NOTES ON INSTALLATION

Upon the installation of these machines, before either the standard tape or any program material is run, the heads and capstan should be demagnetized in accordance with the recommended procedure.

Demagnetizing is done at the factory just before shipment but as a precautionary measure, the procedure should be followed again after setting up so that standard tapes are not ruined.

After demagnetization, a check of the machine can be made by playing an erased tape, rewinding and replaying. If any magnetization exists, it will be apparent as noise on replaying.

After this check has been made and any magnetization has been eliminated, the standard tape can be run without danger and the record head adjustment checked per the bulletin. Response should be flat within ±2 db from 50 to 15,000 cycles and it is expected that the actual response will be much better than that. If it is outside of those limits after the record head has been properly aligned with the standard tape, trouble in the playback amplifier is indicated and a check of this equipment can be made using oscillator and output meter. Proper response is shown on attached drawing.

Note that the adjustment for the record and playback heads is made by means of turning an elastic stop nut. The nut is on a filister head screw on the later machines. Do not attempt an adjustment with a screw driver. This screw must remain fixed in position and should not turn on any adjustment.

On some machines copper shims are placed between the head cover and the bosses for the retaining screws. These are essential and should not be removed, because of danger of springing the bottom mounting plate and thus misaligning the heads.

Tension on the capstan idler will be proper when 1/8" space occurs between armature and pole of the capstan idler solenoid when capstan idler is in contact with capstan.

1. Place capstan idler in contact with capstan (no pressure).
2. Place 1/8" spacer between armature and pole of the idler solenoid.
3. Adjust nut "F" in Fig. 1 until spacing is 1/8".

The ideal set-up for the Meter Control Panel is employed in the Matching panel. Here the input to the amplifier is always kept at +4 VU, regardless of the feed (the feed has to be greater than +4 VU), and the meter switches back and forth with the monitor key to provide the ideal set-up for A-B tests. However, since the great majority of users want a bridging input, the Bridging Panel is provided. In this panel, it is impossible to properly meter on the output of the Record Level control. Since the level is undetermined at the input, the meter cannot be connected across this point. It is therefore permanently connected across the output, where it is used to monitor the level on the tape. The proper record level is on the tape when program peaks do not exceed zero on the meter (occasional pinning of the meter, if not too severe and if transient in nature, will not produce noticeable

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distortion), and if the Output Level Control is set at 14. However, it is well to point out that an individual user can reconnect the meter to read input, providing the input level will never exceed +4 VU. On the earlier meter panels, the meter terminals were used as tie points, and these points must be freed to reconnect the meter. However, we are now isolating the meter leads so that it is only necessary to slip them out of the present terminals 11 and 12 and move them to 9 and 10 to have the meter switch with the monitor key.

In making the installation, it has been suggested by the manufacturer that the following points be emphasized to the customer:

1. Read Instruction Book thoroughly.
2. Operation of Controls.
3. Magnetization problems.
4. Routine maintenance; keeping heads and guides clean, checking performance, checking for magnetization.
5. Proper monitoring of recordings, especially with Meter Control Panel.
6. How to make A-B tests to check quality.
7. Importance of good monitoring equipment to appreciate performance.

POINTS OF DIFFERENCE BETWEEN AMPEX RECORDERS MODEL 200 AND MODEL 300

Performance characteristics in the two models is the same. No sacrifice of essential quality has been made in the new design.

