

INTERMEDIATE GENERAL SUPPORT
MAINTENANCE MANUAL

CIRCUIT CARD ASSEMBLIES
AND
AUXILIARY MEMORY MODULE
FOR THE
AN/UGC-74B(V)3 AND AN/UGC-74C(V)3:

A3041422, (NSN 5999-01-247-5737)

A3041426, (NSN 5999-01-247-5738)

A3042242, (NSN 5999-01-247-5739)

A3041430, (NSN 5999-01-247-5740)

A3042202, (NSN 5815-01-227-0567)

A3042160, (NSN 5815-01-209-0420)

A3042101, (NSN 5999-01-247-5742)

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DEPARTMENT OF THE ARMY AND
HEADQUARTERS, US MARINE CORPS

1 MAY 1988



5

SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1

DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2

IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

3

IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL

4

SEND FOR HELP AS SOON AS POSSIBLE

5

AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION



CAUTION



**THIS EQUIPMENT CONTAINS PARTS
AND ASSEMBLIES SENSITIVE TO
DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).
USE ESD PRECAUTIONARY PROCEDURES
WHEN TOUCHING, REMOVING OR INSERTING
PRINTED CIRCUIT BOARDS.**

GENERAL HANDLING PROCEDURES FOR ESD ITEMS

- USE HIGH RESISTANCE TYPE WRIST GROUND STRAPS OR MANUAL GROUNDING MANUAL GROUNDING PROCEDURES
- KEEP ESDS ITEMS IN PROTECTIVE COVERING WHEN NOT IN USE
- GROUND ALL ELECTRICAL TOOLS AND TEST EQUIPMENT
- PERIODICALLY CHECK CONTINUITY AND RESISTANCE OF GROUNDING SYSTEM
- USE ONLY METALIZED SOLDER SUCKERS
- HANDLE ESDS ITEMS ONLY IN PROTECTED AREAS

MANUAL GROUNDING PROCEDURES

- MAKE CERTAIN EQUIPMENT IS POWERED DOWN
- TOUCH GROUND PRIOR TO REMOVING ESDS ITEMS
- TOUCH PACKAGE OF REPLACEMENTS ESDS ITEM TO GROUND BEFORE OPENING
- TOUCH GROUND PRIOR TO INSERTING REPLACEMENT ESDS ITEMS

ESD PROTECTIVE PACKAGING AND LABELING

- INTIMATE COVERING OF ANTISTATIC MATERIAL WITH AN OUTER WRAP OR EITHER TYPE 1 ALUMINIZED MATERIAL OR CONDUCTIVE PLASTIC FILM - O R - HYBRID LAMINATED BAGS HAVING AN INTERIOR OF ANTISTATIC MATERIAL WITH AN OUTER METALIZED LAYER
- LABEL WITH SENSITIVE ELECTRONIC SYMBOL AND CAUTION NOTE

TECHNICAL MANUAL
No. 11-5815 -612-40-1
No. 08008C-40/4

DEPARTMENT OF THE ARMY AND
HEADQUARTERS, US MARINE CORPS
Washington, DC, 1 May 1988

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- A3042160, (NSN 5815-01-209-0420)
- A3042101, (NSN 5999-01-247-5742)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual, If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, New Jersey 07703-5000.

For Marine Corps Units, submit NAVMC 10772 (Recommended Changes to Technical Publications) to Commanding General, Marine Corps Logistics Base (Code 850), Albany, Georgia 31704-5000.

In either case, a reply will be furnished direct to you.

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HOW TO USE THIS MANUAL

To test and repair any of the following AN/UGC-74 circuit card assemblies:

- Universal CPU Board–A3041422
- Auxiliary Interface Board–A3041426
- Communications Board–A3042242
- Dot Matrix Print Control Board–A3041430
- Auxiliary Memory/Relay Control–A3042202
- Auxiliary Memory Module–A3042101

Prepare the test set

- Setup procedures are found in paragraph 2-6.

Run one of the board tests.

- Test procedures are shown in paragraph 2-8 through 2-13.
- If a fault occurs, troubleshoot and repair the fault. These procedures are shown in paragraphs 2-8 through 2-13.
- After repair, retest the module.

CHAPTER 1

INTRODUCTION

1-1 SCOPE

- a. *Type of Manual.* Army: Intermediate General Support Maintenance Manual. U.S. Marine Corps: 3rd and 4th Echelon Maintenance.
- b. *Model Number and Equipment.*
 - A3041422 – Universal CPU Card
 - A3041426 – Auxiliary Interface Card
 - A3042242 – Communications Card
 - A3041430 – Dot Matrix Print Control Card
 - A3042202 – Auxiliary Memory/Relay Control Card
 - A3042101 – Auxiliary Memory Module Card
- c. *Purpose of Manual.*

To show how to test and fault isolate circuit card assemblies A3041422 (Universal CPU), A3041426 (Auxiliary Interface), A3042242 (Communications), A3041430 (Dot Matrix Print Control), A3042202 (Auxiliary Memory/Relay Control), and A3042101 (Auxiliary Memory Module) used in AN/UGC-74B(V)3 and C(V)3 Communications terminals.
- d. *Contents of Manual (Marine Corps Only).* This manual contains documentation required for the testing and fault isolation of the Interface Connection Devices (ICDs) and all test accessories utilized in Application Program Sets (APS) AN/PSM-(XX). Testing is accomplished utilizing the AN/USM-465() Digital Card Tester (DCT) and the ICD diagnostic test program. The AN/PSM-(XX) APS is utilized in support of the AN/UGC-74C(V)3 Communications Terminal, Digital, and the Auxiliary Memory Module (AMM) (hybrid) PCBs. This manual also provides the information necessary to understand, operate, and maintain the APS consisting of three ICDs (J-4111A/UGC-74, J-4463/UGC-74C(V)3, and J-4464/UGC-74C(V)3), the Operating System Software (OSS), and the Test Program Tape required for ICD testing.
- e. *APS Description (Marine Corps Only).* This TM, along with TM 11-5815 -612-40-1 for the Circuit Card Assemblies, form the AN/PSM(XX) APS manuals. The phraseology Interface Connection Device (ICD) is synonymous with Digital Interface Adapter (DIA) utilized in other Marine Corps APS manuals. The APS provides all hardware, software, and instructions necessary for automatically troubleshooting and repairing ICDS.

1-2 MAINTENANCE FORMS, RECORDS, AND REPORTS

- a. *Reports of Maintenance and Unsatisfactory Equipment.* Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, as contained in Maintenance Management Update. Marine Corps personnel shall use TM 4700-15/1, Equipment Record Procedures.
- b. *Report of Packaging and Handling Deficiencies.* Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73 B/AFR 400-54/MCO 4430.3H.

- c. Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38 /NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15

1-3 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey 07703-5000. We'll send you a reply. Marine Corps submit SF 368 in accordance with MCO 1650.17.

1-4 CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

Refer to the latest issue of DA Pam 25-30 to determine whether there are new editions, changes or additional publications pertaining to the equipment. Marine Corps personnel refer to the latest issue of SL-1-2 to determine whether there are any new editions,

1-5 DESTRUCTION OF ELECTRONICS MATERIEL

- a. Army. Destruction of electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.
- b. Marine Corps. Render electronics materiel inoperative by smashing with a hammer or other heavy implement, breaking the ICDS.

1-6 TECHNICAL ASSISTANCE/SERVICE REQUESTS (MARINE CORPS ONLY)

If problems or abnormalities are encountered in the equipment, software, or documentation in this APS and the problem cannot be resolved locally, the ATEP Engineering Support Unit should be contacted for technical assistance. Recommendations for improved performance should also be forwarded to the ATEP/ESU for consideration. The ATEP/ESU can be contacted at the following address: Commanding General Code (886), ATTN: ATEP Engineering Support Unit, Marine Corps Logistics Base, Albany, GA 31704-5000, Autovon: 460-5385.

CHAPTER 2

MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS, TM DE, AND SUPPORT EQUIPMENT

2-1 COMMON TOOLS AND EQUIPMENT

- a. *Army.* For common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE).
- b. *Marine Corps.* For common tools and equipment, reference the Table of Authorized Material (TAM).

2-2 SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to the Repair Parts and Special Tools List, TM 11-5815-612-40P (Army), or TM 08008C-40P/6 (Marine Corps).

2-3 REPAIR PARTS

Repair parts are listed and illustrated in the Repair Parts and Special Tools List TM 11-5815-612-40P (Army), or TM 08008C-40P/6 (Marine Corps) covering organizational maintenance of the ICDS.

Section II. SERVICE UPON RECEIPT

2-4 CHECKING UNPACKED EQUIPMENT

CAUTION

Avoid placing magnetic tapes in strong magnetic fields such as those caused by transformers or magnets, since this can cause a loss of data.

- a. *Army.*
 - (1) Inspect the equipment visually for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 364 (Report of Discrepancy (ROD)).
 - (2) Check the equipment against the packing slip to see if the shipment is complete. Check for proper test program sets (ICD, test programs, and TM 11-6625-3083-24-1). Report all discrepancies in accordance with the instructions of DA Pam 738-750.
 - (3) Check to see if the equipment has been modified. Check to ensure that your maintenance manuals (refer to DA PAM 25-30) and test program sets (TPS) tape cartridges (refer to TB 43-0128) are the latest issue.
- b. *Marine Corps.*
 - (1) Inspect and check the equipment visually for damage incurred during shipment. Fill out and forward form NAVMC 10657, QRR, as prescribed in TM 4700-15/1 for damage or discrepancies noted.

TM 11-5815-612-40-1

- (2) Inspect the ICDS for defective cables, connectors, wiring, and cracked or broken circuit boards.
- (3) Inspect all accessory components supplied for signs of damage and defects.
- (4) Check that the OSS and program tapes are present and in good condition.
- (5) Check the equipment against the packing slip to see if the shipment is complete.

2-5 PREPARATION FOR STORAGE AND SHIPMENT (Marine Corps Only)

a. Movement to a New Site Procedures.

- (1) Disconnect the ICD from the DCT and the UUT.
- (2) Replace the tapes and all accessories in the slots in the tray.
- (3) Replace the ICDs in the slots provided.
- (4) Replace the tray containing the tapes and accessories.
- (5) Insert the TMs.
- (6) Close the cover on the case. Raise and engage each of the latches, and turn the latch handles clockwise to secure the cover.
- (7) All foam inserts have been antistatic treated.

b. Limited Storage. The APS components should be stored in the storage case to protect against damage.

c. Domestic Reshipment. The APS can be shipped in the storage case without additional protection.

d. Packing. If it is necessary to pack the APS for shipment, use a wood box large enough to allow the addition of resilient material to absorb shocks.

e. Marking. Mark the boxed equipment "FRAGILE TEST EQUIPMENT - HANDLE WITH CARE - DO NOT STORE NEAR MAGNETIC FIELDS."

Section III. TROUBLESHOOTING

2-6 INTERFACE CONNECTION DEVICE (ICD) SURVEY TEST

The ICD survey test should be performed before circuit card troubleshooting begins. This test is performed once a day and need not be performed again unless an ICD problem is suspected.

a. *Equipment Required.*

- Digital Card Tester (DCT) AN/USM-465()
- ICD Survey Test Program Cassette J-4111A/UGC-74(V)3, CP0401000G
- Loopback Accessories
 - B4035314-1
 - B4035314-2
 - B4035314-3
 - A3041829
- Nine Test Prods B4035305
- Test Prod, A3041837
- Test Prod Assembly, A3041838
- Test Probe Pull-Up Assembly, A3042325
- Test Cable Assembly, A3041890
- ICD J-4111A/UGC-74(V)3, A3041830
- ICD Survey Test Program Cassette J-4463/UGC-74C(V)3, CP0501001G
- ICD J-4463/UGC-74C(V)3, A3041860
- Loopback Accessory, A3041825
- ICD Survey Test Program Cassette J-4464/UGC-74C(V)3, CP301001G
- ICD J-4464/UGC-74C(V)3, A3041800
- Loopback Accessory, A3041824
- AMM Test Standard A3041844
- PWA Seed Module

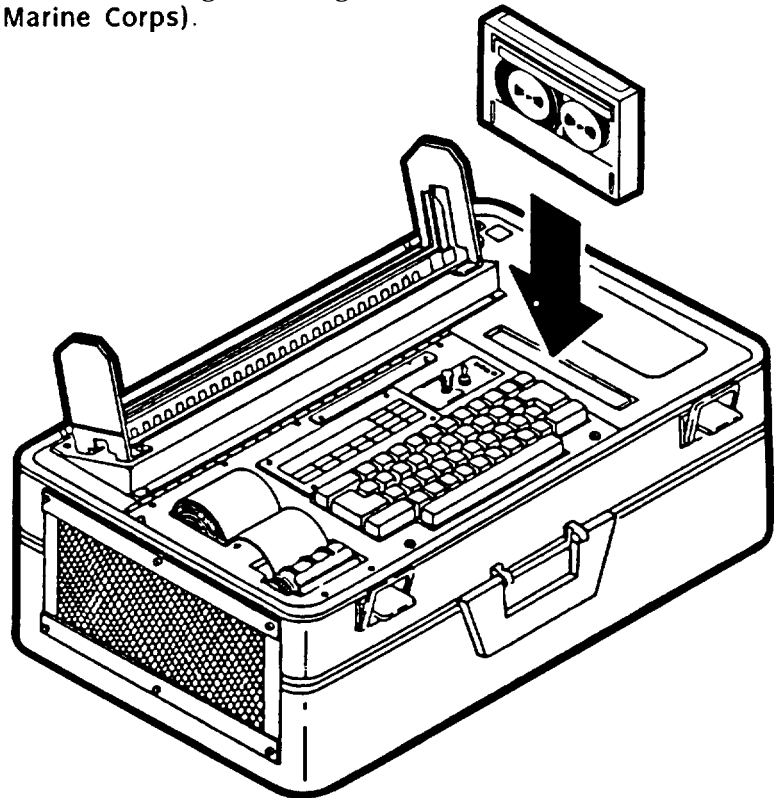
b. ICD Test Procedures.

NOTE

Unless illustrated in this procedure, follow instructions on the DCT printer.

- (1) Power up and prepare DCT for UUT testing according to TM 11-6625-3038-10 (Army), or TM 09965A-45/1 (Marine Corps).

- (2) Insert the survey test program cassette to be used into the DCT.



TM 11-5815-612-40-1

(3) Type LOAD O and then press EXECUTE on the DCT. The display will show:

(4) When the display shows:

READY					
		●	●		

the DCT is ready to test the ICD.

(5) Type RUN and then press EXECUTE. Follow instructions on the DCT printer.

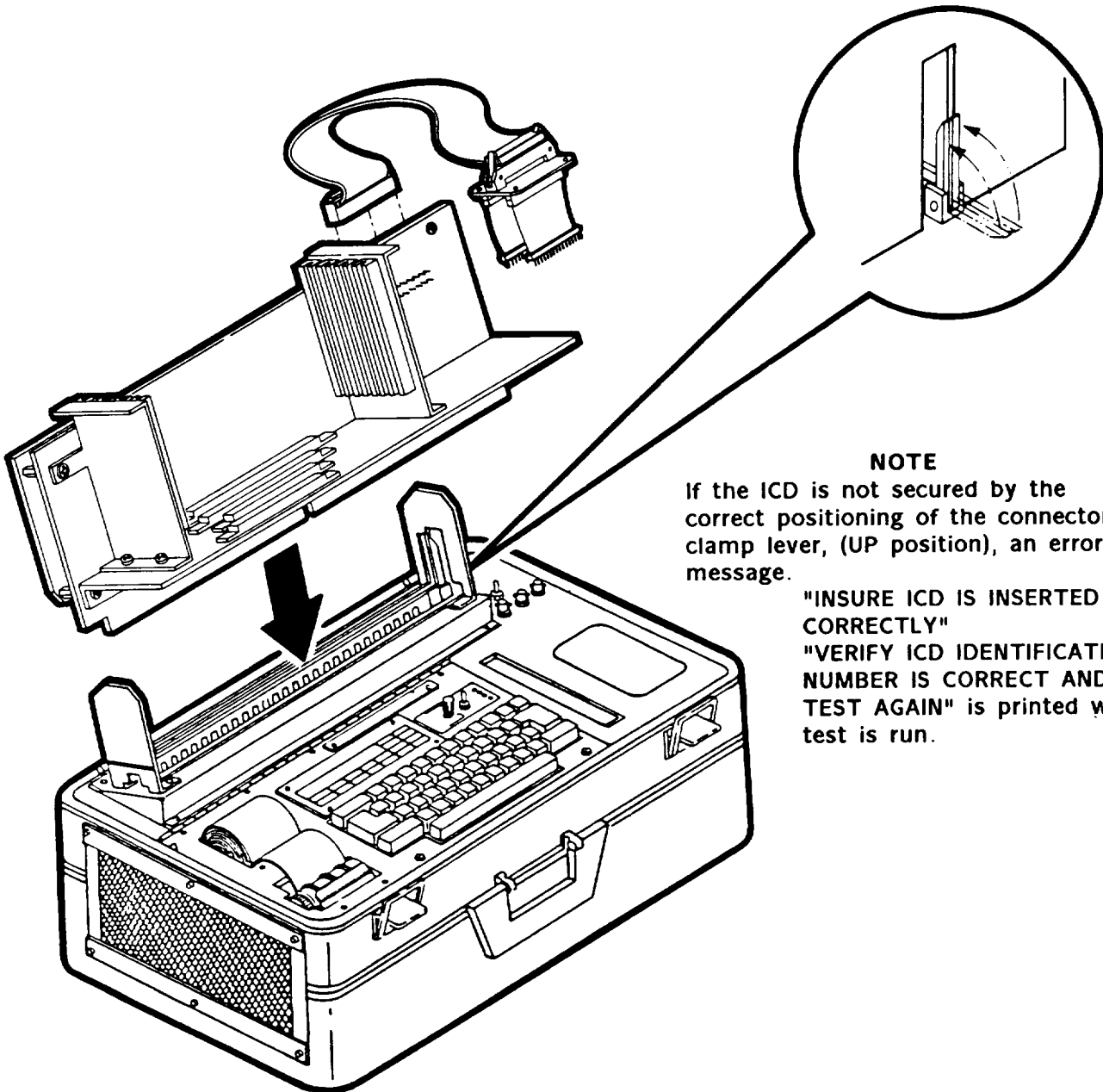
NOTE

The following illustrations support the printer instructions for the ICD, Printed Wiring Assembly A3041830.

- (6) Insert/Clamp proper ICD into the AN/USM-465() test connector.

CAUTION

Ensure that ICD is left-justified

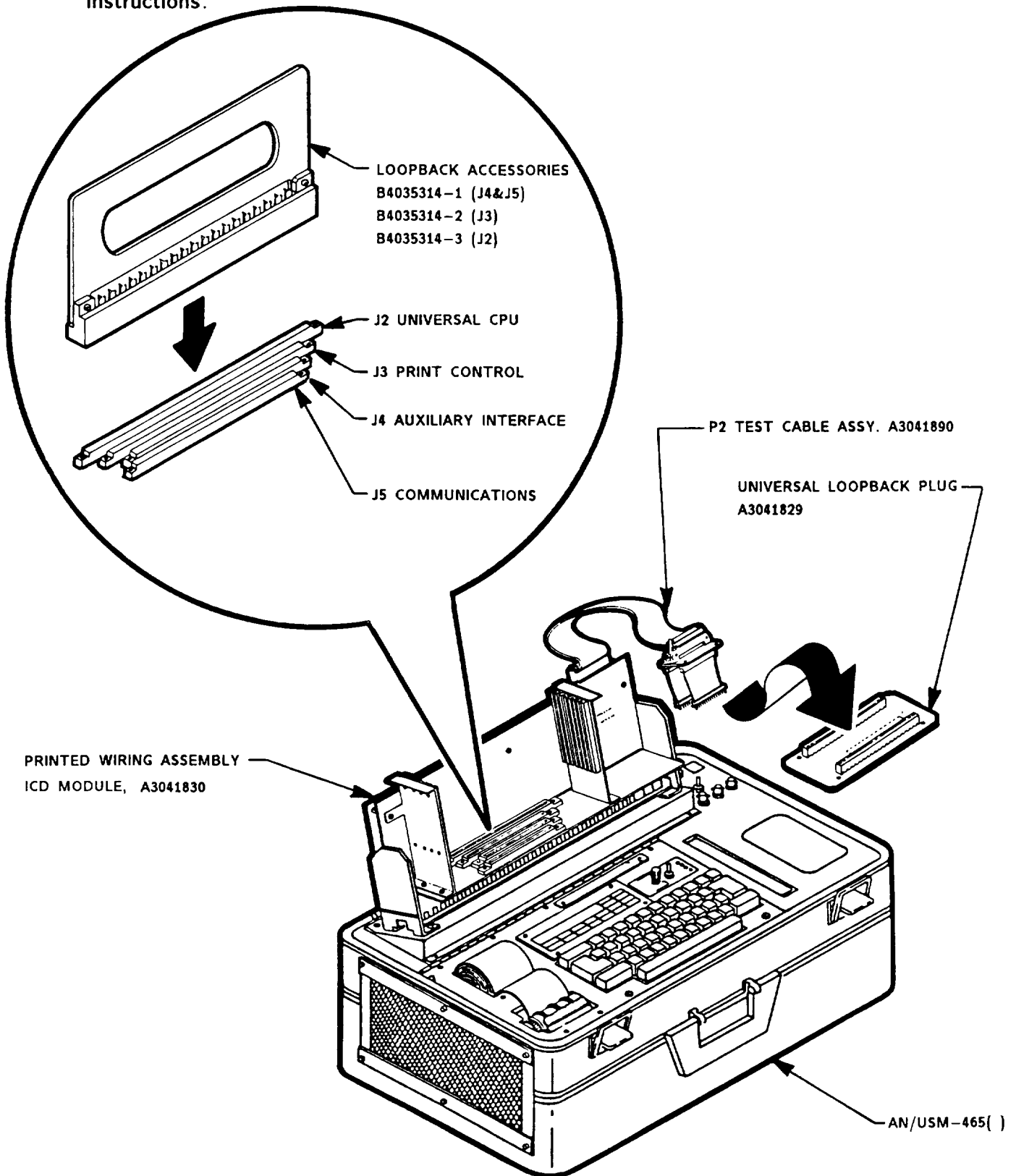


NOTE

If the ICD is not secured by the correct positioning of the connector clamp lever, (UP position), an error message.

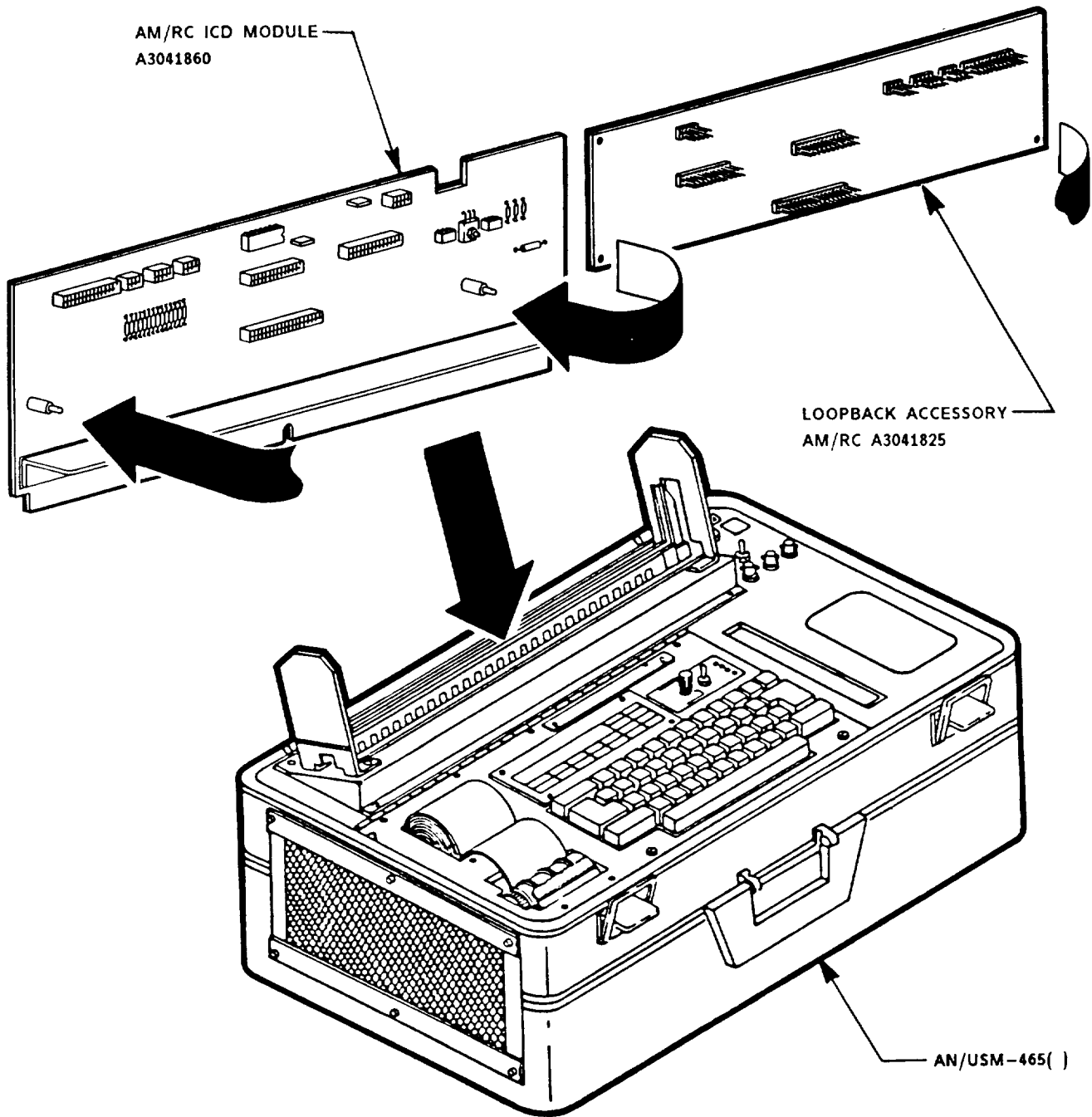
"INSURE ICD IS INSERTED CORRECTLY"
"VERIFY ICD IDENTIFICATION NUMBER IS CORRECT AND RUN TEST AGAIN" is printed when the test is run.

- (9) When using the Printed Wiring Assembly ICD, insert correct loopback accessory on that particular connector when instructed by the DCT printer. Follow printed instructions.

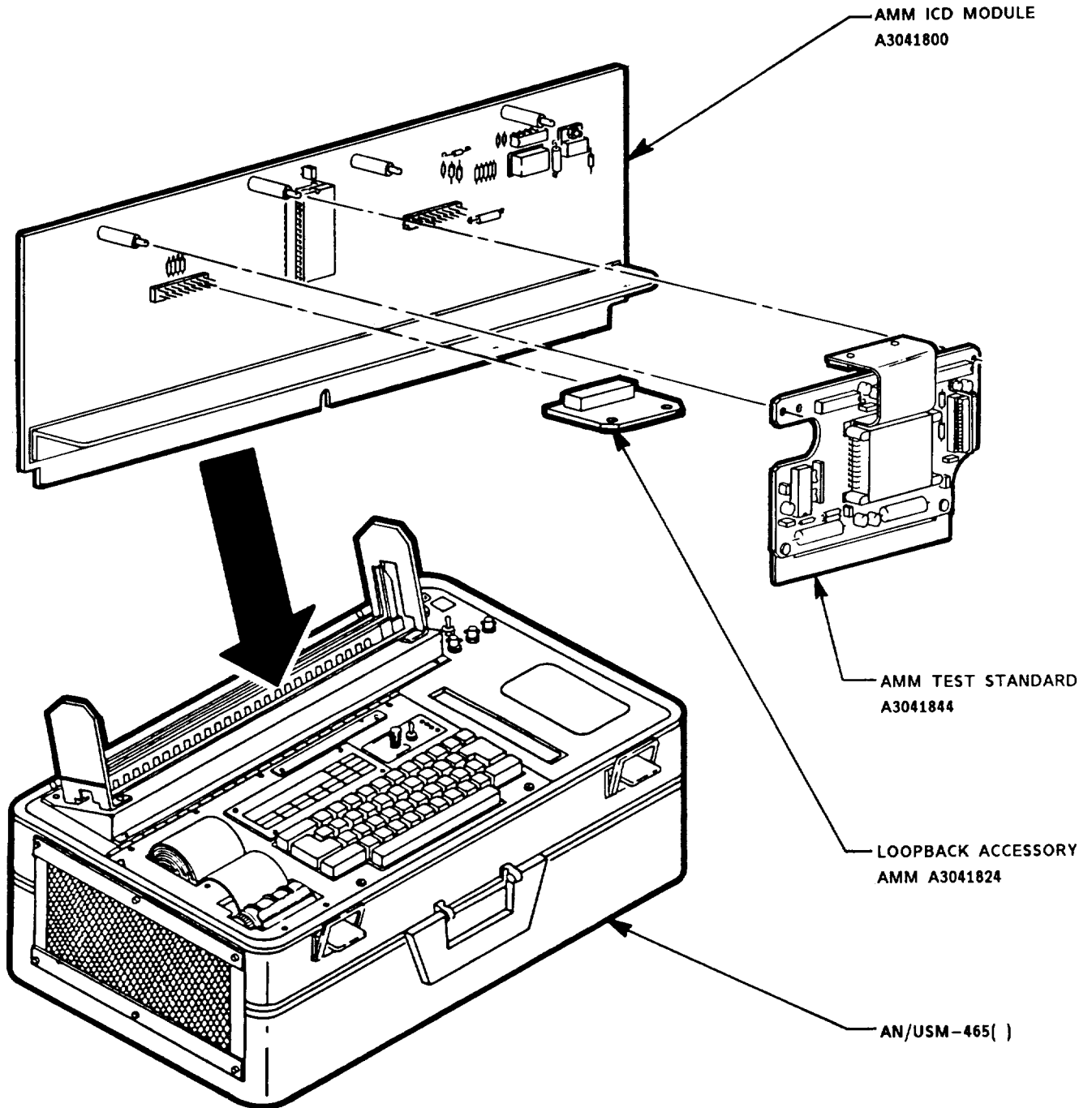


- (10) When using the Auxiliary Memory/Relay Control ICD, install the loopback accessory and perform test according to program instructions. ICD self test routine is found in the options listing. Mount the AM/RC loopback accessory when instructed by the program

Follow printed instructions.



