

NEW ARRIVAL

THE WHEATSTONE A-20



THE RADIO CONSOLE ENGINEERING AND MANAGEMENT CAN AGREE ON

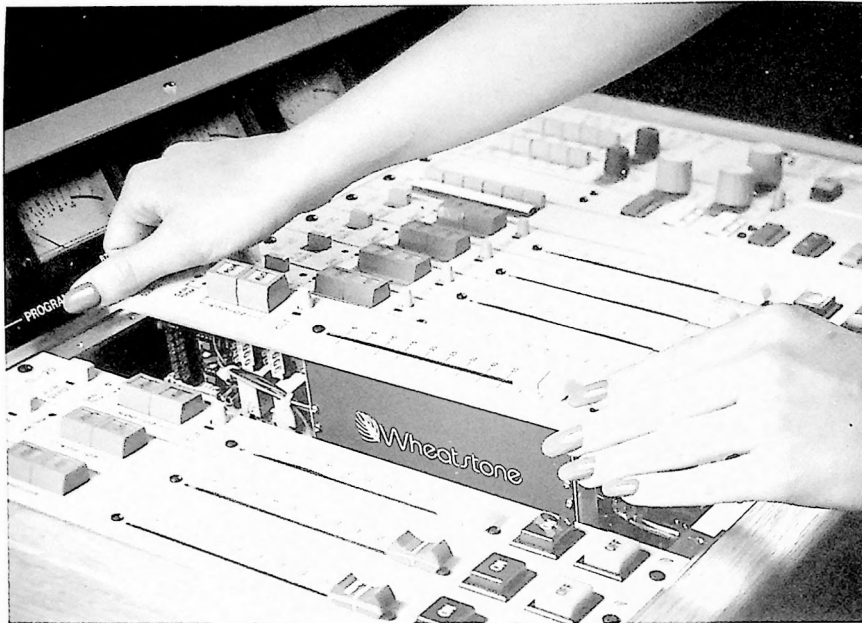
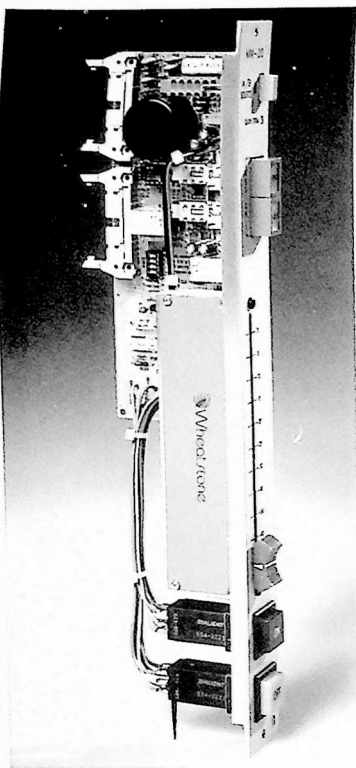
Finally engineers confined to tight budgets can choose a console that won't compromise station reliability or signal integrity. After all, the A-20 is a Wheatstone console. It borrows from the componentry and design of our larger A-500 consoles, currently installed in major markets all over the country, from frontline independents to national networks.

The A-20 features modular construction, a fully regulated rackmount power supply, logic follow, full machine control and, of course, an all gold contact interface system. This console has two mic channels and eight stereo line channels, each with A/B source select and program/audition bus assign (plus cue switches on the line modules). Standard features include program and audition VU meters, digital timer, and a monitor module for control room and headphone functions. Optional accessories include a studio control module, multiple line selector switch-banks and machine control panels, plus a full family of studio turret components.

The A-20 is a perfect choice for stations planning an upgrade in signal quality and control room image. It is also a natural choice for the newsroom. So profit from Wheatstone's experience and reputation—call us today for immediate action!

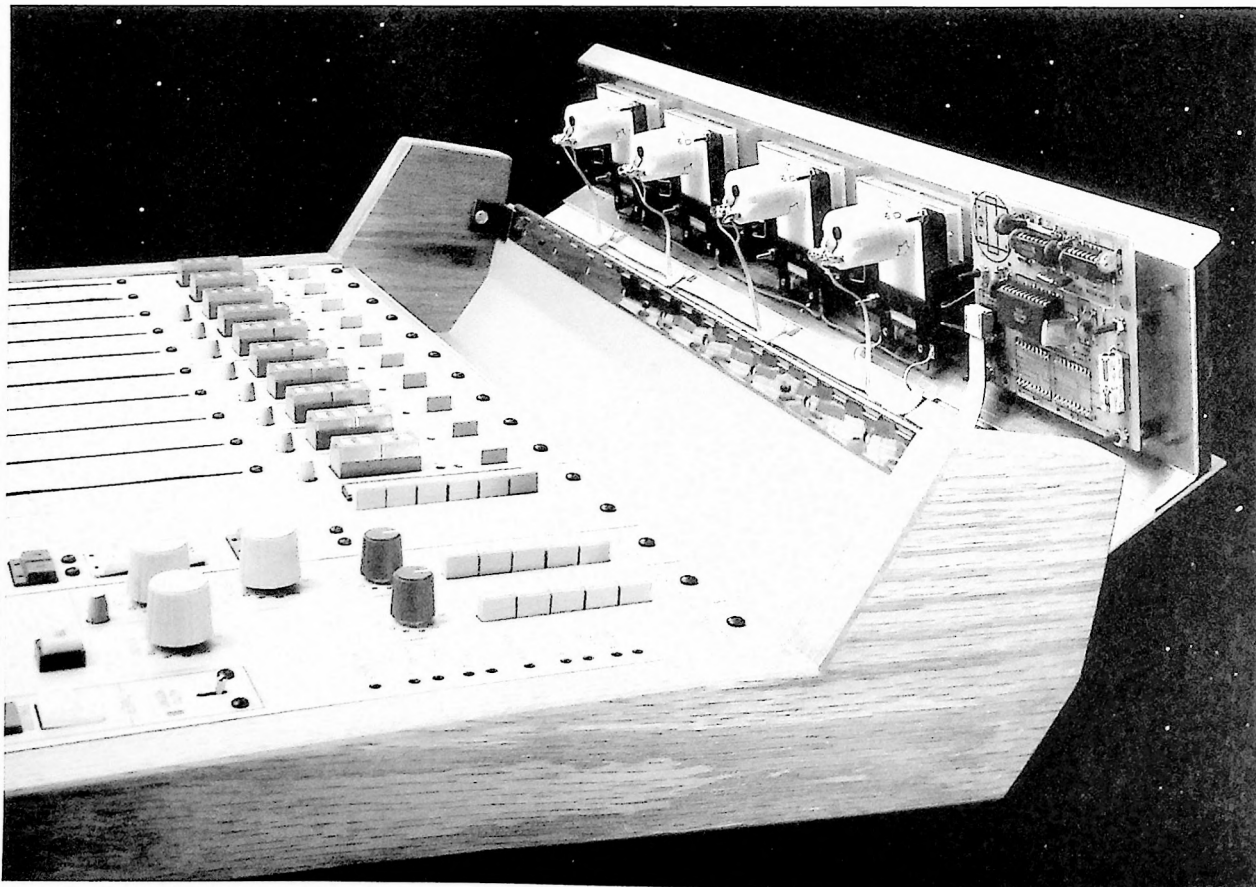
 Wheatstone® Corporation

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Beautiful inside and out. The A-20 is completely modular, allowing full access to all components. Electronic componentry is carefully selected for dependability: all connectors are gold-contact; integrated circuits are burned-in prior to assembly; printed circuit boards are hand-soldered to prevent component thermal shock and flux contamination. The console meterbridge is completely self-enclosed to prevent RF penetration into audio circuits. Timer electronics are also mounted in this isolated area to prevent clock oscillator interference. Naturally, the meter-bridge is fully hinged to allow instant access to meters, lamps and timer electronics.

