



MODEL	DESCRIPTION	BULLETIN	
		<u>OLD</u>	<u>NEW</u>
COR-4B	HF/SSB Receiver System	3019B	203-3313
SMR-5	Multi-Channel H.F. Receiver	3010A	203-3312
STR-5	H.F. Strip Receiver	3010-1	203-3311

THE TECHNICAL MATERIEL CORPORATION

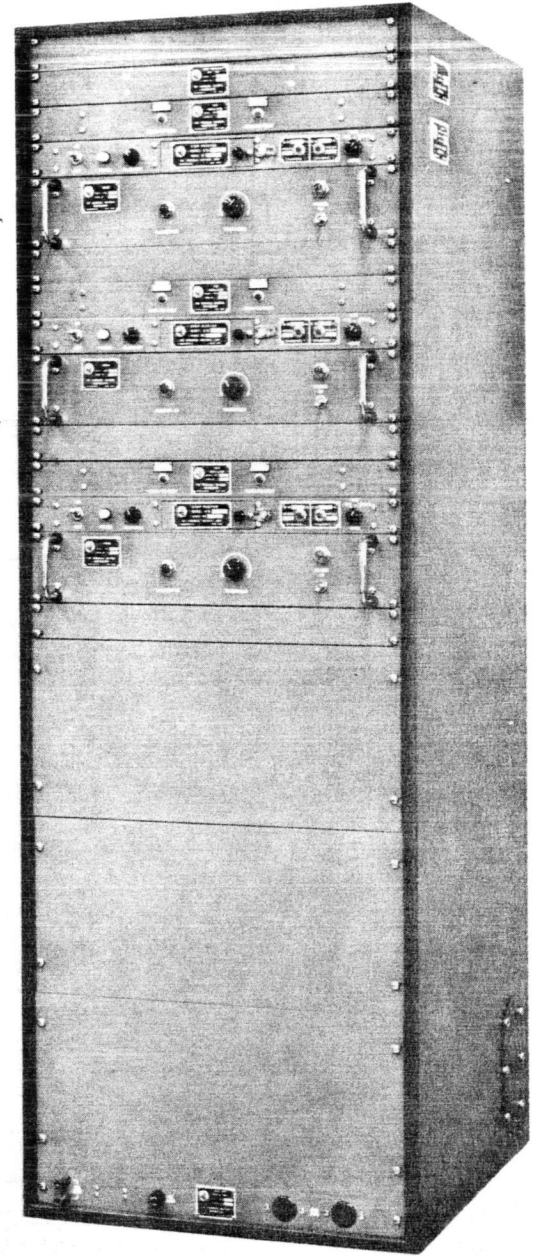
6/14/82

AM/SIDEBAND RADIO RECEIVING SYSTEM, CODAN-OPERATED

COR-4B

The COR-4B Radio Receiving System (shown at the right in its three channel configuration) has been developed specifically for use in the coastal harbor radio telephone service as a completely solid state replacement for the Western Electric Model 23 series of radio receiving equipments currently in use in that service. It has the ability to identify the received signal as being AM/AME or SSB making it ideally suited for application on frequencies containing both types of transmission. The many advantages of solid state circuitry in the way of low power drain, efficient heat dissipation, compact size and a vastly improved reliability, are fully exploited in the COR system

Each COR-4B system, which consists of one to four channels each with its associated CODAN unit, test oscillator and antenna multicoupler, may be mounted in standard 19" equipment cabinets for indoor applications or may be enclosed in weatherproof fiberglass cases designed for outdoor service. A thermostatic control is used to regulate an integral fan which prevents overheating due to absorption of heat from the sun. As an aid in keeping down the radiant heat effect, the case is painted white for minimum absorption. A companion case for housing four Western Electric KS5361 batteries or equivalent is also available as an optional accessory. The system normally operates on AC power with instantaneous changeover to battery operation achieved without interruption of service. During periods of AC operation, the batteries are kept fully charged by an internal trickle charge. Due to extremely low power drain, each channel will operate continuously for a period of approximately five days on an 85 ampere-hour storage battery.



