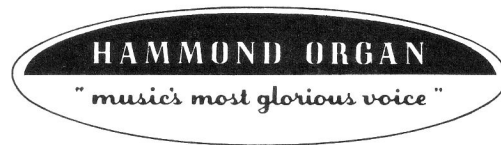


# Technical Bulletin



TO ALL MAINTENANCE ENGINEERS - CHANGES

SUBJECT: REPLACEMENT REVERBERATION UNIT

NO. MODELS

49 CR-20, DXR-20,  
DR-20, ER-20,  
FR-40, HR-40,  
KR-40, JR-20, and  
other installations  
using Fluid Type  
Reverberation Units

As the state of the Electronic Art progresses, it is becoming increasingly evident that some of the materials that we may require, for supplying replacement parts, will become difficult to obtain, or, if obtainable, may in the final analysis, result in a part that is too expensive and the consumer will not purchase it.

Such an item is the Reverberation Unit Crystal that is used in the various model tone cabinets designated on the heading of this letter.

These crystals are made of Rochelle Salts, and this material was used quite extensively some 10 years ago in many areas, particularly in phonograph pickups and microphones.

It is difficult for us to find an organization manufacturing this material, and it is our conclusion that if we do find a manufacturer, the end total result will be that we would have crystals available but, perhaps at \$50.00 each, retail.

In view of the above, we have prepared a small kit which will replace the earlier Fluid Type Reverberation Unit, using instead, a Type IV Reverberation device. The Type IV Reverberation device would require a small preamplifier attached to its output. The output of the small preamplifier feeds into the existing earlier reverberation preamplifier. These kits are available for immediate shipment, and the cost will be \$17.37, less your usual discount.

Instructions for installation are attached, and you should retain this for your files, as these instructions will not be within the kit.

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Enclosure

REPLACEMENT KIT FOR FLUID TYPE REVERBERATION UNIT  
USING AO-23580-10 REV UNIT AND SPECIAL PREAMP

INSTALLATION INSTRUCTIONS

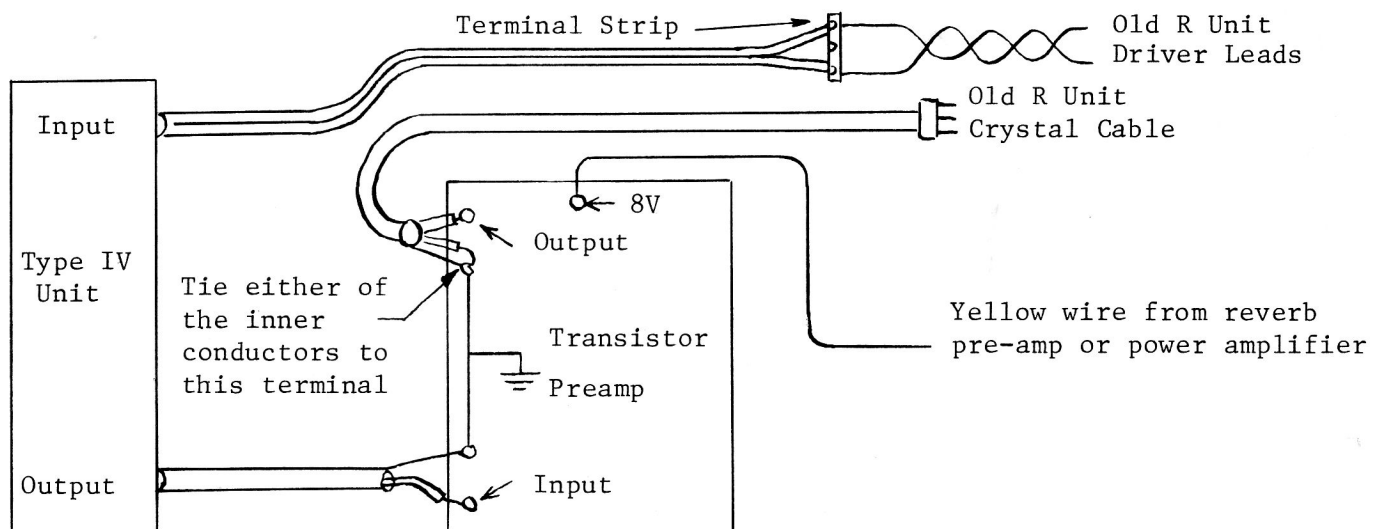
Drive for the Type IV unit is obtained from the same driver stage used with the fluid unit. Operating voltage for the transistor preamplifier is obtained from the cathodes of this stage. The output of the Type IV unit is fed to a one transistor preamplifier which in turn drives the old crystal preamplifier. Signal is fed to only one grid of this stage, and phase inversion takes place across the cathodes of this stage. The result is push pull output in the plate circuit.

