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"I do think there are certain times we should infringe on your freedom..."

––– March 24, 2013 quote from Michael Bloomberg, the Mayor of Eric Corley's New York City on NBC's *Meet the Press.*

(washingtontimes.com/news/2013/mar/25/nyc–mayor–bloomberg–government–has–right–infringe–)

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AT&T PRACTICE
Standard

AT&T 231-318-360
Issue 1, July 1985

CENTREX DATA FACILITY POOLING

IMPLEMENTATION PROCEDURES

(1AE8A AND LATER GENERIC PROGRAMS)

1A *ESS*™ SWITCH

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1. GENERAL

This practice provides procedures for implementing the CDFP (centrex data facility pooling) feature for the 1A ESS switch. Included are translator descriptions, RC (recent change) implementation procedures, and verify messages. Also included are procedures for trunk maintenance/diagnostics. Information in this practice covers the PFP (private facility pooling) configuration, with VMI (verify message improvement) capabilities, for the 1AE8A and later generic programs.

Refer to the feature document, AT&T Practice 231-390-185, for additional information concerning CDFP features and attributes. Familiarity with AT&T Practice 231-390-185 is assumed for understanding this practice.

Items and fields shown in translator layouts and keywords shown in RC and verify messages are not necessarily included in the list of abbreviations and acronyms. These items and keywords are defined in legends included in translator layout figures or tables associated with the RC and verify message.

Refer to AT&T Practice 231-318-316 for additional general information on RC message formats, interpretation of message flowcharts, and RC rollback and rollforward procedures.

Refer to the information accompanying the message flowcharts for definitions of keywords used in RC messages.

1.1 Additional References

Refer to AT&T Practice 231-318-334 for information on trunk related RC formats.

Refer to AT&T Practice 231-318-336 for information on rate and route RC formats.

Refer to AT&T Practice 231-318-355 for information on centrex related RC formats.

Refer to AT&T Practice 231-318-331 for information on miscellaneous RC formats.

Refer to AT&T Practice 231-318-325 for information on service order RC formats.

Refer to AT&T Practice 231-371-001 for traffic and plant measurements procedures.

Refer to AT&T Practice 231-318-317 for RC message program listings and system acknowledgments and for RC18 and RC16 output messages.

Refer to Translation Guide TG-1A for documentation of translation data and associated forms.

Refer to Translation Output Configuration PA-6A002 for information relating to the ESS switch translation memory (translators) and forms.

Refer to IM-6A001 and OM-6A001 for a complete description of input and output messages.

1.2 Flowchart Symbols

The following symbols are used in RC message flowcharts.

OPTION Symbol: The OPTION symbol is used to indicate that all flowlines leaving the symbol are optional. None, one, some, or all such flowlines may be selected.

EXCLUSIVE OR Symbol: The EXCLUSIVE OR symbol is used to indicate that exactly one of two or more flowlines leaving the symbol must be selected.

NONEXCLUSIVE OR Symbol: The NONEXCLUSIVE OR symbol is used to indicate that one or more of the flowlines leaving the symbol must be selected (no less than one, but more than one may be selected).

AND Symbol: The AND symbol is used to indicate that all flowlines leaving the symbol must be used.

Repeatable Segment: The repeatable segment symbol is used to indicate that the keyword unit or the specific group of keyword units within the segment bracket can be repeated within the RC message without reentering previous keyword units. Each segment is terminated by the percent sign.

In change message flowcharts, keywords without a variable shown are yes/no keywords. When a yes/no feature is added, enter the keyword; when a yes/no feature is removed, enter the keyword followed by NO or N.

When using a change message flowchart, refer to the associated new message flowchart for valid combinations of keywords.

2. GLOSSARY OF ABBREVIATIONS AND ACRONYMS

Listed below are abbreviations and acronyms used in this practice:

ABBR	Abbreviated Class
AML	Automatic Maintenance Limit
APT	Automatic Progression Testing
ATP	All Tests Pass
aux	Auxiliary
bps	Bits per Second
CAT	Centrex Access Treatment
CDFP	Centrex Data Facility Pooling
CFV	Call Forwarding Variable
CMP	Centrex Modem Pooling
CO	Central Office
CO-CPDS	Central Office Computer Port Data Set
CO-IVDM	Central Office Integrated Voice/Data Multiplexer
CPI	Circuit Program Index
CP-IVDM	Customer Premises Integrated Voice/Data Multiplexer
CWC	City-Wide Centrex
CXRI	Centrex Route Index Increment
DDD	Direct Distance Dialing
DI	Digit Interpreter
DN	Directory Number
H&W	High and Wet
ICT	Incoming Trunk
IVDM	Integrated Voice/Data Multiplexer
LDDS	Limited Distance Data Set
LEN	Line Equipment Number
MODEM	Modulator/Demodulator
MSN	Master Scanner Number
MTTP	Manual Trunk Test Panel
NMP	Network Modem Pooling
OGT	Outgoing Trunk
PFP	Private Facility Pooling

RC	Recent Change
RI	Route Index
STTP	Supplementary Trunk Test Panel
TAC	Technical Assistance Center
TCC	Trunk Class Code
TG	Trunk Group
TGN	Trunk Group Number
TLN	Trunk Link Network
TLTP	Trunk and Line Test Panel
TML	Trunk Maintenance List
TNN	Trunk Network Number
TNN-PEN	Trunk Network Number to Peripheral Equipment Number
TPI	Trunk Program Index
TRC	Temporary Recent Change
VMI	Verify Message Improvement (CI Feature).

3. DESCRIPTION OF CDFP

The CDFP feature provides centrex customers with a low cost, flexible, full-duplex, voice and asynchronous data transmission capability. Customer premises IVDMs (integrated voice/data multiplexers) will interface with CO (central office) pools of IVDMs and modems over 2-wire loops. The CO units will provide a second voice line appearance for the user, thus allowing simultaneous and independent voice/data transmission.

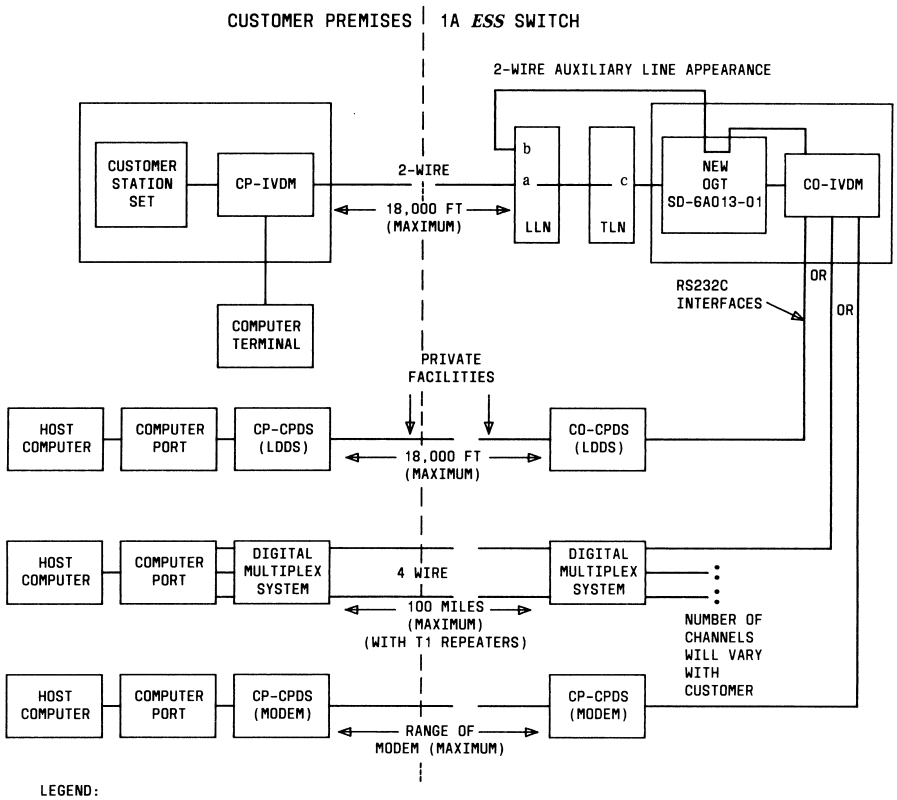
There are two basic hardware configurations for this feature: PFP (1AE8A and later generics) and NMP (network modem pooling)(1AE9 and later generics).

3.1 PFP Configuration

There are several possible implementations for the PFP configuration. An overall configuration is shown in Fig. 1. This configuration consists of a group of IVDMs in the CO that receive and transmit data over dedicated private facilities at a rate of up to 9600 bps (bits per second).

3.2 NMP Configuration

The NMP configuration will differ from the PFP configuration in that a DDD (direct distance dialing) network modem will be used for the CO-CPDS (CO computer port data set). This modem will be connected to an ICT (incoming trunk), similar to SD-1A166-05, which allows full network access at a rate of up to 4800 bps.



LEGEND:

a = INITIAL (CDFP) LINE APPEARANCE
b = AUXILIARY LINE APPEARANCE
c = CO-IVDM TRUNK APPEARANCE
LLN = LINE LINK NETWORK
TLN = TRUNK LINK NETWORK
CP-IVDM = CUSTOMER PREMISES INTEGRATED VOICE/DATA MULTIPLEXER
CO-IVDM = CENTRAL OFFICE INTEGRATED VOICE/DATA MULTIPLEXER
CP-CPDS = CUSTOMER PREMISES COMPUTER PORT DATA SET
CO-CPDS = CENTRAL OFFICE COMPUTER PORT DATA SET
LDDS = LIMITED DISTANCE DATA SET
RS232C = INTERFACE CABLE WITH 32 LEADS BETWEEN DATA EQUIPMENT
OGT = OUTGOING TRUNK

Fig. 1 — PFP Configuration

4. TRANSLATIONS DATA BASE OVERVIEW

The CDFP translations data base consists of changes to several existing translators. These translators are listed below, including associated data input RC and verify messages in parentheses.

> ***Note:*** The following list does not include all standard RC messages such as RC:SUBTRAN which are required to build head tables, subtranslators, and aux (auxiliary) blocks.

- TNN-PEN (trunk network number to peripheral equipment number) translator (RC:TRK and VF:TNNSVY).
- TCC (trunk class code) expansion table translator (RC:PSWD and VF:DATA).
- MSN (master scanner number) translator (RC:TRK).
- Centrex digit interpreter tables (RC:DITABS, RC:CTXDI and VFY-XDGNT)
- Terminating abbreviated class code expansion table (RC:PSWD and VF:DATA)
- LEN (line equipment number) auxiliary block (RC:LINE, RC:TWOPTY, VF:DNSVY, and VF:OESVY).

5. TRANSLATOR DESCRIPTIONS

5.1 TNN-PEN Translator

When the CDFP feature is activated, seizure of the new OGT (outgoing trunk) is required. Also, an auxiliary line appearance LEN must be identified for voice transmission. Each OGT must be wired to an auxiliary LEN; therefore, this translator is used to associate the OGT TNN with the CDFP auxiliary LEN.

The new circuit associated with the OGT is the CDFP access trunk circuit (SD-6A013-01 for PFP; or SD-6A019-01 for NMP). Each circuit pack contains two trunk circuits; both are used for CDFP, so the mate TNN is also associated within this translator.

> ***Note 1:*** The CPI (circuit program index) for the CDFP access trunk circuit (SD-6A013-01) is 223 for the PFP configuration and the trunk order code is 22300.

For the NMP configuration (1AE9 and later only), an ICT similar to SD-1A166-05 must be associated with a new OGT (SD-6A019-01).

> ***Note 2:*** The CPI for the NMP OGT (SD-6A019-01) is 227 and the trunk order code is 22700.

All of the above information (the CDFP auxiliary LEN, the mate TNN, and the NMP ICT) will be stored in a new supplementary auxiliary block.

A new five word 'variable part' for CPI 223 and CPI 227 is required for the TNN-PEN auxiliary block (Fig. 2). The fifth word (word 8) contains the address of TNN-PEN supplementary auxiliary block (Fig. 3).

5.2 TCC Expansion Table Translator

This translator contains the CPI for the new OGT circuit. This value is stored in bits 7-0 of the fourth word. Other bits that are set to one and their meanings are listed below:

- Bit 1 of the first word - Two-way or make busy (PFP configuration only)
- Bit 3 of the first word - Supervision is reverse battery
- Bit 11 of the fourth word - Trunk guard timing is 'longer.'

TRUNK NETWORK NUMBER TO PERIPHERAL EQUIPMENT NUMBER AUXILIARY BLOCK

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
WORD 0	0	WRDN=8					QUANT=0				CPDN=0													
WORD 1	0	QUANT=2					MTDN																	
WORD 2	0	QUANT=2					BLT= 00	MSN																
WORD 3	0	QUANT=1					0 0	MSN																
	VARIABLE PART (SEE BELOW)																							

TNN-PEN AUXILIARY BLOCK
VARIABLE PART WORDS FOR A CIRCUIT PROGRAM INDEX (CPI) OF 223 AND 227

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
WORD 4	0	VPI=0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WORD 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WORD 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WORD 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WORD 8	0	0	0	0	ADDRESS OF SUPPLEMENTARY AUX BLOCK																			

LEGEND:

WORD 0
- WRDN = NUMBER OF WORDS IN THE AUXILIARY BLOCK.
- QUANT = QUANTITY OF CENTRAL PULSE DISTRIBUTOR POINTS FOR THE MISCELLANEOUS TRUNK ASSOCIATED WITH THE TRUNK NETWORK NUMBER.
- CPDN = CENTRAL PULSE DISTRIBUTOR NUMBER.

WORD 1
- QUANT = QUANTITY OF SIGNAL DISTRIBUTOR POINTS.
- MTDN = SIGNAL DISTRIBUTOR FRAME NUMBER.

WORD 2
- QUANT = QUANTITY OF SUPERVISORY MASTER SCANNER LEADS.
- BLT = "11" IF THE AUXILIARY BLOCK IS FOR A BY-LINK TRUNK, "00" OTHERWISE.
- MSN = MASTER SCANNER NUMBER.

WORD 3
- QUANT = QUANTITY OF DIRECTED MASTER SCANNER POINTS.
- MSN = MASTER SCANNER NUMBER.

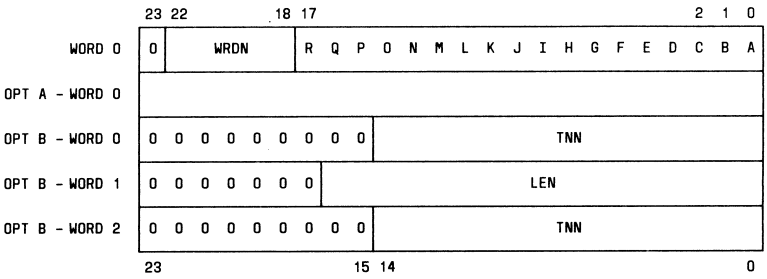
WORD 4
- VPI = VARIABLE PART INDICATOR IS 000.

WORD 8
- ADDRESS OF SUPPLEMENTARY AUX BLOCK = ADDRESS OF THE SUPPLEMENTARY AUXILIARY BLOCK WHICH CONTAINS MORE INFORMATION ABOUT THE TNN.

Fig. 2 — TNN-PEN Auxiliary Block

AT&T 231-318-360

TNN-PEN SUPPLEMENTARY AUXILIARY BLOCK



LEGEND:

WORD 0 WRDN = NUMBER OF WORDS IN THE AUXILIARY BLOCK.

A,B,...R = OPTION BITS. AN OPTION BIT SET INDICATES THAT THE CORRESPONDING OPTION WORD(S) ARE BUILT IN THE AUX BLOCK. OPTION BIT B (BIT 1 = 1) INDICATES THAT THE CDFP OPTION WORDS ARE BUILT. OPTION BIT A IS BEING RESERVED FOR FUTURE USE. IN THE FUTURE, IF ADDITIONAL OPTION WORDS ARE NEEDED (MORE WORDS THAN OPTION BITS A-R CAN INDICATE), OPTION BIT A WILL INDICATE THAT AN OPTIONAL WORD CONTAINING ADDITIONAL OPTION BITS EXIST (OPT A - WORD 0).

OPT A - WORD 0 = OPTIONAL WORD CONTAINING ADDITIONAL OPTION BITS. THIS WORD WILL BE BUILT IF OPTIONS A-R ARE USED AND MORE OPTION BITS ARE NEEDED.

OPT B - WORD 0 TNN = TRUNK NETWORK NUMBER OF THE MATE TRUNK IN A CIRCUIT PACK.

OPT B - WORD 1 LEN = LINE EQUIPMENT NUMBER OF THE AUXILIARY LINE APPEARANCE.

OPT B - WORD 2 TNN = TRUNK NETWORK NUMBER OF THE INCOMING TRUNK. (FOR THE NMP CONFIGURATION; OTHERWISE SET TO 0).

Fig. 3 — TNN-PEN Supplementary Auxiliary Block

All other bits are set to zero. Fig. 4 shows the complete layout of the TCC expansion table entry for CDFP.

