

# INSTRUCTION MANUAL

## **REALISTIC<sup>®</sup>**

### PATROLMAN PRO-77


DUAL BAND—VHF 30—50 and 148—175 MHz

FM SCANNING MONITOR RECEIVER



CAT. NO. 20-166

CUSTOM MANUFACTURED FOR

RADIO SHACK  A TANDY CORPORATION COMPANY

## GENERAL DESCRIPTION

Your Patrolman PRO-77 Scanning Receiver is a completely transistorized Dual Band VHF (LO 30-50, HI 148-174 MHz) FM single conversion superheterodyne receiver capable of automatically scanning 8 crystal-controlled channels. Some special features are a crystal filter, channel lockout circuit, skipper circuit, AC or DC operation, and a scan delay circuit.

It is designed for use in the narrow-band FM channels of public service communications. VHF band-police, fire, civil defense, forestry, and weather are just a few of the numerous services included in this band that covers 148 to 174 MHz.

The PRO-77 features both high sensitivity and selectivity and a sophisticated circuit which includes a solid-state 10.7 MHz filter which reduces or eliminates adjacent-channel or strong-signal interference which is experienced when operating in urban and metropolitan areas or where very strong and closely placed signals are present.

An important engineering achievement designed for practical applications, the PRO-77 is remarkably easy to use, yet its up-to-date, complex circuit consists of 31 separate transistors (two of which are FET's), six integrated circuits (used in the IF and Scanning sections) 33 diodes and 1 zener.

**GUARANTEE:** The RADIO SHACK guarantee is stated on the Fact Tag packed with the equipment. It is in effect from coast to coast. At any time, RADIO SHACK equipment may be restored to new condition with original parts with MINIMUM delay anywhere in the U.S.A., usually in your own neighborhood. It is NOT necessary to return RADIO SHACK equipment to our laboratories in 98% of the cases.

## GENERAL SPECIFICATIONS

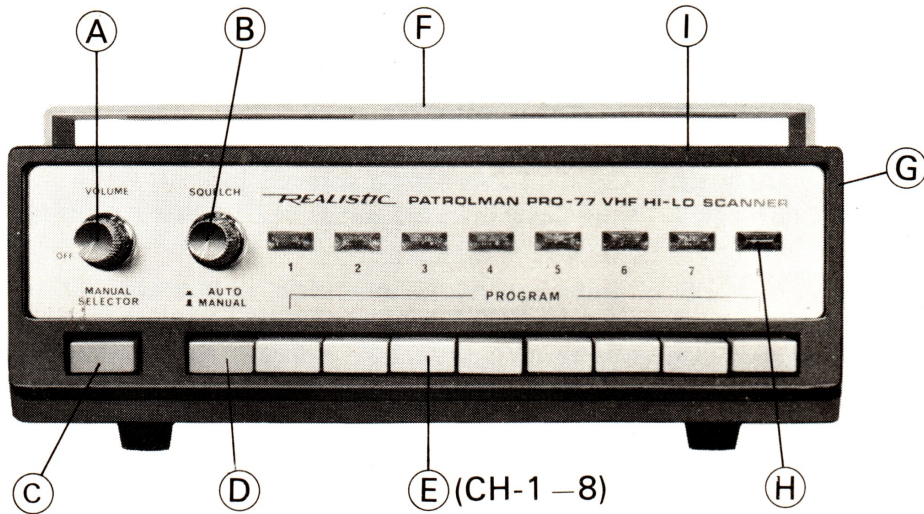
**Note:** These are given in general form only, since RADIO SHACK does not believe in buying to or designing to numerical specifications. The latter are subject to variables not clearly related to performance, just as selectivity, the number of transistors or IC's indicate in an average way the quality of a circuit but do not prove one circuit will outperform another in real operating conditions. Our philosophy is that a piece of equipment should be evaluated in terms of what it does for the purchaser, its quality and relative value being based upon merit and observed performance in real life. Thus RADIO SHACK designs toward achieving a certain result ..... regardless of cost, regardless of lab measurements, regardless of competitive advertising claims. Results are determined by your application of our finished result. Good installation is extremely important since a poorly installed or a wrongly placed antenna can result in a 90% or even greater signal loss. And an inadequate speaker system can be almost as effective in reducing equipment performance. The following figures are offered only as a guide, not as a guarantee of equipment performance.

