



\*\*\*\*\*  
\* ALL SERVICE QUESTIONS FROM EUROPE, MIDDLE EAST, \*  
\* AND AFRICA SHOULD BE ADDRESSED TO THE EUROPEAN \*  
\* MARKETING CENTER SERVICE GROUP IN THE NETHERLANDS. \*  
\*\*\*\*\*  
TEKTRONIX INTERNAL USE ONLY

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## PERSONNEL CHANGES

### EMC SERVICE GROUP

GERRIT NIJHOF, IDD Service Program Specialist, has decided to pursue career opportunities in the International Information Systems Group in the EMC.

\*\*\*\*

OSCAR BOHORQUEZ has assumed the responsibility of IDD Service Program Specialist.

A native of Curacao, Oscar moved to Holland where his last position held was Field Service Engineer for computer-based airline reservations systems. Oscar speaks Dutch, Spanish, English and French.

During Oscar's training period, Erik Rutten will provide IDD Service Support on an interim basis.

\*\*\*\*

We all wish Gerrit and Oscar success in their new functions.

\*\*\*\*\*

Please join Glen Lazovick, FSS, in welcoming TARRIE MURRAY to the Field Service Team in Rockville. Tarrie will take on the role of Site Coordinator/J.E.T.

Tarrie came to Rockville from Titusville, Florida after serving four years in the U.S. Air Force as Crypto Operator and Intelligence Specialist.

Welcome to Tek, Tarrie!

\*\*\*\*\*

MARK TURNER has joined the IDD Field Service Team in Syracuse as an FSS I. Mark comes to Tek from Bunker Ramo Corp. where he worked as an electronics and calibration technician since August of 1978. Previous to that he was employed by the U.S. Navy as a Fire Control Technician, Second Class.

Welcome Mark!

\*\*\*\*\*

The Ft. Lauderdale Service Center would like to welcome ALEX PRUNA and MARK MATHERS to their T&M service team. Alex comes to Tek with an AE degree from Miami-Dade Community College and several years experience in the calibration field with Coulter Electronics.

Mark received his initial electronics training through Devry Institute and has experience in calibration and repair of test and measurement instruments with Systems Engineering Labs. Both Alex and Mark are now ET II's.

Both Alex and Mark are now ET II's. A hearty welcome to you both!

\*\*\*\*\*

Please join Harold Behr, RSOM, Santa Clara, in welcoming RON VOLK to the Regional staff as their "Material Control Specialist" (formerly designated Logistics Coordinator). Ron comes to Tek having had nine years experience in Material and Logistics Supervision at a National level with Hewlett-Packard and Varian.

Ron's primary responsibilities will include the developing, implementing and controlling of Western Region Inventory programs. He will serve as the focal point for Region Material and Inventory Management activities.

Welcome aboard, Ron!

\*\*\*\*\*

#### PROMOTIONS

Harold Behr has also announced with pleasure that JOE SILVUS has been promoted to Regional Service Support Manager for the Western Region.

Joe started his career with Tek seven and a half years ago in Houston as a Product Service Technician, was promoted to Service Center Supervisor in Houston, went on to become a Field Engineer in Hawaii and most recently, has been the SCS in Albuquerque. Previous to his employment with Tek, Joe completed eleven years of Naval Electronic service in Spain, England, Phillipines and Hawaii as well as in the US.

As part of the Regional staff, Joe will report to Harold and work in the Santa Clara office.

Congratulations Joe and continued success in the future.

\*\*\*\*\*

From the East has come notice of the following promotions:

EUGENE ELSTON from FSS I to FSS II in Syracuse, and ROBERT JENDRYASZEK also from an FSS I to FSS II.

Congratulations on your promotions Eugene and Robert!

\*\*\*\*\*

STEVE FULLER, DAVE GILLEN and MIKE HINES have accepted the positions of Product Support Specialists in Rockville reporting to Jerry Carmichael. Their positions will be effective, depending on move situations in AP104 and AP105.

Steve Fuller is presently a level II IDG specialist. He brings experience to Tek from Docutel and the U.S. Air Force where he was an instructor and technical consultant for the minute man missile systems working with Boeing and Sylvania.

Dave Gillen has been with Tek for 8 years as a T&M technician, the last four as a level III. He has an AA degree in Electrical Engineering Technology from Pennsylvania State University.

Mike Hines is presently a level III SPS specialist. Mike started with Tek 5 years ago as a T&M technician and transferred to Systems approximately a year and a half ago.

Congratulations to Steve, Dave and Mike. Keep up the good work and best wishes for the future.





GENERAL

CRT FAILURE INFORMATION

We are beginning to see an increasing number of CRT's returned to me without the pink failure copy of the service record attached to the CRT. All CRT's returned should have the failure copy either attached to the tube or in the box with the CRT. The information on the service record is very helpful in properly evaluating CRT's. When we have obtained the necessary data, the service record is sent to Corporate Reliability (Clair Gruver) so there need be no concern about lost data or paperwork.

Please continue to send all CRT's, in-warranty or out of warranty, to Vern Isaac at 46-234.

Submitted by--  
Vern Isaac  
CRT Reliability

Inserted by--  
Editor

# FAILURE CODES - ALPHABETICAL LISTING

ADJUSTMENTS- - - - - -01  
 APPEARANCE - - - - - -13  
 ARCING - - - - - -71  
 BINDING- - - - - -36  
 BNC CONNECTOR PROBLEMS - - - -45  
 BROKEN - - - - - -95  
 BROKEN LEAD- - - - - -96  
 BROKEN WIRE- - - - - -96  
 BURNED - - - - - -52  
 CATASTROPHIC FAILURE - - - - -78  
 CIRCUIT BOARD RUN PROBLEMS - -49  
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 COUPLING FAILURE - - - - -28  
 CRACKED- - - - - -97  
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 CUSTOMER ABUSE - - - - -42  
 DAMAGE, FACEPLATE- - - - -90  
 DAMAGE, GENERAL- - - - -46  
 DAMAGE, MECHANICAL - - - - -44  
 DAMAGE, SHIPPING - - - - -41  
 DEAD - - - - - -75  
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 DOUBLE PEAKING - - - - -82  
 DRIFTING - - - - - -69  
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 FACEPLATE DAMAGE - - - - -90  
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 FLOATING HARDWARE- - - - -12  
 FOCUS- - - - - -92  
 FOREIGN MATERIAL - - - - -15  
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 GASSY- - - - - -80  
 GEOMETRY - - - - -85  
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 LEAKAGE- - - - -70  
 LONG END - - - - -33  
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 LOOSE PART - - - - -12  
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 MECHANICAL FAILURE, KNOBS- -28  
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 MICA WASHER PROBLEMS - - - -48  
 MISSING PART - - - - -18  
 NEVER SOLDERED - - - - -10  
 NO OUTPUT- - - - -76  
 NO PROBLEM FOUND - - - - -60  
 NOISY- - - - -67  
 NOT COMPATIBLE AS PACKAGE- - -03  
 NOT CONNECTED- - - - -06  
 OPEN - - - - -61  
 OPERATIONAL- - - - -64  
 OSCILLATES - - - - -72  
 OUT OF TOLERANCE - - - - -66  
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 PARTS SWAPPED- - - - -08  
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 UNCONNECTED- - - - -06  
 UNKNOWN- - - - -65  
 UNSOLDERED, NEVER SOLDERED -10  
 WIRING ERROR - - - - -14  
 WORKMANSHIP MKD/NOT DEFINED-21  
 WORN PART- - - - -43  
 WRITING FAILURE- - - - -79  
 WRONG PART - - - - -17

June 27, 1980  
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Submitted by--  
 Dick Browne  
 Philadelphia S.C.

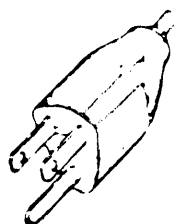


## INTERNATIONAL POWER CORD AND PLUG OPTIONS - GCS PRODUCTS

In order to better address the needs of our ever-increasing international customers, GCS is implementing the new TEKTRONIX plug and power cord options. The following GCS Products will be affected:

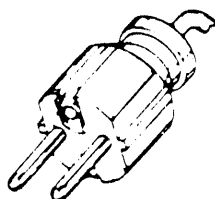
4051	4907
4052	4923
4054	4924
4051E01	

In ordering any of the above products, an option number of A1, A2, A3, A4, must be specified for the appropriate country. If none is specified, the standard North American 120V/15A power cord and plug will be shipped.

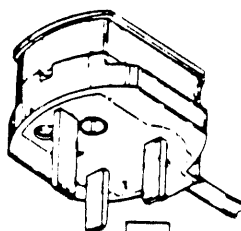


Power Cord Option Number —

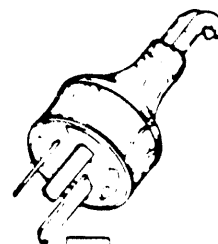
North American  
120V/15A



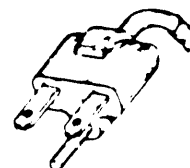
Universal Euro  
220V/16A



UK  
240V/13A



Australian  
240V/10A



North American  
240V/15A

AVAILABILITY: AP102

OPTION A1, A2, A3, A4

Extracted from--  
Marketing Sales Release  
#1021

Inserted by--  
Editor

## INVENTORY CONTROL TAG

A new inventory control tag is now in use on all modules sent from the Board Exchange Center. The tag serves two purposes, inventory control and quality control. The quality control information is gathered from the "Field Service Use" area of the tag.

Under normal circumstances, the tag would be used in this fashion: The service technician performs an exchange while on site. The tag is removed from the good module and attached to the defective module. The "Board Exchange" box is marked and a problem description is given. The module is then sent back to Board Exchange.

In the event that the module is defective when received by the service technician or is defective when it is taken out of the board kit, the "Defective from Kit" box should be checked and a problem description given. The tag is left attached to the defective module and returned to Board Exchange.

Failure data will be collected from these tags before they are filed. This data will be used in our ongoing efforts to increase the quality of modules received by the field. As in all other information systems, the data out can be no better than the data in. Please fill out the tag completely.

