

TrxAVR B INTERFACE BOARD

Combined TrxAVR-b and front panel board for graphics LCD's

01-08-09
18-08-09
26-08-09

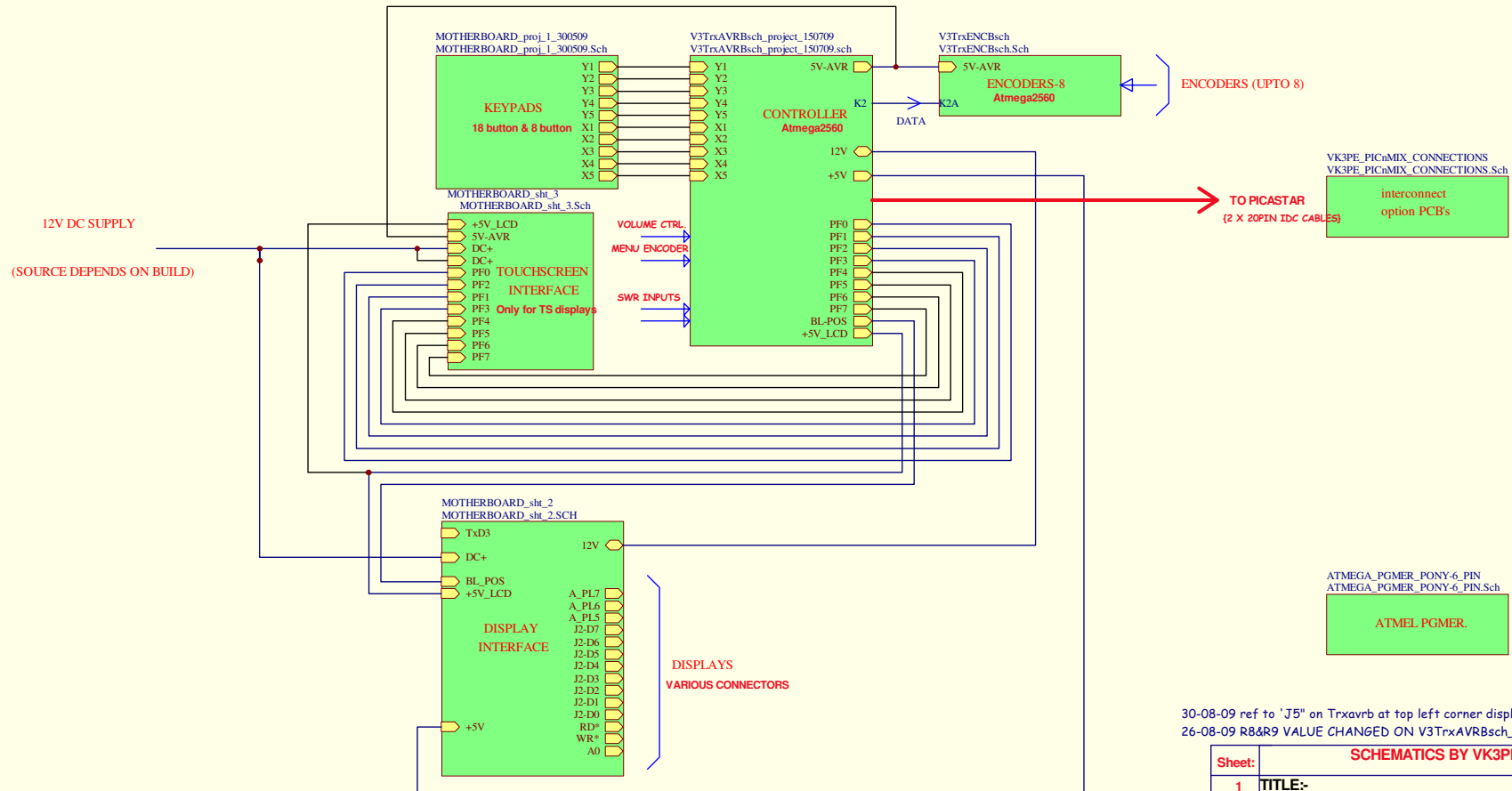
TrxAVRB and interface board for PICASTAR

TrxAVR is an exciting new development to allow the use of graphics or text based LCD modules to be used on PICaSTAR. The PicnMix used in PICaSTAR is replaced by TrxAVR.