This equipment is designed to operate from either 120 V AC or 12 V DC negative ground. If it fails to operate, and there is no clear reason for the failure, first check the supply switch. This switch entirely disconnects the supply components that are not in use. Also, before connecting the PRO-77 receiver to a DC power supply, check the voltage polarities. Attempting to operate the negative-ground PRO-77 from one of the rare positive-ground automotive or boat electrical systems or from a wrongly connected battery, will at least blow a fuse. It may do further damage, so that expensive and time-consuming repairs are necessary before the PRO-77 can be used again. The Radio Shack warranty does not apply to any damage caused by this, inadequate lightning protection, or other improper connections.

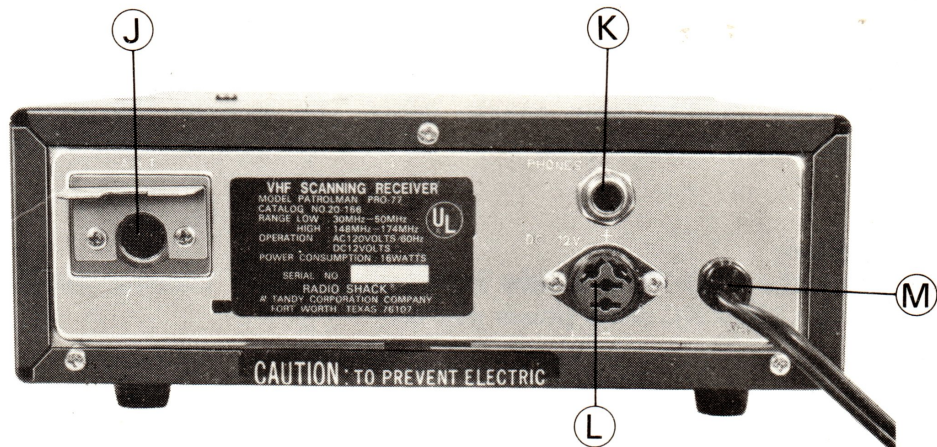
## SPECIFICATIONS

|                         |       |                                                                                                                       |
|-------------------------|-------|-----------------------------------------------------------------------------------------------------------------------|
| * Frequency Range       | ..... | Hi Band: 148-174 MHz<br>Lo Band: 30-50 MHz                                                                            |
| * Frequency Coverage    | ..... | Hi Band: 8 MHz, max. sensitivity<br>(153 MHz $\pm$ 4 MHz)<br>Lo Band: 6 MHz, max. sensitivity<br>(40 MHz $\pm$ 3 MHz) |
| * Scanning Speed        | ..... | 10 ch/sec.                                                                                                            |
| * Sensitivity           | ..... | Less than 1.0 microvolt for 20 dB quieting                                                                            |
| * Selectivity           | ..... | — 6 dB $\pm$ 9 KHz<br>—40 dB $\pm$ 25 KHz                                                                             |
| * Spurious Rejection    | ..... | More than 50 dB                                                                                                       |
| * Image Ratio           | ..... | More than 35 dB at 153 MHz<br>More than 55 dB at 40 MHz                                                               |
| * Modulation Acceptance | ...   | $\pm$ 7 KHz                                                                                                           |
| * IF Frequency          | ..... | 10.7 MHz                                                                                                              |
| * Filter                | ..... | 4-element Crystal Filter                                                                                              |
| * Squelch Sensitivity   | ..... | Less than 1.0 microvolt                                                                                               |
| * Audio Power           | ..... | 2.0 Watts                                                                                                             |
| * Power                 | ..... | 120V AC or 12-15V DC.<br>Negative Ground Only                                                                         |
| * Accessories Supplied  | ....  | Mounting Bracket, Bracket Screws, DC Power<br>Cable and Instruction Manual                                            |

