

 **MASTR**
PROGRESS LINE

Royal Executive



All solid-state two-way radio





You'll be glad you waited for the Royal Executive

Because, now you can get all the customer-proven benefits of GE's regular MASTR Executive Series PLUS the added benefits of an all solid-state transmitter design. And, it's available at an initial cost which can't be beat on a value-comparison basis.

Why does the Royal Executive mean economy and dependability for you?

Because the Royal Executive's new transmitter employs the latest in second-generation power transistors for the ultimate in reliability and dependability.

And because of General Electric's engineering accomplishments such as: elimination of the power supply which gives you further assurance of continuous day-in day-out performance under the most adverse conditions; circuitry that eliminates outages due to transmitter overheating; silicon transistors that insure reliable operation in temperature extremes; and regulating circuitry that automatically controls voltage variations to assure constant on-spec performance. These are just a few examples of the benefits you get with MASTR Royal Executive.

The following pages tell the Royal Executive story. A story that shows how the Royal Executive will satisfy your mobile communication needs—whatever your applications—with value-performance.

Table of contents

Introduction	2-3
MASTR Royal Executive	4-5
Features for operating convenience	6-7
Features for circuit-design reliability	8-9
Features for dependable performance	10-11
Optional features and accessories ..	12-13
Portable test set	14
Characteristics	15
Service	16



GENERAL ELECTRIC

VOLUME MONITOR

ROYAL EXECUTIVE

15 25 35 45

Solid-state

Many discriminating users demand all solid-state two-way radio design. If initial cost has delayed your decision to change over to solid-state, now is the time to investigate the GE Royal Executive.

With it you'll realize such benefits as: increased dependability through elimination of transmitter power tubes; longer car battery life because of less current drain; and, the added convenience of instant communication without tube-filament warm-up time and standby drain.

Mobile economy

The GE Royal Executive economy story doesn't stop with your initial investment. Additional economy is realized through the extra dependability of an all solid-state design—which means maximum on-the-air time with minimum downtime.

Further, if repairs are ever required, GE easy-service construction is a boon to your technician—which means you get back on the air in the shortest possible time.

Plus-performance

The new MASTR Royal Executive offers many performance-proved features which give you benefits such as:

- Consistent transmitting and receiving performance with all-transistorized circuitry.
 - No radio warm-up time—you can listen, or talk, the instant you turn it on.
 - Instant on-frequency transmission with GE's ovenless crystal circuit design.
 - Freedom to drive off highways, run over railroad tracks and bounce over curbs without fear of jarring connections loose. Royal Executive mobiles are constructed for rugged use . . . each unit withstands 5G shake testing, twice the industry standard.
 - Consistent performance at all times. Regardless of the condition of your battery, whether you are parked at a stop light or accelerating up a steep hill, your reception range remains the same due to GE's electronic voltage regulating circuitry.
- These features and many others mean reliability plus performance excellence, and make the Royal Executive your best solid-state buy.



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Features for operating convenience





The new Royal Executive two-way radio offers you the instant-on advantages of solid-state to eliminate bothersome warm-up time. To you, this means more time can be spent communicating, rather than waiting to communicate. A variety of other features combine to give you operating convenience.

A powerful 5-watt audio system is a built-in feature of the Royal Executive radio unit. Low-distortion audio at high power assures you of crisp audio sound, even under adverse noise conditions.

An electronically-locked squelch control eliminates the need for squelch adjustment and prevents potential operator misuse. In its place, a convenient monitor button lets you by-pass the locked squelch control circuit to check receiver operation. Your only adjustment is volume.

Convenient ignition-switch control offers you a choice of several operating procedures. For example, you can receive with the ignition switch locked. This permits you to park your vehicle near the job and continue to receive messages. At the same time, your transmitter is secure from unauthorized use.

