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TELEX 1400 SERIES

The new Telex 1400 Series professional recorder/reproducers are designed and engineered to meet the exact requirements of precise sound recording and reproduction. Uncompromising in every respect, these heavy duty machines evolved from the Magnecord 1000 series, a longtime standard in the broadcast, studio recording and commercial sound industries. The 1400 Series combine the unequaled quality and rugged dependability of Magnecord with the most recent design features available. The result is a line of highly specialized recorder/reproducers made to outlast, outwork and outperform anything else in its class.

The 1400 Series employ the most exacting type of drive system available. A DC servo drive system assures timing accuracy which is unattainable with other drive systems. For broadcasting applications this means the virtual elimination of programming error (± 3 sec. deviation in a 30 minute program). The DC servo drive system also helps keep flutter and wow at a bare minimum and allows any AC power source to be used (110/130V, 230/240V, 50 or 60 Hz), because it doesn't rely on line frequency for timing control.

The 1400 provides separate, low noise, state of the art record electronics to increase the signal to noise ratio and produce outstanding frequency response. The solid state amplifier has a Zener regulated power supply which provides power for the electronic functions of record, playback, erase, and high frequency bias. Electronics are on readily interchangeable epoxy filled plug-in boards for convenient servicing and maintenance. A VU meter for each channel allows monitoring of record, playback or bias levels. Separate gain controls for mic and line inputs as well as a master gain control gives each machine the potential of a small mixer.

The catenary head block design provides excellent tape to head contact and allows use of simplified tape guide and lifter mechanisms. The lifter mechanism moves the tape away from the heads during fast modes and stop and eliminates most scrape

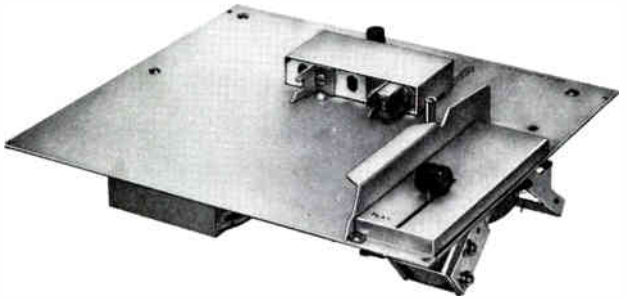
PRODUCTS OF SOUND RESEARCH
TELEX COMMUNICATIONS INC
9600 ALDRICH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55420

TECHNICAL DATA 4042-5

MODEL 36
TAPE CARTRIDGE TRANSPORT

GENERAL DESCRIPTION

The Telex Model 36 Tape Cartridge Transport is designed for background music, broadcast, display automation, message repeating and electronic teaching systems. The transport is attractively finished in satin anodized aluminum and constructed of sturdy heavy gauge aluminum and steel. The standard operating speeds of the 36 are 7-1/2 and 3-3/4 IPS. The transport can be flush mounted in a wood base or console. Phono jacks are easily accessible and are connected to any one of several monaural or stereo head configurations.



The Telex Model 36 tape transport is a semi-automatic (manual cartridge lock) unit designed for remote controlled start/stop operation. The 36 is equipped with load lever and a solenoid operated pressure roller that must be actuated with an external switch.

Metal foil cueing is also available on the Model 36. A metal foil strip placed at any point on the tape actuates the optional contactor head (and Control Kit 114), to stop the tape and provide extra control functions. Options such as head configurations, transport speeds, motors and AC power requirements can be found under the respective headings below.

ENGINEER'S AND ARCHITECT'S SPECIFICATIONS

The tape transport shall be capable of handling all tape cartridges constructed to NAB standards, and shall be designated as Telex Model 36. The Model 36 shall weigh 10 pounds and shall have an anodized aluminum finish. The transport shall provide two speeds, 7-1/2 and 3-3/4 IPS (19 and 9.5 cm/s). The transport shall also be available in single speed, two belt drive (7-1/2 IPS) and single speed, three belt drive, (3-3/4 or 1-7/8 IPS) (9.5 and 4.75 cm/s). The transport shall have a standard 4 pole induction motor. A hysteresis synchronous motor is optional.

The transport shall have a flutter content of 0.3% or less. Start time (to stable tape speed) and stop time for the Model 36 shall be 100 milliseconds. Standard motor start time for the Model 36 shall be less than 2.0 seconds.

The capstan drive for the transport shall be a flutter-filter belt type, with a shock mounted motor and dynamically balanced flywheel. The capstan assembly shall have oil impregnanted bronze bearings. Each transport shall accommodate a variety of head configurations.

OPTIONS

HEAD CONFIGURATIONS

The Telex cartridge transport utilizes a universal head bracket which accommodates a maximum of three heads. The head bracket is adjustable for head penetration into the cartridge. Heads may be full, half or quarter track or a contactor head for foil-actuating control functions. Erase jacks are grounded to the transport chassis.

In addition to the head configurations shown, many other combinations are possible and available on request.

Heads match all solid state Telex amplifiers. Heads of other impedances are also available on request.

TAPE SPEEDS

The standard cartridge transport is a two speed 7-1/2 and 3-3/4 IPS single belt unit. Single speed 3-3/4 IPS or single speed 7-1/2 IPS, multiple belt provides increased service life and slightly better flutter and wow characteristics. A single speed 1-7/8 IPS (4.75 cm/s) transport is optional.

MOTORS

The standard cartridge transport is supplied with a 4 pole motor. A hysteresis synchronous motor is optional.

AC POWER

220 VAC 50 Hz models with 4 pole motor or hysteresis synchronous motor are optional.

APPLICATION NOTES

The Model 36 lends itself particularly for broadcast automation or in applications where, for example, background music is interspersed with commercials.

Where a tone pulse is used for cueing, a separate halftrack pulse head is recommended. This permits complete isolation of the tone pulse and the sound track.

Where a contactor head is used with metal foil attached to the tape, contact current must be kept below 10 mA (less than 5 mA is recommended), and a potential of less than 48 Volts.

For automatic cueing systems with metal foil conductor tape, order the following accessories:

1. Contactor Head (80165-000)
2. Control Kit 114 (90906-097)

AMPLIFIERS

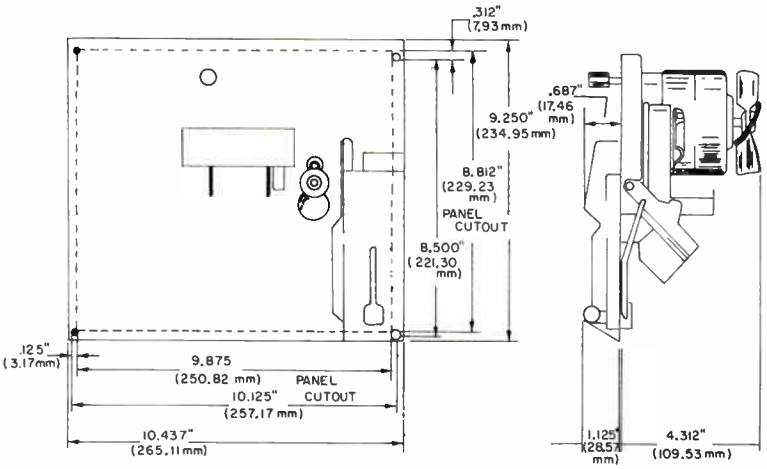
Telex offers a variety of monaural amplifiers for use with the Model 36. Technical Data Sheets are available on request.

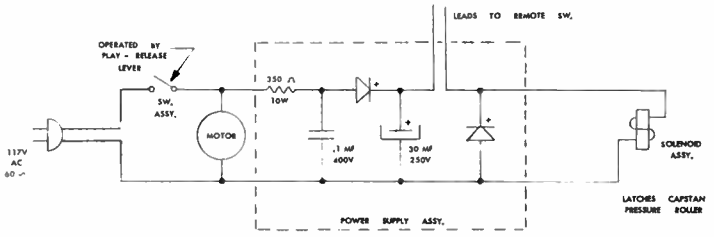
Model RP-85 Record & Playback Preamplifier.
Model PB-10 and PB-10-22 Playback Preamplifiers.
Model PA-94F Playback Power Amplifier.

JAN 1976
ECN 38108-20

SPECIFICATIONS

Flutter:	0.3% or less
Capstan Drive:	Flutter filter belt drive from shock mounted motor and dynamically balanced fly wheel. Oil impregnated bronze bearings — no lubrication required.
Tape Speed: **STANDARD, with speed selector** **Single Speed** **Single Speed**	7-1/2 and 3-3/4 IPS — (19 and 9.5 cm/s) 7-1/2 IPS — 3-3/4 IPS —
Motor:	4 pole, induction furnished as standard
Actuation Time:	100 milliseconds
Stopping Time:	100 milliseconds
Motor Start Time: (Standard Motor)	less than 2.0 seconds
Shipping Weight:	10 lbs. (4.5 kg.)
Finish:	Anodized Aluminum
Cartridges Used With Transports:	Compatible with NAB Type A, B, C
Power Consumption:	40 Watts Nominal





ORDERING INFORMATION

Units listed below are equipped with a standard 4 pole induction motor. Orders for units with optional hysteresis synchronous motors and/or optional AC power requirement must be specified clearly.

Model Description	Head Configuration H = Half Track, Q = Quarter Track, 1 = Single Channel, 2 = Two Channel — Erase	Record	Play	Speed IPS	Order By Catalog Number	Speed IPS	Order By Catalog Number	Speed IPS	Order By Catalog Number
36P	--	--	H1	3.75-7.5	90915-000	3.75	90915-028	7.5	90915-014
36R	H1		H1	3.75-7.5	90915-001	3.75	90915-029	7.5	90915-015
36S	--	--	H2	3.75-7.5	90915-004	3.75	90915-032	7.5	90915-018
36QQ*	--	--	Q2+Q2*	3.75-7.5	90915-006	3.75	90915-034	7.5	90915-020

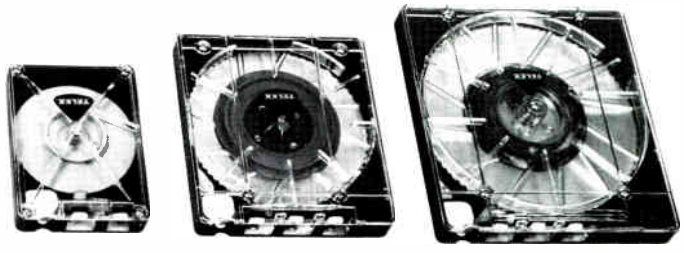
* These models have staggered track head arrangement. Use with stepping relay SP44 (See Accessories).

ACCESSORIES

Model	Description	Order By Catalog Number
Contactor Head Kit 114	Automatic stop control box (for use with contactor head) cables, switch & switch plate	80165-000 90906-097
SP44	For four track mono continuous play in 1, 2, 3, 4 sequence, for use only with QQ models with contactor head	90906-054
D1020	Walnut Case with decorator head cover	90914-000
Front Panels for D1020 Case to Fit:	RP85 Record-play preamplifier	81150-006
	PA94F Power amplifier	81148-001
	One PB-10 or PB-10-22 play preamplifier	81148-005
	Two PB-10 or PB-10-22 play preamplifiers	81148-011
	Blank panel	81389-008
Tape Cartridges (Tape Not Supplied)		
M-4	Capacity for 3-400 ' 1 mil tape (0.92-122 meters)	82496-000
M-6	Capacity for 100-750 ' 1 mil tape (31-228 meter)	82334-001
M-8	Capacity for 100-1500 ' 1 mil tape (31-458 meter)	86910-000

TAPE CARTRIDGES

Telex Tape Cartridges are compatible with NAB type A, B, C cartridges. Constructed of precision drawn aluminum with impact resistant clear plastic covers, Telex cartridges offer dimensional stability, resistance to warpage and are reusable. These cartridges are particularly recommended for extended tape life in long term applications such as background music. For detailed information request Tech Data 4041.



