

COLLINS SPEECH INPUT

CONSOLES



212E-1

dual channel, mixes 9 of 22 inputs

■ THE COLLINS 212E-1 SPEECH INPUT CONSOLE assures broadcasters and recording studios of meeting a wide range of audio mixing requirements. Designed to meet the needs of most complex installations the 212E-1 also serves equally well for the small, growing audio installation.

Beginning with the modules required for single studio operation, the Collins 212E-1 can be expanded by simply adding plug-in modules to mix 9 of 22 inputs and to provide two program lines and monitor circuits.

Although it has a wide variety of functions and controls, the 212E-1 is easily mastered even by the inexperienced operator. Color coded knobs and switches, in addition to write-in strips for line switches and mixing attenuators, make it possible to vary control functions without confusion to the operator.

Space is provided in the 212E-1 Console cabinet for seven pre-amplifiers plus booster, program, monitor and cueing amplifiers. A 499G-1 Rack Mounting Shelf is supplied for the power supply and relay units.

Spare contacts on lever-switches and an unwired lever-switch are included for any desired custom wiring. An external position on the second VU meter input switch can be terminated at a patch panel to provide VU monitoring of external audio circuits. Talk-back on a remote line is simplified to a single switch operation after the initial setup of two switches. Lever-switches permit the selection of two program sources for each low level input fader and selection of four program sources for each remote input fader. The mixer attenuators are Daven step-type, with outputs connected to a key-switch so that each input can be fed to either of the two program channels when the Console is used for dual channel operation. The second channel also can be used for audition purposes during normal single-line program operation. All program, audition and remote lines may be monitored audibly and by VU meter.

Reliability of the 212E-1 has been proven by using carefully engineered, highly stable circuits and the finest quality components. The 212E-1 maintains excellent frequency response and extremely low noise and distortion.

212E-1 Specifications

Maximum Number of Channels: Seven low level channels, two remote channels, two program channels, one monitor channel and one cueing channel when provided with: ten 356A-1 Pre-amplifiers, two 356B-1 or 356E-1 Amplifiers, one 356B-1 Program/Monitor Amplifier, one 274K-1 Relay Unit, two 409X-2 Power Supplies and two 499G-1 Rack Mounting Shelves.

Power Source: 115 v or 230 v ac $\pm 10\%$, 50-60 cps, single phase.

Input Impedance: Low level — 30/150/250/600 ohm balanced or unbalanced, shipped wired for 150 ohms. Remote lines — 150/600 ohm, shipped wired for 600 ohms.

Output Impedance: Line — 150/600 ohm, shipped wired for 600 ohms. Monitor — 600 ohm.

Input Level: Low — -50 dbm nominal (100 db gain). Remote — 0 dbm.

Gain: Low level to program line 100 db. Remote line to program line 54 db.

Output Level: Program — +18 dbm (50 mw). Monitor — +39 dbm (8 watts).

Response: ± 1.5 db, 50-15,000 cps at program line.

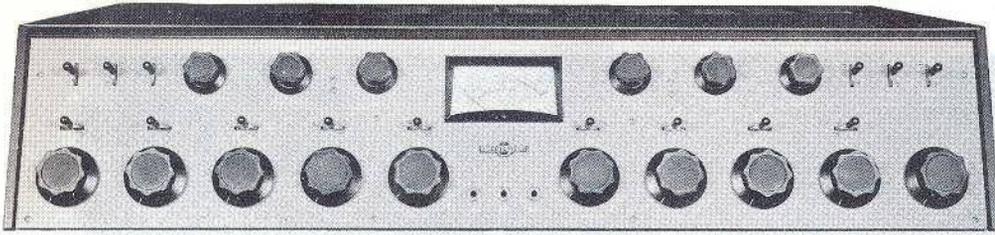
Distortion: Less than 1% at +18 dbm at program line. Less than 3% at 8 watts out of Monitor Amplifier.

Noise: At least 68 db below +18 dbm output with -50 dbm low level input. (Equivalent input noise level -118 dbm or less.)

Size: 22½" D, 41⅞" W, 11" H.

Weight: 135 lbs. (less modules).

*Long, low and attractive styling • Modern, me
Easy to operate • Designed to grow with t*



212G-1

mixes 9 of 13 inputs

■ THE COLLINS 212G-1 SPEECH INPUT CONSOLE incorporates new features and many design and control functions of the 212E-1 and 212F-1 Consoles. By using convenient plug-in modules, the 212G-1 is a flexible, self-contained unit that provides complete control over simultaneous broadcasting and auditioning from any combination of 9 of 13 inputs.

The Collins 212G-1 Console is designed for medium-size radio stations and recording studios which demand a versatile console at production line price. Main features of the 212G-1 are its quality, reliability, ease of servicing components and wide variety of control functions.

The long, low design of the 212G-1 assures easy operation on an uncrowded control panel. Finger-fitted knobs with big skirts are easily grasped for exact level control.

The VU meter is centered on the panel directly in front of the operator. The lights are external to the meter and may be replaced without removing the meter face. The meter lights operate from the relay supply voltage giving visual indication of proper operation. A switch allows the VU meter to measure program or external audio levels and gain reduction when a 356E-1 Limiter Amplifier is substituted for the Program Amplifier.

The 356B-1 Monitor Amplifier input may be switched to program, audition or external inputs. Six cueing-type attenuators, a plug-in cueing amplifier and a cueing speaker free the 212G-1 monitor circuits from cueing service.

The hinged top of the Collins 212G-1 Console provides adequate room to service components while the panel remains in position and the unit is operating. No high voltage points are exposed when the cabinet is opened. A cover protects the terminal wiring strip and connector wiring.

Any of eight circuits may be selected on a terminal strip for control of speakers and warning lights. Extra wiring terminals and two spare lever-switches are provided.

Only two tube types are used in the 212G-1. Slots in the bottom, back and top of the Console provide adequate ventilation for low operating temperatures insuring longer component life.

212G-1 Specifications

Maximum Number of Channels: Six low level channels, two medium level channels, one net/remote channel, one program channel, one monitor channel and one cueing channel when provided with: eight 356A-1 Pre-amplifiers, one 356B-1 or 356E-1 Amplifier, one 356B-1 Program/Monitor Amplifier, one 274K-2 Relay Unit, one 356Q-1 Cueing Amplifier and one 409X-2 Power Supply.

Power Source: 115 v or 230 v ac $\pm 10\%$, 50-60 cps, single phase.

