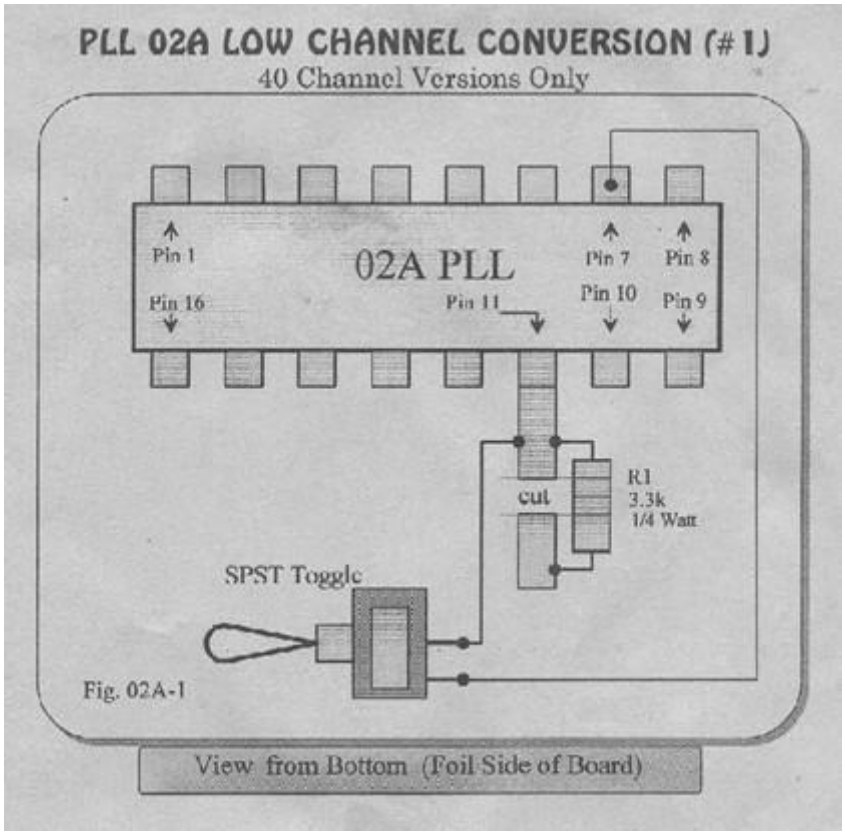
Freaky-Deaky!

PLL02A

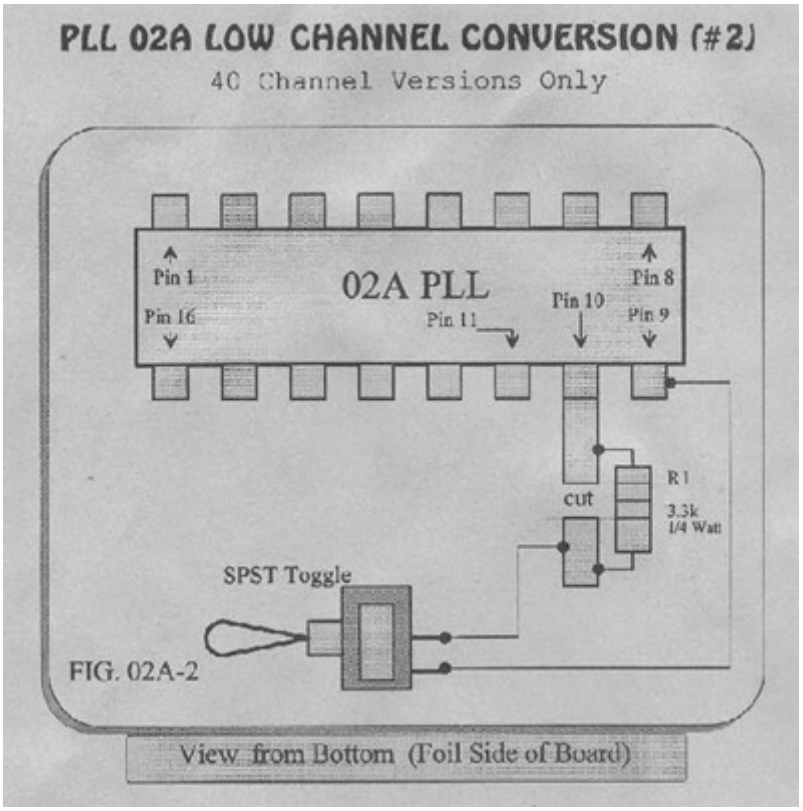


1. Locate Pin 11 and Isolate it by cutting the foil which connects into the channel selector. Install a 3.3K 1/4 watt resistor across this cut.

2. Using a SPST mini toggle switch connect wires from the switch as shown in the above diagram. This will yield low channels starting at 26.805 and ending at 26.905 with some skips in between. This modification picks up some channels skipped by Modification #4.

Mod #1 Channel Chart

1=26.805	4=26.845	7=26.875
2=26.815	5=26.855	8=26.895
3=26.825	6=26.865	9=26.905

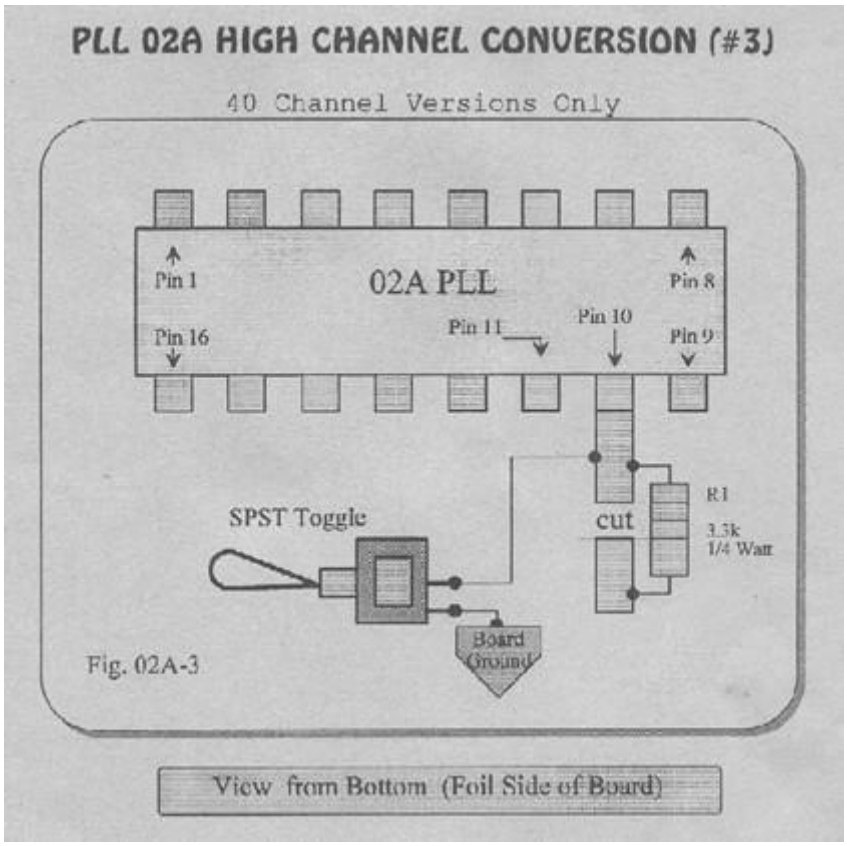


1. Locate Pin 10 and Isolate it by cutting the foil which connects it to the channel selector. Install Rl, a 3.3K 1/4 watt resistor, across this cut.

2. Using a SPST mini toggle switch connect wires from the switch as shown in the above diagram. This will yield low channels starting at 26.435 and ending at 26.745 with some skips in between. If all of the channels are not there, some adjustment of VCO may be required.

Mod #2 Channel Chart

1=26.645	11=26.445	21=26.575	31=26.675
2=26.655	12=26.465	22=26.585	32=26.685
3=26.665	13=26.475	23=26.615	33=26.695
4=26.685	14=26.485	29=26.595	34=26.705
5=26.695	15=26.495	25=26.605	35=26.717
6=26.705	16=26.515	26=26.625	36=26.725
7=26.715	17=26.525	27=26.635	37=26.735
8=26.735	18=26.535	28=26.645	38=26.745
9=26.745	19=26.545	29=26.655	39=27.395
10=26.435	20=26.565	30=26.665	40=27.405

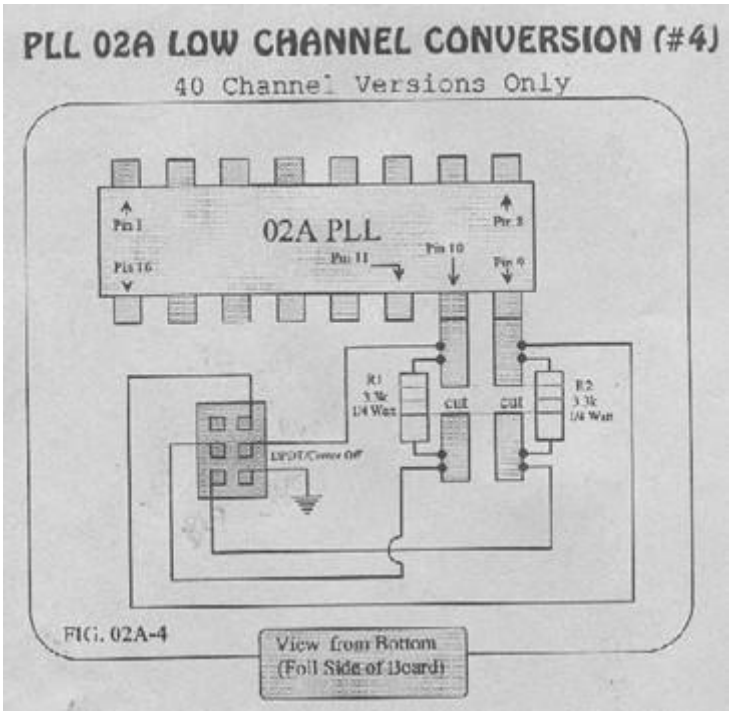


1. Locate Pin 10 and Isolate it by cutting the foil which connects it to the channel selector. Install a 3.3K, 1/4-watt resistor across this cut.

2. Using a SPST mini toggle switch connect wires from the switch as shown in the above diagram. This will yield high channels starting at 27.395 and ending at 27.705 with some skips in between.

Mod #3 Channel Chart

10=27.395	18=27.495	26=27.585	34=27.665
11=27.405	19=27.505	27=27.595	35=27.675
12=27.425	20=27.525	28=27.605	36=27.685
13=27.435	21=27.535	29=27.615	37=27.695
14=27.445	22=27.545	30=27.625	38=27.705
15=27.455	23=27.575	31=27.635	39=27.395
16=27.475	24=27.555	32=27.645	40=27.405
17=27.485	25=27.565	33=27.655	



1. Locate and isolate pin 9 and pin 10 as shown in fig 02a-4. Be sure to isolate each one completely. Then solder a 3.3k resistor across each cut as shown.

2. Mount a DPDT/Center off toggle in a convenient location. Then using a piece of 5 wire ribbon, make the connections as shown. Be sure to check for any solder bridges before you proceed.

3. Now if all connections are right you will have normal channels in the center position, and the following channels in the other two.

