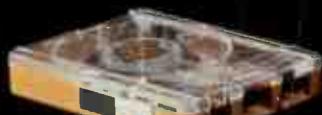
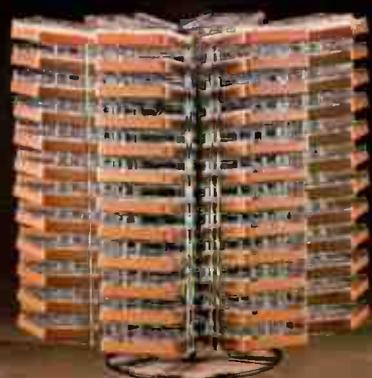


DYNAMAX[™]
BROADCAST PRODUCTS BY FIDELIPAC[®]



INTRODUCTION

Twenty-Five Years of Leadership

FIDELIPAC patented the original endless loop tape cartridge in 1956 and has been supplying the requirements of professional broadcasters for over twenty-five years. Today, eight out of ten broadcast facilities continue to use Fidelipac cartridges exclusively. Fidelipac has remained the standard of the broadcast industry through understanding market needs and developing solutions for an ever more demanding technical environment.

In 1971, Fidelipac introduced the model 350 Cartridge with adjustable stereo tape guidance. In 1975, Fidelipac revolutionized cartridge technology with the Master Cart, which transferred the function of precision tape guidance to the cartridge machine. The new Master Cart II preserves the advantages of Master Cart, such as its low friction tape path and uniform stereo phasing, but it is ruggedized, boasts enhanced performance characteristics and due to the new front corner post, is universally acceptable in all cart machines.

Beginning in 1982, Fidelipac designed, constructed and staffed a new magnetic tape manufacturing facility, the first ever dedicated exclusively to serving the broadcast industry. Dynamax was introduced in early 1984, Fidelipac's own brand

of recording tape formulated and processed precisely to the requirements of the broadcast industry: higher output, greater saturation offering more headroom, and superior physical life. Fidelipac currently offers two new types of back lubricated magnetic tape. Dynamax Series 400X Standard tape for general purpose recording and Series 500FX HOLN tape for the highest level of audio performance.

Late in 1984, we introduced the Dynamax CTR100 Series cartridge machine offering broadcasters over twenty unique new features. More than one thousand of these revolutionary units were delivered in the first nine months following introduction.

Fidelipac Accessories have set standards also. Our NAB Gold Standard Alignment Tapes and Gauges are used by cartridge machine manufacturers to insure conformity with all existing standards of machine alignment. Our Studio Warning Lights have proudly proclaimed ON AIR the world over.

We hope that Fidelipac Corp. and its international network of experienced distributors will continue to satisfy the changing needs of the broadcast community for many years to come.

The name "FIDELIPAC" is synonymous with excellence in broadcast tape cartridges. To a point, in fact, where FIDELIPAC is the standard by which all cartridge products are gauged.

Fidelipac cartridges are used in an estimated eight out of ten radio stations worldwide.

Through its range of proven tape cartridges, test equipment and accessories, Fidelipac provides performance that parallels the

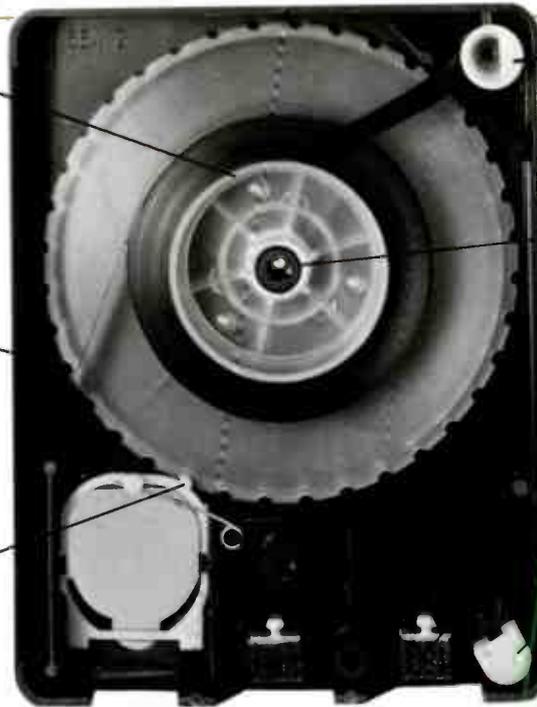
equipment of the 80s, and at a price that proves that excellence is not a level of cost, but rather a level of concern.

Price and performance. For more than a quarter of a century. In millions of tape cartridges in use throughout the world. In radio and television, as well as in many other broadcast and industrial environments. And all at a level of excellence that has made Fidelipac products the standard.

One Piece Reel—Provides a smooth tape exit and eliminates the possibility of tape snags. Serrated flange works in conjunction with positive reel brake.

Reinforced Construction—Increased wall thickness and additional internal ribs give you a more rigid and durable cart. It won't warp or flex in the machine, assuring perfect tape alignment.

Positive Reel Brake—Other carts use constant pressure on the tapes to supply braking action. Fidelipac's exclusive reel brake stops the reel - not the tape - and releases completely when the cart is played, reducing friction and wear.



Contoured Rear Corner Post—The special contour of this precision molded and permanently lubricated post assures constant lateral tension across the tape surface as the tape moves from the reel toward the front corner post.

Reel Bearing—Provides an extremely low friction bearing surface to reduce wow and flutter to near zero. Precision tolerances assure long service life without binding or misalignment due to wear.

Extra Wide Pressure Pads—These extra wide pads provide better tape-to-head contact and longer wear. The special anti-friction surface eliminates abrasion of the sensitive tape lubricant.

Precision Front Corner Post—This precision molded insert provides an upper limit to tape travel, assuring consistent stereo performance in any cartridge machine. The special low friction material reduces drag and tape wear.

How the standard remains the standard

Fidelipac pays careful attention to all the products it supplies to the broadcast industry. The many steps leading to the long life and top performance of all Fidelipac products can be seen in the production of a Fidelipac tape cartridge. First, premium grade plastic resins are inspected, sifted, cleaned and dehumidified prior to being injection-molded at the company's molding locations. Fidelipac maintains molding tools to close tolerances and constantly monitors molding machine output for any evidence of tool or machine malfunction.

Pre-inspected parts are delivered to Fidelipac where they are aged to allow for post-molding dimensional changes. Following this, random samples are checked for conformity with specified dimensions. Complete assemblies are loaded with tape, and tested for electrical and mechanical performance parameters.

When incoming parts are approved, quantities are placed on the assembly line where they undergo individual tests as they are fitted into jigs and fixtures during assembly. Empty bases (less reel assembly) and covers are visually inspected and stamped with a manufacturing code number. They are then stored in a staging area to be used in loaded cartridge production.

When approved, the tape is wound into cartridges and spliced. Cartridges are run at high speed to pre-condition the tape and expose anomalies in tape manufacture that might not otherwise become apparent.

Cartridge covers are then screwed down and the cartridges are run at normal speed and inspected again for smooth operation. This also helps to "settle" the tape pack following extremely high speed operation so that a final quality assurance check can be expediently performed.

The routine final quality assurance check consists of the following tests:

1. Tape sensitivity
2. Wow and Flutter check
3. Corner post height check
4. Warp page test
5. Stereo phase, where applicable
6. Frequency response check
7. Pressure pad alignment
8. Complete visual inspection

When a cartridge has passed all of the tests, and only then, the Fidelipac quality assurance label is applied over the cover screw and the cartridge is packed.

Only those cartridges that pass every quality assurance step receive a Fidelipac quality assurance label. The cartridges are then sent to the stockroom prior to delivery to radio and television stations throughout the world.



Quality Assurance Label

THE MASTER CART SERIES

Master Cart and Master Cart II

- Extremely low friction tape path for minimum wow and flutter and longest tape life.
- Unique nylon composite front corner post for precise tape alignment and excellent stereo phase stability.
- Factory loaded with Fidelipac's DYNAMAX Series 400X or 500FX tape.



THE ULTIMATE TAPE CARTRIDGE SERIES

In 1975 Fidelipac introduced the Master Cart with its innovative neutral tape handling system giving broadcasters unexcelled stereo performance. In January 1982, Master Cart II became available. It retains all of the original advantages of Master Cart and none of the idiosyncrasies.

Since 1983, our Master Cart Series has been available in two versions. The Master Cart, molded in Suisse Red, contains our DYNAMAX Series 400X tape for general-purpose recording applications. The Master Cart II contains our superb new DYNAMAX Series 500FX tape which offers the highest level of audio performance. The Master Cart II is molded in a Metallic Bronze hue.

Master Cart and Master Cart II operate equally well in any machine—including multiple slot automation devices—while providing the highest possible level of stereo performance. The key to the Master Cart

Series universal application is in its front corner post design. Master Cart and Master Cart II contain a precision molded upper and lower tape limiting device. This addition does not interfere with the original neutral tape handling concept, but provides an upper and lower limit to tape travel when the cartridge is used in less-than-perfect machines.

Other improvements have been evolutionary; wider pressure pads for longer wear and better tape-to-head contact; a new impregnated nylon composite bearing support for the reel assembly assures longer tape life and less wow and flutter; thicker walls and more rigid construction for even greater durability. Many other subtle features are incorporated to handle the tape as gently as possible and produce unexcelled stereo performance.

Over 20 years of cartridge experience brings you the Fidelipac Master Cart Series—the ultimate in tape cartridges

MASTER CART



	BEST APPLICATION	NAB TYPE	MAXIMUM SAFE LOAD (7.5ips)	BASE COLOR	STEREO PHASE REPEATABILITY	TYPE OF TAPE	DIMENSIONS
MASTER CART II *	ALL	AA	105 MIN	METALLIC BRONZE	±50 @ 12.5kHz	DYN-500 FX HOLN Tape	101x133x22mm (4x5.175x0.875in)
MASTER CART *	ALL	AA	105 MIN	SUISSE RED	±50 @ 12.5kHz	DYN-400X STANDARD †	101x133x22mm (4x5.175x0.875in)
MODEL 300 *	MONO—GENERAL PURPOSE	A	105 MIN	GRAY		DYN-400X STANDARD †	101x133x22mm (4x5.175x0.875in)
MODEL 350 *	STEREO PRECISION—CLDER MACHINES	A	105 MIN	GRAY	ALL FACTORY LOADED CARTS ADJUSTED TO ± 10 @ 10kHz BEFORE SHIPMENT	DYN-400X STANDARD †	101x133x22mm (4x5.175x0.875in)
MODEL 600 *	BACKGROUND LONG PLAY MULTITRACK	B	200 MIN	GRAY		DYN-400X STANDARD †	152x178x22mm (6x7x0.875in)
MODEL 1200 *	BACKGROUND TIME ANNOUNCE LONG PLAY MULTITRACK	C	400 MIN	GRAY		DYN-400X STANDARD †	194x216x22mm (7.625x8.5x0.875in)

* All tapes
 Max. Wow & Flutter—0.2%
 Splice Visible—1 mil
 Operating temp—6° C to 150 F

† HOLN TAPE AVAILABLE AT EXTRA COST

SUPPLEMENTAL SPECIFICATIONS

SHIPPING WEIGHT (100carts) Empty: 10.25 kg (22.6 lb); 10.5 min.: 13.93 kg (30.7 lb) 100 cart bulk empty container: 9.3kg (20.5 lb)

SHIPPING DIMENSIONS 100 cart container: 591x238x292mm (23.25x9.375x11.5in) Bulk Empty Container: 565x286x216mm (22.25x11.25x8.5in)

SHIPPING VOLUME 100 cart container 0.04m³ (1.45ft³) Bulk Empty container 0.035m³ (1.24ft³)

- Master Cart loaded with DYNAMAX Series 400X Standard Output Tape.
- Wider pressure pads for longer wear and better tape-to-head contact.
- Operates well in all types of machines — even multiple slot automation devices.

MODEL 300

MODEL 300 STANDARD OF THE BROADCAST INDUSTRY

- Low price and high performance
- Quality-controlled construction
- Low-friction pressure pads extend tape life
- Tape braking on the reel
- Brass reel post

The Model 300 Broadcast Audio Cartridge provides performance at a price that is within the budget of all radio and TV broadcasters. Its endurance under severe operating conditions in everyday studio operations is surprising...frequently lasting over five years with only replacement of worn tape and pressure pads. Performance and price...the major reasons the Model 300 from Fidelipac is the Standard of the Broadcast Industry.



	BEST APPLICATION	NAB TYPE	MAXIMUM SAFE LOAD (7.5ips)	BASE COLOR	STEREO PHASE REPEATABILITY	TYPE OF TAPE	DIMENSIONS
MASTER CART II *	ALL	AA	10.5 MIN	METALLIC BRONZE	±50 @ 12.5kHz	DYN-500 FX HOLN Tape	101x133x22mm (4x5.175x0.875in)
MASTER CART *	ALL	AA	10.5 MIN	SUISSE RED	±50 @ 12.5kHz	DYN-400X STANDARD †	101x133x22mm (4x5.175x0.875in)
MODEL 300 *	MONO—GENERAL PURPOSE	A	10.5 MIN	GRAY		DYN-400X STANDARD †	101x133x22mm (4x5.175x0.875in)
MODEL 350 *	STEREO PRECISION—OLDER MACHINES	A	10.5 MIN	GRAY	ALL FACTORY LOADED CARTS ADJUSTED TO ± 10 @ 10kHz BEFORE SHIPMENT	DYN-400X STANDARD †	101x133x22mm (4x5.175x0.875in)
MODEL 600 *	BACKGROUND LONG PLAY MULTITRACK	B	20.0 MIN	GRAY		DYN-400X STANDARD †	152x178x22mm (6x7x0.875in)
MODEL 1200 *	BACKGROUND TIME ANNOUNCE LONG PLAY MULTITRACK	C	40.0 MIN	GRAY		DYN-400X STANDARD †	194x216x22mm (7.625x8.5x0.875in)

* All tapes
Max. Wow & Flutter—0.2%
Splice Visible—1 mil
Operating temp —66 C to 150 F

† HOLN TAPE AVAILABLE AT EXTRA COST

PERFORMANCE

Many criteria, from precision molding of the plastic parts through quality control of the final product, assure a cartridge that meets or exceeds the most demanding broadcast requirements. Several outstanding features are described:

Braking Mechanism. The Model 300, as in all Fidelipac cartridges, stops tape by braking against the reel. This method assures that tape damage does not occur in today's fast-forward cartridge machines.

