

222 D.S.O. Component Level Service Package

09/13/91

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Introduction

The purpose of this package is to allow the troubleshooting of the 222 Digital Storage Oscilloscope (D.S.O.) to the component level. It is recommended that this package be used in conjunction with the 222 Service Manual (070-7459-00).

The 222 D.S.O. is primarily designed and manufactured with surface mounted components. Tektronix Test & Measurement group offers training in the repair of surface mount components, any questions on this training should be addressed to:

Terry Keller 73-105 503-627-6908

or

Brenna Dornbrock 47-790 503-627-2278

If you do not have equipment to work on surface mounted components, we recommend the following:

Metcal Soldering System Model: STSS-001

Leister Hot Air Desoldering System Model: Labor "S"

Leister Desoldering Station Model: ESP Solder Plus

If you have any further questions, or suggestions on additions to this package, please address them to:

Rob Henshaw
Industrial Measurement Products
4106 N. Vancouver Ave.
Portland, OR 97217
USA

phone: 503-280-7911
FAX: 503-280-7909

It is recommended that after reassembly of the 222 Digital Storage Oscilloscope that the instrument be Hi-pot tested between 1kV and 3kV AC RMS. This will ensure that all conductive gaskets, shields and cable connections are functioning properly to provide adequate protection to the oscilloscope user.

The procedure to hipot is as follows:

- 1.) Ground the 222 chassis through the external RS232 shield ground.
- 2.) Elevate the channel one ground lead to the full test voltage for one minute
- 3.) Elevate the channel two ground lead to the full test voltage for one minute.

The recommended test equipment would be a Rod-L M100AVS5, but any 1mA current limited Hi-Pot tester will suffice.

222 DSO SOFTWARE UPDATE PROCEDURE

PTID

HANDHELD PRODUCTS

For Internal Use Only

Tektronix, Inc.

A.) PERSONAL COMPUTER SETUP (To be done once on each IBM or compatible AT/XT type personal computer used)

Software needed:

1. CROSSTALK MK.4 (not provided).
Digital Communications Associates, Inc.
1000 Holcomb Woods Parkway
Suite 440
Roswell, GA USA 30076
Phone (404) 998-7798
 2. 222 PC program disk (provided).
Contains Crosstalk programs to erase, load, and calibrate scope. File names are *.xts, *.0, *.buf, *.bat, *.shx, *.xtk. 11 files total.
 3. 222 Scope operating system disk (provided).
Contains current version of software for scope operation. 1 file named Main.0.
1. Create a directory on C drive, off the root directory and name that directory XTALK4 (md xtalk4 <enter>).
 2. Create another directory on C drive, off the root directory and name that directory 222 (md 222 <enter>).
 3. Put the crosstalk floppies in the a: drive and load crosstalk software into XTALK 4 directory (copy a:*. * c:\xtalk4 <enter>).
 4. Put the 222 program disk in the a: drive and copy 222's program files into 222 directory (copy a:*. * c:\222 <enter>).
 5. Copy from 222 program disk *.BAT to the C drive root directory (copy A:*.BAT C:\ <enter>).
 6. Put the 222 operating system disk in the a: drive and copy 222's operating system files into 222 directory (copy a:*. * c:\222 <enter>). File name is Main.0.
 7. At the root directory (C:\), type in 222, and press enter.
 8. Press ALT-S keys simultaneously to bring fields on screen and set fields according to fig. 1.
- Note: Press "enter" to advance to next field, continue with "enter" until screen is saved under SCOPE.
Repeat for steps 9 thru 15.
9. Press ALT-D and set fields according to fig. 2.
 10. Press ALT-T and set fields according to fig. 3.
 11. Press ALT-C and set fields according to fig. 4.
 12. Press ALT-P and set fields according to fig. 5.
 13. Press ALT-U and set fields according to fig. 6.
 14. Press ALT-Y and set fields according to fig. 7.
 15. Press ALT-Q to exit crosstalk.

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Equipment for erasing and loading software code.

1. 1 IBM compatible Personal Computer, type XT or AT (not provided).
2. 1 +12 VDC source (not provided).
3. 1 RS-232 coupler (female to male) for input of +12 VDC source (provided) (Schematic on page 5).
4. 1 RS-232 cable for link from coupler (25 pin, female) to scope (9 pin, male) (provided) (TEK P/N 174-1453-00).
5. 1 RS-232 cable, for link from coupler (25 pin, male) to Personal Computer serial port (25 pin, female) (not provided) (TEK P/N 012-0911-00 or equivalent).
6. 3 test point jumpers (4 provided) (TEK P/N 344-0035-02).
7. 1 Preliminary Service Manual (provided) (TEK P/N 063-0066-00).
8. 1 Operators Manual (provided) (TEK P/N 070-7100-00).

Equipment needed for Calibration and Performance Verification.

1. 1 IBM compatible Personal Computer, type XT or AT (not provided).
 2. 1 RS-232 cable for link from Personal Computer (25 pin, female) to scope (9 pin, male) (provided) (TEK P/N 174-1453-00).
 3. 1 .300 VDC $\pm 1\%$ source (.297v to .303v) (not provided).
 4. 1 PG506 (not provided).
 5. 1 TG501 (not provided).
 6. 1 SG503 (not provided).
1. Case Removal and Hardware Mod
 - a. Remove case according to service manual page 6-9.
 - b. Mod front panel board according to mod procedure on pages 6 and 7 of this procedure.

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2. Erase old code.

- a. Connect RS-232 cables, coupler, and 12 volt supply as shown in figure 8.
- b. Plug wall transformer into scope.
- c. Disconnect front panel from scope.
- d. Type in 222 on Personal Computer.
- e. When blank screen appears, press ALT-A to bring command line on screen.
- f. Type in DO ERASE, press enter and follow instructions on the Personal Computer screen.

NOTE: "Install shorting connector" or "Use shorting connector" means install and leave jumper in test point holes.

"Short" means momentarily connect jumper to the test point holes then remove.

WARNING: When using the test point jumpers, be very careful so the 2 jumpers never touch each other while connected to TP2 and TP3.

3. Loading New Code

- a. After erase process is done, the command line will appear again (If not press ALT-A).
- b. Type in DO LOAD, press enter and follow instructions on Personal Computer screen.

4. Calibration

- a. After loading process is done, the command line will appear again (If not press ALT-A).
- c. Type in DO 222CAL, and select 0 from menu then <enter> and follow instructions on Personal Computer screen. A hardcopy of the Calibration Pattern instructions are on page 4 of this procedure. Additional calibration information can be found on page 5-2 to 5-6 of the Preliminary Service Manual, ie location of tweaks.

5. Case according to service manual page 6-9.

Note: If there are 2 foam cushions on top of R431 rest cable to the rear of the cushions. Insure that foam cushions do not come in contact with the top of R251 while installing the top cabinet.

6. PVD: Verify scope performance according to the performance checks procedure in operator manual Page A-6 to A-22.

END OF PROCEDURE

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R413 INTENSITY

R415 FOCUS

R426 VERTICAL ROTATION

R455 VERTICAL GAIN

R447 HORIZONTAL GAIN

R260 Y-VECTOR

R255 SWEEP LENGTH

R424 ASTIGMATISM

R431 HORIZONTAL ROTATION

R456 VERTICAL POSITION

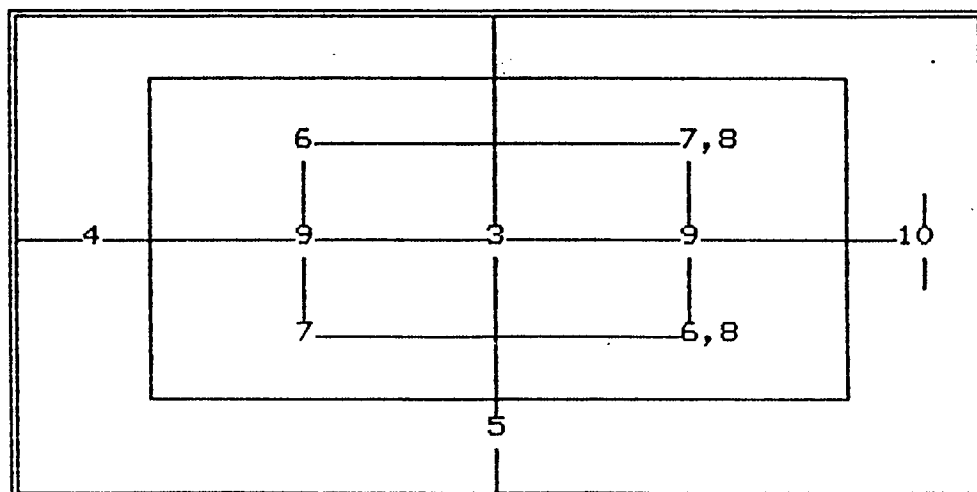
R448 HORIZONTAL POSITION

R259 X-VECTOR

Tweak the pattern using the following steps and the diagram below. The numbers on the diagram correspond to the step numbers below and are positioned on the pattern indicating what portion of the pattern is to be observed while tweaking.

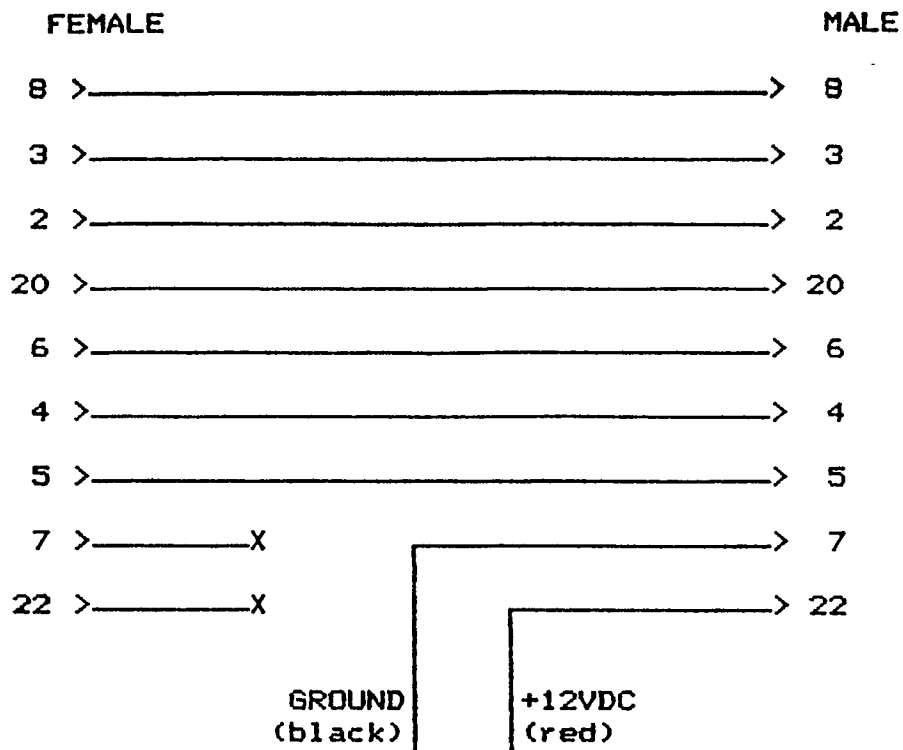
1. Adjust R413 for normal intensity.
2. Adjust R415 and R424 for a well defined trace.
3. Adjust R456 and R448 to place the center cross of the pattern to the center graticule.
4. Adjust R431 to align the center horizontal trace with the center horizontal graticule.
5. Adjust R426 to align the center vertical trace with the center vertical graticule.
6. Adjust R260 for a well defined dot at the corners of the inner box.
7. Adjust R259 for a well defined dot at the corners of the inner box.
8. Adjust R455 and R456 to place the corner dots of the inner box at exactly four (4) divisions (split the corner dots with the graticule line).
9. Adjust R447 and R448 to set the inner box at four (4) divisions at along the center horizontal axis.
10. Adjust R255 to extend the center horizontal trace to the short vertical trace at the far right of the pattern.

REPEAT ABOVE STEPS AS NECESSARY.



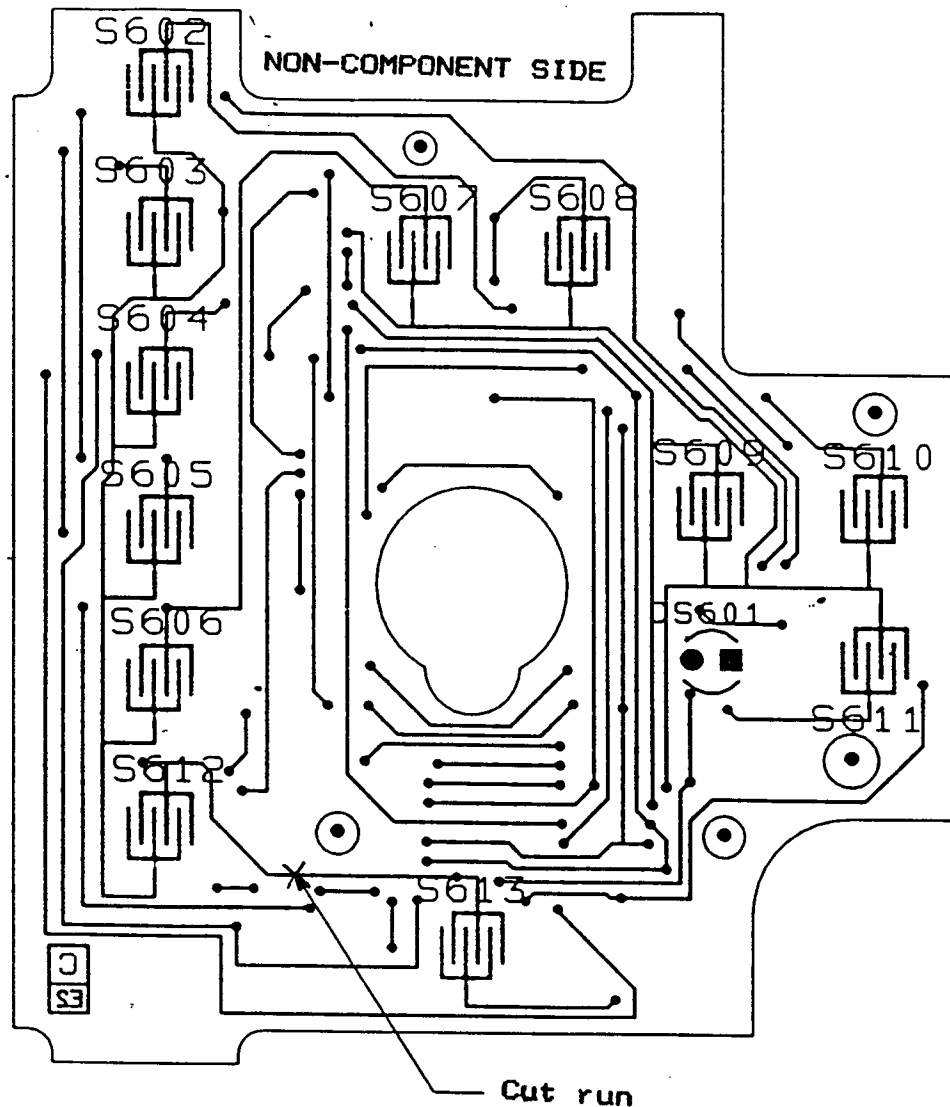
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RS-232 COUPLER SCHEMATIC



Refer to the Preliminary Service Manual, page 4-4, for a schematic of the RS-232 25 pin to 9 pin cable.

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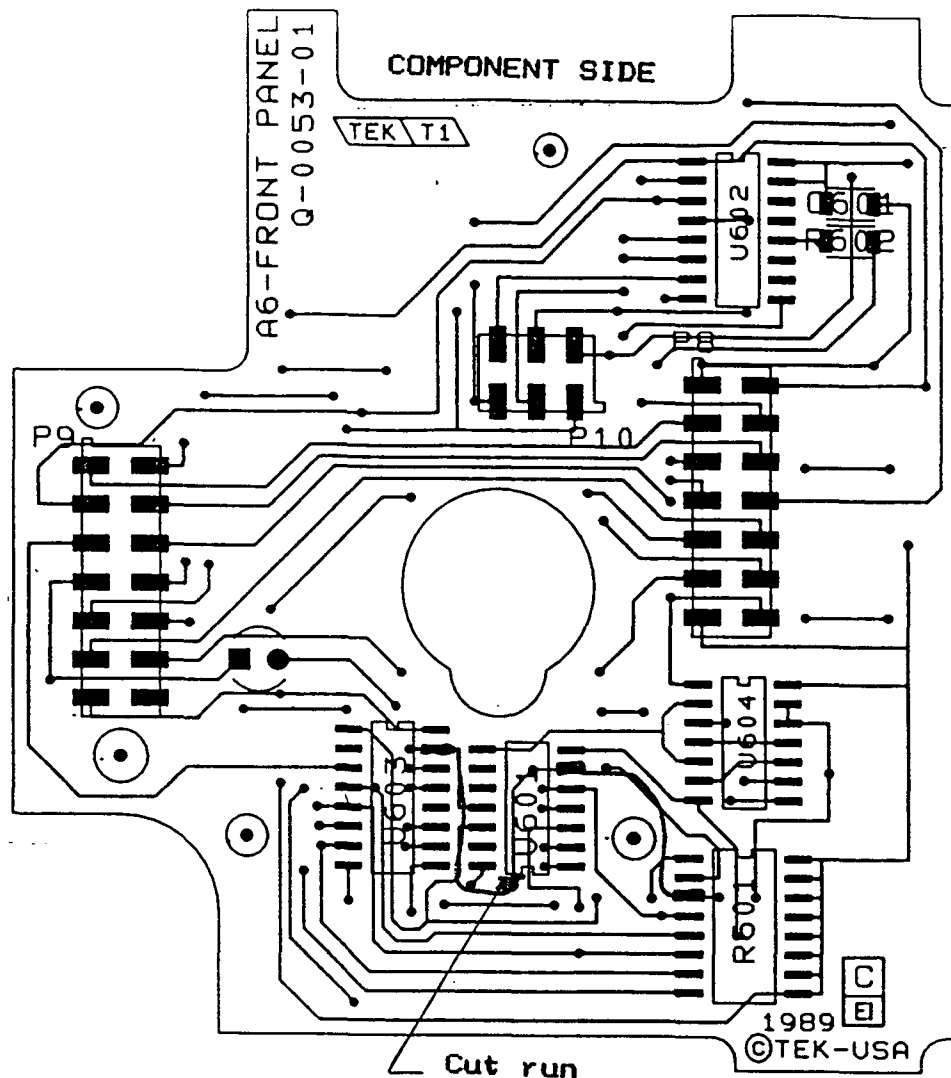
MODIFICATION OF FRONT PANEL BOARD

Cures lockup while using AUTOSETUP.
This mod is required for software versions 1.35 and below.

FRONT PANEL BOARD

1. Use pliers to remove glue. Remove board from Front Cabinet.
2. On non-component side of board:
Cut run on S612 (see illustration above for where to cut run).

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MODIFICATION OF FRONT PANEL BOARD (continued)

FRONT PANEL BOARD

On component side of board:

1. Cut run on via on U601 (near pin 1 mark of IC). See illustration.
2. Wire U603 pin 15 to the disconnected via.
3. Wire U601 pin 6 to R601 pin 3.
4. Then place Front Panel board over switch mat.
5. Use HOT MELT glue (see information about 3M Jet Melt Adhesive below).
6. Put one drop of glue on both the first and second pin on the top of the front cabinet.
7. Put one drop of glue on the pin on the bottom of the front cabinet.

Adhesive: AE-3779 JET MELT made by 3M or equivalent.
Adhesive gun: POLYGUN AE HOT JET MELT 100 watts (also made by 3M).

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ALT-S

Name: SCOPE	Description:		
NetID:	Number:		
UserID:	Password:		
Script: SCOPE	Device: MODEM	Terminal: DEC	
Keys: SCOPE	Filter:	Protocol: KERMIT	
Mode: call	Echo: off	Graphics: off	
Keyboard: user	Log: off	Keyclick: on	
Review: 8000	LPT: 1	Accept: all	
RedialCount: 0	RedialWait: 45 sec	Patience: 45 sec	
Answerback:			
name by which you refer to this setup			

Fig. 1

ALT-D

Modem device driver setup for session SCOPE

Port: 1	Speed: 9600 bps	DataBits: 8	Parity: none	StopBits: 1	
Local: on	Flow: xon/xoff	Breaklength: 200 ms			
DialPrefix: ATDT.....	DialSuffix: 				
AnswerSetup: ~ATV1S0=1	ModemInit: ~ATE0V1X1				

communications port to use

Fig. 2

ALT - T

DEC VT220/102/100/52 setup for session SCOPE

Tmode: VT102	MarginBell: off	SwapDel: off	AutoWrap: on	
Charset: US	FormFeed: off	NewLine: off	EightBit: off	
Columns: 80	PrintExtent: Region	LockFkey: Unlock	CurShape: Underline	

selects VT102 mode of operation

||

Fig. 3

ALT-C

Capture setup (currently off)

Capture: off

Cmode: normal

CbufSize: 1024

stop capturing incoming data and close capture file

FIG. 4

ALT-P

KERMIT protocol setup for session SCOPE

FileType: binary	Timing: normal	CheckType: single	
Header: ^A	ControlQuote: #	BinaryQuote: Y	RepeatChar: ~
WindowSize: 16	PacketSize: 94	PacketDelay: 0	
file may contain any type of information			

Fig. 5

ALT- U

Text file uploading setup

	LWait: none	CWait: none		
LineDelim:	BlankEx:	TabEx: off	LineTime: 0 sec	

send lines without waiting (recommended only for nonechoing hosts!) ||

Fig. 6

ALT- Y

Your system, preferences and local requirements setup

Backups: off	Codesave: on	DirMode: name	DirSort: name	
Menus: on	Secret: off	Checker: on	Flash: on	
Startup: autoexec	AltNums: session	KBbios: on	Video: steady	
OutNumber:	LDnumber:			
do not make backups of existing files when downloading or editing				

FIG. 7

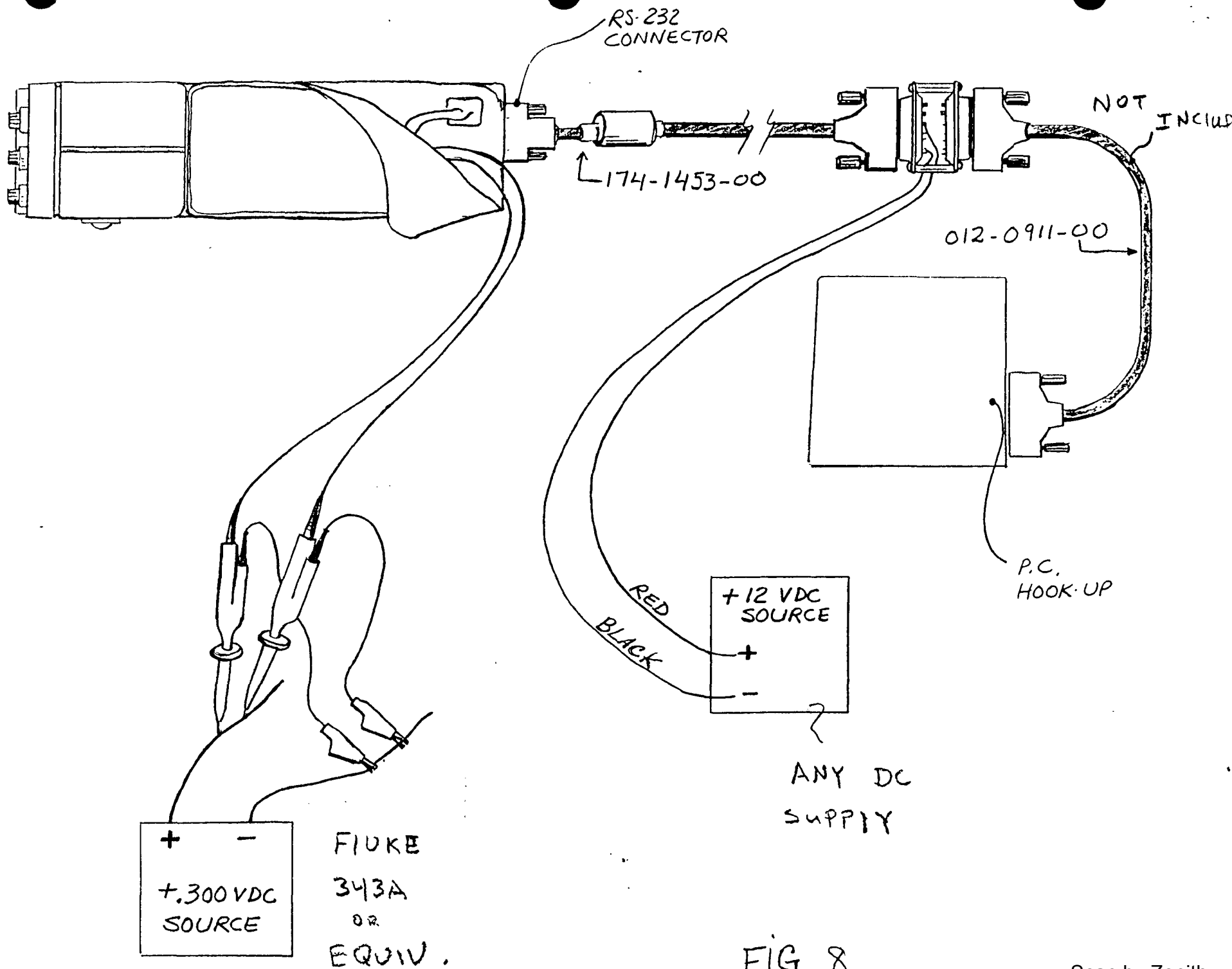


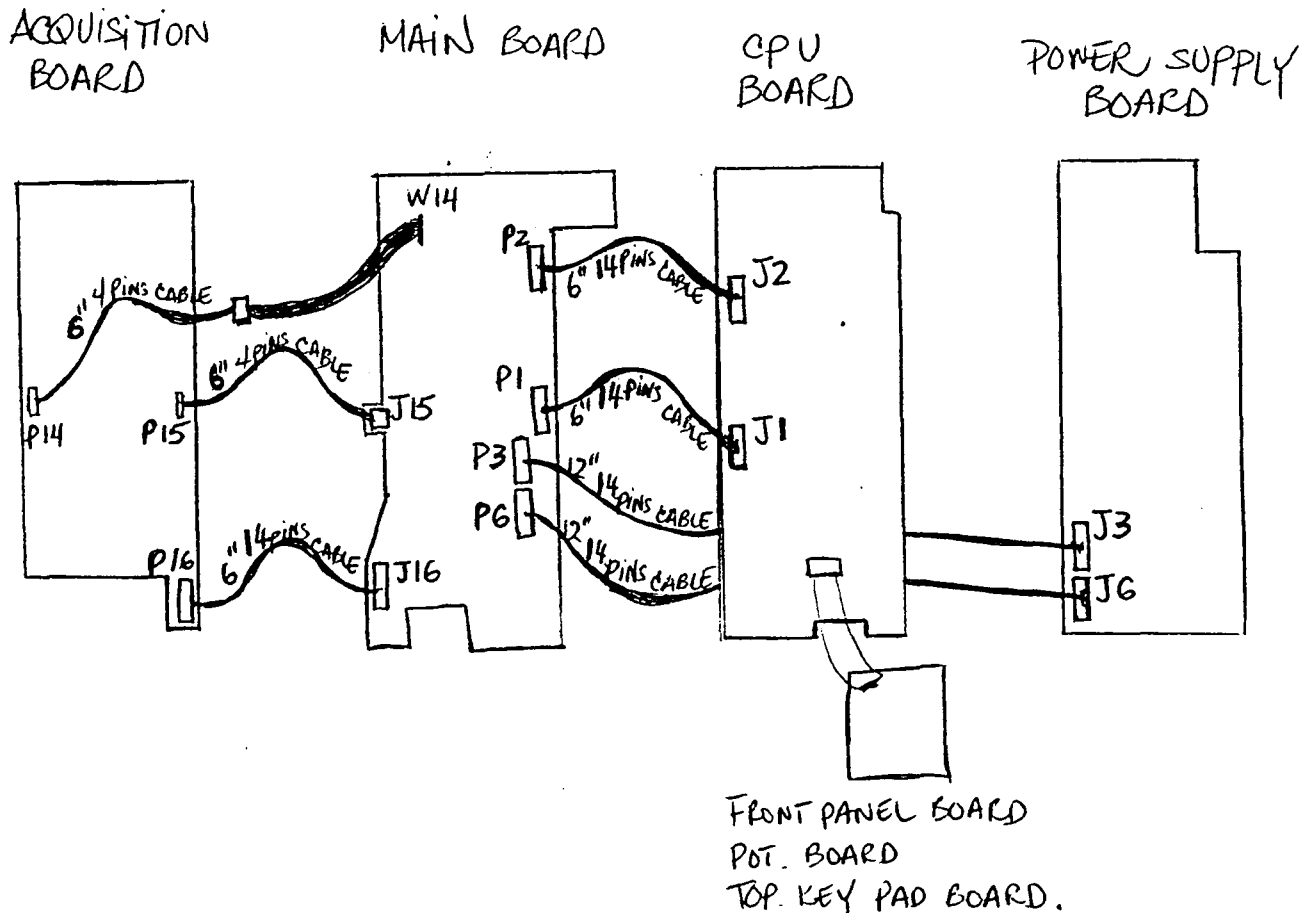
FIG. 8

EXPANDED INSTRUMENT FOR TROUBLESHOOTING

The 222 can be expanded and laid flat on a non-static surface for troubleshooting.

