EVERYTHING IS PLUGGED IN. WHEN THROTTLE IS TURNED, NOTHING HAPPENS.

- CAB-1 HAS “FALLEN ASLEEP.” PRESS ANY BUTTON ON THE CAB TO AWAKEN IT.
- THE BATTERIES MAY BE WEAK. REPLACE WITH NEW ALKALINE BATTERIES.
- ENSURE THE CRYSTALS IN POWERMASTER AND CAB-1 ARE IN PLACE AND SECURE.

THE BUTTONS ON CAB-1 WORK, BUT THE THROTTLE DOESN’T.

- MAKE SURE THE BATTERIES ARE PROPERLY INSTALLED AND SECURELY IN PLACE.
- THE BATTERIES ARE WEAK. REPLACE WITH NEW ALKALINE BATTERIES.

THE BUTTONS ON CAB-1 DO NOT WORK. BATTERIES ARE GOOD.

- REMOVE ONE OF THE BATTERIES. WAIT 10 SECONDS. REINSTALL THE BATTERY.

THE HALT BUTTON IS THE ONLY BUTTON THAT WORKS ON CAB-1 (THE RED LIGHT IS NOT FLASHING ON POWERMASTER).

- SET POWERMASTER’S SWITCHES TO RUN AND CONV.
- READDRESS POWERMASTER.
- REPROGRAM POWERMASTER.

BELL AND WHISTLE/HORN BUTTONS ARE REVERSED.

- CHECK WIRING FROM POWERMASTER TO THE TRACK. WIRE FROM U GOES TO THE OUTSIDE RAIL. WIRE FROM A GOES TO THE CENTER RAIL.
- CHECK POWERHOUSE PLUG. REVERSE THE PLUG IF IT’S IN A NONPOLARIZED OUTLET.
- REVERSE WIRES FROM POWERMASTER IF IT’S CONNECTED TO A POWER SUPPLY OTHER THAN POWERHOUSE.
• Set stall voltage for the locomotive in operation. Each locomotive may have a different stall level. See page 8 of the Lionel Trainmaster Owners Manual.

CAB-1 seems to have limited range.

• Extend antenna on Cab-1.
• Relocate powermaster. Make sure it’s not on a metal surface.

Locomotive operation is sluggish in response to the throttle.

• Your Cab-1 is set for High (H) or Medium (M) momentum. See page 9 of the Operating Manual for further details. Set your Cab-1 to Low (L) for quick response.

Railsounds drops out when direction is pressed.

• Install a 9-volt alkaline battery in the locomotive or tender.

No output from powermaster

• Check connections to powermaster.
• Check the circuit breaker on powerhouse.

There is no speed control of the locomotive, full power to the track, red light flashing.

• Check the CMD/Conv switch on powermaster. Make sure it’s in the Conv setting.
• Powermaster may be defective and may need to be exchanged.

Powermaster will not accept ID programming.

• Make sure the Prog/Run switch is in the Prog position. Press TR on Cab-1 and the desired address number. Press SET button. Powermaster should display a flashing red light. Move the switch to the Run setting.

Powermaster is programmed but not operating properly.

• Make sure the switches are in the Run and Conv settings.
• Readdress powermaster.
• Press AUX1, 0 to reset powermaster.

Locomotive cycles into neutral when brake is held for a length of time.

Cab-1 seems to have limited range.

Locomotive operation is sluggish in response to the throttle.

Railsounds drops out when direction is pressed.

No output from powermaster

There is no speed control of the locomotive, full power to the track, red light flashing.

Powermaster will not accept ID programming.

Powermaster is programmed but not operating properly.

Powermaster’s green light is on but the unit is
NOT OPERATING.

- READDRESS POWERMASTER.
- PRESS AUX1, 0 TO RESET POWERMASTER.

THE GREEN LIGHT ON POWERMASTER IS FLASHING.

- CHECK FOR AN ELECTRICAL SHORT ON THE LAYOUT.
- RESET POWERMASTER.
- SWITCH OFF THE POWER SUPPLY TO POWERMASTER.
- REPROGRAM POWERMASTER.

USING A LIONEL ZW TRANSFORMER, ONLY 14 VOLTS GO TO THE TRACK.

- THERE IS TYPICALLY A 4-VOLT DROP WHEN A LIONEL ZW IS USED TO ELECTRIFY POWERMASTER.

THERE ARE MULTIPLE POWERMASTERS INSTALLED, AND ALL TRACKS/BLOCKS RESPOND SIMULTANEOUSLY.