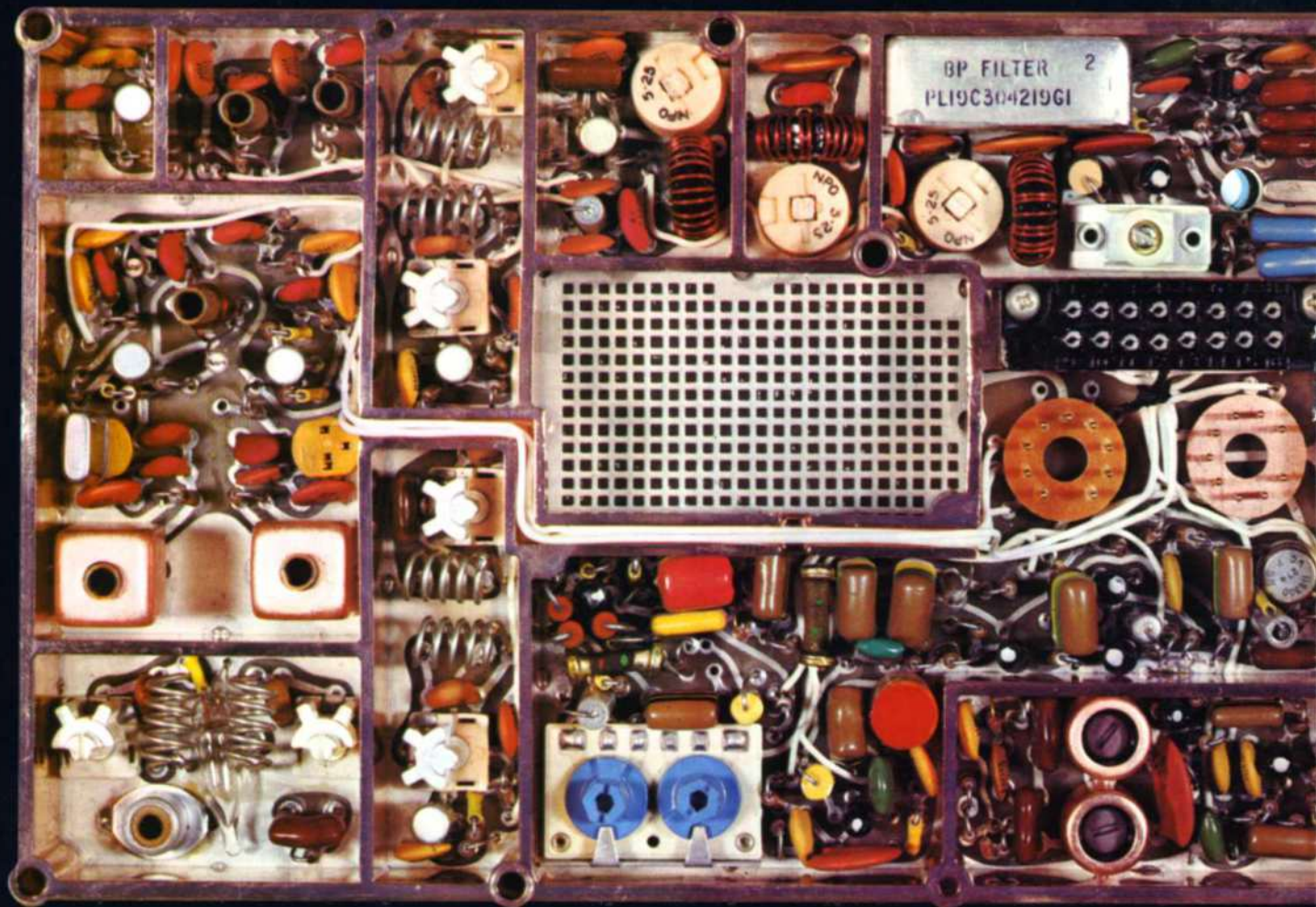
Turning the ignition switch to "on" or to the "accessory" position permits instant use of both the receiver and transmitter.