Written by--  
Barney Brooks  
Module Repair Center  
53-017, Ext. 8907 Me

Inserted by--  
Editor

## 285-0938-00 DEFECTIVE DATE CODES "PURGE"

A previous Wizard article stated that all Capco brand capacitors with Date Codes 7935 through 7951 were defective. Their defect was that they were not oil impregnated. There is an indication now that Capco brand capacitors with Date Codes 7952 through 8007 may also have the same problem. If Capco capacitors with Date Codes 7952 through 8007 do not appear to be oil impregnated or you are not sure, then I suggest that they be pruged, reorder as necessary.

--Rich Andrusco  
92-236, Ext. 1582

## ORGANIZATION CHANGES IN FACTORY SERVICE

With the beginning of AP102, Roger Holmen will leave his position as Factory Service Supervisor and move to a staff role reporting to Jim Baker. Roger will be given the opportunity to pursue and resolve many problems that have plagued Factory Service for years; he will develop a system of Work-In-Process control for sales, show, and demo return products. He will represent Factory Service in the committee formed to resolve issues attendant the "parts return" program, and of course he will continue to be called upon to deal with technical questions directed to Factory Service by customers and other service centers.

Roger has been with Tektronix 20 years, with 16½ of those years in Service. He has been a supervisor in Factory Service since September of 1973. Roger's years as a technician and years as a supervisor in Service uniquely qualifies him for the position he will be moving into. We look forward to the contributions he will be making in the year ahead.

During the months ahead Factory Service will be looking for a replacement for Roger. The one replacing Roger will find a slightly different T&M organization in place in AP102 than the present organization; there will be two Service Center Supervisor II's for day shift and a Service Center Supervisor I for swing shift reporting to Rogers replacement. Jim frame (new to Factory Service), and Jim Bevins will occupy the Supervisor II positions, and Ed Ohlman (swing shift lead person) will occupy the Supervisor I position. These three supervisors will report to Jim Baker until a replacement for Roger is found.

Jim Frame has been with Tek for 12 years with prior experience in assembly, test, scheduling and as a manager the past 3 years.

Having available a uniquely qualified staff person and Factory Service T&M reorganized will allow us to meet the challenges and to take advantage of opportunities offered during the years ahead.

Submitted by--  
Jim Baker  
Factory Services Manager  
93-186, Ext. 5134

## 321-0338-00 AND 321-0242-00/08 MIXED STOCK "PURGE"

This resistor, P/N 321-0338-00, is supposed to be a 32.4 K ohm 1% precision resistor, but we have a report from our Woodbridge Office of mixed stock. Pete Sobilo reported receiving some parts which were marked 3.24 K ohm instead of 32.4 K ohm. Some of the parts marked 3.24 K ohm did measure 32.4 K ohm while others measured 3.24 K ohm. Check all field kits and stock areas under part numbers 321-0338-00 (32.4 K ohm), 321-0242-00 (3.24 K ohm) and 321-0242-08 (3.24K ohm) for correct values and markings. Purge all resistors found to be incorrectly marked or have incorrect values, reorder as necessary. Our thanks to Pete Sobilo, Woodbridge.

--Rich Andrusco  
92-236, Ext. 1582







ADMINISTRATIVE SUPPORT

SERVICE RECORD PROCESSING

Many Module Exchange copies of the ON-SITE SERVICE RECORD are being received without RESP/CC/AP/JOB NUMBER entries. Please ensure this data is on the Module Exchange copies prior to mailing.

These fields are used to connect Module repair information to the product failure information found on the Service Information System copy.

--Bill Duerden  
53-027, Ext. 8938 Merlo









LABORATORY INSTRUMENT DIVISION

5000 SERIES

5B12N, 5A13N, 5B42, 5B44 HELIDIAL SETTINGS

Below are the mechanical settings of the 5000 Series plug-ins "Helidials".  
All settings are stated with the pot set fully counter clockwise.

5A13N	0.00
5B12N	0.20
5B42	0.20
5B44	0.20

--John Eaton  
58/511, Ext. 6902

7000 SERIES

7104, 7704A, 7834, 7844, 7854, R7903 AND 7904 DEFECTIVE CAPACITOR

Reference: WIZARD'S WORKSHOP Issue 10-10

It has been brought to our attention that there are other date codes of the "Capco Brand" capacitors that may not have had oil impregnation. As of now, lot dates from 7935 through 8007 are suspect. Identifying in which of the above listed instruments a defective capacitor is installed requires a visual inspection. To decrease unnecessary time spent on checking them, the following system should be used. If the capacitor is checked and found to be good, or it is replaced with a good one, mark the bottom outside cover of the power supply with the Field Office code and the date. Maybe this will save some time if the instrument goes to another Service Center with a possible power supply problem. Reject all capacitors with the above listed date codes.

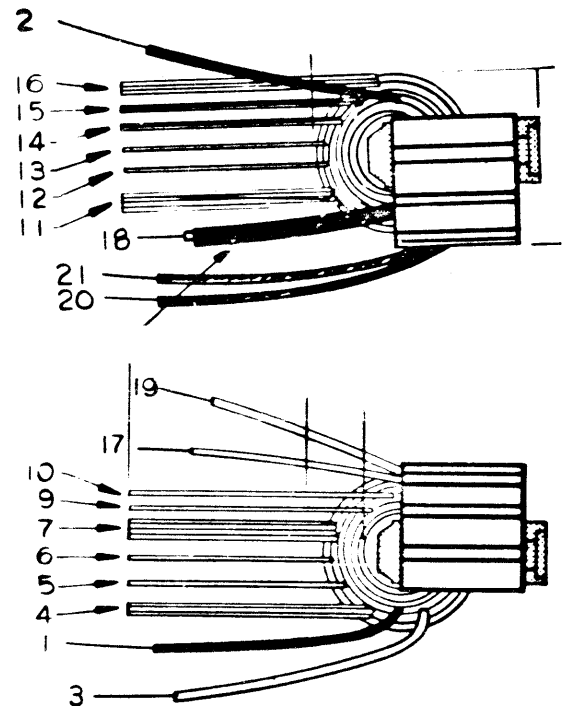
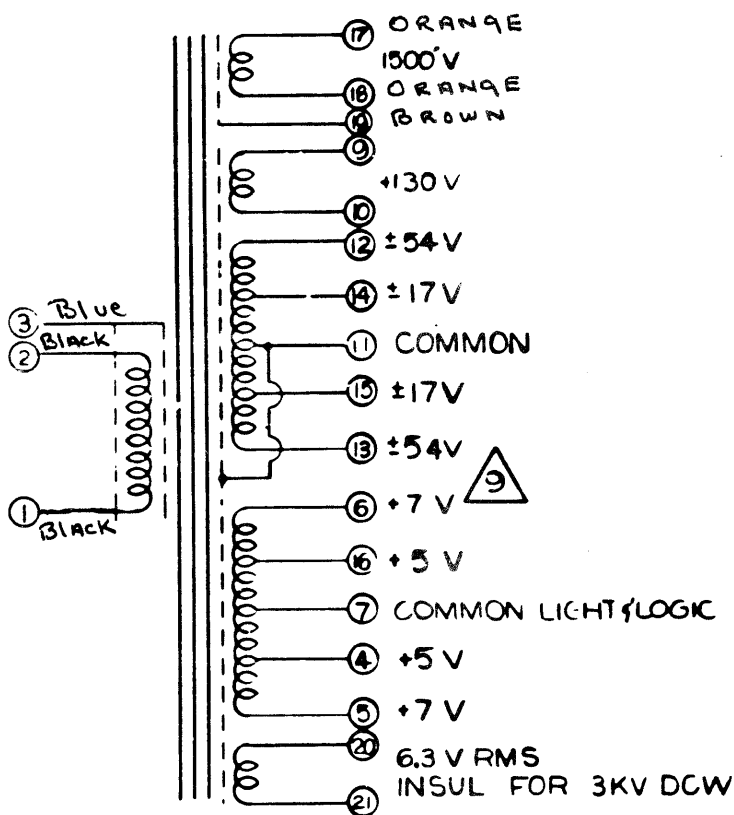
Thanks to Bob Zuleeg, Orlando Service Center, for the inspection system suggestion.

--John Eaton  
58/511, Ext. 6902

## 7844/R, R7903 AND 7904 TRANSFORMER REPLACEMENT

Reference: 7844/R Service Manual P/N 070-1676-01  
R7903 Service Manual P/N 070-1464-00  
7904 Service Manual P/N 070-1195-00  
7904 Service Manual B26 & Up P/N 070-2390-00

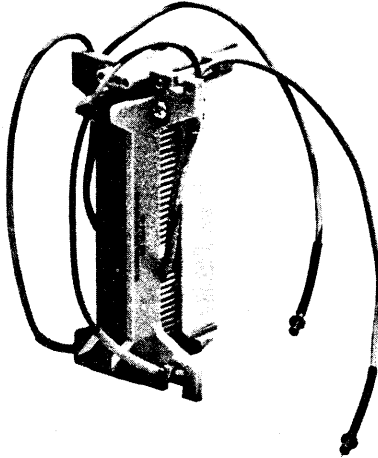
The power transformer, P/N 120-0742-00, previously used in the above instruments, has been replaced by P/N 120-1250-00. The only change is that on the +5 volt light winding, instead of increasing wire size, an extra wire was added. These wires are terminals #4 and #16, and are now 3 large tinned copper wires. It is difficult to connect these wires, as the holes are small, but with care it can be done. Below are drawings which should help in wiring.



--John Eaton  
58/511, Ext. 6902

067-0655-00, SIGNAL PICK-OFF CABLE REPLACEMENT

After a period of time the coax cables and connectors on this fixture can become intermittent, or may have broken loose from the connector. The cables are very critical as far as their length is concerned. Do not replace them with just any coax. A cable replacement set is available and contains all four cables. Order P/N 198-2788-00.