- (11) When using the Auxiliary Memory Unit ICD, install the loopback accessory and perform test according to program printed instructions. ICD self test routine is found in the options listing. Insert loopback plug into connector as indicated by program. Follow printed instructions.



c. *Maintenance Instructions.*

- (1) If the ICD survey test fails:
 - Remove ICD.
 - (a) *Army.* Remove the ICD, attach printout information, and forward for repair.
 - (b) *Marine Corps.* Remove the ICD, attach printout information, and repair in accordance with unit's authorized level of repair.
 - Replace with another ICD and run the test again.
- (2) If the ICD survey test passes:
 - The printer will print "ICD SURVEY TESTS PASS."
 - Do not remove ICD.
 - Remove ICD survey test program cassette and return to box. If testing the AM/RC or AMM, the ICD survey tests are contained on the same tape cartridge as the circuit card tests.
 - The system is ready for circuit card assembly (UUT) testing.

2-7 UUT TEST DESCRIPTION

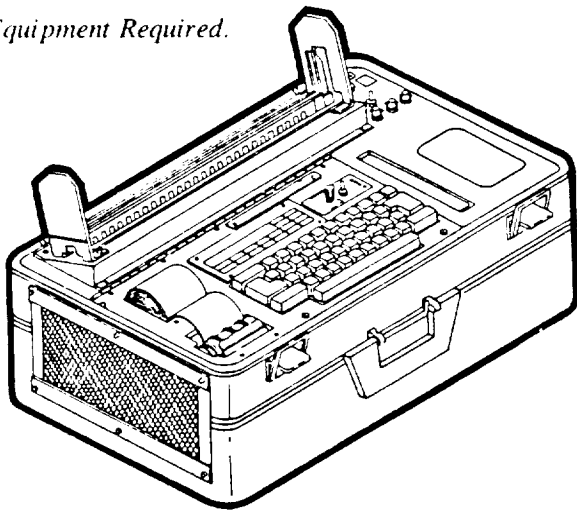
a. *Introduction.*

Instructions for testing the A3041422, A3041426, A3042242, A3041430, A3042202, and A3042101 circuit cards are printed on the DCT printer. If the UUT fails the test, guided probe fault isolation begins. The DCT will locate the fault and print repair instructions. If the UUT passes the test, the message ALL TESTS GO or TEST PASSED will be printed.

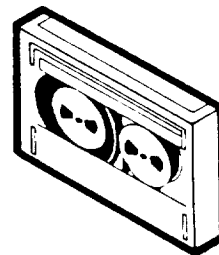
Paragraphs 2-8 through 2-13 provide instructions on how to set up the tests and operate the test programs on the six UUTs.

Detailed testing instructions will be provided by printed messages on the DCT.

b. *Equipment Required.*

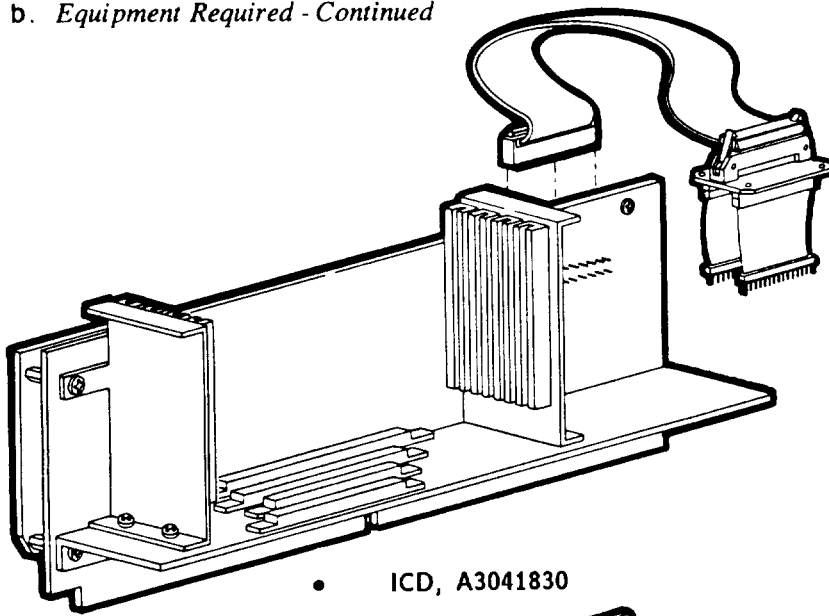


- Digital Card Tester (DCT)
AN/USM-465()

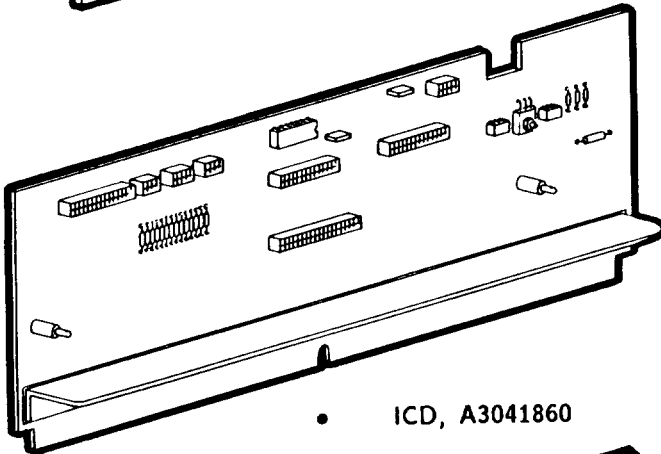


- Test Program Cassettes
 - CP0101000G
 - CP0201000G
 - CP0301000G
 - CP0101001G
 - CP0201001G
 - CP0301001G

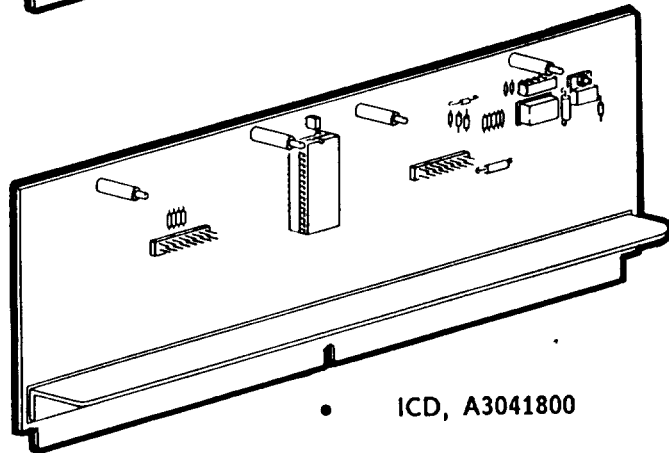
b. *Equipment Required - Continued*



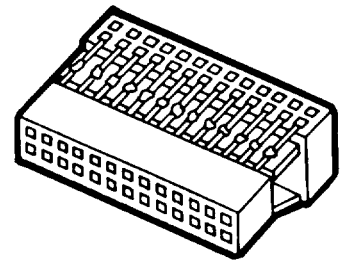
• ICD, A3041830



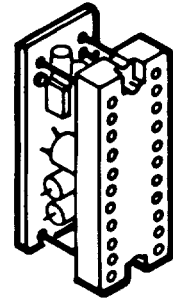
• ICD, A3041860



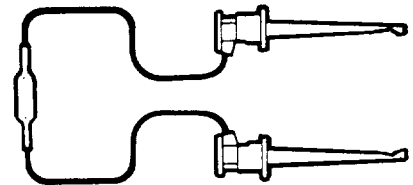
• ICD, A3041800



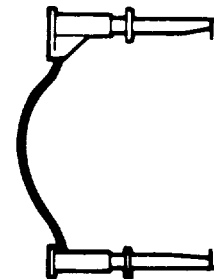
• UUT/ICD Connector
A3041805



• 7110 Seed Module, A3041839



• Test Prod Assembly



• Test Prod



• Test Prod

2-8 TROUBLESHOOTING A3041422 (UNIVERSAL CPU) BOARD

a. *Special Messages.*

All special messages, test information, and troubleshooting instructions will be printed on the thermal printer of the DCT when appropriate.

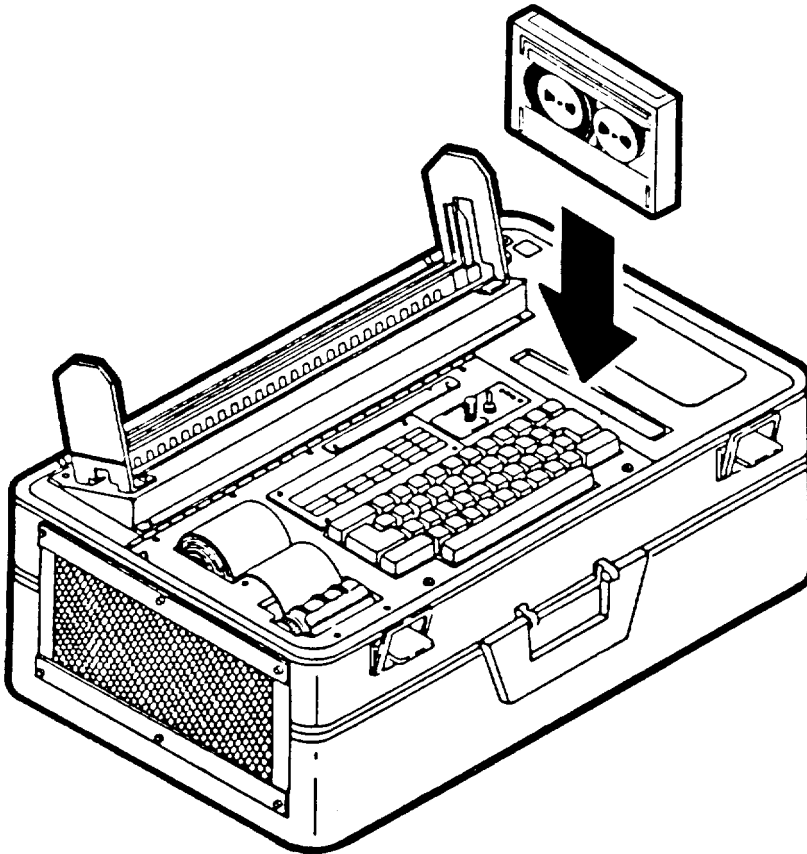
b. *Test Procedure.*

Unless illustrated otherwise here, follow instructions on the DCT printer.

NOTE

The ICD survey test is normally performed only once a day when the system is powered up or if the ICD is replaced. If the DCT is powered up and an ICD has already been installed and tested in the DCT, go to step (3).

- (1) Power up and prepare the DCT for UUT testing according to TM 11-6625-3038-10 (Army), or TM 09965A-45/1 (Marine Corps).
- (2) Run the ICD survey test described in paragraph 2-6 of this chapter
- (3) Insert cassette CP0101000G.



(4) Type LOAD O and then press EXECUTE on the DCT. The display will show:

LOAD 0					
		●	●		
●					

When the display shows:

READY					
		●	●		

The DCT is ready to test the UUT.

(5) Type RUN and then press EXECUTE.

The printer will print UUT name, part number, schematic number, ICD number, TPS document number, and test date:

```

>*****
> TEST PROGRAM FOR
>   UNIVERSAL CPU
>PART NO. A3041422
>SCHEMATIC# A3041420
>ICD# A3041830
>TPS DOC# A3041885
>TEST DATE:
>XXXXXX
>*****
>

```

TM 11-5815-612-40-1

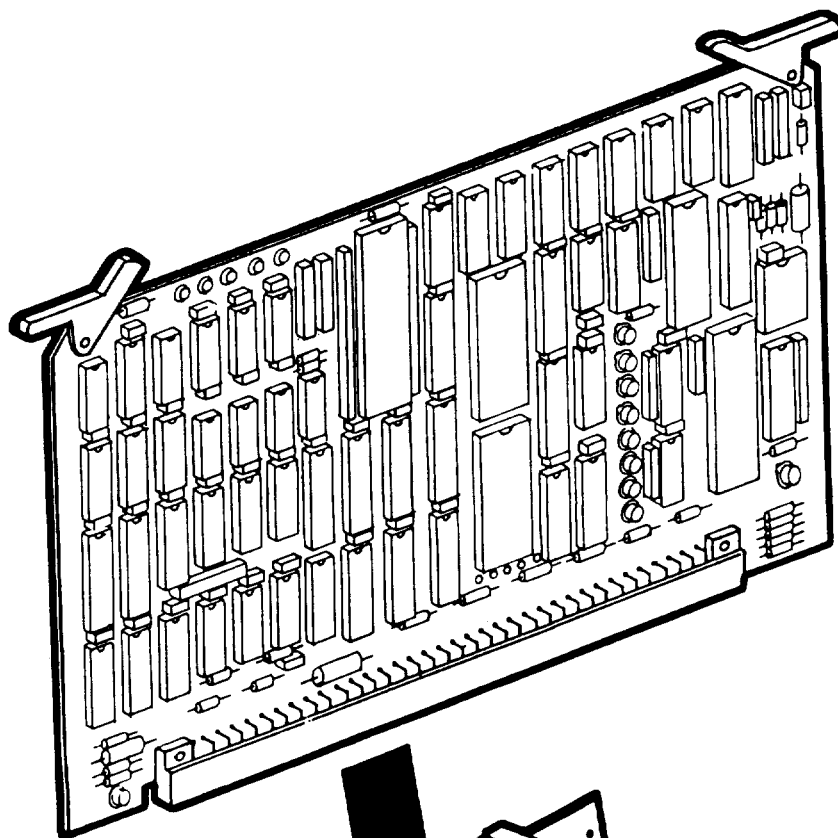
- (6) Follow printer instructions for checking the shunt configuration and for installing ICD A3041830 into the AN/USM-465(). A prompt for testing the probe will be printed before instructions for ID CHECK and UUT installation.

- (7) After PROBE TEST, printer will print ID CHECK. Follow prompt instructions for entry of UUT part number and serial number:

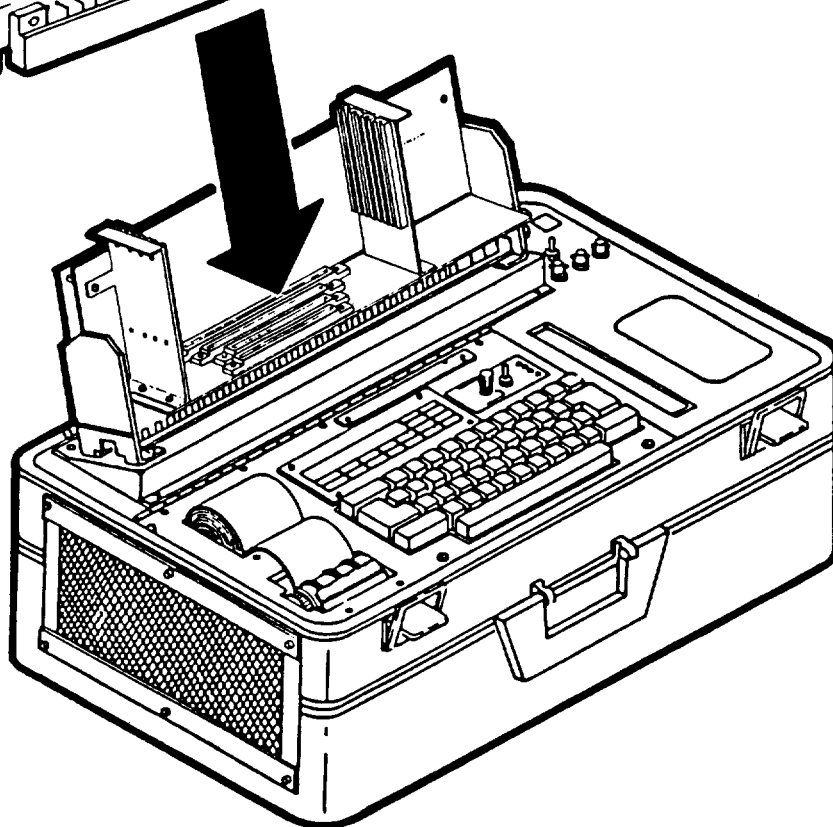
```
>=====
>      ID CHECK
>=====
>ENTER LAST 4 DIGITS
  FROM UUT PART #
>
>xxxx
>
>*****
>ENTER UUT S/N
>LOCATED ON BACK OF
  UUT AT IC LOCATION
  U9
>A3041422
>UUT S/N: xxxx
>*****
```

**UNIVERSAL CPU
BOARD
A3041422**

- (8) Observing the ESD precautions in DOD-HDBK-263, install UCPU into ICD connector J2.



NOTE
Seven test hooks and one 40 pin cable with header are used with this board.



- (9) Install test hooks and cable as shown in Figure D-1 in Appendix D.
- (10) After all test connections are properly attached, press EXECUTE and follow printer instructions.
- (11) Upon successful completion of the functional test sequence, the DCT will print:

```
>=====
>      ALL TESTS GO
>=====
>
>TEST OPTIONS
>1. RETEST SAME UUT
>2. TEST NEW UUT
>3. RUN SCOPE LOOPS
>ENTER TEST OPTION
```

c. Fault Indication.

- (1) If the UUT fails self test, the DCT printer will print NO-GO, the line number which failed, which UUT pin failed, and will request header information.

```
> ***** *
>      NO-GO
> ***** *
>IM1422. 11 1 123185
>FAULT AT LINE 10040      (EXAMPLE)
>PIN P1. 159
>00000 P1. 159
>TYPE HEADER INFO
```

- (2) Header Information.
 - (a) Army. The header information requested is the part number for the UUT that is sent for repair. Type in part number (A3041422) and press EXECUTE. This information is attached to the UUT when it is sent for repair.
 - (b) Marine Corps. Type in Equipment Repair Order (ERO) number.
- (3) Follow printer instructions to probe various points on the UUT. Using guided probe tip, pierce the conformal coating at the point indicated on the DCT printer.
- (4) After making good contact, press the SPACE bar.
- (5) The DCT printer will continue instructions for probe points until a probable fault is printed.
- (6) UUT Removal.
 - (a) Army. Remove the UUT, attach printout information, and forward for repair.
 - (b) Marine Corps. Remove the UUT, attach printout information, and repair in accordance with unit's authorized level of repair.
- (7) To test another board, refer to paragraph b. (8).

d. *Repair Procedures.*

- (1) **Special Tools and Equipment.** There are no special tools or equipment required for these procedures. Use normal tools and equipment available.
- (2) **Repair.**
 - Inspect all copper paths for opens/shorts.
 - Inspect for broken/shorted wires.
 - Inspect for broken/shorted pins on the connectors.
 - Follow any printer instructions for part replacement.
 - Once the trouble is located, repair or replace the part.
- (3) **Retest.**
 - (a) *Army.* After repair, return the UUT to the DCT for final acceptance testing and return to supply.
 - (b) *Marine Corps.* After repair, return the UUT to the DCT for final acceptance testing.

2-9 TROUBLESHOOTING A3041426 (AUXILIARY INTERFACE) BOARD

a. Special Messages.

All special messages, test information, and troubleshooting instructions will be printed on the thermal printer of the DCT when appropriate.

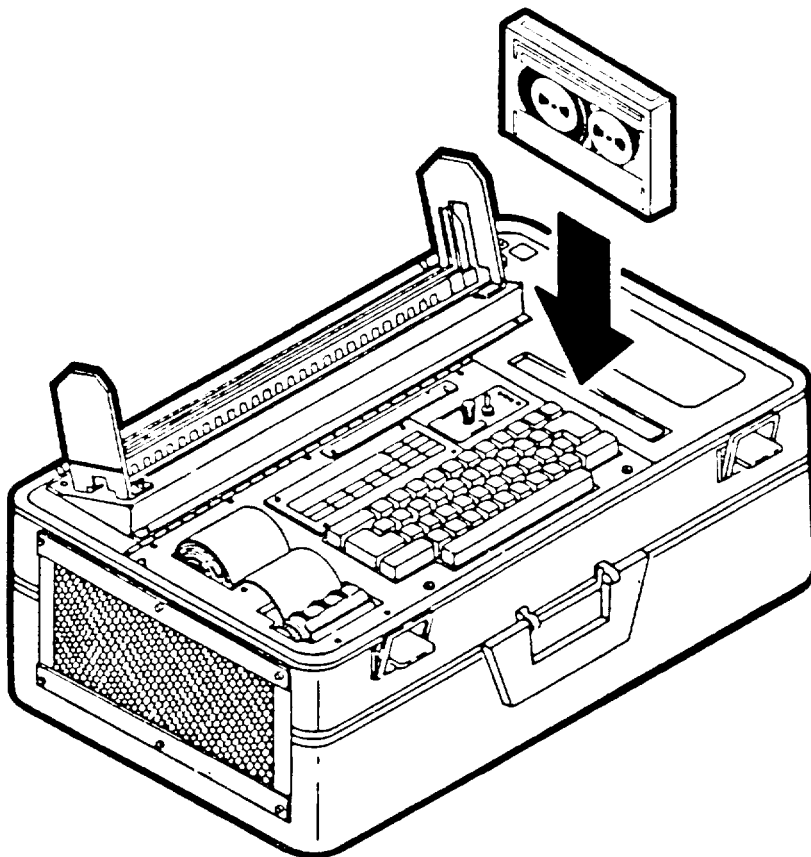
b. Test Procedure.

Unless illustrated otherwise here, follow instructions on the DCT printer.

NOTE

The ICD survey test is normally performed only once a day when the system is powered up or if the ICD is replaced. If the DCT is powered up and an ICD has already been installed and tested in the DCT, go to step (3).

- (1) Power up and prepare the DCT for UUT testing according to TM 11-6625-3038-10 (Army), or TM 09965A-45/1 (Marine Corps).
- (2) Run the ICD survey test described in paragraph 2-6 of this chapter.
- (3) Insert cassette CP0101001G.



(4) Type **LOAD 0** and then press **EXECUTE** on the DCT. The display will show:

LOAD 0					

When the display shows:

READY					
		●	●		

The DCT is ready to test the UUT.

(5) Type **RUN** and then press **EXECUTE**.

The printer will print UUT name, part number, schematic number, ICD number, TPS document number, and test date:

```

> *****
> TEST PROGRAM FOR
>  AUXILIARY INTFC
>PART NO. A3041426
>SCHEMATIC# A3041424
>ICD# A3041830
>TPS DOC# A3041882
>TEST DATE:
>XXXXXX
> *****
>

```

TM 11-5815-612-40-1

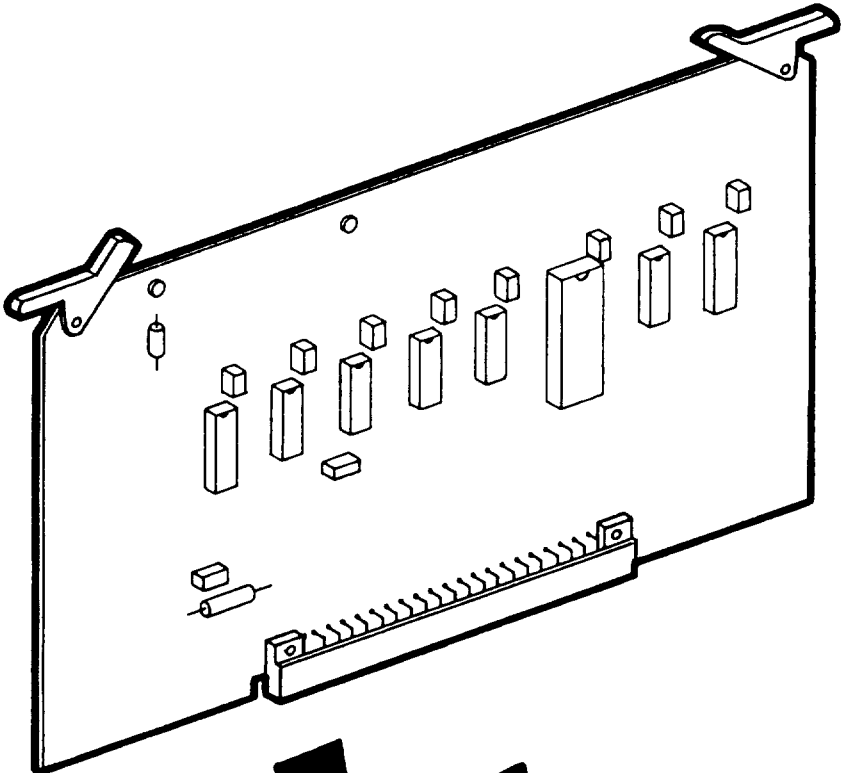
- (6) Follow printer instructions for checking the shunt configuration and for installing ICD A3041830 into the AN/USM-465(). A prompt for testing the probe will be printed before instructions for ID CHECK and UUT installation.

- (7) After PROBE TEST, printer will print ID CHECK. Follow prompt instructions for entry of UUT part number and serial number:

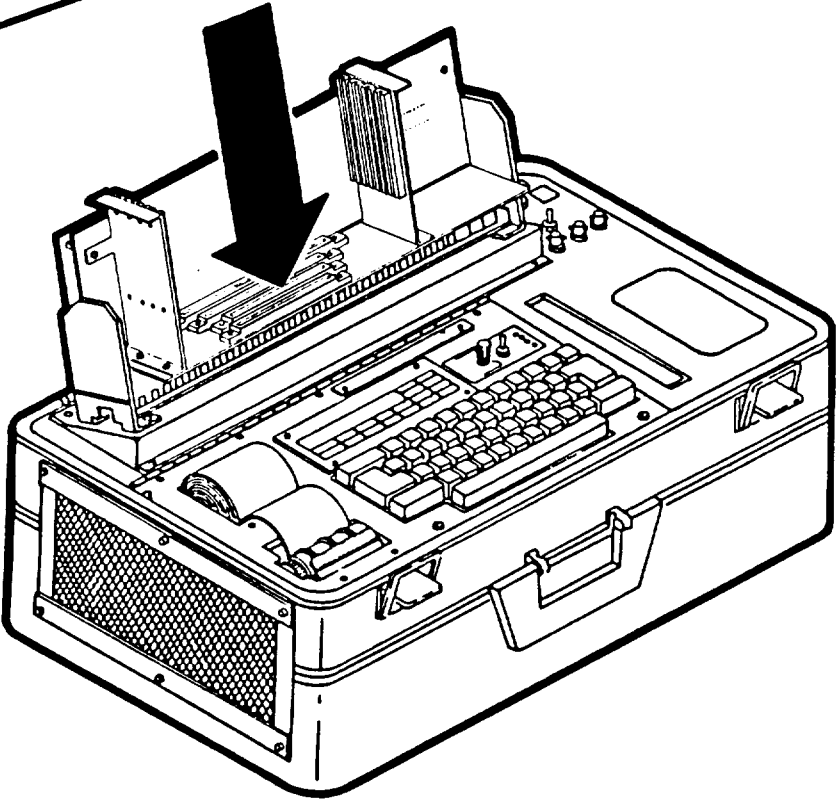
```
> = . . . = . . . =====  
> ID CHECK  
> =====  
> ENTER LAST 4 DIGITS  
FROM UUT PART #  
>  
> Xxxx  
>  
> * * * * *  
> ENTER UUT S/N  
> UUT S/N: XXXX  
> A3041426  
> * * * * *
```

**AUXILIARY INTERFACE
BOARD
A3041426**

- (8) Observing the ESD precautions in DOD-HDBK-263, install Auxiliary Interface into ICD connector J4.



NOTE
One test hook and one special capacitor hookup used with this board.



- (9) Install test hooks as shown in Figure D-2 in Appendix D.
- (10) After all test connections are properly attached, press EXECUTE and follow printer instructions.
- (11) Upon successful completion of the functional test sequence, the DCT will print:

```
> = = - - - - -
>      ALL TESTS GO
> = = . = = = . - - - - -
>
>TEST OPTIONS
>1. RETEST SAME UUT
>2. TEST NEW UUT
>3. RUN SCOPE LOOPS
>ENTER TEST OPTION
```

c. *Fault indication.*

- (1) If the UUT fails self test, the DCT printer will print NO-GO, the line number which failed, which UUT pin failed, and will request header information.

```
> * * * * *
>      NO-GO
> * * * * *
>IM1426. 11 | 042385
>FAULT AT LINE 10040      (EXAMPLE)
>PIN P1. 159
>00000 P1 .159
>TYPE HEADER INFO
```

- (2) Header Information.
 - (a) *Army.* The header information requested is the part number for the UUT that is sent for repair. Type in part number (A3041426) and press EXECUTE. This information is attached to the UUT when it is sent for repair.
 - (b) *Marine Corps.* Type in Equipment Repair Order (ERO) number.
- (3) Follow printer instructions to probe various points on the UUT. Using guided probe tip, pierce the conformal coating at the point indicated on the DCT printer.
- (4) After making good contact, press the SPACE bar.
- (5) The DCT printer will continue instructions for probe points until a probable fault is printed.
- (6) UUT Removal.
 - (a) *Army.* Remove the UUT, attach printout information, and forward for repair.
 - (b) *Marine Corps.* Remove the UUT, attach 'printout information, and repair in accordance with unit's authorized level of repair.
- (7) To test another board, refer to paragraph b. (8).

d. *Repair Procedures.*

- (1) **Special Tools and Equipment.** There are no special tools or equipment required for these procedures. Use normal tools and equipment available.
- (2) **Repair.**
 - Inspect all copper paths for opens/shorts.
 - Inspect for broken/shorted wires.
 - Inspect for broken/shorted pins on the connectors.
 - Follow any printer instructions for part replacement.
 - Once the trouble is located, repair or replace the part.
- (3) **Retest.**
 - (a) *Army.* After repair, return the UUT to the DCT for final acceptance testing and return to supply.
 - (b) *Marine Corps.* After repair, return the UUT to the DCT for final acceptance testing.

2-10 TROUBLESHOOTING A3042242 (COMMUNICATIONS) BOARD

a. *Special Messages.*

All special messages, test information, and troubleshooting instructions will be printed on the thermal pinter of the DCT when appropriate.

