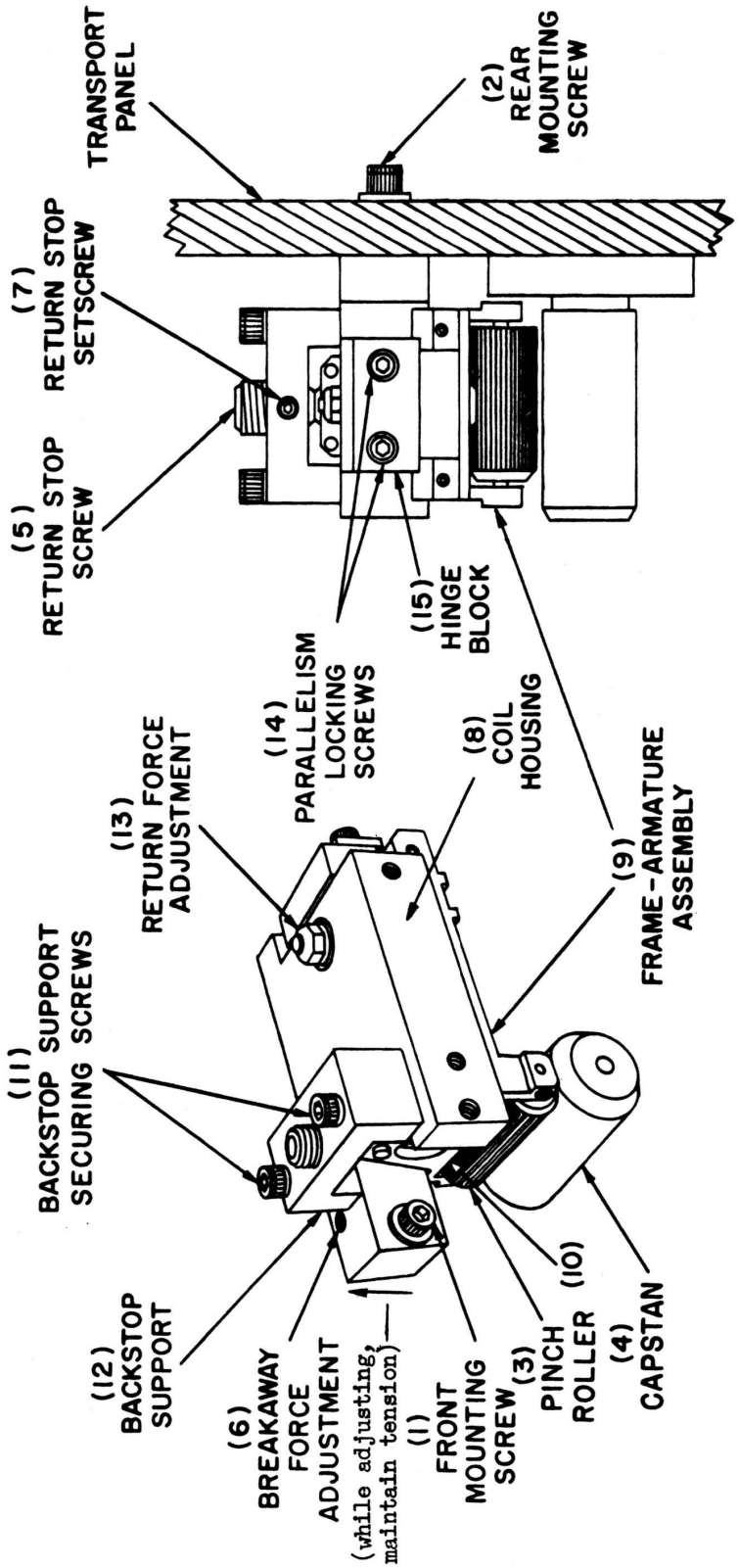

Figure 1. Solenoid Adjustments

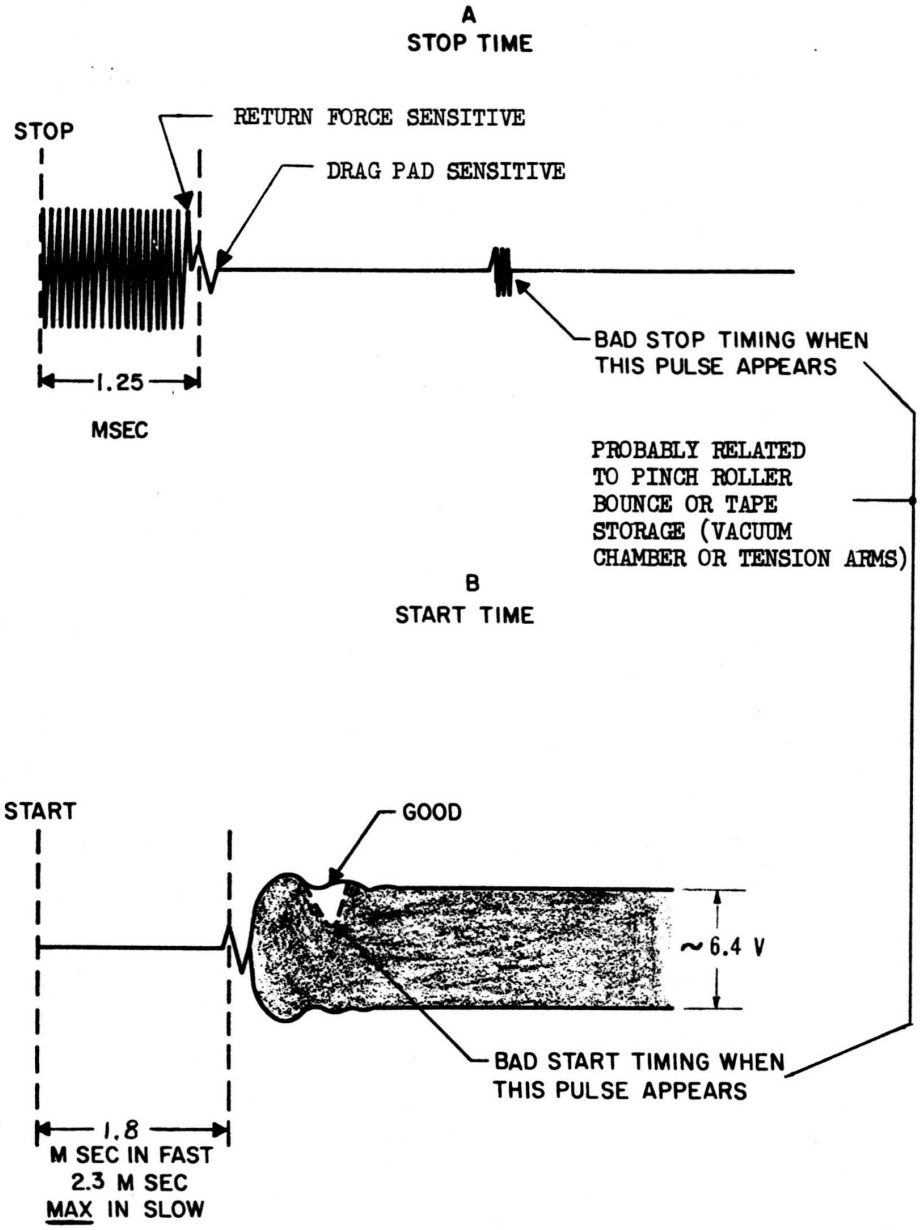

Figure 5. Transport Start-Stop Check Waveforms

TECHNICAL BULLETIN

UNIVAC | CUSTOMER SERVICES DIVISION

CONTENTS

SECTION 2

1540/1541 (RD-294) MAGNETIC TAPE UNIT

1540 TAPE UNIT ADJUSTMENT PROCEDURE

ELECTRONIC

Equipment should be checked as follows monthly, depending on usage. Test equipment must be well calibrated. The scope may be checked using the 3.46 microsecond pulse available at A12A2TB1A22 (Ø1, 8-91) when 200BPI is selected. (A) and (B) refer to scope channels A and B. References to A17 also apply to add-on units where TT1 is the top transport. (8-XX) refers to logic prints.

CAUTION: Tape meter and scope probes to prevent accidental shorting.

The Select and Tape Operation procedures are used throughout the adjustment procedures and are listed here for convenience.

Select - should need to be done only once unless transport is turned off.

1. Mount tape, position tape to BOT, power to AUTO, address to 1 (other transports to anything else) write enable for write operations.
2. Press MASTER CLEAR.
3. Set C Register bits 15,14,3,0.
4. Mode to T2, Clock Control to OP STEP.
5. Press Start Seq 1 and set LOW SPEED/STEP to STEP.

Tape Operations

1. Master clear.
2. Set Function Register bits 15 and 14 to: 00-READ, 01-WRITE 10-BACK READ, 11-REWIND
3. Set bit 7 in Fucntion Register for odd Parity.
4. Set bit 3 in. Start Seq. and press desired Density.
5. Set lower 18 bits of C Register as desired for write.
6. Depress Step switch.
7. To terminate write, press bit 26 of Write Cont.

