



AMPEX

TAPE DUPLICATOR

SERIES S-3200C



Makes duplicates that retain the fidelity of the master tape.

Cuts tape duplicating cost to a fraction of previous levels.

Duplicates half track, full track or stereophonic tapes.

HIGH QUALITY TAPE DUPLICATES AT LOW COST...

*either single copies
or mass production
runs are now
economically
practical...*

SPEED

True mass production of pre-recorded tapes can now be achieved. For example, a full system of ten slave recorders could in just eight minutes make ten exact copies of a 2400 foot double-track master of 7½ in/sec. tape speed. It would take 20 hours to produce the same number of duplicates on a pair of standard recorders operating at 7½ in/sec.

Ampex's speed-up results from three things: (1) duplicator speed of 60 in/sec; (2) simultaneous duplication of **both** tracks of a double track tape, either half track or stereophonic; (3) use of up to 10 slaves with one master playback unit.

QUALITY

The superb fidelity of a good master tape can now be faithfully reproduced in any number of duplicate tapes. Ampex tape "know-how" and engineering skill has produced a tape duplicator which meets the sound quality demands of audio engineers, broadcast technicians, high fidelity enthusiasts and other critical users. Frequency response to 15,000 cycles is available on 7½ in/sec. duplicates. Signal-to-noise ratio is more than 55 db over the entire range. Flutter and wow is below 0.2% rms.

DESIGN

The basic Ampex Tape Duplicator system has a master playback unit, master amplifier panel, master bias oscillator, master control panel and one duplicating recorder. This equipment would make one duplicate at a time.

Additional slave recorders may be added to this basic duplicating system—one or more at a time—up to a maximum of ten. This Ampex "building block" design provides complete equipment flexibility because the initial installation of the basic Ampex Tape Duplicator can be quickly and economically expanded to suit growing needs of the user.

The duplicating process consists of playing a master tape on the master playback unit and feeding the output to one or more duplicating recorders. Proper amplification and equalization is provided by the master amplifier panel; high power, high frequency bias for all recorders is generated by the master bias oscillator. Hence it is unnecessary for each of the individual slave recorders to contain these electronic functions.

All operating components are started by one push-button on the master control panel. Normally these master controls are used in lieu of the individual controls on each recorder.

SUMMARY OF FEATURES

Convenient and versatile operation

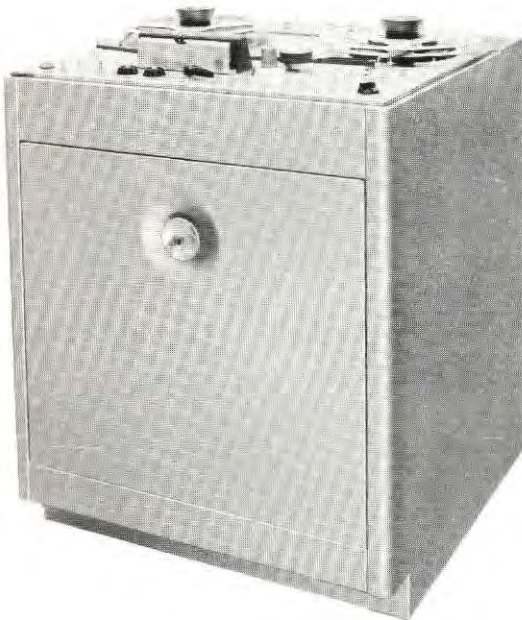
- Makes 3¾, 7½ or 15 in/sec. duplicates from masters of the same speed; also 3¾ in/sec. duplicates from 7½ in/sec. masters and 7½ in/sec. duplicates from 15 in/sec. masters.
- Handles reel sizes up to 14 inches.
- Duplicates both single and double track masters in one pass of the tape.
- Runs master tapes "backward" to eliminate need for rewinding duplicates before use.

Quality, economy and reliability

- Duplicates 3¾ in/sec. tapes with response to 7,500 cycles (15,000 cycles for 7½ in/sec. tapes).
- Maintains 50 to 55 db signal-to-noise ratio.
- Produces up to 1200 hours of playback material in an 8-hour work day.
- Uses major components that have been operationally tested and proved in standard Ampex recorders.

