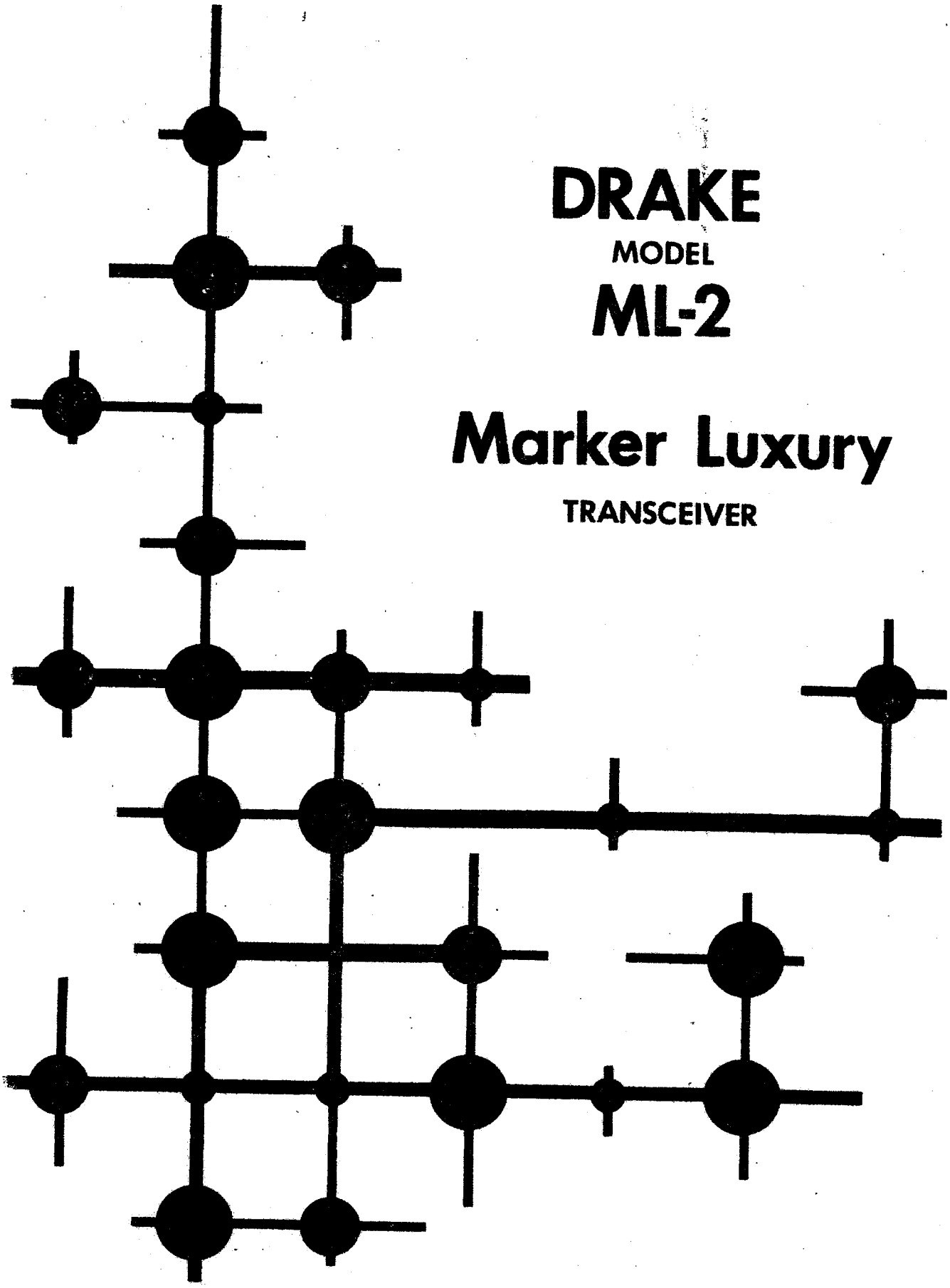


DRAKE

MODEL

ML-2

Marker Luxury

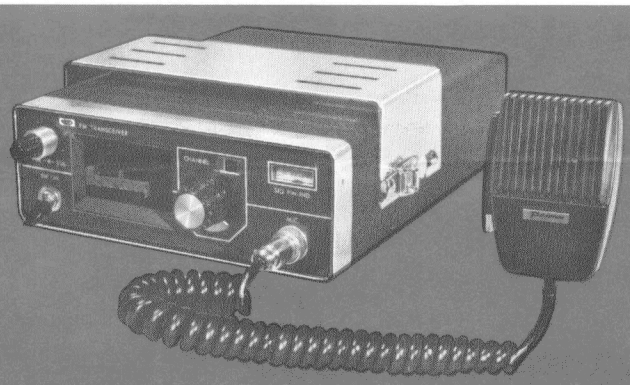
TRANSCEIVER

Instruction Manual

At last—Drake quality in a **VHF FM Transceiver**

DRAKE

Marker Luxury



The best of the Japanese, the Marker Luxury VHF FM Transceiver is built for and distributed and backed by the R. L. Drake Co.

- **Exceptional receiver**
- **Backed by R. L. Drake**
- **Complete package for . . .**

$329.95

Includes transceiver, two channels supplied, mobile mount, micro phone, coax cable, Hustler antenna, and built-in AC-DC power supply.

SPECIFICATIONS

General

Frequency Coverage	144-148 MHz
Number of Channels	12 Channels, 2 supplied Channel 1 Receive 146.94 MHz Transmit 146.34 MHz Channel 2 Simplex 146.94 MHz
Modulation	Frequency Modulation
Transmitter Control	Push-to-Talk
Power Drain	AC: Receive 6 Watts Transmit 50 Watts DC: Receive 0.5 Amps Transmit 4 Amps
Power Source (Built-in)	AC: 117 Volts 50-60 Hz DC: 13.5 Volts ± 10%.
Dimensions	7⅞" W x 2¾" H x 10¼" D.
Weight	8¼ lbs.
Standard Accessories	Dynamic Microphone, Hustler Antenna, Antenna Connector Plug, AC/DC Cord, Speaker Plug.

Transmitter—transistorized with 6360 output tube

RF Output Power	Greater than 10 Watts
Frequency Deviation	Adjustable to 15 kHz maximum
Frequency Stability	±.001% or less
Spurious Radiation	Greater than —80 dB below Carrier