Consistent with Wheatstone's reputation, the A-20 is at the leading edge of technical performance, with ruler flat frequency response, a dynamic range exceeding 112dB, excellent square wave response, and remarkably low distortion: less than 0.005% typical. In short, it is now possible to have a small format console with large format performance.



THE A-20 ON-AIR BROADCAST CONSOLE

LOGIC CONTROLLED AUDIO—Since impeccable electrical specifications were the design objective, VCAs, FETs, and use of line transformers were avoided to reduce the significant noise, distortion and bandwidth limitations that these component choices impose. The audio design concept employs the straight wire approach to maximize audio performance. The A-20 employs sealed high quality relays to control channel ON and CUE as well as monitor, mute and interrupt functions. Additionally the mic channel employs a short turn-on delay to avoid acoustic noise from the channel ON switch.

THE LOGIC SYSTEM—The A-20 provides an isolated contact closure from individual input module ON and OFF switches to provide interface-free machine starts. The module can also accept external ON/OFF commands by simply receiving a contact closure from cart machines, or a logic low command. The module's A/B source selector switch also switches the logic commons for the A and B machine control ports to allow a logic-follow function. The A-20's internal logic is controlled by dipswitches located on the input modules. Available functions include: control room mute and on-air tally relay, studio mute and studio on-air tally relay, and console timer restart. Additionally the control room module can be dipswitch programmed to provide a split cue mode that places program in the left monitor speaker and cue in the right. The control module also has a dipswitch selection to allow cue to interrupt the headphone monitor.

INPUT CIRCUITRY—All line level inputs are electronically balanced and are capable of +26dBm levels. This type of active circuitry optimizes bandwidth and distortion and avoids unnecessary use of line transformers. Additionally the line input modules have front panel accessible multi-turn screwdriver driven gain trim controls to accommodate a wide range of signal sources. Mic modules also have a front panel gain trim control but also utilize a mic transformer, which is better suited to low level signals in high RF environments.

OUTPUT CIRCUITRY—The program, audition, mono, mix-minus, control room and optional studio outputs are all electronically balanced and capable of delivering +28dBm levels. Multi-turn front panel screwdriver adjustable gain trim controls are provided.

HEADPHONE CIRCUITRY—A headphone output jack is provided, located below counter level. Headphone derives its signal from the control room source selector switch and may be programmed by an internal dipswitch to receive input module cue signals. This switching action is automatically activated from the console's internal logic buses. Headphone output level is set by a high quality conductive plastic level control.

CONTROL ROOM FUNCTION—The control room module receives its signal from a six position source selector switchbank. Source choices include program, audition, mono and two external electronically balanced stereo inputs. A long-life conductive plastic level control then drives the control room's electronically balanced outputs. Control room signal is muted when control room mic is ON. The module can be internally dipswitch-selected to operate in a split cue mode, where the cued module is placed in the right monitor speaker and a dimmed mono sum signal is placed in the left. The studio mic module can be dipswitch selected to talk back to the control room's cue circuit to facilitate intercom functions. A control room on-air tally relay is activated whenever the announcer microphone is energized.

CONSOLE TIMER—The A-20 meterbridge comes standard with a digital elapsed time counter and corresponding control panel (mounted in the lower portion of the OM-20 output module). This control panel is provided with start/stop, hold, and reset buttons. Another handy feature is a recessed timer restart switch. When activated it allows dipswitch pre-programmed line modules to reset the timer to zero and begin counting upon a channel ON command.

STUDIO FUNCTION—An optional studio module is provided with a six position source selector switchbank, a conductive plastic level control and electronically balanced outputs, as well as a talkback button which allows the control room talent to communicate to the studio output. Also, an independent external talkback output is provided to feed an independent speaker when so desired. A studio on-air tally relay is activated whenever the studio microphone is energized.

LINE SELECTOR—An optional six source stereo line selector module is available that may be wired to the input port of line input, control room or studio modules to expand their input capacity.

TAPE REMOTE MODULE—An optional tape remote module is available that provides twelve switches to enable full function control of two remote tape machines. The module is also available as six pairs of stop/start buttons to control six cart machines.

STUDIO TURRET—An optional family of studio turret and turret panels is available. These panels include a crystal-controlled (or 60 Hz timebase) clock, elapsed time counter (which may slave from the console's restart bus), a headphone/speaker control panel, a mic control panel (On, Off, Talkback, Cough), and an eight-bank stereo selector panel.

