

III. MAINTENANCE AND TROUBLESHOOTING

Regular maintenance of the Ricon Innovator Wheelchair Lift will reduce the frequency of repairs and contribute to optimum performance and safe operation. This chapter contains cleaning and lubrication instructions, a maintenance schedule, a troubleshooting section, plus hydraulic and electrical diagrams.



WARNING!

THIS RICON PRODUCT IS HIGHLY SPECIALIZED. MAINTENANCE AND REPAIRS MUST BE PERFORMED BY A RICON AUTHORIZED SERVICE TECHNICIAN USING RICON REPLACEMENT PARTS. MODIFYING OR FAILING TO PROPERLY MAINTAIN THIS PRODUCT WILL VOID THE WARRANTY, AND MAY RESULT IN UNSAFE OPERATING CONDITIONS. AFTER THE WARRANTY PERIOD, RICON RECOMMENDS THAT TROUBLESHOOTING BE CONTINUED BY A RICON AUTHORIZED SERVICE TECHNICIAN.

A. CLEANING

Regular cleaning with mild soap and water (i.e. liquid dish soap or liquid car wash soap) and then drying thoroughly will protect painted lift surfaces. Cleaning the lift is especially important in areas of the country where roads are salted in winter or when dirt, mud, snow, etc. can be tracked into vehicle.

B. MAINTENANCE CHECKLIST

Under normal operating conditions, maintenance inspections are required at least every six months (1750 cycles) and a thorough inspection should be performed as specified in **Table 3-1**. Service should be more frequent when the lift is used ten times per day, or more.

TABLE 3-1: MAINTENANCE CHECKLIST

SERVICE POINT	ACTION TO PERFORM
Decals	Refer to Figure 2-5 . Verify that all lift decals are properly affixed, clearly visible, and legible. Replace if necessary.
Overall condition	Inspect lift for damaged or missing parts.
Control pendant	Check control pendant for damage and verify that its cable connections are secure.
Electrical wiring	Inspect all accessible electrical wiring for damaged wires (cut, frayed, unsecured) and loose connectors.
Handrail	Verify that handrail fasteners are properly tightened.
Lift mounting points	<ul style="list-style-type: none"> •Verify that the mounting hardware is secure and undamaged. •Verify that mounting bracket screws are properly tightened.
Main lifting pivots	Check that all traveling frame pins are in place, free from damage, and locked in position.
Hydraulic system	<ul style="list-style-type: none"> •Check for hydraulic fluid leakage along all lines. •Check that backup pump manual release valve is lightly closed. •Check hydraulic cylinder for leaks. •Inspect hydraulic hoses for damage. •Verify that all fittings are tightly secured.
	CAUTION
	Add hydraulic fluid when platform is at ground level. Filling reservoir when platform is above ground level will result in overflow from reservoir when platform is lowered.
	<ul style="list-style-type: none"> • Lower platform to ground level and check hydraulic fluid level. If level is below FULL mark, add Texaco 01554 Aircraft Hydraulic Oil, or equivalent fluid per U.S. Mil Spec H5606G.

TABLE 3-1: MAINTENANCE CHECKLIST

SERVICE POINT	ACTION TO PERFORM
Operation	<ul style="list-style-type: none"> • Operate lift through several full cycles (deploy, lower, raise, stow) using control pendant. Note unusual noises or movements. • Deploy lift to floor level. Set <i>Wrap Disable</i> switch to on position and stow lift using control pendant. Platform must fold into vertical position and move into vehicle, but not wrap (Figure 1-3). • Deploy lift to floor level. Set <i>Wrap Disable</i> switch to off position and stow lift using control pendant. Platform must fully fold and wrap into vehicle (Figure 1-4).
Handrail mounted control switch	<ul style="list-style-type: none"> • Verify switch moves platform from floor level to ground when held in <i>Down</i> position. • Verify switch moves platform from ground to floor level when held in <i>Up</i> position.
Platform rollstop	Check for proper rollstop operation when platform contacts ground; side barriers and front rollstop must deploy (unfold) fully and lay flush against ground.
Manual operation	<ol style="list-style-type: none"> 1) Manually unfold platform by using manual release T-handle as specified in Chapter III of the Operator Manual. Platform must unfold smoothly, with no binding or jamming. 2) Lower platform to vehicle floor level using manual backup pump release valve. Close release valve when platform reaches vehicle floor level. Platform must deploy smoothly, with no binding or hesitation. 3) With platform at floor level, attempt to lower (unfold) bridgeplate without pushing bridgeplate release lever. Bridgeplate must resist unfolding. Push bridgeplate release lever and deploy bridgeplate to its horizontal position. Check that bridgeplate moves into horizontal position. Raise and lock bridgeplate in vertical position. 4) Verify that side barriers and front rollstop resist deployment (unfolding) when not at ground level. 5) Verify that side barriers and front rollstop can be fully deployed (unfolded) manually when platform is at ground level. 6) Manually stow platform as specified in Chapter III of the Operator Manual. Platform must lock in place when T-handle is released.
Cleaning and lubrication	Clean exposed lift surfaces with mild soap and water; dry thoroughly. Inhibit rust by using a clean, soft cloth to apply a light film of oil to all surfaces. Remove excess oil.
END OF TABLE	

C. TROUBLESHOOTING

1. TROUBLESHOOTING GUIDE

The troubleshooting guide is intended to provide a logical starting point for general lift problems. However, not all possible problems or combinations of problems are listed. The guide assumes that the vehicle battery is fully charged and its connections are clean and tight.


 WARNING!
<p>THE TROUBLESHOOTING GUIDE DOES NOT INCORPORATE ROUTINE SAFETY PRECAUTIONS OR PRELIMINARY PROCEDURES. TROUBLESHOOTING MUST BE PERFORMED BY A TRAINED, AUTHORIZED RICON SERVICE TECHNICIAN DURING THE RICON WARRANTY PERIOD. IT IS RECOMMENDED THAT TROUBLESHOOTING ALSO BE PERFORMED BY AN AUTHORIZED RICON SERVICE TECHNICIAN AFTER THE WARRANTY PERIOD.</p>

