• VERY HIGH RFI IMMUNITY in AM/FM RF fields

The GOLD MEDALIST operates satisfactorily on AM fields of up to 6-volts/meter and in FM fields, with an AM noise figure of at least 50 dB, of over

• SUPERIOR PUNCH BLOCKS FOR QUICK INSTALLATION

Installation displacement type terminals, with proven long-term reliability for 22 AWG stranded audio wire, are provided in a convenient punch block arrangement for quick installation.

• MULTIPLE INPUT SELECTIONS ON PHONES AND MONITOR

Interfacing interlock push button switches provide input selection for the headphone and monitor amplifiers, including PGM, AUD, MONO, NET, CUE, EXT-1 and EXT-2 signals.

• DYNAMIC RANGE EXCEEDS THAT OF DIGITAL AUDIO SOURCES

The GOLD MEDALIST has at least 16 dB more dynamic range than 18 kHz digital audio sources, while many competitive boards have -20 dB lack due to poor S/N ratios and low output clipping level.

• COMFORTABLE Padded ARMREST, RECESSED TOUCH

The channel ON/Standby and OFF/STOP switches are protected from accidental operation in the recessed touch area, with padded arm rest and attenuator module panels.

SPECIFICATIONS

GOLD MEDALIST 12 Channel Dual Stereo Audio Distribution Console

Specifications subject to change without notice.

For all technical specifications, please visit 18 kHz digital audio sources, while many competitive boards have -20 dB lack due to poor S/N ratios and low output clipping level.
HARRIS GOLD MEDALIST AUDIO CONSOLE

The only one in its price range with all these features!

• **36 INPUTS WITH LOGIC CONTROLLED FADING**
  Input Channel ON and OFF switches control source machines through the individual input selector switches, providing START and STOP control of up to 3 sources per input channel.

• **UP TO 12 SOURCES INTO 12 INPUT CHANNELS**
  Optional fader modules, with 4-position pre-selector feeding into one input selector on each channel, expands total input capacity to 6 sources per input channel.

• **END-OF-MESSAGE CONTROLLED CHANNEL-OFF SWITCHING**
  Connect sources with EOM to input channel-off control terminals to turn the channel off with the EOM commands which eliminates unwanted noise and extraneous signals from the program output channel.

• **TRANSFORMER-LESS INPUT/OUTPUT FOR BEST SOUND QUALITY**
  Active balanced I/O circuits in the GOLD MEDALIST eliminate audio transformer generated total harmonic, transient intermod and dynamic distortions found in many other boards.

• **DC CONTROL FROM PGM FADERS DRIVE VOLTAGE CONTROLLED AMPLIFIERS**
  Low DC voltage from the fader drives a noise-integrated active audio shape generator, which drives the VCA's in the signal path for extended noise-free operation.

• **CONDUCTIVE PLASTIC PHONE, CUE AND MONITOR CONTROLS**
  Heavy duty gain controls, secured to the front panel with threaded bushings, are provided with ribbon cables to isolate them from the associated circuitry and minimize image pickup.

• **STEREO TRACKING WITHIN 0.25-dB ON INPUT CHANNEL FADERS**
  Nearly perfect stereo tracking within 0.1 dB over much of the attenuator range is provided in program circuits by close tolerance VCA's driven with common left/right control voltages.

• **< 0.5% DISTORTION, +0.0 —0.25 dB RESPONSE 20 Hz to 20 kHz**
  Sufficient margin is provided in the GOLD MEDALIST circuits to allow these stringent ratings to be met in less than ideal environments found in many stations.

• **72 dB S/N on Mic, 95 dB S/N on M-L INPUTS, 20 Hz to 20 kHz**
  Factory mic channel noise requirements of more than 76 dB S/N provides margin to meet the rated performance.
TRANSPARENT PERFORMANCE

A heavy-duty power supply with plenty of reserve voltage is included in the Monitor Series. The converters in the Monitor Series are designed to allow normal power requirements to be met and still provide a smooth and quiet power supply. The converters are also specified for higher power applications, designed for high intelligibility and stability in the various signal conditions.

The Monitor Series includes the premium WCI V8s, Rossy and Gales at A1180 and S1180 units, featuring unipolar and bipolar polarity and performance in four independent channels. The A1180 is an A1180BAR Terminal Block for the input and output connections, and is selected for reliability for outdoor connections.

YOU SPECIFY THE STYLE OF PLC-T, ATTENTION!

You may select either a white plastic or a black material. The plastic material allows for a more durable and longer-lasting finish. The black material is more resistant to scratches and is less likely to show dirt and grime. The white plastic material allows for a more modern and sleek look, while the black material allows for a more traditional and classic look.

CONTROL ROOM MIC SWITING MODULE WITH P & G LINE AR ATTEMUATORE

Each input attenuator panel contains a moveable panel that allows for maximum flexibility in the setting of the attenuator. The moveable panel allows for easy adjustment of the level, and can be moved to the desired position for optimal performance.

AUX AMPLIFIER INPUT:

The Aux Amplifier Input is designed for external source signals, such as tape recorders or other electronic devices. The Aux Amplifier Input is compatible with a wide range of external source signals, and can be used for a variety of purposes, such as amplifying a sound system or a public address system.

PROGROMCUC TUMBERLINES: Approx. 24 ohms. nominal CUMBERLINES 2200 ohms or greater.

GAIN:

MIC LINE: +45 dB ± 2 dB with controls 2300 ohms or greater.

TAP TO LINE: 26 dB ± 2 dB with controls 2300 ohms or greater.

CUE AMPER: 0 VU and 8 VU field

TAP TO LINE: -14 dB ± 2 dB when input +14 dB through input.

OUTPUT LEVELS:

-4 dB to 14 dB with +14 dB input through 8 VU.

-4 dB to 14 dB with +14 dB input through 8 VU.

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HARRIS MEDALIST AUDIO CONSOLE — Exceptional value in a series that more than meets your expectations

- Plug-in, interchangeable attenuator modules provide quick replacement, even with skilled personnel.
- Choice of rotary or linear attenuators for the best performance to your operating staff.
- Mix input available on any channel to provide individual station configuration of console channel assignments.
- Up to 3 sources into each input channel to eliminate patch panels and external switching panels.
- Virtually transparent performance assures the best possible signal quality and listener satisfaction.
- 25 db minimum headroom in all circuits provides excellent station sound, even with the TV meters peak.
- Excellent RFI/EMI immunity assures noise-free signal for your programming, without interference from nearby stations.
- Ideal for stereo on-air and production applications where you want the essential signal in the area.

The Harris Medalist Series of dual-stereo audio consoles is ideal for AM and FM on-air and production application. The Harris Medalist-12 offers facilities for up to 30 sources into 12 channels. The Medalist-16 allows facilities for up to 48 sources into 16 channels. The Medalist-18 has the facilities for 24 sources into 8 input channels. Microphone capability on all input channels makes the Medalist a versatile console with an attractive choice for small TV operations. Other applications include radio, recording studios, and the full range of modular audio distribution systems. Features typically found only in more expensive modular audio consoles are obtained in the Medalist Series, such as power Amps, monitors, and controls provided for headphone and monitor.
The preamps sets the desired left/right connections are provided as standard. Active transformer less balanced input grammar. At least 25 dB of headroom response is very flat, with no transients, even while the console is in operation, the plug-in, interchangeability are kept at an acceptably low level.

Cross talk and switching transients are used. Attenuator modules may be added, either as standard input selector bank. The MEDALIST is available with a rotary or linear attenuator, or with the two intermixed, as shown above.

The specification of the style of program and audition line output circuits. The MEDALIST is available with rotary or linear attenuator, or with the two intermixed, as shown above.

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**HARRIS MEDALIST AUDIO CONSOLE**

Exceptional value in a series that more than meets your expectations

- Plug in, interchangeable attenuator modules provide easy replacement, even with unskilled personnel.
- Choice of rotary or linear attenuators for the best performance by your operating staff.
- Mic input available on any channel to provide individual station configuration of console channel assignments.
- Up to 3 sources into each input channel to eliminate punch points and external switching points.
- Varnished transparent performance ensures the best possible signal quality and listener satisfaction.
- 25-50 minimum headroom in all circuits provides excellent station sound, even with the VU meters pinned.
- Excellent RFI/EMI immunity assures noise-free signal of your programming, without interference from nearby stations.
- Ideal for news on-air and production applications where you want the cleanest signal in the area.

The Medalist Series of dual channel audio consoles is ideal for AM and FM two- and production applications. The Harris Medalist 12 offers facilities for up to 26 sources into 10 output channels. The Medalist 12 allows mixing of 20 sources into 10 input channels. It provides a full complement of functions for 24 speaking locations.

Microphone capability on all input channels makes the Medalist audio console an attractive choice for small TV operations. Other applications include video and film production, studio facilities and sound distribution systems. Features typically found only in more expensive modular audio consoles are standard in the Harris Medalist 12. Facilities include:

- Trailer level at the control room.
- Headphone and monitor facilities.

For more information, please contact your local Harris representative.
Very high immunity in AM/FM RF fields

The GOLD MEDALIST operates satisfactorily in AM fields of up to 5 Volts/meter and in PM fields, with an AM noise figure of at least 50 dB of over

Superior punch blocks for quick connections

Installation of depression type terminals, with proven long term reliability for 22 AWG stranded wire, are provided in a convenient punch block arrangement for input connectors.

