

New York Headquarters, July 13, 1949

TO ALL FIELD PERSONNEL

RE: AMPEX MAGNETIC TAPE RECORDERS

Altec has successfully negotiated an installation supervision and service contract with Ampex Electric Corporation of California, leading manufacturer of the highest quality tape recorders.

Our contract covers installation supervision and emergency service only for the manufacturer's guarantee period of 90 days following the date of completion of the installation. This contract becomes effective on ~~July 1, 1949~~ and its duration will be for a ~~12~~ period of ~~12~~ months ending December 31, ~~1951~~ 1950
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We are attaching herewith sufficient bulletin information to enable you, after a careful study, to provide the necessary service in the same efficient manner that we now service the theatre sound equipments.

While the equipment bulletins cover the Model 300 Ampex Tape Recorder, we have supplied diagrams and technical information to enable you to adequately service the Model 200 on which equipment bulletins were not readily available. The material contained in the Model 300 Handbook is generally applicable to the Model 200 Recorder.

The Ampex Tape Recorder is sold through three national distributors:

1. Graybar Electric Company
2. Audio and Video Products Corporation of New York City
3. Bing Crosby Enterprises, Inc. of Hollywood, Calif.

Before proceeding with the installation of any tape recorder, authorization should be secured from the Division Office and no installation supervision is to be performed unless this authorization has been received. Upon receipt of the authorization from the Division Office, the installation should be supervised by you in accordance with the attached bulletins. Following the completion of the job, you will leave information at the installation as to where you can be reached in order to render emergency service for the manufacturer's guarantee period.

Emergency service will be on a demand basis and it will be satisfactory for an Inspector to make such calls when requested either by the customer, the distributor or the Division Office.

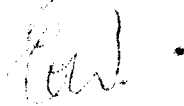
In the rendering of service during the guarantee period, Ampex will supply, at no cost to Altec, all parts necessary in the repair of inoperative tape recorders during the installation period and the subsequent 90 day manufacturer's guarantee period.

It will be quite satisfactory to wire "collect" the Ampex Electric Corporation at 1155 Howard Avenue, San Carlos, California, regarding the parts required giving adequate ordering information as determined in the attached bulletins.

Each installation and/or Emergency Call should be covered by a call report form ASC-3, a copy of which should be left with the customer. All other copies should be mailed to the Division Office. Call reports should show in detail the work performed and/or services rendered and should include the model, type and serial number of the recorder installed as well as showing whether portable, rack or console type. At the bottom of each call report should be an entry showing the elapsed time spent on the call.

It is imperative that the signature of the customer or the customer's representative be on every call report forwarded.

This is a wonderful opportunity for Altec to enter new fields, and it was quite fitting that the manufacturer of this device should choose the finest service organization to represent their company in this field.



E. O. WILSCHKE



Kaltenbrun

SOUTHERN DIVISION
November 9, 1949
S.D.L. #52

TO ALL TERRITORY INSPECTORS

CC: FIELD MANAGERS

RE: Ampex Tape Recorders

Each of you have been informed that under the arrangements with Ampex, you may be called upon to supervise the installation of Ampex Tape Recorders and to service them on demand for a period of 90 days. Several of you have already been called upon to supervise the installation of the Ampex Tape Recorders.

Field Manager Warko of the Central Division has had a great deal of experience with the Ampex Tape Recorders and has directed to his men a memorandum containing some helpful hints, which, no doubt, will be of great assistance to you in the event you have the occasion to supervise the installation or to service any of these equipments. I am quoting below the contents of Mr. Warko's memorandum, which I know you will find very helpful in dealing with this type of equipment. It is suggested that you file this letter where it will be readily available for future use.

"The standard tape and demagnetizer are not furnished with each machine, but are available as accessories from Ampex. The Kansas City Field Office has one of each item for your use during installation. Please return following completion.

"Do not use the standard tape to practice threading and checking machine operation to preclude damage to the test tape as may happen with any unfamiliar setup.

"The decabridge and oscillator can be left in the car. Use the station's oscillator. A $\frac{1}{4}$ " spintite wrench, 1 mfd paper condenser, and a 600 ohm 2 watt resistor are used in setting up the machine and will probably be found at the station.

"The (2) screws retaining the head housing are Allena.