Output impedance	50 ohms

Receiver — completely transistorized

Receiver Circuit	Crystal-controlled Double Conversion Superheterodyne
Intermediate Frequencies	1st 10.7 MHz, 2nd 455 kHz
Input Impedance	50 to 75 Ohms
Sensitivity	0.5 μV or less for 20 dB quieting. 1 μV or less (30 dB S+N/N ratio at 10 kHz deviation with 1 kHz modulation)
Spurious Sensitivity	Greater than —60 dB.
Audio Output	0.5 Watt with 10% or less distortion.

See at your distributor, or write for details . . .

R. L. DRAKE COMPANY

540 RICHARD ST., MIAMISBURG, OHIO 45342

ML-2 MARKER LUXURY TRANSCEIVER

1. GENERAL DESCRIPTION

1.1 FEATURES

The ML-2 is a 2 meter VHF - FM Transceiver with a capacity for 12 channels and will operate from either 120 VAC 50 - 60 Hz or 13.5 VDC.

1.2 SPECIFICATIONS

1.2.1 GENERAL

Frequency Coverage: 144 - 148 MHz
Completely transistorized with a 6360 PA tube.

Number of Channels: 12 channels, 3 supplied.

	Channel 1	Channel 2	Channel 3
Receive:	146.94 MHz	----------	146.76 MHz
Transmit:	146.34 MHz	----------	146.34 MHz
Simplex:	----------	146.94 MHz	----------

Modulation: Frequency Modulation

Transmitter Control: Push-to-talk

Power Drain:

	A.C.	D.C.
Receive:	6 watts	0.5 amps
Transmit:	50 watts	4.0 amps

Power Source:

A.C.	120 Volts, 50 - 60 Hz.
D.C.	13.5 Volts, ± 10%

Dimensions: 7-7/8" W x 2-3/4" H x 10-1/4" D

Weight: 8-1/4 pounds.