Multiple input selector on phones and monitor

Interfacing 6 station punch block switches provide input selection for the headphone and monitor amplifiers, including FM, AUD, MONO, NET, CUE, EXT 1 and EXT 2 signals.

Dynamic range exceeds that of digital audio sources

The GOLD MEDALIST has at least 10 dB more dynamic range than 8-bit digital audio sources, while many competitive boards have 20 dB less due to poor S/N ratios and low output clipping levels.

Specifications in your station environment for very high signal quality in your market.

Comfortable padded armrest

Recessed trough

This channel Din/source START and OFF/STOP switches are operated from remote control in the panel through arm area, between the padded armrest and external module panel.

Features

The GOLD MEDALIST a popular choice for small TV as well as radio operations. Other applications include cable TV, post-production facilities, and sound distribution systems.

Monitor Amplifier

Strong personal preference for specific types of speakers and power levels due to the size of cabs. The gain is adjustable to assure exceptionally low noise and harmonic distortion.

Quick connect amp terminal for easy input and output connections are ganged for ease of use. The speaker level is set for low impedance inputs and for high input levels. This provides for easy selection of incoming levels.

Choice of Neve, Fong & Other modules as described on the back cover. Modules plug directly into mains wiring and may be filled in – exchanged – even the covers in operation.

Color Code Switches

The input channels IN and OFF switches are illuminated with high intensity LEDs for easy setting on the front panel. The output channels are illuminated to show signal present. Power supply is well thought out for reliable operation.

Program and Audition Switches for the IF input channels have a mechanical flag which shows only when the switch is on. Switches are clearly marked on the face of the phone and monitor selector. The arm or move switches must be fully depressed to the balance light area, except for the fader cue switch.

Reliability Designed in

One of the most satisfying features of the GOLD MEDALIST. A heavy duty power supply with plenty of capacity related to the number of channels in each circuit. Each amp channel has its own power supply and normal requirements to assure long life.

Quick connect Amp terminal for easy input and output connections are ganged for ease of use. The speaker level is set for low impedance inputs and for high input levels. This provides for easy selection of incoming levels.

Choice of Neve, Fong & Other modules as described on the back cover. Modules plug directly into mains wiring and may be filled in – exchanged – even the covers in operation.

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HARRIS GOLD MEDALIST AUDIO CONSOLE

The only one in its price range with all these features!

- 36 INPUTS WITH LOGIC CONTROLLED SWITCHING
  Input Channel ON and OFF switches control source machines through the individual input selector switches, providing START and STOP control of up to 3 sources per input channel.

- UP TO 12 SOURCES INTO 12 INPUT CHANNELS
  Optional fader modules, with 4-position pre-selector feeding into one input selector on each channel, expands total input capacity to 8 sources per input channel.

- END-OF-MESSAGE CONTROLLED CHANNEL OFF SWITCHING
  Connect sources with EOM to input channel-off control terminus to turn the channel off with the EOM command which eliminates unwanted noise and extraneous signals from the program output channel.

- TRANSFORMERLESS INPUT/OUTPUT FOR BEST SOUND QUALITY
  Active balanced 110Ω circuits in the GOLD MEDALIST eliminate audio transformer generated total harmonic, transient intermod and dynamic distortions found in many other boards.

- DC CONTROL FROM PG FADERS DRIVE VOLTAGE CONTROLLED AMPLIFIERS
  Low DC voltage from the fader drives a noise-integrated active audio slope generator, which drives the VCA's in the signal path for extended noise free operation.

- CONDUCTIVE PLASTIC PHONE, CUE AND MONITOR CONTROLS
  Heavy duty gain controls, secured to the front panel with threaded bushings, are provided with Offset cables to isolate them from the associated input signal.

- STEREO TRACKING WITHIN ± 0.25 DB ON INPUT CHANNEL FADERS
  Nearly perfect stereo tracking within ± 0.1 dB over much of the attenuator range is provided in program circuits by close tolerance VCA's driven with common left/right control voltages.

- 0.05% DISTORTION, +0.0/-0.25 db RESPONSE, 20 Hz to 20 kHz
  Sufficient margin is provided in the GOLD MEDALIST circuits to allow these stringent ratings to be met in less than ideal environments found in many stations.

- 77 dB S/N on MIC, 95 dB S/N on M-L INPUTS, 20 Hz to 20 kHz
  Factory mix channel noise requirements of more than 79-dB S/N provides margin to meet the rated
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<tr>
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<td>994-8975 ULTI-Mate 91 Stereo Pair</td>
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### AUDIO CONSOLES

| MEDALIST-Au             | 8,590.00      |               |
| MEDALIST-12             | 6,490.00      |               |
| M-12 Nose Cone Ass'y    | 135.00        |               |
| MEDALIST-10             | 5,200.00      |               |
| M-10 Nose Cone Ass'y    | 125.00        |               |
| MEDALIST-4              | 4,310.00      |               |
| M-8 Nose Cone Ass'y     | 115.00        |               |
| 064-1034 Momentary Start SW-Nose Cone | 15.00     |               |
| 044-1042 Alternate Start SW-Nose Cone | 15.00     |               |
| 064-1039 Momentary Start SW-Console | 15.00     |               |
| 044-1040 Alternate Start SW-Console | 15.00     |               |

### AUDIO PRODUCTS

| QSC MODEL 1080 Power Amplifier | 5,193.00 |               |

### PROGRAM AUTOMATION

| 994-0051 9001 Control Rack | 18,900.00 |
| 994-0052 9002 Control Rack | 22,500.00 |
| 994-0053 9003 Control Rack | 27,900.00 |
| 994-0054 Optional Package 42-Tray | 3,600.00  |
| 994-0037 Source Expansion | 3,295.00  |
| 994-0056 Memory Expansion | 695.00    |
| 991-0048 Additional CRT Console | 2,795.00 |
| 991-0033 Crown D-150A Pwr Amp | 325.00    |
| 994-0054 RAX-90 Autokab Cabinet | 595.00    |
| 731-1110 Sony 9" Monitor | 345.00    |
| 994-0044 Go-Cart II Mono 24-Tray/IE | 5,140.00  |
| 994-0045 Go-Cart II Stereo 24-Tray/IE | 5,340.00  |
| 994-0038 Go Kart II Stereo 42-Tray/IE | 9,990.00  |
| 994-0078 Go-Cart II Mono 78-Tray/IE | 10,580.00 |
| 994-0089 Go Kart II Stereo 76-Tray/IE | 10,760.00 |
| 994-0039 InstaCart Stereo 48-Tray/IE | 20,480.00 |
| 994-0088 InstaCart Stereo 48-Tray/IE | 24,650.00 |
| 994-0089 InstaCart Stereo 48-Tray/IE | 5,990.00  |
| 994-0088 InstaCart Stereo 48-Tray/IE | 5,990.00  |
| 994-0032 DS-150A Pwr Amp | 2,220.00  |

### MORE AUDIO PRODUCTS

| 730-2527 E10 Mono P-B-C-T, Desk 1-7 | 819.00 |
| 730-2531 E11 Mono P-B-C-T, Desk 1-7 | 849.00 |
| 730-2535 E20 Mono P-B-C-T, Desk 1-7 | 1,379.00 |
| 730-2536 E21 Mono P-B-C-T, Desk 1-7 | 1,949.00 |
| 730-2543 E30 Mono P-B-C-T, Desk 1-7 | 2,129.00 |
| 730-2547 E31 Mono P-B-C-T, Desk 1-7 | 2,519.00 |
| 730-2551 E50 Mono P-B-C-T, Desk 1-7 | 2,129.00 |
| 730-2555 E61 Mono P-B-C-T, Desk 1-7 | 2,279.00 |
| 730-2559 E62 Mono P-B-C-T, Desk 1-7 | 889.00  |
| 730-2563 E66 Stereo P-B-C-T, Desk 1-7 | 919.00  |
| 730-2567 E25 Stereo P-B-C-T, Desk 1-7 | 1,619.00 |
| 730-2568 E29 Stereo P-B-C-T, Desk 1-7 | 1,949.00 |
| 730-2575 E35 Audi-Cord Stereo P-B-T, 1-7 | 2,629.00 |
| 730-2579 E36 Stereo 3-D-P-B, Desk 3-7 | 2,719.00 |
| 730-2583 E55 Stereo 2-D-P-B, Desk 1-7 | 2,539.00 |
| 730-2584 E60 Stereo 2-D-P-B, Desk 1-7 | 2,279.00 |
| 730-2591 E66-1 Mono P-B-C-T, Desk 1-7 | 2,449.00 |
| 722-0099 Sentry 100A Speaker | 249.00 |
| 722-0127 Sentry 100E Speaker | 499.00 |
| 722-0016 JBL SLT-1 Miniature Speaker | 120.00 |
| 722-0017 JBL SLT-1 Miniature Speaker | 1,599.00 |
| 722-0090 JBL 4301 Speaker, each | 243.00 |
| 722-0105/0106 JBL 4312 Speaker | 432.00 |
| 722-0117/0118 JBL 4411 Speaker | 570.00 |

### DISPLAY ITEMS

| Technics SB-R100 Speakers, per pair | 260.00 |
| Technics E-V50 Turntable Turntable Tone Arm | 450.00 |
| QSC Model 1080 Power Amplifier | 5,193.00 |
| Studer A725 Digital Audio CD Player | 1,550.00 |
| Audio Digital TC-4 Digital Delay | 1,645.00 |
| JBL 6230 7Wx/Channel One 10-Ter Amp | 619.00  |
| 994-8915 PX-91 Phono Preamplifier | 395.00  |
Your audio console. Is it giving you the capability and quality you need to make profits? Or is it giving you the headaches that come with make-goods and hidden maintenance costs?