Revised 1 August 1971
Supersedes Y-3019B



THE TECHNICAL MATERIEL CORPORATION

AND SUBSIDIARIES

TECHNICAL SPECIFICATIONS

FREQUENCY INFORMATION

- Range**
 - 2 to 16 MHz
 - 2 to 32 MHz available on request
- Stability**
 - One part in 10^6
- Control**
 - Oven crystal oscillators

OPERATING PARAMETERS

- Modes**
 - AM(6A3); AME(A3H); USB(A3A,A3J)
- Input Impedance**
 - 50 ohms nominal, antenna coupler
 - High impedance vertical antenna
- Tuning**
 - Fixed tuned plug-in RF modules
- Sensitivity**
 - SSB 1 uv input, 15db [S+N]/N
 - AM 3 uv input, 10db [S+N]/N
- IF Bandwidth (Selectivity)**
 - SSB 3 KHz, +/-2db
 - AM 6 KHz, +/-2db symmetrical
- AGC Characteristics**
 - Output will not vary more than 10db for change of input from 1 uv
- IF Rejection**
- Control**
 - Appropriate plug-in modules on front panel, any number of new operating frequencies may be selected.
- Remote Control**
 - 12 VDC at 9 ma for each of the system test oscillators
- Additional Channels**
 - System may be expanded for additional channel operation.
- Remote Indications**
 - AC power failure, dry contact to grnd
 - SSB signal, dry contact to ground
 - AM signal, dry contact to ground

AUDIO

- Outputs**
 - Adjustable to +10uv into 600 ohm line
 - High impedance monitor jacks for each channel on front panel.
- RF Bandwidth**
 - 7500 Hz at 3db points.

CHARACTERISTICS

- Hum Level**
 - Min. 40db below full PEP output
- Intermodulation**
 - Min. 40db below either tone of a two tone test.
- Image Rejection**
 - Greater than 120db.

ENVIRONMENTAL AND INSTALLATION

- Primary Power**
 - 115/230 VAC, 50/60 Hz, 1 ph, 10 watts
 - OPTIONAL: 24VDC 12 watts/channel
- Operating Conditions**
 - 0 to +50°C; up to 90% relative humidity
- Size and Weight**
 - 1 channel: 10½" high X 19" wide
 - 2 channel: 17½" high X 19" wide
 - 3 channel: 26¼" high X 19" wide
 - 4 channel: 33¼" high X 19" wide
 - All versions 18" deep.
- Loose Items**
 - Mating RF connectors
 - Two copies of Instruction Manuals

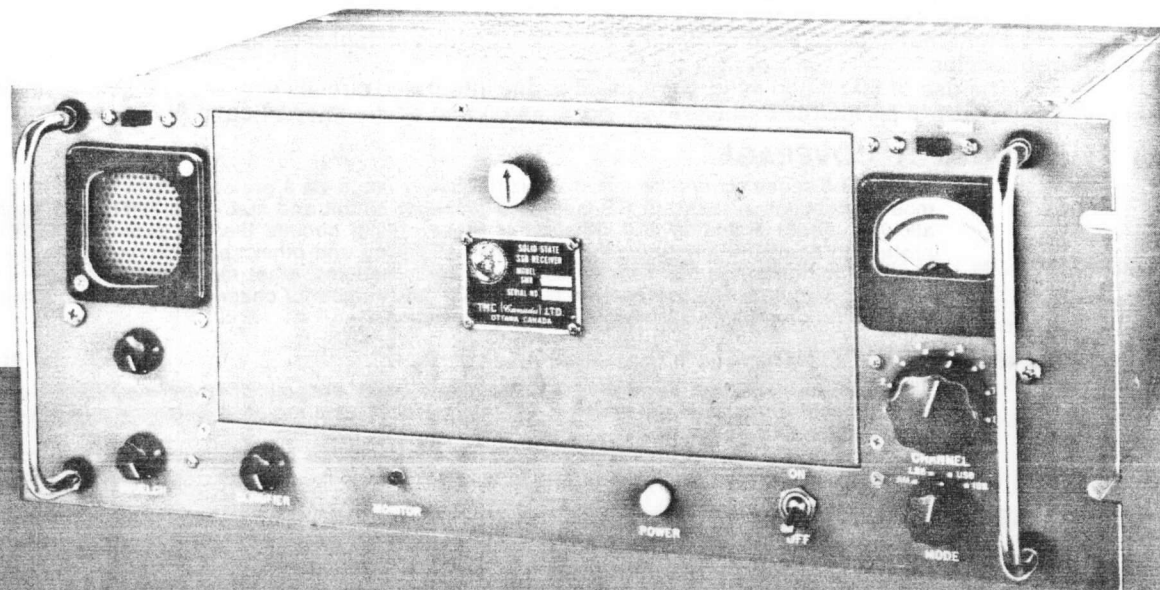
OPTIONAL ACCESSORIES

- Model THRA-1 RF Module Storage Panel
 - Maintains ovens at operating temperature
- Model TOC-8 Operating Case
 - Designed to house four KS5361 batteries
- Model CAB-40 Equipment Cabinet
 - Designed for multiple-channel systems



