the bracket from the cylinder.

7 **Before serial number 23568:** Disconnect and plug the hydraulic hardline from the lift cylinder. Cap the fitting on the cylinder.
After serial number 23567: Disconnect and plug the hydraulic hose from the lift cylinder. Cap the fitting 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.

8 **Before serial number 23568:** Remove the hardline retaining strap from the cylinder.

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

10 Remove the external snap ring from the lift cylinder rod-end pivot pin. Use a soft metal drift to remove the pin.

⚠WARNING Crushing hazard. The lift cylinder will fall if not properly supported.

CAUTION Component damage hazard. Be careful not to damage the level sensor box, limit switch or level sensor while lowering the cylinder.

11 Lower the cylinder.

12 Support and secure the entry ladder to an appropriate lifting device.

13 Remove the fasteners from the entry ladder and remove the entry ladder from the machine.

⚠WARNING Crushing hazard. The entry ladder could become unbalanced and fall if not properly supported and secured to the lifting device.

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

15 Remove the external snap ring from the lift cylinder barrel-end pivot pin. Use a soft metal drift to remove the pin.

⚠WARNING Crushing hazard. The lift cylinder will fall if not properly supported when the pin is removed.

16 Support and secure the lift cylinder to an appropriate lifting device.

17 Remove the lift cylinder through the scissor arms at the non-steer end of the machine.

CAUTION Component damage hazard. Be careful not to damage the valve or fittings on the cylinder while removing it from the machine.

14 Remove the tilt level sensor box retaining fasteners. Remove the tilt level sensor box from the machine.

15 Remove the tilt level sensor retaining fasteners. Remove the tilt level sensor from the level sensor box.

16 Place the new tilt level sensor in the tilt level sensor box with the "X" on the level sensor base closest to the long side of the tilt level sensor box and the "Y" on the level sensor base closest to the short side of the tilt level sensor box.

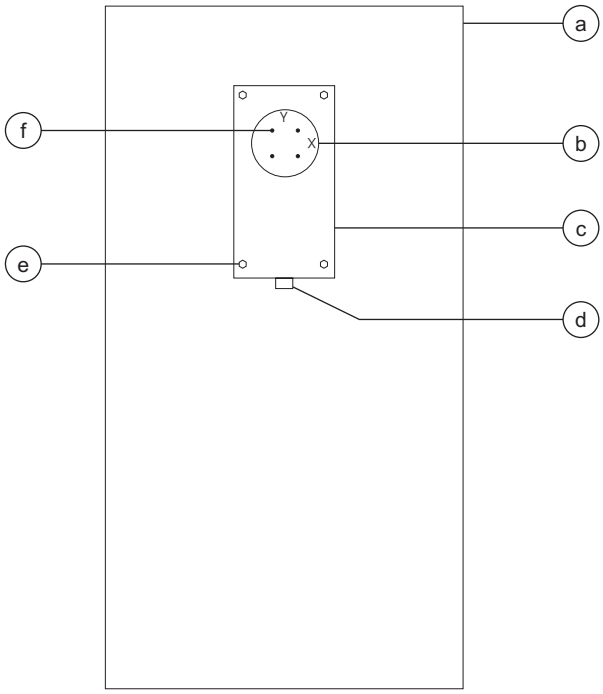
⚠DANGER Tip-over hazard. The tilt level sensor must be installed with the "X" on the level sensor base closest to the long side of the tilt level sensor box and the "Y" on the level sensor base closest to the short side of the tilt level sensor box. Failure to install the tilt level sensor as instructed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

17 Install the level sensor box onto the machine. Install the level sensor box retaining fasteners.

18 Connect the wiring harness to the level sensor, limit switch and alarm.

19 Turn the key switch to the ground control and pull out the red Emergency Stop button to the ON position at the ground controls.