START-STOP

Step 1. Write all 1's on tape, high density, odd parity.
Step 2. Place transport in MAN.
Step 3. Connect scope (A) to center TP of read amp, (A17-D28-TT1, D21-TT2).
Step 4. Use external sync connected to A13A1-TB2-G10 and jumper it to:

TT1	FWD	A17TB1B8 (8-74)	TT2	FWD	A17TB2B8 (8-77)
	REV	A17TB1C2		REV	A17TB2C2

CAUTION: Do not ground oscillator (2060) at A13A1J10E;8-31.)
Step 5. Sync positive to look at start time. Check both directions and all oscillator speeds. Adjust Return Stop Screw (Fig. 1) to match fig. 5. Check that set screw is tightened when through.
Step 6. Sync negative to look at stop time. Check both directions and all oscillator speeds. Adjust return force, drag pads, tension arms and vacuum as necessary to get waveform indicated in fig. 5. (See Mechanical Procedures steps 6,9,12 and 18).

ERASE HEAD POLARITY - Check after changing erase head so skew tape is not erased.

Step 1. From BOT write all 1's, odd parity, high density for approx. 15 seconds.
Step 2. Rewind tape.
Step 3. Write all 0's, even parity, high density, repeat (T3, step switch up) for the same length of time as step 1.
Step 4. Press MC, set bit 15 in Function Register, press step. Tape should read reverse to BOT without reading data. If data is read, reverse connections to erase head or check erase circuitry.

TIME DELAYS

1. Mode to T1, Master Clear, Clock to TD TEST.
2. Using and displaying external sync (B), scope (A) and following on chassis A13A1TB2 (Note: Delay begins when trigger goes positive. Change LOW SPEED ADJ. to vary trigger period - must be longer than delay).

SYNC	LOOK	ADJUST	DELAY	POLARITY	8-
C4	B4	J33D	1.08 ms	neg	17
F4	D4	J33E	2.0 ms	pos	17
G3	E3	J35F	2.0 ms	pos	9
G4	E4	J34E	4.1 ms	pos	17
E1	C1	J33F	4.5 ms	pos	9
B5	A4	J34D	20.0 ms	pos	17
G3	F3	J35E	20.0 ms	pos	9
F1	D1	J34F	35.0 ms	pos	9

VOLTAGE REGULATOR ADJUSTMENTS

Using a meter with at least 20K ohm/volt; adjust the following with respect to ground:

TEST POINT		VOLTAGE	ADJUST	FIGURE 8-
A13A1	TB1-A33	-15	A13A1-C33	66
A17	TB2-M 4	15	A17-B32 Rear pot	84
A17	TB2-M 7	-15	A17-C15	84

BIAS SUPPLY ADJUSTMENTS

1. Place negative meter lead in A17 TB2-M4 (Fig. 84).
2. Place positive meter lead in TB1-I5 (Fig. 82) as follows adjusting card at A17-C32 for TT1. Use TB2-I5 and adjust A17-C17 for TT2.

POS. VOLTAGE	POT	F. REG. 4&3
1.2	REAR	10
0.9	FRONT	00
0.3	CENTER	01

READ AMPLIFIERS (8-81 ff.)

While writing all 1's, 800 BPI , odd parity, scope the middle and rear TP of the following A17 D row cards and adjust the pot on the cards for 6.5 volts P-P:

TT1	CHANNEL	TT2
A17D-25	0	A17D-18
26	1	19
27	2	20
28	3	21
29	4	22
30	5	23
31	6	24

READ DETECTORS - The pots should be near the CCW stop when properly adjusted.

Use external sync while writing all 1's at high density and odd parity. Observe TP of the card listed, (use 10 microsecond scale) and adjust its pot so that the slight break in the waveform coincides with the zero crossover point (8-81):

TT#1			TT#2	
CARD - LOOK	TESTPOINT - SYNC	BIT	CARD - LOOK	TESTPOINT - SYNC
A17C-25	A17TB1-A8	0	A17C-18	A17TB2-A8
26	B1	1	19 19	B1
27	B2	2	20 20	B2
28	B3	3	21 21	B3
29	B4	4	22	B4
30	B5	5	23	B5
31	B6	6	24	B6

DESKEWING - NOTE: Adjust pots CCW then increase to proper value (near center of range.)

CHANNEL	TESTPOINT	CARD	HANDLER	CHASSIS	READ	WRITE	REVERSE
0	A13A2TB1-A4	0	1	A13A2	35A	34A	33A
1	G3	1	2		C	C	C
2	(8-34) F3	2	3		B	B	B
3	E3	3	4		D	D	D
			5		E	E	E
4	D3	4	6		G	G	G
5	C3	5	7		F	F	F
6	B3	6	8	A13A1	G	G	G

Read Deskew - NOTE: Always read deskewing tapes to EOT then backread to BOT.