The design and software is by Ian, G3VPX. Ian has a web page detailing his TrxAVR design and software.
http://www.homebrew-radios.net/trxavr_picastar/trxavr_picastar.htm

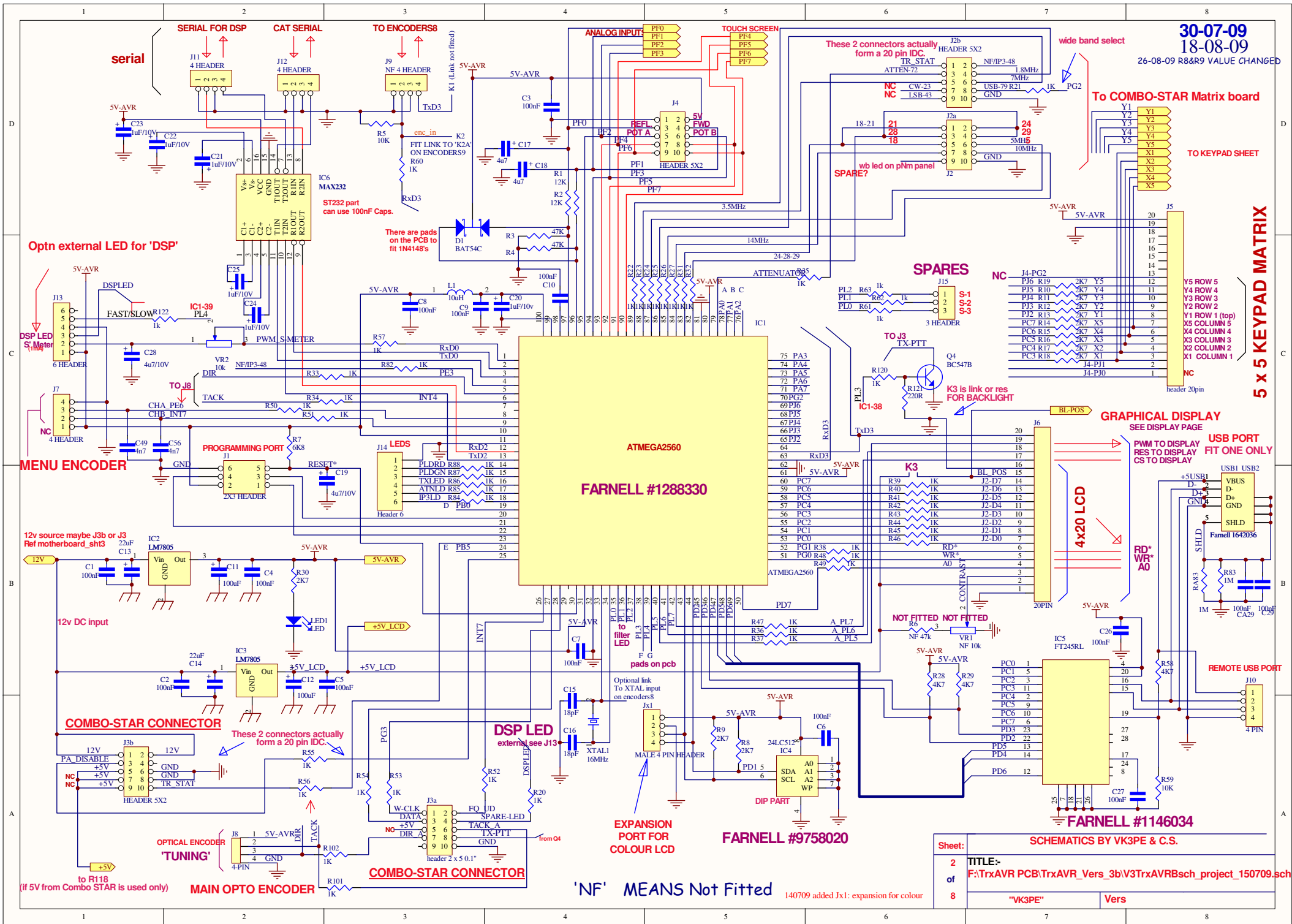
THE SCHEMATICS GIVEN HERE ARE A COMPILATION SPECIFIC TO THE INTERFACE BOARD DESIGNED BY VK3PE IN JUNE 2009, BUT ARE BASED ON Ian's SCHEMATICS.

PLEASE NOTE: Any part numbers given in this document are believed to be correct but you should verify them before purchasing any items.



30-08-09 ref to 'J5' on Trxavrb at top left corner display connector sheet, is now J6
26-08-09 R8&R9 VALUE CHANGED ON V3TrxAVRBsch_PROJECT SHEET

Sheet:	SCHEMATICS BY VK3PE & C.S.	
1 of 6	TITLE:- F:\TrxAVR PCB\TrxAVR_Vers_3b\TRXAVR-C_Project_080709_1.sch	
	"VK3PE"	Vers



30-07-09
18-08-09
26-08-09 R8&R9 VALUE CHANGED

5 x 5 KEYPAD MATRIX

J4-PC2	NC	Y5
PJ6 R19	2K7	Y5
PJ5 R10	2K7	Y4
PJ4 R11	2K7	Y3
PJ3 R12	2K7	Y2
PJ2 R13	2K7	Y1
PC7 R14	2K7	X5
PC6 R15	2K7	X4
PC5 R16	2K7	X3
PC4 R17	2K7	X2
PC3 R18	2K7	X1
J4-PJ0	NC	

