

The TMC Model ATS Antenna Tuning System consists of three units

1. R.F. TUNER, Remotely Controlled
2. CONTROL MONITOR
3. STANDING WAVE COUPLING UNIT

and is a remote controlled antenna coupler designed to couple the output of any 1000 watt radio transmitter, with an unbalanced output of 50 or 70 ohms, to a 35 ft. whip antenna over the frequency range 2 to 30 mcs.

The Model ATS was developed to satisfy the long standing need for a more efficient and versatile coupling system for the relatively short vertical antennas used aboard ship, mobile vehicle, air port installations etc. The use of a new TMC V.S.W.R. meter design in the CONTROL MONITOR makes transmitter tuning much easier and in most cases will permit increased power to be applied to the antenna. At this point, it should be noted that while the ATS makes it possible to better couple to the short antenna system it can not increase the radiation efficiency of such an antenna.

The RF TUNER contains a helical transmission line as the reactance tuning element and it's electrical length is adjustable by a motor driven short. This variable reactance matches the antenna reactance for minimum V.S.W.R.. The antenna resistance is properly matched by means of a ferrite core tapped auto-transformer. The proper tap is selected by a motor driven 4-position resistance selector switch.

The CONTROL MONITOR remotely operates the motors in the R.F. TUNER, by means of conveniently located lever controls, to minimize the V.S.W.R.. The MONITOR is equipped with a special meter which continuously displays Forward Power, Reflected Power, and, the V.S.W.R..

The STANDING WAVE COUPLING UNIT consists of a precision balanced RF bridge and is calibrated to operate in conjunction with a 50 or 70 ohm coaxial line.

## TECHNICAL SPECIFICATIONS

**FREQUENCY RANGE:** 2 to 30 megacycles.

**POWER RATING**

**R.F. TUNER:** 1000 watts input continuous at 100% modulation.

**CONTROL MONITOR:** Input: 115/230 volts, 50/60 cycles, single phase.

**STANDING WAVE COUPLER:** 1000 watts continuous at 100% modulation for V.S.W.R. at less than 2.5.

**TRANSMISSION LINE:** 70 ohm - RG-11/U etc.  
50 ohm - RG-8/U etc.

**INPUT IMPEDANCE:** Nominally 50 or 70 ohms unbalanced.

**OUTPUT IMPEDANCE:** 70 ohm system: Will match a 35 foot whip antenna with a resistance of 2 - 650 ohms and 0 - 850 ohms capacitive reactance, to obtain a V.S.W.R. of less than 2.5.

50 ohm system: Will match a 35 foot whip antenna with a resistance of 2 - 500 ohms and 0 - 850 ohms capacitive reactance, to obtain a V.S.W.R. of less than 2.5.

**STANDING WAVE RATIO:** Better than 2.5 to 1.

**DIRECTIVITY OF STANDING WAVE COUPLER:** Better than 20 db.

**EFFICIENCY:** Better than 80% over the 2 - 30 mc range.

**PANEL CONTROLS:** POWER  
(CONTROL MONITOR) METER  
REACTANCE  
RESISTANCE  
÷10 REFLECTED POWER

**SIZE AND WEIGHT:**

|                    | SIZE                      | WEIGHT  |
|--------------------|---------------------------|---------|
| R.F. TUNER         | 18" x 14-1/4" x 9-3/4"    | 40 lbs. |
| CONTROL MONITOR    | 20-1/2" x 8-1/2" x 9-3/4" | 20 lbs. |
| S.W. COUPLING UNIT | 3-1/2" x 3-1/2" x 9"      | 3 lbs.  |

**COMPONENTS AND CONSTRUCTION:** Equipment is manufactured in accordance with JAN/MIL Specifications wherever practicable.

**ORDERING INFORMATION:**

As stated before, the Model ATS is designed for a nominal output impedance of 50 or 70 ohms, and can be had in either a rack mounted unit or in a cabinet.

