

**FIELD ENGINEERING BULLETIN**

TITLE: INPUT/OUTPUT ASSEMBLY
ADJUSTMENT PROCEDURE

I. APPLICABILITY

All ATR-100's.

II. PURPOSE

To adjust the input/output assembly.

III. DISCUSSION

The procedures for adjusting offset nulls, input and output operating levels, and output level meter calibration are included in this FEB. There is only one procedure for offset null adjustments. There are two optional procedures for record and reproduce level adjustments.

Method 1 requires a clip lead and standard cables.

Method 2 utilizes an accessory, part no. 4020425, I/O level set accessory. This accessory consists of a printed circuit card that plugs into the ATR-100 card cage in place of the audio signal card. It connects the input and output of the I/O module together, and provides a coaxial cable fitted with a GR plug that can be inserted into a meter.

Either method will give equal results, but Method 2 is preferred.

The operating input and output level of the input/output assembly is nominally +4 dBm. Output levels as high as +12 dBm and as low as -25 dBm (variable) or -14 dBm (preset) can be utilized. Input levels in the variable mode can be from +40 dBm to -5 dBm, and in the preset mode they can be from +20 dBm to -1.0 dBm. The input and output level to the ATR-100 is fixed at -5 dBm.

Refer to Figure 1 for control locations and proceed as follows:

CAUTION

DO NOT REMOVE OR INSERT I/O MODULE WITH POWER ON.

IV. PROCEDURES**A. Offset Null Adjustments**

Perform these steps only if repairs have been made or components have been changed on the input/output assembly that may affect circuit operation.

1. With all power to input/output assembly removed, adjust level meter for mechanical "zero" (needle at left-hand dial position), and remove fuse F1.
2. Perform all offset null adjustments with power applied but no line input signal or signal input from the ATR-100.
3. Adjust offset null potentiometer R32 for "zero" indication (same as step 1) on the level meter.

AMPEX

**PROFESSIONAL
AUDIO DIVISION**

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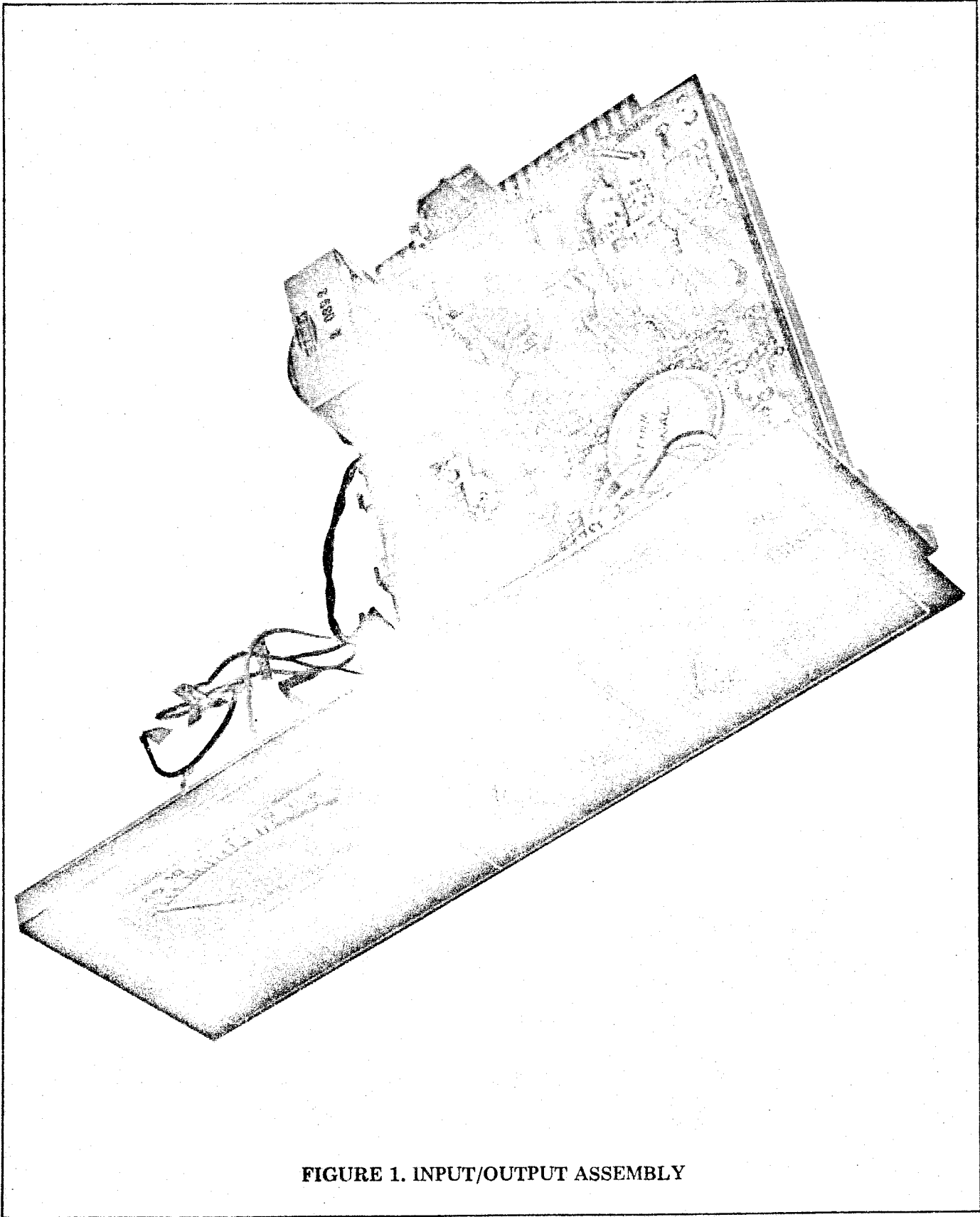