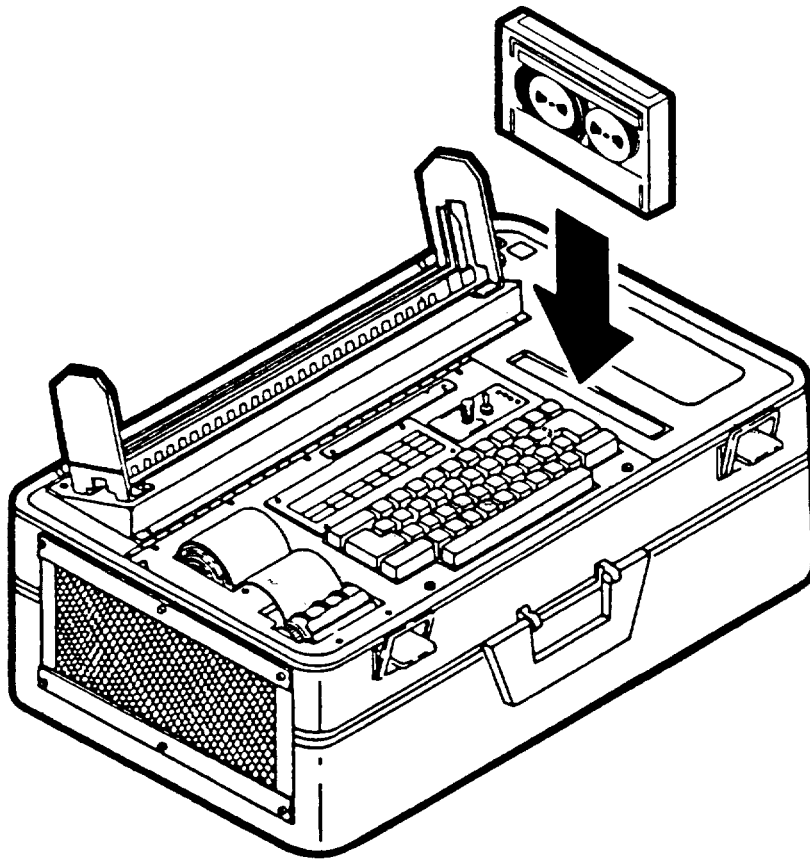
b. *Test Procedure.*

Unless illustrated otherwise here, follow instructions on the DCT printer.

NOTE

The ICD survey test is normally performed only once a day when the system is powered up or if the ICD is replaced. If the DCT is powered up and an ICD has already been installed and tested in the DCT, go to step (3).

- (1) Power up and prepare the DCT for UUT testing according to TM 11-6625-3038-10 (Army), or TM 09965A-45/1 (Marine Corps).
- (2) Run the ICD survey test described in paragraph 2-6 of this chapter.
- (3) Insert cassette CP0201000G.



(4) Type LOAD O and then press EXECUTE on the DCT. The display will show:

LOAD 0					

When the display shows:

R E A D Y					
		•	•		

The DCT is ready to test the UUT.

(5) Type RUN and then press EXECUTE.

The printer will print UUT name, part number, schematic number, ICD number, TPS document number, and test date:

```

> *****
> TEST PROGRAM FOR
>   UGC COMM BD
>PART NO. A3042242
>SCHEMATIC# A3042240
>ICD# A3041830
>TPS DOC# A3041883
>TEST DATE:
>XXXXXX
> *****
>

```

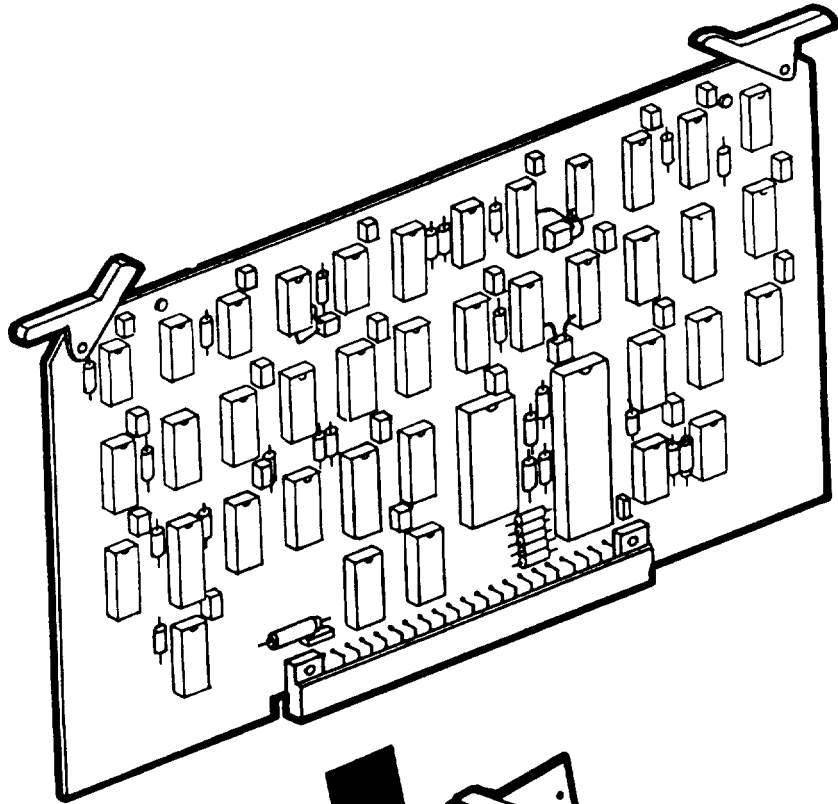
- (6) Follow printer instructions for checking the shunt configuration and for installing ICD A3041830 into the AN/USM-465(). A prompt for testing the probe will be printed before instructions for ID CHECK and UUT installation.

- (7) After PROBE TEST, printer will print ID CHECK. Follow prompt instructions for entry of UUT part number and serial number:

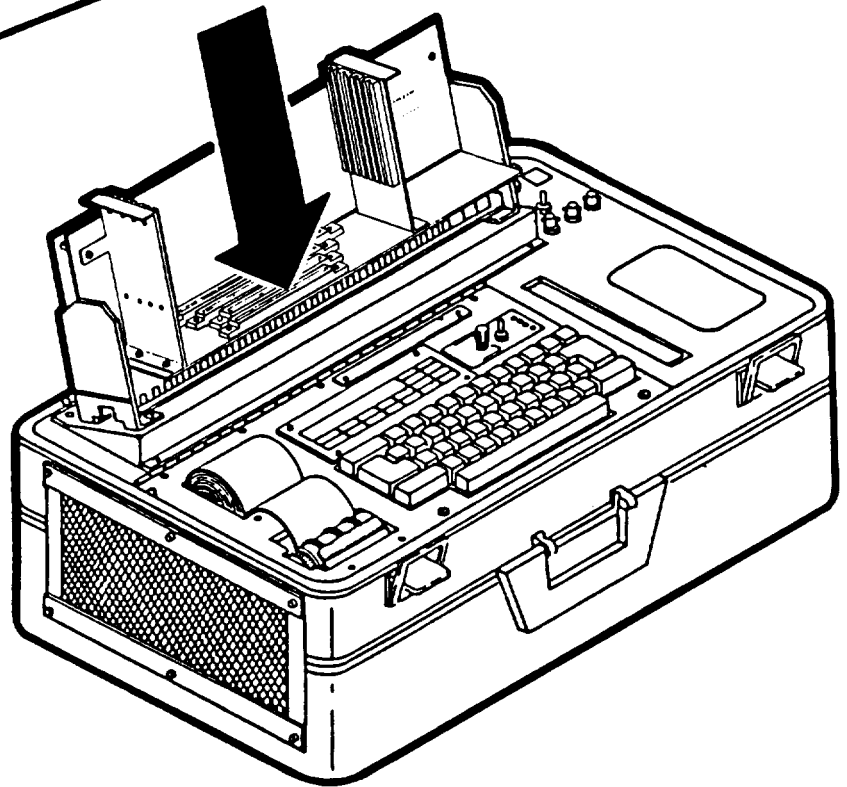
```
>=====  
> ID CHECK  
>=====  
>ENTER LAST 4 DIGITS  
FROM UUT PART #  
>  
>Xxxx  
>  
>*****  
>ENTER UUT S/N  
>A3042242  
>UUT S/N: XXXX  
>***** *
```

**COMMUNICATIONS
BOARD
A3042242**

- (8) Observing the ESD precautions in DOD-HDBK-263, install COMM into ICD connector J5.



NOTE
One special test hook
used with this board.



- (9) Install test hook as shown in Figure D-4 in Appendix D.
- (10) After all test connections are properly attached, press EXECUTE and follow printer instructions.
- (11) Upon successful completion of the functional test sequence, the DCT will print:

```
>=====
>          ALL TESTS GO
>=====
>
>TEST OPTIONS
>1. RETEST SAME UUT
>2. TEST NEW UUT
>3. RUN SCOPE LOOPS
>ENTER TEST OPTION
```

c. *Fault Indication.*

- (1) If the UUT fails self test, the DCT printer will print NO-GO, the line number which failed, which UUT pin failed, and will request header information.

```
>***** **
>          NO-GO
>***** *
>IM2242. 11 | 123185
>FAULT AT LINE 10040      (EXAMPLE)
>PIN P1.159
>00000 P1. 159
>TYPE HEADER INFO
```

- (2) Header Information.
 - (a) *Army.* The header information requested is the part number for the UUT that is sent for repair. Type in part number (A3042242) and press EXECUTE. This information is attached to the UUT when it is sent for repair.
 - (b) *Marine Corps.* Type in Equipment Repair Order (ERO) number.
- (3) Follow printer instructions to probe various points on the UUT. Using guided probe tip, pierce the conformal coating at the point indicated on the DCT printer.
- (4) After making good contact, press the SPACE bar.
- (5) The DCT printer will continue instructions for probe points until a probable fault is printed.
- (6) UUT Removal.
 - (a) *Army.* Remove the UUT, attach printout information, and forward for repair.
 - (b) *Marine Corps.* Remove the UUT, attach printout information, and repair in accordance with unit's authorized level of repair.
- (7) To test another board, refer to paragraph b. (8).

d. Repair Procedures.

- (1) **Special Tools and Equipment.** There are no special tools or equipment required for these procedures. Use normal tools and equipment available.
- (2) **Repair.**
 - Inspect all copper paths for opens/shorts.
 - Inspect for broken/shorted wires.
 - Inspect for broken/shorted pins on the connectors.
 - Follow any printer instructions for part replacement.
 - Once the trouble is located, repair or replace the part.
- (3) **Retest.**
 - (a) *Army.* After repair, return the UUT to the DCT for final acceptance testing and return to supply.
 - (b) *Marine Corps.* After repair, return the UUT to the DCT for final acceptance testing.

2-11 TROUBLESHOOTING A3041430 (DOT MATRIX PRINT CONTROL) BOARD

a. *Special Messages.*

All special messages, test information, and troubleshooting instructions will be printed on the thermal printer of the DCT when appropriate.

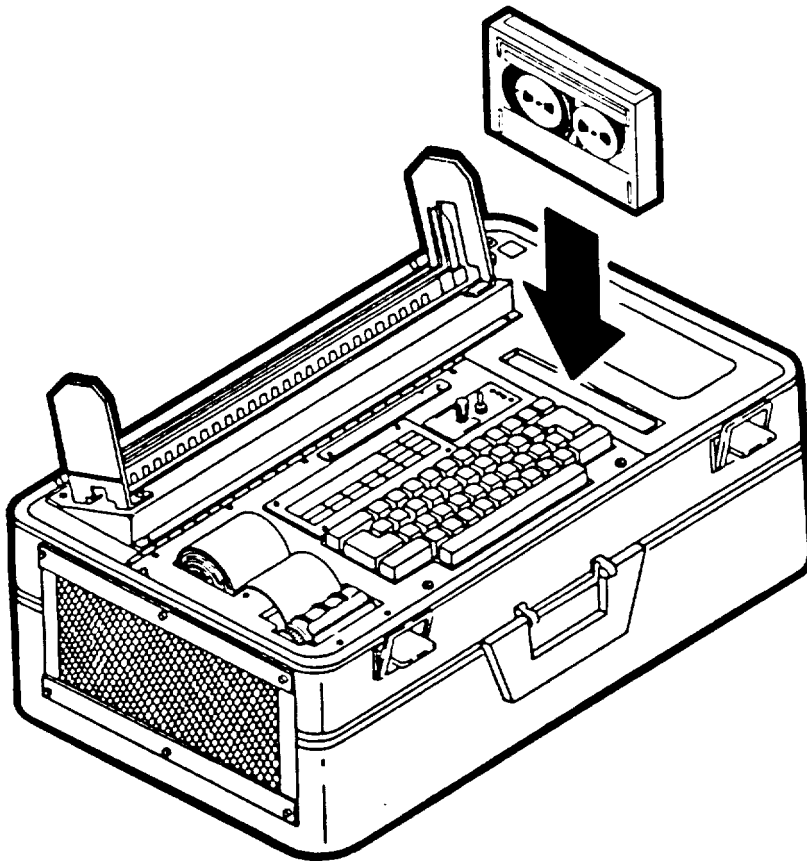
b. *Test Procedure.*

Unless illustrated otherwise here, follow instructions on the DCT printer.

NOTE

The ICD survey test is normally performed only once a day when the system is powered up or if the ICD is replaced. If the DCT is powered up and an ICD has already been installed and tested in the DCT, go to step (3).

- (1) Power up and prepare the DCT for UUT testing according to TM 11-6625-3038-10 (Army), or TM 09965A-45/1 (Marine Corps).
- (2) Run the ICD survey test described in paragraph 2-6 of this chapter.
- (3) Insert cassette CP03010000G.



(4) Type **LOAD 0** and then press **EXECUTE** on the DCT. The display will show:

LOAD 0					
		●	●		
●					

When the display shows:

READY					
		●	●		

The DCT is ready to test the UUT.

(5) Type **RUN** and then press **EXECUTE**.

The printer will print UUT name, part number, schematic number, ICD number, TPS document number, and test date:

```

> *****
> TEST PROGRAM FOR
>     DMPC
>PART NO. A3041430
>SCHEMATIC# A3041428
>ICD# A3041830
>TPS DOC# A3041884
>TEST DATE:
>XXXXXX
> *****
>

```

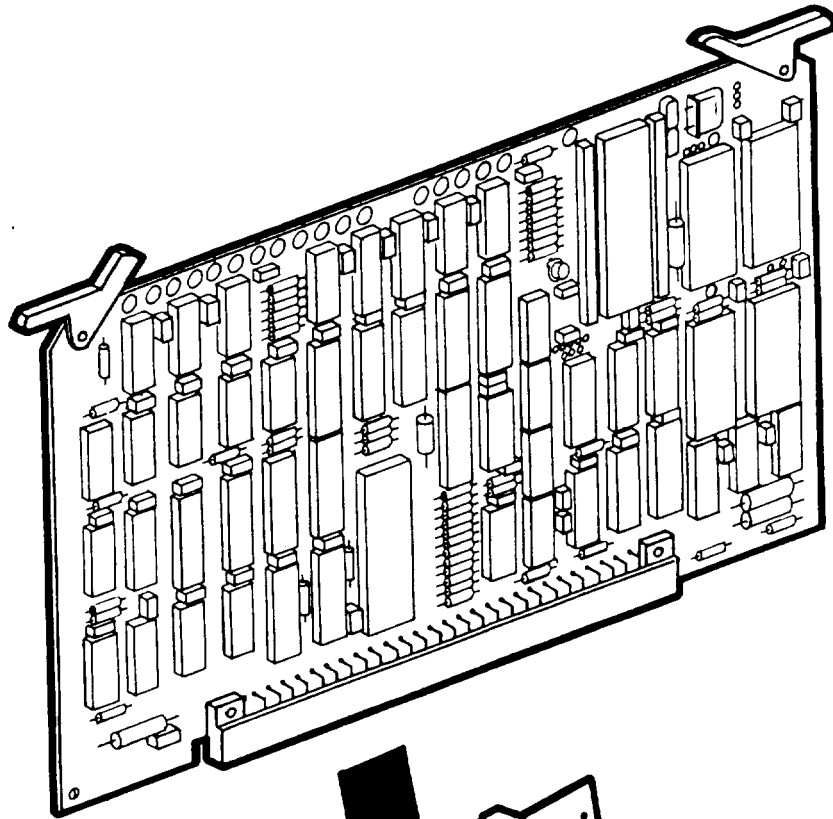
- (6) Follow printer instructions for checking the shunt configuration and for installing ICD A3041830 into the AN/USM-465(). A prompt for testing the probe will be printed before instructions for ID CHECK and UUT installation.

- (7) After PROBE TEST, printer will print ID CHECK. Follow prompt instructions for entry of UUT part number and serial number:

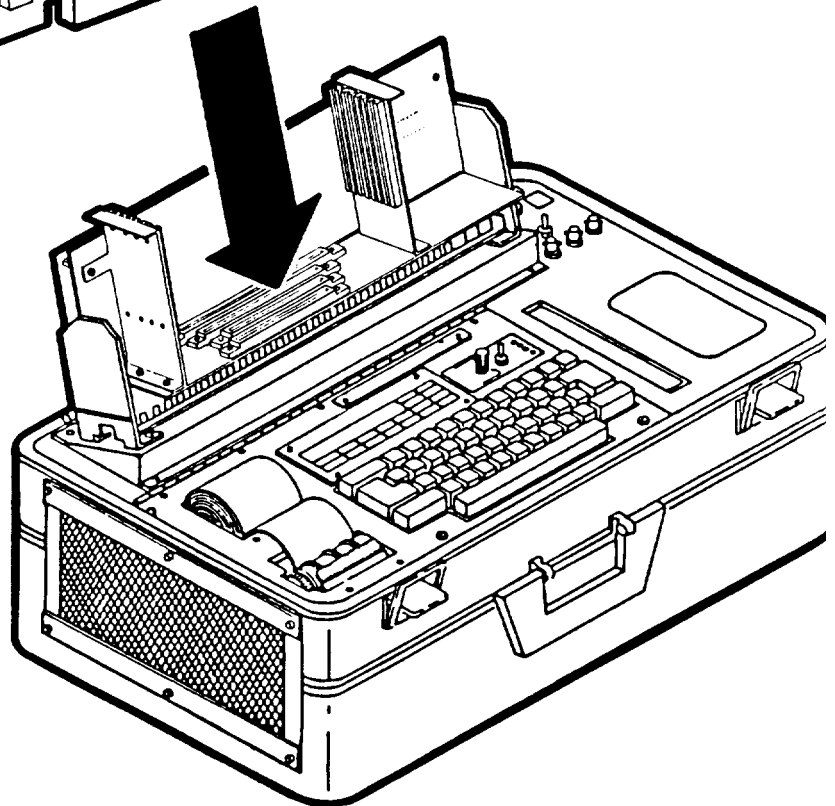
```
> =====
> ID CHECK
> =====
> ENTER LAST 4 DIGITS
  FROM UUT PART #
>
> Xxxx
>
> *****
> ENTER UUT S/N
> LOCATED ON BACK OF
  UUT IN LOWER RIGHT
  HAND CORNER
> A3041430
> UUT S/N: xxxx
> *****
```


DOT MATRIX PRINT CONTROL
BOARD
A3041430

Observing the ESD precautions in DOD-HDBK-263, install DMPC into ICD connector J3.



NOTE
Five test hooks, a jumper hook, and one 40 pin cable with header used with this board.



- (9) **Install test hooks and cable as shown in Figure D-3 in Appendix D**
- (10) **After all test connections are properly attached, press EXECUTE and follow printer instructions.**
- (11) **Upon successful completion of the functional test sequence, the DCT will print**

```
>=====
>   ALL TESTS GO
>=====
>
>TEST OPTIONS
>1. RETEST SAME UUT
>2. TEST NEW UUT
>3. RUN SCOPE LOOPS
>ENTER TEST OPTION
```

c. *Fault Indication,*

- (1) **If the UUT falls self test, the DCT printer will print NO-GO, the line number which failed, which UUT pin failed, and will request header information.**

```
>*****
>   NO-GO
>*****
>IM1430.11 | 123185
>FAULT AT LINE 10040   (EXAMPLE)
>PIN P1.159
>00000 P1.159
>TYPE HEADER INFO
```

- (2) Header Information.
 - (a) *Army.* The header information requested is the part number for the UUT that is sent for repair. Type in part number (A3041422) and press EXECUTE. This information is attached to the UUT when it is sent for repair.
 - (b) *Marine Corps.* Type in Equipment Repair Order (ERO) number.
- (3) Follow printer instructions to probe various points on the UUT, using guided probe tip, pierce the conformal coating at the point indicated on the DCT printer
- (4) After making good contact, press the SPACE bar
- (5) The DCT printer will continue instructions for probe points until a probable fault is printed.
- (6) UUT Removal,
 - (a) *Army* Remove the UUT, attach printout information, and forward for repair
 - (b) *Marine Corps.* Remove the UUT, attach printout information, and repair in accordance with unit's authorized level of repair.
- (7) To test another board, refer to paragraph b. (8).

d. *Repair Procedures.*

- (1) **Special Tools and Equipment.** There are no special tools or equipment required for these procedures. Use normal tools and equipment available.
- (2) **Repair.**
 - Inspect all copper paths for opens/shorts.
 - Inspect for broken/shorted wires.
 - Inspect for broken/shorted pins on the connectors.
 - Follow any printer instructions for part replacement.
 - Once the trouble is located, repair or replace the part.
- (3) **Retest.**
 - (a) *Army.* After repair, return the UUT to the DCT for final acceptance testing and return to supply.
 - (b) *Marine Corps.* After repair, return the UUT to the DCT for final acceptance testing.

2-12 TROUBLESHOOTING A3042202 (AUXILIARY MEMORY/RELAY CONTROL) BOARD

a. *Special Messages.*

All special messages, test information, and troubleshooting instructions will be printed on the thermal printer of the DCT when appropriate.

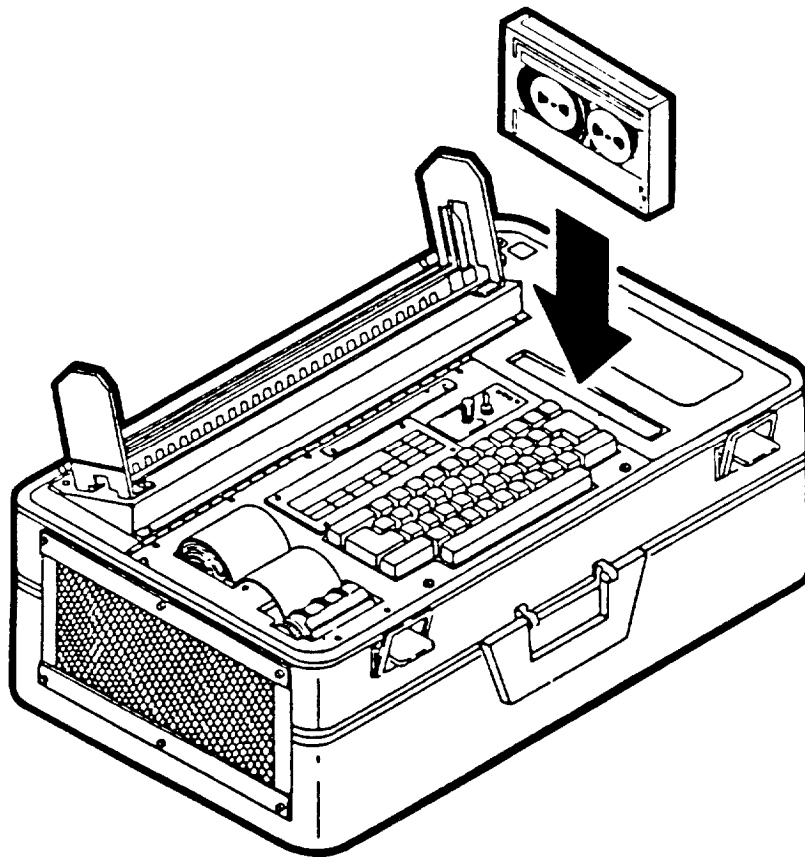
b. *Test Procedure.*

Unless illustrated otherwise here, follow instructions on the DCT printer.

NOTE

The ICD survey test is normally performed only once a day when the system is powered up or if the ICD is replaced. If the DCT is powered up and an ICD has already been installed and tested in the DCT, go to step (3).

- (1) Power up and prepare the DCT for UUT testing according to TM 11-6625-3038-10 (Army), or TM 09965A-45/1 (Marine Corps).
- (2) Run the ICD survey test described in paragraph 2-6 of this chapter.
- (3) Insert cassette CP0201001G.



(4) Type LOAD O and then press EXECUTE on the DCT. The display will show:

LOAD 0					
		●	●		
●					

When the display shows:

READY					
		●	●		

The DCT is ready to test the UUT.

(5) Type RUN and then press EXECUTE.

The printer will print UUT name, part number, schematic number, ICD number, TPS document number, and test date:

```

> *****
> TEST PROGRAM FOR
> AM/RC, GATE ARRAY
>PART NO. A3042202
>SCHEMATIC# A3042200
>ICD# A3041860
>TPS DOC# A3041855
>TEST DATE:
>XXXXXX
> *****
>

```

TM 11-5815-612-40-1

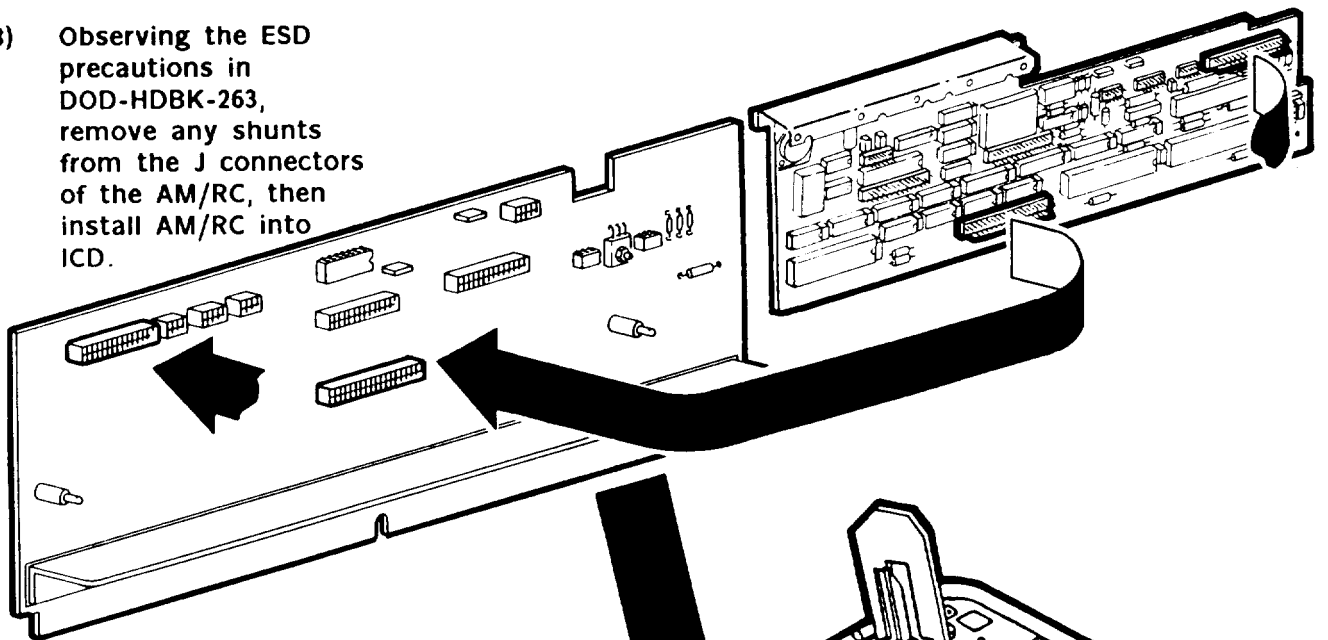
- (6) Follow printer instructions for checking the shunt configuration and for installing ICD A3041860 into the AN/USM-465(). A prompt for testing the probe will be printed before instructions for ID CHECK and UUT installation.

- (7) After PROBE TEST, printer will print ID CHECK. Follow prompt instructions for entry of UUT part number and serial number:

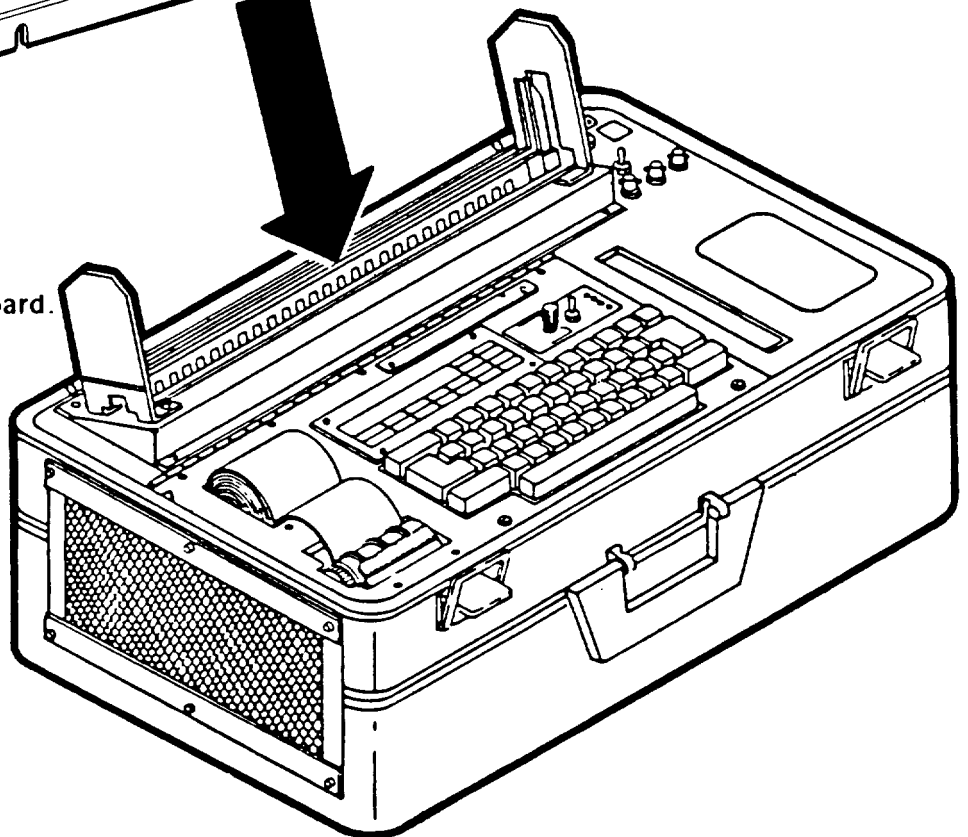
```
> =====  
> ID CHECK  
> =====  
> ENTER LAST 4 DIGITS  
> FROM UUT PART #  
>  
> Xxxx  
>  
> ***** *  
> ENTER UUT S/N  
> A3042202  
> UUT S/N: XXXX  
> ***** *
```

AM/RC, GATE ARRAY
BOARD
A3042202

- (8) Observing the ESD precautions in DOD-HDBK-263, remove any shunts from the J connectors of the AM/RC, then install AM/RC into ICD.

