

INTRODUCTION

This manual is written for both US and World Trade usage. It contains an adjustment section and a parts manual section for the following products:

Product Name	Identification Code	Product Code
"IBM Executary" Microphone Input Unit	211, 171	62
"IBM Executary" Transcribing Unit	212, 172	62
"IBM Executary" Microphone Unit	271	63
"IBM Executary" Transcribing Unit	272	63
Portable Input Unit (PIU)	224, 274	63
Tone Input System (TIS)	275-277	61
Microphone Input System (MIS)	275-273	61
Dial Input System (DIS)	275-278	61
Microphone Input Unit (MIU)	273	61
PAX, PBX System (PAX-PBX)	221-251	61
Selective Recorder Network (SRN)	241-261	61
Remote Microphone Network (RMN)	233-260	61
Message Recorder (MR)	225-255	61

Adjustment Section

Purpose

This section provides a reference for the most commonly used adjustments. Refer to other product publications if additional information is needed.

Adjustment Identification

The headline of each page shows the product models and product code covered in this manual and the name of the mechanism(s) covered on that page. Each adjustment is indicated by a black frame number on the top left corner, followed by the adjustment name and mechanism code/reference number. The machine model, mode or condition, the view of the drawings and safety precautions are noted when required.

Adjustment Sequence

The frame numbers indicate the sequence of adjustments. One adjustment could affect a following adjustment. Therefore, check all the following adjustments in that mechanism. A red vertical bar indicates the end of a mechanism.

Adjustments out of sequence that could be affected and should be checked are noted when required.

Adjustment Procedure

The part to be adjusted is colored red and a red arrows shows the direction of movement. Tolerances and/or additional information on how to perform the adjustment are shown when required.

Always use the adjustment tolerance shown in the publication

with the latest date.

A drawing of each model, showing wiring connection, continuity readings and electrical component locations is included.

Call Reporting (US Only)

Use the mechanism codes/reference numbers shown after the frame number and frame name for call reporting. The reference number is not always the number of the part that is colored red.

Functional Check

Each functional check section covers all important functions of that model in a certain sequence. It is important to follow this sequence during diagnosing a failure or after any service has been made on the equipment. When a function fails, the chart leads to either an electrical diagnostic chart or mechanical adjustments. However, always check the equipment for a mechanical failure before going through the electrical procedure.

Test Point Locators

To provide additional troubleshooting aids to diagnose machine problems, there is one or more locators with each function chart in the level 1 271, 272 diagnostic sections.

The test point locators give three types of information:

1. The numbers indicate the sequence of events that take place in a given function and relate directly to the circled numbers on the corresponding function charts.
2. The encircled information indicates the proper reading at a particular test point.
3. The line from the encircled information to a machine part indicates the location of the test point where a reading is taken.

The test point number indicates the sequence of events and not necessarily the sequence to follow in troubleshooting the problem.

Always use adjustment tolerance in the latest dated publication.

Electrical Diagnostic Charts

The electrical diagnostics for the Models 210, 224, 274, 171, 172 and (level 2) 271, 272 consist of a drawing and several diagnostic questions. Each question is shown with a number. These numbers are for identification only and must never be used as a diagnostic sequence.

The diagnostic sequence begins always with a red "start" indication which identifies question 1. Make the check called for in the question after following the red lines from the question to a component or point on the drawing.

NOTE: Some questions do not require a reference line to a component.

All questions require either a "yes" or "no" answer. The next step will be one of the following:

1. An arrow with the number of the next diagnostics question that requires the next check. Continue to answer the questions until the failure is diagnosed.
2. A hexagon "stop" indication with a statement that requires an action; for example, replace a part/assembly, make an adjustment, etc., or go to another diagnostic chart.

Parts Manual Section

Introduction

This section contains parts drawings of mechanisms, reference numbers and other special information. It must be used with a separate Part Number/Price List manual which contains reference numbers, part numbers, part descriptions and prices.

Mechanism Identification

The headline of each page shows the product models and product codes covered in this manual. The headline of each frame (two frames per page) shows the mechanism name, the mechanism code and the model/models in that frame. Each mechanism consists of a group of parts that work together to perform a function.

Part Identification

Red numbers indicate the reference number of a part, a bill of material (B/M) or an assembly.

Red blocks within a frame indicate either one, or a combination of more than one, of the following:

- Differences between the models (transcriber – recorder).
- Different levels within the same model.
- Bill of material (B/M), assemblies or modules (shown with a description – parts shown in the drawing).
- World Trade applications or differences.

Some parts are shown for assembly purposes only and do not show a reference number. Replace these parts by ordering either the assembly or a later level part.

Parts Ordering

Locate the mechanism in which the part functions by using the contents page. Note the mechanism code, find the part in the drawing and note the reference number. Use this mechanism code/reference number to locate the part number and price in the Part Number/Price List manual. Caution: In some cases both US and WT part numbers are shown with the same reference number. World Trade should use the country procedures to find the prices.

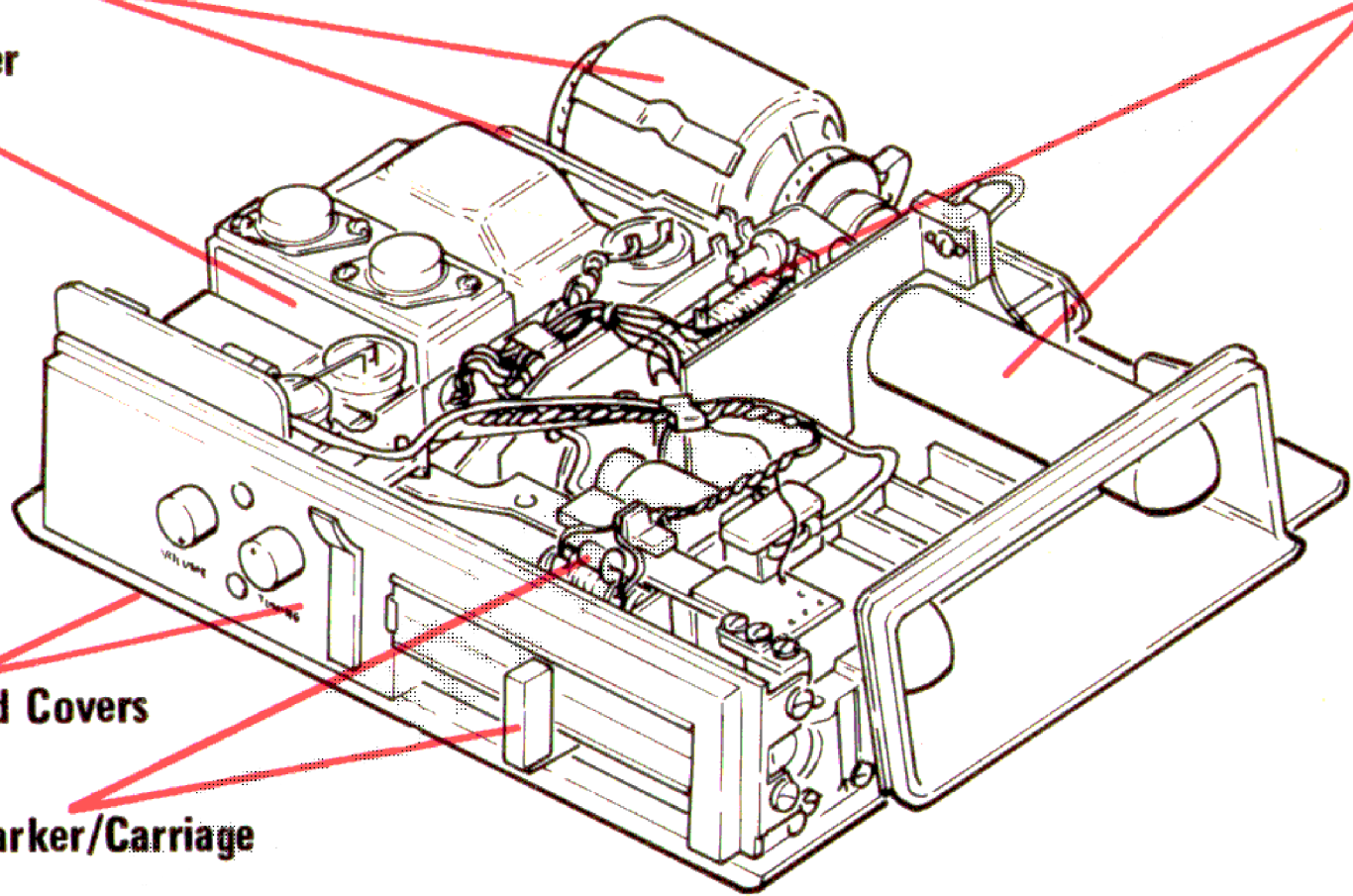
Features and devices (MESS) or specification changes (SERs) wished by the customer, must be ordered through CE management and branch office sales.