"Radio station volume indicators are calibrated in Volume Units. A VU corresponds to a DBM except that the former relates a reference power of .001 watt in 600 ohms. The AS-1800 meter will read VU directly without correction when connected across 600 ohms.

"The recorder may be furnished with a matching or bridging meter control panel. When the VU meter on either panel reads 0 VU the output of the playback amplifier is 4 VU. The difference in levels is caused by a 4 DB pad in the VU meter circuit. The recommended output level is 4 VU and is indicated as 0 VU on the VU meter.

"The meter control panel VU meter does not read the input signal fed the machine from an outside source or the output of the recorder amplifier. The input signal

level is set up in the control room or by an external gadget at the machine. The recommended input level is 4 VU.

"The playback system is the Key unit of the entire machine, and all measurements of the recorder are determined at the output of the playback amplifier. It is important that the sequence of electronic alignment be followed as outlined in the Instruction Manual.

"Do not underestimate the \pm or - 2 DB frequency response rating of the system. The writer had less than \pm or - 0.5 DB variation in the playback system and less and \pm or - 1 DB in the overall record-playback system from 50 to 15,000 cycles.

"The standard tape is also used to establish the playback and record amplifier gain settings. This is important for the reason that the record and playback amplifier gain controls can be juggled simultaneously to obtain a 4 VU output signal. Obviously, if the playback gain is set too low and the record level is increased, distorted signals may be recorded or at a level higher than recommended with attendant troubles, conversely, if the playback gain is too high the recorded signal level will be low and the signal to noise ratio will be bad,

"The following determination of playback amplifier noise level may be of assistance: Let's assume we have a bridging meter panel and that the instructions (B) of Section III, Page 1, have been followed. Since the standard tape is recorded 10 DB lower than the normal operating level the playback step control was advanced from its recommended setting of 14 to 4 to get the VI indicator out of the mud. The VU meter then indicated 0 VU but the AS-1800 meter on the playback amplifier output, loaded with 600 ohms, read \pm 4 VU (or 3.2 DBM). Upon completing the gain adjustment and Head Alignment the playback step control was then reduced to 14. If the standard tape playback level at 1 KC is read at this setting the VU meter will show -10 VU and the AS-1800 -6 VU (-6.8 DBM). Now read the noise level with the AC VTVM which we will say is showing \pm 13. Hence our noise level is \pm 13 -60 -0.8 equals -47.8 DBM. Since the standard tape playback level was -6.8 DBM (step 14) the playback system has a noise level of 41 DB below standard tape level, or 51 DB below operating level and comes within the maximum noise level rating of the playback system. It is interesting to note that it is unnecessary to convert the noise levels to DBM because an absolute power level is not required. The noise level rating is based upon the standard tape level which is arbitrary. Therefore, it would be sufficient to read the standard tape level as -6 VU on the AS-1800 Meter and 13 -60 equals -47 VU as the noise level at the playback output. Then subtracting -6 VU from -47 VU gives a noise level of -41 DB below standard tape level.

"The foregoing seems complicated but is only so in the writing. In practice the noise level measurement and others are easy once the set-up is understood.

November 9, 1949

There will be ample time to make the measurements as the machine is shipped ready to operate except for removal of shipping supports and an examination for possible damage. Before tying the machine into the station equipment, set it up by itself and borrow a bridging remote monitor amplifier for use across the playback output. The craftsmanship and superb performance of this recorder will give you a good feeling. If you can detect any difference in the input and output signals there is something definitely wrong."


F. B. MEWBORN
BUSINESS MANAGER

FPM/jk

S.D.L. #71
SOUTHERN DIVISION
April 4, 1950

TO ALL FIELD PERSONNEL

RE: AMPEX TAPE RECORDERS

The number of Ampex Tape Recorders installed is rapidly increasing and the distribution is being extended to the more outlying locations. In order to provide you with sufficient information to properly service this equipment, we will keep you well informed of the advances in the art of magnetic tape recording and also give you detailed information of any mechanical or electrical modifications that had been found advisable in the models already released.

By the same token, we would appreciate any constructive criticisms and suggestions that might be of benefit to others concerned with the servicing of this equipment.

