

2 GREAT HF TRANSCEIVERS



MODEL 540



MODEL 544



TEN-TEC

The Transceiver of Tomorrow - Today!

TEN-TEC 540/544 Transceivers

SOLID STATE IS ONLY THE BEGINNING...

The revolution in Amateur Radio equipment started five years ago with the TEN-TEC Model 405, 100 watt HF amplifier. It has culminated in these two great 540/544 transceivers. There are many reasons.

One, the life of semiconductors is extremely long when operated correctly, so the transceiver will be permanently "in specs".

Two, no longer does the bulk, weight and internal heat restrict the design for maximum performance and operating convenience.

Three, the low impedance circuits allow efficient broadband coupling, eliminating tedious tune-up and component damage usually associated with off-resonance.

Four, there are no high dc voltages to cause shock or prematurely break down insulation and components.

And five, the basic value of your investment is retained over the years ahead. Not only providing high resale value but insuring readily obtainable replacement parts if needed. More than two thousand are delighting owners in nearly every country in the world.

SUPERLATIVE RECEIVER

The receiving section is characterized by extremely low internal noise, excellent dynamic range and high selectivity. Low impedance transistor circuits and the lack of ac filament requirements completely remove traces of hum. An eight pole crystal lattice filter provides razor sharp selectivity and careful rf amplifier and mixer design reduces overload from nearby Amateur or commercial signals. In addition, the optional two position 150 Hz wide cw filter optimizes cw reception.

A heterodyne crystal mixed VFO, built under laboratory control, insures rock-like stability, essential for net operation. One kilohertz dial markings on Model 540 provide accurate frequency determination and the six digit readout on Model 544 displays frequency to hundreds of hertz.

An offset control with light emitting diode (LED) indicator allows the operator to tune the receiver independently of the transmitter through approximately a ten kilohertz range. This feature is most effective when working in nets or roundtables and in DX work.

Audio distortion is held below 2%. This not only provides higher listening quality and lower fatigue, but virtually eliminates intermodulation "difference tones". The speaker is mounted on the bottom so that it drives the air column between the table top and bottom plate when the snap-up legs are extended. Thus it becomes a compression driver, greatly enhancing efficiency and quality.

STATE-OF-THE-ART TRANSMITTER

A total solid state transmitter offers many advantages over the older tube types. The push-pull output stage runs a cool, conservative 200 watts input on all bands with excel-

lent efficiency. Heat dissipation is **outside** of the case. All components run at low impedance, amplification is uniform, so there is no need to manually resonate the circuits for each band. To move frequency or change bands, merely turn to the desired frequency. No danger of off-resonance damage, even with the wrong antenna. The 100% duty cycle capability is ideal for RTTY and SSTV.

An Automatic Level Control (ALC) sets the power level at which ALC starts. With this innovation, the output power is held to that which is needed to precisely drive a high power linear amplifier or to maintain acceptable performance when feeding an antenna with excessive SWR. A LED indicates when the ALC region is reached.

Full cw break-in is a new and exciting experience. It turns monologues into conversation, eliminates useless calling, and enhances the pleasure of all cw QSOs. Cw sidetone is variable in both pitch and volume. The controls are accessible through an opening in the bottom cover.

Both ssb and cw signals are clean, smooth and highly articulate. Speech is wholly natural and conveys the personality of the operator. Cw is pleasant to copy even at high speed.

MODERN CONSTRUCTION

Pound for pound or cubic inch for cubic inch, nothing performs as the 540/544. Integrated circuits, transistors and diodes allow freedom in design and application. Circuit boards, with a few exceptions, are plug-in for easy servicing.

The case, made of aluminum and high impact plastic, are not needed for strength or shielding as in the past. These are built into the chassis where they belong. The 540/544 are designed for rough handling — fixed, portable or mobile.