Signal Pickoff Connector. Used in conjunction with the 067-0616-00 Flexible Extender in order that the 7000 series horizontal or vertical plug-in unit may be operated outside of the oscilloscope and still be properly terminated.

--John Eaton  
58/511, Ext. 6902







COMMUNICATIONS DIVISION

MEDICAL

MEDICAL MONITORS SYSTEM CALIBRATION MANUAL

Reference: P/N 070-2857-01

When calibrating the Medical Monitors "System", refer to the updated SYSTEM CALIBRATION SERVICE MANUAL P/N 070-2857-01. This will enable the monitor system to be calibrated in such a way as to minimize the discrepancies between individual digital displays.

--Dave McKinney  
58/511, Ext. 7072

## TELEVISION PRODUCTS

### TV GENERATORS/REPLACEMENT OF TEK MADE SYNC AND TIMING CHIP - ADDENDUM

When ordering a 050\* parts kit to replace the Tek made 155-0147-00/02 sync and timing chips, be sure to use a negotiated price (NP) (as listed on Parts Notice 204) rather than the list price of the kit. Use the list price only when the customer is not returning a defective 155-0147-00/02 and the circuit board. See parts notice 204 for additional information. Please insure that the Customer Service Representative includes the Negotiated Price in the Stock Requisition when the order is placed.

\*050-1338-00  
050-1339-00  
050-1340-00  
050-1341-00  
050-1342-00  
050-1343-00  
050-1344-00

--Steve Schmelzer  
58/511, Ext. 6507

### 1900/OPERATING PRECAUTIONS FOR 1900 TEST INSERTION GENERATOR

#### Program Routing and Genlock Source Selection

APPLICATION: 1900 is being used with the 015-0374-00 Remote Control Unit for VITS and VIRS insertion.

BACKGROUND: The factory programming of the Remote Control Unit is such that the ENABLE/DISABLE switch does not affect the INSERT, BYPASS, PROGRAM, or BLACK BURST controls. These controls are always active.

POSSIBILITY: The user may inadvertently select BYPASS or BLACK BURST, both of which will cause the 1900 to go to bypass thus discontinuing VITS insertion.

RECOMMENDATION: Be aware that users may approach you with this problem.

The cure is to move jumper P635 (in the Remote Control Unit) to pins B and C. This causes the genlock source and program routing selectors to be disabled and the 1900 to default to INSERT and PROGRAM when the ENABLE/DISABLE switch is in the DISABLE position.

(continued on the following page)

1900/OPERATING PRECAUTIONS FOR 1900 TEST INSERTION GENERATOR (CONTINUED)

VIRS MODE

- APPLICATION: 1900 is being used with the 015-0374-00 Remote Control Unit for VITS and VIRS insertion.
- BACKGROUND: The factory programming of the Remote Control Unit is such that the ENABLE/DISABLE switch has no control over the VIRS mode PASS, INSERT, DELETE, and AUTO controls. These controls are always active.
- POSSIBILITY: The user may inadvertently select either PASS or DELETE and cause VIRS insertion to discontinue. This would remove the reference for automatic video correction and could affect radiated picture quality.
- RECOMMENDATION: Be aware that users may approach you with this problem.

Other than user caution there is no cure for this. Programming the Remote Control Unit to disable the VIRS mode switches when the ENABLE/DISABLE switch is in the DISABLE position causes the 1900 to default to the PASS mode.

Written by  
Ron Marquez - TV Marketing

Inserted by  
Steve Schmelzer  
58/511, Ext. 6507

## 1460/BURST GAIN "BOUNCE" WITH SOUND IN SYNC

Reference: 1460 Manual P/N 070-1803-00  
Schematic 10 , 11B , 12a

1460 instruments used in Sound-in-Sync applications may exhibit Burst and/or Chroma gain "bounce". The sync sampling pulse for decoders (U4651 A & B) has sound-in-sync (S-I-S) present. This causes faulty clamping at TP4351 and TP4721. The end result is varying burst and chroma gain on the output. To correct this malfunction, lift the end of C4346 (A4 decoder circuit board) connected to the collector of Q4253. Reconnect this lead to the base of Q4244. Since the signal present on the base of Q4244 comes from the S-I-S reject circuitry (U4136 A & B), it does not have S-I-S present.

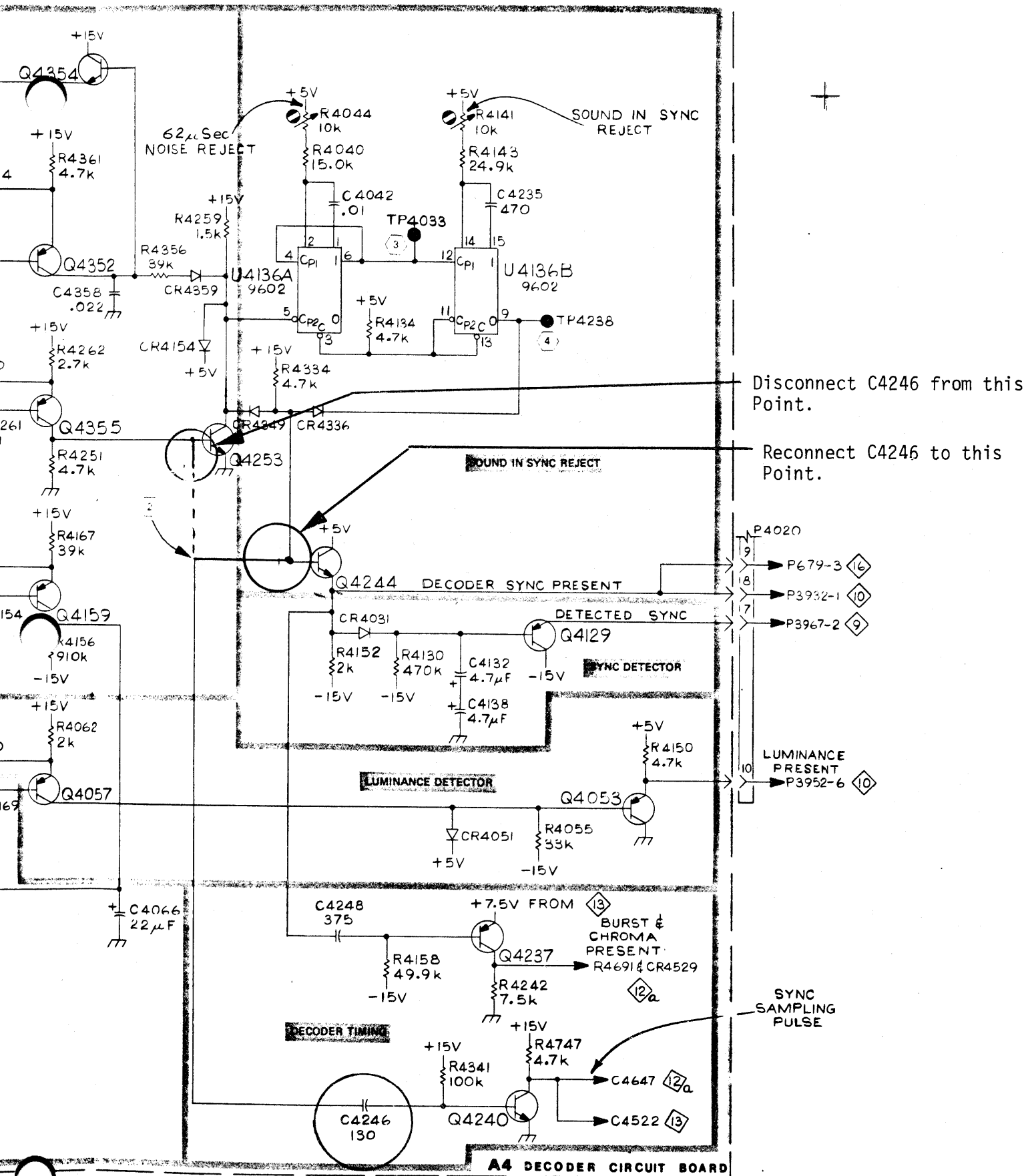
The chroma gate pulse at P4699-1 (Schematic 12a ) is too wide and allows the sync pulse at the end of the VIT's line to pass. The S-I-S on this sync pulse is decoded by U44568 and U4466 and is passed as a DC level shift by the sync-sampling pulse. To correct this problem, the chroma gate pulse is shortened by adding an R-C network to U3352. On the back side of board cut the run going to pin 1 of U3352 (see drawing). Solder one end of 2.7K ohm resistor (315-0272-00) to the end of R3332 connected to U3342 pin 4 (+5v). Solder one end of another 2.7 Kohm resistor (315-0272-00) to ground (see parts locator diagram included). Solder one end of a 470pf capacitor (283-0197-00) pin 3 of U3352. Solder the other end of the capacitor and both free ends of the two resistors to pin 1 of U3352. This modification should be installed as units come in for service.

Thanks to Bill Gobel, EMC, and Eric Rogstad, TV Engineering, for providing this information.