J2-D7	14
J2-D6	13
J2-D5	12
J2-D4	11
J2-D3	10
J2-D2	9
J2-D1	8
J2-D0	7
J2-D7	14
J2-D6	13
J2-D5	12
J2-D4	11
J2-D3	10
J2-D2	9
J2-D1	8
J2-D0	7

PC0	1
PC1	5
PC2	3
PC3	11
PC4	2
PC5	9
PC6	10
PC7	6
PD3	23
PD2	22
PD5	13
PD4	14
PD6	12
PD7	26
PD8	27
PD9	28
PD10	29
PD11	30
PD12	31
PD13	32
PD14	33
PD15	34
PD16	35
PD17	36
PD18	37
PD19	38
PD20	39
PD21	40
PD22	41
PD23	42
PD24	43
PD25	44
PD26	45
PD27	46
PD28	47
PD29	48
PD30	49
PD31	50

'NF' MEANS Not Fitted

Sheet:	2
of	8
TITLE:- F:\TrxAVR PCB\TrxAVR_Vers_3b\V3TrxAVRBSch_project_150709.sch	
"VK3PE" Vers	

G3VPX's TrxAVRB, OPTIONAL, FOR TOUCH SCREEN ONLY

31-08-09

IF TOUCH SCREEN IS NOT USED, THEN DO NOT LOAD THESE PARTS:

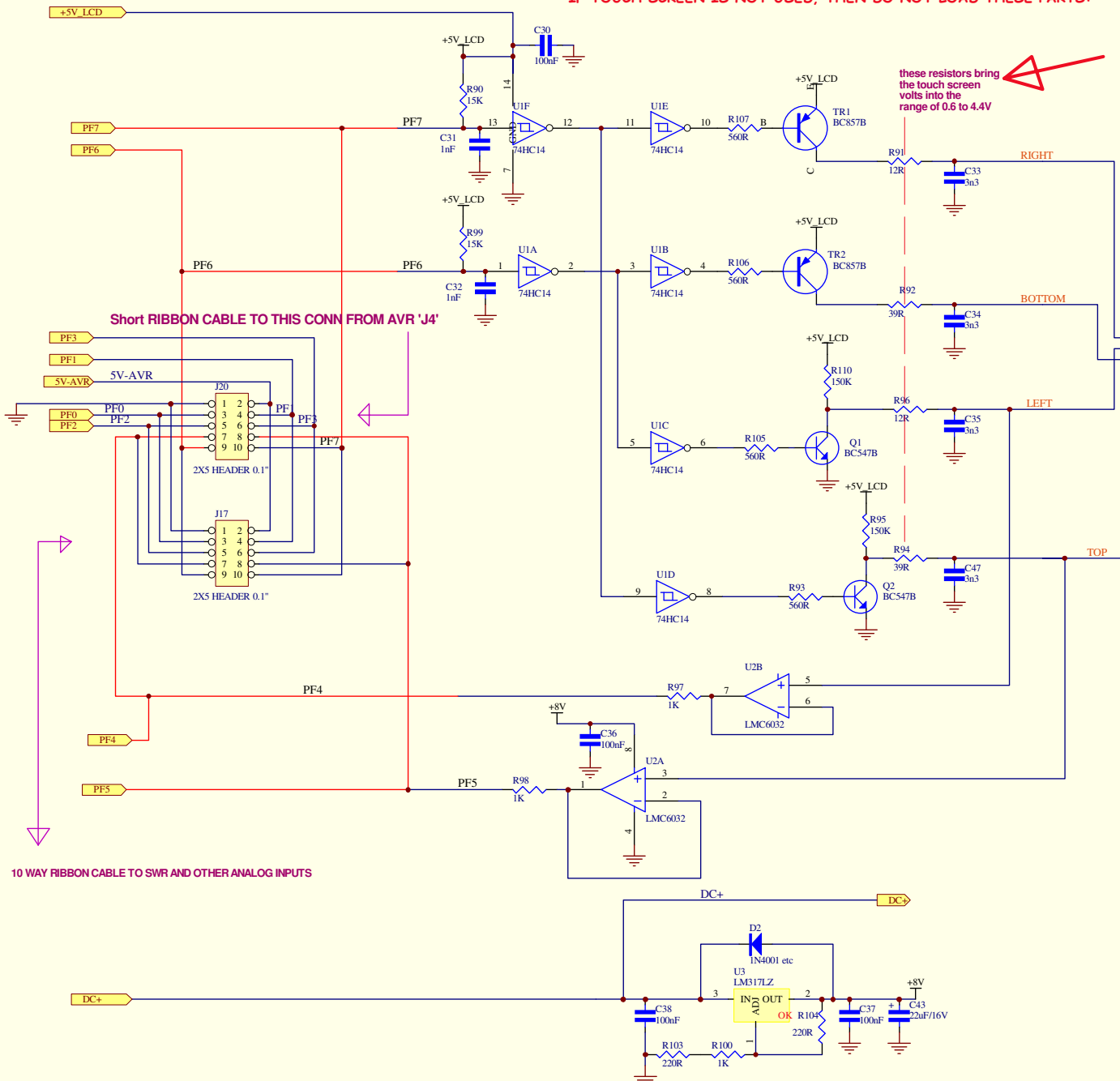
THE VALUES USED HERE MAY NEED CHANGING FOR THE DISPLAY YOU USE !