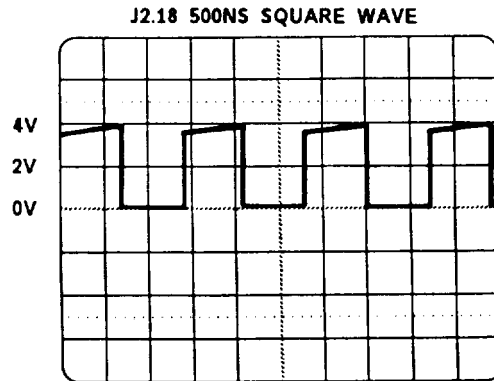


NOTE
No special test hooks
are used with this board.

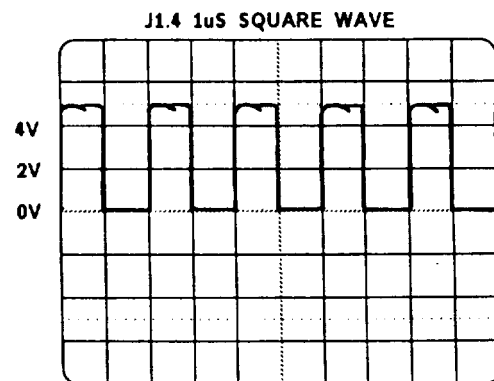


- (9) After UUT is inserted properly, press EXECUTE and follow printer instructions.
- (10) The printer will print OSC TEST, then print instructions to check for proper operation of the oscillator on the UUT. Follow instructions to make three scope measurements and respond to query "SQUARE WAVE PRESENT? Y/N". (Representative waveforms shown below.)

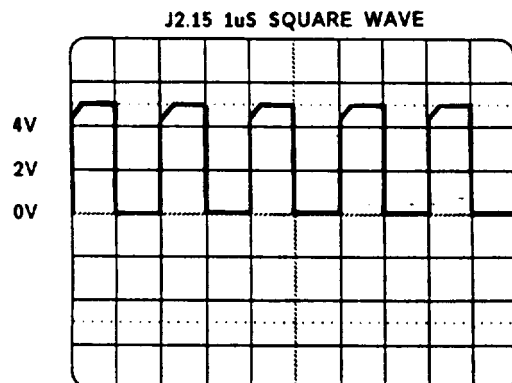
10:1 PROBE
.2V/DIV
.2usec/DIV



10:1 PROBE
.2V/DIV
.5usec/DIV



10:1 PROBE
.2V/DIV
.5usec/DIV



- (11) Upon successful completion of the functional test sequence, the DCT will print:

```
> =====
> ALL TESTS GO
> =====
>
>TEST OPTIONS
>1. RETEST SAME UUT
>2. TEST NEW UUT
>3. RUN SCOPE LOOPS
>ENTER TEST OPTION
```

c. Fault Indication.

- (1) If the UUT fails self test, the DCT printer will print NO-GO, the line number which failed, which UUT pin failed, and will request header information.

```
> *****
> NO-GO
> *****
>IM2202. 11 | 123185
>FAULT AT LINE 10040 (EXAMPLE)
>PIN P1. 159
>00000 P1 .159
>TYPE HEADER INFO
```

(2) Header Information.

(a) *Army.* The header information requested is the part number for the UUT that is sent for repair. Type in part number (A3042202) and press EXECUTE. This information is attached to the UUT when it is sent for repair.

(b) *Marine Corps.* Type in Equipment Repair Order (ERO) number.

- (3) Follow printer instructions to probe various points on the UUT. Using guided probe tip, pierce the conformal coating at the point indicated on the DCT printer.

(4) After making good contact, press the SPACE bar.

- (5) The DCT printer will continue instructions for probe points until a probable fault is printed.

(6) UUT Removal.

(a) *Army.* Remove the UUT, attach printout information, and forward for repair.

(b) *Marine Corps.* Remove the UUT, attach printout information, and repair in accordance with unit's authorized level of repair.

- (7) To test another board, refer to paragraph b. (8).

d. *Repair Procedures.*

- (1) Special Tools and Equipment. There are no special tools or equipment required for these procedures. Use normal tools and equipment available.
- (2) Repair.
 - Inspect all copper paths for opens/shorts.
 - Inspect for broken/shorted wires.
 - Inspect for broken/shorted pins on the connectors.
 - Follow any printer instructions for part replacement.
 - Once the trouble is located, repair or replace the part.
- (3) Retest.
 - (a) *Army.* After repair, return the UUT to the DCT for final acceptance testing and return to supply.
 - (b) *Marine Corps.* After repair, return the UUT to the DCT for final acceptance testing.

2-13 TROUBLESHOOTING A3042101 (AUXILIARY MEMORY MODULE) BOARD*a. Special Messages.*

All special messages, test information, and troubleshooting instructions will be printed on the thermal printer of the DCT when appropriate.

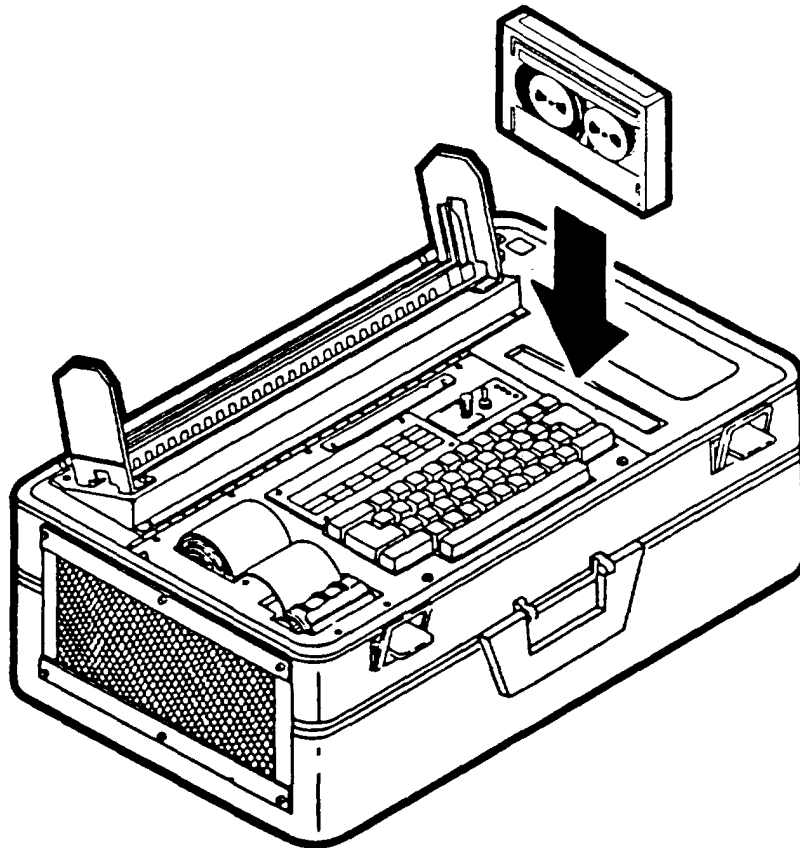
b. Test Procedure.

Unless illustrated otherwise here, follow instructions on the DCT printer.

NOTE

The ICD survey test is normally performed only once a day when the system is powered up or if the ICD is replaced. If the DCT is powered up and an ICD has already been installed and tested in the DCT, go to step (3).

- (1) Power up and prepare the DCT for UUT testing according to TM 11-6625-3038-10 (Army), or TM 09965A-45/1 (Marine Corps).
- (2) Run the ICD survey test described in paragraph 2-6 of this chapter.
- (3) Insert cassette CP0301001G.



(4) Type LOAD O and then press EXECUTE on the DCT. The display will show:

LOAD 0					
		●	●		
●					

When the display shows:

READY					
		●	●		

The DCT is ready to test the UUT.

(5) Type RUN and then press EXECUTE.

The printer will print UUT name, part number, schematic number, ICD number, TPS document number, and test date:

```

> *****
> TEST PROGRAM FOR
>   AUX MEM MODULE
>PART NO. A3042101
>SCHEMATIC# A3042103
>ICD# A3041800
>TPS DOC# A3041880
>TEST DATE:
>XXXXXX
> *****
>

```

- (6) Follow printer instructions for checking the shunt configuration and for installing ICD A3041800 into the AN/USM-465(). A prompt for testing the probe will be printed before instructions for ID CHECK and UUT installation.
- (7) After PROBE TEST, printer will print ID CHECK. Follow prompt instructions for entry of UUT part number and serial number:

```

>=====
>          ID CHECK
>
>=====
>ENTER LAST 4 DIGITS
>    FROM UUT PART #
>
>Xxxx
>
>*****
>ENTER UUT S/N
>A3042101
>UUT S/N: XXXX
>*****

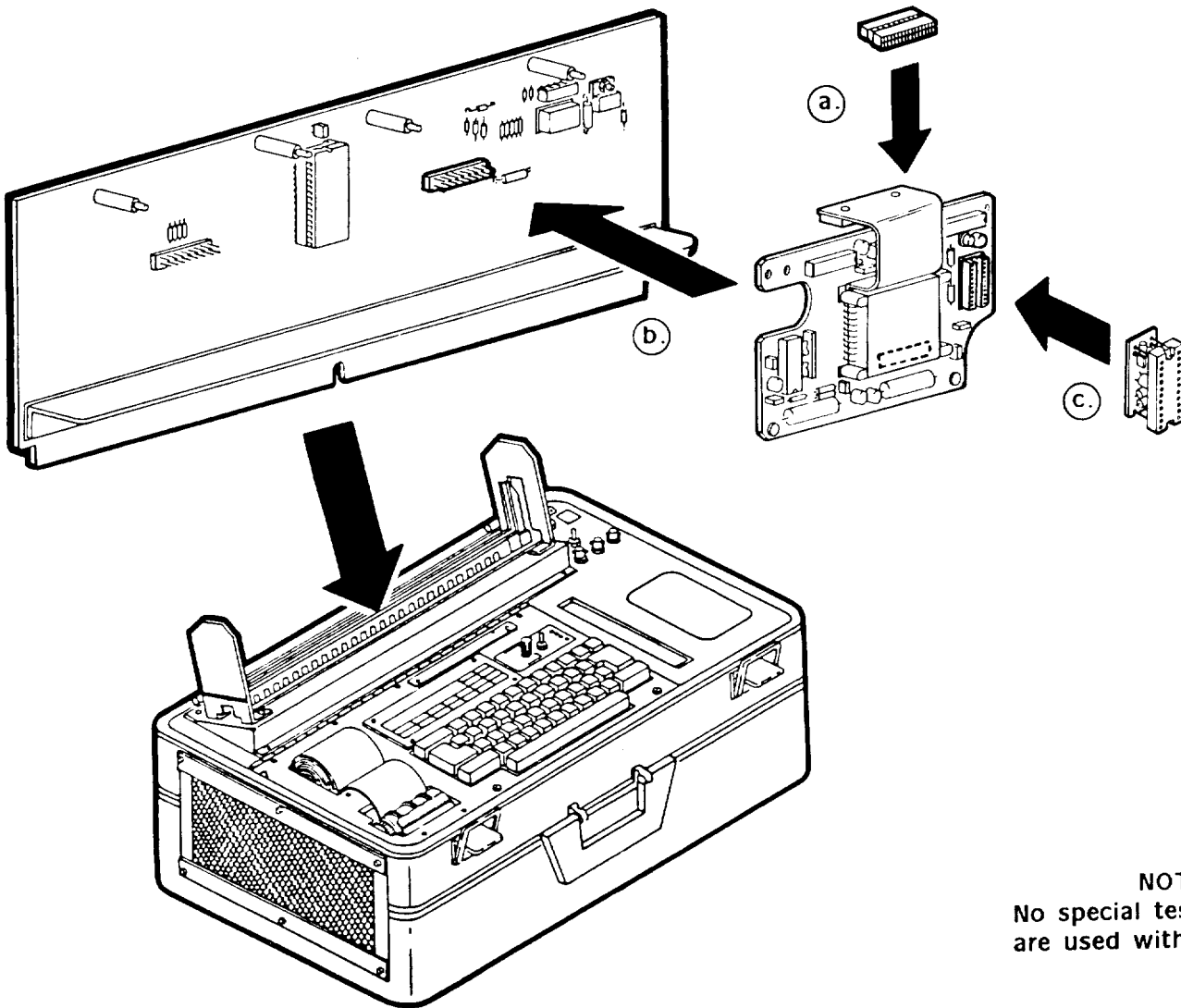
```

**AUXILIARY MEMORY MODULE
BOARD
A3042101**

NOTE

The Auxiliary Memory Module Board must be removed from the Auxiliary Memory Module. See TM 11-5815-612-40P-1/ TM 08008 C-40P/6 for illustration.

- (8) a. Attach right angle interface connector (A3041805) to UUT.
- b. Observing ESD precautions in DOD-HDBK-263, insert AMM into P2 on the ICD when instructed.
- c. Remove IC U6 and insert seed module as illustrated when instructed.



NOTE
No special test clips
are used with this board

- (9) After UUT is inserted properly, press EXECUTE and follow printer instructions.
- (10) Upon successful completion of the functional test sequence, DCT will print:

```

> === . == .-----
> ALL TESTS GO
> .=== -----
>
>TEST OPTIONS
>1. RETEST SAME UUT
>2. TEST NEW UUT
>3. RESEED AND REBOOT
>4. GUIDED PROBE TEST
>5. SCOPE LOOP
>6. ICD TEST
>ENTER OPTION
  
```

c. Fault Indication.

- (1) If the UUT fails self test, the DCT printer will print NO-GO, the line number which failed, which UUT pin failed, and will request header information.

```

> *****
> NO-GO
> *****
>IM2101. I1 I 123185
>FAULT AT LINE 10040 (EXAMPLE)
>PIN P1. 159
>00000 P1. 159
>TYPE HEADER INFO
  
```

- (2) Header Information.
 - (a) *Army.* The header information requested is the part number for the UUT sent for repair. Type in part number (A3041422) and press EXECUTE. This information is attached to the UUT when it is sent for repair.
 - (b) *Marine Corps.* Type in Equipment Repair Order (ERO) number.
- (3) Follow printer instructions to probe various points on the UUT. Using guided probe tip, pierce the conformal coating at the point indicated on DCT printer.
- (4) After making good contact, press the SPACE bar.
- (5) The DCT printer will continue instructions for probe points until a probable fault is printed.
- (6) UUT Removal.
 - (a) *Army.* Remove UUT, attach printout information, and forward for repair.
 - (b) *Marine Corps.* Remove the UUT, attach printout information, and repair in accordance with unit's authorized level of repair.
- (7) To test another board, refer to paragraph b. (8).

d. *Repair Procedures.*

- (1) **Special Tools and Equipment.** There are no special tools or equipment required for these procedures. Use normal tools and equipment available
- (2) **Repair.**
 - inspect all copper paths for opens/shorts.
 - Inspect for broken/shorted wires.
 - Inspect for broken/shorted pins on the connectors.
 - Follow any printer instructions for part replacement.
 - Once the trouble is located, repair or replace the part
- (3) **Retest.** Some faults may disrupt the bootloop or destroy seeds in the bubble memory After the fault has been corrected, run option 5 (reseed and reboot), and then run option 3 (go-no-go) to ensure proper operation of the UUT.
 - (a) *Army.* After repair, return the UUT to the DCT for final acceptance testing and return to supply.
 - (b) *Marine Corps.* After repair, return the UUT to the DCT for final acceptance testing.

2-14 SYSTEM SHUTDOWN

When all testing is completed and UUT boards have been removed, unclamp and remove the ICD and perform system shutdown procedures according to TM 11-6625-3038-10 (Army), or TM 09965A-45/1 (Marine Corps).

APPENDIX A

REFERENCES

DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms.
DA PAM 738-750	The Army Maintenance Manual Management System (TAMMS).
TB 43-0128	CECOM Test Program Set Index.
TM 11-5815-612-40P-1 TM 08008C-40P/6	Intermediate and General Support Maintenance Repair Parts and Special Tools List for Circuit Card Assemblies and Auxiliary Memory Module.
TM 11-6625-3083-24-1 TM 08008C-24/3	Unit and Intermediate Direct Support and General Support Maintenance Manual Interface Connection Devices
TM 11-6625-3038-10	Operator's Manual: AN/USM-465A Test Set Digital Card Tester.
TM 11-6625-3083-24P TM 08008C-24P/7	Unit and Intermediate Direct Support and General Support Maintenance Repair Parts and Special Tools List for Interface Connection Devices.
TM 09965A-45/1	Operator's Manual: AN/USM-465B Test Set Digital Card Tester.
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command).
TM 4700-15/1	Equipment Record Procedures.
DOD-HDBK-263	Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices) Metric.