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PRODUCTS OF SOUND RESEARCH
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MODEL 1400 SERIES TAPE RECORDER/REPRODUCERS

GENERAL DESCRIPTION

The Telex 1400 Series professional recorder/reproducers are designed and engineered to meet the exacting requirements of precise sound recording and reproduction. The 1400 series combine quality and rugged dependability with advanced design features. The result is a line of highly specialized recorder/reproducers made to outlast, outwork and outperform anything else in its class.

TAPE TRANSPORT

The tape transport mechanism of the 1400 series recorder is built on a precision machined, solid aluminum die-casting to insure the stability and ruggedness required in a machine intended for hard, continuous use in broadcast and industrial service. All models feature a three speed (3-3/4, 7-1/2, 15 ips) drive system and permit full remote control of all operating modes of the transport.

The 1400 Series employs a brushless DC servo ball bearing drive system which assures timing accuracy normally unattainable with other drive systems, as well as long life. For broadcasting application this means the virtual elimination of programming error (less than ± 3 second deviation in a 30 minute program.) The DC servo drive system doesn't rely on line frequency for timing control therefore the same drive system can be used for both 50 Hz and 60 Hz operation. The reels are driven by two split-winding capacitor motors. A tape break sensing switch will shut down the transport should the tape run out or break. Electronically interlocked pushbutton switching controls all modes.

The catenary head block design provides excellent tape-to-head contact and allows use of simplified tape guide and lifter mechanisms. A solenoid operated tape lifter mechanism moves the tape away from the heads during fast modes and stop and allows switching the transport into a cue mode where the tape is placed against the heads. Light even torques are applied to the reel motors for cueing or editing. This lifter mechanism also eliminates most scrape flutter caused by guides. Polished, hyperbolic contoured heads further insure intimate tape to head contact, while double mu-metal shields maintain a good signal-to-noise ratio. The solenoid operated braking system is fail-safe and provides differential braking action under all operating conditions including power failure.

All solid state controls eliminate contact noise and allow absolutely minimum EMI. Solid state controls offer greater reliability while improved logic circuits make it virtually impossible to spill tape. Transition from any mode to another is accomplished without difficulty and the transport automatically stops if an illogical combination of buttons are pushed. Bi-level illumination of the transport controls simplifies operation with the activated button glowing brighter than the others. A flashing record light indicates when the record electronics are ready. Pushing the record and play buttons simultaneously puts the machine in record and the record indicator light then glows steadily.

The Model 1421 is available in two head configurations - full track erase, full track record, and half track reproduce head or half track erase, half track record, and half track play head.

The Model 1422 is available in two head configurations - half track two channel erase head, half track two channel record head, half track two channel reproduce head, and quarter track two channel reproduce head, or quarter track two channel erase head, quarter track two channel record head, quarter track two channel reproduce head, and half track two channel reproduce head.

ELECTRONICS

The electronics of the 1400 Series provide separate, low noise, state of the art record electronics to increase signal-to-noise ratio and produce outstanding frequency response. The solid state amplifier has a regulated power supply which provides power for the electronic functions of record, playback, and high frequency bias. Electronics are on readily interchangeable plug-in boards for reliability and convenient servicing. A VU meter for each channel allows monitoring of record, playback or bias levels. Each machine has separate gain controls for microphone and line inputs as well as a master gain control.

ENGINEER'S AND ARCHITECT'S SPECIFICATIONS

The Model 1422 tape recorder/reproducer shall be a dual channel (stereo) unit. The Model 1421 tape recorder/reproducer shall be a single channel (monaural) unit. The tape transport shall be built on a solid die-cast aluminum transport frame, 10-1/2 inches (26.67 cm) in height by 19 inches (48.26 cm) wide, notched to fit a standard relay rack. It shall be equipped with a local-remote front panel switch, push button transport controls and record safety interlock. The transport shall have a hardened stainless steel capstan, be equipped with a ball bearing inertial stabilizer, a pay-out compliance arm, tape break switch and a take-up compliance arm. The tape lifter, brakes and pressure roller shall be solenoid operated and the brakes shall be fail-safe in the event of power failure.

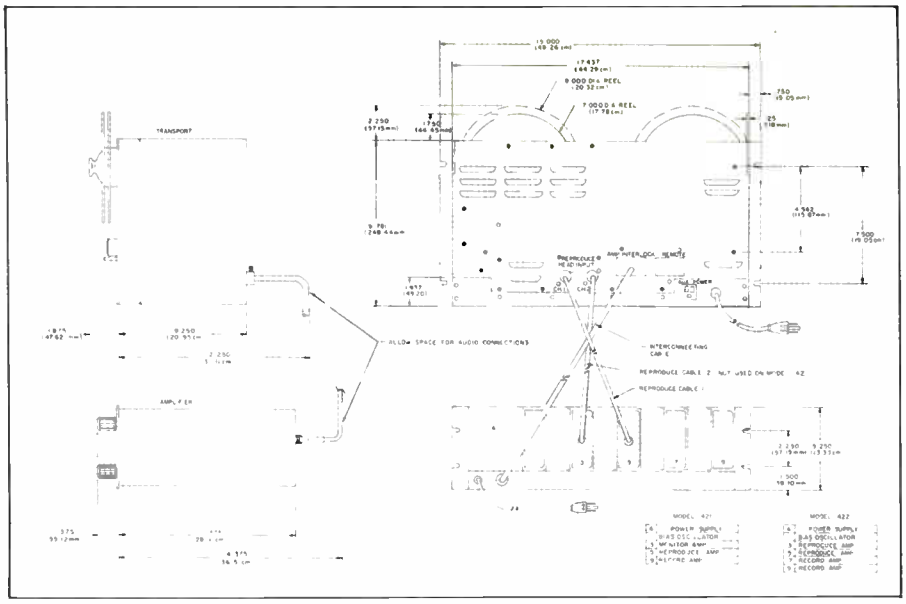
The transport shall be equipped with a brushless DC servo drive system. Each of the reels shall be driven by a separate split-winding capacitor type motor. The transport shall be capable of accepting 8-1/4 inches (20.95 cm) reels having a capacity of 2400 feet (731.5 m) of one mil tape.

The associated electronics shall be 5-1/2 inches (13.97 cm) in height by 19 inches (48.26 cm) in width and shall be notched to fit a standard relay rack. The electronics shall be equipped with readily available standard transistors and components and powered by a fully transistorized, regulated supply. The equalization shall be switchable and shall be NAB standard. Input and output connectors, except for auxiliary connections, shall be standard broadcast type.

Switchable VU meters shall be provided to allow monitoring of the record, playback or bias level on both models. A switch shall also provide for headphone monitoring of either or both channels.

Except for auxiliary inputs, the inputs shall be balanced and capable of accepting low impedance, broadcast type microphones. The output circuits shall also be balanced and shall be suitable for driving either a 150 or 600 ohm line. The unit shall be a Telex Model 1421 or Model 1422 (specify catalog number).

September 1975
ECN 38108-160



OUTLINE DIMENSIONS AND INTERCONNECTING CABLE

SPECIFICATIONS

FREQUENCY RESPONSE (Record/Reproduce):
3-3/4 ips, 30 Hz to 10kHz ±3dB
7-1/2 ips, 30 Hz to 18kHz ±2dB
15 ips (1/2 track), 35 Hz to 22kHz ±2dB
[1]15 ips (1/4 track), 35 Hz to 18kHz ±2dB

[2]**CROSSTALK RATIO:** Not less than 50dB at 1kHz (half track head).

SIGNAL-TO-NOISE RATIO: 60dB at 7-1/2, 15, and 3-3/4 ips N.A.B. weighted (signal recorded at 3%, 3rd harmonic distortion compared to noise of tape recorded with no input).

PLAYBACK EQUALIZATION (NAB): 3-3/4 ips: 3180 microseconds + 90 microseconds; 7-1/2 ips: 3180 microseconds + 50 microseconds; 15 ips: 3180 microseconds + 50 microseconds.

INPUTS: 150 ohm microphone, balanced bridge, unbalanced bridge, mixing bridge and auxiliary bridge.

INPUT LEVEL FOR 0 VU RECORDING:

MICROPHONE: Minimum -80dBm (38 microvolts); Maximum -30dBm (0.012V).

BALANCED LINE: Minimum -20dBm, 600 ohm Line (0.076V); Maximum +30dBm, 600 ohm Line (24.5V).

UNBALANCED A JACK: Minimum -20dBm, 600 ohm Line (0.076V); Maximum +30dBm, 600 ohm Line (24.5V).

UNBALANCED B JACK: Minimum -10dBm, 600 ohm Line (0.245V); Maximum +30dBm, 600 ohm Line (24.5V).

OUTPUTS: 150/600 ohm balanced, +4dBm, Auxiliary A and B unbalanced.

HEADS: See Ordering Information.

TAPE SPEEDS: 3-3/4, 7-1/2 and 15 ips. (9.5, 19 and 38 cm/s)

[3]**FLUTTER AND WOW:** DIN weighted: .35% @ 3-3/4 ips; .24% @ 7-1/2 ips; .17% @ 15 ips. RMS unweighted: .25% @ 3-3/4 ips; .17% @ 7-1/2 ips; .12% @ 15 ips.

[3]**REPETITIVE PLAYBACK TIMING ACCURACY:** Less than ±3 second deviation in 30 minutes. (±.15%) from previous record or playback time on same machine.

REEL SIZE: 5, 7 and 8-1/4 inch E.I.A. (12.7, 17.8 and 20.3 cm)

TAPE SIZE: 1/4 inch wide, 1.5, 1.0, 0.75 and 0.5 mil thickness.

[3]**REWIND-HI FORWARD TIME:** 1200 Feet (365.8 m) in 80 seconds.

POWER REQUIREMENT: 110/130 volts, 50 or 60 Hz, 180 watts. 230/240 volts, 50/60 Hz optional.

TRANSPORT WEIGHT: Thirty-three pounds (15.0 kg).

AMPLIFIER WEIGHT: Fourteen pounds. (6.4 kg).

[1] Model 1422 only.

[2] Model 1422 only - Measured by placing both channels in Record mode and recording a 1 kHz signal at 0 VU on one channel and reading the playback level of the other. The playback gain is set to produce 0 VU from a 0 VU reading.

[3] These specifications are based on using a standard E.I.A. 7 inch reel and a 1.5 mil tape. Specifications will vary for other reel sizes, tape types and tape thicknesses.

ORDERING INFORMATION

Model	Head Configuration				Catalog Number	
	Erase	Record	Play	Play	110/130V 50/60Hz	230/240V 50/60Hz
1421F	F1	F1	–	H1	87825-000	87825-003
1421H	H1	H1	–	H1	87825-001	87825-005
1422H	H2	H2	H2	Q2	87825-002	87825-006
1422Q	Q2	Q2	Q2	H2	87825-004	87825-007
1421F*	F1	F1	–	H1	91512-000	91512-002
1421H*	H1	H1	–	H1	91512-001	91512-003
1422H*	H2	H2	H2	Q2	91512-004	91512-006

Model	Head Configuration				Catalog Number	
	Erase	Record	Play	Play	110/130V 50/60Hz	230/240V 50/60Hz
1422Q*	Q2	Q2	Q2	H2	91512-005	91512-007
1421**	–	–	–	–	91495-000	91495-001
1422**	–	–	–	–	91495-002	91495-003
ACCESSORIES						
	Remote Control Station				90342-000	90342-000
	Transport Case				91498-002	91498-002
	Electronics Case				91497-002	91497-002

*Transport Only **Amplifier Only

F = Full Track H = Half Track Q = Quarter Track 1 = Single Channel 2 = Two Channel

Specifications subject to change without notice.

