

COMBO STAR 'P1 & P2/a' Version SCHEMATICS

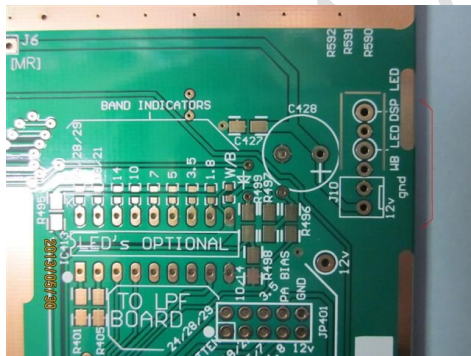
These schematics are based on the COMBO "C" version which in turn were derived from the original PICASTAR schematics by G3XJP, who designed PIC-A-STAR. See ['picaproject'](#)

Over the years that VK3PE became involved with this project, the original G3XJP schematics have been updated with all of the later updates and modifications and also incorporate modifications by MORJD. On the "Combo" versions, the original PIC based controller has also been replaced with the 'Trxavr' controller by G3VPX. Refer to G3VPX's web page for full details.

20W, 140W PA's and LPF designs are by G6ALU and G4TZR. Refer to <http://www.radio-kits.co.uk/> for full details of those boards.

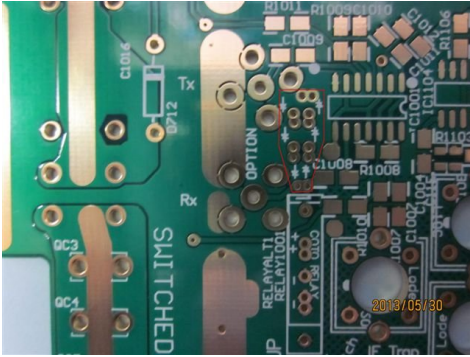
These updated schematics form the basis for the various version PCB's by VK3PE and in this document, specifically for the two PCB versions called 'Porta-STAR' in versions 'P1' and 'P2'. The later P2 variation corrected some minor errors on the P1 board. In all other respects, the P1 & P2 boards are identical. Both were available as group buys only, in 2013. **Please note:-** the schematic is not split into two parts to correspond to the actual PCB's. There may be some sheets that have components on both of the main boards.

On the P2 and P2a versions only, you might also notice a new, optional 6 pin 'connector' provision near the RH edge of the PCB to allow simpler connections to the front panel LED's and display, especially the TFT. {The P1 version has only a 2 pin 12v out connector here, J10} The additional pins are not shown in the schematics, (or BOM) but are labeled on the PCB.



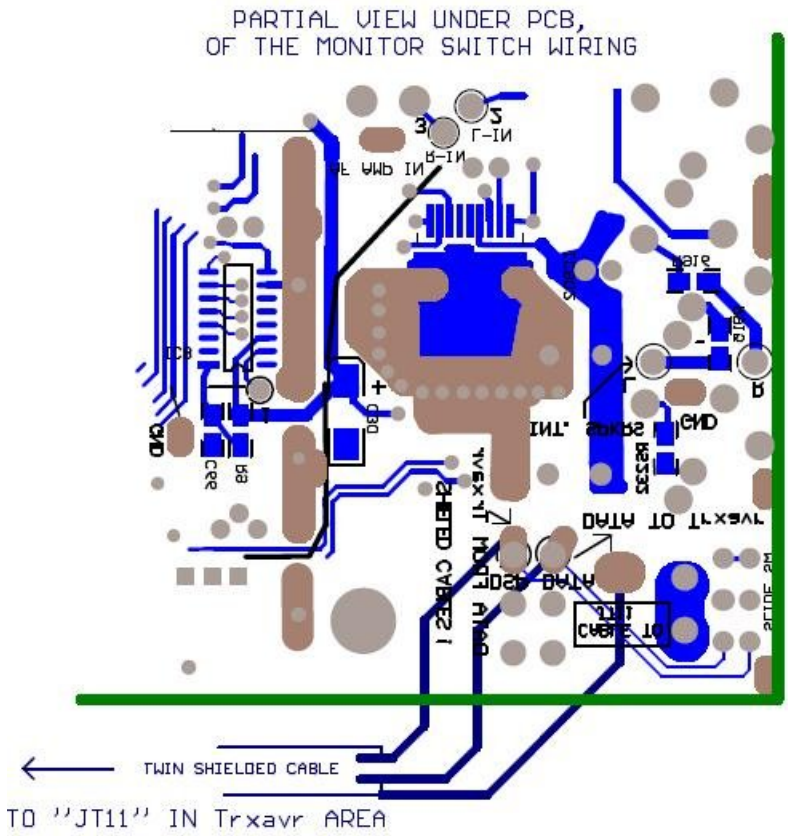
Band LED orientation:- P2 is correct as pictured. In the middle area of the picture here, the LEDs orientation symbol for the P1 version though, are incorrect, refer to the web page for details but should be as in this P2 picture above.

There is provision on the P2 & P2a PCB's for 3 series and back to back diodes (6 total) for protection of the Rx input against overload. This is not part of original PICASTAR and the diodes are not shown in the Schematics or BOM, just provision to fit them. (NOTE: on P1 they exist also but there is an error in the pads, only allowing 2 series diodes to be fitted easily.)



The diode area is circled on this picture in red. (just above the reed relay)

The picture below shows the twin shielded wire UNDER the PCB in the monitor switch area. The other end of this cable is connected to the JT11 connector on the other main PCB to the Trxavr control section. (in the cut out corner of the PCB)



Bottom View.

This document and schematics were created on 30th May, 2013

Builders should also refer to www.carnut.info for further build information on VK3PE versions.

Yahoo groups which are very helpful in this project.

You MUST be a member of the Yahoo™ ['picaproject'](#) Group for access to the latest files and software and to purchase these PCB's in the group buys. You need to join this group and digest all the information contained there, on the project and especially the set-up information.

It is also very helpful to be a member of the ['homebrew-radios'](#) and ['picastar users'](#) groups. Refer to those groups for information on joining.

If you wish to fit the colour display, there is a ['TFTA_central'](#) Yahoo group also.

The following pages are the Schematics for the P1 & P2/a PCB's.

The schematics for the PA and LPF sections are found on G6ALU's web pages.

For the TFT display, see the Yahoo group, listed above. The TFT display PCB is NOT supplied by VK3PE, Please inquire of VK3CG.

<Originally drawn by VK3PE, June, 2013>

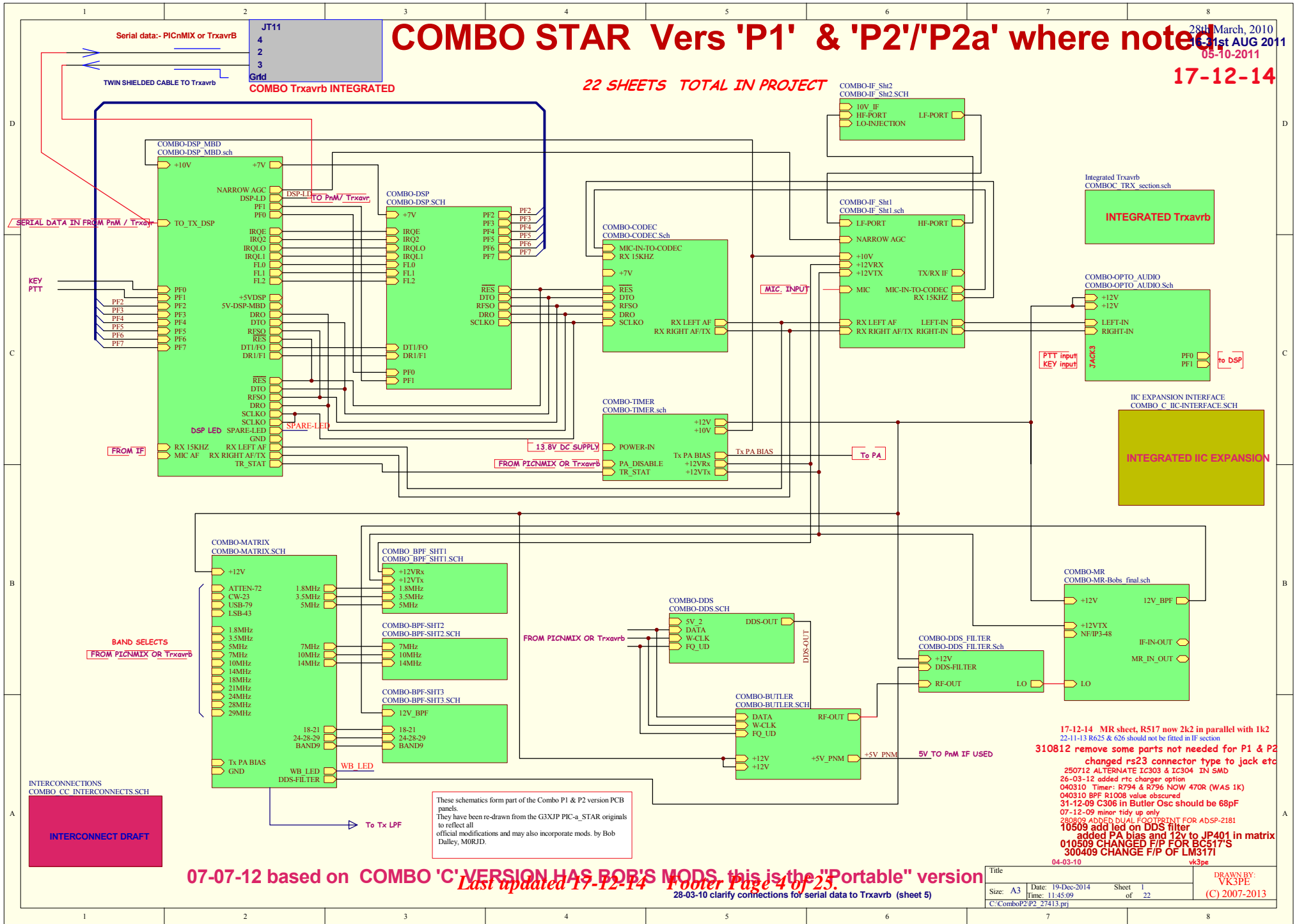
COMBO STAR Vers 'P1' & 'P2'/'P2a' where noted

28th March, 2010
1st AUG 2011
05-10-2011

17-12-14

22 SHEETS TOTAL IN PROJECT

COMBO Trxavrb INTEGRATED



These schematics form part of the Combo P1 & P2 version PCB panels. They have been re-drawn from the G3XIP PIC-a_STAR originals to reflect all official modifications and may also incorporate mods. by Bob Dalley, M0RJD.

- 17-12-14 MR sheet, RS17 now 2k2 in parallel with 1k2
- 22-11-13 R625 & 626 should not be fitted in IF section
- 310812 remove some parts not needed for P1 & P2
- changed rs23 connector type to jack etc
- 250712 ALTERNATE IC303 & IC304 1N SMD
- 26-03-12 added rtc charger option
- 040310 Timer: R794 & R796 NOW 470R (WAS 1K)
- 040310 BPF R1008 value obscured
- 31-12-09 C306 in Butler Osc should be 68pF
- 07-12-09 minor tidy up only
- 280809 ADDED DUAL FOOTPRINT FOR ADSP-2181
- 10509 add led on DDS filter
- added PA bias and 12v to JP401 in matrix
- 010509 CHANGED F/P FOR BC517'S
- 300409 CHANGE F/P OF LM317

07-07-12 based on COMBO 'C' VERSION HAS BOB'S MODS, this is the "Portable" version
Last updated 17-12-14 Footer Page 4 of 25.