(continued on the following pages)

--Steve Schmelzer  
58-511, Ext. 6507

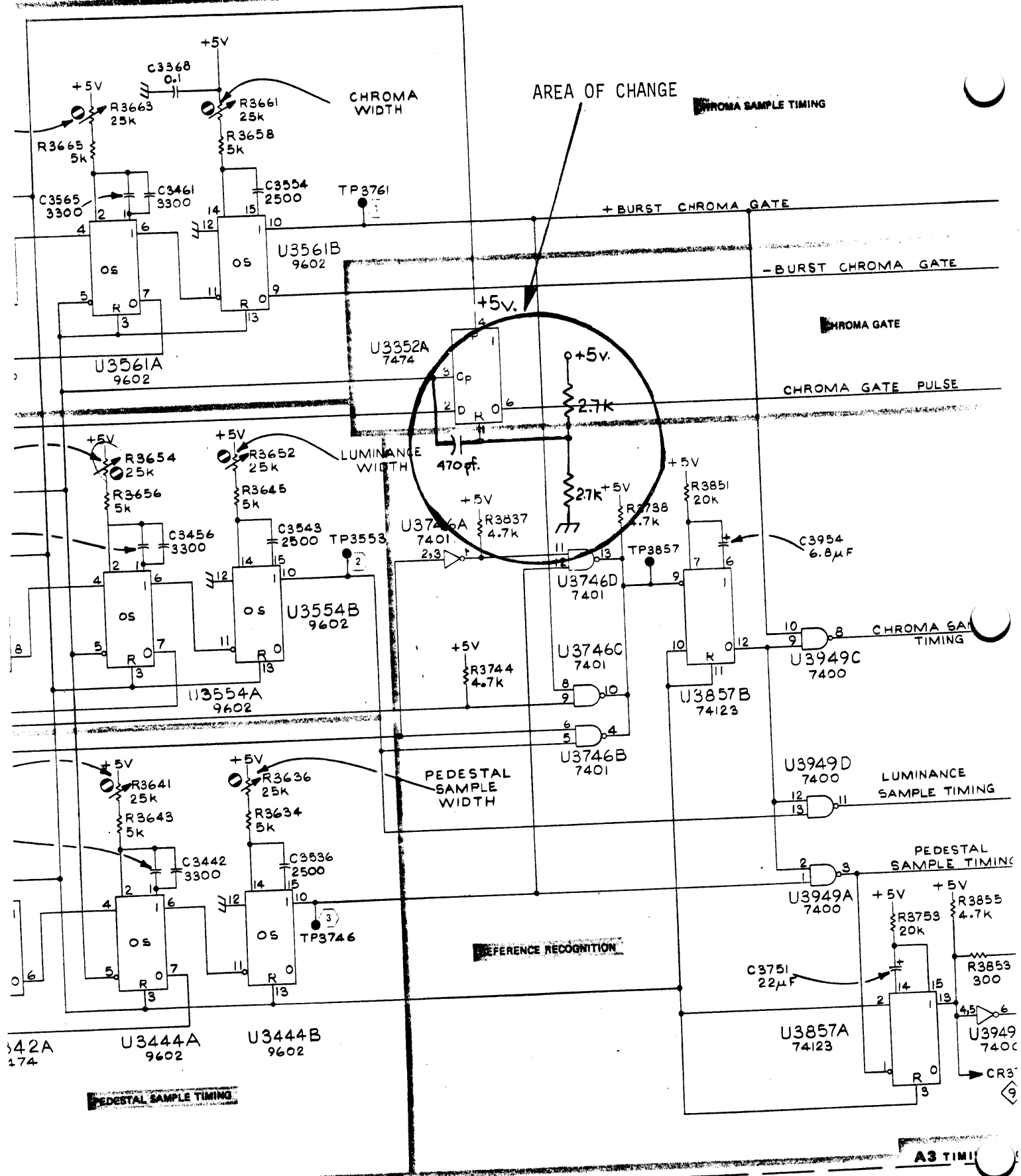
# 1460/BURST GAIN "BOUNCE" WITH SOUND IN SYNC (CONTINUED)



A

DECODER SYNC STRIPPER 11

1460/BURST GAIN "BOUNCE" WITH SOUND IN SYNC (CONTINUED)



## REFERENCE SAMPLING TIMING









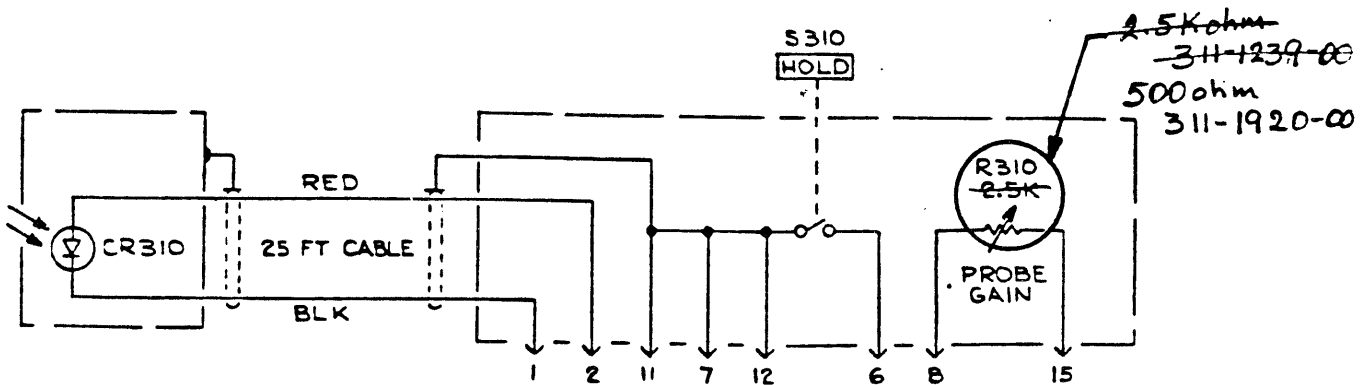


SERVICE INSTRUMENT DIVISION

ACCESSORIES

J6511 SENSITIVITY

Effective S/N B011133, Resistor R310 will change from a 2.5K ohm P/N 311-1239-00, to a 500 ohm P/N 311-1920-00. See schematic below for location of parts. This is due to the lack of extra sensitive photo diodes, and the increased difficulty of calibration.



J6511 Schematic

--Dave McKinney  
58/511, Ext. 7072

## PROBE CROSS REFERENCE INDEX

The PROBE CROSS REFERENCE INDEX enables the user to cross reference the "P" number of the probe to the "010" part number of the probe. The following should be added to that index:

PART NUMBER	PROBE TYPE/DESCRIPTION
010-6101-07	P6101 Probe, Voltage, 1 Meter W/Accessories
010-6101-08	P6101 Probe, Voltage, 2 Meter W/Accessories
010-6101-09	P6101 Probe, Voltage, 3 Meter W/Accessories
010-6104-07	P6104 Probe, Voltage, 1 Meter Blue W/Accessories
010-6106-07	P6106 Probe, Voltage, 10X Meter Blue W/Accessories
010-6106-08	P6106 Probe, Voltage, 2 Meter Yellow W/ Accessories
010-6106-09	P6106 Probe, Voltage, 3 Meter Red W/Accessories
010-6107-02	P6107 Probe 10X
010-6107-03	P6107 Probe 10X 2 Meter W/Accessories
010-6303-00	P6303 Current Probe 100 AMP
010-6303-01	P6303 Current Probe 2 Meter W/Accessories
010-6406-00	P6406 Word Recognizer Probe (Multilead) Probe Only
010-6406-01	P6406 Word Recognizer Probe (Multilead) W/Accessories
010-6451-02	P6451 Data Acquisition Probe (Multilead) Probe Only
010-6451-03	P6451 Data Acquisition Probe (Multilead) W/Accessories
010-6451-04	P6451 Data Acquisition Probe Right Angle Version
010-6451-05	P6451 Data Acquisition Probe Right Angle Version W/Acc.
010-6601-01	P6601 Temp Probe

NOTE: If you need a copy of the entire Probe index, please contact me.

--Dave McKinney  
58/511, Ext. 7072

## PROBE DATE CODES

Most probes have a four number manufacturing date code stamped on the cable, approximately two (2) inches from the connector/compensation box. The first set of two numbers indicates the year the probe was manufactured, and the second set designates the week the probe was shipped from manufacturing to the warehouse.

Example: 7204 - "72" is the year manufactured; "04" is the week shipped from manufacturing to warehouse. These numbers may be used to establish an approximate time the probe has been in use. This information may be useful for determining warranty status. CAUTION: *These dates do not indicate when the probe was shipped to the customer, only when it was manufactured.*

--Dave McKinney  
58/511, Ext. 7072

## LOGIC ANALYZERS

### 308 OVERHEATING CAPACITORS CAUSES DAMAGE

Sony/Tek has reported problems with oil leaking out of a capacitor, P/N 285-1191-00, after several hours of operation. To prevent such an occurrence be sure you do not overheat the capacitor's leads when replacing. Overheating of leads will cause the internal seal to be damaged.

--Rich Andrusco  
92-236, Ext. 1582

## PORTABLES

### T912, T921, T922/R, T932A, T935A AND 442 MOLDED KNOBS WITH SHAFTS CHANGE

Serial Numbers: 912 B016465  
T921 B034000  
T922 B029015  
T922R B013780  
T932A B022245  
T935A B023315  
442 B023290

To reduce binding of shafts for position controls, CRT controls, etc., the molded knobs with shafts have been redesigned. With the new shaft, the controls will rotate freely and will have a better "feel". The illustration below shows the physical difference between the two shafts. Though the difference is minor, the new shafts will work much better. The new P/N's are a direct replacement.

Old Part Numbers		New Part Numbers
384-1371-00 2.0"L x .280D	- to -	384-1371-05 1.75"L x .280D
384-1371-01 5.265L x "	- to -	384-1371-06 5.015L x "
384-1371-02 6.8L x "	- to -	384-1371-07 6.55L x "
384-1371-03 10.6L x "	- to -	384-1371-08 10.35L x "

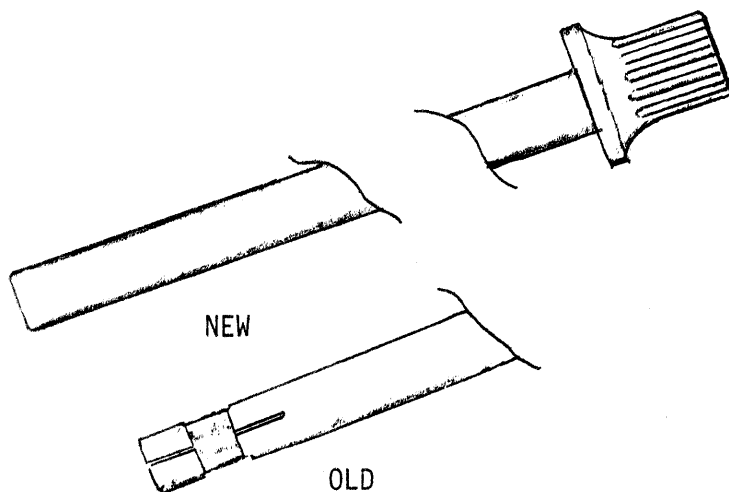


Illustration 1.

