

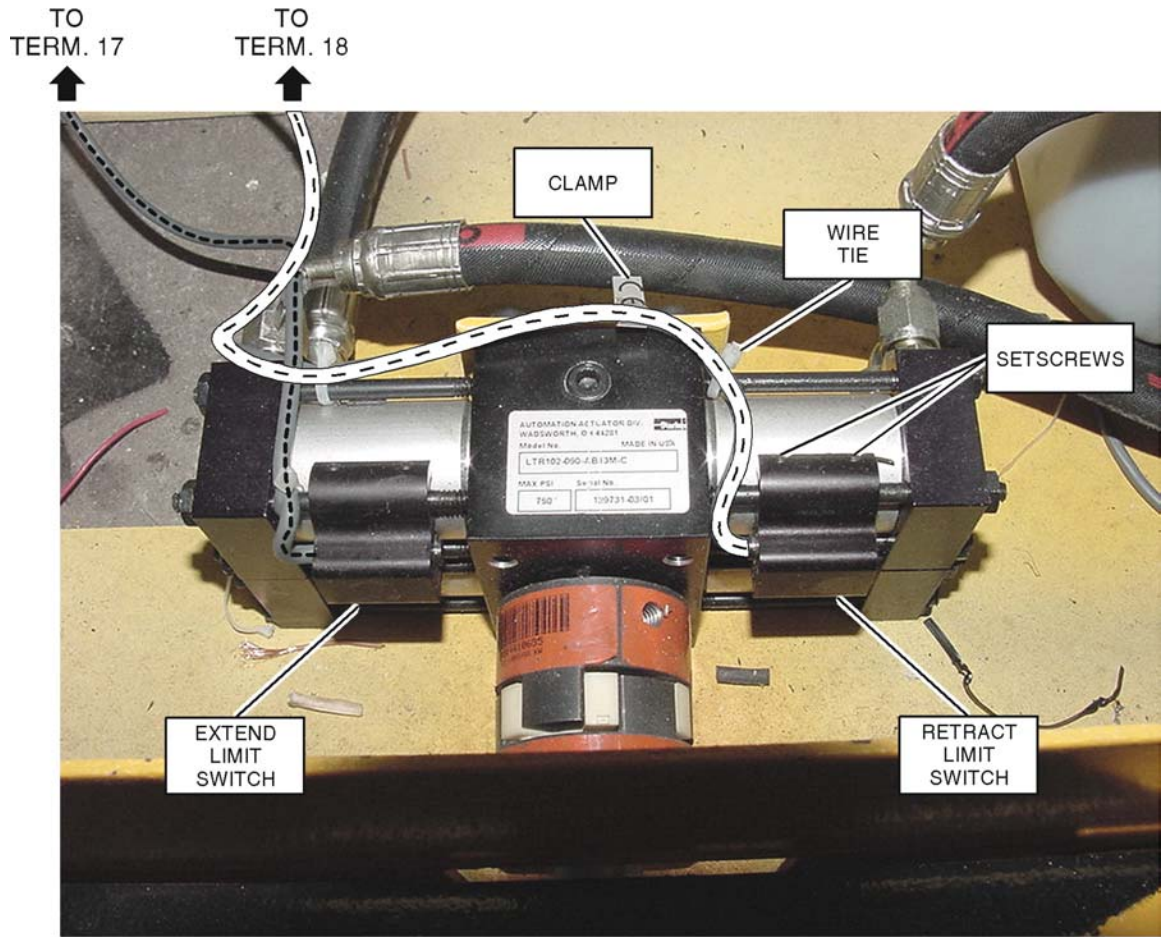
**Figure 3-9. Right-Hand Port Connector Configuration**

Extend and Retract Limit Switch Configuration (if required)

1. Remove electrical power to the Hydraulic Control Unit.

**WARNING: DO NOT REMOVE OR INSTALL LIMIT SWITCHES WITH HYDRAULIC POWER APPLIED. SERIOUS PERSONAL INJURY CAN RESULT WHEN ROTARY ACTUATOR IS ACTIVATED.**

2. Loosen 2 setscrews at the top of each limit switch just enough to allow the limit switch to be removed from the shaft (Figure 3-10).
3. Remove wire ties and clamps as necessary.
4. Reposition limit switches for left or right configuration as shown in Figure 3-10 and Figure 3-11. Position limit switches on shaft approximately as shown.
5. Tighten setscrews to hold limit switches in place.
6. Install wire ties and clamps.
7. Perform spike shaft travel adjustment procedure in Section 5, Maintenance.