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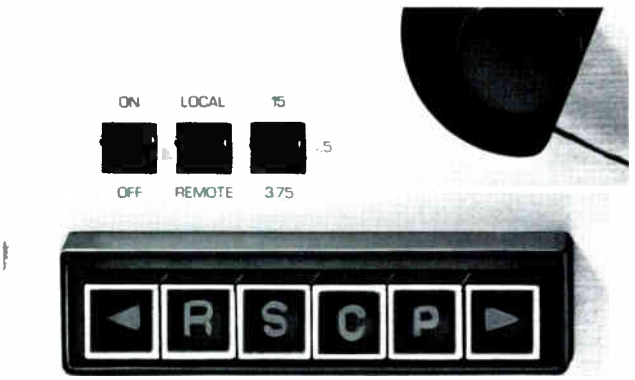
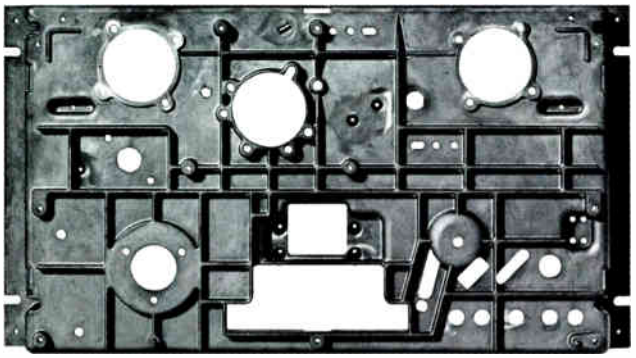
flutter caused by guides. Polished, hyperbolic contour heads further insure intimate tape to head contact, while double mu-metal shields maintain good signal to noise ratio.

All solid state controls eliminate contact noise and allow absolutely minimum EMI. Solid state controls offer greater reliability while improved logic circuits make it virtually impossible to spill tape. Transition from any mode to another is accomplished without difficulty and the transport automatically stops if an illogical combination of buttons are pushed. Bi-level



illumination of the transport controls simplifies operation with the activated button glowing brighter than the others. A flashing record light indicates when the record electronics are ready. Pushing the record and play buttons simultaneously puts the machine in record and the record indicator light then glows steady. For added versatility all 1400 models feature a three speed (3-3/4, 7-1/2, 15 ips) drive system.

The 1400 Series maintain durable Magnecord construction. The transport mechanism is built on a precision machined, solid aluminum, die cast mainplate for stability and strength. Heavy duty, permanent split capacitor reel motors, dynamically balanced capstan flywheel and a ball bearing inertial stabilizer flywheel assure smoother, positive tape handling. Failsafe, synchronized brakes provide differential braking under all operating conditions including power



failure, while a tape break sensor shuts the unit down if the tape breaks or runs out.

These machines will fit all standard relay racks and offer unexcelled serviceability. With dual (1422) or single (1421) channel options and the availability of all standard head configurations there's a 1400 for every application.

1400 SERIES SPECIFICATIONS

FREQUENCY RESPONSE:
± 3dB 30 Hz to 10 kHz at 3-3/4 ips
± 2dB 30 Hz to 18 kHz at 7-1/2 ips
± 2dB 35 Hz to 22 kHz at 15 ips (1/2 track)
± 2dB 35 Hz to 18 kHz at 15 ips (1/4 track, 1422)

***CROSSTALK RATIO:** (1422) Not less than 50 dB at 1 kHz (half track head)

SIGNAL-TO-NOISE RATIO:
60 dB at 3-3/4, 7-1/2, and 15 ips.
N.A.B. weighted. (Signal recorded at 3% THD compared to noise of tape recorded with no input.)

PLAYBACK EQUALIZATION (NAB):
3-3/4 ips: 3180 micro-second + 90 micro-second.
7-1/2 ips: 3180 micro-second + 50 micro-second.
15 ips: 3180 micro-second + 50 micro-second.

INPUTS: 150 ohm microphone, balanced bridge, unbalanced bridge, mixing bridge and auxiliary bridge.

INPUT LEVEL FOR 0 VU RECORDING:
Microphone: Min. —80 dBm (38μV)
Max. — 30 dBm (.012V)
Balanced Line: Min. — 20 dBm, 600 ohm line (0.076V)
Max. + 30 dBm, 600 ohm line (24.5V)
Unbalanced A Jack: Min. — 20 dBm, 600 ohm line (0.076V)
Max. + 30 dBm, 600 ohm line (24.5V)
Unbalanced B Jack: Min. — 10 dBm, 600 ohm line (0.245V)
Max. + 30 dBm, 600 ohm line (24.5V)

OUTPUTS: 150/600 ohm balanced, + 4dBm, Auxiliary A and Auxiliary B unbalanced.

HEADS: See ordering information below.

TAPE SPEEDS: 3-3/4, 7-1/2, and 15 ips (9.5, 19, and 38cm/s)

FLUTTER & WOW:
DIN weighted: .35% @ 3-3/4 ips
.24% @ 7-1/2 ips
.17% @ 15 ips
RMS unweighted: .25% @ 3-3/4 ips
.17% @ 7-1/2 ips
.12% @ 15 ips

REPETITIVE PLAYBACK TIMING ACCURACY: ± .15% (less than ± 3 sec. deviation in 30 min)

REEL SIZE: 5, 7 and 8 inch E.I.A. (12.7, 17.8 and 20.3cm)

TAPE SIZE: 1/4 inch wide, 1.5, 1.0, 0.75 and 0.5 mil thickness

****REWIND-HI FORWARD TIME:** 1200 feet (365.8m) in 80 seconds.

POWER REQUIREMENT: 110/130V, 50 or 60 Hz, 180 watts

TRANSPORT WEIGHT: Thirty three pounds (15.0kg)

AMPLIFIER WEIGHT: Fourteen pounds (6.4kg)

*Measured by placing both channels in record mode and recording a 1 kHz signal at 0 VU on one channel and reading the playback level of the other. The playback gain is set to produce 0 VU from a 0 VU recording.

**These specifications are based on using a standard E.I.A. 7-inch reel and 1.5 mil tape. Specifications will vary for other reel sizes, tape types and tape thicknesses.

ORDERING INFORMATION

MODEL	CATALOG NUMBER	HEADS			
		Erase	Record	Play	Play
Model 1421F	87825-000	F1	F1	—	H1
Model 1421H	87825-001	H1	H1	—	H1
Model 1422H	87825-002	H2	H2	H2	Q2
Model 1422Q	87825-004	Q2	Q2	Q2	H2
1421F transport only	91512-000	F1	F1	—	H1
1421H transport only	91512-001	H1	H1	—	H1
1422H transport only	91512-004	H2	H2	H2	Q2
1422Q transport only	91512-005	Q2	Q2	Q2	H2
1421 amplifier only	91495-000	—	—	—	—
1422 amplifier only	91495-002	—	—	—	—
Remote Control Unit - 90342-000					
Transport Case - 91498-002					
Electronics Case - 91497-002					

Telex Communications, Inc. is a U.S. manufacturer of diversified electronic, electro-mechanical and acoustic equipment. Broadcast and industrial tape equipment includes recorders/reproducers, manual and remote controlled reel to reel tape transports, manual and automatic tape cartridge transports, endless loop tape cartridges and matching electronics for the various transports.

In addition to commercial magnetic-tape equipment, Telex manufactures a complete line of broadcast, communication, dictation and general purpose headphones.

PRODUCTS OF SOUND RESEARCH

TELEX

COMMUNICATIONS INC

9600 ALDRICH AVE SO, MINNEAPOLIS, MN 55420 U S A, telephone: 612-884-4061, telex: 29-7053

EUROPE: 22 rue de la Legion-d Honneur 93200 St Denis France telephone 820-98-46 telex 63-013
CANADA: Telak Electronics Ltd 690 Progress Ave Unit 3 Scarborough Ontario M1H3A6 telephone 416-438-3804

Form BI-2252-2

Specifications subject to change without notice

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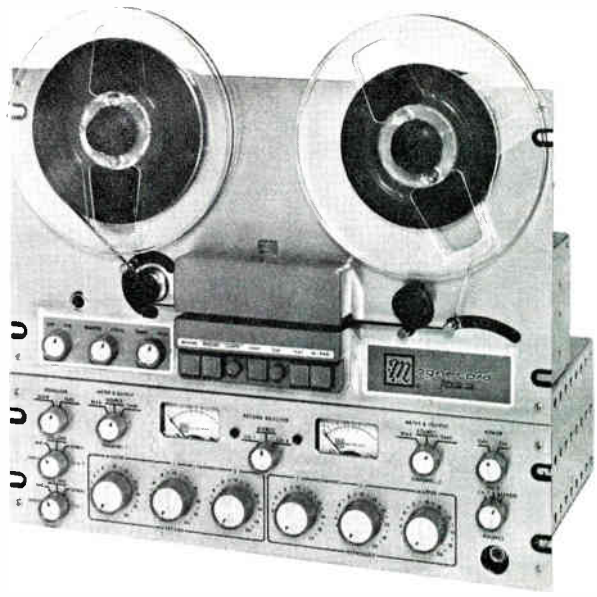
PRODUCTS OF SOUND RESEARCH
TELEX
COMMUNICATIONS DIVISION
9600 ALDRICH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55420

MODEL MAGNECORD 1022
TAPE RECORDER/REPRODUCER

GENERAL DESCRIPTION

The model 1022 is a dual channel recorder/reproducer designed for professional applications requiring the ultimate in quality and reliability from a tape recording system.



TAPE TRANSPORT

The tape transport mechanism of the 1022 recorder is built on a precision machined, solid aluminum die-casting to insure stability and ruggedness required in a machine intended for hard, continuous use in broadcast and industrial service. The transport is constructed so the front panel may be removed to provide access to all mechanical adjustments without the necessity of removing the mechanism from the case or rack mount.

The brakes, pressure roller and tape gate are solenoid operated for reliability and to allow the unit to be remotely started and stopped by switching the solenoid power supply. Relay controlled models permit full remote control of all operating modes of the transport. The solenoid operated braking system is fail-safe and provides differential braking action under all operating conditions including power failure.

The solenoid operated tape gate provides for dropping the tape away from the head during high speed wind modes, and also allows switching the transport into a cue mode where the tape is placed against the heads (during stop) and light, even torques are applied to the reel motors for cueing or editing.

The capstan is driven by means of a belt from a two speed hysteresis synchronous motor. The reels are driven by two split-winding capacitor motors. A tape break sensing switch will shut down the transport should the tape run out or break. An interlocked pushbutton switch electrically operates all modes of the tape transport.

The standard head configuration consists of a half track two channel erase, a half track two channel record and a half track two channel reproduce head plus a quarter track two channel reproduce head. This provides two channel recording and playback of half track tapes plus two channel playback of quarter track tapes. Standard tape speeds are 7-1/2 and 15 IPS. Other speed combinations of 1-7/8 and 3-3/4 or 3-3/4 and 7-1/2 IPS are available on special order.

ELECTRONICS

The model 1022 two channel amplifier is completely transistorized, equipped with a zener regulated power supply and furnishes all the electronic functions of record, playback, high frequency bias and erase. Separate record and reproduce amplifiers allow simultaneous record and playback. Direct coupled input stages produce maximum signal-to-noise ratio. A VU meter is provided for monitoring of record, playback and bias levels on each channel.

The amplifier is equipped with all of the adjustments necessary to provide for maximum efficiency of the transport and amplifier as a recording system.

The input impedance and sensitivity and the output impedance and level are designed to match broadcast and industrial equipment. Both balanced and unbalanced inputs and outputs are provided.

ENGINEER'S AND ARCHITECT'S SPECIFICATIONS

The tape recorder/reproducer shall be a dual channel (stereo) unit. The tape transport shall be built on a solid die-cast aluminum transport top plate, 10½ inches in height by 19 inches wide, notched to fit a standard relay rack. The front panel shall be removable to provide access for service without removing the mechanism from case or rack.