Steer end



Non-steer end

a scissor chassis
b tilt level sensor
c level sensor box
d alarm
e box retaining fastener
f level sensor retaining fastener

32 **Models before serial number 48817:** Raise the platform 7 to 8 feet / 2.1 to 2.4 m.

- Result: The tilt sensor alarm should sound.
- Result: The tilt sensor alarm does not sound. Adjust the tilt level sensor until the alarm just begins to sound OR the down limit switch may need to be adjusted.

NOTICE **CE models:** When the platform is raised 7 to 8 feet / 2.1 to 2.4 m from the ground, an alarm should sound and the lift and drive functions should not operate.

Models after serial number 48816: Raise the platform 7 to 8 feet / 2.1 to 2.4 m.

- Result: The platform should stop and an alarm should sound.
- Result: The platform does not stop or the tilt sensor alarm does not sound. Adjust the tilt level sensor until the alarm just begins to sound OR the down limit switch may need to be adjusted.

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

34 Lower the scissor arms onto the safety arm.

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

35 Install the tilt level sensor box cover.

36 Raise the platform 7 to 8 feet / 2.1 to 2.4 m.

37 Return the safety arm to the stowed position.

38 Lower the platform to the stowed position.

39 Raise the machine approximately 2 inches / 5 cm.

40 Remove the blocks from under both wheels.

41 Lower the machine and remove the jack.

11 Repeat steps 5 through 7 to confirm the relief valve pressure.

12 Place maximum rated load into the platform. Secure the load to the platform. Refer to Section 2, *Specifications*.

13 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.

14 Hold the lift relief valve with a wrench and remove the cap (item BD).

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

16 Fully lower the platform.

17 Add an additional 50 pounds (22.7 kg) to the platform. Secure the additional weight.

18 Raise the platform slightly.

⊙ Result: The power unit should **not** be able to lift the platform.

⊙ Result: If the power unit lifts the platform, adjust the internal hex socket counterclockwise until the adjustment is correct.

19 Install the relief valve cap.

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

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

Non-steer Axle Components

REV B

9-1
Drive Brake

How to Remove a Drive Brake

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

1 Support and secure the entry ladder to an appropriate lifting device.

2 Remove the entry ladder mounting fasteners. Remove the entry ladder from the machine.

⚠CAUTION Crushing hazard. The entry ladder may become unbalanced and fall if it is not properly supported and secured to the lifting device.

3 Block the steer wheels.

4 Center a lifting jack under the drive chassis at the non-steer end.

5 Remove the cotter pin from the wheel castle nut.

NOTICE Always replace the cotter pin with a new one when removing the castle nut.

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

7 Raise the machine approximately 2 inches / 5 cm. Place blocks under the chassis for support.

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

8 Remove the wheel castle nut. Remove the wheel.

9 Tag, disconnect and plug the hydraulic hose from the brake. Cap the fitting on the brake.

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

10 Place a lifting jack under the brake for support.

11 Remove the fasteners that attach the brake to the drive chassis. Remove the brake.

⚠CAUTION Crushing hazard. The brake will fall if not properly supported when the mounting fasteners are removed.

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

Chart 4

REV A

Ground Controls Inoperative, Platform Controls Operate Normally

Be sure, if the Error Indicator light is on at the platform controls, you refer to the specific chart that relates to the error code that is displayed on the ECM.

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

Be sure the batteries are properly connected.

Be sure the batteries are fully charged.