THE TECHNICAL MATERIEL CORPORATION
700 FENIMORE ROAD • MAMARONECK, NEW YORK 10543
SPRINGFIELD, VIRGINIA • OTTAWA, CANADA • LUZERN, SWITZERLAND • TEMPE, ARIZONA
(914) 698-4800 • (613) 822-0244 • twx 710-566-1100 • telex 013-446

SOLID STATE MULTI-CHANNEL RECEIVER

TMC
SMR-5

CW · AM · AME · USB · LSB · ISB · 2.0 MHz to 32 MHz
1.6 MHz to 32 MHz (on special order)

- SELECTABLE AM, USB/LSB, ISB
- BUILT-IN SPEAKER
- 8 PRESET CHANNELS
- REMOTE CONTROL PROVISIONS
- EFFECTIVE SQUELCH with
INTEGRAL MONITOR INDICATOR
- INDIVIDUAL LINE OUTPUT
- ELECTRONIC SPEECH CLARIFIER



THE TECHNICAL MATERIEL CORPORATION

AND SUBSIDIARIES

The SMR-5 is a completely solid-state multichannel receiver capable of receiving AM, AME, CW, MCW, SSB and ISB transmissions in the 2-32 MHz frequency range. These units are specifically designed to provide the latest receiving techniques in modern communication facilities in a very compact package.

The small size, low heat generation and light weight of these receivers permit multiple co-located installations in mobile and fixed plant facilities without special cooling arrangements. Additionally, these receivers may be installed in remote locations and the channel clarifier and audio lines extended to the operator console.

Eight individual crystal controlled RF heads provide instant selection of any eight operating frequencies.

The use of all silicon solid-state devices and integrated circuits ensures that stable, reliable operation will be maintained under all operational and environmental conditions.

FREQUENCY COVERAGE

The SMR-5 series covers the 2 to 32 MHz frequency range via 8 pre-set plug-in modules. Each module contains a separate RF input and amplifier circuit and stabilized HFO. This method allows superior shielding and isolation of these critical circuits thereby providing excellent protection against intermodulation, unwanted IF mixing and other spurious responses.

In addition to the 8 internally mounted plug-in modules, other modules may be stored in special drawers for rapid access. In this manner, any number of channels may be conveniently held ready for instant use without warm-up or tuning.

CHANNEL SELECTION

Selection of any one of the 8 plug-in channels is easily accomplished by the rotation of the front panel selector switch. No additional tuning or peaking is required. Selection and operation are instantaneous and stable.

In addition, the channel selection may be accomplished by remote control if that option is selected.

CLARIFIER CONTROL

A frequency vernier control is provided which permits fine-tuning to facilitate operation under adverse conditions or when receiving from an unstable transmitter.

This control is on the front panel and varies a DC voltage across the "varicap" in the HFO circuit of the plug-in module which is operating. This provides a zero-backlash, infinitely variable control, which permits precise, stable settings for each channel.

This control may be remotely controlled and provisions have been made on the rear panel of the receiver to permit this operation.

DUAL IF

Provisions are available to permit the incorporation of two IF boards. This allows maximum flexibility in the selection of the various modes of reception. Each IF board produces an independent 600 ohm, balanced audio line output.

BFO DISTRIBUTION BOARD

This board provides BFO inputs to the SSB-type IF boards. These signals can be produced either by using a BFO signal from an external source or by generating a BFO signal using the oscillator on the internal distribution board. A remote BFO on/off switch may be connected to the SMR-5 to cut-off the +12 VDC supply in the LSB, USB and ISB modes so that no BFO signals are produced.

AUDIO/SQUELCH BOARD

The audio input to the audio/squelch board is taken from either the channel A or channel B audio line signal, depending on the position of the channel selector switch. The audio is then amplified and applied to the built-in speaker.