Following are procedure and illustration of the expanded boards:

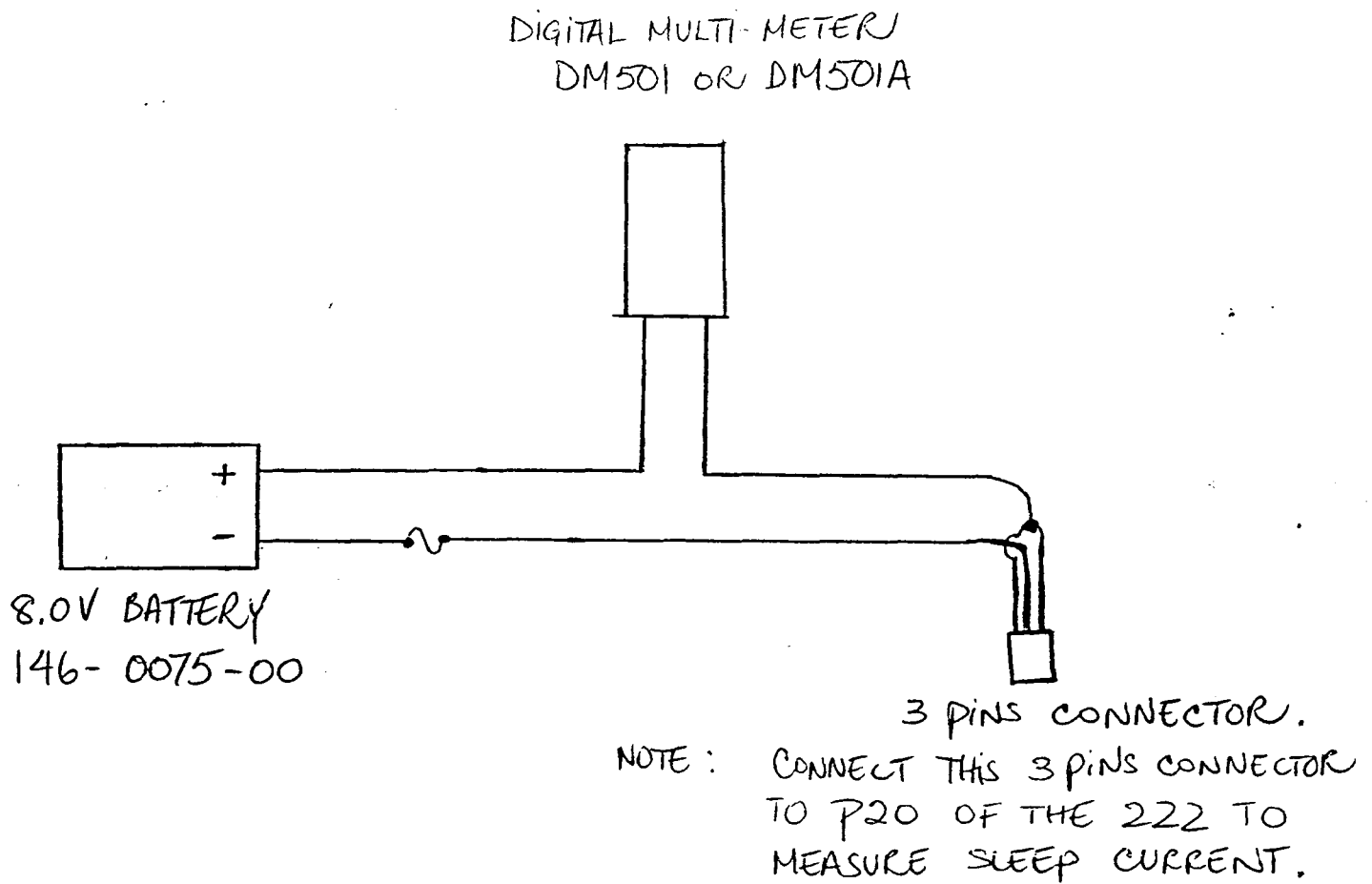
- Lay all 4 boards parallel to each other on a flat non-static surface. (Acquisition board on the far left and followed by main board, CPU board and power supply board.)
- Using 2 special 12 inches 14 pins cable connectors, 3 special 6 inches 14 pins cable connectors and 2 special 6 inches 4 pins cable connectors to connect boards together.
- Connect W8 connector from CPU board to P8 of front panel board, connect W9 connector from potentiometer board to P9 of front panel board, connect W10 connector from top keypad board to P10 of front panel board.



SLEEP MODE FIXTURE

Sleep mode fixture is used to measure the sleep current in the 222 during OFF stage.

Below is a diagram of the sleep mode fixture.



SLEEP MOD BATTERY CURRENT DRAIN
SPEC- ≤ 1.6 ma

SET: DM501 TO 2000 DC MA.
PLUG: In test battery to scope bottery pin on Main board.
PLUG: In banana pins to DMM.
UNPLUG: EXTRENAL POWER connector from scope.
TURN: Off Scope.
SET: DMM to 200 DC MA.
CHECK: DMM to read ≤ 1.6 ma.
UNPLUG: Banana pins form DM501.
UNPLUG: Test battery from scope.

Disconnect all connectors, shorting straps and front panel.

Press <ENTER> when finished.

671-0059-XX

MAIN CIRCUIT BOARD

222

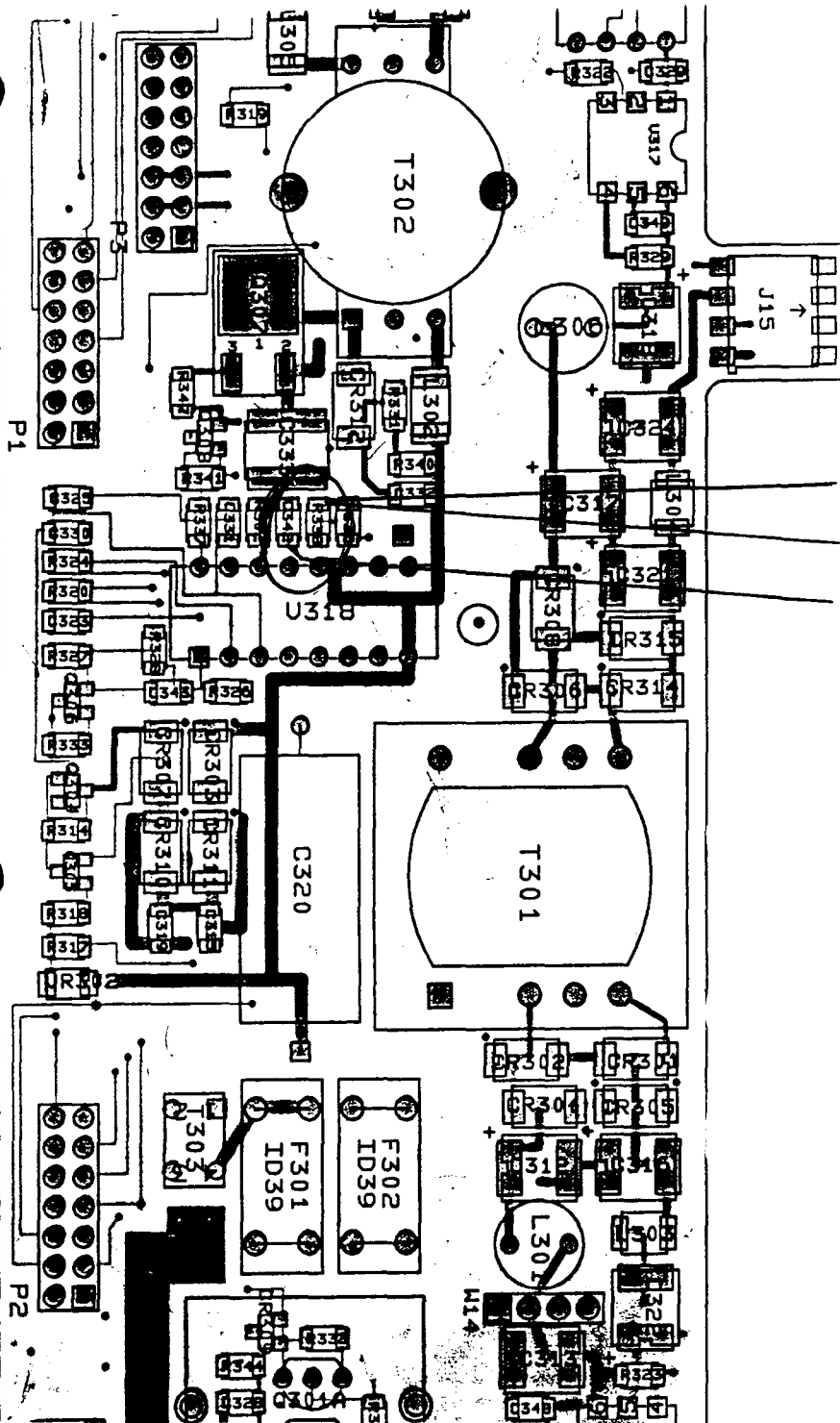
671-0059-XX MAIN CKT BOARD
388-9831-XX

BOARD LEVEL	CLASS	MOD # PAGE #	SUMMARY
00	REQ	3-1	To reduce the heat on the XI version MAIN board and eliminate the wall unit burn outs. Change the feed back circuit for current limit in the battery charger to reduce the limit from 1.2a to 980mA.
00	REQ	3-2	Change C320 from 220 uF cap to a 1000 uF cap. The 1000 uF cap is slightly larger in size than the 220 uF, and may need some protective salving on the leads.
01	REQ	M71709 B016226	Board version (XL) is a redesign. The 01 MAIN is a direct fit for the 00

671-0059-XX MAIN CKT BOARD
388-9831-XX

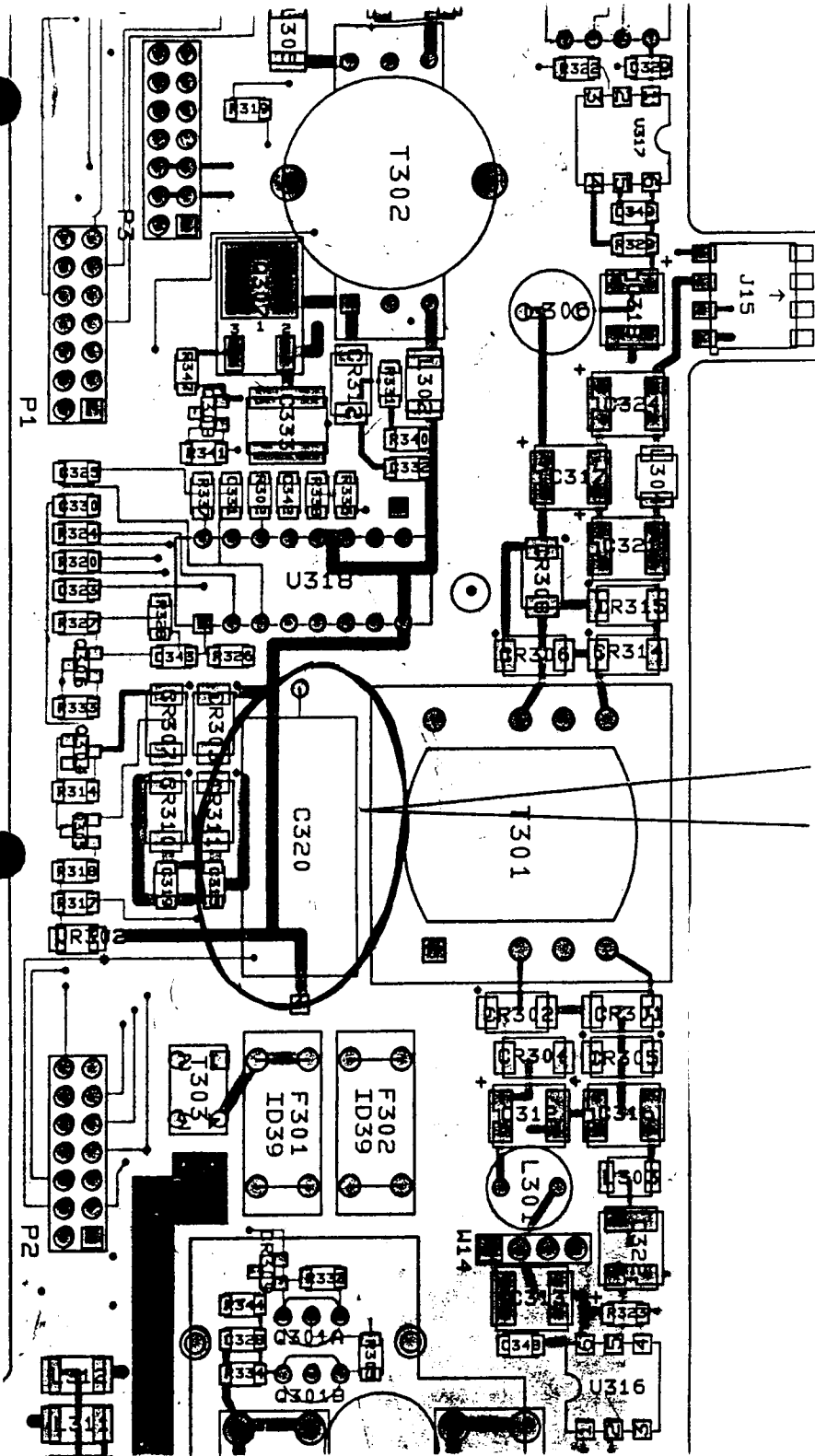
MODULE LEVEL	BOARD LEVEL	FILM LEVEL	PAGE NUMBER	CLASS	QUANTITY	PART NUMBER	MOD#
	00		3-1		1 ea	283-5004-00	
					1 ea	321-5018-00	
	00		3-2		1 ea	290-0984-00	

671-0059-XX MAIN CKT BOARD
388-9831-XX

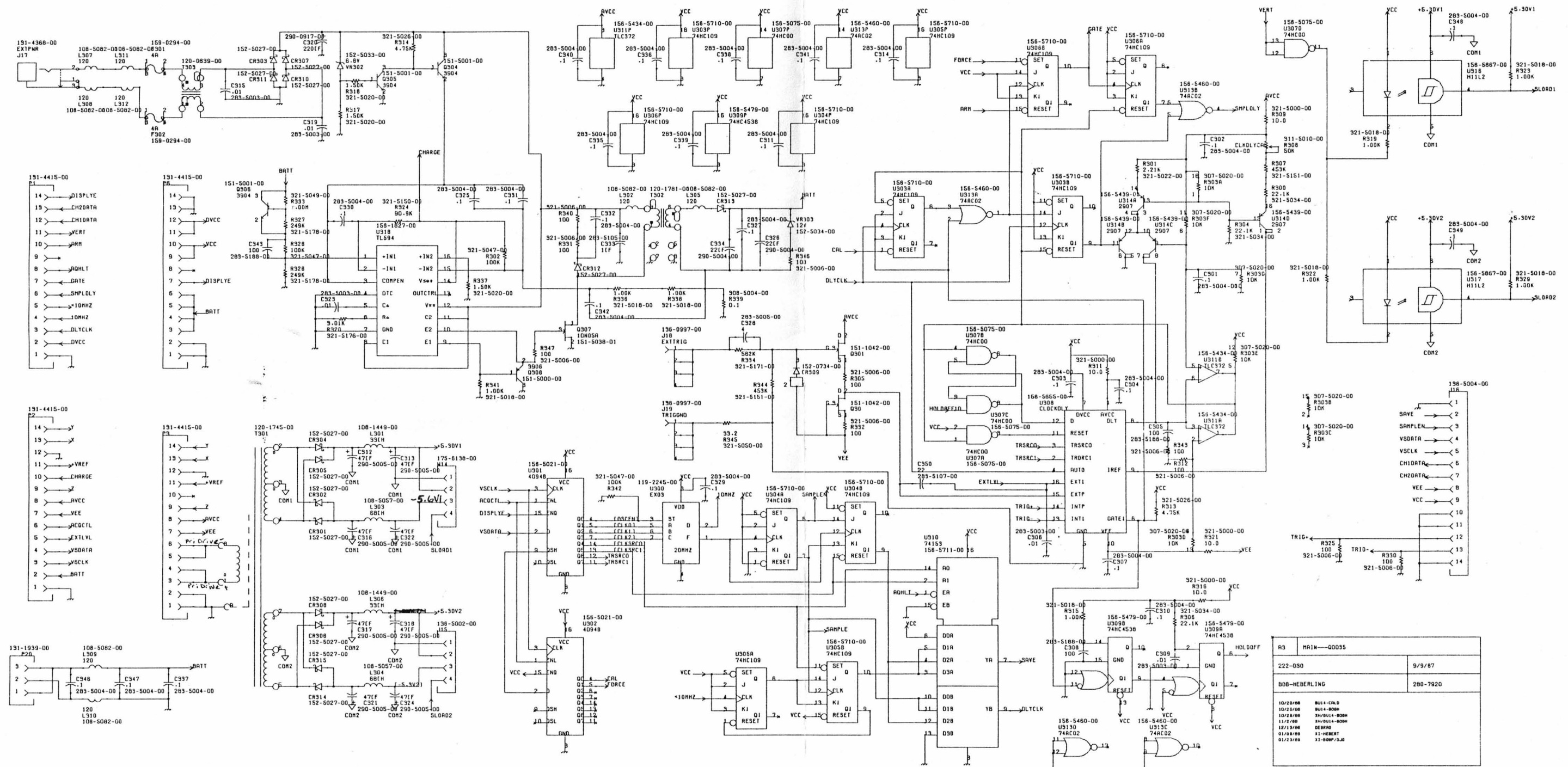


1. REMOVE: 321-5020-00 FROM R338.
2. ADD: 321-5018-00 TO R338.
3. ADD: 283-5004-00 TO C342.

671-0059-XX MAIN CKT BOARD
388-9831-XX



1. REMOVE: 290-0917-00 FROM C320.
2. ADD: 290-0984-00 TO C320.



671-0059-00
partlist for 222 Main (XI version)

A3	L301	108-1449-00	33 uH 10% Inductor
A3	L306	108-1449-00	33 uH 10% Inductor
A3	L303	108-5057-00	68 uH 10% Coil 1812
A3	L304	108-5057-00	68 uH 10% Coil 1812
A3	L302	108-5082-00	120 ohm Ferrite chip 1712
A3	L305	108-5082-00	120 ohm Ferrite chip 1712
A3	L307	108-5082-00	120 ohm Ferrite chip 1712
A3	L308	108-5082-00	120 ohm Ferrite chip 1712
A3	L309	108-5082-00	120 ohm Ferrite chip 1712
A3	L310	108-5082-00	120 ohm Ferrite chip 1712
A3	L311	108-5082-00	120 ohm Ferrite chip 1712
A3	L312	108-5082-00	120 ohm Ferrite chip 1712
A3	U300	119-2245-00	20 MHZ Crystal Oscillator 8 pin Dip
A3	T303	120-0639-00	Transformer - Toroid 4 leads
A3	T301	120-1745-00	Transformer - LV 8 pin 1 lead
A3	T302	120-1781-00	Transformer - Battery Charger 6 pin
A3	P20	131-1939-00	Qty .215 ea Connector 1 x 14 pin header
A3	J17	131-4368-00	Power Jack Socket side entry
A3	P1	131-4415-00	2 x 7 pin Connector
A3	P2	131-4415-00	2 x 7 pin Connector
A3	P3	131-4415-00	2 x 7 pin Connector
A3	P6	131-4415-00	2 x 7 pin Connector
A3	J18	136-0997-00	Banana Socket - Custom design
A3	J19	136-0997-00	Banana Socket - Custom design
A3	J15	136-5002-00	1 x 4 Socket side entry SMD-8
A3	J16	136-5004-00	2 x 7 Socket side entry SMD-14
A3	Q301A-B	151-1042-00	2N5454 JFET matched pair Transistor TO-92
A3	Q308	151-5000-00	3906 PNP Transistor SOT-23
A3	Q304	151-5001-00	3904 NPN Transistor SOT-23
A3	Q305	151-5001-00	3904 NPN Transistor SOT-23
A3	Q306	151-5001-00	3904 NPN Transistor SOT-23
A3	Q307	151-5038-01	10N05E NFET Transistor DPAK, 16mm T & R
A3	CR309	152-0734-00	Switching Diode SOT-23
A3	CR301	152-5027-00	40V Schottky Diode MLL41
A3	CR302	152-5027-00	40V Schottky Diode MLL41
A3	CR303	152-5027-00	40V Schottky Diode MLL41
A3	CR304	152-5027-00	40V Schottky Diode MLL41
A3	CR305	152-5027-00	40V Schottky Diode MLL41
A3	CR306	152-5027-00	40V Schottky Diode MLL41
A3	CR307	152-5027-00	40V Schottky Diode MLL41
A3	CR308	152-5027-00	40V Schottky Diode MLL41
A3	CR310	152-5027-00	40V Schottky Diode MLL41
A3	CR311	152-5027-00	40V Schottky Diode MLL41
A3	CR312	152-5027-00	40V Schottky Diode MLL41
A3	CR313	152-5027-00	40V Schottky Diode MLL41
A3	CR314	152-5027-00	40V Schottky Diode MLL41
A3	CR315	152-5027-00	40V Schottky Diode MLL41
A3	VR302	152-5033-00	6.8V Zener Diode MLL34
A3	VR303	152-5034-00	12V Zener Diode MLL34
A3	U318	156-1627-00	TL594 16 pin DIP
A3	U301	156-5021-01	4094B SO-16, 16mm T & R
A3	U302	156-5021-01	4094B SO-16, 16mm T & R
A3	U307	156-5075-03	74HC00 SO-14, 16mm T & R
A3	U313	156-5357-01	74HC02 SO-14, 16mm T & R
A3	U311	156-5434-01	TLC372 SO-8, 12mm T & R
A3	U314	156-5439-01	2907 Quad SO-16, 16mm T & R
A3	U309	156-5479-01	74HC4538 SO-16, 16mm T & R
A3	U308	156-5655-01	Clock Delay SO-16L, 16mm T & R
A3	U303	156-5710-01	74HC109 SO-16, 16mm T & R

