SERVICE BULLETIN

Subject: **Electrical Diagram with Interlock Harness, Door Harness, and Interconnection Diagram**

Applicable Products: **TL2 Mark 1**

Affectivity: **All**

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Professional service technicians have the background and knowledge to perform maintenance work properly and safely.

An issue described by a service bulletin does not necessarily apply to every unit in a product line. A Ricon authorized service technician will be able to determine which units can benefit from the information provided here.

Introduction

This bulletin provides the latest electrical diagram (as of the date of this bulletin), which includes schematics for the door sequencing harness, vehicle door crossover harness, interlock extension harness, and interlock interface harness. Also included is a simplified interconnection diagram that describes the various harnesses used to connect the major lift components.

Information

These diagrams provide those working on the lift the most current information. Discard diagrams published previous to those in this bulletin.

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ELECTRICAL SYSTEM DIAGRAM

Refer to **Figures 1, 2,** and **3** for an electrical schematic of the lift. Refer to **Table 1** for wire color codes used on the schematic. Refer to Electrical Diagram Symbols for an illustration of symbols used on the schematic. Refer to **Table 2** for descriptions of the individual signals appearing at each pin of the controller connector. Refer to **Table 3** for an explanation of labels used on the schematic.

Refer to **Figure 4** for a simplified diagram illustrating how the major lift components are interconnected. Also shown are interlock and door operator components and harnesses.

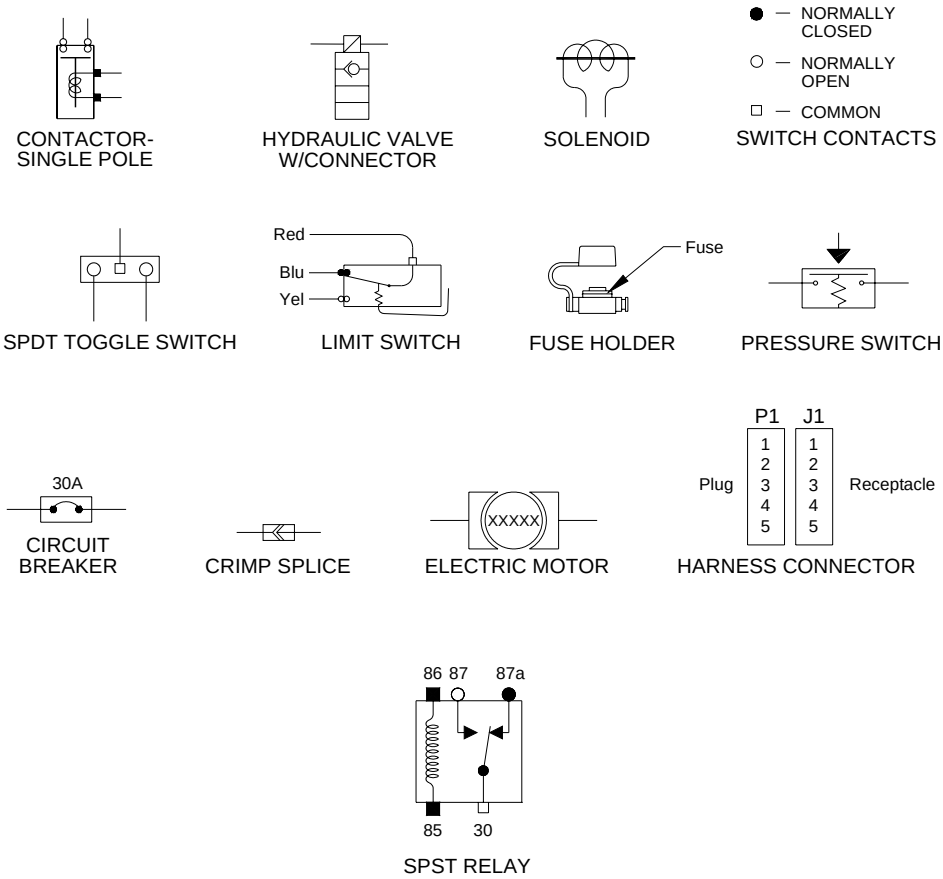
The electrical schematic is divided across three pages and is sub-divided into several major lift areas. An internal schematic for the controller is not shown because it is serviced by VMI.

