III. MAINTENANCE AND TROUBLESHOOTING

Regular maintenance of the RICON Mirage F9A Series Transit Use Wheelchair and Standee Lift will provide optimum performance and reduce the need for repairs. This chapter contains a list of daily inspection checkpoints, a recommended maintenance schedule, and a troubleshooting section that utilizes the control pendant power indicator.

⚠ WARNING

THIS RICON PRODUCT IS HIGHLY SPECIALIZED. MAINTENANCE AND REPAIRS MUST BE PERFORMED BY AN AUTHORIZED RICON 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.

A. DAILY INSPECTIONS

TABLE 3-1: DAILY SAFETY CHECK (or @ 10 - 20 cycles of operation)

SERVICE POINT	DESCRIPTION
LIFT AT STOWED POSITION	
Control Pendant	Check that control pendant is not damaged and cable connectors are tight.
Hydraulic Power Unit	**⚠ CAUTION** DO NOT ADD FLUID UNTIL PLATFORM IS LOWERED TO GROUND LEVEL. ADDING FLUID WHILE LIFT IS FOLDED WILL CAUSE TANK TO OVERFLOW WHEN PLATFORM IS LOWERED TO GROUND LEVEL.
	1. Check for visible hydraulic fluid leakage. 2. Ensure backup pump manual release valve is slightly snug.
Vehicle Interlock	Place vehicle in a NON-INTERLOCK mode and attempt to operate lift.
LIFT AT DEPLOYED POSITION	
Lift Operation	1. Listen for any abnormal noises as the lift operates (i.e, grinding or binding noises). 2. Torque Limit Clutch overloads properly (clicks) at the end of travel. 3. Carriage stops are in place and stop lift squarely.
Decals	Ensure that all decals are affixed properly, clearly visible and legible.
Main Lifting Pivots	Ensure carriage/lifting frame/platform pivot pins are free from damage and locked in position with fasteners.
Platform	Check that platform mounting brackets are properly fastened to both sides of the platform.
Handrails	Check that handrail mounting bolts are tight.
RAISE PLATFORM TO VEHICLE FLOOR LEVEL	
Lift Operation	Listen for any abnormal noises as the lift operates (i.e, grinding or binding noises).
Platform Level	Check that the lift platform stops at vehicle floor level.
Bridgeplate	Check that bridgeplate operates without obstruction(s), and rests squarely on vehicle floor.
LOWER PLATFORM TO GROUND LEVEL	
Lift Operation	Listen for any abnormal noises as the lift operates (i.e, grinding or binding noises).
Rollstop	Ensure that rollstop opens and locks properly without obstruction(s) when it contacts the ground.
Hydraulic Power Unit	While platform is at the ground level, check that hydraulic fluid level is at the FULL level.

TABLE 3-1: DAILY SAFETY CHECK (or @ 10 - 20 cycles of operation)	
SERVICE POINT	**DESCRIPTION**
STOW LIFT	
Rollstop	Ensure that rollstop closes and locks properly without obstruction(s) when the platform leaves ground level.
Lift Operation	Listen for any abnormal noises as the lift operates (i.e, grinding or binding noises).
Stow Level	Check that platform seeks proper stow level.
Torque Limit Clutch	Torque Limit Clutch overloads properly (clicks) at the end of travel.
Sto-Loc	**⚠ WARNING** MANUALLY DEPLOYING AND/OR STOWING OF THIS LIFT REQUIRES FORCES GREATER THAN **100 LBS**. DO NOT ATTEMPT TO MANUALLY DEPLOY OR STOW THE LIFT USING LESS THAN TWO PEOPLE.
	Check that sto-loc engages and lift will not deploy manually
END OF TABLE	

B. MAINTENANCE SCHEDULE

Maintenance inspections must be performed by an authorized Ricon service technician at least once every six months or sooner, depending on usage. Maintenance inspections are required at least every six months and a thorough inspection should be performed at the service intervals referenced in **Table 3-1**. Under conditions of excessive use (more than 10 cycles per day), service should be increased.