28-03-10 clarify connections for serial data to Trxavrb (sheet 5)

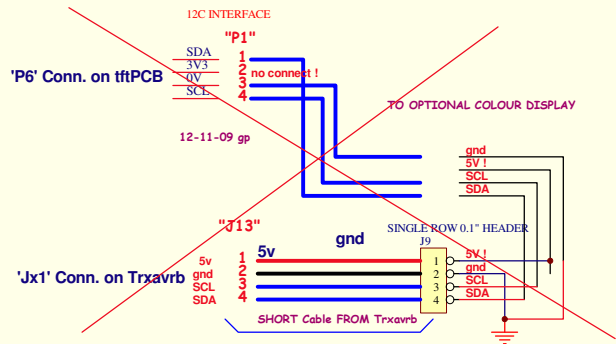
Title	C:\ComboP2\P2_27413.prj		
Size: A3	Date: 19-Dec-2014	Sheet 1	of 22
Time: 11:45:09			
DRAWN BY: VK3PE		(C) 2007-2013	

THIS SHEET WILL SHOW THE INTERCONNECTIONS FROM MAIN PCB

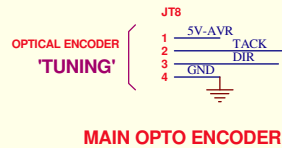
COMBO STAR Vers 'P1' & 'P2'

02-08-2011

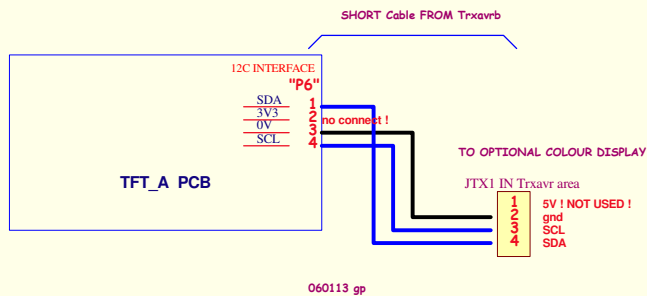
TFT_A



TUNING ENCODER



Trxavrb (COMBO) TO COLOUR (TFT) DISPLAY



OPTIONAL:- I2C - 16 OUTPUT RELAY DRIVER

FOR TrxAVR - PICASTAR Project

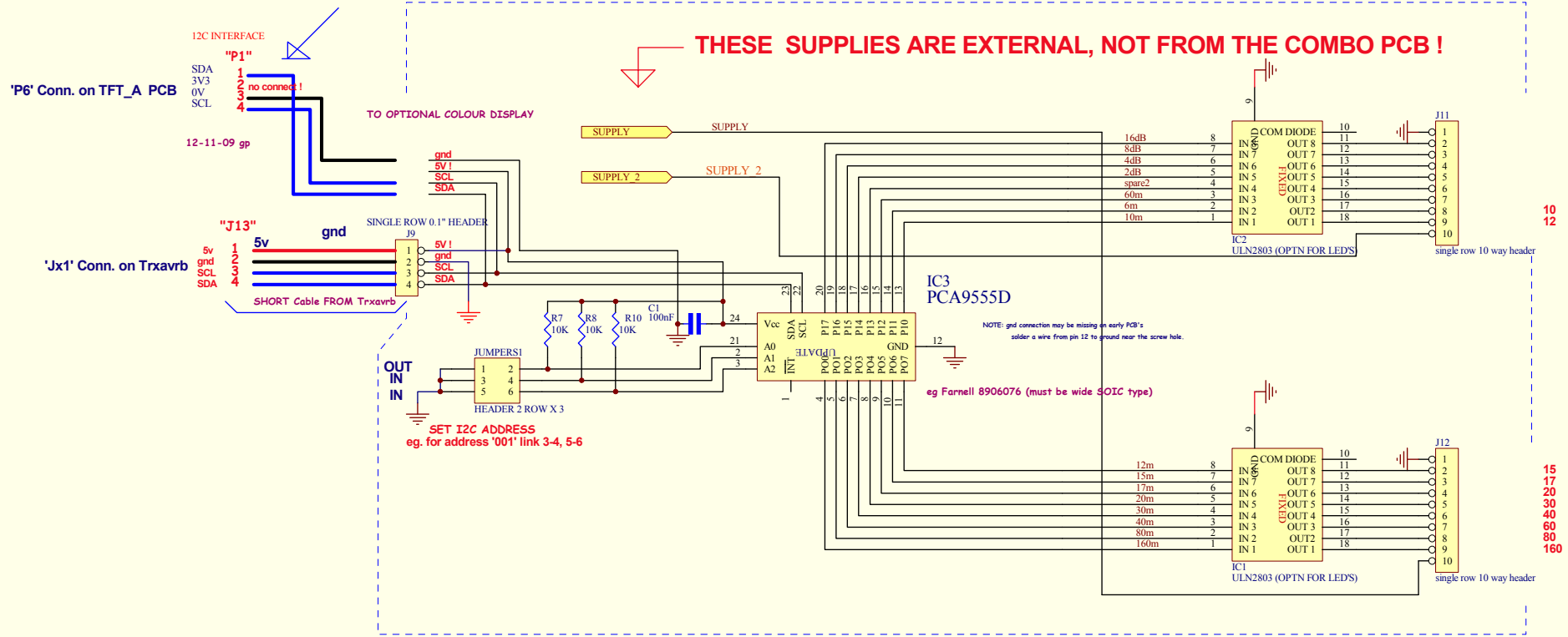
Original is by Ian Sumner G3VPX, Sept, 2009

COMBO STAR Vers 'P1' & 'P2'

This drawing also shows the connections to a colour display (tftpcb) if I2C interface PCB is used. (TFT_A)

NOTE wiring is NOT 1:1 and pin 2 of P6 must NOT be connected

THESE SUPPLIES ARE EXTERNAL, NOT FROM THE COMBO PCB !

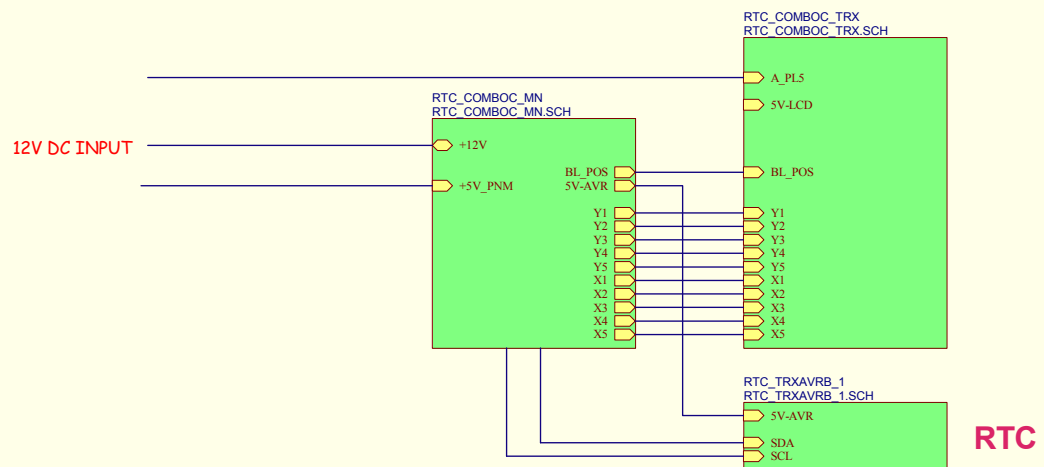


16-08-11 USED NOW ON COMBO 'C' VERSION PANEL

Last updated 17-12-14 Footer Page 6 of 25.

Title		DRAWN BY: VK3PE	
Size: A3	Date: 7-Jun-2013	Sheet 3	(C) 2007-2013
Time: 09:51:50		of 22	
C:\ComboP2\COMBO 'C' IIC-INTERFACE.SCH			

COMBO STAR Vers 'P1' & 'P2'



NOTE Points K2 AND KTA A RE MISSING FROM SCH AND PCB

Last updated 17-12-14 Footer Page 7 of 25.

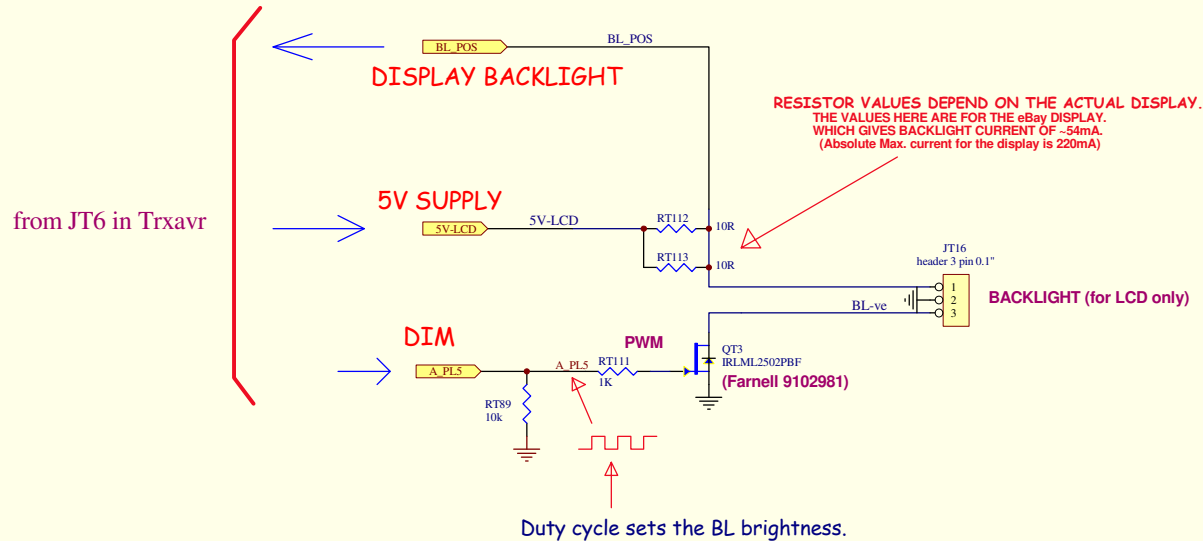
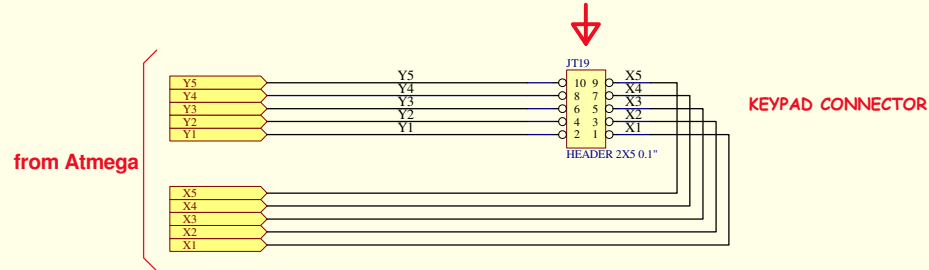
280909 ORIGINAL

Title		DRAWN BY: VK3PE	
Size: A3	Date: 7-Jun-2013	Sheet 4	(C) 2007-2013
C:\ComboP2\COMBOC_TRX_section.sch		of 22	

COMBO STAR Vers 'P1' & 'P2'

05-09-2011

THIS CONNECTOR TAKES A 10 WAY RIBBON CABLE WHICH CONNECTS TO THE KEYPAD and other switches.



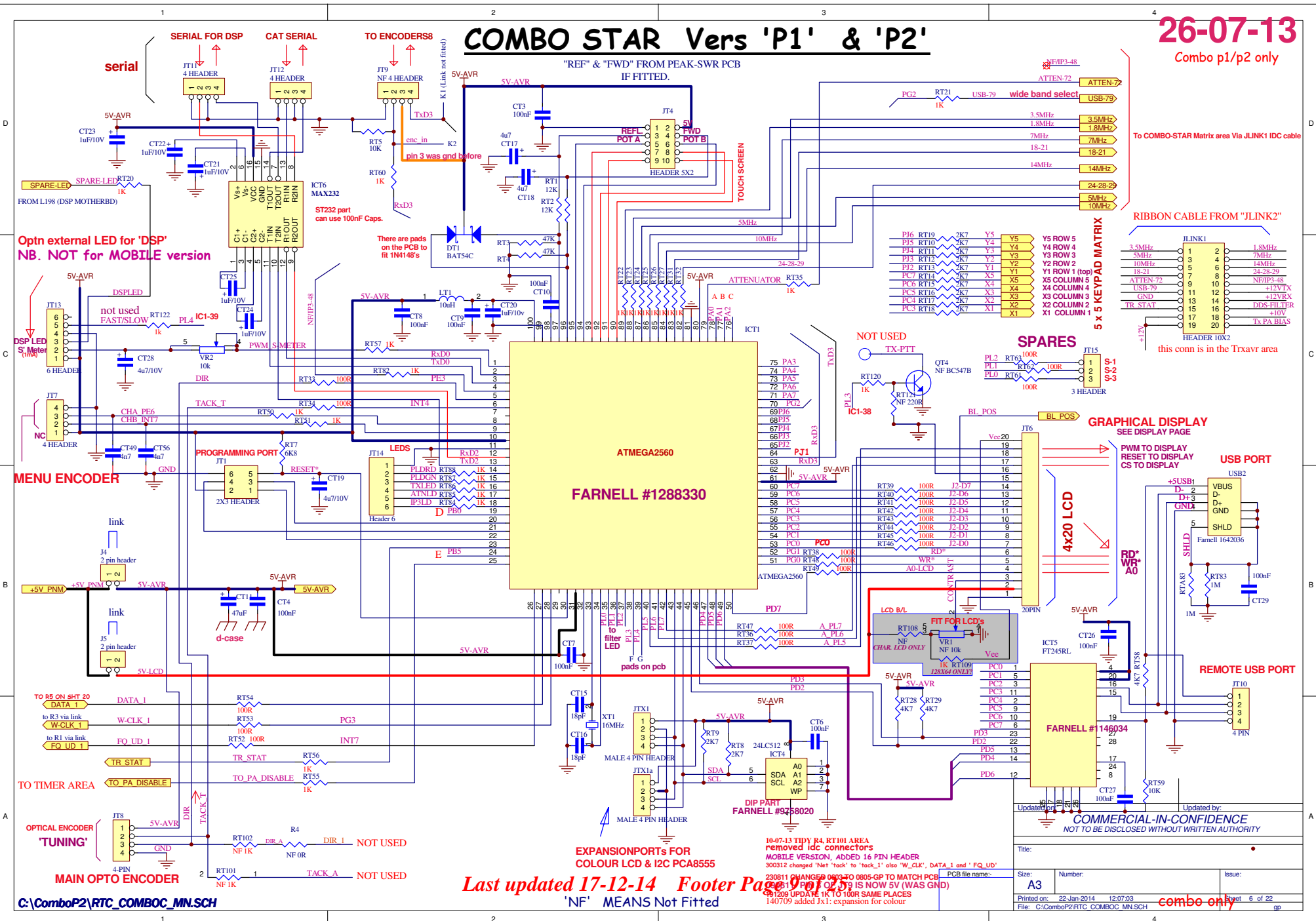
Last updated 17-12-14 'NF' MEANS Not Fitted Footer Page 8 of 25.

