MCI

SERVICE BULLETIN

PRODUCT JH-110

BULLETIN NO. 201

DATE APRIL 27,1976

P.C. BD. REPRODUCE BD. No. PC27C16

ECO NO. 79 IN NEW PRODUCTION March 17, 1976

DESCRIPTION:

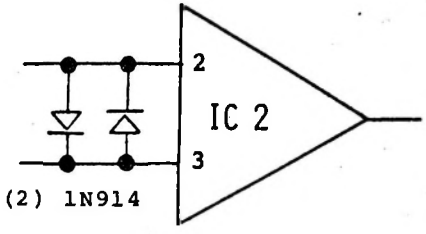
Add two (2) 1N914 diodes from pin #2 to pin #3 of the output op-amp (IC2). Repeat for each Reproduce Bd. *(Reverse parallel connection)*

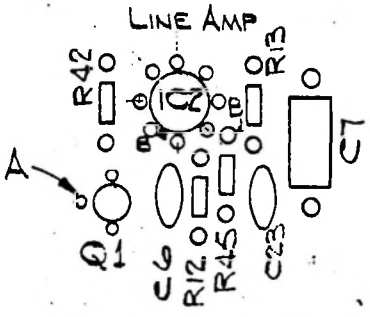
REASON FOR CHANGE:

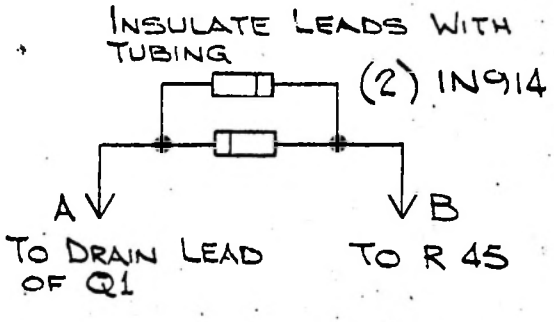
To protect the op-amp from static High Voltage failure.

COMPONENT REQUIREMENT:

(2) 1N914 diodes per channel







PAGS

MCI

SERVICE BULLETIN

PRODUCT JH-110 RECORDER

BULLETIN NO. 202

DATE APRIL 29,1976

P.C. BD. POWER HARNESS No.

ECO NO. 162 IN NEW PRODUCTION April 20, 1976

DESCRIPTION:

1. Remove Power Cable from Power Supply and Transport. Open MALE END. Clip out the component assemblies. *(There are two assemblies similar to Fig. 1 on the reverse side of this page.)* Reassemble the plug.

2. Drill two holes in the Deck Electronics Chassis - one on each side of the Power Plug. *(See Fig. 2 for the correct positions)* Holes should have clearance for a 4-40 screw.

3. Mount the two sub-assemblies *(Fig. 3)* with the large components turned AWAY FROM the power plug. *(See Fig.4)*

4. Unplug the connector to the Supply motor. Cut both wires and reconnect as shown in Fig. 4. Replace the Supply motor connector.

5. Unplug the connector to the Take-up motor. Cut both wires and reconnect as shown in Fig. 4. Replace the Take-up motor connector.

REASON FOR CHANGE:

To prevent accidental shorting of motor supply leads.

COMPONENT REQUIREMENT:

(2) Subassemblies and mounting hardware.

ORDERING INFORMATION: If this kit is needed, order:

SERVICE KIT NO. 202

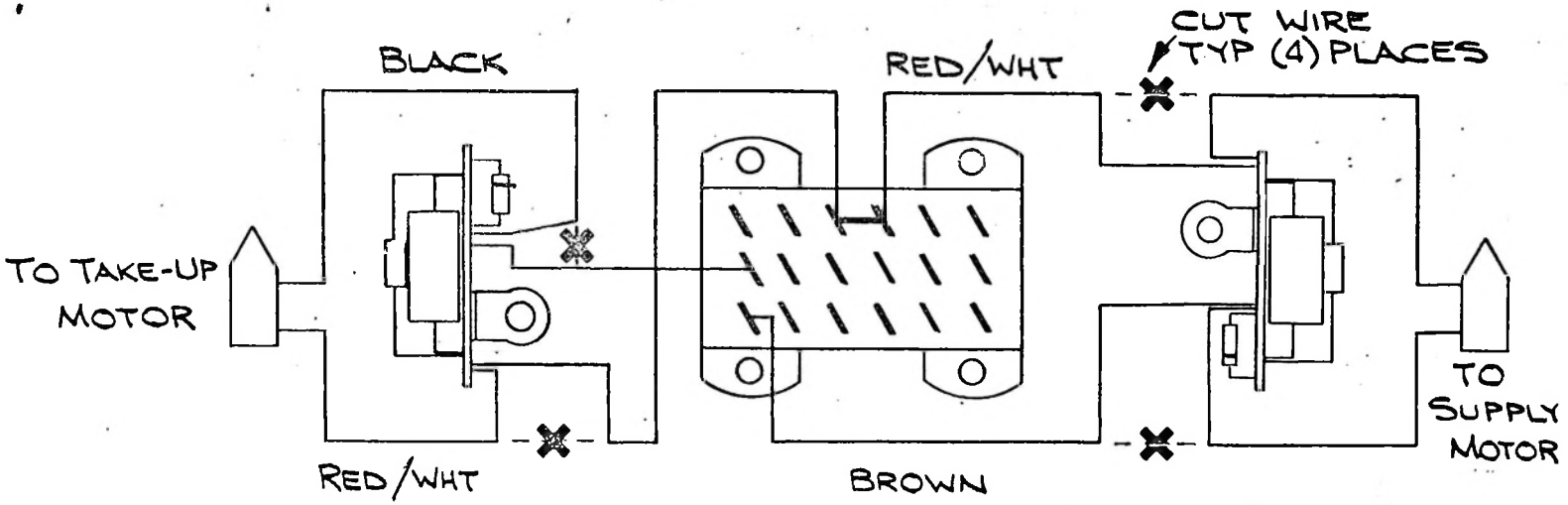


FIG 4

DRILL TWO HOLES .128 DIA.
(CLEARANCE FOR 4-40 SCREW)

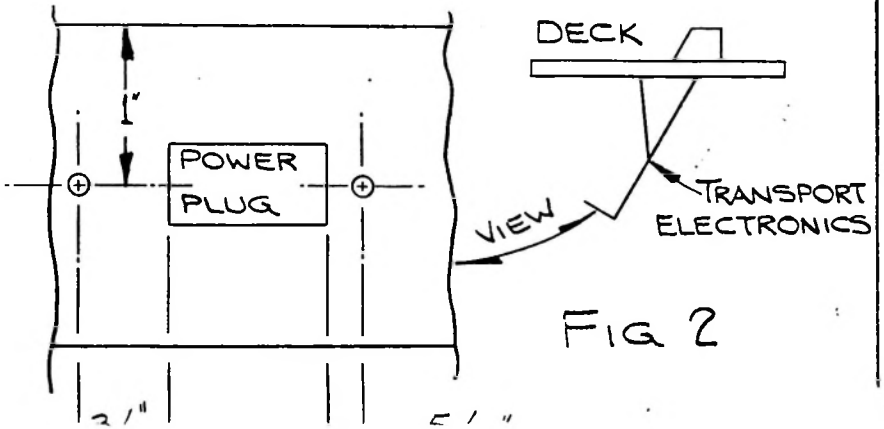


FIG 2

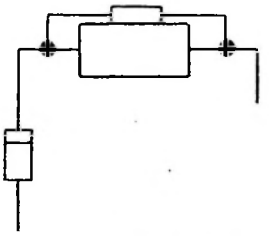


FIG 1

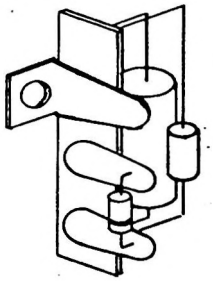


FIG 3

MCI

SERVICE BULLETIN

PRODUCT JH-110 RECORDER

BULLETIN NO. 203

DATE APRIL 29, 1976

P.C.BD. Audio Mother Bd. No. PC27D170

ECO NO. 163 IN NEW PRODUCTION April 22, 1976

DESCRIPTION:

Change C6 from 4700 pf, 100v
to 5600 pf, 400v

REASON FOR CHANGE:

This part change reduces the Bias *(120 kHz)* leakage at the XLR output terminals when the machine is in RECORD mode.

COMPONENT REQUIREMENT:

(1) 5600 pf capacitor - 400v

MCI

SERVICE BULLETIN

PRODUCT JH-110 RECORDER
BULLETIN NO. 204
DATE JULY 22, 1976

P.C. BOARD JH-110 Power Supply No. PC26D27

ECO No. 92 IN NEW PRODUCTION AFTER MARCH 18, 1976

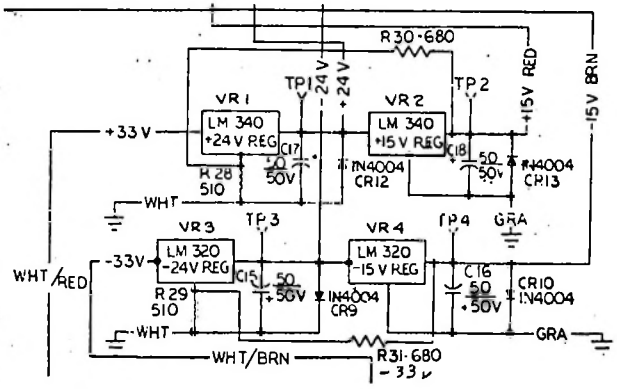
THIS IS A MANDATORY CHANGE

DESCRIPTION:

1. Remove CR8 and CR11 (In5238)

2. Add a 680 ohm ½ watt resistor from the output leg of VR2 to the reference leg of VR1.
   Add a 680 ohm ½ watt resistor from the output leg of VR4 to the reference leg of VR3.
   Add a 510 ohm ½ watt resistor from the reference leg of VR1 to ground.
   Add a 510 ohm ½ watt resistor from the reference leg of VR3 to ground.

   The new schematic will be:



REASON FOR CHANGE:

To improve reliability of the 24v regulator circuit.
To stop destruction of 24v regulators in short circuit mode.

COMPONENT REQUIREMENT:

(2) 680 ohm ½watt resistors
(2) 510 ohm ½ watt resistors

MCI

SERVICE BULLETIN

PRODUCT JH-110 RECORDER

BULLETIN NO. 205

DATE AUGUST 10, 1976

P.C.Bd REPRODUCE BOARD No. PC27C16

ECO No 261 IN NEW PRODUCTION AFTER

THIS IS AN OPTIONAL CHANGE

DESCRIPTION:

Change R7 from 100k to 56k ohms ¼ w 5%.

REASON FOR CHANGE:

To ELIMINATE MONITOR "CLICK" WHEN ENTERING RECORD MODE FROM CUE MODE.

COMPONENT REQUIREMENT:

(1) 56K OHM RESISTOR 1/4 W 5% - FOR EACH REPRO BOARD

MCI

SERVICE BULLETIN

PRODUCT JH-110 RECORDER
BULLETIN NO. 206
DATE OCTOBER 19, 1976

THE JH-110 SERIES TAPE MACHINE MAY BE CHANGED FROM A STANDARD SPEED MACHINE *(7 1/2, 15. 30 IPS)* TO A SLOW SPEED MACHINE *3 3/4, 7 1/2, 15 IPS)* BY CHANGING SOME JUMPERS AND A FEW COMPONENTS.

CHANGES MUST BE MADE ON THE PHASE LOCKED LOOP BOARD AND ON THE ANALOG TORQUE BOARD. IF THE MACHINE HAS THE RTZ OPTION, CHANGES MUST BE MADE ON THE PROCESS BOARD AND ON THE RTZ BOARD.

THE EQ CIRCUITS MUST BE CHANGED FOR EACH RECORD BOARD AND EACH REPRODUCE BOARD IN THE MACHINE.

THE FOLLOWING PAGES DETAIL THE CHANGES.

STANDARD SPEED vs LOW SPEED OPTION

FOR THE JH-110 SERIES RECORDER

All of the components and jumpers listed below must be changed when you are changing from one speed range to the other.

NOTE: 1. Two boards in the Transport Electronics must be altered. *(Three boards must be altered if the machine has the RTZ option).*
2. Two boards in EACH CHANNEL of Audio Electronics must be altered.

