

western peripherals

MEMORANDUM

TO: All TC-120 Customers

FROM: K. Lee Clem, Sales Manager

DATE: April 12, 1979

SUBJECT: Product Information Bulletins:

Gentlemen:

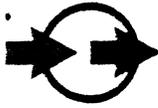
Enclosed is a set of Product Information Bulletins that apply to your Model TC-120 Data General Magnetic Tape Controller. Most of these changes are already incorporated in your present board, and are being sent in a complete set merely as a reference.

If you have any questions concerning the level of your board for applicability of these Product Information Bulletins, please contact this office, and we will discuss it with you. Now that the mailing list is established, future P. I. B. 's will be sent to you on a routine basis.

If someone else in your organization should be on the PIB mailing list, please let us know and we will make the correction.

If we can be of assistance, please feel free to contact us at any time!

lh
enc.



TITLE/DESCRIPTION GROUND NOISE REJECTION IMPROVEMENT			NUMBER 12001
PRODUCT LINE	DISC CTL <input type="checkbox"/> TAPE CTL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	ASSEMBLY AFFECTED 120024 120025	MODEL AFFECTED TC-120 and TC-128 EFFECTIVE DATE September 20, 1977
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input checked="" type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		ORDER INFORMATION	EFFECTIVITY 120024 Rev. U or below 120025 Rev. F or below (PWB etch no. 120017B only) REFERENCE EO # 227

SYMPTOM

System will exhibit random read errors.

CHANGE DESCRIPTION

This change isolates the data bus transceiver ground from the remainder of logic board.

CHANGE PROCEDURE

Make etch cuts at the following locations

Solder side, two places at 15D, pin 7

Solder side between 15E pin 8 and 15F pin 7.

Note: Cut near 15E pin 7.

15F pin 7 remains connected to feed-thru by 15F pin 7.

Solder side between 15F pin 7 and 15G pin 7.

Solder side between 15G pin 7 and 15H pin 8.

Component side at 15H pin 8.

Component side, two places at 15J pin 8.

Note: One etch from 15J pin 8 comes out between 15J pins 9 and 10.

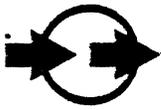
Solder side at 15B pin 7.

Add jumpers from 15C pin 8 to 15E pin 8, and from 15E pin 8 to 15H pin 8.

Mark revision level "V" (120024) or "G" (120025) on the board near the part number.

Visually inspect all changes. Use a continuity tester (or ohmmeter) to check etch cuts and jumpers. Watch for shorts to adjacent pins at each jumper connection.

15C pin 8, 15E pin 8, 15H pin 8 and 15J pin 8 should be isolated from normal ground (with board removed from the computer) and should connect to card edge finger B50 only. 15D pin 7 and 15F pin 7 should connect to normal logic ground.



TITLE/DESCRIPTION DIAGNOSTIC PATCHES			NUMBER 12002
PRODUCT LINE	DISC CTL <input type="checkbox"/> TAPE CTL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	ASSEMBLY AFFECTED	MODEL AFFECTED TC-120 and TC-128 EFFECTIVE DATE September 21, 1977
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		ORDER INFORMATION	EFFECTIVITY REFERENCE EO #

CHANGE DESCRIPTION

Enter the following changes when running the TC-120 Diagnostics
(Paper Tape, Diagnostic, PN 120009)
(Paper Tape, Reliability, PN 120010)

FUNCTIONAL DIAGNOSTIC

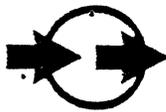
<u>Location</u>	<u>Was</u>	<u>Should Be</u>	<u>Description</u>
73	1	2	Timer, Real Time Clock
216	0	177220	TTY Speed
453	6242	420 or 406	Mapped Processor
3276	44216	401	TTY Speed

RELIABILITY PROGRAM

<u>Location</u>	<u>Was</u>	<u>Should Be</u>	<u>Description</u>
1021	101010	401	Error Trap (Nova 3)
1207	101010	401	Error Trap (Nova 3)

SHOULD ADDITIONAL INFORMATION BE REQUIRED - CONTACT

WESTERN PERIPHERALS, INC.
1100 CLAUDINA PLACE
ANAHEIM, CALIF. 92805
PHONE: (714) 991-8700
ATTN: MANAGER, FIELD SERVICE

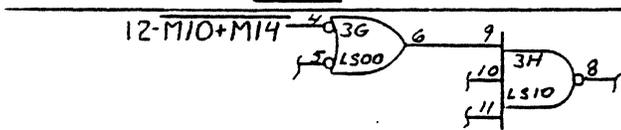


TITLE/DESCRIPTION Eliminate Parity Error While Rewinding			NUMBER 12003A
PRODUCT LINE Tape Controller	MODEL AFFECTED TC-120/128	EFFECTIVE DATE 4-26-78	REFERENCE ECO # 341A
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input checked="" type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		EFFECTIVITY This change updates assembly number: 120024 from REV W to X 120025 from REV H to J 1st SER. NO. 0739	

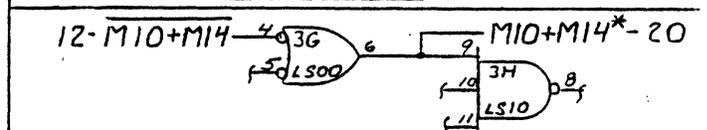
PREVENT SETTING OF PARITY ERROR STATUS WHEN REWINDING ON DRIVES THAT DO NOT INHIBIT READ STROBES DURING REWIND.