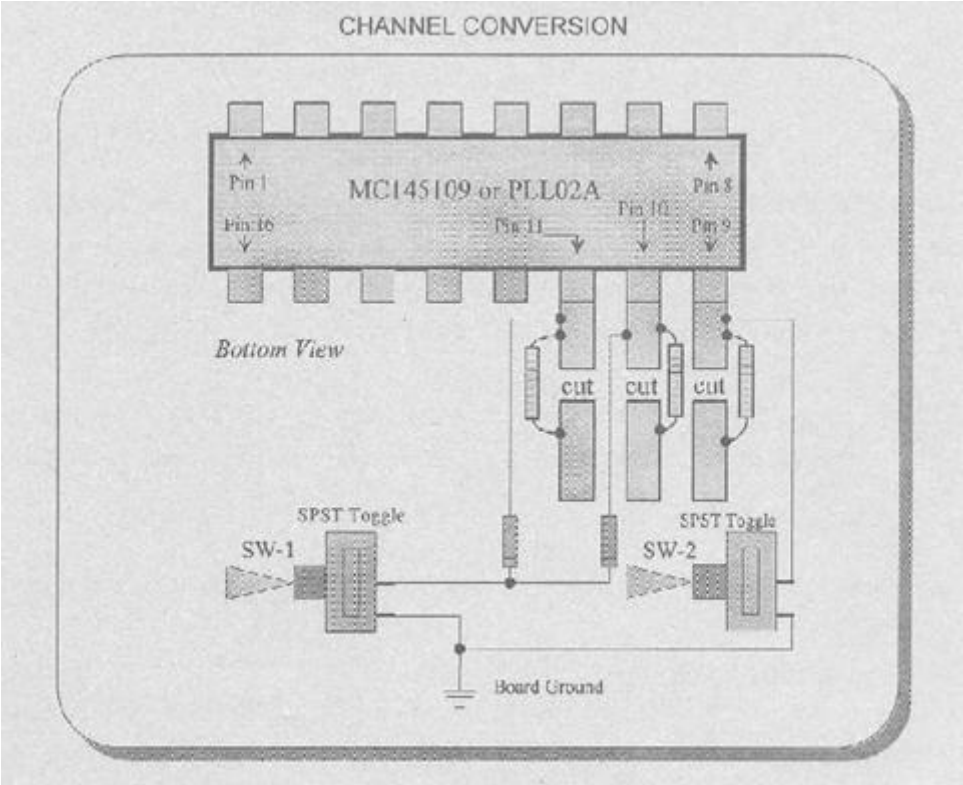
Switch in the "up" position:

10=26.435	17=26.525	24=26.595	31=26.675
11=26.445	18=26.535	25=26.605	32=26.685
12=26.465	19=26.545	26=26.625	33=26.695
13=26.475	20=26.565	27=26.635	34=26.705
14=26.485	21=26.575	28=26.645	35=26.715
15=26.495	22=26.585	29=26.655	36=26.725
16=26.515	23=26.615	30=26.665	37=26.735
			38=26.745

Switch in the "down" position:

10=26.755	17=26.845	24=26.915	31=26.995(3A)
11=26.765	18=26.855	25=26.925	32=27.005(4)
12=26.785	19=26.865	26=26.945	33=27.015(5)
13=26.795	20=26.885	27=26.955	34=27.025(6)
14=26.805	21=26.895	28=26.965(Ch1)	36=27.035(7)
15=26.816	22=26.905	29=26.975(Ch2)	37=27.045(7A)
16=26.835	23=26.935	30=26.985(Ch3)	38=27.055(8)

PLL02A or MC145109
Frequency modification for DAK Mark X, etc.



1. Locate on the bottom side of the circuit board, Pin 9, Pin 10, and Pin 11 of the main PLL chip (IC1). On some units this will be an 02A chip and others will have the MC145109 chip. However they are both identical and have the same functions. Now totally isolate each of these pins with a small cut. Pin 9 is connected to a larger land and will require special care in order to totally isolate it.

2. Next solder a 3.3K 1/4 watt resistor across each one of these cuts as shown in the diagram above. Next twist together the wire from the cathode end (banded end) of 2 small signal diodes (1N914 or equivalent). Using some cutters cut the other 2 ends (anode end)* to about 1/2" in length. Solder one of the anode ends to pin 11 and the other to pin 10. * Note that leads of the signal diodes in the above illustration are shown as being long. This is for illustration purposes only. In reality you should keep all leads as short as possible. This not only looks better and helps to prevent any problems from short circuits as well as making a stronger connection.

3. Next mount 2 Single Pole Single Throw toggle switches in a convenient location, normally on the front radio panel. Now tie the two bottom poles of the two switches together by soldering a piece of hook-up wire across them. Use a long enough piece of wire for

this so that after you tie these two poles together you have enough to solder the other end to the circuit board ground.

4. Now Solder a piece of hook-up wire from the middle pole of the first switch (SW-1) to the cathode ends (banded ends) of the diodes. Next solder a piece of hook-up wire from center pole of the second switch (SW-1) to pin 9.

5. Next re-check all your connections to make be sure that you don't have any shorts or solder bridges.

6. Now turn the unit on and check for normal operation. With both switches in the down position you should have the normal 40 channels. Now put the unit on channel 30 AM With the SW-1 switch down and SW-2 switch up, key the radio and check for 27.945. If it's not there you will need to carefully adjust the VCO slightly in order to get it to pop in. The VCO is the adjustment located in the oblong metal can just to the upper right of the main PLL chip.

7. Once that you have 27.945, check for power output on channel 1 (leave switches in the same position) compared to the power output on 27.945. Usually it will be lower on the upper channels. In order to correct this you will need to balance the power by adjusting T4' while on 27.945. Adjust T4 in USB transmit mode while injecting a constant tone into the mike. Adjust T4 until the power output is equal or fairly close to the output on channel 1.

Note that T4 is located just to the right of the large 10.7 MHz filter. T5 is right next to T4.T5 controls the balance of the power level on the lower channels in comparison to Channel 40.

Position #1 = SW-1 DOWN and SW-2 DOWN = Normal Channels

Position #2 = SW-1 UP and SW-3 DOWN =

1=27.445	5=27.495	9=27.545	13=27.595
2=27.455	6=27.505	10=27.555	
3=27.46	7=27.515	11=27.565	
4=27.487	8=27.535	12=27.585	

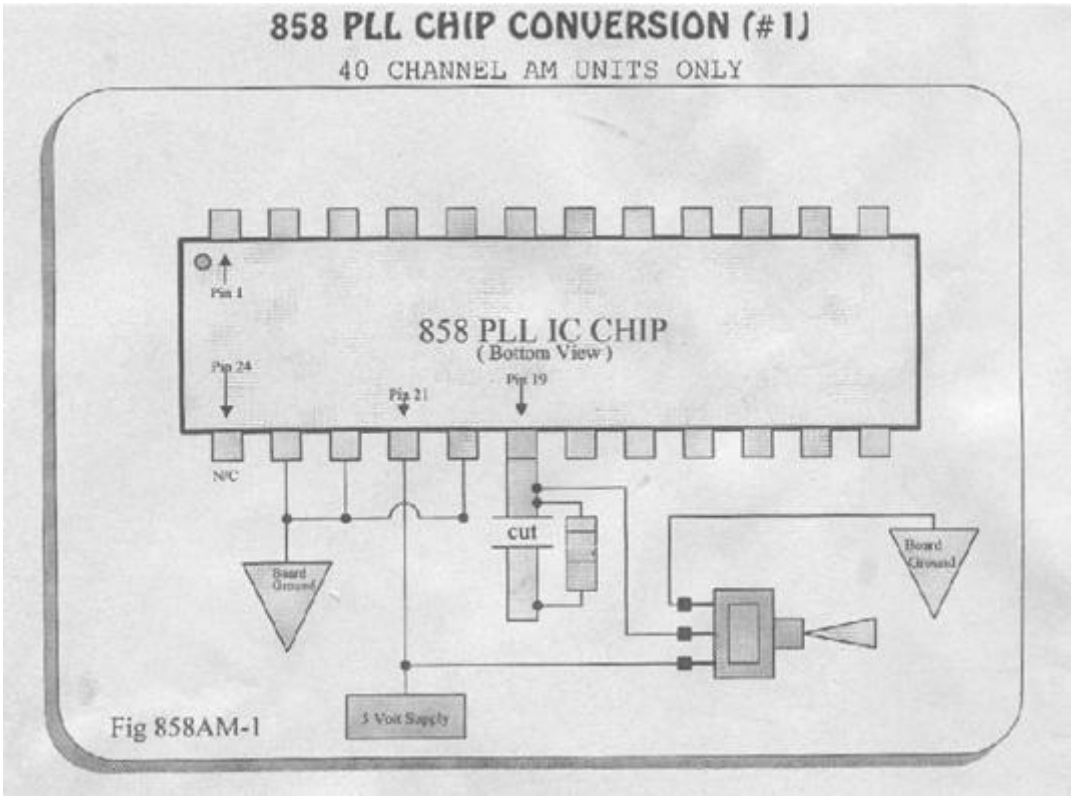
Position #3 =SW-1 Down-and SW-2 UP =

1=27.605	11=27.725	21=27.855	31=27.955
2=27.615	12=27.745	22=27.865	32=27.965
3=27.625	13=27.755	23=27.895	33=27.975

4=27.645	14=27.765	24=27.875	34=27.985
5=27.655	15=27.775	25=27.885	35=27.995
6=27.665	16=27.795	26=27.905	36=28.005
7=27.675	17=27.805	27=27.915	37=28.015
8=27.695	18=27.815	28=27.925	38=28.025
9=27.705	19=27.825	29=27.935	39=28.035
10=27.715	20=27.845	30=27.945	40=28.045

uPD858c PLL

uPD858c AM Only Mod #1:



1. Locate pin 19 of the 858 PLL chip on the foil side of the circuit board. Isolate this pin by making a small cut as shown in the above illustration. Install a 4.7K 1/4 watt resistor across this cut as shown.

2. Mount a SINGLE POLE/DOUBLE THROW/CENTER OFF mini toggle switch in a convenient location. Use 3-wire ribbon cable and solder both ends as shown in the above diagram.

3. With the switch in the Center Position you will now have Normal Channels. With the switch in the Down Position you will have the Low Channels. With the switch in the Up Position you will have the High Channels.

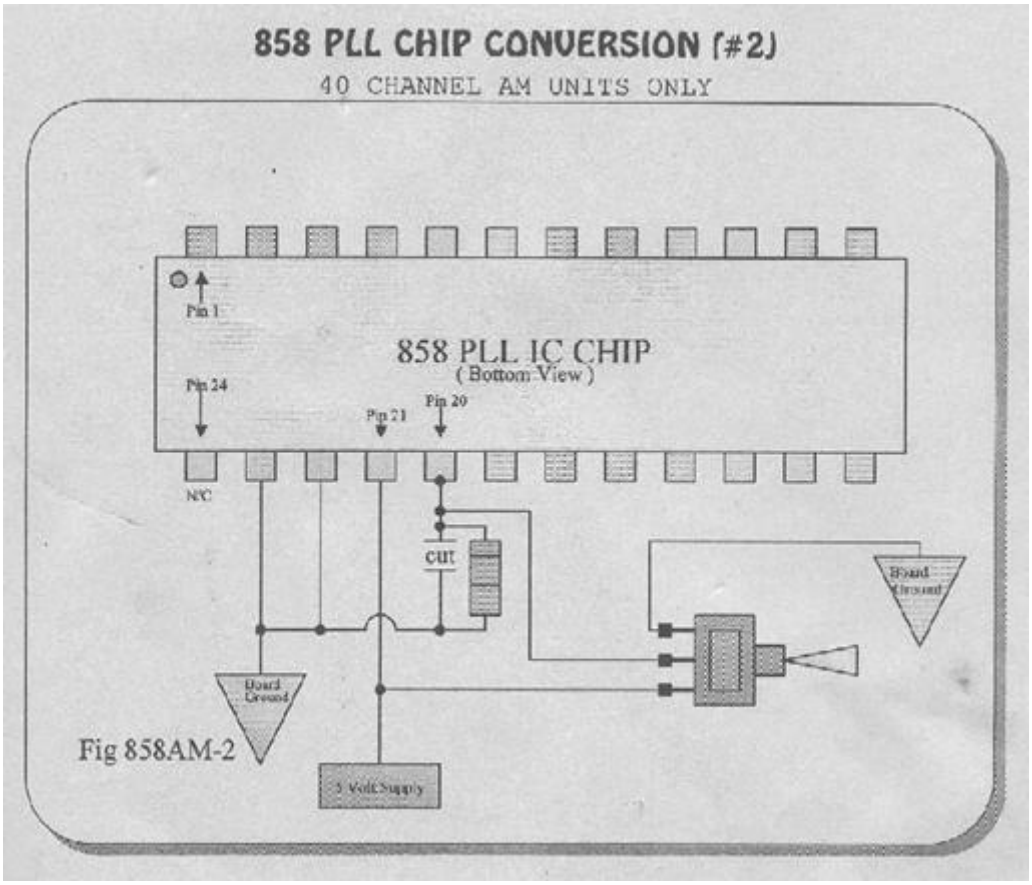
Lo Channel Position:

27=26.875	30=26.905	33=26.935	36=26.965
28=26.885	31=26.915	34=26.945	37=26.975
29=26.895	32=26.925	35=26.955	38=26.985

Hi Channel Position:

1=26.875	8=27.455	15=27.535	22=27.625
2=27.375	9=27.465	16=27.555	23=27.655
3=27.385	10=27.475	17=27.565	24=27.635
4=27.405	11=27.485	18=27.575	25=27.645
5=27.415	12=27.505	19=27.585	26=27.665
6=27.425	13=27.515	20=27.605	
7=27.435	14=27.525	21=27.615	

uPD858c AM Only Mod #2:



1. Locate Pin 20 of the PLL Chip on the foil side of the circuit board. Carefully make a small cut on both sides of the pin in order to isolate this pin completely from the circuit board ground path. On some models such as the TEABERRY "T" DISPATCH it is necessary to install a jumper across these cuts in order to reconnect the ground back together. Next install a 4.7K 1/4 Watt Resistor from Pin 20 back to ground.

2. Mount a Single Pole/Single Throw switch in a convenient

location. Connect 2 pieces of hook-up wire to the switch as shown. Connect the wire from the center lead of the switch to pin 20. The other wire from the switch connects to the 5 Volt supply Voltage. Now with the switch in the up position you will have the following high channels. If the channels are not there you may have to tweak the VCO coil adjustment as well as the transmit balance adjustment in order to pop them in.