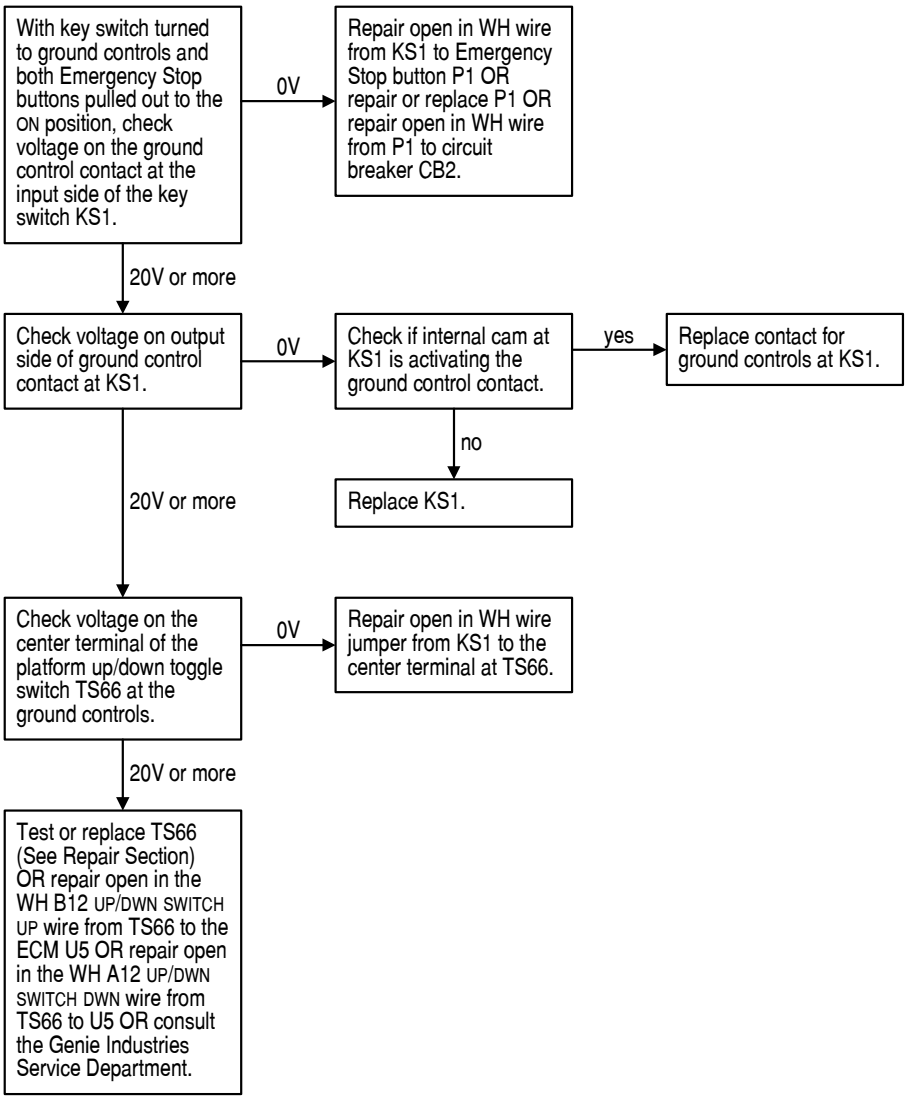


Chart 11

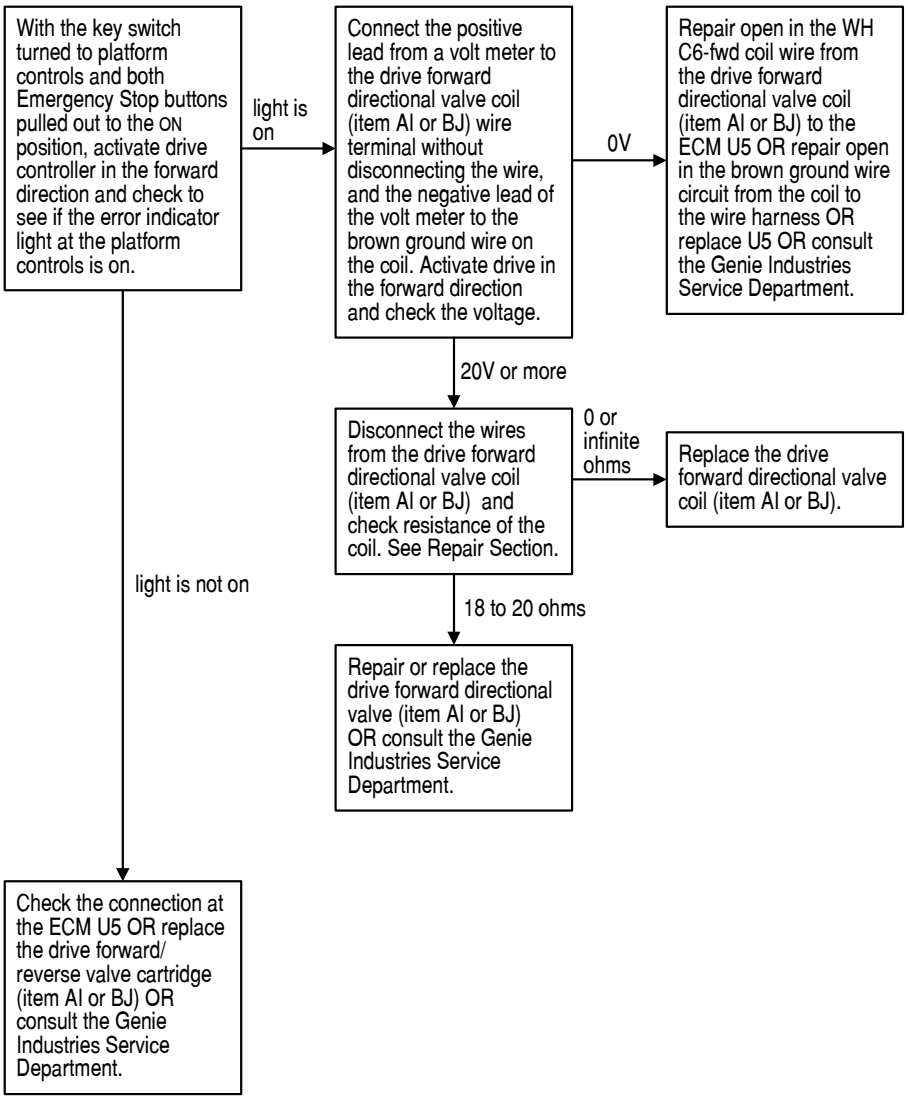
REV A

Drive Forward Function Inoperative

Be sure all other functions operate normally.

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

Be sure the batteries are fully charged and properly connected.