--Mike Laurens  
58/511, Ext. 7173

T921, T922/R, T932A, T935A & 442 EXCESSIVE OSCILLATIONS IN THE 100V POWER SUPPLY

Reference: Schematic 7 Power Supply

Serial Number: T921 B013300 & Below  
T922 B028790 & Below  
T922R B013204 & Below

T932A B021865 & Below  
T935A B022992 & Below  
442 B022915 & Below

The 100 volt supply may start to oscillate after the instrument warms up. The oscillations are from 1 to 2 MHz and may cause double triggering. The trace may also show oscillation, due to the 100v supply going out of regulation. (Oscillations can be either med or high frequency.)

To prevent the oscillations a capacitor, C723, 22pf P/N 281-0511-00, is added in parallel with R722 on the power supply board.

--Mike Laurens  
58-511, Ext. 7173

464, 465, 466, 475/A, 485 PRESS NUTS USED TO MOUNT REAR FEET

Reference: Wizard's Workshop, Issue 8-26

The original article published on September 1, 1978 was inadvertently left out of the May 1980 master index. It also does not appear in the microfiche Maintenance Notes. The information is repeated here to refresh us all on this problem.

The press nut, mounted in the rear sub-panel of the chassis, which holds the screws for the rear feet, can usually be replaced if knocked loose or damaged. If the old nut or part of the nut remains in the hole, drive it out using a scribe or other pointed tool. Draw the new press nut into place, using a screw and several washers, by slowly tightening from the rear of the scope. If the hole in the sub-panel has been deformed, a small amount of glue or adhesive may have to be used around the press nut. Except in cases of severe damage, this method will usually work. The press nut part numbers are listed below:

464, 465, 466, 475/A      P/N 129-0394-00

485                              P/N 220-0429-00

Thanks to Bill Stephenson and Pat Morrison of Dallas for their inputs.

--Roy Lindley  
58-511, Ext. 7173

465B44, 475A44 PROPER DESIGNATIONS

The proper product designations for the 465B's and 475A's with DM44 units are 465B44 and 475A44. The reason this is required is that the computer will accept only 7 digits or less. Thus, 475ADM44 (8 digits) will not be accepted.

Please use the proper designation on the Service Record and Instrument Order Forms. These products will also be found under 465B44 and 475A44 in the "History Status - Last 18 Months" file in the microfiche when checking warranty status.

Thanks to Frank Ortega of the Cleveland Service Center for his input.

--Roy Lindley  
58-511, Ext. 7173

832 TEST PROM FOR IDD: ORDERING CORRECT PART NUMBER

The 832 Test PROM for IDD Field Service resides in the 832 Data Comm Tester. When ordering this part use part number 067-0960-99. Do not use the part number 160-0720-00 which may be marked on the PROM. The 160-0720-00 part number is not set up in Customer Service, only the 067-0960-99 is.

--Marty DeVall  
63/503, ext. 3927







## INFORMATION DISPLAY DIVISION

### IDD TEST PROM FOR THE 832/833 P/N 067-0960-99

The IDD Test PROM for the 832/833 P/N 067-0960-99 has been erroneously burned and should be reprogrammed. To identify a defective PROM load a PROM message into the send buffer of the 832/833 and read the send buffer, if "FF"'s are present in the send buffer locations then the PROM is bad. Warehouse stock is now being reprogrammed, parts shipped after 9 June 80 will be good. If you have a defective PROM return the complete package (PROM & Manual) to Diana Hansen, delivery station 60/384. The PROM will be reprogrammed and returned to you, be sure to include your name and field office.

### For International

Reorder replacement test PROM 067-0960-99 through normal channels. Bill the price of the new part back to Tektronix as a warranty replacement part.

--Frank Lees  
63/503, ext. 3929

### GMA102A; HARD COPY GAIN ADJUSTMENT POTS ADDED

Reference: GMA102A Storage Display Monitor Instruction Manual  
070-2902-00

A new 040 kit is now available for the GMA102A Storage Display Monitors, serial number B010100 thru B052400, to allow adjustments to the hard copy scan. This kit, 040-0969-00, provides parts and instructions for the installation of two hard copy gain adjustment potentiometers. Calibration of the hard copy scan can then be completed as per the instructions in the manual insert provided with this kit.

### TEKTRONIX INTERNAL USE ONLY

Reference: Corporate Modification #M39531

--Dennis Painter  
63/503, ext. 3597

#### 832 TEST PROM FOR IDD: ORDERING CORRECT PART NUMBER

The 832 Test PROM for IDD Field Service resides in the 832 Data Comm Tester. When ordering this part use part number 067-0960-99. Do not use the part number 160-0720-00 which may be marked on the PROM. The 160-0720-00 part number is not set up in Customer Service, only the 067-0960-99 is.

--Marty DeVall  
63/503, ext. 3927

#### 4052/4054 VERSION 4.2 FIRMWARE

Version 4.2 level firmware is now being shipped in 4052's and 4054's. Listed in Figure 1 is a table showing the ROM checksums using the Diagnostic ROM Pack for all firmware levels previously and currently shipped in 4052's and 4054's.

To check system ROM checksums without the patches, remove the even and odd FPLA's - U485 and U863.

The serial number breaks for level 4.2 firmware are:

4052 - B022301 and up  
4054 - B010814 and up

The MAS Board changes from a 670-6030-03 to a 670-6030-04 with 32K RAM memory and from 672-0799-02 to 672-0799-03 with 64K RAM memory.

The part numbers for version 4.2 kits are:

050-1402-00 to upgrade from 4.1 to 4.2  
050-1282-02 to upgrade from 2.1, 3.1 or 3.2 to 4.2

This is not a code 18 program, instruments upgraded that are not on contract, warranty or rental will be charged to the customer at the MAS Board (670-6030-04) exchange price - refer to the SQI.

(continued on the following page)

The old version patch ROMs and FPLA's U805 (160-0340-XX), U897 (160-0341-XX), U845 (160-0379-XX) and U863 (160-0380-XX) should be returned to Factory Service 93/186 Attn: Thelma Bergerson. Use the Interplant Packing Slip (Figure 2), fill out the "FROM" section but do not fill out the "TO" section.

Figure 2

--Frank Lees  
63-503, Ext. 3929

# 4052/4054 VERSION 4.2 FIRMWARE (CONTINUED)

IC	PART NUMBER	V2.1			V3.1			V3.2			V4.1			V4.2		
		P/N LEVEL	WITH PATCH	WITHOUT PATCH	P/N LEVEL	WITH PATCH	WITHOUT PATCH	P/N LEVEL	WITH PATCH	WITHOUT PATCH	P/N LEVEL	WITH PATCH	WITHOUT PATCH	P/N LEVEL	WITH PATCH	WITHOUT PATCH
U810	160-0260	01	BB83	BB83	01	4A4E	BB83	01	4A4E	BB83	02	5B67	267D	02	5B67	267D
U820A	160-0261	01	E396	E396	01	E396	E396	01	E396	E396	02	3EAB	3EAB	02	3EAB	3EAB
U820B	160-0261	01	8C00	D684	01	E306	D684	01	F306	D684	02	E7CB	98BE	02	12A0	98BE
U825	160-0262	01	AD91	1AF1	01	0468	1AF1	01	0468	1AF1	02	D098	8BA8	02	D098	8BA8
U835	160-0263	01	75A8	00DE	02	E810	D515	02	E810	D515	03	0CA2	9254	03	27B0	9254
U870A	160-0264	01	C1FA	C1FA	01	C1FA	C1FA	01	C1FA	C1FA	02	7132	7132	02	7132	7132
U870B	160-0264	01	EC8B	4383	01	C5D9	4383	01	C5D9	4383	02	04C8	43B3	02	026A	43B3
U880	160-0265	01	876A	9E7B	01	928B	9E7B	01	928B	9E7B	02	E7F0	AF39	02	E7F0	AF39
U885	160-0266	01	641A	030C	02	1344	593F	02	1344	593F	03	2E15	7369	03	97C6	7369
U893	160-0267	01	FABF	FABF	01	0613	FABF	01	0613	FABF	02	CB18	CB18	02	1F38	CB18
U805A	160-0340	00	1E52	XXXX	01	5DD7	XXXX	03	B9D1	XXXX	02	9407	XXXX	04	98AC	XXXX
U805B	160-0340	00	XXXX	XXXX	01	XXXX	XXXX	03	XXXX	XXXX	02	XXXX	XXXX	04	XXXX	XXXX
U897A	160-0341	00	97E7	XXXX	01	B742	XXXX	01	B742	XXXX	02	F080	XXXX	03	C7CD	XXXX
U897B	160-0341	00	XXXX	XXXX	01	XXXX	XXXX	01	XXXX	XXXX	02	XXXX	XXXX	03	XXXX	XXXX
U845	160-0379	00	XXXX	XXXX	01	XXXX	XXXX	01	XXXX	XXXX	02	XXXX	XXXX	03	XXXX	XXXX
U863	160-0380	00	XXXX	XXXX	01	XXXX	XXXX	01	XXXX	XXXX	02	XXXX	XXXX	03	XXXX	XXXX

XXXX NOT APPLICABLE

Real Time Clock ROMPAK 4052R09	U21 160-0762-00 B257	Level 1.1	4907 File Manager ROMPAK	U1 160-0279-00 C5C4	Level 1.1
Editor ROMPAK 4052R06	U1 160-0268-00 2D58	Level 1.1	Option 10 Printer Interface	U100 160-0342-01 F578	Level 1.1
SPS ROMPAK #1 4052R07	U1 160-0278-00 B6B3	Level 1.1	4052/54 Diagnostic ROMPAK	U101 160-0381-00	Level 1.1
SPS ROMPAK #2 4052R08	U1 160-0348-00 FF43	Level 1.1	U111 160-0382-00 C08A 1-CRC for both ROMs	Level 1.1	
			4052/54 Diagnostic ROMPAK	U101 160-0381-01	Level 1.4
			U111 160-0382-01 D4B6 1-CRC for both ROMs	Level 1.4	

FIGURE 1

#### 4054 DISPLAY CONTROLLER MODIFICATION #39763 CORRECTION

Please refer to March 21, 1980 Issue 10-6 page 22 Wizards Workshop. In the article, "4054 DISPLAY CONTROLLER MODIFICATION #39763", it states that the Display Controller part number will go from a 670-5672-00 to 670-5672-01. This statement is incorrect, the board level should change from a 670-5672-01 to a 670-5672-02 level after MOD #39763 is implemented.