A3	U304	156-5710-01	74HC109 SO-16, 16mm T & R
A3	U305	156-5710-01	74HC109 SO-16, 16mm T & R
A3	U306	156-5710-01	74HC109 SO-16, 16mm T & R
A3	U310	156-5711-01	74HC153 SO-16, 16mm T & R
A3	U316	156-5867-00	H11L2 6 pin Dip SMD
A3	U317	156-5867-00	H11L2 6 pin Dip SMD
A3	F301	159-0294-00	Fuse 4 Amp 2AG Fast-Blow
A3	F302	159-0294-00	Fuse 4 Amp 2AG Fast-Blow
A3		162-0004-00	Qty .438 ft - PVC tubing
A3		162-0026-00	Qty .057 ft Insulation sleeving
A3		162-0532-00	Qty .052 ft - Heat Shrink
A3	W14	175-6138-00	4 wide Ribbon Cable
A3	C306	283-5003-00	.01 uF 50V 10% Cap 1206
A3	C309	283-5003-00	.01 uF 50V 10% Cap 1206
A3	C315	283-5003-00	.01 uF 50V 10% Cap 1206
A3	C319	283-5003-00	.01 uF 50V 10% Cap 1206
A3	C323	283-5003-00	.01 uF 50V 10% Cap 1206
A3	C301	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C302	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C303	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C304	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C307	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C310	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C311	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C314	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C325	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C327	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C329	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C330	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C331	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C332	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C335	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C336	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C337	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C338	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C339	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C340	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C341	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C342	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C346	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C347	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C348	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C349	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C328	283-5005-00	4 pF 50V 5% Cap 1206
A3	C333	283-5105-00	1 uF 50V +80/-20% Cap 1825
A3	C350	283-5187-00	15 pF 100V 5% Cap 1206
A3	C305	283-5188-00	100 pF 100V 5% Cap 1206
A3	C308	283-5188-00	100 pF 100V 5% Cap 1206
A3	C343	283-5188-00	100 pF 100V 5% Cap 1206
A3	C320	290-0984-00	1000 uF 50V 20% Elect Cap
A3	C326	290-5004-00	22 uF 20V 10% Tant Cap 2816
A3	C334	290-5004-00	22 uF 20V 10% Tant Cap 2816
A3	C312	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C313	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C316	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C317	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C318	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C321	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C322	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C324	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	R303	307-5020-00	10K x 8 Res Pack SOMC-16
A3	R339	308-5004-00	.1 ohm 1% 1W Res 2515
A3	R308	311-5010-00	50K Var Res side adj - POT SMD
A3	R309	321-5000-00	10.0 ohm Res 1206
A3	R311	321-5000-00	10.0 ohm Res 1206
A3	R316	321-5000-00	10.0 ohm Res 1206

A3	R321	321-5000-00	10.0 ohm Res 1206
A3	R305	321-5006-00	100 ohm Res 1206
A3	R312	321-5006-00	100 ohm Res 1206
A3	R325	321-5006-00	100 ohm Res 1206
A3	R330	321-5006-00	100 ohm Res 1206
A3	R331	321-5006-00	100 ohm Res 1206
A3	R332	321-5006-00	100 ohm Res 1206
A3	R340	321-5006-00	100 ohm Res 1206
A3	R343	321-5006-00	100 ohm Res 1206
A3	R346	321-5006-00	100 ohm Res 1206
A3	R347	321-5006-00	100 ohm Res 1206
A3	R315	321-5018-00	1.00K Res 1206
A3	R319	321-5018-00	1.00K Res 1206
A3	R322	321-5018-00	1.00K Res 1206
A3	R323	321-5018-00	1.00K Res 1206
A3	R329	321-5018-00	1.00K Res 1206
A3	R336	321-5018-00	1.00K Res 1206
A3	R338	321-5018-00	1.00K Res 1206
A3	R341	321-5018-00	1.00K Res 1206
A3	R317	321-5020-00	1.50K Res 1206
A3	R318	321-5020-00	1.50K Res 1206
A3	R337	321-5020-00	1.50K Res 1206
A3	R301	321-5022-00	2.21K Res 1206
A3	R313	321-5026-00	4.75K Res 1206
A3	R314	321-5026-00	4.75K Res 1206
A3	R333	321-5049-00	1.00M Res 1206
A3	R300	321-5034-00	22.1K Res 1206
A3	R304	321-5034-00	22.1K Res 1206
A3	R306	321-5034-00	22.1K Res 1206
A3	R302	321-5047-00	100K Res 1206
A3	R328	321-5047-00	100K Res 1206
A3	R342	321-5047-00	100K Res 1206
A3	R345	321-5050-00	33.2 ohm Res 1206
A3	R324	321-5150-00	90.9K Res 1206
A3	R307	321-5151-00	453K Res 1206
A3	R344	321-5151-00	453K Res 1206
A3	R334	321-5171-00	562K Res 1206
A3	R320	321-5176-00	3.01K Res 1206
A3	R326	321-5178-00	249K Res 1206
A3	R327	321-5178-00	249K Res 1206
A3		337-3558-00	Qty 1 Shield - External Trigger
A3		342-0890-00	Qty 1 Insulator w/adhesive - Ext Trig
A3		344-0428-00	Qty 4 Fuseclip - 2AG
A3		348-1102-00	Qty 1 EMI Gasket .250 x .5 x .375
A3		388-9831-00	Qty .2 ea 5 in 1 ECB - Main



671-0059-01
partlist for 222 Main (XL version)

A3	L301	108-1449-00	33 uH 10% Inductor
A3	L306	108-1449-00	33 uH 10% Inductor
A3	L303	108-5057-00	68 uH 10% Coil 1812
A3	L304	108-5057-00	68 uH 10% Coil 1812
A3	L302	108-5082-00	120 ohm Ferrite chip 1712
A3	L305	108-5082-00	120 ohm Ferrite chip 1712
A3	L307	108-5082-00	120 ohm Ferrite chip 1712
A3	L308	108-5082-00	120 ohm Ferrite chip 1712
A3	L309	108-5082-00	120 ohm Ferrite chip 1712
A3	L310	108-5082-00	120 ohm Ferrite chip 1712
A3	L311	108-5082-00	120 ohm Ferrite chip 1712
A3	L312	108-5082-00	120 ohm Ferrite chip 1712
A3	U300	119-2245-00	20 MHZ Crystal Oscillator 8 pin Dip
A3	T303	120-0639-00	Transformer - Toroid 4 lead
A3	T301	120-1745-00	Transformer - LV 8 pin 1 lead
A3	T302	120-1781-00	Transformer - Battery Charger 6 pin
A3		131-1939-00	Qty .215 ea pin Connector
A3	J17	131-4368-00	Power Jack Socket side entry
A3	P1	131-4415-00	2 x 7 pin Connector
A3	P2	131-4415-00	2 x 7 pin Connector
A3	P3	131-4415-00	2 x 7 pin Connector
A3	P6	131-4415-00	2 x 7 pin Connector
A3	J18	136-0997-00	Banana Socket - Custom design
A3	J19	136-0997-00	Banana Socket - Custom design
A3	J15	136-5002-00	1 x 4 Socket side entry SMD-8
A3	J16	136-5004-00	2 x 7 Socket side entry SMD-14
A3	Q308	151-5000-00	3906 PNP Transistor SOT-23
A3	Q301	151-5001-00	3904 NPN Transistor SOT-23
A3	Q304	151-5001-00	3904 NPN Transistor SOT-23
A3	Q305	151-5001-00	3904 NPN Transistor SOT-23
A3	Q306	151-5001-00	3904 NPN Transistor SOT-23
A3	U312	151-5018-00	SST441 Dual JFET Transistors SO-8
A3	Q307	151-5038-01	10N05E NFET Transistor DPAK, 16mm T & R
A3	CR301	152-5027-00	40V Schottky Diode 2114
A3	CR302	152-5027-00	40V Schottky Diode 2114
A3	CR303	152-5027-00	40V Schottky Diode 2114
A3	CR304	152-5027-00	40V Schottky Diode 2114
A3	CR305	152-5027-00	40V Schottky Diode 2114
A3	CR306	152-5027-00	40V Schottky Diode 2114
A3	CR307	152-5027-00	40V Schottky Diode 2114
A3	CR308	152-5027-00	40V Schottky Diode 2114
A3	CR310	152-5027-00	40V Schottky Diode 2114
A3	CR311	152-5027-00	40V Schottky Diode 2114
A3	CR312	152-5027-00	40V Schottky Diode 2114
A3	CR313	152-5027-00	40V Schottky Diode 2114
A3	CR314	152-5027-00	40V Schottky Diode 2114
A3	CR315	152-5027-00	40V Schottky Diode 2114
A3	CR316	152-5027-00	40V Schottky Diode 2114
A3	VR301	152-5033-00	6.8V Zener Diode MLL34
A3	VR302	152-5033-00	6.8V Zener Diode MLL34
A3	VR303	152-5033-00	6.8V Zener Diode MLL34
A3	U301	156-5021-01	4094B SO-16, 16mm T & R
A3	U302	156-5021-01	4094B SO-16, 16mm T & R
A3	U307	156-5075-03	74HC00 SO-14, 16mm T & R
A3	U313	156-5357-01	74HC02 SO-14, 16mm T & R
A3	U311	156-5434-01	TLC372 SO-8, 12mm T & R
A3	U314	156-5439-01	2907 Quad SO-16, 16mm T & R
A3	U309	156-5479-01	74HC4538 SO-16, 16mm T & R
A3	U303	156-5710-01	74HC109 SO-16, 16mm T & R
A3	U304	156-5710-01	74HC109 SO-16, 16mm T & R
A3	U305	156-5710-01	74HC109 SO-16, 16mm T & R
A3	U306	156-5710-01	74HC109 SO-16, 16mm T & R

A3	U315	156-5710-01	74HC109 SO-16, 16mm T & R
A3	U310	156-5711-01	74HC153 SO-16, 16mm T & R
A3	U316	156-5867-00	H11L2 6 pin Dip SMD
A3	U317	156-5867-00	H11L2 6 pin Dip SMD
A3	U318	156-6084-01	TL594 SO-16, 16mm T & R
A3	F301	159-5000-00	Fuse 2.5 Amp Fast-Acting 2816
A3	F302	159-5000-00	Fuse 2.5 Amp Fast-Acting 2816
A3	F303	159-5000-00	Fuse 2.5 Amp Fast-Acting 2816
A3		162-0004-00	Qty .438 ft - PVC tubing
A3	W14	175-6138-00	4 wide Ribbon Cable
A3	U308	234-0743-20	Clock Delay SO-16L Ceramic package
A3	C306	283-5003-00	.01 uF 50V 10% Cap 1206
A3	C309	283-5003-00	.01 uF 50V 10% Cap 1206
A3	C315	283-5003-00	.01 uF 50V 10% Cap 1206
A3	C319	283-5003-00	.01 uF 50V 10% Cap 1206
A3	C323	283-5003-00	.01 uF 50V 10% Cap 1206
A3	C301	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C302	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C303	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C304	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C307	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C310	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C311	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C314	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C325	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C327	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C329	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C330	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C331	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C332	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C335	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C336	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C337	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C338	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C339	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C340	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C341	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C342	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C348	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C349	283-5004-00	.1 uF 25V 10% Cap 1206
A3	C328	283-5005-00	4 pF 50V 5% Cap 1206
A3	C333	283-5105-00	1 uF 50V Cap 1825
A3	C350	283-5187-00	15 pF 100V 5% Cap 1206
A3	C305	283-5188-00	100 pF 100V 5% Cap 1206
A3	C308	283-5188-00	100 pF 100V 5% Cap 1206
A3	C343	283-5188-00	100 pF 100V 5% Cap 1206
A3	C320	290-1235-00	1000 uF 35V 20% Alum Cap
A3	C326	290-5004-00	22 uF 20V 10% Tant Cap 2816
A3	C334	290-5004-00	22 uF 20V 10% Tant Cap 2816
A3	C312	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C313	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C316	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C317	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C318	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C321	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C322	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	C324	290-5005-00	47 uF 10V 10% Tant Cap 2218
A3	R303	307-5020-00	10K x 8 Res Pack SOMC-16
A3	R339	308-5004-00	.1 ohm 1% 1W Res 2515
A3	R308	311-5010-00	50K Var Res side adj POT-SMD
A3	R309	321-5000-00	10.0 ohm Res 1206
A3	R311	321-5000-00	10.0 ohm Res 1206
A3	R316	321-5000-00	10.0 ohm Res 1206
A3	R321	321-5000-00	10.0 ohm Res 1206
A3	R305	321-5006-00	100 ohm Res 1206
A3	R312	321-5006-00	100 ohm Res 1206

A3	R325	321-5006-00	100 ohm Res 1206
A3	R330	321-5006-00	100 ohm Res 1206
A3	R331	321-5006-00	100 ohm Res 1206
A3	R332	321-5006-00	100 ohm Res 1206
A3	R340	321-5006-00	100 ohm Res 1206
A3	R343	321-5006-00	100 ohm Res 1206
A3	R347	321-5006-00	100 ohm Res 1206
A3	R315	321-5018-00	1.00K Res 1206
A3	R319	321-5018-00	1.00K Res 1206
A3	R322	321-5018-00	1.00K Res 1206
A3	R323	321-5018-00	1.00K Res 1206
A3	R329	321-5018-00	1.00K Res 1206
A3	R336	321-5018-00	1.00K Res 1206
A3	R338	321-5018-00	1.00K Res 1206
A3	R341	321-5018-00	1.00K Res 1206
A3	R317	321-5020-00	1.50K Res 1206
A3	R318	321-5020-00	1.50K Res 1206
A3	R337	321-5020-00	1.50K Res 1206
A3	R301	321-5022-00	2.21K Res 1206
A3	R313	321-5026-00	4.75K Res 1206
A3	R314	321-5026-00	4.75K Res 1206
A3	R300	321-5034-00	22.1K Res 1206
A3	R304	321-5034-00	22.1K Res 1206
A3	R306	321-5034-00	22.1K Res 1206
A3	R302	321-5047-00	100K Res 1206
A3	R328	321-5047-00	100K Res 1206
A3	R342	321-5047-00	100K Res 1206
A3	R346	321-5050-00	33.2 ohm Res 1206
A3	R324	321-5150-00	90.9K Res 1206
A3	R307	321-5151-00	453K Res 1206
A3	R344	321-5151-00	453K Res 1206
A3	R334	321-5171-00	562K Res 1206
A3	R320	321-5176-00	3.01K Res 1206
A3	R326	321-5178-00	249K Res 1206
A3	R327	321-5178-00	249K Res 1206
A3	R333	321-5261-00	2.00M Res 1206
A3	R335	321-5261-00	2.00M Res 1206
A3		337-3558-00	Qty 1 Shield - External Trigger
A3		342-0890-00	Qty 1 Insulator w/adhesive - Ext Trig
A3		348-1102-00	Qty 1 EMI Gasket .250 x .5 x .375
A3		388-9831-02	Qty .2 ea ECB - 5 in 1 Flat

671-0060-xx

ACQUISITION CIRCUIT BOARD

222

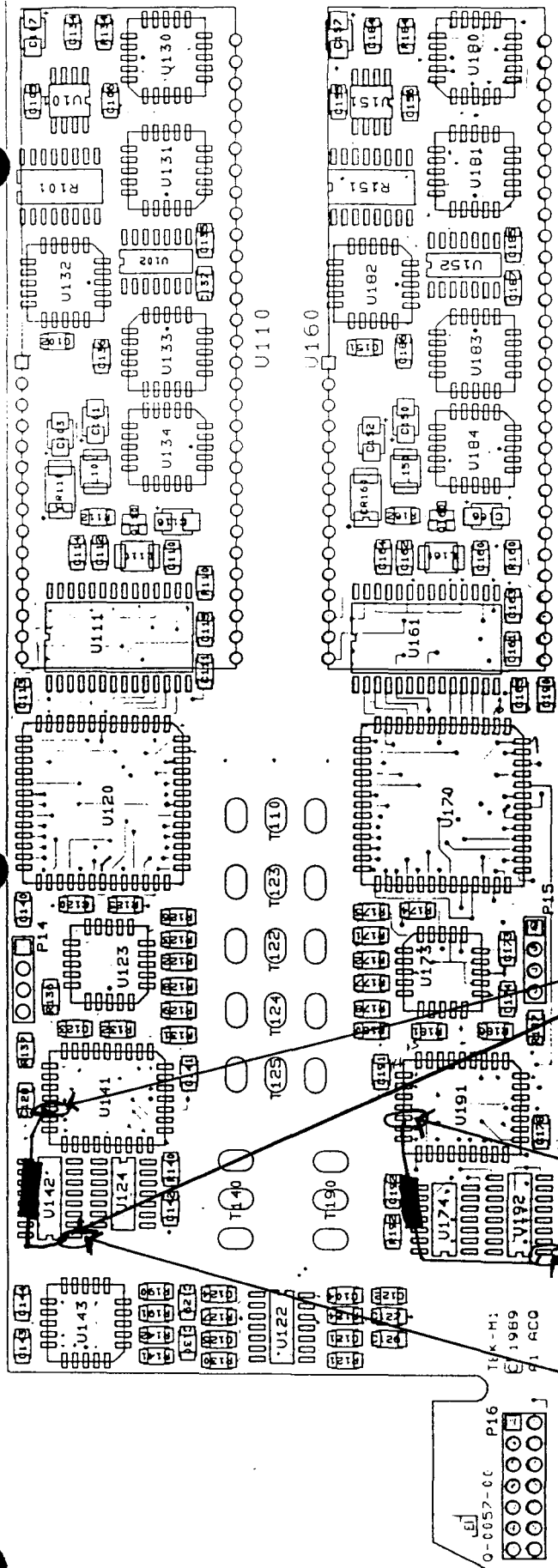
671-0060-XX ACQUISITION CKT BOARD
388-9831-XX

BOARD LEVEL	CLASS	MOD # PAGE #	SUMMARY
00	REQ	3-1	To any board exhibiting: A race condition exists between the signals applied to the parallel load and serial clock inputs of these parts. Result on screen is rain when trace is positioned exactly in the center.
01	REQ	M71561 3-2 <u>BELOW</u> B013711	The U.V. adhesive that is used to bond the pulse transformers may degrade over time which causes separation of the E core (276-0820-00) I bar (276-0821-00) assembly. The result is an intermittent or complete loss of sweep display. Replace the adhesive with ferrite clips, The smaller shield will not fit. The 380-0902-00 shield will roll to an 01.
02		M71709 <u>BELOW</u> B016226	Board version XL is a redesign. The 02 ACQUISITION is a direct fit for the 01

671-0060-XX ACQUISITION CKT BOARD
388-9831-XX

MODULE LEVEL	BOARD LEVEL	FILM LEVEL	PAGE NUMBER	CLASS	QUANTITY	PART NUMBER	MOD#
	00		3-1		2 ea	322-3258-00	
	01		3-2		7 ea	344-0439-00	71561
					7 ea	276-0820-00	
					7 ea	276-0821-00	
					1 ea	380-0902-01	

671-0060-XX ACQUISITION CKT BOARD
388-9831-XX

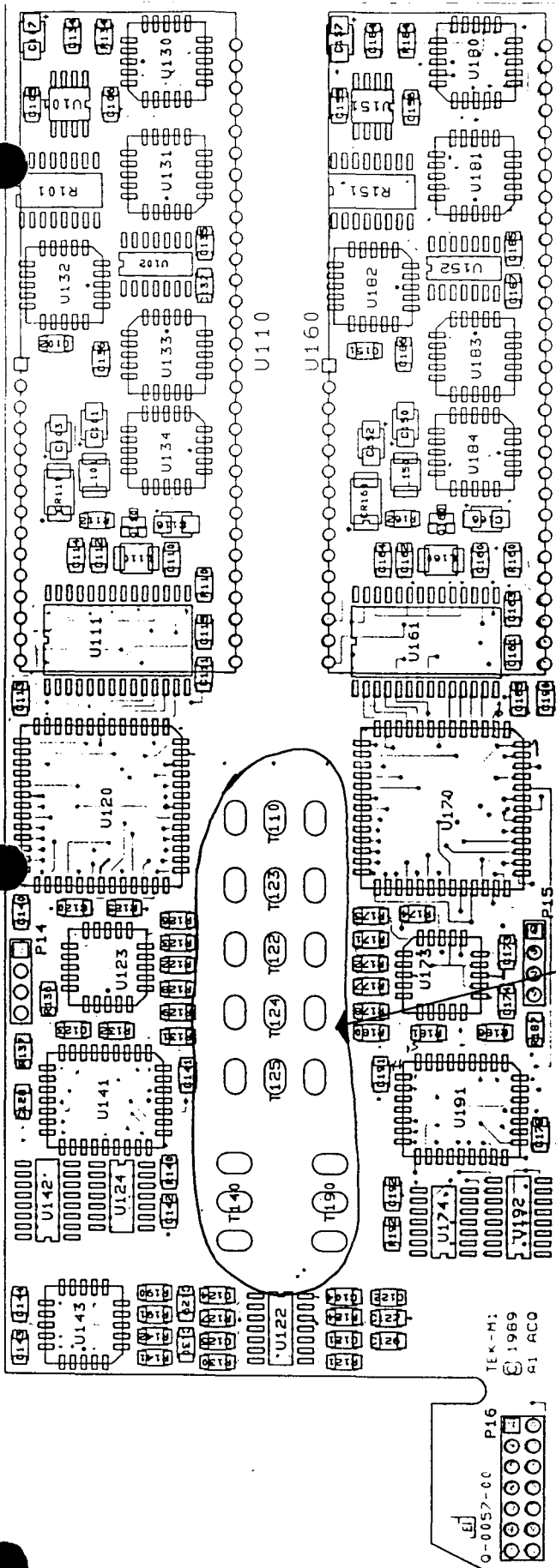


3. ADD: 322-3258-00 TO PIN (1) OF
U142 AND PIN (18) U141

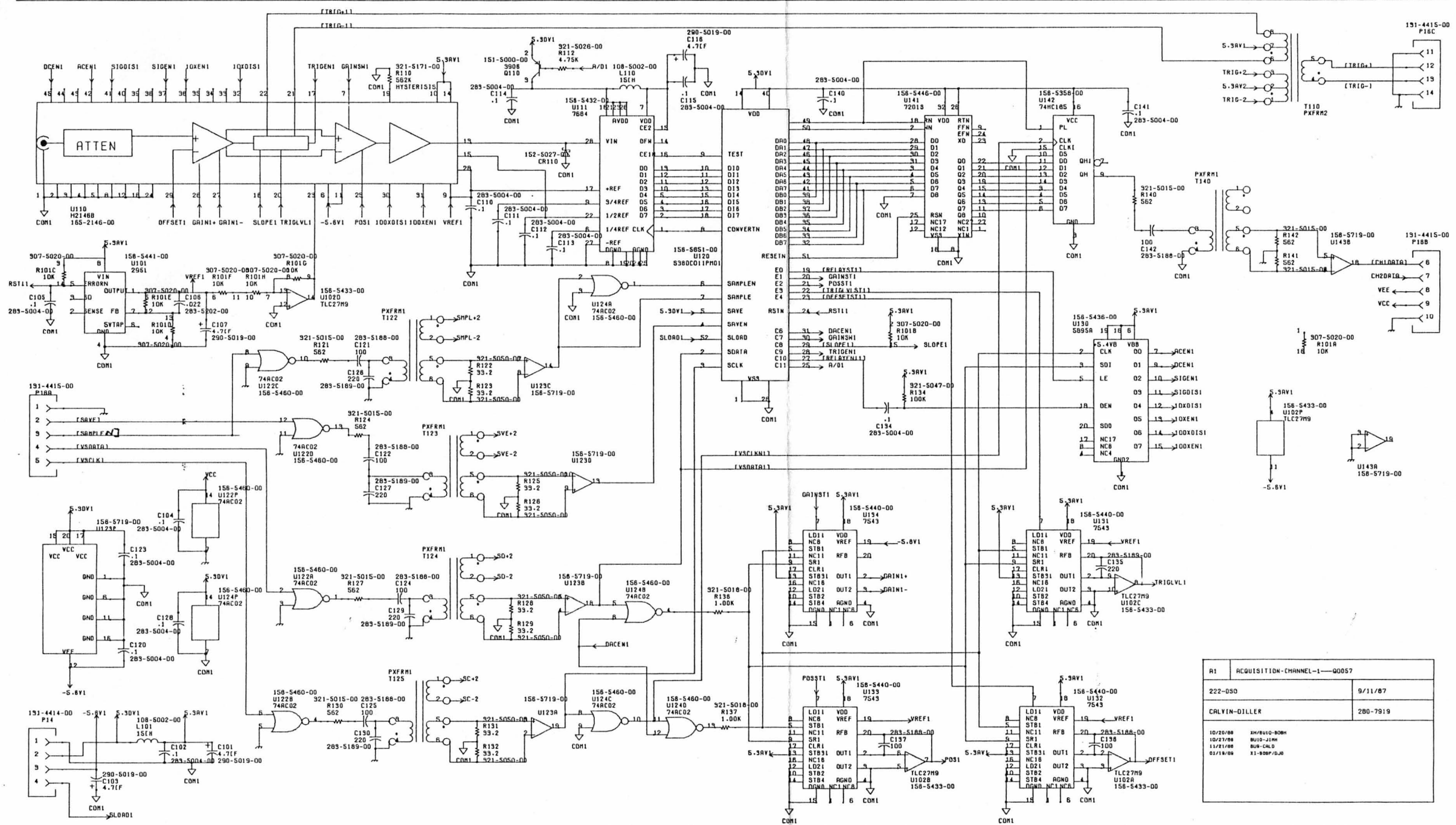
2. ADD: 322-3258-00 TO PIN (1) OF
U192 AND PIN (18) U191.

1. LIFT PIN (1) OF U142 AND U192

671-0060-XX ACQUISITION CKT BOARD
388-9831-XX



1. REMOVE "GLUED" E & I CORES.
2. ADD: (7) 344-0439-00 (CLIPS); (7) 276-0820-00 (E CORE) & (7) 276-0821-00 (I BAR).*
- * INSERT 276-0820-00 IN BOTTOM OF CLIP; INSERT CLIP/CORE THRU BOTTOM OF ECB; ADD 276-0821-00 TO CLIP ON TOP OF ECB.
3. THE LARGER SHIELD IS REQUIRED, 380-0902-01.

