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C.B. TUNE-UP MANUAL MASTER EDITION



Volume II

Covers standard radio tune-up information
Channel modifications
Repair tips



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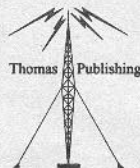
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CB TUNE-UP MANUAL MASTER EDITION

VOLUME II

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INTRODUCTION

Improving CB. performance is often attempted by many without knowing which adjustments to use, or modifications to make. Even more frustrating is trying to remember or compile this information for future use. It is our goal to supply good useful information in an easy to understand MANUAL FORMAT. We feel that it is very important to supply information that will be useful and profitable for you.

With this volume we have also included several channel conversions on many popular PLL Chips and Radios. This is in response to the many requests that we have had for this type of information. We realize that some of you may already know some of these modifications. Regardless, it is our intention to cover all bases and supply a broad base of requested information in order to provide something for everyone.

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In COLUMN 1 you will find the MODEL NUMBER of each radio, COLUMN 2 provides MODULATION information, COLUMN 3 provides AM POWER ADJUSTMENTS, and COLUMN 4 lists S.S.B. ADJUSTMENTS if applicable. On some S.S.B. models we have shown 2 adjustments. The first will be for S.S.B. modulation and the second is for the S.S.B. power (ALC). If only one adjustment is shown in the SSB column, then it will be for S.S.B. power (ALC).

MANUFACTURERS NAME			
MODEL	MODULATION	AM POWER	SSB POWER
MCB-5000 ¹	R268 or Cut D207 or Rem.C273	L202,L204	RV8,RV5
See footnote for more specific information.	Adjust R268 for modulation or cut one end of D207 or remove C273 from the circuit.	Adjust L202 & L204 for Am Power .	Adjust RV8 for SSB modulation & RV5 for SSB power.

Some of the POWER ADJUSTMENTS listed do not have tuning slugs. However these coils can still be adjusted by either spreading the coils or by moving the coils closer together. These coils can be modified by removing 1 turn in order to allow you to move them closer together, and increase tuning range.

AUDIOVOX RADIOS			
MODEL	MODULATION	AM POWER	SSB POWER
CB-26	RV-3 or Remove C39 from the circuit	L3,L6,L7	

COBRA RADIOS			
MODEL	MODULATION	AM POWER	SSB POWER
25LTD Classic Gold	VR5 or Cut one end of D9	L13,L10,L9,L8	

COLT RADIOS			
MODEL	MODULATION	AM POWER	SSB POWER
359	RV-3	L3,L5,T9,L6,L7	

COMMTRON RADIOS			
MODEL	MODULATION	AM POWER	SSB POWER
CXX	RV201 or cut one end D203	L305,L306,L307	

GALAXY RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
MARS ¹	Cut one end R104 & D11 ²	L14,L12,L11,L10 (Hi Power)	

1 Features are similar to President "JFK".

2 Located in right front corner near mike socket.

MAXON RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
LP-27	RV202	L307	

REALISTIC RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
TRC-435	VR4	L12,L19,L18,L17	
TRC-465	VR5	VR10	VR6

SEARS RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
592-38220700	Cut one end D11	L2,L1	
663-38090050	Cut JP10 (Jumper)	L14,L15,L16	

SOMMERKAMP RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
TS-2000DX	VR14 or Cut one end R291 ¹	VR13	VR12

1 Located behind VR15 & C10.

SUPERSTAR RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
121	VR12(LO) VR14(Hi)	VR16(Lo) VR13(Hi)	
LBJ ¹	Cut one end R104 & D11 ²	L14,L12,L11,L10 (Hi Power)	

1 Features are similar to President "JFK".

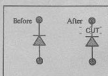
2 Located in right front corner near mike socket.

UNIDEN (PRESIDENT) RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
PRO 535e	Cut one end of D12	L11,L10	
PRO 538w	Cut one end of D12	L11,L10	

WHISTLER RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
700	Cut R225	L304,L305,L306	



Tip: When making any cuts to the circuit board components, always be sure to cut only the wire lead. This will allow you to resolder the component in case you accidentally cut the wrong part. Once that you are sure that you have the right component cut, you may then totally remove it from the circuit if so desired.

NEW PRODUCT RELEASE

SUPER-TALK™ w/ Variable Power Kit

Once in awhile a new product comes along for Citizen Band radios that serves a very useful purpose. The SUPER-TALK™ KIT is such a product.

What does the SUPER-TALK™ do you ask? Plenty! It will make your radio's 4 watts operate and sound like 25 Watts and gives you variable power capabilities to boot. It makes your modulation super loud by improving the timing constant of your radios transmit section thus improving performance. The SUPER-TALK™ is designed to install easily in most popular radios. You can also install it in SSB radios for adding variable power capabilities. Great for Export Radios also!

The SUPER-TALK™ w/ Variable Power is available from your local dealer or distributor. Try it, you'll like it!

Cobra® 29LTD Classic w/ Super Talk-Variable Power Kit .

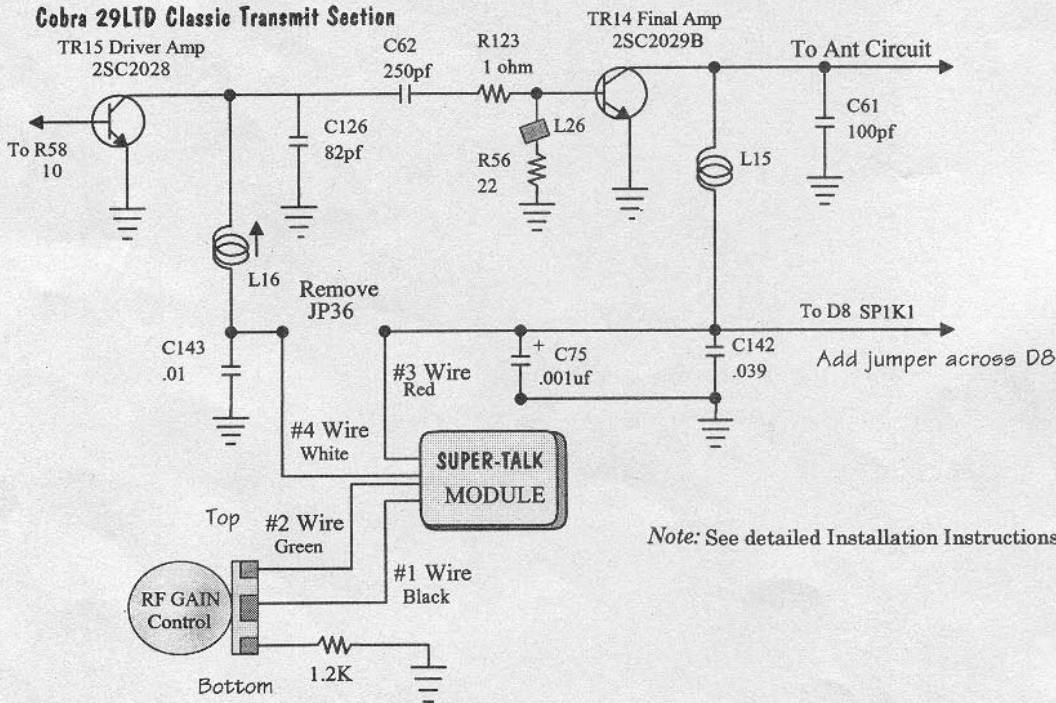
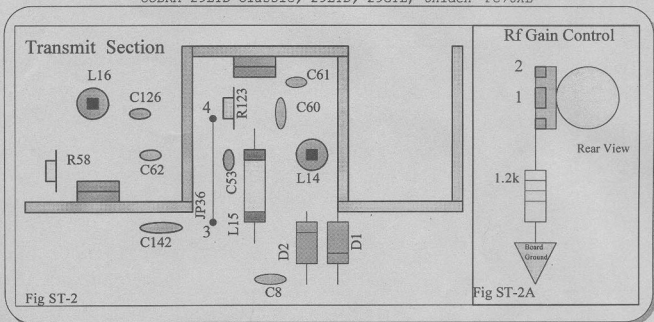


Fig ST-COB29

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SUPER TALK™ Installation Instructions
 for
 COBRA® 29LTD-Classic, 29LTD, 29GTL, Uniden® PC76XL



1. Locate the unused terminal on the Radio RF GAIN control and solder a 1.2K (1/2 Watt) resistor to this Terminal. Solder a 4" piece of hook-up wire from the other end of the resistor to the circuit board ground.

2. Remove the other 2 wires from the RF GAIN control and solder together. These wires are normally blue and yellow. Tape up this connection well.

3. Solder the #1 wire of your **SUPER TALK-VARIABLE POWER KIT** to the center terminal of the RF GAIN control. Solder the #2 wire of your kit to the other terminal on the RF GAIN control. Find D8, located near the audio transformer and solder a jumper across this diode.

4. Locate JP36 near transmit final & unsolder and remove. Clean the holes in circuit board from where JP36 was removed in order to accept the other 2 wires of your kit. Insert and solder the #3 wire of your kit into the hole closest to the front of the radio from which JP36 was removed. Insert and solder the #4 wire into the other hole that is nearer to the transmit final. Tie up all your wires and either tape or glue your kit to some solid place in the radio.