A loaded reel has a "spinning inertia" that is the result of the mass of the tape loaded onto the reel and the mass of the reel itself. By braking the reel, the force of the spinning inertia is stopped by pressure on the outer edge of the reel. If braking action were applied to the tape, as it is in several cartridge brands, the spinning inertia is stopped by tape-to-brake contact friction. This friction causes tape oxide loss (resulting in dropouts at high frequencies) in a manner similar to the rubber loss a skidding auto tire experiences. Because cartridges recue at the same point on the tape, repeated operation of the tape brake causes oxide damage which results in

dropouts. This is particularly noticeable when re-recording on the same tape.

Corner Post. The corner post establishes the height at which the tape runs after it leaves the reel. This post is accurately preset to the NAB standard height of 0.562 inch (14.27mm) above the play deck with the use of precision jigs and fixtures. Because the corner post is not an integral part of the cartridge base or top, it is easily replaced when worn.

Pressure Pads. The pressure pads are anti-friction coated elastic foam to provide low friction and equal distribution of head penetration pressure. Tape life is maximum and head wear minimum while affording proper head penetration and tape wrap.

Brass Center Bearing. This bearing carries the entire load of the tape and reel. It is fabricated of brass to assure smooth performance, free of flutter and wow. Additionally, the bearing is coated lightly with lubricant to provide low friction operation.

Center Screw. A single center screw allows easy removal of the cartridge lid for access to the internal parts when maintenance is necessary. There are no plastic locking parts that render the cartridges inoperable if broken.

SUPPLEMENTAL SPECIFICATIONS

SHIPPING WEIGHT (100 carts) Empty: 10.41kg (22.94 lb); 10.5 min.: 14.18kg (31.25 lb) 100 cart bulk empty container: 9.41kg (20.75 lb)

SHIPPING DIMENSIONS 100 cart container: 591x238x292mm (23.25x9.375x11.5in) bulk empty container: 565x286x216mm (22.25x11.25x8.5in)

SHIPPING VOLUME 100 cart container 0.04m³ (1.45ft³) Bulk Empty container 0.035m³ (1.24ft³)

MODEL 350 PRECISION-ADJUSTABLE TAPE GUIDANCE.

- Adjustable corner post guidance
- Curved pressure pads for extended tape life and greater tracking accuracy
- Tape braking on the reel
- Brass reel post
- Quality controlled and factory adjusted

The Model 350 Broadcast Audio Cartridge is designed primarily for use in stereo cartridge tape machines that have inadequate tape guidance at the tape input side of the record head. The Model 350 contains an adjustable corner post which is factory adjusted to the NAB Standard height of 0.562 inch (14.27mm). The corner post can be adjusted by station engineers to precisely match the cartridge machine to improve stereo performance.

MODEL 350 AND PROGRAM DELAY



PERFORMANCE

The Model 350 offers all of the features of the Fidelipac Model 300 with the addition of the adjustable corner post and curved pressure pads. The post adjustment is accessible through a small hole in the cartridge lid.

As in the Model 300, many criteria are used to assure that the Model 350 meets or exceeds the demands of everyday broadcast operations. Only those performance features that distinguish Model 350 performance are detailed here. Similarities with the Model 300 are obvious with the exception of the adjustable corner post and the curved pressure pads.

Adjustable Corner Post. Cartridge tape machines that have no guides at the tape input side of the record head allow tape to "wander" or skew across the record head. This action causes unpredictable changes in tape running height and azimuth. This, in turn, causes stereo phase problems and high-frequency signal cancellation.

The adjustable corner post in the Model 350 allows the cartridge to act as the tape guide for the record head. It eliminates the tendency of the tape to skew, more closely matching the cartridge machine to tape tracking.

To assure that the corner post resists wear, the guide arm (see drawing) is fabricated of hardened brass. A finely threaded screw, under spring tension, allows only 0.0045 inch (0.11mm) vertical movement of the guide arm for each quarter-turn of the screw.

Curved Pressure Pads. The Model 350 pressure pads are convex curved, anti-friction coated elastic foam to provide low tape-to-pressure pad friction and equal distribution of head penetration pressure. The curved pressure pads also assure superior tape guidance repeatability by contributing to proper tape tracking.

SUPPLEMENTAL SPECIFICATIONS

SHIPPING WEIGHT (100 carts) Empty 11.48kg (25.3 lb) 10.5 min.: 15.38kg (33.9 lb) 100 cart bulk empty container: 9.98kg (22.0 lb)

SHIPPING DIMENSIONS 100 cart container: 591x238x292mm (23.25x9.375x11.5in) bulk empty container: 565x286x216mm (22.25x11.25x8.5in)

SHIPPING VOLUME 100 cart container 0.04m³ (1.45ft³) Bulk Empty container 0.035m³ (1.24ft³)

PROGRAM DELAY CARTRIDGES

Fidelipac Program Delay Cartridges are a sure way to protect your listeners and your station from the airing of undesirable talk-show information while retaining a "live" sound. Four long-life program delay cartridges are available for use with cartridge tape machines equipped with delay head configurations. These delay cartridges, available in 8 and 10 second versions (at 7½ ips) have precision tape lengths, curved pressure pads and a specially lubricated reel hub. The model 600 Delay Cartridge contains three pressure pads while the Model 300 contains two pressure pads.

140-5DL—Model 300, 8 second delay, curved pressure pads, special reel lube.

140-6DL—Model 300, 10-second delay, as described above.

149-5DL—Model 600, 8-second delay, outer pads curved, center pad straight to accommodate combo heads, special reel lube.

149-6DL—Model 600, 10-second delay, as described above.

MODEL 600 MODEL 1200

MODEL 600 UP TO 20 MINUTES AT 7½ IPS

- Brass reel post
- Tape braking on the reel
- Ideal for delay use, with optional third pressure pad and low-friction treatment.

MODEL 1200 MAXIMUM TIME IN AN NAB CARTRIDGE

- Pressure pads not required for long tape lengths
- Rotating corner post
- Brass reel post and brass corner post mounting
- Record and play multiple selections
- Up to 40 minutes of playing time at 7½ ips



	BEST APPLICATION	NAB TYPE	MAXIMUM SAFE LOAD (7.5ips)	BASE COLOR	STEREO PHASE REPEATABILITY	TYPE OF TAPE	DIMENSIONS
MASTER CART II *	ALL	AA	10.5 MIN	METALLIC BRONZE	±50 @ 12.5kHz	DYN-500 FX HOLN TAPE †	101x133x22mm (4x5.175x0.875in)
MASTER CART *	ALL	AA	10.5 MIN	SUISSE RED	±50 @ 12.5kHz	DYN-400X STANDARD †	101x133x22mm (4x5.175x0.875in)
MODEL 300 *	MONO—GENERAL PURPOSE	A	10.5 MIN	GRAY		DYN-400X STANDARD †	101x133x22mm (4x5.175x0.875in)
MODEL 350 *	STEREO PRECISION—OLDER MACHINES	A	10.5 MIN	GRAY	ALL FACTORY LOADED CARTS ADJUSTED TO ± 10 @ 10kHz BEFORE SHIPMENT	DYN-400X STANDARD †	101x133x22mm (4x5.175x0.875in)
MODEL 600 *	BACKGROUND LONG PLAY MULTITRACK	B	20.0 MIN	GRAY		DYN-400X STANDARD †	152x178x22mm (6x7x0.875in)
MODEL 1200 *	BACKGROUND TIME ANNOUNCE LONG PLAY MULTITRACK	C	40.0 MIN	GRAY		DYN-400X STANDARD †	194x216x22mm (7.625x8.5x0.875in)

* All tapes
Max. Wow & Flutter—0.2%
Splice Visible—1 mil
Operating Temp.—66 C to 150 F

† HOLN TAPE AVAILABLE AT EXTRA COST

PERFORMANCE

The Model 600 Audio Cartridge is available for broadcast, industrial and medical applications where extended playing times are required. This cartridge offers all of the features of the Fidelipac Model 300 plus the capability of up to 750 feet (228.6 meters) of tape.

Refer to the PERFORMANCE paragraph in the Model 300 section for details identical to those for the Model 600 cartridge.

SUPPLEMENTAL SPECIFICATIONS

SHIPPING WEIGHT Empty (40 cart container): 7.94kg (17.5 lb); 16 min. (36 cart container): 10.21kg (22.5 lb)

SHIPPING DIMENSIONS Standard shipping container (40 bulk empties or 36 loaded): 451x318x191mm (17.75x12.5x7.5in)

SHIPPING VOLUME Standard shipping container (40 bulk empties or 36 loaded): 0.028m³ (0.97ft³)

The Model 1200 is used in many broadcast and industrial applications. A few examples:

- Audio time-announcement in broadcast automation systems
- Fill music for real-time network-joining in broadcast automation systems
- Background music systems in restaurants, airline terminals, train and bus stations, shopping centers, etc.
- Where unattended continuous music or other high quality audio is necessary for long periods of time as in SCA, cable television and closed circuit FM operations.

The Model 1200 Audio Cartridge provides the maximum amount of playback time available in an NAB continuous-loop audio cartridge. Available with up to 1500 feet (457.2 meters) of tape, the Model 1200 provides 40 minutes of playing time at a tape speed of 7½ ips (19.05 cm/s).

Many of the features of the Fidelipac Model 300 are also provided in the Model 1200. Several differences can be seen in the corner post, pressure pad and cover areas.

Pressure Pads. The Model 1200 is provided without pressure pads unless they are specifically requested. Because the quantity of tape loaded into the cartridge usually exceeds 1000 feet (305 meters), adequate tape-to-head contact is inherent in the cartridge design and pressure pads are unnecessary.

Rotating Corner Post. The corner post rotates to minimize tape friction and thereby extend tape life and performance. The corner post is mounted on a long-life brass post and retained with a "C" washer.

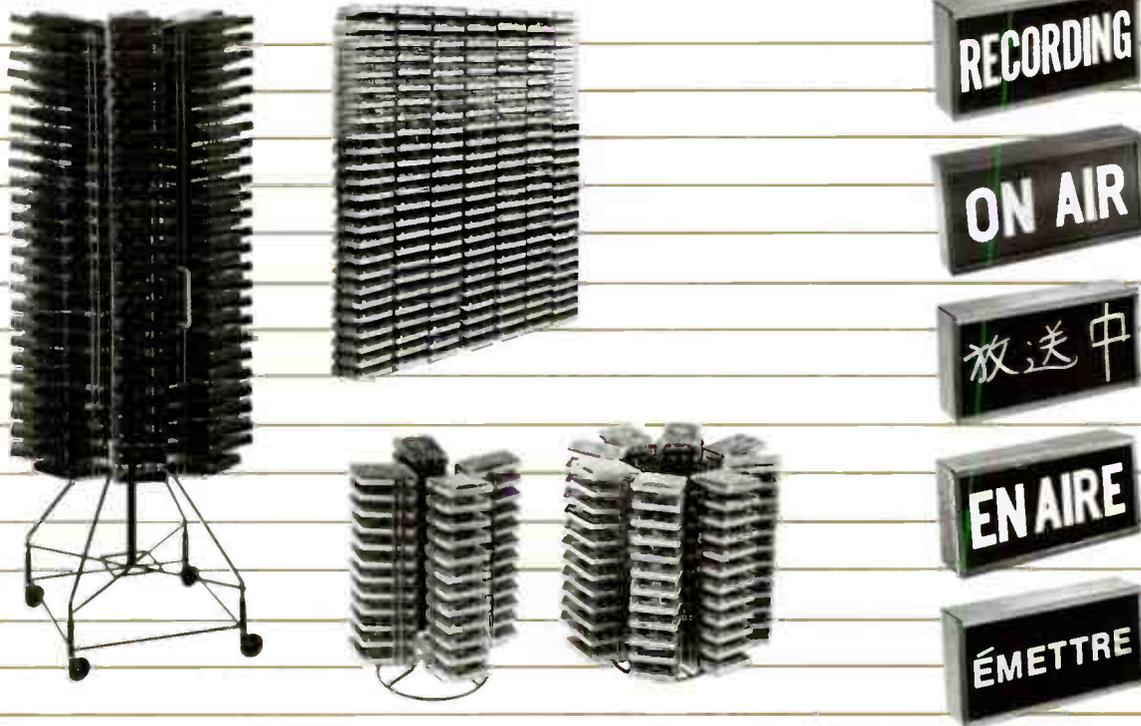
Top Cover. The top cover is attached with five screws: one at each corner and at the brass center post for the reel. Structural rigidity is assured by these screws which firmly hold the cover to the base assembly.

SUPPLEMENTAL SPECIFICATIONS

SHIPPING WEIGHT Empty (25 cart container): 7.94kg (17.5 lb); 32min. (24 cart container): 11.25kg (24.8 lb)

SHIPPING DIMENSIONS Standard shipping container (25 bulk empties or 24 loaded): 559x203x270mm (22x8x10.625in)

SHIPPING VOLUME Standard shipping container (25 bulk empties or 24 loaded): 0.031m³ (1.08ft³)



WALL-MOUNT OR MOBILE RACKS

Fidelipac has built unique versatility into the WR-25 Wall-Mount Cartridge Rack. The modular design of the basic WR-25 is a single 25 cartridge rack that mounts either on a wall (using the mounting bracket included) or as one of eight racks that form the MR-200 Mobile Cartridge Rack. Program Directors and studio engineers recognize the value of a rack with such versatility. Fully loaded, the WR-25 rack removes easily from the wall bracket and transfers to an MRB-1 carousel rack base. The sturdy MRB-1 supports up to eight wall racks. Its large diameter ball type carpet casters assure easy mobility.