Since you can safely leave your Royal Executive on at all times, no pilot light is necessary (it would use more power than the receiver). The light behind the GE monogram serves as your "transmitter-on" indicator.

In many two-way radios, component failure means a loss of communication contact with one or more mobiles. However, the interchangeable nature of Royal Executive modules allows you to remove and replace the inoperative module in minutes with an identical module from any Royal Executive mobile in your fleet.

How? Each transmitter and receiver module has been designed to be physically and electrically interchangeable from mobile to mobile. A single receiver module and transmitter modules (exciter and amplifier) are a complete set of spares for your mobile system. Simply remove the inoperative module and plug in your spare.





Features for circuit design reliability

To combat vibration stress . . .

One of the greatest enemies of two-way radio reliability and performance is vibration. Long a companion of rough treatment, vibration can shake components loose, cause shorts and broken circuits, jar wiring connections loose, etc.

Here are the design features in the Royal Executive that will virtually eliminate your vibration problem:

- Circuits are printed on tough epoxy-glass wiring boards using plated-through hole construction rather than troublesome eyelets.
- The control head and speaker are installed with shake-proof mounting hardware.
- Interconnection cables screw-lock to the mobile unit to maintain constant electrical contact.
- Unique receiver chassis is of injection-molded, copper-plated construction for strength, solderability and electrical conductivity.
- The entire mobile is enclosed in a rugged frame which holds the unit in rattle-free, front to back compression.

These value-performance features give the MAS Progress Line Royal Executive mobile units the ability to withstand severe, 5G vibration—twice the industry standard.



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To combat heat problems . . .

Another great enemy of two-way radios is heat. Heat generated during long operating periods, heat from soldering during maintenance, or high ambient heat can cause off-frequency operation, reduced receiver sensitivity, lowered transmitter efficiency and damage to circuit components.

A few of the many features used by the MASTR Royal Executive to combat heat are:

All solid-state design eliminates heat build-up due to tube filaments.

Silicon transistors used throughout the receiver and transmitter assure you of safe operation even beyond the unit's 140°F rating with a high degree of reliability.

A drip-proof, sealed case acts as a heat sink, allowing operational heat to escape while keeping out water, dirt and dust.

Elimination of crystal ovens excludes one of the greatest heat producers.

To combat transistor failure . . .

In first-generation all-solid-state transmitter designs, a frequent source of down-time was the failure of power transistors due to antenna mismatch, feed-line breaks, excessive heat rise, or accidental shorts while on the service bench. To solve this problem, GE engineers designed a unique sensing and control network—not too unlike a computer in its actions—for the MASTR Royal Executive. Here's what it does:

The control network senses the possible effects of such problems as a shorted antenna; a too-high ambient temperature; a sudden rise in battery voltage; or even a direct circuit short. If the foreseeable effect is liable to cause transistor failure, the control circuit instantly responds in one of two ways.

High-speed potentially damaging effects—such as those due to a shorted supply bus, for example—cause the control network to immediately cut off all the voltage supply to the transmitter. Further, the control network will not permit voltage to be re-applied until the short is removed. In the case of slower-speed effects—such as possibly dangerous heat build-up—the control network reduces the supply voltage to the transmitter, but only to the degree necessary to avoid transistor damage. The transmitter remains operational, with an RF power output which is as high as possible without endangering the transistors.

This assures you maximum communication range, even under adverse conditions. The transistors operate at peak performance, under perfect control.



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Features for dependable performance

Constant voltage supplied for top-quality performance

An important factor in top-quality performance of any two-way radio is a constant voltage source. Variations in your vehicle's battery voltage—depending on motor speed, battery charge, generator output and the setting of the voltage regulator—can cause performance changes. These changes, which you may not be aware of, can throw your unit off frequency, cause your receiver to lose range (sensitivity), and even affect transmitter performance.