Accessories Supplied:
Dynamic Microphone,
Antenna,
Antenna Connector Plug,
AC/DC Power Cord,
Speaker Plug,
Mobile Mounting Bracket.

1.2.2 RECEIVER

Receiver Circuit:	Completely transistorized crystal controlled double conversion superheterodyne.
1st I.F. Frequency:	10.7 MHz
2nd I.F. Frequency:	455 kHz
Antenna Input Impedance:	50 to 75 ohms
Sensitivity:	0.5 microvolt or less for 20 dB quieting. 1 microvolt or less (30 dB S + N/N ratio at 10 kHz deviation with 1 kHz modulation.
Spurious Sensitivity:	Greater than - 60 dB
Audio Output:	0.5 watt at 10% or less distortion

1.2.3 TRANSMITTER

RF Output Power:	10 watts conservative
Frequency Deviation:	Adjustable to 15 kHz maximum. Factory set to 5 kHz
Frequency Stability:	± .001% or less.
Spurious Radiation:	Greater than - 80 dB below carrier.

2. INSTALLATION

2.1 UNPACKING

Carefully remove the Marker Luxury Transceiver from its carton and examine it closely for signs of shipping damage. Should any be apparent, notify the delivering carrier immediately stating the full extent of the damage. Fill out and mail the enclosed registration card so your warranty will be effective. Save the packing material. You may need it later for reshipment or storage.

Inspect the packing material closely before putting it away to be sure you have not overlooked the accessories packed with the unit.

2.2 LOCATION

In general, the location of the Marker Luxury is not critical. However, care should be taken to insure that space is provided around the unit to allow adequate air circulation. Extremely hot locations, such as near radiators or heating units, should be avoided. DO NOT cover the top of the unit with books, papers or pieces of equipment or overheating may result.

2.3 ANTENNA REQUIREMENTS

The Marker Luxury Transceiver is designed for use with antennas resonant on the operating frequency and having an impedance of 50 ohms. The antenna we supply must be adjusted to the operating frequency. Tools and a chart are supplied for this adjustment.

The antenna can be adjusted most accurately with a Drake WV-4 Wattmeter in the transmission line. With the WV-4 Wattmeter in the line, adjust the length of the antenna for minimum reverse power reading.

2.4 VERTICAL ANTENNAS

Vertical antennas without their ground planes should not be used with the ML-2. Omission of the ground plane causes excessive RF ground current on the ML-2 case resulting in RF feedback and reports of hum on the ML-2 transmitted signal.

2.5 POWER REQUIREMENTS

The Marker Luxury Transceiver is factory wired for use with 120 volts 50 - 60 Hz and 13.5 volts DC. For use on 120 volts, insert the power connector with the line cord attached, into the power plug on the rear of the transceiver. For use with 13.5 volts DC, insert the power connector with the red and black wires attached, into the power plug on the rear of the transceiver. The red wire is the positive lead and the black wire negative. The fuse in the positive lead has a value of 6 amperes. The 120 volt fuse has a value of 2 amperes.

2.6 SPEAKER AND HEADPHONE REQUIREMENTS

The Marker Luxury Transceiver has a built-in speaker. An external 8 ohm headphone or speaker may be plugged into the miniature phone jack on the rear of the transceiver chassis next to the R.F. output connector. Plugging an external speaker or headphone into this jack turns off the built-in speaker.

2.7 MICROPHONE REQUIREMENTS

A 500 ohm dynamic microphone with a push-to-talk switch is supplied with the Marker Luxury Transceiver. A carbon microphone may be used with the transceiver and connection to the microphone plug is shown in the schematic.