1. Using a 800 BPI skew tape, read forward while syncing the (B) trace at A13A2 TB1-18B (8-34).

2. Look at each channel's test point using the (A) trace, and adjust its pot for a 4.5 microsec pulse.

Read Reverse Deskew

1. Do the same as for Read Deskew while reading tape in reverse.

Write Deskew

1. While writing all 1's, odd parity, and high density, sync (B) trace on A13A2 TB2-G11 (8-50).
2. Look at A13A2 TB1-G12 (A) trace and adjust channel 3 for 3.0 microseconds.
3. Return sync to A13A2 TB1-18B (8-34)
4. Look at (A) trace at A13A2 TB1-E3, (Channel 3)
5. Look at (B) trace at channel being deskewed (except 3) and adjust to match (A) trace.

FERRITE PAD ADJUST (Cross talk)

Step 1. Disconnect one lead of FWD pinch roller.
Step 2. Write all 1's on tape.
Step 3. The center test point on the 3500 PC Card at D28 and D21 located in the A17 drawer should read less than 0.15V P-P. The 3500 PC Card at D28 is for TT1, location D21 is for TT2. To minimize cross talk, loosen the two ferrite pad screws and move the pad up and down. (Adjust the 3 small set screws if the pad is not parallel to the head).

1540 TAPE TRANSPORT ADJUSTMENT PROCEDURE

MECHANICAL

Equipment should be checked as follows quarterly or oftener depending on usage.

NOTE: For additional information see the 1540 Magnetic Tape Unit Technical Manual, Volume I or the Potter transport manual.

STEP 1. Turn transport to "OFF"
STEP 2. Remove tape.

NOTE: The following four steps assume that the pinch roller assembly is clean, that the pole pieces are smooth, and that bearing shaft is smooth and free.

STEP 3. Check Parallelism of both Pinch Rollers by pushing each roller lightly against its capstan, noting that the roller makes contact with the capstan over its entire length at the same time. Adjust by using the Parallelism Locking Screws (Figure 1). (The hinge block should be approximately flush, vertically, with the coil housing, Fig. 3.). Check rollers and bearings for wear or excessive play.

STEP 4. Adjust Return Force by turning the Return Force Adjustment Nut on top of the coil housing so that a spring scale reads about 40 oz. when the pinch roller just touches the capstan as it is pulled by the scale to the capstan. (Be sure the spring scale is properly zeroed and that the sliding indicator does not drag.)

STEP 5. Mount scratch tape and turn power switch to MAN.

STEP 6. Measure drive or Breakaway Force by depressing the appropriate direction button and pulling the pinch roller away from the capstan with a spring scale, noting 8 lbs. of force when the solenoid releases.

Breakaway Force is adjusted by first loosening the Return Stop Set Screw, turning the Return Stop Screw out a couple of turns, and loosening both solenoid Mounting Screws (Fig. 1.) slightly. Then turn the Breakaway Force Adjustment slightly clockwise to decrease or counterclockwise to increase the force. The block should be held firmly against the adjustment screw head and the mounting screw retightened before measuring the force. The pinch roller may have to be forced against the capstan because of the misadjusted return stop.

STEP 7. Turn off power to transport and remove tape.

STEP 8. If the capstan to Pinch Roller Clearance was changed, adjust to a temporary value of .007 inch with the return stop screw.

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STEP 7. Turn off power to transport and remove tape.

STEP 8. If the capstan to Pinch Roller Clearance was changed, adjust to a temporary value of .007 inch with the return stop screw.

STEP 9. Adjust Drag Pads to 3-3½ oz. of tension on each pad by pulling some tape through the tape path with a spring scale while lifting the pad closest to the scale. This may be more easily accomplished if the drag pad cover is removed. The Ferrite Pad Clearance (about .005 inch from the head or 3 tape thicknesses) can then be checked, (See Electronic Adjustments.) Also check that the door closes smoothly and completely and that the door spring is working properly.

STEP 10. Check the Air Damper (on back of transport) by letting the Tension Arm fly out to its stop from mid range. It should stop quickly without excessive bounce and without stopping before the stop.

STEP 11. Remove the Vacuum Chamber Hose Adapter and clean inside the vacuum hose and motor. Check vacuum motor brushes if applicable, (60 HZ Motors).

STEP 12. Adjust Tension Arms to 16 oz. on center roller at null position with the screws on side of transport door (Fig. 2).

Poor vacuum may require lower tension. Check that all 10 rollers spin very freely. Transport should shut off when tension arms are within ¼" of the stops, if not, adjust the screw in front of the tension arm pots. Check that arms retract fully.

STEP 13. Write enable switch pin should extend ½" from crown of the write lock out switch cover.

STEP 14. Clean the transport, mount tape, and turn on the transport.

STEP 15. Adjust Servo Amp Gain trimpot to about midrange to provide smooth swing of the reel through about 90° (right servo amp (.) is for bottom reel) and adjust Tension Arm Null Position to midrange by rotating Tension Arm Pot (Fig. 2). Offset voltages can be adjusted on the pinch roller card (..) for ± 0.9 v. across the pots with tape moving in forward and reverse. (The two pots near the connector of the servo amp card should be adjusted to mid position.)