Input Impedance: Low level — 30/150/250/600 ohm balanced or unbalanced, shipped wired for 150 ohms. Net/remote lines — 50/150/250/600 ohm, shipped wired for 600 ohms. Medium level — 600 ohm unbalanced.

Output Impedance: Line — 150/600 ohm, shipped wired for 600 ohms. Monitor — 600 ohm.

Input Level: Low — -50 dbm nominal (100 db gain). Net/remote — 0 dbm. Medium — -10 dbm nominal (60 db gain).

Gain: Low level to program line 100 db. Remote line to program line 53 db. Medium level to program line 62 db.

Output Level: Program — +18 dbm (50 mw). Monitor — +39 dbm (8 watts).

Response: ± 1.5 db, 50-15,000 cps at program line.

Distortion: Less than 1% at +18 dbm at program line. Less than 3% at 8 watts out of Monitor Amplifier.

Noise: At least 68 db below +18 dbm output with -50 dbm low level input. (Equivalent input noise level -118 dbm or less.)

Size: 21 $\frac{1}{8}$ " D, 41 $\frac{1}{16}$ " W, 8 $\frac{1}{4}$ " H.

Weight: 75 lbs. (less modules).

*talized blue-gray panel • Quality, reliability and flexibility
the system • Conventional wiring • Spare controls for cus*



212F-1

mixes 5 of 12 inputs

■ THE COLLINS 212F-1 SPEECH INPUT CONSOLE combines quality and performance to make it an outstanding contribution to high fidelity broadcasting or program control in small-size audio systems. Providing complete control over simultaneous broadcasting and auditioning from any combination of 5 of 12 inputs, the 212F-1 is a completely self-contained unit. No additional rack cabinet space is needed even with the maximum number of modules.

All mixer knobs and associated key-switches are color coded and write-in strips are provided for efficient operation of the Collins 212F-1 Console.

Highest quality components provide top reliability. Like the larger 212E-1 and 212G-1 Consoles, the 212F-1 also uses plug-in modules so that the unit can grow in operational scope as the audio system grows.

All plug-in modules have Howard Jones connectors, and an adapter cord is supplied to permit operation and service of the modules while removed from the cabinet.

The 212F-1 uses only two types of amplifiers and two tube types, resulting in a minimum maintenance stock of spare tubes. Two spare lever-switches are provided for custom wiring.

Three of the mixer attenuators have cueing positions. The output of the cueing circuit operates headphones, or a 356Q-1 Cue Amplifier will provide 100 mw for cue.

Four relays in the 274K-1 Relay Unit are operated by the lever-switches in the first three input channels. These relays will control the operation of the warning lights and speakers in four studios.

The clean-cut styling of the Collins 212F-1 Speech Input Console makes it an attractive, integral part of any modern control room, and the styling is functional, too. The front panel tilts down to provide quick, easy accessibility for installation, inspection or servicing of amplifiers, power supply, relay unit and wiring.

For desk-top operation, rubber feet are provided to space the cabinet above the mounting surface and allow free ventilation. For a bolted down installation, spacers and mounting holes are provided.

212F-1 Specifications

Maximum Number of Channels: Four low level channels, one remote channel, one program channel, one monitor channel and one cueing channel when provided with: five 356A-1 Pre-amplifiers, two 356B-1 Program/Monitor Amplifiers, one 274K-1 Relay Unit and one 409X-2 Power Supply.

Power Source: 115 v or 230 v ac $\pm 10\%$, 50-60 cps, single phase.

Input Impedance: Low level — 30/150/250/600 ohm balanced or unbalanced, shipped wired for 150 ohms. Remote lines — 150/600 ohm, shipped wired for 600 ohms.

Output Impedance: Line — 150/600 ohm; monitor — 150/600 ohm, both shipped wired for 600 ohms.

Input Level: Low — -50 db nominal (100 db gain). Remote — +10 dbm.

Gain: Low level to program line 100 db. Remote line to program line 50 db.

Output Level: Program — +18 dbm (50 mw). Monitor — +39 dbm (8 watts).

Response: ± 1.5 db, 50-15,000 cps at program line.

Distortion: Less than 1% at +18 dbm at program line. Less than 3% at 8 watts out of Monitor Amplifier.

Noise: At least 68 db below +18 dbm output with -50 dbm low level input. (Equivalent input noise level -118 dbm or less.)

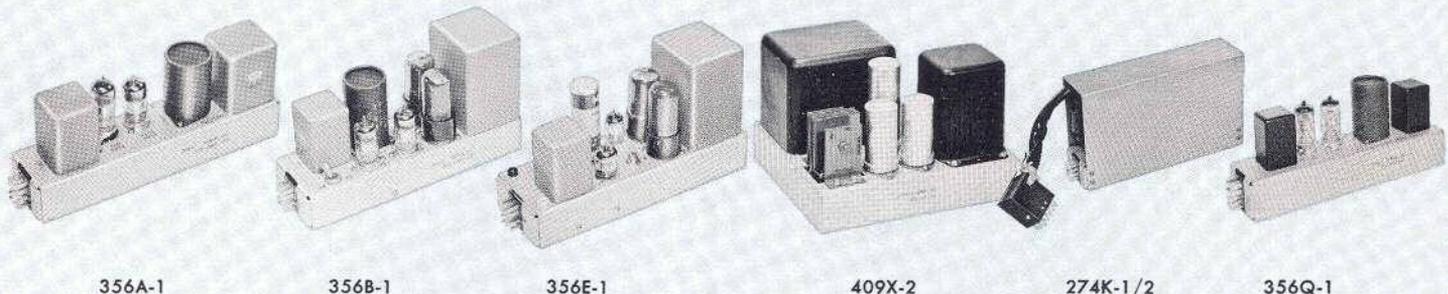
Size: 22" D, 35" W, 10 $\frac{1}{4}$ " H.

Weight: 100 lbs. (less modules).

Quality at production line price
Custom wiring • Low operating temperature

Collins High Reliability **MODULES**

for use in Collins 212E-1, 212F-1, 212G-1 Speech Input Consoles



356A-1 PRE-AMPLIFIER is usually used to feed a line amplifier in the Collins Consoles. It operates from a low level microphone or similar source and has sufficient output to drive a program amplifier or audition facilities. *Input Impedance:* Unloaded transformer, source impedance 30/150/250/600 ohm balanced or unbalanced, shipped wired for 150 ohms. *Input Level:* -60 db nominal. *Output Impedance:* 150/600 ohm balanced or unbalanced, shipped wired for 600 ohms. *Output Level:* +18 dbm maximum. *Gain:* 40 db. *Frequency Response:* ± 1 db, 50-15,000 cps. *Distortion:* 0.5% maximum. *Noise:* -118 dbm at input, or 96 db below full output. *Tubes:* Two 5879. *Power Requirements:* 6.3 v ac or dc at 0.3 amps. 250 v dc at 6.5 ma or 300 v dc at 7.5 ma. *Size:* 4 3/8" H, 2 3/8" W, 9 1/2" D. *Weight:* 2 1/4 lbs.

