FINE LINE F-44 SERIES

New 4-track stereophonic and monophonic recorder/players . . . each individually adjusted, aligned and tuned . . . each optimized to its own individual peak of performance to give you a truly customized recorder . . . another reason why . . . Ampex is the name for excellence.
Each Recorder is brought to its own Peak of Performance

Specifications are used to indicate a recorder's performance characteristics... but your F-44 is more than a mass-produced recorder manufactured to meet minimum specifications printed on a piece of literature... each F-44 series recorder has been optimized at every stage of production to obtain its maximum performance characteristics... each recorder is one-of-a-kind... it's your recorder.
Optimizing your F-44 to its own Peak of Performance

Begins... with the inspection, testing and alignment of component parts before they are assembled to ensure they meet Ampex design specifications... shown at left (1) a technician adjusts the Bias Oscillator Transformer for maximum second harmonic rejection (minimum harmonic distortion)... even the die-cast frame is re-checked prior to assembly to verify the micro-milling operation, here (2) a plane gauge is used to determine whether the magnetic head mounting and tape guides are within the 1/1000" tolerance required.

Continues... through every stage of sub-assembly, here (3) the F-44's Channel Selector Switch is inspected and checked for workmanship... then, the very same switch is checked again (4) when it has been assembled in the electronics chassis... the completed electronics chassis is then aligned and tuned (5) following a 33-page, step-by-step procedure that simulates all normal operating conditions with inputs and outputs measured, aligned and tuned to optimum performance.

Includes... mechanical as well as electrical adjustment and alignment to assure optimum performance from the tape transport system... after assembly of electrical and mechanical sections, the completed recorder is subjected to a 16-hour "break-in" (6) with the clutch tied into operating mode so that it is stable when finely adjusted (electronics are on during break-in period)... at the end of 16 hours, the transport's mechanical components are once more aligned (brake, clutch, hold-back tension spring, capstan drive, counter, etc.)... here (7) a tension gauge is used to measure (for adjustment, if necessary) the spring on the capstan idler drive to insure proper tension on the capstan, thus eliminating unnecessary pressure on the tape or tape slippage.

Meantime... the 3 magnetic heads for your F-44 recorder are being inspected and aligned to tolerances so precise they require special Ampex-designed micro-optical measuring equipment... an optical comparator is used to align the height, azimuth and perpendicularity of the F-44's heads to the tape guides... head gap requirements are held to less than 10 millionths of an inch and here (8) a 50-power microscope is used to align the gap in the center of the area where the tape will make contact with the head (to attain equal distribution of tape wear on both sides of the head gap).

Ends... at three, final inspection and alignment stations... one (9) is in a sound-proof chamber where the mechanical function of the tape transport is once more aligned and adjusted for speed accuracy to within 1%; optimum torque from the hysteresis synchronous motor to operate all functions with a minimum of line voltage; audible mechanical noise... the second station, where recording and playback response are optimized through 15,000 cps; record bias is adjusted to minimum distortion; the second playback amplification stage is adjusted to optimize the output of the playback head and electronics on each channel... and the last station, where your F-44's performance characteristics are once more verified to assure you the peak of performance from your F-44.

This Requires... 41 testing, measuring and alignment instruments representing over $156,500... the full time of 13 technicians... and a dedication to make each F-44 the finest quality stereo tape recorder/player money can buy.

You can have your F-44's own Performance Characteristics:

Because each F-44 recorder is a one-of-a-kind, an individual record is kept of its performance characteristics. As each F-44 is optimized to its own peak of performance, a record is kept of the important performance characteristics: Overall Frequency Response/Signal-to-Noise Ratio/Flutter-Wow Measurement/Crosstalk Rejection. You will obtain your F-44's own specifications when you return the 1-year Warranty Registration card to Ampex.

At left: Making the frequency response measurement on an F-44 recorder using a Sweep Frequency Generator.
(1) The 6000-hour Life Cycle Test, equivalent to 6-8 years of operation, puts a recorder through a complete, record-rewind fast wind-rewind cycle over 90,000 times under constant monitoring.

(2) The Environmental Chamber subjects the F-44 to temperatures from −50°F to +140°F under various controlled humidities.

(3) Removing the F-44 from the Environmental Chamber for checking, testing, and evaluating effects of extreme high and low temperatures during 36-hour test.

(4) The F-44 in its shipping carton is subjected to extreme vibration on a vibration table and...

(5) Put on an incline rack for an impact-shock test 4-5 times.

(6) Then the recorder is removed from the shipping carton and placed on another vibrator table where it is bounced in resonance for two hours while operating.

(7) $8,600 worth of testing and measuring equipment is then used by the Quality Assurance group to check the F-44 against its original performance characteristics.

**Quality Control assures long-lasting Performance**

Reliability and durability are important "extra" ingredients that Ampex adds to each F-44 recorder to assure you of continued peak performance year after year after year. That's why random production line models are dropped, bumped, shocked, frozen, cooked, inspected, probed, checked, measured and tested by Ampex's Quality Assurance engineers (an independent group charged with the sole responsibility of maintaining the incomparable Ampex standards of quality).
THE AMPEX FINE LINE F-44 SERIES

Records and Plays — 4-track stereophonic and 4-track monophonic (also plays ½-track and full-track monophonic)

Has 2 Speeds — 7½ ips and 3¾ ips

Has Separate Heads — erase, record and playback

Maintains — the tradition of excellence that is part of the Ampex name

Model F-4450 Unmounted, with playback volume control, mike inputs on side — for use in custom installation or optional Walnut Cabinet.

