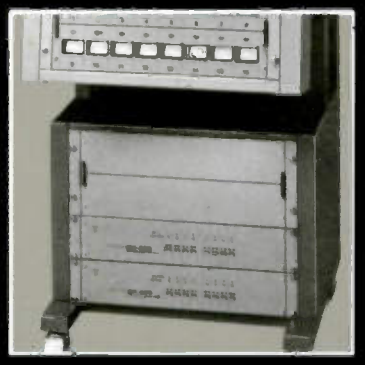
TASCAM

RECORDING EQUIPMENT



PORTA ONE MINISTUDIO

4-Channel Multitrack Recording System

The TASCAM PORTA ONE "MINISTUDIO" is a compact, self-contained 4-channel multitrack recording system that provides everything you need to record and mix multiple sound tracks. Each channel of the MINISTUDIO's four-input mixer can accept a microphone, instrument, or any line-level source, or playback from the built-in four-track recorder. The sensitivity of each channel can be set to perfectly match the source, and the level of each channel is controlled by smooth linear faders. A two-band equalizer provided on each channel permits tailoring the sound of each track during recording, overdubbing or final mixdown. Each channel also has a pan pot which makes it possible to assign the channel signal to anywhere between tracks during recording, or anywhere in the stereo sound field during mixdown. Because there are record function switches as well as pan pots, you can assign each input to any of the four tracks for recording—or all inputs to one track.

The MINISTUDIO recorder section utilizes a standard cassette to record up to four synchronized tracks. Tracks can be "bounced"—combined and recorded onto another track—letting you record up to 10 different parts without re-recording any one part more than once. Footswitch-controllable punch-in and punch-out recording is also possible, making it simple to re-record a section of a previously recorded track. The MINISTUDIO's monitor system includes cue capability—that means you can mix all four tracks plus live sources into an independently controllable headphone output so you can hear exactly what you're doing during recording and overdubbing. Four VU meters provide visual monitoring of any input, tape or program buss signals. Once you've laid down all the tracks, you can mix them down to stereo or mono. During this process you retain full control of each of the four tracks so you can correct individual track EQ at the last minute.

Another feature you'll really appreciate is the MINISTUDIO's ability to record and play standard format cassettes.

MAIN MINISTUDIO FEATURES

- 4-track cassette recorder operates at standard 1-7/8 ips (4.8 cm/s) speed.
- Any four input channels can be assigned to any track.
- Switchable dbx* noise reduction.
- Input channel mute (OFF) switch lets you bring channels into the mix without having to change any control settings.
- Each channel has 2-band EQ with center defeat detents.
- Discrete 4 track tape cue mix and separately adjustable headphone output level control.
- Record safe/ready switches and an LED indicator.
- 4 independent TAPE OUT jacks.
- Recorder section offers smooth tape motion, variable pitch control, and a counter with Zero Return.
- Flashing "low battery" indicator tells you when it's time to replace batteries.
- Optional AC adaptor (PS-P1) for indoor use.
- Two optional cases are available: a flight case, CS-P1H and a soft case, CS-P1S.

PORTA ONE SPECIFICATIONS

•MIC/LINE Input: −60—−10 dBV •Track Format: 4-track, 4-channel •Tape Speed: 4.8 cm/s •Wow and Flutter: 0.05%, NAB weighted •Frequency Response: 40 Hz—12.5 kHz, ±3 dB •S/N Ratio: 85 dB (weighted, with dbx) •Dimensions (W×H×D): 330×70×250 mm •Weight: 3.0 kg without batteries, 3.5 kg with batteries

246 PORTASTUDIO

4-Channel Multitrack Recording System

The TASCAM 246 PORTASTUDIO ushers in a new era of personal multitrack recording. As the third generation of TASCAM PORTASTUDIO evolution, the 246 features and performance have been refined to perfection. Like the other TASCAM PORTASTUDIOs, the 246 has been painstakingly created to achieve one goal—to provide a complete high-performance studio in one compact package. An invaluable creative tool for the musician, composer and multi-image or video producer.

6-CHANNEL MIXER SECTION

The 246's 6-channel mixer features the same kind of versatility and meticulous design found in TASCAM recording consoles. Its flexible input options start with six front-mounted Mic/Line jacks and top panel input selectors with channel mute. Two line B channel inputs allow additional line-level signals to be brought into the mixer for effects returns, etc. A Trim pot and LED on each of the six input channels lets you adjust sensitivity to optimize performance with Mic or Line sources. Each channel has a 2-band sweep type parametric EQ for precision tonal tailoring. During recording any or all of the 246's six input channels can be routed to any or all of the four tracks through a system of PGM Assign buttons and record function switches. Pan controls are also provided for stereo positioning during mixdown, and for buss assignment in conjunction with the PGM Assign buttons. The 246 mixer section also includes several independent sub-mixing chains that make up an extremely versatile system to meet your monitoring and effects needs.

2-SPEED RECORDER SECTION

The two-speed operation of the 246 transport offers superb audio quality and broad compatibility with other systems. At 1-7/8 ips the 246 is compatible with standard pre-recorded stereo cassettes and with recordings made on the TASCAM PORTA ONE Ministudio. The faster speed (3-3/4 ips) offers exceptionally high audio quality. Of course, the superlative dbx noise reduction system is built-in. dbx can be turned off when you're working with non-dbx tapes, and channel 4 has a separate dbx ON/OFF switch that makes it useful for recording SMPTE time code, FSK and other synchronization signals.

EASY-OPERATION FEATURES

If you'll be recording "solo" with the 246, you'll really appreciate its Remote Control and Remote Punch In/Out facilities. Plug in the optional RC-71 remote transport control and you can command all the major transport functions from up to 16 feet away. The TASCAM RC-30P footswitch lets you do hands-free punch-ins and punch-outs on previously recorded tracks. The transports's memory facilities can make tape shuttling operations easier, too. Any locations can be locked into memory, so you can automatically wind to any specific part of your program. The memory can be used in conjunction with the Zero Return function to create a continuous playback loop for rehearsing overdubs or punch-ins. The tape counter can be set to read out in minutes and seconds or index increments. A ±12% Pitch Control is also provided.

246 SPECIFICATIONS

•Track Format: 4-track, 4-channel •Tape Speed: 9.5 cm/s and 4.8 cm/s •Wow and Flutter: ±0.06% peak weighted (9.5 cm/s) •Frequency Response (0 VU): 40—14,000 Hz, ±3 dB (9.5 cm/s) •S/N Ratio: 90 dB (9.5 cm/s, A-weighted, dbx on) •Equalizer: Sweep-type parametric, LOW/Mid—62 Hz to 1.5 kHz, Mid/High—1 kHz to 8 kHz, ±15 dB •Dimensions (W x H x D): 500 x 123 x 401 mm •Weight: 10.3 kg

244 PORTASTUDIO

4-Channel Multitrack Recording System

The TASCAM 244 "PORTASTUDIO" is an extremely versatile tool for creative people in a variety of fields: musicians, vocalists, arrangers, composers, multi-image producers, and film/video producers. The 244 is a complete recording system. Incorporating a full-function mixer and a high-performance 4-channel multitrack cassette recorder. Plug in microphones, instruments, and a pair of headphones or two, and you have everything needed to begin recording.

SOPHISTICATED FEATURES

Each input channel has a 2-band parametric type sweep equalizer, plus an "off" position on the Mic/Line-Tape switch for muting unused channnels. The 244 accepts up to 4 microphones, line-level sources, or electronic instruments without the need for a "direct box". There are a variety of outputs for mixdown to any 2-track recorder, and for monitoring via headphones and/or loudspeakers (with an external amplifier system). The 244 also has numerous patch points which, channel-by-channel, allow the insertion of a variety of outboard signal processors. The aux mixing buss is stereo, so it can be used for an effects send mix or an additional performer headphone cue mix. And the Remote Punch In/Out footswitch jack means performers working alone can plug in an optional footswitch (RC-30P) and "punch-in" the record mode without missing a beat.

THE MIXER SECTION

The 244 Portastudio's mixer section has everything needed to record live performances, mix recorded tracks with new sources during overdubs, to create separate mixes for effects and performer monitoring, and to remix the multitrack cassette to a finished stereo program. It can even be used for occasional live sound reinforcement mixing. Channel controls include Mic/Line-Off-Tape selectors, trim controls and overload indicators, two-band parametric EQ, Aux gain and pan controls with Pre-Off-Post selectors, pan pots and smooth, noise-free linear faders. The master control section includes a REMIX/CUE/AUX monitor selector and buss monitor control for versatile monitoring, a record function switch matrix which permits recording on independent channels or all 4 channels simultaneoulsy, Aux receive controls, tape cue gain and pan controls, and a master fader for overall level control.

THE RECORDER

The built-in 9.5 cm/sec cassette recorder features dbx noise reduction and is calibrated for optimum performance with high bias, 70 μs EQ tapes. Audible tape hiss is virtually eliminated, recordable dynamic range is significantly increased, and distortion is markedly reduced. The use of high-speed integrated circuits, in conjunction with the higher tape speed, further improves high frequency response and reduces distortion. One of the transport's three motors is used only for moving the heads in and out of position, thus preserving alignment. Reliability is further ensured because the capstan motor turns on only when a cassette is in place. Convenient features include a large, fluorescent 4-digit tape counter, a Zero Return function, 4 independent Tape Out jacks, and a ±15% pitch control.

244 SPECIFICATIONS

•MIC/LINE Input: −60 — −10 dBV •Track Format: 4-track, 4-channel. •Tape Speed: 9.5 cm/sec. •Wow & Flutter: ±0.06% peak weighted. •Frequency Response (0 VU): 40—14,000 Hz ±3 dB. •S/N Ratio: 90 dB (IHF A-weighted, dbx NR on). •Equalizer: peak/dip parametric, Low/Mid-62 Hz to 1.5 kHz, Mid/High-1 kHz to 8 kHz, ±15 dB. •Dimensions (W×H×D): 455×120×370 mm. •Weight: 9 kg.

388 STUDIO 8

8-Track Multitrack Recording System

The TASCAM 388 "STUDIO 8" represents a breakthrough in the field of integrated mixer/recorder multitrack systems. The 388 combines a top-performance 8-input/8-buss mixer with a compact 1/4" tape open-reel 8-track recorder. The mixer section is a full-function design, offering 3-band parametric EQ on each input channel, balanced XLR Mic inputs, an L/R stereo buss, Aux buss, Effect buss, 2 Effect return systems and a comprehensive Monitor section. The recorder section features a newly-designed precision 3-motor servo controlled transport for faultless tape handling. The recorder also features a real-time counter, SMPTE/EBU compatibility, locator functions, built-in dbx system and a TAPE LOAD mode. Access to servo system and reproduce amp circuitry is available from the top of the unit, for easy calibration and maintenance.

MIXER SECTION

The 388 mixer section offers all the versatility and performance of a high-performance discrete TASCAM recording console. Each input channel features balanced XLR Mic inputs with Trim controls and 1/4" phone jacks for line input. Input selectors permit one-touch selection of Mic, Line or Remix (tape) input so you don't have to repatch for different operations. Access send and receive jacks are also provided, permitting outboard signal processing equipment to be patched directly into any input channel. 3-band sweep equalizers offer precise response tailoring capability, and overload LEDs warn you of potential overload distortion problems allowing you to adjust optimum levels. AUX send (with pre/post selector) and EFFECTS send controls are included, providing two extra mixes for many applications. Two EFFECTS return circuits are provided for compatibility with stereo effects processors, or the AUX mix can be used for an extra channel of effects processing. For easy track assignment, the mixer has 8 program busses with buss assign buttons and pan pots on each input. An independent stereo buss is also available for mixdown. The monitor section features stereo line outputs and a pair of headphone jacks. The monitor signal can be selected from the STEREO, AUX or EFFECT busses. PGM/TRK meters with peak LEDS are provided for each program buss, and a separate pair of meters monitor the STEREO or AUX/EFFECT busses.

RECORDER SECTION

The 388 recorder features an 8-track format on standard 1/4" tape (7" max. reels), at a 7-1/2 ips tape speed. This format offers exceptional economy while delivering the superlative performance that only TASCAM can provide. dbx noise reduction is built in, with channels 1—4 and 5—8 ON/OFF switches, and a channel 8 defeat switch for recording SMPTE time code, MIDI sync or other sync signals. The recorder is fully compatible with the SMPTE/EBU interlock system—an accessory terminal for SMPTE/EBU interlock equipment or the optional AQ-65 10-point Auto Locator is provided. The recorder itself also features a precision real-time tape counter and Return-to-Zero and Search-to-Cue locator functions. 8 independent REC FUNCTION buttons make track assignment quick and easy, and an INSERT switch lets you monitor source or tape playback of a track right up to the instant before a punch-in operation. An optional RC-30P footswitch offers remote punch-in/out capability.

388 SPECIFICATIONS

•Track Format: 8-track, 8-channel, 1/4" tape •Tape Speed: 19 cm/s •Wow and Flutter: ±0.1% peak weighted (19 cm/s) •Frequency Response (0 VU): 30—16,000 Hz, ±3 dB •S/N Ratio: 95 dB (A-weighted, dbx on) •Equalizer: 3-band, Sweep-type Low/Mid: 50 Hz to 1 kHz, Mid: 500 Hz to 5 kHz, Mid/High: 2.5 kHz to 15 kHz ±15 dB •Dimensions (W×H×D): 837×220×641 mm •Weight: 38 kg

234 SYNCASET

4-Channel Multitrack Recorder

The TASCAM 234 "SYNCASET" 4-Channel Multitrack Recorder is essentially a compact cassette version of our 4-track open-reel recorders/reproducers with a built in 4×2 mixer. It offers some of the same features that put our open-reel machines at the top of their class. The 234 SYNCASET even offers a few features its bigger brothers do not have.

The 234 allows you to build rich, complex recordings—you can add one or more tracks at a time, playing all the parts yourself, until you have created exactly the sound you want. Tracks can be "ping-ponged" back and forth, combining them to create more tracks. You can record up to 10 separate tracks with each being transferred to a new track no more than once, so there is no degradation in the quality of the final recording.

The 234 has our unique RECORD FUNCTION and OUTPUT SELECT switching matrix which makes setting up record and sync channel assignments easier and faster than ever. A METER switch selects monitoring of the four tracks on the four respective meters, or switches meters 1 and 2 to display the levels on the 234's built-in cue mixer output busses. A CUE selector selects mono or stereo mixer output modes.

The 234's built-in mixer allows you to mix down your multitrack tape to stereo format until you are ready to invest in a separate mixer. There are a number of locator functions that can make finding the desired spot for recording, overdubbing or mixdown fast and easy.

In terms of sound quality the 234 has been designed to deliver the best possible. You will get frequency response and signal-to-noise ratio that's on a par with some of the finest stereo cassette decks. Logic control makes operation smooth, sure, silent and safe. The 234 has a built-in, switchable dbx noise reduction system which provides even better signal-to-noise ratio and exceptionally broad dynamic range capability.

The 234 has line and adjustable microphone inputs. It can be used alone, or as the nucleus of a more sophisticated multitrack recording system that is capable of producing superb results.

OTHER FEATURES

•Built-in headphone amplifier with level control •Optional remote control unit (RC-71) •Optional footswitch for punch-in/out control (RC-30P) •Standard 19" rack mounting dimensions.

234 SPECIFICATIONS

•MIC/INST. Input: −60—−10 dBV •LINE INPUT: −10 dBV •Track Format: 4-track, 4-channel •Tape Speed: 9.5 cm/sec. •Wow & Flutter: ±0.06% peak, weighted •Frequency Response: 40—14,000 Hz ±3 dB (0 VU) •S/N Ratio: 95 dB (dbx IN, weighted) •Dimensions (W×H×D): 482×147×357 mm •Weight: 9.8 kg

122/122B

Studio Cassette Recorder

The TASCAM 122 and 122B offer the quality of studio record/reproduce performance with the convenience of the standard cassette format. They're perfect for dubbing copies of work in progress, for advertising and publishing needs, and for broadcasting applications.

The 122/122B is a standard Philips cassette format recorder/reproducer with dual speed operation. The standard 4.76 cm/sec. speed offers full compatibility with standard consumer units, and the higher 9.5 cm/sec. speed allows the 122/122B to be used for several important studio applications. High quality reference dubs are possible for clients with two-speed playback capability, and the 122 can also be used as a spot machine for broadcasts.

While the 122 has unbalanced inputs and outputs, the 122B offers balanced inputs and outputs for full compatibility with professional recording or broadcast equipment.

The 122 and 122B are three head decks, allowing real-time monitoring. Front-panel bias and level adjustment is possible, in addition to preset Normal/CrO_2/Metal selectors. And they both offer Dolby** B and Dolby HX (Headroom Extension) systems, and patch points are provided for interfacing with our RX-8 outboard dbx unit. An optional RC-90 remote control unit is available.

122/122B SPECIFICATIONS

•Track Format: 4-track, 2-channel stereo. •Tape Speeds: 4.8 cm/sec., 9.5 cm/sec. •Wow and Flutter (peak, weighted): ±0.085% at 4.8 cm/sec., ±0.055% at 9.5 cm/sec. •Frequency Response (Metal Tape, 0 VU): 35 Hz—14 kHz at 4.8 cm/sec., 35 Hz—20 kHz at 9.5 cm/sec. •S/N Ratio: 58 dB at 4.8 cm/sec., 60 dB at 9.5 cm/sec. •Dimensions (W×H×D): 482×147×345 mm. •Weight: 9 kg.

225 SYNCASET

2-Channel Simul-Sync Recorder

The 225 "SYNCASET" is a 4-track/2-channel cassette machine designed for creative production. It lets you produce demo cassettes, work out musical arrangements, create narration and music tracks for A/V presentations, and play back standard audio cassettes as well. The 225 offers all the features and functions you need to mix inputs, overdub and "bounce" tracks on standard speed compact cassettes.

In addition to its synchronized overdubbing capability, the 225's INPUT MIX and OUTPUT PAN controls offer unprecedented flexibility in a 2-channel stereo recorder.

Engage the INPUT MIX switch and you can mix both inputs to record on a single track or both tracks. Or, you can mix one or two inputs with an existing track to record on the other track. Using "OUTPUT PAN", you can get a mono mix of two recorded tracks from the output terminals, as well as normal stereo out.

Insert recording capability lets you punch into a previously recorded track at any point—the 225 will automatically switch your headphone mix from tape to source—and "insert" new material. The punch-in and punch-out operations for insert recording can even be carried out via an optional remote footswitch (RC-30P), leaving your hands free to play an instrument or operate other equipment while recording.

225's precision transport provides exceptionally smooth tape handling, and all amplifier electronics have been specially designed to provide optimum overall performance—including low noise and outstanding frequency response—with our top-quality hard permalloy record/playback head. Dolby B noise reduction is provided to help you make high-quality recordings with minimum tape hiss and noise. The 225 will directly accept both line and microphone sources, and the exceptionally wide dynamic range provided by its input circuitry ensures excellent performance with virtually any type of input.

An optional rack mount kit (RM-225) is available for mounting the 225 in any standard 19" EIA equipment rack.

Of course, the 225 SYNCASET is ideal for use as part of a larger production system with other TASCAM tape machines and mixers, offering applications as broad and as varied as your imagination.

225 SPECIFICATIONS

•MIC Input: −60 dBV •LINE Input: −10 dBV •Track Format: 4-track, 2-channel •Tape Speed: 4.8 cm/s •Wow and Flutter: 0.07%, NAB weighted •Frequency Response: 40 Hz—14 kHz, ±3 dB (CrO_2 tape) •S/N Ratio: 61 dB (weighted, with Dolby B NR) •Dimensions (W×H×D): 432×111×284 mm •Weight: 5.0 kg

133/133B

Stereo Plus Cue

The TASCAM 133/133B Stereo Plus Cue is a complete 3-channel production tool for the multi-image industry. With it you can produce a master control tape, stereo sound and sync, and then run the show with its many microprocessor controlled features. The 133 and 133B offer dual speed operation, for a choice of high audio quality or greater tape economy and compatibilty. The 133 has unbalanced inputs and outputs, while the 133B offers balanced lines for compatibility with professional equipment. Dolby NR is built in, and dbx noise reduction is available with the optional RX-8 outboard dbx unit.

The 133/133B Auto-Present microprocessor control system gives you real flexibility. A built-in 25 Hz tone generator on the cue track allows you to program the internal Auto-Present computer to stop and wait as many times as a live slide presentation requires. It has endless loop logic for continuous, unattended presentations, and Automatic Accessory Timer Start, for clock controlled, unattended repeat presentation. The 133 and 133B also let you designate two different tape locations as "home" (beginning-of-tape) and counter zero, so you can store two programs on one cassette. An optional RC-133 remote control unit is available.

133/133B SPECIFICATIONS

•Track Format: 4-track, 3-channel. •Tape Speeds: 4.8 cm/sec., 9.5 cm/sec. •Wow and Flutter (peak, weighted): ±0.085% at 4.8 cm/sec., ±0.055% at 9.5 cm/sec. •Audio Frequency Response, 0 VU: 30 Hz—8 kHz at 4.8 cm/sec., 30 Hz—15 kHz at 9.5 cm/sec. •S/N Ratio: 55 dB at 4.8 cm/sec. and 9.5 cm/sec. •Dimensions (W×H×D): 482×147×345 mm. •Weight: 9 kg.

SERIES 30

Recorders/Reproducers

38
8-Track, 8-Channel

34B
4-Track, 4-Channel

32
2-Track, 2-Channel

You provide the talent, and we will provide the technology—the Series 30 recorder/reproducers. These three decks are engineered from the unique TASCAM point of view that insists on professional quality and performance made affordable to the musician, artist, engineer, etc. But that does not mean we compromise on parts, technology or versatility.

Since professional quality reproduction is the most important goal in any piece of audio equipment, we took no chance with the Series 30 decks. We designed and built every single part that goes into them. We made significant improvements starting with the heads. The Series 30 sync and repro heads offer identical response so you don't lose sound quality during track bouncing operations. Further, contour effect has been minimized and head life has been extended by 20%. Even the erase heads are improved with a material that allows more complete erasure.

A rock solid head mount assembly, closer head spacing for more precise punch-in performance, and a new chassis are further Series 30 improvements.

The Series 30 transport design and construction is superior in every respect. Special DC reel motors achieve extremely high torque to minimize wow and flutter and provide higher fast-wind speed. A belt-driven, FG servo controlled DC capstan motor ensures exceptionally precise tape speed. A microprocessor transport control guarantees smooth, positive switching with no appreciable stop between fast wind and play/record modes. The electronics in each Series 30 deck are also special. Lower noise levels are realized with the use of selected integrated circuits and amplifiers. Only the highest quality circuit components are used throughout, for the purest reproduction quality possible.

You get the most comprehensive, easy-to-use sync channel assignment system available. On each deck, each track has a FUNCTION SELECT button that places it in the SAFE or RECORD READY mode. There are three OUTPUT SELECT buttons that determine the source of the line output: INPUT, SYNC or REPRO.

Remote punch-in recording is also possible using the remote transport control unit (RC-71) or a remote footswitch (RC-30P). Each deck offers a CUE lever, ZERO RETURN function, PITCH control, expanded VU meters, and full dual process dbx noise reduction compatibility (DX-2D/4D optional). The 32 and 34B also offer 19 cm/sec tape speed along with the studio standard 38 cm/sec. Other features that are extra on the 32 and 34B are microphone inputs, MIC/LINE switches and 0/20 dB attenuators, input, and output level controls and a headphone monitor output.

38 SPECIFICATIONS

•Track Format: 8-track, 8-channel, 1/2" tape. •Reel Size: 10-1/2". •Tape Speed: 38 cm/sec. •Wow and Flutter (peak, weighted): ±0.06%. •Frequency Response (0 VU): 40 Hz—22 kHz, ±3 dB. •S/N Ratio: 68 dB. •THD: 0.8%, (0 VU, 1 kHz.) •Dimensions (W×H×D): 410×461×317mm. •Weight: 27 kg.

34B SPECIFICATIONS

•Track Format: 4-track, 4-channel, 1/4" tape. •Reel Size: 10-1/2". •Tape Speeds: 38 and 19 cm/sec. •Wow and Flutter (peak, weighted): ±0.06% at 38 cm/sec., ±0.09% at 19 cm/sec. •Frequency Response (0 VU): 40 Hz—22 kHz, ±3 dB at 38 cm/sec., 40 Hz—16 kHz, ±3 dB at 19 cm/sec. •S/N Ratio: 68 dB at 38 cm/sec., 66 dB at 19 cm/sec. •THD: 0.8%, (0 VU, 1 kHz.) •Dimensions (W×H×D): 410×461×256 mm. •Weight: 20 kg.

32 SPECIFICATIONS

•Track Format: 2-track, 2-channel, 1/4" tape. •Reel Size: 10-1/2". •Tape Speeds: 38 and 19 cm/sec. •Wow and Flutter (peak, weighted): ±0.06% at 38 cm/sec., ±0.09% at 19 cm/sec. •Frequency Response (0 VU): 40 Hz—22 kHz, ±3 dB at 38 cm/sec., 40 Hz—16 kHz, ±3 dB at 19 cm/sec. •S/N Ratio: 68 dB at 38 cm/sec., 66 dB at 19 cm/sec. •THD: 0.8%, (0 VU, 1 kHz.) •Dimensions (W×H×D): 410×461×256 mm. •Welght: 20 kg.

22-4 SPECIFICATIONS

•Track Format: 4-track, 4-channel 1/4" tape. •Reel Size: 7" max. •Tape Speeds: 38 and 19 cm/sec. •Wow and Flutter (peak weighted): ±0.07% at 38 cm/sec., ±0.09% at 19 cm/sec. •Frequency Response (0 VU): 40 Hz—22 kHz, ±3 dB at 38 cm/sec., 40 Hz —16 kHz, ±3 dB at 19 cm/sec. •S/N Ratio: 61 dB at 38 cm/sec., 60 dB at 19 cm/sec. •THD: 1%, (0 VU, 1 kHz.) •Dimensions (W×H×D): 416×410×260 mm. •Weight: 18 kg.

22-2 SPECIFICATIONS

•Track Format: 2-track, 2-channel 1/4" tape. •Reel Size: 7" max. •Tape Speeds: 38 and 19 cm/sec. •Wow and Flutter (peak weighted): ±0.07% at 38 cm/sec., ±0.09% at 19 cm/sec. •Frequency Response (0 VU): 40 Hz—22 kHz, ±3 dB at 38 cm/sec., 40 Hz —16 kHz, ±3 dB at 19 cm/sec. •S/N Ratio: 68 dB at 38 cm/sec., 64 dB at 19 cm/sec. •THD: 1%, (0 VU, 1 kHz.) •Dimensions (W×H×D): 410×326×231 mm. •Weight: 14 kg.

34B

32

SERIES 20

Recorders/ Reproducers

22-4

4-Track, 4-Channel

22-2

2-Track, 2-Channel

22-4

22-2

Both the 22-2 half-track recorder/reproducer and the 22-4 4-track recorder/reproducer offer the quality of 38 cm/sec plus the long-play convenience of 19 cm/sec tape speeds. They also offer the sure operating precision of full logic transport control.

Both decks employ three independent motors—a DC servo controlled capstan motor specifically designed for speed accuracy keeps wow and flutter to an absolute minimum, and induction reel motors maintain smooth, even tape handling and precise tape-to-head contact.

The TASCAM 22-2 2 track is equipped with all the functions you need for studio master recording/reproduction: independent Monitor and Record mode controls for each channel, Mic/Line mixing, expanded scale VU meters with a −20 to +5 dB display range, and RP-22 remote pause capability in either record or play.

The TASCAM 22-4 is an ideal partner for the 22-2, with a full complement of functions that give you professional multitrack recording/reproduction performance. The use of Function and Output Select switches makes setting up record and sync channel assignments a simple pleasure.

Punch-in recording is another important multitrack function available with the 22-4. It lets you re-record selected sections of a track, instead of having to re-record the whole track. Other useful 22-4 features include output and input level controls for each channel, headphone monitor capability, a Memory Stop function, ±6% pitch control, manual cueing, expanded-scale VU meters, RC-30P punch in/out foot switch, RC-71 remote control capability and the ability to add an optional dbx noise reduction system.

SERIES 40

Recorders/Reproducers

48

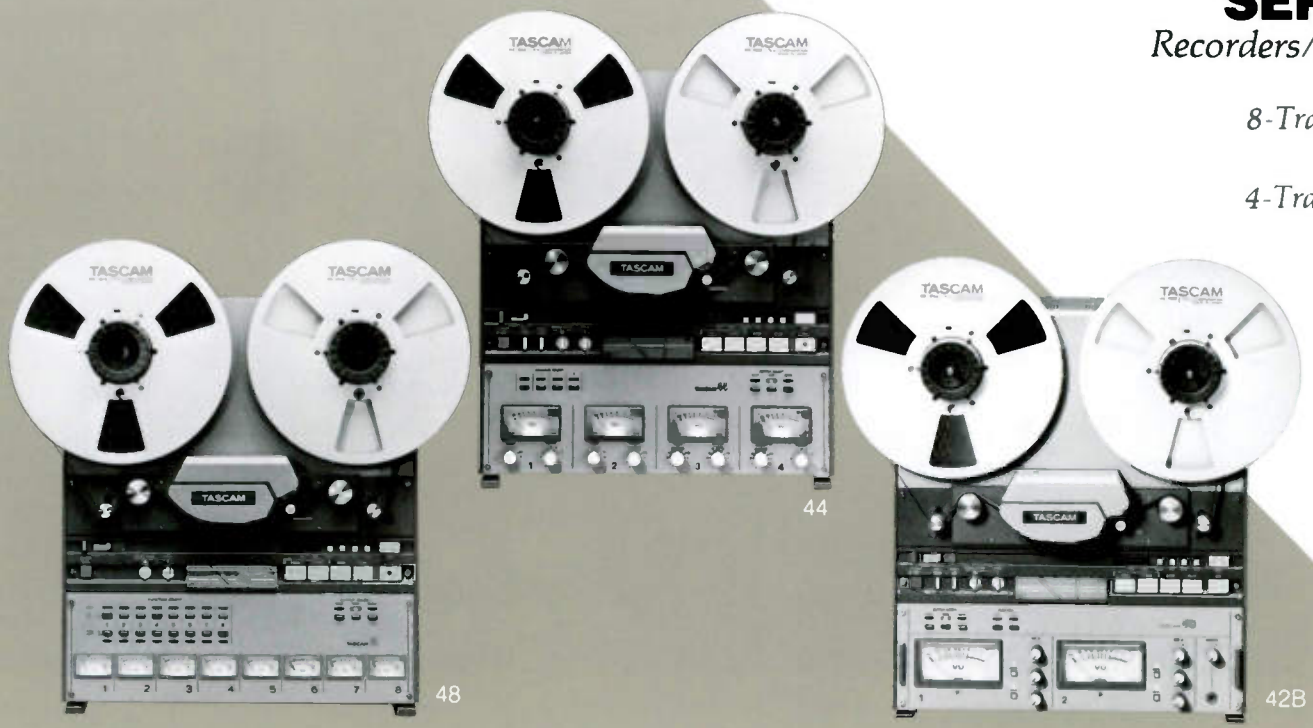
8-Track, 8-Channel

44

4-Track, 4-Channel

42B

2-Track, 2-Channel



The TASCAM "40-Series" recorders/reproducers are high-quality machines designed for production work where flexibility, reliability and synchronized operation are prime requirements. The 42B and 44 use 1/4" tape and have selectable 38 or 19 cm/sec tape speeds, while the 48 uses 1/2" tape at a fixed 38 cm/sec speed. Nominal +4 dBm balanced inputs and outputs are standard, and −10 dB RCA jacks are also provided for the broadest compatibility with all types of equipment.

All three motors—capstan, takeup and supply reel—are servo controlled so the tape comes up to speed in minimum time. The capstan motor is a high-performance low inertia, brushless DD type controlled by a precision PLL servo system. Further, a TTL I/O port is provided for direct compatibility with a broad range of SMPTE/EBU interlock systems. This is a great advantage in just about any recording situation, but particularly when synchronizing multiple recorders under SMPTE/EBU control with minimum lockup time.

Two convenient autolocator functions help to take your mind off the machinery during production: Return to Zero (RTZ) which parks the tape at 00:00, and Search to Cue (STC) which locates any preset cue point in either direction Pushing the FF or REW buttons a second time while in FF or REW modes activates the Spooling mode.

The near-straight tape path is easy to thread, and a clean control layout is easy to use. Each track has its own Function selector (Ready/Safe), and Output selectors (Input/Sync/Repro) are provided for fast, easy sync/rec mode setup. The 48 even has pre-load selectors that make it a breeze to rehearse overdubs or make inserts with exactly the right signal in the monitors. Sync response is exactly the same as repro response, so your mixing and performance values remain the same throughout all phases of production. And if you're working alone, you can punch in and out of the record mode with an optional footswitch (RC-30P).

Naturally, the electronics are superb. A high-stability bipolar power supply drives the high-performance direct-coupled amplifier circuitry, ensuring exceptionally low noise, low distortion and broad dynamic range. Direct coupling of the heads to the repro amplifiers and differental FET input circuitry ensures low-noise, precise transient response and ideal phase characteristics. Modular amp construction on plug-in glass-epoxy printed circuit boards makes maintenance and repair simple, and special metal glaze trimmer pots ensure precise, easy adjustment. DX-2D/4D dbx NR systems are optionally available for the 40-series decks, offering significantly expanded dynamic range for exceptionally clean recording quality.

OTHER FEATURES

- Ceramic capstan shaft
- ±12% pitch control
- VU meters with peak LEDs
- Dump edit/manual edit/Stop edit capability
- Optional AQ-65 Auto-Locator
- Optional RC-71 Remote Control Unit

48 SPECIFICATIONS

•Track Format: 8-track, 8-channel, 1/2" tape. •Reel Size: 10-1/2". •Tape Speed: 38 cm/sec. •Wow and Flutter (peak, weighted): ±0.08%. •Frequency Response (0 VU): 40 Hz—20 kHz ±3 dB. •S/N Ratio: 69 dB. •THD: 0.8%, (0 VU, 1 kHz.) •Dimensions (W×H×D): 432×505×315.5 mm. •Weight: 37 kg.

44 SPECIFICATIONS

•Track Format: 4-track, 4-channel, 1/4" tape. •Reel Size: 10-1/2". •Tape Speeds: 38 and 19 cm/sec. •Wow and Flutter (peak, weighted): ±0.08% at 38 cm/sec., ±0.12% at 19 cm/sec. •Frequency Response (0 VU): 40 Hz—20 kHz, ±3 dB at 38 cm/sec., 40 Hz—16 kHz at, ±2 dB 19 cm/sec. •S/N Ratio: 69 dB at 38 cm/sec., 67 dB at 19 cm/sec. •THD: 0.8%, (0 VU, 1 kHz.) •Dimensions (W×H×D): 432×505×250 mm. •Weight: 34 kg.

42B SPECIFICATIONS

•Track Format: 2-track, 2-channel, 1/4" tape. •Reel Size: 10-1/2". •Tape Speeds: 38 and 19 cm/sec. •Wow and Flutter (peak, weighted): ±0.08% at 38 cm/sec., ±0.12% at 19 cm/sec. •Frequency Response (0 VU): 30 Hz—22 kHz, ±2 dB at 38 cm/sec., 30 Hz—16 kHz, ±2 dB at 19 cm/sec. •S/N Ratio: 70 dB at 38 cm/sec., 68 dB at 19 cm/sec. •THD: 0.8%, (0 VU, 1 kHz.) •Dimensions (W×H×D): 432×505×250 mm. •Weight: 32 kg.

SERIES 50

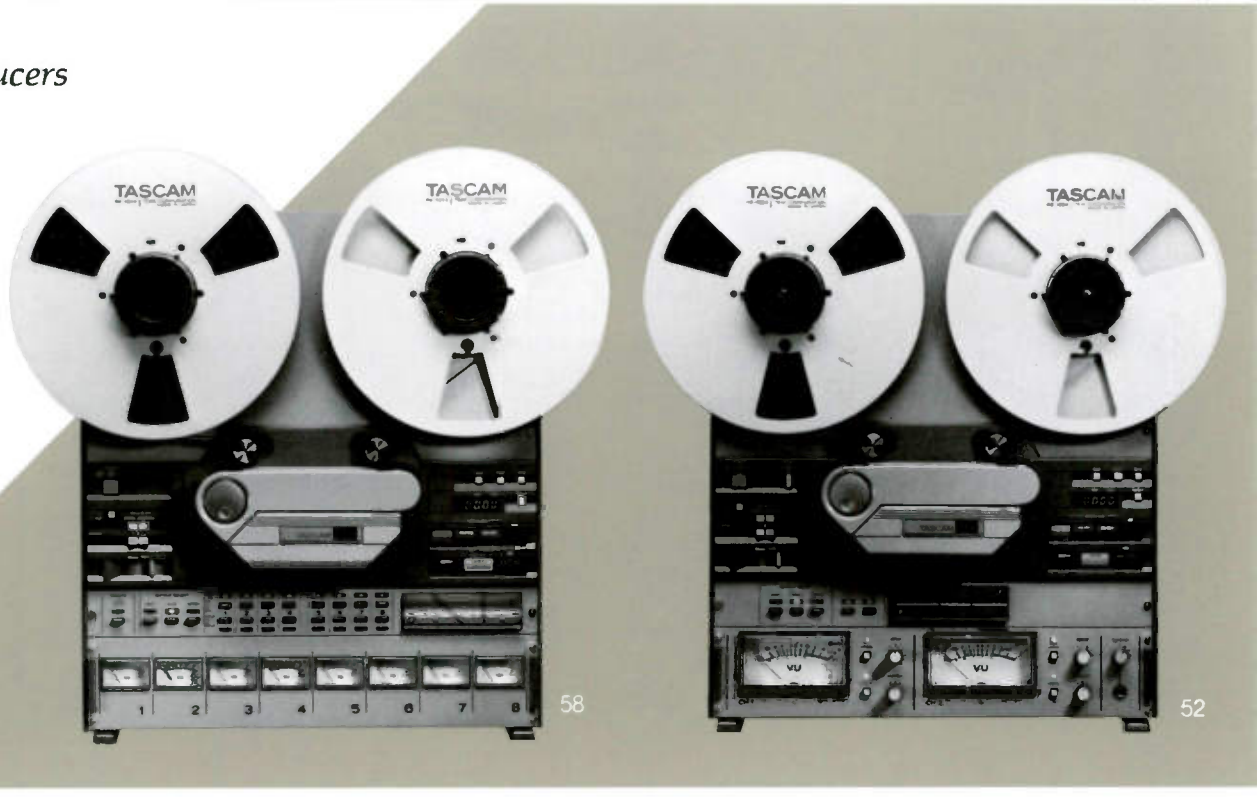
Recorders/Reproducers

58

8-Track, 8-Channel

52

2-Track, 2-Channel



The Series 50 recorder/reproducers are a pair of truly superior audio production machines. The transports are exceptionally rugged, assembled on thick aluminum alloy base plates. The extra heavy-duty motors are built to shuttle tape at high speeds, and have full servo system transports controlled by microprocessors with multiple tach and photosensor inputs to ensure reliable tape handling. The transports in both the 52 2-track recorder/reproducer and the 58 8-track recorder/reproducer are more than capable of keeping up with the stringent demands of slaved editing to video and film systems, and are compatible with SMPTE/EBU equipment. All three motors are included in the microprocessor servo system.

Hand lapped heads, made by our own craftsmen, are at the heart of the Series 50's superb audio performance. They mean lower modulation noise, lower head bumps, sync response equal to repro response. Direct coupled electronics, with ultra low noise FET differential playback head amplifiers, provide low distortion and maximum common mode rejection without transformers. There's one circuit board per channel and all trimmers are adjustable from the front, simplifying routine alignment and servicing. Balanced inputs and outputs are provided in addition to unbalanced lines for compatibility with all types of equipment.

