

The +3 has been designed specifically for the CB, business radio, and communications field. The +3 utilizes a transistorized amplifier, providing a gain of 33 db over conventional ceramic base station microphones. The +3, with its high output level, has the capability of fully modulating any transmitter.

Base Station  
Communications



MODEL +3  
FIGURE 1

# SPECIFICATIONS

for  
+3

## Transistorized Microphone

The ceramic generating element of the +3 is unaffected by temperature or humidity. The amplifier uses rugged silicon transistors for maximum temperature stability. The amplifier is constructed on a printed circuit board. The +3 uses a rugged die cast case, finished in a light silver grey baked enamel with black touch bar. The cable is a 3 conductor, 1 shielded, coiled cord with black PVC jacket.

The +3 microphone is activated by pressing down on the touch bar. This applies power to the transistorized amplifier, while performing the necessary switching of the red and black conductors used to actuate the transceiver or transmitter. The touch bar may be locked in the "on position" by moving the "slide lock" forward.

The output level of the +3 is easily adjusted by a volume control located in the base of the microphone. See Figure 1. The +3 has a tailored frequency response of 300-3,500 hz with a rising characteristic. This means maximum speech intelligibility in your transmissions with a reduction of local noise interference.

The +3 adapts easily to either on/off relay switching (Figure 3) or switching conductors to ground, commonly referred to as "electronic switching" (Figure 2), by simply changing the position of the locking slide switch on the bottom of the microphone.

**Sensitivity:** -23 db (0 db = 1 volt per microbar), when operating below compression level

**Output Impedance:** 5,000 ohms

**Amplifier Voltage Gain:** 0 to 33 db, adjustable

**Temperature Range:** -30° C to +65° C

**Battery Drain:** 1.2 ma.

**Battery Life:** Approx. 6 months, based on average usage

**Battery Type:** Burgess 2U6, Eveready 216, Ray-o-vac 1604, or RCA VS-312. Battery is included.

**Finish:** Light silver grey, baked enamel

**Weight:** 2 lbs. less cable. Shipping weight 4 lbs.

**Cable:** 3 conductor, 1 shielded, coiled cord with black PVC jacket

**Switching:** Adapts to either "electronic" switching or on-off relay switching.

White lead is signal lead and wrap shield is cable and microphone ground.

# TURNER

## MICROPHONES

TURNER DIVISION OF CONRAC CORPORATION  
909 17th Street N.E., Cedar Rapids, Iowa 52402  
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## Transistorized Microphone

The +3 was designed to fill the need of a base station microphone with high modulation level capability. It is for use with all types of communication transmitters and transceivers, particularly business radio and CB.

The +3 can be easily adapted to almost any transmitter. The white wire is the signal ("hot") lead and the shield provides a ground connection between microphone case and transmitter case/ground. The black and red leads provide the necessary control switching as shown in Figures 2 and 3. When replacing another microphone with the +3, consult the equipment manual for proper wiring of the connector (if connector is used) and for proper position of the slide switch located on the bottom of the +3. If an equipment manual is not available, then care should be taken to analyze the microphone being replaced to determine connector connections and type of switching needed. Experience indicates that most difficulties in replacing a microphone occur as a result of poor workmanship in making up the connector. Avoid excessive heat which can damage insulation and keep exposed leads short to prevent shorting within the connector.

In case of difficulty, please do not tamper with the microphone as this will void the factory warranty. Contact factory for further instructions.

**A LOSS IN MODULATION LEVEL MEANS A LOSS IN EFFECTIVE COMMUNICATIONS RANGE OF YOUR EQUIPMENT.**

Many transceivers do not have sufficient amplification or adjustment of modulator amplification to be used conveniently with a base station microphone. The +3 is designed to be used at 8" to 16". An additional gain of approximately 18 db is required when changing from a hand held close talk microphone to a base station microphone at 16". The volume/gain control on the +3 should be set at the midpoint initially when changing from a close talk microphone. Remember that this is a starting point and your modulation level should be verified on a monitor scope. Insufficient modulation will cut your effective range and ~~limit your ability to overcome local QRM conditions.~~

The +3 amplifier employs compression to aid in optimum operation of a transmitter. With the volume control properly adjusted the user can speak close to the microphone or farther away, over a range of 6 to 1, without changing the modulation percentage. Also, variations in the loudness of the user's speech will be smoothed out for essentially constant modulation.

FIGURE 2

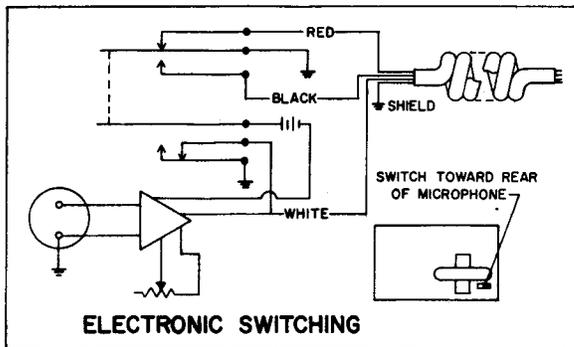
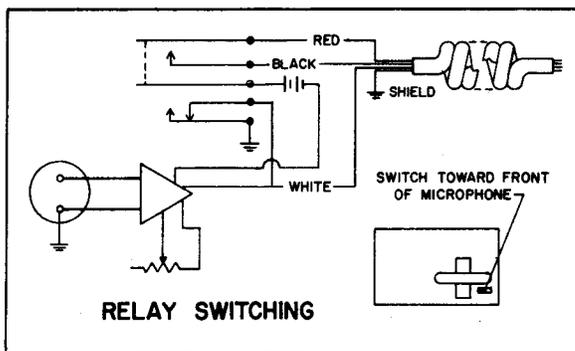


