

INSTRUCTION MANUAL

REVERSIBLE PRIORITY
LOAD MANAGER

A START-UP AND SHUT DOWN
LOAD SEQUENCER AND
AUTOMATIC LOAD SHEDDING SYSTEM



MODEL # 091 -32R-1 2

3 YEAR WARRANTY



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INTRODUCTION

The LOAD MANAGER is a device which:

1. Sequentially energizes and deenergizes relays at approximately 1/2 second intervals in order to reduce transients in a vehicle's electrical system.
2. Detects when the vehicle's electrical load is greater than the output of the alternator. When this occurs, loads are sequentially deenergized until the alternator output is equal to the load.

The LOAD MANAGER features an input which permits selecting the load shedding feature or operating only as an automatic load sequencer. It is possible to completely override the LOAD MANAGER and operate all relays simultaneously by connecting one input to the vehicle ground. An indicator circuit is included to operate a small LED indicator panel. This provides the vehicle's driver with the information that the LOAD MANAGER is active and loads are being removed from the system.

LOAD MANAGEMENT PROGRAMMING

Recognizing that priorities may change after an installation is made, the LOAD MANAGER is designed so that the sequence of load removal may be easily altered.

At installation, the highest priority load is wired to relay 1 which is operated by terminal 3. (NOTE THAT THE RELAYS ARE NOT PART OF THE "LOAD MANAGER" AND ARE SUPPLIED BY THE INSTALLER) The second highest priority load is wired to relay 2 which is operated by terminal 4. A total of 7 relays, decreasing in priority are operated by terminals 5, 6, 7, 8, & 9. See the schematic of figure 1.

Upon start-up, when the LOAD MANAGER operates as a sequential loading device, the loads are applied in priority order with the highest priority first.

When the LOAD MANAGER feature is enabled and excessive electrical loads cause a drop in battery voltage, the LOAD MANAGER will deenergize loads at approximately 60 second intervals starting with the lowest priority. Loads will be removed until the voltage returns to normal.

After installation the user may vary the priority by altering the switch setting from the BASIC SETTINGS illustrated in figure 2.