The Series 50 decks are equipped for faster and more versatile production:

- Monitor tracks or inputs as needed using individual Pre-load and Record Mode switches, plus Output Select switches. (58)
- Sync recording capability.
- Tach driven digital display with positive or negative real-time readout.
- Return-to-Zero and Search-to-Cue.
- Dual pitch controls: Coarse ±15% and Fine ±0.7%.
- One-handed cueing.
- 52 also has input/output level controls with cal/uncal selectors and a headphone jack with level control.
- Rear Panel Accessory connector for an SMPTE/EBU interlock system or the optional AQ-65 Auto-Locator.
- Choose either the RC-50 remote control unit with all transport control function for the 52 and 58, or the RC-51 remote control unit which has transport functions as well as rec/sync channel assignment for the 58.
- Optional dbx noise reduction (DX-2D/4D).

The Series 50 decks incorporate unsurpassed audio electronics:

- Balanced and unbalanced inputs and outputs.
- All amplifiers are direct coupled for lowest distortion and optimum low-frequency response.
- First stage sync and play head amplifiers use differential paired ultra-low noise FETs, for better transient response and phase characteristics.
- Use of 8 different power supplies, including bipolar 15V for all audio amps, for optimum performance and reliability.
- VU meters plus peak LEDs.

58 SPECIFICATIONS

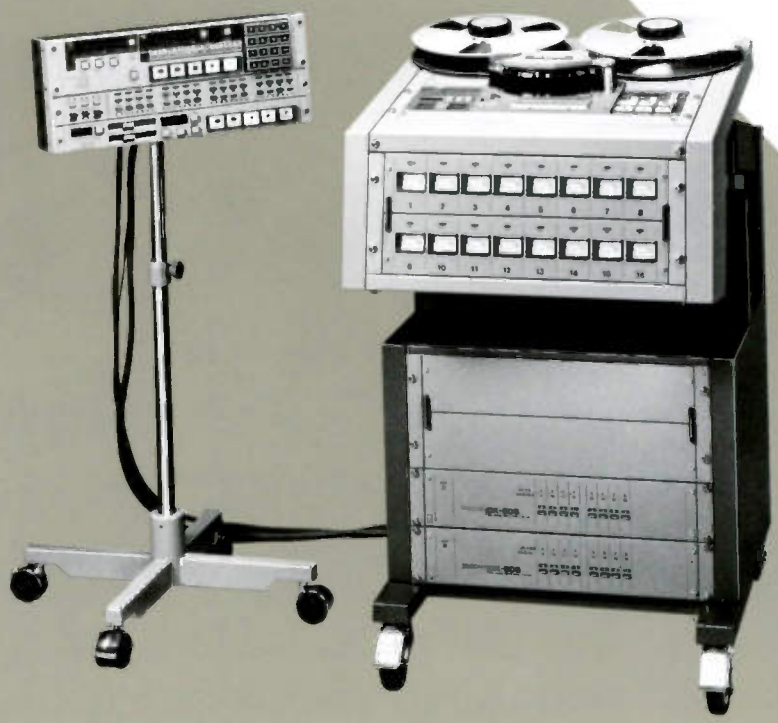
•Track Format: 8-track, 8-channel, 1/2" tape. •Reel Size: 10-1/2". •Tape Speed: 38 cm/sec. •Wow and Flutter (peak, weighted): ±0.08%. •Frequency Response (0 VU): 30 Hz—24 kHz, ±2 dB. •S/N Ratio: 69 dB. •THD: 0.8%, (0 VU, 1 kHz.) •Dimensions (W×H×D): 432×505×316 mm. •Weight: 35 kg.

52 SPECIFICATIONS

•Track Format: 2-track, 2-channel, 1/4" tape. •Reel Size: 10-1/2". •Tape Speeds: 38 and 19 cm/sec. •Wow and Flutter (peak, weighted): ±0.08% at 38 cm/sec., ±0.12% at 19 cm/sec. •Frequency Response (0 VU): 30 Hz—24 kHz, ±2 dB at 38 cm/sec., 30 Hz—20 kHz, ±2 dB at 19 cm/sec., 0 VU. •S/N Ratio: 70 dB at 38 cm/sec., 70 dB at 19 cm/sec. •THD: 0.8%, (0 VU, 1 kHz.) •Dimensions (W×H×D): 432×505×316 mm. •Weight: 32 kg.

MS-16

16-Track Recorder/Reproducer



The TASCAM MS-16 is shown mounted in a CS-65 console along with two DX-8DS dbx noise reduction units. The CS-64 roll-around stand at left holds an AQ-65 10-point Auto-locator, an RC-65 remote transport control unit, and a function panel situated separate from the transport section. (The meter section can be located over the transport using the CS-62 overbridge kit.) TZ-65 metal reel clampers are optional.

The MS-16 is TASCAM's latest top-line 16-track multitrack recorder, designed to provide outstanding overall performance in even the most demanding professional applications. The transport chassis has been re-designed to extra heavy-duty standards so that tape motion and alignment will remain stable even through hours and hours of the most rugged use. The MS-16 is also ready for immediate interfacing with SMPTE/EBU standard controllers/synchronizers for precision automated location and video/film sync.

In spite of its superior performance in virtually all areas, the MS-16 employs the economical 1-inch 16-track tape format, running at 38 centimeters per second. It also offers both balanced +4 dBm inputs and outputs as well as unbalanced −10 dBV RCA pin jack inputs and outputs for full compatibility with all types of professional and semi-professional equipment. As with all top-quality TASCAM multitrack recording equipment, sync and repro frequency response are identical so there's absolutely no loss of sound quality during track bouncing operations.

You have a choice of INPUT, SYNC or REPRO output selection, and pre-load switches make it possible to select either input or sync repro monitoring on record-ready tracks. An INPUT ENABLE switch permits input monitoring while in the fast wind or stop modes, regardless of the rec function mode.

A comprehensive range of editing functions are also offered. In the DUMP EDIT mode the takeup reel is defeated, making it easy to "dump" large edits. In the MANUAL EDIT modes either reel can be easily rotated by hand and the other will follow precisely, maintaining tape tension. STOP EDIT is also possible by manually pulling the tape from the supply reel.

The MS-16 features full, precision servo control on the capstan motor, reel motors, and even on the tape tension system. The direct-drive PLL servo capstan motor further offers a choice of three selectable sync modes: FIXED, VARIABLE and EXTERNAL. A channel 16 SYNC LOCK monitor mode permits continuous time code output to a synchronizer/controller regardless of the deck's OUTPUT SELECT mode. And channels 1 through 15 have a special LIFTER DEFEAT MUTE function which automatically engages the muting circuitry when a specified cue point is reached and the tape lifter is activated.

The MS-16 transport and electronics are separate, and both can be mounted in any standard EIA equipment rack. The TASCAM CS-65 console rack neatly mounts both transport and electronics sections in one easy-access unit. For convenient meter location, the meter section is removable from the electronics using the T-0865 amp panel/meter cable kit. The electronics are modularly constructed on one circuit card per channel. Access is fast and easy, minimizing down time for maintenance. For remote control convenience, the record function select and output control unit is removable from the transport block using the CS-63 function remote kit.

Other features offered by the MS-16 include plus/minus 15% pitch control, a spooling mode for neater tape packs, VU meters with peak-reading LEDs for each channel, low-frequency compensation controls on each channels, and a precision non-magnetic ceramic capstan shaft.

MS-16 SPECIFICATIONS

•Track Format: 16-track, 16-channel 1" tape •Reel Size: 10-1/2", NAB •Tape Speed: 38 cm/s •Wow and Flutter (peak, weighted): ±0.08% •Frequency Response (0 VU): 40 Hz—22 kHz, ±3 dB •S/N Ratio: 69 dB (weighted) •THD: 0.8% (0 VU, 1 kHz) •Dimensions (W×H×D): Transport: 482×459×310 mm Electronics: 482×192×321 mm •Weight: •Transport: 38 kg Electronics: 16.5 kg

ATR-60 SERIES

Professional Recorder/ Reproducers

The TASCAM ATR-60-8 shown at left is mounted in a CS-65 console along with two DX-8DS dbx noise reduction units. The meter section is shown mounted in an optional CS-62 overbridge kit.

The TASCAM ATR-60-2T at right is shown mounted in a CS-650 along with an MA-650.

The ATR-60 Series Professional Recorder/Reproducers represent TASCAM's top-line recording equipment, offering uncompromising professional performance and reliability in all areas. The series includes six models for a wide range of applications:

ATR-60-2T

This model offers a 2-track format with center time code track. It utlizes 1/4" tape at 15 or 7-1/2 ips.

ATR-60-2N

2-track NAB stereo head format, using 1/4" tape at 15 or 7-1/2 ips.

ATR-60-2D

2-track DIN stereo head format, using 1/4" tape at 15 or 7-1/2 ips.

ATR-60-2HS

2-track stereo head format using 1/2" tape at 30 or 15 ips.

ATR-60-4HS

4-track NAB head format, using 1/2" tape at 30 or 15 ips.

ATR-60-8

8-track IEC head format using 1/2" tape at 15 or 7-1/2 ips.

The ATR-60 Series transports and electronics are mounted in separate chassis, enabling them to be mounted in a standard 19" EIA equipment rack, a portable 19" rack case or the TASCAM CS-65 or CS-650 professional console.

The transport has been designed not only for precision tape handling, but for professional durability as well. An extra heavy-duty chassis is employed, ensuring long-term accuracy in alignment and tape motion. The direct drive reel motors and phase-locked-loop servo capstan motor are all controlled by an advanced microprocessor system which ensures smooth, fast and accurate tape handling. Of course, the ATR-60 is fully compatible with SMPTE interlock systems. In synchronized lock-up to other audio transports, film chains or video systems the ATR-60 transport has more than enough torque and accuracy to keep in step with a busy work schedule. Further, the transport's physical and electronic stability minimizes stretch and wear on recording tape during long hours of high-speed, start-stop shuttling. A precision real-time tape counter is provided, with no-overshoot Return-to-Zero and Search-to-Cue locator functions. An optional AQ-65 10-point Auto-Locator is available for real tape handling versatility. The RC-65 remote transport control unit is also available. There is plenty of editing control capability, too, with Manual, Dump and Stop Edit modes. TASCAM attention to detail on these transports even extends to a special non-magnetic ceramic capstan shaft.

The ATR-60 electronics are all mounted on plug-in printed circuit boards for easy access and maintenance. The VU meter panel swings out and down for immediate access to all trimmers required for routine alignment. All inputs and outputs are electronically balanced for compatibility with professional equipment. Input/Output level controls with CAL/UNCAL switches are provided on the 2 and 4 track models, as is headphone monitor capability. The ATR-60-2T additionally features a TIME CODE/MEMO selector which allows the time code track to be used for oral memos when needed.

M-106

6-In/4-PGM Out Mixer

The TASCAM M-106 6-in/4-out mixing console essentially defines the standards of small high-performance mixing consoles. In addition to outstanding electrical performance, the M-106 offers extraordinary flexibility for a mixer in this class. Its six input channels provide microphone or line input selection, and channels 3 through 6 also permit direct input from phono players—the RIAA equalizers are built-in. A TRIM control on each input channel permits precise microphone input sensitivity setting over a broad range. LOW (100 Hz) and HIGH (10 kHz) equalizer controls make it possible to tailor the frequency response of the signal present in each channel. Independent AUXILIARY and EFFECT send controls are also provided on each channel, feeding corresponding pre-fader AUX and post-fader EFFECT busses which can be used for a wide variety of applications. An AUX LINE switch permits the auxiliary send signal to be derived directly from the LINE inputs. The channel signals can be assigned to any of the four program busses, and panned between program busses 1 and 2 and/or 3 and 4. LED OVERLOAD indicators on each channel warn of impending overload distortion, and smooth linear faders aid in setting accurate mix levels.

The master section features an EFFECTS RETURN level control as well as channel assignment and pan for the returned effect signal. A master LEVEL control for the auxiliary buss is provided. The M-106 offers an extremely useful monitor system, permitting selectable monitoring of the program, auxiliary or effects busses. The monitor section drives a pair of line-level MONITOR outputs as well as a stereo headphone jack. Independent master faders are provided for each program buss. A pair of large VU meters with built-in peak LEDs can be switched to read program busses 1 and 2, 3 and 4, or the auxiliary and effects buss signals.

Insert patch points are provided on all input channels as well as on the four program busses for insertion of outboard signal processing equipment. The input channels also feature DIRECT outputs so the input channel signal can be recorded directly onto tape. The program, auxiliary and effects busses have SUB IN terminals that can be used to cascade two M-106 units to provide more input channels and broader mixing flexibility.

The M-106 can be mounted in a standard EIA 19" rack using the optional RM-106 Rack Mount Kit.

M-106 SPECIFICATIONS

INPUTS—•Mic (−70—+4 dBV) •Line (−10 dBV) •Phono (−54 dBV) •Sub In (−10 dBV) •Insertion Receive (−10 dBV) •Effect Return (0 dBu) OUTPUTS—•PGM Out (−10 dBV & 0 dBu) •AUX Out (−10 dBV & 0 dBu) •Effect Out (−10 dBV & 0 dBu) •Monitor Out (−10 dBV) •Direct Out (−10 dBV) •Insertion Send (−10 dBV) •Headphones (1.5 W/ch. max.) PERFORMANCE—•Frequency Response: 20 Hz—30 kHz +1 dB −1.5 dB •Equivalent Input Noise: −132 dB •Crosstalk: 60 dB •THD (1 kHz): 0.01% •Dimensions (W x H x D): 395 x 135 x 395 mm •Weight: 7.0 kg

M-09

4-In/2-Out Mixer

The M-09 is ideal for simple music mixing applications, audio/visual production, institutional PA systems, small disco systems, and many other applications. It has four input channels which accept microphone or line input signals. Each input has a parametric equalizer, a pan pot, and a smooth linear fader. The levels on the left and right stereo busses are displayed on a pair of precise VU meters. A built-in headphone amplifier with level control permits direct monitoring of the signal on the stereo output buss.

M-200 SERIES

Mixing Consoles

M-216

16 In/4 PGM Out

M-208

8 In/4 PGM Out

M-216

M-208

Whether your application is sound reinforcement, studio recording, broadcast or video production, the TASCAM 200 Series mixing consoles are designed to handle the toughest of assignments—conveniently and dependably. Whether you use a 200 Series board for several applications or just one, its superb adaptability and solid design make it an exceptional investment.

The 200 Series' network of submix systems is the key to its broad adaptability. There are 5 complete submix systems in all: main mix, stereo mix, foldback, effects and solo. This remarkable flexibility makes it possible to instantly organize and simplify complex sound reinforcement or recording setups without patching.

The 200 Series input channel controls allow each input signal to be carefully shaped and then passed on to the console's submix systems. Pad and Trim controls are provided on all inputs, offering an input level range of from +4 dBV (with 24 dB headroom) right down to −70 dBV. A 3-band EQ system with parametric midrange controls permits precise tonal shaping of input signals, and an overload indicator provides a warning when a signal leaving the equalizer is too hot. The channel controls make it easy to route any input signal to any of the submix systems. Signals are sent to the Effects, Foldback and PFL/Solo systems and to the Program busses in any combination, at any required level. A system of Tape select switches allows you to bring up the signal from the Tape inputs. The tape signals can be brought in pre-EQ and processed in the same way that a microphone or instrument input would be. Or, the tape signals can be brought into the Foldback system only. By bringing together all of the relevant input controls in a logical, convenient format, the 200 Series' input channels help streamline the mixing process for you.

The master control section provides extremely flexible signal routing without the need for patching. There are four Program Master faders which feed the program outputs. These work in conjunction with a set of Master Pan controls. They accept signals from the Program Master faders and determine the amount of signal to be fed to the left and right channels of the Stereo Output buss, which has its own set of left and right Master faders. The Effects submix offers maximum efficiency in dealing with echo, delay, flangers and reverb effects. Two independent returns with Gain and Pan controls are used to return the effects signal to the Stereo buss. Each of the remaining submix systems —Foldback and Solo—has its own Master level control and output. Each can be sent to a front-panel headphone jack as well. The Foldback submix system is ideal for producing a stage monitor mix in live performance situations, or a performer's cue mix in the studio. To keep tabs on all the different mixes, a system of VU meters and meter switches is provided. Levels for each submix can be easily checked and compared with a simple flick of a switch. The circuitry for each channel is mounted on an individual circuit card which is then mounted on a steel sub-chassis for maximum strength and roadworthiness.

M-200 SERIES SPECIFICATIONS

•INPUT—•Mic (−70 ~ +4 dBV) •Line (−50 ~ +15 dBV) •Tape (−10 dBV) •Effect Return (0 dBμ) •Insertion Receive (−10 dBV) •OUTPUT—•PGM Out (0 dBu & −10 dBV) •STEREO OUT (0 dBu) •Effect Out (0 dBu) •FLB Out (0 dBu) •Insertion Send (−10 dBV) •Headphones (1.5 W/ch. max) •PERFORMANCE—•Frequency Response: 20 Hz—25 kHz, +1/−2dB •EIN: −130 dB •Crosstalk: 60 dB •THD (20 Hz-20 kHz): 0.03% •Dimensions (W×H×D): 646×130×420 mm (M-216) 438×130×420 mm (M-208) •Weight: 12 kg (M-216) 8.5 kg (M-208)

M-300 SERIES

Mixing Consoles

M-320

20 In/4 PGM Out

M-312

12 In/4 PGM Out

M-308

8 In/4 PGM Out

The TASCAM M-300 SERIES Mixing Consoles offer exceptionally fine electrical performance as well as a very flexible combination of features and functions so that they can be successfully used in an extremely broad range of applications.

Each input channel provides balanced XLR type microphone jacks, 1/4" phone jack line inputs, and RCA pin jacks for tape return on channels 1 through 8. The inputs are switch selectable, and independent TRIM controls are provided for the microphone and line inputs. Equalization facilities comprise two bands of parametric EQ control—MID and LOW—and a 10 kHz shelving HIGH EQ control. EFFECT send controls are provided on each channel, as well as AUX 1 and AUX 2 sends. Each input channel can be switch assigned to program busses 1 through 4, and to the L/R stereo mixing buss. The PAN controls function across the odd and even numbered program busses and the L/R stereo buss. Pre-fader listen and channel ON/OFF switching facilities are provided, and LED overload indicators warn the operator of impending overload distortion.

The program busses also feature after-fader listen switches. A post-fader INSERT patch jack is provided on each program buss, and the main buss outputs are XLR type jacks that can be switched for balanced or unbalanced operation. A pair of paralleled RCA pin jack outputs is also provided for direct feed to a tape recorder.

While the M-308 has two auxiliary busses fed from the input channels, the M-312 and M-320 have a total of four AUX busses. AUX 1 and AUX 2 are fed from the input channels, while AUX 3 and AUX 4 can be fed from the program busses or tape returns 5 through 8. A summing switch is also provided on the M-312 and M-320 to produce a mono mix of the AUX 3 and AUX 4 signals. Two independent effect return circuits are provided, each of which feeds the returned signal to the stereo buss via a level control and pan pot.

The stereo buss receives its signals from the input channels, PGM busses, Tape returns and Effect returns. A mono buss is also provided, however, which carries a mono mix of the signals present on the L and R stereo busses.

The monitor section also offers broad versatility. A switching matrix permits monitoring signals from the main stereo buss, the mono buss, the effect buss, the auxiliary 1 and 2 busses (the auxiliary 3 and 4 busses can also be selected on the M-312 and M-320), or from either of the two external stereo inputs provided—EXT 1 (L/R) and EXT 2 (L/R). The solo buss receives its signal from the channel pre-fader listen, program after-fader listen and effect return pre-fader listen points. The monitor system also drives a stereo headphone jack via an internal headphone amplifier with its own level control.

The meter section incorporates 6 meters with built-in peak reading LEDs. Four of the meters can be used to monitor signal levels on the four program busses, or the tape return 1 through 8 signals switchable in two banks of four tape returns (1—4, 5—8). The other two meters are used for monitoring levels on the stereo buss, the two external stereo inputs (EXT 1 and EXT 2), the effects and mono busses, the auxiliary 1 and 2 busses, and the auxiliary 3 and 4 busses on the M-312 and M-320.

The M-312 and M-320 additionally feature a talkback module which feeds signals received at the XLR talkback input to the program, stereo, auxiliary 1 through 4 busses, selectable via a switching matrix.

M-300 SERIES SPECIFICATIONS

INPUTS—•Mic (−70—+4 dBV) •Line (−20 dBV min.) •Tape (−20 dBV min.) •Effect RTN (0 dBu) •Sub In (−10 dBV) •Ext In (−10 dBV) •Insertion Receive (−10 dBV) •T/B Mic In (−50 dBV) OUTPUTS—•PGM Out (+4 dBm & −10 dBV) •Stereo Out (+4 dBm & −10 dBV) •Mono Out (+4 dBm & 0 dBu) •Effect Out (0 dBu & −10 dBV) •Aux Out (0 dBu & −10 dBV) •Monitor Out (0 dBu) •Solo Out (−10 dBV) •Direct Out (−10 dBV) •Insertion Send (−10 dBV) •Headphones (1.5 W/ch. max.) PERFORMANCE—•Frequency Response: 20 Hz—30 kHz, +1 dB, −2 dB •Equivalent Input Noise: −132 dB •Crosstalk: 70 dB •THD (20 Hz—20 kHz): 0.02% •Dimensions (W x H x D): 992 x 220 x 692 mm (M-320), 720 x 220 x 692 mm (M-312) 584 x 220 x 692 mm (M-308) •Weight: 36 kg (M-320), 26 kg (M-312), 21 kg (M-308)

M-500 SERIES

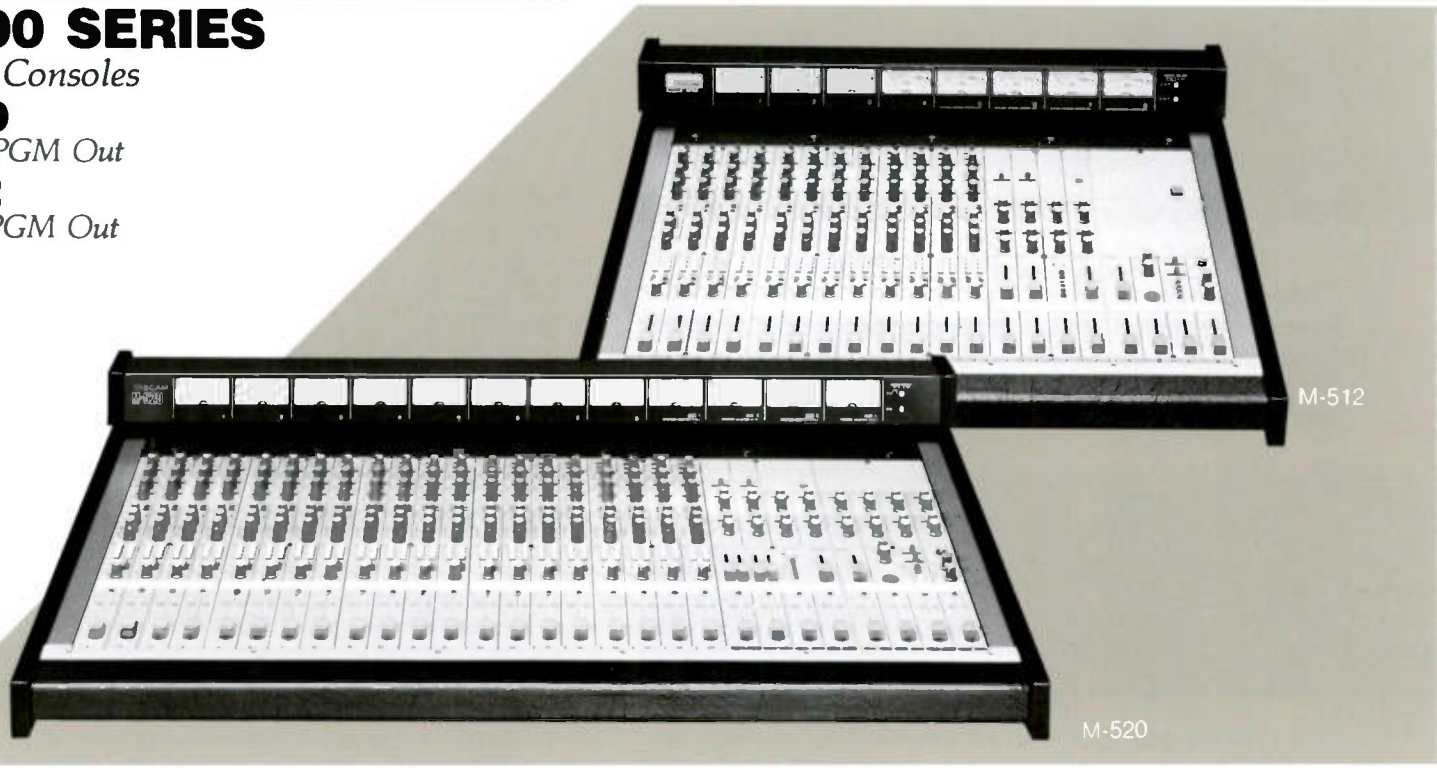
Mixing Consoles

M-520

20 In/8 PGM Out

M-512

12 In/8 PGM Out



Each M-500 SERIES console actually consists of several independent, well-integrated mixing sub-systems on a simple chassis. Their features make them ideal for an incredible variety of applications, and their overall performance is well up to the standards demanded by astute professionals in all production fields. They are the console of choice for professional recording, video production and post-production, the industrial or corporate media department, the remote production van for recording, radio or TV production. Multiple submixes, powerful EQ control and rapid signal re-routing facilities all enhance speed in building multiple takes or in sweetening.

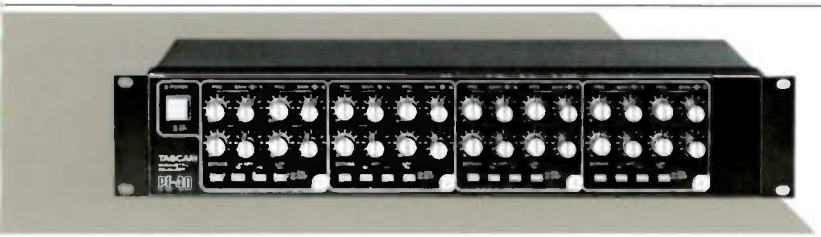
MAIN M-500 SERIES FEATURES

•3 connectors per input channel (balanced mic/line, unbalanced tape, and unbalanced phono, instrument or line inputs). •Electronically balanced XLR inputs for mic or line level with switchable phantom power. •2 channels with built-in "direct boxes" for direct input from electronic music instruments. •2 channels with RIAA PHONO inputs. •DIRECT output, CUE output and ACCESS (SEND/RECEIVE) patch points on each input channel. •3-band parametric type equalizers, with switchable bypass. •Two sets of stereo tape returns to the monitor avoid the need to repatch when remixing or playing stereo master tapes. •8 main program mixing busses, each with a buss master control and access patch points, for 1-take 8-track recordings. Direct channel outputs permits up to 12 (M-512) or 20 (M-520) tracks to be recorded at once. •4 auxiliary mono mixing systems can be used for performer cues, effect sends, stage monitor sends, broadcast feeds, reference recording mixes, etc. •Large illuminated VU meters with peak reading LEDs display the levels on the eight program busses, 4 AUX outputs and 2 master stereo outputs. Externally patched signals can also be monitored. •16 groups of stereo monitor mix controls on the M-520, 8 on the M-512, for convenient independent input monitor mix. •Input channels have switchable 30 dB pads, plus independent mic and line TRIM controls. A total 90 dB input sensitivity adjustment range is provided. •8 electronically balanced XLR output circuits, internally switchable for nominal +4 or +8 dBm level, for compatibility with low-sensitivity systems or for driving long audio lines. •Stereo "in place" solo system permits the monitoring of individual inputs or groups of inputs during a mix without affecting the main program busses. •Pre-fader listen function permits preview and trim adjustments on individual channels prior to opening the fader. •All pre-wired rear panel connectors let you get your mixer installed and running on the day it arrives. •Internally modular plug-in construction, replaceable faders, and complete product documentation aid rapid maintenance and servicing.

M-500 SERIES SPECIFICATIONS

INPUTS—•Mic (−70—0 dBV) •Inst. (−58—−18 dBV) •Tape/2TR (−18—+14 dBV) •Phono (−54 dBV): Line (−10 dBV) •Balanced Amp In (−10 dBV) •Access Receive (−10 dBV) •Sub In (−10 dBV) OUTPUTS—•PGM Out (−10 dBV) •Aux Out (−10 dBV) •Stereo Master Out (−10 dBV) •Balanced Amp Out (+4 dBm/+8 dBm) •Direct Out (−10 dBV) •Access Send (−10 dBV) •Oscillator Out (−10 dBV) •Headphones (100 mW/ch. max.) PERFORMANCE—•Frequency Response: 20 Hz—30 kHz, +1 dB, −2 dB •S/N Ratio (1 mic in): 70 dB, weighted •Crosstalk: 70 dB •THD (1 kHz): 0.02% •Dimensions (W x H x D): 1082 x 240 x 778 mm (M-520), 802 x 240 x 798 mm (M-512) •Weight: 47 kg (M-520), 38 kg (M-512)

SYSTEM ENHANCEMENT SERIES



PE-40

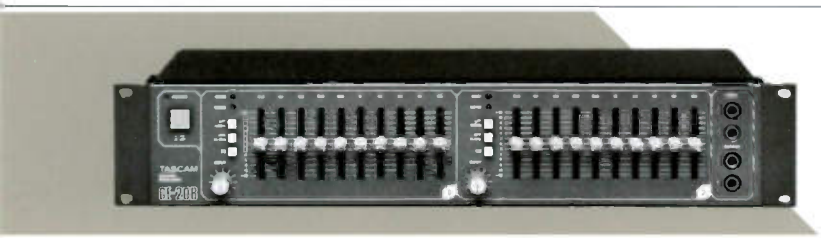
4-Band/4-Channel Parametric Equalizer

The PE-40 has 4 independent EQ channels, each of which offers four bands of equalization. The 4 EQ bands are overlapped for maximum equalization flexibility. Each individual EQ band offers a full complement of parametric controls—frequency, Q (bandwidth), and gain (boost/cut)—so you can equalize at precisely the right frequency over exactly the required bandwidth and with just the right amount of boost or cut.

Overall, the PE-40 offers the most precise response control available for any audio application.

PE-40 SPECIFICATIONS

•Inputs: 50 k-ohms, −10 dBV. •Outputs: 100 ohms, −10 dBV. •Foldback: connected to input terminals in parallel. •Aux. Output: connected to output terminals in parallel. •Equalizer: peak/dip parametric, High-800 Hz to 16 kHz, Mid High-500 Hz to 10 kHz, Mid Low-200 Hz to 4 kHz, Low-40 Hz to 800 Hz, ±15 dB, Q=1.1 to 5. •High Pass Filter (160): 160 Hz, 6 dB/oct. •High Pass Filter (60): 60 Hz, 18 dB/oct. •Low Pass Filter (15 k): 15 kHz, 12 dB/oct. •S/N Ratio: 83 dB. •Crosstalk: 70 dB. •THD: 0.015%. •Dimensions (W×H×D): 482×88×230 mm. •Weight: 4.7 kg.



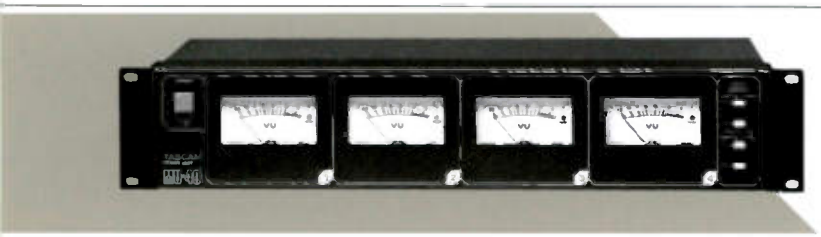
GE-20B

10-Band/2-Channel Graphic Equalizer

The GE-20B is a 2-channel graphic equalizer with 10 straight-line controls per channel providing 12 dB of peak/dip equalization at standard 1-octave ISO center frequencies: 31.5, 63, 125, 250, 500, 1k, 4k, 8k and 16k Hz. Each channel has a separate pair of 12 dB/octave cutoff filters, a 31.5 Hz Hi-Pass and a 16 kHz Lo-Pass. The GE-20B provides independent control of the frequency balance of two audio channels. Each channel has it own Normal level, Overload indicators and Input level control. An EQ button on each channel lets you bypass the EQ circuitry for A-B comparisons. The GE-20B has front panel 1/4" phone type input and output Terminals as well as rear panel RCA type Terminals. Front panel input takes priority over the rear input and output signals are available from both front and rear jacks at the same time.

GE-20B SPECIFICATIONS

•Channels: 2. •Bands: 10. •Center Frequencies: 31.5, 63, 125, 250, 500 1 k, 2 k, 4 k, 8 k, 16 k Hz. •Boost/Cut: ±12 dB. •High Pass Filter: 31.5 Hz, 12 dB/oct. •Low Pass Filter: 16 kHz, 12 dB/oct. •THD: 0.008%. •S/N Ratio: 93 dB. •Frequency Response: 20 Hz—30 kHz ±0.5 dB. •Dimensions (W×H×D): 482×88×221 mm. •Weight: 4.2 kg.



MU-40

Meter Unit

The MU-40 is a 4-meter, 8-channel meter unit. The Line 1/Line 2 switch lets you connect the meters to one of two sets of four inputs. A meter sensitivity switch is provided for compatibility with any source, and foldback terminals are provided for all inputs. In addition, each meter has an LED peak indicator.

MU-40 SPECIFICATIONS

•Input Level at 0 VU: −10 dBV/0 dBV switchable. •Input Impedance: 20 k-ohms (foldback terminals not connected). •Peak Level Indicator: +10 dB ±0.5 dB. •VU Meter Frequency Response: 30 Hz—20 kHz, +0.5 −1 VU. •Peak Level Indicator Response: 30 Hz—20 kHz, ±0.5 dB. •Dimensions (W×H×D): 482×88×205 mm. •Weight: 3.6 kg.

MH-40B

Multi-Headphone Amplifier

A single MH-40B drives up to 4 pairs of stereo headphones from a single line-level stereo signal, and individual headphone control with independent left/right channel balance control is provided. 1.5 W power (peak) from each headphone output provides sufficiently high headphone levels for extra high-quality sound and masking external noise—even when monitoring in a high-sound-level environment. And two or more MH-40Bs can be cascaded for 8 or more headphone outputs. The MH-40B even has a selectable mono mode that lets the performers hear a properly centered image with a single monaural cue input.

MH-40B SPECIFICATIONS

•Rear Panel Inputs: 40 k-ohms, −10 dBV •Front Panel Inputs: 40 k-ohms, −10 dBV. •Headphone Outputs: 1.5 W (peak, 10 or 200 ohms). •Frequency Response: 50 Hz—20 kHz, ±2 dB. •S/N Ratio: 88 dB. •Crosstalk: 45 dB. •THD: 1% at maximum output. •Dimensions (W×H×D): 482×88×228 mm. •Weight: 4.0 kg.

MX-80

8-In/2-Out Microphone/Line Mixer

The MX-80 offers 8 balanced inputs which will accept input levels from −70 to +28 dB for compatibility with any source, or 8 unbalanced line-level inputs are available via the accessory receive terminals. Extensive level matching capability and full panning are provided on each input. Both balanced and unbalanced outputs are provided, and each type has its own output level control for maximum system flexibility. Of course, the MX-80 offers exceptionally high performance on all counts—noise, distortion and crosstalk—making it perfect for even the most critical applications. Anywhere you need an extra mix, the MX-80 can be a real time and money saver, while improving quality.

MX-80 SPECIFICATIONS

INPUTS—•Mic/Line: 600 ohms balanced, −70—0 dBV. •Accessory Receive: 100 k-ohms, −10 dBV. •Buss: 22 k-ohms, −10 dBV. OUTPUTS—•Line: 100 ohms, −10 dBV. •Accessory Send: 100 ohms, −10 dBV. •Mic Out: 600 ohms balanced, −40 to −6 dBm. PERFORMANCE—•Frequency Response: 20 Hz—20 kHz ±1.5 dB. •S/N Ratio: 1 channel 65 dB, 8 channels 55 dB. •Crosstalk: 70 dB. •THD: 0.008%. •Dimensions (W×H×D): 482×88×230 mm. •Weight: 5.0 kg.

M-1B

8-In/2-Out Line Mixer

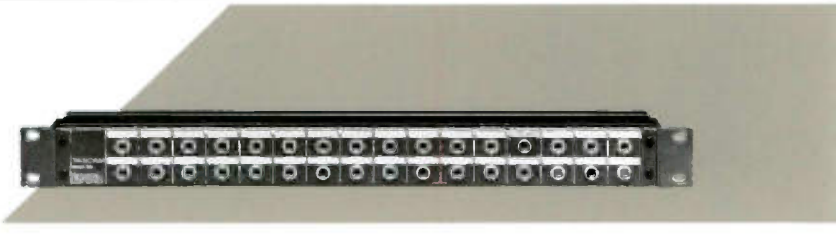
This economical, high quality 8 x 2 line mixer is perfect for any situation where you require auxiliary line mixing capability. One or more M-1Bs can be added to your system to provide extra headphone cue mixes, echo mixes, monitor mixes, or any other type of mix you might need. A high-power 3 W+3 W headphone amplifier with its own level control provides plenty of power for two stereo headphone feeds.

M-1B SPECIFICATIONS

INPUTS—•Line: 33 k-ohms, −10 dBV. •Buss: 50 k-ohms, −10 dBV. OUTPUTS—•Line/Aux: 100 ohms, −10 dBV. PERFORMANCE—•Frequency Response: 20 Hz—30 kHz ±1 dB. •S/N Ratio: 82 dB. •Crosstalk: 60 dB. •THD: 0.03%. •Dimensions (W×H×D): 482×88×220 mm. •Weight: 4 kg.