Replacement parts for features, devices and SERs not shown in the parts catalog, must also be ordered through CE management and branch office sales.

02 Motor/Switch Assembly

03 Drive/Idler Rollers

05 Amplifier



01 Base And Covers

04 Index Marker/Carriage

211-212-213

Mike	11
Foot Control & Listening Device	12
Accessories & Special Features	10,13 Thru 18

The Functional Checks must be made in the sequence shown because each check relies on the fact that all checks before it were correct.

When a failure occurs, KEEP THE MACHINE IN THE FAILING CONDITION and begin with "START" on the Diagnostics page referred to by the Functional Check.

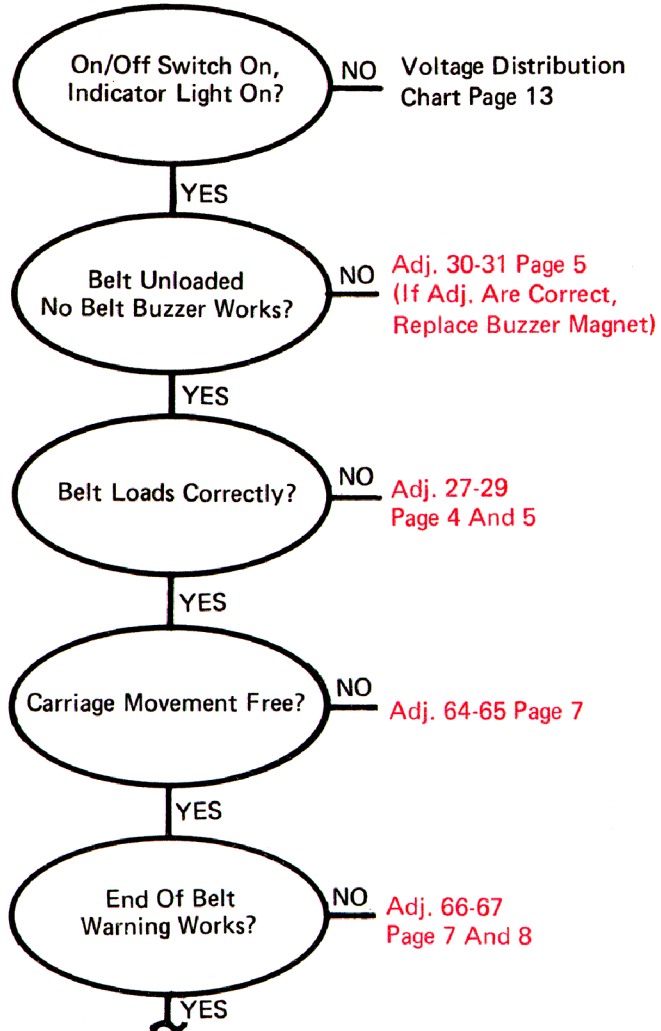
If a diagnostic step asks for more than one voltage or condition, all answers must be correct before continuing.

Example: 20-30 VDC
Approximately 12 VDC
Approximately 6 VDC

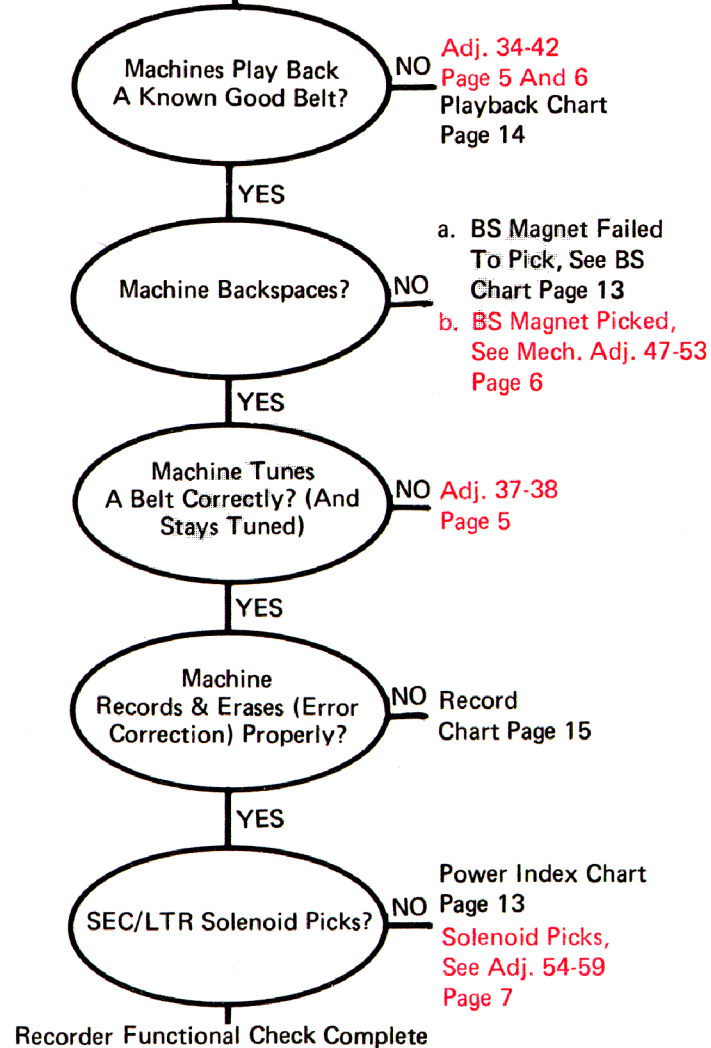
If any of these readings are not correct, the "NO" answer must be followed.

Steps in red indicate to check the mechanical adjustments by looking at them.

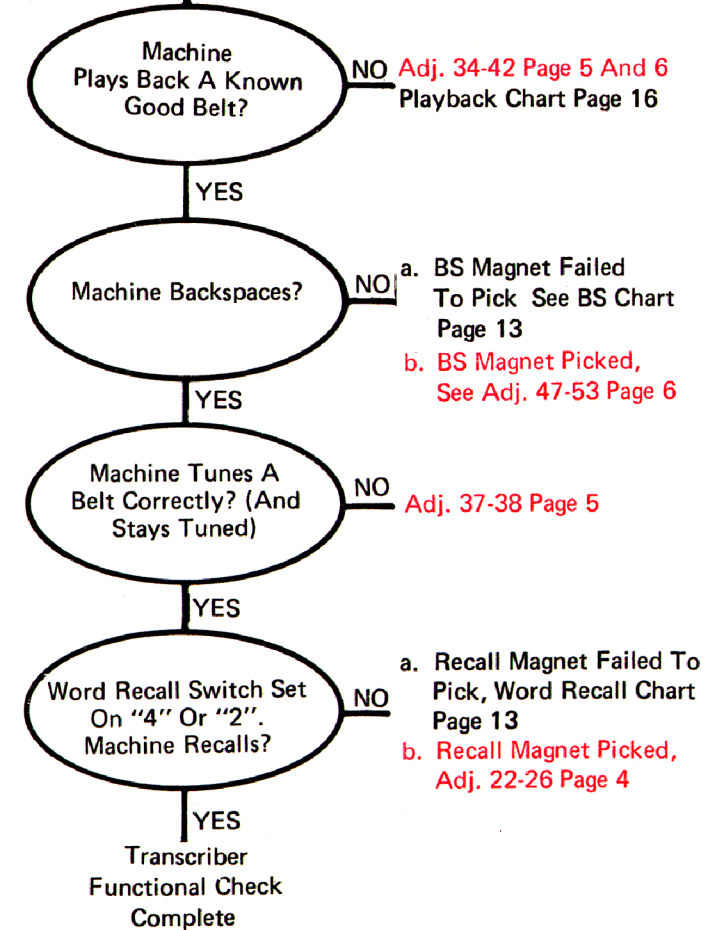
211/212 FUNCTIONAL CHECK



211 RECORDER



212 TRANSCRIBER



1 Erase Magnet Bracket (01-5)

Magnet Parallel To Magnabelt

.030" (0,76mm)

Form

2 Erase Magnet Guard (01-12)

.030" & Parallel (0,76mm)

Form

3 Microphone Hanger Spring (02-61)

Minimum Clearance

Minimum Clearance

Form

(Level 1) (Level 2)

Minimum Clearance

Form

(Level 3)