TABLE 3-2: TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	REMEDY
Lift does not operate when <i>Deploy</i> button is pressed	<i>Main Circuit Breaker</i> (located in engine compartment) has tripped.	Reset circuit breaker.
	<i>Control System Circuit Breaker</i> (located on lift tower) has tripped.	Reset circuit breaker.
	Faulty lift power wiring.	Repair wiring.
Lift does not operate when <i>Deploy</i> button is pressed; circuit breakers have not tripped	Safety interlock not engaged.	Engage safety interlock.
	Control pendant <i>Stow–Deploy</i> switch is defective (deploy contacts open).	Replace stow/deploy switch.
	Lift wrap motor is defective.	Replace motor.
	Controller unwrap circuit is defective.	Replace controller.
	Loose or faulty wiring.	Repair wiring.
Lift unwraps but does not unfold when <i>Deploy</i> button is pressed	<i>Down Valve</i> is defective.	Replace down valve.
	Controller down valve circuit is defective.	Replace controller.
	Loose or faulty wiring.	Repair wiring.
Platform does not unfold or fold completely	Platform folding linkage (connected to fold bracket) requires adjustment.	Adjust linkage rod ends.
	Debris between folding platform cam follower and track (part of platform folding bracket).	Clean cam follower and track.
Wrap motor continues to run when platform is fully unwrapped	<i>Platform Unwrapped</i> limit switch is defective (contacts open) or out of adjustment.	Replace switch.
	Faulty <i>Platform Unwrapped</i> limit switch wiring.	Repair wiring.
	Controller platform wrapping circuit is defective.	Replace controller.
Lift moves down automatically from floor	Control pendant <i>Up–Down</i> switch is defective (down contacts shorted).	Replace switch.
	Handrail-mounted control switch is defective (down contacts shorted).	Replace switch.
	Faulty pendant or control switch wiring.	Repair wiring.
Platform stops above or below vehicle floor level when <i>Deploy</i> button is pressed	<i>Platform Above Floor</i> limit switch is defective or out of adjustment.	Repair or adjust switch.
	<i>Platform Below Floor</i> limit switch is defective or out of adjustment.	Repair or adjust switch.
	Loose or faulty floor level switch wiring.	Repair wiring.

TABLE 3-2: TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	REMEDY
Up function inoperative; pump motor does not operate	Hydraulic pump motor is defective.	Replace motor.
	Front and rear platform contacts are dirty or do not touch.	Clean or adjust platform contacts.
	<i>Rollstop and Barrier Up</i> limit switch is defective (left or right side) or out of adjustment.	Repair or adjust switch.
	<i>Side Barrier Locked</i> limit switch (left or right side) is defective or out of adjustment.	Repair or adjust switch.
	Loose or faulty wiring.	Repair wiring
	Controller pump circuit is defective.	Replace controller.
	Control pendant <i>Up-Down</i> switch is defective (up contacts open).	Replace control pendant.
	Handrail-mounted control switch is defective (up contacts open).	Replace control switch.
Up function inoperative; pump motor operates	Platform overloaded.	Load must not exceed 660 lbs (300 kg).
	Backup pump manual release valve open.	Close valve lightly, taking care not to over-tighten.
	Hydraulic fluid level low.	Check fluid level; add fluid as necessary.
	Down valve open.	Replace down valve.
	Air in hydraulic system.	Cycle lift several times or bleed system.
	Leak in hydraulic system.	Check lines and fittings; repair or tighten as necessary.
Bridgeplate does not stow or does not deploy	Bridgeplate motor is defective.	Replace motor.
	<i>Platform Above Floor</i> or <i>Platform Below Floor</i> limit switches are defective or out of adjustment.	Repair or adjust switches.
	Controller bridgeplate circuit is defective.	Replace controller.
	Bridgeplate mechanism is jammed or defective.	Repair or replace bridgeplate mechanism.
	Loose or faulty bridgeplate motor wiring.	Repair wiring.

TABLE 3-2: TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	REMEDY
Rollstop does not open	Rollstop motor is defective.	Replace rollstop motor.
	<i>Platform On Ground</i> limit switch is defective or out of adjustment.	Repair or adjust switch.
	Rollstop mechanical linkage is defective.	Repair rollstop linkage.
	Controller rollstop lowering circuit is defective.	Replace controller.
	Loose or faulty rollstop motor wiring.	Repair wiring.
Rollstop does not close	Rollstop motor is defective.	Replace motor.
	Controller rollstop circuit is defective.	Replace controller.
	Rollstop mechanical linkage is defective.	Repair rollstop linkage.
	Loose or faulty rollstop motor wiring.	Repair wiring.
Rollstop does not latch	Debris in latch mechanism (part of actuator shoe assy).	Remove debris.
Lift operates with rollstop open	<i>Rollstop</i> and <i>Barrier Up</i> limit switches (left or right side), is defective or out of adjustment.	Repair or adjust switch.
Rollstop opens at any lift position	<i>Platform On Ground</i> limit switch, is defective or out of adjustment.	Repair or adjust switch.
Lift moves up automatically from ground	Control pendant <i>Up–Down</i> switch is defective (up contacts shorted) or handrail-mounted control switch is defective (up contacts shorted).	Replace switch.
	Control pendant or control switch faulty wiring.	Repair wiring.
Platform stops above floor level when <i>Up</i> button is pressed	<i>Platform Below Floor</i> limit switch is defective or out of adjustment.	Repair or adjust switch.
Pump solenoids chatter	Poor electrical connection between negative bus bar, pump block, or solenoid plate.	Tighten or clean connections.
Lift will not stow	<i>Fold Cutoff</i> limit switch is defective or out of adjustment.	Repair switch or wiring.
	Control pendant <i>Stow–Deploy</i> switch is defective (stow contacts open).	Replace switch wiring.
	<i>Platform Pressure Switch</i> is defective.	Replace pressure switch.
	Loose or faulty wiring.	Repair wiring.
Lift stows automatically when at floor level or above	Control pendant <i>Stow–Deploy</i> switch is defective (stow contacts shorted).	Replace switch.
	Faulty control pendant wiring.	Repair wiring.

TABLE 3-2: TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	REMEDY
Pump motor runs after lift is stowed	<i>Fold Cutoff</i> limit switch is defective or out of adjustment.	Repair switch or wiring.
	Faulty <i>Fold Cutoff</i> limit switch wiring.	Repair wiring.
	Controller <i>Fold Cutoff</i> circuit is defective.	Replace controller.
Wrap motor runs after lift is stowed	<i>Platform Wrapped</i> limit switch is defective or out of adjustment.	Repair switch or wiring.
	Controller platform wrapping circuit is defective.	Replace controller.
	Loose or faulty wiring.	Repair wiring.
Platform folds into vehicle but does not wrap when <i>Stow</i> button is pressed	<i>Wrap Disable</i> switch set to ON.	Set <i>Wrap Disable</i> switch to OFF.
	<i>Wrap Disable</i> switch, or its wiring, faulty.	Repair switch or wiring.
Platforms fully wraps into vehicle with <i>Wrap Disable</i> switch set to ON	<i>Wrap Disable</i> switch, or its wiring, faulty.	Replace switch.
Power door operators do not open vehicle doors	Power door operator circuit breaker (located on lift tower) is tripped.	Reset circuit breaker.
	Left power door operator motor is defective.	Replace power door operator.
	Loose or faulty wiring.	Repair wiring.
	Power door operator mechanical linkage is defective.	Repair door operator linkage.
	Controller vehicle door operator circuit is defective.	Replace controller.
Power door operators do not close vehicle doors	Power door operator mechanical linkage is defective.	Repair door operator linkage.
	Loose or faulty wiring.	Repair wiring.
	<i>Platform Wrapped</i> limit switch is defective or out of adjustment.	Repair switch or wiring.
	Controller vehicle door operator circuit is defective.	Replace controller.