356B-1 PROGRAM/MONITOR AMPLIFIER is used as the program line amplifier and monitor amplifier in Collins Consoles. It is a three stage amplifier with push-pull output and has a switch for high or low gain. *Input Impedance:* Unloaded transformer, source impedance 150/600 ohm balanced or unbalanced, shipped wired for 600 ohms. *Input Level:* -32 dbm. *Output Impedance:* 150/600 ohm balanced or unbalanced, shipped wired for 600 ohms. *Output Level:* +39 dbm (8 watts) maximum. *Gain:* 56 db or 68 db, selected by toggle switch. *Frequency Response:* ± 1 db, 50-15,000 cps. *Distortion:* 0.5% maximum at +30 dbm, 3% maximum at +39 dbm (8 watts). *Noise:* -116 dbm at input, or 90 db below full output of 1 watt. *Tubes:* Two 5879 and two 6V6. *Power Requirements:* 6.3 v ac at 1.2 amps. 63 ma at 250 v dc at 1 watt output. 75 ma at 300 v dc at 1 watt output. 88 ma at 300 v dc at 8 watts output. *Size:* 5 3/4" H, 2 3/8" W, 9 1/2" D. *Weight:* 6 lbs.

356E-1 LIMITER AMPLIFIER was designed for Collins Speech Input Consoles to permit unattended remote audio operation. However, it can be used to control level differences between two or more sources, as a program line compressor, in an expander-compressor operation or as a program amplifier. The module consists of a push-pull variable gain input stage driving a push-pull output stage. A bias rectifier provides bias to regulate gain of the input stage. A decal to convert a VU meter to gain reduction meter is furnished with the unit. *Input Impedance:* Unloaded transformer, source impedance 150/600 ohm balanced or unbalanced, shipped wired for 600 ohms. *Input Level:* -54 dbm to -24 dbm, with threshold control set at 0 dbm output. -34 dbm to -4 dbm, with threshold control set at +20 dbm output. -24 dbm to +6 dbm, with threshold control set at +30 dbm output. (0 dbm equals 1 milliwatt across 600 ohms.) *Output Impedance:* 150/600 ohm balanced or unbalanced, shipped wired for 600 ohms. *Output Level:* 0 dbm to +18 dbm, with threshold control set at 0 dbm output. +20 dbm to +30 dbm, with threshold control set at +20 dbm output. +30 to +36 dbm, with threshold

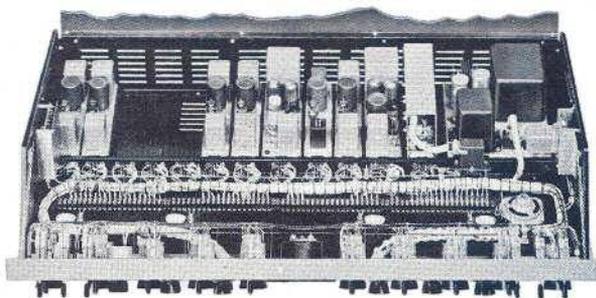
control set at +30 dbm output. *Response:* ± 1 db, 50-15,000 cps. *Distortion:* 1.5% maximum, 50-15,000 cps, with no compression. 2% maximum, 50-15,000 cps, at any level up to 30 db gain reduction, with threshold set at +20 dbm output. *Output Noise:* -50 dbm or less, with threshold control set for +20 dbm output. *Compression Ratio:* Adjustable 1.6:1 to 5:1, with 3:1 optimum performance over a 30 db range at input. *Attack Time:* 11 milliseconds, with switch set for dual operation. 62 milliseconds, with switch set for average operation. *Release Time:* 0.9 seconds for 63% recovery, with switch set for dual operation. 5.2 seconds for 63% recovery, with switch set for average operation. *Gain:* 54 db. *Controls:* Dual/Average toggle switch at top near front of chassis. *Tubes:* One GL-6386 Variable Gain Input Amplifier, two 6V6GT Output Amplifiers and one 6AL5 Bias Rectifier. *Power Source:* 6.3 v ac at 1.55 amps. 300 v dc at 77 milliamps. *Size:* 5 3/8" H, 3" W, 9" D. *Weight:* 5 lbs.

409X-2 POWER SUPPLY is a plug-in module for the 212E-1, 212F-1 and 212G-1 Consoles. Silicon rectifiers in the high voltage circuit are used for long life and eliminate heat associated with vacuum tube rectifiers. *Output Voltages:* Up to 250 ma at 300 v dc adjustable. 6.0 amps at 6.3 v ac. 1.0 amp at 12 v dc. *Power Requirements:* 115 v or 230 v ac $\pm 10\%$, 50-60 cps, single phase. *Power Input:* 225 watts maximum. *Size:* 6" H, 8" W, 9 1/2" D. *Weight:* 25 lbs.