1. CHANGE SHEET 12 OF SCHEMATIC 120016 AS SHOWN BELOW

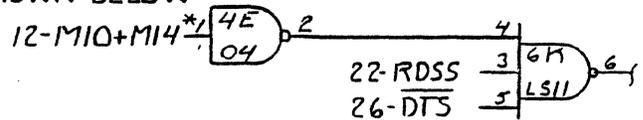
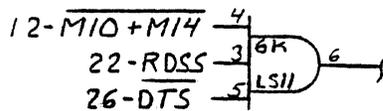
WAS



SHOULD BE



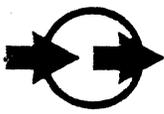
2. CHANGE SHEET 20 OF SCHEMATIC 120016 AS SHOWN BELOW



3. REWORK ASSY 120024 OR 120025 AS FOLLOWS:

- A. CUT ETCH SOLDER SIDE AT 6K-4 (2 PLACES)
- B. JUMPER 4E-2 TO 6K-4
- C. JUMPER 4E-1 TO 3G-6
- D. JUMPER 8M-1 TO 5H-1

SHOULD ADDITIONAL INFORMATION BE REQUIRED - CONTACT



TITLE/DESCRIPTION Nova 3 Diagnostic Compatibility			NUMBER 12004
PRODUCT LINE Tape Controller	MODEL AFFECTED TC-120/128	EFFECTIVE DATE 2-2-78	REFERENCE ECO # 296

DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY	EFFECTIVITY Diagnostic tape 120009 (no revision) requires this change when using Nova 3
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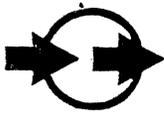
CHANGE PROCEDURE

Make the program changes listed in the following table:

Location	Was	Should Be
00057	065400 CMTA: DIB 1,0	065404 CMTA: DIB 1,0
00216	000000 DILLY: 0	177220 DILLY:
03276	044216 STA 1, DILLY	000401 JMP .+1
04601	000401 MOV # 0,0 ;ERRORS, I/O RESET	101000 NOP

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TITLE/DESCRIPTION Pertec T 1000 Diagnostic Compatibility			NUMBER 12005
PRODUCT LINE Tape Controller	MODEL AFFECTED TC-120/128	EFFECTIVE DATE 5-10-78	REFERENCE ECO # 349
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		EFFECTIVITY Diagnostic tape 120009 (no revision) requires this change when using T 1000	

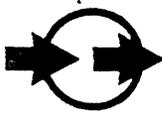
CHANGE PROCEDURE

This program must be manually altered for operation of the diagnostic with a Pertec T 1000 tape drive. After loading diagnostic program tape 120009, and before executing the program, one location must be altered as shown below:

Location	Was	Should Be
000577	006126 JSR	000430 JMP

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TITLE/DESCRIPTION Reliability Program Compatibility for Nova 3 & Eclipse			NUMBER 12006
PRODUCT LINE Tape Controller	MODEL AFFECTED TC-120/128	EFFECTIVE DATE 5-11-78	REFERENCE ECO # 352
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		EFFECTIVITY Reliability tape 120010 (no revision) requires this change when using Nova 3 or Eclipse processors	

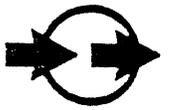
CHANGE PROCEDURE

Make the program changes listed in the following table:

Location	Was		Should Be	
01021	101010	MOV # 0,0	101000	MOV # 0,0
01207	101010	MOV # 0,0	101000	MOV # 0,0

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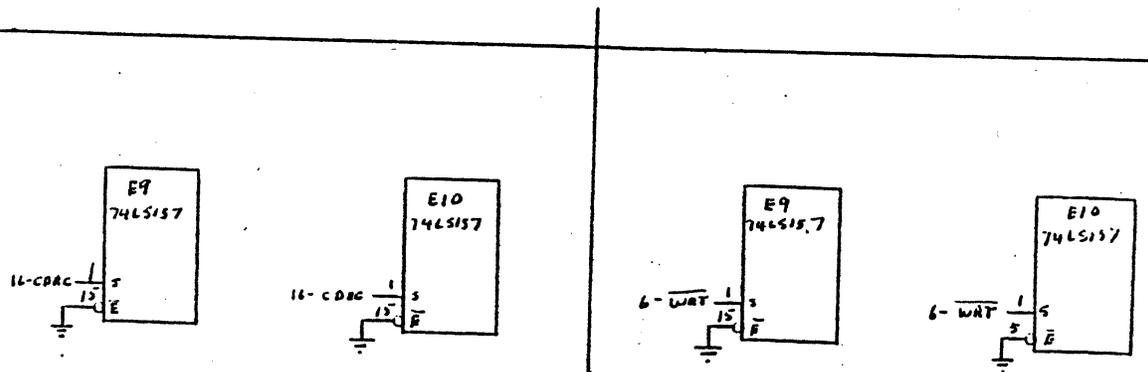


TITLE/DESCRIPTION CORRECT GATING ERROR TO SHIFT REGISTERS			NUMBER 12007
PRODUCT LINE Tape Controller	MODEL AFFECTED 120/120024	EFFECTIVE DATE September 9, 1976	REFERENCE ECO # 108/138
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		EFFECTIVITY This change affects Assembly Number 120024 and updates those controllers below Serial Number 66 from Revision H to Revision K.	