The AGC input to the audio/squelch board is applied to the AGC comparator in conjunction with the squelch input signal as set by the squelch control. When the AGC input is below the level set by the squelch input, the AGC comparator is in its "ON" condition. This results in the squelch switch Q2 turning "ON", thereby squelching the speaker audio amplifier and cutting off the speaker. The Monitor Lamp on the front panel then goes out, indicating a squelched condition. This squelch action may be applied to each IF board and used to turn off the 600 ohm line outputs as well. When the AGC input is above the level set by the squelch input all the above operations are reversed and audio outputs is available.

METERING BOARD

The input to the metering board is taken from either the Channel A or Channel B audio signal line. A High/Low switch is used to set the impedance of the meter circuit for high gain (>3 dbm) and low gain (<3 dbm).

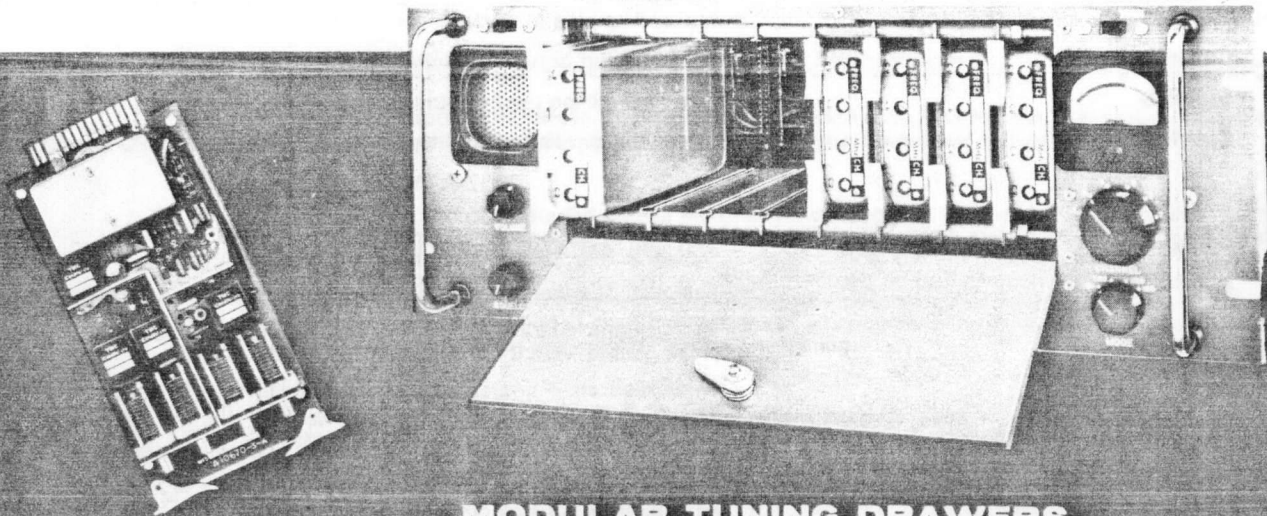
POWER SUPPLY

The AC input is via a stepdown transformer and is rectified by a full wave diode bridge circuit. The 12 vdc B* is filtered and actively regulated by integrated circuit U1 and distributed throughout the unit.

TECHNICAL SPECIFICATIONS

Range	2-32 MHz (1.6 - 32 MHz on special order)
Tuning	8 plug-in modules. Each of the plug-in modules is fix-tuned to a particular frequency within its band. Tuning is accomplished by switching to the appropriate plug-in module.
Control	Compensated crystal-controlled oscillators are used throughout.
Stability	1 part per million per 24 hours.
Clarifier	A common clarifier control is provided to fine-tune the HFO in each module.
Modes	SSB, ISB, AM, AME, CW, MCW.
BFO	Selection of either internal or external BFO modes is available.
HFO	Each plug-in module contains its own oven controlled HFO. In addition, jacks are provided for external HFO input and output.
IF	Three separate IF boards may be incorporated. In addition, during AM operation, an IF monitor output is provided in J16 on the rear apron.
Clarifier	Provisions are available for the use of a remote clarifier in lieu of the integral control provided.
Squelch	An adjustable squelch circuit is incorporated.
Monitor Lamp	A front panel indicating device is incorporated to indicate the squelched or unsquelched receiver condition.
Sensitivity; 3 KHz bandwidth	SSB: 1 uv for 15 db $S + N$ N AM: 3 uv for 10 db $S + N$ N
IF Selectivity	SSB: 3 KHz ± 2 db AM: 6 KHz ± 2 db
IF Frequency	1.75 MHz
Image Rejection	At least 60 db; 2-16 MHz At least 50 db; 16-32 MHz
Intermodulation	40 db below a 100 uv two-tone input at the antenna.
AGC	100 db RF dynamic range from 1 uv; will not vary more than 10 db.
Hum and Noise Level	At least 40 db below full output.
Input Impedance	50 ohms, unbalanced.
Audio Outputs	0-8 dbm at 600 ohms; two channels.
Speaker	Built-in
Environmental	0°C to 50°C, 95% humidity.
Dimensions	13 inches (33.02 cm) deep; 19 inches (48.26 cm) wide; 7 inches (17.78 cm) high.
Weight	45 lbs. (20.43 kg).
Power Requirements	104/115/125/208/230/250 VAC, $\pm 10\%$, single phase, 50/60 Hz.