PROCEDURE:

1. Cut off driver and crystal leads of fluid R-unit close to unit.
2. Remove fluid type unit from tone cabinet and discard.
3. Remove and turn over Reverb preamplifier (maybe Type RA or RB) or power amplifier (maybe type JR, HR1, AO-15, or LR). Locate 6SN7 (2-6J5 tubes in RA preamplifier) reverb driver stage. Solder a yellow wire to pin 6 or 3 of 6SN7 or pin 8 of either 6J5 and route it out of the chassis in a workmanship like manner.
4. Replace reverb preamplifier or power amplifier.
5. Mount reverb unit in same general area as old fluid type.
6. Mount reverb preamplifier board near Type 4 R-unit.

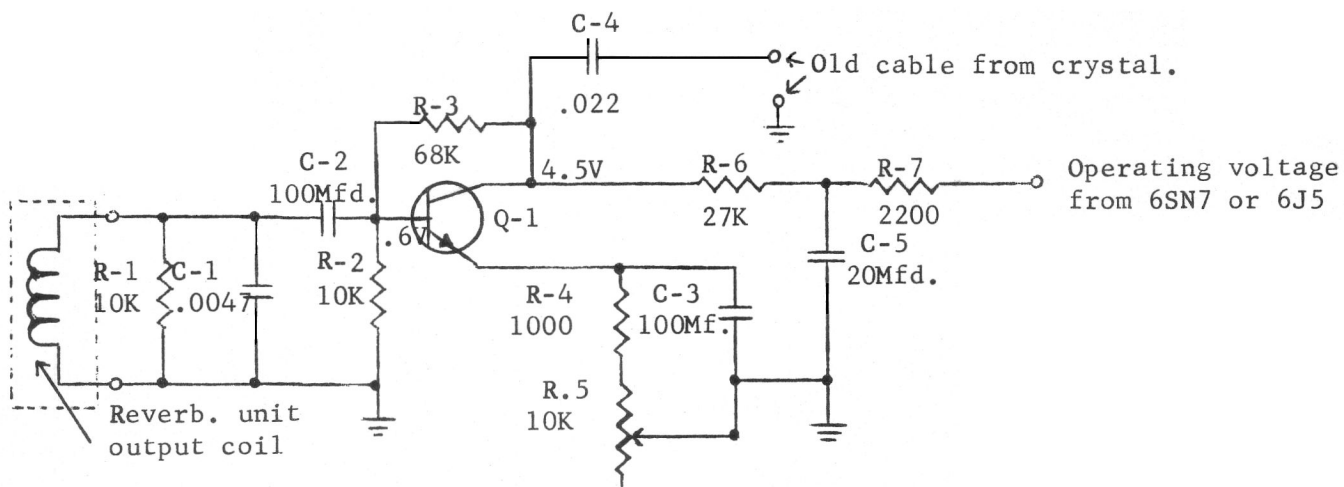
NOTE: Keep preamplifier away from stray magnetic fields such as line cords or power transformers.

