TEK CUSTOMER PRODUCT SERVICING INFORMATION

February 1986, Issue 42

SERVICETEKNOTES

The AnthroArm is the newest addition to the line of technology furniture and Anthro Corporation, a Tektronix company. AnthroArm holds large graphic display monitors above a work surface for better space utilization. Designed to be installed on engineering benches and large drafting tables, the device safely holds up to 200 lbs. The AnthroArm and other Anthro products are featured on page 84 of the new Tek products catalog. The company's AnthroCart was the subject of an article in the August issue of *Design News* magazine.

Published by Tektronix Service Administrative Support

Tektronix®
COMMITTED TO EXCELLENCE

AnthroArm newest addition

AnthroArm "Muscle" Elevates Monitors

Anthro Corporation, a Tektronix Company, recently announced its newest addition to the Anthro product line of technology furniture. The AnthroArm, which began shipping last December, is an armature that elevates large graphic display monitors to maximize space on a work surface. The AnthroArm makes it easy to move and store equipment, and is rugged enough to hold up to 200 lbs.

The idea for the AnthroArm originated when a national architectural firm requested an armature that would solve a serious space problem for them. The firm was using high-resolution 19″ graphic monitors for their architectural plans. Slowly their work space was being overtaken by the monitors. Most arms available on the market cannot support the heavy weight of a large monitor, but Anthro, with its background in designing the heavy duty AnthroCart®, knew that a sturdy and safe arm was possible.

The AnthroArm is primarily used with high-resolution 19″ graphic monitors, specifically in CAD/CAM applications. Designed to be installed on engineering benches and large drafting tables (the mounting area must be a minimum of 2″ thick), the AnthroArm was tested up to 600 lbs. and will support up to 200 lbs.

The AnthroArm consists of 2 arms, a monitor shelf and base. The arms and shelf swivel 360° for easy access and convenient use. Equipment can be elevated up to 9 1/2″ off a work surface, and the front of the equipment can be extended as much as 29″ from the center of the AnthroArm base. The total kit weighs 40 lbs., and the list price of the AnthroArm is $599.00.

The AnthroArm base and arms (14″ and 8″ in length) are made of solid aluminum, and have a matte powder-coated finish in "Smoke Tan." The 21″ X 21″ shelf is made of high-pressure laminated 1″ thick particle board in "Slate Gray."

Anthro Corporation is a wholly-owned subsidiary of Tektronix, Inc. Funded in October 1984, Anthro designs and markets the Anthro line of technology furniture. Anthro's customer base is the scienfific-engineering and business markets. Anthro Corporation is located in Portland, Oregon.

TABLE OF CONTENTS

CUSTOMER SERVICE TRAINING CLASSES

Following is the Customer Service Training class schedule for the first half of 1986. Please make it available to your customers. Any questions, please contact Dick Hornicak, 642-8843, Merlo Road.

To register your customer for any of these classes, contact Angie Petersen, Customer Training Registrar, 642-8842, Merlo Road.

1986

Class Type	Feb.	Mar.	Apr.	May	June	July	Tuition Fee
4010/ 4014		24-28 DCFO		19-23 Bvtn.		21-25 Chic.	650
4052/54 4907	3-14 SCLA						1,580
4115/25 4691	24-3/7 Bost.		14-25 Chic.		9-20 Irvn.		1,530
1240 System	24-3/7 Bvtn.						1,250
9100 System							2,100
8550 Emul.	17-3/7 Bvtn.						2,240
8540- 8560				12-23 Bvtn.			1,550

Please contact Angie Petersen, Customer Training Registrar, 642-8842, Merlo Road.

(ARTICLE CONTINUED ON NEXT PAGE)

CUSTOMER SERVICE TRAINING CLASSES (continued)

1986

Class Type	Feb.	March	April	May	June	July	Tuition Fee
7912							$1,830
7612			7-18 Bvtn.				1,860
465/ 475	17-21 Bvtn.		7-11 Dallas	19-23 Bvtn.	23-27 Atla.		630
7904/ 7633	10-21 Irv.		7-18 Bost.		2-13 SCLA		1,580
CG5001							1,520
7854	10-28 Bvtn.						2,800
DC/ DM5010		3-14 Bvtn.					1,680
TM500 Cal.Pkg.					2-6 Bost.		640
2465	17-18 SCLA					28-8/8 Denv.	1,330
T.V. Mon.							1,520
T.V. Gen.	10-21 Bvtn.						1,680
492P		3-21 Bvtn.					2,610

Please contact Angie Petersen - Customer Training Registrar at 642-8842.