Positive and flexible control

- Simultaneous control of all components is provided by the master control panel.
- Duplication starts at the push of a button; full speed is attained in five to ten seconds.
- The master playback unit and **each** duplicating recorder are also equipped with full controls.
- Any slave recorder may be stopped or started during duplication without affecting operation of the others.
- All operations are meter-monitored.



Slave unit — from one to ten of these units can be used with each master playback machine.

RELIABILITY

Identical quality is assured on all the duplicates being made at the same time. One master amplifier and bias oscillator feed all the individual slaves. Once the proper duplicating level is established, the only additional checking procedure necessary is the playing of a portion of one tape from the last run. If it is "perfect" all duplicates from all slaves will be equally satisfactory.

Ampex Tape Duplicators use major components similar to those in the familiar Ampex Series 300 Recorders. They have been tested and proved by thousands of hours of successful commercial operation.

ECONOMY

Ampex reduces the cost of tape duplication to a fraction of previous levels. There are five key factors: (1) low set-up time, (2) high duplicating speed, (3) simultaneous use of ten slave recorders, (4) simplified quality control procedure and (5) the traditionally long life of Ampex equipment.

These advantages are equally applicable whether duplicates are needed in mass production quantities or only one or two at a time. In the latter case, the master and one slave would be used but the high running speed would have the same labor-saving advantages.

PRODUCTION SPEED-UP

Figures listed are ratios of playing time to duplicating time.

TAPE SPEEDS AND TRACKS	STANDARD 7½/15 IN./SEC. RECORDER*	TAPE DUPLICATOR	
		WITH ONE SLAVE	WITH TEN SLAVES
3¾ IPS. DOUBLE TRACK	2/1	32/1	320/1
3¾ IPS. SINGLE TRACK	2/1	16/1	160/1
7½ IPS. DOUBLE TRACK	1/1	16/1	160/1
7½ IPS. SINGLE TRACK	1/1	8/1	80/1
15 IPS. DOUBLE TRACK	1/1	8/1	80/1
15 IPS. SINGLE TRACK	1/1	4/1	40/1

* Standard recorders can duplicate 3¾ in./sec. tapes at 7½ in./sec., but cannot duplicate 3¾ or 7½ in./sec. tapes at 15 in./sec. except with extensive changes in equalization circuitry.

LOW COST DUPLICATION OFFERS NEW OPPORTUNITIES . . .



RADIO

Tape networks now become practical supplements or alternatives to line networks. For example, programs of national interest can be recorded, duplicated and distributed in taped form to all network stations. Also, stock musical and dramatic program material of any length can be economically duplicated and distributed to hundreds of stations on a lease or subscription basis.



SELLING

Companies of national scope can duplicate, and distribute to their sales agencies, tape recordings of sales meetings, talks by sales managers and a variety of information which is **most** effective when presented orally. Rapid, low cost tape duplication also paves the way for the presentation of sales training programs on a national basis with far greater effect and economy than heretofore possible.



BACKGROUND MUSIC

Background music services, transcription services and recording companies can now profitably produce background music tapes. Users of the background music reproducers, which play 8-hour tapes will benefit from the availability of a wider music selection.



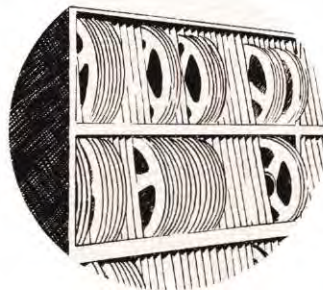
EDUCATION

The usefulness of tape and record libraries of school systems is increased enormously by tape duplication. More rapid and widespread distribution of duplicate tape and greatly expanded subject-matter coverage is now made possible.



RECORDED TAPE MANUFACTURE

The growing demand for high fidelity music can be met successfully with economical tape duplication. Tape recordings can now be manufactured to compete favorably with LP records in the retail market.



LIBRARIES FOR THE BLIND

Books, magazines, music and drama can be read or played onto tape and duplicated in whatever number is needed. Thus, it becomes feasible to maintain large circulating libraries of tapes as a practical means of entertainment and education for the blind.