DIAGRAM LEGENDS

Color Codes

TABLE 1: WIRE COLOR CODES			
CODE	**COLOR**	**CODE**	**COLOR**
BLK	Black	**RED**	Red
BLU	Blue	**VIO**	Violet
BRN	Brown	**GRA**	Gray
GRN	Green	**WHT**	White
ORN	Orange	**YEL**	Yellow

Electrical Diagram Symbols

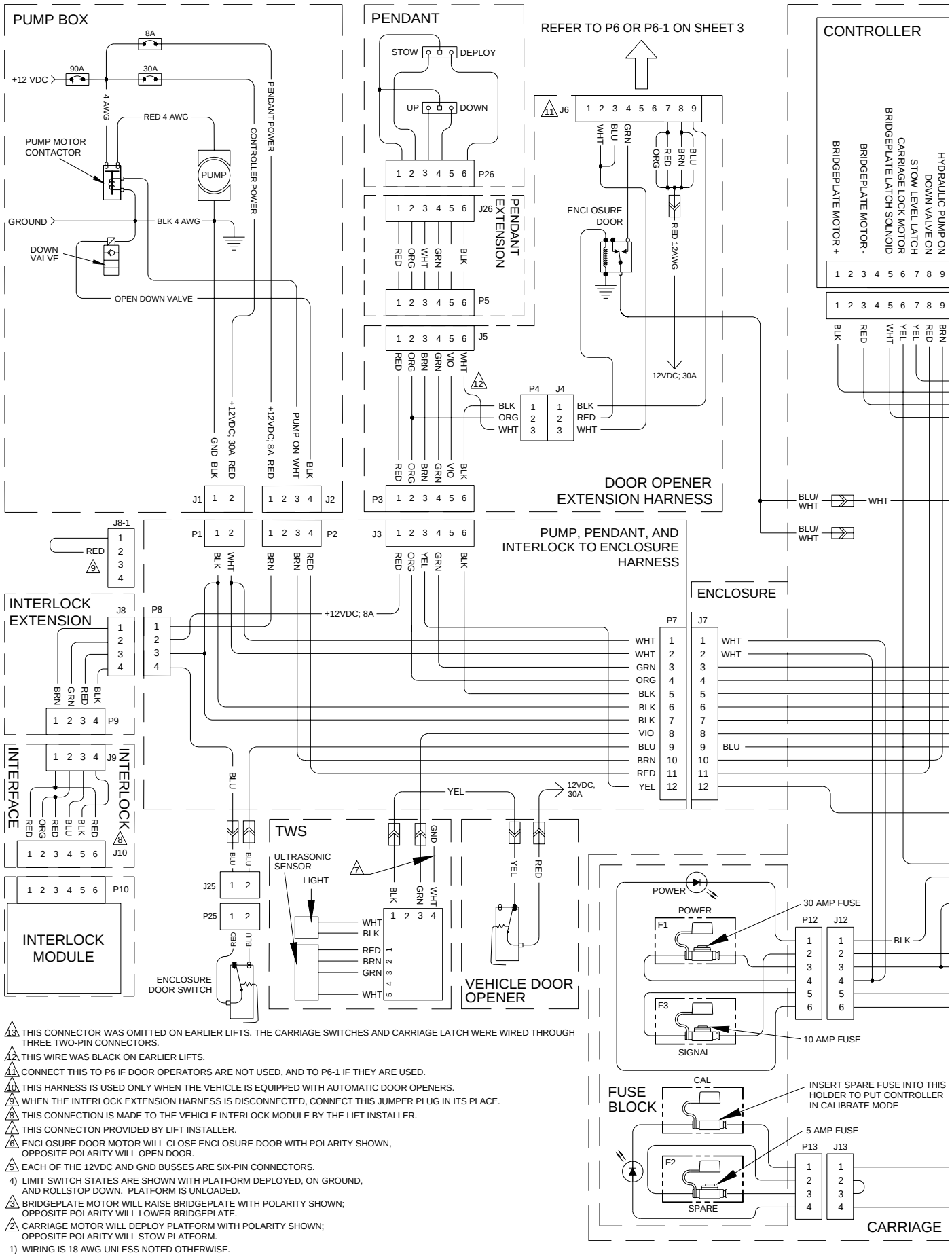


ELECTRICAL SYMBOL DESCRIPTIONS

TABLE 2: ELECTRONIC CONTROLLER CONNECTOR PIN SIGNAL DESCRIPTIONS					
PIN		**COLOR**	**DESCRIPTION**	**AT REST**	**IN ACTION**
J11	1	Black	Signal to bridgeplate motor negative terminal	0 VDC	12 VDC to raise bridgeplate; ground to lower bridgeplate
	3	Red	Signal to bridgeplate motor positive terminal	0 VDC	12 VDC to lower bridgeplate; ground to raise bridgeplate
	5	White	Signal to bridgeplate latch solenoid	0 VDC	12 VDC to unlock bridgeplate from vertical or horizontal positions
	6	Yellow	Signal to stow level latch solenoid	0 VDC	12 VDC to engage stow level latch mechanism (stopping platform movement at stow level)
	7	Yellow	Signal to carriage lock solenoid	0 VDC	12 VDC when platform is fully extended or retracted
	8	Red	Signal to hydraulic down valve	0 VDC	12 VDC when DOWN button is pressed and platform is deployed
	9	Brown	Signal to hydraulic pump relay	0 VDC	12 VDC when UP button is pressed and platform is deployed
	10	Black	Signal to carriage motor negative terminal	0 VDC	0 volts when DEPLOY button is pressed; 12 VDC when STOW button is pressed
	13	Green	Bridgeplate position potentiometer B+	12 VDC	12 VDC
	14	Blue	Signal from bridgeplate position potentiometer	0 VDC; bridge plate is down	0 to 12 VDC as bridgeplate rises
	15	Brown	Bridgeplate position potentiometer B-	0 VDC	ground
	16	Black	System ground (common)	0 VDC	0 volts
	17	Black	System ground (common)	0 VDC	0 volts
	18	Red	Signal to controller power LED	0 VDC	12 VDC when power is supplied to controller
	20	Brown	Signal to carriage motor negative terminal	0 VDC	0 volts when DEPLOY button is pressed; 12 VDC when STOW button is pressed
	21	Red	12VDC buss	12 VDC	12 VDC supply for switches and sensors