Title		DRAWN BY: VK3PE	
Size: A3	Date: 5-Jan-2014	Sheet 5	(C) 2007-2013
C:\ComboP2\RTC_COMBOC_TRX.SCH		of 22	

COMBO STAR Vers 'P1' & 'P2'

26-07-13

Combo p1/p2 only



Optn external LED for 'DSP'
NB. NOT for MOBILE version

MENU ENCODER

OPTICAL ENCODER
'TUNING'

"REF" & "FWD" FROM PEAK-SWR PCB
IF FITTED.

ATMEGA2560
FARNELL #1288330

EXPANSION PORTS FOR
COLOUR LCD & I2C PCA8555

Last updated 17-12-14 Footer Page 1 of 3
'NF' MEANS Not Fitted

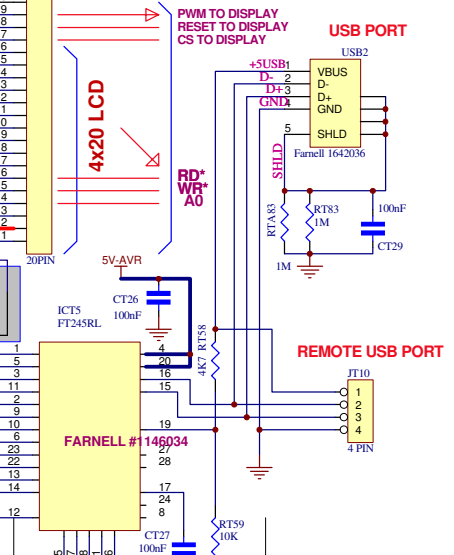
5 x 5 KEYPAD MATRIX

PI6 RT19	2K7	Y5	Y5 ROW 5
PI5 RT10	2K7	Y4	Y4 ROW 4
PI4 RT11	2K7	Y3	Y3 ROW 3
PI3 RT12	2K7	Y2	Y2 ROW 2
PI2 RT13	2K7	Y1	Y1 ROW 1 (top)
PC7 RT14	2K7	X5	X5 COLUMN 5
PC6 RT15	2K7	X4	X4 COLUMN 4
PC5 RT16	2K7	X3	X3 COLUMN 3
PC4 RT17	2K7	X2	X2 COLUMN 2
PC3 RT18	2K7	X1	X1 COLUMN 1

RIBBON CABLE FROM "JLINK2"

3.5MHz	1	2	1.8MHz
5MHz	3	4	7MHz
10MHz	5	6	14MHz
18-21	7	8	24-28-29
ATTEN-72	9	10	NF/PP-48
USB-79	11	12	+12V TX
GND	13	14	+12VEX
TR STAT	15	16	DDS-FILTER
	17	18	+10V
	19	20	Tx PA BIAS

HEADER 10x2
this conn is in the Trxavr area



COMMERCIAL-IN-CONFIDENCE
NOT TO BE DISCLOSED WITHOUT WRITTEN AUTHORITY

Title:	
Size:	A3
Number:	
Issue:	
Printed on:	22-Jan-2014 12:07:03
File:	C:\ComboP2\RTC_COMBOC_MN.SCH
Page:	6 of 22

Updated by:

COMBO STAR Vers 'P1' & 'P2'

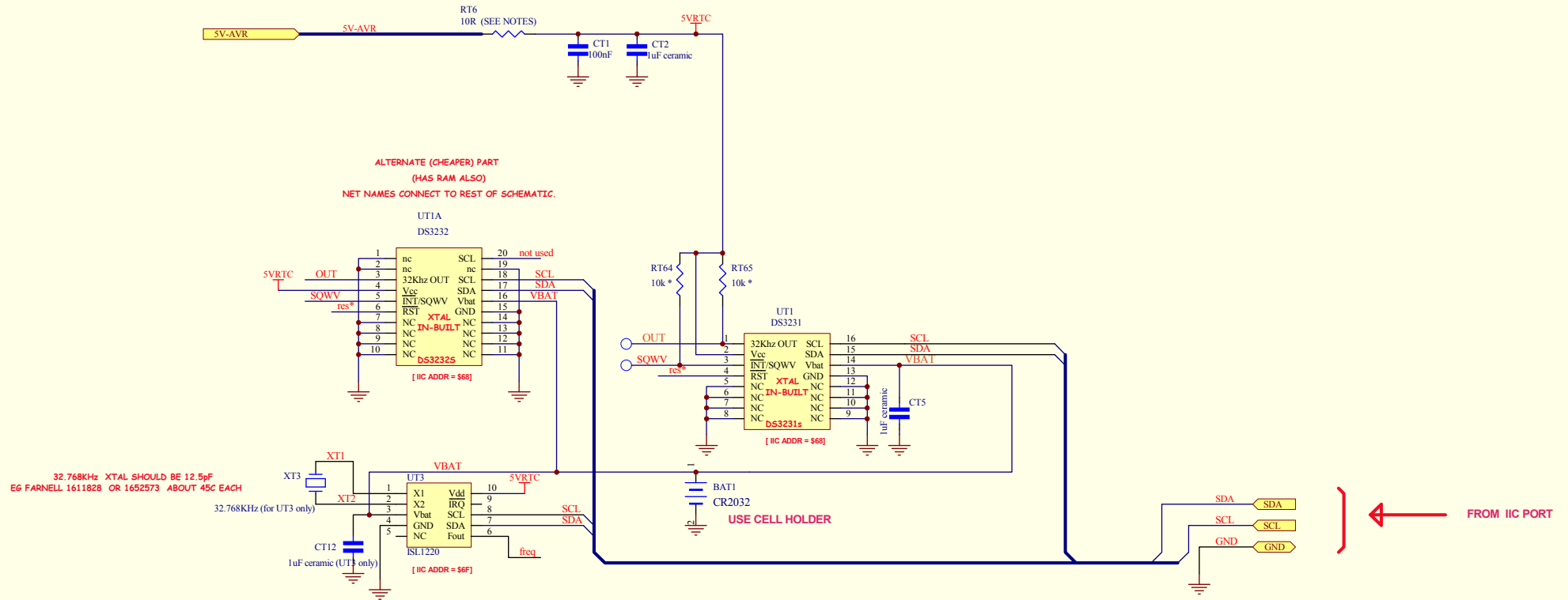
02-08-2011

DS3231 or DS3232 OR ISL1220 REAL TIME CLOCK FOR Trxavr / TftA

30-07-11 now integrated onto main pcb

CHOOSE ONE RTC TYPE ONLY !

USE 5V FROM TRXAVRB SECTION !



'ROCKBY' REFERS TO www.rockby.com.au
 'JAYCAR' is www.jaycar.com.au
 FARNELL is www.farnell.com

Last updated 17-12-14 Footer Page 10 of 25.

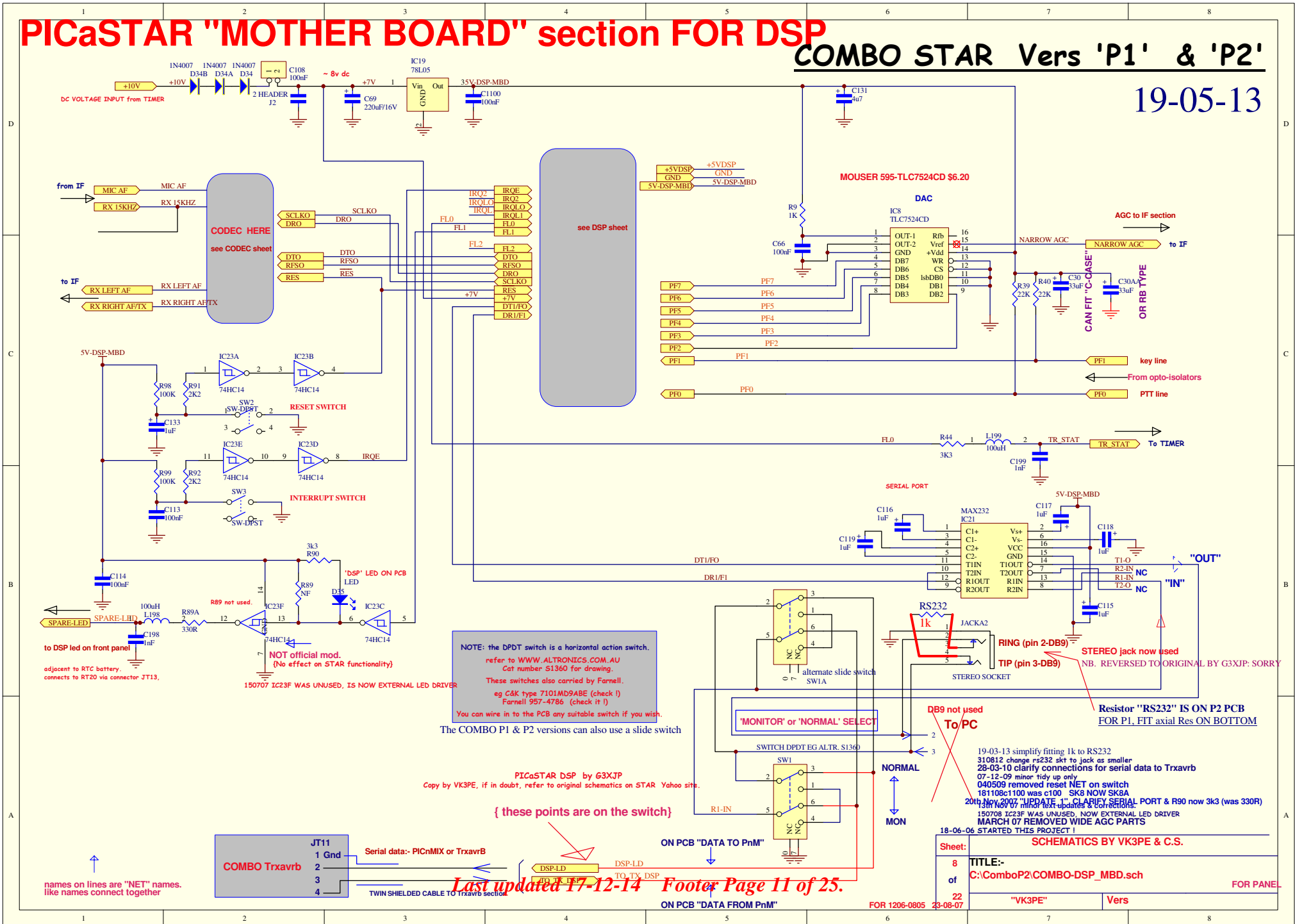
vk3pe Jan 19th, 2011

Title		DRAWN BY: VK3PE	
Size: A3	Date: 7-Jun-2013	Sheet 7	(C) 2007-2013
C:\ComboP2\RTC TRXAVRB 1.SCH		of 22	

PICaSTAR "MOTHER BOARD" section FOR DSP

COMBO STAR Vers 'P1' & 'P2'

19-05-13



NOTE: the DPDT switch is a horizontal action switch, refer to WWW.ALTRONICS.COM.AU Cat number S1360 for drawing. These switches also carried by Farnell, eg C&K type 7101MB9ABE (check I) Farnell 957-4786 (check it I). You can wire in to the PCB any suitable switch if you wish.

PICaSTAR DSP by G3XJP
Copy by VK3PE, if in doubt, refer to original schematics on STAR Yahoo site.

{ these points are on the switch }

19-03-13 simplify fitting 1k to RS232.
310812 change rs232 skt to jack as smaller
28-03-10 clarify connections for serial data to Txrxvrb
07-12-09 minor tidy up only
040509 removed reset NET on switch
181110061100 was c100 SKG NOW SKGA
20th Nov 2007 "UPDATE 1" CLARIFY SERIAL PORT & R90 now 3k3 (was 330R)
13th Nov 07 minor text updates & corrections.
150708 1223F WAS UNUSED, NOW EXTERNAL LED DRIVER
MARCH 07 REMOVED WIDE AGC PARTS
18-06-06 STARTED THIS PROJECT!