7. Connect cables as shown below:

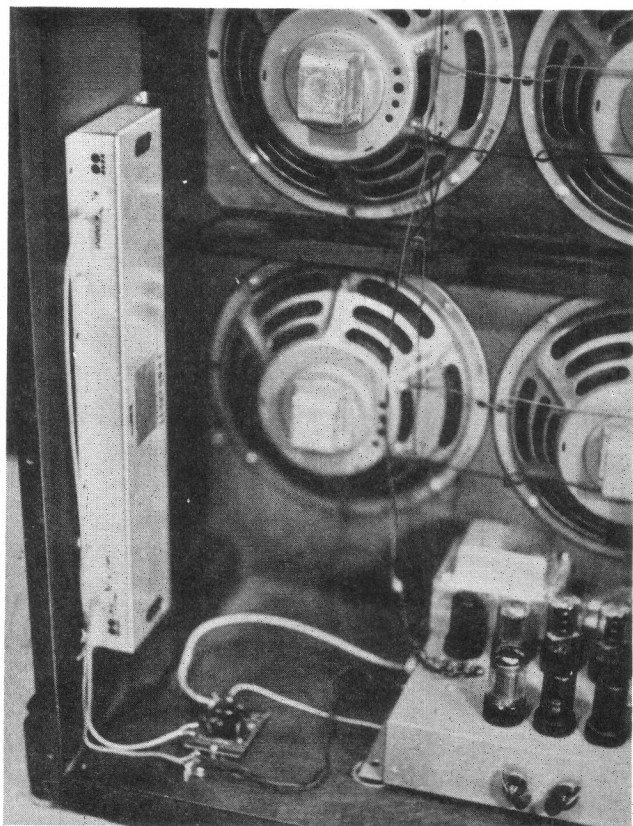


8. Turn reverb control on amplifier or preamplifier to maximum position. Control on preamplifier board will now act as reverb level control. NOTE: This control does not go to zero. Regular control must be used to turn reverb off.

NOTE: On the following page you will find a schematic diagram of the amplifier and two photos. One photo shows a typical installation while the other photo shows component locations on printed wiring board.



SCHEMATIC DIAGRAM



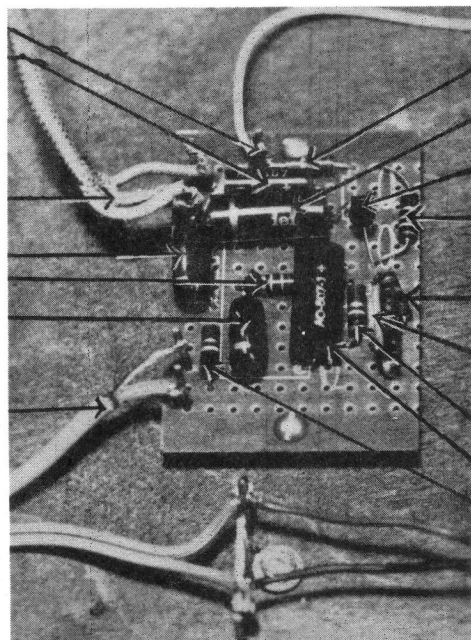
TYPICAL INSTALLATION

+8 VOLTS  
C-5

REVERB. OUTPUT

C-4  
R-3  
C-1

INPUT FROM REVERB. UNIT



R-7  
C-3  
Q-1  
R-6  
R-4  
R-5  
R-2  
C-2  
R-1

## INSTALLATION INSTRUCTIONS

### REPLACEMENT KIT FOR FLUID TYPE REVERBERATION UNIT

#### USING AO-23580-10 REVERB UNIT AND SPECIAL PREAMP

Drive for the TYPE IV unit is obtained from the same driver stage used with the fluid unit. Operating voltage for the transistor preamplifier is obtained from the cathodes of this stage. The output of the TYPE IV reverb unit is fed to a one transistor preamplifier, which in turn drives the old crystal preamplifier. Signal is fed to only one grid of this stage and phase inversion takes place across the cathodes of this stage. The result is push-pull output in the plate circuit.

#### PROCEDURE:

1. Cut off driver and crystal leads of fluid reverb unit close to unit.
2. Remove fluid reverb unit from tone cabinet and discard.
3. Remove and turn over reverb preamp (may be Type RA or RB) or power amplifier (may be Type JR, HR1, AO-15, or LR). Locate 6SN7 (two 6J5 tubes in Type RA preamp) reverb driver stage. Solder the yellow wire to pin 6 or 3 of the 6SN7 or pin 8 of either 6J5 and route it out of the chassis in a workmanship-like manner.
4. Replace reverb preamplifier or power amplifier.
5. Mount new reverb unit in same general area as old fluid reverb unit.
6. Mount new reverb preamplifier board near new reverb unit.

NOTE: Mount preamp away from stray magnetic fields such as line cords and power transformers.

7. Connect cables as shown in Figure 3.
8. Turn reverb control on amplifier or preamplifier to maximum position. Control on preamp board will now act as reverb level control.

NOTE: This control does not go to zero. Regular control must be used to turn reverberation effect off.

On the reverse side of this sheet you will find a schematic diagram of the preamplifier and two pictorial diagrams. One pictorial shows the various cable connections while the other shows the component locations on the wiring board.