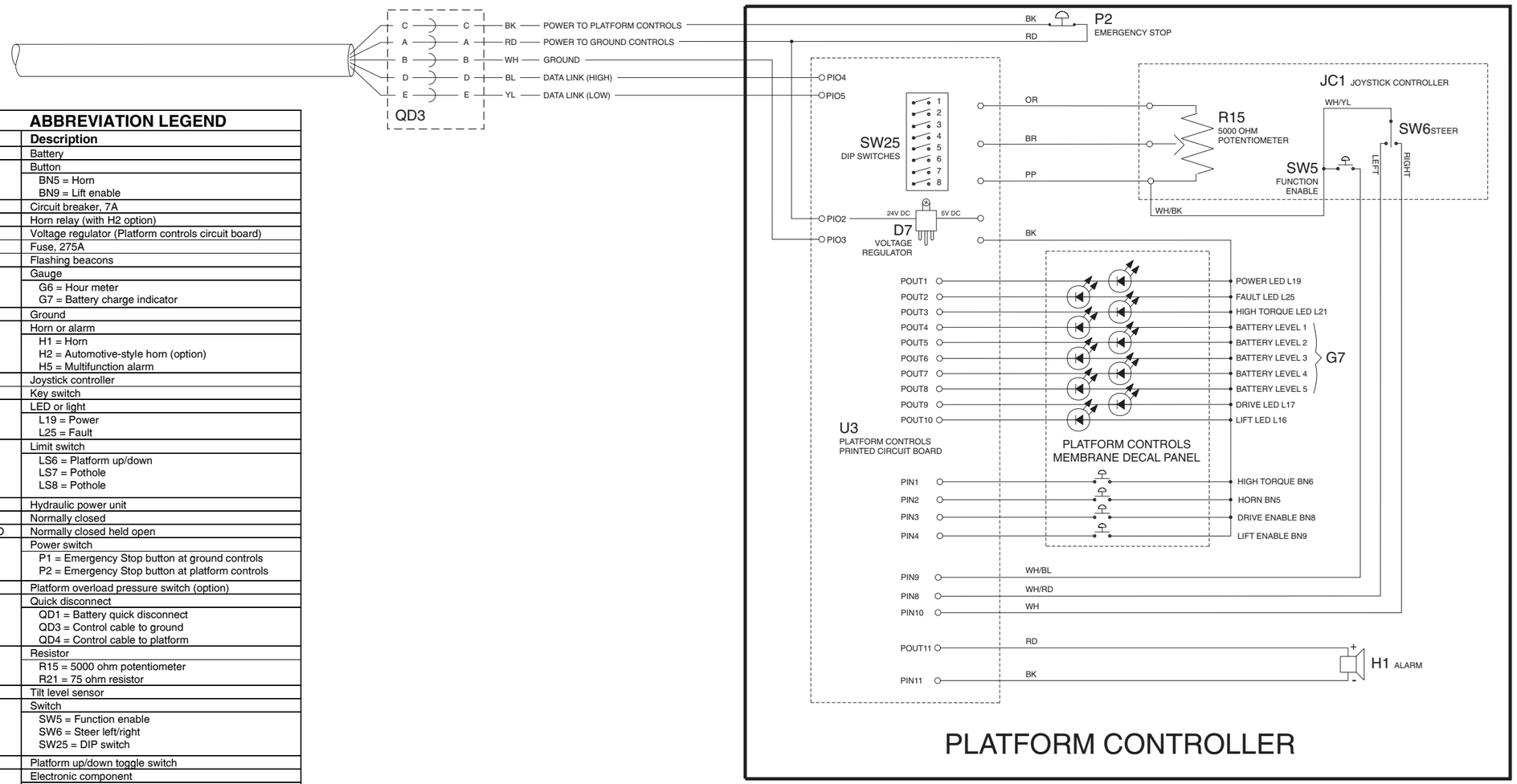
REV C ELECTRICAL COMPONENTS

Item	Description	Genie Part Number	Manufacturer	Manufacturer Part Number	Qty
QD1	Battery connector	19436	Anderson	6325-G1	1
R21	Resistor, 75 ohm	51590	Dale	RS-10-38, 75 ohm	1
TS66	Toggle switch, SPDT 3 position momentary	13037	Microswitch Control Inc.	1NT1-7	1
U6	Motor controller, 24V DC, 275A				
(before serial number 47731)		66047	Curtis	1204-036	1
(after serial number 47730)		78385	General Electric	IC3645SE6B300GN1	1
U27	Inductor, noise suppression, 47 mH, 2.5A, 0.034 ohm	47124	Dale	IHD3-47MH15%	1
Y2	Coil, 20V DC with diode	39347	Hydra Power Systems	6309757	1
Y3, Y4	Coil, 20V DC with diode				
(before serial number 35800)		39347	Hydra Power Systems	6309757	2
(after serial number 35799)		52594	Hydra Power Systems	6309820	2
Y5, Y6, Y8	Coil, 20V DC with diode				
(before serial number 35800)		44176	Hydra Power Systems	6359752	3
(after serial number 35799)		52595	Hydra Power Systems	6359792	3
Y7	Coil, 20V DC				
(before serial number 23568)		44787	Hydra Power Systems	10166-25	1
Y7	Coil, 20V DC with diode				
(after serial number 23567)		66467	Hydra Power Systems	10188-91	1