If your station is limited by a console that's too small or too old—one that's stretched beyond its capacity to perform—chances are good it's eating into your profits.

During Harris' Gold Medalist Audio Console Special now through Sept. 30, 1986, it's the perfect time to make a change!

Order by Sept. 30, 1986 and you'll get a 10.99% price discount. And, if you order by Sept. 7, you'll receive the discount and your choice of a Sennheiser MD 421 U microphone; a Harris PX-91 Mastering Quality Phono Preamplifier, or an extra Early Bird Special!

With the Gold Medalist, you'll get superior audio performance, 12 channels and 36 inputs with logic controlled switching, remote start-stop capabilities, and other features usually limited to consoles in the $20,000-plus price range for about half the price!

To take advantage of this special—your ticket to Harris quality at extra savings—complete the form on the back and return it today!
Gold Medalist Audio Console Order Form

Use this form to order your Harris Gold Medalist Audio Console! If you would like help completing it, phone Harris at 217/222-8200, extension 3456, or contact your Harris District Sales Manager.

Harris Medalist-Au 12-Channel Dual Stereo Audio Console, less attenuators, less monitor power amplifier (see list below) with 2 Mic Preamps, 3 Stereo Program Amps, Headphone Amp, Cue Amp/Speaker, Monitor Line Level Drive Amplifier, Self-Contained Power Supply, Power Transformer/Relay/Fuse Panel, 100+250 Volts, 50/60 Hz, 125 Watts Maximum

Medalist 4-Digit, 100-Minute Up/Down Timer with .4” LED Display and 6 Control Switches 267.00

Medalist 6-Digit, 12-Hour Quartz Clock with .4” LED Display and 3 Control Switches 269.00

Medalist 6-Digit Remote Display for ESE Master Clock with Serial Time Code 174.00

Penny & Giles Linear Attenuator with Cue Position, plus Cue Switch (Use up to 11, plus a Penny & Giles Linear Attenuator with Cue Switch (only) and plug-in Connector (listed below)

Penny & Giles Linear Attenuator with Cue Position, Cue Switch, plus Four-Position Stereo Input Selector Switch 265.00

Penny & Giles Linear Attenuator with Cue Switch (only) and plug-in Connector 105.00

Penny & Giles Rotary Attenuator Module, plug-in Connector 105.00

Alps Conductive Plastic Linear Attenuator Module, plug-in Connector 50.00

Allen Brady Rotary Attenuator Module, plug-in Connector 50.00

Optional Mic Preamp, used for Additional Mic Channels 150.00

(If you do not have a power amplifier, choose one of the following)

Symetrix A-220 Dual Power Amplifier, 20 Watts per Channel into 8 ohms or 4 ohms, 117V, 60 Hz ONLY 315.00

QSC Model 1080 Dual Power Amplifier, 35 Watts per Channel @ 8 ohms, 50 Watts per Channel @ 4 ohms, 117V, 60 Hz ONLY 399.00

B&G-W-85 Dual Power Amplifier, 35 Watts per Channel @ 8 ohms, 45 Watts per Channel @ 4 ohms, 117V, 50/60 Hz ONLY 449.00

Crown D-75 Dual Power Amplifier, 35 Watts per Channel at 8 ohms, 100/120/200/240V, 50-400 Hz 524.00

A. ADD LINE ITEMS FOR TOTAL REGULAR COST: $________

B. LINE A - TIMES .1099 (10.99%) DISCOUNT: $________

C. LINE A - MINUS LINE B, FOR YOUR SPECIAL GOLD MEDALIST CONSOLE PRICING: $________

For orders postmarked by September 7, 1986, choose one of the following: (please circle)

Sennheiser MD 421 U Microphone $50.00

Pioneer PX-91 Mastering Quality Phono Preamplifier $50.00

Extra Early Bird Special (Phone 217/222-8200, extension 3456)

Name __________________________

Title ____________________________

Station _________________________ Phone __________________________

Area Code/Number

Address__________________________

City _____________________________ State __________________________

Zip _____________________________

Best time to phone (please circle): M T W TH F

AM __________ PM __________

Gold Medalist Audio Console Special

Harris Corporation, Broadcast Division

P. O. Box 4290

Quincy, Illinois 62305-4290
Digitally Controlled With Protected Memory
A MAJOR BREAKTHROUGH IN AUDIO CONSOLE DESIGN . . .

Harris MICRO MAC™

- SELECTABLE 1-16 INPUT CHANNELS
  2 sources per input channel
  Source start/stop switching of selected A or B source

- SELECTABLE 1-4 OUTPUT CHANNELS
  Stereo Program, Stereo Audition, Stereo Auxiliary & Mono Sum

- 3 ASSIGNABLE SUBMASTER CHANNELS

- TROUBLE-FREE LINEAR ATTENUATORS
  No routine maintenance required
  Complete immunity to coffee, smoke, ashes, dust and dirt
  No change in attenuation or noise with operation or time
  Stereo tracking within 0.5 dB over entire attenuator range

- PEAK READING and/or VU METERS

- KEYBOARD ENTRY OF MANY FUNCTIONS

The Harris MICRO MAC™ Modular Audio Console incorporates a "start from scratch" philosophy that makes it unique. The first broadcast audio console with digital microprocessor memory is also the first offering automatic logging in a live operation. With microprocessor control and revolutionary linear attenuators, the MICRO MAC represents a major breakthrough in audio console design. Most control room errors are eliminated in routine board operation. User memory is protected from brown-outs and power interruptions. And user convenience is paramount, with virtually all switch assignments, attenuator positions and other control parameters digitally scanned continuously and updated per operator command.

Numerous software controlled functions make the MICRO MAC a bigger board than its size would indicate. Some of these include speaker muting assignment of control room and up to five studios; cart machine replay lockout and override; stop-delay of reel-to-reel machines; and a choice of latching or non-latching start/stop switching of up to 32 source machines! The MICRO MAC's modular design accepts 1 to 16 input modules of 3 different types for the ultimate in audio performance and flexibility.

PROGRAMMABLE ATTRIBUTES

By entering user commands in the MICRO MAC memory, or enabling routines already stored there, many programmable attributes may be used to enhance operation. They include:
- Muting assignment of speakers in the control room and up to five studios by keyboard entered numeric characters
- Choice of latching or non-latching start/stop switching for up to 32 sources
- Enabling Up Timer to restart each time a channel is activated to time segments or to utilize pre-timed segments
- Enter elapsed time in Down Timer to show remaining time allotted for certain events or segments
- Stop delay for Reel-to-Reel machines for accurate cueing of next selection on program tapes
# ORDERING INFORMATION

Control Console Main Frame (order 1) .......................... 994-8571-001
*These items supplied with Main Frame
Up/Down Timer* .................................................. 992-5832-001
Submaster/Keyboard/Monitor Module* ..................... 992-5831-001
System Interconnect Cable* .................................. 992-5901-001
Operational Program* ......................................... 992-5902-001
Input Control Module (order 1-16) ..................... 994-8563-001
Mono Control Module (order 0-1)
  Contains 994-8577-001 Mono Switcher Board .... 994-8564-001
Intercom Module (order 0-1)
  Contains 994-8593-001 Intercom Driver Board .... 994-8566-001
12/24 Hour Real Time Clock (order 0-1) .......... 994-8560-001
Standard VU Meter (order 0-7) ............................. 994-8561-001
VU/Peak Level Meter (order 0-7) ............................. 994-8562-001
Digital Power Supply* - rack mounted ................. 994-8598-001

Input Card Cage* - rack mounted
  Holds 16 plug-in Input Boards plus Summing Board
  Summing Board* .................................................. 992-5848-001
  Mono Mic Input Board (order 0-16) ................. 994-8556-001
  Stereo Low-Level Input Board (order 0-16) ........ 994-8555-001
  Stereo Medium-Level Input Board (order 0-16) .... 994-8554-001

Output Card Cage* - rack mounted
  Holds following plug-in boards & power supply
  Submaster VCA Boards* (3) ................................. 992-5853-001
  Analog Power Supply Chassis* ......................... 992-5854-001
  Hi-Level Output Amplifier Board (order 1-7) .... 994-8579-001
    2 each for stereo, 1 for mono line outputs
  Monitor Selector Board (order 0-2) ............... 994-8578-001
  External Effects/Processing Interface (order 0-3) ... 994-8576-001