This change improves the gating into the data shift registers.

INSTALLATION:

1. Cut etch on solder side at E9, pin 1 (cut beyond feed through)
2. Add wire from E7B, pin 6 to E9, pin 1
3. Re-label board from H to K
4. Schematics - Sheet 14
E-9 and E-10, pin 1 input is now the term \overline{WRT} from sheet 6
5. Maintain a copy of this document with affected controllers



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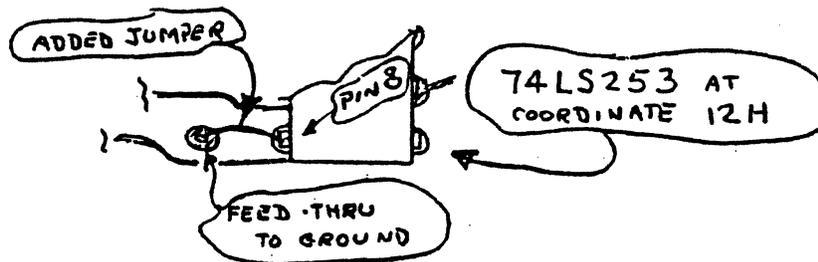
TITLE/DESCRIPTION NOISE REDUCTION			NUMBER 12008
PRODUCT LINE TAPE CONTROLLER	MODEL AFFECTED TC-120 & TC-128	EFFECTIVE DATE 1-17-77	REFERENCE ECO # 142, 148
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		EFFECTIVITY These changes update Assembly Number: 120024 from Rev. K to Rev. L 120025 from Rev. N/C to Rev. A SN 183 and below are affected.	

CHANGE DESCRIPTION

These changes reduce noise that may exist because of component location.

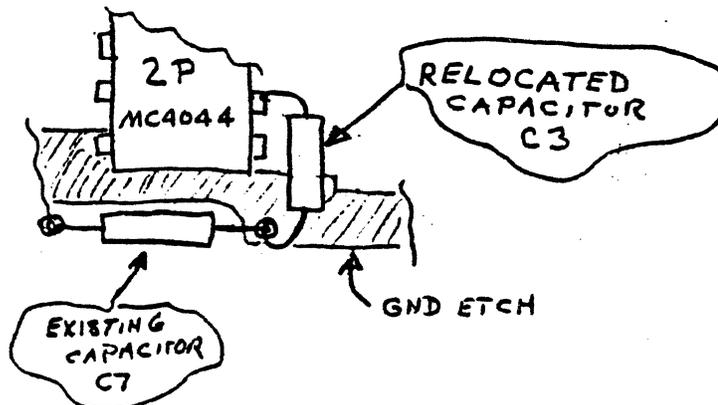
CHANGE PROCEDURE

Add a jumper from 12H, pin 8 (ground) to the ground bus at the adjacent feed-thru as shown.



Cut the etch on the solder side of the board at the feed-thru next to 2N pin 5

Remove existing capacitor C3 from location near 1M and reinstall at location 2P pin 9 to ground at the end of C7, as shown.



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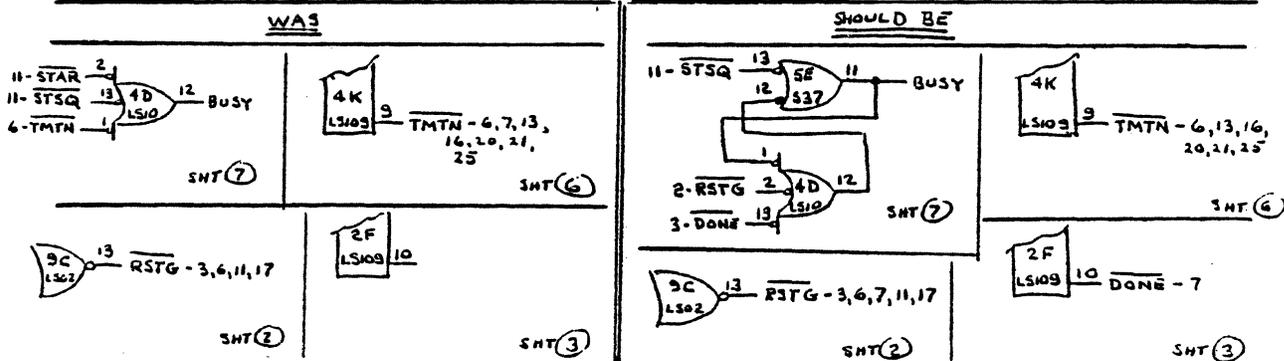
Mark the updated revision level on the board near the part number. Visually inspect all changes and use a continuity tester (or ohmmeter) to check etch cuts and jumpers. Watch for shorts to adjacent pins at each jumper connection. Reinstall the controller and perform diagnostic and operational checks. Keep a copy of this change with affected systems.