TABLE 3-2: MAINTENANCE SCHEDULE	
SERVICE POINT	**DESCRIPTION**
TWO-WEEK SAFETY CHECK (or @ 140 - 180 cycles of operation)	
Decals and Cleaning	1. Ensure that all decals are affixed properly, clearly visible and legible. Replace if necessary. 2. Ensure that serial number is clearly marked and legible. 3. Ensure that rollstop pivot points and springs, and bridgeplate pivot points, actuator pivot points, and cam followers are lubricated.
IN/OUT Drive	Ensure that there are no obstructions in the side channels.
THREE-MONTH SAFETY CHECK (or @ 900 - 1000 cycles of operation)	
Stow Level	Perform Stow Level Alignment Check
Drive Chains and Shafts	Following labeled directions on container, spray lubricant (Curtisol7 Red Grease No.88167) on final and primary drive chains and drive shafts. Wipe clean any excess grease from drive chains and surrounding areas.
Main Lifting Arm and Bridgeplate Pivot Points.	Following labeled directions on container, spray lubricant (Curtisol7 Red Grease No.88167) on ball and socket joints at bridgeplate actuator rod assemblies, bridgeplate pivot points and rod endpoints. Wipe clean any excess grease from parts and surrounding areas.
Hydraulic Power Unit	While platform is at the GROUND LEVEL, ensure that the pump hydraulic fluid level is maintained at the required FULL level. Add only Texaco #15 hydraulic fluid or equivalent U.S. mil spec H5606E (or F) fluid.

TABLE 3-2: MAINTENANCE SCHEDULE	
SERVICE POINT	**DESCRIPTION**
⚠ CAUTION **THIS SAFETY CHECK MUST BE PERFORMED ONLY BY AN AUTHORIZED RICON SERVICE TECHNICIAN.**	
ANNUAL SAFETY CHECK (or @ 3600 - 4000 cycles of operation)	
IN/OUT Drive	Perform Torque Limit Clutch Adjustment
Cam Followers	Grease cam followers with an approved grease and wipe clean any excess grease from cam followers and surrounding areas.
Drive Chains and Shafts	1. Perform Drive Chain Adjustment 2. Ensure that spur gears and final drive sprocket are securely pinned to main drive shaft. 3. Ensure that torque limit clutch and final drive sprocket are securely pinned to idler shaft. 4. Following labeled directions on container, spray lubricant (Curtisol7 Red Grease No.88167) on final and primary drive chains and drive shafts. Wipe clean any excess grease from drive chains and surrounding areas.
Hydraulic Cylinder, Flow Control Valve, Hoses and Fittings	1. Inspect hydraulic hoses for damage. 2. Ensure that all fittings are tightly secured. 3. Check Hydraulic Cylinder and Flow Control Valve for evidence of leaks.
Hydraulic Power Unit	Perform Hydraulic Power Unit Fluid Flush and Renewal
⚠ CAUTION **THIS SAFETY CHECK MUST BE PERFORMED ONLY BY AN AUTHORIZED RICON SERVICE TECHNICIAN.**	
SEVEN-YEAR SAFETY CHECK (or @ 25,000 - 26,000 cycles of operation)	
Control Pendant	Replace UP/DOWN, IN/OUT, and IN-LOCKOUT switches.
Hydraulic Power Unit	Perform Hydraulic Pump Motor Removal and Installation
TEN-YEAR SAFETY CHECK (or @ 36,000 - 38,000 cycles of operation)	
RICON CORP. recommends that lift be refit after ten years of service.	
END OF TABLE	

C. POWER INDICATOR DIAGNOSTICS

The lift is equipped with a power cut-off solenoid that removes electrical power to the lift when it is not in use. The solenoid is part of the lift electrical system that is located on the hydraulic power unit of the lift. A related component is the power indicator that is mounted on the top of the control pendant. This indicator shows when this power is supplied and illuminates only when the lift is in operation. While troubleshooting the lift, the following conditions apply:

NOTE: THE POWER INDICATOR SHOULD PROPERLY ILLUMINATE ONLY WHEN THE LIFT IS IN OPERATION. IF THE INDICATOR DOES NOT ILLUMINATE **DURING** OPERATION OF THE LIFT OR REMAINS ILLUMINATED WHEN THE LIFT **IS NOT** IN OPERATION, CONTACT AN AUTHORIZED RICON SERVICE TECHNICIAN FOR REPAIR.