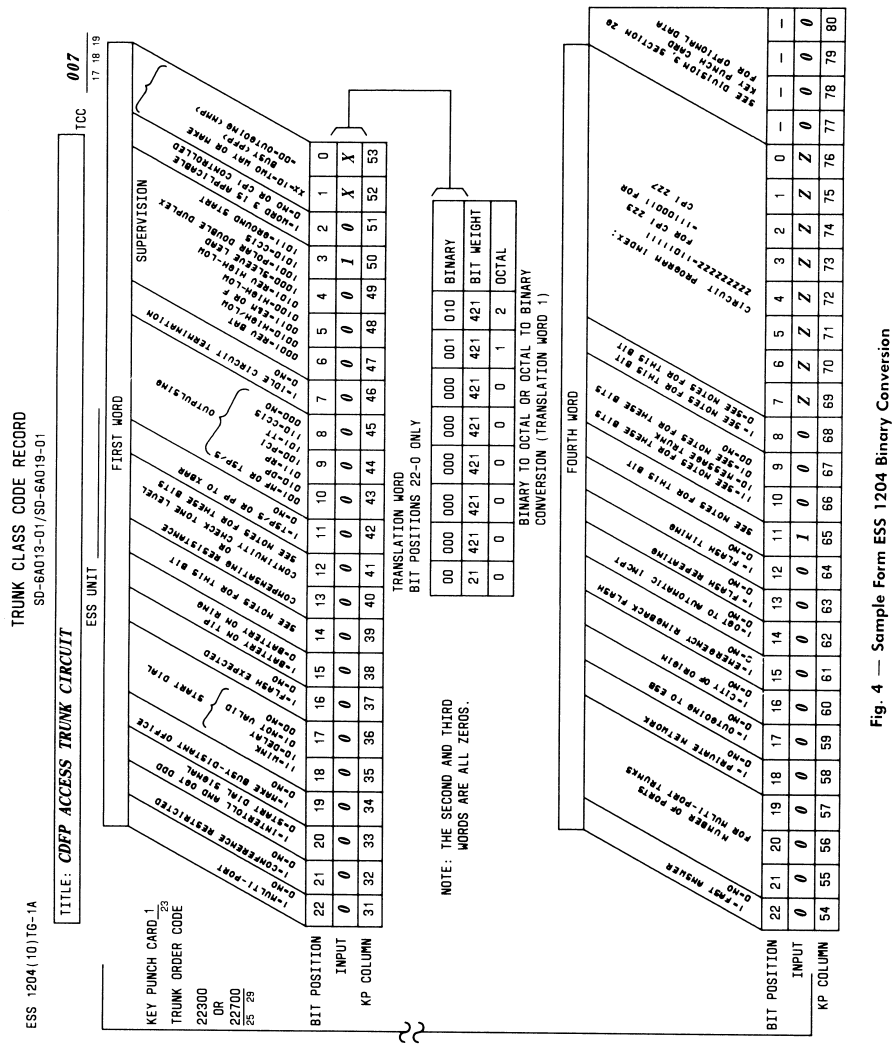
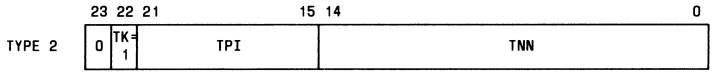


Fig. 4 — Sample Form ESS 1204 Binary Conversion

5.3 MSN Translator

The TPI (trunk program index) for the new OGT circuit is stored in the MSN subtranslator (Type 2) (Fig. 5).

MASTER SCANNER NUMBER SUBTRANSLATOR
WORD TYPE 2



LEGEND:
TK = TRUNK IDENTIFIER: "1" IDENTIFIES THIS ENTRY AS A TRUNK TYPE ENTRY, OTHERWISE IT IS ZERO. THE VALUE IN THIS CASE (CDFP) IS "1".
TPI = TRUNK PROGRAM INDEX.
TNN = TRUNK NETWORK NUMBER.

Fig. 5 — MSN Subtranslator

The TPI values for the supervisory scan points are as follows. For CPI 223, master scanner point 0 is assigned TPI 31 and master scanner point 1 is assigned TPI 32. For CPI 227, master scanner point 0 is assigned TPI 31 and master scanner point 1 is assigned TPI 43. These assignments, as shown in Fig. 6, require modifications to the TPI table (PA-6A002, Section 7).

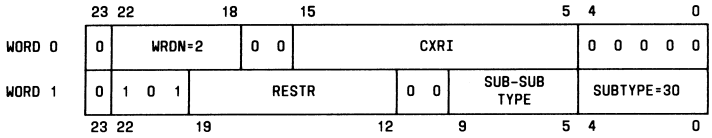
CIRCUIT TITLE	CPI	MASTER SCANNER POINT	TPI	SD	REMARKS
ACCESS TRUNK CIRCUIT FOR CDFP (PFP)	223	00	31	6A013-01	OUTGOING REVERSE MAKE-BUSY
		01	32		
ACCESS TRUNK CIRCUIT FOR CDFP (NMP)	227	00	31	6A019-01	OUTGOING
		01	43		

Fig. 6 — TPI Table Modifications

5.4 Centrex Digit Interpreter Tables

Access codes will be used to activate CDFP. Therefore, a new centrex DI (digit interpreter) auxiliary block (Fig. 7) is required. Access codes are needed to return the RI (route index) associated with the various data facility pooling configurations. The difference between this RI and the centrex group RI will be specified in the CXRI field of word 0.

DIGIT INTERPRETER AUXILIARY BLOCK
CENTREX DATA FACILITY POOLING
FOR DATA TYPE 5, SUBTYPE 30, SUB-SUBTYPE IS VARIABLE



LEGEND:
WRDN = NUMBER OF WORDS IN AUXILIARY BLOCK.
CXRI = CENTREX ROUTE INDEX INCREMENT. THE DIFFERENCE BETWEEN THE ROUTE INDEX SPECIFIED AND THE BASE ROUTE INDEX FOR THAT CTX GROUP IS THE CXRI.
RESTR = RESTRICTIONS FOR CAT CODES.
SUB-SUBTYPE = SUB-SUBTYPE:
0 FOR PRIVATE FACILITY POOLING (PFP)
1 FOR NETWORK MODEM POOLING (NMP).
SUBTYPE = SUBTYPE EQUALS 30.

Fig. 7 — Digit Interpreter Auxiliary Block for CDFP

CAT (centrex access treatment) codes will be used to allow or deny a customer the use of certain services. Restrictions for these codes will be identified in the RESTR field of word 1 of the auxiliary block.

Activation of CDFP will be data type 05, subtype 30, and a variable sub-subtype field. The variables possible for the sub-subtype field are: 0 for PFP (1AE8A and later), 1 for NMP (1AE9 and later).

5.5 Terminating Abbreviated Class Code Expansion Table

The terminating abbreviated class code expansion table (Fig. 8) has been modified to reflect changes to DN (directory number) TRC (temporary RC) registers. That is, expanding ABBR (abbreviated class) codes will no longer be used for TRC registers. Instead, a transfer using ABBR codes is done. Therefore, ABBR codes and their corresponding major classes will no longer be assigned to DN TRCs. The associated major class codes can now be used for other applications.

TERMINATING ABBREVIATED CLASS CODE EXPANSION TABLE: FIXED ENTRIES

	23 — 0
WORD 0 THRU WORD 83	ALL ZEROS

NOTE: ALL OF THE ABOVE WORDS ARE ALL ZERO WORDS WITH THE FOLLOWING EXCEPTIONS:

	23																					0
WORD 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
WORD 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1
WORD 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
WORD 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1

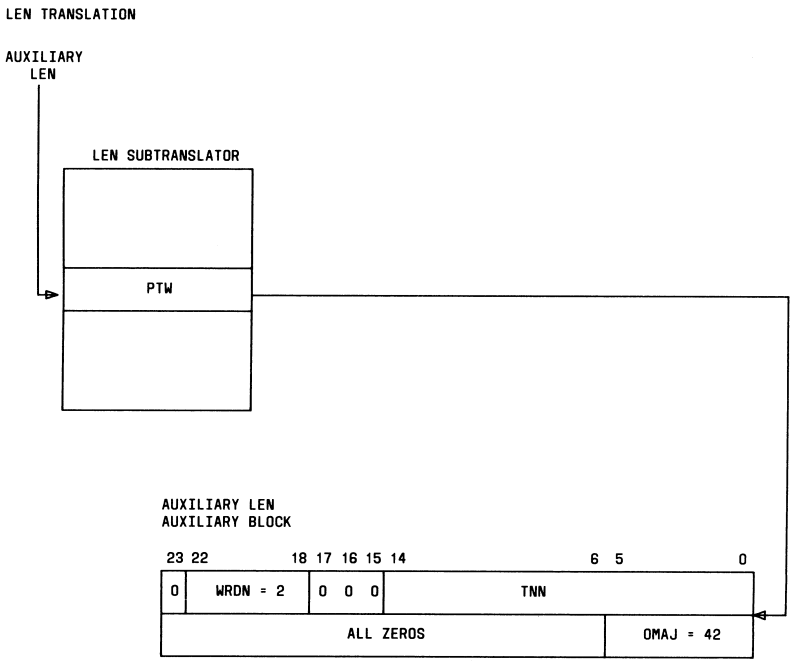
THESE FIXED ASSIGNMENTS HAVE TERMINATING MAJOR CLASS (TMAJ) DEFINED AS FOLLOWS:

WORD 40 ROUTE INDEX (TRUNK GROUP).
WORD 60 CARRIER INTERCONNECT (CI).
WORD 64 INTERCEPT.
WORD 76 CENTREX INDIVIDUAL INTERCEPT.

Fig. 8 — Terminating Abbreviated Class Code Expansion Table Words

5.6 LEN Auxiliary Block

The auxiliary LEN must be assigned an originating major class of 42. This means that when a data call is active and a voice call is originated, the origination will be detected at the auxiliary line appearance. During the LEN translation, the initial line appearance features will be transferred to the auxiliary line appearance. Therefore, the TNN, from which the initial LEN can be retrieved, will also be stored in the auxiliary block for the auxiliary LEN (Fig. 9).



LEGEND:
WRDN = NUMBER OF WORDS IN THE AUXILIARY BLOCK. WRDN = 2.
TNN = THE TRUNK NETWORK NUMBER HARD-WIRED TO THIS LEN FOR CDFP.
OMAJ = THE ORIGINATING MAJOR CLASS ASSOCIATED WITH THIS LEN. THE VALUE FOR OMAJ IS 42 (DECIMAL).

Fig. 9 — LEN Auxiliary Block for CDFP

6. CDFP RELATED VERIFY MESSAGES

Changes are necessary for several existing verify messages. The following messages, and/or their outputs as indicated in parentheses, are affected.

- VF:TNNSVY (TR14 output message)
- VFY-XDGNT (new TR02 output message)
- VF:DNSVY (VF03 output message).

The information presented in this part covers only a brief description of changes for verify messages and associated output response messages required for CDFP. Refer to IM-6A001 and OM-6A001 for details.

6.1 VF:TNNSVY Input Message

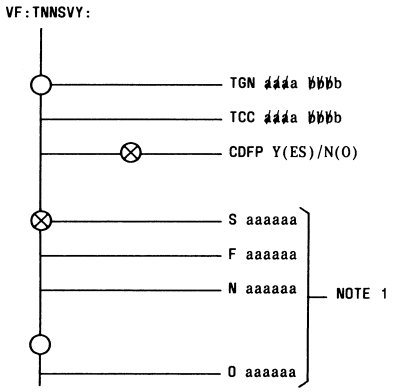
A new keyword, CDFP, has been added to the VF:TNNSVY message to verify TNN-PEN translation data.

The VF:TNNSVY keywords associated with the CDFP feature are listed below:

- TGN aaaa bbbb - Restricts survey of TNNs to TGNs (trunk group numbers) specified by a,b where 0<=a<=b<=999
- TCC aaaa bbbb - Restricts survey of TNNs to TCCs specified by a, b where 0<=a<=b<=999
- CDFP Y(ES)/N(O) - Restricts survey of TNNs to those with CDFP
- S aaaaaa - Surveys the single TNN specified by aaaaaa
- F aaaaaa - Surveys TNNs on a frame starting with TNN aaaaaa through the last TNN on that frame
- N aaaaaa - Surveys TNNs on a network starting with TNN aaaaaa through the last TNN on that network
- 0 aaaaaa - Surveys TNNs in an office starting with TNN aaaaaa through the last TNN in that office.

Valid keyword combinations for the CDFP feature are shown in Fig. 10. (Refer to IM-6A001 for further details of this message.)

In response to the VF:TNNSVY input message, the TR14 output message (Fig. 11) will contain the auxiliary LEN if CDFP is active. If the auxiliary LEN is present, the mate TNN and the TNN of the ICT for NMP (1AE9 and later) will follow if match is found. If CDFP N(O) is specified, regular TNN data will follow. (Refer to OM-6A001 for further explanation.)



NOTE
1. If no specific TNN(s) are specified, the system will default to TNNs in the office (O aaaaaa).

Fig. 10 — VF:TNNSVY Input Message for CDFP

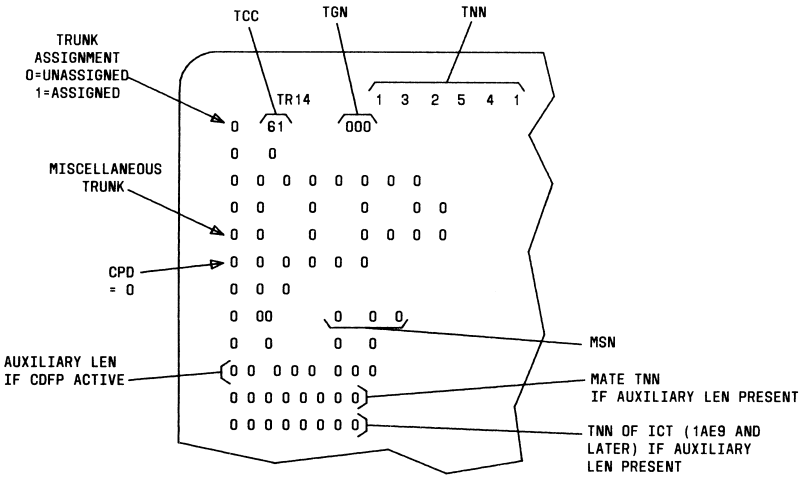


Fig. 11 — Example of TR14 Message -1-Port Miscellaneous Trunk

6.2 VFY:XDGNT Input Message

The VFY-XDGNT message is used to verify centrex digit interpreter table entries for any CDFP CO-IVDM pool. The existing format is unchanged:

VFY-XDGNT-43 0 c ddddd eeee.

c =	Number of following leftmost digits to be interpreted.
ddddd =	Digits to be interpreted (type 0 for unused digits in rightmost positions).
eeee =	Centrex number (Form ESS 1109A, columns 25-28).

System response is a PF TACK followed by the *new* TR02 output message (Fig. 12) containing the CDFP digit interpreter auxiliary block information.

```
TRO2 DATATYPE 5  SUBTYPE 30
     NUT aaaa NDIG b CTX nnnn
     cccc dddddd cccc dddddd cccc dddddd
       .    .    .    .    .    .
       .    .    .    .    .    .
       .    .    .    .    .    .
```

aaaaa = INPUT NUMBER TRANSLATED

b = NUMBER OF DIGITS INTERPRETED

nnnn = CENTREX NUMBER

cccc = ACT - ACTIVATION OF FEATURE

= COLL - NUMBER OF DIGITS TO COLLECT

= CXRI - CENTREX ROUTE INDEX INCREMENT

= DEAC - DEACTIVATION OF THE FEATURE

= DEL - NUMBER OF DIGITS TO DELETE

= EXT - 4-DIGIT EXTENSION

= NPA - NUMBERING PLAN AREA

= NXX - OFFICE CODE

= PRF1 - THE VALUE OF THOUSANDS DIGIT IF NUMBER OF EXTENSIONS IS 2, ELSE 0

= PRF2 - THE VALUE OF THOUSANDS DIGIT IF NUMBER OF EXTENSION DIGITS IS 3, OR NUMBER OF HUNDREDS DIGIT IF NUMBER OF EXTENSIONS IS 2, ELSE 0.

= RAT - ROUTE AS A TEN DIGIT DN

= RSTR - TREATMENT CODE

= SSUB - SUB-SUBTYPE

dddddd = DATA FIELD ASSOCIATED WITH 'cccc'. IF cccc = SSUB, ddddd = 0 (PFP), 1 (NMP).

Fig. 12 — Example of TRO2 Message

6.3 VF:DNSVY Input Message

A new keyword, CDFP, has been added to the VF:DNSVY message to verify new TRC registers associated with CDFP.