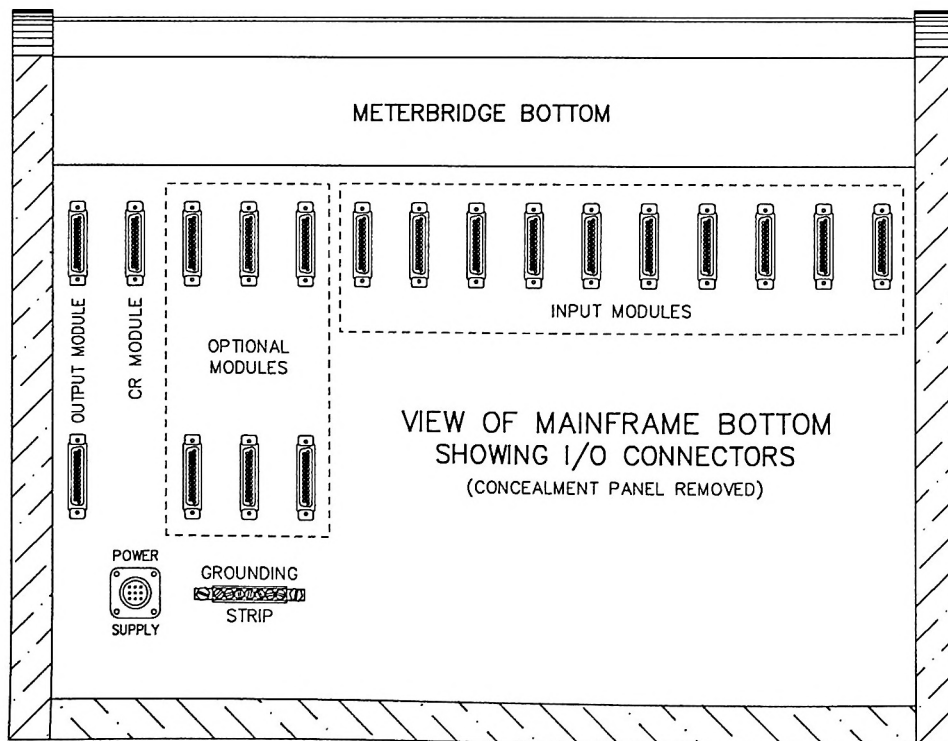
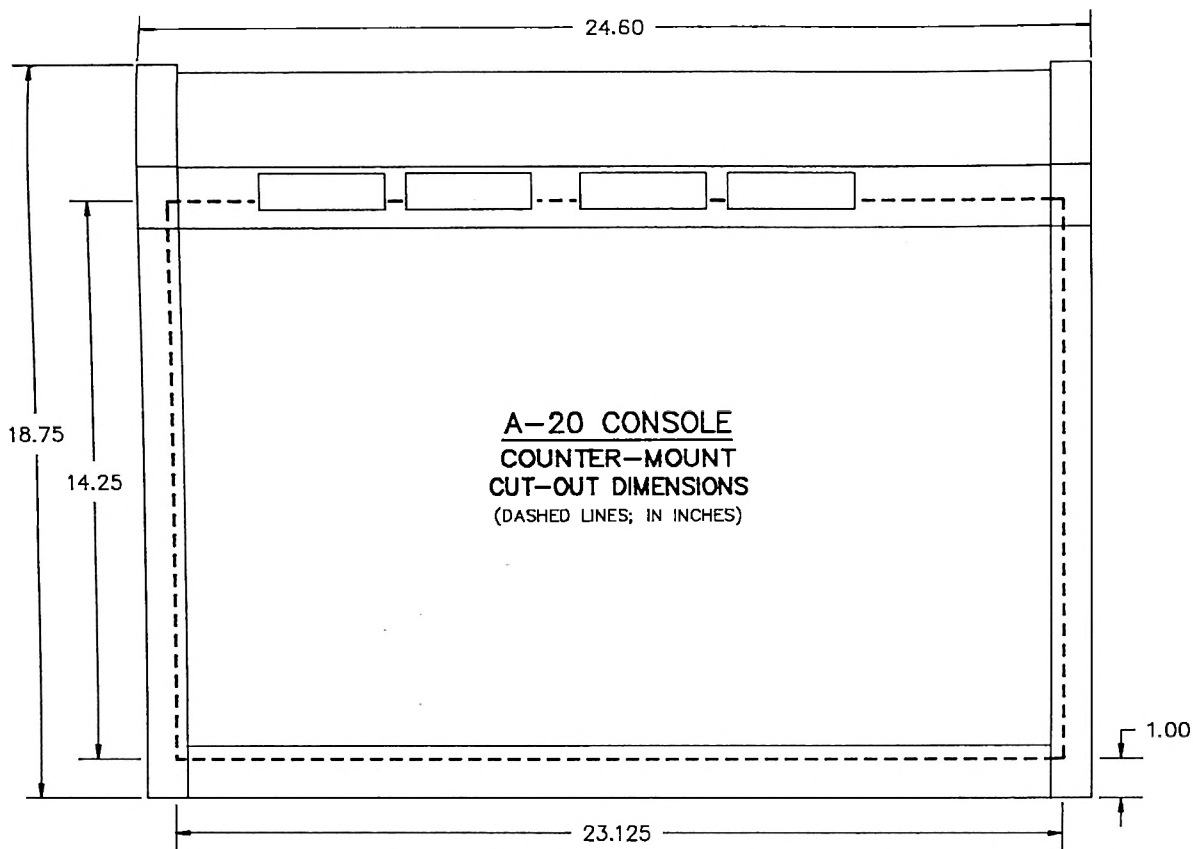
MAINFRAME—The A-20 mainframe is unique, both in terms of structure and interface. It utilizes an innovative approach to its interface system that greatly improves connection reliability and ease of installation, using gold contact insulation displacement (ID) connectors and ribbon wire (developed by the computer industry for its superior reliability and maintenance characteristics). This system replaces older motherboard technology and its inherent vulnerability to solder joint failure and loose debris shorting. Console I/O connections are made to 25-pin DB connectors mounted on the bottom plate of the console. Mating gold contact connectors plug into the underside of the console, allowing console placement close to walls and eliminating the need for flip-up procedures (and allowing wiring changes during console operation). The gold contact connectors are far superior to the tin contact Molex type and eliminate the need for bringing external wiring into the console's interior, a major source of RF contamination.

PERFORMANCE—Performance is the most outstanding feature of the A-20 console. A review of the specification page (following) says it all: This console in every way performs equal to its larger formal counterparts. There is simply no compromise made in this area.

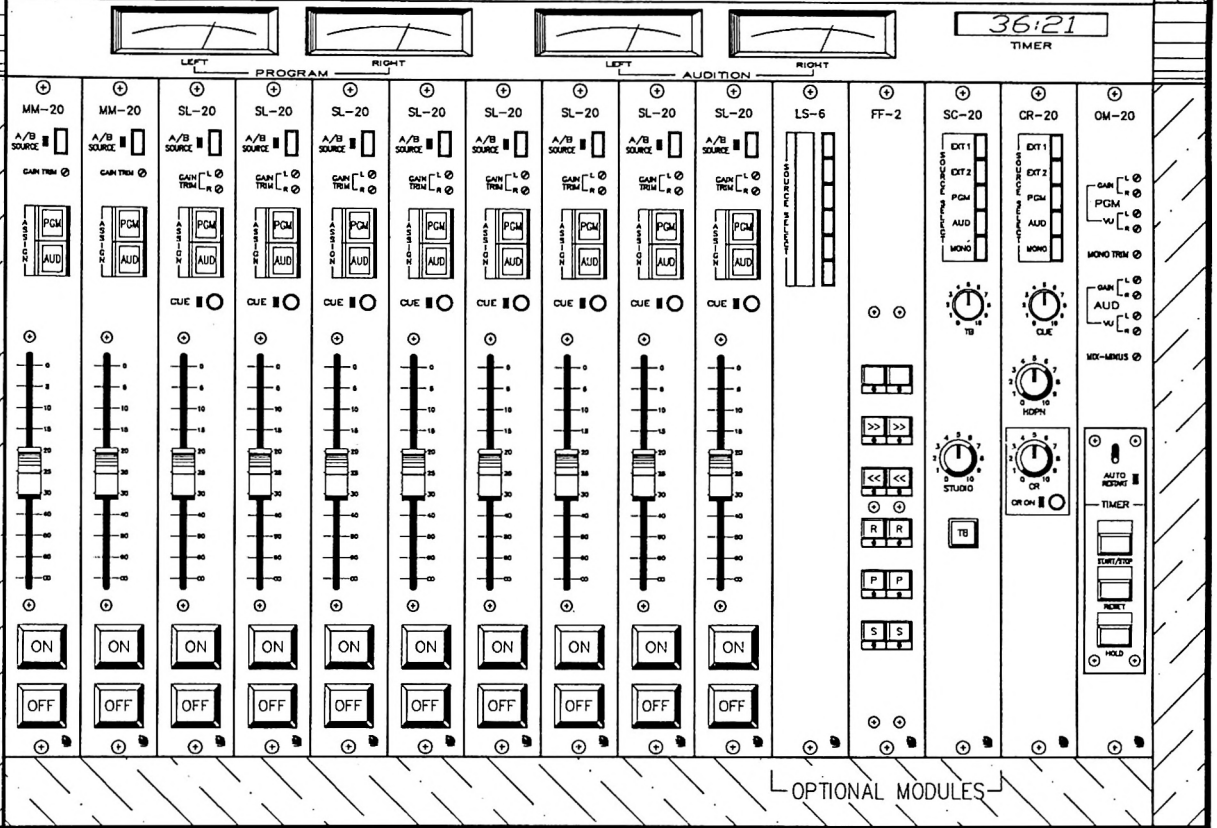
IN SUMMARY, the A-20 On-Air Broadcast Console is a significant achievement in console design in terms of ease of installation, service, integrity of connections and technical performance. It borrows componentry and methods from both the computer and audio industries. The A-20 is a perfect choice for stations planning an upgrade in signal quality or control room image. It is also a natural choice for newsroom and small production applications.