- If the lift DOES NOT operate and the power indicator DOES NOT illuminate, the solenoid contacts are not properly closing and there is no power being supplied to the lift.
- If the lift DOES NOT operate and the power indicator DOES illuminate, power is being supplied through the solenoid but there is a control circuitry problem in the lift.
- If the lift OPERATES but the power indicator STAYS illuminated, the solenoid contacts are not properly opening and there is continuous power being supplied to the lift.

NOTE: In all cases, return the lift to an authorized Ricon service technician immediately for repair.

D. ELECTRICAL WIRING DIAGRAM

1. DIAGRAM LEGEND

a. Color Codes

NOTE: The electrical diagram may not employ all of the colors listed in the following table.

TABLE 3-3: COLOR CODE ABBREVIATIONS

ABR.	COLOR	ABR.	COLOR
BLK	Black	PNK\VIO	Pink w\ Violet
BLK\BLU	Black w\ Blue	PNK\WHT	Pink w\ White
BLU	Blue	RED	Red
BLU\PNK	Blue w\ Pink	RED\BLK	Red w\ Black
BLU\WHT	Blue w\ White	RED\WHT	Red w\ White
BLU\YEL	Blue w\ Yellow	TAN	Tan
BRN	Brown	TAN\RED	Tan w\ Red
BRN\BLU	Brown w\ Blue	VIO	Violet
BRN\ORG	Brown w\ Orange	VIO\BLK	Violet w\ Black
BRN\YEL	Brown w\ Yellow	VIO\BRN	Violet w\ Brown
GRN	Green	VIO\GRN	Violet w\ Green
GRN\BLK	Green w\ Black	VIO\WHT	Violet w\ White
GRN\BRN	Green w\ Brown	VIO\YEL	Violet w\ Yellow
GRN\RED	Green w\ Red	WHT	White
GRN\WHT	Green w\ White	WHT\BLK	White w\ Black
GRY	Grey	WHT\ORG	White w\ Orange
GRY\YEL	Grey w\ Yellow	WHT\RED	White w\ Red
ORG	Orange	WHT\YEL	White w\ Yellow
ORG\BLK	Orange w\ Black	YEL	Yellow
ORG\YEL	Orange w\ Yellow	YEL\BLK	Yellow w\ Black
PNK\BLK	Pink w\ Black	YEL\PNK	Yellow w\ Pink
PNK\RED	Pink w\ Red	YEL\RED	Yellow w\ Red

END OF TABLE

b. Symbols

Figure 3-1 defines symbols used in the electrical wiring diagram.