TITLE/DESCRIPTION ELIMINATE RACE CONDITION			NUMBER 12010
PRODUCT LINE TAPE CONTROLLER	MODEL AFFECTED 120/128 120024/120025	EFFECTIVE DATE 3-2-77	REFERENCE ECO # 157
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		EFFECTIVITY This change updates assembly numbers: 120024 from Rev. M to Rev. N 120025 from Rev. A to Rev. B Rework assemblies below Serial Number 195	

This bulletin eliminates a race condition in the SELB logic (busy)

INSTALLATION:

1. On component side, cut D4, pin 13
2. On component side, cut D4, pin 2
3. On solder side, cut D4, pin 1
4. On solder side, cut D4, pin 12
5. On solder side, cut D4, pin 13
6. Add jumper from F2, pin 13 to D4, pin 13
7. Add jumper from E5, pin 11 to D4, pin 1
8. Add jumper from E5, pin 11 to feed through near 4D, pin 7
9. Add jumper from F5, pin 4 to D4, pin 2
10. Add jumper from E5, pin 13 to feed through near D4, pin 13
11. Add jumper from C4, pin 9 to feed through near D4, pin 13
12. Add jumper from E5, pin 12 to D4, pin 12
13. Re-label 120024 to revision N
120025 to revision B
14. Schematic
15. CHANGE THE SCHEMATIC AS SHOWN BELOW:



SHOULD ADDITIONAL INFORMATION BE REQUIRED - CONTACT

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TITLE/DESCRIPTION PRIORITY SIGNAL TERMINATION			NUMBER 12011
PRODUCT TAPE CONTROLLER LINE	MODEL AFFECTED TC-120 & TC-128	EFFECTIVE DATE 3-2-77	REFERENCE ECO # 160
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input checked="" type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		EFFECTIVITY This change updates Assembly Number: 120024 from Rev. N to Rev. P 120025 from Rev. B to Rev. C SN 213 and below are affected.	

CHANGE DESCRIPTION

This change adds termination networks to the INTP OUT and the DCHP OUT signals.

CHANGE PROCEDURE

Remove the controller board from the equipment and perform the following modifications:

Add jumpers at the following locations:

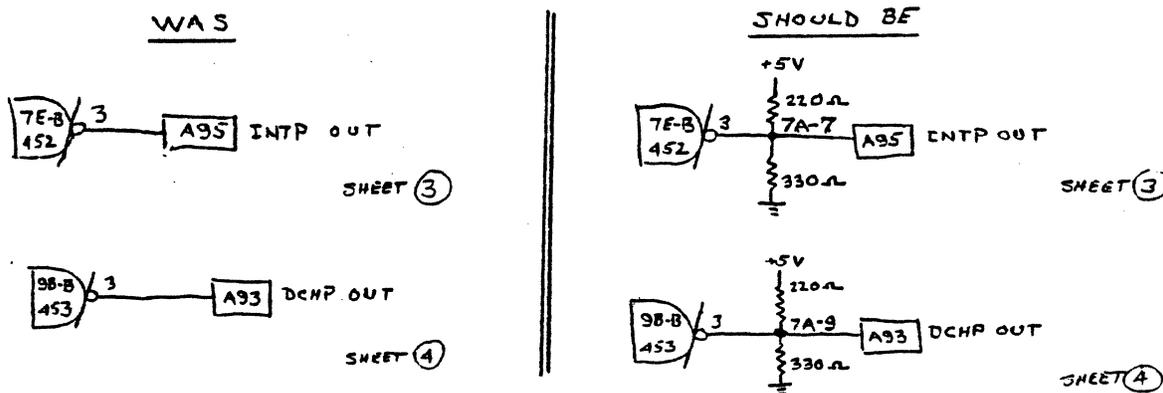
From 7E-B pin 3 to 7A pin 7

From 9B-B pin 3 to 7A pin 9

Mark the updated revision level on the board near the part number. Visually inspect all changes and use the continuity tester (or ohmmeter) to check etch cuts and jumpers. Watch for shorts to adjacent pins at each jumper connection. Reinstall the controller and perform diagnostic and operational checks. Keep a copy of this change with affected systems.

DOCUMENT CHANGES

Change schematic 120016 in the Logic Manual as follows:



SHOULD ADDITIONAL INFORMATION BE REQUIRED - CONTACT

WESTERN PERIPHERALS, INC.
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TITLE/DESCRIPTION ERROR REPORTING IMPROVEMENT			NUMBER 12012
PRODUCT LINE TAPE CONTROLLER	MODEL AFFECTED TC-120	EFFECTIVE DATE 4-22-77	REFERENCE ECO # 176

DISPOSITION	EFFECTIVITY
<input checked="" type="checkbox"/> IMPROVEMENT <input checked="" type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY	This change updates Assembly Number: 120024 from Rev. P to Rev. R SN 235 and below are affected.