SUPER TALK™ Installation Instructions

for

COBRA® 25LTD-CLASSIC, 25LTD, 21GTL, 25GTL, President® AR44, AX44, P220, ANDREW "J",
PRESIDENT® AR711, AX711, UNIDEN® PC66A, PC66XL

Transmit Section

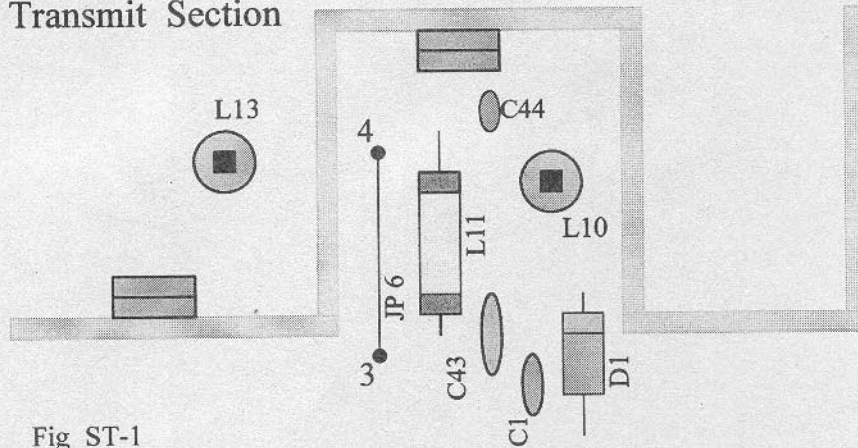


Fig ST-1

Rf Gain Control

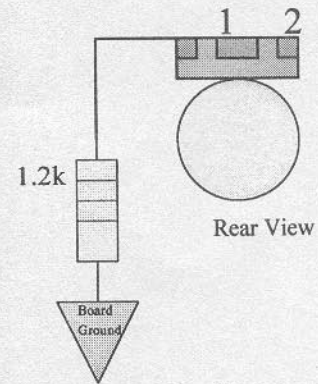


Fig ST-1A

1. Locate the unused terminal on the Radio RF GAIN control and solder a 1.2K (1/2 Watt) resistor to this Terminal. Solder a 4" piece of hook-up wire from the other end of the resistor to the circuit board ground.
2. Remove the other 2 wires from the RF GAIN control and solder together. These wires are normally yellow and brown. Tape up this connection well.
3. Solder the #1 wire of your **SUPER TALK-VARIABLE POWER KIT** to the center terminal of the RF GAIN control. Solder the #2 wire of your kit to the other terminal on the RF GAIN control. Locate D10 located near the audio transformer and solder a jumper across this diode.
4. Locate JP6 near transmit final & unsolder and remove. Clean the holes in circuit board from where JP6 was removed in order to accept the other 2 wires of your kit. Insert and solder the #3 wire of your kit into the hole closest to the front of the radio from which JP36 was removed. Insert and solder the #4 wire into the other hole that is nearest to the transmit final. Tie up all your wires and either tape or glue your kit to some solid place in the radio.

RADIO TRANSMIT POWER MODIFICATION SECTION

As many of you have noticed, most radios will develop more peak power with a whistle than when using normal voice when aligning the transmit section for more power. First of all you should never use a whistle when tuning for maximum forward (PEAK) power. Instead use a constant tone no higher than 300 to 400 Hz (Normal Voice Range). This tone can either be generated by most tone generators, or by using a steady ah-h-h-h-h sound as you speak into the mike. *Never whistle into the mike when tuning any radio*, unless your customer has a very high pitched voice.

The following modifications allow you to obtain maximum peak output power, by increasing normal voice range sensitivity. Improvement will vary anywhere from 25% to 50% depending the radio's circuitry. These modifications should be performed only after doing a standard radio tune-up.

We have also shown the nominal value of most parts to change, however these may vary from radio to radio. When replacing any parts be sure to change or use only those specified and make sure your replacement has at least the same wattage or voltage rating.

MODEL: Cobra 19 Plus (Model with Plastic Case)

1. Change R48 (3.3K) in audio circuit to a 1K.
2. Change R94 2.2 Ohm in final circuit to a .47 Ohm.
3. Re-Tune L11, L12, L13 for Maximum Forward Power.

MODELS: Cobra 25 LTD Classic Gold

1. Change R76 (3.3K) to a 1K. (Located near mike socket)
2. Change R43 (10 Ohm) to a 2.7 Ohm.
3. Change R108 (1 Ohm) to a .47 Ohm.
4. Re-tune L10, L9, L8 for maximum Forward Power.

RADIO TRANSMIT POWER MODIFICATION SECTION

MODEL: Galaxy Mars

1. Remove or cut R104 & D11 from circuit. (*Located in right front corner*)
2. Change R109 (10K) to a 2.2K. (*Located next to R104*)
3. Re-tune L14, L12, L11, L10 for Maximum Forward Power.
4. Check transmit on FM. If modulation is not clear, adjust VR5 counter-clockwise for good clarity on FM transmit.

MODEL: Midland 200M (77-200)

1. Remove TR17 & C70.
2. Change R64 (1K) to a 470 Ohm. (*Located in audio circuit.*)
3. Change C105 (220 pf NPO) to a 270pf NPO. (*Located in final circuit.*)
4. Change R112 (1 Ohm) to a .47 Ohm. (*Located in final circuit.*)
5. Re-Tune L14, L15, L16 for Maximum Forward Power

MODEL: Realistic TRC-465

1. Remove Q27 (*Located Under Mike Socket.*)
2. Change 10K resistor between mike white audio lead and collector of Q27 to a 1K.
3. Change 10K resistor between base of Q26 and disc Capacitor from collector of Q27 to a 1K.
4. Re-Tune for Maximum Forward Power.

MODEL: Realistic TRC-467

1. Remove Q107.
2. Change R140 (1K) to a 470 Ohm.
3. Change C168 (56pf NPO) to a 120pf NPO.
4. Change R179 (5.6 Ohm) to a 1 Ohm.
5. Re-Tune L104, L106, L107, L108 for Maximum Forward Power.

MODEL: Sears 663-38000900

1. Remove TR17 & Cut D8.
2. Change R41 (4.7K) to a 1K. (*Located in audio circuit*)
3. Change R62 (1 Ohm) to a .47 Ohm.
4. Re-Tune L16, L17, L18 for Maximum Forward Power.

MODEL: Sears 663-38090050

1. Change R113 (1 Ohm) to a .47 Ohm.
2. Re-Tune L14, L15, L16 for Maximum Forward Power.

RADIO TRANSMIT POWER MODIFICATION SECTION

MODEL: Sears 934-38062700

1. Remove Q10 & Q9.
2. Change R43 (4.7K) to a 1K. (*Located in audio circuit*)
3. Change R70 (10 Ohm) to a 4.7 Ohm. (Driver circuit.)
4. Change R62 (2.2 Ohm) to a .47 Ohm. (Final circuit.)
5. Re-Tune T13, T14, T15 for Maximum Forward Power.

MODEL: Superstar 121

1. Change R142 (10K) to a 2.2K
2. Change R174 (10K) to a 2.2K.
3. Check transmit on FM. If modulation is not clear, adjust VR5 counter-clockwise for good clarity on FM transmit.

MODEL: Superstar LBJ

1. Remove or cut R104 & D11 from circuit. (*Located in right front corner*)
2. Change R109 (10K) to a 2.2K. (Located next to R104)
3. Re-tune L14, L12, L11, L10 for Maximum Forward Power.
4. Check transmit on FM. If modulation is not clear, adjust VR5 counter-clockwise for good clarity on FM transmit.

MODEL: Uniden PC-77

1. Remove TR31
2. Change R142 (2.2K) in audio circuit to a 560 Ohm.
3. Change R122 (12 Ohm) in driver circuit to a 4.7 Ohm.
4. Change R119 (1 Ohm) in final circuit to a .47 Ohm.
5. Re-Tune L13, L12, L11 for Maximum Forward Power.

MODEL: Uniden PC-122

1. Remove Q27 (*Behind Squelch adjustment on circuit board*).
2. Change 10K resistor between mike white audio lead and collector of Q27 to a 1K.
3. Change 10K resistor between base of Q26 and disc Capacitor from collector of Q27 to a 1K.
4. Re-Tune for Maximum Forward Power.

02A PLL CHIP CHANNEL CONVERSIONS

Next we will cover channel modifications on the following radios. Note that we have listed after each model the VCO adjustment and the Transmit balance adjustment coil. Sometimes these need minor adjustment in order for the radio to maintain full channel coverage.

MANUFACTURER	MODEL	VCO COIL ADJ.	TRANSMIT BAL. ADJ.
BOMAN	CB-910	L1	L5,T3
BOMAN	CB-920	L1	L5,T3
BOMAN	CB-930	L1	L5,T3
COLT	390	L1	L5,T3
GEMTRONICS	GTX-44	L1	L5,T3
GEMTRONICS	GT-55	L1	L5,T3
GENERAL ELECTRIC	3-5804D	L1	L5,T3
GENERAL ELECTRIC	3-5811B	L1	L5,T3
GENERAL ELECTRIC	3-5812A	L1	L5,T3
GENERAL ELECTRIC	3-5813B	L1	L5,T3
GENERAL ELECTRIC	3-5819A	L1	L5,T3
JCPENNY	981-6204	L1	L5,T3
KRACO	KCB-4030	L1	L5,T3
KRACO	KCB-4045	L1	L5,T3
LAFAYETTE	HB-640	L1	L5,T3
MIDLAND	77-882	L1	L5,T3
MIDLAND	77-830	L1	L5,T3
MIDLAND	77-857	L1	L5,T3
MIDLAND	77-882	L1	L5,T3
MIDLAND	77-955	L1	L5,T3
PEARSE SIMPSON	LION 40	L1	L5,T3
RCA	14T260	L1	L5,T3
RCA	14T270	L1	L5,T3
RCA	14T304	L1	L5,T3
TRUETONE	CYJ4832A-87	L1	L5,T3
TRUETONE	CYJ4834A-87	L1	L5,T3
TRUETONE	CYJ4862A-87	L1	L5,T3

Note : Many radios utilize the PLL-02A chip. The above list covers only a small portion. However the following modifications will work on any 40 channel radio that has the same VCO (L1) and the same transmit balance adjustment (L5,T3) as well as some of the 40 channel SSB models.

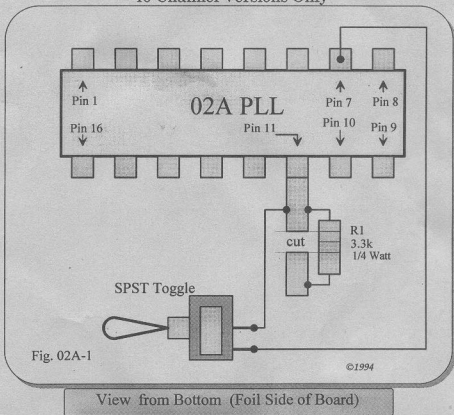
CHANNEL CONVERSIONS

Due to the many requests for Channel Modification information we have included the following chip conversions. In order to keep our manual simple and easy to understand we also decided to show most of these as individual modifications by channel group.