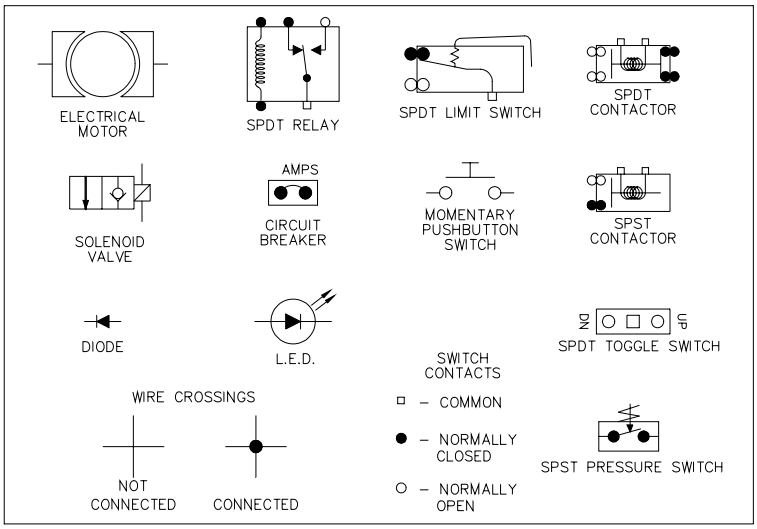


FIGURE 3-1: ELECTRICAL DIAGRAM SYMBOLS

c. Labels

+VDC(rating)	Supply voltage (12 or 24 volt). Circuit rating is also given.
C OUT	Carriage out signal.
CRRO	Rollstop Open Control Relay
CRIN	In Control Relay.
CROUT	Out Control Relay.
CRPMP	Pump Control Relay.
CRRC	Rollstop Close Control Relay
CS	Carriage stow signal.
CS1–CS3	Control switches located on Interior & Exterior Control Panels.
CTR	Cycle counter.
DWN SQ	Down Seqence – Lift lowering, followed by flap opening.
DWNSV	Down Solenoid Valve.
RS O SG	Rollstop Open Signal
RS O	Rollstop Open – Provides power to rollstop motor.
RS C	Rollstop Close – Provides power to rollstop motor.
RS C SG	Rollstop Close Signal
GND	Ground (Electrical).
GRND	Ground Switch.
I/O COM	Common terminal of IN/OUT switch
I/O M I	IN/OUT Motor In – Power to the IN side of the IN/OUT motor.
I/O M O	IN/OUT Motor Out – Power to the OUT side of the IN/OUT motor.
I/O MOT	IN/OUT Motor.
IN	In function.
OUTSW	Out Switch.
OUT	Out Signal.
P UP SG	Pump UP Signal – Signal to the pump solenoid.
PMOT	Pump Motor.
RSMOT	Roll Stop Motor.
RSTP	Roll Stop Switch.
SEEK	Seek level detector – Determines the level at which the lift will stop when raising or lowering the lift while stowing. Horizontal platform travel is only permitted while th SEEK level is detected. To prevent the disabling of horizontal platform travel while the platform is still in the mounting frame, the SEEK detection range is wider than the range of physically possible horizontal travel heights. When properly adjusted, the detection range center coincides with the center of the horizontal travel path. Switches STO1 and STO2 are used to define a "tighter" range around this center.
STO1	Bottom of STOW range detector. If while stowing or deploying the lift the platform is ABOVE this detection range, the platform will lower. The intersection of ranges STO1 & STO2 define the normal traveling height.
STO2	Top of STOW range detector. If while stowing or deploying the lift the platform is BELOW this detection range, the platform will rise. The intersection of ranges STO1 & STO2 define the normal traveling height.
STWD	Carriage Stowed Switch.
TOP	Top of travel detector.
U/D COM	Common terminal of the UP/DOWN switch.
UP SQ	UP Sequence – Signal which enables the UP sequence (flap up followed by platform up).
UP	Up function.
DWN	Down function.
PCSOL	Power Cut–off Solenoid.
MTR IN SG	Motor In Signal.
MTR OUT SG	Motor Out Signal.
UPA	Up Attempt.
RST O SG	Rollstop Open Signal.
RST C SG	Rollstop Close Signal.

d. Connectors

Refer to **Figure 3-2**. The standard electrical connectors used by Ricon have terminal numbers molded into the back; use these numbers and colors to identify all wires.

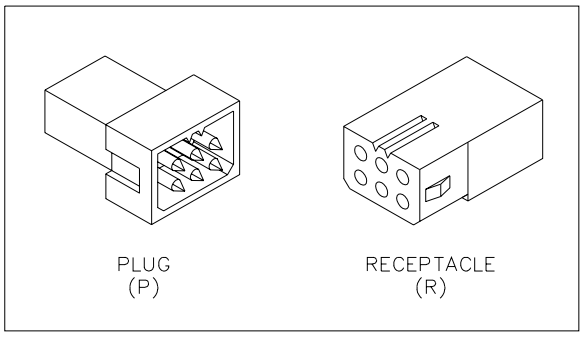


FIGURE 3-2: ELECTRICAL CONNECTORS

2. LIMIT SWITCH STATE DESCRIPTION

Refer to **Figure 3-3**. The limit switch actuation diagram shows the state of all limit switches as the platform travels from ground level, to stow level, and to vehicle floor level. The solid (O) line indicates the normally CLOSED portion of the switch is operational, while the two thin lines (=) indicates the normally OPEN portion of the switch is operational. The dotted lines (O O O) are used to show the switch states beyond the normal travel boundaries of the platform. This is useful in showing the operation of the TOP switches which change states at vehicle floor level. For proper operation of the lift, the SEEK, STO1, and STO2 switch actuations must overlap as shown.