DMI Interface Card Cage (order 0-1) - rack mounted
  Holds the following plug-in boards ................. 994-8574-001
  Dual Machine Interface Card (order 0-16)
    1 for each input channel with remote control of 1 or 2 source machines 994-8568-001
  Machine Interface Logging Board (order 0-1)
    1 required for logging a live operation ............. 994-8569-001
  Muting/Intercom Driver (order 0-1) - rack mounted ... 994-8575-001
  Console Main Frame Extender Card (order 0-1) ....... 939-5776-002
  Input Card Cage Extender Card (order 0-1) ......... 939-0209-001
  Summing Board Extender Card (order 0-1) ............. 939-5776-093
  Output Card Cage Extender Card (order 0-1) ......... 939-5776-087
  DMI Card Cage Extender Card (order 0-1) ............ 939-0209-001
  Blank Main Frame Module (order 0-N)
    2 required in extreme right unassigned area, plus 1 each for unused input channels and intercom position 994-8621-001

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HARRIS CORPORATION Broadcast Products Division
P. O. Box 4290, Quincy, Illinois 62301 U.S.A. 217/222-8200

CP-2M-381 © 1981 Harris Corporation

ADV. 586 PTD. IN U.S.A.
- Operating warning and play command lockout to cart machines to prevent back-to-back playing of same cart
- Accurate and convenient setting of 12/24 hour Real Time Clock
- Automatic logging of a live operation with serial ASCII data output connection to external log printer, showing:
  - Start time of each new event (change or restart of source)
  - Input channel number (1-1 through 16-2, 32 total)
- Clear text identification/information from encoded source tapes, if provided by station operation

**INPUT MODULES**

Each input module contains a 2-position input selector switch with transferred status and logic control to the selected source. This effectively doubles source capacity of the console when all 16 input channels are installed to a total of 32 miscellaneous sources. The input control modules may use an associated Mono Microphone Input Board, Stereo Low-Level Input Board, or Stereo Medium-Level Input Board, depending on the type of source connected into it.

**ASSIGNABLE SUBMASTER BUSSES**

Three submaster buss assignment switches on each input module are provided for grouping of the various source types. Each submaster channel allows insertion of external effects or processing units such as an audio processor, filter, equalizer, effects, or reverberation, for signal enhancement. The level is controlled by the A, B, or C Submaster linear attenuator; output may be directed to PGM, AUD, AUX and/or MONO output lines. The result is a far more effective, flexible system than could be obtained with plug-in effects/limiter/EQ modules.

**LINEAR ATTENUATOR**

An exclusive design in a digitally scanned attenuator provides trouble-free performance with no routine maintenance. Its digital output signal, designating the position of the actuator, is converted to an analog VCA control voltage, which operates true VCA (voltage controlled amplifier) gain elements. There is only one moving part, a mechanical assembly. Its position is sensed by sealed LEDs and detectors.

Complete immunity to poor environmental conditions is facilitated by this design. Coffee spills, cigarette smoke and ashes, airborne dust and dirt—agents that degrade operation of the best conductive plastic attenuators—are not a factor on the MICRO MAC. In those extreme situations, excessive build-ups may be simply wiped off attenuator elements, restoring them to new operating condition. And attenuator life is virtually unlimited. Stereo tracking within 0.5 dB over the full attenuator range is another important feature of the MICRO MAC linear attenuator. Compare this with any other attenuator, such as the dual step type or dual conductive plastic, with their staggered steps and wide tolerance audio taper curves.
Unparalleled Flexibility, Unexcelled Performance

INPUT CHANNEL ON/OFF
Illuminated, color-coded switches at the bottom of the input channel panel turn the channel on and off. In addition, they may be used to start and stop external sources through the optional dual machine interface cards. Actual switching circuits for the source machines are opto-isolated to prevent any chance of switching transients being induced into the console program circuits.

INPUT CHANNELS
All three types use true instrumentation amplifiers as active (transformerless) balanced inputs for practically transparent operation. Amplifier input impedance is approximately 10K ohms, so the input impedance of the channel is determined by the loading resistor, if used.

The Mono Mic and Stereo Lo-Level Input Channel Boards have at least 30 dB of headroom. They can accept –30 dBm, or even more, with a nominal –60 dBm input gain setting. A P-C mounted DIP (Dual Inline Package) switch provides gain trim or adjustment in 10 dB steps, from –70 to –40 dBm nominal input levels. The Medium Level Input Channels also have 30 dB of headroom. They are designed for a nominal input level of –20 dBm and have a DIP switch gain adjustment in 10 dB steps to accommodate a –30 to +10 dBm input level.

VU/PEAK METER
From 1 to 7 meters may be selected as a combination VU and Peak Reading meter, or VU meter only. The VU meter meets all ASA specifications, and is driven with an isolation/buffer amplifier to prevent meter diode generated distortion in the program circuits. The Peak Reading meter has 11 LEDs mounted across the top of the meter scale. They are calibrated +5, +7, and so on, @ 2 dB per division, up to +23 dBm -plus OL (overload calibrated for +30 dBm output of program amplifiers). The VU meter has a precision calibration to adjust for an amplifier output of 0 VU, +4 VU or +8 VU with the meter reading zero. Thus, the output level of the MICRO MAC’s program lines may be set to the desired point for the system. The peak reading LED portion of the meter is extremely fast in operation in its factory configuration. It can easily be modified to approximate the DIN PPM (Peak Program Meter) meter characteristics.

OUTPUT CHANNELS
Stereo Program, Stereo Audition, Stereo Auxiliary and Mono/Sum channels may be added to the console by adding up to 7 Output Amplifiers (3 pairs for stereo plus mono) and VU or VU/PEAK meters. The Output Amplifiers have active (transformerless) balanced outputs with extremely high slew rates, making them practically transparent. Output capability is at least +30 dBm into a 600 ohm load, providing from 22 dB to 30 dB of headroom with the output level adjusted for +8 VU to 0 VU. The MONO output channel can be fed a compatible or sum signal from the stereo PGM, AUD, AUX, Submaster A, Submaster B and/or Submaster C channels. This provides complete flexibility seldom found in other consoles.

SUBMASTER/KEYBOARD/MONITOR MODULE
Selector switches above the submaster faders connect them to the PGM, AUD and AUX output channels, individually or collectively. All submaster feeds are buffered so that multiple feeds cause no crosstalk between channels. The Control Room and Studio Monitor sections each have input selectors for PGM, AUD, AUX and EXT feeds. Monitor section output is approximately 1 volt for driving external speaker amplifiers.

The Keyboard/Edit section contains switches labelled SET CLOCK, UP TIMER, DOWN TIMER, START/STOP, EDIT, ENTER, ADVANCE and CLEAR. An additional 12-button key pad provides for numeric entry of user instructions in the console memory.

Harris MICRO MAC input module with linear attenuator actuator.
MICRO MAC SPECIFICATIONS

OPERATING MODE: Stereo in up to 3 output channels, plus mono/sum.

MIXING CHANNELS: Optional, from 1 to 16 mono mic, low-level stereo or medium-level stereo channels that can be assigned to desired sources.

INPUT CIRCUITS: From 2 to 32, depending on number of input modules in the console.

OUTPUT CIRCUITS: Total 7: Stereo Program, Stereo Audition, Stereo Auxiliary, Mono/Sum, Stereo Studio Monitor, Stereo Control Room Monitor, and Cue Amplifier.

SOURCE IMPEDANCES:
Microphones: 150/250 ohms, balanced.
Stereo low-level: 150/250/600 ohms, balanced.
Stereo medium-level: 150/250/600 ohms, balanced.

GAIN
MIC CHANNEL: 92 dB nominal with 0 VU output level, 100 dB nominal with +8 VU output level.
LOW-LEVEL INPUT CHANNEL: 92 dB nominal with 0 VU output level, 100 dB nominal with +8 VU output level.
HIGH-LEVEL INPUT CHANNEL: 52 dB nominal with 0 VU output level, 60 dB nominal with +8 VU output level.

FREQUENCY RESPONSE: ±0.25 dB maximum from 20 Hz to 20 kHz in all program and monitor circuits.

DISTORTION
THD (HARMONIC): Less than 0.1% from 20 Hz to 20 kHz below the +30 dBm overload indicator point in all program input/output channels and monitor circuits.
IMD (INTERMOD): Less than 0.1% with SMPTE 4:1 mix below the +30 dBm peak equivalent level in all program input/output channels and monitor circuits.

NOISE
MIC CHANNEL: -125 dBv equivalent input noise, 20 Hz to 20 kHz bandwidth unweighted, with -50 dBv input level into one active input channel.
LOW-LEVEL INPUT CHANNEL: -125 dBm equivalent input noise, 20 Hz to 20 kHz bandwidth unweighted, with -50 dBm input level into one active input channel.
HIGH-LEVEL INPUT CHANNEL: -90 dBm equivalent input noise, 20 Hz to 20 kHz bandwidth unweighted, with -10 dBm input level into one active input channel.
POWER: 117/234 volts, ±10%, 50/60 Hz, 350 watts maximum.

