

Section 5

Head Assembly

GENERAL

The head assembly of an Ampex magnetic tape recorder is the heart of the equipment. The technical and detailed know-how required for the fabrication of these head assemblies has made Ampex the foremost manufacturer of magnetic recording equipment in the world today.

In theory, a tape recorder head assembly is a simple device. In practice however, building a head assembly is a complicated task requiring extremely precise manufacturing techniques. There are two playback head stacks in the master head assembly and two record head stacks in the slave head assembly. The magnetic flux in the moving tape of the master tape reproducer induces a voltage in the playback head. The record head puts the signals on the tape by magnetizing the iron oxide particles in the coating on the tape.

The design and construction of these heads is extremely critical. Their surfaces are lapped to finishes so smooth that variations are measured in wave lengths of light. In typical playback heads the gap is 0.00025 inch, which give an indication of the precision required in building the heads.

Each of these heads is designed for a specific function with no compromise in the overall head assembly. Professional use demands top performance and there is no room for design compromise.

The superb design, engineering and manufacturing are built into Ampex head assemblies assures dependable long life and economical operation at the lowest cost per operating hours.

HEAD ASSEMBLIES

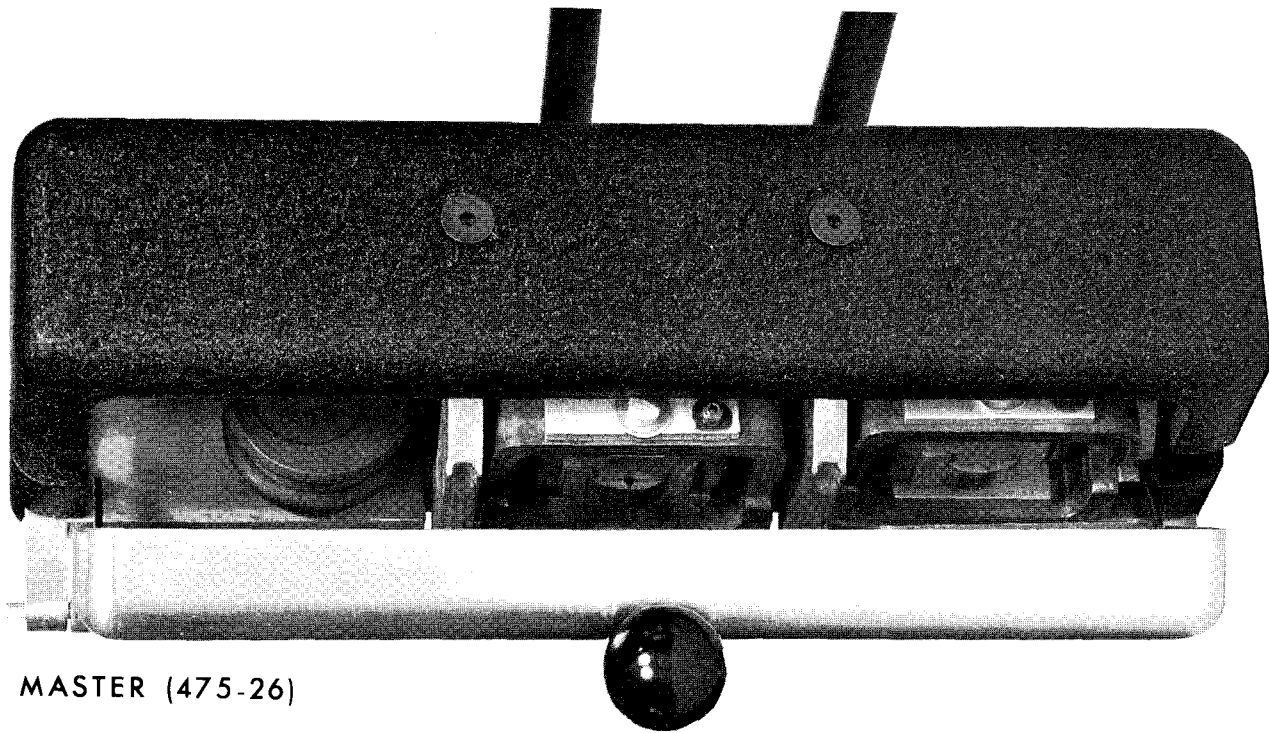
The head assembly is housed in a die cast housing. The master head assembly contains two reproduce heads (an upper halftrack and a lower halftrack). The slave head assembly contains three record heads (an upper halftrack, lower halftrack, and full track. Orientation of these heads can be found in Figure 5-2.

The head gate should never be allowed to spring shut, but should be allowed to close gently.