- 2 mic channels
- 8 stereo line channels
- 4 VU meters
- 1 elapsed time counter (w/auto restart)
- module machine start function
- Program and Audition stereo buses
- Cue bus
- Mix-Minus bus
- automatic cue release
- A/B source select w/LED indicator
- control room module
- headphone function
- split/cue monitor or external cue out
- fully modular construction

- gold contact interface
- fully regulated, short circuit protected rackmount power supply (3½" high)
- mating gold pin DB-25 connectors included
- 3-year limited warranty
- precision multi-turn calibration trims throughout
- pre burned-in, socket-mounted ICs
- gold contact industry standard ON/OFF switches
- channel A/B logic follow
- hinged meterbridge solid oak cabinetry
- lexan laminated module panels
- fully enclosed aluminum chassis
- fully enclosed aluminum meterbridge



A-20 CONSOLE MODULE LAYOUT (INPUT MODULE TYPES DETERMINED BY CLIENT)



PRELIMINARY SPECIFICATIONS: A-20 ON-AIR BROADCAST CONSOLE

(All faders @ nominal settings (- 10dB). Gain 0dB line, 54dB mic)

FREQUENCY RESPONSE:

Line input $\pm 0.2\text{dB}$ (20Hz-20KHz)
Mic input $\pm 0.5\text{dB}$, 30Hz-20KHz

THD + NOISE:

Line input $<0.003\%$ (20Hz-20KHz @ +20dBm out)
Mic input $<0.005\%$ (1KHz @ +20dBm out)

SMPTE IMD (Line in): $<0.008\%$ (+20dBm out)

NOISE (20Hz-20KHz):

Line input better than -88dBm
Mic input (150 Ω source) EIN-128dB (-74dBm)

OFF ISOLATION:

better than -100dB @ 1KHz

SLEW RATE (Line):

12V/microsecond (bal out)

PHASE SHIFT (Line in):

less than 12° (20Hz-20KHz)

STEREO SEPARATION (Lt-Rt):

-55dB @ 1KHz

INPUT GAIN:

Stereo Line 28dB max
Mic 67dB max

GAIN TRIM RANGE:

Stereo Line 20dB
Mic 36dB

INPUT:

Stereo Line 50K Ω bal, +26dBu max
Mic 150 Ω nom, 0dB max

OUTPUT (Bus):

+30dBu max, +20dBm

MIXING BUSES:

2 Stereo (Program, Audition)
1 Cue

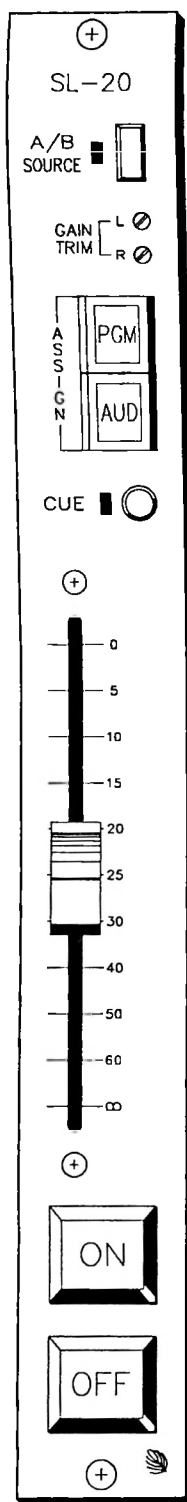
METERS:

4 Lighted Mechanical VU
(2 PGM, 2 AUD, plus timer)

FADERS:

100mm conductive plastic

Specifications and features subject to change without notice.



SL-20

SL-20 STEREO LINE INPUT MODULE

A/B SOURCE—This switch (w/LED indicator) selects between the module's two stereo line inputs (machine control logic will follow the chosen source).

GAIN TRIM—Two recessed multi-turn trimpots that set the module's left and right gain trim levels.

ASSIGN—These two switches (w/barndoor status indicators) assign the module's stereo signal to the console output buses (Program and/or Audition).

CUE—When activated this switch (w/LED indicator) sends the module signal to the console cue bus. This signal is used at the control room module, where it may be programmed to automatically interrupt the control room and headphone monitor feeds and/or feed an external cue output. Cue is automatically released when the channel On button is activated, or when cue is pressed again.

FADER—A 100mm precision conductive plastic stereo fader sets the module output level.

ON/OFF—These two switches (w/indicator lights) turn the module signal on and off. They can also be programmed to perform other functions via the console logic circuitry (see below).

PROGRAMMABLE FUNCTIONS—The module ON/OFF switches can be programmed (via an internal dipswitch) to automatically *mute control room* monitor speakers when the channel is ON. The same dipswitch can also be programmed to *restart timer* when the ON switch is pressed and can also send the module signal to the console's *mix-minus* bus.

EXTERNAL CONTROL—The SL-20 input module may be turned On and Off via external control ports. Module ON/OFF switches can also Start and Stop external devices (cart machines, etc.) w/logic following the module's A/B source select switch. The module's OFF switch indicator light may be programmed (via dipswitch, see above) to function as a remote ready light activated from an external device, or it may be lighted from the module's internal circuitry.

MM-20 MONO MIC INPUT MODULE

A/B SOURCE—This switch (w/LED indicator) selects between the module's two transformer balanced microphone inputs.

GAIN TRIM—A recessed multi-turn trimpot that sets the input gain level (range: 36dB).

INSERT POINT—A patch insert point (post gain trim, pre-fader) is provided for individual channel processing, such as equalization and compression.

ASSIGN—These two switches (w/barndoor status indicators) assign the module signal to the console's output buses (Program and/or Audition).

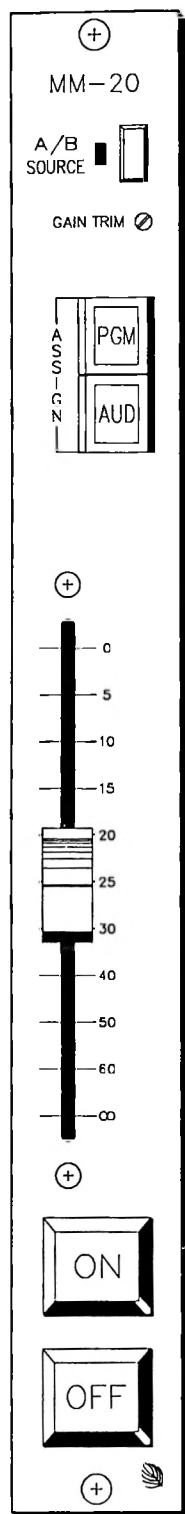
FADER—A 100mm precision conductive plastic fader controls module output level.

ON/OFF—These two switches (w/indicator lights) turn the module signal on and off. They can also be programmed to perform other functions via the console logic circuitry. On/Off status may also be controlled from a remote turret location (see ST-20 STUDIO TURRET).