--Darrell McGiverin  
63/503, ext. 3786

#### 4054 OPT. 30 VECTOR GENERATOR & DISPLAY CONTROLLER INTERACTING PROBLEM

There have been two cases of 4054's (with Option 30 installed) demonstrating an undesirable problem when operating in a refresh mode. The symptom of this problem occurs as follows. The 4054 may draw some unwanted vectors and hang busy. In addition, when the machine hangs busy, the Z axis may remain on, causing the CRT to be damaged. This problem is caused by interaction between the Vector Generator (670-5666-01) and Display Controller, (670-5672-02), and is only apparent with Option 30 installed. To date there is no defined solution, other than changing either one or both of the boards.

The source of the problem has been identified and as soon as a modification is completed it will be documented in the Wizards Workshop.

--Darrell McGiverin  
63/503, ext. 3786

#### 4631/32/33A/34: CLUTCH AND CONTROL BOARD MODIFICATIONS #37349, 40065 AND 40750

##### 4633A

To use the available 105-0519-00 drive roller clutches in the 4633A Continuous Recorder, the clutches were screened for a low pull-in voltage. Those meeting the requirements were part numbered 105-0519-01 and used in the 4633A. The continuous duty cycle, however, raised the possibility of the clutch coil overheating.

To correct this, MOD 37349 has been implemented. The internal resistance of the coils in both the 105-0519-00 and 105-0520-00 has been increased from near 90 ohms to about 145 ohms. The new part numbers are 105-0519-02 for the drive roller clutch (L1020) and 105-0520-01 for the cutter clutch (L1022).

In addition, R1 on the 4633A control board had been changed from 47 $\Omega$  to 27 $\Omega$ . This increased the voltage applied across the drive roller solenoid, L1020. It also rolled the control board part number from 670-4599-06 to 670-4599-07. It was found that low-line conditions could still cause the drive roller clutch flapper to fail to pull in.

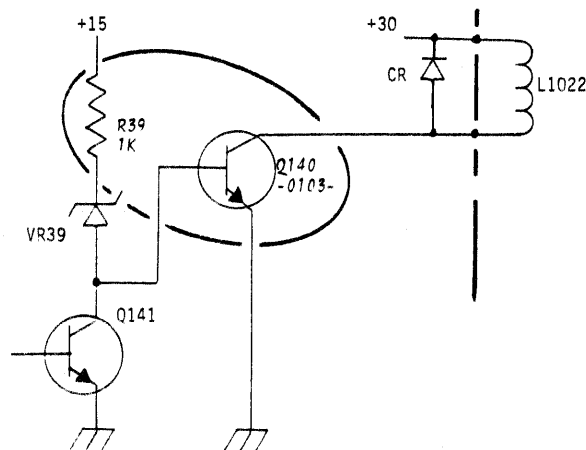
4631/32/33A/34: CLUTCH AND CONTROL BOARD MODIFICATIONS #37349, 40065  
AND 40750 (CONTINUED)

To solve this difficulty, modification 40750 removes R1 and substitutes a shorting strap. The control board now changes level once again.

4631,4632,4634

Meanwhile, use of the 105-0520-01 cutter clutch in the 4631, 4632 and 4634 produced the undersirable effect of failure to cut under low line conditions. To correct this, modification 40065 was implemented.

This mod calls for R39 on the 4631, 4632 and 4634 control boards to be changed in value from  $3K\Omega$  to  $1K\Omega$ . The new part number for R39 is 315-0102-00. In addition, transistor Q140 is changed to a higher beta 151-0103-00. These changes cause the 4631 and 4632 control board part number to roll from 670-4104-05 to 670-4104-06. The 4634 control board changes from 670-5770-01 to 670-5770-03.



A field kit, p/n 050-1375-00 has been set up for replacement of the 105-0520-00 cutter clutch by the -01 version in the 4631, 4632, and the 4634.

--George Kusiowski  
63/503, ext. 3928



4633A MOD JE: T.V. TIMING BOARD CHANGE

Capacitor C774 used to filter the -15 volt line on the T.V. Timing Board was inadvertently chosen with too low a working voltage rating. This is corrected by changing the part number of C744 from 290-0776-00 to 290-0745-00. The 0776 is a 10 volt cap and the 0745 is rated at 25 volts. The part number of the T.V. Timing Board also changes from CM 670-6392-00 to CM670-6392-01.

Any -00 level T.V. Timing Boards received in Beaverton Repair and Return will be modified to the -01 level.

--George Kusiowski  
63/503, ext. 3928

## 4634 SCAN RATE CALIBRATION

The 4634 purchased as an end-user product (Option 45) is installed by Tektronix Field Service free of charge. Unlike the 4632, options are not used to indicate changes in calibration. All 4634's are shipped from the factory calibrated to the 525/60 NTSC interlaced standard. The free installation therefore includes adjustments so the 4634 copies correctly from the customer's system. The need for readjustment may be indicated by any of the following:

1. Substantial portions of the raster picture are missing on the hard copy,
2. the aspect ratio of the image is incorrect (image appears stretched or compressed).
3. Large portions of the image area are occupied by black (or white) margins, or
4. the raster lines are so evident as to severely detract from the image quality (lack of interlace).

Figure 1 shows the various controls to be adjusted on the 670-5723-0X timing board used in the 4634. Figure 2 illustrates the approximate effect obtained on a copy by adjusting these controls. Use these figures for reference as you proceed with the calibration. In the event the 4634 requires more extensive calibration, or possibly troubleshooting, please refer to 4634 Instruction Manual, p/n 070-2562-02.

The technician may recognize that the following adjustments are similar to those done on a 4632 to change its calibration. They are easier to perform on the 4634, however, because the interactions among horizontal image size (R27), horizontal resolution (R29), horizontal position (R70) and paper length (R90) have been reduced to a minimum or removed altogether.

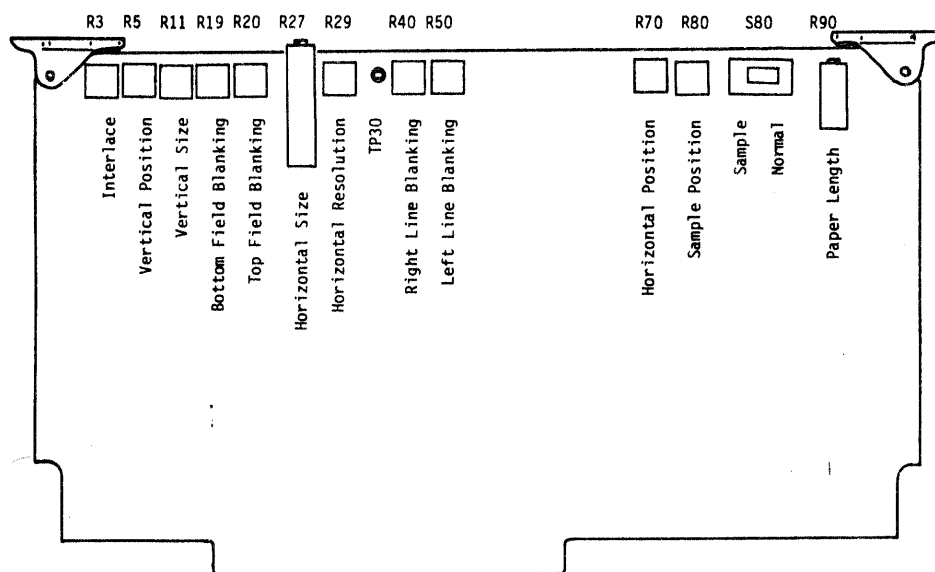


Figure 1: 4634 Timing Board Controls

(continued on the following page)