SPG 1/2 CAL PROCEDURE CHANGE

REF: SPG 1/2 Instruction Manual, 070-2104-00

Enclosed, as a pull out supplement, is a change to step 10 of the SPG 1/2 Cal Procedure. (See A-1)

W2 Issue 16-1

SPG2 OPT. AA CAL PROCEDURE CHANGE

REF: SPG2 Opt. AA Manual Supplement P/N 070-4905-00

Enclosed as pull-out supplement B-1 are changes to Step 18 of the SPG2 Opt. AA Calibration Procedure.

W2 Issue 16-1

TDC RF VCO TUNING HINT

REF: TDC Instruction Manual P/N 070-2597-01

For those technicians who have had a fair amount of difficulty tuning the RF VCO's in TDC's (especially older UHF units), your problem may not necessarily be in the A8 board.

Take a look at the helical resonator.

In older units, the practice was to cut away unused portions of the resonator coil in order to approach the circuit's resonant frequency.

Current practice is to short the unneeded turns instead of cutting them away.

The result is a larger amount of capacitive coupling, and a tank circuit that is easier to start and control oscillation.

If you have the older "cut" resonator, Give strong consideration to ordering a new one. Board replacement may not be necessary.

W2 Issue 16-1

TDC SERIES 400KHZ OSCILLATIONS

REF: TDC Instruction Manual, 070-2597-01

TDC 1/2 Instruction Manual, 070-2754-00

Mod 57148

Mod 57148 has been implemented in the TDC Series to address 400 KHz oscillations and substandard phase margin problems associated with LM301 type op-amps by changing:

- A7C27 from 33pf to 65pf (P/N 283-0634-00) in the TDC's.
- A9C82 from 33pf to 65pf (P/N 283-0634-00) in the TDC 1/2's.

The 400 KHz oscillations of the Phase Lock Loop circuit are more prevalent in the VHF units, but may also appear in UHF units. The change can be made as required to help address the noted symptoms.

Mod 57148 is being installed in new instruments from the factory starting with S/N B011307 (TDC), and B010377 (TDC 1/2).

W2 Issue 15-22

TG501 TIMING KNOB DISCREPANCY

REF: TG501 Instruction Manual (070-1576-0X)

Discrepancy

In some instances the Timing Knob (P/N 366-1509-01) will not secure properly to the Actuator, Cam Switch (Timing) shaft.

Explanation

When the Timing Knob changed from '-00' version to '-01,' the location of the knob retaining set screws were changed. When this occurred, the Cam Switch shaft length was insufficient to allow the set screws to secure the knob properly.

Solution

Replace the Cam Switch shaft assembly (part number 105-0424-00). The old inventory has been purged of the defective shafts. The new part will provide sufficient shaft length to alleviate this discrepancy.

W2 Issue 15-20

TSP SERIES TEST SELECTABLE COMPONENT CHANGES

REF: TSP1 Instruction Manual P/N 070-2621-00

TSP11 Instruction Manual P/N 070-2664-00

TSP21 Instruction Manual P/N 070-4569-00

Mod M53892

Mod 53892 was implemented to change the values of certain test selectable components to values closer to "center range" as follows:

- R458, R457, R416, R417, R398, and R377 were changed from 315-0754-00 (750K) to 315-0155-00 (1.5M).
- C412 was designated as "Test Selectable", with a nominal value of 1 pf. (P/N 283-0158-00), and a range of selection of 0 to 1 pf.
- C463, C444, C434, C402, C404, and C373 were changed from 281-0655-00 (9.7 pf.) to 281-0672-00 (11.4pf.).

In addition, to improve reliability, sockets were removed from Q356, Q368, Q391, and Q381.

This article is for "Info Only" and will be applicable when components in the affected circuits are replaced due to normal failures.

Mod 53892 is being installed in new instruments from the factory starting with S/N's B021487 (TSP1), B021025 (TSP11), and B010116 (TSP21).

W2 Issue 15-21

TV SUBCARRIER OSCILLATOR FREQUENCY ACCURACY

REF: Service Equipment Manual

Accurate measurements of TV Product subcarrier signal frequencies (and signals from many other types of devices) is a mixture of variables, the most common being range, resolution, and time base accuracy. Briefly, range requirements for Tek TV Product subcarrier oscillators are from 3.57561149 MHz to 14.31818 MHz, resolution requirements are as high as 1Hz out of 4.43361875 MHz, and accuracy requirements are better than 2.25 X 10E-7. For purposes of example, let's use the NTSC subcarrier frequency of 3.579545 MHz, and the

(ARTICLE CONTINUED ON NEXT PAGE)

TV SUBCARRIER OSCILLATOR FREQUENCY ACCURACY (continued)

requirement to adjust and/or check this frequency to +/- 1Hz. (Other subcarrier frequencies, such as those for PAL or PAL-M systems, will follow the basic idea.)

