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# C.B. TUNE-UP MANUAL

## MASTER EDITION

## VOLUME 5



The Volume You Have Been Waiting For  
Covers Standard Radio Tune-up Information  
Channel Modification and Repair Tips

NEWLY  
RELEASED

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CB TUNE-UP MANUAL Master Edition Vol. 5

FIRST EDITION  
FIRST PRINTING - 1994

# CB TUNE-UP MANUAL MASTER EDITION VOLUME 5

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# C.B. TUNE-UP MANUAL MASTER EDITION

## VOLUME 5

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### FOREWORD

We wish to thank all of you for your patience and support. We had some unforeseen difficulties in bringing this manual to print. Hopefully we have now eliminated any future problems. Again THANK YOU.

CB MASTER EDITION Vol.6 will be available shortly, providing modification information on some exciting new radio models not yet on the market. In addition our new GALAXY SATURN SERVICE/OWNERS MANUAL will be available also. Although this manual is written with specific information, schematics, and voltage charts on the Galaxy Saturn, it can also be used on many other Export Radios with similar chassis.

### 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 to compile this information for future use. It is our goal to supply you with good useful information in an easy to understand and use MANUAL FORMAT. We feel that it is very important to supply information that will be useful and profitable for you, the technician.

Also included in this volume is a complete Index listing covering CB TUNE-UP MANUALS Volume 1 through Volume 5. This should be a great time saver for any future reference.

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# HOW TO USE TUNE-UP INFORMATION

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).

MANUFACTURER NAME			
MODEL	MODULATION	AM POWER	SSB POWER
MCB-5000 <sup>1</sup> ←	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 are expandable type coils. These coils can be adjusted by either spreading the coils apart 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 if needed, and thus increase tuning range.*

GENERAL ELECTRIC RADIOS			
MODEL	MODULATION	AM POWER	SSB POWER
3-5808A	RV4	L10,L11,L12,L13	

MIDLAND RADIOS			
MODEL	MODULATION	AM POWER	SSB POWER
77-092	Cut D13 (Located by Audio Transformer)	L3,L6,L7,L8	
77-160	VR204	L304, L305,L306	

### Variable Alignments

#### MIDLAND 77-092

VR3 = Squelch Adjust

TC1 = 10.240 Adjust

Receive Adjust =

Transmit Adjust = L3,L6,L7,L8

#### MIDLAND 77-160

VR201 = Receive LED Lights

VR203 = Transmit LED Lights

VR204 = Modulation AMC

VR202 = Squelch Adjust

Receive Adjust = T101,T103, T104, T105, T106

Transmit Adjust = L301, L302, L303, L304, L305, L306

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### PACER RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
XLR29	Cut D207 (Marked 207 in Radio)	L407 (Spreadable Coil)	

### PARADYNAMICS RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
PDC-19	VR6 or Cut D10	L6,L7	
PDC-25	VR6 or Cut D10	L6,L7	
PDC-29	VR103 or cut D203	L404,L408	

### RANGER RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
RCI-2970	VR14 or Cut R291	VR15 Lo Pwr/VR13 Hi Pwr	VR12

### REALISTIC RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
TRC-437	RV2 or Cut R216	L10,L11,L12	

### SOUND CREATIONS RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
SCB-500X	Cut D115	L107, L108	

### UNIDEN RADIOS

MODEL	MODULATION	AM POWER	SSB POWER
GRANT XL	VR12 or Cut R131	VR10	VR11
HR-2600	VR6 or Cut 2.2K resistor in front of Q21	VR8	VR5
PC66XL	VR5 or Cut D9	L10,L9,L8	
PC76XL	VR4 or Cut D11	L14,L13,L12	
PC122XL	VR5	VR10	VR11

### Variable Alignments

#### PARADYNAMICS PDC-19

VR1 = Receive "S" Meter  
VR3 = Squelch Adjust

VR4 = Transmit "S" Meter

VR6 = Modulation Adjust

#### PARADYNAMICS PDC-25

VR1 = Receive "S" Meter  
VR3 = Squelch Adjust

VR4 = Transmit "S" Meter

VR6 = Modulation Adjust

#### PARADYNAMICS PDC-29

VR103 = Modulation Adjust  
VR151 = Receive "S" Meter

VR182 = Transmit "S" Meter

VR202 = Squelch Adjust

#### REALISTIC TRC-437

RV1 = Squelch Adjust

C312 = 10.240 Adjust

#### SOUND CREATION SCB-500X

SVR101 = Squelch Adjust

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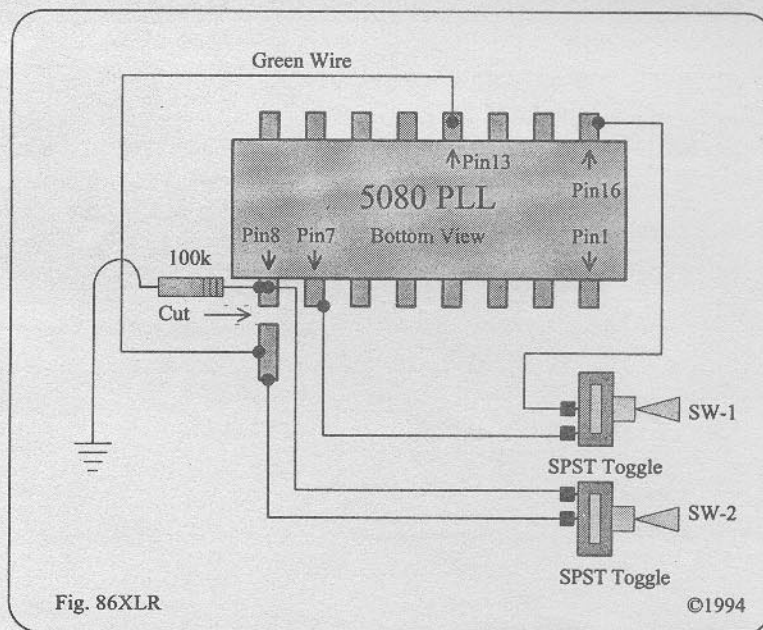
## CORRECTIONS TO VOLUME I MASTER EDITION

MANUFACTURER	MODEL	MODULATION	AM POWER	SSB POWER
TENNA	10901	Adjust R54 or cut CD13	T10,T11,L3,L2,L1	

## CORRECTIONS TO VOLUME II MASTER EDITION

Page Number	Correction
24	Change 5th sentence under Cobra 2000 instructions to read "We recommend that you use a 18 pin IC socket to install the new MB8719 Chip."
29	Change 2nd sentence in the number 1. instructions to read " This is an unused resistor space located near the front of the circuit board - next to the radios crystals."

## CORRECTIONS TO VOLUME III MASTER EDITION



Page Number	Correction
20	Drawing showed green wire going to Pin 14 of the 5080 PLL Chip. Wire should have been going to Pin 13 as per Installation Instructions.

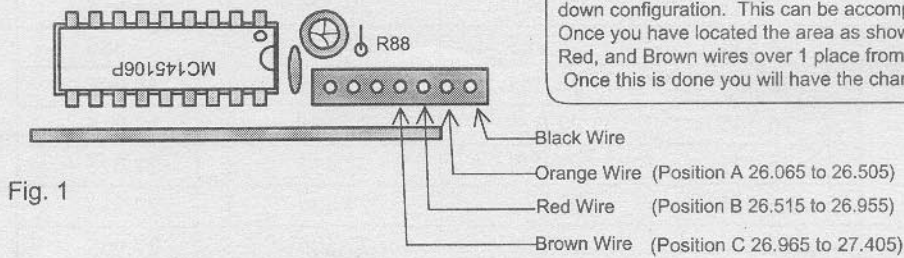
## CORRECTIONS TO VOLUME 4 MASTER EDITION

Page Number	Correction
8	Change reference to L18 in Part 2 line 5 to " carefully tweak L21 (Tripler Can) until all channels are there. "
22	Change reference to TP7 in Part 1 Line 3 to " connection with TP8. Then solder the #4 wire to the TP8 terminal and "

# GALAXY SIRIUS

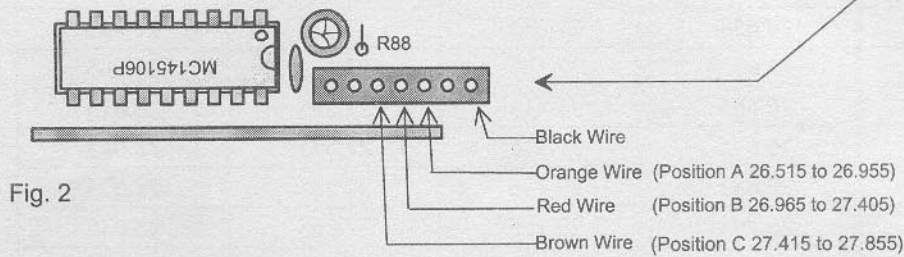
## CHANNEL CONVERSION

Normal Configuration from Factory

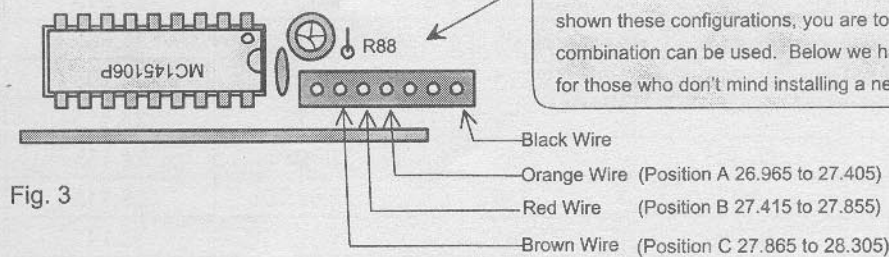


The Galaxy Sirius comes from the factory with a 3 Band selector switch, but the radio is actual capable of more channels than the standard 80 down configuration. This can be accomplished with very little modification. Once you have located the area as shown, you can move the Orange, Red, and Brown wires over 1 place from their original connections. Once this is done you will have the channels as shown in Fig. 2 below.

Positioned for 40 Up & 40 Down

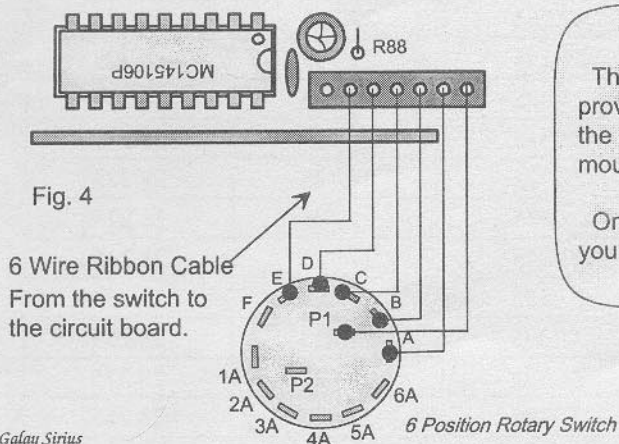


Band Wires Positioned for 80 Up



Moving the Orange, Red, and Brown wires to this position will yield 80 Channels up, plus your standard 40 channels. Although we have shown these configurations, you are totally free to roll your own. Any combination can be used. Below we have shown the rotary conversion for those who don't mind installing a new switch.

Rotary Switch Conversion for All Bands



### Rotary Switch Conversion

This conversion, using a 6 position rotary switch, will provide all 5 Bands (200 Channels). Be sure to unsolder the original wires and tape them back. You will need to mount the new switch on the left side of the radios case.

On the following page you will find a channel chart for your new channels.

Galaxy Sirius

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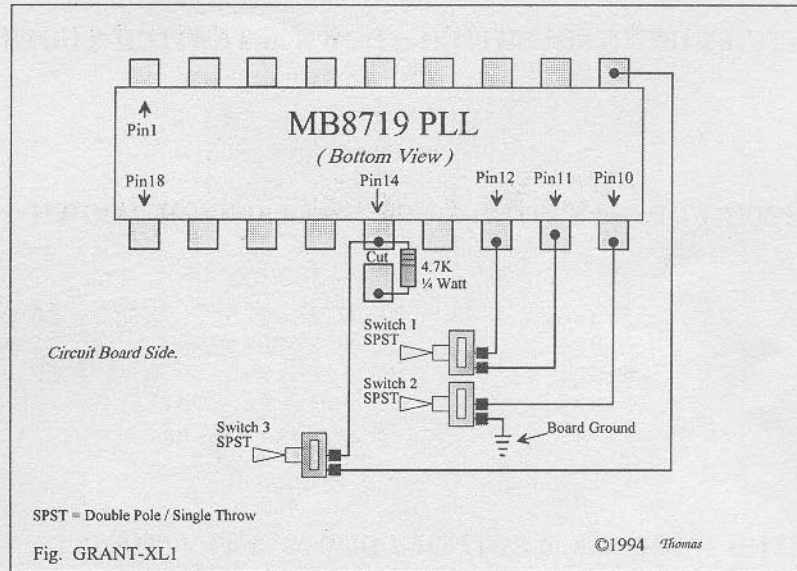
# GALAXY SIRIUS

## Channel Chart after Rotary Conversion

Channel	A	B	C	D	E
1	26.065	26.515	26.965	27.415	27.865
2	26.075	26.525	26.975	27.425	27.875
3	26.085	26.535	26.985	27.435	27.885
4	26.105	26.555	27.005	27.455	27.905
5	26.115	26.565	27.015	27.465	27.915
6	26.125	26.575	27.025	26.475	27.925
7	26.135	26.585	27.035	27.485	27.935
8	26.155	26.605	27.055	27.505	27.955
9	26.165	26.615	27.065	27.515	27.965
10	26.175	26.625	27.075	27.525	27.975
11	26.185	26.635	27.085	27.535	27.985
12	26.205	26.655	27.105	27.555	28.005
13	26.215	26.665	27.115	27.565	28.015
14	26.225	26.675	27.125	27.575	28.015
15	26.235	26.685	27.135	27.585	28.025
16	26.255	26.705	27.155	27.605	28.035
17	26.265	26.715	27.165	27.615	28.055
18	26.275	26.725	27.175	27.625	28.065
19	26.285	26.735	27.185	27.635	28.075
20	26.305	26.755	27.205	27.655	28.085
21	26.315	26.765	27.215	27.665	28.105
22	26.325	26.775	27.225	27.675	28.115
23	26.355	26.805	27.255	27.705	28.155
24	26.335	26.785	27.235	27.685	28.135
25	26.345	26.795	27.245	27.695	28.145
26	26.365	26.815	27.265	27.715	28.165
27	26.375	26.825	27.275	27.725	28.175
28	26.385	26.835	27.285	27.735	28.185
29	26.395	26.845	27.295	27.745	28.195
30	26.405	26.855	27.305	27.755	28.205
31	26.415	26.865	27.315	27.765	28.215
32	26.425	26.875	27.325	27.775	28.225
33	26.435	26.885	27.335	27.785	28.235
34	26.445	26.895	27.345	27.795	28.245
35	26.455	26.905	27.355	27.805	28.255
36	26.465	26.915	27.365	27.815	28.265
37	26.475	26.925	27.375	27.825	28.275
38	26.485	26.935	27.385	27.835	28.285
39	26.495	26.945	27.395	27.845	28.295
40	26.505	26.955	27.405	27.855	28.305

# UNIDEN GRANT-XL

## Channel Conversion



## GRANT XL Conversion Instructions

1. First locate Pin 14 of the MB8719 PLL chip on the bottom side of the circuit board. Using an ex-acto knife, carefully cut and isolate Pin 14 away from the circuit board run. Next solder a 4.7K 1/4 Watt resistor across this cut as shown in the diagram above.
2. Next mount 3 SPST Toggle switches in a convenient location. Be sure to wire the switches up as shown, and to solder each wire carefully. Once all the wires have been soldered to the switches and to the circuit board as shown, check all solder joints before proceeding.
3. Now with all three switches in the down position you will still have the normal channels. Refer to the 8719 Channel chart on the following page for the switch positions and their associated channels.

\*Note: The above modification is shown using added SPST switches. This is not a requirement for this modification to work. This is shown for reference only. You are always free to use any switches that are available on the radio for this purpose also.