The VF:DNSVY keywords associated with the CDFP feature are listed below:

- CDFP - Initiates a search for all DNs with CDFP
- DN (aaaaaaa,b) - Surveys all DNs beginning with DN aaaaaaa and ending with the last DN specified by 'b': if b = N, survey ends with last DN in the same number group; if b = O, survey ends with last DN in the office; if b = c, survey ends 'c' DNs later, where 1<=c<=2,097,152

- CTXN aaaa - The centrex number where the input extension can be found
- EXT [aaaaa(,bbbbb)] - Extension or range of extensions within the centrex group number
- CCTX (aaaa bbbb) - Request all centrex groups or a single centrex group number rather than extensions in a group
- LIST Y(ES)/N(O) - If Y(ES), each successful match will generate an output and the final count totals. If N(O), only a total count of all successful matches will be generated.

Valid keyword combinations for the CDFP feature are shown in Fig. 13. (Refer to IM-6A001 for further details of this message.)

In response to the VF:DNSVY input message for CDFP, the VF03 message (Fig. 14) will only print those DNs with TRCs currently active (i.e., a CDFP data call is in progress). If the call is not in progress, a VF02 End-of- Job message will print instead.

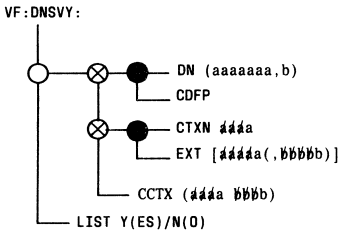


Fig. 13 — VF:DNSVY Input Message for CDFP

Trango VTX2500 2.4 GHz Video Transmitter Experiments

Overview

This is quick hack to allow a Trango Systems VTX2500 EaglePLUS 2.4 GHz video transmitter to transmit on slightly out−of−band frequencies.

The stock Trango VTX2500 is a high−quality analog video transmitter (FM with NTSC/PAL video input) operating in the standard 2.4 GHz license−free Part 15 band. The video signal can be received on a matching Trango Systems VRX2550 receiver, or with a similar wireless receiver covering the same frequency range.

The Trango VTX2500 has a PIC16C73 controlling a National LMX2326 PLL synthesizer to determine the center transmit frequency for each of the four channels. It's possible to reprogram the LMX2326 for your own transmit frequency or to even replace the voltage tune line with something manual.

Trango Systems VTX2500 EaglePLUS

Channel	Transmit Frequency (GHz)	VCO Vt (Volts)	RF Output Power (dBm)
1	2.413	2.530	7.8
2	2.432	2.846	7.6
3	2.451 (microwave ovens)	3.167	7.5
4	2.470	3.479	7.5

You can manually "tune" the Trango VTX2500's center transmit frequency by replacing the LMX2326 synthesizer control line going to the Z−Comm V800ME10 VCO with a DC control voltage from an external potentiometer.

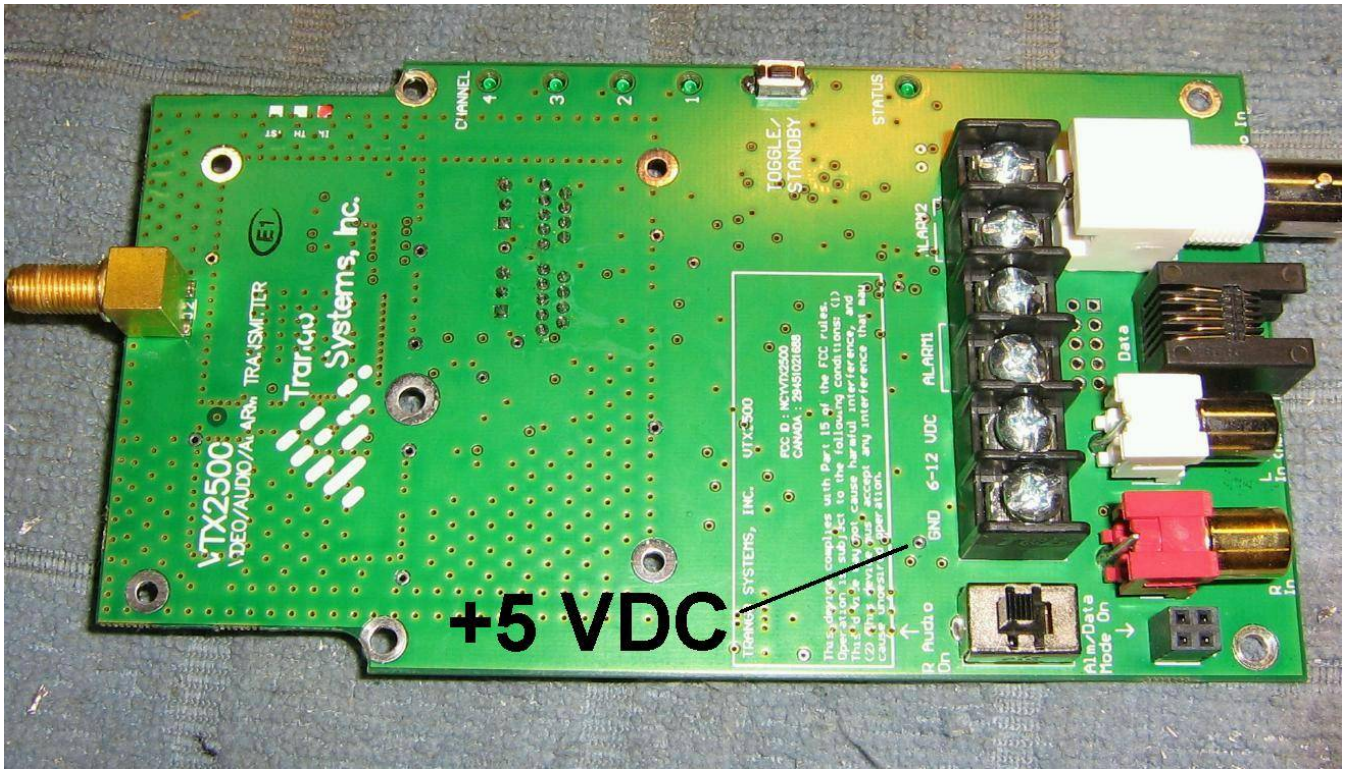
By manually sweeping this voltage from 0 to around 5 volts, the Z−Comm V800ME10 will cover approximately 2.22 − 2.56 GHz. There is no bandpass filtering on the RF output, so the signal will be stable over that entire frequency range. The RF output power will be around +7 dBm (5 mW) over that same frequency range.

A DPDT relay will used to "swap" the video input going to the VCO from the PLL network. This will require a few modifications and delicate trace cuts to the VTX2500's stock PC board.

A 50 kohm 10−turn potentiometer will be used for the manual tuning control. A "turns count" knob should be added to the potentiometer to get a general idea of the center transmit frequency. Here is a general mapping of the turns count to transmit frequency. Don't exceed 5 volts on the VCO Vt line. One complete turn of the potentiometer equals a 100 count:

Turns Count	Transmit Frequency (GHz)	VCO Vt (Volts)	RF Output Power (dBm)
0	2.234	0.04	7.8
100	2.278	0.51	7.7
200	2.316	1.03	7.7
300	2.349	1.52	7.7
400	2.383	2.03	7.8
500	2.414	2.54	7.6
600	2.446	3.04	7.5
700	2.475	3.53	7.3
800	2.505	4.06	7.4
900	2.535	4.53	7.2
1000	2.565	5.04	7.2

Pictures & Construction Notes



Overview of a stock Trango Systems VTX2500 EaglePLUS video transmitter.

The VTX2500 board can be powered from +6 to +12 VDC. The current draw is around 150 mA.

The BNC jack is for the **Video Input**.

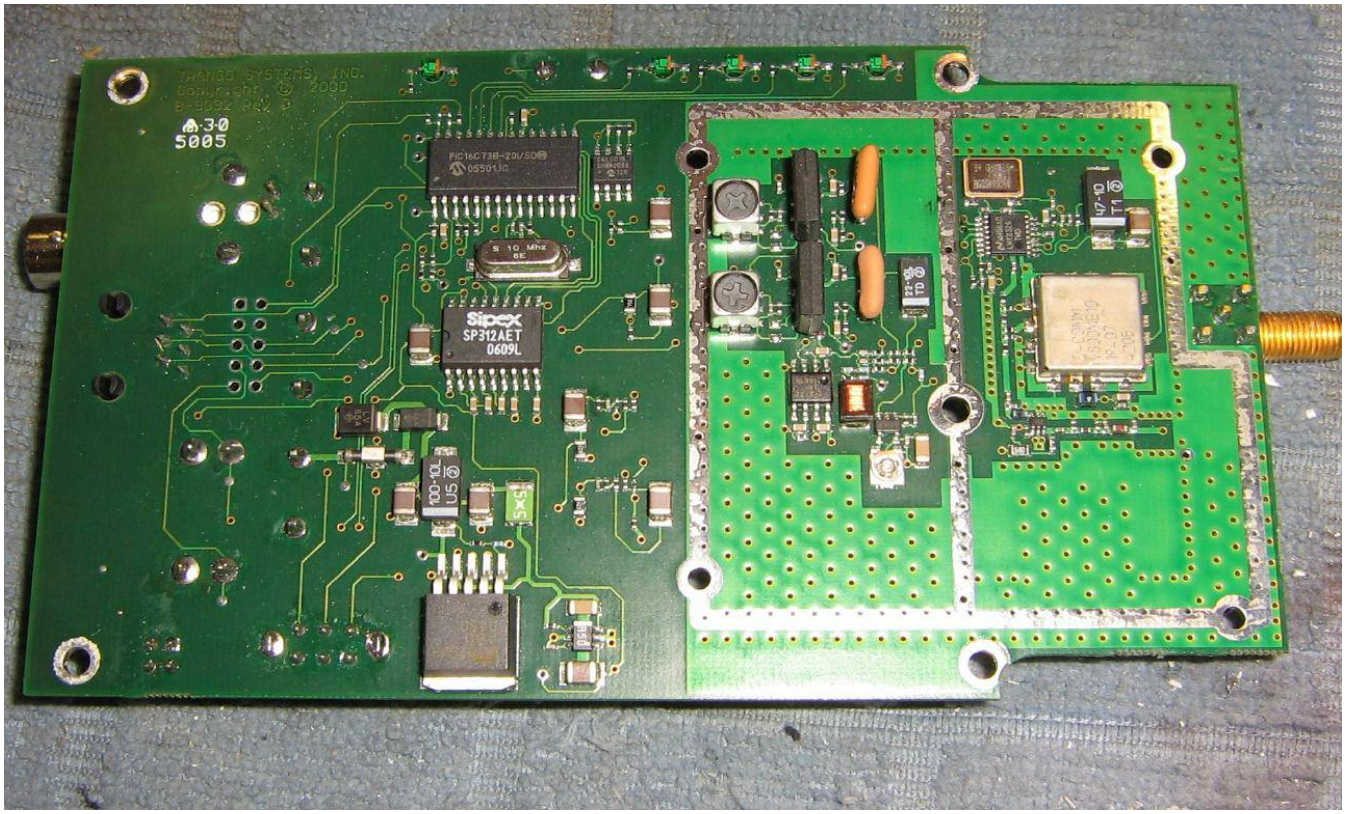
The white RCA jack is for **Left Audio Input**. This connection also provides the audio input when operating in monaural (mono) mode.

The red RCA jack is for **Right Audio Input**.

The **Toggle**/**Standby** push button selects the transmitter's channel. The four green LEDs indicate which channel (1–4) the transmitter is tuned to. In "standby" mode, the transmitter is shut down. This can be for security or power consumption reasons.

The screw terminals are for the DC power and the alarm outputs. The alarm connections will not be used in this application.

The exposed pad near the "G" in GND silkscreen can be used as a tap for the regulated +5 VDC power.



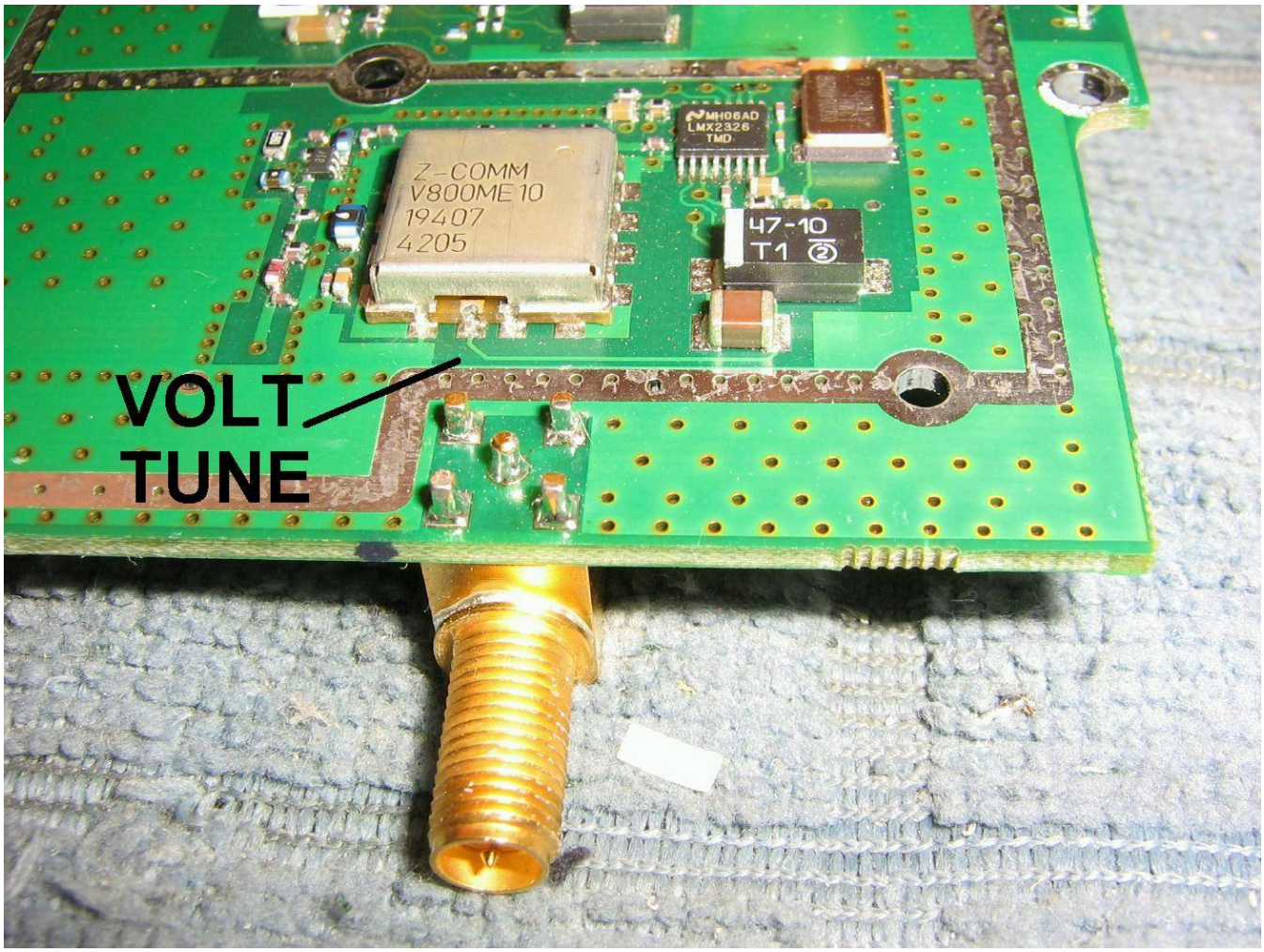
Overview of the Trango Systems VTX2500 EaglePLUS video transmitter circuit board.

The antenna connection is via the right−angle reverse−polarity SMA jack on the right.

The silver square item is the Z−Comm V800ME10 VCO.

The two variable inductors are part of the 6.0/6.5 MHz audio subcarrier generator circuits.

The 28−pin device is the PIC16C73 which loads the PLL and the controls other circuits.