ATS-70C 70 ohm system with cabinet  
ATS-70R 70 ohm system for rack mounting

ATS-50C 50 ohm system with cabinet  
ATS-50R 50 ohm system for rack mounting

**ACCESSORY EQUIPMENT:**

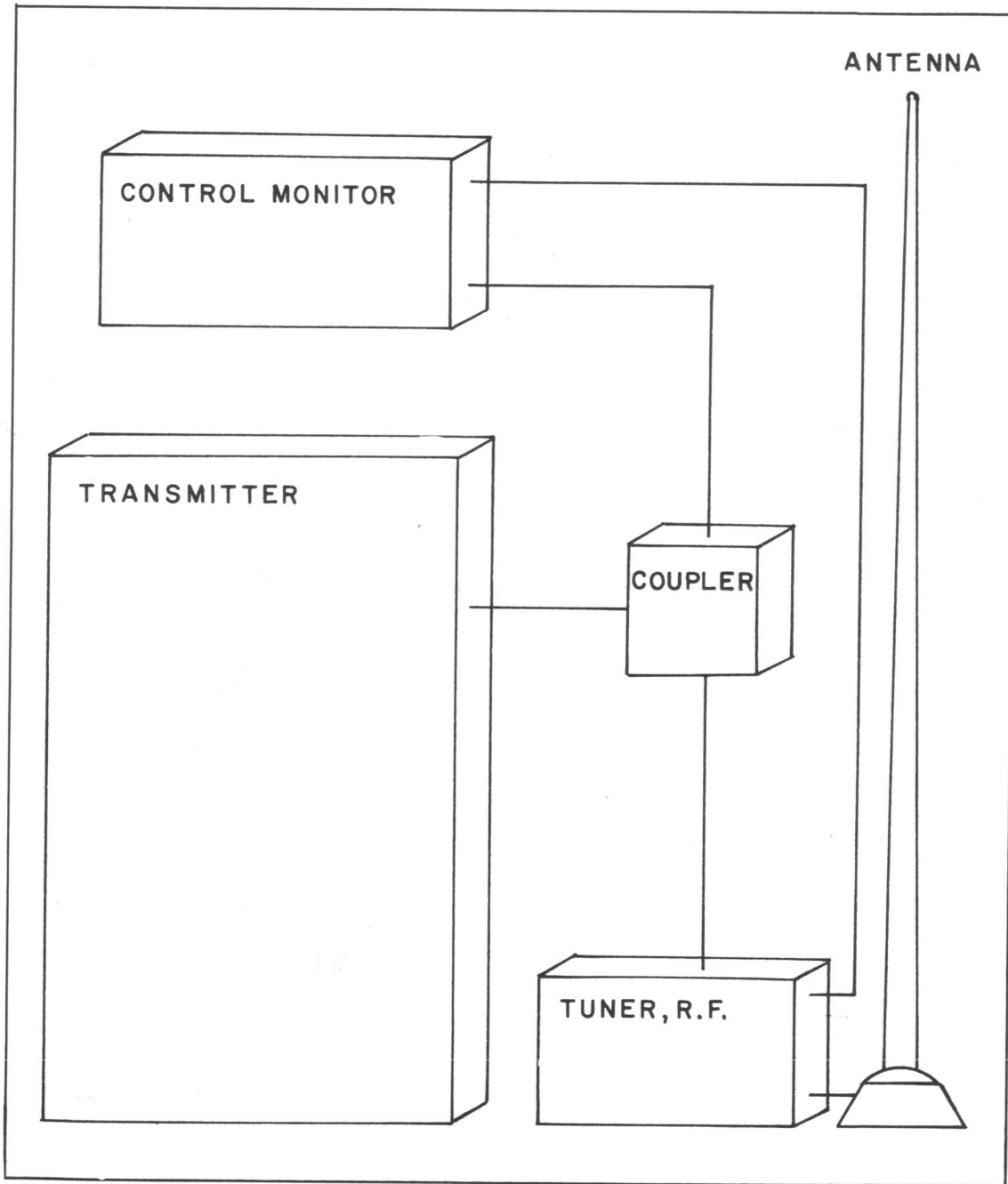
Remote Control Cable (Control Monitor to R.F. Tuner)

CA-359-X (X indicates length in feet. Please designate when ordering cable)

A-1486 Antenna and Base Insulator

|          |                 |                   |
|----------|-----------------|-------------------|
| Antenna: | Stainless steel | 6 section         |
|          | Extended        | 35 feet, 7 inches |
|          | Collapsed       | 6 feet, 4 inches  |
|          | Base OD         | 1.5 inches        |
|          | Base ID         | 1.37 inches       |
|          | Weight          | 19 pounds         |

|            |                                |
|------------|--------------------------------|
| Base       | Heavy Duty                     |
| Insulator: | Compression Rating 10,000 lbs. |
|            | Brass, chrome plated           |
|            | Height: approx. 8 inches       |
|            | Mtg. Stud to fit Antenna ID    |



Block Diagram Model ATS with Transmitter and Antenna

# THE TECHNICAL MATERIEL CORPORATION

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