REV C

Electrical Schematic
(from serial number 21263 to 25141)

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



1 2 3 4 5 6 7 8

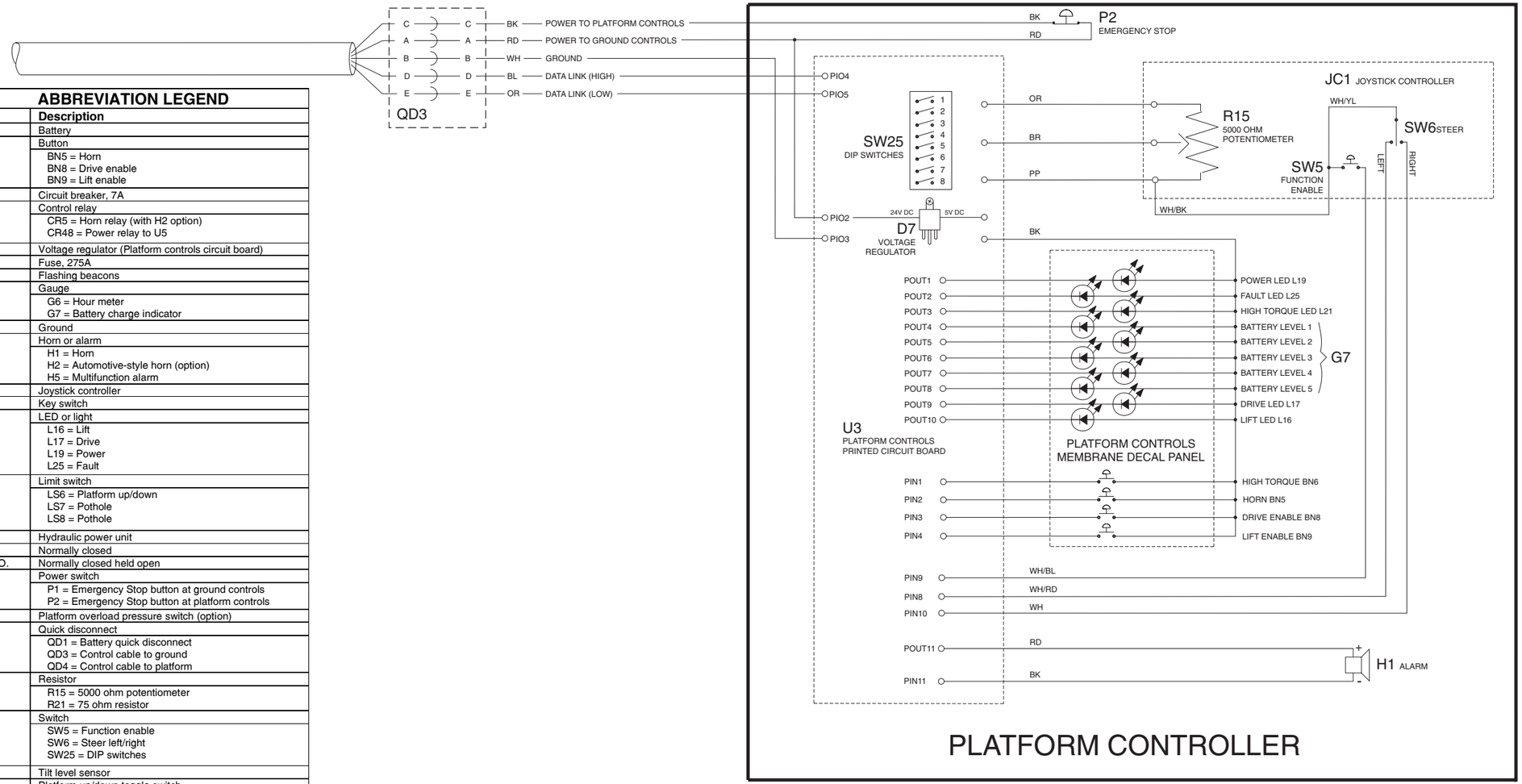
ABBREVIATION LEGEND	
Item	**Description**
B5	Battery
BN	Button BN5 = Horn BN9 = Lift enable
CB2	Circuit breaker, 7A
CR5	Horn relay (with H2 option)
D7	Voltage regulator (Platform controls circuit board)
F6	Fuse, 275A
FB1	Flashing beacons
G	Gauge G6 = Hour meter G7 = Battery charge indicator
GND	Ground
H	Horn or alarm H1 = Horn H2 = Automotive-style horn (option) H5 = Multifunction alarm
JC1	Joystick controller
KS1	Key switch
L	LED or light L19 = Power L25 = Fault
LS	Limit switch LS6 = Platform up/down LS7 = Pothole LS8 = Pothole
M5	Hydraulic power unit
N.C.	Normally closed
N.C.H.O	Normally closed held open
P	Power switch P1 = Emergency Stop button at ground controls P2 = Emergency Stop button at platform controls
PS2	Platform overload pressure switch (option)
QD	Quick disconnect QD1 = Battery quick disconnect QD3 = Control cable to ground QD4 = Control cable to platform
R	Resistor R15 = 5000 ohm potentiometer R21 = 75 ohm resistor
S7	Tilt level sensor
SW	Switch SW5 = Function enable SW6 = Steer left/right SW25 = DIP switch
TS66	Platform up/down toggle switch
U	Electronic component U3 = Encoder printed circuit board U5 = Electronic control module U6 = Motor controller U9 = Battery charger U13 = Voltage inverter (option) U27 = 47 mH inductor, noise suppression
Y	Valve coil Y2 = Brake release Y3 = Steer right Y4 = Steer left Y5 = Drive reverse Y6 = Drive forward Y7 = Platform down Y8 = Platform up