## FRONT PANEL CONTROLS



## REAR PANEL



- A — Power Switch and Audio Volume Control
- B — Squelch Control
- C — Manual Selector Switch
- D — Auto or Manual Selector Switch
- E — Channel Lock Out Switches (CH.1 - CH.8)
- F — Mobile Mounting Bracket
- G — Mounting Screws
- H — Channel Indicator
- I — Crystal Compartment Cover (TOP)
- J — Motorola Type Antenna Jack
- K — External Speaker/Phones Jack
- L — DC Power Jack
- M — AC Line Cord

## ELECTRICAL INSPECTION

Set controls as follows: (Ref. Figure 1 & Figure 2)

1. VOLUME (A): OFF position
2. SQUELCH (B): Minimum position (Counter-clockwise)
3. AUTO/MANUAL (D): AUTO (pushed in)
4. CHANNEL SWITCH (E): ALL ON (all 8 switches pushed in)
5. ANTENNA JACK (J): Connect antenna to antenna jack
6. AC LINE CORD (M): Line Cord into AC outlet (110-120V AC 60 Hz)

Turn the Volume Control to "ON" and a rushing sound will be heard in the speaker. Advancing the volume clockwise will increase the loudness of the noise. When the Squelch Control is slowly turned clockwise, a point will be reached where the background noise will disappear. This indicates normal squelch and also normal operation of the unit.

## INSTALLATION

A good installation will make the most of the PRO-77's capabilities. Loss of the tiny signal at the antenna is avoided by correct antenna adjustments and by installing a good quality foam coaxial cable. The antenna that you choose, and how you install it, will have a great effect on how well your unit will work.

1. Base Station:  
To install the PRO-77 in a base installation, simply connect the AC line cord into a 110 - 120V AC 60Hz power source.
2. An antenna, such as a ground-plane (Cat. No. 20-015) mounted as high above the ground as practical will greatly increase the signal strength. For proper input matching, a 50 ohm lead-in coaxial cable such as RG 8/u (Cat. No. 278-970) should be used. A Motorola type antenna adapter plug (Cat. No. 278-208, or equivalent to Cinch-Jones No. 13B or H.H.Smith No. 1200) will have to be installed on the receiver end of the cable in order to utilize the antenna connector located on the rear (back) panel of the unit.
3. Mobile Station: **CAUTION: BE AWARE OF THE BATTERY POLARITY.**  
For a vehicle with a 12V DC negative ground system, use the DC power cable supplied with the unit. Simply connect the cable into the cigarette lighter receptacle (Cat. No. 274-331) or directly to the DC power supply source.

**IMPORTANT:** If your car has been burning out headlamps and other bulbs at a rapid rate, have the voltage regulator checked for proper output. Excessive voltage (more than 16 volts) may cause serious damage to your Receiver.

4. Safety and operating convenience are the primary factors to consider when mounting any piece of equipment in an automobile. Be sure that the Receiver controls may be easily reached by the operator. Also be sure that connecting cables do not interfere with the operation of the brake, accelerator, etc.

The Receiver may be mounted to the underside of the instrument panel or dashboard of a car, truck, boat, etc., by means of the special bracket that is supplied with the Receiver.