The calculation I use to get the approximate value of the resistors is the resistance of the touch screen divided by 10 (ie. $(X2 - X1)/10$ and $(Y2 - Y1)/10$).

For the CrystalFontz touchscreen display, the X resistance is about 666 ohms and the Y resistance about 374 ohms. I used R91 & R96 (R25 & R27 on Ian's PCB) = 68ohms and R92 & R94 (R24 & R26 on Ian's PCB) = 36 ohms. (I am still mystified why the X resistance is smaller than the Y resistance on the touch screen Ian used.)

For the touch screen's from IIIC, the X resistance is about 754 ohms and the Y resistance about 304 ohms. As I am swapping between various displays, I kept using the above values as it was "close" enough and saved me making changes. However, if I was only using this touch screen I would use R91 & R96 = 75ohms and R92 & R94 = 30 ohms (or close to these values).

Regards
Gerard (vk3cg/vk3grs)
31-08-09



TOUCH SCREEN PINOUT ONLY FOR CF TS DISPLAY

NOTE:- CONNECTIONS MAY NOT BE IN CORRECT ORDER FOR YOUR Display ! YOU MAY NEED TO MAKE A SHORT ADAPTER CABLE FOR YOUR DISPLAY TYPE. (REFER TO DISPLAY DATA SHEET)

JP2
1 TS-X2 (right)
2 TS-X1 (left)
3 TS-Y2 (bottom)
4 TS-Y1 (top)

0.1" X 4 PIN SIP RIGHT ANGLE MALE

REFERENCE:-
'TrxAVR 18-button board and motherboard' diagram by G3VPX

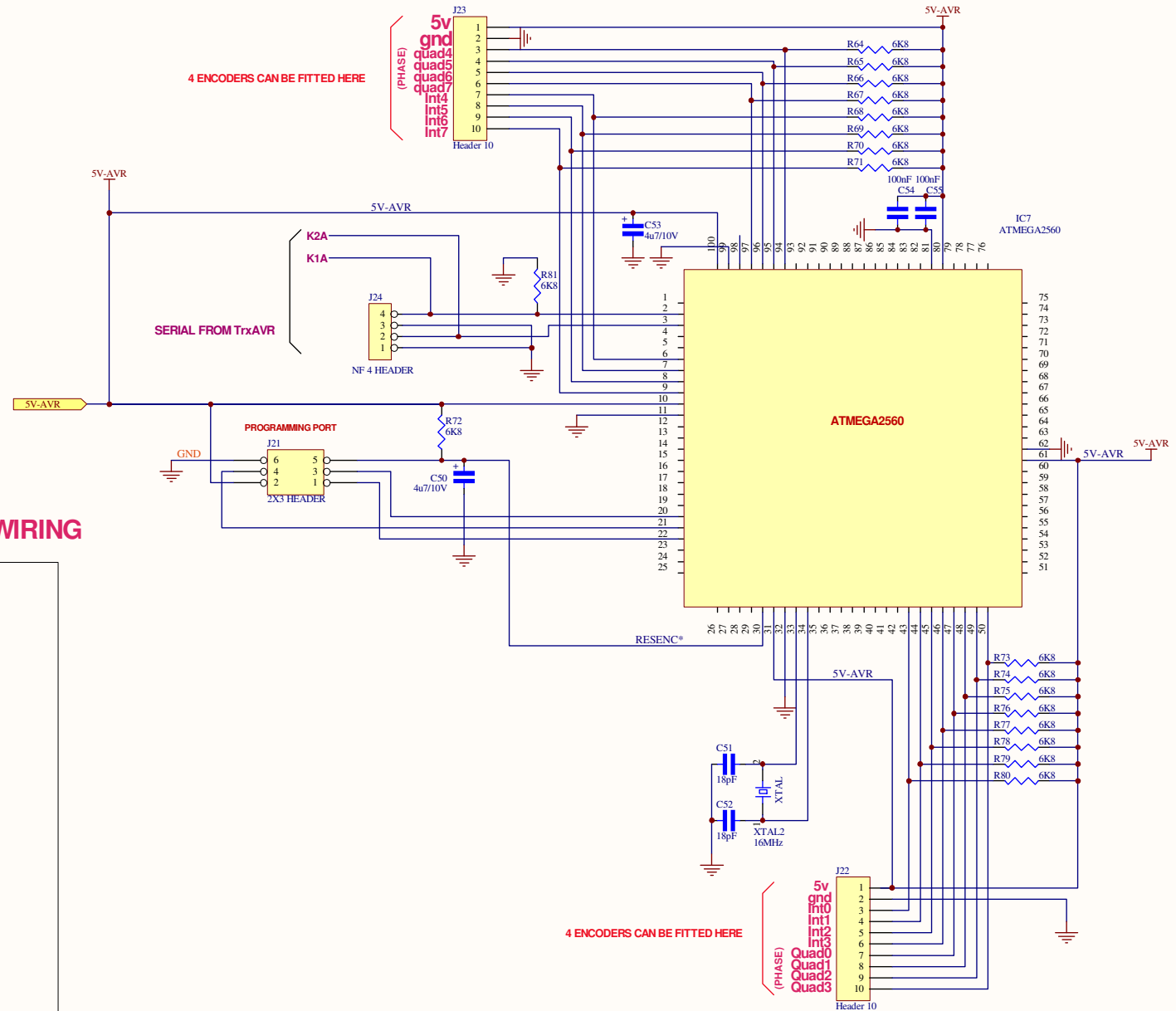
31-08-09 NOTE added re the Touchscreen 'X' and 'Y' values