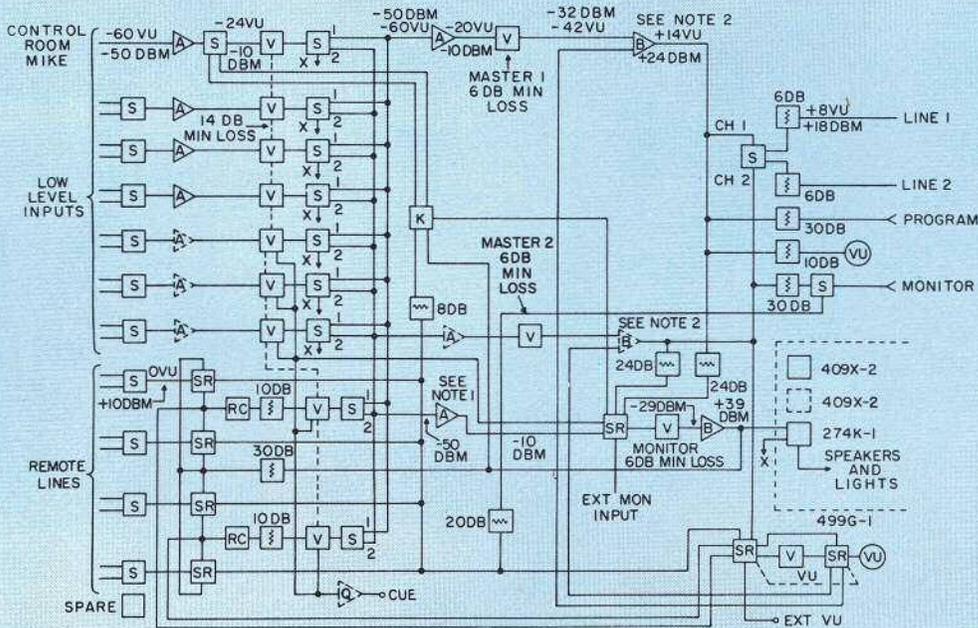
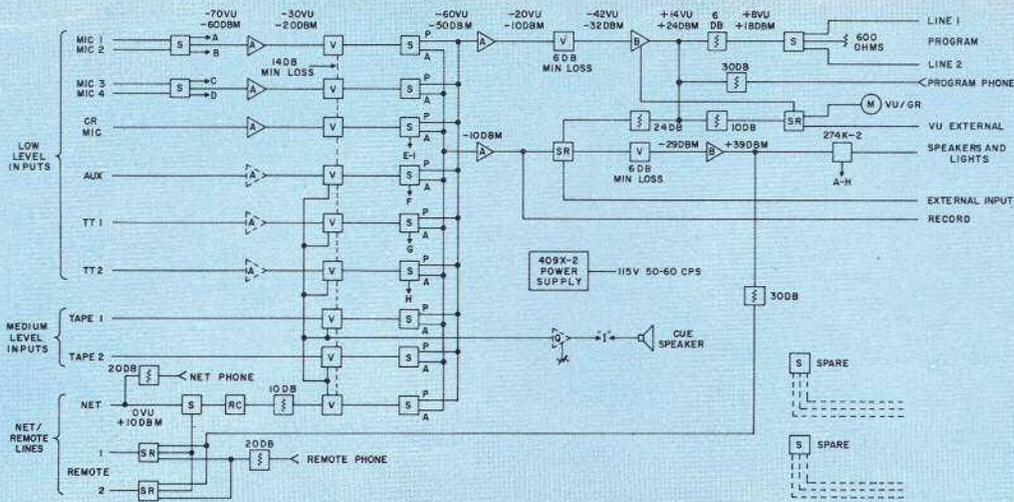
274K-1 RELAY UNIT is used in 212E-1 and 212F-1 Consoles. Four relays control studio speakers and warning lights. Each relay is provided with a series shunt circuit to minimize switching transients and arcing. Noise is held to a minimum by mounting the relays on rubber. The 409X-2 Power Supply provides 12 v dc at 1 amp and studio wiring provides power for the warning lights. *Connectors:* Howard Jones P-312-AB connector mounted on the front surface and P-315-CCE connector on a 5 1/2" pendant cable. *Size:* 5 1/2" H, 2 1/2" W, 9" D. *Weight:* 2 1/2 lbs.

274K-2 RELAY UNIT is used with the 212G-1 Console. It is similar to the 274K-1 in all specifications except that relays are unenergized in standby.

356Q-1 CUE AMPLIFIER is designed for use in the Collins Consoles. It is a two stage amplifier used to amplify signals from the cueing line. The 212G-1 has provisions for controlling the gain of the amplifier and includes a speaker for the output. *Gain:* 55 db. *Range:* 300-10,000 cps. *Input Level:* -30 dbm nominal. *Output Level:* +20 dbm (100 mw) nominal. *Input Impedance:* 600 ohm nominal. *Output Impedance:* 4 ohm. *Tubes:* Two 5879. *Power Requirements:* 6.3 v ac or dc at 0.3 amps. 300 v dc at 7.5 milliamps. *Size:* 4 3/8" H, 2 3/8" W, 9 1/2" D. *Weight:* 2 1/4 lbs.



HINGED PANEL AND TOP provide easy accessibility to all wiring and modules in the 212G-1 Console. Shown is the 212G-1 with terminal strip cover removed. The panel finish of the Consoles is metalized blue-gray enamel with white silk-screened lettering. The cabinet is black baked enamel.



LEGEND:

[S] SWITCH LEVER [SR] SWITCH ROTARY [§] PAD

[V] ATTENUATOR [RC] REPEAT COIL [A] 356A-1 PRE AMPL

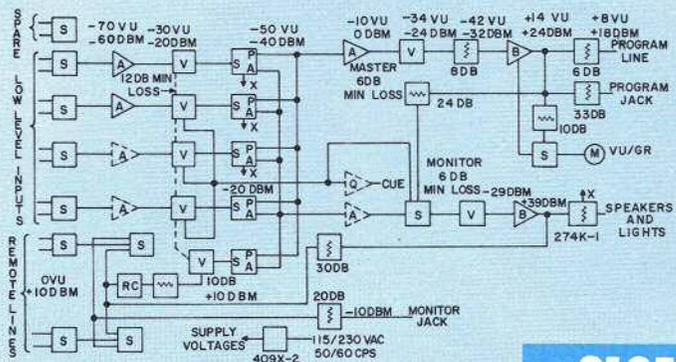
[△] 356Q-1 CUE AMPL [▽] 356B-1 PROGRAM AMPL [K] PUSH-TO-TALK RELAY

▽ NOT SUPPLIED WITH BASIC UNIT

P PROGRAM 1 CHANNEL 1
A AUDITION 2 CHANNEL 2

NOTE 1: THIS AMPLIFIER NOT USED WHEN CHANNEL 2 IS PROVIDED WITH AMPLIFIERS.

NOTE 2: 356E-1 LIMITER AMPLIFIER MAY BE USED.



CREATIVE LEADER IN COMMUNICATION

COLLINS RADIO COMPANY • CEDAR RAPIDS, IOWA • DALLAS, TEXAS • BURBANK, CALIFORNIA

New BROADCAST EQUIPMENT
DEBUT AT THE NAB SHOW
MAY 7-10, 1961 -- WASHINGTON, D.C.