## 4634 SCAN RATE CALIBRATION (CONTINUED)

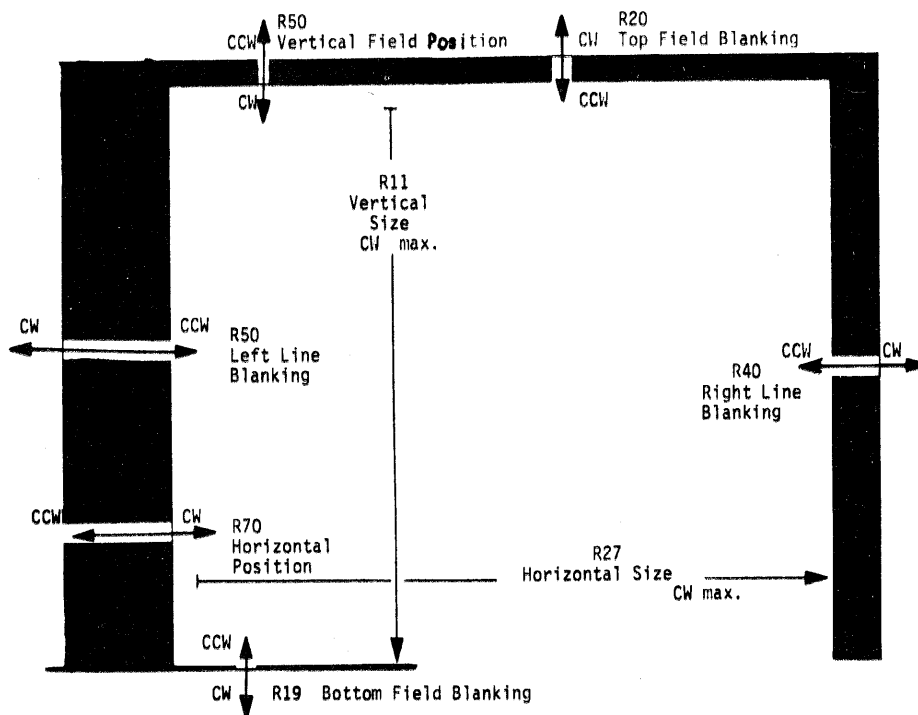


Figure 2: Effects of Controls on Copy

1. Remove the cabinet top to access the timing board. Set the back panel IMAGE switch to the "NORM" position. This allows the horizontal and vertical intervals to appear in the margins of the copy. Connect the interface cable, power cord and perform any other preliminaries warranted by the installation. Allow the hardcopy unit sufficient time to warm up.
2. Remove all the blanking to see the true image size. This is done by turning R19, R20, R40 and R50 fully clockwise.
3. Before adjusting the horizontal image size, be aware of the system's aspect ratio. This determines the maximum image size on the hardcopy. For an aspect ratio of 3:4, adjust R27 for a horizontal image size of 8 inches (6 inch vertical: 8 inch horizontal). For an aspect ratio of 1:2, adjust R27 for, again, an 8 inch horizontal size (4 inch vertical: 8 inch horizontal). For a ratio of 1:1, adjust for 6 inches (6 inch vertical: 6 inch horizontal). Other aspect ratios are similarly accommodated within the dimension specifications given in the 4634 Instruction Manual.
  - a. The horizontal size may be quickly approximated by monitoring the d.c. voltage at TP30 while the instrument is in copy mode. Approximate voltages for some of the more common scan rates are:

TP30	Scan Rate
40.3V	625/50
40.6V	525/60
41.5V	4027 Interface
86.0V	1029/60

#### 4634 SCAN RATE CALIBRATION (CONTINUED)

- b. Fine adjust R27 by making copies and measuring the horizontal image size. It is best to have the image about 1/8 inch larger than the final desired size. This is because the blanking (step 8) will, of necessity remove a portion of the image.
4. Adjust R11 (vertical image size) for the correct height. This will usually be 6" and can be measured with a ruler directly on the CRT faceplate. As with the previous step, it is best to set the size about 1/8" larger than desired because the blanking in step 8 will require removing some of the video.
5. Now, run a copy or two to verify that the image is indeed slightly larger than 6" X 8", 6" X 6", 4" X 8", etc., depending upon the aspect ratio of the customer's system.
6. If the size is indeed correct, check that the image is centered on the page. If not, adjust R70 (horizontal image position) or R5 (vertical image position) as required. When adjusting R70, be certain to allow at least 1.4 inches of border from the edge of the paper to the beginning of the image. Failure to do so may result in a smeared left-hand side of the image.
7. The customer's installation may have non-interlaced video. If this is the case, the image will be hard to distinguish due to the striking distinctness of individual lines. To cope with this, adjust R3 (interlace) as follows:
  - a. Start with R3 in the fully counter-clockwise position.
  - b. While observing the front of the CRT, slowly turn R3 clockwise.
  - c. Stop turning R3 when the scan lines appear to double in number and are equally spaced. Though continued turning of R3 may reveal a second setting where the lines double in number and are equally spaced, the resolution of the image at that setting will be inferior.
8. Now that a properly sized and centered image has been obtained, its time to "pull in the blanking." Adjust R19, R20, R40 and R50 to blank out the horizontal and vertical intervals (those black lines bordering the image). To ensure that slight variations from drift and vibration do not cause the "margins" to reappear, it is necessary to blank out a small portion of the video information. An overlap of one-sixteenth of an inch is usually sufficient.
9. Run a final copy and measure the image. If image size is correct, paper length is correct (it is variable from 7 to 11 inches) and all else is well with the product, then replace the cover. Adjustment is complete.

Unlike the 4632, the 4634 will probably not require adjustment of the video input compensation capacitor, C125.

My thanks to Joern Eriksen for advice and inspiration on the graphics.

--George Kusiowski  
63/503, ext. 3928

#### 4641 RIBBON CABLE PART NUMBERED

There is now a TEK part number for the BC08S-2 ribbon cable, P/N 118-0882-00. This is the 2' cable that connects J3 of the printer logic board to J2 of the LAXX serial buffer interface.

--Larry North  
63/503, ext. 3926

#### 4663 PAPER CLUTCH ADJUSTMENT NUT ROTATES

The adjustment nut for the 4663's paper clutch uses a keyed washer directly behind it to help isolate it from the clutches normal rotations. This washer is on the same shaft the nut is on, and it is thin enough to fit between the shafts threads, enabling it and the adjustment nut to rotate. This causes the paper clutch adjustment to shift out of tolerance. To prevent this use Loctite, P/N 006-2517-00, on the adjustment nut.

CAUTION: Be careful not to allow the Loctite to come in contact with the washers located behind the adjustment nut or the ability of the washers to protect this adjustment nut from rotating will be defeated.

Our thanks to Wendell Snow in Atlanta for bringing this to our attention.

--Larry North  
63/503, ext. 3926

4924, 670-4525-04 CONTROL BOARD M35813

There have been several changes to the 4924 Control Board (670-4525-03). Because of the number of these changes the board has been relayed out and now is a 670-4525-04. This new control board no longer uses a -5 power supply to the ROMs. Note also that all other levels of control boards except -00 do not need the -5V power supply. The reason the -5V is part of the 4924 control board is that approximately the first 50 to 100 control boards (670-4525-00) had EPROMs and needed the -5V. Those few 670-4525-00 control boards should have been updated by replacing the EPROMs with ROMs and rolling the board level. Therefore there is no need for the -5V regulation chassis mounted transistor Q1010. Also you will observe a new strap on the board located near the RAM, labeled 1K and 2K. This strap should be in the 1K position. The 4924 (670-4525-04) uses 1K ROMs and the 2K ROM position is for possible future use.

In addition there has been a change in RAM from the six 256X4 bit RAM to two 1K X 4 bit RAM. The U numbers in the schematics on the -03 level board do not correspond to the U numbers of the new -04 level board. New schematics should be available soon.

--Darrell McGiverin  
63/503, ext. 3786

119-0845-00 CALCOMP, FLEXIBLE DISK DRIVE, PRESSURE PAD

Reference: Wizard Article issue 10-5  
4907/4905 Floppy Disk Media  
119-0848-01, 119-1011-01

Instead of trying to clean the pressure pad it is recommended to replace the pad. Tek part number for the sticky back pad for the Calcomp is 118-0207-00.

--Bill Hatch  
63/503, ext. 3787







## LABORATORY INSTRUMENT DIVISION

### MICROPROCESSOR DEVELOPMENT PRODUCTS (MDP)

#### CALCOMP PART NUMBERS

Due to the past problem with bad discs (Wizard Issue 10-2, January 25, 1980), a need for head load arm pressure pads has come about. These pads are a felt material installed on the load arm which is part of the head carriage assembly. The pad becomes saturated with oxide from the disc medium and eventually scratches the disc. The felt pads can be ordered from customer service under part number 118-0207-00 and are shipped in packages of 5.

An error within the Calcomp to Tektronix Cross Reference List (Wizard Issue 9-25, December 21, 1979) has surfaced. Calcomp Number 14762-001 should cross to Tektronix number 118-0248-00 not 118-0284-00 as shown.

Please add and change the above part numbers to the above mentioned cross reference.

--Brad Griffin, Kevin King  
92-236, Ext. 1608, 1636

#### 1802 EMULATOR DISASSEMBLY IRREGULARITIES

The 4-bit registers labeled P and X hold the 4-bit binary code that is used to select a 16-bit scratch-pad register. The 4-bit register labeled P selects the 16-bit scratch-pad register to be used as the program counter. The 4-bit register labeled X selects the 16 bit scratch pad register to be used as the index register. When the contents of the X and P registers are equal, the program will not disassemble properly.

During the process of disassembling a program, the system processor has no means of determining what the contents of the P and X registers will be during program execution. To work around this problem, the program will always be disassembled as if P and X are not equal.

When an instruction is executed that references data pointed to by the index register, the X and P registers being equal, the data will immediately follow the instructions. This occurs because the same 16-bit scratch pad register is used for both the program counter and the index register. In this instance when the program is disassembled, the data that follows the instruction will also be disassembled as an instruction. An example of this type of occurrence can be found in the 1802 Assembler and Emulator User's Manual, under the disassemble command on page 10-10.

--Kevin King, Brad Griffin  
92-236, Ext. 1636, Ext. 1608

## SEMICONDUCTOR TEST SYSTEMS

### STS INSTALLATION PROBLEM REVIEW

Recently a committee has been formally formed to review all installation reports that show problems. The purpose of the committee is to provide a management tool to improve the quality of STS system, to identify major problems, excessive cost, take corrective action to prevent recurrence and provide feedback to the field and STS Management.

It is the goal of the committee that installation of systems and updates can become problem free. With this in mind, when you fill out installation reports include all information that you feel needs attention.

Results of the committee meetings will be sent to STS Field Service Supervisors. We will rely on the supervisor to route the information to the field technician.

If you have any ideas or comments in this area, please telex or call me. Europe, Middle East, and Africa should contact the European Marketing Center Service Group.

--Joe Lipska  
92-236, Ext. 1634



















COMMUNICATIONS DIVISION

1980

ADDITIONAL RECOMMENDED EQUIPMENT FOR 1980 SERVICE

Service Support recommends that each 1980 designated Service Center order a main interfaced board (P/N 672-0877-00) and main chassis (P/N 441-1479-01). These parts used in conjunction with the 1980 board kit will enable all boards to be cycled and verified upon receipt after repair at the board exchange center. This will enhance reliability and ensure a complete and working board kit. This "skeleton" 1980 can also be used for training and to duplicate problems that occur at customer sites. Costs for the interface board and the chassis can be found in the NPR. Decision to purchase these parts is left to the discretion of the Service Center, but Service Support strongly recommends these parts be purchased.