3. CONTROL FUNCTIONS

3.1 FRONT PANEL CONTROLS

3.1.1 ON-OFF SWITCH

The ON-OFF switch is a toggle switch in the left bottom of the front panel and turns the transceiver on when the switch lever is in the up position.

3.1.2 VOLUME

The AUDIO GAIN control is the inner knob of the concentric controls at the left top of the front panel. Clockwise rotation of this control increases audio gain.

3.1.3 SQUELCH

The SQUELCH control is the outer knob of the left top concentric front panel controls. Clockwise rotation increases the signal level required to defeat the squelch circuit and allow reception.

3.1.4 CHANNEL SELECTOR

The knob in the center of the front panel selects one of twelve possible transmit and receive crystal pairs.

3.2 INTERNAL CONTROLS

3.2.1 DEVIATION CONTROL

With the cover removed and front panel facing you, the transmitter circuit board is visible looking into the top of the transceiver. The final amplifier tube and relay are also exposed. The deviation control is the trimmer resistor at the right rear of the transmitter circuit board . This control is set by ourselves to 5 kHz deviation. Greater deviation than this can be obtained by counter-clockwise rotation of this control. Use an insulated screwdriver for this adjustment. Accidental connection between the deviation control and ground will destroy IC 201.

3.2.2 TRANSMITTER FREQUENCY ADJUSTMENT

With the front panel facing you and looking into the top of the transceiver, the transmitter crystals correspond to the channel numbers and are numbered right to left, 1 through 12. There are two banks of trimmer capacitors for frequency adjustment. The row closest to the front panel adjusts even numbered crystals right to left, 2 through 12. The row next to the sockets adjust odd numbered crystals right to left, 1 through 11.

3.2.3 RECEIVER FREQUENCY ADJUSTMENT

With the front panel facing you and looking into the bottom of the transceiver, the receiver crystals correspond to the channel numbers and are numbered right to left, 1 through 12. There are two banks of trimmer inductors for fre-

quency adjustment. The row closest to the front panel adjusts odd numbered crystals right to left, 1 through 11. The row next to the crystal sockets adjust even numbered crystals right to left, 2 through 12. The slugs are anchored with wax. Before adjusting the slugs, carefully melt the wax out of the coil.

The discriminator output for setting the receiver frequency is available at a terminal lug on the receiver circuit board. With the front panel facing you and the ML-2 upside down, the discriminator terminal is the far right lug on the circuit board edge closest to the front panel. This lug has nothing connected to it. Ground for a voltmeter connected to this lug is most convenient at the heat sink of the audio output transistors near the discriminator terminal.

Note that all circuit board grounds are NOT connected to the ML-2 chassis.

3.2.4 S-METER SENSITIVITY ADJUSTMENT

The S-METER response sensitivity is determined by the trim pot at the right rear of the receiver circuit board. The receiver board is the bottom front board in the transceiver.

3.2.5 RELATIVE RF OUTPUT METER ADJUSTMENT

The RELATIVE RF OUTPUT METER sensitivity is determined by the trim pot at the right rear of the power supply board. The power supply board is the bottom rear board in the transceiver.

4. CRYSTAL ORDERING INFORMATION

Accessory channel crystals may be ordered from the R. L. Drake Company. To order, specify the desired receive and transmitting frequency.

If you desire to order crystals from another source, the following information should accompany your order.