WR-25

Overall Height: 940 mm (37")
Overall Width: 114.3 mm (4½")
Shipping Weight: 1.9 kg (4.2 lb)
Shipping Volume: 0.02 cu. m (0.6 cu. ft.)

MRB-1

Shipping Weight: 7.3 kg (16 lb)
Shipping Volume: 0.18 cu. m (6.2 cu. ft.)

TABLETOP CARTRIDGE RACKS

Fidelipac Tabletop Cartridge Racks are available in two sizes. Each offers the same versatile features as the mobile rack, MR-200. Each 12 cartridge bank is an integral unit that mounts on a revolving center support.

MODEL TR-48

Storage for 48 cartridges. Four separate removable racks store 12 cartridges each. Outside diameter when fully loaded is 381 mm (15"); height is 508 mm (20"). Racks are chrome plated welded steel. Base is black japanned steel. Shipping Weight: 5 kg (11 lb). Shipping Volume: 0.005 cu. m (1.84 cu. ft.)

MODEL TR-96

Storage for 96 cartridges. Eight separate removable racks store 12 cartridges each. Outside diameter when fully loaded is 508 mm (20"); height 508 mm (20"). Racks are chrome plated welded steel. Base is black japanned steel. Shipping Weight: 10.5 kg (23.2 lb). Shipping Volume: 0.13 cu. m (4.63 cu. ft.)



WORLD-STANDARD STUDIO WARNING LIGHTS

Your broadcast or recording studio will really be "off limits" when Fidelipac Studio Warning Lights are lit. Their brilliant red lettering on jet black background can be seen even in the brightest ambient light conditions. With a faceplate of unbreakable plexiglas, the light includes lamps and mounting hardware. Lights are available with the following inscriptions:

ON AIR (Part No. 340). Also available in French, German, Greek, Japanese, Polish, Russian, Spanish and Swedish. Specify language when ordering.

- Dimensions: 5" high x 10" long x 2½" deep (127 x 254 x 63mm) — Lettering (most inscriptions): 2½" high (63mm)
- Case: 20-gauge steel; surface-mount or built-in
- Operates from 120 or 240 volts—only 14 watts
- Faceplate is ⅛" (3 mm) thick plexiglas
- Standard NEMA mounting hardware provisions
- Lamps replaceable from front side
- Uses two 7C7 6S6 lamps (two furnished)
- Shipping weight: 2.5 lb (1.1 kg)
- Shipping volume: 0.15 cu. ft. (0.004 cu. m)

RECORDING (PART NO. 340-REC)

DYNAMAX BACK - LUBRICATED BROADCAST TAPES

Dynamax is a totally new brand of brilliant audio tape formulated specifically for the broadcast professional. In fact, Dynamax performs better than any cartridge tape found in any station library today.

Fidelipac manufactures Dynamax in Standard and HOLN tape.

With its base film of 1 mil Mylar®, Dynamax delivers the extremely high mechanical strength so vital when

confronted by less-than-gentle cart machines. And the cross-linked urethane resin binder system guarantees you high technology's longest lasting tape. Tape so durable that oxide shedding is almost obsolete. For example, new Fidelipac cartridges last up to 10,000 plays when loaded with Dynamax tape.



Dynamax Tape Technical Specifications

	DYN-400X	DYN-500FX		DYN-400X	DYN-500FX
PHYSICAL PROPERTIES			ELECTRO-MAGNETIC PROPERTIES		
Color:			Recommended Bias Procedure $\Delta E10$	+1.0 dB	+2.0 dB
Oxide	Dark Brown	Dark Brown	Sensitivity		
Backcoat	Black	Black	1 kHz (S 1kHz)	0 dB	-2.0 dB
Base Material	Polyester	Polyester	10kHz (S 10kHz)	0 dB	-1.5 dB
Standard Width	0.246 in.	0.246 in.	Maximum Output Level		
Width Tolerance			1 kHz (MO 1 kHz)	+8 dB	+12 dB
0.246 in. (6.25 mm)	$\pm .002$	$\pm .002$	Third Harmonic		
Nominal Thickness			Distortion Level (HDL 3)		
Base	.88 mils	.88 mils	160 nWb/m	.3%	.15%
Oxide Coating	.25 mils	.38 mils	TEST CONDITIONS		
Back Coating	.04 mils	.04 mils	Tape Speed	7.5 IPS	7.5 IPS
Total	1.17 mils	1.30 mils	Reference Fluxivity	160 nWb/m	160 nWb/m
Static Tensile:			Reference Frequency	1 kHz	1 kHz
Breaking Strength lbs/qtr. in.	8	8	Reproduce Equalization	50 μ Sec.	50 μ Sec.
MAGNETIC PROPERTIES			Track Width	80 mils	80 mils
Coercivity (Hc)	260 Oe	360 Oe	Record Head Gap Length	.5 mils	.5 mils
Retentivity (Br)	1000 G	1400 G	Reference Tape	DYN-400X	DYN-400X

Ordering Information

Part No.	Reel Size	Description	Tape Length		Carton Quantity
			Feet	Meters	
DYN-400X	1/4" Hub	Standard Output	3600	1097	10
DYN-401X	1/4" Reel	Standard Output	1800	549	40
DYN-500FX	1/4" Hub	HOLN	3600	1097	10
DYN-501FX	1/4" 7" Reel	HOLN	1800	549	40

The DYNAMAX ESD10 will consistently—measurably—outperform any other eraser/splice locator on the market. It will, in fact, provide erasures that are virtually as clean as those achieved by the best belt driven erasers.

ERASER/SPLICE DETECTOR

The DYNAMAX ESD10

Reliable splice detection and deep cart erasure, for flawless sound reproduction.



Erase depth of 75 dB assured. A significant improvement in the signal-to-noise ratio, and on-air sound beyond anything you might have thought possible.

Dual Erase Heads. The DYNAMAX ESD10 design uses dual, high-quality erase heads, not a coil located below the deck. Huge coils exert forces opposing movement of the tape. And these stresses measurably shorten the life of the cartridge. Coils also draw large amounts of power and generate excessive heat necessitating a reduction in duty cycle and less "throughput." All of that is eliminated by our dual erase head configuration.

Reliable, automatic splice detection. When program material is recorded over a splice, a severe dropout can occur. Cue track material is also disrupted and that causes false cueing, and/or logging errors.

Splice location, therefore, is very important. Until now, even automatic splice detection machines have had drawbacks. They were often unreliable and required constant adjustment.

Sensitivity adjustments eliminated. The DYNAMAX ESD10 uses a patented splicefind system—a system developed for the DYNAMAX CTR100 Series Recorders—and as a result, the ESD10 requires no sensitivity adjustments whatsoever.

DYNAMAX ESD10 SPECIFICATIONS:

Power

- A. 117VAC \pm 10%/234 VAC \pm 10%
- B. 50/60 Hz.
- C. 50 Watts maximum

Tape Speed

- A. 27.5 IPS nominal

Splice Density

- A. Detects splicing tape of 1/2 mil or greater thickness

Erase Depth

- A. 75 dB or better, below tape saturation at 1 kHz using Master Cart II

Tape Capacity

- A. NAB size A and AA Cartridges

Ambient Temperature

- A. 10-15° C (50° to 122° F)

Mounting

- A. Tabletop
- B. Rackmount (Requires optional mounting hardware)

Dimensions

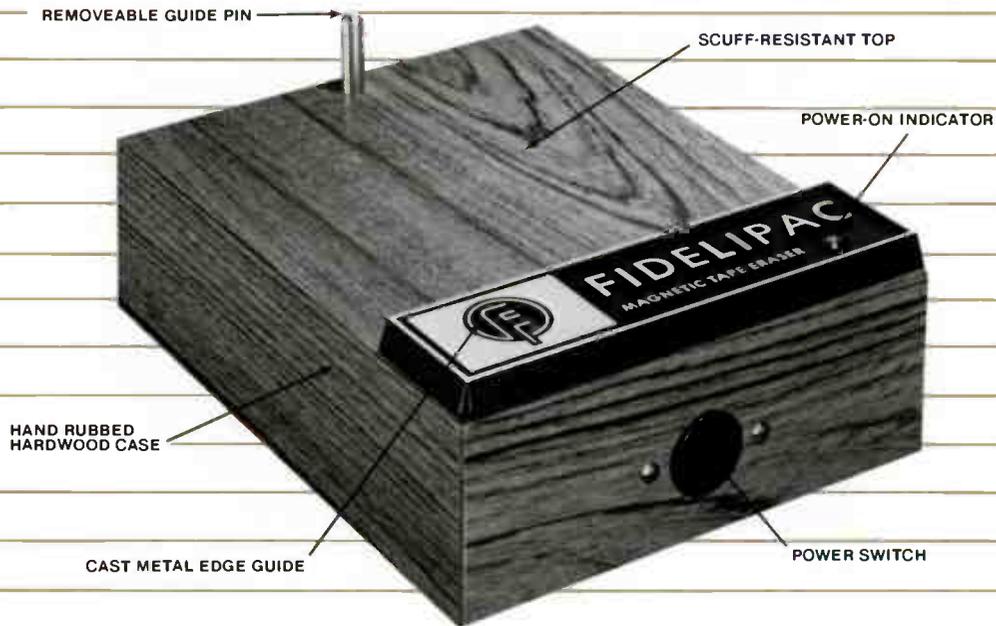
- A. 14.29 cm X 15.24 cm X 40.64 cm (5.625" H X 6" W X 16" D)
- B. Rackmount requires only three rack units 13.34 cm (5.25")

Weight

- A. 7.7 kg. (17 lbs.)

ERASERS

Model 400 Table Top



SPECIFICATIONS

Model Number	400
Nominal Duty Cycle	ON - 5 minutes OFF - 15 minutes
Magnetic Rating	Over 2000 Gauss
Power Requirement	115 volts AC, 50-60 Hz, 920 watts
Shipping Weight	4.5 kg (10 lb)
Dimensions	197x159x73mm (7.75x6.25x2.875 inches)
Maximum Reel Diameter	280mm (11 inches)
Construction	Hand rubbed birch case, zinc die cast edge guide plate, high pressure laminate top, rubber non-skid feet

FEATURES

- Erases all audio, video and computer tapes up to 1 inch
- Erases down to virgin tape level
- Removeable aluminum guide pin for erasing large format tapes
- Attractive and durable hand rubbed hardwood case
- High current horsepower-rated switch for long reliable life
- Thermally-protected core—will not burn out
- Scuff-resistant top
- Non marring skidproof feet

BLANK-IT
THE MULTI-FORMAT
MAGNETIC TAPE ERASER FOR:

- NAB cartridges
- Video cassettes - VHS, Beta, or ¾"
- ¼" to 1" reel-to-reel audio tape
- 8, 16 or 35mm magnetic film
- 8-track cartridges
- Audio cassettes
- Computer tape
- Dictation cassettes

FEATURES:

- Greatest magnetic field strength of any hand-held eraser
- Longest on-duty cycle of any hand-held unit—permits continuous erasure of more tape
- Internal thermal overload coil protection—can't burn out
- Faster and better erasure of video tape than possible with internal erase circuitry of any VTR—VHS or Beta

ERASERS

Blank-It

- Handsome, rugged, shock-proof case
- No-Mar work surface — won't scratch items being erased
- Human engineered for proper balance and ease of operation



Guaranteed for one year from date of purchase under normal operating conditions.

Need blank tape fast? Worried about recorder erase head and motor wear? With the easy-to-handle Blank-It eraser—newly designed, engineered and manufactured in the United States—Fidelipac has made all this and more instantly possible. Saves time—no need to run tape through your recorder. Saves money—allows immediate reuse of tape without worry of previous program residue or other unwanted program material. Blank-It erases cleanly...completely...positively!

Exclusive circuitry and high mu magnetic core is combined with light weight and proper balance to minimize hand fatigue. Constructed of virtually indestructible material and designed for extended thermocouple protected, burn-out proof duty cycle.

Blank-IT...the eraser of choice for the professional or hobbyist.

SPECIFICATIONS:

Nominal duty cycle—
 ON: 5 minutes
 OFF: 15 minutes
 (Thermocouple protected)
 Magnetic rating—1550Gauss at ¼" from center of base.
 Shipping Weight: 5 lbs. (2.27kg)
 Size — 4"W x 5½"L x 4½"H (101.6mm x 139.7mm x 114.3mm)
 Construction — Unbreakable case with Fidelipac Red VFB/PA felt base protector.
 NOTE: Extra felt provided with each unit.
 Electrical rating — 115VAC, 50-60Hz, 880 Watts.

TAPE CARTRIDGE MACHINES

Dynamax CTR100 Series

The Dynamax CTR100 Series embodies unique features not available in any other machine on today's market.

● **CartScan™ System**—Automatically, without operator intervention of any kind, enables the intermixing of cartridges recorded at elevated level, mono or matrix, and also provides an auxiliary output to activate equipment such as a

Dolby® encoder or decoder. This feature:

- simplifies a stepped conversion of an entire cart library to tapes utilizing the latest technology such as Dynamax HOLN broadcast tape.
- eliminates phase shift concerns when mono carts are used in stereo formats.
- performs stereo matrix recording and decoding automatically.