PB-32 Series

Patch Bays

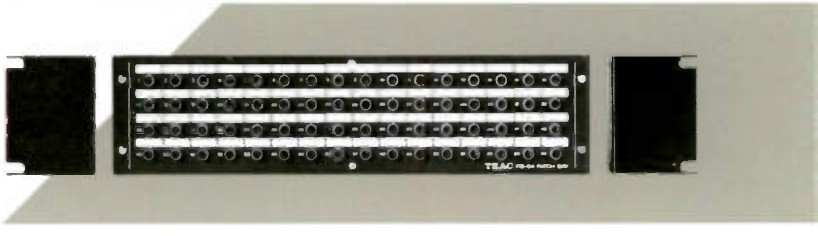


All these patch bays offer 32 patch points in two rows of 16 connectors, with the upper-row connectors "normalled" to the lower row. The normalling can be defeated if necessary. The PB-32 series patch bays are designed for easy rack mounting, and the 32-patch module configuration permits expansion to meet the requirements of any system. A line of TASCAM patch cords are available for use with this series. (PW-16R, PW-16P, PW-16W, PW-16B)

PB-32P: 32 1/4" TS phone jacks (front and rear)
PB-32R: 32 RCA pin jacks (front and rear)
PB-32H: 32 1/4" TS phone jacks (front)
32 RCA pin jacks (rear)
PB-32W: 12 1/4" TS phone jacks (front and rear)
20 RCA pin jacks (front and rear)
PB-32B: 32 1/4" TRS phone jacks (front and rear)

PB-64

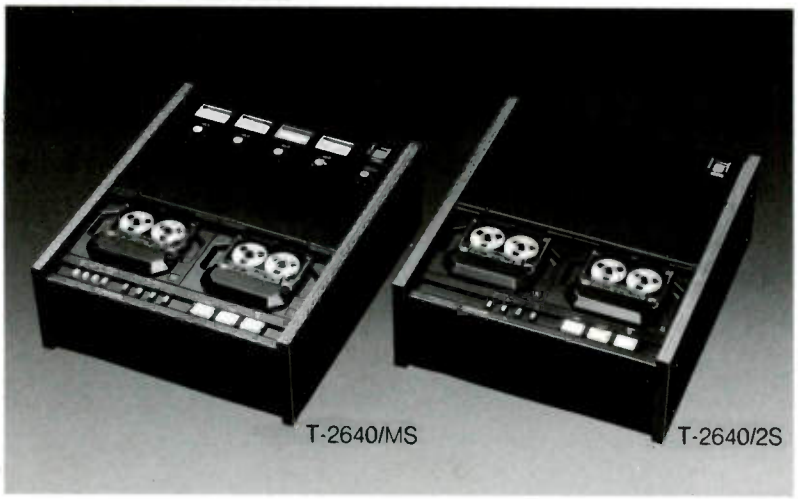
Patch Bay



The PB-64 offers sixty-four RCA type connectors on the front panel connected directly to the rear panel (the ground on each channel is discrete). You can interrupt your system's input and output cables by connecting them to the PB-64 rear panel. To re-route, simply re-patch with jumper cables on the PB-64 front panel.

DUPLICATORS

T-2600 SERIES



The TASCAM T-2600 Series comprises four versions of a high speed (8X normal speed) cassette duplication system. These are:

T-2640/MS 4-Track 4-Channel Master/Slave Decks
T-2640/2S 4-Track 4-Channel 2 Slave Decks
T-2620/MS 2-Track 2-Channel Master/Slave Decks
T-2620/2S 2-Track 2-Channel 2 Slave Decks

Each model in this series is accurate and easy to use. Faultless cassette tape duplication can be achieved quickly by simply inserting the tapes and pressing the start button. Up to 21 copies can be made simultaneously. These high-quality tape duplicating machines are perfect for the production of music tapes, and can be applied to a myriad of other tasks- in education and schools, sales promotion, public relations, and for internal information processing in companies, government office, and municipal agencies.

In the specifications, 0 dB is referenced to 1 Vrms. 0 dBm/0 dBu is referenced to 0.775 Vrms.
Improvements may result in specification or feature changes without notice.
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TEAC Professional Division

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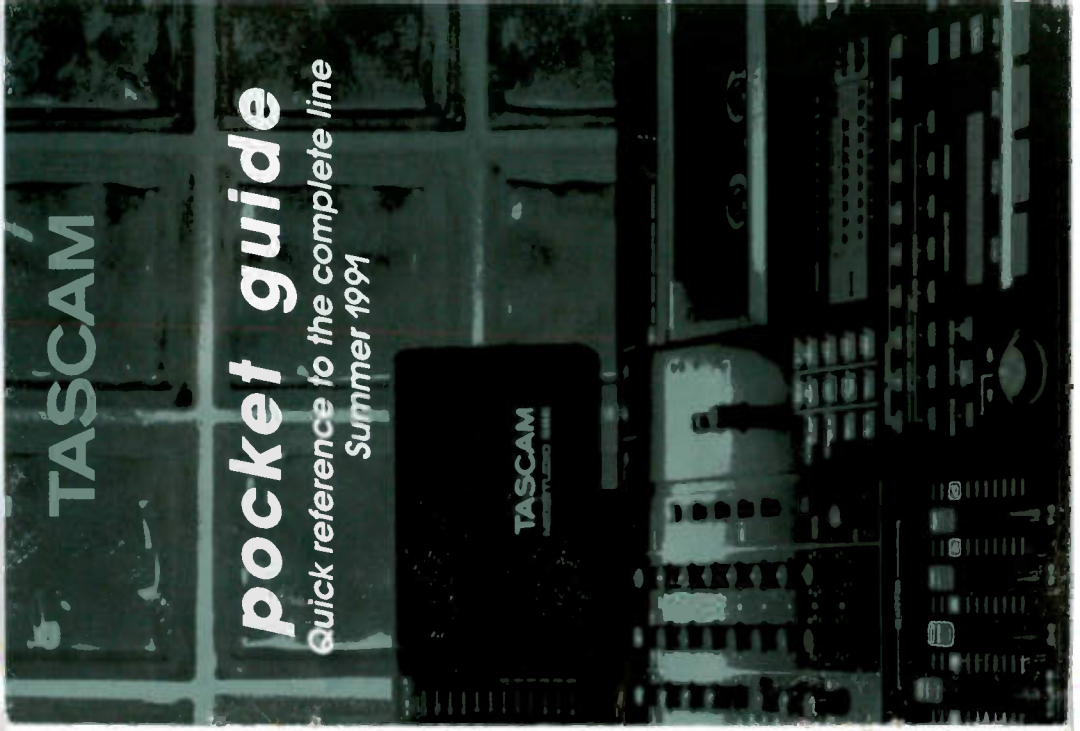

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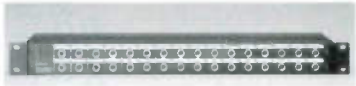
PATCHBAYS

PB-32R
32 Point Normalled & Unbalanced
RCA Front to RCA Rear



PB-32P / PB-32H
32 Point Normalled & Unbalanced
Phone Front to Phone / RCA Rear

PB-32W
32 Point Normalled & Unbalanced
Combo (20 RCA & 12 Phone)

PB-32B
32 Point Normalled & Balanced
TRS Phone Front to TRS Phone Rear

PB-64
64 Point Unbalanced
RCA Front to RCA Rear

IT'S ONLY WIRE?

Compared to all the bigger, more expensive pieces of gear they plug into, audio cables might seem pretty unimportant. After all, it's only wire. Wire is wire, right? Think again.

No matter how good your system is, the quality of the sound coming out of it is ultimately determined by the signal that is fed into it. From source to amplifier to speakers, signal should flow from one component to another without interference or degradation. This signal chain is only as strong as its weakest link, and every little wire makes a critical difference in the sound you hear.

TASCAM Low Capacitance Audio Cable is engineered for superior performance and fidelity. These cables' exceptionally low capacitance rating measurably improves frequency response, while high density braided shielding and computer-grade insulator minimizes interference like RF noise, hum, buzz and crackles. Once you hear the difference Low Cap cable can make, you'll never say "its only wire" again. **And you'll start getting all the sound you paid for.**

TASCAM PORTA ACCESSORIES

MTS-30

MIDI SYNCHRONIZER

The MTS-30 offers musicians easy, reliable MIDI-to-tape synchronization at a very low cost. Using MIDI Song Position Pointer, it can lock drum machines and sequencers to any spot on the track without having to rewind to the beginning, and provides a running display of the current measure number.

WEIGHT: 1-9/16 LBS DIMENSIONS: W: 9-7/16" X H: 1-3/8" X D: 4-3/4"

GS-30D

GUITAR AMP SIMULATOR

The GS-30D lets guitarists capture the sound of playing through an overdriven amp, without the amp. It provides 3-band EQ, both overdrive and pre-gain controls, and dual outputs so you can plug into to your amp as well as the board. You can instantly footswitch between clean and overdriven sounds.

WEIGHT: 1-1/2 LBS DIMENSIONS: W: 9-7/16" X H: 1-3/8" X D: 4-3/4"

BS-30

BASS AMP SIMULATOR

The BS-30 gives bassists the warm, punchy sound of playing through an amp, while plugged direct into the board. Pre-gain level control and a built-in limiter help you get the optimum sound on tape. You can easily dial up a killer tone using 3-band EQ and "Turbo" control of complementary harmonics.

WEIGHT: 1-1/2 LBS DIMENSIONS: W: 9-7/16" X H: 1-3/8" X D: 4-3/4"

PORTA 03
MINISTUDIO

SPECIFICATIONS

Format: 4 Track, 2 Input Channels
Tape Speed: 1-7/8 IPS
Tape: Hi Bias Cassette
Power: AC (Adaptor Included)
Frequency Response:
40 Hz - 12.5 kHz
Adjacent Channel Crosstalk:
50 dB @ 1 kHz
Signal to Noise Ratio:
60 dB (IHF "A" WTD)
Wow and Flutter: .15% (WRMS)

WEIGHT: 2-7/8 LBS DIMENSIONS: W: 11-1/2" X H: 2-1/2" X D: 7"

The Porta 03 is TASCAM's least expensive Ministudio, opening the world of multitrack recording to anyone who can operate a tape recorder. Two mixable inputs can be recorded onto any of the four tracks, and each track has an independent gain and pan control for the stereo output. Standard stereo cassettes can be played back and recorded on tracks 1 and 2.

FEATURES:

- 2 mic/line inputs with full Trim control
- 4 x 2 Tape Cue mixer
- Record 1 or 2 tracks at the same time
- Switchable Dolby B noise reduction
- Overload and Signal present LEDs for each track
- Headphone jack

OPTIONAL ACCESSORIES:

- TASCAM Headphones (THP-110, THP-220, THP-400)
- 109B Mic Input Transformer (XLR to 1/4")

ES-50/51
SYNCHRONIZER

SPECIFICATIONS

Timecode Formats:
SMPTE/EBU, 24/25/29.97/30 fps
Sync Accuracy: ± 50 μ seconds
Lock Time: Approx. 2 seconds
Lock Range: ± 30% of play speed
Offset Resolution: ± 1/100 frame
Timecode Reader Speed:
1/20 to 100 times play speed
Computer Interface: RS-232C

ES-50 WEIGHT: 9-1/4 LBS DIMENSIONS: W: 19" X H: 1-3/4" X D: 11-13/16"
ES-51 WEIGHT: 6-5/8 LBS DIMENSIONS: W: 13-3/4" X H: 4-3/4" X D: 9-5/8"

The ES-50 synchronizer reads and generates all timecode standards, and chase locks parallel controllable ATRs and VTRs. The companion ES-51 control unit gives the producer/engineer access to sophisticated control and editing functions.

ES-50 FEATURES:

- "Auto-learn" interface calibration for ATR/VTRs
- Timecode generator functions: re-start, jam sync and regenerate
- External sync or internal crystal reference
- Digital servo control
- Chase lock, Phase lock and Auto lock modes
- Slow sync function

ES-51 FEATURES:

- Transport control of up to 4 ATRs and/or VTRs
- Auto locator with 20 scratchpad memories
- 5 programmable timecode triggered events, including Record In/Out
- Events can be entered with the keypad or on the fly
- 10-digit time data display and 8-digit keyboard display
- Sub-frame accurate offset trimming

MTS-1000 MIDiiZER
SYNCHRONIZER

SPECIFICATIONS

SMPTE Timecode Formats:
30, Drop Frame, 25 and 24 fps
MIDI Terminals: 1 in / 3 out
Synchronization Accuracy:
± 50 microsecond
Number of Songs: 8 maximum
Number of Notes Memorized:
1,200/song
Tempo Range: 20-250 bpm
Time Signature Range:
1/4 to 15/4, 1/8 to 15/8
MIDI Program Change: 99 points
Rec. Function: 16 channels max.
PPQ Output: 24/48/96 PPQ

WEIGHT: 16 LBS DIMENSIONS: W: 17" X H: 4-1/2" X D: 12"

The MTS-1000 MIDiiZER is a powerful and versatile SMPTE-based synchronizer/controller that adapts easily to a wide range of music production applications. It offers MIDI-to-timecode and tape transport synchronization/control capability, and is plug-in compatible with MIDI equipment as well as new TASCAM serial ported multitracks. Autolocation and punch in/out control of a tape transport can be referenced to MIDI bar/beat points or specific SMPTE frames, for efficient, intuitive editing and control.

FEATURES:

- Internal timecode generator (all SMPTE formats)
- Master and Slave serial I/F ports
- DIN SYNC (PPQ) OUT terminal for non-MIDI sequencers
- Tempo entry via step, MIDI tap, or audio click
- Data entry via rotary dial and numeric keypad
- MIDI bulk dump data storage
- Programmable MIDI/timecode offset
- 1 master, 1 slave deck chase synchronization
- 20-point cue memory
- Tempo data stored for each 1/4 note

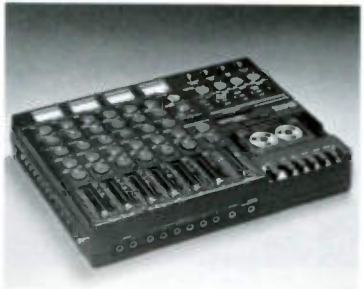
OPTIONAL ACCESSORIES:

- IF-1000 Dual Parallel Interface Conversion Unit

PORTA 2 / 2HS
MINISTUDIO

SPECIFICATIONS

Format: 4 Track, 6 Input Channels
Tape Speed: 1-7/8 IPS
(HS version: 3-3/4 IPS)
Tape: Hi Bias Cassette
Power: AC (Adaptor Included) or
Ten "C" Type Batteries
Freq. Resp.: 40Hz-12.5kHz ± 3dB
(HS version: 40 Hz-16 kHz)
Adjacent Channel Crosstalk:
55 dB (1kHz, 0VU, dbx in)
Signal to Noise Ratio:
85dB (IHF "A" weighted, dbx in)
Total Harmonic Distortion:
1.0% (1kHz, 0VU, dbx in)



WEIGHT: 7-11/16 LBS DIMENSIONS: W: 16-1/8" X H: 2-11/16" X D: 11-3/4"

The Porta Two has the maximum mixing versatility of any Ministudio. Six inputs with individual EQ provide flexibility for live band recording as well as MIDI based production. A full-featured effects send with stereo return makes professional sounding tapes an economical reality.

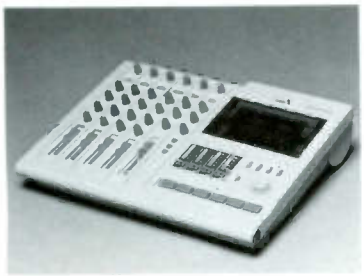
FEATURES:

- 6 Mic/Line inputs with trim control
- Insert jacks on inputs 1 and 2
- 2 Band EQ and effects send on each mixer channel
- Pitch control (± 15%)
- Stereo effects return
- FSK/MIDI "Sync In/Out" jacks w/output level control
- Record 1 to 4 tracks at the same time
- Direct assign of inputs 5 & 6 to tracks 1 & 3, or 2 & 4, or the L/R Buss
- Punch In/Out for "one man" recording
- 4 VU level meters

OPTIONAL ACCESSORIES:

- RC-30P punch in/out footswitch
- CS-P2 soft carrying case
- MTS-30 MIDI/FSK tape synchronizer

424
PORTASTUDIO



SPECIFICATIONS

Format: 4 Track, 8 Input Channels
Mixer Inputs: 4 Mono, 2 Stereo
Tape Speed:
15/16, 1-7/8 & 3-3/4 IPS
Tape: Hi Bias Cassette
Frequency Response:
40 Hz - 16 kHz (± 3 dB, 3-3/4 IPS)
Adjacent Channel Crosstalk:
70 dB (1 kHz, 0 VU, NR in)
Signal to Noise Ratio:
95 dB (IHF "A" WTD, dbx in)
Total Harmonic Distortion:
1% (1 kHz @ 0 dB, dbx in)

WEIGHT: 5-1/2 LBS DIMENSIONS: W: 14-3/8" X H: 3-7/8" X D: 11-5/8"

The 424 is designed to meet the needs of musicians and songwriters, with more of the useful features that have made the Portastudios the industry standard. The mixer controls are conveniently laid out in an easy-to-use, familiar way for traditional recording. When you want to expand into electronic music, the 424 can mix up to 8 MIDI sources or effect returns in addition to the tape tracks, thanks to two additional stereo channels and the Input Bypass feature. Four channel record and three speed capability add even more flexibility.

FEATURES:

- 8 input mixer (4 mic/line inputs plus 2 stereo line inputs)
- Switchable dbx noise reduction
- 4 track simultaneous record via Direct mode
- Input Bypass and Cue Assign accomodate virtual tracks
- Sync in/out jacks
- Pitch control (± 12%)
- Headphone jack

OPTIONAL ACCESSORIES:

- TASCAM Headphones (THP-110, THP-220, THP-400)

The DA800-24 professional digital audio 24-track recorder offers superior performance and reliablity, and is fully compatible with all other DASH machines. A high-performance transport ensures smooth, faultless tape handling, and is designed to facilitate manual block-and-razor type editing. Complete isolation of the analog and digital circuits, with TASCAM's proprietary ZD circuit in the A/D and D/A conversion stages, results in extraordinarily clean, natural sound.

FEATURES:

- Remote control unit supplied
- SDIF-2 digital I/O
- Precision LED peak level meter for each channel
- 4 SET UP memories for channel setup data
- 4 CHANNEL GROUP memories
- Remote control memory backup
- Dump edit function
- 30-point cue memory with auto locate, return, repeat and roll back functions
- Direct external sync compatibility with composite video or FV signals, and timecode based synchronizers
- Pitch control (± 12.5%)
- Shuttle transport control
- Noiseless auto punch in/out with rehearsal function
- Digital ping-pong capability
- Easy access for maintenance
- Dual remote metering capability

OPTIONAL ACCESSORIES:

- MU-800-24 Additional Meter Unit
- CS-800 Roll-Around Remote Stand
- RM-800/801 Rack Mount Kits for Remote/Meter
- RM-802 Meter Unit Mount Kit (Meter / DA-800)
- IF-801 2 -Channel AES/EBU Digital I/O
- IF-802 Record Command/Tally Interface

DA800-24

24-TRACK DIGITAL AUDIO RECORDER

SPECIFICATIONS

Channels: 24 digital audio, 1 control, 1 timecode, 2 analog audio
Recording Format: DASH-F (Digital Audio Stationary Head - Fast Version)
Quantization: 16-bit linear (per channel)
Sampling Rate: 48 / 44.1 / 44.056 kHz (switchable)
Tape Speed: 76.20 cm/sec (Fs=48 kHz), 70.01 cm/sec (Fs=44.1 kHz), 69.94 cm/sec (Fs=44.056 kHz)
Speed Variation: ± 12.5%
Recording Time (14" reels):
approx. 60 minutes (Fs=48 kHz), 65 minutes (Fs=44.1, 44.056)
Frequency Response: 20 Hz - 20 kHz (+0.5/-1 dB)
Dynamic Range: Better than 90 dB (1 kHz)
Distortion: Less than 0.05% (1 kHz)
Adjacent Channel Crosstalk: Better than 80 dB
Wow and Flutter: Below measurable limit

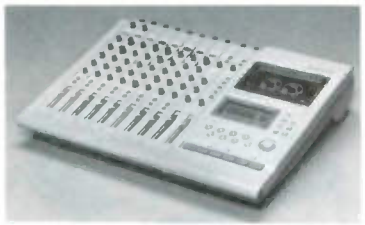
WEIGHT: 386 LBS DIMENSIONS: W: 32-1/16" X H: 37-15/16" X D: 24-15/16"

488

PORTASTUDIO

SPECIFICATIONS

Format: 8 Track, 12 Input Channels
Mixer Inputs: 8 Mono, 2 Stereo
Tape Speed: 3-3/4 IPS
Tape: Hi Bias Cassette
Pitch Control: ±12%
Frequency Response:
40 Hz - 14 kHz ± 3 dB (NR out)
Adjacent Channel Crosstalk:
70 dB (1 kHz, 0 VU, NR in)
Signal to Noise Ratio:
>95 dB (IHF WTD, dbx in)
Total Harmonic Distortion:
1.3% (@ 400 Hz, NR in)
EQ: 10 kHz (Hi), 100 Hz (Low)



WEIGHT: 15-1/2 LBS DIMENSIONS: W: 19-3/8" X H: 5" X D: 15-3/8"

The 488 Portastudio is a compact personal 8-track studio that is both easy to use and affordable, bringing the flexibility of 8-track recording within the reach of every serious musician. Excellent sound quality, a versatile mixer, and convenient transport functions make the 488 ideal for songwriters' preproduction as well as broadcast production work.

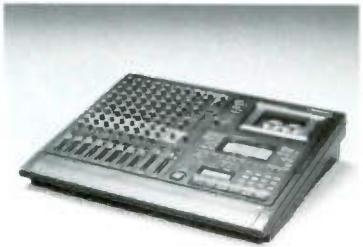
FEATURES:

- 2 mono mic/line, 6 mono & 2 stereo line inputs
- 4 independent Group outputs
- 2 effect sends
- 2 Band EQ on mixer channels 1 - 8
- Switchable dbx noise reduction
- Input assign allows mic/line access directly to Group masters
- Record up to 4 tracks at the same time
- Return-to-zero, auto-locate to memo point 1 or 2, loop between memo points 1 & 2
- Mix feature allows tape and input to share a channel
- Switchable sync in and out jacks
- 8 tape track and 2 monitor LED meters

OPTIONAL ACCESSORIES:

- RC30P Footswitch

644
MIDISTUDIO



SPECIFICATIONS

Format: 4 Track, 16 Input Channels
Tape Speed: 1-7/8 IPS & 3-3/4 IPS
Tape: Hi Bias Cassette
Pitch Control: ± 12%
3 Band Equalizer:
High: 10 kHz ± 12 dB
Mid: 250 Hz - 5 kHz ± 15 dB
Low: 100 Hz ± 12 dB
Freq. Resp.: 40 Hz-16 kHz ± 3 dB
Crosstalk: 70 dB (1 kHz, 0 VU, NR in)
Signal to Noise Ratio:
93 dB (IHF "A" weighted, dbx in)
Total Harmonic Distortion:
1% (400 Hz, 0 dB, dbx in)

WEIGHT: 15-7/8 LBS DIMENSIONS: W: 20-5/16" X H: 4-3/4" X D: 15-3/4"

The 644 is the natural evolution of the 4-track Portastudio. This self-contained recording system is ideally suited for the 4-track user in a compact MIDI studio that needs a lot more inputs because of the use of "virtual tracks", not more "actual" tracks. The exclusive electronically switched signal routing system helps to control all of the signal routing functions and may be switched remotely by MIDI commands. The 644 can disregard its MIDI control and be the center of a compact, high tech, 4-track acoustic studio as well.

FEATURES:

- Full featured 16 input mixer (2 balanced XLR)
- Built-in dbx noise reduction (defeatable)
- Gapless auto punch in/out & rehearsal modes
- 2 Aux sends and 4 effect returns
- Unique "Scene Display" system w/memory
- Built-in MIDI tape synchronizer w/song pointer
- Serial interface for external synchronization

OPTIONAL ACCESSORIES:

- RC-88 remote control unit
- RC-60P dual footswitch (scene select/punch in/out)
- RC-30P single footswitch (punch in/out)

The ATR-80-24 is a professional 24-track in the industry standard 2" format, designed to satisfy the most demanding studio owner, artist or engineer. Its microprocessor-controlled transport system provides power, speed, and precision for extra-fast lockup in synchronized operation. The included remote unit offers complete control of transport functions, including Rotary Shuttle control, Return-to-Zero and Search-to-Cue. All electronic and mechanical components are engineered for exceptional performance and reliability.

FEATURES:

- Phase locked loop servo direct drive capstan motor
- Durable non-magnetic ceramic capstan shaft
- 2 DC reel motors
- Automatic reel size sensing
- Independent bias adjustment for high and low speeds
- Protection circuitry for momentary power failure
- Glass epoxy printed circuit boards
- Heavy-duty, fully-protected power supply unit
- Gapless punch-in/out, spot erase
- Dump edit, stop edit and one-finger edit modes
- Parallel interface for synchronizer control
- Record and peak indicators on each VU meter panel
- Also available in 32-track format (ATR80-32)

OPTIONAL ACCESSORIES:

- AQ-80 Auto Locator Unit
- CF-81 Serial Control Interface allows computer control of transport, locate functions, amplifier mode selection and counter/status display
- SPK-800A Spare Circuit Card Kit
- PW-30D Remote Control Extension Cable (30 meters)

ATR80-24
2" TWENTY FOUR TRACK

SPECIFICATIONS

Tape: 2"
Track Format: 24-track, 24-channel
Maximum Reel Size: 14" NAB hub
Heads: 3 (Erase, Record/Sync, Repro)
Tape Speed: 30 IPS & 15 IPS
Pitch Control: ± 20% (0.1% steps)
Wow & Flutter: ± 0.05% (@ 30 IPS)
Start Time: Less than 0.9 sec. (30 IPS)
Frequency Response (REC/REPRO): 45 Hz - 25 kHz ± 2 dB (@ 30 IPS)
Frequency Response (REC/SYNC): 45 Hz - 25 kHz ± 2 dB (@ 30 IPS)
Total Harmonic Distortion: Less than 0.5% (@ 1 kHz)
Signal-to-Noise Ratio ("A" WTD AES): 72 dB (@ 30 IPS)
Adjacent Channel Crosstalk: Better than 55 dB (@ 1 kHz, 0 VU)
Erasure: Better than 75 dB (@ 1 kHz, +10 dB)

WEIGHT: 486 LBS DIMENSIONS: W: 30-1/8" X H: 39" X D: 29-5/8"

688
MIDISTUDIO

SPECIFICATIONS

Format: 8 Track, 20 Input Channels
Tape Speed: 3-3/4 IPS
Tape: Hi Bias Cassette
Pitch Control: ± 12%
3 Band Equalizer:
High: 10 kHz ± 12 dB
Mid: 250 Hz - 5 kHz ± 15 dB
Low: 100 Hz ± 12 dB
Freq. Resp.: 40 Hz-16 kHz ± 3 dB
Crosstalk: 70 dB (1 kHz, 0 VU, NR in)
Signal to Noise Ratio:
93 dB (IHF "A" weighted, dbx in)
Total Harmonic Distortion:
1.0% (400 Hz, 0 dB, dbx in)

WEIGHT: 38-9/16 LBS DIMENSIONS: W: 23-5/16" X H: 5-13/16" X D: 21-11/16"

The 688 is a compact, 8-track cassette, self-contained recording system ideally suited to the MIDI oriented studio setup where the user needs both more inputs for virtual tracking and more actual tape tracks. You select sources, assign destinations and designate routing using the exclusive electronically switched signal routing system. These scenes can be viewed on a LCD, stored in memory, and controlled remotely by MIDI. The 688 can also be the center of a high tech, compact, 8-track acoustic studio.

FEATURES:

- Full featured 20 input mixer (10 balanced XLR)
- Built-in dbx noise reduction (defeatable)
- Gapless auto punch in/out & rehearsal modes
- 8 x 2 Cue monitor mixer
- Unique "Scene Display" system w/memory
- Built-in MIDI tape synchronizer w/song pointer
- Serial interface for external synchronization

OPTIONAL ACCESSORIES:

- RC-88 remote control unit
- RC-60P dual footswitch (scene select/punch in/out)
- RC-30P single footswitch (punch in/out)

102
STEREO CASSETTE

SPECIFICATIONS

Heads: 2 (Erase & Record/Repro)
Tape Speed: 1-7/8 IPS
Wow & Flutter: .045% (WRMS)
Overall Freq. Response (-20 dB)
- Metal Tape: 25 Hz - 20 kHz
- Chrome Tape: 25 Hz - 18 kHz
- Normal Tape: 25 Hz - 17 kHz

Overall Signal to Noise Ratio:
- 60 dB (3% THD level, WTD)
- 70 dB (Dolby B in, over 5 kHz)
- 80 dB (Dolby C in, over 1 kHz)

Line Input: 50k ohms
Line Output: 50k ohms
Headphone Output: 8 ohms

WEIGHT: 8-7/8 LBS DIMENSIONS: W: 17-1/8" X H: 4-13/16" X D: 10-15/16"

Finally, a cost effective two-head mixdown deck for musicians that has all the durability and sound quality TASCAM is noted for. The 102 has Dolby HX PRO for extended high frequency response that will be noticeable during playback of your tape on any cassette deck.

FEATURES:

- Dolby B and C noise reduction systems
- Dolby HX PRO headroom extension
- Automatic tape type selection
- Bias fine tuning control
- Rugged Permalloy record/repro head
- Electronic tape counter
- Master recording level control w/left and right channel preset level controls.
- 2 Motor IC Logic transport control system
- Headphone Jack

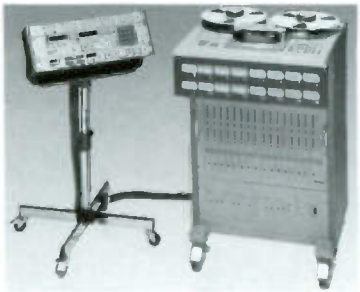
OPTIONAL ACCESSORIES:

- RMS-2 Rack Shelf
- TASCAM Headphones (THP-110, THP-220, THP-400)
- TRC Recorder Cleaning Kit

ATR60-16
1" SIXTEEN TRACK

SPECIFICATIONS

Tape: 1 inch
Track Format: 16-track, 16-channel
Maximum Reel Size: 10-1/2" NAB
Heads: 3 (Erase, Rec/Sync, Repro)
Tape Speed: 15 IPS & 30 IPS
Freq. Response (REC/REPRO):
40 Hz - 22 kHz ± 2 dB @ 15 IPS
Signal-to-Noise Ratio:
108 dB @ 15 IPS (A WTD, dbx in)
71 dB @ 15 IPS (A WTD, dbx out)
Adjacent Channel Crosstalk:
Better than 50 dB @ 1 kHz, 0 VU



WEIGHT: 209.7 LBS DIMENSIONS: W: 22-5/16" X H: 34-3/4" X D: 23-9/16"

The ATR60-16 is designed for the professional user who requires superior sound, reliability, and ease-of-maintenance, whether in a music project studio or in a SMPTE-based sweetening or video post facility. Its OMEGA drive transport system handles tapes gently, with power, speed and uncompromised precision. The ATR-60-16 simply outperforms any other 1" 16-track.

FEATURES:

- Balanced XLR inputs and outputs
- Gapless punch-in/out
- Spot Erase function
- Pitch control (course: ±15%, fine: ± 0.7%)
- Built-in dbx Type 1 noise reduction
- Remote record function select unit
- VU meters with peak-reading LEDs

OPTIONAL ACCESSORIES:

- AQ-65C Auto Locator
- RC-65C Remote Control Unit
- CS-6 Roll-around Stand for AQ-65C and RC-65C
- PW-10D Multi-cable Connector for ATR-60-to-M-600

ATR60-8

1/2" EIGHT TRACK

SPECIFICATIONS

Tape: 1/2 inch, 1.5 mil
Track Format: 8-track, 8-channel
Maximum Reel Size: 10-1/2" NAB
Heads: 3 (Erase, Rec/Sync, Repro)
Tape Speed: 15 IPS & 30 IPS
Freq. Response (REC/REPRO):
40 Hz - 22 kHz ± 2 dB @ 30 IPS
30 Hz - 16 kHz ± 2 dB @ 15 IPS
Freq. Response (SYNC, REPRO):
40 Hz - 20 kHz ± 2 dB @ 30 IPS
30 Hz -20 kHz ± 2 dB @ 15 IPS
Signal-to-Noise Ratio:
72 dB @ 30 IPS
70 dB @ 15 IPS

TRANSPORT WEIGHT: 83-3/4 LBS DIMENSIONS: W: 19" X H: 18-1/8" X D: 12-5/16"
AMP UNIT WEIGHT: 16-9/16 LBS DIMENSIONS: W: 19" X H: 7-5/8" X D: 12"

The ATR60-8 is a 1/2" production-quality 8-track designed for the audio-for-video post production studio. Its precise, reliable transport is built for extensive shuttling and frame-accurate, computer controlled parking. Even if parked and started in exactly the same spot hundreds of times while editing a single scene, the OMEGA drive won't pass along cumulative tension to the tape as will many straight-line tape path machines. Punch-in and punch-out are exceptionally quiet and accurate.

FEATURES:

- Microprocessor controlled transport
- Search-to-cue and Return-to-zero functions
- Pitch control (coarse:± 15%, fine: ± 0.7%)
- Parallel interface for external synchronizer control
- Sync Lock
- Balanced (+4 dBm) XLR inputs and outputs

OPTIONAL ACCESSORIES:

- CS-65 Height-adjustable Console
- AQ-65C Auto Locator
- RC-65 Remote Control Unit
- CS-64 Roll-around Stand for Auto Locator

103

STEREO CASSETTE

SPECIFICATIONS

Heads: 3 (Erase, Record, Repro)
Tape Speed: 1-7/8 IPS
Wow & Flutter: .045% (WRMS)
Overall Freq. Response (-20 dB)
Metal Tape: 20 Hz - 21 kHz
Chrome Tape: 20 Hz - 20 kHz
Normal Tape: 20 Hz - 18 kHz
Overall Signal to Noise Ratio:
60 dB (3% THD level, WTD)
70 dB (Dolby B in, over 5 kHz)
80 dB (Dolby C in, over 1 kHz)
Line Input: 50k ohms
Line Output: 50k ohms
Bi-Polar Power Supply

WEIGHT: 9 LBS DIMENSIONS: W: 17-1/8" X H: 4-13/16" X D: 10-15/16"

The 103 mastering cassette deck is a cost effective, three head stereo mixdown deck for serious musicians. Dolby HX PRO extends high frequency performance that you'll notice playing the tape back on any deck. Three heads let you monitor either source or tape during mixdown, without having to rewind to check.

FEATURES:

- Three head configuration
- Dolby B and C noise reduction systems
- Dolby HX PRO headroom extension
- Automatic tape type selection
- Bias fine tuning control
- Rugged Permalloy record/repro head
- Electronic tape counter
- Master recording level controls w/left and right preset level controls.
- Headphone jack

OPTIONAL ACCESSORIES:

- RMS-2 Rack Shelf
- TASCAM Headphones (THP-110, THP-220, THP-400)
- TRC Recorder Cleaning Kit

112/112B
STEREO CASSETTE

SPECIFICATIONS

Heads: 2 (Erase & Record/Repro)
Tape Speed: 1-7/8 IPS
Pitch Control: ± 12%
Wow & Flutter: .04% (NAB WTD)
Overall Freq. Resp. (-20 dB, ± 3)
Metal Tape: 25 Hz - 19 kHz
Chrome Tape: 25 Hz - 18 kHz
Normal Tape: 25 Hz - 17 kHz
Overall Signal to Noise Ratio:
59 dB (3% THD level, WTD)
68 dB (Dolby B in, over 5 kHz)
78 dB (Dolby C in, over 1 kHz)
Total Harm. Dist.: 1% @ 0 VU, 400Hz
Record Level: 160 nWb/m (0 VU)

WEIGHT: 13-1/2 LBS DIMENSIONS: W: 19" X H: 5-1/4" X D: 11-11/16"

The 112 is a professional two head cassette deck for those users requiring the stability and reliability of a top end machine under hard, nonstop working conditions, but not requiring the confidence monitoring third head. The "Cue & Review" functions provide the user with open reel type cueing convenience in both the fast forward and rewind modes.

FEATURES:

- 112 has RCA inputs & outputs (-10 dBV)
- 112B also has balanced XLR inputs & outputs (+4 dBm)
- 19" rack mountable
- Dolby B,C, and HX PRO
- Pitch control
- Front panel microphone inputs (1/4" phone)
- Front panel headphone jack w/level control
- Independent left & right input level controls
- Output level control
- Three Motors (DC)

OPTIONAL ACCESSORIES:

- RC-71F Transport Remote Control
- TO-122A Test Tone Oscillator
- TASCAM Low Capacitance Pro Series Cables

ATR60-2N/2HS
MASTERING RECORDER

SPECIFICATIONS

Tape: 2N - 1/4 inch / 2HS - 1/2 inch
Track Format: 2-track, 2-channel
Maximum Reel Size: 10-1/2" NAB
Heads: 3 (Erase, Rec/Sync, Repro)
Tape Speed:
2N: 7-1/2 IPS & 15 IPS
2HS: 15 IPS & 30 IPS
Freq. Response (± 2 dB, 0 VU):
2N: 40 Hz - 22 kHz @ 15 IPS
2HS: 30 Hz - 26 kHz @ 30 IPS
S/N: 2N -72 dB @ 15 IPS
2HS - 78 dB @ 30 IPS
Crosstalk: 2N - Better than 57 dB
2HS - Better than 58 dB

TRANSPORT WEIGHT: 83-3/4 LBS DIMENSIONS: W: 19" X H: 18-1/8" X D: 12-3/16"
AMP UNIT WEIGHT: 16-9/16 LBS DIMENSIONS: W: 19" X H: 4-1/8" X D: 10-9/16"

The ATR60-2's are 2-track mastering machines that have been designed to function in the most brutal studio production environments, even tiny remote trucks where audio was just an afterthought. OMEGA drive transports guarantee thousands of trouble-free passes a day, every day. The high speed ATR-60-2HS represents the ultimate in analog audio performance, with newly designed heads that maximize the inherent advantages of 30 IPS operation and wider tape.

FEATURES:

- Microprocessor controlled transport
- Search-to-cue and Return-to-zero functions
- Pitch control (coarse: ± 15%, fine: ± 0.7%)
- Sync Lock

OPTIONAL ACCESSORIES:

- CS-704 Console for ATR-60 series
- AQ-65C Auto Locator
- RC-65 Remote Control Unit
- CS-64 Roll-around Stand for Auto Locator
- MA-650 2-channel Rackmount Monitor Speaker

ATR-60-2T
PRODUCTION RECORDER

SPECIFICATIONS

Tape: 1/4 inch
Track Format: 2-track, 2-channel
with center track for time code
Maximum Reel Size: 10-1/2" NAB
Heads: 3 (Erase, Rec/Sync, Repro)
Tape Speed: 7-1/2 IPS & 15 IPS
Wow & Flutter: 0.05% RMS
Freq. Response (± 2 dB, 0 VU):
40 Hz - 22 kHz @ 15 IPS
S/N (A WTD @ 15 IPS): 72 dB
Crosstalk: Better than 57 dB
Time Code to Audio Crosstalk:
Better than 74 dB

TRANSPORT WEIGHT: 83-3/4 LBS DIMENSIONS: W: 19" X H: 18-1/8" X D: 12-3/16"
AMP UNIT WEIGHT: 16-9/16 LBS DIMENSIONS: W: 19" X H: 4-1/8" X D: 10-9/16"

The ATR-60-2T is an NAB standard 2-track, with an additional IEC standard center track for SMPTE/EBU time code, designed for professional audio-for-video mastering. The coincident head configuration makes time code virtually invisible, so you never have to change your operating or editing techniques to compensate for an offset time code head. The OMEGA drive transport gently protects your tape from stretching, even after thousands of frame-accurate stop/start passes.

FEATURES:

- Microprocessor controlled transport
- Search-to-cue and Return-to-zero functions
- Pitch control (coarse: ± 15%, fine: ± 0.7%)
- Parallel interface for external synchronizers
- Sync Lock
- Accomodates any style of manual editing

OPTIONAL ACCESSORIES:

- CS-702 Console for ATR-60 series
- AQ-65C Auto Locator
- RC-65 Remote Control Unit
- CS-64 Stand for Auto Locator

122MKII
STEREO CASSETTE

SPECIFICATIONS

Heads: 3 (Erase, Record, Repro)
Tape Speed: 1-7/8 IPS
Pitch Control: ± 12%
Wow & Flutter: .04% (NAB WTD)
Overall Freq. Resp. (-20 dB, ± 3)
Metal Tape: 25 Hz - 20 kHz
Chrome Tape: 25 Hz - 19 kHz
Normal Tape: 25 Hz - 17 kHz
Overall Signal to Noise Ratio:
59 dB (3% THD level, WTD)
68 dB (Dolby B in, over 5 kHz)
78 dB (Dolby C in, over 1 kHz)
Total Harm. Dist.: 1% @ 0 VU, 400Hz
Record Level: 160 nWb/m (0 VU)

WEIGHT: 17 LBS DIMENSIONS: W: 19" X H: 5-1/4" X D: 11-11/16"

The 122 MKII is the unquestioned leader in professional stereo cassette decks, designed for heavy workloads that require around the clock fast forwarding and rewinding. The unique "Hysteresis Tension Servo Control" adjusts take-up tension, back tension, torque and azimuth with open reel precision. It maintains the same back tension throughout the entire cassette, significantly reducing wow and flutter and distortion, and is unaffected by temperature or humidity.