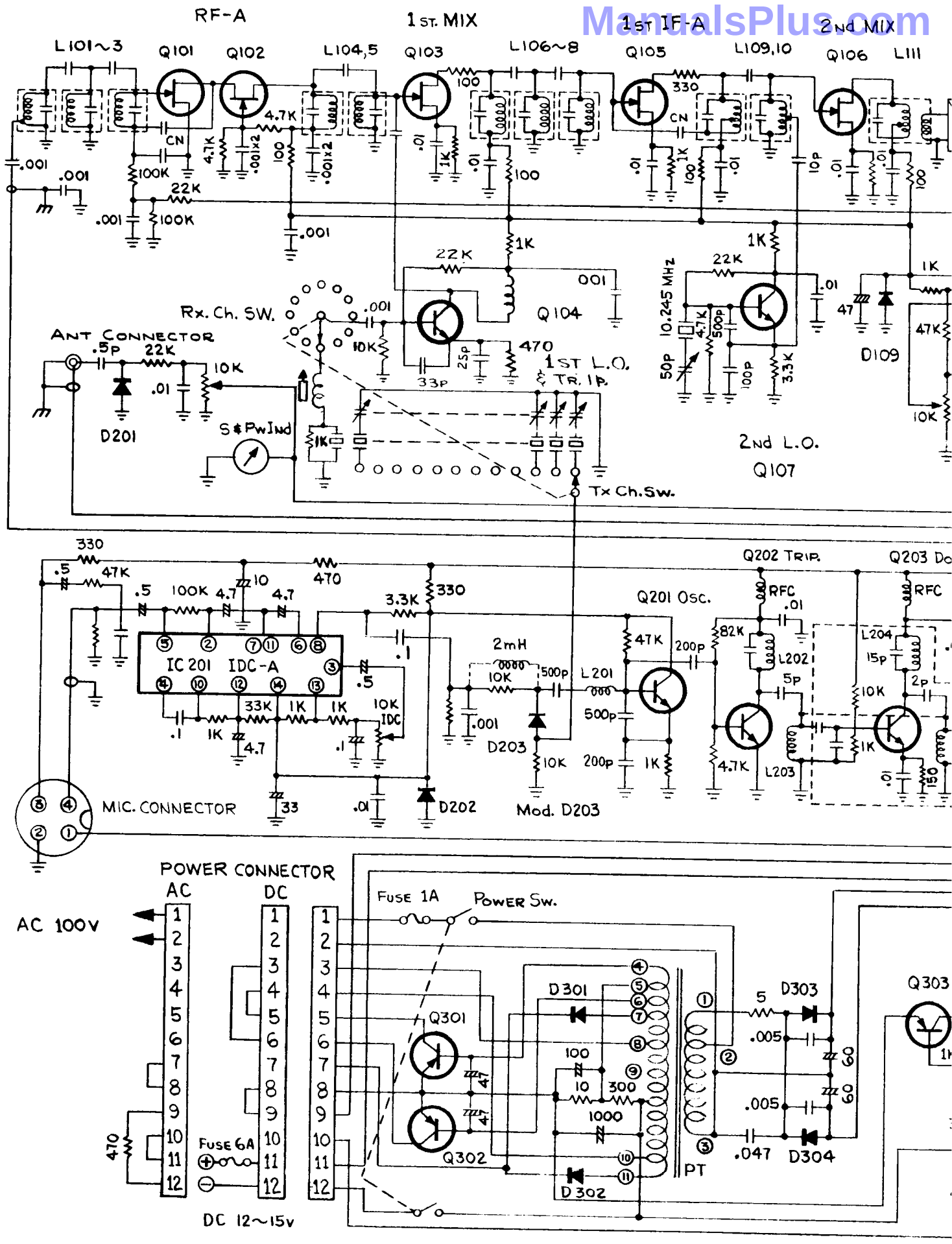
TRANSMIT CRYSTALS:
Fundamental mode parallel resonant with 30 pF load capacity in HC-25/U holder. Divide transmit frequency by 12 to obtain crystal frequency.

