

SECTION I

GENERAL DESCRIPTION

1.1 PURPOSE OF INSTRUCTION BOOK.

This instruction book is intended to serve as a guide in the installation, adjustment, operation, and maintenance of Broadcast Console 212G-1.

1.2 PURPOSE OF EQUIPMENT.

Broadcast Console 212G-1 is designed especially for use in high-fidelity AM, FM, or TV broadcast installations. The number and arrangement of amplifiers may be selected to fit individual requirements. Simultaneous mixing facilities for auditioning or

broadcasting of up to 9 of 13 possible inputs are provided. Ease of operation is assured by clearly identified control knobs. The number of functions available and performance are determined by the selection of preamplifiers and program/monitor amplifiers to be installed in the console.

1.3 BASIC EQUIPMENT.

The 212G-1 is illustrated in figure 1-1. The equipment available is listed in table 1-1. The type and quantity of subassemblies supplied will depend on individual station requirements.

TABLE 1-1. BROADCAST CONSOLE 212G-1, EQUIPMENT AVAILABLE

ITEM	OVER-ALL DIMENSIONS (inches)			WEIGHT (lb)	COLLINS PART NUMBER
	H	W	D		
Broadcast Console 212G-1	8-3/16 max	41-1/16	21-1/8	75	522-1605-00
Preamplifier 356A-1	4-5/8	2-1/8	9-1/2	2-1/2	522-0389-005
Program/Monitor Amplifier 356B-1	5-3/4	2-3/4	9-1/2	4-3/4	522-0390-005
Limiter Amplifier 356E-1	5-5/16	3	9-1/2	4-3/4	522-0394-004
Cue Amplifier 356Q-1	4-5/8	2-1/8	9-1/2	2-1/4	522-1607-00
Relay Unit 274K-2	5-1/2	2-1/2	9	2-1/2	522-1606-00
Power Supply 409X-2	6	8	9	25	522-1691-00
Rack Mounting Shelf 499G-1	8-23/32	19	14	11	522-0774-00
*Jumper Plug				1/2	541-6459-002
Amplifier Test Cable	35 length			1	541-6473-003

*Supplied as part of Broadcast Console 212G-1.

1.4 APPLICABLE SUBASSEMBLY INSTRUCTION BOOKS.

Applicable subassembly instruction books are listed in table 1-2 and supplied following section VII of this instruction book.

TABLE 1-2
SUBASSEMBLY INSTRUCTION BOOKS

PUBLICATION	COLLINS PART NUMBER
Preamplifier 356A-1	520-5446-00
Program/Monitor Amplifier 356B-1	520-5447-00
Limiter Amplifier 356E-1	520-5448-00
Cue Amplifier 356Q-1	523-0034-00
Relay Unit 274K-2	523-0036-00
Power Supply 409X-2	523-0035-00

1.5 DESCRIPTION OF MAJOR COMPONENTS.

1.5.1 BROADCAST CONSOLE 212G-1.

The 212G-1 utilizes modular type construction to provide a choice of plug-in amplifier units which will meet individual installation requirements. The front panel and top are hinged to allow easy access to all parts. The 212G-1 may be serviced from the front allowing the cabinet to be almost flush against a wall or window. There should be about 1/2-inch clearance behind the console to allow ventilation and to provide clearance for the top when open. Slots in the bottom, back, and top provide cooling by convection. Space is provided for up to eight Preamplifiers 356A-1, two Program/Monitor Amplifiers 356B-1, or one 356B-1 and one Limiter Amplifier 356E-1, one Cue Amplifier 356Q-1, one Relay Unit 274K-2, and one Power Supply 409X-2.

1.5.2 PREAMPLIFIER 356A-1.

The necessary circuitry for two stages of amplification makes up this plug-in module. It provides 40 db of gain from low-level microphone or transcription lines to feed program, audition, or cue circuits. Refer to paragraph 1.4.

1.5.3 PROGRAM/MONITOR AMPLIFIER 356B-1.

The 356B-1 has an over-all gain of 56 or 68 db for use on program lines or speaker operation. The desired level is selected by means of a toggle switch

located on the amplifier chassis. The output impedance is factory wired for 600 ohms. It may easily be changed for 150-ohm output impedance. Refer to paragraph 1.4.

1.5.4 LIMITER AMPLIFIER 356E-1.

The necessary circuitry for two stages of amplification and a bias rectifier makes up this plug-in module. It has an over-all gain of 54 db. The compression ratio is adjustable from a ratio of 1.6:1 to a ratio of 5:1. A choice of either 11 milliseconds attack time and 0.9 second release time or 62 milliseconds attack time and 5.2 seconds release time for 63 percent recovery is provided. Refer to paragraph 1.4.