SYMPTOM

Parity errors may be incorrectly reported at load point in the PE mode.

CHANGE PROCEDURE

Remove the controller board from the equipment and perform the following modifications:

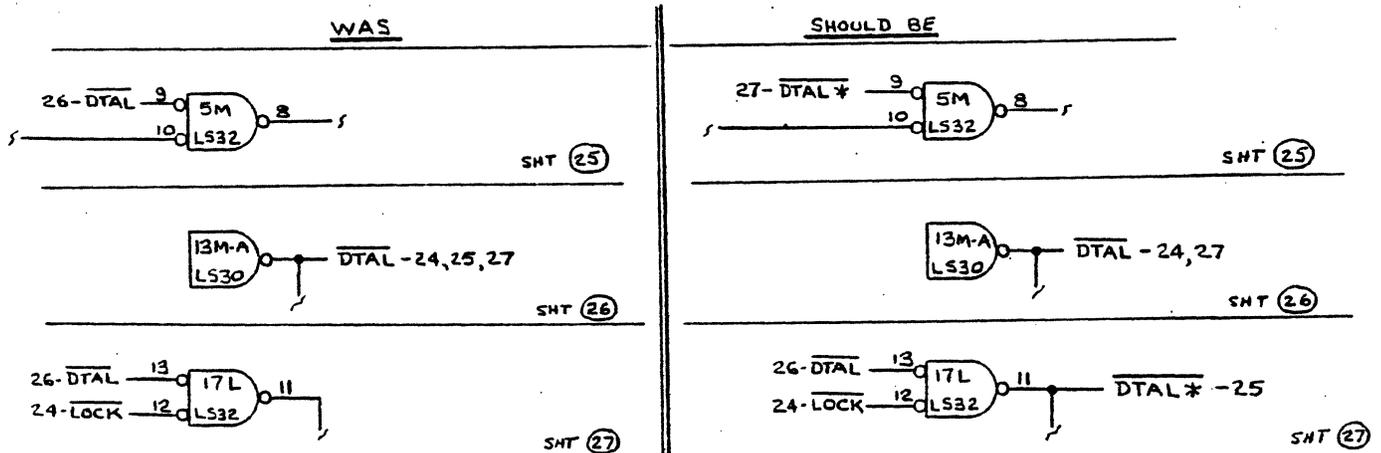
On the component side of the board, cut the etch coming from 5M pin 9 where it comes out from under 5M between pins 6 and 7.

Add a jumper on the component side of the board from 4K pin 5 to 5M pin 9. (Note: existing wire on 4K pin 5 was installed at revision M).

Mark the updated revision level on the board near the part number. Visually inspect all changes and use a continuity tester (or ohmmeter) to check etch cuts and jumpers. Watch for shorts to adjacent pins at each jumper connection. Reinstall the controller and perform diagnostic and operational checks. Keep a copy of this change with affected systems.

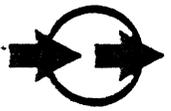
DOCUMENT CHANGES

Change schematic 120016 in the Logic Manual as follows:



SHOULD ADDITIONAL INFORMATION BE REQUIRED - CONTACT

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TITLE/DESCRIPTION DATA RELIABILITY IMPROVEMENT			NUMBER 12013
PRODUCT LINE TAPE CONTROLLER	MODEL AFFECTED TC-120 & TC-128	EFFECTIVE DATE 7-19-77	REFERENCE ECO # 195,200

DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input checked="" type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY	EFFECTIVITY This change updates Assembly Number: 120024 from Rev. R to Rev. T 120025 from Rev. C to Rev. E SN 328 and below are affected.
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SYMPTOM

Intermittent parity errors are detected, especially at higher data rates.

CHANGE DESCRIPTION

This change decreases the susceptibility to read errors caused by jitter by increasing read window timing to 69% of the bit cell.

CHANGE PROCEDURE

Remove the controller board from the equipment and perform the following modifications:

Remove resistor R12 (1K ohm) near IC 12E (one end connected to 12E pin 3)
On Assembly 120025, the following etch cuts and jumpers are not required:
Make etch cuts at the following locations:

12E pin 2, component side.
12E pin 2, solder side.
H7 pin 4, component side.

Add jumpers on the component side of the board at the following locations:

From 14N pin 4 to 14N pin 8.
From 14N pin 3 to 14N pin 1

If a jumper exists between pins 12 and 13 of IC 7C, remove it.

Mark the updated revision level on the board near the part number. Visually inspect all changes and use the continuity tester (or ohmmeter) to check etch cuts and jumpers. Watch for shorts to adjacent pins at each jumper connection. Reinstall the controller and perform diagnostic and operational checks. Keep a copy of this change with affected systems.