Sheet:	SCHEMATICS BY VK3PE & C.S.	
8	TITLE:-	
of	C:\ComboP2\COMBO-DSP_MBD.sch	
22	"VK3PE"	Vers
FOR 1206-0805 23-08-07	FOR PANEL	

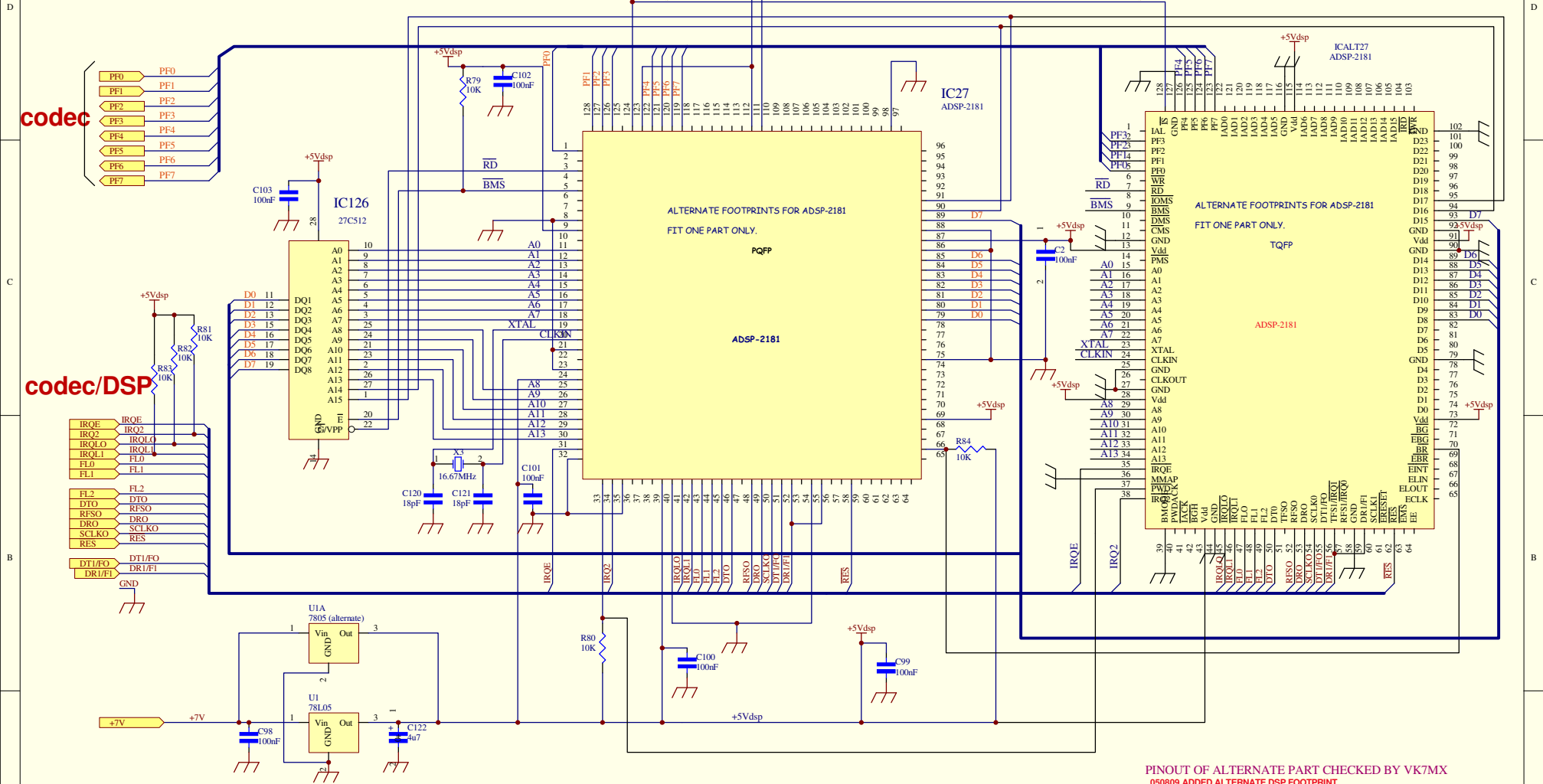
Last updated 17-12-14 Footer Page 11 of 25.

names on lines are "NET" names. like names connect together

original build Vers 1.0 POWERED UP 17-07-06 !
 MOTHER BOARD AND DSP ONLY
 LED FLASHES !!!
 DRAWS ABOUT 112mA
 PRESS RESET, DRAWS ABOUT 33mA

COMBO STAR Vers 'P1' & 'P2' 10-05-13

prefix 100



PINOUT OF ALTERNATE PART CHECKED BY VK7MX
 050809 ADDED ALTERNATE DSP FOOTPRINT
 14-01-09
 181108 IC26 NOW IC126
 16-11-08 added alternate U1 device (7805)
 19-08-07 changed to dual 1206-0805 footprints
 230207 VER 2 UPDATES AFTER PROTO BUILD
 220606 drawn.

DSP section for PICaSTAR
 Copy by VK3PE, for Master, refer to original schematic on STABIE Yahoo site Page 12 of 25.
 Last update 17-12-14

Sheet:	SCHEMATICS BY VK3PE & C.S.	
9	TITLE:-	
of	C:\Combd\P2\COMBO-DSP.SCH	
22	"VK3PE"	Vers

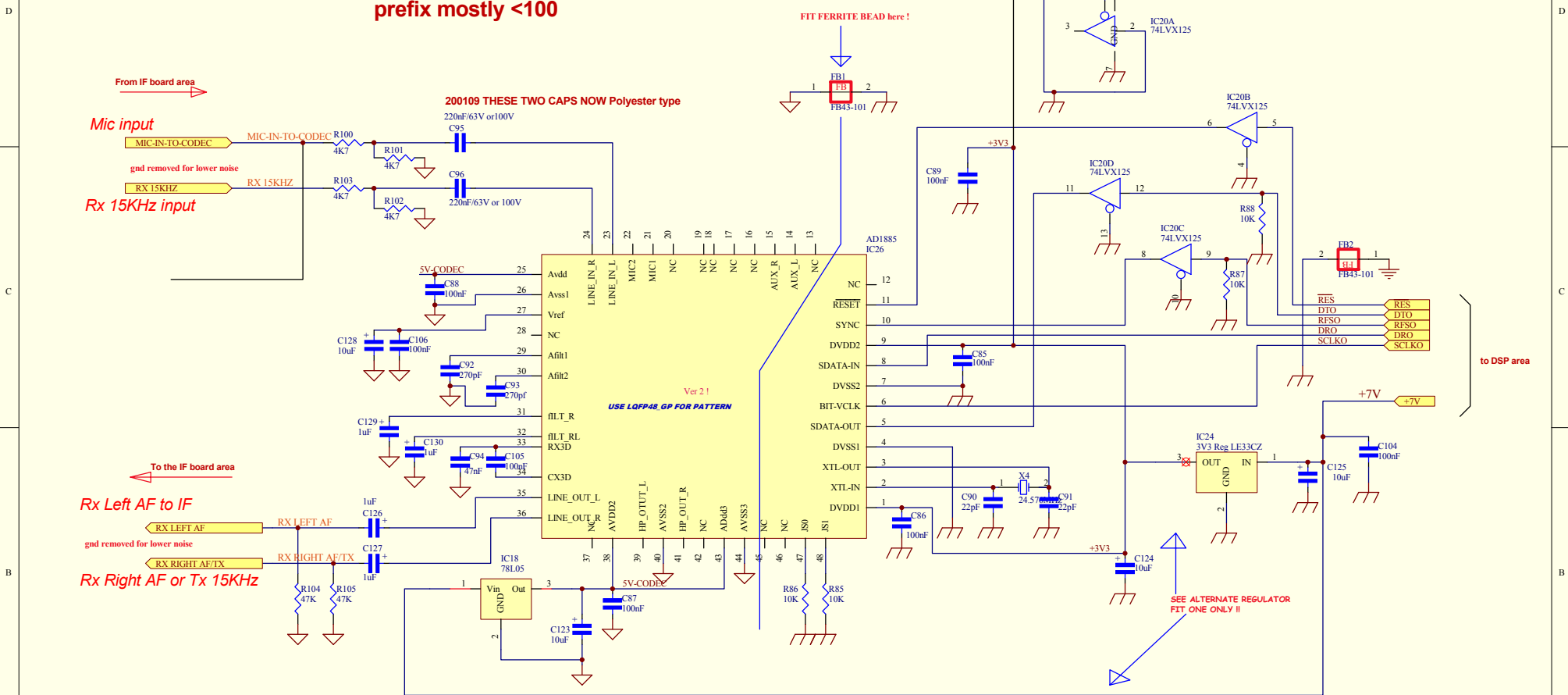
PICaSTAR CODEC section

COMBO STAR Vers 'P1' & 'P2'

12-11-09
10-05-13

ORIGINAL SCHEMATIC BY G3XJP
THIS VERSION BY VK3PE & C.S.

prefix mostly <100



From IF board area

Mic input

gnd removed for lower noise

Rx 15KHz input

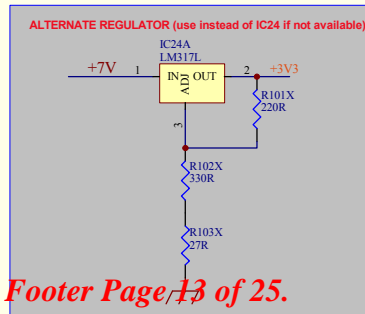
To the IF board area

Rx Left AF to IF

gnd removed for lower noise

Rx Right AF or Tx 15KHz

PLEASE DOUBLE CHECK VOLTAGES TO CODEC BEFORE
FITTING THE CHIP !!

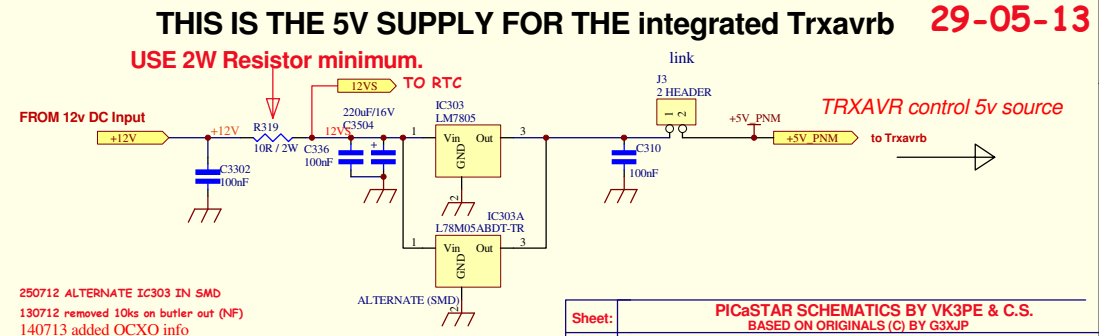
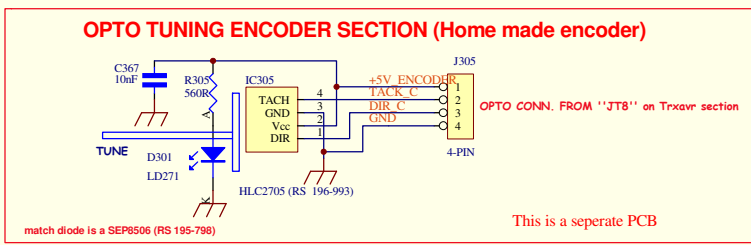
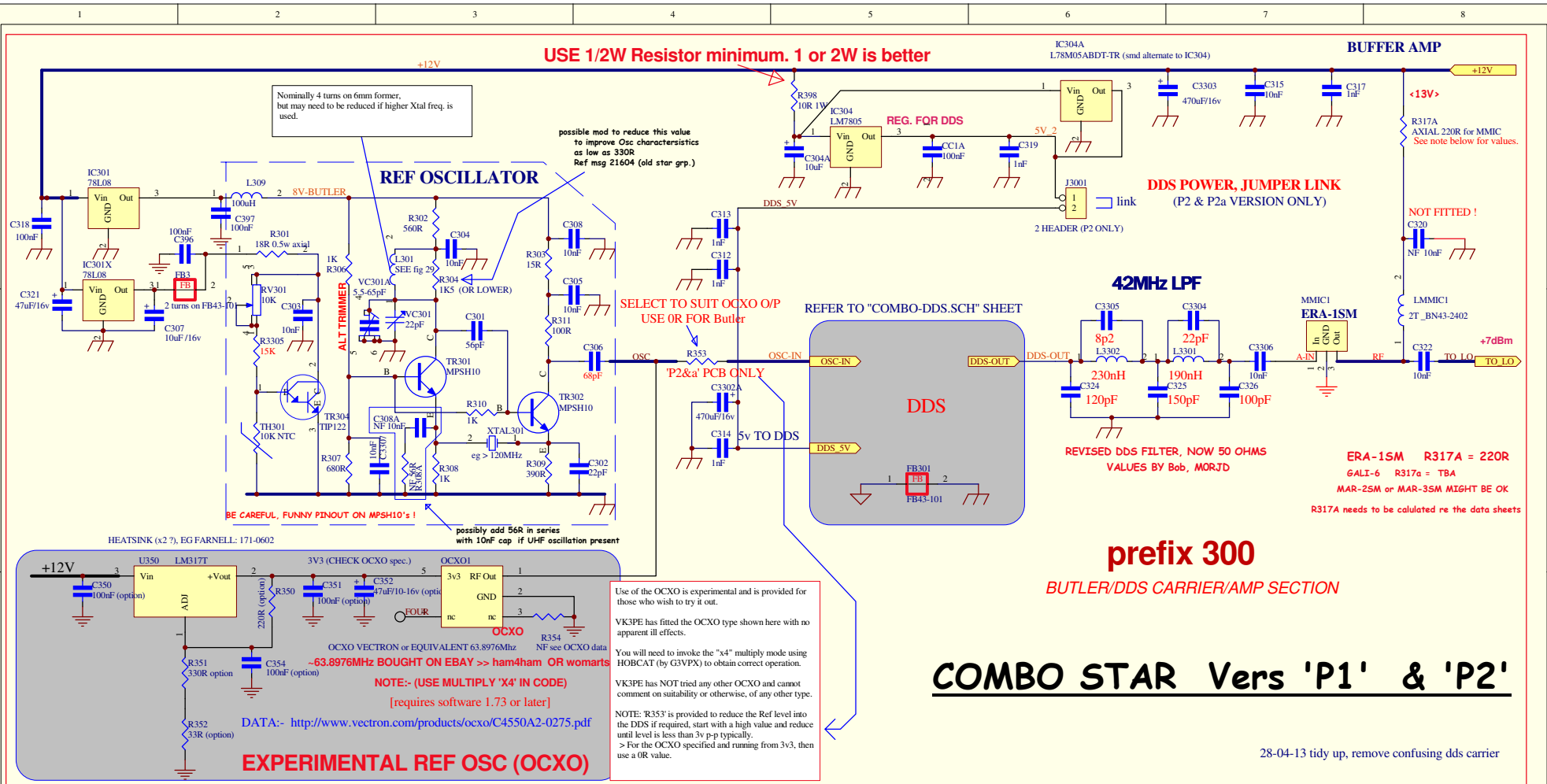


- 20-01-09 change 2 caps to poly at input
- 04-02-08 Vers "B":- fix LM317 and AD1885 footprints
- Update_1 31-10-07 IC24A PINOUT IS WRONG
- 290907 UPDATED TEXT ETC
- 040807 changed C123 to axial type cap AND added alternate 3v3 reg

Schematic by VK3PE but please also refer to original by G3XJP on Yahoo STAR site

Last updated 17-12-14 Footer Page 13 of 25.

