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

Published by Service Admin Support
56-037 Ext. 8939 Merlo

January 16, 1981
Issue 11-1

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

5000/7000 SERIES

COMMUNICATIONS DIVISION

SPECTRUM ANALYZERS

TELEVISION PRODUCTS

SERVICE INSTRUMENT DIVISION

PORTABLES

INFORMATION DISPLAY DIVISION

REFERENCE PULL-OUTS

LABORATORY INSTRUMENT DIVISION

5000/7000 SERIES

DATA COMMUNICATIONS

Editor's Corner

by Sharon Huetson

HAPPY NEW YEAR!

Welcome to a new feature in the W^2. When I have newsy bits of information to pass on to you I'll use the "Editor's Corner". These pages will not be referred to in the Master Index. Incidentally, the index covering the last five years is nearly completed. Should be coming off the press and distributed within the next two weeks. Thanks for your patience.

Today I would like to pass some statistics on to you. Last year in our publications area we sent to the field the following: (approximately figures)

Wizards Workshop	25 editions 1036 pages 1507 recipients	=	4,683,756 pages
Service Organization Bulletins	74 editions 250 pages	=	7500 pages
Service Pricing Bulletins	18 editions 534 recipients	=	143,781 pages
Service Teknotes	245 pages 850 customers	=	208,250 pages
	Approximate total		5,043,287 pages

This is a whole big bunch of paper, so if you every get a publication from us you no longer need please call and let us know. Martha and I can be reached on Ext. 8940 and 8939 Merlo Road. Our delivery station is 56-037.

I personally want to wish each of you the best in 1981. You are a great Service team to work with and I feel honored to be able to serve with you.

--Sharon

"YOU DONE GOOD" AWARD

FOR THIS WEEK . . .

Due to the shutdown here in Beaverton the following information is being published after the fact. However, your edition felt the extra efforts by this individual should still be noted.

Doug Comstock, a former member of our Service Support Team, was recently commended by Portland State University. Doug volunteered to demonstrate and discuss a Tek 4052 terminal for a Management Information Systems class. Because of his excellent presentation the 80 people attending now have a very positive image of Tektronix and its equipment. Doug has since left Service Support to pursue a career in management within Tek. We wish him the very best of luck in his new position.

--Sharon Huetson
Editor

PERSONNEL CHANGES

NEW HIRES

STEVE GUNSOLLEY - SAN DIEGO

Steve is the new Clerk Driver coming to Tek from an institutional food handling firm.

Welcome Steve!

DON BROWN - SAN DIEGO

Don is San Diego's newest Field Electronic Technician II. He comes to Tek after short-term jobs at local companies where he gained experience in repair and troubleshooting. His electronic education was achieved through local colleges and high schools.

Welcome Don!

PETER PICINI - BOSTON MDP

Pete comes to Tek from Raytheon Data Systems with their highest recommendations. His position here is Systems FSS II.

Pete relaxes by taking evening classes towards a B.S.E.E. and instructing as a Black Belt in Kenpo Karate.

Welcome Pete!

VICKY TURPIN - SALT LAKE CITY

Vicky is a graduate of St. Lawrence University, Canton, New York with a Bachelor of Arts in Sociology and Math. She is presently enrolled in continuing education at the University of Utah working towards a second degree in Computer Science. Vicky's position is service CSR.

Welcome Vicky!

TOM EASTWOLD - SALT LAKE CITY

Tom is Salt Lake's new Field Clerk/Driver. His extra time is spent working towards an AA degree in Electronic Technology at Utah Technical College.

Welcome Tom!

TOM LADE - CLEVELAND

Tom is the most recent employee in Cleveland as a FSS I.

Welcome Tom!

PROMOTIONS

KEVIN RUHL - IRVINE

Kevin has been working on the Portables line for the past year as an ET I and ET II. He will assume the responsibilities of a Service Center Supervisor as of AP 108.

Kevin is one class away from receiving his B.S. in Industrial Technology from a local university. Kevin's hobbies include photography and electronics.

Good luck and continued success in the future, Kevin!

JACK FANNING - SALT LAKE CITY

Jack was recently promoted to Field Service Junior Electronic Technician.

Congratulations and best wishes for a great future with Tek!

SHEILA ERICKSON - FACTORY SERVICE

Sheila has been promoted to Support Services Manager in Factory Service. She will be responsible for the administrative support and discrete parts inventory functions.

Sheila has been the lead CSR in Factory Service for the past year, and also served as a CSR and Stockroom Expeditor prior to her lead position.

Congratulations and the best of luck Sheila!

--Editor

DESIGNATED SERVICE CENTERS

Many products being introduced are more sophisticated than ever before. With this sophistication will come complications, which can be exaggerated with lack of understanding, and lack of proper (sometimes dedicated) test equipment. This specialized training and test equipment are some of the reasons for designated Service Centers.

Service Support works with Marketing and field Service Management to determine if the designated Service Center concept should be used on new products, and what centers should be set up. This is determined by not only training and test equipment needs, but also by expected sales. An area that is expected to have few sales, which should mean few failures, cannot justifiably be set up as a designated Service Center, simply due to the cost.

The 7854 is a good example of the designated Service Centers. The following centers were set up to service the 7854: Albuquerque, Boston, Factory Service, Irvine, Rockville, and Santa Clara, with Chicago to be set up in FY100. As sales expand, other centers will be set up to cover them, but only when setting up the Service Center can be justified.

--Dick Freshour
58/511, Ext. 6810

SOLDERING ITEMS

A specific type of solder and solder station has been selected to provide consistency and quality to our service workforce. Though consistency and quality depends upon each individual, this standardization will allow the highest levels to exist.

PART NUMBER	DESCRIPTION
251-0807-01	Solder, Eutectic, small dia.
003-0955-00	Solder Station, Weller WTCPZ
003-0950-00	Heater for Weller TC201z Iron
003-0948-00	Solder Iron, Replacement for WTCPN & WTCPZ (Will change a WTCPN to a WTCPZ)
003-0947-00	Sponge for WTCPZ Orn
003-0945-00	Solder Tip PTA6
003-0916-00	Solder Tip PTA7
003-0917-00	PTA8
003-0918-00	PTC7
003-0920-00	PTD8
003-0914-00	PTP8
003-0913-00	PTF8
003-0915-00	PTK8
003-0919-00	PTM8
003-0946-00	PTR8

TYPE	DESCRIPTION		
	Reach	Tip	
PTA6	5/8"	1/16"	Screwdriver, 600°F
PTA7	5/8"	1/16"	Screwdriver, 700°F
PTA8	5/8"	1/16"	Screwdriver, 800°F
PTC7	5/8"	1/8"	Screwdriver, 700°F
PTD8	3/4"	3/16"	Screwdriver, 800°F
PTP8	5/8"	1/32"	Conical, 800°F
PTF8	5/8"	1/32"	Conical Flat, 800°F
PTK8	1"	3/64"	Long Scwdrv., 800°F
PTM8	1"	1/8"	Long Scwdrv., 800°F
PTR8	5/8"	1/16"	Narrow Scdrv, 800°F

--Tom Fox
58/511, Ext. 7349

SERVICE INFORMATION SYSTEMS

A Service Information Systems Project has been started which will eventually impact everyone connected with the Service Organization. Development and installation of a distributed computer network will take place over the next five years.

A charter has been entered into with Corporate Information Systems, Systems Development, and a project organization is evolving.

This network will link field offices and Beaverton together through a Teknet type communications system. The possible benefits to Service are too numerous for mention, but one that will directly impact the technician will be a single reporting document. I know we all have come to love the PPC, Parts Requisitions, TDS, Service Record and other various elements of our paper empire, but they will just have to go.

Systems will be developed and installed in the field and Beaverton to support the following activities:

--- Work Tracking (In-House and On-Site)

- Job Initialization
- Work Load Assignment
- Product/Job Status
- Operational Reporting

--- Inventory

- Perpetual Balance
- Automatic Order Preparation
- Analysis

--- Financial Reporting

- Replacement of the TDS

--- Product/Component Failure Reporting

- New Product Early Failures
- Accurate/Timely Failure Reporting

--- Service Planning

- Productivity Analysis
- Financial
- Cost of Service

More information will be forthcoming in the future editions of Wizards Workshop.

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

SERVICE UPDATE PROGRAM #3001

I. REFERENCE

Product Types 1502/1503
Update Kit P/N: 040-0971-00 (Attachment)

MOD TYPE

- ☐ Safety Corrective Action
- ☒ Specification Corrective Action

AFFECTED INSTALLED BASE

- ☐ S/N Range
- ☐ Identified Customers
- ☒ As Required
- ☐ Total Installed Base

II. SERVICE UPDATE PLAN OVERVIEW

This "Update Program" is being generated to alleviate field reliability problems due to Battery Packs not being fused.

III. DESCRIPTION OF MODIFICATION

This upgrade Kit will contain a circuit board (P/N 670-6592-00) and a shield (P/N 337-2762-00). The new circuit board will provide a means for installing a protection fuse (P/N 159-0124-00).

IV. KIT OUTPUT SCHEDULE

It is expected that approximately one thousand instruments will require this kit, and Customer Service Stock has already been front loaded with approximately five hundred kits. Additional kits are scheduled for Customer Service to assure that the stock of kits is not depleted.

V. SPECIAL TOOLS

None required.

VI. ORDERING PROCEDURES

All orders should be submitted through the normal procedures from Customer Service. Since there is sufficient stock it is recommended that you should order sufficient quantities of kits to support the number of units passing through your service center for one AP. Orders for International should be ordered as outlined under Parts Notice 73.

VII. ACCOUNTING AND COMPENSATION PROCEDURES

A. Domestic (End User)

All material and labor should be charged to Code 18.

B. Customers

All customer orders will be referred to Parts Notice #73 which indicates that the local sales person or service center supervisor will negoiate the charges for the kit or kits, if applicable.

C. International (End User)

International should use the existing accounting procedures to account for all parts and labor covered by Code 18 Update programs.

VIII. GENERAL INFORMATION

A. Program Status:

1. Program will be in affect for 1½ years.

2. Program will terminate June 1982.

3. Termination plan will be sent out approximately 1 AP prior to actual termination.

B. Implementation Dates

Program is affective immediately.

C. Special Instruction:

As instruments come in for service they should be checked for installation of the Battery Pack fusing modification. Install the Battery Pack fusing modification if missing.

For additional information, please refer all questions to Rich Kuhns, or Rich Andrusco, Beaverton Service Support, Delivery Station 58-511.

BATTERY PACK IMPROVEMENT

For the following TEKTRONIX® Time Domain Reflectometers

Type 1502 SN B010100 - B109999
Type 1503 SN B010100 - B089999

This modification kit contains parts and instructions to add a fuse and a fuse shield to the battery pack, to protect components from damage due to accidental shorts.

PARTS INCLUDED IN MODIFICATION KIT:

Quantity	Part Number	Description
1 ea	337-2762-00	Shield, fuse
1 ea	670-6592-00	Circuit board, power fuse jack

INSTRUCTIONS:

( ) 1. Remove the Battery Pack from the 1502 or the 1503 Time Domain Reflectometer.

CAUTION

BE VERY CAREFUL WHEN DISSASSEMBLING THE BATTERY PACK TO PREVENT THE METAL FRAME OR TOOLS FROM SHORTING THE BATTERY TERMINALS TOGETHER!

( ) 2. Using an alligator clip or a spring type heat sink, temporarily clamp the plate to the battery connector circuit board.

( ) 3. Remove the four screws that fasten the battery connector circuit board to the rear of the Battery Pack.

( ) 4. Loosen the four 2 inch screws that fasten the sides of the Battery Pack in place.

( ) 5. Spread the sides of the Battery Pack apart far enough to allow the battery connector circuit board to be removed, and unsolder the wires from the battery connector circuit board.

( ) 6. Using the alligator clamp or spring type heat sink, referred to in step 2, clamp the plate to the new battery connector circuit board and resolder as follows:

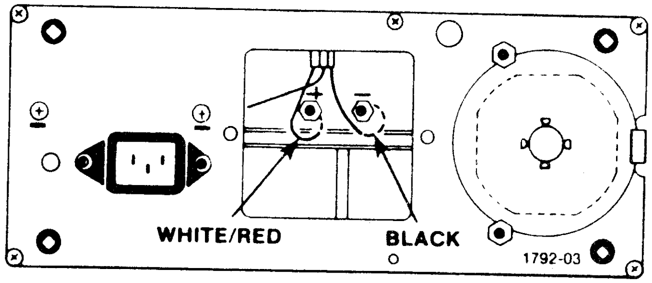
a) The white-brown* wire to the Negative connector.

b) The white-red* wire to the Positive connector.

*Wire color may be different in some early instruments. BE SURE THAT THE + BATTERY TERMINAL IS WIRED TO THE + CONNECTOR ON THE BATTERY CONNECTOR CIRCUIT BOARD!

( ) 7. Reassemble the instrument by performing steps 3 through 5 in reverse order.

Verify that the battery connector circuit board is installed to provide correct battery polarity. See drawing.



Battery Connector Polarity.

NOTE: The drawing shows a rear view of the instrument and in a similar view of the battery pack the terminals should be reversed, i.e, the + terminal is on the left side of the battery pack when you are installing the battery pack.

--Rich Andrusco
58-511, Ext. 5609

FG501A/FG507 SINE DISTORTION STABILIZATION

To provide more mechanical stability in sine distortion adjustments, two variable resistors were changed from half-turn to multi-turn adjustments. Two fixed resistors were also changed.

These changes are:

FG501A and FG507

A10R1412, P/N 311-1567-00 is replaced with P/N 311-1175-00
A10R1511, P/N 311-1565-00 is replaced with P/N 311-1307-00
A10R1401, P/N 321-0193-00 is replaced with P/N 321-0222-00
A10R1501, P/N 321-0754-00 is replaced with P/N 321-0641-00

This modification will be implemented at SN B020340 for the FG501A and SN B020210 for the FG507. Any instruments requiring sine distortion adjustment that do not have this modification, should be updated with the above changes. In earlier instruments, A10R1412 and A10R1511 were tacked down with a Loctite substance that is not easily removed.

--Terry Turner
92-236, Ext. 1288

5000 SERIES, 7000 SERIES SPOT-O-GOLD RIBBON CONNECTOR, CODE 18 TERMINATION

Reference: All 7000 Series Products
All 5000 Series Products
WIZARD'S WORKSHOP, Issue 10-7

As of January 1, 1981, all SPOT-O-GOLD connectors replaced in non-warranty instruments will be charged to Activity Code 01. All 175-XXXX-00 part numbers that were set-up for the SPOT-O-GOLD replacements will still be available. See WIZARD'S WORKSHOP Issue 10-7.

--Dick Freshour
58/511, Ext. 6810

7D15 IC SOCKETS CODE 18 TERMINATION

Reference: SERVICE ORGANIZATION BULLETIN, Issue No. 36-79, July 24, 1979

After December 31, 1980, the 7D15 socket rework Code 18 Program will be terminated. Future 7D15 socket reworks are to be repaired by local service centers. Out of warranty 7D15 unit repairs should be charged to the customer.

--Dick Freshour
58/511, Ext. 6810

COMMUNICATIONS DIVISION

SPECTRUM ANALYZERS

492 FRONT PANEL LOCK UP

The front panel of the 492/P will lock up intermittently due to socket failure of A38 U3039. Modification (PICN 478) calls for the removal of the socket and soldering in of A38 U3039. This should be done on all 492/P's that show symptoms of front panel lock up.

Rich Kuhns
58/511, Ext. 6782

TELEVISION PRODUCTS

TDC REPAIR AND RETURN PARTS

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

Due to some matching problems, PIN DRIVER (A10)/PIN ATTENUATOR (A3) assemblies that have previously been sent to Factory Service for Repair/Return must now include the RF AMP (A4) board (670-4990-00). The parts to be ordered (new) or returned (Repair and Return) are:

TDC	Chan 2-4	672-0641-00
TDC	Chan 5-6	672-0667-00
TDC	Chan 7-13	672-0668-00
TDC	Chan 14-83	672-0640-00

These will now contain the three circuit boards to be serviced as a matched set.

--Bill Bean
58/511, Ext. 6507

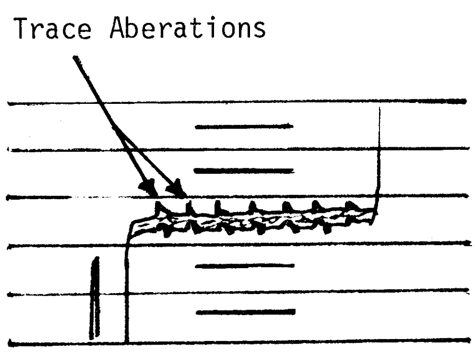
149A LINEARITY RAMP PRESENTATION

Reference: 147A/149A Instruction Manual (P/N 070-2029-00), Staircase and APL (149A) ⟨8⟩

When observing a 149A's Linearity Ramp (Full Field Signal) with a vectorscope and checking for differential gain, a signal anomaly, seen as seven transitions, appears on the displayed waveform (see illustration). This is caused by an circuit board run carrying current to the color bar generating circuitry passing close to linearity modulation amplitude circuitry. If a customer requests that this be corrected:

1) Lift cathode of CR3411 from ECB
2) Lift cathode of CR3413 from ECB
3) Lift diode end of R3311 from ECB
4) Lift diode end of R3337 from ECB
5) Lift emitter leg of Q3420 from socket
6) Connect the free ends of these parts together "teepee" style with short lengths of wire

Thanks to Karl Roehrborn of Barrie, Ontario, Canada for bringing this to our attention, and to Dave Jurgensen of TV Engineering for the solution.



520A DIFFGAIN
Display of
149A Linearity Ramp

--Bill Bean
58/511, Ext. 6507

670A SECONDARY EMISSION

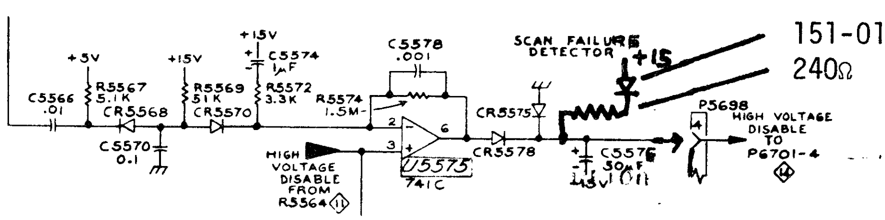
Reference: 670A & 671A Instruction Manual (P/N 070-2201-01)
Convergence, Pincushion & Scan Failure ⟨13⟩

A condition exists under which the 670 monitor appears to misconverge. Should a momentary power loss occur, sufficient energy remains in some sections of the high voltage and deflection circuits to cause abnormal beam deflection, and thereby a secondary emission phenomenon when power is restored in a short enough time span. This appears as misconvergence of the CRT, and tends to give the picture a green tint.

Any change in beam current, i.e. contrast or brightness, will cure the immediate problem, however, if a customer desires a more concrete solution, two parts can be added to the scan fail detection circuitry as follows:

> Connect one end of a 240 ohm resistor (P/N 315-0241-00) to CR5575 or CR5578 at the cathode end. Connect a diode (152-0141-02) between the free end of the 240 ohm resistor and +15 volts, cathode end to the resistor (see illustration).

Thanks to Manual Gonzales of Tek Spain for bringing this to our attention, and Archie Barter of TV Engineering for the solution.



--Bill Bean
58/511. Ext. 6507

1470 SYNC BOARD REPLACEMENT

Reference: 1470 Instruction Manual P/N 070-2096-00

When replacing an older Sync Board, P/N 670-4553-02 and older, with a new board, an 050-1343-00 kit will be received. The new circuit board will have a small circuit board, P/N 670-6672-00, piggybacked on P256. If the intended installation is in a B020000 or later unit with the Phase Shift Board installed (P/N 670-5100-00), (or a MOD G3P in B01 units), the piggyback board can be removed and discarded. It is only left in place if a Phase Shift Board is not installed.

--Bill Bean
58/511, Ext. 6507

1480 SERIES VARIABLE LINE SELECTOR

Reference: Instruction Manual P/N 070-2338-00, Mod 42052

Variable Line Select may occasionally be difficult to get out to the required second line beyond the second field in the Two Field display mode. The values of R4802 and R4803 may not allow the proper voltage to be applied to the comparator in the Miller IC, U4810. Manufacturing has now changed R4902 to a 8.66K resistor (321-0283-00) and R4803 to a 475K resistor (321-0450-00). These values may make older units more easily meet this specification.

--Bill Bean
58/511, Ext. 6507

468, MICROPROCESSOR LOCKUP OR INTERMITTENT OPERATION

Reference: 468 Manual, Volume 2, P/N 070-3516-00
Schematic 14 Acquisition Memory
TP122, +5V, Grid 5J
468, S/N B010600 and Below

The +5V test point, TP122, on A18, the Acquisition Memory board (Grid 1C) can touch the metal shield on A19, Time Base, Power Supply Board. If the +5V is momentarily shorted, the microprocessor may lockup and the scope will not operate until the power switch is recycled. If the +5V is shorted firmly to the shield, fuses F4007 and/or F4009 will open in the Storage Power Supply.

All 468's, S/N B010600 and below, must have TP122 removed from the board. Manufacturing has shipped some units with TP122 bent over to provide clearance. To avoid the possibility of these test points being straightened in the future, the recommended method is to remove TP122 from the board.

All demo units and every 468 in the serial number range that comes into a Service Center must have TP122 removed, if present.

"Thanks to Ralph Clure of Irvine for identifying this problem."

--Roy Lindley
58/511, Ext. 7173

IDD MAINTENANCE AGREEMENT PROMOTION SERVICE PLAN 12/14/79 (CORRECTION)

Reference: Field Service Folder

(Corrections are underlined)

The IDD Maintenance Agreement Promotion Field Service Folder has a Tek part number which is orderable via normal channels from Advertising. When you order the folder, you should state the quantity and part number, AX4186. If you want the folders stuffed with the Stan Kouba letter, Field Service Program Brochure and Tek Field Office location sheets, state the word "Stuffed" after the part number of the folder.

--Jim Tiano
63-503
Ext. 3701

4054 POWER SWITCH MODIFICATION #M41675

There has been a modification to the 4054 which adds a solid state relay to the primary power circuitry. This is a reliability mod which will prevent the power switch from sticking in the on position.

The mod is Corporate Modification #M41675.

The part number of the mod kit is 045-0017-00. The kit is set up in CMS and is orderable from the field. Do not enter the order for the kit as a priority 1 or your order will be cancelled. The mod should be installed on all 4054's below serial number B011028.

This is a service update program, no charge to the customer. U.S. service will charge related expenses to activity code 18. International service will bill back related expenses as per the Subsidiarv/Distribution installed product UPDATE procedures. The service update plan has been distributed.

--Frank Lees
63-503, ext. 3929

4663 SOFT START POWER SUPPLY

A new "soft start" circuit board has been added to the 4663 power supply. The change will help protect the switching transistors and line fuse. It is accomplished by limiting the duty cycle in which the switching transistors turn on, and then gradually lengthening it to normal. This prevents the supply from powering up too fast under a full load condition.

A kit will not be available to upgrade the existing installed 4663 base. This is due to the fact that the mod is not considered field installable.

Instructions on how to install this upgrade for a modular/assembly repair center is as follows:

Material Required:

1 ea.	670-6983-00	soft start circuit board
2 ea.	315-0201-00	resistor 200 Ω .25 w 5%
2 ea.	315-0514-00	resistor 510K Ω .25 w 5%
.5 ft.	162-0551-00	insul. slvg., elec. (or equivalent)

1. Remove the six screws that secure the power supply cover.

2. Lift the cover gently and unplug the connector on the board which is mounted on the underside of the power supply cover.

3. Remove the three screws securing the trasistor cover and lift it up, removing it from the power supply board. This cover is located between the two transformers at the front of the power supply.

4. Install one 200 Ω resistor in parallel with C261 and the other in parallel with C271.

5. Install one 510K Ω resistor in parallel with C161 and the other in parallel with C171. The size of these capacitors is too large for the resistor's legs to reach both ends. This can be remedied by soldering a 1.25 inch piece of wire to one leg of the resistor to lengthen it. Then slide the insulated sleeving over the resistor.

   CAUTION: The insulated sleeving, or heatshrink, must cover the resistors leads or they might short out against the metal transistor cover when it's re-installed.

6. Remove U141 and U142 from their sockets and replace them with the soft start circuit board.

7. Return the power supply to normal operation by reversing steps 1 thru 3.

8. Check the output voltages to insure that their proper levels and tolerances are present.

CAUTION: The 4663 + 5 volt power supply must be loaded before power is applied. Reference Wizzard Issue 9-3 or the Service Manual for additional information on how to accomplish this. This concludes the Soft Start installation procedures.

--Larry North
63-503,ext. 3926

7B85 DIGITAL VOLTMETER BOARD CHANGE DOCUMENTATION AND REFERENCE PULL-OUT

The 7B85 is now being manufactured with the same Digital Voltmeter Board as the 7B15 (670-4184-01). However, approximately 450 7B85's may have been shipped to customers without any manual change information and approximately 1000 may not have the Performance Check and Adjustment change.

TIMETABLE OF EVENTS

	EVENT	DOCUMENTATION IN MANUAL	7B85 SERIAL NO.	DATE
1.	DVM Board Change	None	B088750 to B089194	Aug.-Sept. '80
2.	Electrical Parts List & Schematic Changes	Change Reference M38127	B089194 & Up	Sept. '80 - On
3.	Performance Check & Adjustment Changes	Change Reference C5/1280 & M38127	B089759 & UP	Dec. '80 - On

A copy of both change reference M38127 and C5/1280 are provided as a pull-out at the back of this issue to use as a master for making copies when customers request them. You should also make copies for those 7B85's in the Service Center that fall into the serial number range listed in the timetable and include a copy when returning the instrument to the customer.

--Lynn Sperley
58/511, Ext. 6902

MANUAL CHANGE INFORMATION

Date: 9-12-80 Change Reference: M38127

Product: 7B85 EFF SN B088750-UP Manual Part No.: 070-1961-00

DESCRIPTION

ELECTRICAL PARTS LIST AND SCHEMATIC CHANGES

CHANGE TO:

A4 670-4184-01 CKT BOARD ASSY:DIGITAL VOLTMETER

The new Digital Voltmeter circuit board assembly consists of the following parts:

C255	283-0028-00	CAP.,FXD,CER DI:0.0022UF,20%,50V
C263	281-0629-00	CAP.,FXD,CER DI:33PF,5%,600V
C520	283-0111-00	CAP.,FXD,CER DI:0.1UF,20%,50V
C530	283-0111-00	CAP.,FXD,CER DI:0.1UF,20%,50V
C532	283-0111-00	CAP.,FXD,CER DI:0.1UF,20%,50V
C626	281-0762-00	CAP.,FXD,CER DI:27PF,20%,100V
C627	285-0809-00	CAP.,FXD,PLSTC:1UF,10%,50V
C686	283-0691-00	CAP.,FXD,MICA D:650PF,1%,300V
C687	281-0773-00	CAP.,FXD,CER DI:0.01UF,10%,100V
C691	290-0748-00	CAP.,FXD,ELCTLT:10UF,+50-10%,20V
C692	290-0748-00	CAP.,FXD,ELCTLT:10UF,+50-10%,20V
C693	281-0775-00	CAP.,FXD,CER DI:0.1UF,20%,50V
C694	290-0748-00	CAP.,FXD,ELCTLT:10UF,+50-10%,20V
CR248,250 CR252,254 CR255,256 CR264,286 CR288,291 CR292,293 CR294,295 CR296,543 CR548,632 CR634,635 CR643	152-0141-02	SEMICOND DEVICE:SILICON,30V,150MA,1N4152
L691	108-0543-00	COIL,RF:FIXED,1.1UH
L694	108-0543-00	COIL,RF:FIXED,1.1UH
Q252	151-0190-00	TRANSISTOR:SILICON,NPN
Q254	151-0190-00	TRANSISTOR:SILICON,NPN
Q262	151-0223-00	TRANSISTOR:SILICON,NPN
Q264	151-0223-00	TRANSISTOR:SILICON,NPN
Q282	151-0190-00	TRANSISTOR:SILICON,NPN
Q284	151-0223-00	TRANSISTOR:SILICON,NPN

Product: 7B85 Date: 9-12-80 Change Reference: M38127

DESCRIPTION

Q288	151-0190-00	TRANSISTOR:SILICON,NPN
Q292	151-0192-00	TRANSISTOR:SILICON,NPN,SEL FROM MPS6521
Q294	151-0220-00	TRANSISTOR:SILICON,PNP
Q534	151-0216-00	TRANSISTOR:SILICON,PNP
Q536	151-0216-00	TRANSISTOR:SILICON,PNP
Q546	151-0432-00	TRANSISTOR:SILICON,NPN
Q548	151-0190-00	TRANSISTOR:SILICON,NPN
Q582	151-1059-00	TRANSISTOR:SILICON,FE,N-CHANNEL
Q592	151-1059-00	TRANSISTOR:SILICON,FE,N-CHANNEL
Q618	151-0216-00	TRANSISTOR:SILICON,PNP
Q644	151-0301-00	TRANSISTOR:SILICON,PNP
R248	315-0163-00	RES.,FXD,CMPSN:16K OHM,5%,0.25W
R249	315-0222-00	RES.,FXD,CMPSN:2.2K OHM,5%,0.25W
R250	315-0102-00	RES.,FXD,CMPSN:1K OHM,5%,0.25W
R251	315-0471-00	RES.,FXD,CMPSN:470 OHM,5%,0.25W
R253	315-0113-00	RES.,FXD,CMPSN:11K OHM,5%,0.25W
R254	315-0102-00	RES.,FXD,CMPSN:1K OHM,5%,0.25W
R255	315-0510-00	RES.,FXD,CMPSN:51 OHM,5%,0.25W
R261	315-0472-00	RES.,FXD,CMPSN:4.7K OHM,5%,0.25W
R263	315-0122-00	RES.,FXD,CMPSN:1.2K OHM,5%,0.25W
R264	315-0102-00	RES.,FXD,CMPSN:1K OHM,5%,0.25W
R280	315-0820-00	RES.,FXD,CMPSN:82 OHM,5%,0.25W
R281	315-0203-00	RES.,FXD,CMPSN:20K OHM,5%,0.25W
R282	315-0624-00	RES.,FXD,CMPSN:620K OHM,5%,0.25W
R283	315-0512-00	RES.,FXD,CMPSN:5.1K OHM,5%,0.25W
R284	315-0471-00	RES.,FXD,CMPSN:470 OHM,5%,0.25W
R285	315-0201-00	RES.,FXD,CMPSN:200 OHM,5%,0.25W
R286	315-0563-00	RES.,FXD,CMPSN:56K OHM,5%,0.25W
R287	315-0242-00	RES.,FXD,CMPSN:2.4K OHM,5%,0.25W
R288	315-0182-00	RES.,FXD,CMPSN:1.8K OHM,5%,0.25W
R291	315-0202-00	RES.,FXD,CMPSN:2K OHM,5%,0.25W
R292	315-0752-00	RES.,FXD,CMPSN:7.5K OHM,5%,0.25W
R293	315-0303-00	RES.,FXD,CMPSN:30K OHM,5%,0.25W
R294	315-0432-00	RES.,FXD,CMPSN:4.3K OHM,5%,0.25W
R296	315-0432-00	RES.,FXD,CMPSN:4.3K OHM,5%,0.25W
R297	315-0432-00	RES.,FXD,CMPSN:4.3K OHM.5%.0.25W

Product: 7B85 Date: 9-12-80 Change Reference: M38127

DESCRIPTION

R509	321-0222-07	RES.,FXD,FILM:2K OHM,0.1%,0.125W
R510	311-1594-00	RES.,VAR,NONWIR:10 OHM,20%,0.50W
R513	315-0101-00	RES.,FXD,CMPSN:100 OHM,5%,0.25W
R515	321-0193-00	RES.,FXD,FILM:1K OHM,1%,0.125W
R521	321-0222-07	RES.,FXD,FILM:2K OHM,0.1%,0.125W
R523	315-0101-00	RES.,FXD,CMPSN:100 OHM,5%,0.25W
R531	321-0222-07	RES.,FXD,FILM:2K OHM,0.1%,0.125W
R532	315-0202-00	RES.,FXD,CMPSN:2K OHM,5%,0.25W
R533	321-0161-00	RES.,FXD,FILM:464 OHM1%,0.125W
R534	321-0257-00	RES.,FXD,FILM:4.64K OHM,1%,0.125W
R535	311-1560-00	RES.,VAR,NONWIR:5K OHM,5%,0.50W
R536	321-0340-00	RES.,FXD,FILM:34K OHM,1%,0.125W
R537	315-0511-00	RES.,FXD,CMPSN:510 OHM,5%,0.25W
R541	315-0101-00	RES.,FXD,CMPSN:100 OHM,5%,0.25W
R544	315-0204-00	RES.,FXD,CMPSN:200K OHM,5%,0.25W
R546	315-0513-00	RES.,FXD,CMPSN:51K OHM,5%,0.25W
R547	315-0303-00	RES.,FXD,CMPSN:30K OHM,5%,0.25W
R548	315-0204-00	RES.,FXD,CMPSN:200K OHM,5%,0.25W
R552	321-0222-07	RES.,FXD,FILM:2K OHM,0.1%,0.125W
R554	315-0205-00	RES.,FXD,CMPSN:2M OHM,5%,0.25W
R555	311-1230-00	RES.,VAR,NONWIR:20K OHM,20%,0.50W
R582	315-0275-00	RES.,FXD,CMPSN:2.7M OHM,5%,0.25W
R592	315-0275-00	RES.,FXD,CMPSN:2.7M OHM,5%,0.25W
R616	321-0820-06	RES.,FXD,FILM:42K OHM,0.25%,0.125W
R617	321-0259-00	RES.,FXD,FILM:4.87K OHM,1%,0.125W
R620	311-1336-00	RES.,VAR,NONWIR:100K OHM,0.50W
R621	321-0967-03	RES.,FXD,FILM:55K OHM,0.25%,0.125W
R622	321-0995-00	RES.,FXD,FILM:549K OHM,1%,0.125W
R623	315-0513-00	RES.,FXD,CMPSN:51K OHM,5%,0.25W
R624	315-0101-00	RES.,FXD,CMPSN:100 OHM,5%,0.25W
R625	311-1230-00	RES.,VAR,NONWIR:20K OHM,20%,0.50W
R626	315-0104-00	RES.,FXD,CMPSN:100K OHM,5%,0.25W
R631	321-0289-06	RES.,FXD,FILM:10K OHM,0.25%,0.125W
R632	321-0289-06	RES.,FXD,FILM:10K OHM,0.25%,0.125W
R636	315-0563-00	RES.,FXD,CMPSN:56K OHM,5%,0.25W

Product: 7B85 Date: 9-12-80 Change Reference: M38127

DESCRIPTION

R637	315-0222-00	RES.,FXD,CMPSN:2.2K OHM,5%,0.25W
R644	315-0182-00	RES.,FXD,CMPSN:1.8K OHM,5%,0.25W
R653	315-0103-00	RES.,FXD,CMPSN:10K OHM,5%,0.25W
R654	315-0392-00	RES.,FXD,CMPSN:3.9K OHM,5%,0.25W
R655	315-0391-00	RES.,FXD,CMPSN:390 OHM,5%,0.25W
R672	315-0473-00	RES.FXD,CMPSN:47K OHM,5%,0.25W
R674	315-0472-00	RES.,FXD,CMPSN:4.7K OHM,5%,0.25W
R676	315-0473-00	RES.,FXD,CMPSN:47K OHM,5%,0.25W
R678	315-0472-00	RES.,FXD,CMPSN:4.7K OHM,5%,0.25W
R681	315-0202-00	RES.,FXD,CMPSN:2K OHM,5%,0.25W
R682	315-0332-00	RES.,FXD,CMPSN:3.3K OHM,5%,0.25W
R683	315-0331-00	RES.,FXD,CMPSN:330 OHM,5%,0.25W
R687	321-1651-04	RES.,FXD,FILM:37.5K OHM,0.1%,0.125W
S205	263-0015-01	SWITCH PB ASSY:3 LATCHING,7.5 MM,5 CONTACT
U250	156-0118-00	MICROCIRCUIT,DI:J-K MASTER-SLAVE FLIP-FLOP
U530	156-0158-00	MICROCIRCUIT,LI:DUAL OPERATIONAL AMPLIFIER
U556	156-0158-00	MICROCIRCUIT,LI:DUAL OPERATIONAL AMPLIFIER
U608	156-1149-00	MICROCIRCUIT,LI:OPERATIONAL AMP,JFET INPUT
U626	156-0105-00	MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER
U662	156-0030-00	MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND GATE
U686	155-0185-00	MICROCIRCUIT,LI:ML 4 DECADE DGTL VOLTMETER
VR644	152-0280-00	SEMICOND DEVICE:ZENER,0.4W,6.2V,5%

Product: 7B85 Date: 9-12-80 Change Reference: M38127

DESCRIPTION

REPLACE: Fig. 8-10 with the illustration shown below.

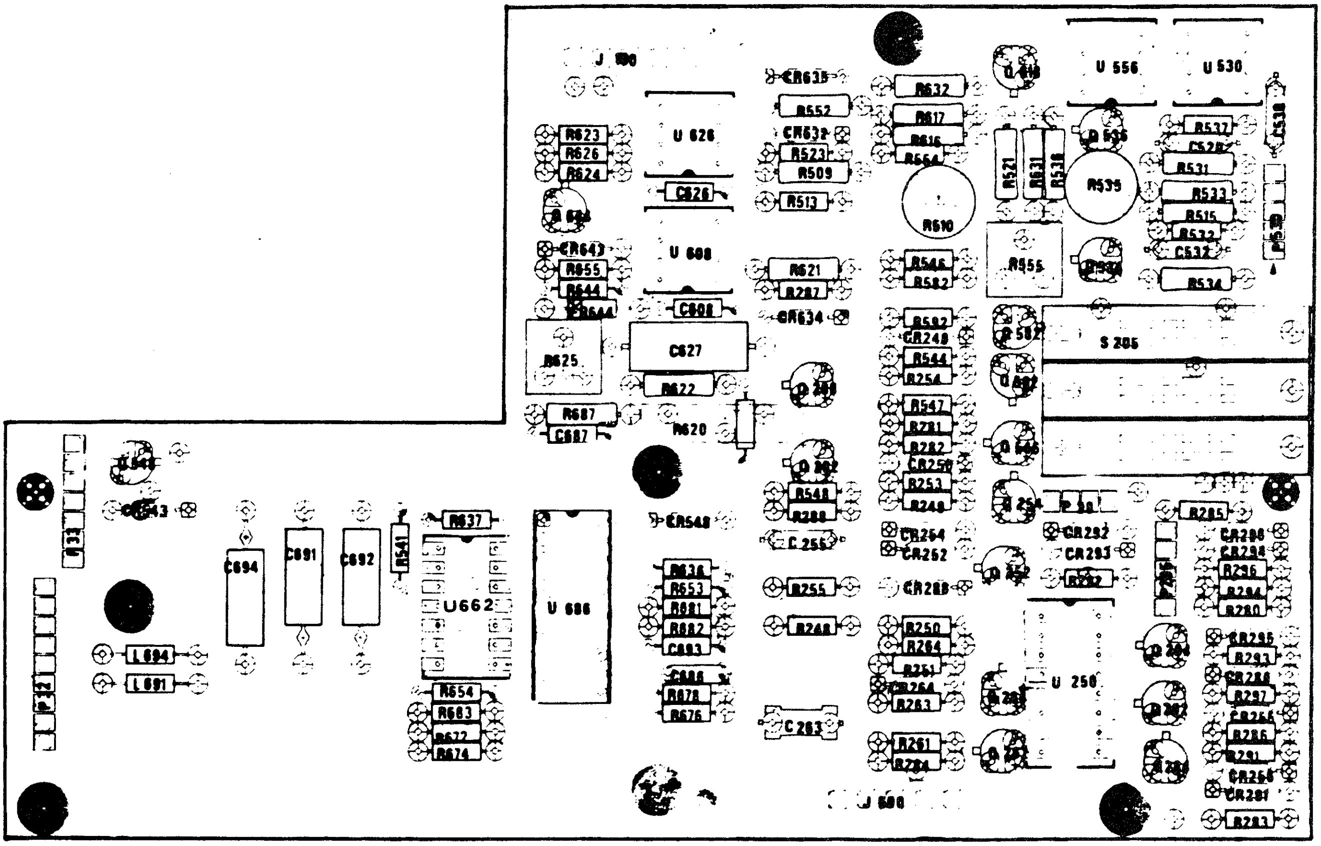


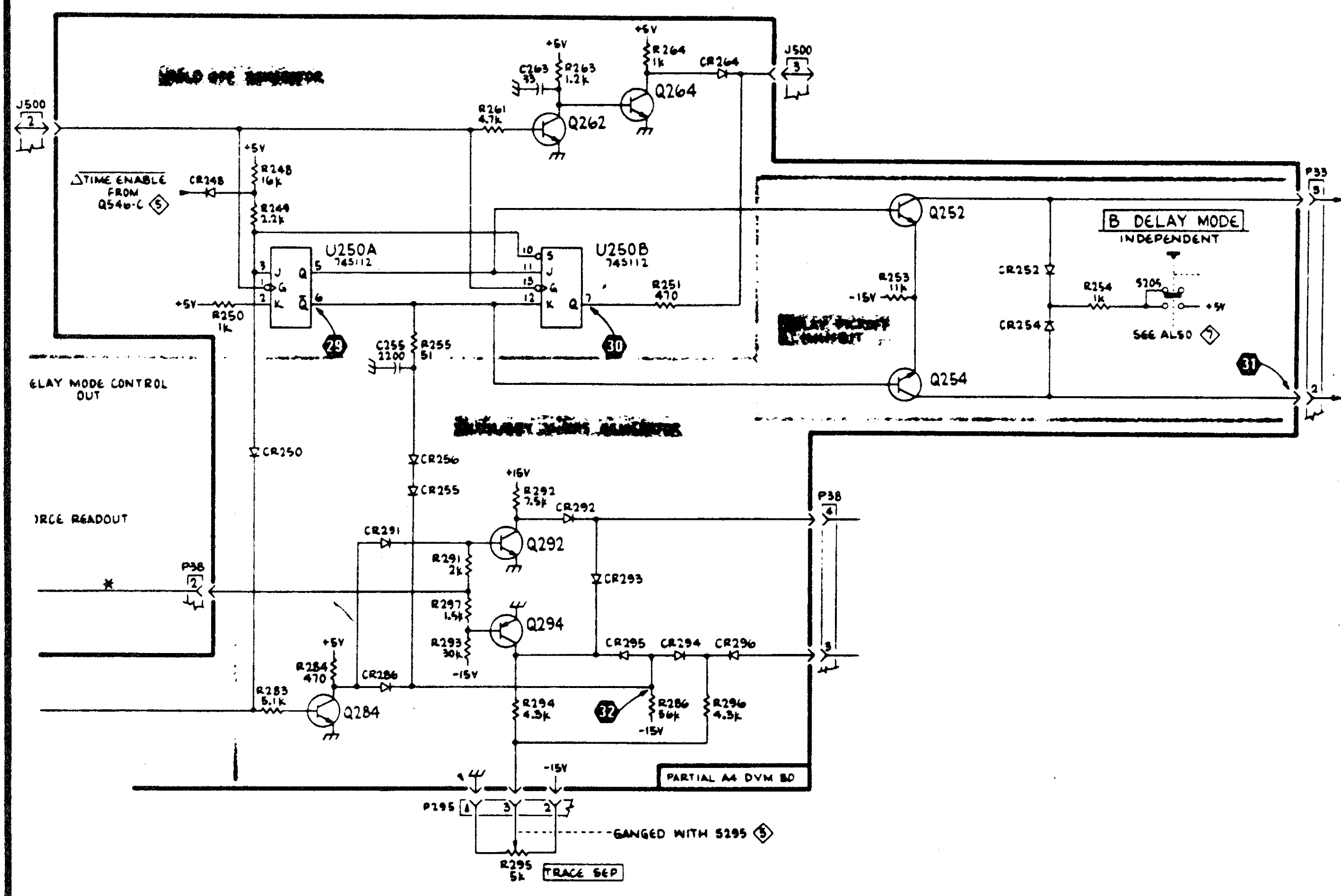
Fig. 8-10. A4- Digital Voltmeter circuit board assembly.

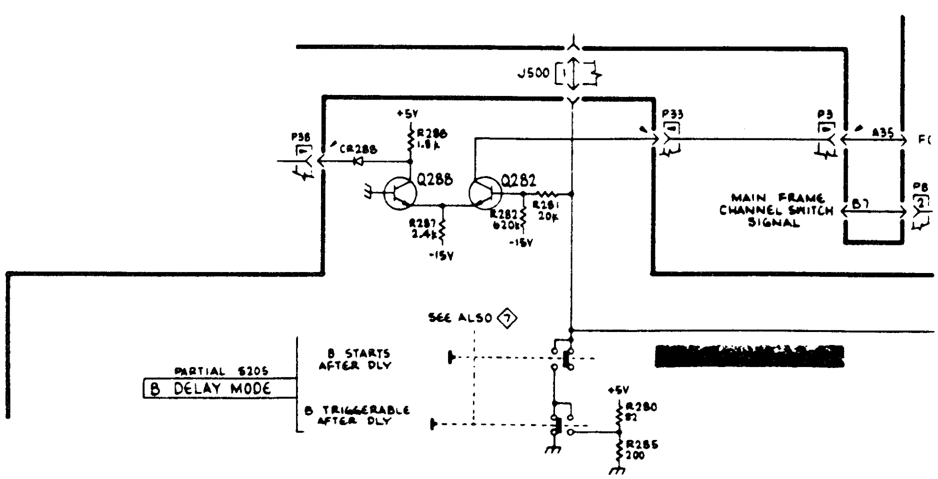
Product: 7B85 Date: 9-12-80 Change Reference: M38127

DESCRIPTION

REPLACE: A4 Digital Voltmeter schematics with the following:

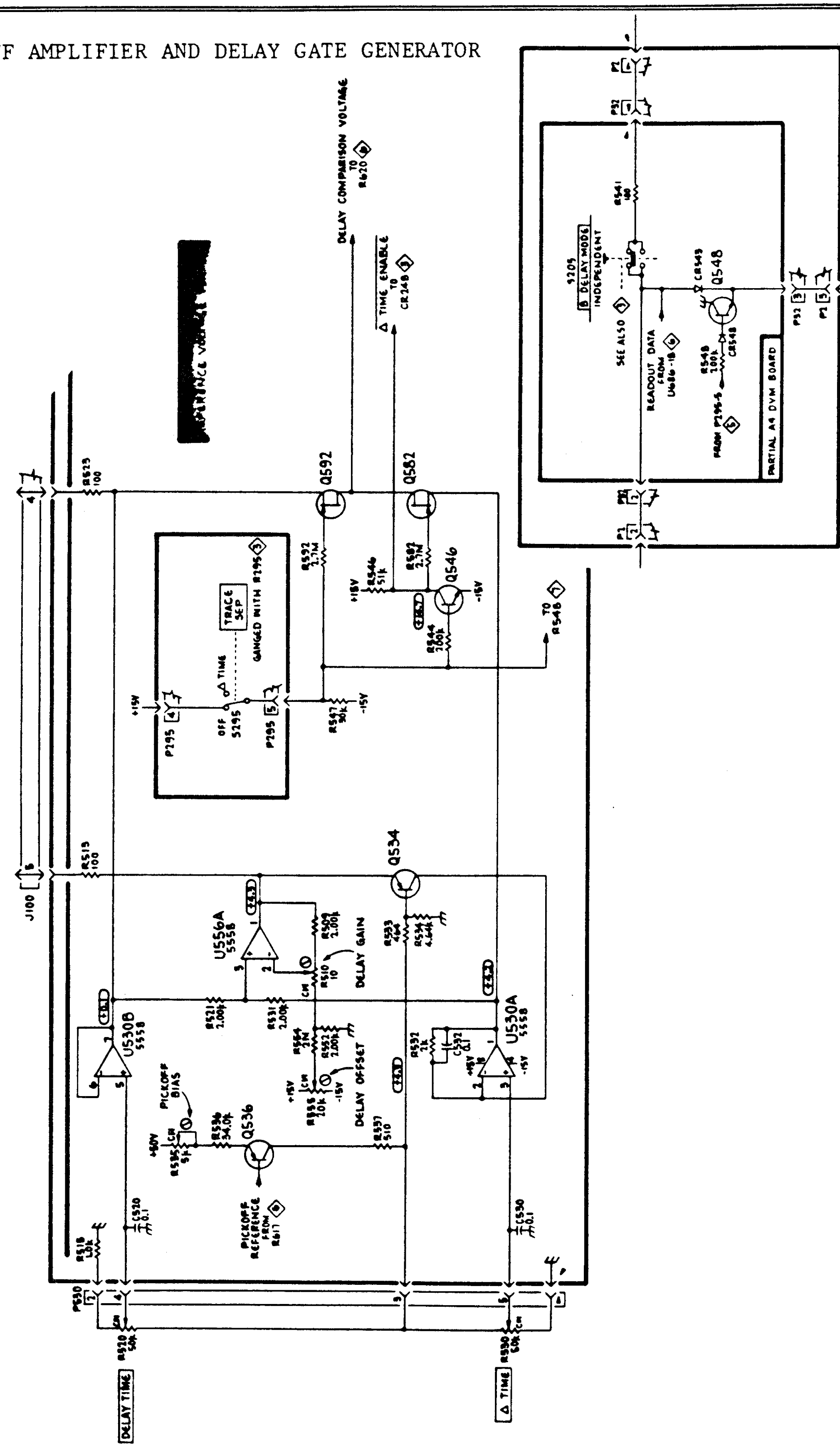
DIAGRAM ◇3 LOGIC





DESCRIPTION

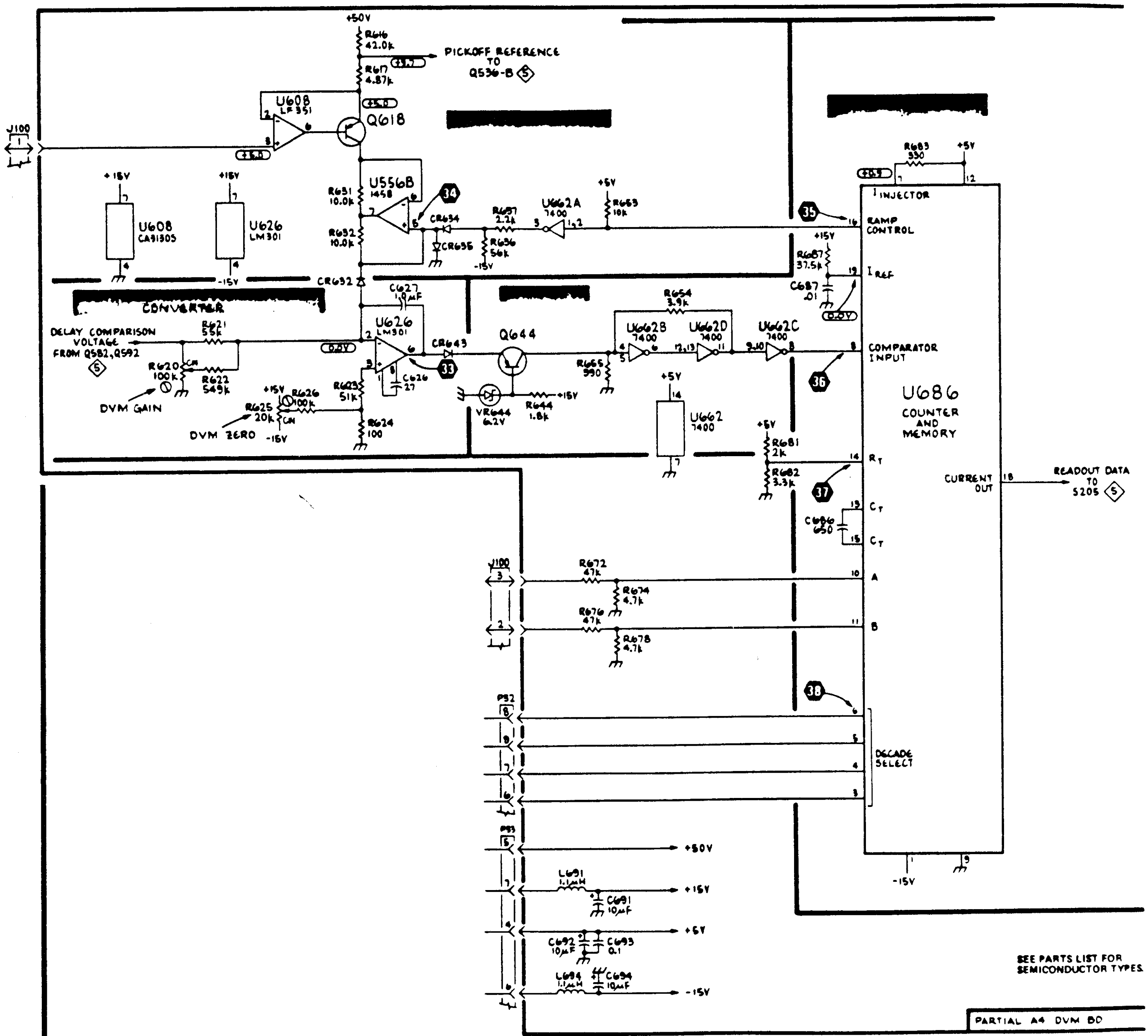
DIAGRAM ⟨5⟩ PICKOFF AMPLIFIER AND DELAY GATE GENERATOR



Product: 7B85 Date: 9-12-80 Change Reference: M38127

DESCRIPTION

DIAGRAM ⟨6⟩ DIGITAL VOLTMETER (DVM)



DATA COMMUNICATIONS

401X OPTIONAL DATA COMMUNICATIONS INTERFACE 021-0074-01 (NEW OPTION 1)

The 401X Optional Data Communications Interface provides a means for the terminal to communicate with a host computer. The interface contains switches and strap options that provide flexibility for it to function in a number of system environments. To properly configure the interface for a specific system, some information must be known about the system requirements and the interface strapped accordingly. The following is a description of the strap settings available on the interface.

TTY Master (Off, Master, Slave):

The TTY Master Strap will determine how the interface will use the terminals TTY MASTER signal line (pin 23). The TTY MASTER line is typically not used by the interface unless the terminal is being operated in a dual interface configuration.

Off - The interface is not affected by, nor does it affect the terminals TTY MASTER line.

Master - When the interface is in "INTF" mode it will assert TTY MASTER true (low) which will disable any slave interfaces present in the terminal bus.

Slave - When the interface is in the "INTF" mode it will be disabled if the TTY MASTER line is true (low). When the TTY MASTER line is false (high), the interface will operate normally.

Bit 8 (In, Off, On):

The Bit 8 Strap, in conjunction with the Parity Straps and the terminals SEND 8 signal line (pin 27), determines the condition of Data bit 8 sent to the host. Data bit 8 can be sent to the host as data, a mark, a space, even parity or odd parity.

In - Bit 8 is sent to the host as determined by the state of the terminal's SEND 8 signal line. If SEND 8 is true (low), bit 8 will be sent as data. If SEND 8 is false (high), bit 8 will be sent as determined by the setting of the parity straps.

On - Bit 8 is sent to the host as data from the terminal minibus.

Off - Bit 8 is sent to the host as determined by the setting of the parity straps.

Parity (AB-A, AB-B, CD-C, CD-D):
The Parity Straps, in conjunction with the bit 8 strap and the terminals SEND 8 signal line, determines the condition of data Bit 8 sent to the host. If the bit 8 strap is "off" or if the bit 8 strap is "in" with the terminals SEND 8 signal line false (high), data bit 8 will be sent as determined by the setting of the parity straps.

AB-A, CD-C - Bit 8 is sent to the host as a mark (logic 1).

AB-A, CD-D - Bit 8 is sent to the host as even parity.

AB-B, CD-C - Bit 8 is sent to the host as odd parity.

AB-B, CD-D - Bit 8 is sent to the host as a space (logic Ø).

Send 8 (Off, On):

The Send 8 Strap allows the interface to activate the terminals SEND 8 signal line whenever a data byte is sent to the terminal bus from the interface. This enables another bus device to treat bit 8 as a data bit, depending on the strap settings of the other device. This function is useful in some dual interface configurations.

Off - The terminals SEND 8 signal line is not affected by the interface.

On - The terminals SEND 8 signal line is brought true (low) whenever a data byte is transferred to the terminal bus from the interface.

P.F.B. (Off, On):

The Page Full Break Strap provides the option of having the interface send a break to the host to indicate the terminals page full condition.

Off - The break signal is not sent to the host on a terminal page full condition.

On - The break signal is sent to the host when the terminal reaches a page full condition.

Echo (Off, On):

The Echo Strap provides the option of having the terminal echo its transmitted data to the display. This strap will only affect the terminal when the interface is in Full Duplex Mode. The HDE Strap will provide echo in Half Duplex Modes. When the terminal echoes its transmission to the display, the modem or host should not echo the data or dual characters will result on the display.

Off - The terminal will not display transmitted data. Echo must come from the host or the modem.

On - The terminal will echo its transmitted data to the display.

HDE (LOC, REM):

The Half Duplex Echo Strap provides the option of having the terminal echo its transmitted data to the display in half duplex modes. The echo strap is provided to supply an echo in Full Duplex Mode. When the terminal echoes its transmission to the display, the modem should not echo the data or dual characters will result on the display.

LOC - The terminal will echo its tranmitted data to the display if the interface is operating in Half Duplex Mode.

REM - The terminal will not display transmitted data in Half Duplex Mode; echo must come from the modem.

Blanking (Off, On, SUP):

The Blanking Strap provides the option to enable the interfaces blanking function. The receiver circuits will be disabled on receipt of the selected turnaround character (determined by the turnaround character straps) and enabled on recept of the selected unblanking character (determined by the unblanking strap). Blanking was required with older equipment to prevent spurious signals during line turnaround from being interupted as data. Today, with better modems, blanking is generally not required.

Off - The blanking function is disabled in all operating modes.

On - The blanking function is enabled in all operating modes.

SUP - The blanking function is enabled in Half Duplex Supervisor Mode only.

Turnaround Character (EOT, ETX, Off; CR, LF, Off):

The two Turnaround Character Straps determine the characters that will be used for line turnaround and receiver blanking. Their behavior depending on operating mode is as follows:

Full Duplex - Turnaround characters are not used by the interface. If blanking is enabled, the selected character(s) will cause blanking when received by the terminal.

Half Duplex Normal - The selected character(s) will be used as turnaround characters by the interface, when sent by the terminal. If blanking is enabled, the character selected by the EOT, ETX, Off Strap will cause blanking when sent or received by the terminal. The character selected by the CR, LF, Off Strap will cause blanking only when sent by the terminal.

Half Duplex Supervisor - Turnaround characters are not used by the interface. If blanking is enabled, the character selected by the EOT, ETX, Off Strap will cause blanking when sent or received by the terminal. The character selected by the CR, LF, Off Strap will cause blanking only when sent by the terminal.

Unblank (SOH, STX):

The Unblank Strap selects the character that will be used to enable the interface receiver circuits after blanking has occurred. When blanking is enabled and a blanking character is received, the receiver circuits will remain disabled until the selected unblank character is detected.

SOH - Selects SOH as the unblanking character.

STX - Selects STX as the unblanking character.

TCLK (REC, DRI, TTL):

The Transmit Clock Strap controls the function of pin 15 (transmit clock) of the modem connector. Normally pin 15 is used to input a transmit clock rate at RS232 levels from an external device. It can be configured to supply a clock generated by the interface to an external device at RS232 or TTL levels.

REC - A transmit clock is input from pin 15 of the modem connector at RS232 levels.

DRI - The selected transmit clock from the interface is provided on pin 15 of the modem connector at RS232 levels.

TTL - The selected transmit clock from the interface is provided on pin 15 of the modem connector at TTL levels.

XSRC (XSW, XTR, 19.2):

The External Clock Source Strap provides for controlling the source of the externally provided transmit and receive clocks, and the option to select the internal 19.2 K baud clock as the transmit and receive clock. The externally supplied clocks and the internal 19.2 K baud clock will only be selected as a transmit or receive clock when the appropriate baud rate switch is in the "EXT" (external) position. The 19.2 K baud clock should only be used when it can be supplied to the external device in a flagged mode from the interface.

XSW - The receive and transmit clocks are sampled from seperate pins on the modem cable. The transmit clock is sampled on modem connector pin 15 (transmit clock) and the receiver clock is sampled on modem connector pin 17 (receive clock). These externally provided clocks can be selected as the transmit or receive clock by putting the appropriate baud rate switch in "EXT".

Note: The "T Clock" Strap must be in "REC" to input a clock on pin 15 of the modem connector.

XTR - The receive and transmit clock is provided on a single pin, pin 15 of the modem. This externally provided clock can be selected as the transmit or receive clock by putting the appropriate baud rate switch in "EXT".

Note: The "T Clock" Strap must be in "REC" to input a clock on pin 15 of the modem connector.

19.2 - The receive and transmit clock is sampled from the internally generated 19.2 K baud clock. This clock can be selected as the transmit or receive clock by putting the appropriate baud rate switch in "EXT". When operating the terminal at 19.2 K baud the interface must supply the flagged clock to the host equipment. The clock is supplied on pin 15 of the modem connector by placing the "T Clock" Strap in the "DRI" or "TTL" position. To accomplish the necessary flagging the "Flag Clock" strap must be in the "ON" position and the "T Busy" Strap must be in the "IN" position.

SAMP (INT, EXT):

The Sample Strap provides the capability for the receive clock line (modem connector pin 17) to be applied directly to the receive data line receiver. If the receive clock is a X1 Clock, it must be directly applied to the R Data Line Receiver.

INT - The receive clock is input through the interface clock generation circuitry before being applied to the R Data Line Receiver.

EXT - The receive clock from modem connector pin 17 is applied directly to the R Data Line Receiver. If a X1 external receive clock is being used it must be directly applied to the R Data Line Receiver.

CLK (X16, X1):

The Clock Strap will determine whether the internally generated baud rate is a X16 or X1 clock. In the X1 position it will apply a 16X multiplier to the X1 clock, since the UART requires a 16X clock. Externally supplied baud rates should be either 1X or 16X clocks and the clock strap set to X1 for a 1X clock and X16 for a 16X clock.

16X - The internally generated baud rate will be a 16X clock. The 16X multiplier will be disabled. An externally supplied baud rate should be a 16X clock.

1X - The internally generated baud rate will be a 1X clock, the 16X multiplier will be enabled which will supply the UART with a 16X clock. An externally supplied baud rate should be a 1X clock.

IF CLK (NORM, ÷2):

The Interface Clock Strap will determine if the internally generated baud rate clock (a X1 or X16 clock depending on the "clock" strap) will be divided by 2 before being supplied to an external device on pin 15 of the modem cable (The T Clock Strap must be in the "DRI" or "TTL" positions). This will allow the interface to supply a X1, X°, or X16 baud rate clock to an external device.

NORM - The internally generated baud rate clock will be applied to an external device as generated by the interface.

÷2 - The internally generated baud rate clock will be ÷2 before being applied to an external device.

Flag Clock (Off, On):

The Flagged Clock Strap provides the capability for the interface to halt the internally generated baud rate clock when the terminal is in a busy condition. The clock flagging is sometimes used when the interface is supplying a clock to an external device. ("T Clock" Strap in "DRI" or "TTL")

Off - The internally generated baud rate clocks will not be affected by a terminal busy condition.

On - The internally generated baud rate clocks will be halted when the terminal is in a busy condition. The "T Busy" Strap must be in the "IN" position for the interface to recognize a terminal busy condition.

T Busy (Out, In):

The T Busy Strap will allow the interface to monitor the terminals T Busy signal line. With the appropriate flagging enabled, the interface will interrupt the host's transmission when the terminal is busy. The strap should normally be in the "out" position unless flagging is being used.

Out - The interface will not monitor the terminal's T Busy signal line.

In - The interface will monitor the terminal's T Busy signal line, and through the appropriate flagging mode selected will interrupt the host output to the terminal.

PRG (A Ø,1 - B Ø,1 - C Ø,1 - D Ø,1):

The Program Clock Straps will select the baud rate that will be used when the rear panel baud rate switches are in the 18ØØ position. These are normally strapped to provide 18ØØ baud.

A	B	C	D	Baud Rate
1	Ø	1	Ø	18ØØ
Ø	Ø	1	Ø	5Ø
Ø	Ø	1	1	75
Ø	1	Ø	Ø	134.5
Ø	1	Ø	1	2ØØ

SRTS (Norm, DRS, DRSI):

The secondary request to send strap will determine how pin 11 of the modem connector will be used.

Norm - The secondary request to send signal will be provided on pin 11 of the modem connector (for RS232 A operation).

DRS - Pin 11 of the modem connector will be driven high when the following transmit baud rates are selected: EXT, 6ØØ, 18ØØ.

DRSI - Pin 11 of the modem connector will be driven low when the following transmit baud rates are selected: EXT, 6ØØ, 18ØØ.

DTR (On, RDY, ONL):

The Data Terminal Ready Strap will determine how pin 2Ø (data terminal ready) of the modem connector will be used.

On - The data terminal ready line (pin 2Ø) will be held true (high) as long as power is applied to the terminal.

ONL - The data terminal ready line (pin 2Ø) will be held true (high) when the terminal power is on and the interface is enabled (on line).

RDY - The data terminal ready line (pin 2Ø) will be held true (high) as long as the interface is able to accept data. This is used to hardware flag the host to stop sending data when the terminal is busy. The "T Busy" strap must be in the "in" position for the interface to recognize a terminal busy condition.

CTS (Full, Norm):

The Clear To Send Strap will determine if the clear to send signal (pin 5 of the modem cable) will be required in full duplex mode. This strap will only affect the clear to send signal when the interface is in full duplex mode; in half duplex modes, the clear to send signal is always required.

Full - The clear to send signal is not required for the interface to transmit data in full duplex mode.

Norm - The clear to send signal must be true (high) before the interface can transmit data in full duplex mode.

Stop Bits (2, 1):

The Stop Bits Strap will determine the number of stop bits that will be transmitted by the interface.

2 - Two stop bits will be sent by the interface.

1 - One stop bit will be sent by the interface.

IND - (1, 2, 3):

The Indicator Strap will select which front panel LED is used to indicate that the terminal is not ready to transmit data.

1 - LED 1 is used to indicate the terminal is not ready to transmit.

2 - LED 2 is used to indicate the terminal is not ready to transmit.

3 - LED 3 is used to indicate the terminal is not ready to transmit.

No Strap - No indication will be given that the terminal is unable to transmit.

AUX (AXS, TSUP):

The Auxiliary Mode Strap will select whether the terminal's AUXSENCE line (pin 2Ø) or TSUP line (pin 17) will be brought true (low) when the interface is in auxiliary mode. This strap is useful in dual interface applications.

AXS - When the interface is in auxiliary mode the terminal's AUXSENCE signal line will be brought true (low). The true AUXSENCE line is used by the master interface to disable its graphic lookahead feature.

TSUP - When the interface is in auxiliary mode the terminal's TSUP signal line will be brought true (low). The true TSUP line is used to disable the terminal display.

Auto LF (Off, On):

The Automatic Linefeed Strap will provide for a carriage return and linefeed to be echoed to the display when a carriage return is sent from the terminal. This strap will only affect the terminal in half duplex modes.

Off - In half duplex modes a carriage return sent from the terminal will be echoed to the display as a carriage return.

On - In half duplex modes a carriage return sent from the terminal will be echoed to the display as a carriage return and linefeed.

ARTS (Off, On):

The Automatic Request To Send Strap will allow the interface to raise request to send (pin 4 of the modem connector) true (high) when carrier detect (pin 8 of the modem connector) goes false (low). Typically, in half duplex normal, request to send is not raised until the terminal has something to transmit to the host, providing carrier detect is false (low). This strap will only affect the terminal in half duplex normal mode.

Off - In half duplex normal request to send will be brought true (high) when the terminal has data to transmit (a keyboard character is struck) providing carrier detect is false (low).

On - In half duplex normal request to send will be brought true (high) when carrier detect goes false (low).

--Frank Lees
63/503, ext. 3929 (WI)

92-515

MICHAEL A MIHALIK
COMBINATION WIZARDS