snorkel

TM12E
TM16E



SERVICE & MAINTENANCE MANUAL

Part Number 1610475-000

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SEM300 CONTROL BOARD

Fault and Flash Codes

VEHICLE TILTED
Machine tilted beyond the limits set by ADJUSTMENTS/TILT/Xtrip & Ytrip; some functions may be prevented.

The following HELP messages have an associated LED flash code - however it is recommended to always use HELP messages for troubleshooting (via PGT EZcal or Display Module):

CHECK DRIVE CONTROLS! **2/2**
CHECK LIFT CONTROLS! **2/2**
CHECK STEER CONTROLS! **2/2**
A movement function was selected before enable (or is stuck/ selected at power on) A fault with the control (switch/joystick) can also cause this. NOTE: The relevant controls depend if the controller is in platform or ground mode.

FACTORY OVERRIDE **(fast flashing)**
It is essential the controller is calibrated when machine is built (see description at beginning of document).
IMPORTANT: Never use a machine in factory override; it's ONLY intended for use during manufacture! While factory override is active, the LED is rapidly flashed on/off.

FAULT: BAD CONFIGURATION **1/1**
Check VEHICLE and MODEL setups (in CHANGE DEFAULTS menu)

FAULT: BAD INTERNAL 5V! **7/1**
FAULT:BADINTERNAL12V! **7/5**
FAULT: INTERNAL PROBLEM! **7/3**
FAULT: INTERNAL SAFETY SWITCH! **7/2**
FAULT: INTERNAL STORAGE PROBLEM! **7/6**
The controller has detected an internal fault. Remove power and check all wiring; if the fault remains, the controller may have to be replaced.

FAULT: BATTERY VOLTAGE TOO LOW! **4/4**
FAULT: BATTERY VOLTAGE TOO HIGH! **4/4**
The battery supply is out of range

FAULT: CHECK ELEVATION SWITCH **6/3**
only relevant if an elevation switch is installed on the vehicle. During calibration, the height at which elevation switch opens (while lifting) and closes (while lowering), is recorded - a significant difference is now detected. Check for open- or short-circuit wiring; check for faulty elevation switch; re-calibrate height if necessary.

FAULT: CHECK HEIGHT1 SENSOR **6/1**
FAULT: CHECK HEIGHT2 SENSOR **6/1**
A height sensor is giving an out-of-range voltage (below 0.5V or above 4.5V) Check for open- or short-circuit wiring; replace height sensor if necessary.

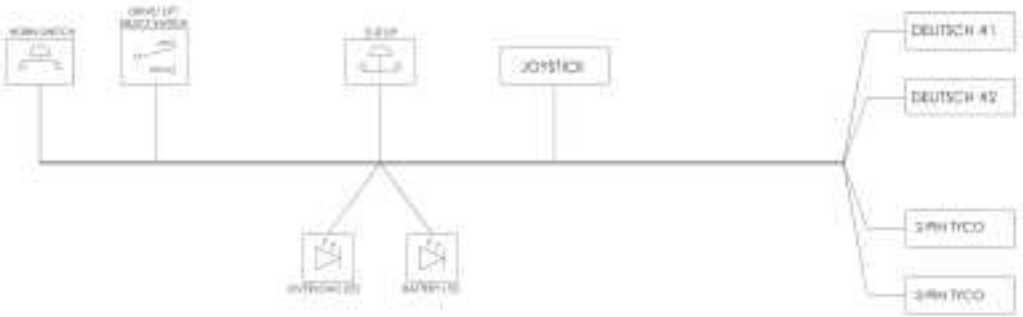
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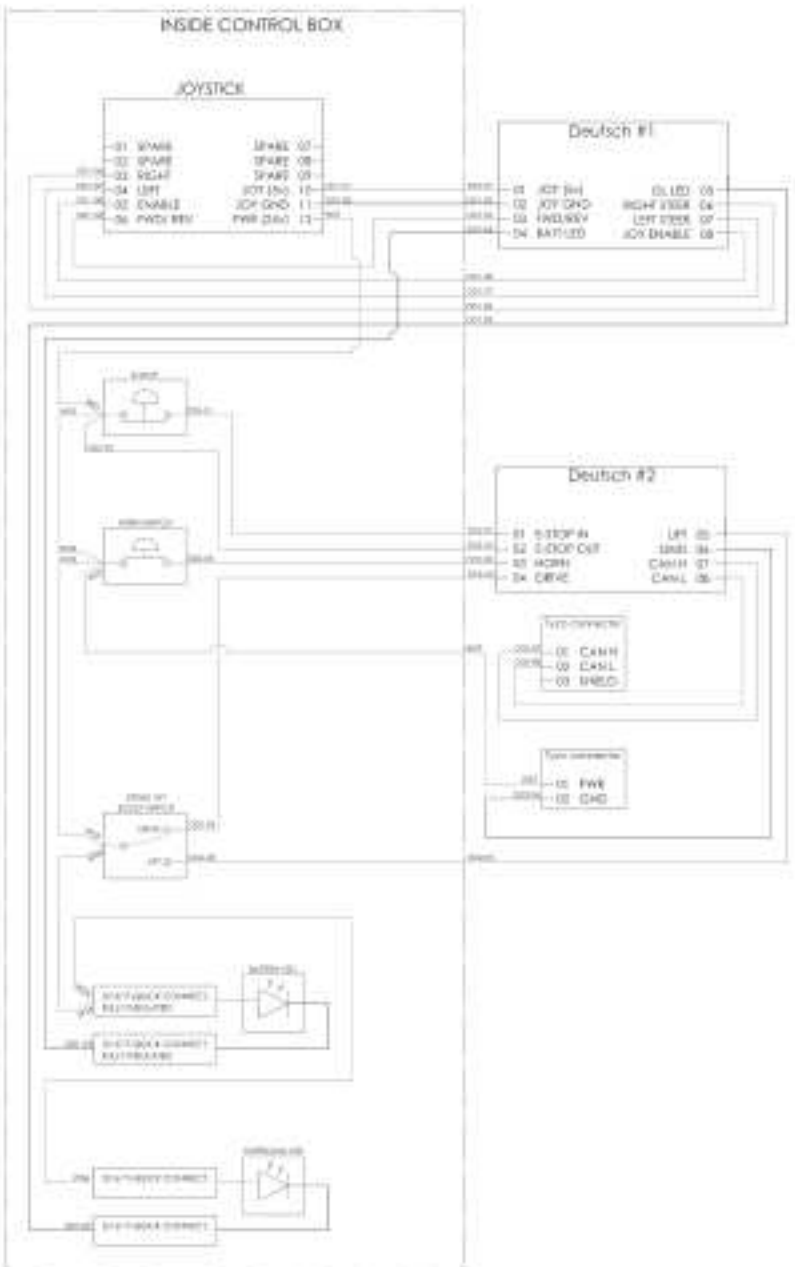
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HARNESSES