	22	Brown	Signal from platform load sensor pressure switch	0 VDC	12 VDC when a load of 75 lbs is on platform
	23	Violet	Threshold Warning System	0 VDC	12 VDC when passenger is in vehicle threshold area
	24	Yellow	Signal from carriage out switch	0 VDC when carriage not deployed	12 VDC when carriage is fully extended
	25	Black	Ground buss	0 VDC	Ground supply for switches and sensors
	26	Black	Cycle counter	0 VDC	12 VDC pulse when platform moves through one complete cycle
	27	Violet	Calibration mode select input	0 VDC	12 VDC when fuse is in calibration fuse holder
	28	Blue	Signal from carriage in and carriage lock limit switches	0 VDC when carriage not stowed	12 VDC when carriage is fully stowed and carriage lock pin is engaged with enclosure

TABLE 2: ELECTRONIC CONTROLLER CONNECTOR PIN SIGNAL DESCRIPTIONS					
PIN		**COLOR**	**DESCRIPTION**	**AT REST**	**IN ACTION**
(J11)	29	Blue	Signal to carriage motor positive terminal	0 VDC	12 VDC when DEPLOY button is pressed; 0 volts when STOW button is pressed
	30	White	Signal to carriage motor positive terminal	0 VDC	12 VDC when DEPLOY button is pressed; 0 volts when STOW button is pressed
	31	White	12VDC; 30A supply to controller	12 VDC	12 VDC from 30A circuit breaker in pump box
	32	Green	Signal from rollstop sensor	0 VDC when rollstop is open	12 VDC when rollstop is closed (raised)
	33	Green	Platform height potentiometer B+	12 VDC	12 VDC
	34	Orange	Signal from platform height potentiometer	0 VDC when platform is on ground	0 to 12 VDC as platform rises
	35	Brn	Platform height potentiometer B-	0 VDC	0 VDC
	36	White	12VDC; 30A supply to controller	12 VDC	12 VDC from 30A circuit breaker in pump box
	37	Gray	UP signal from control pendant	0 VDC	12 VDC when UP button is pressed
	38	Green	DOWN signal from control pendant	0 VDC	12 VDC when DOWN button is pressed
	39	Orange	STOW signal from control pendant	0 VDC	12 VDC when STOW button is pressed
	40	Black	DEPLOY signal from control pendant	0 VDC	12 VDC when DEPLOY button is pressed
END OF TABLE					