COMPONENT/JUMPER TO BE CHANGED	STANDARD SPEED 7 1/2, 15, 30 IPS	LOW SPEED OPTION 3 3/4, 7 1/2, 15 IPS
PHASE LOCKED LOOP BD. PC 25C84 OR PC 25C600		
JUMPER ADJ. to IC 6*(7493)*	"COM" to "HI"	COM" to "LO"
JUMPER ADJ. to IC 9*(7400)*	"TEST" to "19.2"	"TEST" to "9.6"
ANALOG TORQUE BD. PC 26D1		
R21 and R32	220 ohm	100 ohm
R66	27k ohms	30k ohms
R92	3.6k ohms	8.2k ohms
RTZ OPTION PROCESS BD. PC 26C93		
JUMPERS ADJ. to IC 7*(7432)*	"H" to "30" "M" to "15" "L" to "7.5"	"H" to "15" "M" to "7.5" "L" to "3.75"
RTZ BD. PC 26B90		
R9	JUMPER	6.8k ohms
REPRODUCE BD. PC 9B102		
R27	390k ohms	220k ohms
R48	JUMPER	1 megohm
R47	1 megohm	JUMPER
RECORD BD. PC 27C14		
C11	ARCO 469 trimmer (107-180 pf)	ARCO 465 trimmer (50-380 pf)
C12	.0033 mfd	.0056 mfd

(Continued on back of page)

MCI

SERVICE BULLETIN

PRODUCT JH-110 RECORDER

BULLETIN NO. 207

DATE NOVEMBER 1, 1976

A set of extender boards is now available for use in servicing JH-110 Recorders. This set contains one of each of the following boards:

FOR USE WITH	EXTENDER BOARD NO.
BIAS BOARD (27C15)	PC 27B53
RECORD BOARD (27D14)	PC 27B52
REPRODUCE BOARD (27D16)	PC 27B51

The set may be ordered through the Customer Service department. The set should be ordered as number:

KIT 2700-0001-00

MCI

SERVICE BULLETIN

PRODUCT JH-110
BULLETIN NO. 208
DATE MARCH 18, 1977

P.C. Bd. Transport Mother Bd. No. 25D85
Interface/Lampdriver 25D204
Phase Locked Loop Bd. 25C600

ECO No. 135 IN NEW PRODUCTION ON SERIAL NO. 635

NOTE: Implementation of this change began with the above Serial No. Not all changes may exist in the first few machines.

THIS IS AN OPTIONAL CHANGE

REASON FOR CHANGE:

IC type change for improved performance

DESCRIPTION OF CHANGE:

When any of the following ICs must be changed, replace with the new type.

BOARD	IC NO.	WAS	CHANGE TO	NOTES
TRANSPORT MOTHER BD.	1	741S	TL081	
	2	741S	TL081	
INTERFACE LAMPDRIVER	7	748	TL081	
PHASE LOCKED LOOP BD.	2	748	TL081	
	15	748	TL081	

MCI

SERVICE BULLETIN

PRODUCT JH- 110

BULLETIN NO. 209

DATE MAY 8, 1977

P.C. BD, BIAS - ERASE CARD No. 27C55

ECO No. 207 IN NEW PRODUCTION ON SERIAL NO. 660

THIS IS AN OPTIONAL CHANGE

REASON FOR CHANGE:

To raise available erase voltage

DESCRIPTION OF CHANGE:

Change R61 from 150 ohms to 100 ohms 1/2w 5%
Change R62 from 150 ohms to 100 ohms 1/2w 5%

COMPONENT REQUIREMENT:

Per card: (2) 100 ohm 1/2w 5%

MCI

SERVICE BULLETIN

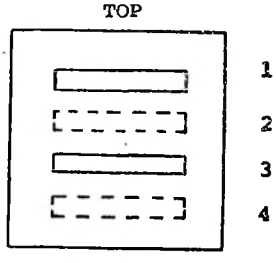
PRODUCT JH-110 RECORDER

BULLETIN NO. 209 B

DATE MAY 19,1977

THIS BULLETIN IS ISSUED TO ESTABLISH THE PROPER ORIENTATION OF 1/4 TRACK HEADS.

In accordance with industry standards, MCI will ship all machines with the head gaps located in positions 1 and 3. This is in keeping with the format of all commercial 1/4 track tapes.



MCI

SERVICE BULLETIN

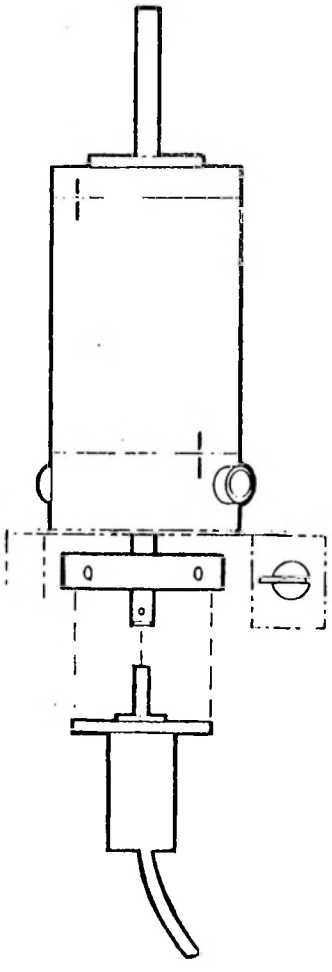
PRODUCT JH-110A

BULLETIN NO. 210

DATE JUNE 2, 1977

TORQUE MOTOR DISASSEMBLY AND REASSEMBLY INSTRUCTIONS

MCI DOES NOT RECOMMEND THAT TORQUE MOTORS BE DISASSEMBLED IN THE FIELD. In emergency conditions, when it is necessary to make field repairs, the following procedure should be carefully followed:



DISASSEMBLY

1. Loosen the Allen set screw holding the Tach shaft to the motor shaft.

2. Remove the 3 screws holding the Tach bracket to the spacers and remove the Tach.

3. Loosen the 2 Allen set screws in the Brake Hub and remove the Hub.

WARNING: IF THE FOLLOWING TWO STEPS ARE NOT COMPLETED AT THIS TIME, IT WILL BE IMPOSSIBLE TO REASSEMBLE THE MOTOR WITHOUT INCREASED FLUTTER AND NOISE.

4. Scribe two lines across the junctions of:
   A. The Top End Bell and the housing.
   B. The Bottom End Bell and the housing.

5. The brushes MUST be reassembled into the SAME holders with the SAME orientation.

   MARK the brush holders.
   Remove the brushes, marking each one to show its holder AND its orientation.

6. Remove the two tie-bolts from the top of the motor housing.

7. Remove the Top End Bell.

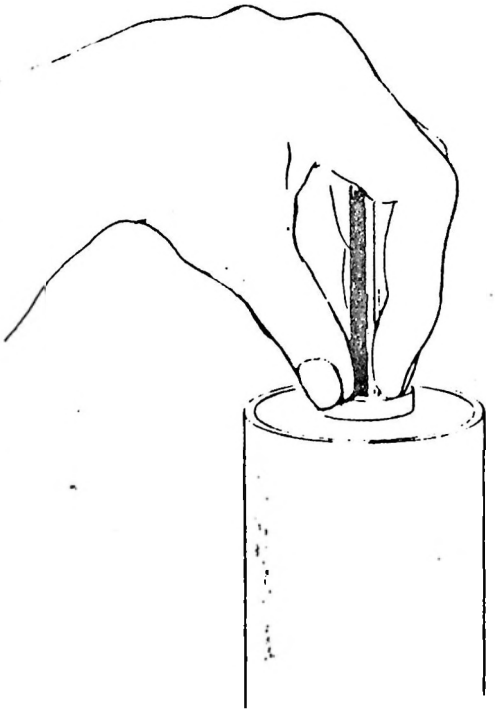
8. Remove the three washers from the shaft. *(There should be 2 flat washers and 1 wavy washer).*

WARNING: In the following steps, do NOT ALLOW the strong magnetic field to pull the housing into contact with the bearing or the shaft.

IF THE MAGNETIC HOUSING TOUCHES THE SHAFT OR BEARING, THE TAPE SPINDLE WILL BE MAGNETIZED. IT IS DIFFICULT TO DEMAGNETIZE.

STUDY THE SKETCH BELOW BEFORE CONTINUING WITH THE DISASSEMBLY.

Form a "CONE" with the fingers of the left hand over the motor shaft. The purpose of this "cone" is to keep the magnet housing from TOUCHING the bearing or the shaft.



9. Lift the Magnet Housing with the right hand as far as possible against the "cone" created by the left hand.

   Slide both hands upward, holding the top of the housing away from the shaft until the attraction between the Magnetic Housing and the armature is broken.

   CAREFULLY remove the magnetic housing.

REASSEMBLY

Reverse the procedure used during disassembly.

1. Place the fingers of the left hand as far as possible into the top of the Magnetic Housing.
2. Lower the housing onto the shaft, catching the shaft with the left hand finger tips to form the "CONE" used during the disassembly.
3. Slowly and carefully assemble the Magnet Housing over the Armature.
4. Assemble the washers removed in step 8 of the disassembly. The wavy washer MUST be assembled between the two flat washers.
5. Replace the Top End Bell.
6. Line up the marks which you scribed on the housing and the end bells. Replace the two tie-bolts.
7. Replace the brushes into the correct holders and with CORRECT ORIENTATION.
8. Reassemble the Brake Hub.
9. Reassemble the Tach.

IF THE SHAFT HAS BECOME MAGNETIZED, IT WILL BE NECESSARY TO DEMAGNETIZE IT BY USING THE FOLLOWING PROCEDURE:

NOTE: *A Head Demagnetizer is <u>NOT</u> powerful enough to demagnetize the reassembled motor shaft.*

A. After the motor has been completely reassembled, place a BRAKE SOLENOID over the reel spindle. Apply 110v AC to the solenoid.

> *The Solenoid will heat up with 110v AC applied , but it will work satisfactorily for a short period of time.*

B. Withdraw the solenoid slowly - as you would ANY demagnetizer.

MCI

SERVICE BULLETIN

PRODUCT JH-110A

BULLETIN NO. 211

DATE JUNE 20, 1977

STATIC DISCHARGE FROM TAPE

ECO No. 36

When operating in a very dry climate, some JH-110A Recorders build up enough static charge on the tape to arc to ground. This usually happens in either High Speed Forward or Rewind mode. The spark usually causes the machine to go into STOP mode.

MCI will supply a modified turntable for retrofitting any machine which has this problem. A discharge path is built into the turntable assembly.

Contact Customer Service for instructions if you need to retrofit a machine.

MCI

SERVICE BULLETIN

PRODUCT JH-110A RECORDER

BULLETIN NO. 212

DATE DECEMBER 5, 1977

P.C. BD. RTZ Process board No. PCA 2600-0095

ECO No. 339

THIS IS AN OPTIONAL CHANGE

REASON FOR CHANGE:

Some counter chips fail to reset correctly because of loading on IC2. (Seconds do not reset after 59)

DESCRIPTION OF CHANGE:

Add 100 ohm, ¼watt 5% resistors in series with pins 14 and 15 of the Process board.

COMPONENT REQUIREMENT:

(2) 100 ohm ¼watt 5% resistors

MCI

SERVICE BULLETIN

PRODUCT JH-110A/8

BULLETIN NO 214 PG 1 OF 3

DATE 8-24-78

P.C. BD.	Head Housing Connector	NO. PC2600-0605-00
	Installation Detail	FX2600-0234-01
	Spacer	SP7100-0075-00
	Arm Assy	AS2600-0255-03,-04

ECO NO. 802 IN PRODUCTION ON SERIAL NO. 144

THIS IS AN OPTIONAL CHANGE

REASON FOR CHANGE: To make the 8 track machine compatible with 4 track head bridge assy.

DESCRIPTION OF CHANGE:

(a) Replacement of Lifter Pins

Measure the height of the lifter pins from the deck (overlay removed). If they measure 1-7/8" high, then the 4 track head assembly will sit on the pins and not on the deck. Lifter pins must be replaced. Replacing the lifter pins requires removal of the left and right arm assemblies, and their replacement by a left lifter arm assembly & bushing AS2600C0255-03, and a right lifter arm assembly and bushing, AS2600-0255-04. Measure the height of the new lifter. It should be 1-5/8" high. If required, readjust lifter by using Procedure, Par. 5.3, Pg. 5-7 of JH-110A manual.