- **Vary Speed**—Allows operator to continuously vary motor speed while the machine automatically maintains cue tone tracking and clock synchronization.
- **Real Time Digital Tape Counter**—Slaved to the motor tachometer vs. the fixed reference used in other machines, this clock always displays total elapsed time regardless of cart tape speed. The clock accelerates and decelerates in exact synchronization with the tape. Even at high speed, finding specific points on any tape is foolproof.
- **Cleaning Switch**—Permits the pinch roller solenoid to be activated. This allows cleaning of the pinch roller as well as additional diagnostics.
- **Cue tone recognition at any tape speed**—Cue tone sensors are slaved to the motor tachometer eliminating miscues and permitting cart operation at non-standard speeds. Utilizing this feature, the entire range of motor speeds can be harnessed to shorten long messages, synchronize tape with video and create special effects.

In addition, the CTR100 provides the most requested features as determined by independent survey; features never before available in one machine:

- Front Panel Diagnostics
- DC Servo Drive Motor
- Fast Forward
- Secondary and Tertiary Cue Tones
- Low Voltage Constant Current Solenoid
- Audio Switcher and Mixer
- Status Display
- Audio Transformerless Circuitry
- 150 Hz Control of Audio Gate
- Group Delay Compensation

- Crystal Controlled Reference for All Internal Functions
- Front Panel 1 kHz Add and Defeat
- Fully-switchable Metering with Automatic Changeover Function
- Two Speed *Played* Flashing Indicator
- Played Restart Disable
- Active Bias and Signal Mixing
- Constant Current Recording
- Bar Graph LED Level Indicators
- Improved Heads for Flat Low Frequency Response
- On-board Test Oscillator
- Splice Finder

Model No.	Description	Height	Dimensions	
			Width	Depth
111	A Size Mono Play	14.29 cm	15.24 cm	40.64 cm
		5.625 in.	6 in.	16 in.
112	A Size Stereo Play	14.29 cm	15.24 cm	40.64 cm
		5.625 in.	6 in.	16 in.
123	B Size Mono Record/Play	14.29 cm	22.23 cm	40.64 cm
		5.625 in.	8.75 in.	16 in.
124	B Size Stereo Record/Play	14.29 cm	22.23 cm	40.64 cm
		5.625 in.	8.75 in.	16 in.

**MODEL HG-1 AND
MODEL 326 GUIDE HEIGHT GAUGES**

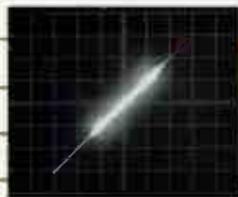
Accurate height references for use when setting the height of equipment tape guides. Made from stainless steel and precision ground, these gauges help minimize crosstalk and tape tracking errors due to poorly adjusted tape guides in the cartridge handling equipment. HG-1 for use with Dynamax cartridge machines and other newer units with side cartridge hold-downs.

MODEL 328 HEAD INSERTION GAUGE

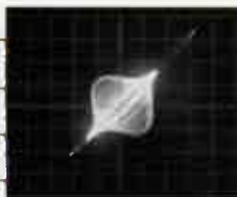
A tool for setting tape head penetration into the tape cartridge to NAB standards. Often overlooked, this adjustment assures proper tape "wrap" across the tape heads and good flutter performance. Head penetration directly affects head life, tape life, output level stability and high-frequency performance.



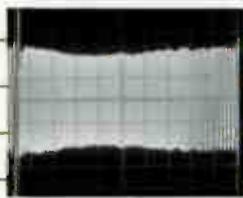
Typical oscilloscope patterns produced by fast sweep tapes.



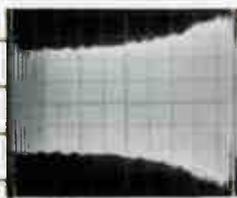
In-phase display



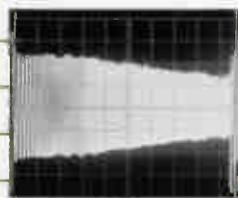
Out-of-phase display



Flat frequency response



Excessive high frequency response



Attenuated high frequency response

**FAST SWEEP FREQUENCY MONO
(MODEL 455) AND STEREO
(MODEL 456) CALIBRATION TAPES**

These cartridges are designed for mono or stereo reproducers and employ NAB mono or stereo track configurations.

These tapes are intended for use with an oscilloscope to facilitate quick and easy adjustment for flat frequency response (50 microsecond time constant) as well as precise azimuth and head height adjustment. They are also useful in identifying hum and noise, worn heads and stereo phase anomalies. Availability in both discrete mono or stereo track formats eliminates fringing effects and allows precise setting of head height.

Specifications are as follows:

- Level (referenced to 160 nWb/m: -10dB)
- Frequency Range: 500 Hz to 16 kHz (Frequency change is logarithmic with respect to time)
- Sweep Rate: 100 milliseconds
- Stereo Phase Uniformity: $\pm 5^\circ$, maximum variation

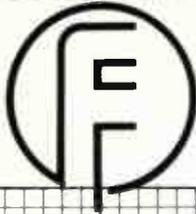
NOTE: The first two cycles of each 100 millisecond sweep are recorded at -4 dB for synchronizing the trace of an oscilloscope.

The use of the 326 Guide Height Gauge, 328 Head Insertion Gauge and 387 Right Angle Zenith Gauge is recommended with these tapes.

MODEL 387 RIGHT ANGLE ZENITH GAUGE

The Right Angle Zenith Gauge is a precision 90° square designed for use as an accurate reference when setting gauge cartridge head zenith and height. The blade is scribed at a height of exactly 0.5595" (14.2 mm), the NAB standard height for the upper edge of the head gap on a stereo cartridge machine.

The gauge, precision ground from stainless steel, is especially useful since zenith and head height adjustments often interact. By placing the gauge blade against the head and sighting from the side, zenith may be set to an accuracy well within 15 minutes of arc.



DYNAMAX™

BROADCAST PRODUCTS BY FIDELIPAC®

P.O. Box 808 • Moorestown NJ, 08057 • USA
609-235-3900 • TELEX II: 710-897-0245

HOW TO ORDER

Dynamax Broadcast Equipment is available directly from Fidelipac or may be ordered through a select group of authorized Dynamax Distributors. Fidelipac tape cartridges and accessories are offered for sale through a larger number of authorized Fidelipac Distributors. Ordering information for equipment, cartridges and replacement parts is included in the FIDELIPAC PROFESSIONAL PRICE SCHEDULE and your Fidelipac Distributor literature. Contact the factory for additional information and literature.

DELIVERY

Fidelipac maintains a complete stock of all catalog items in its Moorestown, New Jersey, facility. Typically, shipments are made within 24 hours of receipt of orders.

CUSTOMER SERVICE

The Fidelipac Customer Service Department provides Technical Assistance in all phases of tape cartridge systems, applications and use. Please call Fidelipac at 609-235-3900 between 8AM and 5PM EST. Periodically, Fidelipac conducts technical seminars and workshops. Contact us for dates and locations.

WARRANTY

Fidelipac warrants all of its products to be free of defects in materials and workmanship for a period of 90 days.

Fidelipac will repair or replace, at its expense, any product which fails to meet the specifications set forth in this catalog.

Authorization must be obtained directly from Fidelipac prior to the return of any items.

DYNAMAX[®]



Broadcast Products by Fidelipac

For thirty years, we've been waiting for a machine like this.

In 1954, Fidelipac cartridges were recorded and played on very basic equipment: four-pole motors with belt driven flywheels, pinch rollers engaged by hand and actuated by electro-magnet, single cue tones, and response within 6 dB from 100 to 8,000 cycles.

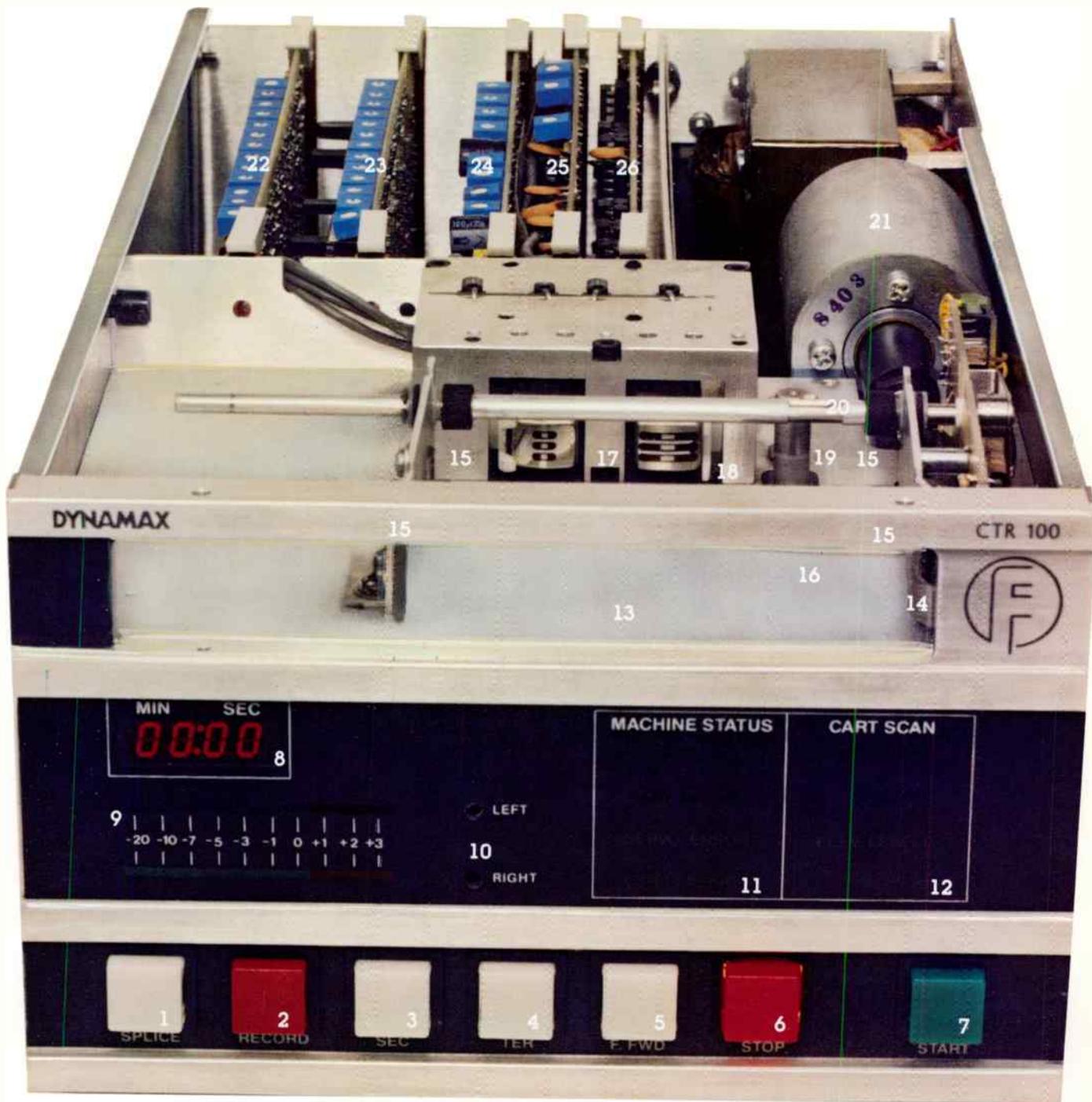
Since then, we've watched the cartridge machine evolve to become the primary source of audio programming in the world today. Modern cartridge machines offer DC servo motors for lower flutter, air-damped solenoids with better tape pulling capacity, three cue tones for increased versatility, and improved response within 4 dB from 50 to 16,000 Hertz.

But today's cartridge machines have a lot in common with their predecessors. They still record and play at only one bias, equalization and level setting, prohibiting the intermix of different types of tape. Cue tone detectors function at only fixed tape speeds, preventing playback of cartridges at non standard speeds, or synchronization with other audio or video equipment.

Digital clocks, if available, measure the passage of time, rather than the passage of tape, resulting in erroneous readings when in FAST FORWARD. And, in keeping with tradition, even the latest design cartridge machines are difficult or impossible to keep clean.

Introducing the DYNAMAX CTR100 Series from Fidelipac. The inventor of the tape cartridge has re-invented the cartridge machine.

We just couldn't wait any longer.



- 1. SPLICE FINDER
- 2. RECORD SET
- 3. SECONDARY
- 4. TERTIARY
- 5. FAST FORWARD
- 6. STOP
- 7. START

- 8. Real Time Tape Counter
- 9. LED VU Meters
- 10. Recessed Input Level Controls
- 11. Machine Status Display
- 12. CARTSCAN™ Status Display
- 13. Half-inch Tool Plate Deck

- 14. Cleaning Switch
- 15. Cartridge Steering & Hold Down Rollers
- 16. Self-Aligning Pressure Roller
- 17. Positive Reference Head Bridge
- 18. Flat Response Long Life Heads
- 19. Variable Speed DC Servo Motor

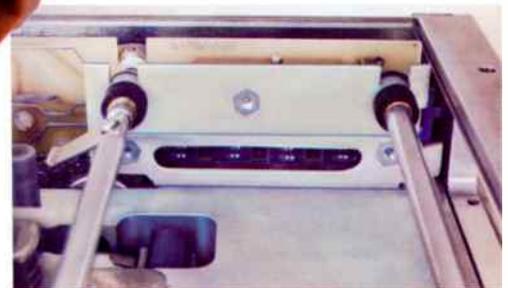
- 20. Cartridge Position Sensor
- 21. Constant Current Solenoid
- 22. Record Amplifier
- 23. Tone Generator
- 24. Play Amplifier
- 25. Tone Sensor
- 26. Logic

CARTSCAN™

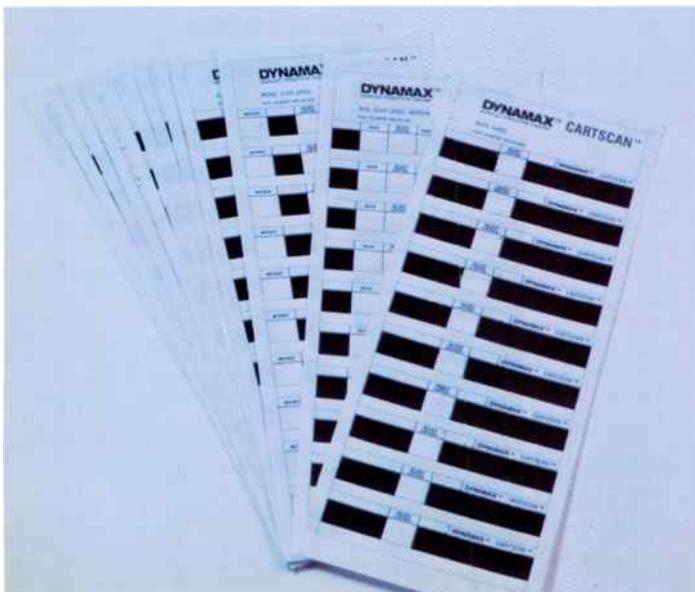
The world's most advanced cartridge preparation system.™



The DYNAMAX CARTSCAN System allows cartridges recorded at elevated level, mono and matrix stereo to be intermixed with carts recorded in standard level and discrete stereo formats. It also provides a method of coding cartridges so that insertion of specific cartridges into the machine will activate an external function, such as noise reduction, tally lights, EBS equipment, etc.