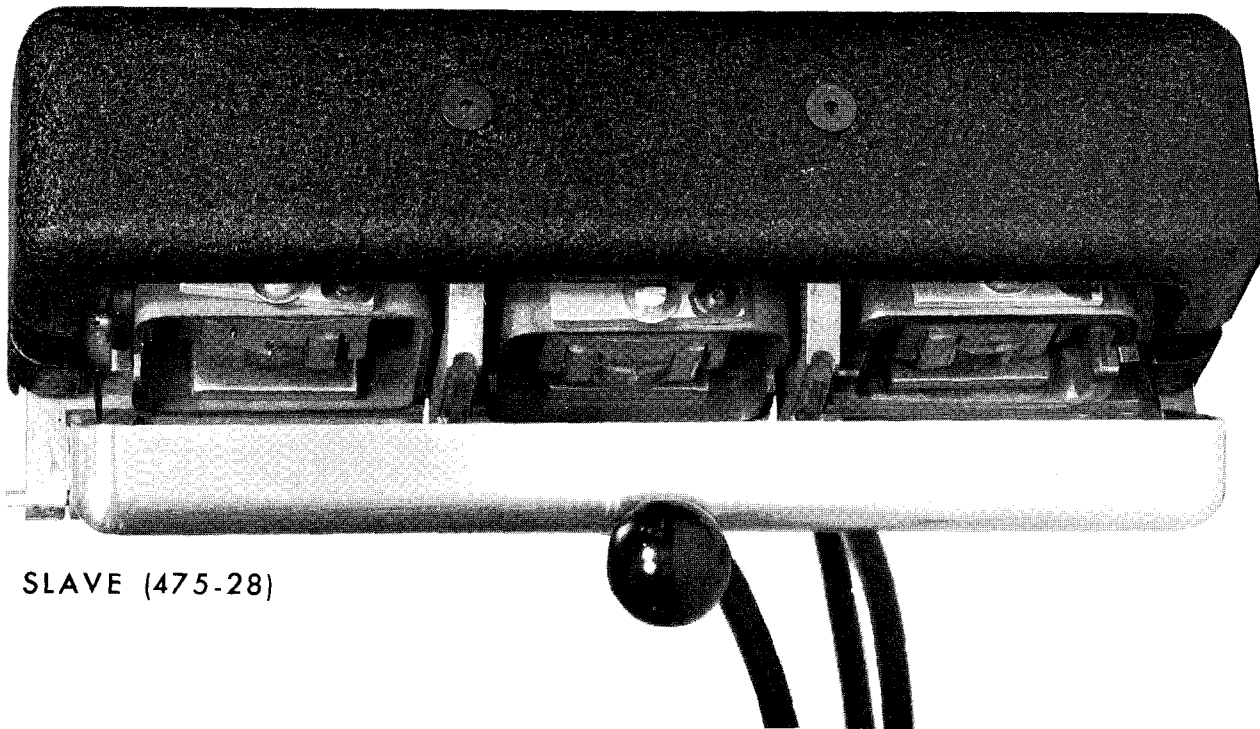
When operating in the REWIND or FAST FORWARD modes, see Tape Threading Paths in SECTION 3 (OPERATION).

STEPS OF CAUTION

1. When removing or installing head assemblies, the plastic inserts of the cable assembly connectors should be protected from damage. These connectors are easily chipped if hit on any hard surface. A plastic cover is provided when shipped.
2. See SECTION 4 (TAPE TRANSPORT MECHANISM) for demagnetization procedures for head assemblies.
3. For exact tape height, a measurement of 0.75 inch is taken from the bottom edge of the tape to the tape transport proper.
4. The head assemblies have been adjusted at the factory for tape height, in reference to the head and overall



MASTER (475-26)

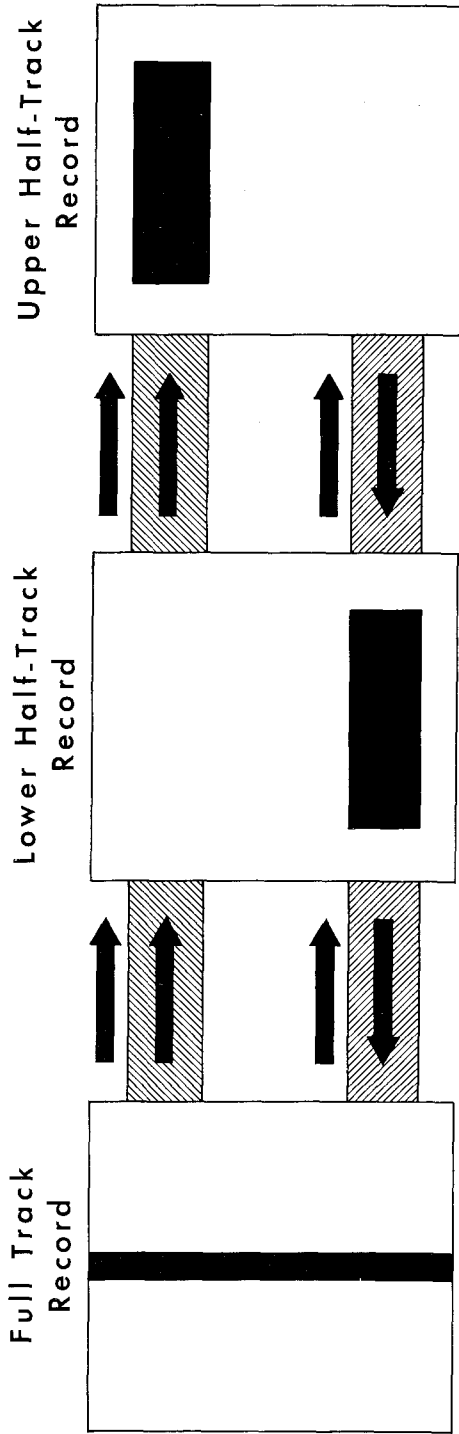


SLAVE (475-28)