END OF TABLE

2. ELECTRICAL SYSTEM DIAGNOSTIC DISPLAYS

Observe the LED display on the main controller board (located at the lower front of the tower) to monitor electrical events that occur in the lift. These lights provide an indication of what the lift status is, such as the position of components (rollstop up, platform wrapped, platform below floor level, etc), or occurrence of output signals that energize electrical components (hydraulic pump, rollstop motor, etc), or the need for precaution (high current in certain circuits, vehicle door open, etc). Refer to **Figure 3-1** and **Table 3-3** on the following pages for the location of each light and a description of what each light indicates.

Refer to **Tables 3-4** through **3-8** on the following pages. Also located on the main controller board is a numerical LED display that is useful for troubleshooting electrical problems. Each platform motion (deploy, lower, raise, stow) can be divided into a series of steps, and one or more events occur during that step. Each event has input and output signals associated with it. If a problem occurs during one of those steps, a number representing the step will be shown on the display.

Table 3-4 describes the main controller's numerical display. **Tables 3-5** through **3-8** describe each platform motion. When one of the motions begins, all of the numbers listed at the top of the appropriate platform motion table will quickly flash in sequence. If a problem occurs during that motion, the number for the faulty step will be displayed continuously. Refer to the table column below the number displayed for the events that occur during that step. The problem could be caused by one of the controllers, an input signal switch, an output component (motor, valve, etc), or the related wiring and connectors.

Each platform motion table is formatted to reflect lift operation. The table has a status number at the top of a column with a list of input switches, controller commands, and output relays. The state of each input and output is specified for a given step. If the state is specified as ON, then the switch must be closed, the controller command must be active, or the output relay coil must be energized during that step. If the state is specified as OFF, then the switch must be open, the controller command must be inactive, or the output relay coil must be de-energized (no power applied). A blank space means that the input or output is ignored during that step.