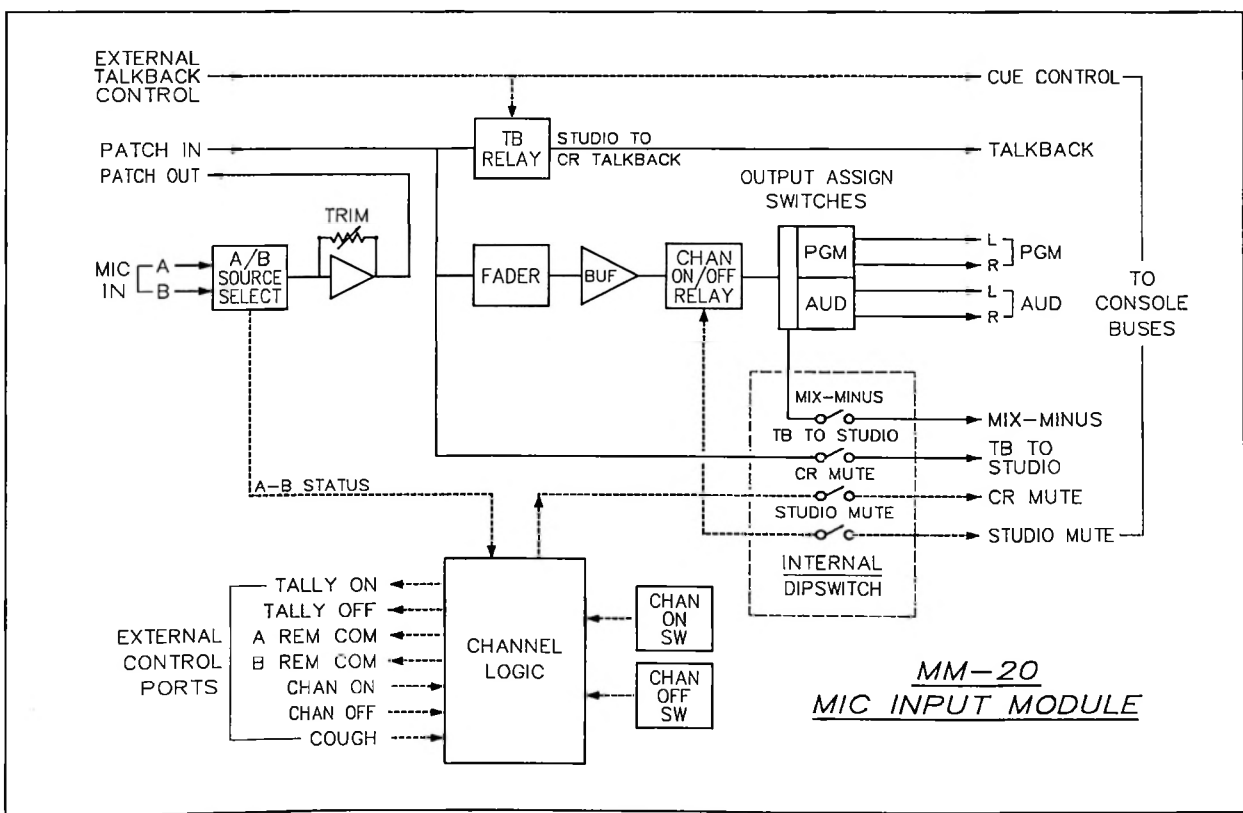
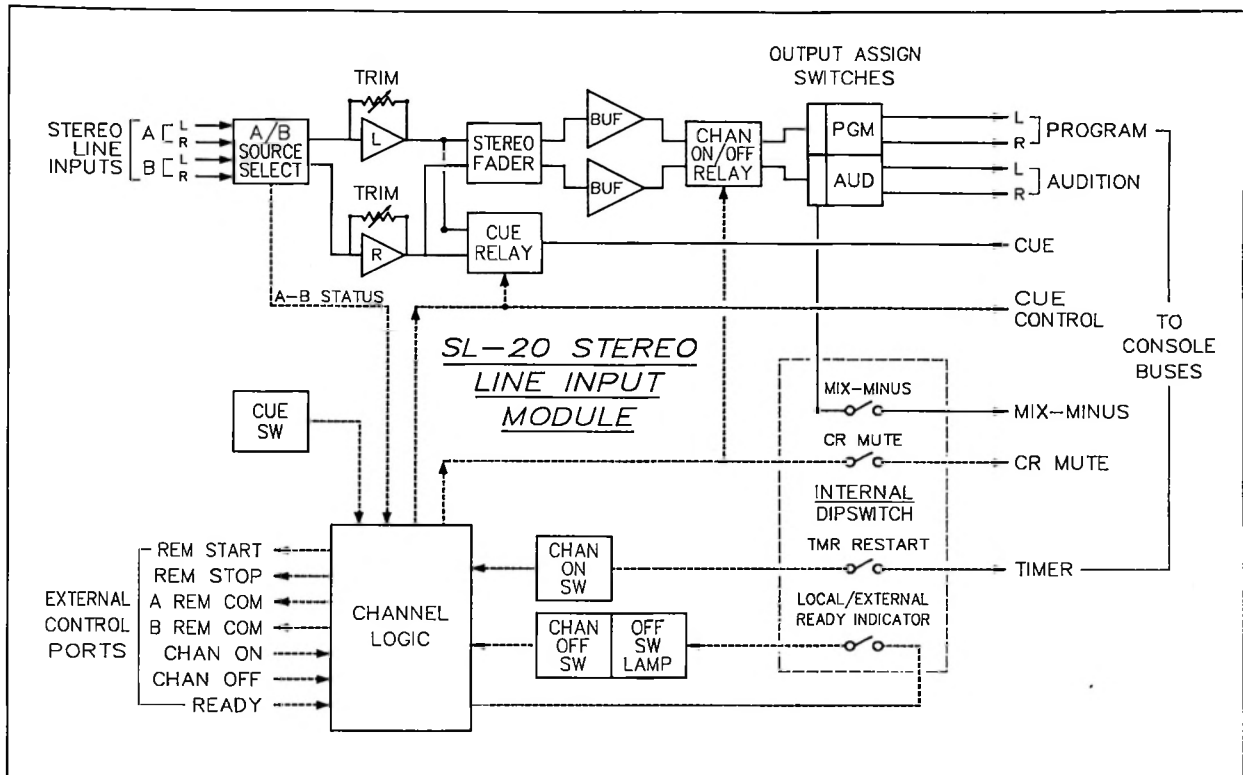
PROGRAMMABLE FUNCTIONS—The module ON/OFF switches can be programmed (via an internal dipswitch) to automatically *mute control room* (and activate on-air tally relay) and *mute studio* when the channel is ON. The same dipswitch can also program the module to feed audio to the console's *mix-minus* bus for telephone or scimmer applications, or to feed *talkback* to studio.

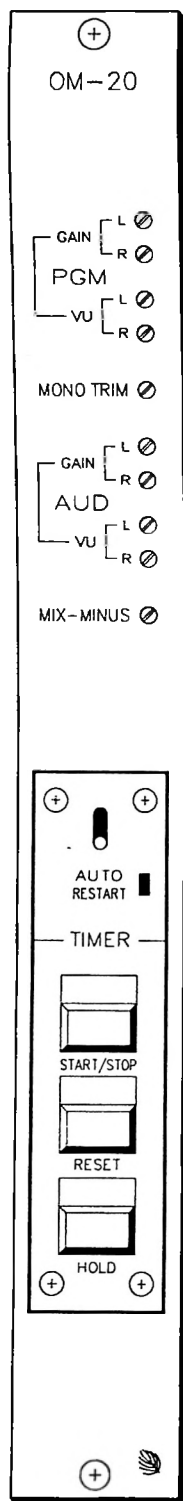
EXTERNAL CONTROL—The MM-20 input module may be externally controlled (On, Off, Cough, Talkback to CR) by an optional Studio Turret Announcer Panel. Module ON/OFF switches can also control remote tally indicators (w/logic following the module's A/B source select switch).

TALLY—Module ON/OFF status tally signals are provided to interface to optional remote studio turret accessories.



MM-20





OM-20

OM-20 OUTPUT

PROGRAM—Program output level is set by two recessed multi-turn trimpots (left and right). Two additional trimpots set Program VU meter levels. Left and right insert points are provided (pre-trim).

MONO—A single recessed multi-turn trimpot sets the mono sum output level. This signal is the sum of left and right Program outputs.