FEATURES:

- Balanced (+4 dBm) inputs and outputs
- Unbalanced (-10 dBV) inputs and outputs
- Standard 19" rack mountable
- Dolby B, C, and HX PRO
- Front access Bias/Level calibration controls
- Built-in test tone (400 Hz and 10 kHz)
- 2 mode counter w/versatile locator functions
- Front panel microphone inputs (1/4" phone)
- Provision for fader start
- 3 Motors (1-FG, 2-DC)

OPTIONAL ACCESSORIES:

- RC-71F Transport Remote Control

112R
AUTO REVERSE STEREO CASSETTE

SPECIFICATIONS

Heads: 4 (2 Erase, Record, Repro)
Tape Speed: 1-7/8 IPS
Pitch Control: ± 15%
Wow & Flutter: .03% (NAB WTD)
Overall Freq. Resp. (-20 dB, ± 3)
Metal Tape: 25 Hz - 20 kHz
Chrome Tape: 25 Hz - 19 kHz
Normal Tape: 25 Hz - 17 kHz
Overall Signal to Noise Ratio:
60 dB (3% THD level, WTD)
70 dB (Dolby B in, over 5 kHz)
80 dB (Dolby C in, over 1 kHz)
Total Harm. Dist.: 1% @ 0 VU, 400Hz
Record Level: 200 nWb/m (0 VU)

WEIGHT: 12-5/8 LBS DIMENSIONS: W: 18-13/16" X H: 4-5/8" X D: 11-7/16"

The 112R is the ideal "Auto Reverse" cassette deck where applications require extended playback and record capability with professional durability and reliability. The unique "Symmetrical Bi-directional Transport" assures identical transport performance in both directions.

FEATURES:

- Standard 19" rack mountable
- Dolby B and C noise reduction systems
- Digital tape counter with TRT & Index modes
- Automatic tape type selection
- Timer record/play capability
- Auto monitor
- Synchronized multi-deck operation allowing "Chain" recording or playback, simultaneous play or record when duplicating , "Stop" activated deck switch over, "Cue" play
- 3 Motors (DC)

OPTIONAL ACCESSORIES:

- RC-205K Transport Remote Control Kit (requires wiring)
- TO-122A Test Tone Oscillator
- TRC Recorder Cleaning Kit

MSR-24 / MSR-24S
MULTI TRACK RECORDER

SPECIFICATIONS

Tape: 1 inch, 1.5 mil
Track Format: 24 Track, 24 Channel
Reel Size: 10-1/2 Inch NAB Hub
Heads: 2 (Erase, Record/Repro)
Tape Speed: 7-1/2 IPS & 15 IPS
Frequency Response (15 IPS):
40 Hz - 20 kHz (± 3 dB)
Signal to Noise Ratio (15 IPS):
MSR-24
with dbx: 108 dB (A WTD)
without dbx: 65 dB
MSR-24S
with Dolby S: 93 dB (CCIR/ARM)
without Dolby S: 65 dB

TRANSPORT WEIGHT: 73 LBS DIMENSIONS: W: 19" X H: 19-3/16" X D: 9-1/16"
POWER SUPPLY WEIGHT: 33 LBS DIMENSIONS: W: 19" X H: 5-3/16" X D: 9-1/16"

The MSR-24 is designed to meet the needs of personal music studios, audio-for-video production/post production, and budget commercial studios, with unprecedented 24-track affordability. It interfaces with both serial and parallel control synchronizers. For those who prefer Dolby noise reduction, the new MSR-24S incorporates state-of-the-art Dolby S.

FEATURES:

- Built-in defeatable dbx Type 1 (MSR-24), or Dolby S (MSR-24S) noise reduction
- Standard 19" rack mountable (ears included)
- Serial & Parallel ports for external control
- Automatic punch in/out with rehearsal function
- Gapless punch in/out
- Spot erase
- Real time tape counter
- 3 point autolocator
- Manual, stop and dump edit
- Pitch Control (± 15%)

OPTIONAL ACCESSORIES:

- RC-424 Full Feature Remote Control
- RTS-14 Roll Around Console Stand

MSR-16 / MSR-16S

MULTI TRACK RECORDER

SPECIFICATIONS

Tape: 1/2 inch, 1.5 mil
Track Format: 16 Track, 16 Channel
Reel Size: 10-1/2 inch NAB Hub
Heads: 2 (Erase, Record/Repro)
Tape Speed: 7-1/2 IPS & 15 IPS
Frequency Response (15 IPS):
40 Hz - 20 kHz (± 3 dB)
Signal to Noise Ratio (15 IPS):
MSR-16
with dbx: 108 dB (A WTD)
without dbx: 65 dB
MSR-16S
with Dolby S: 92 dB (CCIR/ARM)
without Dolby S: 65 dB

WEIGHT: 73 LBS DIMENSIONS: W: 19" X H: 17-1/2" X D: 9"

The MSR-16 is the perfect choice for 16-track studios running on a tight budget. As an integral part of a music composer's workstation, the MSR-16 can stand alone or be locked up with SMPTE synchronizers in audio-for-video work situations, or with the MTS-1000 MIDiiZER to take advantage of first generation virtual tracks. For those who prefer Dolby noise reduction, the new MSR-16S incorporates state-of-the-art Dolby S.

FEATURES:

- Built-in defeatable dbx Type 1 (MSR-16), or Dolby S (MSR-16S) noise reduction
- Standard 19" rack mountable (ears included)
- Serial & Parallel ports for synchronizer control
- Automatic punch in/out with rehearsal function
- Gapless punch in/out
- Spot erase
- Pitch control (± 15%)
- 3 point autolocator
- Real time tape counter
- Manual, stop and dump edit

OPTIONAL ACCESSORIES:

- RC-416 Remote Transport Control

202WR

DUAL STEREO CASSETTE

SPECIFICATIONS

Heads: Deck 1 = 1 (Repro)
Deck 2 = 2 (Erase, Rec/Repro)
Normal Speed: 1-7/8 IPS
Dubbing Speed: 3-3/4 IPS
Wow & Flutter: .06% (WRMS)
Overall Freq. Resp. (-20 dB)
Metal Tape: 30 Hz - 18 kHz
Chrome Tape: 30 Hz - 18 kHz
Normal Tape: 30 Hz - 17 kHz
Overall Signal to Noise Ratio:
59 dB (3% THD level, WTD)
69 dB (Dolby B in, over 5 kHz)
79 dB (Dolby C in, over 1 kHz)
Mic In: 2.5k ohms, unbalanced

WEIGHT: 10-1/8 LBS DIMENSIONS: W: 17-1/8" X H: 4-13/16" X D: 10-3/4"

The 202WR dual stereo cassette deck offers the musician both a cost effective method for just dubbing some copies, and the dual purpose of a mixdown deck and dubbing deck for the budget conscious studio. The "sync dubbing" capability allows both decks to start simultaneously at the push of the record button. The 202WR is capable of normal and high speed 3-3/4 IPS dubbing.

FEATURES:

- Bi-directional continuous play (Deck 1)
- Bi-directional recording/playback (Deck 2)
- Dolby B and C noise reduction systems
- Dolby HX PRO headroom extension
- Normal and High Speed dubbing
- Left and Right microphone inputs
- Automatic tape type selection
- Sync reverse and dubbing capability
- Headphone jack

OPTIONAL ACCESSORIES:

- TASCAM Headphones (THP-110, THP-220, THP-400)
- PE-50 Recording Microphone
- RMS-2 Rack Shelf

133 B
SYNCASET

SPECIFICATIONS

Heads: 2 (Erase, Record/Repro)
Tape Speed: 1-7/8 IPS & 3-3/4 IPS
Track Format: 4 Track, 3 Channel
Nominal Input Level:
  Audio: -10 dBV & +4 dBm
  Control: -10 dBV
Adjacent Channel Crosstalk:
  Audio/Audio: >45 dB @ 1 kHz
  Audio/Control: >55 dB @ 1 kHz
Cue Tone Generator: 25 Hz
Fast Wind Time: <90 sec. for C-60
Overall Freq. Resp. (-20 dB, ± 3)
  1-7/8 IPS: 30 Hz - 12.5 kHz
  3-3/4 IPS: 30 Hz - 15 kHz

WEIGHT: 19-3/4 LBS DIMENSIONS: W: 19" X H: 5-1/4" X D: 13-1/2"

The 133B stereo-plus-cue cassette deck is the standard high quality production and presentation deck for the Multi Image industry. Its three tracks are full "Simul-Sync"; individually recordable, erasable and controllable with a built-in 25 Hz cue track tone generator that allows the unique "Auto Present" function to stop and wait as many times as a "live talk" presentation requires.

FEATURES:

- Uses standard audio cassette tape
- 3 Tracks (Sterero Audio, Cue)
- Built-in 25 Hz cue tone generator
- Dual speed (1-7/8 IPS, 3-3/4 IPS)
- Auto Present/Cue functions
- Balanced XLR (+4 dBm) audio inputs & outputs
- Unbalanced RCA (-10 dBv) audio & control ins & outs
- Front panel microphone inputs (1/4" phone)
- Direct interface to most AV programmers
- Individual channel input & output level controls

OPTIONAL ACCESSORIES:

- RC-90F Transport Remote Control
- S-1010M Self-Powered Monitor Speakers

TSR-8
MULTI TRACK RECORDER

SPECIFICATIONS

Tape: 1/2 inch, 1.5 mil
Track Format: 8 Track, 8 Channel
Reel Size: 10-1/2 inch NAB Hub
Heads: 2 (Erase, Record/Repro)
Tape Speed: 15 IPS
Ins/Outs: -10 dBV (unbalanced)
Freq. Resp. (record/repro):
  40 Hz - 20 kHz (± 3 dB, 0 VU))
Signal to Noise Ratio:
  with dbx: 108 dB (A WTD)
  without dbx: 68 dB (A WTD)
Adjacent Channel Crosstalk:
  >62dB (1 kHz, 0 VU, dbx in)
Wow/Flutter: ± 0.08% peak

WEIGHT: 55-1/4 LBS DIMENSIONS: W: 17" X H: 15-3/4" X D: 8"

The TSR-8 meets all the requirements of a musician's personal studio as well as those of small commercial recording studios. The TSR-8 is SMPTE controllable and allows parallel synchronization for SMPTE lock-up in audio sweetening and video post production environments.

FEATURES:

- Built-in defeatable dbx Type 1 noise reduction
- Standard 19" rack mountable
- Serial & Parallel ports for external synchronizer control
- Automatic punch in/out with rehearsal function
- Gapless punch in/out
- Spot erase
- 3 point autolocator
- Real time tape counter
- Pitch Control (±12%)
- Dump and manual edit capability

OPTIONAL ACCESSORIES:

- RC-408 Remote Transport Control
- RC-30P Punch In/Out Footswitch
- RM-408 Rack Mount Kit

TASCAM RECORDING ACCESSORIES

REMOTE CONTROLS

RC-88.....for 238, 644, 688
RC-204.....for 3030
RC-401.....for CD-401
RC-408.....for TSR-8
RC-416.....for MSR-16
RC-424.....for MSR-24

HEADPHONES

THP-110.....Lightweight Open-Air
THP-220.....Deluxe Open-Air
THP-400.....Deluxe Closed Back

MICROPHONES

PE-50.....Cardioid, Condenser
PE-80.....Cardioid, Condenser
PE-125.....Cardioid & Omni, Condenser
PE-150.....Cardioid, Phantom Powered
PE-250.....Balanced Moving Coil

FOOT CONTROLS

RC-30P.....Punch In/Out
RC-60P.....Punch In/Out & Scene Recall

RACK MOUNT KITS

RM-10A.....for 3030
RM-22.....for 22/2
RM-42.....for 22/4
RM-106.....for M106
RM-208.....for M208
RM-300.....for 32 & 34B
RM-408.....for TSR-8
RM-501.....for 44-OB
RM-701.....for 2-CD701

MAINTENANCE SUPPLIES

HC.....Head Cleaner
RC.....Rubber Cleaner
TRC.....Recorder Cleaning Kit
T-2040.....6" Cleaning Swabs (100 pcs)
T-2388.....Releasable Cable Ties (30 pcs)

238
SYNCASET

SPECIFICATIONS

Track Format: 8 Track
Tape Speed: 3-3/4 IPS
Tape: Hi Bias Cassette
Wow & Flutter: .04% (NAB WTD)
Freq. Resp.: 30 Hz - 16 kHz ± 3 dB
Adjacent Channel Crosstalk:
  dbx in: 70 dB
  dbx out: 50 dB
Signal to Noise Ratio (3% THD)
  dbx in: 93 dB (IHF A WTD)
  dbx out: 58 dB (IHF A WTD)
Total Harmonic Distortion:
  .8% (400 Hz, 0 VU, dbx in)
Fast Wind Time: 70 sec. for C-60

WEIGHT: 21 LBS DIMENSIONS: W: 19" X H: 5-1/4" X D: 13-5/8"

The 238 Syncaset is a rack mountable 8-track cassette recorder specifically designed for the user who is fighting space and budget constraints , but can't give up features and performance. The 238 offers a unique "Hysteresis Tension Servo Control System" for exceptionally stable transport, plus audio quality that challenges open reel decks.

FEATURES:

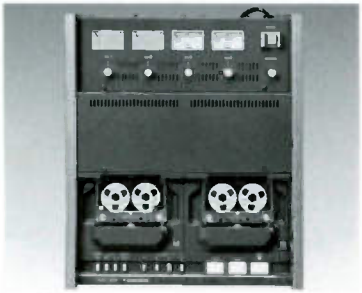
- Switchable dbx noise reduction system
- Auto punch in/out
- Tape shuttle control
- Serial Interface for external synchronizer control
- 3 point Memory Locator function
- 4 digit counter and memory displays
- Insert function permits tape monitoring in record-ready mode to facilitate punch-in
- Pitch Control (±12%)
- Standard 19" rack mountable

OPTIONAL ACCESSORIES:

- MTS-1000 MIDiiZER (for external synchronization)
- RC-88 Transport Remote Control
- RC-30P Punch In/Out Footswitch

T2640MS / 2S

CASSETTE DUPLICATOR



SPECIFICATIONS

Configuration:
- T-2640/MS: Master x 1, Slave x 1
- T-2640/2S: Slave x 2

Track Format: 4 Track, 4 Channel
Copy Speed: 15 IPS (8x normal)
Overall Freq. Response:
- 50 Hz - 10 kHz (± 3 dB)
- 40 Hz - 12.5 kHz (+3 dB, -4 dB)

S/N Ratio: >45 dB (WTD)
Distortion: <2.0% (315 Hz, ref. lvl.)
Crosstalk:
- 50 dB (between tracks)
- 35 dB (between channels)

Wow & Flutter: 0.09% (WTD)

WEIGHT: 24-1/4 LBS. DIMENSIONS: W: 13-1/8" X H: 5-1/2" X D: 14-7/8"

The T-2640 high speed cassette duplicators are perfect for producing high quality music cassettes. Copy speed is 8 : 1, but because of the capability to record all 4 tracks in one pass the "copy ratio" is actually 16 : 1. The T-2640 series are designed to deliver high performance with minimum maintenance under constant professional use, with easy plug-in amplifier circuit boards, and ball bearings on all rotating parts.

FEATURES:

- Normal or Chrome cassettes up to C-90
- FG Servo DC direct drive capstan motor
- 3 direct drive brushless DC motors
- Master deck pitch control (± 3%)
- Built-in monitor speaker and level control (MS only)
- Playback level of master deck can be adjusted for each track, and monitored by VU meter
- Automatic rewind switch on master deck
- Automatic stop on slave deck synced to master deck
- Up to ten 2S decks may be slaved to each MS deck

OPTIONAL ACCESSORIES:

- TRC Recorder Cleaning Kit

BR-20T

PRODUCTION RECORDER

SPECIFICATIONS

Tape: 1/4", 1.5 mil
Track Format: 2-track plus Center Timecode Track
Maximum Reel Size: 10.5" (NAB)
Tape Speed: 7.5 IPS / 15 IPS
Head Configuration:
- 3 (ERASE, REC/SYNC, REPRO)

Frequency Response (15 IPS):
- 35 Hz - 22 kHz (± 2 dB @ 0 VU)

Total Harmonic Distortion:
- 0.8% (0 VU, 1 kHz)

S/N: 71 dB (NAB A WTD)
Channel Separation:
- < 60 dB @ 1 kHz

WEIGHT: 44 LBS DIMENSIONS: W: 19" X H: 17-1/2" X D: 7-1/16"

The BR-20T offers the same professional quality and performance as the BR-20, with the addition of a center timecode track, for professional users who require timecode synchronization. Its in-line head configuration and timecode waveform optimization system eliminate the need for internal delay circuits and timecode level monitoring and adjustments, and assure error-free sync and control operation.

FEATURES:

- Balanced XLR and unbalanced RCA inputs and outputs
- Independent left and right reel size selectors, record function switches, and monitor selector
- Pitch control (± 12%)
- Parallel port for synchronizer control
- Gapless punch in/out
- Spot erase
- Headphone monitoring
- Built-in rack mount ears

OPTIONAL ACCESSORIES:

- MA-20 Internal Microphone Kit
- RC-402 Remote Control

BR-20
BROADCAST RECORDER

SPECIFICATIONS

Tape: 1/4", 1.5 mil
Track Format: 2-track, 2 Channel
Maximum Reel Size: 10.5" (NAB)
Tape Speed: 7.5 IPS / 15 IPS
Head Configuration:
3 (ERASE, REC/SYNC, REPRO)
Frequency Response (15 IPS):
35 Hz - 22 kHz (± 2 dB @ 0 VU)
Total Harmonic Distortion:
0.8% (0 VU, 1 kHz)
Signal-to-Noise Ratio:
71 dB (NAB A WTD)
Channel Separation:
< 60 dB @ 1 kHz

WEIGHT: 44 LBS DIMENSIONS: W: 19" X H: 17-1/2" X D: 7-1/16"

The BR-20 is designed for the professional user who requires 2-track analog recording for broadcast and production applications. The transport has a precision tension servo control system for reliable operation, accurate real time counter readings and smooth manual editing performance. State of the art microprocessor control allows accurate location of up to 3 preset cue points plus zero, as well as direct time location.

FEATURES:

- Balanced XLR and unbalanced RCA inputs and outputs
- Independent left and right reel size selectors, record function switches, and monitor selector
- Pitch control (± 12%)
- Fader-start capability via Accessory 1 port
- Internal monitor speaker
- Headphone monitoring
- Quick cue with auto repeat

OPTIONAL ACCESSORIES:

- MA-20 Internal Microphone Kit
- RC-402 Remote Control

DA-30
RDAT RECORDER

SPECIFICATIONS

Quantization Bit: 16 bit linear
Sampling Rate:
48 kHz (play/record)
44.1 kHz (play/record)
32 kHz (play, record from digital inputs)
Frequency Response (record):
1 Hz - 22 kHz ± 0.5 dB
Signal to Noise Ratio: > 94 dB
Total Harmonic Distortion:
< .004% (1 Hz)
Channel Separation:
> 94 dB (1 kHz)
Wow & Flutter: < .001%

WEIGHT: 21 LBS. DIMENSIONS: W: 19" X H: 5-1/4" X D: 13-3/4"

The DA-30 RDAT recorder is ideal for professional digital mastering applications. It combines high tech, high quality A/D convertors using 64x oversampling Delta Sigma modulation, with 18 bit 8x oversampling D/A convertors to deliver the industry acknowledged "best sounding DAT". The DA 30 can also directly interact with other professional digital equipment via the AES/EBU interface.

FEATURES:

- AES/EBU digital interface bypasses copy prohibit code
- Consumer type coaxial digital inputs and outputs
- + 4 dBm XLR balanced analog inputs and outputs
- -10 dBV RCA inputs and outputs
- Independent left and right A/D and D/A convertors
- Wired remote control controls all functions, including numeric keys for direct search and playback
- 15 pin parallel I/O port allows external transport control
- 3x normal speed cue and review; 9x search
- Standard 19" rack mountable

OPTIONAL ACCESSORIES:

- TASCAM Headphones (THP-110, THP-220, THP-400)
- TASCAM Low Capacitance Cables

CD-301
CD PLAYER

SPECIFICATIONS

Disc: 8 or 12 cm CD
Quantization: 18 bit
Oversampling: 4x
Frequency Response:
20 Hz - 20 kHz ± 0.5 dB
Signal-to-Noise Ratio:
105 dB (IHF WTD)
Distortion:
0.003% (@1 kHz, max level)
Audio Rise Time: 0.3 seconds

WEIGHT: 11-1/8 LBS DIMENSIONS: W: 19" X H: 4-3/8" X D: 10-11/16"

Designed for professionals with limited budgets who in the past would have been forced to settle for consumer CD players, the CD-301 is ideal for use in studio, radio and disco environments. Economy-minded users can now enjoy pro-quality reliability and precise playback capability. The single play option, which automatically stops playback at the end of a song, allows DJs to concentrate on voice-overs or to make a clean start for the next track. The link function permits hookup of two CD-301s for automatic back-and-forth sequential play.

FEATURES:

- Balanced XLR and unbalanced RCA audio outputs
- Hard-wired 10-key remote control
- 20-program memory
- Single-play function
- Link function
- Center-drawer design
- Standard 19" rack mountable

OPTIONAL ACCESSORIES:

- TASCAM Low Capacitance Cables

34B
OPEN REEL RECORDER

SPECIFICATIONS

Tape: 1/4", 1.5 mil
Track Format: 4-Track, 4-channel
Maximum Reel Size: 10-1/2" (NAB)
Head Configuration:
3 (Erase, Rec/Sync, Repro)
Tape Speed: 7-1/2 IPS & 15 IPS
Freq. Response (±3 dB, 0 VU):
40 Hz - 22 kHz @ 15 IPS
S/N (A WTD):
68 dB @ 15 IPS
66 dB @ 7-1/2 IPS
Crosstalk:
Better than 50 dB down @ 1 kHz
Erasure: Better than 65 dB @ 1 kHz

WEIGHT: 44 LBS DIMENSIONS: W: 16-3/16" X H: 18-3/16" X D: 10-1/8"

The 34B is a professional 4-track recorder particularly well suited for audio-for-video and multimedia production. Sync playback response equal to repro response means no loss of sound quality during ping-pong operation. Unlike cassette 4-tracks, long performances (up to 1 hour at 7-1/2 IPS) and tape splice editing are possible.

FEATURES:

- Digital tape counter with Zero Return function
- Pitch control (±12%)
- Bipolar power supply
- FG servo DC capstan motor & 2 slotless DC reel motors
- Microprocessor-controlled full logic transport
- Dump Edit function
- Mic input with switchable 20 dB pad on each channel
- Input and Output level controls on each channel
- Precision VU meters

OPTIONAL ACCESSORIES:

- RC-71F Remote Transport Control Unit
- RC-30P Remote Punch In/Out Footswitch
- RM-300 Rack Mount Kit
- DX-4D dbx Unit

32
OPEN REEL RECORDER

SPECIFICATIONS

Tape: 1/4", 1.5 mil
Track Format: 2-Track, 2-channel
Maximum Reel Size: 10-1/2" (NAB)
Head Configuration:
3 (Erase, Rec/Sync, Repro)
Tape Speed: 7-1/2 IPS & 15 IPS
Freq. Response (±3 dB, 0 VU):
40 Hz - 22 kHz @ 15 IPS
S/N (A WTD):
68 dB @ 15 IPS
66 dB @ 7-1/2 IPS
Adjacent Channel Crosstalk:
Better than 50 dB down (1 kHz)
Erasure: Better than 65 dB @ 1 kHz

WEIGHT: 44 LBS DIMENSIONS: W: 16-3/16" X H: 18-3/16" X D: 10-1/8"

The Model 32 is a workhorse analog 1/2-track mastering recorder, designed for professional production work. Two slotless DC reel motors and a durable FG servo DC capstan motor ensure fast, gentle tape handling with minimal wow and flutter.

FEATURES:

- Digital tape counter with Zero Return function
- Pitch control (±12%)
- Bipolar power supply
- Microprocessor controlled full logic transport
- Dump Edit function
- Mic input with switchable 20 dB pad on each channel
- Input and Output level controls on each channel
- Headphone jack with level control
- Precision VU meters

OPTIONAL ACCESSORIES:

- RC-71F Remote Transport Control Unit
- RC-30P Remote Punch In/Out Footswitch
- CS-607B 19" EIA Standard Console
- RM-300 Rack Mount Kit
- DX-2D dbx Unit

CD-401
CD PLAYER

SPECIFICATIONS

Disc: 8 or 12 cm CD
Oversampling: 4x
Frequency Response:
20 Hz - 20 kHz (+0.5/-1 dB)
Signal-to-Noise Ratio:
96 dB (IHF A WTD)
Distortion: 0.008% (1 kHz max.)
Access Time: Less than 2 seconds
Audio Rise Time:
0.3 seconds maximum

WEIGHT: 17-5/8 LBS DIMENSIONS: W: 19" X H: 3-7/16" X D: 11"

The CD-401 is an economical high-performance CD player designed for the professional recording, production, or broadcast studio environment. The special ZD circuit ensures that sound quality meets the most demanding standards. A fader-start feature allows play to start automatically on fade-in and stop at the completion of a fade out.

FEATURES:

- Balanced XLR and unbalanced RCA audio outputs
- Digital output (CD-DAT Protocol)
- 20-selection music calendar
- 4-mode time counter functions
- 4-mode repeat functions
- Fader-start function
- Index search function
- Auto space function
- Music skip function
- Standard 19" rack mountable

OPTIONAL ACCESSORIES:

- RC-401 Wired or Wireless Remote Control
- TASCAM Low Capacitance Cables

CD-701
CD PLAYER

SPECIFICATIONS

Disc: 8 or 12 cm CD
Quantization: 16 bit linear
Sampling Frequency: 44.1 kHz
Frequency Response:
20 Hz - 20 kHz (+0 dB, -1 dB)
S/N Ratio: 96 dB (1HF A WTD)
Distortion: .008% (1 kHz)
Channel Separation: 90 dB (1 kHz)
Access Time: less than 2 seconds
Pitch Control (RC-701/601): ± 6%
Search Accuracy (RC-701/601):
1 frame (13.3 msec)

CD-701 WEIGHT: 21 LBS. DIMENSIONS: W: 8-3/4" X H: 4-3/4" X D: 19-1/4"

The CD-701 is designed to stand up to demanding radio broadcast and audio production applications, with a unique vibration-free rigid disk clamping system that eliminates tracking errors. Its sweet-sounding ZD circuit reduces low level distortion to audiophile standards. With the optional RAM buffer, creative DJs can use sample-looping functions to create their own custom "house mixes".

FEATURES:

- 4x oversampling digital filter & 16 bit D/A convertors
- +4 dBm balanced line outputs
- Phones/Monitor jack for headphones or line feed
- Precision cueing control & auto cue function
- Link playback capability for two or more player units
- Fader start facility

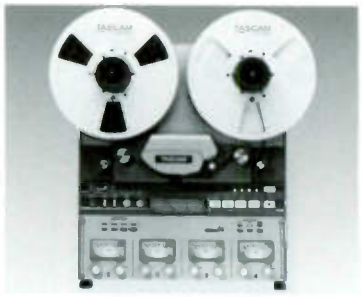
OPTIONAL ACCESSORIES:

- RM-701 Rack Mount Shelf
- PW-5CD Connection Cable (one supplied with system)
- BU-1 RAM Buffer for instantaneous startup and seamless looping.

44-OB
OPEN REEL RECORDER

SPECIFICATIONS

Tape: 1/4 inch, 1.5 mil
Track Format: 4 Track, 4 Channel
Reel Size: 10-1/2 inch NAB/EIA Hub
Heads: 3 (Erase, Record, Repro)
Tape Speed: 7-1/2 IPS & 15 IPS
Pitch Control: ± 12%
Ins/Outs: -10 dBV (unbalanced)
& +4 dBm (balanced XLR)
Freq. Resp. (record/repro)
7-1/2 IPS: 40 Hz - 16 kHz (±2)
15 IPS: 40 Hz - 20 kHz (±3)
Signal to Noise Ratio (15 IPS):
69 dB (A WTD)
Crosstalk (1 kHz, 0 VU): >55 dB



WEIGHT: 75 LBS DIMENSIONS: W: 17" X H: 19-7/8" X D: 12-7/16"

The 44-OB is designed for the user who requires a 4-track with SMPTE capability and 1/4" tape economy. This cost effective format has become the standard for multi-image mastering and presentation, and has been gaining popularity as a 4-track mastering deck in video productions utilizing SMPTE synchronization.

FEATURES:

- Balanced (+4 dBm, XLR) & unbalanced (-10 dBv RCA) inputs and outputs for easy interface
- Sync playback response equals repro response
- 24 dB of headroom ensures low distortion
- Full servo system for precise tape control
- Capstan driving back of tape eliminates drop out
- Manual and dump edit modes
- Parallel port for control from SMPTE based synchronizers such as the ES-50

OPTIONAL ACCESSORIES:

- AQ-65C 10 Point Autolocator
- RC-71F Transport Remote Control
- DX-4D 4 Channel dbx Type 1 Noise Reduction
- RM-501 Rack Ears

22-2/22-4
OPEN REEL RECORDER

SPECIFICATIONS

Tape: 1/4 inch, 1.5 mil
Track Format:
22-2: 2-track, 2-channel
22-4: 4-track, 4-channel
Reel Size: 7"
Heads:
22-2: 3 (Erase, Record, Repro)
22-4: 3 (Erase, Rec/Sync, Repro)
Tape Speed: 7-1/2 IPS & 15 IPS
Freq. Response (±3 dB, 0 VU):
40 Hz - 22 kHz @ 15 IPS
S/N (A WTD @ 15 IPS):
22-2: 68 dB
22-4: 61 dB, 88 dB with dbx

22-2 WEIGHT: 30-3/4 LBS DIMENSIONS: W: 16-1/8" X H: 12-7/8" X D: 9-1/8"
22-4 WEIGHT: 40 LBS DIMENSIONS: W: 16-3/8" X H: 16-1/8" X D: 10-1/4"

The 22-2 and 22-4 have been created specifically for the user who needs the quality and editing capabilities of an open reel machine, but wants the economies of 7" reels. Despite their affordability, the Series 20 machines don't compromise on quality, and in fact, have a great deal in common with more costly multitracks in both features and performance.

FEATURES:

- Front panel 1/4" Microphone jacks and Mic Level controls on the 22-2
- Front panel Headphone jack
- Pitch control (±6%) on 22-4
- Line Input and Output level controls on the 22-4
- Memory (Zero Return) function on the 22-4
- Cueing lever on the 22-4
- Bipolar power supply

OPTIONAL ACCESSORIES:

- DX-4D dbx Noise Reduction Unit for the 22-4
- RC-71F Remote Control Unit for the 22-4
- RM-42 Rack Mount Kit for the 22-4
- RM-22 Rack Mount Kit for the 22-2

REMOTE CONTROL OPTIONS

A CD-701 system can be configured with a choice of three remote controls, depending on the complexity of the system.

RC-701

The RC-701 multi-player control unit lets you link and control up to four CD-701 players, with precise repeatable cueing for production and post-production. Sophisticated functions such as transport automation, pitch control, and link playback are all at your fingertips.

RC-701 WEIGHT: 11 LBS. DIMENSIONS: W: 14-1/2" X H: 4/3/8" X D: 9-7/6"

RC-601

The RC-601 single-player control unit provides all the same advanced functions as the RC-701, plus tape transport-style auto-locate and re-cue functions that are invaluable in post production.

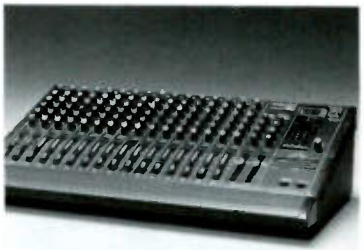
RC-601 WEIGHT: 2-1/2 LBS. DIMENSIONS: W: 8-9/16" X H: 2-5/16" X D: 7-15/16"

RC-7

For less complex applications, the RC-7 offers convenient remote control of basic transport functions (Play, Stop, Pause, Fast Forward, Reverse) for a single CD-701 player. It's the ideal on-air controller.

RC-7 WEIGHT: 2 LBS. DIMENSIONS: W: 8-3/8" X H: 1-1/2" X D: 5-7/8"

MM-1
KEYBOARD MIXER



SPECIFICATIONS

Configuration:
12 Mono, 4 Stereo In / 2 Out
S/N Ratio (UNWTD / IHF A WTD):
16 Mic - Output: 53 dB / 60 dB
1 Mic - Output: 63 dB / 70 dB
16 Line - Output: 70 dB / 77 dB
1 Line - Output: 70 dB / 77 dB
Total Harmonic Distortion:
1 Mic to Output - 0.04%
1 Line to 1 Output - 0.03%
Frequency Response:
20 Hz - 20 kHz (+1 dB / -2 dB)
Crosstalk: > 60 dB (1 kHz)
AC adaptor (PS-M1) supplied

WEIGHT: 11 LBS DIMENSIONS: W: 19" X H: 5" X D: 10-3/8"

The MM-1 mixer has been designed expressly for the multi-keyboardist, but is packed with outstanding features that make it appropriate for sound reinforcement, recording and production applications. It has a small compact design for stage or studio use, EQ on all channels for fine tuning, and MIDI-controllable channel muting to eliminate unwanted noise, programmable in real time via sequencer. Most of all, it offers the multi-keyboardist lots of inputs, so no forced layering is needed in the recording process.

FEATURES:

- Four effects sends with stereo returns
- Pan (mono inputs) and Balance (stereo inputs) controls
- 99 mute "scenes" can be recalled via panel controls, footswitch, or MIDI
- MIDI IN, OUT, and THRU jacks
- Headphone jack with level control
- Removable arm-rest pad
- Table-top or rack mount installation

OPTIONAL ACCESSORIES:

- RC-60P Dual Remote Footswitch for scene switching

The M700 is a professional recording console, designed for the studio owner/producer who will accept no less than superior quality and performance, but has a limited amount of space for installation. It will handle the most sophisticated recording and production tasks with extraordinary flexibility and ease of use. The "In-line" configuration provides two signal paths in each "Input/Output" module, for maximum input capacity in relation to console size.

FEATURES:

- 32 Group output and Quad mix busses
- 2 stereo and 8 mono Aux send busses
- Variable HPF (30 Hz - 300 Hz, 12 dB/oct)
- EQ assignable to Channel or Monitor signal path
- Channel and Monitor FLIP switches swap Channel mic/line and Monitor source/return signals
- I/O module Fader Reverse switches swap Large and Small fader functions
- Post/pre-EQ switchable Insert points
- Aux Send pairs can be switched Pre or Post
- Switchable in-place or AFL/PFL solo modes
- Solo Defeat switches prevent signals sent to quad outputs from being removed when other signals are soloed
- Master Console Mode switches (REC, PB, MIX) provide eight Channel input, Monitor input, Group input and Meter input global presets
- Three Mute Groups
- Flexible control room/studio communication facilities
- Integral patch bay

OPTIONAL ACCESSORIES:

- PW-100M Superflex Cable
- TTB Kit Telephone Tie Block
- TTB Tool Tie Block Tool

M700
STUDIO MIXER

SPECIFICATIONS

Configuration: 40 In / 40 Out (In-Line)
Equalization:
HF: 1.6 kHz - 20 kHz, HMF: 300 Hz - 6 kHz, LMF: 80 Hz - 1.6 kHz, LF: 30 Hz - 350 Hz
Fader Attenuation: Better than 90 dB
Maximum Gain: +98 dB (MIC to QUAD Output)
Internal Headroom: 24 dB
Frequency Response: 20 Hz - 20 kHz (+0 / -2 dB)
Total Harmonic Distortion: 0.05%
Signal-to-Noise Ratio (DIN AUDIO, 1 LINE Input to GRP Output): Better than 85 dB
Crosstalk: Less than -60 dB @ 1 kHz

WEIGHT: 707 LBS DIMENSIONS: W: 92" X H: 41-1/16" X D: 44-1/2"

M1016/M1024
STAGE MIXER

SPECIFICATIONS

Configuration:
8/16 mono, 4 stereo In / 2 Out
EIN: -129 dB (DIN)
Signal to Noise Ratio:
1 Mic-Stereo Out: 66 dB (DIN)
1 Line-Stereo Out: 72 dB (DIN)
Total Harmonic Distortion:
1 Mic-Stereo Out: 0.04% (1 kHz)
1 Line-Stereo Out: 0.03% (1 kHz)
Frequency Response:
20 Hz - 20 kHz (+1 dB/-2 dB)
Crosstalk: > 60 dB (1 kHz)
EQ (Hi/Mid/Low): 10 kHz ±12 dB/
5k-250 Hz ±15 dB/100 Hz ± 12 dB

M1016 WEIGHT: 22-1/16 LBS DIMENSIONS: W: 19" X H: 17-5/16" X D: 6"
M1024 WEIGHT: 29-3/4 LBS DIMENSIONS: W: 26-1/8" X H: 20-3/8" X D: 5-3/16"

The M1016 and M1024 stage mixers are ideal for a wide range of live applications such as PA, sound reinforcement, and MIDI keyboard mixing. Both models have a combination of mono and stereo input channels, and offer clean, transparent sound. Designed for easy integration into just about any type of sound system, they are compact and portable, and the M1016 comes with rack mounting rails.

FEATURES:

- Balanced XLR and unbalanced 1/4" inputs on mono channels, independent left and right 1/4" inputs on stereo channels
- Balanced XLR and unbalanced 1/4" stereo outputs
- Switchable phantom power for microphone inputs
- 2 Aux and 4 Effect sends
- 2 mono and 4 stereo Effect returns
- Dual headphone jacks with level control
- Aux 1 and 2, and stereo Sub inputs (RCA)
- Insert patch points on mono channels
- 12-segment left and right LED peak meters

OPTIONAL ACCESSORIES:

- CS1016 Wood End Panel for M1016

M06/M06ST
COMPACT MIXER

SPECIFICATIONS

Configuration: 6 In/2 Out
Equivalent Input Noise:
109 dB (20 Hz - 20 kHz)
Signal to Noise Ratio:
6 Mic-L/R Out: -51 dB (WTD)
6 Line-L/R Out: -78 dB (WTD)
Total Harmonic Distortion:
Mic - 0.03% (PGM/ST out)
Line - 0.025% (All Out)
Frequency Response:
20 Hz - 20 kHz (+1 dB/-2 dB)
Crosstalk: > 60 dB (1 kHz)

M-06 WEIGHT: 5-3/4 LBS DIMENSIONS: W: 13-1/8" X H: 3-7/16" X D: 11-1/4"
M-06ST WEIGHT: 6-5/8 LBS DIMENSIONS: W: 13-1/8" X H: 3-7/16" X D: 11-1/4"

The M06 and M06ST mixers are an excellent choice where a convenient, small mixer for recording, PA, or keyboard is needed. They are simple, flexible and affordable. The M06 offers standard mono inputs, while the M06ST has stereo inputs, ideal for discos, multi-image presentations, commercial sound installations or other applications that require mixing and processing a number of stereo audio sources.