This will allow you to add channels by group or mix & match at will. As always this information is supplied for informational purposes only.

PLL 02A LOW CHANNEL CONVERSION (#1)

40 Channel Versions Only



1. Locate Pin 11 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.

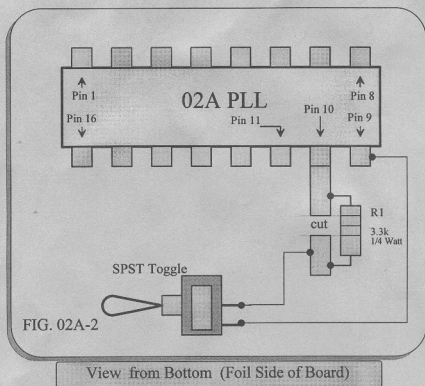
2. Using a SPST mini toggle switch connect wires from the switch as shown in the above diagram. This will yield low channels starting at 26.805 and ending at 26.905 with some skips in between. This modification picks up some channels skipped by Modification #4.

LOW CHANNEL FREQUENCY 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

PLL 02A LOW CHANNEL CONVERSION (#2)

40 Channel Versions Only



Instructions

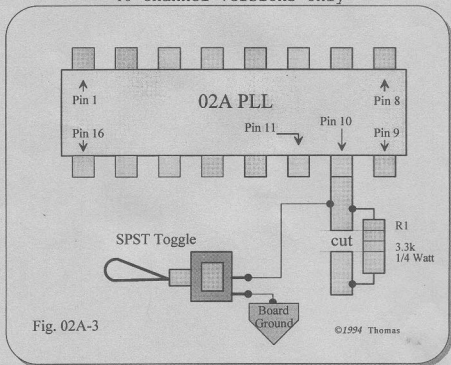
1. Locate Pin 10 and Isolate it by cutting the foil which connects it to the channel selector. Install R1, a 3.3K 1/4 watt resistor across this cut.
2. Using a SPST mini toggle switch connect wires from the switch as shown in the above diagram. This will yield low channels starting at 26.435 and ending at 26.745 with some skips in between. If all of the channels are not there, some adjustment of VCO may be required.

LOW CHANNEL FREQUENCY 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	24 = 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

PLL 02A HIGH CHANNEL CONVERSION (#3)

40 Channel Versions Only



View from Bottom (Foil Side of Board)

Instructions

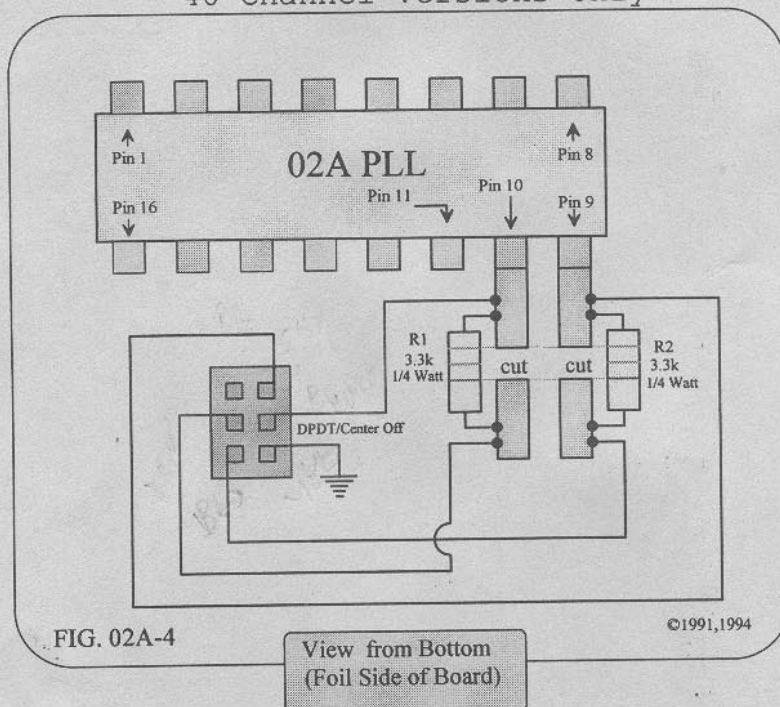
1. Locate Pin 10 and Isolate it by cutting the foil which connects it to the channel selector. Install a 3.3K 1/4 watt resistor across this cut.
2. Using a SPST mini toggle switch connect wires from the switch as shown in the above diagram. This will yield high channels starting at 27.395 and ending at 27.705 with some skips in between.

HIGH CHANNEL FREQUENCY 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	

PLL 02A LOW CHANNEL CONVERSION (#4)

40 Channel Versions Only



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 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 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 = 26.815	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)

858 PLL CHIP CHANNEL CONVERSIONS

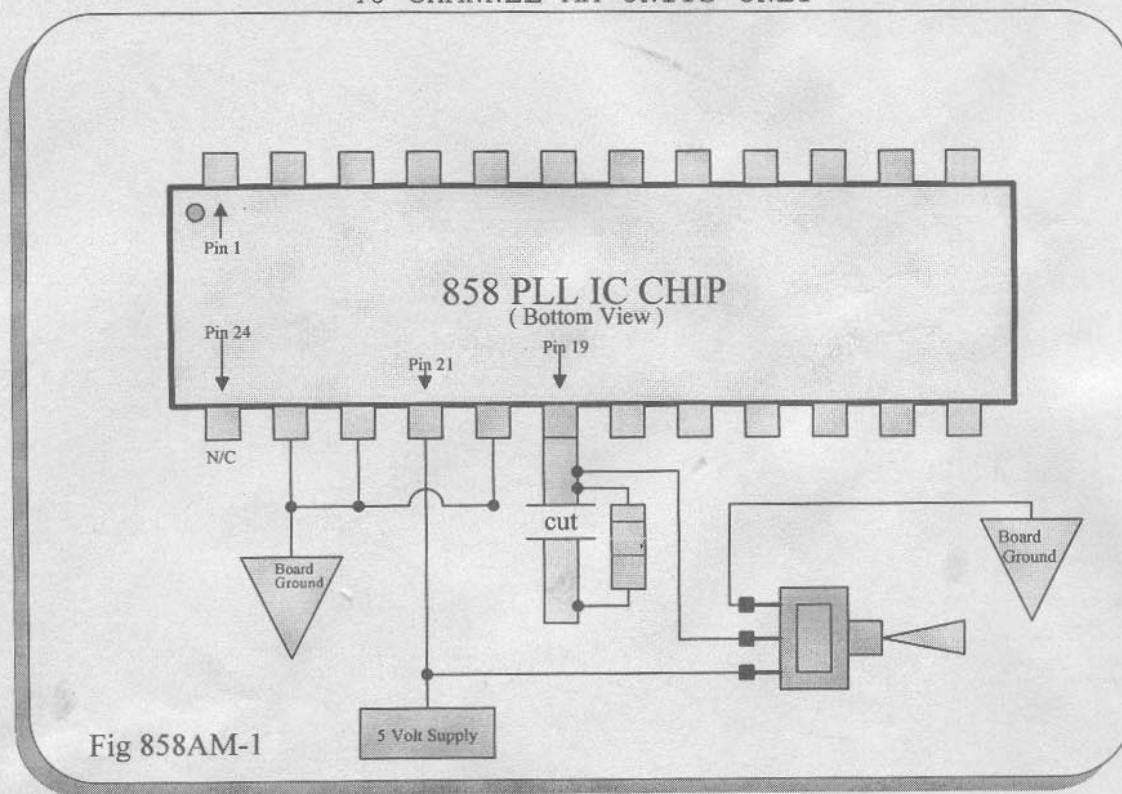
We will next cover channel modifications for the following radios which utilize the upd858 PLL chip. Note that we have listed after each model the VCO adjustment and the Transmit balance adjustment coil. Sometimes these may need minor adjustment in order to have full channel coverage.

AM RADIOS			
MANUFACTURER	MODEL	VCO COIL ADJ.	TRANSMIT BAL. ADJ.
COBRA	29XLR	L20	L17
COBRA	89XLR	L20	L17
PRESIDENT	HONEST ABE	L20	L17
PRESIDENT	JOHN Q	L19	L17
PRESIDENT	TEDDY R	L20	L17
PRESIDENT	ZACHARY T	L20	L17
PRESIDENT	DWIGHT D	L20	L17
PRESIDENT	TEDDY R	L20	L17
ROBYN	AM-500D	L20	L17
SEARS	663-38070700	L20	L17
TEABERRY	T BEAR	L20	L17
TEABERRY	T COMMAND	L20	L17
TEABERRY	T DISPATCH	L22	L9,L10,L11
TEABERRY	TITAN T	L20	L17

SSB RADIOS			
COBRA	138XLR	L17	L37
COBRA	139XLR	L17	L37
PRESIDENT	GRANT	L17	L37
PRESIDENT	MADISON	L17	L37
PRESIDENT	WASHINGTON	L17	L37
REALISTIC	TRC-449	L17	L37
REALISTIC	TRC-457	L17	L37
REALISTIC	TRC-458	L17	L37
ROBYN	SB-510D	L17	L37
ROBYN	SB-520D	L17	L37

858 PLL CHIP CONVERSION (# 1)

40 CHANNEL AM UNITS ONLY



Channel Installation Instructions

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, switch in the Down Position you will have the Low Channels, and in the Up Position you will have the High Channels.