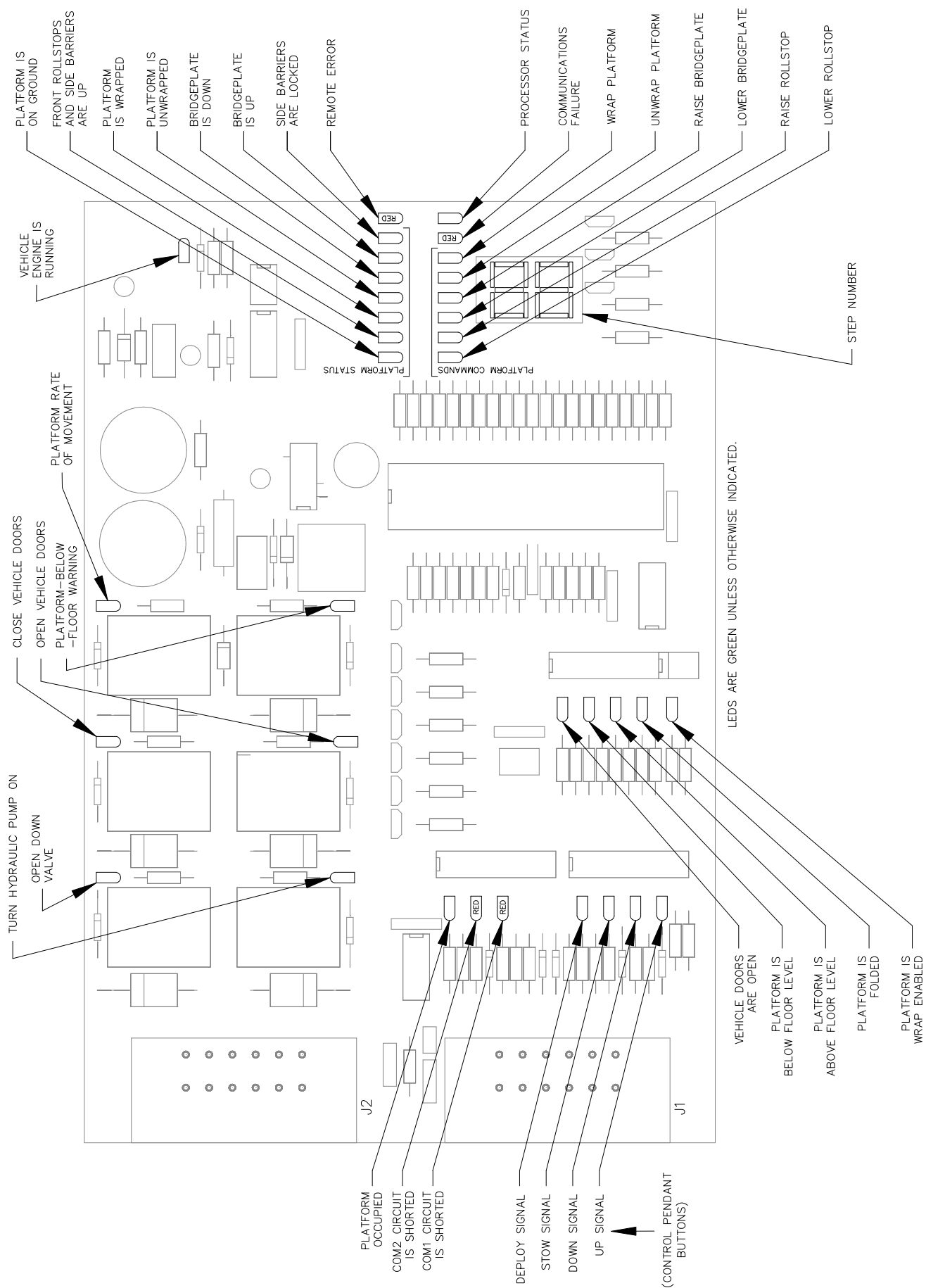


FIGURE 3-1: MAIN CONTROLLER DIAGNOSTIC LED LAYOUT

TABLE 3-3: DIAGNOSTIC LED DISPLAY GUIDE

LED LABEL	DESCRIPTION
Bridgeplate is down	On when bridgeplate is fully lowered.
Bridgeplate is up	On when bridgeplate is fully folded (perpendicular to platform).
Close vehicle doors	On when controller sends a close signal to door operators.
Com 1 circuit is shorted	On when a high-current condition occurs in COM1 circuit.
Com 2 circuit is shorted	On when a high-current condition occurs in COM2 circuit.
Communications failure	On if remote controller does not respond to commands from main controller.
Deploy signal	On when <i>Deploy</i> button is pressed on control pendant.
Down signal	On when <i>Down</i> button is pressed on control pendant.
Lower bridgeplate	On when controller sends a lower signal to bridgeplate motor.
Lower rollstop	On when controller sends a lower signal to left and right rollstop motors.
Lift status	Counter display provides lift status number.
Open down valve	On when controller energizes the down valve.
Open vehicle doors	On when controller sends an open signal to power door operators.
Platform-below-floor warning	On when platform is lower than floor level; 12VDC will be available at pin 5 of P2.
Platform is above floor level	On when platform is higher than floor level.
Platform is below floor level	On when platform is lower than floor level.
Platform is folded	On when platform is fully folded.
Platform is on ground	On when platform has fully settled on ground.
Platform is unwrapped	On when the platform is fully folded but not wrapped.
Platform is wrapped	On when platform is fully folded and wrapped.
Platform occupied	On when there is no weight present on platform; off when 50 lbs, or more, is present.
Processor status	Blinks when controller microprocessor is operating normally.
Raise bridgeplate	On when controller sends a raise signal to bridgeplate motor.
Raise rollstop	On when controller sends a raise signal to left and right rollstop motors.
Remote error	On if main controller receives a communications error signal from remote controller (commands not accepted).
Rollstop is up	On when both front rollstops are raised.
Side barriers are locked	On when both side barriers are raised and locked.
Stow signal	On when <i>Stow</i> button is pressed on the control pendant.
Turn hydraulic pump on	On when controller energizes hydraulic pump solenoids.
Unwrap platform	On when controller sends an unwrap signal to the platform wrap motor.
Up signal	On when <i>Up</i> button is pressed on the control pendant.
Vehicle doors are open	On when power door operator (if installed) detects that vehicle doors adjacent to lift are open, indicating that lift can be deployed. This light is on continuously when the power door operator jumper is connected to J5.
Vehicle engine is running	On when vehicle engine speed is at idle, or higher.

TABLE 3-3: DIAGNOSTIC LED DISPLAY GUIDE

LED LABEL	DESCRIPTION
Wrap enable	On when wrap disable switch is off. When switch is off, the platform wraps normally.
Wrap platform	On when controller sends a wrap signal to the platform wrap motor.

TABLE 3-4: NUMERICAL DISPLAY DESCRIPTIONS

STATUS NUMBER	FUNCTION	LIFT CONDITION
00	None selected	Default display; control pendant and handrail control switch are not in use. Platform is at rest in any position.
05	UP	Platform on ground; rollstops in transition (moving from horizontal to vertical position).
07	UP	Front platform assembly not in contact with ground; rear platform assembly still in contact with ground.
10	UP	Platform off ground and moving up to vehicle floor level.
15	UP	Platform at vehicle floor level; bridgeplate moving from vertical to horizontal position.
20	UP	Platform at vehicle floor level; bridgeplate is in horizontal position.
26	DOWN	Platform in motion from vehicle floor level to ground level.
30	DOWN	Rear platform assembly in contact with ground; front platform assembly settling to ground level.
35	DOWN	Platform is on ground; rollstops are down (horizontal).
50	DEPLOY	Displayed only if vehicle door operators are installed. Platform is fully wrapped; <i>Open Door</i> command sent to vehicle door operators.
60	DEPLOY	Platform in motion from fully wrapped to fully unwrapped position.
62	DEPLOY	Platform fully unwrapped and still in vertical position.
65	DEPLOY	Platform unfolding from vertical to horizontal position.
70	DEPLOY	Platform at vehicle floor level.
75	STOW	Error message; displayed only when platform is at floor level and there is no communication between front and rear platform assemblies (contact switch assembly is open).
76	STOW	Error message; displayed only when platform is below vehicle floor level and there is no communication between front and rear platform assemblies (contact switch assembly is open).
77	STOW	Platform in motion from floor level to vertical position.
78	STOW	Platform in vertical position and is unwrapped.
80	STOW	Platform in motion from fully unwrapped to fully wrapped position.
82	STOW	Platform fully wrapped.
85	STOW	Platform fully wrapped. <i>Close Door</i> command sent to door operators (if installed).

TABLE 3-5: DISPLAY NUMBER DESCRIPTIONS FOR DEPLOY MOTION					
STATUS NUMBER	50 (SEE NOTE 5)	60	62	65	70
INPUT SWITCHES (SEE NOTE 4)					
GROUND CONTACT					
ROLLSTOP IS UP		ON	ON	ON	ON
PLATFORM IS WRAPPED (SEE NOTE 1)		ON			
PLATFORM IS UNWRAPPED			ON	ON	ON
BRIDGEPLATE IS DOWN					ON
BRIDGEPLATE IS UP					
ROLLSTOP IS LOCKED		ON	ON	ON	ON
REMOTE ERROR					
PLATFORM OCCUPIED				ON	ON
VEHICLE DOORS ARE OPEN (SEE NOTE 6)	ON	ON	ON	ON	ON
PLATFORM BELOW FLOOR LEVEL					
PLATFORM ABOVE FLOOR LEVEL		ON	ON	ON	OFF
PLATFORM IS FOLDED		ON	ON		
WRAP ENABLE (SEE NOTE 2)		ON	ON	ON	ON
CONTROLLER COMMANDS (SEE NOTES 3 AND 4)					
CLOSE DOORS					
OPEN DOORS	ON				
LOWER ROLLSTOP					
RAISE ROLLSTOP					
LOWER BRIDGEPLATE					
RAISE BRIDGEPLATE					
UNWRAP PLATFORM		ON	ON		
WRAP PLATFORM				OFF	
OUTPUT RELAYS (SEE NOTE 4)					
OPEN DOWN VALVE				ON	OFF
HYDRAULIC PUMP ON					
CLOSE DOORS					
OPEN DOORS	ON	ON	ON	ON	ON
BELOW FLOOR ALARM					
SPEED					ON

NOTES:

1. Lit momentarily at beginning of sequence if platform is fully wrapped.
2. Lit continuously when WRAP DISABLE switch is in the OFF (wrap enabled) position.
3. Command LEDs illuminate only while controller sends command to lift and are off at all other times.
4. When marked **ON**: switch must be closed, controller command must be active, or relay must be energized. When marked **OFF**: switch must be open, controller must not issue command, or relay must not be energized. **Blank**: Don't care.
5. Displayed only when power door operators are installed.
6. Lit continuously when the power door operator jumper is connected to J5.