FEATURES:

- Hi and Low EQ on each channel
- Left and Right VU meters
- Pan (M06) or Balance (M06ST) controls
- 1/4" mic and RCA line inputs
- Phono inputs for direct connection with turntables
- 1/4" and RCA stereo outputs
- Effects send (M06) or Cue (M06ST)
- Two 1/4" headphone jacks

OPTIONAL ACCESSORIES:

- PA-4 Phono Amplifier
- 109B Input Transformer
- PE-50 Cardioid Microphone

The M600 Series of high-performance mixing consoles are designed for the professional multitrack recording environment. They offer broad mixing control with excellent sound quality and reliability, yet are remarkably compact and easy to use. 16 to 32 input channel versions are available, with a choice of 16 or 32 monitor returns for compatibility with 16, 24, or 32-track recorders. Optional stereo input modules are available for applications requiring extensive processing of stereo signals.

FEATURES:

- All inputs and outputs except Direct Out are balanced
- 8 AUX send busses fed from the input and monitor channels for effects, cue or other auxiliary submixes
- Effect returns assignable to the program, stereo and AUX 1 & 2 busses
- Insert patch points on all inputs, all PGM busses and the stereo master buss
- Fader Reverse on the monitor returns assigns the master faders to the monitor channels
- Comprehensive PFL/SOLO system for monitoring
- Talkback/slate channel with built-in microphone and 4 frequency oscillator, assignable to PGM or AUX busses
- Control-room monitoring system permits selection to master stereo buss, AUX busses, 3 2-track recorders and solo/PFL busses
- Automation ready
- Separate fan-cooled power supply

OPTIONAL ACCESSORIES:

- PB-664 Patch Bay
- CS-664 Producer's Desk/Rack Mount Space
- CS-632 Pedestal
- CS-633 Top Board

M600 SERIES
STUDIO MIXER

SPECIFICATIONS

Configurations:
16 to 32 In (mono or stereo) / 16 Out / 16 or 32 Monitor Returns
EQ (Standard Input Channel, ± 15 dB):
HIGH: 10 kHz shelving, HI-MID: 420 Hz - 13 kHz,
LO-MID: 42 Hz - 1.3 kHz, LOW: 100 Hz shelving
EQ (Stereo Input Channel, ± 15 dB):
HIGH: 10 kHz, MID: 1 kHz, LOW: 100 Hz
Fader Attenuation: Better than 90 dB
Signal-to-Noise Ratio (IHF A WTD):
24 MIC In to PGM Out - 58 dB
1 LINE In to GRP Out - 88 dB
Total Harmonic Distortion (MIC or LINE to PGM Out @ 1 kHz): Less than 0.015%
Intermodulation Distortion: Less than 0.03%
Frequency Response: 20 Hz - 20 kHz (+0.5 dB / -1.5 dB, MIC or LINE In to GRP Out)
Crosstalk: Better than 60 dB (@ 1 kHz)

WEIGHT: 265 LBS. DIMENSIONS: W: 86-3/4" X H: 20-5/8" X D: 12-7/16"

M106
COMPACT MIXER

SPECIFICATIONS

Configuration: 6 In / 4 Out
Frequency Response:
20 Hz - 30 kHz (+1 dB / -1.5 dB)
Equivalent Input Noise:
-132 dB ("A" WTD)
S/N Ratio ("A" WTD, to 1 PGM out):
1 Mic: 70 dB
6 Mics: 62 dB
1 Line: 89 dB
6 Lines: 83 dB
Total Harmonic Distortion (1 kHz):
1 Mic to 1 PGM out: 0.03%
1 Line to 1 PGM out: 0.01%
Crosstalk: > 60 dB

WEIGHT: 15-3/8 LBS DIMENSIONS: W: 15-3/4" X H: 5-5/16" X D: 15-3/4"

The M106 is perfect for the small recording studio because of its alternative inputs and outputs, monitoring and cue capabilities. The ability to mix 3 to 6 source machines and combine that with other audio is invaluable in video post production and audio sweetening. 4 phono inputs and 4 program outputs are ideal for disco and multi-image work.

FEATURES:

- Six 1/4" mic and RCA line inputs, four RCA phono inputs
- One 1/4" & two RCA jacks per four main PGM outputs
- Insert and Direct Out jacks on each channel
- 2-band shelving type EQ on each channel
- 6 position Monitor Select switch
- Aux can be used as an independent line monitor
- True 4-buss operation from four Program Buss outputs plus outputs and master controls for Aux and Effects
- Effect Send and assignable Effect Return
- Sub In jacks for connection of external mixers

OPTIONAL ACCESSORIES:

- RM-106 Rack Mount Kit
- 109-B Mic Input Transformer

M200 SERIES
STUDIO MIXER

SPECIFICATIONS

Configuration: 8/16/24 In / 4 Out
Equivalent Input Noise:
-130 dB (IHF A WTD)
S/N (IHF A WTD):
8 Mic to PGM out: 62 dB
1 Line to PGM out: 83 dB
8 Line to PGM out: 74 dB
1 Line to STEREO out: 81 db
THD (20 Hz - 20 kHz):
Mic In to PGM out: 0.03%
Line In to PGM out: 0.025%
Frequency Response:
20 Hz - 20 kHz (+1 dB/-2 dB)
Crosstalk: > 60 dB (1 kHz)

M208 WEIGHT: 18-3/4 LBS DIMENSIONS: W: 17-3/8" X H: 5-3/16" X D: 16-3/4"
M216 WEIGHT: 26-7/16 LBS DIMENSIONS: W: 25-9/16" X H: 5-3/16" X D: 16-3/4"
M224 WEIGHT: 34-3/16 LBS DIMENSIONS: W: 33-3/4" X H: 5-3/16" X D: 16-3/4"

The M200 series mixers are truly multi-purpose, and they have been designed to provide the highest degree of adaptability for a wide range of audio applications, such as sound reinforcement, small studio recording, video sweetening bays, keyboard mixing, and live onstage mixing.

FEATURES:

- XLR mic and 1/4" line inputs
- 8 (M208/216) or 16 (M224) Tape returns
- XLR & RCA PGM outputs, XLR & 1/4" STEREO outputs
- Foldback, effects, and PFL in each channel
- 4 Program busses with Master fader and pan control
- 3-band EQ with midrange sweep
- Two pannable Effect Returns, plus channel insert jacks
- LED Overload Indicators on each channel
- Switchable VU meters with peak level indicators

OPTIONAL ACCESSORIES:

- PA-4 Phono Amplifier
- RM-208 Rack Mount Kit for M208

The M3700 Series automated mixing consoles offer a level of performance unmatched in this class. Uncompromising sound quality and mixing flexibility are just the beginning. An on-board computer provides precise automation of VCA fader level, channel mute, auxilliary mute, monitor mute, and EQ on & off. Data can be saved to the internal disc drive in both real time and snapshot mode. An on-board SMPTE reader/generator as well as MIDI IN, OUT and THRU ports allow easy integration in any system.

FEATURES:

- Snapshot mode provides 99 scenes per file; up to 63 files per disc
- Real time mode provides up to 6 mixes containing a total of 30,000 events per disc
- 8 bit/256 step VCA resolution
- In-line monitor format with linear faders
- Input channels provide 6 AUX sends with 4 send level controls, PFL or stereo in-place solo facilities, and mute switches for channel, monitor and AUX 5 & 6
- 8 bar-graph meters with select switches for group/tape return monitoring, plus 2 VU meters on stereo returns
- Talkback facility
- Balanced XLR stereo outputs and 2TR inputs
- Built-in 5-frequency oscillators
- Insertion point on each channel, stereo and group buss
- Control room section provides Monitor select switches, Solo switch, Dim switch, Mono switch and Level control
- Studio section provides Control room or Stereo monitor select switches, Mono switch, On/Off switch and independent Phones and Studio level controls

OPTIONAL ACCESSORIES:

- LA-3500 Balanced Circuit Kit
- MU-3524/3532 Meter Extension Bridge
- CS-3524/3532 Pedestal

M3700 SERIES
AUTOMATED STUDIO MIXER

SPECIFICATIONS

Configurations:
- M3700-24: 24 In / 8 Group / 24 Monitor
- M3700-32: 32 In / 8 Group / 32 Monitor
- M3700-24ST: 24 Mono, 8 Stereo In / 8 Group / 24 Monitor

EQ (Standard Input Channel):
- HIGH: 10 kHz, HI-MID: 420 Hz - 13 kHz, LO-MID: 42 Hz - 1.3 kHz, LOW: 100 Hz

EQ (Stereo Input Channel):
- HIGH: 10 kHz, MID: 1 kHz, LOW: 100 Hz

Fader Attenuation: Better than 90 dB (1 kHz)
Signal-to-Noise Ratio (DIN AUDIO): Better than 82 dB (1 Line In to Group Out)
Total Harmonic Distortion (20 Hz - 20 kHz):
- 0.08% (1 Mic In to Group Out)
- 0.06% (1 Line In to Group Out)

Frequency Response: 20 Hz - 20 kHz (+0.5/-1.5 dB, Mic or Line In to Group Out)
Crosstalk: Better than 60 dB (10 kHz)

24 FRAME WEIGHT: 133 LBS DIMENSIONS: W: 44-1/8" X H: 12" X D: 37-1/2"
32 FRAME WEIGHT: 155 LBS. DIMENSIONS: W: 53-5/8" X H: 12" X D: 37-1/2"
POWER UNIT WEIGHT: 30 LBS. DIMENSIONS: W: 19" X H: 5-3/4" X D: 14-5/8"

M2500 SERIES
STUDIO MIXER

SPECIFICATIONS

Configurations:
- **M2524**
  24 in/8 groups/24 monitor chan.
- **M2516**
  16 in/8 groups/16 monitor chan.

Equivalent Input Noise:
- -130 dB (IHF "A" WTD)

Signal to Noise Ratio:
- 79 dB/81 dB (1 Line to Grp out)

Total Harmonic Distortion:
- Less than 0.025% (@ 1 kHz)

Frequency Response:
- 20 Hz - 20 kHz (+0.5 dB/-2 dB)

Crosstalk: > 65 dB (@ 1 kHz)

M2524 WEIGHT: 57-3/16 LBS. DIMENSIONS: W: 39-5/16" X H: 6-1/4" X D: 25-1/4"
M2516 WEIGHT: 44 LBS. DIMENSIONS: W: 30-1/2" X H: 6-1/4" X D: 25-1/4"

The M2500 series mixers are designed to complement the new state-of-the-art 8, 16 and 24-track recorders in professional studio installations where space is extremely limited, but no-compromise quality is the overriding consideration. The in-line monitor configuration with Flip function effectively doubles the number of available input channels. With MIDI automated channel muting and snapshot scene memory, both models offer an amazing amount of high-powered mixing flexibility.

FEATURES:

- XLR mic, 1/4" line, and RCA tape channel inputs
- Channel Direct Out and Insert jacks
- Sub L & R, Ext In L & R, and 2-track In L & R inputs
- Stereo XLR & 1/4", 8 Group, Studio L & R, and Control Room L & R outputs
- 4 Auxilliary outputs
- 2 stereo, 2 mono effect returns
- MIDI In, Out, and Thru jacks
- 100 mm linear faders

OPTIONAL ACCESSORIES:

- RC-30P footswitch (to change channel mute scenes)

M3500 SERIES
STUDIO MIXER

The M3500 Series mixing consoles are designed to meet the requirements of the most demanding studio owner/producer. These consoles set the new standard for versatility and performance in this class. The M3500's are an ideal match for the newest generation of TASCAM multitrack recorders such as the TSR-8, MSR-16, and MSR-24. All configurations have 8 Group busses and an "In-Line" monitor system that effectively doubles input capacity.

SPECIFICATIONS

Configurations:
M3500-24: 24 In / 8 Group / 24 Monitor
M3500-32: 32 In / 8 Group / 32 Monitor
M3500-24ST: 24 Mono, 8 Stereo In / 8 Group / 24 Monitor
EQ (Standard Input Channel):
HIGH: 10 kHz, HI-MID: 420 Hz - 13 kHz, LO-MID: 42 Hz - 1.3 kHz, LOW: 100 Hz
EQ (Stereo Input Channel):
HIGH: 10 kHz, MID: 1 kHz, LOW: 100 Hz
Fader Attenuation: Better than 90 dB (1 kHz)
Signal-to-Noise Ratio (DIN AUDIO): Better than 82 dB (1 Line In to Group Out)
Total Harmonic Distortion (20 Hz - 20 kHz):
0.08% (1 Mic In to Group Out)
0.06% (1 Line In to Group Out)
Frequency Response: 20 Hz - 20 kHz (+0.5/-1.5 dB, Mic or Line In to Group Out)
Crosstalk: Better than 60 dB (10 kHz)

24 FRAME WEIGHT: 133 LBS DIMENSIONS: W: 44-1/8" X H: 12" X D: 37-1/2"
32 FRAME WEIGHT: 155 LBS. DIMENSIONS: W: 53-5/8" X H: 12" X D: 37-1/2"
POWER UNIT WEIGHT: 30 LBS. DIMENSIONS: W: 19" X H: 5-3/4" X D: 14-5/8"

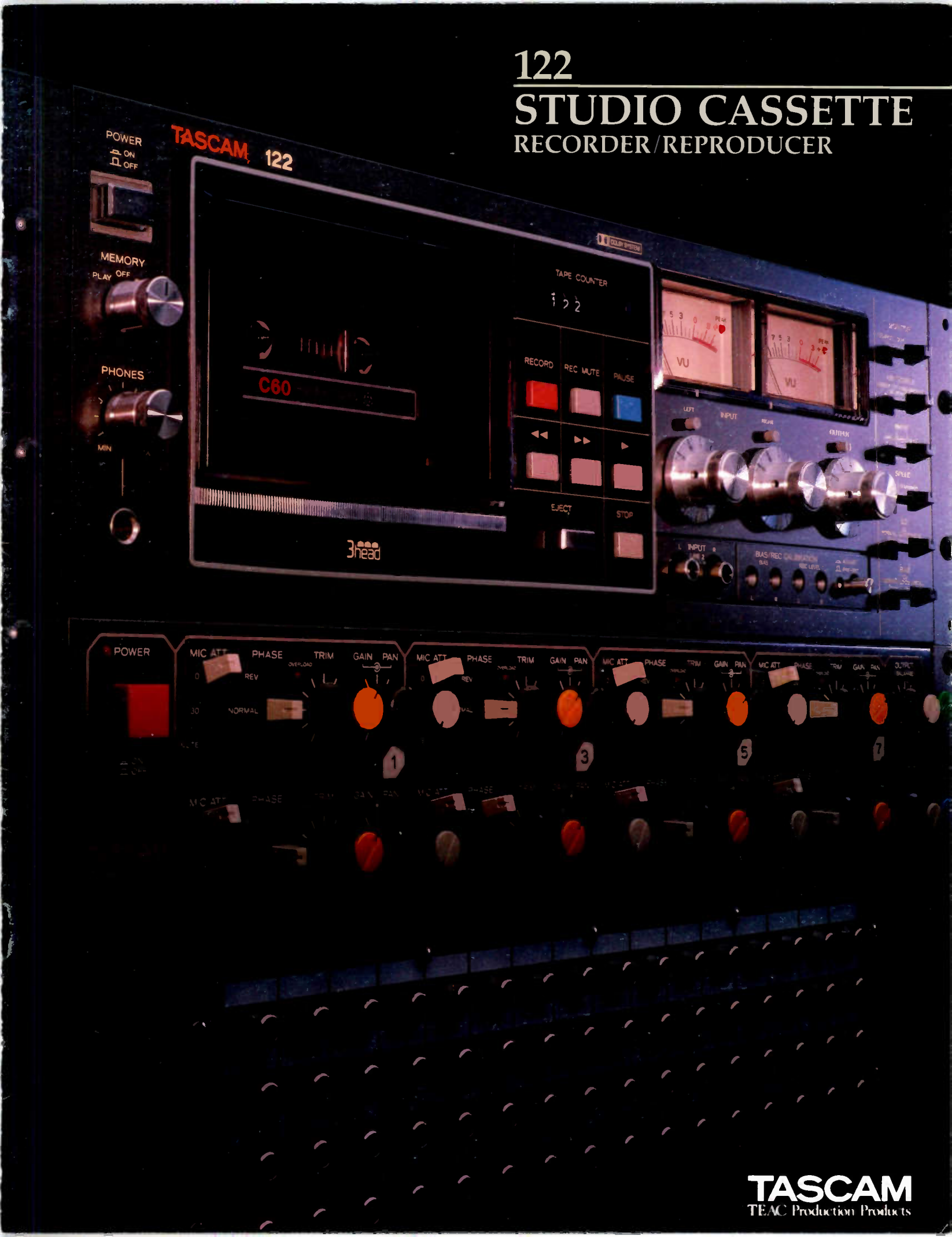
FEATURES:

- In-line monitor format with linear faders
- Flip function swaps monitor input source (normally tape) with channel input source (normally mic/line)
- Input channels provide 6 AUX sends with 4 send level controls, PFL or stereo in-place solo facilities, and mute switches for channel, monitor and AUX 5 & 6
- 8 bar-graph meters with select switches for group/tape return monitoring, plus 2 VU meters on stereo returns
- Talkback facility
- Balanced XLR stereo outputs and 2TR Inputs
- Built-in 5-frequency oscillators
- Insertion point on each channel, stereo and group buss
- PFL or stereo in-place solo
- Mute switches for Channel, Monitor, and Aux 5 & 6
- Control room section provides Monitor select switches, Solo switch, Dim switch, Mono switch and Level control
- Studio section provides Control room or Stereo monitor select switches, Mono switch, On/Off switch and independent Phones and Studio level controls

OPTIONAL ACCESSORIES:

- LA-3500 Balanced Circuit Kit
- MU-3524/3532 Meter Extension Bridge
- CS-3524/3532 Pedestal

122
STUDIO CASSETTE
RECORDER/REPRODUCER



TASCAM
TEAC Production Products

Reading clockwise, R-61 Data Cassette 4 Track, 244 Portastudio, 124 AV, 133 Multi-Image Master Cassette Deck, and in front, The FD55, a dual sided Double Density, Thin Line 51/4 floppy disc drive.

At TASCAM, our business of providing the tools for Audio production means that our design teams are always expanding the concept of tape, and tape formats. That leads to constant experimentation. At TEAC, we've done a lot with format. Our 30 year engineering heritage now includes just about all formats of data storage and retrieval. Our design teams can deal with any kind of signal you need recorded from D.C. to light! Not tomorrow, not next year, but right now with an "off the shelf" unit. In addition to audio, we manufacture data, digital and computer recorders in all kinds of formats from I.B.M. compatible down to the 5¼ disc drive for micro and mini computers. We have the SR Series ½ inch open reel Instrumentation Recorders in 7, 14 and 21 track formats, and the RC-80 series cassette data recorders in 4 and 7 track formats on a standard cassette! At TEAC, we record light as well. In our current catalogs, we list airborne video recorders for anything that flies, ¾ inch U-matic transports for industry, and the Video recorder for the COLUMBIA spacecraft. We're proud of that one. There aren't very many companies with design teams that can cope with "blast-off" as the normal working environment! Rock and Roll to Rocketry, P.C.M., F.M., Digital, Datapulse, Analog — in all these formats, our products are available *now*.

Our broad experience in solving the problems of so many different applications has taught us to use guidelines that consider more than just the overworked phrase "State of the Art." Spending endless amounts of money on features that are only abstract engineering accomplishments will guarantee that the price will be ridiculous! What we have learned about design in our three decades of building recorders of all kinds is best expressed in one word—Balance.

To achieve that elusive quality of balance that sooner or later will separate the barely adequate tool from the eventual industry standard, you must use common sense as well as technology. At TASCAM, we concentrate on multi-channel audio recorders and mixers for the musician and the multi-image art-

ists. The half size or quarter track tape width applied to multitrack has been developed by us into a world standard. Our work with the cassette has produced some truly unique solutions to industry problems. In the last ten years, TASCAM engineers have expanded the use of the cassette format far beyond the original intent of low fidelity speech dictation and simple convenience.

TASCAM special format audio cassette recorders are now available to do these jobs:

The 244 POSTASTUDIO

Our breakthrough four channel cassette product, a complete self-contained miniature studio of mixer, recorder and more in an 18-pound package.

The 133 STEREO PLUS CUE

The 3 Channel complete production tool for the Multi-Image industry. You can produce a master control tape, stereo sound and sync, and then run the show with its many microprocessor controlled auto-present features.

The 124AV

ANSI standard format cassette recorder/reproducer that makes use of the full width of the tape in "one pass," doubling the track width of the standard phillips stereo format in order to increase fidelity. Each track can be recorded separately, allowing one track "sync" recording for cues or music.

We have received much praise for these innovative products, but along with the cheers, we noticed that there was a minor grumble of discontent.

We had overlooked something basic. *The standard cassette format* is still needed for all the necessary information transfer functions that are essential to the process of creativity. It does these jobs economically and well:

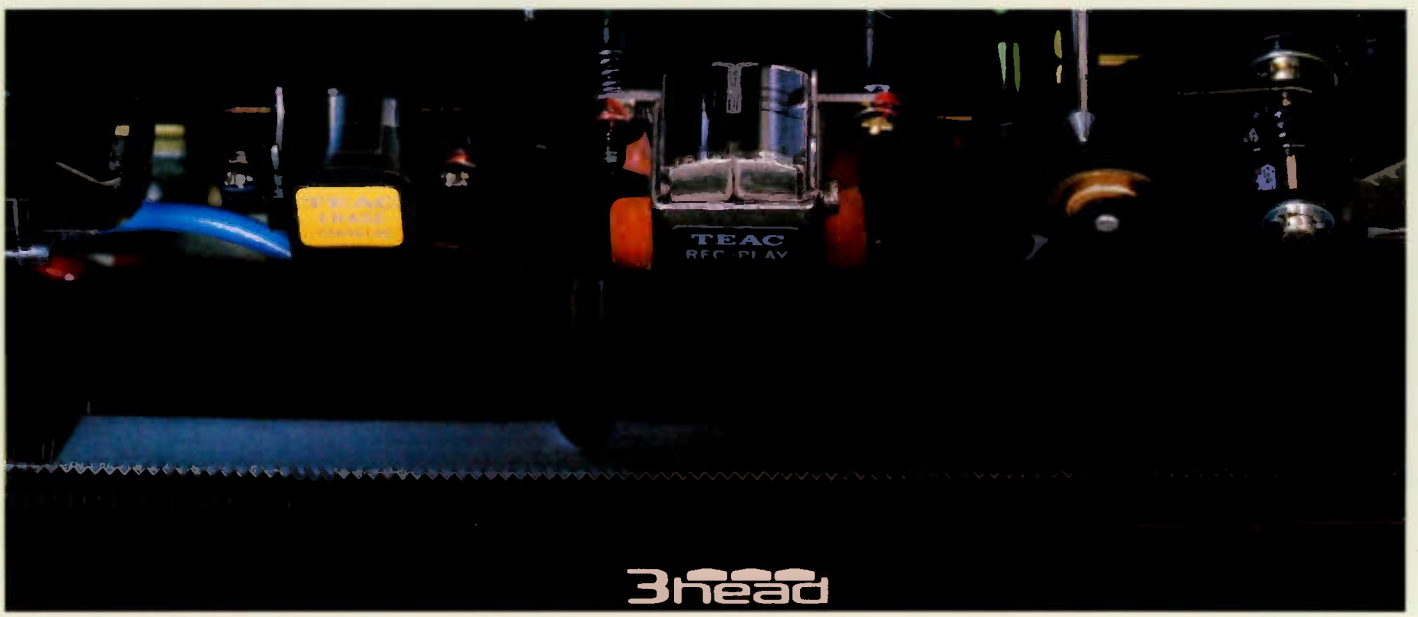
- The producers "dub," the copy of work in progress so essential to writers, musicians and arrangers.
- In advertising and publishing, the cassette has become the accepted final format for the display of finished ideas.
- In Radio, the standard cassette is making inroads on the overworked NAB/Broadcast "cart" format, to play spots and sound effects.

Now with the TASCAM 122, we return to the *Basics* and fill the needs of day-to-day audio production. You said, give us the right tools, equipment designed to solve the problems and we'll do the rest. So that's what we did.

We Built What You Asked For.

You designed the 122. These are features you asked for.

- A Standard Phillips cassette Format recorder/reproducer running at the standard speed 1⅞ IPS. Full compatibility with standard consumer units, so producers and artists can play back dubs on their own equipment. No trick E.Q. No non-standard playback curves or special requirements.
- Next, you asked for Two Speeds (1⅞ + 3¾ I.P.S.). Dual speed operation allows the 122 to be used for several important studio operations in addition to the standard copy function. First, the high quality reference dub is possible, if your clients have two speed playback capability, but there's more. High speed quality means that the 122 can be seriously considered for use as a spot machine in Broadcast, and as an inexpensive "slap" Echo Delay device in multichannel mixdown!
- Three solutions to the noise reduction problem. Both Dolby*B and HX, Head Room Extension, systems are built in. HX is a program adaptive bias technique which increases the head room of typical cassette tape up to 10dB at 10kHz effectively reducing tape saturation. Patch points and logic outputs are provided for the interface and control of our optional RX-8 outboard dbx* unit.



• Three heads, so you can monitor the sound of the tape you are making in the same way as any production recorder. With the 122 you can hear what you are doing. In addition to the monitor function, three heads allow you to perform full professional alignment.
• Along with the pre-set switch selection of E.Q. and bias for three different kinds of tape (Norm, CrO2/Co and Metal), we provide a set of front panel bias and record level adjustments, so you can optimize the performance of the 122 for your choice of tape without dismantling the unit, or removing it from the rack.

THE INSIDE STORY

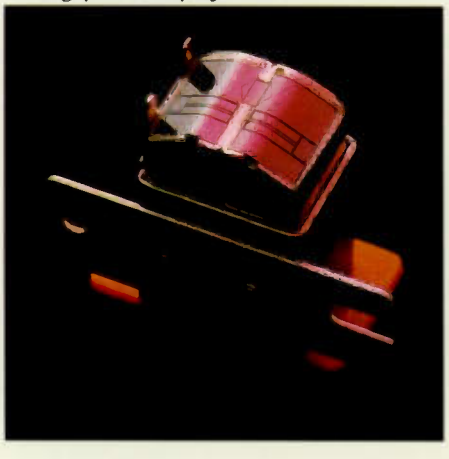
In a balanced design, details make the difference. Small points can be just as important as major innovations.

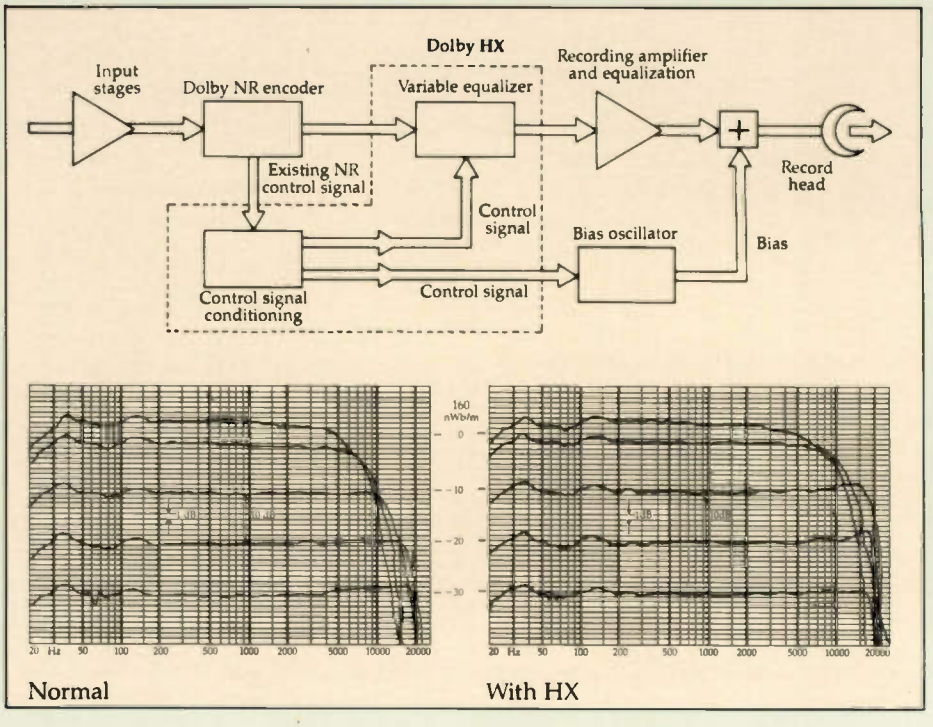
• We have elected to use the *International* reference fluxivity of 160nWb/m as a Meter circuit zero reference. This means that the 122 gives you a little bit more headroom on the tape when the meter reads "OVU."

At TASCAM, we select operating levels that improve more than just our spec sheet, and our spec sheet is thoroughly professional. No incomplete specs, no half finished lines, nothing left out!

• Enter Record Mode just a little bit quicker. You can do that from *Record/Pause*. In that mode, the record electronics are on and the capstan pinch and roller are already partially engaged, so you get a faster "start."

Dual gap Record/play Head





NEW DOLBY HX CIRCUITRY*

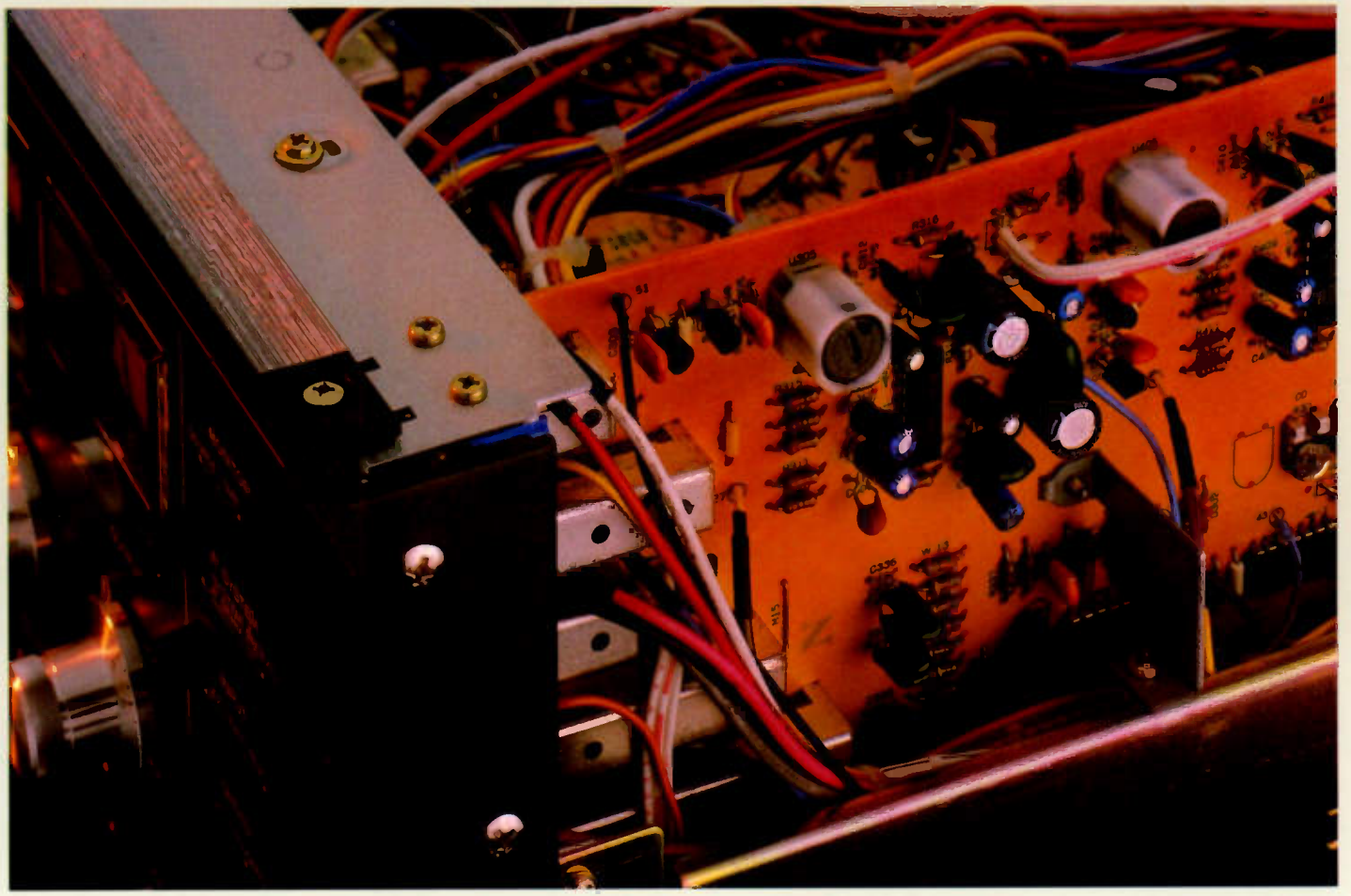
HX works in conjunction with the Dolby*-B circuit, improving high frequency response.

Decreasing the amount of record bias would ordinarily result in a high frequency pre-emphasis, and a degradation of signal integrity. With the Dolby* HX circuit, however, equalization is provided to compensate for the "unnatural" pre-emphasis. The result is an expanded dynamic range; on the order of 15 dB at 15kHz, which translates into a clarity of high end definition previously associated with the open reel format.

• Microprocessor controlled transport. Don't let anybody tell you that computers are the coming thing. At our design labs, they arrived quite a while back. We've been making use of this technology to run our recorders for ten years now, and we're sure that there are no hidden surprises in the time tested units that we use.

These "little things" do a lot. They are responsible for running the whole show and our concern for their reliability is not a little thing. We regard reliability as the primary concept in every audio production product we build. If a device depends on some new and untested component that breaks down, all the feature benefits are lost. That's not a well balanced design. In all our TASCAM engineering, we use time tested approaches to insure that you get to use what you have paid for.

When you look inside the 122, you'll find that we still use nuts, bolts and screws! When you have a problem with a TASCAM product, you will be able to disassemble it and replace individual parts without being forced to purchase an entire subassembly. Does TASCAM talk about repair? Certainly! Technology is not magic and what man can make, man can break. Being prepared for an accident is simple common sense, and that's always the best insurance.



The final component in our balanced concept of doing business is definitely the most important of all—

• A SATISFIED OWNER

Flexibility, that's what you asked for, that's what you get in the 122, but to make use of that flexibility, you must be able to understand the features, and find all the controls. That requires complete and thorough documentation, a professional reference manual, complete with all the answers.

Our owners manuals are written for owners, workers in the field. We'll sell you one before you buy the unit if you want to learn more. We also have a full service manual for every TASCAM product as a matter of policy. When the chips are down, you must be up and running and full documentation is the best insurance for the long run.

Speaking of the long run, we think that you can see that TASCAM means business, multi-image, multitrack, and much more. When new creative areas develop in the world of audio production, we plan on being ready in advance and we look forward to meeting your needs.

The details of any device are important, so here's a summary of the 122 controls and how they operate. If you have any questions about function that this brochure doesn't answer, talk to your dealer. You'll get a demonstration that will make the point in question more understandable.

TASCAM provides complete documentation for every product.

☐ *Power Switch.* Push to turn on or off.
☐ *Memory Switch.* Three positions;
• *Play*—when this setting is in effect, you can press *Rewind,* and the 122 will stop rewinding at counter 999 and automatically enter *Play* mode.
• *Off*—disables this feature.
• *Stop*—when rewind to 000 is complete, the 122 will stop and wait.
Before you dismiss this *Memory* feature as just a home entertainment function, consider these two professional applications.
• *Play* can be used as a rehearsal function to avoid playing a multitrack master tape over and over, and thus preserve its fidelity for mixdown.
• *Stop* can be used to *Cue Up* a commercial spot cassette for later replays automatically.
• If you need Fader-start capability in your use of the 122, the remote control socket can help you. A microswitch you install on your mixers fader can initiate *Play* mode on the 122 when you open the Fader. No circuit modification to the remote control is necessary, just connect the right 122 remote "pin" to your switch, run the cable to the 122, and you are in business. Ask your dealer for details about this useful remote-start function.

☐ *Phones.* Adjusts the level of the stereo signal. What you hear will follow the logic of the *Monitor Select* switch, either *Source* the (input signal) or *Tape.*
☐ *Phones Jack. (Tip-Ring-Sleeve)* Plug in here for stereo monitoring.

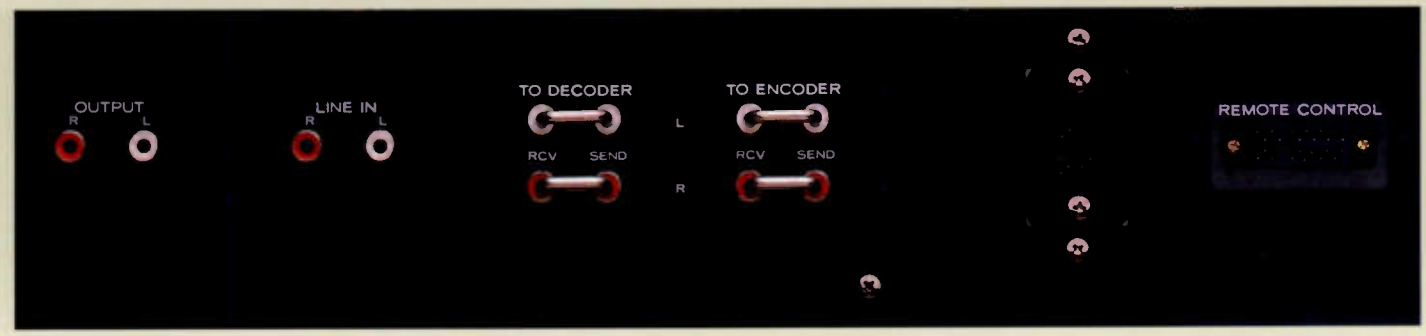
TRANSPORT CONTROLS

☐ *Fast Forward (››) Key. Full Transport Auto Stop* at end of tape is provided.
☐ *Rewind (‹‹) Key.* Also works with the *Counter* and the *Memory Select* switch to provide repeat play or cueing. Time to rewind a C-60 fully is approximately 90 seconds.
☐ *Stop Key.* Stops any tape motion, shuts off the capstan motor to extend the bearing life, and releases all record functions. The 122 motors don't run if they aren't needed.
☐ *Play (›) Key.* When depressed alone, the tape will play, depress along with the *Record* key to begin recording.
☐ *Pause Key.* Stops the tape without disengaging the record logic. To continue recording, just press the *Play* key alone. If a *Rec/Pause* logic condition is in effect, *L.E.D.s* above the *Pause* and *Rec* keys will light. Faster operation is possible from *Pause/Rec* because the pinch roller is partially engaged. You won't miss those important cues.
☐ *Rec Mute.* Use this button to leave a space in your recording. When in *Record,* pressing *Rec/Mute* mutes the incoming signal, but not the erase and bias currents and the 122 continues to run. Press *Play* again to resume recording, or *Pause* to stop the transport and stay in record ready mode if the unwanted program is longer than the desired "space" you need on the tape.

☐ *Record Key.* To begin recording, several conditions must first be met.
• *Play* key must be depressed simultaneously with the *Record* key, or, --------
• Either the *Record/Pause* or *Rec/Mute* feature must be activated. If so, pressing *Play* alone will start (or continue) the record process. If the 122 is in a record ready condition, the red *L.E.D.* above the *Record* key will blink. When recording commences, or resumes, the red *L.E.D.* will glow without blinking.
☐ *Eject Button.* Opens the cassette compartment. When open, this cover can be removed to allow easy access to the heads for cleaning and demagnetizing. The *Eject* key will not open the door unless transport is in *Stop* mode.
☐ *Counter.* Allows for precision in tape location, and 000 sets the point on the tape that the *Memory* feature will return to.
☐ *Clear button.* Resets *Counter* to zero.