LOW CHANNEL CHART

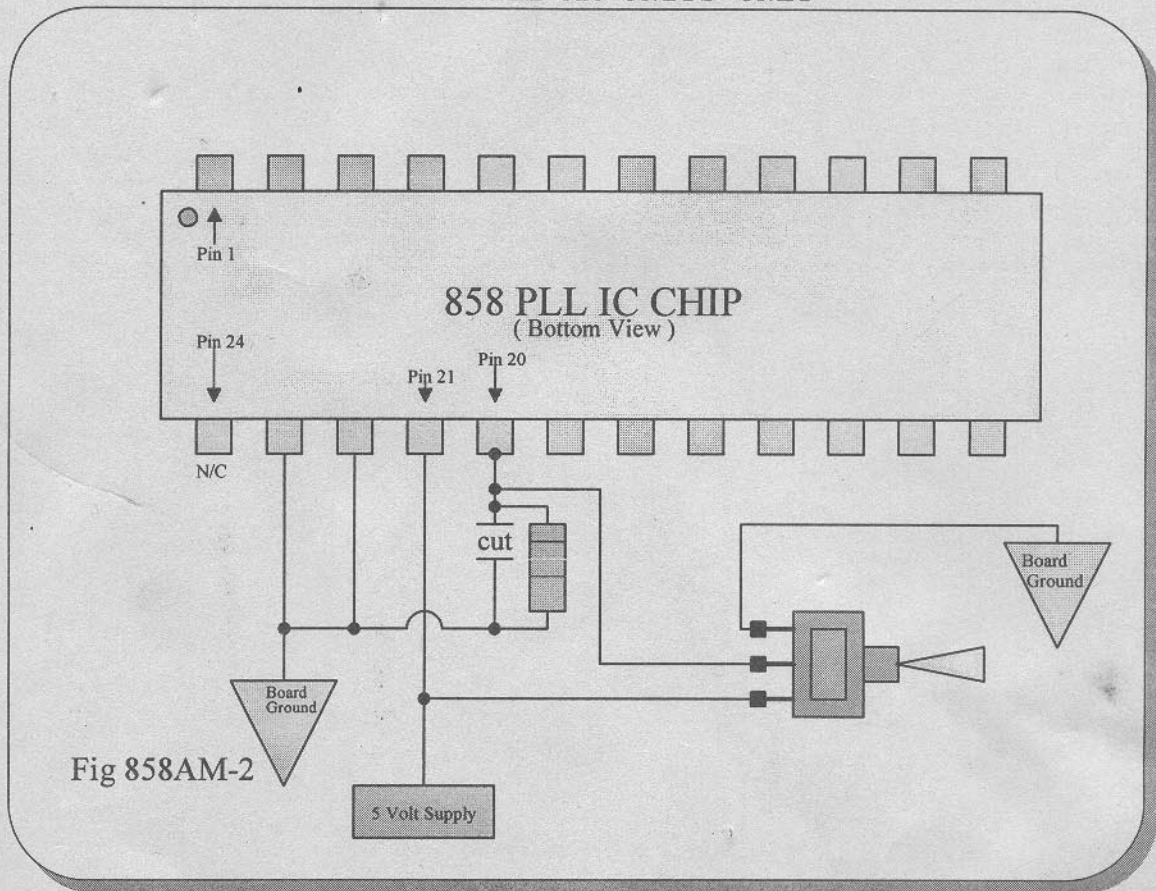
27 = 26.875	30 = 26.905	33 = 26.935	36 = 26.965
28 = 26.885	31 = 26.915	34 = 26.945	37 = 26.975
29 = 26.895	32 = 26.925	35 = 26.955	38 = 26.985
			39 = 26.995 (3A)

HIGH CHANNEL CHART

1 = 27.365	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	

858 PLL CHIP CONVERSION (#2)

40 CHANNEL AM UNITS ONLY



Channel Installation Instructions

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.

#2 HIGH CHANNEL CHART

27 = 27.675
28 = 27.685
29 = 27.695
30 = 27.705

31 = 27.715
32 = 27.725
33 = 27.735
34 = 27.745

35 = 27.755
36 = 27.765
37 = 27.775
38 = 27.785

39 = 27.795
40 = 27.805

858 PLL SSB CONVERSION (#1)

SSB Units Only

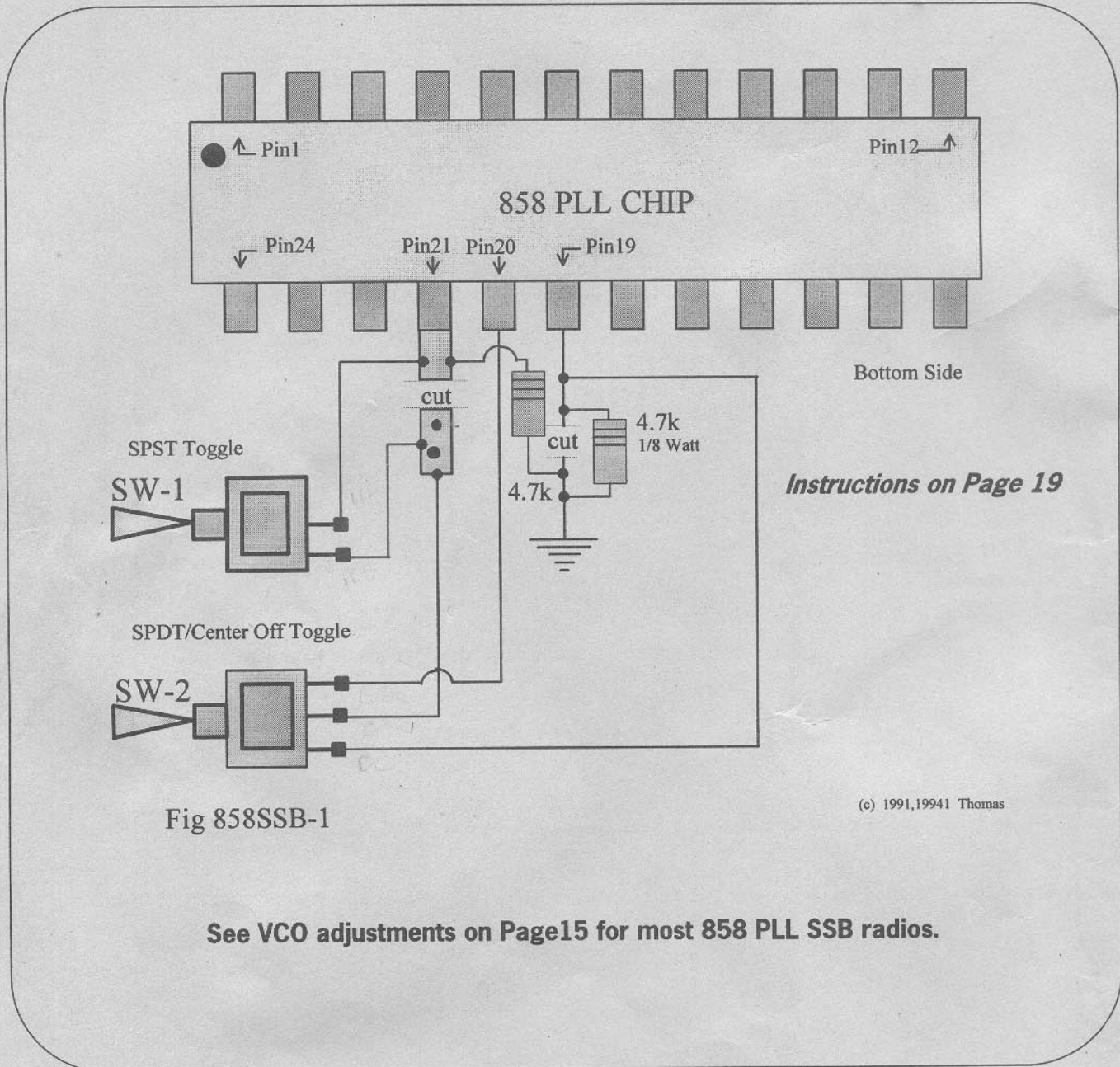


Fig 858SSB-1

(c) 1991,19941 Thomas

See VCO adjustments on Page15 for most 858 PLL SSB radios.

Note: We have shown our conversions using toggle switches. We have done this in order to provide a simple way to show our modifications. However you are free to use existing switches on the radio if so desired., or any type that you have available. that may serve the same purpose.

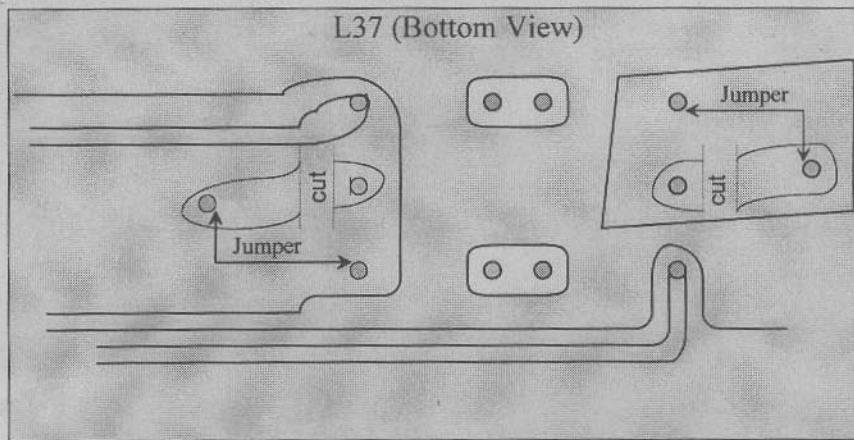
Channel Installation Instructions

Units covered : COBRA 138XLR, 139XLR, PRESIDENT GRANT (858 PLL), WASHINGTON (858 PLL), MADISON (858 PLL), ROBYN 510D, 520D, REALISTIC TRC -449, TRC-457, TRC-458

1. Refer to the drawing on page 18 and 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 also.
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 do the wide-banding procedure next. After performing this procedure you should be able to adjust the transmit balance adjustment and obtain fairly close power output on all channels.

Widebanding Procedure for the 858 SSB Chassis

1. Locate L37 -- Transmit Balance Adjust. Perform the modification below. Be sure to completely isolate the pins. Place the jumpers as shown. Keep these jumpers as short as possible and use only an isolated soldering iron. Then adjust L37 for balanced output power coverage between your highest and lowest channel. You may have to settle for a little less power on one end on some units.