Channel Chart with switch "on":

27=27.675	31=27.715	35=27.755	39=27.795
28=27.685	32=27.725	36=27.765	40=27.805
29=27.695	33=27.735	37=27.775	
30=27.705	34=27.745	38=27.785	

uPD858c SSB MOD #3:

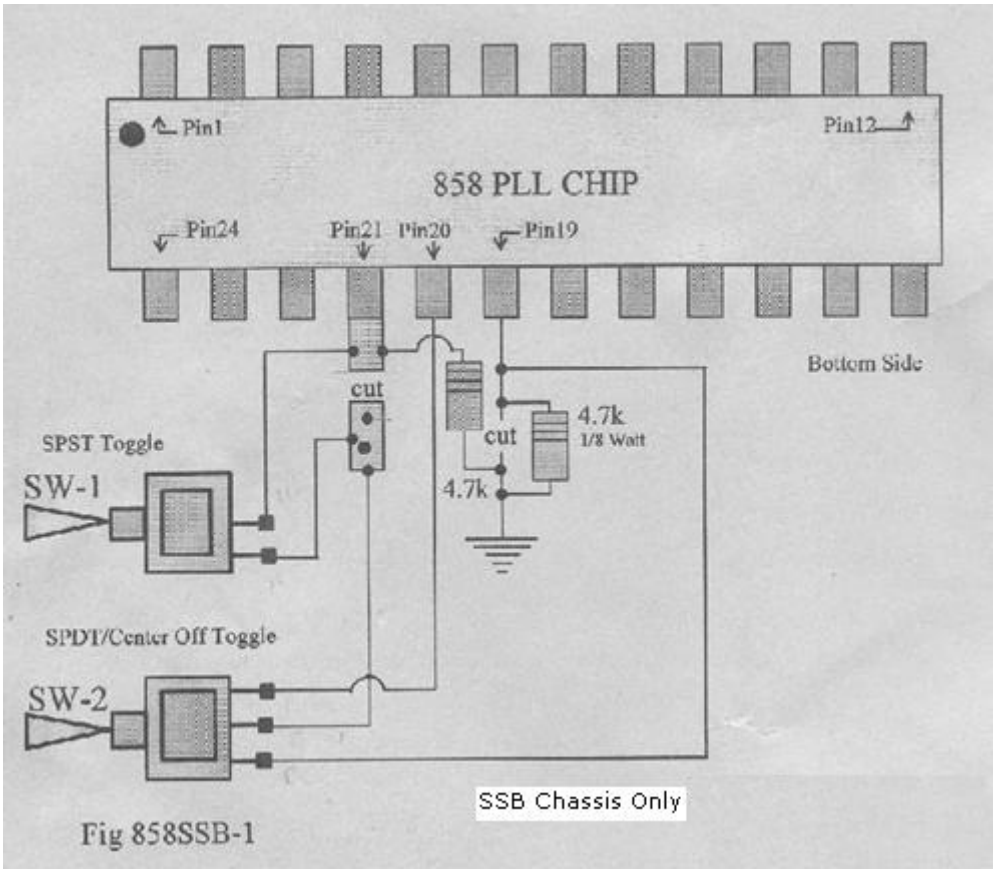


Fig 858SSB-1

1. Locate pin 19 of the 858 PLL. It will be is connected to ground by a very small land. Using a small x-acto knife, make a small cut between pin 19 and ground. Be sure to totally isolate pin 19 from ground. Next solder a 4.7k resistor across this cut, from pin 19 back to ground.

2. Locate pin 21 of the 858 PLL. Carefully make a small cut and isolate just this pin. Then solder a 4.7K resistor from this pin to ground too.

3. Mount a SPDT/Center Off switch and .a SPST toggle switch in a convenient location. Using a piece of 3 wire ribbon cable solder each of the 3 wires to the SPDT switch as shown above. Then solder the corresponding ends to the PLL chip. Be sure to check for any solder bridges and that you have correctly attached each of the wires. Then connect 2 wires from the SPST switch back to the PLL as shown. Again be sure to check for any solder bridges and to thoroughly check each connection before turning the radio on.

4. Now turn the radio on and check to see if all of the channels are there. If not a slight adjustment to the VCO may be necessary in order to get them all to pop in. Once you are sure that all the channels are there you will need to check the power output on channel 26.505 and the power output on channel 99. Normally the power output will be much lower on channel 99. In order to correct this you will need to wide-band the radio. After wide-banding, performing this procedure you should be able to adjust the transmit balance adjustment and obtain fairly close power output on all channels.

Rotary Position #1 or

Switch positions are SW-1 UP & SW-2 CENTER = Normal Channels

Rotary Position #2 or Switch positions are SW-1 UP & SW-2 UP:

8=27.455 (45)	16=27.555 (55)	24=27.635 (63)	32=27.725 (72)
9=27.465 (46)	17=27.565 (56)	25=27.645 (64)	33=27.735 (73)
10=27.475 (47)	18=27.575 (57)	26=27.665 (66)	34=27.745 (74)
11=27.485 (48)	19=27.585 (58)	27=27.675 (67)	35=27.755 (75)
12=27.505 (50)	20=27.605 (60)	28=27.685 (68)	36=27.765 (76)
13=27.515 (51)	21=27.615 (61)	29=27.695 (69)	37=27.775 (77)
14=27.525 (52)	22=27.625 (63)	30=27.705 (70)	38=27.785 (78)
15=27.535 (53)	23=27.655 (65)	31=27.715 (71)	39=27.795 (79)

Rotary Position #3 or Switch positions are SW-1 UP & SW-2 DOWN:

8=27.855 (85)	11=27.885 (88)	14=27.925 (92)	17=27.965 (96)
9=27.865 (86)	12=27.905 (90)	15=27.935 (93)	18=27.975 (97)
10=27.875 (87)	13=27.915 (91)	16=27.955 (95)	19=27.985 (98)
			20=28.005 (Ham)

Rotary Position #4 or Switch positions are SW-1 DOWN & SW-2 UP:

8=26.455	16=26.555	24=26.635	32=26.725
9=26.465	17=26.565	25=26.645	33=26.735
10=26.475	18=26.575	26=26.665	34=26.745
11=26.485	19=26.585	27=26.675	35=26.755
12=26.505	20=26.605	28=26.685	36=26.765
13=26.515	21=26.615	29=26.695	37=26.775
14=26.525	22=26.625	30=26.705	38=26.785
15=26.535	23=26.655	31=26.715	39=26.795
			40=26.805

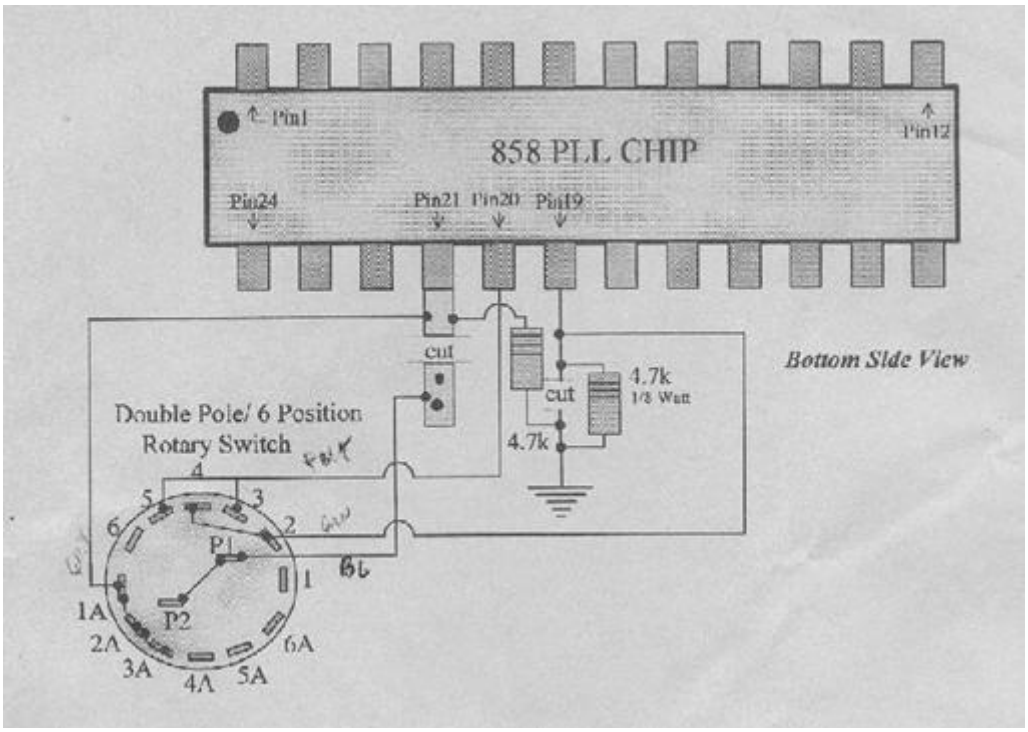
Rotary Position #5 or Switch positions are SW-1 DOWN & SW-2 DOWN:

8=26.855	11=26.885	14=26.925	17=26.965 (CH 1l)
9=26.865	12=26.905	15=26.935	18=26.975
10=26.875	13=26.915	16=26.955	19=26.985
			20=27.005

Rotary Position #6 or Switch positions are SW-1 DOWN & SW-2 CENTER:

11=26.085	19=26.185	27=26.275	35=26.355
12=26.105	20=26.205	28=26.285	36=26.365
13=26.115	21=26.215	29=26.295	37=26.375
14=26.125	22=26.225	30=26.305	38=26.385
15=26.135	23=26.255	31=26.315	39=26.395
16=26.155	24=26.235	32=26.325	40=26.405
17=26.165	25=26.245	33=26.335	
18=26.175	26=26.265	34=26.345	

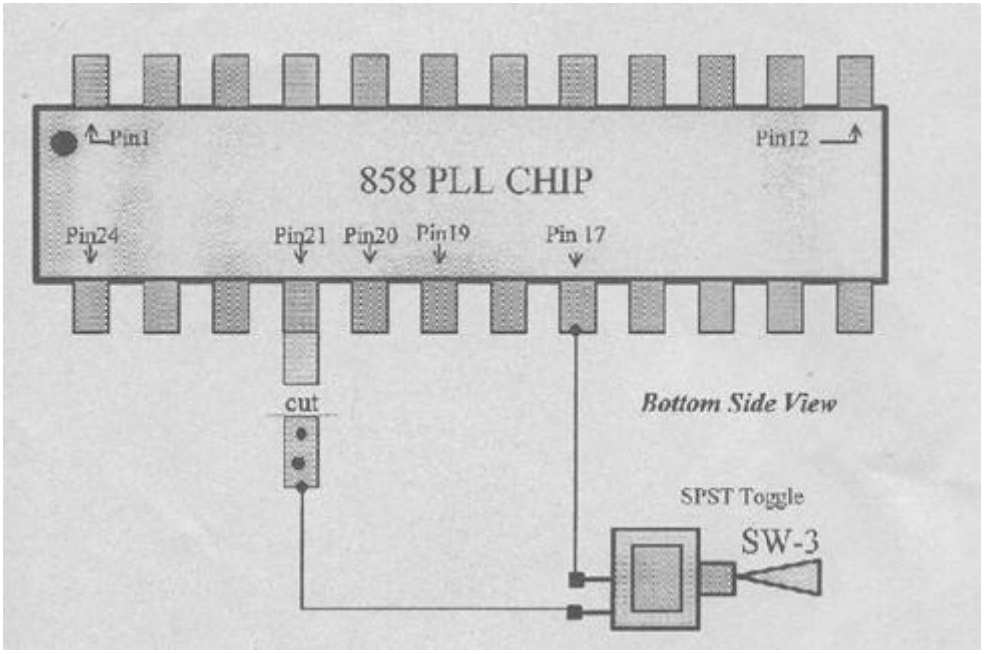
uPD858c SSB MOD #4



The conversion shown above is identical to the one shown earlier. However instead of using toggle switches, a rotary switch is shown. Use of a rotary switch gives a more professional touch and is easier to operate than toggle switches.

Follow the wiring diagram of the rotary switch closely. P1 is Pole 1, P2 is Pole 2. Make sure to jumper these together as shown above. Use the same channel chart, just above. Positions on the chart coincide with the rotary switch positions.

uPD858c SSB MOD #5



1. This conversion works in conjunction with SSB conversion "#3" or "#4". You must do either the 858 SSB conversion #3 or #4 before this will work.