When the CARTSCAN Status Display is not illuminated, stereo machines record and reproduce the standard NAB stereo format at normal record and reproduce levels.



CARTSCAN labels are preprinted on adhesive-backed thin-film Mylar®. An appropriate label is selected and affixed to the right edge of each cartridge prior to recording. Optically coded reflective areas of the label are read by infrared sensors in the DYNAMAX CTR100 Record and Playback machines. CARTSCAN labels automatically switch the CTR100 to the preselected format. Unlabeled cartridges are recorded and played normally.

Label sheets are available for all functions, as well as combinations of functions. CARTSCAN labels are semi-permanent; they will not come off in normal use but can be removed if the cartridge is to be re-recorded in a different format.

Mylar is a registered trademark of E.I. DuPont de Nemours and Co

CARTSCAN Functions

ELEVATED LEVELS

CTR100 Series recorders contain two separate sets of bias, equalization and level controls. Playback electronics contain corresponding normal and elevated level output attenuators.

Typically, the normal set of controls would be set for standard level, bias and equalization recording on standard tape. In this manner, unlabeled cartridges would be recorded at 160 nanoWeber per meter fluxivity (1975 NAB Standard Reference Level) when the front panel VU meters read 100 per cent.

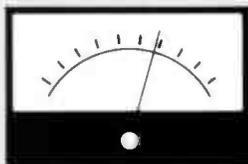
Cartridges tagged with an ELEVATED LEVEL label cause the machine to switch to elevated level format. The elevated set of controls are optimized for the newer High-Output Low-Noise tapes. To utilize the full benefit of these improved tape formulas, recordings may be made at up to 8 dB higher levels while VU meters read normally.

On playback, elevated level carts are attenuated by an amount equal to the record level boost, providing uniform output level when intermixing normal and elevated level tapes.

Benefits of using ELEVATED LEVEL Recording in conjunction with HOLN tapes

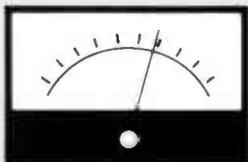
- Wider dynamic range
- Lower distortion component
- Multigeneration production capability now possible by mastering on cartridge

NORMAL RECORDING & PLAYBACK

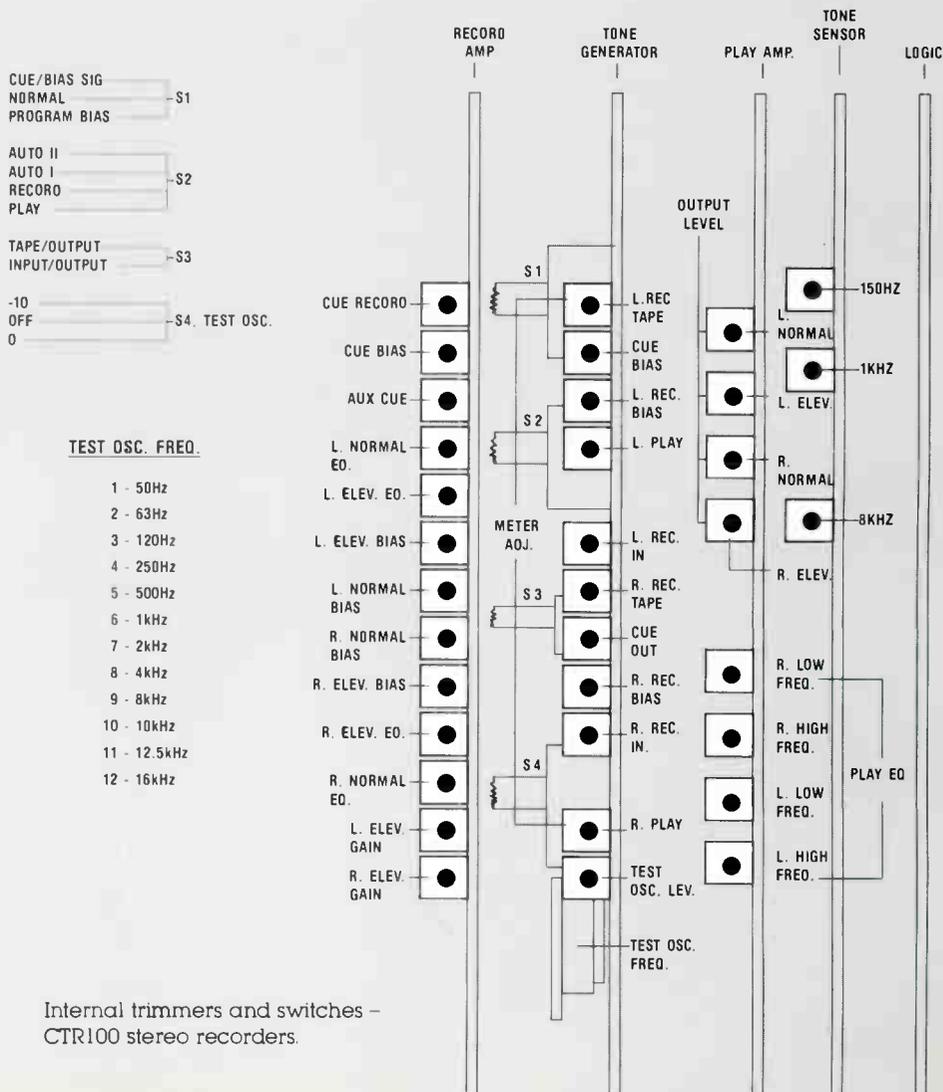


= 160 nWb/m

ELEVATED LEVELS



= = 400 nWb/m

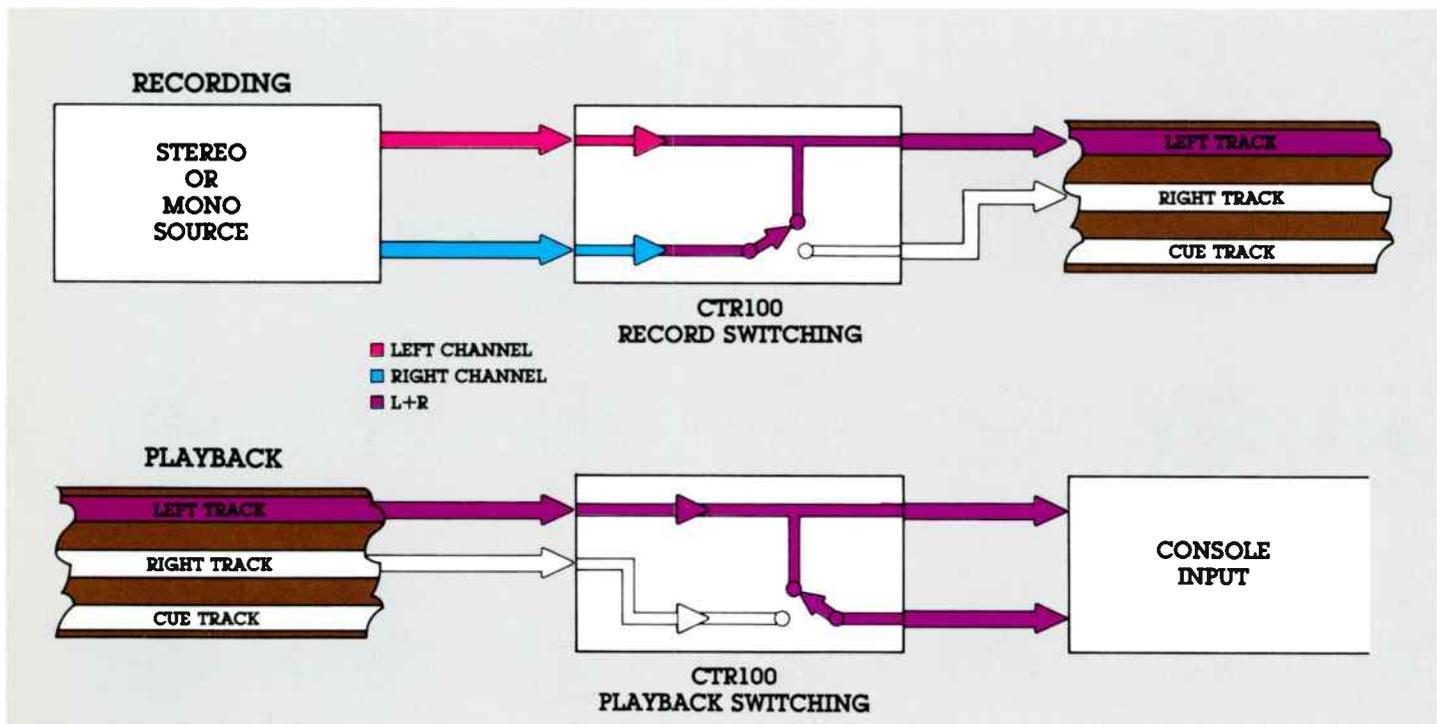


CARTSCAN Functions

MONO

Tagging a cartridge with a MONO label tells a stereo recorder to mix left and right inputs and record them on the left tape track.

On playback, the left track is fed to both left and right playback outputs providing a perfect mono signal, totally free of phase errors.



Typical MONO CARTSCAN Benefits

- Permits continued use of a mono library during conversion to stereo
- Permits stereo material to be recorded for playback on mono equipment
- Allows mono source material to be intermixed with stereo programming on same machine with no possible phase cancellation
- Eliminates need for second mono recorder in production room

CARTSCAN Functions

MATRIX

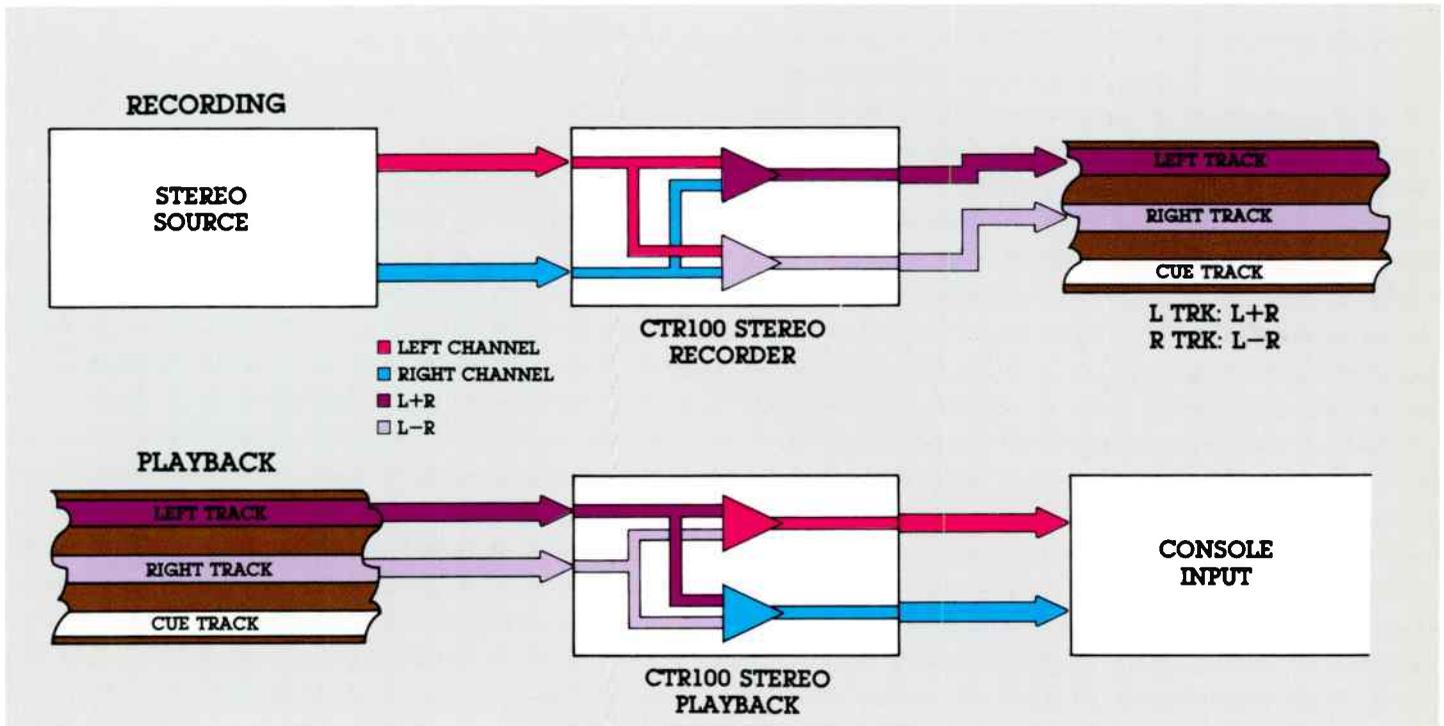
The matrix system is currently being used for stereo recordings in television in which perfect mono recombination is a primary requirement. Stereo CTR100 recorders and players are equipped with on-board matrix

encode and decode circuitry activated by the MATRIX CARTSCAN label. In matrix recording, the mono sum of left and right stereo channels (L+R) is recorded on the left tape track, and the difference (L-R) is recorded on the right

track. On playback, the sum and difference channels are used to reconstruct a discrete stereo signal. Cartridge induced phase errors, when present, are eliminated.