# UNIDEN GRANT-XL

## Switch Channel Chart

**POSITION #1 SWITCH-1 DOWN and SWITCH-2 DOWN and SWITCH-3 DOWN =**

Normal Channels

**POSITION #2 SWITCH-1 UP and SWITCH-2 DOWN and SWITCH-3 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 SWITCH-1 DOWN and SWITCH-2 DOWN and SWITCH-3 UP =**

=

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

**POSITION #4 SWITCH-1 UP and SWITCH-2 UP and SWITCH-3 DOWN =**

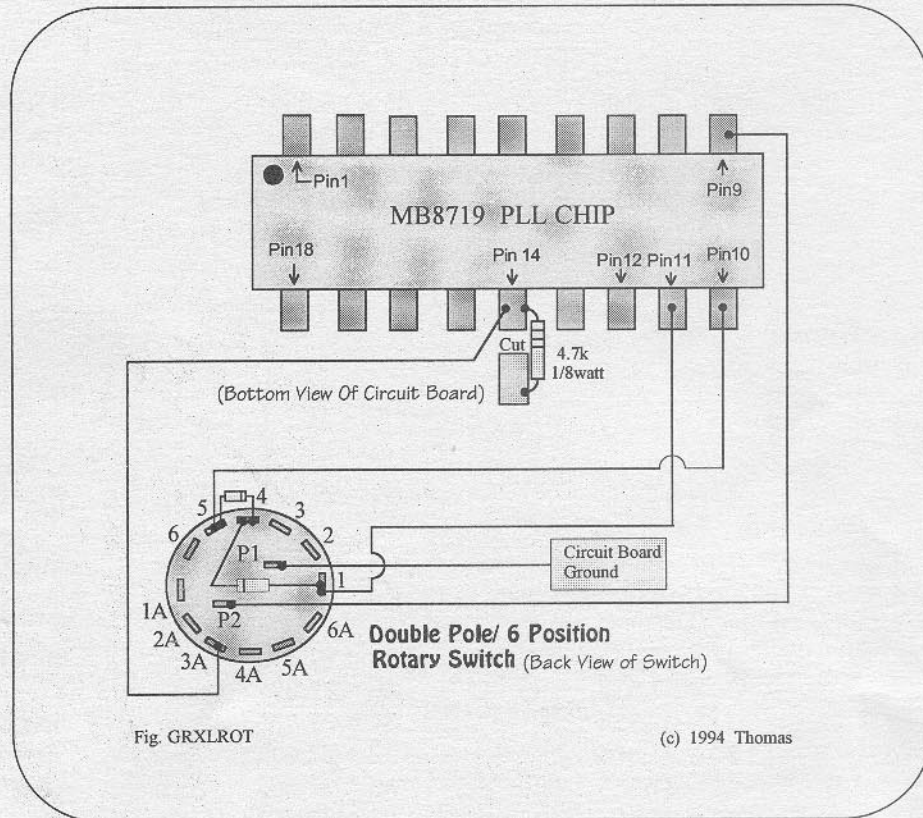
1 = 27.605	6 = 27.505	10 = 27.555	14 = 27.605
2 = 27.455	7 = 27.515	11 = 27.565	16 = 27.475
3 = 27.465	8 = 27.535	12 = 27.585	20 = 27.525
4 = 27.485	9 = 27.545	13 = 27.595	23 = 27.575
5 = 27.495			

**POSITION #5 SWITCH-1 DOWN and SWITCH-2 UP and SWITCH-3 DOWN =**

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

# UNIDEN GRANT-XL

## Rotary Channel Conversion



### Instructions

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. 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 also have the banded end to Pin 4.
  
2. Next locate Pin 14 of the PLL and using an ex-acto knife carefully isolate Pin 14 as shown above. 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 in its 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.

# UNIDEN GRANT-XL

## Rotary Channel Chart

### 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(Ch1)	
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	

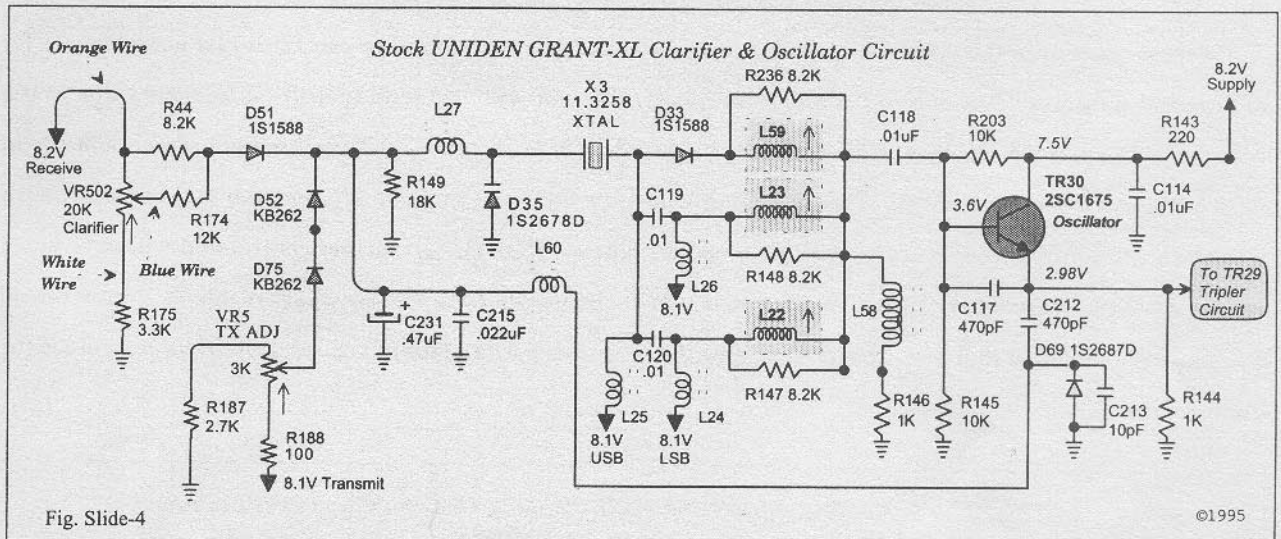
### POSITION #5 =

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

# UNIDEN GRANT-XL

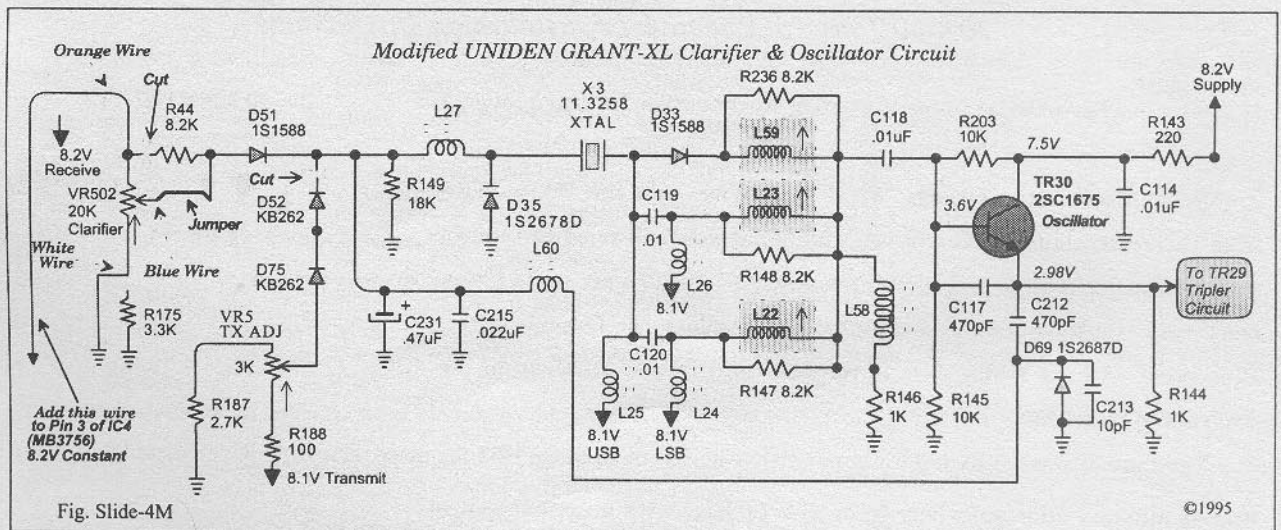
## Clarifier Modification



In the diagram above (Fig Slide-4) we have shown the stock GRANT XL clarifier circuit before modification for reference. Below we have shown the same circuit after the clarifier circuit has been modified. Please note that these modifications apply only to the first versions of the Grant-XL that were manufactured in the Philippines with serial numbers prior to the 4500 series. Later models that have serial numbers beginning with 4500 have different color wires on the clarifier control. They are as follows , Yellow instead of orange, and Red instead of Blue. The White wire is the same in both models.

### Modification Instructions

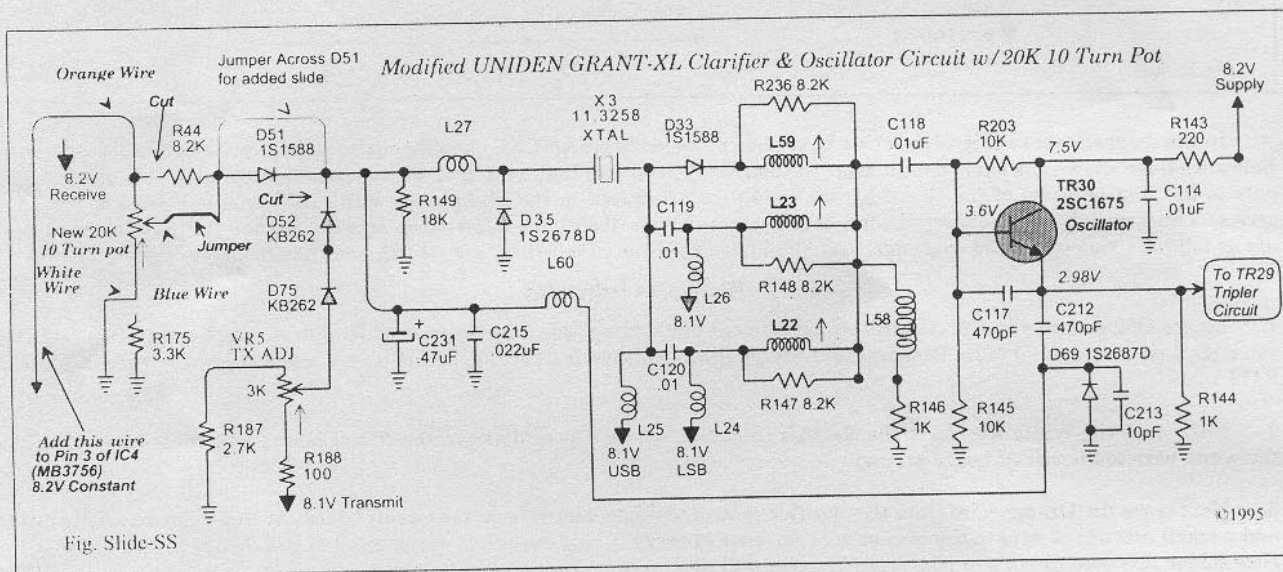
1. Locate D52 and R44 in the clarifier circuit and cut one end as shown below. It doesn't matter which end of R44 and D52 you cut. Next locate R174 (12K Resistor) and unsolder and remove it from the circuit. Next solder a jumper wire in place of R174.
2. Next trace the White wire form the clarifier control to where it is soldered to the circuit board, and cut it loose. Resolder the white wire to the circuit board ground.
3. Next trace the Orange wire from the clarifier control and unsolder it from the circuit board. At this point you will need to add a small amount of wire to the orange wire in order to make it long enough to reach pin 3 of IC4 (MB3756 Regulator IC). Now solder this wire to pin 3 of IC4. Your clarifier will now track on receive and transmit.



# UNIDEN GRANT-XL

## Super Slide Clarifier Modification

In most cases once the clarifier circuit has been modified, the stock clarifier control is just not adequate for all practical purposes. Not only is it difficult to clarify, the unit will also tend to drift off frequency due to the lack of clarifier control stability. The cure for this problem is to install a 10-Turn Precision Potentiometer in place of the stock clarifier control. This will allow you cover the same range in 10 complete turns versus 1 turn with the stock control. Your clarifier will then operate like a FINE TUNE clarifier control and will have much improved stability, with very little or no frequency drift. Below we have shown what the above circuit should look like once modified and how to wire your new 20k- 10 turn pot in place of the stock clarifier control for the Uniden Grant XL.



### 20K-10 Turn Pot Diagram & Installation Instructions

1. First perform the standard clarifier modification on the previous page.
2. Next unsolder the Orange Wire, Blue Wire, and the White Wire from the stock clarifier control. At this point you will need to remove the old clarifier control and install the new 20K-10 turn pot in its place. Once that you have mounted the new pot, resolder the Orange Wire, Blue Wire, and the White Wire to the new 10 turn pot as shown in the diagram to the right.
3. You may also want to add a jumper either across or in place D51 for increased slide. Once completed, your unit should now slide anywhere from 10 to 20 KHz with precision control.

20K-10 TURN POT.

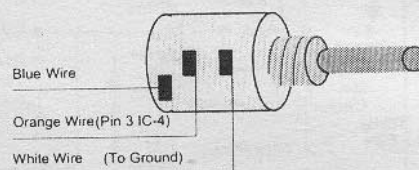
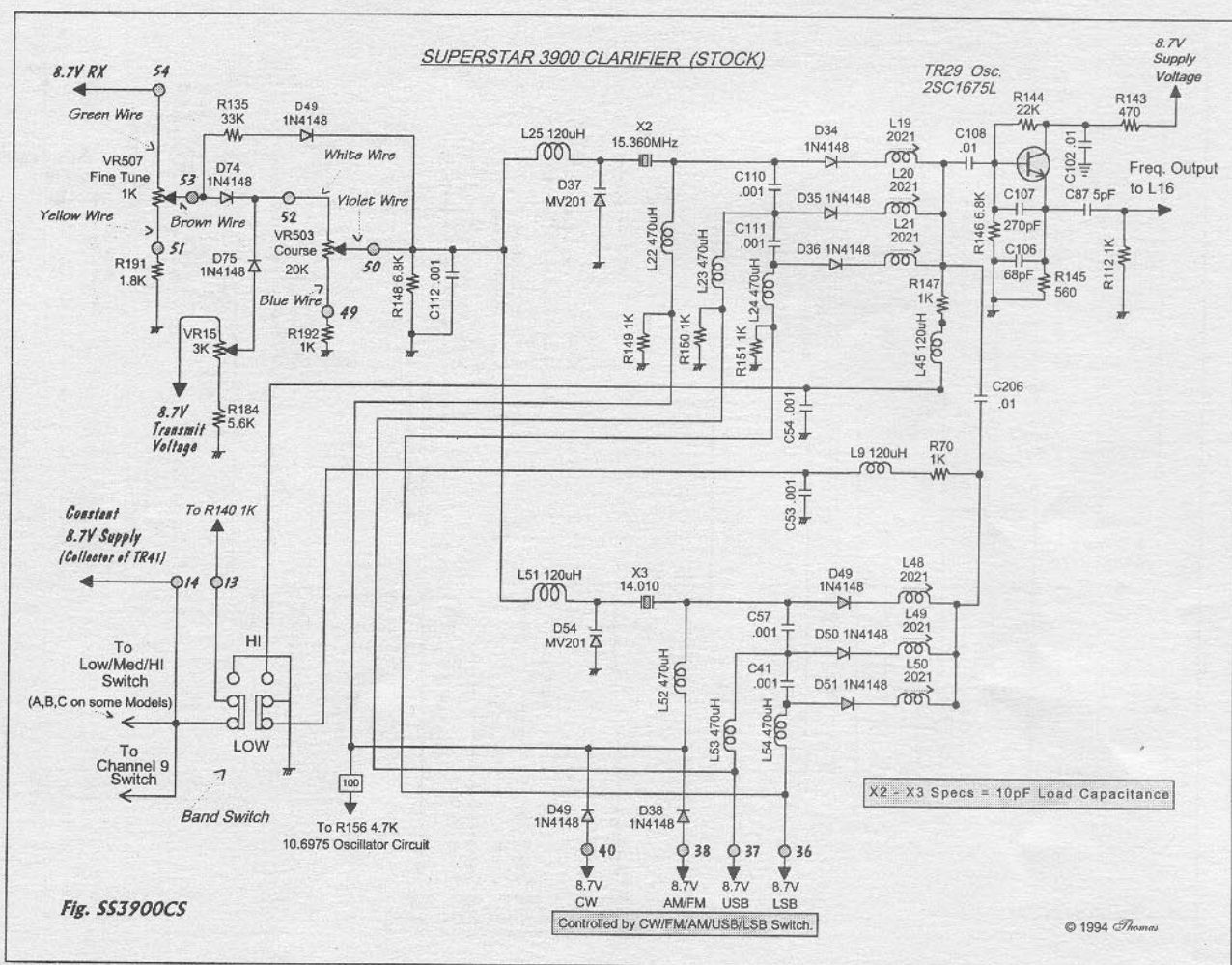