(b) Replacement of Bridge Hold Down Standoffs

Measure the height of the bridge hold down standoffs. If they measure 1-13/32" high, they must be replaced. Remove the Allen socket cap screws and the head bridge assembly. Unscrew the two hold down standoffs. Replace the standoffs with SP7100-0077-00 (7/8" high) and loctite to fastening screw (8-32 x 1/2" binding head undercut).

(c) Replacement of Bridge Tie Down Screws in 1" Bridge Assy.

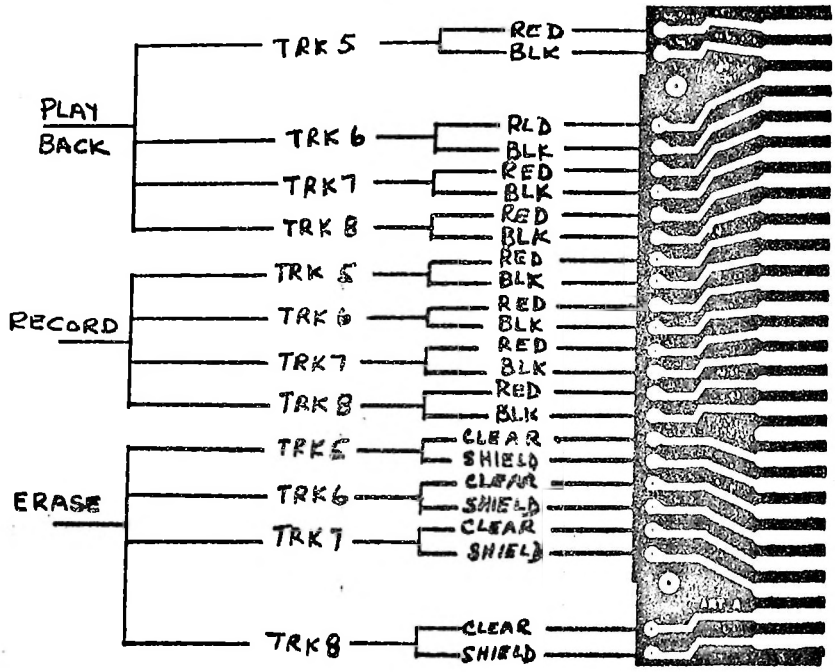
Remove the two 8-32 x 1-1/2" Allen socket cap screws which secures the head bridge assy. in place. Replace with two 8-32 x 2" Allen cap screws. Use fixture FX2600-0234-01 to install retaining washers P/N MC2600-0107-00. Press firmly down on screw until it seats.

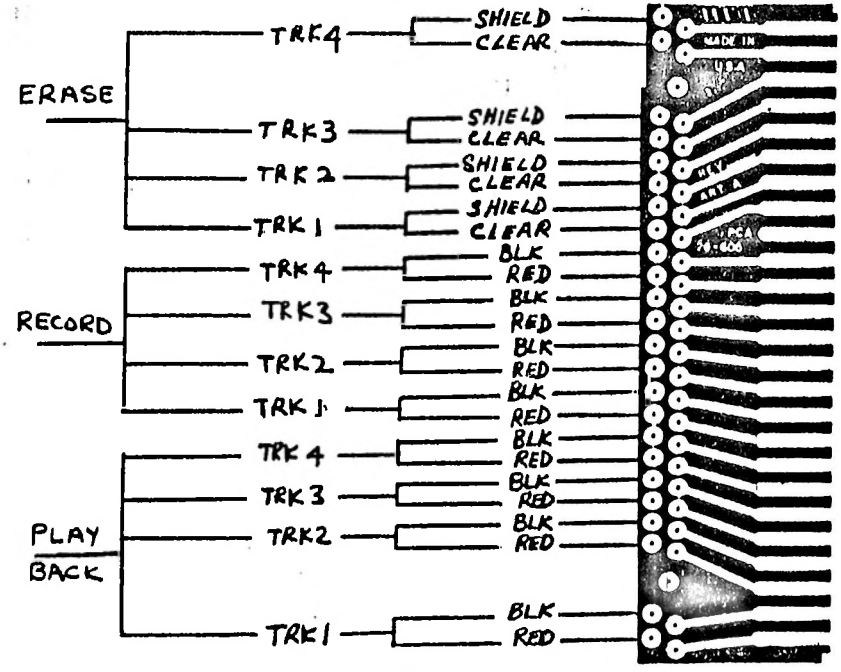
(d) Head Housing Connector PC2600-0605-00

Rewire as shown Pg 3 of 3.

COMPONENT REQUIREMENTS:

(1) Left Arm Assy. AS2600C0255-03 includes matched bushing.
(1) Right Arm Assy.AS2600C0255-04 includes matched bushing.
(2) Hold Down Standoffs 7100A0077-00 (7/8" long).
(2) Allen Socket Cap Screws 8-32 x 2".
(1) Fixture FX2600-0234-01.
(2) Washers MC2600-0107-00


PLAY BACK
TRK 5
RED
BLK
TRK 6
RED
BLK
TRK 7
RED
BLK
TRK 8
RED
BLK
RECORD
TRK 5
RED
BLK
TRK 6
RED
BLK
TRK 7
RED
BLK
TRK 8
RED
BLK
ERASE
TRK 5
CLEAR
SHIELD
TRK 6
CLEAR
SHIELD
TRK 7
CLEAR
SHIELD
TRK 8
CLEAR
SHIELD


ERASE
TRK 4
SHIELD
CLEAR
TRK 3
SHIELD
CLEAR
TRK 2
SHIELD
CLEAR
TRK 1
SHIELD
CLEAR
RECORD
TRK 4
BLK
RED
TRK 3
BLK
RED
TRK 2
BLK
RED
TRK 1
BLK
RED
PLAY BACK
TRK 4
BLK
RED
TRK 3
BLK
RED
TRK 2
BLK
RED
TRK 1
BLK
RED

MCI

SERVICE BULLETIN

PRODUCT JH-110

BULLETIN NO. 215

DATE SEPTEMBER 5, 1978

P.C. Bd. Reproduce Lo Speed No. 2700-0016-02

Reproduce Hi Speed 2700-0016-03

ECO No. 763 IN NEW PRODUCTION ON SERIAL NO. 1160

THIS IS AN OPTIONAL CHANGE

REASON FOR CHANGE:

To improve low frequency response.

DESCRIPTION OF CHANGES:

Change C9, C11 and C12 from 4700 pF to 3300 pF.

Replace R34 (680 ohm) with jumper.

In addition, on Hi Speed bds. only, change resistor R27 (390K) to a .0022 mf capacitor.

PARTS REQUIRED/REPRO BOARD:

3 ea. 3300 pF 100v CPF Capacitor
1 ea. .0022 mf 630v CMY Capacitor (Hi Speed only)

MCI

SERVICE BULLETIN

PRODUCT ALL JH-110A RECORDERS

BULLETIN NO. 216

DATE 7-13-79

REASON FOR CHANGE:

Apparently for some period of time, possibly as long as the last two (2) years, the master bias oscillator output pot has been set by MCI test people at approximately 2.2 volts R.M.S. output. This output level will cause the fixed gain erase amp to overload and generate excessive harmonic distortion.

The end result of this misalignment being that JH-110A's sound dirty, or in some cases, people have complained that the machine has a lot of high frequency flutter.

DESCRIPTION OF CHANGE:

STEP 1) Using open leads (no shield cable), set the master bias oscillator output pot R9 (located on strip board) for a maximum setting of 1.75 vrms.

Note 1: This must be done using open ended cables as shielded cable has a capacitive effect and may vary the reading.

Note 2: Use a Hewlett-Packard 400 FL AC Voltmeter or equivalent.

MCI

SERVICE BULLETIN

PRODUCT JH-110B RECORDERS

BULLETIN NO. 217

DATE 10-11-79

P.C. Bd. #2700-0914-00

P.C. Bd. #2700-0914-01

P.C. Bd. #2700-0914-02 IN NEW PRODUCTION 9-27-79

JH-110B Record Bd.

THIS IS AN OPTIONAL CHANGE.

REASON FOR CHANGE:

Re-installation of Linearity Control on Record Bd. useful on certain tape formulations.

MCI has found that the Linearity Control is useful with tapes such as Scotch 250. However, the pot has no measurable effect on Ampex 456.

DESCRIPTION OF CHANGE:

Step 1) Remove Jumper between R43-CW and R43-S

Step 2) Remove Jumper at CR1

Step 3) Install a 2K ohm 18T Side Adj. Pot at R43

Step 4) Install 2- 1N34A Diodes at CR1 and CR2

Step 5) Delete label on card pull handle and replace with new label.

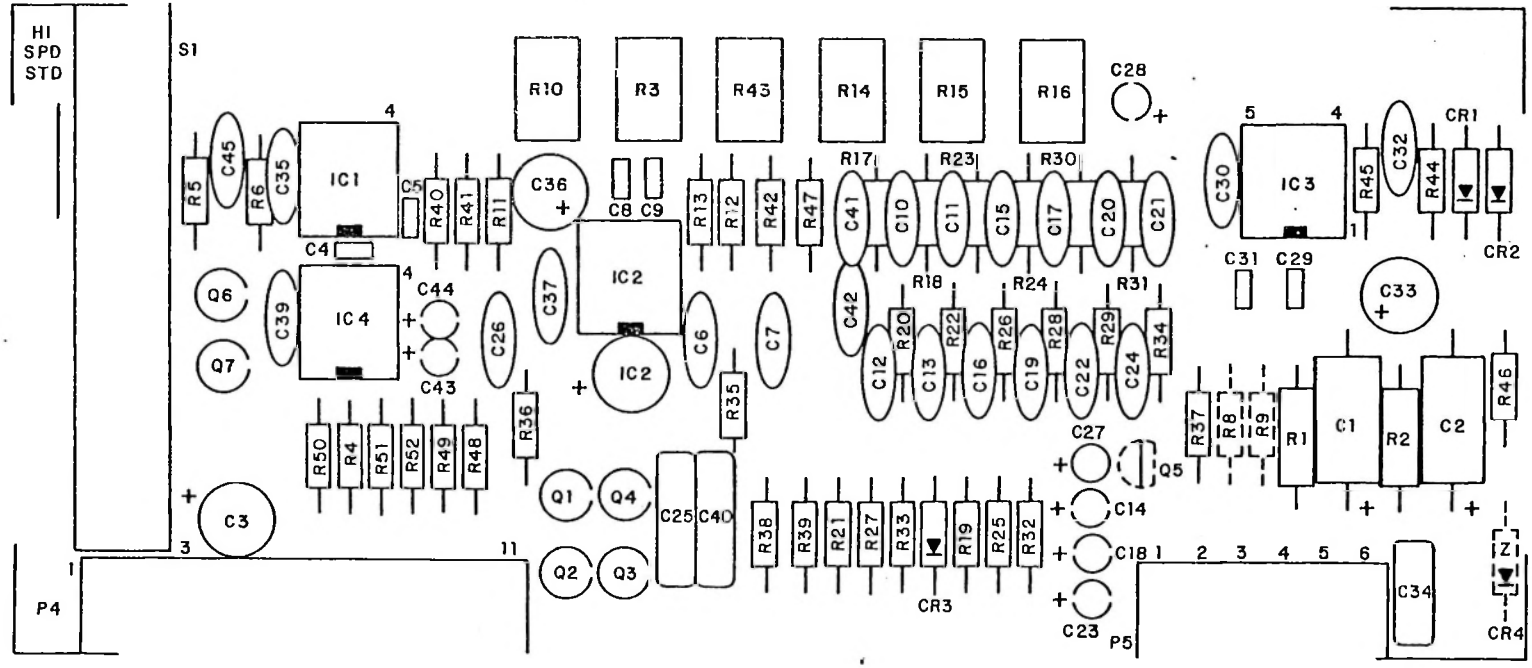
PARTS REQUIRED:

2 - 1N34A Diodes
1 - 2K Ohm 18T Side Adj. Pot (Bourns)

1 - MC-2700-0061-04 STD. MACHINE (JH-110B)

1 - MC-2700-061-05 BDCST. MACHINE (JH-110BC)

The above list is the number of parts for one channel only.