TABLE 3-6: DISPLAY NUMBER DESCRIPTIONS FOR DOWN MOTION				
STATUS NUMBER	25	26	30	35
INPUT SWITCHES (SEE NOTE 3)				
GROUND CONTACT				ON
ROLLSTOP IS UP		ON	ON	OFF
PLATFORM IS WRAPPED				
PLATFORM IS UNWRAPPED		ON	ON	ON
BRIDGEPLATE IS DOWN				
BRIDGEPLATE IS UP			ON	ON
ROLLSTOP IS LOCKED		ON	ON	OFF
REMOTE ERROR				
PLATFORM OCCUPIED		ON	ON	ON
VEHICLE DOORS ARE OPEN (SEE NOTE 4)		ON	ON	ON
PLATFORM BELOW FLOOR LEVEL			ON	ON
PLATFORM ABOVE FLOOR LEVEL	OFF			
PLATFORM IS FOLDED				
WRAP ENABLE (SEE NOTE 1)		ON	ON	ON
CONTROLLER COMMANDS (SEE NOTES 2 AND 3)				
CLOSE DOORS				
OPEN DOORS				
LOWER ROLLSTOP				ON
RAISE ROLLSTOP				
LOWER BRIDGEPLATE				
RAISE BRIDGEPLATE		ON		
UNWRAP PLATFORM				
WRAP PLATFORM				
OUTPUT RELAYS (SEE NOTE 3)				
OPEN DOWN VALVE		ON	ON	OFF
HYDRAULIC PUMP ON				
CLOSE DOORS				
OPEN DOORS				
BELOW FLOOR ALARM			ON	ON
SPEED		ON	ON	ON

NOTES:

1. Lit continuously when WRAP DISABLE switch is in the OFF (wrap enabled) position.
2. Command LEDs illuminate only while controller sends command to lift and are off at all other times.
3. When marked **ON**: switch must be closed, controller command must be active, or relay must be energized. When marked **OFF**: switch must be open, controller must not issue command, or relay must not be energized. **Blank**: Don't care.
4. Lit continuously when the power door operator jumper is connected to J5.

TABLE 3-7: DISPLAY NUMBER DESCRIPTIONS FOR UP MOTION					
STATUS NUMBER	05	07	10	15	20
INPUT SWITCHES (SEE NOTE 3)					
GROUND CONTACT	ON				OFF
ROLLSTOP IS UP		ON	ON	ON	ON
PLATFORM IS WRAPPED					
PLATFORM IS UNWRAPPED	ON	ON	ON	ON	ON
BRIDGEPLATE IS DOWN					ON
BRIDGEPLATE IS UP	ON	ON	ON		
ROLLSTOP IS LOCKED			ON	ON	ON
REMOTE ERROR					
PLATFORM OCCUPIED	ON	ON		ON	ON
VEHICLE DOORS ARE OPEN (SEE NOTE 4)	ON	ON	ON	ON	ON
PLATFORM IS BELOW FLOOR LEVEL	ON	ON	ON		OFF
PLATFORM IS ABOVE FLOOR LEVEL					OFF
PLATFORM IS FOLDED					
WRAP ENABLE (SEE NOTE 1)	ON	ON	ON	ON	ON
CONTROLLER COMMANDS (SEE NOTES 2 AND 3)					
CLOSE DOORS					
OPEN DOORS					
LOWER ROLLSTOP					
RAISE ROLLSTOP	ON	ON			
LOWER BRIDGEPLATE				ON	
RAISE BRIDGEPLATE					
UNWRAP PLATFORM					
WRAP PLATFORM					
OUTPUT RELAYS (SEE NOTE 3)					
OPEN DOWN VALVE					
HYDRAULIC PUMP ON		ON	ON		
CLOSE DOORS					
OPEN DOORS					
BELOW FLOOR ALARM	ON	ON	ON		
SPEED	ON	ON	ON	ON	ON

NOTES:

1. Lit continuously when WRAP DISABLE switch is in the OFF (wrap enabled) position.
2. Command LEDs illuminate only while controller sends command to lift and are off at all other times.
3. When marked **ON**: switch must be closed, controller command must be active, or relay must be energized. When marked **OFF**: switch must be open, controller must not issue command, or relay must not be energized. **Blank**: Don't care.
4. Lit continuously when the power door operator jumper is connected to J5.

TABLE 3-8: DISPLAY NUMBER DESCRIPTIONS FOR STOW MOTION

STATUS NUMBER	75 (SEE NOTE 1)	76 (SEE NOTE 2)	77	78	80	82	85
INPUT SWITCHES (SEE NOTE 8)							
GROUND CONTACT							
ROLLSTOP IS UP		ON	ON	ON	ON	ON	ON
PLATFORM IS WRAPPED						ON	ON
PLATFORM IS UNWRAPPED	ON	ON	ON	ON			
BRIDGEPLATE IS DOWN	ON (SEE NOTE 5)	ON					
BRIDGEPLATE IS UP							
ROLLSTOP IS LOCKED	ON	ON	ON	ON	ON	ON	ON
REMOTE ERROR							
PLATFORM OCCUPIED	ON (SEE NOTE 6)	ON		ON	ON		
VEHICLE DOORS ARE OPEN (SEE NOTE 9)	ON	ON	ON	ON	ON	ON	ON
PLATFORM BELOW FLOOR LEVEL	OFF						
PLATFORM ABOVE FLOOR LEVEL	ON (SEE NOTE 7)		ON	ON	ON	ON	ON
PLATFORM IS FOLDED				ON	ON	ON	ON
WRAP ENABLE (SEE NOTE 3)	ON	ON	ON	ON	ON	ON	ON
CONTROLLER COMMANDS (SEE NOTES 4 AND 8)							
CLOSE DOORS							ON
OPEN DOORS							
LOWER ROLLSTOP							
RAISE ROLLSTOP							
LOWER BRIDGEPLATE							
RAISE BRIDGEPLATE							
UNWRAP PLATFORM							
WRAP PLATFORM					ON	ON	
OUTPUT RELAYS (SEE NOTE 8)							
OPEN DOWN VALVE							
HYDRAULIC PUMP ON			ON				
CLOSE DOORS							ON
OPEN DOORS							
BELOW FLOOR ALARM							
SPEED							

NOTES:

1. Error message is displayed only when platform is at floor level and there is no communication between front and rear platform assemblies (contact switch assembly is open).
2. Error message is displayed only when platform is below vehicle floor level and there is no communication between front and rear platform assemblies (contact switch assembly is open).
3. Lit continuously when WRAP DISABLE switch is in the OFF (wrap enabled) position.
4. Command LEDs illuminate only while controller sends command to lift and are off at all other times.
5. LED is turned off when spring-loaded contacts open.
6. LED will blink momentarily, and then is turned off.
7. LED will illuminate when platform is above vehicle floor level.
8. When marked **ON**: switch must be closed, controller command must be active, or relay must be energized. When marked **OFF**: switch must be open, controller must not issue command, or relay must not be energized. **Blank**: Don't care.
9. Lit continuously when the power door operator jumper is connected to J5.

