Tektronix®
COMMITTED TO EXCELLENCE

COMBINATION EDITION

Wizards Workshop

****
* 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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March 27, 1981
Issue 11-5

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PERSONNEL CHANGES

NEW HIRE

LITO ARCANGEL - IRVINE

Lito is the newest member of the Field Service Team in Irvine. He was previously employed as a field service representative for Savin Business Machines. He will assume the responsibilities of a Field Service Specialist I.

Good luck and continued success in the future Lito!

******

PROMOTIONS

JOE KOSIK - LONG ISLAND

Joe has been promoted to ETII based on his sustained performance. He came to Tek a year and a half ago from Suffolk Cablevision where he was a Quality Control Supervisor.

Congratulations Joe and we all wish you continued success!

******

FACTORY SERVICE

WOOD MUNG - promoted from Jr. Technician to FET I.

EILENE DICKEY - promoted from FET I to Camera/Probe Lead Person.

DONNA CLARY - promoted from FET I to FET II.

JERRY BROWN - promoted from FET II to FET III.

GEORGE MORRISON - promoted from FET II to FET III.

JERRY SNYDER - promoted from FET II to FET III.

Congratulations to each of you and keep up the good work!

******

PROMOTIONAL CHANGES IN WALKER ROAD SERVICE SUPPORT

FRANK CODANTI is replacing Roger Lee as the STS Systems, Service Program Specialist. Frank comes from Logic Analyzer Manufacturing and brings with him experience as a New Production Introduction specialist and some line management.

ROGER LEE has joined the Service Operations Group as a Service Marketing Specialist reporting to Bob Wruble.

Congratulations and welcome to Frank and Roger!

******

--Editor

March 27, 1981
Issue 11-5

BEAVERTON SERVICE SUPPORT GROUP - NEW PHONE EXTENSIONS

The Danray phone system has been installed in Building 58. As a result, the Beaverton Service Support group now has a new set of phone extensions. Please update your phone listings and begin using the new extensions as of this date.

The Performance Assurance Engineer (PAE) provides technical support on all assigned products that are currently in production. For products no longer in production but still in the Long Term Support Program, Factory Service (Extension 8600, Merlo Road) provides troubleshooting, repair and calibration information only. All other support questions, i.e. parts, documentation, should be addressed to the Service Support PAE.

PRODUCTS	PAE	EXTENSION
5000 Series & 7854	John Eaton	1237
7000 Series (Except 7854)	Lynn Sperley	1236
Portable Scopes (200, 300, 400 Series) (Except 308)	Mike Laurens	1499
Spectrum Analyzers/TDR's	Rich Kuhns	1240
Television Products	Bill Bean	1498
Accessories (Cameras, Probes, Scope Carts, A67XX)	Open	

The Service Program Specialist (SPS) is primarily involved in New Product Introduction and service policy questions. The SPS will also provide backup technical support when the PAE is not available.

PRODUCTS	SPS	EXTENSION
5000 Series 7000 Series	Dick Freshour	1238
Portable Scopes Accessories	Roy Lindley	1235
Spectrum Analyzers/TDR's	Rich Andrusco	1241
Television Products	Steve Schmelzer	1497
Metrology Capital Equipment Planning	Tom Fox	1496
ADMINISTRATION & SUPPORT		
Todd Paulus	Service Program Manager	1493
Brenda Mohr	Secretary II	1495
Patti Villareal	Secretary II	1494

--Todd Paulus
58-511, Ext. 1493

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INTERNATIONAL MANUFACTURED PRODUCTS SOLD IN THE U.S.

In the near future you may begin to see some products in for service that were manufactured in international locations, but sold from Beaverton. The serial number variations will indicate their source of manufacture (shown below). In some cases, there will be products sold worldwide, but solely produced in international locations (e.g. T922R and T912 will be produced in Guernsey only). In other cases, products will be shipped to Beaverton to handle the higher U.S. demand, making use of some overflow capacity in the International Manufacturing operation.

MANUFACTURING AREA	SERIAL NUMBER DESIGNATION
Beaverton	BXXXXXX
Guernsey	1XXXXXX
Tek U.K., Ltd.	2XXXXXX
Sony/Tek	3XXXXXX
Heerenveen	7XXXXXX

For those products sold from Beaverton, your warranty history information on microfiche will reflect the transaction dates as it does currently for U.S. manufactured products. We are addressing the service concerns of mod and serial number break documentation, and the potential for component differences due to the possibility of different vendor sources.

We currently support the 300 Series products from Sony/Tek without serious documentation problems, due to arrangements made with Japan. A similar approach is being looked into for the other manufacturing areas.

--Todd Paulus
58/511, Ext. 7092

M.R.I.S. CHANGES ITS NAME

Due to the response received from the field, the product files within the Microfiche Reference Information System is changing its name to "Microfiche Product Files (M.P.F.)"

The M.P.F. will include the Sales/Service, Mod Summary, and Manuals for each product. The M.R.I.S. Customer Catalog will take on the new name "Microfiche Product File Customer Catalog".

Submitted by--
Donna Lowry
Publication Support
73-275, Ext. 1951 DR

SERVICE UPDATE PROGRAMS STATUS

Please use this article to update your lists of approved Service Update Programs.

Service Update Programs are driven by Service Support for implementing special product modifications which correct either of the following:

1. Safety Hazards
2. Performance Deviations

In the U.S., these programs are identified as Activity Code 18. All other modification categories are billable or covered by warranty, maintenance agreement, and rental. The key to determining if a program is free to the customers program is to look for the words "Service Update Program". Also look for kit part numbers 045 ir 046. These are the only authorized kits for Service Update Programs. All Service Update Programs are authorized by Service Support management in conjunction with the appropriate business unit.