AUXILIARY

Cartridges tagged with an AUX CARTSCAN label trigger a collector-to-ground output at the remote plug, allowing a wide range of external functions to occur when an AUX-labeled cartridge is inserted.



Typical MATRIX CARTSCAN Benefits

- Eliminates cartridge-induced phase errors.
- Matrix format cartridges can be played on conventional mono playback equipment
- Matrix format cartridges can not be reproduced on conventional stereo machines unless an external decoder is used, preventing unauthorized cartridge use

Typical AUX CARTSCAN Uses

- Activate Dolby® or dbx noise reduction equipment
- Activate EBS equipment
- Activate tally lights
- Automatic enable of VARY SPEED mode

Vary Speed

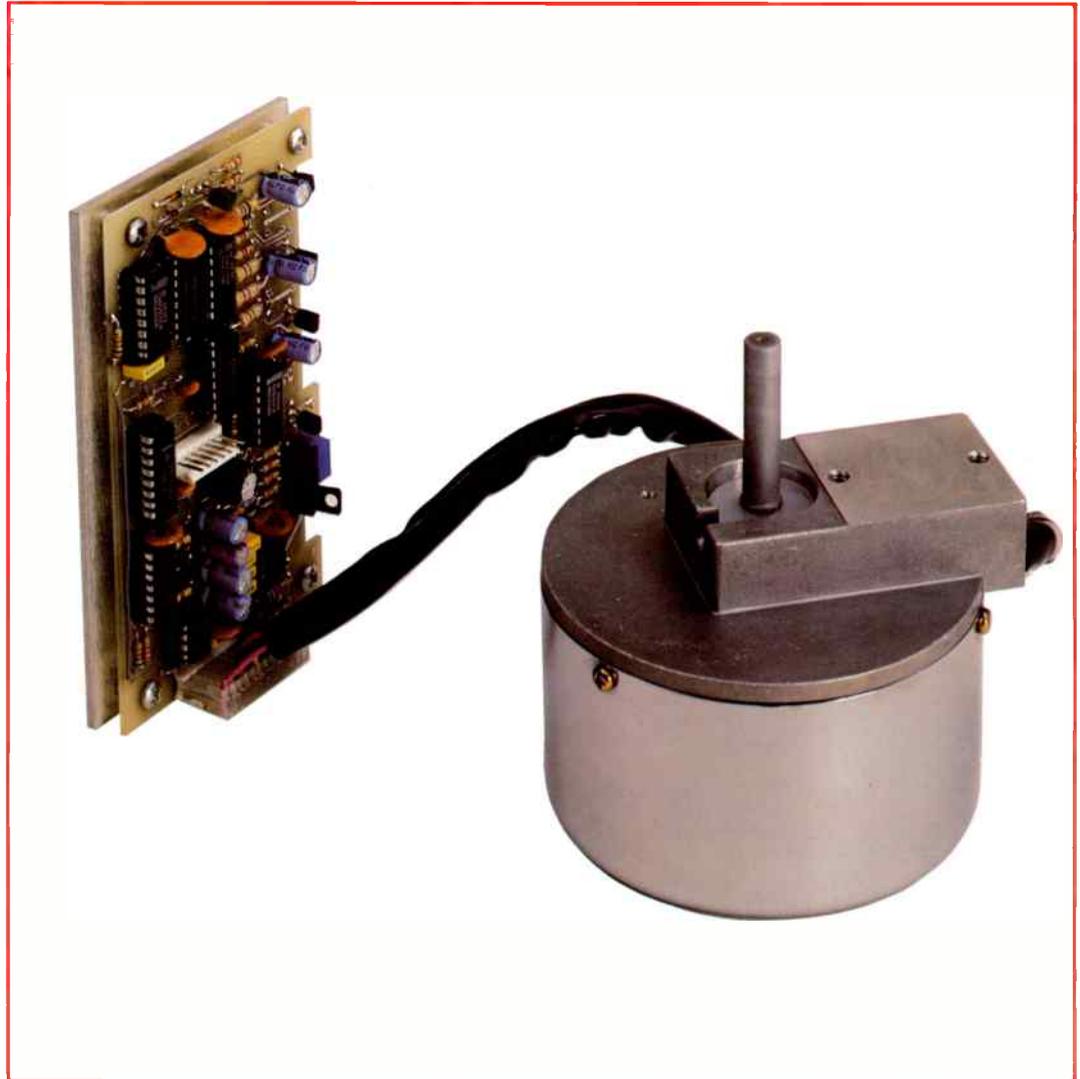
Variable speed playback from

The DYNAMAX CTR100 is equipped with a variable speed DC Servo Motor. Although capable of running at fixed speeds of 3.75, 7.5 and 15 i.p.s., the motor can be externally controlled to operate precisely at speeds within 30 per cent of the preselected speed.

The CTR100 Vary Speed system is unique. The cue tone detectors and the tape timer are synchronized to the motor tachometer, thus providing reliable cue tone sensing, as well as accurate time-keeping, at any tape speed.

Vary Speed allows music cartridges to be played uptempo, and spots to be shortened or lengthened. Special effects can be pitch controlled.

The Vary Speed system uses 9,600 Hz as a reference frequency. This frequency is fast becoming the international standard for audio and video synchronization. Vary Speed enables the cartridge machine to be interlocked with other machines using a SMPTE controller or a 9,600 Hz-based synchronizer.

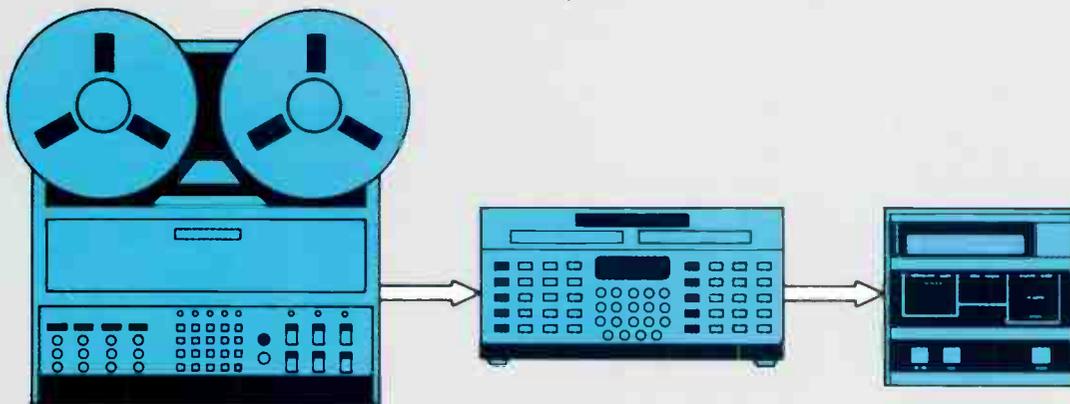


FAST FORWARD is standard on the CTR100. When the motor is strapped for 3.75 and 7.5 i.p.s., FAST FORWARD is three times normal speed. When the motor is strapped for 15 i.p.s., FAST FORWARD is automatically limited to 30 i.p.s.

cartridges. A practical working system.

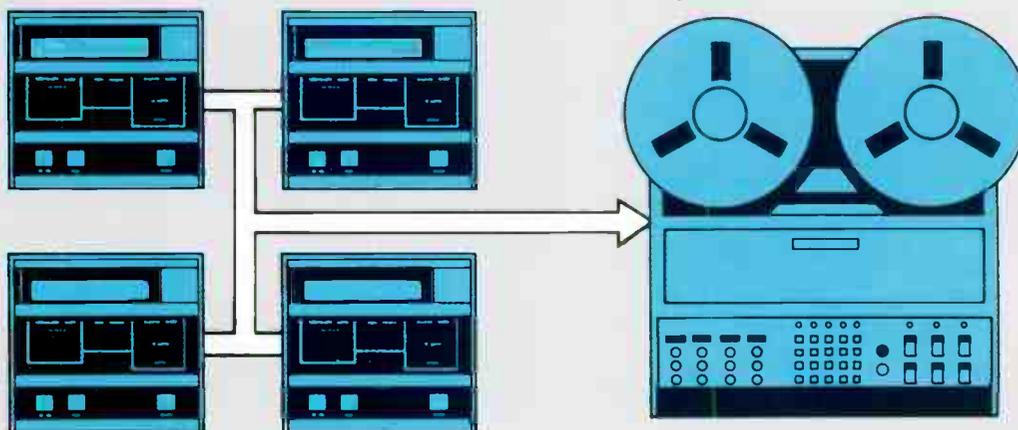
VIDEO APPLICATIONS

Slaved to a VTR using SMPTE Time Code



VIDEO APPLICATIONS

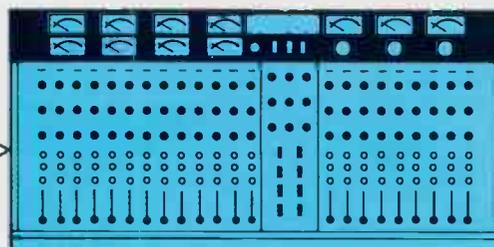
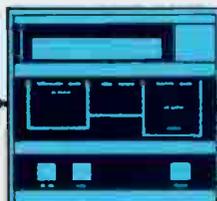
Post Production Sweetening



AUDIO PRODUCTION APPLICATIONS



Audio Oscillator

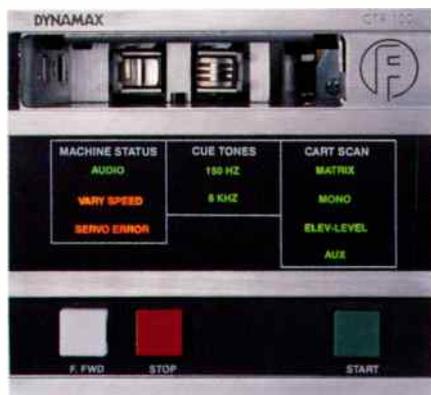
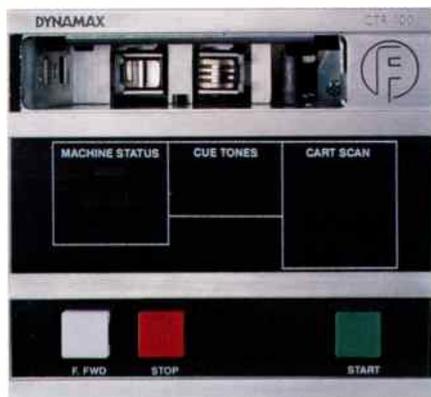


9,600 Hz center frequency yields on-speed operation. Varying oscillator frequency within 30 percent varies motor speed.

Blackout Status Panels

Only what you need to know

Under normal conditions, the CTR100 front panel is blacked out, avoiding needless distraction to the operator. In the recorder, only the timer is illuminated displaying the time of the last cartridge played.



All Status Lamps illuminated for identification

MACHINE STATUS

AUDIO

Identifies machine with audio gate open. Audio gates of all machines may be interconnected so that the last machine started mutes audio from all other machines. This feature is especially useful when more than one machine is paralleled into the same console input. Audio mutes when in FAST FORWARD, except when FAST FORWARD button is held in. Audio gate can be turned off on leading or trailing edge of 150 Hz Secondary tone.

VARY SPEED

Indicates that motor is under external speed control. VARY SPEED is locked out in RECORD mode, eliminating the possibility of recording a cartridge at the wrong speed.

SERVO ERROR

Illuminates during transition from normal speed to FAST FORWARD, or vice versa, or whenever motor is out of servo lock.

1 KHZ DEFEAT

Indicates that automatic recording of primary cue tone has been disabled. 1 KHZ DEFEAT is achieved by pressing the RECORD button twice prior to recording. It is cancelled by pressing the STOP button or removing the cartridge. Normally, the timer resets when a cartridge is restarted; however, the timer does not reset when in 1 KHZ DEFEAT, permitting the total time of the produced cartridge to be measured.

CUE TONES

150 HZ and 8 KHZ

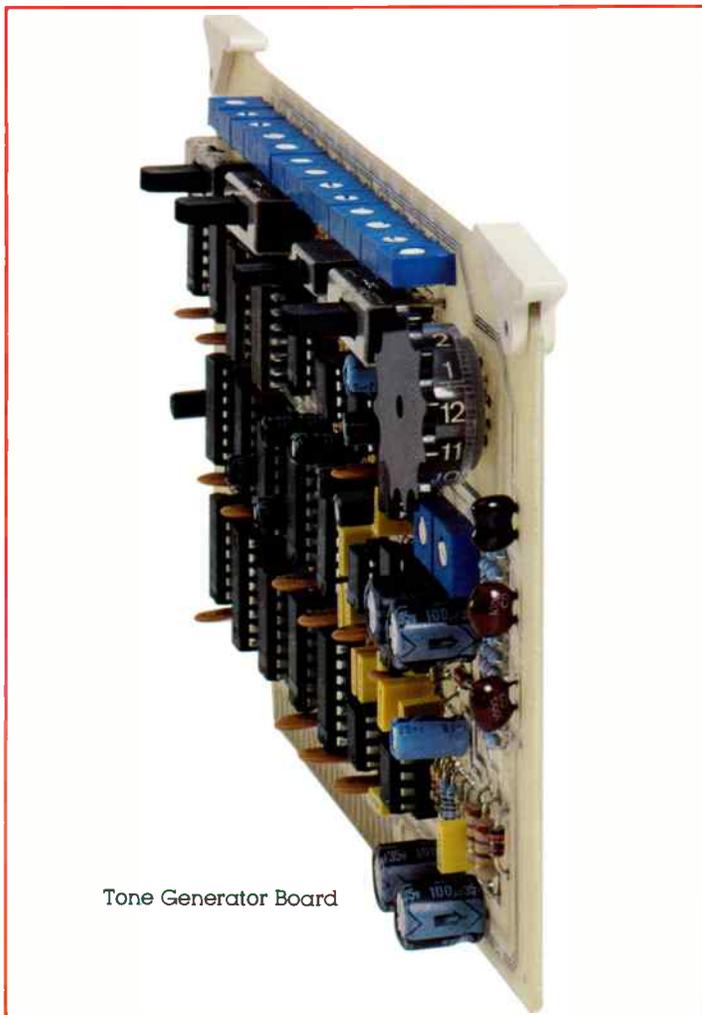
Illuminate during cue tones. On Record/Play machines, buttons illuminate. Tones can be recorded at any time during either RECORD or PLAY, and may be recorded singly or in combination. Normally open relay contacts are standard for each tone.