4 Microphone Hanger (02-33) (02-32)

Hanger Centered And Free

Centered

Form

(Level 1) (Level 2)

5 Microphone Hanger (02-33) (02-65)

.030" Maximum (0,76mm)

.030" Maximum (0,76mm)

1"=25,4mm

Form

(Level 1) (Level 2)

6 Power Switch (02-66) (02-58) (02-78)

For Positive Switch Operation

Form

(Level 1)

At .060" (1,52mm) Switch Transfers

Form

(Level 2)

.050" (1,27mm) Right Switch Transfer

.050" (1,27mm) Left Switch Transfer

Form

(Level 3) (Level 3)

7 Buzzer (02-12)

Maximum Sound

Maximum Sound

Form

(Level 1) (Level 2)

8 Motor (02-1)

Rotate For Minimum Noise

Oil Hole Up Use No. 10

3-Wire Cord Only

(Do Not Use On 2-Wire Cord)

9 Motor Bracket (02-27)

Belt Centered

Form

10 Drive Belt (02-26)

Medium Screwdriver (2 Oz. =60 Grams)

.300" (7,62mm)

Form

11 Flywheel (03-39)

.001"-.005" (0,03-0,13mm)

Form

12 Drive Belt (03-41)

Belt Centered

Form

13 Drive (03-14, 96)

.001"-.003"
(0,03-0,08mm)

14 Clutch Bracket (03-21)

Touches

Form Gently

15 Clutch Armature (03-24)

.035"
(0,89mm)

Form

16 Clutch Contacts (03-23)

.005" (0,13mm)
.015" (0,38mm)
.005" (0,13mm)

Form

17 Drive Wheel Asm. (03-30)

.001"-.005" (0,03-0,13mm)
.001"-.005" (0,03-0,13mm)
.001"-.005" (0,03-0,13mm)

18 Clutch Magnet (03-24)

.015" (0,38mm) = Positive Drive
.020" (0,51mm) = Intermittent Failure
.025" (0,64mm) = Failure

19 Clutch Spring (03-29)

Clearance At Rest

20 Drive Bracket (03-21)

Adjust For 10 Belt Revolutions Per Minute

(All Recorders)

21 Speed Control Lever (03-3)

9 Revolutions Per Minute
11.5 Revolutions Per Minute

Form

Centered At 10 Belt Revolutions Per Minute

22 Stop Lug (03-123)

.065"-.075"
(1,65-1,90mm)

Form

23 Mounting Bracket (03-123)

Roller Centered

24 Mounting Bracket (03-123)

Magnet Energized

.010" (0,25mm)
In All Speed Positions

Form

25 Muting Contact (03-137)

Parallel

(212-213 Level 1)

26 Muting Contact (03-137)

.020"-.025"
(0,51-0,64mm)

Form

(Level 1)

27 Release Lever (03-85)

New Belt

Form

Tracking & Panel Adjustments Must Be Checked First

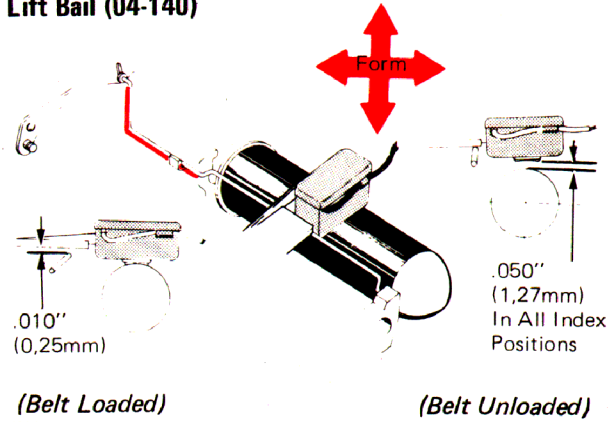
.030"-.060"
(0,76-1,52mm)

28 Tension Spring (03-111)

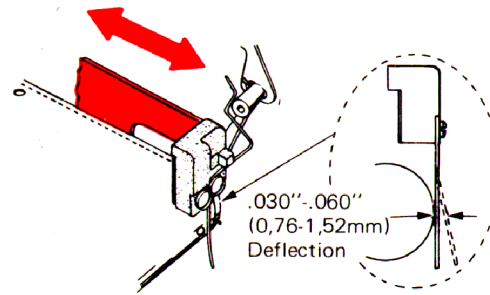
16 Oz.
450 Grams

Form

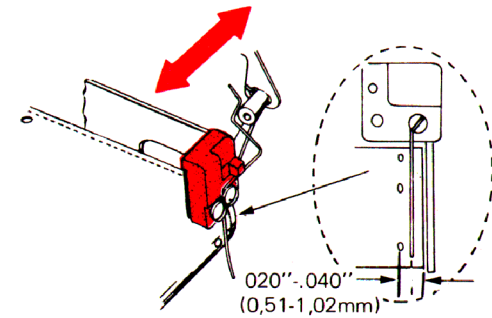
29 Head Lift Bail (04-140)



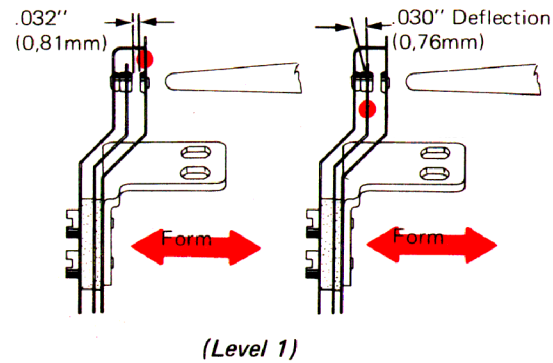
30 No Belt Contact (02-48)



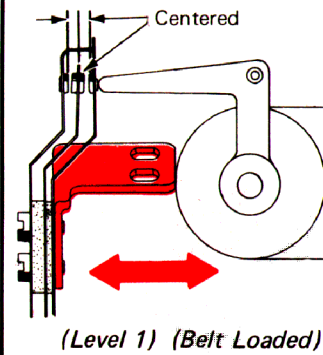
31 No Belt Contact (02-49)



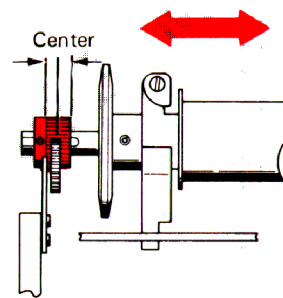
32 Belt Contacts (03-73)



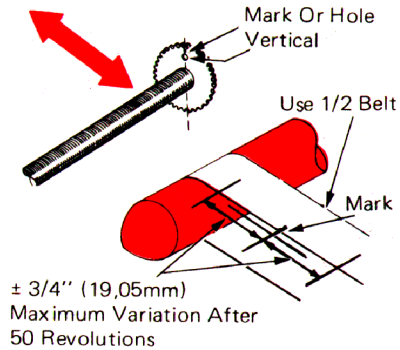
33 Belt Contacts (03-73)



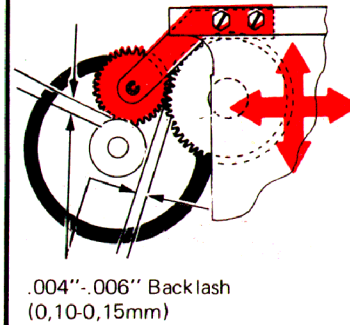
34 Idler Gear (03-5)



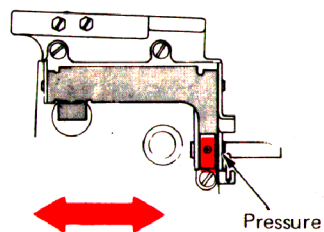
35 Drive Roller (03-96)



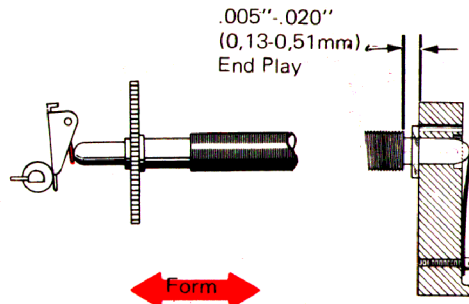
36 Idler Gear (04-88)



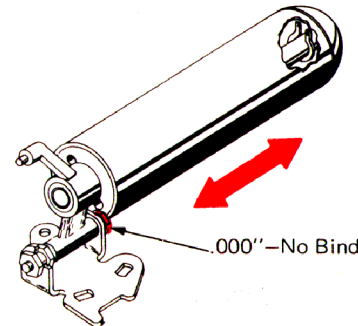
37 Tuning Shaft (04-129)