Upper Controls

Harness Schematic





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Frequent Inspection and Maintenance – Every 90 Days or 150 Hours

Item	Procedure	Information	P/F/R
Swing-out Trays			
Hinges and latches	Check for damage and proper operation		
Placards and Decals			
	Check for damage and readability		
	Order replacements as necessary	Refer to Parts Manual	
Operator's Manual	Proper manual in document holder		
Platform			
Guardrail system	Welds intact, no damage or deformation		
	All fasteners in place, no loose or missing parts		
Platform floor	Check for damage and deformation		
	Clean to prevent slip and fall hazards		
Platform extension	Check for damage and deformation		
	Smooth operation		
	Check for proper operation of latch handles		
Entry doors	Check for damage and deformation		
	Check for proper operation		
Lanyard anchors	Check for wear and damage		
Emergency Lowering System	Check for proper operation		
Lower Controls			
Operating controls	Check for smooth operation and proper speed	Refer to Operator's Manual for function speeds	
Emergency stop	Shuts off power to lower controls		
Lowering alarm–if equipped	Verify that alarm sounds while the platform is lowering		
Lowering interrupt – CE only	Verify that the platform stops lowering when it reaches about 1.8 m (6')		
Control selector switch	Check for proper operation	In the lower controls position, the upper controls should not be functional.	
Lift capacity	Verify platform will fully raise with rated capacity in the platform	Rated Capacity TM12E / TM16E 500 lb (227 kg)	
	Verify platform will not fully raise with rated capacity plus approximately 50 to 75 lbs additional weight		
	While the platform is loaded with rated capacity, raise the platform at least 4' (1.2 m). Measure the distance between the top of the chassis and the bottom of the platform. Wait for 10 minutes and measure the distance between the top of the chassis and the bottom of the platform. If the platform has lowered more than 0.125" (3.2 mm), the cylinder or holding valve is leaking.	If the cylinder or holding valve leaks, remove the machine from service and correct the cause of the hydraulic leak before further operation.	

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MAST DISASSEMBLY AND REASSEMBLY

Mast Disassembly

1. Position the machine on a level surface with the platform in the stowed position. Press the emergency stop button inward and turn the control select switch to the off position (see Figure 1).
2. Open the battery tray to access the mast harness connectors (see Figure 2).