In order to measure 1 Hz out of 3.579545 million, at first glance one would assume that 7 digits might be sufficient. However, most counter users agree that you have to go one digit farther. For instance, all other things being optimal, would a 6 in the last digit mean that you were 1 Hz away from nominal (in spec) or 1.9Hz away (out of spec)? Add to this problem all instability factors for the counter's time base (about 2 X 10 E-7 is the best short-term stability for Tektronix counters), and the need to have a measurement device that is at least a 4 to 1 ratio more accurate than the signal being measured for recommended traceability practices.

Tek's Service Equipment Manual specifies, at a minimum, a DC503A Opt. 1. This gives us 8 digits, but in order to achieve required accuracies near 8 X 10E-8, this counter must be locked to WWVB. The WWVB receiver being recommended in the SEM is a Spectracom 8161. The DC503A must be configured to use the 8161's 10 MHz output to drive the external clock inputs of the counter. (Other counters may require different clock frequencies.) Properly connected and maintained counters should easily approach the accuracy limit of WWVB (1 X 10E-12.)

W2 Issue 15-21

7L5 OPTION 25: NEW REFERENCE LEVEL DECODING ROM

REF: M55715

The 7L5 Option 25 Output Level/Impedance Control board (A5050 P/N 670-4674-02) has been modified to replace Reference Level Decoding ROM U5075 (P/N 156-0932-00) with a new ROM (P/N 160-2003-00). The P/N 156-0932-00 ROM is no longer available.

The P/N 160-2003-00 ROM has a different pin-out, and does not require a negative power supply. To accommodate the new ROM, the Output Level/Impedance Control board has had several runs re-routed. In addition, the negative power supply circuit consisting of R5084 and R5086 (P/N 315-0101-00), R5077 and R5079 (P/N 315-0512-00), and VR5084 (P/N152-0278-00), has been removed from the new circuit board, changing the circuit board part number to 670-4674-03. These changes will be installed into new 7L5 Option 25's beginning with S/N B093549.

A parts replacement kit(P/N 050-2013-00) has been set up for Field replacement of U5075 in units below S/N B093549. The kit includes a new Output Level/Impedance Control circuit board (P/N 670-4674-03), manual documentation, and installation instructions.

W2 Issue 15-20

110RC INTERCONNECT CABLE

REF: 110S Service Manual
P/N 070-4423-01

A new 6 foot cable for connecting a 110RC to a 110-S is available by ordering P/N 174-0201-00.

W2 Issue 16-1

49X/P SEMI-RIGID COAX FIELD SERVICE KIT P/N 003-1324-00

RE: Wizards Workshop Issue 12-20

The installation instructions for Semi-Rigid Coax cables which are provided by the 492/P and 494/P Service Volume 1 manuals (P/N 070-3783-01 and 070-4416-00) indicate that these cables should be tightened to 8 inch/pounds of torque. Field installation procedures are documented in the Maintenance section of each manual under "Replacing Assemblies and Sub-assemblies."

A Field Service Kit (P/N 003-1324-00) is available which provides the proper tools for installing Semi-Rigid Coax cables. The following is a description of the tools which are included in this kit:

1- Torque Wrench P/N 003-1316-00: Pre-calibrated to 8 inch/pounds (+/- 4%) by the vendor.

1- 5/16" Wrench P/N 003-1318-00: Attachment for torque wrench, .4 inch dogleg for modified box end socket.

1- 5/16" Wrench P/N 003-1319-00: Attachment for torque wrench, .8 inch dogleg for modified box end socket.

1- 5/16" Wrench P/N 003-1320-00: Attachment for torque wrench, standard open end wrench.

W2 Issue 16-1

147, 148, 149 CABINET CONVERSION KIT

REF: Mod 57348

A kit has been created to allow owners of R147A, R148, R148M and R149A instruments the capability of converting from rackmount instruments to cabinet (bench) instruments.

The kit is orderable as 040-0768-00.

W2 Issue 15-21

380 PHASE CONTROL RANGE

REF: 380 Instruction Manual
P/N 070-3421-00

Mod 54367

Mod 54367 alleviates a problem in the 380 with meeting the phase control range specs at higher ambient temperatures.

To address this problem, C3236 was changed from P/N 281-0762-00 (27pf, 20%) to P/N 283-0781-00 (27pf, 5%), and made "Test Selectable" with a selection range of 16.8pf to 47pf.

Install Mod 54367 as required to meet phase control range specs.

Mod 54367 was installed in new 380's from the factory starting with S/N 301057.

W2 Issue 15-21

380 SERIES FREQUENCY RESPONSE IMPROVEMENT

REF: 380 Instruction Manual
P/N 070-3421-00

381 Instruction Manual
P/N 070-3422-00

Mod 54759

Mod 54759 improves Frequency Response in the 380 Series instruments by:

-- Changing S500 from 260-1544-01 to 260-2243-00

-- Changing S650 from 260-1424-01 to 260-2242-00

This mod can be installed where frequency response improvements are desired or required, and is being installed in new instruments from the factory starting with S/N 301332 (380) and S/N 300440 (381).