Clarifier Modification for the 858 SSB Chassis

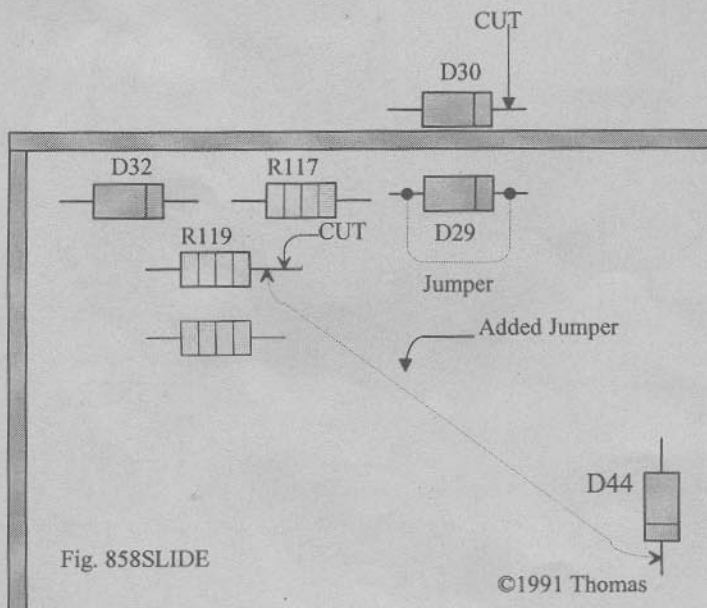


Fig. 858SLIDE

Instructions:

1. Cut D30 as shown and jumper D29.
2. Cut R119 as shown and add the jumper to D44.
3. Trace the purple & white wire from the clarifier to where it connects to the circuit board and cut it loose. Re-solder this wire to the circuit board ground. This should give you about 3khz down and 1 khz up of slide.

858 SSB Conversion # 1 Channel Chart

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 (62)	30 = 27.705 (70)	38 = 27.785 (78)
15 = 27.535 (53)	23 = 27.655 (65)	31 = 27.715 (71)	39 = 27.795 (79)
			40 = 27.805 (80)

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 (Ch1)
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	

858 PLL SSB CONVERSION (#2)

858 PLL SSB Conversion using a Rotary Switch

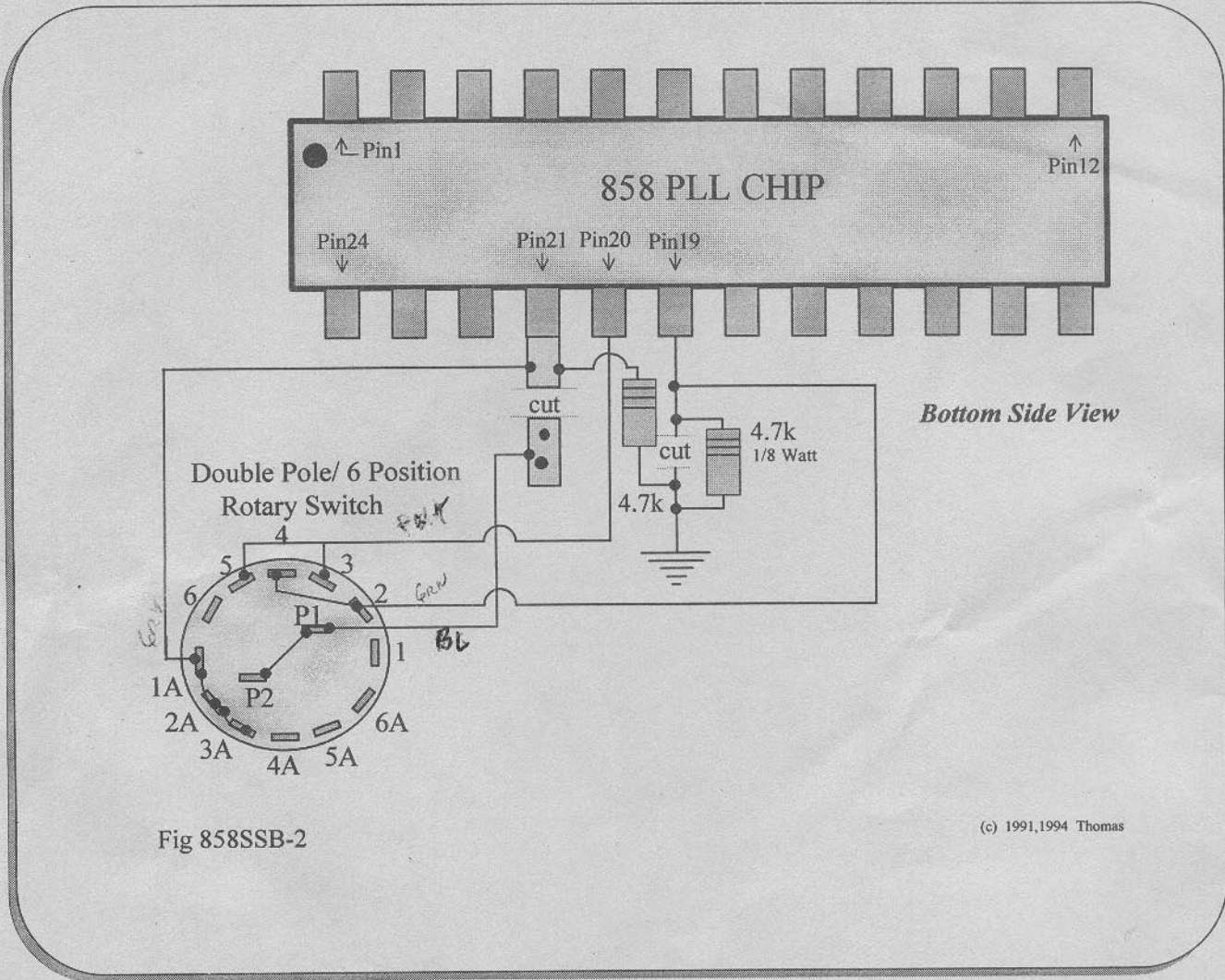


Fig 858SSB-2

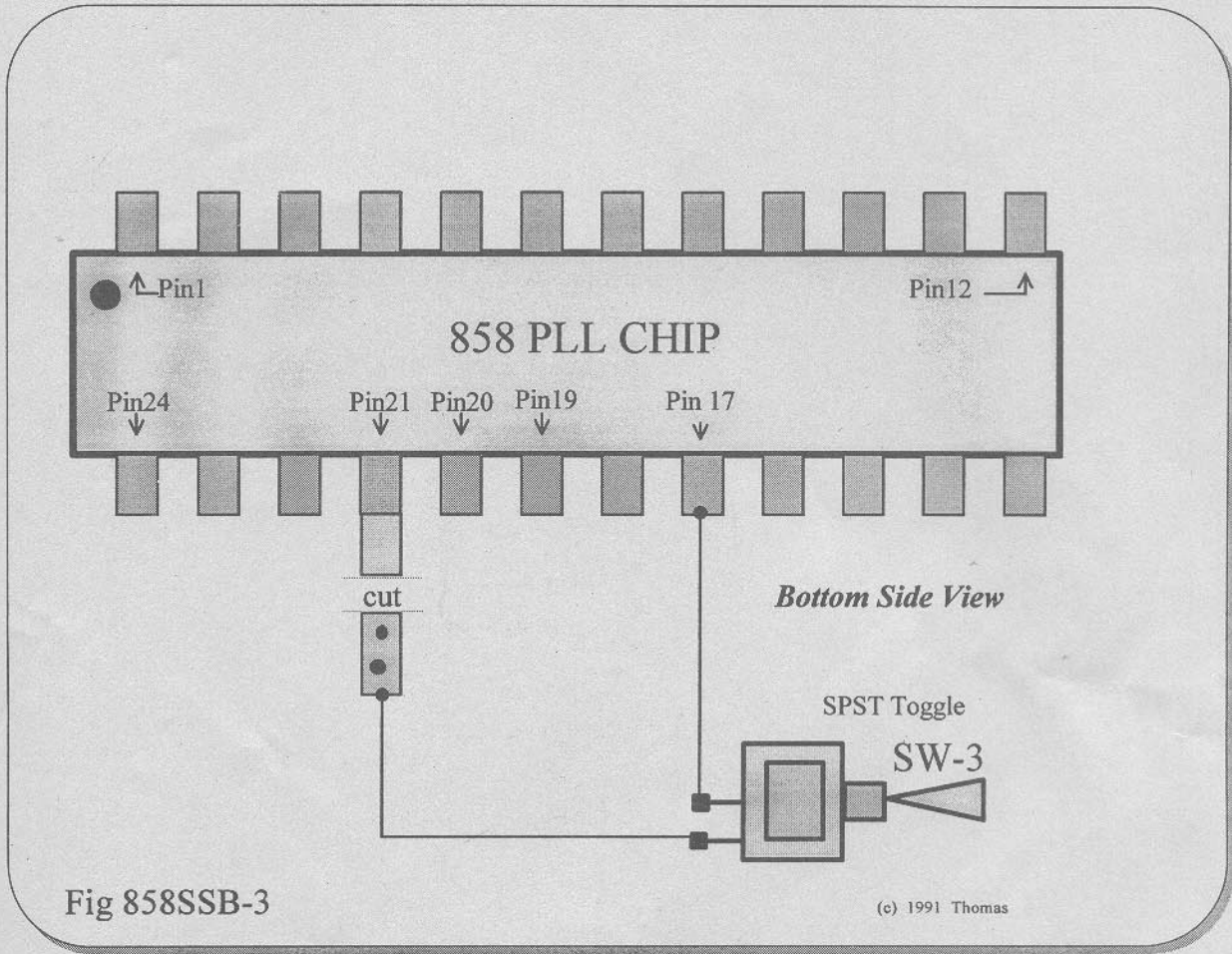
(c) 1991,1994 Thomas

Instructions

The conversion shown above is identical to the one shown in Fig 858SSB-1. However instead of using toggle switches , we have shown you how to use a rotary switch instead. 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 for the frequencies. Positions on the chart coincide with the rotary switch positions.