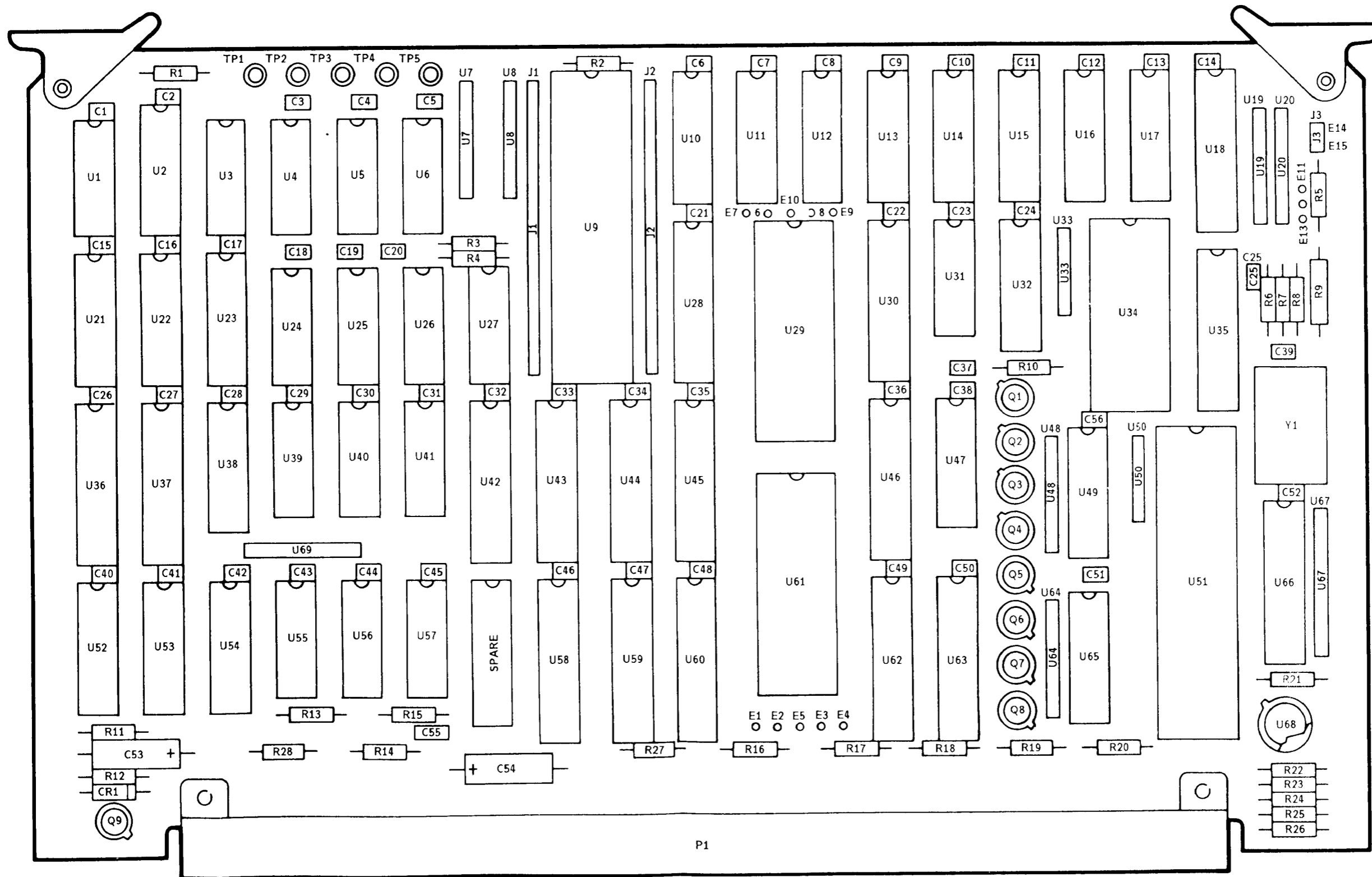


Figure B-1 UNIVERSAL CPU
Circuit Card Assembly

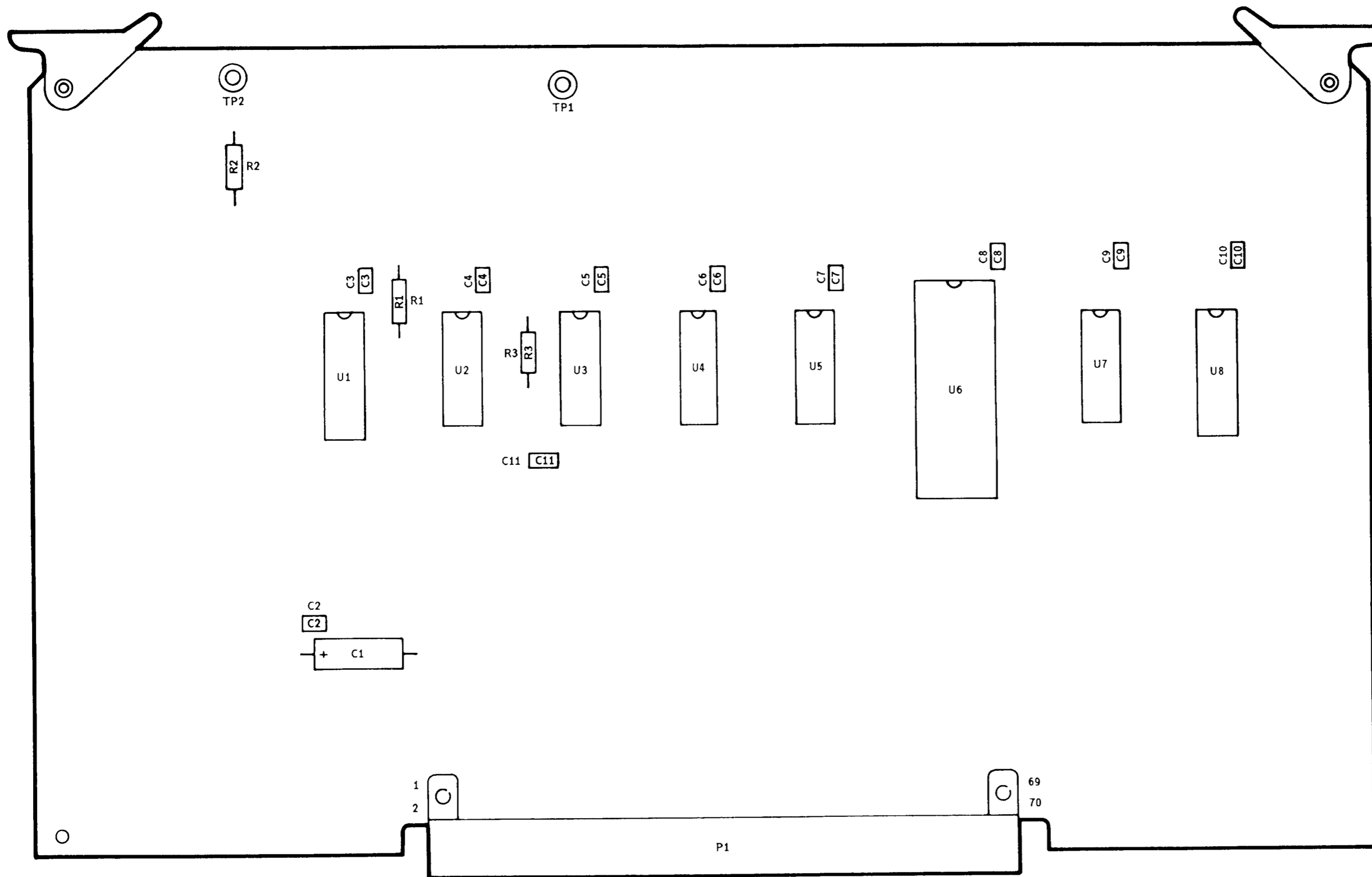


Figure B-2 AUXILIARY INTERFACE
Circuit Card Assembly

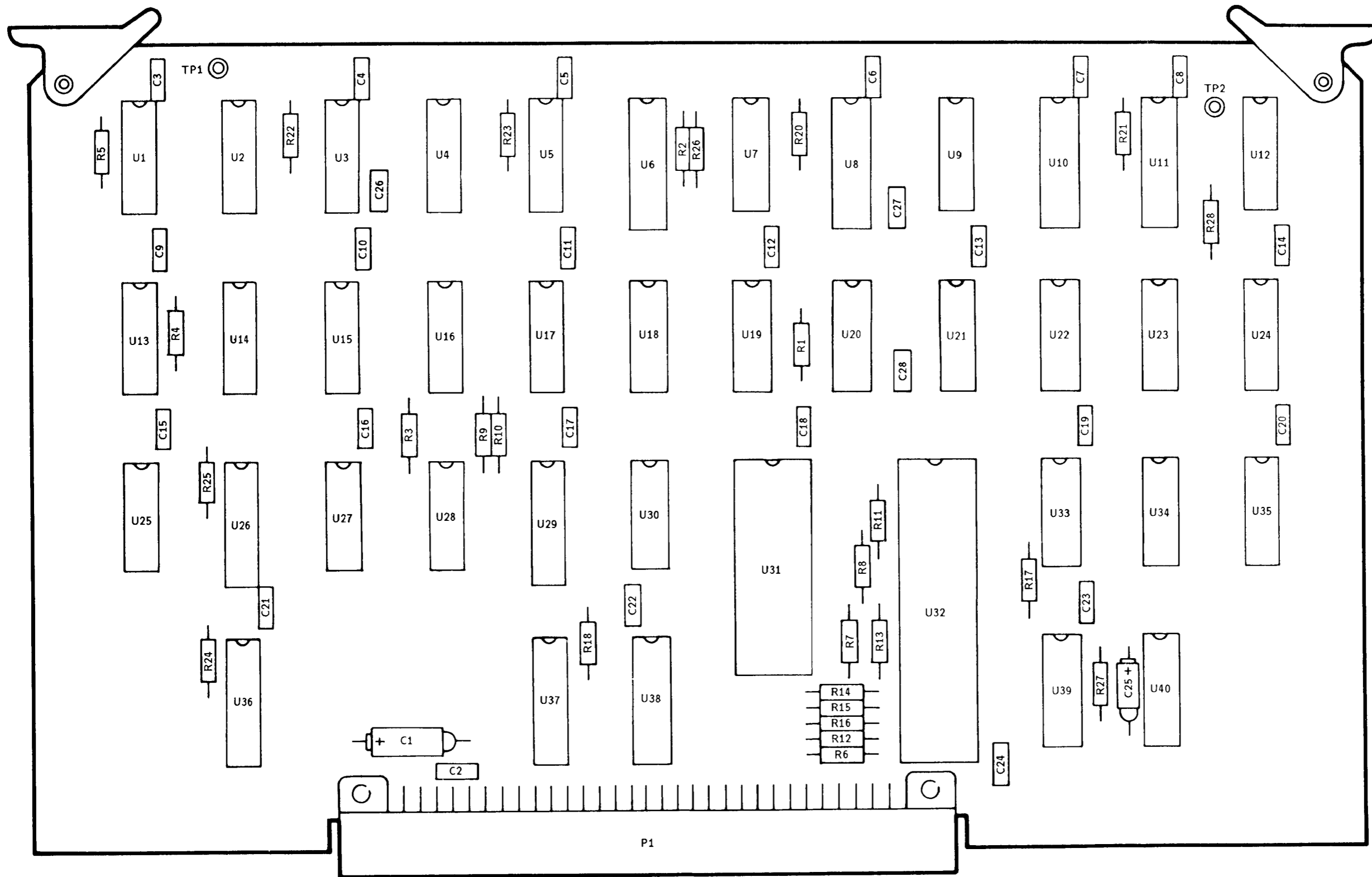


Figure B-3 COMMUNICATIONS
Circuit Card Assembly

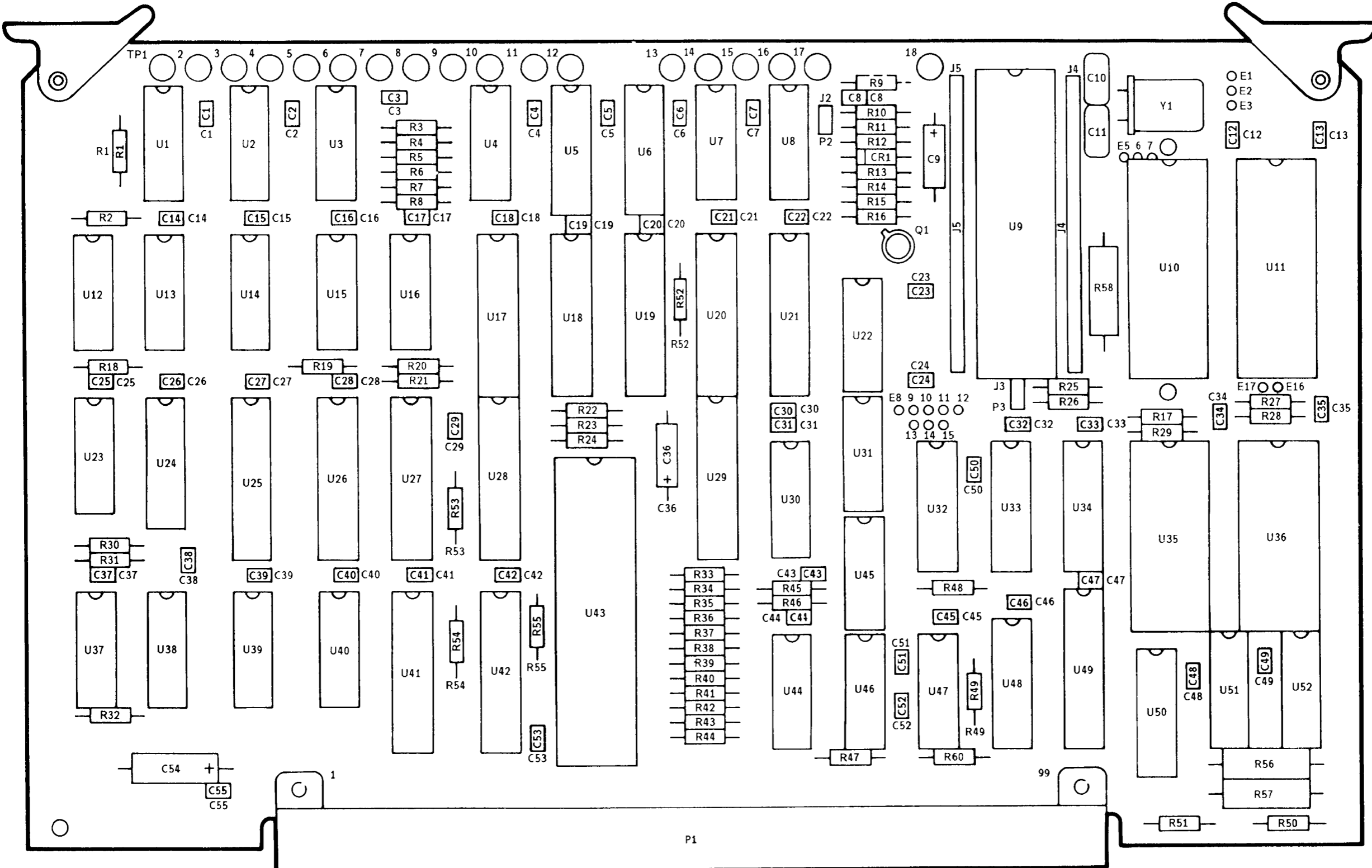


Figure B-4 PRINT CONTROL
Circuit Card Assembly

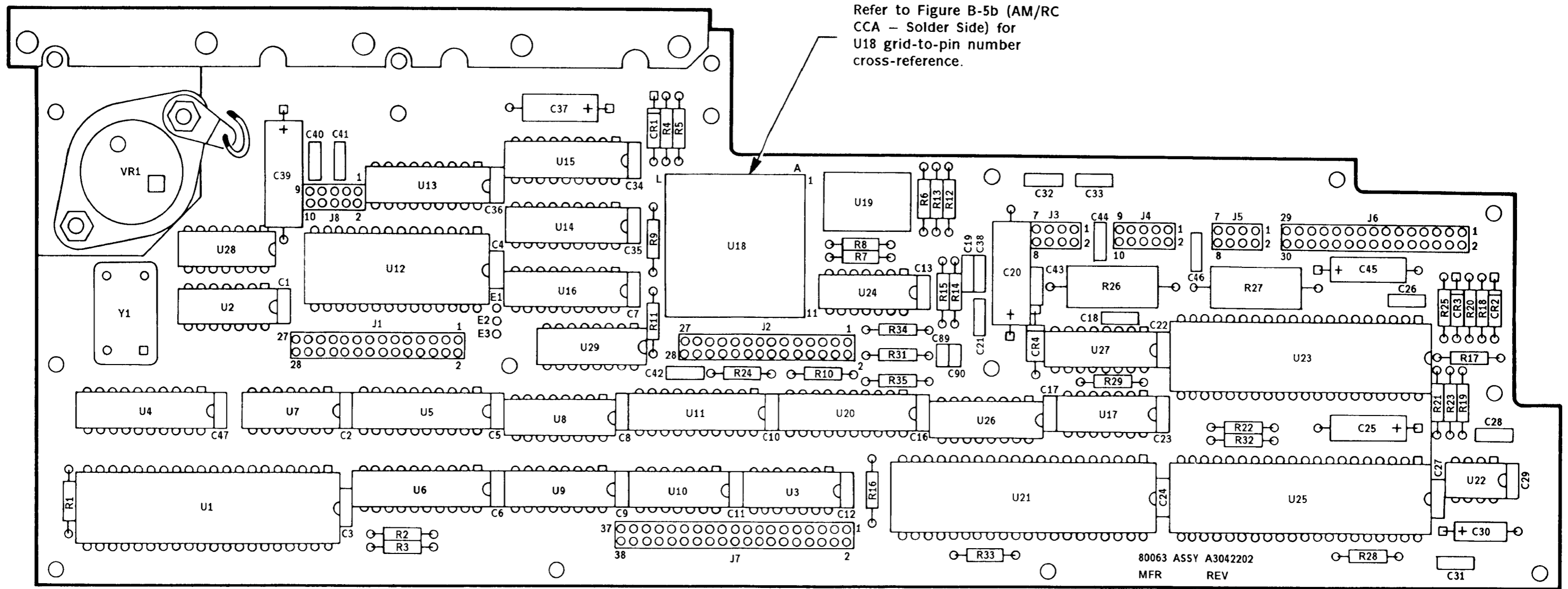


Figure B-5a AM/RC
Circuit Card Assembly
Component Side

U18 GRID CROSS REFERENCE											
GRID TO PIN NUMBER CROSS REFERENCE											
	A	B	C	D	E	F	G	H	J	K	L
1	1	12	23	34	45	56	67	78	89	100	111
2	2	13	24	35	46	57	68	79	90	101	112
3	3	14	25		47	58	69			102	113
4	4	15								103	114
5	5	16	27						93	104	115
6	6	17	28						94	105	116
7	7	18	29						95	106	117
8	8	19								107	118
9	9	20			53	64	75			108	119
10	10	21	32	43	54	65	76	87	98	109	120
11	11	22	33	44	55	66	77	88	99	110	121



Figure B-5b AM/RC
Circuit Card Assembly
Solder Side

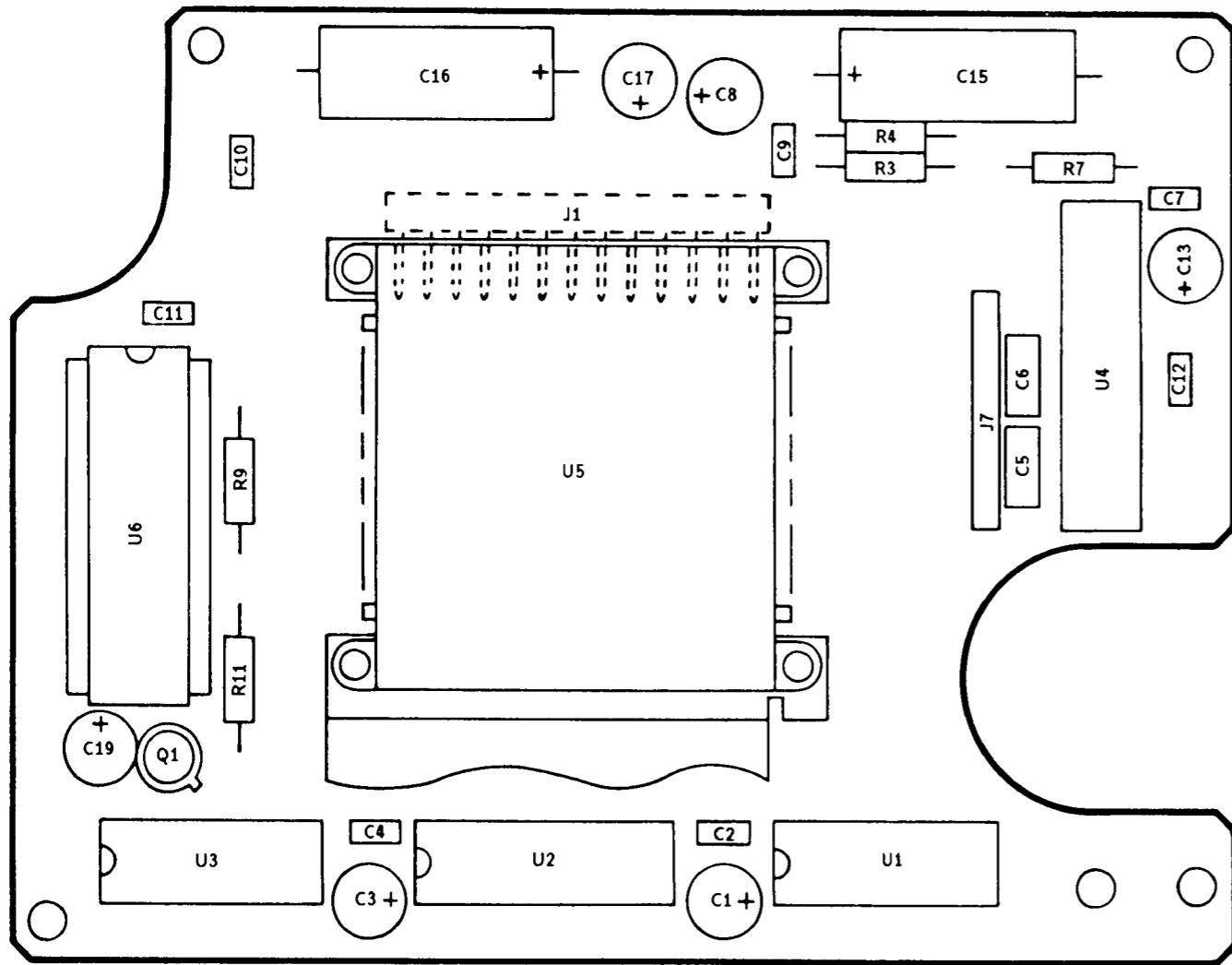


Figure B-6 AUXILIARY MEMORY MODULE
Circuit Card Assembly

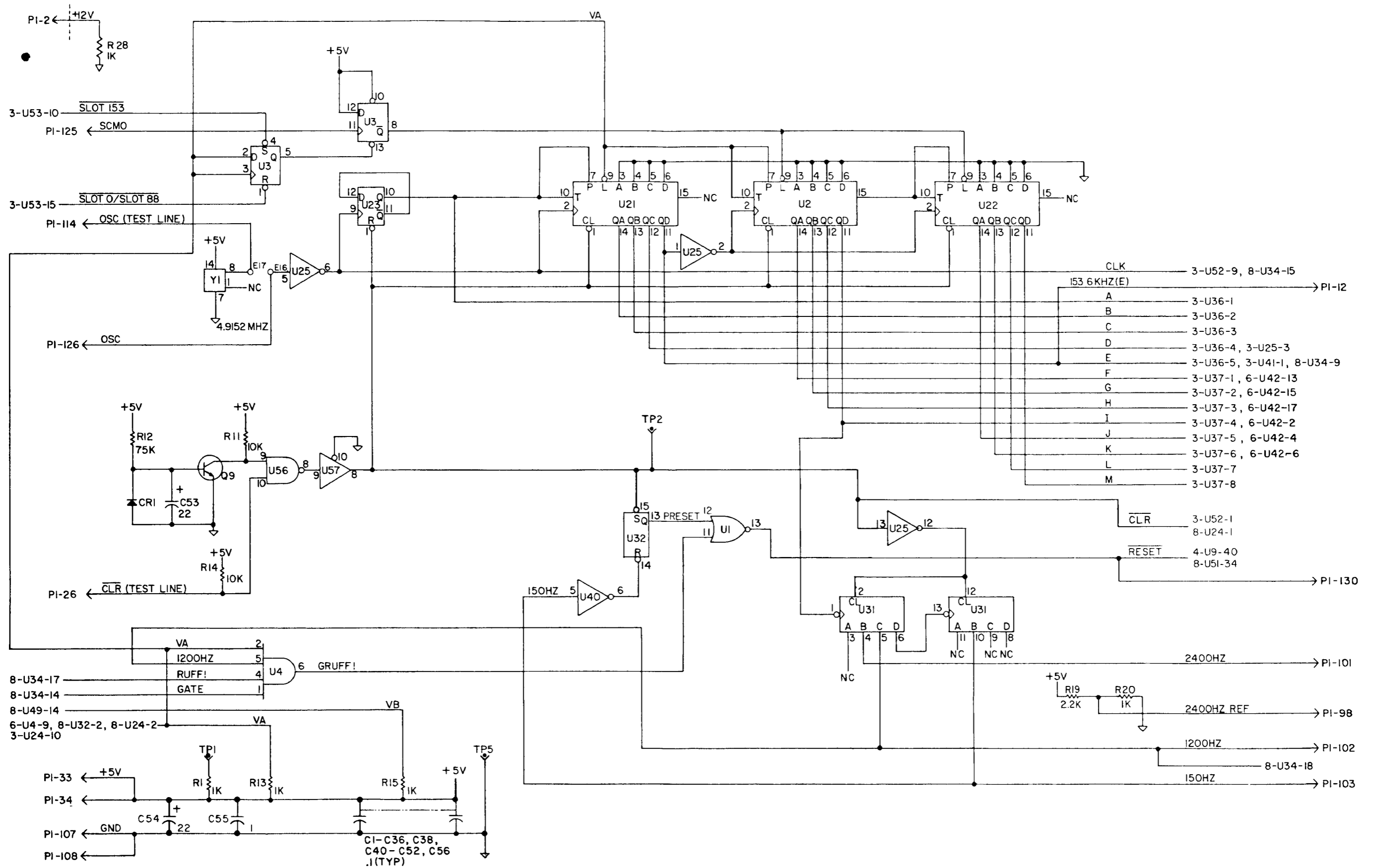


Figure C-1 UNIVERSAL CPU
Logic Diagram (1 of 7)

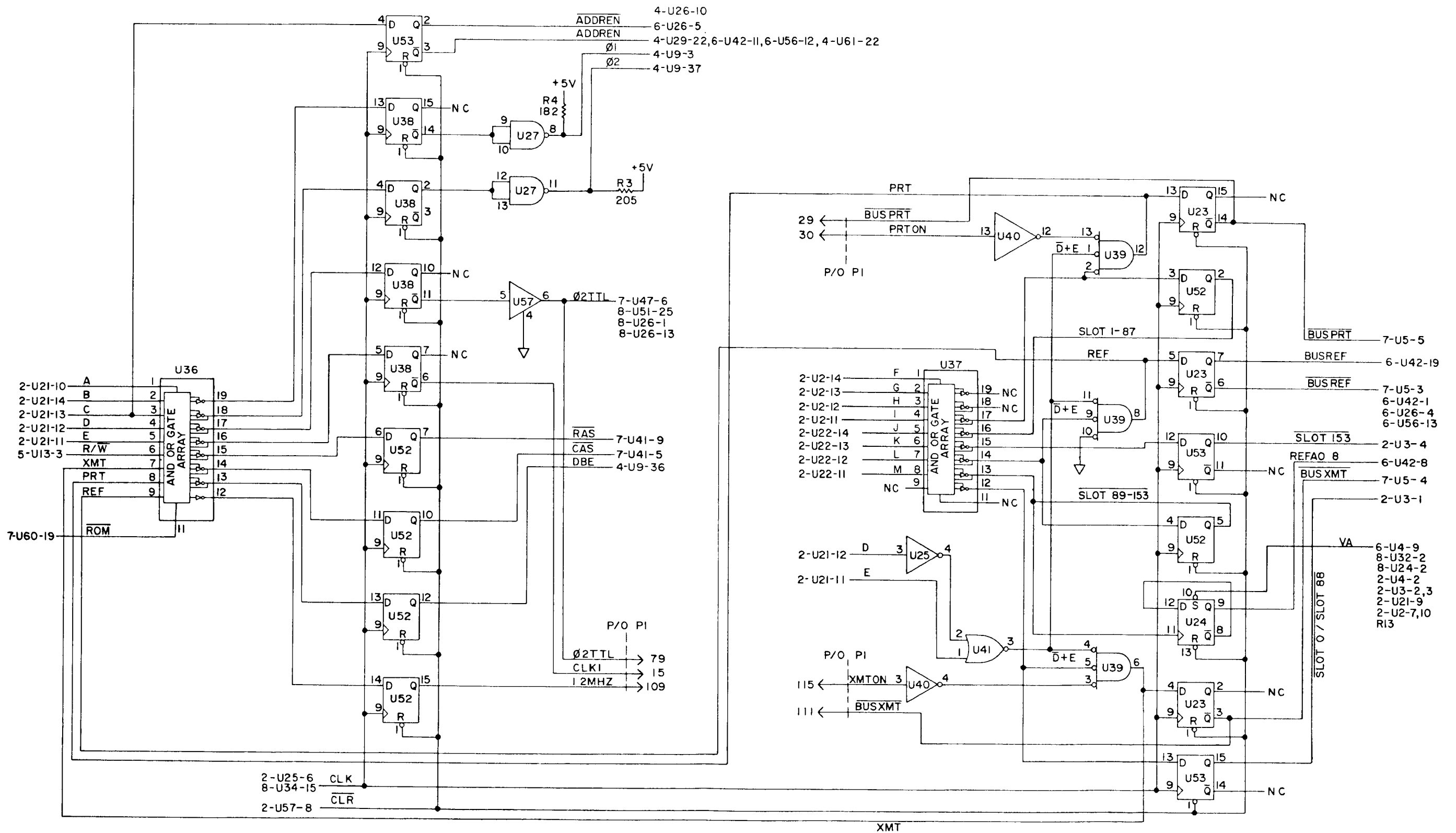


Figure C-1 UNIVERSAL CPU
Logic Diagram (2 of 7)

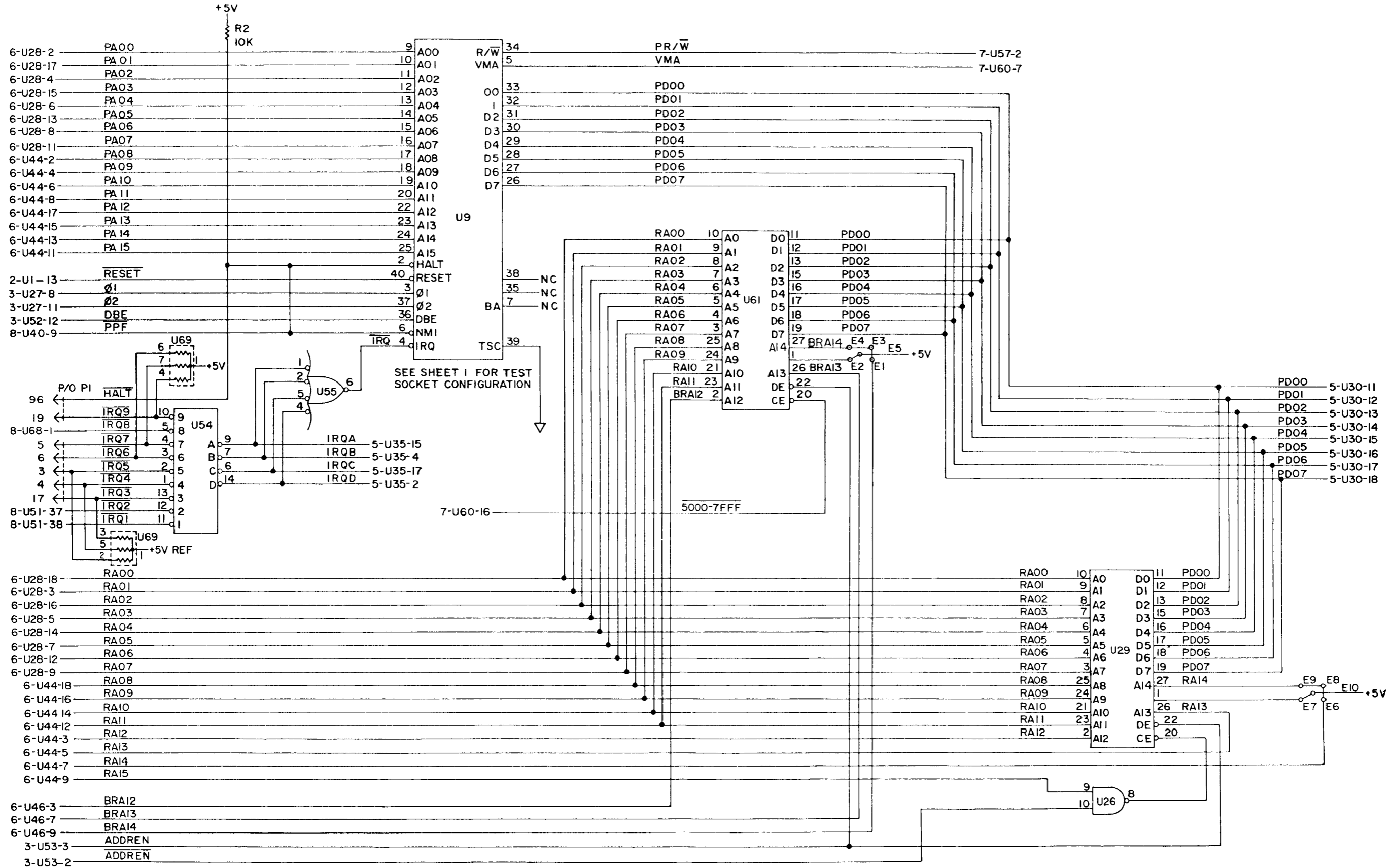


Figure C-1 UNIVERSAL CPU Logic Diagram (3 of 7)

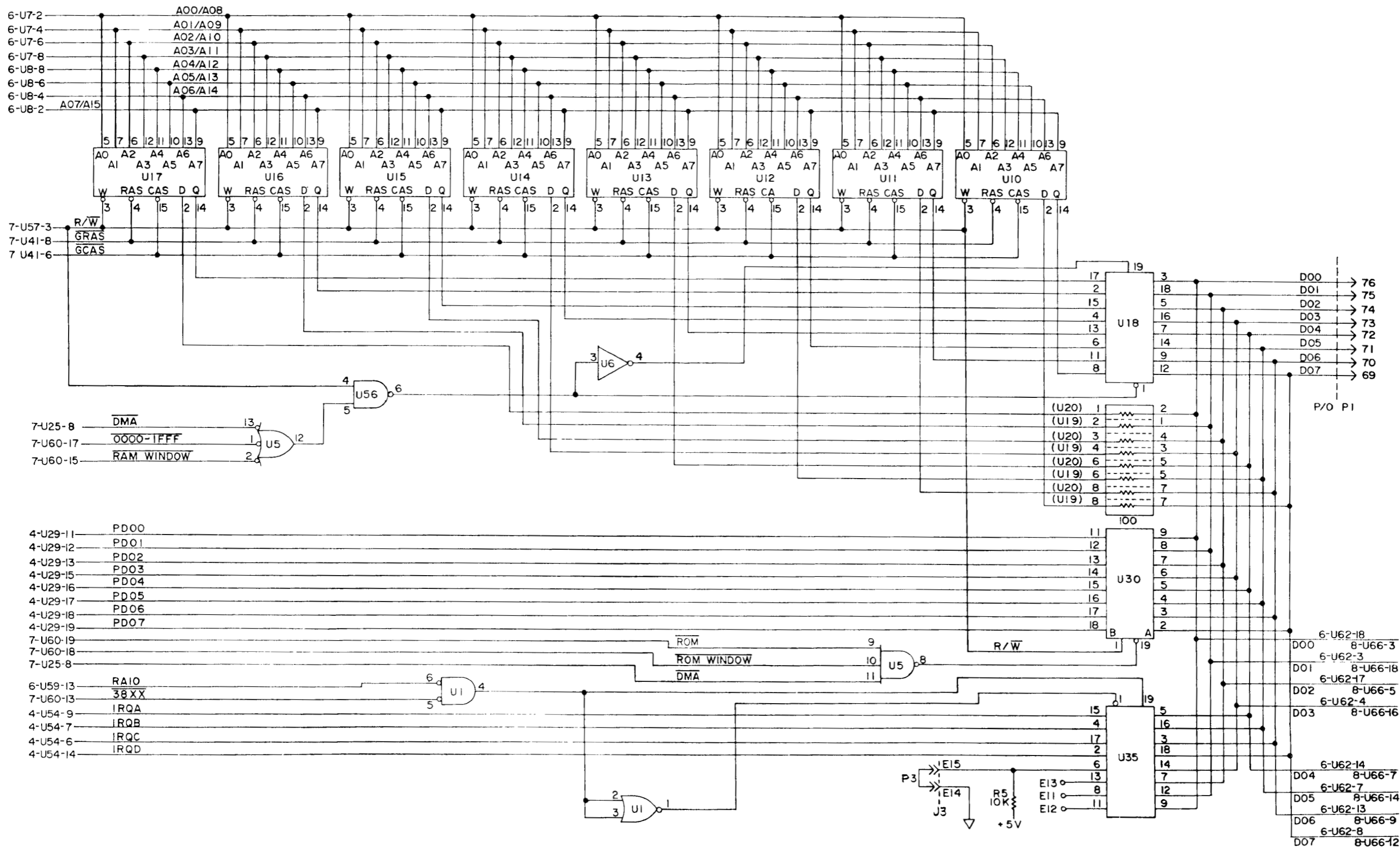


Figure C-1 UNIVERSAL CPU
Logic Diagram (4 of 7)

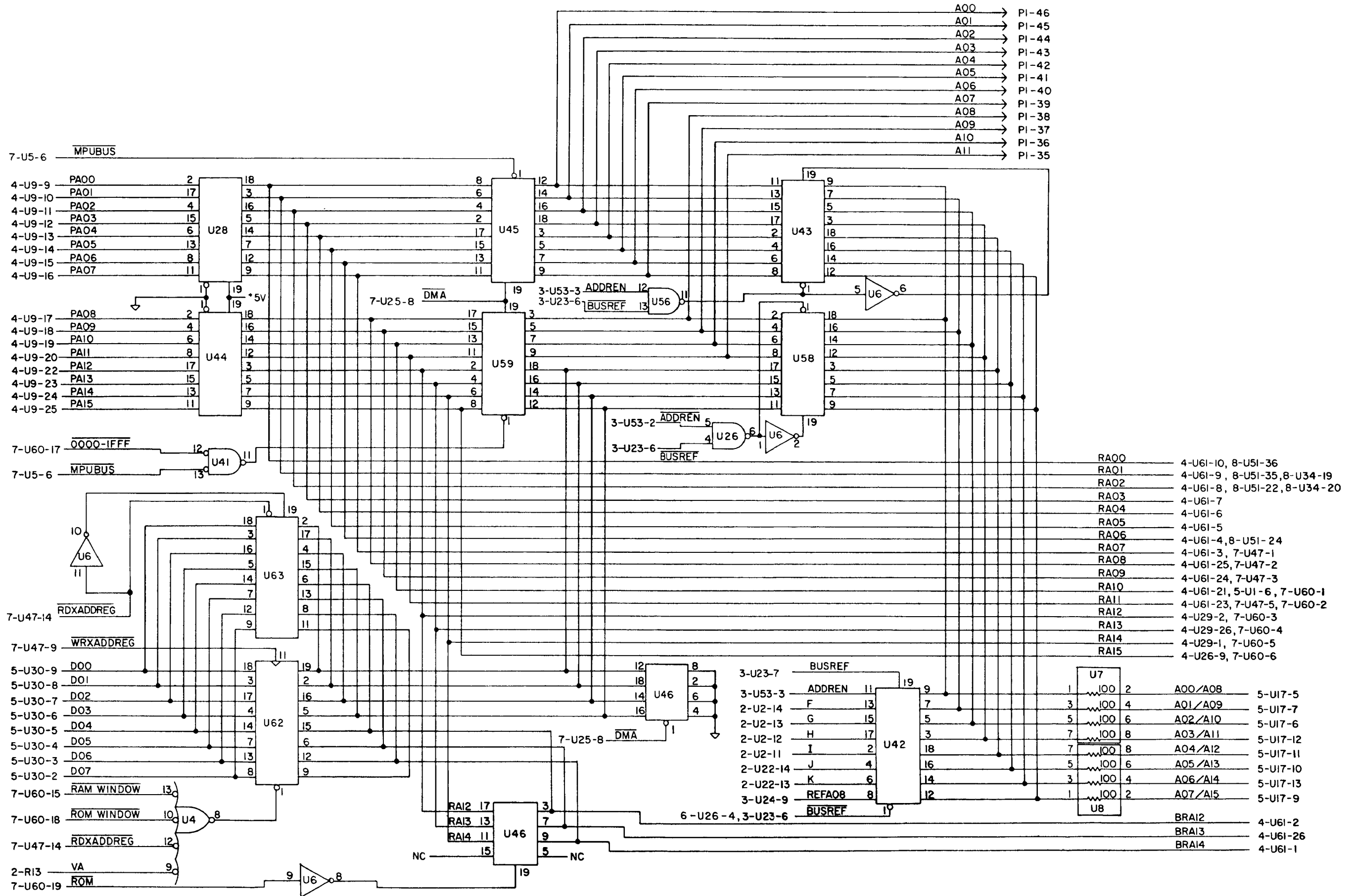


Figure C-1 UNIVERSAL CPU Logic Diagram (5 of 7)

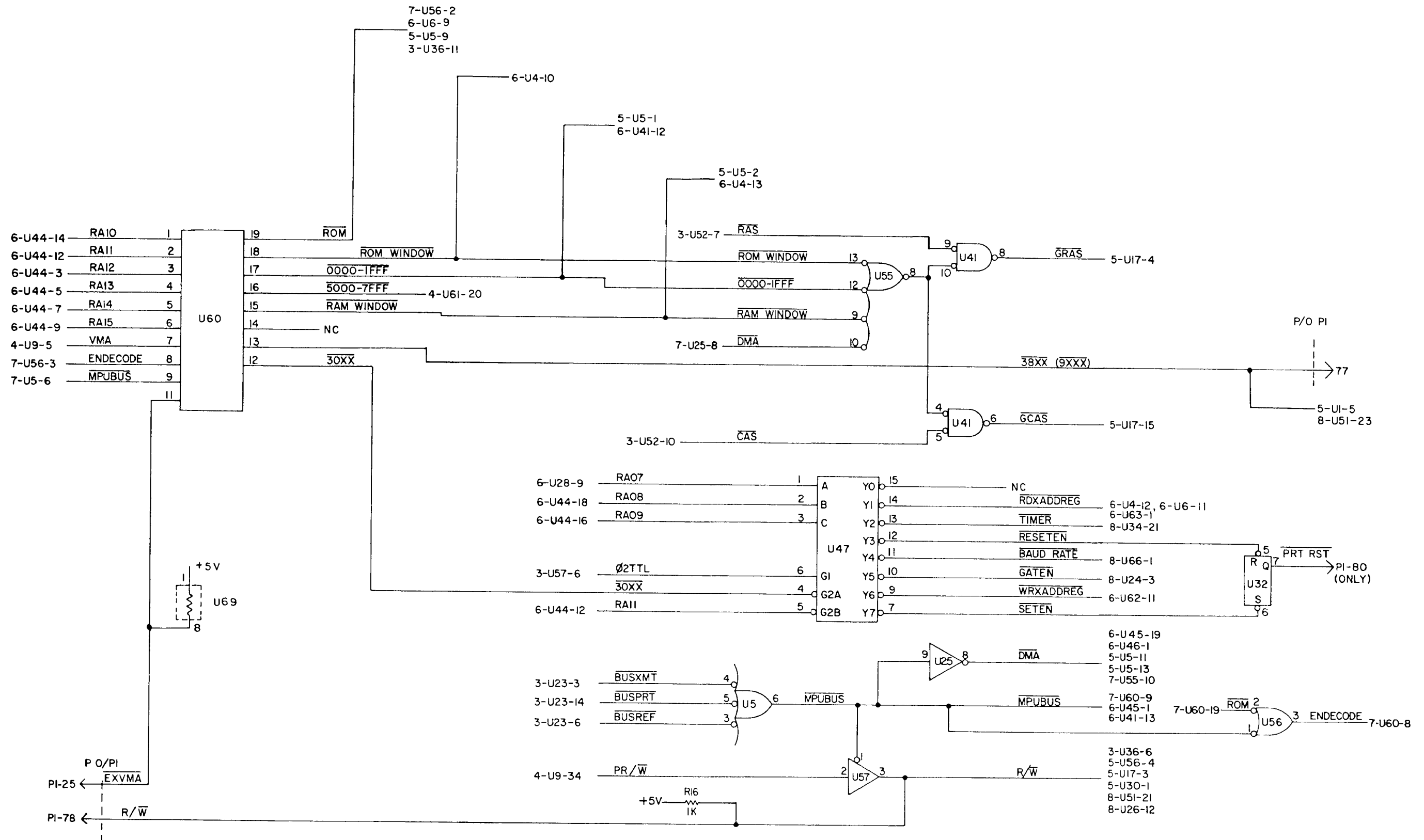


Figure C-1 UNIVERSAL CPU
Logic Diagram (6 of 7)