(Charts to complete article are on the following pages)

Submitted by--
Don Taylor
U.S. Service Accounting

SYSTEMS SERVICE UPDATE PROGRAMS

Wally Karstad
x1285, 92-236

Service Update #	Product/Option	Description	Part Number of Kit	Status	Publication	Comments
2000	834R03	Firmware change	045-0018-00	New	SOB 11/18/80	Kits available.
--	634	High Voltage Mode	--	--	--	Wilsonville
--	851	Ohm Mode	045-0003-00	Active	Wizard	To be closed APR 81
2001	CG551AP	Firmware update	045-0020-00	Active	Service Update Plan 12/18/80 1/30/81	Kits available.
2002	1803F, 1804, 1805	Safety Mod	--	Active	Wizard FEB 81	Kits to be available MAR 81.
2003	834R02	Firmware Update	Not assigned	Firm Plan	--	Estimated Start APRIL 81.
2004	8550	Software Update and Memory	Not assigned	Firm Plan	--	Estimated Start AP205

Todd Paulus
x7092, 58-511

Service Update #	Product/Option	Description	Part Number of Kit	Status	Publication	Comments
--	7L18	Spot-of-Gold Connectors	Return to Beaverton	Active	SOB 10/6/80	Will be complete by AP305
--	5000/7000	Spot-of-Gold Connectors	175-xxxx-xx	Complete	Wizard 4/4/80	Terminates AP109
--	T900	Intermittent Vertical Attenuators	343-0564-00 343-0565-00	Complete	Wizard 12/17/80	Terminates 1/1/81
--	413	Power Supply	040-0961-00	Active	SOB 5/6/80 Wizard 6/13/80	Safety corrective action - run indefinitely
--	C30B	X-sync wiring error	no parts	Active	SOB 5/6/80	Terminate 12/31/80
--	7904/R7903 7704A	CRT X-ray Mod	Multiple parts (See Wizard)	Active	SOB 8/4/78 Wizard 9/29/78	Safety corrective action - will run indefinitely.
--	221	Power Supply Insulation	045-0016-00	Active	SOB 5/30/80	Safety corrective action - will run indefinitely.
--	7D15	Socket Rework	10+ sockets return to Beaverton	Complete	SOB 7/24/79	Terminates AP109
--	Model 3 Scopecart	Waker Power Strip Replacement	Exchange-Beaverton	Active	IOC 6/18/80	Safety corrective action- will run indefinitely.
--	TV Instruments	Spot-of-Gold Socket Rework	Return to Beaverton	Active	SOB 11/1/79	Return via manufacturing Repair and Return Program.

IDD SERVICE UPDATE PROGRAMS

Dick Schilling
x3931, 63-503

Service Update #	Product/Option	Description	Part Number of Kit	Status	Publication	Comments
101	4025	Mechanical Update charged to Code 18	045-0002-00	Cancelled	IOC to field	Changed to 040-0921-00
102	4014, 15, 16, Opt 5	F/W update to V3.0 charged to Code 18	045-0014-00	Complete	Svc Update Plan 4/4/80	Completion Wizard to be published in this or next printing. Svc Update termination plan is being written. This was a manditory update Replaced by 040-0990-00
103	4051 R07*	F/W update charged to Code 18	160-0160-01 160-0161-01	Complete	Wizard 8/10/79	Needed when R07 used with E01 ROM expander unit. Ordered 160-0160-01 160-0161-01 No further field action.
104	4663*	Fuse holder bracket replacement, potential safety problem charge to Code 18	040-0932-00	Active	IOC - Steve Prunty - Jim Tiano 5/5/80	Mandatory Safety Update
105	GMA102A	High voltage shield ground	045-0001-00	Complete	IOC 5/3/79 Wizard 2/79	No field service action.
106	GMA102A	Major MOD reliability performance & safety charged to Code 18	045-0006-00 045-0007-00 045-0008-00 045-0009-00	Complete	Wizard & Svc Plan 1/31/80	Performed by OEM Customer or at designated OEM Depot. No further field action.

IDD SERVICE UPDATE PROGRAMS

Dick Schilling
x3931, 63-503

Service Update #	Product/Option	Description	Part Number of Kit	Status	Publication	Comments
107	GMA101A	Major Mod charged to	045-0012-00	Complete	Svc Update Plan	Same as Update 106-GMA102A.
108	618/618AA	High voltage shield & charged to Code 18	045-0004-00 045-0001-00	Complete	IOC 7/18/79	All Kits shipped
109	4907*	F/W Update V1.0 to 1.2 & V1.1 to V1.2*	050-1160-01 156-0960-08	Complete	IOC 1/5/79	No further action all future updates will be billable.
110	4924 *	Charge to Code 18 to make compatible with 4052	V1 to V4 050-0860-02 V2 to V4 050-0942-01 V3 to V4 050-0924-01	Active	4052 Svc Impact notice	To be preformed as needed.
111	4052 *	F/W Update V3.1 to V3.2 charged to Code 18	050-1282-02	Complete	Wizard 11/16/79	Replaced by V4.1 Update announced in Wizard 5/30/80 no longer Svc Update program.
112	4054/52 *	F/W Update V3.2 to V4.1 charged to Code 18	050-1282-02	Cancelled	Wizard 5/2/80	Never set up or approved program replaced by V4.2 F/W V4.1 to 4.2 050-1402-00 2.1, 3.1, 3.2 to 4.2 order 050-1282-02 - Not a Code 18 announced Wizard 6/27/80.
113	4016-1	LVPS reliability	045-0011-00	Cancelled		This program was cancelled. It was never implemented.

March 27, 1981

IDD SERVICE UPDATE PROGRAMS

Dick Schilling
x3931, 63-503

Service Update #	Product/Option	Description	Part Number of Kit	Status	Publication	Comments
114	4081 *	Mod to floating point processor charged to Code 18	050-1218-00	Active	Wizard 1/25/80 Update Plan 1/16/80	All kits shipped Waiting return of Floating Point Processors
1023	4663	Major Mod Interim level fix Phase I Final Fix Phase II	046-0002-00	Active	Service Update Plan 8/27/80	Update of approximately 300 4663 - Phase I of two phase program.
1024	634	Performance & reliability update	045-0015-00	Active	Service Organization Bulletin 3/10/80	Mandatory-Wizard article was written. Termination date 10/1/81
1025	4054	Placing electronic relay in power line circuit	045-0017-00	Active	Svc Update Plan 12/10/80	Specification corrective action.
1026	4052 R09	Firmware update	045-0019-00	Active	Svc Update Plan 12/10/80	Fixes firmware "bugs" which causes unit to hang busy.
	* Note: This update program was under development before current 045/046 kit update program guidelines and therefore uses another type of parts kit.					

SERVICE INFORMATION SYSTEMS PROGRAM

The three planned development phases of the Service Information Systems are:

- PROTOTYPE
- INTERIM
- FULL IMPLEMENTATION

Some features of the PROTOTYPE:

- Installation in the Santa Clara field office;
- On-line intermittent, interactive entry/access to job data at six terminals -
  - Shipping/receiving (1)
  - On-Site Supervisors (1)
  - In-House Supervisors (1)
  - CSR's (3);
- Shipping/receiving will print a receipt for the customer;
- Data edited as screen is entered with highlight of data entry errors;
- Reports available on request;
- Supervisors will have management overview information, much of it on screens;
- All open jobs and all recently closed jobs will be accessible on-line (5 APs);
- An index of aged, closed jobs will be accessible on-line by two keys and by report for three additional keys (12 APs);
- Batch reports available daily, weekly and monthly;
- Daily automatic billing;
- Weekly transmission of failure and time reporting data.