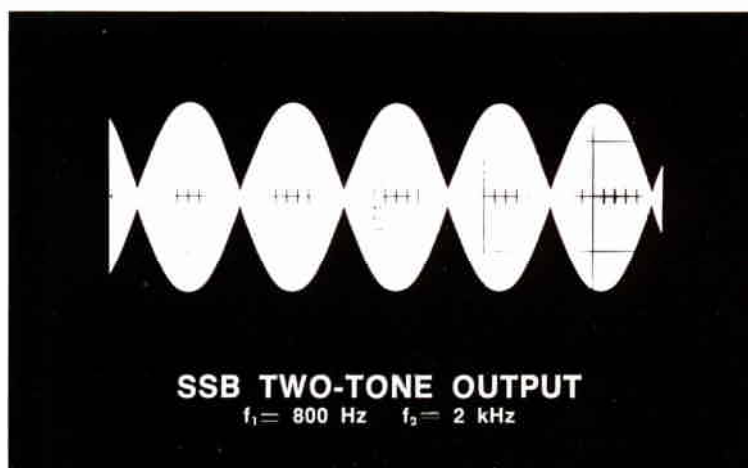
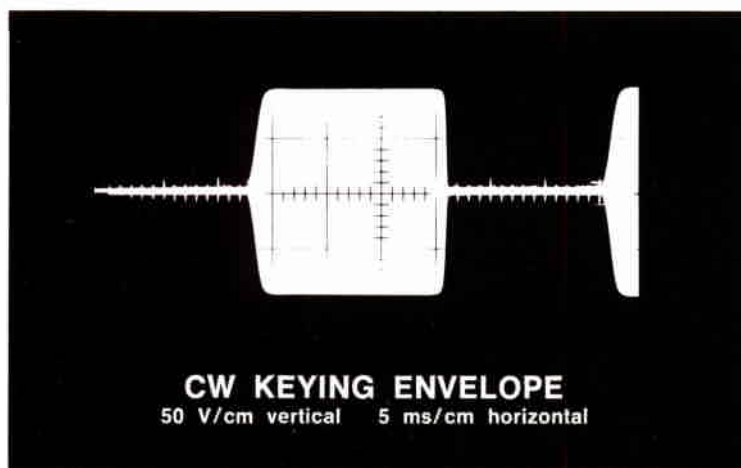
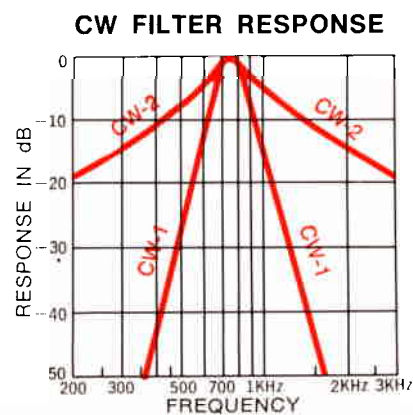
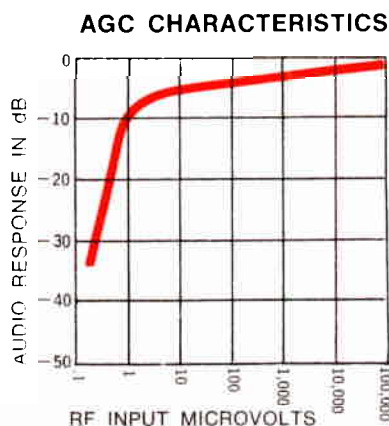
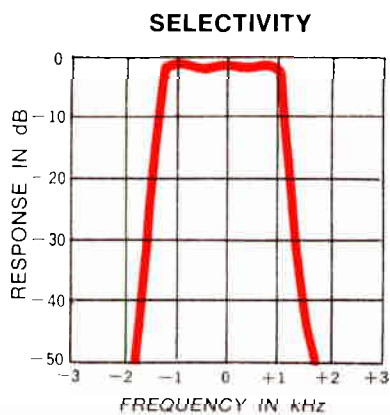
Then, too, size and shape are ideal for station lay-out. Room is available on the operating desk for necessary aids, even in restricted quarters.

Power supplies are separate. This not only eliminates ac from the transceiver but removes the dead weight for mobile operation. Also, in many operating locations, it is desirable to mount the supply below the operating desk.

A REASSURING WORD ABOUT SERVICE

Field service is usually accomplished with the exchange of a plug-in circuit assembly. A call or letter, giving details, will indicate which circuit is probably at fault, and a replacement board will likely be sent. Some subassemblies, such as the VFO, rack tuned rf amplifier and output filters, are not field replaceable. If out of warranty, a modest repair charge will be billed.