Title	DRAWN BY: VK3PE		
Size: A3	Date: 10-Jun-2013	Sheet 10	(C) 2007-2013
	Time: 13:36:49	of 22	
C:\ComboP2\COMBO-CODEC.Sch			



250712 ALTERNATE IC303 IN SMD
 130712 removed 10ks on butler out (NF)
 140713 added OCXO info
 260312 ADD '12VS' FOR RTC
 14-01-09 update 26-11-11
 31-10-07 C2 IS ON DISPLAY PCB

Sheet:	PICASTAR SCHEMATICS BY VK3PE & C.S. BASED ON ORIGINALS (C) BY G3XJP	
11 of 22	TITLE:- C:\ComboP2\COMBO-BUTLER.SCH	
	For Oct 2007 "VK3PE PCBs"	Vers A

BUTLER OSC, DDS CARRIER AND AMP

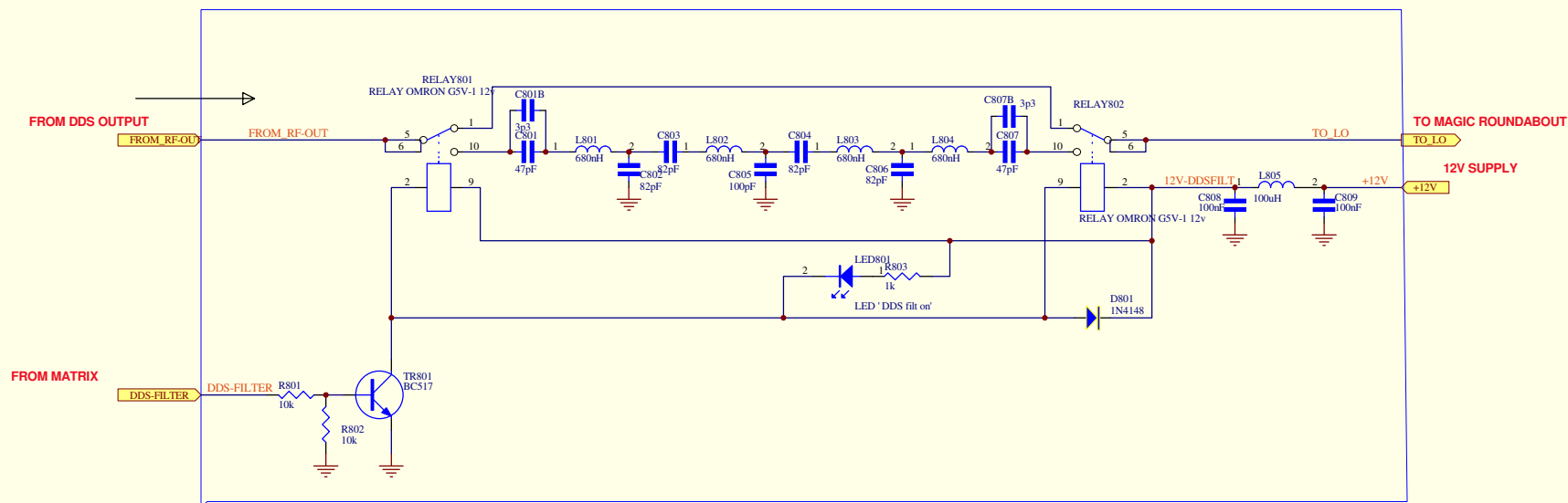
Last updated 17th Feb 2014. Footer Page 14 of 25.

PICaSTAR DDS FILTER SECTION

10-05-13

COMBO STAR Vers 'P1' & 'P2'

for combo, prefix with 800



SHOULD GIVE:

AT LEAST 30dB ATTEN OF IF FREQ
AND A SIMILAR FIGURE AT 50MHz AND RISING

(Ref Part 14 of documents for PICaSTAR)

ie. pass about 25 - 40MHz

16-08-11 altered bias in to the transistor
010509 add led on filter
010509CHANGED F/P FOR BC517'S
14-01-09
15-12-08 UPDATED FOR COMBO USE
#994 9585 OMRON G5V-1 RELAY FROM FARNELL
also Altronics (Aus) S4113

01-10-09
SEPT 2007 VK3PE * C.S.

Original schematic is by G3XJP, this version by VK3PE & C.S.

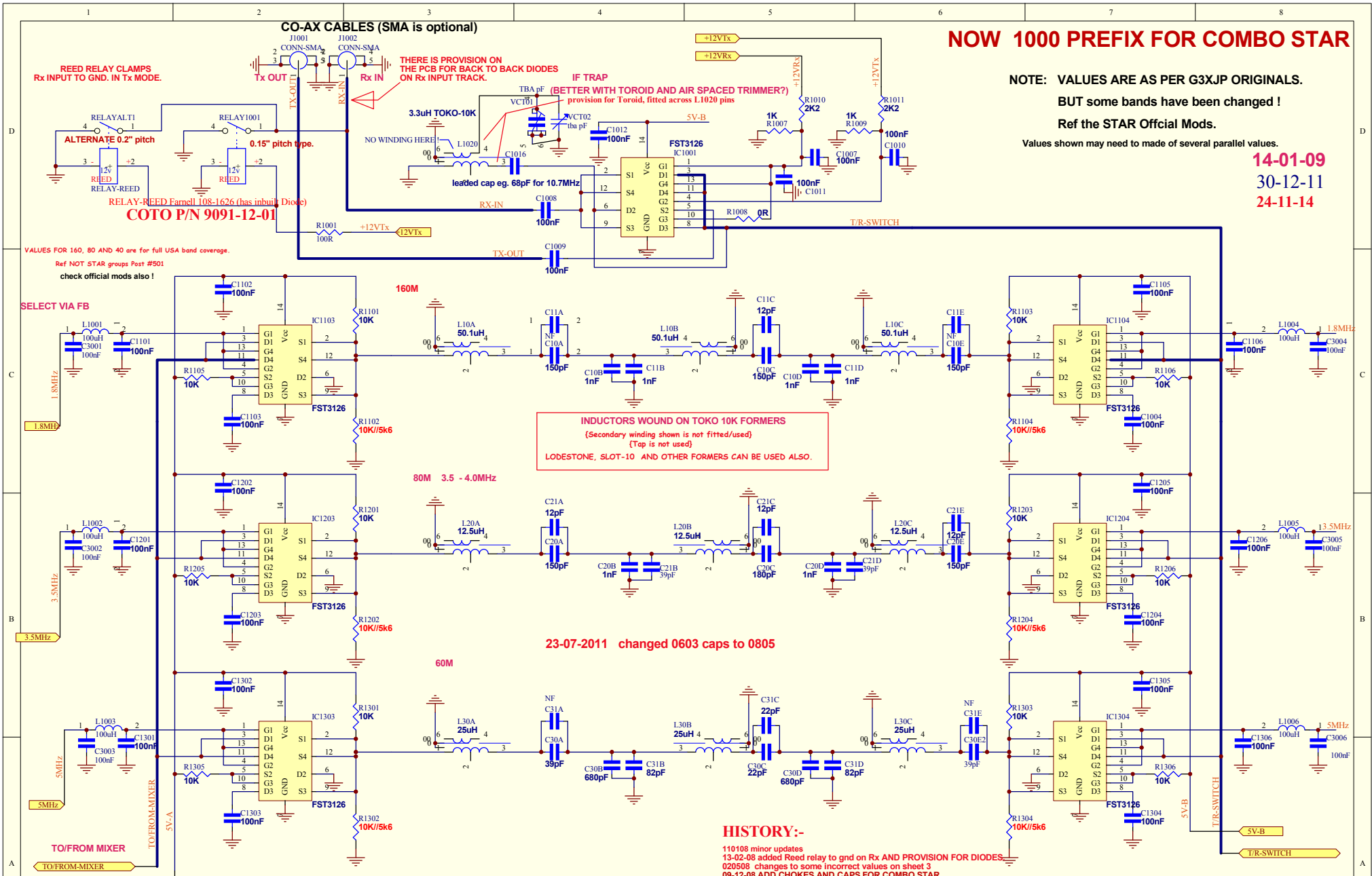
Last updated 17-12-14 Footer Page 15 of 25.

Title		DRAWN BY: VK3PE	
Size: A3	Date: 5-Jan-2014	Sheet 12	of 22
C:\ComboP2\COMBO-DDS_FILTER.Sch		(C) 2007-2013	

NOW 1000 PREFIX FOR COMBO STAR

**NOTE: VALUES ARE AS PER G3XJP ORIGINALS.
BUT some bands have been changed !
Ref the STAR Official Mods.**

14-01-09
30-12-11
24-11-14



PICASTAR BPF SECTION, sheet 1 of 3

COMBO STAR Vers 'P1' & 'P2' 'P2a'

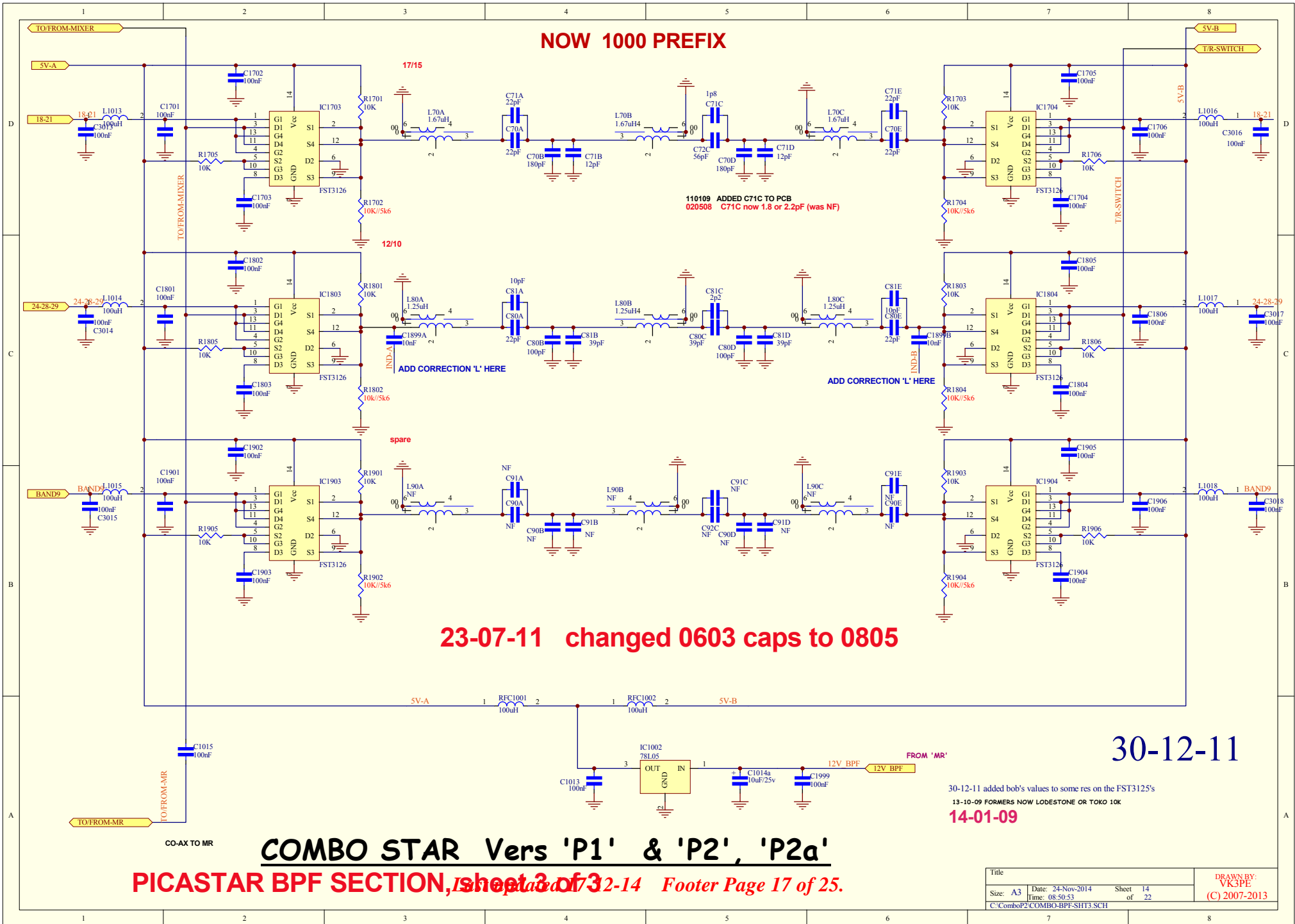
Last updated 17/11/14

HISTORY:-
110108 minor updates
13-02-08 added Reed relay to gnd on Rx AND PROVISION FOR DIODES.
020508 changes to some incorrect values on sheet 3
09-12-08 ADD CHOKES AND CAPS FOR COMBO STAR
AND ALTERNATE PITCH REED RELAY
13-10-09 FORMERS NOW LODESTONE OR TOKO 10K
07-12-09 'IND1' NOW 100uH ON 3 BPF SHEETS
040310 R1008 value obscured
30-12-11 added bob's values to some res on the FST3125's (in RED)
24-11-14 changed Coto relay to...

ref msg # 26404 for Toko10k turns ?