- POWERMASTER IS PROGRAMMED AS TR1 AT THE FACTORY.
  REPROGRAM THE ADDITIONAL POWERMASTERS WITH THEIR OWN ID NUMBERS (SEE PAGE 14 IN THE OPERATING MANUAL).
- MAKE SURE THE PROG/RUN SWITCH IS SET TO RUN.

WHEN MOVING FROM ONE BLOCK TO ANOTHER, THE LOCOMOTIVE CYCLES INTO NEUTRAL.

- JUST BEFORE ENTERING THE BLOCK, ADDRESS THE POWERMASTER CONTROLLING THAT BLOCK AND THROTTLE UP.
- CHECK PHASING OF EACH BLOCK WHEN INSTALLING (SEE PAGE 10 IN THE OPERATING MANUAL).

TRACK POWER WAS OKAY, BUT NOW IS ONLY AT HALF POWER.

- THE SET BUTTON WAS PRESSED.
  TURN THE THROTTLE DOWN (TO THE LEFT) ONE FULL REVOLUTION. PRESS THE SET BUTTON AGAIN. THIS SHOULD RESTORE FULL POWER TO THE TRACK.
  TO ENSURE THAT THE TRACK HAS A FULL POWER RANGE, PRESS THE SET BUTTON TWICE—ONE SECOND EACH—WITHOUT MOVING THE THROTTLE. RESET THE STALL VOLTAGE ON THE LOCOMOTIVE TO BE OPERATED.
A POWERMASTER IN THE CMD SETTING WILL NOT GIVE YOU COMMAND CONTROL OF A COMMAND-EQUIPPED LOCOMOTIVE. FOR COMMAND CONTROL, INSTALL A COMMAND BASE. ONE COMMAND BASE WILL CONTROL YOUR ENTIRE LAYOUT (INCLUDING BLOCKS AND LOOPS) AS LONG AS THERE’S A COMMON CONNECTION TO ALL OUTSIDE RAILS.

- MAKE SURE THE BASE’S GREEN LIGHT IS ON AND THE RED LIGHT FLASHES WHEN YOU PRESS CAB-1 BUTTONS.

THE LOCOMOTIVE IS PROGRAMMED BUT WILL NOT MOVE.

- THE RED LIGHT ON THE BASE SHOULD FLASH.
- IF POWERMASTER’S GREEN LIGHT IS FLASHING, THERE’S AN ELECTRICAL SHORT AND NO POWER TO THE TRACK.
- BE SURE THE LOCOMOTIVE’S PROG/RUN SWITCH IS IN THE RUN POSITION.
- READDRESS THE LOCOMOTIVE.

THE LOCOMOTIVE DOES NOT MOVE WHEN THE THROTTLE IS INCREASED.

- READDRESS THE LOCOMOTIVE.
- PRESS BOOST. IF THE LOCOMOTIVE MOVES, REPLACE THE BATTERIES IN CAB-1. (ALSO TRY THE WHISTLE/HORN. THE ADDRESSED LOCOMOTIVE WILL RESPOND.)

RAILSOUNDS ARE OFF OR NOT WORKING PROPERLY.

- SHUT OFF THE POWER TO THE TRACK FOR 10 SECONDS AFTER THE LAST SOUND IS HEARD. POWER UP THE TRACK. READDRESS THE LOCOMOTIVE. PRESS ANY BUTTON ON CAB-1. RAILSOUNDS SHOULD BE RESTORED.

A COMMAND-EQUIPPED LOCOMOTIVE DOES NOT OPERATE IN THE CONVENTIONAL MODE.

- SHUT OFF THE COMMAND BASE. UNPLUG ITS POWER SUPPLY. THE LOCOMOTIVE WILL TRY TO OPERATE IN COMMAND MODE IF IT HEARS A SIGNAL FROM THE COMMAND BASE.
- POWER UP THE TRACK. AFTER A 10-SECOND WAIT, THE LOCOMOTIVE WILL START UP IN NEUTRAL. THIS HAPPENS THE FIRST TIME AN LOCOMOTIVE IS STARTED UP AFTER LAST OPERATING IN THE COMMAND MODE. SUBSEQUENT TO THIS, THE LOCOMOTIVE WILL START UP IN FORWARD.

THERE IS NO NEUTRAL IN COMMAND CONTROL.

- THERE IS NO NEED FOR NEUTRAL IN COMMAND CONTROL. THE LOCOMOTIVE WILL CHANGE DIRECTIONS ONLY WHEN THE DIR BUTTON IS Pressed. In CONVENTIONAL MODE, THE LOCOMOTIVE WILL HAVE THE STANDARD FORWARD-NEUTRAL-REVERSE-NEUTRAL SEQUENCE.
• IF THE GREEN LIGHT IS FLASHING ON POWERMASTER, TOO MUCH POWER IS BEING DRAWN. REMOVE A LOCOMOTIVE FROM THE TRACK.