ELECTRONIC CONTROLS

☐ *Line 2 Input L + R. Front Panel Input RCA Connectors.* The switch-selectable extra inputs allow you to hook up without removing the 122 from the rack, or disconnecting your standard studio feed.
☐ *Bias/Rec Calibration Panel.* This group of four front panel trimpots and circuit



enable push switch allows you to precisely adjust the bias and record level of each track on the 122 to suit the requirements of the cassette tape that you prefer.

☐ *Input Level Controls.* Adjust these internally interlocked controls to set the input signal level. To adjust separately, hold one while turning the other. Controls signals from *Line In 1* (back panel) as well as *Line In 2* (front panel.).

☐ *Output gain control.* This dual control adjusts the signal level that will appear at the back panel *Line Out RCA* connectors, and the signal sent to the headphone monitor circuit. On the 122 this control is wired *after* the meter drive circuit and the dbx interface *R.C.A.* connector set.

☐ *VU Meters, Audio L/R.* The familiar "Volume Unit" Audio ballistic is used, along with a *Peak* indicating *L.E.D.* This dual meter circuit gives you the best of both methods of level indication, another *Tascam* better idea for audio recording. The signal appearing on the meters follows the logic of the *Monitor* switch. *"OVU"* is equal to .316 Volt (−10dBV.) in *Source* (line input), and 160nWb/m in *Tape* (playback).

• In *Input* modes, the *Source* setting of the *Monitor* select switch, the meters read the level *before* the action of any noise reduction circuitry, so you won't be misled.

• In playback, the level you see will be the technical level "on tape," unaffected by the setting of the *Output* controls, allowing you to match input to output levels without having to carefully set any other controls.

☐ *Monitor Select Switch. Source* selects input signal for the meters and the headphone circuit. *Tape* selects tape playback signal for meters and phones. Other inputs and outputs are not altered by moving this switch, so you may move it while recording and compare what is coming in to what is on the tape.

☐ *NR System Selector Switch.*

• *Set Left*, enables the standard *Dolby* noise reduction circuitry.

• *Set Center*, adds the action of the *HX* headroom extension to the *Dolby* circuit.

• *Set Right*, to dbx *(Ext) Out* position, all *Dolby* action is bypassed. Use this position when *Dolby* is not wanted, or when the RX-8 dbx accessory is installed.

☐ *Input Select Switch.* Selects either the regular rear panel jacks *(Line 1)*, the front panel pair *(Line 2)*, or the special *Test* function that is used when you are adjusting the front panel *Bias* and *Level Set* trimmers.

☐ *Speed Select Switch. High* is 3¾ *I.P.S. Standard* is 1⅞ I.P.S. The switch selected *E.Q* and bias settings are also switched to conform with the requirements of the speed selected, but the custom front panel trim controls should be manually re-adjusted.

☐ *E.Q Select Switch.* Internal pre-sets for normal, CrO2, and metal tapes. See the spec page for a precise listing of the characteristics of each position.

☐ *Bias Select Switch.* Internal pre-sets for the same three tape types as the *E.Q* switch described above.

BACK PANEL CONNECTORS

☐ *A.C Power Cord.*

☐ *Line Input RCA Jacks.* The input impedance of these circuits is 50,000 Ohms.

☐ *Line Output RCA Jacks.* The True output impedance of these circuits is 100 Ohms, but we recommend that the load you connect here be no lower a number than 10,000 ohms. Maximum output before clipping is 15dBV (5.6 Volts).

☐ *Noise Reduction Interface RCA Jacks.* Use to "patch in" the accessory dbx unit (model RX8). When the outboard dbx unit is not used, the jumpers provided must be in place for signal to flow.

☐ *DBX Remote Control Multipin Connector.* Provides the necessary logic commands that select Encode or Decode.

☐ *Transport Remote Control Multipin Connector.* Both sets of transport controls will work when a remote (RC-90) is connected.

SPECIFICATIONS

MECHANICAL CHARACTERISTICS

Tape:	Standard compact cassette, C-60 and C-90 (Philips type)
Track Format:	4 track, 2 channel stereo
Tape Speed:	1⅞ ips (4.76 cm/s), 3¾ ips (9.5 cm/s) ±0.5%
Fast Wind Time:	90 seconds for C-60
Capstan Motor:	DC servo motor
Reel Motor:	DC motor
Head Configurations:	3-head, erase, record and reproduce combination head
Dimensions (WxHxD):	19" x 5.8" x 13.6" (482 x 147 x 345 mm)
Weight:	19.8 pounds (9 kg)

ELECTRICAL CHARACTERISTICS

Line Input:	(Line 1/Line 2)
Input Impedence:	50k ohms, unbalanced
Maximum Source Impedance:	10k ohms or less
Nominal Input Level:	−14 dBV (190 mV)
Minimum Input Level:	−24 dBV (60 mV)
Line Output:	
Output Impedance:	3.5k ohms or less
Minimum Load Impedance:	25k ohms or more, unbalanced
Nominal Output Level:	−10 dBV (0.3 V)
Maximum Output Level:	−7.5 dBV (0.42 V)
Headphone Maximum Output:	100 mW at 8 ohms load–Stereophones
Equalization: 3¾ ips (9.5 cm/s)	3,180 µs + 35 µs Metal and high-bias tape 3,180 µs + 50 µs Normal-bias tape, switchable
1⅞ ips (4.76 cm/s)	3,180 µs + 70 µs Metal and high-bias tape 3,180 µs + 120 µs Normal-bias tape
Recording Level Calibration:	0 VU is referenced to 1 KHz, 160 nWB/m LED's preset to turn "on" at a signal level of +8 VU
Power Requirements:	117V AC, 60 Hz, 41 Watts

TYPICAL PERFORMANCE

Wow and Flutter:	1⅞ ips	±0.085% (IEC/ANSI/DIN weighted) ±0.18% (IEC/ANSI/DIN unweighted) 0.06% (NAB weighted) 0.11% (NAB unweighted)
	3¾ ips	±0.055% peak (IEC/ANSI/DIN weighted) ±0.13% peak (IEC/ANSI/DIN unweighted) 0.04% (NAB weighted) 0.07% (NAB unweighted)
Total Harmonic Distortion:		At 0 VU, 160 nWb/m, 1 kHz
3¾ ips (9.5 cm/s)		1% Metal 1% Hl-bias 1% Normal-bias
1⅞ ips (4.76 cm/s)		1.3% Metal 1.2% Hi-bias 1.5% Normal-bias

3% THD Level:		
3¾ ips (9.5 cm/s)		8 dB above 0 VU, 402 nWb/m Metal 10 dB above 0 VU, 506 nWb/m Hi-bias 8 dB above 0 VU, 402 nWb/m Normal
1⅞ ips (4.76 cm/s)		7 dB above 0 VU, 358 nWb/m Metal 9 dB above 0 VU, 451 nWb/m Hi-bias 7 dB above 0 VU, 358 nWb/m Normal

Signal to Noise Ratio:

At a reference of 1 kHz, 3% THD level	A WTD	un-WTD	A WTD with dbx	un-WTD with dbx	Tape
3¾ ips (9.5 cm/s)	60 dB	56 dB	91 dB	76 dB	Metal
	63 dB	58 dB	92 dB	77 dB	Hi-bias
	60 dB	55 dB	91 dB	76 dB	Normal
1⅞ ips (4.76 cm/s)	58 dB	53 dB	91 dB	73 dB	Metal
	58 dB	55 dB	92 dB	74 dB	Hi-bias
	56 dB	51 dB	91 dB	73 dB	Normal

When Dolby noise reduction is used for record and reproduce, the Signal to Noise Ratio will be improved by 5 dB at 1,000 Hz and 10 dB at frequencies above 5,000 Hz.

Frequency Response: (Record/Reproduce)		Metal	Hi-bias	Normal
1⅞ ips (±2 dB)	0 VU	35-14 kHz	35-8.3 kHz	35- 8 kHz
	−20 VU	35-20 kHz	35-14 kHz	35-14 kHz
3¾ ips (±3 dB)	0 VU	35-14 kHz	35-14 kHz	35-14 kHz
	−20 VU	35-24 kHz	35-20 kHz	35-18 kHz

Adjacent Channel Separation:	Better than 35dB at 1 kHz
Erasure:	Better than 65 dB at 1 kHz +10 VU reference
Head Room:	
Recording Amplifier:	Better than 19 dB above 0 VU
Reproduce Amplifier:	Better than 19 dB above 0 VU

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TEAC CORPORATION OF AMERICA 7733 TELEGRAPH ROAD, MONTEBELLO CA 90640 PHONE (213) 726-0303
TEAC AUSTRALIA PTY., LTD. 115 WHITEMAN STREET, SOUTH MELBOURNE VICTORIA 3205 PHONE 699-6000

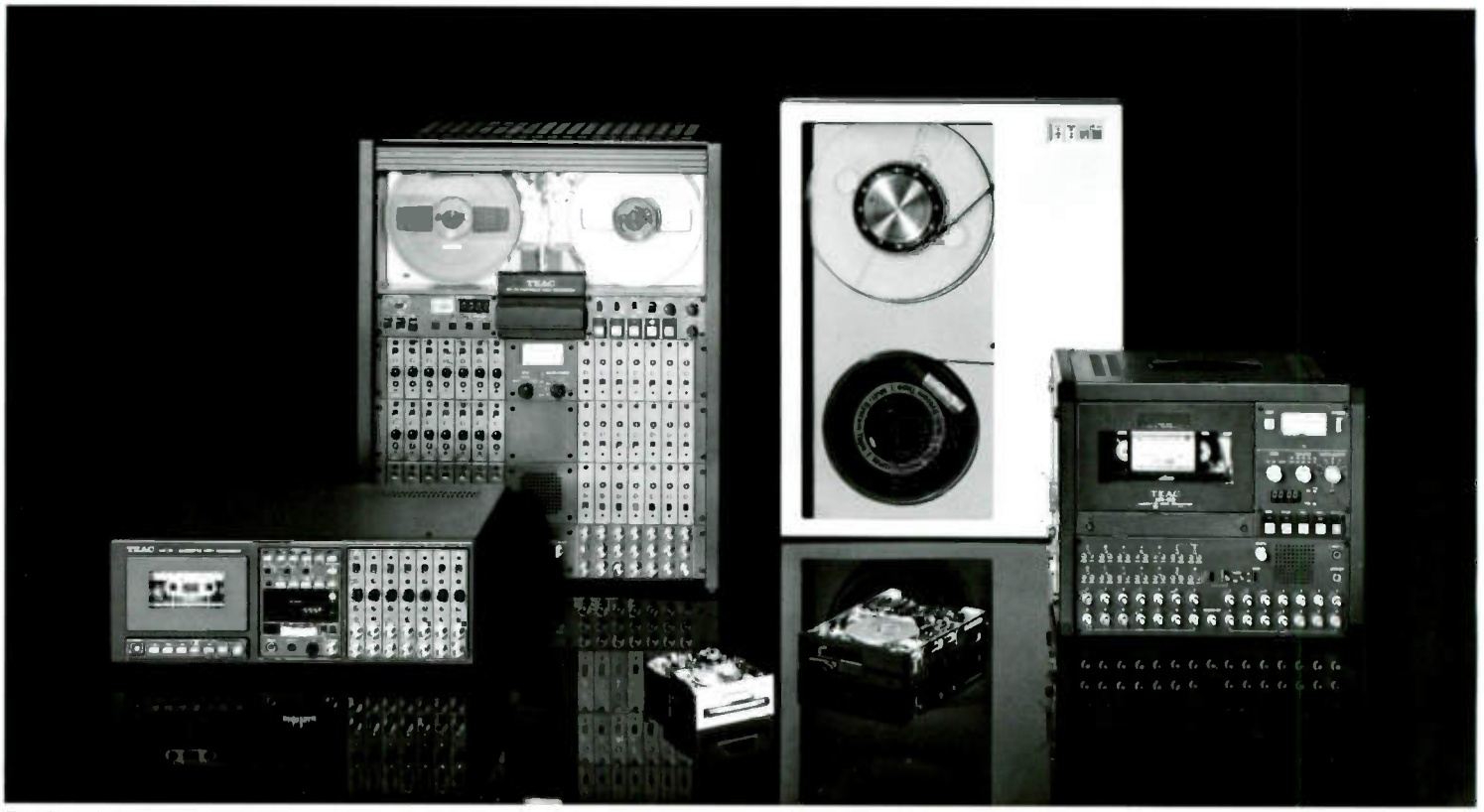
TASCAM
TEAC Production Products

TASCAM

SERIES 40

RECORDER / REPRODUCERS

A WORLD LEADER IN INFORMATION STORAGE TECHNOLOGY



TASCAM Series 40 tape machines draw on TEAC's broad experience in storage technology: MR-30 7-channel portable cassette data recorder, SR-70 21-channel 1/2" reel-to-reel data recorder, MT-1000 1/2" digital memory system, XR-50 14-channel portable data recorder, FD-30A 3" 250 kilobyte compact floppy disk drive and FD-55 5-1/4" 1.6 megabyte mini floppy disk drive.

TASCAM SERIES 40—Built by a World Leader in Information Storage Technology

TASCAM is the professional products division of TEAC Corporation (Tokyo Electro-Acoustic Company), founded in 1956. In the early 1970s, when 8-track recording was in its infancy, TASCAM built the first affordable multitrack tape machines and mixing consoles (most of which are still in use). Today's modern TASCAM mixers, recorders, signal processors and accessories enjoy an enviable reputation for reliability and value.

In addition to TASCAM professional audio products and TEAC consumer audio products, we make and sell a number of specialized products under the TEAC label: multichannel precision instrumentation recorders, ultra-reliable airborne video recorders (which have been used for pilot training and the Space Shuttle program), and computer data storage including cassette drives, high density floppy disk drives, winchester hard disk drives, and a new DRAW (direct read after write) optical disk system that can store gigabytes in the space of yesterday's megabytes. Over the past 3 decades, as TEAC and TASCAM have grown steadily, our goals have always remained in sharp focus; our products are ultimately concerned with the accurate recording and reproduction of sound, pictures or data. So, when you compare the Series 40 to similar tape machines, there is no real competition.

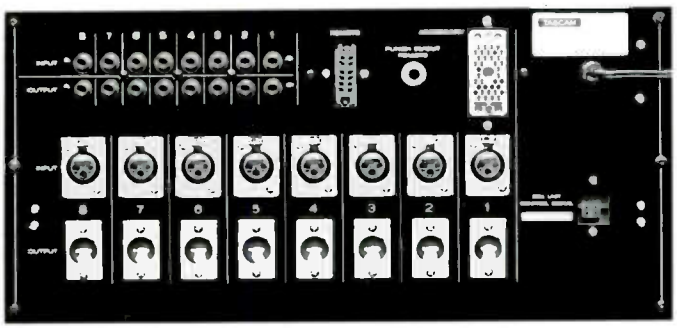
- Industry standard 2, 4 and 8 track formats
- Balanced +4 dBm and unbalanced −10 dBV, compatible with all professional equipment
- 24 dB of headroom ensures low distortion and allows more leeway in mix levels
- Sync playback response equal to repro response saves time by allowing critical judgments during recording
- Capstan drives the back of the tape, eliminating tape scuffing & dropouts
- Full servo system, including capstan and reel motors, for faster and more precise control of tape motion
- All servo adjustments accessible from front panel
- Manual and Dump Edit for fast and convenient editing, and a splicing block in front of the heads where it belongs
- A custom microprocessor ensures rapid yet gentle tape handling in all modes
- Out-of-the-carton, plug-in compatibility with all leading (SMPTE) controller/synchronizers; no extras to buy
- Exceptionally low crosstalk means no wasted "guard band" track needed to isolate SMPTE time code
- Multiple power supplies prevent heat build-up for longer service life
- Premium components and exceptionally stable circuit design contribute to superb long-term stability
- Heavy duty chassis construction and motors explain why Series 40 machines weigh as much as a third more than other brands

TASCAM...ADVANCED MACHINES CONSERVATIVELY BUILT AND RATED

Compatible with All Modern Systems and Studio Standards

To interface with either balanced or unbalanced systems, Series 40 machines have two types of input and output connections: electronically balanced XLR connectors that operate at +4 dBm nominal level (+28 dBm maximum) and unbalanced RCA jacks that operate at −10 dBV (+18 dBV maximum). Thus, they are plug-in compatible with all modern, professional systems.

Series 40 VU meters are calibrated so that 0 VU equals the nominal level, −10 dBV or +4 dBm, corresponding to the industry standard reference flux levels on tape. That means that tapes made on these machines are interchangeable with those made on all other manufacturers' equipment.



Balanced and unbalanced connectors for compatibility with all professional systems.

Plenty of Headroom to Avoid Distortion and Noise

Headroom is the "space" between the maximum level (above which distortion occurs) and the nominal or average signal level at a given point. Since the maximum level at the XLR's is +28 dBm and the nominal level is +4 dBm, the headroom is 24 dB. With a maximum of +18 dBV and a nominal of −10 dBV, the RCA outputs have 28 dB headroom. This is ample to ensure that a sharp transient will not drive the circuitry into clipping, which generates distortion. Tape machines with less headroom often tempt operators to mix at lower levels to avoid clipping, but that places the average signal closer to the noise... an unacceptable trade-off in our opinion. Because Series 40 machines are designed with more "forgiving" of incorrect mixing levels without sacrificing signal-to-noise ratio.

XLR INPUT OR OUTPUT

+28 dBm maximum
+ 4 dBm nominal
24 dB headroom

RCA INPUT OR OUTPUT

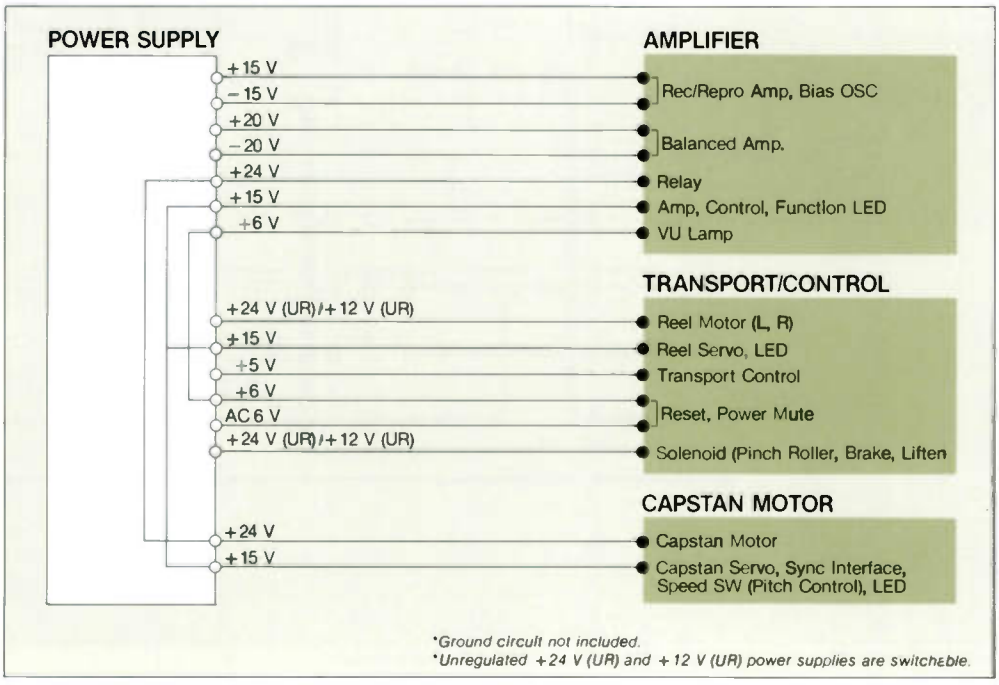
+18 dBV maximum
−10 dBV nominal
28 dB headroom

Multi-Output Bipolar Power Supply for Quiet Reliability

There are some dozen different voltages for powering the Series 40 reel motors, the capstan motor, the solenoids, the servo logic, the audio amplifiers and the lights. Audio, control and motor signals are not only shielded to prevent interaction, they are fed from separate power supply outputs. This internal power isolation is one of the reasons why Series 40 machines are quiet, yet there are other benefits to multiple supplies.

Since heat is the enemy of electronic components, we use dual voltages to minimize heat build-up and eliminate premature ageing. Series 40 solenoids are fed two different supply voltages: +24 volts when first activated, then +12 volts. The higher voltage ensures positive engagement, while the lower voltage keeps them engaged with minimum heating. Again, separate 12 and 24 volt outputs drive the reel motors; the higher voltage provides the needed torque for quickly reaching the target speed, while the lower voltage maintains speed with minimal heating. Elsewhere in the machines, dual voltages serve another purpose. A bipolar +15 volt supply for the audio circuitry allows the use of complementary push-pull amplifiers that minimize distortion and provide excellent headroom.

Because the capstan motor doesn't "share" the reel motor supply, changes in tape pack or reel size cannot load down the capstan supply, preventing unwanted fluctuation in the record/play speed. Another way we avoid interaction is by using a 5 volt supply for logic and a separate 6 volt supply for the lamps, rather than one supply for both. We also include a sensor circuit that automatically places the transport in STOP mode if the AC mains voltage is momentarily interrupted, preventing tape spillage or accidental erasure. The same sensor circuit briefly mutes the audio output when power is turned off or on to prevent clicks and pops from reaching the output.



*Ground circuit not included.
*Unregulated +24 V (UR) and +12 V (UR) power supplies are switchable.

THREE MOTOR SERVO CONTROL FOR FLAWLESS TAPE HANDLING

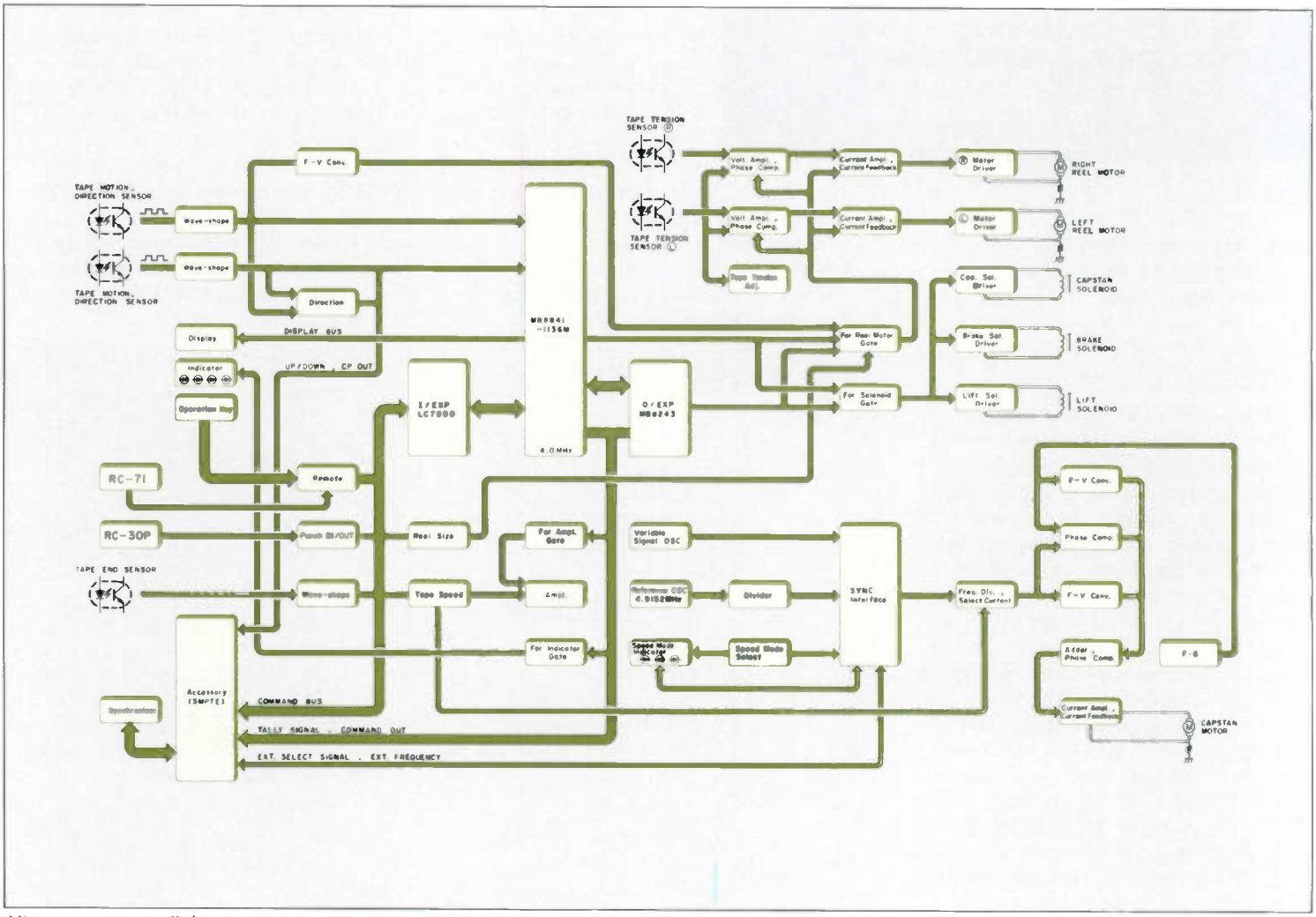
A Full Servo System that Includes the Capstan Motor and the Reel Motors

While some so-called "servo" transports (those with a "hi-fi" design approach) place only the capstan motor under servo control, the Series 40 "servo loop" includes everything: the reel motors, capstan motor, tape tension control, and digital tape counter. This makes it possible to maintain ideal tape tension, reduce stretch and tape wear, and improve positional accuracy. A custom programmed microprocessor continuously monitors the reel and capstan motor speeds, and compares them to an internal crystal, a variable speed control circuit or an external reference (as from a SMPTE-based controller). If necessary, the servo instantaneously adjusts motor supply voltages to maintain the exact speed. Because the same microprocessor that governs the servo system is responsible for all commands, whether from the front panel, the remote controller, or a controller/synchronizer, tape is always handled gently regardless of the command sequence.

In SMPTE (Society of Motion Picture and Television Engineers) time code based editing systems, the Series 40's fully servoed capability is extremely valuable: no more runaways, hunting for time code or excessive delays while the motors fight SMPTE controller signals. With the reel motors under servo control, you don't have to hand cue the audio transport just to get a rapid "lock and run".

Servo adjustment trimmers are located under the splicing block for easy access and fast maintenance.

Because it relies upon a quartz crystal to govern motor speed, and metal-glazed trimmers that don't drift with environmental variations, the Series 40 servo system is very stable. Of course, any electronic circuit may require adjustment from time to time, so we've made it easy to get to the trimmers. By removing two screws and lifting the splicing block from the front of the transport, you gain immediate access to the tension servo adjustments. If the transport is rack or console mounted, it can be adjusted in place.



Microprocessor-controlled servo system ensures optimum transport performance.

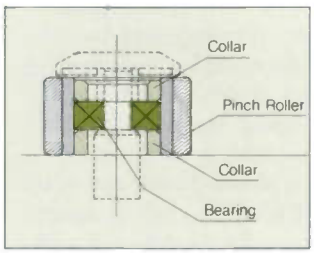
A Highly Effective, Non-Magnetic Capstan/Pinch Roller System

One of the most critical areas of any tape transport is the means by which tape speed is controlled in the record and play modes. Sophisticated servo systems, such as the one used in the Series 40, are a major step in the right direction. Direct drive capstan motors, like those used in the Series 40, are also a big plus. However, no amount of sophistication in the servos or motors can overcome problems in the mechanical parts that actually drive the tape: the capstan and pinch roller. That's why we pay special attention to the drive system in Series 40 transports.

Pinch roller and non-magnetic ceramic capstan shaft drive tape on backing side eliminating dropouts.

The capstan must be perfectly round in order to assure smooth tape motion. Its surface must be able to "grip" the tape (to avoid slippage), yet must be smooth enough that it does not abrade the tape. We have used a special ceramic capstan to achieve these characteristics. It is exceptionally hard so it will not be polished over the years as it pulls miles of abrasive tape. An added benefit is that the capstan cannot become magnetized so there is less danger of degraded tapes and the time spent doing preventive maintenance (demagnetizing) is further reduced.

To further protect the tape itself, we designed the transport so the capstan drives the back of the tape and the pinch roller rides on the front. This "mirror image" of conventional front-driven designs totally eliminates oxide scuffing, which eliminates a major cause of dropouts in front-driven designs. Since the capstan is attached to the capstan motor shaft, with no pulleys or drive belts to cause "wobble", it remains in perfect, stable alignment.



With the capstan portion of the drive system "idealized", we turned our attention to the other half... the pinch roller. The typical pinch roller is constructed with ball bearings at each end. As the normal "play" in such bearings increases, or as transport parts shift and deform slightly, the conventional pinch roller can move out-of-alignment with respect to the capstan. In the Series 40 we constructed the pinch roller with a single heavy duty bearing located in the geometric center. This design automatically forces the pinch roller to ride parallel to the capstan, ensuring proper alignment at all times so pressure will be evenly distributed and tape will not tend to skew.

A Professional Transport that Saves Time and Effort

This TASCAM transport is optimized for its job because we're not restricted to a single technology or a single approach. To meet a target performance level and price range, we build audio tape recorders utilizing many different designs. Take the capstan motor and capstan, for example; some of our machines have a synchronous motor, belt-coupled to the capstan. Others, like these Series 40 machines, utilize a servo-controlled DC direct drive capstan motor. TASCAM transports also utilize a variety of tape paths from the traditional "zig-zag" around tension arms and guide rollers, to the "omega" drive of the Series 50, to the nearly straight path of these Series 40 machines. (Some of our instrumentation recorders even utilize an "isoloop" path—which we felt was not suitable for the rapid shuttling required of an audio recorder built to be used in SMPTE-interlocked applications.)

Series 40's near-straight tape path simplifies threading and reduces strain on the tape. With TASCAM's "systems approach" to electro-mechanical design, you'll enjoy tape motion and editing that is not only fast and accurate, it's smooth and gentle. This precision is obvious when Search-to-Zero actually parks tape at zero without "chasing" back and forth. A second search function (Search-to-Cue) remembers the actual tape position so resetting counter zero doesn't destroy the cue. In fact, so you can keep track of the program at all times, the tape counter displays positive or negative "real time" (a major convenience for back-timing cues and editing). These benefits are made possible by the Series 40's advanced microprocessor control of all transport functions.

The Series 40 transport, with its full servo system, provides a wide range of tape speed control. Normal play/record speed can be fixed via an internal crystal, externally controlled, or adjusted over a full ±12% range with the Pitch control. To avoid the uneven pack of high speed winding, yet save considerable time over "playing out" a tape at the end of a session, the transports have a rapid spooling mode. Spooling "splits the difference" by winding tape forward or reverse at about 5 times normal play/record speed and provides tight, uniform tape packs.

Tape path stability is further enhanced because all parts are machined to precise tolerances. We utilize proportional, non-contacting servo sensors which avoid friction and offer greater accuracy than purely mechanical sensors. As part of our "systems approach" to design, we make certain that the type of motors used complement the type of control circuit. For example, in our Series 50 transports, we use direct drive high-mass outer rotor capstan motors in conjunction with FG (Frequency Generator) servo control. In the Series 40, we utilize low mass DC direct drive capstan motors, which are the optimum design for use with the PLL (phase locked loop) control circuitry. A pair of slotless DC reel motors provides controlled record/play tension and reliable fast winding without generating stray 60 Hz fields that might contribute to audio noise.

SINGLE CONNECTOR COMPATIBILITY WITH TIME CODE-BASED SYSTEMS

Fully Compatible with Leading SMPTE Editors, Controllers and Synchronizers

- Rear panel "accessory" connector provides all the logic/control inputs and outputs necessary for plug-in compatibility with modern SMPTE equipment
- Tachometer output for accurate control during fast wind without the problems of older wideband amplifier systems
- Reel motors, as well as capstan motor, in servo loop for faster and more positive "lock up" regardless of offset
- Low crosstalk means you don't need a "guard band" between SMPTE code track and audio tracks

A simplified explanation of SMPTE control systems

SMPTE time code (a digital representation of hours, minutes, seconds and film or video frames) is recorded on one track. A SMPTE controller or synchronizer is fed the audio output from that track and it "reads" code while the tape is moving at or near normal record/play speed. The controller or synchronizer thereby detects the exact tape position and, via the Series 40's Accessory connector and similar connectors on other equipment, it commands the tape machines' capstan and reel motors so that "lock up" between the video tape recorders or film chains and the audio tape recorder(s) can be maintained.

SMPTE time code-based operation is essential when doing audio production for video or film. It provides accurate editing control for purely audio applications. Series 40's rear panel accessory connector offers plug-in compatibility with most SMPTE controllers and synchronizers. You don't have to add "cost extra" options to our machines to gain this compatibility. Full SMPTE capability is standard, allowing for simple interface with those systems made by Adams Smith, Audio Kinetics, BTX, CMX, Convergence, Fernseh, ISC, United Media, Videomedia, and many others.

In the past, in order to ascertain tape position during fast winding, audio tape machines were fitted with wideband amplifiers and the tape lifters were defeated so tape rested against the heads at all times. This greatly accelerated head and tape wear. Modern technology has made it unnecessary to modify the Series 40 for reading the time code during fast winding. Instead, Series 40 machines output a tachometer signal whose frequency is interpreted by modern SMPTE controller/synchronizer equipment, which counts Tach pulses so it "knows" the approximate tape position without reading code. Then, after tape slows down and contacts the heads, SMPTE code is again read to ensure precise cueing. As a result, Series 40 gives faster access and more accurate positioning with much lower maintenance costs (less head cleaning and far less frequent head replacement).

Some tape machines that claim SMPTE compatibility have servo controlled capstan motors so they can maintain "lock up" in record or play mode. However, their reel motors are not part of the servo system. The controller/synchronizer therefore has to "learn" the approximate acceleration, winding and deceleration characteristics of the audio tape machine in order to "guess" at the next cue point. This can waste a lot of time "hunting" for a cue. The Series 40 avoids this wasted time because the reel motors are also under servo control, so the SMPTE controller/synchronizer can "tell" the transport to go directly from one point to the next with a high degree of accuracy.

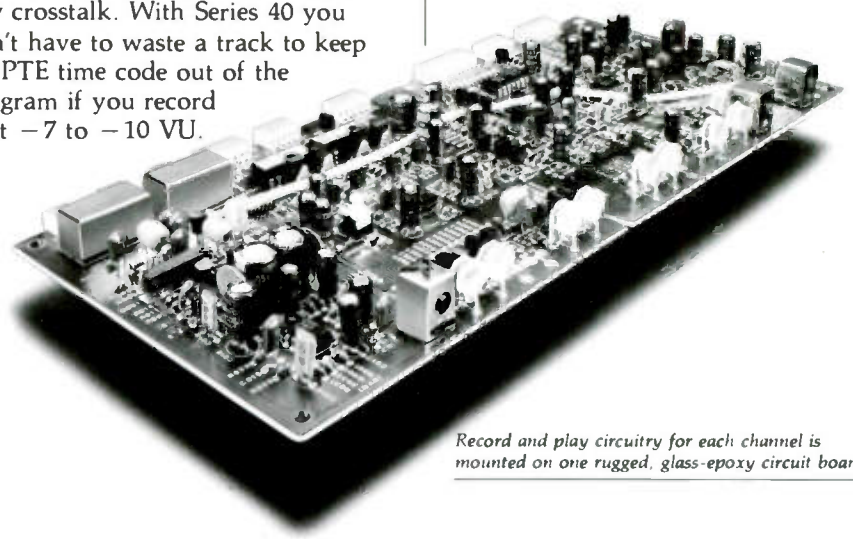
Many professional tape machines have so much crosstalk at high frequencies that SMPTE time code "leaks" into program on an adjacent track; the typical solution is to "skip" a track, creating a guard band. A major benefit offered by TASCAM's careful head and electronics design is low crosstalk. With Series 40 you don't have to waste a track to keep SMPTE time code out of the program if you record it at −7 to −10 VU.

Reliable Electronics with Long-Term Stability

Series 40 transports use a master bias oscillator to prevent the "beating" that can occur with independent oscillators. Because each channel has an independent bias amplifier which is slaved to the master oscillator, stable levels and quiet punch in/out operation are assured.

The record and play electronics for each channel are mounted on one circuit card. These cards plug into a common mother board for maximum reliability and ease of service. The EQ, bias and level calibration trimmers are clearly labeled, provide a wide range of control, and don't require that you use a mirror to see the VU meters while you make an adjustment—which is an infrequent occurence. Because Series 40's multiple power supply design generates less internal heat to cause component ageing, and because all trimmers are metal glazed for electro-mechanical stability, about the only time you'll need to trim the alignment is when you change to a new batch of tape.

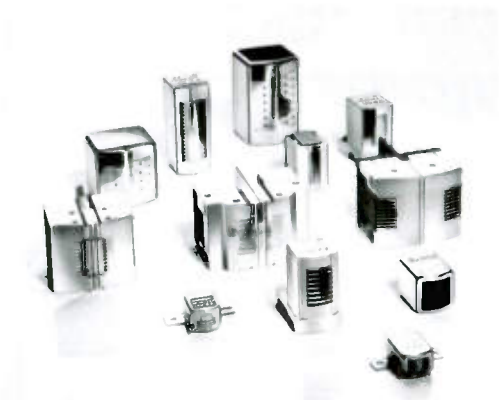
The illuminated meters have true VU ballistics so you can see average levels, and they also have PEAK LEDs in the meter face, where they belong. The LEDs detect brief, high level transients that are too fast for a VU meter. Independent adjustments allow you to set the LEDs' threshold of activation for whatever headroom you wish. You'll never have to guess when you're in danger of tape saturation from percussive or other sounds with a high crest factor (peak-to-average ratio).



Record and play circuitry for each channel is mounted on one rugged, glass-epoxy circuit board.

Better Heads

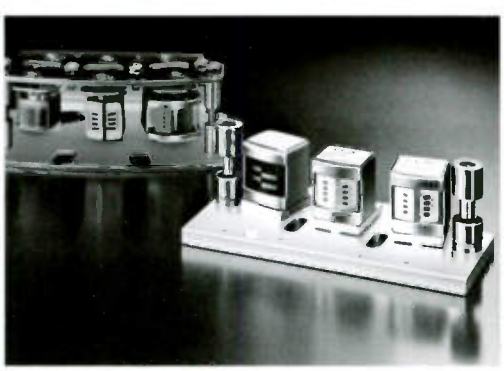
In TASCAM recorders, we always use the right part for the job, including the heads themselves. Because we build our own, we can custom tailor the magnetic and physical properties of the heads to precisely suit the application—whether it's a 1/2" 40-track thin film data recorder head, a 1" 16-track audio head, or a 1/2" 2-track audio head. There's more to head performance than the head itself.



We build hundreds of custom heads, for digital and analog instrumentation and audio applications.

Precision Mounted Heads for More Stable Performance

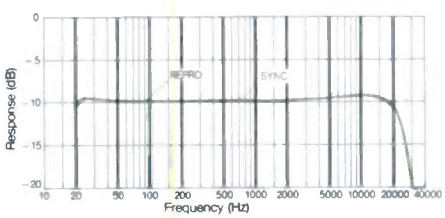
Machines built with a "Hi-Fi" approach "hang" the heads from a top plate, and hold them in place with springs and screws. This method of assembly is used because it permits loose manufacturing tolerances to be "adjusted out" after assembly. The problem with using springs is that changes in ambient temperature can affect head alignment. The Series 40 machines rely upon a more costly, higher quality construction technique. The heads are manufactured to strict tolerances and fastened to a solid, precision machined base plate. This complete assembly is checked for correct alignment at the factory, and thereafter the Series 40 heads remain in perfect alignment. There are no spring-loaded screws to work themselves loose, and tapes made this year will play back perfectly next year without the need for azimuth, zenith or other mechanical adjustments.