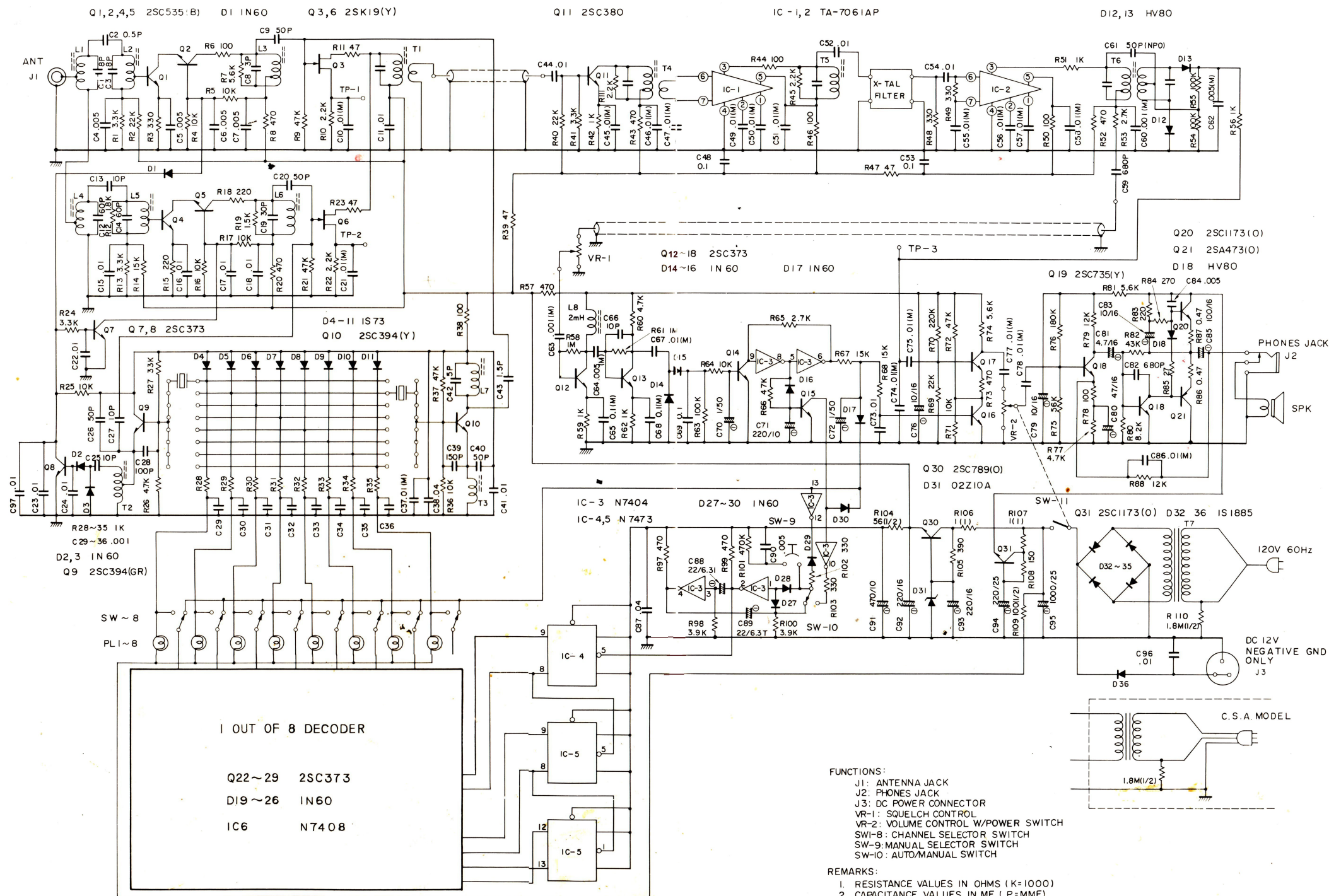
5. Keep the following points in mind when installing your mobile antenna.
  - A. Mount the antenna as high as possible, mounting in the center of the roof is the best possible location.
  - B. Mount it rigidly, so it will remain vertical while in motion.
  - C. Mount as far as possible from the engine compartment; mounting on the rear of the car is preferable to mounting in place of the AM antenna.



### **DUAL—BAND Cowl Mount**

For mobile use. Chrome telescopic whip (55" extended, 36" collapsed), mounted on swivel base. Centerloaded weatherproof coil. With 5' RG-58/U coax cable. Terminates with pin-type plug.

20-016



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FORT WORTH, TEXAS 76107

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