Title	Date: 24-Nov-2014			Sheet 13	DRAWN BY: VK3PE (C) 2007-2013
Size: A3	Time: 08:50:24		of 22		
C:\ComboP2\COMBO_BPF_SHT1.SCH					

NOW 1000 PREFIX



23-07-11 changed 0603 caps to 0805

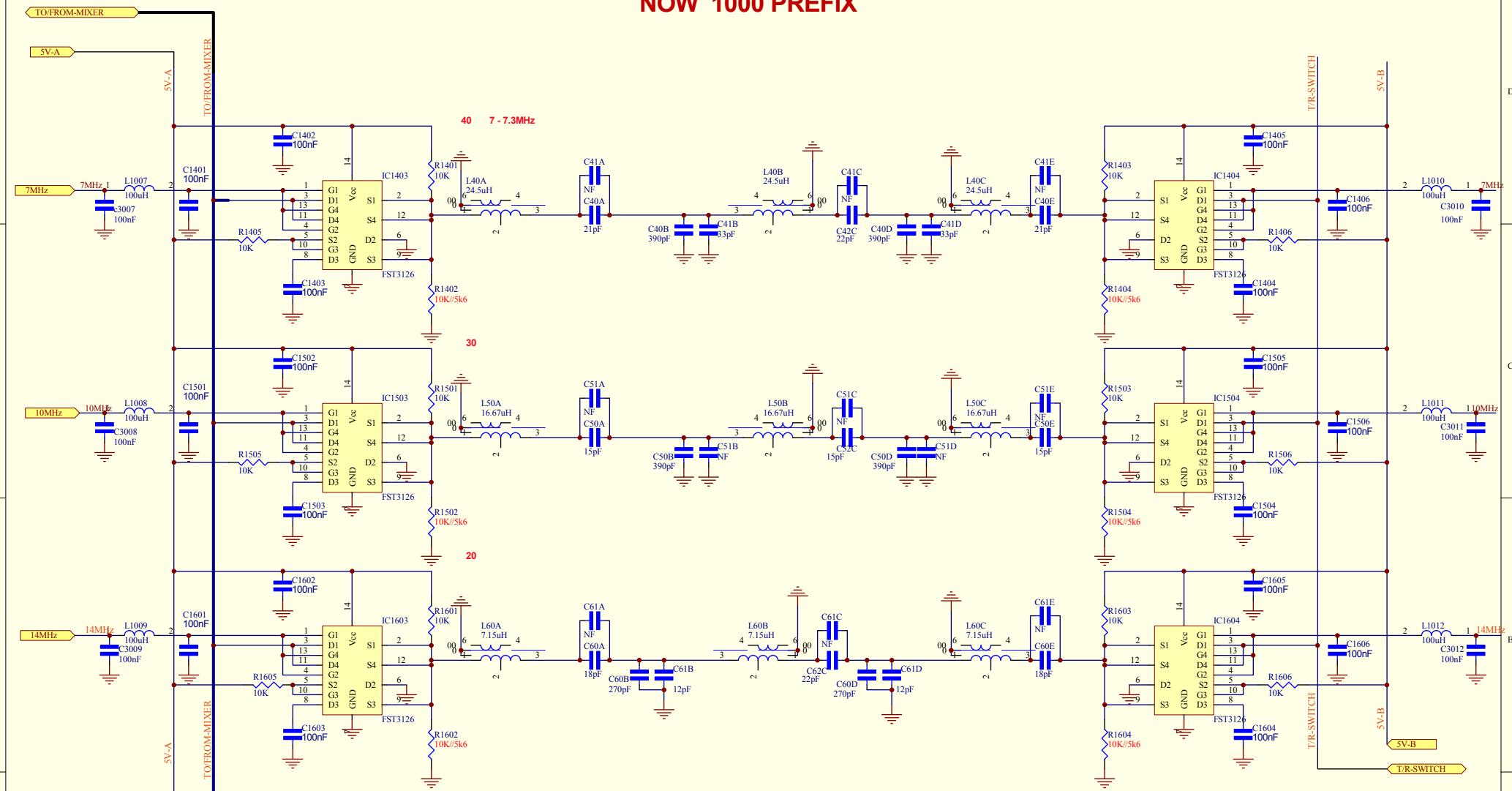
30-12-11

30-12-11 added bob's values to some res on the FST3125's
13-10-09 FORMERS NOW LODESTONE OR TOKO 10K
14-01-09

COMBO STAR Vers 'P1' & 'P2', 'P2a'
PICASTAR BPF SECTION, sheet 3 of 3

Title	Date: 24-Nov-2014		Sheet 14	DRAWN BY: VK3PE (C) 2007-2013
Size: A3	Time: 08:50:53		of 22	
C:\ComboP2\COMBO-BPF-SHT3.SCH				

NOW 1000 PREFIX



30-12-11

COMBO STAR Vers 'P1' & 'P2'

30-12-11 added bob's values to some res on the FST3125's
13-10-09 FORMERS NOW LODSTONE OR TOKO 10K
23-7-11 changed 0603 caps to 0805-s
14-01-09

PICASTAR BPF SECTION, sheet 2 of 3
Last updated 17-12-14 Footer Page 18 of 25.

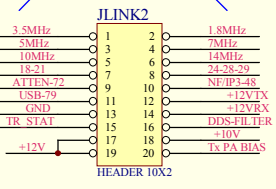
Title		DRAWN BY: VK3PE	
Size: A3	Date: 7-Jun-2013	Sheet 15 of 22	(C) 2007-2013
C:\ComboP2\COMBO-BPF-SHT2.SCH			

10-05-13

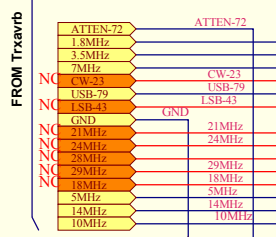
STAR DIODE MATRIX

COMBO STAR Vers 'P1' & 'P2'

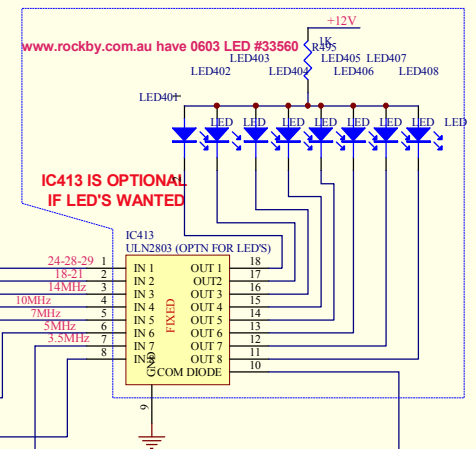
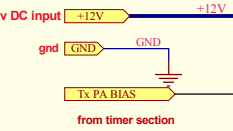
IDC RIBBON CABLE FROM "JLINK1"



the red lines are NOT actually driven by Trxavrb they are combined into the 2 lines (NETS) here so diodes D402, 404, 406, 411, d401, d408 and 413 PLUS the red wires shown, were removed



Note: the names on above lines connect to same names (they are NET names)



LPF control active Lo

Key '79' (WIDEBAND SELECT IN BPF) ACTIVE HI (5V)

LPF control

THESE LINES RUN TO THE BAND PASS FILTER and are active HI

VK3PE

ORIGINAL SCHEMATIC BY G6ALU
Last updated 17-12-14 Footer Page 19 of 25.

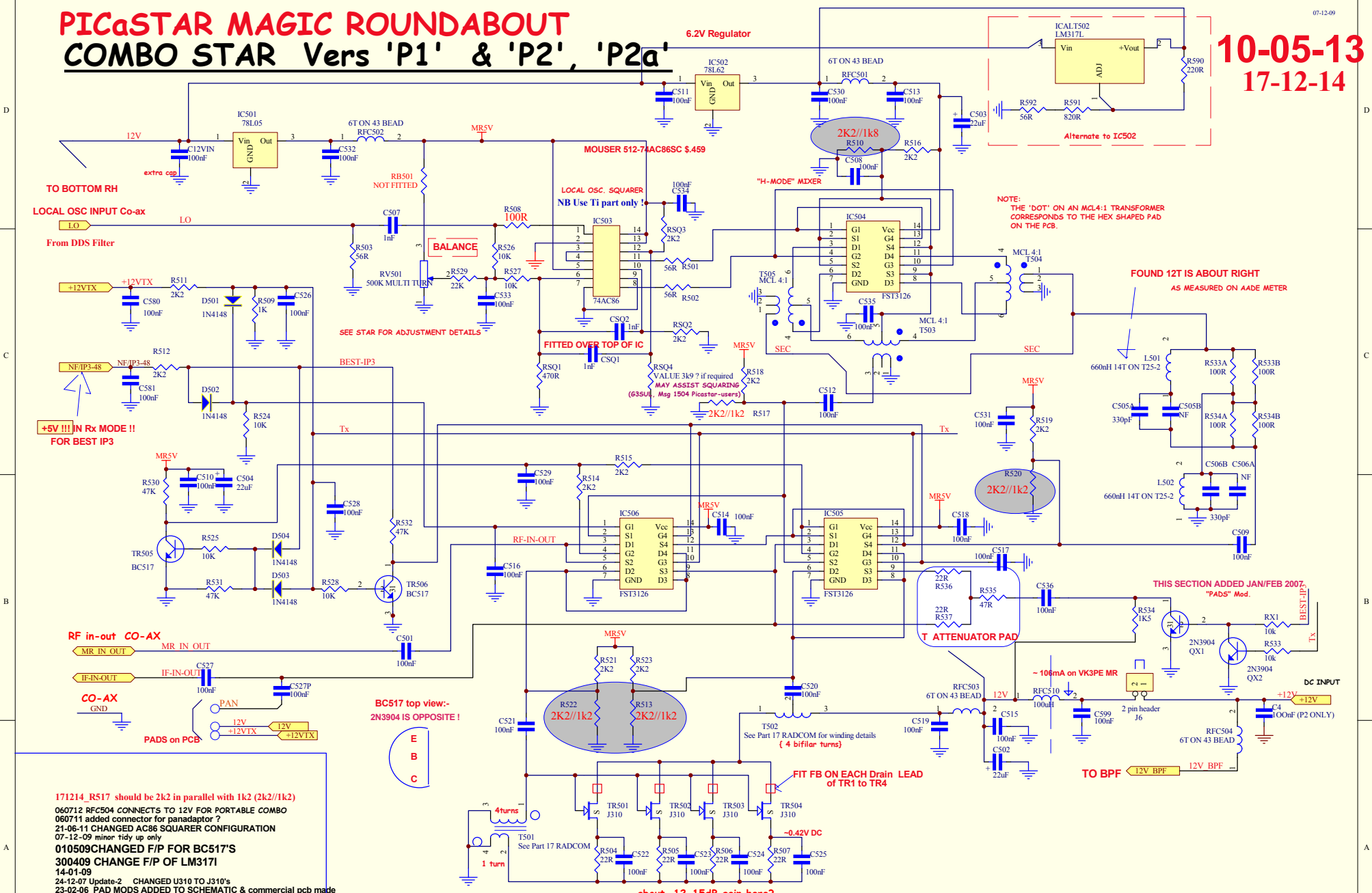
MOBILE VERSION, ADDED 16 PIN HEADER
010509 added PA bias and 12v to JP401 in matrix FOR LPF
ULN2803'S CORRECTED
5th Dec 2007 Update_1:- error in LPF control designation
011207 cosmetic update only

Title	Date: 30-Aug-2013		Sheet 16	DRAWN BY: VK3PE
Size: A3	Time: 19:39:17		of 22	(C) 2007-2013
C:\ComboP2\COMBO-MATRIX SCH				

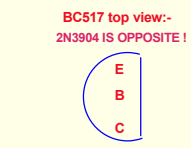
PICaSTAR MAGIC ROUNDABOUT COMBO STAR Vers 'P1' & 'P2', 'P2a'

07-12-09

10-05-13
17-12-14



171214_R517 should be 2k2 in parallel with 1k2 (2k2//1k2)
060712 RFC504 CONNECTS TO 12V FOR PORTABLE COMBO
060711 added connector for panadaptor ?
21-06-11 CHANGED AC86 SQUARER CONFIGURATION
07-12-09 minor tidy up only
010509CHANGED F/P FOR BC517'S
300409 CHANGE F/P OF LM3171
14-01-09
24-12-07 Update-2 CHANGED U310 TO J310's
23-02-06 PAD MODS ADDED TO SCHEMATIC & commercial pcb made
16-08-06 home made pcb built!
MADE ALL CAP AND RES 0805
14-08-06 STARTED



