EQUIPMENT REQUIRED

1. 25W soldering iron
2. A piece of rosin core 18ga. solder
3. Small screwdriver (straight and phillips)
4. Small diagonal cutters
5. Small vice
6. Piece of 3/32" heat shrinkable tubing
7. Volt/ohm meter
8. Pocket knife
9. Dummy load with light

TYPES OF SWITCHING

A) ELECTRONIC TYPE

Xmit/rec are switched by solid state circuitry. You usually lose the receiver audio when the mike is removed from the set. Also, when looking inside the radio, you will not see a relay. The way this works is by having a normally Open and a normally Closed switch, usually switching to ground. Study diagram A.

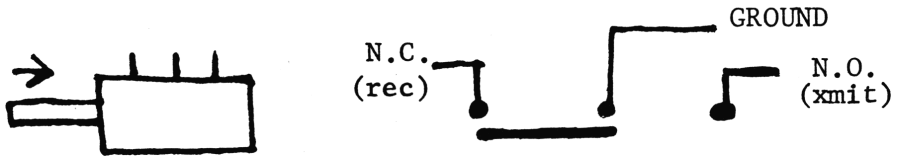


DIAGRAM A

B) RELAY TYPE

Xmit/rec are switched by a relay. There is a switch which energizes relay for transmit. Receiver will stll have Audio with mike unplugged. See diagram B.

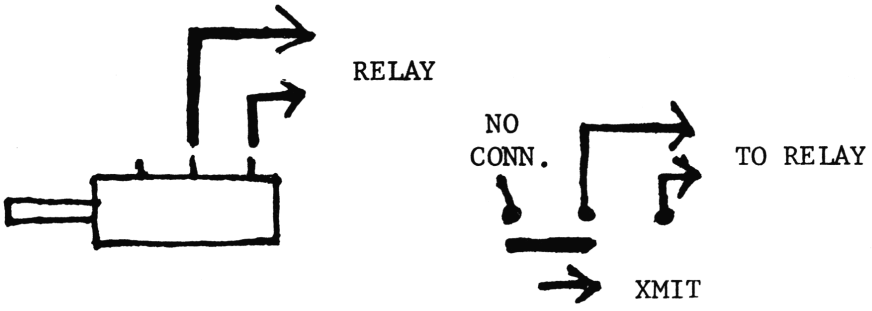
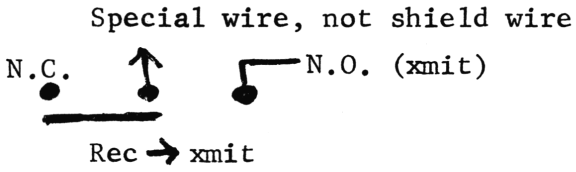


DIAGRAM B

C) SPECIAL TYPE

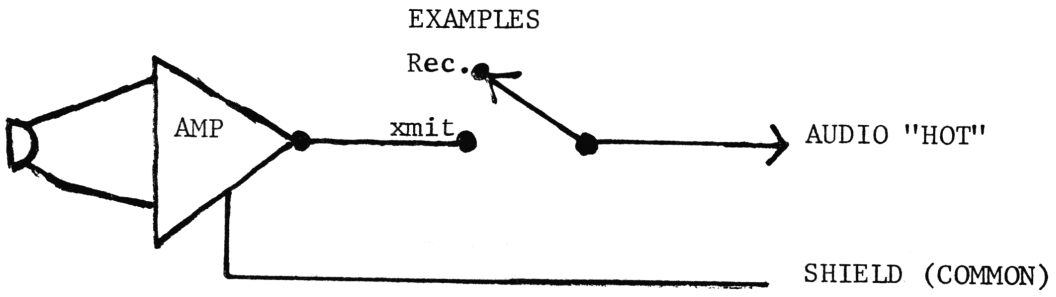
This has a separate wire for speaker switching and sometimes the common wire on N. O. and N.C. switches are not switched to ground but to a seperate wire.