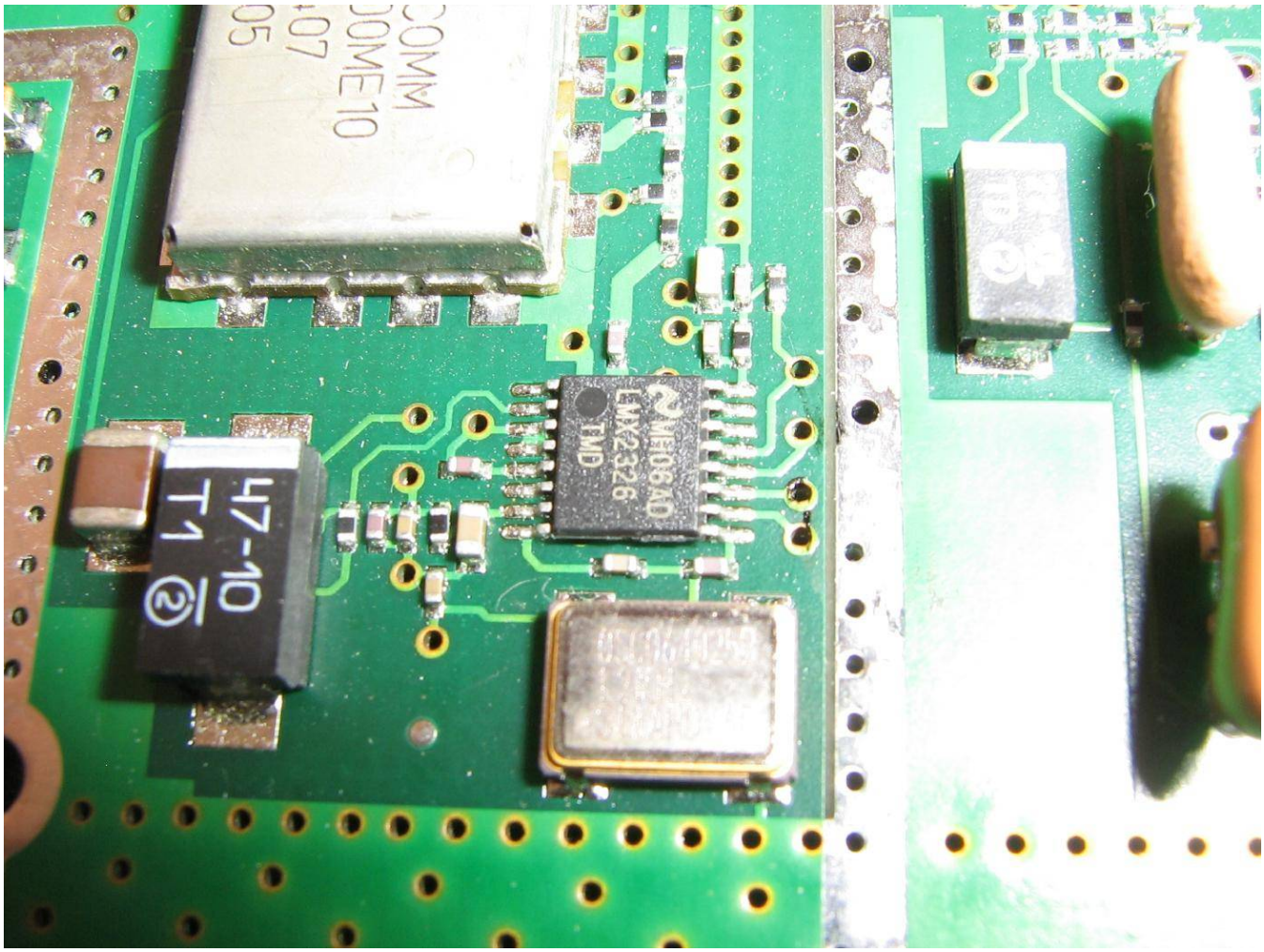


Overview of the reverse–polarity SMA antenna jack.

You can, if you're *very* careful, unsolder this connector and replace it with a standard right–angle SMA connector.

This view also shows the VCO voltage tune line on a stock Trango Systems VTX2500 EaglePLUS video transmitter circuit board.

This line controls the tuning voltage to the Z–Comm V800ME10 VCO. Switching in a potentiometer to vary this tuning voltage from approximately 0 – 5 volts allows you to manually tune the transmitter over a (slightly) wider frequency range.



Overview of the National LMX2326 PLL synthesizer and Z–Comm V800ME10 VCO.

This circuit sets the center transmit frequency.

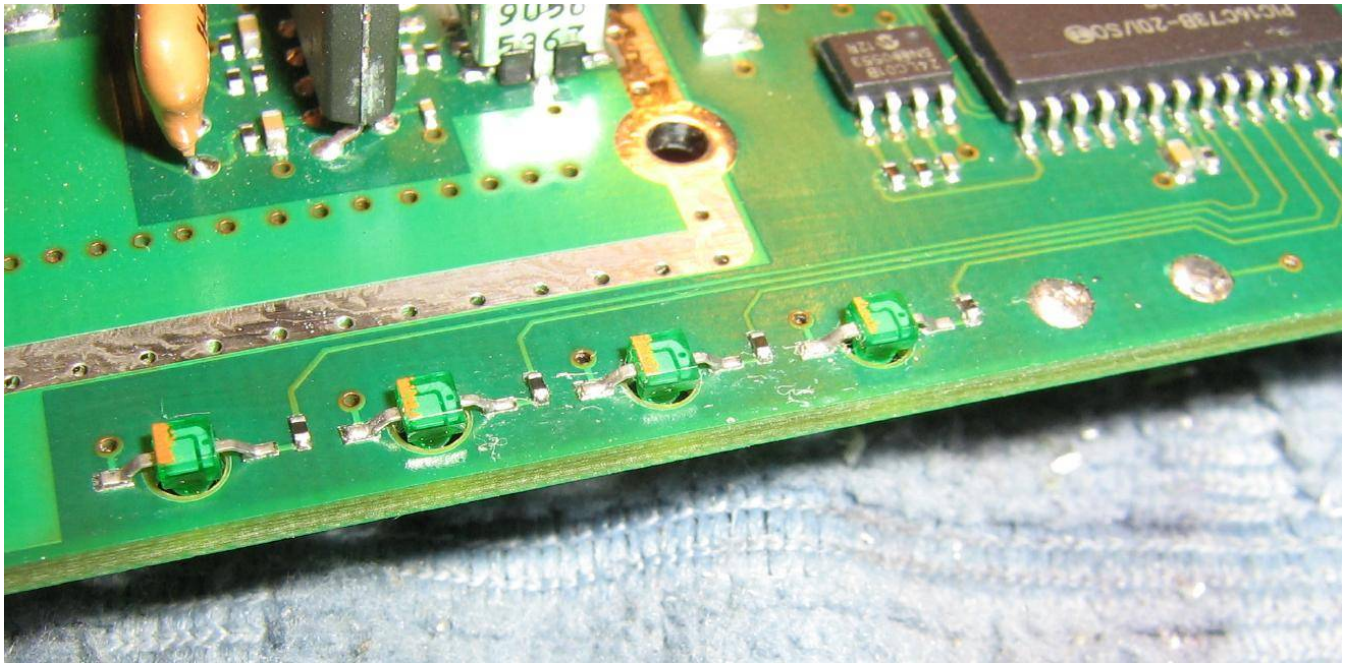
The capacitors are part of the loop filter to "lock" the PLL and couple the video signal into the VCO's voltage tune line. The large brown capacitor is 10 µF and is on the video input.

The smaller silver square device is a 12 MHz clock oscillator and generates the reference frequency for the LMX2326.

Pin 12 on the PIC16C73 connects the the LMX2326's **Data** line.

Pin 11 on the PIC16C73 connects the the LMX2326's **Clock** line.

Pin 6 on the PIC16C73 connects the the LMX2326's **Load Enable** line.

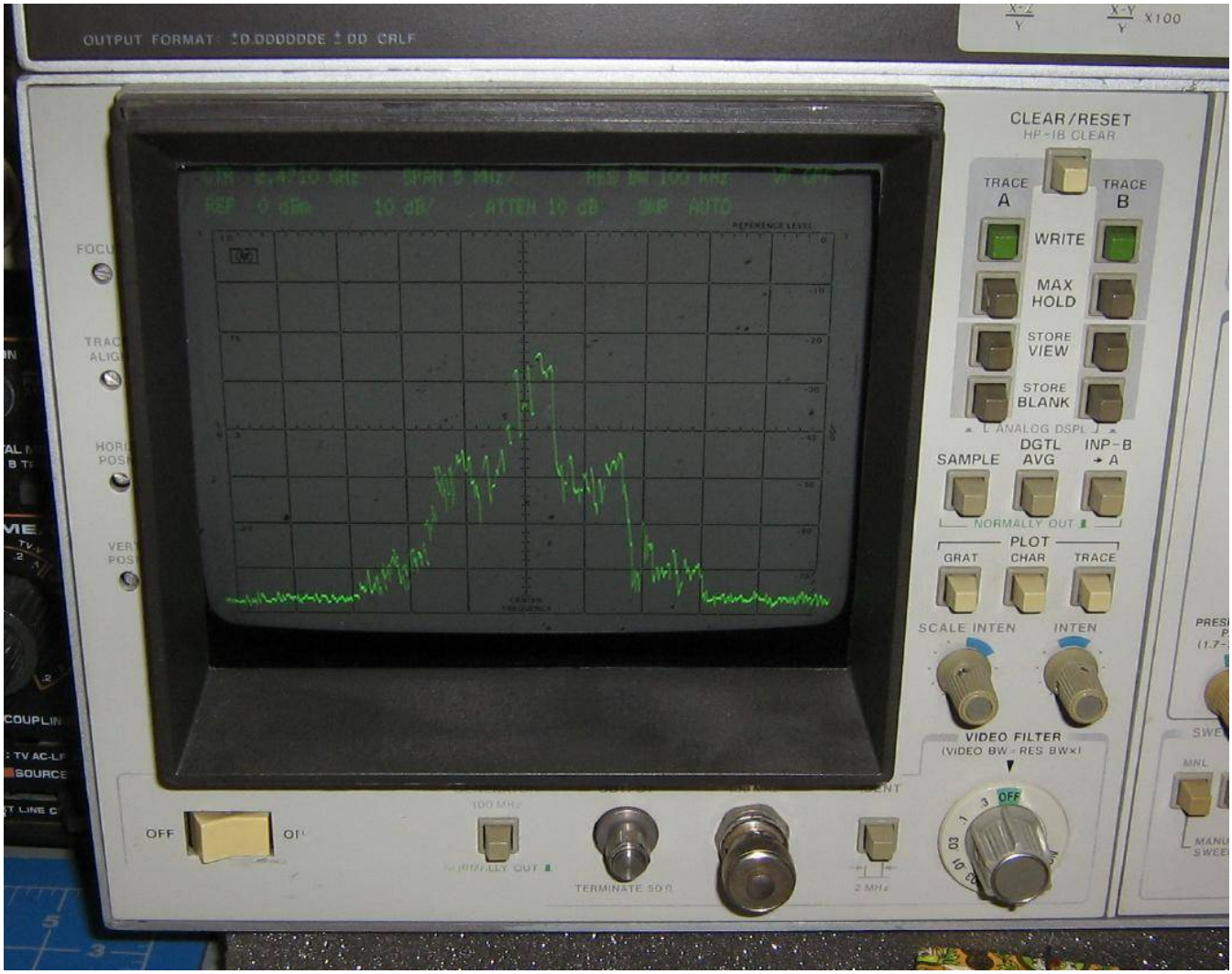


Overview of the four channel indicating LEDs.

These will be removed and panel−mounted for convenience.

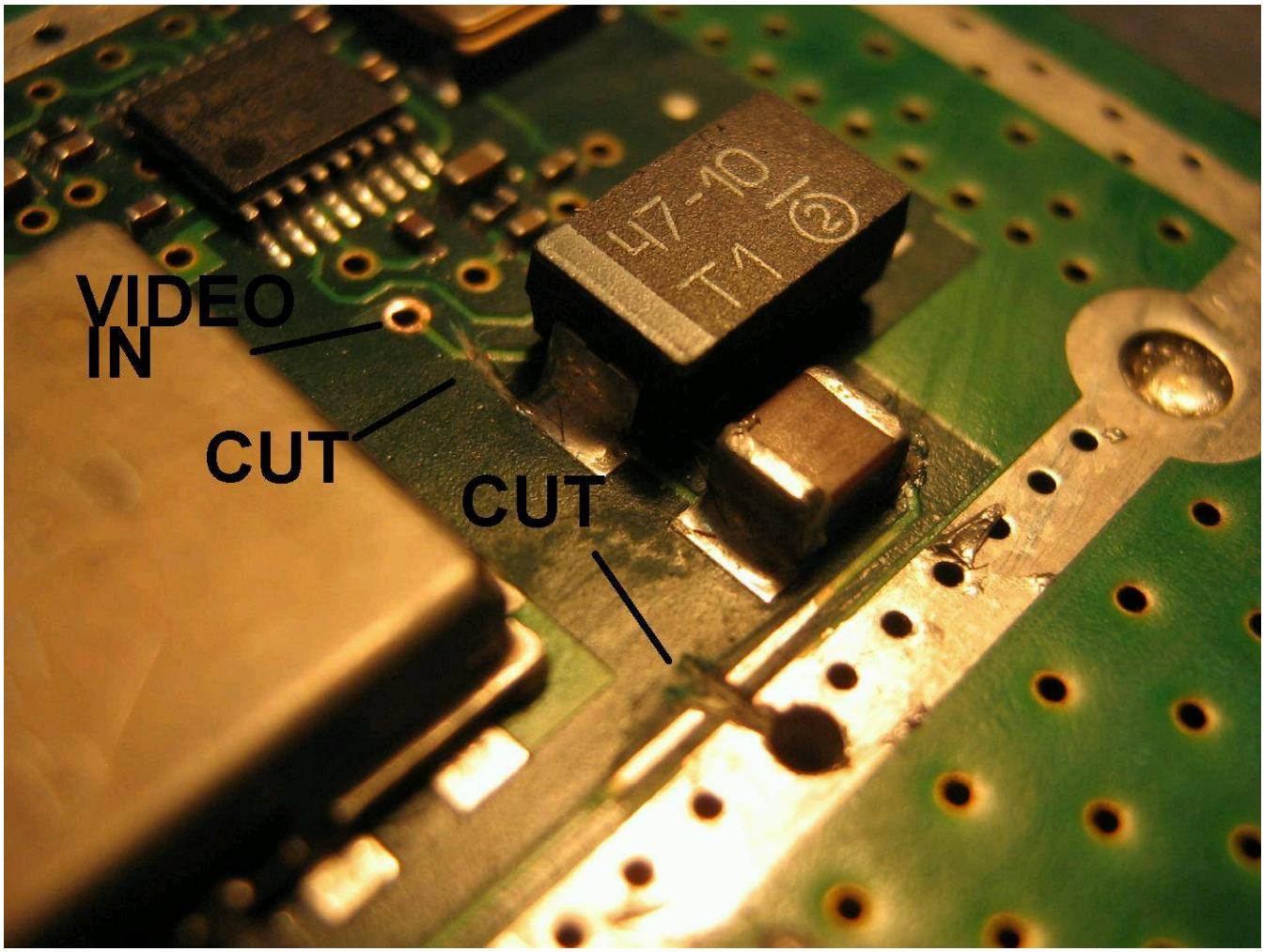
Solder−side view of the LEDs. The have tiny 220 ohm resistors for current−limiting, but you may want to remove these so you have a bigger pad to solder to.

New 220 ohm resistors will added externally.



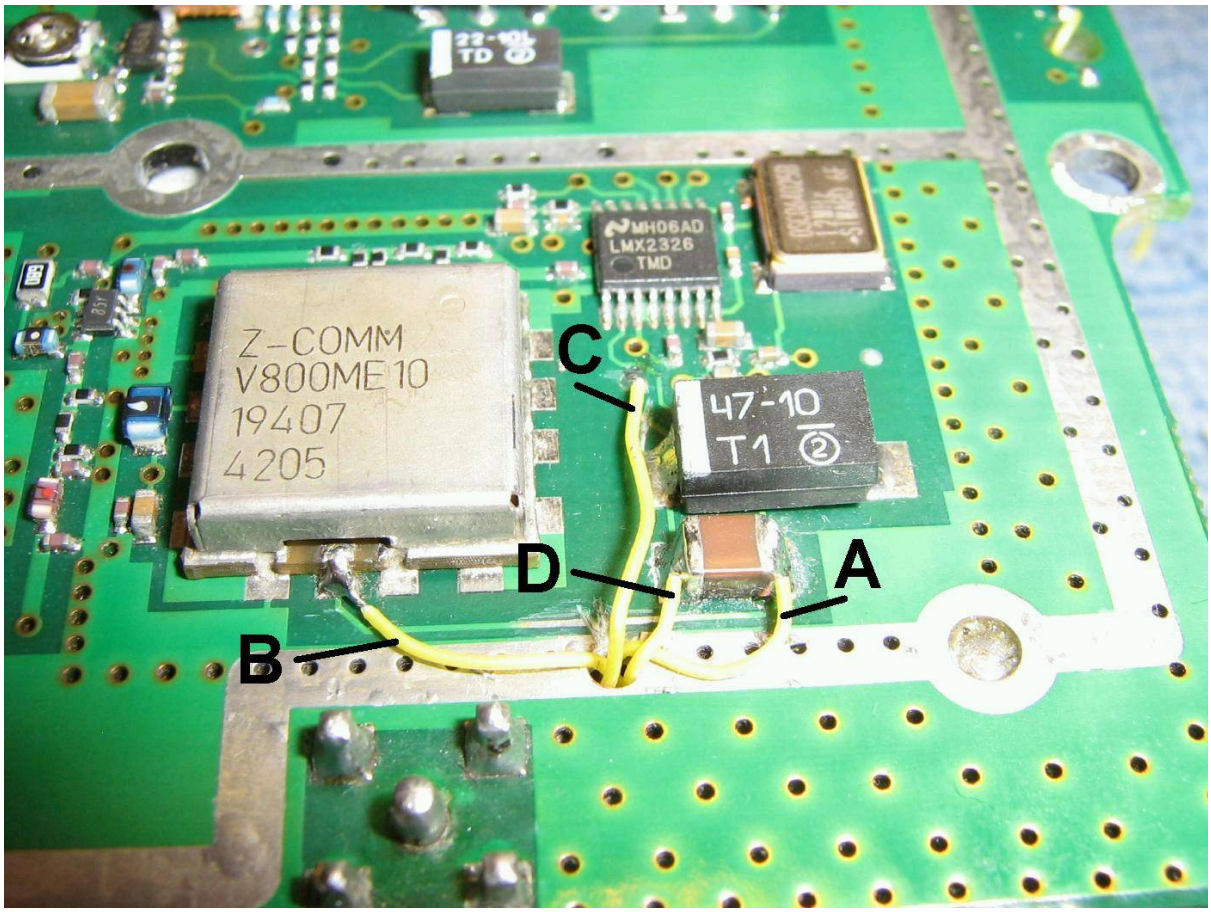
Spectrum analyzer view of a video modulated RF signal at 2.47 GHz (channel 4).