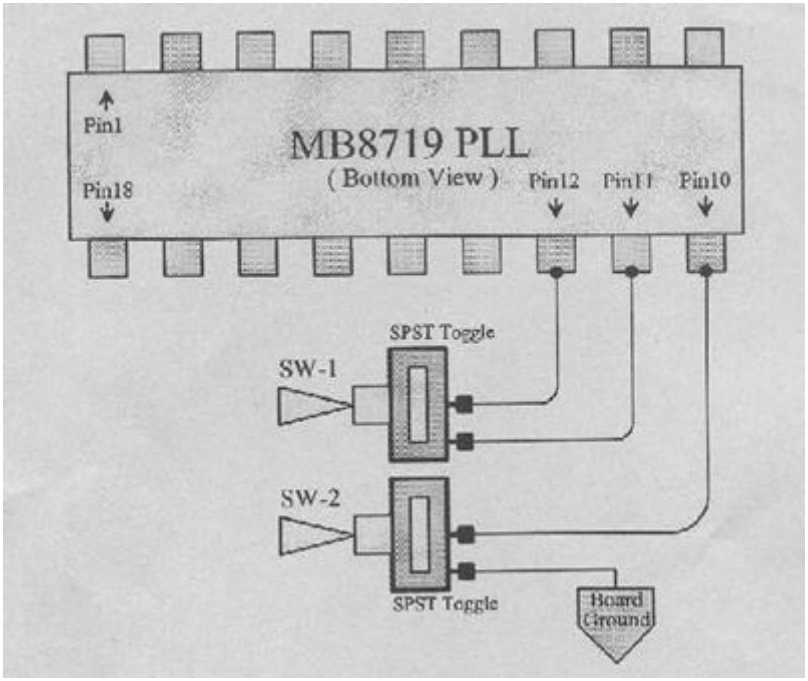
2. After performing the #3 or #4 858 SSB conversion, mount a SPST toggle switch in a convenient location. Connect the wires from the switch as shown. The cut shown above should have already been made in the previous modifications.

3. Now check for the following channels:

Pos.#1 + SW-3 Up	Pos.#2 + SW-3 Up	Pos.#4 + SW-3 Up	Pos.#5 + SW-3 Up
31=27.415	31=27.815	31=26.815	31=26.415
32=27.425	32=27.825	32=26.825	32=26.425
33=27.435	33=27.835	33=26.835	33=26.435
34=27.445	34=27.845	34=26.845	34=26.445

MB8719 PLL

MB8719 SSB Mod #1:
Dual-Conversion SSB Chassis:
Cobra 148GTL, Cobra 2000, Uniden Grant, Uniden Madison



1. Mount 2 SPST Toggle switches in a convenient location. Be sure to wire the switches up as shown,and to solder each wire carefully.

2. Now with both switches in the down position you will still have the normal channels. Refer to the 8719 Channel chart for the switch positions and their associated channels.

POSITION #1 SW-1 DOWN and SW-2 DOWN = Normal Channels

POSITION #2 SW-1 UP and SW-2 DOWN =

15=26.815	20=26.885	25=26.925	30=26.985(Ch3)
16=26.835	21=26.895	26=26.945	31=26.995(3A)
17=26.845	22=26.905	27=26.955	32=27.005(Ch4)
18=26.855	23=26.935	28=26.965(Chl)	
19=26.865	24=26.915	29=26.975(Ch2)	

POSITION #3 SW-1 UP and SW-2 UP =

1=27.605	6=27.505	10=27.555	14=27.605
2=27.455	7=27.515	11=27.565	16=27.475
3=27.465	8=27.535	13=27.595	23=27.575
4=27.485	9=27.545		
5=27.495			

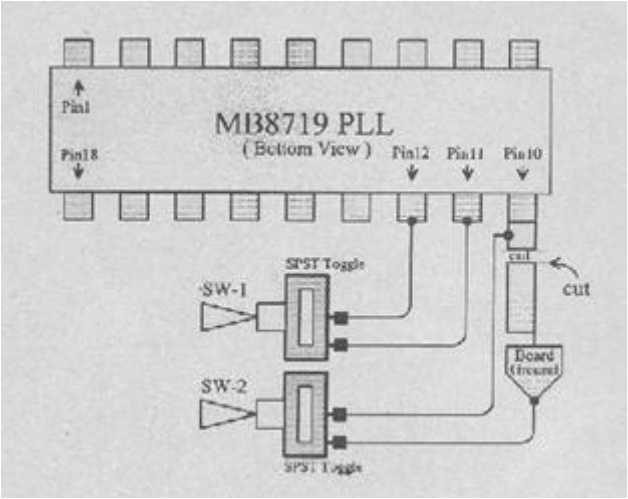
POSITION #4 SW-1 Down and SW-2 UP =

1=27.605	11=27.725	21=27.855	31=27.955
2=27.615	12=27.745	22=27.865	32=27.965

3=27.625	13=27.755	23=27.895	33=27.975
4=27.645	14=27.765	24=27.875	34=27.985
5=27.655	15=27.775	25=27.885	35=27.995
6=27.665	16=27.795	26=27.905	36=28.005
7=27.675	17=27.805	27=27.915	37=28.015
8=27.695	18=27.815	28=27.925	38=28.025
9=27.705	19=27.825	29=27.935	39=28.035
10=27.715	20=27.845	30=27.945	40=28.045

MB8719 SSB Mod #2:

Single-Conversion SSB Chassis:
UNIDEN Washington, President McKinley, President P400
COBRA 140GTL, 142GTL

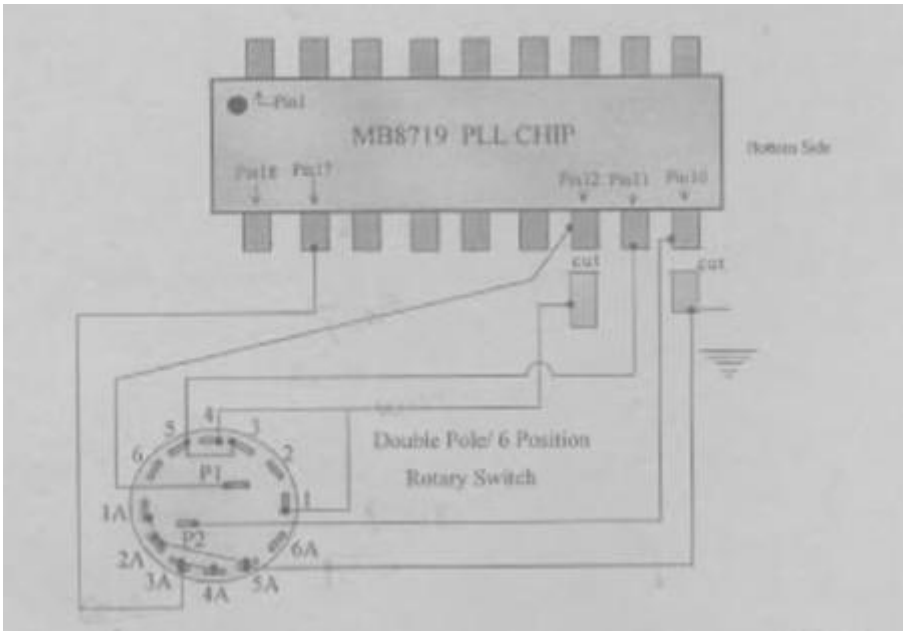


1. Mount 2 SPST Toggle switches in a convenient location. Be sure to wire the switches up as shown,and to solder each wire carefully.

2. Now with both switches in the down position you will still have the normal channels. Refer to the 8719 Channel chart for the switch positions and their associat1. Locate and unsolder the 11.1125 crystal and replace with a new 11.3258 crystal. Locate pin 10 of the MB8719 PLL chip. Notice that it is connected to ground. Make a small cut and totally isolate this pin from ground. Before proceeding turn the radio on and check to make sure that you have all of the normal channels and that the frequencies are correct. If necessary adjust CT3 for USB first, then L20 for LSB, and L 19 for AM.

2. Next mount your switches and wire them up as shown above. Be sure to check all of your connections before proceeding. Refer to the 8719 Channel Chart for your new frequencies. Note : Some of the older MB8719 Chips have the dot marking on pin 18. The newer MB8719 chips have the dot marking on pin 1. Regardless pin 1 is always the first pin to the left of the indentation marking on one end.

MB8719 SSB Mod #3:
MB8719 single-conversion SSB chassis; Rotary Switch
UNIDEN Washington, President McKinley, President P400
COBRA 140GTL, 142GTL



1. Obtain a double-pole / 6 position rotary switch. Refer to the above diagram. Note that pin 3 and pin 5 are tied together. Pins 1 and 4 are tied together. Pins 3A and 4A are tied together, and that pins 1A, 2A and 5A are also tied together. You will need to solder small jumpers across the pins as shown. Next obtain a piece of 6 wire ribbon wire and wire to the switch as shown in the above diagram. Be sure to use a long enough piece of wire to reach from the switch to the PLL once the switch is installed in its permanent location. Note which color of wire goes to the switch pins in order to make it easier when connecting the other end to the PLL chip.

2. Next using an X-Acto carefully cut and isolate Pin 10 and Pin 12 of the MB8119 PLL chip. Be sure to isolate just these PLL pins. Once this has been done connect the wire from the switch to the correct locations as shown in the above diagram, and mount the switch. Refer to the channels on the next page and check each position of the switch for these channels. You will probably find that some do not match. If this is the case you will need to carefully adjust L18 (Tripler Can) until all channels are there there. This is a very critical adjustment in order for this modification to work without changing the 11.1125 xtal. Usually just a small amount is needed.

POSITION #1 = Normal Channels

POSITION #2 =

23=27.415 26=27.425 27=27.435 28=27.445

POSITION #3=

1=27.605	8=27.535	14=27.605	21=28.015
2=27.455	9=27.545	15=27.935	22=28.025
3=27.465	10=27.555	16=27.955	23=28.055
4=27.485	11=27.565	17=27.965	24=28.035
5=27.495	12=27.585	18=27.975	25=28.045
6=27.505	13=27.595	19=27.985	26=28.065
7=27.515	14=27.605	20=28.005	27=28.075
			28=28.085

POSITION #4 =

1=27.605	11=27.725	21=27.855	31=27.955
2=27.615	12=27.745	22=27.865	32=27.965
3=27.625	13=27.755	23=27.895	33=27.975
4=27.645	14=27.765	24=27.875	34=27.985
5=27.655	15=27.775	25=27.885	35=27.995
6=27.665	16=27.795	26=27.905	36=28.005
7=27.675	17=27.805	27=27.915	37=28.015
8=27.695	18=27.815	28=27.925	38=28.025
9=27.705	19=27.825	29=27.935	39=28.035
10=27.715	20=27.845	30=27.945	40=28.045

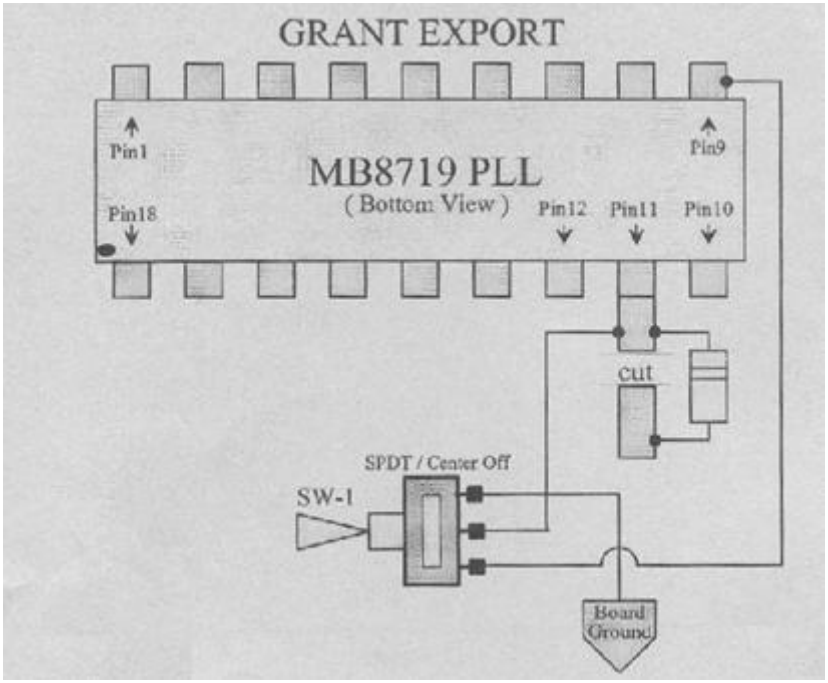
POSITION #5=

2=26.815	5=26.855	8=26.895	11=26.925
3=26.835	6=26.865	9=26.905	12=26.945
4=26.845	7=26.875	10=26.915	13=26.955
			14=26.965(Chl)

POSITION #6=

1=26.485	11=26.445	21=26.735	31=26.675
2=26.335	12=26.465	22=26.745	32=26.685
3=26.345	13=26.475	23=26.775	33=26.695
4=26.365	14=26.485	24=26.755	34=26.705
5=26.375	15=26.655	25=26.765	35=26.715
6=26.385	16=26.675	26=26.785	36=26.725
7=26.395	17=26.685	27=26.795	37=26.735
8=26.415	18=26.695	28=26.805	38=26.745
9=26.425	19=26.705	29=26.655	39=26.755
10=26.435	20=26.725	30=26.665	40=26.765

MB8719 SSB Mod #4:
MB8719 Export Chassis:
Grant Export and work-alikes.