To offset this problem, the Royal Executive incorporates electronic voltage regulating circuits. Here's how they work.

First, the circuitry was designed to perform best at a single value of voltage supply. Then the regulating circuitry was applied to convert automatically and instantaneously, any variation in voltage to the one value at which the Royal Executive operates best. Result? Royal Executive circuits enjoy a constant, steady voltage, assuring on-spec performance despite typical variations in your electrical system performance.

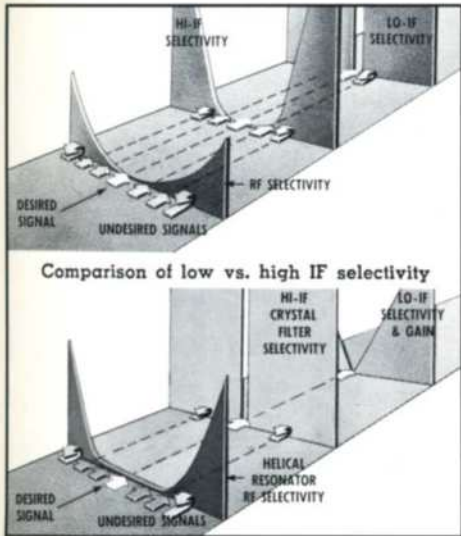
Precise frequency maintained from the moment you turn your set on

Equally important to performance is the on-frequency operation demanded by the FCC. To meet the precise tolerances imposed by the FCC, the Royal Executive uses General Electric precision-made quartz crystals. With the combination of GE built crystals and exclusive voltage regulating circuitry, the Royal Executive delivers the high degree of frequency stability required.

Message chopping eliminated with improved squelch circuit

Message continuity is retained in areas of low signal level with MASTR Royal Executive's improved "flutterlock" squelch circuit. Once opened, the squelch circuit does not close until the incoming signal has dropped to a completely unintelligible level. Thus, message chopping is eliminated during signal flutter or fading.