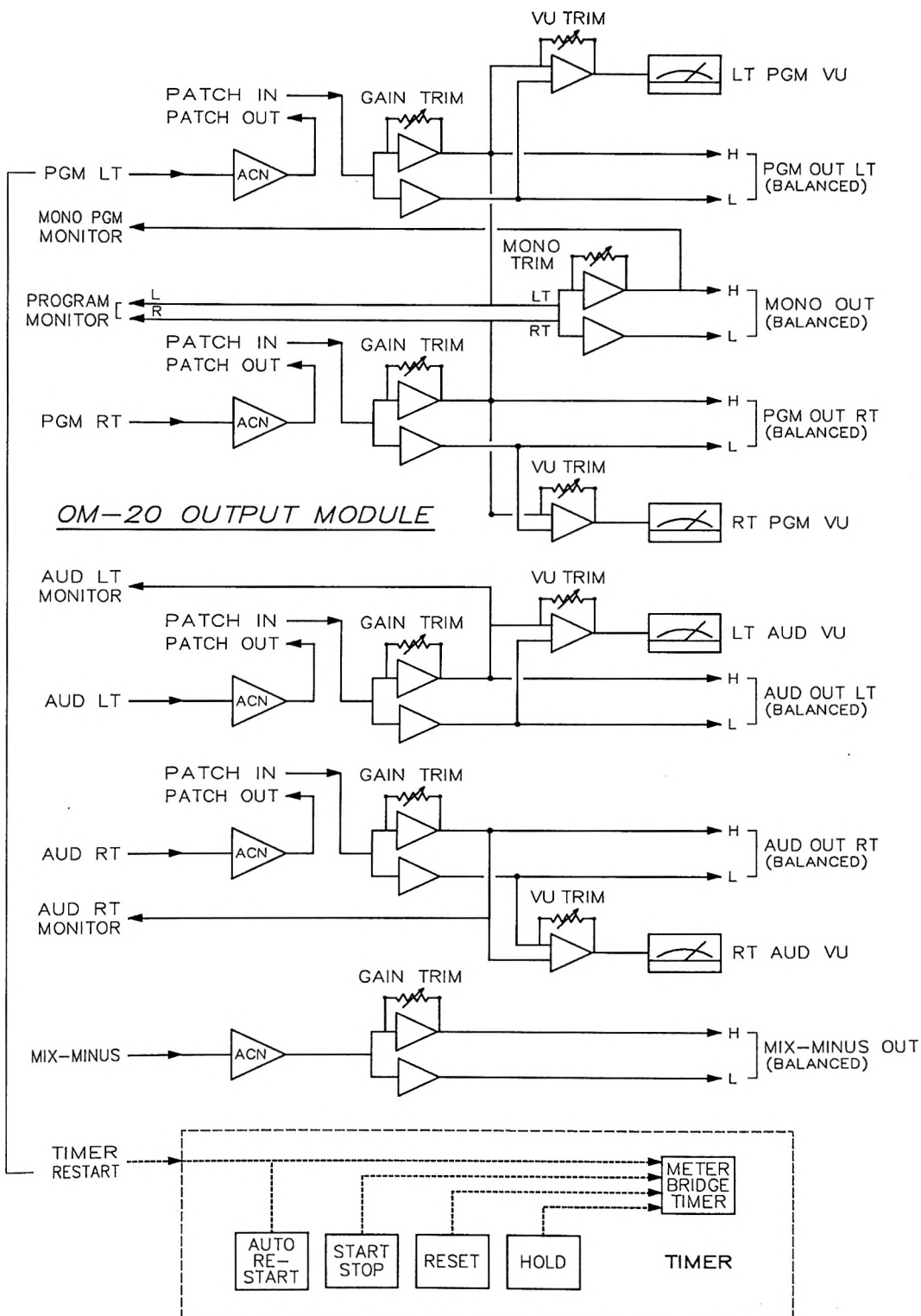
AUDITION—Audition output level is set by two recessed multi-turn trimpots (left and right). Two additional trimpots set Audition VU meter levels. Left and right insert points are provided (pre-trim).

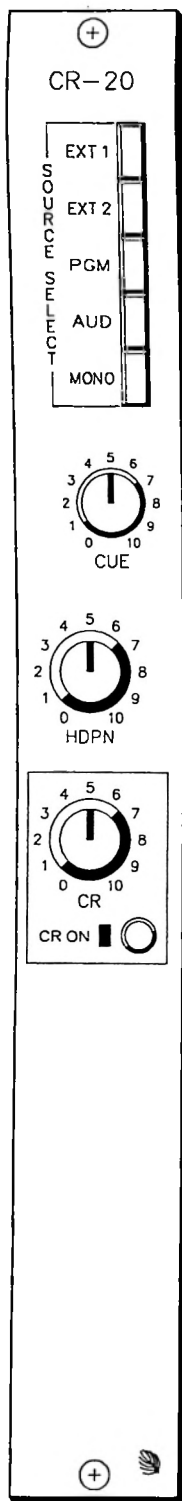
MIX-MINUS—A single recessed multi-turn trimpot sets the Mix-Minus output level. Individual mic and line input modules may be dipswitch-programmed to feed this bus to facilitate use with telephone hybrids or scimmers.

TIMER—The control panel for the console's digital timer (meterbridge display) is located on the output module. There are three pushbutton switches (Start/Stop, Reset, Hold) and one toggle switch (Auto Restart); this enables the timer restart function programmable at individual SL-20 input modules. Auto-restart does not disable manual functions.

59:31

CONSOLE BUSES





CR-20

CR-20 CONTROL ROOM

SOURCE SELECT—This switchbank determines what (stereo) signal will be fed to the control room monitor speaker and the console operator's headphone. In addition to the console Program, Audition and Mono (sum) buses, two external stereo line inputs may be selected.

CUE—The master level control for the Cue circuit. It feeds an external output port as well as optional control room and headphone interrupts.

HDPN—The headphone level control (stereo). This control is high quality conductive plastic to assure reliable operation. The headphone signal is fed to a 1/4" headphone jack located in the console frame below counter level.

CR—The level control for the control room monitor signal (stereo). This control is high quality conductive plastic to assure reliable operation.

CR ON—Turns the control room monitor signal on and off (w/LED indicator).

PROGRAMMABLE FUNCTIONS—Cue may be programmed to *interrupt the headphone circuit and/or control room monitor circuits* via an internal dipswitch. When the headphones are programmed, the regular source select signal is replaced in both channels by the Cue signal. With the control room circuits, a split cue mode is available. When activated (again via the internal dipswitch) the regular stereo source signal is summed and sent to the left channel, while Cue goes to the right channel. A control room mute function will activate when those input modules so programmed are turned on (see MM-20 and SL-20 module pages). An *on-air tally relay* will also close in response to same to control a remote tally light.

SC-20 STUDIO CONTROL (OPTIONAL)

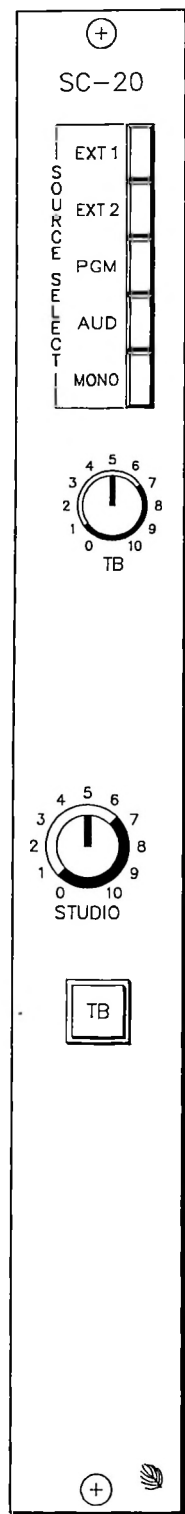
SOURCE SELECT—This switchbank determines what (stereo) signal will be fed to the studio monitor speaker system. In addition to the console Program, Audition and Mono (sum) buses, two external stereo line inputs may be selected.