The screen is 5 MHz per division (horizontal) and 10 dB per division (vertical).



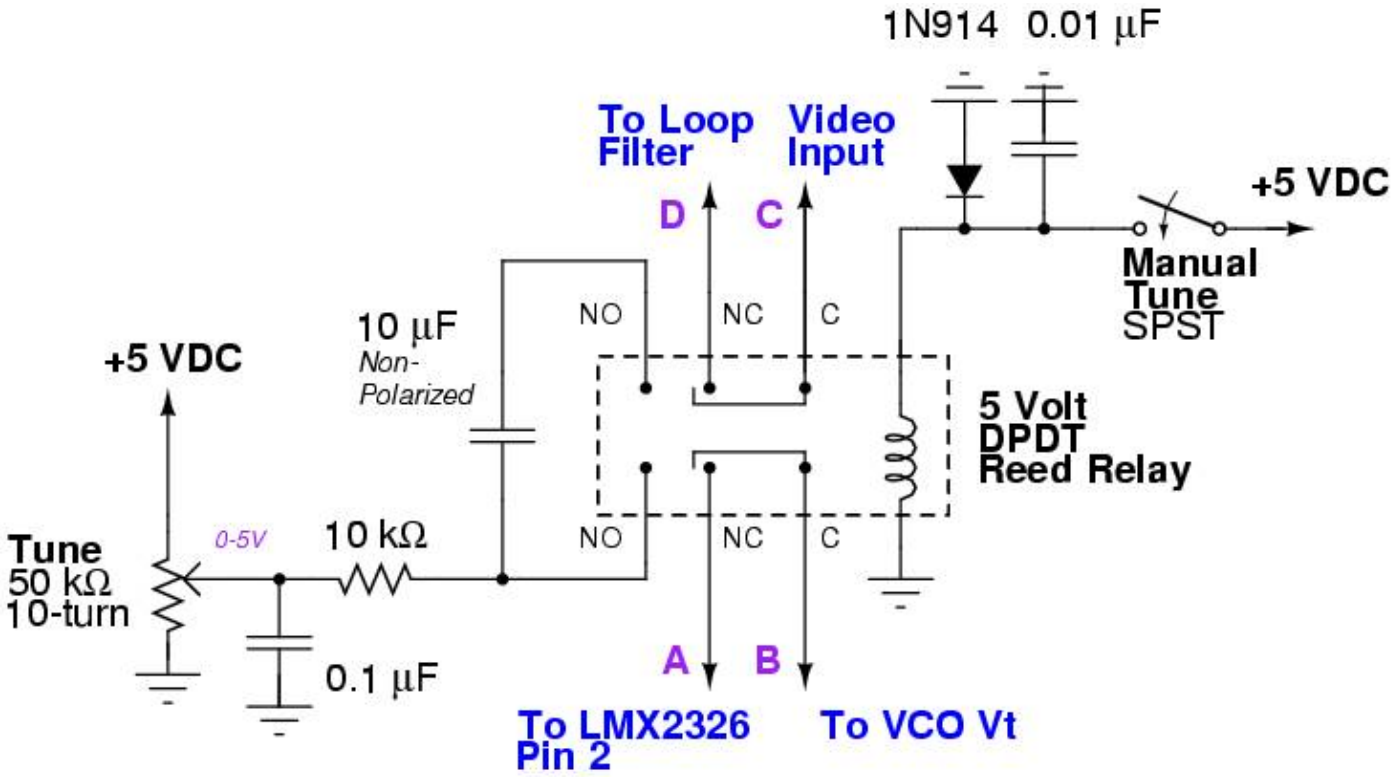
Scrap off the solder resist with an X−ACTO knife and cut the traces as shown.

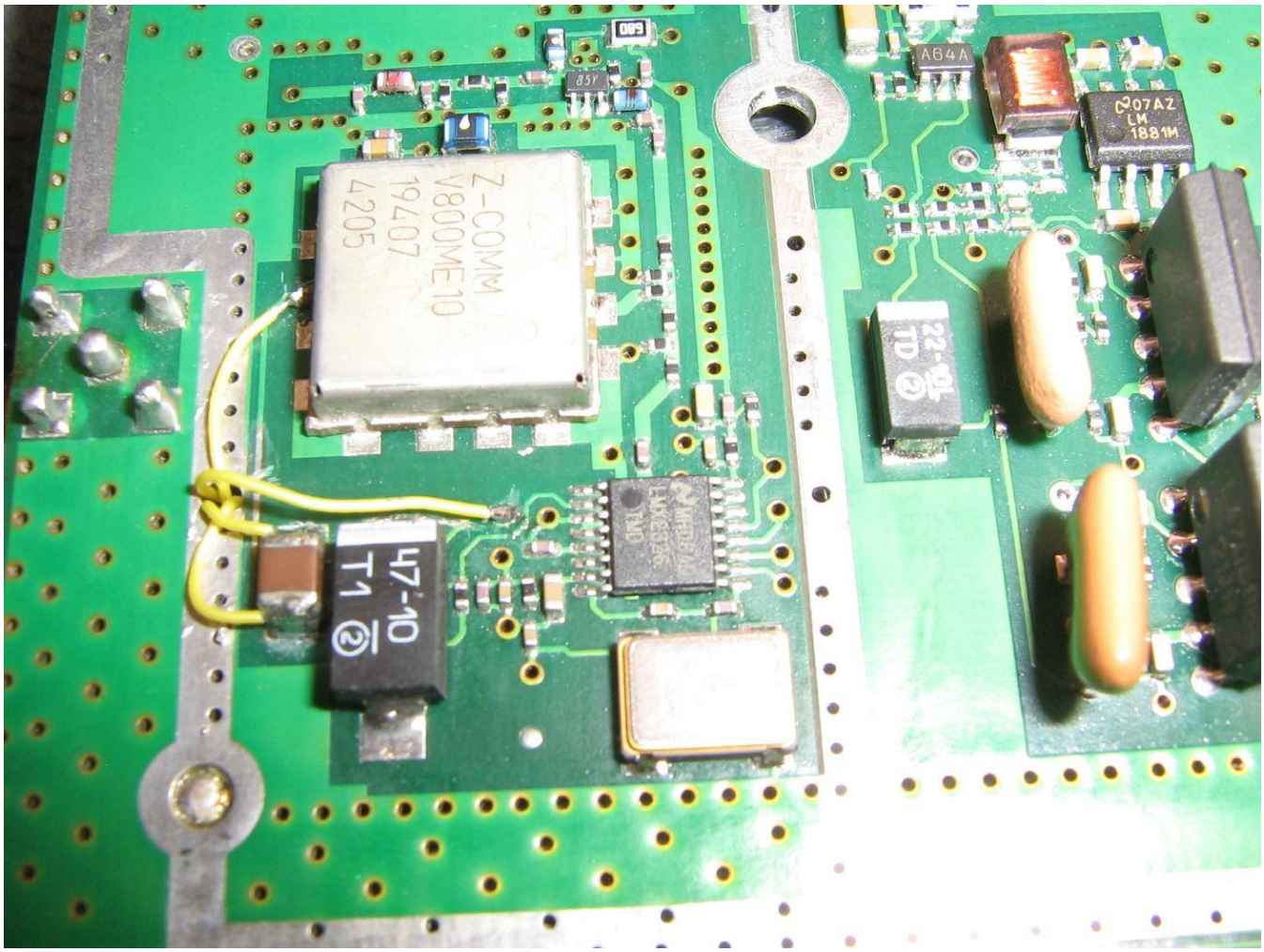
A DPDT relay will be used to switch between PLL and manual tuning for the V800ME10 VCO.



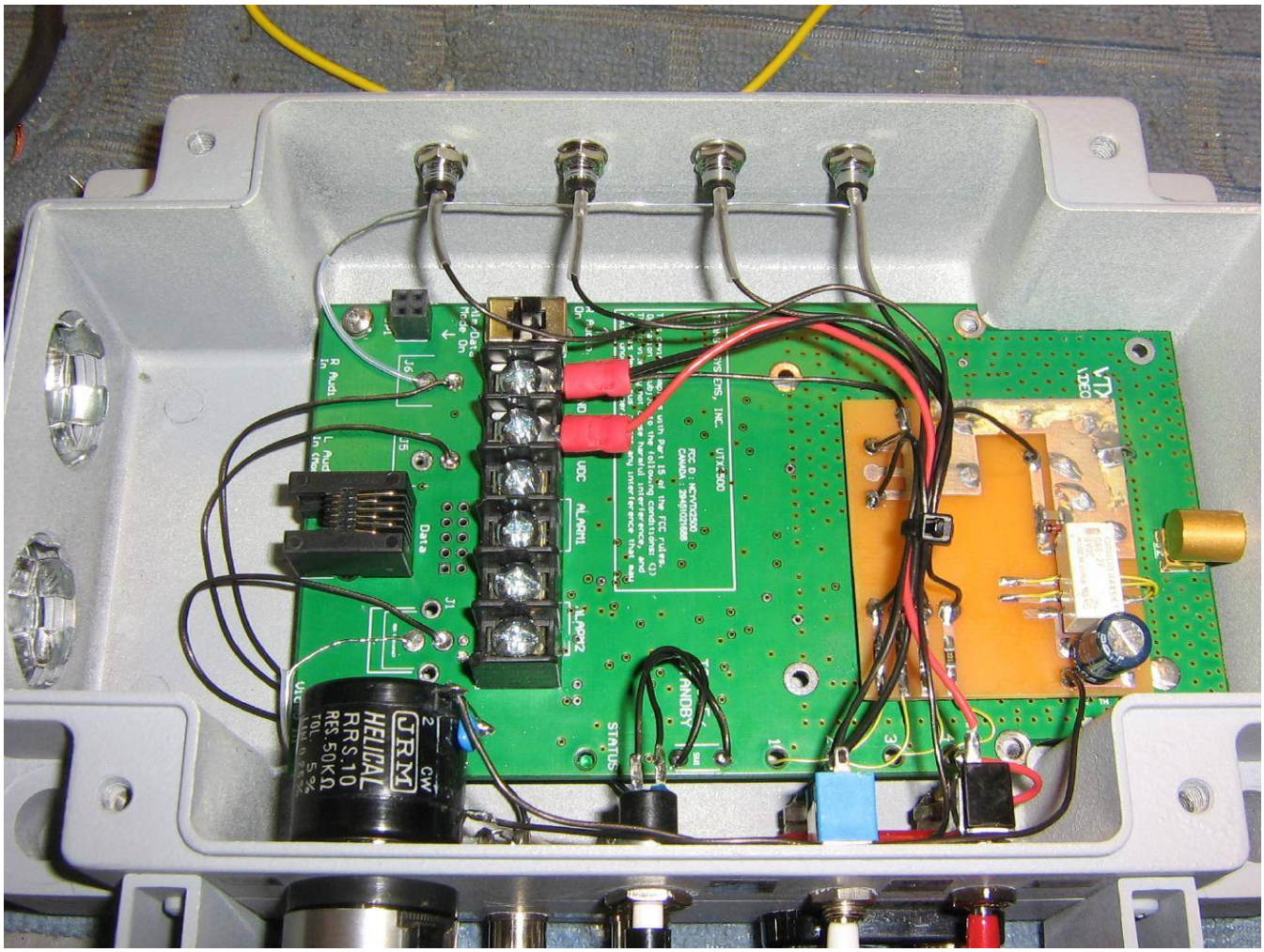
Drill a small hole in the PC board and route four #30 wires as shown.

The letters correspond to th relay connection points on the schematic.





Overhead view of the solder connections.



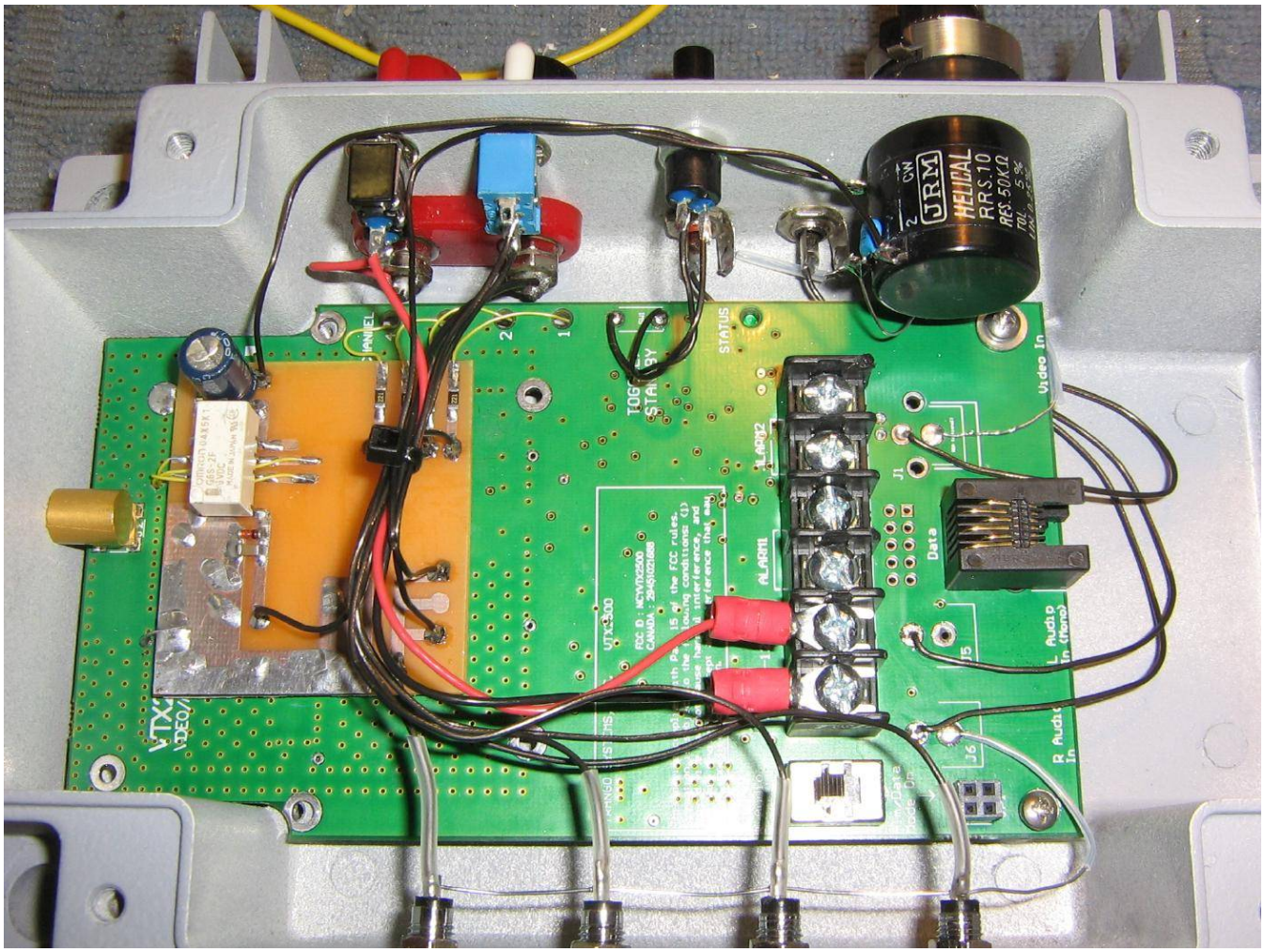
Completed internal overview.

Try to keep the manual tuning wires as short as possible. The multi−turn potentiometer is optional, but is handy for better frequency resolution when in manual tuning mode.

The stock audio RCA jacks and video BNC jack where removed. New jacks were panel−mounted to the side of the case.

The white relay is used to switch between PLL and manual tuning. The use of a relay is to avoid additional capacitance which could prevent the PLL from locking.

The 220 ohm resistors are for the new panel−mounted channel indicating LEDs.



Alternate overview.

The stock **Toggle**/**Standby** push button was removed and a new button added to the side of the case. Connect the button back to the original solder pads.

Overview of the panel–mounted LEDs.

The four green LEDs indicate the transmit channel.

Overview of the panel–mounted controls.

The banana jacks provide the DC power.

The RCA jacks are for the audio and video inputs. These inputs should be at the standard "line levels." The impedance of the audio inputs is 600 ohms (unbalanced) and the video input is 75 ohms (unbalanced).