STEP 16. Adjust BOT (center card of Potter chassis (::) top pot) until BOT light just switches on with reflective strip under sensor and then turn trimpot 4 turns ccw. If pot clicks, replace the lamp or the window over the lamp. Adjust EOT Pot (bottom pot same card) ccw with tape moving forward until EOT light switches on then cw 4 turns. Extinguish EOT by going in REV. or turning power off to logics.

STEP 17. The Low Tape Sensors should exert 3 to 4 oz. of pressure on the tape and sense about 50" of tape on the bottom reel and about 200" of tape on the top reel. Check that roller mount does not rotate.

STEP 18. Check tape movement in the Vacuum Chamber with a Visavac. Check in particular rapid changes in direction. Check that sealer is present between posts and walls of vacuum chamber.

STEP 19. Carefully do all Electronic Adjustments, contained in section 2.12.6.

STEP 20. Run several passes of the Maintenance Tests and clean the transports.

INTER RECORD GAP CHECK FOR 1540

STEP 1. Master clear the 1540.

STEP 2. Mount scratch tape on the transport to be checked.

STEP 3. Set AUTO/OFF/MANUAL switch to "AUTO".

STEP 4. Set "WRITE ENABLE".

STEP 5. Select transport to be checked as follows:

a. Clock control switch to "OP-STEP".
b. Mode switch to "T2".
c. Set the C-Register with the function word to do a read on the desired transport.
d. Set indicator 1 of start sequence.
e. Press low speed step switch once.
f. Master clear. (Now the transport is selected).

STEP 6. Set the mode switch to "T3".

STEP 7. Set indicator 3 of the start sequence.

STEP 8. Set the F-Register to "Write tape mark".

STEP 9. Set 800 BPI.

STEP 10. Lock low speed OCS. Switch UP, and adjust the speed control about 80-85% MAX.

STEP 11. Switch the clock control switch between normal and OP-STEP. This will write tape marks in OP-STEP and normal. Do this about every 10 to 15 seconds. Continue this for about 3 minutes. Then release the low speed switch and return clock control switch to "OP-STEP".

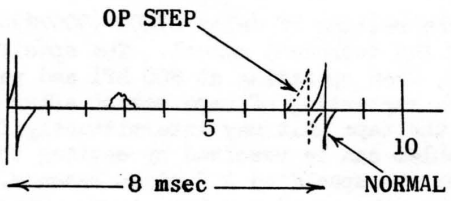
STEP 12. After writing the tape marks, extend A17 drawer and connect scope probe to TP-1 of read amplifier channel 3.

STEP 13. Set sweep for internal SYNC at 1 millisec/cm.

STEP 14. Do a "BACK READ" (or FORWARD READ) at 800 BPI.

INTER RECORD GAP CHECK FOR 1540

STEP 15. Wave form:



The pulses will be solid at about 8msec for the tape marks which were written in normal mode. For the tape marks written in "OP-STEP" mode, the pulses will bounce back about 0.5 millisec if the inter-record gap is correct. When the inter record gap is correct the START time is also correct.

NOTE:

If the normal pulses are not correct, the write delay or stop delay is incorrect. If the OP-STEP pulses move back more than 0.5 msec, then the start time is incorrect. Normally the GAP between the pinch roller and capstan will end up about .005".

t x 120 IPS = Inter Record Gap Length (t in millisec)

1540 DELAY TIMES

The technical manual for the 1540 Magnetic Tape Unit (PX 3334) currently specifies settings of certain delays which can result in intermittent or marginal operation under certain situations.

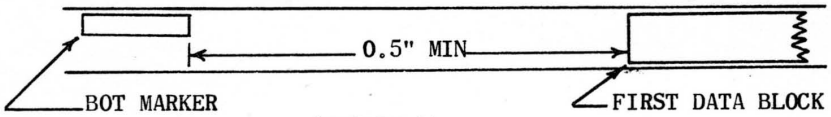
The first situation involves the setting of delay 67H00 (7002830 PC card at A13A1J6F) on figure 8-17 of the technical manual. The specified setting is 2.0 micro seconds. However, when operating at 800 BPI and performing an operation which requires the restarting of tape motion after end of record, such as a space file, the tape unit may intermittently fail to restart tape motion. This problem can be resolved by setting this delay to 1.5 micro seconds instead of the specified 2.0 micro seconds. It should be pointed out that although the delay card may have to be extended to make the adjustment, the setting of 1.5 micro seconds should be verified when the delay card is not on the card extender.

The second situation involves the setting of delay 49T36 (7003480 PC card at A12A2J23F) on figure 8-15 of the technical manual. The specified setting of that delay, both on figure 8-15 and in table 5-5, is 7 micro seconds for slow interface and 1.2 micro seconds for fast interface. The setting of 1.2 micro seconds for fast interface can result in false Input Data Request signals being intermittently generated and sent to the computer when operating at 200 BPI.