TALKBACK—Controls talkback level coming into studio. (Announcer mic module would be dipswitch programmed to feed the bus to this talkback function.)

STUDIO—Controls signal level going to studio speaker system. This control is high quality conductive plastic to assure reliable operation.

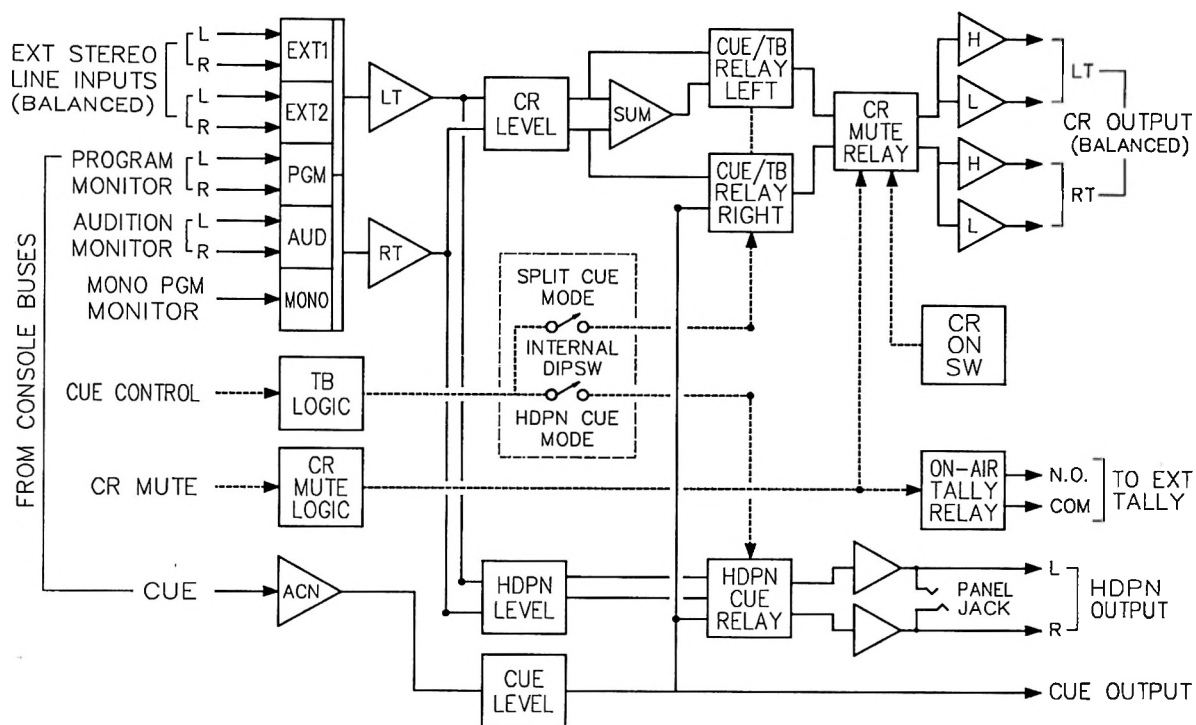
TALKBACK BUTTON—Momentary button feeds announcer mic to studio output.

STUDIO MUTE—Studio mic module is dipswitch selected to mute studio when studio mic is On.

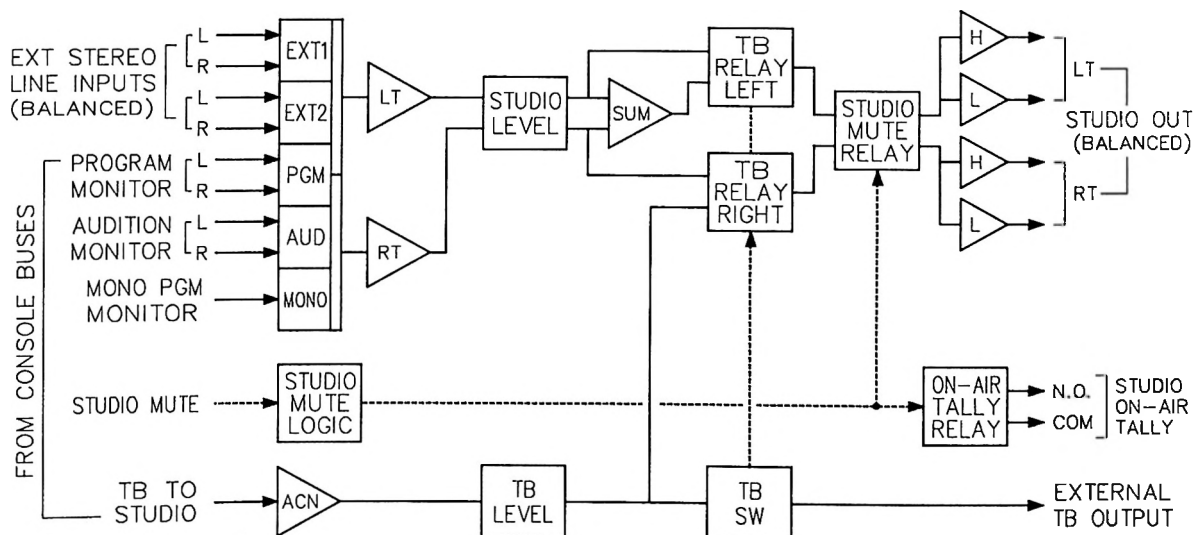


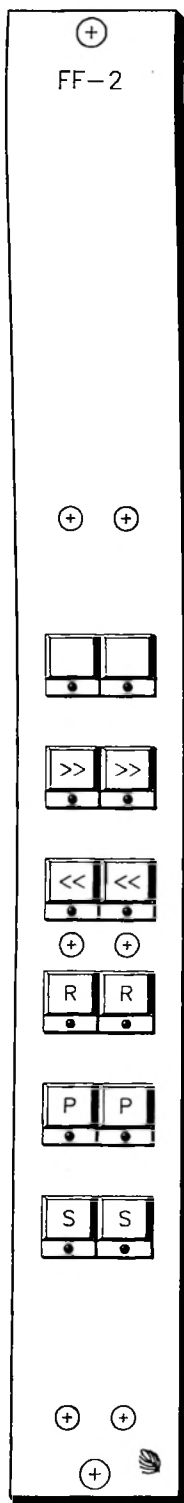
SC-20
(OPTIONAL)

CR-20 CONTROL ROOM MODULE

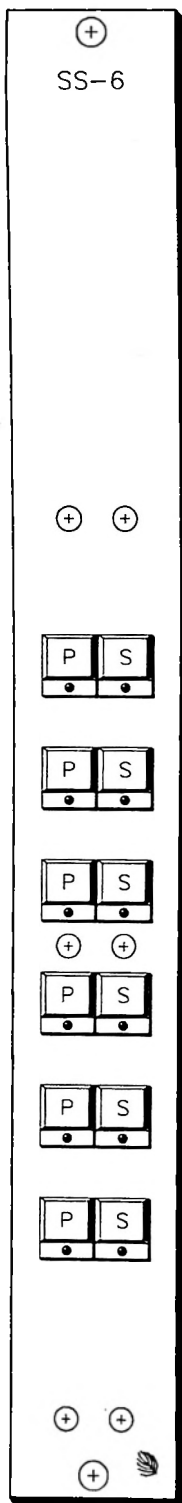


OPTIONAL SC-20 STUDIO CONTROL MODULE





FF-2
(OPTIONAL)



SS-6
(OPTIONAL)

FF-2 FULL FUNCTION TAPE REMOTE (OPTIONAL)

Two full-function sets of pushbutton controls (w/LED indicators) to control remote reel-to-reel, cart recorder or cassette tape machines (FAST FORWARD, REWIND, RECORD, PLAY, STOP, SPARE).