Sheet:	SCHEMATICS BY VK3PE & C.S.	
5 of 8	TITLE:- F:\TrxAVR PCB\TrxAVR_Vers_3b\MOTHERBOARD_sht_3.Sch	
	"VK3PE"	Vers

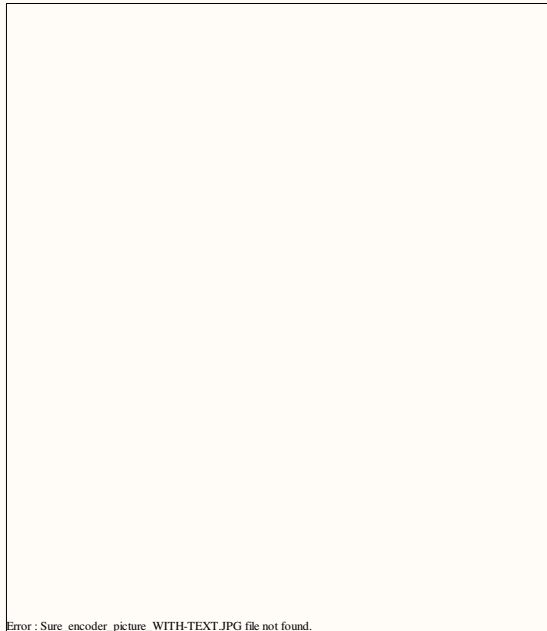
'NF' MEANS Not Fitted

G3VPX's TRXAVR:- OPTIONAL: FOR ENCODER-8 INTERFACE

18-08-09



SURE ELECTRONICS ENCODER WIRING



'NF' MEANS Not Fitted

0712080603 parts

Sheet:	SCHEMATICS BY VK3PE & C.S.	
3 of 8	TITLE:- F:\TrxAVR PCB\TrxAVR_Vers_3b\V3TrxENCBSch.Sch	
	"VK3PE"	Vers

TrxAVRB DISPLAY CONNECTORS

Colour TFT displays connect to 'Jx1' connector on the TrxAVR sheet.