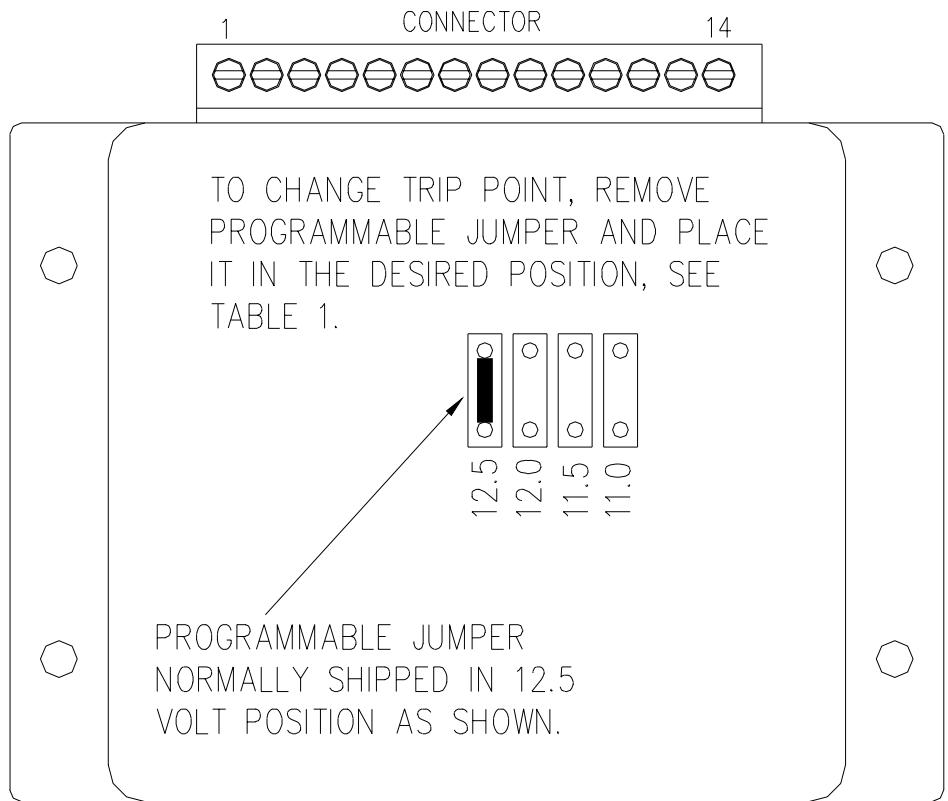
NOTE

The LOAD MANAGER is designed to operate relays. It is not necessary to connect to all outputs. Any outputs, at the discretion of the installer, may remain unused. Nothing should be connected to the unused outputs. Relays must have a coil resistance of 40 ohms or greater.

**DO NOT LOAD ANY OUTPUT WITH A RELAY WITH A
RESISTANCE LESS THAN 40 OHMS**

Table 1 - Load Management Order of Load Shedding and Restoration

| Signal at Pin 13 | Program Jumper @12.5 position | | | Program Jumper @12.0 position | | | Program Jumper @11.5 position | | | Program Jumper @11.0 position | | |
|----------------------------------|----------------------------------|--------------------------|-------------------------|----------------------------------|--------------------------|-------------------------|----------------------------------|--------------------------|-------------------------|----------------------------------|--------------------------|-------------------------|
| | R E L A Y | Load Off at VDC | Load On at VDC | R E L A Y | Load Off at VDC | Load On at VDC | R E L A Y | Load Off at VDC | Load On at VDC | R E L A Y | Load Off at VDC | Load On at VDC |
| Ground = Park or Neu | K7 | 12.55 | 13.00 | K7 | 12.06 | 12.50 | K7 | 11.52 | 11.96 | K7 | 11.11 | 11.55 |
| | K6 | 12.40 | 12.84 | K6 | 11.90 | 12.35 | K6 | 11.36 | 11.80 | K6 | 10.95 | 11.40 |
| | K5 | 12.24 | 12.69 | K5 | 11.75 | 12.19 | K5 | 11.20 | 11.65 | K5 | 10.80 | 11.24 |
| | K4 | 12.09 | 12.53 | K4 | 11.59 | 12.03 | K4 | 11.05 | 11.49 | K4 | 10.64 | 11.09 |
| | K3 | 11.93 | 12.38 | K3 | 11.44 | 11.88 | K3 | 10.89 | 11.34 | K3 | 10.49 | 10.93 |
| | K2 | 11.78 | 12.22 | K2 | 11.28 | 11.72 | K2 | 10.74 | 11.17 | K2 | 10.33 | 10.77 |
| | K1 | 11.62 | 12.06 | K1 | 11.12 | 11.57 | K1 | 10.58 | 11.02 | K1 | 10.17 | 10.62 |
| Open = Drive | K1 | 12.55 | 13.00 | K1 | 12.06 | 12.50 | K1 | 11.52 | 11.96 | K1 | 11.11 | 11.55 |
| | K2 | 12.40 | 12.84 | K2 | 11.90 | 12.35 | K2 | 11.36 | 11.80 | K2 | 10.95 | 11.40 |
| | K3 | 12.24 | 12.69 | K3 | 11.75 | 12.19 | K3 | 11.20 | 11.65 | K3 | 10.80 | 11.24 |
| | K4 | 12.09 | 12.53 | K4 | 11.59 | 12.03 | K4 | 11.05 | 11.49 | K4 | 10.64 | 11.09 |
| | K5 | 11.93 | 12.38 | K5 | 11.44 | 11.88 | K5 | 10.89 | 11.34 | K5 | 10.49 | 10.93 |
| | K6 | 11.78 | 12.22 | K6 | 11.28 | 11.72 | K6 | 10.74 | 11.17 | K6 | 10.33 | 10.77 |
| | K7 | 11.62 | 12.06 | K7 | 11.12 | 11.57 | K7 | 10.58 | 11.02 | K7 | 10.17 | 10.62 |



TOP VIEW OF LOAD MANAGER

SEE TABLE 1 FOR SCHEDULE OF VOLTAGE TRIP POINTS.