It shall be equipped with a local-remote front panel switch, push button transport controls and record safety interlock. The transport shall have a hardened stainless steel capstan, be equipped with a ball bearing inertial stabilizer, a pay-out compliance arm and tape break switch and a take-up compliance arm. The tape gate, brakes and pressure roller shall be solenoid operated and the brakes shall be fail-safe in the event of power failure.

The transport shall be equipped with a two-speed hysteresis synchronous capstan motor and utilize a double flywheel capstan drive system. Each of the reels shall be driven by a separate split-winding capacitor type motor.

The transport shall be capable of accepting 8¼" reels having a capacity of 2400 feet of one mil tape.

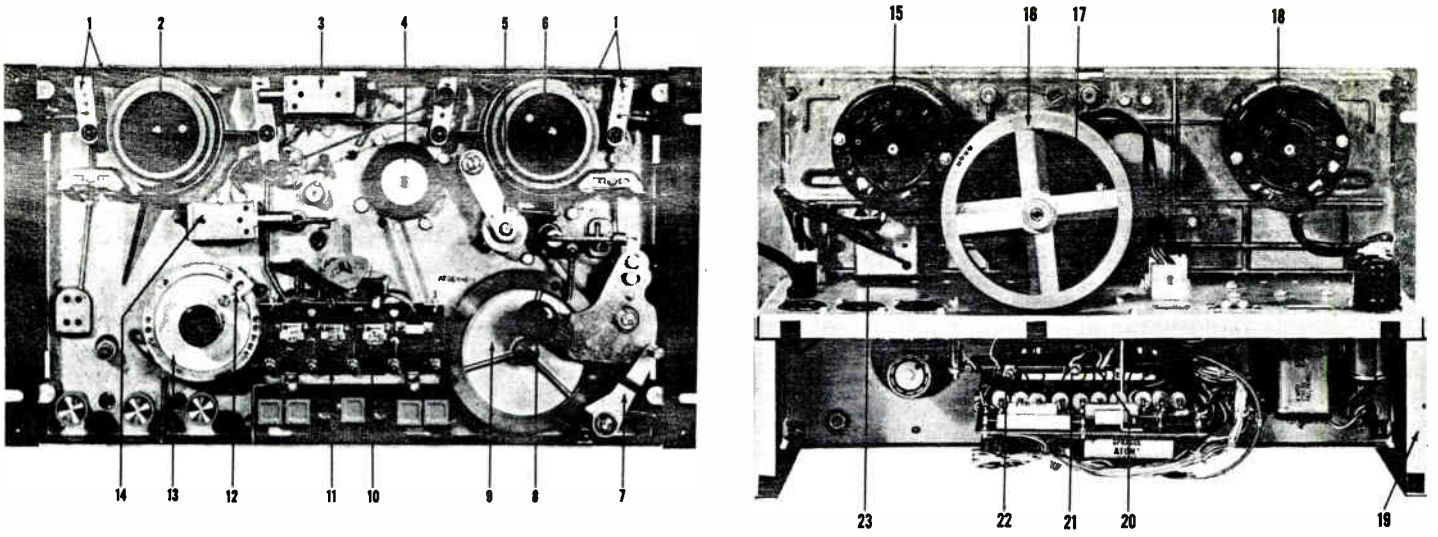
The associated electronics shall be 5¼ inches in height by 19 inches in width and shall be notched to fit a standard relay rack. The electronics shall be equipped with readily available standard transistors and components and with a fully transistorized regulated power supply. The equalization shall be switchable and shall be NAB standard. Input and output connectors, except for auxiliary connections, shall be standard broadcast type.

Two switchable VU meters shall be provided to enable monitoring of the record, playback or bias level. A switch shall provide for headphone monitoring of either or both channels.

Except for auxiliary inputs, the inputs shall be balanced and capable of accepting low impedance broadcast type microphones. The output circuits shall also be balanced and shall be suitable for driving either a 150 or 600 ohm line. The unit shall be a TELEX model Magnecord 1022 (specify catalog number).

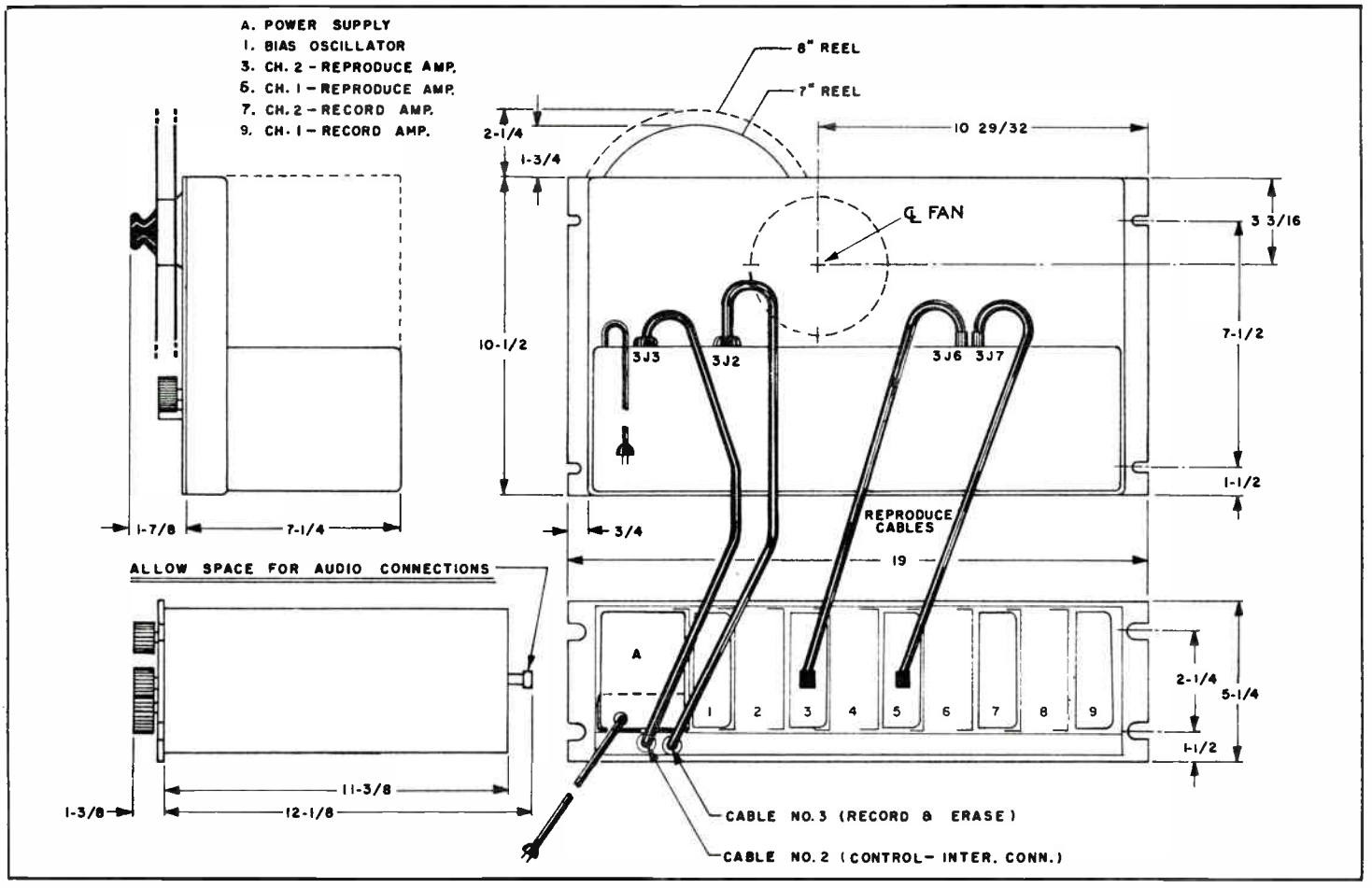
JANUARY 1971
ENG. CONTROL NO. 38108-34

TELEX
NO. 4029-1
MAGNECORD 1022
RECORDER/REPRODUCER



TAPE TRANSPORT — MAJOR COMPONENTS

1. BRAKE ASSEMBLY
2. SUPPLY REEL TURNTABLE
3. BRAKE SOLENOID
4. CAPSTAN MOTOR DRIVE PULLEY
5. IDLER WHEEL
6. TAKE-UP REEL TURNTABLE
7. TAKE-UP COMPLIANCE ARM
8. PRESSURE ROLLER
9. CAPSTAN ASSEMBLY
10. HEAD ASSEMBLY
11. TAPE GATE
12. TAPE-BREAK COMPLIANCE ARM
13. STABILIZER ROLLER
14. TAPE GATE SOLENOID
15. TAKE-UP MOTOR
16. CAPSTAN MOTOR FLYWHEEL
17. CAPSTAN MOTOR
18. SUPPLY MOTOR
19. CONTROL BOX
20. TAKE-UP TORQUE ADJUST. 3R4-3
21. SUPPLY TORQUE ADJUST. 3R5-4
22. CUE TORQUE ADJUST. 3R5-3
23. PRESSURE ROLLER SOLENOID