SIZE
MAIN FRAME: 1308 mm (51.5 in.) width, 584 mm (23 in.) depth, 194 mm (7.65 in.) projection above and 102 mm (4 in.) below table top surface, with 1276 mm (50.25 in.) by 527 mm (20.75 in.) cutout in table top.
INPUT CARD CAGE: 311 mm (12.25 in.) height, 483 mm (19 in.) width, 356 mm (14 in.) overall depth.
OUTPUT CARD CAGE: Same as Input Card Cage.
DIGITAL POWER SUPPLY: 133 mm (5.25 in.) height, 483 mm (19 in.) width, 279 mm (11 in.) overall depth.
DUAL MACHINE CARD CAGE: 267 mm (10.5 in.) height, 483 mm (19 in.) width, 356 mm (14 in.) overall depth.
MUTING/INTERCOM DRIVER UNIT: 178 mm (7 in.) height, 483 mm (19 in.) width, 102 mm (4 in.) overall depth.
NET WEIGHT: 298 kg (135 pounds) for Main Frame, 220 kg (100 pounds) for other 5 units listed above.
DOMESTIC PACKED WEIGHT: 596 kg (270 pounds) for Main Frame, 440 kg (200 pounds) for other 5 units listed above.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE
HARRIS
COMMUNICATIONS AND
INFORMATION HANDLING

MONO 5
Solid-State
5-Channel
Audio Control
Console

- Thirteen inputs into five mixing channels
- Compact size saves control room space
- Quiet “push-on/push-off” input switches
- Extensive use of integrated circuits
- All solid state...silicon transistors
- Great versatility at a modest price

Harris' Mono 5 is a solid-state audio control console that provides a high degree of flexibility through the use of thirteen inputs into five monaural mixing channels. Although compact in size, and economical in price, the Mono 5 offers facilities and performance specifications comparable to many larger, more expensive consoles.
In medium and smaller size AM and monaural FM stations, the Mono 5 is ideal as a main console. In larger stations, the Mono 5 will find application as a production console, or may be used for independent programming from a second facility.

VERSATILE INPUT SWITCHING: Thirteen inputs can be switched into the five mixing channels in a manner to satisfy most programming requirements. These inputs can include four microphones, three turntables, three cartridge reproducers, one reel-to-reel reproducer, one network and one auxiliary source. The thirteen front panel input switches are of the "push-on/push-off" type for quiet control room operation. There are isolation transformers on all program inputs and outputs.

MICROPHONE CHANNELS (1 & 2): These two channels are equipped with low-noise preamplifiers for use with low-impedance, broadcast-type microphones. Each of the channels may select from two different input signals by use of front panel switches.

MEDIUM LEVEL CHANNELS (3, 4 & 5): These three channels are designed for medium level inputs and may be used with turntables, cartridge tape machines, or reel-to-reel machines. Remote, network or auxiliary sources may be assigned to any of the nine medium level inputs.

PROGRAM, AUDITION AND CUE SELECTION: Any of the five mixing channels may be switched to the Program Channel or Audition to permit independent monitoring or recording of incoming sources without disturbing programming. Channels 3, 4 and 5 also have cue positions, which provide signal to the amplified cue system. This signal can be monitored by an internal speaker or external headphones. Switching is by telephone-grade lever-type keys that provide maximum durability and reliability.

PROGRAM CHANNEL: The program channel consists of a summing type booster amplifier, audio output amplifier, VU meter, and a master gain control. The master gain control, an internal adjustment, is preset at the factory to provide 16 dB of reserve gain for the console, and is the optimum setting for providing adequate operating margins of signal-to-noise and "headroom". The 4-inch illuminated VU meter is a standard volume indicator, and is used in conjunction with the mixing channel attenuators to establish a reference of "O" VU, which is equivalent to an output level of +8 dBm.

ADDITIONAL FACILITIES: A three-position monitor selector switches the monitoring amplifier input to (1) program circuit, (2) terminals for an external source, and (3) audition circuit. Front panel controls also include monitor gain and cue gain, and conventional high impedance cue and program headset jacks are provided.

A protective system of warning lights and speaker muting is included in the Mono 5 to prevent acoustic feedback and broadcasting of a cue signal when live microphones are nearby.
MONO 5 SPECIFICATIONS

OPERATING MODE: Single channel, monophonic.

MIXING CHANNELS: Total-5. Two microphone channels, three medium level (turntable, tape, remote, network) channels. Cue positions on medium level channel switches.

INPUT CIRCUITS: Total-13. Four microphone inputs, nine medium level (turntable, tape, remote, network) inputs.

OUTPUT CIRCUITS: Total-5. Program, audition, two muted monitor for control room and studio, one unmuted monitor for lobby.

AMPLIFIERS AND POWER SUPPLY: Two pre-amplifiers, one program, one cue and one monitor amplifier. Self-contained power supply.


GAIN: Microphone input to line output: 100 dB, ±3 dB. Medium level input to line output: 60 dB, ±3 dB. Medium level input to monitor output: 80 dB, ±4 dB.

RESPONSE: Program circuits: ±1 dB, 30-15,000 Hz. Monitor circuits: ±1.5 dB, 30-15,000 Hz.

DISTORTION: Program circuits: 0.5% maximum @ +8 dBm; 1.0% maximum @ +18 dBm output level, 30-15,000 Hz. Monitor circuits: 3.0% maximum @ 6 watts output level (lobby output only).

NOISE: Program circuits: at least 70 dB below +18 dBm output with -50 dB input to microphone channels or -10 dBm input to medium level channels. Monitor circuits: at least 70 dB below 6 watts output level with same input levels.

POWER: 117/234 volts, ±10%, 50/60 Hz, single phase, 37 watts maximum.

FINISH: Beige-gray Pebble-Tex cabinet, natural aluminum front panel.

SIZE: 30 inches long, 8½ inches high, 17½ inches deep (76.2 cm x 21.6 cm x 44.5 cm).

WEIGHT: 41 pounds (18.6 kg).

SHIPPING DATA: Packed weight, domestic, 51 pounds; export, 101 pounds (45.8 kg).

ORDERING INFORMATION

Mono 5, five-channel monaural audio console, complete with preamplifiers, program amplifier, cue amplifier, monitor amplifier, and self-contained power supply.......................................................... 994-7699-001

HARRIS CORPORATION  Broadcast Products Division
123 Hampshire Street, Quincy, Illinois 62301
PRECISION MODULAR CONSTRUCTION

FULLY REGULATED POWER SUPPLY

A regulated supply is used to power all circuit modules accessing correct operating parameters for peak efficiency and reliable trouble-free operation at all times. Separate distribution points provide isolation between servicing circuits and program circuits.

Plug-in circuit boards offer the finest in advanced solid state engineering adding years of usable life to electronic components and circuitry. The construction used in the Criterion 80 series, provides for modifications as may be required to make the Criterion 80 series compatible with almost any make of existing cartridge equipment. Circuit boards are used throughout for easy component access, should maintenance be required. Electronically all of plug-in design, including relay, circuit boards, all audio and switching leads, even to the lighted front panel switch assemblies.

RECORDING UNITS

The basic Criterion 80 series recording amplifier is a solid-state, primary use device for use in association with any masochistic Criterion 80 playback. The recording amplifier is also available in stands, with second and third tone options in mono or stereo at additional cost. The basic desk mount design is adaptable to rack mounting with optional rack adaptors. The interconnection of all components and the special construction used in the Criterion 80 recording amplifier provides for extremely easy maintenance when required.

CRITERION 80

SPECIFICATIONS

FLATBACK UNIT

POWER UNIT: 1200-2200 volts, 65 Hz or 50 Hz.
RECORDING LEVEL: 70 to 80 microvolts.
LINEAR FREQUENCY RESPONSE: 20 to 20,000 Hz.
NOISE: All (Shimmer), 60 (Shimmer) below NAB Freq. Bel, 4 (Shimmer) below NAB Freq. below tape signal reference.</p>

CRITERION 80

SHOCK: 10 to 500 Hz, 30 G's, 60 (Shimmer) below NAB Freq. Bel, 10 (Shimmer) below NAB Freq. below tape signal reference.
DEAD SPACE: 55 in., 30 G's, 60 (Shimmer) below NAB Freq. Bel, 10 (Shimmer) below NAB Freq. below tape signal reference.
KEELED: 55 in., 30 G's, 60 (Shimmer) below NAB Freq. Bel, 10 (Shimmer) below NAB Freq. below tape signal reference.
REAR PLATE: NAB Standard Response.
AVERAGE POWER: 15, 20 microvolts.
AIR GAP: Standard, 90, 140 microvolts.
CUE CONTROL: All Control Functions.
REMOTE CONTROL: Referred Hysteresis bands in Micro-Set assembly.
TAP VELOCITY: 96, minimum per second.
TAPE SPEED: Special Speeds Series, special tests listed.

RECORDING AMPLIFIER

MOUNT: MONO, Stand alone unit only.
AMOUNT: MATCHING.
BIAS OSCILLATOR: Monoonly 720, 1440 Hz, mono.
RECORDING CAPABILITIES: All mono balanced line, input levels from 30 to 10 dB, matching, +10 to +50 dB, bridging 180 HZ.
REMOTE CONTROL: All functions and tone indications.
DIMENSIONS AND WEIGHT: Rack, 6 in. wide, 12 in. high.
DEPTH AND WIDTH: Desk top mono, 6 in. high, 12 in. wide, 14 in. deep. Mono volume. 12 in. wide. Mono or Sympo.

ORDERING INFORMATION

MONO TO ORDER: Order blank card with unit for playback amplifiers, record sound and third tone sensors as accessories. Include necessary electronic combinations, also order our accessories. For rack mounting, order rack adaptors.