Model F-4452 Unmounted, no playback volume control and mike inputs mounted on top plate — for use in component systems with central volume control.

Model F-4460 Portable, can be removed from luggage case for custom installation or in optional Walnut Cabinet — for on-the-spot stereo recording.

Model F-4470 Portable, with built-in dual-channel amplifier and speakers for on-the-spot recording, monitoring and playback.

Model 2044 Portable, self-contained high fidelity amplifier and speaker system for use with F-44 Series recorders, AM-FM Tuners or as a portable PA system.
**YOUR AMPLEX FINE LINE F-44**

A few of the F-44’s new features that add to your pride of ownership—make it easier to operate—and more fun to use.

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**New Hysteresis Synchronous Motor (L)**—specifically designed for your F-44—integral, internal fan is dynamically balanced with the rotor for smooth, quiet operation—has ballbearings, continuous oil feed, needs no oiling under normal conditions.

**Separate Record Level Meters (N)**—indicator needles are close together allowing quick, accurate comparison of both channels.

**New, Compact, Telescopic-Male-Medial Controls—**2 knobs (L, O) control all transport actions, permit going from one mode to another quickly and safely, no separate stop button—use the same knob to stop a function as you used to start it—electronics can be put into “record” mode without tape in motion (to eliminate bothersome ‘pop’).

**Record Indicator Lights (O)**—one light for each channel for positive indication (to eliminate mistakes in 4-track monophonic recording).

**Master Selector Switch (G)**—permits: simple changes from stereo to mono; choice of individual track; multiple generation sound-on-sound (an Ampex F-44 exclusive that lets you add 1 to 2, 1 and 2 to 3, 1, 2, 3 to 4, etc.).

**Level (H)**—playback volume control.

**Exclusive Unattended Shut-Off (M)**—your F-44 can be turned off manually while the tape is still playing, when the tape is finished, the auto-set shut off turns off motor, electronics and amplifier (when connected to ac receptacle in rear) also shuts off recorder if tape should break during unattended recording or playback.

**Three, Separate Heads (C)**—selective erase head permits monophonic flexibility—precise record head—improved playback head with less winding, heavier gauge wire and new laminate coating for increased reliability—all metal shield, and narrower channel widths eliminate adjacent channel crosstalk.

**Automatic Tape Take-Up (K)**—eliminates reel threading, simply wind tape around take-up hub.

**Improved Constant-Tape Tension System (D)**—eliminates head-wearing pressure pads—optimized for each recorder to provide proper tension without affecting tape.

**Professional Electronics (A)**—with separate record and playback, dual-channel electronics—extra stage of amplification in playback section is optimized for each recorder’s own playback head and electronics, is adjustable within 2 volt range for matching component systems, allows for better, longer-life playback head.

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**SPECIFICATIONS: F-44 Series**

**PLAYBACK OUTPUTS**—Approximately 1.0 volts rms from cathode follower when using tapes recorded to maximum normal recording level.

**OVERALL FREQUENCY RESPONSE**—Record and playback: 50-55,000 cps; ±1 db at 75% ips; 60-10,000 cps; ±2 db at 34% ips.

**SIGNAL-TO-NOISE RATIO**—Better than 53 db at 75% ips; better than 45 db at 34% ips.

**FLUTTER AND WOOF**—0.03% rms at 75% ; under 0.01% at 34% (measured according to A.B.A. standards 215-1-1954).

**TYPICAL ACCURACY**—±1.0%.

**HEADS**—Manufactured to the same standards of precision that exist in Ampex broadcast and recording studio equipment (see details on page 4).

In U.S.A., all models are U.L. approved. Models F-4540 and F-4660 are also available in Universal voltage versions, giving selection of nine voltages from 100 volts to 285 volts, 50 cycle.

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**SPECIFICATIONS: Model 2044 Amplifier/Speaker**

**OVERALL FREQUENCY RESPONSE**—70 cps to better than 15,000 cps, essentially flat acoustically.

**POWER OUTPUT**—10 watts through push-pull amplifier (20 watts peak with no audible harmonic distortion. Speakers can use full power.

**SPEAKER SYSTEM**—Two speakers—a 12” high compliance speaker and horn-type tweeter with 1-crossover network consisting of: 2 inductors, 3 capacitors, 2 resistors.

**Dimensions**—13"x15½"x7½"x15½"x7½"

**Weight**—28 lbs, 28 lbs, 48 lbs, 26 lbs, 26 lbs.

**Power**—117 V, 117 V, 117 V, 117 V.

**Requirements**—105 watts, 105 watts, 315 watts, 105 watts.

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**AMPEx Fine Line Series**

All Ampex F-44 Series recorder/players and 2044 Speaker/Amplifiers are covered with full protection on parts for 1 year—your assurance that Ampex backs its reputation for:

- Quality
- Performance
- Reliability
- Leadership

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**AMPEx CORPORATION**

401 Broadway/Redwood City, Calif.

The Fine Line F-44 Series is manufactured in the United States.

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**REOder NO. 1669**