FIGURE 5-1

HEAD ASSEMBLIES

SLAVE HEAD ASSEMBLY
475-28



MASTER HEAD ASSEMBLY
475-26

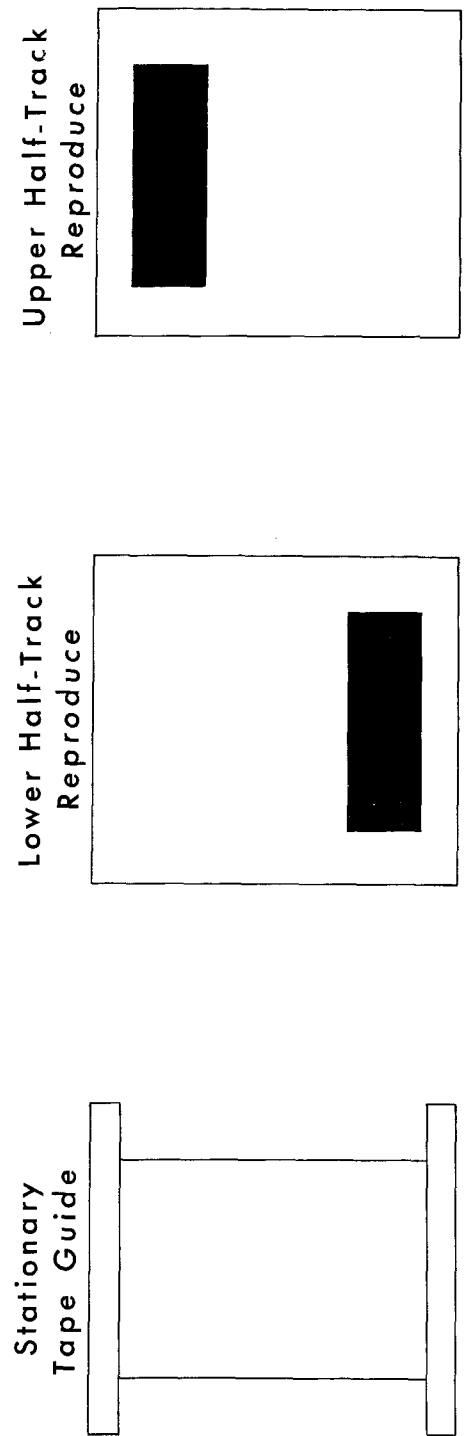


FIGURE 5-2

HEAD CONFIGURATIONS

tape threading. If a new head is required and removed for any reason, caution must be taken. To reinstall, cinch the two screws holding the head assembly to the tape transport with care; too tight a fit may tend to "buckle" the transport and may require realignment or adjustments at the factory.

CLEANING

Most tape manufacturers lubricate their tapes, and this lubricant (plus oxide) from the tape will gradually be deposited on the head assembly. These deposits cause the loss of high frequencies, therefore the head assembly must be cleaned frequently. To

clean the head assembly use a solution of Xylene and 0.1% Aerosol (Ampex Catalog Number 087-007). A cotton swab on a stick can be used to accomplish this cleaning.

CAUTION

Do not use any other solvent on the head assembly, as some will damage the material which binds the head laminations together. Also do not use any metallic device which will scratch the head.

The head assemblies are shown in figure 5-1 and the track configuration of each head assembly is shown in figure 5-2.

PARTS LIST
FOR
MODEL 3200D
HEAD ASSEMBLIES

<u>PART DESCRIPTION</u>	<u>AMPEX PART NO.</u>
HEAD ASSEMBLY, reproduce: 1/4-inch	475-26
HEAD ASSEMBLY, record: 1/4-inch	475-28
Individual Replaceable Parts	
CABLE ASSEMBLY, reproduce	80098-01
CABLE ASSEMBLY, record	810-02
GATE ASSEMBLY	479-00
GATE SPRING (2 required)	438-01
GATE PIN (2 required)	403-006
GLASS ROD, tape guide: 3/16-inch long (2 required)	457-00
GLASS ROD, tape lifter: 1/2-inch long (2 required)	1372-00
HEAD HOUSING	433-01
NUT, head alignment: fiber insert	493-005
SCREW, allen head: black, 6-32 x 3/8 (2 required)	471-476
SCREW, head stack mounting: 4-40 x 5/8	471-481
TAPE GUIDE POST	6163-00

When ordering replacement parts always include the following information: Equipment Type; Equipment Serial Number; Ampex Part or Catalog Number; and Description of Part. DO NOT simply use the schematic reference number.