High IF Selectivity Control reduces adjacent channel interference

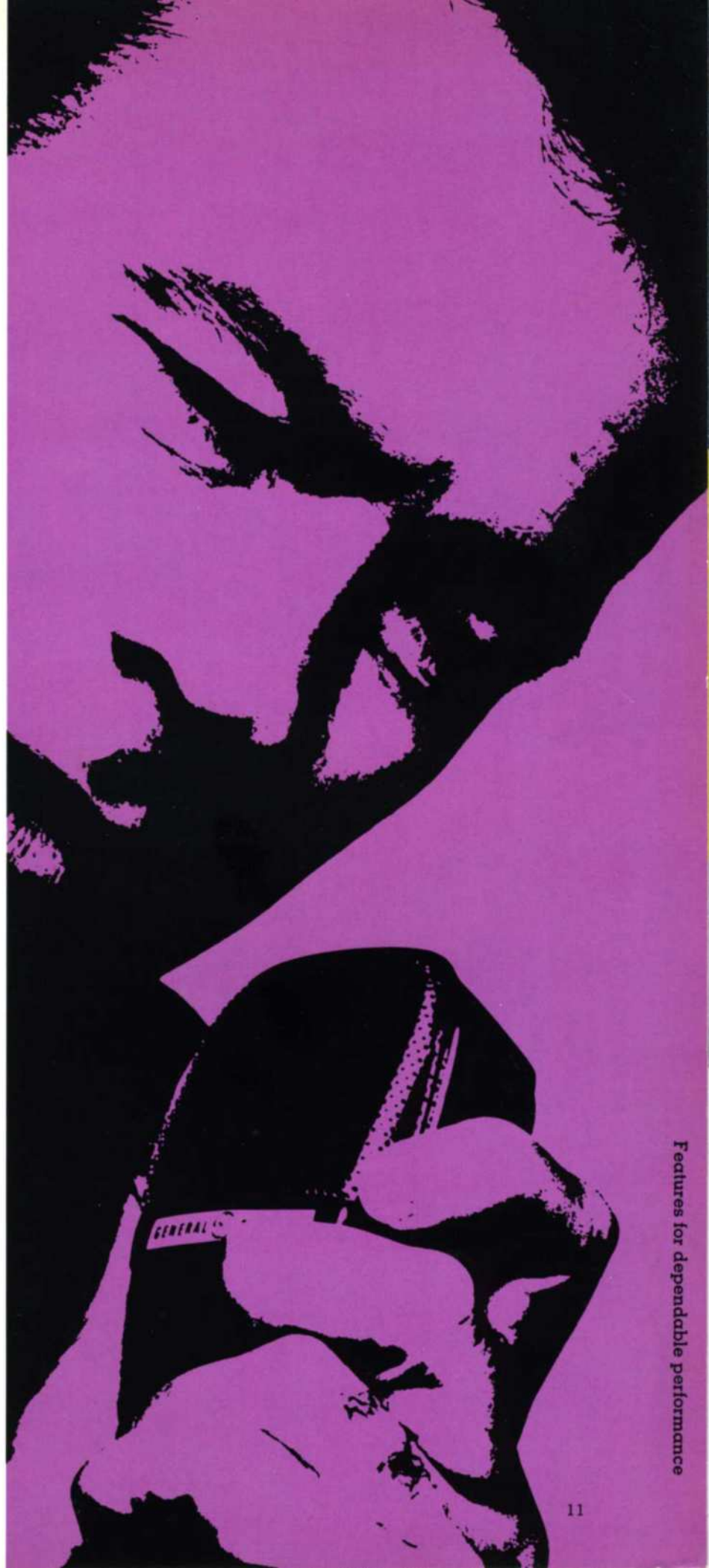
The MASTR Royal Executive has a hermetically sealed crystal filter to select the desired channel signals and reject adjacent ones. As shown in the diagram above, the crucial selectivity circuitry has been moved up front from the low IF to the high IF to give you maximum protection against desensitization by strong adjacent channel signals.

Metering and tuning points centralized for easy access

All metering and tuning points are in full view on both Royal Executive transmitters and receivers the second you lift the covers. No more bothersome hunting around. And furthermore, no netting switch is required since netting is automatic.

Cable plugs lock in place—no communications drop-out

No matter how rough you treat your MASTR Royal Executive, you won't have a loss of communication from a cable plug shaking loose at the radio set, because the cable plug is secured with a locking screw.



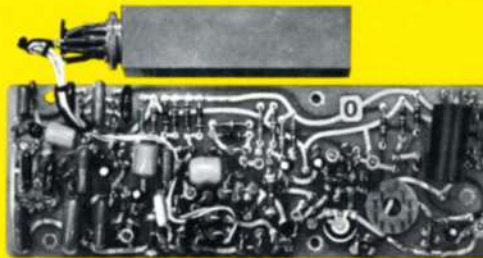
Features for dependable performance

Optional features and accessories to satisfy your mobile communication needs



Noise Blanker overcomes bothersome ignition noise

The low-band Royal Executive can be equipped with a Noise Blanker to overcome the nuisance of auto ignition noise while providing added range and signal clarity.



Channel Guard mutes nuisance chatter

General Electric's solid-state Channel Guard allows you to cut out bothersome conversations from others sharing your channel. For the courteous user of the air ways, a convenient pushbutton, mounted on the control head, allows monitoring of the channel before transmitting.



External speakers permit working outside the vehicle

You can hear incoming messages more easily with either of two available speaker options. The first allows you to window mount your standard 5-watt speaker. The second gives you an external horn-type speaker with an accompanying internal/external speaker switch.



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Selectivity of calls through GE tone equipment

GE Type 90 and 99 pulse tone encoding and decoding equipment enables you to perform such functions as selectively signalling your mobiles, establishing privacy of calls within your system, or performing many other types of control functions.