OUTLINE DIMENSIONS AND INTERCONNECTING CABLING

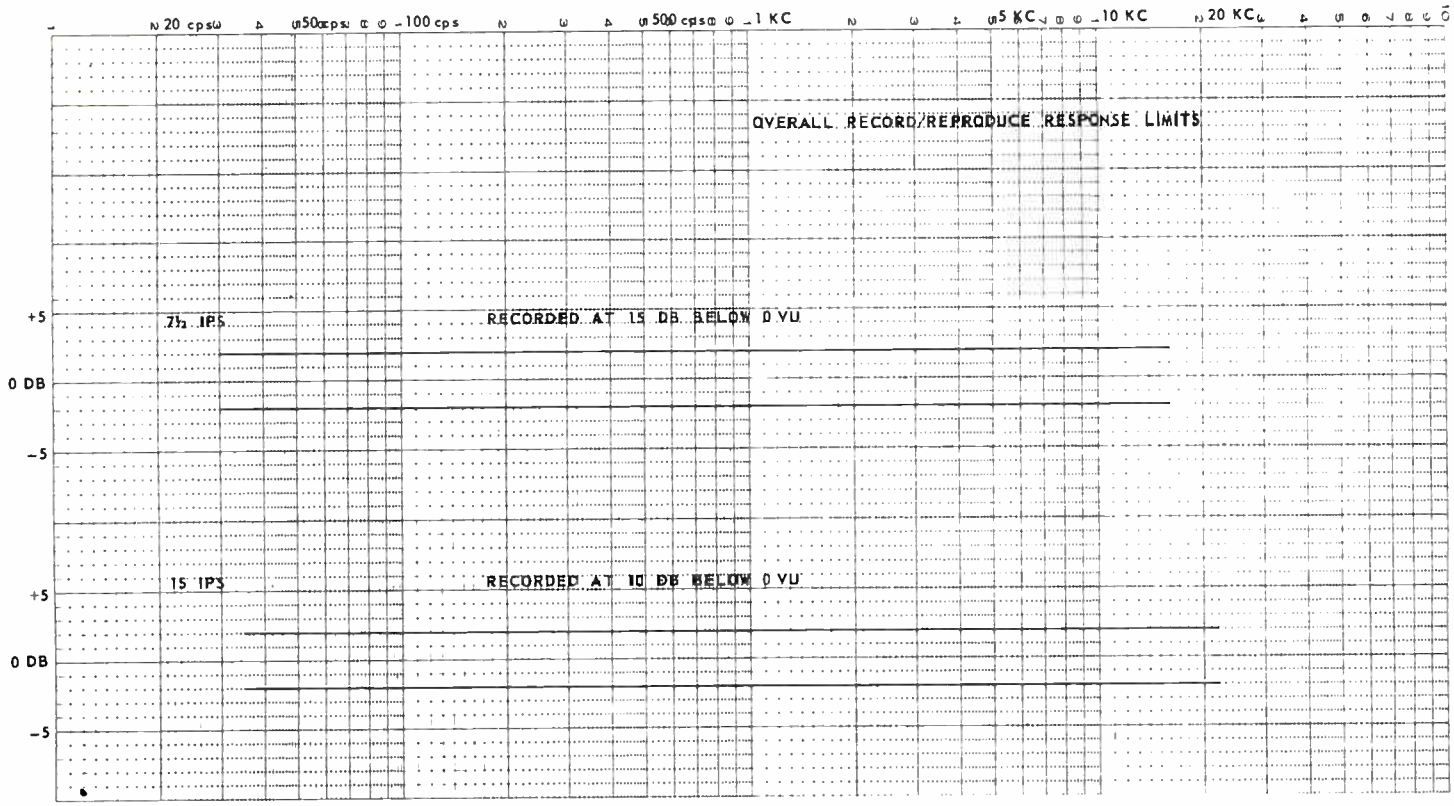
ORDER MODEL 1022 BY CATALOG NUMBER

HEAD CONFIGURATION CODE: H = Half Track Q = Quarter Track
2 = Two Channel

Model Description	Type of Control	Speeds	Operating Power	Equalization	Head Configuration (See Code Above)				Order By Catalog Number
					Erase	Record	Play	Play	
1022X	Electro Mechanical	7.5-15	117 V 60 Hz	N.A.B.	H2	H2	H2	Q2	91E6190-2
1022X	Electro Mechanical	7.5-15	117 V 50 Hz	N.A.B.	H2	H2	H2	Q2	91E6190-5
1022X	Electro Mechanical	7.5-15	117 V 50 Hz	C.C.I.R.	H2	H2	H2	Q2	91E6190-18
1022X	Electro Mechanical	3.75-7.5	117 V 60 Hz	N.A.B.	H2	H2	H2	Q2	91E6190-22
1022X	Electro Mechanical	3.75-7.5	117 V 50 Hz	N.A.B.	H2	H2	H2	Q2	91E6190-24
1022X	Electro Mechanical	1.875-3.75	117 V 60 Hz	Special	Q2	Q2	Q2	H2	91E6190-39
1022X	Electro Mechanical	1.875-3.75	117 V 60 Hz	Special	H2	H2	H2	Q2	91E6190-41
1022RX	Relay	7.5-15	117 V 60 Hz	N.A.B.	H2	H2	H2	Q2	91E6190-9
1022RX	Relay	7.5-15	117 V 50 Hz	N.A.B.	H2	H2	H2	Q2	91E6190-15
1022RX	Relay	7.5-15	117 V 50 Hz	C.C.I.R.	H2	H2	H2	Q2	91E6190-19
1022RX	Relay	3.75-7.5	117 V 60 Hz	N.A.B.	H2	H2	H2	Q2	91E6190-23
1022RX	Relay	3.75-7.5	117 V 50 Hz	N.A.B.	H2	H2	H2	Q2	91E6190-25
1022RX	Relay	3.75-7.5	117 V 60 Hz	N.A.B.	Q2	Q2	Q2	H2	91E6190-38
1022RX	Relay	1.875-7.5	117 V 60 Hz	Special	H2	H2	H2	Q2	91E6190-44
1022	Transport Only	25-15	117 V 60 Hz	———	H2	H2	H2	Q2	9136134-2
1022	Amplifier Only	7.5-15	117 V 60 Hz	N.A.B.	—	—	—	—	91J8795-2

ACCESSORIES		
	Remote Control Station for Relay Units	91E6786-2
	Transport Case for Above Units	A81D128-2
	Electronics Case for Above Units	A81D129-2

NOTE: Inputs Balanced Low Impedance (50/150Ω)
Outputs Balanced Low Impedance (150/600Ω)



OVERALL RECORD/REPRODUCE RESPONSE LIMITS.

MODEL 1022 SPECIFICATIONS

Frequency Response:
Record/Reproduce ±2 db 30 Hz to 16 kHz at 7.5 ips
Record/Reproduce ±2 db 35 Hz to 22 kHz at 15 ips

Fourth head reproduce only:
±3 db 35 Hz to 18 kHz at 7.5 ips.

****Crosstalk Ratio:** Not less than 50 db at 1 kHz (half track head)

Signal-to-Noise Ratio: 53 db at 7.5 and 15 ips (Signal recorded at 3% 3rd harmonic distortion compared to noise of tape recorded with no input).

Playback Equalization (NAB): 7.5 and 15 ips = 3180 micro-second +50 micro-second.

Inputs Per Channel: Choice of Lo-Z microphone, balanced bridge, unbalanced bridge and auxiliary bridge.

Outputs Per Channel: 150/600 ohm balanced +4 dbm, auxiliary A and Auxiliary B unbalanced.

Input Level for 0 VU Recording:
Microphone, Balanced: Min. -80 dbm (0.038 mv)
Max. -30 dbm (12 mv)
Balanced Line: Min. -20 dbm (0.076v, 600 ohm line)
Max. +30 dbm (24.5v, 600 ohm line)
Unbalanced A Jack (50k): Min. -20 dbm (0.076v, 600 ohm line)
Max. +30 dbm (24.5v, 600 ohm line)
Unbalanced B Jack (100k) Min. -10 dbm (0.245v, 600 ohm line)
Max. +30 dbm (24.5v, 600 ohm line)

Heads: Selectable half-track erase, half-track record, half-track play and quarter-track play.

Tape Speeds: 7-1/2 and 15 ips.

***Flutter & Wow:** 0.17% rms at 7-1/2 ips. 0.15% rms at 15 ips. (Includes wow and flutter from 0.5 Hz to 250 Hz).

Playback Timing Accuracy: ±0.2%

Reel Size: 5, 7, and 8-inch E.I.A.,

Tape Size: 1/4-inch wide, 1.5, 1.0, 0.75 and 0.5 mil thick.

***Rewind & Hi Forward Time:** 1200 feet in 80 seconds.

Power Requirement: 110/130 volts, 60 Hz, 180 watts.

Transport Weight: Thirty-three pounds net.

Amplifier Weight: Fourteen pounds net.

*These specifications are based on using a standard E.I.A. 7-inch reel and 1.5-mil tape. Specifications will vary for other reel sizes, tape types and tape thicknesses.

**Measured by placing both channels in record mode and recording a 1 kHz signal at 0 VU on one channel and reading the playback level of the other. The playback gain is set to produce 0 VU from a 0 VU recording.

Specifications subject to change without notice.

Litho USA

PRODUCTS OF SOUND RESEARCH
TELEX
COMMUNICATIONS DIVISION
9600 ALDRICH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55420

MODEL MAGNECORD 1024
TAPE RECORDER/REPRODUCER

GENERAL DESCRIPTION

The model 1024 is a dual channel recorder/reproducer designed for semi-professional applications requiring the ultimate in quality and reliability from a tape recording system.

TAPE TRANSPORT

The tape transport mechanism of the 1024 recorder is built on a precision machined, solid aluminum die-casting to insure stability and ruggedness required in a machine intended for hard, continuous use. The transport is constructed so the front panel may be removed to provide access to all mechanical adjustments without the necessity of removing the mechanism from the case or rack mount.

The brakes, pressure roller and tape gate are solenoid operated for reliability and to allow the unit to be remotely started and stopped by switching the solenoid power supply. Relay controlled models permit full remote control of all operating modes of the transport. The solenoid operated braking system is fail-safe and provides differential braking action under all operating conditions including power failure.

The solenoid operated tape gate provides for dropping the tape away from the head during high speed wind modes, and also allows switching the transport into a cue mode where the tape is placed against the heads (during stop) and light, even torques are applied to the reel motors for cueing or editing.

The capstan is driven by means of a belt from a two speed hysteresis synchronous motor. The reels are driven by two split-winding capacitor motors. A tape break sensing switch will shut down the transport should the tape run out or break.

An interlocked pushbutton switch electrically operates all modes of the tape transport.

The standard head configuration consists of a quarter track two channel erase, a quarter track two channel record and a quarter track two channel reproduce head. Standard tape speeds are 7-1/2 and 3-3/4 IPS. Other speed combinations of 1-7/8 and 3-3/4 or 7-1/2 and 15 IPS are available on special order.

ELECTRONICS

The model 1024 two channel amplifier is completely transistorized, equipped with a zener regulated power supply and furnishes all the electronic functions of record, playback, high frequency bias and erase. Separate record and reproduce amplifiers allow simultaneous record and playback. Direct coupled input stages produce maximum signal-to-noise ratio. A VU meter is provided for monitoring of record, playback and bias levels on each channel.

The amplifier is equipped with all of the adjustments necessary to provide for maximum efficiency of the transport and amplifier as a recording system.

The inputs and outputs are all unbalanced. The input impedances and sensitivities and the output impedances and levels are designed to match high fidelity and commercial sound equipment.

ENGINEER'S AND ARCHITECT'S SPECIFICATIONS

The tape recorder/reproducer shall be a dual channel (stereo) unit. The tape transport shall be built on a solid die-cast aluminum transport top plate, 10½ inches in height by 19 inches wide, notched to fit a standard relay rack. The front panel shall be removable to provide access for service without removing the mechanism from case or rack.

It shall be equipped with a local-remote front panel switch, push button transport controls and record safety interlock. The transport shall have a hardened stainless steel capstan, be equipped with a ball bearing inertial stabilizer, a payout compliance arm and tape break switch and a take-up compliance arm. The tape gate, brakes and pressure roller shall be solenoid operated and the brakes shall be fail-safe in the event of power failure.

The transport shall be equipped with a two-speed hysteresis synchronous capstan motor and utilize a double flywheel capstan drive system. Each of the reels shall be driven by a separate split winding capacitor type motor.

The transport shall be capable of accepting 8¼" reels having a capacity of 2400 feet of one mil tape.

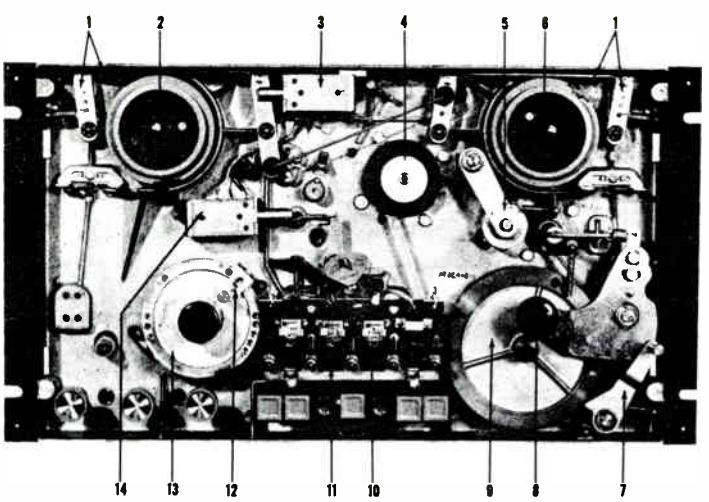
The associated electronics shall be 5½ inches in height by 19 inches in width and shall be notched to fit a standard relay rack. The electronics shall be equipped with readily available standard transistors and components and with a fully transistorized regulated power supply. The equalization shall be switchable and shall be NAB standard. Input and output connectors shall be pin jack type.

