LOAD MANAGER MARK IV-AT

Model 091-75-AT

A 9 Channel Sequencer and Load Shedding Controller with High Idle Control

SINCE 1967, DESIGNERS OF INNOVATIVE PRODUCTS

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INTRODUCTION:

The Load Manager Mark IV-AT is a 9-channel sequencer and load shedding controller controlling 9 external relays that are supplied by the installer. Provision has been made to permit the installer to sequence only a total of 5, 6, 7, 8 or 9 channels. Those channels for which sequencing is not selected will be energized constantly and controlled only by there own external, manually controlled switches or by the load management circuits.

Load management for the 9 channels is completely independent of the sequencing function. Nine "dip switches" are provided, one for each channel to establish the load shedding priority. These switches permit an absolutely arbitrary selection of the shedding sequence and in addition permit any of the channels to be "locked out" and not be load shed under any circumstances.

In addition to the sequencing/load management functions, this device provides a High Idle control to increase engine speed and thus the alternator output. The High Idle output operates an external relay or other device provided by the installer. The High Idle signal is the first output obtained when the Load Manager Mark IV-AT senses low voltage. It remains until the voltage rises to the point at which no loads are shed and in addition continues to maintain the higher engine speed for 5 minutes. This guarantees that engine speed cycling is minimized.

NOTE

THE LOAD MANAGER MARK IV-AT IS DESIGNED TO OPERATE RELAYS. IT IS NOT NECESSARY TO CONNECT TO ALL THE OUTPUTS. ANY OUTPUTS AT THE DISCRETION OF THE INSTALLER MAY REMAIN UNUSED. NOTHING NEED BE CONNECTED TO THE UNUSED OUTPUTS. RELAYS MUST HAVE A COIL RESISTANCE OF 40 OHMS OR GREATER

PROGRAMMING:

Recognizing that priorities may change after an installation is made, the LOAD MANAGER MARK IV-AT is designed so that the priority of load shedding may be easily altered.

Sequencing of the loads occurs at approximately 1/2-second intervals starting with the relay connected to terminal 1 and progressing to the relay connected to terminal 9.

Note that sequencing of the loads is not programmable but is controlled by the wiring connections to the LOAD MANAGER.

Nine sets of dip switches are provided for setting the priority of load shedding. Each set of dip switches controls one output and contains 9 individual switches. Setting any one of the individual switches to the "ON" position determines the load-shed priority of that output. That is, placing the #1 switch in the "ON" position determines that this output will be the first load to be shed. Placing #2 switch in the "ON" position will shed this output next. Note that any of the 9 sets of dip switches can be set to shed first and any other to be shed next. This results in a completely random load shedding priority.

NOTE

If the installer determines that some loads should not be shed under any circumstances, then the dip switch controlling that load should be all set in the "OFF" position.

SEQUENCE CONTROL:

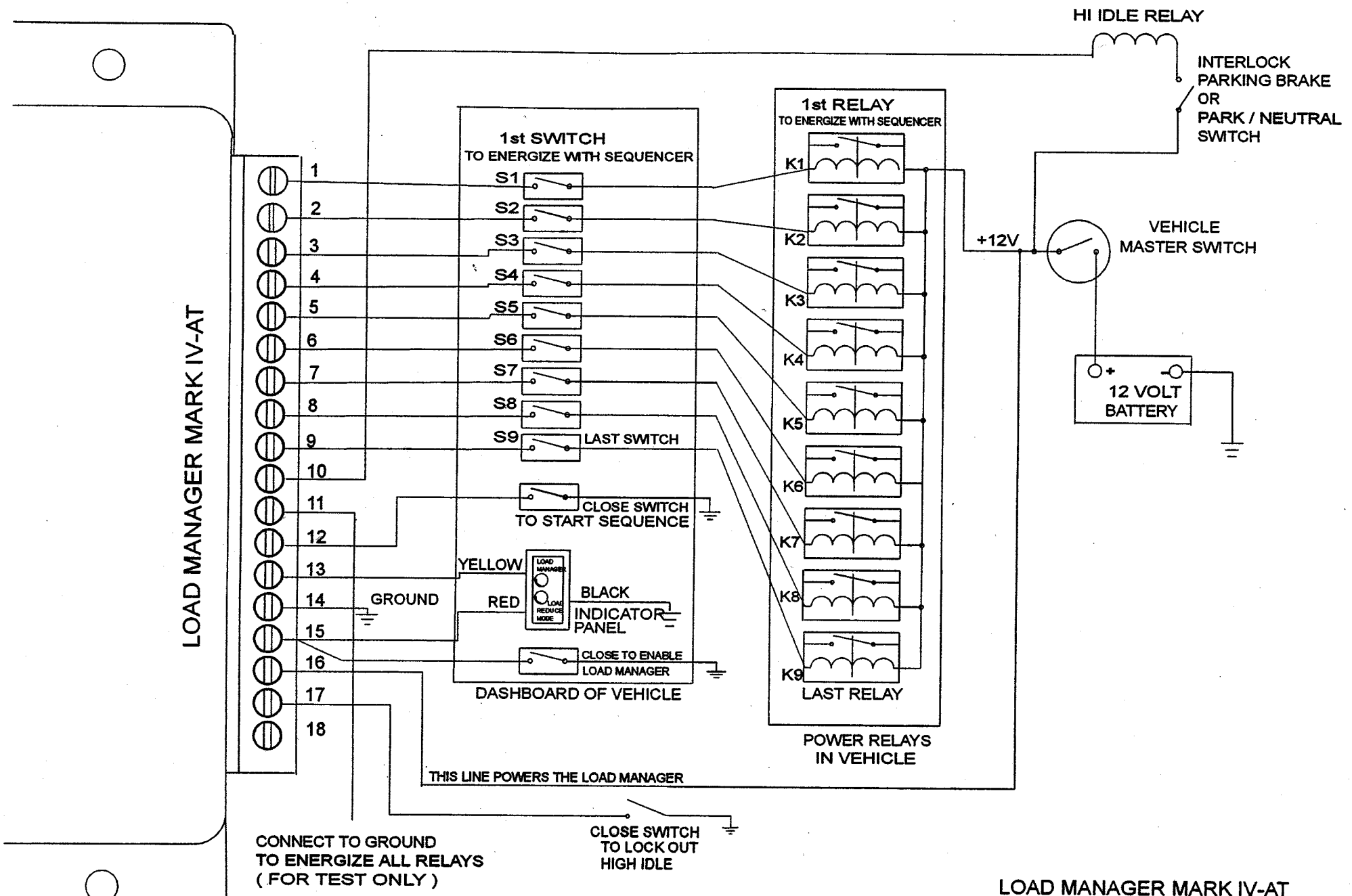
The installer wiring the relays to the LOAD MANAGER MARK IV-AT controls load sequencing. In order to limit the sequencing to fewer than 9 channels a 4-element dip switch has been provided. This switch locks out the sequencing function for channels 6, 7, 8 and 9. Placing the #1 switch in the "ON" position enables channel 6 instantly, not in sequence. Placing the #2 switch in the "ON" position enables channel 7, and so forth. This sequencing lockout control has no effect on the load shedding operation. Any or all the channels that are removed from the sequencer are still controlled by their load shedding program switches.

INPUT SIGNAL POLARITY SELECTION:

The Load Manager Mark IV-AT has been designed to accept command inputs of either +12 volts or ground for the **Load Manager Enable** (pin 15) and the **Start Sequencer** (pin 12). Switch S10 on the circuit board controls the polarity of both inputs. Placing this switch in the **Source** position permits the Load Manager to respond to +12 volt inputs as illustrated in figure 1. With S10 in the **Ground** position it is necessary to ground pins 12 and 15 for sequencing and load managing. The schematic for ground inputs is illustrated in figure 3.

HIGH IDLE LOCKOUT:

Since the High Idle output occurs first, before shedding any loads, the vehicle's engine will be speeded up before any loads are shed. At some time, such as when a pump drive is to be engaged, it is mandatory that the engine be at idle speed. **Pin 17** provides a means of disabling the high idle. Switching pin 17 to ground will insure that the high idle is locked out. This has no effect on the sequencing or load management functions of the Load Manager Mark IV-AT.