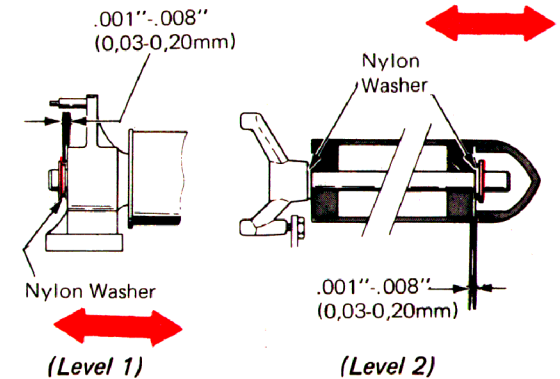
38 Lead Screw (04-129)



39 Idler Roller Pivot (03-112)

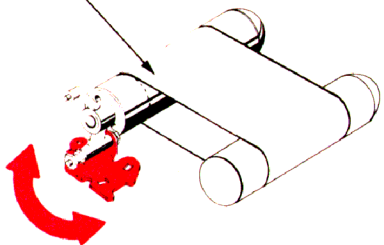


40 Idler (03-112)



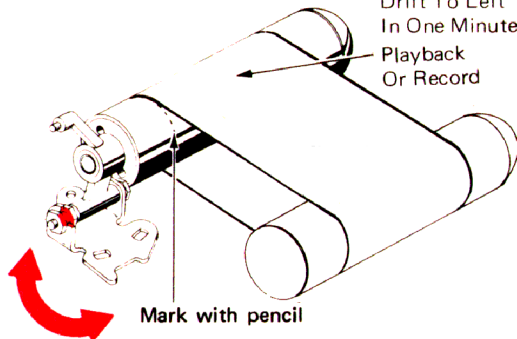
41 Belt Tracking (Preliminary) (03-119)

Belt Tension Less
On Left Side

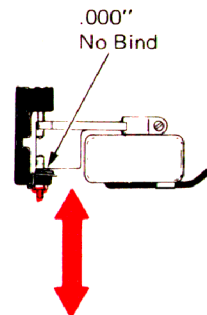


42 Belt Tracking (03-122)

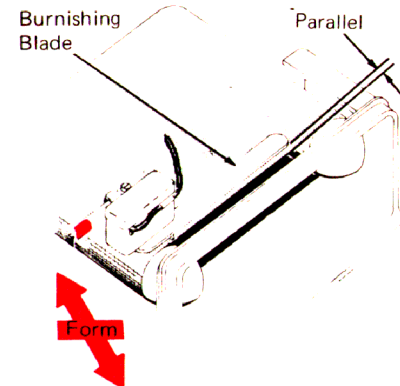
.030"-.040"
(0,76-1,02mm)
Drift To Left
In One Minute
Playback
Or Record



43 Soundhead Arm (04-71)

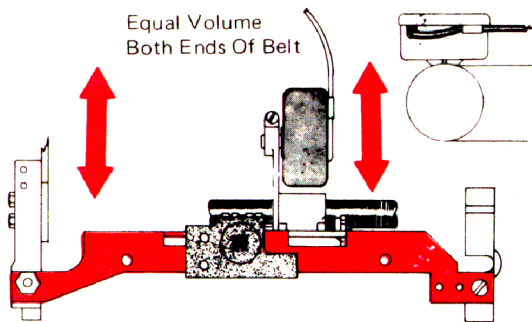


44 Soundhead Arm (04-71)



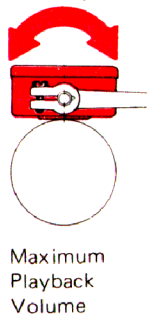
45 Guide Rail (04-96)

Equal Volume
Both Ends Of Belt

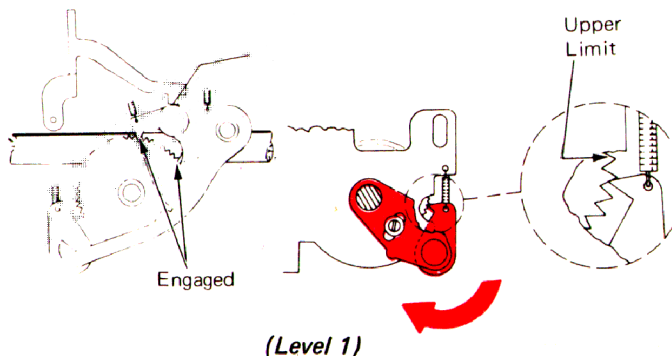


(Check Entire Carriage Length)

46 Soundhead (04-70)

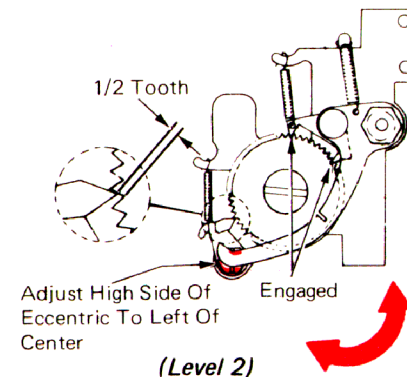


47 Backspace Lock Pawl (04-148)



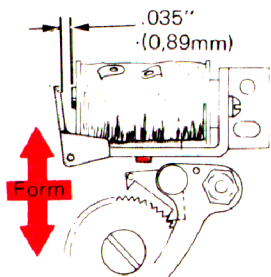
(Level 1)

48 B/S Eccentric (04-148)

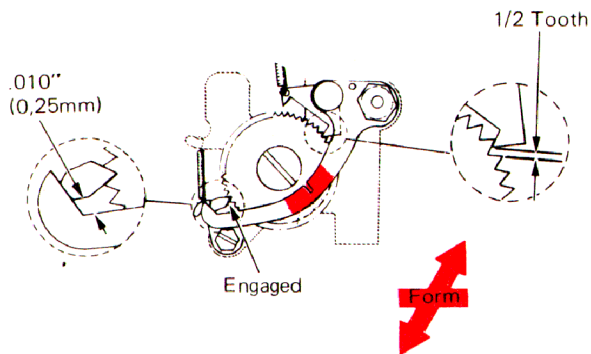


(Level 2)

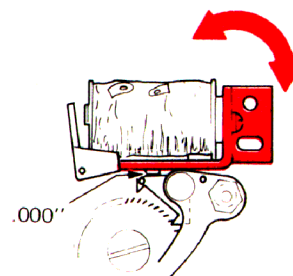
49 Armature Stop (04-172)



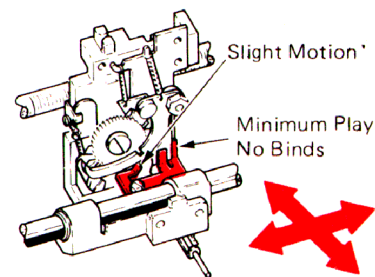
50 B/S Pawl Carrier (04-146)



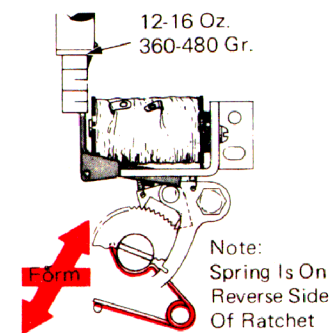
51 B/S Magnet (04-176)



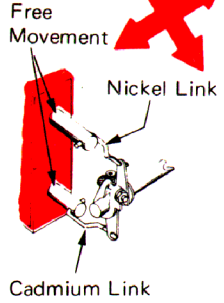
52 Backspace Guide Bracket (04-138)



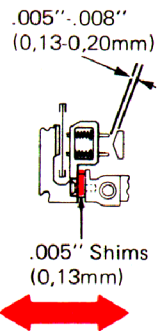
53 Transport Gear Spring (04-63)



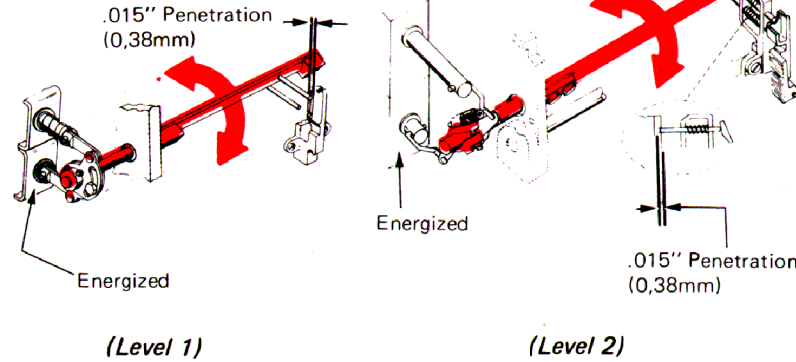
54 Index Solenoid (04-102)