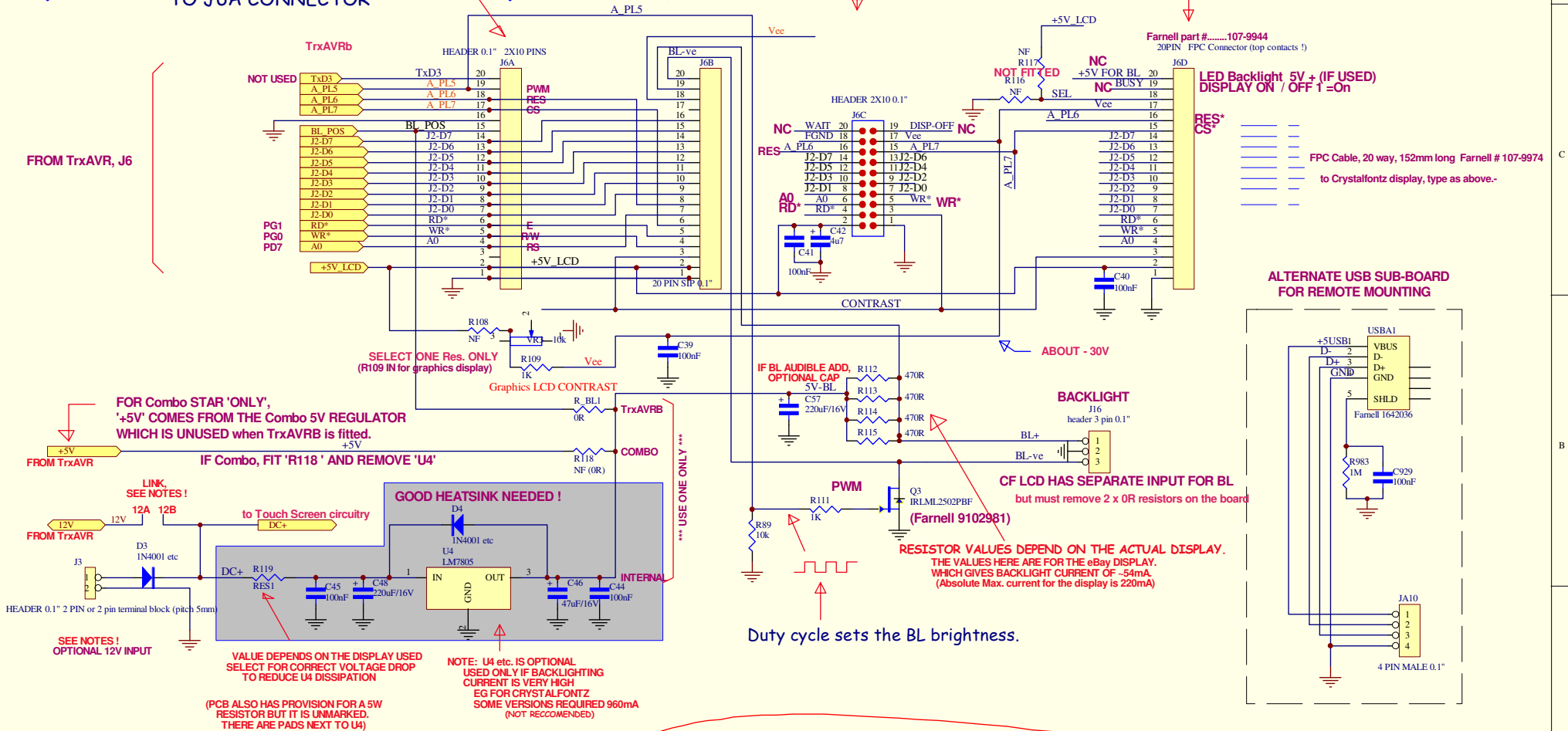
21-07-09
19-08-09
30-08-09

Connector for ebay Graphics display
Also 2 X 40 LCD or 4 X 20
and 128x64 types.

CRYSTALFONTZ 'LARGE' Touch Screen
DISPLAY HEADER
EQUIVALENT TO EA320
eg. White on Blue & TouchScreen:- CFAG320240-CX-TFH-TS

SMALLER NON TOUCH
CRYSTALFONTZ 'FP' CONNECTOR
TOP CONTACT TYPE OF FPC CONNECTOR.
YELLOW/GREEN Display:- CFAG320240K-YYH-TZ?
(NOT RECOMMENDED)
Refer to Bill of Material for other displays.

THIS 2x20 pin IDC Conn duplicates the TrxAVRb conn
**THERE IS A SHORT 20 WAY
IDC CABLE FROM J6 ON TrxAVR SECTION
TO J6A CONNECTOR**



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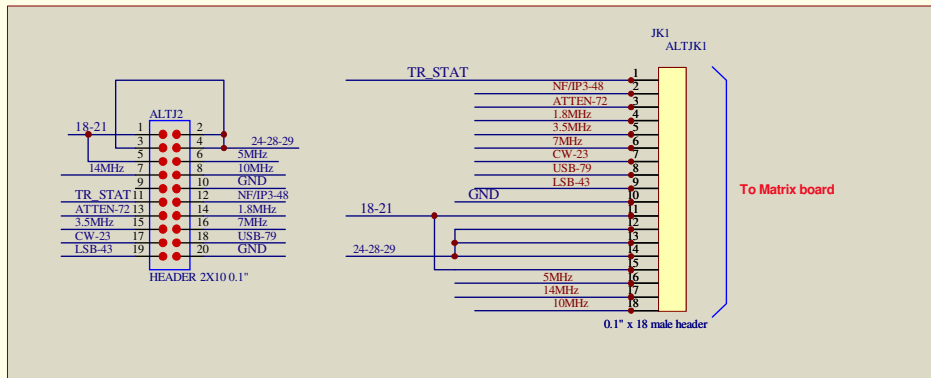
30-08-09 ref to 'J5' on Trxavr b at top left corner is now J6
21-07-09 CORRECTED J6B A0/WR LINES & ADDED C57