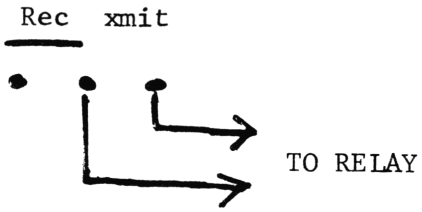
Example: Rec→xmit
TYPE A



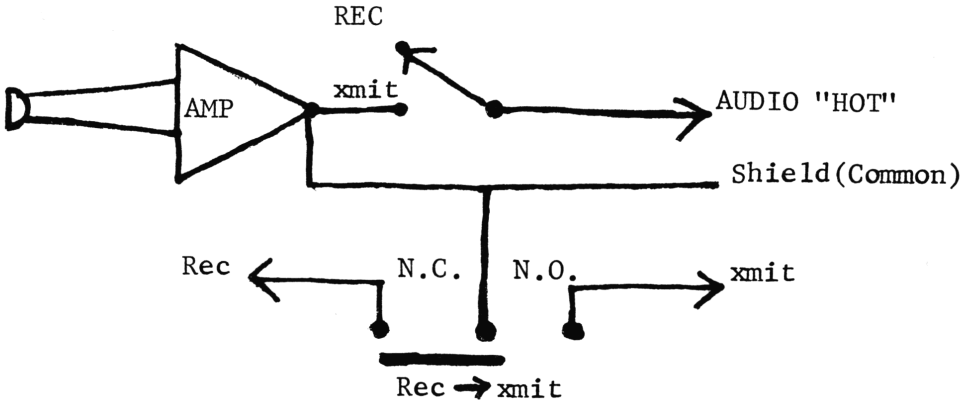
POWER MICROPHONES

RELAY SWITCHING

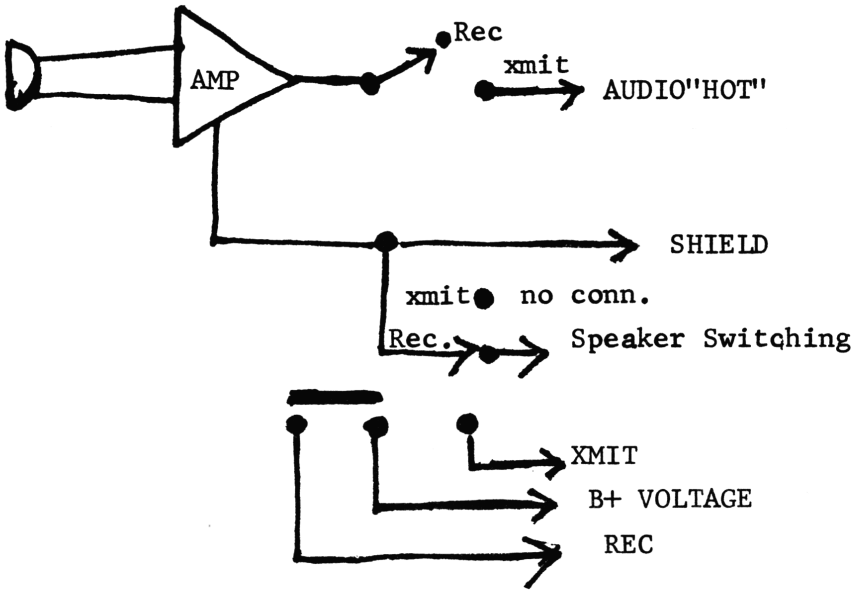




ELECTRONIC SWITCHING



SPECIAL SWITCHING



The audio "hot" wire will always be the one which has the shield wrapped around it. When replacing mike cords, be sure to use this one for the audio "hot" from the mike switch or cartridge, even if the replacement cord has a different color. Failure to use the shielded wire could result in a squeal on xmit.

