

ARMY
NAVY
AIR FORCE

TM 11-5895-856-34-21
EE640-CA-MMI-210/E154 CPU
TO 31W2-2T-122-21

TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUAL
FOR
CENTRAL, MESSAGE SWITCHING, AUTOMATIC
AN/TYC-39(V)1
AND
CENTRAL OFFICE, TELEPHONE, AUTOMATIC
AN/TTC-39(V)2

AUTOMATIC DATA PROCESSING
ASSEMBLIES

This copy is a reprint which includes current pages from Change\$ 1
--

DEPARTMENTS OF THE ARMY, NAVY, AND AIR FORCE

22 SEPTEMBER 1983

TECHNICAL MANUAL
NO 11-5895-856-34-21
TECHNICAL MANUAL
EE640-CA-MMI-210/E154 CPU
TECHNICAL ORDER
TO 31W2-2T-122-21

DEPARTMENTS OF THE ARMY
THE NAVY, AND
THE AIR FORCE

Washington, DC, 22 September 1983

**DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUAL
FOR
CENTRAL, MESSAGE SWITCHING, AUTOMATIC
AN/TYC-39(V)1
AND
CENTRAL OFFICE, TELEPHONE, AUTOMATIC
AN/TTC-39(V)2**

**AUTOMATIC DATA PROCESSING
ASSEMBLIES**

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 back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN DRSEL-ME-MP, Fort Monmouth, New Jersey 07703.

For Air Force, submit AFTO Form 22 (Technical Order System Publication Improvement Report and Reply) in accordance with paragraph 6-5, Section VI, T O 00-5-1. Forward direct to prime ALC/MST.

For Navy, mail comments to the Commander, Naval Electronics Systems Command, ATTN ELEX 8122, Washington, DC 20360.

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

TABLE OF CONTENTS

VOLUME 21 TM 11-5895-856-34-21

Card Cage Wired - Mass Core Memory Unit, Wire List, String (149304-800)

This volume is part of a 24-volume set covering the direct support and general support maintenance of the automatic data processing assemblies. This volume contains the string wire list for the wired card cage of the mass core memory unit, drawing number 149304-800. Refer to volume 1 of this series (TM 11-5895-856-34-1) for an explanation of how to use this wire list as well as other lists contained in the set.

NOTE

The pages in volumes 2 through 24 of TM 11-5895-856-34 have been numbered in a special manner. Pages within these volumes are found by keying to two page identifiers the drawing number and the page number. To find the page that you desire within the volume, follow the steps listed below:

1. Find the applicable wire run list in the table of contents and note the applicable drawing number.
2. Look through the pages of the volume until you find the particular drawing number of the wire run list that you seek. This will insure that you are in the correct wire run section.
3. Go through these pages until you find the page number you are looking for within this particular wire run list.

Remember, pages in the volumes cited above are found by keying to the drawing number applicable to a particular wire run list, as well as, a page number. Make sure you are on the correct page by checking both page identifiers.

**CARD CAGE, WIRED
- MASS CORE MEMORY UNIT
STRING WIRE LIST
149304-800**

NOTES: UNLESS OTHERWISE SPECIFIED

1. REFERENCE TO SHEET 3 FOR DEFINITION OF FIELDS.
2. REFERENCE TO SHEET 4 FOR CONFIGURATIONS OF SHIELD AND WIRE TERMINATIONS.
3. REFERENCE TO SHEET 5 FOR WIRE CODE DEFINITIONS.
4. REFERENCE TO SHEET 6 FOR WIRE SUMMARY LIST.
5. ALL ABBREVIATIONS PER MIL-STD-12.