CRITERION 80

PLAYBACK UNITS

MP-87: Pitched record and sound amplifiers. mono, 1000 Hz, 10,000 Hz, 20,000 Hz.
MP-875: Pitched record and sound amplifiers. mono, 1000 Hz, 10,000 Hz, 20,000 Hz.
MP-887: Pitched record and sound amplifiers. mono, 1000 Hz, 10,000 Hz, 16000 Hz.
MP-8875: Pitched record and sound amplifiers. mono, 1000 Hz, 10,000 Hz, 16000 Hz.
MP-8876: Pitched record and sound amplifiers. mono, 1000 Hz, 10,000 Hz, 16000 Hz.

ACCESSORIES

O-0: 100, 1600 Hz can sensor assembly, phase is between 90° and 270°. Output assembly for sensor assembly. Non-magnetic, suitable for all types of sound fingers, phase is between 90° and 270°. Output assembly for sensor assembly. Suitable for all types of sound fingers, phase is between 90° and 270°. Output assembly for sensor assembly. Suitable for all types of sound fingers, phase is between 90° and 270°.
O-100: 100, 1600 Hz can sensor assembly, phase is between 90° and 270°. Output assembly for sensor assembly. Non-magnetic, suitable for all types of sound fingers, phase is between 90° and 270°. Output assembly for sensor assembly. Suitable for all types of sound fingers, phase is between 90° and 270°. Output assembly for sensor assembly. Suitable for all types of sound fingers, phase is between 90° and 270°.
O-100B: 100, 1600 Hz can sensor assembly, phase is between 90° and 270°. Output assembly for sensor assembly. Non-magnetic, suitable for all types of sound fingers, phase is between 90° and 270°. Output assembly for sensor assembly. Suitable for all types of sound fingers, phase is between 90° and 270°. Output assembly for sensor assembly. Suitable for all types of sound fingers, phase is between 90° and 270°.
O-100B: 100, 1600 Hz can sensor assembly, phase is between 90° and 270°. Output assembly for sensor assembly. Non-magnetic, suitable for all types of sound fingers, phase is between 90° and 270°. Output assembly for sensor assembly. Suitable for all types of sound fingers, phase is between 90° and 270°. Output assembly for sensor assembly. Suitable for all types of sound fingers, phase is between 90° and 270°.

GAITES CORPORATION

TAP CARTRIDGE SYSTEM

CRITERION 80

CRITERION 80

CRITERION 80

CRITERION 80

CRITERION 80

CRITERION 80

CRITERION 80

CRITERION 80

CRITERION 80

CRITERION 80
RUGGED DECK ASSEMBLY

(A) PRECISION MECHANICAL CONSTRUCTION: Major reasons for the excellence of the Criterion 80 units are: outstanding engineering, and the quality of the tape deck motor mechanism, lead assembly, and center slideout. The entire assembly is built upon a heavy-duty, precision-machined aluminum casting, which assists in providing proper cartridge alignment on the exclusive Micro-set head assembly and is also the rugged integral mounting base for the other tape transport components.

(B) QUIET, STUDIO OPERATION: Improved indexed action and computer-type rubbers reduce operating noise and contribute to the quiet, on-side operation of the unit. The fully proven automatic pinch-roller engagement makes actual studio operation easy, fool proof and noise free. Full motor shield keeps signal-to-noise ratio low.

(C) POSITIVE DRIVE ACTION: The heart of the Criterion 80 series playback unit is the heavy-duty tape transport with its synchronous synchronous positive speed direct capstan drive motor. The Criterion 80 tape transport offers speed accuracy to within 0.2%, comparable to the finest reel-to-reel machines. Sealed instrument-type ball bearings are used to keep transport wear and flutter to less than 0.02% rms. Three periods of tape pulling force developed by the Criterion 80 transport virtually eliminate timing errors, regardless of cartridge size or tape length.

The assembly serves two purposes: (A) To provide convenient and positive positioning of any cartridge head used on Criterion 80 Equipment by screw-driver adjustment and (B) To positively guide the tape as it passes the heads. The machined cast aluminum base is the "center" of the entire assembly. It provides for theû positive mechanical mounting and adjustment of all components of the entire Microset head assembly. The cast head mounting assemblies are aligned to the front-to-screw axis of each head for positive vertical height positioning. A single adjusting screw provides positive azimuth alignment to within-1% tolerances. Three tape guides are integrated as a single inline assembly which is attached to the mounting base by screws. The positioning of the guide assembly is referenced from the tape transport deck in accordance with NAB standards for cartridge tape circuits and assures proper tape height from the deck. Constant output quality, especially in audio response from cartridge to cartridge, is provided by the triple guide for positioning of the tape on the head.

The cartridge hold-down spring is directly attached to the mounting base by screws. Its position on the cartridge is not affected while making adjustments. As an assembly cover provides useful shielding, improved laminated heads selected for the Criterion 80 series playback unit and high quality metal-foil heads providing for long wear and low noise accumulation. The special design provides improved high frequency response, usually exceeding the rated specifications.

The Criterion 80 series is available in playback and record-playback combination models, in monoaural or stereo. Basic deck-mount design may be adapted to rack mounting with optional rack adapters. The primary 1 kilo ohm standard is standard. Second and third

CRITERION 80
TAPE CARTRIDGE SYSTEM

Now, from the origins of the cartridge tape system for broadcasting comes the ultimate in cartridge unit design... the Criterion 80 series, with built-in, performance-proven features. From deck slide-out chassis and plug-in electronics to better timing, better wave and flutter, and dependable direct capstan drive for split-second timing accuracy, the Criterion 80 represents over ten years of actual experience in the design, engineering and manufacturing of broadcast tape cartridge equipment. Consequently, the Criterion 80 series offers all of the many features most desired by broadcasters, plus superior workmanship which assures long and dependable service.

The Criterion 80 has design improvements for still more efficient operation not found in its predecessors. Backed up by the rugged deck and tape drive assembly for which it is famous, the Criterion 80 in addition has the latest in silicon transistors, plug-in printed circuit boards, and independent gain controls for the cue amplifiers.

The individual Criterion 80 circuits have been EFI proofed to make them impervious to strong RF fields. The printed circuit boards, however, are easily accessible for quick maintenance. Other Criterion 80 advancements include output gain controls accessible from the front panel, automatic audio muting and transient suppression, and a 1-10 dBm output capability. All external cable have latching connectors for a more dependable installation.

The Criterion 80 tape transport offfers speed accuracy to within 0.2%, comparable to the finest reel-to-reel machines. Sealed instrument-type ball bearings are used to keep transport wear and flutter to less than 0.02% rms. Three periods of tape pulling force developed by the Criterion 80 transport virtually eliminate timing errors, regardless of cartridge size or tape length.

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RUGGED DECK ASSEMBLY

(A) PRECISION MECHANICAL CONSTRUCTION: Major reasons for the excellence of the Criterion 80 units are: outstanding engineering, and the quality of the tape deck motor mechanism, lead assembly, and center slideout. The entire assembly is built upon a heavy-duty, precision-machined aluminum casting, which assists in providing proper cartridge alignment on the exclusive Micro-set head assembly and is also the rugged integral mounting base for the other tape transport components.

(B) QUIET, STUDIO OPERATION: Improved indexed action and computer-type rubbers reduce operating noise and contribute to the quiet, on-side operation of the unit. The fully proven automatic pinch-roller engagement makes actual studio operation easy, fool proof and noise free. Full motor shield keeps signal-to-noise ratio low.

(C) POSITIVE DRIVE ACTION: The heart of the Criterion 80 series playback unit is the heavy-duty tape transport with its synchronous synchronous positive speed direct capstan drive motor. The Criterion 80 tape transport offers speed accuracy to within 0.2%, comparable to the finest reel-to-reel machines. Sealed instrument-type ball bearings are used to keep transport wear and flutter to less than 0.02% rms. Three periods of tape pulling force developed by the Criterion 80 transport virtually eliminate timing errors, regardless of cartridge size or tape length.

The assembly serves two purposes: (A) To provide convenient and positive positioning of any cartridge head used on Criterion 80 Equipment by screw-driver adjustment and (B) To positively guide the tape as it passes the heads. The machined cast aluminum base is the "center" of the entire assembly. It provides for the positive mechanical mounting and adjustment of all components of the entire Micro-set head assembly. The cast head mounting assemblies are aligned to the front-to-screw axis of each head for positive vertical height positioning. A single adjusting screw provides positive azimuth alignment to within-1% tolerances. Three tape guides are integrated as a single inline assembly which is attached to the mounting base by screws. The positioning of the guide assembly is referenced from the tape transport deck in accordance with NAB standards for cartridge tape circuits and assures proper tape height from the deck. Constant output quality, especially in audio response from cartridge to cartridge, is provided by the triple guide for positioning of the tape on the head.

The cartridge hold-down spring is directly attached to the mounting base by screws. Its position on the cartridge is not affected while making adjustments. As an assembly cover provides useful shielding, improved laminated heads selected for the Criterion 80 series playback unit and high quality metal-foil heads providing for long wear and low noise accumulation. The special design provides improved high frequency response, usually exceeding the rated specifications.

The Criterion 80 series is available in playback and record-playback combination models, in monoaural or stereo. Basic deck-mount design may be adapted to rack mounting with optional rack adapters. The primary 1 kilo ohm standard is standard. Second and third

RUGGED DECK ASSEMBLY

(A) PRECISION MECHANICAL CONSTRUCTION: Major reasons for the excellence of the Criterion 80 units are: outstanding engineering, and the quality of the tape deck motor mechanism, lead assembly, and center slideout. The entire assembly is built upon a heavy-duty, precision-machined aluminum casting, which assists in providing proper cartridge alignment on the exclusive Micro-set head assembly and is also the rugged integral mounting base for the other tape transport components.