The manual tune 50 kohm potentiometer is on the left. This is an (optional) 10–turn potentiometer with a turns counter.

The red switch is for DC power.

The white switch enables the manual tune relay.

The black push button is in parallel with the stock **Toggle**/**Standby** switch on the transmitter board.

1 Watt RF Power Amplifier for 1.5 GHz

Overview

This a simple 1 watt RF power amplifier project designed for use with a 1575.42 MHz (L1) GPS jammer source.

The amplifier is based around a Renesas/Hitachi PF08114B MOSFET power amplifier module which is normally intended for the E−GSM and DCS1800 (Europe/Asia/Middle East) cellular phone bands. You can sometimes find the PF08114B on eBay, usually at a very low price.

The PF08114B is a dual−band amplifier (900/1800 MHz) and only one band can be activated at a time. The wide RF bandwidth nature of the PF08114B means the DCS1800 amplifier portion is still very usable at the 1575.42 MHz L1 GPS frequency.

With a +10 dBm (10 mW) RF input, you can obtain around a +30 dBm (1 watt) RF output. The PF08114B is designed to run at nominal +3.5 VDC and will draw a continuous 550 mA. Running it at a slighty higher voltage of +4 to +5 VDC is possible to squeeze out a little more RF power, but be sure the device is properly heatsinked and matched to a 50 ohm load.

The PF08114B has three main DC power connections, Vdd, Vapc, and Vband. The Vdd1 and Vdd2 are the main +3.5 VDC power connections, with the current draw on these two lines totaling around 550 mA.

The Vapc line acts as a RF power control line. It's fixed at around 2.2 volts in this application and an experimental SWR protection circuit can pull this line "low" on detection of an output fault. This essentially "powers down" the PF08114B, protecting it from overheating when no antenna (or load) is connected. This line draws around 3 mA.

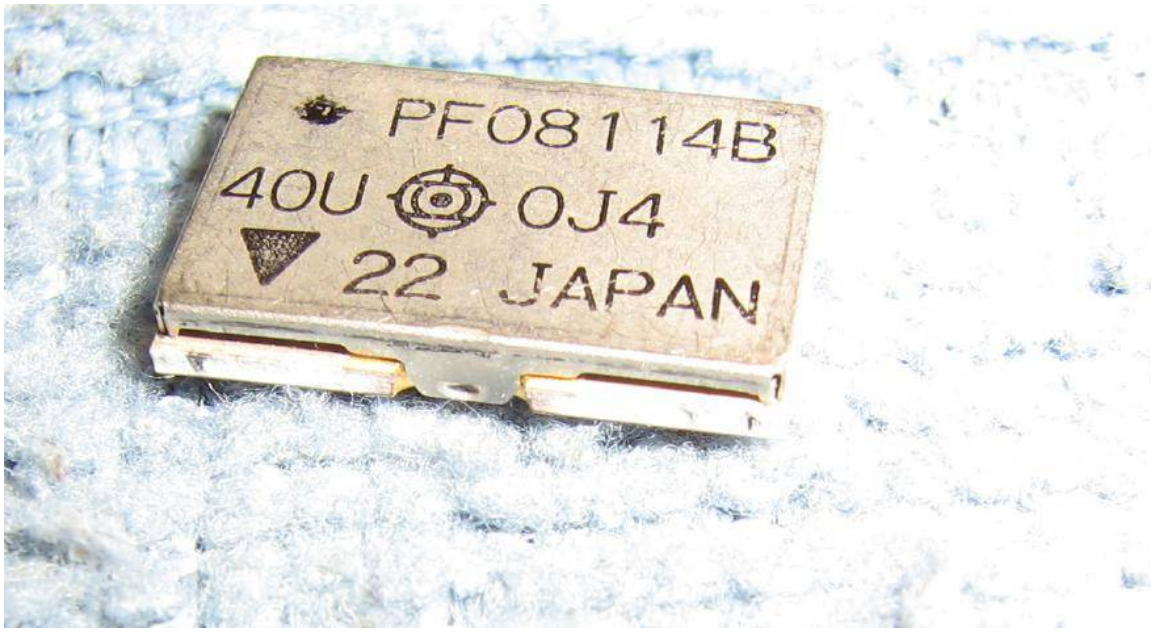
The Vband selects the operating band of the PF08114B. When ground, the 900 MHz RF amplifier portion of the PF08114B is activated, when at around +2.0 volts, the 1800 MHz RF amplifier portion of the PF08114B is activated. The current draw on this line is minimal.

Because of the PF08114B's surface−mount package, you'll need to do a little bit of hacking and tweaking if you want to homebrew your own PC board.

For this design, the PF08114B will be mounted *upside down.* This will allow easy access to the solder pads normally on the bottom of the PF08114B, and it's metal case will now be a combination heatsink/ground.

You'll need to cutout and file a properly−sized rectangular hole in the PC board to fit the PF08114B. Little pieces #30 gauge wire will connect the PF08114B pads to the PC board traces.

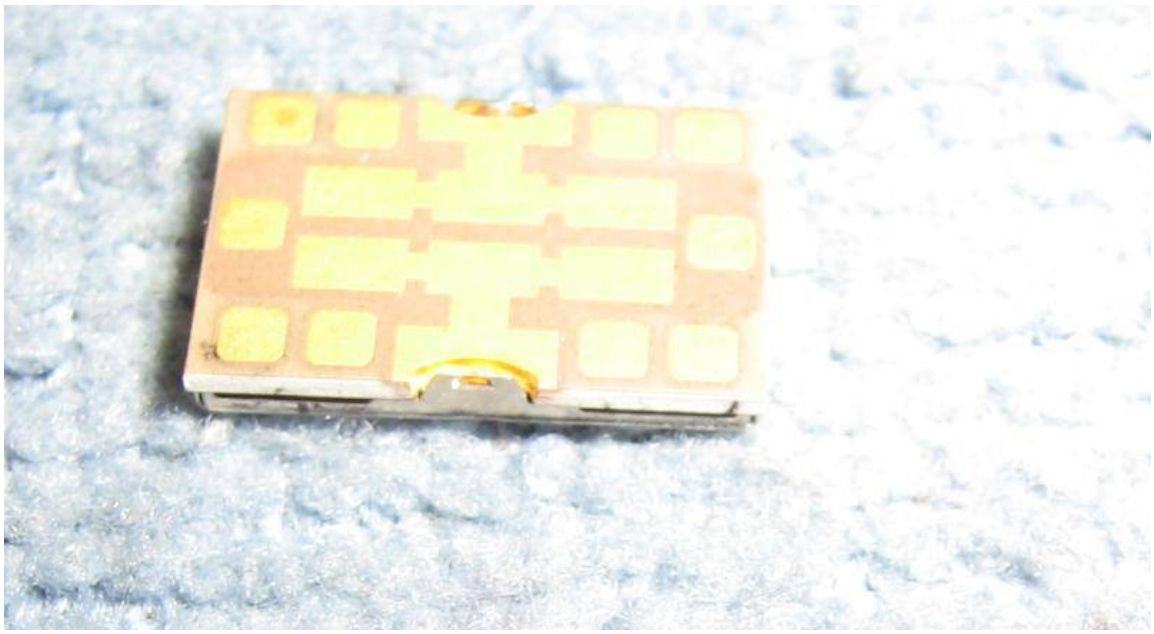
Pictures & Construction Notes



Overview of the Renesas/Hitachi PF08114B MOSFET RF power amplifier module.

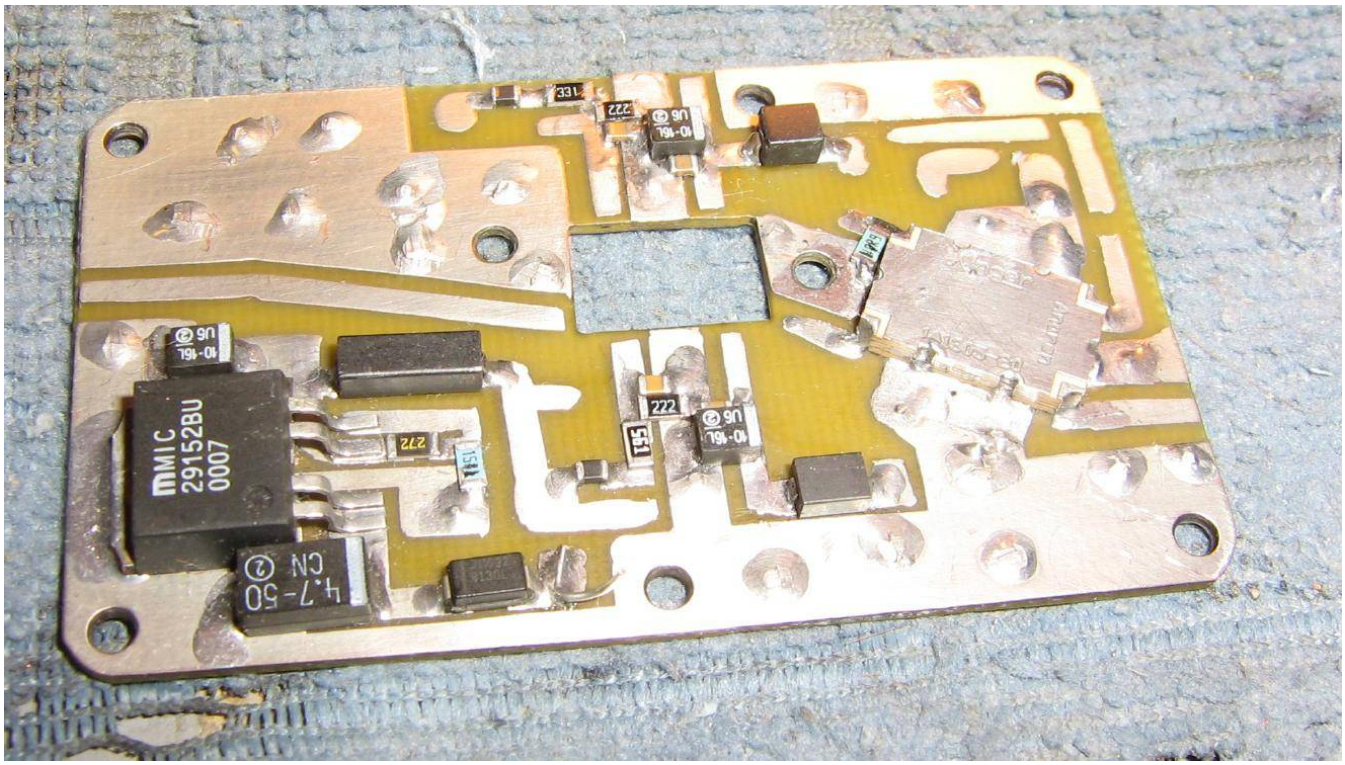
They are available on eBay for around $4 each.

It's in a 10–pin surface–mount package.



Bottom view of the Renesas/Hitachi PF08114B MOSFET RF power amplifier module.

Making a proper PC board for this device would require alot of work, but we can improvise something cheaper by mounting the device upside down.



Making the PC board for the amplifier.

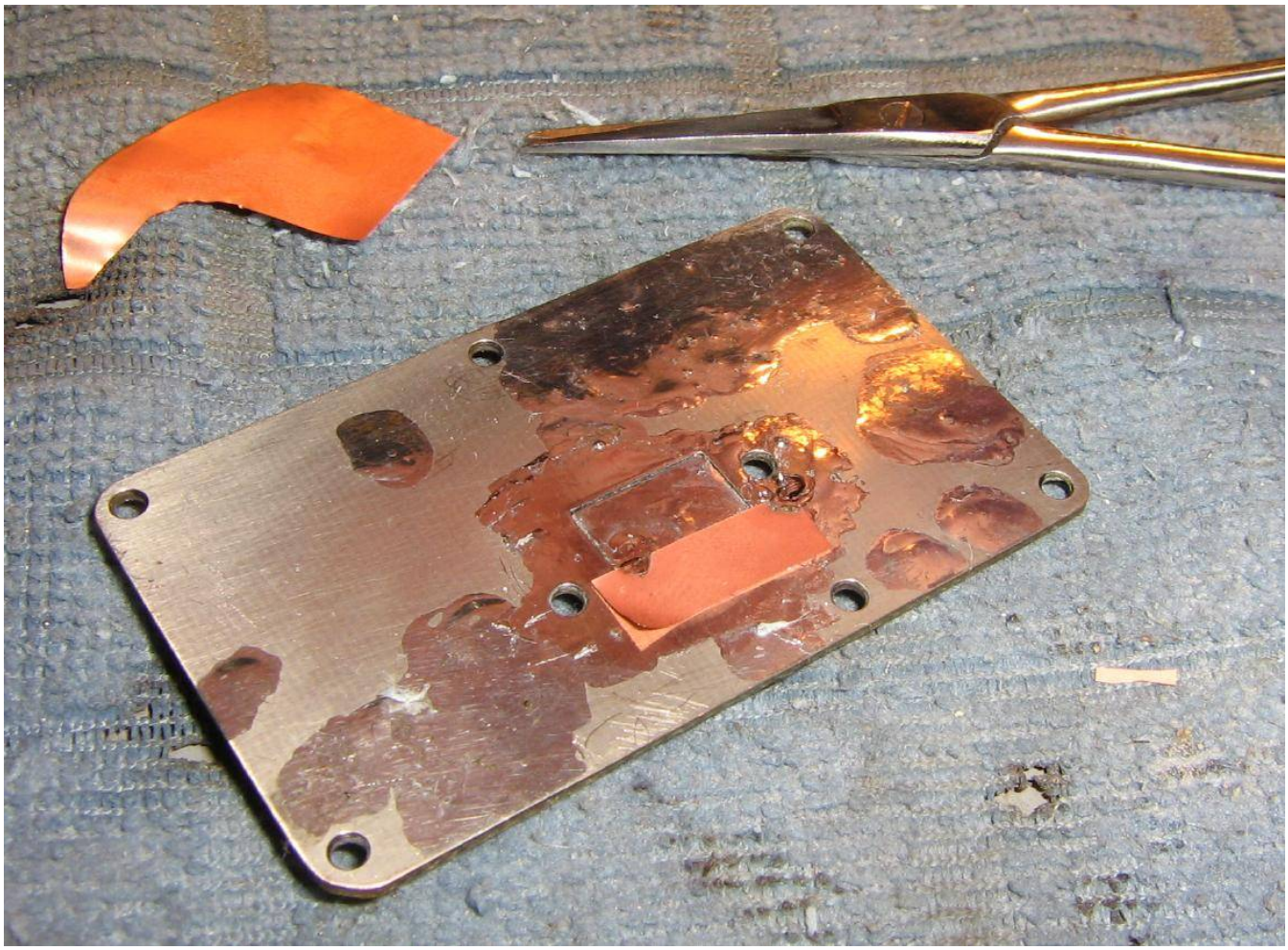
Proper microwave construction techniques will be required. Use quality doubled−sided FR4 material with lots of vias connecting the ground planes.

The voltage regulator is a Micrel MIC29152BU configured for a +3.5 VDC output. The R1 resistor is 2700 ohms (1%) and the R2 resistor is 1500 ohms (1%). Refer to the MIC29152BU's datasheet for more information on tweaking the output voltage value.

Be sure the ferrite beads on the PF08114B's Vdd power lines are capable of handling 600+ mA without saturating or dropping too much voltage.

An experimental SWR protection circuit was added to this design, but it doesn't work quite like I wanted.

An Anaren 1A1305−20 20 dB directional coupler detects the reflected power and pulls the PF08114B's Vapc line down in a high SWR condition. The 20 dB coupler doesn't quite have enough coupling power for this low−power amplifier. A 6 dB (1A1305−6) or 10 dB (1A1305−10) coupler should be used instead.