H78 STRING AND CONNECTOR LIST, DEFINITION OF FIELDS

1. **Record Number** - A unique Data Processing number which associates all information pertaining to a wire "FROM" Connector, "TO" Connector, Wire Code. etc. This number is the wire ID when that field is blank.
2. **Prefix** - An assembly alphanumeric to be used when a wire terminates in two assemblies. This number will be the reference designation as required by USAS Y32.16-1968.
3. **Connector** - Any type of terminating point plug, receptacle, etc. Designations are in accordance with USAS Y32.16-1968.
4. **Pin** - Exact terminating point of the respective connector. Designations are unique:
 - A. SHXXXX indicates the junction of a shield and a pigtail the four digits to the right are the wire identity of the shielded wire.
 - B. JCT indicates a common point of two or more shield pigtails.
 - C. Jacket: the terminology used when describing the line that defines the identification of a shielded wire.
5. **Sh Fg** - References a graphic representation showing how a shielded wire or coax is to be terminated. A number in this field indicates the level of automatic wire wrapping.
6. **Multi Group** - Associates wires of a group such as "twisted wire" or "shielded wire". Jacket, pigtails and center conductors will be shown as a common group.
7. **Wire Code** - A three-digit code for wire type and gage or bus bar
8. **Wire Color** - Standard RETMA color code.
 - A. Base Stripe Tracer.
 - B. Stripe, Tracer 1 and Tracer 2 If the digit to the left is other than 9 and the two positions to the right are not blank and not equal. The Base Color is understood to be white.
9. **Wire Ident** - A number used for reference to differentiate one wire from another. This number will be used to identify the wire when specified In the wire list sleeve code field.
10. **Spc Inst** - A code which indicates that a wire must be given special attention as follows:
 - A. Direct routing, no service loops, no harnessing.
 - B. See general notes or instruction pages.
 - C. See general notes or instruction pages.
 - D. See general notes or instruction pages.
 - E. See general notes or instruction pages.
 - F. See signal description.
 - G. This connection does not go directly to the "TO" connector, but intersects a line going to the "TO" connector.
 - H. See special routing page.
 - I. Junction point for multilayer laminated board (MLB) connection.
 - J. Denotes a bus reference point.
 - K. Blank out "TO" connector and pin.
 - L. Will cause a signal name of three characters or less to be entered in the string list.
 - M. Will cause a record to be omitted from the string list. (This record will print In the connector list).
 - N. Will suppress printing the wire identity in the harness string and double entry list.
 - P. Will cause the equation to be used as the signal name for sorting purposes only in the string list.

H78 STRING AND CONNECTOR LIST, DEFINITION OF FIELDS - Continued

- Q. Will cause an equation record to be omitted from logic listing.
- R. Will suppress printing the "FROM/TO" pin number In the string and connector lists.
- S. Do not move record number to the ident field for an ADD transaction in the harness string and double entry only. (Use only when adding a file).
- T. Twist wire code.
- U. Not available.
- V. See general notes or instruction pages.
- W. Fixed wire length submitted.
- X. Sequence of string is to be left as is.
- Y. See general notes or instruction pages.
- Z. Will suppress printing of the "FROM" pin.

10. **Misc** - Unless otherwise noted the number 1 indicates a pre-wired connector.

11. **Signal** - An alphanumeric signal name mnemonic where feasible, which identifies one specific function from another.

SPP - Denotes an available termination.

SPF - Denotes an unwired termination which has an assigned function.

SPW - Denotes a non-functional wire which is terminated at one or both ends.

SPO - Denotes a spare output of a circuit.

DNW - Indicates that a termination may not be wired.

SPA - Denotes an unassigned circuit as one of a group on a printed circuit board.

SPI - Denotes a spare input of a circuit.

SPG - Denotes an unassigned logic gate, as one of a group on a printed circuit board.

SPR - Denotes a spare resistor.

SPD - Denotes an unassigned input diode of an assigned logic gate.

12. **Seq No** - A number which, In conjunction with SIGNAL, allows a signal string to be consistently printed in a given order.

13. **Equation** -- A mnemonic name assigned to each gate of an element.

14. **Term** -- An "OR" function composed of one or more factors.

15. **Factor** - A specific input to a logical gate (or active element.

16. **Ckt or Chip Type** - Denotes a specific circuit board type.

17. **Group** - Denotes a specific circuit on a printed circuit board.

18. **Load or Power Plane** - Denotes the current draw In milliamps by a specific circuit or voltage.

19. **AND Test Point** - Denotes the input test point for a specific circuit on a printed circuit board.

20. **OR Test Point** - Denotes the output test point for a specific circuit on a circuit board.

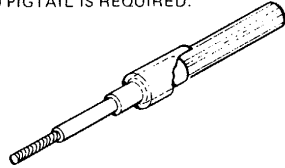
21. **Signal Description** - A written description or name of a signal or voltage.

22. **ECO No.** - A letter number combination to show the Engineering Change Order level of that particular wire list record.

Drawing No
149304-800
Rev G, sheet 3

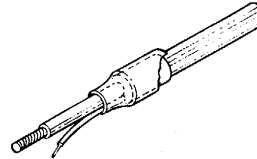
SHIELD FIGURE A

SHIELD TERMINATION FOR SHIELDED,
SINGLE AND MULTIPLE CONDUCTORS,
NO PIGTAIL IS REQUIRED.