GENERAL PERFORMANCE CHARACTERISTICS AND SPECIFICATIONS

TAPE SPEEDS	Two Speed, 30 and 60 in/sec.													
FREQUENCY RESPONSE	Specifications apply to duplicates made either at 30 or 60 in/sec. tape speed. 3¾ IN/SEC DUPLICATES (made either from 3¾ or 7½ in/sec. masters). ± 2 db from 50 to 5000 cps. ± 4 db from 50 to 7500 cps. 7½ IN/SEC. DUPLICATES (from either 7½ in/sec. or 15 in/sec. masters) ± 2 db from 50 to 15,000 cps.													
SIGNAL-TO-NOISE RATIO	Duplicate tapes exceed 55 db in 7½ in/sec. duplicates made at either 30 or 60 in/sec. duplicating speed from 15 in/sec. or 7½ in/sec. masters.													
FLUTTER AND WOW	Will not exceed 0.2% rms in duplicates, measuring all components up to 300 cycles/sec., at ANY duplicating speed.													
REEL SIZE CAPACITY	All sizes up to 14-inch diameter.													
DUPLICATING TIME	<table border="0"> <thead> <tr> <th>REEL SIZE</th> <th>AT 30 IN/SEC.</th> <th>AT 60 IN/SEC.</th> </tr> </thead> <tbody> <tr> <td>7" (1200 feet)</td> <td>8 minutes</td> <td>4 minutes</td> </tr> <tr> <td>10½" (2400 feet)</td> <td>16 minutes</td> <td>8 minutes</td> </tr> <tr> <td>14" (4800 feet)</td> <td>32 minutes</td> <td>16 minutes</td> </tr> </tbody> </table>		REEL SIZE	AT 30 IN/SEC.	AT 60 IN/SEC.	7" (1200 feet)	8 minutes	4 minutes	10½" (2400 feet)	16 minutes	8 minutes	14" (4800 feet)	32 minutes	16 minutes
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STARTING TIME	For 10½-inch reels and smaller, full operating speed of 60 in/sec. is attained in 2½ seconds. For 14-inch reels, starting time is 5 seconds.													
STOPPING TIME	Approximately 10 inches of tape passes through the head housing after stop button is pressed at 60 in/sec. with 10½" NARTB reels.													
MASTER TAPE REWIND TIME	Approximately 60 seconds for a 10½" NARTB reel.													
CONTROLS	MASTER CONTROL PANEL (RACK MOUNTED): Provides central control of START, STOP, and RECORD functions of all units. INDIVIDUAL CONTROLS: Provide optional separate control of each unit. The master playback unit and each duplicating recorder have the following controls: <table border="0" style="margin-left: 40px;"> <tr> <td>Pilot Light</td> <td>Rewind-Fast Forward-Play Lever</td> </tr> <tr> <td>Power Switch</td> <td>Tape Speed Selector Switch</td> </tr> <tr> <td>Start Button</td> <td>Reel Size Selector</td> </tr> <tr> <td>Stop Button</td> <td></td> </tr> </table>		Pilot Light	Rewind-Fast Forward-Play Lever	Power Switch	Tape Speed Selector Switch	Start Button	Reel Size Selector	Stop Button					
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MASTER PANEL AMPLIFIERS	Two separate high powered amplifiers are provided, one for each channel. They are of extremely low effective impedance in order to provide a virtually constant voltage source for the record buss which each feeds. Thus the number of duplicating recorders being fed can be varied from one to ten without appreciably varying the feed level to any one individual recorder.													
HEADS	MASTER PLAYBACK — Plug-in type head assembly containing two half-track playback heads. On single track recordings, only one of the heads is used. DUPLICATING RECORDERS — Plug-in type head assembly containing two half-track recording heads and one full-track recording head.													
TYPES OF DUPLICATES	Any of the following can be made: (1) full-track duplicates; (2) half-track duplicates; (3) simultaneous (double) half-track duplicates, and (4) two-track stereophonic duplicates.													
MONITORING	Each head circuit has individual metering jacks for rapid, accurate adjustment of the record level and bias current. A Vacuum tube voltmeter and an audio oscillator are generally used. The ten slaves can be checked in a matter of minutes, making it simple to maintain exact adjustments for peak performance.													
POWER REQUIREMENTS	115 volts A.C., 50 or 60 cycle; 12 amps for master and one slave; add 2.5 amps for each additional slave.													
RACK SPACE REQUIREMENTS	Master playback unit 49 inches Master bias oscillator 8¾ inches Master amplifier panel 8¾ inches Master control panel 3½ inches Each duplicating recorder 29¾ inches.													
CONSOLE DIMENSIONS	Each console stands 36½ inches high and occupies floor space 26 x 25½ inches. Basic unit has a built-in rack on the console extending 23 inches above the top plate.													
SHIPPING WEIGHTS (APPROXIMATE)	Master playback and master control panel in console; master bias oscillator and master amplifier panel for rack mounting . . . 335 lbs. OR Master playback, control panel, master bias oscillator, and master amplifier panel for rack mounting . . . 260 lbs. Each duplicating recorder and slave switch in console . . . 265 lbs. OR Each duplicating recorder and slave switch for rack mounting . . . 140 lbs.													
NUMBER OF SIMULTANEOUS DUPLICATES	Basic system makes one duplicate at a time. It consists of the master playback unit, master amplifier, oscillator and control unit, and one duplicating recorder. Additional duplicates (up to 9 more) can be made by additional duplicating recorders. Specify desired number of simultaneous duplicates _____													
POWER LINE FREQUENCY	50 or 60 cycles, 117 volts _____													
MOUNTING	Console with built-in rack for amplifiers and master control units or rack mount for standard 19-inch construction (racks not included) _____													