1. Install a SPDT/Center Off toggle switch in a convenient location. Locate Pin 11 of the MB8719 PLL Chip. Take note that the dot on the top side of this chip is on Pin 18, not Pin 1 as usual. Working from the foil side of the board, make a small cut on the land that connects pin 11 to the circuit board. Make sure that you totally isolate just this pin.

2. Install a 4.7K resistor across this cut as shown in the above illustration. Using 3 wire ribbon, solder each end to the switch and carefully solder the corresponding end to the locations as shown. Make sure that the center wire of the switch connects to pin 11, the bottom wire to pin 9, and the top wire connects to board ground. Some slight adjusting of the VCO Coil (L18) may be necessary to pop these channels in.

SW-1 in the Center Position = Normal Channels

SW-1 in the Down Position =

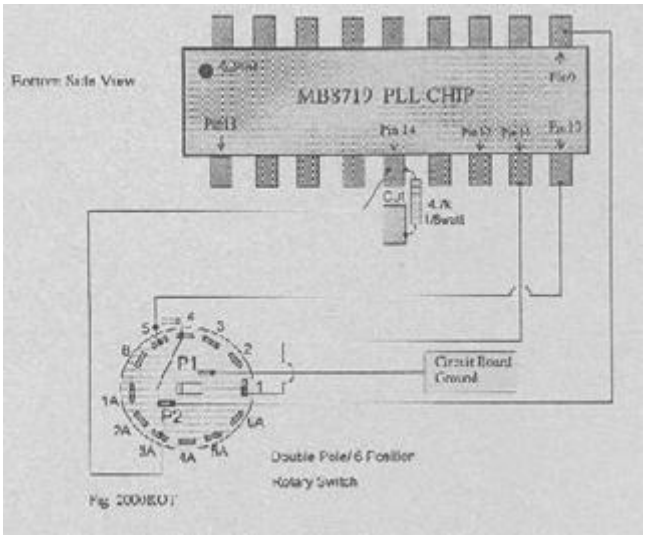
12=26.335	17=26.395	21=26.455	24=26.475
13=26.345	18=26.405	22=26.465	25=26.485
14=26.355	19=26.425	22=26.465	26=26.495
15=26.365	20=26.445	23=26.495	27=26.505
16=26.385			

SW-1 in the Up Position =

12=27.875	17=27.935	22=27.995	26=28.035
13=27.885	18=27.945	23=28.025	27=28.045
14=27.895	19=27.955	24=28.005	28=28.055

15=27.905 20=27.975 25=28.015
16=27.925 21=27.985

MB8719 Rotary Switch
Cobra 2000 GTL



1. Obtain a Double Pole/ 6 Position Rotary Switch. Be sure to get the Break Before Make type. You will also need 2 small signal diodes (1N914, 1N4148 or Equivalent), a piece of 5 wire ribbon cable long enough to reach from the switch to the PLL chip connections, and 1 4.7k 1/4 watt resistor. Also if the MB8734 has not been changed to an MB8719, you will need to change it before proceeding. Next solder the diodes to the switch as shown in the diagram above. Be sure that the cathode ends (Banded) are as shown once you have completed this step. The diode that connects between Pin 4 & Pin 5 should have the banded end to Pin 4 and the diode the connects between Pin 1 & Pin 4 should be the same.

2. Next locate Pin 14 of the PLL and using an ex-acto knife carefully isolate Pin 14. Next solder the 4.7k resistor across this cut in order to allow Pin 14 to operate at its normal state. Once this has been done you may connect the ribbon cable to switch prior to mounting the switch in it's permanent location. Be sure that the wires are connected as shown in the above diagram. Once that you have mounted the switch you may then make the connections to the PLL chip as shown above. Re-check all your connections before turning the unit on . The channel chart on the next page shows your new frequencies. Check all positions of the switch for these channels. Some adjustment of the VCO, coil (L19) may be necessary in some cases for full channel coverage.

POSITION #1 =

15=26.815	20=26.885	25=26.925	30=26.985(Ch3)
16=26.835	21=26.895	26=26.945	31=26.995(3A)
17=26.845	22=26.905	27=26.955	32=27.005(Ch4)
18=26.855	23=26.935	28=26.965(Chl)	
19=26.865	24=26.915	29=26.975(Ch2)	

POSITION #2 = Normal Channels

POSITION #3 =

37=27.415	38=27.425	39=27.435	40=27.445

POSITION #4 =

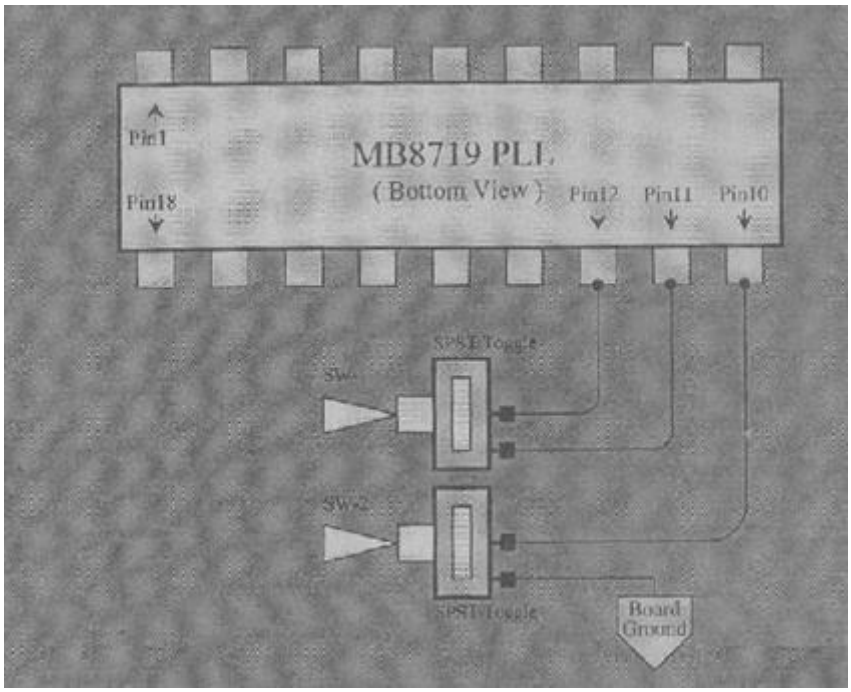
15=27.455	22=27.545	29=27.615	36=27.685
16=27.465	23=27.575	30=27.625	37=27.695
17=27.475	24=27.555	31=27.635	38=27.705
18=27.495	25=27.565	32=27.645	39=27.715
19=27.505	26=27.585	33=27.655	40=27.725
20=27.525	27=27.595	34=27.665	
21=27.535	28=27.605	35=27.675	

POSITION #5 =

1=27.605	11=27.725	21=27.855	31=27.955
2=27.615	12=27.745	22=27.865	32=27.965
3=27.625	13=27.755	23=27.895	33=27.975
4=27.645	14=27.765	24=27.875	34=27.985
5=27.655	15=27.775	25=27.885	35=27.995
6=27.665	16=27.795	26=27.905	36=28.005
7=27.675	17=27.805	27=27.915	37=28.015
8=27.695	18=27.815	28=27.925	38=28.025
9=27.705	19=27.825	29=27.935	39=28.035
10=27.715	20=27.845	30=27.945	40=28.045

POSITION #6 = Normal Channels

MB8734 REPLACED WITH MB8719
Tram D80 et al:

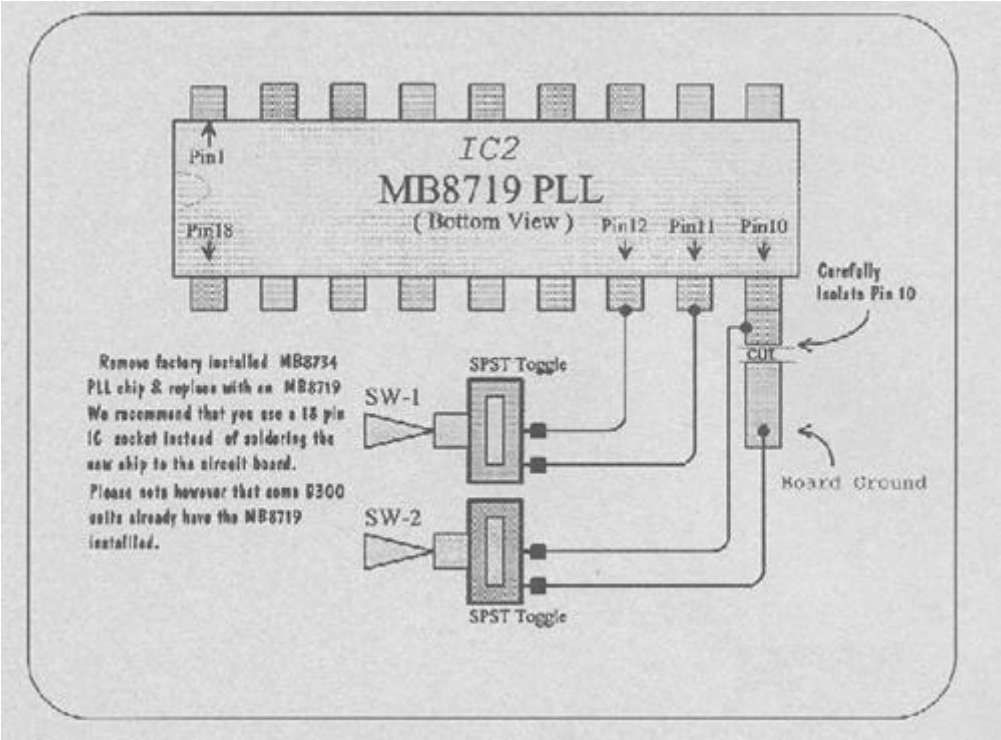


1. The TRAM D80 came from the factory with a MB8734 PLL chip installed . The above modification will work after changing this chip to an MB8719 PLL chip. Procedure is to carefully unsolder and remove the MB8734 chip, taking special note to how it was installed. The MB8719 is a direct replacement and on the older radios has pin 18 marked with a dot the same as the MB8734 chip. However please note that some of the newer radios have the dot on pin 1 of the MB8719 chip. So be very careful, be sure the new chip is installed properly. We recommend that you use a 18 pin IC socket to install the new MB8719 chip. Once that you are sure that you that you have the new MB8719 chip installed correctly, and that the radio works properly , then you may proceed with the above modification.

2. Mount 2 SPST Toggle switches in a convenient location . Be sure to wire the switches up as shown and to solder each wire carefully.

3. Now with both switches in the down position you will still have the normal channels. Refer to the 8719 Channel chart above for the switch positions and their associated channels.

MB8734 REPLACED WITH MB8719
Tram D300, Realistic TRC-490 et al:

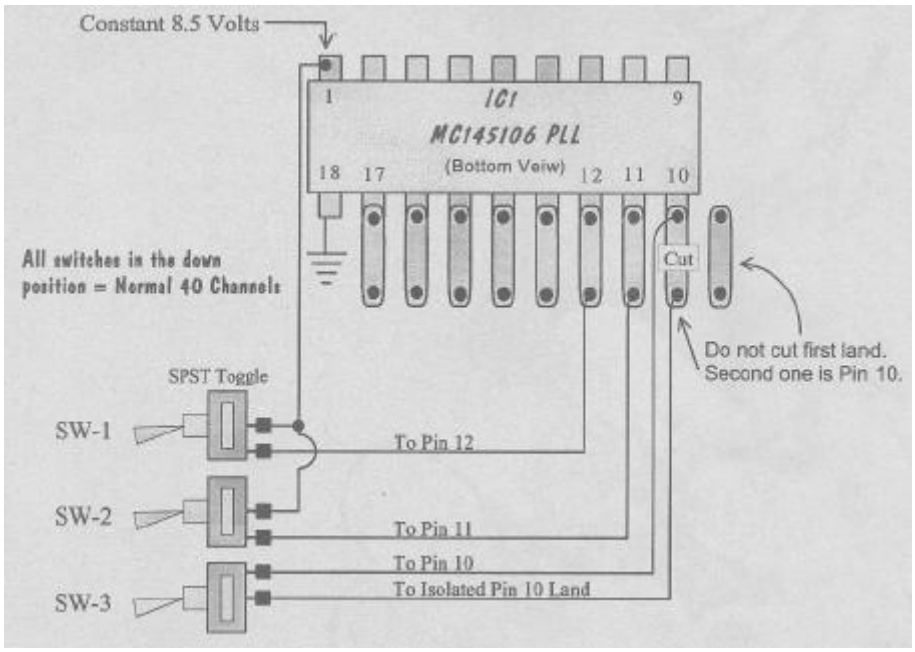


1. Unsolder and replace the MB8734 PLL IC with a new MB8719 IC Chip. Use an IC socket when replacing any Integrated Circuit for safety. Refer to the diagram above, and locate pin 10 of the newly installed MB8719 PLL chip. Notice that it is connected to ground. Make a small cut and totally isolate this pin from ground. You will need to isolate both sides of pin 10, and then connect a jumper across these cuts in order to tie just the two ground sides back together. (Do not reconnect Pin 10). Make sure that once this has been done that pin 10 is totally isolated. Next, turn the radio on and check to make sure that you have all of the normal channels and that the frequencies are correct before proceeding. If necessary adjust CT3 for USB first, then L19 for LSB, and L20 for Am while the clarifier is set to center slot. {This conversion is basically the same as the conversions for the Cobra 2000.}

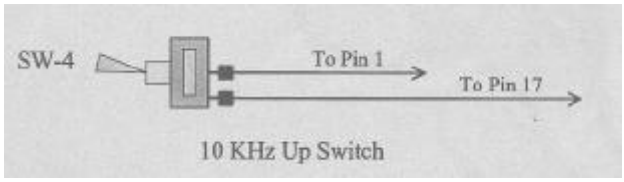
2. Next mount your switches and wire them up as shown in illustration above. Be sure to check all of your connections before proceeding. Refer to the 8719 Channel Chart above for your new frequencies.