W2 Issue 15-21

380 SERIES FREQUENCY RESPONSE VARIANCES

REF: 380 Instruction Manual
P/N 070-3421-00

381 Instruction Manual
P/N 070-3422-00

Mod 54637

A frequency response variance in the 380 Series has been identified as being caused by stray capacitance near the output transistors (Q854 & Q864).

To minimize this variance, Mod 54637 changes two items in the 380's:

-- New spacers (P/N 342-0697-00) are added under the output transistors.

-- The nominal value of C883 is changed from 1pf to 0.39pf (P/N 283-0329-00).

These changes may be helpful, and can be installed using a kit (P/N 050-1934-00), where frequency response adjustments don't seem to be quite optimal.

Mod 54637 is being installed in new instruments from the factory starting with S/N 301272 (380) and S/N 300415 (381).

W2 Issue 15-21

380 SERIES IMPROVEMENTS

REF: 380 Instruction Manual
P/N 070-3421-00

381 Instruction Manual
P/N 070-3422-00

Mod 54364

Mod 54364 addresses the following:

-- UL power test requirements.
-- A tendency for some "Tee-Pee'd" parts on the probe input to touch the adjacent shield.

The first item was addressed by changing R50 to P/N 315-0101-03, and should be installed on any 380/381 returned for service.

The second item was addressed by adding a small insulating sheet, P/N 342-0693-00, to the inside of the probe input shield (Figure 1-142 of the exploded chassis diagram), and should be installed as required.

380 SERIES IMPROVEMENTS (continued)

Mod 54364 was installed in new units from the factory starting with S/N 301192 (380) and S/N 300335 (381).

W2 Issue 15-21

380 SERIES LINEAR WAVEFORM DISTORTION REDUCTION

REF: 380 Instruction Manual P/N 070-3421-00

381 Instruction Manual P/N 070-3422-00

Mod 34368

In order to reduce Linear Waveform Distortion (Pulse to Bar Ratio) at the PROBE INPUT, Mod 34368 changes S70 from P/N 260-1132-02 to P/N 260-1132-04.

Mod 34368 can be installed where Pulse to Bar Ratio is a problem, and is being installed in new instruments from the factory starting with S/N 301162 (380) and S/N 300315 (381).

W2 Issue 15-21

380 SERIES LONG TERM FREQUENCY RESPONSE VARIATIONS

REF: 380 Instruction Manual P/N 070-3421-00

381 Instruction Manual P/N 070-3422-00

Mod 34643

To achieve better long term frequency response stability, Mod 34643 has made the following changes:

- C80 changes from 100pf to 105pf (P/N 283-0649-00)
- C85 changes from 35pf to 36pf (P/N 283-0636-00)
- C100 changes from 47pf to 43pf (P/N 283-0600-00)
- C102 changes from 0.01ufd to 0.1ufd (P/N 283-0167-00)
- R85 changes from 120 ohms to 121 ohms (P/N 321-0105-00)
- R115 changes from 820 ohms to 825 ohms (P/N 321-0185-00)

These changes can be made to help address long term frequency response drift and all six components should be changed simultaneously.

Mod 34643 is being installed in new instruments from the factory starting with S/N 301252 (380) and S/N 300360 (381).

W2 Issue 15-21

380 SERIES LOOSE 1V CAL JACK

REF: 380 Instruction Manual P/N 070-3421-00

381 Instruction Manual P/N 070-3422-00

Mod 54360

Mod 54360 addressed a problem associated with the 1V Cal Out connector coming loose, by decreasing the diameter of the mounting hole for the connector.

Order the new Input Bracket, P/N 407-2558-00, if connector fit is unsatisfactory.

W2 Issue 15-21

380 SERIES NOISE MEASUREMENT SWITCH TO ECB SHORT

REF: 380 Instruction Manual
P/N 070-3421-00

381 Instruction Manual
P/N 070-3422-00

Mod 34758

In order to prevent intermittent shorting of the Noise Measurement Switch (S311) to runs on the Input Board, Mod 54758 replaces the small length of electrical tape between S311 and the Input board with a poly-carbonate insulating sheet, P/N 342-0723-00.

Use 342-0723-00, as required, to address S311 to Input Board shorting.

Mod 34758 is being installed in new instruments from the factory starting with S/N 301382 (380) and S/N 300465 (381).

W2 Issue 15-21

463X CASSETTE HANDLE LATCH ADJUSTING CAM WILL NOT TIGHTEN

REF: All 463X Dry Silver Copiers Service Manual

Problems with tightening the handle latch have been reported.

The problems are caused by close tolerances for thickness for the adjusting cam's (401-0243-00) centered extrusion (the short one) and the chassis sides.