HYDRAULIC SYSTEM

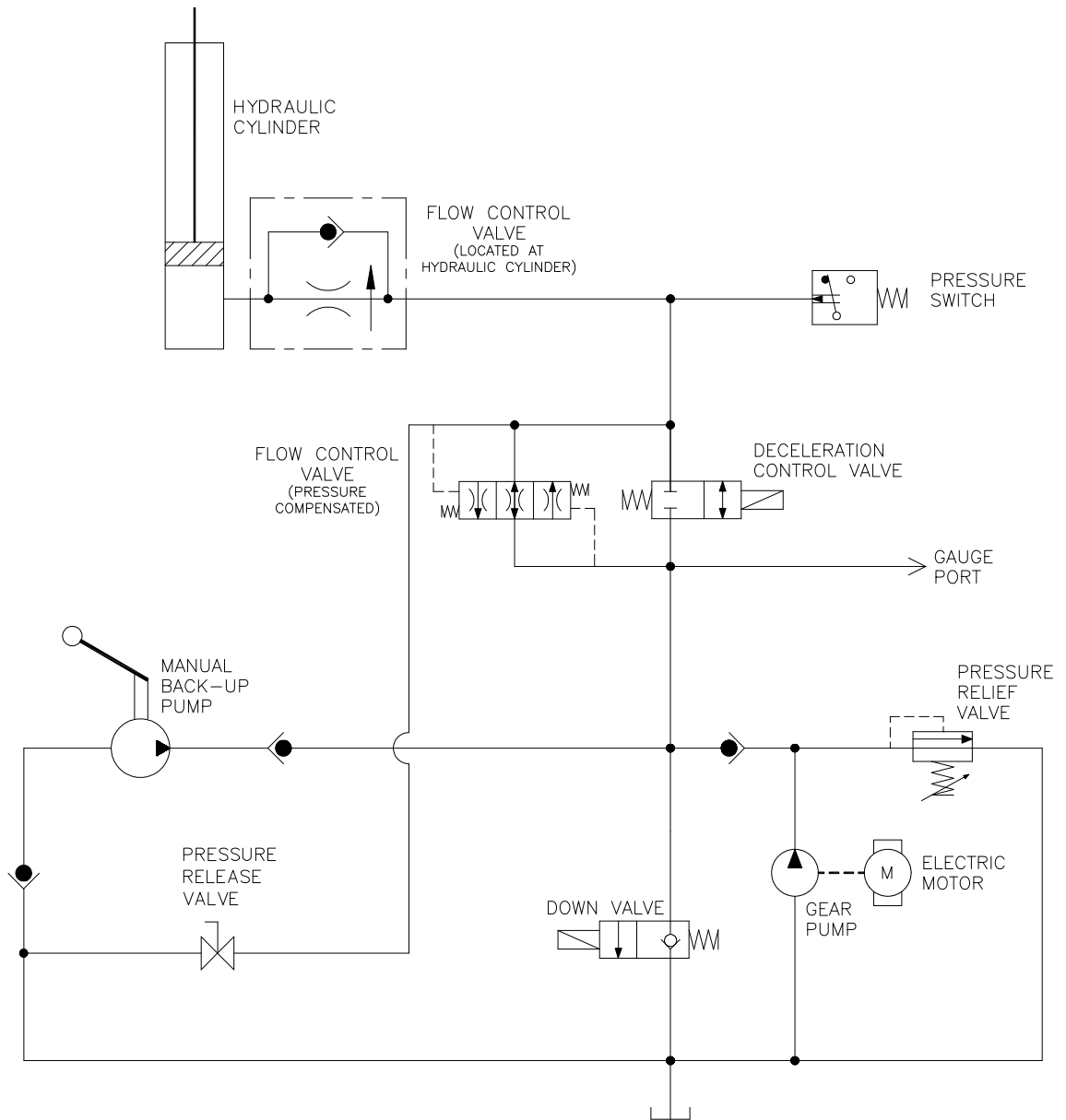


FIGURE 3-2: HYDRAULIC SYSTEM

D. LIFT ELECTRICAL WIRING

1. DIAGRAM LEGENDS

a. Wire Color Codes

TABLE 3-4: WIRE COLOR CODES			
LETTER	COLOR	LETTER	COLOR
BLK	Black	RED	Red
BLU	Blue	WHT	White
BRN	Brown	YEL	Yellow
GRN	Green	YEL/BLK	Yellow w/ black stripe
VIO	Violet	ORG	Orange
WHT/ORG	White w/ orange stripe	GRY	Grey
GRN/BLK	Green w/ black stripe		
END OF TABLE			

b. Electrical Symbols


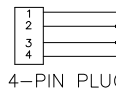


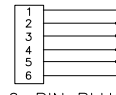

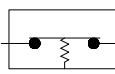


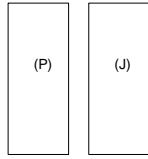
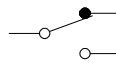


 DOWN VALVE	 4-PIN PLUG	 BATTERY
 30 AMPS CIRCUIT BREAKER (AMPERAGE INDICATED)	 6-PIN PLUG	 SPADE TERMINAL CONNECTION
 PRESSURE SWITCH	WIRING CONNECTIONS  NOT CONNECTED CONNECTED	SWITCH CONTACTS <ul style="list-style-type: none"> □ - COMMON ● - NORMALLY CLOSED ○ - NORMALLY OPEN
 THREADED TERMINAL POST	 (P) (J) P = PLUG J = RECEPTACLE HARNESS CONNECTOR	 LIMIT SWITCH
 PUMP SOLENOID	 ELECTRIC MOTOR	

FIGURE 3-3: ELECTRICAL SYMBOLS

2. ELECTRICAL CONNECTORS

Refer to **Figure 3-4** for standard pin arrangements of several plugs and receptacles used in the lift electrical wiring. Note that receptacles are designated on the electrical diagram with the letter J, and plugs with the letter P.