Many of you are already familiar with the fact that Ampex has renewed its service arrangements with Altec for the year 1950. Every one of these Ampex installations is to receive service for 90 days and replacement parts required will be furnished during the 90 day period on a no-charge basis by Ampex. All these jobs are also potential service prospects for Altec after the 90 day guarantee period. In fact on your first visit either post our emergency card and/or leave instructions where to call for service and explain that we have just completed arrangements for a special service contract for Ampex installations. Recently an Ampex prospect was very much concerned about service after the 90 day period and only decided to make the purchase when they were assured of Altec service beyond as well as during the 90 day guarantee period.

This special contract will be offered to owners of Ampex Tape recorders on the basis of supply one year's service consisting of six (6) regularly scheduled routine calls and unlimited emergencies for a fee of \$250.00 per year payable in one sum at the time the contract is negotiated. No monthly or weekly payments will be acceptable and no contract will be accepted for a term of less than one year. We will not offer repair and replacement parts at this time until we have gathered further knowledge of the probable life of the equipment or until we can work out a more favorable deal regarding the purchase of parts.

A contract form is being drawn up and will be available shortly and even though it will indicate that R&R is available, it is not to apply to Ampex installations. This new contract form is being drawn up as a general form for all devices other than theater equipment.

The rate of \$250.00 per year as established covers only the Ampex tape recorder equipment. It does not include amplifier equipment and other recording devices attached to the actual Ampex equipment.

Should you receive a request to service additional equipment, the rate will be increased proportionately and we would prefer that such quotations be received from the Division Office based on information submitted regarding equipment to be included and the amount of service to be rendered.

We already have signed contracts with the Mary Howard Studio of New York which

CDL 871

includes the entire Ampex recording setup. Normally, where additional recorders and/or amplifiers and special recording devices are to be included in the Service Contract, the call rate should be increased to 12 calls per year payable monthly in advance at the rate of \$43.33. All parts required will be billable.

Follow the standard procedure for obtaining parts. Issue an SSA and indicate exactly what's required. Where returns are involved for repair items, use our regular RG tags and return all parts to the Division Office at once.

We are attaching Ampex Service Bulletin No. 1A, Model 300, which covers the following items:

1. Solenoids
2. Playback Amplifier
3. Brakes
4. Cabinet


and also Ampex Service Bulletin No. 2., Model 300, which covers:

1. Drive Motor Lubrication
2. Capstan Oil Leakage
3. Head Magnetization
4. Reels
5. Erase Trimmer Adjustment
6. Brakes
7. Meter Control Panel
8. Tape Slippage
9. Bias Adjustment
10. Speed

Also

1. Playback Characteristics Curve, Model 300
2. Photographs of Various Assemblies, Model 300

These instructions should be associated with the Green Book on this subject for future reference.


F. B. MEWBORN
BUSINESS MANAGER

FBM/djh

SDL #77
SOUTHERN DIVISION
June 1, 1950

TO ALL FIELD PERSONNEL:

RE: AMPEX TAPE RECORDERS

I am quoting herewith a letter from Mr. Bender relative to Ampex Tape Recorders which is self explanatory.

I am sure that each of you has recognized the need for additional technical information on the Ampex Recorder and will be pleased to learn that through the efforts of the Engineering Dept. arrangements have been made to supply the field promptly in the future with accurate and up to date information on the Ampex Recorder, especially those units of special manufacture. I am sure you will also be pleased to learn that, in spite of the handicaps encountered, the Ampex Electric Corp. has recognized your efforts and expressed their appreciation for a job well done in the true Altec manner.

"At Mr. E. O. Wilschke's request, I visited the Ampex Electric Corp. plant at San Carlos, California with a view toward setting up routines which would enable you to receive prompt and accurate information regarding Ampex Tape Recorders.

Essentially, the items covered are as follows:

1. Altec Service Corp. will take the necessary steps to advise its Division Offices to send copies of all calls made on Ampex Tape Recorders directly to Mr. Kevin Mallem, Ampex Electric Corp., San Carlos, California. A second copy of this report will be routed to Altec Service Corp. in New York so that both organizations will be apprised as soon as possible regarding conditions existent in the field.
2. Ampex Electric Corp. will reissue all of its existing technical information relative to the installation and servicing of Ampex Tape Recorders, in such a form that all technical information relative to a particular and specific tape recorder shall be contained in one group or folder of papers.
3. Ampex Electric Corp. will supply sufficient technical information regarding any special Ampex Tape Recorder sufficiently in time so that the installing engineer will be enabled to absorb information prior to the date of installation of the equipment of the apparatus.