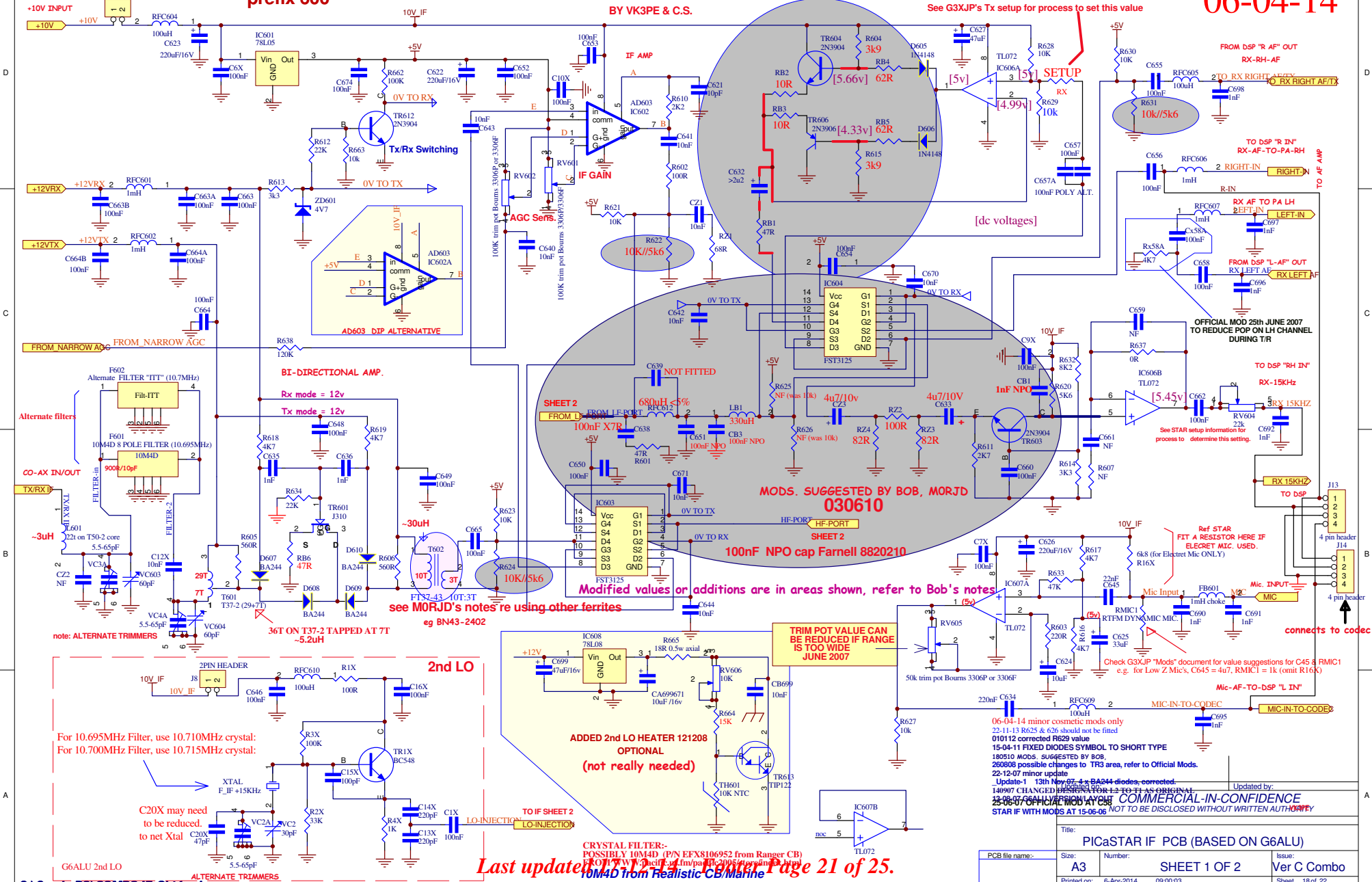
about 12-15dB gain here?
Post #3817 HAROLD USED BN61-302 CORES TO GET RESPONSE UP TO 6 METERS
Last updated 17-12-14 Footer Page 20 of 25.
24-11-08 PREFIX ALL WITH 500

Title	Ref Parts 17 & 18
Size	of 22
Time	11:44:32
File	C:\ComboP2\COMBO-MR-Bobs final.sch
DRAWN BY:	VK3PE
(C) 2007-2013	

15-04-11 FIXED DIODES SYMBOL TO SHORT TYPE

PICaSTAR IF BOARD section COMBO STAR Vers 'P1' & 'P2' prefix 600

06-04-14



C:\ComboP2\COMBO-IF_Sht1.sch

CRYSTAL FILTER: POSSIBLY 10M4D (P/N EFX8106952 from Ranger CB) 10M4D from Realistic CB/Marine

Last updated: 2014-06-04 Page 21 of 25.

Also, refer to current 'Modification list' (by Bob, MORJD). <http://www.morjd.co.uk/bus-switches.html>

- 06-04-14 minor cosmetic mods only
- 22-11-13 R625 & 626 should not be fitted
- 010112 corrected R629 value
- 15-04-11 FIXED DIODES SYMBOL TO SHORT TYPE
- 180510 MODS. SUGGESTED BY BOB
- 260808 possible changes to TR3 area, refer to Official Mods.
- 22-12-07 minor update
- Update-1 13th Nov 2014 - BA244 diodes corrected
- 140907 CLEANED BOARD FOR 15-04-11
- 25-06-07 OFFICIAL MOD AT C88
- STAR IF WITH MODS AT 15-06-06
- NOT TO BE DISCLOSED WITHOUT WRITTEN AUTHORITY

Title: PICaSTAR IF PCB (BASED ON G6ALU)			
Size: A3	Number: SHEET 1 OF 2	Issue: Ver C Combo	
Printed on: 6-Apr-2014 09:00:03	File: C:\ComboP2\COMBO-IF_Sht1.sch		Sheet 18 of 22

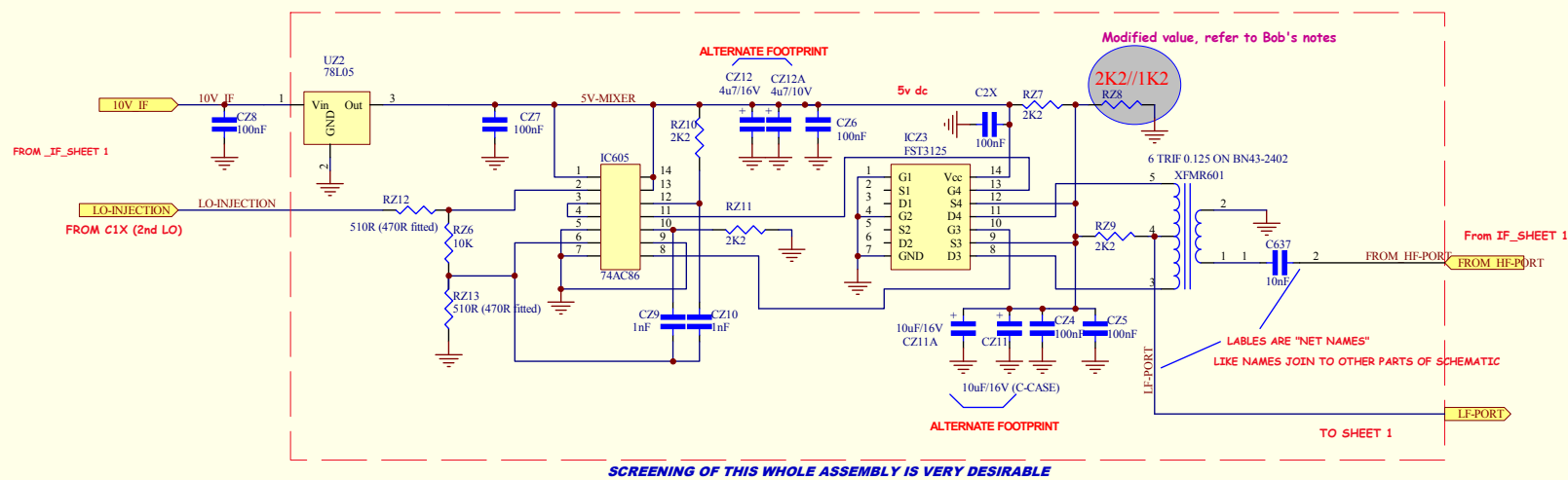
COMBO STAR Vers 'P1' & 'P2'

16-08-11

PICaSTAR IF BOARD (sheet 2) for G6ALU LAYOUT

BY VK3PE & C.S.

"MIXADAPTER" FST3125 MIXER BOARD (NOW PART OF IF PCB)



280909

14-01-09

300708 minor update.

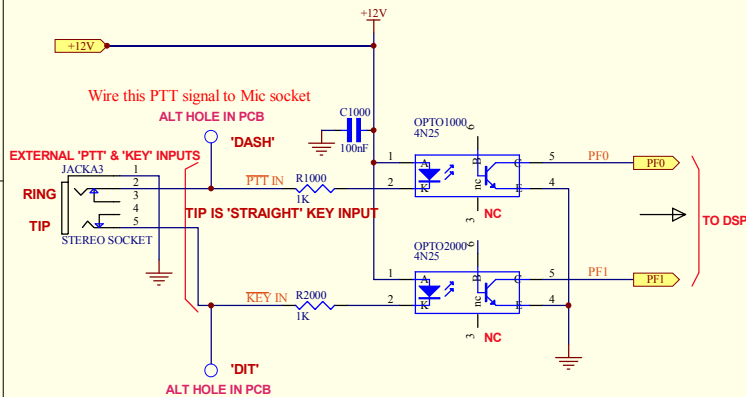
22-12-07 minor update

10-07-07 CONVERT TO 0805 PARTS

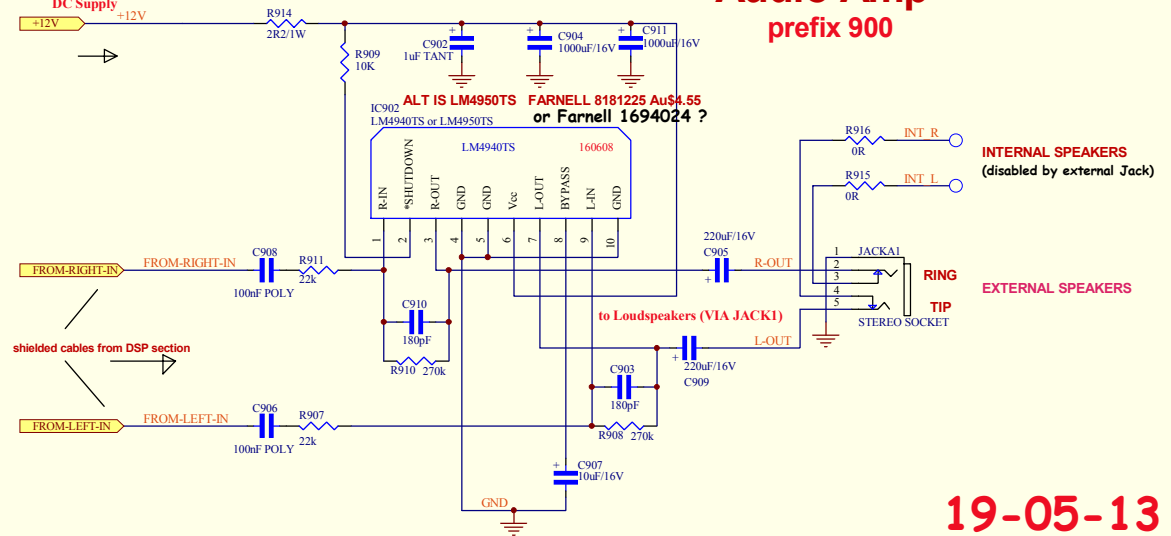
DRAWN BY VK3PE

Last updated 17-12-14 Footer Page 22 of 25.