--Steve Schmelzer  
58-511, Ext. 6507

ANSWER SERVICE BULLETIN #1

All information sent to the field regarding the 1980 Video Measurement Set will be sent in the form of SOB's titled: ANSWER SERVICE BULLETIN #\_\_\_\_. Numbers will be assigned sequentially so that users can easily tell if any of the Bulletins are missing. Information in the Bulletins will be reprinted in the WIZARD'S WORKSHOP. This method is being used so that information may be distributed as quickly as possible rather than waiting for the next available issue of WIZARD'S WORKSHOP.

Anyone desiring to receive these bulletins whose name is not included in the Distribution List or the CC list should contact Steve Schmelzer.

--Steve Schmelzer  
58/511, Ext. 6507

## FALSE "FPULSE" ERRORS

At high temperatures (approximately 50°C) some 1980 instruments may exhibit an "FPULSE-F" error in the Video Diagnostics. This error is caused by a hardware-software incompatibility and does not necessarily represent a true error. The system will operate correctly. Please ignore the "FPULSE-F" error if it occurs by itself and inform the customer that it is not a true error if the system is operating normally otherwise. True Frame Pulse errors generally cause additional errors, not just an "FPULSE-F" error. The table below illustrates one type of true Frame Pulse error. Note the additional P errors generated. Corrective action is being implemented.

### SYSTEST VID:

#### VID:

SETUP	OK
FBMEM	OK
FPULSE	F
MLATCH	P
CLKSW	P
CSTATE	H
FBLOOP	P
FBINCR	P
DUMRST	P
DUMVAL	P
WAUMEM	OK
CSTADR	P
CARSIZ	P
CSAVE	P
CSKIP	P
CIHSTR	P
DITHER	P
OFFSET	P
GAIN	P
DCSAMP	P

READY

✖

--Steve Schmelzer  
58/511, Ext. 6507

## RETURNING TO MEASUREMENT ROUTINES AFTER SYSTEM INTERRUPTION

The following print-outs illustrate some areas where operator unfamiliarity with system operation may present difficulties. When interrupting any of the application programs, except the Application Program Initialization, to run a diagnostic some of the program functions may be lost and the program will not run. For proper operation, the program will have to be reloaded.

Page 2 shows the response to interruption of the initialization program. After interruption, any diagnostic can be run. Then, by entering the RUN command, one returns to the program menu.

Page 3 shows the response to interruption of the Manual Group Measurements Program. To run a diagnostic, the files must be closed by entering a CLOSE ALL or an END command. Page 4 shows the response when a RUN command is entered. Parts of the program are deleted when the diagnostic is run. Although the signal generator remained connected, the video data converter set-up has been altered by the diagnostic and generates errors. Reload program for the proper operation.

Pages 5 and 6 show the response of system for interruption of Manual Individual measurements. Pages 7 and 8 show the response for interruption of Monitor and Report. These results are similar to those of the Manual Group Measurements interruption.

--Steve Schmelzer  
58/511, Ext. 6507

(continued on the following page)

APPLICATION PROGRAM INIT (U1.01)

```

REQ'D 1.0 APL
OPT'L 2.0 VIDEO SOURCES
OPT'L 3.0 CUSTOM MEAS. LIMITS
OPT'L 4.0 TERMINALS
OPT'L 5.0 MODEM PHONE #'S
OPT'L 6.0 TITLE
OPT'L 7.0 MONITOR SCHEDULING
REQ'D 8.0 POWER-UP PROGRAM SELECTION
REQ'D 9.0 CHROMA GAIN

MOVE KEY TO NUM WRITE ENABLE (IF POSSIBLE)
AND ENTER <CR> - ALL SECTIONS
OR A # <EX 4> - TO RUN THAT SECTION ONLY
OR E - EXIT FROM INIT

```

↑P AT LINE 10150

READY  
\*SYSTEST ROM:  
ROM: OK

READY  
\*RUN

PROGRAM SELECTION

1. APPLICATION INITIALIZATION
2. MANUAL GROUP MEASUREMENTS
3. MANUAL INDIVIDUAL MEASUREMENTS
4. MONITOR & REPORT

ENTER SELECTION BY #:

RETURNING TO MEASUREMENT ROUTINES AFTER SYSTEM INTERRUPTION (CONTINUED)

MANUAL GROUP MEASUREMENTS  
(NON-RESIDENT GROUPS ( ) TAKE MORE TIME)

- (R) 1. COMPOSITE VITS
- (R) 2. MULTI-BURST-COMBINATION VITS
- (R) 3. VITS
- (R) 4. ZERO-CARRIER VITS
- ( ) 5. NOISE
- ( ) 6. H&V TIMING
- ( ) 7. OUT-OF-SERVICE MEAS
- ( ) 8. SAMPLE & GRAPH
- ( ) 9. SCAN VERTICAL INTERVAL
- ( ) 10. QUICK FCC H&V BLANKING
- ( ) 11. LIST CHANNELS (= A0 CHANNEL A)
- (R) 12. CHANGE TIMING STANDARD (= FCC)

ENTER # (AND ,FIELD,LINE IF DESIRED)  
OR CHANNEL (A# OR B#);

↑P+ AT LINE 390

READY

\*SYSTEST ROM:

FATAL P- 8

READY

\*END

READY

\*SYSTEST ROM:

ROM: OK

READY

\*RUN

MANUAL GROUP MEASUREMENTS  
<NON-RESIDENT GROUPS < > TAKE MORE TIME>

- (R) 1. COMPOSITE VITS
- (R) 2. MULTI-BURST/COMBINATION VITS
- (R) 3. VITS
- (R) 4. ZERO-CARRIER VITS
- ( ) 5. NOISE
- ( ) 6. H&V TIMING
- ( ) 7. OUT-OF-SERVICE MEAS
- ( ) 8. SAMPLE & GRAPH
- ( ) 9. SCAN VERTICAL INTERVAL
- ( ) 10. QUICK FCC H&V BLANKING
- ( ) 11. LIST CHANNELS (= A0 CHANNEL A)
- (R) 12. CHANGE TIMING STANDARD (= FCC )

ENTER # (AND , FIELD, LINE IF DESIRED)  
OR CHANNEL (A# OR B#): 3  
FATAL ERROR P- 1 AT LINE 7005  
FATAL ERROR P- 1 AT LINE 7190

SYNC LOST ON SOURCE A0 SYNC INTA



RETURNING TO MEASUREMENT ROUTINES AFTER SYSTEM INTERRUPTION (CONTINUED)

MANUAL INDIVIDUAL MEASUREMENTS

<NON-RESIDENT FUNCTIONS ( ) TAKE MORE TIME>

- ( ) 1. MEASURE
- ( ) 2. MNEMONICS LIST
- ( ) 3. SAMPLE & GRAPH
- ( ) 4. SCAN VERTICAL INTERVAL
- ( ) 5. LIST CHANNELS (= A0 CHANNEL A)
- (R) 6. CHANGE TIMING STANDARD (= FCC)
- (R) 7. CHANGE MEASURE MODE (= CONTINUOUS (TYPE S<CR> TO STOP))

ENTER # OR CHANNEL (A# OR B#):  
↑P AT LINE 430

READY  
#SYSTEST ROM:  
FATAL P- 8

READY  
#END

READY  
#SYSTEST ROM:  
ROM: OK

READY  
#RUN

RETURNING TO MEASUREMENT ROUTINES AFTER SYSTEM INTERRUPTION (CONTINUED)

9-JUN-80 08:10:35

CONTINUOUS <TYPE S<CR> TO STOP> T. STD = FCC

LIMIT FILE: FACTOR.LIM

SOURCE: A0 CHANNEL A  
SYNC: INTA

APL = -3.57866E+10 % <IRE>

VIOLATED LIMITS  
LOWER UPPER

FATAL ERROR P- 1 AT LINE 7005  
FATAL ERROR P- 1 AT LINE 7190

SYNC LOST ON SOURCE A0 SYNC INTA

FATAL ERROR P- 1 AT LINE 7005  
FATAL ERROR P- 1 AT LINE 7190

SYNC LOST ON SOURCE A0 SYNC INTA

FATAL ERROR P- 1 AT LINE 7005  
FATAL ERROR P- 1 AT LINE 7190

SYNC LOST ON SOURCE A0 SYNC INTA

FATAL ERROR P- 1 AT LINE 7005  
FATAL ERROR P- 1 AT LINE 7190

SYNC LOST ON SOURCE A0 SYNC INTA

FATAL ERROR P- 1 AT LINE 7005  
FATAL ERROR P- 1 AT LINE 7190

SYNC LOST ON SOURCE A0 SYNC INTA

RETURNING TO MEASUREMENT ROUTINES AFTER SYSTEM INTERRUPTION (CONTINUED)

<REPORT>

9-JUN-80 08:38:39

COMPOSITE VITS NOT FOUND (BAR ASSUMED - 100 IRE)  
 SOURCE: A0 CHANNEL A  
 SYNC: INTA

VIOLATED LIMITS  
 LOWER UPPER

LIMIT FILE: FACTOR.LIM

APL = 33 % (IRE)

SYNC AMPL	-39.7	% BAR
BURST AMPL	40.2	% BAR

↑P AT LINE 7190

READY  
 \*SYSTEST VID:  
 FATAL ERROR P- 8 AT LINE 0

READY  
 \*CLOSE ALL

READY  
 \*SYSTEST VID:  
 VID:

SETUP	OK
FBMEM	OK
FPULSE	OK
MLATCH	OK
CLKSW	OK
CSTATE	OK
FBLOOP	OK
FBINCR	OK
DUMRST	OK
DUMVAL	OK
WAVMEM	OK

RETURNING TO MEASUREMENT ROUTINES AFTER SYSTEM INTERRUPTION (CONTINUED)

RUN			
FATAL	P- 1	AT LINE	6010
READY			
*RUN			
FATAL	P- 1	AT LINE	6010
READY			
*RUN			
FATAL	P- 1	AT LINE	6010

MICHAEL A MIHALIK  
COMBINATION WIZARDS

92-515