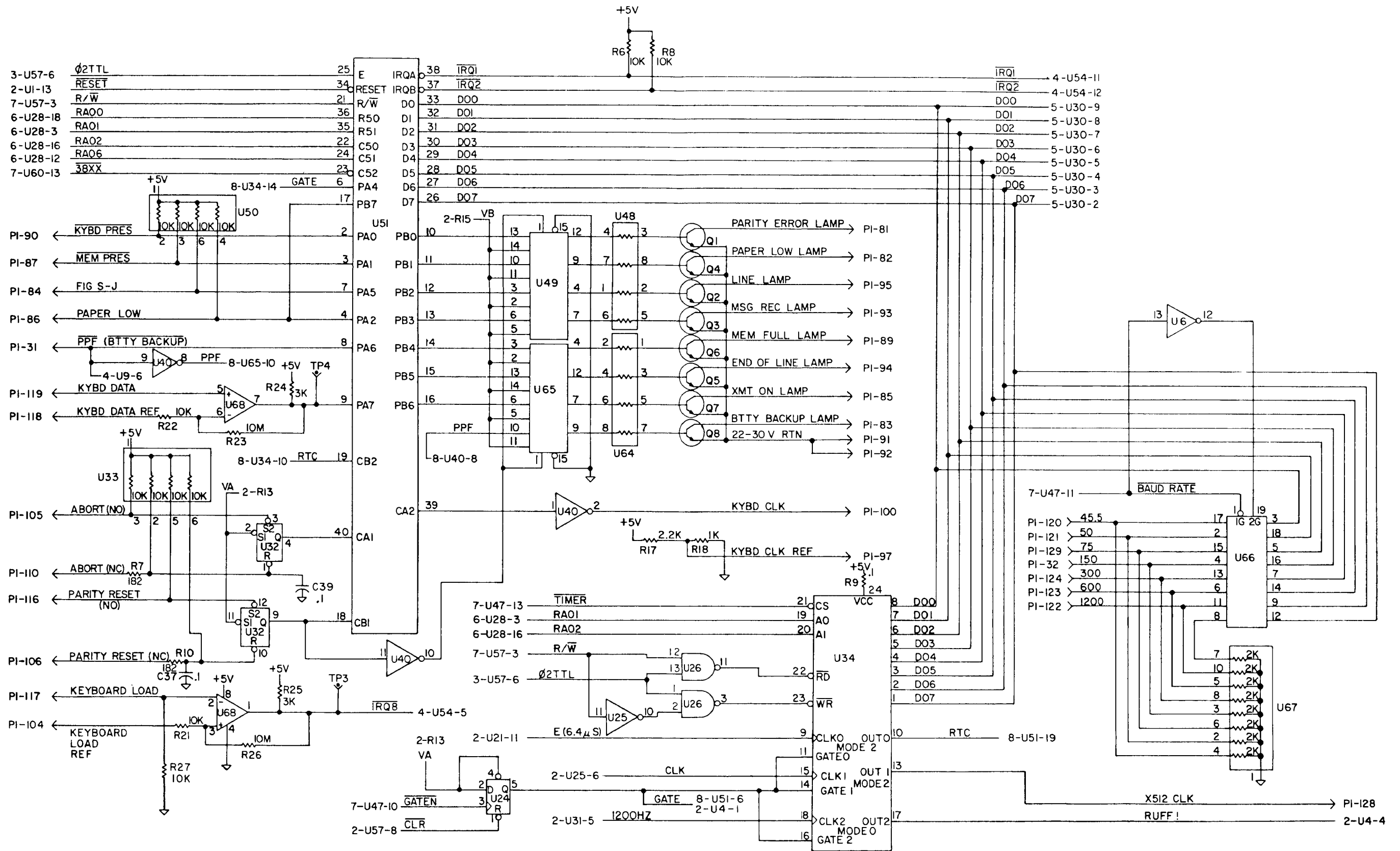


Figure C-1 UNIVERSAL CPU
Logic Diagram (7 of 7)

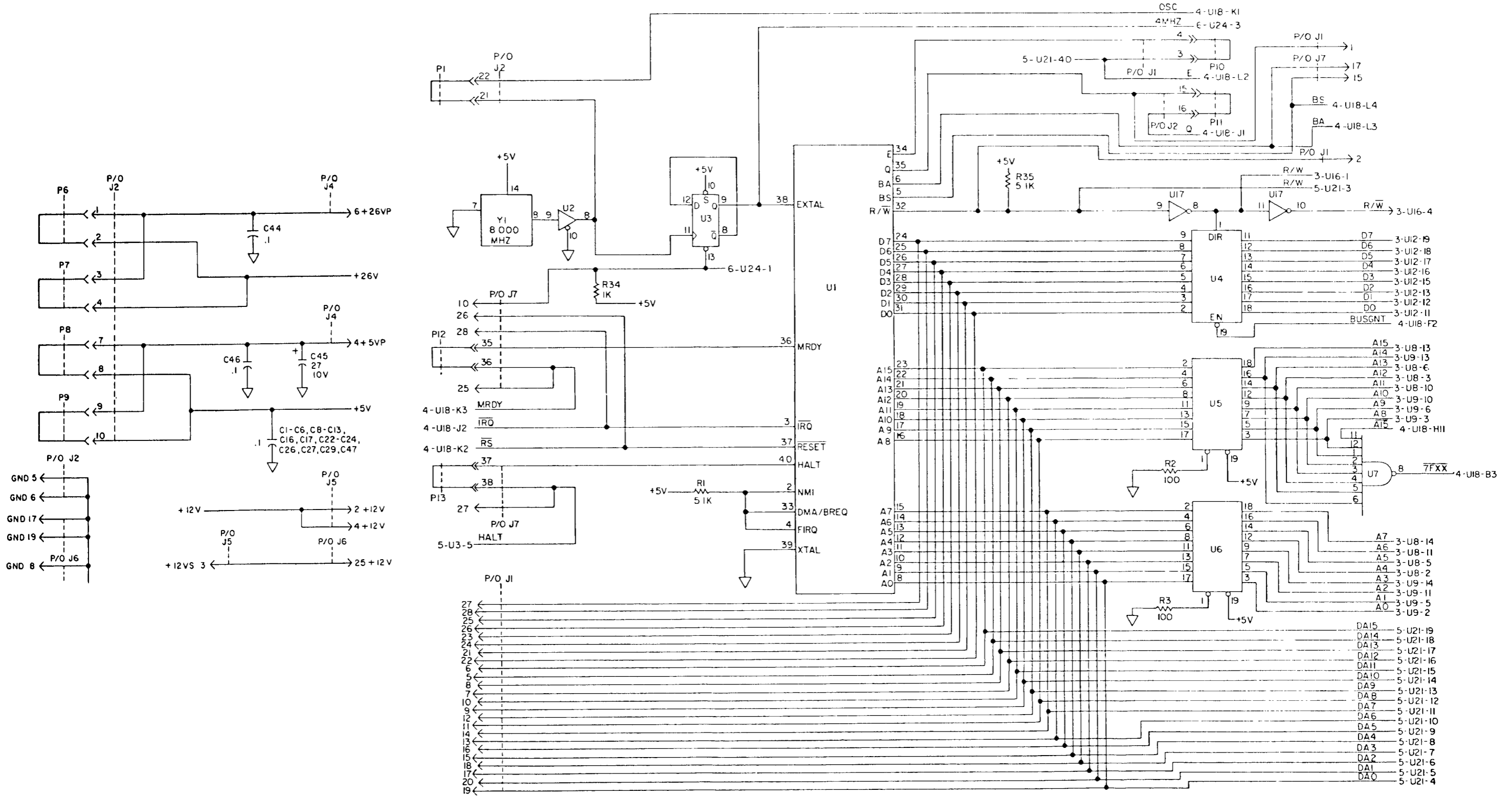


Figure C-2 AM/RC
Logic Diagram (1 of 6)

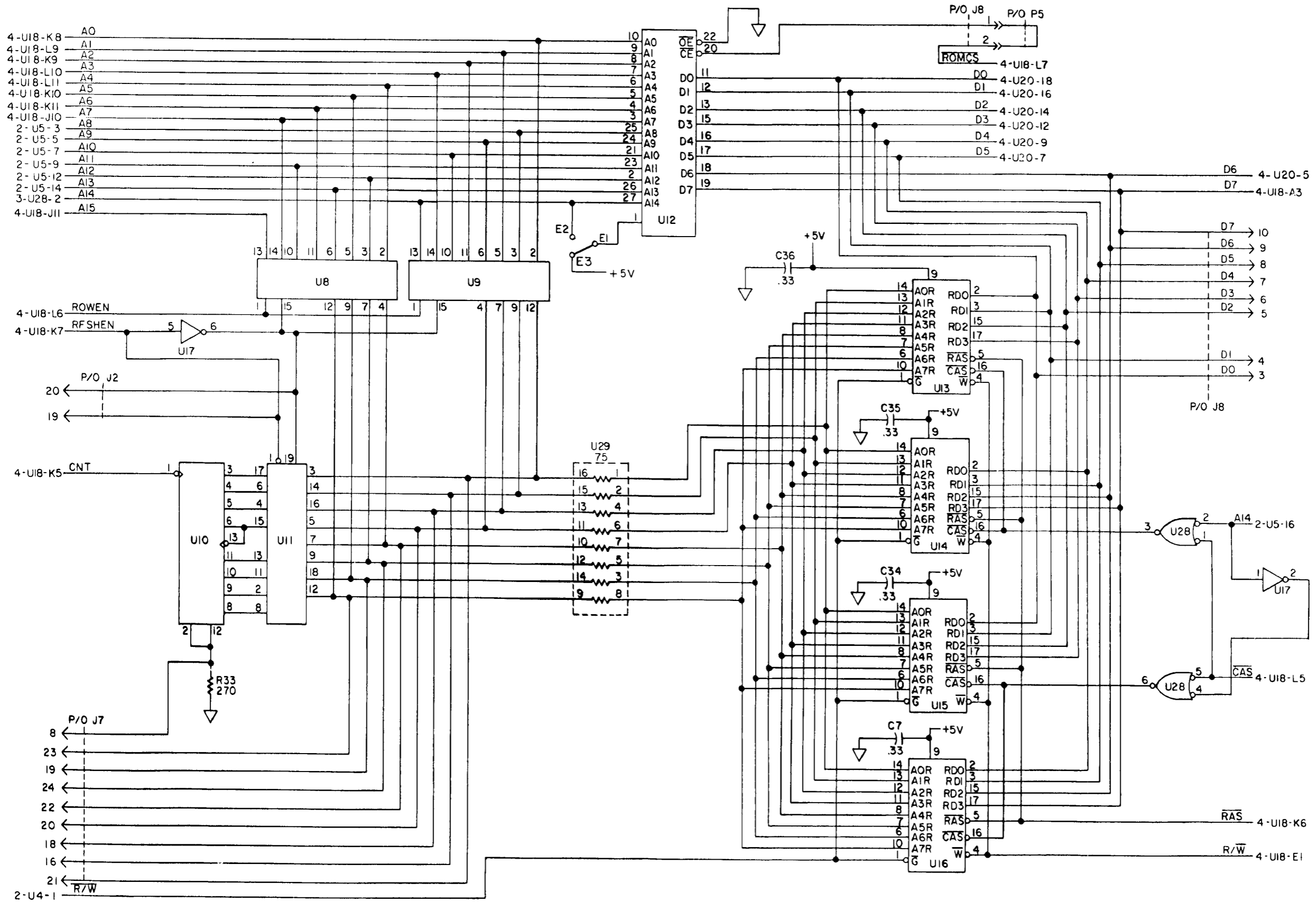


Figure C-2 AM/RC Logic Diagram (2 of 6)

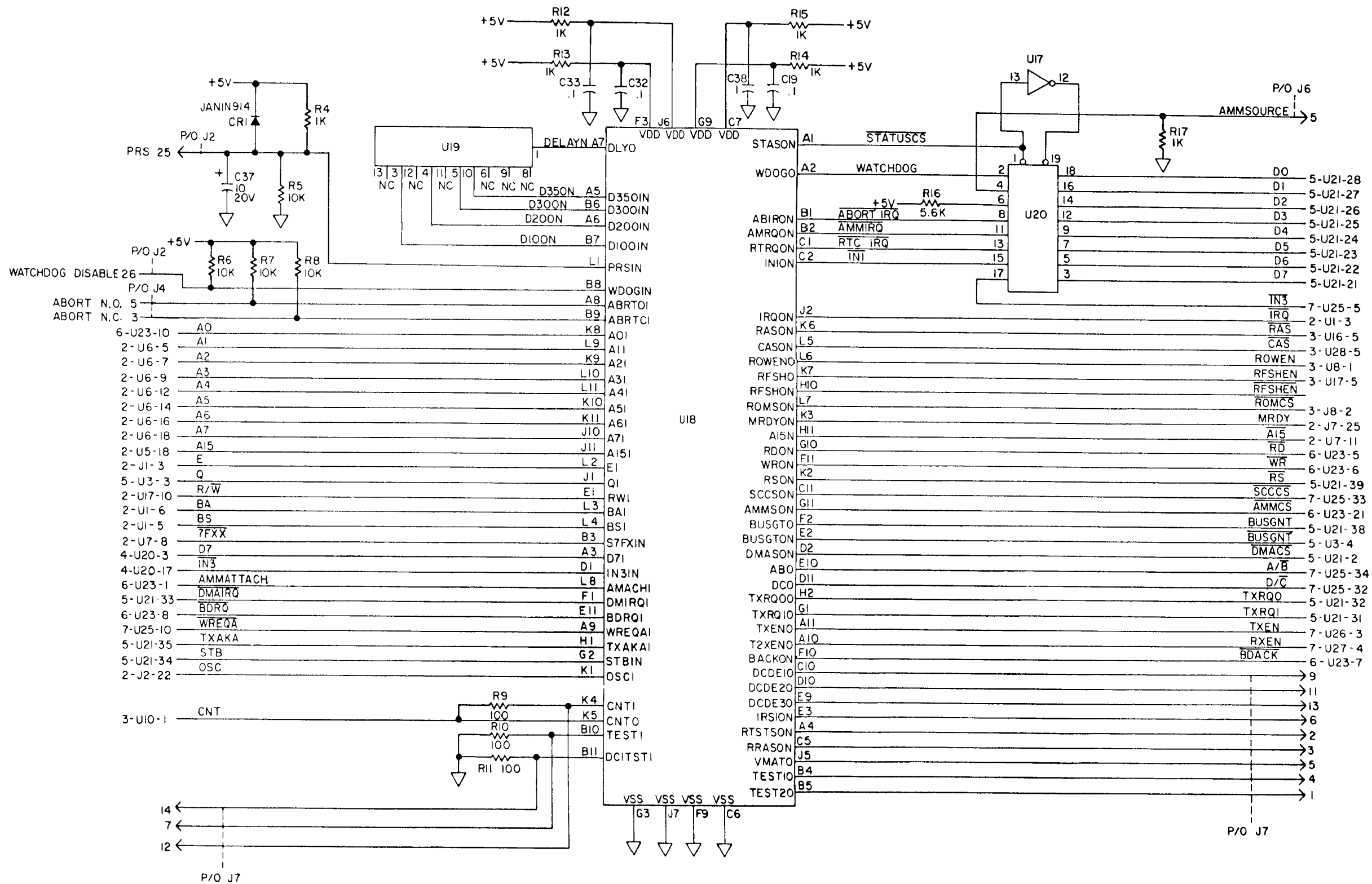


Figure C-2 AM/RC
Logic Diagram (3 of 6)

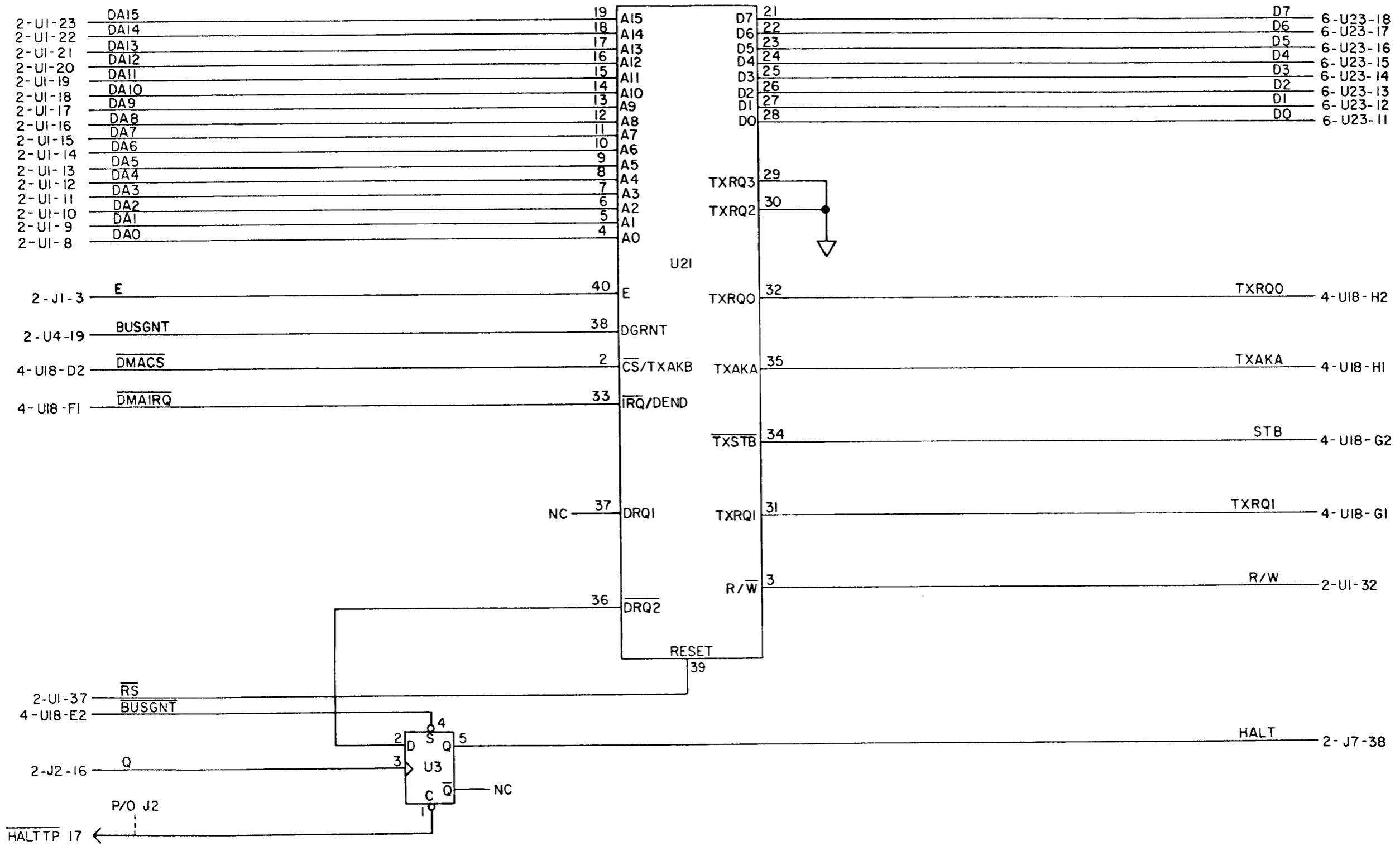


Figure C-2 AM/RC
Logic Diagram (4 of 6)

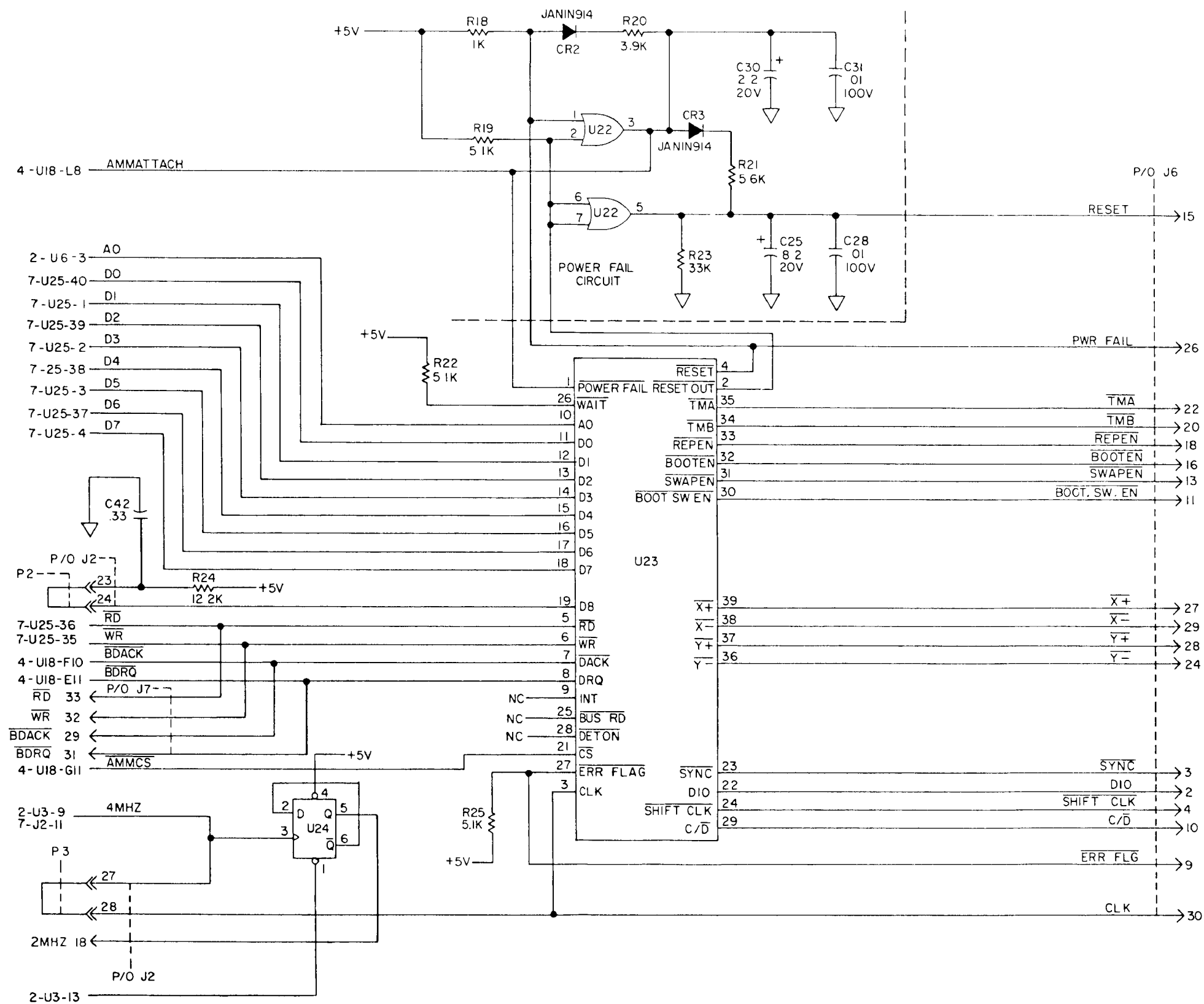


Figure C-2 AM/RC
Logic Diagram (5 of 6)

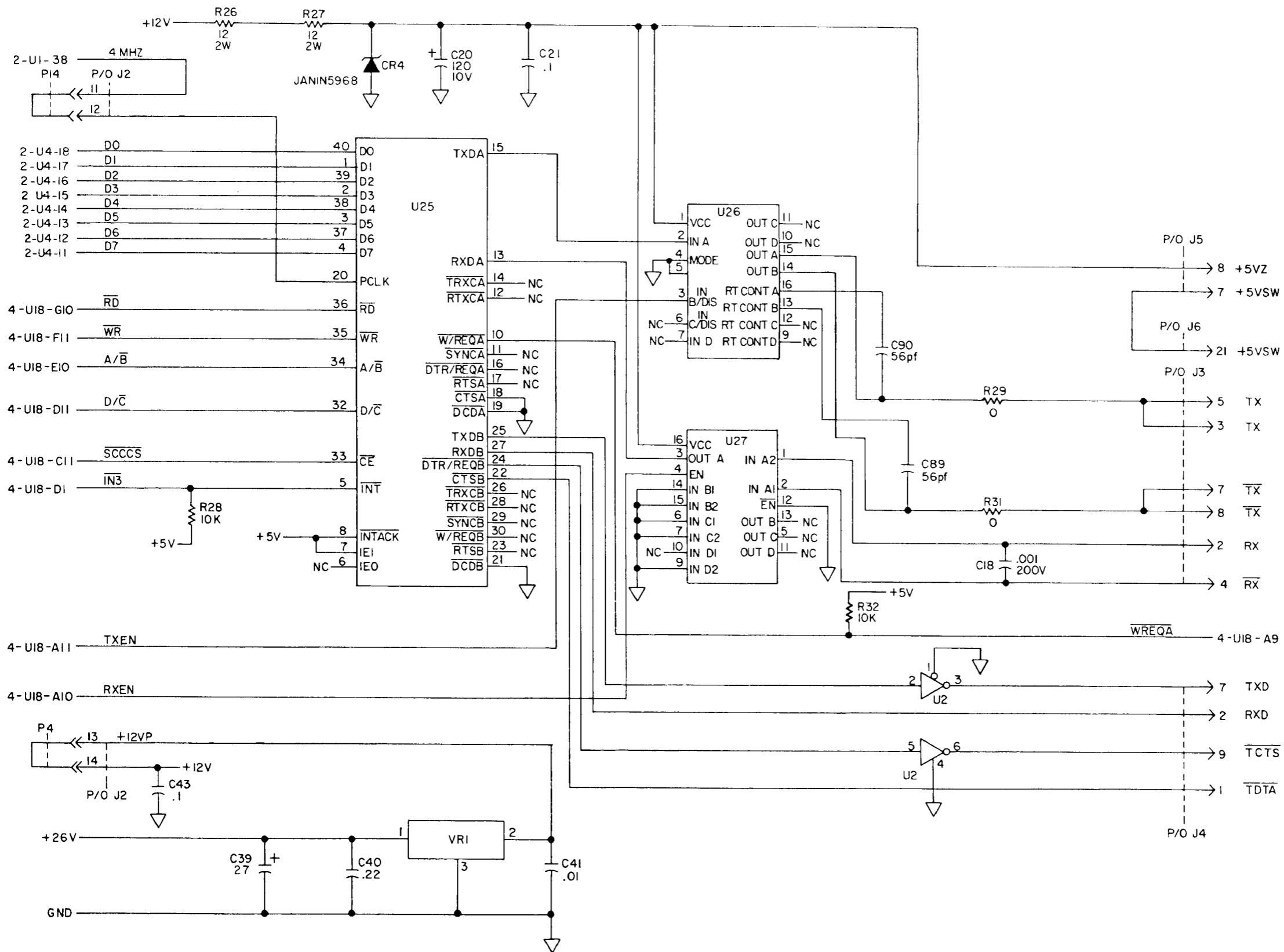


Figure C-2 AM/RC
Logic Diagram (6 of 6)

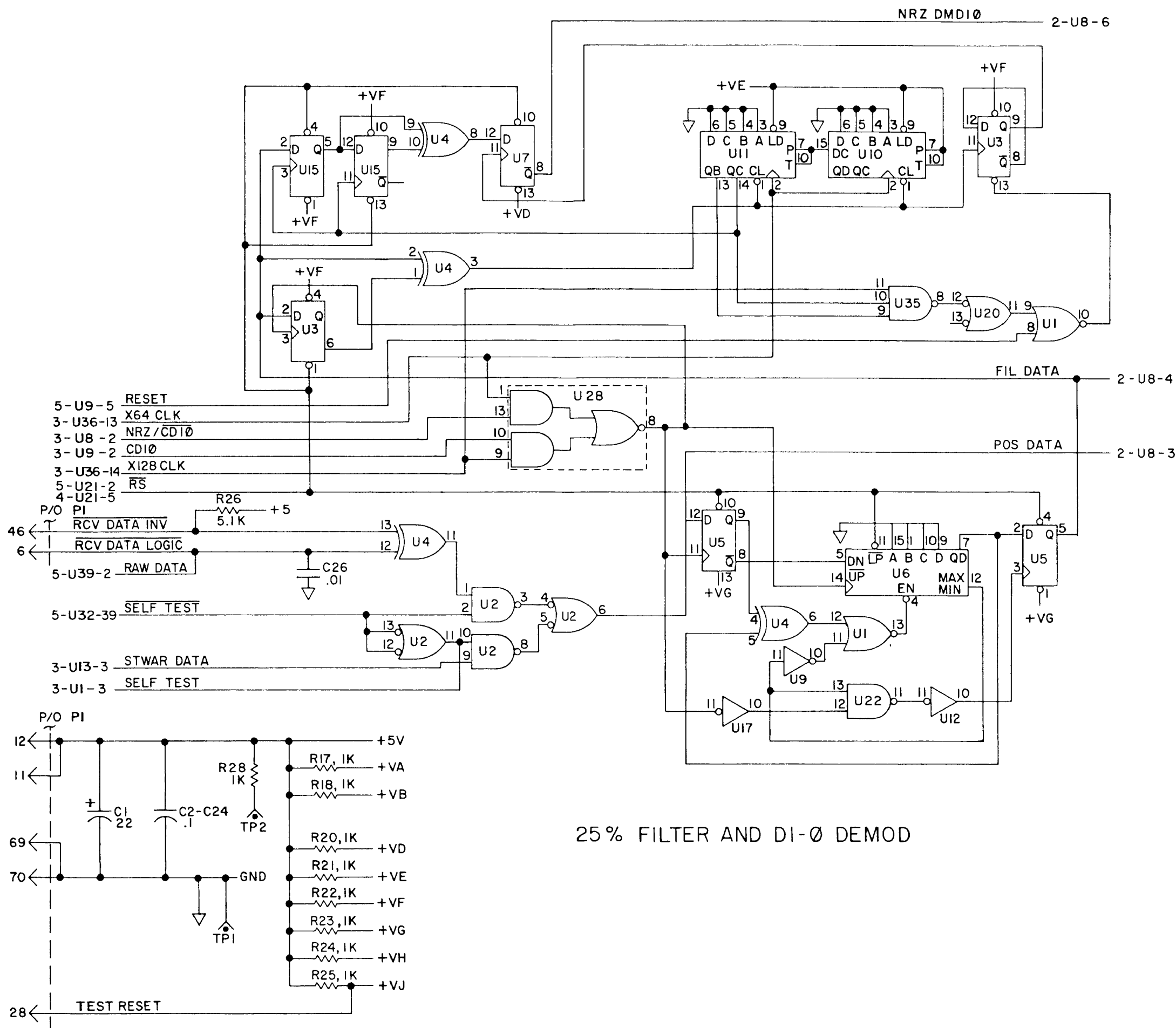


Figure C-3 COMMUNICATIONS
 Logic Diagram (1 of 5)