Fig. Pot-XL

©1995

# SUPERSTAR 3900 Clarifier Modification

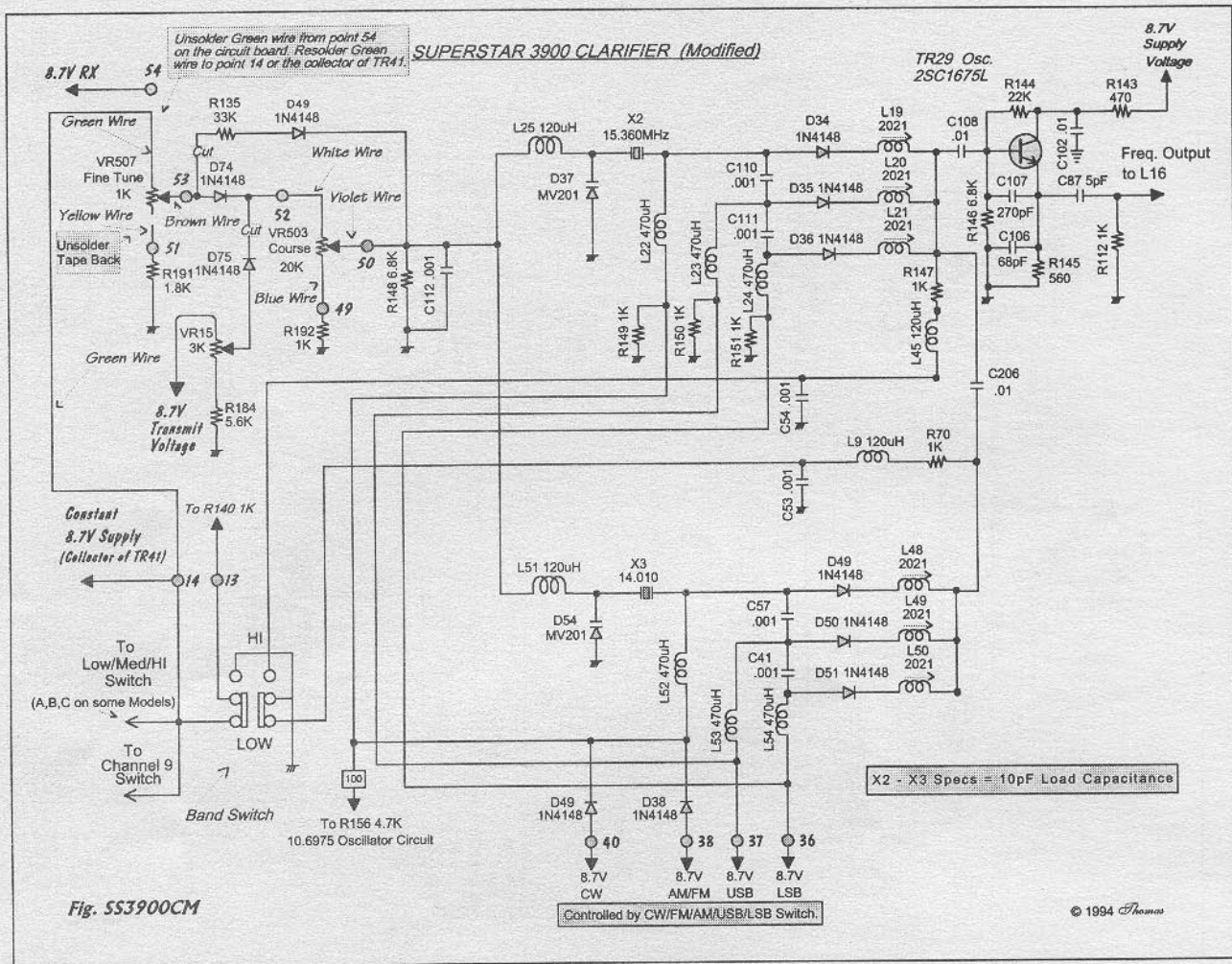


Above we have shown the original SUPERSTAR 3900 clarifier circuit as it comes from the factory. Notice that this unit uses two crystals controlled by the HI/LO switch in combination with the LO/MED/HI switch (ABC on some models). Changing either one of these crystals to different values will also provide a whole new range of channels if so desired.

Most radios use only one crystal in the PLL circuit thus eliminating this dual crystal circuitry. Although this circuit functions well, it sometimes tends to have drifting problems, as many of you know. On the following page we have shown the standard clarifier slide modification for tracking RX and TX. But if you really want to go a long way towards eliminating much of your drifting problems do the 20K-10 turn pot modification shown on page 17. You will be glad you did.



# SUPERSTAR 3900 Clarifier Modification

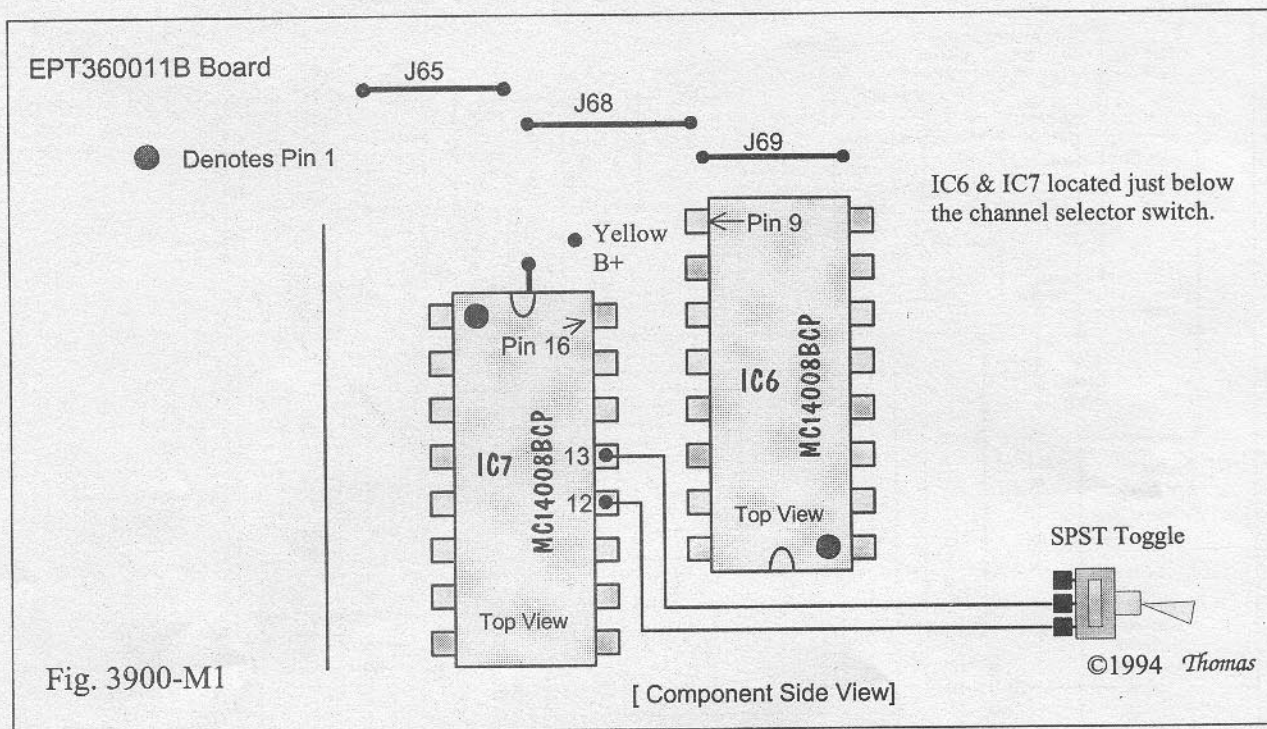


## Instructions

1. First unsolder the green wire from point 54 on the circuit board and resolder to point 14 ( 8.7V Supply) as shown in *Fig. SS3900M* above. Next unsolder the yellow wire from the clarifier control and seal the yellow wire end with a piece of heat shrinkable tubing. You will not use the yellow wire with this modification
  
2. Next Locate D75 and R135 (33K resistor) and cut one end as shown above. Your clarifier will now track RX and TX.



# SUPERSTAR 3900 CHANNEL CONVERSION



## Modification Instructions

1. The above modification will allow you to cover the frequency range of 28.300 to 28.500 with the Superstar 3900. This modification can be performed from the component side if special care is used when soldering the switch wires to Pin 12 and 13 of IC7 (Adder Chip). Or you may also locate these two pins on the bottom side of the circuit board, and solder them there.
2. Mount a SPST switch in a convenient location. Solder two wires from this switch to Pin 12 and pin 13 of IC7 (MC14008BCP). Be very that the wires do not touch any other pins once they soldered to IC7.
3. Once you have made sure that all connections are okay, apply power to the radio. Place the band switch to Band "D" for your new channels.

## GALAXY 44V

### Conversion

1. Remove the radio case and locate the small circuit board connected to the left side of the radios case.
2. Once you have located this small circuit board, locate the wire (*usually a green wire*) that is soldered to the back of this board. Either unsolder or cut this wire loose from the board and seal the end of this wire with some small heat shrinkable tubing. This needs to be done in order to prevent this wire from ever causing a short, or possibly other damage to your radio.
3. Next reconnect the connector that is unplugged from the small circuit board. Be sure the plug is plugged in properly and well seated.
4. Next locate the connector towards the front of the radio labeled "+10K". Once located, reconnect this plug to the circuit board pin terminal. That's it. Your radio will now cover all channels & all bands.

## GALAXY 77HML

### Conversion

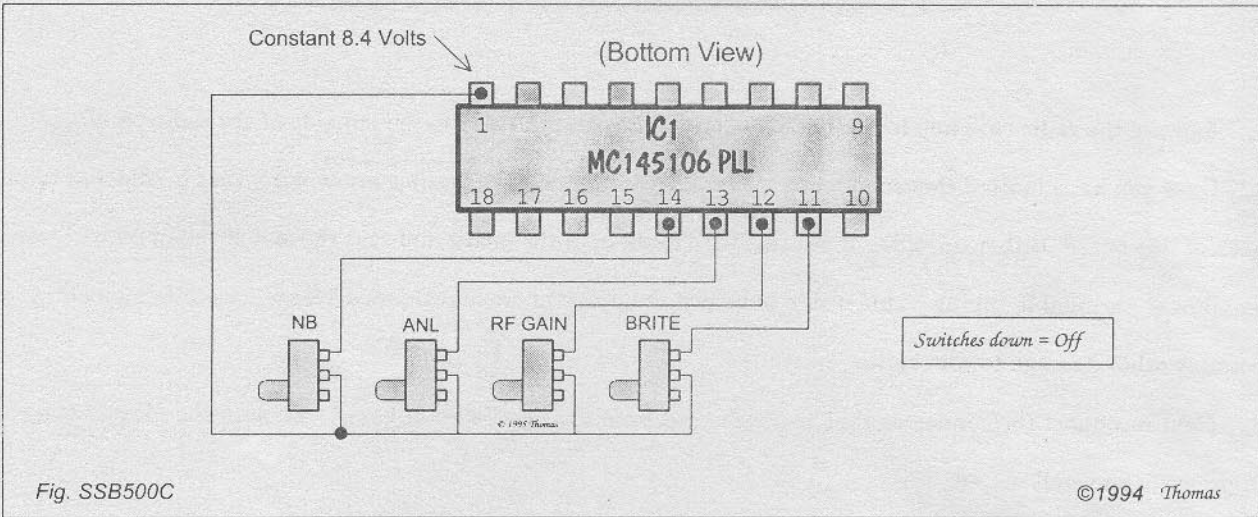
1. Remove the radio case and locate the wire (*usually green*) that is soldered to the back of the circuit board towards the front of the radio. One end of this wire will be soldered to ground, and the other end will be connecting two pins together
2. Once you have located this wire, unsolder it from the circuit board and from the two pins. After you have unsoldered this wire from the two pins, be sure that there is NO solder connecting these two pins together.
3. Next locate the connector towards the front of the radio labeled "+10K". Once located, reconnect this plug to the circuit board pin terminal. That's it. Your radio will now cover all channels & all bands.

#### \*NOTE

Some of the Galaxy Radios are distinguished by either "HML" or "V" in their model numbers. "HML" means the radio has HIGH, MEDIUM, and LOW power levels on transmit. The "V" symbol means that the radio has VARIABLE POWER adjust on transmit. Other than that these radios are identical (i.e.. 77HML or 77V), if their first two numbers are the same.

Hopefully this will clear up any confusion you may have had, caused by this numbering system.

**PALOMAR SSB-500**  
*Channel Conversion for the MC145106P PLL CHIP*



**Instructions**

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 also. 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 also.

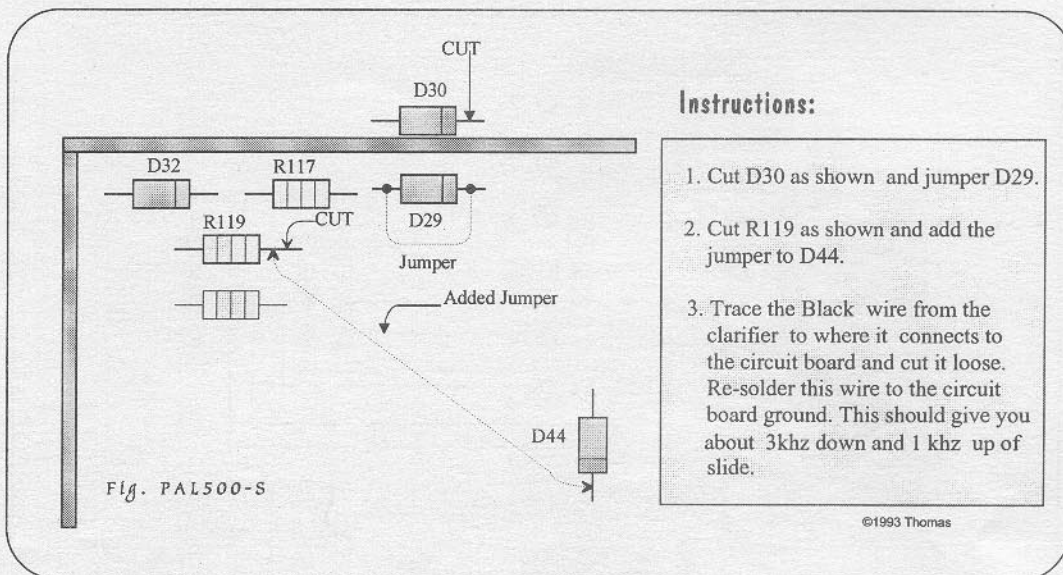
2. Once the above step has been completed, proceed to wire the switches as shown in the diagram pictured above ( Fig. SSB-500). Now with all switches in the down position you will still have the normal 40 channels. A channel chart is provided below for reference of your new channels.