HOW TO FIGURE OUT WIRING

EXAMPLES

1) If you have a Turner Wiring Book, look up your model. If you have a Turner mike, wire according to instructions. If you do not have a Turner mike proceed as follows:
   a) Look up your model in the wiring book
For example, let's say you have a Cobra 29XLR and you bought a new general replacement microphone. The code *according to the Turner book is:*
Code (E) This tells you it has electronic switching
1-S (shield)
2-W (audio "hot")
3-BK (transmit)
4-R (receive)

b) Remove about 1" of outer insulation off mike cord. Look for wire that has shield wrapped around it. This is the modulation audio"hot" wire. Solder it to pin 2 in example 1. This wire is usually red or white.

c) Next, take your voltmeter on the RX 100 scale. Put one lead on the shield. Put the other lead on one of the remaining wires. If the motor deflects to zero, this is the Rec wire and should be connected to pin 4 in example 1. When you key the mike, the meter should deflect to the opposite end of the scale.

d) Now put the volt/ohm meter between the shield and the other remaining wire. The volt/ohm meter should read zero when the mike is keyed. Solder this wire to pin 3.

This is for electronic type switching.

EXAMPLE 2

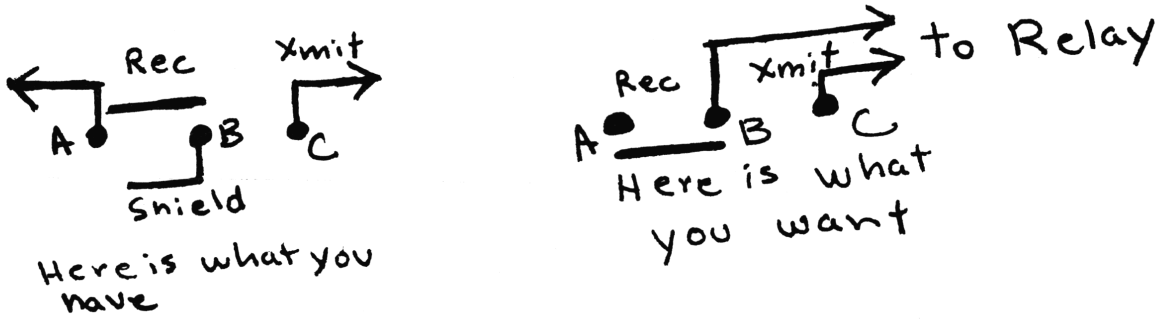
Let's say you have a Cobra 138XLR. According to the Turner wiring book, it is code (R). This signifies relay switching.

1-S shield
2-W Audio "hot"
3-Blk } when mike is keyed, these two wires close together
4-Red

a) Again, first remove about 1" of outer insulation and find the wire which has the shield wrapped around it. This is audio "hot" and should be soldered to pin 2.

b) Now, OHM OUT between shield and the other two wires. You should not get a ready to any of the other two wires. If you do, as in the case of electronic switching, proceed to the next step. If you do not, proceed to step (d).

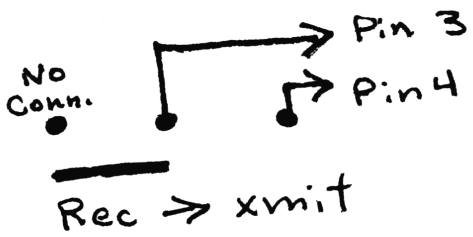
c) Do the following conversion of the mike switch:



Remove shield from center switch connector "B". Remove wire "A" and resolder to point "B". DO NOT resolder shield. Now, you should ohm out wires B and C. It should show a short on the ohm meter when you key the microphone. Solder these two

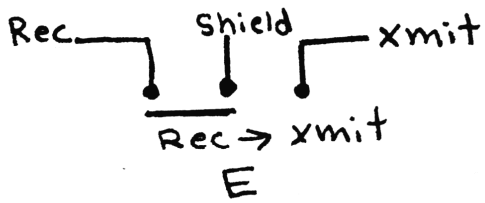
wires to pins 3 and 4. Skip step (d).