1 KHZ

The primary cue tone can be manually recorded while in RECORD or PLAY by pressing the RECORD button. Tone duration is automatically set in accordance with NAB Standards.

Additional Operating Features

The DYNAMAX CTR100 is the only fully equipped cartridge machine available in the world today. Additional operating, diagnostic and convenience features are described, several of which are unique.



Tone Generator Board



SPLICE FINDER – a thickness-sensitive splice finder is standard in all Record/Play machines. The splice finder operates at the programmed FAST FORWARD speed. SPLICE FIND mode can be entered from any other machine mode. Because the timer measures elapsed tape time at any speed, SPLICE FIND mode is useful for determining the total tape time of unknown cartridges.

TWO SPEED PLAYED INDICATOR WITH PLAY RESTART DISABLE – STOP lamp flashes at slow rate to indicate cartridge has re-cued. Flashes fast when cart has been manually stopped. START function may be disabled during fast, slow, or both flashing states.

ON-BOARD TEST TONE GENERATOR – recorders are equipped with a 12-tone generator which produces all tones found on the NAB Standard Spot Frequency Test Tape. Tones are switchable for either zero or -10 VU.

FAST FORWARD – can be entered manually from any other mode, or automatically by either leading or trailing edge of 150 Hz tone. Audio is normally muted during FAST FORWARD operation but can be manually unmuted by holding the FAST FORWARD button.

CLEANING SWITCH – allows activation of pressure roller without inserting a cartridge. Makes cleaning the pressure roller easy, especially when machines are rack

mounted and top access is unavailable. Operation without cartridge inserted also facilitates set up, diagnostics and measurement.

CLOCK FUNCTIONS

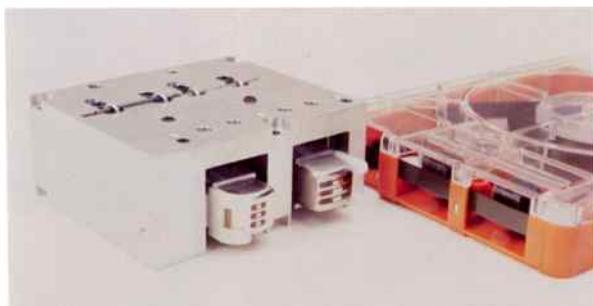
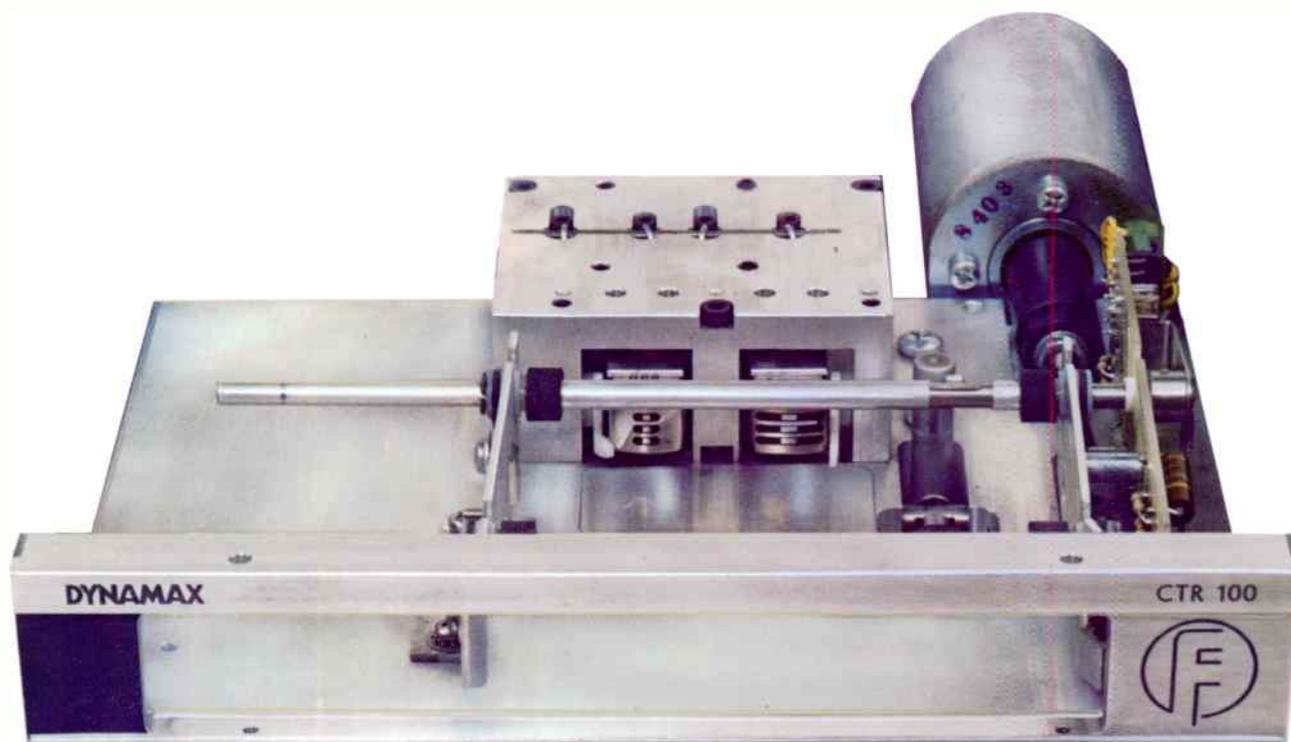
- Clock is synchronized to motor tachometer and always indicates tape position
- Clock can be strapped to freeze at beginning or end of Secondary cue tone
- Clock retains last elapsed time until new cartridge is inserted or same cartridge is restarted

METERING FUNCTIONS

- Can be frozen to continuously read audio output
- Can be frozen to continuously read audio input
- Auto I – automatically switches to audio input when the machine is in the RECORD mode, meters audio output at all other times.
- Auto II – monitors audio input when the machine is in the RECORD and STOP mode, meters audio output at all other times. This mode allows the recording level to be present and then automatically switches to give an off-the-tape indication during the recording process
- The VU meters may also be used to monitor program record bias, cue record bias and cue audio in addition to program record and output audio

Cartridge Deck Architecture

An intelligent cartridge interface.



REMOVABLE HEAD BRIDGE WITH POSITIVE REFERENCE SURFACES – unmarred by screw heads or other projections which can damage cartridge surfaces and destroy repeatable positioning.

MICRO ADJUSTABLE TAPE GUIDES – mounted in vertical guide channels.

Height is adjustable with vernier self-locking screws.

HEAD HEIGHT, AZIMUTH and ZENITH INDEPENDENTLY ADJUSTABLE – height and zenith remain locked while azimuth adjustment is made.

CANTED HOLD-DOWN ROLLERS – rubber rollers hold carts firmly at edges while urging cartridge to right edge guide during cartridge insertion.

SELF ALIGNING PRESSURE ROLLER – integrated ball-bearing race assures perpendicularity of roller and capstan.

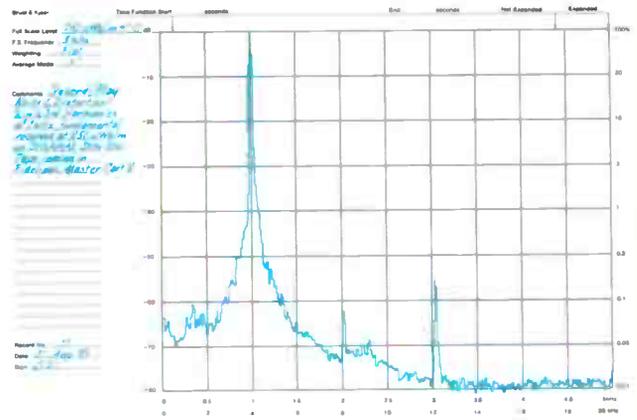
CONSTANT CURRENT LOW VOLTAGE SOLENOID – insensitive to power line voltage changes or solenoid temperature variations. Solenoid receives high current pulse to start, then current is reduced to hold solenoid in.

TROUBLE FREE STAINLESS CAPSTAN – easily cleaned. Will not accumulate tape oxide or soak up cleaning fluid as in ceramic capstans. Provides positive electrostatic grounding to help inhibit formation of static charges in certain tapes.

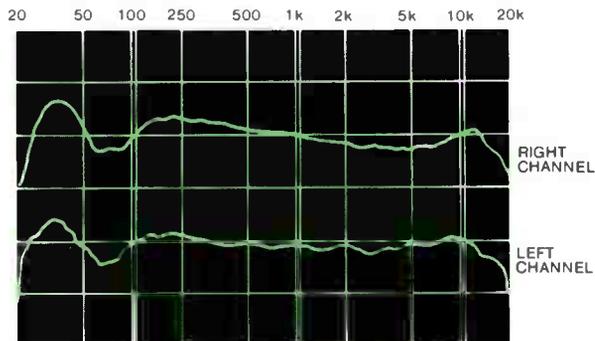
Audio Performance

Specifications don't always tell the whole story of a product's audio performance. Often, what happens within plus or minus 2 dB limits can have an audible effect on the overall sound.

The CTR100 utilizes premium heads and state-of-the-art devices throughout. Herewith, we present the following performance graphs.

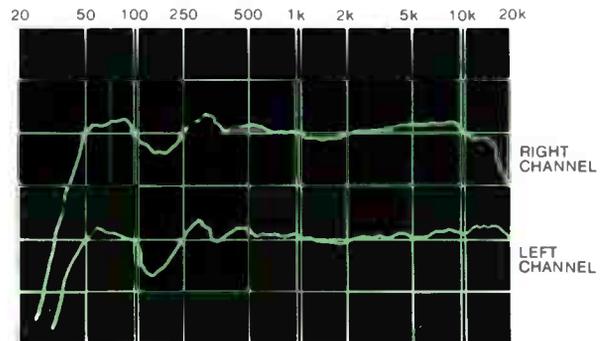


**RECORD/PLAYBACK
FREQUENCY RESPONSE**



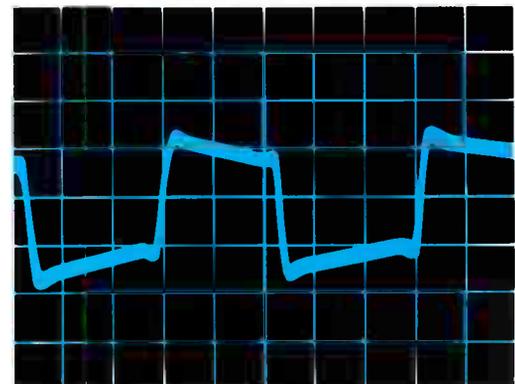
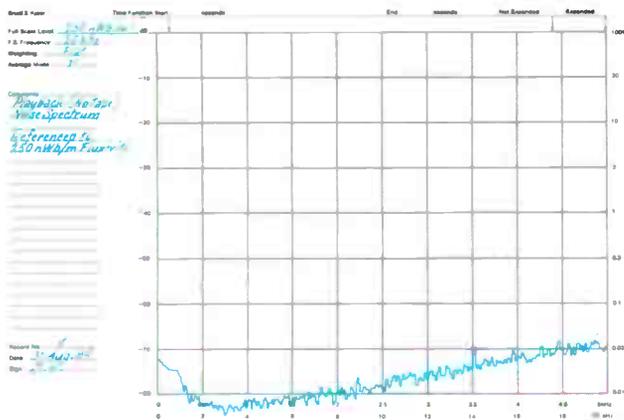
2dB/Div.

**PLAYBACK FREQUENCY RESPONSE
FROM TEST TAPE**



2dB/Div.