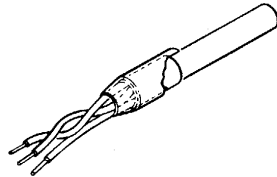
SHIELD FIGURE B

SHIELD TERMINATION FOR SHIELDED,
SINGLE AND MULTIPLE CONDUCTORS,
FRONT PIGTAIL IS REQUIRED.



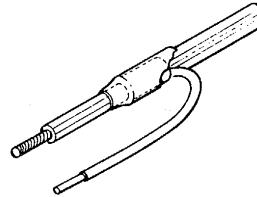
SHIELD FIGURE G

SHIELDED CABLE TERMINATION WITH DRAIN WIRE



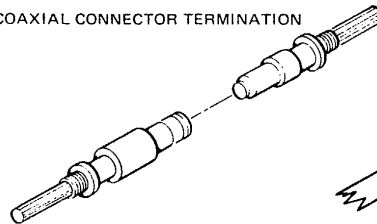
SHIELD FIGURE C

SHIELD TERMINATION FOR SHIELDED,
SINGLE AND MULTIPLE CONDUCTORS,
A REAR PIGTAIL IS REQUIRED.



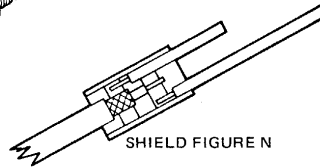
SHIELD FIGURE Z

COAXIAL CONNECTOR TERMINATION



SHIELD FIGURE N

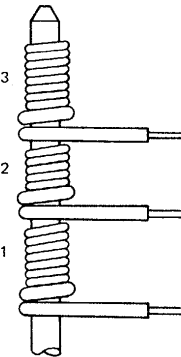
TRANSITION DEVICE WITH
SOLID WIRE PIGTAILS



SHIELD FIGURE NO. 3

SHIELD FIGURE NO. 2

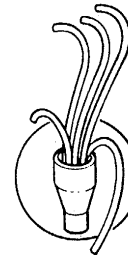
SHIELD FIGURE NO. 1



SHIELD FIGURE NUMBER
INDICATES LEVEL OF WIRE WRAP

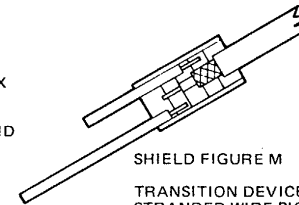
SHIELD FIGURE X

SHIELDED WIRE
PIGTAILS—HYBRID



SHIELD FIGURE M

TRANSITION DEVICE WITH
STRANDED WIRE PIGTAILS



Drawing No.
149304-800
Rev. G, sheet 4

WIRE CODE DEFINITION			WIRE CODE DEFINITION		
	X	X		X	X
Type	Description	AWG	Type	Description	AWG
1 = Polyvinylidene Fluoride (PVF) (Kynar)	1 = Buss Wire	A = 32	*F = MIL-C-17/94 (formerly MIL-C-17/68)	F = Tw Pr, Shielded	R = 2
2 = Teflon ET	2 = High Voltage	B = 30	*G = 898008-2	G = Tw Tpl, Stranded	S = 1
3 = Teflon E	3 =	C = 28	*H = 898008-1	H = Tw Tpl, Solid	T = 0
4 = Teflon EE	4 =	D = 26	*J = MIL-C-17/29	J = Tw Tpl, Shielded	U = 00
5 = Fluorinated Ethylene Propylene (FEP), Type K	5 = Integral Lead	E = 24	*K = MIL-C-17/30	K = Tw Quadr, Stranded	V = 000
6 = FEP, Type KT	6 = Auto Wire Wrap	F = 22	*L = MIL-C-17/79	L = Tw Quadr, Solid	W = 0000
7 = Special Condition	7 =	G = 20	*M = MIL-C-17/74	M = Tw Quadr, Shielded	X = Coax
8 = Polyvinyl Chloride (PVC) with Nylon Jacket, Type D	8 =	H = 18	*N = MIL-C-17/86	N = Tw Six Conductor, Stranded	Y =
9 = MIL-W-81044/12	9 =	I = 16	*P = MIL-C-17/28	P =	Z =
0 = Buss or Integral	0 = Special	J = 14	*R = 898008-4	R =	1 =
A = PVC without Jacket, Type B	A = Single Stranded	K = 12	*S = MIL-C-17/6	S =	2 =
B = PVC with Jacket	B = Single Solid	L = 10	*T = 898059-0001	T =	3 =
C = MIL-W-22759/1	C = Single Shielded	M = 8	U = 898017-1	U =	4 =
D = MIL-W-5086/1	D = Tw Pr, Stranded	N = 6	V = 898017-2	V =	5 =
E = MIL-W-5086/2	E = Tw Pr, Solid	P = 4	W = 898007-1 thru -4	W = 70 Ohm Coax	6 =
			X = 898004, Type B	X = 50 Ohm Coax	7 =
			Y = 898004, Type D	Y = 75 Ohm Coax	8 =
			*Z = MIL-C-17/94	Z = 95 Ohm Coax	9 = Spcl
			*I = MIL-C-17/118		0 = Int Lead