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Figure 3-10. Left-Hand Limit Switch Configuration

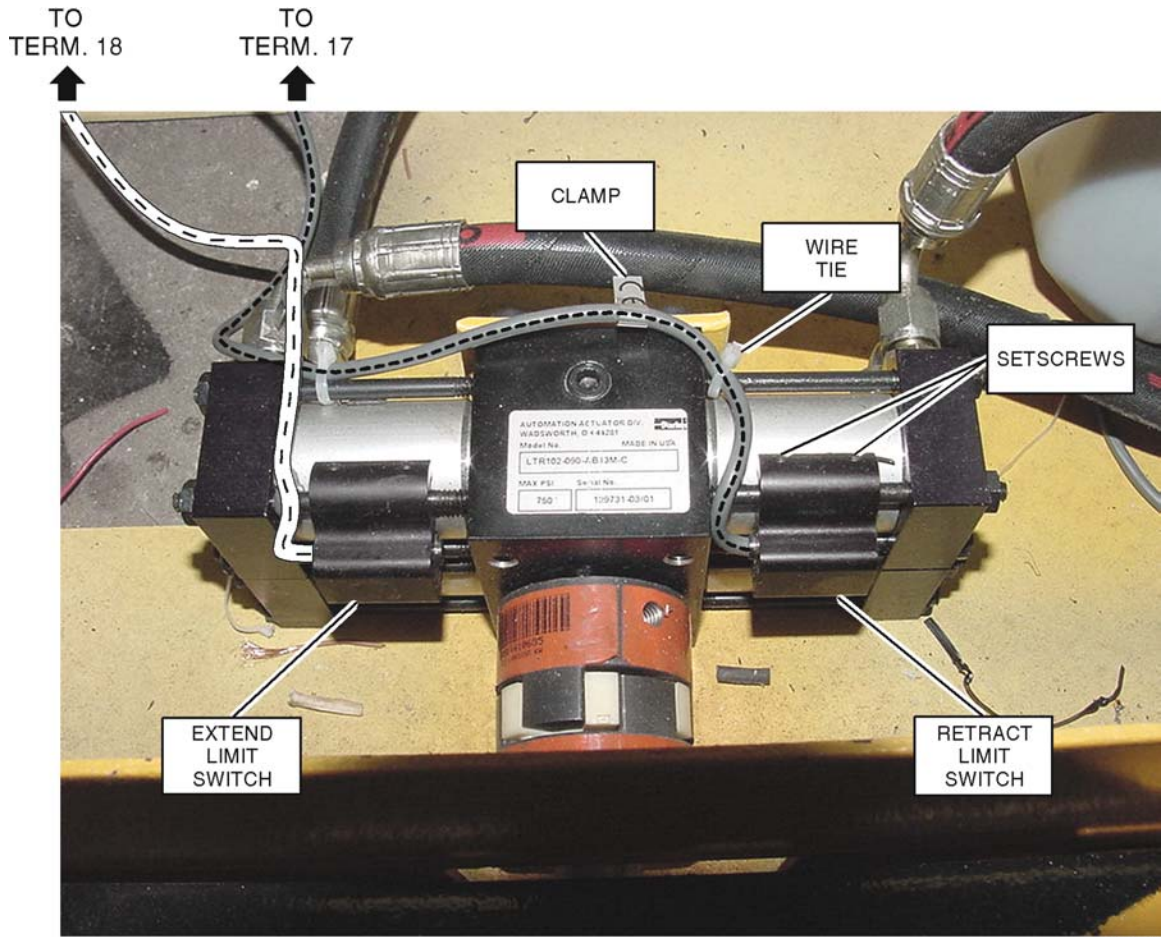
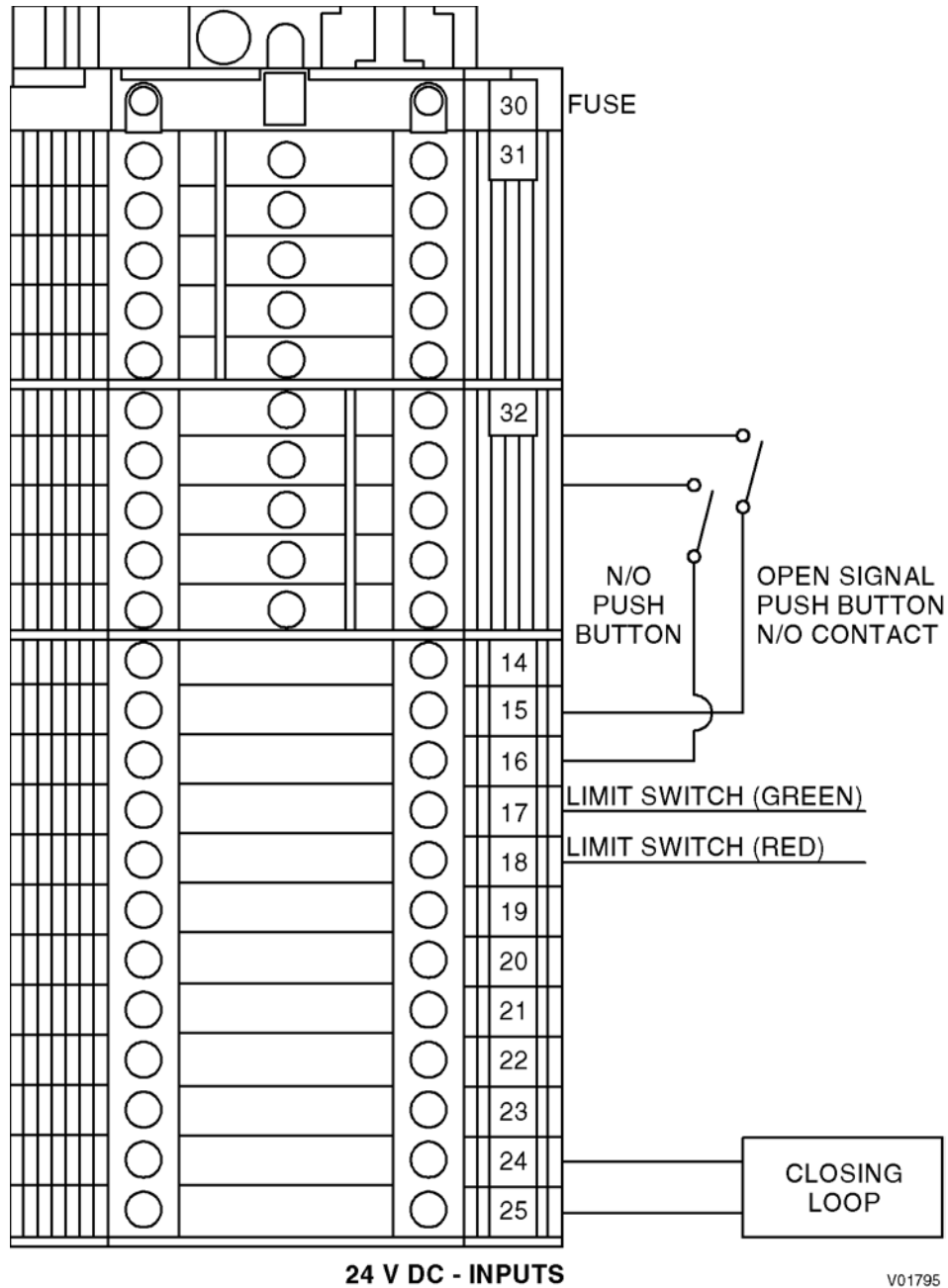