Information on the Interim Phase will be carried in the next edition.

--Bill Duerden
56-037, Ext. 8938 MR

DM501A INTERMITTENTS

The attenuator switch (S1 + S2) leads were too short on the first few hundred DM501A's built. This may cause intermittent operation. As cold solder or weak solder joints are formed between switch pins and ECB during flow soldering. The correction for this is to resolder S1 and S2 by hand or replace switches with current parts. This problem may be identified by looking at switch pin protrusion on left side of DM501A.

Also, reference Wizard's Workshop, Issue 10-22, October 31, 1980, page A1.

A special thanks to Paul Hogan, Boston Field Office, for bringing this to our attention.

--Frank Tucker
92-236, Ext. 1286

DM501A 200Ω ZERO MODIFICATION

The following modification will help eliminate the problem of zeroing the 200Ω range in the DM501A.

Change A10R1615 from Part Number 321-0382-00, 93.1KΩ to Part Number 315-0753-00, 75KΩ.

Add A10R1614, Part Number 311-1555-00, a 100KΩ Pot in series with A10R1615 (see attached figure).

On Page 4-11 of the adjustment procedure, add new step 2A:

2A. 200Ω Zero Adjust (SN B025410 & up)

NOTE

The electrical shield must be removed to make the 200Ω Ø adjustment. The shield should be installed for all other adjustments.

a. Push DM501A kΩ function button in. Push 200Ω range button in. Set; All other DM501A buttons out. Connect: Shorting bar across the DM501A LOW and VOLTS/Ω INPUT jacks.

b. Adjust: R1614 for a display of 00.00.

c. Remove: Shorting bar from DM501A.

The above changes are effective for SN B025410 (Standard) and SN B025250 (Option 02).

(Schematic to article on the following page)

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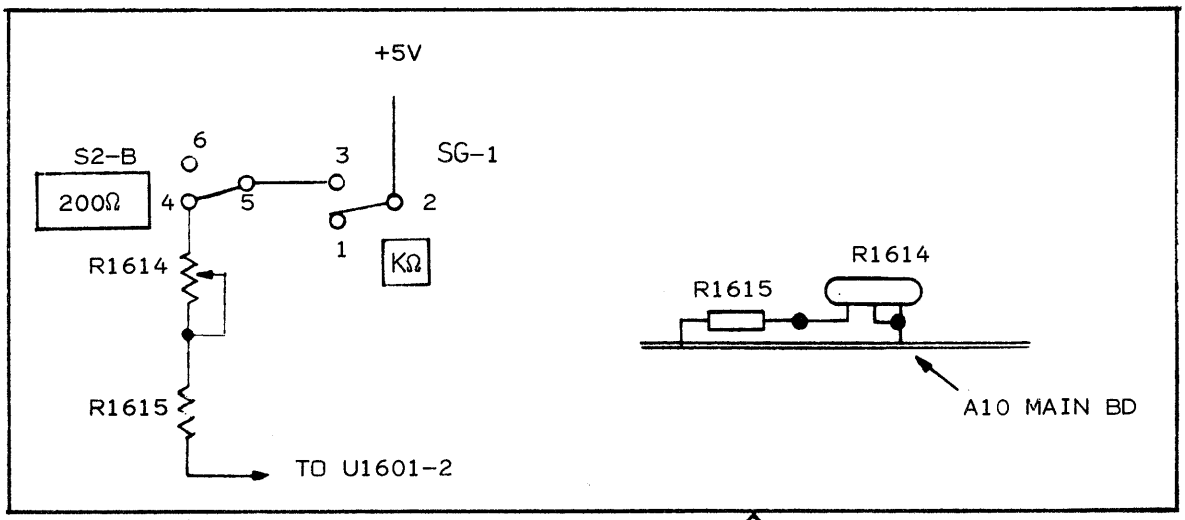
DM501A 200Ω ZERO MODIFICATION (Continued)



PARTIAL SCHEMATIC 2

--Terry Turner
92-236, Ext. 1288

FG501A/FG507 DISTORTION MEASUREMENT

The distortion (THD) on the FG501A/507 must be measured with an AA501 or 7L5/5L4 Spectrum Analyzer. The FG501A/FG507 THD is $\leq$ 0.0025% (-92dB) average response for 20Hz to 20KHz when a 80KHz noise limiting filter is used. The AA501 provides average response with the 80KHz limiting filter. If a THD Analyzer is used that does not provide the 80KHz limiting filter, an external filter will be required.

Unless the filter is used, or the distortion is measured on a Spectrum Analyzer, you will be measuring high frequency noise, not THD.

--Frank Tucker
92-236, Ext. 1286

413-A RESPIRATION COMPLAINTS

Reference: Respiration Board 670-6284-00
Manual P/N 070-2894-00
Schematic Number ◇2

We have received several customer complaints about the respiration rate slowly going too low causing false respiration alarms. Another complaint is the length of time to aquire the initial respiration signal.

To improve these characteristics, change the following resistors on the respiration board:

Change R3262 10K, to P/N 315-0104-00 100K.

Change R3263 100K, to P/N 315-0105-00 1 MEG.

Change R3287 1 MEG, to P/N 315-0474-00 470K.

These changes will improve the following AGC characteristics:

--ATTACK TIME WILL INCREASE.

--OVERLOAD ATTACK TIME WILL INCREASE.

--RECOVERY TIME WILL DECREASE.

--Dave McKinney
58/511, Ext. 7072

492/492P RUNNING TIME

Within the 492/492P, on the Z-Axis Board, there is a tubular meter (Lapsed Time Meter) which indicates the running time of the instruments. To help provide additional reliability information the Business Unit has requested our assistance, by providing the meter readings on all instruments passing through a service center.

Any time a 492/492P requires service, please note the Lapsed Time Meter indication on the Service Record. Under "Action Taken" just note "Meter-XXX HRS." in the lower right hand corner. This will help our Reliability Engineers to keep track of time between failures.

Inserted by---
Rich Andrusco
58-511, Ext. 5609

492/P FIELD MOD KITS TO RETROFIT OPTIONS 1, 2, & 3 - "NOT AVAILABLE"

At this time, we do not have 040 kits to retrofit options 1, 2, and 3 into a 492 or 492P instrument. Without an 040 kit, an option must not be installed into an instrument in the field. The 040 Field Mod Kit would insure that the field has a documented procedure to install an option and to insure the instrument is identified as an optional instrument with a tag.