Figure 2, Basic Jumper Settings

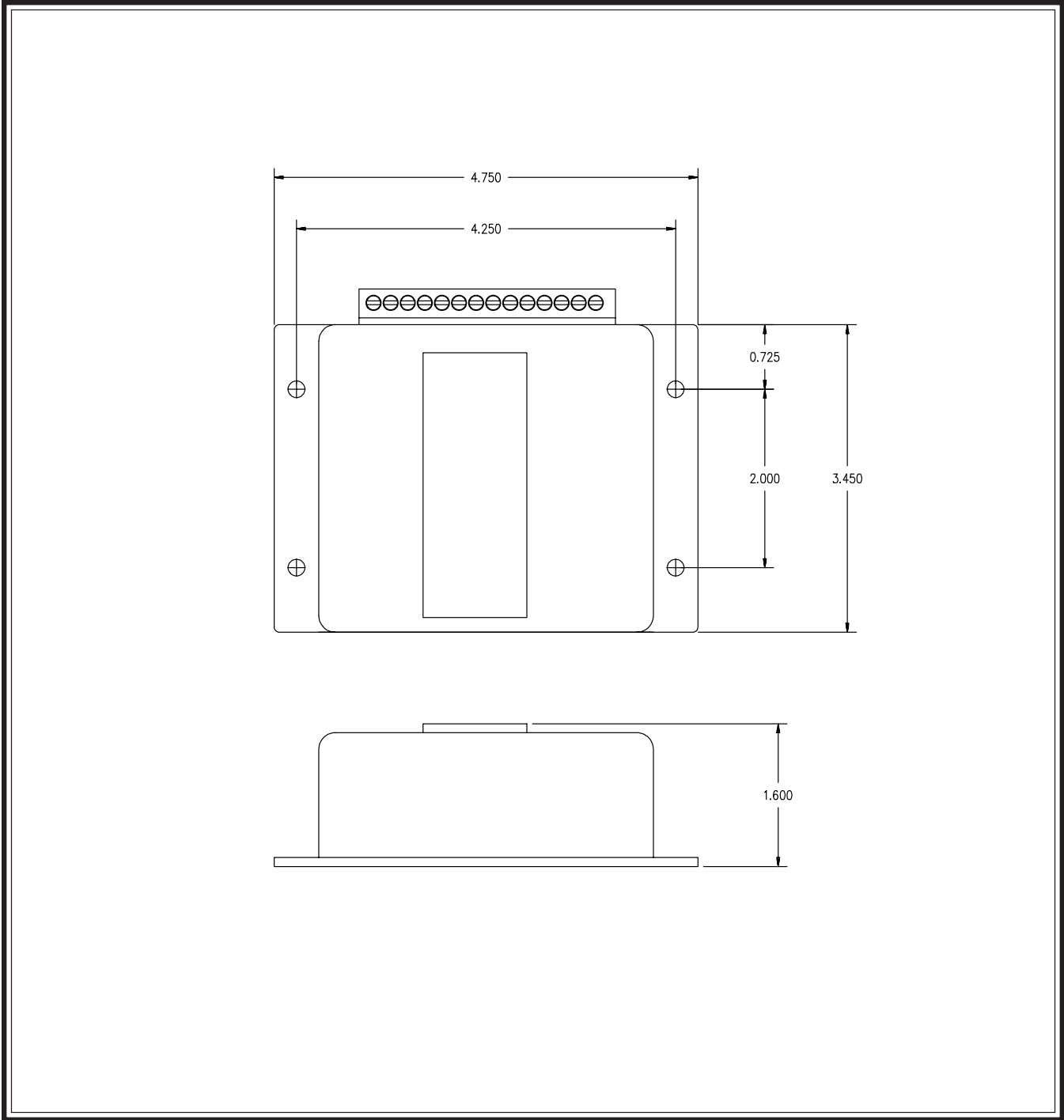
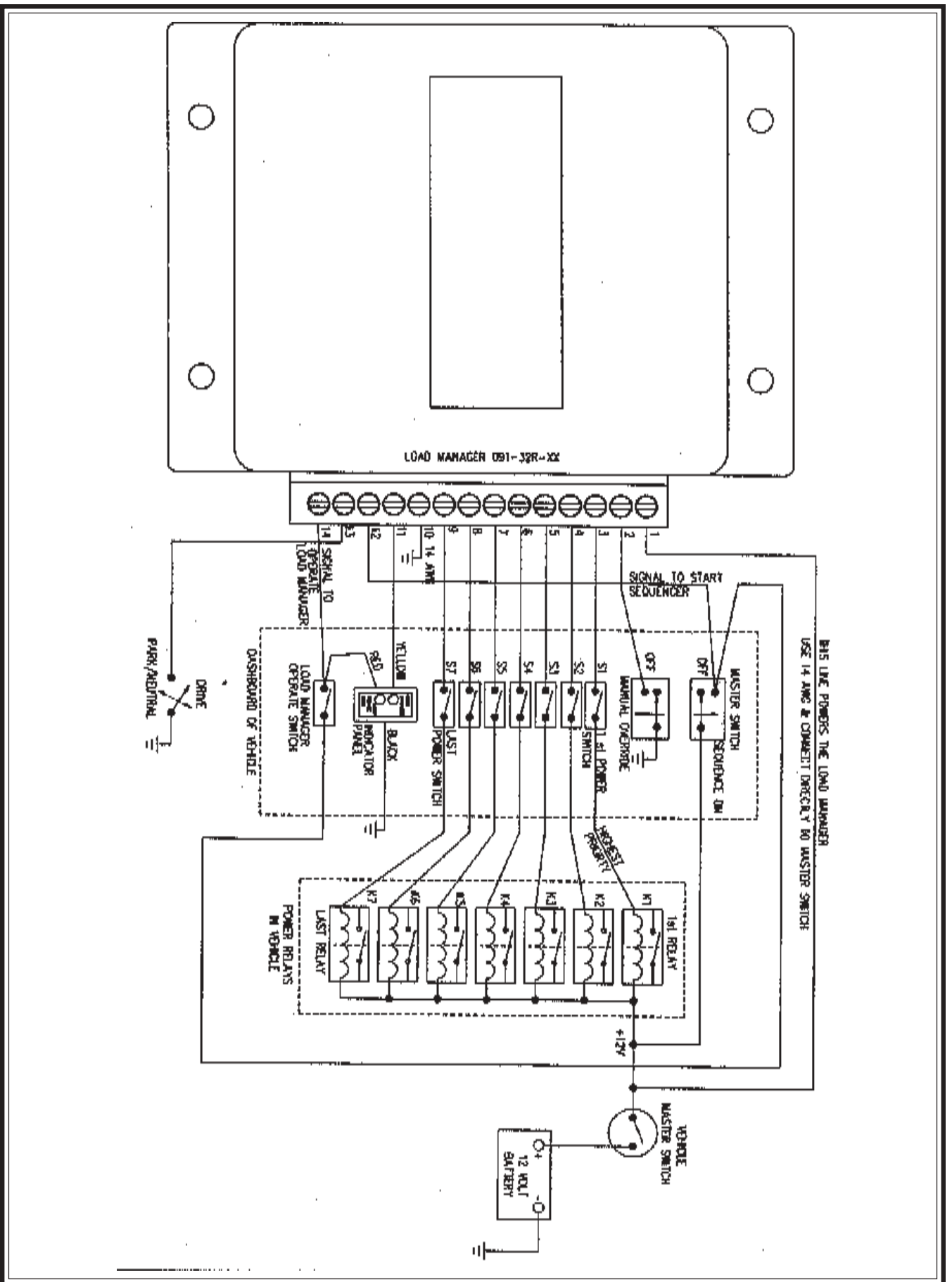


Figure 3, Outline, load Manager

Figure 1, Schematic, Load Manager Installation



INSTALLATION RECORD & WARRANTY

Date Installed _____

Installed By _____

Vehicle Identification _____

Vehicle Owner _____

WARRANTY

All products of Kussmaul Electronics Company Inc. are warranted to be free of defects of material or workmanship. Liability is limited to repairing or replacing at our factory, without charge, any material or defects which become apparent in normal use within 3 years from the date the equipment was shipped. Equipment is to be returned, shipping charges prepaid and will be returned, after repair, shipping charges paid.

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