COLLINS

212F-2 SPEECH INPUT CONSOLE

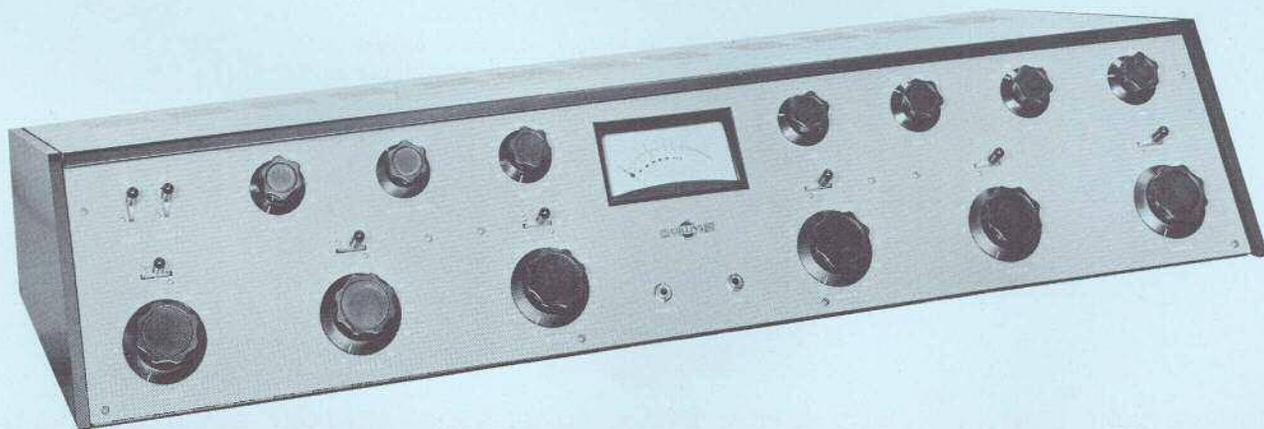
Economy and versatility have been designed into the Collins 212F-2 to make it one of the outstanding speech input consoles introduced to the broadcast world.

Equally adequate for the multi-studio radio station as well as the smaller audio system, the 212F-2 combines the outstanding features of the Collins 212E-1 and 212G-1 consoles.

This new 212F-2 console by Collins is handsomely styled. A metalized blue-gray panel, mounted in a long, low, black cabinet, has finger-fitted knobs for convenient level control. A self-contained unit, the 212F-2 console provides complete control for simultaneous broadcasting and auditioning of any combination of 6 of 17 possible inputs: 5 of 7 possible low level inputs and a choice of 1 of 10 remote lines. The console also monitors program, audition or remote lines, and it controls speakers and warning lights. Two cueing type attenuators and provisions for a cueing amplifier and cueing speaker free the monitor circuit from cueing service.

An illuminated VU meter, centered and mounted flush on the console control panel, measures program level and may also be used to measure gain reduction when using a Collins 356E-1 Limiting Amplifier for automatic level control on the program line.

The Collins 212F-2 uses plug-in modules with Howard Jones connectors, which can be tested and serviced while the panel remains in position and the console is operating. Only two tube types are used. Rubber feet are provided, but the 212F-2 can be bolted down for the permanent installation.



212F-2 SPECIFICATIONS

MAXIMUM NUMBER OF CHANNELS: Five low level inputs and one remote/net input to a program channel, monitor channel or cueing channel when provided with: seven 356A-1 Pre-amplifiers, two 356B-1 Program/Monitor Amplifiers (or one 356B-1 Program/Monitor Amplifier and one 356E-1 Limiting Amplifier), one 356Q-1 Cueing Amplifier, one 274K-2 Relay Unit and one 409X-2 Power Supply.

POWER SOURCE: 115 v or 230 v ac $\pm 10\%$, 50-60 cps, single phase.

INPUT IMPEDANCE: Low level -- 30/150/250/600 ohms balanced or unbalanced, shipped wired for 150 ohms. Net/Remote -- 50/150/250/600 ohms, shipped wired for 600 ohms. Medium level -- 600 ohms.

OUTPUT IMPEDANCE: Line -- 150/600 ohms; Monitor -- 600 ohms, both shipped wired for 600 ohms.

INPUT LEVEL: Low -- -50 dbm nominal (100 db gain). Net/Remote -- 0 dbm. Medium level -- -10 dbm nominal (60 db gain).

GAIN: Low level to program line at least 100 db. Remote line to program line 53 db. Medium level to program line 62 db.

OUTPUT LEVEL: Program -- +18 dbm. Monitor -- +39 dbm (8 watts).

RESPONSE: ± 1.5 db, 50-15,000 cps at program line.

DISTORTION: Less than 1% at +18 dbm at program line. Less than 3% at 8 watts out of Monitor Amplifier.

NOISE: At least 68 db below +18 dbm output with -50 dbm input. (Equivalent input noise level -118 dbm or less.)

SIZE: 41-1/16" W, 8-3/16" H, 21-1/8" D.

WEIGHT: 70 lbs. (less modules).



Broadcast

COLLINS RADIO COMPANY NEWSLETTER

Abstract art? Yes.

Abstract engineering and design? Definitely not!

The Collins Speech Input Consoles are still engineered and designed with you, Mr. Station Manager, and you, Mr. Chief Engineer, first and foremost in our thinking.

Fine broadcast equipment, like fine automobiles, still must adhere to certain recognized manufacturing standards. Plug-in modules, conventional wiring, quality keys, and well shielded transformers are just a few of the deluxe features still found in Collins Consoles.

You won't find Collins Consoles with fins,
but you will find them loaded with quality.

For further information on Collins Consoles, call or write your nearest Collins broadcast equipment representative. He is listed on the reverse side of this letter.

Very truly yours,



E. S. Gagnon
Manager, Broadcast Sales
Collins Radio Company

ESG:bs



Your Collins representatives:

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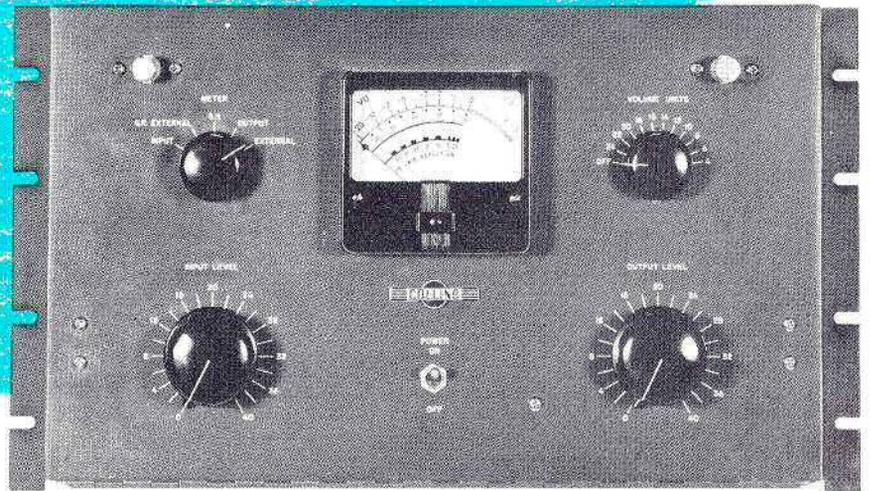
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26U-1



Collins Limiting Amplifier

— an easy-to-operate peak limiter to reduce audio distortion due to overloading

Designed to achieve maximum modulation with minimum distortion, the Collins 26U-1 Limiting Amplifier provides full tonal range broadcasting with thump-free performance.