858 PLL SSB CONVERSION (#3)



Installation Instructions

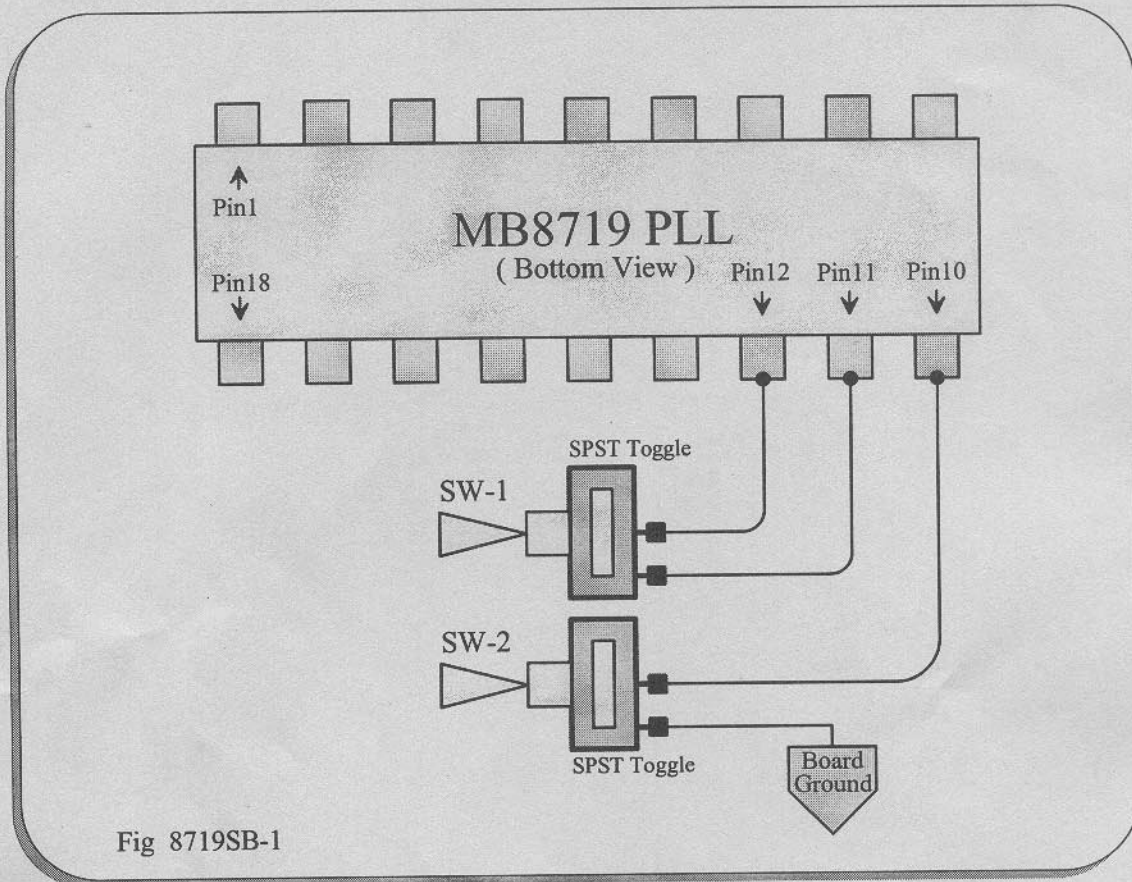
1. This conversion works in conjunction with conversion #1 and #2. You must do either the 858 SSB conversion #1 or #2 before this will work.
2. After performing the #1 or #2 858 SSB conversion mount a SPST toggle switch in a convenient location. Connect the wires from the switch as shown. The cut shown 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

8719 PLL SSB CONVERSION (# 1)

for

Uniden Grant, Uniden Madison, Cobra 148GTL, 2000GTL



Instructions

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.

COBRA 2000GTL Instructions

The Cobra 2000GTL comes from the factory with a MB8734 PLL chip installed . The above modification will work on the Cobra 2000GTL after changing this chip to a 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 for the MB8734 chip. We strongly 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.

Clarifier Modification for the Grant 8719, Madison 8719

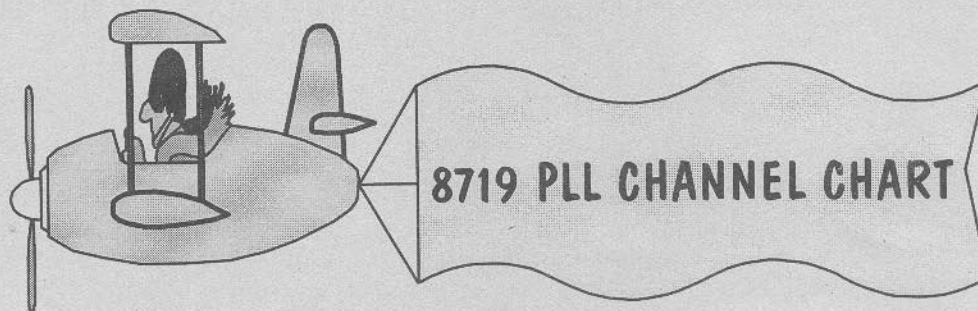
1. Locate and cut one end of D52, and R148, thus effectively removing them from the circuit. Locate R174 and solder a jumper across this resistor.
2. Now trace the red wire from the clarifier control to where it connects to the circuit board and cut loose. Now resolder the red wire to circuit board ground. Next trace the orange wire from the clarifier control to where it connects to the circuit board and cut loose also. Resolder this wire to pin 3 of IC4 (MB3756 IC Regulator).
3. Now if everything has been done properly you should have about 4KHz of down slide and 1KHz of up slide.

Clarifier Modification for the Cobra 148GTL

1. Locate and cut one end of R44, and D52. Locate R174 and solder a jumper across this resistor.
2. Now trace the red wire- (some earlier units had a white wire instead of red)- from the clarifier control to where it connects to the circuit board and cut it loose. Now solder the red wire to the circuit board ground. Next trace the orange wire from the clarifier control to where it connects to the circuit board and cut it loose also. Resolder the orange wire to pin 3 of the MB3756 IC Regulator.
3. Now if everything was done properly you should have about 5KHz of down slide and 1KHz of up slide.

Clarifier Modification for the Cobra 2000GTL

1. Locate and cut one end of R44, and D52. Locate R174 and solder a jumper across it.
2. Now trace the yellow wire from the clarifier to where it connects to the circuit board and cut it loose. Now solder the yellow wire to the circuit board ground. Next trace the red wire from the clarifier to where it connects to the circuit board and cut it loose also. Resolder the red wire to pin 3 of the MB3756 IC Regulator. Next cut the brown wire loose from the clarifier and tape back.
3. Now if everything was done properly you should have about 5KHz of down slide and 1 KHz of up slide. The fine tune will also slide.



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 (Ch1)	
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	12 = 27.585	20 = 27.525
4 = 27.485	9 = 27.545	13 = 27.595	23 = 27.575
5 = 27.495			

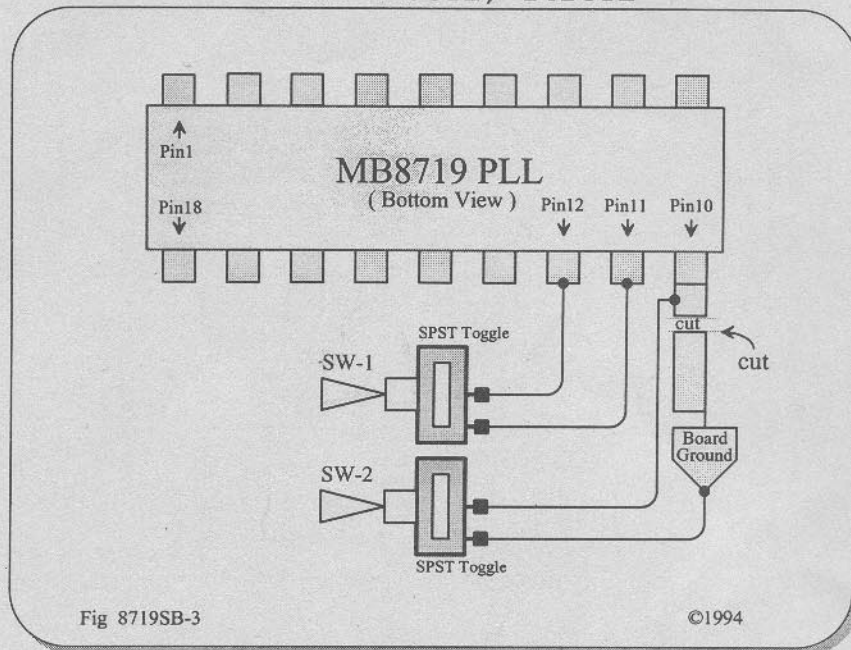
POSITION #4 SW-1 Down and SW-2 UP =

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

8719 PLL SSB CONVERSION (#2)

for

UNIDEN Washington, President McKinley, President P400
COBRA 140GTL, 142GTL



Instructions

1. 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 L19 for Am.

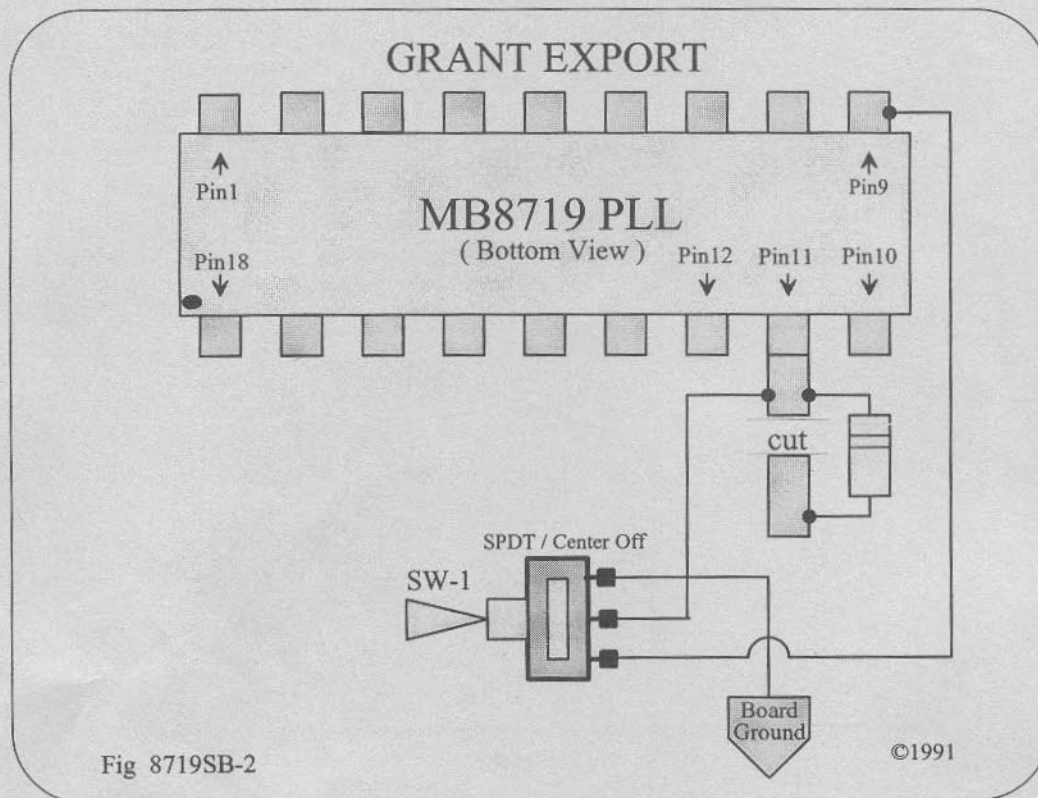
2. Next mount your switches and wire them up as shown in Fig 8719-3 above. Be sure to check all of your connections before proceeding. Refer to the 8719 Channel Chart for your new frequencies.