FIGURE 3



### BATTERY REPLACEMENT:

The battery in the base of the microphone should be replaced as needed with one of the types listed under "Specifications." Turn the battery hold down, spring clamp 90 degrees and remove the battery. Unclip the connector from the battery and install a fresh battery making sure the new battery is in position and well secured by the spring clamp.

### GUARANTEE

All Turner Model + 3 microphones are individually and thoroughly tested before leaving the factory and are guaranteed by the Turner Division, Conrac Corporation, against defective materials and workmanship for one year, provided that the instructions are fully complied with and that the units are not opened, except for battery replacement, or tampered with in any way. Microphones covered by this warranty should be returned to the factory and will be repaired or replaced at no cost other than transportation one way.

# TURNER MICROPHONES

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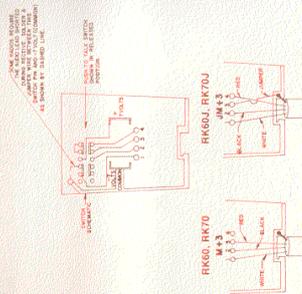
**CONRAC**

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### THE DIFFERENCE IN RELAY AND ELECTRONIC SWITCHING IN THE M+3 MOBILE MICROPHONE.

The sketches below reflect the difference in the internal wiring of the M+3 (RELAY SWITCHING) and the JM+3 (ELECTRONIC SWITCHING). To convert from one to the other, follow these simple instructions.

1. Unscrew the hanger button and remove the rear door.
2. Remove the two screws under the door holding the microphone together.
3. With the microphone laying face down, hold down on the cable and remove the rear housing by lifting it off the microphone from the bottom first. This will expose the four terminals that the cable is wired to.
4. Rewire the cable to the four terminals as necessary and reassemble the microphone.
5. When installing the rear housing, hook the top of the rear housing under the teeth on the top of the front housing and fold together.



### THE USE OF VOX WITH TURNER BASE MICROPHONES

Connect the Turner, white lead to the audio input of the plug. Connect the black Turner to the key line on the plug. Connect the shield to the shell or ground on the plug. **Leave the red wire completely disconnected.**

For Vox operation put the switch at the bottom of the Turner microphone in relay position, and lock the touch bar on. The Vox circuitry will now work as normal. After using Vox, be sure to unkey the microphone, as battery drain will result if left on.

For a normal push-to-talk operation, place the switch at the bottom of the microphone in electronic position.

#### "In Case of Difficulty"

**Squelch during transmit** — is normally caused by RF energy entering the microphone from the white wire. Add a 2.7K ohms 1/2 watt resistor in series with the white lead to the microphone. If squelch output is reduced to much you may insert 60 ohm (larger) RF choke in place of the resistor. This will reduce RF feedback while not affecting audio frequencies.

**Squelch during first portion of receive and transmit** — is caused by switch misadjustment in base microphones. You will be adjusting the key line so that it will switch to transmit at the same time the audio circuitry is turned on.

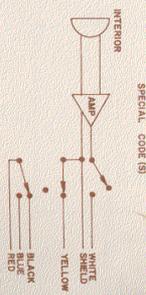
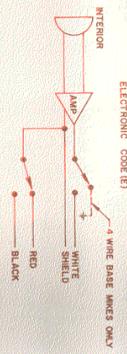
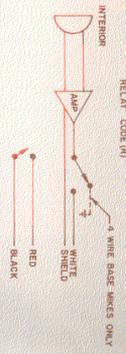
- Step 1: Remove the four screws that hold the bottom plate onto the microphone. This will expose the switches in the microphone for adjustment.
- Step 2: Bend contact #3 so that it will be closer to contact #2 (see switch diagram below).
- Step 3: Replace bottom plate on microphone.
- Step 4: Test the microphone with the radio by pushing down slowly on the push-to-talk bar. If the red speaker appears, then steps 1-3 need to be repeated.



**Receiver volume reduced or eliminated in receive mode** — may be caused by the shorted-to-ground while lead in base microphones.

### Simplified Schematics

ALL SWITCHES SHOWN IN "RECEIVE" POSITION



### THE DIFFERENCE IN RELAY AND ELECTRONIC SWITCHING IN THE M+2U MOBILE MICROPHONE.

The sketches below reflect the difference in the internal wiring of the M+2U (RELAY SWITCHING) and the JM+2U (ELECTRONIC SWITCHING). To convert from one to the other, follow these simple instructions.

1. Remove the 4 screws in the rear housing, holding the microphone together.
2. With the microphone lying face down, remove the rear housing to expose the switch.
3. Rewire the switch, as necessary, as shown on the sketches, and reassemble the microphone.