When this problem is encountered, the best remedy is to file the short extrusion on the adjusting cam until it no longer extends through the chassis side. Remove approximately 0.010 inches (see figure 1) so that the extrusion is about 0.1 inches after filing. This will keep the cam from binding.

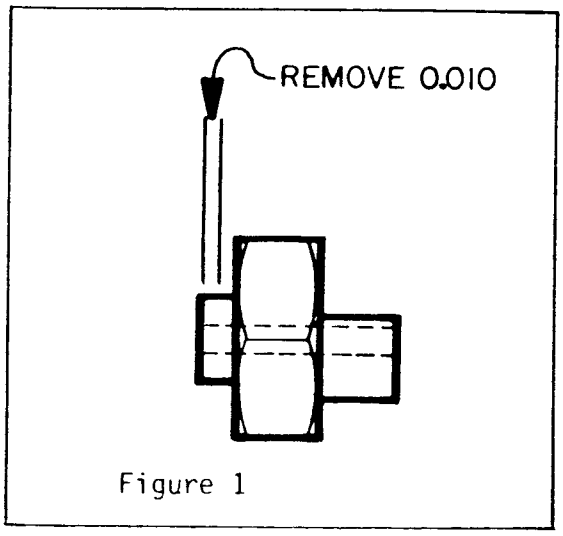


Figure 1

W2 Issue 15-20

494/P FIRMWARE REPLACEMENT KITS

RE: M55822

494/P Firmware Version 2.7 now includes firmware for operating instruments with options 8 and 41 in combination. Previously, Firmware Version 2.5 was required for 494/P's when options 8 and 41 were installed together. As a result, the Firmware Version 2.5 circuit boards, (A54 P/N 670-8768-00 and A56 P/N 670-8769-00), Firmware Version 2.5 parts replacement kit (P/N 050-1925-00) and unique EPROM's are no longer available.

Several parts replacement kits have been set-up for replacing Firmware Versions 2.3, 2.4 and 2.5 with the current firmware. Refer to the list below for Field replacement information.

(ARTICLE CONTINUED ON NEXT PAGE)

494/P FIRMWARE REPLACEMENT KITS (continued)

494/P Version 2.3 (A54 P/N 670-7009-00 and A56 P/N 670-8431-00)
Use 050-1867-02

494/P Version 2.4 (A54 P/N 670-7009-01 and A56 P/N 670-8431-01)
Use 050-1867-02

494/P Option 8/41 Version 2.5 (A54 P/N 670-8768-00 and A56 670-8769-00)
Use 050-1867-02

494/P Option 12 (A54 P/N 670-8614-00 and A56 P/N 670-8617-00)
Use 050-1987-00

494/P Option 13 (A54 P/N 670-8615-00 and A56 P/N 670-8618-00)
Use 050-1988-00

494/P Option 14 (A54 P/N 670-8616-00 and A56 P/N 670-8619-00)
Use 050-1989-00

W2 Issue 15-21

1241 CRT REPLACEMENT KIT FOR EARLY INSTRUMENTS

Ref: 1240/1241 Service Manual
Volume I, P/N 070-4342-01
Volume II, P/N 070-4717-01
1241 Service Manual Addendum, P/N 070-5378-00
M59012

Affected Serial Numbers: B010182 and below

(CONTINUED IN NEXT COLUMN)

Install 050-2116-00 when replacing the CRT assembly (154-0885-01) in 1241 instruments within the above serial number range.

This kit modifies the CRT drive circuitry to provide additional vertical position adjustment range. This extra range enables improvement of the 1241 display geometry.

Included in the kit is a replacement CRT with pre-aligned yoke along with the instructions to perform the modification.

NOTE: Some fine tuning of the display with CRT alignment magnets might be necessary due to differences between instruments. Use the same magnets and procedure as described in the Wizard's Workshop article, "1240 Display Alignment Magnets Available", Issue 14-18, December 7, 1984, Page 10.

W2 Issue 16-1

1450 SERIES LOCAL OSCILLATOR STABILITY

REF: 1450 Instruction Manual, 070-2200-01

1450 Instruction Manual, 070-5568-00

Some instances of Oscillator instability have been traced to intermittent silver mica capacitors in the Reference Oscillator (A51) and Converter Oscillator (A57)

While the particular failure mode is still unknown, the symptom is a tendancy for the oscillator to align properly, per the cal procedure, and then suddenly drive off frequency.

(ARTICLE CONTINUED ON NEXT PAGE)

1450 Series Local Oscillator Stability (continued)

Cooling the capacitors with freeze-spray may help localize the faulty part, however, a certain amount of time savings may be realized by replacing all of the silver mica parts within the oscillator sections.

W2 Issue 16-1

1450-1 INSTRUCTION MANUAL UPDATE

REF: 1450-1 Instruction Manual, 070-5568-00

A new manual has been written that applies to 1450-1's S/N B020000 and newer.