SS 2700C0914-008
RECORD BD
STD & BDCST

MCI

SERVICE BULLETIN

PRODUCT JH-110B

BULLETIN NO. 218

DATE NOVEMBER 29, 1979

P.C. BD. I/O Amp Board NO. 2700-0916

ECO NO. 1296

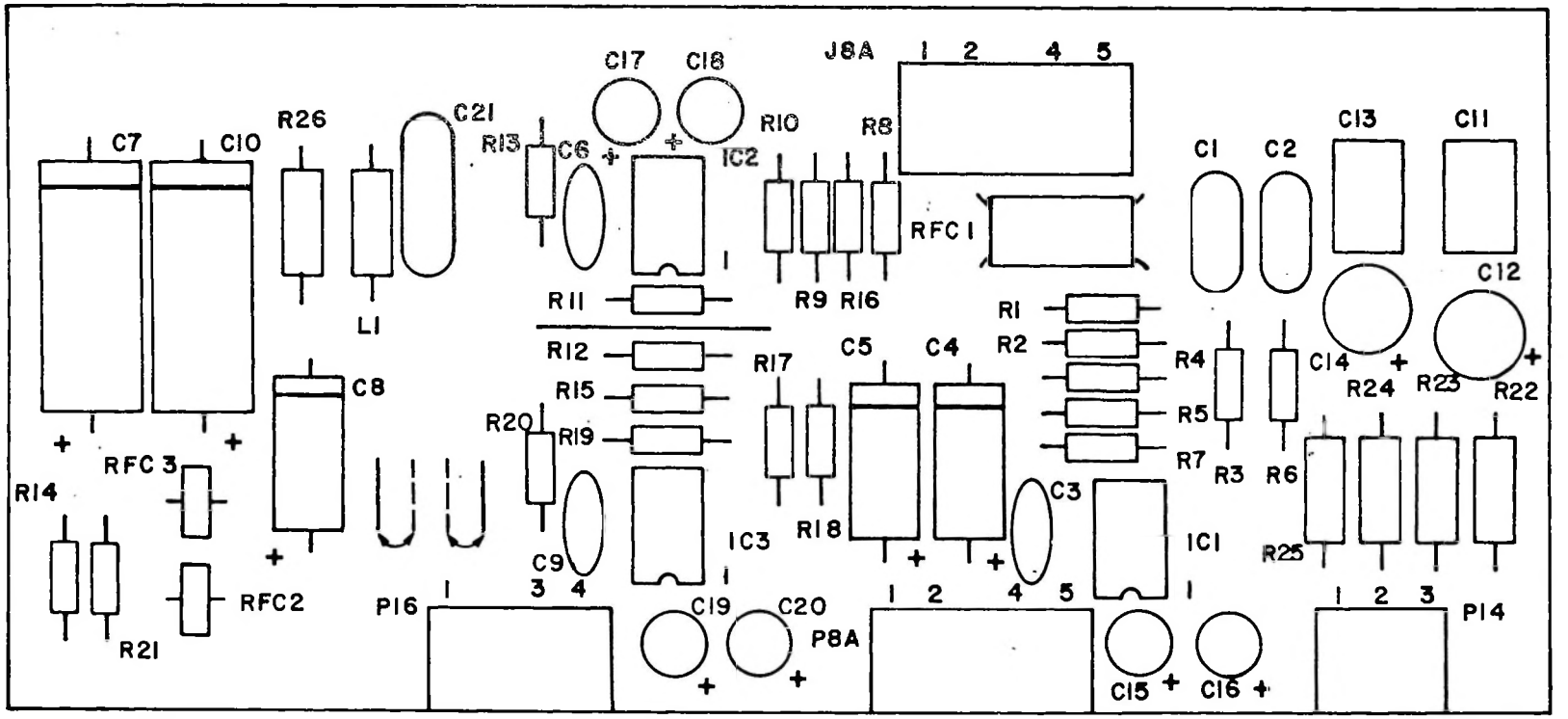
THIS IS A MANDATORY CHANGE.

REASON FOR CHANGE:

To correct phase error in I/O Amp Board that will be present in all modes.

DESCRIPTION OF CHANGE:

Change jumpers on I/O Board as shown on reverse side.



PC2700C0916-008
SILKSCREEN
I/O CARD, JHIIOA

MCI

SERVICE BULLETIN

PRODUCT JH-110B

BULLETIN NO. 219

DATE NOVEMBER 29, 1979

P.C. BD. Repro Board NO. 2700-0913

ECO NO. 1302

THIS IS A MANDATORY CHANGE.

REASON FOR CHANGE:

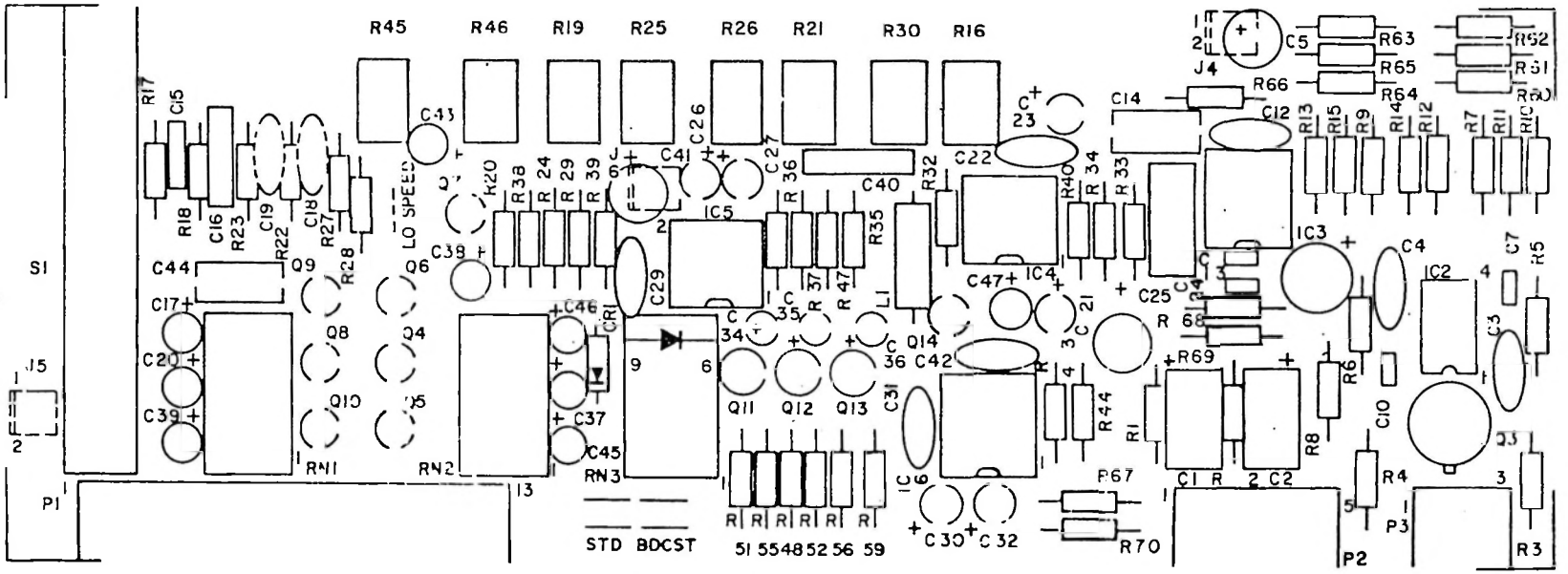
To correct monitor punch-in noise.

DESCRIPTION OF CHANGE:

Add a 1N914 diode to RN3 from Pin 9 to Pin 6 as shown on drawing on reverse side.

PARTS REQUIRED:

1 - 1N914 Diode



SS2700C0913-00J
SILKSCREEN
REPRO BD, JH-110A
BDCST & STD

MCI

SERVICE BULLETIN

PRODUCT JH-110B-BC

BULLETIN NO. 220

DATE DECEMBER 17, 1979

P.C. BD. Bal. I/O Card NO. 2700-0916

ECO NO. 1339

THIS IS A MANDATORY CHANGE.

REASON FOR CHANGE:

Oscillation occurs when using long cable lengths and unbalancing the differential output at the load.

DESCRIPTION OF CHANGE:

Change R13 and R20 from 68 ohm ¼w carbon film resistor to a 120 ohm ¼w carbon film resistor.

PARTS REQUIRED:

2 - 120 ohm ¼w 5% carbon film resistor
(2 required per I/O Amp Board)

MCI

SERVICE BULLETIN

PRODUCT JH-110B

BULLETIN NO. 221

DATE JANUARY 2, 1980

P.C. BD. Repro Board NO. PCA2700-913

ECO NO. 1302

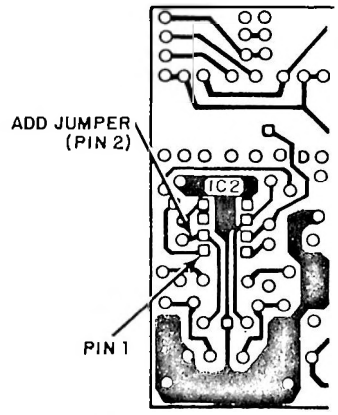
THIS IS A MANDATORY CHANGE.

REASON FOR CHANGE:

Missing land on art work. This land is a connection for the HF compensation cap. This could cause possible oscillation of the Input Amplifier. (IC2)

DESCRIPTION OF CHANGE:

Add wire between pad and pin 2 of IC 2 as shown on illustration below.



MCI

SERVICE BULLETIN

PRODUCT JH-110B

BULLETIN NO. 225

DATE OCTOBER 21, 1980

P.C. BD. AUDIO MOTHER BOARD

REPRO BOARD

P.C. BD. NO.# PCA 2700-0917-00
02, 03, 04, 05
PCA 2700-0913-00
01, 02, 03, 04

E. C. O.# 1946

THIS IS AN OPTIONAL CHANGE

REASON FOR CHANGE:

Improve R.F.I. immunity in Repro circuits by adding a R.F. choke and capacitors.

DESCRIPTION OF CHANGE

STEP 1. On Audio Mother Board, add R.F. choke (part no. F2365-1-Q1) in place of Jumpers (2) marked "R.F.C.".

STEP 2. On Repro Board, add 47pf @ 1Kv ceramic capacitor in parallel with Resistors R3 and R4.

PARTS REQUIRED:

1 - R.F.C. (Part No.F2365-1-Q1) per Audio Mother Board
2 - 47pf @ 1Kv Ceramic Capacitor per Repro Board.

MCI

SERVICE BULLETIN

PRODUCT JH-110B-BC

BULLETIN NO. 222

DATE 3-12-80

P.C. BOARD I/O Card No. 2700-0916

ECO No. 1535

THIS IS A MANDATORY CHANGE

REASON FOR CHANGE:

Resistors R24 and R25 swapped with respect to their Board locations.

DESCRIPTION OF CHANGE:

Change Resistor locations

Designator	Incorrect	Correct
R24	47 Ohm	10 Ohm
R25	10 Ohm	47 Ohm

MCI

SERVICE BULLETIN

PRODUCT JH-110B 10½"

BULLETIN NO. 227

DATE FEBRUARY 16, 1981

RETROFIT KIT # KIT2600-1008-00

ELECTRONIC FLUTTER DAMPER

REASON FOR CHANGE:

The new flutter damper assembly improves the transport's flutter and start time specifications, especially when using small diameter plastic reels.

NOTE: After performing this modification, the Torque Limit Switch MUST be pressed in when using small reels.

Printed circuit board, PCA2600-1008, produces an output error signal proportional to the velocity of the dancer arm. The velocity error signal is generated by a permanent magnet and an inductor coil. This amplified signal is summed into the supply reel motor's play mode feedback loop. Changes in the position of the dancer arm in play mode alter the torque applied to the supply reel motor. This compensates for minor variations in the tape tension and reduces flutter. .

This modification involves removing the dancer arm air dashpot and replacing it with a new printed circuit board and a magnetic arm. The Analog Torque Board is also modified to accept the servo error signal.

The modification kit includes:

- Electronic Flutter Damper Board PCA2600-1008-00
- Retrofit wiring harness WDA2600-1011-00
- Magnetic Flutter Damper Arm MCA2600-0410-00
- .020 Inch Shim SP7100-0142-00
- 4-40 X ½" Allen Socket Head Screw (2 ea.)
- 6-32 X 5/8" Binderhead Screw
- 6-32 Hex Spacer
- 6-32 X ¼" Binder Head Screw
- 10-32 Hex Spacer
- 10-32 X ¼" Binder Head Screw

DESCRIPTION OF CHANGE

STEP 1. Modify the Analog Torque Board, PCA2600-001.

a. Remove the Analog Torque Board from the transport.

b. Solder the wires of the harness to the resistor leads as shown in figure 1.