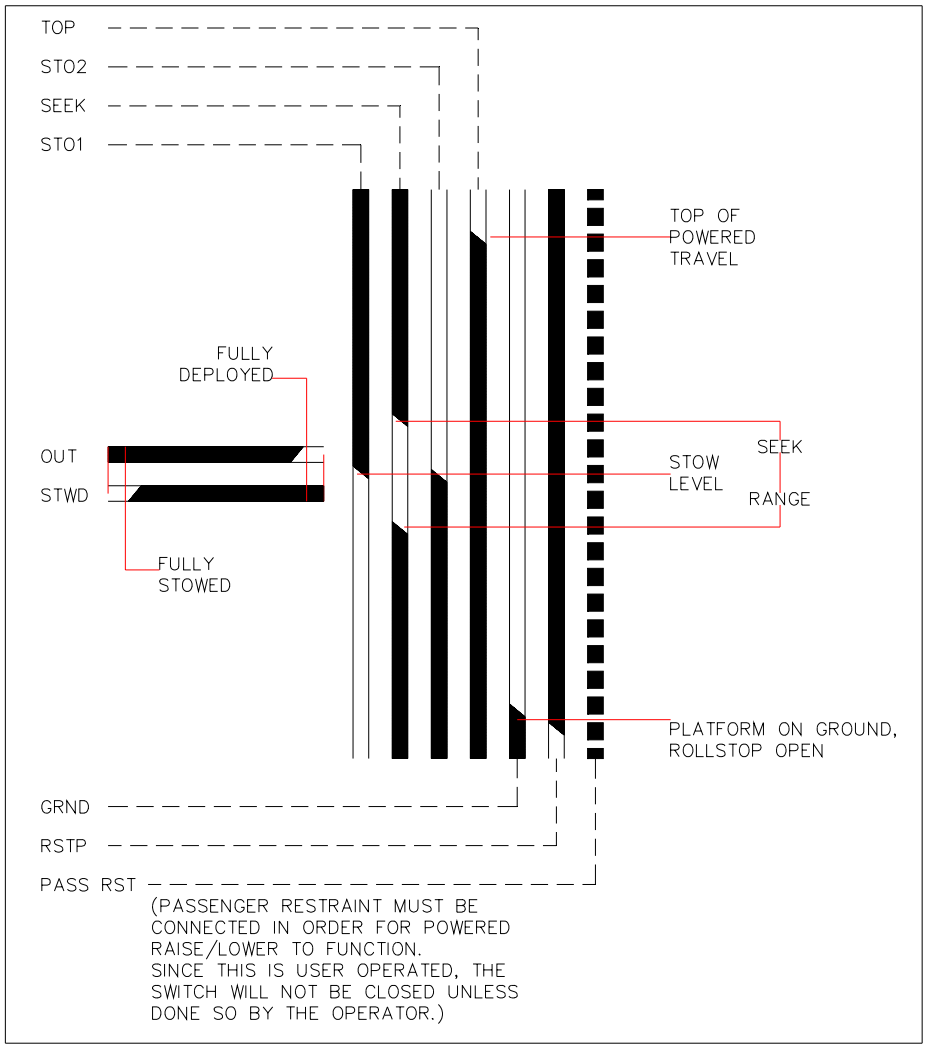


FIGURE 3-3: LIMIT SWITCH ACTUATION DIAGRAM

3. WIRING DIAGRAM

For lift electrical system schematics, refer to **Figures 3-4**, **3-5,** and **3-6** on the following pages.