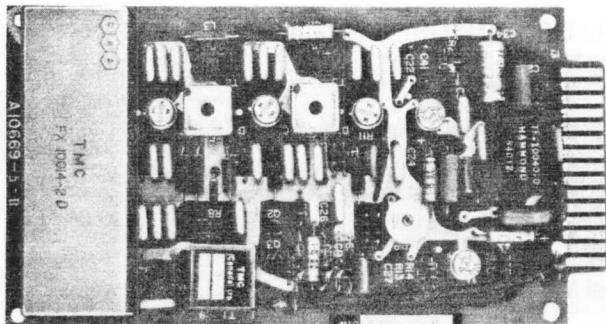
TMC SMR-5 SOLID STATE MULTI-CHANNEL RECEIVER



MODULAR TUNING DRAWERS

Ideal for Operation on -

- GROUND TO AIR
- SHIP TO SHORE
- HARBOR CIRCUITS
- PLEASURE CIRCUITS
- TACTICAL COMMAND
- AMPHIBIOUS CONTROL
- TRANSMISSION MONITOR



2-3, 3-4, 4-6, 6-8, MHz
8-12, 12-16 MHz
Buy what you need!

**OVEN CONTROLLED
CRYSTAL FILTER**



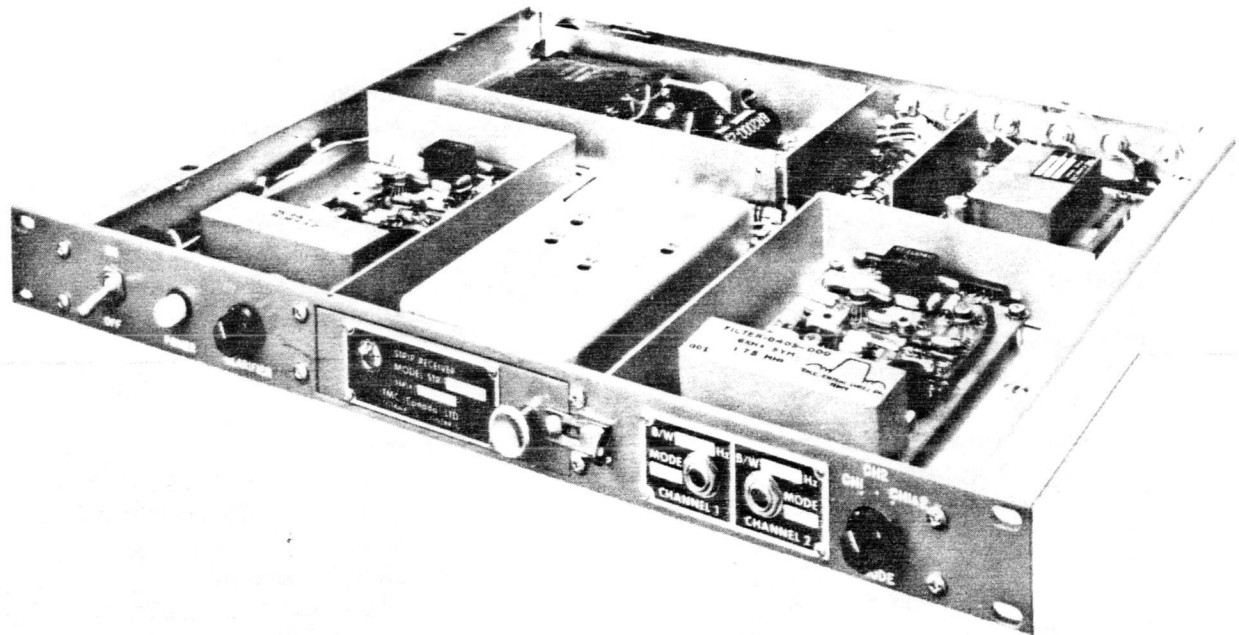
THE TECHNICAL MATERIEL CORPORATION

700 FENIMORE ROAD • MAMARONECK, NEW YORK 10543

SPRINGFIELD, VIRGINIA • OTTAWA, CANADA • LUZERN, SWITZERLAND • TEMPE, ARIZONA

SINGLE CHANNEL SIDEBAND STRIP RECEIVER

STR-5



The Model STR-5 fixed-tuned receiver is a versatile unit capable of receiving CW, MCW, AM, AME, SSB and ISB transmissions in the 2 to 30 MHz frequency range. Through the use of unique semi-conductor circuits and individual fixed-tuned plug-in modules, these devices provide excellent sensitivity and image rejection characteristics in a minimum of space. With its low power drain and high reliability, the receiver is best suited for unattended operations at remote sites for monitoring selected frequencies.

Special interface equipment is available which permits automatic detection and switching between AM and sideband signals. This feature enables compatible operation for those stations working both AM and sideband traffic during this period of conversion.

Standard control units are available for the remoting of the clarifier, mode switching and audio functions. In addition, a loudspeaker monitor panel can be provided for up to four channels and is particularly useful with multiple-STR installations. These optional accessories enable complete control of receiver stations located at remote sites.

Revised 1 August 1971
Supersedes 3014A



THE TECHNICAL MATERIEL CORPORATION
AND SUBSIDIARIES

TECHNICAL SPECIFICATIONS

FREQUENCY INFORMATION

Range

2 to 32 MHz

Stability