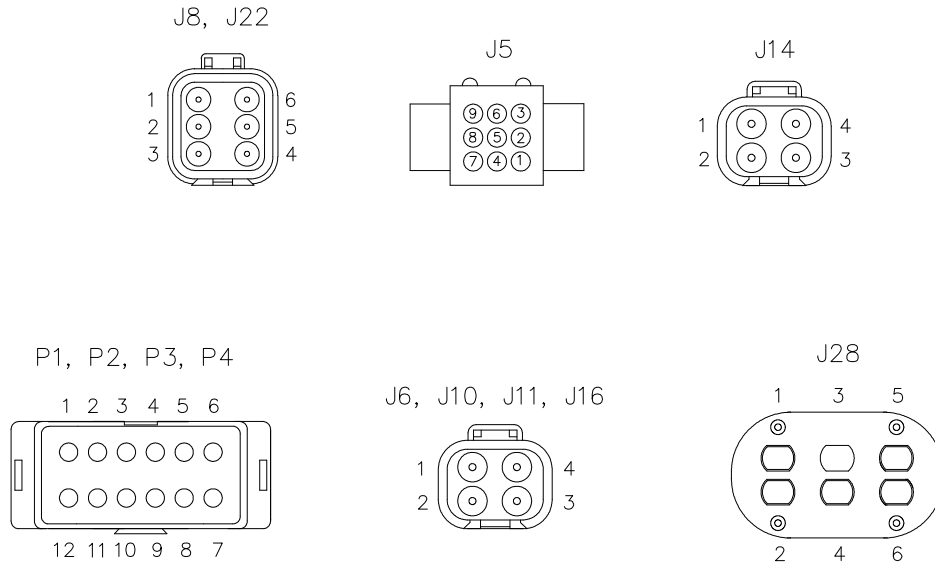


FIGURE 3-4: PIN ARRANGEMENTS FOR ELECTRICAL CONNECTORS

3. WIRING DIAGRAM LABELS

TABLE 3-5: WIRING DIAGRAM LABEL DEFINITIONS

LABEL	DESCRIPTION
+12 VDC	System operating voltage.
BRIDGEPLATE	Electric motor; raises and lowers bridgeplate.
BRIDGEPLATE DOWN	Limit switch; closes when bridgeplate is lowered (horizontal).
BRIDGEPLATE UP	Limit switch; closes when bridgeplate is fully stowed (perpendicular to platform).
CLOSE VEHICLE DOOR	Signal; from controller to power door operator; closes doors adjacent to lift.
CONTROL PENDANT	Hand-held device; controls platform motions of deploy, stow, up, and down.
DEPLOY SIGNAL	Signal; from control pendant; unfolds platform and lowers it to floor height.
DOWN SIGNAL	Signal; from control pendant or handrail switch; lowers platform from any height.
DOWN VALVE	Signal; from controller; opens down valve.
FOLD CUTOFF	Limit switch; closes when platform is fully folded.
GROUND	Common point for electrical system.
HYDRAULIC PUMP	Electric motor; coupled to hydraulic pump.
HYDRAULIC PUMP SOLENOIDS	Signal; from controller to pump solenoids; solenoids provide current to hydraulic pump motor.
LEFT ROLLSTOP	Electric motor; raises and lowers left side barrier and left front rollstop.
LEFT SIDE BARRIER LOCKED	Limit switch; closes when barrier on left side is upright and locked.
LEFT SIDE ROLLSTOP AND BARRIER UP	Limit switch; closes when rollstop is fully raised (upright).
MAIN CONTROLLER	Electronic component; located in base of tower; controls lift functions and processes inputs from limit switches. Linked to remote controller by data bus.

TABLE 3-5: WIRING DIAGRAM LABEL DEFINITIONS

LABEL	DESCRIPTION
OPEN VEHICLE DOOR	Signal; from controller to power door operator; opens doors adjacent to lift.
PLATFORM ALARM	Signal; +12 VDC 1A output available to vehicle for passenger warning.
PLATFORM OCCUPIED	Pressure switch; opens when platform is loaded with 50 lbs or more.
PLATFORM ON GROUND	Limit switch; closes when platform contacts ground.
PLATFORM UNWRAPPED	Limit switch; closes when platform is fully unwrapped (Figure 1-3).
PLATFORM UP-DOWN	Toggle switch; mounted on handrail; raises or lowers platform.
PLATFORM WRAP	Electric motor; unwraps or wraps platform.
PLATFORM WRAPPED	Limit switch; closes when platform is fully wrapped in stow position.
POWER DOOR OPERATOR JUMPER	Connector; installed in absence of power door operator; enables deploy function.
REMOTE CONTROLLER	Electronic component; located on bottom side of platform; controls lift functions and processes inputs from limit switches. Linked to main controller by data bus.
RIGHT ROLLSTOP	Electric motor; raises and lowers right side barrier and right front rollstop.
RIGHT SIDE BARRIER LOCKED	Limit switch; closes when barrier on right side is upright and locked.
RIGHT SIDE ROLLSTOP AND BARRIER UP	Limit switch; closes when rollstop is fully raised (upright).
RX+, RX-, TX+, and TX-	Signals; data bus signals transfer data between main and remote controllers.
STOW SIGNAL	Signal; from control pendant; raises platform and folds it into vehicle.
UP SIGNAL	Signal; from control pendant or handrail switch; raises platform from any height.
VEHICLE DOORS ARE OPEN	Signal; from power door operator; enables deploy function.
WRAP DISABLE	Control switch; user operated to prevent platform from wrapping after it has been folded.
END OF TABLE	

4. WIRING DIAGRAMS

Refer to **Figures 3-5** and **3-6** on the following pages.