Output transistors, because of their high cost, are covered under a five year pro-rata warranty. There is no charge during the first year, \$12.00 each between 1-2 years, \$15.00 each between 2-3 years and \$18.00 each between 3-5 years, labor not included.



(Unpublished photographs reduced in size)

SPECIFICATIONS

GENERAL

Frequency bands: 3.5-4.0, 7.0-7.5, 14.0-14.5, 21.0-21.5, 28.0-28.5, 28.5-29.0, 29.0-29.5, 29.5-30.0 MHz. Ten meter crystals furnished for 28.0-29.0 MHz. All circuits permeability tuned. Tuning vernier 25 kHz per revolution, typical. 9 MHz i-f filter, 8 pole crystal lattice. Direct frequency readout: [Model 540 — slide rule, color coded dial indicates 100 kHz segment, dial skirt increment to 1 kHz. Accuracy ± 1 kHz from nearest 25 kHz calibration point. 25 kHz pulsed calibrator. Model 544 — six digit, 0.43" high LED numerals. Least significant digit indicating 100 Hz green, all others red. Accuracy ± 100 Hz. No calibrator in this model.] Automatic sideband selection, reversible. VFO frequency stability: Less than 15 Hz change per F° , averaged over a 40° change from 70° to 110° , after 30 minute warmup. Less than 10 Hz change from 105 to 125 VAC line voltage when using TEN-TEC power supply. Power required: [Model 540 — 12-14 VDC, 500 mA receive, 1.8 A maximum transmit. Model 544 — 12-14 VDC, 1 A receive, 18.5 A maximum transmit.] Modular construction: [Model 540 — 10 plug-in assemblies and 7 fixed circuit boards. Model 544 — 10 plug-in assemblies and 9 fixed circuit boards.] Semiconductors: [Model 540 — 47 transistors, 33 diodes, 11 ICs. Model 544 — 65 transistors, 38 diodes, 14 ICs, 1 LSI, 6 LED displays.] Power switch remotely controls

power supply. Snap-up front feet. Construction: Rigid aluminum chassis, sub-panels, top and bottom. Cyclocac plastic side panels. Finish: Etched aluminum panel, textured black top and sides. Size $4\frac{1}{2} \times 13\frac{5}{8} \times 13$ ". Net weight: 12 lbs.

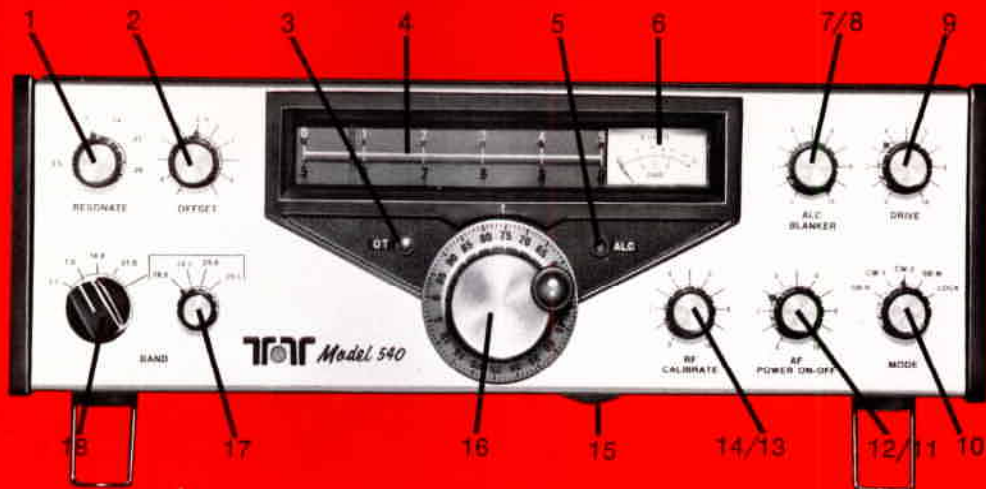
RECEIVER

Mosfet rf amplifier. Preselector resonate control. 0.3 μV for 10 dB $S+N/N$. 2.6 kHz band width, 1.8 shape factor at 6/60 dB points. AGC controlled by rf gain control. Meter automatically switched to "S" meter when receiving. Offset tuning with defeat switch and LED indicator. Built-in speaker in bottom. External speaker/phone jack. Less than 2% audio distortion. WWV reception at 10 and 15 MHz. CW filter (optional), 150 Hz wide, two positions, shape factor 7.2 @ 6/60 dB.