TABLE 3-3: WIRING DIAGRAM LABEL DEFINITIONS	
LABEL	**DESCRIPTION**
+12 VDC	System power for control pendant, limit switches, and electronic controller.
BRIDGEPLATE LATCH	Solenoid operated latch that holds bridgeplate in either raised or lowered positions.
BRIDGEPLATE MOTOR	Electric gearmotor that raises and lowers bridgeplate.
CALIBRATION	Fuse holder used when calibrating controller; contains no fuse during normal operation.
CALIBRATION MODE	LED that illuminates when controller is in calibration mode.
CALIBRATION FUSE BLOCK	Four-position fuse holder located at right front face of carriage frame. Used to calibrate stow height and floor height into controller.
CALIBRATION FUSE - F2	Fuse holder in series with the +12VDC supply and calibration input to controller; contains 5-amp fuse.
CARRIAGE	Major lift subassembly mounted on rollers.
CARRIAGE IN #1	Limit switch located on carriage that changes state when carriage is fully stowed.
CARRIAGE IN #2	Limit switch located on carriage that changes state when carriage is fully stowed. It provides a signal, via Enclosure Door switch, to Interlock Module.
CARRIAGE MOTOR	Electric gearmotor that moves traveling frame in and out of enclosure.
CARRIAGE OUT	Limit switch located on carriage that changes state when carriage is fully deployed.
CARRIAGE LATCH	Electric motor driven pin that locks carriage to enclosure in either fully stowed or fully deployed positions.
CONTROLLER	Translates pendant commands into signals that control lift electrical and hydraulic components. Also monitors lift electrical activity and position of platform and bridgeplate.
DOWN VALVE	Solenoid controlled hydraulic valve that releases fluid from hydraulic cylinders to lower platform.
ENCLOSURE DOOR	Switch monitoring open position of enclosure door.
GROUND; GND	System electrical common; 0 volts.
INTERLOCK MODULE	Provides electronic safety interlock between lift and vehicle. Manages power to pendant and movement of vehicle.
PENDANT	Control pendant used to control platform motions.
PLATFORM	Major lift subassembly where a passenger resides during lift operations.
PLATFORM HEIGHT	Linear potentiometer located inside RH hydraulic cylinder; translates platform height.
PLATFORM LOAD	Pressure sensitive switch changes state when a load of 75lbs, or greater, is on platform.
POWER FUSE - F1	Fuse holder in series with the +12VDC supply and controller; contains 30 amp fuse.
PUMP [MOTOR]	Electric motor that drives hydraulic pump.
PUMP MOTOR RELAY	Electrical relay (contactor) that controls heavy current to pump motor.
ROLLSTOP CLOSED	Proximity sensor that changes state when rollstop is fully closed (raised).
SIGNAL FUSE - F3	Fuse holder in series with the +12VDC supply and 12VDC buss; contains 10-amp fuse.
SPARE FUSE - F2	Fuse holder that contains spare 5-amp fuse that is used when calibrating controller.
STOW LEVEL LATCH	Solenoid operated mechanical latch that holds platform at stow level.
TWS	(Threshold Warning System) Safety system monitoring presence of a passenger in threshold area.
VEHICLE DOOR SWITCH	Switch monitoring open position of vehicle door. Provides signal to TWS module.
END OF TABLE	



13 THIS CONNECTOR WAS OMITTED ON EARLIER LIFTS. THE CARRIAGE SWITCHES AND CARRIAGE LATCH WERE WIRED THROUGH THREE TWO-PIN CONNECTORS.

12 THIS WIRE WAS BLACK ON EARLIER LIFTS.

11 CONNECT THIS TO P6 IF DOOR OPERATORS ARE NOT USED, AND TO P6-1 IF THEY ARE USED.

10 THIS HARNESS IS USED ONLY WHEN THE VEHICLE IS EQUIPPED WITH AUTOMATIC DOOR OPENERS.

9 WHEN THE INTERLOCK EXTENSION HARNESS IS DISCONNECTED, CONNECT THIS JUMPER PLUG IN ITS PLACE.

8 THIS CONNECTION IS MADE TO THE VEHICLE INTERLOCK MODULE BY THE LIFT INSTALLER.

7 THIS CONNECTON PROVIDED BY LIFT INSTALLER.

6 ENCLOSURE DOOR MOTOR WILL CLOSE ENCLOSURE DOOR WITH POLARITY SHOWN, OPPOSITE POLARITY WILL OPEN DOOR.

5 EACH OF THE 12VDC AND GND BUSSES ARE SIX-PIN CONNECTORS.

4) LIMIT SWITCH STATES ARE SHOWN WITH PLATFORM DEPLOYED, ON GROUND, AND ROLLSTOP DOWN. PLATFORM IS UNLOADED.