**RECORD/PLAY
SQUARE WAVE RESPONSE**



1 kHz Square Wave
200 microseconds per horizontal division, 0.2 volts per vertical division

CTR100 Features

All features listed below are standard

Operational

- CARTSCAN™ System – automatic activation of ELEVATED LEVEL, AUX, MONO* and MATRIX* modes
- Vary Speed – motor speed continuously variable from 1.875 to 30 i.p.s. from external reference
- Cue tone tracking within ± 30 per cent of preselected speed
- SMPTE interface for synchronization using 9,600 Hz international reference
- Real time digital tape timer accurate at any tape speed
- Splice finder
- Blackout status display
- Front panel diagnostics
- All front panel switches illuminated
- Fast forward
- Secondary and tertiary cue tones
- Front panel 1 kHz add and defeat
- Selectable multi-speed high speed recue
- Two speed played flashing indicator with multi-machine flash synchronization
- Played restart disable
- Audio Switcher and Mixer
- 150 Hz control of audio gate
- Fully switchable metering with automatic changeover functions
- Bar graph LED level indicators
- Improved heads for flat low frequency response and long life
- On-board test oscillator

Mechanical

- Compact size:
 - Playback units – 1/3 rack width
 - Record/Play units – 1/2 rack width
- 1/2 inch anodized tool plate deck
- Removable head bridge with positive reference surfaces
- Micro-adjustable tape guides
- Geometrically correct azimuth adjustment, independent of height & zenith
- Canted hold-down cartridge positioning system
- Low voltage constant current air damped solenoid with multi-level electronic current control
- Self aligning ball bearing pressure roller
- Brushless variable speed 3 phase DC servo motor with electrolyzed non-magnetic stainless steel shaft and permanently lubricated ball bearings, strappable for 3.75, 7.5 and 15 i.p.s.
- Polycarbonate legend overlay panels for durability and ease of cleaning
- Extensive mumetal shielding
- Long-life premium quality switches with bifurcated wiping contacts
- Servo motor electronics removable without removing motor permitting adjustment while playing a cartridge
- Service access to all internal components without destroying outside finish
- Cleaning switch

Electrical

- State-of-the-art audio utilizing a combination of discrete and integrated devices, such as LM394, 5500 and LF series operational amplifiers
- Audio Transformerless circuitry
- Group delay compensation
- Active bias and signal mixing
- Constant current recording with record head incorporated in feedback loop

- Crystal controlled reference for all internal functions
- 144 kHz bias oscillator
- ICs socketed
- Component designations on all circuit boards
- All power supplies regulated
- Full remote controls including lamps, motor tachometer, and function pulses
- Detachable line cord
- 110/220V 50-60 Hz operation

*Stereo machines only

CTR100 Specifications

1. Power

- A. 117 vac $\pm 10\%$ / 234 vac $\pm 10\%$
- B. 50/60 Hz
- C. 85 watts maximum

2. Tape Speeds

A. <u>Standard</u>	<u>Fast Forward</u>	<u>Comment</u>
7.5 i.p.s. (19 cm/s)	22.5 i.p.s. (57 cm/s)	Set by Factory
3.75 i.p.s. (9.5 cm/s)	11.25 i.p.s. (28.5 cm/s)	Strappable
15 i.p.s. (38 cm/s)	30 i.p.s. (76 cm/s)	Strappable

- B. Vary speed 1.875 to 30 i.p.s. as controlled by external oscillator
- C. 9600 Hz external reference will produce standard selected speed
- D. Cue tone sensors track motor speed (as varied by external oscillator) within $\pm 30\%$ of selected standard speed
- E. Vary speed feature is locked out in record mode
- F. Front panel vary speed indicator

3. Capstan Motor Drive System

- A. Direct drive capstan
- B. Brushless 3 phase DC servo motor
- C. Electrolyzed stainless steel shaft/capstan non-magnetic
- D. Permanently lubricated ball-bearings
- E. Crystal referenced phase locked loop control
- F. Dynamic breaking from fast forward to normal speed
- G. Front panel servo error indicator

4. Wow & Flutter

- Record/Play maximum
0.12% DIN WTD at 7.5 i.p.s.

5. Speed Accuracy

- Better than $\pm 0.2\%$

6. Audio Output and Source Impedance

- Differentially balanced, source impedance 440 ohms; RF bypassed

7. Audio Output Level

- +20 dBm into 600 ohms before clipping

8. Distortion

- Reproduce amplifier:
0.05% THD max. 18dB above 250 nWb/m
- System distortion, tape limited:
0.5% max 2nd or 3rd harmonic, 1 kHz, at 250 nWb/m
- 0.8% THD max at 1 kHz

9. Noise

- A. Signal/noise measured with bias/no signal at 7.5 i.p.s.
Mono-57 dB (minimum)
Stereo-55 dB (minimum)

- B. Hum and Noise – no tape
 - Mono–63 dB (minimum)
 - Stereo–61 dB (minimum)
 - C. Squelch noise –70 dB (minimum) measured over a 20 – 20 kHz bandwidth, reference 250 nWb/m at 1 kHz
- 10. Cross Talk**
Within 50 dB minimum separation between program channels at 1 kHz
- 11. Frequency Response**
±2 dB 50Hz – 16 kHz
- 12. Equalization**
A. 1975 NAB EQ Standard normally supplied 7.5 i.p.s.
B. IEC Standard on request (pot adjustment) 7.5 i.p.s.
C. Field strappable for 1964 NAB EQ
D. Adjustable low and high frequency playback EQ
E. Adjustable high frequency record EQ
- 13. Head Configuration**
A. NAB, Mono/Stereo
B. Maxtrax™ Stereo (optional at extra cost)
- 14. Cue signals**
A. NAB primary cue 1 kHz
B. NAB secondary cue 150 Hz with front panel indicators
C. NAB tertiary cue 8 kHz with front panel indicators
D. Open collector sinking signal (ground switching) available upon sensing secondary or tertiary cue tones, 15 volts, 200 mA maximum, saturation less than 1v at 200 mA
E. Open relay contacts available upon sensing secondary or tertiary cue tones (contacts close with tone present)
F. Cue tone sensing over a ±30% speed variation in playback vary speed mode
- 15. Logging Signals**
A. Not internal to machine
B. Cue audio input, cue audio output and cue track bias control available for external use
C. Output level .5v nominal from a logging signal of 35 nWb/m tape fluxivity
D. Logging output impedance 1k ohms
E. Cue audio input .5v nominal
F. Input impedance 47k ohms
- 16. Audio Input Level**
A. –17 dBm minimum input to record 160 nWb/m in normal mode, or up to 400 nWb/m in elevated level mode
B. +20 dBm maximum input level, unbalanced input connection
C. +26 dBm maximum input level, balanced input connection
- 17. Audio Input Configuration**
Differentially balanced bridging 10k ohms
- 18. Metering**
A. Audio Metering, switch selectable
1. Play only – monitors output level
2. Record only – monitors record input level
3. Auto 1 – monitors record input level when machine is in RECORD mode, automatically switches to output level at all other times
4. Auto 2 – monitors record mode when machine is in RECORD and STOP (ready) mode, automatically switches to output level at all other times

- B. Test Metering
 - 1. Left program bias displayed on left meter; right program bias displayed on right meter
 - 2. Cue bias displayed on left meter; cue audio displayed on right meter
- 19. Bias Oscillator**
144 kHz crystal generated
- 20. Tape Capacity**
A. NAB sizes A and AA (CTR111 and CTR112)
B. NAB sizes A and AA, B and BB (CTR123 and CTR124)
- 21. Start Time**
Typically 100 milliseconds (timing dependent upon solenoid air damping adjustment)
- 22. Stop Time**
Tape stop time typically 100 milliseconds (dependent on type and length of cartridge)
- 23. Ambient Operating Temperature Range**
10-50°C (50° to 122°F)
- 24. Remote Control Signals**
A. All front panel controls and indicators (except record input controls and meters)
B. Vary speed control and reference
C. Cue track input, output and bias control
D. Start, Stop and Cartridge Sense pulses for external timer
- 25. External Connectors**
A. 9 pin "D" audio connectors (mating connectors supplied)
B. 50 pin "D" – remote control
C. Plug-in line cord
- 26. Mounting**
A. Table top standard
B. Rack mount (optional rack mount available)
- 27. Ordering Information and Dimensions**

Model No.	Description	Height	Dimensions	
			Width	Depth
CTR111	A Size Mono Play	14.29 cm 5.625 in.	15.24 cm 6 in.	40.64 cm 16 in.
CTR112	A Size Stereo Play	14.29 cm 5.625 in.	15.24 cm 6 in.	40.64 cm 16 in.
CTR112MX	Maxtrax	5.625 in.	6 in.	16 in.
CTR123	B Size Mono Record/Play	14.29 cm 5.625 in.	22.23 cm 8.75 in.	40.64 cm 16 in.
CTR124MX	Maxtrax	5.625 in.	8.75 in.	16 in.
CTR124	B Size Stereo Record/Play	14.29 cm 5.625 in.	22.23 cm 8.75 in.	40.64 cm 16 in.

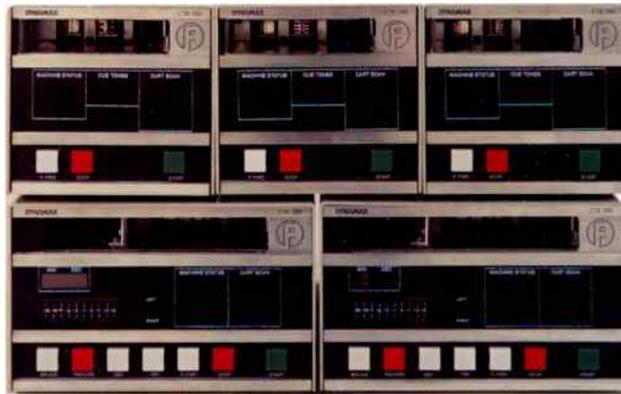
28. Shipping Information

Model No.	Shipping Weight		Shipping Volume	
	Pounds	kg.	cu. ft.	cu. m.
CTR111	30	13.6	1.4	0.04
CTR112	30	13.6	1.4	0.04
CTR123	35	15.9	1.8	0.05
CTR124	35	15.9	1.8	0.05

This product is manufactured under U.S. Patent Number 4,583,669.



Fidelipac Corporation □ P.O. Box 808 □ Moorestown, NJ 08057 □ U.S.A. □ 609-235-3900 □ TELEX: 710-897-0254 □ Toll Free 800—HOT TAPE



Distributed By

The Dynamax[®] Family of cartridge machines



DYNAMAX[®]



Fidelipac Corporation □ P.O. Box 808 □ Moorestown, NJ 08057 □ U.S.A. □ 609-235-3900 □ TELEX: 710-897-0254 □ Toll Free 800-HOT TAPE

DYNAMAX products are designed and manufactured in the U.S.A.

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BROADCAST PRODUCTS BY FIDELIPAC[®]

THE DYNAMAX ESD10 ERASER/SPLICE DETECTOR

Reliable splice detection and deep cart erasure, for flawless sound reproduction.

Elimination of degaussing coil permits continuous duty cycle and no tape damage.

The standard of sound quality which engineers and programmers strive for is often compromised before broadcast material is transferred to tape cartridges. It happens in the process of erasing the cartridges.

The DYNAMAX ESD10 will consistently—measurably—outperform any other eraser/splice locator on the market. It will, in fact, provide erasures that are virtually as clean as those achieved by the best belt driven erasers.

Hand held and desk top erasers can be effective. But that effectiveness is severely limited by the skill and care of the operator, and the attention paid to properly erasing the cartridge.

Erase depth of 85 dB assured.

The DYNAMAX ESD10 improves upon the technology used in high quality reel-to-reel recorders and achieves an erase depth of 85 dB or more. The result is a significant improvement in the signal-to-noise ratio, and on-air sound beyond anything you might have thought possible.

Dual Erase Heads.

The DYNAMAX ESD10 design uses dual precision, full track erase heads, not a coil located below the deck. Huge coils exert forces opposing movement of the tape. And these stresses measurably shorten the life of the cartridge. Coils also draw large amounts of power and generate excessive heat, all of which is eliminated by our dual erase head configuration.

Reliable, automatic splice detection.

When program material is recorded over a splice, a severe dropout can occur. Cue track material is also disrupted which may cause false cueing and/or logging errors.

Splice location is very important. But it is also a time consuming operation when performed manually, an operation busy studios can ill-afford.

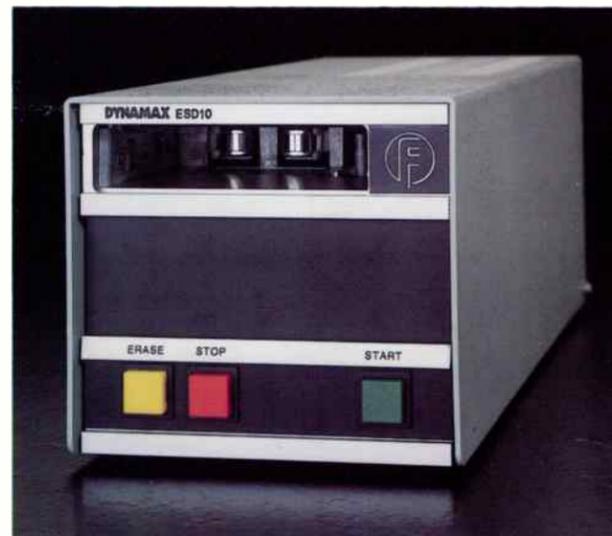
Until now, even automatic splice detection machines have had drawbacks. They were often unreliable and required constant adjustment.

Sensitivity adjustments eliminated.

The DYNAMAX ESD10 uses a patented* splice find system—a system developed for the DYNAMAX CTR100 Series Recorder—and as a result, the ESD10 requires no sensitivity adjustments whatsoever.

The DYNAMAX ESD10 is, quite simply, the most reliable splice detector ever built. It is available in an attractive desk mount cabinet, or may be rack mounted alone or in combination with DYNAMAX cartridge machines.

*U.S. Patent No. 4,583,669.



DYNAMAX ESD10 Specifications:

Power

- A. 117VAC ± 10%/234 VAC ± 10%
- B. 50/60 Hz
- C. 50 Watts maximum

Tape Speed

- A. 27.5 IPS nominal

Splice Density

- A. Detects splicing tape of 1/2 mil or greater thickness

Erase Depth

- A. 85 dB or better, below tape saturation at 1 kHz using DYNAMAX AA Cobalt™ Cartridge

Tape Capacity

- A. NAB size A and AA Cartridges

Ambient Temperature

- A. 10-50° C (50° to 122° F)

Mounting

- A. Tabletop
- B. Rackmount (Requires optional mounting hardware)

Dimensions

- A. 14.29 cm H x 15.24 cm W x 40.64 cm D (5.625" x 6" x 16")
- B. Rackmount requires only three rack units 13.34 cm (5.25")

Shipping Weight

- A. 11.8 kg (26 lbs.)