--Rich Kuhns
58/511, Ext. 6782

Reference: Corporate Mod #M41745
492/P Service Manual #2 P/N 070-2852-02

EFF SN B010760 (492)

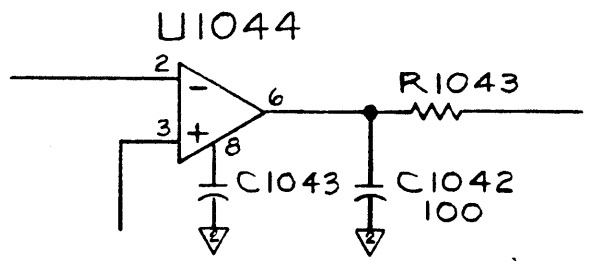
EFF SN B011031 (492P)

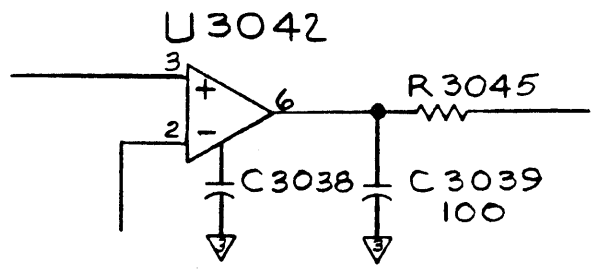
REPLACEABLE ELECTRICAL PARTS AND SCHEMATIC CHANGES

ADD:

A46C1042	283-0330-00	CAP.,FXD,CER DI:100PF,5%,50V
A46C3039	283-0330-00	CAP.,FXD,CER DI:100PF,5%,50V

DIAGRAM 39 CENTER FREQUENCY CONTROL - Partial





--Rich Kuhns
58/511, Ext. 6782

492/P 100HZ SIDEBANDS CAUSED BY FAN - "UPDATE"

To help clarify the original article published in the February 20, 1981 issue of the Wizard's Workshop I have enclosed the procedure for "Compliant Mounted Fan Replacement". This procedure is now part of the Maintenance Section of the latest manual, P/N 070-2727-02, on pages 4-14 and 4-15. The manual was re-printed in December, 1980.

If the noted procedure is not followed and the fan mounting hardware is over-tightened, there is a good possibility that the instrument will experience 100HZ sidebands. This is due to the mechanical vibration caused by the fan on the RF deck.

Compliant Mounted Fan

Instruments SN B010322 and up may have a compliant mounted fan (see Fig. 4-9). It is important that the mounting screws for these fans are not over-tightened.

Removal

1. Remove power supply as described in this section.

2. Remove six screws that hold the power supply cover in place. Take the coaxial cable out of the plastic retainer clip and lift the power supply cover with fan up, so harmonica connector P3045 can be disconnected and the cover removed.

3. Unsolder the leads to the fan.

4. Using a 1/4 inch open-end wrench or needle-nose pliers, retain the nylon nut while unscrewing the fan mounting screws with a Phillips screwdriver.

NOTE

After the fan is removed, be sure to retain the rubber and steel washers on the screws. These are essential for proper operation of the compliant mount.

5. Remove the lead gasket from the old fan and install it on the replacement fan assembly. Do not over-tighten the screws retaining the gasket. The lead is soft enough to be deformed by over-tightening.

(Drawing to complete article on the following page)

Replacement

1. Refer to Fig. 4-9 and replace as follows:

a. Place the foam gasket between the fan housing and the power supply module cover.

b. Insert the two 5/8 inch machine screws, with washers mounted as shown in Fig. 4-9, through the two eyelets. Place the fan in position then while holding the nylon nut with needle-nose pliers, screw the mounting screws into the nut until the end of the screw is just flush with the nut. The nylon nuts are self locking.

2. Re-solder the fan power leads, brown to pin 1, red to pin 2, orange to pin 3, and yellow to pin 0.

3. Reconnect the plug P3045, making sure the index markers are aligned, then replace the cover with the fan onto the power supply module.

4. After installing the six screws that hold the cover in place, insure that the fan assembly moves freely. Replace the coaxial cable in the plastic retaining clip.

5. Re-install the power supply assembly as directed under Power Supply Replacement. Apply power and check for normal fan operation. If fan does not run, check the connection of harmonica connector plug P3045.

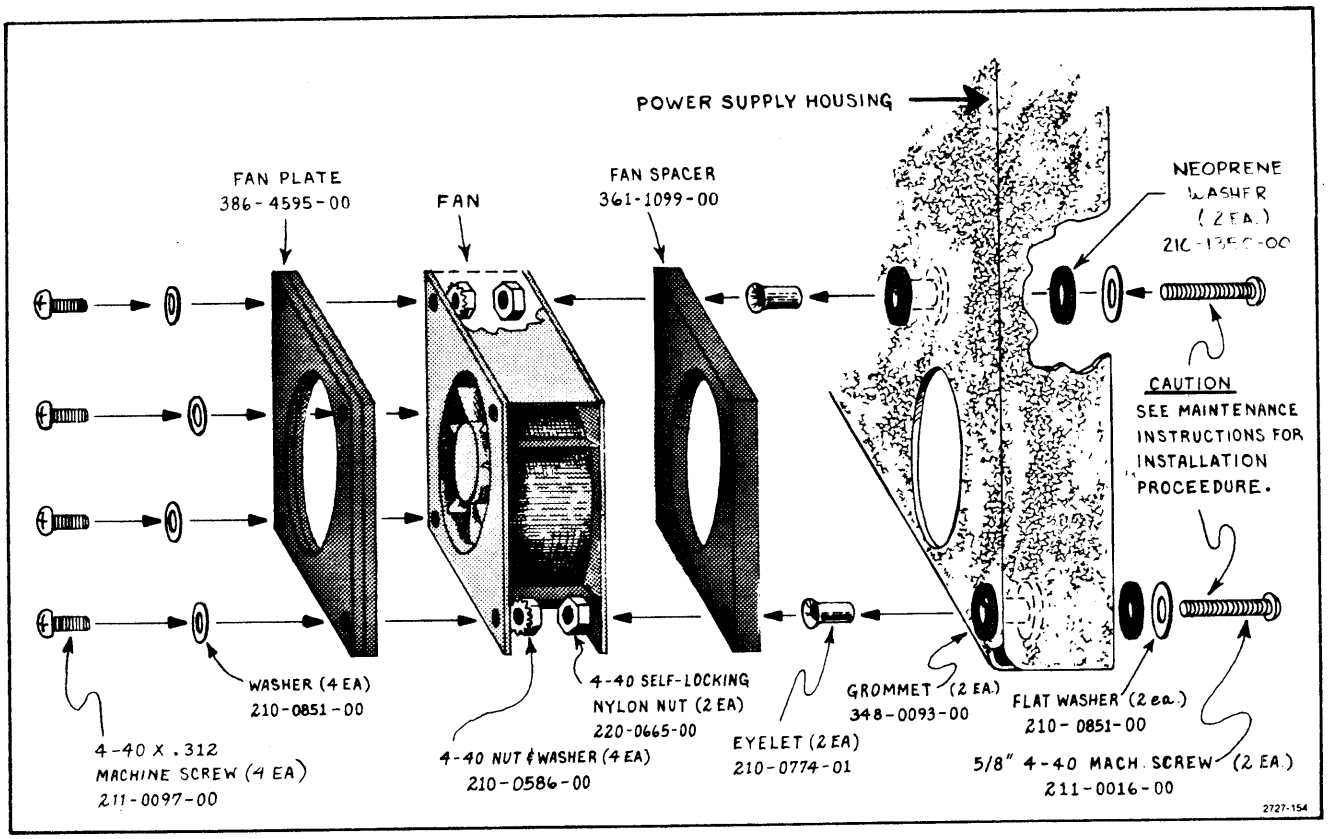


Fig. 4-9. Exploded drawing of fan assembly.