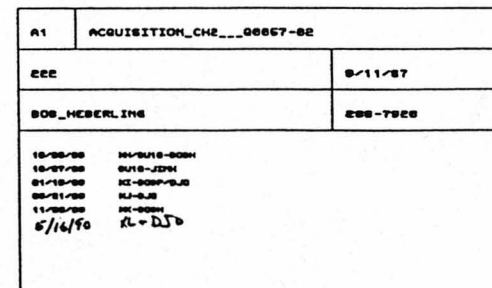


671-0060-01
partlist for 222 Acquisistion (XI version)

A1	L101	108-5002-00	15 uH 10% Coil 1812
A1	L110	108-5002-00	15 uH 10% Coil 1812
A1	L150	108-5002-00	15 uH 10% Coil 1812
A1	L160	108-5002-00	15 uH 10% Coil 1812
A1		131-3625-00	Qty 6 Socket 15 pin SIP
A1	P14	131-4414-00	1 x 4 pin Connector
A1	P15	131-4414-00	1 x 4 pin Connector
A1	P16	131-4415-00	2 x 7 pin Connector
A1	Q110	151-5000-00	3906 PNP Transistor SOT-23
A1	Q160	151-5000-00	3906 PNP Transistor SOT-23
A1	CR110	152-5027-00	40V Schottky Diode MLL41
A1	CR160	152-5027-00	40V Schottky Diode MLL41
A1	U122	156-5357-01	74HC02 SO-14, 16mm T & R
A1	U124	156-5357-01	74HC02 SO-14, 16mm T & R
A1	U174	156-5357-01	74HC02 SO-14, 16mm T & R
A1	U142	156-5358-00	74HC165 SO-16
A1	U192	156-5358-00	74HC165 SO-16
A1	U111	156-5432-00	7684 SOML-28
A1	U161	156-5432-00	7684 SOML-28
A1	U102	156-5433-01	TLC27M9 SO-14, 16mm T & R
A1	U152	156-5433-01	TLC27M9 SO-14, 16mm T & R
A1	U130	156-5436-01	5895A PLCC-20, 16mm T & R
A1	U180	156-5436-01	5895A PLCC-20, 16mm T & R
A1	U131	156-5440-00	7543 PLCC-20
A1	U132	156-5440-00	7543 PLCC-20
A1	U133	156-5440-00	7543 PLCC-20
A1	U134	156-5440-00	7543 PLCC-20
A1	U181	156-5440-00	7543 PLCC-20
A1	U182	156-5440-00	7543 PLCC-20
A1	U183	156-5440-00	7543 PLCC-20
A1	U184	156-5440-00	7543 PLCC-20
A1	U101	156-5441-01	2951 SO-8, 12mm T & R
A1	U151	156-5441-01	2951 SO-8, 12mm T & R
A1	U141	156-5446-01	7201 PLCC-32, 24mm T & R
A1	U191	156-5446-01	7201 PLCC-32, 24mm T & R
A1	U120	156-5651-01	DPD PLCC-52, 32mm T & R
A1	U170	156-5651-01	DPD PLCC-52, 32mm T & R
A1	U123	156-5719-01	Interface Driver PLCC-20, 16mm T & R
A1	U143	156-5719-01	Interface Driver PLCC-20, 16mm T & R
A1	U173	156-5719-01	Interface Driver PLCC-20, 16mm T & R
A1	U110	165-2146-00	Atten Hybrid 45 pin
A1	U160	165-2146-00	Atten Hybrid 45 pin
A1		276-0820-00	Qty 7 Ferrite E core
A1		276-0821-00	Qty 7 Ferrite I core
A1	C102	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C104	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C105	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C110	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C111	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C112	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C113	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C114	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C115	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C120	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C123	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C128	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C134	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C140	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C141	283-5004-00	.1 uF 25V 10% Cap 1206

A1	C143	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C144	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C151	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C155	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C160	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C161	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C162	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C163	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C164	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C165	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C173	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C174	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C178	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C184	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C190	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C191	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C121	283-5188-00	100 pF 100V 5% Cap 1206
A1	C122	283-5188-00	100 pF 100V 5% Cap 1206
A1	C124	283-5188-00	100 pF 100V 5% Cap 1206
A1	C125	283-5188-00	100 pF 100V 5% Cap 1206
A1	C136	283-5188-00	100 pF 100V 5% Cap 1206
A1	C137	283-5188-00	100 pF 100V 5% Cap 1206
A1	C142	283-5188-00	100 pF 100V 5% Cap 1206
A1	C186	283-5188-00	100 pF 100V 5% Cap 1206
A1	C187	283-5188-00	100 pF 100V 5% Cap 1206
A1	C192	283-5188-00	100 pF 100V 5% Cap 1206
A1	C126	283-5189-00	220 pF 100V 5% Cap 1206
A1	C127	283-5189-00	220 pF 100V 5% Cap 1206
A1	C129	283-5189-00	220 pF 100V 5% Cap 1206
A1	C130	283-5189-00	220 pF 100V 5% Cap 1206
A1	C135	283-5189-00	220 pF 100V 5% Cap 1206
A1	C185	283-5189-00	220 pF 100V 5% Cap 1206
A1	C106	283-5202-00	.022 uF 50V 10% Cap 1206
A1	C156	283-5202-00	.022 uF 50V 10% Cap 1206
A1	C101	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C103	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C107	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C116	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C150	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C152	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C157	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C166	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	R101	307-5020-00	10K x 8 Res Pack SOMC-16
A1	R151	307-5020-00	10K x 8 Res Pack SOMC-16
A1	R121	321-5015-00	562 ohm Res 1206
A1	R124	321-5015-00	562 ohm Res 1206
A1	R127	321-5015-00	562 ohm Res 1206
A1	R130	321-5015-00	562 ohm Res 1206
A1	R140	321-5015-00	562 ohm Res 1206
A1	R141	321-5015-00	562 ohm Res 1206
A1	R142	321-5015-00	562 ohm Res 1206
A1	R190	321-5015-00	562 ohm Res 1206
A1	R191	321-5015-00	562 ohm Res 1206
A1	R192	321-5015-00	562 ohm Res 1206
A1	R136	321-5018-00	1.00K Res 1206
A1	R137	321-5018-00	1.00K Res 1206
A1	R186	321-5018-00	1.00K Res 1206
A1	R187	321-5018-00	1.00K Res 1206
A1	R112	321-5026-00	4.75K Res 1206
A1	R162	321-5026-00	4.75K Res 1206
A1	R134	321-5047-00	100K Res 1206
A1	R184	321-5047-00	100K Res 1206
A1	R122	321-5050-00	33.2 ohm Res 1206
A1	R123	321-5050-00	33.2 ohm Res 1206
A1	R125	321-5050-00	33.2 ohm Res 1206
A1	R126	321-5050-00	33.2 ohm Res 1206

A1	R128	321-5050-00	33.2 ohm Res 1206
A1	R129	321-5050-00	33.2 ohm Res 1206
A1	R131	321-5050-00	33.2 ohm Res 1206
A1	R132	321-5050-00	33.2 ohm Res 1206
A1	R171	321-5050-00	33.2 ohm Res 1206
A1	R172	321-5050-00	33.2 ohm Res 1206
A1	R174	321-5050-00	33.2 ohm Res 1206
A1	R175	321-5050-00	33.2 ohm Res 1206
A1	R177	321-5050-00	33.2 ohm Res 1206
A1	R178	321-5050-00	33.2 ohm Res 1206
A1	R180	321-5050-00	33.2 ohm Res 1206
A1	R181	321-5050-00	33.2 ohm Res 1206
A1	R110	321-5171-00	562K Res 1206
A1	R160	321-5171-00	562K Res 1206
A1	R143	322-3258-00	4.75K Res 1% .125W leaded
A1	R193	322-3258-00	4.75K Res 1% .125W leaded
A1		344-0439-00	Qty 7 Clip - E/I Core
A1		348-1100-00	Qty 2 EMI Gasket .125 x .5 x .375
A1		388-9831-00	Qty .2 ea 5 in 1 ECB - Acquisition



671-0060-02
partlist for 222 Acquisition (XL version)

A1	L101	108-5002-00	15 uH 10% Coil 1812
A1	L110	108-5002-00	15 uH 10% Coil 1812
A1	L150	108-5002-00	15 uH 10% Coil 1812
A1	L160	108-5002-00	15 uH 10% Coil 1812
A1		131-3625-00	Qty 6 Socket 15 pin SIP
A1	P14	131-4414-00	1 x 4 pin Connector
A1	P15	131-4414-00	1 x 4 pin Connector
A1	P16	131-4415-00	2 x 7 pin Connector
A1	U122	156-5357-01	74HC02 SO-14, 16mm T & R
A1	U124	156-5357-01	74HC02 SO-14, 16mm T & R
A1	U174	156-5357-01	74HC02 SO-14, 16mm T & R
A1	U142	156-5358-00	74HC165 SO-16
A1	U192	156-5358-00	74HC165 SO-16
A1	U102	156-5433-01	TLC27M9 SO-14, 16mm T & R
A1	U152	156-5433-01	TLC27M9 SO-14, 16mm T & R
A1	U130	156-5436-01	5895A PLCC-20, 16mm T & R
A1	U180	156-5436-01	5895A PLCC-20, 16mm T & R
A1	U101	156-5441-01	2951 SO-8, 12mm T & R
A1	U151	156-5441-01	2951 SO-8, 12mm T & R
A1	U141	156-5446-01	7201 PLCC-32, 24mm T & R
A1	U191	156-5446-01	7201 PLCC-32, 24mm T & R
A1	U120	156-5651-01	DPD PLCC-52, 32mm T & R
A1	U170	156-5651-01	DPD PLCC-52, 32mm T & R
A1	U123	156-5719-01	Interface Driver PLCC-20, 16mm T & R
A1	U143	156-5719-01	Interface Driver PLCC-20, 16mm T & R
A1	U173	156-5719-01	Interface Driver PLCC-20, 16mm T & R
A1	U111	156-5909-01	1175 SO-24M2, 24mm T & R
A1	U161	156-5909-01	1175 SO-24M2, 24mm T & R
A1	U131	156-6011-01	7543 SO-16L, 16mm T & R
A1	U132	156-6011-01	7543 SO-16L, 16mm T & R
A1	U133	156-6011-01	7543 SO-16L, 16mm T & R
A1	U134	156-6011-01	7543 SO-16L, 16mm T & R
A1	U181	156-6011-01	7543 SO-16L, 16mm T & R
A1	U182	156-6011-01	7543 SO-16L, 16mm T & R
A1	U183	156-6011-01	7543 SO-16L, 16mm T & R
A1	U184	156-6011-01	7543 SO-16L, 16mm T & R
A1	U110	165-2146-00	Atten Hybrid 45 pin
A1	U160	165-2146-00	Atten Hybrid 45 pin
A1		276-0820-00	Qty 7 Ferrite E core
A1		276-0821-00	Qty 7 Ferrite I core
A1	C111	283-0330-00	100 pF 50V 5% Disc Cap
A1	C161	283-0330-00	100 pF 50V 5% Disc Cap
A1	C102	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C104	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C105	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C106	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C110	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C114	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C115	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C120	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C123	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C128	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C134	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C140	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C141	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C143	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C144	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C151	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C155	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C156	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C160	283-5004-00	.1 uF 25V 10% Cap 1206

A1	C164	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C165	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C173	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C174	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C178	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C184	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C190	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C191	283-5004-00	.1 uF 25V 10% Cap 1206
A1	C121	283-5188-00	100 pF 100V 5% Cap 1206
A1	C122	283-5188-00	100 pF 100V 5% Cap 1206
A1	C124	283-5188-00	100 pF 100V 5% Cap 1206
A1	C125	283-5188-00	100 pF 100V 5% Cap 1206
A1	C136	283-5188-00	100 pF 100V 5% Cap 1206
A1	C137	283-5188-00	100 pF 100V 5% Cap 1206
A1	C142	283-5188-00	100 pF 100V 5% Cap 1206
A1	C186	283-5188-00	100 pF 100V 5% Cap 1206
A1	C187	283-5188-00	100 pF 100V 5% Cap 1206
A1	C192	283-5188-00	100 pF 100V 5% Cap 1206
A1	C126	283-5189-00	220 pF 100V 5% Cap 1206
A1	C127	283-5189-00	220 pF 100V 5% Cap 1206
A1	C129	283-5189-00	220 pF 100V 5% Cap 1206
A1	C130	283-5189-00	220 pF 100V 5% Cap 1206
A1	C135	283-5189-00	220 pF 100V 5% Cap 1206
A1	C185	283-5189-00	220 pF 100V 5% Cap 1206
A1	C101	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C103	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C107	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C116	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C150	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C152	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C157	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	C166	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A1	R101	307-5020-00	10K x 8 Res Pack SOMC-16
A1	R151	307-5020-00	10K x 8 Res Pack SOMC-16
A1	R121	321-5015-00	562 ohm Res 1206
A1	R124	321-5015-00	562 ohm Res 1206
A1	R127	321-5015-00	562 ohm Res 1206
A1	R130	321-5015-00	562 ohm Res 1206
A1	R140	321-5015-00	562 ohm Res 1206
A1	R141	321-5015-00	562 ohm Res 1206
A1	R142	321-5015-00	562 ohm Res 1206
A1	R190	321-5015-00	562 ohm Res 1206
A1	R191	321-5015-00	562 ohm Res 1206
A1	R192	321-5015-00	562 ohm Res 1206
A1	R136	321-5018-00	1.00K Res 1206
A1	R137	321-5018-00	1.00K Res 1206
A1	R143	321-5018-00	1.00K Res 1206
A1	R186	321-5018-00	1.00K Res 1206
A1	R187	321-5018-00	1.00K Res 1206
A1	R193	321-5018-00	1.00K Res 1206
A1	R134	321-5047-00	100K Res 1206
A1	R184	321-5047-00	100K Res 1206
A1	R122	321-5050-00	33.2 ohm Res 1206
A1	R123	321-5050-00	33.2 ohm Res 1206
A1	R125	321-5050-00	33.2 ohm Res 1206
A1	R126	321-5050-00	33.2 ohm Res 1206
A1	R128	321-5050-00	33.2 ohm Res 1206
A1	R129	321-5050-00	33.2 ohm Res 1206
A1	R131	321-5050-00	33.2 ohm Res 1206
A1	R132	321-5050-00	33.2 ohm Res 1206
A1	R171	321-5050-00	33.2 ohm Res 1206
A1	R172	321-5050-00	33.2 ohm Res 1206
A1	R174	321-5050-00	33.2 ohm Res 1206
A1	R175	321-5050-00	33.2 ohm Res 1206
A1	R177	321-5050-00	33.2 ohm Res 1206
A1	R178	321-5050-00	33.2 ohm Res 1206

A1	R180	321-5050-00	33.2 ohm Res 1206
A1	R181	321-5050-00	33.2 ohm Res 1206
A1	R110	322-3068-00	49.9 ohm Res 1% .2W
A1	R160	322-3068-00	49.9 ohm Res 1% .2W
A1	R149	322-3222-00	2.00K Res 1% .2W
A1	R199	322-3222-00	2.00K Res 1% .2W
A1		344-0439-00	Qty 7 Clip - E/I Core
A1		348-1100-00	Qty 2 EMI Gasket .125 x .5 x .375
A1		388-9831-02	Qty .2 ea ECB - 5 in 1 Flat

671-0061-XX

POWER SUPPLY CIRCUIT BOARD

222

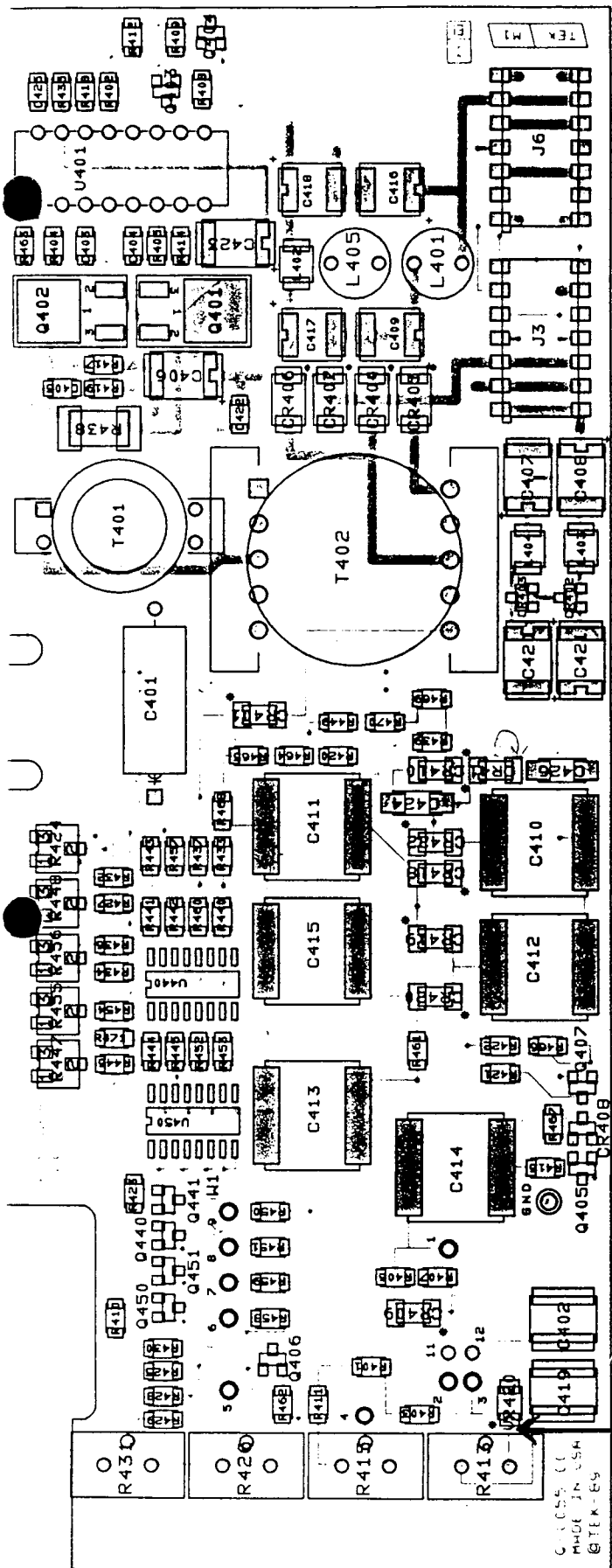
671-0061-XX POWER SUPPLY CKT BOARD
388-9831-XX

BOARD LEVEL	CLASS	MOD # PAGE #	SUMMARY
00	REQ	3-1 3-2	Limiting the maximum intensity to the CRT will improve the quality of the display by reducing the blooming as well as the jitter of the display. XI version only.
00	REQ	3-3	To avoid failures of the 22uf cap ckt (C406A), solder a 100uf cap piggy back, paying attention to polarity.
01	REQ	M71709 3-4 <u>BELOW S/N</u> B016226	Board version (XL) is a redesign. The POWER SUPPLY will not retrofit with the <u>00 CPU AND 00 FRONT PANEL</u> . Modify the POWER SUPPLY.

671-0061-XX POWER SUPPLY CKT BOARD
388-9831-XX

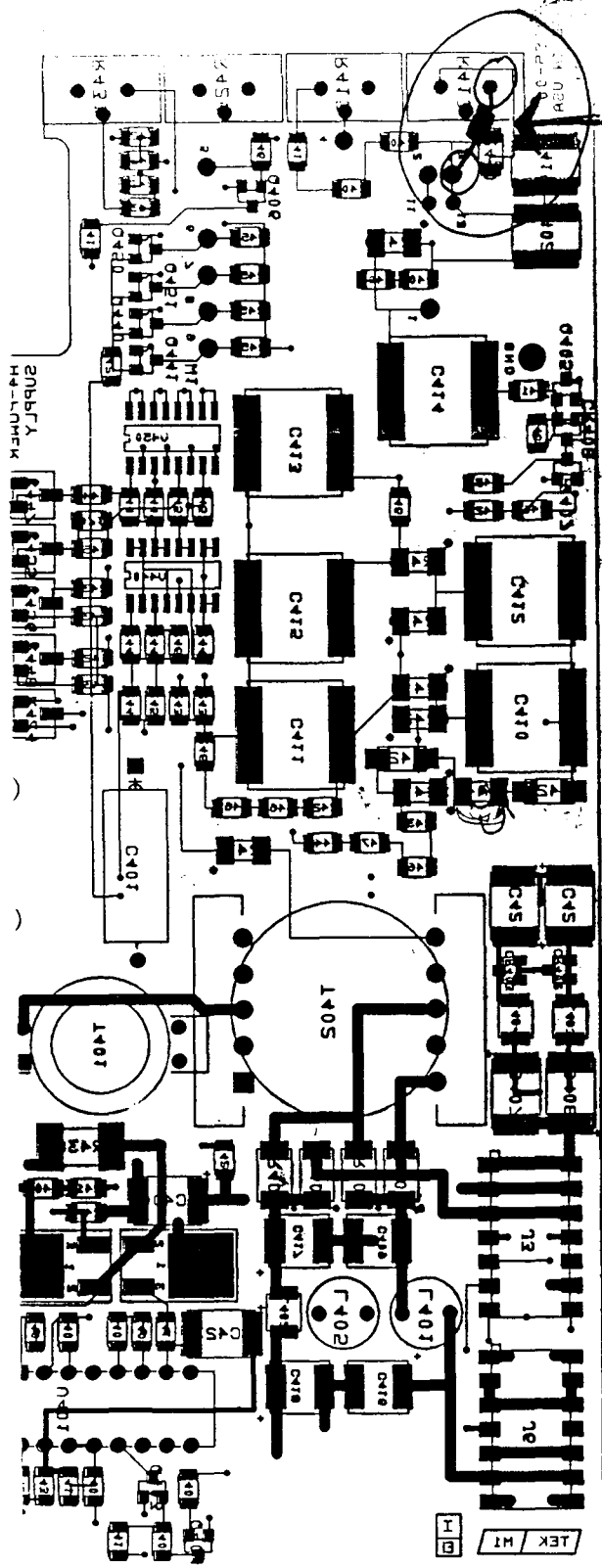
MODULE LEVEL	BOARD LEVEL	FILM LEVEL	PAGE NUMBER	CLASS	QUANTITY	PART NUMBER	MOD#
	00		3-2		1 ea	322-3457-00	
	00		3-3		1 ea	290-0973-00	

671-0061-XX POWER SUPPLY CKT BOARD
388-9831-XX



1. CUT RUN (TOP OF ECB) BETWEEN VR420 AND R413.

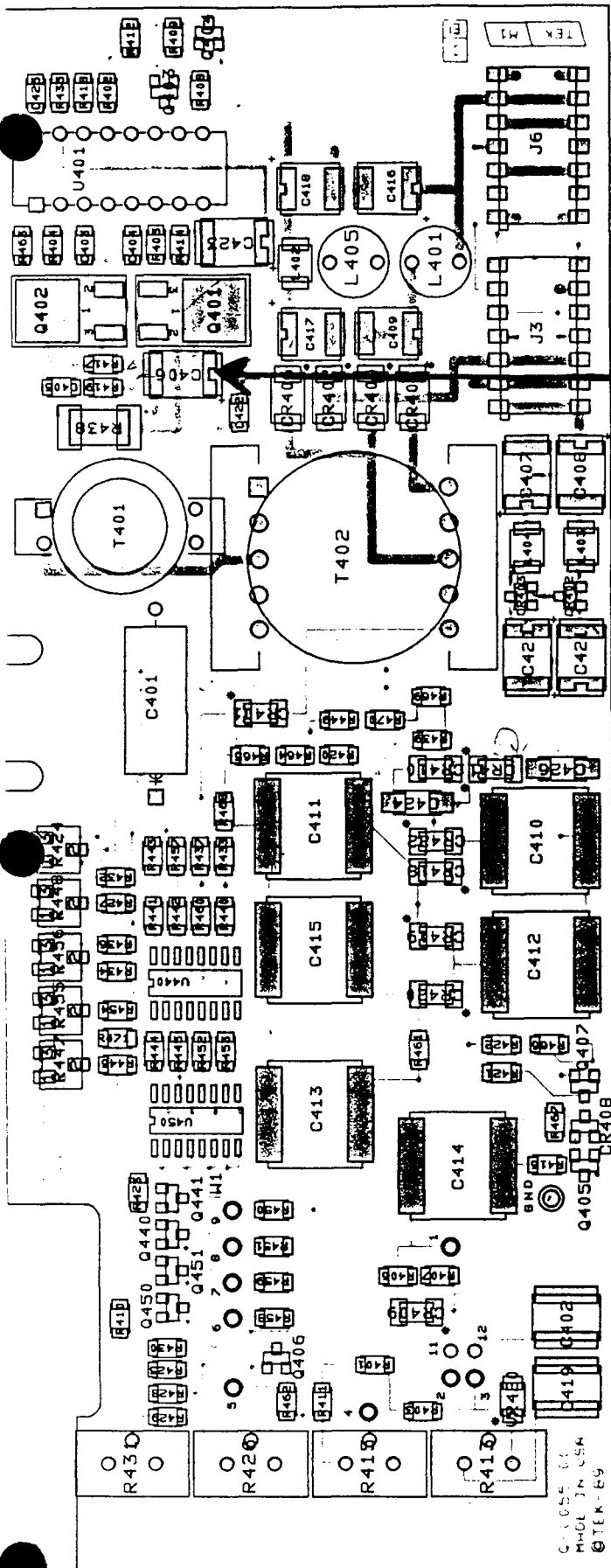
671-0061-XX POWER SUPPLY CKT BOARD
388-9831-XX



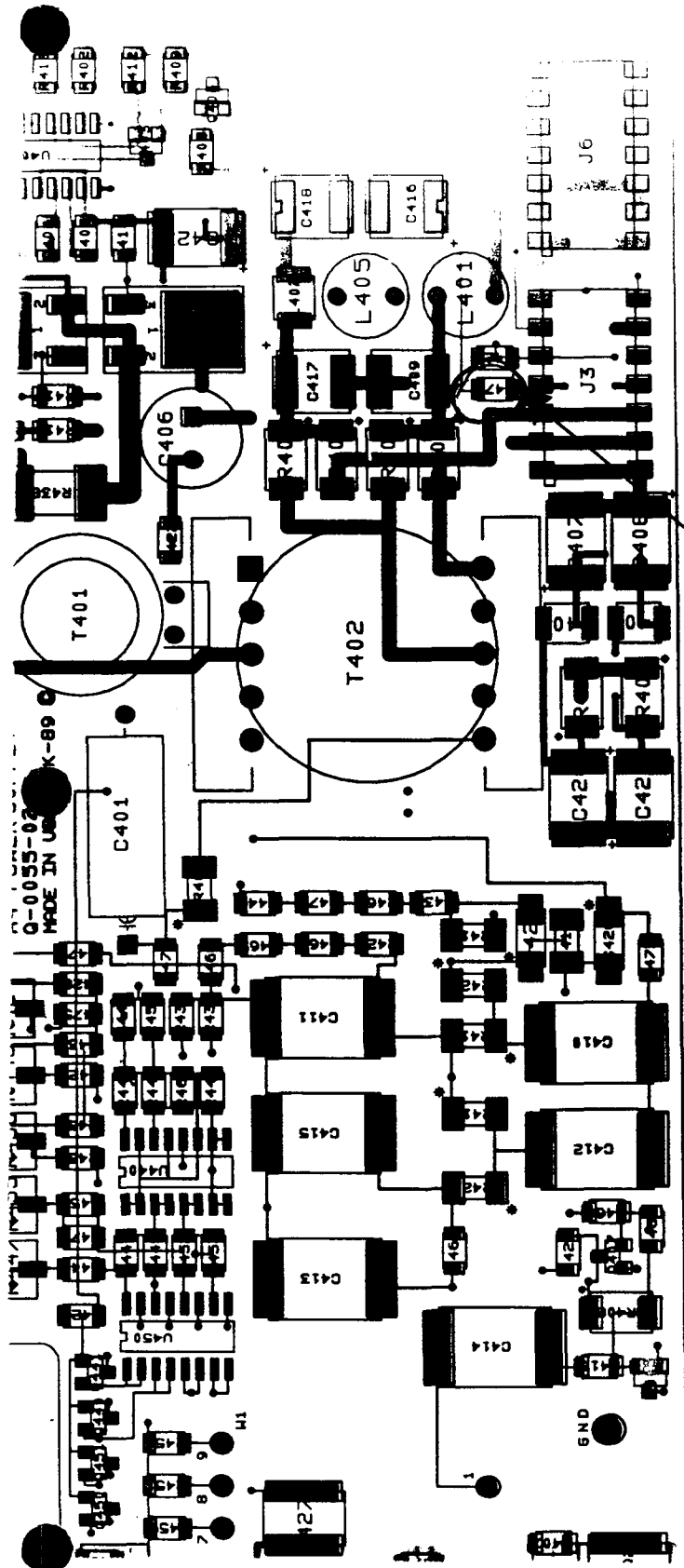
ADD: 322-3457-00 BETWEEN R413 &
W1-3 ON BACKSIDE (NON-COMPONENT)
OF ECB.