It is recommended that any user who operates a fast interface 1540 MTU at 200 BPI set this delay to 3.0 micro seconds to resolve this problem. Again the setting of 3.0 micro seconds should be verified when the delay card is not on the card extender.

1540 WRITE DELAY

Tapes written on the 1540 Magnetic Tape Unit may not read on the 1840 MMTS because of too short spacing between the BOT marker and the start of the first block. This spacing must be a minimum of 0.5 inch (see fig. 1) to meet the industry standard and to insure compatibility with all other tape units.



(FIGURE 1)

The 1540 manual presently calls for a 24 M sec XIRG delay which gives a spacing on a 1540 in good mechanical condition, of zero to .325 inch. To ensure a full 0.5 inch spacing, use this procedure:

1. Adjust delay A13A1J34F (XIRG) to 35 MSec. (See 1540 manual for procedure).
2. Load tape on unit. Set manual mode, depress FWD pushbutton. Tape will wind forward to BOT marker.
3. Write one block of data on the tape.
4. Using Visamag[1] or a magnetic viewer, find the starting point of the first data block. Measure the distance between this point and the BOT marker. The spacing should be about 0.7 inches.
5. If this spacing is less than 0.5 inches, increase the delay[2] as required. Each Millisecond of delay will increase the spacing by about .12 inches. Check the new spacing by reperforming steps 2 thru 5.
6. If the spacing is 0.5 inches or greater, adjustment is complete.

This procedure will increase the extended inter-record gap to about 4.5 inches. The 0.7 inch spacing given in step 4 assumes the BOT marker is a standard 1 inch long. The procedure as stated above covers the worst case loading and adjusting procedure, and thus should be usable at all sites.

[1]The magnetic viewer is preferred. Do not attempt to clean and reuse the portion of a tape that has been dipped in vis-a-mag.

[2]If delay must be increased beyond 35 MSec, you may be compensating for improper pinch roller gap or for worn or defective parts.

1540 MISCELLANEOUS NOTES

Master Alignment Tapes

Master alignment tapes can be obtained from IBM by the following part numbers:

800 BPI

IBM 432-640 (600 ft. reel)
IBM 432-641 (1200 ft. reel)

Potter Manual Changes

The following part number changes to the Potter MTS-120-X41427 Manual should be added to your manual unless done previously.

ADDENDUM TO S365-84, pages 7-3 & 7-9

FROM		TO	
PART NUMBER	FIGURE & INDEX NUMBER	PART NUMBER	DESCRIPTION
430139-2	2-11	434202-2	. ARM ASSY,Tape Sensor
Add		434254-2	. . ROLLER
Add		193-5	. . PIN
429947-2	2-	434183-2	. . ARM
430138-2	2-	434228-2	. ARM ASSY,Tape Sensor
Add		434254-2	. . ROLLER ASSY
Add		193-15	. . PIN, Roll
429947-1	2-16	434183-2	. . ARM
Delete 429944-2	2-		. . FOLLOWER
Delete 430490	2-, 2-13		. . SCREW, Shoulder
Delete 431854	2-, 2-14		. . . WASHER, Flat
Delete 431857-2	2-, 2-15		. . . FOLLOWER

1540 MISCELLANEOUS NOTES

400 Hz Vacuum Blower Motor

Recent failures of the new 400 Hz vacuum blower motor indicate a lack of properly cleaning the vacuum chamber. The restriction of air flow through the motor due to dirt causes an excess of heat buildup thereby resulting in distorted field laminations.

Changing Read Delay to Solve Compatibility Problem

It has been found that a compatibility problem between handlers require the read delay to be reduced to 2 msec. Under worst case conditions data will be lost using the 3 msec. delay. All field units should be set to 2 msec and the following print change made to PX3334-2-4, Figure 8-9:

FROM

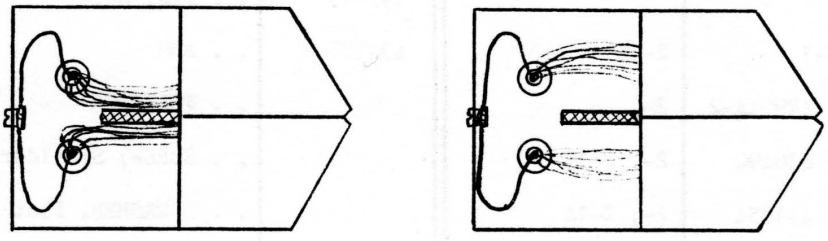
MTU	HANDLER	DELAY
1540	Potter	3.0 ms
1541	Potter	3.0 ms
1541	Ampex	3.9 ms

TO

MTU	HANDLER	DELAY
1540	Potter	2.0 ms
1541	Potter	2.0 ms
1541	Ampex	2.0 ms

Crosstalk Between R/W Cables in the Head Assembly

After installation of a new or recrowned head several sites have found that the head would not write at 556 or 800 BPI without parity errors. The cause was traced to the wire loops going to the read and write heads running together behind the ferrite separator in the head case. The wire loops should be tied back away from each other with non-metallic material such as nylon cord, tape, etc. as shown below.