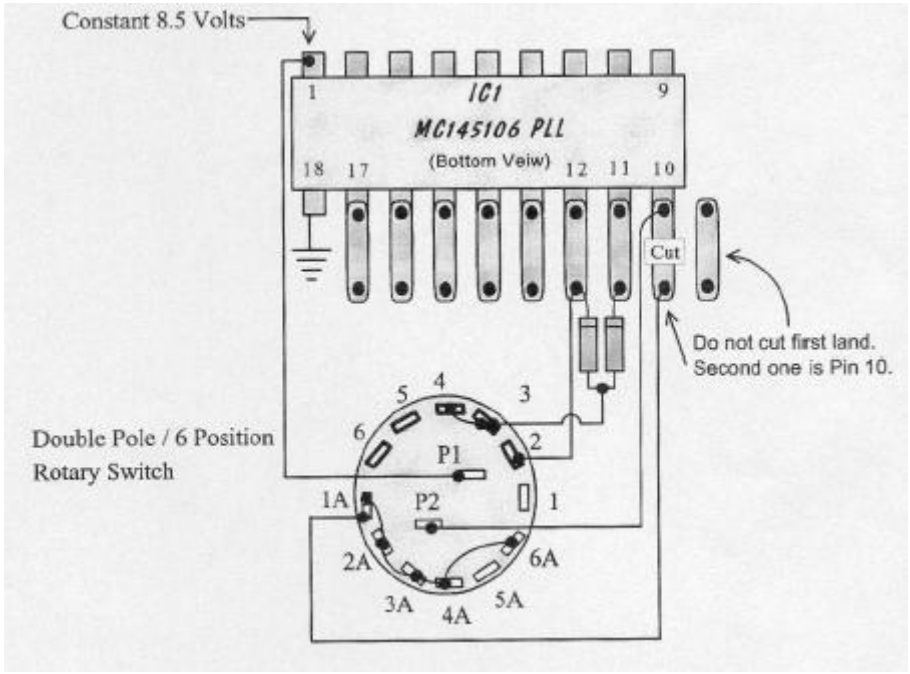
Note : Some of the older MB8719 Chips have the dot marking on pin 18. The newer MB8719 chips have the dot marking on pin 1. Regardless pin 1 is always the first pin to the top of the indentation marking on one end when viewed from the bottom side of the circuit board as shown above in Fig. TRC490.

MC145106
120 Ch. AM/FM Chassis
Superstar TEK 505D, Superstar 120 and like.



Switches work in conjunction with the band selector switch
An extra switch can also be added to pin 17 for 10KHz up on some channels:





[ROTARY] POSITION #1= Normal Channels
[SWITCH] SW-1 Down, SW-2 Down & SW-3 Down = Normal Channels

[ROTARY] POSITION #2 & HI Band Position =
[SWITCH] SW-1 Up & SW-2 Down & SW-3 Down & Hi Band Position =

1=27.735	6=27.795	11=27.855	16=27.925
2=27.745	7=27.805	12=27.875	17=27.935
3=27.755	8=27.825	13=27.885	18=27.945
4=27.775	9=27.835	14=27.895	19=27.955
5=27.785	10=27.845	15=27.905	

[ROTARY] POSITION #3 & MID Band Position =
[SWITCH] SW-1 Up, SW-2 Up, SW-3 DOWN & Mid Band Position =

33=27.605	35=27.995	37=28.015	39=28.035
34=27.455	36=28.005	38=28.025	40=28.045

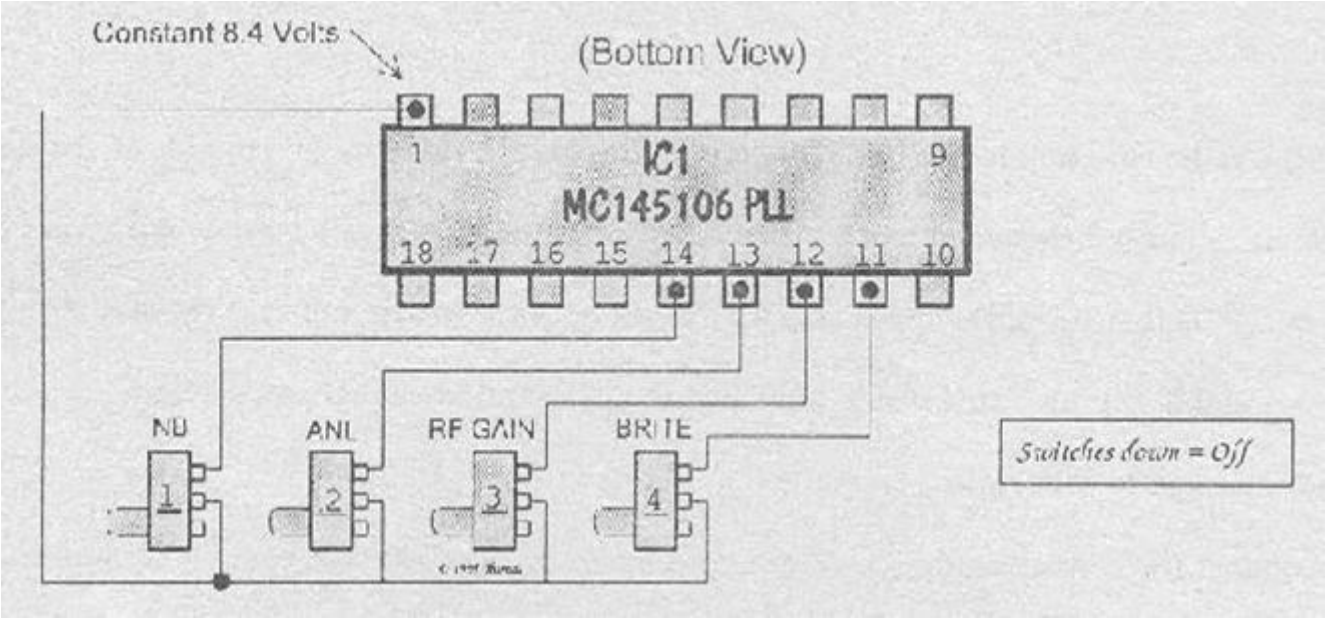
[ROTARY] POSITION #4 & HI Band Position =
[SWITCH] SW-1 Up, SW-2 Up, SW-3 Down & Hi Band Position =

1=28.055	6=28.115	11=28.175	16=28.245
2=28.065	7=28.125	12=28.195	17=28.255
3=28.075	8=28.145	13=28.205	18=28.265
4=28.095	9=28.155	14=28.215	19=28.275
5=28.105	10=28.165		

[ROTARY] POSITION #5 & HI Band Position =
[SWITCH] SW-1 Down, SW-2 Down, SW-3 Up & Hi Band Position =

11=26.255	19=26.355	27=26.445	35=26.525
12=26.275	20=26.375	28=26.455	36=26.535
13=26.285	21=26.385	29=26.465	37=26.545
14=26.295	22=26.395	30=26.475	38=26.555
15=26.305	23=26.425	31=26.485	39=26.565
16=26.325	24=26.405	32=26.495	40=26.575
17=26.335	25=26.415	33=26.505	
18=26.345	26=26.435	34=26.515	

MC145106 PLL
US [SSB] Chassis
Palomar SSB-500 (Late), Colonel FR360 and similar: Browning Mark 4A, Cobra 148GTL-DX, Dak Mark V, Robyn 440, Dak Mark IX, Lake 600, Arthur Fulmer 15-4040, Regency CB501, SBE 54CB Keycomm 1000



1.Unsolder the brown & red wires from the NB switch. Now solder these two wires together, and seal with heat shrinkable tubing. This will allow your Noise Blanker to be in the on position at all times. Next unsolder the Brown wire & Gray wire from the ANL switch. Seal the unsoldered ends with heat shrinkable tubing. Do not solder the Brown wire and the gray together. Again this will allow your ANL circuit to be on at all times. Next unsolder the Orange wire and the Red wire from the RF Gain switch. Solder these two wires together and seal this connection with heat shrinkable tubing. Next unsolder the two red wires from the Brite & Dim switch. Again solder these two wires together and seal up with heat shrinkable tubing. This will allow the brite circuit to be on at all times. Next remove the 470 ohm resistor from the Brite & Dim switch.

(if your rig does not have the same switches as the Palomar SSB-500, simple mount 4 SPST switches in a convenient location)

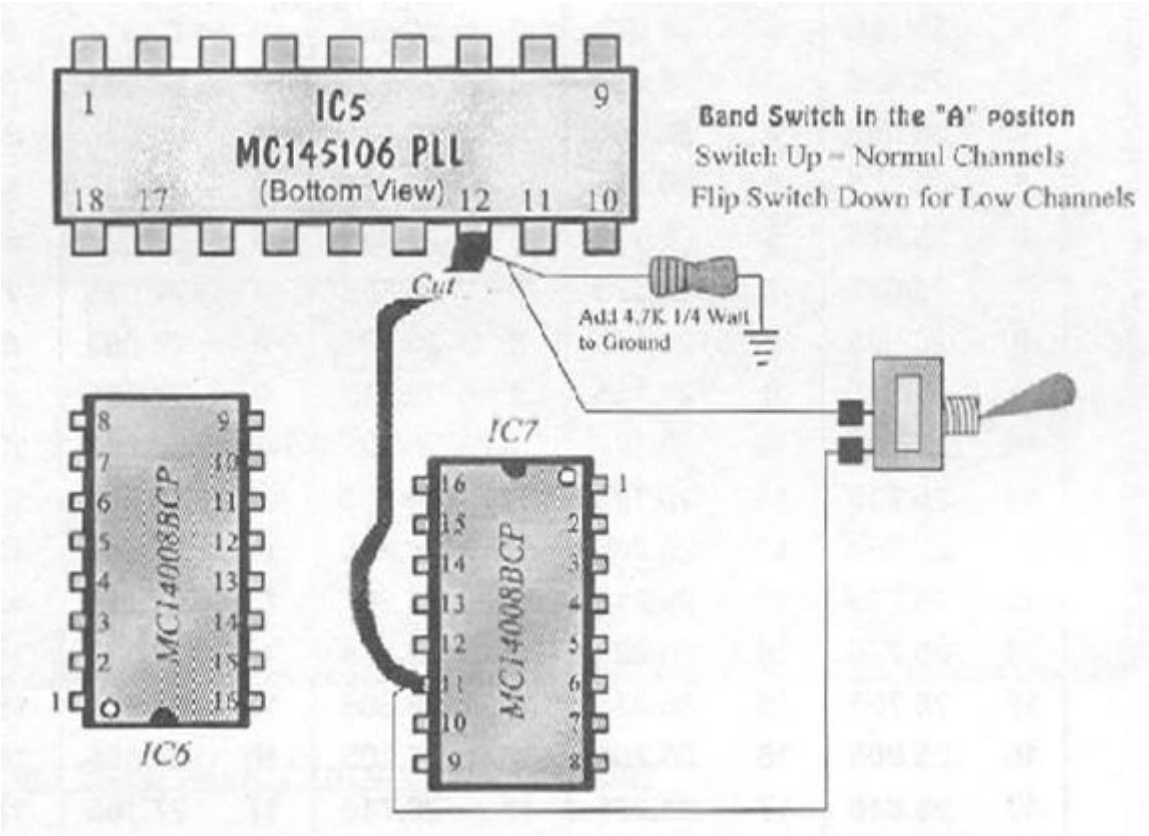
2. Once the above step has been completed, proceed to wire the switches as shown in the diagram pictured above. Now with all switches in the down position you will still have the normal 40 channels. A channel chart is provided below for reference of your new channels.