• IF POWERMASTER IS OKAY, CHECK FOR INTERFERENCE WITH THE COMMAND SIGNAL. SHUT OFF OTHER ELECTRICAL DEVICES, e.g. MICROWAVE, CB RADIO, AND REMOTE-CONTROL TOYS. RELOCATE THE COMMAND BASE.

• CHECK THE CRYSTALS IN THE BASE, POWERMASTER, AND CAB-1. MAKE SURE THEY ARE IN PLACE AND SECURE.

• ALL THE TRANSFORMERS AND THE BASE POWER SUPPLY SHOULD BE PLUGGED INTO THE SAME POWER STRIP, WHICH MUST BE PROPERLY GROUNDED.

• IF THE BASE IS LOCATED ON A METAL SURFACE, RELOCATE IT OR ELEVATE IT AT LEAST TWO FEET ABOVE THE SURFACE.

• YOU HAVE TOO MANY LOCOMOTIVES ON THE TRACK AND POWERHOUSE HAS BECOME OVERLOADED. REMOVE A LOCOMOTIVE.

• CREATE SMALLER ELECTRICAL BLOCKS AROUND YOUR LAYOUT, EACH WITH ITS OWN POWER SUPPLY. THE MORE POWER BLOCKS YOU HAVE, THE LESS OVERLOADED EACH POWER SUPPLY BECOMES.

• THE RAILSOUNDS ON/OFF SWITCH SHOULD ONLY BE MOVED WHEN THE UNIT IS REMOVED FROM POWER FOR AT LEAST 10 SECONDS.

• CHECK THE VOLUME CONTROL KNOB. ROTATE TO THE FULL-ON POSITION.

• ADDRESS THE LOCOMOTIVE. PRESS **AUX1, 3** TO TURN THE SOUNDS BACK ON IF THEY WERE SHUT OFF BY USING 5. PRESS 1 FOUR TIMES, TO TURN THE VOLUME TO FULL IF IT WAS LOWERED BY PRESSING 4.

• THE COMMAND BASE’S COMMUNICATION IS BLOCKED BY THE METAL STRUCTURE USED TO CONSTRUCT THE TUNNEL. CONNECT A WIRE FROM THE TUNNEL’S WIRE CONSTRUCTION TO EARTH GROUND, OR SUSPEND A WIRE CONNECTED TO THE EARTH GROUND OVER THE RAIL (ABOVE THE LOCOMOTIVE). (EARTH GROUND CAN BE FOUND BY CONNECTING THE WIRE TO THE GROUND/GREEN TERMINAL OF THE ELECTRICAL OUTLET.)
• PRESS **AUX2** ON THE CAB-1 KEYPAD. THIS SHOULD RESTORE THE HEADLIGHT AND TAILLIGHT FUNCTION. IF IT DOES NOT, THE BULBS HAVE EXPIRED AND NEED TO BE REPLACED.

• THE SENSOR IS OUT OF ADJUSTMENT. CONTACT LIONEL SERVICE.

• PLACE A COMMAND-EQUIPPED DIESEL LOCOMOTIVE ON THE LAYOUT. WITH THE LOCOMOTIVE MOVING AROUND THE LAYOUT, HOLD DOWN THE **HORN** BUTTON. LISTEN FOR ANY BREAKS IN THE HORN BLAST. NOTE THE AREA WHERE THE SIGNAL IS BROKEN.

• CHECK FOR ITEMS THAT MAY BE CAUSING INTERFERENCE, e.g., METAL SCREENS, OTHER ELECTRONIC DEVICES, INSULATED BLOCK NOT CONNECTED TO THE COMMON U TERMINAL OF THE COMMAND BASE.

THE BRAKING SOUND DOES NOT OPERATE. WHEN **BRAKE** IS PRESSED.

HOW CAN I CHECK FOR COMMUNICATIONS ON MY LAYOUT?
When I set the stall voltage, the headlight flashes.

- The new LCRU2 locomotives feature a flashing light when the locomotive is in the SET mode. Both low and high voltages can be set. To set the low voltage, press SET, lower the voltage to the desired level, and press SET again. To set the high voltage, press SET, add voltage to the desired level, and press BOOST. The headlight will flash in both cases.

The locomotive cab light is flashing.

- The LCRU2 can program the locomotive type: steam with or without railsounds, diesel with cab light, with or without railsounds, and diesel with strobe light, with or without railsounds. The locomotive type is set at the factory but can be reset in the program mode. Contact Lionel Service for the proper sequence.
Creating a multi-locomotive lash-up

LOCOMOTIVES 2, 3, AND 4 ARE TO BE LASHED-UP: LOCOMOTIVE 2 IN THE FRONT; LOCOMOTIVE 3 IN THE CENTER, AND LOCOMOTIVE 4 AT THE REAR FACING THE REAR. THE LASH-UP WILL BE CALLED TRAIN 5.