Series 40 heads are mounted on a solid base plate for perfect alignment unlike the "hi-fi" approach.

Sync Response Equal to Repro Response

On Series 40 machines, the Sync playback response (from the record/sync head) is equal to the Repro response (from the repro head). This means that, during overdubbing and inserts, your mixing and performance values are not "colored" by a missing top end, as is the case with some machines. You'll never have to switch tracks out of sync to the repro head to check the quality of a transfer. Instead, you'll enjoy consistent results throughout all phases of production. In fact, it now becomes technically feasible to make real-time "direct" transfers between tracks in sync mode... something previously impractical due to unacceptable signal degradation.



Sync response is equal to reproduce response.

This excellent sync performance is made possible because we have total control over everything that goes into these tape machines. We build the heads with narrower gaps to extend high frequency response. Then we match the heads' "Q" and impedance to suit the record amps and the FET differential playback preamps so noise does not increase. This matched design establishes flat record/play response to 22 kHz, and also maintains an excellent signal-to noise ratio with low distortion.

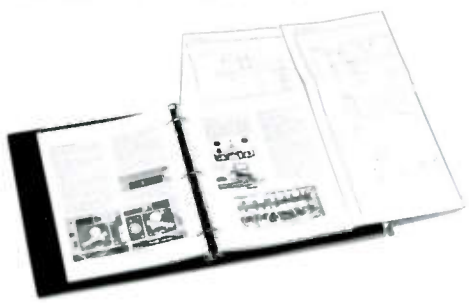
Sync playback response from the record head is so good you don't even have to switch to the repro head for mixdown. The repro head is there primarily so you can check record/play response in real time, and can verify record azimuth alignment.

Easy Operation Even for a Single Operator

Series 40 machines are built for fast, easy operation. LEDs signal the status of all selected transport and electronics functions so you know at a glance what is happening. We mounted a precision splicing block immediately below the head stack where it belongs, so whether making splices or editing you get the job done quickly. And because we understand creative instincts, night schedules and tight budgets, we built Series 40 so that a separate engineer is not strictly necessary. Installation is simple, and a single operator can handle the machine. There's even a jack for an optional foot switch so you can punch in or out of record mode when you're not able to punch buttons on the front panel.

Delivered with Complete Documentation

At TASCAM, we think you DESERVE TO KNOW not only how your tape machine operates, but also all the other details you want to know. Every Series 40 machine is delivered with a complete manual covering not only operation, but all aspects of maintenance. We know that if you're doing serious work with a tape machine, you need it working RIGHT NOW. That's why, in addition to thorough instructions, we provide complete service information in the manual—parts lists, alignment and calibration instructions, assembly drawings and large, clear schematic drawings. If your TASCAM dealer isn't available to help you at 3am, your own technician will have the information to do the job. You won't find better documentation with any tape machine at any price, and this is included at no extra cost.



TASCAM provides complete documentation with each machine.

THE 48—IDEAL AUDIO FORMAT FOR FILM AND VIDEO PRODUCTION

The Preferred Multitrack Production Format

The TASCAM 48 is a high quality 8-track 1/2" recorder/reproducer designed for audio and video production work where flexibility, reliability and synchronized operation are primary requirements. The 48 operates at 15 ips with industry standard IEC equalization, and can be set for flux reference levels of 250 or 320 nanoWebers per meter. This compact, solidly built machine is the natural successor to our famous 80-8 (most of which are still in use after nearly a decade). However, the 48 includes improved audio electronics and a microprocessor controlled servo system which, among other benefits, permits single plug compatibility with popular SMPTE-based controller/synchronizer systems. It is ideal for building multi-track master tapes through conventional overdub and insert techniques, although all 8 tracks may be recorded at once in live situations.

Programmable Recording and Monitoring Functions

Controls and functions are provided for just about any production requirement you're likely to encounter. You get independent, user-programmable track control; each track has its own Function selector (Ready/Safe) and Input/Sync selector that help you rehearse overdubs or make inserts with exactly the right signal in the monitors.

Maximum Creativity

One track may be used as playback during production, to provide cues for the actors or musicians while recording their performances on the remaining tracks. Isolated feeds of the individual elements will later enable maximum creativity in mixdown, since each source is under independent control. The accuracy of sprocketed film-style editing is duplicated by using time code to synchronize audio to videotaped action. And technology now exists to resolve film edge numbers to time code, so that the speed of video-styling editing is available to the producer who will release on film. Flexibility. Speed. Accuracy. These are the bywords of the TASCAM 48.

For the "simulcast" production, or for any application where the final product must contain high quality audio material, consider the 48 in place of multiple mono or two-track recorders. One piece of equipment to set up, maintain, and control during the shoot. Original rather than transferred multitrack material, ready for immediate mixdown. In sweetening, remix, or predub, isolated track recording provides unlimited creative flexibility.

1 Guide (production) Track
2 Dialogue one
3 Dialogue two
4 Dialogue three
5 Ambience
6 Effects one
7 Effects two
8 Time Code with User Bits

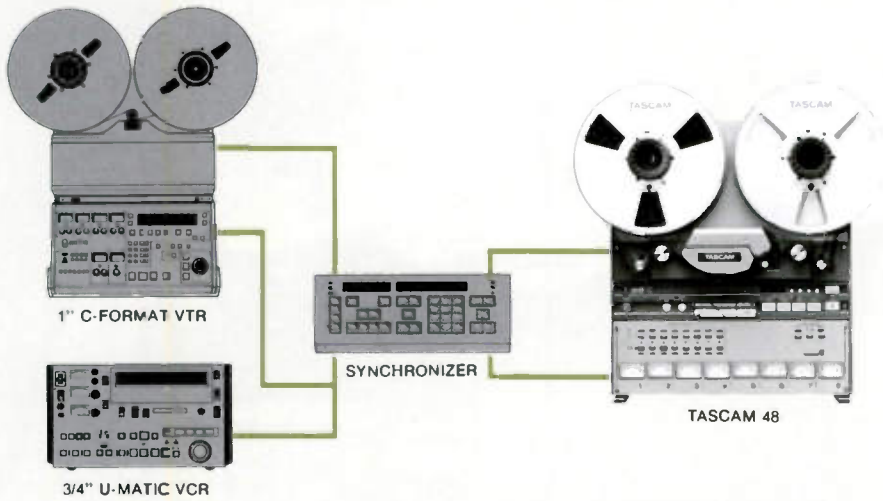
One approach to track layout during production recording

1 Narration—English
2 Music—Left
3 Music—Right
4 Effects
5 Ambience
6 Narration—Spanish
7 Narration—French
8 Time Code with User Bits

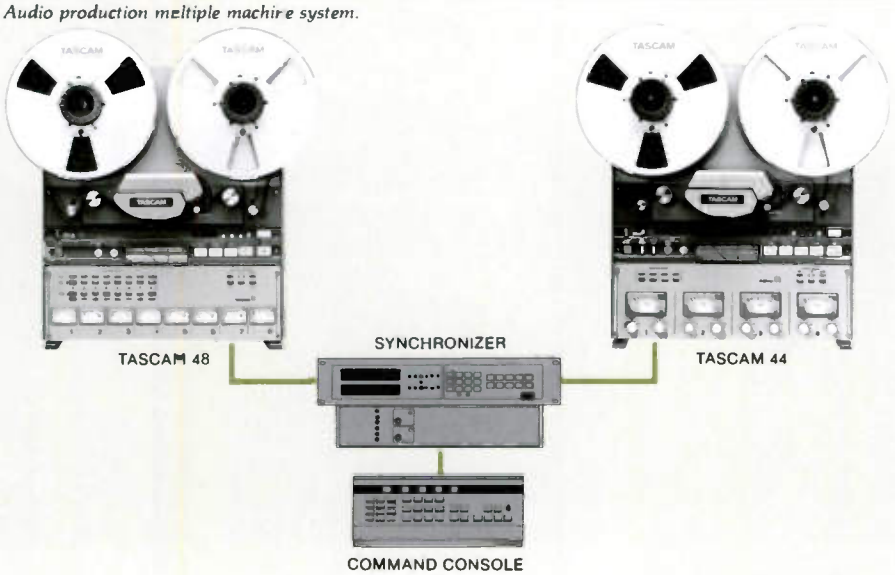
Possible track layout for eventual multilingual release

Pin #	IN (put)—OUT (put) signals		Function
A	PLAY	IN	Inputs PLAY signal at L level.
B	FF	IN	Inputs FF signal at L level.
C	REW	IN	Inputs REW signal at L level.
D	open terminal		
E	STOP	IN	Inputs STOP signal at L level.
F	REC	IN	Inputs REC signal at L level.
H	LIFTER CONT	IN	Inputs LIFTER shift cancellation signal at L level.
J	open terminal		
K	UP/DOWN	OUT	Outputs tape running control signal at H or L level.
L	CP	OUT	Outputs open-collector signal (12 Hz pulse at 15 ips.)
M	PLAY TALLY	OUT	Outputs open-collector signal (LOW level during PLAY mode.)
N	FF TALLY	OUT	Outputs open-collector signal (LOW level during FF mode.)
P	REW TALLY	OUT	Outputs open-collector signal (LOW level during REW mode.)
R	STOP TALLY	OUT	Outputs open-collector signal (LOW level during STOP mode.)
S	REC TALLY	OUT	outputs open-collector signal (LOW level during record mode)
T	SHUT-OFF TALLY	OUT	Outputs open-collector signal (LOW level during tape stop)
U	RESET SW	IN	Inputs electronic counter reset signal at low level.
V	open terminal		
W	REW COMMAND	OUT	Outputs open-collector signal (Low level when REW is pressed)
X	FF COMMAND	OUT	Outputs open-collector signal (Low level when F. FWD is pressed)
Y	PLAY COMMAND	OUT	Outputs open-collector signal (Low level when PLAY is pressed)
Z	STOP COMMAND	OUT	Outputs open-collector signal (Low level when STOP is pressed)
AA	REC COMMAND	OUT	Outputs open-collector signal (Low level when REC is pressed)
BB			
CC			
DD			
EE	open terminal		
FF			
HH			
JJ			
KK	EXT FREQ	IN (HOT)	Inputs speed control signal at input signal level of 2.0 V or more. (HOT side)
LL	EXT FREQ	IN (COLD)	Inputs speed control signal (COLD side)
MM	INT/EXT	IN	Inputs internal/external speed control select signal. Internal: LOW level (0 V). External: HIGH level (2.0 V or more)
NN	open terminal		
PP	+15 V supply voltage	OUT	Maximum: 50 mA
RR	0 V terminal		
SS	+5 V supply voltage	OUT	Maximum: 50 mA
TT	Main und GND		

Post production system for audio editing and sweetening.



Audio production meltiple machine system.



THE 42 AND 44 — IDEAL FOR MASTERING AND EDITING

Two Common Tape Track Configurations for Mastering

It used to be that "mastering" meant mixing down a multitrack tape to mono or stereo. Today, mastering does not necessarily imply the use of a mono or 2-track recorder. Different formats are used for various applications, and we make a Series 40 machine to meet your needs.

The TASCAM 42 is a 2-track 1/4" recorder/reproducer that operates at 7-1/2 or 15 ips with NAB or IEC equalization. It accomodates 7 or 10-1/2 inch tape reels, and can be calibrated so the 0 VU reference level is 250 or 320 nanoWebers per meter. This machine's track format has long been a studio standard for stereo mastering (recording the stereo mixdown from a multitrack tape). It is also useful for recording a mono program (such as an industrial film soundtrack) plus a SMPTE time code track. Unlike the other Series 40 models, the 42 includes a pair of microphone inputs so it may be used for field recording of a stereo program without external mixer or mic preamplifiers.

The TASCAM 44 is a 4-track 1/4" recorder/reproducer which is similar to the 42, minus the mic inputs. This 4-track format is rapidly gaining popularity for video and multi-image mastering.

Monaural Audio for Video

The 42 offers all of the performance you need for stereo recording, with an extra advantage for video production. Since time code may be recorded at −7 to −10 VU on either track without leaking onto the adjacent program track, editing can be performed accurately and consistently, with a frame-accurate reference to the video material. The result is highest possible audio quality, because only the final edited version of the sound track is transfered to the videotape master.

Stereo Audio for Video and Multi-Image

Video technology has advanced to include hi-fidelity stereo reproduction from videotape. Your audio post-production capability must keep pace. The 44 allows you to mix down to a stereo master, while retaining time code on a third track. Time code enables the precise positioning of the audio material against the visual, and means that you can take full advantage of the sophistication of today's computerized editing controllers. Again, editing time is cut significantly with the elimination of the trial and error method of locating in-and out-points. In multi-image work, two of the tracks can be used for a master stereo program (or separate narration and music tracks); the third track can be used for automation equipment cues, and the fourth track for SMPTE time code. Alternately, two tracks can be used for stereo program, a third for a mono mix of the stereo program, and the fourth track for time code or cue control.

Using a Sync Track

Unless you have the proper synchronizing equipment to use time code to control machine speed, it may not be possible to synchronize audio to video without the presence of a sync track on the audio tape. The 44 permits recording a sync track (whether it's a 59.94 Hz video sync signal or a 60 Hz pilot tone) without sacrificing either stereo or time code. With the video playback locked to the same signal frequency, editing and mastering efficiency is uncompromised.

Specialized Applications

For specialized application such as the requirement for two languages, or the need to edit dialogue after the master has been recorded, the 44 provides a fourth useable track. No longer do you need to build two versions of the audio master. Imagine what the flexibility of multi-track capability can mean to you in terms of time and money saved in post-production.

1 Mono Audio
2 Time Code with User Bits

Audio with Time Code

1 Audio—Left
2 Audio—Right
3
4 Time Code with User Bits

Stereo Audio with Time Code

1 Audio—Left
2 Audio—Right
3 Sync (59.94 Hz or 60 Hz) or Cue Track
4 Time Code with User Bits

Stereo Audio and Sync or Cue Track with Time Code

1 Music—Left
2 Music—Right
3 Dialogue
4 Time Code with User Bits

Stereo Audio and Separate Dialogue Track with Time Code

Nobody Builds More Models of Professional Tape Machines

With TASCAM, you have a clear choice. We let you buy what you need, but don't force you to buy more than you need. For example, our Series 50 machines have a 60 Hz tach (2 pulses per frame or 1 pulse per field) as well as the same 12 Hz output found in Series 40. Series 50 may be the logical choice if you're in a production environment that requires very high resolution at very slow speeds (for "creep" and "crawl") where the higher resolution tachometer is necessary. In keeping with that application, Series 50 is also built to withstand hours of high-speed shuttling over the same portion of tape for automatic dialogue replacement ("looping") and similar tasks. If you're not involved in that kind of 24-hour super heavy-duty work, why pay for more machine than you need? Series 40 recorder/reproducers combine advanced features, SMPTE capability, and top notch performance. Take a hard look at Series 40—the machines that set new standards for performance and value in audio and video production.

SERIES 40 SPECIFICATIONS

MECHANICAL CHARACTERISTICS

Tape:	48: 1/2 inch, 1.5 mil 44/42: 1/4 inch, 1.5 mil
Track Format:	48: 8-track, 8-channel, 1.0mm 44: 4-track, 4-channel, 0.91mm 42: 2-track, 2-channel, NAB; 2.0mm, DIN; 2.7mm
Reel Size (max.):	44/42: 10-1/2", NAB, EIA 48: 10-1/2", NAB
Tape Speed:	48: 15 ips (38 cm/s) 44/42: 15 ips (38 cm/s), 7-1/2 ips (19 cm/s)
Speed Accuracy[1]**:**	±0.2% deviation
Pitch Control:	±12%
Wow and Flutter[1]	
15 ips:	0.05% (NAB weighted) 0.07% (NAB unweighted) ±0.08% peak (DIN/IEC/ANSI weighted) ±0.12% peak (DIN/IEC/ANSI unweighted)
7-1/2 ips:	0.06% (NAB weighted) 0.08% (NAB unweighted) ±0.09% peak (DIN/IEC/ANSI weighted) ±0.14% peak (DIN/IEC/ANSI unweighted)
Fast Wind Time:	120 seconds for 10-1/2" reel, 2,400 feet
Spooling Wind Time:	370 seconds for 10-1/2" reel, 2,400 feet
Start Time:	Less than 0.8 sec. to reach standard Wow and Flutter
Capstan Motor:	PLL (Phase Locked Loop) DC direct drive motor
Reel Motors:	Slotless DC motor × 2
Head Configuration:	3-heads; erase, record/sync and reproduce
Tape Cue:	Manual and automatic (RTZ and STC)
Dimensions (W × H × D):	17 × 19-7/8 × 12-7/16 inch (432 × 505 × 315.5mm)
Weight (net):	48: 81-9/16 lbs. (37 kg) 44: 74-15/16 lbs. (34 kg) 42: 70-9/16 lbs. (32 kg)

ELECTRICAL CHARACTERISTICS

Mic Input (42 only)		
Input impedance:	1.2 k ohms, balanced	
Applicable Mic Impedance:	150 ohms or more	
Minimum Input Level:	−72 dBm (0.195 mV)	
Maximum Input Level:	−20 dBm (77.5 mV)	
Line Input	Balanced	Unbalanced
Input Impedance:	10 k ohms	50 k ohms
Maximum Source Impedance:	2 k ohms	10 k ohms
Nominal Input Level:	+4 dBm (1.23 V)	−10 dBV (0.3 V)
Maximum Input Level:	+28 dBm (19.5 V)	+18 dBV (8.0 V)
Line Output	Balanced	Unbalanced
Output Impedance:	20 ohms	60 ohms
Minimum Load Impedance:	200 ohms	600 ohms
Nominal Load Impedance:	600 ohms	10 k ohms
Nominal Output Level:	+4 dBm (1.23 V)	−10 dBV (0.3 V)
Maximum Output Level:	+28 dBm (19.5 V)	+18 dBV (8.0 V)

Bias Frequency:	150 kHz
Equalization:	48: IEC(CCIR); ∞ + 35μsec. 44: NAB; 3,180 + 50μsec. at 15 & 7-1/2 ips 42: NAB; 3,180 + 50μsec. at 15 & 7-1/2 ips IEC (CCIR); ∞ + 35μsec. at 15 ips, ∞ + 70μsec. at 7-1/2 ips
Record Level Calibration: **(0 VU reference)**	48/44: 250 nWb/m tape flux level 42: 250 nWb/m tape flux level 320 nWb/m tape flux level
Power Requirements	
USA/CANADA:	120 V AC, 60 Hz
EUROPE:	220 V AC, 50 Hz
UK/AUSTRALLIA:	240 V AC, 50 Hz
GENERAL EXPORT:	100/120/220/240 V AC, 50/60 Hz
Power Consumptions:	48: 140 W 44: 90 W 42: 80 W

TYPICAL PERFORMANCE

Frequency Response		
Record/Reproduce[3]**:**		
15 ips	48/44:	40 Hz—20 kHz, ±3 dB at 0 VU 40 Hz—22 kHz, ±2 dB at −10 VU
	42:	30 Hz—22 kHz, ±3 dB at 0 VU 30 Hz—24 kHz, ±2 dB at −10 VU
7-1/2 ips	44:	40 Hz—16 kHz, ±2 dB at 0 VU 40 Hz—20 kHz, ±2 dB at −10 VU
	42:	30 Hz—16 kHz, ±2 dB at 0 VU 30 Hz—20 kHz, ±2 dB at −10 VU
Sync Reproduce[2]**:**		
15 ips	48/44:	40 Hz—22 kHz, ±2 dB
	42:	30 Hz—22 kHz, ±2 dB
7-1/2 ips	44:	40 Hz—20 kHz, ±2 dB
	42:	30 Hz—20 kHz, ±2 dB
Total Harmonic Distortion[3]**:**		0.8% at 0 VU, 1,000 Hz, 250 nWb/m 3% at 13 dB above 0 VU, 1,000 Hz, 1,120 nWb/m
Signal-to-Noise Ratio[3]**:**		
(Reference 3% THD at 1kHz)		
15 ips	48/44:	69 dB A weighted (NAB) 62 dB unweighted (0—100 kHz)
	42:	70 dB A weighted (NAB) 62 dB unweighted (0—100 kHz)
7-1/2 ips	44:	67 dB A weighted (NAB) 60 dB unweighted (0—100 kHz)
	42:	68 dB A weighted (NAB) 60 dB unweighted (0—100 kHz)
Adjacent Channel Crosstalk[3]**:**		Better than 55 dB down at 1,000 Hz, 0 VU
Erasure[3]**:**		Better than 70 dB at 1,000 Hz, +10 VU
Recording Amplifier Headroom:		Better than 28 dB above 0 VU at 1,000 Hz

*Specifications were determined using TEAC Test Tape:
44/42 (1) YTT-2004 (15 ips)/YTT-2003 (7-1/2 ips)
(2) YTT-1004 (15 ips)/YTT-1003 (7-1/2 ips), NAB
YTT-1044 (15 ips)/YTT-10432 (7-1/2 ips), IEC
(3) YTT-8063
48 (1) STL-62 (2) YTT-1144SP (3) YTT-8163

*In these specifications: 0 dBV is referenced to 1.0 Volts rms; 0 dBm is referenced to 0.775 Volts rms.
*Changes in specifications and features may be made without notice or obligation.

SERIES 40 OPTIONS

***Remote Transport Control Unit RC-71**
***Remote Punch In/Out Footswitch RC-30P**
***19 inch EIA Standard Console CS-607B**
***Rack Mount Kit RM-501**
***dbx Unit DX-4D (4-channel) DX-2D (2-channel)**

TEAC CORPORATION: 3-7-3, Naka-cho, Musashino, Tokyo, Japan Phone: (0422) 53-1111
TEAC CORPORATION OF AMERICA: 7733 Telegraph Road, Montebello, California 90640 Phone: (213) 726-0303
TEAC CANADA LTD.: 3610 Nashua Drive, Unit 1 & 2, Mississauga, Ontario L4V 1L2, Canada Phone: 416-673-3303
TEAC AUSTRALIA PTY., LTD.: 115 Whiteman Street, South Melbourne, Victoria 3205 Australia Phone: 699-6000

TASCAM
TEAC Professional Division

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112 *Stereo Cassette Recorder/Reproducer*

The 112 is a basic 2-head machine that fully maintains the professional-quality performance, stability and reliability of the top-line 122MKII. Special care has been taken in the 112 transport system to ensure unfaltering reliability and stability even under hard non-stop working conditions. The 112 electronics are just as stable and reliable as the rest of the system, while delivering the finest electronic performance possible. The entire electronic system is powered by a precision-regulated bipolar power supply so circuit operation is exceptionally stable, distortion is low and a wide dynamic range is available. Dolby HX Pro is included for significantly increased high-frequency MOL, while Dolby B and C type noise reduction aid in making clean, noise-free recordings while providing compatibility with tapes recorded on other machines. Cue and Review functions provide open-reel type cueing convenience in both the fast forward and rewind modes—just touch the appropriate fast wind button while the deck is in the pause mode.

The 112 is a tough, reliable workhorse that makes the cassette medium a worthy contender in the competitive professional arena.

OTHER FEATURES

*19"rack mountable. *Selectable front (1/4" phono jack) and rear (RCA-pin jack) input terminals. *Independent left and right channel input level controls. *Precision left and right channel VU meters with peak LEDs. * ± 12% pitch control. *Output level control. *Head phone jack with level control. *Optional RC-71 remote control unit.

SPECIFICATIONS

122MKII

MECHANICAL CHARACTERISTICS
Head Configuration: 1 Erase, 1 Record and 1 Reproduce
Motors: 1 FG servo direct-drive capstan motor
1 DC reel motor
1 DC ancillary moter
Tape Speed: 4.8 cm/s (1-7/8 ips)
Pitch Control: ±12%
Dimensions (W×H×D): 482×133×297 mm
(19"×5-1/4"×11-11/16")
Weight (net): 7.7 kg (16.94 lbs)
ELECTRICAL CHARACTERISTICS
Line Input (XLR): 40 kohms/+4 dBm, balanced
Line Input (RCA & 1/4"): 30 kohms/−10 dBV
Line Output (XLR): 100 ohms/+4 dBm, balanced
Line Output (RCA & 1/4"): 100 ohms/−10 dBV
Headphones Output: 100 mW/ch. max. at 8 ohms
Recording Level: 160 nWb/m (0 VU)
TYPICAL PERFORMANCE
Wow and Flutter: 0.04% (NAB weighted)
±0.08% peak (DIN/IEC/ANSI weighted)
Frequency Response (Overall, NR Out):
25 Hz—20 kHz ±3 dB at −20 VU (Metal)
25 Hz—19 kHz ±3 dB at −20 VU (CrO2)
25 Hz—17 kHz ±3 dB at −20 VU (Normal)
Total Harmonic Distortion: 1% at 0 VU, 400 Hz
Signal-to-Noise Ratio (Reference 3% THD):
59 dB (NR Out, WTD)
68 dB (Dolby B In, over 5 kHz)
78 dB (Dolby C In, over 10 kHz)

112R

MECHANICAL CHARACTERISTICS
Head Configuration: 2 Erase and 1 Record and 1 Reproduce
Motors: 1 DC servo capstan motor
1 DC reel motor
1 DC ancillary moter
Tape Speed: 4.8 cm/s (1-7/8 ips)
Reverse Time: 0.75 sec.
Pitch Control: ±15%
Dimensions (W×H×D): 479×118×290 mm
(18"-13/16"×4-5/8"×11-7/16")
(with rack mount angles)
Weight (net): 4.8 kg (12.79 lbs) net
ELECTRICAL CHARACTERISTICS
Mic Input: 10 kohms/−60 dBV (1 mV)
Line Input: 40 kohms/−10 dBV (0.3 V)
Line Output: 3.5 kohms/−10 dBV (0.3 V)
Headphones Output: 2.5 mW/ch. max. at 8 ohms
Recording Level: 200 nWb/m (0 dB)
TYPICAL PERFORMANCE
Wow and Flutter: 0.03% (NAB weighted)
±0.06% peak (DIN/IEC/ANSI weighted)
Frequency Response (Overall, NR Out):
25 Hz—20 kHz ±3 dB at −20 dB (Metal)
25 Hz—19 kHz ±3 dB at −20 dB (CrO2)
25 Hz—17 kHz ±3 dB at −20 dB (Normal)
Total Harmonic Distortion: 1% at 0 dB, 400 Hz
Signal-to-Noise Ratio (Reference 3% THD):
60 dB (NR Out, WTD)
70 dB (Dolby B In, over 5 kHz)
80 dB (Dolby C In, over 1 kHz)

112

MECHANICAL CHARACTERISTICS
Head Configuration: 1 Erase and 1 Record/Reproduce
Motors: 1 DC servo capstan motor
1 DC reel moter
1 DC ancillary moter
Tape Speed: 4.8 cm/s (1-7/8 ips)
Pitch Control: ±12%
Dimensions (W×H×D): 482×133×297 mm
(19"×5-1/4"×11-11/16")
Weight (net): 6.1 kg (13.45 lbs) net
ELECTRICAL CHARACTERISTICS
Line Input: 20 kohms/−10 dBV (0.3 V)
Line Output: 100 ohms/−10 dBV (0.3 V)
Headphones Output: 100 mW/ch. max. at 8 ohms
Recording Level: 160 nWb/m (0 VU)
TYPICAL PERFORMANCE
Wow and Flutter: 0.04% (NAB weighted)
±0.08% peak (DIN/IEC/ANSI weighted)
Frequency Response (Overall, NR Out):
25 Hz—19 kHz ±3 dB at −20 VU (Metal)
25 Hz—18 kHz ±3 dB at −20 VU (CrO2)
25 Hz—17 kHz ±3 dB at −20 VU (Normal)
Total Harmonic Distortion: 1% at 0 VU, 400 Hz
Signal-to-Noise Ratio (Reference 3% THD):
59 dB (NR Out, WTD)
68 dB (Dolby B In, over 5 kHz)
78 dB (Dolby C In, over 1 kHz)

In these specifications: 0 dBV is referenced to 1.0 Volt: 0 dBm is referenced to 0.775 Volt.
Changes in specifications and features may be made without notice or obligation.
*Dolby: the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

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TASCAM
TEAC Professional Division

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TASCAM

STEREO CASSETTE RECORDERS
122MKII/112R/112

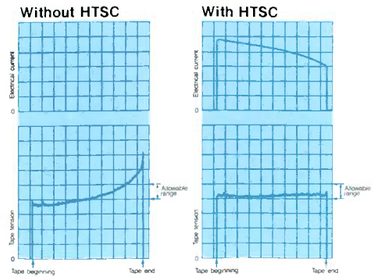
A Choice of Three Superb Cassette Recorders/Reproducers for Professional Applications—from TASCAM.

122MKII *Stereo Cassette Recorder/Reproducer*

The 122MKII is the leader in TASCAM's line-up of professional 4-track 2-channel stereo cassette machines. To qualify for "professional" status it offers extended durability and reliability so that it can keep up with the tough, pace of professional operation. At the same time it features an extremely high standard of reproduction quality with a 3-head system featuring CA (Cobalt Amorphous) record and playback heads which permit independent azimuth adjustment, uncompromised electronics, a precision FG-servo direct-drive capstan motor, and XLR type inputs and outputs (+4 dBm) as well as −10 dBV RCA pin connectors.

Hysteresis Tension Servo Control System

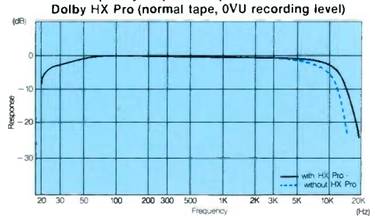
Since the 122MKII is intended for professional use, absolute transport stability under widely varying conditions is essential. To achieve this in a critical 3-head transport, the 122MKII incorporates our original Hysteresis Tension Servo Control system (HTSC). In this system tape tension is controlled at the supply reel by a non-friction electromagnetically-driven servo. Back tension on the tape remains the same throughout the entire reel, providing a significant reduction in wow and flutter as well as distortion. Further, this advanced system is unaffected by extreme temperature or humidity.



Dolby HX Pro

The high-frequency content of normal music signals can sometimes add to the deck's bias signal, overbiasing the tape and significantly lowering high-frequency MOL. Dolby HX Pro is an active biasing system that overcomes this problem, effectively adding up to 6 dB of headroom in the high frequency range. This is achieved by monitoring the total bias level fed to the tape, and automatically reducing bias if the level goes above optimum. Furthermore, Dolby HX Pro functions only during recording and has no effect during playback. This means that tapes recorded with HX Pro can be played back on any other cassette deck.

The frequency response improvement with Dolby HX Pro (normal tape, 0VU recording level)



Front-access Bias/Level Calibration Controls

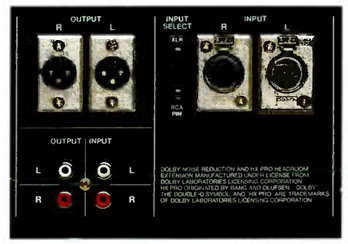
Optimum reproduction performance with different tapes requires critical adjustment of record level and bias. The 122MKII permits precise record bias and level adjustment with front-panel trimmers and a built-in calibration oscillator. Bias and level are independently adjustable for the left and right channels. The test tone oscillator offers 400 Hz and 10 kHz frequencies for precise bias/level adjustment.

2-mode Counter and Versatile Locator Functions

The 122MKII tape counter offers both index and TRT (Tape Run Time) modes, providing an accurate visual guide to tape position as well as actual tape run time in minutes and seconds. Used in conjunction with the locator keys, the counter can be used to set up precise zero-return stop or play points, cue-point stop or rewind, or continuous block repeat between the counter-zero point and any cue point.

Balanced & Unbalanced Inputs/Outputs

The 122MKII offers broad input/output compatibility with all professional and other equipment. Balanced +4 dBm XLR-type input and output connectors which also handle unbalanced signals are provided on the rear panel, in addition to −10 dBV RCA pin jacks. A switch determines whether the XLR or RCA inputs are active, while the XLR and RCA outputs are both active at all times. A pair of unbalanced 1/4" phone jack inputs are also provided on the front panel for quick, easy access. A selector on the front panel determines whether input is received via the front-panel input jacks or the active rear-panel inputs.



Other Features

*19" rack mountable. *Dolby B and C noise reduction. *Gear/clutch-coupled left and right channel input level controls. *Cue and Review functions. *Bipolar power supply for optimum circuit stability, low distortion and broad dynamic range. *Precision left and right channel VU meters with peak LEDs. * ±12% pitch control. *Output level control. *Headphone jack with level control. *Optional RC-71 remote control unit. *Fader Start facility.

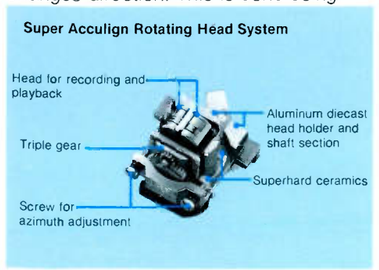
112R *Bi-Directional Stereo Cassette Recorder/Reproducer*

The TASCAM 112R is the deck of choice for professional applications requiring extended playback and record capability. Not only does it deliver the requisite degree of performance, reliability and durability, but it also offers a number of specialized functions that make it perfect for a broad range of applications. Auto-reverse operation offers obvious long-play/record benefits, but an optional interface allows two or more 112Rs to be connected for even broader applications potential.

Symmetrical Bi-directional Transport with Super Acculign Rotating Head & HTSC

TASCAM's answer to the common problem of differing reproduction quality on the forward and reverse sides of a tape is the unique Symmetrical Bi-directional Transport with Super Acculign Rotating Head. This highly refined system offers an identical transport environment in both the forward and reverse tape directions, thus maintaining the same stability and precision in both directions. To ensure uncompromised three-head performance for forward and reverse recording and playback, the 112R employs an independent record and playback head assembly which actually rotates 180 degrees when the tape changes direction. This is done using a top-precision, extremely reliable rotating mechanism so that optimum tape-travel conditions and head alignment are maintained both ways. We've actually tested the head for up to 10,000 rotations—without the slightest loss in precision or alignment! Further, changing playback and record directions is accomplished with remarkable speed so that no long gaps are introduced into the program.

Super Acculign Rotating Head System



Like the 122MKII, the 112R offers Hysteresis Tension Servo Control to achieve absolute transport stability under widely varying conditions.

Synchronized Multi-deck Operation

A 16-pin connector on the 112R rear panel provides remote transport control operation and multi-deck interfacing capability for a broad range of applications. The actual interface control configuration will be custom-installed at your TASCAM service station according to your specifications. Some of the possible functions are:

—Continuous recording or playback. In this type of system two or more 112Rs are connected in a "chain." When the first deck in the chain finishes playback or recording (auto reverse included) the next deck in the chain takes over, and so on. This permits virtually unlimited continuous record or playback time.

—Duplication. Engaging the PLAY mode on a "master" deck simultaneously engages the RECORD mode on one or more "slaves."

—STOP-activated deck switchover. Pressing the STOP button on one deck automatically activates the PLAY mode in the other.

—Cue-activated play. In this type of system, special cue signals recorded on one deck are used to activate the play mode in the second deck.

—Tally signals. In addition to receiving remote control signals, the 16-pin connector can be configured to deliver tally signals for the forward play, reverse play, fast forward, rewind, stop and play modes. With these signals available, sophisticated computer-controlled tape systems can be created for a broad variety of applications.

Pin Assigments of the REMOTE CONTROL Connector

Pin#	IN(put)—OUT(put) signals	
1	FWD.PLAY	IN
2	F.FWD	IN
3	REW	IN
4	STOP	IN
5	PAUSE	IN
6	REC	IN
7	REC MUTE	IN
8	GND	
9	REV. PLAY	IN
10	REV.PLAY TALLY	OUT
11	FWD.PLAY TALLY	OUT
12	F.FWD TALLY	OUT
13	REW TALLY	OUT
14	STOP TALLY	OUT
15	REC TALLY	OUT
16	REV. END	OUT

Other Features

*19" rack mountable. *Optional RC-205K remote control unit kit additionally provides CPS, INTRO CHECK, MEMORY START/STOP and BLOCK REPEAT functions. *Dolby B and C noise rediction. *Digital tape counter with TRT/Index modes. * ±15% pitch control. *Direct-coupled amplifier circuitry. *Automatic tape type selection. *Output level control. *Left and right channel mic inputs. *Timer rec/play capability. *Auto monitor.

TASCAM

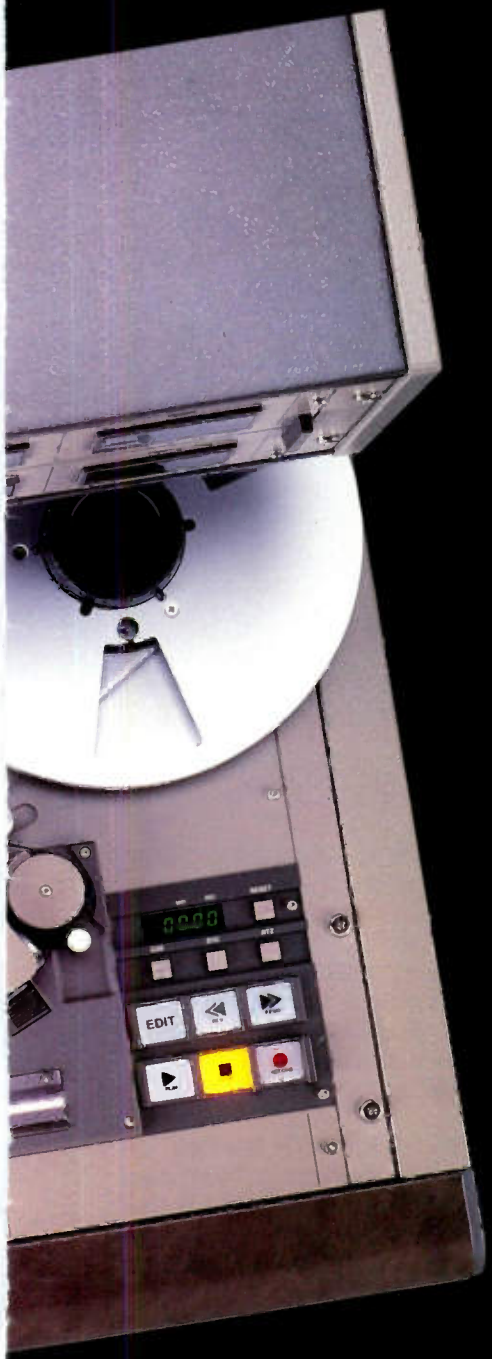
ATR-60 SERIES

Pure Performance

ATR-60 SERIES

Built for the demands of production

It's time to pull tape. Field production delays, script changes, an indecisive client, and a dozen source materials of dubious quality don't matter now. What matters is the deadline and your commitment to quality. In the production business, quality plus speed equals success.



The ATR-60s are engineered for those who make their living with recorders. All five share a design philosophy stressing function over flash—an overall efficiency paced by the right balance of features without excess. Refined and tempered by experience and materials to meet the harshest and most demanding environments with poise, speed, and tenacity, the ATR-60s are at home in any audio or video production facility.

Improving the quality of your audio always means more money to you, no matter what your delivery medium. Today's sophisticated audiences demand high quality productions. Focused on performance without complication, the ATR-60s deliver unsurpassed audio performance by means of: innovative head design; a refined and incredibly accurate low-tension transport; a rigid aircraft aluminum deck plate encased by a buttressed steel chassis; space-saving mount-anywhere construction; and production-friendly, one-button, user programmable functions.