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PROFESSIONAL TURNTABLES
AND ACCESSORIES
Recent advances in recording techniques, as well as stereo requirements, now place stronger demands on today's reproducing equipment. To meet these improved performance standards, Gates offers two outstanding turntables (one 16-inch model, one 12-inch model), designed to reduce rumble to an all-time low, without the sacrifice of quick cue.

The heart of Gates turntable design is a drive hub, which is part of the turntable platter—and about one-half the radius of a 45 rpm disc. A single idler wheel for all speeds is floating and self-aligning—and a 600 rpm hysteresis synchronous motor with 3-speed pulley, engages the idler wheel to the inner hub.

The combination of lower motor speed (one-third that of other models) and a drive located inside the playing surface, results in remarkably low rumble.

Speed change is exact and functionally correct. All three speeds shift across a single indexed plate. A mercury-type start/stop switch illuminates when on. The smooth felt platter surface offers slip-cueing if desired. A captive pop-up spindle is provided for 45 rpm discs.

Every Gates turntable is totally hand-assembled, micrometer checked under rigid quality-control standards and then individually tested in our laboratory for wow, flutter, and speed consistency.

As Gates turntables are precision machined devices they are not the lowest in initial cost, but are far less expensive on the basis of per-hour cost.
Gates CB-500 is the most widely used 16-inch turntable in the broadcasting industry. Designed for continuous 24-hour commercial service, this turntable is ruggedly constructed to meet the strain of any control room operation, while maintaining its excellent quality of performance.

Time proven features include heavy machined aluminum platter, rubber-shock-mounted cast aluminum chassis, oilite hub bearing, self-centering neoprene idler wheel, monoball self-aligning speed shift bearings, and a functional speed selector mechanism. (Order pickup arm separately.)

**SPECIFICATIONS**

- **CHASSIS SIZE:** 21¼" x 21¼" x 1½".
- **MOTOR HANG BELOW BOTTOM OF CHASSIS:** 4¾".
- **CONSTRUCTION:** Both platter and base of machined aluminum.
- **FINISH:** Beige-gray with escutcheon in black and turntable platter cover in heavy gray felt.
- **PLATTER SIZE:** 17".
- **STROBOSCOPE:** Built-in on platter for all three speeds.
- **CENTER SPINDLE:** Spring-locking type, snaps up for 45 rpm hub, locks down for smaller-spindle records.
- **CENTER BEARING:** 1" diameter hardened steel, rotates in oilite bearing.
- **MOTOR:** Hysteresis synchronous, single phase, 600 rpm, with 40°C temperature rise.
- **CUEING:** At 33⅓ rpm, ½ turn. At 45 rpm, ¼ turn. At 78 rpm, 1¾ turn.
- **NOISE OR RUMBLE:** At 33⅓ rpm, rated — 45 dB. At 45 rpm, rated — 40 dB. At 78 rpm, rated — 35 dB.
- **WOW:** Rated 0.1% at 33⅓ rpm, capable .08%.
- **FLUTTER:** Rated 0.07% at 33⅓ rpm, capable .05%.
- **MOTOR START:** Rocker-type illuminated mercury switch.
- **IDLER WHEEL:** Special shear action neoprene, self-aligning.
- **SPEED CHANGE:** To 33⅓, 45, or 78 rpm by single indexed lever control.
- **POWER:** 117 volts, 60 Hz, 35 watts. (50 Hz available, see below.)
- **WEIGHT:** Net: 34 lbs. Packed: domestic, 45 lbs.; export, 70 lbs. Cubage: 6 cubic feet.
MODEL CB-77

Gates CB-77 is a professional 12-inch transcription turntable, with the same unique design principles as its companion 16-inch model. In the 12-inch CB-77 chassis will be found the same inner hub drive system, the same convenient speed change system, the same illuminated rocker arm on-off switch, etc. The only difference is the reduced size, affording broadcasters a more compact turntable arrangement for today's busy control room, were space is at a premium.

The chassis is ready for you to attach the pickup arm of your choice (order separately), and is designed for 33⅓, 45 and 78 rpm speeds.

SPECIFICATIONS

CHASSIS SIZE: 16" x 16" x 13½". Motor hang below bottom of chassis: 5½".
CONSTRUCTION: Platter and base of machined aluminum.
FINISH: Beige-gray with escutcheon in black and turntable platter cover in heavy gray felt.
PLATTER SIZE: 13¼".
STROBOSCOPE: Built-in for all 3 speeds.
CENTER BEARING: 1" diameter hardened steel, rotates in oilite bearing.
CENTER SPINDLE: Spring-locking type snaps up for 45 rpm, locks down for smaller spindle records.
MOTOR: Hysteresis synchronous, single phase, 600 rpm, with 40°C temperature rise.
CUEING: At 33½ rpm, ¼ turn. At 45 rpm, ¼ turn. At 78 rpm, 1 turn.

NOISE OR RUMBLE: At 33⅓ rpm, rated —45 dB. At 45 rpm, rated —40 dB. At 78 rpm, rated —35 dB. (Meets or exceeds NAB specifications for stereophonic reproduction.)
WOW: 0.1% maximum, capable .08%.
FLUTTER: .07% maximum, capable .05%.
MOTOR START: Rocker-type illuminated mercury switch.
IDLER WHEEL: Special shear action neoprene, self-aligning.
SPEED CHANGE: To 33⅓, 45 or 78 rpm by single indexed lever control.
POWER: 117 volt, 60 Hz, 35 watts. (50 Hz model available, see below.)

ORDERING INFORMATION

CB-77 12-inch transcription turntable, chassis only, 60 Hz .................................................................994-5798-005
CB-77A 12-inch transcription turntable, chassis only, 50 Hz ...............................................................994-5798-006
16-INCH SYSTEM COMPONENTS

To make up a 16-inch turntable system, the following components are recommended:

**MONOPHONIC SYSTEM**
- CB-500 turntable, 60 Hz (50 Hz available)  994-5739-003
- Gray 306 16" viscous damped tone arm  722-0269
- Shure M-44-7 stereo dynetic cartridge w/.0007" diamond stylus 722-0236
- M-644 equalized turntable preamplifier, transistorized  994-6444

*NOTE: If Gray 208-SG tone arm is desired (723-0153), a General Electric VR-II turn-around cartridge should be used (723-0017).*

**STEREOPHONIC SYSTEM**
- CB-500 turntable, 60 Hz (50 Hz available)  994-5739-003
- Gray 306 16" viscous damped tone arm  722-0269
- Shure M-44-7 stereo dynetic cartridge w/.0007" diamond stylus 722-0236
- M-644 equalized turntable preamplifier, transistorized, stereophonic  994-6442

*NOTE: To order cabinet, see below.*

12-INCH SYSTEM COMPONENTS

The following components are recommended to make up your 12-inch turntable system.

**MONOPHONIC SYSTEM**
- CB-77 turntable, 60 Hz (50 Hz available)  994-5798-005
- Gray 206-S 12" tone arm  722-0259
- or
- Gray 303 12" Micro-Trak tone arm  722-0268
- Shure M-44-7 stereo dynetic cartridge w/.0007" diamond stylus 722-0236
- M-6244 equalized turntable preamplifier, transistorized  994-6244

*NOTE: If Gray 206-SG 12" tone arm is desired (catalog number 723-0250), order General Electric VR-II turn-around cartridge (catalog number 723-0017).*

**STEREOPHONIC SYSTEM**
- CB-77 turntable, 60 Hz (50 Hz available)  994-5798-005
- Gray 206-S 12-inch tone arm  722-0259
- or
- Gray 303 12" Micro-Trak tone arm  722-0268
- Shure M-44-7 stereo dynetic cartridge w/.0007" diamond stylus 722-0236
- M-6442 equalized turntable preamplifier, transistorized, stereophonic  994-6442

*NOTE: To order cabinet, see below.*

**DUAL TURNTABLE CABINET**

Beautifully styled, and dimensioned to accommodate either 12- or 16-inch Gates turntables.

Dual turntable cabinet  994-6449  $310

**SINGLE TURNTABLE CABINET**

Fits any decor. Accommodates either 12-inch or 16-inch Gates turntable.

Single turntable cabinet  994-6448  $175
**TRANSCRIPTION TONE ARMS AND PICKUPS**

**12" AND 16" MICRO-TRAK TONE ARMS**

Especially designed for stereo, this durable arm will track distortion-free at micro-pressures of 1/10 gram. A new material never before used in a tone arm, wood impregnated with epoxy resins, was selected for this arm to achieve the extremely low tracking force and very low resonance characteristics. Sapphire bearings floating in a unique elastomer ring isolate the tone arm from its mounting and produce a tone arm with virtually no vertical friction.

Available for 12" and 16" turntables, this Gray arm will accept any broadcast type stereo cartridge.