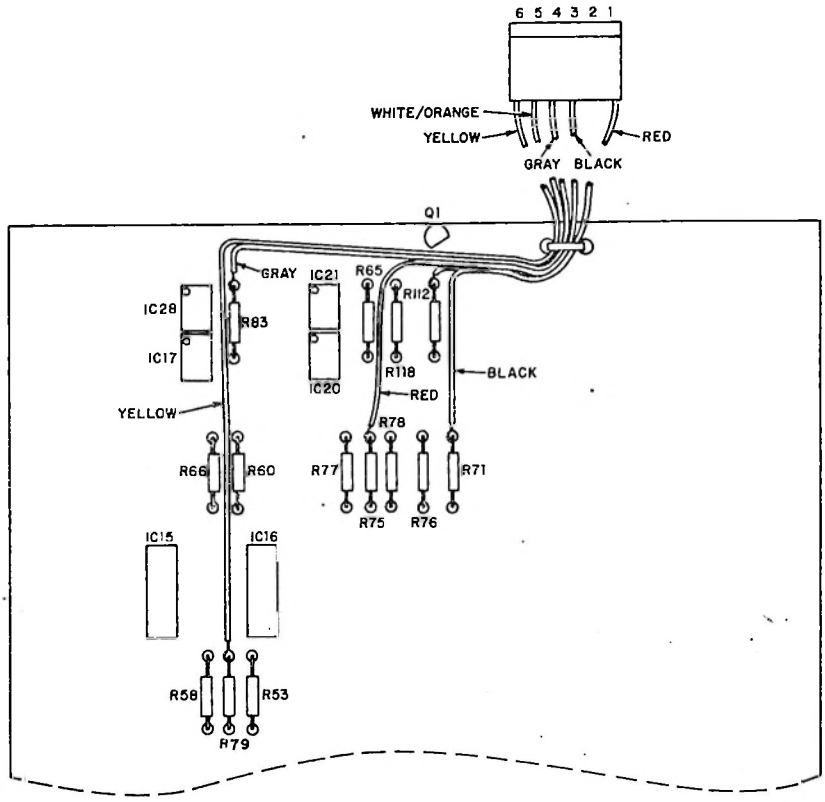


Figure 1

Analog Torque Board Modification

STEP 2. Remove the transport's deck plate cover.
- a. Remove the head bridge, pinch roller, and roller guides.
- b. Remove the five socket head screws holding the cover and lift the cover from the deck.

STEP 3. Remove the RTZ III processor assembly from the deck.
- a. Unplug the five cables from the Processor Board.
- b. Remove the Processor Board, PCA2600-0611.
- c. Remove the mounting plate by removing the four screws securing the plate to its standoffs.

STEP 4. Remove the air dashpot assembly.
- a. Remove the 10-32 screw holding the air dashpot bracket and slide the piston out of the dashpot cylinder.
- b. Loosen the retaining screw on the dancer arm below deck bar and slide the bar from the dancer arm shaft.

CAUTION: The dancer arm loading spring and the bearing will probably fall off the shaft when the bar is removed. Do not lose these two parts; they are required for reassembly.

c. Remove the 6-32 screw from the left side of the dancer arm's limit stop bracket.

STEP 5. Install the Flutter Damper Board.

a. Replace the screw just removed in step 4c with the longer 6-32 screw supplied and tighten the 6-32 hex spacer to it.

b. Tighten the screw formerly holding the dashpot bracket and tighten the 10-32 hex spacer onto it.

c. Mount the circuit board on the spacers as shown in figure 2 using the two screws supplied.

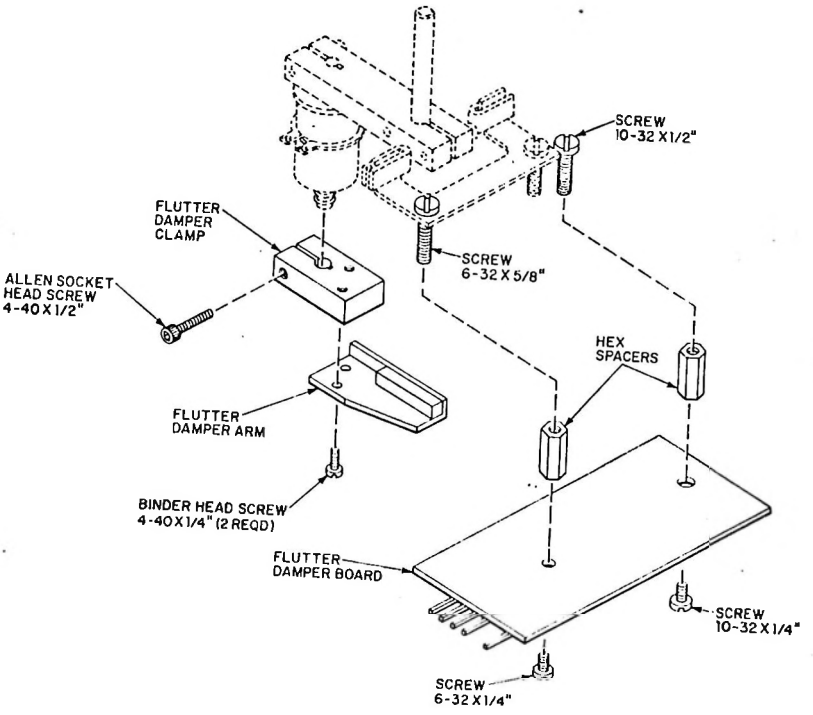


Figure 2

STEP 6. Install the magnetic damper arm.

a. Replace the bearing and loading spring on the dancer arm shaft.

b. Slide the new arm onto the shaft, positioning the magnet at the right edge of the sensor coil. Place the .020 inch shim between the magnet and the coil to set the required gap. Tighten the retaining screw just enough to prevent the arm from moving.

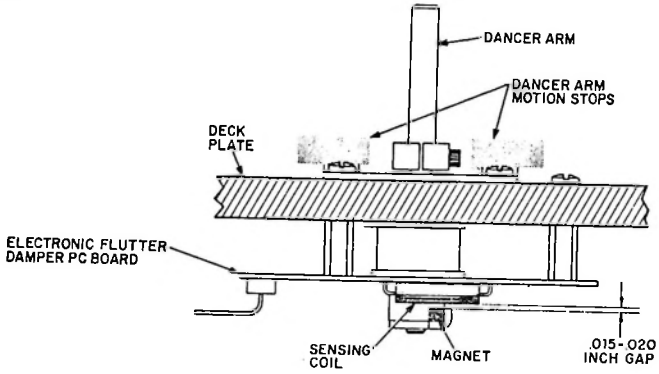


Figure 3

c. Refer to figure 3. Center the dancer arm between its motion limit stops. Insure that the magnet is centered over the sensor coil with a .015 to .020 inch gap between the coil and the magnet. Tighten the retaining screw.
d. Recheck the alignment. Move the dancer arm from one stop to the other. The magnet's motion should be centered over the coil. Adjust if necessary.

STEP 7. Reassembly.
a. Replace the Analog Torque Board and plug the new connector into the Flutter Damper Board.
b. Replace the RTZ III mounting plate and Processor Board. Reconnect the cables.
c. Replace the transport deck plate cover, head bridge, roller guides, and pinch roller.

STEP 8. Check the operation of the flutter damper.
a. Load a reel of tape. Press the Torque Limit Switch if using small plastic reels. Turn power on, press PLAY. Only slight movements of the dancer arm should be noticeable. If the dancer arm has no control over the tape tension there is a component or wiring problem.
b. Move the dancer arm by hand. You should feel a smooth, even resistance to this motion throughout the range of the dancer arm's movement. If the dancer arm oscillates, increase the clearance between the magnet and the sensing coil. If damping action is lost near either end of the dancer arm's travel, readjust the angular position of the magnet arm slightly to obtain uniform damping.

MCI®

A division of Sony Corporation of America

NUMBER 230

APRIL 26, 1982

service bulletin

PRODUCT: JH-110B

ASSEMBLY: Motor Driver Board, PCA2600-033/PCA2600-027

ECO NUMBER: 2785

REASON FOR CHANGE: To improve reel motor performance when using five inch plastic reels.

PARTS REQUIRED: Two 330k ohm resistors ¼ watt

PROCEDURE:

1. Remove the chimney/fan assembly from the power supply.
2. Remove two 470k ohm resistors, R24 and R25, and replace with 330k ohm resistors.

INSTALLED ON MCI #1 RKP

MCI®

A division of Sony Corporation of America

NUMBER 231

JUNE 22, 1982

service bulletin

PRODUCT: JH-110B and JH-110C

ASSEMBLY: PCA2600-1008, Dancer Arm Flutter Damper Board

ECO NUMBER: 2979

REASON FOR CHANGE: Dancer arm tends to oscillate when using five inch plastic reels.

PARTS REQUIRED: One 0.15μf capacitor - :15MF250V-CMY

PROCEDURE:

Step 1. Remove the Flutter Damper Board.
In order to gain access to the Flutter Damper Board, you must remove the RTZ III Processor Board and its mounting plate.

Step 2. Remove C103, a .047μf capacitor, and replace it with a .15μf capacitor.

Step 3. Replace the Flutter Damper Board and check to alignment as described in Section 7 of the Technical Manual.

MCI

SERVICE BULLETIN

PRODUCT ALL RECORDERS

BULLETIN NO. 301

DATE OCTOBER 8, 1976

The new PHASE LOCKED LOOP BOARD *(P.C. 25C600)* may be used on OLDER recorders - BOTH. JH-110 SERIES and JH-16 SERIES- PROVIDED THE SPEED CONTROL HARNESS HAS BEEN CHANGED AS SHOWN IN THE FOLLOWING TWO PAGES. *(301-2 & 301-3)*

NOTE: Once the harness has been changed, it is NO LONGER COMPATIBLE with the OLD PHASE LOCKED LOOP BOARD.

Therefore, make these changes ONLY if you are changing boards permanently.

AN ADDITIONAL OPTIONAL MODIFICATION IS EXPLAINED ON PAGE 301-4.

This modification must be made when the Speed Control Harness is altered -IF THE CUSTOMER USES THE 19.2 kHz signal available from the recorder. *(For external lock-up devices, TVI unit, etc.)*.

If there is no anticipated use of this signal, this modification may be left out.