OPTIONS TO SPECIFY WHEN ORDERING

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AMPEX

AMPEX CORPORATION
AUDIO DIVISION

DOMESTIC PRICE LIST
SUPERSEDES ALL PREVIOUS SCHEDULES

3000 SERIES HIGH SPEED TAPE DUPLICATOR SYSTEMS

EFFECTIVE JUNE 18, 1962

DEALER FRANCHISE: MASTER

**MODEL
3201-C
3202-C
3301-C
3302-C**



3000 SERIES TAPE DUPLICATORS

Duplicates high quality tapes at low cost in either single or mass production runs. A full system using ten slave recorders can reproduce in 8 minutes the material that would require 20 hours using two standard recorders. Provides simultaneous duplication of both tracks of a double track tape (four tracks of a four-track tape). Identical quality of the duplicated material is assured once the proper duplicating level is determined; tested and proved by thousands of hours of successful commercial operation. Low cost duplication obtained by low set-up time, high duplicating speed, simultaneous use of ten slaves, simplified quality control and the long lived nature of the equipment. The basic system consists of a master playback unit, master amplifier panel, master bias oscillator, master control panel and one duplicating recorder; additional slaves may be added at any time

up to a maximum of ten. *Features:* Simultaneous control by master panel of all components. Pushbutton start; full speed attained in 5 to 10 seconds. Master unit and each slave equipped with full controls. Any slave may be stopped or started during duplication without affecting operation of others. All operations are meter-monitored. Handles reels up to 14" dia. Duplicates single or double-track masters in one pass of the tape. Produces 1200 hours of playback material in an 8-hour work day. Runs master tapes "backward" to eliminate need for rewinding duplicates before using.

	3200 SYSTEM		3300 SYSTEM	
MODEL	MODEL 3201-C MASTER UNIT CONSOLE	MODEL 3202-C SLAVE UNIT CONSOLE	MODEL 3301-C MASTER UNIT CONSOLE OR UNMOUNTED	MODEL 3302-C SLAVE UNIT CONSOLE
DESCRIPTION	Master Playback Unit: drives 1 to 10 slaves; with electronics housing; operates at 30 ips and 60 ips	Slave Recording Unit: operates at same speeds as Playback unit for re-recording	Master Playback Unit: for playing 4-track, 1/2" master tape—controls 3302 slaves	Slave Recording Unit: for simultaneous recording of 4-tracks on 1/4" tape
TRACK	Reproduces Full Track, Half Track, and Two Track Tapes	Records Full Track, Half Track, and Two Track Tapes	Four-Track	Four-Track
TAPE SPEEDS	30-60 ips	30-60 ips	60-120 ips	30-60 ips
CATALOG NUMBER	16295-03	16294-03	Price, delivery and availability on request from Ampex	30636-01
SUGGESTED USER'S NET PRICE	\$4950.00	\$2550.00	Custom Product built to order only. Specify if to feed over 5 slaves.	\$2,775.00