KEYSTROKES:

- **TR, 5, 2, F, SET** (LOCOMOTIVE 2 HORN WILL SOUND).
- **TR, 5, 3, SET** (LOCOMOTIVE 3 HORN WILL SOUND).
- **TR, 5, 4, DIR, R, SET** (LOCOMOTIVE 4 HORN WILL SOUND).

TO CHECK YOUR LASH-UP:

- PRESS TR, 5. LOCOMOTIVE 2 HEADLIGHT SHOULD BE ON.
- PRESS DIR. LOCOMOTIVE 4 HEADLIGHT SHOULD BE ON.
- PRESS HORN. LOCOMOTIVE 2 SHOULD SOUND ITS HORN.

TO REMOVE AN LOCOMOTIVE FROM THE LASH-UP

- ASSIGN THAT LOCOMOTIVE TO TR 0 BY PRESSING TR, 0, 3, SET. LOCOMOTIVE 3 IS NOW REMOVED FROM THE LASH-UP TR5.
PROGRAMMING POWERMASTER:

1. TURN POWERMASTER POWER SUPPLY ON. THE GREEN LIGHT COMES ON.
2. MOVE THE POWERMASTER PROGRAM SWITCH TO PROG.
3. ON CAB-1, PRESS TR AND THE DESIRED ADDRESS NUMBER.
4. PRESS SET ON CAB-1. THE RED LIGHT ON POWERMASTER ILLUMINATES WHEN IT RECEIVES THE SIGNAL.
5. MOVE THE PROGRAM SWITCH TO THE RUN POSITION.
6. MOVE THE CMD/CONV SWITCH TO THE DESIRED POSITION. CHOOSE CMD FOR FULL 18 VOLTS. CHOOSE CONV FOR VARIABLE VOLTAGE.

PROGRAMMING LOCOMOTIVES IN COMMAND CONTROL:

1. APPLY POWER TO THE BASE. THE GREEN LIGHT COMES ON.
2. MOVE THE LOCOMOTIVE’S PROGRAM/Lock SWITCH TO PROGRAM. PLACE THE LOCOMOTIVE ON THE TRACK.
3. TURN THE TRACK POWER ON.
4. ON CAB-1, PRESS ENG AND THE DESIRED LOCOMOTIVE NUMBER, 1 TO 99.
5. PRESS SET. THE LOCOMOTIVE HORN WILL SOUND TO INDICATE THE ACCEPTANCE OF THE SIGNAL (OR, IF THE LOCOMOTIVE DOES NOT HAVE RAILSOUNDS, THE HEADLIGHT WILL FLASH). THE RED LIGHT ON THE BASE WILL FLASH.
6. MOVE THE LOCOMOTIVE’S PROGRAM SWITCH TO THE RUN POSITION.
7. THE LOCOMOTIVE IS NOW READY TO RUN.

PROGRAMMING SC-1 SWITCH CONTROLLER (SWITCHES):

1. APPLY POWER TO THE BASE.
2. TURN THE SWITCH’S EXTERNAL POWER ON. THE SC-1’S GREEN LIGHT COMES ON.
3. MOVE THE SC-1’S PROGRAM SWITCH TO PROG.
4. ON CAB-1, PRESS SW AND THE FIRST NUMBER OF THE SWITCH TO BE ADDED TO THE SC-1. OTHER SWITCHES AUTOMATICALLY ARE NUMBERED IN SEQUENCE.
5. PRESS THE SET BUTTON FOR ABOUT ONE SECOND. THE RED LIGHT ON THE SC-1 COMES ON.
6. MOVE THE SWITCH TO THE RUN POSITION.

PROGRAMMING SC-1 SWITCH CONTROLLER (ACCESSORIES):

1. APPLY POWER TO THE BASE.
2. PLUG THE EXTERNAL POWER INTO THE SC-1. THE SC-1’S GREEN LIGHT COMES ON.
3. MOVE THE SC-1’S PROGRAM SWITCH TO PROG.
4. ON CAB-1, PRESS ACC AND THE FIRST NUMBER OF THE ACCESSORY TO BE ADDED TO THE SC-1. OTHER ACCESSORIES AUTOMATICALLY ARE NUMBERED IN SEQUENCE.
5. PRESS THE SET BUTTON FOR ABOUT ONE SECOND. THE RED LIGHT ON THE SC-1 COMES ON.
6. MOVE THE SWITCH TO THE RUN POSITION.