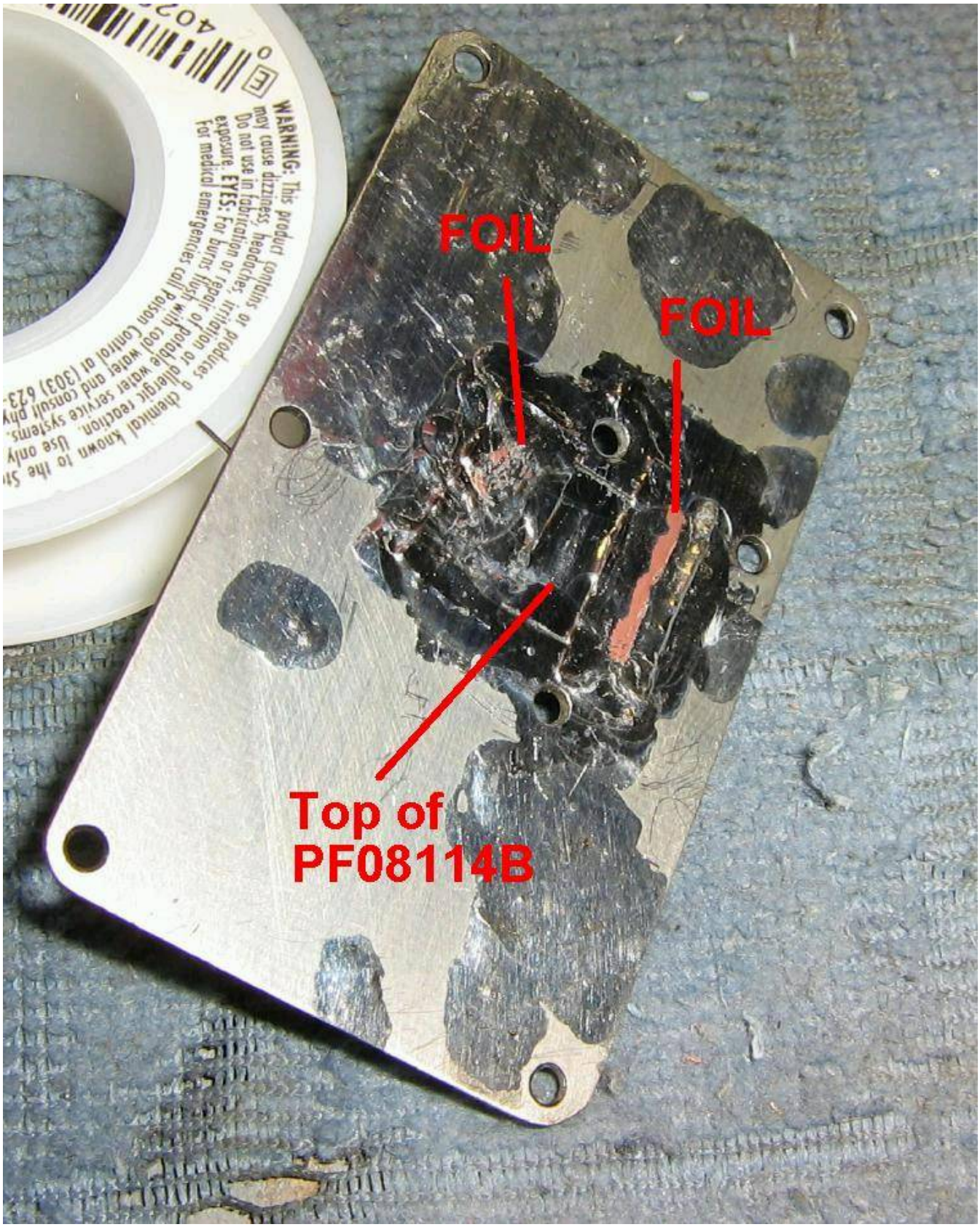


Mounting the Renesas/Hitachi PF08114B MOSFET RF power amplifier module.

It's placed upside down into the cutout made in the PC board.

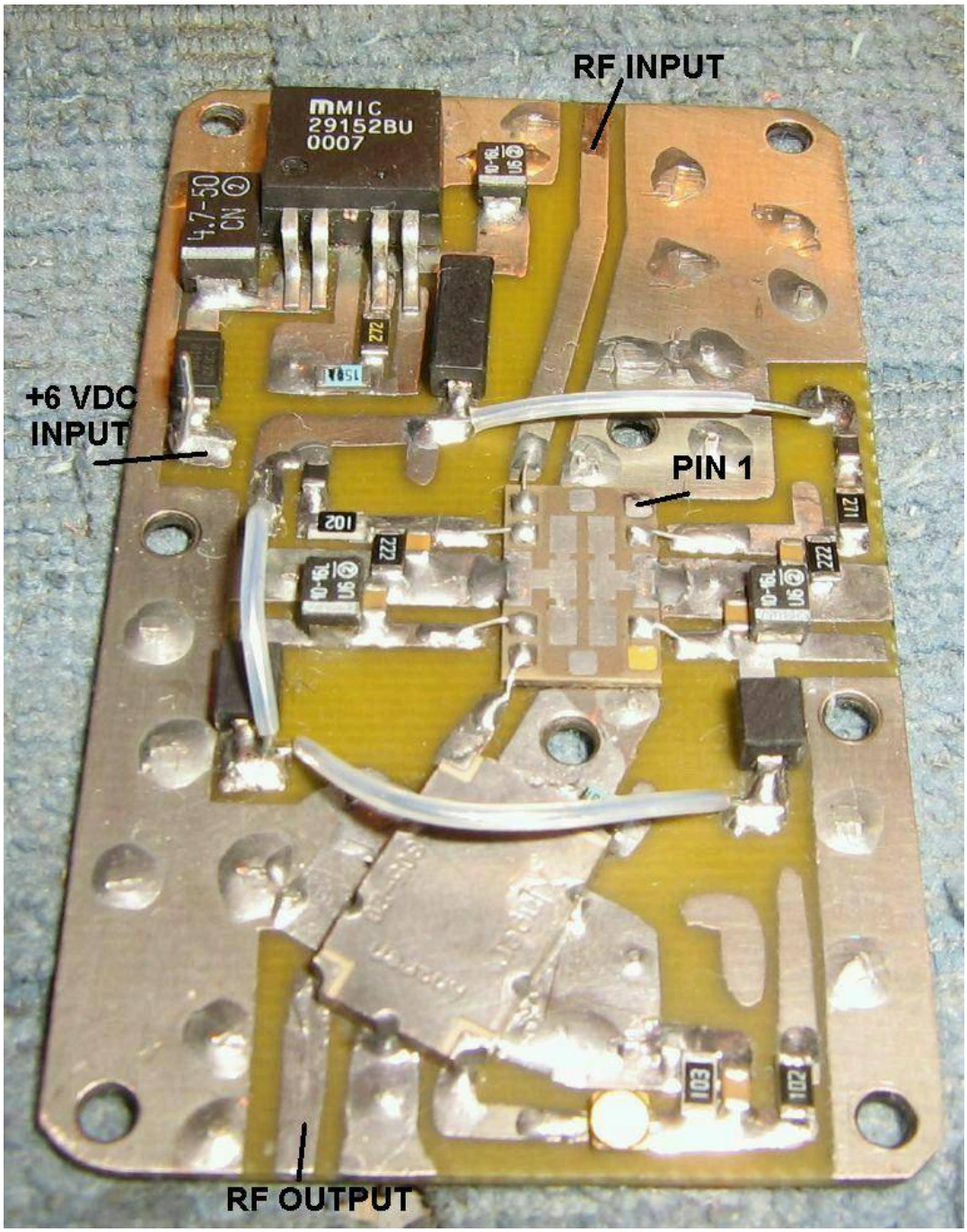
Solder–tin the PF08114B's (top) case and add little strips of thin copper foil to connect the PF08114B's case to the ground plane of the amplifier circuit board. The thin copper foil can be found at most hobby stores.

Doing this helps to properly ground the PF08114B and also acts as a makeshift heatsink.



Finished overview of the PF08114B installed in the amplifier circuit board.

Be sure the bottom of the board is very smooth. Use the side of the soldering iron to "smooth" out the solder.



Completed amplifier circuit board overview.

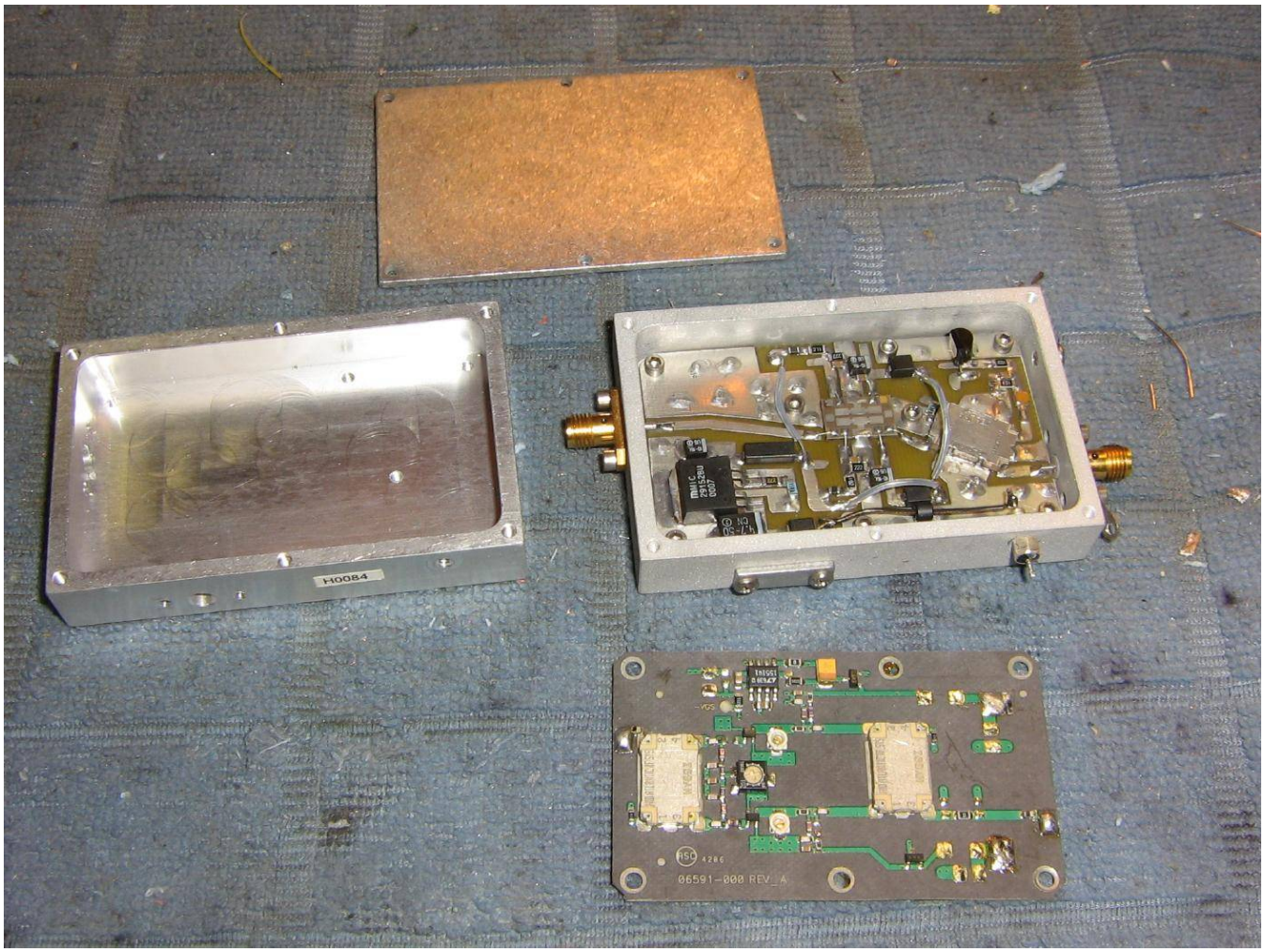
The RF input (1575.42 MHz / +10 dBm typical, +15 dBm maximum) is via that top trace.

The RF output (approximately +30 dBm) is via the bottom trace.

Small #30 gauge wire jumpers connect the PC board traces to the proper PF08114B pads. Be sure to note "pin 1" when the PF08114B is upside down!

The SWR protection components where not installed yet, as this circuit was still experimental.

The detection diodes may need a little bit of forward bias, depending on which ones you use. This can be done with a simple two resistor voltage divider at around 0.2 volts.



Mounting the 1 watt RF amplifier circuit board into the case from an old cellular phone (800 MHz) receive pre–amplifier.

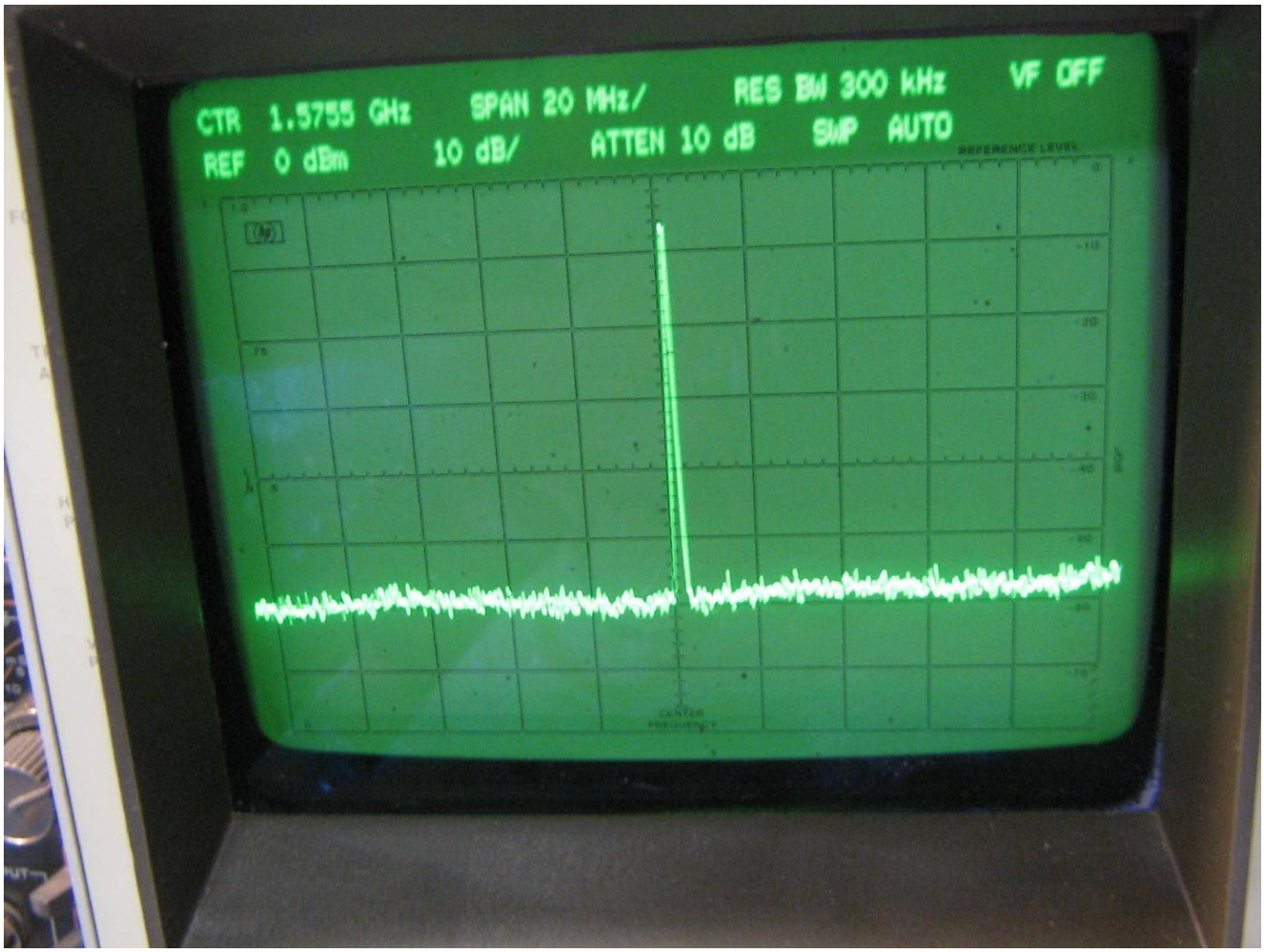
SMA connector are used on the RF input/output.

You can power the RF amplifier from any +6 to +12 VDC power source capable of around 600 mA continuous.

Completed overview.

Be sure the case which you mount the circuit board to is capable of acting as a heatsink.