TRANSMITTER

200 watts input, ssb and cw. 100% duty cycle. Instant band change, no tune-up required. 8 pole ssb filter. Automatic Level Control on front panel. LED indicator shows operation in ALC region. CW sidetone fed into audio amplifier when in cw mode. Sidetone adjustable for tone and volume. Automatic cw offset of 750 Hz. Press-to-talk. Meter indicates SWR when transmitting. High impedance microphone input. Rf output impedance 50-75 ohms, unbalanced.





MODEL 540

FRONT PANEL

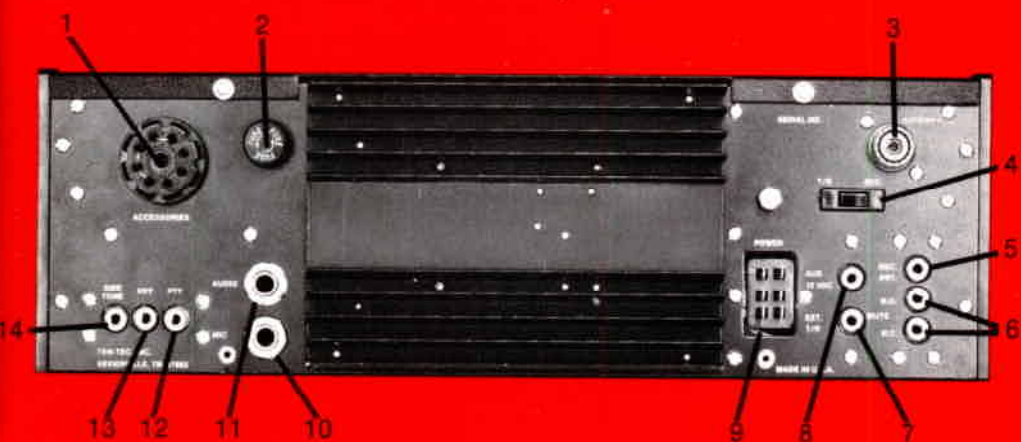
1. **RESONATE**
Receiver pre-selector.
2. **OFFSET**
Tunes receiver independently.
3. **OT LIGHT**
Indicates offset "on".
4. **DIAL SCALE**
Indicates 100 kHz segments.
5. **ALC LIGHT**
Indicates ALC region.
6. **METER**
"S" Meter/SWR bridge.
7. **ALC**
Threshold adjust.
8. **NOISE BLANKER**
Defeat switch.
9. **DRIVE**
Rf power control.
10. **MODE SWITCH**
Ssb, cw, lock.
11. **AF**
Receiver audio control.
12. **POWER ON-OFF**
Controls power supply.
13. **RF**
Receiver rf gain.
14. **CALIBRATE**
25 kHz crystal oscillator.
15. **DIAL POINTER ZERO SET**
16. **MAIN TUNING KNOB**
1 kHz readout.
17. **BAND SWITCH**
10 meter segment selector.
18. **BAND SWITCH**
Color coded to dial scale.