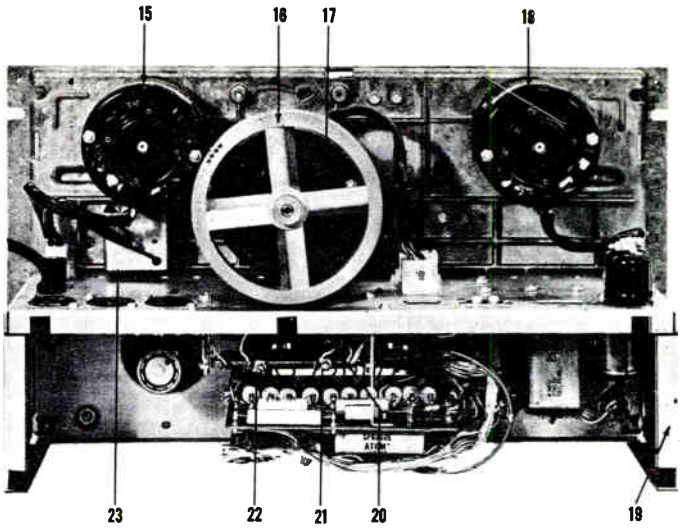
Two switchable VU meters shall be provided to enable monitoring of the record, playback or bias level. A switch shall provide for headphone monitoring of either or both channels.

The unit shall be a TELEX model Magnecord 1024 (specify catalog number).

JANUARY 1971
ENG. CONTROL NO. 38108-35

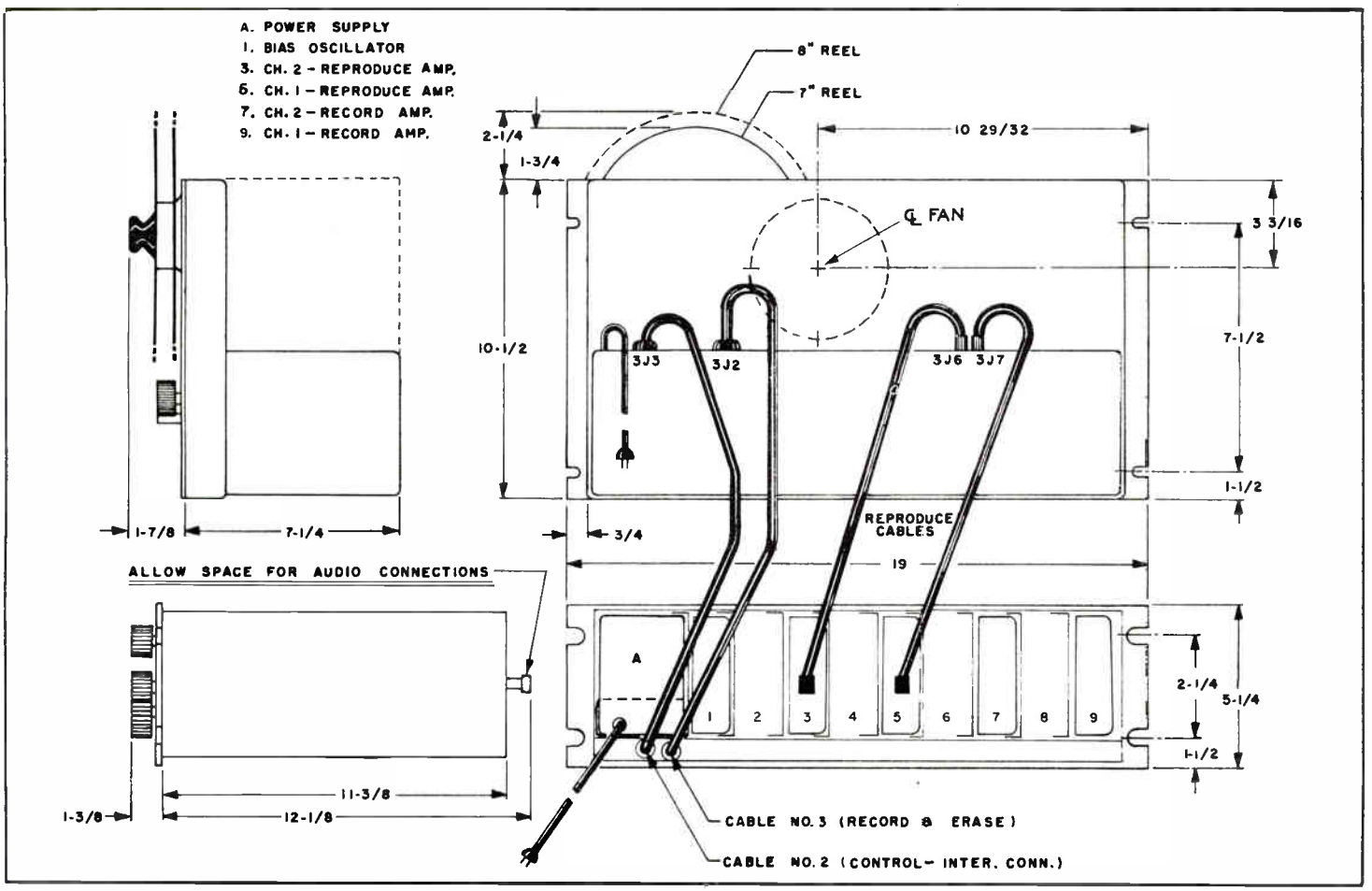
TELEX
NO. 4033-1
MAGNECORD 1024
RECORDER/REPRODUCER





TAPE TRANSPORT — MAJOR COMPONENTS

1. BRAKE ASSEMBLY
2. SUPPLY REEL TURNTABLE
3. BRAKE SOLENOID
4. CAPSTAN MOTOR DRIVE PULLEY
5. IDLER WHEEL
6. TAKE-UP REEL TURNTABLE
7. TAKE-UP COMPLIANCE ARM
8. PRESSURE ROLLER
9. CAPSTAN ASSEMBLY
10. HEAD ASSEMBLY
11. TAPE GATE
12. TAPE-BREAK COMPLIANCE ARM
13. STABILIZER ROLLER
14. TAPE GATE SOLENOID
15. TAKE-UP MOTOR
16. CAPSTAN MOTOR FLYWHEEL
17. CAPSTAN MOTOR
18. SUPPLY MOTOR
19. CONTROL BOX
20. TAKE-UP TORQUE ADJUST. 3R4-3
21. SUPPLY TORQUE ADJUST. 3R5-4
22. CUE TORQUE ADJUST. 3R5-3
23. PRESSURE ROLLER SOLENOID



OUTLINE DIMENSIONS AND INTERCONNECTING CABLING

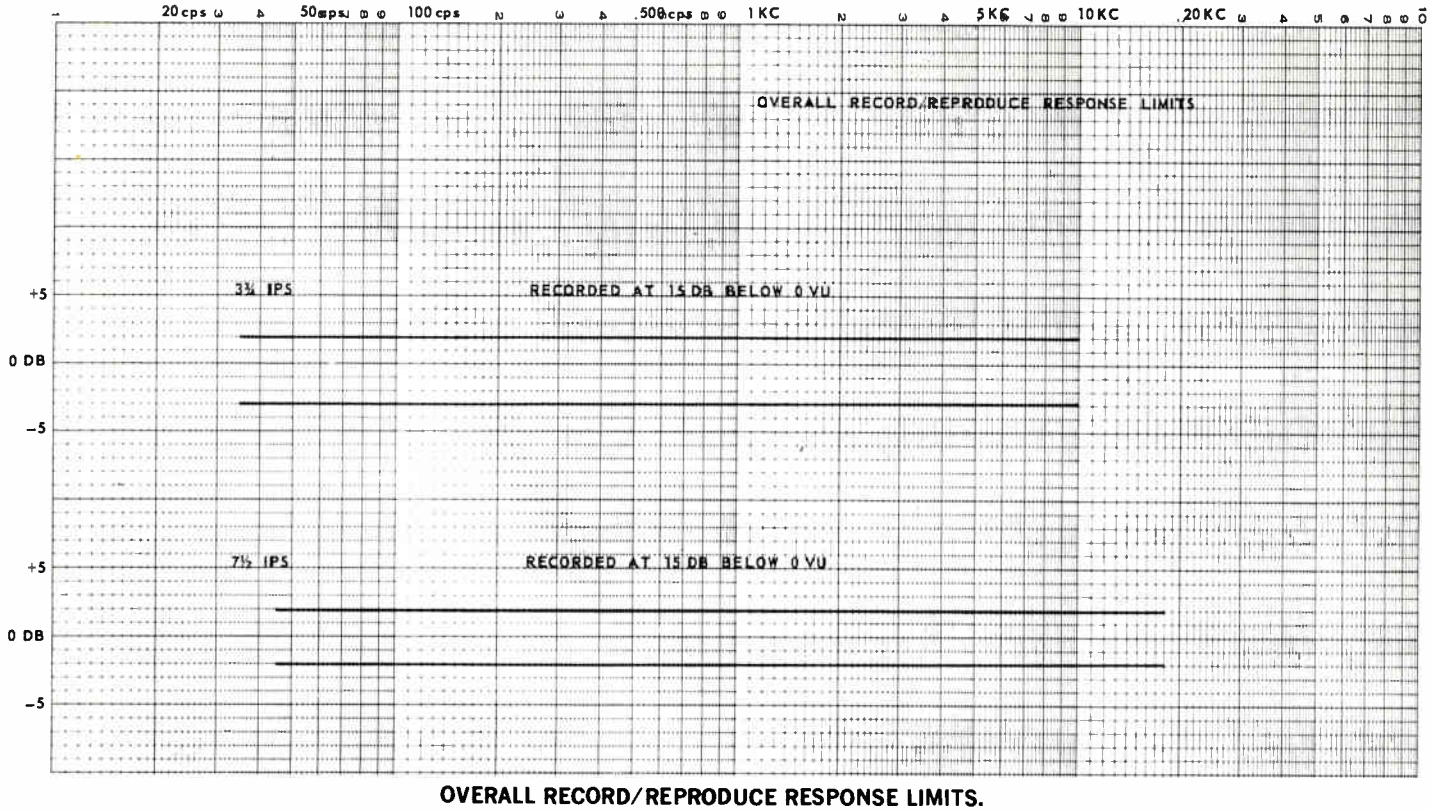
ORDER MODEL 1024 BY CATALOG NUMBER

HEAD CONFIGURATION CODE: H = Half Track Q = Quarter Track
2 = Two Channel

Model Description	Type of Control	Speeds	Operating Power	Equalization	Head Configuration (See Code Above)				Order By Catalog Number
					Erase	Record	Play	Play	
1024X	Electro Mechanical	3.75-7.5	117 V 60 Hz	N.A.B.	Q2	Q2	Q2	—	91E6190-6
1024-42X	Electro Mechanical	3.75-7.5	117 V 60 Hz	N.A.B.	Q2	Q2	Q2	H2	91E6190-7
1024X	Electro Mechanical	3.75-7.5	117 V 50 Hz	N.A.B.	Q2	Q2	Q2	—	91E6190-12
1024-42X	Electro Mechanical	3.75-7.5	117 V 50 Hz	N.A.B.	Q2	Q2	Q2	H2	91E6190-13
1024-2X	Electro Mechanical	3.75-7.5	117 V 60 Hz	N.A.B.	H2	H2	H2	—	91E6190-26
1024-24X	Electro Mechanical	3.75-7.5	117 V 60 Hz	N.A.B.	H2	H2	H2	Q2	91E6190-28
1024-2X	Electro Mechanical	7.5-15	117 V 60 Hz	N.A.B.	H2	H2	H2	—	91E6190-37
1024X	Electro Mechanical	1.875-3.75	117 V 60 Hz	Special	Q2	Q2	Q2	—	91E6190-42
1024RX	Relay	3.75-7.5	117 V 60 Hz	N.A.B.	Q2	Q2	Q2	—	91E6190-10
1024-42RX	Relay	3.75-7.5	117 V 60 Hz	N.A.B.	Q2	Q2	Q2	H2	91E6190-11
1024RX	Relay	3.75-7.5	117 V 50 Hz	N.A.B.	Q2	Q2	Q2	—	91E6190-16
1024-42RX	Relay	3.75-7.5	117 V 50 Hz	N.A.B.	Q2	Q2	Q2	H2	91E6190-17
1024-2RX	Relay	3.75-7.5	117 V 60 Hz	N.A.B.	H2	H2	H2	—	91E6190-27
1024-24RX	Relay	3.75-7.5	117 V 60 Hz	N.A.B.	H2	H2	H2	Q2	91E6190-29
1024RX	Relay	1.875-3.75	117 V 60 Hz	Special	Q2	Q2	Q2	—	91E6190-45
1024*	Transport Only**	3.75-7.5	117 V 60 Hz		Q2	Q2	Q2	—	91J6134-6
1024	Amplifier Only**	3.75-7.5	117 V 60 Hz	N.A.B	—	—	—	—	91J8795-1

ACCESSORIES		
	Remote Control Station for Relay Units	91E6786-2
	Transport Case for Above Units	A81D128-2
	Electronics Case for Above Units	A81D129-2

NOTE: Inputs Un-balanced High Impedance (50KΩ)
Output Emitter Follower Un-balanced (1KΩ)



OVERALL RECORD/REPRODUCE RESPONSE LIMITS.