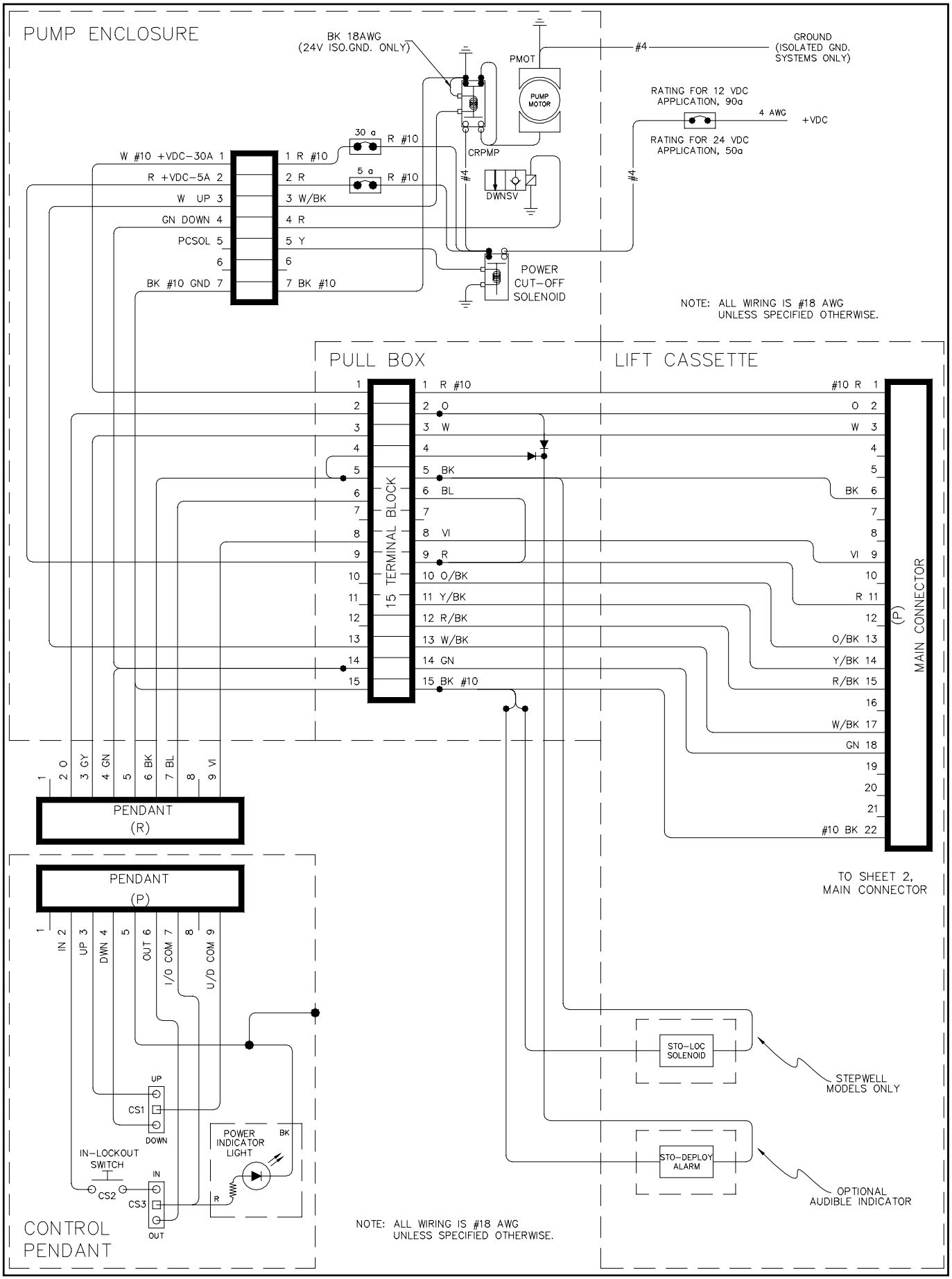


FIGURE 3-4: WIRING DIAGRAM – SHEET 1 OF 3