671-0061-XX POWER SUPPLY CKT BOARD
388-9831-XX

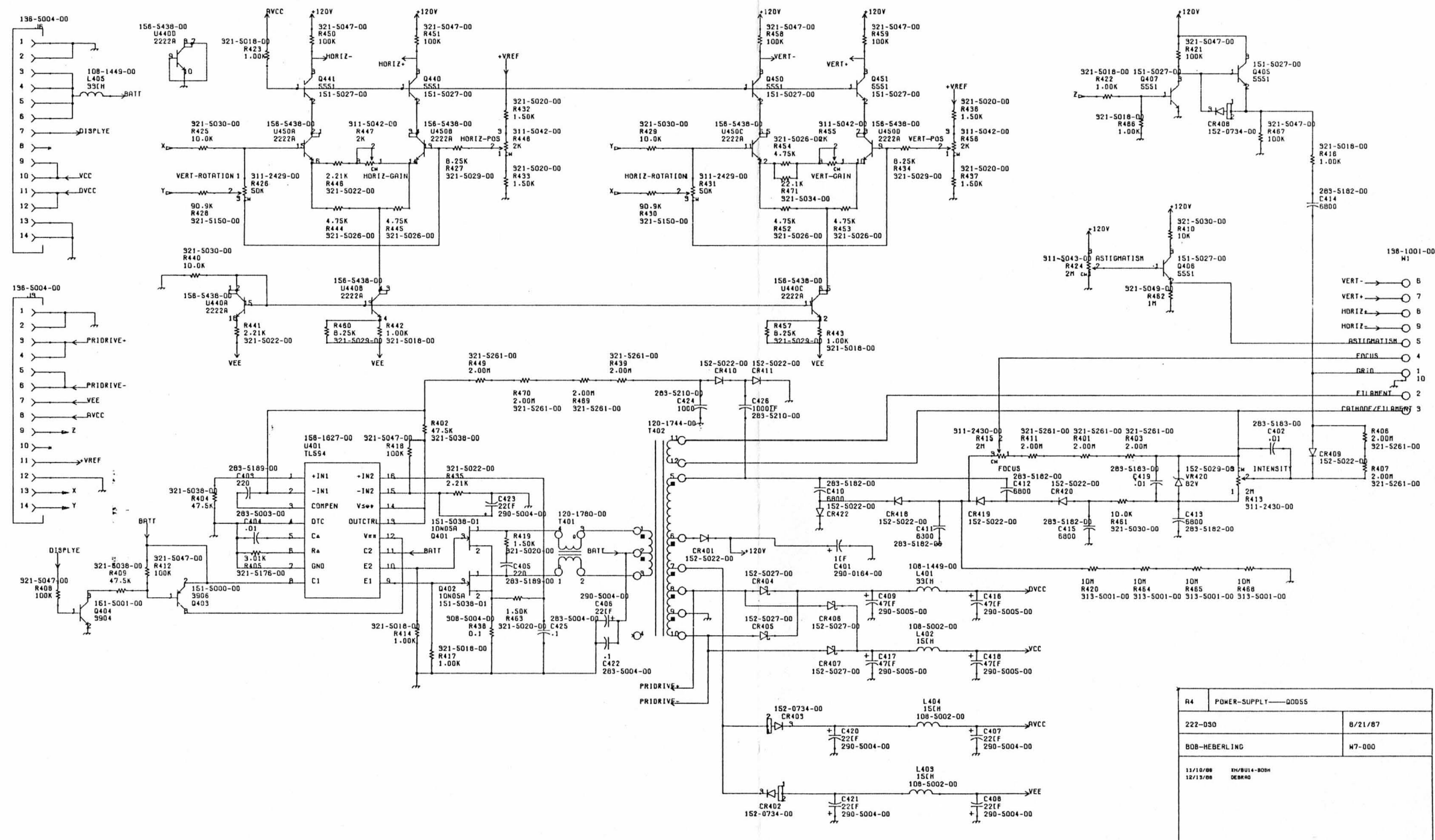
ADD: 290-0973-00 "PIGGY BACK"
TO C406; PAY CLOSE ATTENTION
TO THE CORRECT POLARITY.



671-0061-XX POWER SUPPLY CKT BOARD
388-9831-XX



1. REMOVE: RESISTOR FROM CKT R479.



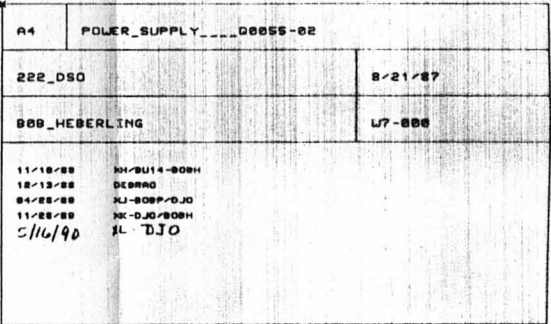
671-0061-00
partlist for 222 Power Supply (XI version)

A4	L401	108-1449-00	33 uH 10% Inductor
A4	L405	108-1449-00	33 uH 10% Inductor
A4	L402	108-5002-00	15 uH 10% Coil 1812
A4	L403	108-5002-00	15 uH 10% Coil 1812
A4	L404	108-5002-00	15 uH 10% Coil 1812
A4	T402	120-1744-00	Transformer - HV 10 pin 2 leads
A4	T401	120-1780-00	Transformer - Primary Drive 4 pin
A4	W1	136-1001-00	CRT Socket/Harness Assembly 9 wire
A4	J3	136-5004-00	2 x 7 Socket side entry SMD-14
A4	J6	136-5004-00	2 x 7 Socket side entry SMD-14
A4	Q403	151-5000-00	3906 PNP Transistor SOT-23
A4	Q404	151-5001-00	3904 NPN Transistor SOT-23
A4	Q405	151-5027-00	5551 NPN Transistor SOT-23
A4	Q406	151-5027-00	5551 NPN Transistor SOT-23
A4	Q407	151-5027-00	5551 NPN Transistor SOT-23
A4	Q440	151-5027-00	5551 NPN Transistor SOT-23
A4	Q441	151-5027-00	5551 NPN Transistor SOT-23
A4	Q450	151-5027-00	5551 NPN Transistor SOT-23
A4	Q451	151-5027-00	5551 NPN Transistor SOT-23
A4	Q401	151-5038-01	10N05E NFET Transistor DPAK, 16mm T & R
A4	Q402	151-5038-01	10N05E NFET Transistor DPAK, 16mm T & R
A4	CR402	152-0734-00	Switching Diode SOT-23
A4	CR403	152-0734-00	Switching Diode SOT-23
A4	CR408	152-0734-00	Switching Diode SOT-23
A4	CR401	152-5022-00	HV Rect Diode SOD-87
A4	CR409	152-5022-00	HV Rect Diode SOD-87
A4	CR410	152-5022-00	HV Rect Diode SOD-87
A4	CR411	152-5022-00	HV Rect Diode SOD-87
A4	CR418	152-5022-00	HV Rect Diode SOD-87
A4	CR419	152-5022-00	HV Rect Diode SOD-87
A4	CR420	152-5022-00	HV Rect Diode SOD-87
A4	CR422	152-5022-00	HV Rect Diode SOD-87
A4	CR404	152-5027-00	40V Schottky Diode MLL41
A4	CR405	152-5027-00	40V Schottky Diode MLL41
A4	CR406	152-5027-00	40V Schottky Diode MLL41
A4	CR407	152-5027-00	40V Schottky Diode MLL41
A4	VR420	152-5029-00	82V Zener Diode MLL34
A4	U401	156-1627-00	TL594 16 pin DIP
A4	U440	156-5438-01	2222A Quad SO-16, 16mm T & R
A4	U450	156-5438-01	2222A Quad SO-16, 16mm T & R
A4	C404	283-5003-00	.01 uF 50V 10% Cap 1206
A4	C422	283-5004-00	.1 uF 25V 10% Cap 1206
A4	C425	283-5004-00	.1 uF 25V 10% Cap 1206
A4	C410	283-5182-00	6800 pF 2KV 20% Cap 3640
A4	C411	283-5182-00	6800 pF 2KV 20% Cap 3640
A4	C412	283-5182-00	6800 pF 2KV 20% Cap 3640
A4	C413	283-5182-00	6800 pF 2KV 20% Cap 3640
A4	C414	283-5182-00	6800 pF 2KV 20% Cap 3640
A4	C415	283-5182-00	6800 pF 2KV 20% Cap 3640
A4	C402	283-5183-00	.01 uF 100V 5% Cap 1825
A4	C419	283-5183-00	.01 uF 100V 5% Cap 1825
A4	C403	283-5189-00	220 pF 100V 5% Cap 1206
A4	C405	283-5189-00	220 pF 100V 5% Cap 1206
A4	C424	283-5210-00	1000pF 1000V 10% Cap 1808
A4	C426	283-5210-00	1000pF 1000V 10% Cap 1808
A4	C401	290-0164-00	1 uF 150V +50/-10% Alum Cap
A4	C406A	290-0973-00	100 uF 25V 20% Alum Cap
A4	C406	290-5004-00	22 uF 20V 10% Tant Cap 2816
A4	C407	290-5004-00	22 uF 20V 10% Tant Cap 2816

A4	C408	290-5004-00	22 uF 20V 10% Tant Cap 2816
A4	C420	290-5004-00	22 uF 20V 10% Tant Cap 2816
A4	C421	290-5004-00	22 uF 20V 10% Tant Cap 2816
A4	C423	290-5004-00	22 uF 20V 10% Tant Cap 2816
A4	C409	290-5005-00	47 uF 10V 10% Tant Cap 2218
A4	C416	290-5005-00	47 uF 10V 10% Tant Cap 2218
A4	C417	290-5005-00	47 uF 10V 10% Tant Cap 2218
A4	C418	290-5005-00	47 uF 10V 10% Tant Cap 2218
A4	R438	308-5004-00	.1 ohm 1% 1W Res 2515
A4	R426	311-2429-00	50K Var Res side adj - POT THM
A4	R431	311-2429-00	50K Var Res side adj - POT THM
A4	R413	311-2430-00	2M Var Res side adj - POT THM
A4	R415	311-2430-00	2M Var Res side adj - POT THM
A4	R447	311-5042-00	2K Var Res side adj - POT SMD
A4	R448	311-5042-00	2K Var Res side adj - POT SMD
A4	R455	311-5042-00	2K Var Res side adj - POT SMD
A4	R456	311-5042-00	2K Var Res side adj - POT SMD
A4	R424	311-5043-00	2M Var Res side adj - POT SMD
A4	R420	313-5001-00	10M 5% Res 1206
A4	R464	313-5001-00	10M 5% Res 1206
A4	R465	313-5001-00	10M 5% Res 1206
A4	R468	313-5001-00	10M 5% Res 1206
A4	R414	321-5018-00	1.00K Res 1206
A4	R416	321-5018-00	1.00K Res 1206
A4	R417	321-5018-00	1.00K Res 1206
A4	R422	321-5018-00	1.00K Res 1206
A4	R423	321-5018-00	1.00K Res 1206
A4	R442	321-5018-00	1.00K Res 1206
A4	R443	321-5018-00	1.00K Res 1206
A4	R466	321-5018-00	1.00K Res 1206
A4	R419	321-5020-00	1.50K Res 1206
A4	R432	321-5020-00	1.50K Res 1206
A4	R433	321-5020-00	1.50K Res 1206
A4	R436	321-5020-00	1.50K Res 1206
A4	R437	321-5020-00	1.50K Res 1206
A4	R463	321-5020-00	1.50K Res 1206
A4	R441	321-5022-00	2.21K Res 1206
A4	R446	321-5022-00	2.21K Res 1206
A4	R444	321-5026-00	4.75K Res 1206
A4	R445	321-5026-00	4.75K Res 1206
A4	R452	321-5026-00	4.75K Res 1206
A4	R453	321-5026-00	4.75K Res 1206
A4	R454	321-5026-00	4.75K Res 1206
A4	R427	321-5029-00	8.25K Res 1206
A4	R434	321-5029-00	8.25K Res 1206
A4	R457	321-5029-00	8.25K Res 1206
A4	R460	321-5029-00	8.25K Res 1206
A4	R410	321-5030-00	10.0K Res 1206
A4	R425	321-5030-00	10.0K Res 1206
A4	R429	321-5030-00	10.0K Res 1206
A4	R440	321-5030-00	10.0K Res 1206
A4	R461	321-5030-00	10.0K Res 1206
A4	R471	321-5034-00	22.1K Res 1206
A4	R402	321-5038-00	47.5K Res 1206
A4	R404	321-5038-00	47.5K Res 1206
A4	R409	321-5038-00	47.5K Res 1206
A4	R408	321-5047-00	100K Res 1206
A4	R412	321-5047-00	100K Res 1206
A4	R418	321-5047-00	100K Res 1206
A4	R421	321-5047-00	100K Res 1206
A4	R450	321-5047-00	100K Res 1206
A4	R451	321-5047-00	100K Res 1206
A4	R458	321-5047-00	100K Res 1206
A4	R459	321-5047-00	100K Res 1206
A4	R467	321-5047-00	100K Res 1206
A4	R462	321-5049-00	1.00M Res 1206

A4	R428	321-5150-00	90.9K Res 1206
A4	R430	321-5150-00	90.9K Res 1206
A4	R405	321-5176-00	3.01K Res 1206
A4	R435	321-5176-00	3.01K Res 1206
A4	R401	321-5261-00	2.00M Res 1206
A4	R403	321-5261-00	2.00M Res 1206
A4	R406	321-5261-00	2.00M Res 1206
A4	R407	321-5261-00	2.00M Res 1206
A4	R411	321-5261-00	2.00M Res 1206
A4	R439	321-5261-00	2.00M Res 1206
A4	R449	321-5261-00	2.00M Res 1206
A4	R469	321-5261-00	2.00M Res 1206
A4	R470	321-5261-00	2.00M Res 1206
A4	R474	322-3457-00	562K Res 1% .125W leaded
A4		388-9831-00	Qty .2 ea 5 in 1 ECB - Power Supply

Scan by Zenith



671-0061-01
partlist for 222 Power Supply (XL version)

A4	L401	108-1449-00	33 uH 10% Inductor
A4	L405	108-1449-00	33 uH 10% Inductor
A4	L402	108-5002-00	15 uH 10% Coil 1812
A4	L403	108-5002-00	15 uH 10% Coil 1812
A4	L404	108-5002-00	15 uH 10% Coil 1812
A4	T402	120-1744-00	Transformer - HV 10 pin 2 leads
A4	T401	120-1780-00	Transformer - Primary Drive 4 pin
A4	W1	136-1001-00	CRT Socket/Harness Assembly 9 wire
A4	J3	136-5004-00	2 x 7 Socket side entry SMD-14
A4	J6	136-5004-00	2 x 7 Socket side entry SMD-14
A4	Q403	151-5000-00	3906 PNP Transistor SOT-23
A4	Q404	151-5001-00	3904 NPN Transistor SOT-23
A4	Q405	151-5027-00	5551 NPN Transistor SOT-23
A4	Q406	151-5027-00	5551 NPN Transistor SOT-23
A4	Q407	151-5027-00	5551 NPN Transistor SOT-23
A4	Q440	151-5027-00	5551 NPN Transistor SOT-23
A4	Q441	151-5027-00	5551 NPN Transistor SOT-23
A4	Q450	151-5027-00	5551 NPN Transistor SOT-23
A4	Q451	151-5027-00	5551 NPN Transistor SOT-23
A4	Q401	151-5038-01	10N05E NFET Transistor DPAK, 16mm T & R
A4	Q402	151-5038-01	10N05E NFET Transistor DPAK, 16mm T & R
A4	CR401	152-5022-00	HV Rect Diode SOD-87
A4	CR409	152-5022-00	HV Rect Diode SOD-87
A4	CR410	152-5022-00	HV Rect Diode SOD-87
A4	CR411	152-5022-00	HV Rect Diode SOD-87
A4	CR418	152-5022-00	HV Rect Diode SOD-87
A4	CR419	152-5022-00	HV Rect Diode SOD-87
A4	CR420	152-5022-00	HV Rect Diode SOD-87
A4	CR422	152-5022-00	HV Rect Diode SOD-87
A4	CR402	152-5027-00	40V Schottky Diode 2114
A4	CR403	152-5027-00	40V Schottky Diode 2114
A4	CR404	152-5027-00	40V Schottky Diode 2114
A4	CR405	152-5027-00	40V Schottky Diode 2114
A4	CR406	152-5027-00	40V Schottky Diode 2114
A4	CR407	152-5027-00	40V Schottky Diode 2114
A4	CR408	152-5027-00	40V Schottky Diode 2114
A4	VR420	152-5029-00	82V Zener Diode MLL34
A4	U440	156-5438-01	2222A Quad SO-16, 16mm T & R
A4	U450	156-5438-01	2222A Quad SO-16, 16mm T & R
A4	U401	156-6084-01	TL594 SO-16, 16mm T & R
A4	C404	283-5003-00	.01 uF 50V 10% Cap 1206
A4	C422	283-5004-00	.1 uF 25V 10% Cap 1206
A4	C425	283-5004-00	.1 uF 25V 10% Cap 1206
A4	C428	283-5004-00	.1 uF 25V 10% Cap 1206
A4	C403	283-5189-00	220 pF 100V 5% Cap 1206
A4	C405	283-5189-00	220 pF 100V 5% Cap 1206
A4	C424	283-5210-00	1000pF 1000V 10% Cap 1808
A4	C426	283-5210-00	1000pF 1000V 10% Cap 1808
A4	C402	283-5235-00	.56 uF 100V 20% Cap 1825
A4	C419	283-5235-00	.56 uF 100V 20% Cap 1825
A4	C427	283-5235-00	.56 uF 100V 20% Cap 1825
A4	C410	283-5251-00	.01 uF 2KV 20% Cap 3327
A4	C411	283-5251-00	.01 uF 2KV 20% Cap 3327
A4	C412	283-5251-00	.01 uF 2KV 20% Cap 3327
A4	C413	283-5251-00	.01 uF 2KV 20% Cap 3327
A4	C414	283-5251-00	.01 uF 2KV 20% Cap 3327
A4	C415	283-5251-00	.01 uF 2KV 20% Cap 3327
A4	C401	290-0164-00	1 uF 150V +50/-10% Alum Cap
A4	C406	290-0973-00	100 uF 25V 20% Alum Cap
A4	C407	290-5004-00	22 uF 20V 10% Tant Cap 2816
A4	C408	290-5004-00	22 uF 20V 10% Tant Cap 2816
A4	C420	290-5004-00	22 uF 20V 10% Tant Cap 2816

A4	C421	290-5004-00	22 uF 20V 10% Tant Cap 2816
A4	C423	290-5004-00	22 uF 20V 10% Tant Cap 2816
A4	C409	290-5005-00	47 uF 10V 10% Tant Cap 2218
A4	C416	290-5005-00	47 uF 10V 10% Tant Cap 2218
A4	C417	290-5005-00	47 uF 10V 10% Tant Cap 2218
A4	C418	290-5005-00	47 uF 10V 10% Tant Cap 2218
A4	R438	308-5004-00	.1 ohm 1% 1W Res 2515
A4	R426	311-2429-00	50K Var Res side adj POT-THM
A4	R431	311-2429-00	50K Var Res side adj POT-THM
A4	R413	311-2430-00	2M Var Res side adj POT-THM
A4	R415	311-2430-00	2M Var Res side adj POT-THM
A4	R447	311-5042-00	2K Var Res side adj POT-SMD
A4	R448	311-5042-00	2K Var Res side adj POT-SMD
A4	R455	311-5042-00	2K Var Res side adj POT-SMD
A4	R456	311-5042-00	2K Var Res side adj POT-SMD
A4	R424	311-5043-00	2M Var Res side adj POT-SMD
A4	R420	313-5001-00	10M 5% Res 1206
A4	R464	313-5001-00	10M 5% Res 1206
A4	R465	313-5001-00	10M 5% Res 1206
A4	R468	313-5001-00	10M 5% Res 1206
A4	R475	321-5000-00	10.0 ohm Res 1206
A4	R476	321-5000-00	10.0 ohm Res 1206
A4	R477	321-5000-00	10.0 ohm Res 1206
A4	R414	321-5018-00	1.00K Res 1206
A4	R416	321-5018-00	1.00K Res 1206
A4	R417	321-5018-00	1.00K Res 1206
A4	R422	321-5018-00	1.00K Res 1206
A4	R423	321-5018-00	1.00K Res 1206
A4	R442	321-5018-00	1.00K Res 1206
A4	R443	321-5018-00	1.00K Res 1206
A4	R466	321-5018-00	1.00K Res 1206
A4	R419	321-5020-00	1.50K Res 1206
A4	R432	321-5020-00	1.50K Res 1206
A4	R433	321-5020-00	1.50K Res 1206
A4	R436	321-5020-00	1.50K Res 1206
A4	R437	321-5020-00	1.50K Res 1206
A4	R463	321-5020-00	1.50K Res 1206
A4	R441	321-5022-00	2.21K Res 1206
A4	R446	321-5022-00	2.21K Res 1206
A4	R479	321-5022-00	2.21K Res 1206
A4	R444	321-5026-00	4.75K Res 1206
A4	R445	321-5026-00	4.75K Res 1206
A4	R452	321-5026-00	4.75K Res 1206
A4	R453	321-5026-00	4.75K Res 1206
A4	R454	321-5026-00	4.75K Res 1206
A4	R427	321-5029-00	8.25K Res 1206
A4	R434	321-5029-00	8.25K Res 1206
A4	R457	321-5029-00	8.25K Res 1206
A4	R460	321-5029-00	8.25K Res 1206
A4	R410	321-5030-00	10.0K Res 1206
A4	R425	321-5030-00	10.0K Res 1206
A4	R429	321-5030-00	10.0K Res 1206
A4	R440	321-5030-00	10.0K Res 1206
A4	R461	321-5030-00	10.0K Res 1206
A4	R471	321-5034-00	22.1K Res 1206
A4	R402	321-5038-00	47.5K Res 1206
A4	R404	321-5038-00	47.5K Res 1206
A4	R409	321-5038-00	47.5K Res 1206
A4	R478	321-5038-00	47.5K Res 1206
A4	R408	321-5047-00	100K Res 1206
A4	R412	321-5047-00	100K Res 1206
A4	R418	321-5047-00	100K Res 1206
A4	R421	321-5047-00	100K Res 1206
A4	R450	321-5047-00	100K Res 1206
A4	R451	321-5047-00	100K Res 1206
A4	R458	321-5047-00	100K Res 1206

A4	R459	321-5047-00	100K Res 1206
A4	R467	321-5047-00	100K Res 1206
A4	R428	321-5150-00	90.9K Res 1206
A4	R430	321-5150-00	90.9K Res 1206
A4	R474	321-5151-00	453K Res 1206
A4	R473	321-5171-00	562K Res 1206
A4	R405	321-5176-00	3.01K Res 1206
A4	R435	321-5176-00	3.01K Res 1206
A4	R401	321-5261-00	2.00M Res 1206
A4	R403	321-5261-00	2.00M Res 1206
A4	R406	321-5261-00	2.00M Res 1206
A4	R407	321-5261-00	2.00M Res 1206
A4	R411	321-5261-00	2.00M Res 1206
A4	R439	321-5261-00	2.00M Res 1206
A4	R449	321-5261-00	2.00M Res 1206
A4	R462	321-5261-00	2.00M Res 1206
A4	R469	321-5261-00	2.00M Res 1206
A4	R470	321-5261-00	2.00M Res 1206
A4	R472	321-5261-00	2.00M Res 1206
A4		388-9831-02	Qty .2 ea ECB - 5 in 1 Flat