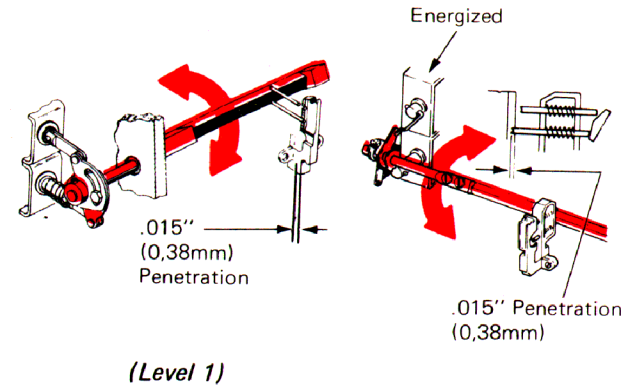
55 Punch Holder (04-26)



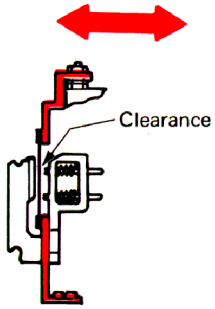
56 Ltr. Punch Actuator (04-130)



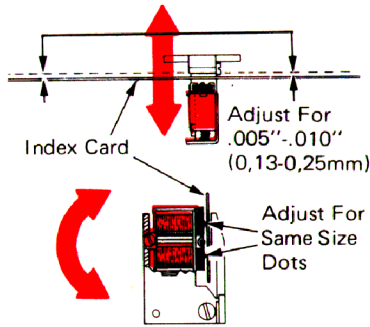
57 Sec. Punch Actuator (04-130)



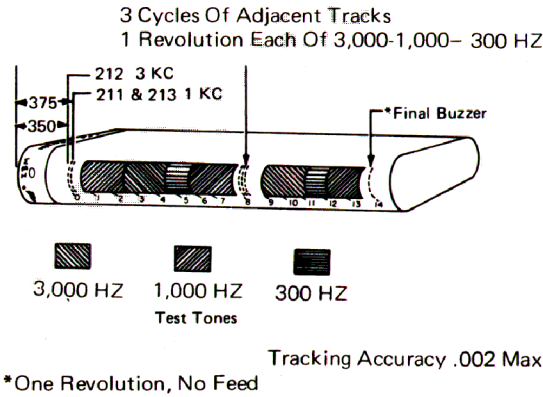
58 Front Panel (01-67)



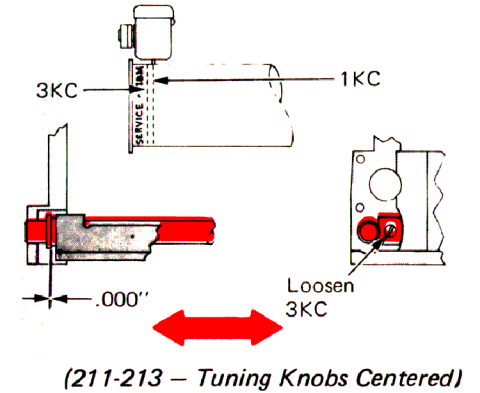
59 Ink Index Marker (04-185)



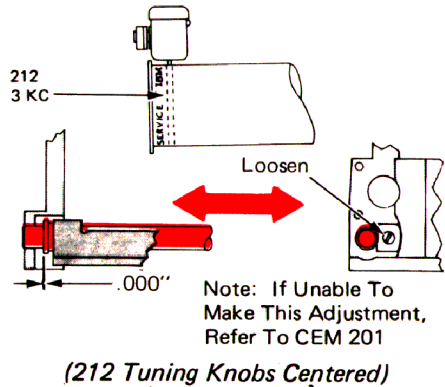
60 Test Belt



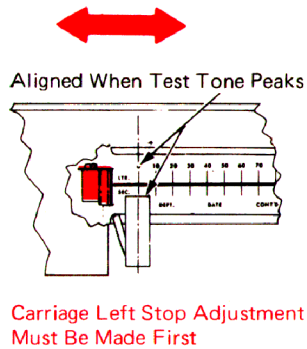
61 Left Margin (04-21)



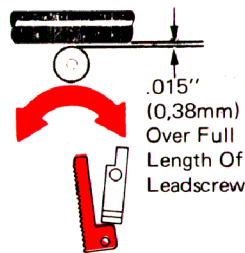
62 Left Margin (04-21)



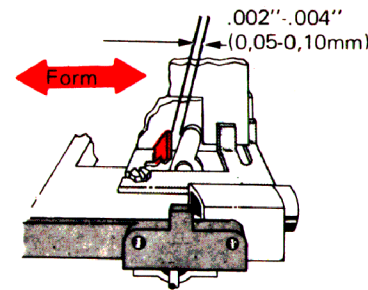
63 Index Slip Holder (01-65)



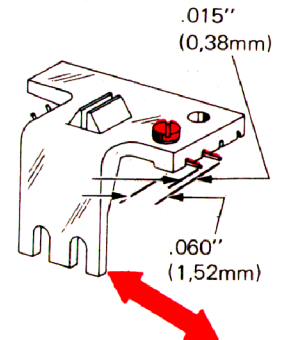
64 Carriage Release (04-27)