**Channels**

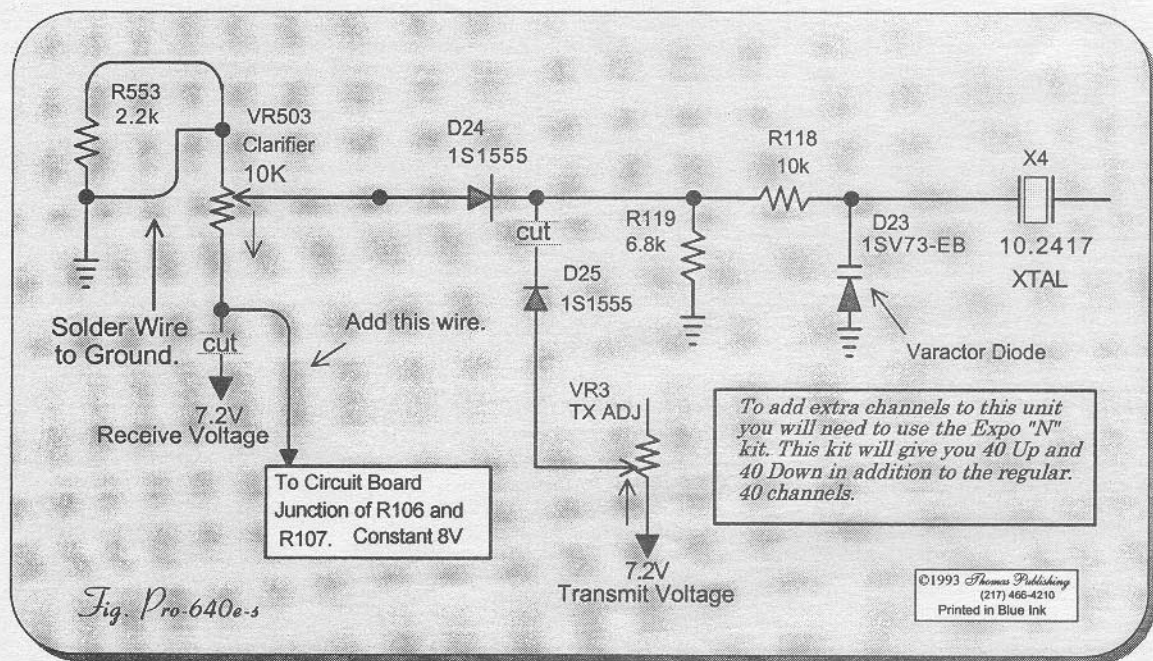
*Leave all other switches in down position unless stated otherwise.*

NB Switch UP	ANL switch Up	NB & ANL Switch UP	RF Gain switch UP	NB & RF Gain Switch 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	39 = 27.555	39 = 27.635	39 = 27.715	39 = 27.795
40 = 27.485	40 = 27.565	40 = 27.645	40 = 27.725	40 = 27.805
ANL & RF Gain Sw. UP	NB, ANL, RF Gain UP	Brite/Dim Sw. UP	NB, Brite/Dim Sw. UP	ANL, Brite/Dim 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

# PALOMAR SSB-500 SLIDE CONVERSION

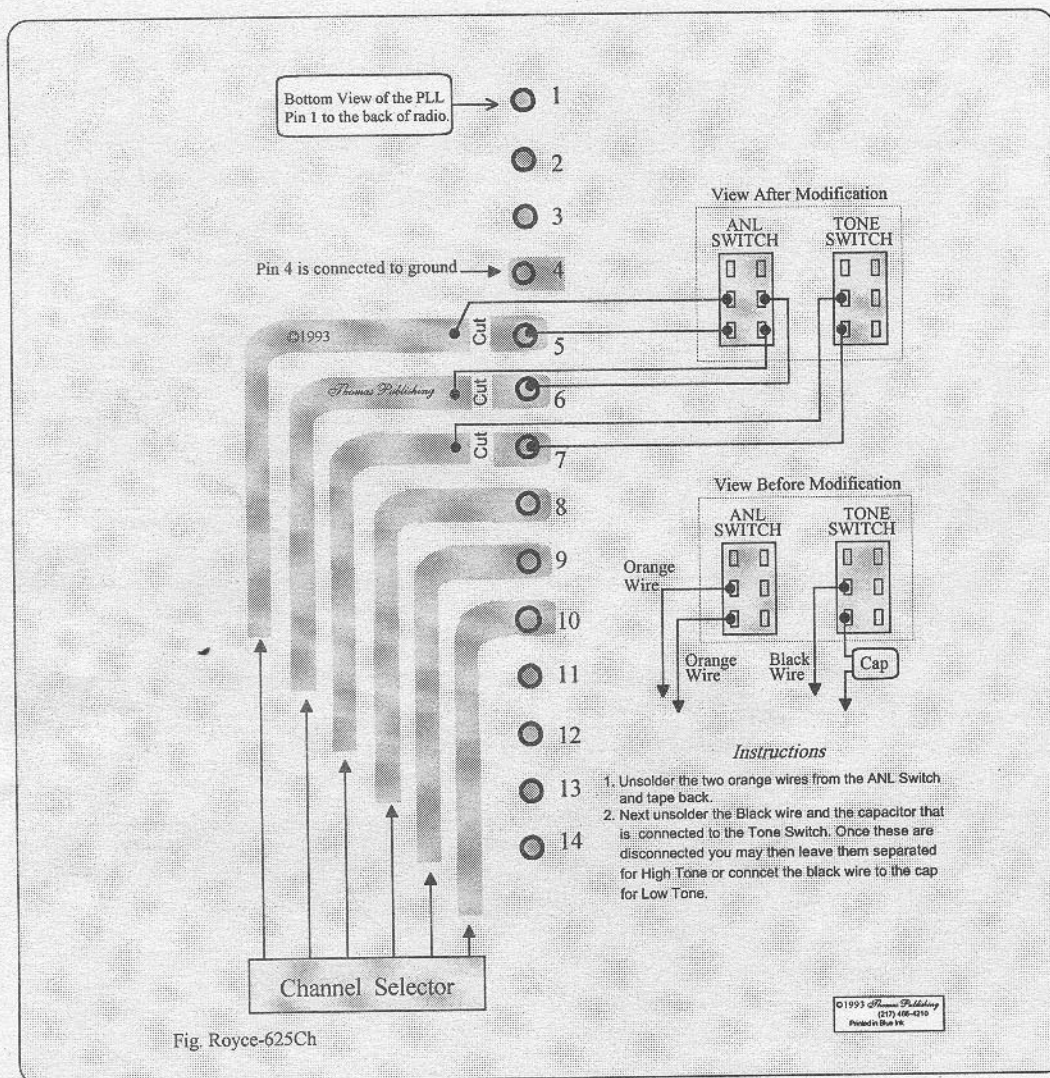


## UNIDEN PRO-640e Clarifier Slide Modification



# ROYCE I-625

## Channel Conversion



### Royce 625 Channel Chart

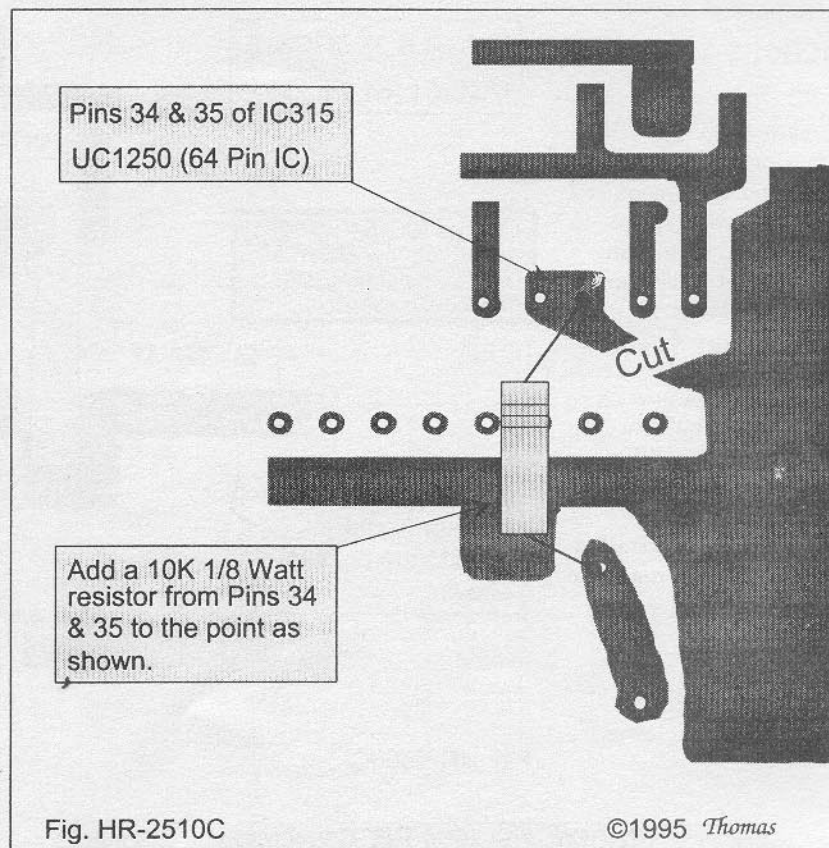
*ANL Switch in the Out Position and Tone Switch in the Out Position = Normal 40 Channels*

*ANL Switch in the Out Position and Tone Switch in the In Position =*

33 = 27.415 (Ch. 41)      34 = 27.425 (Ch. 42)      35 = 27.435 (Ch. 43)

*ANL Switch in the Out Position and Tone Switch in the In Position =*

1 = 27.445 (Ch. 44)	4 = 27.485 (Ch. 48)	7 = 27.515 (Ch. 51)	10 = 27.555 (Ch. 55)
2 = 27.455 (Ch. 45)	5 = 27.495 (Ch. 49)	8 = 27.535 (Ch. 52)	11 = 27.565 (Ch. 56)
3 = 27.465 (Ch. 46)	6 = 27.505 (Ch. 50)	9 = 27.545 (Ch. 53)	12 = 27.585 (Ch. 58)
			13 = 27.595 (Ch. 59)



## Instructions

1. Remove the bottom radio case and locate the microprocessor board. This board has a large 64 pin IC labeled UC-1201. Notice that there are four screws (one in each corner) holding this board in place. Remove these 4 screws and gently lift and tilt this board towards you in order to gain access to the underside of the microprocessor.
2. Next locate Pins 34 & 35 of the microprocessor chip. These two pins are connected together and then connect to the circuit board ground. Once located, cut and isolate pins 34 & 35 away from the circuit board ground as shown in Fig. HR-2510C above. Before proceeding make sure that pins 34 & 35 are totally isolated away from board ground.
3. Next solder a 10K 1/8Watt resistor from pins 34 & 35 to the point on the microprocessor board as shown above. This point is where the Plus side of C394 is soldered. C394 is the 470 $\mu$ f 10V Capacitor directly in front of D316 on the component side. **This connection will provide a +5V isolated source for your connection.** If you decide or were told to connect this resistor to any other source voltage, be advised that you are doing so at your own risk, unless you have an ample supply of UC-1201 chips.
4. Recheck all connections before reinstalling the microprocessor board. Reassemble the unit and check out all your new channels.

\*Note: Some newer versions of the HR-2510 require that the microprocessor be changed before it can be converted. However all units with the UC-1201 will convert without any change over required.



## UNIDEN HR-2600 Channel Conversion

### Instructions

1. Obtain a replacement chip for IC315 (UC-1251). The replacement chip is part number UC-1250. Once you have acquired the replacement chip you will need to carefully unsolder the original chip using a grounded soldering iron and desoldering wick. After all the old chip is still good.

We strongly recommend that you use a 64 pin IC socket for installing the new chip. This way any excessive heat to the new chip will be avoided, and make your installation go much easier.

2. Once you have the new chip installed, proceed with the conversion shown to the right in figure HR-2600C.

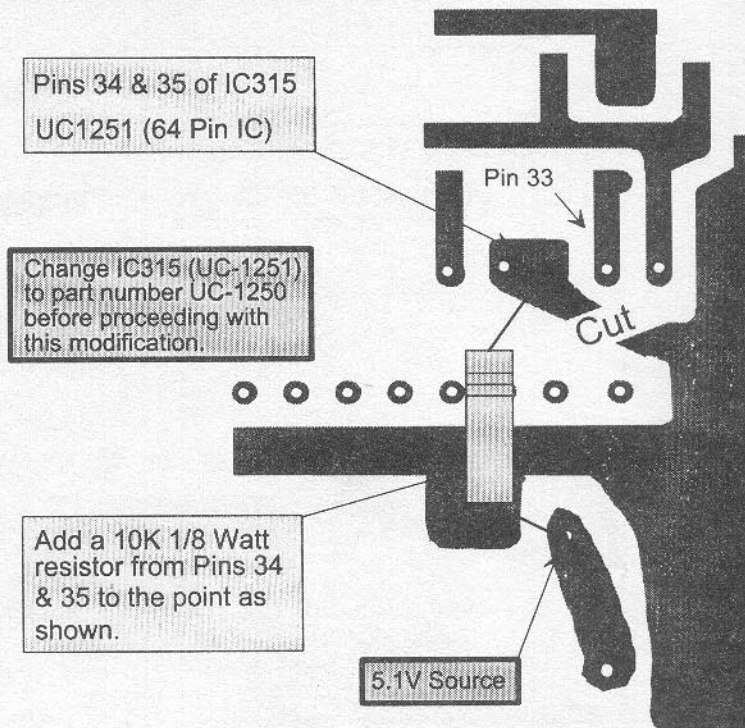


Fig. HR-2600C

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## UNIDEN HR-2600 RIT Conversion

- Step 1. Locate D43 located just in front of VR11, and cut one end of D43
- Step 2. Locate the jumper on the circuit board next to Q29 as shown below and solder one leg of a 10K variable resistor to this jumper. Next locate the back of the RIT control and make the cut as shown. Next solder a piece of wire to the isolated RIT terminal back to the 10K variable as shown.
- Step 3. Apply power to the radio, push RIT button in, RIT control to the center position. Now key the radio on AM and observe your transmit frequency.
- Step 4. Now put the RIT button in the out position, and key the radio again. Observe your transmit frequency. If your transmit frequency was not the same, perform Step 3 again, only this time adjust the 10K variable until the transmit frequency is the same as in Step 4. Your RIT will now track TX & RX with the RIT button in the in position.