671-0062-XX

CPU/DISPLAY CIRCUIT BOARD

222

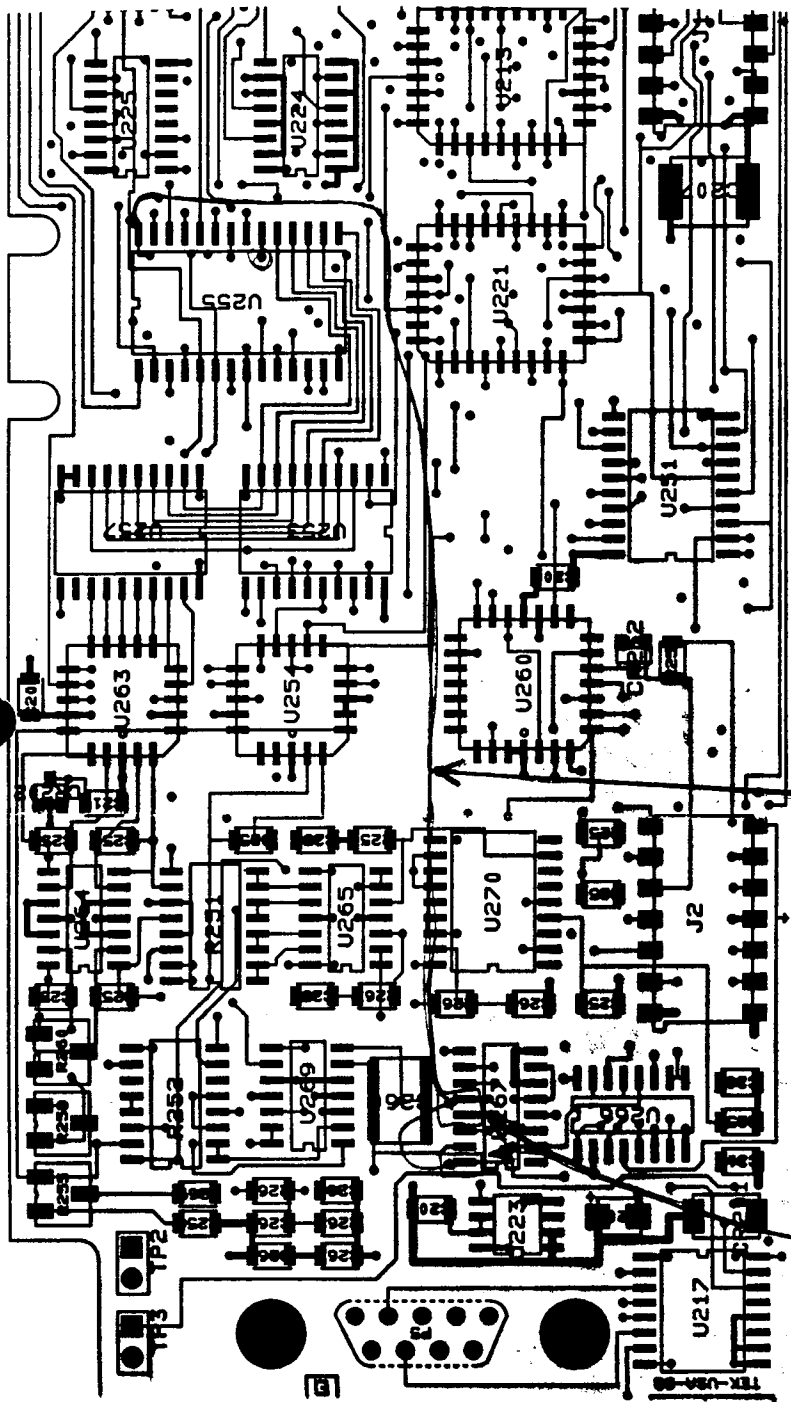
671-0062-XX CPU CIRCUIT BOARD
388-9831-XX

BOARD LEVEL	CLASS	MOD # PAGE #	SUMMARY
00	REQ	3-1 3-2 B010350	To prevent power to the RAM to immediately discharge to 2.5V when exchanging batteries and erasing all stored settings when RAM power dips below 3.0V. A modification is needed on version "XH" CPU boards
01	REQ	M71709 3-3 B016226	Board version (XL) is a redesign. Replacement of the CPU will require a new <u>FRONT_PANEL</u> (671-0063-01) and modification to the <u>POWER_SUPPLY</u> will be needed.
02		M73338 3-4 B018514	At implementation of the XL version (MOD 71709) the board was designed to use the 160-5807-01. Because we wanted to deplete the 00 supply the CPU was modified. The 160-5807-01 is a direct fit for the 00 <u>EXCEPT_FOR</u> products with S/N B016226 THRU B018514. Modifications done on these products will need to be reversed.

671-0062-XX CPU CIRCUIT BOARD
388-9831-XX

MODULE LEVEL	BOARD LEVEL	FILM LEVEL	PAGE NUMBER	CLASS	QUANTITY	PART NUMBER	MOD#
	01		3-3	REQ	.5 ft 1 ea	162-0026-00 322-3226-00	71709
	02		3-4	REQ	1 ea	160-5807-01	M73338

671-0062-XX CPU CIRCUIT BOARD
388-9831-XX



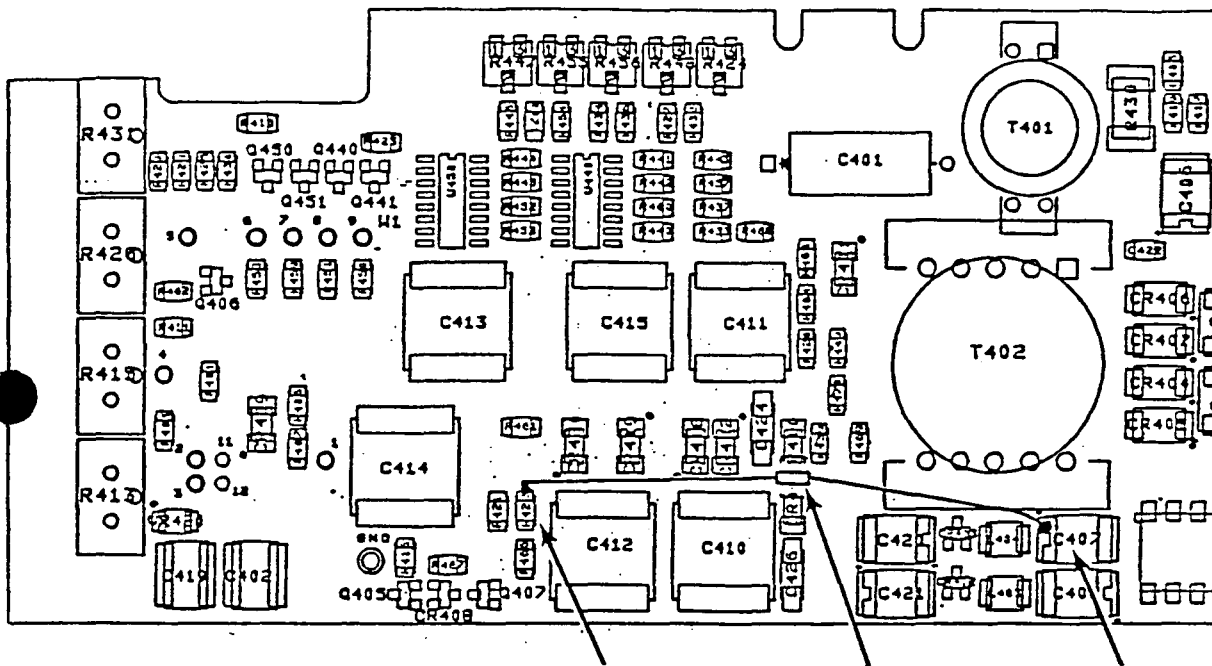
4. WIRE U267 PIN (16) TO
U255 PIN (28).

1. LIFT U267 PINS (12, 13, & 16).
2. WIRE U267 PAD (12) TO PIN (13).
3. WIRE U267 PIN (12) TO PIN (16).

3. WIRE Q251 COLLECTOR
PAD TO R209 PIN (9).

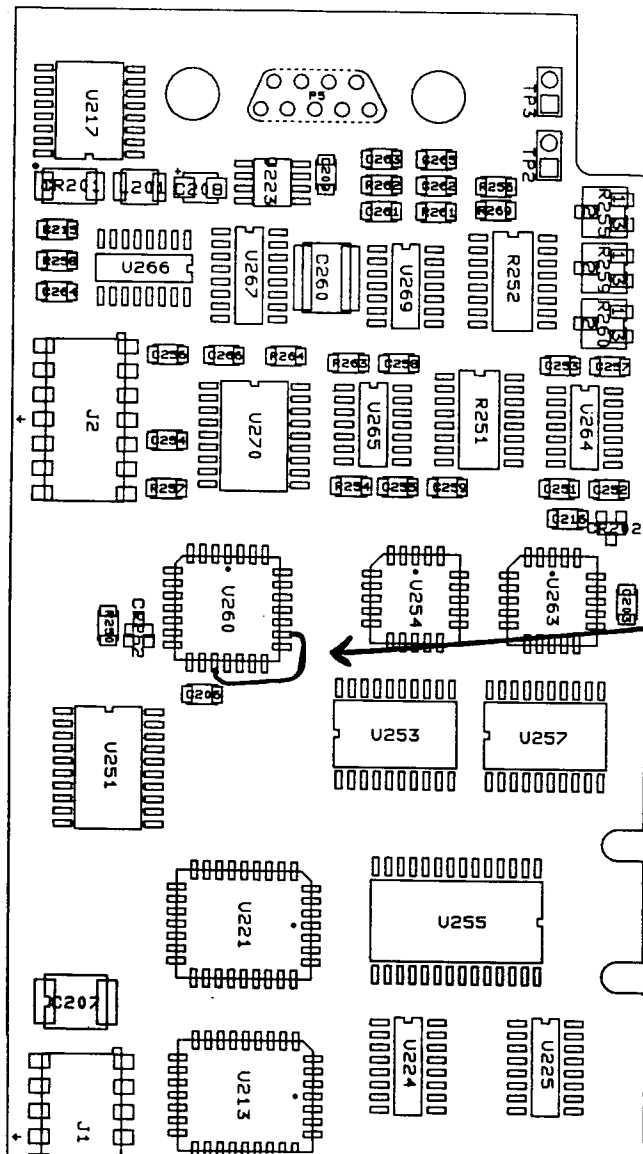
671-0062-XX CPU CIRCUIT BOARD
388-9831-XX

POWER SUPPLY ECB (671-0061-00)



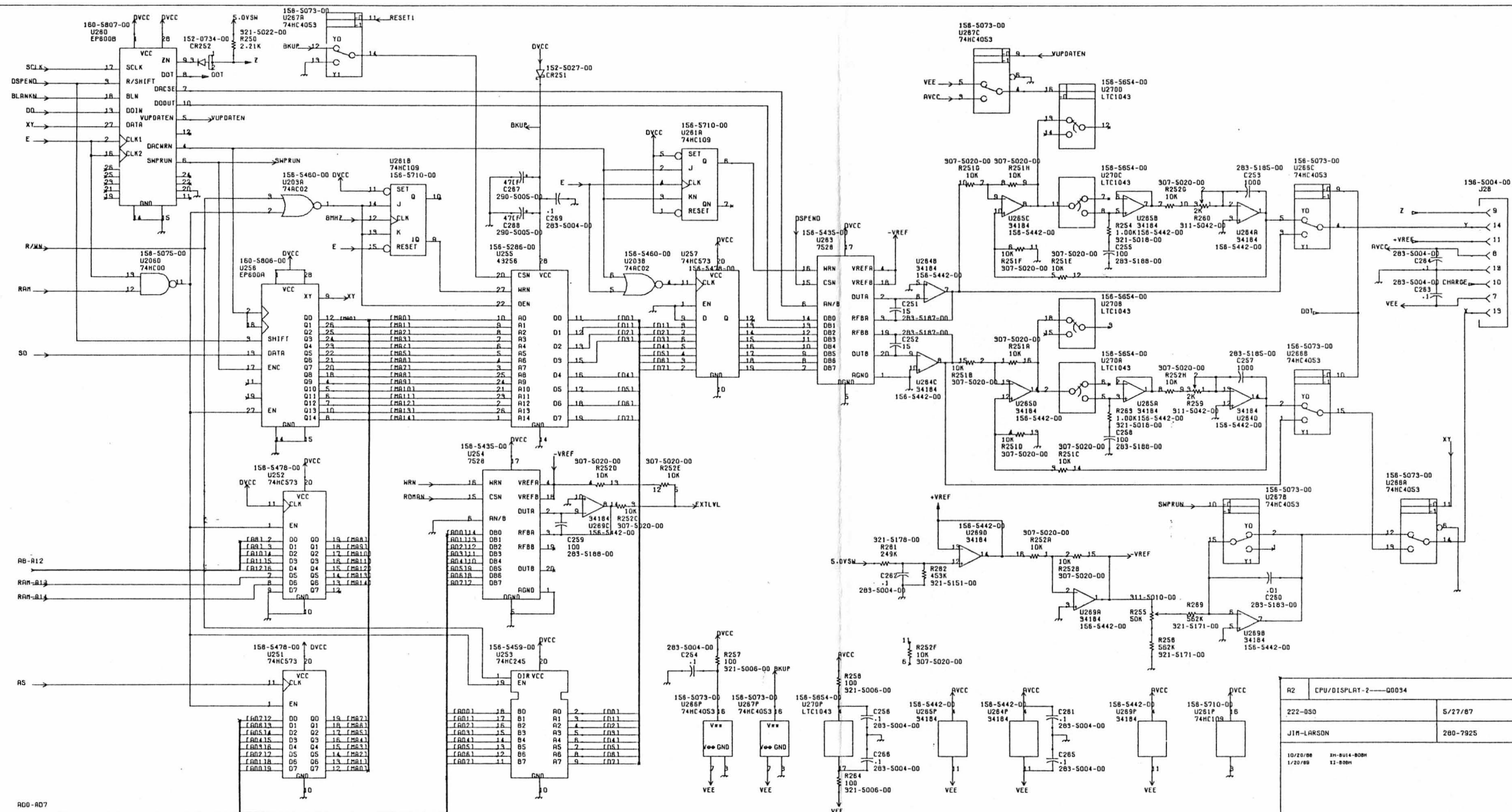
1. ADD: 162-0026-00 TO LEADS OF RESISTOR 322-3226-00;
SOLDER RESISTOR FROM PAD OF C407 AND PAD OF R422.

671-0062-XX CPU CIRCUIT BOARD
388-9831-XX



1. REMOVE WIRE FROM U260.

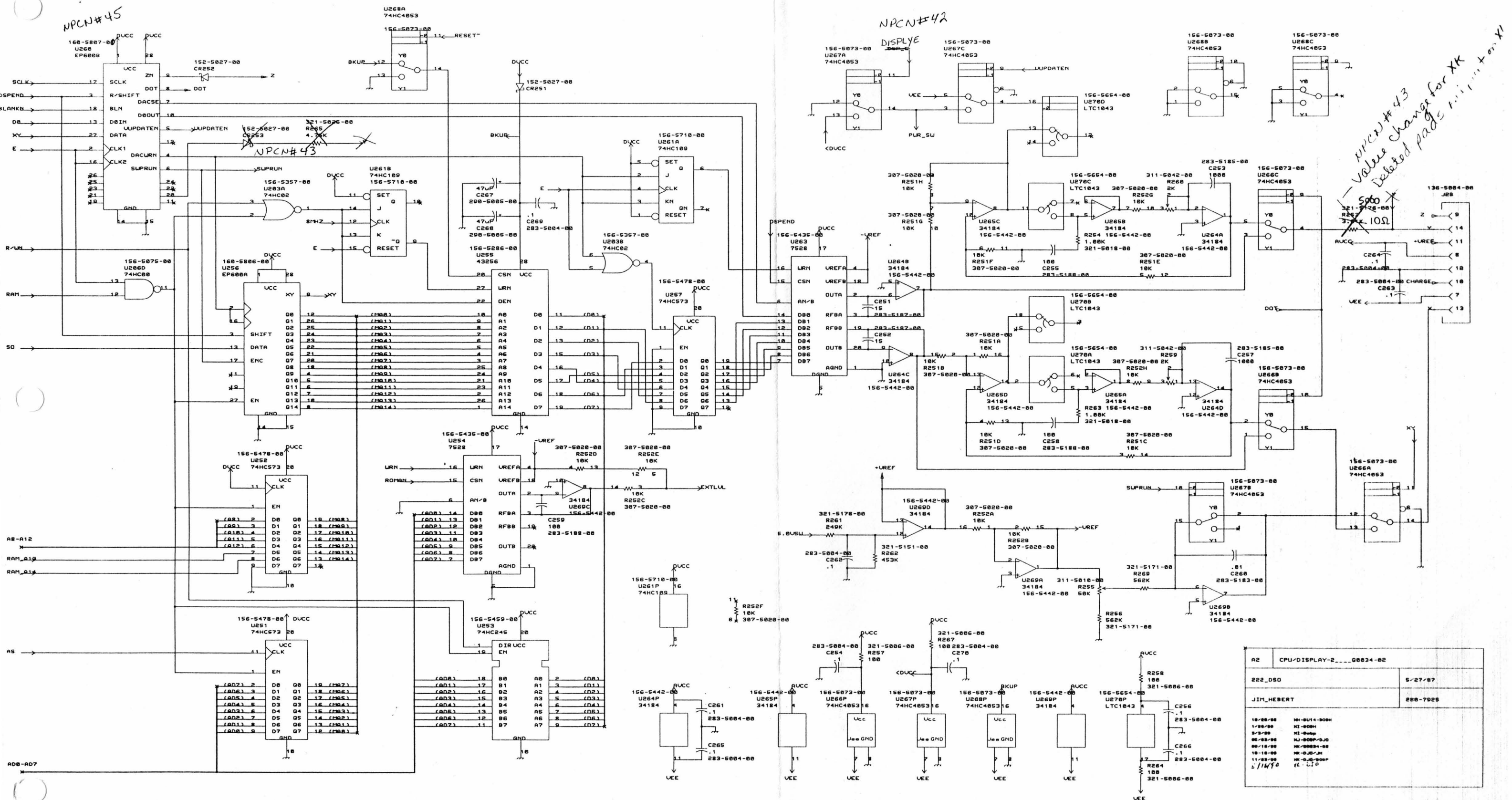




671-0062-00
partlist for 222 CPU/Display (XI version)

A2	L201	108-5057-00	68 uH 10% Coil 1812
A2	LS201	119-2101-00	Audio Xducer (Beeper)
A2	P5	131-3925-00	9 pin Conn (RS232) DE-9
A2	J1	136-5004-00	2 x 7 Socket side entry SMD-14
A2	J2	136-5004-00	2 x 7 Socket side entry SMD-14
A2	Q201	151-5001-00	3904 NPN Transistor SOT-23
A2	CR201	152-5027-00	40V Schottky Diode MLL41
A2	CR202	152-0734-00	Switching Diode SOT-23
A2	CR252	152-0734-00	Switching Diode SOT-23
A2	CR251	152-5027-00	40V Schottky Diode MLL41
A2	U219	156-5073-01	74HC4053 SO-16, 16mm T & R
A2	U266	156-5073-01	74HC4053 SO-16, 16mm T & R
A2	U267	156-5073-01	74HC4053 SO-16, 16mm T & R
A2	U205	156-5075-03	74HC00 SO-14, 16mm T & R
A2	U206	156-5075-03	74HC00 SO-14, 16mm T & R
A2	U255	156-5286-01	43256 SOML-28, 24mm T & R
A2	U203	156-5357-01	74HC02 SO-14, 16mm T & R
A2	U254	156-5435-01	7528 PLCC-20, 16mm T & R
A2	U263	156-5435-01	7528 PLCC-20, 16mm T & R
A2	U217	156-5437-01	145406 SO-16L, 16mm T & R
A2	U223	156-5441-01	2951 SO-8, 12mm T & R
A2	U264	156-5442-01	34184 SO-14, 16mm T & R
A2	U265	156-5442-01	34184 SO-14, 16mm T & R
A2	U269	156-5442-01	34184 SO-14, 16mm T & R
A2	U212	156-5458-01	74HC259 SO-16, 16mm T & R
A2	U225	156-5458-01	74HC259 SO-16, 16mm T & R
A2	U253	156-5459-01	74HC245 SO-20L, 24mm T & R
A2	U201	156-5472-01	68HC11A8 PLCC-52, 32mm T & R
A2	U216	156-5473-01	82C54 PLCC-28, 24mm T & R
A2	U218	156-5473-01	82C54 PLCC-28, 24mm T & R
A2	U202	156-5478-01	74HC573 SO-20L, 24mm T & R
A2	U251	156-5478-01	74HC573 SO-20L, 24mm T & R
A2	U252	156-5478-01	74HC573 SO-20L, 24mm T & R
A2	U257	156-5478-01	74HC573 SO-20L, 24mm T & R
A2	U270	156-5654-00	LTC1043 SO-18L
A2	U213	156-5702-01	28F256 PLCC-32 (EEPROM), 24mm T & R
A2	U221	156-5702-01	28F256 PLCC-32 (EEPROM), 24mm T & R
A2	U261	156-5710-01	74HC109 SO-16, 16mm T & R
A2	U222	156-5711-01	74HC153 SO-16, 16mm T & R
A2	U224	156-5711-01	74HC153 SO-16, 16mm T & R
A2	Y201	158-0347-00	8 MHz Crystal
A2	U256	160-5806-00	EP600A PLCC-28 (prgmd 156-5447-00)
A2	U260	160-5807-01	EP600B PLCC-28 (prgmd 156-5447-00)
A2	U204	160-5808-00	EP600C PLCC-28 (prgmd 156-5447-00)
A2	W8	174-1452-00	14 wide 4.5" Cable Assembly
A2		253-0405-00	Qty 1 Foam Tape - Vinyl
A2	C209	283-5003-00	.01 uF 50V 10% Cap 1206
A2	C202	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C203	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C204	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C205	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C206	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C210	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C211	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C212	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C213	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C214	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C215	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C216	283-5004-00	.1 uF 25V 10% Cap 1206

A2	C254	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C256	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C261	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C262	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C263	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C264	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C265	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C266	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C269	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C260	283-5183-00	.01 uF 100V 5% Cap 1825
A2	C253	283-5185-00	1000 pF 50V 5% Cap 1206
A2	C257	283-5185-00	1000 pF 50V 5% Cap 1206
A2	C201	283-5187-00	15 pF 100V 5% Cap 1206
A2	C251	283-5187-00	15 pF 100V 5% Cap 1206
A2	C252	283-5187-00	15 pF 100V 5% Cap 1206
A2	C255	283-5188-00	100 pF 100V 5% Cap 1206
A2	C258	283-5188-00	100 pF 100V 5% Cap 1206
A2	C259	283-5188-00	100 pF 100V 5% Cap 1206
A2	C207	290-5005-00	47 uF 10V 10% Tant Cap 2218
A2	C267	290-5005-00	47 uF 10V 10% Tant Cap 2218
A2	C268	290-5005-00	47 uF 10V 10% Tant Cap 2218
A2	C208	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A2	R209	307-5020-00	10K x 8 Res Pack SOMC-16
A2	R251	307-5020-00	10K x 8 Res Pack SOMC-16
A2	R252	307-5020-00	10K x 8 Res Pack SOMC-16
A2	R255	311-5010-00	50K Var Res side adj -POT SMD
A2	R259	311-5042-00	2K Var Res side adj - POT SMD
A2	R260	311-5042-00	2K Var Res side adj - POT SMD
A2	R203	313-5001-00	10M 5% Res 1206
A2	R257	321-5006-00	100 ohm Res 1206
A2	R258	321-5006-00	100 ohm Res 1206
A2	R264	321-5006-00	100 ohm Res 1206
A2	R254	321-5018-00	1.00K Res 1206
A2	R263	321-5018-00	1.00K Res 1206
A2	R250	321-5022-00	2.21K Res 1206
A2	R201	321-5047-00	100K Res 1206
A2	R202	321-5047-00	100K Res 1206
A2	R262	321-5151-00	453K Res 1206
A2	R204	321-5171-00	562K Res 1206
A2	R205	321-5171-00	562K Res 1206
A2	R206	321-5171-00	562K Res 1206
A2	R207	321-5171-00	562K Res 1206
A2	R256	321-5171-00	562K Res 1206
A2	R269	321-5171-00	562K Res 1206
A2	R261	321-5178-00	249K Res 1206
A2		348-1101-00	Qty 1 EMI Gasket .125 x .5 x 5.1
A2		388-9831-00	Qty .2 ea 5 in 1 ECB - CPU/Display



A2	CPU/DISPLAY-2_00034-02
222_DS0	5/27/87
JIM_HEBERT	288-7925
18/88/88	MI-SU14-808H
1/88/88	MI-SU14-808H
3/88/88	MI-SU14-808H
5/88/88	MI-SU14-808H
7/88/88	MI-SU14-808H
9/88/88	MI-SU14-808H
11/88/88	MI-SU14-808H
13/88/88	MI-SU14-808H
15/88/88	MI-SU14-808H
17/88/88	MI-SU14-808H
19/88/88	MI-SU14-808H
21/88/88	MI-SU14-808H
23/88/88	MI-SU14-808H
25/88/88	MI-SU14-808H
27/88/88	MI-SU14-808H
29/88/88	MI-SU14-808H
31/88/88	MI-SU14-808H
33/88/88	MI-SU14-808H
35/88/88	MI-SU14-808H
37/88/88	MI-SU14-808H
39/88/88	MI-SU14-808H
41/88/88	MI-SU14-808H
43/88/88	MI-SU14-808H
45/88/88	MI-SU14-808H
47/88/88	MI-SU14-808H
49/88/88	MI-SU14-808H
51/88/88	MI-SU14-808H
53/88/88	MI-SU14-808H
55/88/88	MI-SU14-808H
57/88/88	MI-SU14-808H
59/88/88	MI-SU14-808H
61/88/88	MI-SU14-808H
63/88/88	MI-SU14-808H
65/88/88	MI-SU14-808H
67/88/88	MI-SU14-808H
69/88/88	MI-SU14-808H
71/88/88	MI-SU14-808H
73/88/88	MI-SU14-808H
75/88/88	MI-SU14-808H
77/88/88	MI-SU14-808H
79/88/88	MI-SU14-808H
81/88/88	MI-SU14-808H
83/88/88	MI-SU14-808H
85/88/88	MI-SU14-808H
87/88/88	MI-SU14-808H
89/88/88	MI-SU14-808H
91/88/88	MI-SU14-808H
93/88/88	MI-SU14-808H
95/88/88	MI-SU14-808H
97/88/88	MI-SU14-808H
99/88/88	MI-SU14-808H