SHOULD ADDITIONAL INFORMATION BE REQUIRED - CONTACT

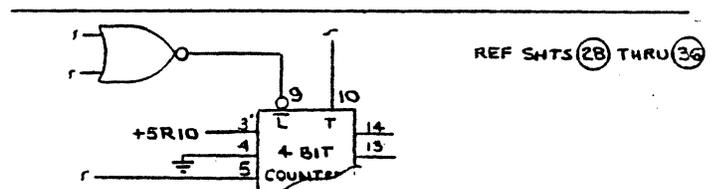
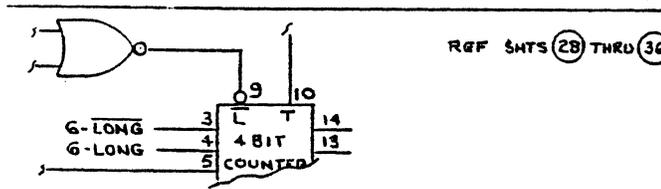
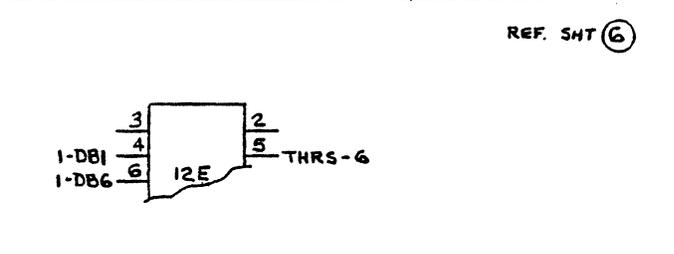
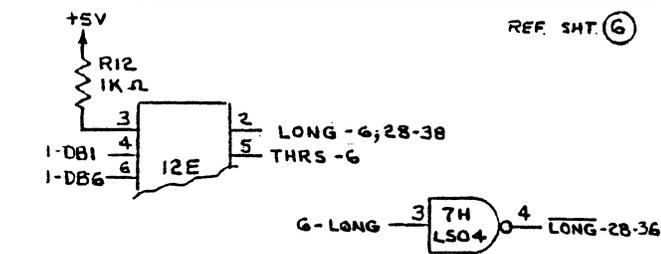
WESTERN PERIPHERALS, INC.
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 PHONE: (714) 991-8700
 ATTN: MANAGER, FIELD SERVICE

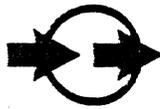
DOCUMENTS CHANGES

Change schematic I20016 in the Logic Manual as follows:

WAS

SHOULD BE





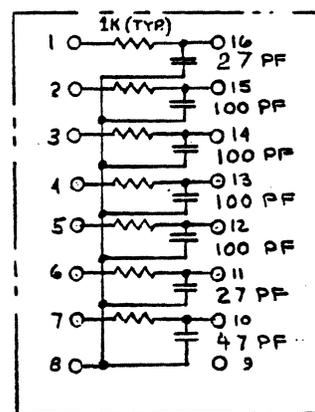
TITLE/DESCRIPTION REDUCE BUS NOISE AND IMPROVE POSTAMBLE DETECTION			NUMBER 12014
PRODUCT LINE TAPE CONTROLLER	MODEL AFFECTED TC-120 & TC-128	EFFECTIVE DATE 1-2-78	REFERENCE ECO # 259, 260
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input checked="" type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		EFFECTIVITY This change updates Assembly Number: 120024 from Rev. V to Rev. W 120025 from Rev. G to Rev. H	
<u>CHANGE DESCRIPTION</u> This change corrects the implementation of bad post-amble detection and improves the timing of resynchronizing circuits to assure correct data is transferred to the processor. In addition, this change improves the rejection of noise on the I/O bus.			
<u>CHANGE PROCEDURE</u> Remove the controller board from the equipment and perform the following modifications: Desolder and remove the filter chip (part #120005) at location B7 and install filter header (part #120034) at location B7. Cut the etch on the component side of the board at the following locations: From 7B pin 1 From 6B pin 2 to 7B pin 16 where it passes between 7B pins 1 and 2 From 10F pin 10 where it comes out between 10F pins 5 and 6 From 7P pin 15 where it comes out between 7P pins 1 and 2 Remove any jumper connecting 7C pins 12 and 13 Add jumpers at the following locations: From 6B pin 1 to 6B pin 2 From 7P pin 11 to 7P pin 15 From 10F pin 9 to 10F pin 10 Install a 74S109 at locations 1B and 2F Mark the updated revision level on the board near the part number. Visually inspect all changes and use the continuity tester (or ohmmeter) to check etch cuts and jumpers. Watch for shorts to adjacent pins at each jumper connection. Reinstall the controller and perform diagnostic and operational checks. Keep a copy of this change with affected systems.			

SHOULD ADDITIONAL INFORMATION BE REQUIRED - CONTACT

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PARTS REQUIRED

Quantity	1
Description	Filter header
Part #	120034
Reference	B7
Quantity	2
Description	IC
Part #	74S109
Reference	1B, 2F



WIRING DIAGRAM
(REF ONLY)
120034

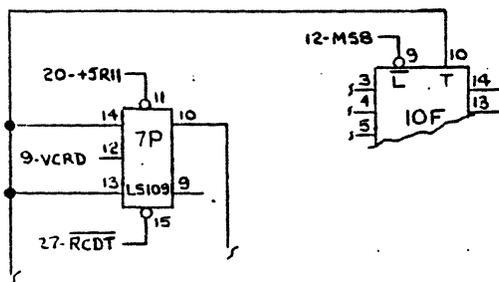
DOCUMENT CHANGES

Change schematic 120016 in the Logic Manual as follows:

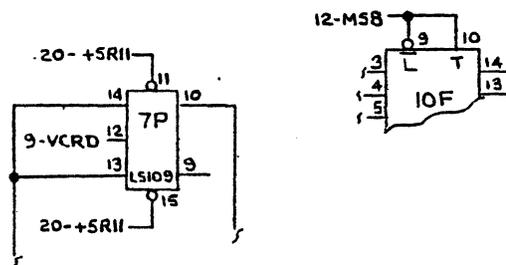
Change type of IC at locations 1B and 2F from 74LS109 to 74S109 as shown on pages (3), (4), and (14).