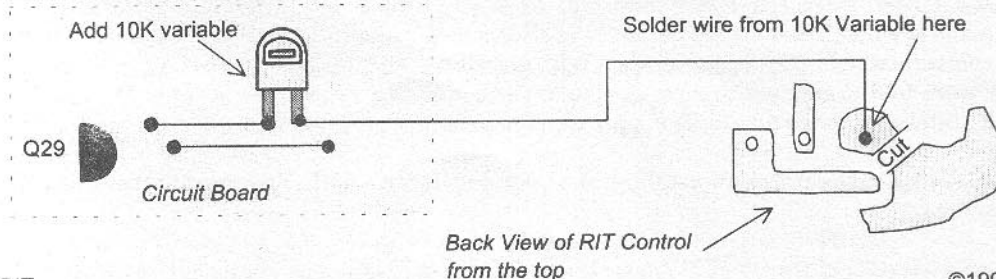


Fig. 2600RIT

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# DAK MARK-X

## Clarifier Conversion

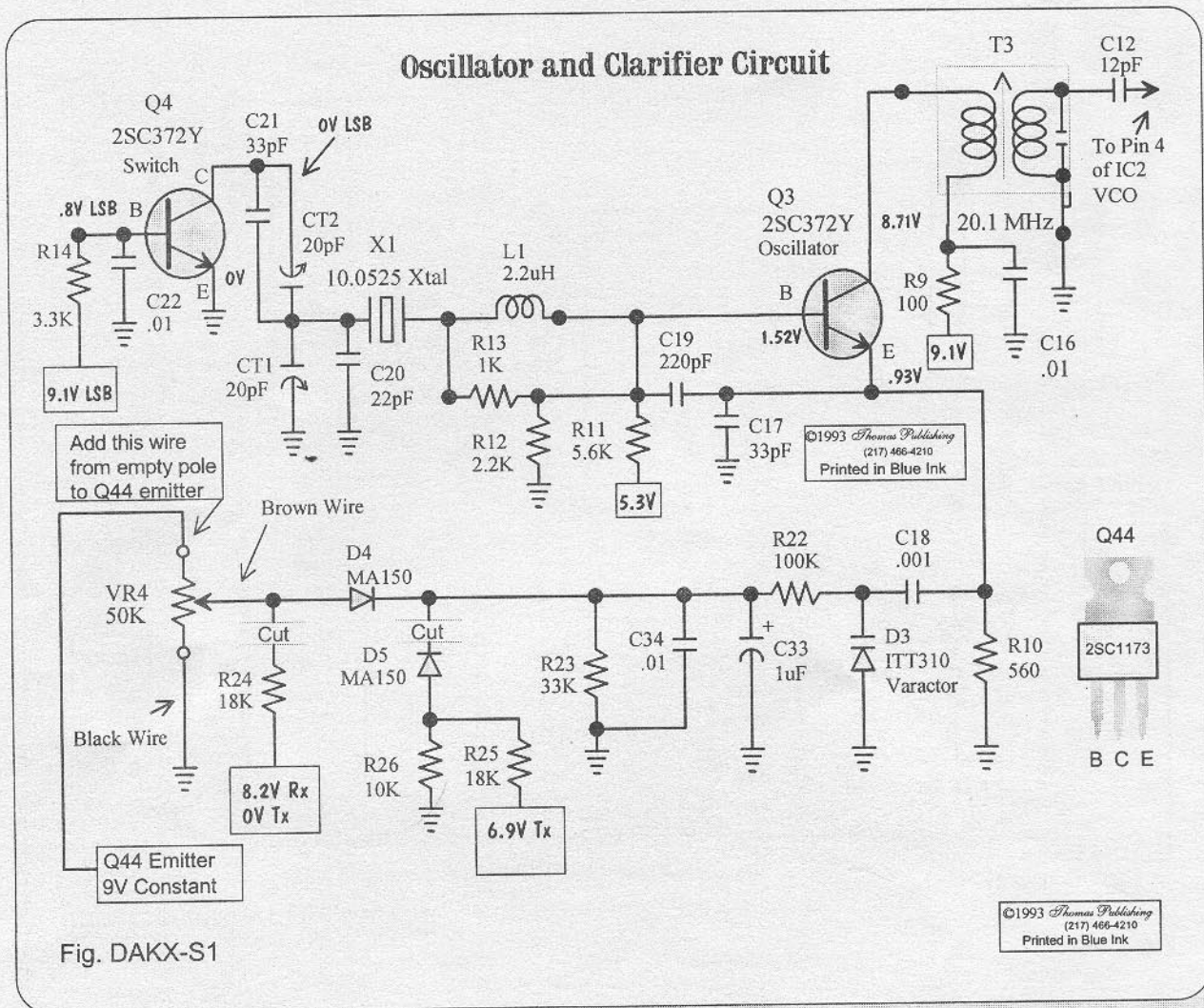


Fig. DAKX-S1

### Instructions

1. Locate R24 (18K resistor) in the clarifier circuit and cut one end as shown in the diagram above. Next locate D5 in the clarifier circuit and cut one end as shown in the diagram above. It doesn't matter which end of these components you cut.
  
2. Next cut a piece of hook-up wire. Make sure that it is long enough to reach from the unused terminal of the clarifier control to the emitter of Q44. Next solder one end of this wire to the unused terminal of the clarifier control, and solder the other end to the emitter of Q44 (9V constant). Your clarifier will now slide on transmit and receive.

# REALISTIC TRC-432

## SUPER-TALK™ Installation Instructions & Power Increase Mod

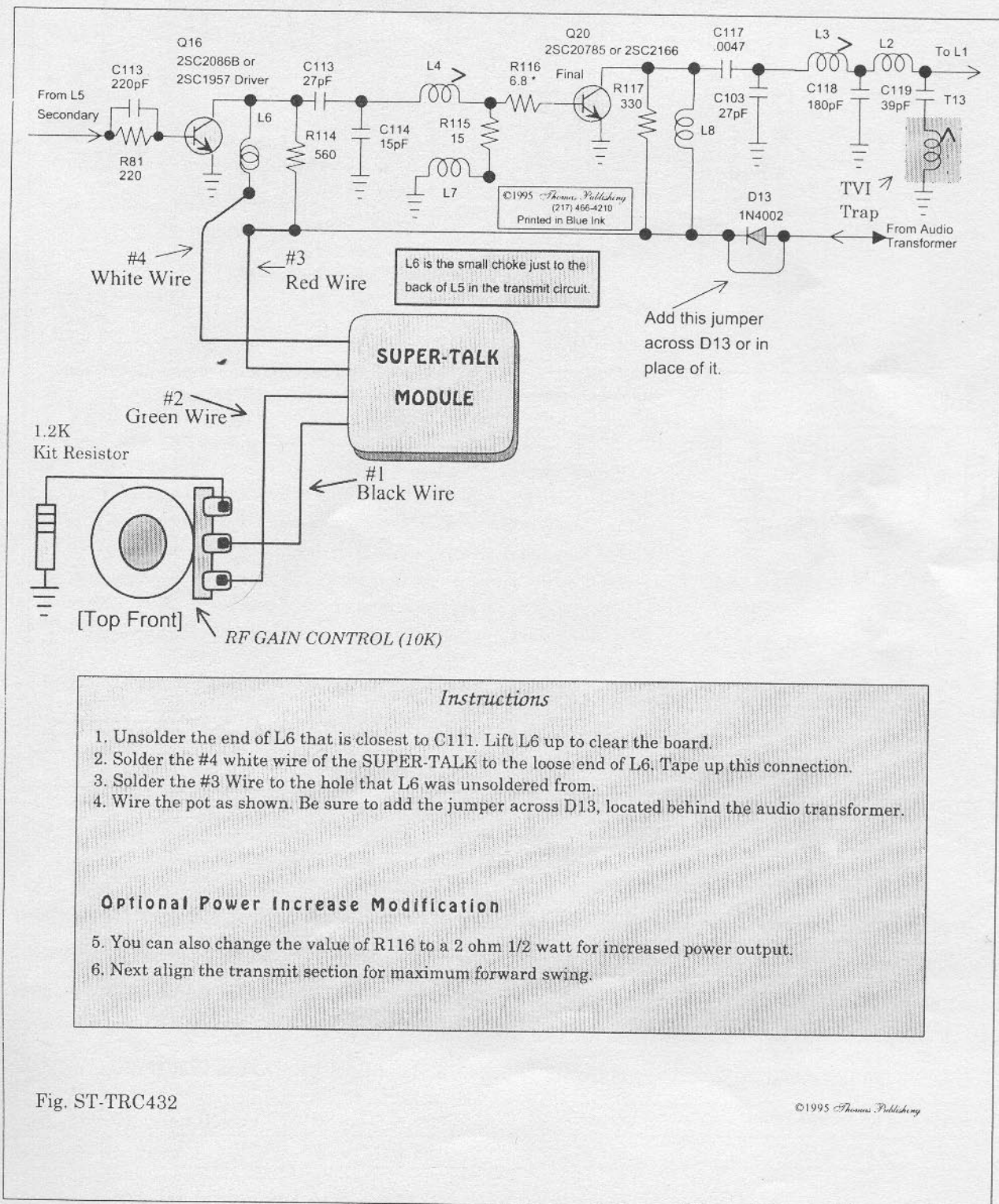


Fig. ST-TRC432

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# REALISTIC TRC-492

## SUPER-TALK™ Installation Instructions & Power Increase Mod

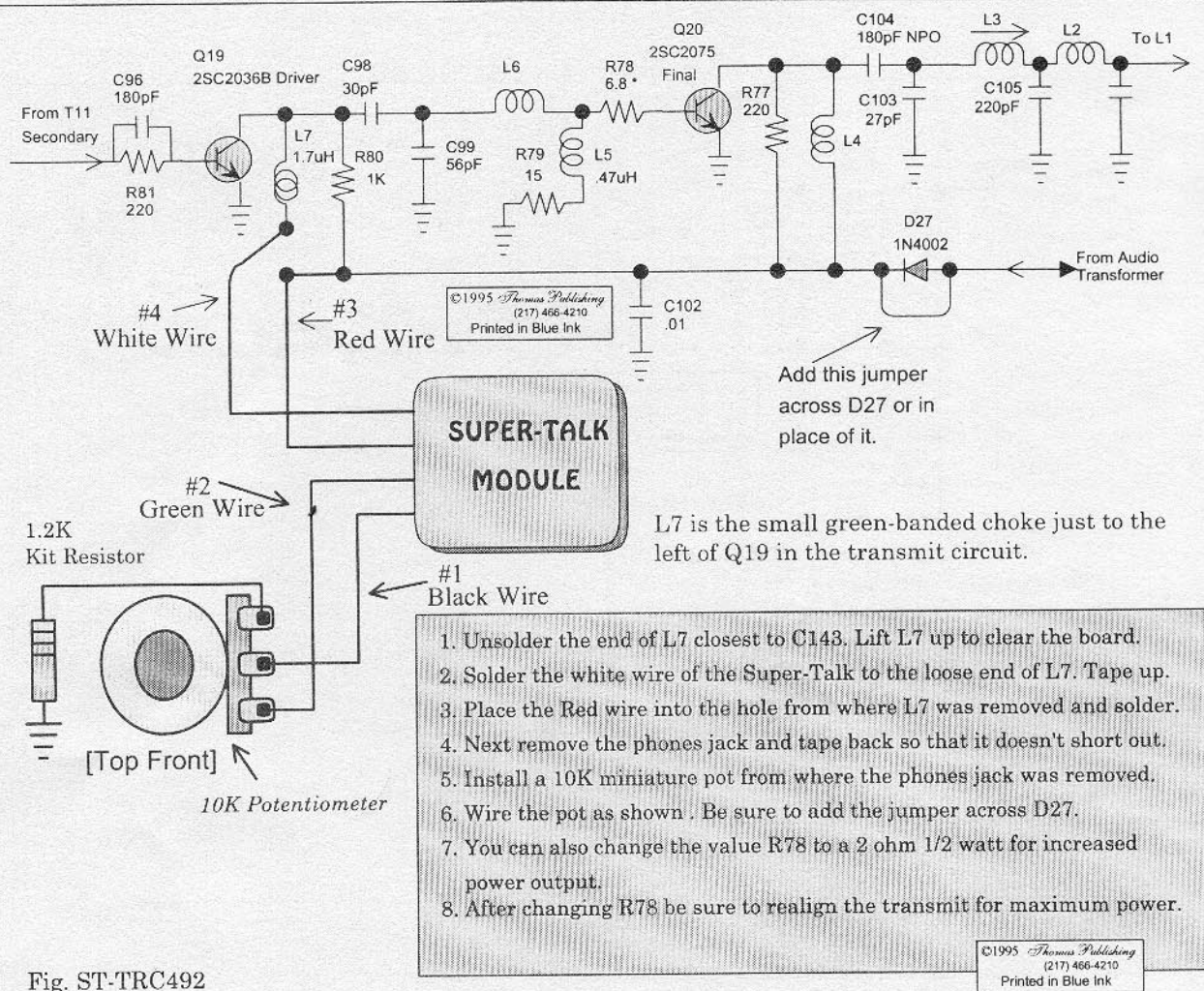


Fig. ST-TRC492

### TECH TIP

In many of our conversions we often direct you to tape up some connections. We feel that we should clarify these statements. We do not recommend using electrical tape for this purpose. What we do use and recommend is heat shrinkable tubing for taping and insulating all connections. Heat shrinkable tubing, when properly applied, will provide the best connection possible, and will never come loose as tape will.

So in any future reference we will try say what we mean, and to instruct you to use heat shrinkable tubing for insulating all connections.

# ROBYN 520D, PRESIDENT WASHINGTON, PRESIDENT MADISON

Models with the 858 PLL Chip  
AC POWER SUPPLY SCHEMATIC

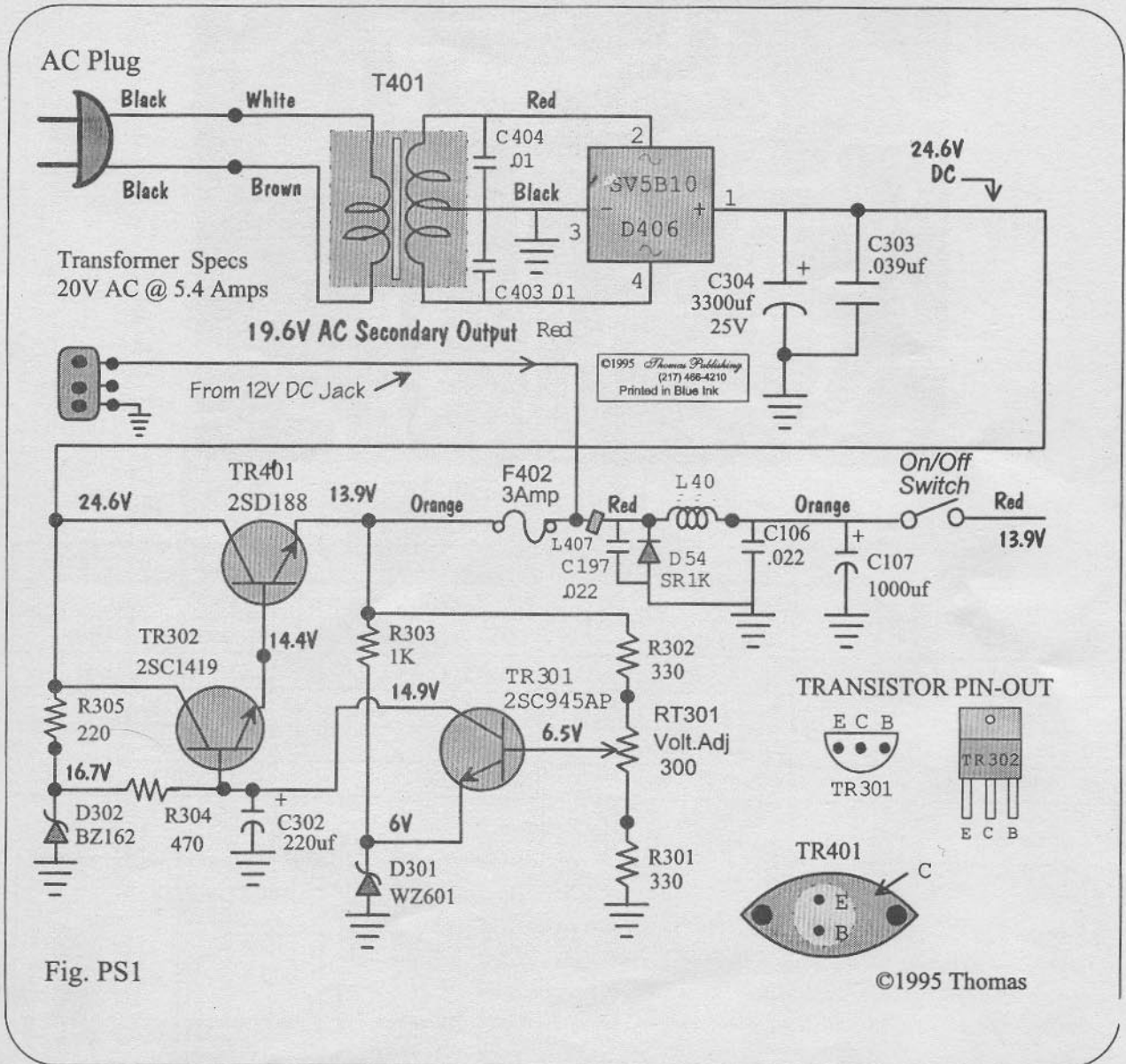


Fig. PS1

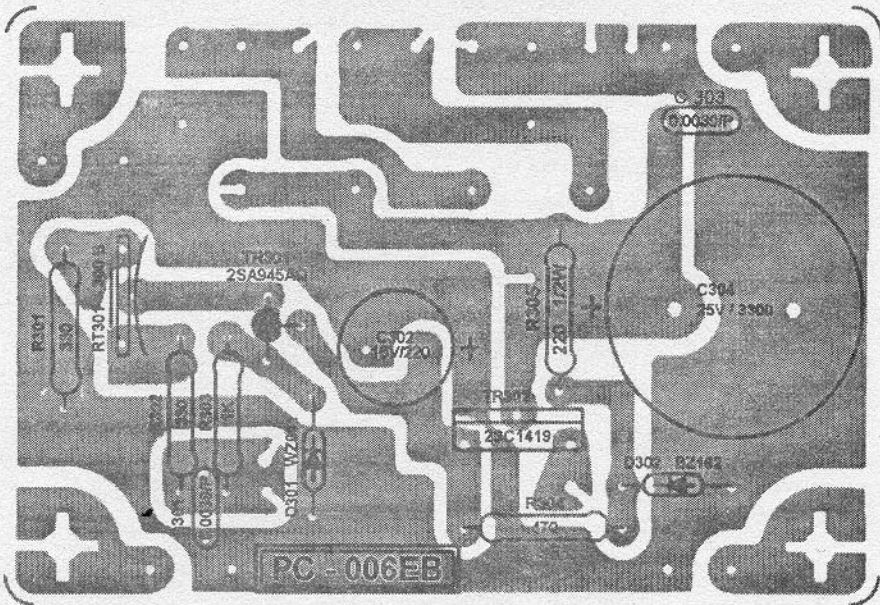
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Part Description	Original Number	NTE Replacement	RCA Replacement
D406 Bridge Rectifier	SV5B10 (5 Amp)	NTE-5313 (8 Amp)	SK3986 (8 Amp)
TR401 Regulator	2SD188 (7 Amp)	NTE-130 (15 Amp)	SK3297/280 (12 Amp)
TR302 Control Regulator	2SC1419 (2 Amp)	NTE-152 (7 Amp)	SK3197/235 (6 Amp)
TR301 Error Amp	2SC945AP	NTE-85	SK3124A/289A
D302 16.2 Volt Zener Diode	BZ162 (1 Watt)	NTE-5075A	SK16V
D301 6.1 Volt Zener	WZ601 (1/2 Watt)	NTE-5013A	SK6A2/5013A