This manual contains information pertaining to the newer 1450-1's that have been equipped to handle wide-band audio (BTSC composite) signals.

In addition, a majority of the Performance Check and Cal sections have had improvements made.

The new manual can be obtained by ordering P/N 070-5568-00

W2 Issue 16-1

1710B SERIES POWER SUPPLY FAILURES

REF: 1710B Instruction Manual P/N 070-5522-00

Mod 59241

To avoid a possible failure of Q518 (Z axis amp, Schematic 7) caused by reverse breakdown during power-up, a part has been added.

Mod 59241 adds a small signal diode, P/N 152-0141-02, to the power supply board, cathode to the base of Q516 and anode to ground.

This connection is most easily made by attaching the cathode to the left end of R418 and the anode to the left end of R417 as seen when viewing the power supply board, parts side up, and power switch to your right.

Mod 59241 should be implemented on any 1710B or 1711B returned for service, and is being installed in new units from the factory starting with S/N B020757 (1710B) and B020202 (1711B).

W2 Issue 15-20

1740 SERIES INTENSITY LIMIT RANGE

REF: 1740 Series Instruction Manual P/N 070-4473-00

Mod 53932

In order to allow optimum focus throughout the range of the Intensity Limit control (R569), Mod 53932 has changed R572 from 2K ohms to 1K ohm, P/N 315-0102-00.

This mod can be installed in pre-mod instruments that exhibit de-focus problems associated with intensity limit calibration.

Mod 53932 is being installed in new instruments from the factory starting with S/N B011509 (1740), S/N B010463 (1741) and S/N B010109 (1742).

W2 Issue 15-21

1740 SERIES MODIFICATIONS

REF: 1740 Series Instruction Manual, 070-4473-00

Mod 55852

Mod 55852 has been implemented in the 1740 Series instruments to address 3 problem areas.

1. Cabinet hardware touching circuit board.
2. "Teepee" components
3. DC (Battery Pack) power supply not always turning on in Option 7 and Option 11 instruments.

Problem 1 was resolved by putting a small notch in the HV power supply circuit board. This was only a problem if improper hardware was used.

Problem 2 was resolved by a new circuit board layout.

Problem 3 was resolved by changing C323 on the Option 7/11 DC power supply board from a .0022 ufd cap to a .047 ufd cap (P/N 283-0422-00).

The solutions for problems 1 and 2 are for information only. The solution for problem 3 should be installed on any 1740/1741 Option 7 or 11 that is returned for service.

W2 Issue 15-20

1741 VECTOR JITTER

REF: 1740 Series Instruction Manual P/N 070-4473-00

If you notice a problem of Vector instability when using a 1741 to look at a signal from a tape recorder, try putting P728 in the "1740" position.

W2 Issue 15-20

1750 SERIES CRYSTAL CHANGE

REF: 1750 Series Instruction Manual P/N 070-4472-00

1750 Series Instruction Manual P/N 070-5664-00, S/N B03 and Up

Mod M57909

In order to take advantage of a less expensive crystal, the following changes were made to the 1750.

- A9Y691 changed from 158-0260-00 to 158-0308-00
- A9Y752 changed from 158-0260-00 to 158-0308-00
- A9C895 changed from 283-0707-00 (385 pf.) to 283-0752-00 (345 pf.)
- A9C757 changed from 283-0707-00 (385 pf.) to 283-0752-00 (345 pf.)
- A9C893 changed from 283-0711-00 (2700 pf.) to 283-0693-00 (1730 pf.)
- A9C756 changed from 283-0626-00 (1800 pf.) to 283-0693-00 (1730 pf.)
- A9R895 changed from 315-0335-00 (3.3M) to 315-0475-00 (4.7M)
- A9R756 changed from 315-0335-00 (3.3M) to 315-0475-00 (4.7M)

This change is being installed at the factory with new instruments starting at S/N B030543.

This article is for "Info Only." The old crystal, cap, and resistor part numbers will continue to be available and applicable to earlier S/N 1750's, until further notice.

W2 Issue 15-21

1750 SERIES PHASE SHIFTER IMPROVEMENT

REF: 1750 Series Instruction Manual, 070-4472-00

1750 Series Instruction Manual, 070-5664-00

Mod 59447

Mod 59447 has been implemented to improve the operation of 1750 Series Phase Shifter assemblies.

Early assemblies have exhibited problems of intermittent operation, due to difficulties associated with the spacing tolerances in the rotor/stator area. These tolerance problems appear as unstable vector displacement and extreme sensitivity to adjustment.

Mod 59447 removes three washers, and replaces them with one washer and one spring.