NB SWITCH UP	ANL SWITCH UP	NB & ANL SWITCH UP	RF GAIN SWITCH UP	NB & RF GAIN SW UP
33-27.415	33-27.495	33-27.575	33-27.655	33-27.735
34-27.425	34-27.505	34-27.585	34-27.665	34-27.745
35=27.435	35-27.515	35-27.595	35-27.675	35=27.755
36-27.445	36-27.525	36-27.605	36=27.685	36-27.765
37-27.455	37-27.535	37-27.615	37=27.695	37=27.775
38=27.465	38=27.545	38-27.625	38=27.705	38=27.785

39-27 475 40-27.485	39-27.555 40-27.565	39-27.635 40=27.645	39-27.715 40=27.725	39=27.795 40=27.805
ANL & RF GAIN UP	NB,ANL,RF GAIN UP	BRITE SW UP	NB & BRITE SW UP	ANL & BRITE SW UP
33=27.815	33-27.895	33-27.975	33=28.055	33=28.135
34=27.825	34-27.905	34-27.985	34-28.065	34=28.145
35-27.835	35-27.915	35-27.995	35-28.075	35-28.155
36-27.845	36-27.925	36-28.005	36-28.085	36=28.165
37=27.855	37-27.935	37-28.015	37=28.095	37=28.175
38=27.865	38=27.945	38=28.025	38=28.105	38-28.185
39=27.875	39=27.955	39=28.035	39=28.115	39=28.195
40=27.885	40-27.965	40-28.045	40=28.125	40=28.205

MC145106 (on EPT360014B, etc.)
Typical "6 Band Export Chassis" Frequency Modification.

25 MHz Modification:



1.) Remove both radio covers and unplug the speaker wires from the circuit board. Next isolate the circuit board run that connects pin 11 of IC7 to Pin 12 of IC5 (MC145106 PLL). Using an x-acto knife, carefully cut and isolate Pin 12 of IC5 as shown in the diagram above.

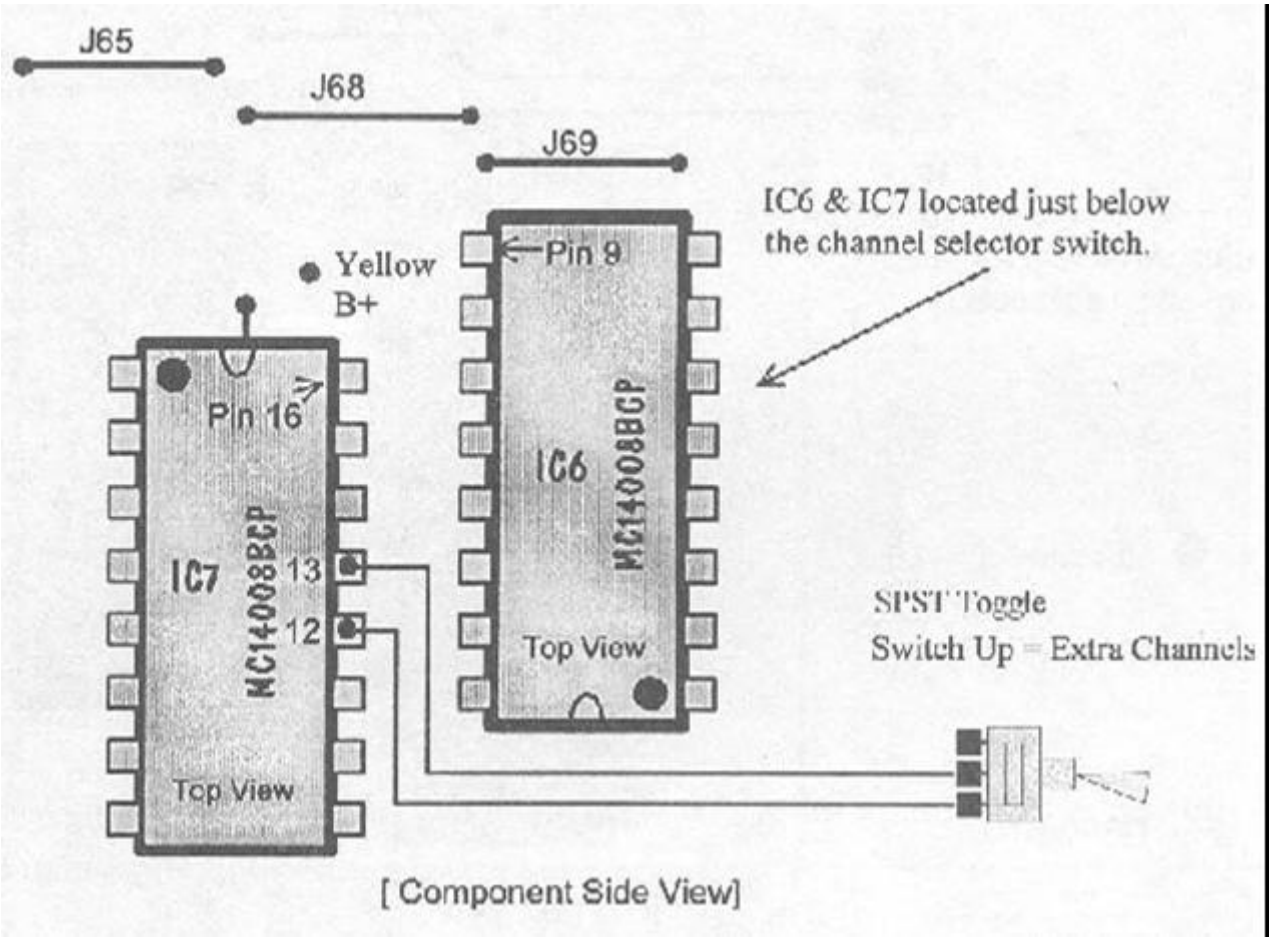
2.) After you have completely isolated Pin 12 of IC5, solder a 4.7K 1/4 Watt resistor from Pin 12 of 1C5 to circuit board ground as shown above. Next mount a SPST toggle switch in any convenient location and wire as shown above.

3.) Re-check all connections and plug speaker wire in before applying power. Sec the chart below for your new 25MHz channels.

Flip-Switch down and Band Selector in the "A" Position:

5=25.345	11=25.415	17=25.495	23=25.585
6=25.355	12=25.435	18=25.505	24=25.565
7=25.365	13=25.445	19=25.515	25=25.575
8=25.385	14=25.455	20=25.535	26=25.595
9=25.395	15=25.465	21=25.545	27=25.605
10=25.405	16=25.485	22=25.555	28=25.615

29 MHz Modification:



1.) Remove both radio covers and unplug the speaker wires from the circuit board. Next locate Pin 12 and Pin 13 of

1C7 (MC14008BCP adder chip). This conversion is shown from the component side, however you could also perform this conversion from the circuit board side instead.

2.) Next mount a SPST toggle switch in any convenient location and wire as shown above, being careful not to short any other pins of IC7 with a solder bridge while soldering the wires from the SPST switch.

3.) Re-check all connections and plug speaker wire in before applying power. See the chart below for your new 29MHz channels.

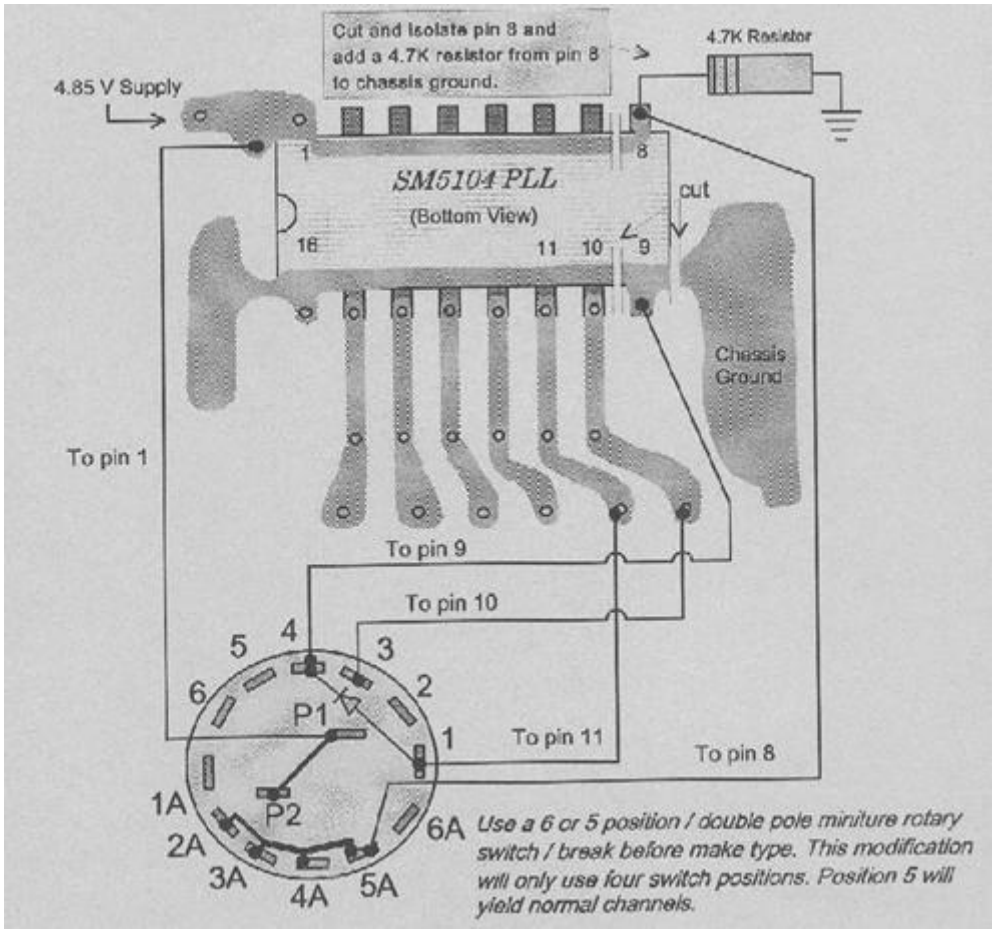
Flip-Switch up and Band Selector in the "F" Position:

4=29.185	10=29.255	16=29.335	22=29.405	28=29.465	34=29.525
5=29.195	11=29.265	17=29.345	23=29.435	29=29.475	35=29.535
6=29.205	12=29.285	18=29.355	24=29.415	30=29.485	36=29.545
7=29.215	13=29.295	19=29.365	25=29.425	31=29.495	37=29.555
8=29.235	14=29.305	20=29.385	26=29.445	32=29.505	38=29.565
9=29.245	15=29.315	21=29.395	27=29.455	33=29.515	39=29.575
					40=29.585

MC145106
Palomar SSB-500 and like chassis
"Divide By 5" modification - gives frequencies ending in ".000"

a. Ground Pin 6 (PLL Chip) for divide by 5 through a switch,
b. +5 to 6 VDC to Pin 6 (PLL) for divide by 10 through a switch.
Use one switch for this, such as a miniature SPDT center off toggle or DPDT center off.

SM5104 PLL
SSB Chassis, Sears Model 934.38270700
and like:



Once you have the radio apart you will need to unsolder the metal cover in order to expose the pins on PLL chip (SM5104). Next make all needed cuts and add the 4.7K resistor from pin 8 board ground. Be sure the wire leads do not short to any other pins or connections.

Next mount your rotary switch in any suitable location. Wire the switch as shown above.

Be sure to add the IN4148 or 1 N914 signal diode from pint to pin 4 of the rotary switch. Cathode (banded end) connects to pin 4. Jumper pins 2A, 3A, 4A, & 5A together.

Some slight adjustment may of T302 (VCO) may be needed in order to cover all channels. T302 is located just behind the PLL chip. Be sure to use only a square plastic tool when adjusting this can. The coils break easily and it is very difficult to find replacements.