SS-6 START/STOP TAPE REMOTE (OPTIONAL)

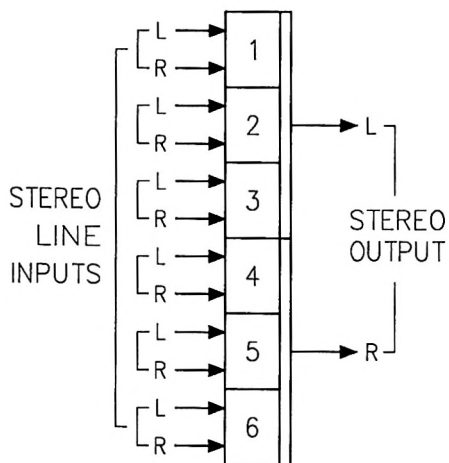
Six pairs of START/STOP pushbutton controls (w/LED indicators) to control remote devices (such as cart machines, etc.).

LS-6 LINE SELECT (OPTIONAL)

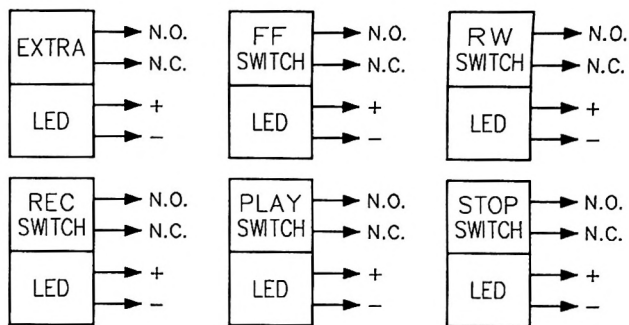
SOURCE SELECT—A source select switchbank with 6 stereo inputs and one stereo output. The output may be fed (via the modules' standard DB-25 I/O connectors) to any SL-20 input module, control room or studio module to increase its input source capacity.



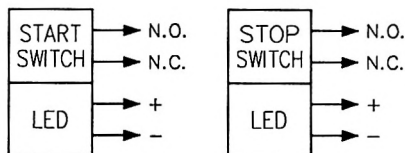
LS-6
(OPTIONAL)



OPTIONAL LS-6
LINE SELECT MODULE

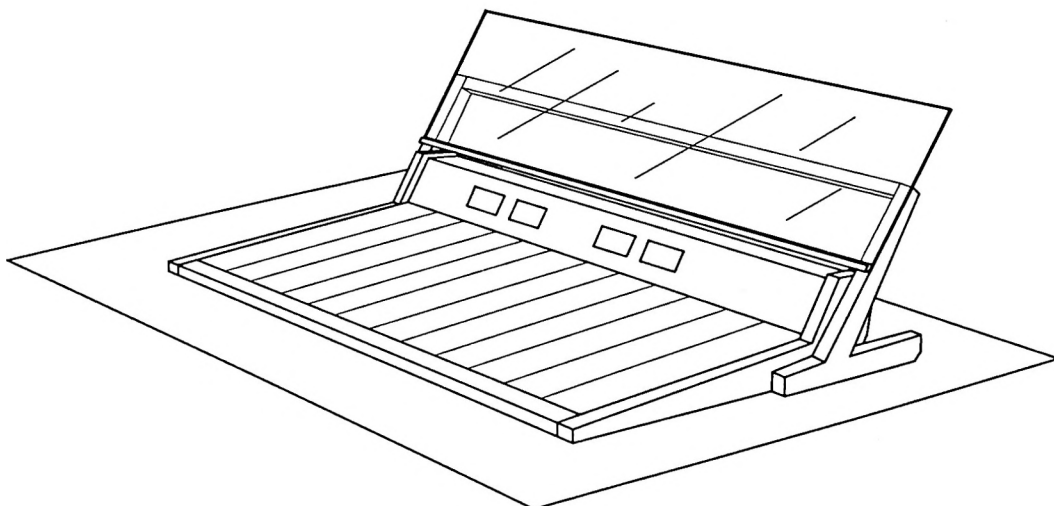


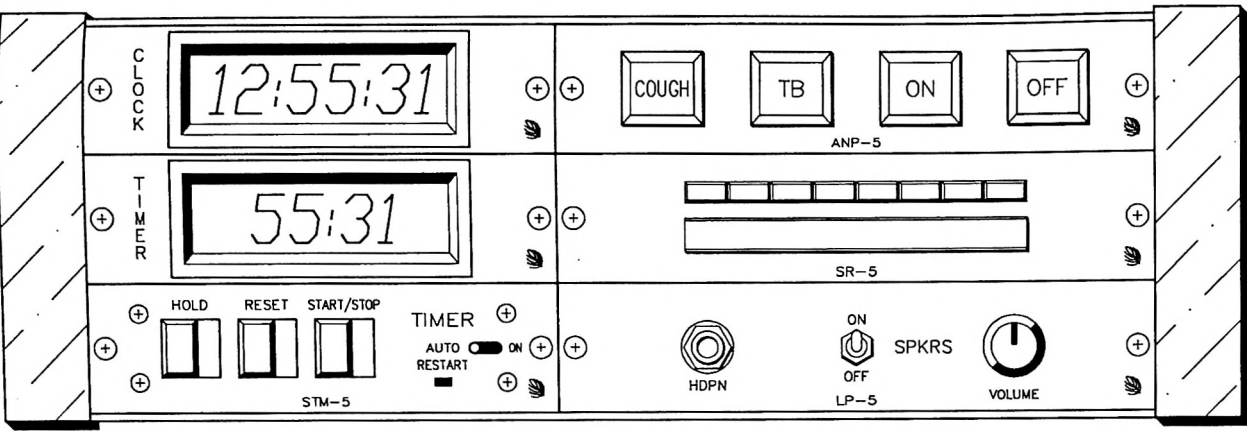
OPTIONAL FF-2 TAPE REMOTE MODULE
(1 OF 2 SWITCH SETS SHOWN)



OPTIONAL SS-6 TAPE REMOTE MODULE
(1 OF 6 SWITCH SETS SHOWN)

A-20 CONSOLE w/OPTIONAL COPYSTAND





ST-20 STUDIO TURRET (OPTIONAL)

The optional studio turret can be equipped with up to six accessory panels:

TURRET CLOCK—A six-digit time-of-day clock with LED display.

TURRET TIMER—A Four-digit timer with LED display. Timer restart may slave from console if desired.

STM-5 TIMER CONTROL—The control panel for the studio turret timer. It has three pushbutton switches (Start/Stop, Reset, Hold) and one loggle switch (Auto Restart) which enables the timer restart function (initiated from console SL-20 input modules that have been so programmed).

ANP-5 ANNOUNCER PANEL—Used to remotely control an MM-20 microphone input module at the A-20 console. Talk-back, On, Off and Cough (momentary off) functions are provided. (See "External Control", MM-20 module page.) Console tally back signals are provided to illuminate ON/OFF switch.

SR-5 STUDIO REMOTE PANEL—A source select switchbank with 8 stereo inputs and one stereo output. It is used to select monitor signals going to the studio amplifier system.

LP-5 LISTEN PANEL—A stereo level control (used to feed an external studio speaker amplifier), a speaker On/Off switch and a headphone output jack.