Change page (24) of the schematic as follows:

WAS

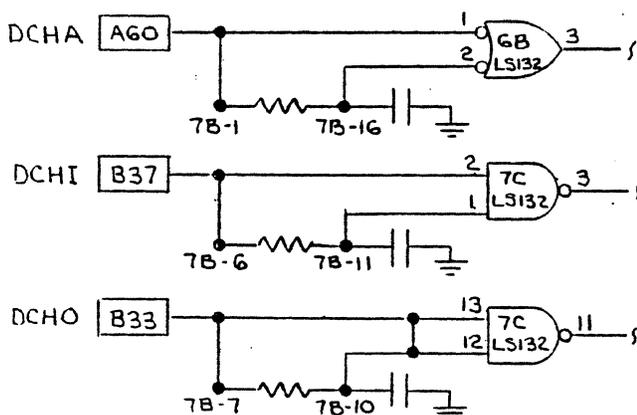


SHOULD BE

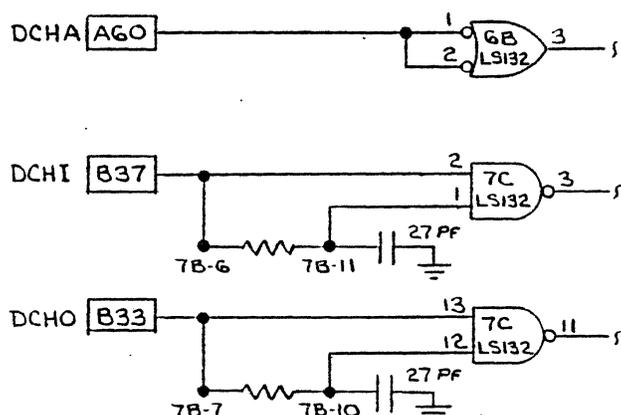


(SHEET 4)

WAS



SHOULD BE



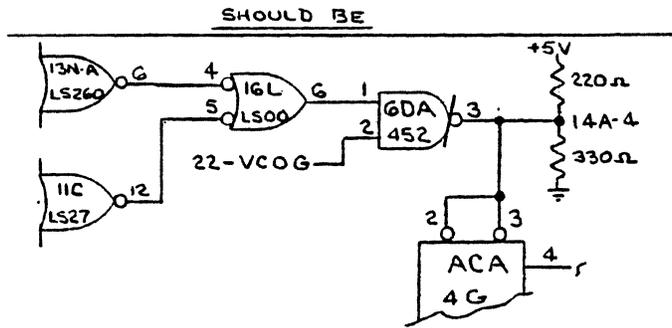
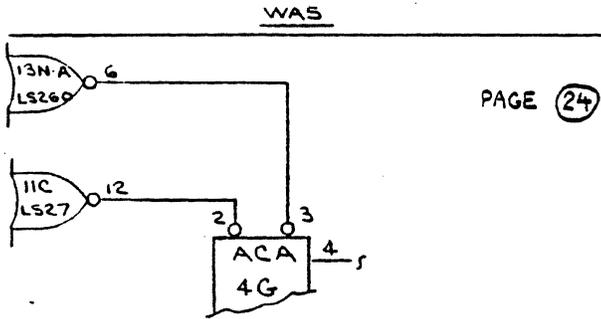
TITLE/DESCRIPTION PERFORMANCE IMPROVEMENT - 125 IPS			NUMBER 12015
PRODUCT LINE TAPE CONTROLLER	MODEL AFFECTED TC-120 & TC-128	EFFECTIVE DATE 8-2-78	REFERENCE ECO # 375
DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input checked="" type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY		EFFECTIVITY This change updates Assembly Number: 120024 from Rev. X to Rev. Y 120025 from Rev. K to Rev. L SN 879 and below are affected.	
<u>CHANGE PROCEDURE</u>			
Remove the controller from the equipment and perform the following modifications:			
Repair the etch on the component side of the board at the feed-thru by location 17C pin 16 that connects to 17C pin 15 on the solder side			
Remove the following jumpers:			
<p style="margin-left: 40px;">From 16L pin 6 to the feed-thru by location 17C pin 16 that connects to 17C pin 15 on the solder side</p> <p style="margin-left: 40px;">From 16L pin 4 to 17J pin 1</p> <p style="margin-left: 40px;">From 16L pin 5 to 5E pin 10</p>			
Cut the etch on the solder side of the board at the following locations:			
<p style="margin-left: 40px;">4G pin 2</p> <p style="margin-left: 40px;">4G pin 3</p>			
Add jumpers at the following locations:			
<p style="margin-left: 40px;">From 13N-A pin 6 to 16L pin 4</p> <p style="margin-left: 40px;">From 11C pin 12 to 16L pin 5</p> <p style="margin-left: 40px;">From 16L pin 6 to 6D-A pin 1</p> <p style="margin-left: 40px;">From 6D-A pin 2 to 3N pin 7</p> <p style="margin-left: 40px;">From 6D-A pin 3 to 4G pin 2</p> <p style="margin-left: 40px;">From 4G pin 2 to 4G pin 3</p> <p style="margin-left: 40px;">From 4G pin 3 to 14A pin 4</p>			
Mark the updated revision level on the board near the part number. Visually inspect all changes and use the continuity tester (or ohmmeter) to check etch cuts and jumpers. Watch for shorts to adjacent pins at each jumper connection. Reinstall the controller and perform diagnostic and operations checks. Keep a copy of this change with affected systems.			