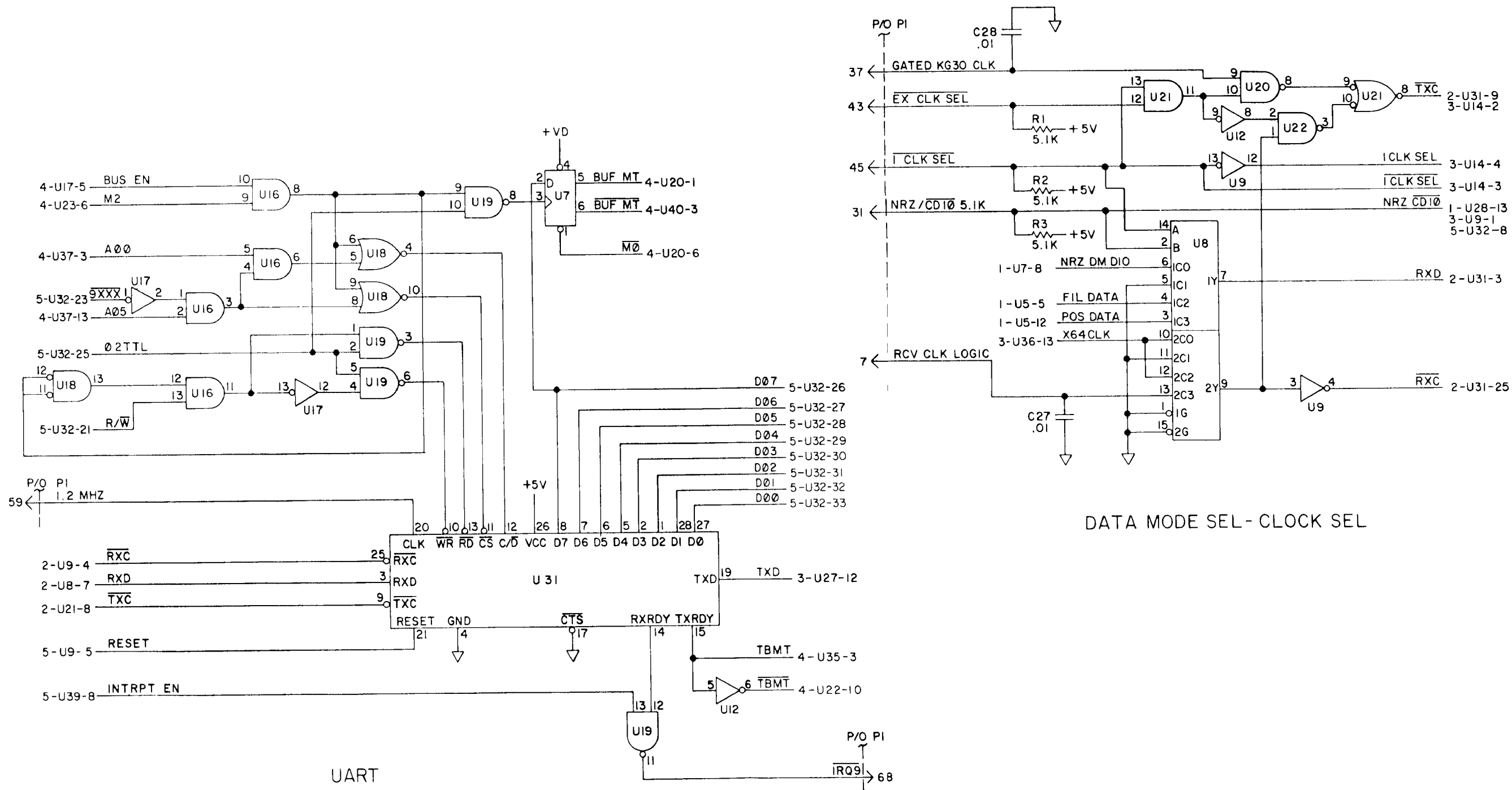
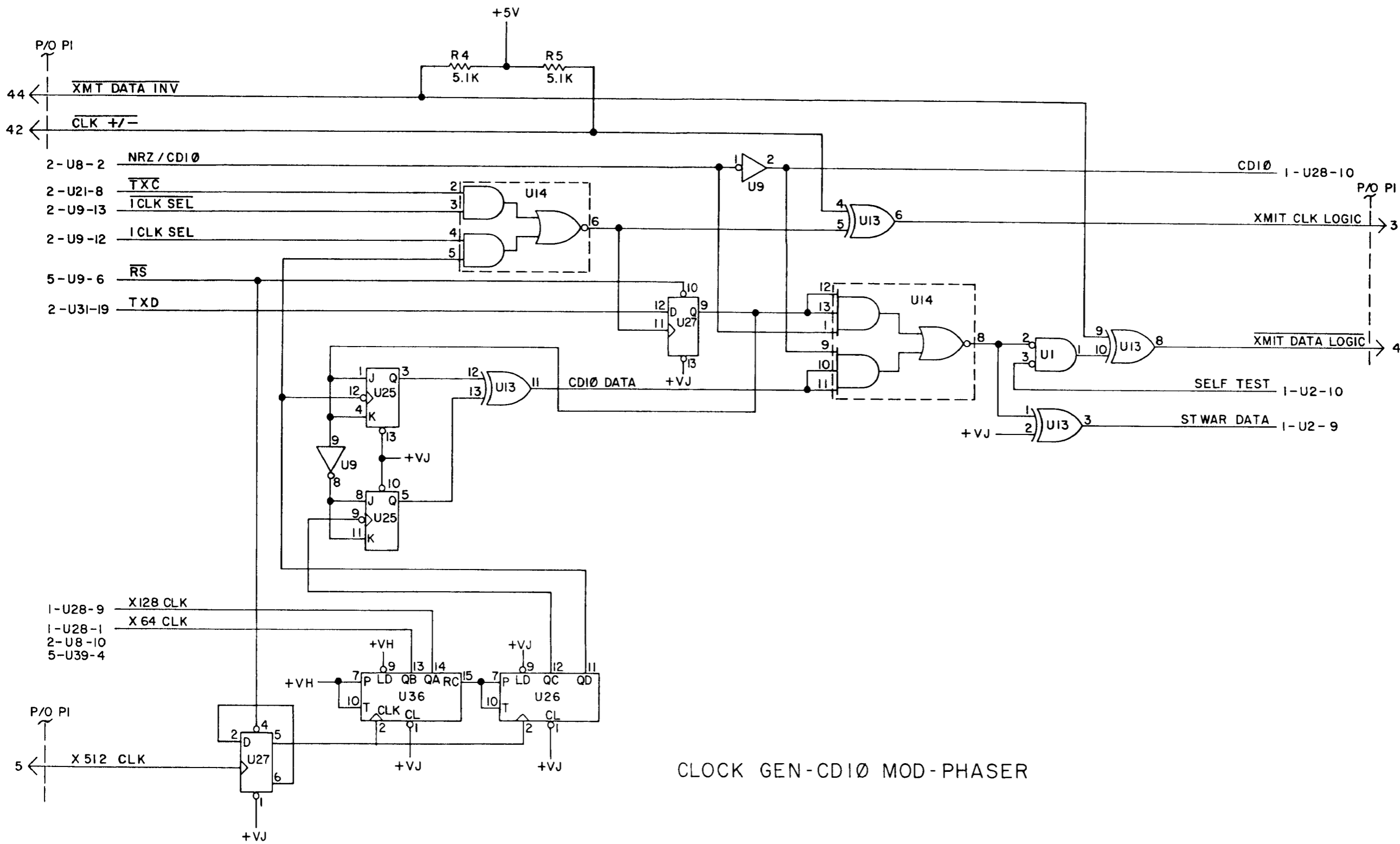


Figure C-3 COMMUNICATIONS
Logic Diagram (2 of 5)



CLOCK GEN-CDI0 MOD-PHASER

Figure C-3 COMMUNICATIONS
Logic Diagram (3 of 5)

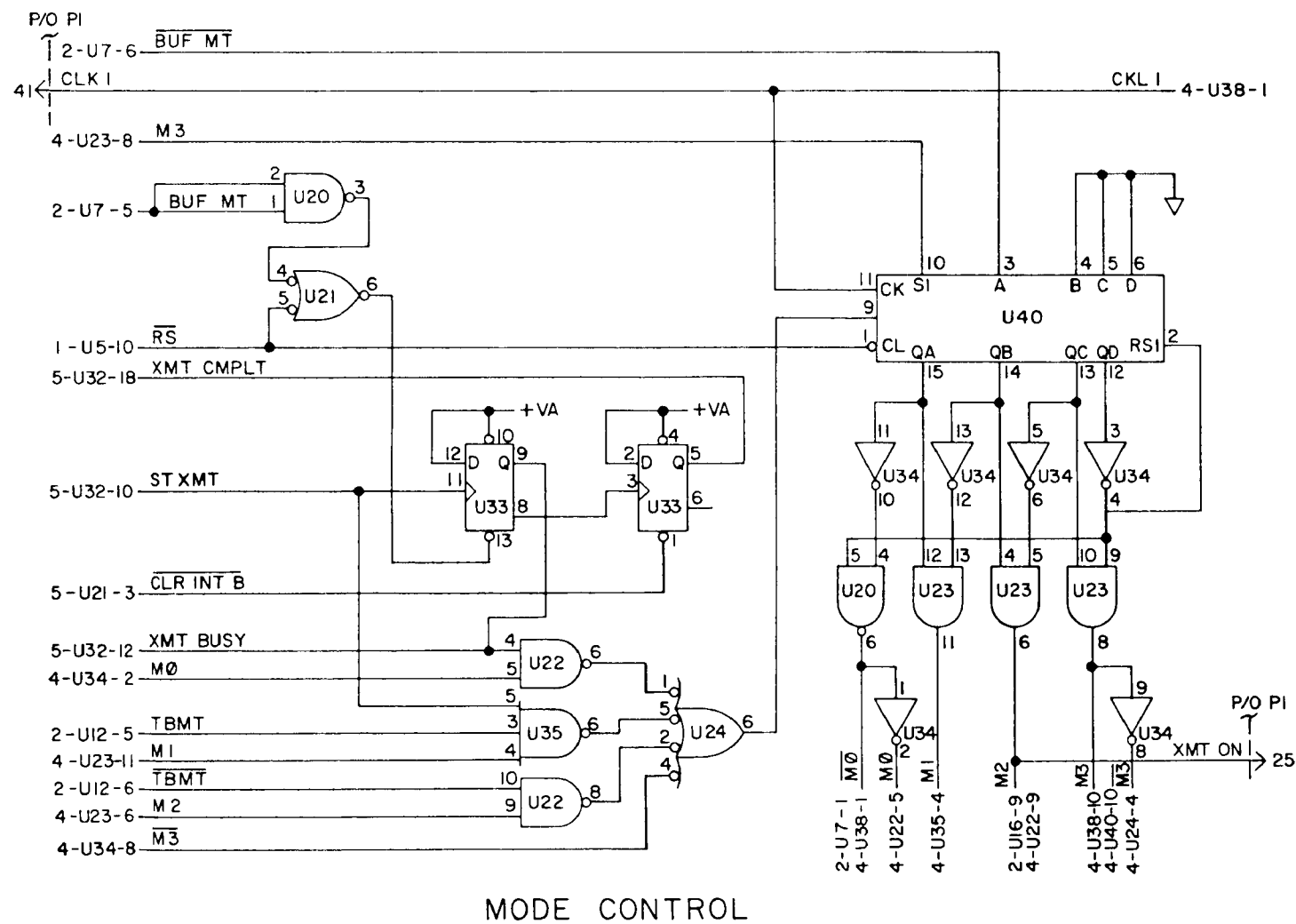
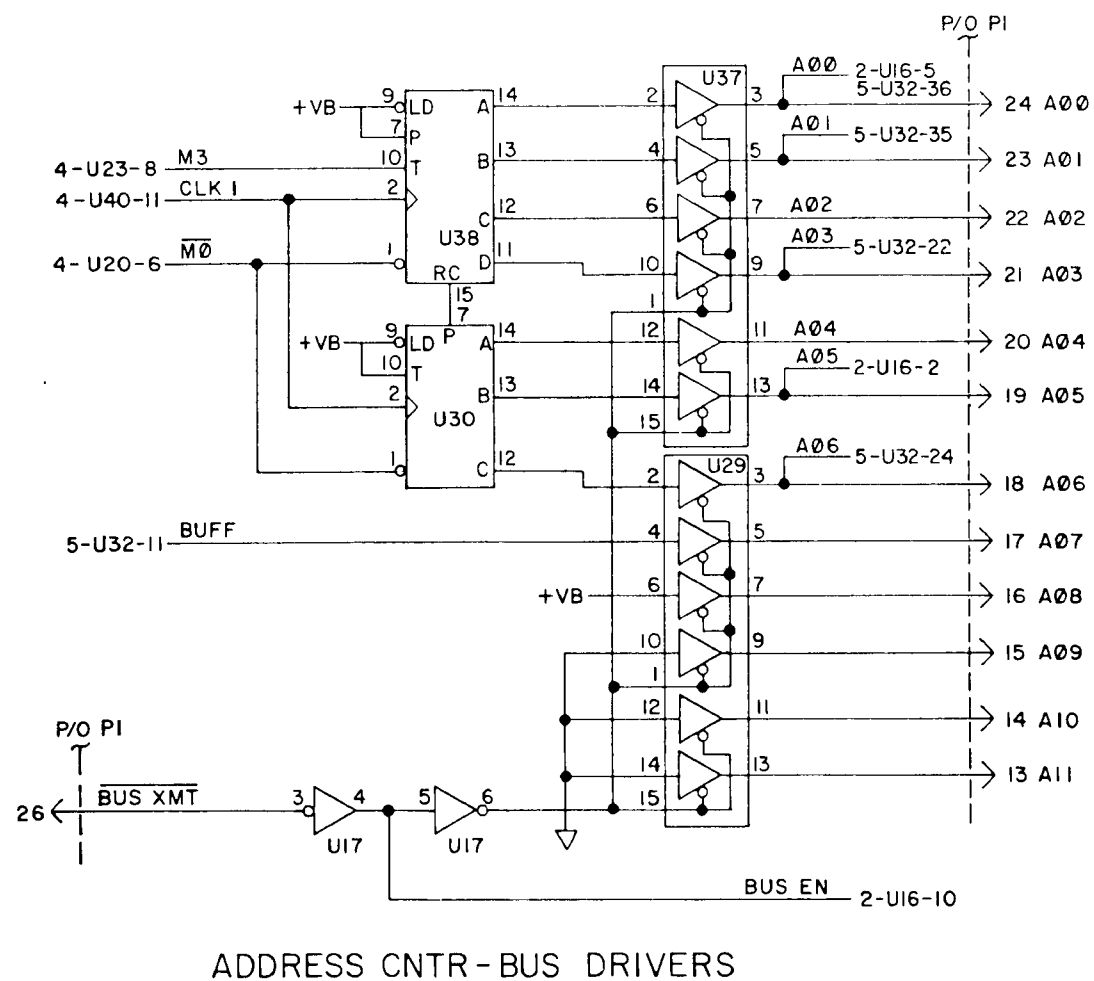
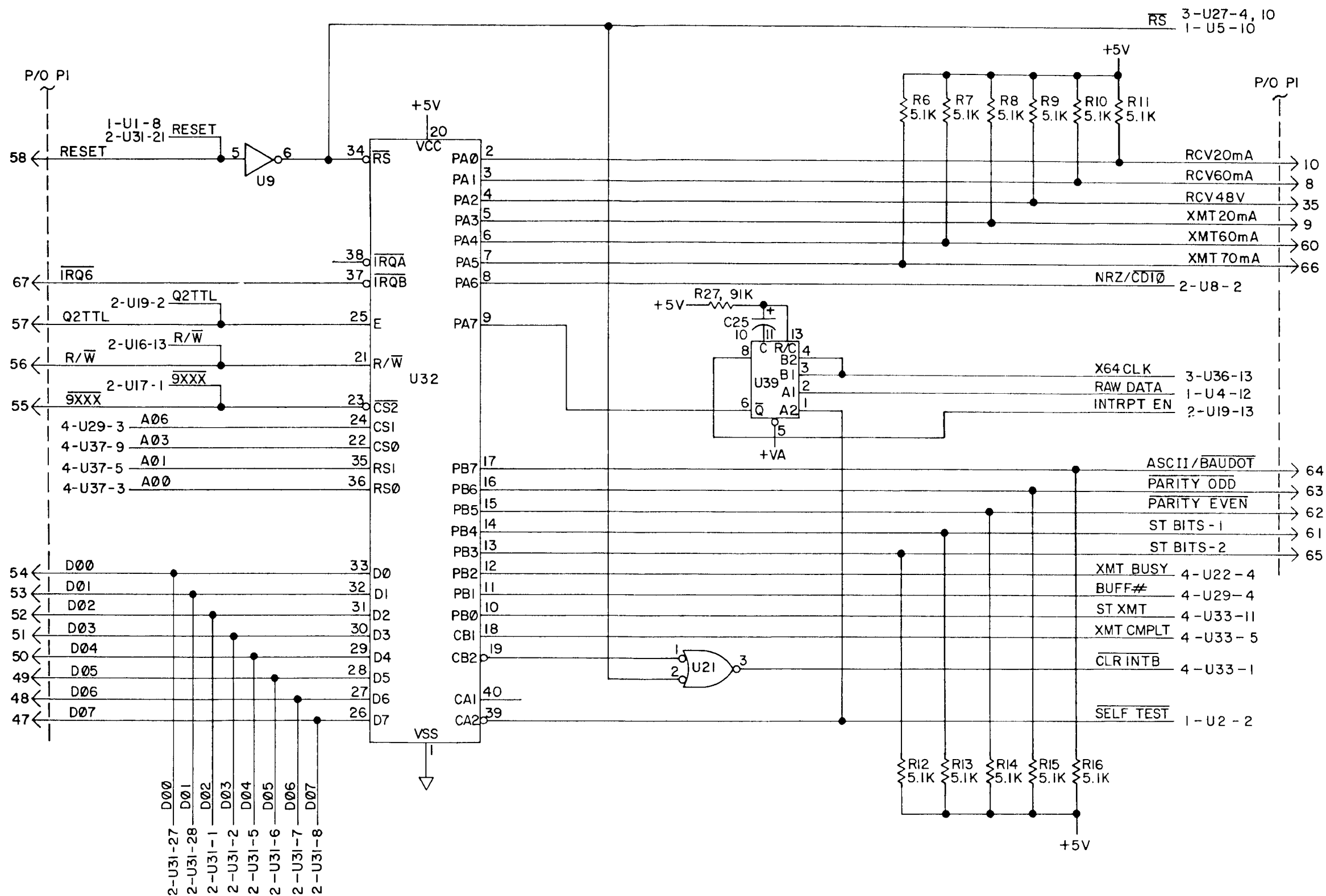


Figure C-3 COMMUNICATIONS
Logic Diagram (4 of 5)



PIA - LINE LAMP

Figure C-3 COMMUNICATIONS
Logic Diagram (5 of 5)

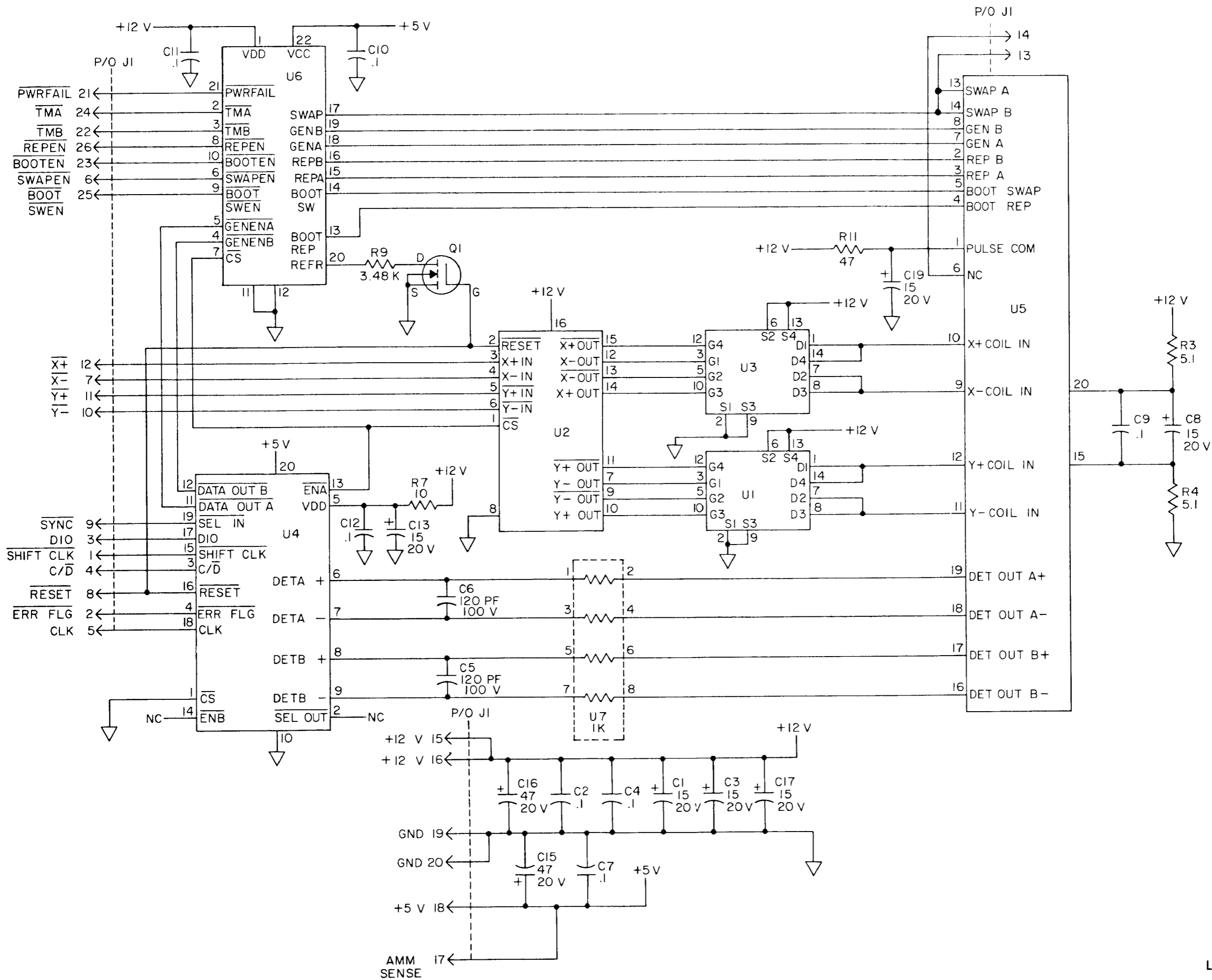


Figure C-4 AMM
Logic Diagram (1 of 1)

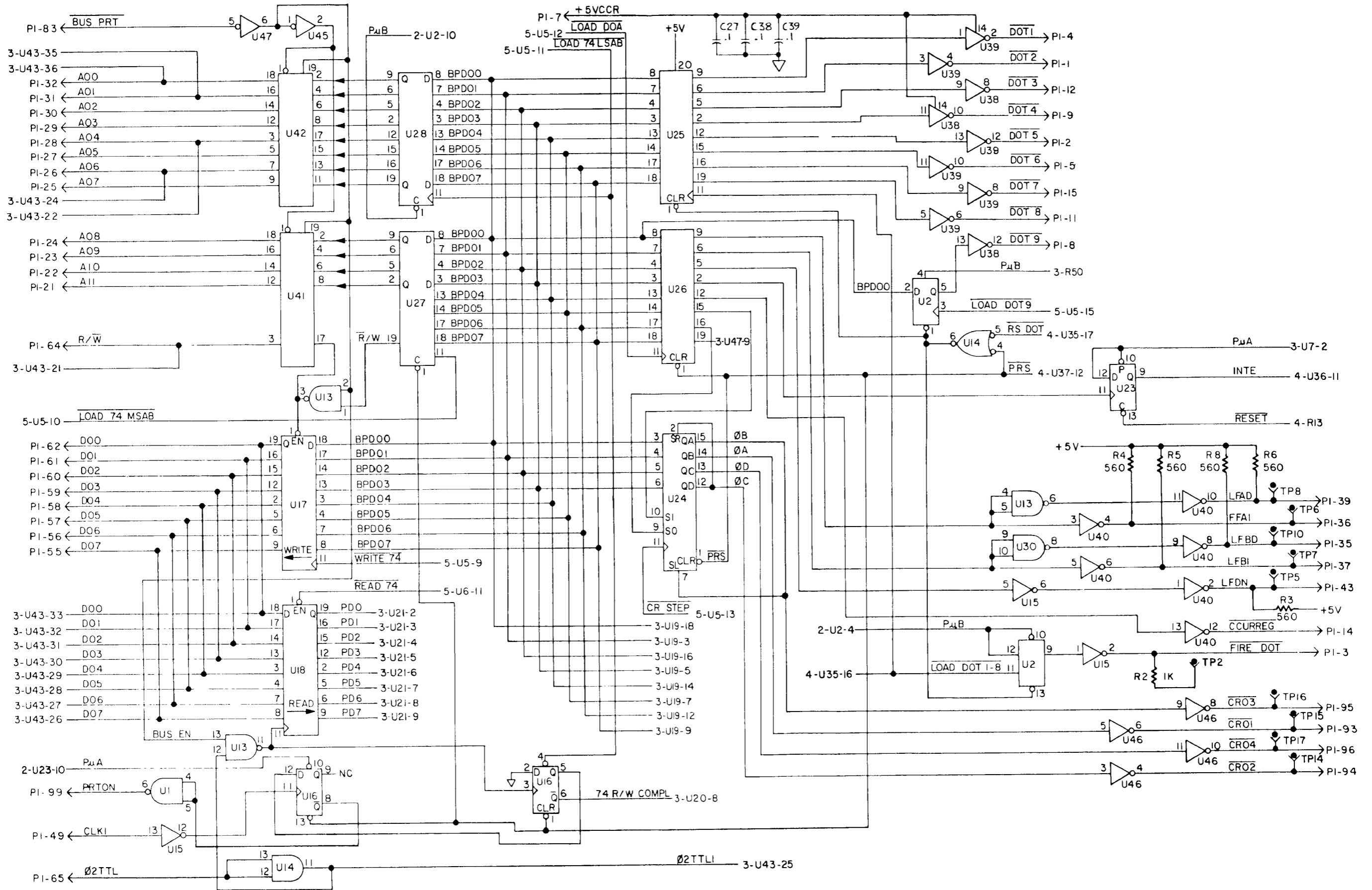


Figure C-5 PRINT CONTROL
Logic Diagram (1 of 4)

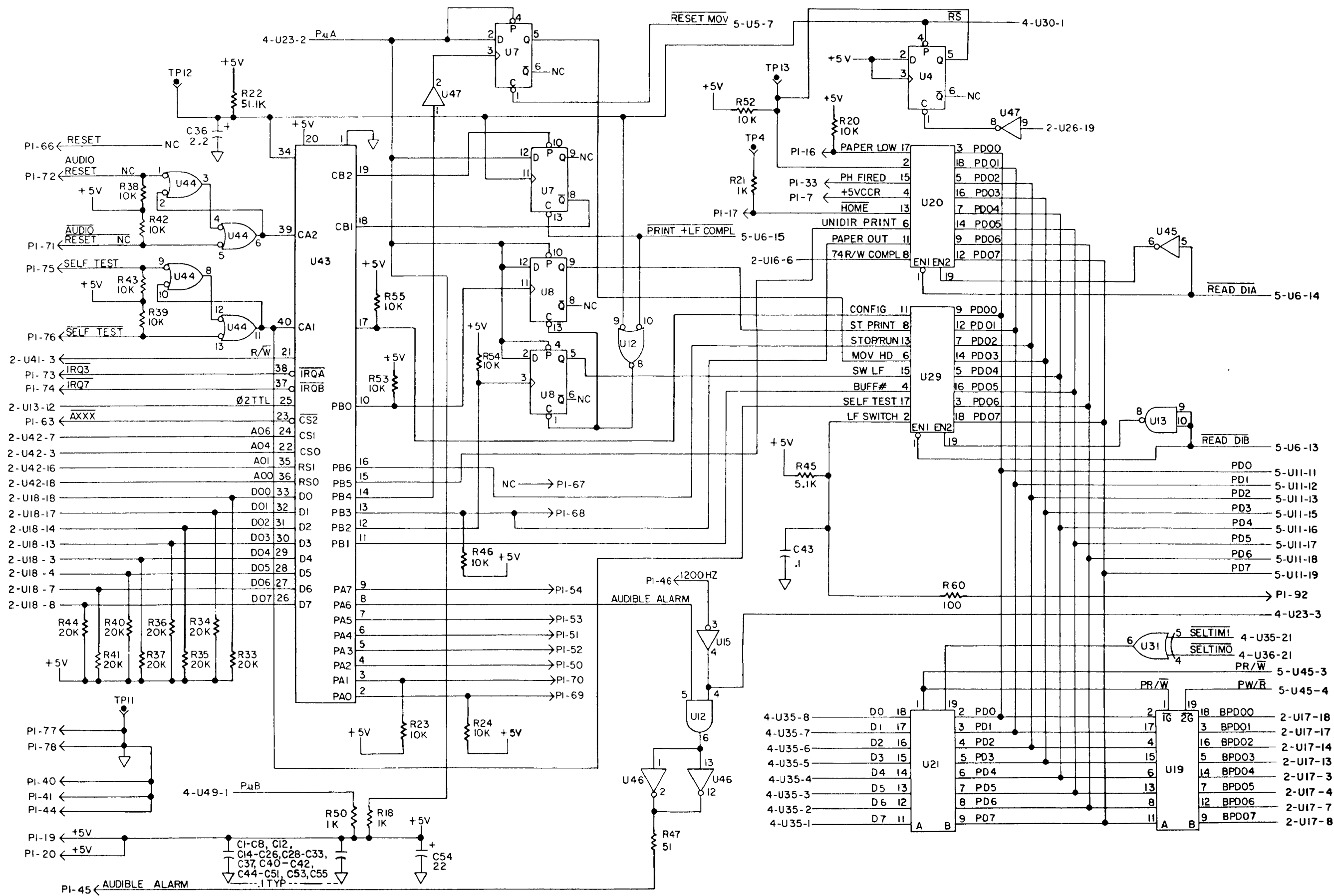


Figure C-5 PRINT CONTROL Logic Diagram (2 of 4)