FIG. 1

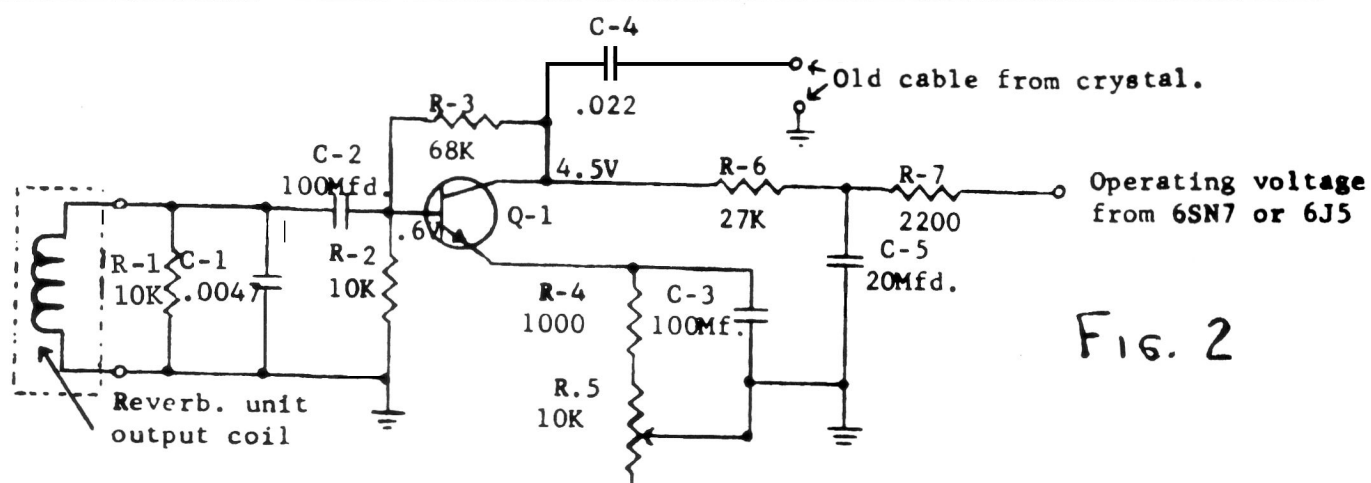
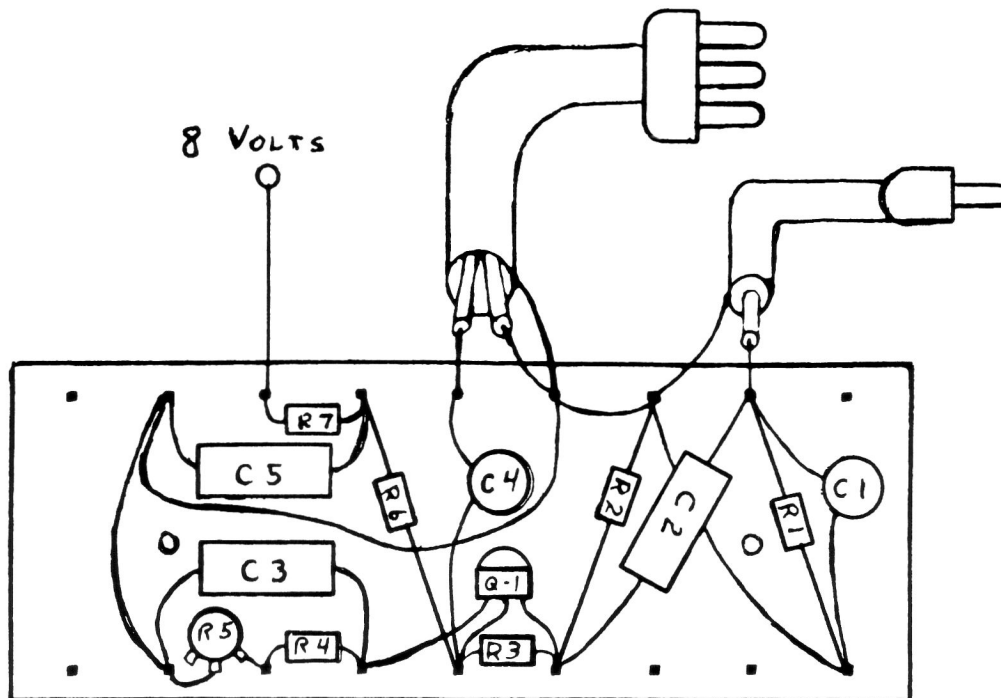


FIG. 2

FIG. 3