MODEL 544

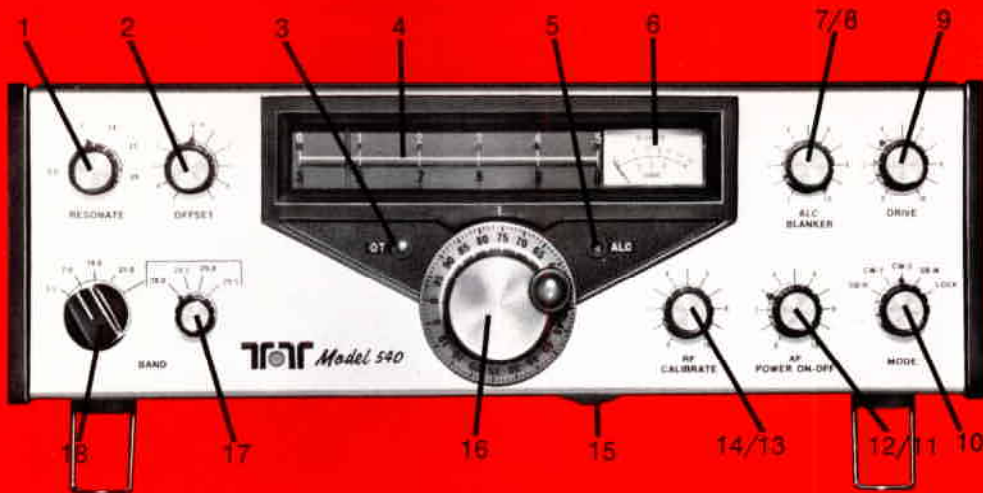
FRONT PANEL

1. **RESONATE**
Receiver pre-selector.
2. **OFFSET**
Tunes receiver independently.
3. **OT LIGHT**
Indicates offset "on".
4. **DIGITAL READOUT**
Six digits to 100 Hz.
5. **ALC LIGHT**
Indicates ALC region.
6. **METER**
"S"-Meter/SWR bridge.
7. **ALC CONTROL**
Threshold adjust.
8. **NOISE BLANKER**
On-off switch.
9. **DRIVE**
Rf power control.
10. **MODE SWITCH**
Ssb/cw/lock.
11. **AF CONTROL**
Receiver audio level.
12. **POWER ON-OFF**
Controls power supply.
13. **RF CONTROL**
Receiver rf gain.
14. **ZERO BEAT SWITCH**
CW transmitter frequency adjust.
15. **MAIN TUNING KNOB**
1 kHz markings.
16. **BAND SWITCH**
10 meter segment selector.
17. **BAND SWITCH**
Name band selector.



BACK PANEL

1. **ACCESSORIES SOCKET**
For external VFO, crystal oscillator, digital readout, 100 meter converter.
2. **FUSE**
DC line protection.
3. **ANTENNA JACK**
4. **T-R REC.**
Separate antenna switch for full break-in linear amplifiers.
5. **REC. ANT.**
Separate receiver antenna jack.
6. **MUTE**
Normally open and normally closed contacts.
7. **EXT. T/R**
Jack for external linear amplifier control.
8. **AUX. 12 VDC**
Accessory 12 volt jack.
9. **POWER**
Input power connector.
10. **MIC**
Microphone input.
11. **AUDIO**
External speaker/phones.
12. **PTT**
External press-to-talk jack.
13. **KEY**
Cw key line.
14. **SIDETONE**
Monitor out for separate receiver.



MODEL 540

FRONT PANEL

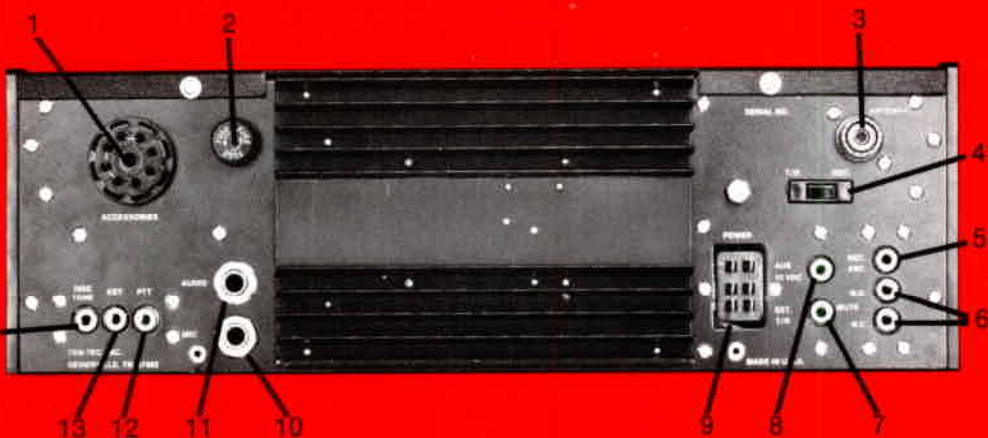
1. RESONATE Receiver pre-selector.
2. OFFSET Tunes receiver independently.
3. OT LIGHT Indicates offset "on".
4. DIAL SCALE Indicates 100 kHz segments.
5. ALC LIGHT Indicates ALC region.
6. METER "S" Meter/SWR bridge.
7. ALC Threshold adjust.
8. NOISE BLANKER Defeat switch.
9. DRIVE Rf power control.
10. MODE SWITCH Sab, cw, lock.
11. AF Receiver audio control.
12. POWER ON-OFF Controls power supply.
13. RF Receiver rf gain.
14. CALIBRATE 25 kHz crystal oscillator.
15. DIAL POINTER ZERO SET
16. MAIN TUNING KNOB 1 kHz readout.
17. BAND SWITCH 10 meter segment selector.
18. BAND SWITCH Color coded to dial scale.