Figure 3-11. Right-Hand Limit Switch Configuration

**CS72-HTC WIRING DIAGRAMS**

Basic electrical wiring information for the CS72-HTC Hydraulic Traffic Control System is shown in Figure 3-12 and Figure 3-13.



**Figure 3-12. 24V DC Wiring Diagram**

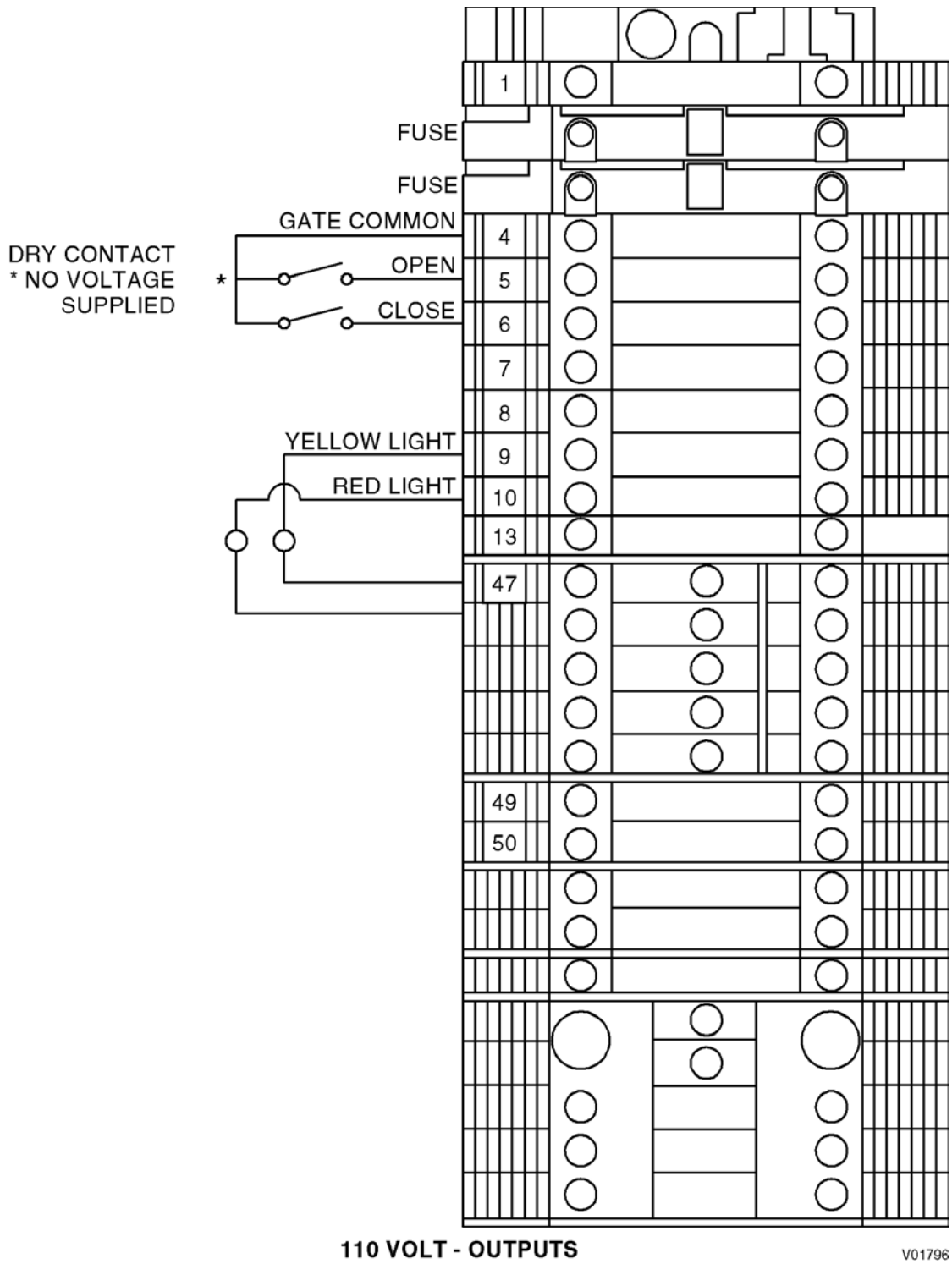


Figure 3-13. 110 V AC Wiring Diagram

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## SECTION 4. HYDRAULIC CONTROL UNIT WIRING

**Table 4-1. Gate Access Controller I/O**

| Terminal No. | PLC Address | Description                   | Voltage  | Notes          |
|--------------|-------------|-------------------------------|----------|----------------|
| L1           | X           | Main Power Terminal Block     | 110 V AC |                |
| 1            | X           | Switched Power Terminal Block | 110 V AC |                |
| 2            | X           | PLC Fuse Block                | 110 V AC | Fuse size 1Amp |
| 3            | X           | PLC Output Fuse Block         | 110 V AC | Fuse size 2Amp |
| 47           | X           | Neutral                       | 110 V AC |                |
| 49           | X           | Pump Neutral                  | 110 V AC | Pump Terminal  |
| 50           | X           | Pump Power                    | 110 V AC |                |

**Table 4-2. Gate Access Controller Input 24V DC**

| Terminal No. | PLC Address | Description  | Voltage           | Notes            |
|--------------|-------------|--|-------------------|------------------|
| 30           | X           | Fuse block F4 +24V DC fusing PLC power supply        | +24V DC           | Fuse size 200 mA |
| 31           | X           | -24V DC PLC sensor power return                      | -24V DC           |                  |
| 32           | X           | Fused from F4 +24V DC fusing PLC sensor power supply | +24V DC           | Fused @ 200 mA   |
| 15           | I0.0        | Open signal  | Sinking<br>24V DC |                  |
| 16           | I0.1        | Close signal   | Sinking<br>24V DC |                  |
| 17           | I0.2        | Limit switch extended signal (Down position)         | Sinking<br>24V DC |                  |
| 18           | I0.3        | Limit switch retracted signal (Up position)          | Sinking<br>24V DC |                  |
| 19           | -           | -  | -                 |                  |
| 20           | -           | -  | -                 |                  |
| 21           | -           | -  | -                 |                  |
| 22           | -           | -  | -                 |                  |
| 23           | I0.4        | -  | -                 |                  |