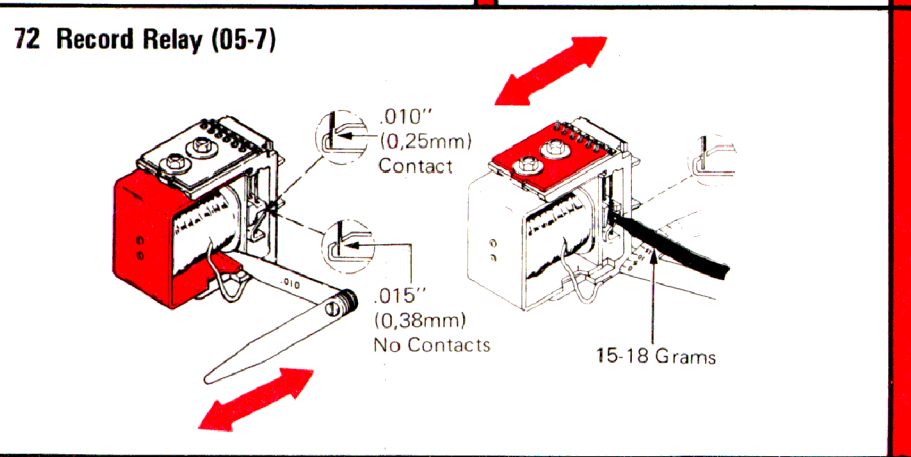
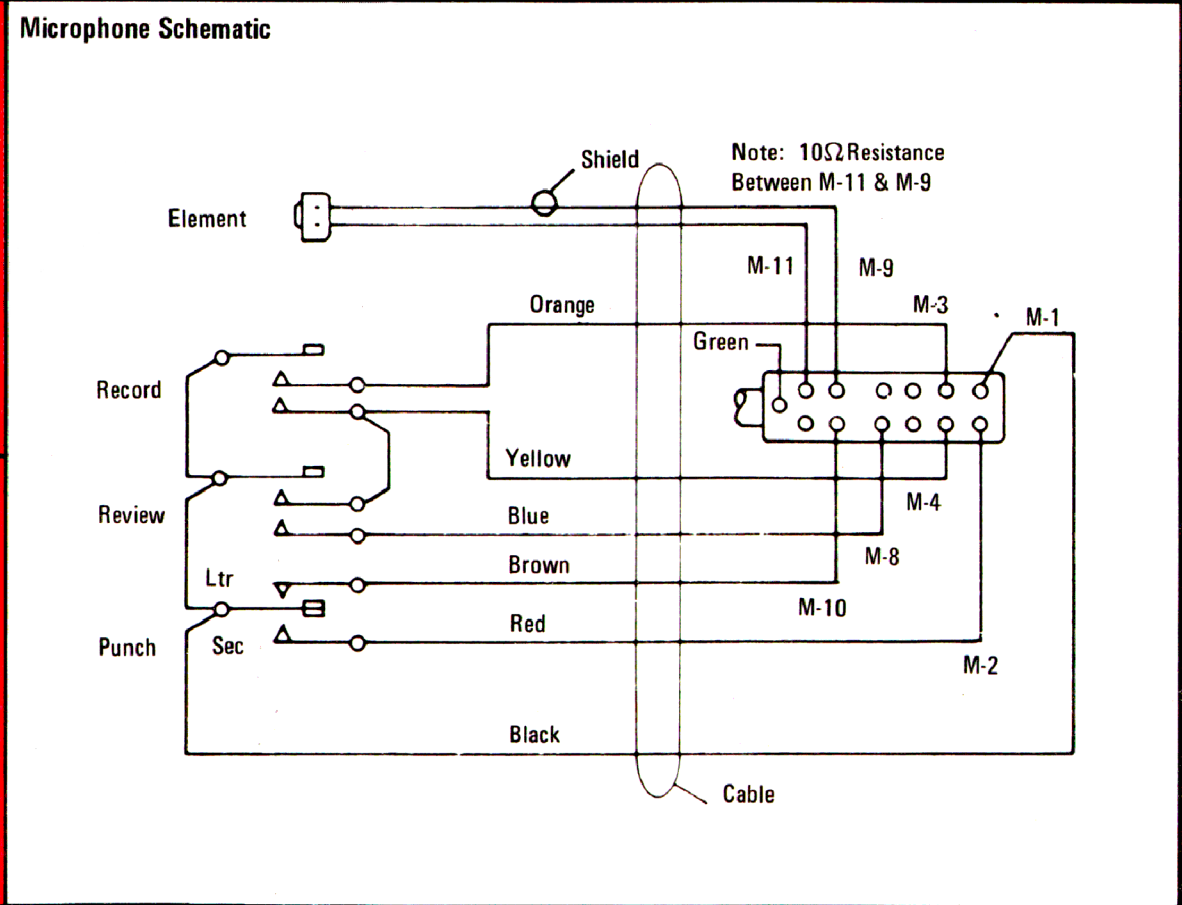
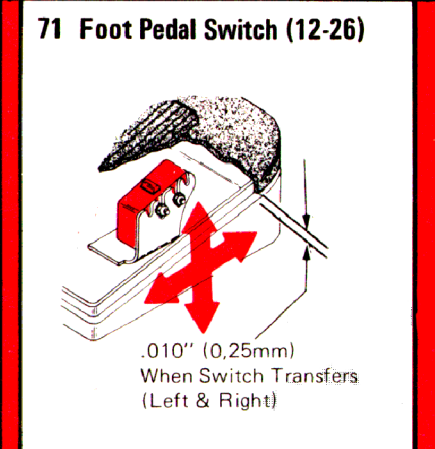
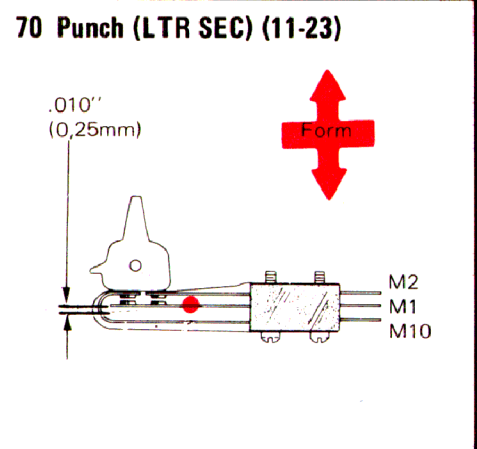
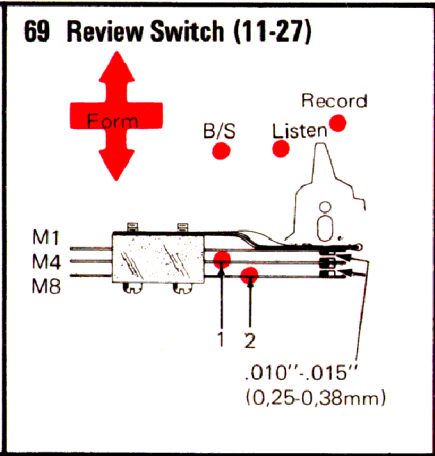
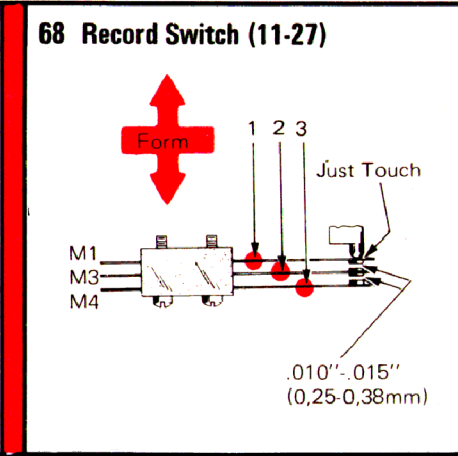
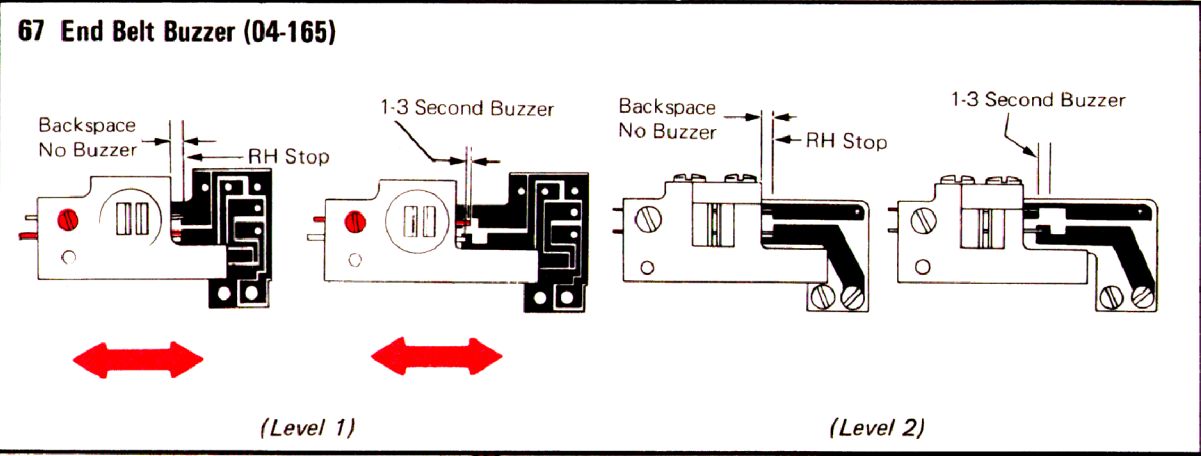