--Rich Andrusco
58/511, Ext. 5609

1450 SERIES, AUDIO OUT FAILURES

REF: 1450 INSTRUCTION MANUAL (070-2200-01)

Some failures in the audio output board (A44) of R35, R27, R20 and R23 have been linked to impedance mismatches at the output. The manual calls for an 8 ohm speaker. Less load may destroy the resistors before the fuses blow. (FØ6). Use ONLY 8 ohms at J12 and ONLY 600 ohms at J13.

Thanks to Don Maher for pointing this out.

--Bill Bean, PAE
58/511, Ext. 6507

7D02, INTERMITTENT DIAGNOSTIC FAILURES WITH FLEXIBLE EXTENDERS

When the state machine board (670-5986-XX) is extended with the use of the flexible extender, intermittent failures can occur in the state machine test #7 and timing option Test #3. Refer to Service Manual 061-2386-01, Pages 5-44 and 5-67.

The failure will only appear when continuously looping on these tests and can come and go quickly, sometimes only appearing as a flicker on the failure display. The frequency and duration of the failure can vary by changing the flexible extender position.

The cause of this problem is the 7D02s sensitivity to crosstalk and delays within the flexible extender. An electrical fix does not exist at this time.

If a 7D02 displays these symptoms while the state machine board is extended, place the board back inside the 7D02 and loop on the state machine and timing tests. Check for the same symtoms. If the failures do not appear, ignor the symptoms when on the extender.

If any questions, please call.

--Craig Wasson
92-236, Ext. 1564

4016-1, 4024/25/27 KEYBOARD CABINET ASSEMBLY

Reference: 4016-1 Manual 070-2661-00 figure 3 index 1
4024 Manual 070-2831-00 figure 1 index 105
4025 Manual 070-2831-00 figure 1 index 105
4027 Manual 070-2832-00 figure 1 index 50

The keyboard cabinet assembly for the above listed terminals has been redesigned to help eliminate shipping damage and field failures of the unit. There are three sub-components of the keyboard cabinet assembly which are assembled and shipped as one unit, the bottom extrusion and two cast parts; the left and right keyboard plates. Previously, pins on the end plates were pressure fitted into holes in the bottom extrusion. These pins broke off easily. The new design has tabs on the end plates which are tapped for screws that come up through the bottom of the bottom extrusion.

The new parts caused the keyboard cabinet assembly part number to roll. The new numbers for the keyboard cabinet assembly are 390-0681-01 for the 4016-1 and 390-0608-01 for the 4024, 4025 and 4027. This change took effect with the serial numbers of the following terminals:

4016-1	S/N	B030378
4024	S/N	B021149
4025	S/N	B044149
4027	S/N	B011218

The new keyboard cabinet assembly is a direct replacement for earlier serial numbered terminals.

--Dennis Painter
63-503 EXT. 3597

4052/54 VERIFICATION OF COM CLOCK MOD #M40828

In both the 4052 and 4054 there has been a couple of cases where Com Clock Modification #M40828 has been installed incorrectly on the I/O board. The symptom of the problem that occurs is the same as if the modification was not installed. (Refer to Wizard Article Issue 10-23 November 21, 1980 titled 4052/54 Mag Tape Error Com Clock Modification #M40828). If a 4052 or 4054 is having the symptom the article describes, and the instruments do have the current level I/O boards, please check and verify that the installation of the modification is correct.

--Darrell McGiverin
63-503 EXT. 3786

4632 INTERMITTENT TIMING BOARD

The 670-4161-03 timing board used in the 4632 hardcopier has displayed a common intermittent problem. The capacitor on the back of the board (C191) will occasionally short to the pins of U171 or nearby runs. This may cause a loss of horizontal deflection and blank copies.

Factory service is now insulating C191 from the board by adding a dab of Humiseal (p/n 006-1744-00) beneath the capacitor. This is being done only on boards returned to Factory Service for repair.

Thanks go to Roger Chidester of the Rockville field office for bringing this to our attention.

--George Kusiowski
63-503 EXT. 3928

4907/4905 SHUGART DISK DRIVE NEW CIRCUIT BOARD/NEW WIRE SET

The Shugart Disk Drives are being shipped with a new circuit board using LSI components. The new board is electrically identical to the existing board and they are both interchangeable in the disk drive. Some of the strap options and test points are in different locations on the new board. Figure 1 is a diagram of the new board showing the locations of strap options and test points.

The Flexible Disk Drive manual (P/N 070-2504-00) is being updated with a manual change giving schematics and part numbers for the new board.

A new wire set has been put on both old and new boards, to make the drive compatible with present and future applications.

Table 1 gives the strap configuration of both old and new boards for 4907 operation. Note that the strap L option is not on the new board. On the old board a strap with a covered top should be used on the L pins to prevent them from shorting to the cabinet rails. The two pins that should be strapped are enclosed in a white square painted on the board. Do not connect the strap to the third pin which has the run connecting to C12 on the component side of the board. See figure 2.

Table 2 gives the strap configuration of both old and new boards for the 4905 operation.

