

SECTION 2
INSTALLATION

2-1 INITIAL INSPECTION

Check the shipping carton for external damage. If the carton exhibits evidence of abuse in handling (holes, broken corners, etc.), ask the carrier's agent to be present when the unit is unpacked. Carefully unpack the unit to avoid damaging the equipment through use of careless procedures. Inspect all equipment for physical damage immediately after unpacking. Bent or broken parts, dents and scratches should be noted. If damage is found, refer to paragraph 2-2 for the recommended claim procedure. Keep all packing material for proof of damage claim or for possible future use.

2-2 CLAIMS

If the unit has been damaged, notify the carrier immediately. File a claim with the carrier or transportation company and advise Belar of such action to arrange the repair or replacement of the unit without waiting for a claim to be settled with the carrier.

2-3 REPACKING FOR SHIPMENT

If the unit is to be returned to Belar, attach a tag to it showing owner and owner's address. A description of the service required should be included on the tag. The original shipping carton and packaging materials should be used for reshipment. If they are not available or reusable, the unit should be repackaged in the following manner:

- a. Use a double-walled carton with a minimum test strength or 275 pounds.

- b. Use heavy paper or sheets of cardboard to protect all surfaces.
- c. Use at least 4 inches of tightly packed, industry approved, shock absorbing material such as extra firm polyurethane foam or rubberized hair. NEWSPAPER IS NOT SUFFICIENT FOR CUSHIONING MATERIAL!
- d. Use heavy duty shipping tape to secure the outside of the carton.
- e. Use large FRAGILE lables on each surface.
- f. Return the unit, freight prepaid, via air freight. Be sure to insure the unit for full value.

2-4 PREPARATION FOR USE

The AMM-2A AM Modulation Monitor is designed to be mounted in a standard 19-inch rack mount. When mounted in a rack, a slight air space should be provided above and below the unit. When the monitor is mounted above high-heat generating equipment such as , vacuum-tube power supplies, consideration should be given to cooling requirements which allow a free movement of cooler air around the AMM-2A. In no instance should the ambient chassis temperature be allowed to rise above 50 degrees C (122 degrees F). Mount the AMM-2A to the rack mount using four No. 10 screws and four No. 10 non-marring washers.

The Model AMM-2A requires a 115/230 VAC, single-phase, 50-400 Hz power source. The monitor can be easily converted from 115 to 230 volt operation by changing the position of the slide switch located on the rear panel so that the designation appearing on the switch matches the nominal voltage of the power

source. Note that this should be done with the unit disconnected from the power source.

The Model AMM-2A is supplied with a three-conductor power cable which, when plugged into an appropriate receptacle, grounds the unit. The offset pin on the power cable three-prong connector is the ground wire. To preserve the grounding feature when operating the unit from a two-contact outlet, use a three-prong to two-prong adaptor and connect the green pigtail on the adaptor to ground. Attach the power cable between the unit and the power source receptacle.

CAUTION: BEFORE APPLYING ANY RF INPUT, TURN CARRIER LEVEL CONTROL MAXIMUM COUNTERCLOCKWISE.

Connect a coaxial cable between the monitoring probe on the transmitter (or RF Amplifier) and the RF INPUT connector J2, at the rear of the main chassis.

CAUTION: DO NOT APPLY MORE THEN 15 VOLTS RF TO THE MONITOR OR THE RF INPUT CIRCUIT MAY BE DAMAGED.

If desired, connect the external aural monitoring amplifier to terminals 11 and 12 on TB1. Note that this is an unbalanced 600 ohm output with terminal 12 grounded. A remote carrier level deviation meter may be connected to terminals 9 and 10. A remote modulation meter may be connected to terminals 8 and 12. Observe the proper polarities (terminals 8 and 9 are positive), and note that the external loop resistance requirement must be met. If only one remote meter is used, the other metering circuit must be terminated on TB1 in order for the internal meters to read correctly when the remote meter switch is depressed. For

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example, if only a remote modulation meter is used and the remote meter switch is depressed, the modulation meter will read correctly but the carrier level meter will not read unless a 5.1 K resistor is placed between terminals 9 and 10 on TB1. Remote modulation meters should be obtained from Belar in order to conform with the correct ballistic requirements. A remote peak modulation light may be connected to terminals 1 and 3 on TB1. Remote 100% negative, 125% positive, and carrier-off lights may be connected to the appropriate terminals on TB1. Note that terminal 1 is a 5-volt DC source, and if light-emitting diodes (LEDs) are used for the lights, series resistors must be used to limit the current to safe values for the LEDs used. The remote meters and lights are contained in the MP-6A Remote Meter Panel.

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SECTION 3
OPERATION

3-1 INITIAL OPERATION

The following procedure should be followed for placing the unit into initial operation.

1. Before turning the unit on, ascertain that the 115-230 VAC switch on back apron coincides with the voltage source used.

2. Depress the ZERO switch and release the REMOTE switch. Turn CARRIER SET control maximum counterclockwise.

3. Depress POWER switch. Note that the % CARRIER LEVEL DEVIATION meter is pegged to the left, the CARRIER OFF alarm light is on, and the MODULATION meter is approximately zero. Allow a few minutes' warm-up.

4. After warm-up, the MODULATION meter will read zero. If it does not read zero but is only off a few percentage points, it may be set to read zero with the mechanical zero control on the meter. If the zero is off more than a few percentage points, the zero should be set according to part B under Calibration Instructions. The electrical zero is stabilized by a feed-back operational amplifier and normally does not need re-adjustment.

5. Rotate the CARRIER SET control clockwise. The CARRIER OFF light will go out at approximately minus 30% carrier level deviation. Continue to rotate the control so that the CARRIER LEVEL DEVIATION meter reads zero. Note that this is the carrier level SET point.

6. Depress the CAL switch. The MODULATION meter will read 100% to verify the accuracy of the calibration. The +125% light will be on.

7. Adjust the PEAK MOD potentiometer to the point where the PEAK MOD light just turns on. This setting will be 100%.

8. Depress the POS or NEG switch for positive or negative modulation reading on the MODULATION meter and PEAK MOD light, and the monitor is ready for operation.

3-2 NORMAL OPERATION

For normal operation, leave the AMM-2A in POS position when broadcasting super-modulation. The MODULATION meter and PEAK MOD light will register the positive peaks. Nominal changes in RF level will not affect the accuracy of the -100%, +125%, or PEAK MOD light.

The PEAK MOD control is usually set to a level slightly lower than +125%, say +120%. Then the modulation may be set for frequent recurrent peaks of +120%, and the separate -100% and the +125% lights are used for the limits to insure the maximum level of modulation without exceeding the limits set by the FCC.

Percent carrier shift is read on the % CARRIER LEVEL DEVIATION meter as a change in carrier intensity during modulation. Note that due to the unique modulation cancellation scheme in the AMM-2A to regenerate unmodulated carrier, this change in carrier intensity is independent of modulation symmetry. In this manner, accurate carrier shifts are measured.

3-3 TRANSMITTER MEASUREMENTS

Normal transmitter proof-of-performance measurements may be made with the AMM-2A. Frequency response, distortion, and noise measurements may be made through the rear panel AUDIO TEST jack J3. Five volts RMS is available at 100% modulation so that most distortion and noise analyzers may be used. Percent modulation is read on the MODULATION meter and percent carrier shift is read on the % CARRIER LEVEL DEVIATION meter.