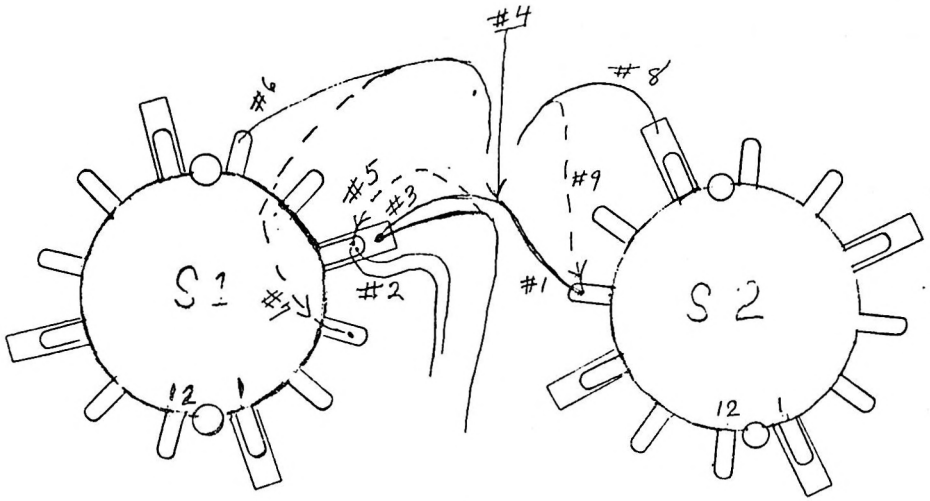


Figure 1

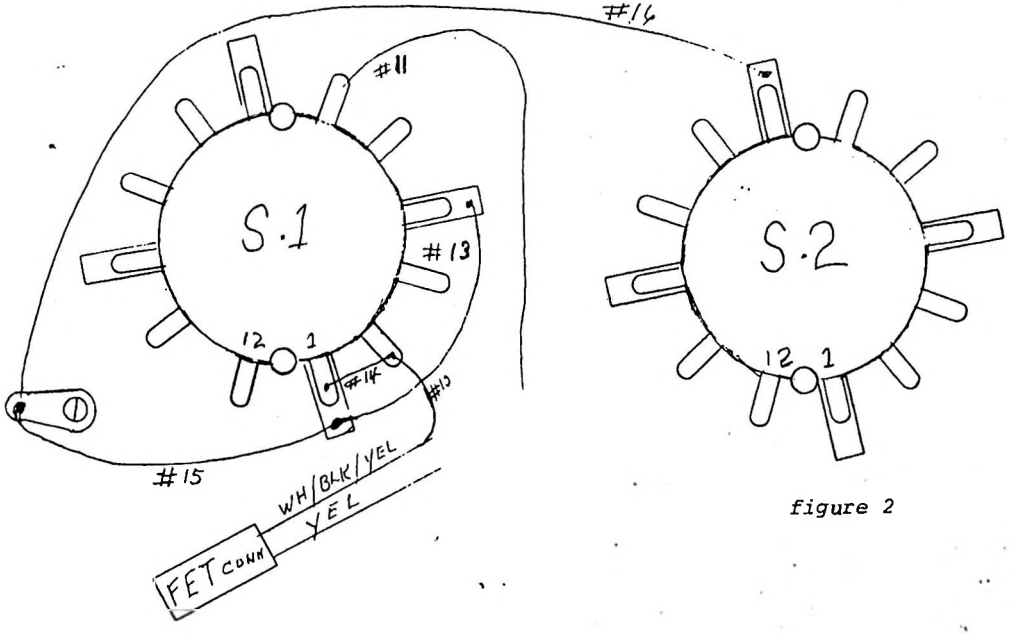


figure 2

The Speed Selector switches shown above are seen from the bottom side of the DECK with the DECK raised into its upper service position.

PROCEDURE FOR MODIFYING THE SPEED CONTROL HARNESS TO USE THE NEW *(25C600)* PHASE LOCKED LOOP BOARD.

JH-110 SERIES

STEP

1 Disconnect the WHT/BLK/ORN wire from Pos 9 (S2).

2 Disconnect BOTH WHT/BLK/YEL wires from Pos 4 (S1).

3 Disconnect BOTH WHT/BLK/ORN wires from the wiper behind Pos 4 (S1).

4 Discard the short wire which originally connected Pos 9 (S2) and the wiper behind Pos 4 (S1).

5 Reconnect the remaining WHT/BLK/ORN wire to Pos 4 (S1).

6 Disconnect the YEL wire from Pos 6 (S1).

7 Reconnect the YEL wire to Pos 3 (S1).

8 Disconnect the WHT/BLK/GRN wire from the wiper behind Pos 7 (S2).

9 Reconnect the WHT/BLK/GRN wire to Pos 9 (S2).

#10 Locate the WHT/BLK/YEL wire which goes to the FET connector. Reconnect the free end of this wire to Pos 2 (S1).

#11 Reconnect the remaining WHT/BLK/YEL wire to Pos 6 (S1).

#12 Install a ground lug under the screw just to the left of S1.

#13 Install a jumper wire between the wiper behind Pos 1 (S1) and the wiper behind Pos 4 (S1).

#14 Install a jumper wire from Pos 1 (S1) to Pos 2 (S1).

#15 Install a ground wire from Pos 1 (S1) to the ground lug.

#16 Install a ground wire from the wiper behind Pos 7 (S2) to the ground lug.

JH-16 SERIES

Follow the procedure for JH-110 series EXCEPT for #1, #8, #9, and #16.

1 Disconnect the WHT/BLK/ORN wire from Pos 5 (S2).

8 Disconnect the WHT/BLK/GRN wire from the wiper behind Pos 4 (S2).

9 Reconnect the WHT/BLK/GRN wire to Pos 5 (S2).

#16 Install a ground wire from the wiper behind Pos 4 (S2) to the ground lug.

PROCEDURE FOR CONNECTING 19.2 KHZ SIGNAL TO CAPSTAN SERVO PROGRAMMING PLUG. *(Needed when modifying the Speed Control Harness to accept the new Phase Locked Loop board - 25B600)*

STEP

#1 Clip the WHT/GRAY wire from PIN 7 of the CAPSTAN PROGRAMMING SOCKET.

#2 Solder a length of wire to the above pin and route it as follows:

Dress the wire along the inside rear of the DECK ELECTRONICS CHASSIS - all the way to the corner close to the SERVO PULL-UP & PULL-DOWN transistors..

Dress the wire all the way up the right end of the chassis and bring it out of the corner close to the CAPSTAN PINCH ROLLER mechanism.

#3 Using a suitable "SERVICE LOOP", connect the wire to a Molex connector and insert into PIN 3 of HP-60. *(Wires for the other Pins of HP-60 come from the Capstan Tach assembly).*

MCI

SERVICE BULLETIN

PRODUCT ALL RECORDERS
BULLETIN NO. 302
DATE NOVEMBER 2, 1976

P.C. Bd. Photo Sensor Amplifier No. 26B160

ECO No. 322-323 IN NEW PRODUCTION ON SERIAL NO. JH-110 510
JH-16 421

THIS IS A MANDATORY CHANGE

REASON FOR CHANGE:

To improve Tape Break sensor reliability.

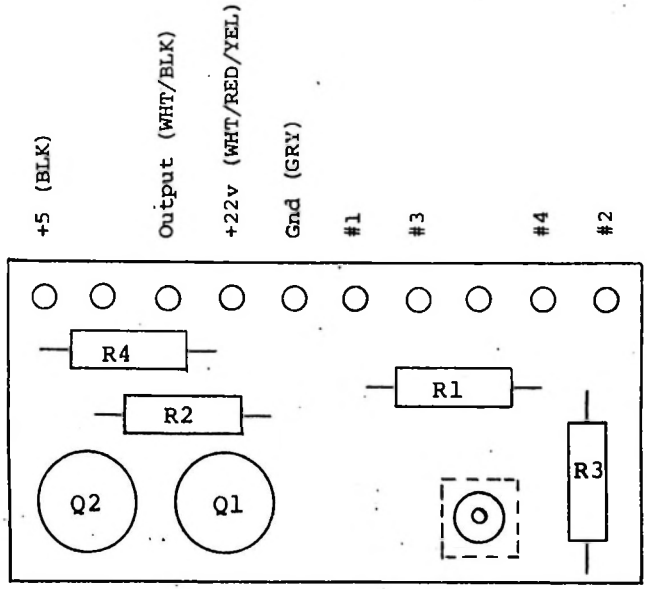
DESCRIPTION OF CHANGE:

This amplifier board is a direct replacement for the terminal strip which contains conditioning components for the TAPE BREAK SENSOR. Locate this terminal strip directly under the Tape Break Sensor. It has mounted on it: a capacitor, two resistors, and a zener diode.

1. Unsolder all of the wires going to this terminal strip. Remove the terminal strip. Mount the amplifier board, using the same mounting screw.

2. IF there were TWO BROWN wires going to one of the lugs on the terminal strip, solder these two wires together and insulate the end with tape *(These wires are not to be connected to the new board)*.

3. Refer to the drawing below and the Wiring Chart on the back of this page for the correct color code for your machine.



TOP VIEW
26B160

WIRE CHART

CONNECTION	JH-100	JH-110	JH-114
Drawing No.	WD25D186	WD26D186	WD25D547
#1	White	Green	White
#2	Orange	White	Orange
#3	Violet	White	Violet
#4	Green	Yellow or Blue	Green
Output	White/Black		
Ground	Gray		
+22 volts	White/Red/Yellow		
+ 5 volts	Black		

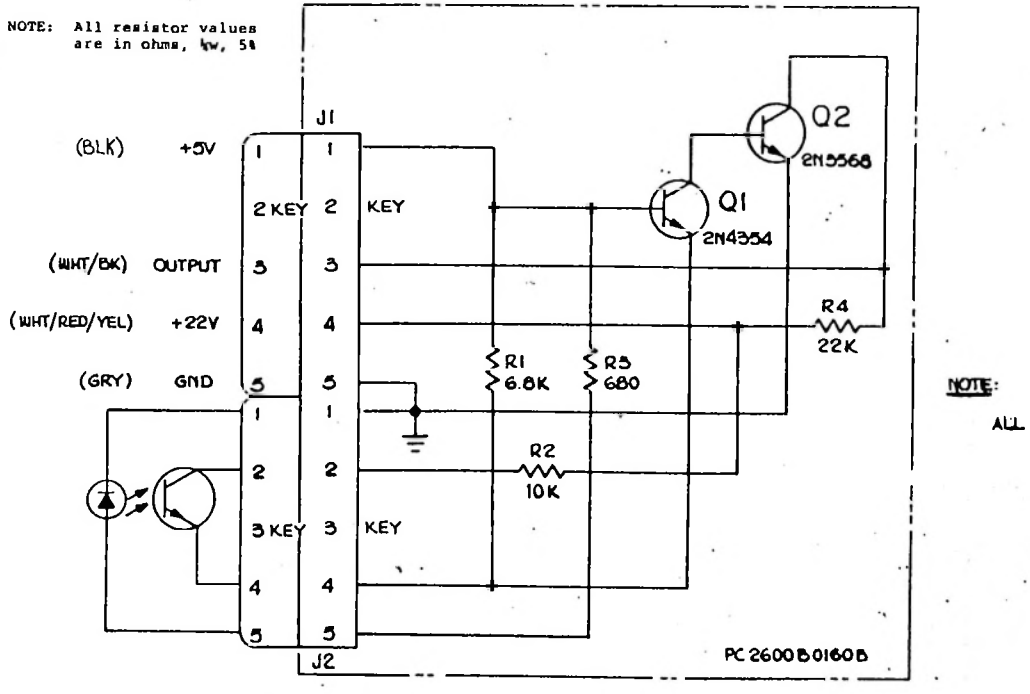
4. After you have connected all wires to the new amplifier board, there is one change to the Transport Mother board.

5. Unplug the Phase Locked Loop board.
Locate R19 on the Mother board, near the right end-center position.

6. Remove R19 and replace with a Jumper wire.

7. REASSEMBLE. THE MODIFICATION SHOULD NOW BE COMPLETE.

* Some early JH-100s have no +22volts on the terminal strip. +22volts can be found at the MVC assembly. (White/Red/Yellow wire).



NOTE: R19 on deck Mother Board must be replaced with a Jumper wire to provide +5v.

MCI

SERVICE BULLETIN

PRODUCT ALL RECORDERS

BULLETIN NO. 303

DATE NOVEMBER 19, 1976

P.C. Bd. Phase Locked Loop Board No. 25C600A

ECO No. 394 IN NEW PRODUCTION ON November 18, 1976

THIS IS AN OPTIONAL CHANGE
(applies to Revision "A" only)

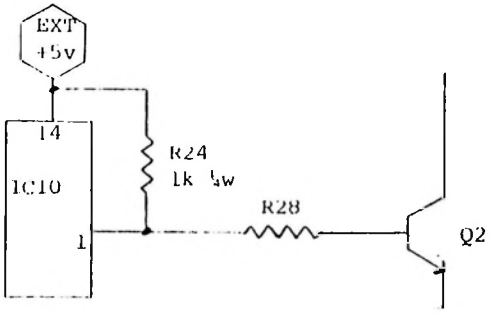
REASON FOR CHANGE:

To improve the performance of the capstan speed output signal.

DESCRIPTION OF CHANGE:

1k ¼w resistor between pin 1 and pin 14 of IC10. (add on circuit side of board)

The new schematic is as follows:



COMPONENT REQUIREMENT:

(1) 1k ohm ¼w 5% resistor

MCI

SERVICE BULLETIN

PRODUCT ALL RECORDERS

BULLETIN NO. 304

DATE NOVEMBER 19, 1976

P.C. Bd. Phase Locked Loop Board No. 25C600A

ECO No. 391 IN NEW PRODUCTION AFTER November 15, 1976

THIS IS AN OPTIONAL CHANGE

REASON FOR CHANGE:

1N914 diodes used as CR11 and CR12 are affecting performance of other components in the circuit.