(Schematic & information to complete article on the following pages)

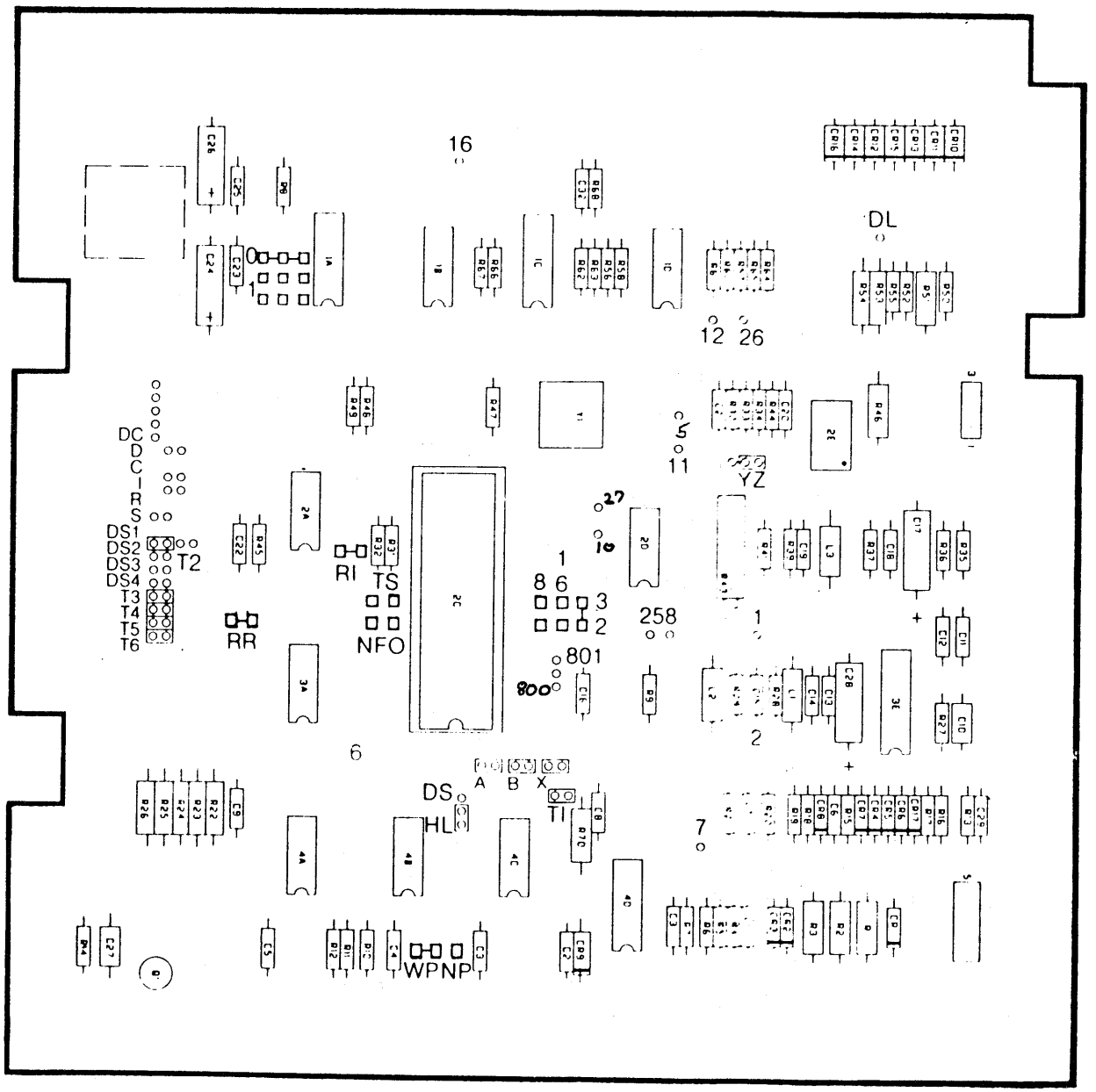


FIGURE 1

New LSI Shugart Board with test points and strap locations.

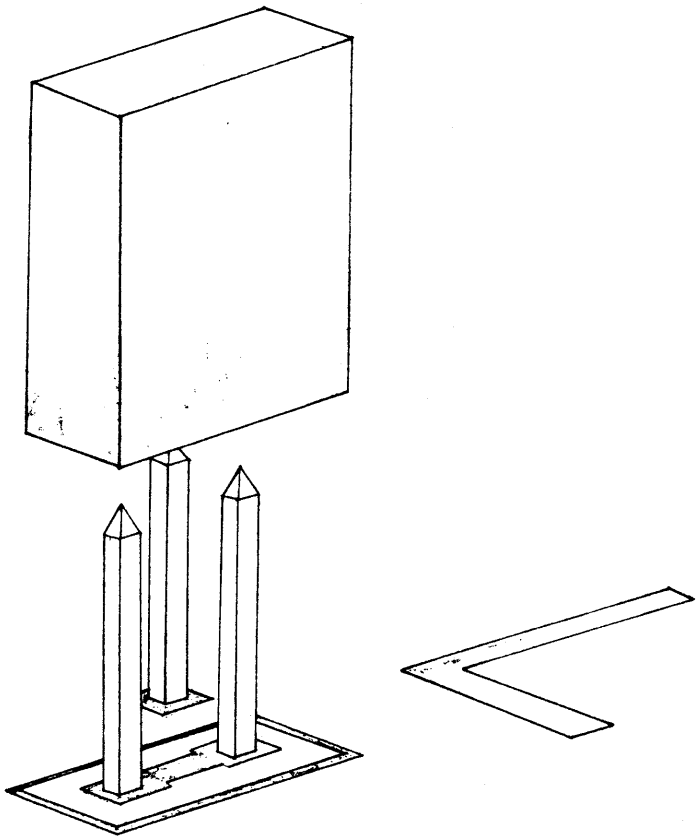


Figure 2 Location of strap L for "out" position.

Do not strap to the IN position on any instrument. Note: Trace between two strapped pins. A strap with a covered top should be used to prevent any possible shorting to the chassis.

Figure 7 & 8 are to help clarify the positions of the wire harness shown on figures 3, 4, 5, and 6. The new wire harness is to make the drive compatible to either the 4905 or 4907.

TABLE 1
Straping Information for 4907
Drive #0,1,2.

4907 SHUGART DRIVES	4907 DRIVE 0	4907 DRIVE 1	4907 DRIVE 2
Spares 2,4,6,8,10	--- *P7#1,2,3,4,5 ----		
D (wire to right most pin)	------- *P8#1 --------		
T2	IN	IN	IN
T1,T3,T4,T5,T6	*1	*1	*1
DS1	IN	OUT	OUT
DS2	OUT	IN	OUT
DS3	OUT	OUT	IN
DS4	OUT	OUT	OUT
HL	OUT	OUT	OUT
DS	IN	IN	IN
D	OUT	OUT	OUT
A	IN	IN	IN
B	IN	IN	IN
C	IN	IN	IN
Z	OUT	OUT	OUT
X,Y	OUT	OUT	OUT
L	*3,4	*3,4	*3,4
DC	IN	IN	IN
800	OUT	OUT	OUT
801	IN	IN	IN

NOTES:

*1. "IN" only on the device the farthest cable distance away from the Main Cabinet connector J1.