1.5.5 CUE AMPLIFIER 356Q-1.

The necessary circuitry for two stages of amplification makes up this plug-in module. It provides up to 55 db gain from the cue line. The 212G-1 console provides a gain control for the 356Q-1 and a speaker for the output. The output impedance is factory wired for four ohms. Refer to paragraph 1.4.

1.5.6 RELAY UNIT 274K-2.

The 274K-2 is a plug-in module which controls application of audio power to studio speakers and a-c power to studio warning lights. The four 12-volt d-c relays are mounted on rubber to minimize noise. Transient suppressing networks across the relay coils minimize arcing and radio interference. Refer to paragraph 1.4.

1.5.7 POWER SUPPLY 409X-2.

The 409X-2 furnishes power for filaments, plate circuits, and relays in the Broadcast Console 212G-1. Silicon rectifiers are used in the high voltage circuit to eliminate the heat associated with vacuum-tube rectifiers and to ensure long life. The output of the 409X-2 is as follows: 250 to 300 volts d-c (adjustable) at 250 ma, 6.3 volts a-c at 6 amperes, and 12 volts d-c at 1 ampere. Refer to paragraph 1.4.

1.5.8 RACK MOUNTING SHELF 499G-1.

The 499G-1 consists of a panel and chassis assembly for use in an RMA standard relay rack. The front panel is a hinged door that opens downward. Base perforations provide mounting holes to accommodate any arrangement of small modules without drilling. A variety of associated connectors, mounting brackets, and cables can be supplied.

1.5.9 JUMPER PLUG.

When mixing facilities are desired for a program source that has a self-contained preamplifier, it is necessary to insert a jumper plug into the jack normally used for a Preamplifier 356A-1. The jumper plug wiring schematic diagram is shown in figure 2-3. One jumper plug is supplied with Broadcast Console 212G-1.

1.5.10 AMPLIFIER TEST CABLE.

An amplifier test cable is available for use with Broadcast Console 212G-1. This cable is 35 inches long and has a twelve-pin plug on one end and a twelve-pin jack on the other. The amplifier test cable permits operation of amplifier while it is out of the console.

1.6 ELECTRICAL CHARACTERISTICS.

Electrical characteristics of the Broadcast Console 212G-1 are listed in table 1-3. These characteristics are measured with d-c voltage adjusted to 300 volts.

TABLE 1-3. BROADCAST CONSOLE 212G-1 ELECTRICAL CHARACTERISTICS

CHARACTERISTICS	DESCRIPTION
Maximum Number of Channels	6 low-level inputs, 2 medium level inputs, 1 remote or net input, 1 program channel, 1 monitor channel, and one cue channel when provided with: 8 -- Preamplifiers 356A-1 1 -- Amplifier 356B-1 or 356E-1 1 -- Program/Monitor Amplifier 356B-1 1 -- Relay Unit 274K-2 1 -- Cue Amplifier 356Q-1 1 -- Power Supply 409X-2
Input Impedance	Low Level: 20/150/250/600 ohms balanced or unbalanced* Net/Remote Lines: 50/150/250/600 ohms* Medium Level: 600 ohms (unbalanced)
Output Impedance	Line: 150/600 ohms* Monitor: 600 ohms
Gain	Low level to program line at least 100 db. Remote line to program line at least 53 db. Medium level to program line at least 62 db.
Output Level	Program Line: ± 18 dbm (50 mw)
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 +39 dbm at monitor amplifier output.
Noise	At least 68 db below +18 dbm program output with -50 dbm low level input. (Equivalent input noise level -118 dbm or less.)
Power Source	115 or 230 volts a-c $\pm 10\%$, 50/60 cps, single phase.

*Shipped wired for 600 ohms output and net/remote line impedance, 150 ohms low-level impedance, and 115-volt power source.

1.7 PHYSICAL SPECIFICATIONS.

Physical specifications of Broadcast Console 212G-1 are listed in table 1-4.

TABLE 1-4. BROADCAST CONSOLE 212G-1 PHYSICAL SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Size (inches)	20-7/32 deep at base, 40-5/16 wide, 7-7/8 high at front, 6-5/8 high at back
Weight	75 pounds (basic cabinet less modules)
Finish	Metalized blue-gray enamel front panel with white silk-screened letters. Cabinet black baked enamel.