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

REV B

Electrical Schematic
(from serial number 49805 to 51014)

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



1 2 3 4 5 6 7 8

ABBREVIATION LEGEND	
Item	**Description**
B5	Battery
BN	Button BN5 = Horn BN8 = Drive enable BN9 = Lift enable
CB2	Circuit breaker, 7A
CR	Control relay CR5 = Horn relay (with H2 option) CR48 = Power relay to U5
D7	Voltage regulator (Platform controls circuit board)
F6	Fuse, 275A
FB1	Flashing beacons
G	Gauge G6 = Hour meter G7 = Battery charge indicator
GND	Ground
H	Horn or alarm H1 = Horn H2 = Automotive-style horn (option) H5 = Multifunction alarm
JC1	Joystick controller
KS1	Key switch
L	LED or light L16 = Lift L17 = Drive L19 = Power L25 = Fault
LS	Limit switch LS6 = Platform up/down LS7 = Pothole LS8 = Pothole
M5	Hydraulic power unit
N.C.	Normally closed
N.C.H.O.	Normally closed held open
P	Power switch P1 = Emergency Stop button at ground controls P2 = Emergency Stop button at platform controls
PS2	Platform overload pressure switch (option)
QD	Quick disconnect QD1 = Battery quick disconnect QD3 = Control cable to ground QD4 = Control cable to platform
R	Resistor R15 = 5000 ohm potentiometer R21 = 75 ohm resistor
SW	Switch SW5 = Function enable SW6 = Steer left/right SW25 = DIP switches
S7	Tilt level sensor
TS66	Platform up/down toggle switch
U	Electronic component U3 = Encoder printed circuit board U5 = Electronic control module U6 = Motor controller U9 = Battery charger U13 = Voltage inverter (option) U27 = 47 mH inductor, noise suppression
Y	Valve coil Y3 = Steer right Y4 = Steer left Y5 = Drive reverse Y6 = Drive forward Y7 = Platform down Y8 = Platform up

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