FIGURE 1. INPUT/OUTPUT ASSEMBLY

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4. Connect a dc voltmeter to TP6 and ground.
5. Set RECORD MANUAL/PRESET switch to MANUAL position.
6. Adjust offset null potentiometer R55 for zero change in voltage at TP6 while rotating RECORD potentiometer through its range.
7. Connect dc voltmeter to TP2, and ground.
8. Adjust null potentiometer R40 for 0 ± 30 mV at TP2 (use a non-metallic screw driver).
9. Remove power and re-install F1.
10. Adjust offset null potentiometer R32 for "zero" indication (same as step 1) on the level meter.

B. Method 1. Record Level Adjustments

1. Connect an audio oscillator to the line connector and set frequencies to 1.0 kHz and the output level to the +4 dBm (or other operating level selected by the user).
2. Connect VTVM to TP6 and ground.
3. Set RECORD MANUAL/PRESET switch to PRESET.
4. Adjust record preset potentiometer R2 for -5 dBm level at TP6.
5. Connect VTVM to the line output connector and terminate line output with 600 ohms, or utilize the line termination switch on the rear chassis apron of the I/O module.
6. Place ATR-100 in input mode.
7. Adjust record calibrate potentiometer R3 to +4 dBm (or other line output operating level selected by the user).
8. With power removed, set peak/VU meter switch S3 to VU position. Re-apply power.
9. Adjust meter calibration potentiometer R21 for O-VU indication on the level meter. (If the peak/VU meter switch S3 is in the VU position and R21 is set for O VU at operating level, then the peak position will indicate -6; i.e. peak and VU differ by 6 dB).

NOTE

Perform the following procedure ONLY after the record level adjustments have been done.

C. Method 1. Reproduce Level Adjustments

1. Connect a jumper from TP5 to TP6.
2. Remove all audio cards from the ATR-100.

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3. Connect an audio oscillator to the line input and set the frequency to 1 kHz and output level to +4 dBm (or other operating level selected by the user). Output level must be the same level selected in the record level adjustment.
4. Set REPRODUCE MANUAL/PRESET switch S1 to PRESET.
5. Connect VTVM to the line output connector and terminate line output with 600 ohms, or utilize the line termination switch on the rear chassis apron of the I/O module.
6. Adjust reproduce preset potentiometer R1 for +4-dBm level (or other line output operating level selected by the user).

D. Method 2. Record and Reproduce Level Adjustments

1. Remove all audio cards from the ATR-100.
2. On the ATR-100, insert extender card into the channel which is to be set up.
3. Insert the I/O module level set accessory, part no. 4030425, into the extender card and connect its output to a VTVM.
4. Connect an audio oscillator to the line input connector and set the frequency to 1 kHz and the output level to +4 dBm (or other operating level selected by the user).
5. Place the RECORD MANUAL/PRESET switch in the PRESET position and adjust the preset level control for -5 dBm on the VTVM connected to the I/O level set accessory.
6. Connect a VTVM to the line output and terminate line output with 600 ohms, or utilize the line termination switch on the rear chassis apron of the I/O module. Place the ATR-100 in the input mode.
7. Adjust the record cal control for + 4 dBm-output level (or other operating level selected by the user).
8. Place the ATR-100 in the reproduce mode and the REPRODUCE MANUAL/PRESET switch in the PRESET position.
9. Adjust the reproduce control for a +4 dBm-line output level (or other operating level selected by the user).
10. With power removed, set peak/VU meter switch S3 to VU position. Re-apply power.
11. Adjust meter calibration potentiometer R21 for O-VU indication on the level meter. (If the peak/VU meter switch S3 is in the VU position and R21 is set for O VU at operating level, then the peak position will indicate -6; i.e. peak and VU differ by 6 dB).
12. Repeat the above procedure for the remaining channels.