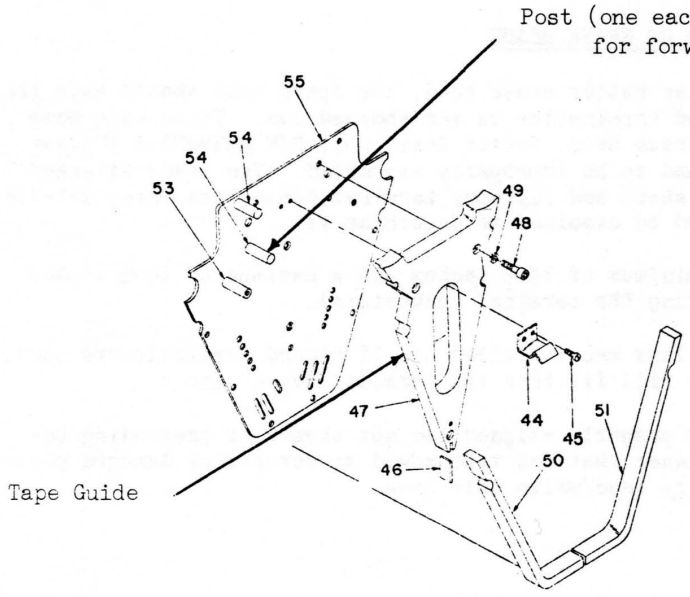
Before

After

1540 MISCELLANEOUS NOTES

Tape Jams Due to Missing Sealer

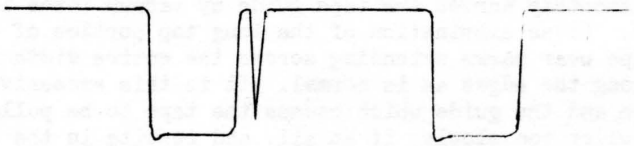
During routine disassembly of the vacuum chamber for cleaning, the sealer between the post and tape guide (see figure below) has been removed and results in the jamming of tape in the vacuum chamber during tape motion. The tape billows into the vacuum chamber from the pinch roller rather than being pulled smoothly across the tape guide by vacuum force into the rear of the chamber. Close examination of the long top portion of the tape guide will show tape wear marks extending across the entire width rather than existing only along the edges as is normal. It is this excessive friction between the tape and the guide which causes the tape to be pulled away from the pinch roller too slowly, if at all, and results in the tape jam. The force providing the friction comes from vacuum leakage between the post and tape guide from the forward small vacuum chamber. The sealer there, if removed by cleaning, should be replaced with rubber cement and all excesses carefully removed.



1540 MISCELLANEOUS NOTES

Runt Pulses on Clock Phases

The possibility of runt pulses on the clock phases may exist in the 1540 MTU. The pulses have always been narrow with an amplitude of as much as -4.5 volts, see figure below:



The problem results from cross talk in the chassis wiring and is solved by shortening and re-routing the clock phase wires in the chassis. To check for the possibility of runt pulses, monitor the clock drivers in chassis A12A1 and A12A2, referencing figures 8-92 and 8-93 of PX 3334 volume II.

INCORRECT TERMINATION ON ERASE HEADS

Upon replacement of the Potter erase head, the spare head should have the same type of leads and termination as the removed one. There have been occasions where the Erase Head, Potter Inst. Co., P/N B429098-1 (Univac P/N 790348061 was found to be improperly assembled. The leads attached to the head were too short and improper terminal connectors were installed. All site spares should be examined to determine if:

a. the leads are a minimum of 14-½ inches and a maximum of 16-½ inches in length (including the terminal connectors).

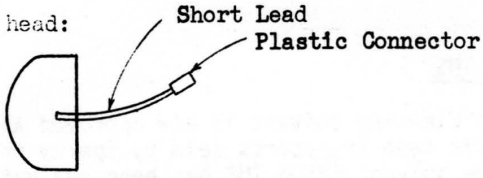
b. small spade type lugs are installed and if closed terminals are used, determine if they will fit into the terminal board spaces

c. the erase head is properly aligned and not skewed or protruding beyond in such a manner that the tape would be scraped or damaged prior to passing over the read/write coil area.