<table>
<thead>
<tr>
<th>Gray 303 Micro-Trak 12&quot; tone arm</th>
<th>723-0268</th>
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<tbody>
<tr>
<td>Gray 306 Micro-Trak 16&quot; tone arm</td>
<td>723-0269</td>
</tr>
</tbody>
</table>

**MONOPHONIC PICKUP CARTRIDGES**

Proven, rugged broadcast transcription cartridges for monophonic recordings. Response 20 to 20,000 Hz with output of 12 mV at 10 cm per second at 1000 Hz. Tracking force 4 grams. Replaceable clip-in styli for a wide range of recordings. Use high impedance type with M-6244 equalized preamplifier, low impedance with Gray 602-C passive equalizer.

**GE TYPE VR-II PICKUP**

<table>
<thead>
<tr>
<th>High Impedance Cartridge with single stylus</th>
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</thead>
<tbody>
<tr>
<td>4G-040 Saphire, 0.007&quot;</td>
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<tr>
<td>4G-041 Saphire, 0.001&quot;</td>
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<tr>
<td>4G-061 Diamond, 0.001&quot;</td>
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<tr>
<td>4G-063 Diamond, 0.0025&quot;</td>
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</tbody>
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<table>
<thead>
<tr>
<th>High Impedance Triple Play with Styli (turnaround cartridge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4G-050 Saphire 0.001&quot;; saphire 0.0025&quot;</td>
</tr>
<tr>
<td>4G-052 Diamond 0.001&quot;; saphire 0.0025&quot;</td>
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<tr>
<td>4G-053 Diamond 0.001&quot;; diamond 0.0025&quot;</td>
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</tbody>
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<table>
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<tr>
<th>Low Impedance Cartridges with Single Stylus</th>
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<tbody>
<tr>
<td>4G-070 Diamond 0.0007&quot;</td>
</tr>
<tr>
<td>4G-020 Diamond 0.0025&quot;</td>
</tr>
<tr>
<td>4G-075 Saphire 0.0007&quot;</td>
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<tr>
<td>4G-025 Saphire 0.0025&quot;</td>
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</tbody>
</table>

<table>
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<tr>
<th>Low Impedance with Triple Play Stylus</th>
</tr>
</thead>
<tbody>
<tr>
<td>4G-07002D Dual diamond 0.0007&quot; and 0.0025&quot;</td>
</tr>
<tr>
<td>4GD-070025 dual saphire .0007&quot; and 0.0025&quot;</td>
</tr>
</tbody>
</table>

**Clip-in Styli for VR-II Cartridges**

| 4G-025 Saphire 0.0005"                   | 723-0045 |
| 4G-010 Diamond 0.001"                   | 723-0041 |
| 4G-020 Diamond 0.0025"                  | 723-0042 |
| RPJ-010 Diamond 0.001"                  | 723-0035 |
| RPJ-020 Diamond 0.0025"                 | 723-0036 |
| RPJ-015 Saphire 0.001"                  | 723-0038 |
| RPJ-025 Saphire 0.0005"                 | 723-0039 |

**Single Tip Replacement Styli for RPX-040, 041, 061, 063**

| RPJ-005 Saphire 0.0001"                   | 723-0033 |
| RPJ-006 Saphire 0.0005"                  | 723-0034 |
| RPJ-004 Diamond 0.0001"                  | 723-0032 |
| RPJ-002 Diamond 0.0005"                  | 723-0030 |

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**STEREOPHONIC PICKUP CARTRIDGE**

Model M44-7 stereo dynetic cartridge is recommended for faithful reproduction of stereophonic recordings with the M-6442 stereo preamplifier. It offers superior stereo separation, smoother response, and is designed to complement the 15° effective cutting angle now being used on stereo recordings. The easily changed styli may be interchanged for various types of recordings.

**SPECIFICATIONS**

- **FREQUENCY RESPONSE**: 20 to 20,000 Hz.
- **CHANNEL SEPARATION**: More than 25 dB at 1000 Hz.
- **OUTPUT**: 9 millivolts per channel at 1000 Hz at 5 cm/sec.
- **LOAD IMPEDANCE**: 47,000 ohms per channel.
- **TRACKING**: 1.5 to 3 grams.
- **STYLUS**: Features "no scratch" retractable design.
- **INDUCTANCE**: 680 millihenries.
- **D.C. RESISTANCE**: 650 ohms.
- **MOUNTING**: Standard 1/2" mounting center.
- **WEIGHT**: 7 grams net.

**ORDERING INFORMATION**

Shure M44-7 stereo Dynetic Cartridge with 0.0007" diamond stylus 723-0236

Replacement Stylus N-44-5 0.0007" diamond 723-0237
NOISE: 68 dB or lower, below −12 dBm output (with 12 mV input).

DISTORTION: Less than 0.5% at normal levels (−22 dBm to −12 dBm output). Less than 1.0% at 10 dB overload (above 12 mV input).

INPUT: 47,000 ohms.

OUTPUT LEVEL: Adjustable from −22 dBm to −12 dBm with 12 mV input.

RESPONSE: Within ±1 dB of RIAA/NAB standard curve. Additional high-frequency roll-off filter position provided.

DISTORTION: Less than 0.5% at normal levels (−22 dBm to −12 dBm output). Less than 1.0% at 10 dB overload (above 12 mV input).

NOISE: 68 dB or lower, below −12 dBm output (with 12 mV input).

LOAD IMPEDANCE: 600 ohms or 150 ohms, balanced or unbalanced.

MAXIMUM OPERATING AMBIENT TEMPERATURE: +60°C (+140°F).

POWER: 115 volts, 50/60 Hz, 1 watt.

MOUNTING: Two holes for mounting to Gates turntable or inside of any cabinet. May be mounted in any position.

SIZE: 2½" wide, 8¾" long, 2¾" high.

WEIGHT AND CUBAGE: Net weight, 1¼ lbs. Packed weight, 8 lbs. Cubage, 1 cubic foot.

STEREOPHONIC

Designed for superior performance in stereophonic transcription systems, the M-6442 offers these features: Three-position response selector switch for flat, RIAA/NAB, and roll off equalization; plus a two-position switch to provide a monophonic output from stereo discs, important in many AM/FM and special library situations. Fully shielded, and completely self-contained, including power supply. The M-6442 input impedance of 47,000 ohms makes it compatible with virtually all magnetic stereo cartridges.

ORDERING INFORMATION

Stereophonic transistor equalized turntable preamplifier .......................................................... 994-6442

MONOPHONIC

Single-channel monophonic preamplifier designed for use in broadcasting, recording, and general sound requirements where low distortion and exacting frequency response characteristics are demanded. Featuring self-contained power supply and transformer output, the preamplifier includes two-position equalizer with escutcheon and knob for RIAA/NAB or roll off equalization. The input impedance of 47,000 ohms makes the M-6244 compatible with virtually all magnetic cartridges (including stereo).

ORDERING INFORMATION

Monophonic transistor equalized turntable preamplifier .......................................................... 994-6244

SPECIFICATIONS

INPUT: 47,000 ohms.

OUTPUT LEVEL: Adjustable from −22 dBm to −12 dBm, from 8 mV input.

RESPONSE: Within ±1 dB of RIAA/NAB standard curve. Additional high frequency roll off and flat response position switch selected.

DISTORTION: Less than 0.5% at normal levels (−22 dBm to −12 dBm output). Less than 1.0% at 10 dB overload (above 8 mV input).

NOISE: 60 dB or lower, with −63 dBm input (−123 dBm relative input noise).

LOAD IMPEDANCE: 600 ohms or 150 ohms, balanced or unbalanced.

MAXIMUM OPERATING AMBIENT TEMPERATURE: +60°C (+140°F).

POWER: 117 volts, 50/60 Hz, 1 watt.

MOUNTING: Two holes for mounting to Gates turntable or inside of any cabinet. May be mounted in any position.

SIZE: 3" wide, 9½" long, 5" high.

WEIGHT AND CUBAGE: Net weight, 2 lbs. Packed weight, 8 lbs. Cubage, 1 cubic foot.

ORDERING INFORMATION

Stereophonic transistor equalized turntable preamplifier .......................................................... 994-6442

GATEs
HOME OFFICE AND MANUFACTURING FACILITIES
QUINCY, ILLINOIS 62301
123 Hampshire Street
Phone: 222-8200, Area 217

AUTOMATIC TAPE CONTROL DIVISION
BLOOMINGTON, ILLINOIS 61702
1107 East Croxton Avenue
Phone: 829-7006, Area 309

STOCK CARRYING BRANCH
HOUSTON, TEXAS 77027
4019 Richmond Avenue
Phone: 666-4333, Area 713

DISTRICT OFFICES
NEW YORK, NEW YORK 10017
800 Second Avenue
Phone: 687-7971, Area 212

LOS ANGELES, CALIFORNIA 90007
1945 South Figueroa
Phone: 747-7129, Area 213

WASHINGTON, D.C. 20005
730 Federal Building
1522 K Street, N.W.
Phone: 223-5508, Area 202

EXPORT SALES
ROCKE INTERNATIONAL CORPORATION
13 East 40th Street
New York, New York 10016
Phone: 689-0200, Area 212
Cables: ARLAB

CANADIAN SALES
GATES RADIO COMPANY (CANADA)
Division of Harris-Intertype (Canada) Ltd.
Montreal Office
212 Brunswick Boulevard
Pointe-Claire, Quebec, Canada
Phone: 695-3751, Area 514

Toronto Office
19 Lesmill Road
Don Mills, Ontario, Canada
Phone: 447-7234, Area 416