SHOULD ADDITIONAL INFORMATION BE REQUIRED - CONTACT

WESTERN PERIPHERALS, INC.
1100 CLAUDINA PLACE
ANAHEIM, CALIF. 92805
PHONE: (714) 991-8700
ATTN: MANAGER, FIELD SERVICE

DOCUMENT CHANGES

Change schematic I20016 in the Logic Manual as follows:





TITLE/DESCRIPTION GROUND NOISE REDUCTION IMPROVEMENT			NUMBER 12016
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PRODUCT LINE Tape Controller	MODEL AFFECTED TC-120/128	EFFECTIVE DATE 6-6-78	REFERENCE ECO # 354
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DISPOSITION <input checked="" type="checkbox"/> IMPROVEMENT <input type="checkbox"/> RETROFIT ON FAILURE <input type="checkbox"/> RECOMMEND MANDATORY <input type="checkbox"/> INFORMATION ONLY	EFFECTIVITY This change updates Cable Assy. 121021 from Rev. C to Rev. D.
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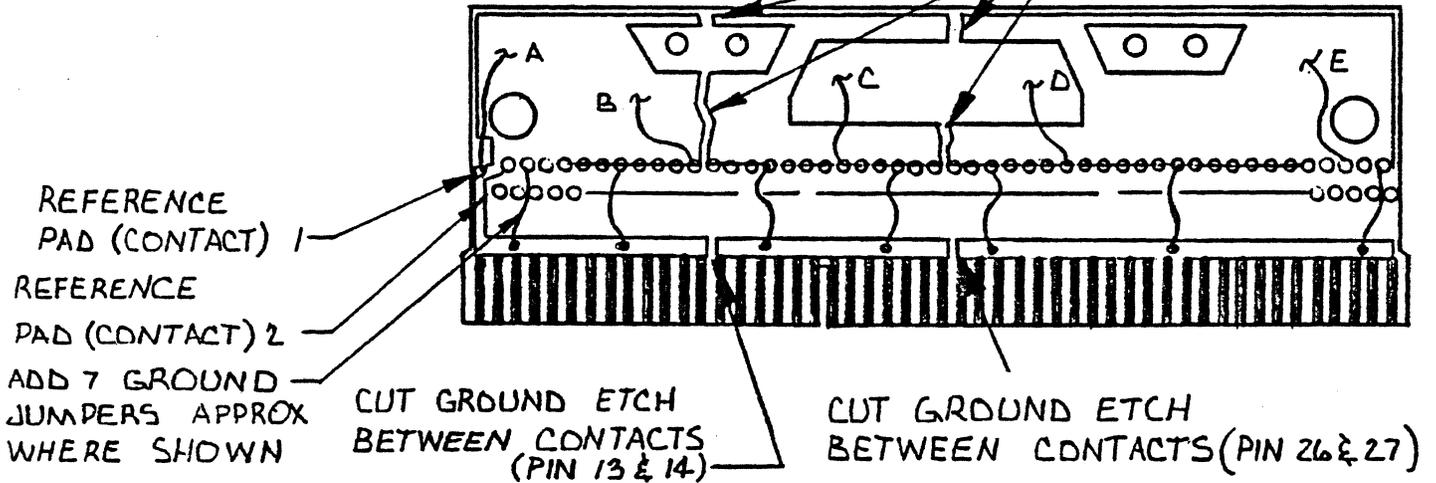
CHANGE DESCRIPTION

Reduce noise on ground by isolating grounds for read, write, and control signals.

CHANGE PROCEDURE

REWORK THE CABLE ASSY BY MAKING INDICATED ETCH CUTS ON THE PWB (9) AND REWIRE THE GROUNDS AS SHOWN ON THE WIRING CHART.

CUT GROUND ETCH APPROX WHERE SHOWN 4 PLACES FRONT & 3 PLACES FAR SIDE.



GROUND WIRING CHART

JUMPER FROM	TO
A	NOVA "B" 1
B	NOVA "B" 2
C	NOVA "B" 50
D	NOVA "A" 79
E	NOVA "A" 80

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