The Collins Limiting Amplifier limits loud audio passages to prevent overmodulation, distortion and adjacent channel interference, while allowing low level passages to be broadcast in their true range.

The transmission range of the station's signal and the over-all efficiency of the transmitter is increased through the limiting action which permits a higher average modulation level.

When used with recording equipment or with a public address system, the 26U-1 prevents overloading, and by allowing a higher average audio level, the Limiting Amplifier improves the signal-to-noise ratio.

A self-balancing circuit eliminates the need of tube selection or delicate balancing procedures usually associated with peak limiters. The Collins Limiting Amplifier is capable of greater than 30 db compression.

Conventional circuitry, negative feedback, full wave

rectification for control voltage and silicon rectifiers in the power supply are incorporated into this unit.

An illuminated VU meter with a special scale calibrated in VU and db of compression, which measures five functions, is provided in the Collins Limiting Amplifier. The VU meter attenuator and a rotary switch allow measurement of external gain reduction, db of compression and levels of input, output and external audio circuits. This external meter circuit measures audio levels on other program lines, eliminating the need for an additional VU meter panel.

Silicon diodes and extended life electrolytic capacitors provide an efficient, low heat power supply with a minimum of maintenance. A voltage regulator provides stabilized reference voltages. Input, output and VU meter level controls are Daven step-type attenuators.

Designed for rack mounting, the Collins Limiting Amplifier has a minimum number of controls, tubes and tube types. It has a hinged front panel for access to internal wiring and components.

SPECIFICATIONS:

Type of Service: Continuous, unattended operation.

Size: 10 1/2" H, 19" W, 9" D.

Audible Noise: None.

Shock and Vibration: Normal handling and transportation.

Power Source: 115 v or 230 v ac, 50-60 cps, single phase. Shipped wired for 115 v.

Input Impedance: 600 ohms unbalanced.

Input Level: -20 dbm to +20 dbm. Note: 0 dbm equals 1 mw across 600 ohms.

Output Impedance: 600 ohms unbalanced adjustable, or 600 ohms balanced fixed level.

Output Level: -20 dbm to +20 dbm.

Response: ±1.5 db, 50-15,000 cps.

Distortion: 1.5% maximum.

Output Noise: -50 dbm or less.

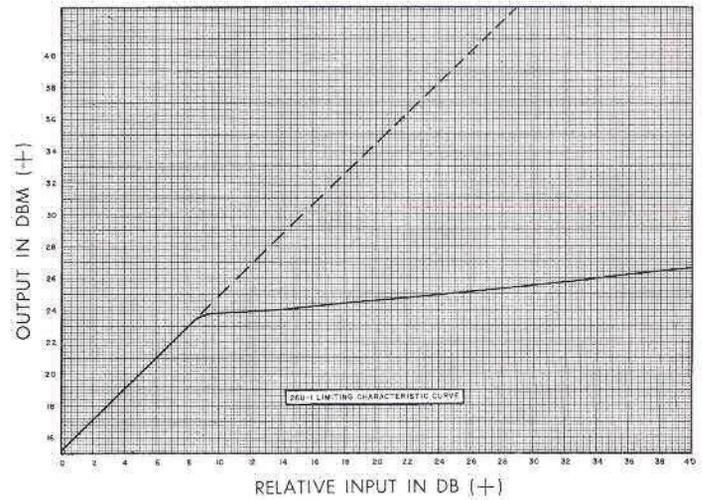
Compression Ratio: 12:1 first 10 db above threshold.

Attack Time: Adjustable, .5 to 3.0 milliseconds.

Release Time: Adjustable, 2.2 to 5.2 seconds for 63% recovery.

Gain: 32 db minimum.

Fuse: Equipped with a 3/4 amp 250 v, post-mounted, slow-blow fuse.

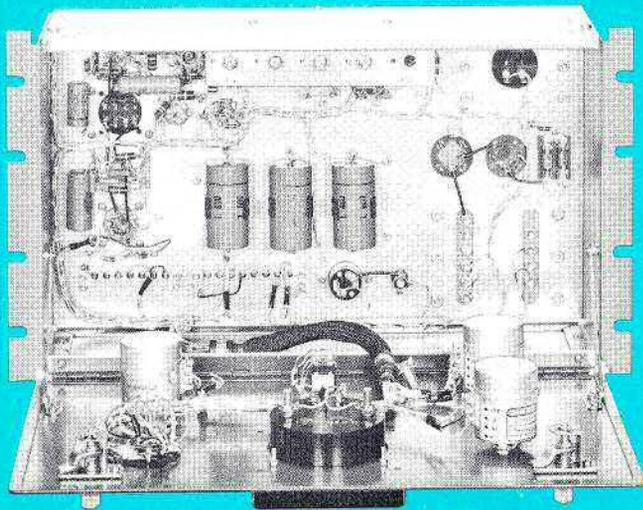


CONTROLS

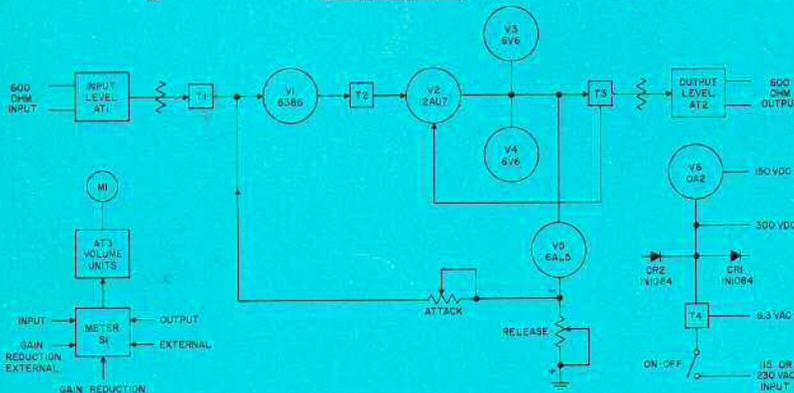
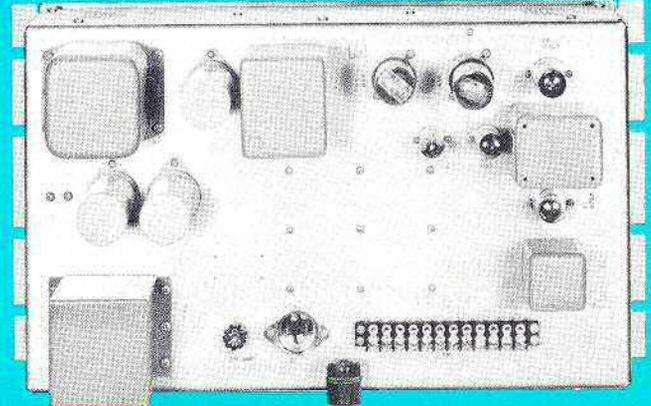
1. Meter Selector Switch
2. VU Meter Attenuator
3. Input Level
4. Output Level