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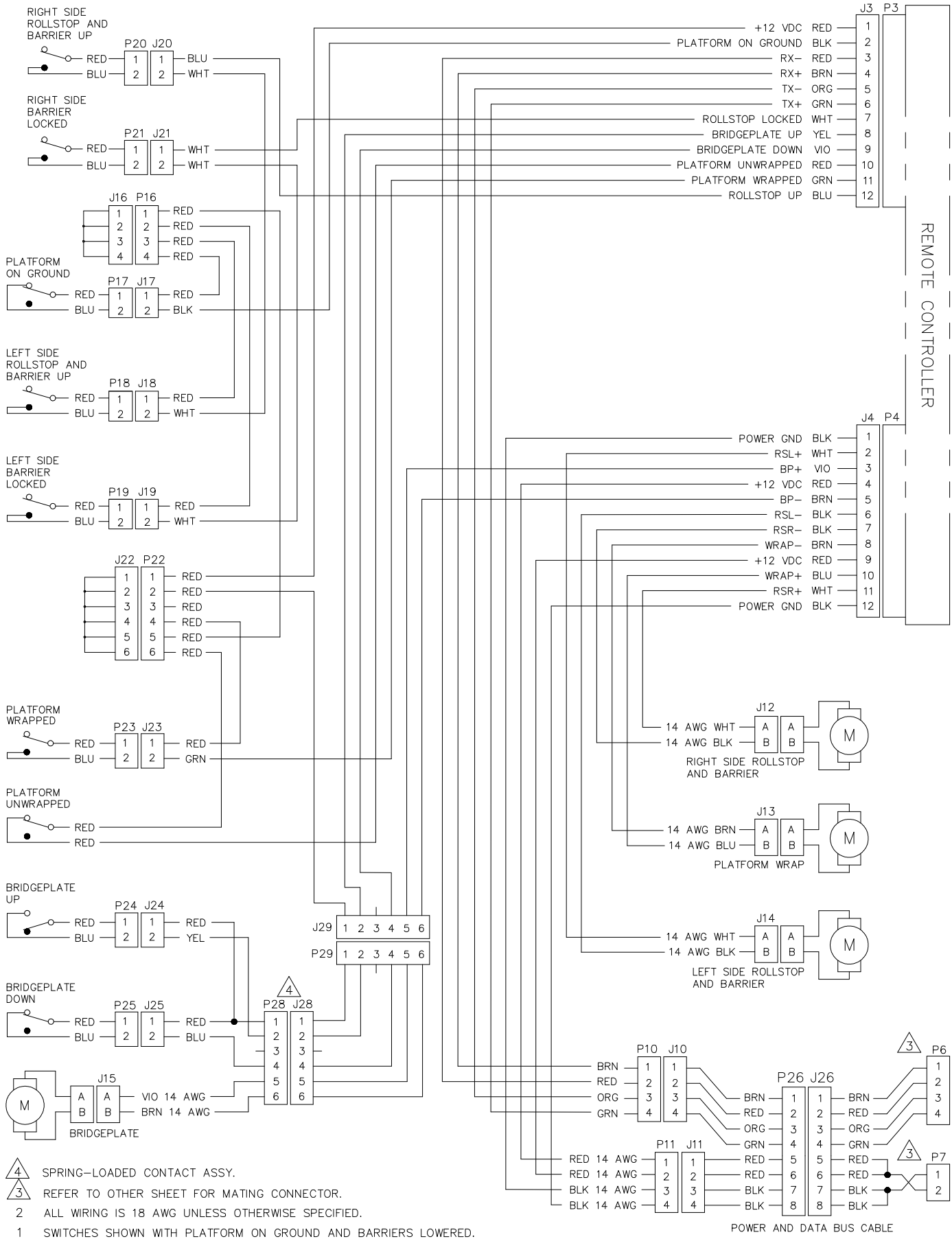


FIGURE 3-5: INNOVATOR ELECTRICAL WIRING (SHEET 1 OF 2)

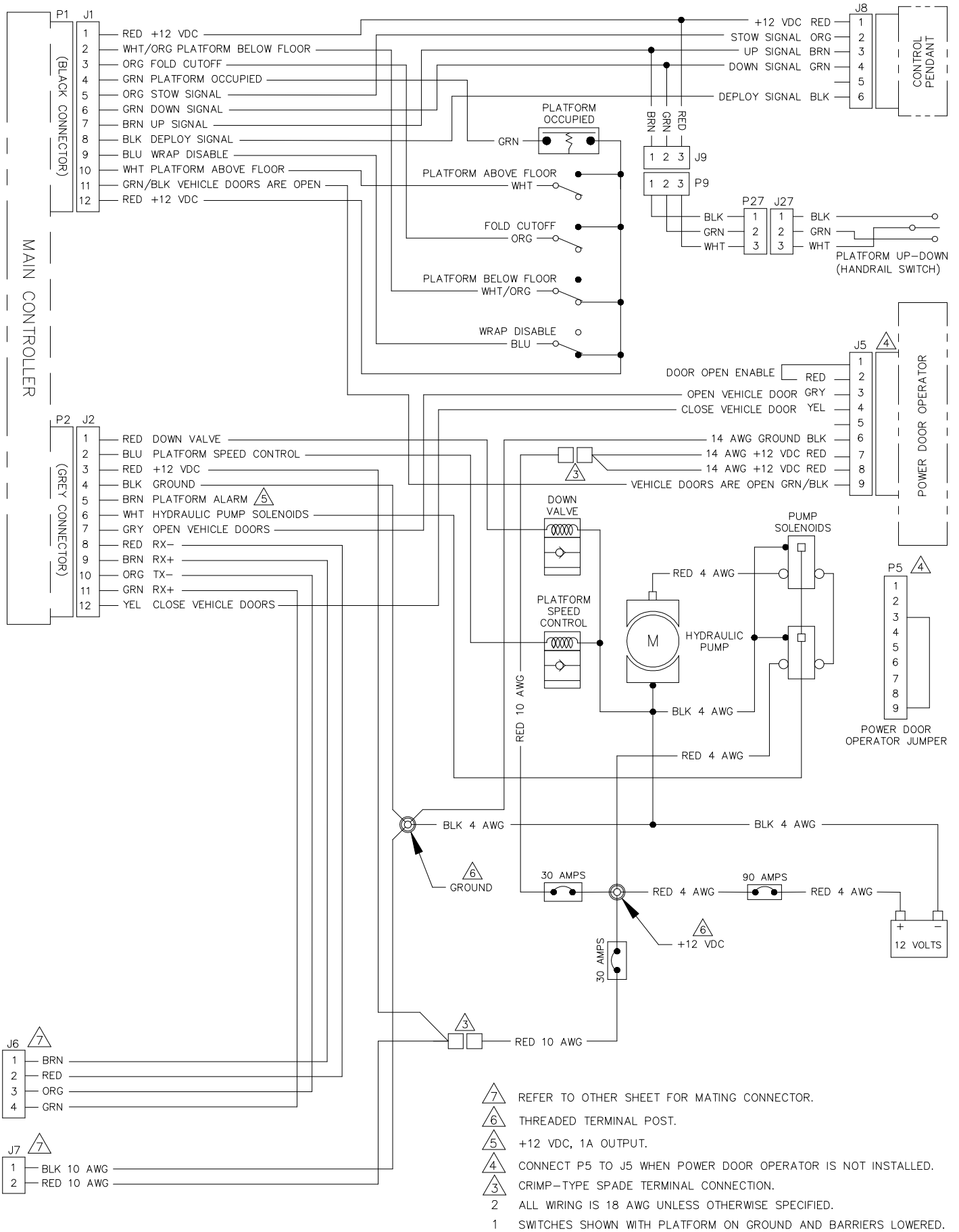


FIGURE 3-6: INNOVATOR ELECTRICAL WIRING (SHEET 2 OF 2)

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[-GO TO NEXT CHAPTER-](#)

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