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Frankly, we in Headquarters were rather disturbed at the lack of proper technical information available to us for distribution to the field personnel and it was made very very clear to the Ampex people that we could not and would not tolerate any more monkey shines on their part.

It was pointed out that they are in the habit of manufacturing special Ampex Tape Recorders and expecting us to see that these devices are installed and serviced without giving us any decent technical material in which to do the job properly.

It was therefore agreed that Ampex will furnish us with typewritten lists or instruction sheets, one to be mailed to the Division Office directly and one to Headquarters covering all technical information necessary when a special tape recorder is shipped to a customer. The information is to be in your hands prior to the shipment of the device so that you in turn can transmit it to the assigned engineer in ample time for him to absorb the information and then approach the customer with some coherent ideas as to what the device will be prior to the date of installation.

The Ampex Electric Corp. has asked me to transmit to you their sincere thanks for the manner in which our men have conducted themselves in the past year. They have had several letters from customers, some of which I had the pleasure of reading, in which it was pointed out that without the help of the Altec man, the installation would have been an impossibility. It can, therefore, be seen that the conduct of our field personnel has been such as to enhance our position in negotiating any new contracts for the renewal of our present agreement.

Will you therefore kindly arrange to transmit the thanks of the personnel in Headquarters to those men who have done such a wonderful job on the Ampex equipment."

F. B. MEWBORN
BUSINESS MANAGER

FEM:BL

SDL #78
SOUTHERN DIVISION
June 7, 1950

TO ALL FIELD PERSONNEL:

In response to requests from Mr. Riffle for information for properly adjusting the capstan speed of the Model 300 Ampex Tape Recorder, the following information was received from Ampex Electric Corporation, which I feel will be of interest to the field.

It is suggested that this letter be filed with your Ampex bulletins for future reference.

"In reviewing the observations of your Mr. Riffle as set forth in your letter of May 25, it appears that the difficulties experienced are no doubt due to a misadjustment of the motor pulley flywheel tire pressure, rather than any trouble with the motor itself. It is suggested that a readjustment of the capstan speed be attempted by applying the following technique:

With the recorder threaded with tape and the control switch in "Play" position, start the tape in motion and back off the "D" spring (see Figure 1, Instruction Manual), adjusting nut until the capstan is observed to not only slow down but to "drop out" of drive with the motor. It is only at this position that a speed adjustment should be started when a new motor, new flywheel, or entirely new assembly is first operated.

Next, start tightening the adjusting nut while watching the "strobosticker". The speed as indicated stroboscopically by the direction of bar shift will at first appear slow (counter-clockwise bar rotation) and as the nut is tightened more, will reach a setting where the capstan is at synchronous speed (no bar drift). This setting, however, IS NOT the correct adjustment. As tightening of the nut is continued past the position where synchronism is first observed, the speed will continue to increase until a maximum is reached at about 3 to 5 seconds per bar, beyond which additional tightening of the nut will result in the capstan slowing down. This additional tightening should be continued until the capstan rate is slowed down to a second position of synchronism WHICH IS THE CORRECT SETTING FOR PROPER OPERATION.

In brief, the correct speed adjusting procedure is to start with the nut TOO LOOSE, complete the adjustment by TIGHTENING ONLY, taking care to observe capstan shaft speeds in the following order, (1) speeding up to first synchronous mode, (2) speeding up to peak speed, (3) SLOWING

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DOWN (while still tightening nut) TO SECOND SYNCHRONOUS MODE - all adjustments being made under load.

When so adjusted, the drive assembly of the AMPEX Model 300 recorder will have very good speed regulation and will provide a playback timing accuracy within 0.2% as specified.

As to the motor capacitor, please be advised that while the motor name plate reads "5.5 mfd.", a 5.0 mfd. capacitor is currently being supplied on all AMPEX Model 300 recorders using the Cyclohm drive motor. This lower value of capacity, while causing a slight reduction in motor power, does result in smoother torque, and reduced noise and heating.

We hope that the foregoing will serve to give a clearer picture of the normal operation and proper speed adjusting technique of the drive assembly on the Model 300. Should any further questions arise, please do not hesitate to get in touch with us."