671-0062-01
partlist for 222 CPU/Display (XL version)

A2	L201	108-5057-00	68 uH 10% Coil 1812
A2	LS201	119-2101-00	Audio Xducer (Beeper)
A2	P5	131-3925-00	Connector - RS232 DE9
A2	J1	136-5004-00	2 x 7 Socket side entry SMD-14
A2	J2	136-5004-00	2 x 7 Socket side entry SMD-14
A2	Q201	151-5001-00	3904 NPN Transistor SOT-23
A2	CR201	152-5027-00	40V Schottky Diode 2114
A2	CR251	152-5027-00	40V Schottky Diode 2114
A2	CR252	152-5027-00	40V Schottky Diode 2114
A2	U219	156-5073-01	74HC4053 SO-16, 16mm T & R
A2	U266	156-5073-01	74HC4053 SO-16, 16mm T & R
A2	U267	156-5073-01	74HC4053 SO-16, 16mm T & R
A2	U268	156-5073-01	74HC4053 SO-16, 16mm T & R
A2	U205	156-5075-03	74HC00 SO-14, 16mm T & R
A2	U206	156-5075-03	74HC00 SO-14, 16mm T & R
A2	U255	156-5286-01	43256 SOML-28, 24mm T & R
A2	U203	156-5357-01	74HC02 SO-14, 16mm T & R
A2	U254	156-5435-01	7528 PLCC-20, 16mm T & R
A2	U263	156-5435-01	7528 PLCC-20, 16mm T & R
A2	U217	156-5437-01	145406 SO-16L, 16mm T & R
A2	U223	156-5441-01	2951 SO-8, 12mm T & R
A2	U264	156-5442-01	34184 SO-14, 16mm T & R
A2	U265	156-5442-01	34184 SO-14, 16mm T & R
A2	U269	156-5442-01	34184 SO-14, 16mm T & R
A2	U212	156-5458-01	74HC259 SO-16, 16mm T & R
A2	U225	156-5458-01	74HC259 SO-16, 16mm T & R
A2	U253	156-5459-01	74HC245 SO-20L, 24mm T & R
A2	U201	156-5472-01	68HC11A8 PLCC-52, 32mm T & R
A2	U216	156-5473-01	82C54 PLCC-28, 24mm T & R
A2	U218	156-5473-01	82C54 PLCC-28, 24mm T & R
A2	U202	156-5478-01	74HC573 SO-20L, 24mm T & R
A2	U251	156-5478-01	74HC573 SO-20L, 24mm T & R
A2	U252	156-5478-01	74HC573 SO-20L, 24mm T & R
A2	U257	156-5478-01	74HC573 SO-20L, 24mm T & R
A2	U270	156-5654-00	LTC1043 SO-18L
A2	U213	156-5702-01	28F256 PLCC-32 (EEPROM), 24mm T & R
A2	U221	156-5702-01	28F256 PLCC-32 (EEPROM), 24mm T & R
A2	U261	156-5710-01	74HC109 SO-16, 16mm T & R
A2	U222	156-5711-01	74HC153 SO-16, 16mm T & R
A2	U224	156-5711-01	74HC153 SO-16, 16mm T & R
A2	U207	156-6101-01	MC34164 SO-8, 12mm T & R
A2	Y201	158-0347-00	8 MHz Crystal
A2	U256	160-5806-00	EP600A PLCC-28 (prgmd 156-5447-00)
A2	U260	160-5807-01	EP600B PLCC-28 (prgmd 156-5447-00)
A2	U204	160-5808-00	EP600C PLCC-28 (prgmd 156-5447-00)
A2	W8	174-1452-00	Cable 14 wide 4.5"
A2		253-0405-00	Qty 1 Foam Tape w/adhesive - Vinyl
A2	C209	283-5003-00	.01 uF 50V 10% Cap 1206
A2	C202	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C203	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C204	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C205	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C206	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C210	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C211	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C212	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C213	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C214	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C215	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C216	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C220	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C254	283-5004-00	.1 uF 25V 10% Cap 1206

A2	C256	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C261	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C262	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C263	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C264	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C265	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C266	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C269	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C270	283-5004-00	.1 uF 25V 10% Cap 1206
A2	C260	283-5183-00	.01 uF 100V 5% Cap 1825
A2	C253	283-5185-00	1000 pF 50V 5% Cap 1206
A2	C257	283-5185-00	1000 pF 50V 5% Cap 1206
A2	C201	283-5187-00	15 pF 100V 5% Cap 1206
A2	C251	283-5187-00	15 pF 100V 5% Cap 1206
A2	C252	283-5187-00	15 pF 100V 5% Cap 1206
A2	C255	283-5188-00	100 pF 100V 5% Cap 1206
A2	C258	283-5188-00	100 pF 100V 5% Cap 1206
A2	C259	283-5188-00	100 pF 100V 5% Cap 1206
A2	C207	290-5005-00	47 uF 10V 10% Tant Cap 2218
A2	C267	290-5005-00	47 uF 10V 10% Tant Cap 2218
A2	C268	290-5005-00	47 uF 10V 10% Tant Cap 2218
A2	C208	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A2	C217	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A2	C218	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A2	C219	290-5019-00	4.7 uF 10V 20% Tant Cap 1311
A2	R209	307-5020-00	10K x 8 Res Pack SOMC-16
A2	R251	307-5020-00	10K x 8 Res Pack SOMC-16
A2	R252	307-5020-00	10K x 8 Res Pack SOMC-16
A2	R255	311-5010-00	50K Var Res side adj POT-SMD
A2	R259	311-5042-00	2K Var Res side adj POT-SMD
A2	R260	311-5042-00	2K Var Res side adj POT-SMD
A2	R203	313-5001-00	10M 5% Res 1206
A2	R208	321-5006-00	100 ohm Res 1206
A2	R257	321-5006-00	100 ohm Res 1206
A2	R258	321-5006-00	100 ohm Res 1206
A2	R264	321-5006-00	100 ohm Res 1206
A2	R267	321-5006-00	100 ohm Res 1206
A2	R210	321-5018-00	1.00K Res 1206
A2	R254	321-5018-00	1.00K Res 1206
A2	R263	321-5018-00	1.00K Res 1206
A2	R201	321-5047-00	100K Res 1206
A2	R202	321-5047-00	100K Res 1206
A2	R262	321-5151-00	453K Res 1206
A2	R204	321-5171-00	562K Res 1206
A2	R205	321-5171-00	562K Res 1206
A2	R206	321-5171-00	562K Res 1206
A2	R207	321-5171-00	562K Res 1206
A2	R256	321-5171-00	562K Res 1206
A2	R269	321-5171-00	562K Res 1206
A2	R261	321-5178-00	249K Res 1206
A2		348-1101-00	Qty 1 EMI Gasket .125 x .5 x 5.1
A2		388-9831-02	Qty .2 ea ECB - 5 in 1 Flat

671-0063-XX

FRONT PANEL CIRCUIT BOARD

222

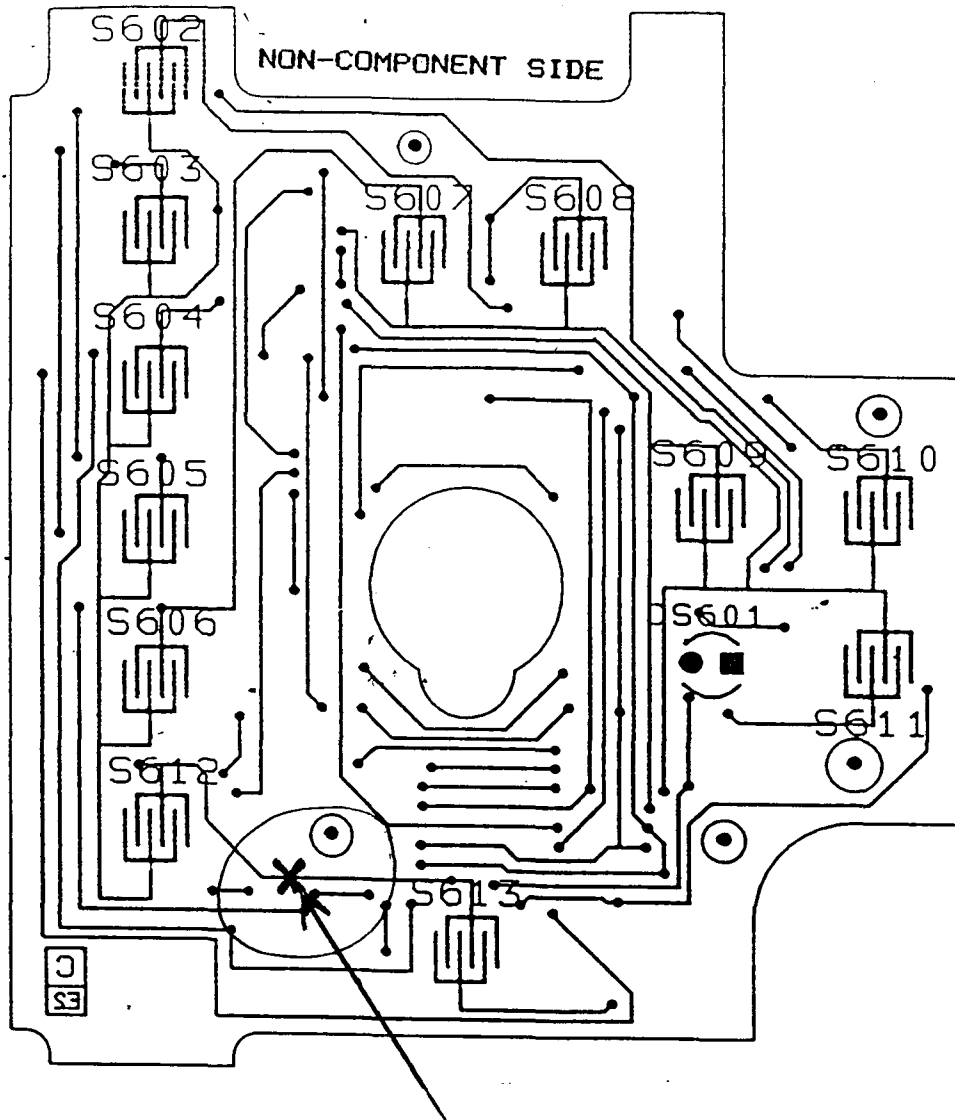
671-0063-XX FRONT PANEL CKT BOARD
388-9832-XX

BOARD LEVEL	CLASS	MOD # PAGE #	SUMMARY
00	REQ	3-1 3-2 B012106	This change eliminates the AUTOSETUP sleep lock-up. This is a hardware/software change to the XC version.
01	REQ	M71709 3-3 B016226	Board version (XL) is a redesign. Replacement of the FRONT PANEL will require a new <u>CPU</u> (671-0062-01) and modification to the <u>00_POWER_SUPPLY</u> will be needed.

671-0063-XX FRONT PANEL CKT BOARD
388-9832-XX

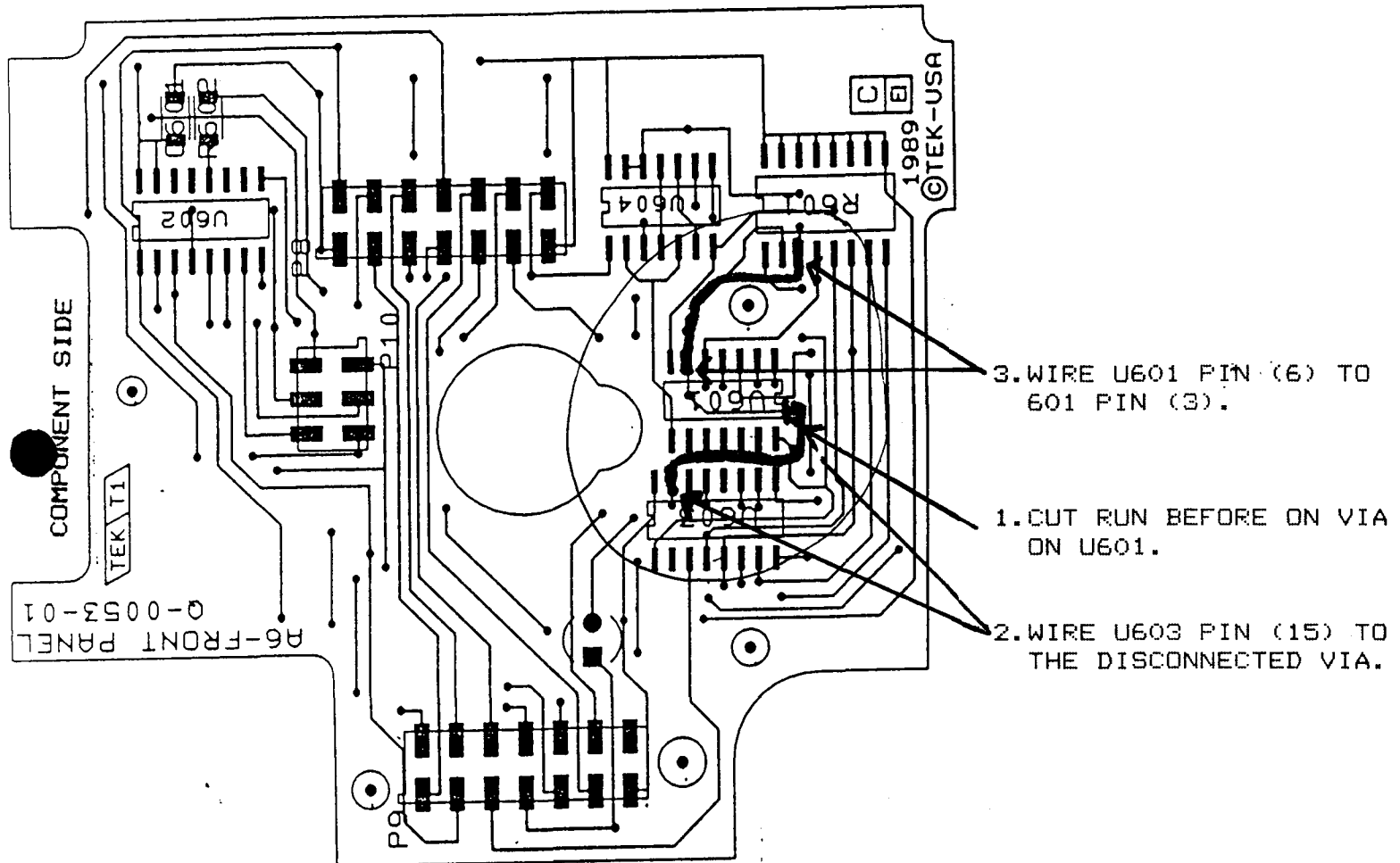
MODULE LEVEL	BOARD LEVEL	FILM LEVEL	PAGE NUMBER	CLASS	QUANTITY	PART NUMBER	MOD#
	01		3-3		.5 ft 1 ea	162-0026-00 322-3226-00	M71709

671-0063-XX FRONT PANEL CKT BOARD
388-9832-XX



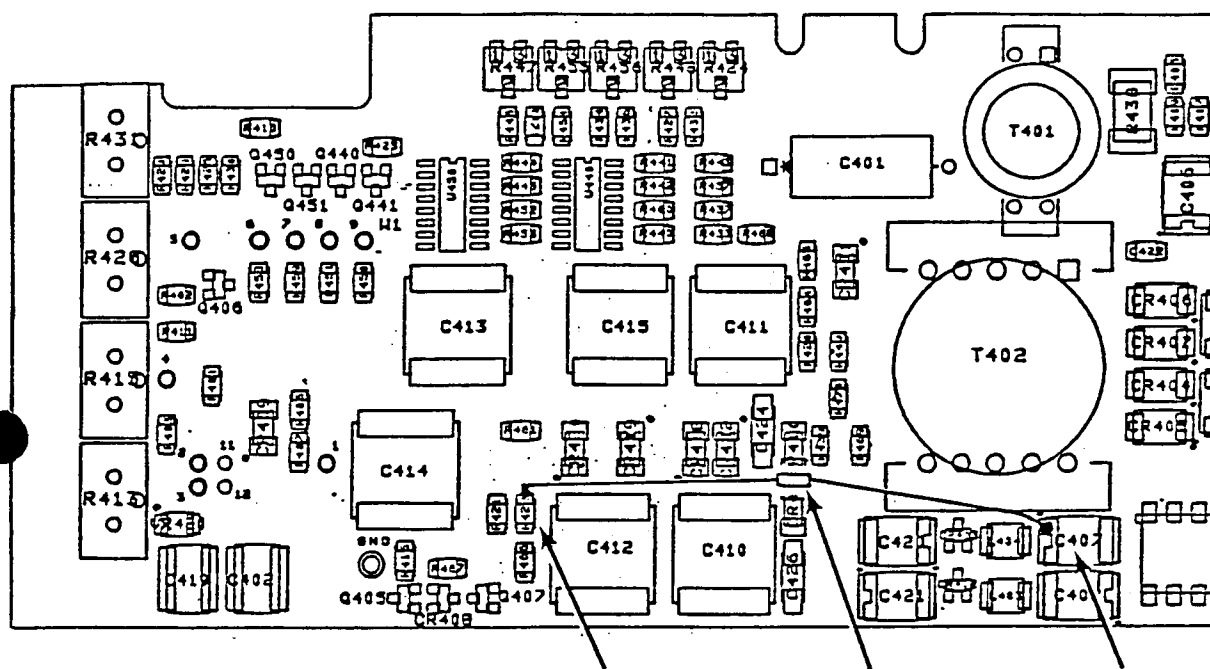
1. CUT RUN ON S612 ON BACK OF ECB (NON-COMPONENT).

671-0063-XX FRONT PANEL CKT BOARD
388-9832-XX

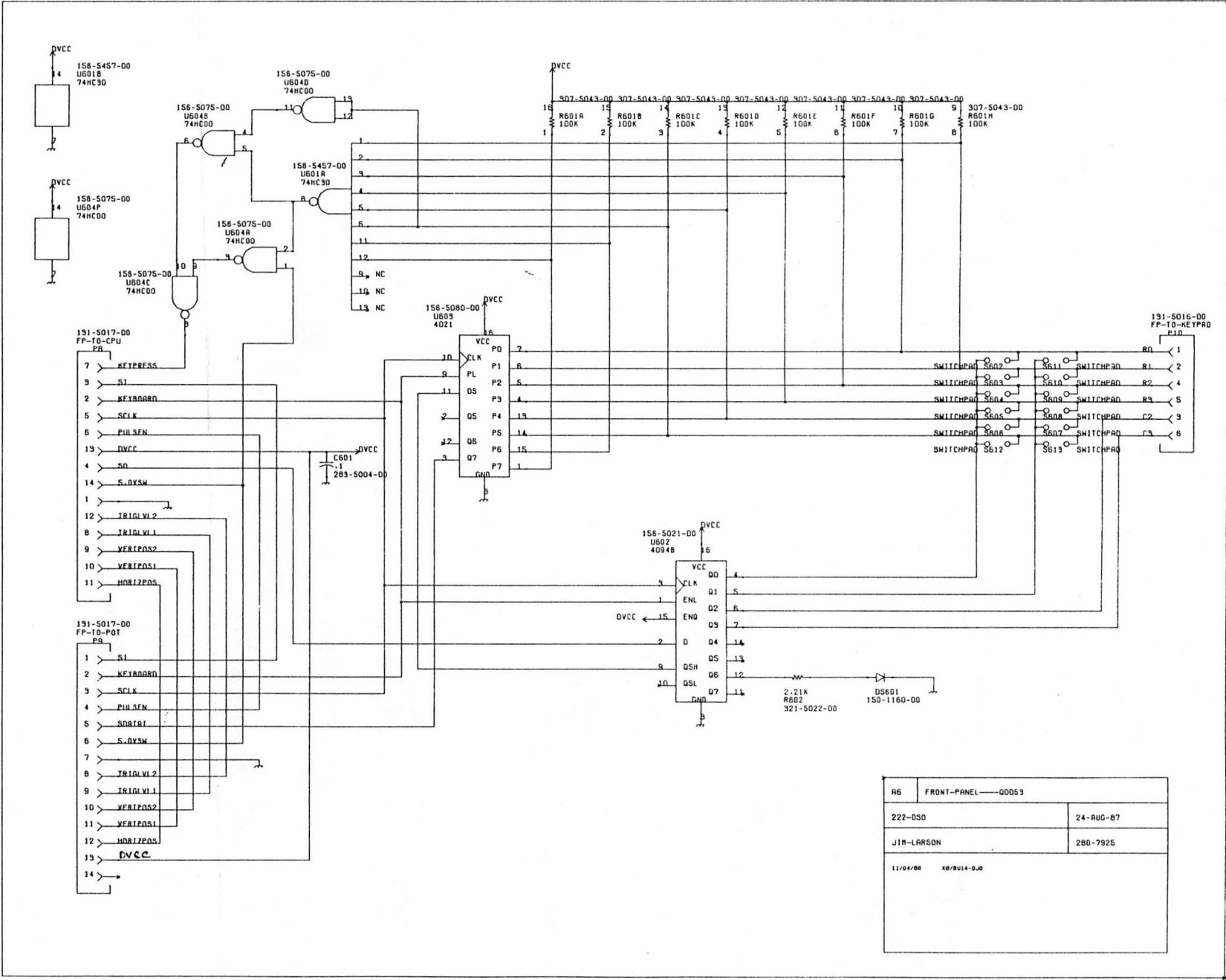
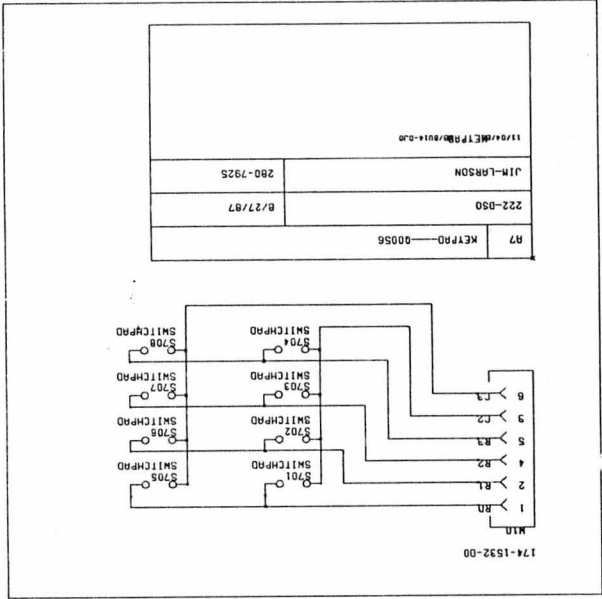


671-0063-XX FRONT PANEL CKT BOARD
388-9832-XX

POWER SUPPLY ECB (671-0061-00)

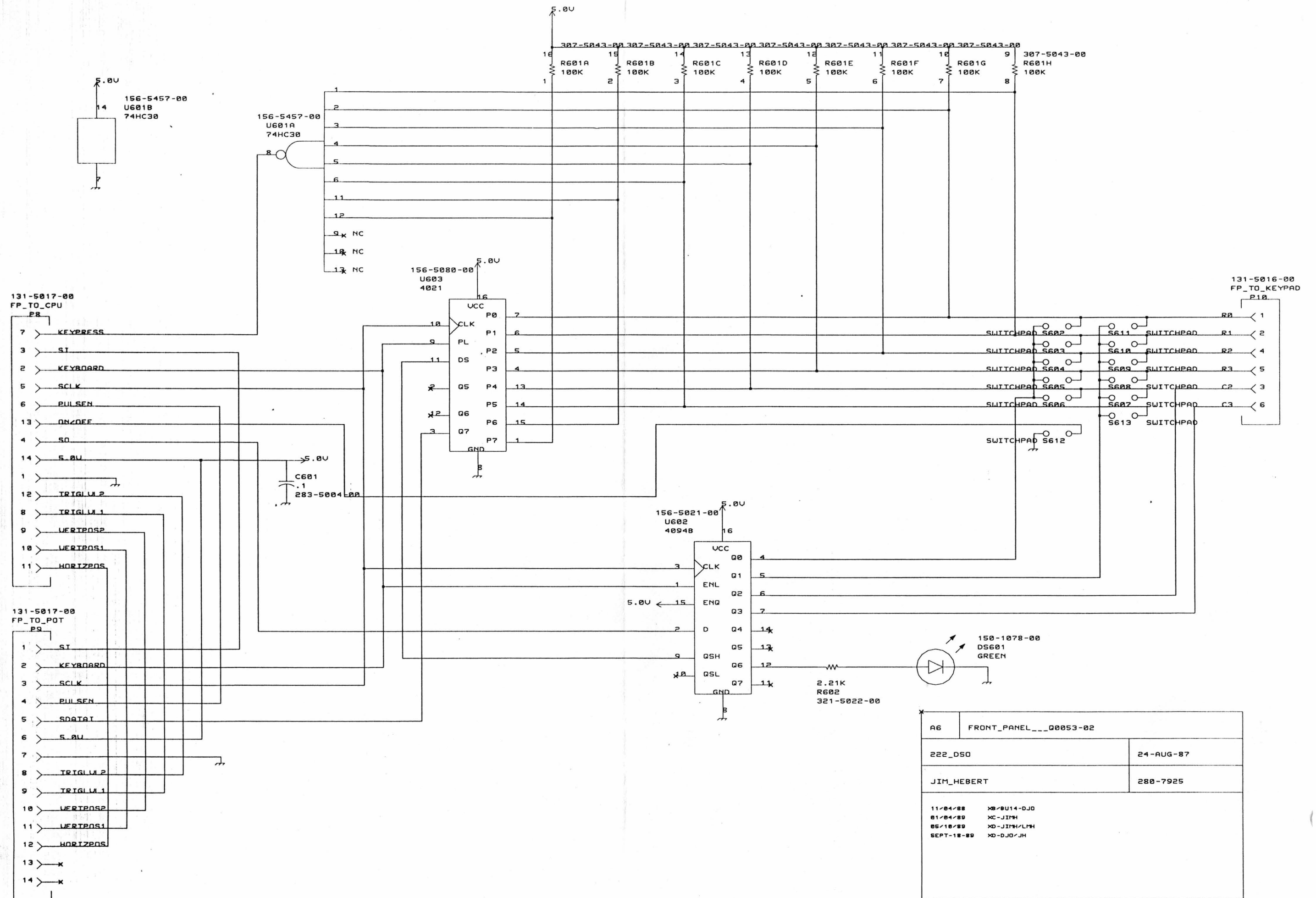


1. ADD: 162-0026-00 TO LEADS OF RESISTOR 322-3226-00;
SOLDER RESISTOR FROM PAD OF C407 AND PAD OF R422.



671-0063-00
partlist for 222 Front Panel (XC version)