# ROBYN 520D, PRESIDENT WASHINGTON, PRESIDENT MADISON

Models with the 858 PLL Chip

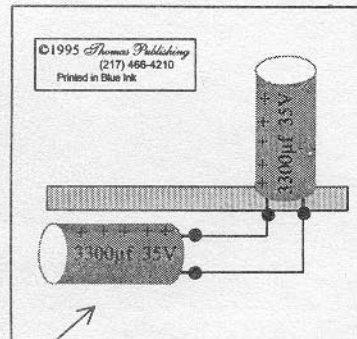
## DC POWER SUPPLY BOARD & MODIFICATION



Part Description	Original Number	NTE Replacement	RCA Replacement
D406 Bridge Rectifier	SV5B10 (5 Amp)	NTE-5313 (8 Amp)	SK3986 ( 8 Amp)
TR401 Regulator	2SD188 (7 Amp)	NTE-130 (15 Amp)	SK3297/280 (12 Amp)
TR302 Control Regulator	2SC1419 (2 Amp)	NTE-152 (7 Amp)	SK3197/235 (6 Amp)
TR301 Error Amp	2SC945AP	NTE-85	SK3124A/289A
D302 16.2 Volt Zener Diode	BZ162 (1 Watt)	NTE-5075A	SK16V
D301 6.1 Volt Zener	WZ601 (1/2 Watt)	NTE-5013A	SK6A2/5013A

### Tech Tip

Changing C304 ( 3300  $\mu$ f / 25V ) electrolytic filter capacitor to a 4700 $\mu$ f /35V or higher is usually necessary after the above radios have been peaked. This will allow the power supply to operate at higher peak currents. We have found that changing C304 to a 6800 $\mu$ f - 35V will normally suffice. If you find it difficult to locate a 6800 $\mu$ f /35V or higher electrolytic, you may parallel another 3300 $\mu$ f to C304 for a total of 6600 $\mu$ f as shown in the diagram to the right. We recommend that you also replace the original C304 with a new capacitor, and that the second capacitor be of the same value and voltage as the original. Also see "IMPROVING BASE STATION PERFORMANCE" on Page 6 in CB TUNE-UP MASTER EDITION Vol III.....

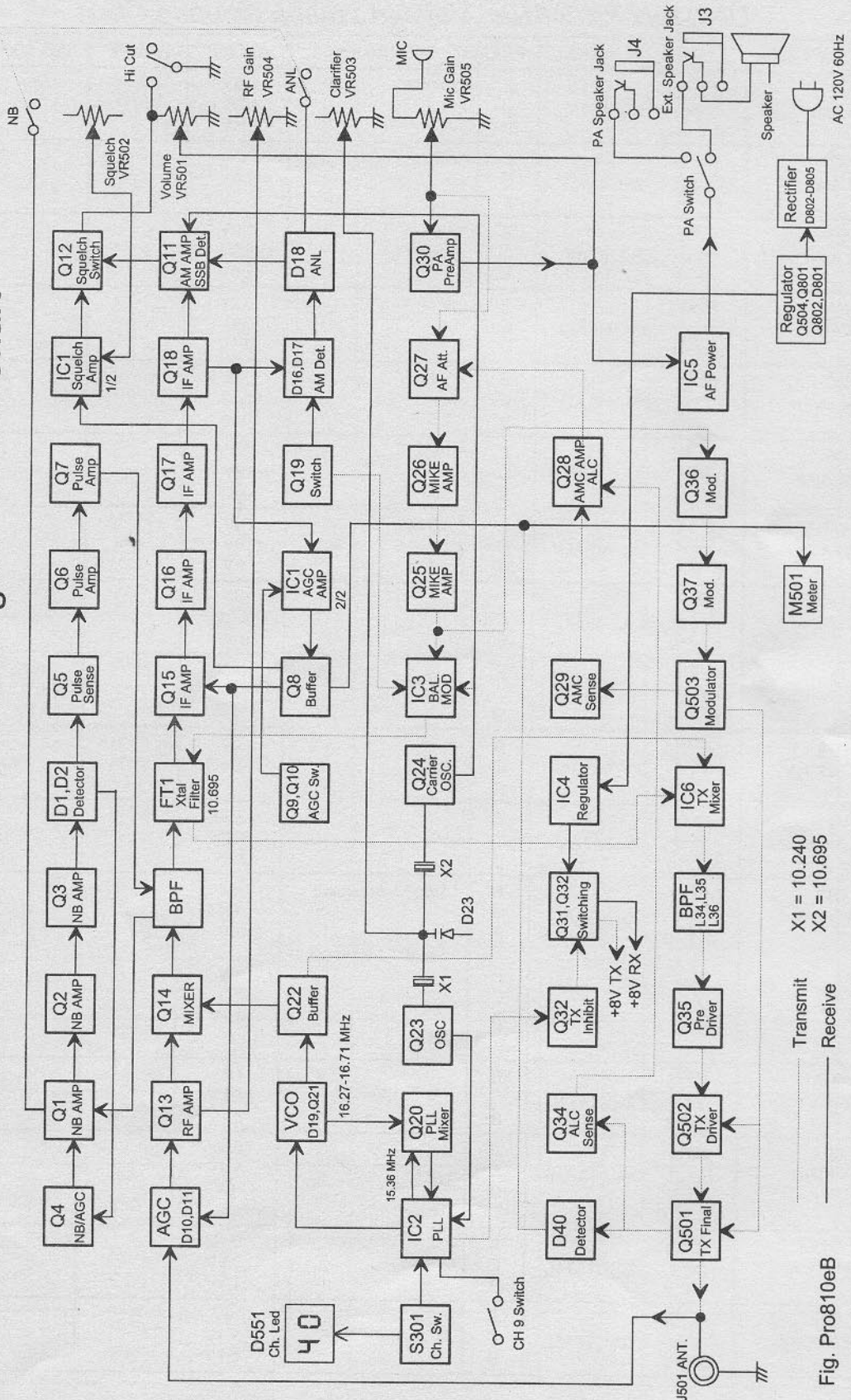


Mount or glue second capacitor to Radio case next to Power Supply.

Fig. TechTip1

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# UNIDEN PRO-810e Block Diagram & Flow Chart



















X1 = 10.240  
 X2 = 10.695  
 Transmit \_\_\_\_\_  
 Receive \_\_\_\_\_



















Fig. Pro810eB







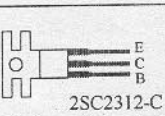
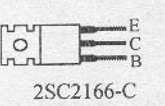
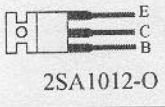
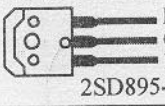
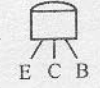
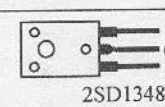
## UNIDEN PRO-810e Voltage Troubleshooting Chart

TRANSISTOR	CONFIGURATION	PIN	REMARKS	AM RX	AM TX	SSB RX	SSB TX
Q1 NB Amp	 2SC1675L	E C B	*NB ON	0.8V 6.9V 1.5V			
Q2 NB Amp	 2SC1675L	E C B	*NB ON	0V 2.6V 0.7V			
Q3 NB Amp	 2SC1730L	E C B	*NB ON	1.9V 6.8V 2.6V			
Q4 NB AGC	 2SC945AQ	E C B	*NB ON	0.8V 7.2V 0.1V			
Q5 Pulse Sense	 2SC945AQ	E C B	*NB ON	0V 6.6V 0.1V			
Q6 Pulse Amp	 2SA733P	E C B	*NB ON	7.2V 0V 6.6V			
Q7 Pulse Amp	 2SC945AQ	E C B	*NB ON	0V 0V 0V			
Q8 Buffer	 2SC945AQ	E C B		0V 8.0V 0.4V			
Q9 AGC Switch	 2SC945AQ	E C B				0V 0V 0.7V	
Q10 AGC Switch	 2SC945AQ	E C B		0V 0V 0.7V			
Q11 SSB Detector and AM Amp	 2SC945AQ	E C B		0.9V 4.7V 1.6V			
Q12 Squelch Switch	 2SC945AQ	E C B  E C B	*Squelch Minimum  *Squelch Maximum	0V 0V 0V  0V 0V 0.7V			
Q13 1st RF RX Amp	 2SC1674L	E C B		1.4V 6.8V 2.1V			
Q14 RX Mixer	 2SK192A-BL	D S G		6.6V 3.4V 0V			
Q15 1st IF Amp	 2SC1674L	E C B		0.7V 7.9V 1.4V			
Q16 2nd IF AMP	 2SC1675L	E C B		0V 3.4V 0.7V			

## UNIDEN PRO-810e Voltage Troubleshooting Chart

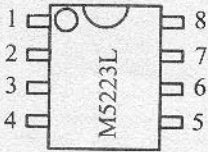
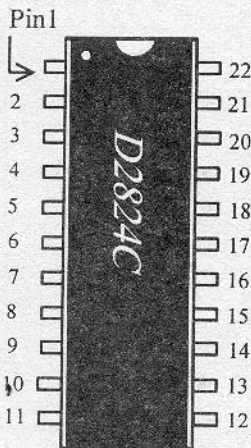
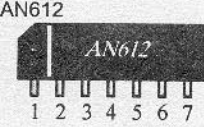

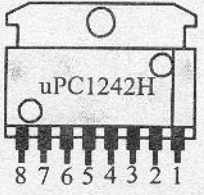

TRANSISTOR	CONFIGURATION	PIN	REMARKS	AM RX	AM TX	SSB RX	SSB TX
Q17 3rd IF Amp	 2SC1675L	E C B		2.7V 6.2V 3.4V			
Q18 4th IF AMP	 2SC1730L	E C B		1.9V 6.4V 2.7V			
Q19 Switch	 2SC945AQ	E C B		0V 0V 0.7V		0V 2.9V 0V	
Q20 PLL Mixer	 2SC1675L	E C B		0.8V 4.7V 1.3V	0.8V 4.7V 1.3V		
Q21 VCO	 2SC1675L	E C B		2.5V 6.8V 2.9V	2.5V 6.8V 2.9V		
Q22 VCO Buffer	 2SC1675L	E C B		0V 4.3V 0.7V	0V 4.3V 0.7V		
Q23 PLL Oscillator	 2SC1675L	E C B		3.5V 5.6V 4.2V	3.5V 5.6V 4.2V		
Q24 Carrier Oscillator	 2SC1675L	E C B			2.1V 6.9V 2.8V	2.1V 6.9V 2.8V	
Q25 Mike Amp	 2SC945AQ	E C B			1.1V 3.4V 1.7V		
Q26 Mike Amp	 2SC945AQ	E C B			0.3V 1.7V 0.9V		
Q27 AF Attenuator	 2SC945AQ	E C B		0V 0V 0.7V	0V 0V 0V		
Q28 AMC Amp / SSB ALC	 2SA733P	E C B		8.0V 6.6V 7.8V	8.0V 0V 7.8V		
Q29 AMC Sense	 2SC945AQ	E C B			1.4V 7.8V 1.0V		
Q30 PA Pre-Amp	 2SC945AQ	E C B	* PA MODE	1.8V 4.5V 2.5V			
Q31 Switching	 2SC3242A-E	E C B		7.2V 8.0V 7.8V	0V 8.0V 0V		
Q32 Transmit Inhibit	 2SC945AQ	E C B		4.7V 7.9V 5.0V	0V 8.0V 0V		
Q33 Switching	 2SB525-C	E C B		8.0V 0V 8.0V	7.2V 7.8V 8.0V		
Q34 ALC Sense	 2SC1675L	E C B				1.4V 7.8V 0V	

## UNIDEN PRO-810e Voltage Troubleshooting Chart

TRANSISTOR	CONFIGURATION	PIN	REMARKS	AM RX	AM TX	SSB RX	SSB TX
Q35 Transmit Pre-Driver	 2SC1973SSB	E C B			0.5V 5.7V 1.2V		0.5V 7.8V 1.2V
Q36 Modulator Pre-Driver	 2SC945AQ	E C B			5.7V 12.2V 6.2V		13.1V 13.2V 12.6V
Q37 Modulator Driver	 2SB525-C	E C B			12.3V 5.7V 12.8V		13.2V 13.7V 13.0V
Q38 Modulator Driver	 2SC3242A-E	E C B			0V 12.9V 0.3V		0V 0V 0.7V
Q501 Transmit Final	 2SC2312-C	E C B			0V 5.6V 0.5V		0V 13.7V 0.6V
Q502 Transmit Driver	 2SC2166-C	E C B			0V 5.5V 0.6V		0V 13.7V 0.7V
Q503 Modulator	 2SA1012-O	E C B			13.5V 5.7V 12.8V		13.7V 13.7V 13.0V
Q504 Power Regulator	 2SD895-E	E C B		13.8V 21.4V 14.4V	13.8V 21.4V 14.4V		
Q801 Regulator	 2SC945AQ	E C B		15.0V 6.2V 6.8V	15.0V 6.2V 6.8V		
Q802 Regulator	 2SD1348-R	E C B		14.4V 21.4V 15.0V	14.4V 21.4V 15.0V		

### Repair Notes

# UNIDEN PRO-810e Voltage Troubleshooting Chart

IC NUMBER	CONFIGURATION	PIN	AM RX	AM TX	SSB RX	SSB TX
IC1 M5223L  AGC IC		1 2 3 4 5 6 7 8	0.2V 0.1V 0.1V 0V 1.2V 1.5V 0V 8.0V			
IC2  D2824C PLL IC  Voltages taken with Radio on Channel 19		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	5.1V 0V 0V 5.1V 5.1V 0V 5.1V - - 2.0V 5.1V 2.5V 2.5V - 5.2V 5.1V 1.6V 1.6V 3.9V - 0V 2.4V	5.1V 0V 0V 5.1V 5.1V 0V 5.1V - - 2.0V 5.1V 2.5V 2.5V - 5.2V 5.1V 1.6V 1.6V 3.9V - 0V 2.4V		
IC3  AN612  BALANCED MODULATOR IC	 Balanced Modulator 7 Lead SIP	1 2 3 4 5 6 7	0V 3.3V 3.2V 0V 5.8V 7.3V 6.6V	0V 3.3V 3.2V 0V 5.8V 7.3V 3.6V		
IC4  L7808CV 8 Volt Regulator		1 2 3	13.7V 0V 8.0V	13.7V 0V 8.0V		
IC5  uPC1242H  AUDIO IC		1 2 3 4 5 6 7 8	0.1V 1.9V 1.3V 0V 0V 7.0V 12.7V 13.7V			
IC6  TA7320P  TRANSMIT MIXER		1 2 3 4 5 6 7 8 9		7.6V - - - 0V 2.6V 4.2V 4.2V 7.4V		