*2. P7 and P8 refer to wire harness.

*3. Strap (L) must have jumper installed in the out position (see diagram) on some 4907 instruments to protect the pins from shorting to chassis.

*4. For new LSI circuit board strap option (L) has been deleted.

TABLE 2
Straping Information for 4905
Drives #0,1,2,3

4905 SHUGART DRIVES	FUNCTIONS	4905 All Drives
Spares 2,4,6,8,10 ---- P7#6,7,8,9,10 ---		
TP7 -------- P8#1 --------		
T2	Spare Term. for Radial Head Load	OUT
T1	Term. Drive Select	IN
T3,T4,T5,T6	Terminations	IN
DS1	Drive Select	IN
DS2	Drive Select	OUT
DS3	Drive Select	OUT
DS4	Drive Select	OUT
D	Alt. Input-in Use	OUT
HL	Stepper Pwr from Head Load	OUT
DS	Stepper Pwr from Drive Load	IN
A	Radial Head Load	IN
B	Radial Head Load	OUT
X	Radial Head Load	IN
C	Alt. Input-Head Load	IN
Z	In Use from Drive Select	OUT
Y	In Use from HD LD	OUT
DC	Alt. Output-Disc Change	OUT
L	-5 or -7 to -16 V	OUT
800	Index Only	OUT
801	Index and Sector	IN

NOTES:

1. P7 and P8 refer to the wire harness

2. For new LSI circuit board strap option (L) has been deleted.

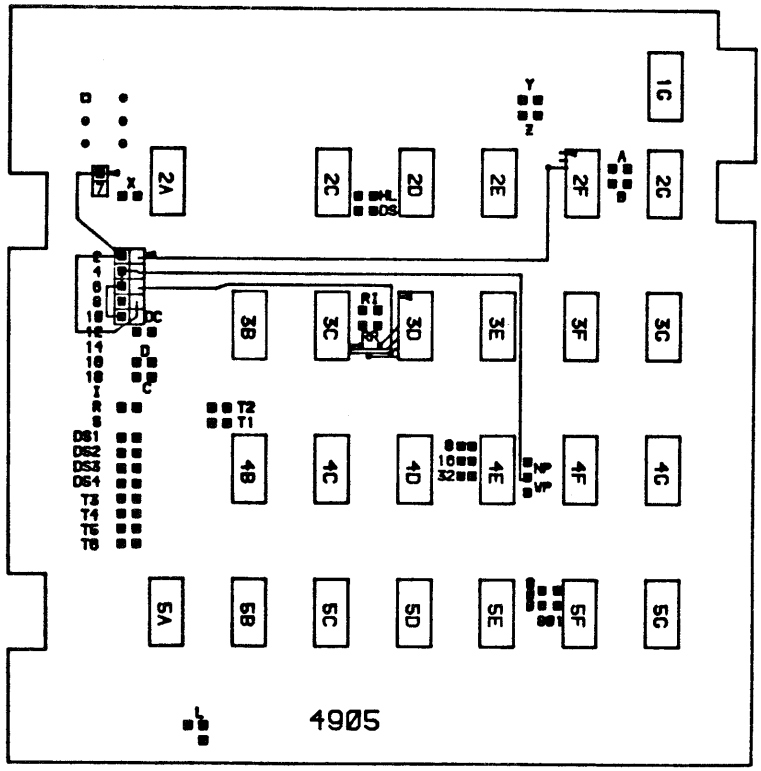


Fig. 3
Wire harness and plug location for Shugart Drive used in a 4905. (118-0358-02)

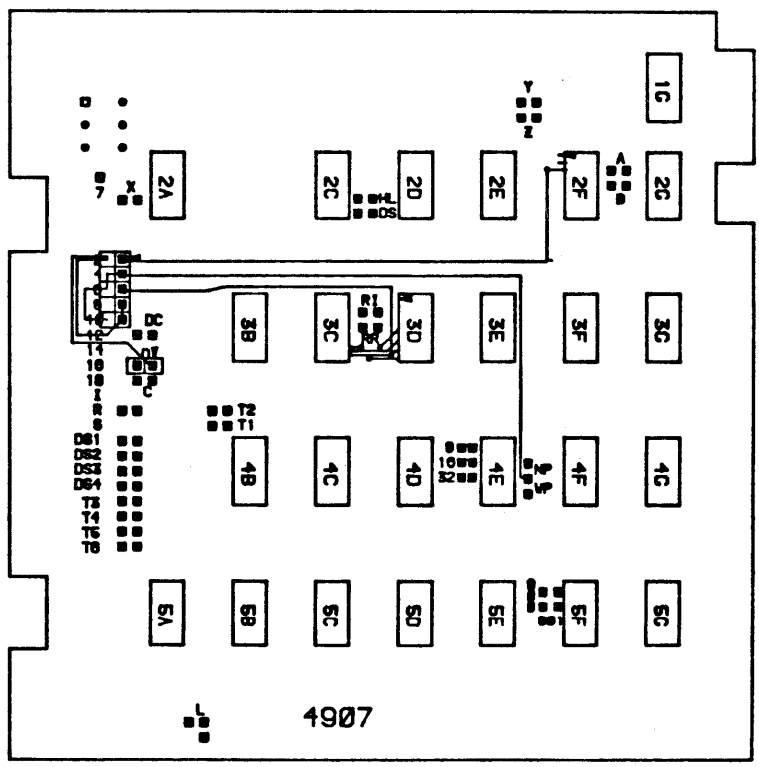


Fig 4
Wire harness and plug location for Shugart Drive used in a 4907. (118-0358-02)

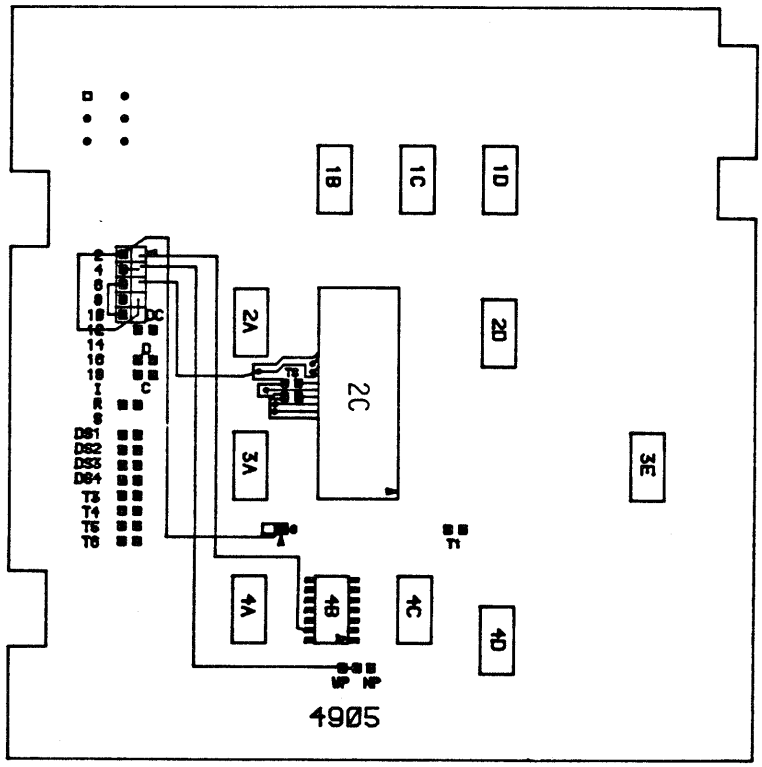


Fig 5
Wire harness and plug location for Revised Shugart Drive used in a 4905.

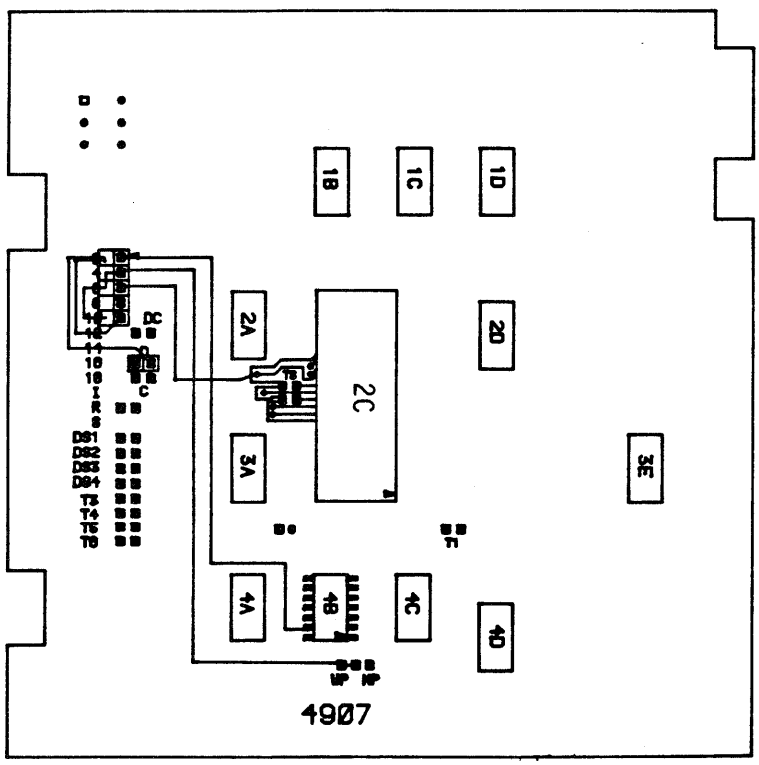


Fig. 6
Wire harness and plug location for Revised Shugart Drive used in a 4907.

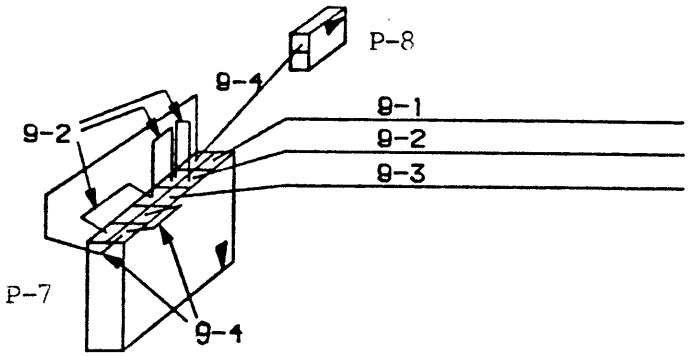


Fig. 7

Wire diagram and housing of wire harness

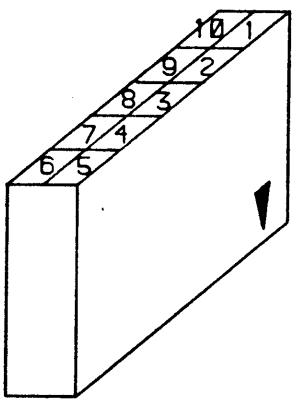


Fig. 8

Housing pin numbers

--Bill Hatch/Frank Lees
63-503 EXT. 3787/3929

S-3200 IMPEDANCE MISMATCH, 1140A651F (CORRECTION)

REFERENCE: Issue 10-24, December 12, 1980, Page 32

Incorrect line: The 1140A651F Programmable Power Supply used with the high current cable (012-0465-00) creates an impedance mismatch.

Correction: The 1140A651F Programmable Power Supply used with the high current cable (012-0483-00) creates an impedance mismatch.

The 012-0465-00 is a low current cable and is used with the first 1140A Programmable Power Supply. This cable connects from the Power Output connector J312 of 1140 #1 to the Test Station Junction Panel J915.

The 1140A651F Programmable Power Supply has two cables which may be used. The 012-0591-02 is a low current cable and the 012-0483-00 cable is the high current cable. One of these cables will be used with the 1140A651F and connects at the Power Output J312 to the Test Station Junction Panel J960.

--Inserted By:
Ron Lang
92-236, Ext. 1015

S-3200 SYNCHRONIZED 2942/PRAM OPERATION

PRAM is one cycle ahead of 2942. NOP must be added to PRAM program so timing will match...

The 2942 and PRAM programs must be synchronized with reference to the system clock TØ. Failure to structure the PRAM program with the correct number of NOP. statements will result in improper 2942 and PRAM timing. The PRAM program without the correct number of NOP. statements will run one or more cycles ahead of the 2942 program, resulting in lost data and patterns. The Application Note AX4368 "Simultaneous Operation of the PRAM and the 2942" dated 12-1979 describes this operation. Also, the 070-3341-00 "Programming the Pattern RAM (PRAM)" on page 2-12 lists the NOP and default clauses.

Service Action Request by Dave Axness, Boston Field Office
Information by Dan Dunatchik, STS Application Engineering.

--Ron Lang
92-236, Ext. 1015

7912AD UNDERRATED CAPACITORS

A-88, 670-5418-XX, contains a capacitor which is underrated. C-348 has in excess of 300 Volts across it and is only a 200 Volt rated capacitor. Modification 42734 corrects this deficiency. Replace C-348 with 283-0078-00. The new capacitor has a 500 Volt rating.

Our thanks to Paul Moore, Northern Manchester, U.K., for bringing this to our attention.

--Dean Hager
92-236, Ext. 1284

92-515

MICHAEL A MIHALIK

COMBINATION WIZARD