MODEL 1024 SPECIFICATIONS

Frequency Response:
Record/Reproduce 35 Hz to 10 kHz +2 db, -3 db at 3¾ ips.
Record/Reproduce 45 Hz to 18 kHz ±2 db at 7½ ips.

****Crosstalk Ratio:** Not less than 45 db at 1 kHz (quarter-track head).

Signal-to-Noise Ratio: (Signal recorded at 3% 3rd harmonic distortion compared to noise of tape recorded with no input.)
47 db at 3¾ ips. 50 db at 7½ ips.

Playback Equalization (NAB): 3¾ ips, 3180 micro-second +90 micro-second; 7½ ips, 3180 micro-second +50 micro-second

Inputs Per Channel: Microphone (50K nominal impedance), Hi-Z mixing bridge, auxiliary bridge.

Outputs Per Channel: Emitter follower and auxiliary emitter follower (0.5 volt – loaded).

Input Level For 0 VU Recording
Microphone (unbalanced, 50K):
Min., 0.32mv. Max., 60mv.
Unbalanced A Jack (22K):
Min., 0.076V (-20 dbm, 600-ohm line).
Max., 24.5V (+30 dbm, 600-ohm line).
Unbalanced B Jack (100K):
Min., 0.245V (-10 dbm, 600-ohm line).
Max., 24.5V (+30 dbm, 600-ohm line).

Heads: Selectable quarter-track erase, quarter-track record, quarter-track play and optional half-track play.

Tape Speeds: 3¾ and 7½ inches per second.

***Flutter and Wow:** 3¾ ips – 0.25% rms; 7½ ips – 0.2% rms.

Playback Timing Accuracy: ±0.2%.

Reel Size: 5-, 7- and 8-inch E.I.A., 5/16-inch diameter hole.

Tape Size: ¼ inch wide; 1.5, 1.0, 0.75 and 0.5 mil thick.

***Rewind & Hi Forward Time:** 1200 feet in 80 seconds.

Power Requirements: 110/130 vac, 60 Hz, 180 watts.

Transport Weight: Thirty-three pounds.

Amplifier Weight: Fourteen pounds.

*These specifications are based on using a standard E.I.A. 7-inch reel and 1.5-mil tape. Specifications will vary for other reel sizes, tape types and tape thicknesses.

**Measured by placing both channels in record mode and recording a 1 KC signal at 0 VU on one channel and reading the playback level of the other. The playback gain set to produce 0 VU from a 0 VU recording.

Specifications subject to change without notice.

Litho USA

PRODUCTS OF SOUND RESEARCH
TELEX
COMMUNICATIONS DIVISION
9600 ALDRICH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55420

MODEL MAGNECORD 1021
TAPE RECORDER/REPRODUCER

GENERAL DESCRIPTION

The model 1021 is a single channel recorder/reproducer designed for professional applications requiring the ultimate in quality and reliability from a tape recording system.

TAPE TRANSPORT

The tape transport mechanism of the 1021 recorder is built on a precision machined, solid aluminum die-casting to insure stability and ruggedness required in a machine intended for hard, continuous use in broadcast and industrial service. The transport is constructed so the front panel may be removed to provide access to all mechanical adjustments without the necessity of removing the mechanism from the case or rack mount.

The brakes, pressure roller and tape gate are solenoid operated for reliability and to allow the unit to be remotely started and stopped by switching the solenoid power supply. Relay controlled models permit full remote control of all operating modes of the transport. The solenoid operated braking system is fail-safe and provides differential braking action under all operating conditions including power failure.

The solenoid operated tape gate provides for dropping the tape away from the head during high speed wind modes, and also allows switching the transport into a cue mode where the tape is placed against the heads (during stop) and light, even torques are applied to the reel motors for cueing or editing.

The capstan is driven by means of a belt from a two speed hysteresis synchronous motor. The reels are driven by two split-winding capacitor motors. A tape break sensing switch will shut down the transport should the tape run out or break. An interlocked pushbutton switch electrically operates all modes of the tape transport.

The standard head configuration consists of a full track erase, a full track record and a half track reproduce head. This provides full track recording and half track playback of both full and half track tapes. Complete half track assemblies are available on special order. Standard tape speeds are 3-3/4 and 7-1/2 IPS. Other speed combinations of 1-7/8 and 3-3/4 or 7-1/2 and 15 IPS are also available on special order.

ELECTRONICS

The model 1021 amplifier is completely transistorized, equipped with a zener regulated power supply and furnishes all the electronic functions of record, playback, high frequency bias and erase. Separate record and reproduce amplifiers allow simultaneous record and playback. Direct coupled input stages produce maximum signal-to-noise ratio. A VU meter is provided for monitoring of record, playback and bias levels. The amplifier for the built-in cue speaker can be switched and has sufficient power to drive an external monitor speaker.

The amplifier is equipped with all of the adjustments necessary to provide for maximum efficiency of the transport and amplifier as a recording system.

The input impedance and sensitivity and the output impedance and level are designed to match broadcast and industrial equipment. Both balanced and unbalanced inputs and outputs are provided.

ENGINEER'S AND ARCHITECT'S SPECIFICATIONS

The tape recorder/reproducer shall be a single channel (monaural) unit. The tape transport shall be built on a solid die-cast aluminum transport top plate, 10½ inches in height by 19 inches wide, notched to fit a standard relay rack. The front panel shall be removable to provide access for service without removing the mechanism from case or rack.

It shall be equipped with a local-remote front panel switch, push button transport controls and record safety interlock. The transport shall have a hardened stainless steel capstan, be equipped with a ball bearing inertial stabilizer, a pay-out compliance arm and tape break switch and a take-up compliance arm. The tape gate, brakes and pressure roller shall be solenoid operated and the brakes shall be fail-safe in the event of power failure.

The transport shall be equipped with a two-speed hysteresis synchronous capstan motor and utilize a double flywheel capstan drive system. Each of the reels shall be driven by a separate split-winding capacitor type motor.

The transport shall be capable of accepting 8¼" reels having a capacity of 2400 feet of one mil tape.

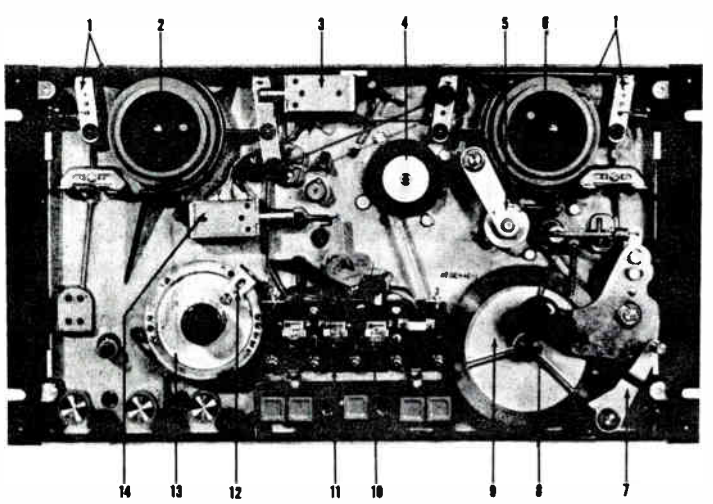
The associated electronics shall be 5¼ inches in height by 19 inches in width and shall be notched to fit a standard relay rack. The electronics shall be equipped with readily available standard transistors and components and with a fully transistorized regulated power supply. The equalization shall be switchable and shall be NAB standard. Input and output connectors, except for auxiliary connections, shall be standard broadcast type.

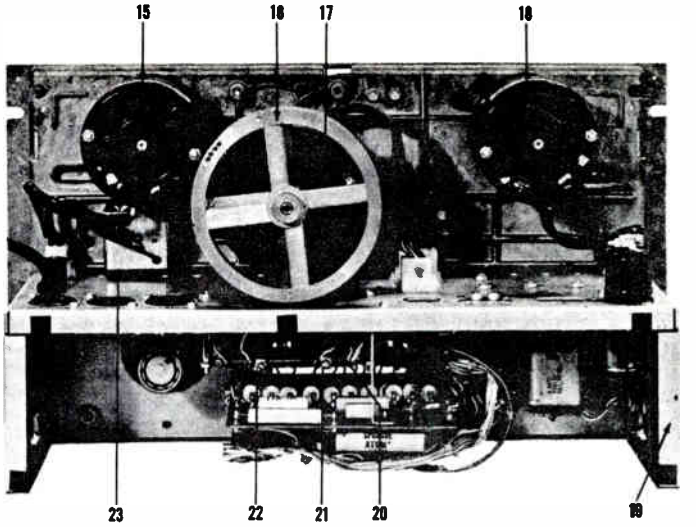
A switchable VU meter shall be provided to enable monitoring of the record, playback or bias level. There shall be provisions for headphone monitoring.

Except for auxiliary inputs, the inputs shall be balanced and capable of accepting low impedance broadcast type microphones. The output circuits shall also be balanced and shall be suitable for driving either a 150 or 600 ohm line. The unit shall be a TELEX model Magnecord 1021 (specify catalog number).