**Table 4-3. Gate Access Controller Output**

| Terminal No. | PLC Address | Description                                       | Voltage | Notes                    |
|--------------|-------------|---|---------|--------------------------|
| 4            | 3L          | Gate arm controller signal common                 | N/A     | No power from controller |
| 5            | Q 0.7       | Gate arm controller signal – Open (Dry contact)   | N/A     | No power from controller |
| 6            | Q 1.0       | Gate arm controller signal - Closed (Dry contact) | N/A     | No power from controller |
| 7            | Q 0.0       | Spike assembly extend solenoid (down/open)        | 120V AC |                          |
| 8            | Q 0.1       | Spike assembly retract solenoid (up/close)        | 120V AC |                          |
| 9            | Q 0.3       | Green/Yellow light                                | 120V AC |                          |
| 10           | Q 0.4       | Red light   | 120V AC |                          |
| 11           | -           | -   | -       |                          |
| 12           | -           | -   | -       |                          |
| 13           | Q 0.2       | Pump contactor                                    | 120V AC |                          |

**Table 4-4. Terminal Board 1**

| From            | To                        |
|-----------------|---------------------------|
| 30              | PLC L+ (24V DC +)         |
| 31              | PLC M (24V DC -)          |
| 22              | PLC Q 1.5                 |
| 21              | PLC Q 1.4                 |
| 20              | PLC Q 1.0                 |
| 19              | PLC Q 0.7                 |
| 23              | PLC Q 0.4                 |
| 18              | PLC Q 0.3                 |
| 17              | PLC Q 0.2                 |
| 16              | PLC Q 0.1                 |
| 15              | PLC Q 0.0                 |
| -               | PLC 1M (24V DC -)         |
| 32 jumper to 30 |                           |
| 23              | SIRIUS 3R, 2-T1           |
| 14              | Inductive Loop Detector 5 |
| 32              | SIRIUS 3R, 1-L1           |

**Table 4-5. Terminal Board 2**

| From            | To  |
|-----------------|---|
| -               | Siemens 1L loop 2L                              |
| -               | 7 0.0   |
| Jumper 1 to 2   | -   |
| Jumper 3 to 4   | -   |
| 1               | SIRIUS 3R, 5L3                                  |
| 4               | 3L  |
| 5               | Q 0.7   |
| 6               | Q 1.0   |
| 7               | Q 0.0   |
| 8               | Q 0.1   |
| 9               | Q 0.3   |
| 10              | Q 0.4   |
| 13              | Q 0.2   |
| -               | Q 0.2 to SIRIUS 3R, A1                          |
| N-PLC           | Siemens N                                       |
| N-CR-A2         | SIRIUS 3R, A2                                   |
| Terminal Ground | Siemens GRD                                     |
| 7 (GRN)         | Solenoid Control Valve UP (120V Line Voltage)   |
| 8 (RED)         | Solenoid Control Valve Down (120V Line Voltage) |
| 47              | Solenoid Control Valve UP (120V Neutral)        |
| 49 (White)      | Hydraulic Motor (120V Line Voltage)             |
| 50 (Black)      | SIRIUS 3R, 6-T3 (120V Neutral)                  |
| 49              | Jumper from input power source                  |
| 50              | Jumper from input power source                  |

**Table 4-6. Inductive Loop Vehicle Detector**

|    |                     |
|----|---------------------|
| 1  | TB2 (Grey/Black)    |
| 2  | TB2 (WHT)           |
| 3  | NC                  |
| 4  | TB2 (GRN)           |
| 5  | TB1-14 (Orange)     |
| 6  | NC                  |
| 7  | TB1-24 (Light Grey) |
| 8  | TB1-25 (Dark Grey)  |
| 9  | TB1-32 (RED)        |
| 10 | NC                  |
| 11 | NC                  |

**Table 4-7. SIRIUS 3R**

| (Relay) |                   |
|---------|-------------------|
| A1      | Siemens PLC Q 0.2 |
| A2      | TB2-N-CR          |
| 1 L1    | TB1-32            |
| 2 T1    | TB1-23            |
| 5L3     | TB2-1             |
| 6T3     | TB2-50            |

**Table 4-8. Manual Override Switch**

|        |        |
|--------|--------|
| Up     | TB1-15 |
| Center | TB1-32 |
| Down   | TB1-16 |



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**Figure 4-1. Loop Detector Panel Indicators**