NOTES: *1. Coax.

- The word "BAR" in the Code Field indicates an electromechanical connection made possible by buss strips. Printed circuitry or power/ground planes will be coded "BUS" in the Code Field if required

Drawing No
149304-800
Rev G, sheet 5

WIRE SUMMARY LIST				CODE IDENT:	DRAWING NUMBER:	REVISION:
				13973	149304-800	G
TITLE: CARD CAGE WIRED, MCU				PROJECT: T39A FILE: MCMU		SHEET: 6
ITEM NUM.	PART NUMBER	MIL. NUMBER	NOMENCLATURE OR DESCRIPTION	REF SYM	TIMES USED	WIRE CODE
1.	898041-0002	MIL-W-81822/3-B	WIRE,ELEC,250V,PVF INSUL,SOLID CNDCT. 30 GAGE (WHITE)		11	1BB
2.	898042-0004	MIL-W-81822/3-B	WIRE,ELEC,250V,PVF INSUL,SOLID CNDCT. 26 GAGE (RED)		348	1BD
3.	898042-0002	MIL-W-81822/3-B	WIRE,ELEC,250V,PVF INSUL,SOLID CNDCT. 26 GAGE (WHITE)		7	1BD
4.	898042-0003	MIL-W-81822/3-B	WIRE,ELEC,250V,PVF INSUL,SOLID CNDCT. 26 GAGE (BLACK)		12	1BD
5.	898042-0005	MIL-W-81822/3-B	WIRE,ELEC,250V,PVF INSUL,SOLID CNDCT. 26 GAGE (VIOLET)		73	1BD
6.	898041-0023	MIL-W-81822/3-B	CABLE,ELEC,TW. SOLID TWO CNDCT,250V,PVF INSUL 30 GAGE (BLACK WHITE)		111	1EB
7.	898042-0034	MIL-W-81822/3-B	CABLE,ELEC,TW. SOLID TWO CNDCT,250V,PVF INSUL 26 GAGE (BLACK RED)		15	1ED
8.	898042-0023	MIL-W-81822/3-B	CABLE,ELEC,TW. SOLID TWO CNDCT,250V,PVF INSUL 26 GAGE (BLACK WHITE)		4	1ED
9.	898041-0002	MIL-W-81822/3-B	WIRE,ELEC,250V,PVF INSUL 30 GAGE (WHITE)		7360	16B
10.	898036-0004	MIL-W-16878	WIRE,ELEC,250V,WIRE WRAP TYPE TFE INSUL 26 GAGE (WHITE)		993	2BD
11.	898036-0112	MIL-W-16878	CABLE,ELEC,250V,TW.TWO CNDCT,W/W TFE INSUL 26 GAGE (BLACK RED)		6	23D
12.	898036-0114	MIL-W-16878	CABLE,ELEC,250V,TW.TWO CNDCT,W/W TFE INSUL 26 GAGE (BLACK WHITE)		270	23D