5. Power On/Off Switch
6. Meter Zero
7. G. R. Balance
8. Attack Time
9. Release Time

FRONT VIEW, PANEL DOWN



REAR VIEW



Quantity	Type	Application
1	6L-6386	Variable gain input stage
1	12AU7	Interstage voltage amplifier
2	6V6GR	Output amplifier
1	6AL5	Limiter bias rectifier
2	1N1084	Power rectifier (silicon, commercial)
1	OA2	Voltage regulator

TUBE AND RECTIFIER COMPLEMENT



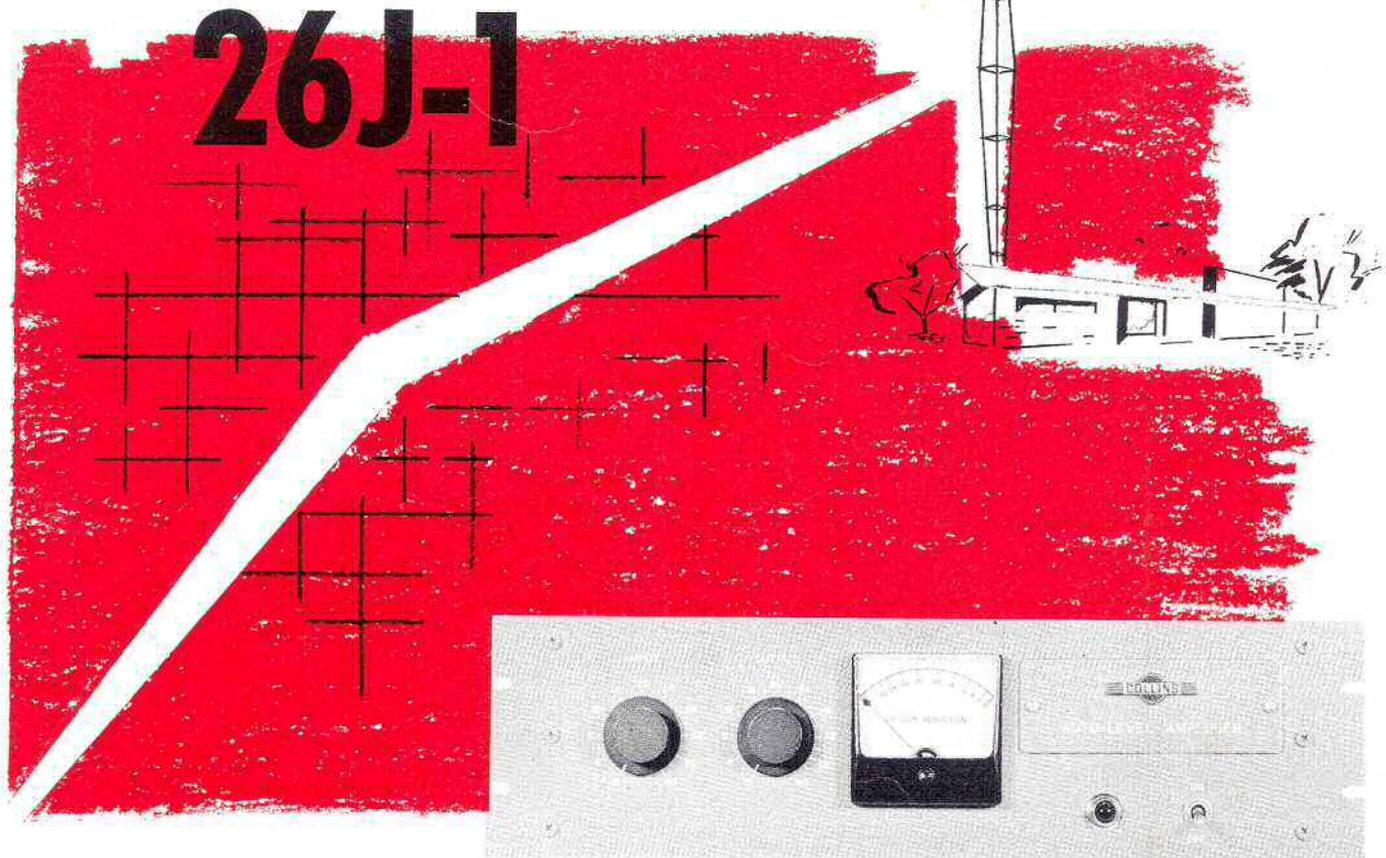
CREATIVE LEADER IN COMMUNICATION

COLLINS RADIO COMPANY

• CEDAR RAPIDS, IOWA

• DALLAS, TEXAS

• BURBANK, CALIFORNIA



Collins

Auto-Level Limiting Amplifier

-- an automatic amplifier for raising average program level

The average program level of the radio broadcast station can be automatically and effectively raised with the Collins 26J-1 Auto-Level Limiting Amplifier. The resulting effect of the 26J-1 is similar to turning up the volume of the radio receiver so that the low level transmission is as well received as the high level transmission.

Automatic fades between microphone and recorded music are also accomplished with the 26J-1. By setting the microphone level at a higher level than the turntable, the automatic fade occurs when the microphone is activated. The higher microphone level automatically fades the music into the background and allows the speech to come through clearly. When the voice portion is absent, the 26J-1 restores the music level to normal. Since these fades are done automatically and electronically, they are far smoother and superior to manual fades.

The 26J-1 does not act as a peak limiting amplifier but functions on a low compression ratio which allows limiting action without noticeable effect on program material. With the slow action and compression ratio of the 26J-1, it is possible to limit up to 30 db without a

noticeable effect other than bringing up the average listening level of the program material.