MODEL 544

FRONT PANEL

1. RESONATE Receiver pre-selector.
2. OFFSET Tunes receiver independently.
3. OT LIGHT Indicates offset "on".
4. DIGITAL READOUT Six digits to 100 Hz.
5. ALC LIGHT Indicates ALC region.
6. METER "S"-Meter/SWR bridge.
7. ALC CONTROL Threshold adjust.
8. NOISE BLANKER On-off switch.
9. DRIVE Rf power control.
10. MODE SWITCH Sab/cw/lock.
11. AF CONTROL Receiver audio level.
12. POWER ON-OFF Controls power supply.
13. RF CONTROL Receiver rf gain.
14. ZERO BEAT SWITCH CW transmitter frequency adjust.
15. MAIN TUNING KNOB 1 kHz markings.
16. BAND SWITCH 10 meter segment selector.
17. BAND SWITCH Name band selector.



BACK PANEL

1. ACCESSORIES SOCKET For external VFO, crystal oscillator, digital readout, 180 meter converter.
2. FUSE DC line protection.
3. ANTENNA JACK
4. T-R REC Separate antenna switch for full break-in linear amplifiers.
5. REC. ANT Separate receiver antenna jack.
6. MUTE Normally open and normally closed contacts.
7. EXT. T/R Jack for external linear amplifier control.
8. AUX 12 VDC Accessory 12 volt jack.
9. POWER Input power connector.
10. MIC Microphone input.
11. AUDIO External speaker/phones.
12. PTT External press-to-talk jack.
13. KEY CW key line.
14. SIDETONE Monitor out for separate receiver.

540/544 Accessories

DIGITAL READOUT



MODEL 244

Plugs into the accessory socket of the Model 540. Displays transmitted and received frequencies. Can be checked and calibrated to WWV. COUNT switch position converts unit to straight 50 kHz to 22 MHz counter for other use. Housed in matching enclosure.

REMOTE VFO



MODEL 242

Duplicate of 540/544 VFO for operation on two frequencies. Switch, with LED indicators, allows selection of six possible modes: TRANSCIVER transmit and receive; REMOTE transmit and receive; TRANSCIVER transmit-REMOTE receive; REMOTE transmit-TRANSCIVER receive; TRANSCIVER transmit-both receive; REMOTE transmit-both receive. Full break-in is preserved for all modes. Two crystal positions, selected from front panel, for spot frequency or out of band use. Matching enclosure. Plugs into accessory socket on either Model 540 or 544.

ONE-SIXTY CONVERTER



MODEL 240

Provides 160 meter operation at 75% power level. In addition to using 540/544 VFO for variable transceive operation, one of two owner-selected crystal positions can be used for transmitting while the VFO is used for receiving. This is useful for listening in the DX window and transmitting outside of it. Housed in matching enclosure.

CRYSTAL OSCILLATOR



MODEL 241

Six crystal positions allow operating spot frequencies in or out of bands. Will extend range 100 kHz from 80 and 40 meter band edges and 200 kHz on remaining bands. Cannot be used with Models 242 or 244. Plugs into accessories socket. Matching enclosure.

MICROPHONE & STAND MODEL 215P



Designed for optimum articulation — free from power limiting peaks. Impervious to extremes of temperature, humidity and rough handling. Convenient as a hand-held mike yet nests in an attractive base for desk use. Four foot cable, PTT switch, stereo type phone plug and die cast base.

AC POWER SUPPLIES



MODEL 262M/262M/E



MODEL 252M/252M/E (115-230 VAC)

Fully voltage regulated to provide highly stable, pure DC (225 watts) from 117VAC. Panel DC ammeter. Instantaneous overload protection circuit prevents damage caused by excessive current drain; reset by momentary turn-off. Model 262M has, in addition, a complete VOX system. VOX controls are located on front panel. Low frequency components in voice, below cut-off frequency of speaker, actuate T/R function.