MODEL 200 - De Luxe	MODEL 300 - Portable
Tape speed of 30"/sec is standard. Can be modified to run at either 30"/sec or 15"/sec.	Two tape speeds of 15"/sec and 7.5"/sec are standard.
Rewind and fast forward, play and record functions selected by separate control buttons.	Record function controlled by button. Rewind, fast forward or play selected by switch and started with start button.
Marking and cueing device.	No cueing device.
Synchronous drive motor directly coupled to capstan by means of a flexible coupling.	Repulsion drive motor coupled to capstan through rim driven flywheel. When power switch is off, motor disengages the flywheel rim so that no flat spots develop in rubber tire.
Capstan idler roller contacts capstan at same point that tape meets it.	Capstan idler roller contacts capstan slightly behind the point at which the tape meets it, providing a slightly better wrap.
Drive motor and capstan start when "start" button is depressed. Each function button must be depressed simultaneously with the "start" button in order to start the selected function operating.	Drive motor and capstan turn all the time the power is turned on. Start button causes idler to engage capstan and starts takeup motor when selector switch is in "play" position.
Relays all assembled on one chassis.	Relays controlling motors mounted on top plate. "Record" relay mounted under electronic chassis.
Erase, record, and playback heads mounted in a straight line and equipped with a pressure pad gate.	Heads mounted with gaps tangent to the inside of an arc, so that tape is automatically held in contact and no pressure pad required.
Gate is cam operated. Tape is wound with magnetic material outside. (Heads are placed on the side of tape nearest the operator).	No cam operation. Tape is wound with magnetic material on the inside. (Heads are mounted on the side of the tape opposite the operator).
Separate chassis for power supply, record amplifier, playback amplifier and control relays.	All amplifiers and power supply on one chassis.
All four chassis plug into a connecting gutter which contains all inter-wiring and attenuation pads.	Interconnecting cables plug directly into the chassis. Attenuation pads located on meter control panel.

90° STANDARD TAPE FOR MODEL 300 RECORDER

This tape is used to perform the same functions for the tape recorder that our RD-35 test reel and 8000 cycle loop does in the alignment and testing of sound heads. It is recorded at a speed of 15"/sec and contains the following frequencies, all recorded at the same level, that is, when this tape is used the measured output of the playback amplifier when properly adjusted should be flat within ±2 db from 50 cycles to 15,000 cycles.

(Level Adj.)	1000 cycles (recorded 10 db below recommended operating point)	
	15000 "	
	14000 "	3200 cycles
	13000 "	1600 "
	12000 "	800 "
	11000 "	400 "
	10000 "	200 "
	9000 "	100 "
	8000 "	70 "
	6400 "	50 "

These frequencies are recorded with the record head gap set at an angle of 90° with the longitudinal axis of the tape. It is used to align the azimuth of the playback head which is in turn used to align the record head in accordance with alignment procedure outlined in the instructions.

It is interesting to note that in early recording procedure no standards were available, and therefore the azimuth was never the same for any two machines. When these early recordings are played on the new machines it is necessary to readjust the azimuth to correspond with the recorded material. This adjustment is made by ear while the record is running through the machine. It is then necessary to realign the machine with the standard tape when new recordings are to be made. When the use of the 90° standard tape for alignment becomes common, it will be possible to play any recording on any machine and the necessity for the above misalignment will be eliminated.

90° STANDARD TAPE FOR MODEL 200 RECORDER

This 90° Standard Tape furnished for use with the Model 200 Recorder is recorded at a speed of 30"/ second and is to be used for the following three purposes:

1. Adjustment of level. The tape is recorded 10 decibels below recommended peak meter swing. The first test tone of the tape (1 Kc.) should read -10 V.U. on a meter which is set to read program level, and should not read over the following levels in order to prevent overload:

- 6 Dbm. with 16 db. pad in gutter
0 Dbm. with 10 db. pad in gutter
+10 Dbm. with 0 db. pad in gutter

2. Response adjustment. The following tones are recorded for the purpose of response adjustment:

1 Kc.	2 Kc.
15 "	1 "
14 "	700 Cycles
13 "	500 "
12 "	300 "
11 "	200 "
10 "	100 "
9 "	70 "
8 "	50 "
7 "	30 "
6 "	1 Kc.
5 "	10 " at old head alignment
4 "	(formerly used by ABC)
3 "	

Set playback controls for flat response when playing this tape. Then set record circuits up on standardized playback system by recording oscillator tones on blank tape.

3. Head alignment. The playback head can be aligned by removing the name-plate from the top of the head housing and adjusting the extreme right hand nut for maximum output.

Adjust playback head while playing high frequency runs on beginning of tape for standard 90° alignment. The last run on the tape consists of several minutes of 10 Kc. tone recorded at the OLD gap alignment, which was first used by ABC. In order to properly play tapes which have been recorded with this alignment, the playback head should be lined up with this run.

The record head can be aligned by recording 10 Kc. tone on blank tape and adjusting the third nut from the right for maximum output through the adjusted playback head and amplifier.