+/- 10 Hz, 0 to +50°C

Optional: -30 to +50°C

Control

Crystal-controlled plug-in modules.

OPERATING PARAMETERS

Modes

CW(A1); MCW(A2H); AM(A3)

AME(A3H).

OPTIONAL:

USB(A3A,A3J)

USB; LSB; ISB(A3B)

Input Impedance

50 ohms nominal, unbalanced

Speech Clarifier

Front panel adjust for "fine tune"
of the HFO oscillator.

Remote Control available on request.

Sensitivity

SSB 1 uv input, 15db [S+N]/N

AM 1 uv input, 10db [S+N]/N

IF Selectivity

SSB 3 KHz, +/- 2db

AM 6 KHz, +/- 2db symmetrical

AGC Characteristics

Output will not vary more than 10db
for 100db change of input from 1 uv.

IF Frequency

1750 KHz.

Conversion Capability

Receiver can be changed to another
operating frequency by changing the
appropriate plug-in module at the
front panel.

AUDIO

Amplifier Response

250-7500 Hz.

Outputs

0 to +12dbm into 600-ohm balanced
output for each channel. Panel jacks.

CHARACTERISTICS

Hum Level

Min. 40db below full PEP output

Intermodulation

Min. 40db below either tone of a standard
two tone test with 100 uv. input signal.

Image Rejection

Min. 60db from 2 to 16 MHz.

Min. 50db from 16 to 32 MHz.

ENVIRONMENTAL AND INSTALLATION

Primary Power

115 VAC, 50/60 Hz, single phase

OPTIONAL: 104/125/208/230/250 VAC

OPTIONAL: 12 VDC operation.

Operating Conditions

-30 to +50°C; up to 90% relative humidity

Size and Weight

1¾" high X 19" wide X 15" deep

Approximately 15 lbs.

OPTIONAL ACCESSORIES

Model THRA-1 RF Module Storage Panel

Maintains ovens at operating temperature

Model CDN-3 Codan-Operated Anti-Noise Device

Used to detect AM or SSB signals

Model RCC-1 Receiver Remote Control Unit

Remote control of clarifier, mode, audio.



THE TECHNICAL MATERIEL CORPORATION

700 FENIMORE ROAD • MAMARONECK, NEW YORK 10543

SPRINGFIELD, VIRGINIA • OTTAWA, CANADA • LUZERN, SWITZERLAND • TEMPE, ARIZONA

(914) 698-4800 • (613) 822-0244 • twx 710-566-1100 • telex 013-446