65 Carriage Release (04-138)

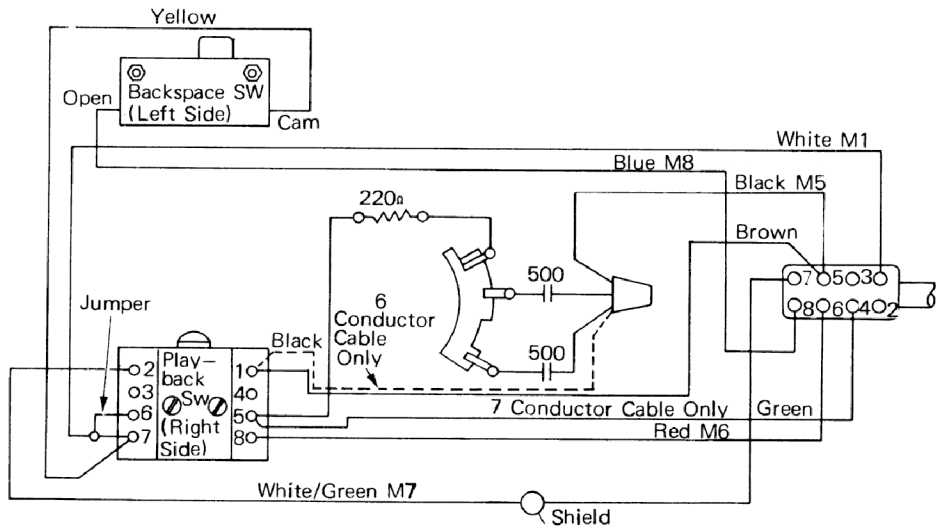


66 End Belt Contacts (04-165) (Preliminary Adj.)



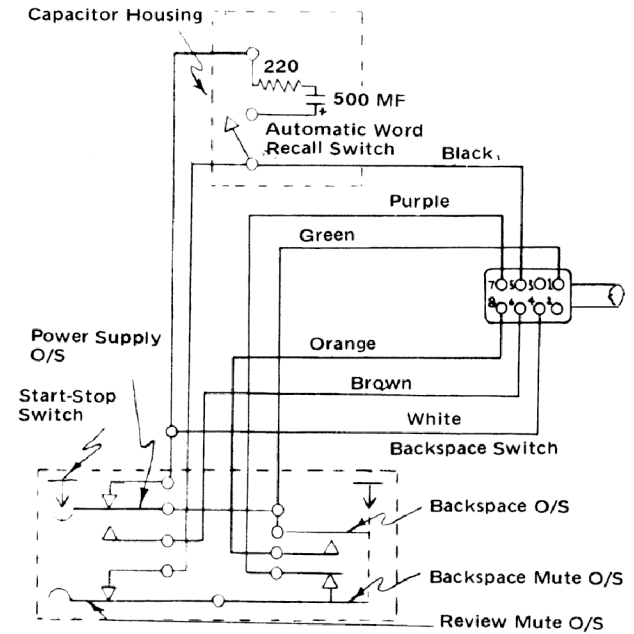


Foot Control



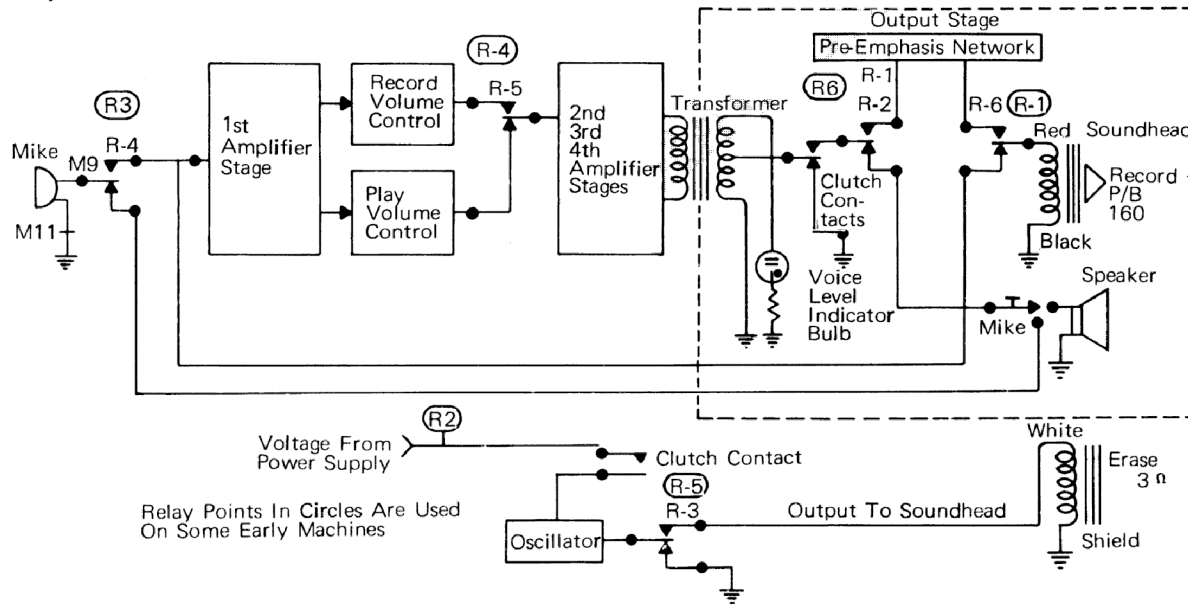
(Backspace Machines Above Approx. SN 212-105129)

Hand Control

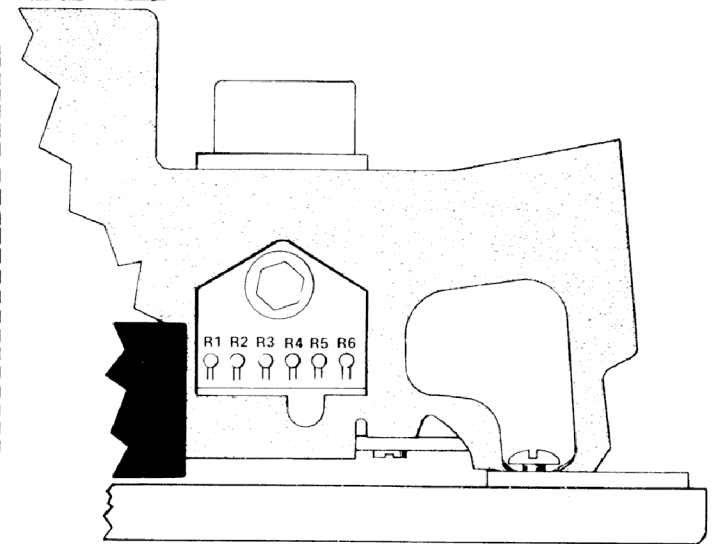


(Hand Control Wiring Diagram)

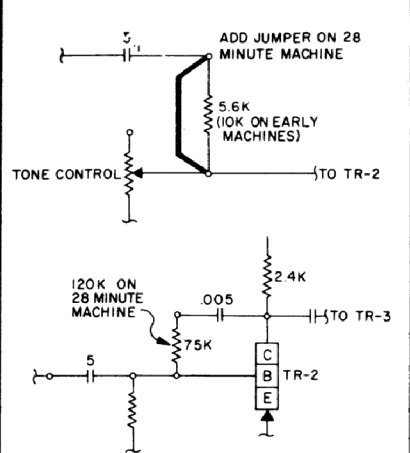
211, 213 Amplifier



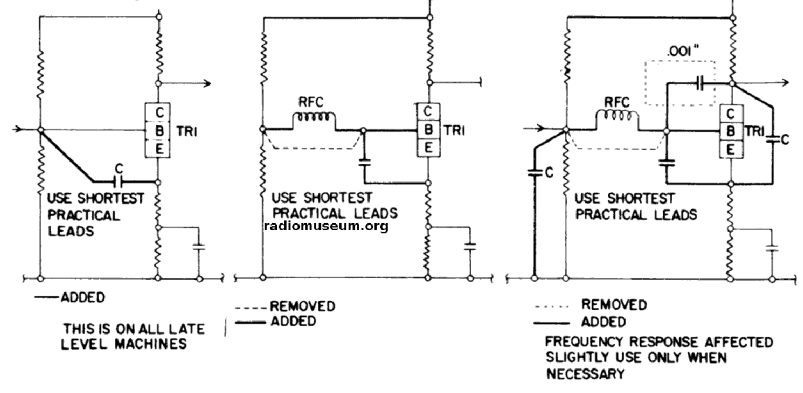
Relay Points In Circles Are Used On Some Early Machines



28 Minute Machine



Radio Frequency Interference



RADIO FREQUENCY INTERFERENCE

NOTE: RFI includes interference generated by arcing contacts, motor brushes, Diathermy machines, welding machines, auto ignition, etc.

1. Divide magnitude of interference into one of the following type
 - a. Faintly perceptible.
 - b. Equal to a normal recording
 - c. Stronger than a normal recording
2. Most cases are corrected with type A correction using .01 capacitor P/N 1134459. radiomuseum.org
3. Use capacitor of small voltage rating - preferable 50V or less for small physical size and less hum pick-up.
4. Type "a" correction:

Interference Frequency	Value of C*
To 2 MHz	.01 μ FD Disc
2-10 MHz	.006 μ FD Disc
10-20 MHz	.003 μ FD Mica
20-50 MHz	.001 μ FD Mica
Above 50 MHz	.0001 μ FD Mica

5. Type "b" correction:

Interference Frequency	Value of C*	Value of RFC**
To 2 MHz	.01 μ FD Disc	500 μ h
2 - 10 MHz	.01 μ FD Disc	200 μ h
10 - 20 MHz	.006 μ FD Disc	50 μ h
20 - 50 MHz	.001 μ FD Mica	50 μ h
Above 50 MHz	.0001 μ FD Mica	10 μ h

*Purchase from local electronics parts supplier.

All values may not be readily available at some locations However, .01MFD capacitors and 100 μ h RF chokes are standard and will correct most cases.

6. Type "c" correction:

Interference Frequency	Value of C*	Value of RFC**
To 2 MHz	.01 μ F Disc	500 μ
2 - 10 MHz	.01 μ F Disc	200 μ
10 - 20 MHz	.006 μ F Disc	50 μ
20 - 50 MHz	.001 μ F Mica	50 μ
Above 50 MHz	.0001 μ F Mica	10 μ

*Purchase from local electronics parts supplier.

211, 213 C-Connector to B-Connector Conversion

The single board 211-213 amplifier may be used as a replacement for old-style amplifiers; however, in early machines the flicker lamp must be sacrificed.