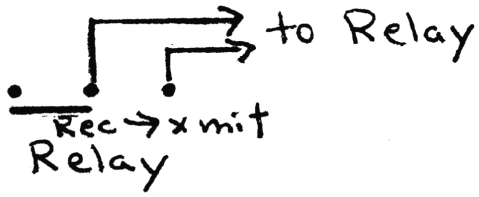
d) Ohm out between the two remaining wires. You should get a zero reading when the mike is keyed. Solder these pins to 3and 4. Here is what you have.



Now, let's take the case of having a radio, a mike, and no wiring book or instructions at all.

1) First, find the shielded wire, indicating your audio "hot" from the microphone. Also, ohm out the remaing wires to be sure you know if you have an electronic or relay switch on the mike. You should also be able to tell this by looking inside the microphone at the switch.





Turn on the radio, If you hear rec. audio, it is a relay switch. If you do not hear audio, it has an electronic switch.

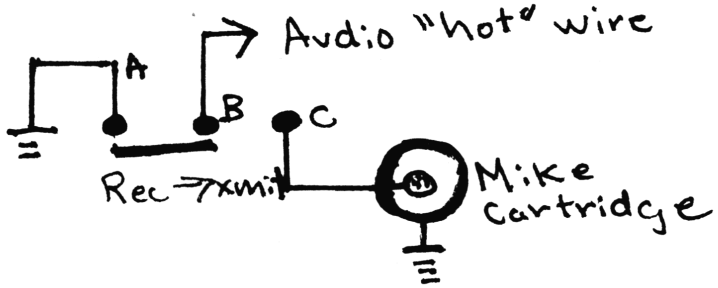
2) Next put the negative lead of your volt/ohm meter on the black power wire on the C.B. Ohm out to the pins on the microphone jack. You should get a zero reading on one pin. This is where the shield wire goes.

3) Now, turn the radio on, <u>if it is electronic type switching</u>, (no rec audio heard). Take a piece of of wire and jumper shield pin to the other pins of the mike jack. One pin should cause Rec audio to be heard, another pin should cause C.B. to xmit. Remaining pin will be audio "hot". If more than one pin is left, (as is the case where there are unused pins), solder shield, xmit and rec. wire and move audio "hot" wire to remaing pins until dummy load light blinks with modulation. Solder and assemble connector.

4) If the radio has relay type switch, (audio heard without mike), find the two pins that energize the relay by jumping between them. Then, with mike keyed, take the audio "hot" wire and connect it to the pin which causes the dummy load lamp to flash as you talk. Assemble connector.