Figure 1

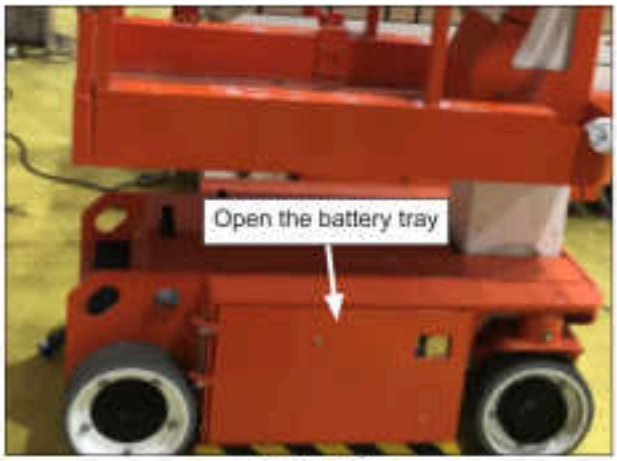


Figure 2

3. Disconnect the three mast harness Deutsch connectors (see Figure 3). Pull the connectors through the chassis and out the front of the machine.
4. Using a 10mm socket, remove the hardware from the upper control box cover (see Figure 4). Set the cover and hardware aside.



Figure 3

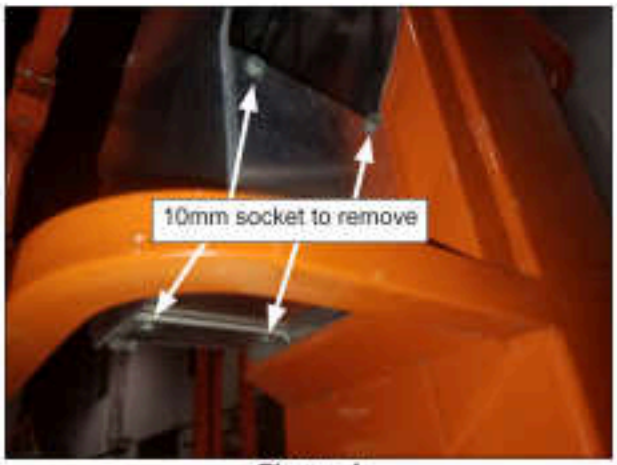


Figure 4

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MAST DISASSEMBLY AND REASSEMBLY

Mast Reassembly

12. Carefully place the cat track into position in the mast (see Figure 9).
13. Install the mast harness bracket hardware and tighten until secure using a 7/16in socket and wrench (see Figure 10).



Figure 9

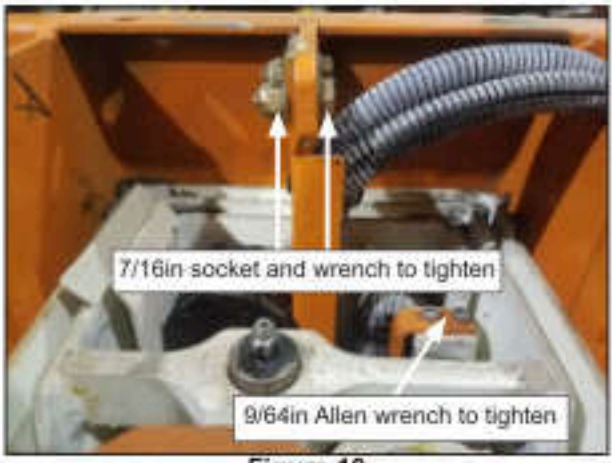


Figure 10

14. Install the bottom cable bracket hardware and tighten until secure using a 9/64in Allen wrench (see Figure 11).
15. Route the upper control box harnesses down the channel to the upper control box (see Figure 9).
16. Pull the harnesses through the opening and connect all three Deutsch connectors inside the upper control box (see Figure 12).
17. Reinstall the mast cover and secure using the existing hardware. Tighten until secure.