DSP OPTO ISOLATOR FOR PTT & KEY TO DSP prefix 1000



ON test: approx. 18mA with no input signal



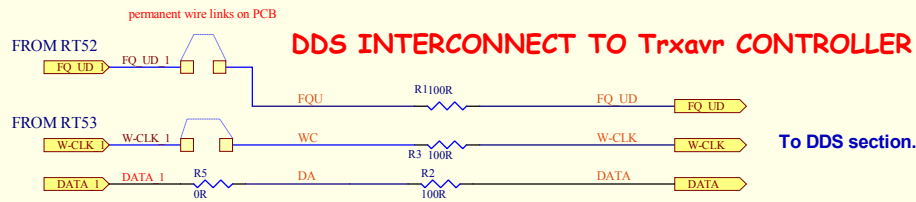
Audio Amp prefix 900

INTERNAL SPEAKERS
(disabled by external Jack)

EXTERNAL SPEAKERS

19-05-13

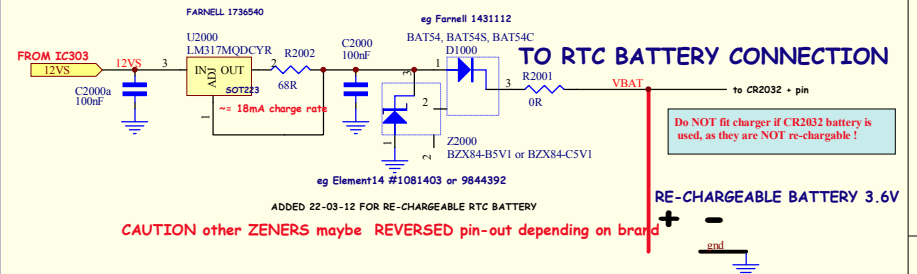
FROM integrated Trxavr



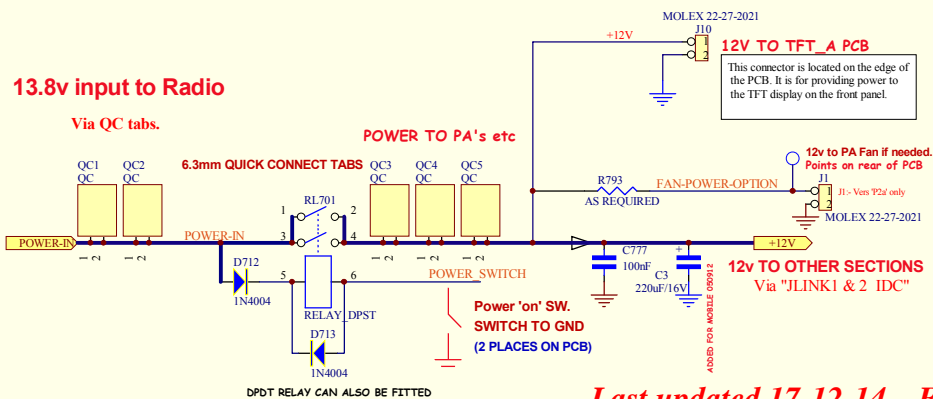
10-07-13

COMBO STAR Vers 'P1' & 'P2'

OPTIONAL REAL TIME CLOCK, BATTERY CHARGER [Prefix 2000]



13.8v input to Radio



Last updated 17-12-14 Footer Page 23 of 25.

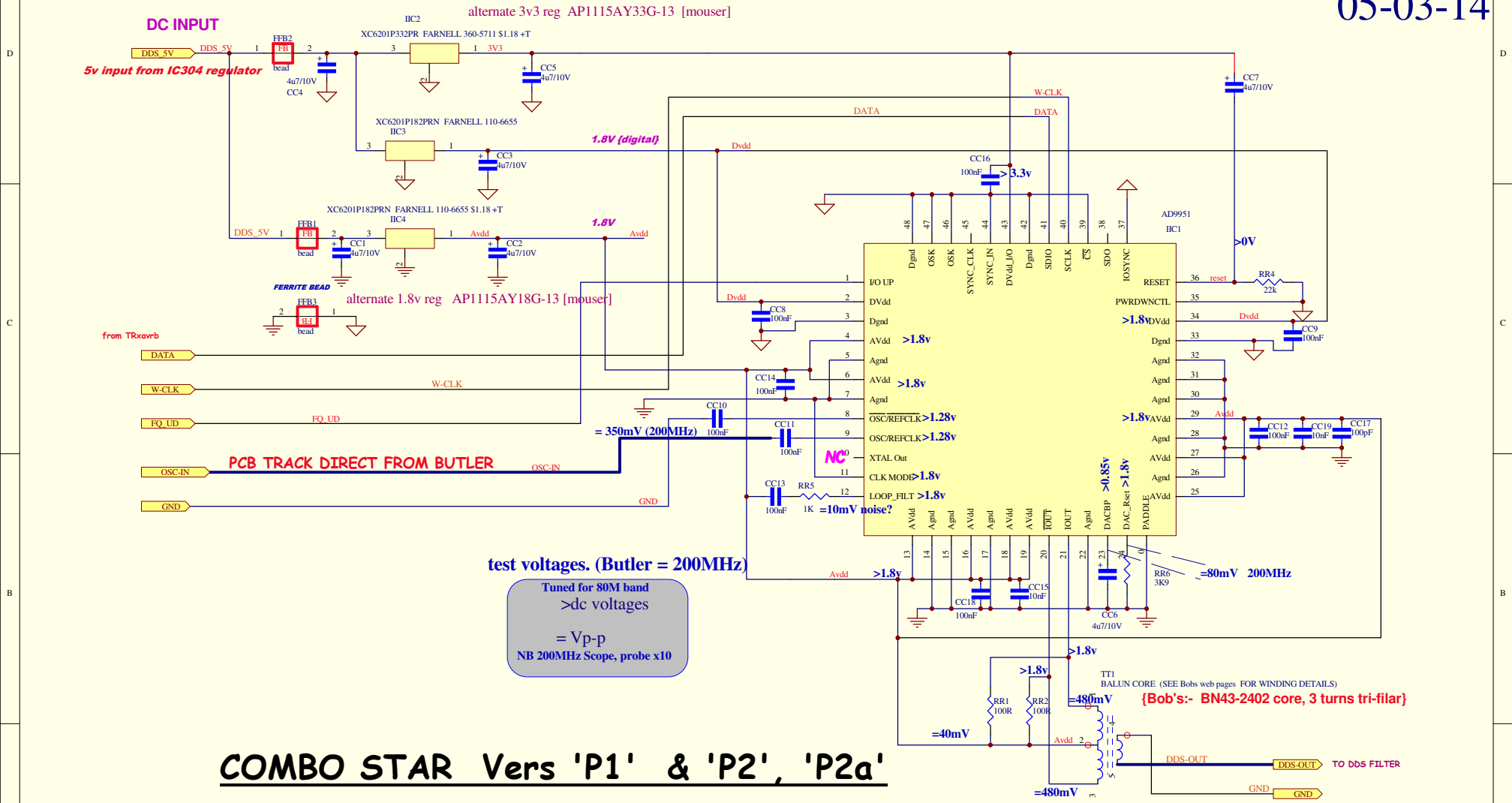
280413 tidy up only
19-03-13 changed (Z2000) Zener diode to correct polarity part
20-02-13 INTERCONNECT AREA, WIRE LINKS NOW SHOWN ON sCH
310812 removed line out parts
revised 150412. pcb now C2aa << now for portable
05-10-11 ADDED 2 PIN CONN. FOR 12V TO TFT DISPLAY
16-08-11 COMBO 'C' VERS. REMOVED ALT JACKS AND UNUSED CONNECTORS
07-12-09 minor tidy up only

Title	DRAWN BY: VK3PE	
Size: A3	Date: 16-Aug-2013	Sheet 20
	Time: 16:27:20	of 22
C:\ComboP2\COMBO-OPTO_AUDIO.Sch		

G3XJP PICaSTAR

AD9951 DDS "PLL" 'COMBO PORTABLE'

05-03-14



test voltages. (Butler = 200MHz)

Tuned for 80M band
>dc voltages
= Vp-p
NB 200MHz Scope, probe x10

COMBO STAR Vers 'P1' & 'P2', 'P2a'

DDS IS NOW INTEGRATED ONTO THE SINGLE BOARD VERSION

100712 Nets 'REF-CLK' NOW 'OSC' TO CONNECT DIRECT
REF-CLK2 IS NOW 'GND'

Last updated 17-12-14 Footer Page 24 of 25.

03-09-14 Some test voltages added to DDS Sch
on 80M band, Butler is 200MHz

280413 REMOVED REDUNDANT DIP-28 CONN
130413 5V INPUT NET NAME CHANGED

16-08-11 USED NOW ON COMBO 'C' VERSION PANEL
010611 reversed TT1 output for better PCB tracks
13-07-06 DRAWN ORIGINALLY

Title				DRAWN BY: VK3PE
Size: A3	Date: 3-Sep-2014	Sheet 21	of 22	(C) 2007-2013
C:\ComboP2\COMBO-DDS.SCH				

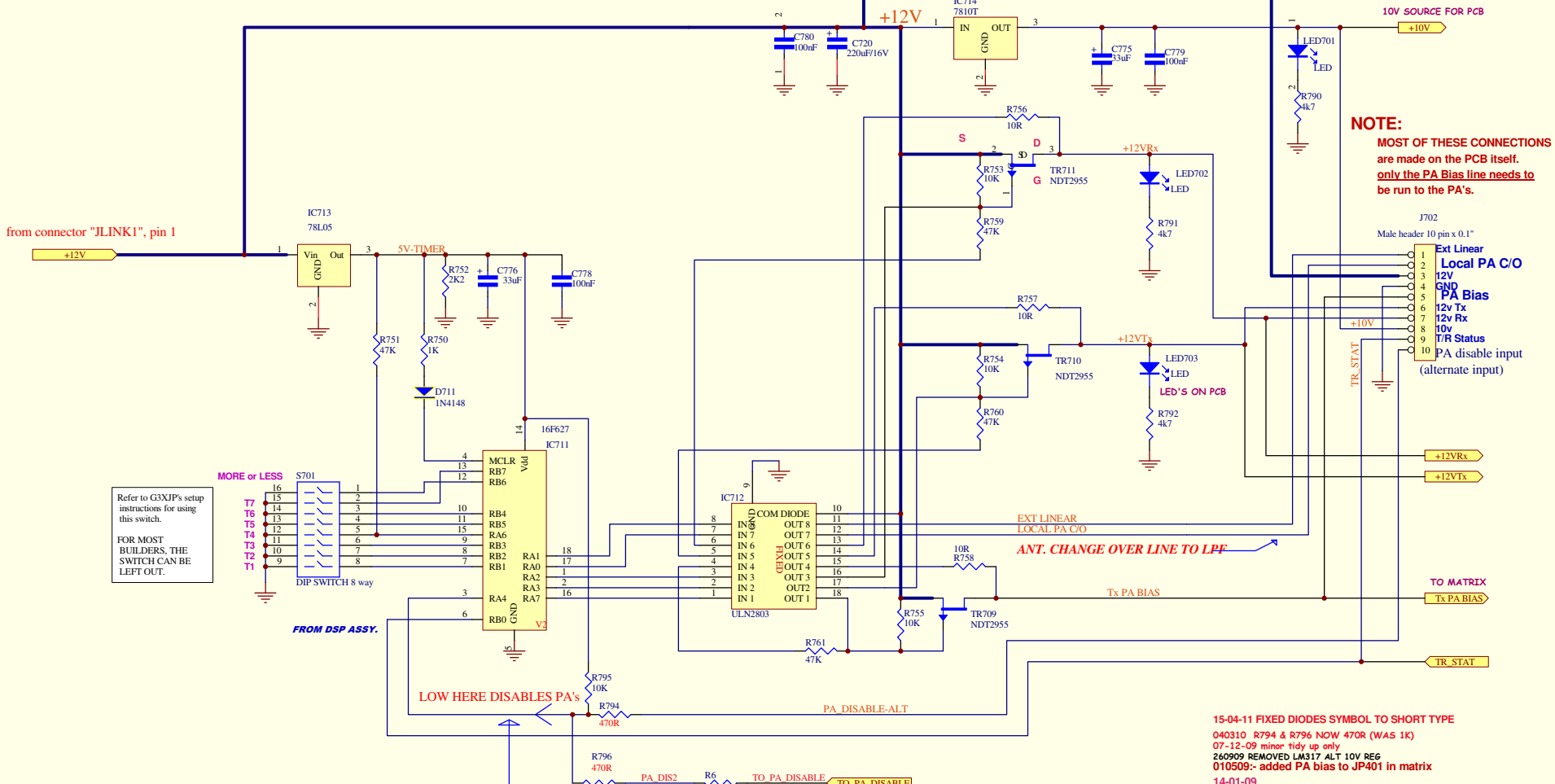
STAR TIMER SECTION

PREFIX ALL WITH 700 NOW FOR SINGLE BD STAR

10-05-13

COMBO STAR Vers 'P1' & 'P2'

Possibly LM2937-10 ET/NOPD
 Farnell 1564642
 NB Max 500mA
 or LM2940T-10.0
 low dropout 1amp 10v reg
 RS components #5359010



NOTE:
 MOST OF THESE CONNECTIONS
 are made on the PCB itself.
 only the PA Bias line needs to
 be run to the PA's.

Refer to G3XP's setup
 instructions for using
 this switch.
 FOR MOST
 BUILDERS, THE
 SWITCH CAN BE
 LEFT OUT.

REFER TO IAN G3VPX'S TIMER CHANGES
 (USED IF HIGH SWR FOR SHUTDOWN OF PA)

FROM ATMEGA PIN 25 ON TRxAVT VIA RT55
 An output from the Trxavr will disable the Tx PA boards if the Peak
 SWR board is used, when high SWR occurs.
 If the Trxavr software is modified, it may also be used to limit the
 Transmit frequency ranges to comply with local jurisdictions. This
 change is currently unsupported in the Trxavr firmware.
 This change has been made by VK3ATC and also tried by VK3DE with
 good results.

- 15-04-11 FIXED DIODES SYMBOL TO SHORT TYPE
- 040310 R794 & R796 NOW 470R (WAS 1K)
- 07-12-09 minor tidy up only
- 260909 REMOVED LM317 ALT 10V REG
- 010509- added PA bias to JP401 in matrix
- 14-01-09
- 12-01-09 possible Im2937 10v reg ?
- PGMER INTERFACE REMOVED
- 01-10-09 J3 now 10 pins
- 040907 PCB BY CHRIS STAKE
- 07-07-06

PREFIX 700 updated 17-12-14 Footer Page 25 of 25.

Title	STAR TIMER		DRAWN BY: VK3PE (C) 2007-2013
Size: A3	Date: 5-Jan-2014	Sheet 22	
	Time: 17:16:10	of 22	

C:\ComboP2\COMBO-TIMER.sch