3 BRIDGEPLATE MOTOR WILL RAISE BRIDGEPLATE WITH POLARITY SHOWN; OPPOSITE POLARITY WILL LOWER BRIDGEPLATE.

2 CARRIAGE MOTOR WILL DEPLOY PLATFORM WITH POLARITY SHOWN; OPPOSITE POLARITY WILL STOW PLATFORM.

1) WIRING IS 18 AWG UNLESS NOTED OTHERWISE.

NOTES:

FIGURE 1: LIFT DIAGRAM – SHEET 1

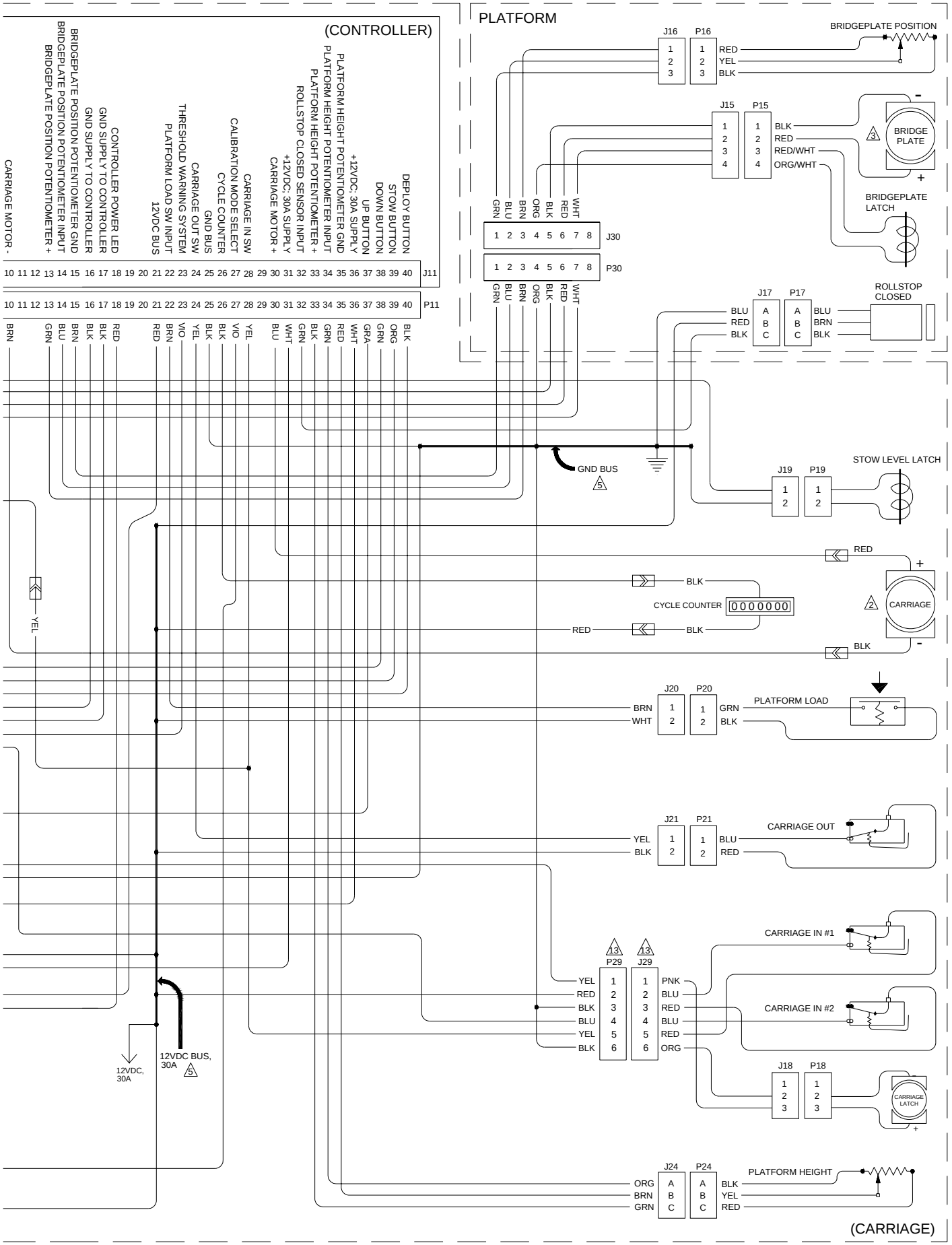


FIGURE 2: LIFT DIAGRAM – SHEET 2