Parts Removed	Parts Added
210-1405-00	210-1430-00
210-1035-00	214-3894-00
210-1036-00	

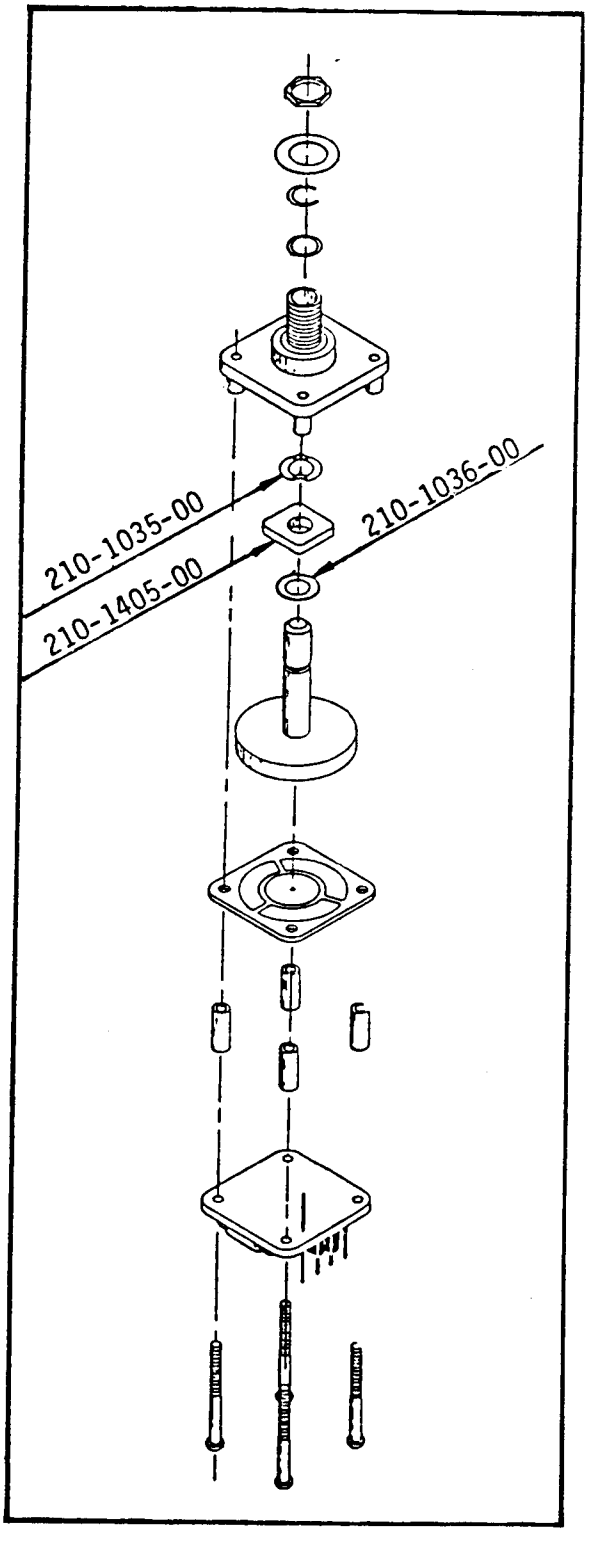
See the attached diagrams for details.

These changes are recommended for any instrument exhibiting some of the symptoms mentioned.

Mod 59447 will be installed in new instruments from the factory starting with S/N B030606 (1750) and S/N B030255 (1751).

(CONTINUED IN NEXT COLUMN)

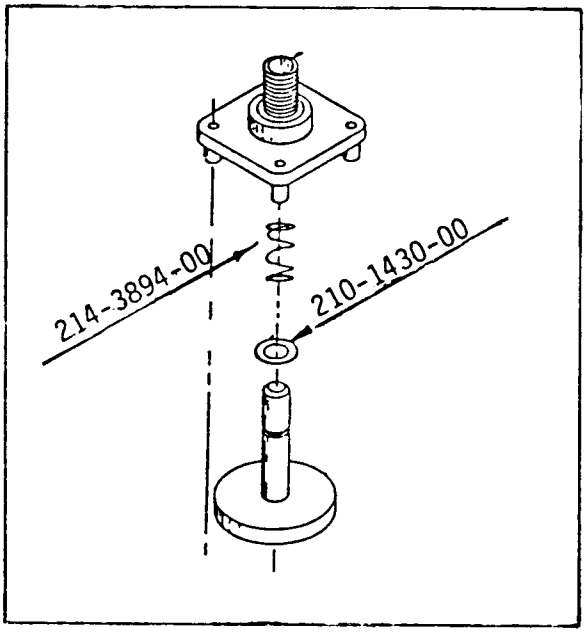
1750 PHASE SHIFTER, PARTS REMOVED



(ARTICLE CONTINUED ON NEXT PAGE)

1750 Series Phase Shifter Improvement (continued)

1750 PHASE SHIFTER, PARTS ADDED



W2 Issue 16-1

1750 SERIES ALTERNATE PART

REF: 1750 Series Instruction Manual, 070-4472-00

Some eaerly 1750's were shipped with an alternate part installed in A6C117.