Sheet: **SCHEMATICS BY VK3PE & C.S.**

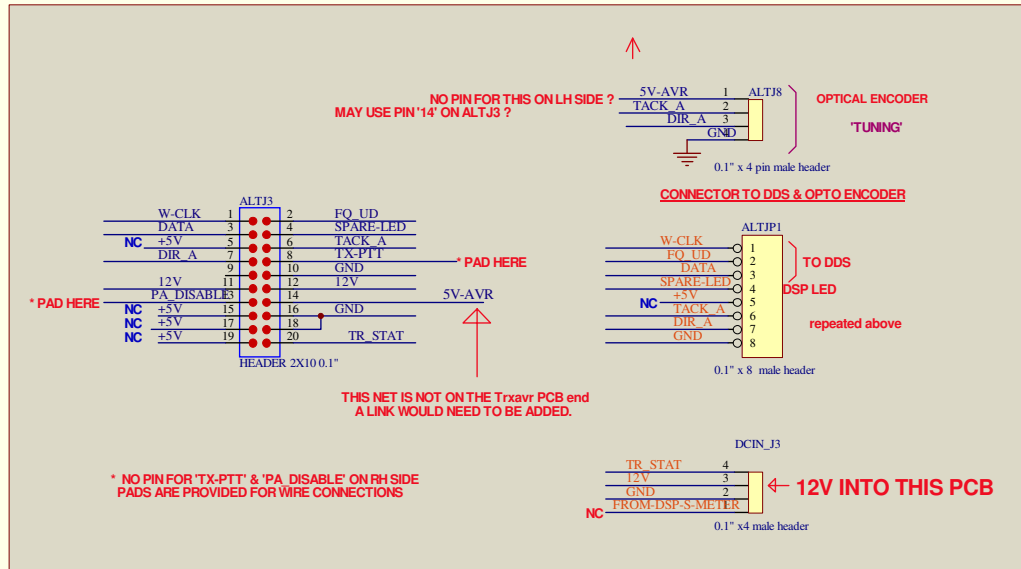
6	TITLE:-
of	F:\TrxAVR PCB\TrxAVR_Vers_3b\MOTHERBOARD_sht_2_SCH
8	"VK3PE" Vers

PICNMIX (VK3PE VERSION) INTERFACE ADAPTER BOARDS FOR PICASTAR

30-07-09



2 x 20 way IDC cables to TrxAVRB



PICASTAR SIDE

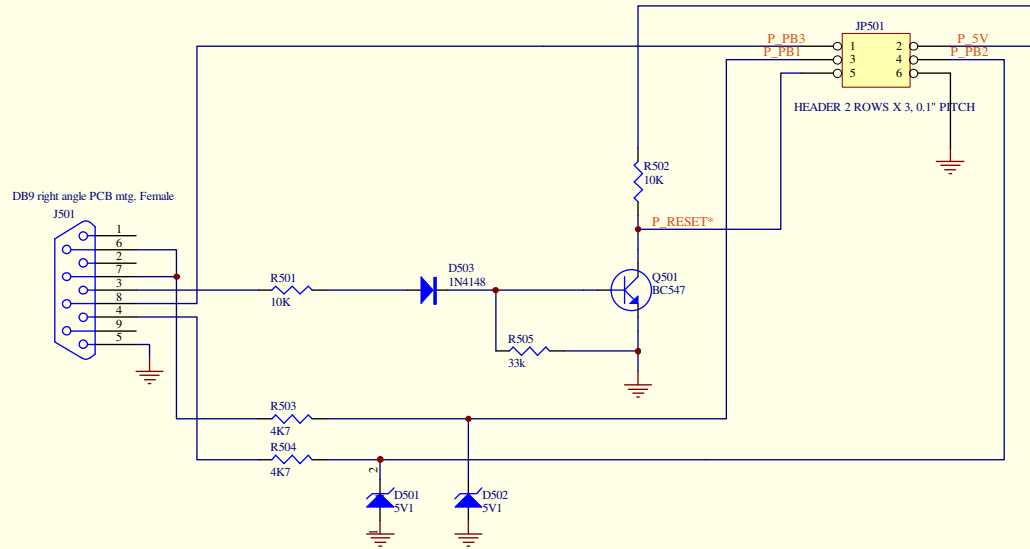
NOTE:- Connectors on right side suit VK3PE Picastar PCB's

for other PCB's,
cables will need to be made
or wires terminated into the 'connector' holes.

'NF' MEANS Not Fitted

Sheet:	SCHEMATICS BY VK3PE & C.S.	
7	TITLE:-	
of	F:\TrxAVR PCB\TrxAVR_Vers_3b\VK3PE_PICnMIX_CONNECTIONS.Sch	
8	"VK3PE"	Vers

ATMEL PROGRAMMER - PONYPROG



220609 6 PIN VERSION ONLY

'NF' MEANS Not Fitted

Sheet:	SCHEMATICS BY VK3PE & C.S.	
8	TITLE:-	
of	F:\TrxAVR PCB\TrxAVR_Vers_3b\ATMEGA_PGMR_PONY-6_PIN.Sch	
8	"VK3PE"	Vers