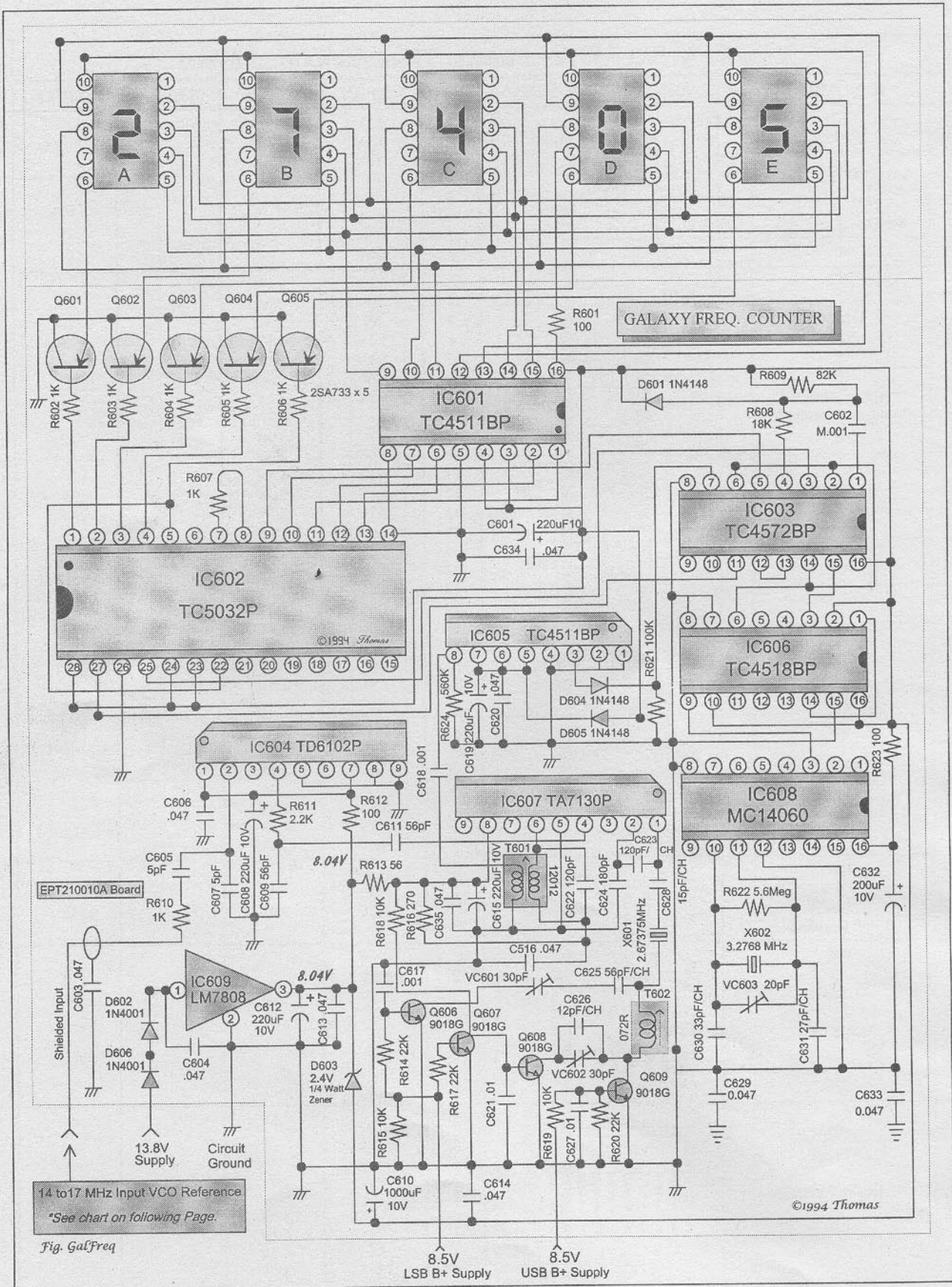


Fig. GalFreq

GALAXY SATURN VCO OUTPUT REFERENCE FREQUENCY CHART				
5 Band Version using the 14.460 Oscillator Crystal				
Band	Channel	Ch.Frequency	Xtal Reference + $N_f$ P. Code	AM/FM
A	1	26.065	14.460 + .910	15.370
	19	26.305	14.460 + 1.15	15.610
	40	26.505	14.460 + 1.35	15.810
B	1	26.515	14.460 + 1.36	15.820
	19	26.755	14.460 + 1.60	16.060
	40	26.955	14.460 + 1.80	16.260
C	1	26.965	14.460 + 1.81	16.270
	19	27.205	14.460 + 2.05	16.510
	40	27.405	14.460 + 2.25	16.710
D	1	27.415	14.460 + 2.26	16.720
	19	27.655	14.460 + 2.50	16.960
	40	27.855	14.460 + 2.70	17.160
E	1	27.865	14.460 + 2.71	17.170
	19	28.105	14.460 + 2.95	17.410
	40	28.305	14.460 + 3.15	17.610

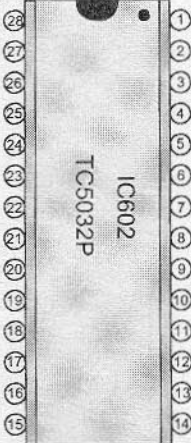

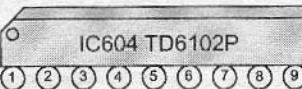
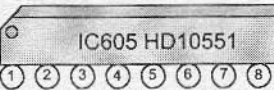
GALAXY SATURN VCO OUTPUT REFERENCE FREQUENCY CHART				
6 Band Version using the 14.010 Oscillator Crystal				
Band	Channel	Ch.Frequency	Xtal Reference + $N_f$ P. Code	AM/FM
A	1	25.615	14.010 + .910	14.920
	19	25.855	14.010 + 1.15	15.160
	40	26.055	14.010 + 1.35	15.360
B	1	26.065	14.010 + 1.36	15.370
	19	26.305	14.010 + 1.60	15.610
	40	26.505	14.010 + 1.80	15.810
C	1	26.515	14.010 + 1.81	15.820
	19	26.755	14.010 + 2.05	16.060
	40	26.955	14.010 + 2.25	16.260
D	1	26.965	14.010 + 2.26	16.270
	19	27.205	14.010 + 2.50	16.510
	40	27.405	14.010 + 2.70	16.710
E	1	27.415	14.010 + 2.71	16.720
	19	27.655	14.010 + 2.95	16.960
	40	27.855	14.010 + 3.15	17.160
F	1	27.865	14.010 + 3.16	17.170
	19	28.105	14.010 + 3.40	17.410
	40	28.305	14.010 + 3.60	17.610

**GALAXY SATURN FREQUENCY COUNTER IC & TRANSISTOR PINOUT AND VOLTAGE CHART**

TRANS. / IC	Configuration	Pin	CHANNEL 40 AM	REMARKS
Q601 2SA733A-PB	 2SA733A-PB	E C B	3.1 Volts 0 Volts 4.5 Volts	*Voltages taken on Channel 40 AM
Q602 2SA733A-PB	 2SA733A-PB	E C B	3.6 Volts 0 Volts 4.5 Volts	*Voltages taken on Channel 40 AM
Q603 2SA733A-PB	 2SA733A-PB	E C B	2.8 Volts 0 Volts 4.5 Volts	*Voltages taken on Channel 40 AM
Q604 2SA733A-PB	 2SA733A-PB	E C B	3.0 Volts 0 Volts 4.5 Volts	*Voltages taken on Channel 40 AM
Q605 2SA733A-PB	 2SA733A-PB	E C B	3.1 Volts 0 Volts 4.5 Volts	*Voltages taken on Channel 40 AM
Q606 9018G	 9018G	E C B	0 Volts -0.12 Volts 0.2 Volts	*Voltages taken on Channel 40 AM
Q607 9018G	 9018G	E C B	0 Volts -0.12 Volts 0.73 Volts	*Voltages taken on Channel 40 AM
Q608 9018G	 9018G	E C B	0 Volts 0.73 Volts 0.02 Volts	*Voltages taken on Channel 40 AM
Q609 9018G	 9018G	E C B	0 Volts -0.09 Volts 0.37 Volts	*Voltages taken on Channel 40 AM
IC601 TC4511P		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	2.51 Volts 3.44 Volts 5.01 Volts 5.01 Volts 0 Volts 0.11 Volts 2.60 Volts 0 Volts 1.38 Volts 2.11 Volts 3.61 Volts 2.80 Volts 3.54 Volts 2.84 Volts 2.16 Volts 5.02 Volts	*Voltages taken on Channel 40 AM


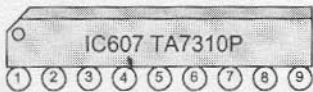


NOTES

**GALAXY SATURN FREQUENCY COUNTER IC & TRANSISTOR PINOUT AND VOLTAGE CHART**

TRANS. / IC	Configuration	Pin	CHANNEL 40 AM	REMARKS
IC602 TC5032P	TC5032P ( <i>Toshiba</i> )  	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	4.42V 4.42V 4.42V 4.42V 4.42V 4.39V 2.38V 2.52V Fluctuating Voltage Fluctuating Voltage 2.51V 3.44V 0.11V 0V Fluctuating Voltage 4.80V to 4.94V 5.02V 5.02V 5.02V 5.02V 0V 4.42V 5.02V 5.02V 0V 0V Fluctuating Voltage 5.02V	*Voltages taken on  Channel 40 AM
IC603 TC4572BP		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Fluctuating Voltage Fluctuating Voltage 0V 4.97V Fluctuating Voltage Fluctuating Voltage 4.8V 0V 0V 0.3V Fluctuating Voltage Fluctuating Voltage Fluctuating Voltage Fluctuating Voltage 2.4 - 2.62V 5.02V	*Voltages taken on  Channel 40 AM
IC604 TD6102P		1 2 3 4 5 6 7 8 9	5.23V 3.08V 4.66V 3.78V 0V 4.48V 5.23V 0V 0V	*Voltages taken on  Channel 40 AM
IC605 HD10551		1 2 3 4 5 6 7 8	0V 0V 2.39V 0V 4.26V 4.26V 4.26V 2.39V	*Voltages taken on  Channel 40 AM



GALAXY SATURN FREQUENCY COUNTER IC & TRANSISTOR PINOUT AND VOLTAGE CHART

TRANS. / IC	Configuration	Pin	CHANNEL 40 AM	REMARKS
IC606 TC4518BP		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	2.01V +/- 5.02V 2.5V Fluctuating Voltage Fluctuating Voltage Fluctuating Voltage 0V 0V 2.47V 5.02V 2.51V 2.02V 2.04V 1.02V 0V 5.02V	*Voltages taken on  Channel 40 AM
IC607 TA7310P		1 2 3 4 5 6 7 8 9	2.71V 2.16V 1.48V 2.71V 0V 5.75V 2.11V 6.8V 1.35V	*Voltages taken on  Channel 40 AM
IC608 MC14060		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	2.47 Volts *N/C 2.47 Volts *N/C 2.47 Volts 2.49 Volts *N/C 2.49 Volts *N/C 2.49 Volts *N/C 2.54 Volts *N/C 0 Volts 3.47 Volts *N/C 2.92 Volts 2.67 Volts 0 Volts 2.49 Volts *N/C 2.49 Volts *N/C 2.49 Volts *N/C 4.95 Volts *N/C * N/C = No Connection	*Voltages taken on  Channel 40 AM
IC609 LM7808 8 Volt Regulator		1 2 3	12.41 Volts 0 Volts 8.04 Volts	*Voltages taken on  Channel 40 AM



# GALAXY SATURN

## EPTOSSB50Z Echo Board IC Pin Out Chart

IC	Configuration	Pin	Pin Function
IC1 AN6552 (Dual Op Amp)  <i>Substitute:</i> NTE-778A ECG-778A SK-3465		1 2 3 4 5 6 7 8	Output 1 Input 1 (-) Input 1 (+) V (-) Ground Input 2 (+) Input 2 (-) Output 2 V (+)
IC2 AN6552 (Dual Op Amp)  <i>Substitute:</i> NTE-778A ECG-778A SK-3465		1 2 3 4 5 6 7 8	Output 1 Input 1 (-) Input 1 (+) V (-) Ground Input 2 (+) Input 2 (-) Output 2 V (+)
IC3 AN6552 (Dual Op Amp)  <i>Substitute:</i> NTE-778A ECG-778A SK-3465		1 2 3 4 5 6 7 8	Output 1 Input 1 (-) Input 1 (+) V (-) Ground Input 2 (+) Input 2 (-) Output 2 V (+)
IC4 MN3008		1 2 3 4 5 6 7 8	<i>Pin Out Info Unavailable</i>
IC5 MN3101 (IC, Clock/Generator)  <i>Substitute:</i> NTE-1639 ECG-1639		1 2 3 4 5 6 7 8	Ground CP 1 Vdd CP2 OX 3 OX 2 OX 1 Vgg (Out)

## Radio : Cobra 2000GTL

**Problem:** Radio has no audio on AM transmit, but has a good dead key carrier. Radio has no SSB transmit. However it has good receive audio on AM and SSB. This problem seems to be appearing quite frequently in some of the older 2000GTL units.

**Cure :** Check the collector of TR23 (Mike Amp) for about 4.5V while you key the radio on AM. If this voltage is absent or low check for 6.5V on the other side of R120. One side of R120 connects to the collector of TR23, and the other side connects to the supply voltage from the power supply. If this voltage is absent then C18 has shorted and will need to be replaced. C18 is a 330 $\mu$ F 10V electrolytic located just to the right of L31. When replacing C18 use a 16V replacement in order to prevent any future problems from occurring.

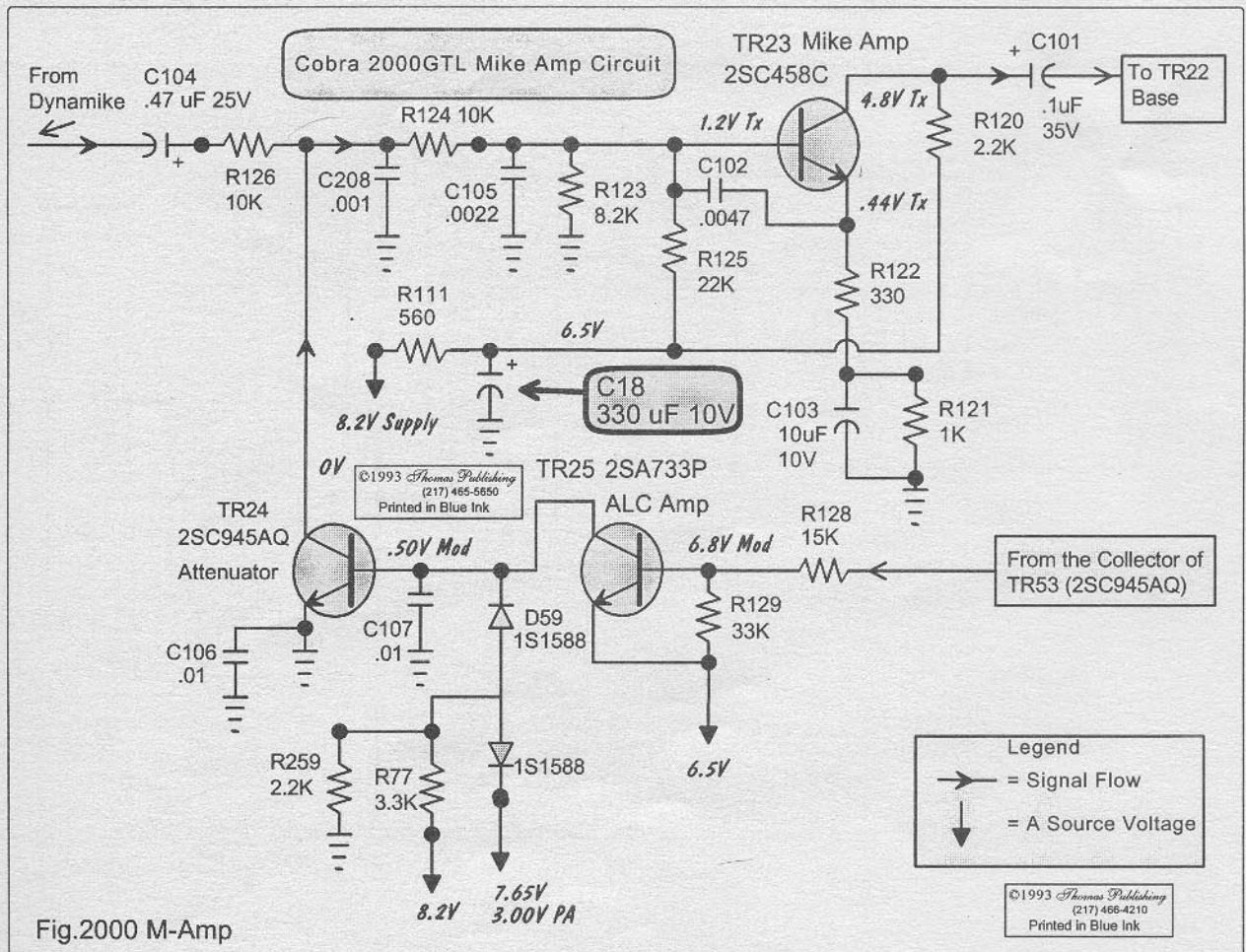


Fig.2000 M-Amp

## Radio : GALAXY SATURN

**Problem:** Transmit power is very low (1 to 3 watts on AM). The Transmit Driver and Transmit Finals all test good. No amount of adjustment will improve the power level. Power is also low on SSB as well. TR44 driver bias (VR11) will not adjust.