F. B. MEWBORN
BUSINESS MANAGER

FEM:BL

SDL #19
SOUTHERN DIVISION
June 21, 1950

TO ALL FIELD PERSONNEL:

Re: Ampex Recorders

In response to an inquiry the following information was received from the Ampex Electric Corporation in answer to complaints submitted by several Central Division inquiries regarding the 400 cycle "beat" note which appeared on various recordings:


"The 400 cycle 'beat' note which so annoyingly appears from time to time in the recordings made on the subject station's AMPEX recorder is indeed somewhat puzzling, insofar as no clearly defined cause suggests itself.

The possibility exists that this trouble has its origin with the tape itself. Although such disturbances were not uncommon in domestic tapes of one or two years ago, they are rarely encountered at present. The disturbance referred to is the result of a periodic pattern in the variation of coating thickness and manifests itself by a constant background tone impressed on the signal, which, of course, still remains regardless of successive recording operations.

As a step in running down this trouble, we would suggest that the tape be investigated as a possible cause. This may be done by re-recording on any reel or reels having once exhibited the trouble, making the observation of whether or not the effect is associated with a particular sample of tape. If the tape carries such a defect, it should be replaced by the supplier.

Should the tape be found not at fault, we will be anxious to investigate this problem further, as it is our sincere desire to have the users of AMPEX recorders achieve the flawless performance of which they are capable."

It is fairly evident that Ampex does not have a complete answer to this problem; however, should you have any of these troublesome situations, please attempt to follow through with their ideas, reporting the results of your findings in the usual manner on your call reports.


F. B. MEWBORN
BUSINESS MANAGER

FEM:BL

S.D.L. #86
SOUTHERN DIVISION
August 8, 1950

TO ALL TERRITORY INSPECTORS
cc: Field Managers

re; AMPEX TAPE RECORDERS
Demonstrator Equipment ONLY

Ampex occasionally sells a demonstrator recorder to one of their dealers. Effective immediately, we are not to supervise the installation of a demonstrator. When a demonstrator is sold by a dealer he is supposed to notify this office. You, in turn, will then receive a Work Authorization from us to supervise the installation of the equipment which has been sold. This comes under our national Ampex contract.

However, there is a possibility that you, as an individual, or one of our Field Offices, might receive a call from an Ampex dealer for emergency service or installation supervision on a demonstrator. Should you receive such a call it will be satisfactory to answer, provided the dealer understands that he is to pay for the call and he should sign an SSA at the time of your call, on which the total charges have been indicated. Charges for such services are to be on the basis of \$25.00 for the first 4 hours or fraction thereof, including travel time, and \$5.00 for each additional hour plus mileage at the rate of 8¢ per mile. This is a special rate for the handling of demonstrator calls only.

To clarify this situation it might be summarized as follows:

- 1 - At those locations where you are to supervise the installation of an Ampex Recorder under our national contract with Ampex, you will receive Work Authorization from this office.
- 2 - If you receive a call from a dealer to service a machine on which you have no Work Authorization it is assumed it will be a demonstrator and the charges outlined above will apply.
- 3 - Should you receive a call from one of Ampex's customers to service a recorder after the 90 day period has expired, the charges for such a call will be our standard charges outlined in Schedule 9 of F.I.#5, namely \$50.00 for the first hour or fraction thereof including travel time, plus traveling and living expense plus \$5.00 for each addition hour or fraction thereof. Travel time and expense shall be computed from base or last call and return to base, mileage to be at 8¢ per mile.

If you have any questions regarding the above, please advise.


F. B. MEWBORN
BUSINESS MANAGER

FBM/djh

SOUTHERN DIVISION
October 5, 1950
S.D.L. #91

GENERAL LETTER TO ALL INSPECTORS:

Re: Ampex Motors

For your information, Ampex is now using a new drive motor in their Model 300 recorders. This motor is made by the Bodine Electric Company. This new motor will be found in use on all machines starting with Serial Number 700. It cannot be used on machines with Serial Numbers below 700.

Therefore, should you have occasion to call for a drive motor in an emergency, please advise us the Serial Number of the machine.

F. B. MEMBORN
BUSINESS MANAGER

FEM:BL
cc: All Field Managers