Telephone handset permits personal conversations

To make your radio conversations personal, a telephone handset to replace your microphone is available with your mobile unit. The unit's speaker can be turned on or off as desired.

Transmit and/or receive on four frequencies

The MASTR Executive offers four-frequency transmit and/or receive. Two, three or four-frequency operation is a standard option not requiring costly modifications.

Power Call and Power Call/Siren

Power Call amplifies messages loud enough to be heard a considerable distance from your vehicle. Also, a simple twist of the selector knob converts your amplifier into a powerful public address system, using the standard mobile microphone.

The Power Call/Siren is also available for those who are authorized to use it. This amplifier offers a choice of six operating modes—two for voice and four for siren signals.

Carrier-Control Timer prevents channel tie-up

A microphone tossed carelessly on the car seat could inadvertently put a mobile transmitter on the air continuously—thus tying-up your whole radio system. To prevent this, the GE Carrier-Control Timer limits a single transmission to a predetermined interval which is adjustable from 30 seconds to three minutes.

When the timer cuts off the offending transmitter, a signal tone is emitted from the speaker to alert the operator. Releasing the push-to-talk microphone button resets the timer and restores the system to normal operation.

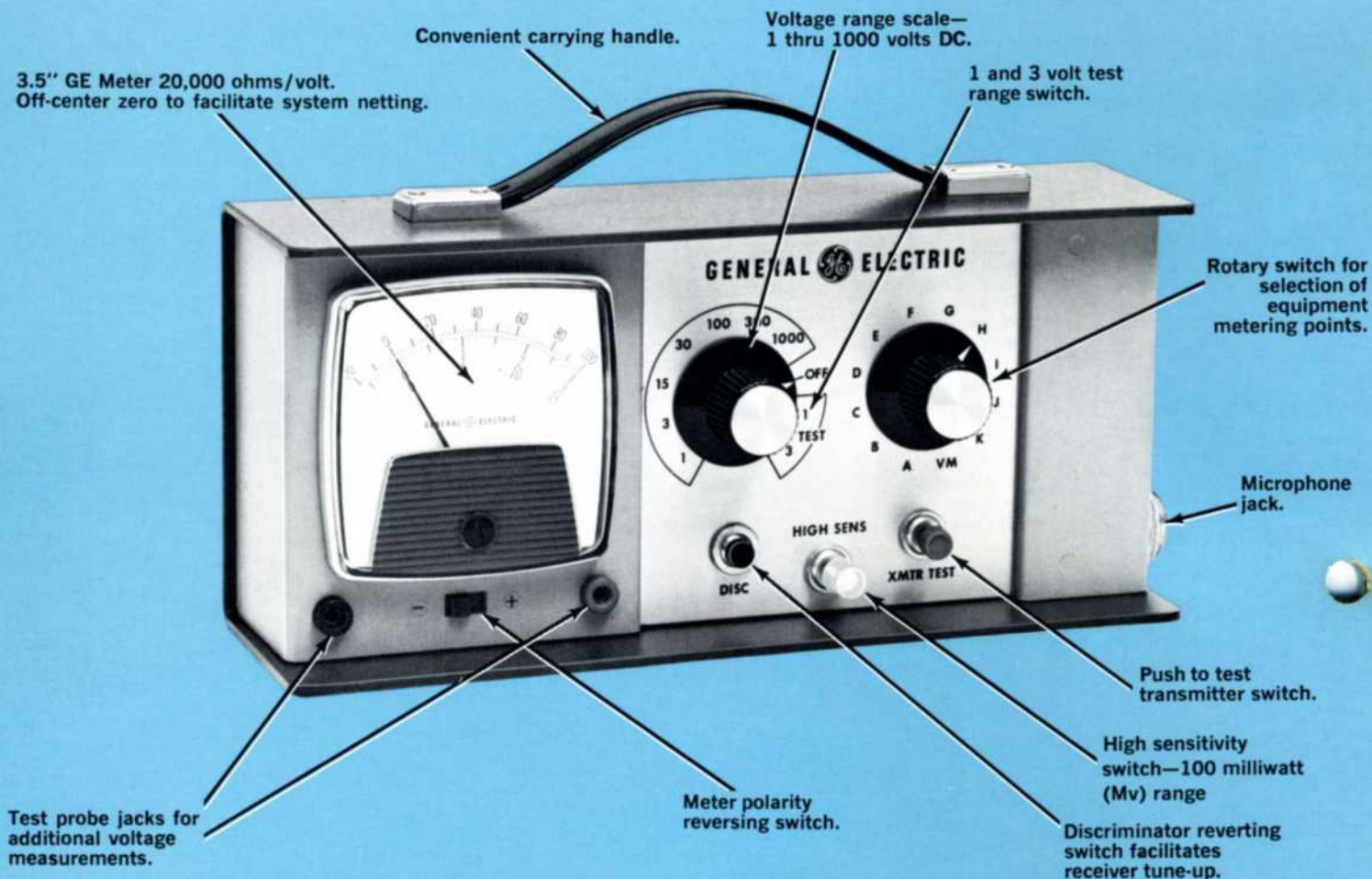
The General Electric TM-11 Portable Test Set is designed to provide an easy, fast method of tuning and trouble shooting for your MASTR Progress Line mobile equipment.