**Cure:** This problem is usually caused by a defective Driver Bias Adjustment (VR11 1K Variable Driver Bias Adjust). Usually when VR11 starts to fail, the above symptoms tend to happen gradually, causing intermittent low power levels on transmit. Eventually VR11 will fail completely and the above symptoms will be constant. Normally replacing VR11 will cure the problem. Once VR11 has been replaced, be sure to readjust the bias levels on the transmit Driver and Final. Refer to CB MASTER EDITION VOL. 4 for the complete alignment procedure for the GALAXY SATURN BASE.

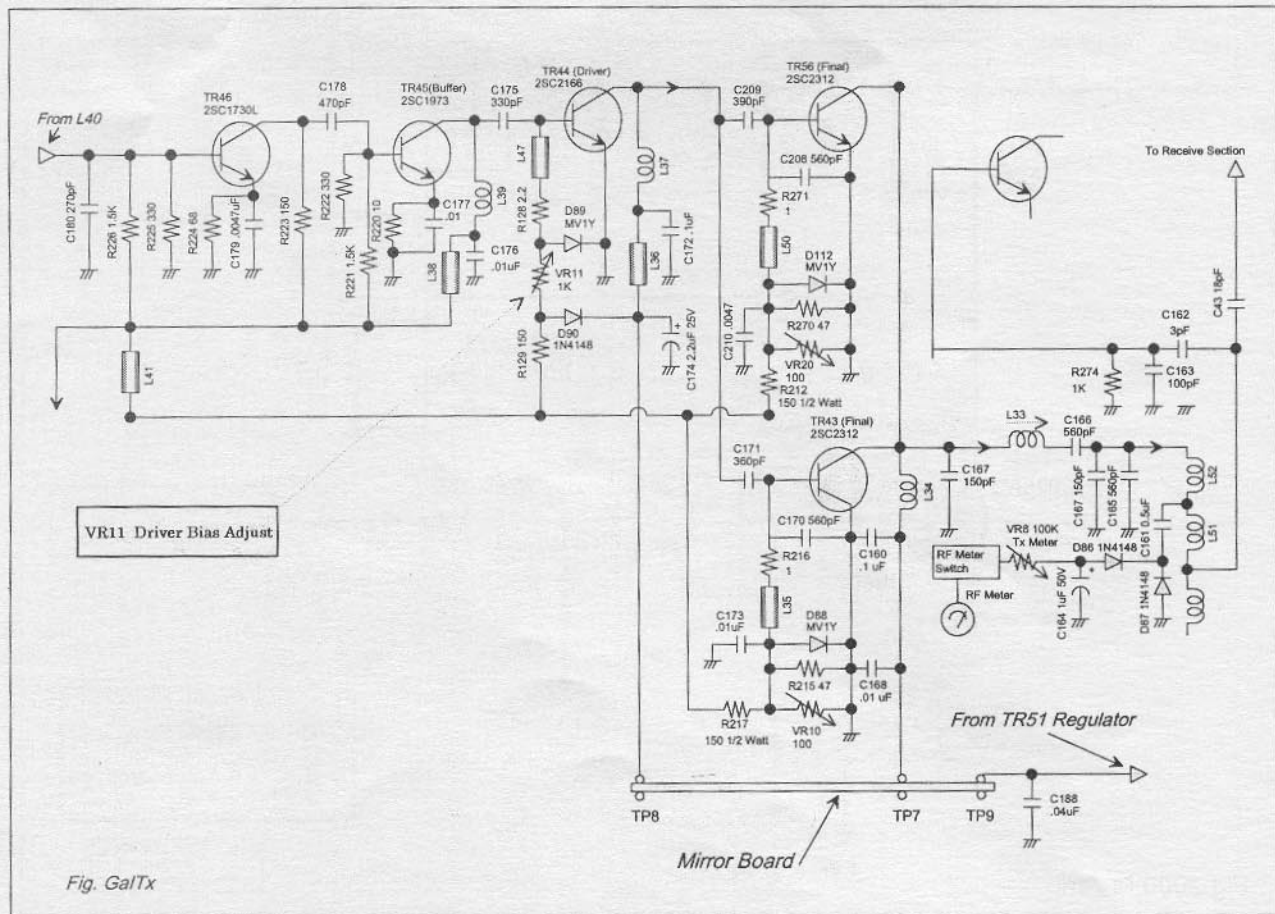


Fig. GalTx

# VARIABLE ALIGNMENTS

## COLT RADIOS

### 480

RV1<sup>1</sup> = Antenna Warning Ind. AWI  
 RV1<sup>2</sup> = Final Bias Adjust  
 RV2 = SSB Power ALC  
 RV3 = Transmit Meter

RV4 = Carrier Balance #1  
 RV5 = Carrier Balance #2  
 RV6 = AM Receive Meter  
 RV7 = SSB Receive Meter

RV8 = SSB Receive Gain AGC  
 RV9 = Am Squelch Range Adjust  
 RV10 = SSB Squelch Range Adjust  
 RV11 = SSB Modulation  
 RV12 = AM Modulation AMC  
 RV501 = SWR Pre-Cal Adjust

1. RV1 located on the power supply board.
2. RV1 located on the main board.

VR4 = Am Transmit Power (Large white pot mounted to the radios side case.)

AM Receive Adjust = T7, T8, T9, T10, T13, T14, T15

SSB Receive Adjust = T12 ( Adjust after aligning AM receive )

Transmit Adjust = T4, T5, T11, T6, L7, L11, L13 ( Adjust in SSB mode only for proper alignment. )

### 1000

RV1<sup>1</sup> = Antenna Warning Ind. AWI  
 RV1<sup>2</sup> = Final Bias Adjust  
 RV2 = SSB Power ALC  
 RV3 = Transmit Meter

RV4 = Carrier Balance #1  
 RV5 = Carrier Balance #2  
 RV6 = AM Receive Meter  
 RV7 = SSB Receive Meter

RV8 = SSB Receive Gain AGC  
 RV9 = Am Squelch Range Adjust  
 RV10 = SSB Squelch Range Adjust  
 RV11 = SSB Modulation  
 RV12 = AM Modulation AMC  
 RV501 = SWR Pre-Cal Adjust

1. RV1 located on the power supply board.
2. RV1 located on the main board.

VR4 = Am Transmit Power (Large white pot mounted to the radios side case.)

AM Receive Adjust = T7, T8, T9, T10, T13, T14, T15

SSB Receive Adjust = T12 ( Adjust after aligning AM receive )

Transmit Adjust = T4, T5, T11, T6, L7, L11, L13 ( Adjust in SSB mode only for proper alignment. )

## CONNEX RADIOS

### 3300

VR1 = Receive Meter  
 VR4 = Squelch Range Adjust  
 VR5 = FM Deviation

VR8 = Transmit Meter  
 VR12 = Lo Power Modulation AMC  
 VR13 = AM Hi Power Adjust

VR14 = Hi Power Modulation AMC  
 VR16 = AM Lo power Adjust

Receive Adjust = L3, L4, L5, L7, L8, L10, L11, L12

Transmit Adjust = L40, L42, L43, L44, L33

## COURIER RADIOS

### CENTURIAN PLL40

RT1 = RF Gain Range Adjust  
 RT2 = AM AGC Adjust  
 RT4 = AM Receive "S" Meter  
 RT6 = SSB Receive "S" Meter  
 CT3 = SSB RF ALC (Power) Adjust

RT8 = SSB Carrier Balance  
 RT9 = SSB ALC (Modulation) Adjust  
 RT11 = SSB Squelch Range Adjust  
 RT12 = Am Squelch Range Adjust  
 RT14 = AM Power Adjust

RT15 = Transmit RF Meter Adjust  
 RT19 = TX Frequency Adjust  
 RT20 = Final Bias (35mA)  
 RT21 = SSB Rx Sensitivity  
 RT22 = Driver Bias (20 mA)

Receive Adjust SSB = L3, L4, L5, L6, L7, L28, L29, FT1 (Adjust Receive In SSB Mode for Maximum performance)

Transmit Adjust SSB = L15, L19, L24, L26 (Adjust Transmit In SSB Mode for Maximum performance)

## VARIABLE ALIGNMENTS

### FANON RADIOS

#### **FANFARE 190DF**

VR101 = NB Circuit Adjust  
VR102 = Receive Meter Adjust

VR103 = Transmit Meter Adjust  
VR301 = Mike Gain Adjust

RV302 = Squelch Range Adjust

Receive Adjust = L101, L102, L103, L105, L106, L108, L109, L110  
Transmit Adjust = L112, L113, L114, L115, L116, L118, L119, L120

### G. E. RADIOS

#### **3-5819A**

RV1 = Squelch Adjust  
RV2 = Modulation AMC  
CT1 = 10.240 Xtal Adjust

RV3 = Receive Meter  
RV4 = Transmit Meter

RV501 = SWR Meter Adjust  
RV502 = Ant. Warning AWI

Receive Adjust = T5, T6, L14, T7, T8, T9, T10  
Transmit Adjust = L5, T3, T4, L7, L11, L12

#### **3-5819B**

RV1 = Squelch Adjust  
RV2 = Modulation AMC  
CT1 = 10.240 Xtal Adjust

RV3 = Receive Meter  
RV4 = Transmit Meter

RV501 = SWR Meter Adjust  
RV502 = Ant. Warning AWI

Receive Adjust = T3, T4, T5, T6, T7, T8, T9, T11  
Transmit Adjust = L3, L5, T4, L9, L10

### RCA RADIOS

#### **14T305**

RV1 = Squelch Adjust  
RV2 = Modulation AMC

RV3 = Receive Meter  
RV4 = Transmit Meter

RV501 = SWR Meter Adjust  
CT1 = 10.240 Xtal Adjust

Receive Adjust = T5, T6, L14, T7, T8, T9, T10  
Transmit Adjust = L5, T3, T4, L7, L11, L12

### REALISTIC RADIOS

#### **TRC-451**

VR1 = Receive Meter  
VR2 = Squelch Range Adjust  
VR3 = Transmit Frequency Adj.  
VR4 = Carrier Balance

VR5 = Modulation AMC  
VR6 = SSB Power ALC  
VR7 = Transmit Meter

VR8 = Final Bias Adjust  
VR9 = Driver Bias  
VR10 = AM Transmit Power

Transmit Adjust = L40, L39, L38, L37, L27

#### **TRC-456** (40 CH. Telephone Handset Model)

VR1 = RF Gain Range  
VR2 = Forward AGC Adjust  
VR3 = Receive "S" Meter

VR5 = Squelch Range  
VR6 = Transmit "S" Meter  
VR8 = Modulation AMC

VR9 = Reverse AGC  
CT801 = 36.570 Adjust  
(Q102 Source)

Receive Adjust = T301, T302, T303, T304, L101, L102, L501, L502  
Transmit Adjust = L901, L903, L905

## VARIABLE ALIGNMENTS

### ROYCE RADIOS

#### **613**

VR1 = Ant. Warning AWI  
VC1 = Carrier Null Adjust  
VC2 = SWR CAL Adjust

VR101 = Receive Gain AGC  
VR102 = Squelch Range Adjust  
VR104 = Receive Meter

VR110 = Alert Tone Level  
VR202 = Modulation AMC  
VR301 = Transmit Power Meter

Receive Adjust = T101, T102, T601  
Transmit Adjust = T301, T302, CT301, CT302

### SEARS RADIOS

#### **934.38110700**

RT1 = Receive Meter

RT2 = Transmit RF Meter

RT101 = Rx Sensitivity

Receive Adjust = T101, T102, T103, T104, T105, T2012, T202  
Transmit Adjust = T305, T306, T307, T701, T702, T703, T704, T705

### TENNA RADIOS

#### **10901**

R3 = Transmit Meter Adjust  
R16 = Receive Meter Adjust

R26 = Squelch Range Adjust

R54 = Modulation AMC or cut CD13

Receive Adjust = T1, T2, T3, T4, L4  
Transmit Adjust = T6, T7, T8, T9, T10, T11, L3, L2, L1

### TRUETONE RADIOS

#### **CYJ4834A-87**

RV1 = Squelch Adjust  
RV2 = Modulation AMC  
CT1 = 10.240 Xtal Adjust

RV3 = Receive Meter  
RV4 = Transmit Meter

RV501 = SWR Meter Adjust  
RV502 = Ant. Warning AWI

Receive Adjust = T5, T6, L14, T7, T8, T9, T10  
Transmit Adjust = L5, T3, T4, L7, L11, L12

### UNIDEN RADIOS

#### **HR-2600**

VR1 = "S" Meter Adjust  
VR2 = Squelch  
VR3 = FM Deviation  
VR4 = CW Power Level  
VR5 = SSB Power ALC

VR6 = AM Modulation AMC  
VR7 = CSP  
VR8 = AM Power  
VR9 = Modulation Readout  
VR10 = Side Tone Adjust

VR11 = TX Frequency Adjust  
VR12 = TX Power Readout  
VR13 = TX Driver Bias Adjust  
VR14 = TX Final Bias Adjust



## Component Identification

One area that seems to cause problems quite often for many of you is component identification. Although most manufacturers use a standard type of identifier, some still rely on old standards for component markings. A good example of this are variable resistors.

You have probably noticed that some variable resistors are marked with their actual value, i.e. 1K, 10K, etc. Yet others have new type markings such as 102, 103, etc. Component Identifier Charts are handy for making component identification, but only if you can find them when needed. Below we have provided charts for your reference. We have also included a chart for capacitors that may have similar markings.

Variable Marking	Actual Value In Ohms
101	100
201	200
251	250
501	500
102	1K
202	2K
252	2.5K
502	5K
103	10K
203	20K
253	25K
303	30K
503	50K
104	100K
254	250K
504	500K
105	1Meg
255	2.5Meg
505	5Meg
106	10Meg

Capacitor Marking	Actual Value In $\mu\text{F}$
101	100 pF
201	200 pF
251	250 pF
391	390 pF
471	470 pF
501	500 pF
102	.001 $\mu\text{F}$
202	.002 $\mu\text{F}$
252	.0025 $\mu\text{F}$
502	.005 $\mu\text{F}$
682	.0068 $\mu\text{F}$
103	.01 $\mu\text{F}$
203	.02 $\mu\text{F}$
253	.025 $\mu\text{F}$
333	.033 $\mu\text{F}$
473	.047 $\mu\text{F}$
503	.05 $\mu\text{F}$
104	.1 $\mu\text{F}$
204	.2 $\mu\text{F}$
474	.47 $\mu\text{F}$
504	.5 $\mu\text{F}$