1141M – 30 Watt Linear FM Amplifier

IMPORTANT: Please follow the instructions below carefully to avoid damaging the transmitter. All units are pre-tested - NO returns. If in doubt please contact our Technical Department for assistance.

CAUTION: *NEVER operate the transmitter without connecting a suitable antenna or dummy 50 Ohm load to the output otherwise there is a serious danger of destruction of the output stage of the transmitter.*

TECHNICAL SPECIFICATIONS	
Modulation type:	FM
Frequency:	88-108 MHz
Output power:	30 Watts
Power Supply:	12.5-13.8V DC / 4A
Preamplifier	Kit 1052
Power Supply:	1056
PCB:	180x90x50mm

DESCRIPTION - This linear FM amplifier (88-108MHz) is ideal for building a small-area radio station without spending a lot of money.

It can be directly driven using our 3 Watt FM VCO Amplifier kit 1187 or an equivalent transmitter that gives an output of 1 to 3 Watts. This set-up can also be combined with kit 1144 to provide a high power PLL FM radio station.

The two-stage circuit uses Philips BLY87 and BLY89 high frequency transistors and toroidal transformer to provide an output power of 30 Watts in the antenna. The unit is easily tuned, is supplied ready assembled with heatsink and requires only 7 connections.

CONNECTIONS - Firstly, ensure that the nuts holding the heatsink to the BLY transistors are secure (do NOT over tighten). Next check that none of the board components have been bent out of position in transit. In particular check that none of the coil turns are touching and are evenly spread and not touching any adjacent PCB tracks or components. Realign them as necessary.

The connections to and from the transmitter are few and simple. Solder pads are used for all connections. In other words the connection wires must be soldered directly to the board. It is important that you correctly identify the ground plane. This is the underside (heatsink side) of the board and much of the top side (the area around the writing “SMART KIT L. 7-50W” is the top side of the ground plane). Use a continuity tester to check suitable points for making the ground plane connections detailed below. Refer to the board and diagram overleaf and proceed as follows.

INPUT - the input must come from the output of a VCO transmitter of 0.6-0.7Watts output like our 3 Watt FM VCO Amplifier kit 1187 or an equivalent transmitter that gives an output of 1 to 3 Watts. This set-up can also be combined with kit 1144 to provide a high power PLL FM radio station. It must be connected using shielded cable. The centre (signal) is connected to the point on the board marked “IN” and the outer shield (ground) goes to ground plane.

ANTENNA - The antenna can be a 50 Ohm Open Dipole, Ground Plane, 5/8 or YAGI. Connect it to the transmitter using 50 Ohm coax cable. The centre conductor of the cable goes to the point on the board marked “OUT”. The outer shield goes to the ground plane.

POWER SUPPLY - connect +12-13.8V DC to the two points marked +12.5V. The negative side of the power supply must be connected to the ground plane. The power supply must be rated 4A minimum (kit 1056 is suitable)

ALIGNMENT – Do NOT operate the transmitter for longer than one minute until you have performed the adjustment for maximum power output as follows:

1. Connect an SWR meter (RF Power Meter) between the transmitter output and the antenna.
2. Once you are absolutely certain all the connections are securely made as detailed above turn on the power supply.
3. Adjust the variable capacitors so that the SWR meter gives maximum power reading.
4. Repeat this process a few times to fine tune the transmitter.

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