Position #1 =

1=26.485	11=26.605	21=26.575	31=26.835
2=26.495	12=26.625	22=26.585	32=26.845
3=26.505	13=26.635	23=26.615	33=26.855
4=26.525	14=26.485	24=26.595	34=26.865
5=26.535	15=26.495	25=26.605	35=26.875

6=26.545	16=26.515	26=26.625	36=26.885
7=26.555	17=26.525	27=26.635	37=26.895
8=26.575	18=26.535	28=26.805	38=26.905
9=26.585	19=26.545	29=26.815	39=26.915
10=26.595	20=26.565	30=26.825	40=26.925

Position #2 = FCC 40 Channels

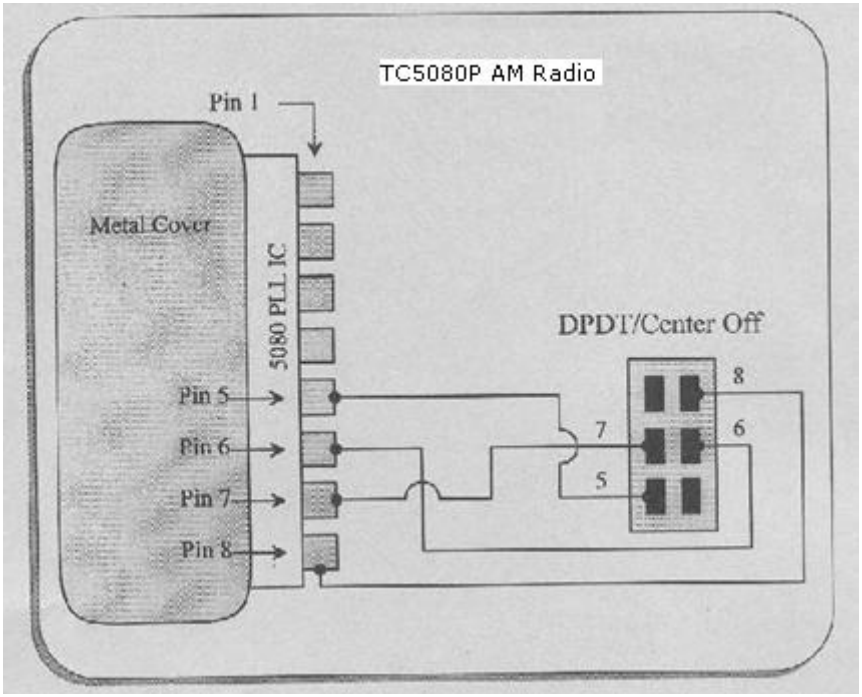
Position #3 =

12=27.425	16=27.475	20=27.525	24=27.555
13=27.435	17=27.485	21=27.535	25=27.565
14=27.445	18=27.495	22=27.545	26=27.585
15=27.455	19=27.505	23=27.575	27=27.595

Position #4 =

1=27.605	11=27.725	21=27.855	31=27.955
2=27.615	12=27.745	22=27.865	32=27.965
3=27.625	13=27.755	23=27.895	33=27.975
4=27.645	14=27.765	24=27.875	34=27.985
5=27.655	15=27.775	25=27.885	35=27.995
6=27.665	16=27.795	26=27.905	36=28.005
7=27.675	17=27.805	27=27.915	37=28.015
8=27.695	18=27.815	28=27.925	38=28.025
9=27.705	19=27.825	29=27.935	39=28.035
10=27.715	20=27.845	30=27.945	40=28.045

TC5080P AM Mod #1:
Sears Model 562.38200700 and like chassis.
The Toshiba TC5080P will be present, ALONG WITH
the TC5081 Phase Comparator AND
the TC5082 Reference Oscillator and Divider.
Make sure you're operating on the proper IC!!



1. Mount a DPDT/Center Off switch in a convenient location.

2. Locate the small 2" square metal plate that is soldered to the bottom of the circuit board. Locate the pins of the 5080 PLL IC that are located just to the right of this plate. After you have located Pins 5, 6, 7 and 8, carefully solder a wire to each pin. Make sure to use enough wire to easily reach your switch.

3. Solder the opposite end of each wire to the correct position of your switch. Check to make sure that your channels are right. With the switch in the center position you will have normal channels. This modification allows you to go from channel 41 to channel 58 without any skips.

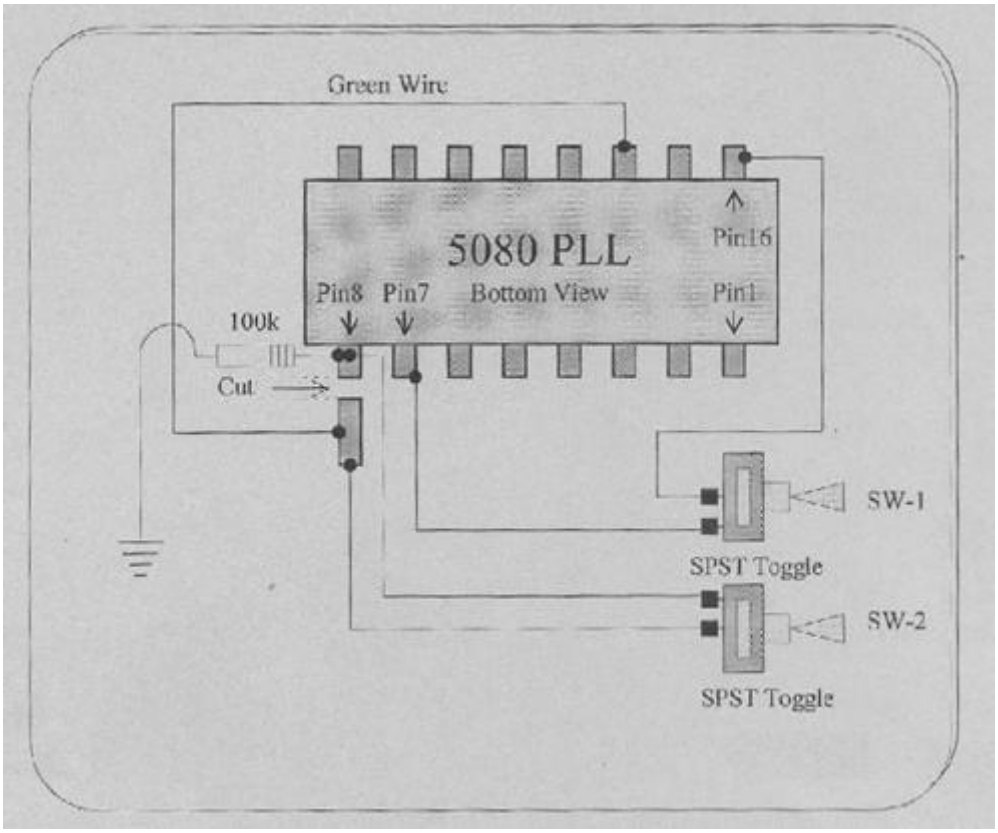
Switch in DOWN Position =

3=27.145 (15A)	29=27.455	33=27.495	3l=27.535
7=27.195 (19A)	30=27.465	34=27.505	38=57.545
27=27.435	31=27.475	35=27.515	39=27.555
28=27.445	32=27.485	36=27.525	40=27.565

Switch in UP Position =

12=27.425	22=27.545	25=27.565	34=27.425
20=27.505	23=27.575	26=27.585	
21=27.535	24=27.555	33=27.415	

TC5080P AM Mod #2
Cobra 32XLR, Cobra 86XLR, Tram D42, etc.



1. Locate Pin 8 of the 5080 PLL. There will be a green wire connected to it. The other end of this green
wire goes to Pin 13. Carefully unsolder the green wire from Pin 8. Next remove the excess solder from
the Pin 8 land with some solder wick. Once this is done make a small cut with an ex-acto knife in order to
isolate just Pin 8 of the 5080 PLL. Be sure to totally isolate this pin. Next carefully solder a 100k 1/4watt
resistor from Pin 8 to ground. Now re-solder the green wire to the other side of the cut.

2. Next mount 2 SPST toggle in a convenient location. Be sure to orient the poles of the two switches as
shown in the above diagram. Next using some 4 wire ribbon cable connect the switches to the circuit
board as shown in the above diagram. Be sure to check for any solder bridges that may have occurred
while soldering the wires to the PLL chip. Once completed your conversion should match the diagram
above. Refer to the 5080 Channel Chart below for your new frequencies.

POSITION #1 SW-1 Down and SW-2 DOWN = Normal Channels

POSITION #2 SW-1 UP and SW-2 UP

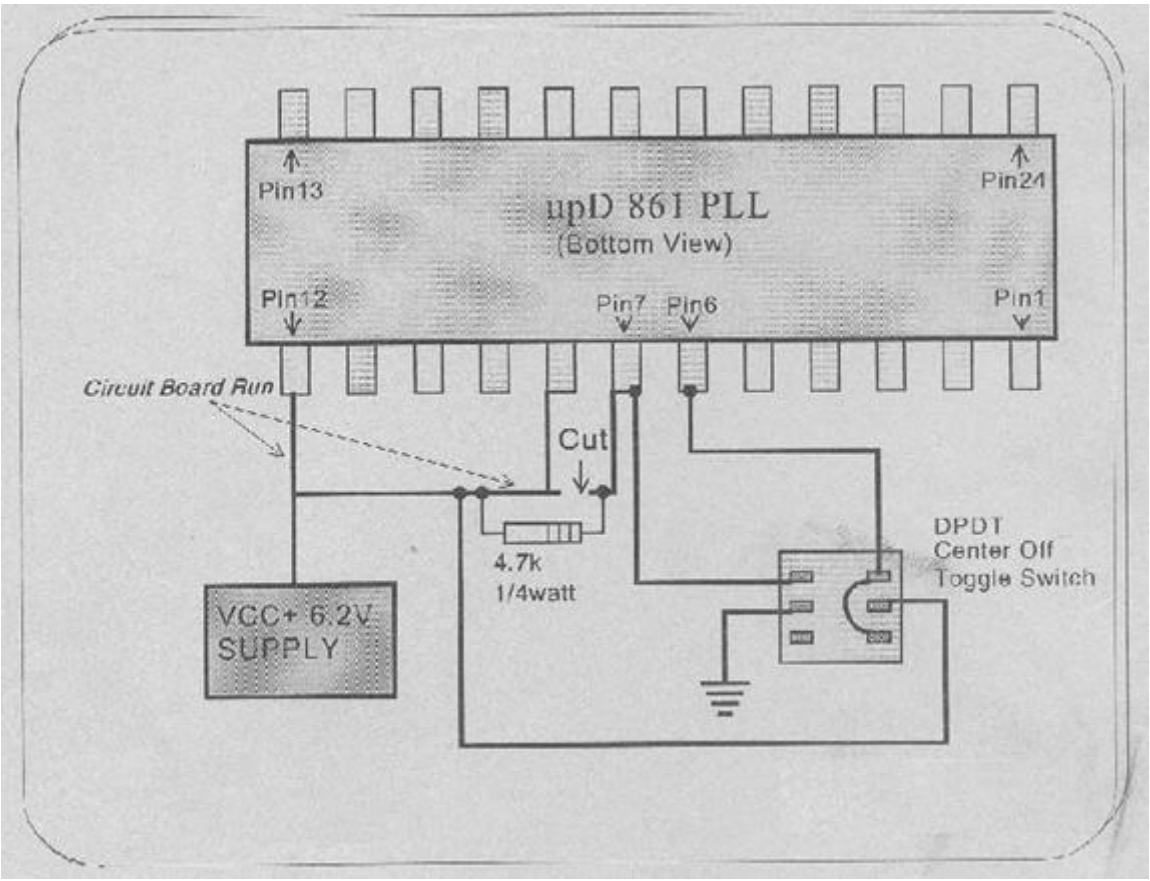
3=26.665	9=26.745	15=26.815	21=26.895
4=26.685	10=26.755	16=26.835	22=26.905

5=26.695	11=26.765	17=26.845	23=26.935
6=26.705	12=26.785	18=26.855	24=26.915
7=26.715	13=26.795	19=26.865	25=26.925
8=26.735	14=26.805	20=26.885	26=26.945

POSITION #3 SW-1 UP and SW-2 DOWN

11=27.405	15=27.455	19=27.505	23=27.575
12=27.425	16=27.475	20=27.525	24=27.555
13=27.435	17=27.485	21=27.535	25=27.565
14=27.445	18=27.495	22=27.545	26=27.585

uPD861 AM Chassis.
Realistic TRC-431 and similar:



1. Locate the metal plate on the bottom of the board which covers the upD861. Carefully bend up the tabs in order to remove and to expose the board underneath. This plate will need to be re-installed once the conversion is completed.

2. Notice that Pin 7,8,12 are all tied to the VCC+ (6.2V Supply). Using an ex-acto knife, carefully cut the circuit board in order to totally isolate pin 7 of the PLL chip. Next solder a 4.7k resistor across this cut. This will allow Pin 7 to still operate at it's normal state.

3. Next mount a DPDT/Center Off toggle switch in a convenient location. Following the

diagram above,vwire the switch to the radio circuit board as shown. Once completed recheck all connections. If all the channels are not present as shown below, some slight adjustment of T802 (VCO) and T803 (37 MHz Can) may be required in order to pop them all in.

POSITION #1 Switch Down

1=26.645	11=26.765	21=26.895	31=26.675
2=26.655	12=26.785	22=26.905	32=26.685
3=26.665	13=26.795	23=26.615	33=26.695
4=26.685	14=26.805	24=26.915	34=26.705
5=26.695	15=26.815	25=26.605	35=26.715
6=26.705	16=26.835	26=26.625	36=26.725
7=26.715	17=26.845	27=26.635	37=26.735
8=26.735	18=26.855	28=26.645	38=26.745
9=26.745	19=26.865	29=26.655	39=26.755
10=26.75	20=26.885	30=26.665	40=26.765

POSITION #2 SWITCH CENTER = NORMAL CHANNELS

POSITION #3 SWITCH UP

11=27.405	15=27.455	18=27.495	21=27.535
12=27.425	16=27.475	19=27.505	22=27.545
13=27.435	17=27.485	20=27.525	24=27.555
14=27.445			