A6	P10	131-5016-00	2 x 3 pin Connector SMD-6
A6	P8	131-5017-00	2 x 7 pin Connector SMD-14
A6	P9	131-5017-00	2 x 7 pin Connector SMD-14
A6	DS601	150-1078-00	LED green - diffused
A6	U602	156-5021-01	4094B SO-16, 16mm T & R
A6	U603	156-5080-01	4021 SO-16, 16mm T & R
A6	U601	156-5457-01	74HC30 SO-14, 16mm T & R
A6	U604	156-5075-03	74HC00 SO-14, 16mm T & R
A6	C601	283-5004-00	.1 uF 25V 10% Cap 1206
A6	R601	307-5043-01	100K x 8 Res Pack SOMC-16, 24mm T & R
A6	R602	321-5022-00	2.21K Res 1206
A6		388-9832-01	Qty .0416 ea 2 in 1 ECB - Front Panel



671-0063-01
partlist for 222 Front Panel (XL version)

A6	P10	131-5016-00	2 x 3 pin Conn SMD-6
A6	P8	131-5017-00	2 x 7 pin Conn SMD-14
A6	P9	131-5017-00	2 x 7 pin Conn SMD-14
A6	DS601	150-1078-00	LED green - diffused
A6	U602	156-5021-01	4094B SO-16, 16mm T & R
A6	U603	156-5080-01	4021 SO-16, 16mm T & R
A6	U601	156-5457-00	74HC30 SO-14
A6	C601	283-5004-00	.1 uF 25V 10% Cap 1206
A6	R601	307-5043-01	100K x 8 Res Pack SOMC-16, 24mm T & R
A6	R602	321-5022-00	2.21K Res 1206
A6		388-9832-02	Qty .0416 ea ECB - 2 in 1 Flat

671-0184-XX

POTENTIOMETER CIRCUIT BOARD

222

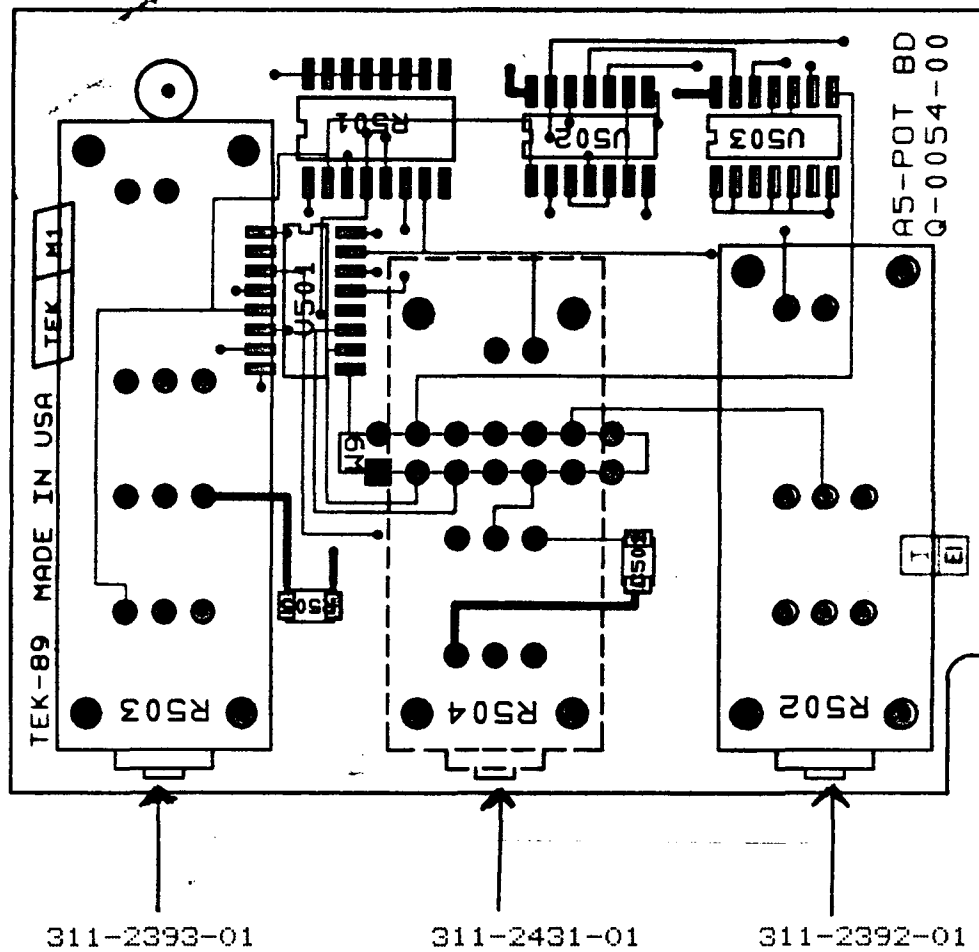
671-0184-XX POTENTIOMETER BOARD
388-9831-XX

BOARD LEVEL	CLASS	MOD # PAGE #	SUMMARY
01		M70700 3-1 BELOW S/N B012993	Vendor process change decreased pot shaft diameter and new knobs are also needed to fit the smaller shaft. * There is a mix of small and large shafted pots on S/N B012993 THRU B013572. WHEN OLD KNOBS ARE ORDERED A SHAFT IS INCLUDED WITH IT.
02	REQ	M71709 3-2 3-3 B016226	Board version (XL) is a redesign. Replacement of the POT board will require a modification to the <u>CPU</u> <u>BOARD</u> . ON S/N BETWEEN B013573 AND B015999
02		M73653 B017572	CHANGE TO COMMON KNOBS FOR ALL "222" FAM. PRODUCTS

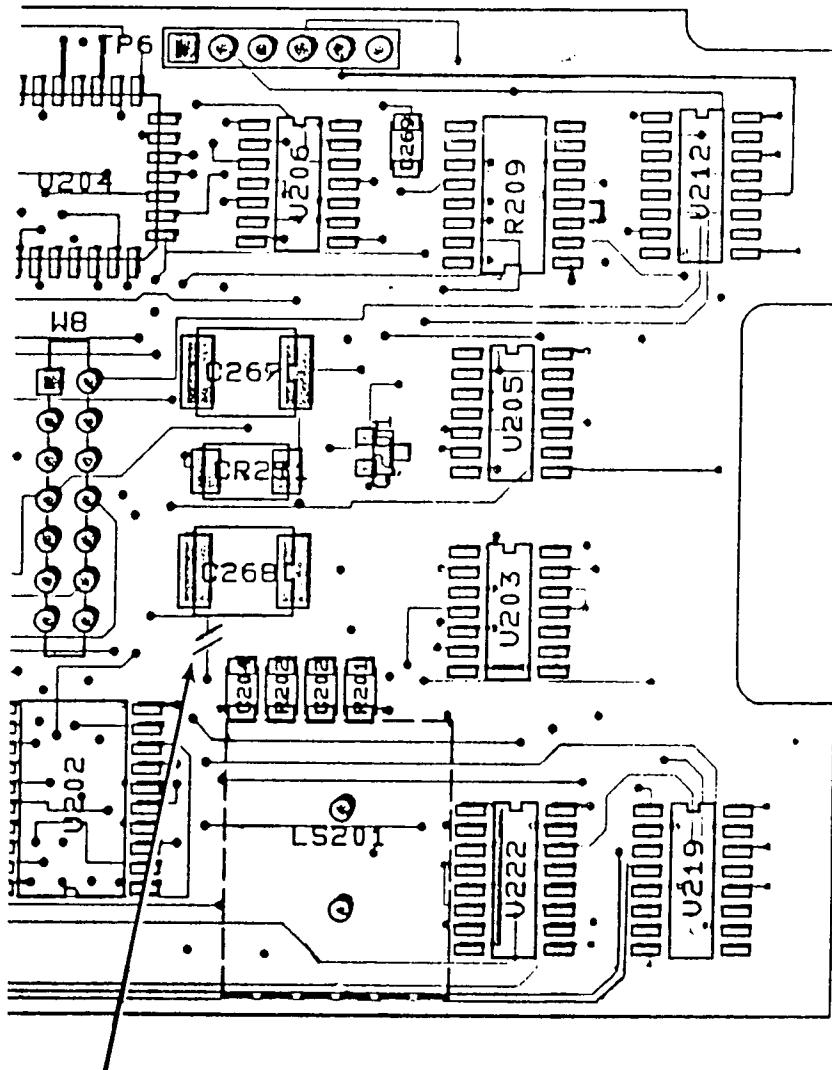
671-0184-XX POTENTIOMETER BOARD
388-9831-XX

MODULE LEVEL	BOARD LEVEL	FILM LEVEL	PAGE NUMBER	CLASS	QUANTITY	PART NUMBER	MOD#
	01		3-1		1 ea	311-2392-01	M70700
					1 ea	311-2393-01	
					1 ea	311-2431-01	
					2 ea	366-2107-01	
					3 ea	366-2108-01	
					1 ea	366-2109-01	
					3 ea	358-0741-00	
					3 ea	358-0742-00	
	02				3 ea	366-2137-00	M73653
					2 ea	366-2138-00	
					1 ea	366-2139-00	
					3 ea	377-0612-00	
					3 ea	377-0613-00	

671-0184-XX POTENTIOMETER BOARD
388-9831-XX



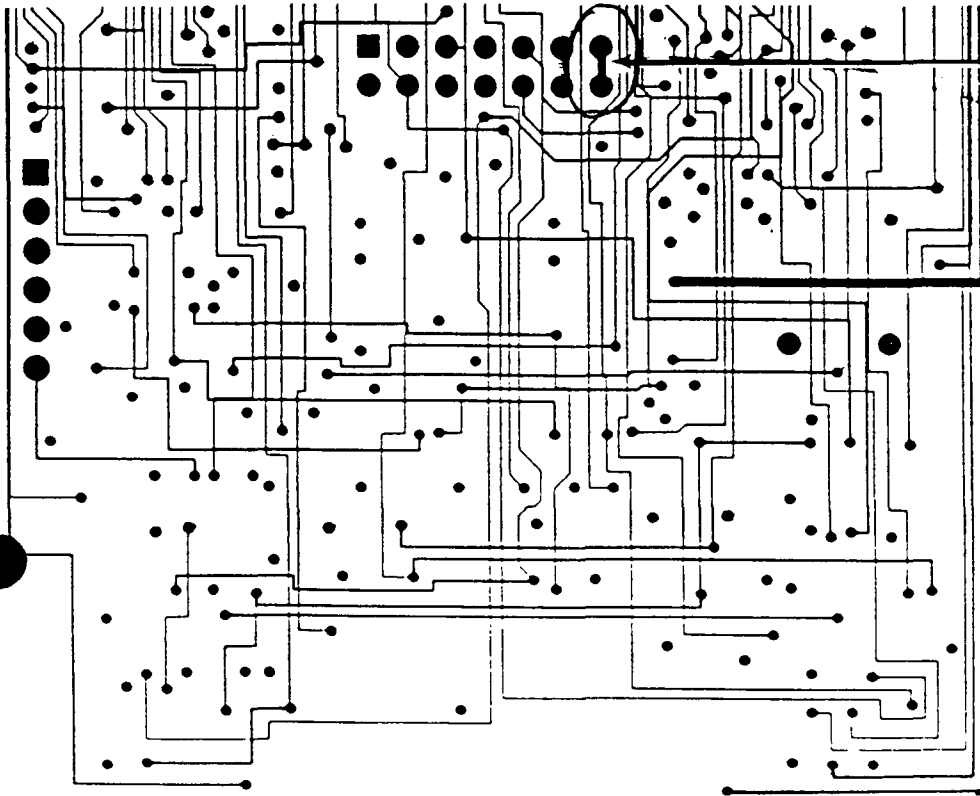
CPU/DISPLAY BOARD (671-0062-00)



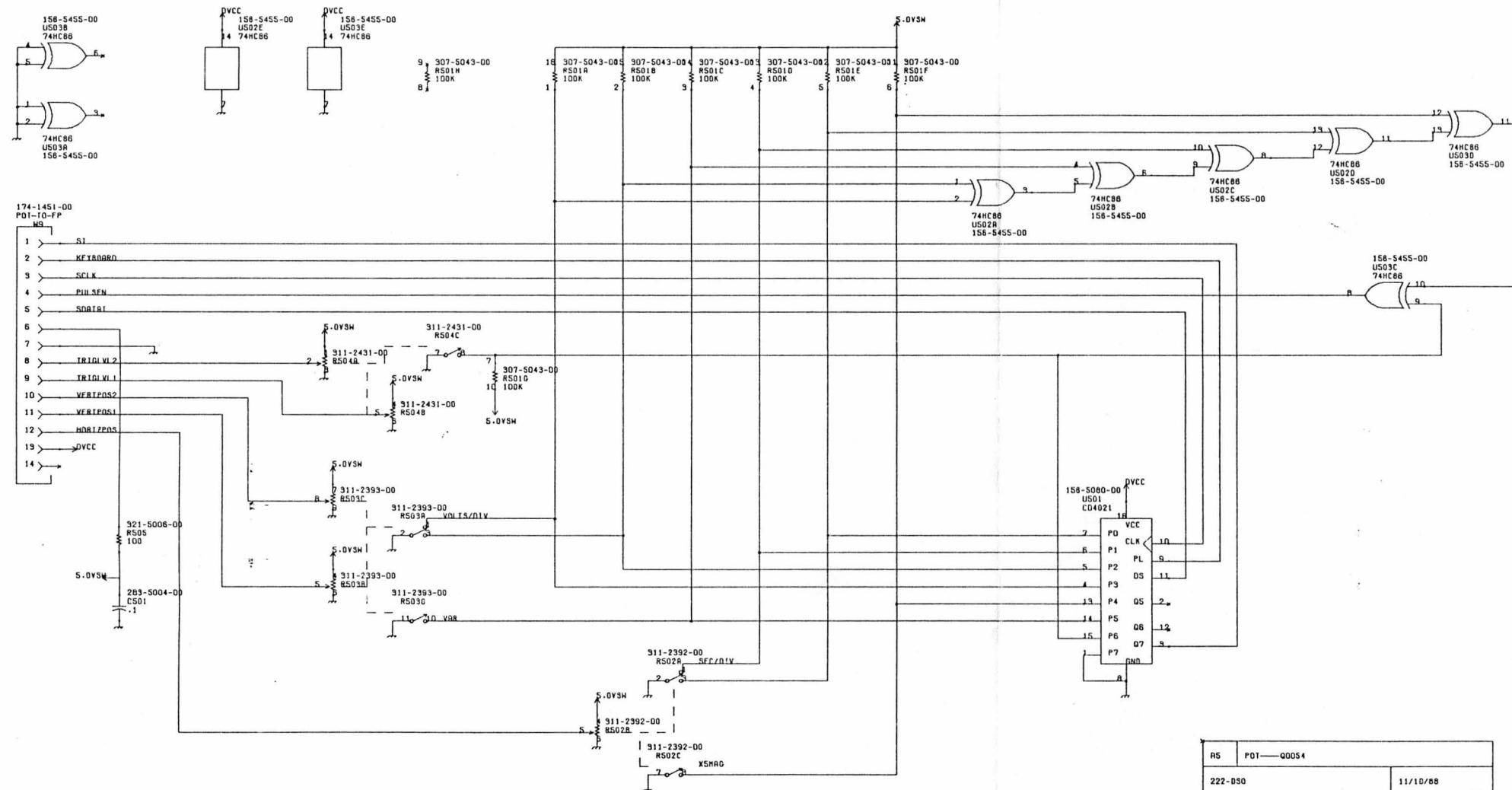
1. CUT THE RUN (ON FRONT SIDE OF ECB) THAT CONNECTS PIN (18) OF W8.

671-0184-XX POTENTIOMETER BOARD
388-9831-XX

CPU/DISPLAY BOARD (671-0062-00)



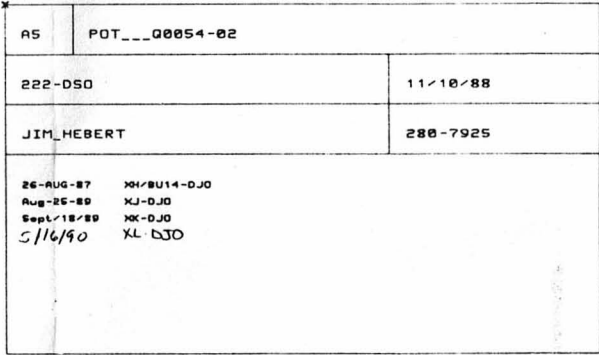
1. ADD: WIRE STRAP TO BACK (NON-COMPONENTS) SIDE OF ECB BETWEEN PINS (13) & (14) OF W8.



RS	P01-00054
222-050	11/10/88
JIM-LARSON	280-7925
28-000-87	28/0014-000

671-0184-01
partlist for 222 Potentiometer (XI version)

A5	U501	156-5080-01	4021 SO-16, 16mm T & R
A5	U502	156-5455-01	74HC86 SO-14, 16mm T & R
A5	U503	156-5455-01	74HC86 SO-14, 16mm T & R
A5	W9	174-1451-00	14 wide 3.5" Cable Assembly
A5	C501	283-5004-00	.1 uF 25V 10% Cap 1206
A5	R501	307-5043-01	100K x 8 Res Pack SOMC-16, 24mm T & R
A5	R502	311-2392-01	50K Pot/Sw/Encoder
A5	R503	311-2393-01	Dual 50K Pot/Sw/Encoder
A5	R504	311-2431-01	Dual 50K Pot/Sw
A5	R505	321-5006-00	100 ohm Res 1206
A5		388-9831-00	Qty .2 ea 5 in 1 ECB - Pot



671-0184-02
partlist for 222 Potentiometer (XL version)

A5	U501	156-5080-01	4021 SO-16, 16mm T & R
A5	U502	156-5455-01	74HC86 SO-14, 16mm T & R
A5	U503	156-5455-01	74HC86 SO-14, 16mm T & R
A5	W9	174-1451-00	Cable 14 wide 3.5"
A5	C501	283-5004-00	.1 uF 25V 10% Cap 1206
A5	R501	307-5043-01	100K x 8 Res Pack SOMC-16, 24mm T & R
A5	R502	311-2392-01	50K Pot/Sw/Encoder
A5	R503	311-2393-01	Dual 50K Pot/Sw/Encoder
A5	R504	311-2431-01	Dual 50K Pot/Sw
A5	R505	321-5006-00	100 ohm Res 1206
A5		388-9831-02	Qty .2 ea ECB - 5 in 1 Flat

671-0269-XX

KEYPAD CIRCUIT BOARD

222

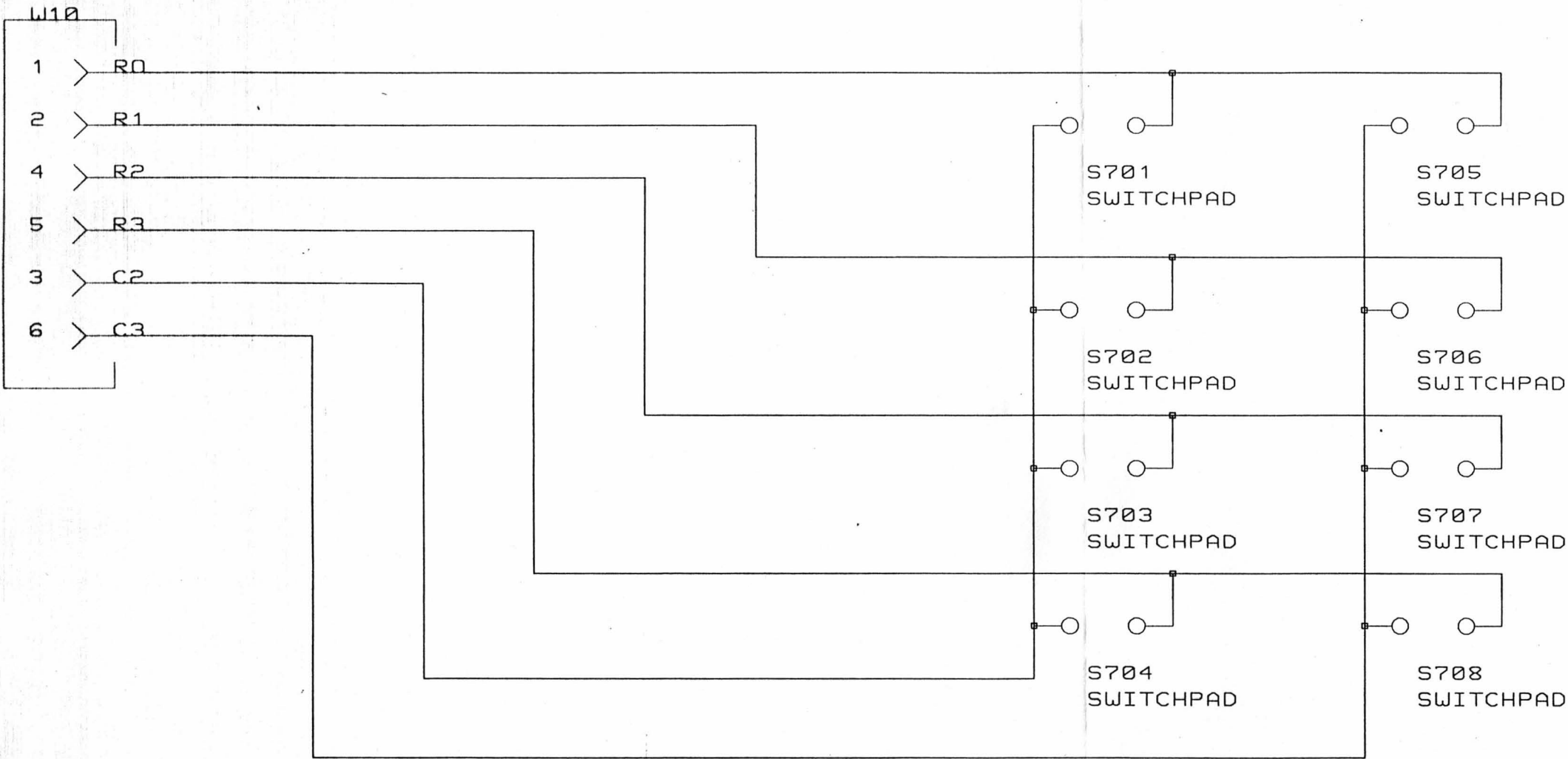
671-0269-XX KEY PAD CKT BOARD
388-9832-XX

BOARD LEVEL	CLASS	MOD # PAGE #	SUMMARY
01	REQ	M71709	Board version (XL) is a redesign.
		B016226	The 01 KEYPAD is a direct fit for the 00

671-0269-XX KEY PAD CKT BOARD
388-9832-XX

MODULE LEVEL	BOARD LEVEL	FILM LEVEL	PAGE NUMBER	CLASS	QUANTITY	PART NUMBER	MOD#
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174-1532-00
KEYPAD _T0_FP



X		
A7	KEYPAD___Q0056-02	
222_DSO		8/27/87
JIM_HEBERT		280-7925
11/04/88	XB/BU14-DJO	
01/04/89	XC-JIMH	
09/10/89	XD-DJO	

671-0269-00
partlist for 222 Keypad (XC version)

A7	W10	174-1532-00	2 x 3 Connector to 6 wide Ribbon Cable
A7		388-9832-01	Qty .0416 ea 2 in 1 ECB - Keypad

671-0269-01
partlist for 222 Keypad (XL version)

A7	W10	174-1532-00	6 wide Ribbon to a 2 x 3 Conn Housing
7	ID28	388-9832-02	Qty .0416 ea ECB - 2 in 1 Flat

222 DSO

MECHANICAL MODS

222 DSO MECHANICAL MODS

CLASS	MOD # PAGE #	SUMMARY
REQ	<u>BELOW S/N</u> B016226	To shield the probe cables from the pot on the power supply board, as a temporary solution to a Common mode signal modulating the vertical output amplifier. Add (2) EMI gaskets, stacked one on top of the other, to the side of the pot (R431) on the POWER SUPPLY board, dressing the probe cables away from the pot.
	M73457	The crt bottom support was modified for a new product and is a direct replacement of the 00.
	M73654 B018277	A modification was done to the Cabinet pieces which roll them from an 00 to 02. The 390-1046-02 bottom cabinet assembly impacts the mylar (342-0889-01) it rolls to an 01. ONLY THE CURRENT (386-5782-01) CRT BOTTOM SUPPORT WILL FIT WITH THE NEW BOTTOM CABINET. An 050-2746-00 kit is available
REQ	M74637 <u>BELOW S/N</u> B019192	Top/bottom cabinets have been cracking at the point where the RS232 port is mounted. The modified hex post rolls from a 00 to 01 and requires a washer. THE WASHER WILL BE BETWEEN THE HEX HEAD AND THE PLASTIC CASE. APPLY A SMALL DROP OF LOCKTITE INSIDE THE NUT ON THE CONNECTOR. THE MAXIMUM TORQUE REQUIRED FROM 8 in/oz TO 4 in/oz.

222 DSD MECHANICAL MODS

MODULE LEVEL	BOARD LEVEL	FILM LEVEL	PAGE NUMBER	CLASS	QUANTITY	PART NUMBER	MOD#
					2 ea	348-1102-00	
					1 ea	386-5782-01	M73457
					1 ea	342-0889-01	M73654
					1 ea	390-1045-02	
					1 ea	390-1046-02	
					1 ea	390-1047-02	
					2 ea	129-1390-01	M74637
					2 ea	210-1494-00	