KEYPADS FOR G3VPX's TrxAVR

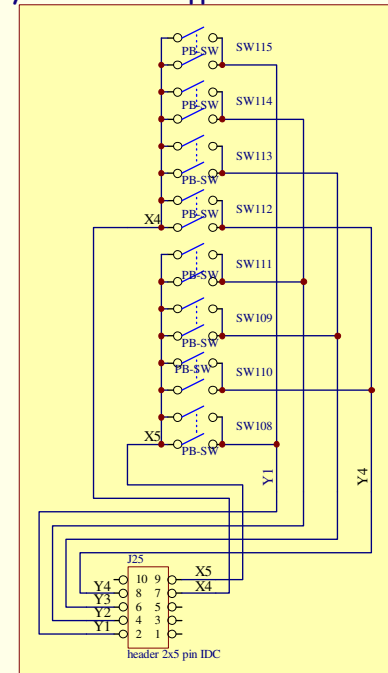
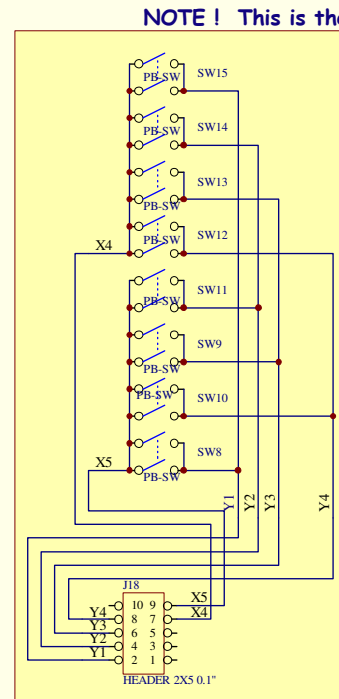
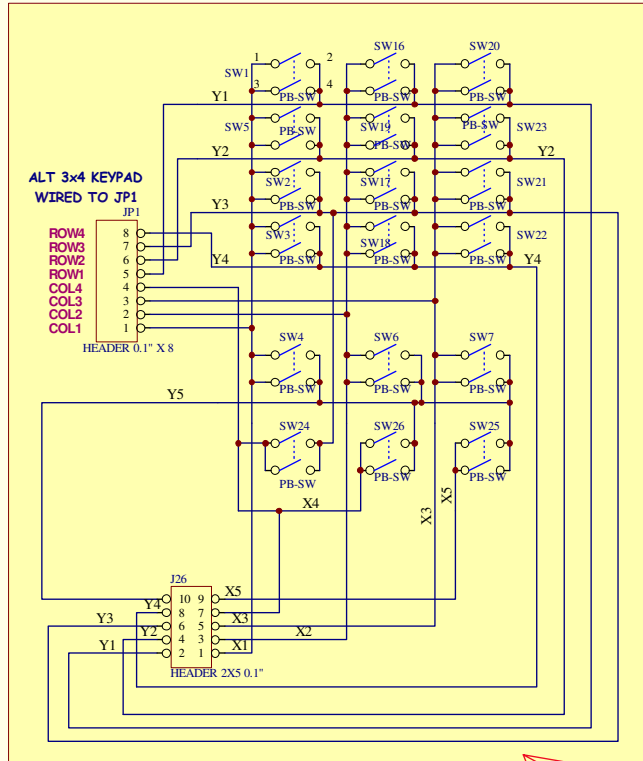
{ VK3PE }

21-07-09

16 KEYPAD (SUB PCB)

8 BUTTON SUB PCB (small display)

8 BUTTON SUB PCB (large display)



NOTE ! This is the same PCB, simply loaded on the opposite side.

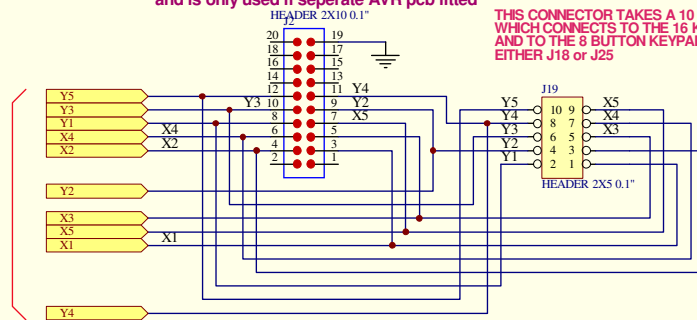
IF A COMMERCIAL 3x4 KEYPAD IS USED FOR THE UPPER 12 KEYS, THEN JP1 IS USED TO CONNECT TO THE 3x4 KEYPAD. (CHECK YOUR KEYPAD FOR DETAILS)

Wire links must be used, as keyboard pinout varies.

IF A COMMERCIAL 4x4 KEYPAD IS USED, THEN THIS PCB IS NOT REQUIRED. THE 4x4 KEYPAD WILL NEED TO BE WIRED TO J19.

this conn. duplicates J5 on the AVR-B pcb and is only used if separate AVR pcb fitted

THIS CONNECTOR TAKES A 10 WAY RIBBON CABLE WHICH CONNECTS TO THE 16 KEYPAD, J26 AND TO THE 8 BUTTON KEYPAD (ONE ONLY) EITHER J18 OR J25



FROM TrxAVRB, J5

I/F TO TrxAVR-B PCB

'NF' MEANS Not Fitted

F:\TrxAVR PCB\TrxAVR_Vers_3b\MOTHERBOARD_proj_1_300509.Sch

Sheet:	SCHEMATICS BY VK3PE & C.S.	
4 of 8	TITLE:- F:\TrxAVR PCB\TrxAVR_Vers_3b\MOTHERBOARD_proj_1_300509.Sch	
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