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.

Clarifier Modification for the Washington, McKinley, P400, Cobra 140GTL, 142GTL

1. Locate and cut one end of R187, and D36. Locate the red & orange wires coming from the clarifier control.

2. Next trace the red wire from the clarifier control to where it connects on the circuit board and cut it loose. Resolder the red wire to pin 3 of the MB3756 IC Regulator. You may need to add another piece of wire in order to reach pin 3. Now trace the orange wire from the clarifier control to where it connects to the circuit board and cut it loose also. Resolder the orange wire to the circuit board ground. On some units the orange and red wires may need to be reversed in order for the slide to work correctly. Now the unit should slide about 4 KHz down and 1 KHz up.



Grant Export Conversion Instructions

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 wire, 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.

Grant Export Conversion Channel Chart

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 =

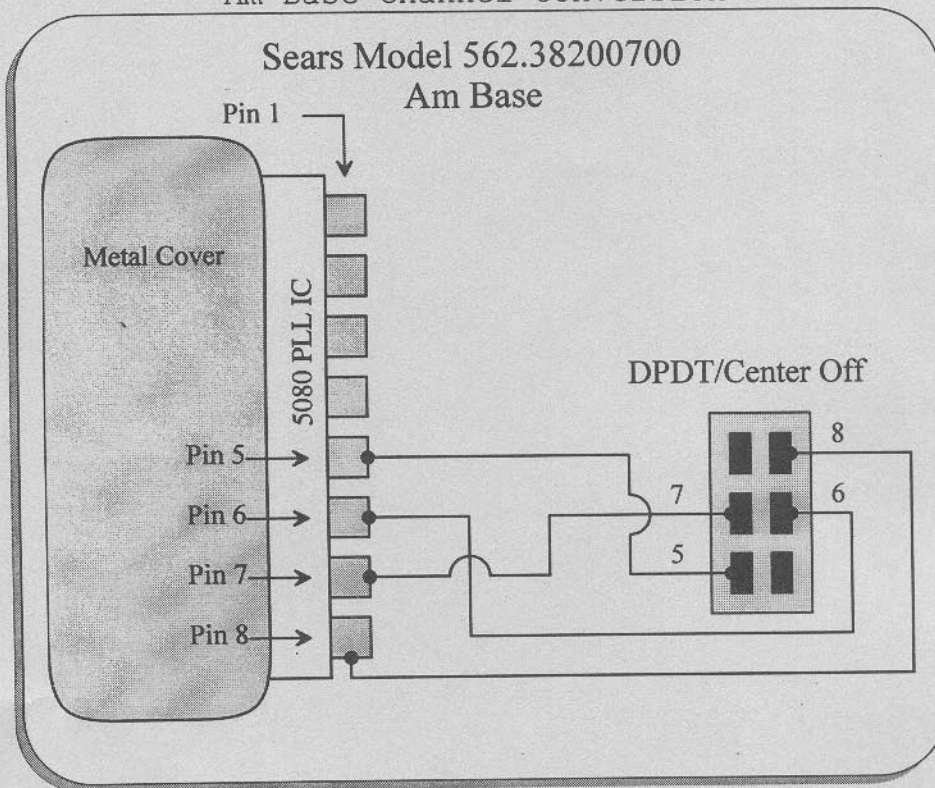
12 = 27.875	17 = 27.935	22 = 27.995	26 = 28.035
13 = 27.885	18 = 27.945	23 = 28.025	27 = 28.045
14 = 27.895	19 = 27.955	24 = 28.005	28 = 28.055
15 = 27.905	20 = 27.975	25 = 28.015	
16 = 27.925	21 = 27.985		

GRANT EXPORT CLARIFIER MODIFICATION

1. Locate on the circuit board R120. This is an used resistor space located near the front of the circuit board next to the radios crystals. Install a 470 Ohm (1/4 Watt) resistor in its place.
2. Now trace the Blue wire that comes from the clarifier control to it's circuit board connection. Unsolder the Blue wire from the board and resolder it in the empty hole just to right of R120. Now trace the Gray wire that comes from the clarifier control and again unsolder it and resolder it to the center leg of TR39. This will supply the constant 8.5 volts to the clarifier circuit.
3. Locate D79 and solder a jumper across it. Find and cut one end of D45, effectively removing it from the circuit. Now if everything works like it should you will have about 2 to 3 Hz of slide.

Sears Model #562.38200700

Am Base Channel Conversion



Channel Installation Instructions

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, 8, then carefully solder a wire to each pin. Make sure to use enough 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	37 = 57.535
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	

CB REPAIR TIP SECTION

MODEL:

COBRA 2000GTL

PROBLEM: ?

Digits continue to glow very dimly after radio is turned off. Frequency counter may be unstable also.

CURE :

Replace Fet-501 & Fet-502 located in Frequency Counter Module. This should restore normal operation. Be sure use only an isolated soldering unit when replacing these FET's or doing any soldering in the frequency counter module.

NOTE: Older versions of the cobra 2000 used 25k19GR as the part number for Fet-501 and FET-502. Newer versions use 25k192A.

MODEL:

GALAXY SATURN

PROBLEM:

Loss of transmit. Bad TR-51 (2SB-754).

CURE :

This is a very common problem in this radio. The 2SB-754 seems to be some what under rated for this circuit. Replace 2SB-754 (7 Amp, 60 Watt) with an NTE-37 (12 Amp, 100 Watt). This should not only return the unit to normal operation but also help to prevent any future problems.

MODEL:

COBRA 19PLUS

PROBLEM:

Radio has no transmit or receive. Sometimes only transmit cuts out. Loss of normal operation.

CURE :

Locate C54. This is a 1 μ f 20 volt tantalum capacitor located near the main PLL chip. Replace with a 1 μ f 35 volt tantalum capacitor. This should restore normal operation in most cases. Some slight tweaking of the VCO coil may be necessary for complete coverage of all 40 channels. If you experience any further problems with the unit try replacing this tantalum with a non-polarized one of the same value.

CB REPAIR TIP SECTION

MODEL:

PRESIDENT LINCOLN

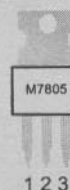
PROBLEM:

Unit lights up, has sound from speaker, but no channel display. Loss of normal operation.

CURE :

Locate the M7805 regulator on the main PLL board. Check for 5 Volts on the #3 leg of this component. If you find this voltage is absent -- you will need to replace the M7805 regulator. A direct replacement part number for the M7805 regulator is NTE 960.

Next replace the sub-miniature 1000uf 6.3 Volt electrolytic directly behind the 64 pin chip with a sub-miniature 1000uf 10 Volt capacitor. This capacitor normally becomes shorted in most all the units, thus causing the 7805 regulator to fail in most cases... Changing this electrolytic from a 1000µf 6.3 Volt to a 1000µf 10 Volt will help to eliminate any future problems.



M7805

MODEL:

DAK MARK X

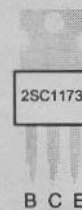
PROBLEM:

Unit lights up but has no digital channel display. No receive or transmit.

CURE :

Locate D2 -- a MZ205 5.2 volt zener diode just to the right of the main PLL chip. Check for 5.2 volts on the cathode (banded) side. Normally if this voltage is absent, just replacing this zener will restore normal operation. If after replacing D2, the unit still does not function properly you will need to check Q44 for the correct voltages.

The base of Q44 should read about 9.5 Volts, the collector should read about 13.2 Volts and the emitter should read about 8.9 volts. If you have the 13.2 Volts on the collector but do not have 8.9 volts on the emitter, replace Q44 (2SC1173) with a NTE-152 and D50 (located next to Q44). D50 -- is a MZ310 (9.1 zener diode). Replace this with an NTE-139A. This should restore normal operation.



Q44

2SC1173

B C E

VARIABLE ALIGNMENT ADJUSTMENTS

COMMTRON RADIOS

Commtron CXX

RV101 - Squelch
 RV103 - Rx "S" Meter
 RV201 - Am Modulation
 RV202 - Transmit Rf Meter
 RV501 - Fm Deviation

COLT RADIOS

Colt 359

RV1 - Squelch¹
 RV2 - RX Meter
 RV3 - AMC Adjust
 TC1 - Synth Xtal Adjust
 T1 - 27Mhz Rx Sens. Adjust
 T2 - 27Mhz Rx Sens. Adj
 T3 - 455Khz Rx Sens. Adj
 T4 - 455Khz Rx Sens. Adj

¹ Located in left hand front of radio next to C40

GALAXY RADIOS

Galaxy Mars

VR1 - Rx "S" Meter
 VR2 - Squelch
 VR3 - Transmit Meter
 VR4 - Low Power Level
 VR5 - Fm Deviation

GALAXY RADIOS

Superstar 121

VR1 - Rx "S" Meter
 VR4 - Squelch
 VR5 - Fm Deviation
 VR8 - Transmit Rf Meter
 VR12 - Modulation (Low Power)
 VR13 - TX Power (High)
 VR14 - Modulation (Hi Power)
 VR16 - TX Power (Low)

Superstar LBJ

VR1 - Rx "S" Meter
 VR2 - Squelch
 VR3 - Transmit Meter
 VR4 - Low Power Level
 VR5 - Fm Deviation

CORRECTIONS TO CB MASTER EDITION VOLUME I

MANUFACTURER	MODEL	MODULATION	AM POWER	SSB POWER
TENNA	10901	Adjust R54 or cut one end of CD13	T10,T11,L3,L2,L1	
COBRA	31PLUS	Cut one end of D19	L13,L12,L11	

How many times have you had to send a scanner for repair to the manufacturer or to an authorized repair center for a customer due to lack of repair information. Only to have it returned with their standard bill of 42.50 plus parts. Yet you know that the problem was something minor or something that you could have repaired had you only known.