DESCRIPTION OF CHANGE:

Change the following diodes:

CR11	from	1N914	to	1N4004
CR12	from	1N914	to	1N4004

COMPONENT REQUIREMENT:

(2) 1N4004 diodes

MCI

SERVICE BULLETIN

PRODUCT ALL RECORDERS

BULLETIN NO. 305

DATE NOVEMBER 22, 1976

P.C. Bd. Phase Locked Loop Bd. No. 25C600

ECO No. 343 and 345 THIS ECO APPLIES ONLY TO:

JH-16 Serial Nos:		JH-110 Serial Nos:			
419	423	502	513	516	523
420	424	510	514	517	524
422	425	511	515	522	

THIS IS AN OPTIONAL CHANGE

This ECO needs to be implemented ONLY if the TVI option is to be installed.

REASON FOR CHANGE:

One wire was left out of the wiring harness.

DESCRIPTION OF CHANGE:

The procedure for connecting 19.2kHz signal to capstan servo programming plug is as follows:

Step 1 - Clip the WHT/GRY wire from pin 7 of the Capstan Programming Socket.

Step 2 - Solder a length of wire to the above pin and route it as follows:

Dress the wire along the inside rear of the DECK ELECTRONICS CHASSIS - all the way to the corner close to the SERVO PULL-UP and PULL-DOWN transistors.

Dress the wire all the way up the right end of the chassis and bring it out of the corner close to the CAPSTAN PINCH ROLLER mechanism.

Step 3 - Using a suitable "SERVICE LOOP", connect the wire to a Molex connector and insert into pin 3 of HP-60. *(Wires for the other pins of HP-60 come from the Capstan Tach assembly.)*

COMPONENT REQUIREMENT:

None

MCI

SERVICE BULLETIN

PRODUCT ALL RECORDERS

BULLETIN NO. 306

DATE MARCH 30, 1977

JH-16 MANUAL — PAGE 5-29

JH-110 MANUAL — PAGE 5-35

THIS IS A MANDATORY CHANGE

REASON FOR CHANGE:

It has been found that the procedure shown in both manuals SOMETIMES produces increased distortion when record levels are high.

DESCRIPTION OF CHANGE:

The instruction should read:

> Rotate the RECORD LINEARITY pot to MINIMUM. Connect the IM Analyser to the input and the output of the rack to be tested.
>
> Slowly increase the RECORD LEVEL until the IM Analyser shows a distortion reading of 3% *(shown as point "X" above)*.
>
> Adjust the RECORD LINEARITY control (R74) until a MINIMUM distortion reading is obtained.

(The instructions in the manuals are to adjust to 4%-5% distortion.)

MCI

SERVICE BULLETIN

PRODUCT ALL RECORDERS

BULLETIN NO. 307

DATE JUNE 2, 1977

P.C. Bd. Transport Mother Bd. No. 25D85

ECO No. 290 IN NEW PRODUCTION ON SERIAL NO. 473

THIS IS AN OPTIONAL CHANGE

REASON FOR CHANGE:

Noise from TVI option bleeds into Audio. Other noise on this buss may also cause higher flutter in external mode or cause tape tension variation between fixed mode and external mode.

DESCRIPTION OF CHANGE:

ADD: 1. a .1 mfd 50v cap from Pin 1 to Pin 3 of J10.

2. a .1 mfd 50v cap from Pin 4 to Pin 6 of J4.

These can be added either on the Mother board or on the Torque board.

COMPONENT REQUIREMENT:

(2) .1 mfd 50v caps

MCI

SERVICE BULLETIN

PRODUCT ALL RECORDERS

BULLETIN NO. 308

DATE JUNE 23, 1977

TVI INTERFACE INSTRUCTIONS

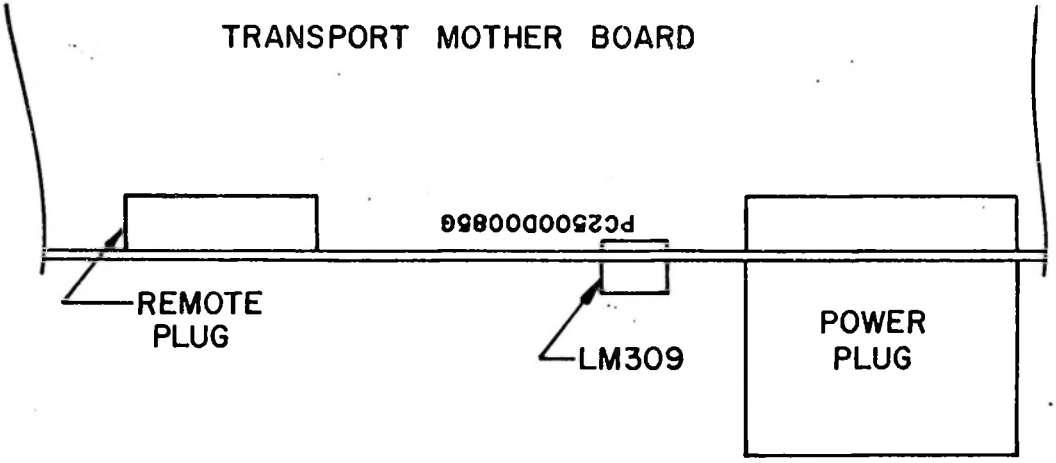
FOR CONNECTION TO JH-110, JH-110A & JH-114

There are two different versions of the TVI PC board. One version fits all Transport Mother board revisions through "F". The second version fits Transport Mother board revision "G" *(or later)*.

YOU MUST DETERMINE THE TRANSPORT MOTHER BOARD REVISION LEVEL BEFORE STARTING THE INSTALLATION.

There are two ways to determine the revision level:

1. The revision level is printed on the bottom of the Transport Mother board in the location shown here:



2. Remove the Phase Locked Loop board.
   Revision "G" Transport Mother board has 2 ICs and several circuit components mounted directly under the Phase Locked Loop board. Earlier revisions do NOT have these ICs.

The two PC boards have six parts changed to interface properly with the Mother Board used. Also, a connection to the Phase Locked Loop board must be changed for the "through revision F" version.

DESCRIPTION AND INSTALLATION OF A TVI INTO A RECORDER HAVING A TRANSPORT MOTHER BOARD THROUGH REVISION "F".

Values of interchangeable parts:

2k ohms ¼ watt resistors must be used in these positions:

R2/D3, R3/D4, R7/D5, R8/D6

Jumpers must be used in these positions:

R1, R6

Clip Pin 10 of the Beau connector on the TVI to Transport cable. Solder a black wire to Pin 10 of the connector. Solder the other end of the wire to Pin 6 of IC9 (7400) on the Phase Locked Loop board.

DESCRIPTION AND INSTALLATION OF A TVI INTO A RECORDER HAVING A TRANSPORT MOTHER BOARD OF "G" REVISION OR LATER.

Values of interchangeable parts:

1N4001 Diodes must be used in these positions:

R2/D3, R3/D4, R7/D5, R8/D6

4.7k ohms ¼ watt resistors must be used in these positions:

R1, R6

Use the TVI to Transport cable AS IS. No connection change is needed.

PROCEDURE FOR TRANSFERRING A TVI FROM AN OLDER BOARD TO A "G" REVISION MOTHER BOARD.

STEP 1 Change the parts on the PC board as shown above.

STEP 2 Clip the external black wire.
Move the red wire from Pin 10 of the Beau connector to Pin 4. (NO connection is necessary at Pin 10).

MCI

SERVICE BULLETIN

PRODUCT ALL RECORDERS

BULLETIN NO. 308 A

DATE AUGUST 24, 1977

INSTRUCTIONS FOR USING JH-16 AND JH-110A RECORDERS AT LINE LEVELS OF +6 DBM AND +8 DBM

Meter resistors must be adjusted to allow the meters to read "0" at the desired *(higher)* level. The required meter resistors are given in TABLE I below:

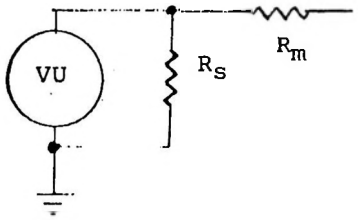
TABLE I

DESIRED OUTPUT LEVEL	METER RESISTOR	PERCENTAGE ERROR IN METER BALLISTICS
+4 dBm	3.6k 2%	0 %
+6 dBm	5.9k 2% *(5.83k)*	1.5 %
+8 dBm	8.1k 2% *(8.15k)*	2.5 % *(about 1/8 dB max)*

A change in external resistance will change the ballistics of the meter only a very small amount - not visible under normal program conditions. *(The Triplett meter generates its own ballistics internally).* However, if it is desirable to retain the exact ballistics, an additional shunt resistor may be installed as shown in TABLE II :

TABLE II

OUTPUT LEVEL	R_S	R_m
+4 dBm	∞	3.6k
+6 dBm	29.5k	4.3k
+8 dBm	11.6k	5.98k



With the meters adjusted to read "0 dB" at the desired ELEVATED LEVEL, alignment procedure is the same as outlined in the manual.

NOTE: The HEAD ROOM in these machines is over 20 dB at the NORMAL level of +4 dBm.

ELEVATED LEVELS CAUSE A REDUCTION IN HEAD ROOM.

EXAMPLE: At a +8 dBm level *(4 dB ABOVE mornal)* the machine will have a +16 dB headroom *(4 dB BELOW normal)*.

This available headroom should be satisfactory.

MCI

SERVICE BULLETIN

PRODUCT JH114-JH110A

BULLETIN NO. 309

DATE 8-22-78

P.C. Bd. JH114 System Wiring NO. WD2500E0581

JH110A System Wiring NO. WD2600E0150

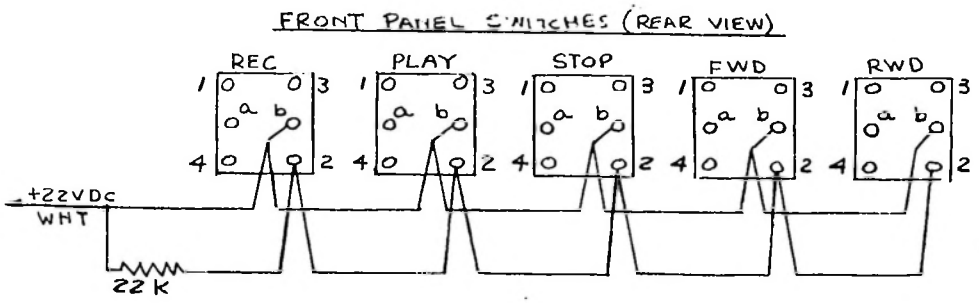
ECO NO. 835 IN NEW PRODUCTION ON SERIAL NO. _____

THIS IS AN OPTIONAL CHANGE

REASON FOR CHANGE: To permit interfacing with A/L III and SMPTE or RTZ.

DESCRIPTION OF CHANGE:

1. Disconnect leads from terminal (2) and terminal (b) of the REC, PLAY, STOP, FWD and RWD switches in REMOTE BOX (MVC).
2. Tie all the pins (2) together. Connect a 22k resistor to pin (2) of the REC switch. Tie the other end of the resistor to +22VDC.
3. Tie all the pins (b) together, keep pin (b) on the REC switch connected to +22VDC.
4. Do not touch wiring to other pins.



COMPONENT REQUIREMENTS:
(1) 22k 1/4W 5% Resistor

MCI

SERVICE BULLETIN

PRODUCT JH-114/110A

BULLETIN NO. #311

DATE OCTOBER 6, 1978

P.C. Bd. JH-114 Remote NO. WD 2500E0581

JH-110 Remote NO. WD 2600E0150

ECO 865 IN NEW PRODUCTION ON SERIAL NO. _____

THIS IS AN OPTIONAL CHANGE

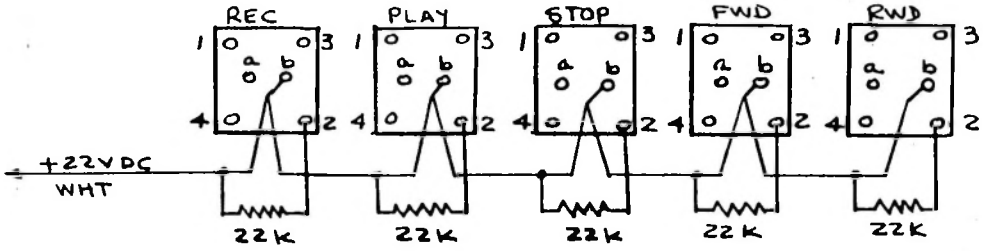
NOTE: THIS SERVICE BULLETIN REPLACES SERVICE BULLETIN #309

REASON FOR CHANGE:

To permit interfacing with A/L III and JH-45.