AMPEX

**AMPEX CORPORATION
AUDIO DIVISION**

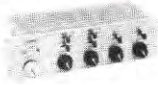


DOMESTIC PRICE LIST
SUPERSEDES ALL PREVIOUS SCHEDULES

PROFESSIONAL/MASTER ACCESSORIES

EFFECTIVE JUNE 18, 1962

DEALER FRANCHISE:
PROFESSIONAL- MASTER

**ACCESSORIES
FOR:
300
350
3000
PR-10**

GENERAL ACCESSORIES	DESCRIPTION	SPECIFICATIONS — USE	CATALOG NUMBER	USER NET PRICE
	MIXER, MODEL MX-10 — Four position, two channel mixer, feeds 4 or 2 mike and 2 line inputs to either or both channels.	For PR-10 Series and general use; unmounted	96900-01	\$395.00
	MIXER, MODEL MX-35 — Four position, two channel mixer, feeds 4 or 2 mike and 2 line inputs to either or both channels.	For 350 and 300 Series and general use; unmounted	96910-01	395.00
	SPEAKER/AMPLIFIER, MODEL SA-10 — 40 watt voltage regulated amp with low distortion at low frequencies — has amplifier compensation switch. (See below for mike preamp.)	Speaker/Amplifier, unmounted	96975-01	295.00
		Speaker and Enclosure, only	96980-01	120.00
		40 watt Amplifier, only	96950-01	175.00
		Portable Case	96960-01	60.00
	REMOTE CONTROL — For use with 351/352/354/PR-10	Wired (in box with 30' cord)	96510-01	50.00
		Panel Type (less cord)	96520-01	42.00
	LINE INPUT TRANSFORMERS — For use with PR-10/MX-10/SA-10/354/MX-35	Balanced Bridge	96134-01	14.50
		Matching 600 ohm	96134-02	14.50
	MICROPHONE PREAMPS — For use with PR-10/354 and SA-10	40 db (PR-10, 354)	96440-01	45.00
		60 db (PR-10, 354)	96440-04	60.00
		SA-10	96440-03	45.00
	HEAD DEMAGNETIZERS —For use with all series		820	9.95
	APPROVED CLEANING FLUID — For use with all series	4 oz. can	823	1.45
	APPROVED LUBRICATING OIL — For use with all series	4 oz. bottle	827	.95

STANDARD ALIGNMENT TAPES (See description and price, Sheet No. 1344-1345)

350 SERIES ACCESSORIES

	MODEL 354 RECORD PLUG-IN EQUALIZERS — (one per channel required)	7½ NAB — 15 NAB	96121-01	9.90
		3¾ NAB (Spec. 120 or 200 µsec.)—7½ NAB	96120-01	9.90
		7½ NAB — 15 AME	96122-01	9.90
	MODEL 354 REPRODUCE PLUG-IN EQUALIZERS — (one per channel required)	7½ NAB — 15 NAB	96111-03	9.90
		3¾ (120 µsec) — 7½ NAB	96110-03	9.90
		7½ NAB — 15 AME	96112-03	14.50
		3¾ (200 µsec) — 7½ NAB	96114-03	9.90
MODEL 351 — Operation and Maintenance Manual		(Furnished with Recorder)	TM-2002A	4.00
MODEL 352 — Operation and Maintenance Manual		(Furnished with Reproducer)	TM-2004	3.00
MODEL 354 — Operation and Maintenance Manual		(Furnished with Recorder)	TM-2011B	4.00
300 SERIES ACCESSORIES				
MODEL 300 — Operation and Maintenance Manual		Single Channel (Furnished with recorder)	TM-2013	4.00
MODEL 300 — Operation and Maintenance Manual		Multi-Channel (Furnished with recorder)	TM-2005	4.00
3000 SERIES ACCESSORIES				
3200 SYSTEM — Operation and Maintenance Manual		(Furnished with each unit)	TM-2008	4.00
3300 SYSTEM — Operation and Maintenance Manual		(Furnished with each unit)	TM-2007	4.00