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LRM-2 DUAL METER REMOTE INDICATOR

INSTALLATION AND OPERATING INSTRUCTIONS

CAUTION: The LRM-2 Remote Indicator is wired for 12V. DO NOT use this instrument in a 24V system without first modifying it in accordance with directions given in this document.

The LRM-2 dual meter remote indicator is designed for aircraft installations where space does not permit mounting the LA Series receiver in easy view of the pilot. The indicator may be attached to any model of the L-Tronics LA Series Aircraft Direction Finders. It will provide simultaneous strength and left-right homing indications for all models, including those that have only a single panel meter.

Installation requires finding a suitable place on the panel for the indicator, running the indicator cable to the back of the DF set, installing a simple modification in the DF set, and modifying the existing DF power cable. The kit supplied with the LRM-2 Remote Indicator contains all required material except the mounting screws or other hardware for the indicator. Some soldering is required and Molex .063 dia. crimping and extraction tools are desirable.

The modification will not affect the interchangeability of DF receivers. If an unmodified receiver is connected to a modified installation (or vice versa), only the DF meter in the remote indicator will operate; no damage will result. The dial light jumpers in the back of the remote indicator will have to be set to the proper voltage for the aircraft, 12 or 24V.

INDICATOR INSTALLATION

The indicator can be mounted in the space between instruments using screws through the back or on top of the instrument panel, using the swivel bracket supplied. Many pilots have found that mounting the indicator forward near the junction of the instrument panel and the bottom of the windshield allows them to watch the meters "out of the corners of their eyes" while watching the outside terrain. In most cases, the meter mounted here will not obstruct the outside view.

A self-adhesive foam pad must be mounted on the inside of the back cover so that it presses against the circuit board when the indicator case is closed. This pad is supplied loose to give access for back mounting screw installation. If the indicator is mounted by its back, countersunk flat head or thin braiser head screws should be used to minimize the possibility of shorts to the circuit board. The back and mounting bracket are supplied undrilled to accommodate installation variations.

There are two plug-in jumpers on the PC board in the indicator that select the proper dial light voltage. The units are supplied with two jumpers in place in the 12V position, as shown in Figure 1. To change the unit to 24V, move one jumper to the horizontal position as shown in the figure and discard the other one.

CAUTION: THE WARRANTY SPECIFICALLY DOES NOT COVER DAMAGE CAUSED BY OPERATION AT THE WRONG VOLTAGE.

RECEIVER MODIFICATION

A new 3-pin connector, J2, must be installed in the DF receiver unit. Thread the three wires from the prewired connector into the gap between the existing 9-pin connector and the chassis on the side nearest the RF connectors. Run the short wire under the circuit board and solder to the wide ground plane near the 9-pin connector.

If the receiver has two meters, solder the white wire from pin 2 (center) of J2 to the RIGHT terminal of the STRENGTH meter, as viewed from the back. Solder the remaining blue wire to the LEFT terminal of the STRENGTH meter.

If the receiver has only one meter, solder the wires from pin 2 (center) and pin 3 to the Mode (ALARM, REC, DF) switch, as shown in Figure 2. The figure is a picture of the switch as seen from the back.

Tie the long wires to the existing wire bundle on the top side of the circuit board using the lacing cord provided. Three spot ties should be sufficient. The loose ends of the nylon cord should be cut with a hot soldering iron after tying. The melted nylon will keep the cord from fraying or the knot from slipping.

WIRING MODIFICATION

Cut the cable from the indicator so that it reaches the back of the DF receiver. If possible, allow enough slack so that the receiver can be slid out of its mount without removing the cables. Strip about 2 inches of the jacket off the cable. Cut off the black wire. Strip 1/8" of the insulation off the ends of the remaining wires. Crimp a pin on all EXCEPT the orange wire. Insert the brown wire into pin 1 of the new 3-pin connector, P2. Insert the white wire into pin 2 and the blue wire into pin 3 of P2.

The pin numbers for the 9-pin plug are on the back of the nylon body. Remove the jumper between pins 7 and 8 of the power plug and the wire in pin 9 and discard them. Insert the green wire into pin 7, the yellow wire into pin 8, and the red wire into pin 9. Remove the existing wire from pin 3, cut the pin off, and strip the end 1/8". Insert this wire and the orange wire from the indicator into a new pin and crimp. Put this pin back in pin 3. The schematic diagram includes a wiring diagram for the power plug showing the completed changes.

If extraction and crimping tools are not available, the required modification can also be made by soldering new pins on the brown, blue, and white wires that go into P2, the new 3-pin connector, and splicing the wires that go to the existing 9-pin power plug, P1. Cut the jumper between pins 7 and 8 before splicing.

OPERATION

For DF receivers with two panel meters, operation with a remote indicator is unchanged. Remember, however, that the ALARM toggle MUST BE DOWN (OFF) FOR THE DF FUNCTION TO WORK.

For DF receivers with only a single meter, the Mode switch is set to DF to give simultaneous DF and Strength indications on the remote indicator. The DF function WILL NOT WORK in either the REC or the ALARM position. The meters in the remote indicator are heavily damped so the needles will react more slowly than the one on the receiver panel. This helps suppress flutter of readings while tracking but may take a little getting used to, particularly when adjusting the SENSitivity control setting to keep the strength readings on scale. Turn the SENSitivity control slowly.

REPAIR

To remove the PC board, unsolder the four meter terminals in the large, square pads along the bottom edge of the board. Use a vaccum tool or braid to remove all solder. Lift the board out. The meters are glued in. To remove one, apply a small amount of Stoddart solvent or equivalent petroleum thinner on the inside of the meter box while applying finger pressure to the meter face. The glue will slowly yield over one or two minutes. DO NOT use lacquer thinner, acetone, MEK, or other solvents containing them. They will melt the meters. Reattach the meters with contact cement. Factory repair service and parts are available.