Speeding production lowers expenses; you'll keep a bigger share of your income. Production speed comes from doing things right the first time. ATR-60s are born and bred to the work ethic. They are the product of years of dialog between TASCAM product planners and working audio and video professionals. Every feature, control, and connector has been thoughtfully engineered to correspond to needs of the professional. You won't waste time, tape, or money with an ATR-60 because...

- Every ATR-60 is built tough, its deck plate won't flex. You won't be compensating for flex-induced phase or wow and flutter problems in post.
- The Omega Drive puts less stress on tape. The cumulative tension of thousands of frame accurate stop/start passes won't reach your tape.
- Outstanding head performance means Sync Frequency Response equals Repro. You won't have to rewind and change modes to make critical audio decisions.
- Sync Lock and the most responsive servo control in the business will keep you working instead of waiting for a machine to lockup.
- Time Code Lock keeps code coming from the Sync head, no matter what the audio monitor mode, so that your synchronizer won't get confusing double messages when modes are switched.
- Input Enable/Disable lets you monitor any source without repatching or changing mixer settings, avoiding a common cause of aborts.
- Long cable runs don't bother an ATR-60 since +4 dBm, +8 dBm, and even +10 dBm levels are available.

...Every ATR-60 is built to finish what it starts. You won't have to cancel work or change schedules because a machine died mid-project.

There are five models within the ATR-60 series; the ATR-60-2T Center Track Time Code (IEC Standard) Recorder, ATR-60-2N/2D Quarter-inch Mastering Recorder, ATR-60-2HS Half-inch High Speed Mastering Recorder, ATR-60-4HS Half-inch 4-track High Speed Mastering or Multitrack Recorder, and ATR-60-8 Half-inch Production Quality 8-track.

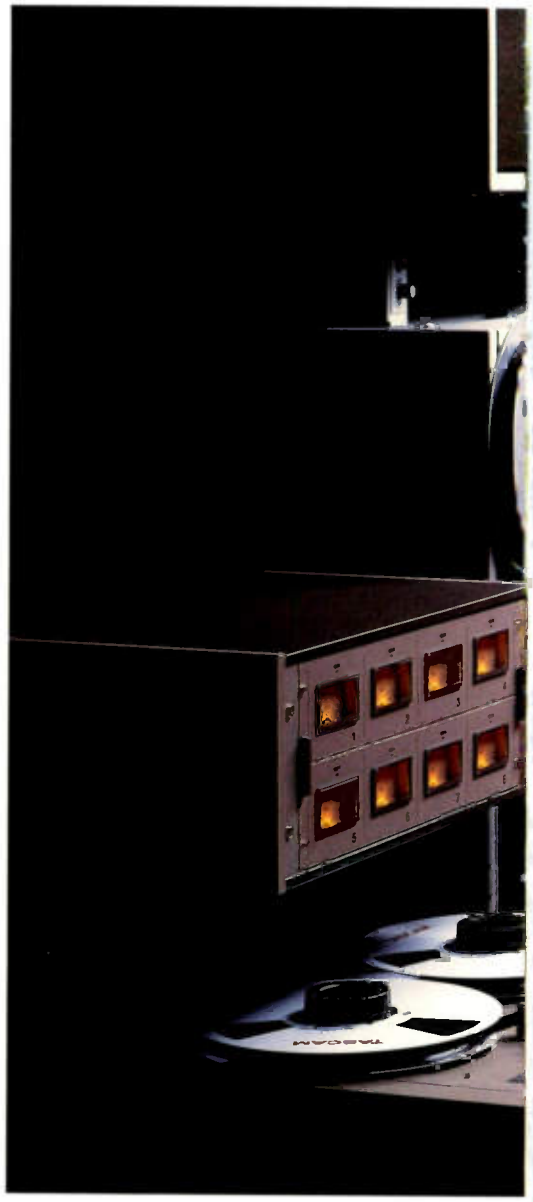
ATR-60-2T Center Track Time Code Recorder

Revolutionary in its coincident-head approach to time code recording, the ATR-60-2T is a 2-track with an additional IEC standard center track to record and reproduce SMPTE/EBU time code. The additional time code track occupies the normally blank space between tracks of the traditional NAB 2-track format. As a result, previously mastered 2-track tapes from your library (even DIN) can be time code striped and reedited.

The coincident-head configuration makes time code virtually invisible on the ATR-60-2T. You don't have to change a single operating or editing technique. Use your razor blade to edit if you wish because the code is where it belongs, directly coincident with the audio. Don't worry about striping enough code before your audio, or worry about code overrun at the end of the audio. And, you don't have to pay for an extra head, mounting plate, and a bag full of extra microprocessors and circuits just to compensate for an offset head.

Advantages of coincidence carry over to machine maintenance and service. Head Wrap adjustments, which many techs perform as regular maintenance, are very difficult with offset head designs. Special equipment is needed to perform these procedures so that factory service may prove necessary for a routine adjustment. Tape wrap is crucial in an offset design because it affects the distance between gaps on the audio and time code heads, adding yet another variable to a system burdened with delay lines and offset calculations.

In order to record and reproduce time code in the center track, crosstalk performance must be superior or the time code head must be offset. It's easier to offset the head, but to do so means losing editing flexibility and devising "compensating" schemes to deal with the offset. The straightforward approach, TASCAM's approach, is to reengineer the head. TASCAM engineers were able to create a head that would allow a coincident configuration while retaining over 70 dB of crosstalk performance between audio and code tracks. In the design process, new shielding methods were created that allow coincidence without incidents.



ATR-60-2N/2D Mastering Recorder

The ATR-60-2N/2D (2N using NAB standard, 2D using DIN standard heads) is a quarter-inch mastering machine, designed with an easy going but hard working personality that makes it a joy in the mastering suite. Unsurpassed frequency response, signal-to-noise ratio, crosstalk, distortion, and wow and flutter performance are byproducts of TASCAM's 30 years of innovative head and transport design.

Designed to prosper in even the most brutal environment, the ATR-60-2N/2D is steel toughened in a two piece configuration that will fit in tiny remote trucks or where audio was an afterthought in planning the video suite. Its Omega Drive transport will thrive on thousands of passes a day, all the while gently protecting your tape from the cumulative tension of the day's shuttling.

ATR-60-2HS and ATR-60-4HS High Speed Mastering Recorders

Two more mastering machines, the ATR-60-2HS and ATR-60-4HS, represent the ultimate in analog audio performance. These machines bear the "HS" designation, meaning high speed. Operating at 30 ips

▲ *Edit, sweeten, add dialog or effects, lay back, manipulate your audio with frame accuracy and the fastest, most reliable lockup characteristics in the business.*

and using half-inch tape, they are perfect for maximum quality music mastering. The 2HS model is a 2-track machine. The 4HS is a half-inch 4-track, a format favored by those mastering audio for video and film.

The 2HS and 4HS have newly designed heads that maximize the inherent advantages of high speed operation and wider tape including vivid audio characterized by impressive high frequency response, linearity, and signal-to-noise performance. Able to print at 320 nWb/m in addition to the standard 250 nWb/m, the ATR-60-2HS and ATR-60-4HS wring every last dB of signal-to-noise performance from your tracks. The Omega Drive transport delivers and retrieves the half-inch tape with absolute precision and speed. The machined head block and hardy deck plate/chassis combination don't give tape skewing or wow and flutter problems a chance to start. And a scrape flutter filter takes dead aim at even miniscule friction induced noise. You will not find analog recorders at any price that will give you better audio performance than the ATR-60-2HS and ATR-60-4HS.

ATR-60-8
High Performance 8 Track

The ATR-60-8 outperforms anything with 8-tracks. No other 8-track sounds better or performs faster or more reliably in a SMPTE-EBU based sweetening or production setting. A half-inch machine, the ATR-60-8 offers a transport designed for extensive shuttling and frame accurate, computer controlled parking. Despite being parked and started in exactly the same spot hundreds of times while editing a single scene, the ATR-60-8 will not pass along *cumulative* tension spikes to your tape as will many straight-line tape path machines.

You won't be wasting a track as a guard band using your ATR. Typical of TASCAM head design, your ATR-60-8 head offers crosstalk performance so good you can confidently print audio on the track adjacent to code. Time Code Lock and Sync Lock give your synchronizer/controller optimum access to code without affecting audio, and a single multipin connector is your door to the most responsive SMPTE/EBU control in the business. Punch-in and punch-out performance is exceptionally quiet and accurate, so your audio will be free of "snivits" and other audio problems created by sloppy punch-ins. If you're in need of a "no holds barred" 8-track, you can't make a better choice than the ATR-60-8 from TASCAM.

TASCAM Heads, the Keystone of Great Performance

Heads have the single greatest impact on the performance of a tape recorder (the best audio performance starts with the best heads). Disadvantages established by the inferiorities of head design are impossible to make up by compensations in the transport or electronics. At TASCAM, we design and manufacture every head in every recorder we sell. We do it because we do it better. You can't build anything of precision out of parts from a variety of manufacturers. Your TASCAM recorder works well as a whole because its parts were thoroughly designed and tested to work well together.

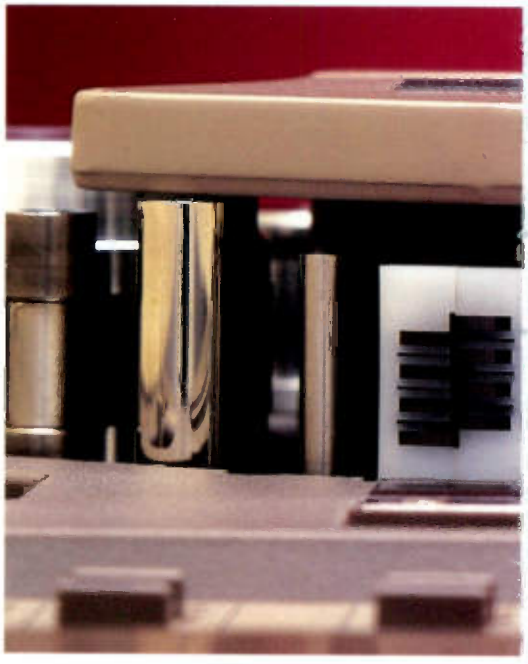
Over thirty years of designing and manufacturing recorder heads has given our engineering staff more experience than any other recorder maker. Much of this experience has been earned in the highly demanding applications for data, instrumentation, and high-performance airborne video recorders. Performance standards, and the cost of failure, are very high in these applications. How does this background affect your ATR-60? Often, new problems in one area are old problems with existing solutions in another area.

As an example, engineers with experience in data and instrumentation recorders find nothing new in the technical demands of time code recording. TASCAM's background, combined with an insatiable desire for improvement, gives our designers the ability to create recorder heads with unsurpassed performance specifications.

Proprietary head technology gives every TASCAM recorder, including the ATR-60 series, at least two distinct advantages over all other recorders. Frequency response from the record head in its Sync mode is equal to the response of the Repro head. And, all TASCAM recorders offer superior crosstalk performance.

Equal response from Sync and Repro modes means that tapes can be critically and accurately monitored from the record head while mastering or overdubbing. The ability to hear exactly the signal that is going onto your tape means that critical frequency mix and phase response judgements can be made without rewinding the tape and switching to repro mode for another listen. You'll save time and money.

High sensitivity, exceptional frequency response, and high linearity (good transient response) are most dependent upon the quality of core materials and the width (and stability at high frequencies) of the gap. Extensive testing has proven that a new Hard Permalloy material used in all ATR-60 heads (except erase heads) provides the best combination of high sensitivity, low distortion, linearity, and long life. TASCAM's Hard Permalloy™ heads also retain gap stability at high frequencies, a weakness of ferrite heads. This stability allows extremely tight tolerances to be maintained in gap widths as small as 2 microns. Special cutting techniques are used to



Since we make all our own heads, we demand the tightest specifications and quality control right to final hand lapping.

achieve these minute gap widths, with the end result being a recorder of unsurpassed high frequency response and linearity, two performance characteristics vital to today's wide dynamic range, broad bandwidth sound sources.

Crosstalk performance is most affected by the construction techniques and the core or shield shape of the head. TASCAM has developed a new coil winding technique and a special "cut-away" construction that allows coil windings to be placed at optimum distances from one another. Specially laminated shields using non-magnetic materials have also been created to defeat crosstalk, particularly in the ATR-60-2T. The time code portion of the 2T head has a

Omega Drive: Precision, Strength, and a Soft Touch

Even the best heads and electronics would falter if the tape were delivered by an inadequate transport. In a sense, a transport must have a split personality. It must be the rowdy with a heart of gold, the weight lifter with a ballerina's grace. A transport must vigorously respond to brutal use, and yet, treat tape with the utmost precision and gentleness. Experience making transports to survive the abuses of supersonic aircraft and the rigors of space travel while performing with the accuracy demanded by the world's foremost scientists gives TASCAM designers valuable insights into problems associated with transport stability, shock resistance, and precision.

The ATR-60 series features the Omega Drive transport. The tape path, shaped like an inverted omega, is a design tested and refined in instrumentation and video recorders and mainframe computers. In the Omega Drive, tape tension spikes from mode to mode (Stop to Play, etc.) are greatly reduced from those common in traditional straight-line tape paths.

In a typical album situation 1,000 to 1,500 passes is common during overdubs. In the video editing booth, a single scene may be shuttled 100 to 300 times. With a human at the controls, the tape won't park in *exactly* the same spot everytime. But under computer control, every start/stop will happen with frame accurate parking. In this environment, cumulative tape tension applied to the same spot can cause stretching even though the one-time measurement is within the tape's specifications. Omega Drive allows operating tension loads 60 to 100 grams below those of machines by other makers. Your ATR-60 will *NOT* brutalize your tape no matter how hard it is pushed.

Tape motion in the Omega Drive is perfectly stable. The entire transport is mounted on a rigid machined aluminum plate and steel chassis. This plate and chassis, when combined with the machined head block, provide a rock solid cornerstone for the ATR-60's microprocessor controlled transport. Your ATR-60 can be operated with absolute precision at any angle. As a result, flex-induced wow and flutter or phase error need never be a concern of the ATR-60 user.

Oversized, slotless, DC reel motors give the ATR-60 unwavering tension stability while tape motion is always accurate and gentle. The tension servo uses a non-contacting detector (an eddy current coil) which senses the position of the tension arm so that the servo can adjust the reel motor's torque. The servo also adjusts the position of the tension arm to optimize tape handling and packing.

Your ATR-60 will tenaciously protect the tape entrusted to its care. Tape tension on both the supply and takeup reels is proportionally maintained while the system is in play mode. During the fast winding modes, back tension is held to a constant value. When the transport enters stop mode from any search or fast wind mode, the reels are slowed to a stop by means of dynamic braking. The reel motors stop the tape more gently than mechanical braking, avoiding slippage and stretching by maintaining uniform tension throughout deceleration.

▲ *Workmanship shows. Open an ATR-60 and you'll find first class components and design. Tape tension is isolated and controlled by the Omega tape path, long trusted in 1" VTRs with their high velocities and quick direction changes.*

All major rotating components are supported by ball bearings that maintain the closest possible tolerances while introducing the least possible friction. Even the tension arm itself is ball bearing supported so that everything in the tape path is optimized for sensitive response, reduced wow and flutter, and less tape drag. The transport incorporates a scrape flutter filter to eliminate even the slightest friction-induced noise.

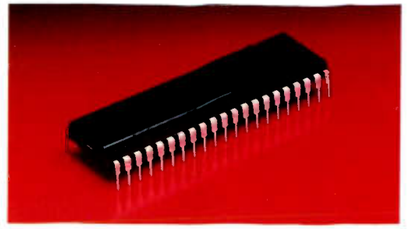
The ATR-60 transport has a spooling mode that produces a winding speed of 80 ips, producing a smooth tape pack which reduces print-through when stored and eliminates potential edge damage and skewing. Every ATR-60 also has a pitch control feature that provides both Coarse and Fine adjustments over a range of plus or minus 15%.

The capstan uses a direct drive motor that is under Phase Locked Loop, servo control. The motor's large size, brushless design, and non-magnetic ceramic capstan shaft serve to minimize cogging and other speed anomalies while providing an extended service life. The capstan's pinch roller uses two voltages for its solenoid. It is actuated by a higher voltage (24 volts) which ensures a strong and positive response. A lesser voltage (12 volts) is then used to hold the pinch roller in place. This system guarantees complete capstan contact and precise tape movement, but avoids excessive heat build up. This attention to detail is typical of every system in the ATR-60 series transport. No part or system is insignificant. Every single element has received the careful scrutiny of the world's finest and most experienced design teams.

Any Editing Style is Easy on an ATR-60

The ATR-60s will accommodate any style of manual editing. Pressing the Edit button releases the reel brakes and applies takeup tension. The reels can then be hand rocked or the user can move the appropriate tension arm to roll tape in either direction. A dump edit (very handy when large sections of tape must be removed) can be performed by pressing both the Edit and Play buttons simultaneously. Dump edit disables the takeup reel and causes the microprocessor to disregard takeup arm position. The capstan and supply reel will feed tape past the heads, spilling the excess. The editor may listen to the tape as it is being spilled and stop the transport at the appropriate edit point.

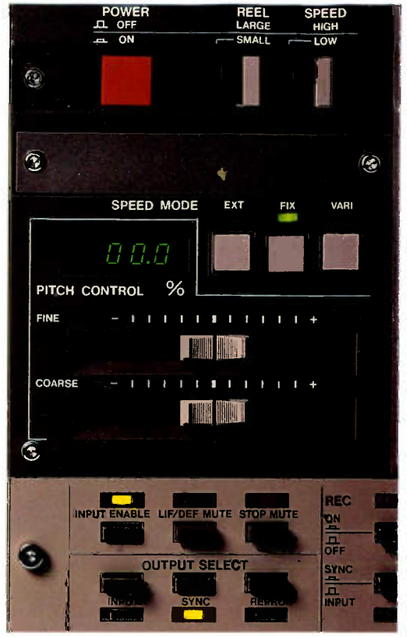
Custom programmed CPU monitors speed, braking, and tape tension to preserve your material through hundreds of tape-stretching starts and stops.



In stop mode, the electronics of the ATR-60 are still active. Using the Stop Mute Disengage, the editor may listen to the tape as it passes the heads when the reels are hand rocked, or when manipulating the tension arms to spill tape. A Tape Lifter Defeat is supplied so that the editor can listen to the tape while it is being shuttled at fast speeds. A Lifter Defeat Mute function (4HS and 8) allows synchronizers and editors to sample time code during acceleration or deceleration while it mutes the audio on the other channels to avoid unintentionally placing high frequency audio at the recorder outputs, shattering nerves and speaker components. During sessions, the Input Enable/Disable (4HS and 8) switch can be used to hear studio feeds or source material while the tape transport is in fast wind or stop mode. A single button push is all that it takes to monitor any track or source. You won't be risking an abort by changing settings on the mixer or repatching.

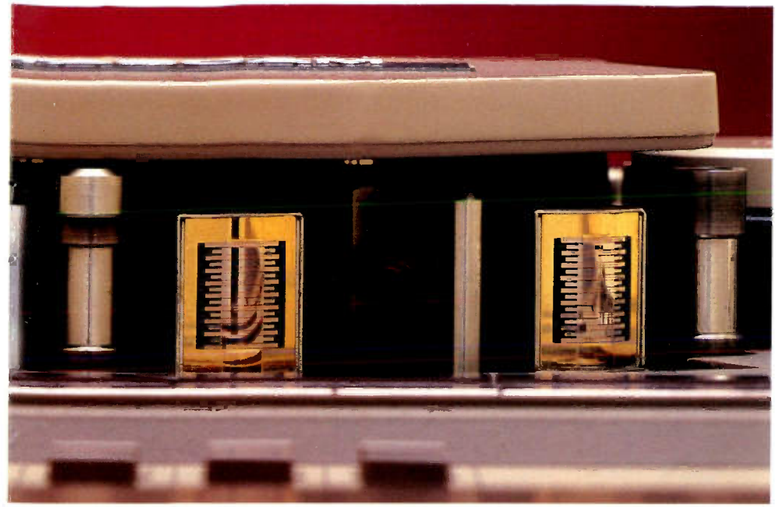
ATR-60 Memory Lets You Work Faster and Protects Tape

Gentle, rapid, and precise tape handling is not the only benefit of a fully microprocessor controlled transport. Functions normally associated with add-on auto locators are found as standard features of every ATR-60 transport. Search-to-Cue (STC), when activated, moves the tape in a fast wind mode (either direction) to a previously entered cue point, and stops it when that point is reached. Return-to-Zero will move the tape quickly to the zero point that has been entered via the tape counter.



TASCAM's ergonomic "no frills" design puts what you need where you need it.

Microprocessor control of the normal tape transport functions ensures that the tape will change from mode to mode in the fastest but most gentle manner. The transport cannot be "fooled" into mishandling the tape no matter how quickly the user presses the transport control buttons. You can even press buttons simultaneously, but the ATR-60 will flatly refuse to damage your tape. An optional Remote Control Unit (RC-71) and Auto Locator (AQ-65) further enhance the ATR-60 transport control system.



TASCAM head technology enables you to work cleaner and faster by giving you sync equal to repro response, time code recording without a guard band, and coincident time code recording in the ATR-60-2T's center track. Optional DIN adaptors and flanges accommodate pancakes of up to 11 inches (28 cm).

shorter coil length for improved square wave performance of the time code, and to place the time code coil out of the plane of the audio coils to reduce interaction.

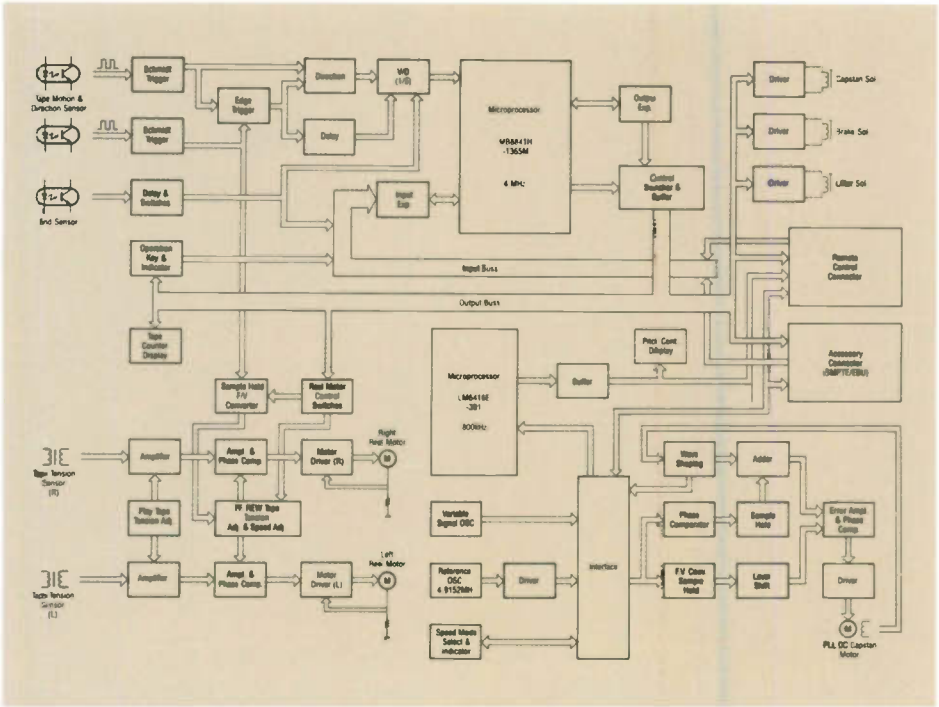
TASCAM recorders have characteristically exhibited crosstalk performance up to 15 dB better than other recorders. This difference is particularly noticeable when crosstalk is measured at 10 kHz in addition to the traditional 1 kHz (measurement at 10 kHz more accurately reflects the way a recorder will perform when time code is used). Better crosstalk performance improves phase relationships during overdubbing and ping-ponging, and the overall stereo imaging during mastering.

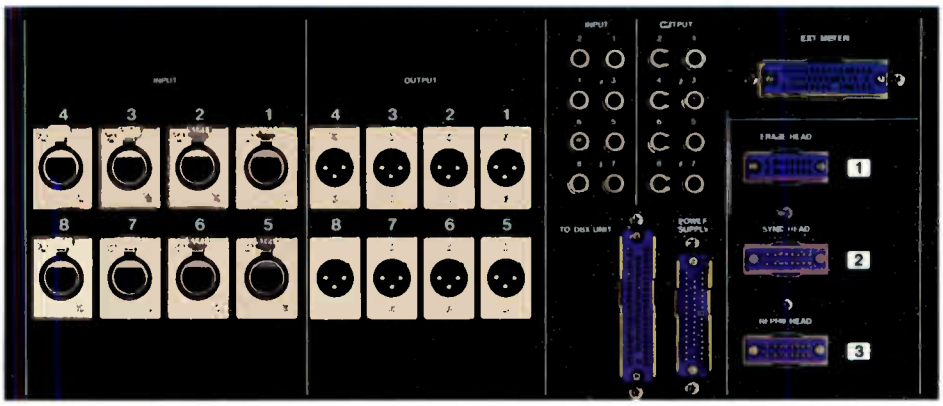
Each TASCAM head is fitted to an ultra precision die-cast metal core holder that is secured in a metal case and then *hand lapped* to guarantee consistently high tolerances and performance characteristics. This system maintains absolutely precise gap location which reduces gap scatter, maintains uniform track pitch, and improves phase response. The completed head is mounted to a die-cast, machined head block that will retain alignment settings despite shocks or radical temperature changes. Tape life and head life are extended.

Superlative Electronics Support Super Heads

Superior heads demand superior electronics, and the ATR-60s comply. All amplifiers are direct coupled for the best low frequency response and lowest possible distortion. The repro amps use a matched pair of ultra-low noise FETs. This differential amplifier eliminates the need for a coupling capacitor between the heads. The result is a smoother, wider frequency response with outstanding transient and phase characteristics. Multiple power supplies are used throughout the electronics and transport to ensure stability, minimize interaction, and eliminate any mechanically induced noise.

The amplifier section is built using plug-in printed circuit boards connected to a mother board. Access to the necessary maintenance controls is fast and easy. In addition to the usual bias, audio level (Record/Reproduce/Sync Reproduce) and EQ trimmers, switching for reference fluxivity levels (250 nWb/m or 320 nWb/m) is available on the amplifier PC board. In addition to being able to print at the higher fluxivity levels, which maximizes signal-to-noise performance, the ATR-60s will also drive outputs up to +10 dBm (switchable +4/+8 which may be calibrated to +10). So your ATR-60 will handle even the longest cable runs. All trimpots are metal glazed for increased durability and resistance to aging and adverse environmental conditions.





Logic diagram above, electronics back panel below. Balanced or unbalanced, SMPTE/EBU or remote, the ATR-60s have your connection. Single connector SMPTE/EBU interface means instant installation.

SMPTE/EBU Interface is Fast, Precise, and Convenient

Every ATR-60 is built for interfacing. Since all transport functions are under complete servo control via microprocessor, interface is not only easy to use (through a single Accessory Connector), but lockup is fast and chase is accurate as well as reliable. No modifications to the unit are necessary. Just plug in and go. Lock-up is always fast and precise. Unique Sync Lock and Time Code Lock features further enhance the ATR-60's SMPTE/EBU applications. Sync Lock allows a synchronizer to sample time code while the transport is accelerating or decelerating in fast wind modes. This means your transports will lockup faster after shuttle maneuvers. Time Code Lock (on the 4HS and 8) lets you lock the output of your code track (4 on the 4HS, 8 on the 8) to the Sync head no matter where the audio track outputs originate. This means your synchronizer won't see the same code number twice, and won't be fooled into chasing a new position.

Why should you care about fast lock-ups, Sync Lock, and Time Code Lock? First, a few seconds may not seem like much as you read this brochure, but a few seconds time after time as you go through a series of "cue, pre-roll, and abort" maneuvers, can become an eternity when the pressure is on. Creativity and frustration don't mix. Second, and more importantly, is the real underlying cause of slow lock-up characteristics. A machine which "has trouble" locking-up is one which will eventually "refuse" to do so, probably in the most critical situation. Anyone who has had the control room full of executives while the ATR refuses to lock to the master knows the panic of those excruciating seconds. The ATR-60 series, and their sister machine the MS-16, are absolutely without peer in the editing suite. No machines will lockup faster or more dependably, time and time again.

Whatever your production needs, there is an answer in the ATR-60 series of recorders. We know the production environment is tough, but we've designed the ATR-60s to deliver the goods with vigor and energy no matter how tough the duty. We've spent over 30 years building and then trying to find fault with recorders so that the next one we build will be better. We've sent recorders into space and dropped them off buildings so we can build one that will perform in your remote truck. We've learned the lessons and paid the price so that you won't have to. We are certain that a relationship with any of the ATR-60 models will be long and very productive.

Rigorous, innovative technology demanded by professionals is the common element in every recorder in the ATR-60 series. Our constant dialog with users results in TASCAM's committed and constantly evolving engineering—not a traditional "stand pat" attitude.

Addressing the requirements learned through customer response gives the ATR-60s a creative advantage that is the product of no-frills, priority-based design. Unsurpassed audio performance and the fastest, most reliable interface in the business are guarantees of the satisfaction which can be yours with an ATR-60 from TASCAM.

Specifications

MECHANICAL CHARACTERISTICS

Tape:	2N, 2T: 1/4 inch 2HS, 4HS. 8: 1/2 inch, 1.5 mil, low noise high output tape
Tape Format:	2N, 2HS: 2-track, 2-channel 2T: 2-track, 2-channel with IEC standard center track for time code 4HS: 4-track, 4-channel 8: 8-track, 8-channel
Max. Reel Size:	10-1/2 inch NAB (large) hub
Tape Speed:	2N, 2T, 8: 7-1/2 or 15 ips (optional special order: 15/30 ips) 2HS, 4HS: 15 or 30 ips
Speed Accuracy:	±0.3% deviation
Pitch Control:	Coarse ±15% Fine ±0.7%
Wow and Flutter:	30 ips: ±0.06% peak (DIN/IEC/ANSI weighted) ± 0.09% peak (DIN/IEC/ANSI unweighted) 0.03% RMS (NAB weighted) 0.06% RMS (NAB unweighted) 15 ips: ±0.08% peak (DIN/IEC/ANSI weighted) ±0.12% peak (DIN/IEC/ANSI unweighted) 2T, 2N: 0.05% RMS (NAB weighted) 0.07% RMS (NAB unweighted) 2HS, 4HS, 8: 0.04% (NAB weighted) 0.07% (NAB unweighted) 7-1/2 ips: ±0.09% peak (DIN/IEC/ANSI weighted) ± 0.14% peak (DIN/IEC/ANSI unweighted) 0.06% RMS (NAB weighted) 0.09% RMS (NAB unweighted) 8: 0.08% RMS (NAB unweighted)
Fast Wind Time:	130 seconds for 10-1/2 inch reel, 2400 feet
Spooling Wind Time:	370 seconds for 10-1/2 inch reel, 2400 feet
Start Time:	Less than 0.8 second to reach standard Wow and Flutter
Tape Drive System:	
Capstan:	Phase Locked Loop DC direct drive capstan motor
Reel:	Slotless DC reel motor X2 2HS, 4HS, 8: DC reel motor X2
Head Configuration:	3 heads—erase, record/sync, and reproduce
Tape Cue:	Manual and Automatic (RTZ and STC)
Dimensions (W x H x D):	
Transport:	2T, 2N: 19" x 18-1/8 x 12-3/16" (482 x 461 x 310 mm) 2HS, 4Hs, 8: 19" x 18-1/8" x 12-5/16" (482 x 461 x 313 mm)
Amp Unit:	2T, 2N, 2HS: 19" x 4-1/8" x 10-9/16" (482 x 105 x 268 mm) 4HS, 8: 19" x 7-5/8" x 12" (482 x 193 x 305 mm)
Weight (net):	
Transport:	83.75 lbs (38 kg)
Amp:	16.56 lbs (7.5 kg)

ELECTRICAL CHARACTERISTICS

Line Input (Balanced):	
Input Impedance:	10 k ohms
Maximum Source Impedence:	600 ohms
Nominal Input Level:	+4 dBm (1.23 V)
Maximum Input Level:	+28 dBm (19.5 V)
Line Output (Balanced):	
Output Impedance:	20 ohms
Minimum Load Impedance:	200 ohms
Nominal Load Impedance:	600 ohms
Nominal Output Level:	+4 dBm (1.23 V)
Maximum Output Level:	+28 dBm (19.5 V)
Headphone Output Level (where applicable):	100mW maximum into 8 ohm
Bias Frequency:	150 kHz 225 kHz (2HS, 4HS)
Equalization:	2T, 2N: NAB, 3, 180 +50 μs at 15 ips and 7-1/2 ips or IEC/CCIR ∞ +35 μs at 15 ips and ∞ +70 μs at 7-1/2 ips switchable 2HS, 4HS: AES ∞ +17.5 μs at 30 ips and IEC ∞ +35 μs at 15 ips or NAB 3180 +50 μs at 15 ips switchable 8: IEC/CCIR ∞ +35 μs at 15 ips; IEC/CCIR ∞ +70 μs at 7-1/2 ips
Record Level:	320 nWb/m or 250 nWb/m tape flux level switchable
Time Code Channel ATR-60-2T:	
Input:	
Input Impedance:	10 k ohms
Maximum source Impedance:	600 ohms
Nominal Input Level:	Time Code: 2 Vp-p Memo: +4 dBm (1.23 V)
Minimum Input Level:	0.2 Vp-p (Time Code)
Maximum Input Level:	15 Vp-p (Time Code)
Output:	
Output Impedance:	20 ohms
Minimum Load Impedance:	600 ohms
Nominal Output Level:	Time Code: 2 Vp-p (sustained) Memo: +4 dBm (1.23 V)
Record Level:	Time Code: 707 nWb/m tape flux level Memo: 79 nWb/m tape flux level

Specifications

TYPICAL PERFORMANCE

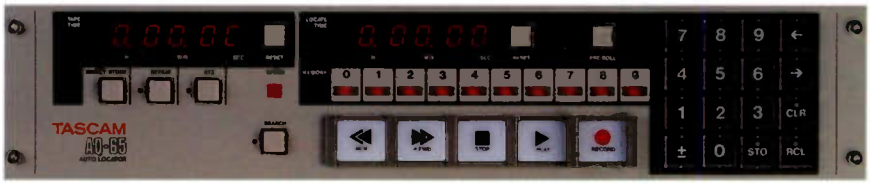
Frequency Response: Record/Reproduce:	30 ips: 30 Hz – 26 kHz, ±2 dB at 0 VU 30 Hz – 28 KHz, ±2 dB at – 10 VU 15 ips: 2T, 2N: 40 Hz – 22 kHz, ±2 dB at 0 VU 30 Hz – 24 kHz, ±2 dB at – 10 VU 2HS: 20 Hz – 22 kHz, ±2 dB at 0 VU 20 Hz – 24 kHz, ±2 dB at – 10 VU 4HS: 30 Hz – 22 kHz, ±2 dB at 0 VU 30 Hz – 24 kHz, ±2 dB at – 10 VU 8: 40 Hz – 22 kHz, ±2 dB at 0 VU 30 Hz – 24 kHz, ±2 dB at – 10 VU 7-1/2 ips: 2T, 2N: 30 Hz – 16 kHz, ±2 dB at 0 VU 30 Hz – 20 kHz, ±2 dB at – 10 VU 8: 30 Hz – 16 kHz, ±2 dB at 0 VU 30 Hz – 20 kHz, ±2 dB at – 10 VU
Reproduce (Sync and Repro. Heads)	30 ips: 2HS, 4HS: 30 Hz – 28 kHz, ±2 dB 15 ips: 2T, 2N: 30 Hz – 22 kHz, ±2 dB 4HS: 30 Hz – 20 kHz, ±2 dB 8: 40 Hz – 20 kHz, ±2 dB 7-1/2 ips: 2T, 2N, 8: 30 Hz – 20 kHz, ±2dB
Total Harmonic Distortion (THD):	2T, 2N, 2HS: 0.6% at 0 VU 1,000 Hz, 250 nWb/m 0.06% at 0 VU 1,000 Hz, 320 nW/m 3% at 1,000 Hz, 1120 nWb/m, 15 ips 4HS: 0.8% at 0, VU 1,000 Hz, 320 nWb/m 8: 0.8% at 0 VU 1,000 Hz, 250 nWb/m
Signal-to-Noise Ratio:	(Referenced 3% THD at 1 kHz) (0 to 100 kHz) NAB A Weighted/Unweighted 30 ips: 2HS: 78 dB/72 dB 4HS: 76 dB/70 dB 15 ips: 2T, 2N, 8: 72 dB/67 dB 2HS: 77 dB/71 dB 4HS: 74 dB/68 dB 7-1/2 ips: 2T, 2N: 72 dB/67 dB 8: 70 dB/65 dB
Adjacent Channel Crosstalk:	2T, 2N: Better than 57 dB 2HS: Better than 58 dB 4HS: Better than 50 dB
Erasure: all models:	Better than 75 dB at 1,000 Hz + 10 VU
Time Code Channel (ATR-60-2T only):	
Frequency Response (overall):	300 Hz – 10 kHz (Memo)
Crosstalk (Time Code to Audio):	Better than 74 dB

Test Conditions

Specifications were determined using TEAC Test Tapes (at factory set EQ and fluxivity):

Tape Speed/Wow and Flutter:	2T, 2N: YTT-2004 (15 ips) YTT-2003 (7-1/2 ips) 2HS, 4HS: YTT-2165 (30 ips) YTT-2104 (15 ips) 8: YTT-2104 (15 ips) YTT-2103 (7-1/2 ips)
Reproduce Alignment:	2T, 2N: YTT-1004 (15 ips) YTT-1003 (7-1/2 ips) (NAB EQ); YTT-1064 (15 ips) YTT-1063 (7-1/2 ips) (IEC EQ) 2HS, 4HS: YTT-1165 (30 ips) YTT-11441 (15 ips) 8: YTT-1144 (15 ips) YTT-1143 (7-1/2 ips)
Blank Tape for Recording:	2T, 2N: YTT-8063 2HS, 4HS, 8: YTT-8163

In these specifications, 0 dBm is referenced to 0.775 Volt. Actual voltage levels are also given in parenthesis. Changes in specifications and features may be made without notice or obligation.



Equip Your ATR-60 for Any Application with TASCAM Options

The AQ-65 is a microprocessor controlled, multifunction Auto Locator that provides fast, exact transport control. A broad range of features includes ten point memory, programmable duration preroll, two point repeat, and basic transport controls.

The RC-65 is a remote transport control unit that allows operation of an ATR-60 from up to 25 feet away. All transport controls with the exception of Edit are included.

The CS-64 is a roll-around stand for the RC-65 and AQ-65. The stand includes two sets of side panels so that the RC-65, AQ-65, and the Record Function Select panels of the 4HS and 8 may be mounted.

The CS-702, CS-704, and CS-65 Consoles are standard 19 inch roll around racks for the ATR-60 series recorders. The CS-65 features height adjustment, while the CS-702 and CS-704 offer rock-steady support without the height adjustment. The CS-62 allows the amplifier module to be mounted in an overbridge configuration.

The MA-650 is a two channel monitor system designed for use with the ATR-60-2 recorders. It provides loudspeaker monitor capability to augment or replace the built-in headphone monitor. The MA-650 can be rack mounted or it can be used as a stand alone unit.

ATR-60-2T shown installed in CS-704 with MA-650 above meters. Typical remote configuration shown with AQ-65, RC-65 and Record Function Select panel mounted in CS-64.

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