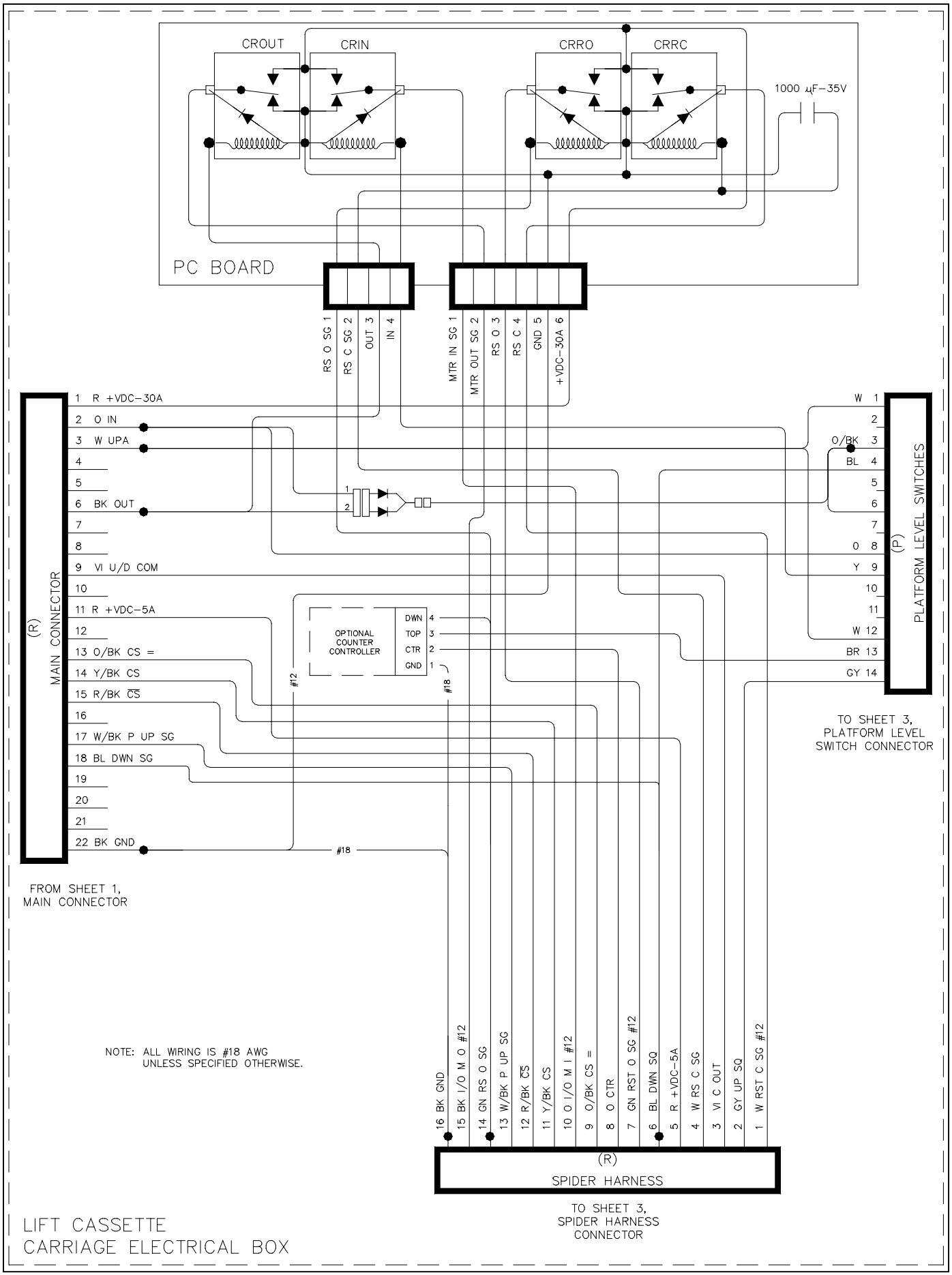
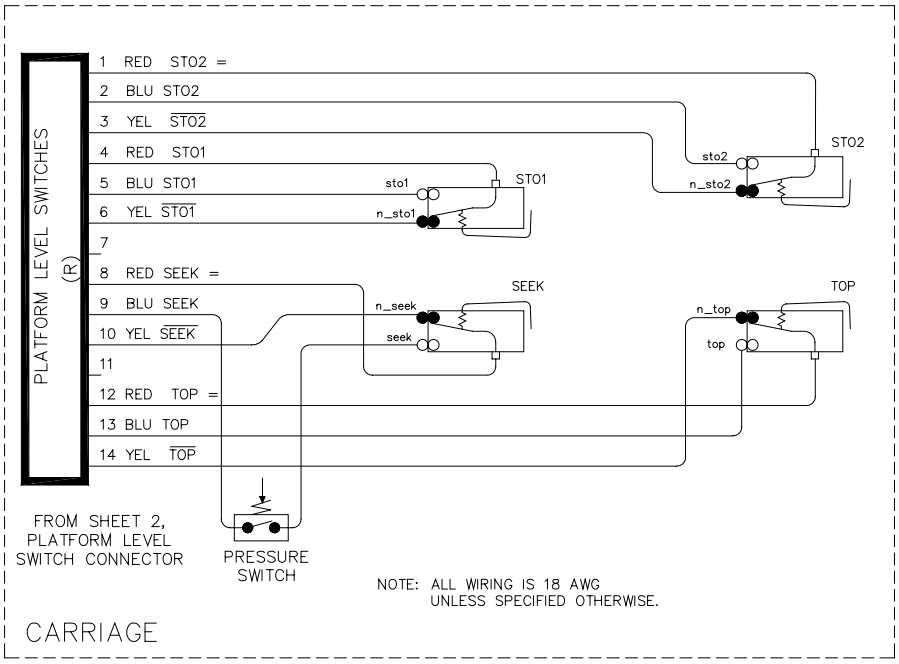