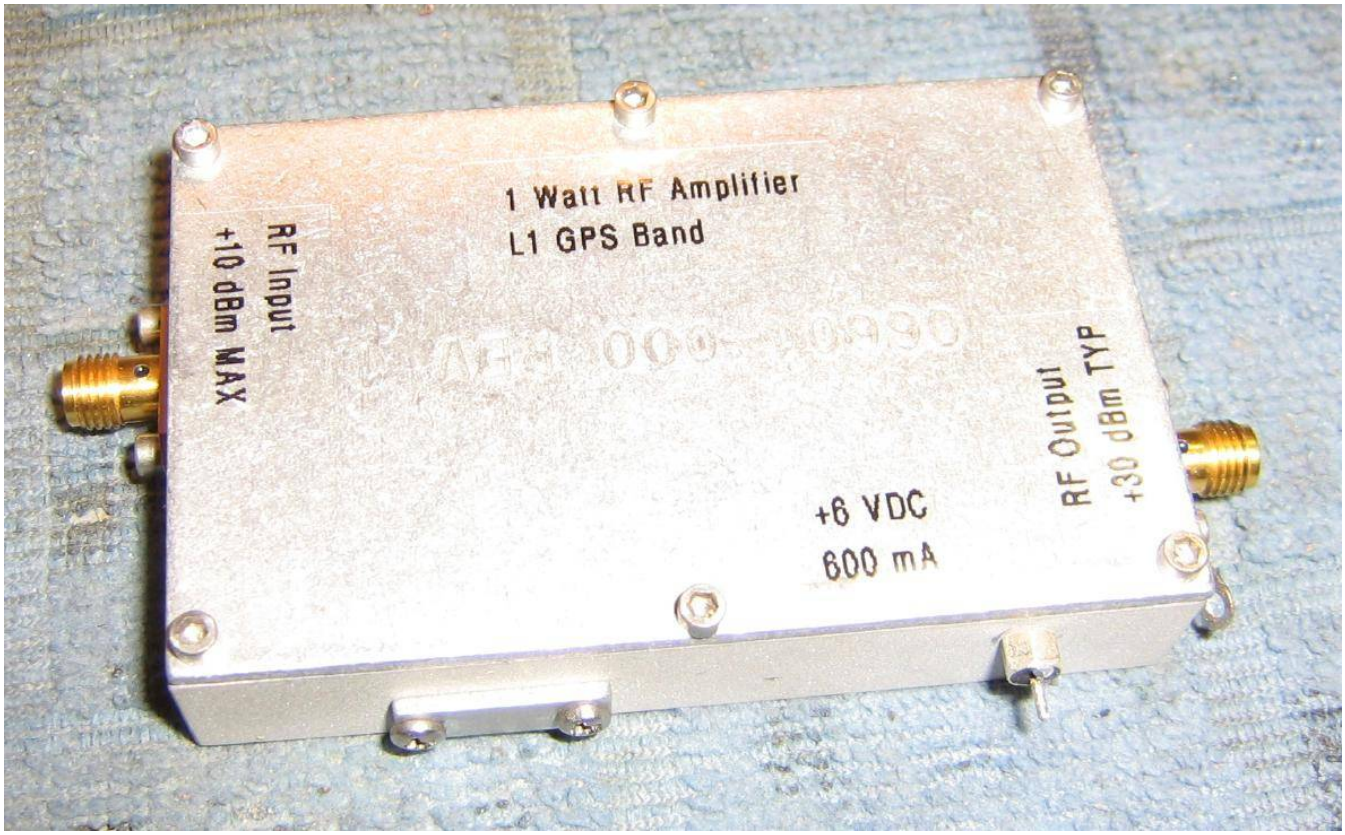
Two extra #2–56 screws were added off to the sides of the PF08114B. These are to help ensure the PF08114B is properly heatsinked and grounded to the aluminum case.



Testing the RF amplifier at 1575.42 MHz with a 0 dBm (1 mW) RF input.

The reference line is 0 dBm at there is 30 dB of attenuation on the spectrum analyzer's input.

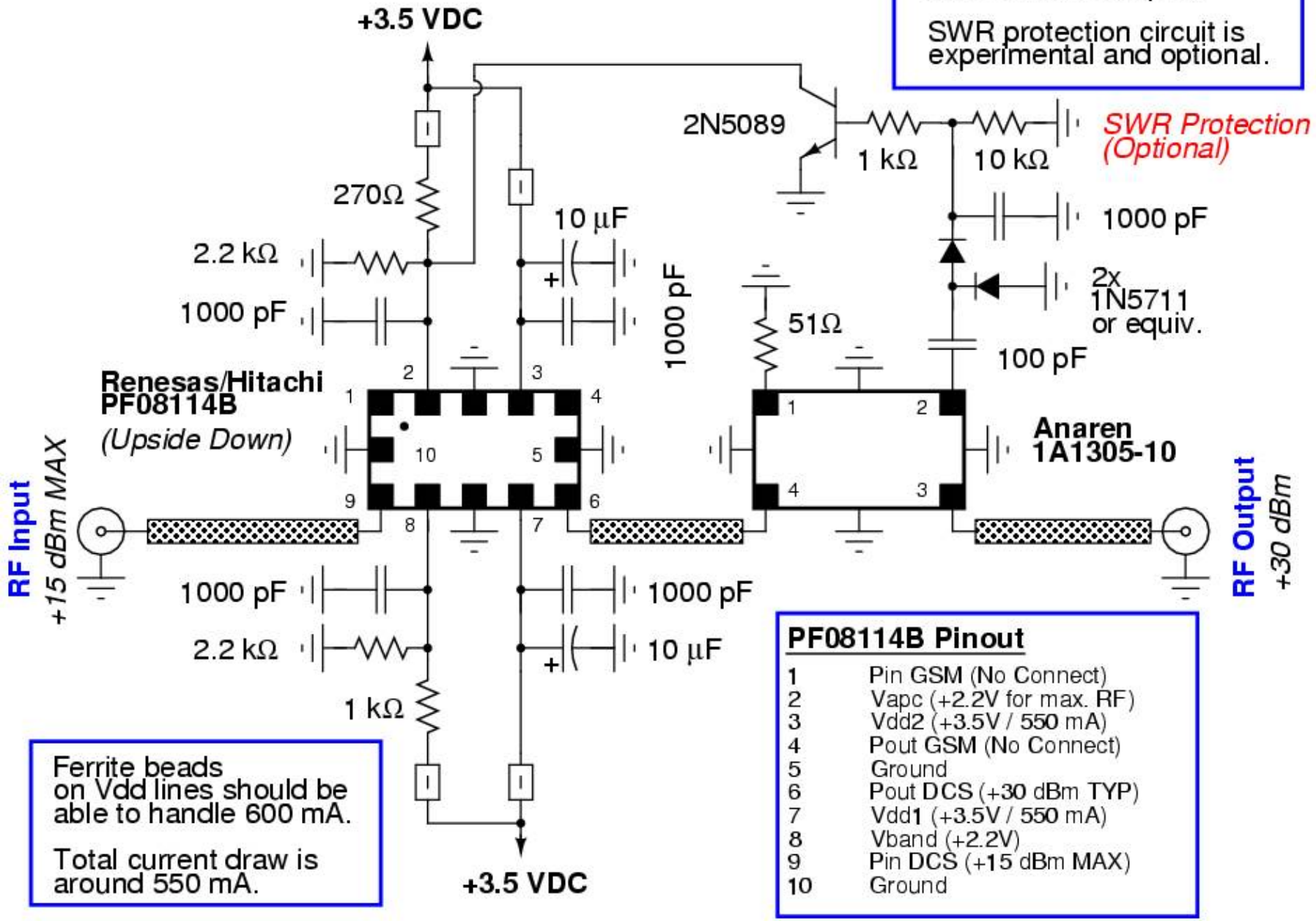
No oscillations or spurs were detected.



Completed case overview.

1 Watt RF Power Amplifier for 1.5 GHz

L1 GPS (1575.42 MHz)



PF08114B Pinout

1	Pin GSM (No Connect)
2	Vapc (+2.2V for max. RF)
3	Vdd2 (+3.5V / 550 mA)
4	Pout GSM (No Connect)
5	Ground
6	Pout DCS (+30 dBm TYP)
7	Vdd1 (+3.5V / 550 mA)
8	Vband (+2.2V)
9	Pin DCS (+15 dBm MAX)
10	Ground

Bonus

ATTENTION

PUBLIC SAFETY ANNOUNCEMENT

Tampering with Motorola's Communication Technology is Nothing Short of a Crime.

Motorola has been at the forefront of communications technology for more than 60 years. Today, we offer a greater array of communications products than ever before. We are proud of our products and the vital services they bring to our customers which are of unparalleled public importance.

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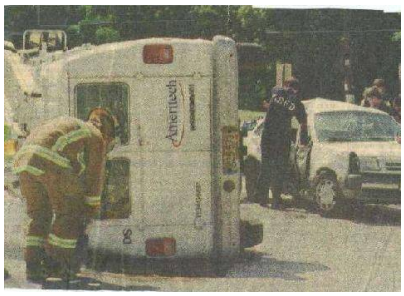
Found this in an old electronics magazine.

Translation: Motorola wants to force you to use their overpriced, proprietary hardware and software. Even after spending millions of *your* tax dollars on these radio systems, Motorola *still* wants to limit your programming access. When these systems breakdown due to engineering incompetence and protocol monopolies – they'll just blame "high–tech pirates."

End of Issue #108



Any Questions?

Editorial and Rants

(dailymail.co.uk/news/article–2294225)

Reason number 74,342,349,823,892,204,392 for the public to own a gun.

If you look closely, the idiot in the foreground has his EOTech XPS2 Holographic sight on *backwards* (you'll note the control pad is facing the barrel), and his rear iron sight appears to be flipped up and the stock fully collapsed. The idiot in the background is technically using the wrong stance for firing a shotgun – and they both are not wearing any eye protection!

These steroid–taking, Hollywood movie–watching, drugged–up, low–I.Q. government union thugs should really stick to TASERing old ladies, shooting dogs, and raping the public with outrageous pension plans...

These posters have been recently appearing on the streets of Belgrade, Serbia – and it's apparently riling the kikes up.

Remember that the two main perpetrators of that war, General Wesley Clark and Secretary of State Madeleine Albright, are both Jews.

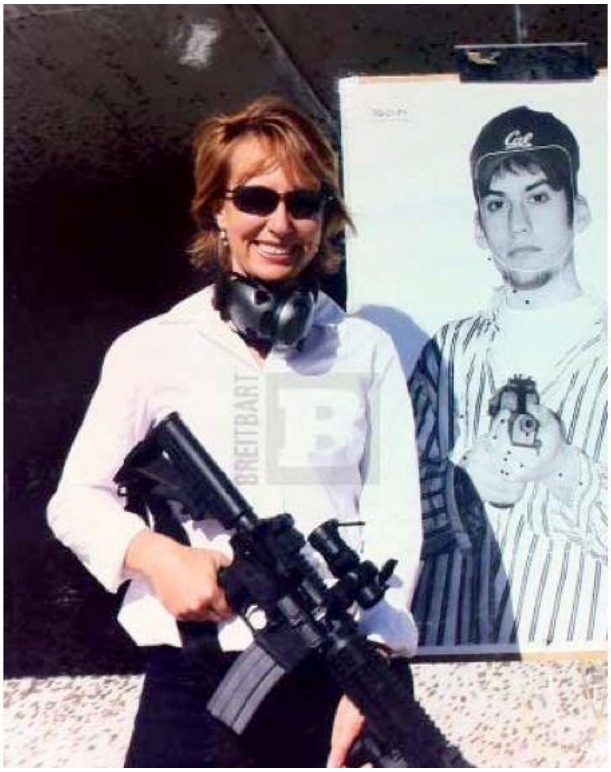
Just another pointless "globalist Jew banker" war against a White country wanting to keep their own European/Christian culture, heritage, and traditions.

The CIA–backed Albanian Muslims (and Chechens) would eventually flee to Afghanistan, and *well...* you know the rest of the story!

Oh, it gets even better... The "rebels" Obama is backing right now to overthrow Assad's Syria also support *al Qaeda!* Those rebels essentially want to create an Islamic state for Syria. Assad has stood up to these terrorists – and also to Israel's apartheid policies – so naturally Israel (and their lapdogs in the U.S. government) want Assad out of power.

Change!

They want this man and his family dead.

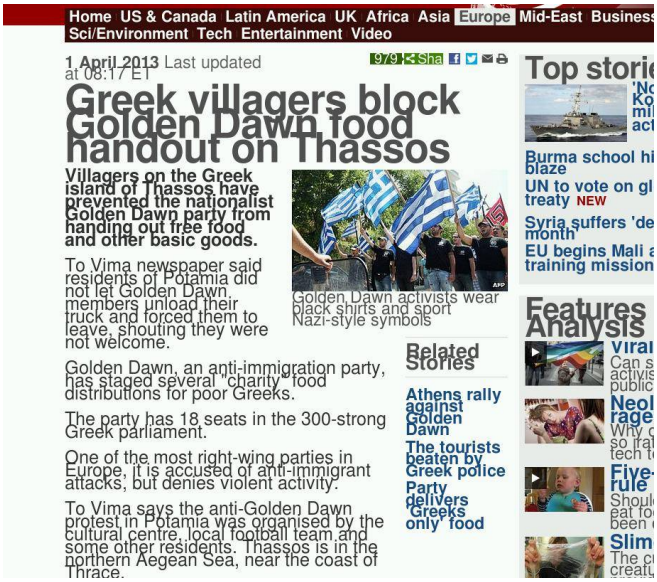


Guns for them. No guns for you.

Massive rally in Paris, France against gay marriage and gay adoptions. The liberal media outlets in the U.S. reported only "a few thousand" showed up, if they reported anything at all...

Media Propaganda at Work

What they want you to think:



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Sci/Environment Tech Entertainment Video

1 April 2013 Last updated at 08:17 ET

Greek villagers block Golden Dawn food handout on Thassos

Villagers on the Greek island of Thassos have prevented the nationalist Golden Dawn party from handing out free food and other basic goods.

To Vima newspaper said residents of Potamia did not let Golden Dawn members unload their truck and forced them to leave, shouting they were not welcome.

Golden Dawn activists wear black shirts and sport Nazi-style symbols

Golden Dawn, an anti-immigration party, has staged several "charity" food distributions for poor Greeks.

The party has 18 seats in the 300-strong Greek parliament.

One of the most right-wing parties in Europe, it is accused of anti-immigrant attacks, but denies violent activity.

To Vima says the anti-Golden Dawn protest in Potamia was organised by the cultural centre, local football team and some other residents. Thassos is in the northern Aegean Sea, near the coast of Thrace.

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(www.bbc.co.uk/news/world–europe–21993681)

What really happened:

The "anti–Golden Dawn" protestors actually made up just a small percentage of the overall group (you could literally count them on one hand). Golden Dawn provided over 100 families with over 100 pounds of fresh fish and 150 bags of pasta. The "antis" didn't hand out any food.

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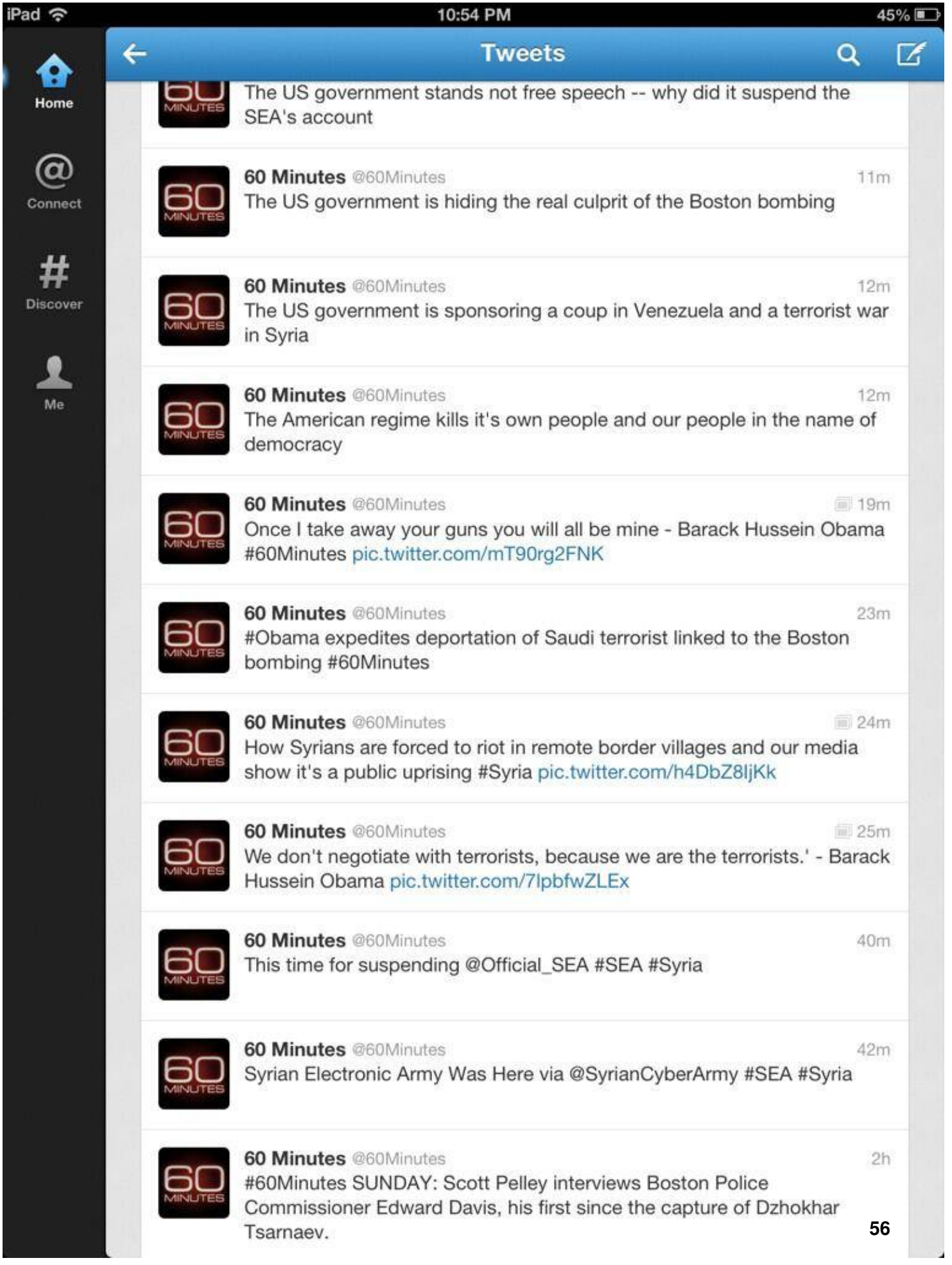
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