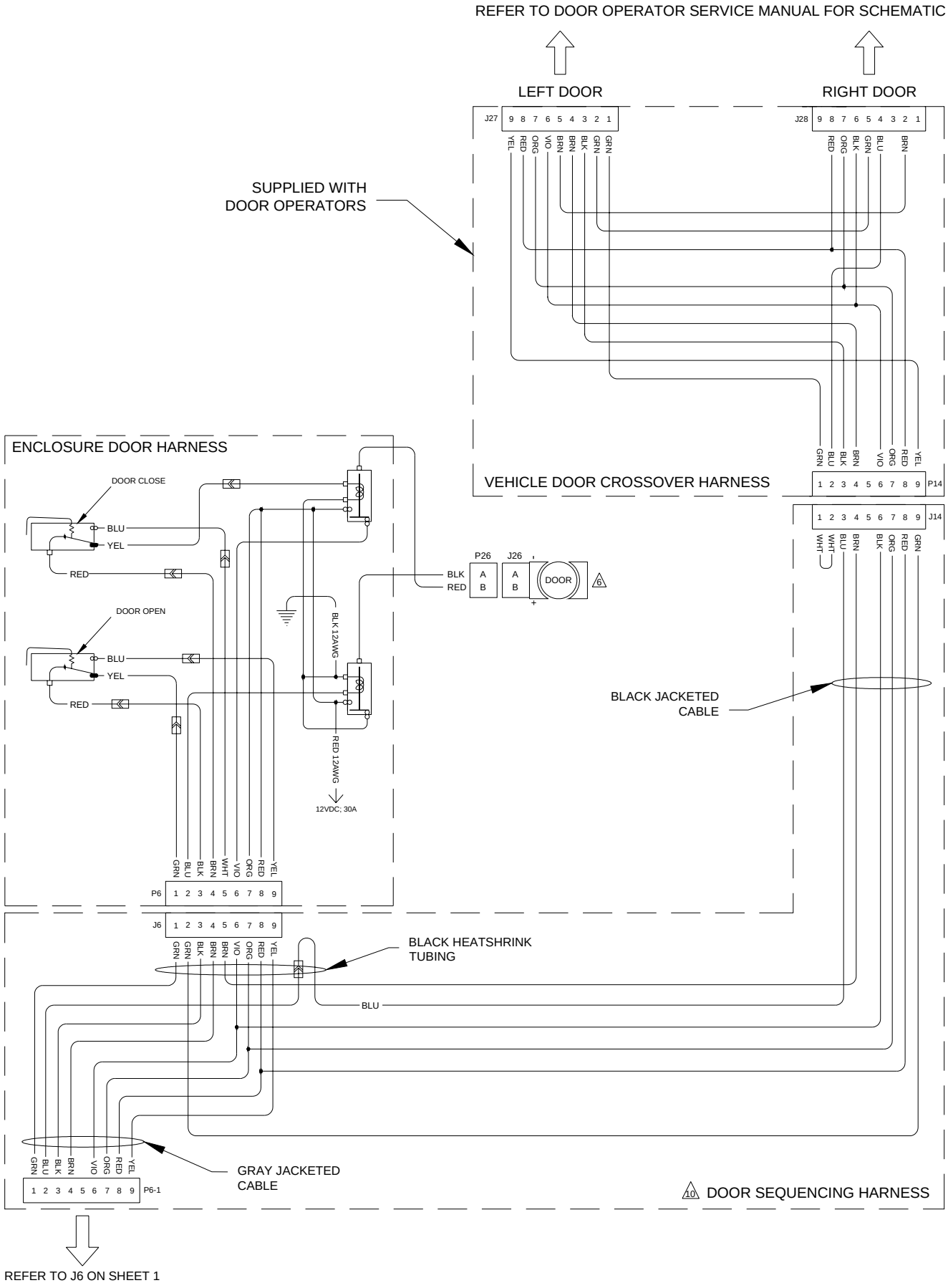


FIGURE 3: LIFT DIAGRAM – SHEET 3

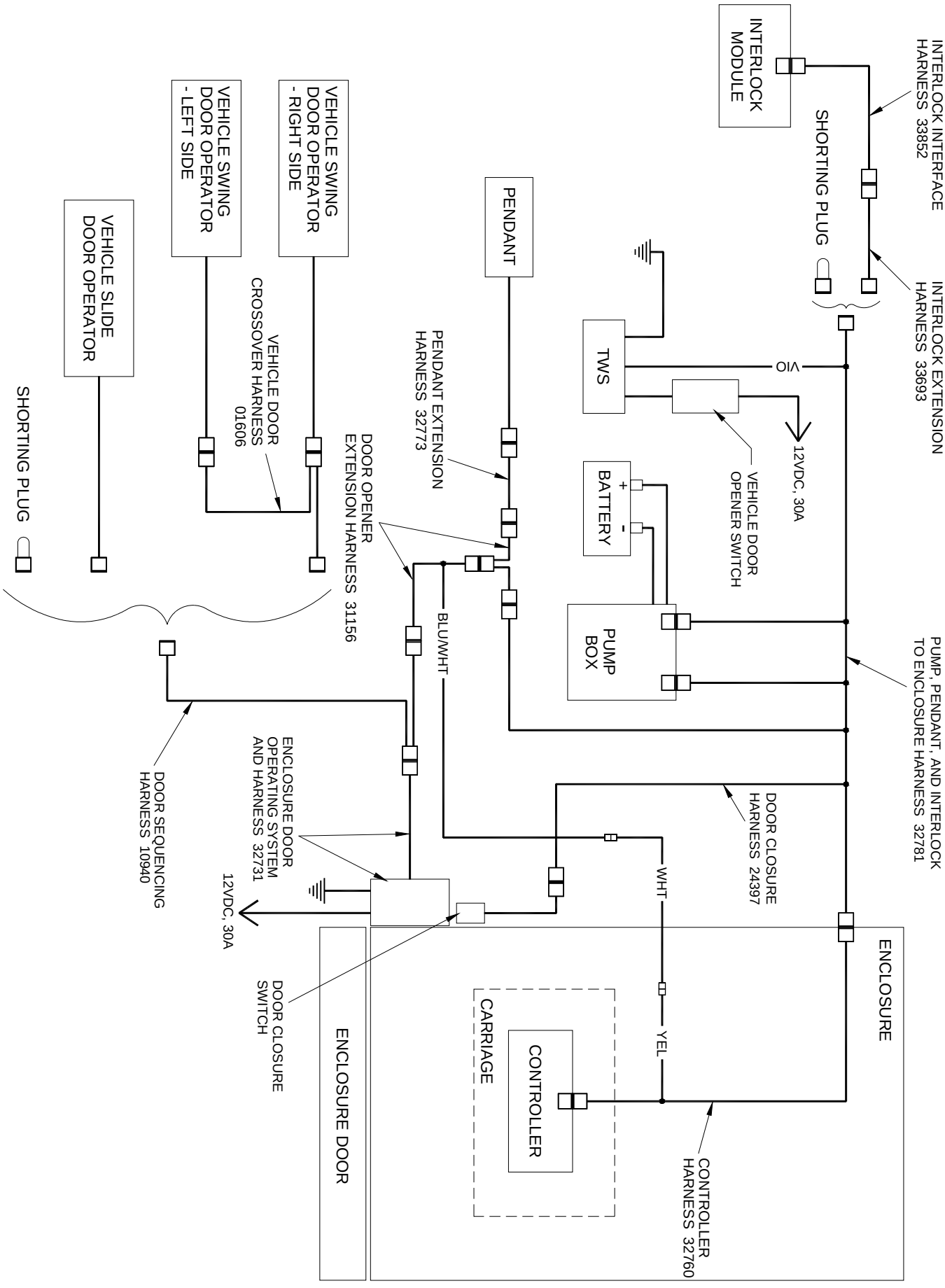


FIGURE 4: LIFT INTERCONNECTION DIAGRAM

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