FIGURE 3-5: WIRING DIAGRAM – SHEET 2 OF 3



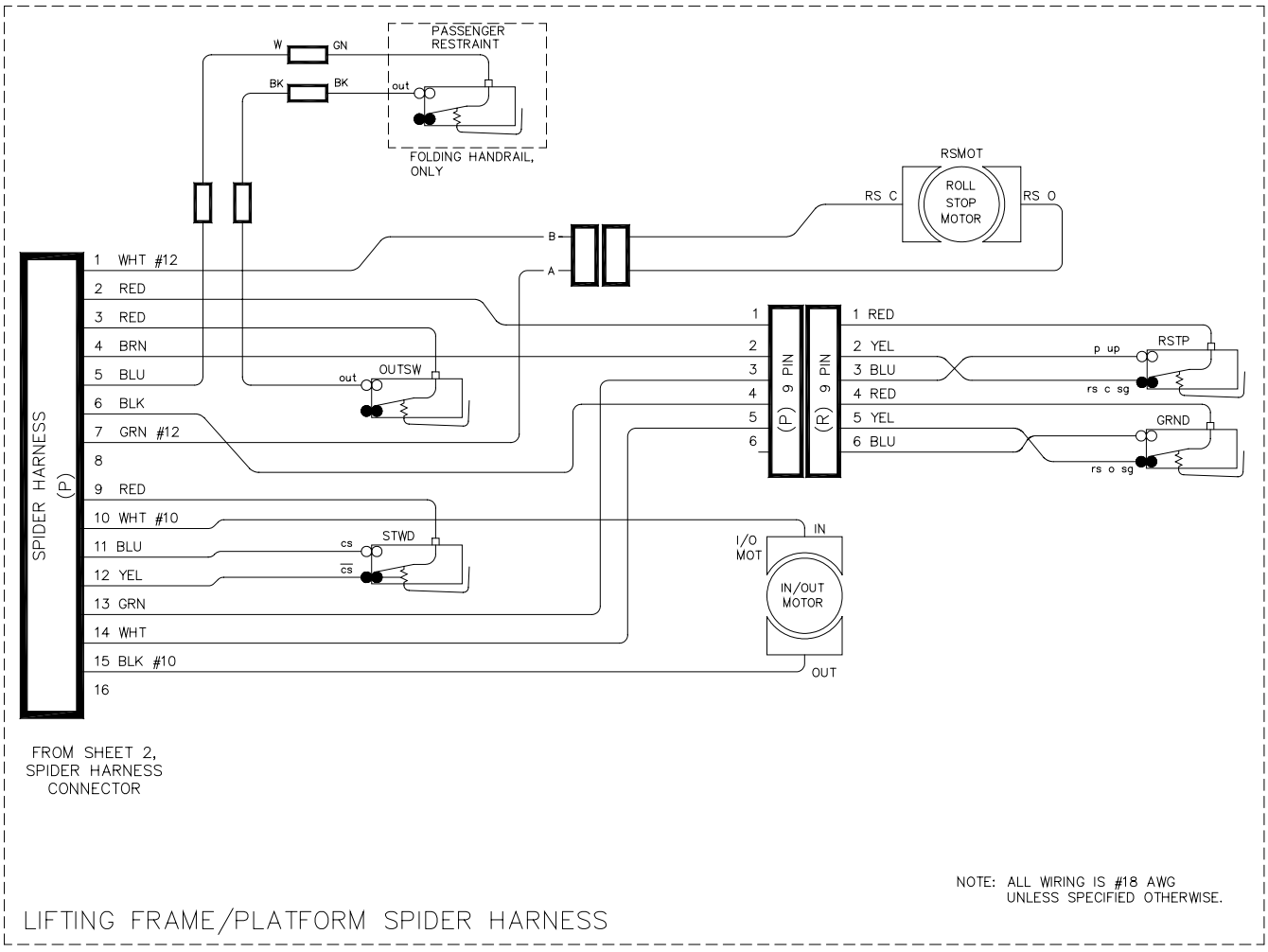


FIGURE 3-6: WIRING DIAGRAM – SHEET 3 OF 3

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