DESCRIPTION OF CHANGE:

1. Remove jumpers tying pin 2's of RECORD, PLAY, STOP, FWD and RWD switches.
2. Add a 22K ¼w 5% resistor from pin 2 to pin b of each switch.



COMPONENT REQUIREMENTS:

(5) 22K ¼w 5% resistors

MCI

SERVICE BULLETIN

PRODUCT TAPE MACHINES GEN
BULLETIN NO. 312
DATE 3-21-79

PROPER ALIGNMENT OF TAPE MACHINES

1. All MCI machines have guides and motors shimmed for proper alignment at the factory. The mechanical stability of these components is excellent and should not require re-shimming during the normal life of the product.

   If tape handling problems exist, check:

   A. Pinch Roller (Swelling & Adjustment)
   B. Tensions
   C. Head Alignment
   D. Turntable height adjustment

   CHANGING OF SHIMMING BY OTHER THAN AN MCI TRAINED DEALER WILL VOID THE TRANSPORT WARRANTY.

2. Tension Adjustment

   The proper methods for setting supply tension on an MCI tape machine is:

   A. With tape loaded (1/2 tape on each reel), run machine in play at 15 ips.

      Using tension gauge, adjust left tape tension (supply motor) of tape leaving reel to:

      JH-110A 1/4 inch tape - 3 oz.
      JH-110A 1/2 inch tape - 4 oz.
      JH-110A 1 inch tape - 5 oz.

      JH-114 1 inch tape - 5 oz.
      JH-114 2 inch tape - 8 oz.

   B. Check and adjust dancer arm for center of motion with machine in play at 15 ips, and 1/2 tape on each reel.

   C. With machine in play, disengage puck from capstan and adjust take-up tension such that the dancer arm is re-centered.

      At this time, with machine in play, you should be able to manually engage and disengage puck without any noticeable speed change. This means the capstan is doing no work, only metering the tape.

MCT

SERVICE BULLETIN

PRODUCT JH-16/114 JH-110 A

BULLETIN NO. 313

DATE 7-23-79

PC BOARD TRANSPORT MOTHER BOARD

PC BOARD NO.

PCA 2500-0085-01
PCA 2500-0085-00

ECO No. _____ - _____ IN NEW PRODUCTION 8-10-79

REASON FOR CHANGE:

New Transport Mother Board for JH-110A and JH-16/114

DESCRIPTION OF CHANGE:

A new Transport Mother Board is available for the JH-110A. This Mother Board incorporates the "Edit Prime" feature.

"Edit Prime" allows the tape operator to defeat idle with tape loaded, causing loss of holdback tension. "Edit Prime" may be entered from the Stop mode only, with tape loaded, by depression of the "Edit Prime" switch, and may be cleared by depression of the "Edit Prime" switch or removal and re-insertion of tape in the tape break photocell. A two pin Molex is available on the rear of the motherboard for attachment of a foot switch to activate "Edit Prime" mode. "Edit Prime" does not in any way change the previous "Edit Prime" mode.

The new motherboard will be installed on all JH-110's in the near future. "Edit Prime" is not available on the JH-114.

MCI

SERVICE BULLETIN

PRODUCT JH-110 & JH-114

BULLETIN NO. 314

DATE 11-8-79

P.C. Bd. Interface Lamp Driver Board No. 2500-0415

ECO No. 1247

THIS IS A MANDATORY CHANGE.

REASON FOR CHANGE:

P.C. Board land is missing, thus when having the MVC (Manual Velocity Control) sensitivity set to high and activating one of the transport controls (i.e. fast wind mode, torque limit, or Autolocate command) this may cause the transport to latch in MVC mode.

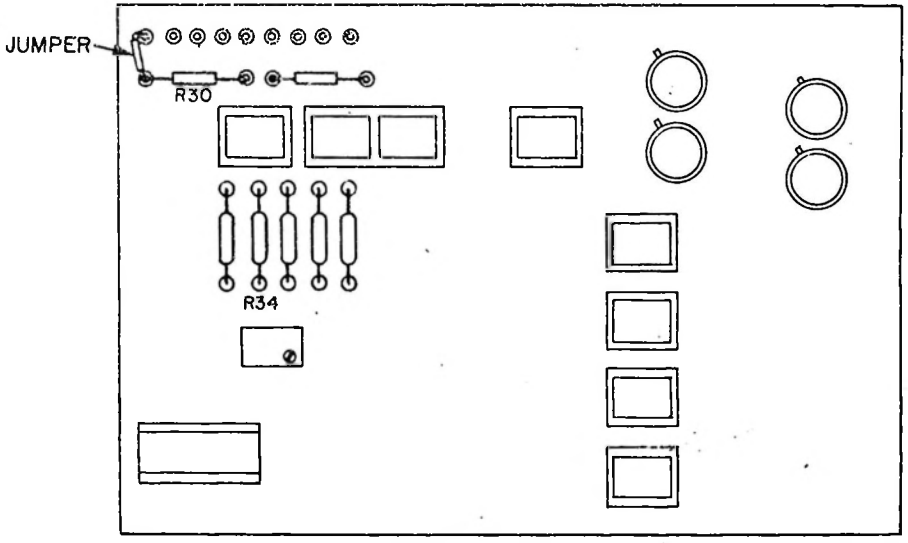
DESCRIPTION OF CHANGE:

Step 1) Add jumper wire (20 or 22ga) on to the component side of the P.C. Board between Molex P21-1 and R30. (See diagram on reverse side).

Step 2) Change R34 from 100 ohm ½w resistor to 1.5K ohm ½w resistor to limit maximum MVC sensitivity.

PARTS REQUIRED:

1 - 1.5K ohm ½w 5% resistor



PASS

MCI

SERVICE BULLETIN

PRODUCT JH-110B/114

BULLETIN NO. 315

DATE JANUARY 9, 1980

P.C. BD. Transport Mother Board NO. PC 2500-0085

ECO NO. 1387

THIS IS A MANDATORY CHANGE.

REASON FOR CHANGE:

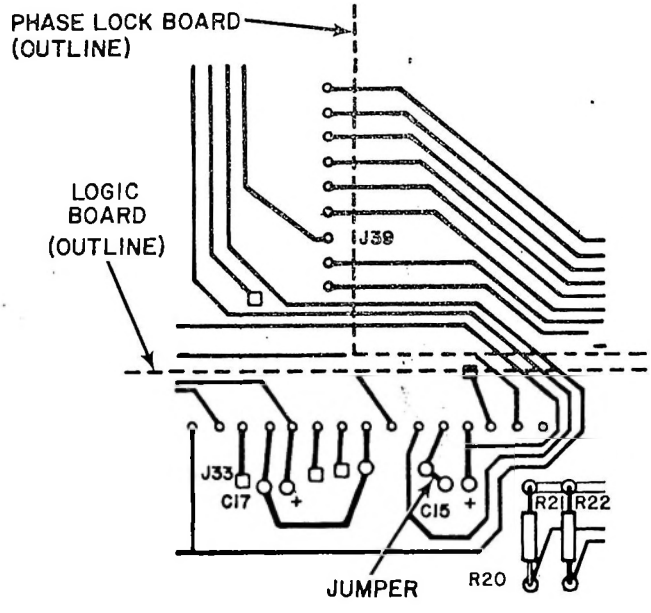
Missing land on P.C. Board, causing machine to enter "Edit" mode on power-up.

DESCRIPTION OF CHANGE:

Add 22ga wire from negative side of capacitor C15 (under Logic Board) to ground as shown in illustration on reverse side.
The following machines are affected:

JH-114 Multi-track with S/N 888-939
JH-110B all with the following S/N's

1991	2026	2043
1996	2031	2044
1948	2032	2045
2016	2033	2046
2017	2035	2047
2018	2036	2049 thru 2170
2019	2037	
2020	2040	
2023	2041	
2025	2042	


PHASE LOCK BOARD
(OUTLINE)
LOGIC
BOARD
(OUTLINE)
J39
J33
C17
+
C15
+
R21
R22
R20
JUMPER

MCI

SERVICE BULLETIN

PRODUCT JH-110B/JH-24

BULLETIN NO. 316 Page 1

DATE APRIL 16, 1981

P.C. BD.	P.C. BD. NO.
JH-24 RECORD/CUE	PCA 9000-0149-00/01
JH-24 REPRO BOARD	PCA 9000-0146-00/01
JH-110B REPRO BOARD	PCA 2700-0913-01/02/03/04
JH-110B/M FRONT PANEL EQ BD.	PCA 2700-0195-00
JH-110B RECORD BOARD	PCA 2700-0914-00/01/02

E.C.O. # 1929, 1930, 1931, 1932, 1956, 1957, 1958, 1959, 1960 & 1970

THIS IS AN OPTIONAL CHANGE

To improve low end frequency response of bothe the JH-24 and the JH-110B and JH-110B/M. This modification improves response at 30Hz from 3 to 4dB at 30 IPS dependent upon tape head configuration. Will also aid frequency response at 15 IPS. This is accomplished by the following:

1. Increasing the integrator low end limit cap to a larger value.
2. Increasing the integrator feedback resistor.
3. Adding a filter network in place of a single resistor for improved low end roll-up.
4. Change I.E.C. record EQ on JH-110B and JH-24 to complement change of repro circuit.
5. Improve NAB/IEC tracking on JH-110B Repro Board

NOTE: To obtain the correct response, the tape machine must be aligned for a +1dB bump at the low end, just above the low end roll-off frequency.

DESCRIPTION OF CHANGE:

STEP 1. Use the following chart for proper Cap/Resistor designation.

A.

MACHINE	CAP	FROM	TO
JH-24 Record/Cue	801	15uf @ 25V	47uf @ 10V
JH-24 Repro	C24	15uf @ 25V	47uf @ 10V
JH-110B Repro	C25	15uf @ 25V	47uf @ 10V
JH-110B/M Fr. EQ. Panel	C20	15uf @ 25V	47uf @ 10V

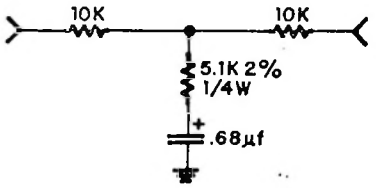
B.

MACHINE	RES	FROM	TO
JH-24 Record/Cue	803	1M ¼W 5%	2.2M ¼W 5%
JH-24 Repro	R35	1M ¼W 5%	2.2M ¼W 5%
JH-110B Repro	R34	1M ¼W 5%	2.2M ¼W 5%
JH-110B/M Fr. EQ Panel	R34	1M ¼W 5%	2.2M ¼W 5%

STEP 2. On JH-110B - Delete C40 on Record Board and replace with jumper.
On JH-24 - Delete C10 on Record/Cue Board and replace with jumper.
On JH-24 - Delete C33 on Record/Cue Board and replace with jumper.

STEP 3. Delete the following Resistor and add filter network as shown below to the following.

JH-24 Record/Cue	Delete R805
JH-24 Repro Board	" R37
JH-110B Repro Board	" R35
JH-110B/M Front Panel EQ Bd.	" R33



STEP 4. On JH-110B Repro Board change R29 from 6.8K ¼W 5% to 4.7K ¼W 5%.

APPLICATION NOTES:

STEP 1-A Alone will provide approximately 1.5dB improvement at 30Hz @ 30 IPS.

STEP 1-B Alone will provde approximately 0.8dB improvement at 30Hz @ 30 IPS.

STEP 2 & STEP 3 must be done at the same time. These changes complement each other. Done in combination, they will provide a 2dB improvement at 30Hz @ 30 IPS.

MCI

SERVICE BULLETIN

PRODUCT JH-110B & JH-24

BULLETIN NO. 317

DATE MARCH 4, 1981

P.C. BD P.L.L. BOARD P.C. BD. NO. PCA-2500-0600-00

E.C.O. # 2129

THIS IS A MANDATORY CHANGE

REASON FOR CHANGE:

Change in resistor value on P.L.L. Board reduces variable speed drift when changing from Play to Record Mode.

DESCRIPTION OF CHANGE:

Change R32 from 240 ohm ½W 5% to 120 ohm ½W 5% resistor.

PARTS REQUIRED:

1 - 120 ohm ½W 5% Resistor