Even more frustrating is the fact that if you look at the repair invoice to see what was replaced, the invoice does not match the repair job. In other words what they say they replaced has not been changed in your scanner. So you wonder, what was the problem.

Keep in mind that close to 85 percent of all electronic problems are of a minor nature. Many of these manufactures are aware of problems that keep re-occurring in their products. However as we all know they are very reluctant to share this information. Some of them even go to great lengths disguise repairs in order to hide the obvious. Obviously this helps to put money in their pockets, and ends up costing you.

UNIDEN BEARCAT 210XL

PROBLEM: Digits are very dim or no digits at all. Squelch normally doesn't operate. Unable to program unit due to lack of digit display.

CURE : Check for 4.55 Volts on Pin 5 of IC-5. If this voltage is off replace C88. This capacitor is located next to T5 (TC-831-01). Capacitor will vary in value from 22uf to 47uf 25 Volt in these models. Replace with a 47uf 50 Volt. Re-Check for 4.55 Volts on pin 5 of IC-5. If this voltage is still off, T5 may be bad. The negative side of C88 goes to a winding of T5. The other side of this winding goes to ground. In some cases this winding may be open. Check for continuity of this winding. If open replace T5. Normally replacing just C88 will cure the problem in over 75 percent of the units repaired.

BEARCAT 20/20

PROBLEM: Digits are very dim or no digits at all. Squelch normally doesn't operate. Unable to program unit due to lack of digit display.

CURE : Check for 4.15 Volts on Pin 5 of IC-10. If this voltage is off replace C98. This capacitor is located next to T6 (TC-642-01). Capacitor will vary in value from 22uf to 47uf 25 Volt in these models. Replace with a 47uf 50 Volt. Re-Check for 4.15 Volts on pin 5 of IC-10. If this voltage is still off, T6 may be bad. The negative side of C98 goes to a winding of T6. The other side of this winding goes to ground. In some cases this winding may be open. Check for continuity of this winding. If open replace T6. Normally replacing just C98 will cure the problem in over 75 percent of the units repaired.

BEARCAT 210XW

PROBLEM: Digits are very dim or no digits at all. Squelch normally doesn't operate. Unable to program unit due to lack of digit display.

CURE : Check for 4.19 Volts on Pin 5 of IC-5. If this voltage is off replace C98. This capacitor is located next to T1 (TF-317). Capacitor will vary in value from 22uf to 47uf 25 Volt in these models. Replace with a 33uf 50 Volt. Re-Check for 4.15 Volts on pin 5 of IC-5. If this voltage is still off, T1 may be bad. The negative side of C98 goes to a winding of T1. The other side of this winding goes to ground. In some cases this winding may be open. Check for continuity of this winding. If open replace T1. Normally replacing just C98 will cure the problem in over 75 percent of the units repaired.

UNIDEN BEARCAT 140XL & 145XL

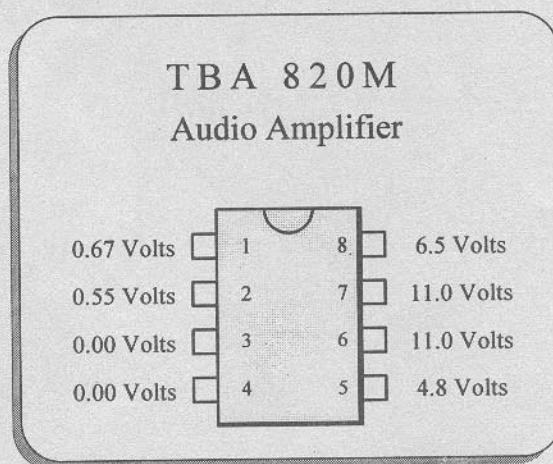
PROBLEM: No Audio. Unit still scans and programs.

CURE : Locate C52 next to IC2 (TBA 820M) audio chip. This is a 470uf 10 volt electrolytic capacitor connected to pin 8 of IC2. Change C52 to a 470uf 25 Volt. This will restore normal audio to the biggest part of these units. However, these same symptoms can also be caused by other defective components. Bad speaker, bad Audio Chip, etc...! If replacing C52 does not cure the problem check the voltages on IC2. We have listed the voltages for this chip. This diagram also applies to the Bearcat models 140XL, 142XL, and 147XL.

PROBLEM: Hum from speaker, Low power supply voltage.

CURE : Replace IC3 (8 Volt Regulator), and C48.

Voltage Chart IC-2 AUDIO IC.



UNIDEN BEARCAT 142XL & 147XL

PROBLEM: No Audio. Unit still scans and programs.

CURE : The fix for these units is the same as the one for the Bearcat 140XL & Bearcat 145XL. However the part is not marked on the board. In the 142XL it is still the same value. A 470uf 10volt electrolytic connected to pin 8 of IC2. Change to a 470uf 25 volt. In the 147XL this part has been changed to a 470uf 16 volt. Possibly to help remedy this problem. However we have still had a few go bad.

SCANNER MODIFICATIONS

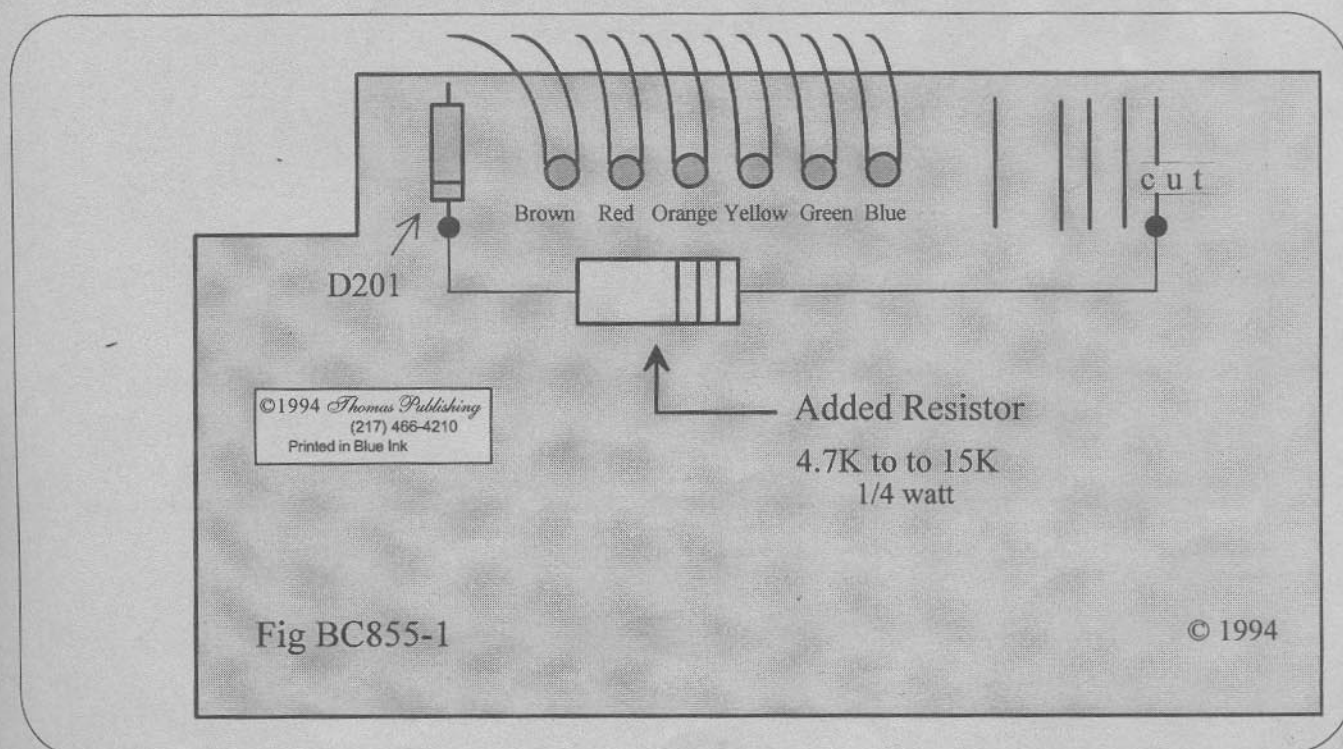
Cellular Frequency Restoration for the BC855XLT

This scanner comes from the factory with the cellular telephone frequencies deleted. This modification will show you how to restore normal cellular operation. However be advised that while it is illegal to monitor cellular telephone transmissions, it is perfectly legal to own a scanner that receives these frequencies.

Carefully remove the screws and separate the 2 cabinet pieces. Once that you have the unit apart, locate the plug that connects the speaker to the board. Carefully pull the plug from this connection in order to separate the two halves.

Locate the area as shown in Fig BC855-1. Locate the fifth jumper and cut as shown. Then add a resistor from D201 back to the jumper as illustrated. This resistor can be any value from 4.7K to 15K in order to function properly. Carefully solder this resistor in place. *Do Not use excessive heat.*

Now in order to make sure that you have now cellular capabilities, plug the unit in and enter 845.000 into the scanner. If it accepts it, good job. If not, you will need to recheck your connections.



Note: The above conversion will work on the older BC855-XLT scanners. Since this manual was last revised, Uniden has released a new model that uses a different circuit board. The cellular modification for the newer models can be found in our Scanner Modification Manual Volume 2.