DRAWING NUMBER 149304-800 STRING
UNIT ASSEMBLY NAME CARD CAGE WIRED,MCU

UNIT ASSEMBLY NO. 149304
FILE IDENT T39AMCMU

REV G INDEX +05RES
DATE 09-02-82 PAGE 7

RECORD NUMBER	FROM			MULTI GROUP	TO			WIRE			SIGNAL	SEQ NO	EQUATION	TERM FACTOR	CKT OR CHIP TYPE	GROUP	LOAD OR POWER PLANE	TEST POINTS AND OR	SIGNAL DESCRIPTION	ECO NO
	PREFIX	CONNECTOR	PIN		PREFIX	CONNECTOR	PIN	CODE	COLOR	IDENT										
01252		XA106	26		XA106	39		180	2		+05RES	01			MTS					
01268		XA106	39		XA106	43		180	2		+05RES	02			MTS					
01272		XA106	43		XA146	79		180	2		+05RES	03			MTS					
04474		XA146	79		XA147	79		180	2		+05RES	04			SAM	Z4				
04533		XA147	79		XA148	79		180	2		+05RES	05			SAM	Z4				
04632		XA148	79		XA149	79		180	2		+05RES	06			SAM	Z4				
04711		XA149	79		XA150	79		180	2		+05RES	07			SAM	Z4				
04789		XA150	79		XA151	79		180	2		+05RES	08			SAM	Z4				
04871		XA151	79		XA251	79		180	2		+05RES	09			SAM	Z4				
07312		XA251	79		XA250	79		180	2		+05RES	10			SAM	Z4				
07228		XA250	79		XA249	79		180	2		+05RES	11			SAM	Z4				
07149		XA249	79		XA248	79		180	2		+05RES	12			SAM	Z4				
07070		XA248	79		XA247	79		180	2		+05RES	13			SAM	Z4				
06991		XA247	79		XA246	79		180	2		+05RES	14			SAM	Z4				
06912		XA246	79		XA245	79		180	2		+05RES	15			SAM	Z4				
06830		XA245	79		XA244	79		180	2		+05RES	16			SAM	Z4				
06751		XA244	79		XA243	79		180	2		+05RES	17			SAM	Z4				
06672		XA243	79		XA342	04		180	2		+05RES	18			SAM	Z4				
09115		XA342	04		XA342	03		180	2		+05RES	19			RR4	AP				
09113		XA342	03		XA342	13		180	2		+05RES	20			RR4	AP				
09124		XA342	13		XA342	14		180	2		+05RES	21			RR4	BP				
09125		XA342	14		XA342	22		180	2		+05RES	22			RR4	BP				
09133		XA342	22		XA342	21		180	2		+05RES	23			RR4	CP				
09132		XA342	21		XA342	33		180	2		+05RES	24			RR4	CP				
09144		XA342	33		XA342	34		180	2		+05RES	25			RR4	DP				
09145		XA342	34		XA342	50		180	2		+05RES	26			RR4	DP				
09161		XA342	50		XA342	49		180	2		+05RES	27			RR4	EP				
09160		XA342	49		XA342	59		180	2		+05RES	28			RR4	EP				
09170		XA342	59		XA342	60		180	2		+05RES	29			RR4	FP				
09171		XA342	60		XA342	70		180	2		+05RES	30			RR4	FP				
09182		XA342	70		XA342	69		180	2		+05RES	31			RR4	GP				
09180		XA342	69		XA343	79		180	2		+05RES	32			RR4	GP				
09272		XA343	79		XA344	79		180	2		+05RES	35			SAM	Z4				
09351		XA344	79		XA345	79		180	2		+05RES	36			SAM	Z4				
09430		XA345	79		XA346	79		180	2		+05RES	37			SAM	Z4				
09509		XA346	79		XA347	79		180	2		+05RES	38			SAM	Z4				
09588		XA347	79		XA348	79		180	2		+05RES	39			SAM	Z4				
09667		XA348	79		XA349	79		180	2		+05RES	391			SAM	Z4				
09746		XA349	79		XA350	79		180	2		+05RES	40			SAM	Z4				
09825		XA350	79		XA351	79		180	2		+05RES	41			SAM	Z4				
09909		XA351	79		XA451	79		180	2		+05RES	42			SAM	Z4				
13370		XA451	79		XA450	79		180	2		+05RES	43			SAM	Z4				
13290		XA450	79		XA449	79		180	2		+05RES	44			SAM	Z4				
13211		XA449	79		XA448	79		180	2		+05RES	45			SAM	Z4				
13132		XA448	79		XA447	79		180	2		+05RES	46			SAM	Z4				
13053		XA447	79		XA446	79		180	2		+05RES	47			SAM	Z4				
12974		XA446	79		XA445	79		180	2		+05RES	48			SAM	Z4				
12895		XA445	79		XA444	79		180	2		+05RES	49			SAM	Z4				
****										SIGNAL	(+05RES)	IS ON THE NEXT PAGE			****					