Figure 11

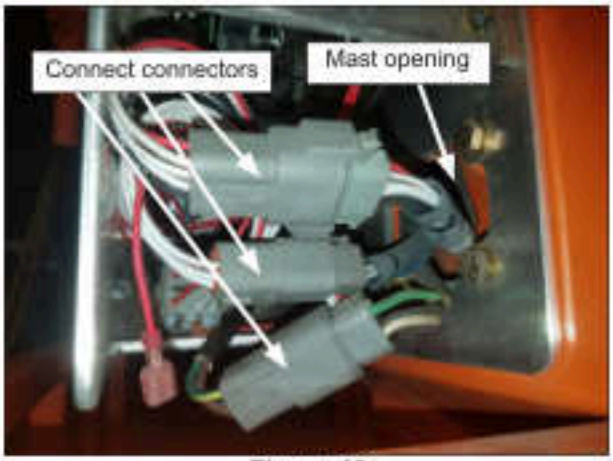
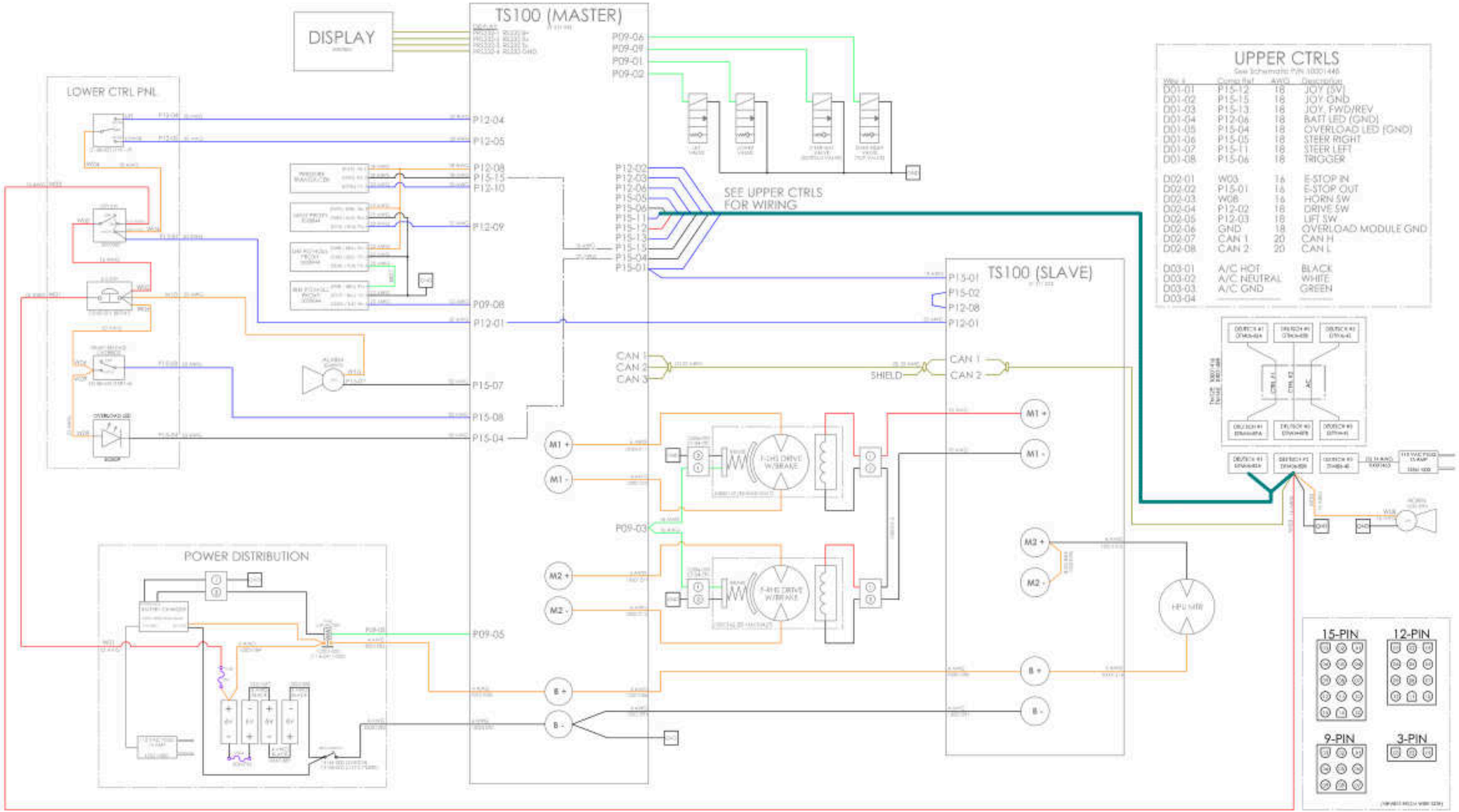


Figure 12

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UPPER CTRLS

See Schematic P/N 1000144B

Wire #	Connection	AWG	Description
D01-01	P15-12	18	JOY (5V)
D01-02	P15-15	18	JOY GND
D01-03	P15-13	18	JOY, FWD/REV
D01-04	P12-06	18	BATT LED (GND)
D01-05	P15-04	18	OVERLOAD LED (GND)
D01-06	P15-05	18	STEER RIGHT
D01-07	P15-11	18	STEER LEFT
D01-08	P15-06	18	TRIGGER
D02-01	W03	16	E-STOP IN
D02-02	P15-01	16	E-STOP OUT
D02-03	W08	16	HORN SW
D02-04	P12-02	18	DRIVE SW
D02-05	P12-03	18	LIFT SW
D02-06	GND	18	OVERLOAD MODULE GND
D02-07	CAN 1	20	CAN H
D02-08	CAN 2	20	CAN L
D03-01	A/C HOT		BLACK
D03-02	A/C NEUTRAL		WHITE
D03-03	A/C GND		GREEN
D03-04			

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