The part used was a 10 ufd capacitor. This part would not be a problem as installed, however, when replacing C117 due to failure, please use the 33 ufd cap listed in the manual.

W2 Issue 15-20

1910 EEPROM CHANGE

REF: 1910 Service Manual P/N 070-4523-00

Mod 53827

The EEPROM being used in the 1910 as U370 (P/N 156-1735-00) has been discontinued by the vendor.

Replacement of U370, upon failure, will require modifications to the circuitry in order to accommodate the new IC.
Replacement parts and instructions for pre-mod instruments are available by ordering P/N 050-1908-00.

Mod 53827 is being installed in new 1910's from the factory starting with S/N B010599.

W2 Issue 15-21

4041 OPTION 3 FIRMWARE ANOMALIES

Some firmware anomalies have been found in the 4041 Option 3 firmware. One of the anomalies can cause unexpected lost data; others are merely inconvenient.

* If the disk directory is completely filled, yet there is data space left on the disk, an attempt to create a new file will delete the last directory entry. No error message is given. The file whose directory was deleted is lost.

* Error 1213 (write-protected media) is not returned when an attempt is made to write to a write-protected floppy while the verify flag is set true. No error message is given.

* When attempting to format a write-protected floppy, error 1391 is returned instead of error 1213 (write-protected media).

* If the disk data space is full, but there is directory space available, it may be possible to save additional files. The space to which the files are saved is undefined, and may not be reliably read in any unit other than the specific 4041DDU that wrote the additional files.

* When formatting a floppy disk on a 4041DDU, the firmware will attempt to format 80 tracks instead of the 40 tracks on the 4041DDU. No ill effects occur, but a banging noise is heard from the drive unit during the format process.

All of the above anomalies will be fixed when the firmware is next updated. Operator awareness of these bugs should prevent any problems to the user.

W2 Issue 15-21

6942 MANUAL SUPPLEMENT AVAILABLE

REF: 6942 MOD AA Manual Supplement, 061-3188-00

An updated version of the 6942 instruction manual insert is now available.

P/N 061-3188-00 can be ordered through a Modified Products Quote.

This supplement amends the appropriate areas of the 690SR Opt. 40, 48 Manual (P/N 070-2870-00.)

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MANUAL CHANGE INFORMATION

Group Code 20

Date: 11-27-85

Change Reference: C1/1185

Product: SPG1/SPG2

Manual Part No: 070-2104-00

DESCRIPTION

TEXT CHANGE

SECTION 4, Recalibration Procedure, Page 4-12,

CHANGE step 10 **TO READ:**

10. Check Sync/Subcarrier Unlock Switch to Sync Lock and Timing Jitter Switch to Internal.

NOTE

P224 and P324 route different commands to the Generator Logic board A22 depending on which pair of the two pairs of pins are connected together. A jumper is installed on P324 at the factory, leaving P224 open. When P224 is to be used, remove the jumper from P324 and place it on P224.

a. Place the jumper on P324.

b. Press the Video Signal Source SPG1 or SPG2 front-panel Horizontal Unlock button.

c. CHECK - the SPG1 or SPG2 HORIZONTAL LOCK LED should flash on and off.

d. Move the jumper to P224.

e. Press the Video Signal Source SPG1 or SPG2 front-panel Horizontal Unlock button.

f. CHECK - the SPG1 or SPG2 SUBCARRIER LED should flash on and off.

g. Return the jumper to P324.

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MANUAL CHANGE INFORMATION

Group Code 20

Date: 12-5-85

Change Reference: C3/1285

Product: SPG2/1410 OPT AA

Manual Part No: 070-4905-00

DESCRIPTION

TEXT CHANGE

PART 2 SERVICE INFORMATION, CALIBRATION PROCEDURE, Page 15,

CHANGE Step 18 **AS FOLLOWS:**

CHANGE part b **TO READ:**

b. CHECK - Subcarrier frequency should be within 1 Hz of 3.579545 MHz. Note the reading.

CHANGE part e **TO READ:**

e. ADJUST - R132 so the frequency counter reading is 50 Hz greater than the reading obtained in part b.

CHANGE part h **TO READ:**

h. ADJUST - R138 so the frequency counter reading is 50 Hz less than the reading obtained in part b.

CHANGE part k **TO READ:**

k. ADJUST - R139 so the frequency counter reading is 20 Hz less than the reading obtained in part b.

CHANGE part n **TO READ:**

N. ADJUST - R133 so the frequency counter reading in 20 Hz greater than the reading obtained in part b.

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Articles for publication should be submitted directly to:

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SERVICE TEKNOTES Editor

Delivery Station: 53-102

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