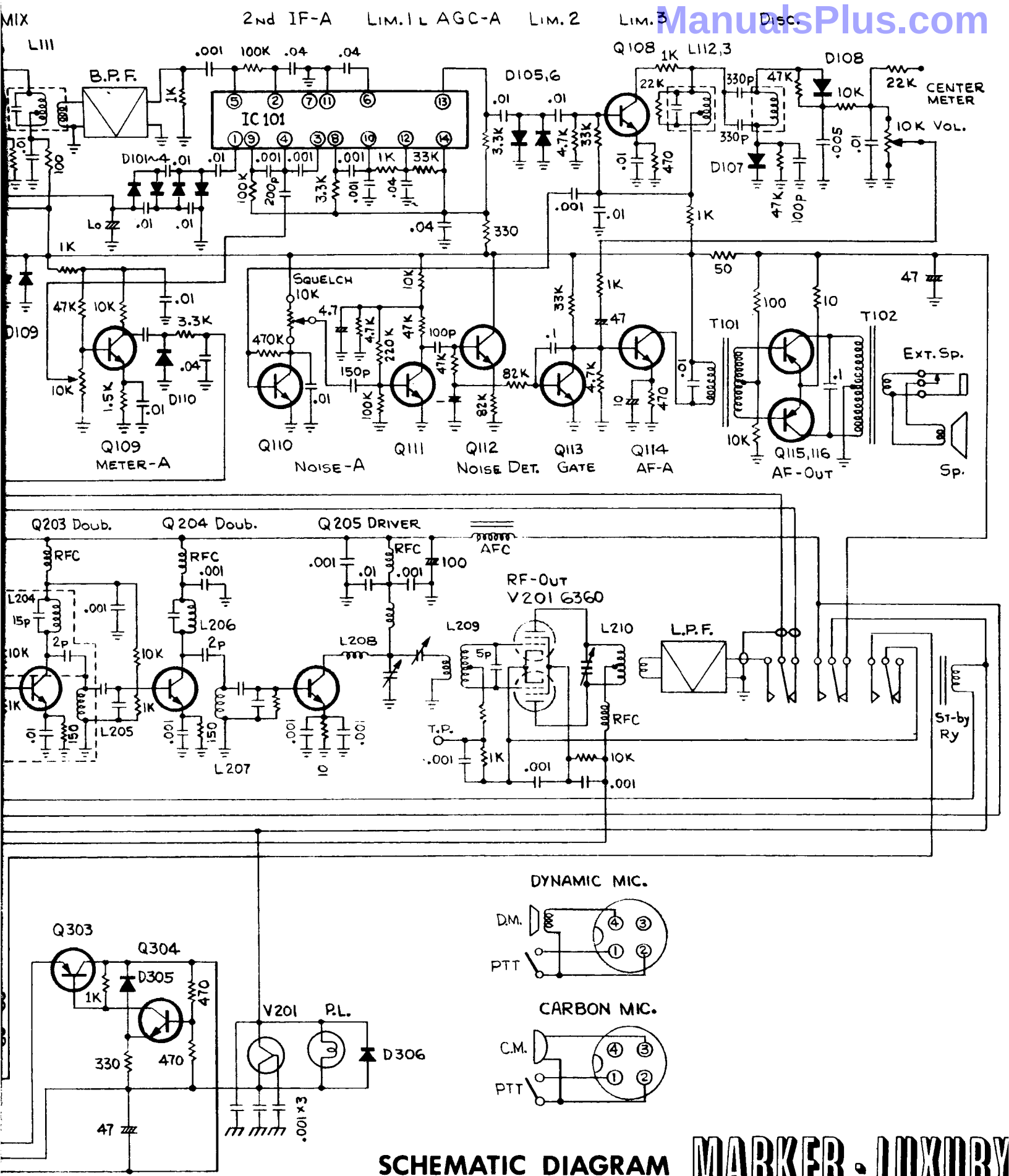
RECEIVE CRYSTALS:
Overtone mode series resonant in HC-25/U holder.
Subtract receive frequency by 10.694 MHz and divide by 3 to obtain crystal frequency.

5. TROUBLE SHOOTING

Careful consideration has been given to the design and testing of the ML-2 to keeping maintenance problems to a minimum. If you experience difficulty, we recommend that you return the unit to your Drake dealer or write direct to our Customer Service Department describing your problem in detail.

DO NOT RETURN EQUIPMENT TO THE FACTORY WITHOUT PRIOR AUTHORIZATION.





SCHEMATIC DIAGRAM MARKER - LUXURY

R. L. DRAKE COMPANY – Miamisburg, Ohio NO. 1113701596