ADDITIONAL CRYSTALS

Extend ten meter coverage to 30 MHz. Model 212 29.0 to 29.5 MHz.
Model 213 29.5 to 30.0 MHz.

NOISE BLANKER MODEL 249

Plug-in PC assembly for either model. Effectively blanks most impulse noise. Blanker is inserted into receiving i-f channel. Disabling switch on front panel.

CW FILTER MODEL 245

Plug-in PC assembly consists of four active, low Q op-amps. Center frequency of 750 Hz, bandwidth of 150 Hz. Two selectivity responses available with front panel control. Shape factor of 7.2 @ 6/60 dB.

BLANK ENCLOSURES

Finished to match 540/544

MODEL	SIZE (HWD Outside)
DE-8	4-1/2" x 8-1/2" x 10-3/8"
DE-14	4-1/2" x 13-7/8" x 10-3/8"
ME-10	4-1/2" x 10-3/16" x 6-9/16"
JE-5	2-9/16" x 4-15/16" x 6"
JE-10	2-9/16" x 10-3/16" x 6"
1102	Snap-Up Legs



ANTENNA TUNER Model 247

Matches 50 ohm unbalanced output from transmitter to a variety of balanced or unbalanced antenna impedances. Popular universal Transmatch circuit with one kV capacitor spacing and 46-tap silver plated inductor (pat. pending) allows vernier adjustment up to 200 watt rf rating. Handsome enclosure matches 540/544 transceivers.

MOBILE CIRCUIT BREAKER

Model 1140. Magnetic DC circuit breaker permits 12 VDC operation of 540/544 transceivers.

COMPARE THESE 540/544 Features...

- **TOTAL SOLID STATE**
State-of-the-Art technology.
- **INSTANT BAND CHANGE**
No transmitter tune-up.
- **COVERS HAM FREQUENCIES 3.5 TO 30 MHZ**
One-sixty capability with Accessory Model 240.
- **200 WATTS INPUT — ALL BANDS**
To drive high power linears.
- **RECEIVER SENSITIVITY 0.3 μ V**
For down under signals.
- **EXCELLENT FREQUENCY STABILITY**
Individually compensated PTO.
- **EIGHT POLE CRYSTAL I.F. FILTER**
For razor sharp selectivity.
- **DIRECT FREQUENCY READOUT**
Large LED numerals or 1 kHz dial markings.
- **BUILT-IN AIR LOADED SPEAKER**
Enhanced quality and efficiency.
- **150 HZ CW FILTER, OPTIONAL**
Eliminates QRM.
- **OFFSET RECEIVER TUNING**
Prevents "leap-frogging".
- **WWV AT 10 AND 15 MHZ**
Maintains dial accuracy.
- **SEPARATE RECEIVING CAPABILITY**
Provides station flexibility.
- **AUTOMATIC SIDEBAND SELECTION, REVERSIBLE**
For faster band changes.
- **FULL CW BREAK-IN**
A real luxury.
- **TAILORED CW ENVELOPE**
For excellent cw articulation.
- **SIDETONE LEVEL AND PITCH ADJUSTMENTS**
Eliminates monotony.
- **PRE-SETABLE AUTOMATIC LEVEL CONTROL**
Optimizes output to required load.
- **100% DUTY CYCLE**
Full power for RTTY and SSTV.
- **LOW AUDIO DISTORTION**
Reduces fatigue and false cw signals.
- **"S"-METER AND SWR BRIDGE**
Electronically switched.
- **PROVISIONS FOR DRIVING ALL KW LINEARS**
Additional T/R control circuits.
- **LED INDICATORS FOR ALC AND OFFSET**
Insures proper drive.
- **PLUG-IN CIRCUIT ASSEMBLIES**
For fast, easy field service.
- **BASIC 12-14 VDC OPERATION**
Ideal for mobile or portable.
- **OPTIONAL VOX/AC POWER SUPPLY**
Eliminates need of anti-vox.
- **ZERO BEAT LOCATOR ON MODEL 544**
For on-frequency cw.
- **BROAD WARRANTY**
Insures customer satisfaction.

MANUFACTURED BY:

TEN-TEC, Inc., Sevierville, Tn. 37862
AUTHORIZED DEALER: