TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT [INTERMEDIATE SUPPORT] MAINTENANCE MANUAL AND REPAIR PARTS AND SPECIAL TOOLS LIST [INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS]

DIGITAL PROCESSOR TEST SET AN/USM-433

This publication is not available through AG publication Center. Requisition through Commander, US Army Electronics Materiel Readiness Activity. Vint Hill Forms Station, Warrenton, VA. 22186

This copy is a reprint which includes current pages from Change 1.

H E A D Q U A R T E R S , D E P A R T M E N T O F T H E A R M Y
NOVEMBER 1981

WARNING

High voltage is used in the operation of this equipment. Avoid contacting high-voltage connections when installing or operating this equipment. Injury or death may result if personnel fail to observe safety precautions. Adequate ventilation should be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since trichlorotrifluoroethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use heavy duty rubber gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

CHANGE
CHANGE
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, *31 January 1985*

OPERATOR'S, ORGANIZATIONAL,
DIRECT SUPPORT AND GENERAL SUPPORT
(INTERMEDIATE SUPPORT) MAINTENANCE MANUAL
AND REPAIR PARTS AND SPECIAL TOOLS LIST
(INCLUDING DEPOT MAINTENANCE REPAIR
PARTS AND SPECIAL TOOLS)

FOR

DIGITAL PROCESSOR TEST SET
AN/USM-433

TM 32-5811-024-14&P, 30 November 1981, is changed as follows:
1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a miniature hand adjacent to the change area.

Remove pages	Insert pages
A/Record of Changes	Title/A
None	Record of Changes/Blank
iii/iv	iii/iv
6-3/6-4	6-3/6-4
FO-12 (sh1)	FO-12 (sh 1)
FO-12 (sh 2)	FO-12 (sh 2)

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

DONALD J. DELANDRO
Brigadier General, United States Army
The Adjutant General

CHANGE
NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *28 November 1983*

Operator's, Organizational,
Direct Support and General Support
(Intermediate Support) Maintenance Manual
and Repairs Parts and Special Tools List
(Including Depot Maintenance Repair
Parts and Special Tools)

For

DIGITAL PROCESSOR TEST SET
AN/USM-433

TM 32-5811-024-14&P, 31 November 1981, is changed as follows:

1. Remove old pages and insert new pages as indicated below, New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a miniature hand adjacent to the change area.

Remove pages	*Insert pages*
Warning page.	Warning page
None	A and Record of Changes
FO-6	FO-6
FO-18 (sheet 1)	FO-18 (sheet 1)
FO-21	FO-21
FO-22 (sheet 1)	FO-22 (sheet 1)
FO-23	FO-23
FO-24 (sheet 1 of 3)	FO-24 (sheet 1 of 3)
FO-24 (sheet 2 of 3)	FO-2 (sheet 2 of 3)
FO-24 (sheet 3 of 3)	FO-2 (sheet 3 of 3)

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT [INTERMEDIATE SUPPORT] MAINTENANCE MANUAL AND REPAIR PARTS AND SPECIAL TOOLS LIST [INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS]

DIGITAL PROCESSOR TEST SET AN/USM-433

H E A D Q U A R T E R S , D E P A R T M E N T O F T H E A R M Y

NOVEMBER 1981
CHANGE 2 JANUARY 1985

LIST OF EFFECTIVE PAGES

INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED PAGES.

NOTE: The portion of the text affected by the changes is indicated by a vertical line In the outer margins of the page.

Dates of issue for original and changed pages are:
Original..... 0..... 30 November 1981
Change..... 1..... 20 November 1983
Change..... 2..... 31 January 1985

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 407 CONSISTING OF THE FOLLOWING:

Page No.	*Change No.
Title/A	2
i-iii	0
iv	2
v	0
vi blank	0
1-1 - 1-13	0
1-14 blank	0
2-1 - 2-8	0
3-1 - 3-8	0
4-1- 4-4	0
5-1 - 5-27	0
5-28 blank	0
6-1/6-2	0
6-3/6-4	2
6-5 - 6-8	0
7-1 - 7-25	0
7-26 blank	0
8-1-8-73	0
8-74 blank	0
A-1 - A-3	0
A-4 blank	0
B-1 - 13	0
B-14 bank	0
C-1 - C-155	0
C-156 blank	0
C-157	0
C-158 blank	0
C-159 - C-168	0
Index 1-5	0
Index 6 blank	0
FO-1 - F-5	0
FO-6	0
FO-7 - FO-11	0
FO-12	2
FO-13 - FO-17	0
FO-18, sh 1	1
FO-18, sh 2 - FO-20	0
FO-21 - FO-22, sh 1	1
FO-22, sh 2	0
FO-23 - FO-24, sh 1.2.3	1
FO-25	0

*Zero in this column indicates an original page.

RECORD OF CHANGES

Change No.	Date	Title or Brief Description	Entered By

Technical Manual

No. 32-5811-024-14&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, *30 November 1981*

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT [INTERMEDIATE SUPPORT] MAINTENANCE MANUAL AND REPAIR PARTS AND SPECIAL TOOLS LIST [INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS]

FOR DIGITAL PROCESSOR TEST SET AN/USM-433

REPORTING OF ERRORS

You can improve this manual by recommending improvements using DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 located in the back of the manual and mail the form direct to Commander, US Army Electronics Materiel Readiness Activity, Vent Hill Farms Station, Warrenton, Virginia 22186, ATTN: SELEM-ME-E. A reply will be furnished direct to you.

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS - Continued

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope.

This manual provides organizational and intermediate support maintenance information for Digital Processor Test Set AN/USM-433, herein-after referred to as the digital processor test set (see figure 1-1). In addition, the manual provides general descriptions and data, operating instructions, and theory of operation.

1-2. Maintenance Forms and Records.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

1-3. Destruction of Army Materiel To Prevent Enemy Use.

Procedures for the destruction of Army materiel are contained in TM 750-244-2, Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command).

1-4. Administrative Storage.

Refer to TM 740-90-1, Administrative Storage of Equipment, for test procedures, forms and records, and inspections required during administrative storage of this equipment.

1-5. Reporting of Errors.

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded directly to the Commander, U.S. Army Electronic Materiel Readiness Activity, Vint Hill Farms Station, Warrenton VA 22186, Attn: SELEM-ME-E.

1-6. Reporting Equipment Improvement Recommendations (EIR).

EIRs will be submitted on SF 368 (Quality Deficiency Report) in accordance with 38-750 (TAMMS). EIRs should be mailed directly to the

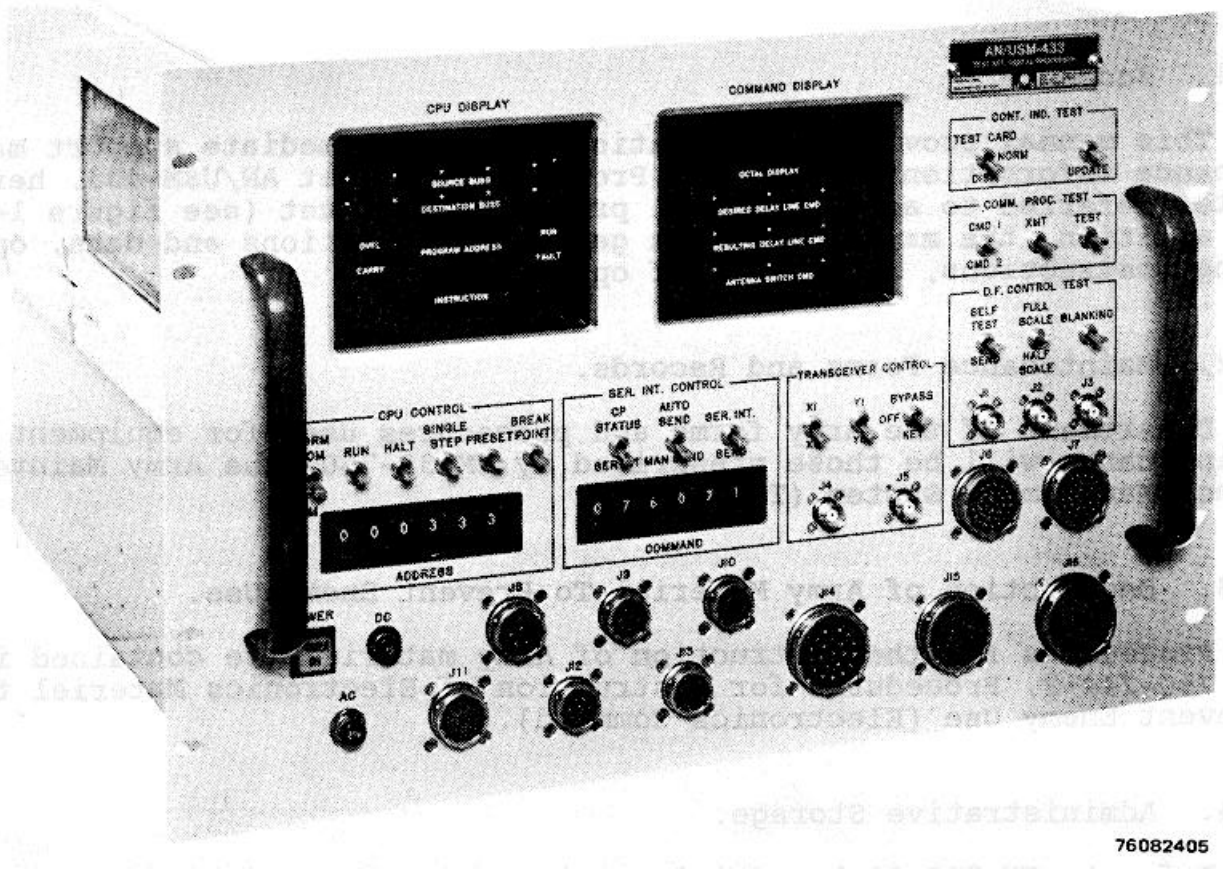


Figure 1-1. Digital Processor Test Set AN/USM-433

Commander, U.S. Army Electronic Materiel Readiness Activity, Vint Hill Farms Station, Warrenton, Virginia 22186, Attn: SELEM-ME-I.
A reply will be furnished directly to you.

Section II. DESCRIPTION AND DATA

1-7. Purpose and Use.

The digital processor test set provides the capability to bench test and troubleshoot the following units:

Direction Finder Control C-10025/USQ (df control)

Direction Finder Display ID-2092/TSQ-114 (df display)

Communication Processor MX-9781/USQ (communication processor)

Communication Processor Control-Indicator C-10050/USQ
(communication processor control-indicator)

Transceiver I/O Assembly A30 (part of communication processor)

All of the equipment in the preceding list may be checked using the digital processor test set without system or subsystem setups. The digital processor test set provides all required operating power and test signals.

1-8. Description.

The digital processor test set is a portable unit requiring no special installation facilities. The unit contains power supplies and distribution networks requiring 3-ϕ, 115-V ac, 400-Hz line voltage input. +28 V dc is required when testing the df display or communication processor control-indicator. Twelve solid state circuit card assemblies (CCAs); one blower; and front-panel controls, indicators, and connectors comprise the primary assemblies of the digital processor test set. See table 1-1 for digital processor test set power and signal connections. In addition, two extender CCAs are included to facilitate troubleshooting of the digital processor test set and the equipment units under test.

Table 1-1. Digital Processor Test Set Power and Signal Connections

Origin		Function/remarks
Connector ref des	Pin	
J1		ANALOG 0
J2		ANALOG 1
J3		BLANKING
J4		XMIT CLOCK
J5		PR CODE
J6	A	SPARE
↑	B	SPARE
|	C	SPARE
↓	D	SPARE
J6	E	SPARE

Table 1-1. Digital Processor Test Set Power and Signal Connections - Continued

Origin		Function/remarks
Connector ref des	Pin	
J6	F	SPARE
↑	G	SPARE
	H	SPARE
	J	SPARE
	K	RFI+IN
	L	RFI-IN
	M	SPARE
	N	SPARE
	P	SPARE
	R	IHIC+IN
	S	IHIC-IN
	T	HILP+IN
	U	HILP-IN
	V	HID+IN
	W	HID-IN
	X	IHOC+IN
	Y	IHOC-IN
	Z	HOLP+IN
	a	HOLP-IN
	b	HOD+OUT
	c	HOD-OUT
	d	IHUD+OUT
	e	IHUD-OUT
	f	SPARE
	g	SPARE
↓	h	SPARE
J6	j	SHLD GND
J7	A	SPARE
↑	B	SPARE
	C	SPARE
↓	D	SPARE
J7	E	SPARE

Table 1-1. Digital Processor Test Set Power and Signal Connections - Continued

Origin		Function/remarks
Connector ref des	Pin	
J7	F	SPARE
	G	SPARE
	H	SPARE
	J	SPARE
	K	RFI+OUT
	L	RFI-OUT
	M	+15 VDC
	N	SPARE
	P	SPARE
	R	IHIC+OUT
	S	IHIC-OUT
	T	HILP+OUT
	U	HILP-OUT
	V	HID+OUT
	W	HID-OUT
	X	IHOC+OUT
	Y	IHOC-OUT
	Z	HOLP+OUT
	a	HOLP-OUT
	b	HOD+OUT
	c	HOD-OUT
	d	IHUD+IN
	e	IHUD-IN
	f	GND
	g	SPARE
	h	SPARE
J7	j	SHLD GND
J8	A	+28 VDC
	B	+28 VDC
	C	+28 VDC RTN
	D	SPARE
J8	E	SHLD GND

Table 1-1. Digital Processor Test Set Power and Signal Connections - Continued

Origin		Function/remarks
Connector ref des	Pin	
J9	A	115 VAC 01
	B	115 VAC 02
	C	115 VAC 03
	D	NEUTRAL
	E	INTERLOCK
	F	INTERLOCK
	G	SPARE
J9	H	SHLD GND
J10	1	SPARE
	2	SPARE
	3	+IMTEST
	4	-IMTEST
	5	CO
	6	CO FORCE
	7	SPARE
	8	SPARE
	9	SPARE
	10	+DATA
	11	-DATA
	12	+CLOCK
	13	-CLOCK
	14	-RDY-PRCD
	15	-RDY-PRCD
	16	+PRCD RDY
	17	-PRCD RDY
	18	-IMR MODE
	19	-IMR MODE
	20	+MODE IMR
	21	-MODE IMR
J10	22	SHLD GND

Table 1-1. Digital Processor Test Set Power and Signal Connections - Continued

Origin		Function/remarks
Connector ref des	Pin	
J11	36	CHAN ACT IN
J11	37	AGC OUT
J12	A	115 VAC Ø1
	B	115 VAC Ø2
	C	115 VAC Ø3
	D	NEUTRAL
	E	INTERLOCK
	F	INTERLOCK
	G	SPARE
J12	H	SHLD GND
J13	3	DT MOD IN
	4	$\overline{\text{DT MOD IN}}$
	9	DT STB IN
	10	$\overline{\text{DT STB IN}}$
	5	DT CLK IN
	6	$\overline{\text{DT CLK IN}}$
	7	DT DATA IN
	8	$\overline{\text{DT DATA IN}}$
	17	DT STB OUT
	18	$\overline{\text{DT STB OUT}}$
	13	DT CLK OUT
	14	$\overline{\text{DT CLK OUT}}$
	15	DT DATA OUT
	16	$\overline{\text{DT DATA OUT}}$
	11	DT MOD OUT
J13	12	$\overline{\text{DT MOD OUT}}$
J14	A	+15 VDC
	B	+15 VDC
	C	+15 VDC RTN
	D	+15 VDC SENSE
	E	-15 VDC SENSE
J14	F	+5 VDC-A

Table 1-1. Digital Processor Test Set Power and Signal Connections - Continued

Origin		
Connector ref des	**Pin**	**Function/remarks**
J14	G	+5 VDC-A
	H	+5 VDC RTN-A
	J	+5 VDC RTN-A
	K	+5 VDC SENSE
	L	+5 VDC-B
	M	+5 VDC-B
	N	+5 VDC RTN-B
	P	+5 VDC RTN-B
	R	+5 VDC-B SENSE
	S	-10 VDC
	T	-10 VDC RTN
	U	-10 VDC SENSE
	V	+5 VDC-C
	W	+5 VDC RTN-C
J14	X	SHLD GND
J15	1	$\overline{\text{DMØ}}$
	2	$\overline{\text{DMØ}}$ RTN
	3	1
	4	1 RTN
	5	2
	6	2 RTN
	7	3
	8	3 RTN
	9	4
	10	4 RTN
	11	5
	12	5 RTN
	13	6
	14	6 RTN
	15	$\overline{\text{DM7}}$
	16	$\overline{\text{DM7}}$ RTN
J15	17	$\overline{\text{MUXØ}}$

Table 1-1. Digital Processor Test Set Power and Signal Connections - Continued

Origin		
Connector ref des	**Pin**	**Function/remarks**
J15	18	$\overline{\text{MUXØ}}$ RTN
	19	$\overline{\text{MUX1}}$
	20	$\overline{\text{MUX1}}$ RTN
	21	$\overline{\text{MUX2}}$
	22	$\overline{\text{MUX2}}$ RTN
	23	RUNS
	25	$\overline{\text{RUNS}}$
	26	SGLST
	28	$\overline{\text{SGLST}}$
	29	HALT
	31	$\overline{\text{BRKPT}}$
	33	$\overline{\text{PRES}}$
	35	PRES
	36	COM1
	37	ASWO
	38	1
	39	2
	40	ASW3
	41	$\overline{\text{ASW4}}$
	42	5
	43	6
	44	7
	45	$\overline{\text{ASW8}}$
	46	$\overline{\text{COM2}}$
	47	$\overline{\text{ASW9}}$
	48	10
	49	11
	50	12
	51	13
	52	14
	53	$\overline{\text{ASW15}}$
J15	65	SHLD GND

Table 1-1. Digital Processor Test Set Power and Signal Connections - Continued

Origin		
Connector ref des	**Pin**	**Function/remarks**
J16	1	$\overline{\text{RIN}}$ 0
	2	$\overline{\text{RIN}}$ 0 RET
	3	$\overline{\text{RIN}}$ 1
	4	$\overline{\text{RIN}}$ 1 RET
	5	$\overline{\text{RIN}}$ 2
	6	$\overline{\text{RIN}}$ 2 RET
	7	$\overline{\text{RIN}}$ 3
	14	$\overline{\text{RIN}}$ 3 RET
	8	$\overline{\text{RIN}}$ 4
	9	$\overline{\text{RIN}}$ 4 RET
	10	$\overline{\text{RIN}}$ 5
	11	$\overline{\text{RIN}}$ 5 RET
	12	$\overline{\text{RIN}}$ 6
	13	$\overline{\text{RIN}}$ 6 RET
	16	$\overline{\text{RIN}}$ 7
	17	$\overline{\text{RIN}}$ 7 RET
	18	$\overline{\text{RIN}}$ 8
	19	$\overline{\text{RIN}}$ 8 RET
	20	$\overline{\text{RIN}}$ 9
	21	$\overline{\text{RIN}}$ 9 RET
	22	$\overline{\text{RIN}}$ 10
	23	$\overline{\text{RIN}}$ 10 RET
	24	$\overline{\text{RIN}}$ 11
	15	$\overline{\text{RIN}}$ 11 RET
	25	$\overline{\text{RIN}}$ 12
	26	$\overline{\text{RIN}}$ 12 RET
	27	$\overline{\text{RIN}}$ 13
	28	$\overline{\text{RIN}}$ 13 RET
	29	$\overline{\text{RIN}}$ 14
	30	$\overline{\text{RIN}}$ 14 RET
	31	$\overline{\text{RIN}}$ 15
J16	32	$\overline{\text{RIN}}$ 15 RET

Table 1-1. Digital Processor Test Set Power and Signal Connections - Continued

Origin		
Connector ref des	**Pin**	**Function/remarks**
J16	33	$\overline{\text{RIN 16}}$
	34	$\overline{\text{RIN 16 RET}}$
	35	$\overline{\text{RIN 17}}$
	36	$\overline{\text{RIN 17 RET}}$
	37	$\overline{\text{RIN 18}}$
	38	$\overline{\text{RIN 18 RET}}$
	39	$\overline{\text{RIN 19}}$
	40	$\overline{\text{RIN 19 RET}}$
	41	$\overline{\text{RIN 20}}$
	42	$\overline{\text{RIN 20 RET}}$
	43	$\overline{\text{RIN 21}}$
	44	$\overline{\text{RIN 21 RET}}$
	46	$\overline{\text{RIN 22}}$
	47	$\overline{\text{RIN 22 RET}}$
	48	$\overline{\text{RIN 23}}$
	49	$\overline{\text{RIN 23 RET}}$
	56	$\overline{\text{XAD 0}}$
	57	$\overline{\text{XAD O0 RET}}$
	58	$\overline{\text{XAD 1}}$
	59	$\overline{\text{XAD 1 RET}}$
	60	$\overline{\text{XAD 2}}$
	61	$\overline{\text{XAD 2 RET}}$
	62	$\overline{\text{XAD 3}}$
	63	$\overline{\text{XAD 3 RET}}$
	64	$\overline{\text{XAD 4}}$
	65	$\overline{\text{XAD 4 RET}}$
	67	$\overline{\text{XAD 5}}$
	68	$\overline{\text{XAD 5 RET}}$
	69	$\overline{\text{XAD 6}}$
	70	$\overline{\text{XAD 6 RET}}$
	71	$\overline{\text{XAD 7}}$
J16	72	$\overline{\text{XAD 7 RET}}$

Table 1-1. Digital Processor Test Set Power and Signal Connections - Continued

Origin		
Connector ref des	**Pin**	**Function/remarks**
J16	73	$\overline{\text{XAD 8}}$
	74	$\overline{\text{XAD 8}}$ RET
	75	$\overline{\text{XAD 9}}$
	76	$\overline{\text{XAD 9}}$ RET
	77	$\overline{\text{XAD 10}}$
	78	$\overline{\text{XAD 10}}$ RET
	79	$\overline{\text{XAD 11}}$
	80	$\overline{\text{XAD 11}}$ RET
	81	$\overline{\text{XAD 12}}$
	82	$\overline{\text{XAD 12}}$ RET
	83	$\overline{\text{XAD 13}}$
	84	$\overline{\text{XAD 13}}$ RET
	86	$\overline{\text{XAD 14}}$
	87	$\overline{\text{XAD 14}}$ RET
	88	$\overline{\text{XAD 15}}$
	89	$\overline{\text{XAD 15}}$ RET
	90	DF ENABLE
	91	DF ENABLE RET
	92	GND
	93	
	94	
	95	
	96	
	97	
	98	
	99	GND
	J16	100 SHLD GND
J17	A	+28 VDC
	B	+28 VDC RTN
	C	SPARE
	D	SPARE
J17	E	SPARE

Table 1-1. Digital Processor Test Set Power and Signal Connections - Continued

Origin		Function/remarks
Connector ref des	Pin	
J17	F	SPARE
J18	A	115 VAC Ø1
↕	B	115 VAC Ø2
↕	C	115 VAC Ø3
↕	D	NEUTRAL
J18	E	GND

1-9. Tabulated data.

Power requirements:

Ac input. ..... 115 V ac ±11.5 V, 3 0, 400 Hz ±57 Hz, 1.5 A
Dc input ..... +28 V dc ±4 V, 10 A

Ac output ..... 115 V ac, 3 0, 0.1 A

Dc output ..... +28 V dc ±1.4 V, 10 A
..... +5 V dc ±.25 V, 25 A
..... +15 V dc ±.75 V, 1A
..... -15 V dc ±.75 V, 1 A
Memory capacity ..... 2048 x 24 bit words
..... (49,152 bits)
Environmental specifications:

Temperature ..... -40° to +55° C
..... (-40° to +133° F)
Altitude. ..... 0 to 40,000 feet
Humidity. ..... 0 to 98%
Physical characteristics:

Height ..... 12.22 inches (31.04 cm)
Width . ..... 19 inches (48.26 cm)
Depth . ..... 20.18 inches (51.26 cm)
Weight ..... 50 pounds (22.73 kg)

[1]Required only when testing the df display or communication processor control indicator.

CHAPTER 2

SERVICE UPON RECEIPT AND INSTALLATION

Section I. SERVICE UPON RECEIPT OF MATERIAL

2-1. Unpacking.

When packed for shipment, the digital processor test set is wrapped with plastic and placed in a cardboard container. Fiberboard blocking material is provided to minimize shock during transport. The procedure for unpacking the unit is obvious upon inspection.

2-2. Checking Unpacked Equipment.

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (Report of Packing and Handling Deficiencies) as prescribed in AR 700-58.

b. Check the equipment against the component listing in the packing slip to see if the shipment is complete. The equipment should be placed in service even though a minor assembly or part that does not affect proper functioning is missing.

c. Check to see whether the equipment has been modified. (Equipment that has been modified will have the MWO number on the front panel, near the nomenclature plate.) Check also to see whether all currently applicable MWOs have been applied. (Current MWOs applicable to the equipment are listed in DA Pam 310-4.)

d. For dimensions, weights, and volume of packaged items, see SB 700-20.

Section II. INSTALLATION INSTRUCTIONS

2-3. Tools, Test Equipment, and Materials Required for Installation.

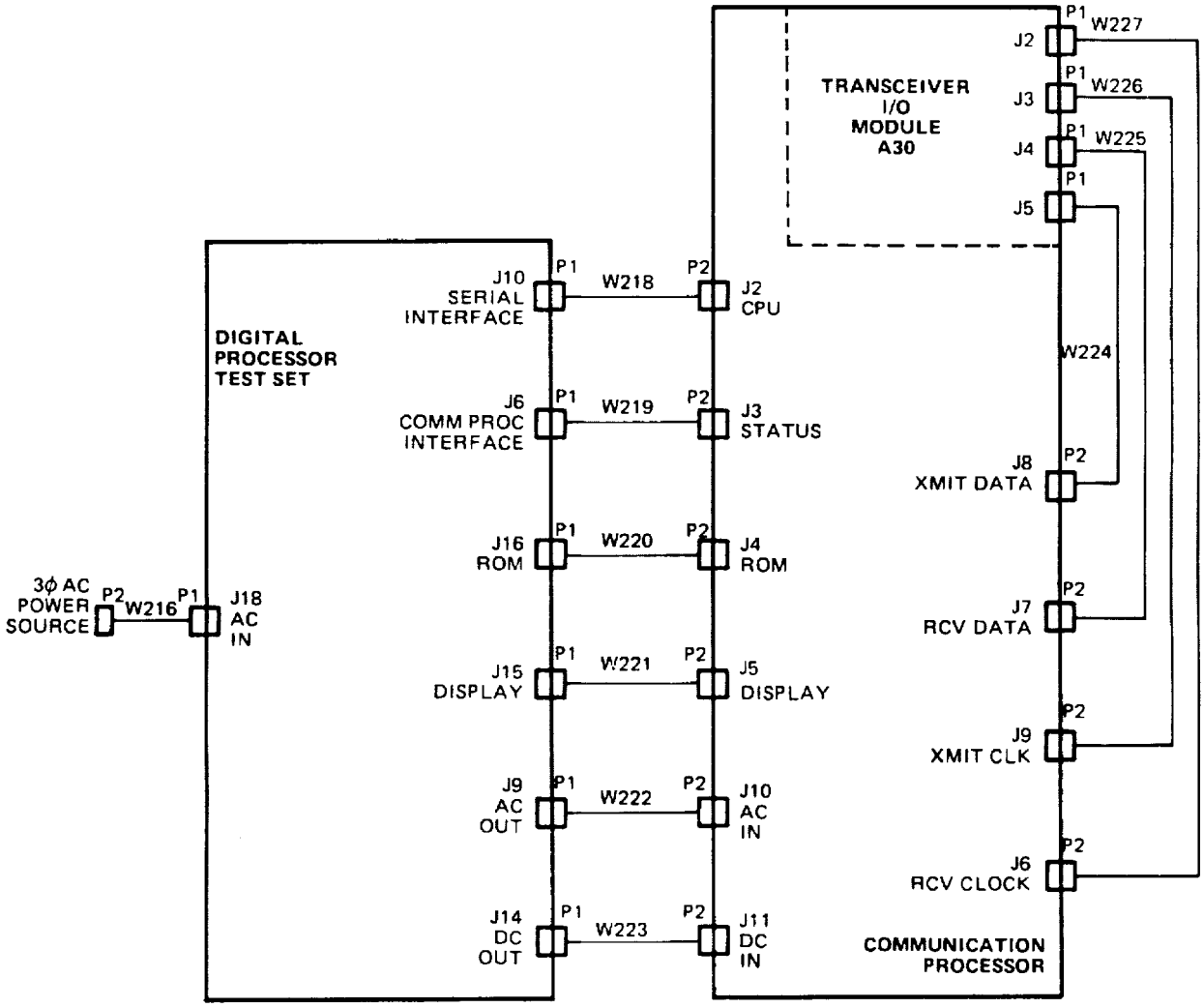
No tools, test equipment, or materials are required for installation of the digital processor test set.

2-4. Installation Instructions.

The digital processor test set is a portable unit requiring no special installation. To operate, connect the unit to 3-ϕ, 115-V ac, 400-Hz and +28-V dc primary power.

2-5. Interconnections.

The digital processor test set will test digital processor-based df or communication processor equipment using four basic configurations. Figures 2-1 thru 2-4 show typical test configurations. Tables 2-1 thru 2-4 list the digital processor test set cables and connectors used for each test configuration and provide a brief description of their functions.



NOTE: SEE TABLE 2-1 FOR DESCRIPTIONS OF CABLE FUNCTIONS

Figure 2-1. Typical Communication Processor Test Configuration

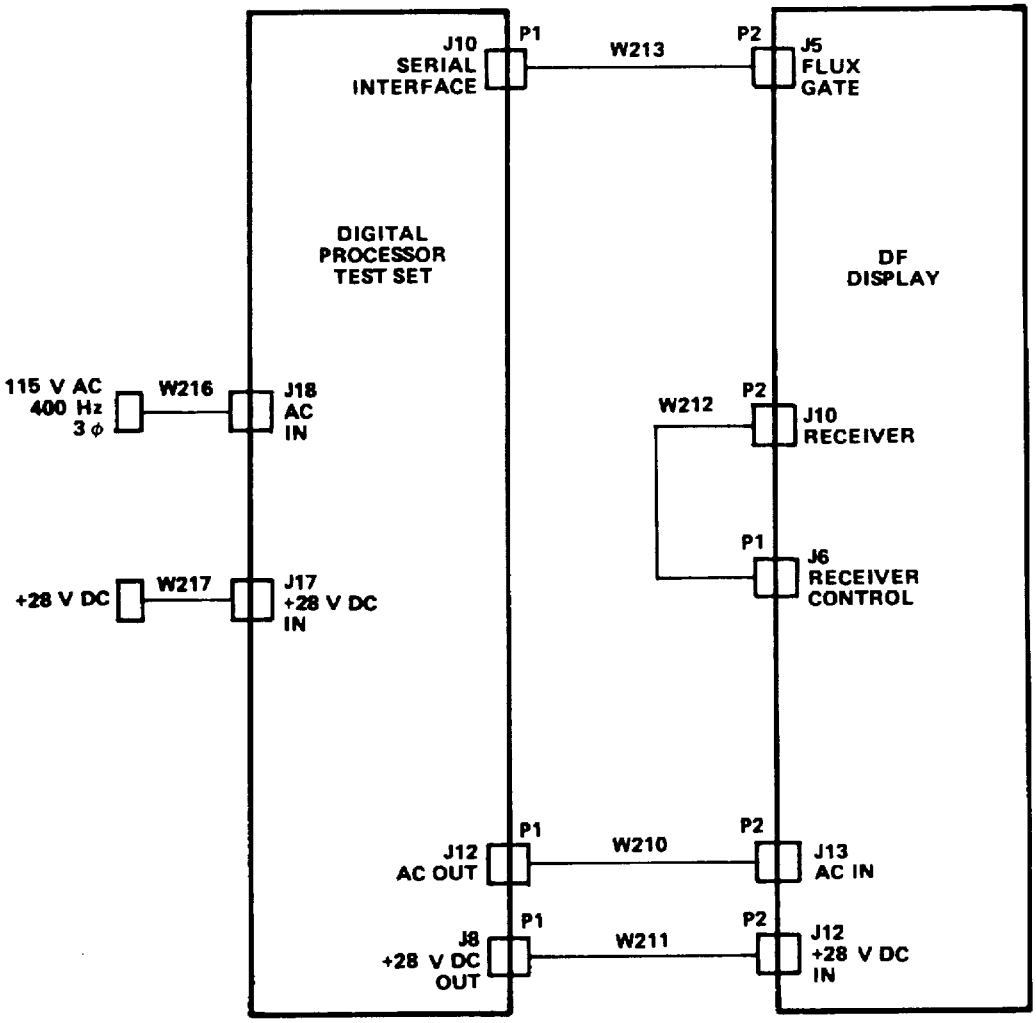
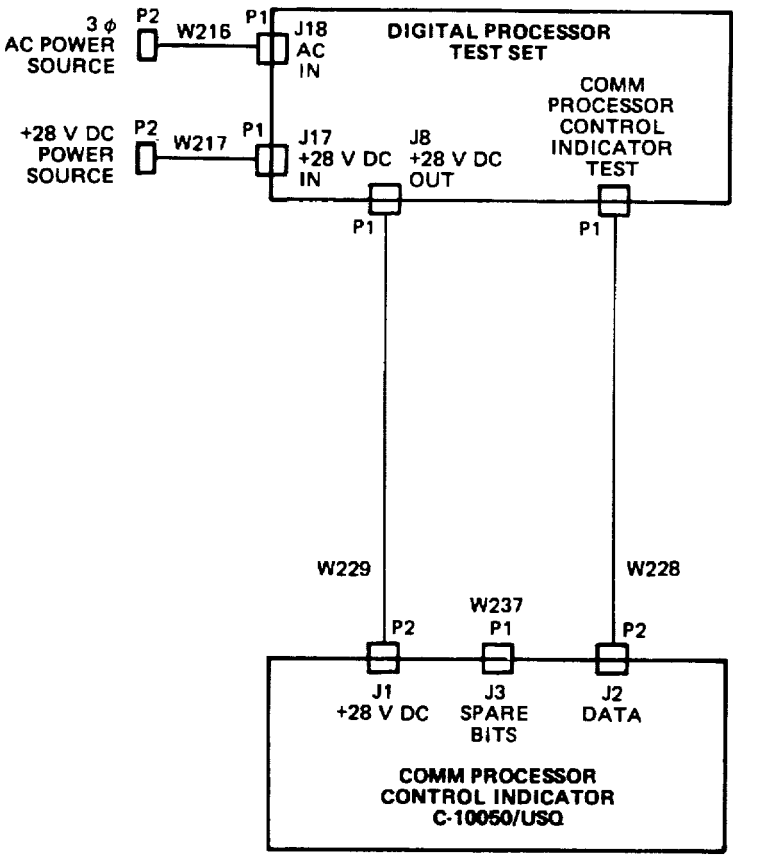


Figure 2-2. DF Test Configuration



NOTE: SEE TABLE 2-3 FOR DESCRIPTIONS OF CABLE FUNCTIONS

Figure 2-3. Typical Communication Processor Control-Indicator Test Configuration

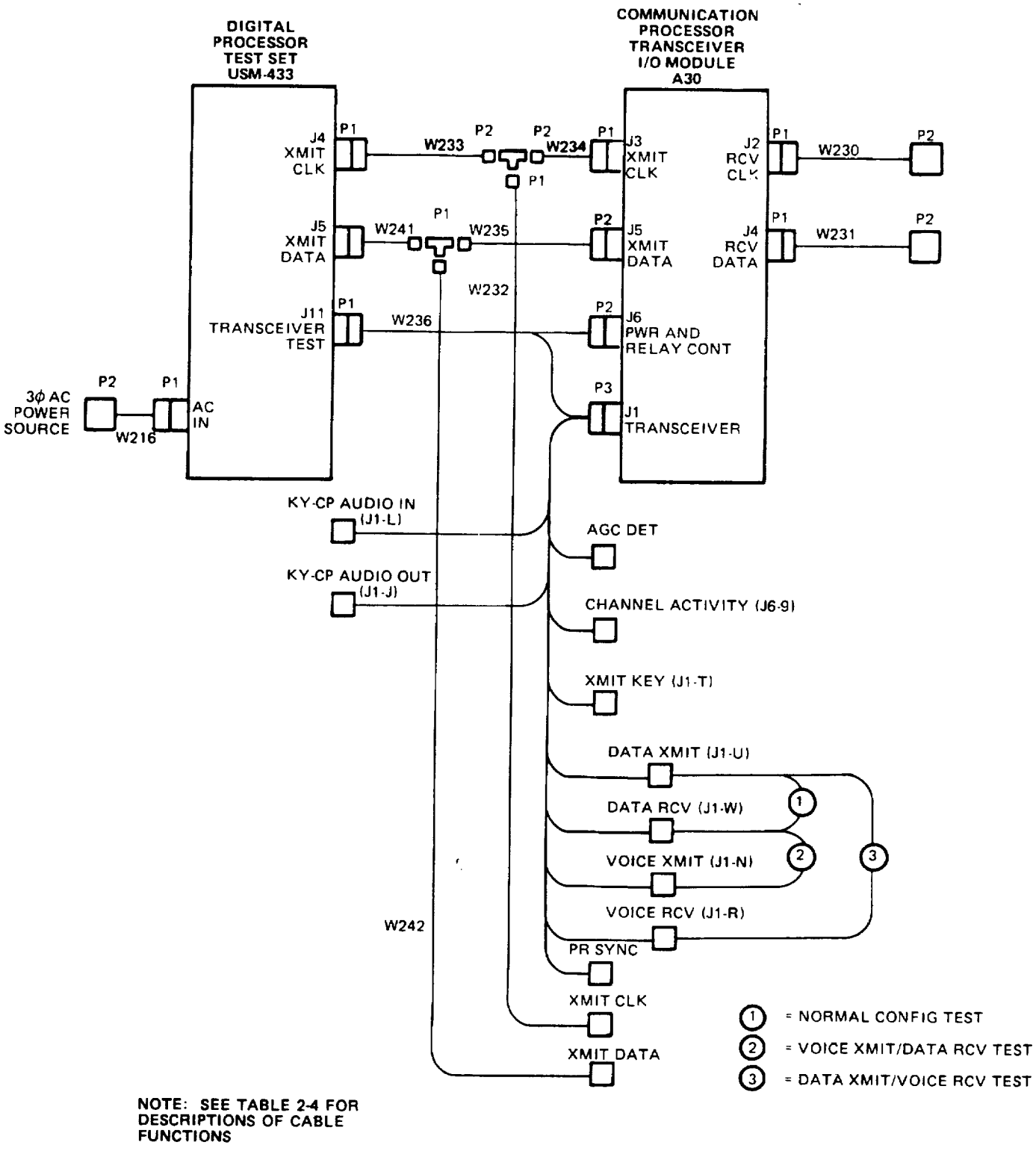


Figure 2-4. Typical Communication Processor Transceiver I/O Test Configuration (Module A30)

Table 2-1. Communication Processor Test Configuration Cables

Cable	Function
W216	See table 2-2.
W218	Connects digital processor test set serial interface test (computer interface simulator) output to the communication processor.
W219	Connects the communication processor control-indicator interface circuits to the digital processor test set to evaluate the ability of the communication processor to exchange control-indicator status words.
W220	Transfers address from the communication processor ROM extender CCA to the digital processor test set diagnostic ROMs. The diagnostic ROM instructions are transferred back to the communication processor ROM extender CCA via this cable.
W221	Transfers communication processor digital processor bus and register data to the digital processor test set for display. In addition, this cable transfers digital processor test set manual digital processor control signals (such as HALT, SINGLE STEP, RUN START) as well as the manual address input (ASWO thru ASW15) to the digital processor.
W222	Transfers 3-Ø- ac blower power to the communication processor blower.
W223	Transfers dc power to the unit under test.
W224	Coaxial cable that transfers the XMIT DATA from communication processor crypto interface output CCA A18 to communication processor transceiver I/O ECA A30.
W225	Coaxial cable that transfers the RCV DATA from communication processor transceiver I/O ECA A30 to the communication processor crypto interface input CCA A17.
W226	Coaxial cable that transfers the extracted RCV CLK from transceiver I/O ECA A30 to communication processor crypto interface input CCA A17.
W227	Coaxial cable that transfers the XMIT CLK from communication processor transceiver I/O ECA A30 to communication processor crypto interface output CCA A18.
W216, W217	See table 2-2.
W228	Transfers +5-V operating power and an output status word for testing the control-indicator display circuits.

Table 2-2. DF Test Configuration Cables

Cable	Function
W210	Connects 3-Ø ac blower power to df display.
W211	Connects +28-V dc power to the df display.
W212	Shorting cable used in conjunction with digital processor test set to test the df display's ability to transfer df receiver commands.
W213	Connects serial interface test (same as flux gate compass I/O) of digital processor test set to the serial interface CCA of the df display.
W216	Connects 3-Ø ac power to the digital processor test set.
W217	Connects +28-V dc power to the digital processor test set.
W218	Coaxial cable for monitoring the df control integrator ramp waveform with an oscilloscope.
W238	Connects the integrator monitor of the df control to the oscilloscope.
W239	Spare cable with no current application.
W240	Spare cable with no current application.
W243	Tests analog 0 when used in conjunction with CP3.
W244	Tests analog 0 when used in conjunction with W205 and CP3. Moves from CP3 to oscilloscope.
CP3	T connector used to tap the oscilloscope to the analog test signal.
W239P1	Connected to the digital processor test set JO1 connector for a self-test of serial interface test CCA A6.
W240P1	Connected to the digital processor test set J13 connector for a self-test of RF processor simulator CCA A5.

Table 2-3. Communication Processor Control-Indicator Test Cables

Cable	Function
W216, W217	See table 2-2.
W228	Transfers +5-V operating power and an output status word to test the control-indicator display circuits.
W229	Connects +28 V dc to the control-indicator for panel illumination power.
W237	Shorting plug used to test the control-indicator switches and indicator lamps.

Table 2-4. Communication Processor Transceiver I/O Module Test Configuration Cables

Cable	Function
W216	See table 2-2.
W230	Coaxial cable to connect transceiver I/O module RCV CLK output to the oscilloscope.
W231	Coaxial cable to connect transceiver I/O module RCV DATA output to the oscilloscope.
W232	Coaxial cable to monitor XMIT CLK output of transceiver I/O module via a T-connector.
W233	Coaxial cable to transfer XMIT CLK from a T-connector to the test set.
W234	Coaxial cable to transfer XMIT CLK from the transceiver I/O module to a T-connector.
W235	Coaxial cable to transfer XMIT data from the test set to the transceiver I/O module.
W236	Three-way cable to transfer power and test relay commands to the transceiver I/O module and for breaking out various transceiver I/O signals for monitoring.
W241	Transfers data to the transceiver I/O module when used with W235.
W242	Monitors tap for test set xmit data when used with W235 and W241.

CHAPTER 3

OPERATING INSTRUCTIONS

Section I. CONTROLS AND INDICATORS

3-1. General.

This section lists and describes the functions of the operator controls, indicators, and connectors on the digital processor test set.

3-2. Operator Controls and Indicators.

Operator controls, indicators, and connectors are shown in figure 3-1 and described in table 3-1.

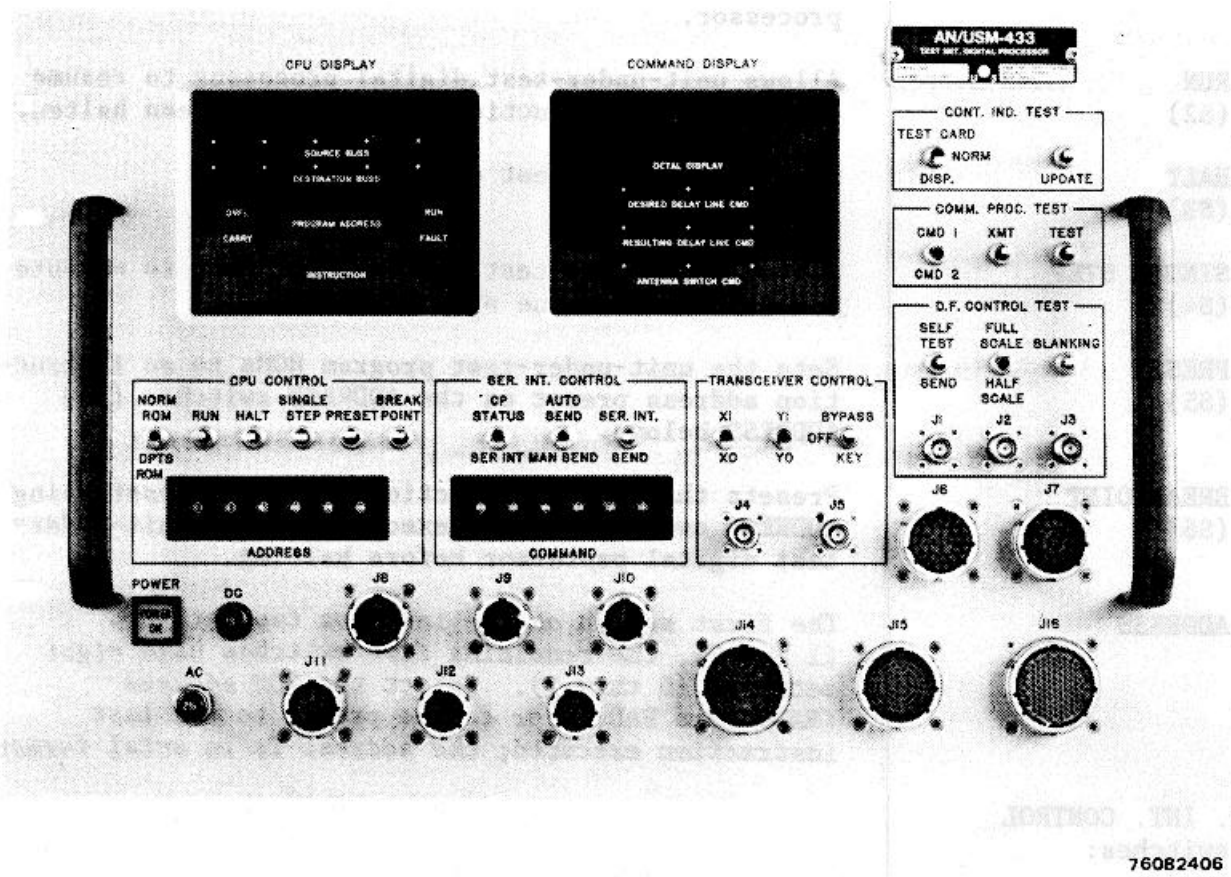


Figure 3-1. Digital Processor Test Set Controls, Indicators, and Connectors

Table 3-1. Digital Processor Test Set Controls, Indicators, and Connectors

Control, indicator, or connector	Function
Primary power:	
POWER/POWER ON (illuminating pushbutton)	Turns on power for equipment under test.
DC and AC (pushbuttons)	Resets dc and ac breakers. If the ac breaker trips, the POWER ON pushbutton light goes out.
CPU CONTROL switches:	
NORM ROM/DPTS ROM (S1)	NORM ROM - Allows unit-under-test program ROMs to control unit-under-test digital processor. DPTS ROM - Allows digital processor test set diagnostic ROMs to control unit-under-test digital processor.
RUN (S2)	Allows unit-under-test digital processor to resume execution of instructions after it has been halted.
HALT (S3)	Stops unit-under-test digital processor.
SINGLE STEP (S4)	Allows unit-under-test digital processor to execute its instructions one step at a time.
PRESET (S5)	Sets the unit-under-test program ROMs to an instruction address preset on the ADDRESS switches (see ADDRESS below).
BREAKPOINT (S6)	Presets the final instruction address (preset using ADDRESS switches) to be executed by the unit-under-test digital processor before halting.
ADDRESS	The first switch on the left has two settings (1 and 0), the remaining five switches have eight settings (O thru 7). Select the ROM address (RADO thru RAD15) or can be preset to the last instruction executed; the address is in octal format.
SER. INT. CONTROL switches:	
CP STATUS/SER INT (S7)	CP STATUS - Routes the output of lamp driver CCA A8 to the digital processor test set octal display.

Table 3-1. Digital Processor Test Set Controls, Indicators, and Connectors - Continued

Control, indicator, or connector	Function
SER. INT. CONTROL (cont)	SER INT - Routes the output of serial interface test CCA A6 to the digital processor test set octal display (COMMAND DISPLAY).
AUTO SEND/MAN SEND (S8)	AUTO SEND - Automatically repeats test set transmission of serial COMMAND message (see COMMAND below) to unit-under-test serial interface CCA at a 10-kHz rate. MAN SEND - Requires setting the SER. INT./SEND switch for each serial test set COMMAND message transmission to unit under test.
SER. INT. SEND (S9)	Manually transmits serial COMMAND message to unit under test with serial interface CCA.
COMMAND (S28 thru S33)	The first switch on the left (S28) has two settings (0 and 1), the remaining five switches have eight settings (0 thru 7). Provide word for transmittal to unit under test with serial interface CCA, word command is in octal format.
TRANSCEIVER CONTROL switches:	Controls three test relays within communication processor transceiver I/O module A30.
X1/XO (S10) Y1/YO (S11)	X1,Y1 - Normal transceiver I/O test relay configuration for communication processor (CP) operation. The CP configuration transmits and receives via the data transceiver. XO,Y1 - A loopback test configuration in which the CP transmits via the voice transceiver and receives via the data transceiver. X1,YO - A loopback test configuration in which the CP transmits via the data transceiver and receives via the voice transceiver. XO,YO - A loopback test configuration in which the transceiver I/O biphase-L encoded output is internally fed back into the biphase-L decoding circuits.

Table 3-1. Digital Processor Test Set Controls, Indicators, and Connectors - Continued

Control, indicator, or connector	Function
TRANSCEIVER CONTROL (cont)	
BYPASS/OFF/KEY (S12)	BYPASS - Inverts the transceiver I/O biphase-L output data stream for communication processor loopback tests. OFF - Deactivates BYPASS and KEY function. KEY - Activates transceiver I/O module transceiver keying circuits (drives key-R monitoring output low).
J4	Xmit Clock - Provides transmitting data clock to test unit-under-test transceiver I/O module operation.
J5	Xmit Data - Provides transmitting data to test unit-under-test transceiver I/O module operation.
CONT. IND. TEST switches:	
TEST CARD/NORM/ DISP. (S13)	TEST CARD - Used with UPDATE switch to check digital processor test set control indicator test circuit. When UPDATE switch is set and all lamps on the communication processor control-indicator are lit, the test card will check good. NORM - Allows testing of the entire control-indicator. DISP. - Used with the UPDATE switch to test communication processor control-indicator lamp driver CCA Al and the indicator lamps.
UPDATE	Executes TEST CARD or DISP. test functions.
COMM. PROC. TEST switches:	
CMD 1/CMD 2 (S15)	CMD 1 - Generates a unique 32-bit control-indicator word (CMD 1), which is applied to communication processor control-indicator interface CCA A20 twice per second. CMD 2 - Generates a unique 32-bit control-indicator word (CMD 2), which is applied to communication processor control-indicator interface CCA A20 twice per second.

Table 3-1. Digital Processor Test Set Controls, Indicators, and Connectors - Continued

Control, indicator, or connector	Function
XMT (S16)	Modifies 32-bit communication processor control-indicator CMD 1 or CMD 2 word with an active (high) XMT2T (transmit response twice) bit.
TEST (S17)	Modifies 32-bit communication processor control-indicator CMD 1 or CMD 2 word with an active (high) self-test bit.
D.F. CONTROL TEST	
SELF TEST/SEND (S18)	SEND - Used with the shorting plug on the digital processor test set J13 connector to check the performance of digital processor test set RF processor simulator CCA AS. Successful completion of this test results in the correct RESULTING DELAY LINE CMD and ANTENNA SWITCH CMD code presentation on the COMMAND DISPLAY.
FULL SCALE/HALF SCALE (S19)	FULL SCALE - Simulates a df servo audio signal.
	HALF SCALE - Simulates a df servo audio signal.
BLANKING (S20)	Tests the ability of the df control digital processor to be interrupted.
J1	Analog 0 output that simulates df receiver audio output for df servo loop tests.
J2	Analog 1 output that simulates df receiver audio output for df servo loop tests.
J3	Digital processor test set output for blanking of df control.
CPU DISPLAY:	
SOURCE BUSS (A1CR3 thru AlCR18)	LED indicators that display unit-under-test digital processor source bus data in binary form: LED on = 1, LED off = 0.
DESTINATION BUSS (A1CR21 thru A1CR36)	LED indicators that display unit-under-test digital processor destination bus data in binary form: LED on = 1, LED off = 0.

Table 3-1. Digital Processor Test Set Controls, Indicators and Connectors - Continued

Control, indicator, or connector	Function
CPU DISPLAY (cont)	
PROGRAM ADDRESS (A1U4 thru A1U9)	Six-digit indicators that display the unit-under-test digital processor 16-bit program ROM address in octal form.
INSTRUCTION (A1U11 thru A1U18)	Eight-digit indicators that display the 24-bit instruction output of the addressed unit-under-test digital processor program ROM in octal format.
OVFL (A1CR19)	LED indicator that displays the state of the ALU overflow register of the unit under test: LED on = overflow register set, LED off = overflow register clear.
CARRY (A1CR20)	LED indicator that displays the state of the ALU carry register of the unit under test: LED on = carry register set, LED off = carry register cleared.
RUN (AlCR1)	LED indicator that displays the state of the digital processor unit-under-test: LED on = digital processor running, LED off = digital processor halted.
FAULT (A1CR2)	LED indicator that lights when a unit-under-test digital processor failure occurs.
COMMAND DISPLAY:	
OCTAL DISPLAY	Six-digit indicators that display the unit-under-test output word response to a SER. INT. CONTROL test or COMM. PROC. TEST. This display is in octal format.
DESIRED DELAY LINE CMD (A2CR1 thru A2CR12)	LED indicators that display the correct delay line command generated by the df control. These data are in binary form: LED on = 1, LED off = 0.
RESULTING DELAY LINE CMD (A2CR13 thru A2CR24)	LED indicators that display the delay line preset (DLP) CMD generated by the df control. When the unit-under-test is functioning normally, these data match the DESIRED DELAY LINE CMD data. These data are in binary form: LED on = 1, LED off = 0.
ANTENNA SWITCH CMD (A2CR25 thru A2CR36)	LED indicators that display the antenna switching command (ASC) generated by the df control test command in binary form: LED on = 1, LED off = 0.

Table 3-1. Digital Processor Test Set Controls, Indicators, and Connectors - Continued

Control, indicator, or connector	Function
J6	Connects to control-indicator interface circuits of the communication processor.
J7	Connects to communication processor control-indicator for testing.
J8	Provides +28-V power to unit-under-test df display or control-indicator.
J9	Provides 3-Ø ac power to df control or communication processor.
J10	Connects to serial interface CCA of df control or communication processor.
J11	Connects digital processor test set test circuits to communication processor transceiver I/O module.
J12	Provides 3-Ø ac power to df display.
J13	Connects df control digital servo circuits to digital processor test set RF processor simulator CCA A5.
J14	Provides dc operating power to df control or communication processor.
J15	Connects digital processor test set display circuits to df control or communication processor display multiplexer.
J16	Connects digital processor test set diagnostic ROMs to df control or communication processor ROM extender CCA.

Section II. OPERATION UNDER USUAL CONDITIONS

3-3. General.

This section describes the operating procedures for the digital processor test set.

3-4. Operating Procedures.

Refer to the appropriate df control, communication processor, or df display manual for specific applications, operating procedures, switch settings, and display indications for the digital processor test set.

CHAPTER 4

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. GENERAL

4-1. Scope.

This chapter provides instructions covering organizational maintenance of the digital processor test set. For the purposes of this technical manual, organizational maintenance consists of preventive maintenance. Included in the chapter are lists of the required tools and test equipment, preventive maintenance checks and services, and troubleshooting procedures.

Section II. TOOLS AND EQUIPMENT

4-2. General.

This section lists tools and equipment required to perform organizational maintenance.

4-3. Tools and Equipment Required.

a. Tools. No special tools are required.

b. Test Equipment. No test equipment is required.

c. Materials.

(1) Cleaning compound (trichlorotrifluoroethane)

(2) Cleaning cloth

(3) Sandpaper no. 000.

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

4-4. General.

Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in a serviceable condition, prevent breakdowns, and assure maximum operational capability. Preventive maintenance and services of the digital processor test set at the organizational maintenance level are performed at daily, weekly, and monthly intervals, unless otherwise directed by the commanding officer. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38-750 (TAMMS).

4-5. Daily and Weekly Preventive Maintenance.

The daily and weekly preventive maintenance checks and services are listed and described in tables 4-1 and 4-2. Follow the steps in the order given. Defects discovered during operation will be noted for corrections to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted that would damage the equipment. Record all defects and the corrective action taken on the form specified in TM 38-750 (TAMMS).

Table 4-1. Daily Preventive Maintenance Checks and Services

Step	Item	Procedure
1	Cables	Inspect all exterior cables for kinks and strained cut, frayed, or otherwise damaged insulation. **NOTE** **Report any abnormal conditions to direct support maintenance personnel.**
2	Cleanliness	Make sure exterior surfaces of the unit are clean. If necessary, clean exterior surfaces as follows: a. Remove dust and loose dirt with a clean, soft cloth. b. Remove dust or dirt from plugs and jacks with a brush. **WARNING** **Adequate ventilation should be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since trichlorotrifluoroethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary use heavy duty rubber gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.** c. Remove grease, fungus, and ground-in dirt using a cloth dampened (not wet) with trichlorotrifluoroethane.

4-6. Monthly Preventive Maintenance.

Perform all the preventive maintenance checks and services listed in table 4-3 once each month in the sequence listed. A month is defined as approximately 30 calendar days of eight-hour-per-day operation. If the equipment is operated 16 hours a day, the monthly preventive maintenance checks and services should be performed at 15-day intervals. Adjustment of the maintenance interval must be made to compensate for any unusual operating schedule.

Table 4-2. Weekly Preventive Maintenance Checks and Services

Step	Item	Procedure
1	Corrosion	Make sure exterior surfaces of unit are free of rust and corrosion.

Table 4-3. Monthly Preventive Maintenance Checks and Services

Step	Item	Procedure
1	Cleanliness	Make sure exterior surfaces of the unit are clean. If necessary, proceed as directed in table 4-1, step 2.
2	Preservation	Inspect exterior surfaces of the unit for chipped paint or corrosion. If necessary, spot-paint surfaces as follows: a. Remove rust and corrosion from metal surfaces by sanding them with sandpaper. b. Brush two coats of light gray enamel, MIL-E-15090 class 2 type III color number 26307 IAW FED standard 595, on bare metal to protect it from further corrosion. c. Refer to the applicable cleaning and refinishing practices specified in TB 43-0118.
3	Interconnecting cables	Inspect unit interconnecting cables for loose, broken, or otherwise damaged connections. **NOTE** **Higher category maintenance is required for repair or replacement of all cables.**

Section IV. TROUBLESHOOTING

4-7. Troubleshooting.

Organizational troubleshooting consists of verifying any defects noted during normal operation. Once a unit is determined to be defective, intermediate support maintenance personnel will be notified. Organizational maintenance personnel will remove a defective unit from service and replace it with one of known quality.

Section V. MAINTENANCE

4-8. General.

Organizational maintenance of the digital processor test set is not required.

CHAPTER 5
FUNCTIONING OF EQUIPMENT

Section I. GENERAL

5-1. Scope.

This chapter provides theory of operation for the digital processor test set at simplified block diagram, detailed block diagram, and detailed schematic diagram levels. The purpose of this chapter is to explain the circuit operation of this equipment to organizational and intermediate support maintenance personnel.

5-2. Organization.

In addition to the general section, this chapter contains a functional description and a detailed theory of operation section.

Section II. FUNCTIONAL DESCRIPTION

5-3. General.

The digital processor test set is used for fault isolation and operational verification of the df control, df display, and communication processor. Fault isolation and operational verification is accomplished by externally controlling the digital processor (central processor unit or CPU) of the unit under test and simulating associated equipment. For example, when testing a df control, the digital processor test set simulates an RF processor to the df control servo group. The digital processor test set also replaces the internal df control instruction ROMs with diagnostic ROMs. The response of the df control to RF processor simulation and the external diagnostic ROMs can be monitored on the CPU DISPLAY and COMMAND DISPLAY panels of the digital processor test set. Testing of the df display and communication processor is accomplished in a similar manner.

5-4. Card Cage Assembly.

(See figure FO-1.) The card cage assembly contains 12 CCAs that, in conjunction with the front-panel assembly controls, control and monitor the test functions. Table 5-1 lists and describes the functions of the card cage CCAs and figures FO-7 thru FO-17 show CCA diagnostic buffer schematic diagrams.

5-5. Power Supply Assembly and Distribution.

(See figure FO-2.) The power supply assembly accepts 3-0, 115-V ac external power and provides +5-, -10-, and +15-V ac operating power for the card cage CCAs and for the unit under test. When pressed, front-panel POWER switch S21 energizes relay K4, transferring external ac and dc power to the power supply assembly and to the unit under test (+28 V to the unit under test only). CB2 provides 2.5 A overcurrent protection for the external ac course, and CB1 protects the external dc power source from a unit-under-test load that draws an excess of 15 A.

The power supply assembly consists of five identical rectifier modules (VR1 thru VR5), five identical preregulator modules (VR6 thru VR10), five identical high-frequency (HF) oscillator modules (G1 thru G5), and 11 special-purpose output regulators (VR11 thru VR21). A typical power supply string consists of a rectifier module to convert 1 0 ac to nonregulated dc, a preregulator to provide regulated +80 V dc to the oscillator module, and output regulators that convert HF oscillator output into the operating voltages required by the card cage CCAs and the unit under test.

Three relays (K1, K2,and K3) are activated by the 115-V ac phase input, transferring dc operating voltages to the unit under test. Phase 3 is selected as a requisite for outputting dc operating voltages because the ac drives the unit-under-test cooling blower motors. Should the blowers become inoperative because of an ac power failure, the unit under test will not operate or overheat, since operating (dc) power is not provided. Relay K1 transfers +15-V and +5-V dc power to the unit under test via J7 and J14, and transfers -10-V and +5-V dc power via K2 and connector J14. Relay K3 transfers +28 , dc to the df display when ac power is applied.

5-6. Front-Panel Assembly.

(See figure FO-3.) The front-panel assembly houses the control switches and power supply circuit breakers. The control switches permit the operator to select the various test functions provided by the digital processor test set. (See Chapter 3 for operator controls, indicators and connectors functions.)

Table 5-1. Card Cage Assembly CCA Functions

CCA	Function
Processor display CCA A1	Provides octal and binary display LEDs to display key unit-under-test digital processor bus data received via digital processor test set CCAs A3 and A4.
AGE display CCA A2	Provides octal and binary display LEDs to display the responses of the unit under test to digital processor test set stimuli. CCA A5 transfers unit-under-test antenna and delay line switching command data (LASO thru LAS11 and RDLO thru RDL11, respectively) while CCAs A8 and A6 store the DFDO thru DFD15 input to CCA A2. As a result, the OCTAL DISPLAY on CCA A2 may show the response of a communication processor control-indicator interface test (via CCA A8) or the response of a serial interface test (via CCA A6). Front-panel switch S7 (SER. INT. CONTROL CP STATUS/SER INT) selects either CCA A8 or CCA A6 to drive the DFDO thru DFD15 lines.
Display storage CCA A3	Addresses the unit-under-test digital processor display multiplexer CCA via the **MUXO** thru **MUX2** lines and stores the resulting **DMO** thru **DM7** words for display on CCA Al. In addition, the display storage CCA provides a 500-kHz clock used by RF processor simulator CCA A5.
Diagnostic buffer CCA A4	Transfers address (**XADO** thru **XAD15**) data from unit-under-test digital processor to diagnostic ROM CCAs All and A12 and to CCA Al (via the RADO thru RAD15 lines). CCA A4 is also used to transfer the resulting diagnostic ROM instruction bits (INO thru IN23) to the unit-under-test instruction bus via the **RINO** thru **RIN23** lines.
RF processor simulator CCA A5	Tests df control servo loop by responding to input delay line preset (DLP) binary commands from the unit under test with proportional ANALOG output signals. The RF processor simulator CCA also formats, then routes the ASC, DLP command data to CCA A2 for display via the RDLO thru RDL11 and LASO thru LAS11 lines. To perform its functions, CCA A5 requires a 500-Hz input from CCA A3.
Serial interface test CCA A6	Tests the ability of a unit-under-test serial interface CCA to perform the interface function. CCA A6 converts the test word received from the digital processor test set front-panel COMMAND switches

Table 5-1. Card Cage Assembly CCA Functions - Continued

CCA	Function
Serial interface test CCA A6 (continued)	into the appropriate format for transfer to the unit under test. CCA A1A6 then converts the unit-under-test response word into the necessary format for transfer to OCTAL DISPLAY of CCA A2. The serial interface test CCA has access to the OCTAL DISPLAY (via DFDO thru DFD15 lines) only when the front-panel CP STATUS/ SER INT switch (S7) is in the SER INT position. (See figure FO-4.)
Logic control CCA A7	Functions with lamp driver CCA A8 to test the ability of the communication processor to interface with its control-indicator. CCA A7 responds to digital processor test set front-panel switching by serially transferring a 32-bit test word to the unit under test.
Lamp driver CCA A8	Functions with logic control CCA A7 to test the ability of the communication processor to interface with its control-indicator. CCA A8 receives a serial 16-bit word, which is the unit-under-test response to the 32-bit test word applied by CCA A7. CCA A8 then formats the input for transfer to the OCTAL DISPLAY. The lamp driver routes the formulated response word to the OCTAL DISPLAY via the DFDO thru DFDI5 lines. For CCA A8 to have exclusive access to these lines, the front-panel CP STATUS/SER INT switch (S7) must be set to the CP STATUS position. (See figure FO-5.)
Control-indicator test CCA A9	Tests the communication processor control-indicator. CCA A9 accepts an input 32-bit word from the control-indicator switches and loads this word into a matrix logic circuit. The output of the matrix logic, a 16-bit response word, is then transferred back to the control-indicator to light the status lamp. A successful test is executed when the control-indicator switching arrangement is interpreted by CCA A9 matrix logic into a response word that lights the appropriate control-indicator status lamp. (See figure FO-6.)
Transceiver test CCA A10	Functions with the digital processor test set front-panel TRANSCEIVER CONTROL switches to test the ability of the communication processor transceiver I/O module to encode and decode a serial binary data stream. In addition, CCA A10 provides a 10-Hz signal that exercises the data link transceiver AGC detection circuits of the communication processor transceiver I/O

Table 5-1. Card Cage Assembly CCA Functions - Continued

CCA	Function
Transceiver/Test CCA A10 (continued)	module. CCA A10 generates a pseudorandom (PR) coded data stream from the transceiver I/O module in response to a 5-kHz XMIT clock. This PR output simulates XMIT data. The transceiver I/O module uses the XMIT data as a test signal while undergoing different test configurations in response to digital processor test set front-panel TRANSCEIVER CONTROL switching.
Diagnostic ROM CCAs All and A12	Contain 1024 24-bit diagnostic instruction words/each. These words are applied to the unit-under-test digital processor in response to a 16-bit RADO thru RAD15 address word received from the unit under test. Diagnostic buffer CCA A4 buffers the input address as well as the output instruction word. These diagnostic ROM output words replace the unit-under-test digital processor ROM outputs when the digital processor test set front-panel NORM ROM/DPTS ROM switch (A3S1) is in the DPTS ROM position.

Section III. DETAILED THEORY OF OPERATION

5-7. General.

This section provides detailed circuit theory for the digital processor test set. Figures FO-7 thru FO-17 are schematic diagrams of digital processor test set CCAs.

5-8. Display Storage Function.

a. General. (See figure FO-9) Display storage CCA A3 performs the following functions:

(1) Addresses the unit-under-test display multiplexer CCA to access unit-under-test digital processor bus data.

(2) Sorts and stores the bus data obtained from the unit-undertest digital processor to provide drive to LEDs on processor display CCA A1.

(3) Generates a 500-kHz clock for use by RF processor simulator CCA A5.

b. Detailed Description. Oscillator U3 provides a 500-kHz square wave (test point A) applied to RF simulator CCA A2 via buffer U5A and to select code generator U29.

U29 is a counter that produces a binary 0-to-7 count at its output pins (Q_A, pin 14; Q_B, pin 13; and Q_C, pin 12). This binary output is applied to multiplexer buffers U31A, U31B, and U31D and to select decoder U28.

The binary output of U29 applied to multiplexer buffers U31A, U31B and U31D produces the respective ***MUX0***, ***MUX1***, and ***MUX2*** data word select output (see figure 5-1). This negative true binary output addresses the display multiplexer CCA of the unit-under-test digital processor. The display multiplexer CCA responds by providing eight 8-bit data words, one at a time, according to the binary select code (***MUX0***, ***MUX1***, and ***MUX2***) output. Table 5-2 lists and describes the eight data words obtained from the unit-under-test display multiplexer.

The binary output of U29 applied to select decoder U28 produces a load clock that transfers the incoming data word bits to the appropriate display storage latch. U28 is a binary-to-decimal decoder that responds to binary select code generator U29 output by producing eight staggered load clocks. These clocks coincide with the arrival of a corresponding 8-bit data word (***DM0*** thru ***DM7***) from the unit-undertest display multiplexer. The incoming data word bits are inverted by U21 and U18 to provide positive true data that are loaded into the respective display storage latch by corresponding load clocks. The output of the display storage latch provides direct drive to the binary and octal LED displays on processor display CCA A1.

5-9. Digital Processor Test Set CPU Control Function.

a. General. The digital processor test set provides the means to externally control the unit-under-test digital processor (CPU). In addition to starting and halting the CPU, manipulation of the digital processor test set front-panel switches allows the operator to bypass the operational instruction memory (the program ROMs of the CPU) and use digital processor test set diagnostic ROMs in its place.

The operator can also preset a digital processor starting address and the halting address (breakpoint address).

b. Detailed Description. The typical digital processor control sequences listed in table 5-3 describe digital processor test set and unit-under-test digital processor circuit activity in response to digital processor test set front-panel switching.

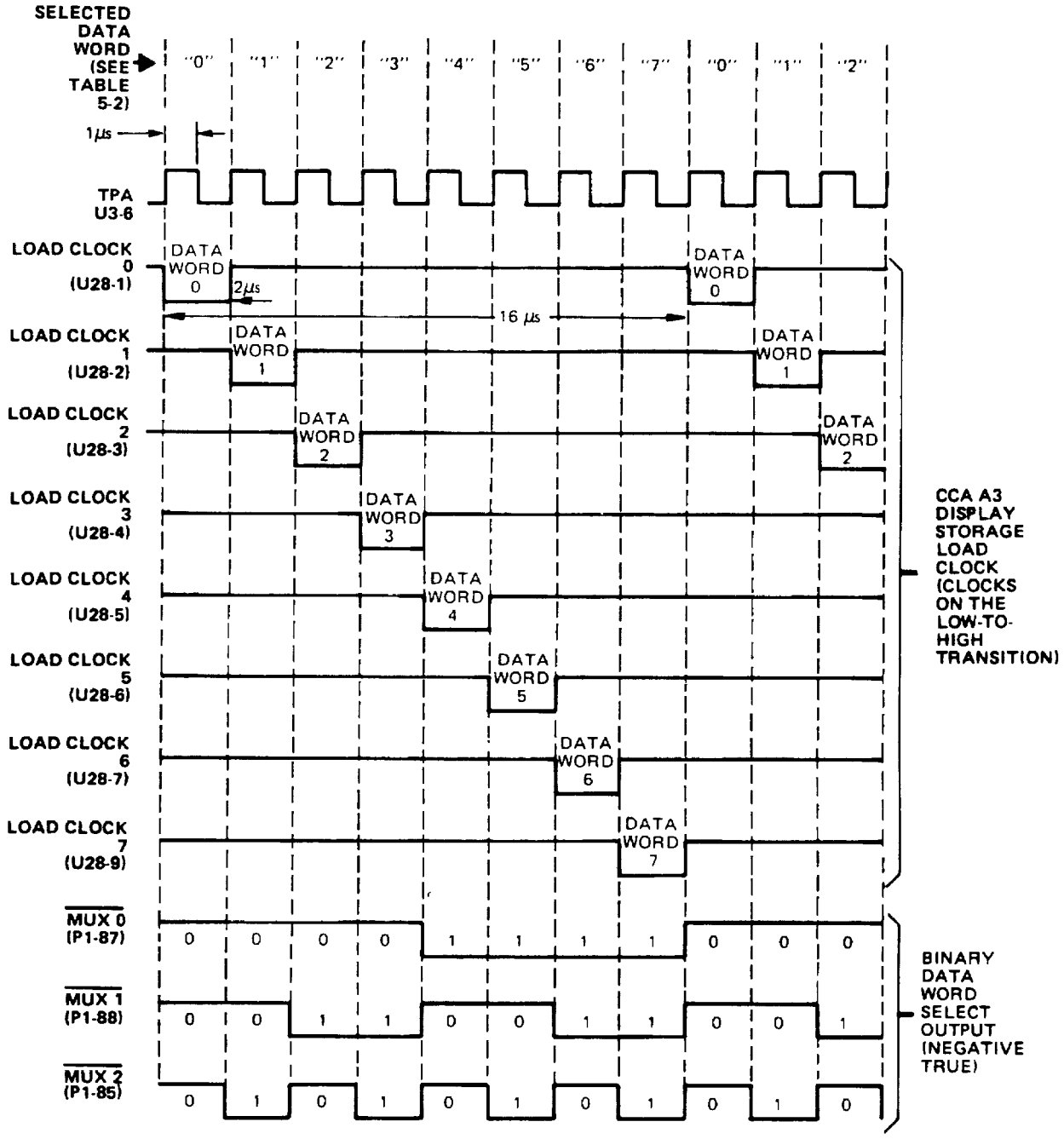


Figure 5-1. Multiplexed Data Word Select Timing Diagram

Table 5-2. Input Display Data Word

Selected data word	Data word contents[1]								Display storage latch used (CCA A3)
	DM7	***DM6***	***DM5***	***DM4***	***DM3***	***DM2***	***DM1***	***DMO***	
0	***S7***	***S6***	***S5***	***S4***	***S3***	***S2***	***S1***	***SO***	
1	***S15***	***S14***	***S13***	***S12***	***S11***	***S10***	***S9***	***S8***	
2	***D7***	***D6***	***D5***	***D4***	***D3***	***D2***	***D1***	***DO***	
3	***D15***	***D14***	***D13***	***D12***	***D11***	***D10***	***D9***	***D8***	
4	INB7	INB6	INB5	INB4	INB3	INB2	INB1	INB0	U14,U15
5	INB15	INB14	INB13	INB12	INB11	INB10	INB9	INB8	U11,U12
6	INB23	INB22	INB21	INB20	INBl9	INB18	INB17	INB16	U9, U10
7	Not used	Not used	Not used	Not used	***OVFL***	***CARRY***	***RUN***	***F15***	U8

[1] Negative True

S0-S15	=	Negative true source bus data bits	
D0-D15	=	Negative true destination bus data bits	
INB0-INB23	=	Positive true instruction bus (unit under test program ROM output)	
OVFL	=	OVERFLOW REGISTER BIT	
CARRY	=	CARRY REGISTER BIT	0 = REGISTER CLEAR
RUN	=	DIGITAL PROCESSOR RUNNING	1 = RUNNING 0 = HALTED
F15	=	FLAG 15 (FAULT FLAG)	1 = FLAG SET: FAULT 0 = FLAG CLEAR: NO FAULT

Table 5-3. Typical Digital Processor Control Sequence

Switch	Circuit Activity
HALT (S3)	A low HALT signal is sent to the unit-under-test processor timing CCA. This input sets a HALT latch and freezes the digital processor.
ADDRESS switches (S22 thru S27) (set to desired octal address on CPU CONTROL PANEL)	A negative true 16-bit binary address, ***ASW0*** thru ***ASW15***, is sent to address multiplexers within the digital processor program counter CCAs.
PRESET (S5) (pressed)	A high PRES and low ***PRES*** input from the PRESET switch sets the preset latch within the unit under-test processor timing CCA. This set latch overrides HALT, permitting the digital processor to execute one instruction cycle. During this cycle, a low PCWS (program counter write strobe) enables the ***ASW0*** thru ***ASW15*** address input. PCCLK (program counter clock) loads this address onto the RAD0 thru RAD15 lines in positive true format. RAD0 thru RAD15 address the ROM CCAs. At the conclusion of the cycle, the preset latch on the processor timing CCA is reset, restoring the HALT condition with the digital processor address matching the settings of the digital processor test set ADDRESS switches.
NORM ROM/DPTS ROM (S1) (set to DPTS ROM)	In the DPTS ROM position, S1 sends a low (ground) DF ENABLE signal to the unit-undertest ROM extender CCA. The CCA responds to this input by generating a high RS15 signal, which disables the internal ROM buffer, and a low enabling signal, which allows the digital processor test set diagnostic ROM output to feed the digital processor instruction bus. In effect, the digital processor ROMs are bypassed. The RAD0 thru RAD15 address from the program counters CCAs is transferred to the digital processor test set diagnostic ROMs via the digital processor ROM extender CCA, the cabling XAD0 thru XAD15 lines, and diagnostic buffer CCA A4. The diagnostic buffer inverts the ***XAD0*** thru ***XAD15*** input to provide a positive true duplicated ***RAD0*** thru ***RAD15*** word, which addresses the digital processor test set ROMs and drives the PROGRAM ADDRESS octal display on CCA A2.

Table 5-3. Typical Digital Processor Control Sequence - Continued

Switch	Circuit Activity
NORM ROM/DPTS ROM (continued)	The digital processor test set diagnostic program responds to the address by generating a 24-bit instruction word, which is applied to the digital processor instruction bus via diagnostic buffer CCA A4, the cabling ***RIN0*** thru ***RIN23*** lines, and the enabled ROM extender CCA of the unit-under-test digital processor.
BREAKPOINT switch (S6) (pressed)	A high BRKPT signal is applied to the unit-undertest processor timing CCA. This input activates the breakpoint logic circuits only when the digital processor is in the HALT condition. Once activated, this logic will cause the digital processor to HALT when the ADDRESS set on the CPU CONTROL panel is reached. Once this breakpoint address is set, the operator may restart the digital processor by setting the DPTS RUN switch (S2).
RUN (S2) (pressed)	A RUN signal goes high and a ***RUN*** signal goes low to defeat the processor timing HALT logic, allowing the digital processor to execute the diagnostic ROM instructions. When the breakpoint address set on the CPU CONTROL panel ADDRESS switch is reached, the digital processor again halts, if the breakpoint logic has been previously activated by the BREAKPOINT switch.
SINGLE STEP (S4) switch (pressed) Circuit Activity	S4 sends a low (ground) ***SGLST*** signal and a high SGLST signal to the halted unit-under-test processor timing CCA logic. The logic responds by momentarily defeating the HALT condition, allowing the digital processor to execute one instruction cycle. ,The digital processor then halts at the end of this cycle.

5-10. RF Processor Simulation Function.

a. General. (see figure FO-11) RF processor simulator CCA A5 is used in place of an RF processor to test the digital servo group circuits of a df control (see figure 5-2). Basically, this CCA performs a closed servo loop test, which exercises the overall servo nulling capability of a df control.

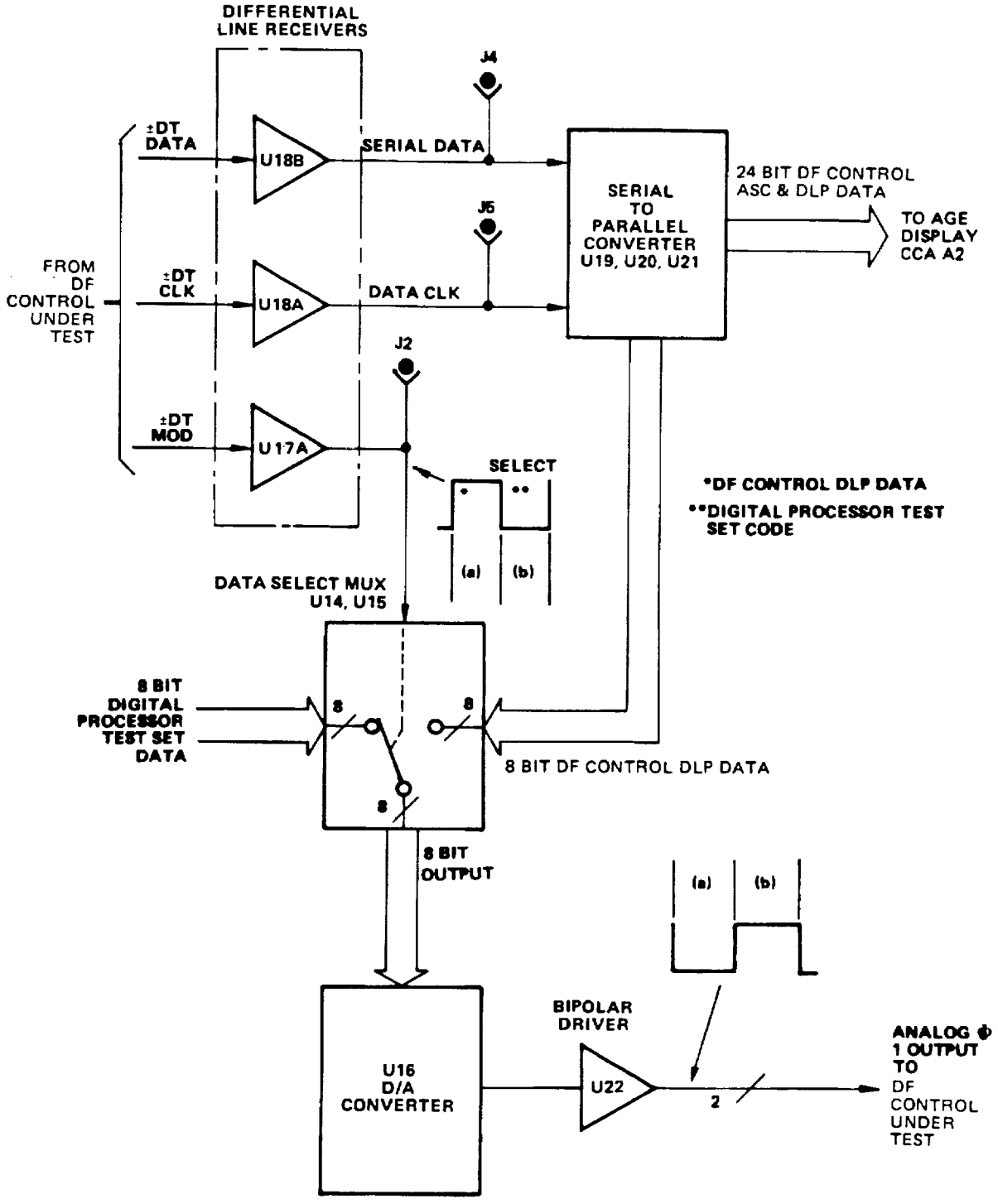


Figure 5-2. Servo Loop Test Functional Block Diagram

In addition, the RF processor simulator CCA has a self-test capability. The self-test circuits operate with connector W240P1 connected to digital processor test set jack J13.

b. Servo Loop Test. The RF processor simulator CCA performs a closed-loop test of the servo by alternately switching a hardwired DPTS word and a DLP data word, derived from the df control, to a digital-to-analog (d/a) converter. The resulting d/a outputs are transferred to the df control. A properly operating df control responds to these analog signals by generating a DLP data word, which equals the DPTS data word, thereby nulling the servo error. This nulling causes the switched d/a inputs to provide equal analog outputs.

The basic components of the servo loop test circuits are differential line receivers U18A, U18B, and U17A; B serial-to-parallel converters U19, U20, U21; data select multiplexer U14, U15; d/a converter U16; and bipolar drivers U22A, and U22B.

The df control responds to the analog signal output of the digital processor test set by applying 24-bit serial data to differential line receiver U18B. DATA CLK for shifting serial data, and DT MOD for switching the data select multiplexer are also derived from the df control. The serial-to-parallel converter responds to DATA CLK by converting the serial data input into a 24-bit parallel output format. All 24 bits are applied to AGE display CCA A2 for presentation on the digital processor test set COMMAND DISPLAY. Eight DLP and DPTS data bits are applied to the data select multiplexer. These data consist of seven 1 (high) bits and the most significant bit, the eighth, which is determined by the position of the front-panel FULL SCALE/HALF SCALE switch (S19). The switch positions and the resulting 8-bit DPTS data word values are as follows:

Switch position	8-bit DPTS word value
FULL SCALE	255
HALF SCALE	127

The df control for the unit-under-test provides the DT MOD signal, which provides a MUX SELECT square wave at J2. This signal causes the data select multiplexer to transfer the df control DLP data to the d/a converter when high and to transfer the DPTS data when low. The d/a converter responds to the 8 bits by driving U22 with an analog output voltage proportional to the binary value of the input. Figure 5-3 shows the analog 0, 1 outputs that result from the binary inputs.

c. Self-Test Function. When in the self-test mode of operation, RF processor simulator CCA A5 generates a hardwired 24-bit DLP and ASC code which is applied to its own differential line receivers (18B) via special test connector W240P1. Figure 5-4 shows the 24-bit DLP and ASC test code, which is displayed on the digital processor test set (RESULTING DLP and ASC) COMMAND DISPLAY when the self-test operation is successfully executed.

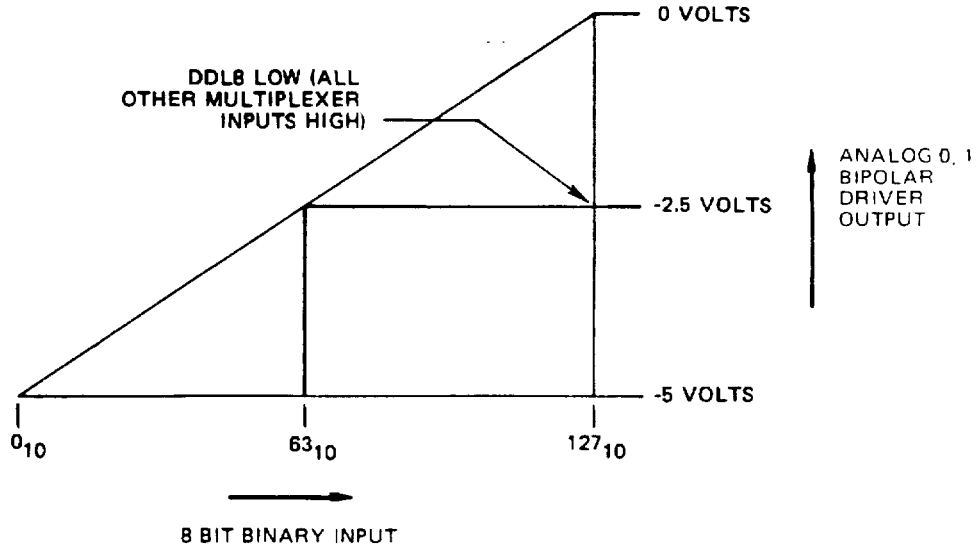


Figure 5-3. Digital-to-Analog Conversion

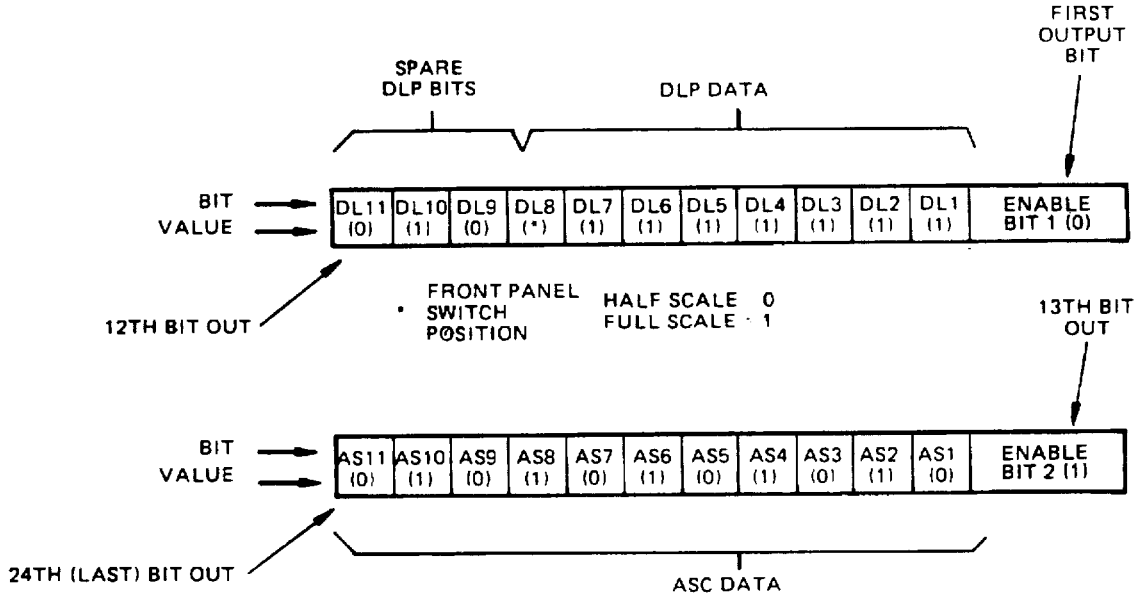


Figure 5-4. RF Processor Simulator CCA A5 24-Bit Self-Test Output Code

Figure 5-5 shows the key circuits that produce the serial output test code (DT DATA OUT) and its accompanying DT STROBE OUT and DT CK OUT signals and shows the timing waveforms involved in this operation. The sequence described in time state T0 thru T4 is initiated by setting the front-panel switch to SELF TEST/SEND (S18). The circuits then respond as follows:

(1) Time state TO. Send latch U1A is cleared when switch S18 is pressed. The resulting low output (J1) clears eight clock pulse counter U4 and loads the parallel-to-serial converter with the parallel (ASC/DLP) test code shown in figure 5-4. Flip-flop U18 is also cleared by the low output of latch U1A.

(2) Time state T1, T2. When switch S18 is released, U1A is set. The resulting high output of send latch U1A brings the parallel-to-serial converter to the shift mode of operation and sets start/stop flip-flop U3 one clock period later (time T2). The high output of U1A also enables counter U4 and U4 begins counting the 500-kHz clock pulse input while the high Q output (pin 9) of U3B enables differential driver U5A, providing a differential DT CLK OUT signal. In addition, serial data are clocked out of the parallel-to-serial converter to differential driver U5B, providing the differential DT DATA OUT signal.

(3) Time state T3. The output of the eight clock pulse counter (U4-11) drops when the 16th clock pulse is counted. This negative transition clocks, since its ***Q*** output is high, and sets flip-flop U1B. The resulting high Q output enables NAND gate U2C.

(4) Time state T4. Eight clock pulse counts later, the output of counter U4-11 goes high, driving U2C low at pin 8. This low clears the START/STOP latch (U3) 24 clock pulses after the data output operation began in T1. The cleared flip-flop (U3) disables clock output driver U5A (with a low Q output), and generates a differential DT STROBE OUT signal via driver U13A.

d. DT MOD. A counter circuit consisting of U10, U11, and U12 divides the 500-kHz clock by 1024 to provide an approximate 500-Hz clock. This 500-Hz clock is output via differential driver U13B to provide the DT MOD OUT signal. This signal is looped to the DT MOD IN (pins 15 and 16) of CCA A5 and is used as the MUX SELECT signal during the self-test operation.

Normal operation of CCA A5 is confirmed when the output of U22 (ANALOG 0 and ANALOG 1) reads 0 V dc when the front-panel switch is in the HALF SCALE position and reads +2.5 V dc when the switch is in the FULL SCALE position.

5-11. Serial Interface Test Function.

a. Unit-Under-Test Serial Interface Test. (see figure FO-12). Serial interface test CCA A6 tests the serial interface CCA of the unit-under-test to verify proper operation. The test loads a 16-bit

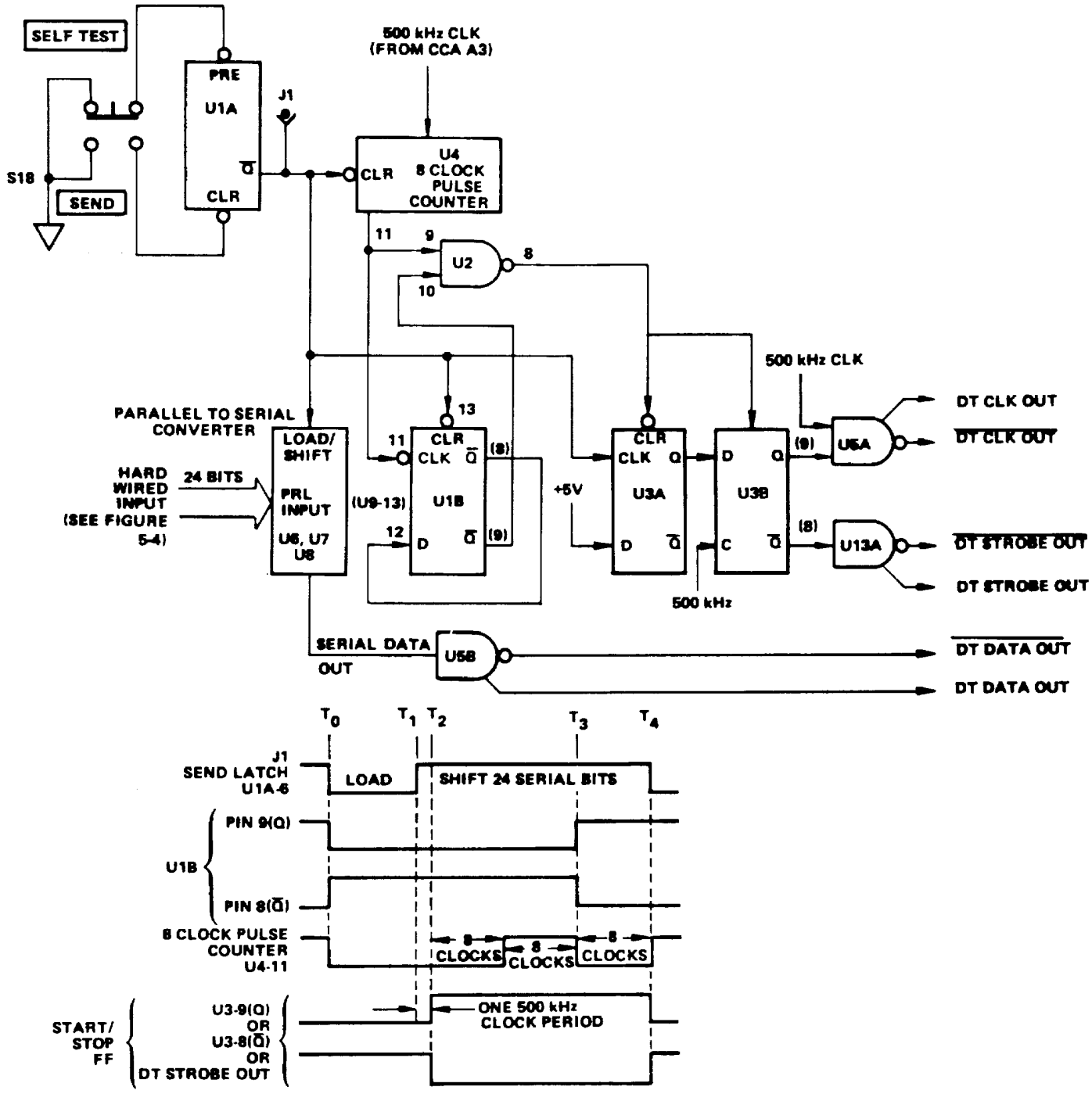


Figure 5-5. Self-Test Functional Block Diagram

test word that has been set on the digital processor test set front panel COMMAND switches into the unit-under-test serial interface CCA. The 16-bit response word is presented on the digital processor test set OCTAL DISPLAY. The serial interface test may be activated manually or automatically depending upon the position selected on the SER. INT. CONTROL AUTO SEND/MAN SEND switch. When AUTO SEND/MAN SEND is in the MAN SEND position, this test may be activated once by setting the SER INT. SEND switch. The test is automatically repeated at a 1-kHz rate when the AUTO SEND/MAN SEND switch is in the AUTO SEND position.

When the AUTO SEND/MAN SEND switch is in the MAN SEND position, pressing the SER. INT./SEND switch provides one 5-µs start pulse output via AUTO/MAN selector U9A. When AUTO SEND/MAN SEND is in the AUTO SEND position, U9A delivers continuous start pulses at the 1-kHz clock rate.

The following circuit explanation assumes the AUTO SEND/MAN SEND switch to be in the MAN SEND position (see figure 5-6). This forces selector U9A to accept a start pulse from synchronizer circuit U15A. Circuit activity occurs in the following sequence:

(1) Time state T0. Pressing the SER. INT./SEND switch provides a low input to synchronizer circuit U15A via anti-bounce latch U2 of CCA A5. This allows U15A to respond to one 500-kHz CLK pulse by providing a negative 5-µs output pulse.

(2) Time state T1. The negative U15A output pulse is applied to the 16 CLK pulse generator and to the parallel-to-serial converter via AUTO/MAN selector U9A. This signal at J1 loads the 16-bit test COMMAND word into the parallel-to-serial converter.

(3) Time state T2. The positive transition of the U9A output (J1) activates the 16 CLK pulse generator. Activated, the generator responds to the 500-kHz CLK input by providing 16 ***SHIFT CLK*** and OUTPUT CLK pulses.

(4) Time state T2+. The ***SHIFT CLK*** pulses serially shift data from the parallel-to-serial converter to the unit-under-test serial interface CCA via test switch U9B and line driver U5A. At the same time, OUTPUT CLK is applied to the unit under test via U5B and U4B to transfer the data to the receiving serial-to-parallel converter on the unit-under-test CCA. U5B and U4B are enabled by a low MODE signal output of the handshake logic. U2E and U12B of the handshake logic respond to the low +IMR-MODE signal from the unit-under-test serial interface CCA by providing this low MODE signal.

(5) Time state T3. The 16th OUTPUT CLK terminates the test word transfer operation. The unit-under-test digital processor now extracts the test word from the unit-under-test serial interface CCA and responds to its firmware by moving to a test acknowledgment routine. The resulting drive to the serial interface CCA provides handshake signals to the digital processor test set serial interface test CCA A6.

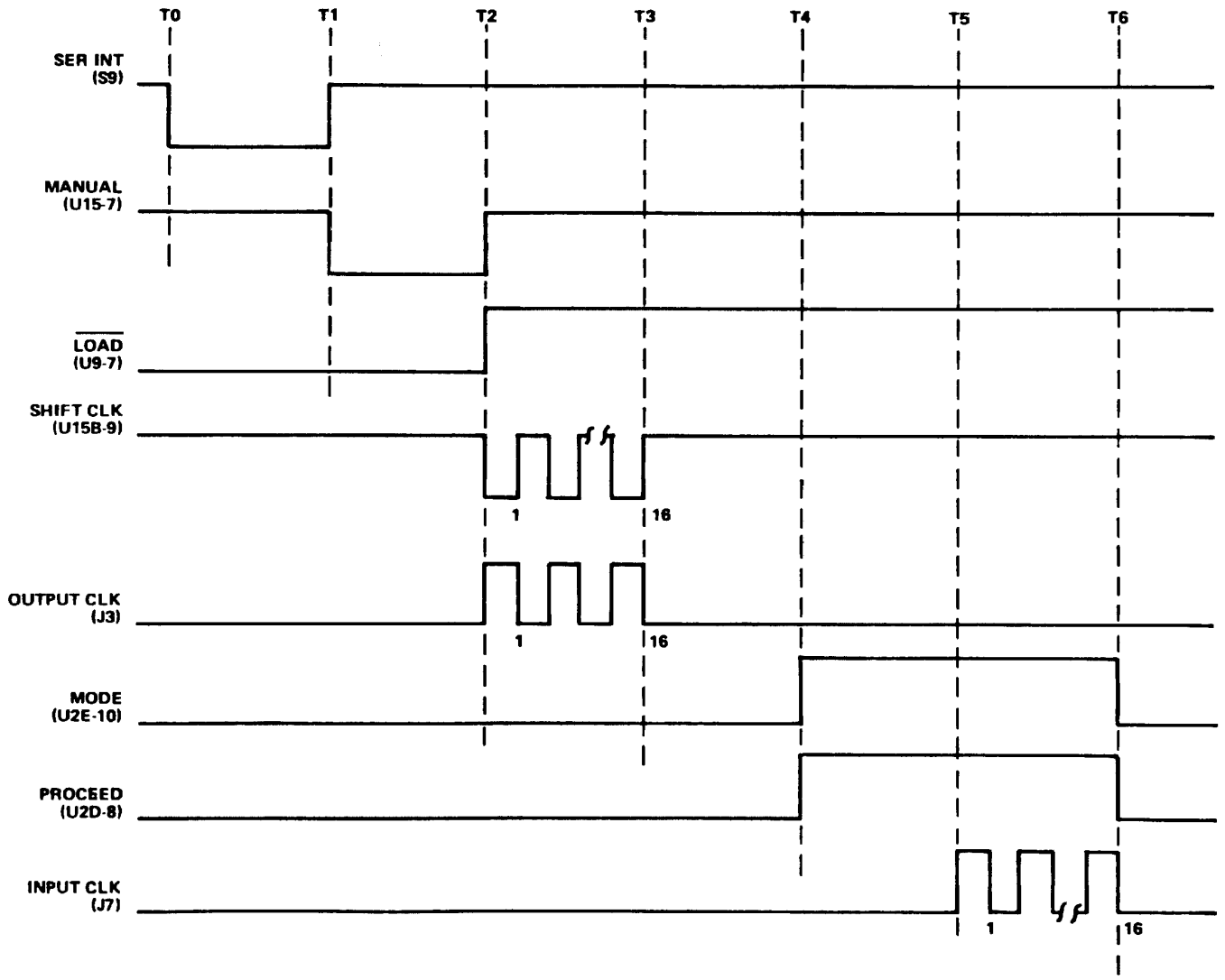


Figure 5-6. Serial Interface Test Timing Diagram

(6) Time state T4. Enabled by the constantly high RDY-PROCEED output of the digital processor test set serial interface test CCA A6, the unit-under-test serial interface responds to digital processor inputs by sending a high IMR-MODE and PROCEED-RDY output. On serial interface test CCA A6, U2E and U12B of the I/O handshake logic drive the MODE line high as a result of the high +IMR-MODE input. Gates U12A and U2D provide a high output in response to the high PROCEED-RDY input. These two highs drive I/O gate U4A, U2C high, enabling CLK IN receiver U6B.

(7) Time state T5. Responding to digital processor control, the unit-under-test serial interface CCA provides a 16-clock pulse and 16 serial data bits. These inputs are applied to receivers U6B and U6A/U2B, respectively. The data constituting the test response word of the unit under test are loaded into the serial-to-parallel converter of the serial interface CCA by the INPUT CLK (J7).

(8) Time state T6. The 16th INPUT CLK pulse loads the test response word into the serial-to-parallel converter. The output of this converter feeds the octal COMMAND DISPLAY OCTAL DISPLAY indicators on CCA A12 for visual verification of the correct response code and proper functioning of the unit under test serial interface CCA.

NOTE

The front-panel CP STATUS/SER INT switch (S7) must be in the SER INT position to enable the serial-to-parallel converter on CCA A6. In this position, S7 provides a false (low) SIT (serial interface test) DISABLE, which allows the serial-to-parallel converter output to drive the COMMAND OCTAL DISPLAY on CCA A2.

b. Self-Test. The serial interface test CCA can be operated in the self-test mode by connecting W239P1 to J10 of the digital processor test set. This forces +IMR high,, shorts the constant high +RDYPROCEED output to the +PROCEED-RDY input, and provides a low ***COFORCE*** line. This arrangement permits the output test word to be loaded back into the serial interface test CCA.

The high +IMR MODE signal, in conjunction with the high +PROCEED-RDY input derived from the shorted +RDY-PROCEED output, drives the I/O gate high. This high enables the feedback +(NFC) CLK IN input. The low ***COFORCE*** line enables output transmitter U15B via U5B and forces exclusive NOR U1B to invert the outgoing clock (CLK OUT) to provide the appropriate phasing of the feedback clock (CLK IN).

5-12. Communication Processor Control-Indicator Interface Test Function.

a. General. (see figure FO-13). Logic control CCA A7 in conjunction with lamp driver CCA A8 simulates a control-indicator to test the ability of the communication processor to receive, assimilate, and respond to control-indicator

command status words. The word, selected by digital processor test set CMD 1/CMD 2 switch S15, is serially transferred into the communication processor control-indicator interface CCA A20, which formats this word for further transfer to the communication processor digital processor. The digital processor responds by generating a 16-bit acknowledgment word, which is formatted and serially transferred to lamp driver CCA A8.

Lamp driver CCA A8 formats the serial input into a parallel word that drives the digital processor test set COMMAND DISPLAY OCTAL DISPLAY. Presentation of the correct octal code on the COMMAND DISPLAY verifies proper operation of the communication processor control indicator interface circuits.

Table 5-4 shows the 32-bit STATUS/CMD word applied to logic control CCA A7 as a result of switching the digital processor test set COMM. PROC. TEST CMD 1/CMD 2 switch.

b. Detailed Description. Figure FO-5 shows the major components of logic control CCA A7, lamp driver CCA A8, digital processor test set, and communication processor, which perform the communication processor control-indicator interface test. Circuit activity occurs according to the following events:

(1) Time state T0. (See figure 5-7) Setting the front-panel TEST switch (S17) sets the TEST latch on CCA A7. Setting the XMIT (S16) switch sets the XMIT latch. If either or both switches are set, the following sequence is accomplished:

(a) U8A is driven high to provide a high D input to CLR latch U2.

(b) Bit 32 or bit 31 is set to a negative logic 1.

(c) +IHUD (indicator high update) is activated low.

The low IHUD signal is applied to control-indicator CCA A20 to initiate the 32-bit STATUS/CMD word transfer sequence.

Table 5-4. Test Status/CMD Word

CMD 1/ CMD 2 POSITION	Positive True Bits at CCA A7 (Numbered According to Serial Transfer Sequence)																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
CMD 1	1	0	0	0	0	1	0	1	0	0	0	1	1	1	1	1	1	0	1	1	1	1	0	0	1	0	1	1	1	1	*	**
CMD 2	0	1	1	0	1	0	1	0	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	*	**

* 0 WHEN XMT (S16) IS DEPRESSED
** 0 WHEN TEST (S17) IS DEPRESSED

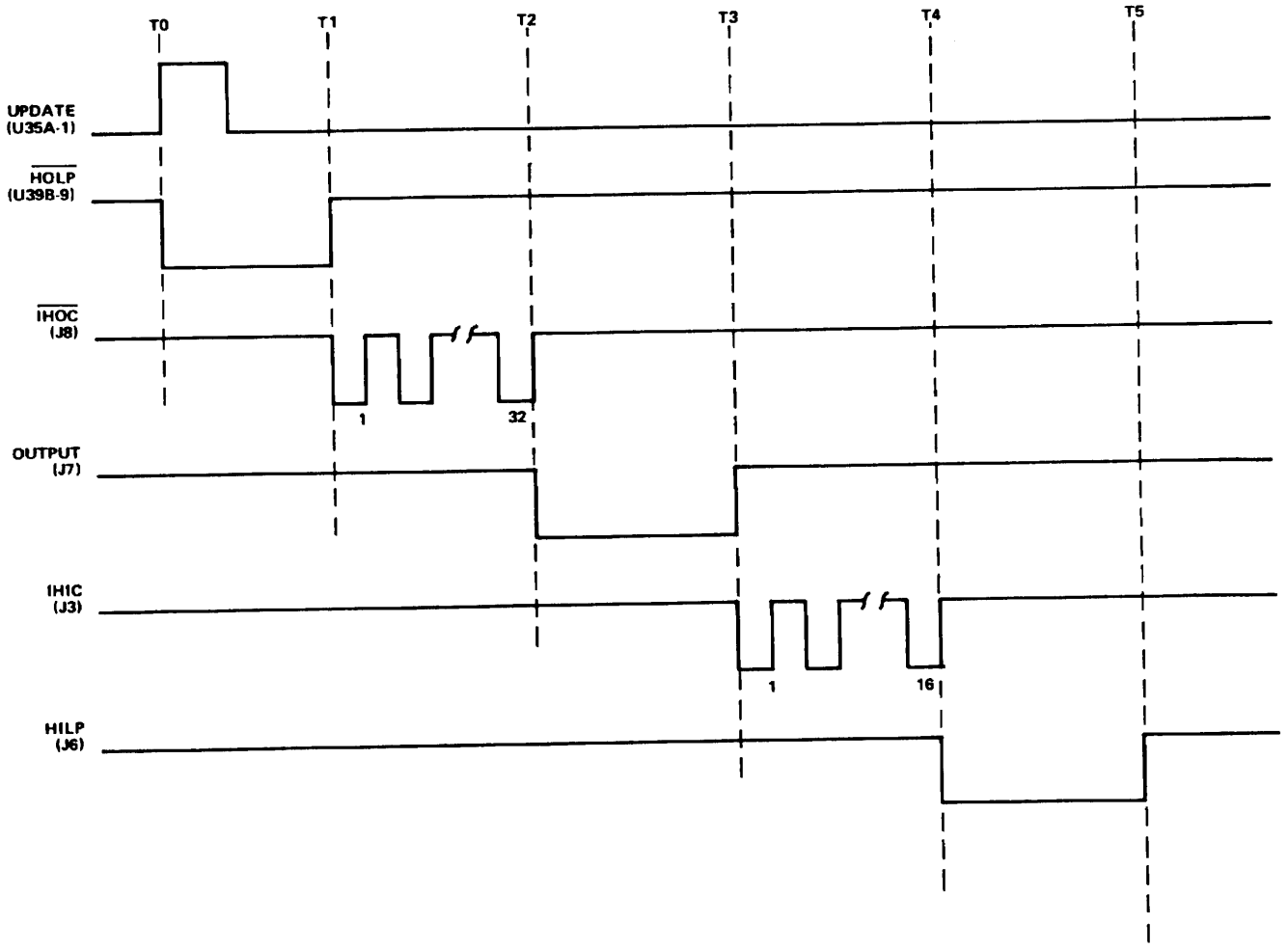


Figure 5-7. Communications Processor Control-Indicator Interface Test Timing Diagram

(2) Time state T1. The communication processor CCA A20 responds to the low IHUD by generating a low HOLP (high output load pulse) signal, which is synchronous with an internal clock. ±HOLP is inverted by line transceiver U9A (and CCA A7) to provide a positive signal that clocks and (since its D input is high) sets CLR latch U2 during the low-to-high transition and loads the parallel-to-serial converter (U3-U6).

The ***Q*** output of the CLR latch momentarily goes low to clear the XMIT and TEST latches. The resulting high ***Q*** output of the XMIT and TEST latches drives NAND gate U8A low to immediately restore CLR latch U2B to the reset condition.

(3) Time state T2-T3. Approximately one-half clock period after +HOLP is generated, the communication processor generates HOC (high output clock) pulses. Thirty-two of the clocks are generated, in 16-pulse bursts, to serially shift the contents of the 32-bit serial-to-parallel converter from CCA A7 to CCA A20 via line transceiver U7A and the HOD (high output data) lines.

(4) Time state T4+. The communication processor responds to the test STATUS/CMD word by applying an appropriate 16-bit response word to CCA A20 and initiating the next transfer sequence. CCA A20 generates a clock, IHIC (indicator high input clock), to transfer the response word, HID (high indicator data), to the digital processor test set CCA A8. The IHIC clock is applied to the serial-to-parallel converter via line receiver U1B to serially shift HID data into the converter via line receiver U1A. Sixteen clock pulses completely load the 16-bit data and present this response word to output latch U3 and U5 in a parallel format.

(5) Time state T5-T6. A positive 2-μs HILP (high indicator load pulse) signal is activated, concurrent with the 16th or last IHIC pulse. This pulse is inverted by line receiver U2A to provide a negative version at J4. The low-to-high transition of this pulse transfers the parallel 16-bit response word to the lamp drivers via output latch U3, U5. These lamp drivers then light the digital processor test set COMMAND DISPLAY OCTAL DISPLAY according to the 16-bit response word code.

The HRFI output of the communication processor CCA A20 is applied to the digital processor test set CCA A8 independently of the 16-bit word. HRFI (high radio frequency interference) is active when low and drives the DFD9 DPTS bit.

5-13. AGE Display.

See table 5-1 and figure FO-8 for a description of AGE display CCA A2.

5-14. Control-Indicator Test Function.

a. General. (See figure FO-15) Control-indicator test CCA A9 tests the communication processor control-indicator. Two tests may be performed: the first test requires entering a code that lights all indicators on the control-indicator. This test is activated by setting the digital processor test set CONT. IND. TEST switch to the DISP. position, and pressing the UPDATE switch. The second test, performed with the digital processor test set CONT. IND. TEST switch in the NORM position, tests all switches and status indicators, as well as the input and output control logic of the control-indicator. This test involves setting the control-indicator switches to provide a unique communication processor control-indicator output status (CIOSTS) word.

When the 32-bit CIOSTS word is serially transferred to CCA A9 as high control-indicator data (HOD), the test response matrix circuits on CCA A9 convert the input into a 16-bit CIISTS (control-indicator input status) word, which is serially transferred back into the control-indicator via the HID (high input data) lines. This coded word lights the control-indicator status lamp selected. The lighting of the appropriate control-indicator status lamp verifies proper operation of the communication processor control-indicator switches.

b. Detailed Description. Figure FO-6 shows a simplified functional diagram of the control-indicator test circuits of the digital processor test set. Generally, the 32-bit word, resulting from unit-under-test control-indicator switching, is serially transferred into control indicator test CCA A9. This data word (CIOSTS) provides a parallel address input to the test response matrix. The matrix responds to this address input by providing a 1-of-16 coded response word output. The matrix will drive only 1 of the 16 response word bits high as a result of the 32-bit address input. This response word is then serially transferred back to the unit-under-test control-indicator, where it will light the appropriate status lamp.

The following is a detailed description of the circuit activity (see figure 5-8 and figure FO-6) that occurs during a typical test sequence:

(1) Time state T0. Setting UPDATE switch S14 drives the output of IHUD line receiver U35A high. This positive transition triggers update single-shot U34B. U34B responds by generating a 10-µs negative pulse. This pulse is transferred to the logic control circuits of the communication processor control-indicator CCA A2 via line

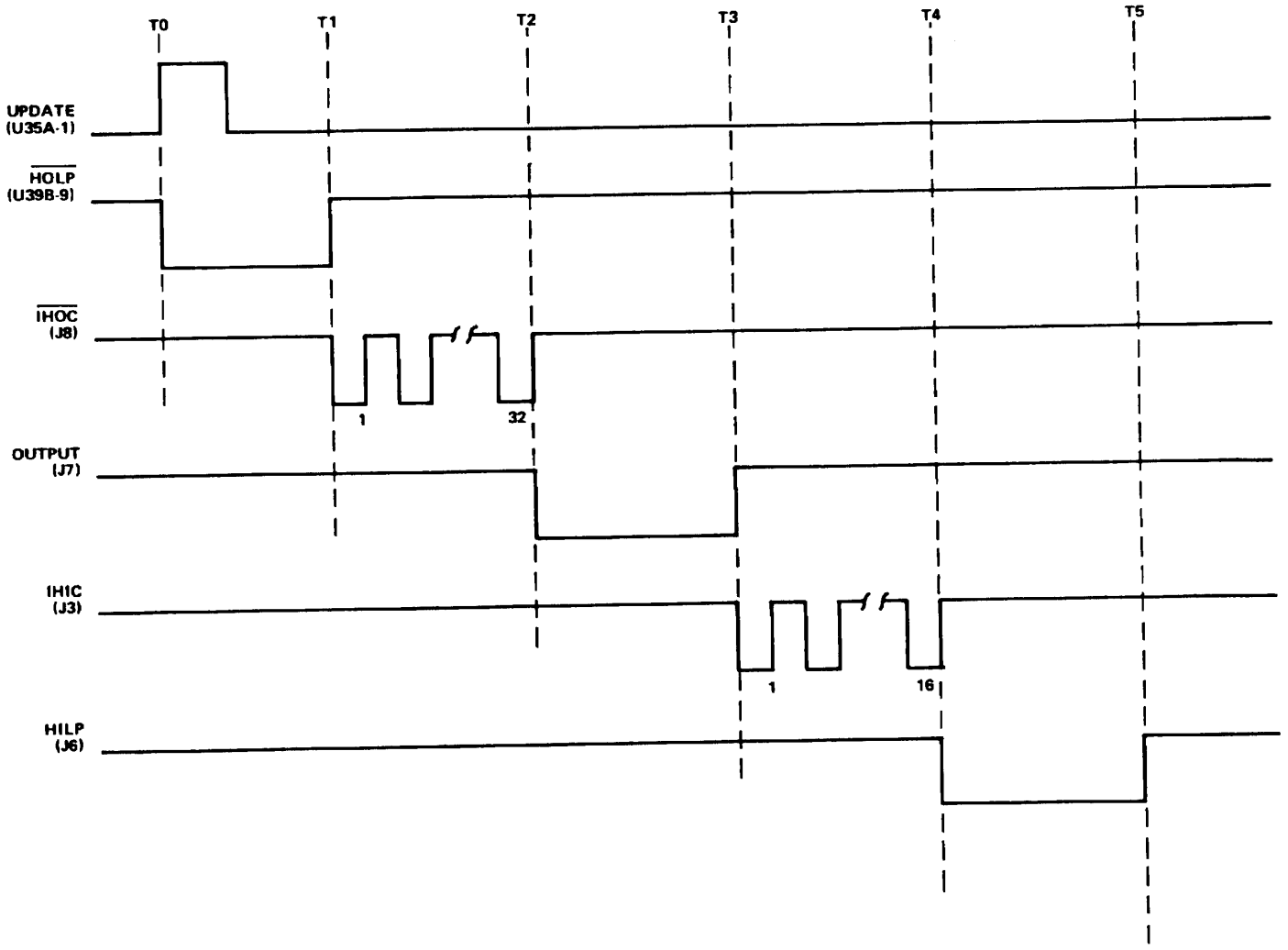


Figure 5-8. Control Indicator Test Timing Diagram

driver U28A. The leading edge of this 10-µs (high output load pulse) loads switching data from the front panel into CCA A2 of the control indicator.

(2) Time State T1. The positive-going transition of ***HOLP*** clocks sets input clock latch U30B. The resulting high latch (Q) output enables clock gate U32B for an interval that begins with time T1 and ends during time T2.

(3) Time state T1+. Once enabled, the clock gate transfers a 50-kHz IHOC (indicator high output clock) clock to three places:

(a) ***IHOC*** is transferred to the control-indicator CCA A2 to shift data from CCA A2 to the digital processor test set CCA A9. This serially shifted control-indicator HOD (high output data) is transferred to the serial-to-parallel converter via HOD line receiver U35B.

(b) ***IHOC*** is applied to the serial-to-parallel converter to load the input HOD serial data.

(c) ***IHOC*** drives the 32 clock pulse counter on CCA A9.

(4) Time state T2. When 32 clock pulses are counted, 32 HOD bits are loaded into the serial-to-parallel converter. The 32nd clock pulse causes a 10-ps pulse to be generated at J7. The leading edge of this OUTPUT pulse clears input clock latch U30B. The resulting low Q output inhibits the clock gate during T2, terminating the ***IHOC*** output.

The fully-loaded serial-to-parallel converter now provides a 32-bit parallel output to the test response matrix circuits of CCA A9. These bits are predetermined, based on the switching selection on the communication processor control-indicator. The BCD-coded platform designator 1,2,4 bits and relay platform designator 1,2,4 bits are decoded to provide respective PLDZ 1 thru 5 and RLP 1 thru 5 bits. These inputs to the matrix result, in a parallel 16-bit output word that lights a control-indicator status lamp. The negative transition of the OUTPUT (J7) pulse loads the matrix 16-bit output word into the parallel-to-serial converter.

(5) Time state T3. The positive transition of the OUTPUT pulse at J7 clocks and sets output clock latch U30A to output the 16-bit word to the control-indicator.

(6) Time state T3+. The high Q output of output clock latch U30A enables output clock gate U32A, providing a 50-kHz ***IHIC*** clock at J3. This ***IHIC*** (indicator high input clock) clock drives the following:

(a) The 16-clock pulse counter.

(b) The parallel-to-serial converter. (serially shifts its 16-bit word to the HID (high indicator data) lines via line driver U20A.)

(c) CCA A1 of the control-indicator. (via line driver U19A to clock the serial HID data into CCA A1.)

(7) Time state T4. The output of the 16-clock pulse counter goes low when the 16th clock pulse is counted and the 16th HID bit has been transferred to the control-indicator. This low clears the output clock latch to terminate the clock and generates an HILP (high indicator load pulse) pulse. This pulse is applied to the control-indicator CCA A1 via line driver U19B. HILP loads the transferred HID word into lamp drivers to light the status lamp.

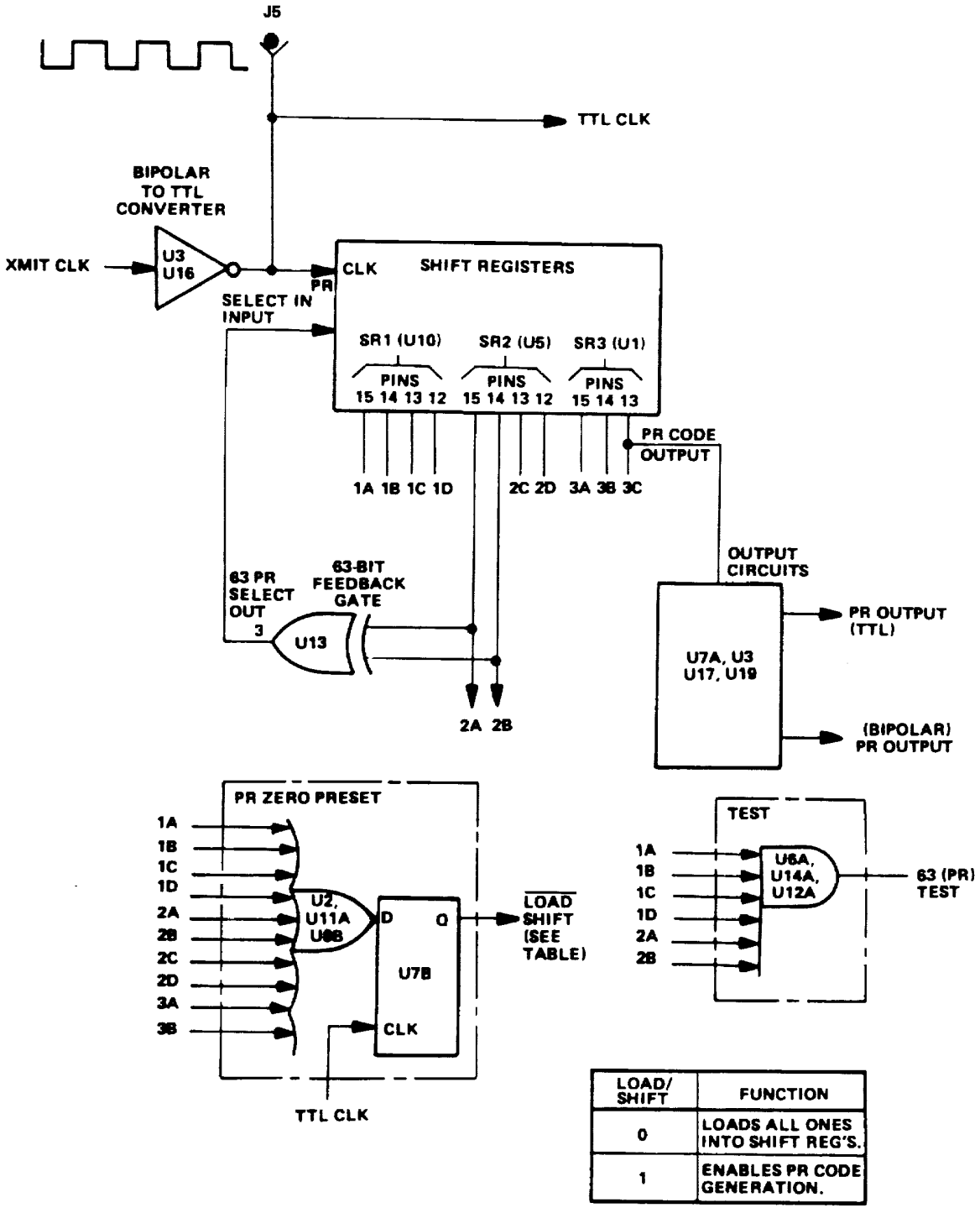
5-15. Communication Processor Transceiver I/O Module Test.

a. General. (See figure FO-16) Transceiver test CCA A10 generates the test signals required to check the communication processor transceiver I/O (ECA) A30. The major components are a PR code generator and a 10-Hz oscillator.

b. PR Code Generator. The PR code generator (see figure 5-9) provides a pseudorandom code that repeats every 63 bits. The generator consists of three shift registers, a bipolar-to-TTL converter, 63-bit feedback (exclusive OR) gate U13, output circuits, a PR zero preset circuit, and a PR code test circuit.

XMIT CLK is a bipolar clock derived from the communication processor transceiver I/O ECA under test. This clock is converted to TTL level by U3 and U16. The resulting TTL clock at J5 drives the shift registers and PR zero preset circuit latch U7B. The clock input to the three 4-bit shift registers (shift register 1, U10; shift register 2, U5; and shift register 3, U1) circulates the data from their input to output port Ul-13. The resulting PR code output is applied to the communication processor transceiver I/O ECA in bipolar form via the output circuits. Feedback gate U13 responds to the 2A and 2B outputs of shift register 2 by modifying the shifted bits to provide pseudorandom encoding. This feedback arrangement provides a PR code that repeats every 63 clock cycles.

If abnormal operating conditions occur, such as digital processor test set power loss and recovery, all PR code bits become 0 and the PR code generation capability of CCA A10 is lost. As a result of this condition, only 0 bits may be generated. The PR 0 code preset circuits respond to this condition by ORing all shift register 0 bit outputs to provide a low D input to latch U7B. The next TTL clock resets the latch. The low Q output of the reset latch loads all ls into the PR code shift registers to restore the PR code generation capability.



LOAD/ SHIFT	FUNCTION
0	LOADS ALL ONES INTO SHIFT REG'S.
1	ENABLES PR CODE GENERATION.

Figure 5-9. Transceiver Test CCA A10 PR Code Generator Functional Block Diagram

The test circuit consisting of U6A, U14A, and U12, functions as an AND gate that responds to high (i.e., 1) 1A, 1B, 1C, 1D, 2A, and 2B shift register bits by providing a high output. The PR code determines that all of these shift register output bits will be 1 once every 63 clock pulse intervals, consequently their test output pulse will verify the correct operation of the PR code generator in the 63-bit PR code mode.

CCA A10 may be externally wired to provide a 511-bit or 2047-bit PR code generator capability. The circuits used for these operations perform in a similar manner as the 63-bit PR code generating circuits.

c. *10-Hz Oscillator*. Stable multivibrator U4 provides a TTL 10-Hz output, which is applied to drivers U18 and U20. These drivers are biased to provide a 10-Hz output that varies between +4 V and +5 V. This output is applied to the communication processor transceiver I/O ECA to test its data link transceiver AGC threshold detect circuits.

CHAPTER 6

INTERMEDIATE SUPPORT MAINTENANCE INSTRUCTIONS

Section I. GENERAL REQUIREMENTS

6-1. Scope.

This chapter provides intermediate support maintenance procedures for the digital processor test set. Included in the chapter are lists of required tools and equipment, troubleshooting procedures, and test procedures.

Section II. TOOLS AND EQUIPMENT

6-2. General.

This section lists the tools and equipment required to perform intermediate support maintenance.

6-3. Tools and Equipment Required.

a. Tools.

Army standard	Commercial alternate	Common name
TK-105/G	N/A	Tool kit
N/A	CV5700	Heat gun
N/A	DMC331	Wire/cable tool kit
N/A	PRC350C	CCA repair kit

b. Test Equipment.

Army standard	Commercial alternate	Common name
N/A	010-6062-15	Oscilloscope probes
SG-1133/U	3312A	Function generator
N/A	8600A-01	Multimeter
N/A	545A	Logic probe

Army standard	Commercial alternate	Common name
AN-6880/U	7A18	Dual time amp
TD-1159/U	7B53A	Time base
OS-262(P)/U	7623A	Storage oscilloscope
AN/USM-460	DTC-4800	Automatic digital test set
MK-1896/U	N/A	DTC 4800 card kit
MX-9854/U	1966-1-4272-1	Programmer-simulator
N/A	546A	Logic pulser
N/A	547A	Dgt current tracer
PP-7548/U	6205B	Power supply
N/A	10-149860	Prom eraser
CP-772A/U	5245L	Frequency counter
N/A	PT1966-1-1354-1	Program tape
N/A	CL1966-1-1354-1	Computer listing
N/A	5330-A	Paper tape winder
N/A	10-001344-1	Card extender (92 pin)

Section III. TROUBLESHOOTING

6-4. General.

This section provides troubleshooting procedures for the digital processor test set to isolate a malfunction to one of the reparable CCAs or chassis-mounted parts within the unit. The 4800 automatic digital test set then is used to troubleshoot the CCAs that are within the scope of intermediate support maintenance. Any trouble beyond the scope of intermediate maintenance will be referred to depot level maintenance personnel.

Table 6-1. Digital Processor Test Set Troubleshooting Steering Chart

Test function failure	Fault isolation flowchart
Power supply and distribution[1]	Figure FO-18
CPU display fault	Figure FO-19
Serial interface test fault	Figure FO-20
RF processor simulator fault	Figure FO-21
CPU control and address display fault	Figure FO-22
Communication processor transceiver I/O test fault	Figure FO-23
Communication processor control-indicator and control-indicator interface test fault	Figure FO-24

[1] This procedure must be performed before other test procedures.

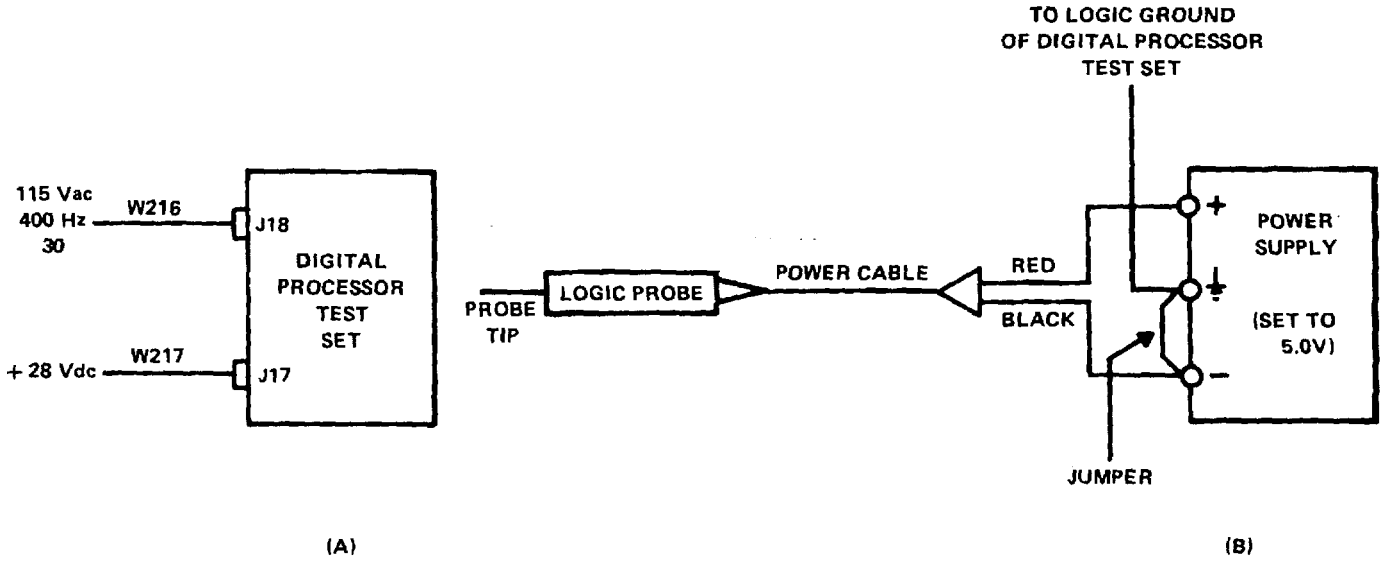


Figure 6-1. Test Setups

6-5. Troubleshooting Procedures.

WARNING

High voltage is used in the operation of this equipment. Avoid contacting high-voltage connections when installing or operating this equipment. Injury or death may result if personnel fail to observe safety precautions.

In the event of a digital processor test set failure see figure FO-18 to verify proper power supply operation. After proper operation is verified, see table 6-1 to determine the appropriate test procedures to be performed. See figure 6-1 for digital process test set and logic probe test setups. All test equipment connections are specified in text. To use the troubleshooting flowcharts, proceed as follows:

a. See FO-18 flowchart, begin at START then perform the steps indicated.

b. Where the flowchart indicates that a CCA should be tested or repaired on the 4800 automatic digital test set, proceed as follows:

(1) Find applicable test program procedures in TB 32-5811019-34 and test CCA on 4800 automatic digital test set.

(2) If CCA passes test, reinstall and proceed to next step on troubleshooting flowchart.

(3) If CCA fails, proceed as follows:

(a) Refer to maintenance allocation chart in appendix B to determine whether CCA is to be repaired at intermediate or depot level.

(b) If CCA is repaired at the intermediate level, troubleshoot using 4800 Automatic digital test set repair, and reinstall in unit.

(c) If CCA is repaired at depot level, return CCA to depot and replace.

(d) After replacing CCA, see figure FO-18 and begin at START, performing steps indicated.

c. Proper operation of the unit is verified upon completion of flowchart procedures.

CAUTION

CMOS components can be damaged by static discharge. When handling hardware containing CMOS do not touch connect pins and component leads unless properly grounded. During test and repair of circuitry containing CMOS use the static grounding kit (Mk-1962/TSQ Maintenance Kit) and ionized blower.

☆U.S. GOVERNMENT PRINTING OFFICE: 1985-461-028/10063

Section IV. MAINTENANCE OF THE DIGITAL PROCESSOR TEST SET

6-6. General.

This section provides maintenance procedures that are the responsibility of intermediate support maintenance personnel. The section includes inspection and cleaning of the digital processor test set.

6-7. Maintenance Procedures.

The following items should be performed along with intermediate support maintenance operations:

a. Inspection.

(1) Inspect all interior cables for kinks and strained, cut, frayed, or otherwise damaged insulation. Check cable connectors for correct pin depths and make sure they are securely mounted to cables. The repair and replacement of cables and connectors will be performed by depot level maintenance personnel only.

(2) Inspect exterior surfaces of the unit for dust, chipped paint, and corrosion. If necessary, spot paint surfaces as follows:

(a) Remove rust and corrosion from metal surfaces by lightly sanding them with no. 000 sandpaper.

(b) Brush two coats of light gray enamel, MIL-E-15090 class 2 type III color number 26307 IAW FED standard 595, on bare metal to protect it from further corrosion.

(c) Refer to the applicable cleaning and refinishing practices specified in TB 43-0118.

b. Cleaning. Make sure exterior surfaces of the unit are clean. If necessary, clean exterior surfaces as follows:

(1) Remove dust and loose dirt with a clean, soft cloth.

(2) Remove dust and dirt from plugs and jacks with a brush.

WARNING

Adequate ventilation should be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since trichlorotrifluoroethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use heavy duty rubber gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

(3) Remove grease, fungus, and ground-in dirt using a cloth dampened (not wet) with trichlorotrifluoroethane.

6-8. Disassembly/Assembly Procedures.

The following paragraphs provide step-by-step instructions for disassembling and assembling the digital processor test set.

a. Disassembly. Digital processor test set disassembly consists of removing the blower and power supply module.

(1) Blower removal.

(a) Remove top and bottom covers.

(b) Remove power supply top cover from heat sink by removing 12 mounting screws.

(c) Turn unit on its side and remove safety cover from heat sink (through bottom) by removing 14 mounting screws.

(d) Dismount blower by turning four mounting screws (from bottom) three turns counterclockwise to release blower.

(e) Lift blower from top of unit.

(f) Tag and remove blower wires.

(2) Power supply module removal.

(a) Remove top cover.

(b) Remove power supply top cover from heat sink by removing 12 mounting screws.

(c) Tag and remove power supply module wires.

(d) Remove four power supply module mounting screws and lift from unit.

b. Assembly. Digital processor test set assembly consists of installing the blower and power supply module.

(1) Blower installation.

(a) Position blower (from top of unit) onto heat sink and reconnect tagged blower wires as indicated.

(b) Secure blower to heat sink by tightening four mounting screws from bottom of unit.

(c) Position safety cover on bottom of heat sink and secure with 14 mounting screws.

(d) Position power supply top cover on heat sink (top side) and secure with 12 mounting screws.

(e) Reinstall top and bottom covers.

(2) Power supply module installation.

NOTE

Place a thin layer of silicone heat sink grease between the power supply module and heat sink before installing the module.

(a) Position power supply module to mounting surface and secure with four screws.

(b) Connect tagged power supply module wires to terminals as indicated.

(c) Position power supply cover and secure with 12 mounting screws.

(d) Reinstall top cover.

Section V. INTERMEDIATE SUPPORT TEST PROCEDURES

6-9. General.

This section provides intermediate support testing procedures for the digital processor test set. The test procedures indicate whether a new or repaired unit is capable of performing its assigned mission.

6-10. Test Procedures.

The fault isolation flow charts (figures FO-18 thru FO-24) contain test procedures to verify proper operation of the test function, as well as necessary procedures for isolating a test function fault to the level of a malfunctioning CCA or switch.

Section VI. ALIGNMENT PROCEDURES

6-11. General.

No alignment is required for the digital processor test set.

CHAPTER 7

INTEGRATED CIRCUIT DATA

This chapter contains vendor catalog sheets which describe the integrated circuits referenced in the functioning of equipment section and in the supporting schematic diagrams. The following data sheets are provided:

general description

The DM54L165A/DM74L165A utilizes Series 54L/74L compatible low-power TTL circuitry to provide an 8 bit parallel-in serial-out shift register. The device features internal gating for clock inhibit, parallel load control, and both Q & $\overline{Q}$ outputs are available from the last flip flop for added flexibility.

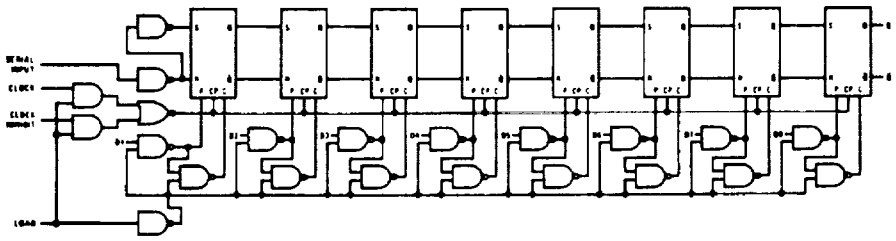
The clock inhibit must be a logical "0" for clocking to occur. A "1" on the clock inhibit line disables the clock. The function of these two inputs is completely interchangeable and they may be switched to facilitate die layout.

Clocking occurs on the positive-going transition of the clock. Data D_1 thru D_8 will be entered on the negative-going transition of the load input.

features

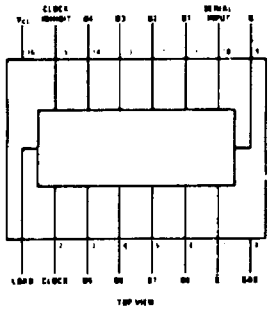
- Series 54L/74L compatible – true 1/10 power technology
- Pin compatible with DM7590/DM8590 and SN54165/SN74165
- Typical power dissipation 30 mW
- Typical shift frequency 14 MHz

logic diagram



connection diagram

Dual-In-Line and Flat Package



truth table

SERIAL IN	DATA IN	CLK	CLK INH	LOAD	FUNCTION
X	X	X	1	1	Do Nothing
X	X	1	X	1	Do Nothing
1	X	CP	0	1	Shift "1"s
0	X	CP	0	1	Shift "0"s
1	X	0	CP	1	Shift "1"s
0	X	0	CP	1	Shift "0"s
X	1	X	X	0	Load "1" Asynchronously
X	0	X	X	0	Load "0" Asynchronously

general decription

The DM7130/DM8130 and DM7160/DM8160 comparators determine equality or non-equality between two binary words. The DM7130/DM8130 compares two ten-bit words while the DM7160/DM8160 compares two six-bit words. A strobe over-ride is provided on both devices which when taken to a logical "1" will force the output to a logical "1".

features

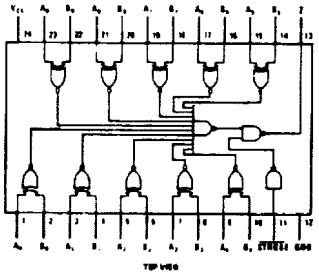
- Series 54/74 compatible
- 20 ns typical compare delay
- Typical power dissipation

DM7130/DM8130	240 mW
DM7160/DM8160	205 mW

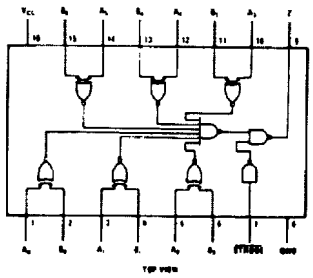
- Open collector outputs for expandability

logic and connection diagrams

Dual-In-Line and Flat Package



Dual-In-Line and Flat Package



truth table

CONDITION	$\overline{\text{STROBE}}$ S	Z
A = B, A ≠ B	1	1
A > B	0	1
A < B	0	0

For DM7130/DM8130:

$(A) = A_9 \cdots\cdots A_0$

$(B) = B_9 \cdots\cdots B_0$

$$Z = S + [X_0 \cdot X_1 \cdot X_2 \cdot X_3 \cdot X_4 \cdot X_5 \cdot X_6 \cdot X_7 \cdot X_8 \cdot X_9]$$

For DM7160/DM8160

$(A) = A_5 \cdots\cdots A_0$

$(B) = B_5 \cdots\cdots B_0$

$$Z = S + [X_0 \cdot X_1 \cdot X_2 \cdot X_3 \cdot X_4 \cdot X_5]$$

where

$$X_0 = A_0 B_0 + \overline{A}_0 \overline{B}_0, \quad X_1 = A_1 B_1 + \overline{A}_1 \overline{B}_1$$

general description

The DM7551/DM8551 is a TRI-STATE logic device which provides four D-type flip flops in one package which operate synchronously from a common clock.

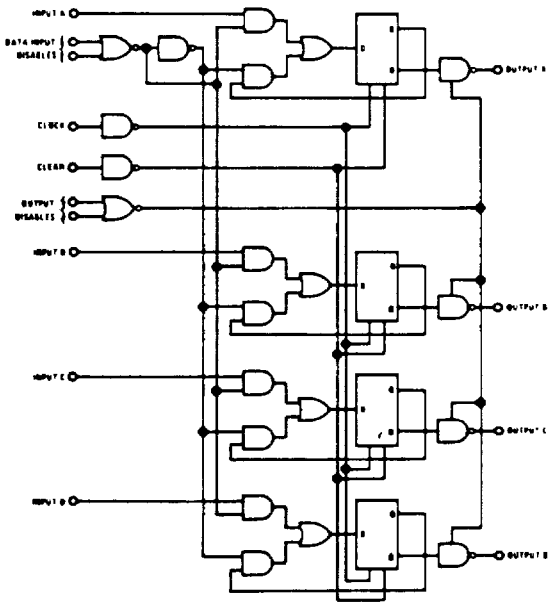
features

- Series 54/74 compatible
- 23 ns typical propagation delay
- 250 mW typical power dissipation
- Outputs directly connectable for bus-line operation
- A "do-nothing" state accomplished without gating the clock
- Simple disable encoding

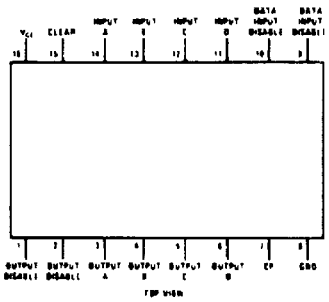
A unique three-state output allows the device to be used in bus-organized systems. The outputs can be directly wired to outputs of other DM7551/DM8551's without encountering the problems normally met with "collector-ORing" TTL circuits. This is accomplished by gating the normally low impedance logical "1" or logical "0" output into a high impedance state.

(Continued)

logic and connection diagrams



Dual-In-Line and Flat Package



truth table (Both Output Disables Low)

t_n		t_{n+1}
DATA INPUT DISABLE	DATA INPUT	OUTPUT
Logical "1" on 1 or both inputs	X	Qn
Logical "0" on both inputs	1	1
Logical "0" on both inputs	0	0

X = Don't Care

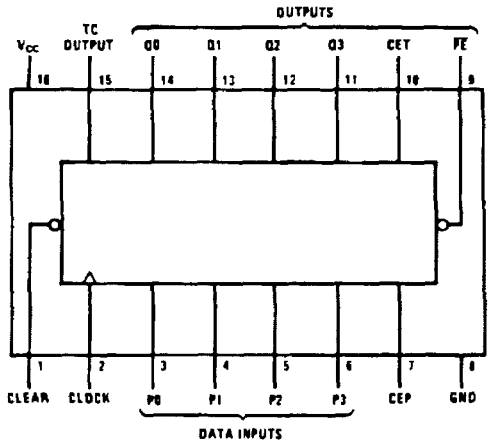
General Description

These synchronous, presettable counters are true tenth-power versions of the popular DM54160A/DM74160A, DM54161A/DM74161A, DM9310, and DM9316 counters. They feature an internal carry/look ahead for high-speed cascading, and trigger on the positive-going transition of the clock pulse. The counters are fully programmable; and, since presetting is synchronous, applying a low logic level to the load input disables the counter and forces the outputs to agree with the setup data after the next clock pulse, regardless of the levels of the enable inputs. Low-to-high transitions at the load inputs are acceptable, regardless of the logic levels on the clock or enable inputs. The clear (reset) function is asynchronous, and a low level applied to the clear input sets all four outputs low regardless of the levels on the clock, load, or enable inputs. In high-speed cascading arrangements, both count-enable inputs (P, T) must be high to count, and input T is fed forward to enable the ripple carry output. This high-level overflow ripple carry pulse can be used to enable successive stages. High-to-low level transitions at the P or T enable inputs are permitted, regardless of the logic level on the clock.

Features

- Low power versions popular counters
  DM76L75/DM86L75 = DM54160A/DM74160A, DM9310 – decade counter
  DM76L76/DM86L76 = DM54161A/DM74161A, DM9316 – binary counter
- Internal look-ahead for fast cascading
- Counters are fully synchronous and presettable
- Typical power dissipation 33 mW

Connection Diagram



76L75/86L75(J), (N), (W);
76L76/86L76(J), (N), (W)

DM76L76 Low-Power Presettable Binary Counter

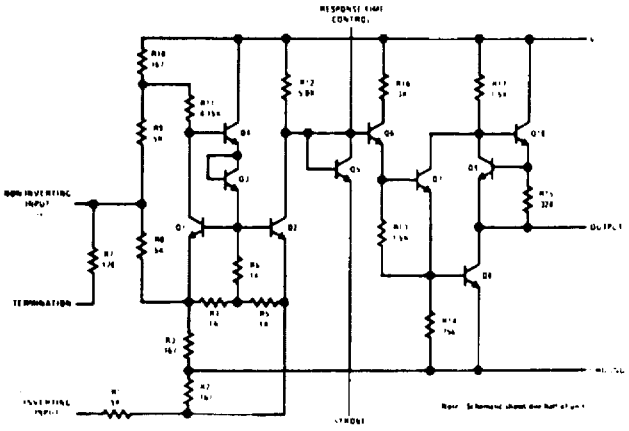
general description

The DM7820A and the DM8820A are improved performance digital line receivers with two completely independent units fabricated on a single silicon chip. Intended for use with digital systems connected by twisted pair lines, they have a differential input designed to reject large common mode signals while responding to small differential signals. The output is directly compatible with RTL, DTL or TTL integrated circuits. Some important design features include

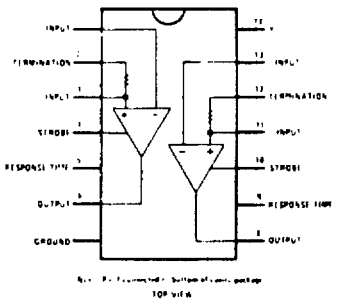
- Operation from a single +5V logic supply
- Input voltage range of ±15V
- Strobe low forces output to "1" state
- High input resistance
- Fanout of ten with either DTL or TTL integrated circuits
- Outputs can be wire OR'ed
- Series 54'74 compatible

The response time can be controlled with an external capacitor to reject input noise spikes. The output state is a logic "1" for both inputs open. Termination resistors for the twisted pair line are also included in the circuit. Both the DM7820A and the DM8820A are specified, worst case, over their full operating temperature range (−55°C to 125°C and 0°C to 70°C respectively), over the entire input voltage range, for ±10% supply voltage variations.

schematic and connection diagrams

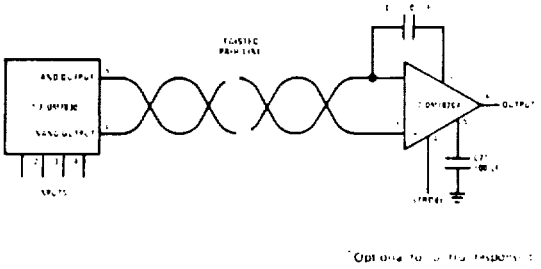


Dual-In-Line Package

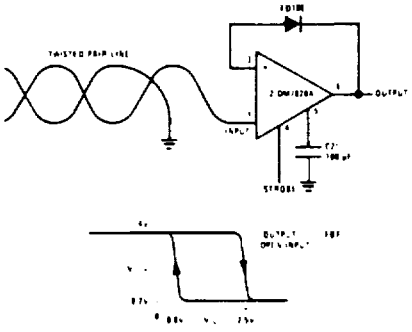


typical applications

Differential Line Driver and Receiver



Single Ended (EIA-RS232C) Receiver with Hysteresis



general description

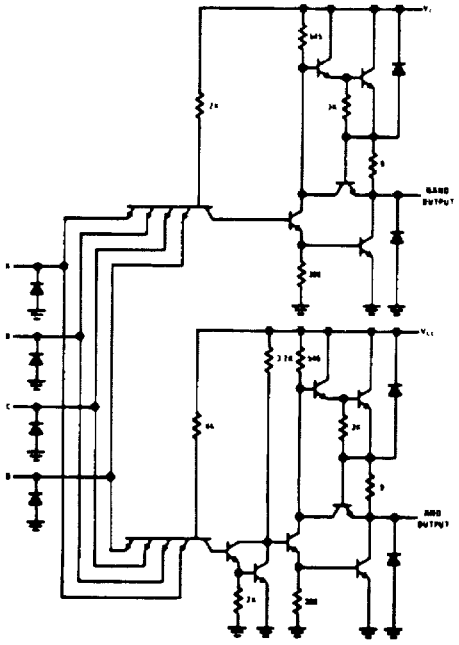
The DM7830/DM8830 is a dual differential line driver that also performs the dual four-input NAND or dual four-input AND function.

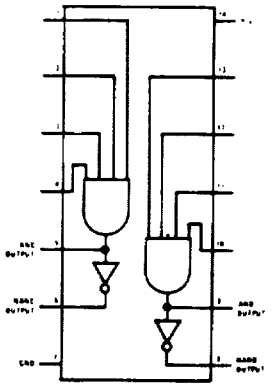
TTL (Transistor-Transistor-Logic) multiple emitter inputs allow this line driver to interface with standard TTL or DTL systems. The differential outputs are balanced and are designed to drive long lengths of coaxial cable, strip line, or twisted pair transmission lines with characteristic impedances of 50Ω to 500Ω. The differential feature of the output eliminates troublesome ground-loop errors normally associated with single-wire transmissions.

Key Features:

- Single 5 volt power supply
- Diode protected outputs for termination of positive and negative voltage transients
- Diode protected inputs to prevent line ringing
- High Speed
- Short Circuit Protection

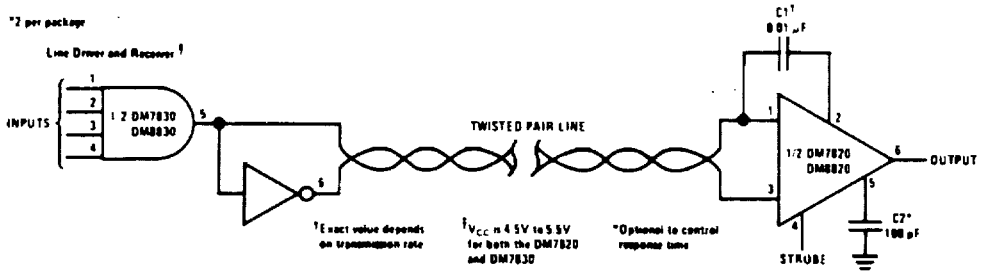
schematic* and connection diagram





typical application

Digital Data Transmission



LH0002/LH0002C* current amplifier

general description

The LH0002/LH0002C is a general purpose thick film hybrid current amplifier that is built on a single substrate. The circuit features:

- High Input Impedance 400 kΩ
- Low Output Impedance 6Ω
- High Power Efficiency
- Low Harmonic Distortion
- DC to 30 MHz Bandwidth
- Output Voltage Swing that Approaches Supply Voltage
- 400 mA Pulsed Output Current
- Slew rate is typically 200V/μs
- Operation from ±5V to ±20V

These features make it ideal to integrate with an operational amplifier inside a closed loop configuration to increase current output. The symmetrical output portion of the circuit also provides a low output impedance for both the positive and negative slopes of output pulses

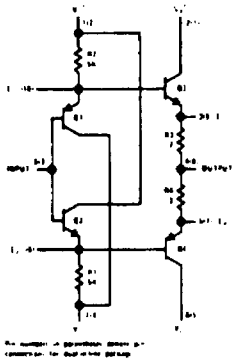
The LH0002 is available in an 8-lead low-profile TO-5 header, the LH0002C is also available in an 8-lead TO-5, and a 10-pin molded dual-in-line package.

The LH0002 is specified for operation over the −55°C to +125°C military temperature range The LH0002C is specified for operation over the 0°C to +85°C temperature range

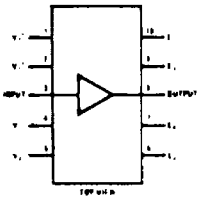
applications

- Line driver
- 30 MHz buffer
- High speed D/A conversion
- Instrumentation buffer
- Precision current source

schematic and connection diagrams

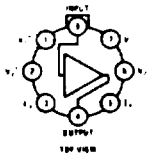


Dual-In-Line Package



Order Number LH0002CN
See Package 21

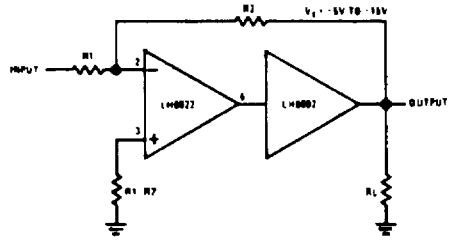
Metal Can Package



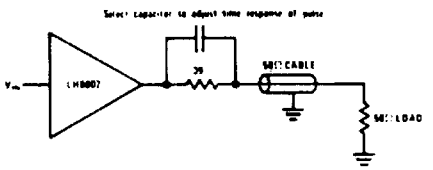
Order Number LH0002H or LH0002CH
See Package 11

typical applications

High Current Operational Amplifier



Line Driver



*Previously called NH0002 NH0002C

general description

The LM111 and LM211 are voltage comparators that have input currents nearly a thousand times lower than devices like the LM106 or LM710. They are also designed to operate over a wider range of supply voltages: from standard ±15V op amp supplies down to the single 5V supply used for IC logic. Their output is compatible with RTL, DTL and TTL as well as MOS circuits. Further, they can drive lamps or relays, switching voltages up to 50V at currents as high as 50 mA.

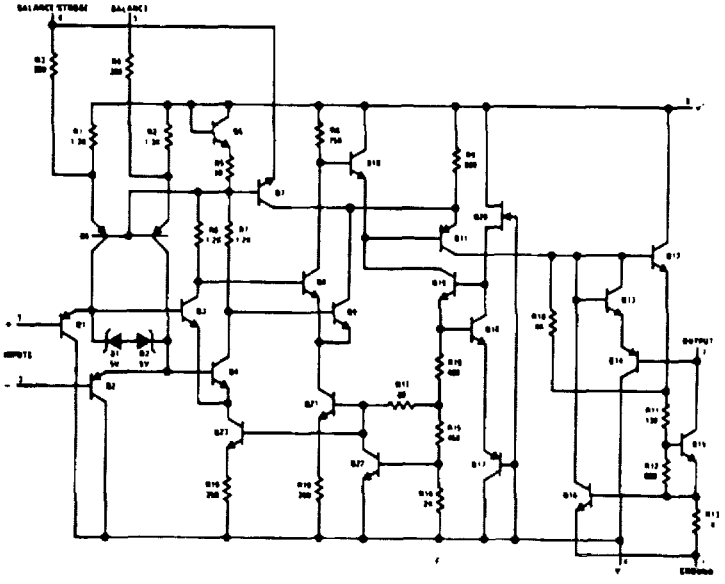
features

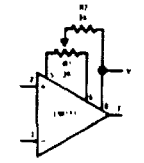
- Operates from single 5V supply
- Input current: 150 nA max. over temperature
- Offset current: 20 nA max. over temperature
- Differential input voltage range: ±30V
- Power consumption: 135 mW at ±15V

Both the inputs and the outputs of the LM111 or the LM211 can be isolated from system ground, and the output can drive loads referred to ground, the positive supply or the negative supply. Offset balancing and strobe capability are provided and outputs can be wire OR'ed. Although slower than the LM106 and LM710 (200 ns response time vs 40 ns) the devices are also much less prone to spurious oscillations. The LM111 has the same pin configuration as the LM106 and LM710.

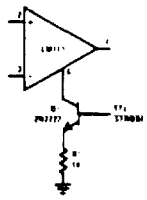
The LM211 is identical to the LM111, except that its performance is specified over a −25°C to 85°C temperature range instead of −55°C to 125°C

schematic diagram and auxiliary circuits

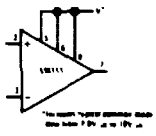




Offset Balancing



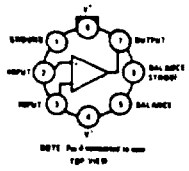
Strobing



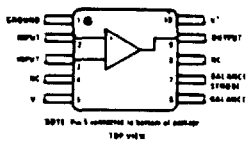
Increasing Input Stage Current*

connection diagrams *

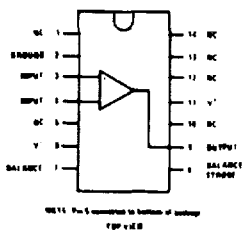
Metal Can



Flat Package



Dual-In-Line Package



*Pin connections shown on schematic diagram and typical applications are for TO-5 package.

general description

The LM124 series consists of four independent, high gain, internally frequency compensated operational amplifiers which were designed specifically to operate from a single power supply over a wide range of voltages. Operation from split power supplies is also possible and the low power supply current drain is independent of the magnitude of the power supply voltage.

Application areas include transducer amplifiers, dc gain blocks and all the conventional op amp circuits which now can be more easily implemented in single power supply systems. For example, the LM124 series can be directly operated off of the standard +5 V_{DC} power supply voltage which is used in digital systems and will easily provide the required interface electronics without requiring the additional ±15 V_{DC} power supplies.

unique characteristics

- In the linear mode the input common-mode voltage range includes ground and the output voltage can also swing to ground, even though operated from only a single power supply voltage.
- The unity gain cross frequency is temperature compensated.
- The input bias current is also temperature compensated.

advantages

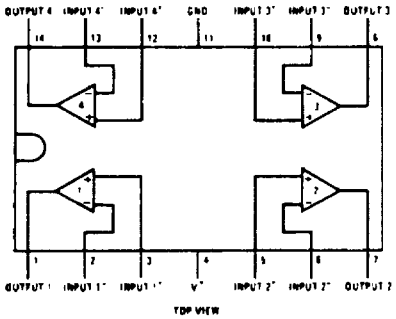
- Eliminates need for dual supplies
- Four internally compensated op amps in a single package
- Allows directly sensing near GND and V_{OUT} also goes to GND
- Compatible with all forms of logic
- Power drain suitable for battery operation

features

- Internally frequency compensated for unity gain
- Large dc voltage gain — 100 dB
- Wide bandwidth (unity gain) (temperature compensated) — 1 MHz
- Wide power supply range:
  - Single supply — 3 V_{DC} to 30 V_{DC}
  - or dual supplies — ±1.5 V_{DC} to ±15 V_{DC}
- Very low supply current drain (800μA) - essentially independent of supply voltage (1 mW/op amp at +5 V_{DC})
- Low input biasing current (temperature compensated) — 45 nA_{DC}
- Low input offset voltage — 2 mV_{DC}
- and offset current — 5 nA_{DC}
- Input common-mode voltage range includes ground
- Differential input voltage range equal to the power supply voltage
- Large output voltage swing — 0 V_{DC} to V+ - 1.5 V_{DC}

connection diagram

Dual-In-Line and Flat Package

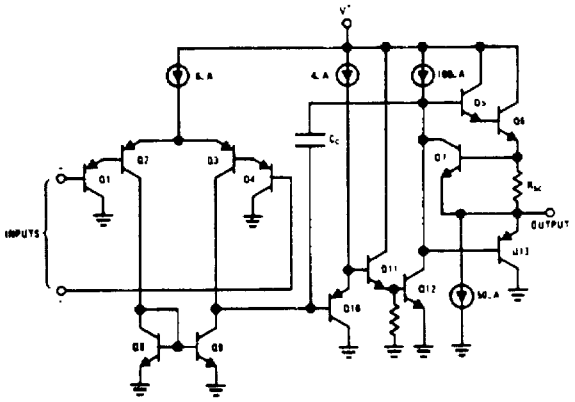


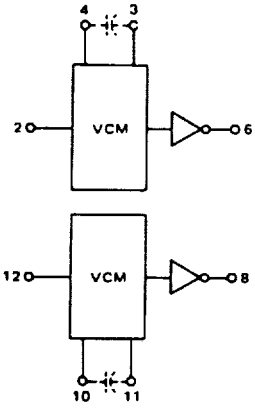
Order Number LM124D, LM224D or LM324D
See Package 1

Order Number LM124F
See Package 4

Order Number LM324N
See Package 22

schematic diagram (Each Amplifier)





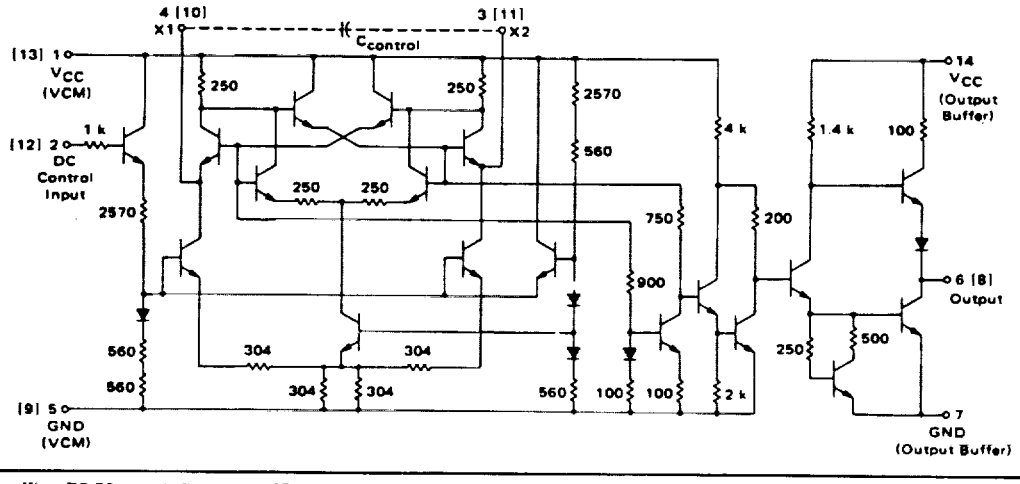
The MC4324/4024 voltage-controlled multivibrator provides appropriate level shifting to produce an output compatible with MTTL logic levels. Frequency control is accomplished through the use of voltage-variable current sources which control the slew rate of a single capacitor. Variation of the output frequency over a 3.5 to 1 range is possible with an input dc control voltage of +1.0 to +5.0 volts.

Voltage-controlled multivibrators are used in phase-locked loops for digital frequency control. They may also be used for some types of A to D converters.

V_{CC}: VCM = 1, 13
Output Buffer = 14
GND: VCM = 5, 9
Output Buffer = 7
External Capacitor for Frequency Range Determination
Output Loading Factor = 7
Power Dissipation = 150 mW typ/pkg
Maximum Operating Frequency = 30 MHz typ

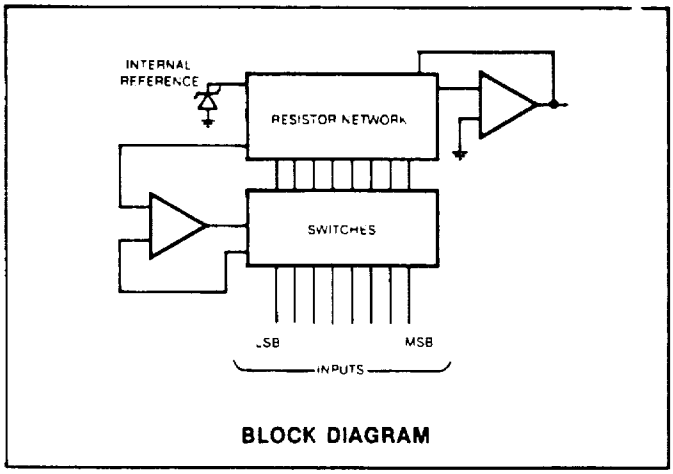
CIRCUIT SCHEMATIC

1/2 OF CIRCUIT SHOWN
(Numbers in brackets are pin numbers for other half.)

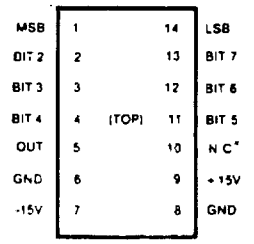


*F suffix = TO-86 ceramic flat package (Case 607).
L suffix = TO-116 ceramic dual in-line package (Case 632)
P suffix = TO-116 plastic dual in-line package (Case 605).

MC4324 Dual Voltage-Controlled Multivibrator



BLOCK DIAGRAM



PIN DESIGNATIONS

*No Connection to be made to this point

OUTPUT	MN3000	MN3001	MN3002	MN3006	UNITS
All Inputs High	0.000	+5.000	+9.961	+10.000	Volts
All Inputs Low	-9.961	-4.961	0.000	-9.922	Volts
LSB Step	39	39	39	78	mV
	TYP. MAX.	TYP. MAX.	TYP. MAX.	TYP. MAX.	
Absolute Accuracy (Note 1)					
at 25°C	± ½	± ½	± ½	± ½	LSB
0°C to +70°C (-55°C to +125°C "H" Models)	± 1	± 1	± 1	± 1	LSB
Linearity					
0°C to +70°C (-55°C to +125°C "H" Models)	± ½	± ½	± ½	± ½	LSB
Zero					
0°C to +70°C (-55°C to +125°C "H" Models)	± ¼	± ¼	± ¼	± ¼	LSB
Slew Rate	0.5	0.5	0.5	0.5	V/µSec
Settling Time (10V Step to ± ½ LSB)	23	23	23	23	µSec
Load Current	4	4		4	mA

LOGIC CODING
3000 SERIES

INPUT PINS

MSB 1	2	3	4	11	12	13	LSB 14	MN3000	MN3001	MN3002	MN3006
1	1	1	1	1	1	1	1	0.000	+5.000	+9.961	+10.000
0	1	1	1	1	1	1	1	-5.000	0.000	+4.961	0.000
1	0	1	1	1	1	1	1	-2.500	+2.500	+7.461	+5.000
1	1	0	1	1	1	1	1	-1.250	+3.750	+8.711	+7.500
1	1	1	0	1	1	1	1	-.625	+4.375	+9.336	+8.750
1	1	1	1	0	1	1	1	-.312	+4.688	+9.648	+9.375
1	1	1	1	1	0	1	1	-.156	+4.843	+9.864	+9.687
1	1	1	1	1	1	0	1	-.078	+4.921	+9.882	+9.843
1	1	1	1	1	1	1	0	-.039	+4.961	+9.921	+9.921
0	0	0	0	0	0	0	0	-9.961	-4.961	0.000	-9.921

MN3001 8-Bit D/A Converter

FEATURES

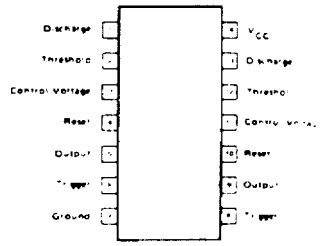
- TIMING FROM MICROSECONDS TO HOURS
- REPLACES TWO 555 TIMERS
- OPERATES IN BOTH ASTABLE, MONOSTABLE, TIME DELAY MODES
- HIGH OUTPUT CURRENT
- ADJUSTABLE DUTY CYCLE
- TTL COMPATIBLE
- TEMPERATURE STABILITY OF 0.005% PER °C

APPLICATIONS

PRECISION TIMING
SEQUENTIAL TIMING
PULSE SHAPING
PULSE GENERATOR
MISSING PULSE DETECTOR
TONE BURST GENERATOR
PULSE WIDTH MODULATION
TIME DELAY GENERATOR
FREQUENCY DIVISION
INDUSTRIAL CONTROLS
PULSE POSITION MODULATION
APPLIANCE TIMING
TRAFFIC LIGHT CONTROL
TOUCH TONE ENCODER

PIN CONFIGURATION

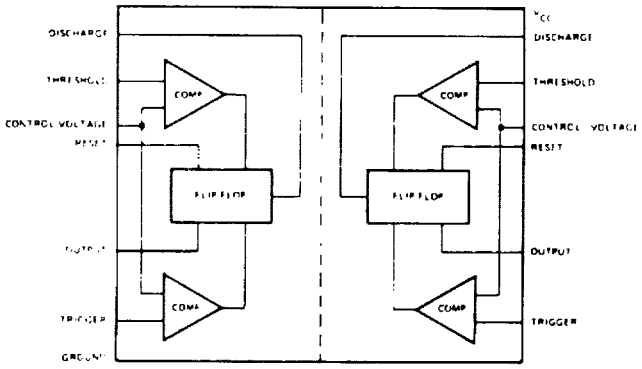
A PACKAGE



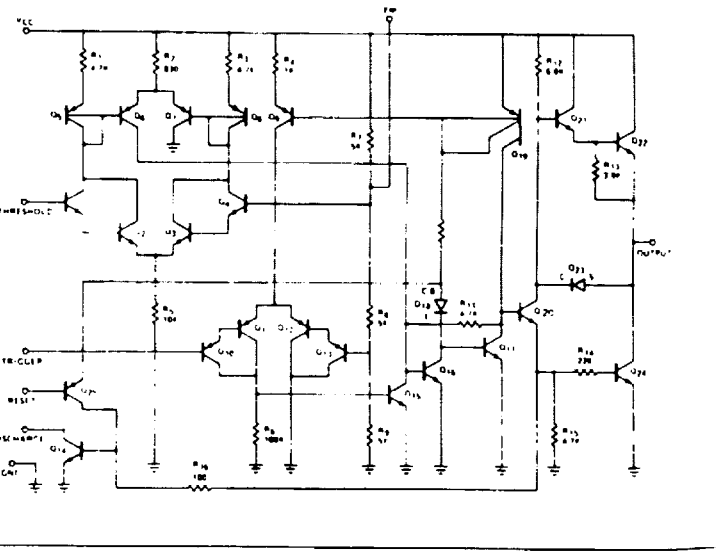
ABSOLUTE MAXIMUM RATIONS

Supply Voltage	
SE556	+18V
NE556	+16V
Power Dissipation	600mW
Operating Temperature Range	
NE556	0°C to +70°C
SE556	−55°C to +125°C
SE556C	−55°C to +125°C
Storage Temperature Range	−65°C to +150°C
Lead Temperature (Soldering, 60 sec)	+300°C

BLOCK DIAGRAM



EQUIVALENT CIRCUIT (SHOWN FOR ONE CIRCUIT ONLY)



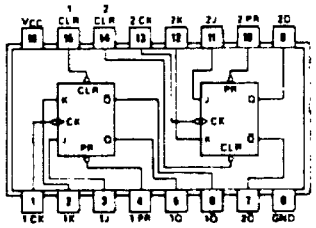
FLIP-FLOPS . . . LOGIC AND PIN ASSIGNMENTS (TOP VIEWS)

112

DUAL J-K NEGATIVE-EDGE-TRIGGERED FLIP-FLOPS WITH PRESET AND CLEAR

FUNCTION TABLE

INPUTS					OUTPUTS	
PRESET	CLEAR	CLOCK	J	K	Q	$\bar{Q}$
L	H	X	X	X	H	L
H	L	X	X	X	L	H
L	L	X	X	X	H*	H*
H	H	↓	L	L	Q_0	$\bar{Q}_0$
H	H	↓	H	L	H	L
H	H	↓	L	H	L	H
H	H	↓	H	H	TOGGLE	
H	H	H	X	X	Q_0	$\bar{Q}_0$



SN54LS112/SN74LS112(J, N, W)
SN54S112/SN74S112(J, N, W)

SNC54LS112 Dual J-K with Clear and Preset

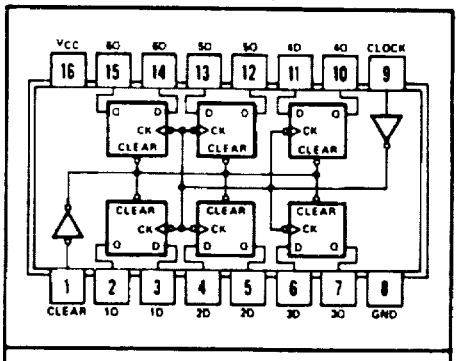
TYPES SN54174, SN54175, SN54LS174, SN54LS175, SN54S174, SN54S175, SN74174, SN74175, SN74LS174, SN74LS175, SN74S174, SN74S175 HEX/QUADRUPLE D-TYPE FLIP-FLOPS WITH CLEAR

BULLETIN NO. DL-S 7211803, DECEMBER 1972

'174, 'LS174, 'S174 . . . HEX D-TYPE FLIP-FLOPS
'175, 'LS175, 'S175 . . . QUADRUPLE D-TYPE FLIP-FLOPS

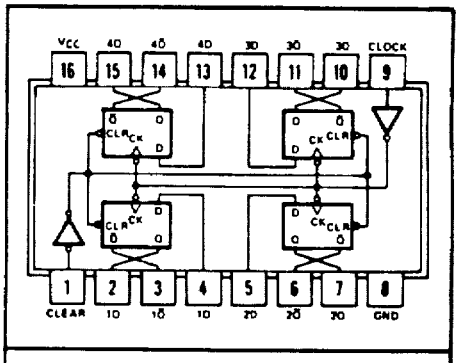
- '174, 'LS174, 'S174 Contain Six Flip-Flops with Single-Rail Outputs
- '175, 'LS175, 'S175 Contain Four Flip-Flops with Double-Rail Outputs
- Three Performance Ranges Offered: See Table Lower Right
- Buffered Clock and Direct Clear Inputs
- Individual Data Input to Each Flip-Flop
- Applications include:
  - Buffer/Storage Registers
  - Shift Registers
  - Pattern Generators

SN54S174 . . . J OR W PACKAGE
'174, 'LS174, SN74S174 . . . J, N, OR W PACKAGE
(TOP VIEW)



positive logic: see function table

'175, 'LS175, 'S175 . . . J, N, OR W PACKAGE
(TOP VIEW)



positive logic: see function table

description

These monolithic, positive-edge-triggered flip-flops utilize TTL circuitry to implement D-type flip-flop logic. All have a direct clear input, and the '175, 'LS175, and 'S175 feature complementary outputs from each flip-flops.

Information at the D inputs meeting the setup time requirements is transferred to the Q outputs on the positive-going edge of the clock pulse. Clock triggering occurs at a particular voltage level and is not directly related to the transition time of the positive-going pulse. When the clock input is at either the high or low level, the D input signal has no effect at the output.

These circuits are fully compatible for use with most TTL or DTL circuits.

FUNCTION TABLE
(EACH FLIP-FLOP)

INPUTS			OUTPUTS	
CLEAR	CLOCK	D	Q	$\bar{Q}$†
L	X	X	L	H
H	↑	H	H	L
H	↑	L	L	H
H	L	X	Q_0	$\bar{Q}_0$

H = high level (steady state)
L = low level (steady state)
X = irrelevant
↑ = transition from low to high level
Q_0 = the level of Q before the indicated steady-state input conditions were established
† = '175, 'LS175, and 'S175 only

TYPES	TYPICAL MAXIMUM CLOCK FREQUENCY	TYPICAL POWER DISSIPATION PER FLIP-FLOP
'174, '175	35 MHz	38 mW
'LS174, 'LS175	40 MHz	11 mW
'S174, 'S175	110 MHz	75 mW

SNC54LS174 Hex/Quad D-Type Flip-Flop with Clear

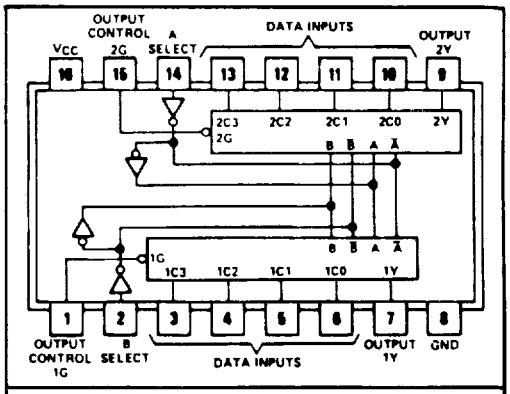
TTL
MSI

TYPES SN54LS253, SN74LS253
DUAL 4-LINE-TO-1-LINE DATA SELECTORS/MULTIPLEXERS WITH 3-STATE OUTPUTS

BULLETIN NO. DL-S 7211790, SEPTEMBER 1972

- Three-State Version of SN54LS153/SN74LS153
- Schottky-Diode-Clamped Transistors
- Permits Multiplexing from N Lines to 1 Line
- Performs Parallel-to-Serial Conversion
- Typical Average Propagation Delay Times:
  Data Input to Output . . . 12 ns
  Control Input to Output . . . 16 ns
  Select Input to Output . . . 21 ns
- Fully Compatible with Most TTL and DTL Circuits
- Low Power Dissipation . . . 35 mW Typical (Enabled)

J OR N DUAL-IN-LINE OR
W FLAT PACKAGE (TOP VIEW)



description

Each of these Schottky-clamped data selectors/multiplexers contains inverters and drivers to supply fully complementary, on-chip, binary decoding data selection to the AND-OR gates. Separate output control inputs are provided for each of the two four-line sections.

The three-state outputs can interface with and drive data lines of bus-organized systems. With all but one of the common outputs disabled (at a high-impedance state) the low-impedance of the single enabled output will drive the bus line to a high or low logic level.

logic

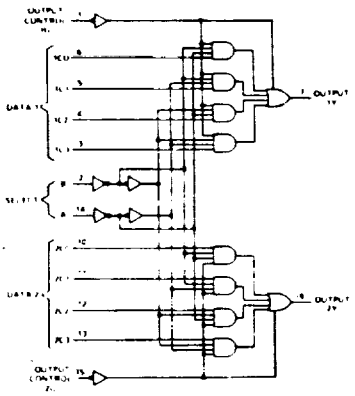
FUNCTION TABLE

SELECT INPUTS		DATA INPUTS				OUTPUT CONTROL	OUTPUT
B	A	C0	C1	C2	C3	G	Y
X	X	X	X	X	X	H	Z
L	L	L	X	X	X	L	L
L	L	H	X	X	X	L	H
L	H	X	L	X	X	L	L
L	H	X	H	X	X	L	H
H	L	X	X	L	X	L	L
H	L	X	X	H	X	L	H
H	H	X	X	X	L	L	L
H	H	X	X	X	H	L	H

Address inputs A and B are common to both sections.

H = high level, L = low level, X = irrelevant, Z = high impedance (off)

functional block diagram



absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, V_{CC} (see Note 1) . . . . . 7 V
Input voltage . . . . . 7 V
Off-state output voltage . . . . . 5.5 V
Operating free-air temperature range: SN54LS253 . . . . . −55°C to 125°C
SN74LS253 . . . . . 0°C to 70°C
Storage temperature range . . . . . −65°C to 150°C

NOTE 1: Voltage values are with respect to network ground terminal.

SNC54LS253 Dual 4-Line-to-l-Line Data Selector/Multiplexer with 3-State Output

TTL
MSI

TYPES SN54LS257, SN54LS258, SN54S257, SN54S258, SN74LS257, SN74LS258, SN74S257, SN74S258
QUADRUPLE 2-LINE-TO-1-LINE DATA SELECTORS/MULTIPLEXERS

BULLETIN NO. DL-S 7411734, MARCH 1974

- Three-State Outputs Interface Directly with System Bus
- Schottky-Clamped for Significant Improvement in A-C Performance
- Fully Compatible with Most TTL Functions Including MSI
- Same Pin Assignments as SN54LS157, SN74LS157, SN54S157, SN74S157, and SN54LS158, SN74LS158, SN54S158, SN74S158
- Provides Bus Interface from Multiple Sources in High-Performance Systems

	AVERAGE PROPAGATION DELAY FROM DATA INPUT	TYPICAL POWER DISSIPATION†
'LS257	12 ns	50 mW
'LS258	12 ns	35 mW
'S257	4.8 ns	320 mW
'S258	4 ns	280 mW

†Off state (worst case)

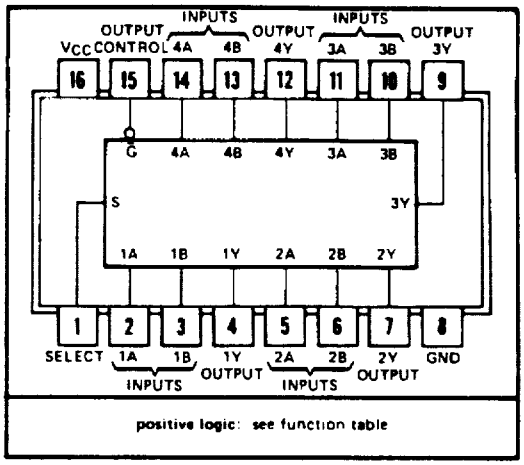
description

These Schottky-clamped high-performance multiplexers feature three-state outputs that can interface directly with and drive data lines of bus-organized systems. With all but one of the common outputs disabled (at a high-impedance state) the low impedance of the single enabled output will drive the bus line to a high or low logic level. To minimize the possibility that two outputs will attempt to take a common bus to opposite logic levels, the output-enable circuitry is designed such that the output disable times are shorter than the output enable times.

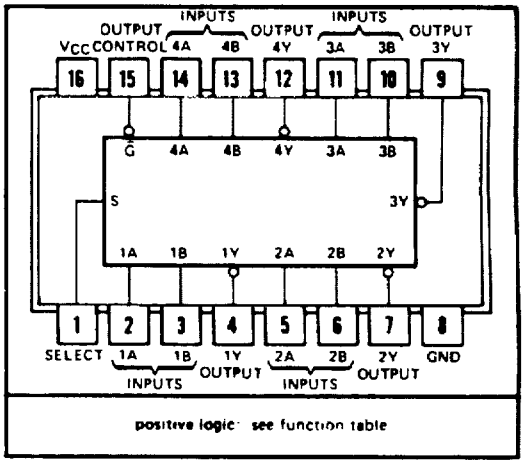
This three-state output feature means that n-bit (paralleled) data selectors with up to 258 sources can be implemented for data buses. It also permits the use of standard TTL registers for data retention throughout the system.

Series 54LS and 54S are characterized for operation over the full military temperature range of −55°C to 125°C. Series 74LS and 74S are characterized for operation from 0°C to 70°C.

SN54LS257, SN54S257 . . . J OR W PACKAGE
SN74LS257, SN74S257 . . . J OR N PACKAGE
(TOP VIEW)



SN54LS258, SN54S258 . . . J OR W PACKAGE
SN74LS258, SN74S258 . . . J OR N PACKAGE
(TOP VIEW)



FUNCTION TABLE

INPUTS				OUTPUT Y	
OUTPUT CONTROL	SELECT	A	B	'LS257 'S257	'LS258 'S258
H	X	X	X	Z	Z
L	L	L	X	L	H
L	L	H	X	H	L
L	H	X	L	L	H
L	H	X	H	H	L

H = high level, L = low level, X = irrelevant, Z = high impedance (off)

SNC54LS257 Quad 2-Line-to-1-Line Data Selector/Multiplexer

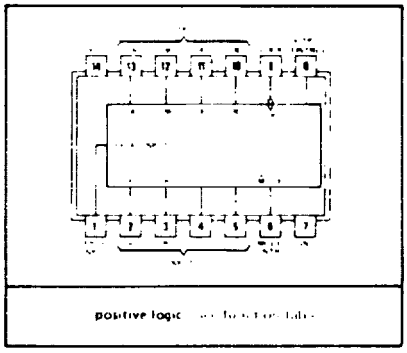
TTL
MSI

TYPES SN54LS295A, SN74LS295A
4-BIT RIGHT-SHIFT LEFT-SHIFT REGISTERS
WITH 3-STATE OUTPUTS

BULLETIN NO. DL-S 7411780, MARCH 1974

- Three-State Versions of SN54LS95B and SN74LS95B Parallel-In, Parallel-Out Registers
- Schottky-Diode-Clamped Transistors
- Low Power Dissipation . . . 70 mW Typical (Enabled)
- Applications:
  - N-Bit Serial-To-Parallel Converter
  - N-Bit Parallel-To-Serial Converter
  - N-Bit Storage Register

SN54LS295A J OR W PACKAGE
SN74LS295A J OR N PACKAGE
(TOP VIEW)



positive logic

description

These 4-bit registers feature parallel inputs, parallel outputs, and clock, serial, mode, and output control inputs. The registers have three modes of operation:

Parallel (broadside) load
Shift right (the direction Q_A toward Q_D)
Shift left (the direction Q_D toward Q_A)

Parallel loading is accomplished by applying the four bits of data and taking the mode control input high. The data is loaded into the associated flip-flops and appears at the outputs after the high-to-low transition of the clock input. During parallel loading, the entry of serial data is inhibited.

Shift right is accomplished when the mode control is low; shift left is accomplished when the mode control is high by connecting the output of each flip-flop to the parallel input of the previous flip-flop (Q_D to input C, etc.) and serial data is entered at input D.

When the output control is high, the normal logic levels of the four outputs are available for driving the loads or bus lines. The outputs are disabled independently from the level of the clock by a low logic level at the output control input. The outputs then present a high impedance and neither load nor drive the bus line; however, sequential operation of the registers is not affected.

The SN54LS295A is characterized for operation over the full military temperature range of −55°C to 125°C; the SN74LS295A is characterized for operation from 0°C to 70°C.

FUNCTION TABLE

INPUTS							OUTPUTS			
MODE CONTROL	CLOCK	SERIAL	PARALLEL				Q_A	Q_B	Q_C	Q_D
			A	B	C	D				
H	↑	X	a	b	c	d	a	b	c	d
H	↓	X	Q_{B^1}	Q_{C^1}	Q_{D^1}	d	Q_{Bn}	Q_{Cn}	Q_{Dn}	d
L	H	X	X	X	X	X	Q_{A0}	Q_{B0}	Q_{C0}	Q_{D0}
L	↑	H	X	X	X	X	H	Q_{An}	Q_{Bn}	Q_{Cn}
L	↓	L	X	X	X	X	L	Q_{An}	Q_{Bn}	Q_{Cn}
When the output control is low, the outputs are disabled to the high-impedance state; however, sequential operation of the registers is not affected.										

†Shifting left requires external connection of Q_B to A, Q_C to B, and Q_D to C. Serial data is entered at input D.

H = high level (steady state), L = low level (steady state), X = irrelevant (any input, including transitions)
↓ = transition from high to low level
a, b, c, d = the level of steady-state input at inputs A, B, C, or D, respectively.
Q_{A0}, Q_{B0}, Q_{C0}, Q_{D0} = the level of Q_A, Q_B, Q_C, or Q_D, respectively, before the indicated steady-state input conditions were established.
Q_{An}, Q_{Bn}, Q_{Cn}, Q_{Dn} = the level of Q_A, Q_B, Q_C, or Q_D, respectively, before the most recent ↓ transition of the clock.

SNC54LS295A 4-Bit Cascadable Shift Register with 3-State Output

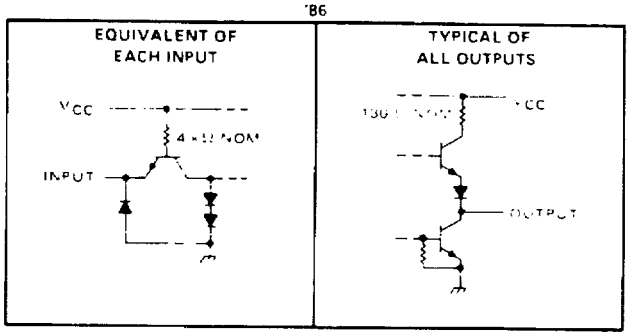
TTL
MSI

TYPES SN5486, SN54L86, SN54LS86, SN54S86, SN7486, SN74L86, SN74LS86, SN74S86 QUADRUPLE 2-INPUT EXCLUSIVE-OR GATES

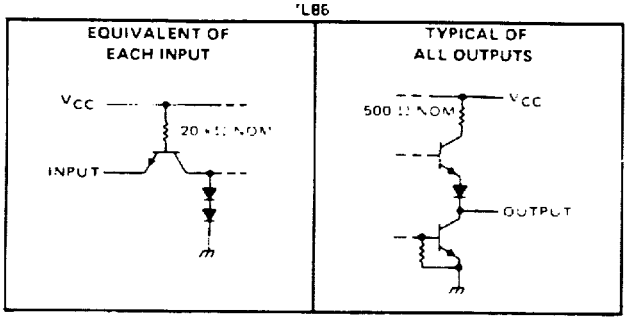
BULLETIN NO. DL-S 7211825, DECEMBER 1972

schematics of inputs and outputs

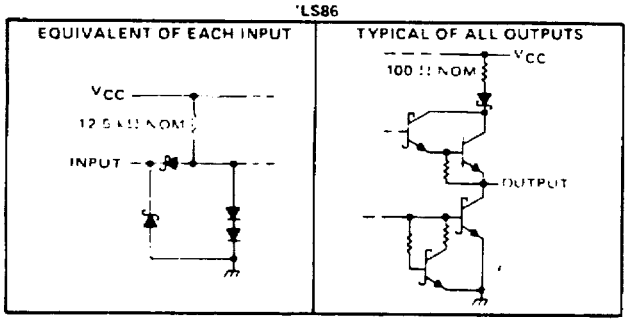
'86



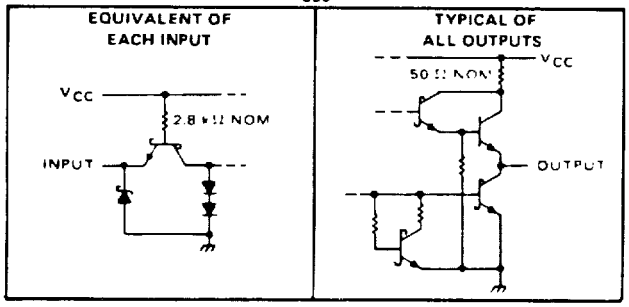
'L86



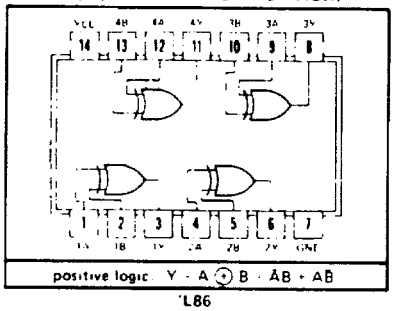
'LS86



'S86

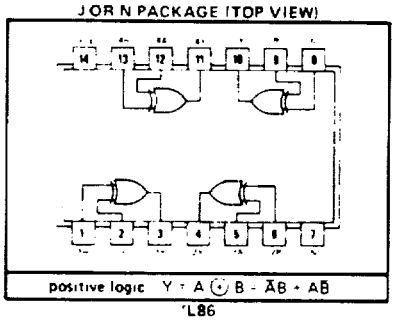


'86, 'LS86, 'S86
J, N, OR W PACKAGE (TOP VIEW)



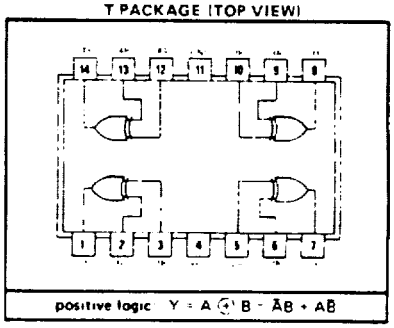
positive logic $Y = A \oplus B = \bar{A}B + A\bar{B}$

'L86
J OR N PACKAGE (TOP VIEW)



positive logic $Y = A \oplus B = \bar{A}B + A\bar{B}$

'L86
T PACKAGE (TOP VIEW)



positive logic $Y = A \oplus B = \bar{A}B + A\bar{B}$

FUNCTION TABLE

INPUTS		OUTPUT
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	L

H = high level, L = low level

TYPE	TYPICAL AVERAGE PROPAGATION DELAY TIME	TYPICAL TOTAL POWER DISSIPATION
'86	14 ns	150 mW
'L86	55 ns	15 mW
'LS86	10 ns	30 5 mW
'S86	7 ns	250 mW

SNC54LS86 Quad 2-Input Exclusive-OR Gate

TTL
MSI

TYPES SN54157, SN54L157, SN54S157, SN54S158, SN74157, SN74L157, SN74S157, SN74S158
QUADRUPLE 2-LINE-TO-1-LINE DATA SELECTORS/MULTIPLEXERS

BULLETIN NO. DL-S 7211847, DECEMBER 1972

features

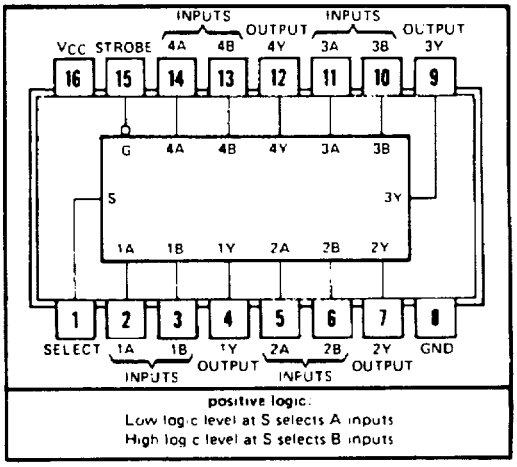
- Buffered Inputs and Outputs
- Three Speed/Power Ranges Available

TYPES	TYPICAL AVERAGE PROPAGATION TIME	TYPICAL POWER DISSIPATION
'157	9 ns	150 mW
'L157	18 ns	75 mW
'S157	5 ns	250 mW
'S158	4 ns	195 mW

applications

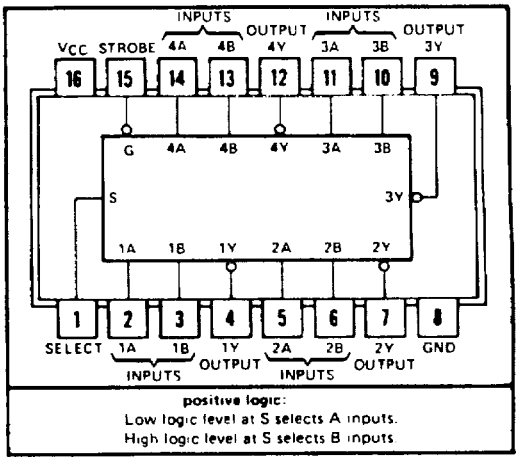
- Expand Any Data Input Point
- Multiplex Dual-Data Buses
- Generate Four Functions of Two Variables (One Variable is Common)
- Source Programmable Counters

'157, 'S157 . . . J, N, OR W PACKAGE
'L157 . . . J OR N PACKAGE
(TOP VIEW)



positive logic:
Low logic level at S selects A inputs
High logic level at S selects B inputs

'S158 . . . J, N, OR W PACKAGE
(TOP VIEW)



positive logic:
Low logic level at S selects A inputs.
High logic level at S selects B inputs.

description

These monolithic, data selectors/multiplexers contain inverters and drivers to supply full on-chip data selection to the four output gates. A separate strobe input is provided. A 4-bit word is selected from one of two sources and is routed to the four outputs. The '157, 'L157, and 'S157 present true data whereas the 'S158 presents inverted data to minimize propagation delay time.

FUNCTION TABLE

INPUTS				OUTPUT Y	
STROBE	SELECT	A	B	'157, 'L157, 'S157	'S158
H	X	X	X	L	H
L	L	L	X	L	H
L	L	H	X	H	L
L	H	X	L	L	H
L	H	X	H	H	L

H = high level, L = low level, X = irrelevant

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, V_{CC} (see Note 1) . . . . . 7 V
Input voltage . . . . . 5.5 V
Operating free-air temperature range: SN54', SN54L', SN54S' Circuits . . . . . −55°C to 125°C
SN74', SN74L', SN74S' Circuits . . . . . 0°C to 70°C
Storage temperature range . . . . . −65°C to 150°C

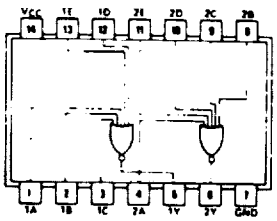
NOTE 1 Voltage values are with respect to network ground terminal.

SNC54L157 Quad 2-Line-to-1-Line Data Selector/Multiplexer

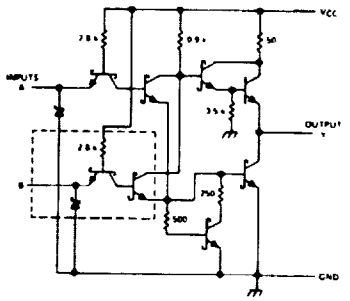
260

DUAL 5-INPUT POSITIVE-NOR GATES

positive logic:
$Y = \overline{A+B+C+D+E}$



SN54S260/SN74S260(J, N, W)



The portion of the schematic within the dashed lines is repeated for each additional input of the 'S260, and the 0.9 kΩ resistor is changed to 0.6 kΩ.

'S02, 'S260 CIRCUITS

TTL
MSI

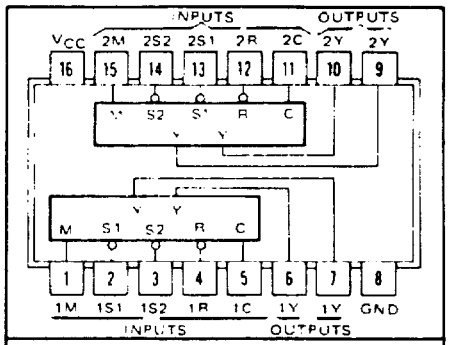
CIRCUIT TYPES SN54120, SN74120
DUAL PULSE SYNCHRONIZERS/DRIVERS

CIRCUIT TYPES SN54120, SN74120
BULLETIN NO. DL-S 7111537, SEPTEMBER 1971

- Generates Either a Single Pulse or Train of Pulses Synchronized with Control Functions
- Ideal for Implementing Sync-Control Circuits Similar to those Used in Oscilloscopes
- Latched Operation Ensures that Output Pulses Are Not Clipped
- High-Fan-Out Complementary Outputs Drive System Clock Lines Directly
- Internal Input Pull-Up Resistors Eliminate Need for External Components
- Diode-Clamped Inputs Simplify System Design
- Typical Propagation Delays:

  9 Nanoseconds through One Level
  16 Nanoseconds through Two Levels

J OR N DUAL-IN-LINE
OR W FLAT PACKAGE (TOP VIEW)



logic: See description and function table

description

These monolithic pulse synchronizers are designed to synchronize an asynchronous or manual signal with a system clock. Reliable response is ensured as the input signals are latched up; therefore duration of logic input is not critical and the adverse effects of contact-bounce of a manual input are eliminated. The ability to pass output pulses is started and stopped by the levels or pulses applied to the latch inputs S1, S2, or R in accordance with the function table. High-speed circuitry is utilized throughout the clock paths to minimize skew with respect to the system clock.

After initiation, the mode control (M) input determines whether a series of pulses or only one pulse is passed. In the absence of a stop command, the clock driver will continue to pass clock pulses as long as the mode control input is low (see Figures 2 through 4). If the mode control input is high only a single clock pulse will be passed (see Figure 5).

When the mode control is set to pass a series of pulses, the last pulse out is determined by two general rules:

a. When pulses are terminated by the S or R inputs, conditions meeting the setup times (specified under recommended operating conditions) will dominate.

FUNCTION TABLE

INPUTS			FUNCTION
R	S1	S2	
X	L	X	Pass Output Pulses
X	X	L	Pass Output Pulses
L	H	H	Inhibit Output Pulses
H	↓	H	Start Output Pulses
H	H	↓	Start Output Pulses
↓	H	H	Stop Output Pulses
H	H	H	Continue†

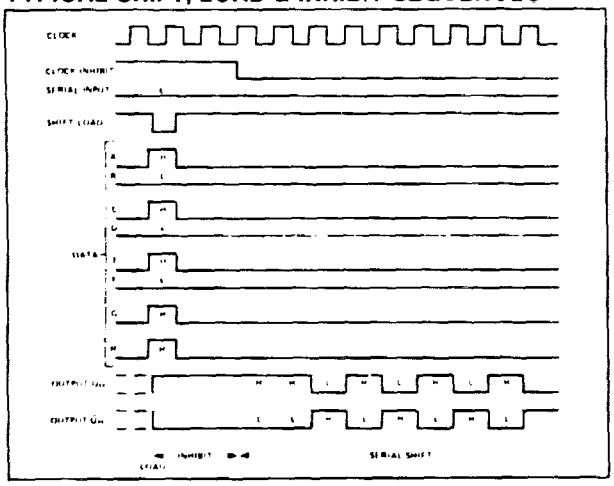
H = high level (steady state)
L = low level (steady state)
↓ = transition from H to L
X = irrelevant
†Operation initiated by last ↓ transition continues

b. Low-to-high-level transitions at the mode control input should be avoided during the 20-nanosecond period immediately following the negative transition of the input clock pulse as transitions during this time period may or may not allow the next pulse to pass (see Figures 4 and 5). When pulses are terminated by the mode control input, a positive transition at the mode control input meeting the high-level setup time, $t_{setup(H)}$, (specified under recommended operating conditions) will pass that positive clock pulse then inhibit remaining clock pulses. The clock input (C) is latch-controlled ensuring that once initiated the output pulse will not be terminated until the full pulse has been passed.

PARALLEL-LOAD 8-BIT SHIFT REGISTER 54/74165

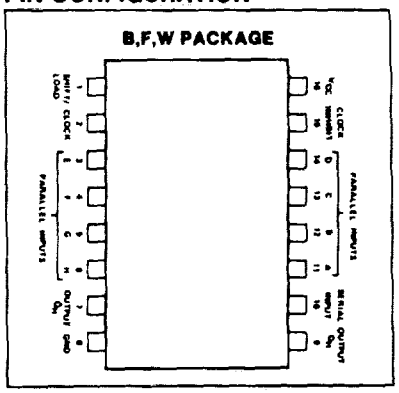
SPEED/PACKAGE AVAILABILITY
54 F,W 74 B

TYPICAL SHIFT, LOAD & INHIBIT SEQUENCES



PIN CONFIGURATION

B,F,W PACKAGE



TRUTH TABLE

INPUTS					INTERNAL OUTPUTS		OUTPUT
SHIFT/ LOAD	CLOCK INHIBIT	CLOCK	SERIAL	PARALLEL A . . . H	Q_A	Q_B	Q_H
L	X	X	X	a...h	a	b	h
H	L	L	X	X	Q_{AO}	Q_{BO}	Q_{HO}
H	L	↑	H	X	H	Q_{An}	Q_{Gn}
H	L	↑	L	X	L	Q_{An}	Q_{Gn}
H	H	↑	X	X	Q_{AO}	Q_{BO}	Q_{HO}

H = high level (steady state), L = low level (steady state)
X = irrelevant (any input, including transitions)
↑ = transition from low to high level
a . . . h = the level of steady-state input at inputs A thru H, respectively
Q_{AO}, Q_{BO}, Q_{HO} = the level of Q_A, Q_B, or Q_H, respectively, before the indicated steady-state input conditions were established. Q_{An}, Q_{Gn} = the level of Q_A or Q_G, respectively, before the most recent ↑ transition of the clock

Distinctive Characteristics

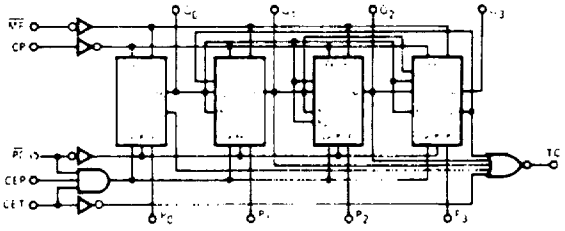
- 75 mw typical power dissipation.
- 13 MHz typical count rate
- 100% reliability assurance testing in compliance with MIL STD 883
- Fully synchronous counting and parallel loading

FUNCTIONAL DESCRIPTION

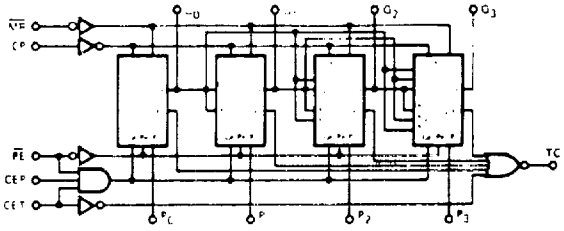
The Am93L10 and Am93L16 are four-bit synchronous up-counters. The 93L10 is a modulo 10 counter and the 93L16 is a hexadecimal counter. Each counter contains four master-slave flip-flops driven by a common clock input (CP). When CP is LOW, data is entered into the masters of the flip-flops. If the parallel enable ($\overline{PE}$) is HIGH, then data is entered into each master from the slaves of the other flip-flops via J and K type inputs. If $\overline{PE}$ is LOW, then data is entered into the masters via the D-type parallel inputs (P_0, P_1, P_2, P_3). When the clock changes from LOW to HIGH, the data in the masters is transferred to the slaves and the outputs (Q_0, Q_1, Q_2, Q_3). The masters are inhibited from change as long as the clock is HIGH. In the count mode ($\overline{PE}$ HIGH), there are two count enables: count enable parallel (CEP) and count enable trickle (CET). Both must be HIGH for counting to occur. The terminal count state of each device (9 for the 93L10 and 15 for the 93L16) is decoded and ANDed with the CET input to produce a terminal count output (TC). Long synchronous counter systems are constructed by connecting the TC output of the first counter to the CEP inputs of all other counters and the TC output of each counter after the first to the CET input of the next counter. Both counters have an asynchronous master reset ($\overline{MR}$), which clears all four flip-flops independent of any other inputs.

For proper operation, the $\overline{PE}$ input must not change from LOW to HIGH during the clock LOW time unless the P inputs are identical to the Q outputs. If CEP and CET are both HIGH at any time during the clock LOW time (and $\overline{PE}$ is HIGH), then the count will increment when the clock goes HIGH.

Am93L10



Am93L16

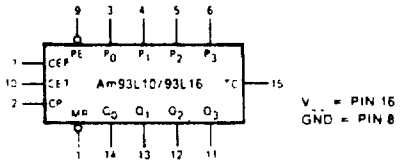


LOADING RULES
In Unit Loads (Notes)

	TTL LOADS		93L LOADS	
Input Load Factor	HIGH	LOW	HIGH	LOW
CEP, $\overline{MR}$	0.5	0.25	1.0	1.0
CET, CP, $\overline{PE}$	1.0	0.5	2.0	2.0
P_0, P_1, P_2, P_3	0.34	0.17	0.68	0.68
Output Drive	HIGH	LOW	HIGH	LOW
Q, Q_0, Q_1, Q_2, Q_3, TC	9	3	18	12

NOTES:
1) A TTL unit load is specified as 0.4 V at −1.6 mA LOW, 2.4 V at 40 µA HIGH.
2) A 93L unit load is specified as 0.3 V at −400 µA LOW, 2.4 V at 20 µA HIGH.
3) Enough output LOW current is available to mix TTL and 93L loads and still meet the 93L requirement of a V_{OL} of 0.3 V.

LOGIC SYMBOL



V_{CC} = PIN 16
GND = PIN 8

ORDERING INFORMATION

Package Type	Temperature Range	Am93L10 Order Number	Am93L16 Order Number
16 Pin Molded DIP	0°C to +75°C	U6M93L1059X	U6M93L1659X
16 Pin Hermetic DIP	0°C to +75°C	U7B93L1059X	U7B93L1659X
16 Pin Hermetic DIP	−55°C to +125°C	U7B93L1051X	U7B93L1651X
16-Pin Hermetic Flat Pack	−55°C to +125°C	U4L93L1051X	U4L93L1651X
Dice	Note	UXX93L10XXD	UXX93L16XXD

Note: The dice supplied will contain units which meet both 0°C to +75°C and −55°C to +125°C temperature ranges.

MAXIMUM RATINGS (Above which the useful life may be impaired)

Storage Temperature	−65°C to +150°C
Temperature (Ambient) Under Bias	−55°C to +125°C
Supply Voltage to Ground Potential (Pin 16 to Pin 8) Continuous	−0.5 V to +7 V
DC Voltage Applied to Outputs for High Output State	−0.5 V to +V_{CC} max
DC Input Voltage	−0.5 V to +5.5 V
Output Current, Into Outputs	30 mA
DC Input Current (Note 1)	−30 mA to +5.0 mA

Note 1: Maximum current defined by DC input voltage.

93L16D Low-Power 4-Bit Binary Counter

CHAPTER 8

INTERCONNECT WIRING LIST

This chapter contains the wire list for the digital processor test set. The lists are used to determine point-to-point wiring. Each point's origin (from) and destination (to) are listed. When a point listed in the FROM column is routed to more than one point, the FROM point is listed only once and the rest are left blank and only the TO point is listed. Points that are not connected are not listed. Pin-for-pin cables are not listed. (Pin-for-pin cables are cables that have identical plugs at both ends and each pin connected has the same pin number at both ends.) All other connections are listed. Wiring interconnections shown in figure FO-25 have not been repeated in this chapter. Wire lists and wiring diagrams take precedence over schematics due to unused circuit card connector pins.

The following wire lists are provided:

FROM	TO	FROM	TO
DIGITAL PROC TEST SET AN/USM-433			
C82-L1	XK4-A2	E2-RTN5	P5-M
CB2-L 2	XK4-B2		F5-F
CB2-L3	XK4-C2	E3 +5	F5-L
CB2-T1	J12-A	E3-GND	J13-22
	J9-A	E4 +5	F5-C
	P4-C	E5 +5	F5-D
CB2-T2	J12-8	E5-E5	J15-65
	J9-B	E7-SHLD	J7-J
	P4-B	E8	J6-J
CB2-T3	J12-C	ES-SHLD	J10-22
	J9-C	E10-GNC	J9-H
	KI-X1	E12-SHLD	J11-12
	P4-A	FL2-1A	XK4-A1
E1-GND	FL2-E5	FL2-E2	XK4-81
E1-NTRL	J9-E	FL2-C3	S21-9
	FL2-D4	FL2-D4	E1-NTRL
	J12-D	FL2-E5	EL-GND
	J12-E	GND	F2-DO
	J9-D		F2-D5
	XK4-X2		F2-D6
	P4-D		F2-D7
	P4-E		F2-D8
	P4-F		F2-FO
E1-RTN5	P5-E		F2-F3
E2-GND	J12-H		F3-FO

FROM	TO	FROM	TO
GND	P2-F8	J7-A*	F3-D2
	P3-F3	J7-R*	F3-C9
	P2-F9	J7-C*	F3-D9
	P2-GO	J7-D*	F3-C8
	P2-G1	J7-E*	F3-D8
	P2-G2	J7-F	Pl-X
	P2-G3	J7-J	E7-SHLD
	P2-G8	J7-g	F3-C7
	P2-G9	J7-L	F3-D7
J6-A*	P3-86	J7-M	K1-C1
J6-B*	P3-A3	J7-R	F3-C4
J6-C*	P3-B3	J7-S	F3-D4
J6-D*	P3-A2	J7-T	F3-C5
J6-E*	P3-B2	J7-U	F3-D5
J6-J	E8	J7-	F3-C6
J6-K	P3-Kl	J7-k	F3-D6
J6-L	P3-K2	J7-X	F3-C3
J6-R	P3-A9	J7-Y	F3-D3
J6-S	P3-B9	J7-Z	F3-C2
J6-T	P3-C1	J9-A	CB2-T1
J6-U	P3-D1	J9-B	CB2-T2
J6-V	P3-A8	J9-C	CB2-T3
J6-W	P3-B8	J9-C	E1-NTRL
J6-X	P3-A7	J9-E	E1-NTRL
J6-Y	P3-B7	J9-F	K1-X2
J6-Z	P3-A6	J9-H	E10-GND

FROM	TO	FROM	TO
J10-3	P2-N5	J11-17	F3-J9
J10-4	P2-P5	J11-1	F3-E4
J10-5	P2-K8	J11-19	F3-H9
J10-6	P2-K5	J11-28	F1-T
J10-10	P2-N4	J11-29	F1-S
J10-11	P2-P4	J11-30	F1-U
J10-12	P2-N3	J11-31	F1-V
J10-13	P2-P3	J11-32	F1-W
J10-14	P2-N6	J11-33	F3-H3
J10-15	P2-P6	J11-34	F3-E9
J10-16	P2-NI	J11-35	F3-E8
J10-17	P2-P1	J11-36	F3-E3
J10-1	P2-N2	J11-37	F3-E5
J10-19	P2-P2	J12-A	CE2-T1
J10-20	P2-N7	J12-E	C82-T2
J10-21	P2-P7	J12-C	CB2-T3
J10-22	E9-SHLD	J12-C	E1-NTRL
J11-1	P3-EO	J12-E	E1-NTRL
J11-5	P3-K3	J12-F	XK3-X2
J11-6	P3-K4	J12-H	E2-GND
J11-7	P3-K5	J13-1	F2-Fl
Jl1-8	P3-K6	J13-2	F2-F2
J11-9	P3-K7	J13-3	F2-L1
J11-10	P3-K8	J13-4	F2-M 1
J11-11	P3-J3	J13-5	F2-L3
J11-12	E12-SHLD	J13-6	F2-M3

FROM	TO	FROM	TO
J13-7	P2-L4	J14-S	K2-B2
J13-8	P2-H4	J146-T	F1-C
J13-9	P2-L2	J14-V	K2-A2
J13-10	P2-M2	J14-N	F1-A
J13-11	P 2-L8	J14-X	SHLD-J
J13-12	P2-M8	J15-1	F2-A1
J13-13	P2-L6	J15-2	F2-B1
J13-14	P2-M6	J15-3	F2-A2
J13-15	P2-L7	J15-4	F2-B2
J13-16	P2-M7	J15-5	F2-A3
J13-17	P2-L5	J15-6	F2-B3
J13-18	P2-M5	J15-7	F2-A4
J13-22	E3-GND	J15-8	F2-B4
J14-A	K1-C2	J15-9	F2-A5
J14-B	K1-B2	J15-10	F2-B5
J14-C	P1-N	J15-11	F2-A6
J14-F	K1-A2	J15-12	F2-B6
J14-G	K1-A2	J15-13	F2-A7
J14-H	P1-J	J15-14	F2-B7
J14-J	P1-K	J15-15	F2-A8
J14-K	K1-A2	J15-16	F2-B8
J14-L	K2-C2	J15-17	F2-A9
J14-M	K2-C2	J15-16	F2-B9
J14-N	P1-E	J15-19	F2-AO
J14-P	P1-F	J15-20	F2-BO
J14-R	K2-C2	J15-21	F2-C3

FROM	TO	FROM	TO
J15-22	P2-D3	J15-53	522-2
J15-23	S2-NO	J15-65	E5-E5
J15-25	S2-NC	J16-90	51-3
J15-26	S4-NO	K1-A1	F1-L
J15-28	S4-NC		F1-M
J15-29	S3-NO	K1-A2	J14-F
J15-31	S6-NC		J14-G
J15-33	S5-NO		J14-K
J15-35	SS5-NC	K1-B1	F1-P
J15-36	S25-X	K1-B2	J14-B
J15-37	S27-1	K1-C1	J7-M
J15-38	S27-2		S21-C
J15-39	S27-4		F1-R
J15-40	S26-1	k1-C2	J14-A
J 15-41	S26-2	K1-Xl	K2-X1
J15-42	S26-4		CB2-T3
J15-43	S25-1	K1-X2	J9-F
J15-44	S25-2		K2-X2
J 15-45	S25-4	K2-A	FI-B
J15-46	S22-A	K2-A2	J14-V
J15-47	524-1	K2-Bl	S21-1
J15-48	S24- 2		F1-D
J15-49	524-4	K2-E2	J14-S
J15-50	S23-1	K2-Cl	F1-G
J15-51	523-2		Fl-H
J15-52	S23-4	K2-C2	J14-L

FROM	TO	FROM	TO
K2-C2	J14-M	P1-P	Kl-C1
	J14-R	P1-R	KI-CL
K2-X1	XK3-X1	Pi-S	J11-29
	KI-X1	P1-T	J11-28
K2-X2	K1-X2	P1-U	J11-30
KEY	P2-Cl	P1-V	J11-31
	P2-C2	P1-I	J11-32
	P2-D1	P1-X	J7-F
	P2-D2	P2-AO	J15-19
	P3-El	P2-A1	J15-1
	P3-E2	P2-A2	J15-3
	P3-F1	P2-A3	J15-5
	P3-F2	P2-A4	J15-7
PL-A	J14-W	P2-A5	J15-9
P1-B	K2-A	P2-A6	J15-11
PI-C	J14-T	P2-A7	J15-13
P1-D	K2-B1	P2-A8	J15-15
PL-E	J14-N	P2-A9	J15-17
P1-F	J14-P	P2-80	J15-20
P1-G	K2-C1	P2-B1	J15-2
P1-H	K2-C1	P2-E2	J15-4
P1-J	J14-H	P2-E3	J15-6
PI-K	J14-J	P2-E4	J15-8
P1-L	K1-Al	P2-B5	J15-10
P1-M	KI-Al	P2-B6	J15-12
P1-N	J14-C	P2-B7	J15-14

FROM	TO	FROM	TO
P2-B8	J15-16	P2-F8	GAD
P2-89	J 15-18	P2-F9	GND
P2-Cl	KEY	P2-GO	GND
P2-C2	KEY	F2-Gl	GND
P2-C3	J15-21	P2-G2	GND
P2-DO	GND	P2-G3	GND
P2-D1	KEY	P2-G8	GND
P2-D2	KEY	P2-G9	GND
P2-03	J 15-22	P2-J2	S28-1
P2-D5	GND	P2-J3	S29-1
P2-D6	GND	P2-J8	S29-2
P2-D7	GND	P2-J9	S29-4
P2-D8	GND	P2-KO	S9-NO
P2-EO	S33-4	P2-K1	S30-1
P2-E2	533-X	P2-K2	531-4
P2-E3	S31-I	P2-K3	530-4
P2-E4	S31-2	P2-K4	S30-2
P2-E5	S32-2	P2-K5	J10-6
P2-E6	S32-4	P2-K6	S8-2
P2-E7	533-2	P2-K8	J10-5
P2-E8	S33-1	P2-LO	S19-3
P2-E9	S32-1	P2-L1	J13-3
P2-FO	GND	P2-L2	J13-9
P2-F1	J13-1	P2-L3	J13-5
P2-F2	J13-2	P2-L4	J13-7
P2-F3	GND	P2-L5	J13-17

FROM	TO	FROM	TO
P2-L6	J13-13	P2-P6	J10-15
P2-L7	J13-15	P2-P7	J10-21
P2-L8	J13-11	P3	S20-NO
P2-L9	S18-NC	P3-AO	S15-3
P2-M1	J13-4	P3-A1	S7-6
P2-M2	J13-10	P3-A2	J6-D*
P2-M3	J 13-6	P3-A3	J6-8*
P2-M4	J 13- 8	P3-A4	S17-NO
P2-M5	J 13-18	P3-A5	516-NO
P2-M6	J 13-14	P3-A6	J6-Z
P2-M7	J13-16	P3-A7	J6-X
P2-M8	J 13-12	P3-A8	J6-V
P2-M9	S18-NO	P3-A9	J6-R
P2-N	J10-16	P3-B1	S15-2
P2-N2	J10-18	P3-62	J6-E*
P2-N3	J10-12	P3-E3	J6-C*
P2-N4	J10-10	P3-E4	S17-NC
P2-N5	J10-3	P3-e5	S16-NC
P2-N6	J10-14	P3-66	J6-A*
P2-N7	J10-20	P3-E7	J6-Y
P2-N8	S9-NC	P3-E8	J6-W
P2-Pl	J 10-17	P3-89	J6-S
P2-P2	J10-l	P3-CO	513-3
P2-P3	J10-13	P3-C1	J6-T
P2-P4	J10-11	P3-C2	J7-Z
P2-P5	J10-4	P3-C3	J7-X

FROM	TO	FROM	TO
P3-C4	J7-R	P3-FO	GND
P3-C5	J7-T	P3-F1	KEY
P3-C6	J7-V	P3-F2	KEY
P3-C7	J7-K	P3-F3	GND
P3-C8	J7-D*	P3-GO	S33-Y
P3-C9	J7-B*	P3-Gl	S1-1
P3-DO	513-2	P3-G2	S9-1
P3-D1	J6-U	P3-G3	S10-1
P3- D2	J7-A*	P3-G8	S20-1
P3-D3	J7-Y	P3-G9	S28-A
P3-D4	J7-S	P3-H2	S12-2
P3-D5	J 7-U	P3-H3	J11-33
P3-D6	J7-W	P3-H8	S12-3
P3-D7	J 7-L	P3-H9	J11-19
P3-D8	J7-E*	P3-J3	J11-11
P3-D9	J7-C*	P3-J8	S14-NO
P3-E0	J11-I	P3-J9	J11-17
P3-E1	KEY	P3-K1	J6-K
P3-E2	KEY	P3-K2	J6-L
P3-E3	J11-36	P3-(3	J11-5
P3-E4	J11-18	P3-K4	J11-6
P3-E5	Jll-37	P3-(5	J11-7
P3-E6	510-3	P3-K6	J11-8
P3-E7	511-3	P3-K7	J11-9
P3-E8	J 11-35	P3-98	J11-10
P3-E9	J 11-34	P3-L1	S7-4

FROM	TO	FROM	TO
P3-L2	S7-5	S1-1	S2-1
P3-SHLD	S20-1		F3-Gl
P4-A	C82-T3	S1-3	J16-90
P4-B	CB2-T2	52-1	53-1
P4-C	CB2-Tl		SI-1
P4-D	E1-NTRL	S2-NC	J15-25
P4-E	E1-NTRL	S2-NC	J15-23
P4-F	E 1-NTR L	S3 -1	S4-1
P5-A	XA11-12		52-1
XAll-11	53-NC	J15-29	
P5-B	XA11-4	54-1	S5-1
XA11-3		53-1	
P5-C	E4 +5	S4-NC	J 15-28
P5-D	E5 +5	S4-NC	J15-26
P5-E	E1-RTN5	S5-1	S6-1
P5-F	E2-RTN5		S4-1
P5-G	XA10-6	S5-NC	J15-35
	XA10-5	S5-NC	J15-33
P5-H	XA10-4	S6-1	S7-1
	XA10-3		S5-1
P5-J	XA10-8	S6-NC	J15-31
XA 10-7	S7-1	S6-1	
P5-K	XA10-4	S7-4	S8-1
	XA10-3		F3-L1
P5-L	E3 +5	S7-5	F3-L2
P5-M	E2-RTN5	S7-6	F3-A1

FROM	TO
S8-1	S9-1
	S7-4
S8-2	P2-K6
S9-1	510-1
	P3-G2
	S8-1
S9-NC	P2-N8
S9-NO	P2-KO
S10-1	S11-1
	P3-G3
	S9-1
S10-3	P3-E6
S11-1	S12-1
	S10-1
A11-3	P3-E7
A12-1	511-1
S12-2	P3-H2
S12-3	P3-H8
S13-1	S14-1
S13-2	P3-DO
S13-3	P3-CO
S14-1	S15-1
	S13-1
S14-NO	P3-J8
S15-1	S16-1
	S14-1
S15-2	F3-81
S15-3	F3-AO
S16-1	S17-1
	S15-1
S16-NC	F3-B5
S16-NC	F3-A5
517-1	S18-1
	516-1
S17-NC	P3-B4
S17-NC	P3-A4
S18-1	519-1
	S17-1
S18-NC	F2-L9
S18-NO	P2-M9
S19-1	520-1
	S18-1
S19-3	F2-LO
S20-1	F3-SHLD
	P3-G8
	519-1
S20-NC	F3
S21-1	S21-4
	K2-BI
S21-4	521-1
S21-9	FL2-C3
	XK4-C1

FROM	TO	FROM	TO
S2l-11	XK4-XI	S27-4	J15-39
S21-C	K-C	S27-X	S26-X
S22-2	J 15-53	S28-1	F2-J2
S22-A	J15-46	S28-A	S29-Y
	S23-X		F3-G9
S23-1	J15-50	S29-1	F2-J3
S23-2	J 1 5-51	S29-2	F2-J8
S23-4	J15-52	S29-4	F2-J9
S23-X	S22-A	529-X	S30-X
	S24-X	S29-Y	S30-Y
S24-1	J15-47		S28-A
S24-2	J15-48	S30-1	F2-KI
S24-4	J15-49	S30-2	F2-K4
S24-X	S23-X	S30-4	F2-K3
S25-1	J15-43	S3G-X	S31-X
S25-2	J15-44		S29-X
S25-4	J15-45	S30-Y	S31-Y
S25-X	J15-36		529-Y
	S26-X	531-2	F2-E4
S26-1	J15-40	S31-4	f2-K2
S26-2	J15-41	S31-I	F2-E3
S26-4	J15-42	S31-X	S32-X
S26-X	S25-X		S30-X
	S27-X	S31-Y	S32-Y
S27-1	J15-37		S30-Y
S27-2	J15-38	S32-1	F2-E9

FROM	TO	FROM	TO
S32-2	P2-E5	XA10-5	F5-G
S32-4	P2-E6	XAL0-6	F5-G
S32-X	S33-X	XA10-7	F5-J
	S31-X	XA10-B	F5-J
S32-Y	S33-Y	XA11-3	F5-B
	S31-Y	XA11-4	F5-B
S33-1	P2-E8	XAP11-1	F5-A
S33-2	P2-E7	XA11-12	F5-A
533-4	P2-EO	XK3-X1	K2-X1
S33-X	P2-E2	XK3-X2	J12-F
	S32-X	XK4-A1	FL2-A1
S33-Y	P3-G0	XK4-A2	CB2-L1
	S32-Y	XK4-B1	FL2-B2
SHLD-J	J14-X	X14-B2	CB2-L2
XA10-3	P5-H	X14-C1	521-9
	P5-K	XK4-CZ	CB2-L3
XA10-4	P5-K	XK4-Xl	521-11
	P5-H	XK4-XZ	E1-NTRL

FROM	TO	FROM	TO
DIGITA1 PROCESSOR TEST SET CONTACT ASSY			XA5-2
+5	XA10-1		XA2-1
	XA10-2		XA5-91
	XA 10- 1		XA5-92
	XA10- 92		XA3-91
	XA11-1		XA6-1
	XA6-91		XA6-2
	XA6-92		XA17-1
	XA7-1		XA2-2
	XA7-2		XA3-92
	XA7-91		XA16-91
	XA7-92		XA16-92
	XA8-1		XA4-1
	XA8-2		XA4-2
	XA8-91		XA3-1
	XA8-92		XA14-91
	XA9-1		XA14-92
	XA9-2		XA12-91
	XA9-91		XA12-92
	XA9-92		XA16-1
	XA17-91		XA11-91
	XA3-2		XA15-91
	XA4-91		XA1-1
	XA4-92		XA1-2
	XA5-1		XA12-1
	XA17-92		

FROM	TO	FROM	TO
+5	XA13-1		XA11-89
	XA14-1		XA15-89
	XA13-91		XA1-89
	XA13- S2		XA1-90
	XA1-91		XA10-3
	XA1-92		XA10-4
	XA11-92		XA10-89
	XA15-92		XA10-90
CB1-11	XK4-D2		XA13-3
CB1-T1	XK3-A1		XA12-3
E11-GND	J8-E		XA14-89
F11-A1	XK4-D1		XA16-90
F11-B3	J8-C		XA4-3
F11-C2	F12-E5		XA4-89
F12-E5	F11-C2		XA3-3
GND	XA13-90		XA4-90
	XA14-90		XA3-4
	XA16-3		XA5-3
	XA12-89		XA5-4
	XA12-90		XA3-89
	XA15-90		XA3-90
	XA14-3		XA4-4
	XA1-3		XA9-89
	XA1-4		XA6-3
	XA13-89		XA6-4
	XA11-90		XA6-89

FROM	TO
GND	XA6-90
	XA7-3
	XA7-4
	XA7-89
	XA7-90
	XA17-89
	XA2-3
	XA8-3
	XA8-4
	A8-90
	XA2-89
	XA8-89
	XA9-3
	XA9-4
	XA16-8
	XA9-90
	XA2-90
	XA17-90
GND-GN	XA11-3
J8-A	XK3-A2
J8-B	XK3-A1
J8-C	F11-B3
J8-E	E11-GND
P1-SH1D	XA5-90
P2-COND	XA5-79
P2-SH1D	XA5-89

FROM	TO
P4-OOND	XA10-76
F4-SH1D	XA10-90
F5-OOND	XA10-72
F5-SH1D	XA10-89
XA1-1	+5
XA1-2	+5
XA1-3	GND
XA1-4	GND
XA1-6	XA3-23
XA1-7	XA3-22
XA1-8	XA3-71
XA1-9	XA3-18
XA1-10	XA3-46
XA1-11	XA3-70
XA1-12	XA3-45
XA1-13	XA3-19
XA1-14	XA3-84
XA1-15	XA3-48
XA1-16	XA3-47
XA1-17	XA3-83
X1A-18	XA3-69
XA1-19	XA3-21
XA1-20	XA3-20
XA1-22	XA4-38
X41-23	XA3-25
XA1-24	XA3-26

FROM	TO	FROM	TO
XA1-25	XA3-24	XA1-52	XA3-50
XA1-26	XA4-35	X.A1-54	XA3-67
XA1-27	XA4-36	XA1-55	XA3-33
XA1-28	XA3-28	XA1-56	XA3-35
XA1-29	XA3-29	XA 1-57	X 4-26
XA1-30	XA3-27	XA1-58	XA4-31
XA1-31	XA4-37	XP1-59	XA3-38
XA1-32	XA4-32	XA1-60	XA3-37
XA1-33	XA4-33	XA1-61	XA4-27
XA1-34	XA3-31	XA1-62	XA3-36
XA1-35	XA3-32	XA1-63	XA4-23
XA1-36	XA3-30	XA1-64	XA4-28
XA1-37	XA4-34	XA1-65	XA3-41
XA1-38	XA4-29	XA1-66	XA3-40
XA1-39	XA3-74	XA1-67	XA4-24
XA1-40	XA 3-73	XA1-68	XA3-39
XA1-41	XA3-51	XA1-69	XA3-43
XA1-43	XA3-49	X1-70	XA4-25
XA1-44	XA3-17	XA1-71	XA3-42
XA1-45	XA4-30	XA1-72	XA3-44
XA1-46	XA3-72	XA1-73	XA3-82
XA1-47	XA3-75	XA1-74	XA3-79
XA1-48	XA3-52	XA1-75	XA3-80
XA1-49	XA3-65	XA1-77	XA3-81
XA1-50	XA3-76	XA1-78	XA3-78
XA1-51	XA3-34	XA-79	XA3-63

FROM	TO	FROM	TO
XA1-80	XA3-77	XA2-20	XA5-29
XA1-81	XA3-61	XA2-27	XA2-72
XA1-82	XA3-68		XA2-15
XA1-83	XA3-66	XA2-28	XA5-59
XA1-84	XA3-64	XA2-29	X.5-31
XA1-86	XA3-62	XA2-30	XA5-32
XA1-89	GND	XA2-31	XA5-60
XA 1-90	GND	XA2-32	XA5-6-
XA1-91	+5	X2-35	XA5-39
XA1-92	+5	X2-36	XA5-72
XA2-1	+5	XA2-38	XA5-38
XA2-2	+5	XA2-39	XA5-69
XA2-3	GND	XA2-43	Xa5-37
XA2-4	XA2-15	XA2-44	XA5-65
XA2-7	XA6-87	XA2-46	XA5-35
XA2-8	XA6-76	XA2-47	XA5-67
XA2-9	XA6-64	XA2-61	XA5-57
XA2-10	XA6-88	XA2-62	XA5-75
XA2-11	XA6-62	XA2-65	XA5-77
XA2-12	XA6-75	XA2-66	XA5-58
XA2-13	XA6-61	X42-69	XA5-56
XA2-15	XA2-27	XA2-70	XA5-73
	XAZ-4	XA2-72	XA2-27
XA2-16	XA5-62	XA2-73	X65-71
XA2-17	XA5-33	XA2-74	XA5-55
XA2-19	XA5-61	XA2-77	XA6-55

FROM	TO
XA2-78	XA6-58
XA2-79	XA6-57
XA2-80	XA6-54
XA2-81	XA6-53
XA2-82	XA6-56
XA2-83	XA6-63
XA2-84	XA-52
XA2-85	XA6-51
XA2-89	GND
XA2-90	GND
XA2-91	XA4-91
XA2-92	XA4- 92
XA3-1	+5
XA3-2	+5
XA3-3	GND
XA3-4	GND
XA3-8	XA5-13
XA3-17	XA1-44
XA3-18	XA1-9
XA3-19	XA1-13
XA3-20	XA1-20
XA3-21	XA1-19
XA3-22	XA1-7
XA3-23	XA1-6
XA3-24	XA1-25
XA3-25	XA1-23
XA3-26	XA1-24
XA3-27	XA1-30
XA3-28	XA1-28
X43-29	XA1-29
X3-30	XA1-36
X43-31	XA1-34
XA3-32	XA1-35
XA3-33	XA1-55
XA3-34	XA1-51
XA3-35	XA1-56
XA3-36	XA1-62
XA3-37	XA1-60
XA3-38	XAI-59
XA3-39	XA1-68
XA3-40	XA1-66
XA3-41	XA1-65
XA3-42	XA1-71
XA3-43	XA1-69
XA3-44	XA61-72
XA3-45	XA1-12
X,3-46	XA1-10
XA3-47	XA1-16
X43-48	XA1-15
XA3-49	XA11-43
XA3-50	XA1-52
XA3-51	XA1-41

FROM	TO	FROM	TO
XA3-52	XA1-48	XA3-78	XA1-78
XA3-53	A18J2-A8	XP3-79	XA1-74
XA3-54	A18J2-A7	XP3-80	XA1-75
XA3-55	A18J2-A6	XA3-81	XA1-77
XA3-56	A18J2-A5	XP3-82	XA1-73
XA3-57	A18J2-A4	XA3-63	XA1-17
XA3-58	A18J2-A3	XA3-84	XA1-14
XA3-59	A18J2-A2	XA3-85	A18J2-C3
XA3-60	A18J2-AI	XPA3-87	A18J2-A9
XA3-61	XA1-81	XP3-88	A18J2-AO
XA3-62	XA1-86	XP3-89	GND
XA3-63	XA1-79	XA3-90	GND
XA3-64	XA1-84	XA3-91	+5
XA3-65	XA1-49	XA3-92	+5
XA3-66	XA1-83	X44-1	+5
XA3-67	XA1-54	XA4-2	+5
XA3-68	XA1-82	XA4-3	GND
XA3-69	XA1-18	XA4-4	GND
XA3-70	XA1-11	XA4-7	A18J1-K1
XA3-71	XA1-8	XA4-8	A18J1-K2
XA3-72	XA1-46	XP4-9	A18J1-K3
XA3-73	XA1-40	XA4-10	A18J1-K4
XA3-74	XA1-39	XA4-11	A18J1-K5
XA3-75	XA1-47	XA4-12	A18J1-K6
XA3-76	XA1-50	XP4-13	A18J1-K7
XA3-77	XA1-80	XA4-14	A16J1-K8

FROM	TO	FROM	TO
XA4-15	A18J1-K9	XA4-32	XA11-9
XA4-16	A18J1-KO		XA1-32
XA4-17	A18J1-M1	XA4-33	XA11-46
XA4-18	A18JI-M2		XA1-33
XA4-19	A18J1-M3	XA4-34	XA11-27
XA4-20	A18J1-M4		XA1-37
XA4-21	A18J1-M5	XA4-35	XA11-20
XA4-22	A18J1-M6		XA1-26
XA4-23	XA11-78	XP4-36	XA11-18
	XA1-63		XA1-27
XA4-24	XA11-37	XA4-37	XA11-22
	XA1-67		XA1-31
XA4-25	XA11-60	XA4-38	XA11-24
	XA1-70		XA1-22
XA4-26	XA11-80	XA4-41	XA11-77
	XA1-57	XA4-42	XA11-73
XA4-27	XA11-81	XA4-43	XA11-75
	XA1-61	XA4-44	XA11-76
XA4-28	XA11-82	X14-45	XA11-15
	XA1-64	XA4-46	XA11-74
XA4-29	XA1-84	XA4-47	XA11-72
	XA1-38	XP4-48	XA11-57
XA4-30	XA11-71	XA4-49	XA11-44
	XA1-45	XA4-50	XA11-43
XA4-31	XA11-10	XA4-51	XA11-42
	XA1-58	XA4-52	XA11-41

FROM	TO	FROM	TO
XA4-53	XA11-4C	XA4-79	A18J1-C7
XA4-54	XA11-3S	XA4-80	A18J1-C8
XA4-55	XA11-38	XA4-81	A18J1-C9
XA4-56	XA11-34	XA4-82	A18J1-C0
XA4-57	XA11-66	XA4-83	A18J1-E1
XA4-58	XA11-65	XA4-84	A18J1-E2
XA4-59	XA 11-64	XA4-85	A18J1-E3
XA4-60	XA11-63	XA4-86	A18J1-E8
XA4-61	XA11-61	XA4-87	AI8J1-E9
XA4-62	XA11-55	XA4-88	A18J1-E0
XA4-63	XA11-55	XA4-89	GND
XA4-64	XA11-56	XA4-90	GND
XA4-65	A18J1-A3	XA4-91	+5
XA4-66	A18J1-A4		XA2-91
XA4-67	A18J1-A5	XA4-92	+5
XA4-68	A18J1-A6		XA2-92
XA4-69	A18J1-A7	XA5-1	+5
XA4-70	A18J1-A8	XA5-2	+5
XA4-71	A18J1-A9	X15-3	GND
XA4-72	A1SJ1-A0	XA5-4	GND
XA4-73	A1SJ1-C1	XA5-11	A18J2-19
XA4-74	A18J1-C2	XA5-13	XA3-8
XA4-75	A18J1-C3	XA5-14	A18J2-M9
XA4-76	A18J1-C4	XP5-15	A18J2-M1
XA4-77	A18J1-C5	XA5-16	18J2-L1
XA4-78	A18J1-C6	XA5-17	A18J2-L2

FROM	TO	FROM	TO
XA5-18	A18J2-M2	XA5-58	XA2-66
XA5-19	A18J2-13	XA5-59	XA2-28
XA5-21	A18J2-M3	X,5-60	XA2-31
XA5-23	A18J2-M4	X.5-61	XA2-19
XA5-25	A18J2-14	XA5-62	XA2-16
XA5-26	418J2-KO	XA5-63	A18J2-L0
XA5-27	A18J2-N8		XA2-32
XA5-29	XA2-20	XA5-65	XA2-44
XA5-31	XA2-29	XA5-67	XA2-47
XA5-32	XA2-30	XA5-69	XA2-39
XA5-33	XA2-17	X45-71	XA2-73
XA5-35	XA2-46	XA5-72	XA2-36
XA5-37	XA2-43	X!5-73	XA2-70
XA5-38	XA2-38	XA5-75	XA2-62
XA5-39	XA2-35	XA5-77	XA2-65
XA5-41	A18J2-15	XA5-79	F2-COND
XA5-43	A18J2-M5	XA5-81	A3P1-COND
XA5-45	A18J2-16	XA5-85	XA10-85
XA5-47	A18J2-M6	XA5-86	XA10-86
XA5-49	A18J2-M7	XA5-87	XA10O-87
XA5-50	A18J2-17	XA5-88	XA10-88
XA5-51	A18J2-M8	XA5-89	F2-SH1D
XA5-53	A18J2-18	XA5-90	F1-SH1D
XA5-55	XA2-74	XA5-91	+5
XA5-56	XA2-69	XA5-92	45
XA5-57	XA2-61	XA6-1	+5

FROM	TO	FROM	TO
XA6-2	+5	XA6-27	A18J2-K0
XA6-3	GND	XA6-28	XA6-21
XA6-4	GND	XA6-29	XA6-22
XA6-5	XA6-17	XA6-31	A18J2-K5
XA6-6	A18J2-E2	XA6-32	A18J2-K6
XA6-7	A18J2-E3	XA6-47	A18J2-K7
XA6-8	A18J2-E4	XA6-48	418J2-K8
XA6-9	A18J2-E5	XA6-49	XA8-17
XA6-10	A18J2-E6	XA6-50	A18J2-K9
XA6-11	A18J2-E7	XA6-51	XA8-19
XA6-12	A18J2-E8		XA2-85
XA6-13	A18J2-E9	XA6-52	XA8-37
XA6-14	A18J2-E0		XA2-84
XA6-15	XA6-16	XA6-53	XA8-33
XA6-16	XA6-15		XA2-81
XA6-17	A18J2-J2	XA6-54	XA8-23
	XA6-5		XA2-80
XA6-18	A18J2-J3	XA6-55	XA8-51
XA6-19	A18J2-J8		XA2-77
XA6-20	A18J2-J9	XA6-56	XA8-55
XA6-21	XA6-28		XA2-82
XA6-22	XA6-29	XA6-57	XA8-41
XA6-23	A18J2-K1		XA2-79
XA6-24	A18J2-K2	XA6-5d	XA8-45
XA6-25	A18J2-K3		XA2-78
XA6-26	A18J2-K4	XA6-61	XA8-81

FROM	TO
XA6-61	XA2-13
XA6-62	XA8-59
	XA2-11
XA6-63	XA-85
	XA2-83
XA6-64	XA8-77
	XA2-9
XA6-65	XA6-80
XA6-66	XA6-78
XA6-67	A18J2-N1
XA6-68	A18J2-P1
XA6-69	XA6-77
XA6-71	A18J2-P2
XA6-72	XA6-7
XA6-73	A18J2-N5
XA6-74	A18J2-N2
XA6-75	XA8-79
	XA2-12
XA6-76	A18J3-12
	XA2-8
XA6-77	A18J2-N3
	XA6-69
XA6-78	A18J2-N4
	XA6-66
XA6-79	A18JZ-P3
	XA6-72

FROM	TO
XA46-80	A18J2-P4
	XA6-65
XA6-81	A18J2-P5
XA6-82	A18J2-N6
XA6-84	A18J2-P6
XA6-85	A18J2-N7
XA6-86	A18J2-P7
XA6-87	XA8-69
	XA2-7
XA6-88	XA8-73
	XA2-10
XA6-89	GND
XA6-90	GND
XA6-91	+5
XA6-92	+5
XA7-1	+5
XA7-2	+5
XA7-3	GND
XA7-4	GND
XA7-5	A18J3-B2
X47-7	A18J3-A2
XA7-8	A18J3-B3
XA7-9	18J3-A4
XA7-10	A18J3-A3
XA7-11	A18J3-A5
XA7-12	A18J3-B5

FROM	TO	FROM	TO
XA7-13	A18J3-B6	XA7-69	XA7-74
XA7-15	A18J3-84		XA7-68
XA7-21	A18J3-A6	XA7-71	XA7-73
XA7-23	A 18J3-A 7		XA7-66
XA7-27	A18J3-87	XP7-73	XA7-76
XA7-43	XA7-47		X47-71
XA7-45	XA7-49	XA7-74	A18J3-B1
XA7-47	XA7-57		XA7-69
	XA7-43	XA7-76	XA7-77
XA7-49	XA7-51		XA7-73
	XA7-45	XA7-77	XA7-81
XA7-51	XA7-63		XA7-76
	XA7-49	XA7-79	XA7-80
XA7-55	XA7-79		XA7-55
XA7-57	XA7-59	X47-80	XA7-84
	XA7-47		XA7-79
XA7-59	XA7-65	XA7-81	XA7-85
	XA7-57		XA7-77
XA7-63	XA7-66	XA7-84	XA7-89
	XA7-51		XA7-80
XA7-65	XA7-68	XA7-85	XA7-87
	XA7-59		X67-81
XA7-66	XA7-71	XA7-87	A18J3-AD
	XA7- 63		XA7-85
XA7-68	XA7-69	XA7-89	GND
	XA7-65		XA7-84

FROM	TO	FROM	TO
XA7-90	GND	XA8-69	XA6-87
XA7-91	+5	XA8-73	XA6-88
XA7-92	+5	XA6-77	XA6-64
XA8-1	+5	XA8-79	XA6-75
XA8-2	+5	XA8-61	XA6-61
XA8-3	GND	XA-83	A18J3-L1
XA8-4	GND	XA8-65	XA6-63
XA8-5	A18J3-A8	X4A8-7	A18J3-BO
XA8-7	A8J3-B8	XA8-89	GND
XA8-9	A18J3-B9	XA8-90	GND
XA8-11	A18J3-A9	XA8-91	+5
XA8-13	A18J3-D1	XA8-92	+5
XA8-15	A18J3-C1	XA49-1	+5
XA8-17	A18J3-A1	XA9-2	+5
	XA6-49	XA9-3	GND
XA8-19	XA6-51	XA9-4	GND
XA8-21	A18J3-K1	XA-10	A18J3-D2
XA8-22	A18J3-K2	XA9-11	A18J3-C2
XA8-23	XA654	XA9-12	A18J3-C3
XA8-33	XA6-53	XA9-13	A18J3-D3
XA8-37	XA6-52	XA9-14	A18J3-C4
XA8-41	XA6-57	XA9-15	A18J3-D4
XA8-45	XA6-58	XA9-16	A18J3-D5
XA8-51	XA6-55	XA9-17	A18J3-C5
XA8-55	XA6-56	XA9-18	A18J3-D6
XA8-59	XA6-62	XA9-19	A18J3-C6

FROM	TO	FROM	TO
XA9-21	A18J3-D7	XA9-20	A18J3-07
XA9-61	A18J3-C7	XA10-20	A18J3-E3
XA9-73	A18J3-D8	XA10-21	A18J3-E4
XA9-75	A18J3-C8	XA10-22	A18J3-E5
XA9-77	A18J3- J 8	XA10-28	A18J3-H9
XA9-79	A18J3-DG	XA10-37	XA10-38
XA9-81	A18J3-D9	XA10-38	XA10-37
XA9-82	A18J3-CS	XA10-40	XA10-41
XA9- 89	GND	XA10-41	A18J3-E6
XA9-90	GND		XA10-40
XA9-91	+5	XA10-43	XA10-56
XA9-92	+5		A18J3-E7
XA10-1	+5	X10-44	A18J3-E8
XA10-2	+5	XA10-45	A18J3-E9
XA10-3	GND	XA10-47	A18J3-E0
XA10-4	GND	XA10-51	XA10-55 A18J3-HZ
XA10-5	XA10-88	XA10-52	18J3-H3
XA10-6	XA10-87	XA10-53	XA10-54
XA10-7	XA10-86		A18J3-H8
XA10-8	XA10-85	XA10-54	XA10O-53
XA10-9	XA10-12	XA10-55	XA10-51
XA10-12	XA10-9	XA10-56	XA10-43
XA10-15	XA10-16	XA10-72	F5-CCND
XA10-16	XA10-15	XP10AO-75	A18J3-K4
XA10-19	A18J3-J9	XA10-76	F4-CGND
			A18J 3-K3

FROM	TO	FROM	TO
XA10-77	XA10-78	XA11-9	XA12-9
XA10-78	XA10-77		XA4-32
XA10-83	A18J3-J2	XA11-10	XA12-10
XA10-84	A18J3-J3		XA4-31
XA10-85	XA10-8	XA11-11	XA11-12
	XA5-85	XA11-12	XA11-31
XA10-86	XA10-7		XA11-11
	XA5-86	XA11-13	XA11-83
XA10-87	XA10-6	XA11-14	XA11-62
	XA5-87	XA11-15	XA12-15
XA10-88	XA10-5		XA4-45
	XA5-88	XA11-16	XA11-32
XA10-89	GND	XA11-17	XA11-51
	P5-SHLD	XA11-18	XA12-18
XA10-90	P4-SHLD		XA4-36
	GND	XA11-19	XA11-21
XA10-91	+5		XA11-4
XA10-92	+5	XA11-20	XA12-20
XA11-1	+5		XA4-35
XA11-2	XA11-25	XA11-21	XA11-23
XA11-3	GND-GN		XA11-19
XA11-4	XA11-11	XA11-22	XA12-22
XA11-5	XA11-30		XA4-37
XA11-6	XA11-67	XA11-23	XA11-25
XA11-7	XA11-49		XA11-21
XA11-8	XA11-85	XA11-24	XA12-24

FROM	TO
XA1-24	XA4-38
XA111-25	XA11-28
	XA11-23
XA11-27	XA12-27
	XA4-34
XA11-28	XA11-45
	XA11-25
XA11-29	XA11-50
	XA11-2
	XA12-2
XA11-30	XA11-5
XA11-31	XA11-33
	XA11-12
XA11-32	XA11-16
XA11-33	XA11-52
	XA11-31
XA11-34	XA12-34
	XA4-56
XA11-37	XA12-37
	XA4-24
XA11-38	XA12-38
	XA4-55
XA11-39	XA12-35
	XA4-54
XA11-40	XA12-40
	XA- 53

FROM	TO
XA11-41	XA12-41
	XA4-52
XA11-42	XA12-42
	XA4-51
XA11-43	XA12-43
	XA4-50
XA11-44	XA12-44
	XA4-49
XA11-45	XA11-89
	XA11-28
XA11-46	XA12-46
	XA4-33
XA11-49	XA11-7
XA11-50	XA111-69
	XA11-29
XA11-51	XA11-17
XA11-52	X11-79
	XA11-33
XA11-55	XA12-55
	XA4-63
X411-56	XA12-56
	XA4-64
XA11-57	XA12-57
	XA4-48
XA11-59	XA12-59
	XA4-62

FROM	TO
XA11-60	XA12-60
	XA4-25
XA11-61	XA12-61
	XA4-61
XA11-62	XA11-14
XA11-63	XA12- 3
	XA4-60
XA11-64	XA12-64
	XA4-59
XA11-65	XA12-65
	XA4-58
XA11-66	XA12-66
	XA4-57
XA11-67	XAII-6
XA11-69	XA11-86
	XA11-50
XA11-71	XA12-71
	XA4-30
XA11-72	XA12-72
	XA4-47
XA11-73	XA12-73
	XA4-42
XA11-74	XA12-74
	XA4-46
XA1-75	XA12-75
XA4-43	

FROM	TO
X11-76	XA12-76
	XA4-44
XA11-77	XA12-77
	XA4-41
X.11-78	XP12-78
	XA4-23
XP11-79	XA11-52
XA11-80	XA12-80
	XA4-26
XA11-81	XA12-81
	XA4-27
XA11-82	XA12-82
	XA4-28
XA11-83	XA11-13
XA11-84	XA12-84
	XA4-29
XA11-85	XAII-8
XA11-86	XA11-87
	XA11-69
XA11-87	XA11-88
	XA11-86
XA11-88	XA1I-91
	XA11-87
XA11-89	GND
	XA11-45
XA11-90	GND

FROM	TO
XA11-91	+5
	XA11-88
XA11-92	+5
XA12-1	+5
XA12-2	XA11-29
XA12-3	GND
XA12-4	XA12-15
XA12-5	XA12-30
XA12-6	XA12-67
XA12-7	XA12-49
XA12-8	XA12-85
XA12-9	XA13-9
	XA11-9
XA12-10	XA13-10
	XA11-10
XA12-11	XA12-12
XA12-12	XA12-31
	XA12-11
XA12-13	XA12-83
XA12-14	XA12-62
XA12-15	XA13-15
	XA11-15
XA12-16	XA12-32
XA12-17	XA12-51
XA12-18	XA13-18
	XA11-18
XA12-19	XA12-21
	XA12-4
XA12-20	XA13-20
	XA11-20
XA12-21	XA12-23
	XA12-19
XA12-22	XA13-22
	XA11-22
XA12-23	XA12-25
	XA12-21
XA12-24	XA13-24
	XA11-24
XA12-25	XA12-28
	XA612-23
XA12-27	XA13-27
	XP11-27
XA12-28	XA12-89
	XA12-25
XA12-29	XA12-50
XP12-30	XA12-5
XA12-31	XA12-33
	XA12-12
XA12-32	X12-11
XA12-33	XA12-52
	X412-31
XA12-34	XA13-34

FROM	TO
XA12-34	XA111-34
XA12-37	XA13-37
	XA11-37
XA12-38	XA13-38
	XA11-38
XA12-39	XA13-39
	XA11-39
XA12-40	XA13-40
	XA11-40
XA12-41	XA13-41
	XA11-41
XA12-42	XA13-42
	XA11-42
XA12-43	XA13-43
	XA11-43
XA12-44	XA13-44
	XA11-44
XA12-46	XA13-46
	XA11-46
XA12-49	XA12-7
XA12-50	XA12-65
	XA12-2S
XA12-51	XA12-17
XA12-52	XA12-79
	XA12-33
XA12-55	XA13-55
	XA11-55
XA12-56	XA13-56
	XA11-56
XA12-57	XA13-57
	XA11-57
XA12-59	XA13-59
	XA11-59
XA12-60	XA13-60
	XA11-60
XA12-61	XA13-61
	XA11-61
XA12-62	XA12-14
XA12-63	XA13-63
	XA11-63
XA12-64	XA13-64
	XA11-64
XA12-65	XA13-65
	XA11-65
XA12-66	XA13-66
	XA11-66
XA12-67	XA12-6
XA12-69	XA12-86
	XA12-50
XA12-71	XA13-71
	XA11-71
XA12-72	XA13-72

FROM	TO
XA12-72	XA11-72
XA12-73	XA13-73
	XA11-73
XA12-74	XA13-74
	XA11-74
XA12-75	XA13-75
	XA11-75
XA12-76	XA13-76
	XA11-76
XA12-77	XA13-77
	XA11-77
XA12-78	XA13-78
	XA11-78
XA12-79	XA12-52
XA12-80	XA13-80
	XA11-80
XA12-81	XA13-81
	XA11-81
XA12-82	XA13-82
	XA11-82
XA12-83	XA12-13
XA12-84	XA13-84
	XA11-84
XA12-85	XA12-8
XA12-86	XA12-87
	XA12-69
XA12-87	XA12-88
	XA12-86
X412-88	XA12-91
	XA12-87
XA12-89	GND
	XA12-28
XA12-90	GND
XA12-91	+5
	XA12-88
X412-92	45
XA13-1	+5
XA13-2	XA13-29
XA13-3	C-D
XA13-4	XA13-19
XA13-5	XP13-30
XA13-6	XA13-67
XA13-7	XA13-49
XA13-8	XA13-85
XA13-9	XA14-9
	XA12-9
XA13-10	XA14-10
	XA12-10
X413-11	XA13-12
XA13-12	XA13-31
	XA13-11
XA13-13	XA13-83

FROM	TO	FROM	TO
XA13-14	XA13-62	XA13-31	XA13-33
XA13-15	XA14-15		XA13-12
	XA12-15	XA13-32	XA13-16
XA13-16	XA13-32	XA13-33	XA13-52
XA13-17	XA13-51		XA13-31
XA13-18	XA14-18	XA13-34	XA14-34
	XA12-18		XA12-34
XA13-1	XA13-21	XA13-37	XA14-37
	XA13-4		XA12-37
XA13-20	XA14-20	XA13-38	XA14-38
	XA12-20		XA12-38
XA13-21	XA13-23	XA13-39	XA14-39
	XA13-19		XA12-39
XA13-22	XA14-22	XA13-40	XA14-40
	XA12-22		XA12-40
XA13-23	XA13-25	XA13-41	XA14-41
	XA13-21		XA12-41
XA13-24	XA14-24	XA13-42	XA14-42
	XA12-24		XA12-42
XA13-25	XA13-45	XA13-43	XA14-43
	XA13-23		XA12-43
XA13-27	XA14-27	XP13-44	XA14-44
	XA12-27		XA12-44
XA13-29	XA13-50	XA13-45	XA13-89
	XA13-2		XA13-25
XA13-30	XA13-5	XA13-46	XA14-46

FROM	TO
XA13-46	XA12-46
XA13-49	XA13-7
XA13-50	XA13-69
	XA13-29
XA13-51	XA13-17
XA13-52	XA13-79
	XA13-33
XA13-55	XA14-55
	XA12-55
XA13-56	XA14-56
	XA12-56
XA13-57	XA14-57
	XA12-57
XA13-59	XA14-59
	XA12-59
XA13-60	XA14-60
	XA12-60
XA13-61	XA14-61
	XA12-61
XA13-62	XA13-14
XA13-63	XA14-63
	XA12-63
XA13-64	XA14-64
	XA12-64
XA13-65	XA14-65
	XA12-65
XA13-66	XA14-66
	XA12-66
XA13-67	XA13-6
XA13-69	XA13-86
	XA13-50
XA13-71	XA14-71
	XA12-71
XA13-72	XA14-72
	XA12-72
XA613-73	XA14-73
	XA12-73
XA13-74	XA14-74
	XA12-74
XA13-75	XA14-75
	XA12-75
X/13-76	XA14-76
	XA12-76
XA13-77	XA14-77
	XA12-77
XA13-78	XA14-78
	XA12-78
XA13-79	XA13-52
XA13-80	XA14-80
	XA12-80
XA13-81	XA14-81
	XA12-81

FROM	TO	FROM	TO
XA13-82	XA14-82	XA14-6	XA14-67
	XA12-82		XA15-67
XA13-83	XA13-13	XA14-7	XA14-49
XA13-84	XA14-84		XA15-49
	XA12-84	XA14-8	XA14-85
XA13-85	XA13-8		XA15-85
XA13-86	XA13-87	XA14-9	XA16-9
	XA13-69		XA15-9
XA13-87	XA13-88		XA13-9
	XA13-86	XA14-10	XA15-10
XA13-88	XA13-91		XA16-10
	XA13-87		XA13-10
XA13-89	GND	XA14-11	XA15-12
	XA13-45		XA14-12
XA13-90	GND	XA14-12	XA15-31
XA13-91	+5		XA14-31
	XA13-88		XA14-11
XA13-92	+5	X114-13	XA14-83
XA14-1	+5	XA14-14	XA14-62
XA14-2	XA14-29	X414-15	XA15-15
	XA15-29		XA13-15
XA14-3	GND	XA14-16	XA14-32
XA14-4	XA15-15	XA14-17	XA14-51
	XA14-15	XA14-18	XA15-18
XA14-5	XA14-30		XA13-18
	XA15-30	XA14-19	XA14-21

FROM	TO	FROM	TO
XA14-19	XA14-4	XA14-38	XA15-38
XA14-20	XA15-20		XA13-38
	XA13-20	XP14-39	XA15-39
XA14-21	XA14-23		XA13-39
	XA14-19	XA14-40	XA15-40
XA14-22	XA15-22		XA13-40
	XA13-22	XA14-41	XA15-41
XA14-23	XA15-25		XA13-41
	XA14-21	XP614-42	XA15-42
XA14-24	XA15-24		XA13-42
	XA13-24	XA14-43	XA15-43
XA14-25	XA14-89		XA13-43
XA14-27	XA15-27	XA14-44	XA15-44
	XA13-27		XA13-44
XA14-29	XA14-50	XA14-46	XA15-46
	XA14-2		XA13-46
XA14-30	XA14-5	XA14-49	XA14-7
XA14-31	XA14-33	XA14-50	XA14-69
	XA14-12		XA14-29
XA14-32	XA14-16	XA14-51	XA14-17
XA14-33	XA14-52	XA14-52	XA14-79
	XA14-31		XA14-33
XA14-34	XA15-34	XA14-55	XA15-55
	XA13-34		XA13-55
XA14-37	XA15-37	XA14-56	XA15-56
	XA13-37		XA13-56

FROM	TO	FROM	TO
XA14-57	XA15-57	XA14-74	XA15-74
	XA13-57		XA13-74
XA14-59	XA15-59	XA14-75	XA15-75
	XA13-55		XA13-75
XA14-60	XA15-60	XA14-76	XA15-76
	XA13-60		XA13-76
XA14-61	XA15-61	XP14-77	XA15-77
	XA13-61		XA13-77
XA14-62	XA14-14	XA14-78	X415-78
XA14-63	XA15-63		XA13-78
	XA13-63	XA14-79	XA14-52
XA14-64	XA15-64	XA14-80	XA15-80
	XA13-64		XA13-80
XA14-65	XA15-65	XA14-81	XA15-81
	XA13-65		XA13-81
XA14-66	XA15-66	XA14-82	XA15-82
	XA13-66		XA13-82
XA14-67	XA14-6	XA14-83	XA14-13
XA14-65	XA14-86	XA14-84	XA15-84
	XA14-50		XA13-84
XA14-71	XA15-71	XA14-85	XA14-8
	XA13-71	XA14-86	XA14-87
XA14-72	XA15-72		XA14-69
	XA13-72	XA14-87	XA14-88
XA14-73	XA15-73		XA14-86
	XA13-73	XA14-88	XA14-91

FROM	TO	FROM	TO
XA14-88	XA14-87	XA15-24	XA16-24
XA14-89	GND		XA14-24
	XA14-25	XA15-25	XA15-28
XA14-90	GND		XA14-23
XA14-91	+5		XA15-23
	XA14-88	XA15-27	XA16-27
XA14-92	+5		XA14-27
XA15-9	XA14- 9	XA15-28	XA15-45
XA15-10	XA14-10		XA15-25
XA15-12	XA14-11	X415-29	XA15-50
XA15-13	XA15-83		XA14-2
XA15-14	XA15-62		XA16-2
XA15-15	XA1615	XA15-30	XA14-5
	XA14-15	XA15-31	XA15-33
XA15-16	XA15-32		XA14-12
XA15-17	XA15-51	XA15-32	XA15-16
XA15-18	XA16-16	XA15-33	XA15-52
	XA14-18		XA15-31
XA15-19	XA15-23	XA15-34	XA16-34
	XA14-4		XA14-34
XA15-20	XA16-20	XA15-37	XA16-37
	XA14-20		XA14-37
XA15-22	XA16-22	XA15-38	XA16-38
	XA14-22		XA14-38
XA15-23	XA15-25	XA15-39	XA16-39
	XA15-19		XA14-39

FROM	TO
XA15-40	XA16-40
	XA14-40
XA15-41	XA16-41
	XA14-41
XA15-42	XA16-42
	XA14-42
XA15-43	XA16-43
	XA14-43
XA15-44	XA16-44
	XA14-44
XA15-45	XA15-85
	XA15-28
XA15-46	XA16-46
	XA14-46
XA15-49	XA14-7
XA15-50	XA156S
	XA15-29
XA15-51	XA1 5-17
XA15-52	XA15-75
	XA15-33
XA15-55	XA16-55
	XA14-55
XA15-56	XA16-56
	XA14-56
XA15-57	XA16-57
	XA14-57
XA15-59	XA16-59
	XA14-59
XA15-60	XA16-60
	XA14-60
XA15-61	XA16-61
	XA14-61
XP15-62	XA15-14
XA15-63	XA16-63
	XA14-63
XA15-64	XA16-64
	XA14-64
XA15-65	XA16-65
	XA14-65
XA15-66	XA16-66
	XA14-66
XA15-67	XA14-6
XA15-69	XA15-86
	XA15-50
XA15-71	XA16-71
	XA14-71
XA15-72	XP16-72
	XA14-72
XA15-73	XA16-73
	XA14-73
XA15-74	XA16-74
	XA14-74

FROM	TO
XA15-75	XA16-75
	XA14-75
XA15-76	XA16-76
	XA14-76
XA15-77	XA16-77
	XA14-77
XA15-78	XA16-78
	XA14-78
XA15-79	XA15-52
XA15-80	XA16-80
	XA14-80
XA15-81	XA16-81
	XA14-81
XA15-82	XA16-82
	XA14-82
XA15-83	XA15-13
XA15-84	XA16-84
	XA14-84
XA15-85	XA14-8
XA15-86	XA15-87
	XA15-69
XA15-87	XA15-88
	XA15-86
XA15-88	XA15-91
	XA15-87
XA15-89	GND
	XA15-45
XA15-90	GND
XA15-91	+5
	XA15-88
XA15-92	45
XA16-1	+5
XP16-2	XA15-29
XA16-3	GND
X416-4	XA16-19
XA16-5	XA16-30
XA16-6	XA16-67
XA16-7	XA16-49
XA16-8	XA16-85
XA16-9	XA17-9
	XA14-9
XA16-10	XA17-10 XA14-10
XA16-11	XA16-12
XA16-12	XA16-31
	XA16-11
X416-13	XA16-83
XA16-14	XA16-62
XA16-15	XA17-15
	XA15-15
XA16-16	XA16-32
XA16-17	XP16-51

FROM	TO	FROM	TO
XA16-18	XA17-18		XA15-34
	XA15-18	XA16-37	XA17-37
XA16-15	XA16-23		XA15-37
	XA16-4	X416-38	XA17-38
XA16-20	XA17-20		XA15-38
	XA15-20	XA16-39	XA17-39
XA16-22	XA17-22		XA15-39
	XA15-22	XA16-40	XA17-40
XA16-23	XA16-25		XA15-40
	XA16-15	XA16-41	XA17-41
XA16-24	XA17-24		XA15-41
	XA15-24	XA16-42	XA17-42
XA16-25	XA16-28		XA15-42
	XA16-23	XA16-43	XA17-43
XA16-27	XA17-27		XA15-43
	XA15-27	XA16-44	XA17-44
XA16-28	XA16-8		XA15-44
	XA16-25	XA16-46	XA17-46
XA16-29	XA1-50		XA15-46
XA16-30	XA16-5	XA16-49	XA16-7
XA16-31	XA16-33	XA10-50	XA16-69
	XA16-12		XA16-29
XA16-32	XA16-16	XA16-51	XA16-17
XA16-33	XA16-52	XA16-52	XA16-79
	XA1-31		XA16-33
XA16-34	XA17-34	XA16-55	XA17-55

FROM	TO	FROM	TO
XA16-55	XA15-55		XA15-72
XA16-56	XA17-56	XA16-73	XA17-73
	XA15-56		XA15-73
XA16-57	XA17-57	XA16-74	XA17-74
	XA15-57		XA15-74
XA16-59	XA17-59	X416-75	XA17-75
	XA15-59		XA15-75
XA16-60	XA17-60	XA16-76	XA17-76
	XA15-60		XA15-76
XA16-61	XA17-61	XA16-77	XA17-77
	XA15-61		XA15-77
XA16-62	XA16-14	XA16-78	XA17-78
XA16-63	XA17-63		XA15-78
	XA15-63	XA16-79	XA16-52
XA16-64	XA17-64	XA16-80	XA17-80
	XA15-64		XA15-80
XA16-65	XA17-65	XA16-81	XA17-81
	XA15-65		XA15-81
XA16-66	XA17-66	X416-82	XA17-82
	XA15-6		XA15-82
XA16-67	XA16-6	XA16-83	XA16-13
XA16-6S	XA1-E6	XA16-84	XA17-84
	XA1-50		XA15-84
XA16-71	XA17-71	XA16-85	XA16-8
	XA15-71	XA16-86	XA16-87
XA16-72	XA17-72		XA16-69

FROM	TO	FROM	TO
XA16-87	XA16-88	XA17-13	XA17-83
	XA1-86	XA17-14	XA17-62
XA16-88	XA 1 6- 91	XA17-15	XA16-15
	XA16-87	XA17-16	XA17-32
XA16- 89	GND	XA17-17	XA17-51
	XA16-28	XA17-18	XA16-18
XA16-90	GND	XA17-19	XA17-23
XA16-91	+5		XA17-4
	XA16-88	XA17-20	XA16-20
XA16-92	+5	XA17-22	XA16-22
XA17	XA17-4	XA17-23	XA17-25
	XA17-9		XA17-19
XA17-1	+5	XA17-24	XA16-24
XA17-2	XA17-2	XA17-25	XA17-45
XA17-3	XA17-GND		XA17-23
XA17-4	XA17-19	XA17-27	XA16-27
XA17-5	XA17-30	XA17-29	XA17-50
XA17-6	XA17-67		XA17-2
XA17-7	XA17-4	X417-30	XA17-5
XA17-8	XA17-65	XA17-31	XA17-33
XA17-9	XA17		XA17-12
	XA16-9	XA17-32	XA17-16
XA17-10	XA16-10	XA17-33	XA17-52
XA17-11	XA17-12		XA17-31
XA17-12	XA17-31	XA17-34	XA16-34
	XA17-11	XA17-37	XA16-37

FROM	TO	FROM	TO
XA17-38	XA16-38	XA17-65	XA16-65
XA17-35	XA16-35	XA17-66	XA16-66
XA17-40	XA16-40	XA17-67	XA17-6
XA17-41	XA16-41	XA17-69	XA17-86
XA17-42	XA16-42		XA17-50
XA17-43	XA16-43	XA17-71	XA16-71
XA17-44	XA16-44	XA17-72	XA16-72
XA17-45	XA17- 8	XA17-73	XA16-73
	XA17-25	XA17-74	XA16-74
XA17-46	XA17	XA17-75	XA16-75
	XA16-46	XA17-76	XA16-76
XA17-49	XA17-7	XA17-77	XA16-77
XA17-50	XA17-65	XA17-78	XA16-78
	XA17-29	X417-79	XA17-52
XA17-51	XA17-17	XA17-80	XA16-80
XA17-52	XA17-7S	XA17-81	XA16-81
	XA17-33	X417-82	XA16-82
XA17-55	XA16-55	XA17-83	XA17-13
XA17-56	XA16-56	XA17-84	XA16-84
XA17-57	XA16-57	XA17-85	XA17-8
XA17-59	XA16-55	XA17-86	XA17-87
XA17-60	XA16-60		XA17-69
XA17-61	XA16-61	XA17-87	XA17-88
XA17-62	XA17-14		XA17-86
XA17-63	XA16-63	XA17-88	XA17-91
XA17-64	XA16-64		XA17-87

FROM	TO
XA17-89	GND
	XA17-45
XA17-90	GND
XA17-91	+5
	XA17-88
XA17-92	+5
XA17-GND	XA17-3
XK3-A 1	CB1-T1 J8-B
XK3-A2	J8-A
XK4-D1	FL1-A1
XK4-D2	CB1-L1
A3P I-CON D	XA5- 81
A18J1-AO	XA4-72
A18JI-A3	XA4-65
A18J 1-A4	XA4-66
A81J 1-A5	XA4-67
AI8J1-A6	XA4-68
A18J 1-A7	XA4- 6
A18J 1-A8	XA4-70
A18J 1-A9	XA4-71
A18J1-C0	XA4-82
A18J1-C1	XA4-73
A18J1-C2	XA4-74
A18J1-C3	XA4-75
A18J1-C4	XA4-76

FROM	TO
A18J1-C5	XA4-77
A18J1 -C6	XA4-78
A18J1-C7	XA4-79
A18J1-C8	XA4-80
A18J1-C9	XA4-81
A18J1-E0	XA4-88
A18J1-E1	XA4-83
A18J1-E2	XA4-84
A18J1-E3	XA4-85
A18J1-E8	XA4-86
A18J1-E9	XA4-87
A18J1-K0	XA4-16
A18J1-K1	XA4-7
A18J1-K2	XA4-8
A18J1-K3	XA4-9
A18J1-94	XA4-10
A18J1-K5	XA4-11
A18J1-K6	XA4-12
A18J1-K7	XA4-13
A18J1-K8	XA4-14
A1811-K9	XA4-15
A18J1-M1	XA4-17
A18J1-M2	XA4-18
A18J1-M3	XA4-19
A18J1-M4	XA4-20
A18J1-M5	XA4-21

FROM	TO	FROM	TO
A18J1-M6	XA4-22		XA6-27
A18J2-A0	XA3-88	A18J2-K1	XA6-23
A18J2-A1	XA3-60	A18J2-K2	XA6-24
A18J2-A2	XA3-59	A182-K3	XA6-25
A18J2-A3	XA 3- 58	A18J2-K4	XA6-26
A18J2-A4	XA3-57	A18J2-K5	XA6-31
A18J2-A5	XA3-56	A18J2-K6	XA6-32
A18J2-A6	XA3-55	A18J2-K7	XA6-47
A18J2-A7	XA3-54	A18J2-K8	XA6-48
A18J2-A8	XA3-53	A18J2-K9	XA6-50
A18J2-A9	XA3-87	A18J2-L0	XA5-63
A18J2-C3	XA 3- 85	A18J2-L1	XA5-16
A18J2-E0	XA6-14	A18J2-L2	XA5-17
A18J2-E2	XA6-6	A18J2-L3	XA5-19
A18J2-E3	XA6-7	A18J2-L4	XA5-25
A18J2-E4	XA6-8	A18J2-L5	XA5-41
A18J2-E5	XA6-9	A18J2-L6	XA5-45
A18J2-E6	XA6-10	A18J2-L7	XA5-50
A18J2-E7	XA6-11	A18J2-L8	XA5-53
A18J2-E8	XA6-12	A18J2-L9	XA5-11
A18J2-E9	XA6-13	A18J2-M1	XA5-15
A18J2-J2	XA6-17	A18J2-M2	XA5-18
A18J2-J3	XA6-18	A18J2-M3	XA5-21
A18J2-J8	XA6-19	A18J2-M4	XA5-23
A18J2-J9	XA6-20	A18J2-M5	XA5-43
A18J2-K0	XA5-26	A18J2-M6	XA5-47

FROM	TO	FROM	TO
A18J2-M7	XA5-4	A18J3-A8	XA8-5
A18J2-M8	XA5-51	A18J3-A9	XA8-11
A18J2-M9	XA5-14	A18J3-B0	XA8-87
A18J2-N1	XA6-67	A18J3-B1	XA7-74
A18J2-N2	XA6-74	A18J3-B2	XA7-5
A18J2-N3	XA6-77	A18J3-B3	XA7-8
A18J2-N4	XA6-78	A18J3-B4	XA7-15
A18J2-N5	XA6-73	A1aJ3-B5	XA7-12
A18J2-N6	XA6-82	A18 3 -B6	XA7-13
A18J2-N7	XA6-85	418J3-B7	XA7-27
A18J2-N8	XA5-27	A18J3-B8	XA8-7
A18J2-P1	XA6-68	A18J3-B9	XA8-9
A18J2-P2	XA6-71	A18J3-C0	XA9-61
A18J2-P3	XA6-79	A18J3-C1	XA8-15
A18J2-P4	XA6-80	A18J3-C2	XA9-11
A18J2-P5	XA6-81	A18J3-C3	XA9-12
A18J2-P6	XA6-84	A18J3-C4	XA9-14
A18J2-P7	XA6-86	A18J3-C5	XA9-17
A18J3-A0	XA7-87	A18J3-C6	XA9-19
A18J3-A1	XA8-17	A18J3-C7	XA9-21
A18J3-A2	XA7-7	A18J3-C8	XA9-75
A18J3-A3	XA7-10	A18J3-C9	XA9-82
A18J 3-A4	XA7-9	A18J3-D0	XA9-79
A18J3-A5	XA 7-11	A18J3-D1	XA8-13
A18J3-A6	XA7-21	A18J3-D2	XA9-10
A18J3-A7	XA7-23	A18J3-D3	XA9-13

FROM	TO	FROM	TO
A18J3-D4	XA9-15	A18J3-J2	XA10-83
A18J3-D5	XA9-16	A18J3-J3	XA10-84
A18J3-D6	XA9-18	A18J3-J8	XA9-77
A18J3-D7	XA9-20	A18J3-J9	XA10-19
A18J3-D8	XA9-73	A18J3-J9	XA8-21
A18J3-D9	XA9-81	A16J3-K2	XA8-22
A18J3-E0	XA10-47	J3-K3	J3-K5
A18J3-E3	XA10-20	A18J3-J3	XA10-76
A18J3-E4	XA10-21	J3-K4	J3-K6
AI8J3-E5	XA10-22	A18J3-K4	XA10-75
A18J3-E6	XA10-41	J3-K5	J3-K7
A18J3-E7	XA10-43		J3-K3
A18J3-E8	XA10-44	.J3-K6	J3-K8
A18J3-E9	XA10-45		J3-K4
A18J3-H2	XA10-51	J3-K7	J3-K5
A18J3-H3	XA10-52	J3-K8	J3-K6
A18J3-H8	XA10-53	A18J3-L1	XA8-83
A18J3-H9	XA10-28	A18J3-L2	XA6-76

FROM	TO
DIGITA1 PROC TEST SET POWER SUPP1Y AS<Y FSI	
81-1	VR5-1
81-3	VR1-1
81-4	VR2-1
G1-1	VR6-6
G1-3	VR64
G1-4	VR11-3
G1-6	VR11-1
G2-1	VR7-5
G2-3	VR2-4
G2-4	VR13-3
G2-6	VR13-1
G3- 1	VR8-6
G3-3	VR8-4
G3-4	VR15-3
G3-6	VR15-1
G4-1	VR4-6
G4-3	VR4-4
G4- 4	VR17-1
	VR19-3
G4-6	VR17-3
	VR191
G5-1	VR5-6
G5-3	VR5-4
G5-4	VR21-3
G5-6	VR21-1

FROM	TO
J1-A	VR17-6
J1-B	VR17-4
J1-C	VR20-4
J1-D	VR16-4
	VR20-6
J1-E	VR14-6
J1-F	VR13-6
J1-G	VR14-4
J1-H	VR13-4
J1-J	VR12-6
J1-1	VR11-6
J1-1	VR12-4
J1-M	VR11-4
J1-N	VR19 -4
J1-P	VR19-6
J1-R	VR18-4
J1-S	VR18-4
J1-T	VR19-6
J1-U	VR18-6
J1-V	VR18-6
J1-W	V12-4
J1-X	VR18-6
J2-A	VR1-1
J2-B	VR3-1
J2-C	VR4-1

FROM	TO	FROM	TO
J2-D	VR1-2	VR2-4	VR7-4
J2-E	VR3-2		G2-3
J2-F	VR4-2	VR2-5	VR7-1
J3-A	VR21-6	VR2-6	VR7-6
J3-B	VR21-4	VR3-1	J2-B
J3-C	VR15-4		VR2-1
J3-D	VR16-4	VR3-2	J2-E
J3-E	VR15-6		VR2-2
J3-F	VR16-6	VR3-3	VR2-3
J3-G	VR18-4	VR3-4	VR8-4
J3-H	VR18-6	VR3-5	VR8-1
J3-J	VR19-6	VR3-6	VR8-6
J3-K	VR19-4	VR4-1	J2-C
J3-L	VR17-4		VR5-1
J3-M	VR1	VR4-2	J2-F
VR1-1	J2-A		VR5-2
	B1-3	VR4-3	VR9-3
VR1-2	J2-D	VR4-4	VR9-4
VR1-3	VR6-3		G4-3
VR1-4	VR6-4	VR4-5	VR9-1
VR1-5	VR6-1	VR4-6	VR9-6
VR1-6	VR6-6		G4-1
VR2-1	VR3-1	VP5-1	VR4-1
	B1-4		B1-1
VR2-2	VR3-2	VP5-2	VR4-2
VR2-3	VR7-3	VR5-3	VR10-3

FROM	TO
VR5-4	VR10-4
	G5-3
VR5-5	VR10-1
VR5-6	VR10-6
	G5-1
VR6-1	VR1-5
VR6-3	VR1-3
VR6-4	VR1-4
	G1-3
VR6-6	G1-1
	VR1-6
VR7-1	VR2-5
VR7-3	VR2-3
VR7-4	VR2-4
VR7-5	G2-1
VR7-6	VR2-6
VR8-1	VR3-5
VR8-3	VR3-3
VR8-4	G3-3
	VR3-4
VRB-6	VR3-6
	G3-1
VR9-1	VR4-5
VR9-3	VR4-3
VR9-4	VR4-4
VR9-6	VR4-6

FROM	TO
VR10-1	VR5-5
VR10-3	VR5-3
VR10-4	VR12-6
	VR5-4
VR10-6	VR5-6
VR11-1	G1-6
	VE12-1
VR11-3	G1-4
	VR12-3
VR11-4	VR12-4
	J1-M
VR11-6	J1-K
	VR12-6
	VR19-4
VR12-1	VR11-1
VR12-3	VR11-3
VR12-4	J1-W
	J1-L
	VR11-4
VR12-6	J1-J
	VP11-6
	VR10 -4
VR13-1	VR14-1
	G2-6
VR13-3	VR14-3
	G2-4

FROM	TO	FROM	TO
VR13-4	VR14-4		G4-4
	J1-H	VR17-3	VR18-3
VR13-6	J1-F		G4-6
	VR14-6	VR17-4	J3-L
VR14-1	VR13-1		J1-B
VR14-3	VR13-3	VR17-6	J3-M
VR14-4	J1-G		J1-A
	VR13-4	VR18-1	VR17-1
VR14-6	J1-E	VR18-3	VR17-3
	VR13-6	VR18-4	J3-G
VR15-1	VR1-1		J1-R
	G3-6		J1-S
VR15-3	VR16-3	VR18-6	J1-V
	G3-4		J3-H
VR15-4	J3-C		J1-X
	VR16-4		J1-U
VR15-6	VR16-6		VR19-4
	J3-E	VR19-1	G4-6
VR16-1	VR15-1	VR19-3	G4-4
VR16-3	VR15-3	VR19-4	J1-N
VR16-4	J3-D		J3-K
	VR15-4		VR18-6
	J1-D		VR11-6
VR16-6	J3-F	R19-6	J3-J
	VR15-6		J1-T
VR17-1	VR18-1		J1-P

FROM	TO	FROM	TO
VR20-1	VR21-1	VR21-3	VR20-3
VR20-3	VR21-3		G5-4
VR20-4	J1-C	VR21-4	J3-B
VR20-6	J1-D	VR21-6	J3-A
VR21-1	G5-6	VR21-1	VR20-1

FROM	TO	FROM	TO
DIGITAL PROCESS TEST SET CABLE ASSY W1			
E6-GND	J16-100	J16-8	P1-A7
GND	P1-G8	J16-9	P1-B7
	P1-G1	J16-10	P1-A8
	P1-J2	J16-11	P1-B8
	P1-H2	J16-12	P1-A9
	P1-H8	J16-13	P1-B9
	P1-N0	J16-14	P1-B6
	P1-N9	J16-15	P1-D4
	P1-J9	J16-16	P1-A0
	P1-H3	J16-17	P1-B0
	P1-G3	J16-18	P1-C1
	P1-H9	J16-19	P1-D1
	P1-J8	J16-20	P1-C2
	P1-J3	J16-21	P1-D2
	P1-G9	J16-22	P1-C3
	P1-G2	J16-23	P1-D3
	P1-G0	J16-24	P1-C4
	P1-N8	J16-25	P1-C5
J16-1	P1-A3	J16-26	P1-D5
J16-2	P1-B3	J16-27	P1-C6
J16-3	P1-A4	J16-28	P1-D6
J16-4	P1-B4	J16-29	P1-C7
J16-5	P1-A5	J16-30	P1-D7
J16-6	P1-B5-	J16-31	P1-C8
J16-7	P1-A6	J16-32	P1-D8

FROM	TO	FROM	TO
J16-33	P1-C9	J16-67	P1-K6
J16-34	P1-D9	J16-68	P1-L6
J16-35	P1-C0	J16-69	P1-K7
J16-36	P1-D0	J16-70	P1-L7
J16-37	P1-E1	J16-71	P1-K8
J16-38	P1-F1-	J16-72	P1-L8
J16-39	P1-E2	J16-73	P1-K9
J16-40	P1-F2	J16-74	P1-L9
J16-41	P1-E3	J16-75	P1-K0
J16-42	P1-F3	J16-76	P1-L0
J16-43	P1-E8	J16-77	P1-M1
J16-44	P1-F8	J16-78	P1-N1
J16-46	P1-E9	J16-79	P1-M2
J16-47	P1-F9	J16-80	P1-N2
J16-48	P1-E0	J16-81	P1-M3
J16-49	P1-F0	J16-82	P1-N3
J16-56	P1-K1	J16-83	P1-M4
J16-57	P1-L1	J16-84	P1-N4
J16-58	P1-K2	J16-86	P1-M5
J16-59	P1-L2	J16-87	P1-N5
J16-60	P1-K3	J16-88	P1-M6
J16-61	P1-L3	J16-89	P1-N6
J16-62	P1-K4	J16-90	S1-TT
J16-63	P1-L4-	J16-91	P1-N7
J16-64	P1-K5	J16-100	E6-GND
J16-65	P1-L5	KEY	P1-A1

FROM	TO	FROM	TO
KEY	P1-B2	P1-C3	J16-22
	P1-A2	P1-C4	J16-24
	P1-B1	P1-C5	J16-25
P1-A0	J16-16	P1-C6	J16-27
P1-A1	KEY	P1-C7	J16-29
P 1-A2	KEY	P1-C8	J16-31
P1-A3	J16-1	P1-C5	J16 33
P1-A4	J16-3	P1-C0	J16-36
P1-A5	J16-5	P1-C1	J16-19
P1-A6	J16-7	P1-D2	J16-21
P1-A7	J16-8	P1-D3	J16-23
P1-A8	J16-10	P1-C4	J16-15
P1-A9	J16-12	P1-C5	J16-26
P1-B0	J16-17	P1-C6	J16-28
P1-B1	KEY	P1-D7	J16-30
P1-B2	KEY	P1-D8	J16-32
P1-B3	J16-2	P1-D9	J16-34
P1-B4	J16-4	P1-E0	J16-48
P1-B5	J16-6	P1-E1	J16-37
P1-B6	J16-14	P1-E2	J16-39
P1-B7	J16-9	P1-E3	J16-41
P1-B8	J16-11	P1-E8	J16-43
P1-B9	J16-13	P1-E9	J16-46
P1-C0	J16-35	P1-F0	J16-49
P1-C1	J16-18	P1-F1	J16-38
P1-C2	J16-20	P1-F2	J16-40

FROM	TO	FROM	TO
P1-F3	J16-42	P1-K9	J16-73
P1-F8	J16-44	P1-L0	J16-76
P1-F9	J16-47	P1-L1	J16-57
P1-G0	GND	P1-L2	J16-59
P1-G1	GND	P1-L3	J16-61
P1-G2	GND	P1-L4	J16-63
P1-G3	GND	P1-L5	J16-65
P1-GB	GND	P1-L6	J16-68
P1-G9	GND	P1-L7	J16-70
P1-H2	GND	P1-L8	J16-72
P1-H3	GND	P1-L9	J16-74
P1-H8	GND	P1-M1	J16-77
P1-H9	GND	P1-M2	J16-79
P1-J2	GND	P1-M3	J16-81
P1-J3	GND	P1-M4	J16-83
P1-J8	GND	P1-M5	J16-86
P1-J9	GND	P1-M6	J16-88
P1-K0	J16-75	P1-N0	GND
P1-K1	J16-56	P1-N1	J16-78
P1-K2	J16-58	P1-N2	J16-80
P1-K3	J16-60	P1-N3	J16-82
P1-K4	J16-62	P1-N4	J16-84
P1-K5	J16-64	P1-N5	J16-87
P1-K6	J16-67	P1-N6	J16-89
P1-K7	J16-69	P1-N7	J16-91
P1-K8	J16-71	P1-N8	GND

FROM	TO	FROM	TO
P1-N9	GND	S1-TT	J16-90

DIGITAL PROCESSOR TEST CABLE W201

FROM	TO	FROM	TO
P1-1	P2-1	P2-2	P1-2
P1-2	P2-2	P2-3	P1-3
P1-3	P2-3	P2-4	P1-4
P1-4	P2-4	P2-5	P1-5
P1-5	P2-5	P2-6	P1-6
P1-6	P2-6	P2-7	P1-7
P1-7	P2-7	P2-8	P2-9
P1-10	P2-10	P2-9	P2-8
P1-11	P2-11	P2-10	P1-10
P1-12	P2-12	P2-11	P1-11
P1-13	P2-13	P2-12	P1-12
P1-14	P2-14	P2-13	P1-13
P1-15	P2-15	P2-14	P1-14
P1-16	P2-16	P2-15	P1-15
P1-17	P2-17	P2-16	P1-16
P1-18	P2-18	P2-17	P1-17
P1-19	P2-19	P2-18	P1-18
P1-20	P2-20	P2-19	P1-19
P1-21	P2-21	P2-20	P1-20
P1-22	P2-22	P2-21	P1-21
P2-1	P1-1	P2-22	P1-22

FROM	TO	FROM	TO
DIGITAL PROCESSOR TEST CABLE W211			
P1-A	P2-A	P2-A	P1-A
P1-C	P2-B	P2-B	P1-C
P1-E	P2-E	P2-E	P1-E

DIGITAL PROCESSOR TEST CABLE W212

FROM	TO	FROM	TO
P1-1	P2-1	P1-22	P2-22
P1-2	P2-2	P2-1	P1-1
P1-3	P2-3	P2-2	P1-2
P1-4	P2-4	P2-3	P1-3
P1-5	P2-5	P2-4	P1-4
P1-6	P2-6	P2-5	P1-5
P1-7	P2-7	P2-6	P1-6
P1-8	P2-8	P2-7	P1-7
P1-9	P2-9	P2-8	P1-8
P1-10	P2-10	P2-9	P1-9
P1-11	P2-11	P2-10	P1-10
P1-12	P2-12	P2-11	P1-11
P1-13	P2-17	P2-12	P1-12
P1-14	P2-18	P2-15	P1-15
P1-15	P2-15	P2-16	P1-16
P1-16	P2-16	P2-17	P1-13
P1-17	P2-19	P2-18	P1-14
P1-18	P1-19	P2-19	P1-17
P1-19	P1-18	P2-20	P1-20
P1-20	P2-20	P2-22	P1-22

FROM	TO	FROM	TO
DIGITAL PROCESSOR TEST CABLE W213			
P1-10	P2-17	P2-18	P1-11
P1-11	P2-18	P2-19	P1-12
P1-12	P2-19	P2-20	P1-13
P1-13	P2-20	P2-21	P1-16
P1-14	P2-23	P2-22	P1-17
P1-15	P2-24	P2-23	P1-14
P1-16	P2-21	P2-24	P1-15
P1-17	P2-22	P2-25	P1-18
P1-18	P2-25	P2-26	P1-19
P1-19	P2-26	P2-27	P1-20
P1-20	P2-27	P2-28	P1-21
P1-21	P2-28	P2-29	P2-30
P1-22	P2-55	P2-30	P2-29
P2-17	P1-10	P2-55	P1-22

FROM	TO	FROM	TO
DIGITAL PROCESSOR TEST CABLE W216			
GND	P 1-E	P1-C	NTRL
NTRL	P 1-D	P1-E	GND
P1-A	PHASE-1	PHASE-1	P1-A
P1-B	PHASE-2	PHASE-2	P1-B
P1-C	PHASE-3	PHASE-3	P1-C

FROM	TO	FROM	TO
DIGITAL PROCESSOR TEST CABLE W217			
+28	P1-A	P1-E	RTN
P1-A	+28	RTN	P1-B

FROM	TO	FROM	TO
DIGITAL PROCESSOR TEST CABLE W218			
P1-1	P2-1	P2-2	P1-2
P1-2	P2-2	P2-3	P1-3
P1-3	P2-3	P2-4	P1-4
P1-4	P2-4	P2-5	P1-5
P1-5	P2-5	P2-6	P1-6
P1-6	P2-6	P2-7	P1-7
P1-7	P2-7	P2-8	P2-9
P1-10	P2-10	P2-9	P2-8
P1-11	P2-11	P2-10	P1-10
P1-12	P2-12	P2-11	P1-11
P1-13	P2-13	P2-12	P1-12
P1-14	P2-14	P2-13	P1-13
P1-15	P2-15	P2-14	P1-14
P1-16	P2-16	P2-15	P1-15
P1-17	P2-17	P2-16	P1-16
P1-18	P2-18	P2-17	P1-17
P1-19	P2-19	P2-18	P1-18
P1-20	P2-20	P2-19	P1-19
P1-21	P2-21	P2-20	P1-20
P1-22	P2-22	P2-21	P1-21
P2-1	P1-1	P2-22	P1-22

FROM	TO	FROM	TO
DIGITAL PROCESSOR TEST CABLE W236			
P1-1	P2-C	P2-9	P1-36
P1-2	P2-D	P2-10	P1-37
P1-11	P2-Y	P2-A*	P1-12
P1-12	P2-A*	P2-C	P1-1
P1-17	P4-PIN	P2-D	P1-2
P1-18	P5-PIN	P2-Y	P1-11
P1-19	P9-PIN	P3-J	P12-PIN
P1-28	P2-1	P3-K	P12-SHLD
P1-29	P2-2	P3-L	P13-PIN
P1-30	P2-3	P3-M	P13-SHLD
P1-31	P2-4	P3-N	P8-PIN
P1-32	P2-5	P3-P	P8-SHLD
P1-33	P2-6	P3-R	P10-PIN
P1-34	P2-7	P3-S	P10-SHLD
P1-35	P2-8	P3-T	P6-PIN
P1-36	P2-9	P3-U	P7-PIN
P1-37	P2-10	P3-V	P7-SHLD
P2-1	P1-28	P3-W	P11-PIN
P2-2	P1-29	P3-X	P11-SHLD
P2-3	P1-30	P4-PIN	P1-17
P2-4	P1-31	P5-PIN	P1-18
P2-5	P1-32	P6-PIN	P3-T
P2-6	P1-33	P7-PIN	P3-U
P2-7	P1-34	P7-SHLD	P3-V
P2-8	P1-35	PE-PIN	P3-N

FROM	TO	FROM	TO
P8-SHLD	P3-P	P11-SHLD	P3-X
P9-PIN	P1-19	P12-PIN	P3-J
P10-PIN	P3-R	P12-SHLD	P3-K
P10-SHLD	P3-S	P13-PIN	P3-L
P11-PIN	P3-W	P13-SHLD	P3-M

FROM	TO	FROM	TO
DIGITAL PROCESSOR TEST CABLE W237			
P3-17	P3-18		P3-17
P3-18	P3-21	P3-21	P3-18

FROM	TO	FROM	TO
DIGITAL PROCESSOR TEST CABLE W239			
P1-3	P1-18	P1-15	P1-17
P1-4	P1-19	P1-16	P1-14
P1-5	P1-6	P1-17	P1-15
P1-6	P1-5	P1-18	P1-3
P1-14	P1-16	P1-19	P1-4

FROM	TO	FROM	TO
DIGITAL PROCESSOR TEST CABLE W240			
P1-3	P1-11	P1-11	P1-3
P1-4	P1-12	P1-12	P1-4
P1-5	P1-13	P1-13	P1-5
P1-6	P1-14	P1-14	P1-6
P1-7	P1-15	P1-15	P1-7
P1-8	P1-16	P1-16	P1-8
P1-9	P1-17	P1-17	P1-9
P1-10	P1-18	P1-18	P1-10

APPENDIX A

REFERENCES

A-1. Technical Manuals.

TM 32-5811-028-14&P	Operator's Organizational, Direct and General Support Maintenance Manual Including Repair Parts and Special Tools List, Programmer-Simulator MX-9854/U
TM 38-750	The Army Maintenance Management System (TAMMS)
TM 740-90-1	Administrative Storage of Equipment
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command)
TM 750-245-4	Direct Support and General Support Quality Control: Inspector's Inspection Criteria
TM 43-0139	Painting, Instructions for Field Use
TM 9-237	Welding, Theory and Application
TM 38-230-2	Packaging of Materiel Military Supplies and Equipments
TM 38-260	Preparation and Inspection of Industrial Production Equipment for Storage and Shipment

A-2. Technical Bulletins.

TB 32-5811-019-34-1 (Series)	Intermediate Maintenance Test Programs and Procedures for Testing AN/ALQ-151 and AN/TSQ-114 Electronic Circuit Cards
TB SIG 222	Solder and Soldering
TB SIG 355-1	Depot Inspection Standards for Repaired Signal Equipment
TB SIG 355-2	Depot Inspection Standard for Refinishing Repaired Signal Equipment

TB SIG 355-3	Depot Inspection Standard for Moisture and Fungus Resistant Treatment
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment

A-3. Supply Bulletins.

SB 38-100	Preservation, Packaging and Packing Materials, Supplies and Equipment Used by the Army
SB 11-30	Transportation, Storage, Testing, Shelf Life, and Quantity Unit Pack
SB 11-573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment
CTA 50-970	Expendable Items
SB 708-41/42 (Microfiche only)	Federal Supply Code for Manufacturers, United States and Canada, Code to Name, Cataloging Handbook H4-2

A-4. Pamphlets.

DA PAM 310-1 (Microfiche only)	Index of Administrative Publications
DA PAM 310-2 (Microfiche only)	Index of Blank Forms

DA PAM 310-4 (Microfiche only)	Index of Technical Publications (Includes: Equipment Identification Lists, Lubrication Orders. Modification Work Orders, Supply Bulletins, Supply Catalogs, Supply Manuals, Technical Bulletins and Technical Manuals.

A-5. Army Regulations.

AR 310-25	Dictionary of United States Army Terms;
AR 310-50	Authorized Abbreviations and Brevity Codes
AR 700-42	Classification, Reclassification, Maintenance, Insurance, and Reporting of Maintenance Training Aircraft
AR 55-38	Discrepancy in Shipment Report

A-6. Forms.

DA Form 3803	Decontamination Tag
DA Form 2028	Recommended Changes to DA Technical Manuals, Parts Lists or Supply Manual 7, 8 or 9
DA Form 2404	Equipment Inspection and Maintenance Work Sheet
DA Form 2408	Equipment Log Book Assembly Instructions for General Equipment
DA Form 2408-1	Equipment Daily or Monthly Log
DA Form 2408-5	Equipment Modification Record
DA Form 2408-9	Equipment Transfer Record
SF Form 364	Report of Discrepancy (ROD)
SF 368	Quality Deficiency Report

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. General.

This appendix provides a summary of the maintenance operations covered in the preceding chapters for the digital processor test set. It authorizes categories of maintenance for specific maintenance functions on reparable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

B-2. Maintenance Functions.

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition; i.e., to clean, preserve, drain, paint, or to replenish fuel/lubricants/hydraulic fluids, or compressed air supplies.

d. Adjust. Maintain within prescribed limits by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust a discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of the equipment/system.

h. Replace. The act of substituting a serviceable like-type part, subassembly, or module/component/assembly in a manner to allow the proper functioning of an equipment/system.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module/component/assembly, end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (e.g., DMWR) in pertinent technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like-new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like-new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those AGE measurements (hours, miles, etc.) considered in classifying Army equipment/components.

l. Fault Locate. The act of finding the cause of a malfunction. When applicable to a system the problem is traced to a piece of equipment. When applicable to a piece of equipment the problem is traced to an assembly or circuit card assembly (CCA) within the equipment. And when applicable to an assembly or CCA the problem is traced to a component or sealed module.

m. Disassemble. Removal of modules/components from the equipment for the purpose of performing maintenance tasks, i.e., inspect, test, service, repair, etc.

n. Program. The act of transferring data from a source such as paper tape into an electrically erasable, programmable, read-only memory (EPROM or commonly referred to as ROM) CCA.

B-3. Explanation of Format.

a. Column 1, Group Number. Column 1 lists reference designators (group numbers), the purpose of which is to identify components assemblies, subassemblies, and modules with the next higher assembly. The reference designators are applied to all items appearing on the MAC and are similarly applied to the same item in the repair parts and special tools list (RPSTL).

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2.

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a "work time" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the task within the listed maintenance function vary at different maintenance categories, appropriate "work time" figures will be shown for each category. The number of man-hours specified by the "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operation conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The maintenance category subcolumns are as follows:

C- Operator/Crew
O- Organizational
F - Direct Support
H- General Support
D- Depot

e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

MAINTENANCE ALLOCATION CHART FOR DIGITAL PROCESSOR SET AN/USM-433

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			C	O	F	H	D		
01	TEST SET, DGTL PROCS AN/USM-433	INSPECT				.20			
		INSPECT					1.00		
		TEST				4.00		1-7	
		TEST					4.00	1-7	
		SERVICE				.16		8	
		REPLACE				.08		8	
		FAULT LOCATE				1.00		1-7	
		FAULT LOCATE					1.00	1-7	
		DISASSEMBLE				.50		8	
		DISASSEMBLE					.75	8	
		REPAIR				1.00		8-10	
		REPAIR					7.38	8-10, 34-36	
		OVERHAUL					96.00	1-36	
0101	CCA, PROCS DISPLAY A1	INSPECT				.20			
		INSPECT					.20		
		TEST				.08		12,14	
		TEST					.25	12,14	
		REPLACE				.01			
		FAULT LOCATE					.50	12,14	
		REPAIR					2.00	16	
0102	CCA, AGE DISPLAY A2	INSPECT				.20			
		TEST				.25		12,14	
		REPLACE				.01			
		FAULT LOCATE				.10		12,14	
		REPAIR				.50		16	
0103	CCA, DSPL STORAGE A3	INSPECT				.20			
		TEST				.25		12,14	
		REPLACE				.08			
		FAULT LOCATE				.50		12,14	
		REPAIR				.50		13,15-18, 20-22	

MAINTENANCE ALLOCATION CHART FOR DIGITAL PROCESSOR SET AN/USM-433

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
0104	CCA, DIAGNOSTIC BUFF	INSPECT				.20			
	A4	TEST				.25		12,14	
		REPLACE				.01			
		FAULT LOCATE				.08		12,14	
		REPAIR				.50		13,15-18, 20-22	
0105	CCA, RF PROCS SIM	INSPECT				.20			
	A5	TEST				.35		12,14	
		REPLACE				.01			
		FAULT LOCATE				.50		12,14	
		REPAIR				.50		16	
0106	CCA, SER INTFC TEST	INSPECT				.20		2,5-7	
	A6	TEST				.50		12,14	
		REPLACE				.01		29,33	
		FAULT LOCATE				.70		2,5-7, 12,14, 29,33	
		REPAIR				.50		16	
0107	CCA, LOGIC CONTROL	INSPECT				.20			
	A7	TEST				.25		12,14	
		REPLACE				.01			
		FAULT LOCATE				.25		12,14	
		REPAIR				.50		16	
0108	CCA, LAMP DRIVER	INSPECT				.20			
	A8	TEST				.25		12,14	
		REPLACE				.01			
		FAULT LOCATE				.40		12,14	
		REPAIR				.30		16	
0109	CCA, CONT IND TEST	INSPECT				.20			
	A9	TEST				.35		5-7,12	
		REPLACE				.01 .33		14,29,	
		FAULT LOCATE				.40		5-7,12, 14,29,33	
		REPAIR				.50		16	

MAINTENANCE ALLOCATION CHART FOR DIGITAL PROCESSOR SET AN/USM-433

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
0110	CCA, XCVR TEST	INSPECT				.20			
	A10	TEST				.25		3,5-7	
		REPLACE				.01		12,14, 29,33	
		FAULT LOCATE				.25		3,5-7, 12,14, 29,33	
		REPAIR				.50		16	
0111	CCA, ROM	INSPECT				.20			
	A11	TEST				.25		23,30-32	
		REPLACE				.01		16	
		FAULT LOCATE				2.50		1,5-7, 24-26	
		REPAIR				.52		16	
		PROGRAM				.50		23,28, 30-32	
0112	CCA, ROM	INSPECT				.20			
	A12	TEST				.25		23,30-32	
		REPLACE				.01		16	
		FAULT LOCATE				2.50		1,5-7, 24-26	
		REPAIR				.52		16	
		PROGRAM				.50		23,28, 30-32	
0113	POWER SUPPLY	INSPECT				.10			
	A19	TEST				.10		3	
		REPLACE				.75		8	
		FAULT LOCATE				.10		3	
		REPAIR				.50		8	
02	CABLE KIT, DGTL PROC 1951-1-1108 CONFIG-1								
0201	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W201	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0202	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W202	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	

MAINTENANCE ALLOCATION CHART FOR DIGITAL PROCESSOR SET AN/USM-433

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
0203	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W203	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0204	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W204	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0205	CABLE ASSY, RF	INSPECT				.02			
	W205	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0206	CABLE ASSY, RF	INSPECT				.02		3	
	W206	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0207	CABLE ASSY, RF	INSPECT				.02			
	W207	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0208	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W208	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0209	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W209	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0210	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W210	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	

MAINTENANCE ALLOCATION CHART FOR DIGITAL PROCESSOR SET AN/USM-433

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
0211	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W211	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0212	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W212	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0213	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W213	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0214	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W214	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0215	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W215	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0216	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W216	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0217	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W217	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0218	CABLE ASSY, RF	INSPECT				.02			
	W238	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0219	JUMPER PLUG	INSPECT				.01			
	W239	TEST				.40		3	
		REPLACE				.01			
		REPAIR				.75		8,10	

MAINTENANCE ALLOCATION CHART FOR DIGITAL PROCESSOR SET AN/USM-433

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
0220	JUMPER PLUG W240	INSPECT				.01			
		TEST				.40		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0221	CABLE ASSY, RF W243	INSPECT				.02			
		TEST				.02		3	
		REPLACE				.01			
		REPAIR				.50		8	
0222	CABLE ASSY, RF W244	INSPECT				.02			
		TEST				.01		3	
		REPLACE				.01			
		REPAIR				.50		8	
03	CABLE KIT, DGTL PROC 1951-1-1109 CONFIG-2								
0301	CABLE ASSY, SP, ELEC W216	INSPECT				.02			
		TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0302	CABLE ASSY, SP, ELEC W218	INSPECT				.02			
		TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0303	CABLE ASSY, SP, ELEC W219	INSPECT				.02			
		TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0304	CABLE ASSY, SP, ELEC W220	INSPECT				.02			
		TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0305	CABLE ASSY, SP, ELEC W221	INSPECT				.02			
		TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	

MAINTENANCE ALLOCATION CHART FOR DIGITAL PROCESSOR SET AN/USM-433

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
0306	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W222	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0307	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W223	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0308	CABLE ASSY, RF	INSPECT				.02			
	W224	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0309	CABLE ASSY, RF	INSPECT				.02			
	W225	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0310	CABLE ASSY, RF	INSPECT				.02			
	W226	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0311	CABLE ASSY, RF	INSPECT				.02			
	W227	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
04	CABLE KIT, DGTL PROC 1951-1-1110 CONFIG-3								
0401	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W216	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0402	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W228	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	

MAINTENANCE ALLOCATION CHART FOR DIGITAL PROCESSOR SET AN/USM-433

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
0403	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W229	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0404	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W237	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
05	CABLE KIT, DGTL PROC 1951-1-1111 CONFIG-4								
0501	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W216	TEST				.80		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0502	CABLE ASSY, RF	INSPECT				.02			
	W230	TEST				.02		3	
		REPLACE				.01			
		REPAIR				.50		8	
0503	CABLE ASSY, RF	INSPECT				.02			
	W231	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0504	CABLE ASSY, RF	INSPECT				.02			
	W232	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0505	CABLE ASSY, RF	INSPECT				.02			
	W233	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0506	CABLE ASSY, RF	INSPECT				.02			
	W234	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	

MAINTENANCE ALLOCATION CHART FOR DIGITAL PROCESSOR SET AN/USM-433

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			C	O	F	H	D		
0507	CABLE ASSY, RF	INSPECT				.02			
	W235	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	
0508	CABLE ASSY, SP, ELEC	INSPECT				.02			
	W236	TEST				1.20		3	
		REPLACE				.01			
		REPAIR				.75		8,10	
0509	CABLE ASSY, RF	INSPECT				.02			
	W241	TEST				.02		3	
		REPLACE				.01			
		REPAIR				.50		8	
0510	CABLE ASSY, RF	INSPECT				.02			
	W242	TEST				.03		3	
		REPLACE				.01			
		REPAIR				.50		8	

DIGITAL PROCESSOR TEST SET AN/USM-433

TOOL AND TEST EQUIPMENT REQUIREMENTS

(1) Reference Number	(2) Maintenance Level		(3) Nomenclature	(4) National/NATO Stock Number	(5) Tool Number
1	H	D	PROBES O-SCOPE	6625-01-044-4537	010-6062-15
2	H	D	FUNCTION GENERATOR SG-1133/U	6625-01-028-4981	3312A
3	H	D	MULTIMETER	6625-01-031-0708	8600A-01
4	H	D	LOGIC PROBE	6625-01-047-7306	545A
5	H	D	DUAL TIME AMP AN-6880/U	6625-00-185-7817	7A18
6	H	D	TIME BASE TD-1159/U	6625-00-261-5139	7B53A
7	H	D	OSCILLOSCOPE, STORAGE OS-262(P)/U	6625-01-007-9416	7623A
8	H	D	TOOL KIT	5180-00-610-8177	TK-105/G
9	H	D	HEAT GUN		CV5700
10	H	D	TOOL KIT, WIRE/CABLE		DMC331
11		D	MULTIMETER AN/USM-210	6625-00-619-0185	260
12	H	D	TEST SET, ELEC SKT AN/USM-460	6625-01-038-5215	DTC-4800
13	H	D	TOOL, ELEC WIRE WRAP*		EW7DBF
14	H	D	KIT, DTC 4800 CARDS	6625-01-068-1664	MK-1896/U
15	H	D	STRIPPER, WIRE HAND*	5110-00-472-2328	NN012
16	H	D	REPAIR CENTER, SLDR	3439-00-196-0703	PRC350C
17	H	D	SLEEVE, WIRE WRAP*		P26LN
18	H	D	SLEEVE, WIRE SRAP*	5120-01-036-4959	P3032
19		D	ENVIR TEST CENTER	6636-00-915-4584	BK1108
20	H	D	TOOL, UNWRAP HAND*	5120-01-036-5419	UWD-93-93
21	H	D	BIT, WIRE WRAP*		WB26SM
22	H	D	BIT, WIRE WRAP, MOD*	5130-01-036-3764	WB3032M
23	H	D	PROGRAMMER-SIM MX9854/U	6625-01-038-4192	1966-1-1472-1
24	H	D	LOGIC PULSER		546A
25	H	D	GT CURRENT TRACER	6625-01-045-0376	547A
26	H	D	POWER SUPPLY PP-7548/U	6625-00-437-4861	6205B
27		D	TEMPERATURE TESTER	6625-01-049-5172	652A
28	H	D	ERASER, PROM		10-149860
29	H	D	COUNTER, FREQUENCY CP-7772A/U	6625-00-973-4837	5245L
30	H	D	PROGRAM TAPE		PT1966-1-1354-1
31	H	D	COMPUTER LISTING		CL1966-1-1354-1
32	H	D	PAPER TAPE WINDER		5330-A
33	H	D	CARD EXTENDER (92 PIN)		10-001344-1
34		D	INSERTION TOOL		600-0001-000
35		D	INSERTION TOOL		600-0004-000
36		D	EXTRACTION TOOL		600-0005-000

*Included in DMC331 kit.

APPENDIX C
BASIC ISSUE ITEMS LIST, ITEMS TROOP INSTALLED OR AUTHORIZED LIST, AND REPAIR PARTS AND SPECIAL TOOLS LIST

TABLE OF CONTENTS

TABLE OF CONTENTS-Continued

TABLE OF CONTENTS-Continued

Section I. INTRODUCTION

C-1. Scope.

This appendix lists basic issue items; items troop installed or authorized, repair parts; special tools; test, measurement, and diagnostic equipment (TMDE); and other support equipment required for operation and performance of organizational, direct support, and general support maintenance of the digital processor test set.

C-2. General.

This Basic Issue Items, Items Troop Installed or Authorized, Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Basic Issue Items List. Not applicable.

b. Section III. Items Troop Installed or Authorized List. Not applicable.

c. Section IV. Repair Parts List. A list of repair parts authorized for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending numerical sequence, with the parts in each group listed in figure and item number sequence. Bulk materials are listed in NSN sequence.

d. Section V. Special Tools List. A list of special tools, TMDE, and support equipment authorized for the performance of maintenance at the organizational, direct support, and general support level.

e. Section VI. National Stock Number and Part Number Index. A list, in ascending numerical sequence, of all National stock numbers appearing in the listings, followed by a list, in alphanumeric sequence, of all part numbers referenced to each illustration figure and item number appearance.

C-3. Explanation of Columns.

The following provides an explanation of columns found in the tabular listings:

a. Illustration. This column is divided as follows:

(1) Figure Number. Indicates the figure number of the illustration in which the item is shown.

(2) Item Number. The number used to identify each item called out in the illustration.

b. Source, Maintenance, and Recoverability Codes (SMR).

(1) Source Code. Source codes are assigned to support items to indicate the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second positions of the Uniform SMR Code format as follows:

Code	Definition
PA	Item procured and stocked for anticipated or known usage.
PB	Item procured and stocked for insurance purpose because essentiality dictates that a minimum antity be available in the supply systems.
PC	Item procured and stocked and which otherwise would be coded PA except that it is deteriorative in nature.
PD	Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or additional initial issues or outfittings. Not subject to automatic replenishment.
PE	Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
PF	Support equipment which will not be stocked but which will be centrally procured on demand.
PG	Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment which, because of probable discontinuance or shutdown of production facilities, would prove uneconomical to reproduce at a later time.
KD	An item of a depot overhaul/repair kit and not purchased separately. Depot kit defined as a kit that provides items required at the time of overhaul or repair.
KF	An item of a maintenance kit and not purchased separately. Maintenance kit defined as a kit that provides an item that can be replaced at organizational or intermediate levels of maintenance.
KB	Item included in both a depot overhaul/repair kit and a maintenance kit.

Code	Definition
MO	Item to be manufactured or fabricated at organizational level.
MF	Item to be manufactured or fabricated at the direct support maintenance level.
MH	Item to be manufactured or fabricated at the general support maintenance level.
MD	Item to be manufactured or fabricated at the depot maintenance level.
AO	Item to be assembled at organizational level.
AF	Item to be assembled at direct support maintenance level.
AH	Item to be assembled at general support maintenance level.
AD	Item to be assembled at depot maintenance level.
XA	Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.
XB	Item is not procured or stocked. If not available through salvage, requisition.
XD	A support item that is not stocked. When required, item will be procured through normal supply channels.

NOTE

Cannibalization or salvage may be used as a source of supply for any items source coded above except those coded XA, XD, and aircraft support items as restricted by AR 700-42.

(2) Maintenance Code. Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the Uniform SMR Code format as follows:

(a) The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position will indicate one of the following levels of maintenance:

Code	Application/Explanation
C	Crew or operator maintenance performed within organizational maintenance.
O	Support item is removed, replaced, used at the organizational level.
I	Support item is removed, replaced, used by the direct support element of integrated direct support maintenance.
F	Support item is removed, replaced, used at the direct support level.
H	Support item is removed, replaced, used at the general support level.
D	Support items that are removed, replaced, used at depot, mobile depot, specialized repair activity only.

NOTE
Codes "I" and "F" will be considered the same by direct support units.

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). This position will contain one of the following codes:

Code	Application/Explanation
O	The lowest maintenance level capable of complete repair of the support item is the organizational level.
F	The lowest maintenance level capable of complete repair of the support item is the direct support level.
H	The lowest maintenance level capable of complete repair of the support item is the general support level.
D	The lowest maintenance level capable of complete repair of the support item is the depot level, performed by the Materiel Support Command Depot Activity.
L	Repair restricted to designated specialized repair activity.

Code	Application/Explanation
Z	Nonreparable. No repair is authorized.
B	No repair is authorized. The item may be reconditioned by adjusting, lubricating, etc., at the user level. No parts or special tools are procured for the maintenance of this item.

(3) Recoverability Code. Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR Code format as follows:

Recoverability Codes	Definition
Z	Nonreparable item. When unserviceable, condemn and dispose at the level indicated in position 3.
O	Reparable item. When uneconomically reparable, condemn and dispose at organizational level.
F	Reparable item. When uneconomically reparable, condemn and dispose at the direct support level.
H	Reparable item. When uneconomically reparable, condemn and dispose at the general support level.
D	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal not authorized below depot level.
L	Reparable item. Repair, condemnation, and disposal not authorized below depot/specialized repair activity level.
A	Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

d. Part Number. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity) which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements, to identify an item or range of items. For BIIL and ITIAL, see explanation of description column, paragraph f.

NOTE

When a stock numbered item is requisitioned, the repair part received may have a different part number than the part being replaced,

e. Federal Supply Code for Manufacturer (FSCM). The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, or Government agency, etc. For BIIL and ITIAL, see explanation of description column, paragraph f.

f. Description. Indicates the Federal item name and, if required, a minimum description to identify the item. (In BIIL and ITIAL only, the following will be used: "The last line for each item in the BIIL and ITIAL indicates the part number with the FSCM in parentheses.") Items that are included in kits and sets are listed below the name of the kit or set with the quantity of each item in the kit or set indicated in the quantity incorporated in unit column. When the part to be used differs between serial numbers of the same model, the effective serial numbers are shown as the last line of the description.

In the Special Tools List, the initial Basis of Issue (BOI) appears as the last line in the entry for each special tool, TMDE, and support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased accordingly.

g. Unit of Measure (U/M). Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr, etc.). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

h. Quantity Furnished with Equipment (Basic Issue Items Only). Indicates the quantity of the basic issue item furnished with the equipment.

i. Quantity Authorized (Items Troop Installed or Authorized Only). Indicates the quantity of the item authorized to be used with the equipment.

j. Quantity Incorporated in Unit. Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that no specific quantity is applicable (e.g., shims, spacers, etc.).

C-4. Special Information.

a. Repair parts kits and gasket sets are listed at the end of the repair parts listing for the last figure containing parts of the kit.

b. (Applicable to revisions or changes only.) Action change codes indicated in the left-hand margin of the listing page denote the following:

N - Indicates an added item
C - Indicates a change in data
R - Indicates a change in NSN only

c. NSN's that are missing from P source coded items have been applied for and will be added to this TM by future change or revision when they are entered in the Army Master Data File (AMDF). Until the NSN's are established and published, submit exception requisition to Commander, Vint Hill Farms Station, Warrenton, Virginia, Attn: Electronics Materiel Readiness Activity (NICP).

d. The AN/TSQ-114 uses three levels of maintenance: organizational, general support, and depot. All direct support is considered general support.

C-5. How to Locate Repair Parts.

a. When National Stock Number or Part Number is Unknown.

(1) First. Using the table of contents, determine the assembly or subassembly within which the repair part belongs. This is necessary since illustrations are prepared for assemblies or subassemblies, and listings are divided into the same groups.

(2) Second. Find the illustration covering the assembly or subassembly to which the repair part belongs.

(3) Third. Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(4) Fourth. Using the Repair Parts Listing, find the figure and item number noted on the illustration.

b. When National Stock Number or Part Number is Known.

(1) First. Using the Index of National Stock Numbers and Part Numbers, find the pertinent National stock number or part number. This index is in ascending NSN sequence followed by a list of part numbers in ascending alphanumeric sequence, cross-referenced to the illustration figure number and item number.

(2) Second. After finding the figure and item number, locate the figure and item number in the repair parts list.

C-6. Abbreviations.

Abbreviations	Explanation
ADPTR	Adapter
BD	Board
BR	Branched
CAP	Capacitor
CCA	Circuit Card Assembly [also called Printed Wiring Assembly (PWA)]
CER	Ceramic
CG	Cage
CHAS	Chassis
CKT	Circuit
CL	Clinch
CLP	Clamp
CMPNT	Component
CMPSN	Composition
DGTL	Digital
DSPL	Display
DVC	Device
DWR	Drawer
ELCTLT	Electrolitic
ELEK	Electronic
EJCTR	Ejector
EXT	External
FSTNR	Fastener
FXD	Fixed
GEN	Generator
HF	High Frequency
LIN	Linear
MICROCKT	Microcircuit
MTG	Mount
NTWK	Network
PL	Plate
PRERGLTR	Preregulator
PTD	Printed
RD	Round
RDR	Reader
RES	Resistor
RGLTD	Regulated
RTNR	Retainer
SCND	Semiconductor
SGL	Signal
SKT	Socket
SLFLKG	Self-Locking
SP	Special Purpose
SPRT	Support
SW	Switch
THD	Thread
WRG	Wiring

Section II. BASIC ISSUE ITEMS LIST

NOT APPLICABLE

Section III. ITEMS TROOP INSTALLED OR AUTHORIZED LIST

NOT APPLICABLE

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 01 - DIGITAL PROCESSOR TEST SET AN/USM-433		
C-1		XBFDD	6625-01-038-4193	1951-1-4340-1	15942	TEST SET, DGTL	EA	1
C-1	1	XBFZZ		71-90246	53217	WINDOW, DISPLAY	EA	1
C-1	2	XBFZZ	5305-00-372-9985	NAS1189E04P7L	80205	SCREW, SLFLKG	EA	98
C-1	3	PAFZZ		7E988	07126	THUMBWL SW ASSY	EA	12
C-1	4	PAFZZ		LFH134E	31356	SWITCH, TOGGLE	EA	11
C-1	5	PAFZZ		LFH223E	31356	SWITCH, TOGGLE	EA	1
C-1	6	XBFZZ		09-0301-1077	28817	WINDOW, DISPLAY	EA	1
C-1	7	PAFZZ		LFH123E	31356	SWITCH, TOGGLE	EA	6
C-1	8	PAFZZ		LFH121E	31356	SWITCH, TOGGLE	EA	2
C-1	9	XBFZZ		1951-1-3314-4	15942	PLATE, IDENT	EA	1
C-1	10	XBFZZ	5305-01-051-2717	RAS190E04P3L	80205	SCREW, SLFLKG	EA	2
C-1	11	PAFZZ	5935-00-402-1153	21051	16179	ADAPTER, CONN	EA	5
C-1	12	XBFZZ		A14582308LL	70318	SCREW, MACHINE	EA	20
C-1	13	PAFZZ		W39012-56-3002	81349	CONN, PLUG, ELEC	EA	5
C-1	14	XBFZZ		VPC242	08730	HANDLE, OVAL	EA	2
C-1	15	XBFZZ	5305-00-059-3661	MS51958-65	96906	SCREW, MACHINE	EA	4
C-1	16	XBFZZ	5310-00-619-1148	MS 15795-808	96906	WASHER, FLAT	EA	4
C-1	17	XBFZZ		CL2BLK2-4INID	81349	INSUL SLVG, ELEC	EA	1
C-1	18	XBFZZ	5310-00-619-5280	0140	95987	WASHER SADDLE	EA	2
C-1	19	XBFZZ	5310-00-208-3786	NAS6T71C4	80205	NUT, PLAIN, HEX	EA	50
C-1	20	XBFZZ	5305-00-068-6605	MS24693C6	96906	SCREW, MACHINE	EA	12
C-1	21	XBFZZ	5310-00-933-8118	MS35338-135	96906	WASHER, LOCK	EA	67
C-1	22	XBFZZ	5940-00-682-2477	1416-4	83330	TERMINAL, LUG	EA	10
C-1	23	PAFZZ	5935-01-065-6401	MS27 508E18F32SA	96906	CONN, RCPT, ELEC	EA	1
C-1	24	XBFZZ	5310-00-595-6211	MS15795-803	96906	WASHER, FLAT	EA	79
C-1	25	PAFZZ	5935-01-056-3587	MS27508E18F32S	96906	CONN, RCPT, ELEC	EA	1
C-1	26	XBFFF		1951-1-4230-1	15942	CABLE ASSY, SP (SEE FIG 191	EA	1
C-1	27	XBFZZ		UE4967A100-32G	29593	BUS BAR	EA	1
C-1	29	PAFZZ	5935-01-031-5627	MS27508E20F355	96906	CONN, RCPT, ELEC	EA	1
C-1	30	PAFZZ	5935-01-065-6391	MS27508E22F21S	96906	CONN, RCPT, ELEC	EA	1
C-1	31	PAFZZ	5935-01-024-1895	MS27508E12F355	96906	CONN, RCPT ELEC	EA	1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-1	32	PAFZZ	5935-01-042-2410	MS27508E12F3SS A	96906	CONN, RCPT, ELEC	EA	1
C-1	33	PAFZZ	5935-01-065-8000	MS27508E12F8S	96906	CONN, RCPT, ELEC	EA	1
C-1	34	PAFZZ	5935-01-065-8001	MS1527508E12F85A	96906	CONN, RCPT, ELEC	EA	1
C-1	35	PAFZZ	5935-01-056-3578	MS27508E14F355S	96906	CONN, RCPT, ELEC	EA	1
C-1	36	PAFZZ	5935-01-066-3036	MS27508E14F5S	96906	CONN, RCPT, ELEC	EA	1
C-1	37	XBFZZ	5970-01-043-5759	N276	08863	INSULATOR	EA	2
C-1	38	XBFZZ	5940-00-839-0828	SE26XF01	81349	TERMINAL, STUD	EA	1
C-1	39	PAFZZ	5925-00-878-7901	1526-005-205	76374	CIRCUIT BREAKER	EA	1
C-1	40	PAFZZ		10648EL5-1	08719	SWITCH, PUSH	EA	1
C-1	41	XBFZZ	5999-00-137-5066	M39029-1-16-20	81349	CONTACTOELEC	EA	5
C-1	42	PAFZZ	5925-00-431-3256	MS3320-15	96906	CIRCUIT BREAKER	EA	1
C-1	43	XBFZZ		0423-1-3076-1	15942	CLAMP, SWITCH	EA	4
C-1	44	XBFZZ	5310-00-803-4663	H01-04	15653	NUT, SLFLKG HEX	EA	8
C-1	45	XBFFF		1951-1-3243-1	15942	BRACKET, ANGLE	EA	1
C-1	46	PAFZZ	5310-00-589-8028	FE632	46384	NUT, SLFLKG, CL	EA	31
C-1	47	XBFFF		1951-1-5064-1	15942	PANEL FRONT	EA	1
C-1	48	PAFZZ	5307-00-486-3376	CFHC440-6	46384	STUD, PLAIN THD	EA	24
C-1	49	PAFZZ	5307-00-158-408	CFHC440-8	46384	STUD, PLAIN, THD	EA	9
C-1	50	PAFZZ		LNF1888	29098	FILTER, RFI	EA	1
C-1	51	XBFZZ	5305-01-029-8891	NAS1189E06P6L	80205	SCREW, SLFLKG	EA	8
C-1	52	XBFZZ		1951-1-3279-1	15942	COVER, ACCESS	EA	1
C-1	53	XBFZZ	5305-00-054-6652	MS51957-28	96906	SCREW, MACHINE	EA	15
C-1	54	XBFZZ	5310-00-722-5998	MS15795-805	96906	WASHER, FLAT	EA	39
C-1	55	PAFZZ	5935-01-064-5695	MS27484T22F21P	96906	CONN, PLUG, ELEC	EA	1
C-1	56	PAFZZ	5935-01-064-5686	MS27484T12F8S	96906	CONN, PLUG, ELEC	EA	1
C-I	57	XBFZZ	5940-00-557-1629	MS25036-149	96906	TERMINAL, LUG	EA	12
C-1	58	XBFFD		1951-1-4820-1	15942	POWER SUPPLY (SEE FIG 17)	EA	1
C-1	59	XBFZZ	5305-00-205-3674	NAS1189E06P4L	80205	SCREW. SLFLKG	EA	15
C-1	60	XBFZZ		1951-1-4814-1	15942	CARD CAGE ASSY (SEE FIG 16)	EA	1
C-1	61	XBFZZ	5305-00-054-5648	MS51957-14	96906	SCREW, MACHINE	EA	12
C-1	62	PAFDD	5811-01-046-7213	10-001004-3	28815	CKT CARD ASSY (SEE FIG 15)	EA	2
C-1	63	PAFFD	6625-01-066-7078	1951-1-4792-1	15942	CKT CARD ASSY (SEE FIG 14)	EA	1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-1	64	PAFFF		10-126374-1	28815	CKT CARD ASSY (SEE FIG 13)	EA	1
C-1	65	PAFFD	6625-01-066-5096	1951-1-4582-1	15942	CKT CARD ASSY (SEE FIG 12)	EA	1
C-1	66	PAFFD	6625-01-066-5097	1951-1-4579-1	15942	CKT CARD ASSY (SEE FIG 11)	EA	1
C-1	67	PAFFF		10-126364-1	28815	CKT CARD ASSY (SEE FIG 10)	EA	1
C-1	68	PAFFF		10-001304-3	28815	CKT CARD ASSY (SEE FIG 41	EA	1
C-1	69	PAFZZ	5310-00-58S-7962	FE440	46384	NUT, SLFLKG, CL	EA	26
C-1	70	XBFFF		1951-1-3280-1	15942	PLATE, MOUNT ING	EA	1
C-1	71	PAFFD	6625-01-066-7383	1951-1-4343-1	15942	CKT CARD ASSY (SEE FIG 9)	EA	1
C-1	72	XBFFF		1951-1-3286-1	15942	PLATE ASSY, TG	EA	1
C-1	73	PAFZZ	5935-01-017-5889	MS27484T14F18P	96906	CONN, PLUG, ELEC	EA	1
C-1	74	XBFZZ		WTW1334	59730	BAND, MARKER	EA	1
C-1	75	XBFZZ	5999-01-049-8327	516-0014-505	31413	BUSHING	EA	178
C-1	76	PAFZZ	5999-01-051-3735	010-8509-502	31413	CONTACT, ELEC	EA	2028
C-1	77	XAFZZ	5970-01-031-9353	516-0028-550	31413	BUSHING, SLEEVE	EA	64
C-1	78	XBFZZ	5970-00-275-5242	302-0002-002	31413	INSUL, FEEDTHRU	EA	1850
C-1	79	XAFZZ	5325-01-039-7460	516-0027-000	31413	NUT, SLFLKG, RD	EA	4
C-1	80	XBFZZ	5970-00-464-0465	516-0018-000	31413	SKT, POLARIZING	EA	34
C-1	81	PAFZZ	5307-00-475-1172	FHS440-6	46384	STUD, PLAIN, THD	EA	6
C-1	82	XBFZZ	5305-00-582-6151	MS18212-30	96906	SCREW, MACHINE	EA	8
C-1	83	XBFZZ	5310-00-218-2181	MS51858-3	96906	NUT, NYLON	EA	8
C-1	84	XBFZZ	5305-00-054-6650	MS51957-26	96906	SCREW, MACHINE	EA	26
C-1	85	PAFDD	5865-01-065-3620	10-001154-3	28815	CKT CARD ASSY (SEE FIG 2)	EA	1
C-1	86	PAFFD	6625-01-066-6042	1951-1-4759-1	15942	OCT CARD ASSY (SEE FIG 5)	EA	1
C-1	87	PAFFD	6625-01-066-7384	1951-1-4758-1	15942	OCKT CARD ASSY (SEE FIG 8)	EA	1
C-1	88	XBFZZ		06-0302-2132	28817	FILTER, AIR	EA	1
C-1	89	PAFZZ		10-100-00000	31413	CONN, PLUG, ELEC (SEE FIG 18)	EA	3
C-1	90	XBFZZ	5999-01-042-7771	001-6500-513	31413	CONTACT, ELEC	EA	464
C-1	91	PAFZZ	5805-00-342-4514	544-0005-000	31413	KEY, POLARIZING	EA	3
C-1	92	XBFFF		1951-1-4710-1	15942	COVER, ACCESS	EA	1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-1	93	XBFZZ	5999-00-234-1997	20-12115	07700	SHLD GSKT, ELEC	EA	2
C-1	94	XBFZZ	5320-00-117-6938	MS5204260A3-4	96906	RIVET, SOLID	EA	267
C-1	95	PAFZZ	5325-00-601-7292	5S7-12	71286	STUD, TURNLOCK	EA	64
C-1	96	X8FZZ	5310-00-849-1984	553-2	71286	IASHER, SPLIT	EA	64
C-1	97	XBFZZ	4920-00-110-5317	TC817	59730	SPRT, ELEC CABLE	EA	7
C-1	98	PAFZZ	5915-01-065-8383	LMF1889	29098	FILTER LOWPASS	EA	1
C-1	99	XBFFF		1951-1-4713-1	15942	BRACKET, RELAY	EA	1
C-1	100	XBFZZ	5305-00-993-9189	MS24693C2	96906	SCREW, MACHINE	EA	21
C-1	101	PAFZZ	5945-00-038-5823	MS27401-4	96906	RELAY, ARMATURE	EA	1
C-1	102	XBFZZ		S0-1049-8772	35344	SKT, ELEK CNPNT	EA	1
C-1	103	PAFZZ	5945-00-063-6265	MS27418-2A	96906	RELAY, ARMATURE	EA	2
C-1	104	XBFFF		1951-1-3250-1	15942	BRACKET, RELAY	EA	1
C-1	105	PAFZZ	5945-00-509-2831	MS27400-4	96906	RELAY, ARMATURE	EA	1
C-1	106	XBFZZ	5935-01-049-3172	451116-041	03743	SKT, ELEK CMPNT	EA	1
C-1	107	XBFZZ		1951-1-2447-1	15942	SPACER, PLATE	EA	3
C-1	108	XBFZZ	5310-00-92S-6395	MS35338-136	96906	WASHER, LOCK	EA	3
C-1	109	XBFZZ		045867	10003	EQUIPMENT SLIDE	EA	2
C-1	110	XBFZZ		MS24583-42	96906	SCREW, MACHINE	EA	12
C-1	111	XBFFF		1951-1-4711-1	15942	COVER, ACCESS	EA	1
C-1	112	XBFZZ	5930-00-615-6731	MS25171-1S	96906	NIPPLE, CBL ELEC	EA	8
C-1	113					NOT USED		
C-1	114	XBFZZ		06-0302-1876	28817	PANEL , EXH, AIR	EA	2
C-1	115	XBFFF		1951-1-5078-1	15942	CHAS, ELEC EQPT	EA	1
C-1	116	PAFZZ	5325-00-758-0113	SR2-3	71268	RCPT, TURNLOCK	EA	64
C-1	117	XBFFF		1951-1-4715-1	15942	BRACKET, ANGLE	EA	1
C-1	118	XBFFF		1951-1-3244-1	15942	BRACKET, ANGLE	EA	1
C-1	119	PAFZZ	5340-00-759-6438	FE832	46384	NUT, SLFLKG, PL	EA	12

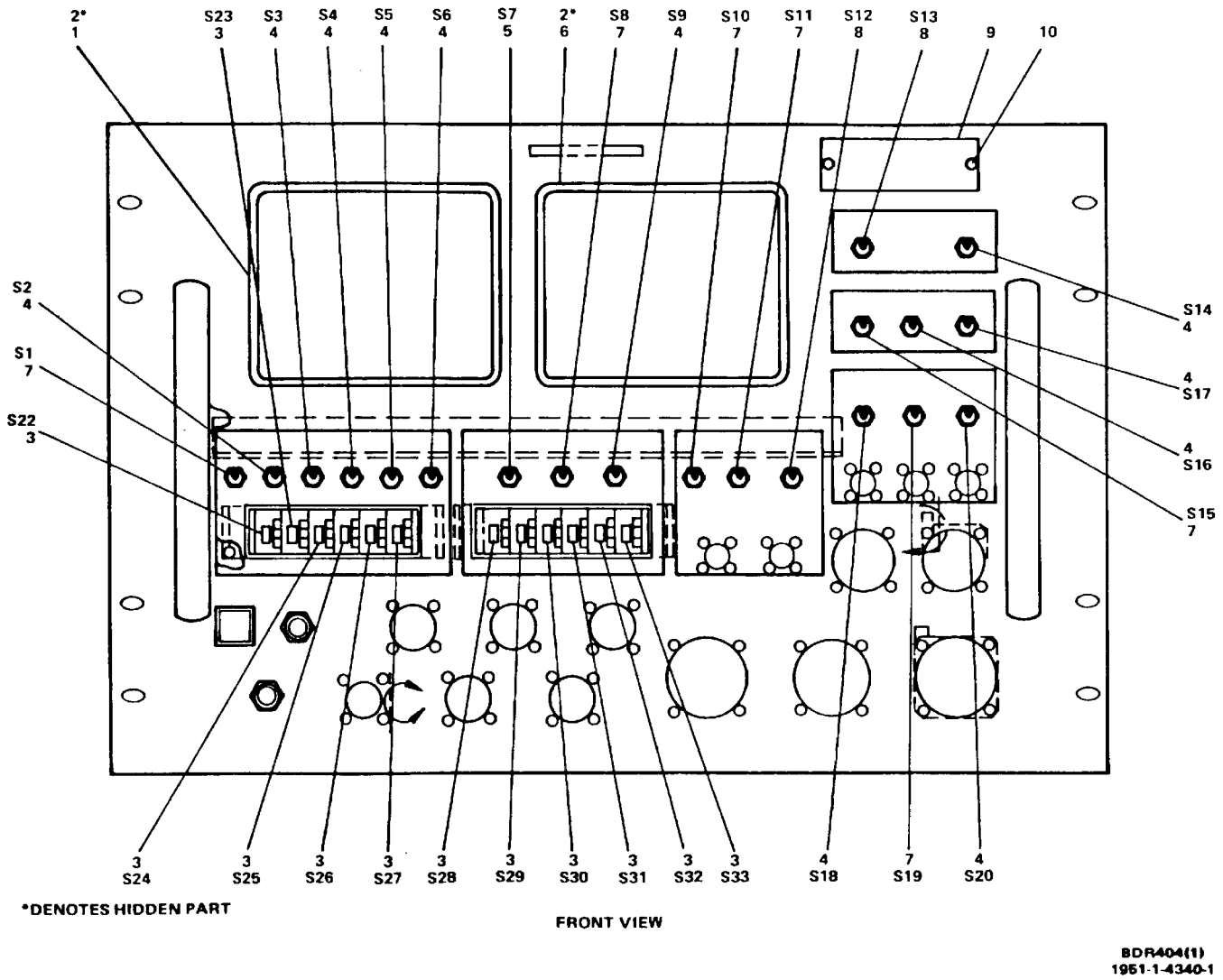


Figure C-1. Digital Processor Test Set AN/USM-433 (Sheet 1 of 5)

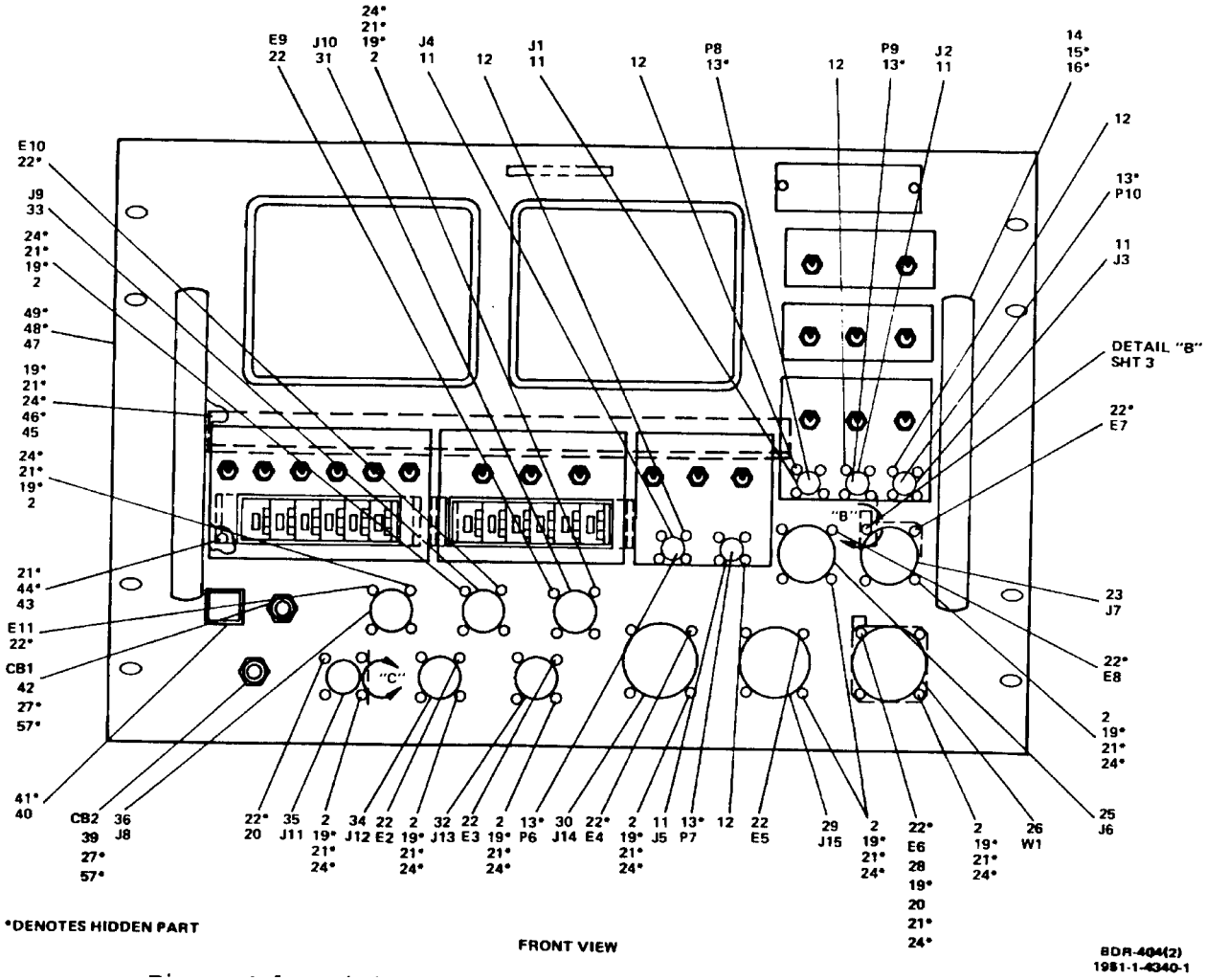


Figure C-1. Digital Processor Test Set AN/USM-433 (Sheet 2 of 5)

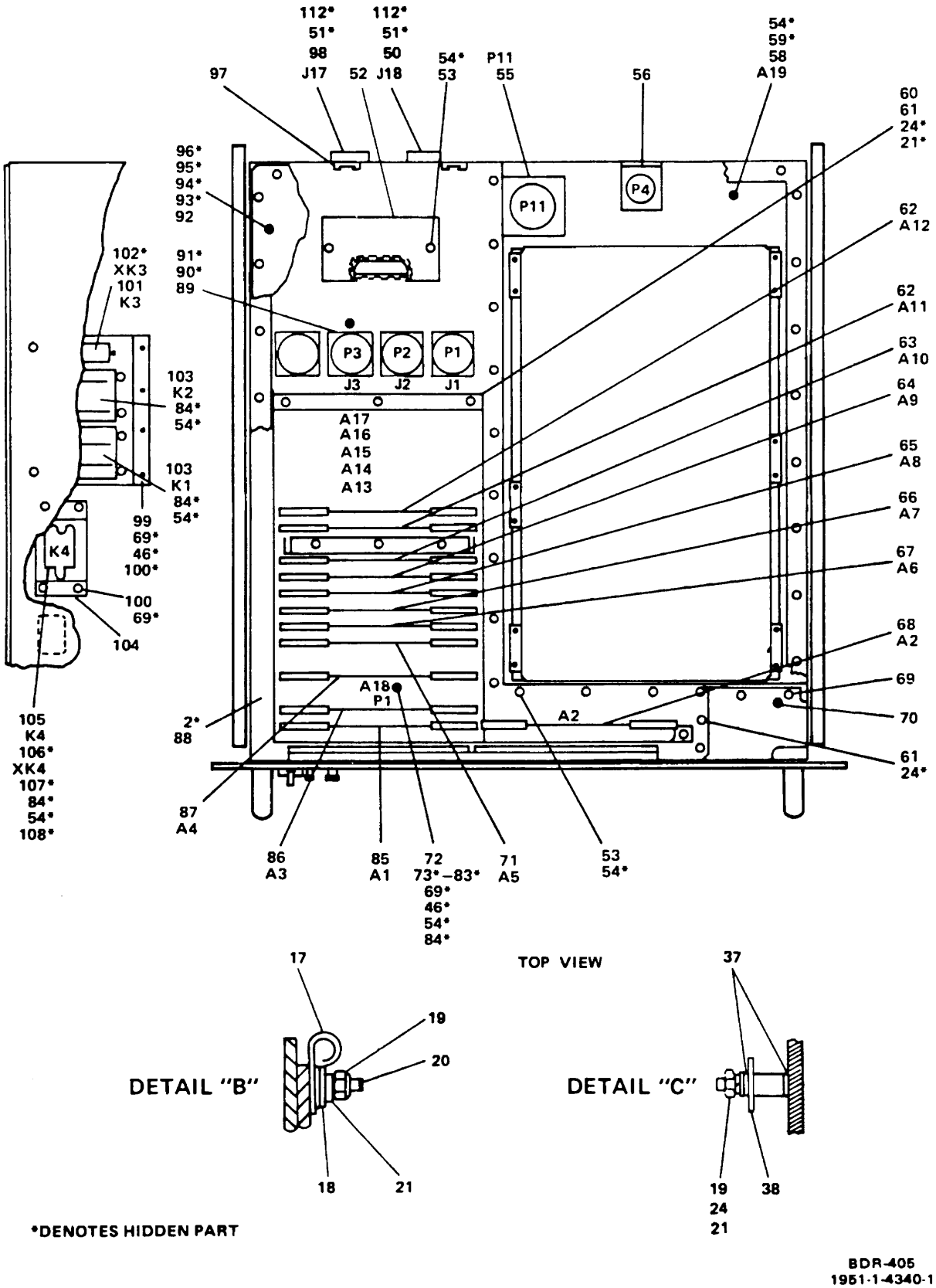


Figure C-1. Digital Processor Test Set AN/USM-433 (Sheet 3 of 5)

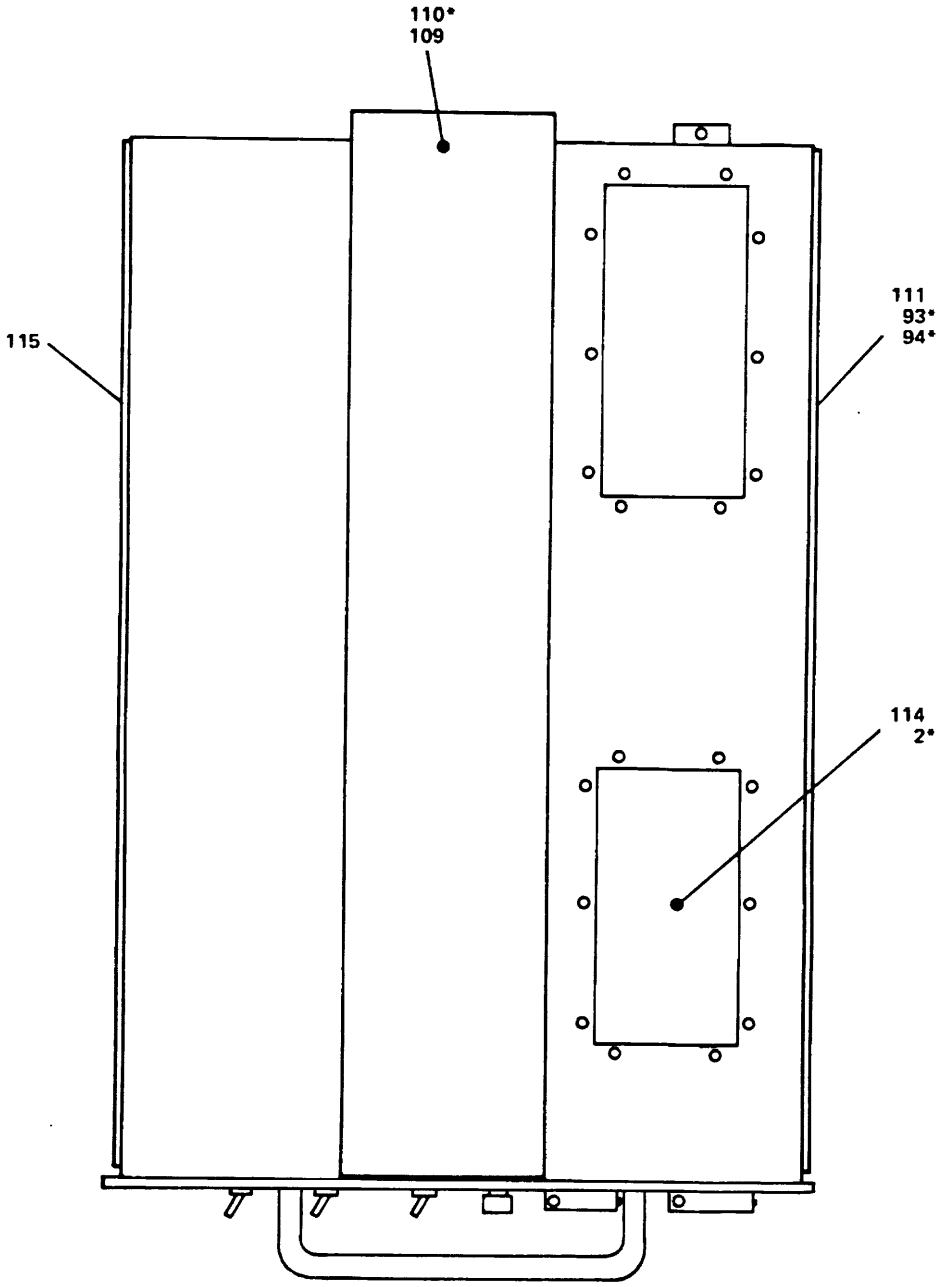


Figure C-1. Digital Processor Test Set AN/USM-433 (Sheet 4 of 5)

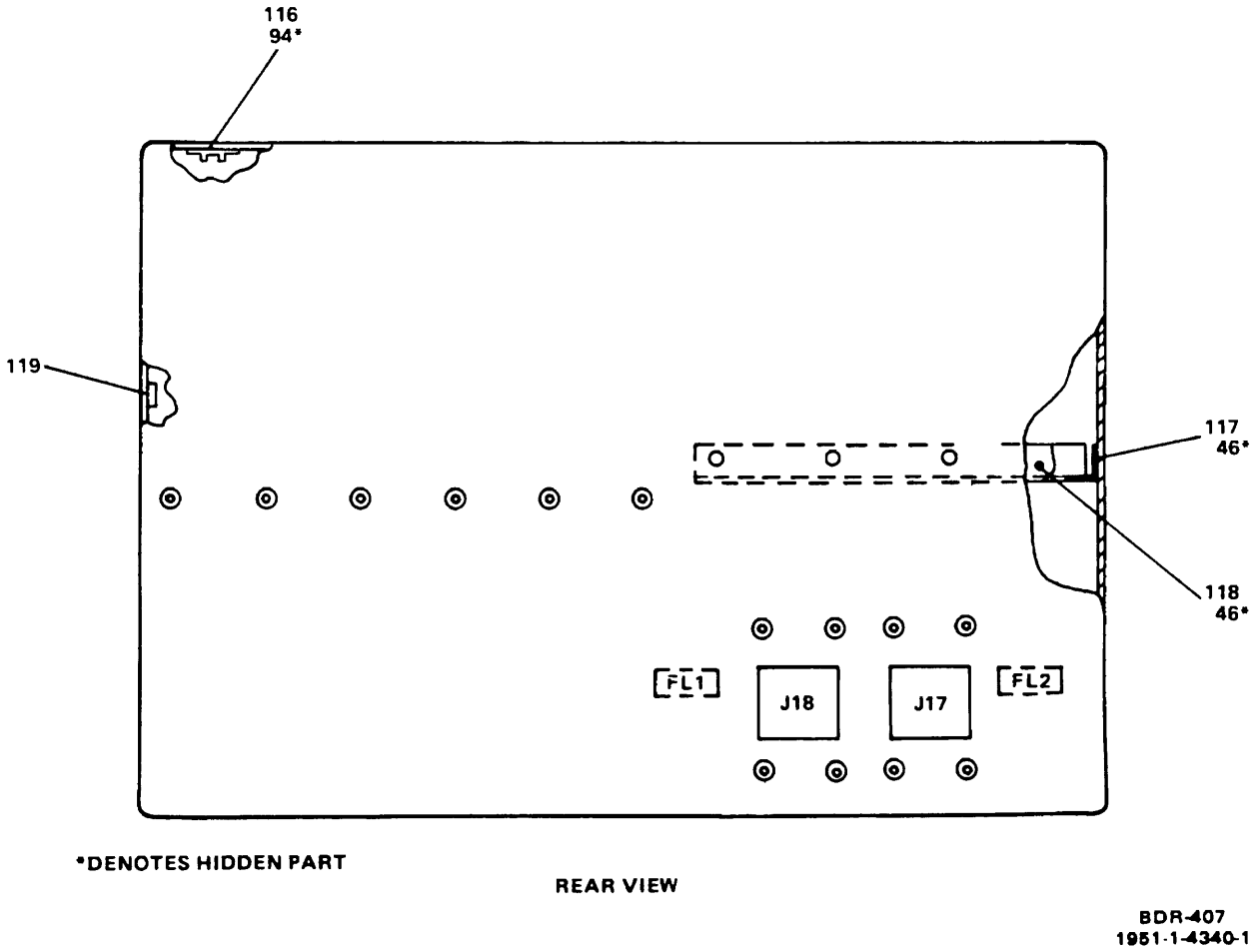
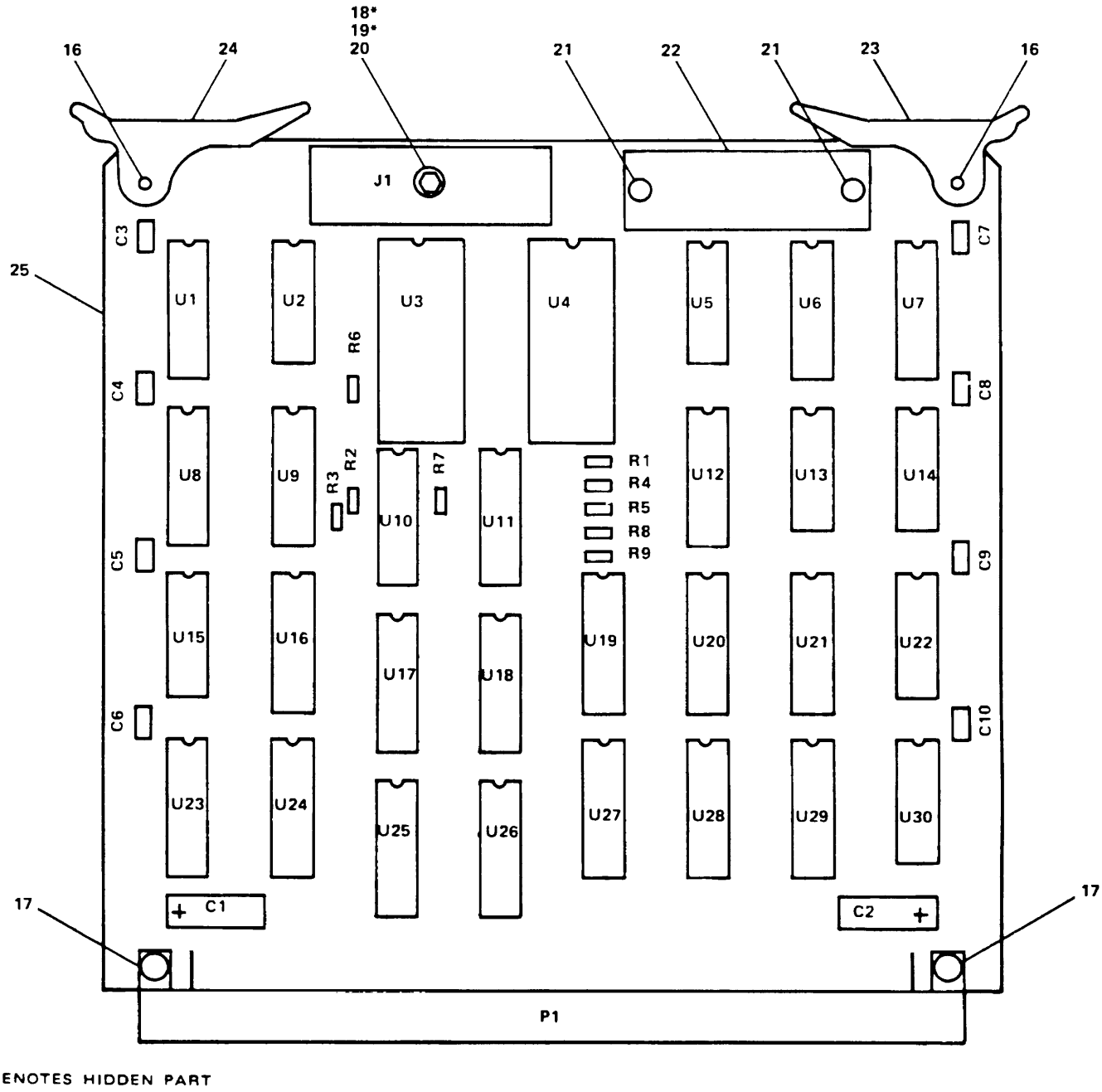


Figure C-1. Digital Processor Test Set AN/USM-433 (Sheet 5 of 5)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0101 - PROCESSOR DISPLAY CCA A1		
C-2	1	PAFZZ	5961-01-016-7282	JANTX1N5765	81349	SCND DVC, DIODE	EA	36
C-2	2	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP, FXD, ELCTLT	EA	2
C-2	3					NOT USED		
C-2	4	PAFZZ	5910-00-010-8717	M39014-01-1513	81349	CAP, FXD, CER	EA	6
C-2	5	PAFZZ	5935-01-076-4499	M1001-00844AA	31413	CONN, PLUG, ELEC (SEE FIG 3)	EA	1
C-2	6	XBFZZ	5320-00-243-8357	MS20470AC2-5	96906	RIVET, SOLID	EA	2
C-2	7	PAFZZ	5905-00-110-7620	RCR07G102JP	81349	RES, FXD, CMP SN	EA	2
C-2	8	PAFZZ		M834010212200JB	81349	RESISTOR NTWK	EA	3
C-2	9	PAFZZ	5961-01-046-7149	5082-7356	28480	MICROCKT, DGTL	EA	14
C-2	10	PAFZZ	5962-00-365-5716	M38510-00804BCB	81349	MICROCKT, DGTL	EA	6
C-2	11	XBFZZ		12-001006-16	28815	PLATE, IDENT	EA	1
C-2	12	XBFZZ	5305-00-253-5603	MS21318-1	96906	SCREW, DRIVE	EA	2
C-2	13	XAFZZ		12-001153-2	28815	PRINTED WRG BD	EA	1
C-2	14	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN, SPRING	EA	2
C-2	15	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR, CARD	EA	I
C-2	16	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR, CARD	EA	I



*DENOTES HIDDEN PART

BDR-022
10-001154-3

Figure C-2. Processor Display CCA A1 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	1	R1	7								
CR2	1	R2	7								
CR3	1	U1	8								
CR4	1	U2	8								
CR5	1	U3	8								
CR6	1	U4	9								
CR7	1	U5	9								
CR8	1	U6	9								
CR9	1	U7	9								
CR10	1	U8	9								
CR11	1	U9	9								
CR12	1	U11	9								
CR13	1	U12	9								
CR14	1	U13	9								
CR15	1	U14	9								
CR16	1	U15	9								
CR17	1	U16	9								
CR18	1	U17	9								
CR19	1	U18	9								
CR20	1	U21	10								
CR21	1	U22	10								
CR22	1	U23	10								
CR23	1	U25	10								
CR24	1	U26	10								
CR25	1	U27	10								
CR26	1										
CR27	1										
CR28	1										
CR29	1										
CR30	1										
CR31	1										
CR32	1										
CR33	1										
CR34	1										
CR35	1										
CR36	1										
C1	2										
C2	2										
C3	4										
C4	4										
C5	4										
C6	4										
C7	4										
C8	4										
P1	5										

Figure C-2. Processor Display CCA A1 (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-3	1	XAFZZ		613-0001-505	31413	EXTRUSION ADPTR	EA	1
C-3	2	PAFZZ	5935-01-016-1241	536-0012-000	31413	KEY, POLARIZING	EA	2
C-3	3	XAFZZ	5970-00-355-8018	304-0001-002	31413	INSULATOR, ADPTR	EA	92
C-3	4	PAFZZ	5999-01-016-0253	001-1805-509	31413	CONTACT, ELEC	EA	46
C-3	5	PAFZZ	5999-01-016-0254	001-1802-509	31413	CONTACT, ELEC	EA	46

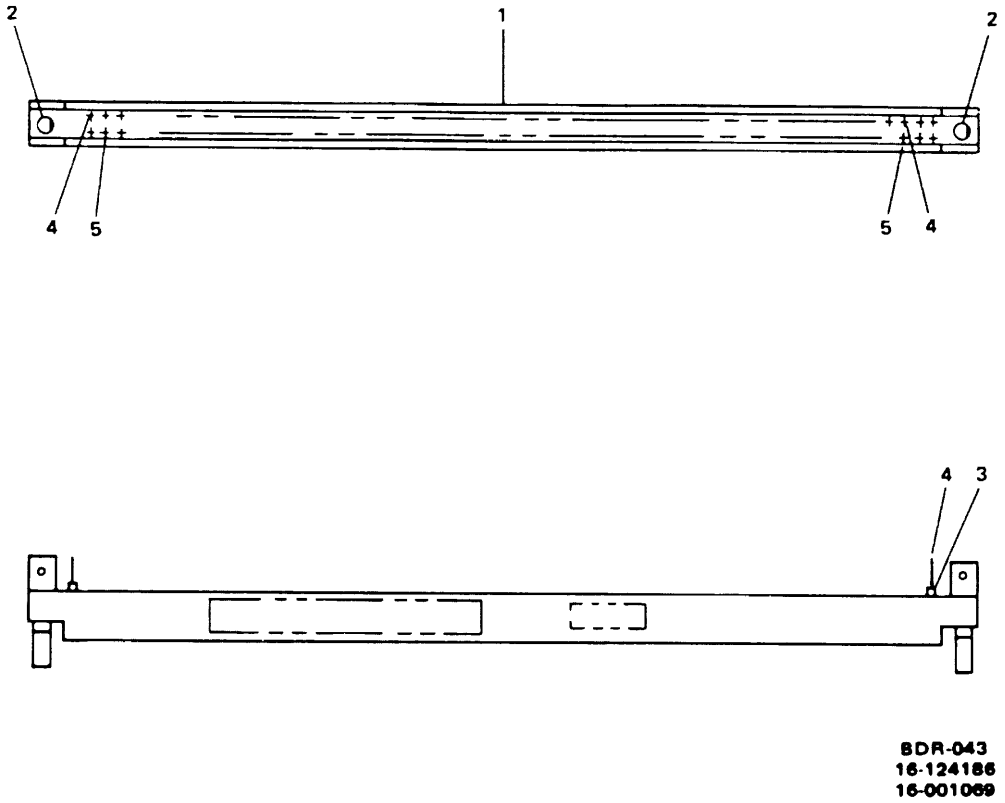


Figure C-3. Electrical Plug Connector A1P1, A2P1, A3P1, A4P1, A5P1, A6P1, A7P1, A8P1, A9P1, A10P1, or A11P1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0102 - AGE DISPLAY CCA A2		
C-4	1	PAFZZ	5961-01-016-7282	JANTX1N5765	81349	SCNO CVC, DIODE	EA	36
C-4	2	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP FXD ELCTLT	EA	1
C-4	3	PAFZZ	5910-00-010-8717	M39014-01-1513	81349	CAP, FXD, CER	EA	4
C-4	4	XBFZZ		450-3755-01-03	71279	JACK, TIP	EA	4
C-4	5	PAFZZ	5935-01-064-8361	M1001-00844EE	31413	CONN, PLUG, ELEC (SEE FIG 3)	EA	1
C-4	6	XBFZZ	5320-00-243-8357	M20470A02-5	96906	RIVET, SOLID	EA	2
C-4	7	PAFZZ	5905-00-110-7620	RCROT7G12JS	81349	RES, FXD, CMPSN	EA	5
C-4	8	PAFZZ		M8340102w2200G8	81349	RESISTOR NTWK	EA	3
C-4	9	PAFZZ	5961-01-046-7149	5082-7356	28480	MICROCKT, DGTL	EA	6
C-4	10	PAFZZ	5962-00-284-3971	385 10-00802BOB	81349	MICROCKT, DGTL	EA	6
C-4	11	XAFZZ		12-001303-1	28815	PRINTED WRG BD	EA	1
C-4	12	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR, CARD	EA	1
C-4	13	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN, SPRING	EA	2
C-4	14	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR, CARD	EA	1

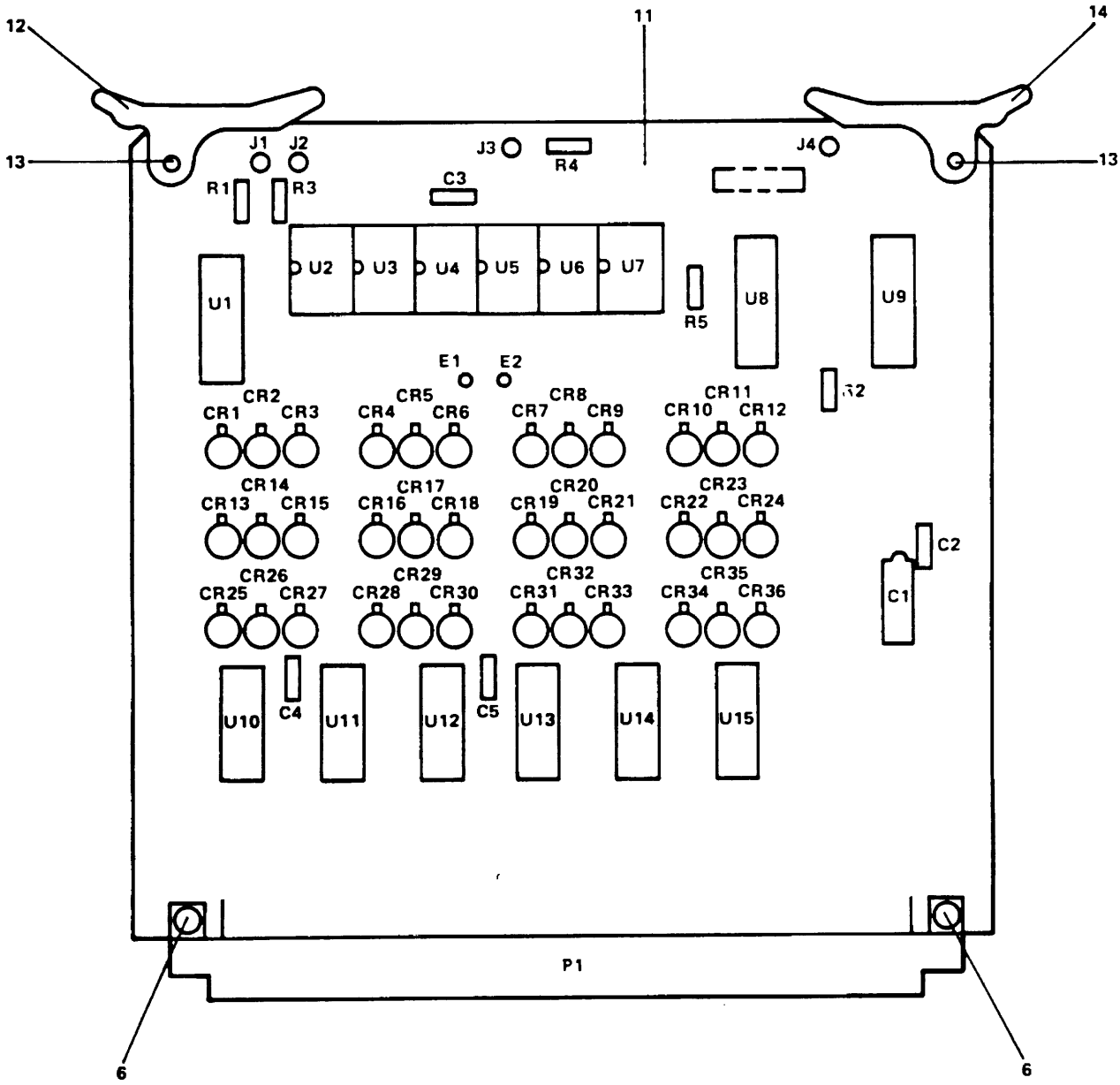


Figure C-4. AGE Display CCA A2 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	1	P1	5								
CR2	1	R1	7								
CR3	1	R2	7								
CR4	1	R3	7								
CR5	1	R4	7								
CR6	1	R5	7								
CR7	1	U1	8								
CR8	1	U2	9								
CR9	1	U3	9								
CR10	1	U4	9								
CR11	1	U5	9								
CR12	1	U6	9								
CR13	1	U7	9								
CR14	1	U8	8								
CR15	1	U9	8								
CR16	1	U10	10								
CR17	1	U11	10								
CR18	1	U12	10								
CR19	1	U13	10								
CR20	1	U14	10								
CR21	1	U15	10								
CR22	1										
CR23	1										
CR24	1										
CR25	1										
CR26	1										
CR27	1										
CR28	1										
CR29	1										
CR30	1										
CR31	1										
CR32	1										
CR33	1										
CR34	1										
CR35	1										
CR36	1										
C1	2										
C2	3										
C3	3										
C4	3										
C5	3										
J1	4										
J2	4										
J3	4										
J4	4										

Figure C-4. AGE Display CCA A2 (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0103 - DISPLAY STORAGE CCA A3		
C-5	1	XBFFF		1951-1-3271-1	15942	ELEK CMPNT ASSY (SEE FIG 6)	EA	1
C-5	2	XBFFF		1951-1-3272-1	15942	ELEK CMPNT ASSY (SEE FIG 7)	EA	1
C-5	3	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP, FXD, ELCTLT	EA	2
C-5	4	PAFZZ	5910-00-010-8717	M39014-01-1513	81349	CAP, FXD, CER	EA	6
C-5	5	PAFZZ	5935-00-851-2451	TP8-8	81312	ADAPTER, CONN	EA	1
C-5	6	PAFZZ	5935-01-064-8353	M1001-0084480	31413	CONN, PLUG, ELEC (SEE FIG 3)	EA	1
C-5	7	PAFZZ	5962-01-008-9563	MC4324BCBS	04713	MICROCKT, DOTL	EA	1
C-5	8	PAFZZ	5962-00-378-0216	M38510-00303BC8	81349	MICROCKT, DGTL	EA	2
C-5	9	PAFZZ	5962-01-006-0180	DM75513J883B	27014	MICROCKT, DGTL	EA	15
C-5	10	PAFZZ	5905-01-051-1744	M8340102M1001JB	81349	RES NTWK, FXD FILM	EA	1
C-5	11	PAFZZ	5962-00-024-0653	M38510-00302 SCB	81349	MICROCKT, DGTL	EA	2
C-5	12	PAFZZ		M83401024470J8	81349	RESISTOR NTWK	EA	1
C-5	13	PAFZZ	5905-01-068-9314	M8340102M6800JB	81349	RESISTOR NTWK	EA	1
C-5	14	PAFZZ	5962-00-428-7809	M38510-01001BEB	81349	MICROCKT, DGTL	EA	1
C-5	15	PAFZZ	5962-00-369-7641	M38510-01306BEB	81349	MICROCKT, DGTL	EA	1
C-5	1I	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR, CARD	EA	1
C-5	17	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN, SPRING	EA	2
C-5	18	XBFZZ	5310-00-812-4294	NAS671C2	80205	NUT, PLAIN, HEX	EA	1
C-5	19	XBFZZ	5305-00-054-5639	MS51957-5	96906	SCREW, MACHINE	EA	1
C-5	20	XBFZZ	5310-00-5 95-6761	MS15795-802	96906	WASHER, FLAT	EA	1
C-5	21	XBFZZ		1951-1-3304-2	15942	PLATE, IDENT	EA	1
C-5	22	XBFZZ	5305-00-253-5603	MS21318-1	96906	SCREW, DRIVE	EA	2
C-5	23	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR, CARD	EA	1
C-5	24	XBFZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET, SOLID	EA	2
C-5	25	XAFZZ		0423-1-3181-3	15942	CONTACT ASSY	EA	1

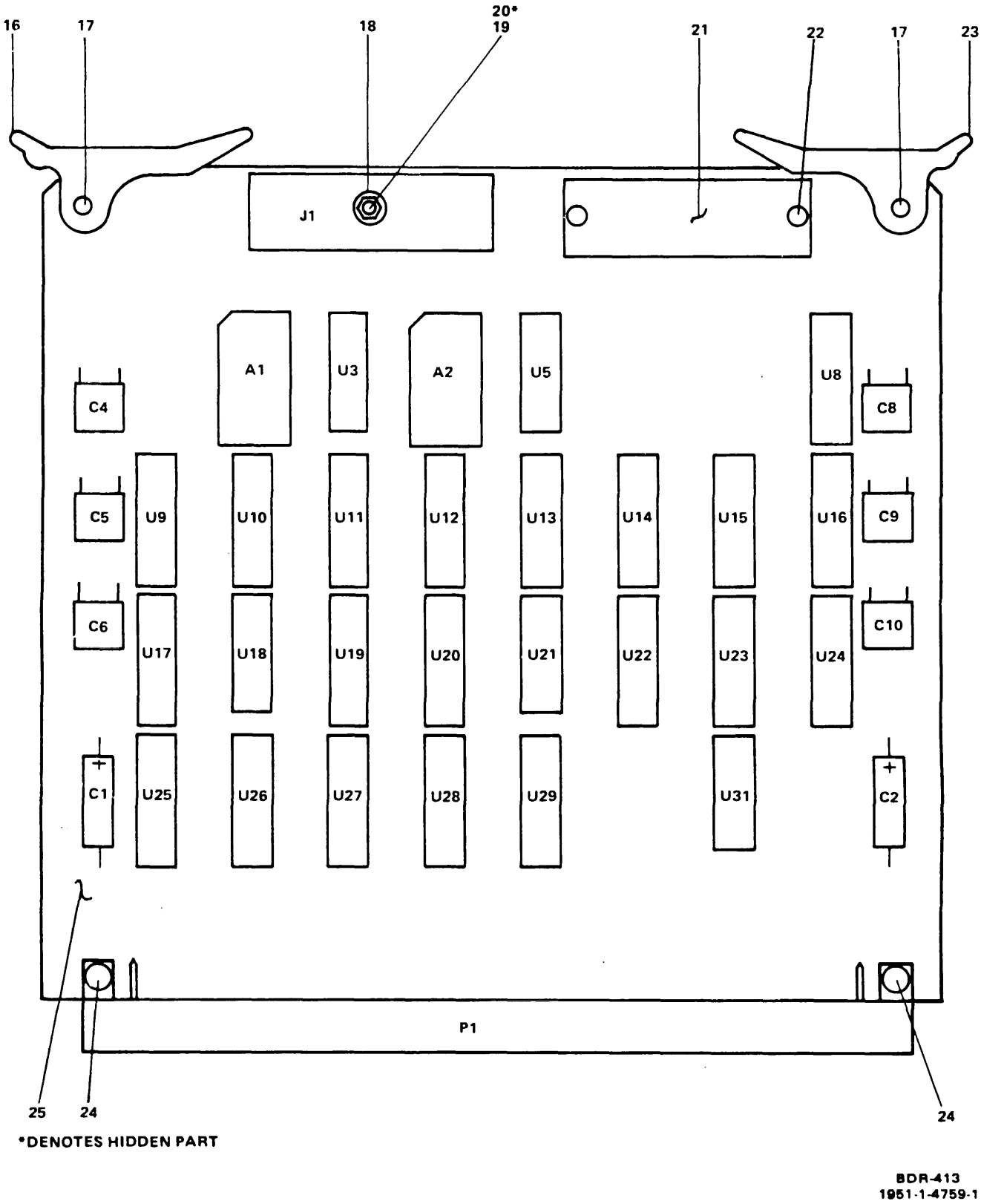


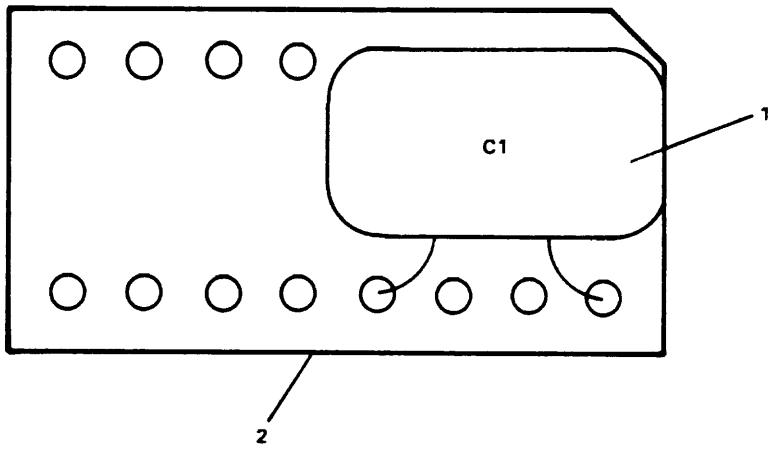
Figure C-5. Display Storage CCA A3 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
A1	1										
A2	2										
C1	3										
C2	3										
C4	4										
C5	4										
C6	4										
C8	4										
C9	4										
C10	4										
J1	5										
P1	6										
U3	7										
U5	8										
U8	9										
U9	9										
U10	9										
U11	9										
U12	9										
U13	10										
U14	9										
U15	9										
U16	9										
U17	9										
U18	11										
U19	12										
U20	13										
U21	11										
U22	9										
U23	9										
U24	9										
U25	9										
U26	9										
U27	9										
U28	14										
U29	15										
U31	8										

Figure C-5. Display Storage CCA A3 (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-6	1	PAFZZ		CMRO6F431JODP	81349	CAP, FXD, MICA	EA	1
C-6	2	XBFZZ		702-3728-01-03-00	71279	SKT, ELEC CNPNT	EA	1



BDR-410
1951-1-3271-1

Figure C-6. Display Storage Capacitor A3A1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-7	1	PAFZZ	5905-00-568-7509	RCR05G392JP	81349	RES, FXD, CMPSN	EA	1
C-7	2	PAFZZ	5905-00-568-7228	RCR05G102JP	81349	RES, FXD, CMPSN	EA	1
C-7	3	PAFZZ	5910-00-010-8717	P39014-01-1513	81349	CAP, FXD, CER	EA	1
C-7	4	PAFZZ	5905-00-028-9379	RCR0SG100JP	81349	RES, FXD, CMP SN	EA	1
C-7	5	XBFZZ		702-3728-01-03-0	71279	SKT, ELEC CMPNT	EA	1

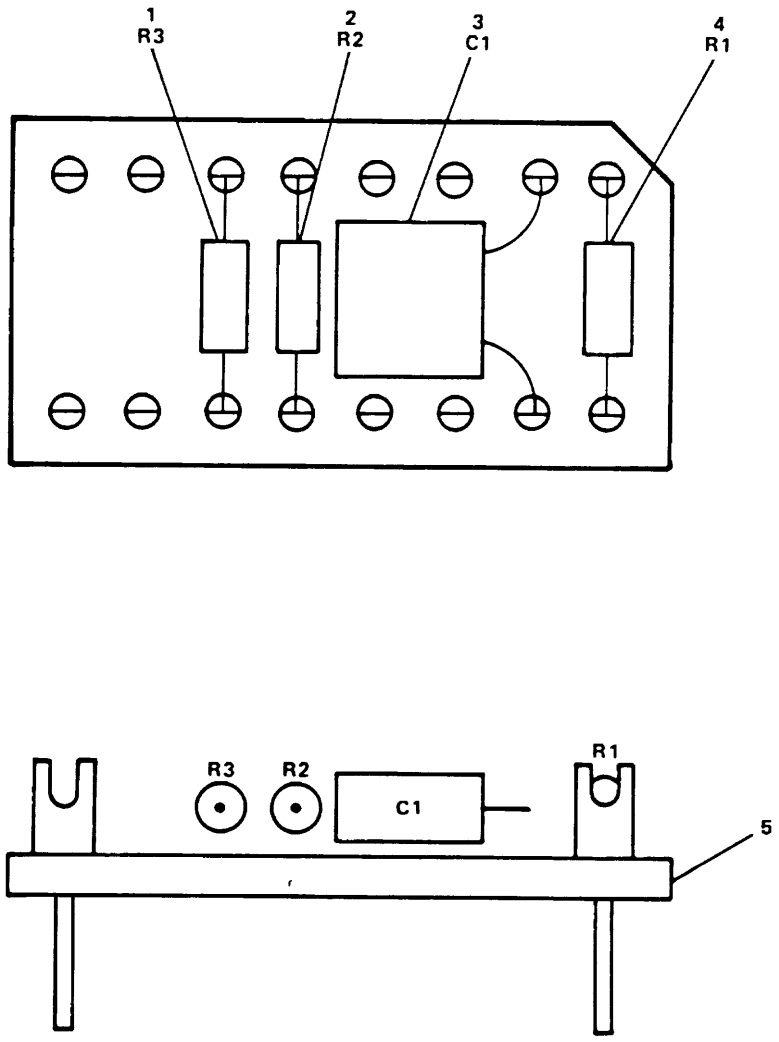


Figure C-7. Display Storage Resistor A3A2

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0104 - DIAGNOSTIC BUFFER CCA A4		
C-8	1	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP, FXD, ELCTLT	EA	2
C-8	2	PAFZZ	5910-00-010-8717	M39014-01-1513	81349	CAP, FXD, CER	EA	4
C-8	3	PAFZZ	5535-00-851-2451	TP8-8	81312	ADAPTER, CONN	EA	1
C-8	4	PAFZZ		M1001-00844DH	31413	CONN, PLUG, ELEC (SEE FIG 3)	EA	1
C-8	5	PAFZZ		M83401-02M102JB	81349	RESISTOR NTWK	EA	1
C-8	6	PAFZZ	5962-00-341-0544	M38510-00105BCB	81349	MICROCKT, DGTL	EA	3
C-8	7	PAFZZ	5962-00-378-0216	M38510-00303BCB	81349	MICROCKT, DGTL	EA	6
C-8	8	PAFZZ		M83401-02M471JB	81349	RESISTOR NTWK	EA	3
C-8	9	PAFZZ		M83401-02M681JB	81349	RESISTOR NTWK	EA	3
C-8	10	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR, CARD	EA	1
C-8	11	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN, SPRING	EA	2
C-8	12	XBFZZ	5310-00-812-4294	NAS671C2	80205	NUT, PLAIN, HEX	EA	1
C-8	13	XBFZZ	5305-00-054-5639	MS51957-5	96906	SCREW, MACHINE	EA	1
C-8	14	XBFZZ	5310-00-595-6761	MS15795-802	96906	WASHER, FLAT	EA	2
C-8	15	XB8ZZ		1951-1-3304-1	15942	PLATE, IDENT	EA	1
C-8	16	XBFZZ	5305-00-253-5603	MS21318-1	96906	SCREW, DRIVE	EA	2
C-8	17	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR, CARD	EA	1
C-8	18	XBFZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET, SOLID	EA	2
C-8	19	XAFZZ		0423-1-3181-2	15942	CONTACT ASSY	EA	1

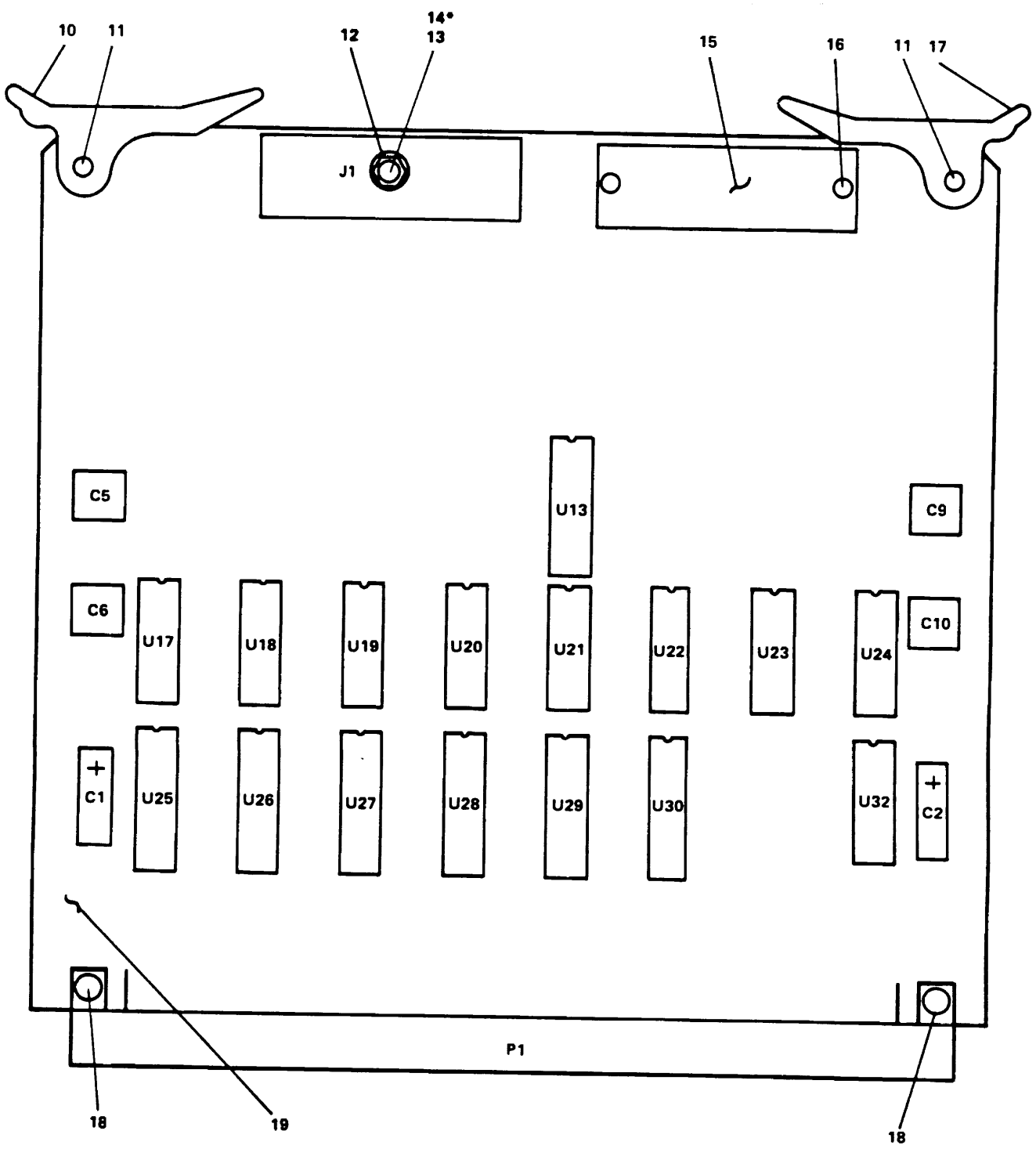


Figure C-8. Diagnostic Buffer CCA A4 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	1										
C2	1										
C3	2										
C6	2										
C9	2										
C10	2										
J1	3										
P1	4										
U13	5										
U17	6										
U18	6										
U19	6										
U20	7										
U21	7										
U22	7										
U23	7										
U24	7										
U25	8										
U26	9										
U27	8										
U28	9										
U29	8										
U30	9										
U32	7										

Figure C-8. Diagnostic Buffer CCA A4 (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0105 - RF PROCESSOR SIMULATOR CCA A5		
C-9	1	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP, FXD, ELCTLT	EA	2
C-9	2	PAFZZ	5910-00-007-2004	M39003-01-2608	81349	CAP, FXD, ELCTLT	EA	2
C-9	3	PAFZZ	5910-00-010-8717	M39014-01-1513	81349	CAP, FXD, CER	EA	12
C-9	4	PAFZZ		CMR03F101J0YP	81349	CAP, FXD, MICA	EA	4
C-9	5	PAFZZ	5910-01-010-6473	M39014-01-1495	81349	CAP, FXD, CER	EA	2
C-9	6	XBFZZ	5935-00-988-6438	450-3422-01-03	71279	JACK, TIP	EA	9
C-9	7	PAFZZ	5935-01-065-4015	M100 1-008448H	31413	CONN, PLUG, ELEC (SEE FIG 3)	EA	I
C-9	8	PAFZZ	5905-00-56e-7826	RCR05G153JP	81349	RES, FXD, CMP SN	EA	2
C-9	9	PAFZZ	5905-00-568-7228	RCR05G102JP	81349	RES FXD, CMP SN	EA	16
C-9	10	PAFZZ	5905-00-461-8987	RNR55C1001FP	81349	RES, FXD, FILM	EA	1
C-9	11	PAFZZ	5962-00-348-2541	M38510-00205BCB	81349	MICROCKT, DGTL	EA	2
C-9	12	PAFZZ	5962-00-318-2223	M38510-00104BCB	81349	MICROCKT, DGTL	EA	1
C-9	13	PAFZZ	5962-00-369-7641	M38510-01306BEB	81349	MICROCKT, DGTL	EA	4
C-9	14	PAFZZ		DS7830AJ883B	81349	MICROCKT, DGTL	EA	2
C-9	15	PAFZZ		S54165F883B	18324	MICROCKT, DGTL	EA	3
C-9	16	PAFZZ	5962-00-341-0544	K38510-001058CB	81349	MICROCKT, DGTL	EA	1
C-9	17	PAFZZ	5962-01-046-0469	SNC54L157J	01295	MICROCKT, DGTL	EA	2
C-9	18	PAFZZ	5962-01-060-0006	MN3001HB	50507	MICROCKT, DGTL	EA	1
C-9	19	PAFZZ	5962-00-264-3566	DS7820AJ883B	27014	MICROCKT, LIN	EA	2
C-9	20	PAFZZ	5962-00-173-9776	M38510-00903BCB	81349	MICROCKT, DGTL	EA	3
C-9	21	PAFZZ	5962-01-037-4471	LM124D883B	27014	MICROCKT, LIN	EA	1
C-9	22	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR, CARD	EA	1
C-9	23	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN, SPRING	EA	2
C-9	24	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR, CARD	EA	1
C-9	25	XAFZZ		1951-1-4344-1	15942	PRINTED WRG BD	EA	1
C-9	26	XBFZZ	5320-00-243-8357	MS20470A02-5	96906	RIVET, SOLID	EA	2

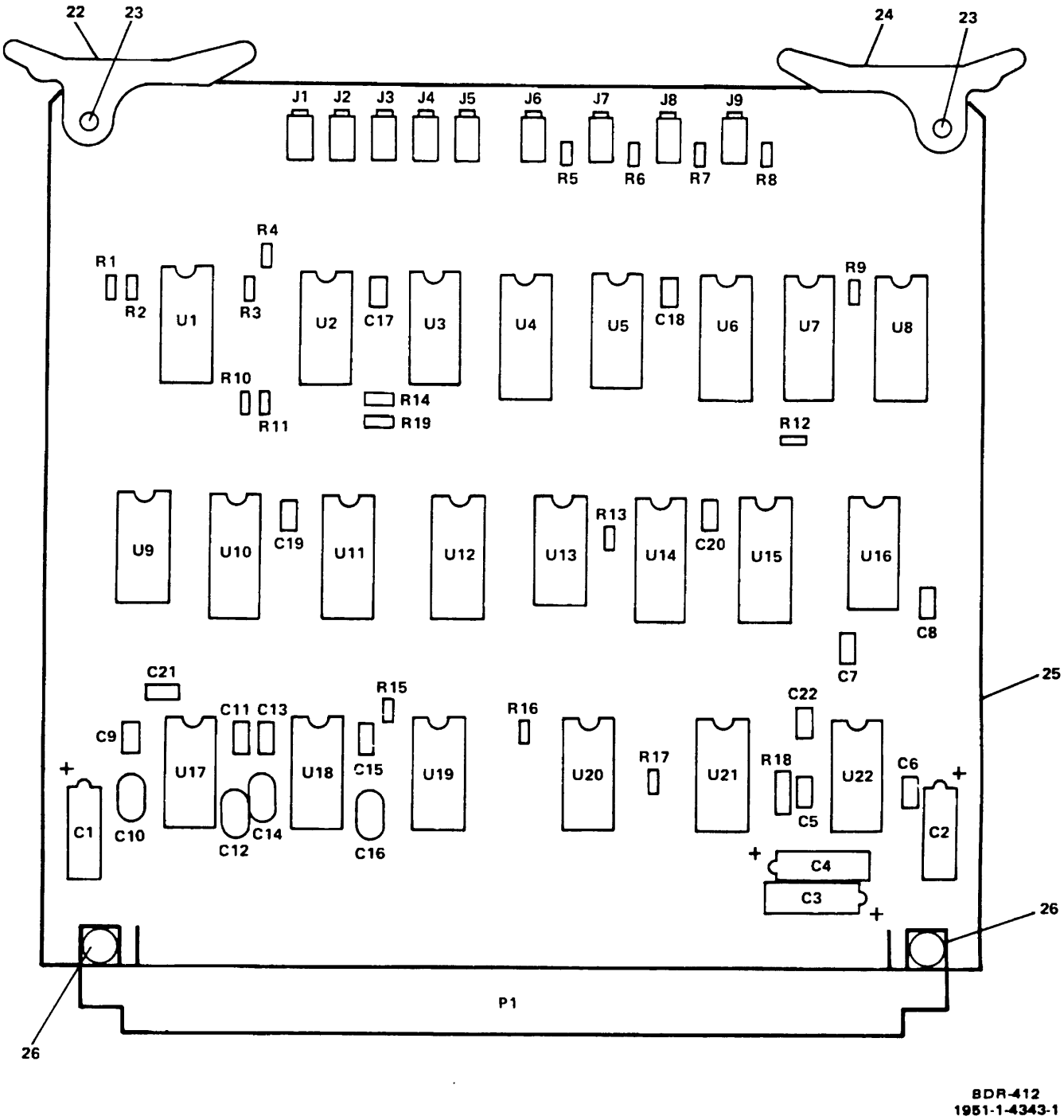


Figure C-9. RF Processor Simulator CCA A5 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	1	R15	9								
C2	1	R16	9								
C3	2	R17	9								
C4	2	R18	10								
C5	3	R19	9								
C6	3	U1	11								
C7	3	U2	12								
C8	3	U3	11								
C9	3	U4	13								
C10	4	U5	14								
C11	3	U6	15								
C12	4	U7	15								
C13	5	U8	15								
C14	4	U9	16								
C15	5	U10	13								
C16	4	U11	13								
C17	3	U12	13								
C18	3	U13	14								
C19	3	U14	17								
C20	3	U15	17								
C21	3	U16	18								
C22	3	U17	19								
J1	6	U18	19								
J2	6	U19	20								
J3	6	U20	20								
J4	6	U21	20								
J5	6	U22	21								
J6	6										
J7	6										
J8	6										
J9	6										
P1	7										
R1	8										
R2	8										
R3	9										
R4	9										
R5	9										
R6	9										
R7	9										
R8	9										
R9	9										
R10	9										
R11	9										
R12	9										
R13	9										
R14	9										

Figure C-9. RF Processor Simulator CCA A5 (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0106 - SERIAL INTERFACE TEST CCA A6		
C-10	1	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP, FXD, ELCTLT	EA	2
C-10	2	PAFZZ	5910-00-010-8717	N39014-01-1513	81349	CAP, FXD, CER	EA	6
C-10	3	PAFZZ		CMR04F201JPDP	81349	CAP, FXC, MICA	EA	1
C-10	4	PAFZZ	5910-00-113-5475	M39003-01-2526	81349	CAP, FXD, ELCTLT	EA	I
C-10	5	XBFZZ	5935-00-988-6438	450-3422-01-03	71279	JACK,TIP	EA	9
C-10	6	PAFZZ	5935-01-064-8355	M1001-00844FF	31413	CONN.PLUG.ELEC (SEE FIG 3)	EA	1
C-10	7	XBFZZ	5320-00-243-8357	PS520470A02-5	96906	RIVET,SOLID	EA	2
C-10	8	PAFZZ	5905-00-568-7228	RCR05G102JP	81349	RES, FXD, CMP SN	EA	2
C-10	9	PAFZZ	5905-00-568-7504	RCR05G302JP	81349	RES, FXD, CMP SN	EA	7
C-10	10	PAFZZ	5905-00-141-1855	RCR07G100JP	81349	RES, FXD, CMP SN	EA	3
C-10	11	PAFZZ	5905-00-131-9729	RCR07G302JP	81349	RES, FXD, CMP SN	EA	I
C-10	12	PAFZZ	5905-00-110-7620	RCR07G102JP	81349	RES, FXD, CMP SN	EA	9
C-10	13	PAFZZ	5905-00-568-7472	RCR05G202JP	81349	RES, FXD, CMP SN	EA	1
C-10	14	PAFZZ		RCR07G180JP	81349	RES, FXD, CMP SN	EA	2
C-10	15	PAFZZ		RCR07G470JP	81349	RES, FXD, CMP SN	EA	4
C-10	16	PAFZZ	5905-00-141-2002	RCR07G301JP	81349	RES, FXD, CMP SN	EA	2
C-10	17	PAFZZ	5905-00-141-1888	RCR07G201JP	81349	RES, FXD, CMP SN	EA	2
C-10	18	PAFZZ	5905-00-141-1895	RCR07G241JP	81349	RES, FXD, CMP SN	EA	2
C-10	19	PAFZZ		RCR07G391JP	81349	RES, FXD, CMP SN	EA	1
C-10	20	PAFZZ	5962-01-028-6125	SNC54LS86J	01295	MICROCK T, DGTL	EA	1
C-10	21	PAFZZ	5962-00-390-7970	K38510-020058C8	81349	MICROCK T, DGTL	EA	1
C-10	22	PAFZZ		DM76L76J883B	27014	MICROCK T, DGTL	EA	1
C-10	23	PAFZZ	5962-00-390-7958	138510-02004BCB	81349	MICROCK T, DGTL	EA	1
C-10	24	PAFZZ	5962-00-542-9418	108510-10403BEB	81349	MICROCK T, DGTL	EA	2
C-10	25	PAFZZ	5962-00-584-3996	M38510-10404BEB	81349	MICROCK T, DGTL	EA	2
C-10	26	PAFZZ	5962-00-369-7606	M38510-02105BCB	81349	MICROCK T, DGTL	EA	1
C-10	27	PAFZZ	5962-01-008-9563	MC4324BCBS	04713	MICROCK T, DGTL	EA	1
C-10	28	PAFZZ	5962-01-016-2691	SNC54LS253J	01295	MICROCK T, DGTL	EA	1
C-10	29	PAFZZ		SNC54LS295J	01295	MICROCK T, DGTL	EA	4
C-10	30	PAFZZ	5962-01-037-6785	DM54L165AJ8838	27014	MICROCK T, DGTL	EA	2
C-10	31	PAFZZ	5962-01-009-6125	SNC54120J	01295	MICROCK T, DGTL	EA	1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-10	32	PAFZZ		M83401-02M202JB	81349	RESISTOR NTWK	EA	1
C-10	33	XAFZZ		12-126363-1	28815	PRINTED WRG BD	EA	1
C-10	34	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR,CARD	EA	1
C-10	35	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN, SPRING	EA	2
C-10	36	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR, CART	EA	1

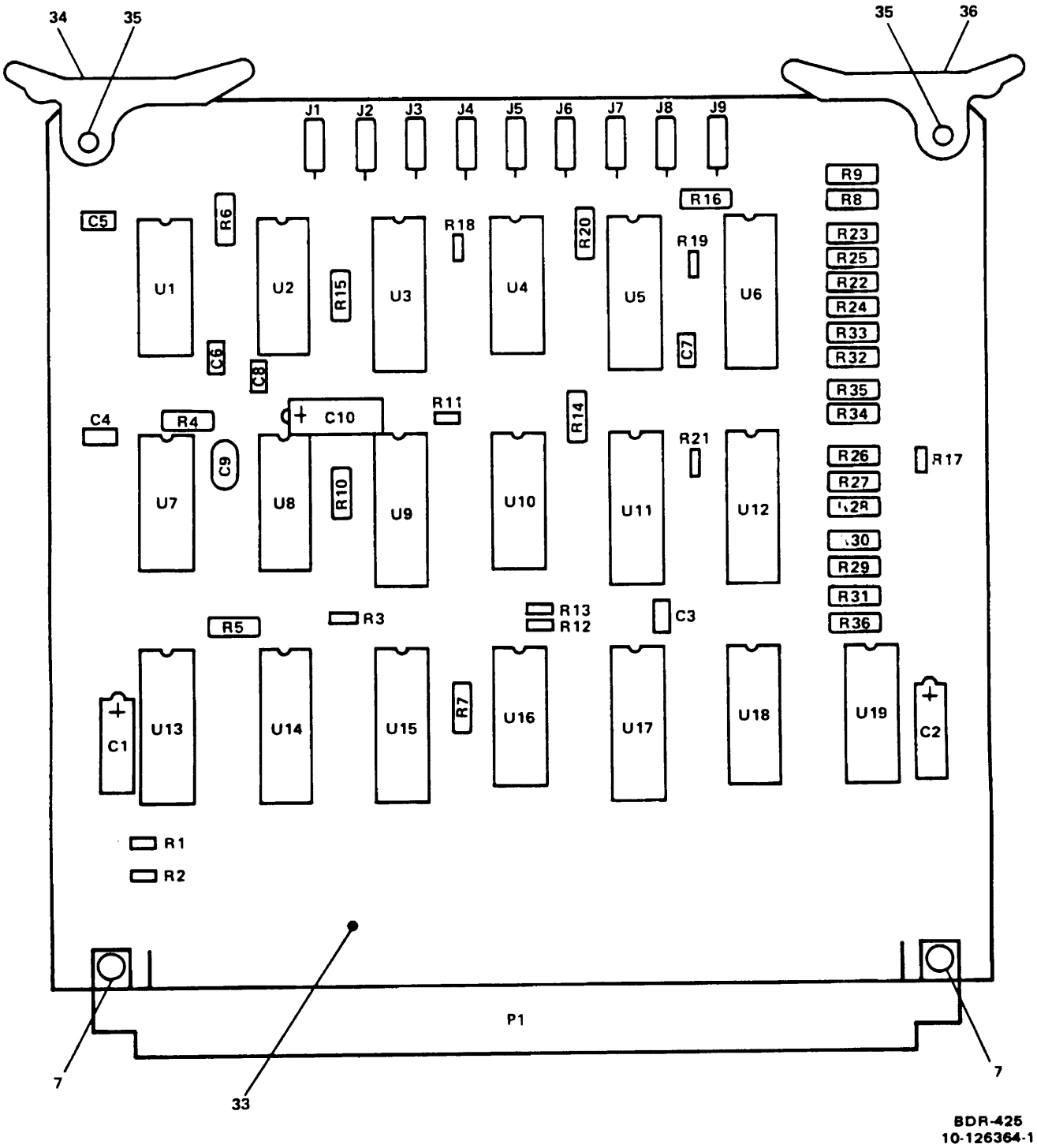


Figure C-10. Serial Interface Test CCA A6 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	1	R26	15								
C2	1	R27	15								
C3	2	R28	16								
C4	2	R29	15								
C5	2	R30	15								
C6	2	R31	16								
C7	2	R32	17								
C8	2	R33	17								
C9	3	R34	18								
C10	4	R35	18								
J1	5	R36	19								
J2	5	U1	20								
J3	5	U2	21								
J4	5	U3	22								
J5	5	U4	23								
J6	5	U5	24								
J7	5	U6	25								
J8	5	U7	26								
J9	5	U8	27								
P1	6	U9	28								
R1	8	U10	29								
R2	8	U11	24								
R3	9	U12	25								
R4	10	U13	30								
R5	11	U14	30								
R6	12	U15	31								
R7	12	U16	29								
R8	12	U17	32								
R9	12	U18	29								
R10	12	U19	29								
R11	9										
R12	9										
R13	9										
R14	12										
R15	12										
R16	12										
R17	13										
R18	9										
R19	9										
R20	12										
R21	9										
R22	10										
R23	14										
R24	10										
R25	14										

Figure C-10. Serial Interface Test CCA A6 (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0107 - LOGIC CONTROL CCA A7		
C-11	1	PAFZZ	5910-00-010-8717	K39014-01-1513	81349	CAP, FXD,CER	EA	10
C-11	2	PAFZZ	5910-01-010-6473	M39014-01-1495	81349	CAP, FXD, CER	EA	3
C-11	3	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP, FXD CELCTLT	EA	1
C-11	4	XBFZZ	5935-00-988-6438	450-3422-01-03	71279	JACK, TIP	EA	7
C-11	5	PAFZZ	5935-01-076-4498	M1001-00844BC	31413	CONN, PLUG,ELEC (SEE FIG 31	EA	1
C-11	6	PAFZZ		RCR07G222JP	81349	RES, FXD, CMP SN	EA	6
C-11	7	PAFZZ	5905-00-997-2192	RCR07G202JP	81349	RES, FXD, CMP SN	EA	7
C-11	8	PAFZZ	5905-00-131-9729	RCR07G302JP	81349	RES, FXD, CMP SN	EA	1
C-11	9	PAFZZ	5962-01-015-5994	SNC54LS74J	01295	NICROCKT, DGTL	EA	2
C-11	10	PAFZZ	5962-01-037-6785	DM54L165AJ883B	27014	MICROCKT, DGTL	EA	4
C-11	11	PAFZZ	5962-00-542-9418	M38510-10403BEB	81349	MICROCKT, DGTL	EA	1
C-11	12	PAFZZ		M38510-54279BEB	18324	MICROCKT, DGTL	EA	1
C-11	13	PAFZZ	5962-00-584-3996	M38510-10404BEB	81349	MICROCKT, DGTL	EA	2
C-11	14	PAFZZ		M83401-02N332JB	81349	RESISTOR NTWK	EA	2
C-11	15	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR, CARD	EA	1
C-11	16	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN, SPRING	EA	2
C-11	17	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR, CARD	EA	1
C-11	18	XAFZZ		1951-1-4578-1	15942	PRINTED WRG BD	EA	1
C-11	19	XBFZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET, SOLID	EA	2

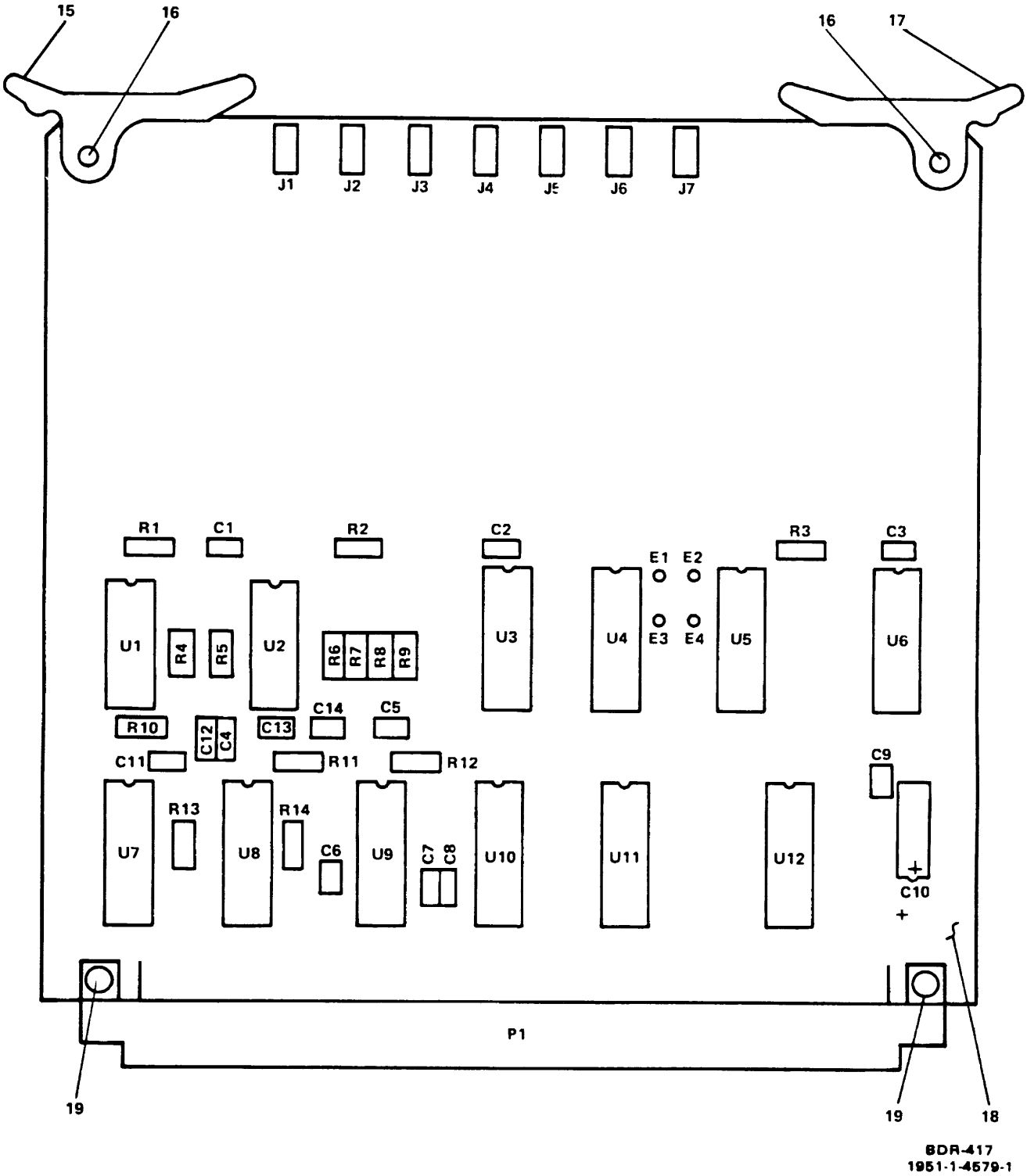


Figure C-11. Logic Control CCA A7 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	1	U10	13								
C2	1	U11	14								
C3	1	U12	14								
C4	1										
C5	1										
C6	2										
C7	2										
C8	2										
C9	1										
C10	3										
C11	1										
C12	1										
C13	1										
C14	1										
J1	4										
J2	4										
J3	4										
J4	4										
J5	4										
J6	4										
J7	4										
P1	5										
R1	6										
R2	7										
R3	6										
R4	7										
R5	8										
R6	6										
R7	6										
R8	6										
R9	6										
R10	7										
R11	7										
R12	7										
R13	7										
R14	7										
U1	9										
U2	9										
U3	10										
U4	10										
U5	10										
U6	10										
U7	11										
U8	12										
U9	13										

Figure C-11. Logic Control CCA A7 (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0108 - LAMP DRIVER CCA A8		
C-12	1	PAFZZ	5910-00-010-8717	M39014-01-1513	81349	CAP, FXD, CER	EA	4
C-12	2	PAFZZ	5910-01-010-6473	K39014-01-1495	81349	CAP, FXD, CER	EA	4
C-12	3	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP, FXD, ELCTLT	EA	1
C-12	4	XBFZZ	5935-00-988-6438	450-3422-01-03	71279	JACK, TIP	EA	4
C-12	5	PAFZZ		M1001-00844DA	13413	CONN, PLUG, ELEC (SEE FIG 31	EA	1
C- 12	6	PAFZZ		17-123787-9	28815	TRANSISTOR	EA	18
C-12	7	PAFZZ	5905-00-997-2192	RCR07G202JP	81349	RES, FXD, CMP SN	EA	5
C-12	e	PAFZZ	5905-00-131-9729	PCR07G302JP	81349	RES, FXD, CMP SN	EA	19
C-12	9	PAFZZ	5905-00-111-1679	RCR07G512JP	81349	RES, FXD, CMP SN	EA	18
C-12	10	PAFZZ	5905-00-106-3666	RCR07G103JP	81349	RES, FXD, CMP SN	EA	18
C-12	11	PAFZZ	5962-00-584-3996	M38510-10404BEB	81349	MICROCKT, DGTL	EA	2
C-12	12	PAFZZ	5S62-01-028-6126	SNC54LS174J	01295	MICROCKT, DGTL	EA	3
C-12	13	PAFZZ	5962-00-173-9776	M38510-00903BCB	81349	MICROCKT, DGTL	EA	2
C-12	14	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR, CARD	EA	1
C-12	15	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN, SPRING	EA	2
C-12	16	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR, CARD	EA	1
C-12	17	XAFZZ		1951-1-4581-1	15942	PRINTED WRG BD	EA	1
C-12	18	XBFZZ	5320-00-243-8357	PS20470AD2-5	96906	RIVET, SOLID	EA	2

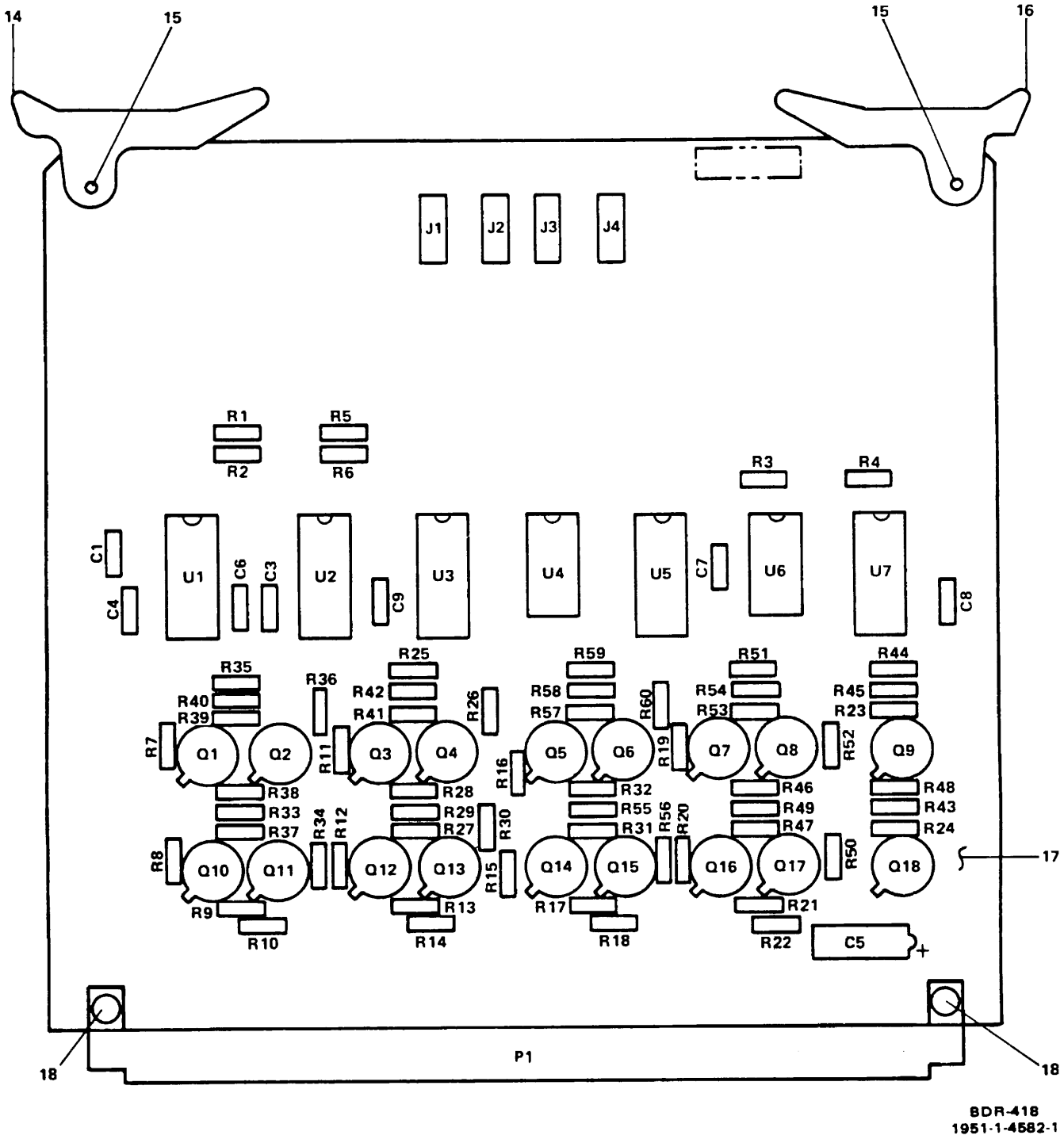


Figure C-12. Lamp Driver CCA A8 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	1	R14	8	R59	9						
C2	1	R15	8	R60	10						
C3	2	R16	8	U1	11						
C4	2	R17	8	U2	11						
C5	3	R18	8	U3	12						
C6	2	R19	8	U4	13						
C7	1	R20	8	U5	12						
C8	1	R21	8	U6	13						
C9	2	R22	8	U7	12						
J1	4	R23	8								
J2	4	R24	8								
J3	4	R25	9								
J4	4	R26	10								
P1	5	R27	9								
Q1	6	R28	10								
Q2	6	R29	9								
Q3	6	R30	10								
Q4	6	R31	9								
Q5	6	R32	10								
Q6	6	R33	9								
Q7	6	R34	10								
Q8	6	R35	9								
Q9	6	R36	10								
Q10	6	R37	9								
Q11	6	R38	10								
Q12	6	R39	9								
Q13	6	R40	10								
Q14	6	R41	9								
Q15	6	R42	10								
Q16	6	R43	9								
Q17	6	R44	10								
Q18	6	R45	9								
R1	7	R46	10								
R2	7	R47	9								
R3	7	R48	10								
R4	8	R49	9								
R5	7	R50	10								
R6	7	R51	9								
R7	8	R52	10								
R8	8	R53	9								
R9	8	R54	10								
R10	8	R55	9								
R11	8	R56	10								
R12	8	R57	9								
R13	8	R58	10								

Figure C-12. Lamp Driver CCA A8 (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0109 - CONTROL INDICATOR TEST CCA A9		
C-13	1	PAFZZ	5910-00-010-8717	M39014-01-1513	81349	CAP, FXD, CER	EA	11
C-13	2	PAFZZ	5910-01-010-6473	M39014-01-1495	81349	CAP, FXD, CER	EA	3
C-13	3	PAFZZ		CMR03F391J0YP	81349	CAP, FXD, MICA	EA	2
C-13	4	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP, FXD, ELCTLT	EA	1
C-13	5	XBFZZ	5935-00-988-6438	450-3422-01-03	71279	JACK, TIP	EA	11
C-13	6	PAFZZ		M1001-0084400	31413	CONN, PLUG, ELEC (SEE FIG 31	EA	1
C-13	7	XBFZZ	5320-00-243-8357	MS20470A02-5	96906	RIVET, SOLID	FA	2
C-13	8	PAFZZ	5905-00-110-7620	RCR07G102JP	81349	RES, FXD, CMP SN	EA	9
C-13	9	PAFZZ	5905-00-141-2002	RCR07G301JP	81349	RES, FXD, CMP SN	EA	1
C-13	10	PAFZZ	5905-00-110-0388	RCR07G104JP	81349	RES, FXD, CMP SN	EA	2
C-13	11	PAFZZ	5962-00-550-9024	SNC54S260J	01295	MICROCKT, DGTL	EA	1
C-13	12	PAFZZ	5962-00-173-9776	M38510-00903BCB	81349	MICROCKT, DGTL	EA	4
C-13	13	PAFZZ	5962-01-046-0469	SNC54L157J	01295	MICROCKT, DGTL	EA	3
C-13	14	PAFZZ	5962-01-028-6123	SNC54LS257J	01295	NICROCKT, DGTL	EA	2
C-13	15	PAFZZ	5962-01-015-5987	SNC54LS138J	01295	MICROCKT, DGTL	EA	2
C-13	16	PAFZZ	5962-01-037-6785	DM54L165AJ883B	27014	MICROCKT, DGTL	EA	2
C-13	17	PAFZZ	5962-00-390-7970	M38510-02005BCB	81349	MICROCKT, DGTL	EA	2
C-13	18	PAFZZ	5962-00-396-2262	M38510-02003BCB	81349	MICROCKT, DGTL	EA	2
C-13	19	PAFZZ	5962-00-390-8013	M38510-02002BCB	81349	MICROCKT, DGTL	EA	1
C-13	20	PAFZZ	5962-00-542-9418	M38510-10403 BEB	81349	MICROCKT, DGTL	EA	3
C-13	21	PAFZZ		AM93L16DMB	34335	MICROCKT, DGTL	EA	2
C-13	22	PAFZZ		M38510-54LS08BCB	18324	MICROCKT, DGTL	EA	1
C-13	23	PAFZZ	5962-01-016-2691	SNC54LS253J	01295	MICROCKT, DGTL	EA	3
C-13	24	PAFZZ	5905-01-072-3830	M8340101M4701JA	81349	RES NTWK, FXD FILM	EA	1
C-13	25	PAFZZ	5962-01-028-6124	SNC54LS112J	01295	MICROCKT, DGTL	EA	1
C-13	26	PAFZZ	5962-00-369-7606	M38510-02105BCB	81349	MICROCKT, DGTL	EA	1
C- 13	27	PAFZZ	5962-00-318-2223	M38510-00104BCB	81349	MICROCKT, DGTL	EA	1
C- 13	28	PAFZZ	5962-01-028-9756	SE556FB	34335	MICROCKT, LIN	EA	1
C- 13	29	PAFZZ		AM96L02DMB	34335	MICROCKT, DGTL	EA	1
C-13	30	PAFZZ	5962-00-5 e4-3996	N38510-10404eE8	81349	MICROCKT DGTL	EA	1
C-13	31	PAFZZ		M8340101l3301JA	81349	RES NTWK, FXD FILM	EA	1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-13	32	XAFZZ		12-126373-1	28815	PRINTED WRG BD	EA	1
C-13	33	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR, CARD	EA	1
C-13	34	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN, SPRING	EA	2
C-13	35	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR CARD	EA	1

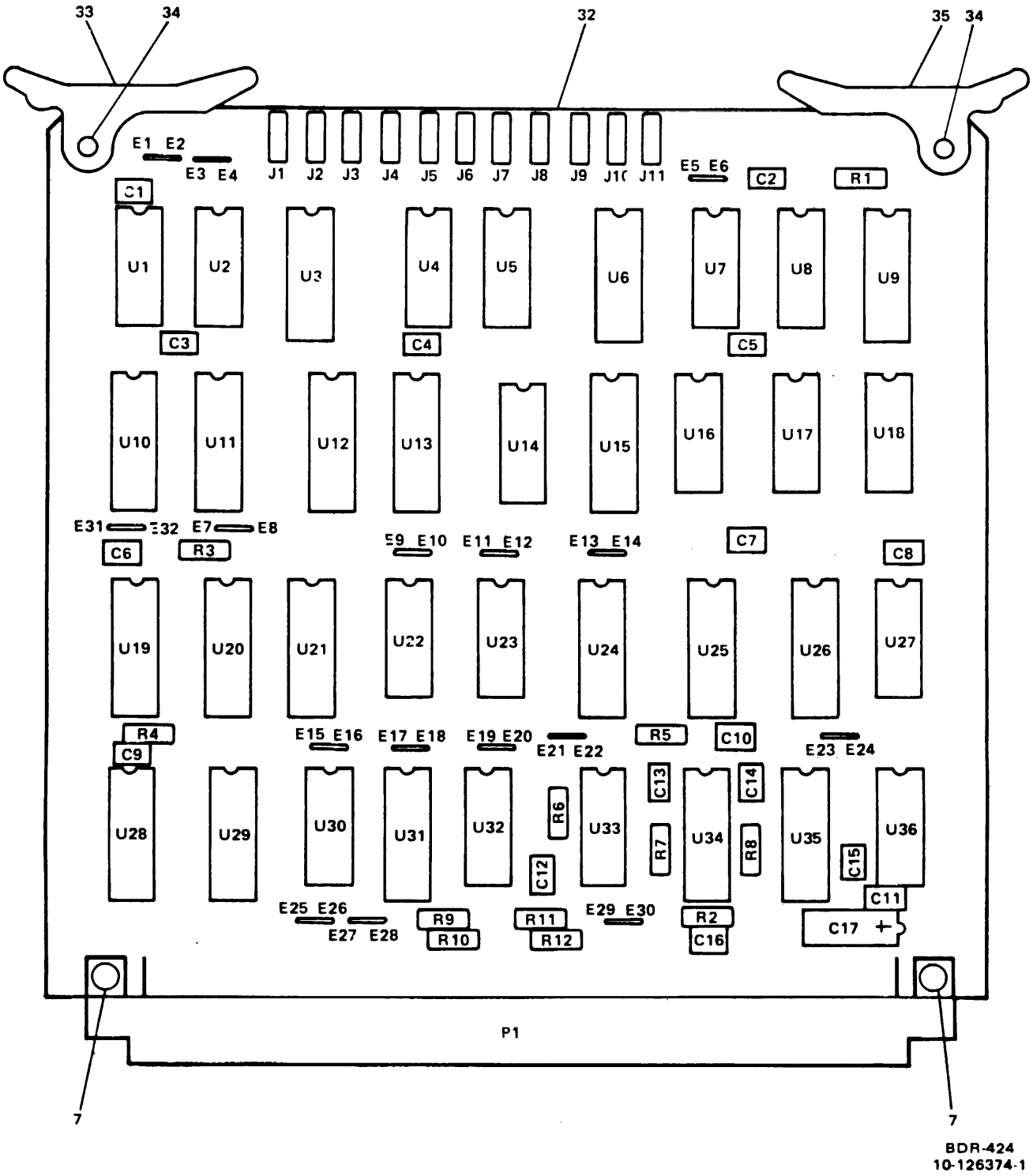


Figure C-13. Control Indicator Test CCA A9 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	1	U5	14								
C2	1	U6	15								
C3	1	U7	12								
C4	1	U8	12								
C5	1	U9	15								
C6	1	U10	13								
C7	1	U11	16								
C8	1	U12	16								
C9	1	U13	14								
C10	1	U14	17								
C11	1	U15	13								
C12	2	U16	18								
C13	3	U17	19								
C14	3	U18	17								
C15	2	U19	20								
C16	2	U20	20								
C17	4	U21	21								
J1	5	U22	22								
J2	5	U23	18								
J3	5	U24	23								
J4	5	U25	23								
J5	5	U26	23								
J6	5	U27	24								
J7	5	U28	20								
J8	5	U29	25								
J9	5	U30	26								
J10	5	U31	21								
J11	5	U32	27								
P1	6	U33	28								
R1	8	U34	29								
R2	8	U35	30								
R3	8	U36	31								
R4	8										
R5	9										
R6	8										
R7	10										
R8	10										
R9	8										
R10	8										
R11	8										
R12	8										
U1	11										
U2	12										
U3	13										
U4	12										

Figure C-13. Control Indicator Test CCA A9 (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0110 - TRANSCEIVER TEST CCA A10		
C-14	1	PAFZZ	5961-00-104-1395	JANTX 1N4148	81349	SCND DVC, DIODE	EA	2
C-14	2	PAFZZ	5910-00-465-9759	M39003-01-2514	81349	CAP, FXD, ELCTLT	EA	2
C-14	3	PAFZZ	5910-00-144-4383	039003-01-2546	81349	CAP, FXD, ELCTLT	EA	4
C-14	4	PAFZZ	5910-00-199-5335	M.39014-01-1273	81349	CAP, FXD, CER	EA	1
C-14	5	PAFZZ	5910-00-010-8717	M39014-01-1513	81349	CAP, FXD, CER	EA	25
C-14	6	PAFZZ		CMR03E300JOYP	81349	CAP,FXD, MICA	EA	2
C-14	7	PAFZZ	5910-00-010-8721	M39014-02-1411	81349	CAP, FXD, CER	EA	1
C-14	8	PAFZZ	5935-00-988-6438	450-3422-01-03	71279	JACK,TIP	EA	8
C-14	9	PAFZZ	5935-01-064-9930	M1001-00844HA	31413	CONN,PLUG,ELEC (SEE FIG 3)	EA	1
C-14	10	PAFZZ	5905-00-141-2003	RCR07G331JP	81349	RES, FXD, CMP SN	EA	3
C-14	11	PAFZZ	5905-00-110-7620	RCRO7G102JP	81349	RES, FXD, CMP SN	EA	10
C-14	12	PAFZZ		RCRT07G432JP	81349	RES, FXD, CMP SN	EA	1
C-14	13	PAFZZ		RCR07C472JP	81349	RES, FXD, CMP SN	EA	1
C-14	14	PAFZZ	5905-00-106-3666	RCR07G103JP	81349	RES, FXD, CMP SN	EA	2
C-14	15	PAFZZ	5905-01-PAB-0392	RNR55C1911FP	81349	RES, FXD, FILM	EA	1
C-14	16	PAFZZ		RNR55C4421FP	81349	RES,FXD,FILM	EA	1
C-14	17	PAFZZ		RNR55C6040FP	81349	RES,FXD, FILM	EA	1
C-14	18	PAFZZ	5905-00-141-1888	RCR07G201JP	81349	RES, FXD, CMP SN	EA	10
C-14	19	PAFZZ	5905-00-890-5637	RCRT7G750JP	81349	RES, FXC, CMP SN	EA	2
C-14	20	PAFZZ	5905-00-141-1869	RCR07G510JP	81349	RES, FXD, CMP SN	EA	1
C-14	21	PAFZZ	5905-00-110-7622	RCR07G682JP	81349	RES, FXD, CMP SN	EA	1
C-14	22	PAFZZ	5905-00-111-1679	RCR07G512JP	81349	RES, FXD, CMP SN	EA	1
C-14	23	PAFZZ	5905-00-419-5258	RNR55C2211FP	81349	RES, FXD, FILM	EA	2
C-14	24	PAFZZ		RCR07G222JP	81349	RES, FXD, CMP SN	EA	1
C-14	25	PAFZZ	5905-00-106-1278	RCR07G123JP	81349	RES, FXD, CMP SN	EA	1
C-14	26	PAFZZ	5905-00-141-2061	RCR07G511JP	81349	RES, FXD, CMP SN	EA	1
C-14	27	PAFZZ	5905-00-131-9729	RCR07G302JP	81349	RES, FXD, CMP SN	EA	1
C-14	28	PAFZZ	5905-00-141-1883	RCR07G121JP	81349	RES, FXD, CMP SN	EA	1
C-14	29	PAFZZ		RCR07G471JP	81349	RES, FXD, CMP SN	EA	1
C-14	30	PAFZZ		RCR07G333JP	81349	RES, FXD, CMP SN	EA	1
C-14	31	PAFZZ		RCR07G683JP	81349	RES, FXD, CMP SN	EA	1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-14	32	PAFZZ	5905-00-997-2192	RCRO7G202JP	81349	RES,FXD,CMP SN	EA	3
C-14	33	PAFZZ	5962-01-015-8535	M38510-00906BEB	81349	MICROCKT, DGTL	EA	3
C-14	34	PAFZZ	5962-00-428-7318	f38510-00403BCB	81349	MICROCKT, DGTL	EA	3
C-14	35	PAFZZ	5962-00-361-8732	M38510-00801BCB	81349	MICROCKT, DGTL	EA	1
C-14	36	PAFZZ	5962-01-028-9756	SE556FB	34335	MICROCKT, LIN	FA	1
C-14	37	PAFZZ	5962-00-318-2223	M38510-00104BCB	81349	MICROCKT, DGTL	EA	1
C-14	38	PAFZZ	5962-00-348-2541	M38510-00205BCB	81349	MICROCKT, DGTL	EA	1
C-14	39	PAFZZ	5962-00-318-2224	M38510-00103BCB	81349	MICROCKT, DGTL	EA	1
C-14	40	PAFZZ		83401-1M20 2J B	81349	RESISTOR NTWK	EA	1
C-14	41	PAFZZ	5962-00-348-2715	38510-00102 BCB	81349	MICROCKT,DGTL	EA	1
C-14	42	PAFZZ	5962-00-361-8648	138510-00701BC8	81349	MICROCKT,DGTL	EA	1
C-14	43	PAFZZ	5962-00-369-9839	N38510-00803BCB	81349	MICROCKT, DGTL	EA	1
C-14	44	PAFZZ	5962-00-131-9460	LM111H8838	27014	MICROCKT, LIN	EA	1
C-14	45	PAFZZ	5962-00-428-7136	138510-10103BGC	81349	MICROCKT, DGTL	EA	2
C-14	46	PAFZZ	5962-00-264-4822	LH0002H883B	27014	MICROCKT, LIN	EA	2
C-14	47	PAFZZ	5961-01-024-2145	JANTX1N4625	81349	SCND DVC.DIODE	EA	2
C-14	48	PAFZZ	5961-00-450-8526	JANTX1N748A	81349	SCND DVC,DIODE	EA	1
C-14	49	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR,CARD	EA	1
C-14	50	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN SPRING	EA	2
C-14	51	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR, CARD	EA	1
C-14	52	XAFZZ		1951-1-4790-1	15942	PRINTED WRG BD	EA	1
C-14	53	XBFZZ	5320-00-243-8357	NS20470A02-5	96906	RIVET,SOLID	EA	2

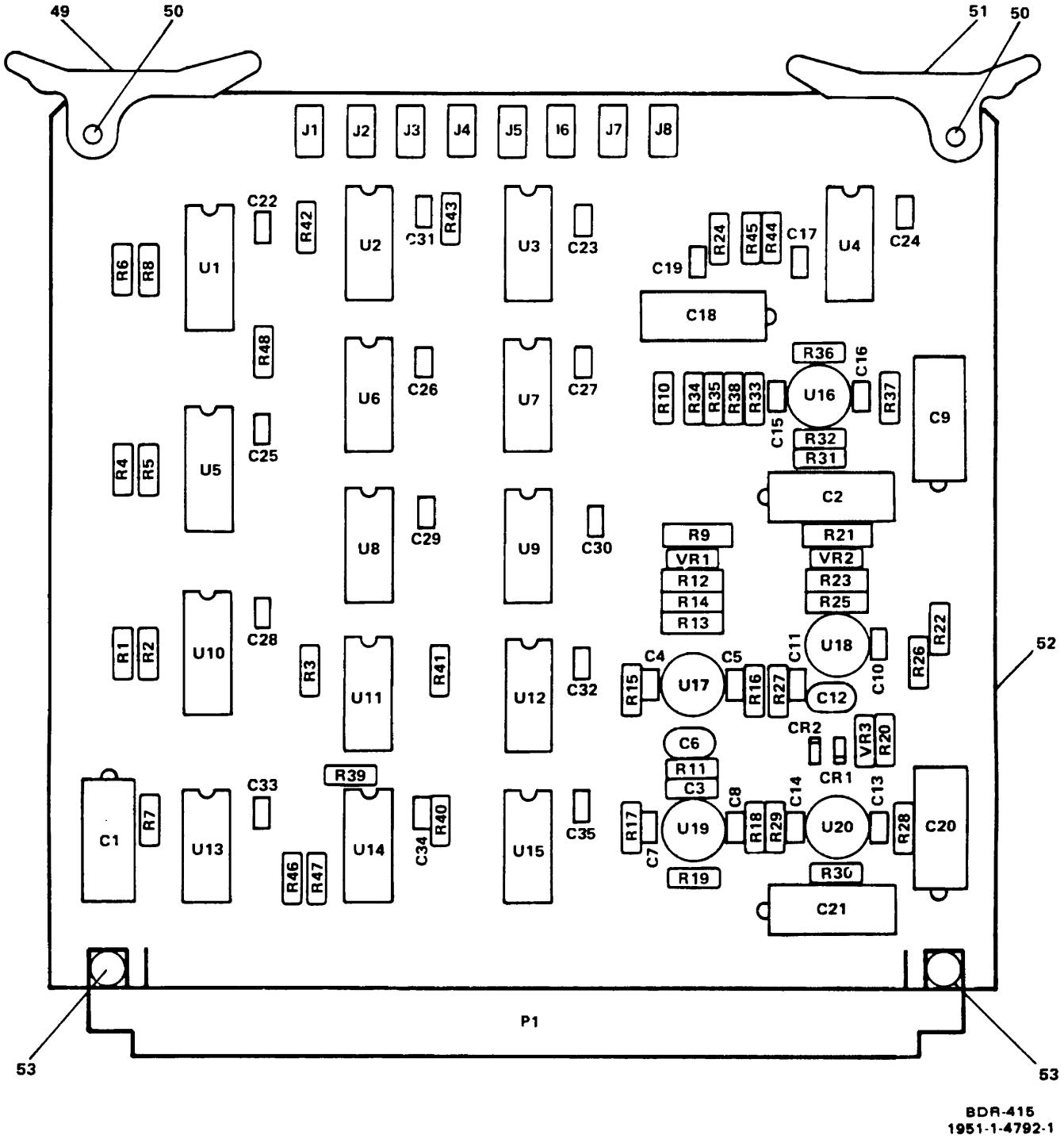


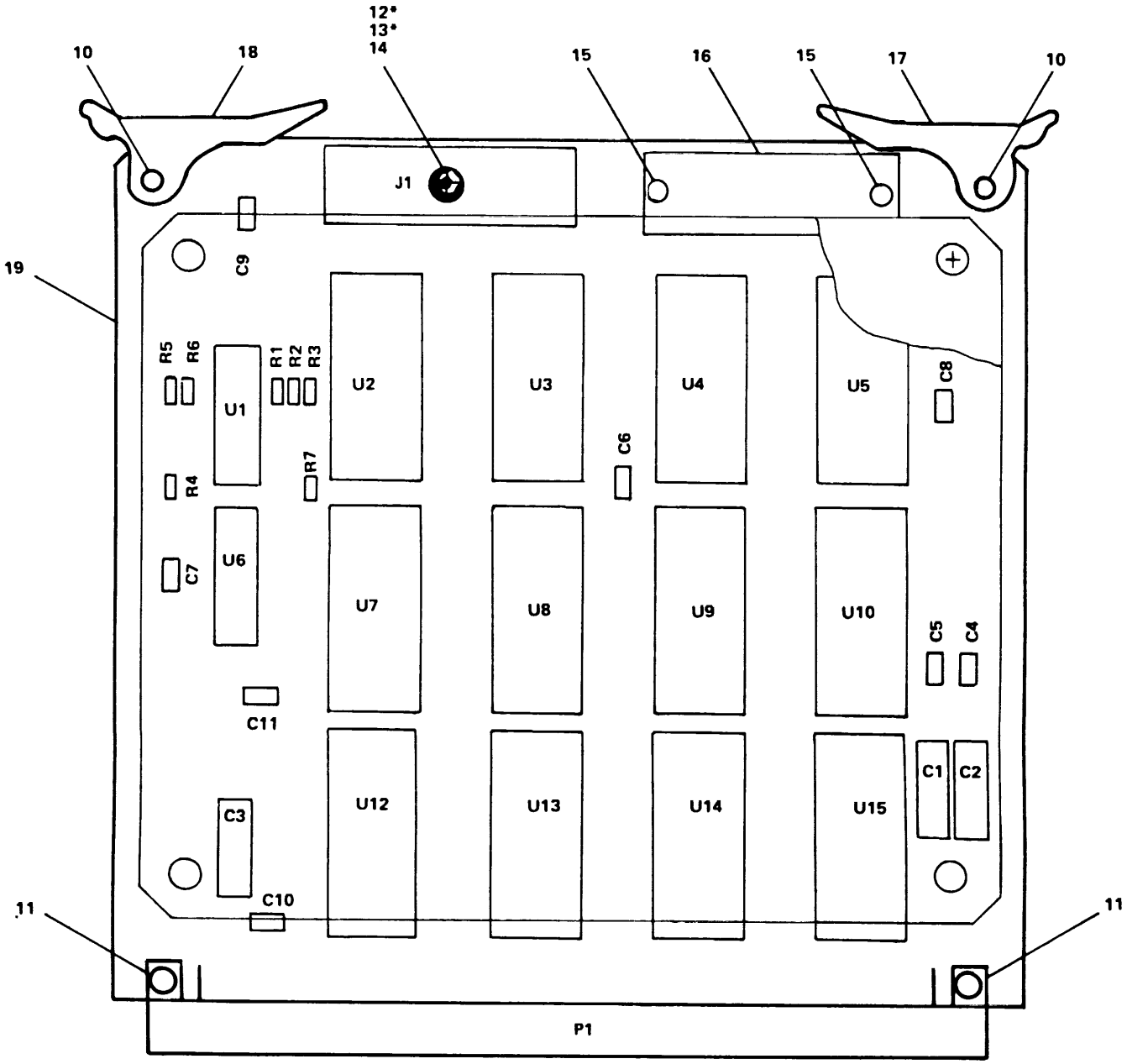
Figure C-14. Transceiver Test CCA A10 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	1	P1	9	R45	31						
CR2	1	R1	10	R46	32						
C1	2	R2	11	R47	32						
C2	3	R3	11	R48	32						
C3	4	R4	10	U1	33						
C4	5	R5	11	U2	34						
C5	5	R6	10	U3	35						
C6	6	R7	11	U4	36						
C7	5	R8	11	U5	33						
C8	5	R9	12	U6	37						
C9	3	R10	13	U7	38						
C10	5	R11	14	U8	39						
C11	5	R12	15	U9	40						
C12	6	R13	16	U10	33						
C13	5	R14	17	U11	34						
C14	5	R15	18	U12	41						
C15	5	R16	18	U13	42						
C16	5	R17	18	U14	34						
C17	5	R18	18	U15	43						
C18	2	R19	19	U16	44						
C19	7	R20	20	U17	45						
C20	3	R21	21	U18	45						
C21	3	R22	22	U19	46						
C22	5	R23	23	U20	46						
C23	5	R24	24	VR1	47						
C24	5	R25	23	VR2	47						
C25	5	R26	18	VR3	48						
C26	5	R27	18								
C27	5	R28	18								
C28	5	R29	18								
C29	5	R30	19								
C30	5	R31	25								
C31	5	R32	26								
C32	5	R33	18								
C33	5	R34	27								
C34	5	R35	28								
C35	5	R36	29								
J1	8	R37	18								
J2	8	R38	14								
J3	8	R39	11								
J4	8	R40	11								
J5	8	R41	11								
J6	8	R42	11								
J7	8	R43	11								
J8	8	R44	30								

Figure C-14. Transceiver Test CCA A10 (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0111 - READ ONLY MEMORY CCA A11		
C-15	1	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP, FXD, ELCTLT	EA	3
C-15	2	PAFZZ	5910-00-010-8717	M39014-01-1513	81349	CAP, FXD, CER	EA	8
C-15	3	PAFZZ	5935-00-851-2451	TP8-8	81312	ADAPTER, CONN	EA	1
C-15	4	PAFZZ		1001-00844EA	31413	CONN, PLUG, ELEC (SEE FIG 3)	EA	1
C-15	5	PAFZZ	5905-00-997-2192	RCR07G202JP	81349	RES, FXD, CMP SN	EA	6
C-15	6	PAFZZ	5905-00-110-7620	RCR07G102JP	81349	RES, FXD, CMP SN	EA	1
C-15	7	PAFZZ	5962-01-039-6396	DM7160J883B	27014	MICROCKT, DGTL	EA	1
C-15	8	PAFZZ	5962-01-043-1614	17-123497-1	28815	MICROCKT, DGTL	EA	12
C-15	9	PAFZZ		138510-54155BEB	18324	MICROCKT, DGTL	EA	1
C-15	10	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN, SPRING	EA	2
C-15	11	XBFZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET, SOLID	EA	2
C-15	12	XBFZZ	5310-00-595-6761	MS15795-802	96906	WASHER, FLAT	EA	6
C-15	13	XBFZZ	5305-00-054-5638	MS51957-4	96906	SCREW, MACHINE	EA	1
C-15	14	XBFZZ	5310-00-812-4294	NAS671C2	80205	NUT, PL AIN, HEX	EA	5
C-15	15	XBFZZ	5305-00-253-5603	MS21318-1	96906	SCREW, DRIVE	EA	2
C-15	16	XBFZZ		12-001006-8	28815	PLATE, IDENT	EA	1
C-15	17	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR, CARD	EA	1
C-15	18	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR, CARD	EA	1
C-15	19	XAFZZ		12-001003-1	28815	PRINTED WRG BD	EA	1
C-15	20	XBFZZ		9162	83330	SPACER, NYLON	EA	4
C-15	21	XBFZZ		NAS662-107	80205	SCREW, MACHINE	EA	4
C-15	22	XBFZZ	5310-00-928-2690	MS35338-134	96906	WASHER, LOCK	EA	4
C-15	23	XPFZZ		12-145410-1	28815	BOARD, LABEL MTG	EA	1
C-15	24	XBFZZ		12-145411-1	28815	LABEL	EA	1



*DENOTES HIDDEN PART

BDR-006A
10-001004-3

Figure C-15. Read Only Memory CCA A11 (Sheet 1 of 3)

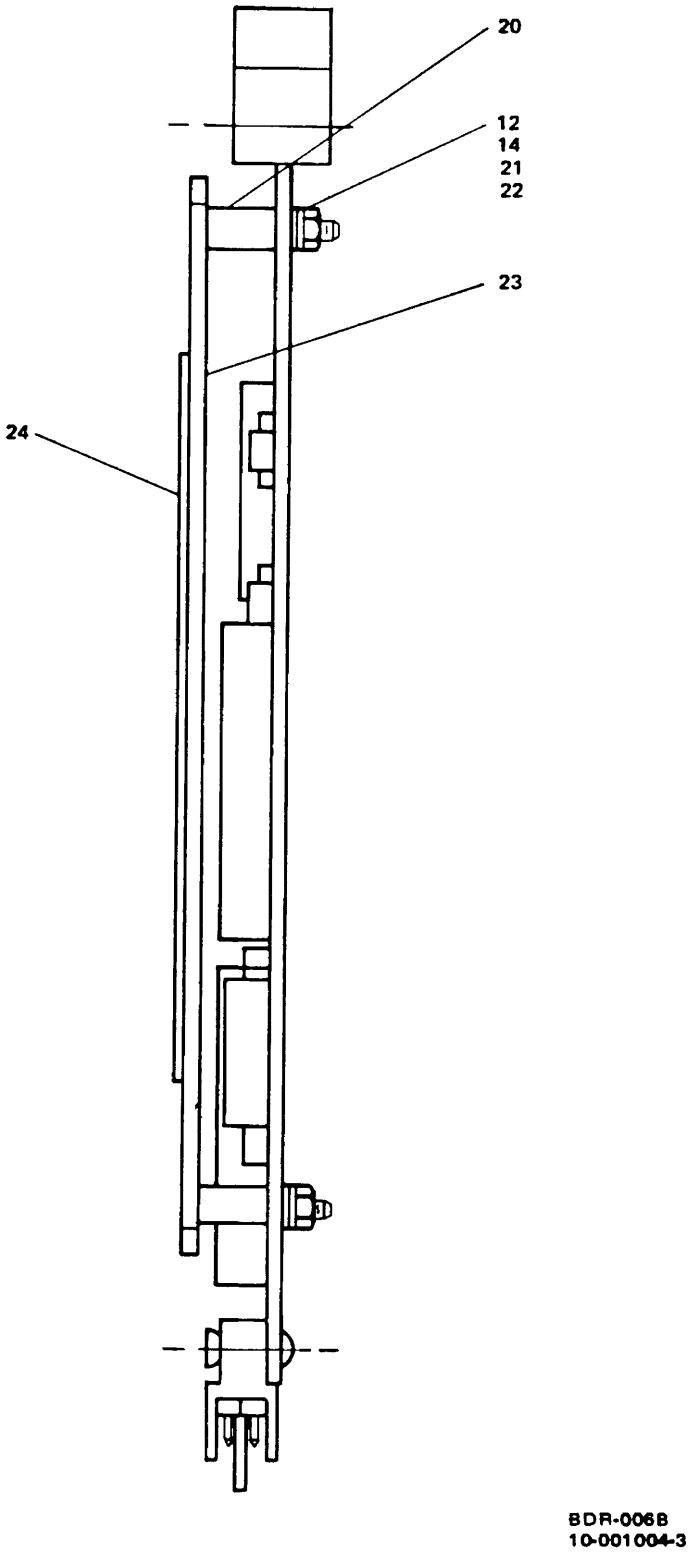


Figure C-15. Read Only Memory CCA A11 (Sheet 2 of 3)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	1										
C2	1										
C3	1										
C4	2										
C5	2										
C6	2										
C7	2										
C8	2										
C9	2										
C10	2										
C11	2										
J1	3										
P1	4										
R1	5										
R2	5										
R3	5										
R4	5										
R5	5										
R6	5										
R7	6										
U1	7										
U2	8										
U3	8										
U4	8										
U5	8										
U6	9										
U7	8										
U8	8										
U9	8										
U10	8										
U12	8										
U13	8										
U14	8										
U15	8										

Figure C-15. Read Only Memory CCA A11 (Sheet 3 of 3)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-16	1	XBFZZ		1951-1-3240-1	15942	SUPPORT, CARD, GD	EA	4
C-16	2	XBFZZ		1951-1-3238-1	15942	BRACKET, MTG	EA	1
C-16	3	XBFZZ	5305-00-054-5648	MS51957-14	96906	SCREW, MACHINE	EA	6
C-16	4	XBFZZ	5310-00-782-1349	MS15795-804	96906	WASHER, FLAT	EA	6
C-16	5	XBFZZ	5310-00-933-8118	MS35338-135	96906	WASHER, LOCK	EA	6
C-16	6	XBFZZ	5999-00-759-0618	1450	23880	GUIDE, CARD	EA	33
C-16	7	XBFZZ	5999-00-406-2054	3000	23880	TAB, LOCKING	EA	62
C-16	8	XBFZZ		1951-1-3335-1	15942	PLATE, MOUNTING	EA	1
C-16	9	XBFZZ	5305-00-066-7325	MS24693C5	96906	SCREW, MACHINE	EA	8
C-16	10	XBFZZ		1951-1-3324-1	15942	PLATE, SIDE	EA	2
C-16	11	XBFZZ	5310-00-208-3786	NAS671C4	80205	NUT , PLAIN, HEX	EA	4
C-16	12	XBFZZ	5999-00-043-1418	1450F	23880	GUIDE, CARD	EA	1
C-16	13	XBFZZ	5305-00-993-9189	MS24693C2	96906	SCREW, MACHINE	EA	2
C-16	14	XBFZZ		1951-1-4709-1	15942	SUPPORT, END	EA	1

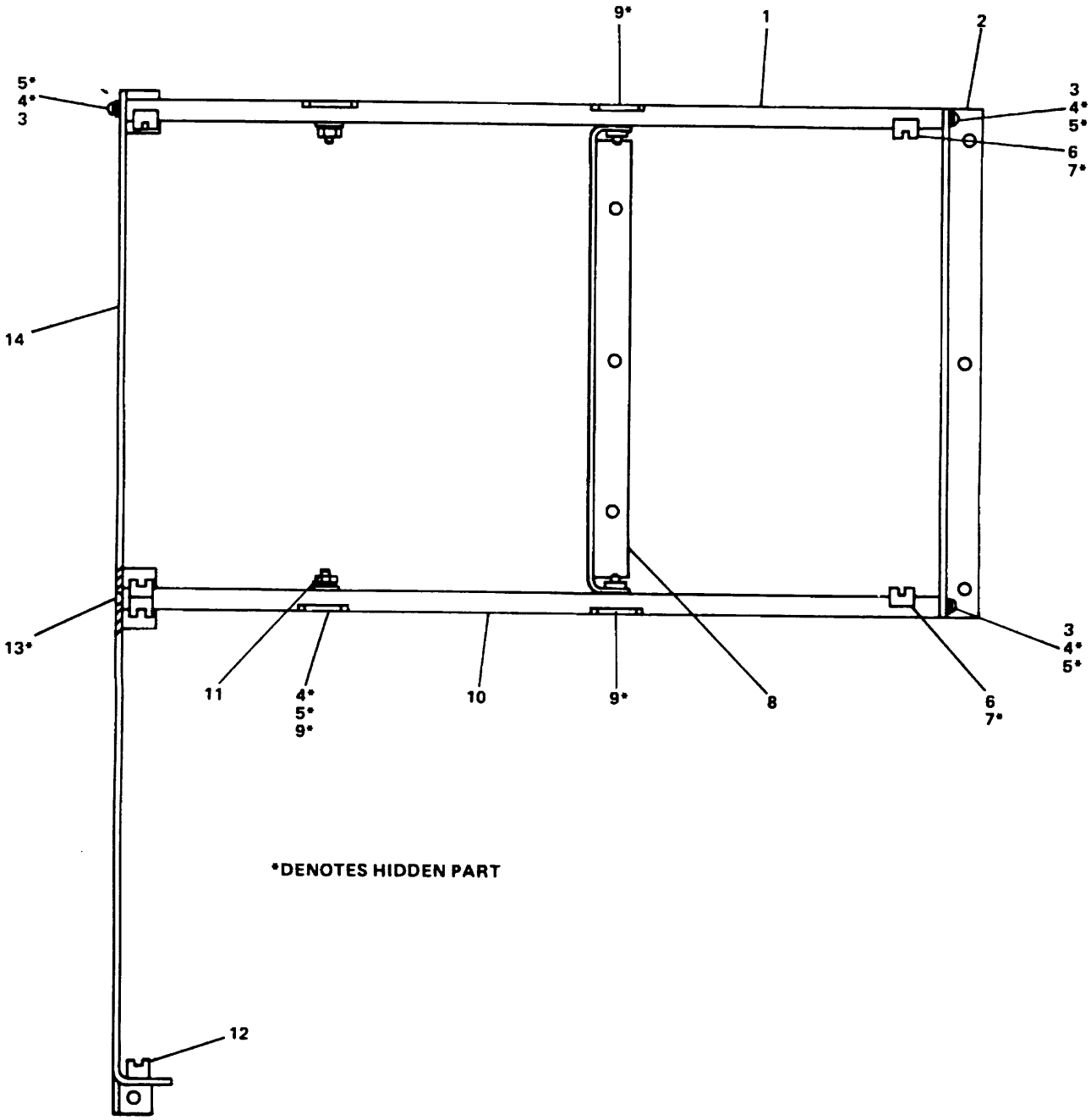


Figure C-16. Card Cage Assembly A19

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0113 - POWER SUPPLY A19		
C-17	1	PAFZZ	5905-00-568-7690	RCR05G912JP	81349	RES, FXD,CMP SN	EA	5
C-17	2	PAFZZ	6130-01-065-6070	5TR50	31557	POWER SUPPLY	EA	7
C-17	3	XBFZZ	5305-00-054-5656	MS51957-22	96906	SCREW, MACHINE	EA	105
C-17	4	XBFZZ	5310-00-595-6211	MS15795-803	96906	WASHER, FLAT	EA	138
C-17	5	XBFZZ	5310-00-933-8118	MS35338-135	96906	WASHER, LOCK	EA	130
C-17	6	PAFZZ	5895-01-037-0968	80G90W40	31557	GEN, HF, DC INPUT	EA	5
C-17	7	PAFZZ	5905-00-255-9504	V130LA10A	09019	RES, VOLTAGE SE	EA	3
C-17	8	PAFZZ	6130-01-015-6265	80ASP12S1	31557	POWER SUPPLY	EA	5
C-17	9	PAFZZ	6110-01-015-6835	80ASP12S2	31557	POWER SUPPLY	EA	5
C-17	10	XBFFF		1951-1-5072-1	15942	COVER ASSY	EA	1
C-17	11	PAFZZ	6130-00-005-7882	15TR13	31557	POWER SUPPLY	EA	2
C-17	12	PAFZZ	5935-01-065-6391	MS27508E22F21S	96906	CONN, RCPT,ELEC	EA	1
C-17	13	XBFZZ	5305-00-056-9961	MS24693C4	96906	SCREW, MACHINE	EA	12
C-17	14	XBFZZ	5310-00-208-3786	NAS671C4	80205	NUT, PLAIN, HEX	EA	12
C-17	15	PAFZZ	5935-01-064-7840	MS27508E12F8P	96906	CONN, RCPT, ELEC	EA	1
C-17	16	XBFFF		1951-1-4716-1	15942	COVER, HEATSINK	EA	1
C-17	17	XBFZZ	5305-00-054-5648	MS51957-14	96906	SCREW, MACHINE	EA	18
C-17	18	XBFZZ	5320-00-117-6938	MS20426AD3-4	96906	RIVET, SOLID	EA	4
C-17	19	XBFZZ		12-124317-1	28815	CONE, DEFLECTOR	EA	1
C-17	20					NOT USED		
C-17	21	XBFZZ		1951-1-5070-1	15942	HEATSINK	EA	1
C-17	22	PAFZZ	5935-01-056-3259	MS27508E14F18S	96906	CONN, RCPT, ELEC	EA	1
C-17	23	PAFZZ	6110-01-066-6656	10TR45	31557	POWER SUPPLY	EA	1
C-17	24	PAFZZ	6130-01-065-6071	10TR20	31557	POWER SUPPLY	EA	1
C-17	25	PAFZZ	4140-01-076-4259	026976	92877	FAN, VAN EAXIAL	EA	1
C-17	26	XBFZZ	5340-00-984-6629	271166	82877	CLP, RIM CLENCH	EA	4
C-17	27	XBFZZ	5305-00-054-5650	MS51957-16	96906	SCREW MACHINE	EA	4

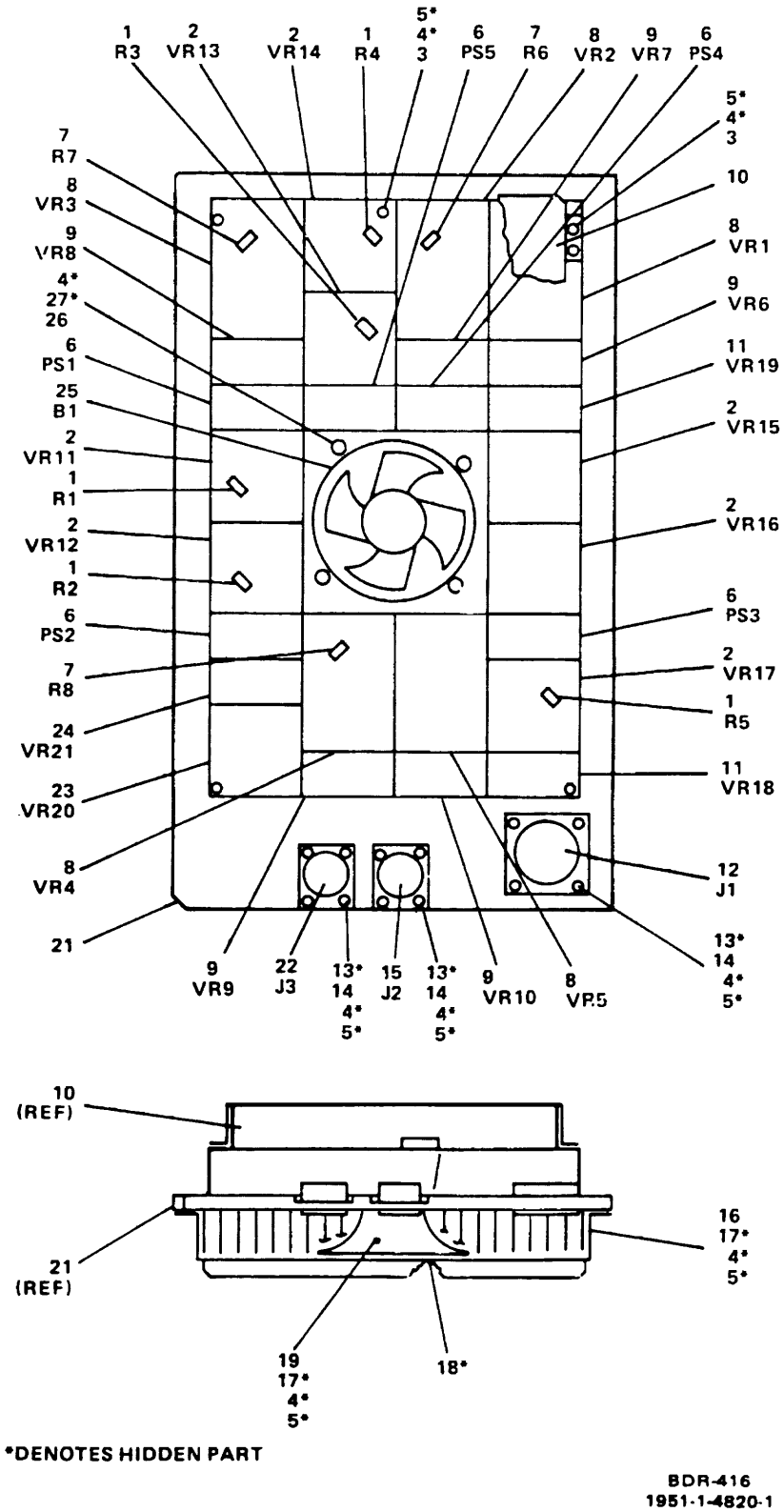


Figure C-17. Power Supply A19

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-18	1	XBFZZ	5305-00-301-6203	800-0158-000	31413	SCREW MACHINE	EA	1
C-18	2	XBFZZ		545-0000-000	31413	KNOB	EA	1
C-18	3	XBFZZ	5935-01-032-5441	525-0000-000	31413	COVER,ELEC CONN	EA	1
C-18	4	XAFZZ		800-0156-000	31413	SCREW, MACHINE	EA	2
C-18	5	XAFZZ	5935-01-021-7829	522-0000-000	31413	CLAMP,CABLE	EA	1
C-18	6	XAFZZ	5970-00-135-0006	313-0000-000	31413	INSULATOR, PLATE	EA	1
C-18	7	XAFZZ	5305-00-301-6215	800-0157-000	31413	SCREW, MACHINE	EA	2
C-18	8	XAFZZ		599-0000-000	314L3	INSERT SCR THD	EA	2
C-18	9	XAFZZ	5325-01-039-7460	516-0027-000	31413	NUT,SL FLKG, RD	EA	1
C-18	10	XAFZZ		800-0155-000	31413	WASHER,LOCK	EA	1
C-18	11	XAFZZ	5310-00-301-5887	800-0161-000	31413	WASHER, FLAT	EA	2
C-18	12	XBFZZ	5305-00-301-6218	512-0000-000	31413	BOLT, MACHINE	EA	1

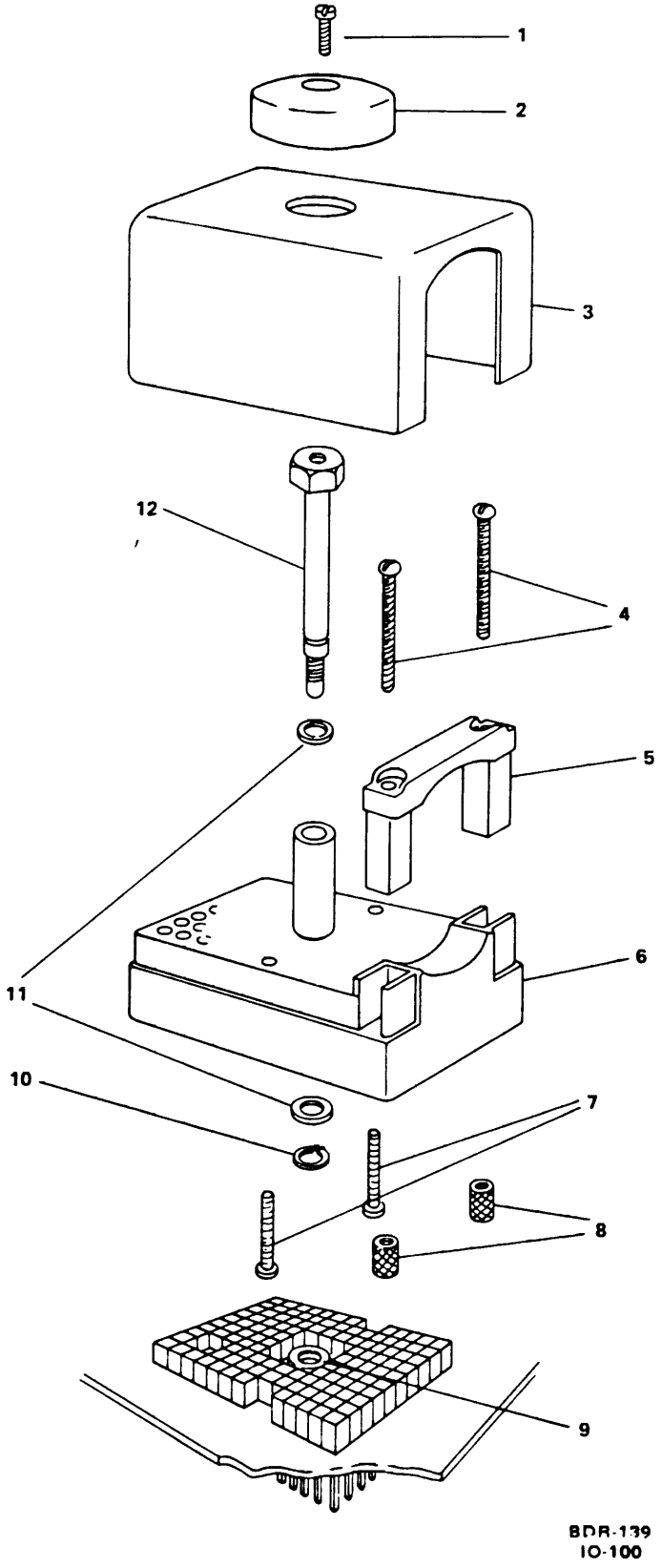
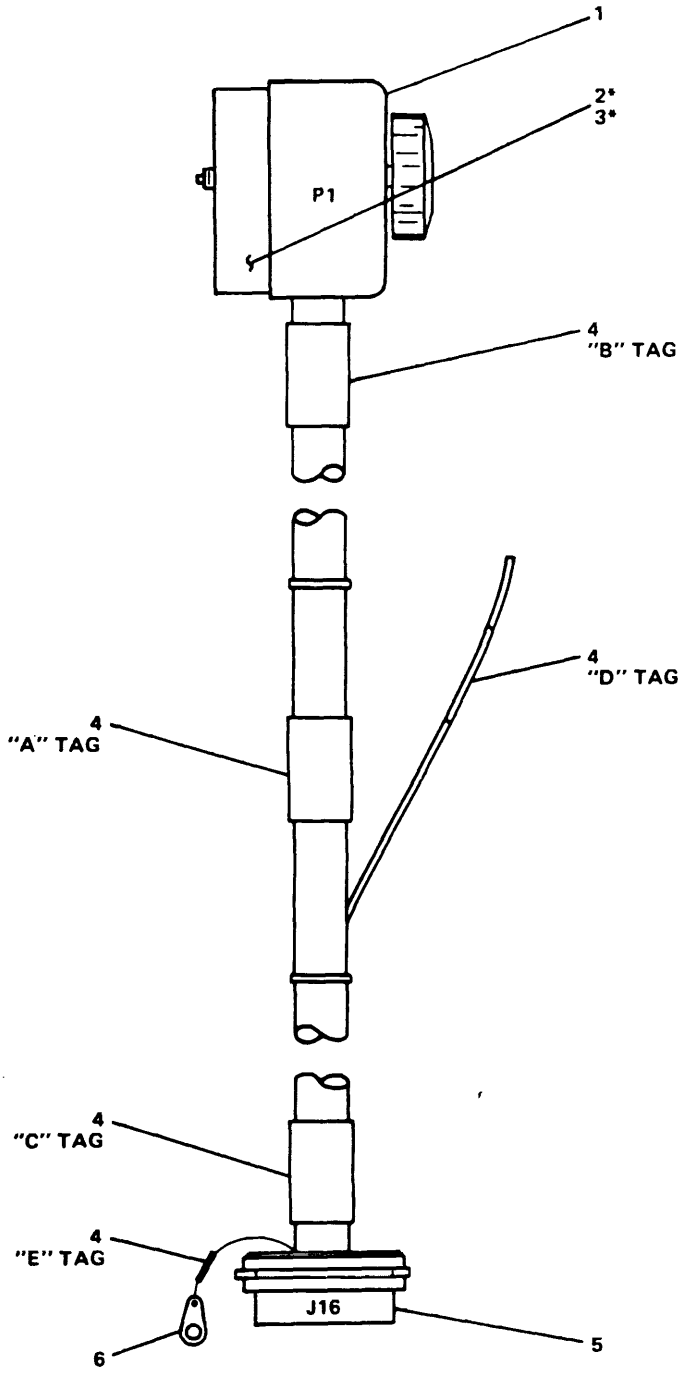


Figure C-18. Electrical Plug Connector P1, P2, P3, or W1P1.

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-19	1	PAFZZ		10-100	31413	CONN,PLUG,ELEC (SEE FIG 181	EA	1
C-19	2	XBFZZ	5999-01-059-6610	001-6500-514	31413	CONTACT,ELEC	EA	98
C-19	3	PAFZZ	5805-00-342-4514	544-0005-000	31413	KEY,POLARIZING	EA	1
C-19	4	XBFZZ		WTW1334	59730	BAND MARKER	EA	5
C-19	5	PAFZZ	5935-01-038-7932	MS27508E22F35S	96906	CONN, RCPT, ELEC	EA	1
C-19	6	XBFZZ	5940-00-682-2477	1416-4	83330	TERNINAL, LUG	EA	1



TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4230-1 MFR 28815 W1
"B" TAG	P1 (A3J1)
"C" TAG	J16
"D" TAG	S1-TT
"E" TAG	A3E6

*DENOTES HIDDEN PART

BDR-411
1951-1-4230-1

Figure C-19. Special Purpose Cable Assembly W1.

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION / USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 02 - DIGITAL PROCESSOR TEST SET CABLE KIT CONFIGURATION I		
C-20		XCFZZ	5865-01-070-6588	1951-1-1108-1	15942	CABLE ASSY SET	EA	1
C-20	1	XBFFF		1951-1-4653-1	15942	CABLE ASSY, SP (SEE FIG 21)	EA	1
C-20	2	XBFFF		1951-1-4654-1	15942	CABLE ASSY, SP (SEE FIG 22)	EA	1
C-20	3	XBFFF		1951-1-4655-1	15942	CABLE ASSY,SP (SEE FIG 23)	EA	1
C-20	4	XBFFF		1951-1-4656-1	15942	CABLE ASSY, SP (SEE FIG 24)	EA	1
C-20	5	XBFFF		1951-1-4657-1	15942	CABLE ASSYVRF (SEE FIG 251	EA	1
C-20	6	XBFFF		1951-1-4658-1	15942	CABLE ASSY,RF (SEE FIG 26)	FA	1
C-20	7	XBFFF		1951-1-4659-1	15942	CABLE ASSY,RF (SEE FIG 271	EA	1
C-20	8	XBFFF		1951-1-4660-1	15942	CABLE ASSY, SP (SEE FIG 28)	EA	1
C-20	9	XBFFF		1951-1-4661-1	15942	CABLE ASSY,SP (SEE FIG 29)	EA	1
C-20	10	XBFFF		1951-1-4662-1	15942	CABLE ASSY, SP (SEE FIG 301	EA	1
C-20	11	XBFFF		1951-1-4663-1	15942	CABLE ASSY, SP (SEE FIG 31)	EA	1
C-20	12	XBFFF		1951-1-4664-1	15942	CABLE ASSY,SP (SEE FIG 32)	EA	1
C-20	13	XBFFF		1951-1-4665-1	15942	CABLE ASSY,SP (SEE FIG 331	EA	1
C-20	14	XBFFF		1951-1-4666-1	15942	CABLE ASSY, SP (SEE FIG 341	EA	1
C-20	15	XBFFF		1951-1-4667-1	15942	CABLE ASSY,SP SEE FIG 351	EA	1
C-20	16	XBFFF		1951-1-4668-1	15942	CABLE ASSYVSP (SEE FIG 361	EA	1
C-20	17	XBFFF		1951-1-4669-1	15942	CABLE ASSY, SP (SEE FIG 37)	EA	1
C-20	18	XBFFF		1951-1-4822-1	15942	CABLE ASSY,RF (SEE FIG 38)	EA	1
C-20	19	XBFFF		1951-1-4827-1	15942	JUMPER PLUG (SEE FIG 38A)	EA	1
C-20	20	XBFFF		1951-1-4828-1	15942	JUMPER PLUG (SEE FIG 38B)	EA	1
C-20	21	XBFFF		1951-1-4657-2	15942	CABLE ASSY,RF (SEE FIG 251	EA	1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-20	22	XBFFF		1951-1-4744-3	15942	CABLE ASSY.RF (SEE FIG 391	EA	1
C-20	23	PAFZZ	5935-49-219-54	20200-1	16179	ADAPTER/CONN	EA	1

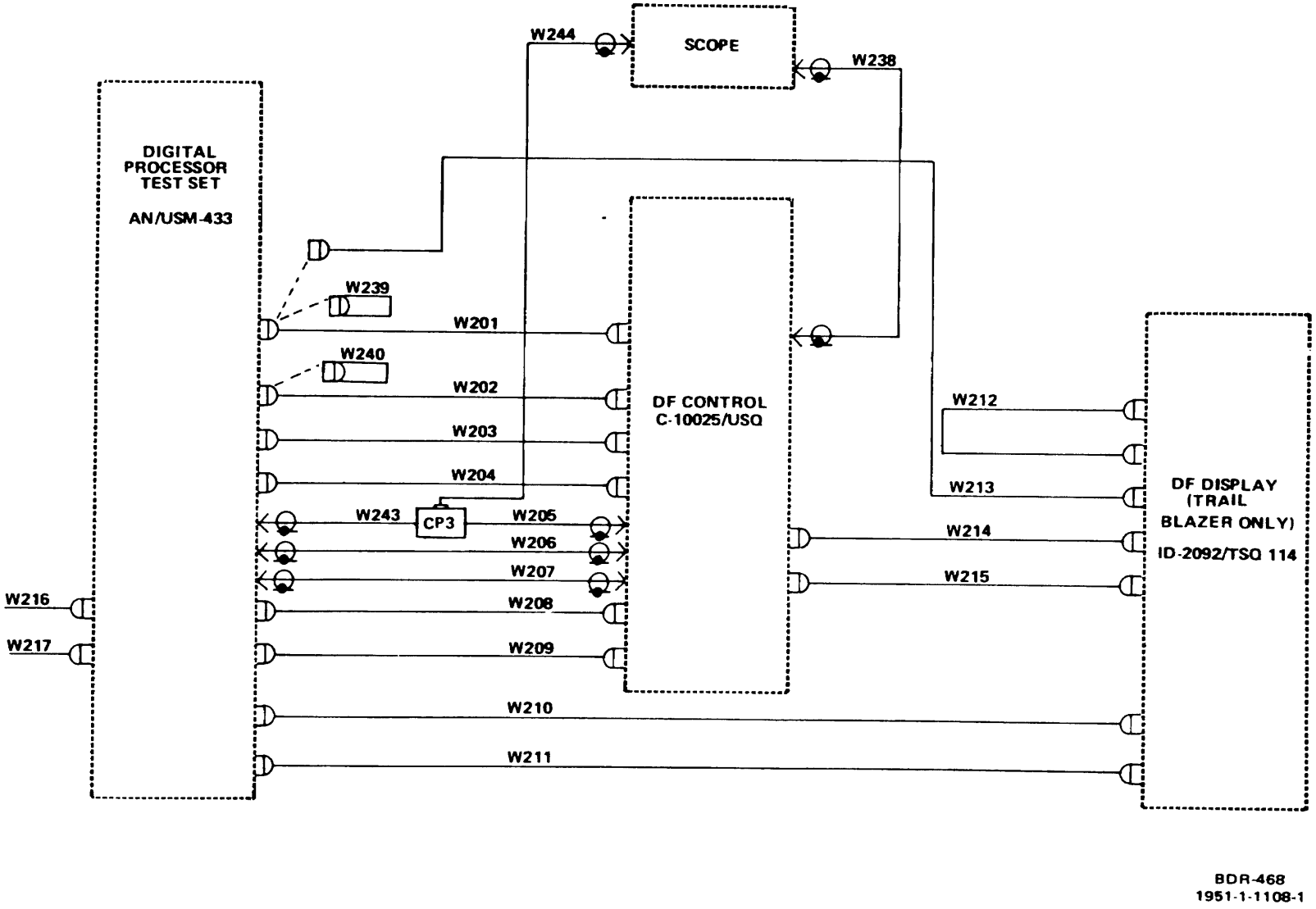


Figure C-20. Digital Processor Test Set Cable Kit Configuration I.

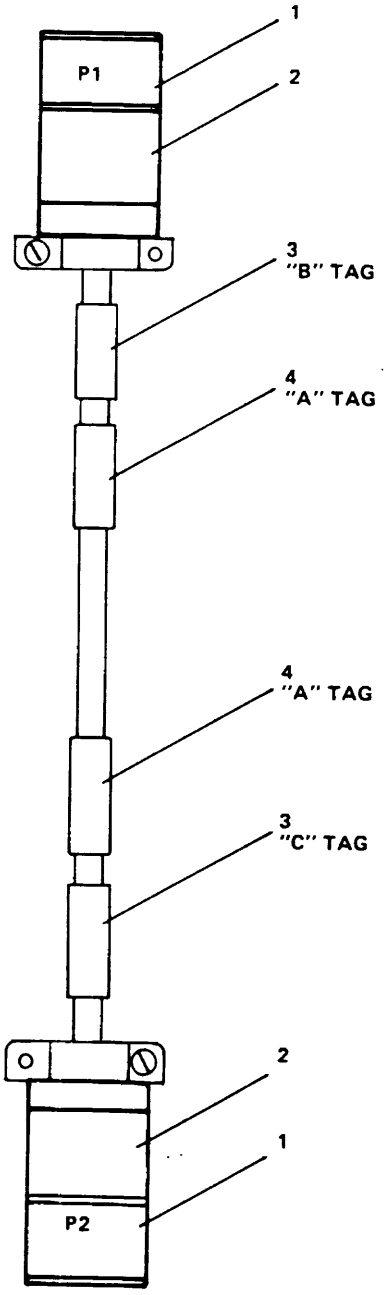
LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CP3	23	W213	13								
W201	1	W214	14								
W202	2	W215	15								
W203	3	W216	16								
W204	4	W217	17								
W205	5	W238	18								
W206	6	W239	19								
W207	7	W240	20								
W208	8	W243	21								
W209	9	W244	22								
W210	10										
W211	11										
W212	12										

Figure C-20. Digital Processor Test Set Cable Kit Configuration I.

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0201 - SPECIAL PURPOSE CABLE ASSEMBLY W201		
C-21	1	PAFZZ	5935-01-025-7808	MS27484T12F35P	96906	CONN, PLUG, ELEC	EA	2
C-21	2	XBFZZ		SE9F0908 A1-5-12	07418	CLAMP, CABLE	EA	2
C-21	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-21	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4653-1 MFR 28815 W201
"B" TAG	W201P1 AN/USM-433 (J10)
"C" TAG	W201P2 C-10025/USQ (J5)

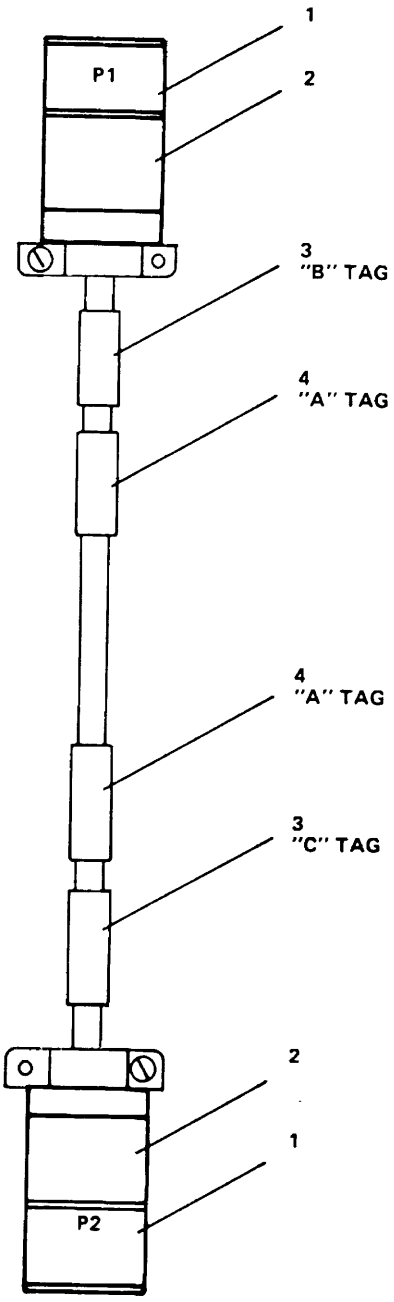


BDR-340
1951-1-4653-1

Figure C-21. Special Purpose Cable Assembly W201

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0202 - SPECIAL PURPOSE CABLE ASSEMBLY W202		
C-22	1	PAFZZ	5935-01-064-5691	MS27484T12F35PA	96906	CONN, PLUG, ELEC	EA	2
C-22	2	XBFZZ		SE9F0908A1-5-12	07418	CLAMP CABLE	EA	2
C-22	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-22	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4654-1 MFR 28815 W202
"B" TAG	W202P1 AN/USM-433 (J13)
"C" TAG	W202P2 C10025/USQ (J2)



BDR-340
1951-1-4654-1

Figure C-22. Special Purpose Cable Assembly W202

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0203 - SPECIAL PURPOSE CABLE ASSEMBLY W203		
C-23	1	PAFZZ	5935-01-024-1877	MS27484T20F35P	96906	CONN, PLUG, ELEC	EA	1
C-23	2	PAFZZ		SE9F2212A1-5-12	07418	CLAMP, CABLE	EA	2
C-23	3	XBFZZ		WTWI1334	59730	BAN MARKER	EA	2
C-23	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-23	5	PAFZZ	5935-01-023-4830	MS27484T20F35PA	96906	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4655-1 MFR 28815 W203
"B" TAG	W203P1 AN/USM-433 (J15)
"C" TAG	W203P2 C-10025/USQ (J4)

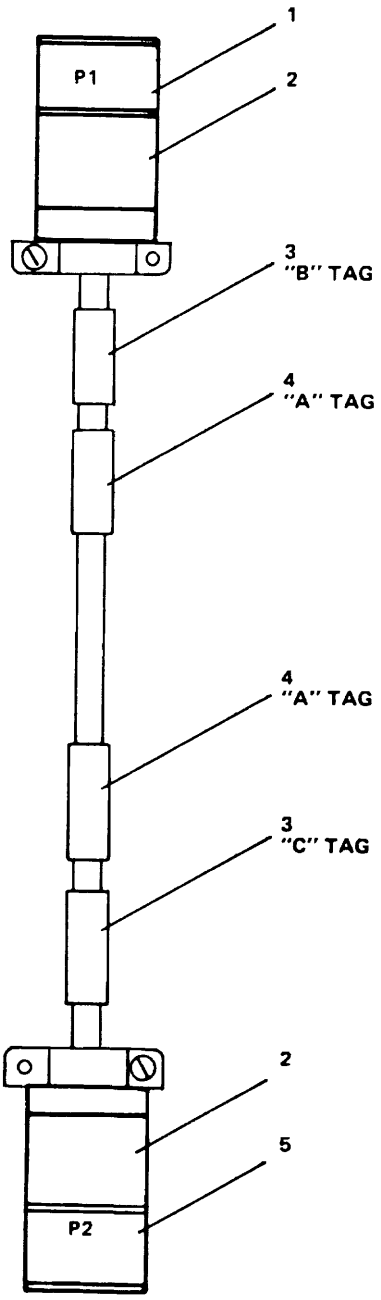


Figure C-23. Special Purpose Cable Assembly W203

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0204 - SPECIAL PURPOSE CABLE ASSEMBLY W204		
C-24	1	PAFZZ	5935-01-063-4390	MS27484T22F35P	96906	CONN, PLUG, ELEC	EA	1
C-24	2	XBFZZ		SE9F2516A1-5-12	07418	CLAMP CABLE	EA	2
C-24	3	XBFZZ		WTW1334	59730	BAND, 1ARKER	EA	2
C-24	4	XBFZZ	7690-01-052-4755	WTW2334	59730	8AND, MARKER	EA	2
C- 24	5	PAFZZ	5935-01-064-6814	Sz27484T22F35PA	96906	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4656-1 MFR 28815 W204
"B" TAG	W204P1 AN/USM-433 (J16)
"C" TAG	W204P2 C-10027/USQ (J1)

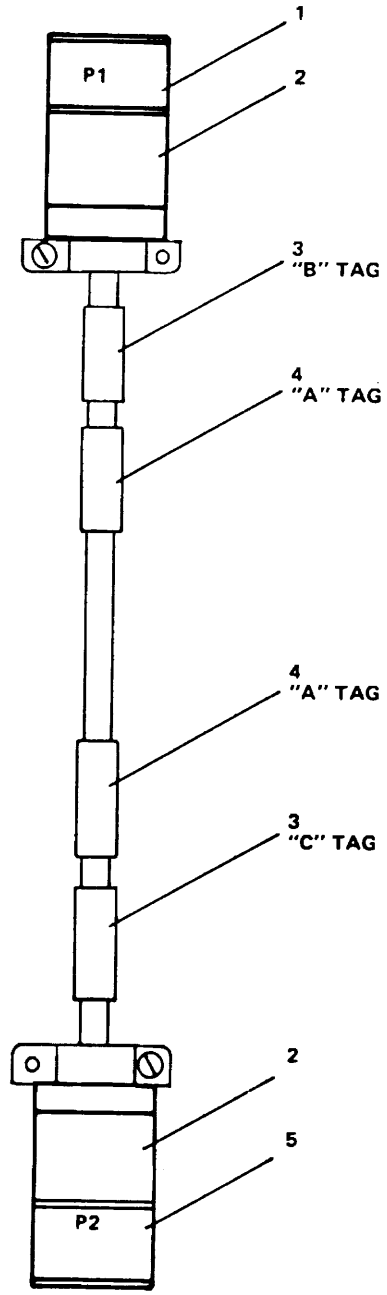


Figure C-24. Special Purpose Cable Assembly W204

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0205 - RF CABLE ASSEMBLY W205 OR W243		
C-25	1	PAFZZ	5935-00-400-4775	M39012-26-0001	81349	CONN, PLUG, ELEC	EA	1
C-25	2	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-25	3	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-25	4	PAFZZ		M39012-55-3016	81349	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4657-1 MFR 28815 W205
	15942 ASSY 1951-1-4657-2 MFR 28815 W243
"B" TAG	W205P1 C-10025/USQ (J7)
	W243P1 AN/USM-433 (J1)
"C" TAG	W205P2 (CP3)
	W243P2 (CP3)

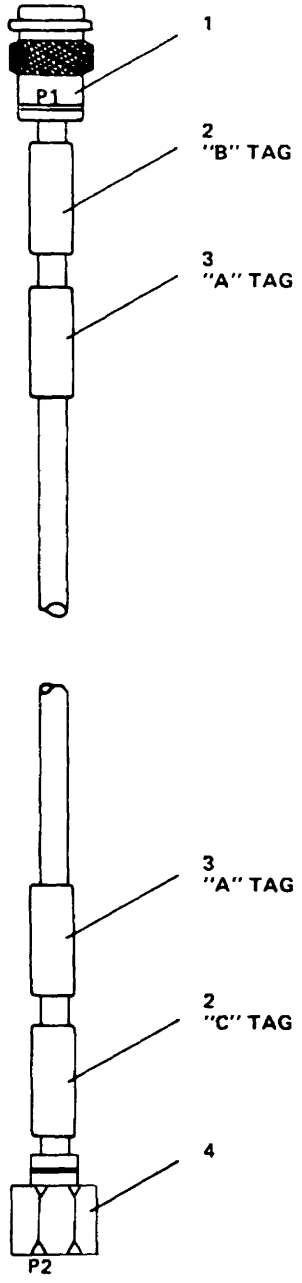


Figure C-25. RF Cable Assembly W205 or W243

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0206 - RF CABLE ASSEMBLY W206		
C-26	1	PAFZZ	5935-00-400-4775	M39012-26-0001	81349	CONN, PLUG, ELEC	EA	2
C-26	2	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C- 2	3	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4658-1 MFR 28815 W206
"B" TAG	W206P1 AN/USM-433 (J3)
"C" TAG	W206P2 C-10025/USQ (J9)

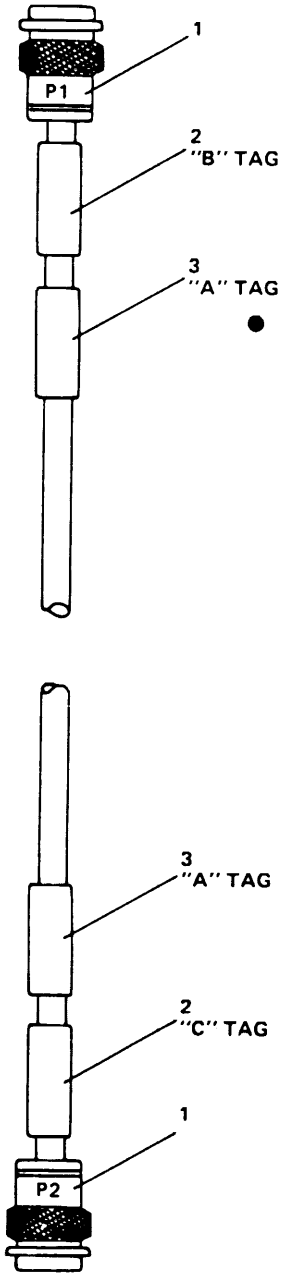
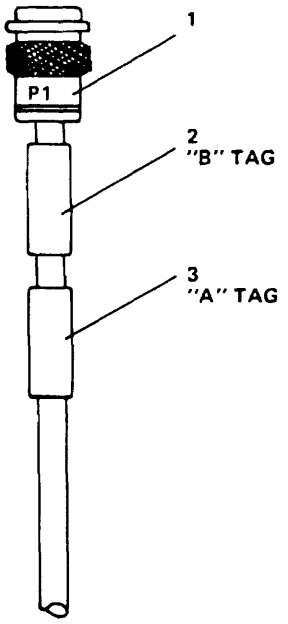
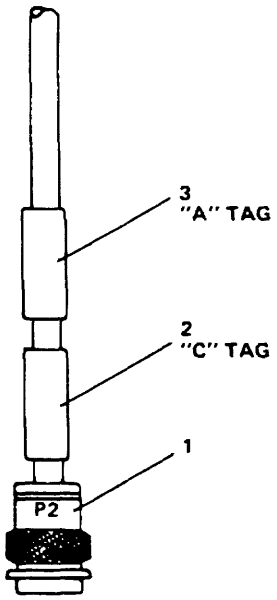


Figure C-26. RF Cable Assembly W206

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0207 - RF CABLE ASSEMBLY W207		
C-27	1	PAFZZ	5935-00-400-4775	M39012-26-0001	81349	CONN, PLUG, ELEC	EA	2
C-27	2	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-27	3	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND ,MARKER	EA	2



TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4659-1 MFR 28815 W207
"B" TAG	W207P1 AN/USM-433 (J2)
"C" TAG	W207P2 C-10025/USQ (J10)



BDR-344
1951-1-4659-1

Figure C-27. RF Cable Assembly W207

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0208 - SPECIAL PURPOSE CABLE ASSEMBLY W208		
C-28	1	PAFZZ	5935-01-064-5705	MS27484T12F8P	96906	CONN, PLUG, ELEC	EA	1
C-28	2	XBFZZ		SE9F0908A1-5-12	07418	CLAMP, CABLE	EA	2
C-28	3	XBFZZ		WTWI334	5973C	BAND MARKER	EA	2
C-28	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C- 28	5	PAFZZ	5935-01-064-5686	MS27484T12FSS	96906	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4660-1 MFR 28815 W208
"B" TAG	W208P1 AN/USM-433 (J9)
"C" TAG	W208P2 C-10025/USQ (J11)

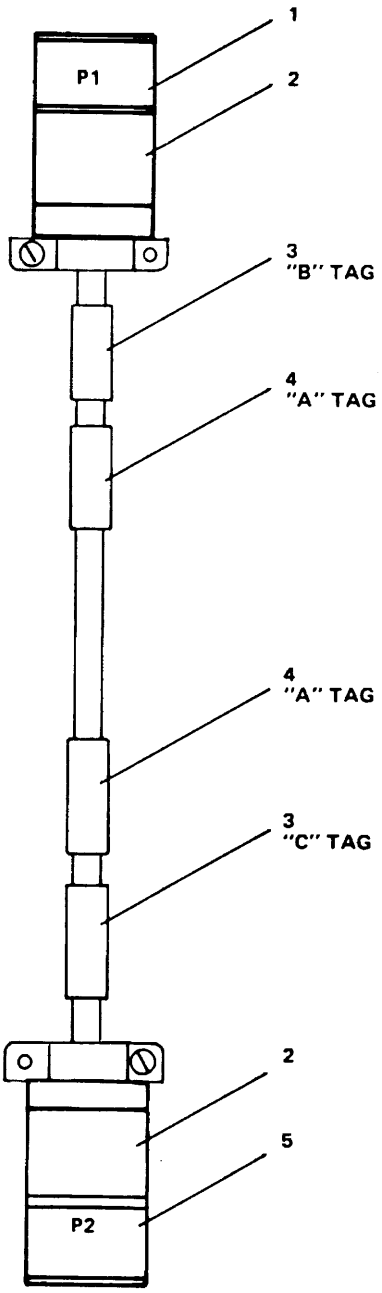


Figure C-28. Special Purpose Cable Assembly W208

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION / USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0209 - SPECIAL PURPOSE CABLE ASSEMBLY W209		
C-29	1	PAFZZ	5935-01-064-5695	MS27484T22F21P	96906	CONN, PLUG, ELEC	EA	1
C-29	2	XBFZZ		SE9F2516A1-5-12	07418	CLAMP. CABLE	EA	2
C-29	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-29	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-29	5	PAFZZ	5935-01-064-5696	MS27484T22F21S	96906	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4661-1 MFR 28815 W209
"B" TAG	W209P1 AN/USM-433 (J14)
"C" TAG	W209P2 C-10025/USQ (J12)

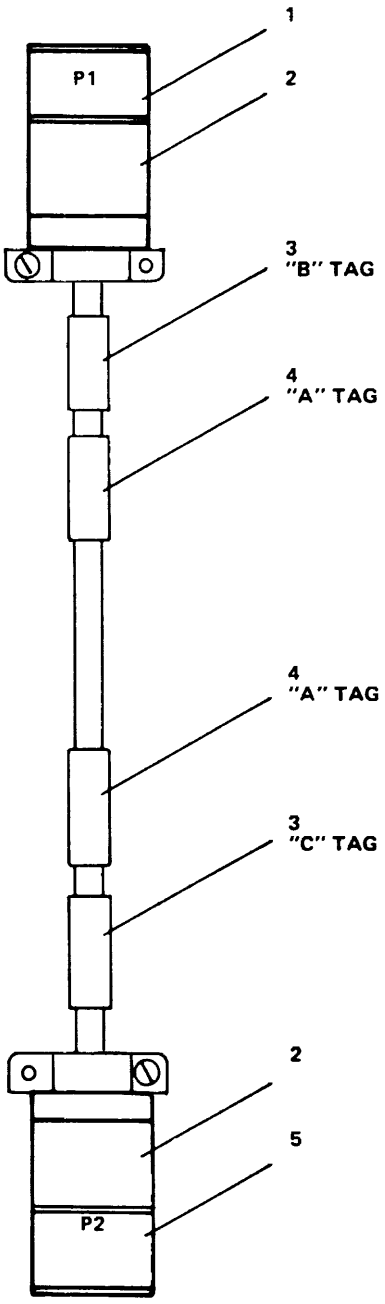


Figure C-29. Special Purpose Cable Assembly W209

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION / USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0210 - SPECIAL PURPOSE CABLE ASSEMBLY W210		
C-30	1	PAFZZ	5935-01-065-7978	MS27484T12FBPA	96906	CONN, PLUG ELEC	EA	1
C-30	2	XBFZZ		SE9F0908A1-5-12	07418	CLAMP, CABLE	EA	2
C-30	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-30	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-30	5	PAFZZ	5935-01-064-5687	MS27484T12F8SA	96906	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4662-1 MFR 28815 W210
"B" TAG	W210P1 AN/USM-433 (J12)
"C" TAG	W210P2 ID-2092/TSQ-114 (J13)

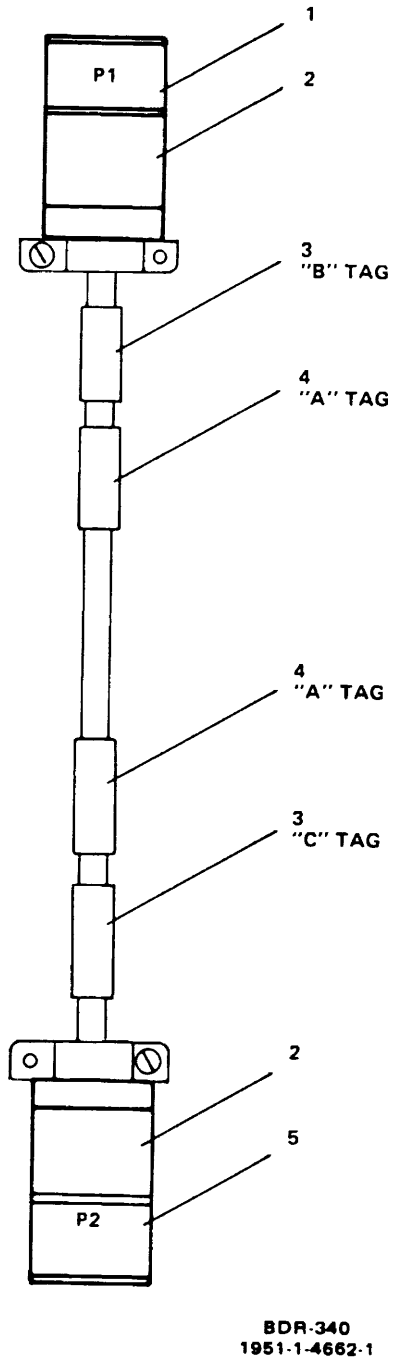


Figure C-30. Special Purpose Cable Assembly W210

(1) 1LLUSTRATION (a) FIG NO.	(1) 1LLUSTRATION (b) 1TEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY 1NC 1N UNIT
						GP 0211 - SPECIAL PURPOSE CABLE ASSEMBLY W211		
C-31	1	PAFZZ	5935-01-064-1594	MS27484T14F5P	96906	CONN, PLUG, ELEC	EA	1
C- 31	2	XBFZZ		SE9F1208A1-5-12	07418	CLAMP CABLE	EA	2
C- 31	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-31	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-31	5	PAFZZ	5935-01-064-5692	MS27484T14F5S	96906	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4663-1 MFR 28815 W211
"B" TAG	W211P1 AN/USM-433 (J8)
"C" TAG	W211P2 ID-2092/TSQ-114 (J12)

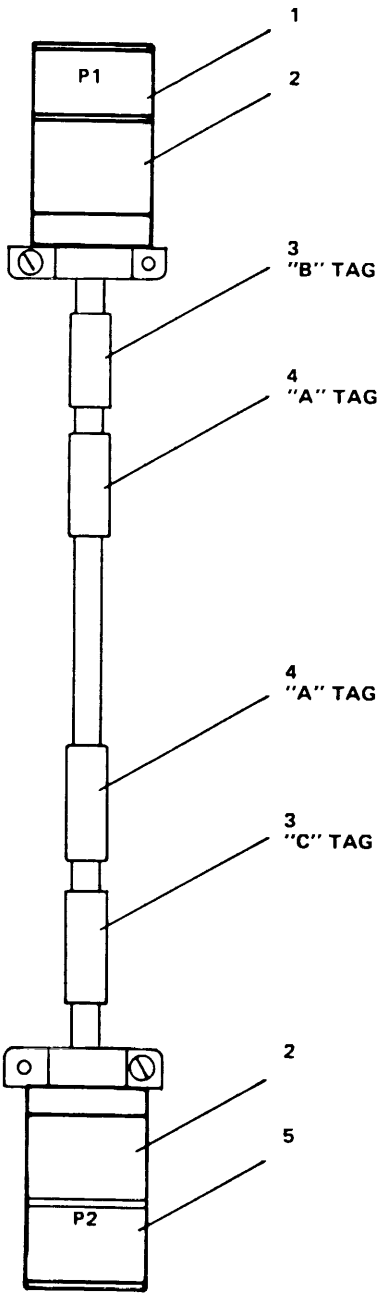
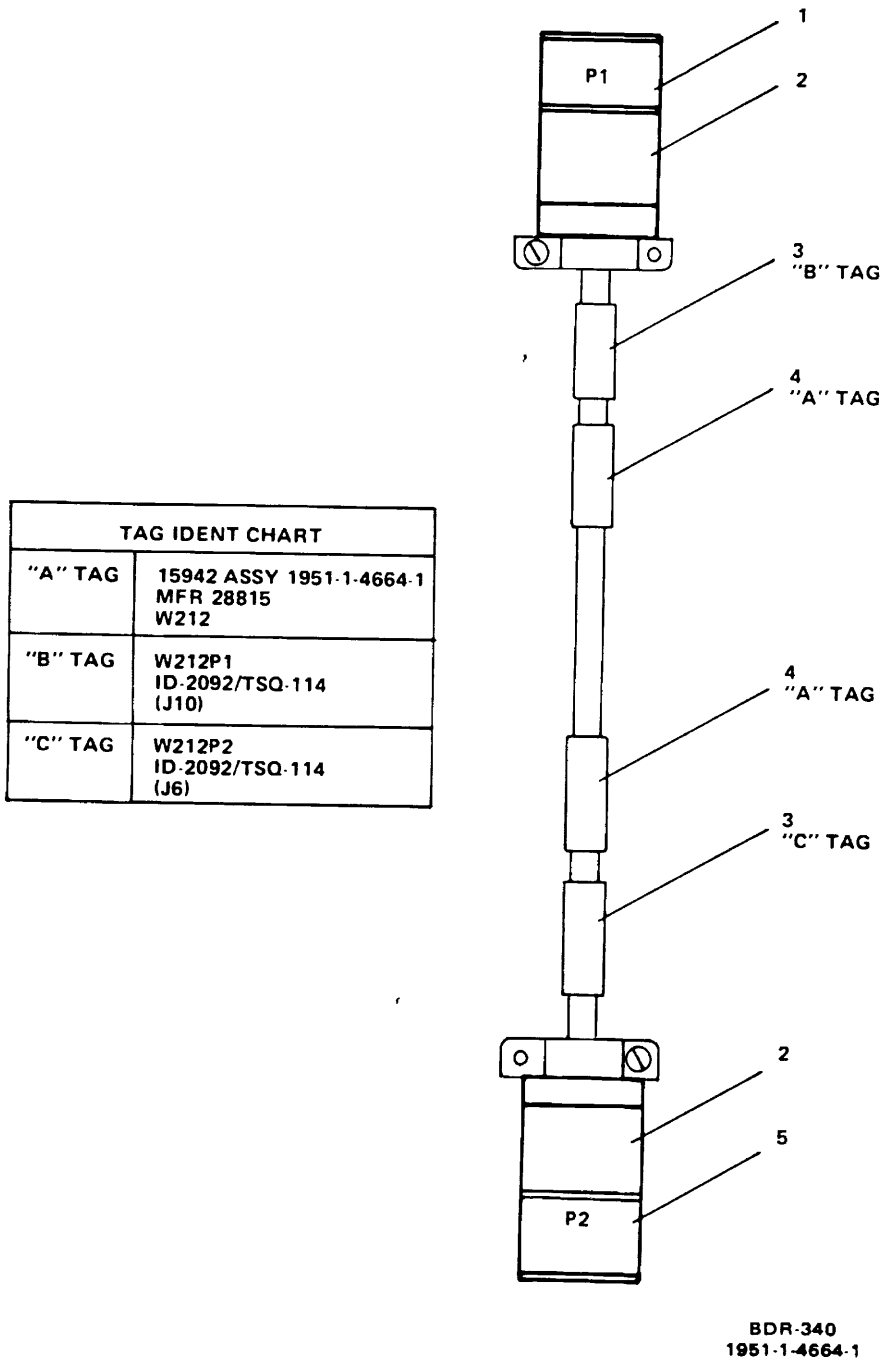


Figure C-31. Special Purpose Cable Assembly W211

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0212 - SPECIAL PURPOSE CABLE ASSEMBLY W212		
C-32	1	PAFZZ	5935-01-025-7808	MS27484T12F35P	96906	CONN, PLUG, ELEC	EA	1
C-32	2	XBFZZ		SE9F09081A-5-12	07418	CLAMP, CABLE	EA	2
C-32	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-32	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-32	5	PAFZZ	5935-01-064-5691	MS27484T12F35PA	96906	CONN, PLUG, ELEC	EA	1



TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4664-1 MFR 28815 W212
"B" TAG	W212P1 ID-2092/TSQ-114 (J10)
"C" TAG	W212P2 ID-2092/TSQ-114 (J6)

Figure C-32. Special Purpose Cable Assembly W212

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0213 - SPECIAL PURPOSE CABLE ASSEMBLY W213		
C-33	1	PAFZZ	5935-01-025-7808	MS27484T12F35P	96906	CONN, PLUG, ELEC	EA	1
C-33	2	XBFZZ		SE9FO908A1-5-12	07418	CLAMP, CABLE	EA	1
C-33	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-33	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-33	5	XBFZZ		SE9F1508A1-5-12	07418	CLAMP, CABLE	EA	1
C-33	6	PAFZZ	5935-01-023-5428	MS27484T16F35P	96906	CONN PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4665-1 MFR 28815 W213
"B" TAG	W213P1 AN/USM-433 (J10)
"C" TAG	W213P2 ID-2092/TSQ-114 (J5)

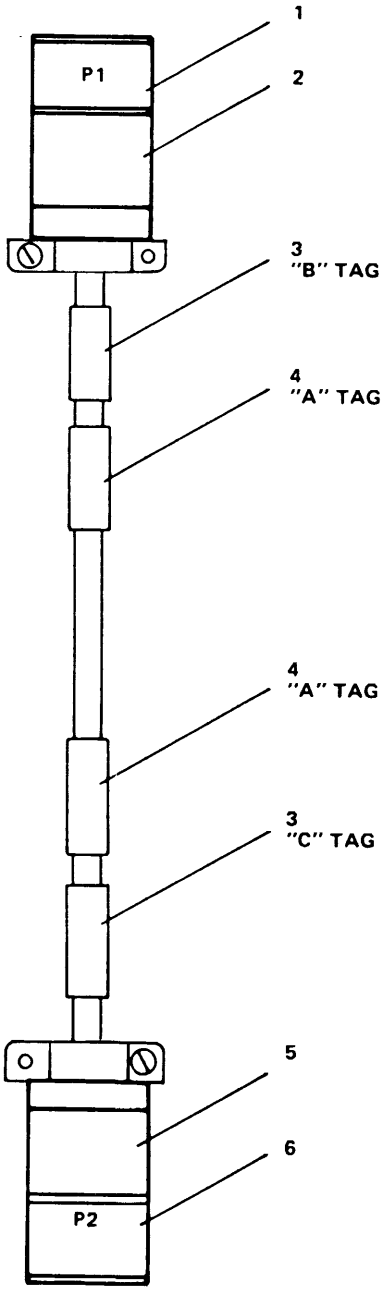


Figure C-33. Special Purpose Cable Assembly W213

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION / USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0214 - SPECIAL PURPOSE CABLE ASSEMBLY W214		
C-34	1	PAFZZ	5935-01-063-4390	MS27484T22F35P	96906	CONN, PLUG, ELEC	EA	2
C- 34	2	XBFZZ		SE9F2516A1-5-12	07418	CLAMP, CABLE	EA	2
C-34	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-34	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4666-1 MFR 28815 W214
"B" TAG	W214P1 C-10025/USQ (J3)
"C" TAG	W214P2 ID-2092/TSQ-114 (J3)

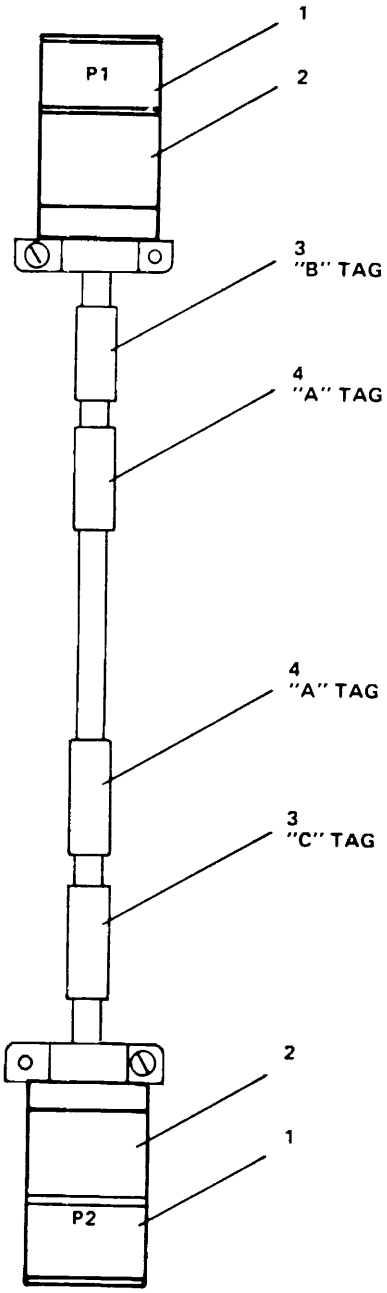


Figure C-34. Special Purpose Cable Assembly W214

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0215 - SPECIAL PURPOSE CABLE ASSEMBLY W215		
C-35	1	PAFZZ	5935-01-024-1877	MS27484T20F35P	96906	CONN, PLUG, ELEC	EA	2
C-35	2	XBFZZ		SE9F2212A1-5-12	07418	CLAMP, CABLE	EA	2
C-35	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-35	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4667-1 MFR 28815 W215
"B" TAG	W215P1 C-10025/USQ (J6)
"C" TAG	W215P2 ID-2092/TSQ-114 (J2)

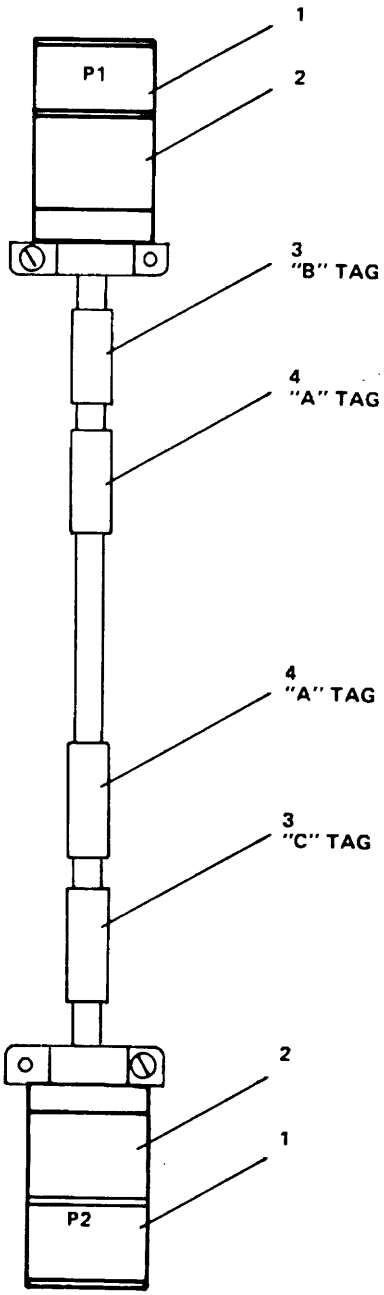
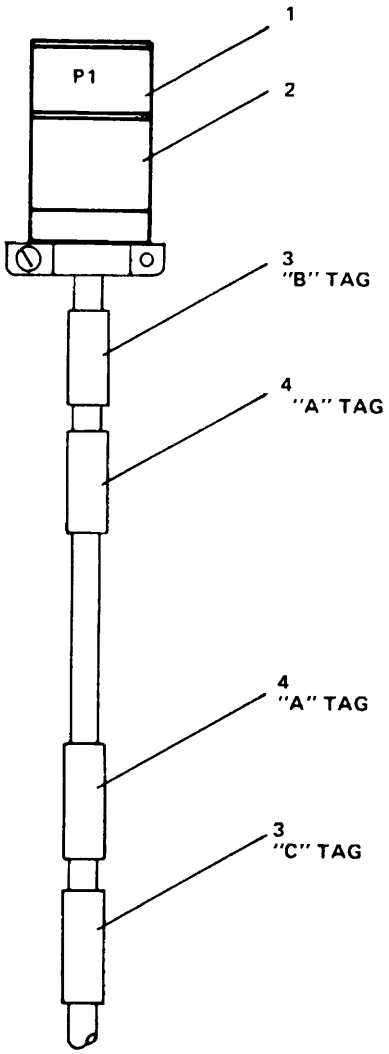


Figure C-35. Special Purpose Cable Assembly W215

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION / USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0216 - SPECIAL PURPOSE CABLE ASSEMBLY W216		
C-36	1	PAFZZ	5935-01-064-5692	MS27484T 14F55	96906	CONN, PLUG, ELEC	EA	1
C-36	2	XBFZZ		SE9FI208A1-5-12	07418	CLAMP, CABLE	EA	1
C-36	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-36	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2



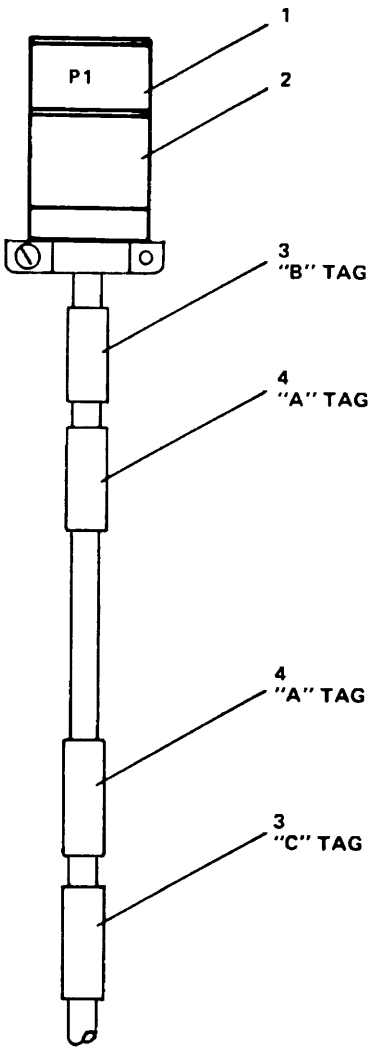
TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4668-1 MFR 28815 W216
"B" TAG	W216P1 AN/USM-433 (J18)
"C" TAG	W216P2

BDR-341
1951-1-4668-1

Figure C-36. Special Purpose Cable Assembly W216

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0217 - SPECIAL PURPOSE CABLE ASSEMBLY W217		
C-37	1	PAFZZ	5935-01-063-9127	MS27484T16F65	96906	CONN, PLUG, ELEC	EA	1
C-37	2	XBFZZ		SE9F1508A1-5-12	07418	CLAMP, CABLE	EA	1
C-37	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-37	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4669-1 MFR 28815 W217
"B" TAG	W217P1 AN/USM-433 (J17)
"C" TAG	W217P2

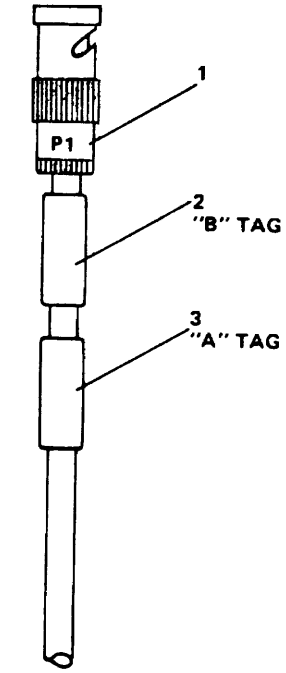


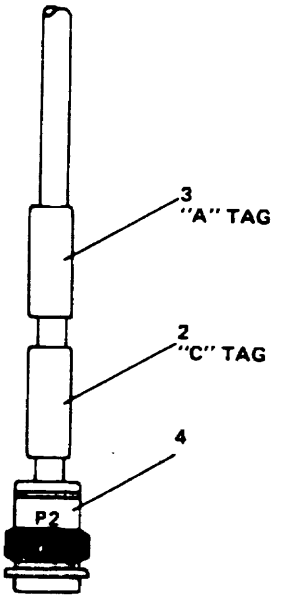
BDR-341
1951-1-4669-1

Figure C-37. Special Purpose Cable Assembly W217

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0218 - RF CABLE ASSEMBLY W238		
C-38	1	PAFZZ	5935-00-004-6257	M39012-16-0014	81349	CONN, PLUG, ELEC	EA	1
C-38	2	XBFZZ		WTW1334	59730	BAND,4ARKER	EA	2
C-38	3	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-38	4	PAFZZ	5935-00-400-4775	M39012-26-0001	81349	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4822-1 MFR 28815 W238
"B" TAG	W238P1 SCOPE INT MONITOR
"C" TAG	W238P2 C-10025/USQ (J8)

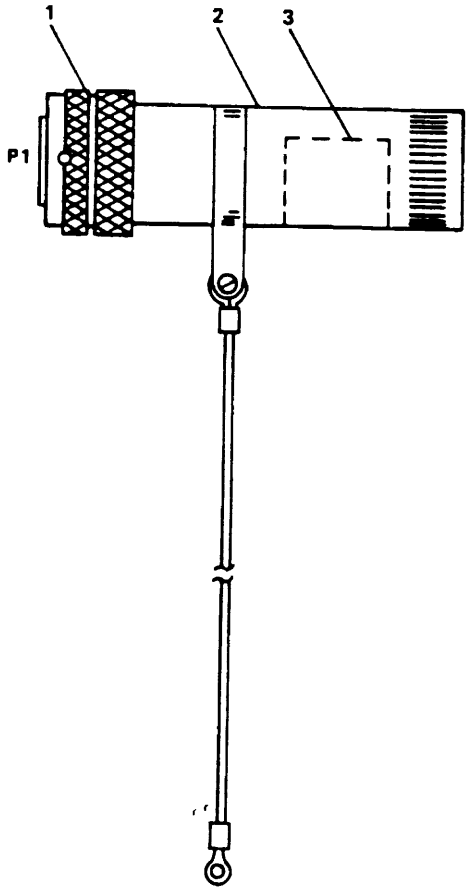




BDR-346
1951-1-4822-1

Figure C-38. RF Cable Assembly W238

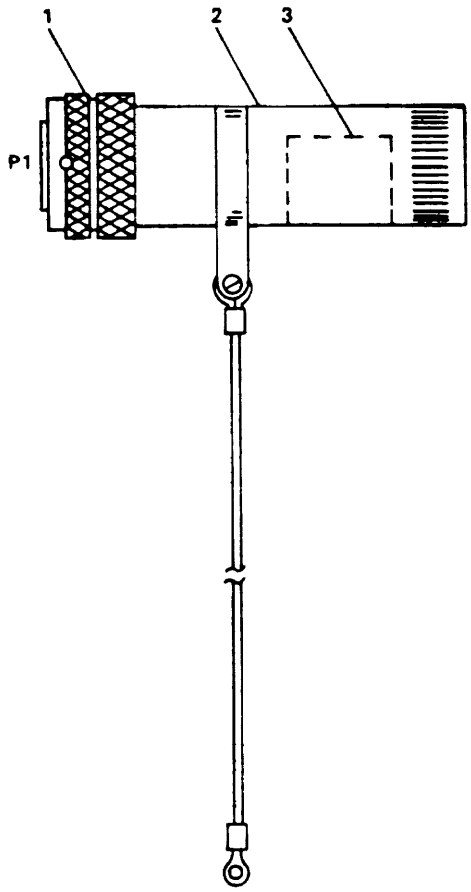
(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0219 - JUMPER PLUG W239		
C-38A	1	PAFZZ	5935-01-025-7808	MS27484T12F35P	96906	CONN, PLUG, ELEC	EA	1
C-38A	2	XBFZZ		SE19F09-2-SC12	07418	CLAMP, CABLE	EA	1
C-38A	3	XBFZZ		1951-1-3373-1	15942	LABEL, CONN ASSY	EA	1



BDR-383
1951-1-4827
1951-1-4828
1951-1-4762

Figure C-38A. Jumper Plug W239

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0220 - JUMPER PLUG W240		
C-38B	1	PAFZZ	5935-01-064-5691	MS27484T12F35PA	96906	CONN, PLUG, ELEC	EA	1
C-38B	2	XBFZZ		SE19 F09-2-5C12	07418	CLAMP, CABLE	EA	1
C-38B	3	XBFZZ		1951-1-3375-1	15942	LABEL, CONN ASSY	EA	1



BDR-383
1951-1-4827
1951-1-4828
1951-1-4762

Figure C-38B. Jumper Plug W240

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0222 - SPECIAL PURPOSE CABLE ASSEMBLY W232, W242, W244		
C-39	1	PBFZZ	5935-00-004-6257	M39012-16-0014	81349	CONN, PLUG, ELEC	EA	1
C-39	2	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-39	3	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-39	4	PAFZZ		M39012-55-3016	81349	CONN,PLUG9 ELEC	EA	1

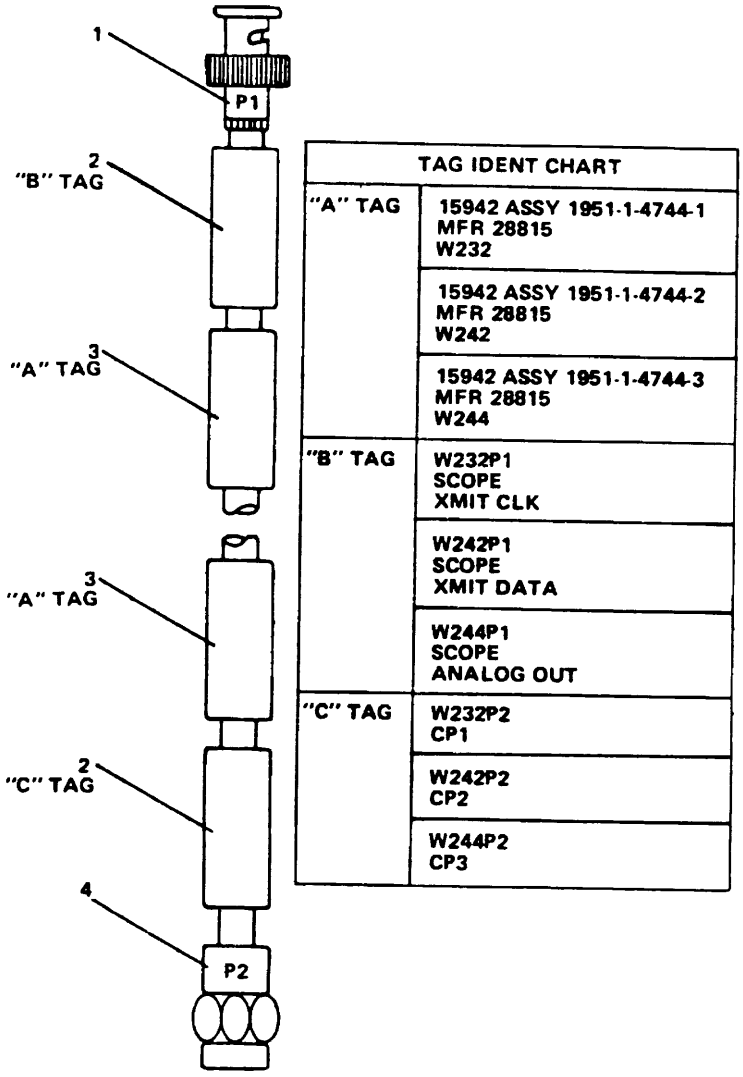


Figure C-39. Special Purpose Cable Assembly W232, W242, W244

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 03 - DIGITAL PROCESSOR TEST SET CABLE KIT CONFIGURATION II		
C-40		XCFZZ	5865-01-070-6589	1951-1-1109-1	15942	CABLE ASSY SET	EA	1
C-40	1	XBFZZ		1951-1-4668-1	15942	CABLE ASSY, SP (SEE FIG 36)	EA	1
C-40	2	XBFFF		1951-1-4670-1	15942	CABLE ASSY, SP (SEE FIG 411	EA	1
C-40	3	XBFFF		1951-1-4671-1	15942	CABLE ASSY, SP (SEE FIG 42)	EA	1
C-40	4	XBFFF		1951-1-4672-1	15942	CABLE ASSY, SP (SEE FIG 43)	EA	1
C-40	5	XBFFF		1951-1-4673-1	15942	CABLE ASSY, SP (SEE FIG 44)	EA	1
C-40	6	XBFFF		1951-1-4674-1	15942	CABLE ASSY, SP (SEE FIG 45)	EA	1
C-40	7	XBFFF		1951-1-4675-1	15942	CABLE ASSY, SP (SEE FIG 46)	EA	1
C-40	8	XBFFF		1951-1-4646-1	15942	CABLE ASSY, RF (SEE FIG 47)	EA	1
C-40	9	XBFFF		1951-1-4646-2	15942	CABLE ASSY, RF (SEE FIG 47)	EA	1
C-40	10	XBFFF		1951-1-4646-3	15942	CABLE ASSY, RF (SEE FIG 471	EA	1
C-40	11	XBFFF		1951-1-4646-4	15942	CABLE ASSY, RF (SEE FIG 47)	EA	1

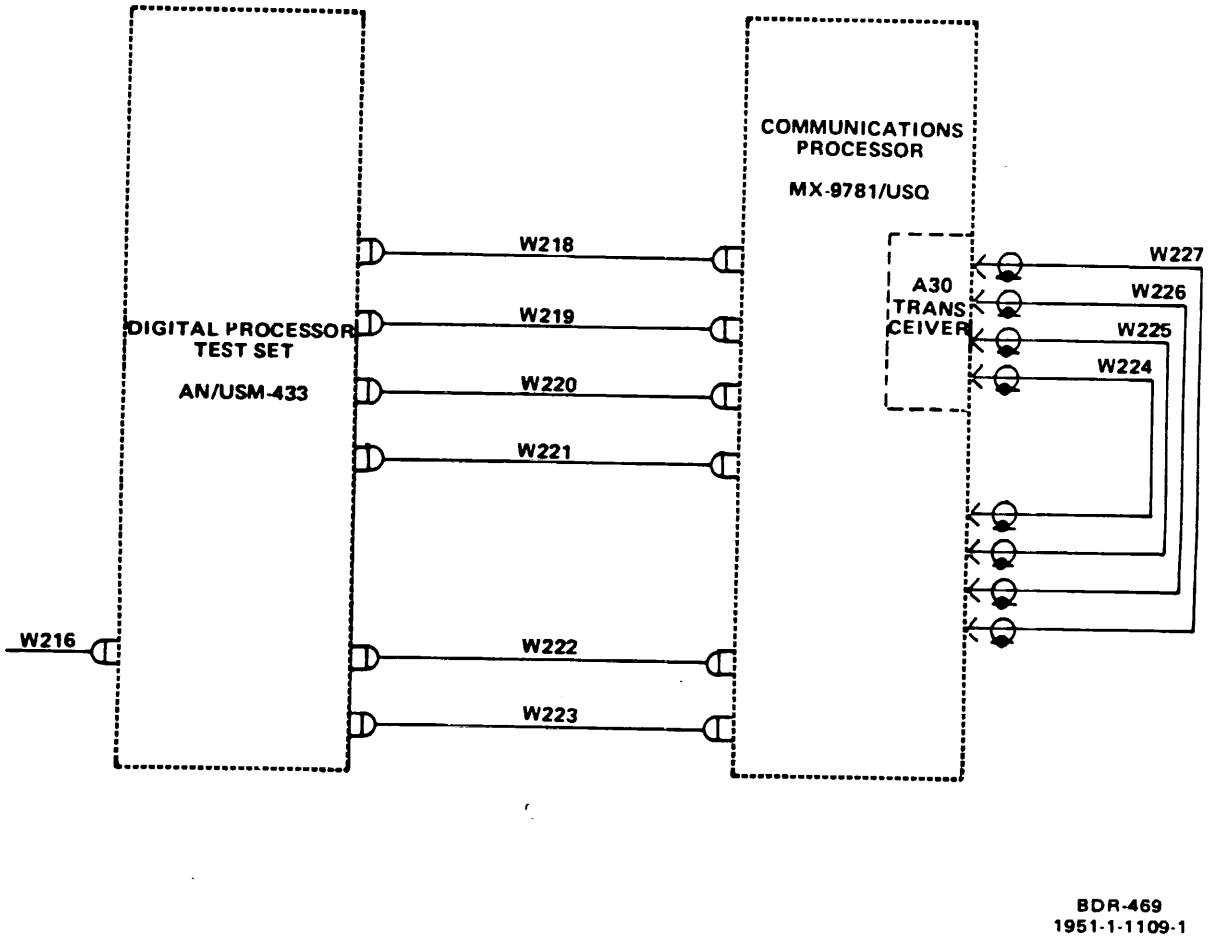


Figure C-40. Digital Processor Test Set Cable Kit Configuration II

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
W216	1	W223	7								
W218	2	W224	8								
W219	3	W225	9								
W220	4	W226	10								
W221	5	W227	11								
W222	6										

Figure C-40. Digital Processor Test Set Cable Kit Configuration II

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						6P 0302 - SPECIAL PURPOSE CABLE ASSEMBLY W218		
C-41	1	PAFZZ	5935-01-025-7808	MS27484T12F35P	96906	CONN, PLUG ELEC	EA	2
C-41	2	XBFZZ		SE9F0908A1-5-12	07418	CLAMP, CABLE	EA	2
C-41	3	XBFZZ		WTW1334	59730	BAND MARKER	EA	2
C-41	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4670-1 MFR 28815 W218
"B" TAG	W218P1 AN/USM-433 (J10)
"C" TAG	W218P2 MX-9781/USQ (J2)

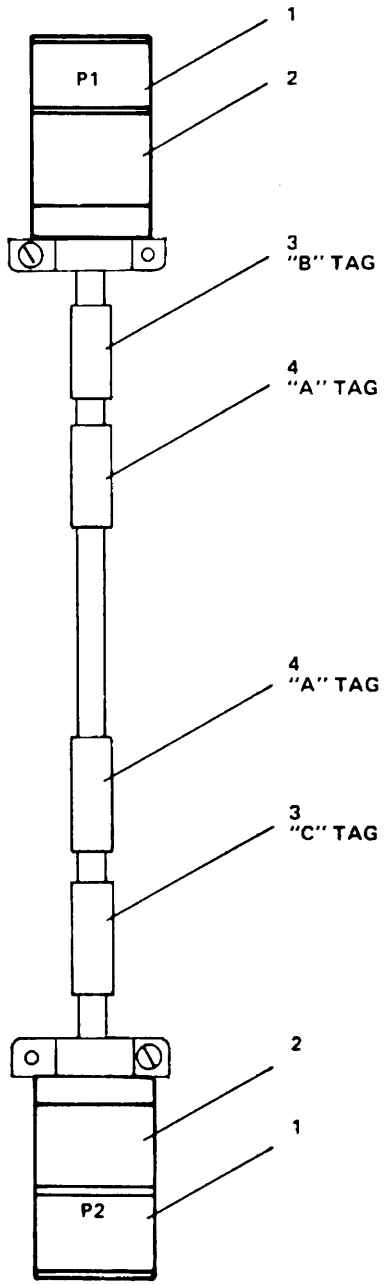


Figure C-41. Special Purpose Cable Assembly W218

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0303 - SPECIAL PURPOSE CABLE ASSEMBLY W219		
C-42	1	PAFZZ	5935-01-056-6280	MS27484T18F32P	96906	CONN, PLUG, ELEC	EA	2
C-42	2	XBFZZ		SE9 FI8101A-5-12	07418	CLAMP, CABLE	EA	2
C-42	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-42	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4671-1 MFR 28815 W219
"B" TAG	W219P1 AN/USM-433 (J6)
"C" TAG	W219P2 MX-9781/USQ (J3)

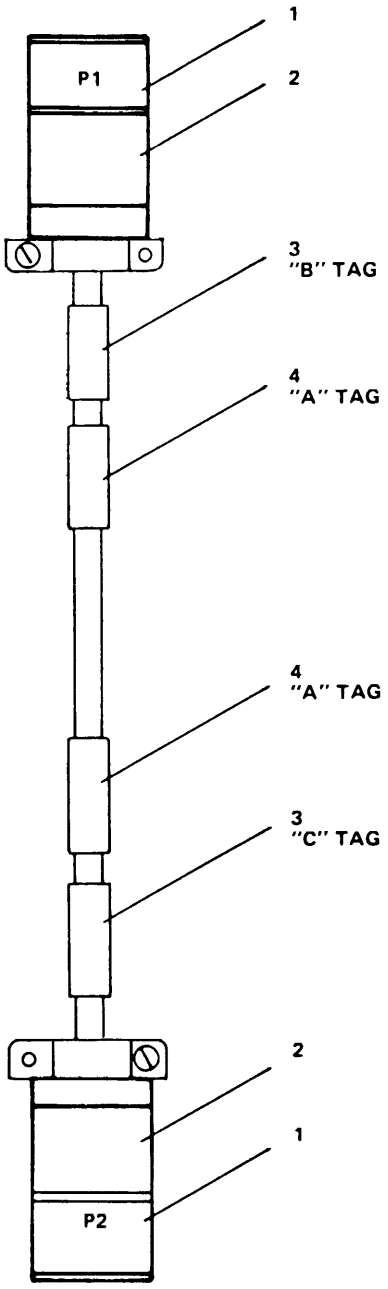


Figure C-42. Special Purpose Cable Assembly W219

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION / USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0304 - SPECIAL PURPOSE CABLE ASSEMBLY W220		
C-43	1	PAFZZ	5935-01-063-4390	MS27484T22F35P	96906	CONN, PLUG, ELEC	EA	2
C-43	2	XBFZZ		SE9F2516A1-5-12	07418	CLAMP, CABLE	EA	2
C-43	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-43	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4672-1 MFR 28815 W220
"B" TAG	W220P1 AN/USM-433 (J16)
"C" TAG	W220P2 MX- 9781/USQ (J4)

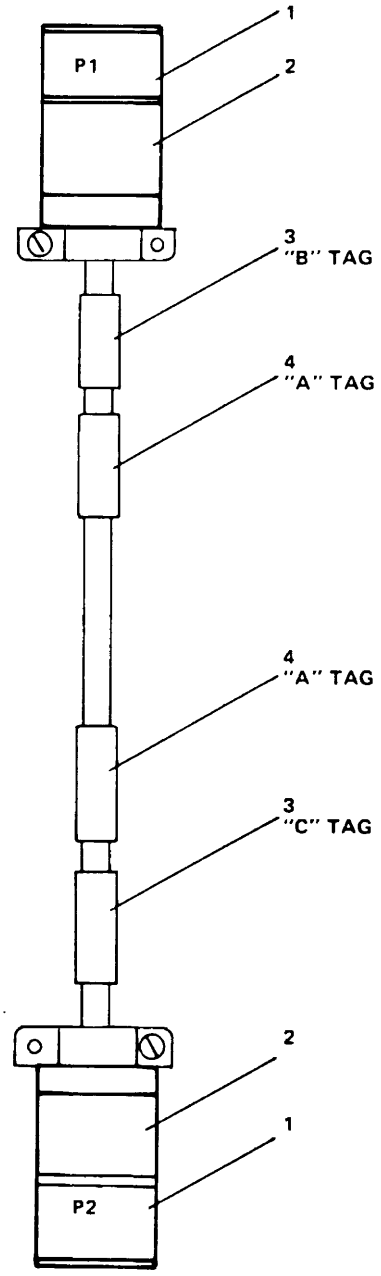
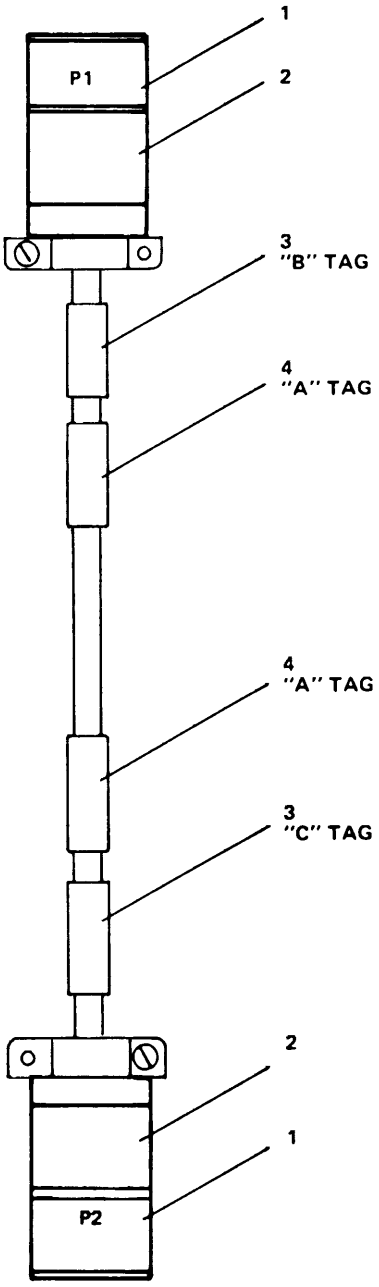


Figure C-43. Special Purpose Cable Assembly W220

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0305 - SPECIAL PURPOSE CABLE ASSEMBLY W221		
C-44	1	PAFZZ	5935-01-024-1877	MS27484T20F35P	96906	CONN, PLUG, ELEC	EA	2
C-44	2	XBFZZ		SE9F2212A1-5-12	07418	CLAMP, CABLE	EA	2
C-44	3	XBFZZ		KTW1334	59730	BAND, MARKER	EA	2
C-44	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4673-1 MFR 28815 W221
"B" TAG	W221P1 AN/USM-433 (J15)
"C" TAG	W221P2 MX-9781/USQ (J5)

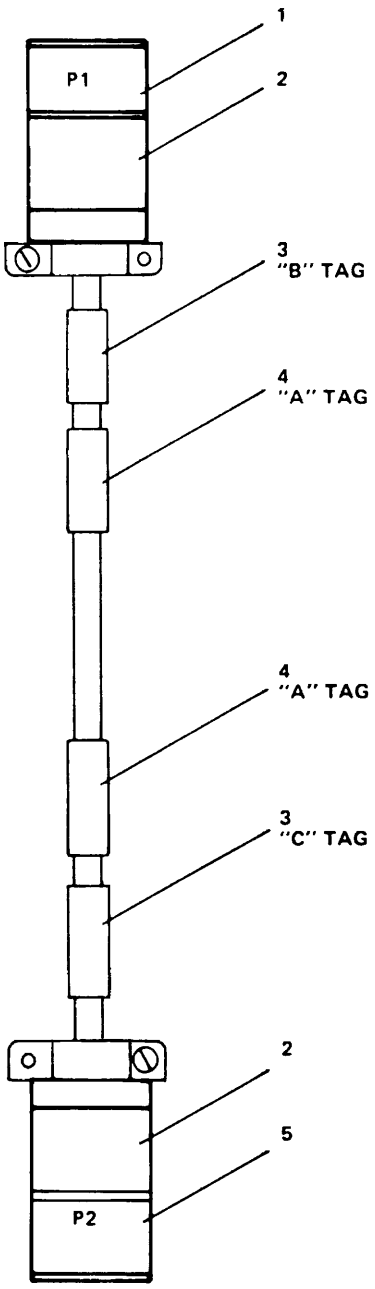


BDR-340
1951-1-4673-1

Figure C-44. Special Purpose Cable Assembly W221

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0306 - SPECIAL PURPOSE CABLE ASSEMBLY W222		
C-45	1	PAFZZ	5935-01-064-5705	MS27484T12F8P	96906	CONN, PLUG, ELEC	EA	1
C-45	2	XBFZZ		SE9F09081-5-12	07418	CLAMP, CABLE	EA	2
C-45	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-45	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-45	5	PAFZZ	5935-01-064-5686	MS27484T12F8S	96906	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4674-1 MFR 28815 W222
"B" TAG	W222P1 AN/USM-433 (J9)
"C" TAG	W222P2 MX-9781/USQ (J10)



BDR-340
1951-1-4673-1

Figure C-45. Special Purpose Cable Assembly W222

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0307 - SPECIAL PURPOSE CABLE ASSEMBLY W223		
C-46	1	PAFZZ	5935-01-064-5695	MS27484T22F21P	96906	CONN, PLUG, ELEC	EA	1
C-46	2	XBFZZ		SE9F2516A1-5-12	07418	CLAMP, CABLE	EA	2
C-46	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-46	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-46	5	PAFZZ	5935-01-064-5696	MS27484T22F21S	96906	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4675-1 MFR 28815 W223
"B" TAG	W223P1 AN/USM-433 (J14)
"C" TAG	W223P2 MX-9781/USQ (J11)

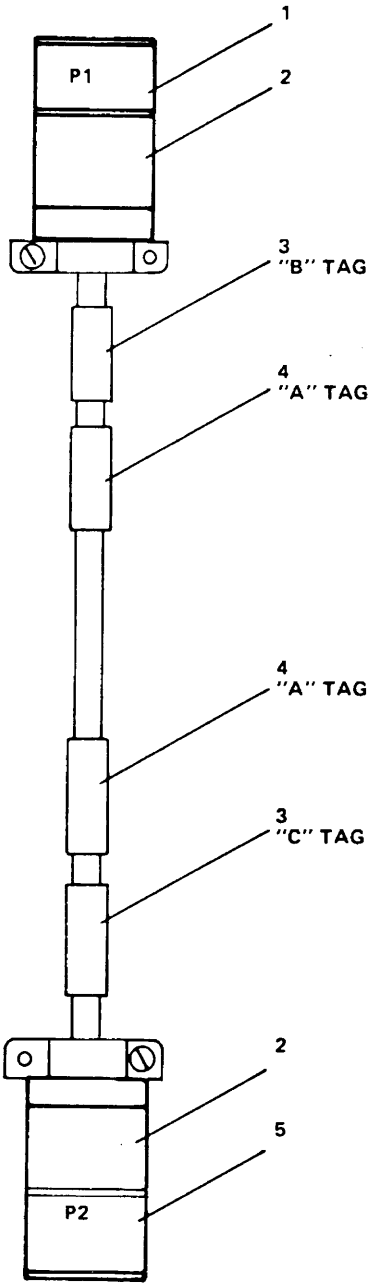
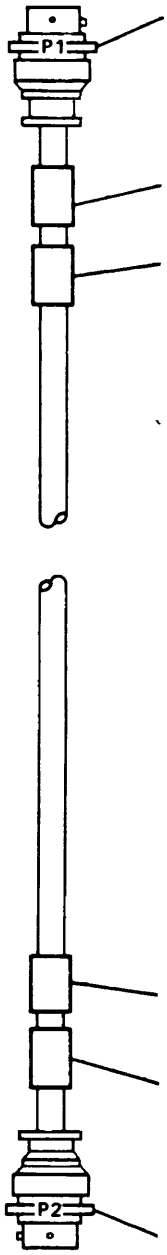


Figure C-46. Special Purpose Cable Assembly W223

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0308 - RF CABLE ASSEMBLY W224, W225, W226, OR W227		
C-47	1	PAFZZ	5935-00-400-4775	M39012-26-0001	81349	CONN, PLUG, ELEC	EA	2
C-47	2	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-47	3	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2



TAG IDENT CHART		
"A" TAG	"B" TAG	"C" TAG
15942 ASSY 1951-1-4646-1 MFR 28815 W224	W224P1 (J5) MX-9781/USQ -A30	W224P2 (J8) MX-9781/USQ
15942 ASSY 1951-1-4646-2 MFR 28815 W225	W225P1 (J4) MX-9781/USQ -A30	W225P2 (J7) MX9781/USQ
15942 ASSY 1951-1-4646-3 MFR 28815 W226	W226P1 (J3) MX-9781/USQ -A30	W226P2 (J9) MX-9781/USQ
15942 ASSY 1951-1-4646-4 MFR 28815 W227	W227P1 (J2) MX-9781/USQ -A30	W227P2 (J6) MX-9781/USQ

BDR-382
1951-1-4646-1

Figure C-47. RF Cable Assembly W224, W225, W226, or W227

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-48		XCFZZ	5865-01-075-1191	1951-1-1110-1	15942	CABLE ASSY SET	EA	1
C-48	1	XBFFF		1951-1-4668-1	15942	CABLE ASSY SP (SEE FIG 361	EA	1
C-48	2	XBFFF		1951-1-4676-1	15942	CABLE ASSY, SP (SEE FIG 491	EA	1
C-48	3	XBFFF		1951-1-4677-1	15942	CABLE ASSY, SP (SEE FIG 50)	EA	1
C-48	4	XBFFF		1951-1-4762-1	15942	CABLE ASSY, SP (SEE FIG 51)	EA	1

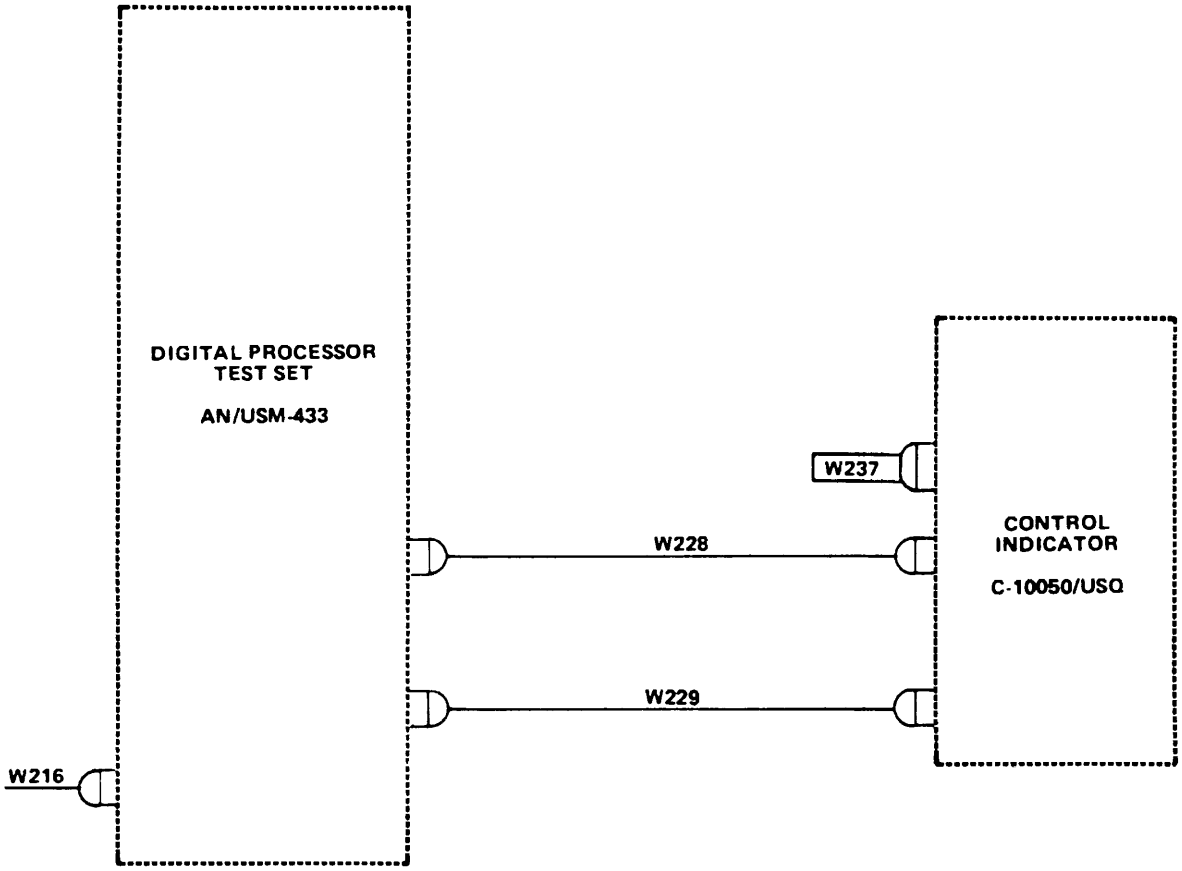


Figure C-48. Digital Processor Test Set Cable Kit Configuration III (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
W216	1										
W228	2										
W229	3										
W237	4										

Figure C-48. Digital Processor Test Set Cable Kit Configuration III (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0402 - SPECIAL PURPOSE CABLE ASSEMBLY W228		
C-49	1	PAFZZ	5935-01-065-4097	MS27484T18F32P	96906	CONN, PLUG, ELEC	EA	1
C-49	2	XBFZZ		SE9F101A1-5-12	07418	CLAMP, CABLE	EA	2
C-49	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-49	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-49	5	PAFZZ	5935-01-056-6280	MS27484T18F32P	96906	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4676-1 MFR 28815 W228
"B" TAG	W228P1 AN/USM-433 (J7)
"C" TAG	W228P2 C-10050/USQ (J2)

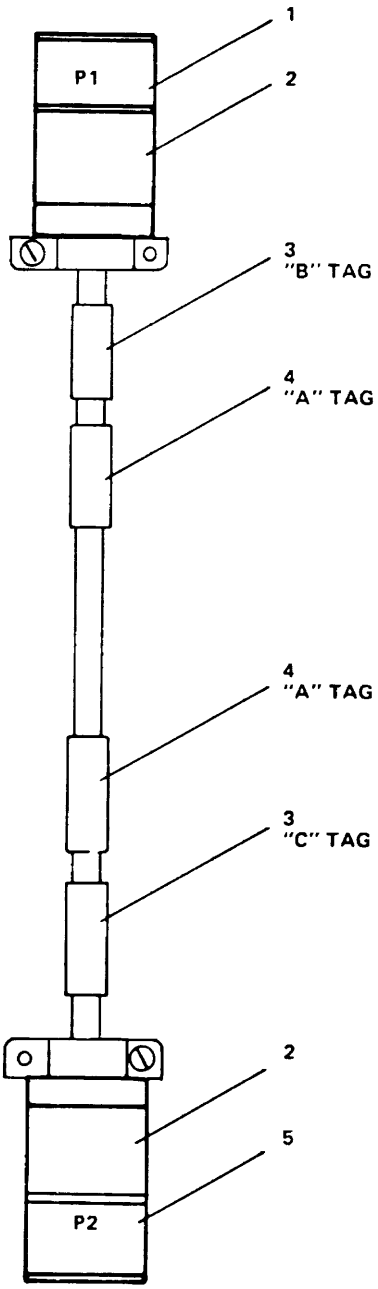


Figure C-49. Special Purpose Cable Assembly W228

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0403 - SPECIAL PURPOSE CABLE ASSEMBLY W229		
C-50	1	PAFZZ	5935-01-064-1594	MS27484TI4F5P	96906	CONN, PLUG, ELEC	EA	1
C-50	2	XBFZZ		SE9F1208A1-5-12	07418	CLAMP, CABLE	EA	1
C-50	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-50	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-50	5	XBFZZ		SE9F0608A1-5-12	07418	CLAMP, CABLE	EA	1
C-50	6	PAFZZ	5935-00-584-4014	MS27484T10F55	96906	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4677-1 MFR 28815 W229
"B" TAG	W229P1 AN/USM-433 (J8)
"C" TAG	W229P2 C-10050/USQ (J1)

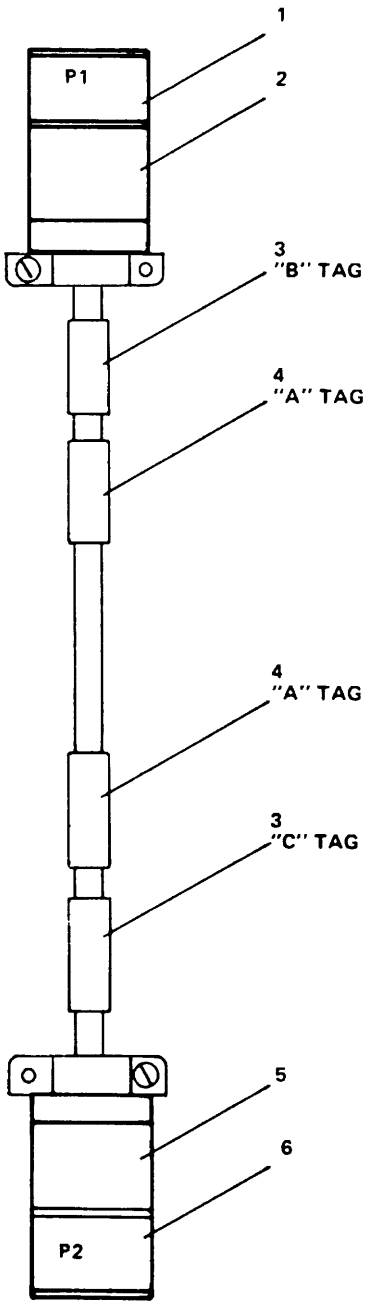
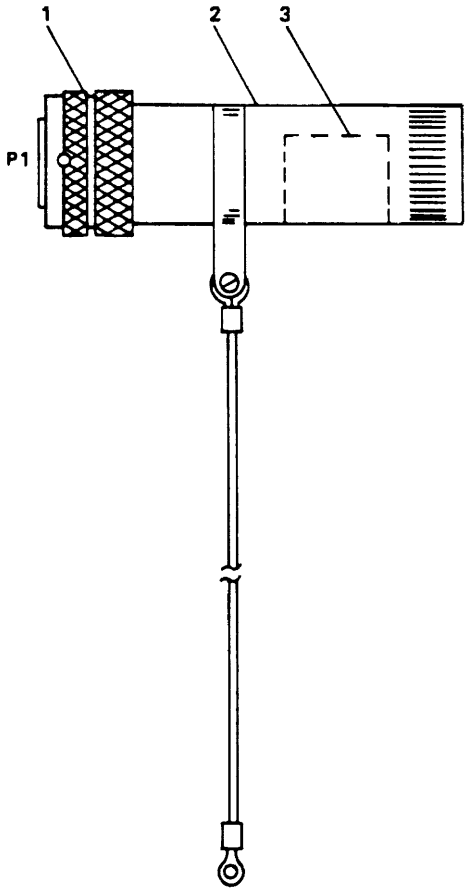


Figure C-50. Special Purpose Cable Assembly W229

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0404 - SPECIAL PURPOSE CABLE ASSEMBLY W237		
C-51	1	XBFZZ	5935-01-056-6271	MS2784T12F35PB	96906	CONN, PLUG, ELEC	EA	1
C-51	2	XBFZZ		SE19F09-2-5C12	07418	CLAMP, CABLE	EA	1
C-51	3	XBFZZ		1951-1-3371-1	15942	BAND MARKER	EA	1



BDR-383
1951-1-4827-1
1951-1-4828-1
1951-1-4762-1

Figure C-51. Special Purpose Cable Assembly W237

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 05 - DIGITAL PROCESSOR TEST SET CABLE KIT CONFIGURATION IV		
C-52		XCFZZ	5865-01-070-6590	1951-1-1111-1	15942	CABLE ASSY, SET	EA	1
C-52	1	XBFFF		1951-1-4668-1	15942	CABLE ASSY, SP (SEE FIG 36)	EA	1
C-52	2	XBFFF		1951-1-4743-1	15942	CABLE ASSY, RF (SEE FIG 53)	EA	1
C-52	3	XBFFF		1951-1-4744-1	15942	CABLE ASSY, RF (SEE FIG 39)	EA	1
C- 52	4	XBFFF		1951-1-4745-1	15942	CABLE ASSY, RF (SEE FIG 541	EA	1
C-52	5	XBFFF		1951-1-4746-1	15942	CABLE ASSY, RF (SEE FIG 55)	EA	1
C-52	6	XBFFF		1951-1-4743-2	15942	CABLE ASSY, RF (SEE FIG 531	EA	1
C-52	7	XBFFF		1951-1-4744-2	15942	CABLE ASSY, RF (SEE FIG 39)	EA	1
C-52	e	XBFFF		1951-1-4745-2	15942	CABLE ASSY, RF (SEE FIG 54)	EA	1
C-52	9	XBFFF		1951-1-4746-2	15942	CABLE ASSY, RF (SEE FIG 55)	EA	1
C-52	10	XBFFF		1951-1-4747-1	15942	CABLE ASSY, SP (SEE FIG 56)	EA	1
C-52	11	PAFZZ	5935-49-219-54	20200-1	16179	ADAPTER, CONN	EA	2

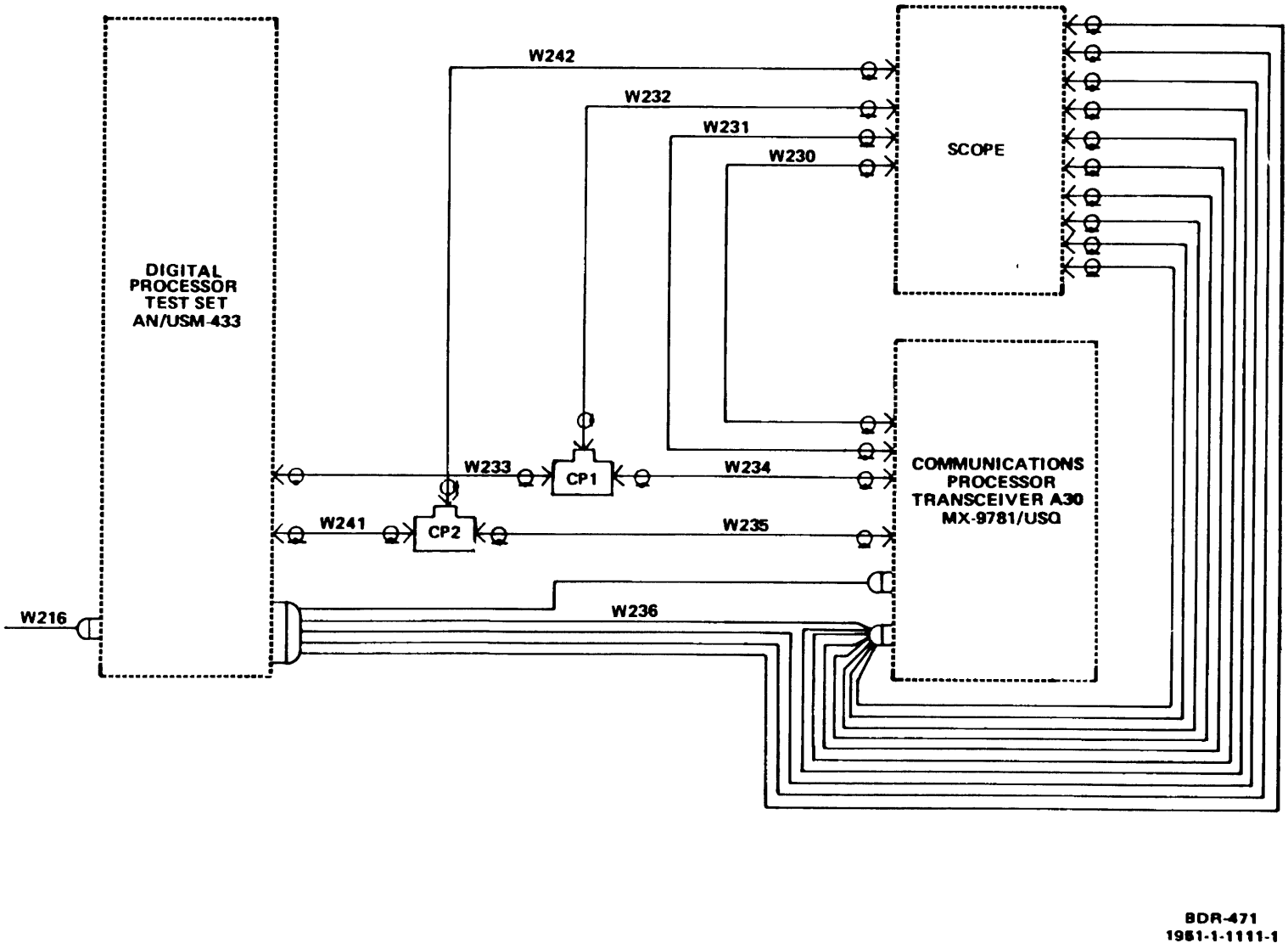


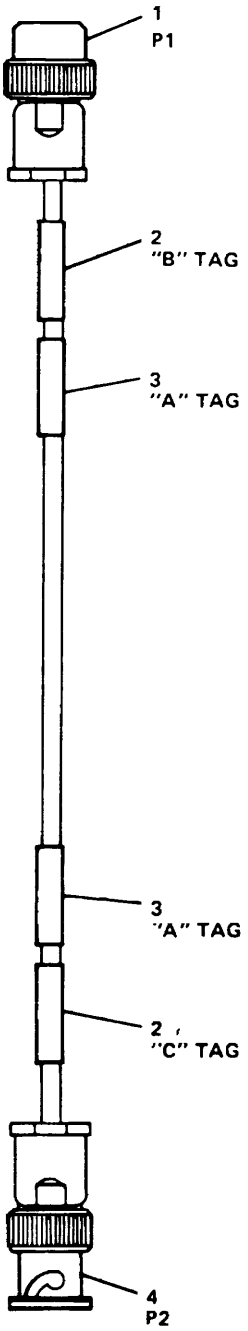
Figure C-52. Digital Processor Test Set Cable Kit Configuration IV (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CP1	11	W233	5								
CP2	11	W234	6								
W216	1	W235	7								
W230	2	W236	8								
W231	3	W241	9								
W232	4	W242	10								

Figure C-52. Digital Processor Test Set Cable Kit Configuration IV (Sheet 2 of 2)

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0502 - RF CABLE ASSEMBLY W230 OR W231		
C-53	1	PAFZZ	5935-00-400-4775	M39012-26-0001	81349	CONN, PLUG, ELEC	EA	1
C-53	2	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-53	3	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-52	4	PAFZZ	5935-00-004-6257	M39012-16-0014	81349	CONN, PLUG, ELEC	EA	1

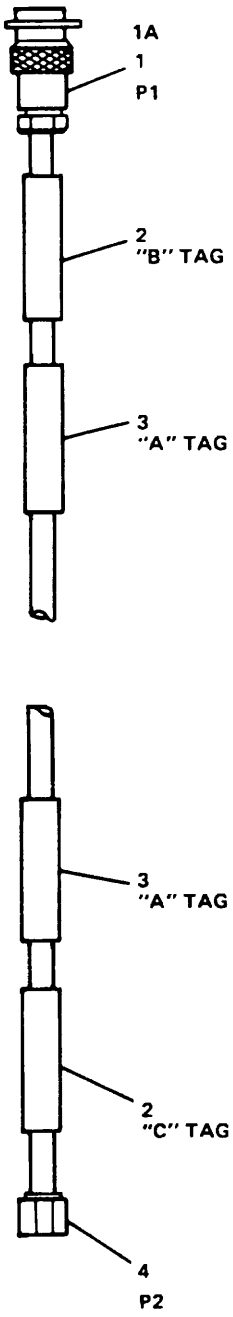


TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4743-1 MFR 28815 W230
	15942 ASSY 1951-1-4743-2 MFR 28815 W231
"B" TAG	W230P1 MX-9781/USQ-A30 (J2)
	W231P1 MX-9781/USQ-A30 (J4)
"C" TAG	W230P2 SCOPE RCV CLK
	W231P2 SCOPE RCV DATA

BDR-361
1951-1-4743-1

Figure C-53. RF Cable Assembly W230 or W231

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0505 - RF CABLE ASSEMBLY W233 or W234		
C-54	1	PAFZZ	5935-01-043-5841	139012-26-0101	81349	CONN, PLUG ELEC (U0O -1 ONLY)	EA	2
C-54	1A	PAFZZ	5935-00-400-4775	M39012-26-0001	81349	CONN, PLUG,ELEC (U/O -2 ONLY)	EA	1
C-54	2	XBFZZ		WTW1334	59730	BAND MARKER	EA	2
C-54	3	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND MARKER	EA	2
C-54	4	PAFZZ		M39012-55-3016	81349	CDNN, PLUG,ELEC	EA	1



TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4745-1 MFR 28815 W233
	15942 ASSY 1951-1-4745-2 MFR 28815 W234
"B" TAG	W233P1 AN/USM-433 (J4)
	W234P1 MX-9781/USQ-A30 (J3)
"C" TAG	W233P2 (CP1)
	W234P2 (CP1)

BDR-362
1951-1-4745-1

Figure C-54. RF Cable Assembly W233 or W234

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0507 - RF CABLE ASSEMBLY W235 OR W241		
C-55	1	PAFZZ	5935-00-400-4775	M39012-26-0001	81349	CONN, PLUG, ELEC	EA	1
C-55	2	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-55	3	XBFZZ	7690-01-052-4755	WTWZ334	59730	BAND, MARKER	EA	2
C-55	4	PAFZZ		N390 12-55-30 16	81349	CONN, PLUG, ELEC	EA	1

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4746-1 MFR 28815 W235
	15942 ASSY 1951-1-4746-2 MFR 28815 W241
"B" TAG	W235P1 MX-9781/USQ-A30 (J5)
	W241P1 AN/USM-433 (J5)
"C" TAG	W235P2 (CP2)
	W241P2 (CP2)

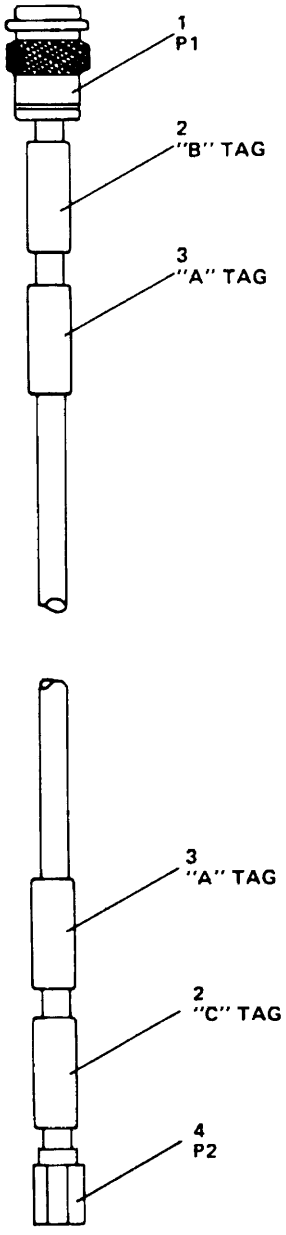
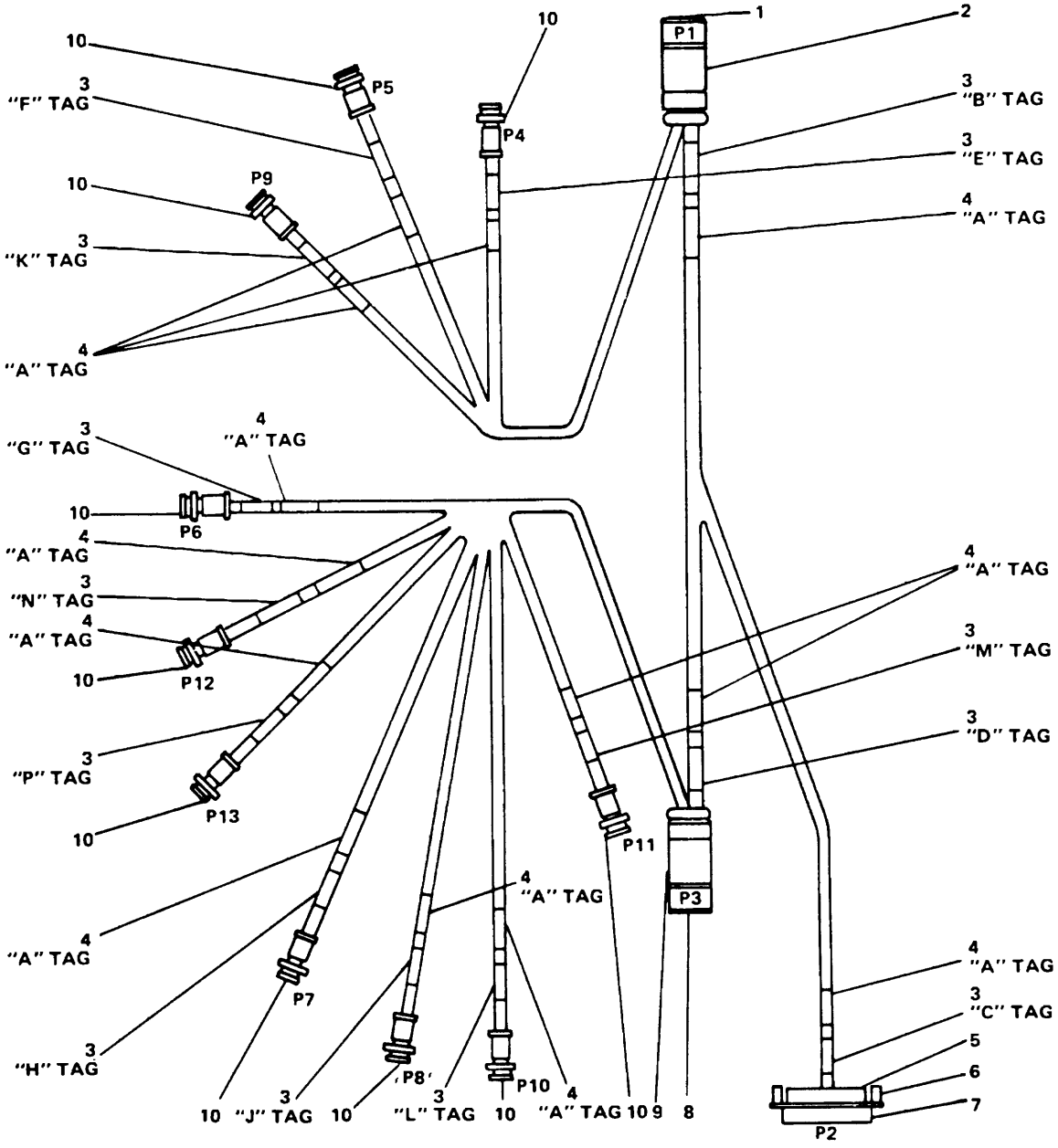


Figure C-55. RF Cable Assembly W235 or W241

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GP 0508 - SPECIAL PURPOSE CABLE ASSEMBLY W236		
C-56	1	PAFZZ	5935-01-056-6279	MS27484T14F35P	96906	CONN, PLUG, ELEC	EA	1
C-56	2	XBFZZ		SE9F1210A1-5-12	07418	CLAMP, CABLE	EA	1
C-56	3	XBFZZ		WTW1334	59730	BANDO, MARKER	EA	13
C-56	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	13
C-56	5	XBFZZ	5935-00-683-5095	DA20961	71468	ADAPTER,CONN	EA	I
C-56	6	XBFZZ	5307-00-481-6640	0110550	71468	JACKSCREW	EA	1
C-56	7	PAFZZ	5935-00-498-5785	N24308-1-2	81349	CONN, RCPT, ELEC	EA	I
C-56	8	PAFZZ	5935-01-012-9810	1MS27484T16F265	96906	CONN, PLUG, ELEC	EA	1
C-56	9	XBFZZ		SE9F1510A1-5-12	07418	CLAMP, CABLE	EA	1
C-56	10	PAFZZ	5935-00-258-7190	13925	02660	CONN, PLUG, ELEC	EA	10



TAG IDENT CHART					
"A" TAG	15942 ASSY 1951-1-4747-1 MFR 28815 W236	"E" TAG	W236P4 CHAN ACT	"K" TAG	W236P9 PR SYNC
"B" TAG	W236P1 AN/USM-433 (J11)	"F" TAG	W236P5 AGC DET	"L" TAG	W236P10 VOICE RCV
"C" TAG	W236P2 MX-9781/USQ-A30 (J6)	"G" TAG	W236P6 XMIT KEY	"M" TAG	W236P11 DATA RCV
"D" TAG	W236P3 MX-9781/USQ-A30 (J1)	"H" TAG	W236P7 DATA XMIT	"N" TAG	W236P12 KY-CP AUD OUT
		"J" TAG	W236P8 VOICE XMIT	"P" TAG	W236P13 KY-CP AUD IN

BDR-363
1951-1-4747-1

Figure C-56. Special Purpose Cable Assembly W236

Section V. SPECIAL TOOLS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-1		XBFDD	6625	1951-1-4351-1	15942	ROM PROGRAMMER-SIMULATOR MX-9854/U (SEE TM 32-5811-028-14&P)	EA	1
C-20		XCFZZ	5865	1951-1-1112-1	15942	CABLE KIT, PROGRAMMER-SIMULATOR (SEE TM 32-5811-028-14&P	EA	1

Section VI.
NATIONAL STOCK NUMBER AND PORT NUMBER INDEX

NATL STCK NUM	FIGURE	ITEM
	C-1	1
	C-1	3
	C-1	4
	C-1	5
	C-1	6
	C-1	7
	C-1	8
	C-1	9
	C-1	12
	C-1	14
	C-1	17
	C-1	26
	C-1	27
	C-1	40
	C-1	43
	C-1	45
	C-1	47
	C-1	50
	C-1	52
	C-1	S8
	C-1	60
	C-1	64
	C-1	67
	C-1	68
	C-1	70
	C-1	72
	C-1	74
	C-1	88
	C-1	89
	C-1	92
	C-1	99
	C-1	102
	C-1	104
	C-1	107
	C-1	109
	C-1	110
	C-1	11
	C-1	113
	C-1	114
	C-1	115
	C-1	117
	C-1	118
	C-2	3
	C-2	8
	C-2	11
	C-2	13
	C-3	1
	C-4	4
	C-4	8
	C-4	11
	C-5	1
	C-5	2
	C-5	12
	C-5	21
	C-5	25
	C-6	1
	C-6	2
	C-7	S
	C-8	5
	C-8	8
	C-8	9
	C-8	15
	C-8	19
	C-9	4
	C-9	14
	C-9	15
	C-9	25
	C-10	3
	C-10	14
	C-10	15
	C-10	19
	C-10	22
	C-10	29
	C-10	32
	C-10	33
	C-11	6
	C-11	14
	C-11	18
1	C-12	5
	C-12	6
	C-12	17
	C-13	3
	C-13	21
	C-13	29
	C-13	31
	C-13	32
	C-14	6
	C-14	12
	C-14	13
	C-14	16
	C-14	17
	C-14	24
	C-14	29
	C-14	30
	C-14	31
	C-14	40
	C-14	52
	C-15	4
	C-15	9
	C-15	16
	C-15	19
	C-15	20
	C-15	21
	C-15	23
	C-15	24
	C-16	1
	C-16	2
	C-16	8
	C-16	10
	C-16	14
	C-17	10
	C-17	16
	C-17	19
	C-17	20
	C-11	21
	C-18	2
	C-18	4
	C-18	8
	C-18	10
	C-19	1
	C-19	4
	C-20	18
	C-20	19
	C-20	20
	C-20	22
	C-21	2
	C-21	3
	C-22	2
	C-22	3
	C-23	2
	C-23	3
	C-24	2
	C-24	3
	C-25	2
	C-26	2
	C-27	2
	C-28	2
	C-28	3
	C-29	2
	C-29	3
	C-30	2
	C-30	3
	C-31	2
	C-31	3
	C-32	2
	C-32	3
	C-33	2
	C-33	3
	C-33	5
	C-34	2
	C-34	3
	C-35	2
	C-35	3
	C-36	2
	C-36	3
	C-37	2

NATIONAL STOCK NUWBER AND PORT NUMBER INDEX

NATL STCK NUM	FIGURE	ITEM
	C-37	3
	C-38	2
	C-3S	2
	C-40	6
	C-40	7
	C-40	8
	C-40	9
	C-40	10
	C-40	11
	C-41	7
	C-41	3
	C-42	2
	C-42	3
	C-43	2
	C-43	3
	C-44	2
	C-44	3
	C-45	2
	C-45	3
	C-46	2
	C-46	3
	C-47	2
	C-48	2
	C-48	3
	C-48	4
	C-49	2
	C-45	3
	C-50	2
	C-50	3
	C-50	5
	C-51	2
	C-51	3
	C-52	2
	C-52	3
	C-52	4
	C-52	5
	C-52	6
	C-52	7
	C-52	8
	C-52	9
	C-52	10
	C-53	2
	C-54	2
	C-55	2
	C-56	2
	C-56	3
	C-56	9
	C-38A	2
	C-38A	3
	C-38B	2
	C-388	3
4140-01-076-4259	C-17	25
4520-00-110-5317	C-1	97
5305-00-104-5638	C-15	13
5305-00-054-5639	C-5	19
5305-00-054-5s63	C-8	13
5305-00-054-5648	C-1	61
5305-00-054-5648	C-16	3
5305-00-054-5648	C-17	17
5305-00-054-5650	C-17	27
5305-00-054-5656	C-17	3
5305-00-054-5650	C-1	84
5305-00-054-6652	C-1	53
5305-00-056-9961	C-17	13
5305-00-059-3861	C-1	15
5305-00-066-7325	C-16	9
5305-00-068-6605	C-1	20
5305-00-205-3674	C-1	59
5305-00-253-5603	C-2	12
5305-00-253-5603	C-5	22
5305-00-253-5603	C-8	16
5305-00-253-5603	C-15	15
5305-00-301-6203	c-18	1
5305-00-301-6215	C-1	7
5305-00-301-6218	C-18	12
5305-00-372-9585	C-1	2
5305-00-582-6151	C-1	82
5305-00-993-9189	C-1	100
5305-00-029-9189	C-16	13
5305-01-029-8891	C-1	5S
5305-01-051-2717	C-1	10
5307-00-158-4408	C-1	49
5307-00-417-1172	C-1	81
5307-00-481-6640	C-56	6
5307-00-486-3376	C-1	48
5310-00-208-3786	C-1	19
5310-00-208-3786	C-16	11
5310-00-206-3786	C-17	14
5310-00-201-7181	C-1	83
5310-00-301-5887	C-18	11
5210-00-585-7962	C-1	69
5310-00-585-8028	C-1	46
5310-00-555-6211	C-1	24
5310-00-555-6211	C-17	4
5310-00-599-6761	C-5	20
5310-00-595-6761	C-8	14
5310-00-595-6761	C-15	12
5310-00-619-1148	C-1	16
5310-00-615-5280	C-1	18
5310-00-722-5998	C-1	54
5310-00-782-1349	C-16	4
5310-00-803-4663	C-1	44
5310-00-812-4294	C-5	18
5310-00-812-4294	C-8	12
5310-00-812-4294	C-15	14
5310-00-845-1984	C-1	96
5310-00-928-2690	C-15	22
5310-00-92S-6395	C-1	108
5310-00-933-8118	C-1	21
5310-00-933-8118	C-16	5
5310-00-933-8118	C-17	5
5320-00-117-6938	C-1	94
5320-00-117-6938	C-17	18
5320-00-243-8357	C-2	6
5320-00-243-8357	C-4	6
5320-00-243-8357	C-5	24
5320-00-243-8357	C-8	18
5320-00-243-8357	C-9	26
5320-00-243-8357	C-10	7
5320-00-243-8357	C-11	19
5320-00-243-8357	C-12	18
5320-00-243-8357	C-13	7
5120-00-243-8357	C-14	53
5320-00-243-8357	C-15	11
5325-00-601-7292	C-1	95
5325-00-758-0113	C-1	116
5325-01-035-7460	C-1	79
5325-01-035-7460	C-18	9
5340-00-719-6438	C-1	119
5340-00-984-6629	C-17	26
5805-00-342-4514	C-1	91
5805-00-342-4514	C-19	3
5811-01-304-7213	C-1	62
5865-01-065-3620	C-1	85
5865-01-070-6588	C-20	
5865-01-070-6589	C-40	
5865-01-070-6590	C-52	
5865-01-075-1191	C-48	
5895-01-031-0968	C-17	6
5905-00-028-9379	C-7	4
5905-00-106-1278	C-14	25
5905-00-106-3666	C-12	10
5905-00-106-3666	C-14	14
5905-00-110-0388	C-13	10
5905-00-110-7620	C-2	7
5905-00-110-7620	C-4	7
5505-00-110-7620	C-10	12
5905-00-110-7620	C-13	8
5905-00-110-7620	C-14	11
5905-00-110-7620	C-15	6
5905-00-110-7622	C-14	21
5905-00-111-1679	C- 12	9
5505-00-111-1679	C-14	22
5905-00-131-9729	C-10	11
5905-00-131-9729	C-11	8
5905-00-131-9729	C-12	8

NATIONAL STOCK NUWBER AND PORT NUMBER INDEX

NATL STCK NUM	FIGURE	ITEM
5905-00-131-9729	C-14	27
5905-00-141-1855	C-10	10
5905-00-141-1869	C-14	20
5905-00-141-1883	C-14	28
5905-00-141-1888	C-10	17
5905-00-141-1888	C-14	18
5905-00-141-1895	C-10	18
5905-00-141-2002	C-10	16
5905-00-141-2002	C-13	9
5905-00-141-2003	C-14	10
5905-00-141-2001	C-14	26
5505-00-255-9504	C-17	7
5905-00-419-5258	C-14	23
5905-00-461-8987	C-9	10
5505-00-568-7228	C-7	7
5905-00-568-7228	C-9	9
5905-00-568-7228	C-10	8
5905-00-568-7472	C-10	13
5905-00-568-7504	C-10	9
5905-00-568-7509	C-7	1
5905-00-568-7690	C-17	1
5905-00-568-7826	C-9	8
5905-00-890-5637	C-14	19
5905-00-997-2192	C-111	7
5905-00-997-2192	C-12	7
5905-00-997-2192	C-14	32
5905-00-997-2192	C-15	5
5905-01-PAB-0392	C-14	15
5905-01-051-9144	C-5	10
5905-01-068-9314	C-5	13
5905-01-072-3830	C-13	24
5510-00-007-2004	C-9	2
5910-00-010-8717	C-2	4
5910-00-010-8717	C-4	3
5910-00-010-8717	C-5	4
5910-00-010-6717	C-7	3
5910-00-010-8717	C-8	2
5910-00-010-8717	C-9	3
5910-00-010-8717	C-11	2
5910-00-010-8717	C-11	1
5510-00-010-8717	C-12	1
5910-00-010-8717	C-13	1
5910-00-010-8717	C-14	5
5910-00-010-0717	C-15	2
5910-00-010-8721	C-14	7
5910-00-113-5475	C-10	4
5910-00-144-4383	C-14	3
5910-00-199-5335	C-14	4
5910-00-465-9759	C-14	2
5910-00-996-0667	C-2	2
5910-00-996-0667	C-4	2
5910-00-996-0667	C-5	3
5910-00-996-0667	C-8	1
5910-00-996-0667	C-9	1
5910-00-996-0667	C-10	1
5910-00-996-0667	C-11	3
5910-00-996-0667	C-12	3
5910-00-996-0667	C-13	4
5910-00-996-0667	C-15	1
5910-01-010-6473	C-9	5
5910-01-010-6473	C-11	2
5910-01-010-6473	C-12	2
5910-01-010-6473	C-13	2
5915-01-065-8363	C-1	98
5925-00-431-3256	C-1	42
5925-00-867-7901	C-1	39
5930-00-615-6731	C-1	112
5935	C-1	13
5935	C-8	4
5935	C-13	6
5915	C-25	4
5935	C-39	4
5935	C-54	4
5935	C-55	4
5935-00-004-6257	C-38	1
5935-00-004-6257	C-39	1
5935-00-004-6257	C-53	4
5935-00-004-6257	C-54	1
5925-00-259-7190	C-56	10
5935-00-400-4775	C-25	1
5935-00-400-4775	C-26	1
5935-00-400-4775	C-27	1
5935-00-400-4775	C-38	4
5935-00-400-4775	C-47	1
5935-00-400-4775	C-53	1
5935-00-400-4775	C-54	1A
5935-00-400-4715	C-55	1
5935-00-402-1153	C-1	11
5935-00-458-5785	C-56	7
5935-00-584-4014	C-5C	6
5935-00-683-5095	C-56	5
5935-00-851-2451	C-5	5
5935-00-851-2451	C-8	3
5925-00-851-2451	C-15	3
5935-00-988-6438	C-9	6
5935-00-988-6438	C-10	5
5935-00-988-6438	C- 11	4
5935-00-988-6438	C-12	4
5935-00-988-6438	C-13	5
5935-00-988-6438	C-14	8
5935-01-012-9810	C-56	8
5935-01-012-1241	C-3	2
5935-01-017-5889	C-1	73
5535-01-021-7829	C-18	5
5935-01-022-4830	C-23	5
5935-01-023-5428	C-33	6
5935-01-024-1877	C-23	1
5935-01-024-1877	C-35	1
5935-01-024-1877	C-44	1
5935-01-024-1895	C-1	31
5935-01-025-7808	C-21	1
5935-01-025-7808	C-32	1
5935-01-025-7808	C-33	1
5935-01-025-7808	C-41	1
5935-01-025-7808	C-38A	1
5935-01-031-5627	C-1	29
5935-01-032-5411	C-18	3
5935-01-038-7932	C- 19	5
5935-01-042-2410	C-1	32
5925-01-042-5841	C-54	1
5935-01-049-3172	C-1	106
5935-01-056-3259	C-17	22
5935-01-016-3578	C-1	35
5935-01-016-3587	C-1	25
5935-01-059-6271	C-51	1
5935-01-059-6279	C-56	1
5935-01-056-6280	C-42	1
5935-01-058-6280	C-49	5
5935-01-063-4390	C-24	1
5935-01-063-4390	C-34	1
5935-01-063-4390	C-43	1
5935-01-063-9127	C-37	1
5935-01-064-1594	C-31	1
5935-01-064-1594	C-50	1
5535-01-064-5686	C-1	56
5935-01-064-5686	C-28	5
5935-01-064-5686	C-45	5
5935-01-084-5687	C-30	5
5935-01-084-5651	C- 22	1
5935-01-094-5691	C-32	5
5935-01-094-5651	C-38B	1
5935-01-094-5652	C-31	5
5935-01-064-5692	C-36	1
5935-01-064-5695	C-1	55
5935-01-064-5695	C-29	1
5935-01-064-5695	C-46	1
5935-01-064-5656	C-29	5
5935-01-064-5656	C-46	5
5935-01-064-5705	C-28	1
5935-01-064-5705	C-45	1
5935-01-064-6814	C-24	5
5935-01-064-7840	C-17	51
5935-01-064-8353	C-5	6
5935-01-064-8355	C-10	6
5935-01-064-8361	C-4	5
5925-01-064-9930	C-14	9

NATIONAL STOCK NUWBER AND PORT NUMBER INDEX

NATL STCK NUM	FIGURE	ITEM
5935-01-065-4015	C-9	7
5935-01-065-4097	C-45	1
5935-01-065-6391	C-1	30
5935-01-065-6391	C-17	12
5935-01-065-6401	C-1	23
5935-01-065-7978	C-30	1
5935-01-065-8000	C-1	33
5935-01-065-8001	C-1	34
5935-01-066-3036	C-1	36
5935-01-076-4498	C-11	5
5935-01-076-4499	C-2	5
5935-49-219-54	C-20	23
5935-49-219-54	C-52	11
5940-00-557-1629	C-1	57
5940-00-682-2477	C-1	22
5940-00-682-2477	C-19	6
5940-00-839-0828	C- 1	38
5945-00-038-5823	C-1	101
5945-00-063-6265	C-1	103
5945-00-509-2831	C-1	105
5961-00-104-1395	C-14	1
5961-00-450-8526	C-14	48
5961-01-016-7282	C-2	1
5961-01-016-7282	C-4	1
5961-01-024-2145	C-14	47
5961-01-046-7149	C-2	9
5961-01-046-7149	C-4	9
5962	C-11	12
5962	C-13	22
5962-00-024-0653	C-5	11
5962-00-131-9460	C-14	44
5962-00-173-9776	C-9	20
5496-00-173-9776	C-12	13
5962-00-173-9776	C-13	12
5982-00-264-3566	C-9	19
5962-00-264-4622	C-14	46
5962-00-284-3971	C-4	10
5962-00-318-2223	C-9	12
5962-00-318-2223	C-13	27
5962-00-318-2223	C-14	37
5962-00-318-2224	C-14	39
5962-00-341-0544	C-8	6
5962-00-341-C544	C-9	16
5962-00-348-2 541	C-9	11
5962-00-348-2541	C-14	38
5962-00-348-2715	C-14	41
5962-00-361-8648	C-14	42
5962-00-361-8732	C-14	35
5962-00-365-9716	C-2	10
5962-00-369-7606	C-10	26
5962-00-369-7606	C-13	26
5962-00-369-7641	C-5	15
5962-00-369-7641	C-9	13
5962-00-369-9839	C-14	43
5962-00- 378-0216	C-5	8
5962-00-378-0216	C-8	7
5962-00-390-7958	C-10	23
5962-00-390-7970	C-10	21
5962-00-390-7970	C-13	17
5962-00-390-8013	C-13	19
5962-00-396-2262	C-13	18
5962-00-428-7136	C-14	45
5962-00-428-7318	C-14	34
5962-00-428-7809	C-5	14
5965-00-542-9418	C-10	24
5962-00-542-9418	C-11	11
5962-00-542-9418	C-13	20
5962-00-550-9024	C-13	11
5962-00-584-3996	C-10	25
5962-00-584-3996	C-11	13
5962-00-584-3996	C-12	11
5962-00-584-3996	C-13	30
5962-01-006-0180	C-5	9
5562-01-008-9563	C- 5	7
5962-01-008-9563	C-10	27
5962-01-009-6125	C-10	31
5962-01-015-5987	C-13	15
5962-01-015-5994	C-111	9
5962-01-015-8535	C-14	33
5962-01-016-2691	C-10	28
5962-01-016-2691	C-1 3	2
5962-01-028-6123	C-13	14
5962-01-028-6124	C-13	25
5962-01-028-6125	C-10	ZO
5962-01-028-6126	C-1z	12
5962-01-028-9756	C-13	28
5962-01-028-9156	C-1 4	36
5962-01-031-4471	C-9	21
5962-01-037-6785	C-1C	30
5962-01-031-6785	C-1	10
5962-01-031-6785	C-13	16
5962-01-039-6396	C-15	7
5962-01-043-1614	C-15	8
5962-01-046-0469	C-9	17
5962-01-046-0469	C-13	13
5962-01-069-0006	C-9	18
5570-00-135-0006	C-18	6
5970-00-275-5242	C-1	78
5570-00-355-8018	C-3	3
5970-00-044-0465	C-1	80
5970-01-021-9353	C-1	77
5970-01-042-5759	C-1	37
5995	C-20	1
5995	C-20	2
5995	C-20	3
5995	C-20	4
5995	C-20	5
5995	C-20	6
5995	C-20	7
5995	C-20	8
5995	C-20	9
5995	C-20o	10
5995	C-20	11
5995	C-20	12
5995	C-20	13
5995	C-20	14
5995	C-20	15
5995	C-20	16
5995	C-20	17
5995	C-20	21
5995	C-4C	1
5995	C-40	2
5995	C-40	3
5995	C-40	4
5995	C-40	5
5995	C-48	1
5995	C-52	1
5999-00-043-1418	C-16	12
5999-00-137-5066	C-1	41
5999-00-234-1957	C-1	93
5999-00-401-2054	C-16	7
5999-00-605-7936	C-2	51
5999-00-605-7936	C-4	12
5999-00-605-7936	C-5	23
5999-00-605-7936	C-8	17
5999-00-605-7936	C-9	24
5999-00-605-7936	C-10	34
5999-00-605-7936	C-1	17
5999-00-605-7936	c- 12	16
5999-00-605-7936	C-13	33
5999-00-605-7936	C-14	51
5999-00-605-7936	C- 15	17
5999-00-759-0618	C-16	6
5999-00-111-0253	C-3	4
5999-01-016-0254	C-3	5
5999-01-028-6070	C-2	16
5999-01-028-6070	C-4	14
5999-01-028-6070	C- 5	16
5999-01-028-6070	C-8	10
5999-01-028-6070	C-9	22
5999-01-028-6070	C-10	36
5999-01-028-6070	C-11	15
5999-01-028-6070	C-12	14
5999-01-028-6070	C-13	35
5999-01-028-6070	C-14	49
5999-01-028-6070	C-15	18

NATIONAL STOCK NUWBER AND PORT NUMBER INDEX

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
5999-01-042-7771	C-1	90			
5999-01-049-8327	C-1	75			
5999-01-051-3735	C-1	76			
5999-01-059-6610	C-19	2			
5999-01-068-9564	C-2	14			
5999-01-068-9564	C-4	13			
5999-01-068-9564	C-5	17			
5999-01-068-9564	C-8	11			
5999-01-068-9564	C-9	23			
5999-01-068-9564	C-10	35			
5999-01-068-9564	C-11	16			
5999-01-068-9564	C-12	15			
5999-01-068-9564	C-13	34			
5999-01-068-9564	C-14	50			
5999-01-068-9564	C-5	10			
6110-01-015-6835	C-17	9			
6110-01-066-6656	C-17	23			
6130-00-005-7882	C-17	11			
6130-01-015-6625	C-17	8			
6120-01-065-6070	C-17	2			
6130-01-065-6071	C-17	24			
6625-01-038-4193	C-1				
6625-01-066-5056	C-1	65			
6625-01-066-5057	C-1	66			
6625-01-066-6042	C-1	86			
6625-01-066-7078	C-1	63			
6625-01-066-7383	C-1	71			
6625-01-066-7384	C-1	87			
7690-01-052-4755	C-21	4			
7690-01-052-4755	C-22	4			
7690-01-052-4755	C-23	4			
7690-01-052-4755	C-24	4			
7690-01-052-4755	C-25	3			
7690-01-052-4755	C-26	3			
7690-01-052-4755	C-27	3			
7690-01-052-4755	C-28	4			
7690-01-052-4755	C-25	4			
7690-01-052-4755	C-3C	4			
7650-01-052-4755	C-31	4			
7690-01-052-4755	C-32	4			
7690-01-052-4755	C-33	4			
7690-01-052-4755	C-34	4			
7690-01-052-4755	C-35	4			
7690-01-052-4755	C-36	4			
7690-01-052-4755	C-37	4			
7690-01-052-4755	C-38	3			
7690-01-052-4755	C-39	3			
7690-01-052-4755	C-41	4			
7690-01-052-4755	C-42	4			
7690-01-052-4755	C-43	4			
7690-01-052-4755	C-44	4			
7690-01-052-4755	C-45	4			
7690-01-052-4755	C-46	4			
7690-01-052-4755	C-47	3			
7690-01-052-4755	C-45	4			
7690-01-052-4755	C-50	4			
7690-01-052-4755	C-53	3			
7690-01-052-4755	C-54	3			
7690-01-052-4755	C-55	3			
7690-01-052-4755	C-56	4			

PART NUMBER TO FIGURE AND ITEM NUMEER INDEX

PART NUMBER	FSCM	FIGURE	ITEM
AM931160MB	34335	C-13	21
AM96102DMB	34335	C-13	29
A145B230811	70318	C-1	12
CFFC440-6	46384	C-1	48
CFPC440-8	46384	C-1	49
CL 1BLK 1-4INID	81349	C-1	17
CMR 03E300JOYP	81349	C-14	6
CMR 03F 10J OYP	81349	C-9	4
CMRO3F391JOYP	81349	C-13	3
CMRO4F201JPDP	81349	C-10	3
CMRO6F431JODP	81349	C-6	1
CA20961	71468	C-56	5
CM54l165AJ883B	27014	C-10	30
CM54l165AJ883B	27014	C-11	10
CM54l165AJ883B	27014	C-13	16
CM7160J883B	27014	C-15	7
CM7551J883B	27014	C-5	9
CM77616J883B	27014	C-1	22
CS7820AJ883B	27014	C-9	19
DS7830AJ883B	81349	C-9	14
D110550	714E8	C-56	6
D140	959E7	C-1	18
FE440	46384	C-1	69
FE632	46364	C-1	46
FE632	46364	C-1	119
FHS440-6	46384	C-1	81
F01-04	15653	C-1	44
10-100	31413	C-19	1
10-100-0000	31413	C-1	89
JANTX1N4148	81349	C-14	1
JANTX1N4625	81349	C-14	47
JANTX1N5765	81349	C-2	1
JANTX1N5765	81349	C-4	1
JANTX1N748A	81349	C-14	48
LFH121E	31356	C-1	8
LFHZ23E	31356	C-1	7
LF-134E	31356	C-1	4
LFH223E	31356	C-1	5
LH0002H883B	27014	C-14	46
LMF1888	29098	C-1	50
LMF1889	29018	C-1	98
LM111H883B	27014	C-14	44
LM124D883B	27014	C-9	21
MC4324BCBS	04713	C-S	7
AC4324BCBS	04713	C-10	27
MN 3001HB	50507	C-9	18
MS15795-802	96906	C-5	20
MS15795-802	96906	C-8	14
MS15795-802	96906	C-15	12
MS15795-803	96906	C-1	24
MS15795-803	96906	C-17	4
MS15795-804	96906	C-16	4
MS15795-805	96906	C-1	54
MS15795-808	96906	C-1	16
MS18212-20	96906	C-1	82
MS20426AD3-4	96506	C-1	94
MS20426AD3-4	96506	C-11	18
MS20426AD3-5	96906	C-2	6
MS20426AD2-5	96906	C-4	6
MS20426AD2-5	96906	C-S	24
MS20426AD2-5	96906	C-8	18
MS20426AD2-5	96906	C-9	26
MS20426AD2-5	96906	C-10	7
MS20426AD2-5	96906	C-11	19
MS20426AD2-5	96906	C-12	18
MS20426AD2-5	96906	C-13	7
MS20426AD2-5	96906	C-14	53
MS20426AD2-5	96906	C-15	11
M521318-1	96906	C-2	12
MS21318-1	96906	C-5	22
MS21318-1	96906	C-8	16
MS21318-1	96906	C-15	15
MS24583-42	96906	C-1	110
M524693C2	96906	C-1	100
M524693C2	96906	C-16	13
M524693C4	96906	C-17	13
M524693C5	96906	C-16	9
M524693C6	96906	C-1	20
M525036-149	96906	C-1	57
MS25171-1S	96906	C-1	112
MS27400-4	96906	C-1	105
M527401-4	96906	C-1	101
M527418-2A	96906	C-1	103
MS27484T10F5S	96906	C-5C	6
MNS27484T12F3S5P	96906	C-21	1
MS27484T12F35P	96906	C-32	1
M527484T12F35P	96906	C-33	1
M527484T12F3 5P	96906	C-41	1
MS27484T12F35P	96906	C-38A	1
M527484T12F35PA	96906	C-22	1
MS27484T12F3SPA	96906	C-32	1
M527484T712F35PA	96906	C-38B	1
M527484T12F35P8	96906	C-51	1
MS27484T12FBP	96906	C-2e	1
M527484T12F8P	96906	C-45	1
MS27484T12F8PA	96906	C-30	1
MS27484T12F85	96906	C-1	56
M527484T12F85	96906	C-28	5
MS27484T12F85	96906	C-45	5
MS27484T12F8SA	96906	C-30	5
M5274847T14F18P	96906	C-1	73
MS27484T14F35P	96906	C-56	1
MS27484T14F5P	96906	C-31	1
MS27484T 14FSP	96906	C-5C	1
M527484T14F55	96906	C-31	5
MS27484T14F55	96906	C-36	1
M527484T16F265	96906	C-56	8
MS27484T16F35P	96906	C-33	6
MS27484T16F6S	96906	C-37	1
MNS27484T 18F32P	96906	C-42	1
M527484T1SF32P	96906	C-45	5
M527484T18F32PA	96906	C-4s	1
M527484T20F35P	96906	C-23	1
MS27484T20F35P	96906	C-35	1
MS27484T20F35P	96906	C-44	1
M527484T 20F3 SPA	96906	C-23	5
M27484T22F21P	96906	C-1	5
MS27484T22F21P	96906	C-2S	1
M527484T22F21P	96906	C-46	1
MZ27484T22F21S	96906	C-29	5
M527484T22F215	96906	C-46	5
MS527484T22F35P	96906	C-24	1
MS27484T22F35P	96906	C-34	1
MNS27484T22F35P	96906	C-43	1
M527484T22F3 5PA	96906	C-24	5
M527508E12F355	96906	C-1	31
MS27508E12F35SA	96906	C-1	32
MS27508E12F8P	96906	C-17	15
MS27508El2F8S	96906	C-1	33
M527508E1ZFSSA	96906	C-1	34
M527508E14F185	96906	C-17	22
MS527508E14F355	96906	C-1	35
MS27508E14F5S	96906	C-1	36
M527508E1SF325	96906	C-1	25
MS27508E18F32SA	96906	C-1	23
M527508E20F35S	96906	C-1	29
M527508E22F215	96906	C-1	30
MS27508E22F21S	96906	C-17	12
MS27508E22F355	96906	C-19	5
N53320-15	96906	C-1	42
M535338-134	96906	C-S5	22
M535338-135	96906	C-1	21
M5S35338-135	96906	C-16	5
M5MS35338-135	96906	C-17	5
M535338-136	96906	C-1	108
MS51858-2	96906	C-1	83
MS51957-14	96906	C-1	61
M551957-14	96906	C-16	3
MS51957-14	96906	C-17	17
M551957-16	96906	C-17	27
MS51957-22	96906	C-17	3
MS51957-26	96906	C-1	84
MS51957-28	96906	C-1	53
MS51957-4	96906	C-15	13
M551957-5	96906	C-5	19
M551957-5	96906	C-8	13

PART NUMBER TO FIGURE AND ITEM NUMEER INDEX

PART NUMBER	FSCM	FIGURE	ITEM
MS51958-65	96506	C-1	15
M1001-00844AA	31413	C-2	5
M1001-00844BC	31413	C-L11	5
M1001-00844BD	31413	C-S	6
M1001-00844BH	31413	C-9	T
M1001-00844DA	13413	C-12	5
M1001-00844DD	31413	C-13	6
M1001-00844DH	31413	C-8	4
M1001-00844EA	31413	C-15	4
M1001-00844EE	31413	C-4	5
M1001-00844FF	31413	C-10	6
M1001-00844HA	31413	C-14	9
M24308-1-2	81349	C-56	7
M38510-00102B0B	81349	C-14	41
M3e510-00103B0B	81349	C-14	39
N385 10-00104B0B	81349	C-9	12
N38510-00104BCB	81349	C-13	27
M38510-00104BCB	81349	C-14	37
M38510-00105BCB	81349	C-8	6
M38510-00105BCB	81349	C-9	16
M38510-00205BCB	81349	C-9	11
38510-0250020BCB	81349	C-14	38
M38510-00302BCB	81349	C-5	11
M38510-00303BCB	81349	C-S	8
M38510-00303BCB	81349	C-8	7
M38510-00403BCB	81349	C-14	34
M38510-00701BCB	81349	C-14	42
M38510-008018CB	81349	C-14	35
M38510-008028CB	81349	C-4	10
M38510-00803BCB	81349	C-14	43
M38510-00804BCB	81349	C-2	10
M38S10-00903BCB	81349	C-9	20
M38510-00903BCB	81349	C-12	13
M38510-00903BCB	81349	C-13	12
M38510-009068EB	81349	C-14	33
M38510-01011BEB	81349	C-S	14
M38510-013068EB	81349	C-S	15
M38510-013068EB	81349	C-9	13
M38e51-02002BCB	81349	C-13	19
M38510-02003BCB	81349	C-13	18
M38510-020048CB	81349	C-10	23
M38510-02005BCB	81349	C-10	21
M38510-02005BCB	81349	C-13	17
M3E511-02105BCB	81349	C-10	26
M38510-02105BCB	81349	C-13	26
M38510-10103BGC	81349	C-14	45
M38510-10403BEB	81349	C-10	24
M38510-104036EB	81349	C-11	11
M38510-104036EB	81349	C-13	20
M85010-10404BEB	81349	C-10	25
M38510-10404BEB	81349	C-1l	13
M38510-1044BEB	81349	C-12	11
M38510-10404BEB	81349	C-13	30
M38510-54L508BCB	18324	C-13	22
M38510-54L505BEB	e18324	C-15	9
M38510-54L2798EB	18324	C-11	12
N39003-01-2511	81349	C-2	2
M39003-01-2511	81349	C-4	2
M39003-01-2511	81349	C-S	3
M39003-01-2511	81349	C-8	1
M39003-01-2511	81349	C-9	1
M39003-01-2511	81349	C-10	1
M39003-01-2511	81349	C-11	3
M39003-01-2511	81349	C-12	3
M39003-01-2511	81349	C-13	4
M39003-01-2511	81349	C-15	1
M39003-01-2514	81349	C-14	2
M39003-01-2528	81349	C-10	4
M39003-01-2546	81349	C-14	3
M39003-01-2608	81349	C-9	2
M39012-16-0014	81349	C-38	1
M39012-16-0014	81349	C-39	1
M39012-18-0014	81349	C-53	4
M39012-16-0014	81349	C-54	1
M39012-28-0001	81349	C-25	1
M39012-26-0001	81349	C-26	1
M39012-26-0001	81349	C-27	1
M3S012-26-0C01	81349	C-38	4
M39012-28-0001	81349	C-47	1
M39012-26-0001	81349	C-53	1
M 39012-26-0001	81349	C-54	1A
M39012-26-0001	81349	C-55	1
M39012-26-0101	81349	C-54	1
M39012-55-3016	81349	C-25	4
M39012-55-3016	81349	C-39	4
M39012-55-3016	81349	C-54	4
M39012-55-3016	81349	C-55	4
M39012- 58-3002	81349	C-1	13
M39014-01-1213	81349	C-14	4
M39014-01-1495	81349	C-S	5
M39014-01-1495	81349	C-11	2
M39014-01-1495	81349	C-12	2
M39014-01-1495	81349	C-13	2
M39014-01-1513	81349	C-2	4
M39014-01-1513	81349	C-4	3
M39014-01-1513	81349	C-5	4
M39014-01-1513	81349	C-7	3
M39014-01-1513	81349	C-e	2
M39014-01-1513	81349	C-S	3
M39014-01-1513	81349	C-1c	2
M39014-01-1513	81349	C-l1	1
M39014-01-1513	81349	C-12	1
M390 14-01-1513	81349	C-13	1
M39014-01-1513	81349	C-14	5
M39014-01-1513	81349	C-15	2
M39014-02-1411	81349	C-14	7
M39029-1-16-20	81349	C-1	41
M83401-01-U202JB	81349	C-14	40
M83401-02-J102JB	81349	C-8	5
M83401-02M202JB	81349	C-1C	32
M83401-02M332JB	81349	C-11	14
M83401-02M471JB	81349	C-e	8
M83401-02M68LJB	81349	C-e	9
M834010 M3301JA	81349	C-13	31
M8340101M470 JA	81349	C-13	24
M8340102M001J8	81349	C-5	10
M8340102M2200GB	81349	C-4	8
M8340102MN20JB	81349	C-2	8
M8340102MN470JB	81349	C-S	12
M8340102M6800JB	81349	C-S	13
NAS 1189E04P7L	80205	C-1	2
NAS1189806P4L	80205	C-1	59
NAS 1189E06P6L	80205	C-1	51
NAS 1190E04P3L	80205	C-1	10
NAS662-107	80205	C-15	21
NAS617C2	80205	C-5	18
NAS67 1C2	80205	C-e	12
NAS671C2	80205	C-15	14
NAS671C4	80205	C-1	19
NAS671C4	80205	C-16	11
NAS6711C4	80205	C-11	14
N276	08863	C-1	37
RCR0SG100JP	81349	C-7	4
RCR0SG102JP	81349	C-7	2
RCR05G10ZJP	81349	C-8	9
RCR0SG102JP	81349	C-10	8
RCR0SG153LJP	81349	C-1	8
RCR0SG202JP	81349	C-10	13
RCR05G302JP	81349	C-10	9
RCR0SG392JP	81349	C-7	1
RCR0SG912JP	81349	C-17	1
RCR0T7G100JP	81349	C-10	10
RCR0TG102JP	81349	C-2	7
RCR0TG102JP	81349	C-1C	12
RCR07G102JP	81349	C-13	8
RCR07G102JP	81349	C-14	11
RCR07G102JP	81349	C- 15	6
RCR07G102JS	81349	C-4	7
RCR07GC 10J P	81349	C-12	10
RCR0TG103JP	81349	C-14	14
RCR0T7G104JP	81349	C-13	10
RCR07G 121JP	81349	C-14	28
RCR0TCG123JP	81349	C-14	25
RCR07G180JP	81349	C-10	14
RCR07G201JP	81349	C-10	17
RCR0TG200JP	81349	C-14	18

PART NUMBER TO FIGURE AND ITEM NUMEER INDEX

PART NUMBER	FSCM	FIGURE	ITEM
RCR07G202JP	81349	C-11	7
RCR07G202JP	81349	C-12	7
RCR07G202JP	81349	C-14	32
RCR07G202JP	81349	C-15	5
RCR07G222JP	81349	C-11	6
RCR07G222JP	81349	C-14	24
RCR07G241JP	81349	C-10	18
RCR07G301JP	81349	C-10	16
RCR07G301JP	81349	C-13	9
RCR07G302JP	81349	C-10	11
RCR07G302JP	81349	C-11	8
RCR07G302JP	81349	C-12	8
RCR07G302JP	81349	C-14	27
RCR07G331JP	81349	C-14	10
RCR07G333JP	81349	C-14	30
RCR07G391JP	81349	C-10	19
RCR07G432JP	81349	C-14	12
RCR07G47LJP	81349	C-10	15
RCR07G471JP	81349	C-14	29
RCR07G472JP	81349	C-14	13
RCR07G510JP	81349	C-14	20
RCR07G511JP	81349	C-14	26
RCR07G512JP	81349	C-12	9
RCR07G512JP	81349	C-14	22
RCR07G682JP	81349	C-14	21
RCR07G683JP	81349	C-14	31
RCR07G750JP	81349	C-14	19
RNR55C1001FP	81349	C-9	10
RNP55C1911FP	81349	C-14	15
RNR55C2211FP	81349	C-14	23
RNR55C4421FP	81349	C-14	16
RNR55C6040FP	81349	C-14	17
SE19F09-2-5C12	07418	C-51	2
SE19F09-2-5C12	07418	C-38A	2
5E19F09-2-5C12	07418	C-38B	2
SE26XF01	81349	C-1	38
SE556FB	34335	C-13	28
SE556FB	34335	C-14	36
SE9F0608A1-5-12	07418	C-50	5
SE9F0908A1-5-12	07418	C-21	2
SE9F0908A1-5-12	07418	C-22	2
SE9F0908A1-5-12	07418	C-28	2
SESF0908A1-5-12	07418	C-30	2
SESF0908A1-5-12	07418	C-32	2
SESF090SA1-5-12	07418	C-33	2
SESF0908A1-5-12	07418	C-41	2
SESF0908A1-5-12	07418	C-45	2
SESF1208A1-5-12	07418	C-31	2
SESF1208A1-5-12	07418	C-36	2
SECF1208A1-5-12	07418	C-50	2
SE9F1218A1-5-12	01418	C-56	2
SE9F1158A1-5-12	07418	C-33	5
SE9F1508A1-5-12	07418	C-37	2
SE9F1518A1-5-12	07418	C-56	9
SE9F1810A1-5-12	07418	C-42	2
SE9F181DA1-5-12	07418	C-49	2
5E9F2212A1-5-12	07418	C-23	2
SE9F2212A1-5-12	07418	C-35	2
SE9F2212A1-5-12	07418	C-44	2
SE9F2516A1-5-12	07418	C-24	2
SE9F2516A1-5-12	07418	C-29	2
SE9F2516A1-5-12	07418	C-34	2
SE9F2516A1-5-12	07418	C-43	2
SESF2516A1-5-12	07418	C-46	2
SNC54S112J	01205	C-13	25
SNC54LS138J	01205	C-13	15
SNC5LS174J	01205	C-12	12
SNCS5LS253J	012S5	C-10	28
SNC54S253J	01205	C-13	23
SNC54S257J	01205	C-13	14
SNCS4LS255J	01295	C-10	29
SNC54 S74J	01295	C-11	9
SNC54588J	01295	C-10	20
SNC54L157J	01295	C-9	17
SNCS157J	01295	C-13	13
SNC54S260J	01295	C-13	11
SNC54120J	01295	C-10	31
50-1049-8772	35344	C-1	102
554165F883B	18324	C-1	15
TC817	59730	C-1	97
TP8-8	81312	C-5	5
TP8-8	81312	C-8	3
TP8-8	81312	C-1	3
UE4967A100-32G	29593	C-1	27
VPC242	08730	C-1	14
V130LA10A	09019	C-17	7
WTW1334	59730	C-1	74
WTW1334	59730	C-19	4
WTW1334	59730	C-21	3
WTW1334	59730	C-22	3
WTW1334	59730	C-23	3
WTW1334	59730	C-24	3
WTW1334	59730	C-25	2
WTW1334	59730	C-26	2
WTW1334	59730	C-27	2
WTW1334	5;730	C-28	3
WTW1334	59730	C-29	3
WTW1334	59730	C-30	3
WTW1334	59730	C-31	3
WTW1334	59730	C-32	3
WTW1334	59730	C-33	3
WTW1334	59730	C-34	3
WTW1334	59730	C-35	3
WTW1334	59730	C-36	3
WTW1334	59730	C-37	3
WTW1334	59730	C-38	2
WTW1334	59730	C-39	2
WTW1334	59730	C-41	3
WTW1334	59730	C-42	3
WTW1334	59730	C-43	3
WTW1334	59730	C-44	3
WTW1334	59730	C-45	3
WTW1334	59730	C-46	3
WTW1334	59730	C-47	2
WTW1334	59730	C-49	3
WTW1334	59730	C-50	3
WTW1334	59730	C-53	2
WTW1334	59730	C-54	2
WTW1334	59730	C-55	2
WTW1334	59130	C-50	3
WTW2334	59730	C-21	4
WTW2334	59730	C-22	4
WTW2334	59730	C-23	4
WTW2334	59730	C-24	4
WTW2334	59730	C-25	3
WTWZ334	59730	C-26	3
WTW2334	5973C	C-27	3
WTW2334	59730	C-28	4
WTW2334	59730	C-29	4
WTW2334	59730	C-30	4
WTW2334	59730	C-31	4
WTW2334	59730	C-32	4
WTW2334	59730	C-33	4
WTW2334	59730	C-34	4
WTW2334	59730	C-35	4
WTW2334	59730	C-36	4
WTW2334	59730	C-37	4
WTWZ334	59730	C-38	3
WTW2334	59730	C-39	3
WTW2334	59730	C-41	4
WTW2334	59730	C-42	4
WTW2334	59730	C-43	4
WTW2334	59730	C-44	4
WTW2334	59730	C-45	4
WTW2334	59730	C-46	4
WTW2334	59730	C-47	3
WTW2334	59730	C-49	4
WTW2334	59730	C-50	4
WTW2334	59730	C-53	3
WTW2334	59730	C-54	3
WTW2334	59730	C-55	3
WTW2334	59730	C-56	4
001-1802-509	31413	C-3	5
001-1805-509	31413	C-3	4
001-6500-513	31413	C-1	90
001-6500-514	31413	C-19	2

PART NUMBER TO FIGURE AND ITEM NUMEER INDEX

PART NUMBER	FSCM	FIGURE	ITEM
C10-8509-502	31413	C-1	76
026976	82877	C-17	25
0423-1-3076-1	15942	C-1	43
0423-1-3181-2	15942	C-8	19
0423-1-3181-3	15942	C-5	25
045867	10003	C-1	109
06-0302-1876	28817	C-1	114
06-0302-2132	28817	C-1	88
10-0301-1077	28817	C-1	6
10-001004-3	28815	C-1	62
10-001154-3	28815	C-1	85
10-001304-3	28815	C-1	68
10-126364-1	28815	C-1	67
10-126374-1	28815	C-1	64
10TR20	31557	C-17	24
10TR45	31557	C-17	23
10648EL5-1	08719	C-1	40
12-001003-1	28815	C-15	19
12-001006-16	28815	C-2	11
12-001006-8	28815	C-15	16
12-001153-2	28815	C-2	13
12-001303-1	28815	C-4	11
12-124317-1	28815	C-17	19
12-126363-1	28815	C-10	33
12-126373-1	28815	C-13	32
12-145410-1	2881S	C-15	23
12-145411-1	28815	C-15	24
13925	02660	C-56	10
14007-1P4	91506	C-2	14
14007-1P4	91506	C-4	13
14007-1P4	91506	C-5	17
14007-1P4	91506	C-8	11
14007-1P4	91506	C-9	23
14007-1P4	91506	C-10	35
14007-1P4	91506	C-11	16
14007-1P4	91506	C-12	15
14007-1P4	91506	C-13	34
14007-1P4	91506	C-14	50
14007-1P4	91506	C-15	10
14009-1P12	91506	C-2	15
14009-1P12	91506	C-4	12
14009-1P12	91506	C-5	23
14009-1P12	91506	C-B	17
14009-1P12	91506	C-9	24
14009-1P12	91506	C-10	34
14009-1P12	91506	C-11	17
14009-1P12	91506	C-12	16
14009-1P12	91506	C-13	33
14009-1P12	91506	C-14	51
14009-1P12	91506	C-15	17
14009-1P14	91506	C-2	16
14009-1P14	91506	C-4	14
14009-1P14	91506	C-5	16
14009-1P14	91506	C-8	10
14009-1P14	91506	C-9	22
14009-1P14	91506	C-10	36
14009-1P14	91506	C-11	15
14009-1P14	91506	C-12	14
14009-1P14	91506	C-13	35
14009-1P14	91506	C-14	49
14009-1P14	91506	C -15	18
1416-4	83330	C-1	22
1416-4	83330	C-19	6
1450	23990	C-16	6
1450F	23880	C-16	12
15TR13	31557	C-11	11
1526-005-205	76374	C-1	39
17-123497-1	28815	C-15	8
17-123787-9	28815	C-12	6
1951-1-1108-1	15942	C-20	
1951-1-1109-1	15942	C-40	
1951-1-1110-1	15942	C-48	
1951-1-1111-1	15542	C-52	
1951-1-2447-1	15942	C-1	107
1951-1-3238-1	15942	C-16	2
1951-1-3240-1	15942	C-16	1
1951-1-3243-1	15942	C-1	45
1951-1-3244-1	15942	C-1	118
1951-1-3250-1	15942	C-1	104
1951-1-3271-1	15942	C-5	1
1951-1-3272-1	15942	C-5	2
1951-1-3279-1	15942	C-1	52
1951-1-3280-1	15942	C-1	70
1951-1-3286-1	15942	C-1	72
1951-1-3304-1	15942	C-8	15
1951-1-3304-2	15942	C-5	21
1951-1-3314-4	15942	C-1	9
1951-1-3324-1	15942	C-16	10
1951-1-3335-1	15942	C-16	8
1951-1-3371-1	15942	C-51	3
1951-1-3373-1	15942	C-38A	3
1951-1-3375-1	15942	C-38B	3
1951-1-4230-1	15942	C-1	26
1951-1-4340-1	15942	C-1	
1951-1-4343-1	15942	C-1	71
1951-1-4344-1	15942	C-9	25
1951-1-4578-1	15942	C-11	18
1951-1-4579-1	15942	C-1	66
1951-1-4581-1	15942	C-12	17
1951-1-4582-1	15942	C-1	65
1951-1-4646-1	15942	C-40	8
1951-1-4646-2	15942	C-40	9
1951-1-4646-3	15942	C-40	10
1951-1-4646-4	15942	C-40	11
1951-1-4653-1	15942	C-20	1
1951-1-4654-1	15942	C-20	2
1951-1-4655-1	15942	C-20	3
1951-1-4656-1	15942	C-20	4
1951-1-4657-1	15942	C-20	5
1951-1-4657-2	15942	C-20	21
1951-1-4658-1	15942	C-20	6
1951-1-4E59-1	15942	C-20	7
1951-1-4660-1	15942	C-20	8
1951-1-4661-1	15942	C-20	9
1951-1-4662-1	15942	C-20	10
1951-1-4663-1	15942	C-20	11
1951-1-4664-1	15942	C-Z0	12
1951-1-4665-1	15942	C-20	13
1951-1-4666-1	15942	C-20	14
1951-1-4667-1	15942	C-20	15
1951-1-4668-1	15942	C-20	16
1951-1-4668-1	15942	C-40	1
1951-1-4668-1	15942	C-48	1
1951-1-4668-1	15942	C-52	1
1951-1-4669-1	15942	C-20	17
1951-1-4670-1	15942	C-40	2
1951-1-4671-1	15942	C-40	3
1951-1-4672-1	15942	C-40	4
1951-1-4673-1	15942	C-40	5
1951-1-4674-1	15942	C-40	6
1951-1-4675-1	15942	C-40	7
1951-1-4676-1	15942	C-48	2
1951-1-4677-1	15942	C-48	3
1951-1-4709-1	15942	C-16	14
1951-1-4710-1	15942	C-1	92
1951-1-4711-1	15942	C-1	111
1951-1-4713-1	15942	C-1	99
1951-1-4715-1	15942	C-1	117
1951-1-4716-1	15942	C-17	16
1951-1-4743-1	15942	C-52	2
1951-1-4743-2	15942	C-52	6
1951-1-4744-1	15942	C-52	3
1951-1-4744-2	15942	C-52	7
1951-1-4744-3	15942	C-20	22
1951-1-4745-1	15942	C-52	4
1951-1-4745-2	15942	C-52	8
1951-1-4746-1	15942	C-52	5
1951-1-4746-2	15942	C-52	9
1951-1-4747-1	15942	C-52	10
1951-1-4758-1	15942	C-1	87
1951-1-4759-1	15942	C-1	86
1951-1-4162-1	15942	C-48	4
1951-1-4790-1	15942	C-14	52
1951-1-4792-1	15942	C-1	63
1951-1-4814-1	15942	C-1	60
1951-1-4820-1	15942	C- 1	58

PART NUMBER TO FIGURE AND ITEM NUMEER INDEX

PART NUMBER	FSCM	FIGURE	ITEM
1951-1-4822-1	15942	C-20	18
1951-1-4827-1	15942	C-20	19
1951-1-4828-1	15942	C-20	20
1951-1-5064-1	15942	C-1	47
1951-1-5070-1	15942	C-17	21
1951-1-5072-1	15942	C-17	10
1951-1-5078-1	15942	C-1	115
20-12115	07700	C-1	93
20200-1	16179	C-20	23
20200-1	16179	C-52	11
21051	16179	C-1	11
271166	82877	C-17	26
3000	23880	C-16	7
302-0002-002	31413	C-1	78
104-0001-002	31413	C-3	3
313-0000-000	31413	C-18	6
450-3422-01-03	71279	C-9	6
450-3422-01-03	71279	C-0	5
450-3422-01-03	71279	C-1	4
450-3422-01-03	71279	C-12	4
450-3422-01-03	71279	C-13	5
450-3422-01-03	71279	C-14	8
450-3755-01-03	71279	C-4	4
451116-041	03743	C-1	106
5R2-3	71268	C-1	116
5S3-2	712e6	C-1	96
5S7-12	712e6	C-1	95
5TR50	31557	C-17	2
5082-7356	28480	C-2	9
5082-7356	28480	C-4	9
512-0000-000	31413	C-18	12
516-0014-505	31413	C-1	75
516-0018-000	31413	C-1	80
516-0027-000	31413	C-1	79
516-0027-000	31413	C-18	9
516-0028-550	31413	C-1	77
522-0000-000	31413	C-18	5
525-0000-000	31413	C-18	3
536-0012-000	31413	C-3	2
544-0005-000	31413	C-1	91
544-0005-000	31413	C-19	3
545-0000-000	31413	C- 8	2
599-0000-000	31413	C-1 8	8
613-0001-505	31413	C-3	1
7E98B	07126	C-1	3
702-3728-01-03-00	71279	C-6	2
702-3728-01-03-00	71279	C-7	5
71-90246	53217	C-1	1
80ASP12S1	31557	C-17	8
80ASP12S2	31557	C-1 7	9
80G90W40	31557	C-17	6
800-0155-000	31413	C-18	10
800-0156-000	31413	C-18	4
800-0157-000	31413	C--1	7
800-0158-000	31413	C-l8	1
800-0161-000	31413	C-18	11
S162	83330	C-15	20
		C-1	113
		C-2	3
		C-17	20

PART NUMBER	FSCM	FIGURE	ITEM

INDEX

☆U.S. G0VERNMENT PRINTING 0FFICE: 1985-461-065/23532

By 0rder 0f the Secretary 0f the Army:

E. C. MEYER
General, United States Army
Chief 0f Staff

0fficial:

R0BERT M. J0YCE
Brigadier General, United States Army
The Adjutant General

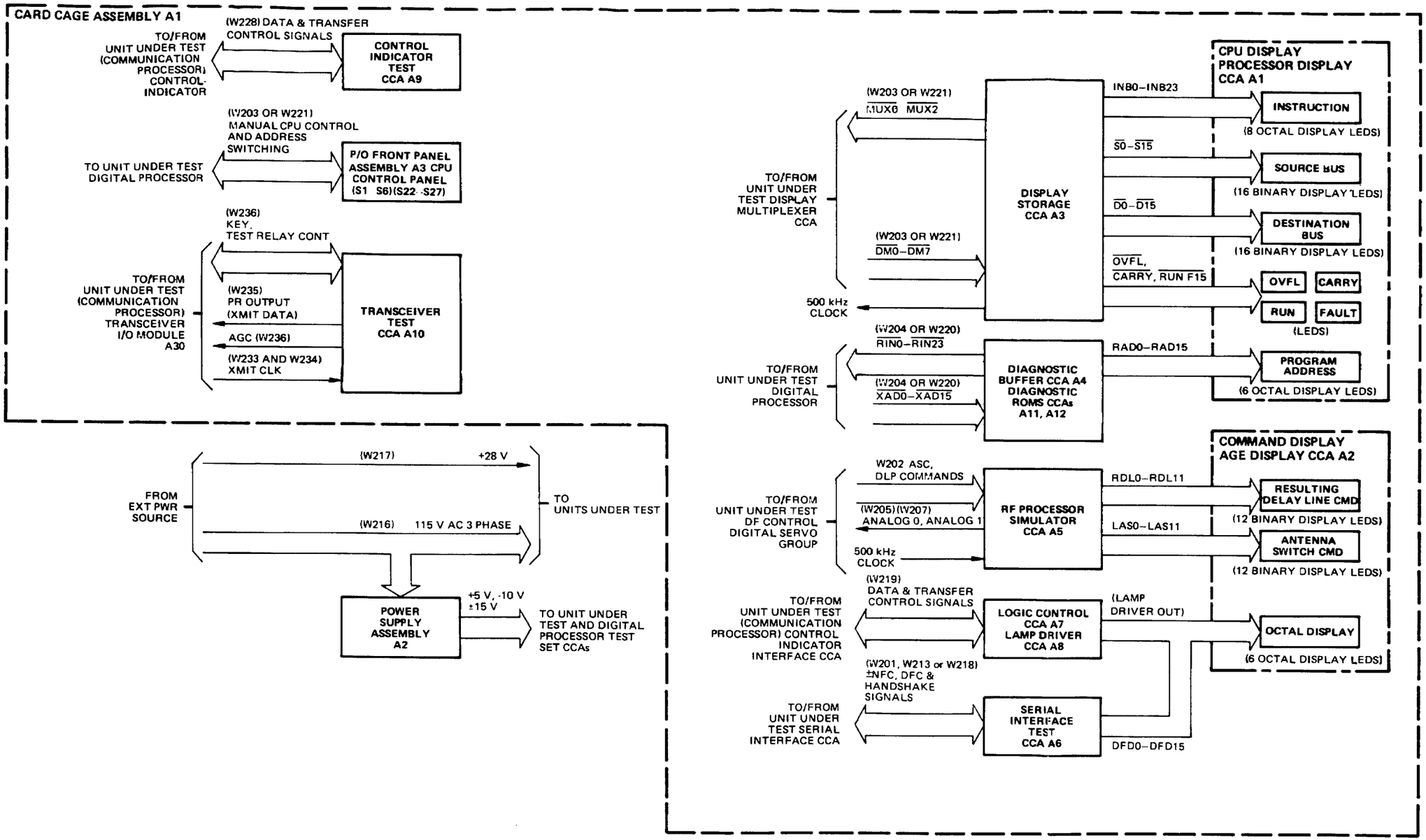


Figure FO-1. Digital Processor Test Set Block Diagram

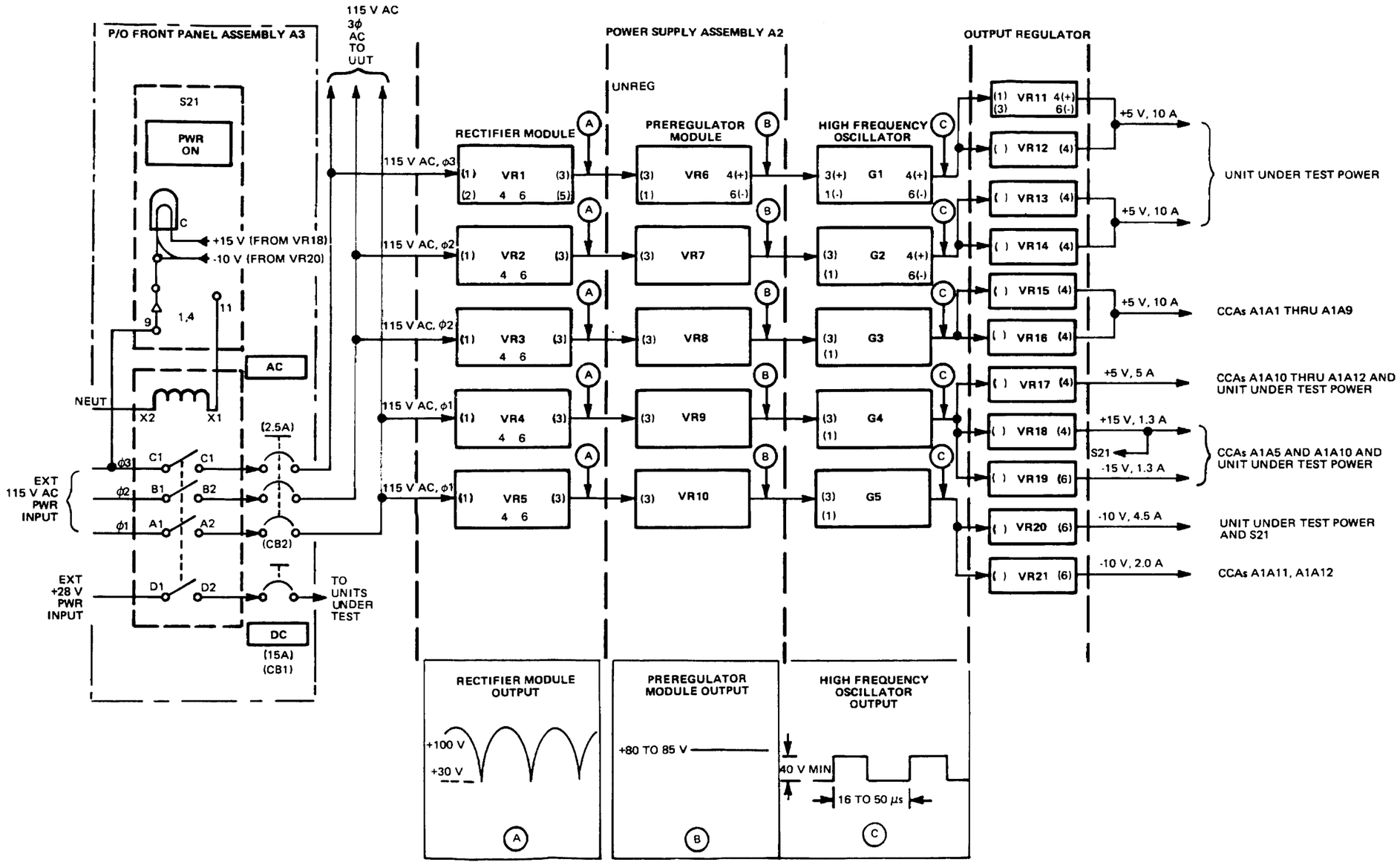


Figure FO-2. Power Supply and Distribution Diagram

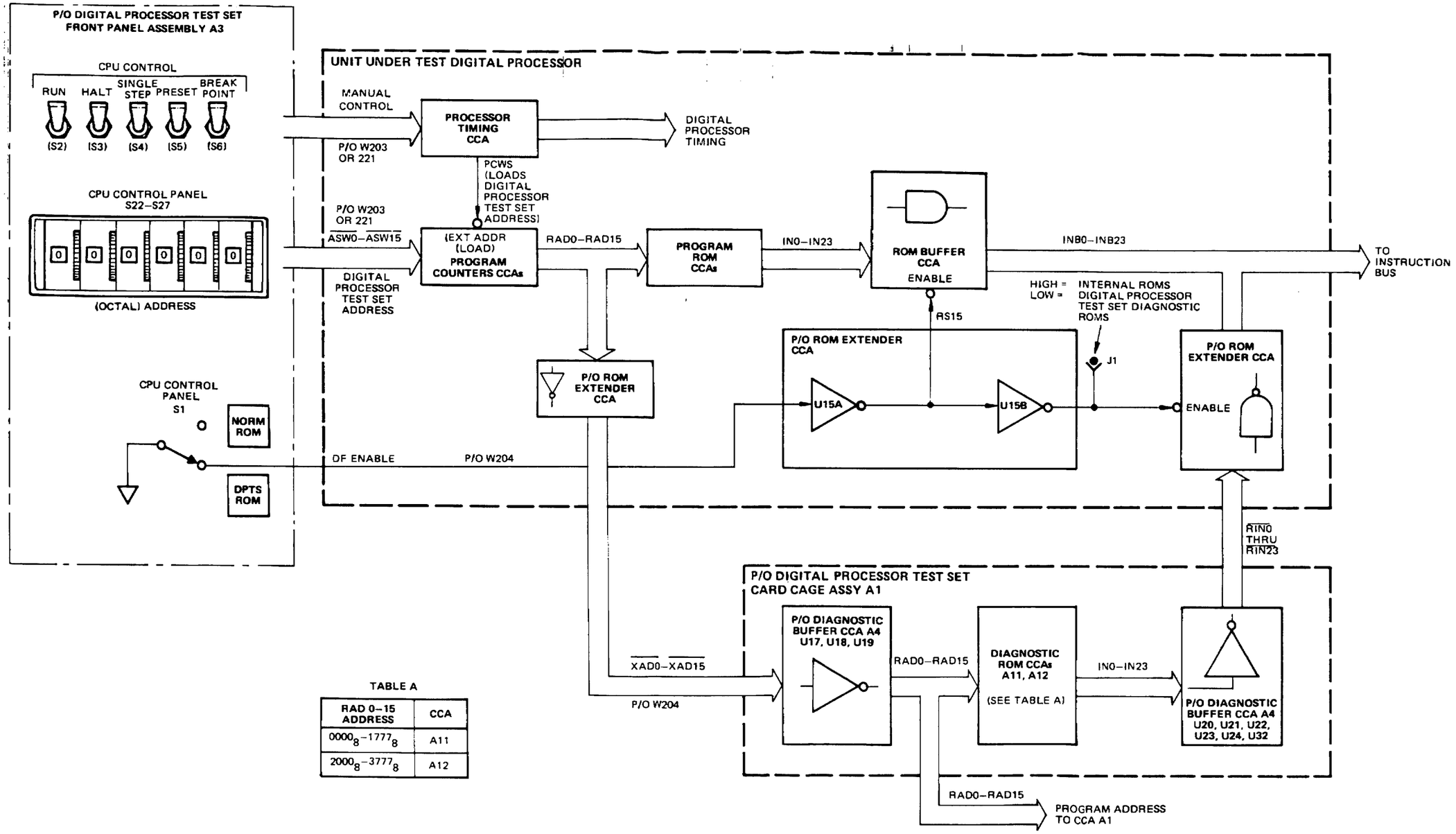


TABLE A

RAD 0–15 ADDRESS	CCA
0000_8–1777_8	A11
2000_8–3777_8	A12

Figure FO-3. Digital Processor Test Set Control Functional Block Diagram

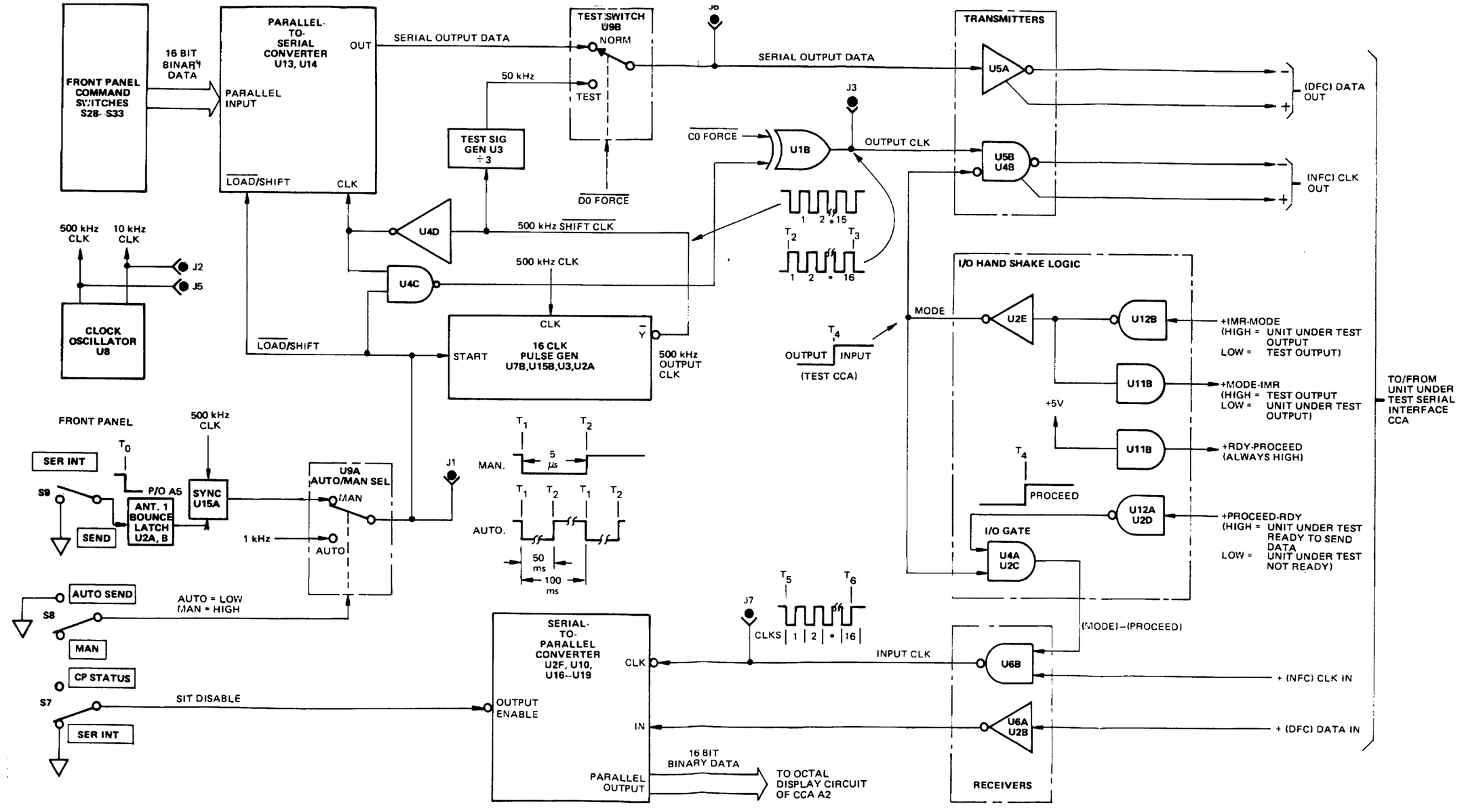


Figure FO-4. Serial Interface Test CCA A6 Functional Block Diagram

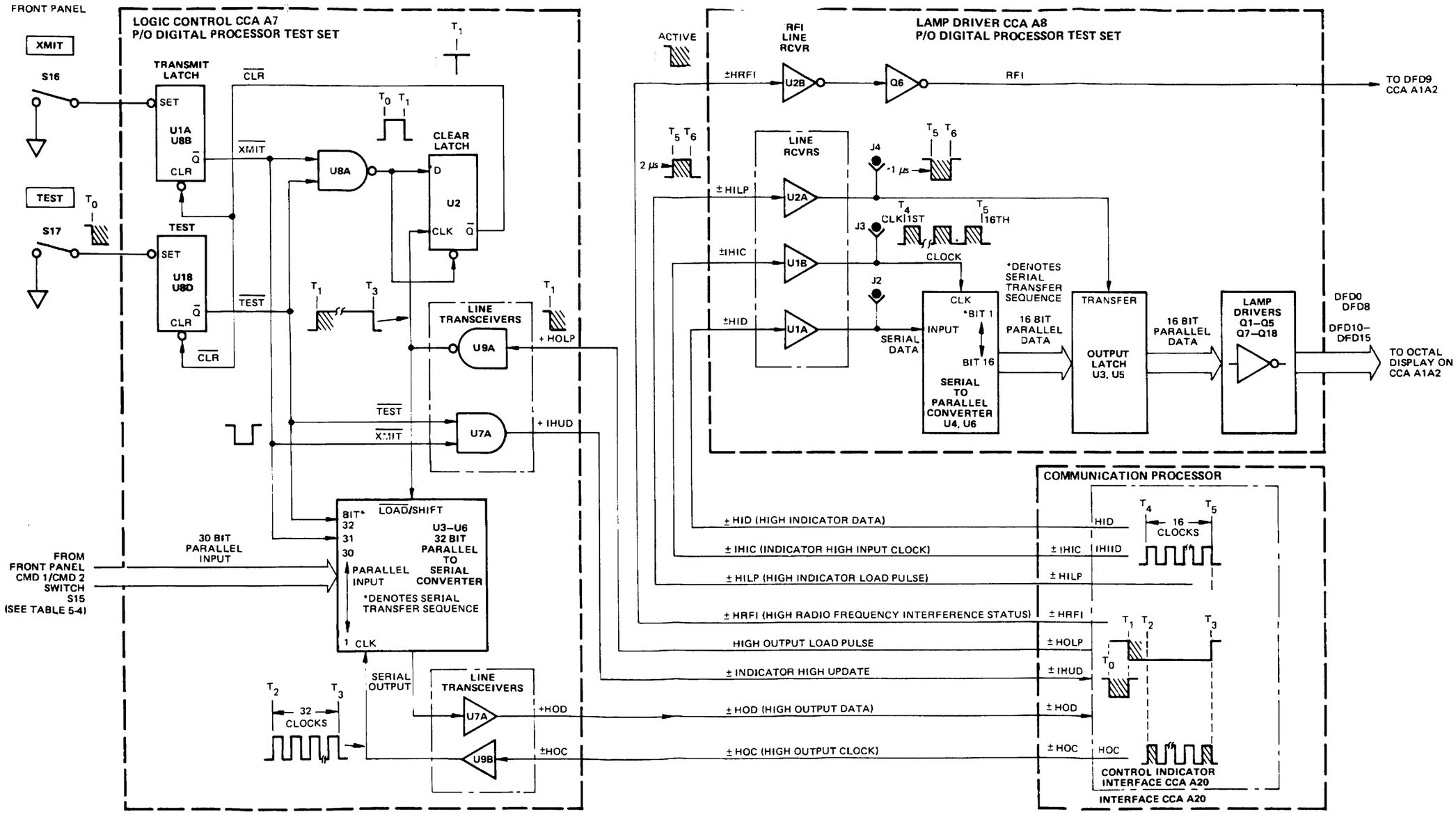


Figure FO-5. Communication Processor Control-Indicator Interface Test Function

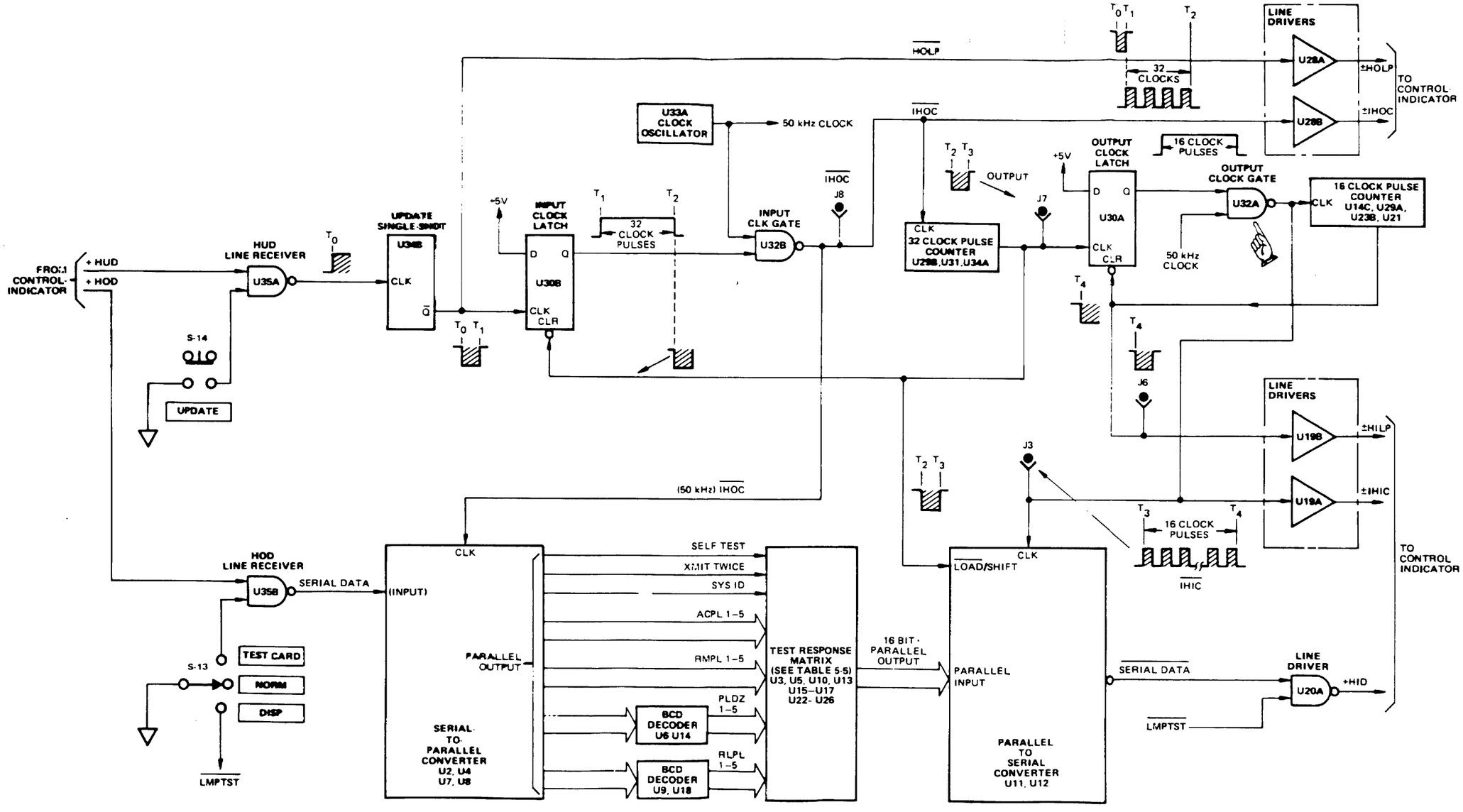
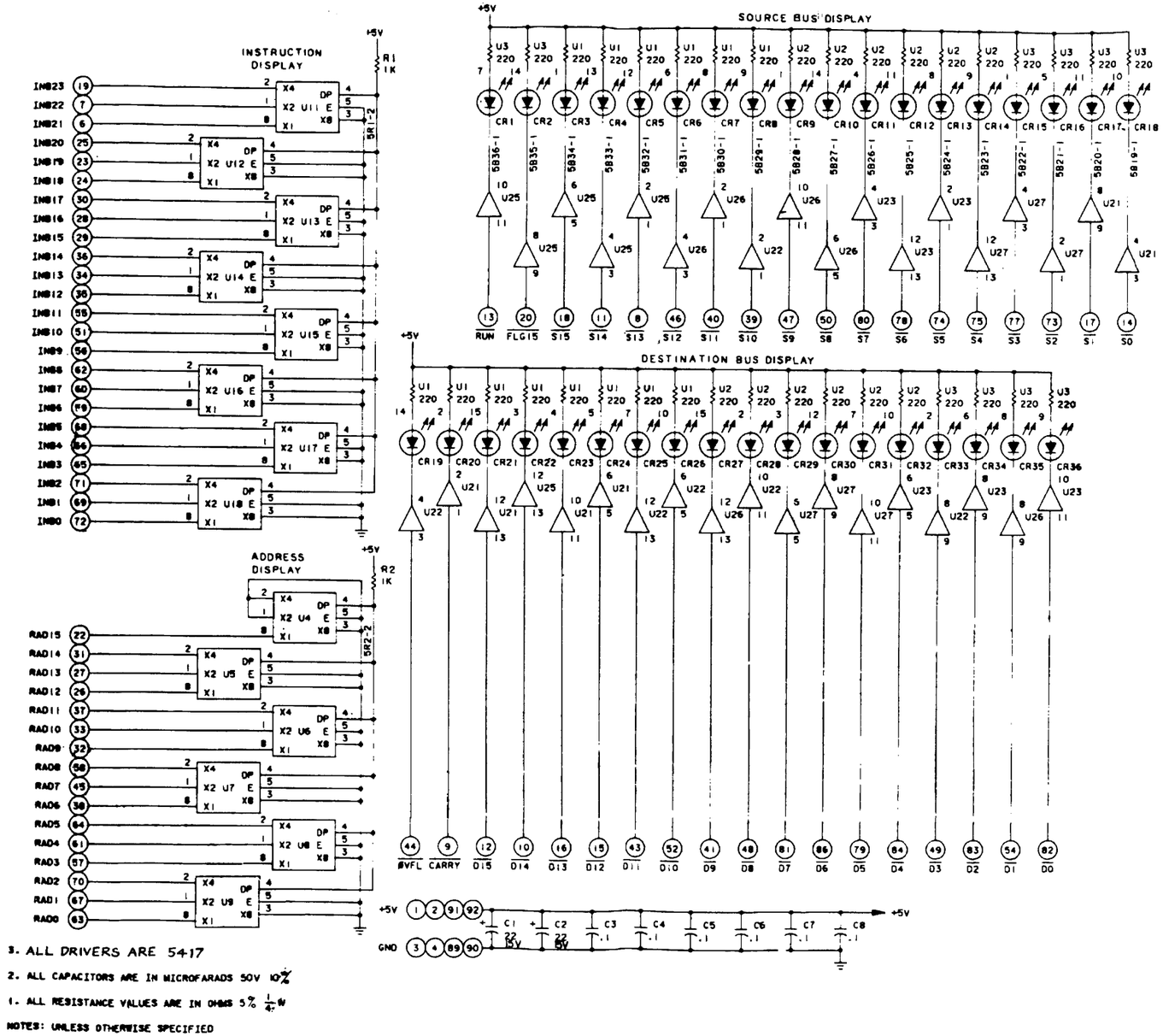


Figure FO-6. Digital Processor Test Set Control-Indicator Test CCA A9 Block Diagram Change 1



REF DES	PART NO	USED ON NEXTASSY
U4-9, U11-18	5082-7300	10-001154-1,2,4
	5082-7356	10-001154-3
CR1-36	5082-4420	10-001154-1&4
	JANIN5765	10-001154-2
	JANTXIN5765	10-001154-3

3. ALL DRIVERS ARE 5417

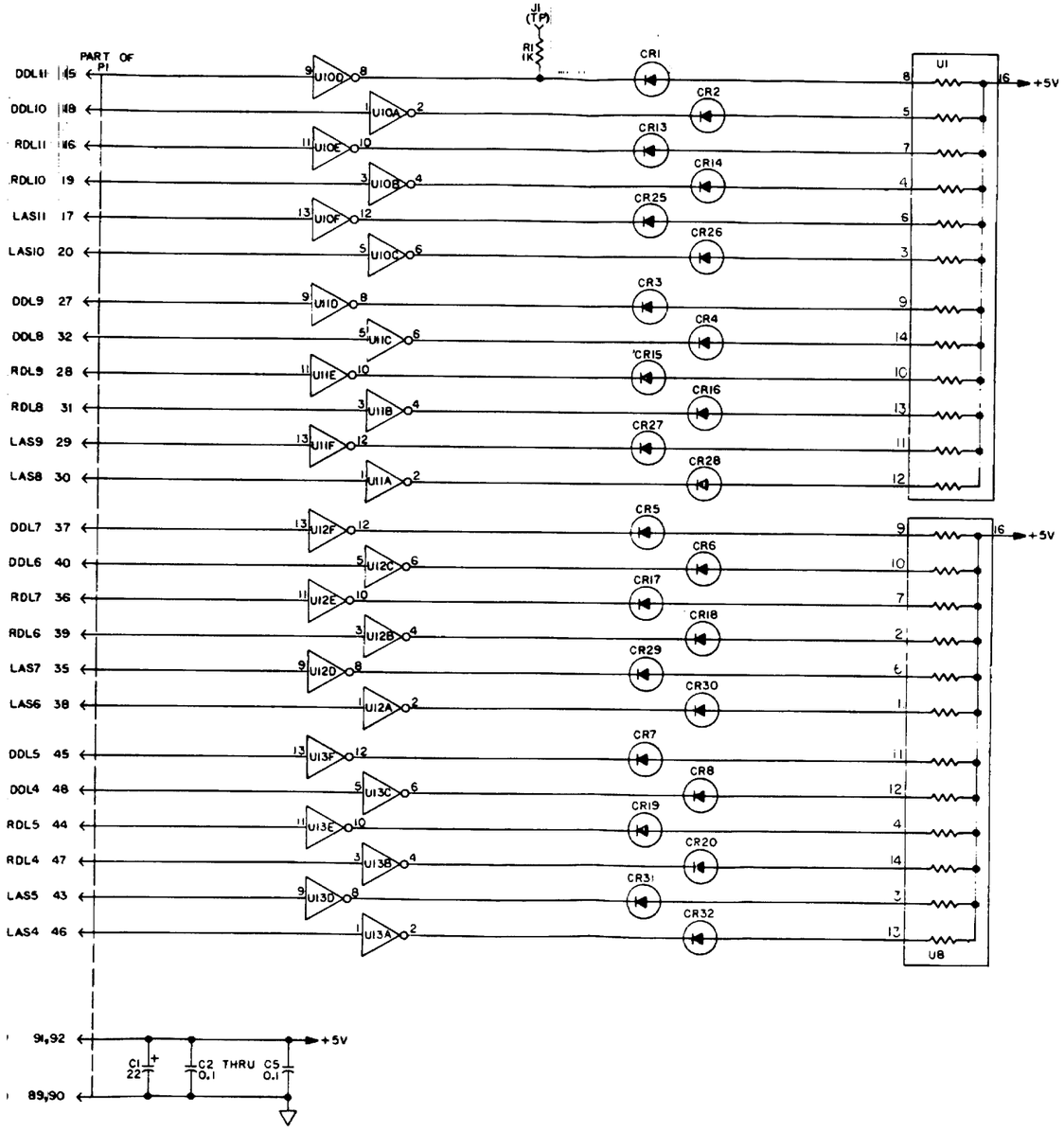
2. ALL CAPACITORS ARE IN MICROFARADS 50V 10%

1. ALL RESISTANCE VALUES ARE IN OHMS 5% 1/4W

NOTES: UNLESS OTHERWISE SPECIFIED

51-001151
REV C

Figure FO-7. Processor Display CCA A1Schematic Diagram



HIGHEST REFERENCE DESIGNATIONS						
C5	CR36	E2	J4	P1	R5	U15
REFERENCE DESIGNATIONS NOT USED						

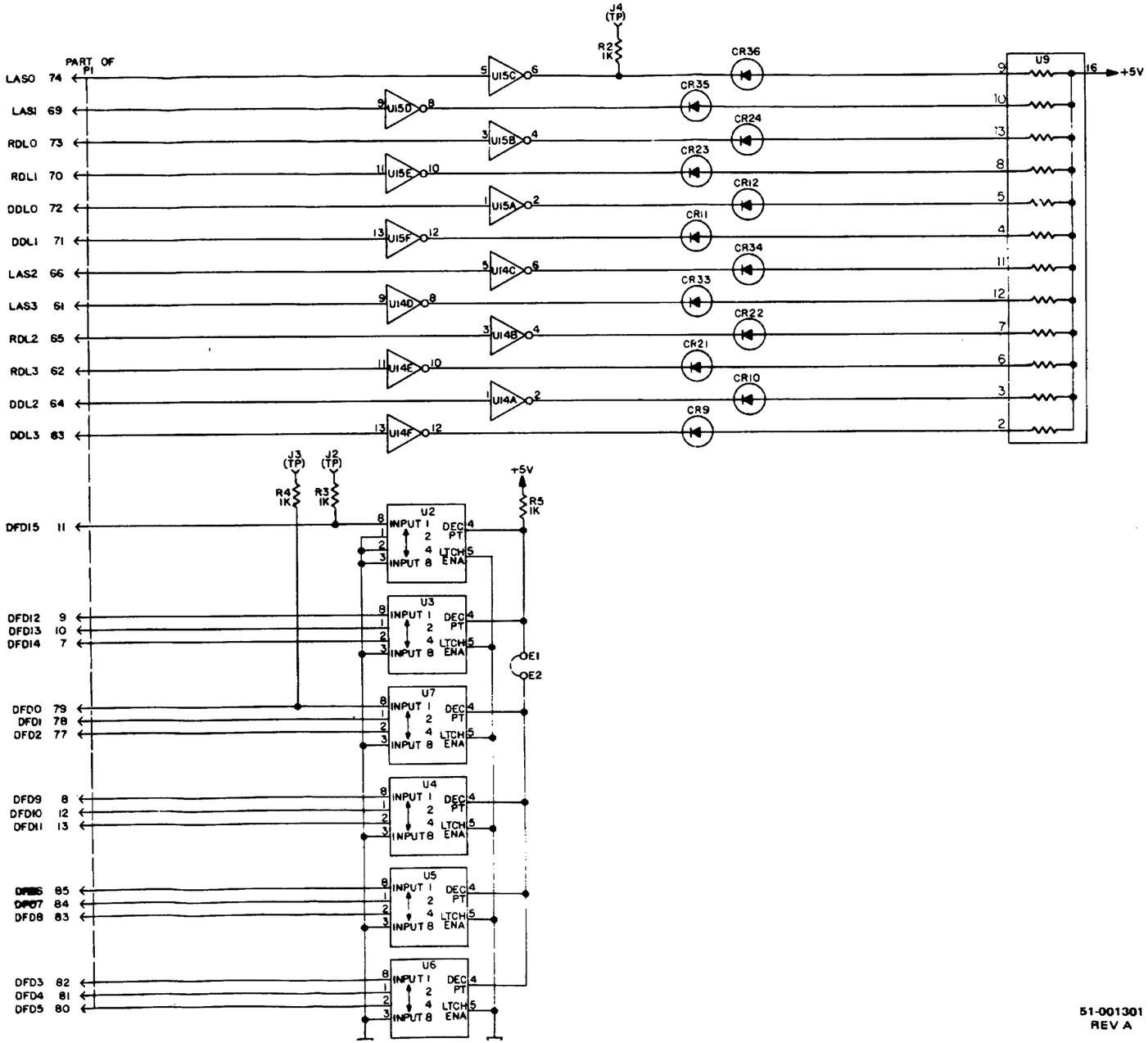
MICROCIRCUIT IDENT				
REF DES	TYPE	VCC	GND	SPARES
U1,8,9	898-1-R220			U1-1,2,15 U8-5, 8, 15
U2-7	5082-7300	7	6	——
U10-15	5416	14	7	——

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DIODES ARE 5082-4420.
4. DELETED

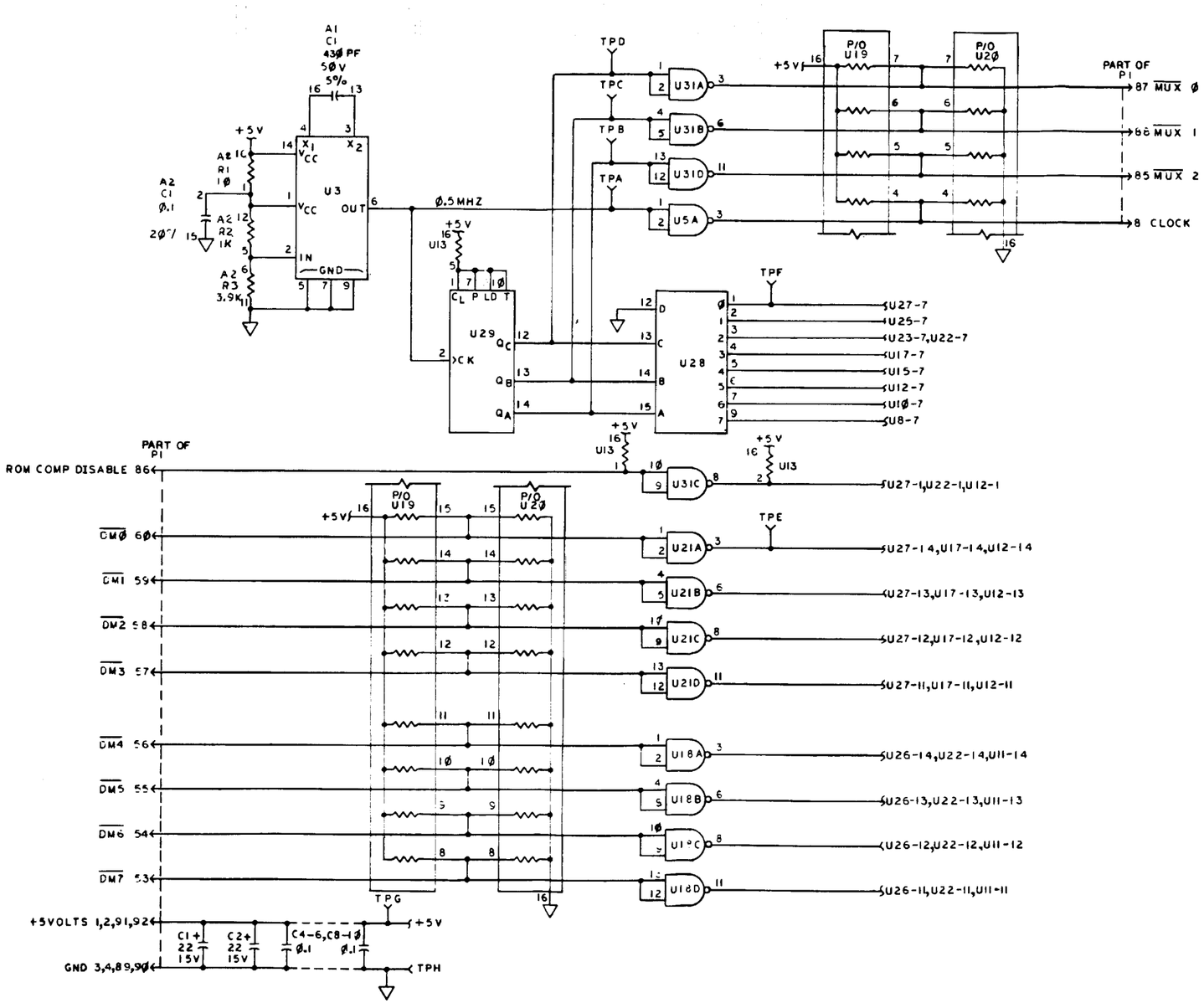
51-001301
REV A

Figure FO-8. AGE Display CCA A2 Schematic Diagram (Sheet 1 of 2)



51-001301
REV A

Figure FO-8. AGE Display CCA A2 Schematic Diagram (Sheet 2 of 2)



HIGHEST REFERENCE DESIGNATIONS						
C10	TPH	U31	A2			
REFERENCE DESIGNATIONS NOT USED						
C3		U1				
C7		U6				
		U7				
		U2				
		U4				
		U30				

MICROCIRCUIT I.D.	
NO.	TYPE
A1	1951-1-3271
U3	4324
A2	1951-1-3272
U5,U31	5438
U8-12,U14-17,U22-27	7521
U13	898-1-R1.0K
U18 U21	5437
U19	898-1-R470
U20	898-1-R680
U28	5442A
U29	54161

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTANCES VALUES ARE IN OHMS 1/2 WATT ±5% EXCEPT U13,19, AND U20.
2. CAPACITANCE VALUES ARE IN UF, ±10% 50V.

1951-1-4853
REV B

Figure FO-9. Display Storage CCA A3 Schematic Diagram (Sheet 1 of 2)

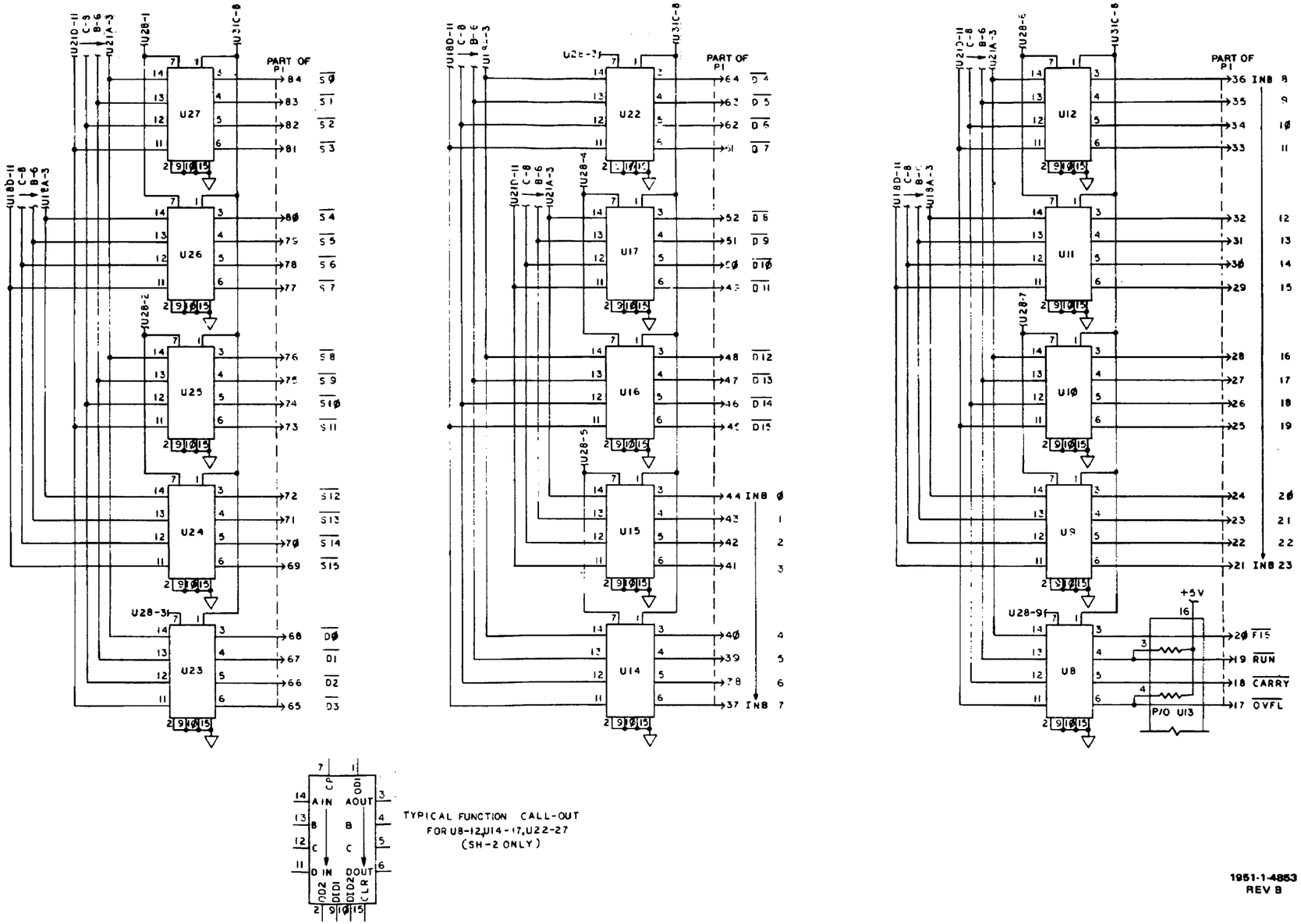
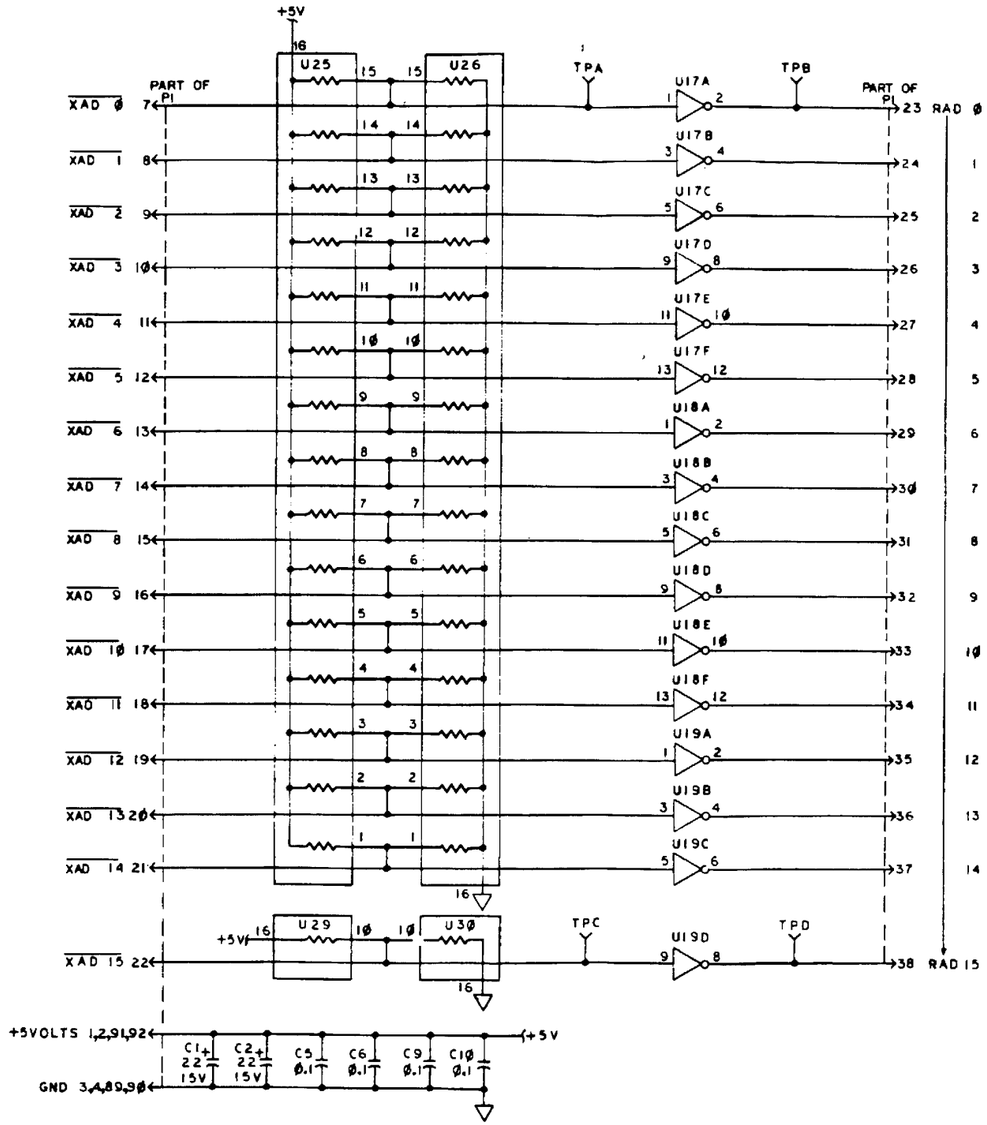


Figure FO-9. Display Storage CCA A3 Schematic Diagram (Sheet 2 of 2)



HIGHEST REFERENCE DESIGNATIONS						
C10	YPH	U32	P1			
REFERENCE DESIGNATIONS NOT USED						
C3		U1-12				
C4		U14-16				
C7		U31				
C8						

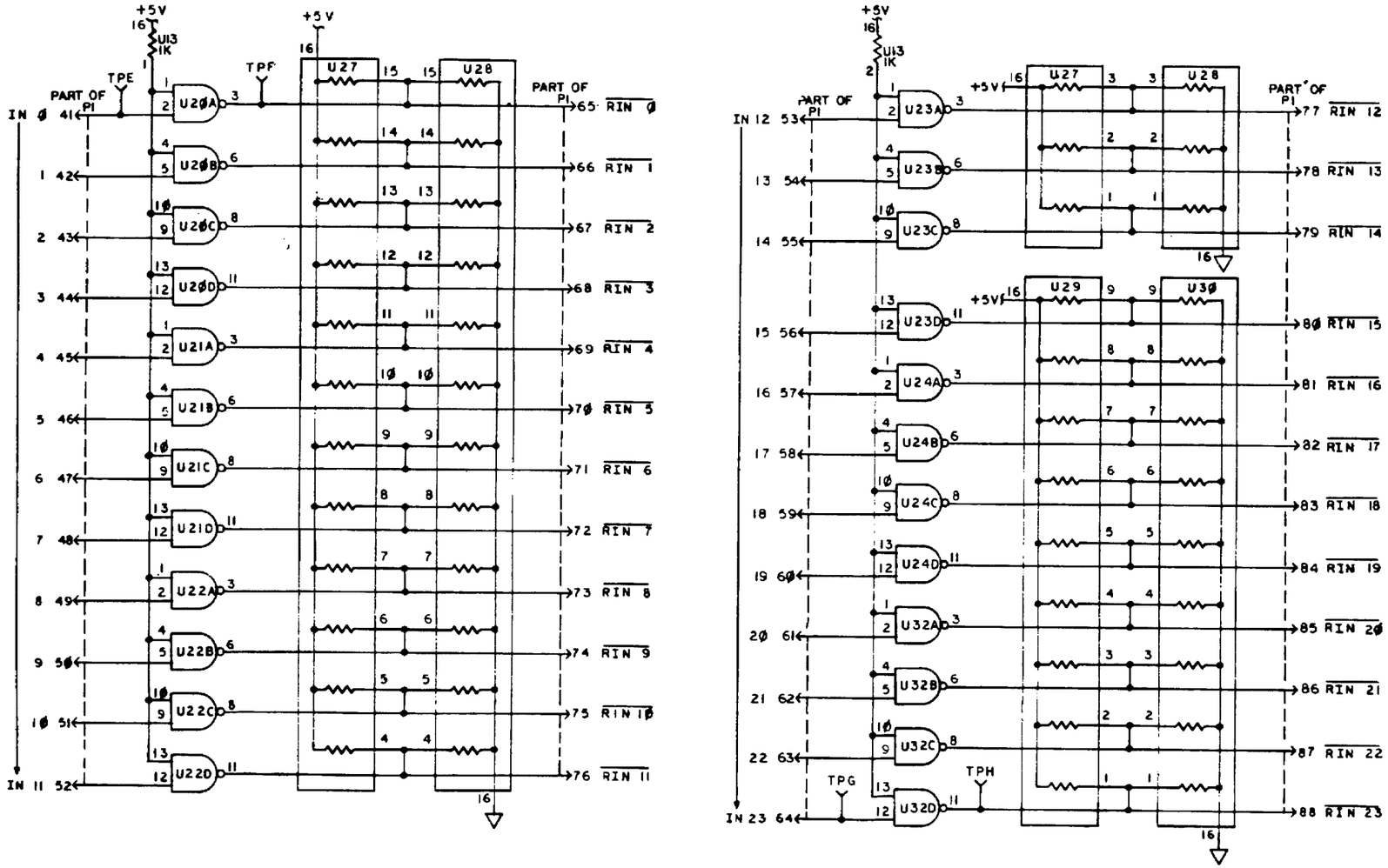
MICROCIRCUIT I.D.	
NO	TYPE
U17,18,19	5404
U20-24, 32	5438
U25,27,29	898-1-R47Ø
U26,28,30	898-1-R68Ø
U13	898-1-RLØK

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 2 %, Ø.15 WATT.
2. CAPACITANCE VALUES ARE IN UF, 50V, 10%.

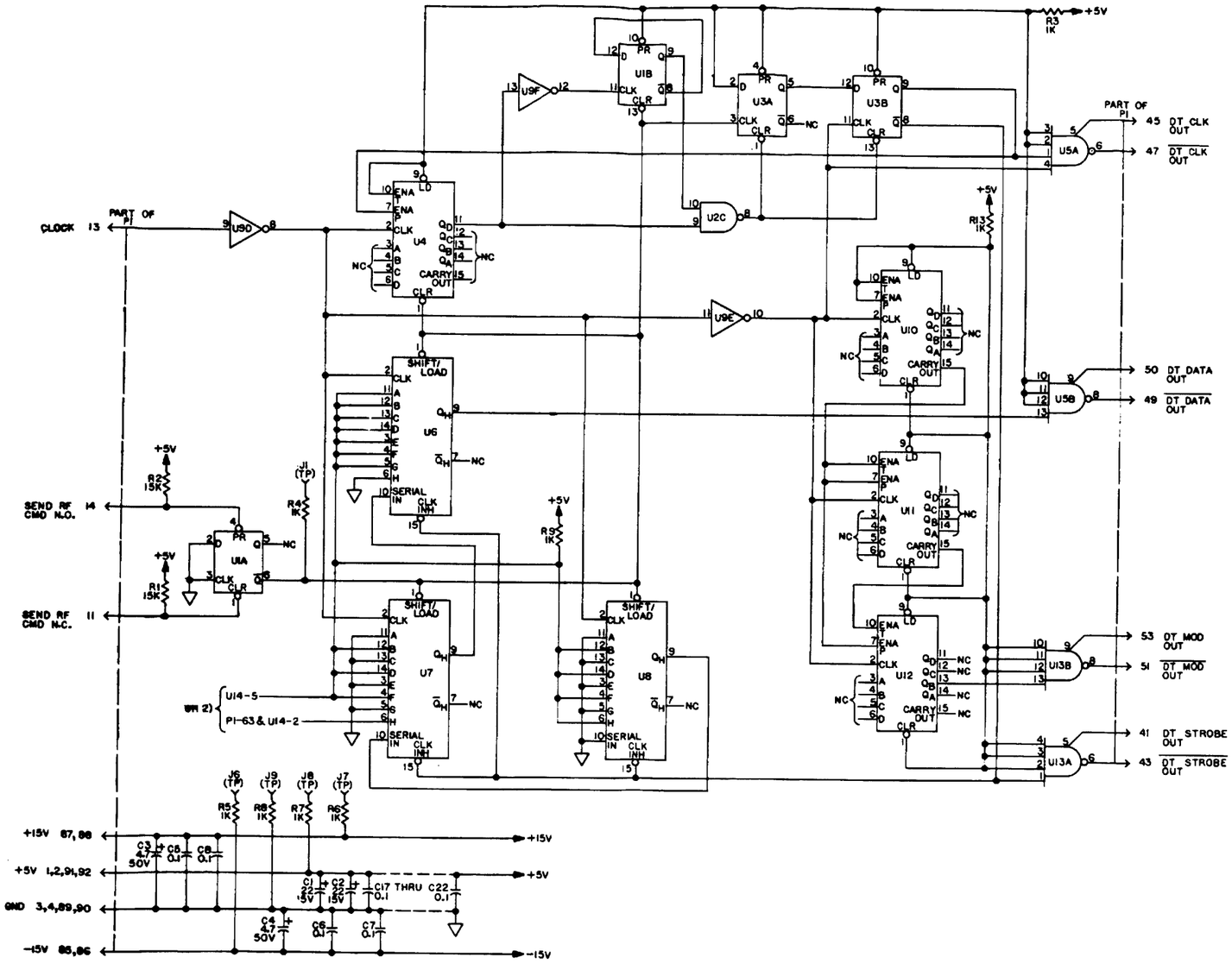
0423-1-4115
REV A

Figure FO-10. Diagnostic Buffer CCA A4 Schematic Diagram (Sheet 1 of 2)



0423-1-4118
REV A

Figure FO-10. Diagnostic Buffer CCA A4 Schematic Diagram (Sheet 2 of 2)



HIGHEST REFERENCE DESIGNATIONS

C22	J9	P1	R19	U22	
REFERENCE DESIGNATIONS NOT USED					

REF DES	MICROCIRCUIT IDENT TYPE	VCC	GND	+V	-V	SPARES
U1,3	5474	14	7	—	—	——
U2	5400	14	7	—	—	U2D
U4,10,11,12	54161	16	8	—	—	——
U5,13	7830	14	7	—	—	——
U6,7,8	54165	16	8	—	—	——
U9	5404	14	7	—	—	U9A,B,C
U14,15	54157	16	8	—	—	——
U16	MN3001MB	—	6,8	9	7	——
U17,18	7820A	14	7	—	—	——
U19,20,21	54164	14	7	—	—	——
U22	LM124	—	11	4	—	——

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS, ± 5%, 1/8 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DELETED

1951-1-4345
REV B

Figure FO-11. RF Processor Simulator CCA A5 Schematic Diagram (Sheet 1 of 2)

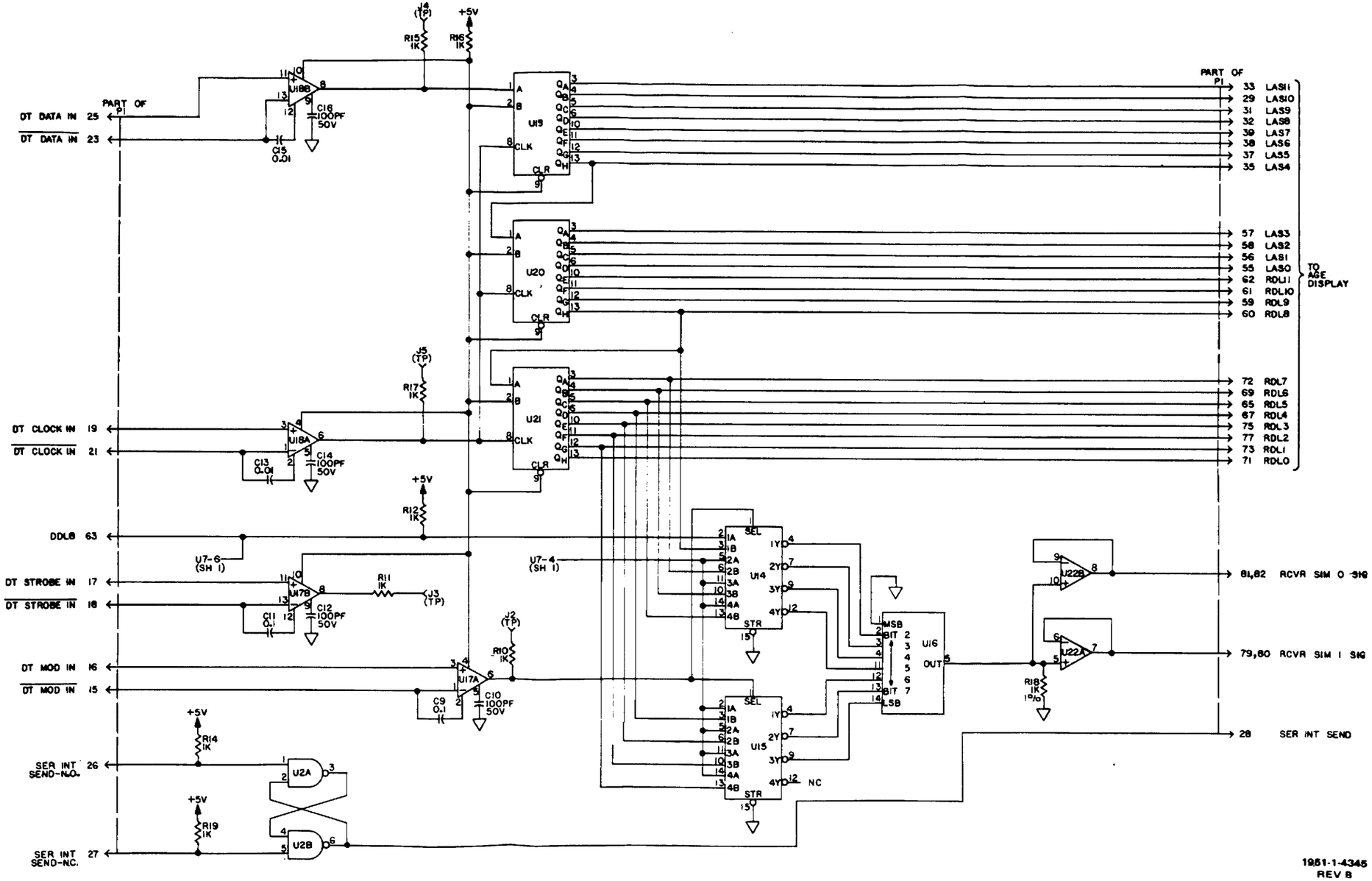
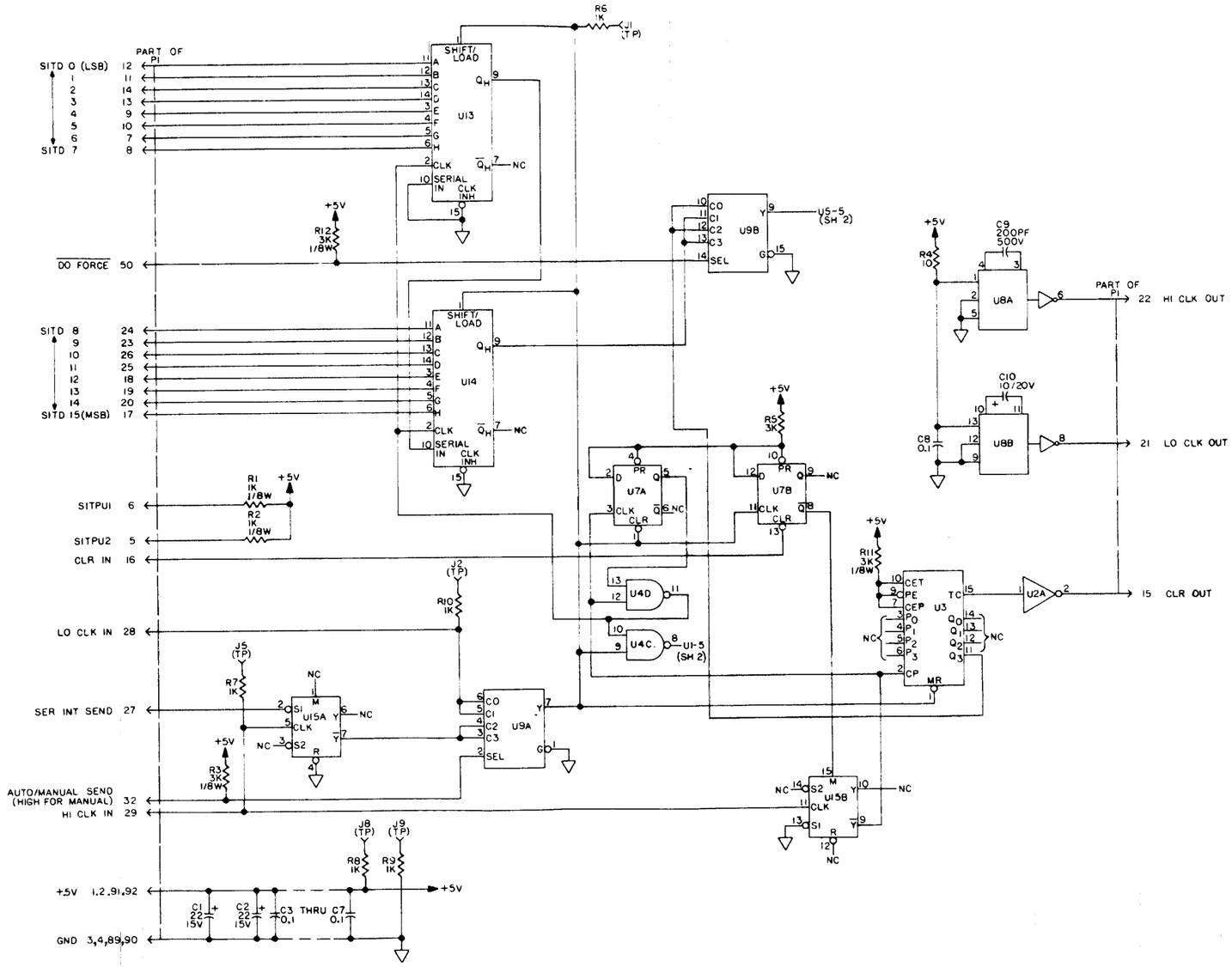


Figure FO-11. RF Processor Simulator CCA A5 Schematic Diagram (Sheet 2 of 2)



HIGHEST REFERENCE DESIGNATIONS					
C10	J9	P1	R36	U19	
REFERENCE DESIGNATIONS NOT USED					

MICROCIRCUIT UNIT				
REF DES	TYPE	VCC	GND	SPARES
U1	54LS86	14	7	U1A,C,D
U2	54L04	14	7	
U3	76L76	16	8	
U4	54L00	14	7	
U5,11	9614	16	8	
U6,12	9615	16	8	
U7	54L74	14	7	
U8	4324	14	7	
U9	54LS253	16	8	
U10,16,18,19	54LS295A	14	7	
U13,14	54L165A	16	8	
U15	54120	16	8	
U17	2K PACK	16		

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS, ± 5 %, 1/2 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DELETED

51-126361
REV A

Figure FO-12. Serial Interface Test CCA A6 Schematic Diagram (Sheet 1 of 2) Change 2

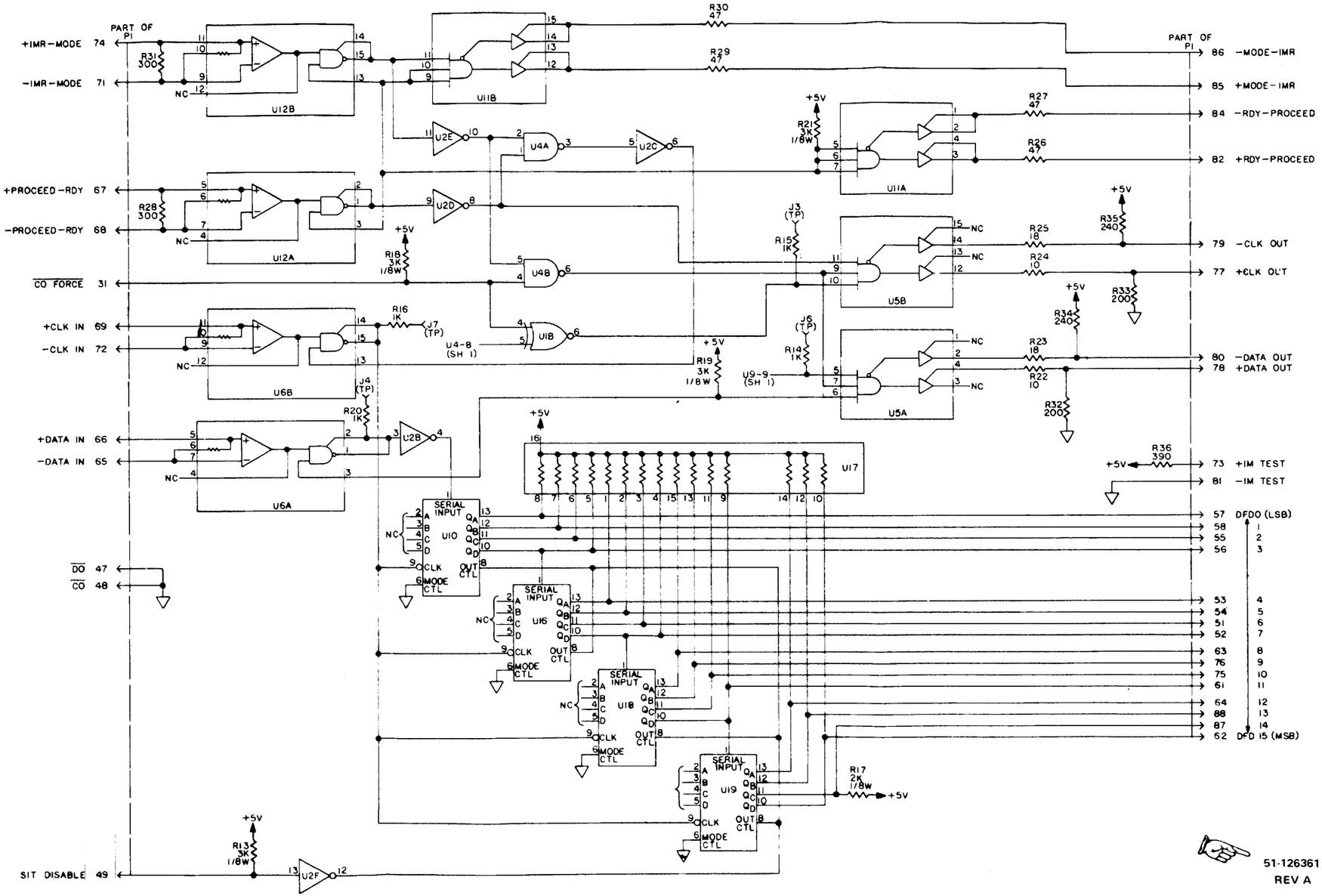
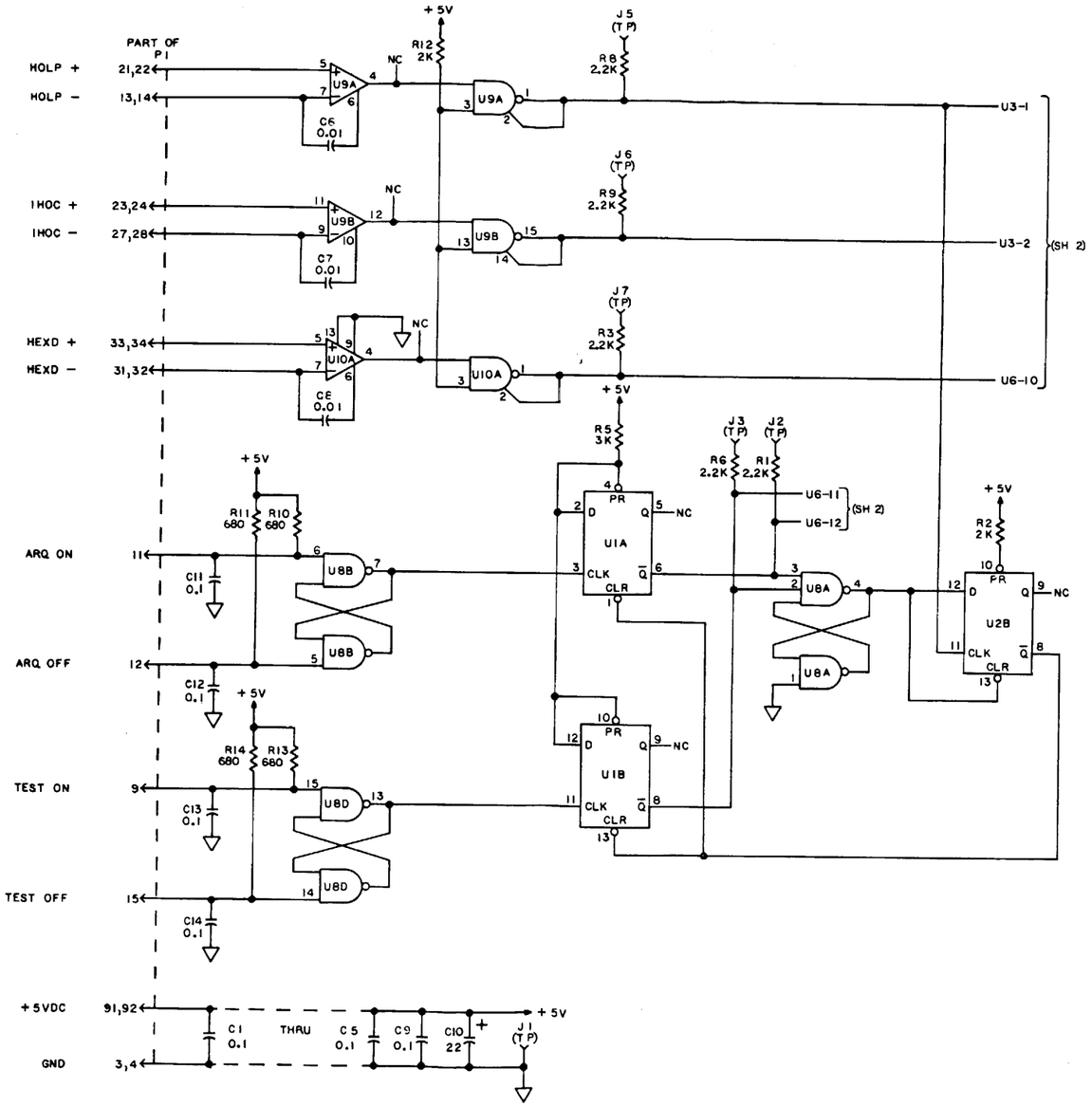


Figure FO-12. Serial Interface Test CCA A6 Schematic Diagram (Sheet 2 of 2) Change 2



HIGHEST REFERENCE DESIGNATIONS						
C14	E4	J7	P1	R14	U12	
REFERENCE DESIGNATIONS NOT USED						

MICROCIRCUIT IDENT			
REF DES	TYPE	VCC	GND
U1,2	54LS74	14	7
U3–U6	54L165	16	8
U7	9614	16	8
U8	54279	16	8
U9,10	9615	16	8
U11,12	332	16	–

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DELETED

1951-1-4160
REV A

Figure FO-13. Logic Control CCA A7 Schematic Diagram (Sheet 1 of 2)

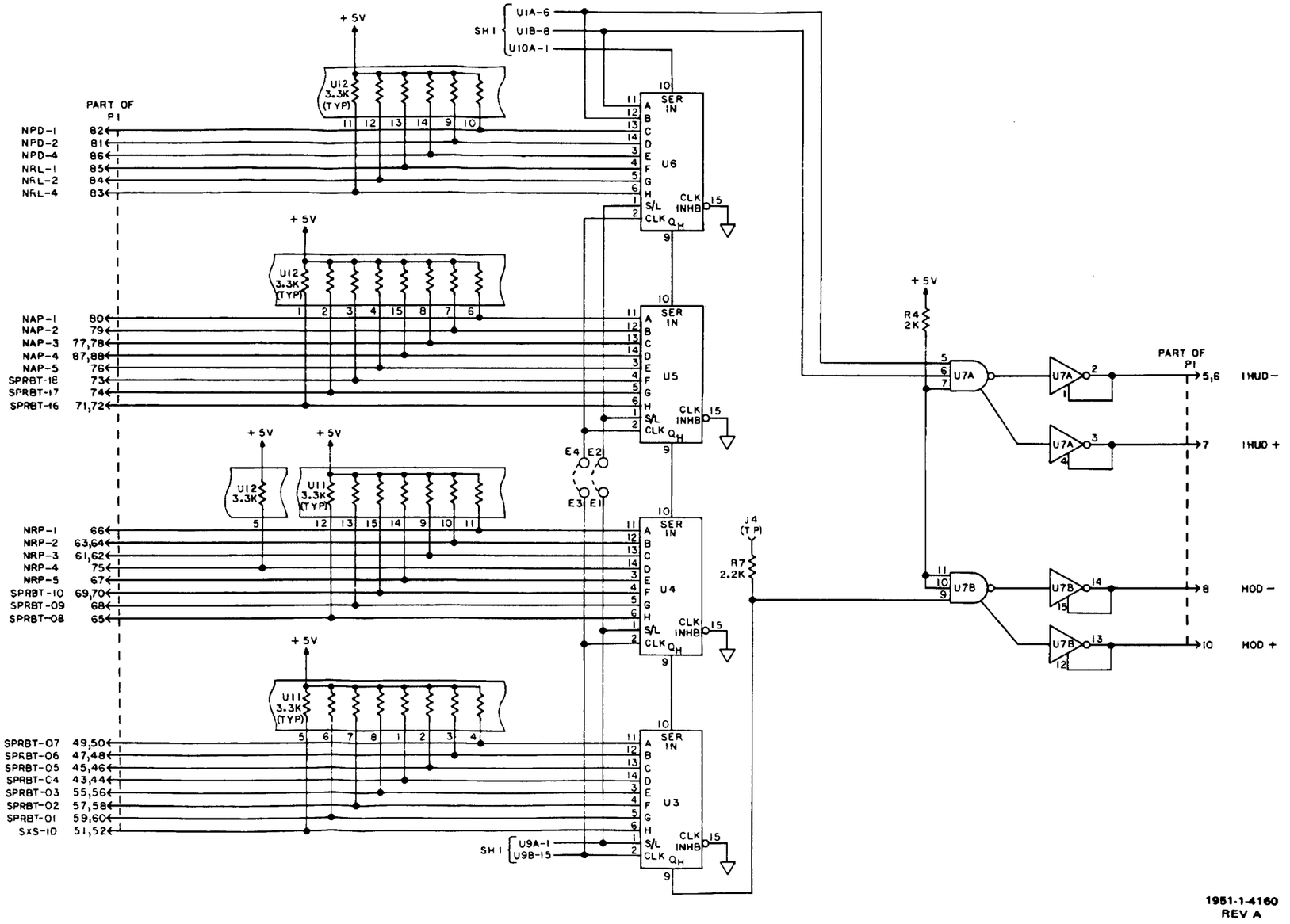
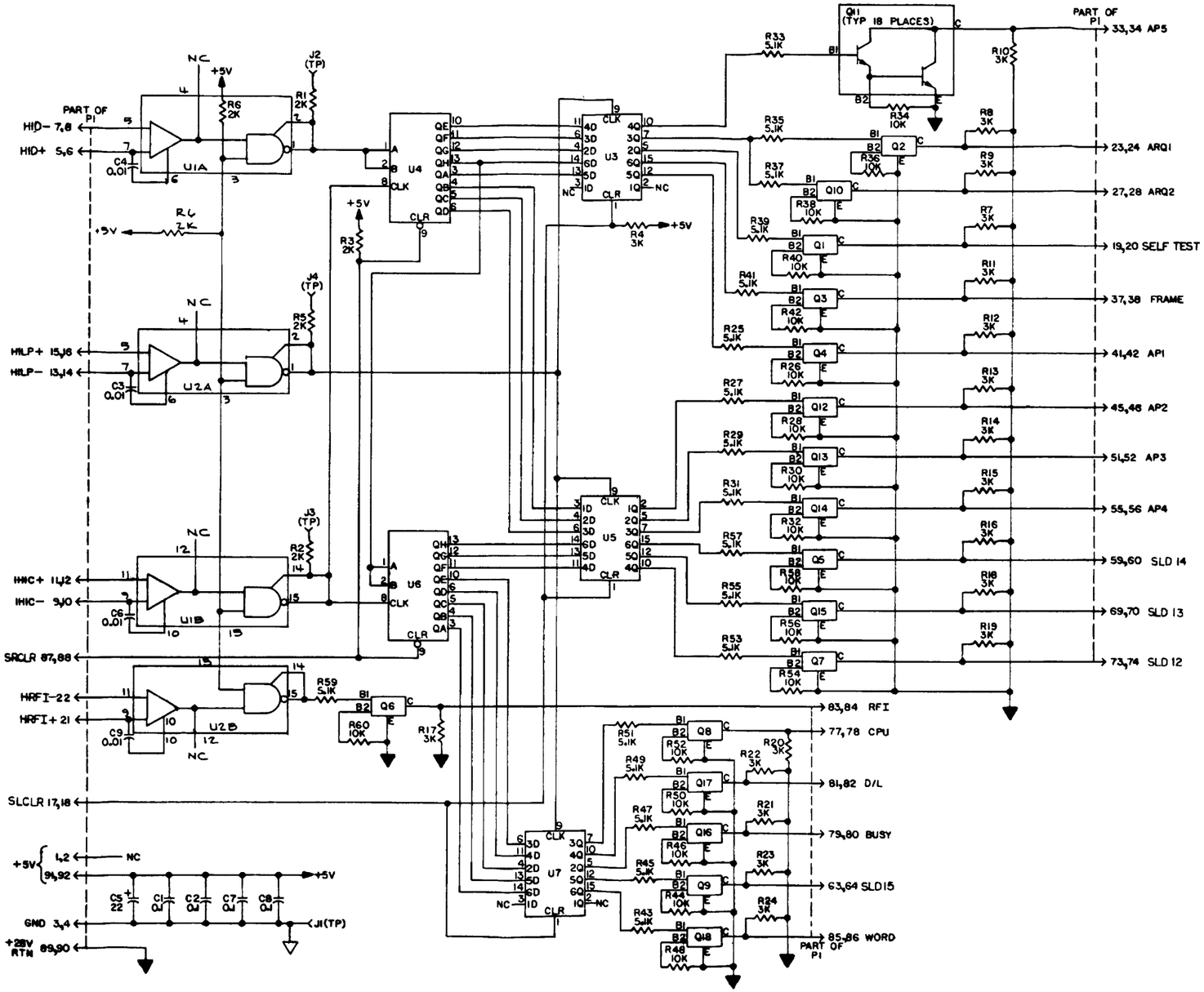


Figure FO-13. Logic Control CCA A7 Schematic Diagram (Sheet 2 of 2)



REFERENCE DESIGNATIONS NOT USED			

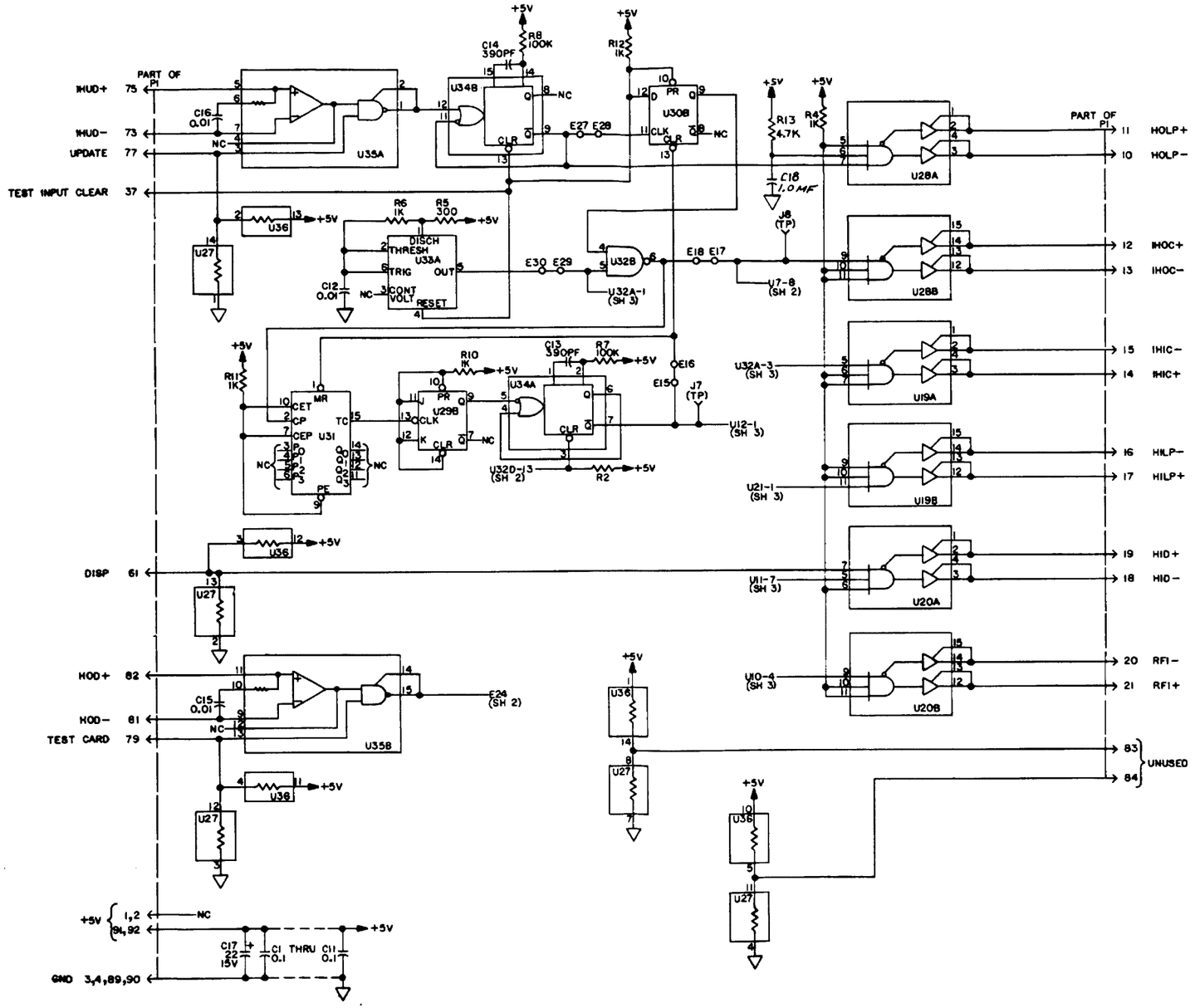
MICROCIRCUIT IDENT			
REF DES	TYPE	VCC	GND
U1,2	9615	16	8
U3,5,7	54LS174	16	8
U4,6	54164	14	7

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DELETED
4. TRANSISTORS ARE 2N6350.

1951-1-4156
REV A

Figure FO-14. Lamp Driver CCA A8 Schematic Diagram



HIGHEST REFERENCE DESIGNATIONS							
C18	E32	J11	P1	R13	U36		
REFERENCE DESIGNATIONS NOT USED							

MICROCIRCUIT IDENT.				
REF DES	TYPE	VCC	GND	SPARE
U1	54S260	14	7	U1A
U2,4,7,8	54164	14	7	
U5,13	54LS257	16	8	
U6,9	54LS138	16	8	
U11,12	54L165A	16	8	
U14,18	54L04	14	7	
U16,23	54L10	14	7	U16A
U17	54L20	14	7	
U19,20,28	9614	16	8	
U21,31	93L16	16	8	
U22	54L308	14	7	
U24,25,26	54LS253	16	8	U25B
U29	54LS112	16	8	
U30	54L74	14	7	
U32	5400	14	7	
U33	556	14	7	
U34	96L02	16	8	
U35	9615	16	8	
U27(R.NTWK)	4.7K	—	—	
U36(R.NTWK)	3.3K	—	—	
U3,10,15	54L157	16	8	

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS, ± 5 %, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DELETED

51-126371
REV B

Figure FO-15. Control-Indicator Test CCA A9 Schematic Diagram (Sheet 1 of 3)

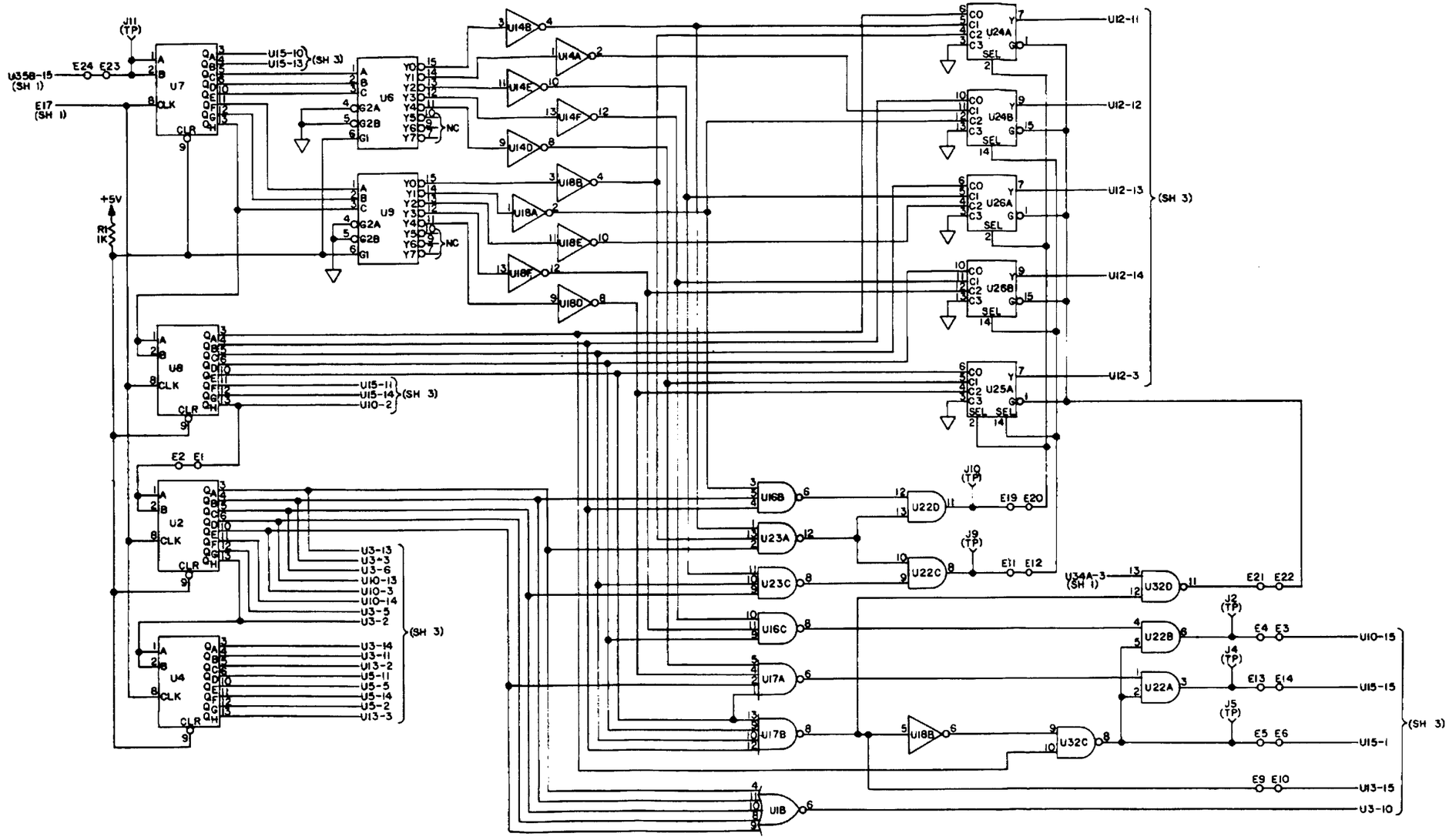


Figure FO-15. Control-Indicator Test CCA A9 Schematic Diagram (Sheet 2 of 3)

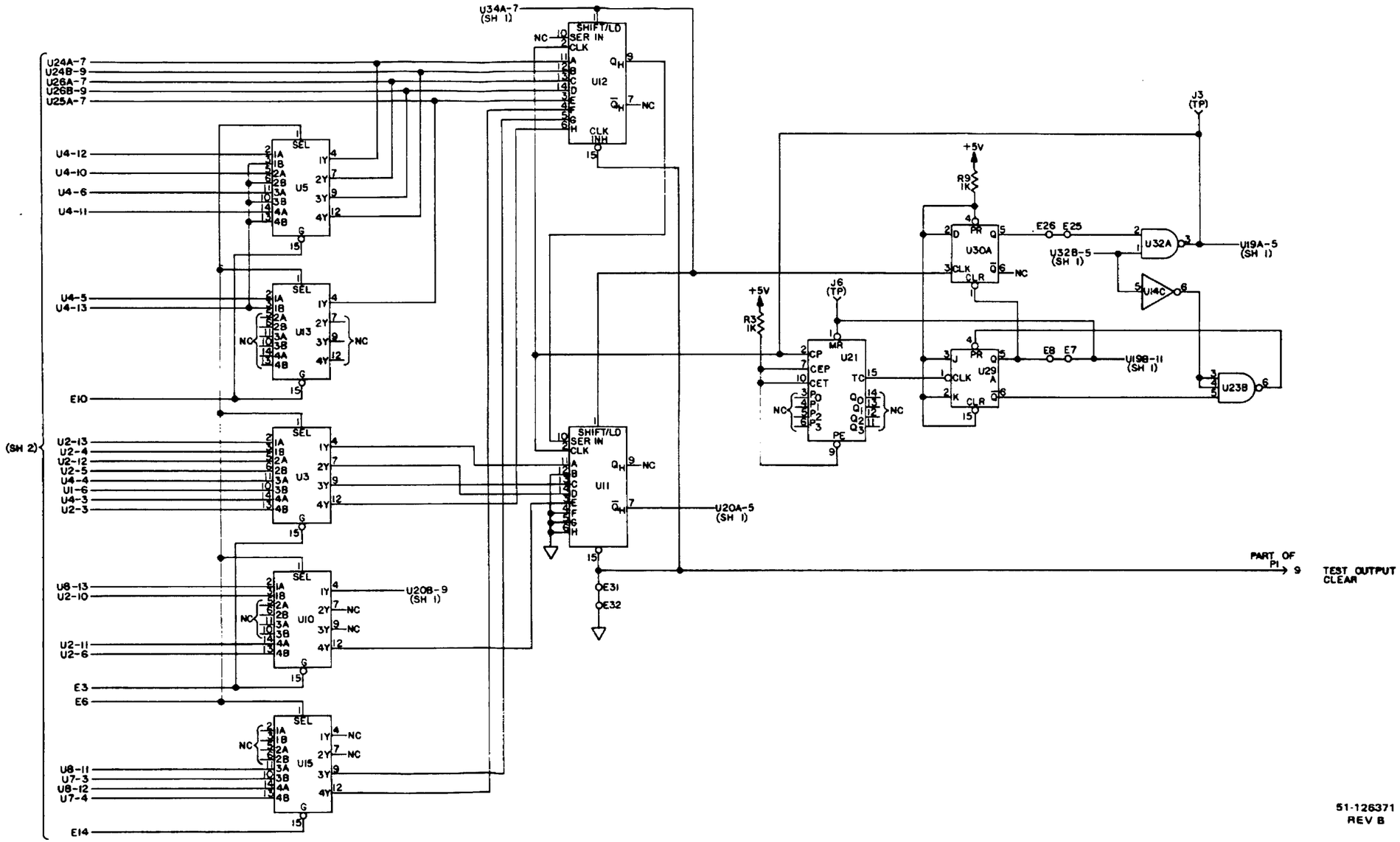
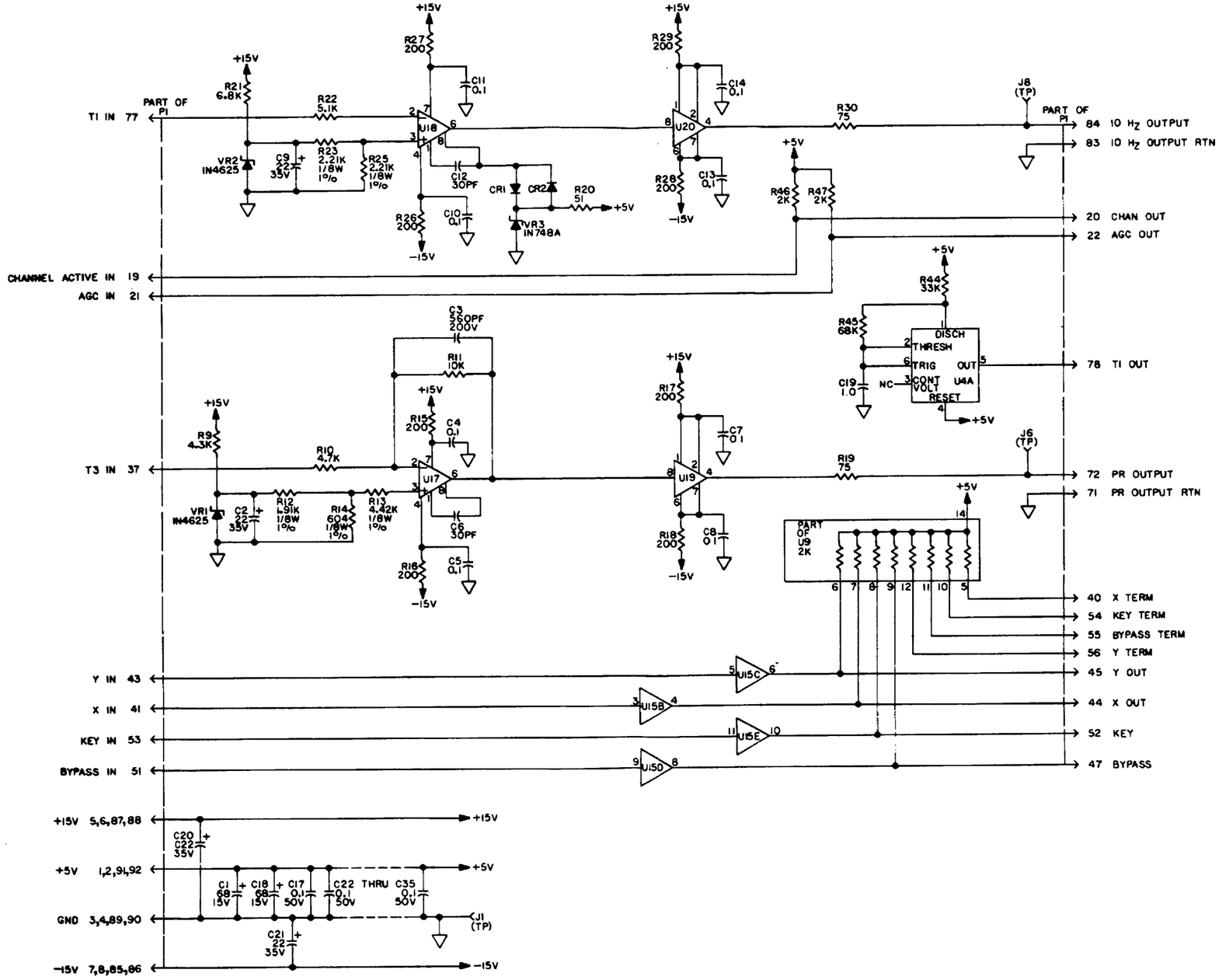


Figure FO-15. Control-Indicator Test CCA A9 Schematic Diagram (Sheet 3 of 3)



HIGHEST REFERENCE DESIGNATIONS						
C35	CR2	J8	P1	R48	U20	VR3
REFERENCE DESIGNATIONS NOT USED						

MICROCIRCUIT IDENT.						
REF DES	TYPE	VCC	GND	+V	-V	SPARES
U1,5,10	54195	16	8	—	—	———
U2,11,14	5425	14	7	—	—	———
U3	5406	14	7	—	—	U3A,E,F
U4	556	14	7	—	—	U4B
U6	5400	14	7	—	—	U6B,D
U7	5474	14	7	—	—	———
U8	5410	14	7	—	—	U8A
U9	899-1-2.0K	14		—	—	PIN 4
U12	5420	14	7	—	—	U12B
U13	5486	14	7	—	—	———
U15	5407	14	7	—	—	U15A,F
U16	LM111H	—	1	8	4	———
U17,18	LM101H	—	—	7	4	———
U19,20	LH0002	—	—	1,2	6,7	———

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS, ± 5%, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DIODES ARE IN4148.
4. DELETED

1951-1-4789
REV A

Figure FO-16. Transceiver Test CCA A10 Schematic Diagram (Sheet 1 of 2)

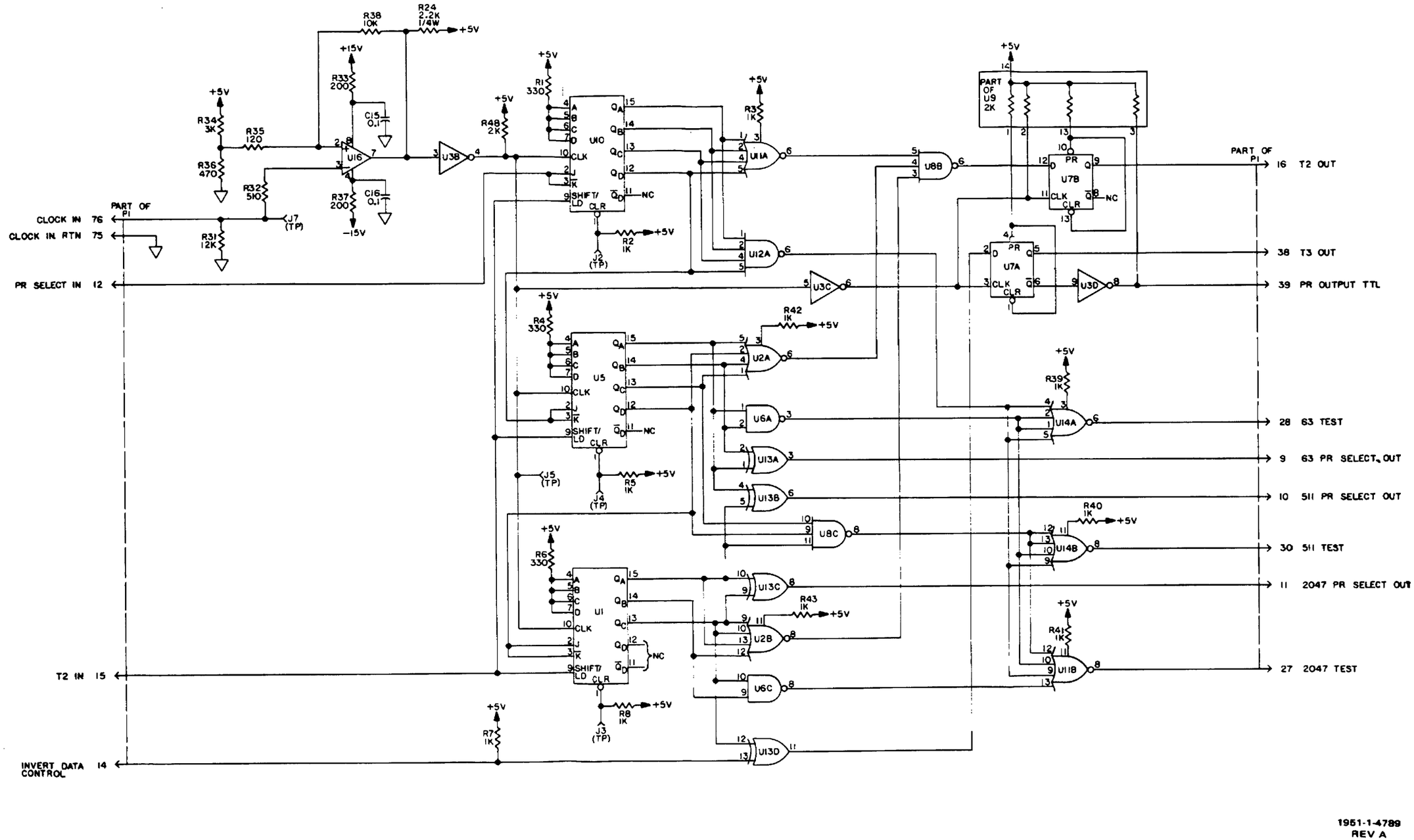


Figure FO-16. Transceiver Test CCA A10 Schematic Diagram (Sheet 2 of 2)

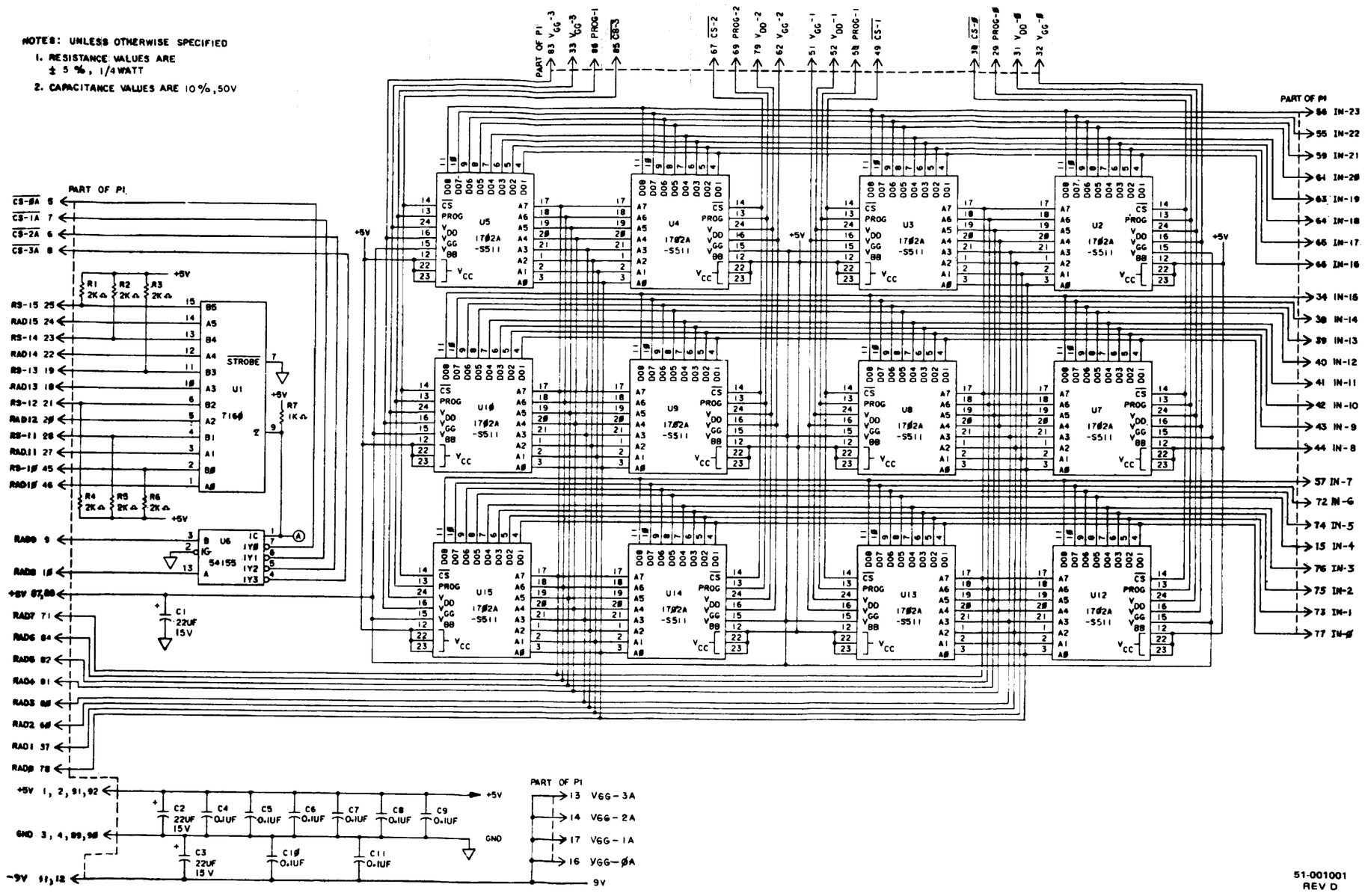


Figure FO-17. Diagnostic ROM CCA A11, A12 Schematic Diagram

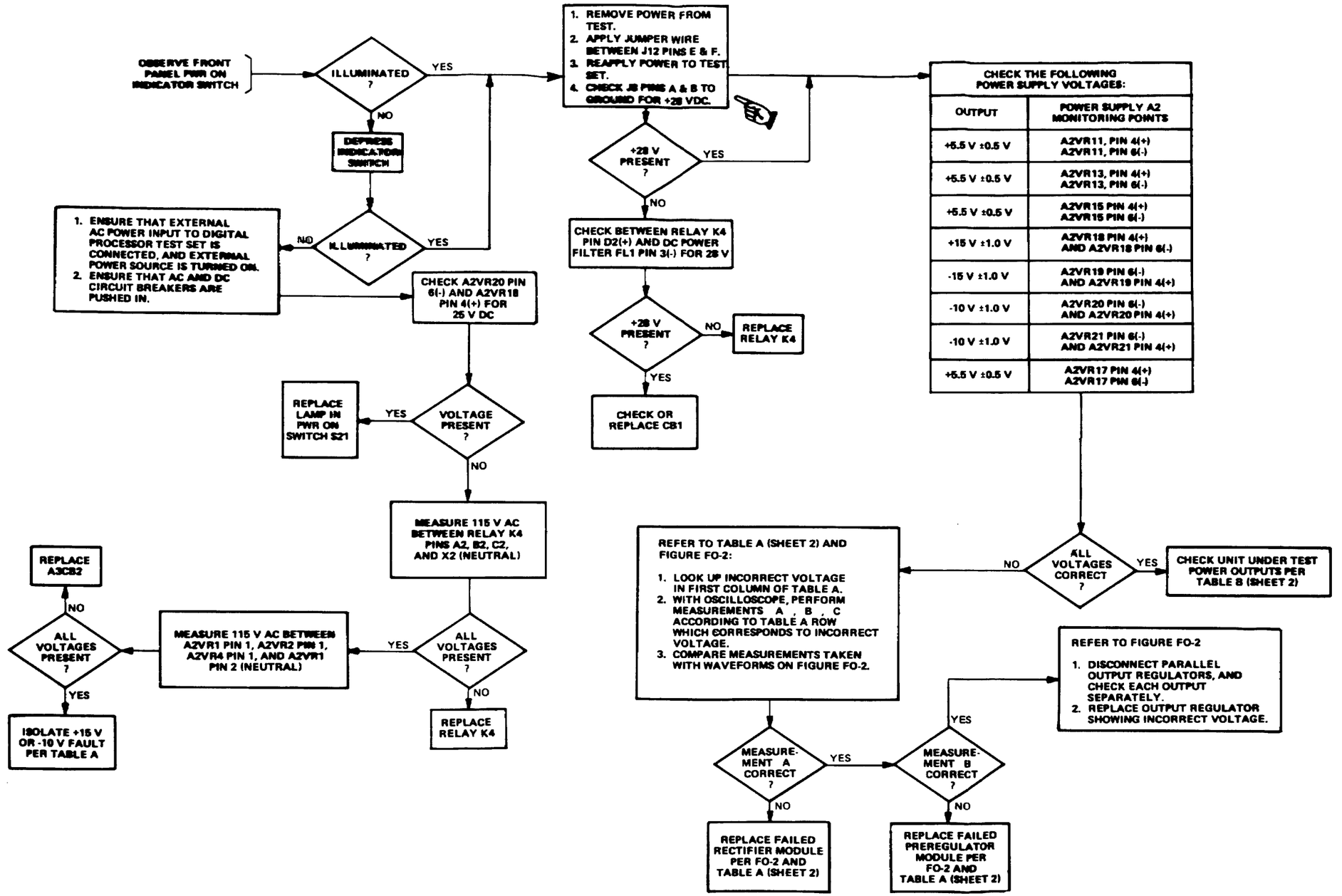


Figure FO-18. Power Supply Fault Isolation Flowchart (Sheet 1 of 2)

TABLE A. POWER SUPPLY STRING CHECK

INCORRECT VOLTAGE	MEASUREMENT		
	C (HIGH FREQUENCY OSCILLATOR CHECK POINT)	B (PREREGULATOR CHECK POINT	A (RECTIFIER CHECK POINT)
+5 V DC AT A2VR11, VR12 PIN 4(+) AND 6(-)	A2G1 PIN 4(+) AND PIN 6(-)	A2VR6 PIN 4(+) AND PIN 6(-)	A2VR1 PIN 3(+) AND PIN 5(-)
+5 V DC AT A2VR13, A2VR14 PIN 4(+) AND PIN 6(-)	A2G2 PIN 4(+) AND PIN 6(-)	A2VR7 PIN 4(+) AND PIN 6(-)	A2VR2 PIN 3(+) AND PIN 5(-)
+5 V DC AT A2VR17, VR16 PIN 4(+) AND PIN 6(-)	A2G3 PIN 4(+) AND PIN 6(-)	A2VR8 PIN 4(+) AND PIN 6(-)	A2VR3 PIN 3(+) AND PIN 5(-)
+5 V DC AT A2VR17 PIN 4(+) AND PIN 6(-)	A2G4 PIN 4(+) AND PIN 6(-)	A2VR9 PIN 4(+) AND PIN 6(-)	A2VR4 PIN 3(+) AND PIN 5(-)
+5 V DC AT A2VR18 PIN 4(+) AND PIN 6(-)	A2G4 PIN 4(+) AND PIN 6(-)	A2 VR9 PIN 4(+) AND PIN 6(-)	A2VR4 (PIN 3(+) AND PIN 5(-)
-15 V DC AT A2VR19 PIN 6(-) AND PIN 4(+)	A2G4 PIN 4(+) AND PIN 6(-)	A2VR9 PIN 4(+) AND PIN 6(-)	A2VR4 PIN 3(+) AND PIN 5(-)
-10 V DC AT A2VR20 PIN 6(-) AND PIN 4(+)	A2G5 PIN 4(+) AND PIN 6(-)	A2VR10 PIN 4(+) AND PIN 6(-)	A2VR5 PIN 3(+) AND PIN 5(-)
-10 V DC AT A2VR21 PIN 6(-) AND PIN 4(+)	A2G5 PIN 4(+) AND PIN 6(-)	A2VR10 PIN 4(+) AND PIN 6(-)	A2VR5 PIN 3(+) AND PIN 5(-)

TABLE B. UNIT UNDER TEST POWER CHECK

CORRECT VOLTAGE	MONITORING POINT	IF VOLTAGE INCORRECT REPLACE
+5.5 V ±0.5 V	J14 PIN F(+) J14 PIN H(-)	K1
+5.5 V ±0.5 V	J14 PIN L(+) J14 PIN N(-)	K2
+5.5 V ±0.5 V	J14 PIN V(+) J14 PIN W(-)	K2
+15 V ±1.0 V	J14 PIN A(+) J14 PIN C(-)	K1
-15 V ±1.0 V	J14 PIN B(-) J14 PIN C(+)	K1
-10 V ±1.0 V	J14 PIN S(-) J14 PIN T(+)	K2

Figure FO-18. Power Supply Fault Isolation Flowchart (Sheet 2 of 2)

INITIAL SETUP

1. PLACE CCA A3 ON EXTENDER CCA
2. SHORT PINS 53 THRU 60 TO TEST POINT H (GROUND) OF CCA A1A3
3. PLUG EXTENDER CCA (WITH A1A3 INSERTED) INTO XA3

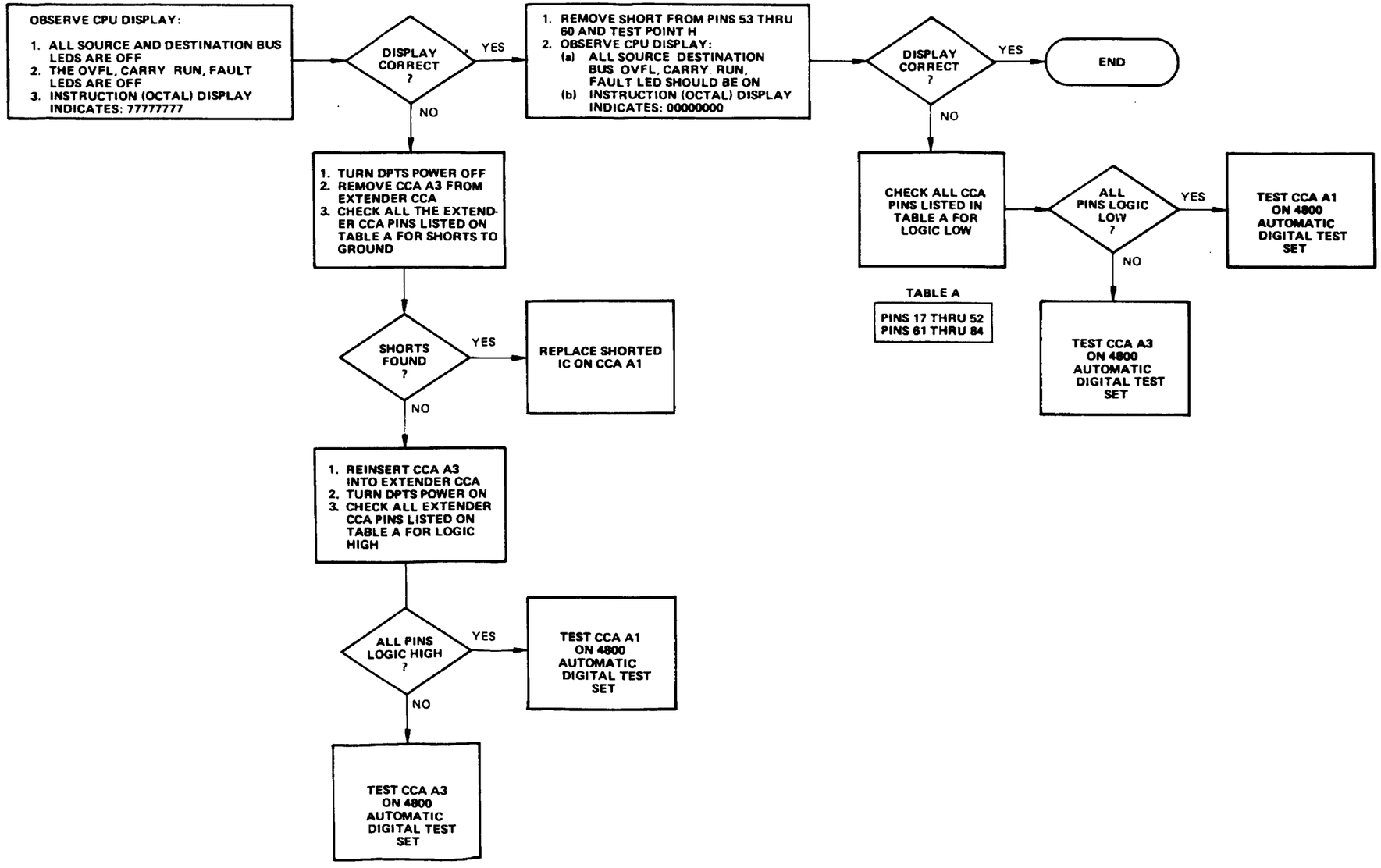


Figure FO-19. CPU Display Fault Isolation Flowchart

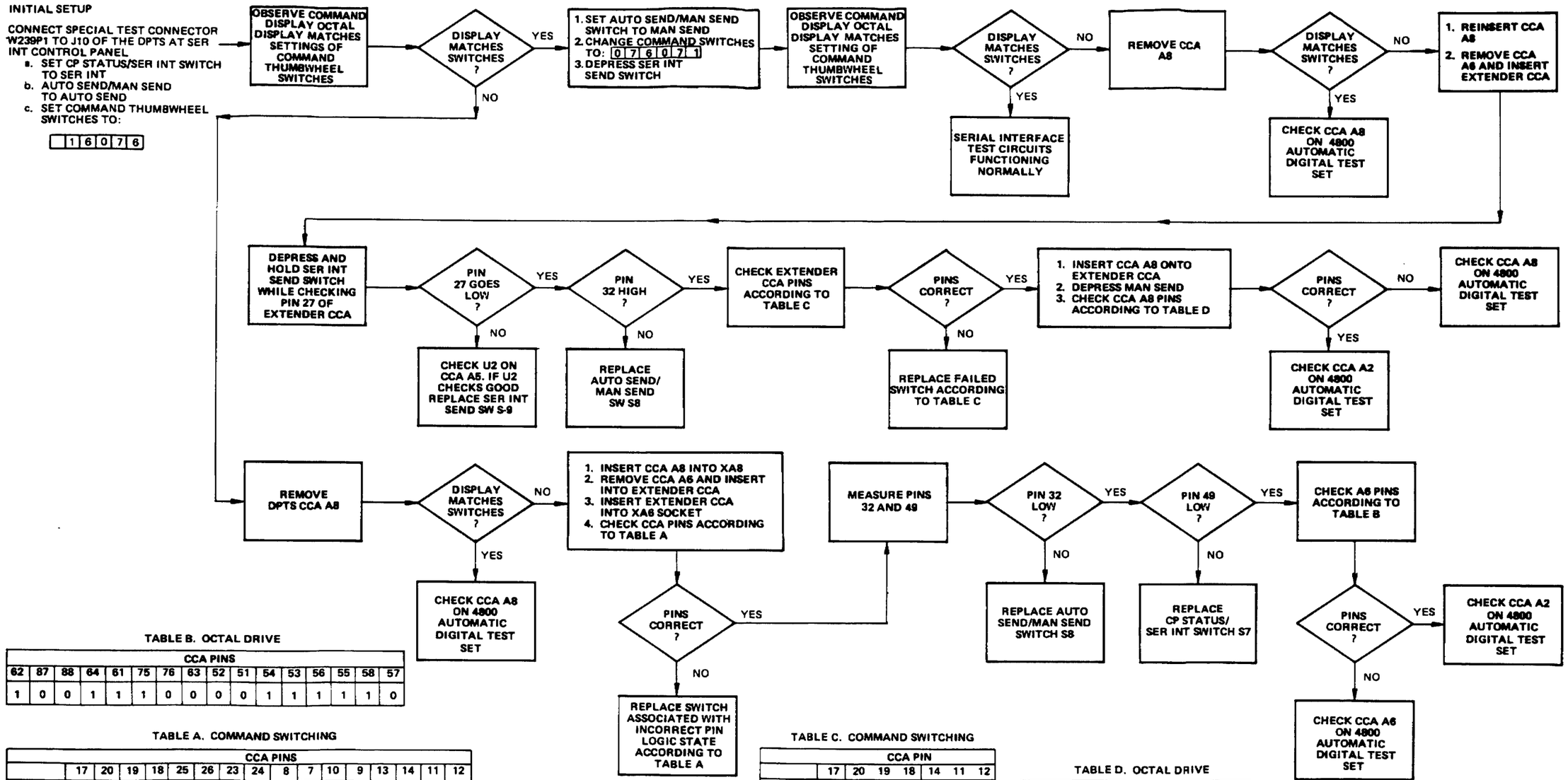


TABLE B. OCTAL DRIVE

CCA PINS															
62	87	88	64	61	75	76	63	52	51	54	53	56	55	58	57
1	0	0	1	1	1	0	0	0	0	1	1	1	1	1	0

TABLE A. COMMAND SWITCHING

	CCA PINS															
	17	20	19	18	25	26	23	24	8	7	10	9	13	14	11	12
STATE 1 = HIGH 0 = LOW	1	0	0	1	1	1	0	0	0	0	1	1	1	1	1	0
FAILED SWITCH	S28	S29			S30			S31				S32			S33	

TABLE C. COMMAND SWITCHING

	CCA PIN						
	17	20	19	18	14	11	12
*STATE	0	1	1	1	0	0	1
FAILED SWITCH	S28	S29			S33		

*1 = HIGH, 0 = LOW

TABLE D. OCTAL DRIVE

	CCA PIN						
	62	87	88	64	55	58	57
*STATE	0	1	1	1	0	0	1

*0 = LOW, 1 = HIGH

Figure FO-20. Serial Interface Test Functional Fault Isolation Flowchart

INITIAL SETUP

1. SET DPTS DF CONTROL TEST FULL SCALE/HALF SCALE SWITCH TO FULL SCALE
2. CONNECT TEST PLUG W240P1 TO DIGITAL PROCESSOR TEST SET J13
3. DEPRESS AND RELEASE DF CONTROL TEST SELF-TEST/SEND SWITCH
4. ANALOG OUTPUT CONNECTORS ARE J1 & J2

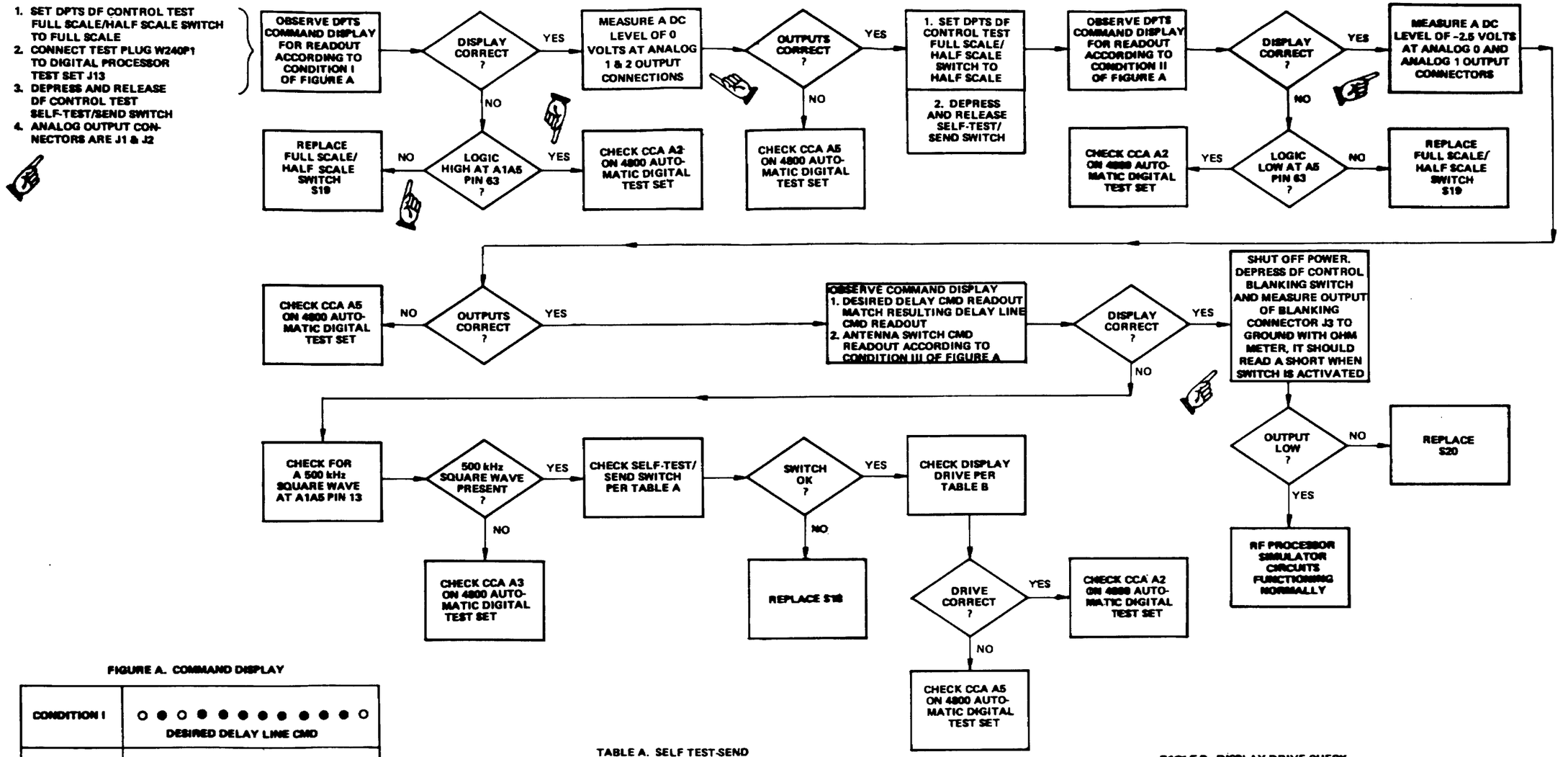


FIGURE A. COMMAND DISPLAY

CONDITION I	○ ● ○ ● ● ● ● ● ● ● ● ○ DESIRED DELAY LINE CMD
CONDITION II	○ ● ○ ○ ● ● ● ● ● ● ● ○ DESIRED DELAY LINE CMD
CONDITION III	○ ● ○ ● ○ ● ○ ● ○ ● ○ ● ANTENNA SWITCH CMD

TABLE A. SELF TEST-SEND SWITCH TEST

	CCA A10	
SWITCH	PIN 14	PIN 15
DEPRESSED	LOW	HIGH
RELEASED	HIGH	LOW

TABLE B. DISPLAY DRIVE CHECK

	CCA A5																					
	71	73	77	75	67	65	69	72	60	59	51	55	53	52	57	35	37	38	39	32	31	29	33
*STATE	0	1	1	1	1	1	1	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1

*1 = HIGH 0 = LOW

Change 1

Figure FO-21. RF Processor Simulator Fault Isolation Flowchart

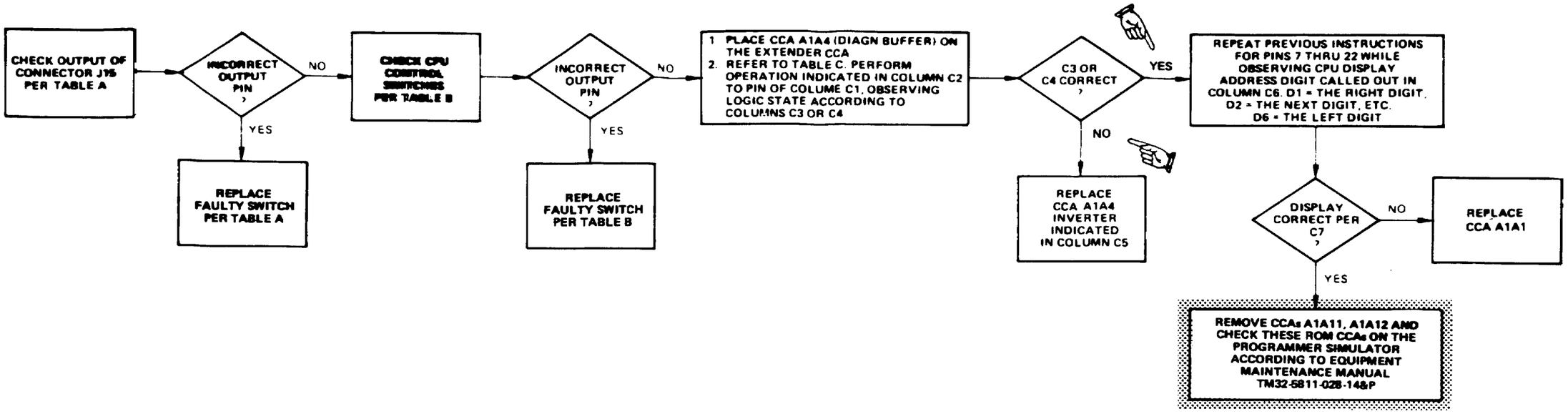


TABLE A. ADDRESS SWITCH CHECK

ROTATE THIS THUMBWHEEL SWITCH	*CHECK THESE OUTPUTS WITH AN OHMMETER	THUMBWHEEL SWITCH POSITION							
		0	1	2	3	4	5	6	7
LSB THUMBWHEEL SWITCH (S27)	ASW0 (J15-37)	0	1	0	1	0	1	0	1
	ASW1 (J15-38)	0	0	1	1	0	0	1	1
	ASW2 (J15-39)	0	0	0	0	1	1	1	1
THUMBWHEEL SWITCH (S26)	ASW3 (J15-40)	0	1	0	1	0	1	0	1
	ASW4 (J15-41)	0	0	1	1	0	0	1	1
	ASW5 (J15-42)	0	0	0	0	1	1	1	1
THUMBWHEEL SWITCH (S25)	ASW6 (J15-43)	0	1	0	1	0	1	0	1
	ASW7 (J15-44)	0	0	1	1	0	0	1	1
	ASW8 (J15-45)	0	0	0	0	1	1	1	1
THUMBWHEEL SWITCH (S24)	ASW9 (J15-47)	0	1	0	1	0	1	0	1
	ASW10 (J15-48)	0	0	1	1	0	0	1	1
	ASW11 (J15-49)	0	0	0	0	1	1	1	1
THUMBWHEEL SWITCH (S23)	ASW12 (J15-50)	0	1	0	1	0	1	0	1
	ASW13 (J15-51)	0	0	1	1	0	0	1	1
	ASW14 (J15-52)	0	0	0	0	1	1	1	1
THUMBWHEEL SWITCH (S22)	ASW15 (J15-53)	0	1	X	X	X	X	X	X

X = NOT APPLICABLE

0: OPEN CIRCUIT
1: SHORT TO COM1 (J15-36) FOR ASW0–ASW8
1: SHORT TO COM2 (J15-46) FOR ASW9–ASW15

TABLE B. CPU MANUAL CONTROL SWITCH CHECK

	POSITION	THIS PIN SHOULD BE OPEN	THIS PIN SHOULD BE SHORTED TO GROUND
NORM ROM/ DPTS ROM (S1)	UP	J16–90	–
	DOWN	–	J16–90
RUN (S2)	UP	J15–23	J15–25
	DOWN	J15–25	J15–23
HALT (S3)	UP	J15–29	–
	DOWN	–	J15–29
SINGLE STEP (S4)	UP	J15–28	J15–26
	DOWN	J15–26	J15–28
PRESET (S5)	UP	J15–35	J15–33
	DOWN	J15–33	J15–35
BREAK POINT (S6)	UP	–	J15–31
	DOWN	J15–31	–

Change 1

Figure FO-22. CPU Control and Address Display Fault Isolation Flowchart (Sheet 1 of 2)

TABLE C. ROM CONTROL AND ADDRESS DISPLAY CHECK

C1 A4 PIN	C2 ACTIVITY 1 = LEAVE OPEN 0 = GROUND	C3 THIS A4 PIN SHOULD BE HIGH	C4 THIS A4 PIN SHOULD BE LOW	C5 A4 INVERTER	C6 A4 DISPLAY DIGIT	C7 CORRECT DISPLAY DIGIT VALUE
7	1	–	23	U17	D1 (U9)	0
	0	23	–			1
8	1	–	24			0
	0	24	–			2
9	1	–	25			0
	0	25	–		D1 (U9)	4
10	1	–	26		D2 (U8)	0
	0	26	–			1
11	1	–	27			0
	0	27	–			2
12	1	–	28			0
	0	28	–	U17	D2 (U8)	4
13	1	–	29	U18	D3 (U7)	0
	0	29	–			1
14	1	–	30			0
	0	30	–			2
15	1	–	31			0
	0	31	–		D3 (U7)	4
16	1	–	32		D4 (U6)	0
	0	32	–			1
17	1	–	33			0
	0	33	–			2
18	1	–	34			0
	0	34	–	U18	D4 (U6)	4
19	1	–	35	U19	D5 (U5)	0
	0	35	–			1
20	1	–	36			0
	0	36	–			2
21	1	–	37			0
	0	–			D5 (U5)	5
22	1	–	38		D6 (U4)	0
	0	38	–	U19	D6 (U4)	1

TABLE C. (CONTINUED)

C1 A4 PIN	C2 ACTIVITY 1 = LEAVE OPEN 0 = GROUND	C3 THIS A4 PIN SHOULD BE HIGH	C4 THIS A4 PIN SHOULD BE LOW	C5 A4 INVERTER
41	1	–	65	U20
	0	65	–	
42	1	–	66	
	0	66	–	
43	1	–	67	
	0	67	–	
44	1	–	68	
	0	68	–	U20
45	1	–	69	U21
	0	69	–	
46	1	–	70	
	0	70	–	
47	1	–	71	
	0	71	–	
48	1	–	72	
	0	72	–	U21
49	1	–	73	U22
	0	73	–	
50	1	–	74	
	0	74	–	
51	1	–	75	
	0	75	–	
52	1	–	76	
	0	76	–	U22
53	1	–	77	U23
	0	77	–	
54	1	–	78	
	0	78	–	
55	1	–	79	
	0	79	–	
56	1	–	80	
	0	80	–	U23
57	1	–	81	U24
	0	81	–	

TABLE C. (CONTINUED)

C1 A4 PIN	C2 ACTIVITY 1 = LEAVE OPEN 0 = GROUND	C3 THIS A4 PIN SHOULD BE HIGH	C4 THIS A4 PIN SHOULD BE LOW	C5 A4 INVERTER
58	1	–	82	U24
	0	82	–	
59	1	–	83	
	0	83	–	
60	1	–	84	
	0	84	–	U24
61	1	–	85	U32
	0	85	–	
62	1	–	86	
	0	86	–	
63	1	–	87	
	0	87	–	
64	1	–	88	
	0	88	–	U32

Figure FO-22. CPU Control and Address Display Fault Isolation Flowchart (Sheet 2 of 2)

INITIAL SETUP

1. CONNECT OUTPUT OF FUNCTION GENERATOR (HP33120 OR EQUIV) TO J4 OF THE DPTS TRANSCEIVER CONTROL PANEL
2. ADJUST FUNCTION GENERATOR FOR A SIGNAL AT CCA A10 J7 (OF THE DPTS) AS SHOWN IN FIGURE A.

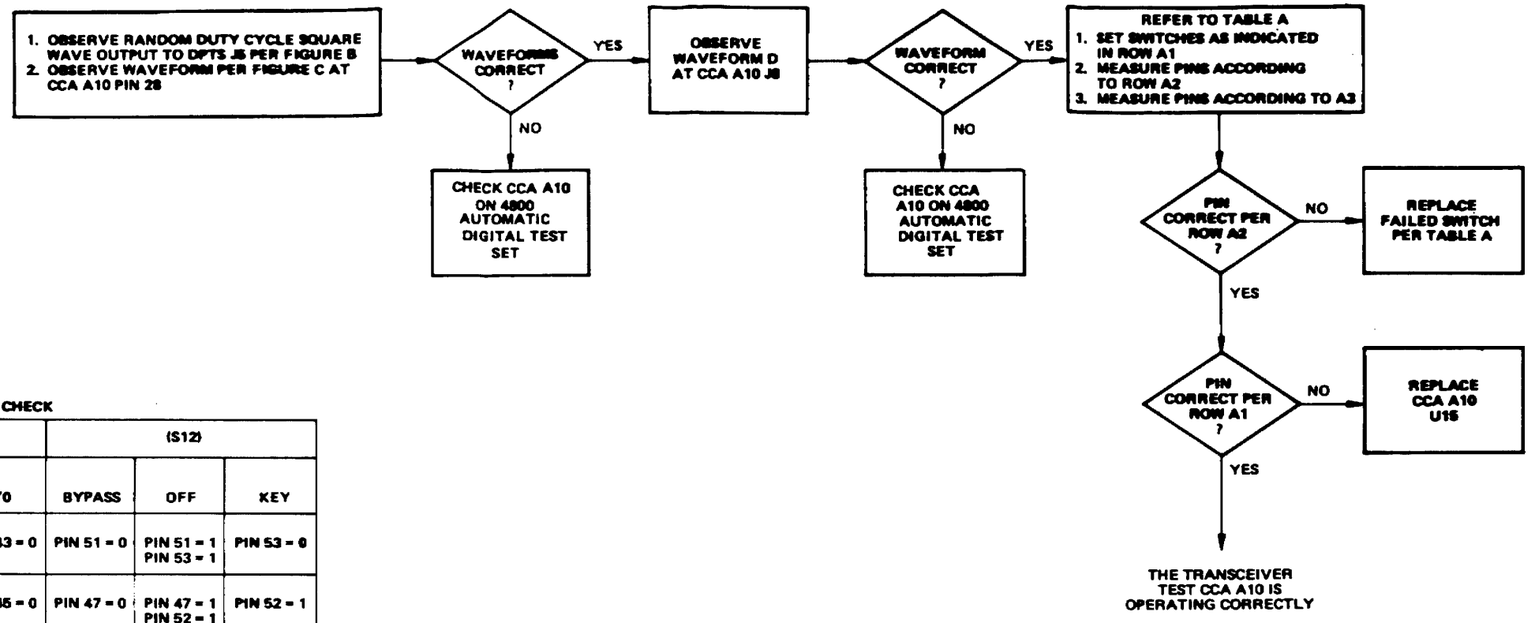


TABLE A. SWITCHING CHECK

SWITCH ⟶	(S10)		(S11)		(S12)		
A1 POSITION	X1	X0	Y1	Y0	BYPASS	OFF	KEY
A2 A1A10 MEASUREMENT	PIN 41 = 1	PIN 41 = 0	PIN 43 = 1	PIN 43 = 0	PIN 51 = 0	PIN 51 = 1 PIN 53 = 1	PIN 53 = 0
A3 A1A10 MEASUREMENT	PIN 44 = 1	PIN 44 = 0	PIN 45 = 1	PIN 45 = 0	PIN 47 = 0	PIN 47 = 1 PIN 52 = 1	PIN 52 = 1
0 = 0.4 VOLTS MAXIMUM 1 = 2.4 VOLTS MINIMUM							

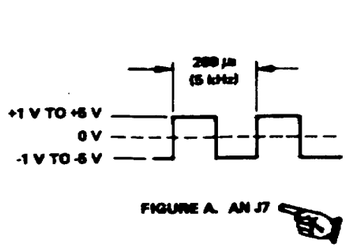


FIGURE A. AN J7

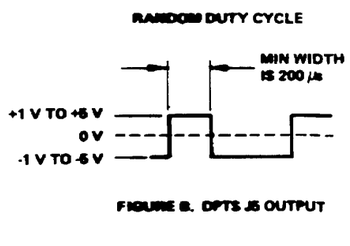


FIGURE B. DPTS J5 OUTPUT

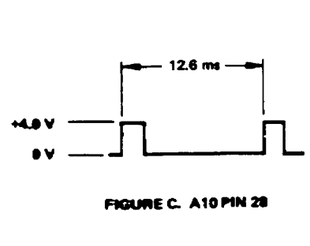


FIGURE C. A10 PIN 28

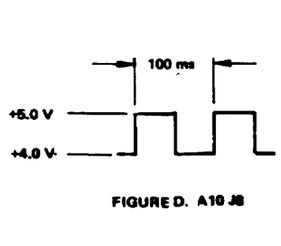
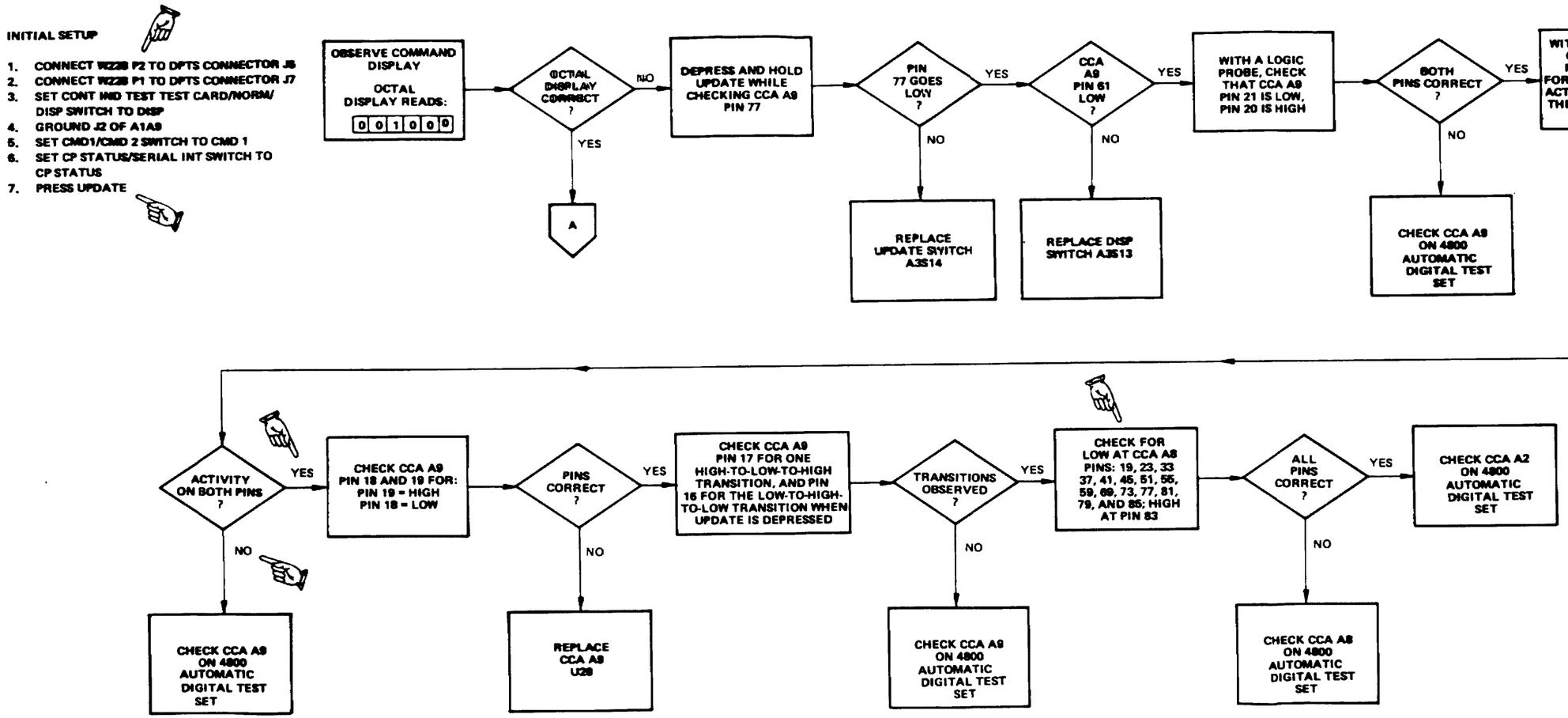


FIGURE D. A10 J8

Change 1

Figure FO-23. Transceiver I/O Test Function Fault Isolation Flowchart



Change 1

Figure FO-24. Communication Processor Control-Indicator and Interface Test Fault Isolation Flowchart (Sheet 1 of 3)

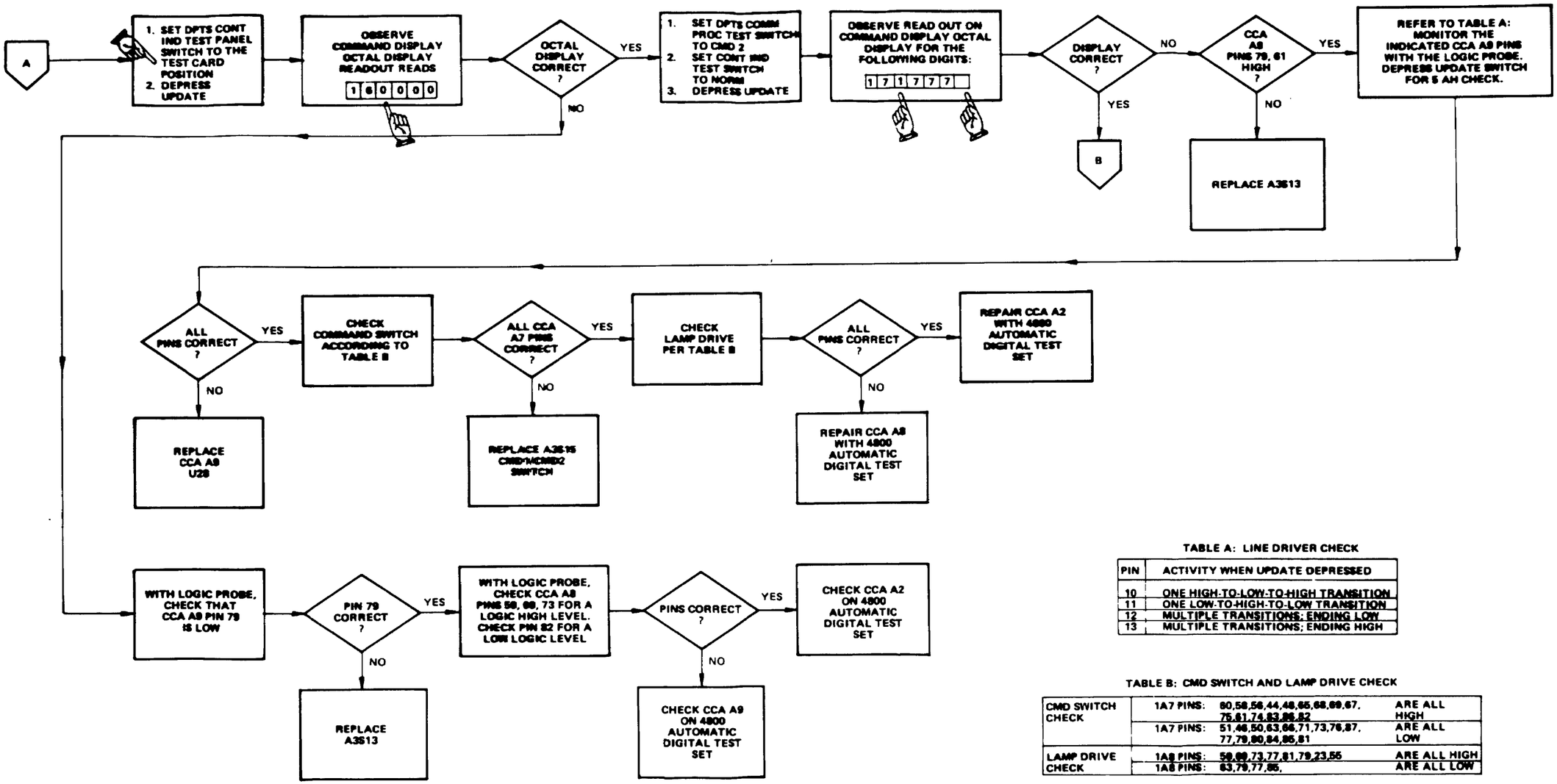


TABLE A: LINE DRIVER CHECK

PIN	ACTIVITY WHEN UPDATE DEPRESSED
10	ONE HIGH-TO-LOW-TO-HIGH TRANSITION
11	ONE LOW-TO-HIGH-TO-LOW TRANSITION
12	MULTIPLE TRANSITIONS; ENDING LOW
13	MULTIPLE TRANSITIONS; ENDING HIGH

TABLE B: CMD SWITCH AND LAMP DRIVE CHECK

CMD SWITCH CHECK	1A7 PINS:	60,58,56,44,48,65,68,69,67, 75,61,74,83,86,82	ARE ALL HIGH
	1A7 PINS:	51,46,50,63,66,71,73,76,87, 77,79,80,84,85,81	ARE ALL LOW
LAMP DRIVE CHECK	1A8 PINS:	58,69,73,77,81,79,23,55	ARE ALL HIGH
	1A8 PINS:	63,79,77,85,	ARE ALL LOW

Change 1

Figure FO-24. Communication Processor Control-Indicator and Interface Test Fault Isolation Flowchart (Sheet 2 of 3)

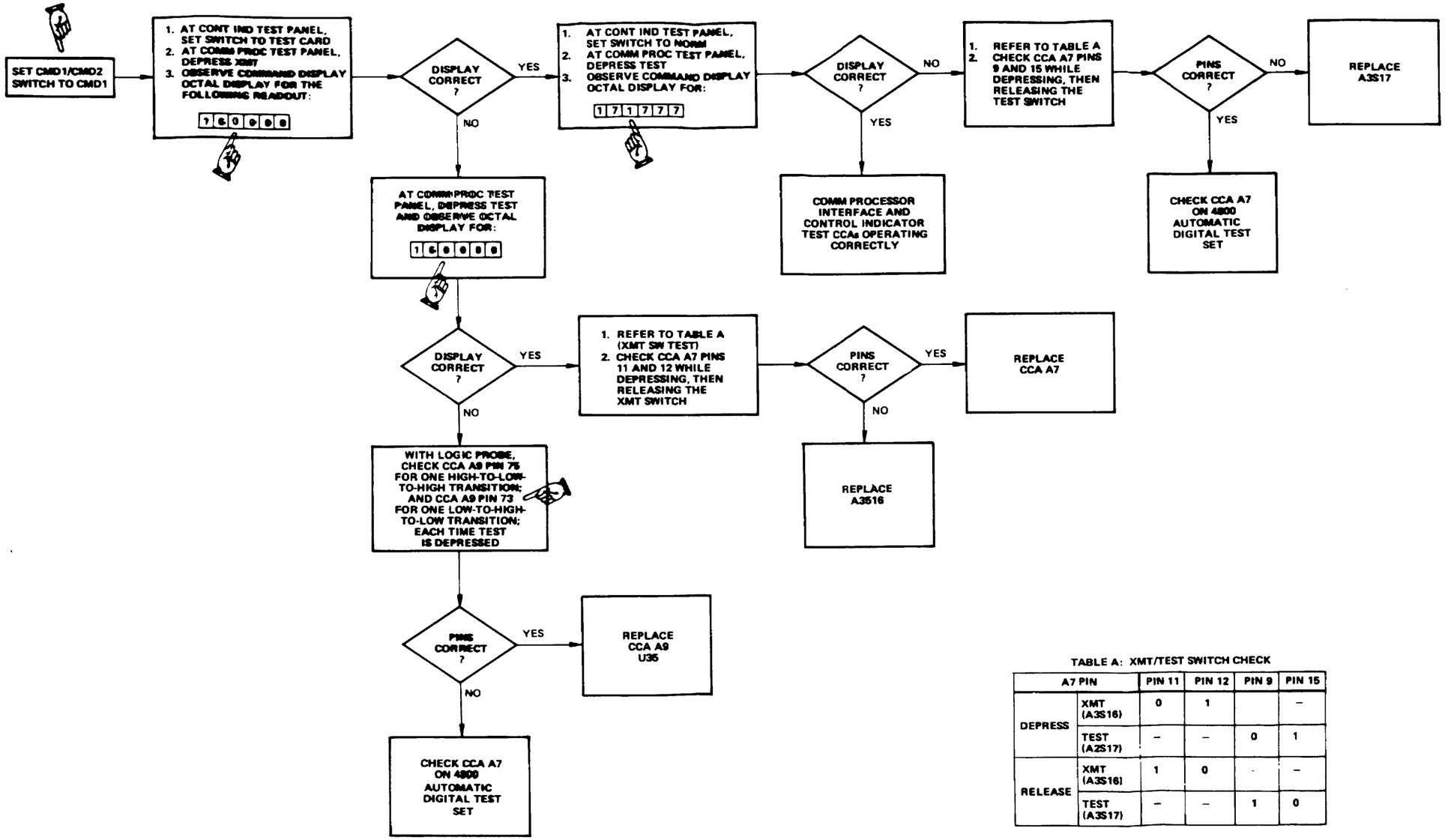


TABLE A: XMT/TEST SWITCH CHECK

A7 PIN		PIN 11	PIN 12	PIN 9	PIN 15
DEPRESS	XMT (A3S16)	0	1		–
	TEST (A2S17)	–	–	0	1
RELEASE	XMT (A3S16)	1	0		–
	TEST (A3S17)	–	–	1	0

Change 1

Figure FO-24. Communication Processor Control-Indicator and Interface Test Fault Isolation Flowchart (Sheet 3 of 3)

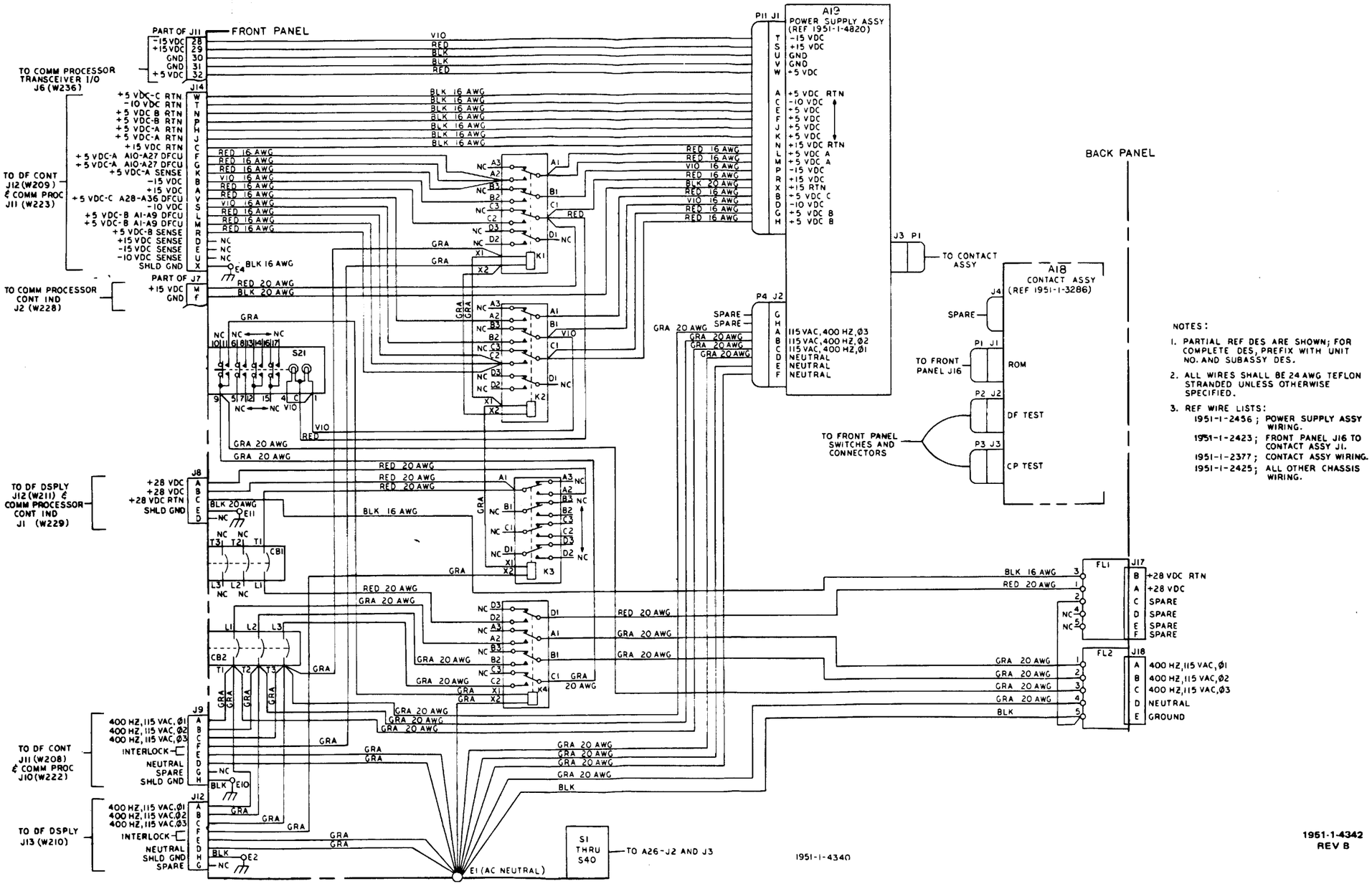


Figure FO-25. Digital Processor Test Set Wiring Diagram

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER	SIGN HERE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq.dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C