Working in conjunction with the Collins 26U-1 Peak Limiting Amplifier, the two units provide excellent peak limiting as well as average program limiting. The wide dynamic ranges used in most classical and popular music require considerable compression to allow low and high passages to be broadcast equally well.

The Collins 26U-1 Peak Limiting Amplifier, ideally located at the transmitter, protects over-modulation of the transmitter, and the 26J-1 Auto-Level Limiting Amplifier, located at the studio, boosts the average and low level program portions. Thus, these two units allow even the low-priced home and car receivers, which are not capable of reproducing wide dynamic ranges, to receive the entire broadcast as transmitted.

In those instances where there is not a good signal-to-noise ratio, such as old phonograph records and sports events with background noises, the 26J-1 can be operated as a straight amplifier. The limiting action may be disabled by turning off the gain reduction switch.

The Collins 26J-1 Auto-Level Limiting Amplifier is a rack mounted, ac powered amplifier for use in broadcast, television and microwave systems. The power supply uses four silicon rectifiers in a full wave bridge circuit. Ventilation is by convection. The front panel is blue-gray.

SPECIFICATIONS

Type of Service: Continuous, unattended operation.

Size: 19" W, 5 1/2" H, 9" D.

Weight: 16 lbs.

Audible Noise: None.

Power Source: 115 v or 230 v ac, 50-60 cps, single phase. Shipped wired for 115 v.

Frequency Response: ± 1 db, 50-15,000 cps.

Input Impedance: 600 ohm unbalanced.

Input Level: Adjustable, -26 dbm to +30 dbm. Easily changed 22 db "T" pad in input circuit available. (0 dbm equals 1 mw across 600 ohms.)

Output Impedance: 600 ohm unbalanced.

Output Level: Adjustable, -24 dbm to +30 dbm; +14 dbm nominal.

Distortion: 1.5 % maximum, 50-15,000 cps with no compression. 2 % maximum distortion, 50-15,000 cps at any level up to 30 db gain reduction with threshold set for 3:1 compression ratio.

Output Noise: -50 dbm or less. (Threshold set for 3:1 ratio.)

Compression Ratio: 3:1 optimum; adjustable 1.6:1 to 5:1.

Attack Time: 11 milliseconds with switch set for dual operation. 62 milliseconds with switch set for average operation.

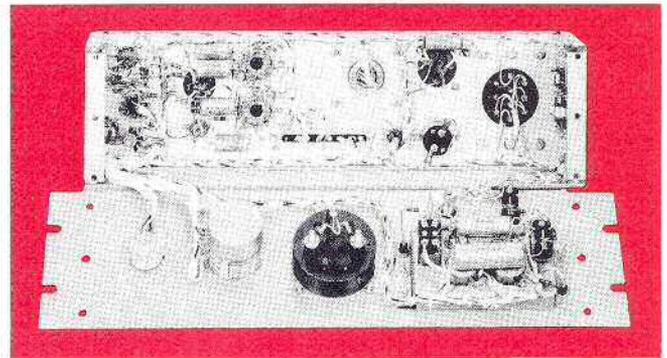
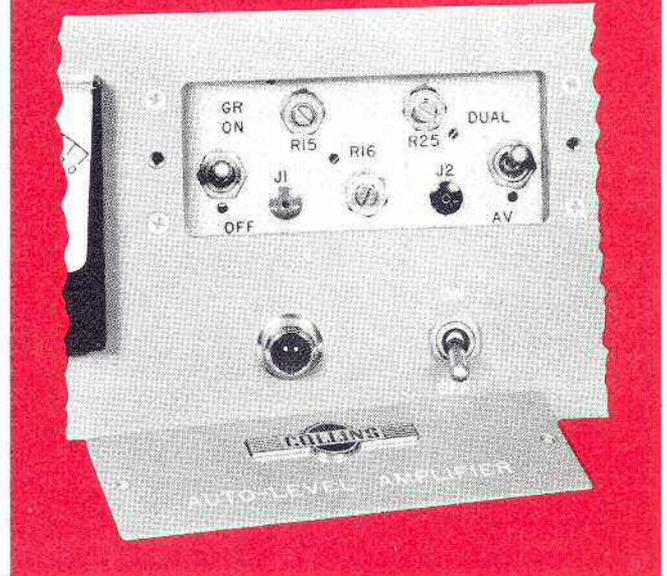
Release Time: 0.9 seconds for 63 % recovery with switch set for dual operation. 5.2 seconds for 63 % recovery with switch set for average operation.

Gain: 25 db maximum as shipped. 41 db maximum with input pad changed from 22 db to 6 db.

Fuse: 3/4 amp overload fuse in primary supply voltage circuit.

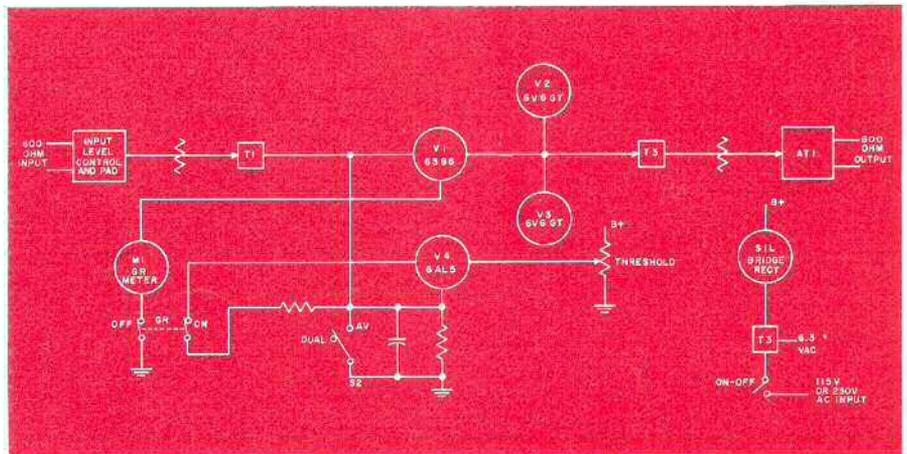
Sub-Chassis Controls

- Gain reduction on/off toggle switch
- R-15 Output balance potentiometer
- R-16 Meter calibration potentiometer
- R-25 Threshold voltage potentiometer
- Dual/Average toggle switch
- J-1 and J-2 bias voltage test points



Tube and Rectifier Complement

Quantity	Type	Application
1	GL-6386	Variable gain input amplifier
2	6V6GT	Output amplifier
1	6AL5	Bias rectifier



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