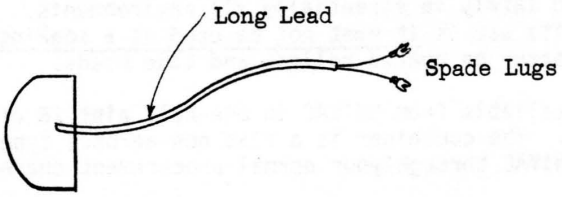
1540 MISCELLANEOUS NOTES

INCORRECT TERMINATION ON ERASE HEADS (cont)

Incorrect erase head:



Correct erase head:



TAPE COMPATIBILITY PROBLEMS WITH 1840

There have been compatibility problems when reading a tape on the 1840 which was written on by the 1540. If the proper procedure for mounting the tape on the 1540 is not used, the length of the normal extended inter-record gap, when beginning a write operation from the load point on tape, will not be long enough. If the operator mounts the tape and runs it up to load point and begins a write operation from there, the extended inter-record gap will be too short. The tape should be mounted and manually run past the load point marker on the tape and then run backwards to the load point. In this way, the write operation will begin from the data side of the load point marker and result in the proper length of extended inter-record gap. The 1840 requires a normal extended inter-record gap when reading from load point.

FREON TMS SOLVENT

APPLICATION OF FREON TMS

A Universal Tape Unit Cleaning Solvent is now approved and available for use on all magnetic tape transports sold by Sperry Univac Defense Systems Division. The solvent FREON TMS has been evaluated and tested successfully on all types of magnetic tape transports with no damage to metals, rubber, or plastics.

FREON TMS solvent is a stabilized azeotrope-like blend of FREON TF with methanol. It is a clear colorless liquid, non-flammable, non-toxic, and can be used safely in essentially all environments. The only limitation to its use is it must not be used as a soaking solution as damage may occur on coated rollers and tape heads.

FREON TMS is available from UNIVAC in one-half pint (8 oz.) containers, P/N 7957408-01. The container is a flat non-aerosol type can and can be ordered from UNIVAC through your normal procurement channels.

It is recommended FREON TMS be the only cleaning solvent used for cleaning your magnetic tape transports.

1540 NOISE ON POTTER CONTROL LINES and INTERMITTANT SERVO RUNAWAYS

If you have either of the problems mentioned above it is recommended that you check on the other one as it is located in the same physical location of the Potter Electronic Chassis.

Excessive noise on the Potter control lines has been found on the 1540 Tape Units. This excessive noise has led to random type problems and can be eliminated by tying the Potter circuit ground and chassis ground buses together.

On the Potter Control Unit, behind the electronic amplifier chassis, is TB6. It may be reached by removing two cables and a cover plate on the bottom of the control unit. TB6 contains on it the servo ground bus, the circuit ground bus and the chassis ground bus. Presently, only the servo and circuit ground buses are tied together. All three should be tied together to eliminate excessive noise. This can be accomplished by jumpering pins 4 and 5 on TB6.

NOTE: Noise appears on all control lines coming from the Potter Control Unit. The amplitude of the noise will vary with each unit.

The tying of the ground buses together is presently being done on all new units being manufactured.

If intermittant servo runaways are encountered the four 1N1205 diodes in the Potter electronic chassis should be checked and replaced if need be to be sure they are Westinghouse diodes. The diodes are located on TB2 (CR1 and CR2) and TB3 (CR1 and CR2) which contain the left and right servo motor control circuitry respectively. Potter is using Westinghouse diodes on all new units being manufactured.

PINCH ROLLER BEARING FAILURE

An investigation was made to determine the apparent excessive number of premature failures being encountered with the P/N 430468 pinch rollers on the Potter MT-120 magnetic tape unit used on the UNIVAC 1540 MTU. The problem has been isolated to a preventive maintenance procedure which was destructive to the bearings.

The Technical Manual, S365-84, in Section V on Preventive Maintenance instructs users to clean the pinch rollers with a tissue soaked in a Potter cleaning solvent. A sample of the Potter cleaning solvent, S237-6973, in use at UNIVAC Salt Lake City was analyzed by means of infrared spectrum. The spectrum pattern and specific gravity indicated that the solvent was trichloroethane (Freon TF). Cruse tests showed that the solvent did an excellent job of removing the oils from lubricating grease, leaving the oil-retentive soap from the grease as a hard residue.

This solvent will remove the oils, leaving the soap from the grease, and the result will be an immediately rough bearing and greatly reduced bearing life. Extreme care in cleaning the pinch rollers is advised.

UNIVAC EQUIPMENT MANUALS

HARDWARE

PRODUCT	NAME	S/N	PX NO.
1540	1540/1541 Magnetic Tape Unit, Volume I		3334-1-4
	1540/1541 Magnetic Tape Unit, Volume II		3334-2-4
	1540 30-Bit Maintenance Tests		3645-0-2
	1540/1541 18-Bit Maintenance Tests		3644-0-2