Your TM-11 allows you to perform all routine checks without special meters. You no longer need two meters to speed the job of aligning a receiver. By simply

pushing the discriminator revert button, you instantly switch your meter back to the discriminator position.

Since this is an off-center zero meter you have the advantages of a zero-center meter for discriminator measurements while preserving maximum scale lengths, and maximum accuracy for all other measurements. The audio jacks provide

a convenient place for you to connect an audio oscillator for setting up transmitter modulation, and to connect an audio voltmeter or distortion analyzer for quieting or SINAD measurements. The range switch and jacks for external probes allow your TM-11 to be used as a multi-range voltmeter for general servicing work.



TM-11 Portable Test Set... Provides fast, easy tuning and trouble shooting



Multi-pin cable receptacle.

Audio input-output jack.

Microphone jack.



Royal Executive Operating Characteristics

	<u>Low band</u>	<u>High band</u>
Frequency ranges	25-50 MHz	132-174 MHz
Channel spacing	20 KHz	30 KHz
Power output	50 w	35 w (30 w 162 to 174MHz)
Sensitivity (EIA 12 dB SINAD) (20 dB Quieting)	0.25 μ v 0.35 μ v	0.25 μ v 0.35 μ v
Selectivity (EIA 2-channel)	-75 dB	-90db
Audio output	5 watts at less than 5% distortion	
Normal ambient operating temperature	-30°C to +60°C, or -22°F to +140°F	
Power source	12V DC (negative ground)	



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The solid-state radio backed by Expert Service

The MASTR Progress line of two-way radios is performance proved. Yet, it is still electronic equipment and will need adjustment and service from time to time. In fact, the FCC insists on periodic frequency and transmitter deviation measurements.

To provide you with this service, General Electric has many hundreds of authorized Service Centers located throughout all 50 states. Each Center is equipped with the latest electronic test and adjustment equipment, and staffed by skilled, factory-trained technicians licensed by the FCC.

For more information about the MASTR Royal Executive, call your GE Communications Consultant listed in the Yellow Pages under "Radio Communications." Or write: General Electric Company, Communication Products Department, Lynchburg, Virginia.

Progress Is Our Most Important Product

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COMMUNICATION PRODUCTS DEPT., LYNCHBURG, VA.

(In Canada, Canadian General Electric Company, Ltd.,
100 Wingold Ave., Toronto 19, Ontario)