LOAD MANAGER MARK IV-AT
FIGURE 3 INSTALLATION WIRING
GROUND SIGNAL POLARITY

REV.B: 2/18/99

SEQUENCER LOCKOUT PROGRAM SWITCH

SWITCH	POSITION	RELAY REMOVED FROM SEQUENCING
1	ON	6
2	ON	7
3	ON	8
4	ON	9

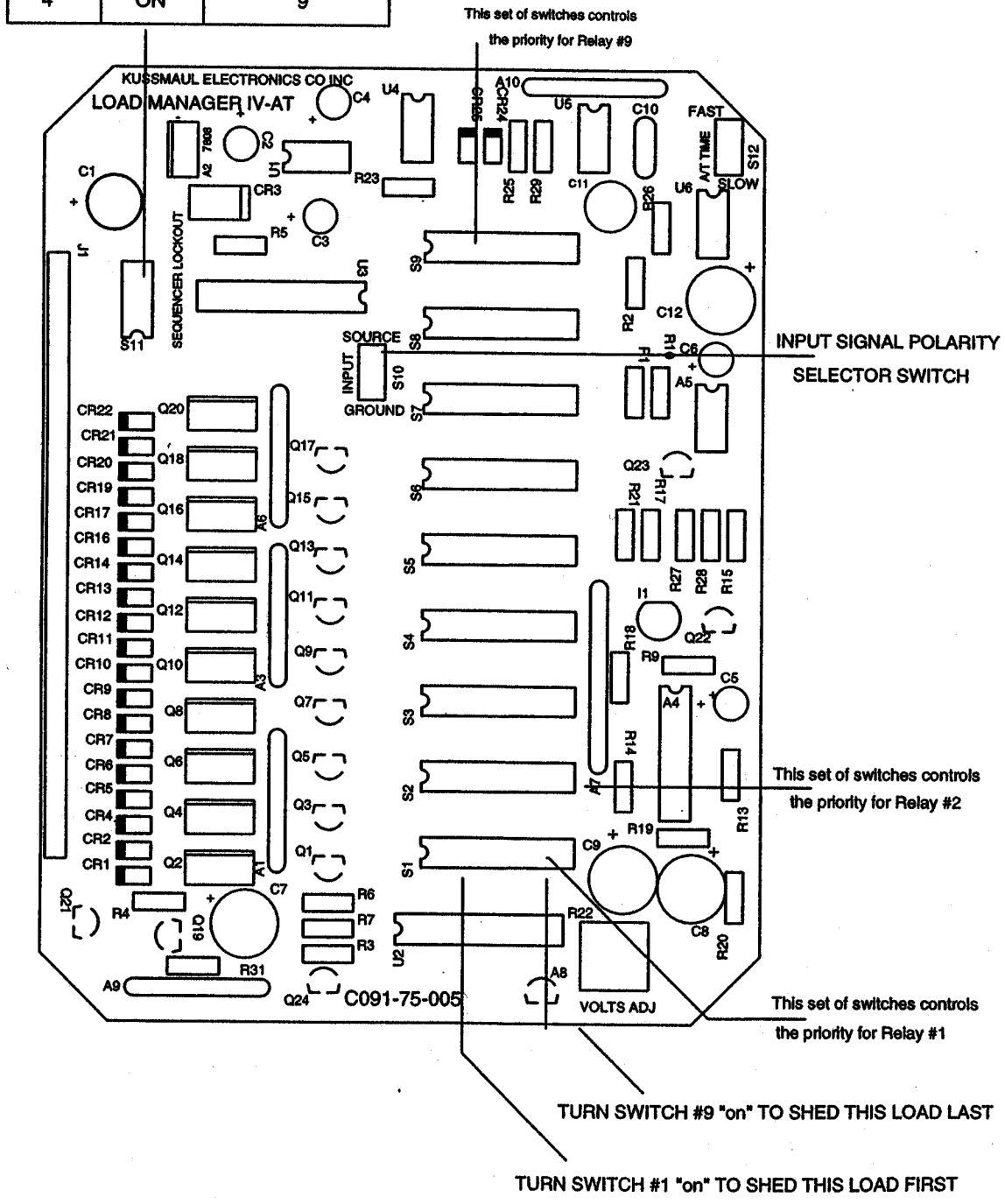


Figure 2. Programming Switch Locations

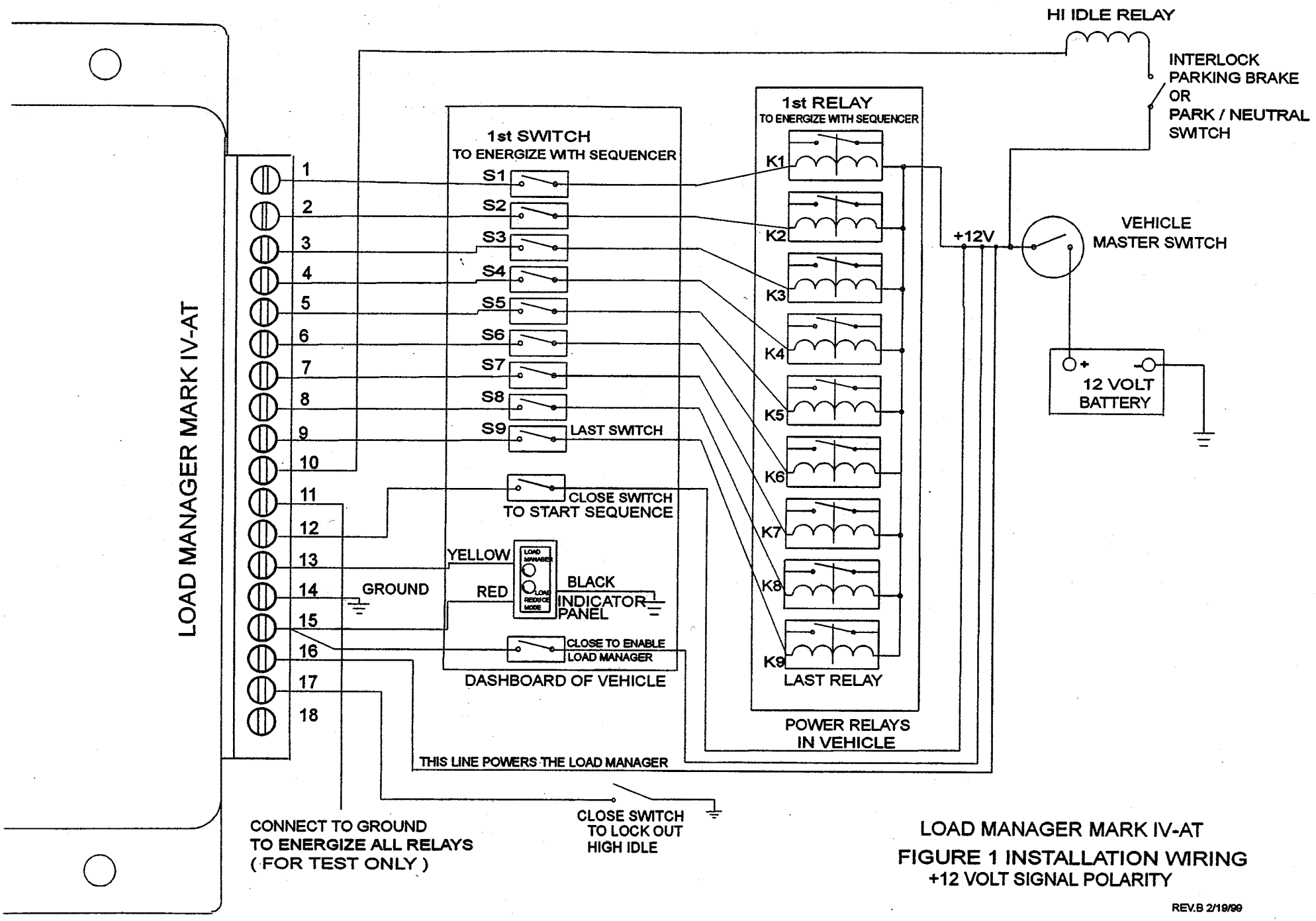


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FIGURE 1 INSTALLATION WIRING

+12 VOLT SIGNAL POLARITY

REV.B 2/19/99

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.

Kussmaul Electronics Company, Inc. shall have no liability for damages of any kind to associated equipment arising from the installation and /or use of the Kussmaul Electronics Company, Inc. products. The purchaser, by the acceptance of the equipment, assumes all liability for any damages which may result from its installation, use or misuse, by the purchaser, his or its employees or others.