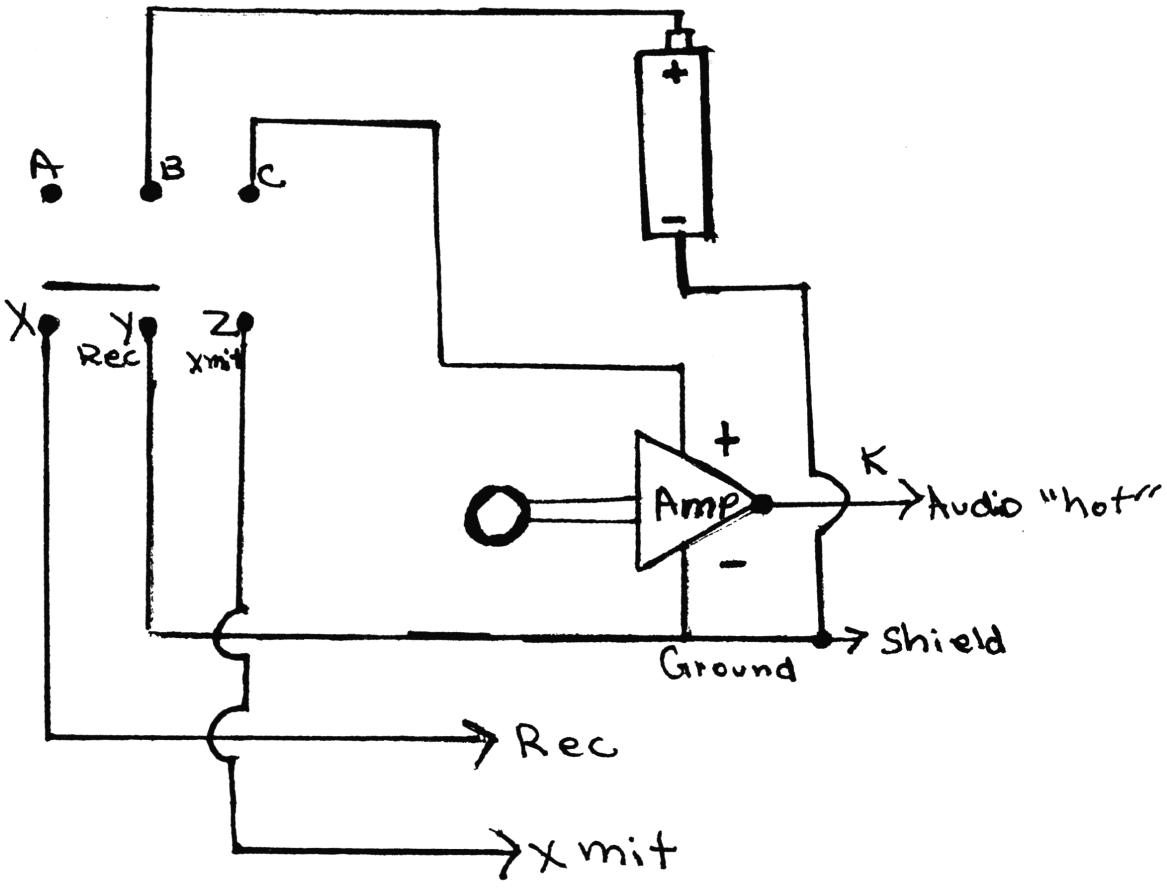
* SPECIAL CURES FOR SPECIAL PROBLEMS*

If you hear a whistle in the rec audio when you plug in the mike, this usually indicates that the audio "hot" wire is grounded in rec.



to fix this problem, unconnect ground from pin "A".

Sometimes you run across a mike that does not have switching on the audio "hot" lead. This will also cause a whistle on rec. The following is an example:



Unsolder negative lead from battery to shield wire. Solder the wire to pin 2 on switch. Make sure that your mike is wired like the diagram before any modifications are made. Pin Y must be connected to ground common. Now, remove Positive wire from battery at pin B. Also, remove wire from pin C. Connect the two wires together. Cut audio "hot" wire and solder one end to pin B. Solder other end to pin C. When the mike is keyed, pins B and C will be connected together so audio will pass thru while still being "open circuit" on rec.

Start by studying the foregoing information carefully. You should now be able to wire just about any microphone to just about any receiver. We suggest the use of the heat shrink tubing on the wires to prevent shorts. Also, make sure you tighten strain relief on mike connector to keep wires from being pulled out. If you have intermittent problems in your mike, clean switch and replace mike cord if necessary. If you have a squeal on xmit with a power mike you might have to insert a 45-55 uh RF choke or 3-20k ohm resistor in series with audio "hot" lead.

If you have a Turner desk mike with a squeal in rec., you must install an additional switch kit, available from Turner, 909 17th St. NE, Cedar Rapids, Iowa, 52402. These kits will also fit other desk mikes such as the GC.

If radio transmits without keying mike, reverse the Rec/ Xmit leads. If you have no modulation but have RF power, there is probably a broken audio"hot" wire or a defective mike cartridge. A cartridge can be checked by using an amplifier and speaker.

NOTE: THIS INFORMATION IS INCLUDED TO HELP YOU UNDERSTAND HOW THE MICROPHONE AND SWITCHING CIRCUITS WORK. WE CANNOT AND DO NOT ASSUME RESPONSIBILITY FOR DAMAGE WHICH COULD OCCUR BY WIRING ERRORS