JANUARY 1971
ENG. CONTROL NO. 38108-33

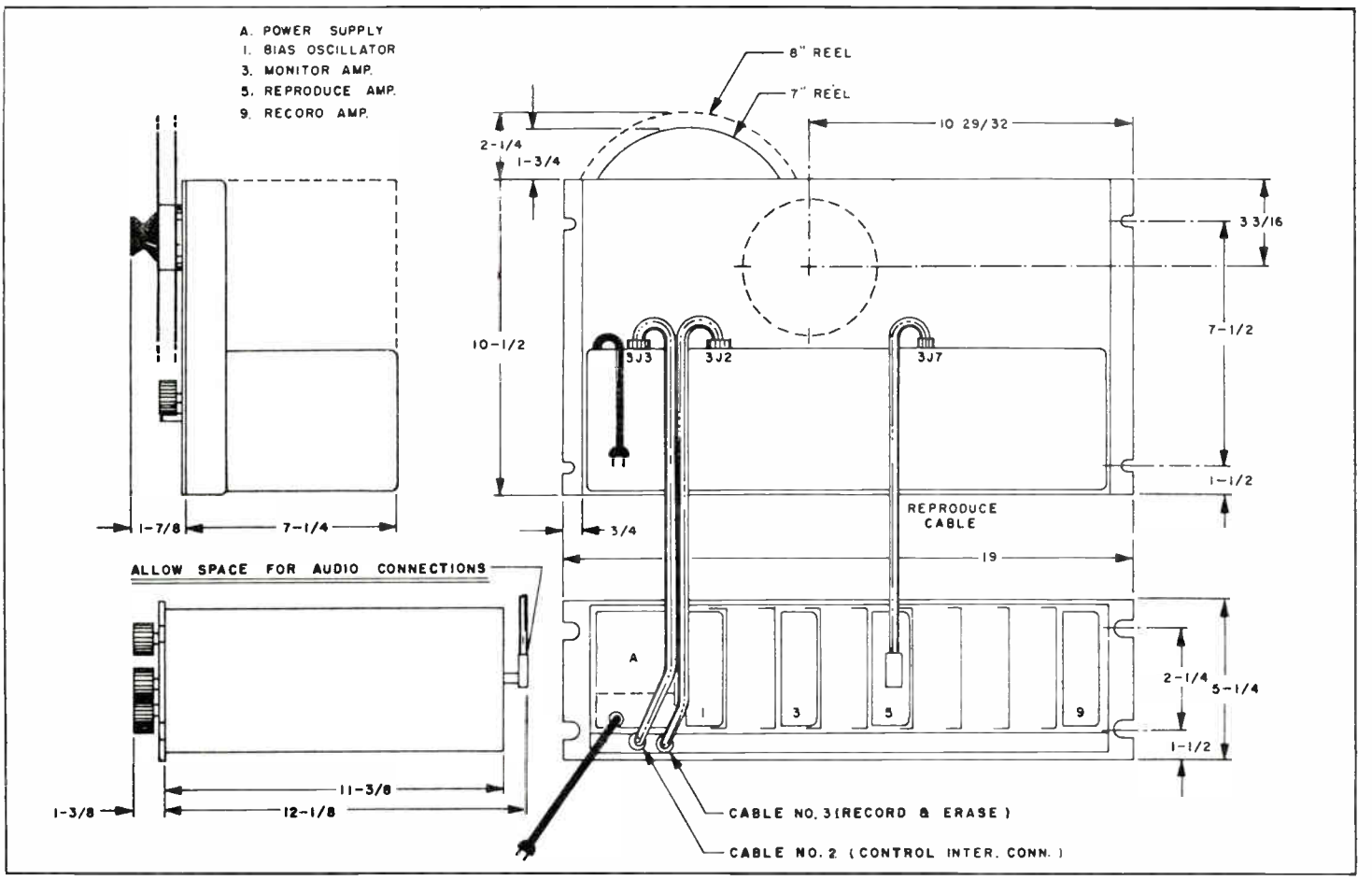
TELEX
NO. 4028-1
MAGNECORD 1021
RECORDER/REPRODUCER





TAPE TRANSPORT MAJOR COMPONENTS

1. BRAKE ASSEMBLY
2. SUPPLY REEL TURNTABLE
3. BRAKE SOLENOID
4. CAPSTAN MOTOR DRIVE PULLEY
5. IDLER WHEEL
6. TAKE-UP REEL TURNTABLE
7. TAKE-UP COMPLIANCE ARM
8. PRESSURE ROLLER
9. CAPSTAN ASSEMBLY
10. HEAD ASSEMBLY
11. TAPE GATE
12. TAPE-BREAK COMPLIANCE ARM
13. STABILIZER ROLLER
14. TAPE GATE SOLENOID
15. TAKE-UP MOTOR
16. CAPSTAN MOTOR FLYWHEEL
17. CAPSTAN MOTOR
18. SUPPLY MOTOR
19. CONTROL BOX
20. TAKE-UP TORQUE ADJUST. 3R4-3
21. SUPPLY TORQUE ADJUST. 3R5-4
22. CUE TORQUE ADJUST. 3R5-3
23. PRESSURE ROLLER SOLENOID



OUTLINE DIMENSIONS AND INTERCONNECTING CABLING

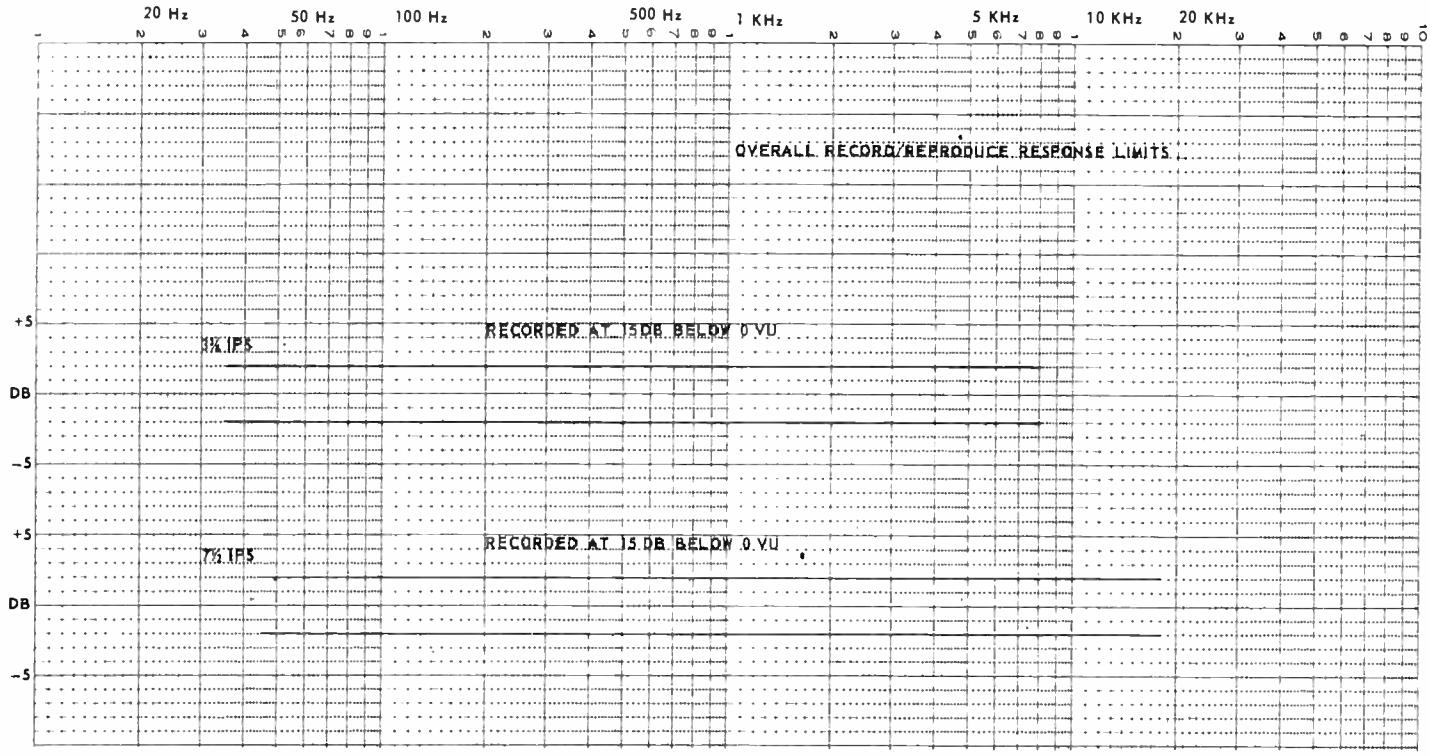
ORDER MODEL 1021 BY CATALOG NUMBER

HEAD CONFIGURATION CODE: F = Full Track H = Half Track
1 = Single Channel

Model Description	Type of Control	Speeds	Operating Power	Equalization	Head Configuration (See Code Above)			Order By Catalog Number
					Erase	Record	Play	
1021X	Electro Mechanical	3.75-7.5	117 V 60 Hz	N.A.B.	F1	F1	H1	91E6190-1
1021X	Electro Mechanical	3.75-7.5	117 V 50 Hz	N.A.B.	F1	F1	H1	91E6190-4
1021X	Electro Mechanical	3.75-7.5	117 V 50 Hz	C.C.I.R.	F1	F1	H1	91E6190-20
1021X	Electro Mechanical	7.5-15	117 V 60 Hz	N.A.B.	H1	H1	H1	91E6190-30
1021X	Electro Mechanical	7.5-15	117 V 60 Hz	N.A.B.	F1	F1	H1	91E6190-33
1021X	Electro Mechanical	3.75-7.5	117 V 60 Hz	N.A.B.	H1	H1	H1	91E6190-34
1021X	Electro Mechanical	1.875-3.75	117 V 60 Hz	Special	H1	H1	H1	91E6190-40
1021X	Electro Mechanical	7.5-15	117 V 50 Hz	N.A.B.	F1	F1	H1	91E6190-46
1021RX	Relay	3.75-7.5	117 V 60 Hz	N.A.B.	F1	F1	H1	91E6190-8
1021RX	Relay	3.75-7.5	117 V 50 Hz	N.A.B.	F1	F1	H1	91E6190-14
1021RX	Relay	3.75-7.5	117 V 50 Hz	C.C.I.R.	F1	F1	H1	91E6190-21
1021RX	Relay	7.5-15	117 V 60 Hz	N.A.B.	H1	H1	H1	91E6190-31
1021RX	Relay	7.5-15	117 V 60 Hz	N.A.B.	F1	F1	H1	91E6190-32
1021RX	Relay	3.75-7.5	117 V 60 Hz	N.A.B.	H1	H1	H1	91E6190-35
1021X	Relay	1.875-3.75	117 V 60 Hz	Special	H1	H1	H1	91E6190-43
1021	Transport Only	3.75-7.5	117 V 60 Hz	———	F1	F1	H1	91J6134-1
1021	Amplifier Only	3.75-7.5	117 V 60 Hz	N.A.B.	—	—	—	91J6125-1

ACCESSORIES		
	Remote Control Station for Relay Units	91E6786-2
	Transport Case for Above Units	A81D128-2
	Electronics Case for Above Units	A81D129-2

NOTE: Inputs Balanced Low Impedance (50/150Ω)
Outputs Balanced Low Impedance (150/600Ω)



OVERALL RECORD/REPRODUCE RESPONSE LIMITS.

MODEL 1021 SPECIFICATIONS

Frequency Response:
Record/Reproduce ±2 db 35 Hz to 8 kHz at 3-3/4 ips
Record/Reproduce ±2 db 45 Hz to 18 kHz at 7-1/2 ips

Signal-to-Noise Ratio: 53 db at 3-3/4 and 7-1/2 ips. (Signal recorded at 3% 3rd harmonic distortion compared to noise of tape recorded with no input.)

Playback Equalization (NAB):
3-3/4 ips: 3180 micro-second + 90 micro-second.
7-1/2 ips: 3180 micro-second + 50 micro-second.

Inputs: 150 ohm microphone, balanced bridge, unbalanced bridge, mixing bridge and auxiliary bridge.

Input Level for 0 VU Recording:

Microphone: Min. – 80 dbm (0.038 mv)
Max.– 30 dbm (12 mv)

Balance Line: Min. -20 dbm, 600 ohm line (0.076v)
Max.+30 dbm, 600 ohm line (24.5v)

Unbalanced A Jack: Min. -20 dbm, 600 ohm line (0.076v)
Max.+30 dbm, 600 ohm line (24.5v)

Unbalanced B Jack: Min. -10 dbm, 600 ohm line (0.245v)
Max.+30 dbm, 600 ohm line (24.5v)

Outputs: 150/600 ohm balanced, +4 dbm, Auxiliary A and Auxiliary B unbalanced.

Heads: Full track erase, record and half-track playback.

Tape Speeds: 3-3/4 and 7-1/2 Inches Per Second.

***Flutter & Wow:** 0.25% rms at 3-3/4 ips. 0.17% rms at 7-1/2 ips. (Includes wow and flutter from 0.5 Hz to 250 Hz).

Playback Timing Accuracy: Plus or Minus 0.2%.

Reel Size: 5, 7 and 8-inch E.I.A.

Tape Size: 1/4-inch wide, 1.5, 1.0, 0.75 and 0.5 mil thickness.

***Rewind-Hi Forward Time:** 1200 feet in 80 seconds.

Power Requirement: 110/130 volts, 60 Hz, 180 watts.

Transport Weight: Thirty-three pounds net.

Amplifier Weight: Fourteen pounds net.

*These specifications are based on using a standard E.I.A. 7-inch reel and 1.5 mil tape. Specifications will vary for other reel sizes, tape types and tape thicknesses.

Litho USA