DOUBLE THE MEMORY CHANNELS OF THE ICOM R7000 BY
REPLACING THE SPEECH SWITCH

by Jean-Louis Ecochard

I Introduction
    This modification is based on information received both
    from Bob Parnass and from Gary on the ICOM Technical
    Support line.

    Although simple, this modification is rather delicate
    to implement because it requires knowledge of unsolder-
    ing and soldering CMOS components. It also involves
    removing the speech switch. This will of course void
    any ICOM warranty and the result may be a very expen-
    sive paper weight. It is very important to note that
    some vendors of ICOM equipment offer a similar modifi-
    cation for ~$50.

                        WARNING

    THIS OPERATION INVOLVES UNSOLDERING ONE   LEAD   OF   THE
    CMOS MEMORY CHIP. CMOS DEVICES ARE EXTREMELY SENSITIVE
    TO STATIC ELECTRICITY. USE THE   APPROPRIATE   EQUIPMENT
    SUCH AS GROUND STRAP, GROUNDED SOLDERING IRON, ANTI
    STATIC MAT TO MAKE SURE YOU WILL NOT DAMAGE THE CHIP.

    THE SILK SCREEN REPRODUCTION IN THE ICOM R7000 SERVICE
    MANUAL IS INCORRECT, REFER TO THE FOLLOWING DOCUMENT
    CONCERNING LOCATING THE POSITION OF THE SPEECH SWITCH.
    CONTACT ICOM FOR MORE DETAILS.

Equipment:
    - anti static mat
    - ground wrist strap
    - tip grounded soldering iron
    - solder (thin)
    - set of screwdrivers
    - unsoldering pump
    - set small pliers wire cutters

Parts:
    - photocopy of the exploded view of the R7000

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     from the ICOM R7000 service manual
- remote switch ICOM part # SPUT 19167A
- 47 K Ohms resistor
- small insulated wire
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Time:
     2 to 4 hours

II Preparation
     Read this document completely. Select a smooth surface
     to work on such as an antistatic mat or a towel spread
     on a table. Put the R7000 in front of you with all the
     equipment you will need at reach. The receiver must be
     unplugged. For safety reasons and protection of your
     equipment it is advisable that you leave the ICOM
     unplugged for a couple of hours to allow components to
     cool and capacitors to discharge. Take off the front
     panel and the bottom panel as described in the exploded
     views of the service manual. Disconnect and take off
     the logic board (remember the connector positions).
     Disconnect and take off the SW3 board it may require
     disconnecting other boards.

III The memory module
     Locate IC8 on the logic board. It is the chip with the
     battery on top of it. Locate pin 19. Use the reference
     in the service manual to find the correct pin labeled
     A10 (page 7-9).

     Top view of IC8

```
          1         24
          o    U    o
          o         o
          o         o
          o         o
          o         o
          o         o <- 19
          o         o
          o         o
          o         o
          o         o
          o         o
          o         o
```
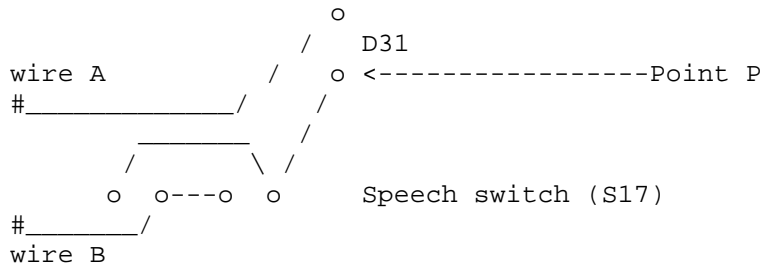
Now think on how difficult it will be to unsolder pin
19. If you think it is beyond your skills, get help.
Unsolder pin 19 and use a pair of small pliers to pull
it out of it hole. Make sure it does not touch the
transistor nearby. solder a wire to pin 19. this wire
must be long enough to reach the front panel later on.
When this is done, verify that pin 19 is not in contact
with anything (you may want to isolate it). You have
done the most difficult part of the modification.
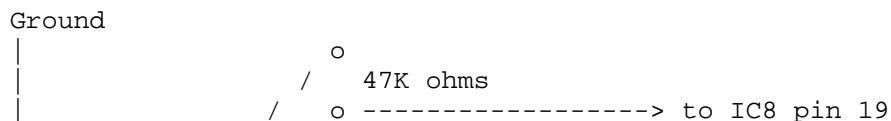

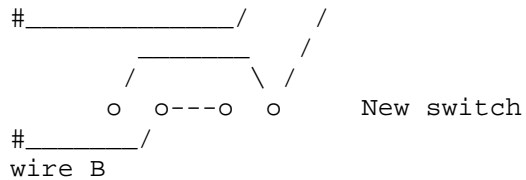January 18, 1991

IV The switch board
    Locate the speech switch on the SW3 board. Beware, the
    ICOM   service   manual   has   incorrect   information
    (reversed) concerning the placement of switches on SW3.
    The speech switch is S17. Locate the pattern/trace
    below on the solder side of the SW3 board.

```
                        o
                      /   D31
    wire A          /    o <-----------------Point P
    #_____/     /
         _____      /
       /        \ /
      o  o---o  o      Speech switch (S17)
    #_____/
    wire B
```

    Unsolder the speech switch, the diode D31 and the wire
    A.   Insulate the wire A so that it does not touch any-
    thing. Solder the 47K ohm resistor where the diode D31
    was. Solder the new switch (SPUT 19167A) where the
    speech switch was, in the same position.   Solder the
    wire that you have previously soldered to IC8 pin 19 to
    Point P. Solder a wire between where wire A was sol-
    dered and ground. A good place to connect to ground is
    around the screw next to S18 on the SW3 board.


```
    Ground
    |                    o
    |                  /   47K ohms
    |                /   o ------------------> to IC8 pin 19
```

```
     #_____/     /
             _____    /
          /          \  /
         o   o---o   o       New switch
     #_____/
     wire B
```

Verify your work and reassemble the unit.

V Results
In the "out" position, the switch gives you the origi-
nal 99 memories, in position "in" you have 99 more
memories. These memories will be most likely full of
garbage, so the first step is to clear them using the
clear switch. Clear all the 99 memories.
This modification also double the program scan mode
memories. For example, you can have two programmed
scan depending on the position of the switch when you
do a "SET".

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                                  (__Y__)   uunet!sbi!chi!jl
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