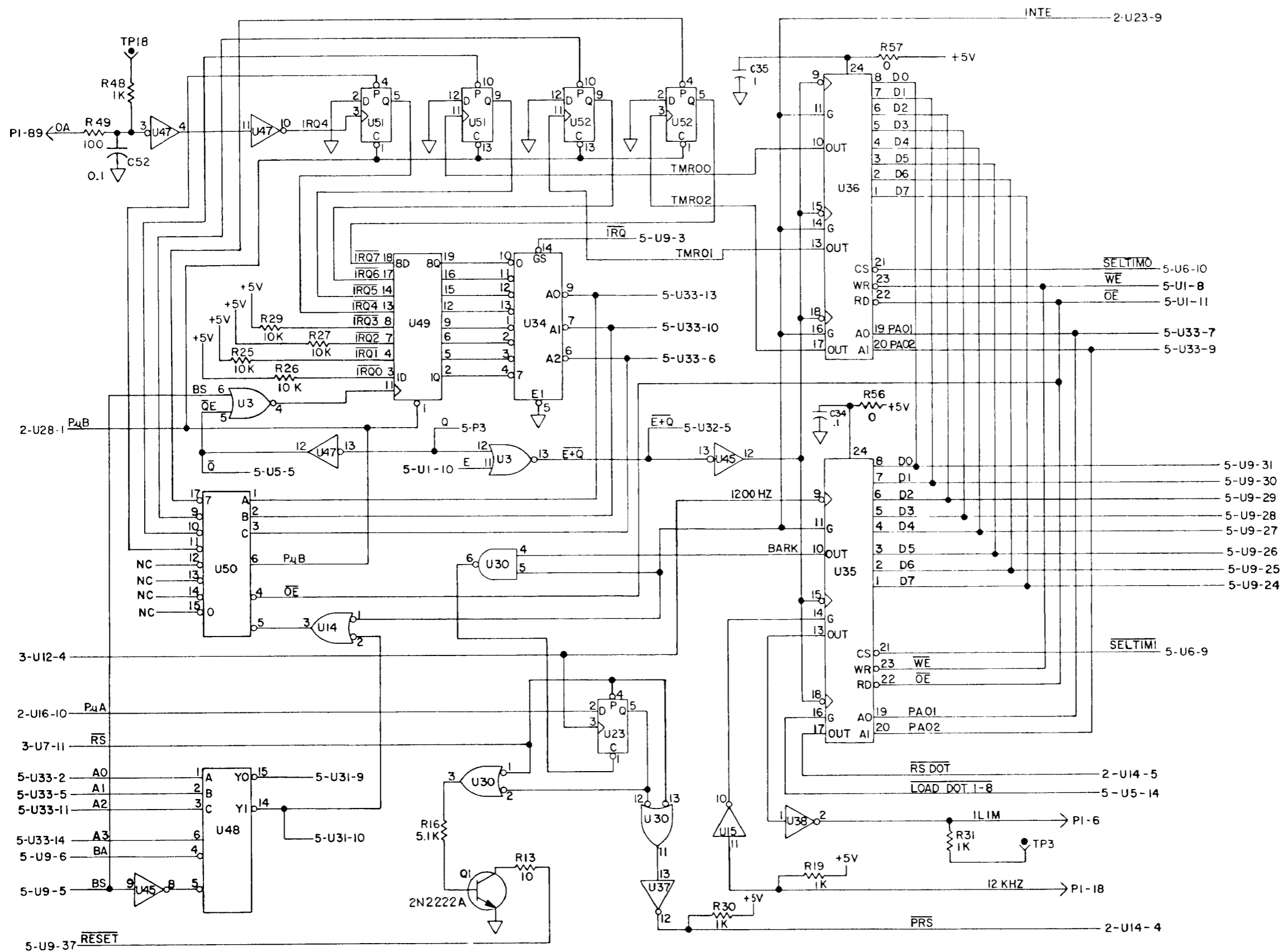


Figure C-5 PRINT CONTROL
Logic Diagram (3 of 4)

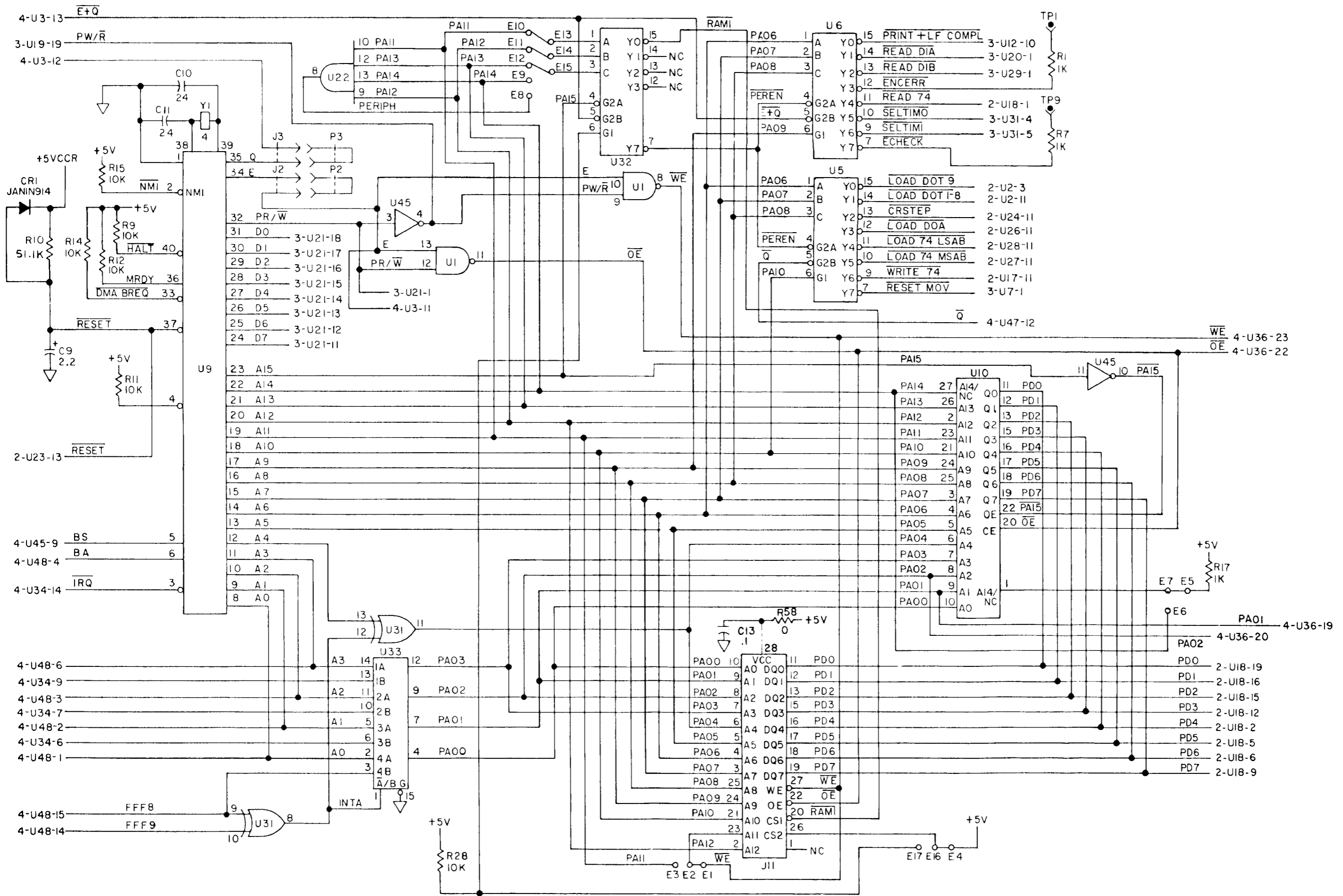


Figure C-5 PRINT CONTROL Logic Diagram (4 of 4)

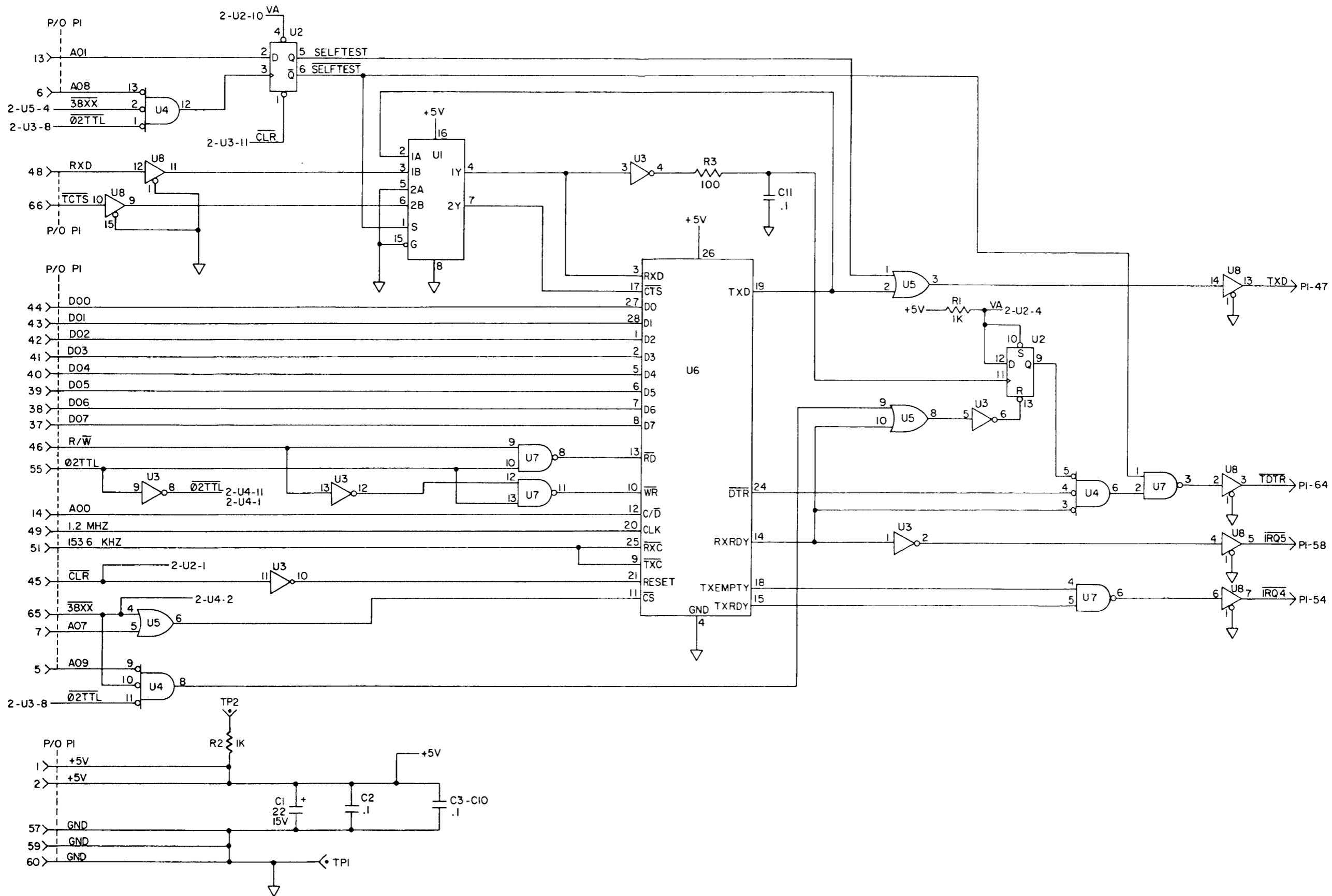


Figure C-6 AUXILIARY INTERFACE
Logic Diagram (1 of 1)

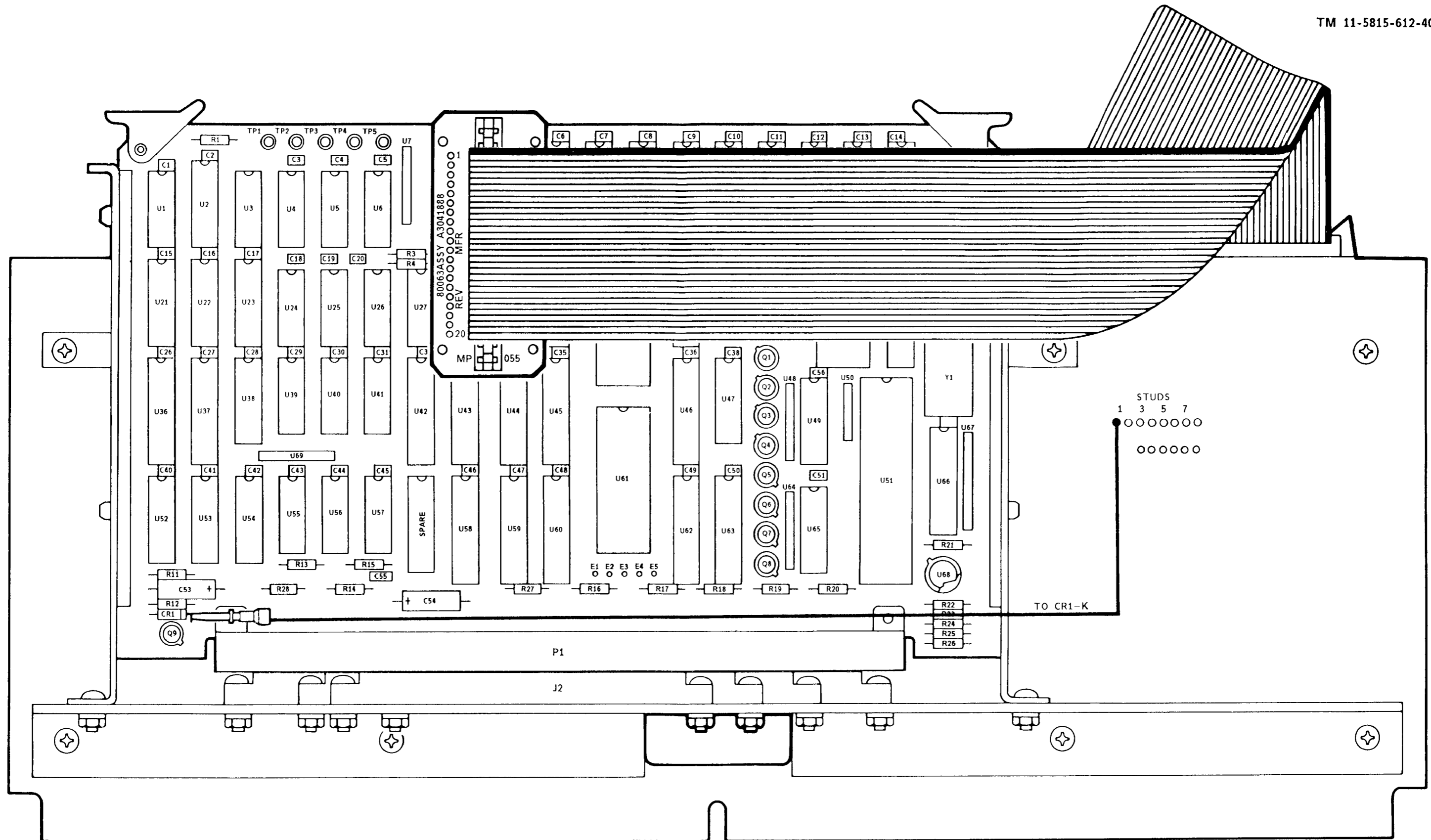


Figure D-1 UNIVERSAL CPU
Test Clip Connection

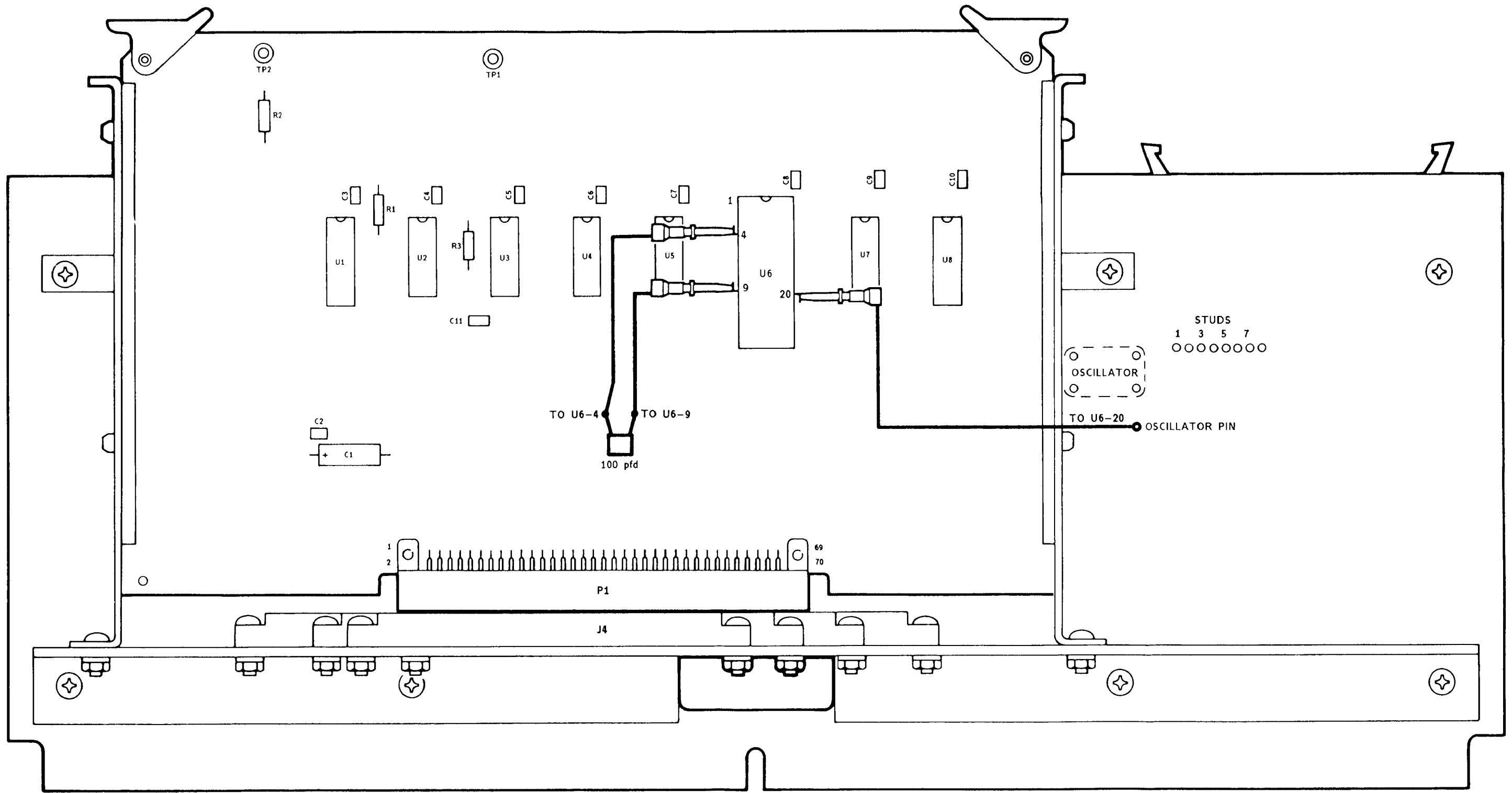


Figure D-2 AUXILIARY INTERFACE
Test Clip Connection

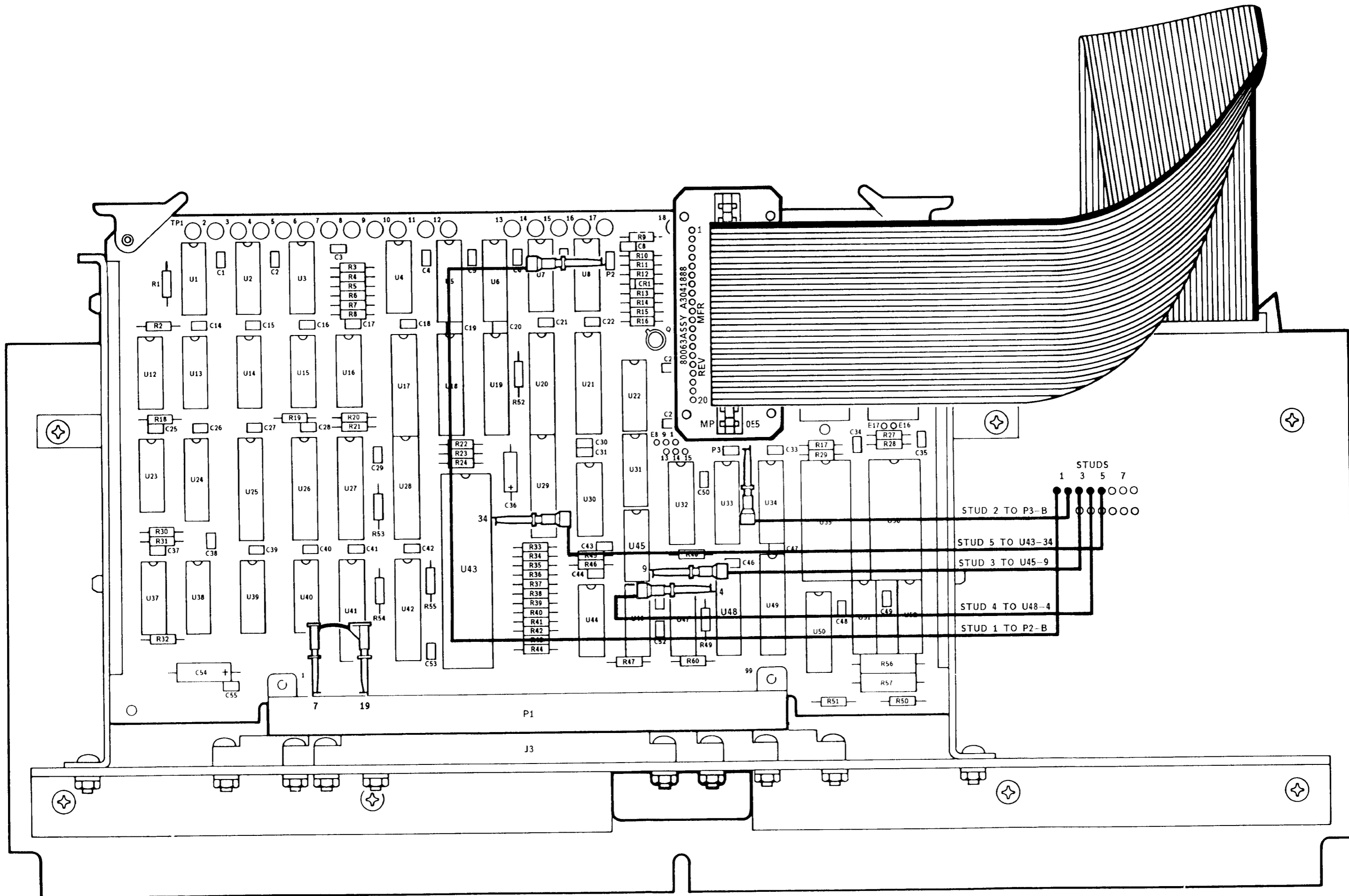


Figure D-3 PRINT CONTROL
Test Clip Connection

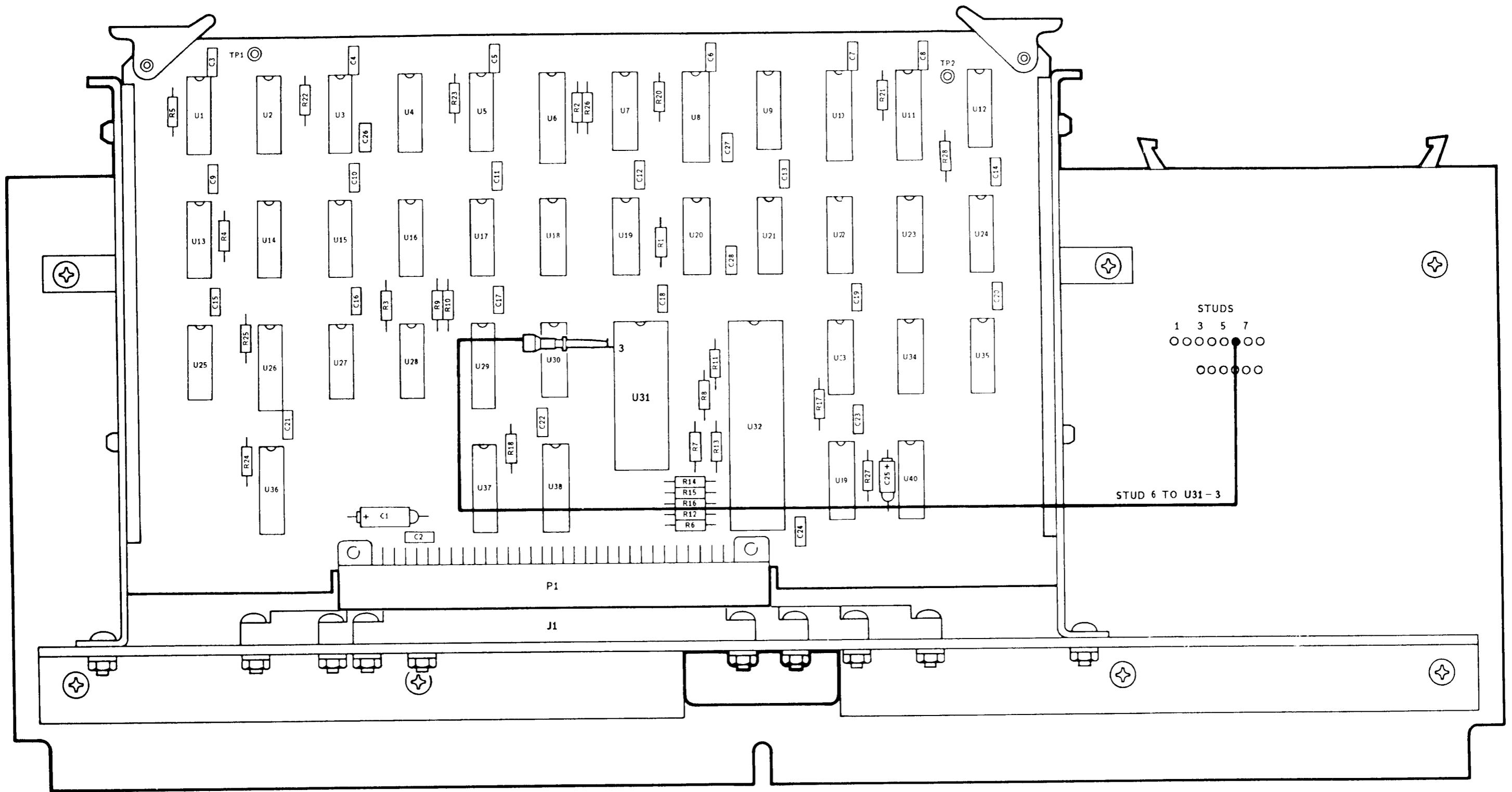


Figure D-4 COMMUNICATIONS
Test Clip Connection

By Order of the Secretaries of the Army and the Marine Corps:

Official:

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General, United States Army
Chief of Staff

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 Stateside, N.J. 07703-5007

DATE SENT 10 July 1975

PUBLICATION NUMBER TM 11-5840-340-12	PUBLICATION DATE 23 Jan 74	PUBLICATION TITLE Radar Set AN/PRC-76
---	-------------------------------	--

BE EXACT. PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
2-25	2-28		
3-10	3-3		3-1
5-6	5-8		
		FO3	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°.

REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.

Item 5, Function column. Change "2 db" to "3db."

REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.

Add new step f.1 to read, "Replace cover plate removed in step e.1, above."

REASON: To replace the cover plate.

Zone C 3. On J1-2, change "+24 VDC to "+5 VDC."

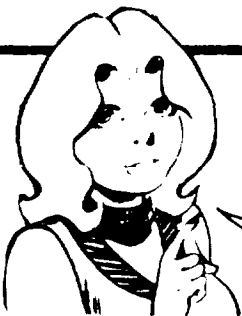
REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

TEAR ALONG PERFORATED LINE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
 SSG I. M. DeSpirito 999-1776

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TM 11-5815-612-40-1

PUBLICATION DATE

1 May 1988

PUBLICATION TITLE **Circuit Card Assemblies & Auxiliary Memory Module for AN/UGC-74B(V)3 and -74C(V)3**

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PARA-GRAPH

FIGURE NO.

TABLE NO.

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TEAR ALONG PERFORATED LINE

THE METRIC SYSTEM AND EQUIVALENTS

WEIGHT MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
 1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
 1 Kilogram = 1000 Grams = 2.2 lb.
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
 1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
 1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
 1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

TEMPERATURE

$5/9(^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
 212° Fahrenheit is equivalent to 100° Celsius
 90° Fahrenheit is equivalent to 32.2° Celsius
 32° Fahrenheit is equivalent to 0° Celsius
 $9/5^{\circ}\text{C} + 32 = ^{\circ}\text{F}$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
its	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
ometers per Liter	Miles per Gallon	2.354
ometers per Hour	Miles per Hour	0.621



PIN: 064040-000