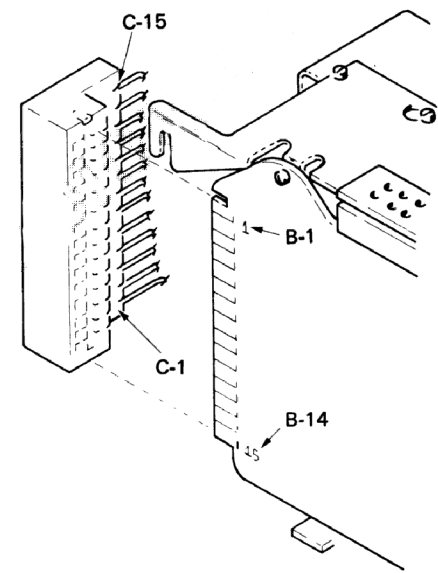
Install new soundhead, with connectors on leads, P/N 1142853, ordered from Lexington.

Cut the C-connector cable from the old amplifier leaving the wires as long as possible. Discard leads from C-12 and C-15. Cut leads to proper length. Use terminals P/N 1142534 and - housing P/N 1142817 to connect leads to lands B-1 through B-14 as follows:

- | | |
|------------|---------------------|
| C-1 - B9 | C-8 - B1 |
| C-2 - B4 | C-9 - B10 |
| C-3 - B7 | C-10 - B12 |
| C-4 - B8 | C-11 - B13 |
| C-5 - B6 | C-12 - B14/233 only |
| **C-6 - B2 | C-13 - B10 |
| C-7 - B5 | *C-14 - B3 |
| | C-16 - B11 |

*213 Only—Disconnect wire from C-14 to muting contact at contact, connect to pick side of reverse magnet.

**On machines below S/N 211-105498 & S/N 213-101978.
C-6 to B10 B11 Jumper to B2



212 C-Connector to B-Connector Conversion

The single board 212 amplifier may be used as a replacement for old style amplifiers; however, in early machines the flicker lamp must be sacrificed.

Cut the cable and the "C" connector from the old amplifier. Discard leads from C-8, C-10 and C-12. Add one lead to C-15. Use terminals P/N 1142534 and housing P/N 1142533 to connect leads to lands B-1 through B-5 as follows.

- | | |
|-----------|------------|
| C-2 - B-4 | C-9 - B-5 |
| C-3 - B-2 | C-15 - B-1 |
| C-4 - B-3 | |

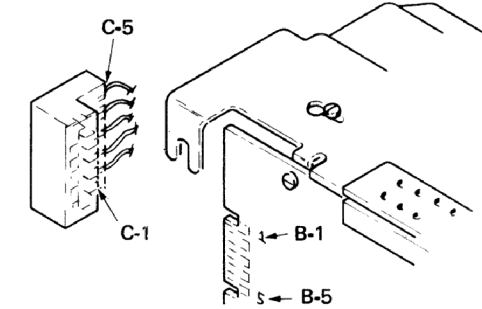
Interchangeability

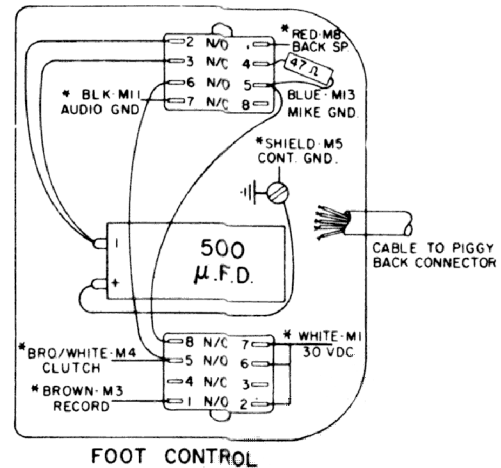
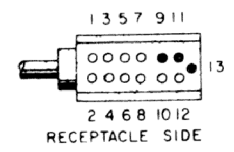
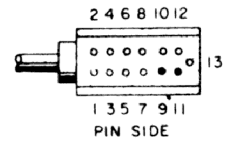
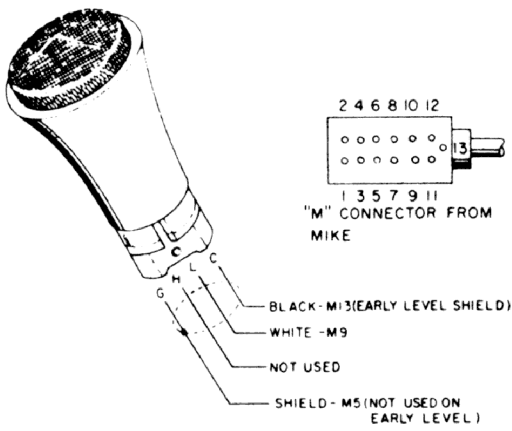
The single board 212 amplifier may be used as a replacement for old style amplifiers; however, in early machines the flicker lamp must be sacrificed.

Cut the cable and the "C" connector from the old amplifier. Discard leads from C-8, C-10 and C-12. Add one lead to C-15. Use terminals P/N 1142534 and housing P/N 1142533 to connect leads to lands B-1 through B-5 as follows.

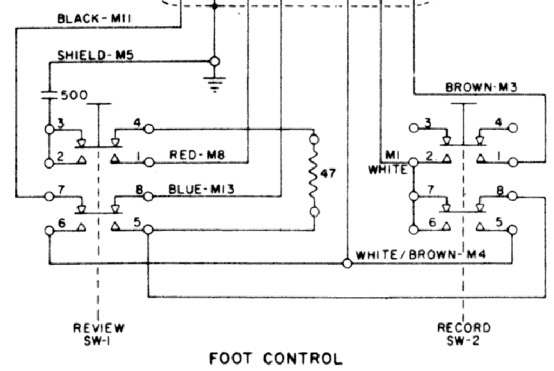
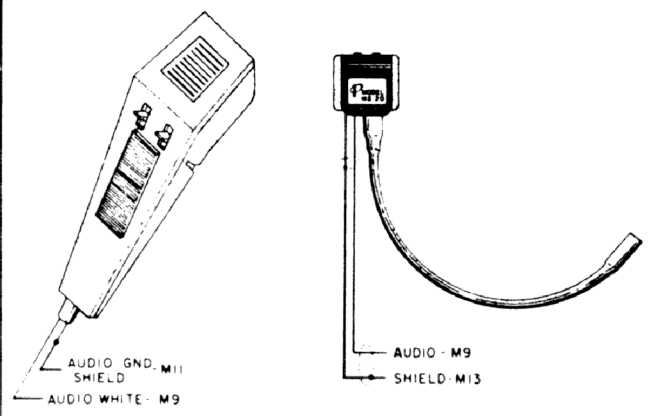
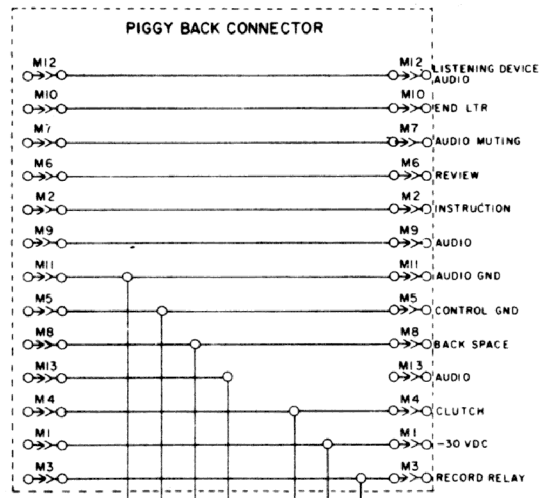
- | | |
|-----------|------------|
| C-2 - B-4 | C-9 - B-5 |
| C-3 - B-2 | C-15 - B-1 |
| C-4 - B-3 | |

Add a wire between C-15 and the reverse magnet in the machine cable.





* NOTE ALL TERMINATE AT PIGGY BACK CONNECTOR



SECRETARY MARKER

START

Jumper M-1 And M-2 Sec. Solenoid Picks?

YES Check Continuity Of Mike Cord (M-1 And M-2) And Contacts. Check Adjustment 70, Page 8

NO 2 Continuity Of Sec. Solenoid And Wiring OK?

YES Check For Binds. Check Adjustments 54 Through 59, Page 7

NO Repair Or Replace Solenoid And/Or Punch Assembly

VOLTAGE DISTRIBUTION

START

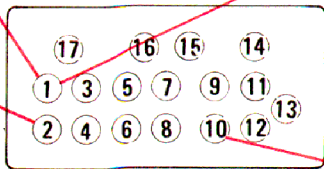
Motor Runs?

YES Check "C" Connector At Rear Of Amp Board For Correct Position, Reference Page 11

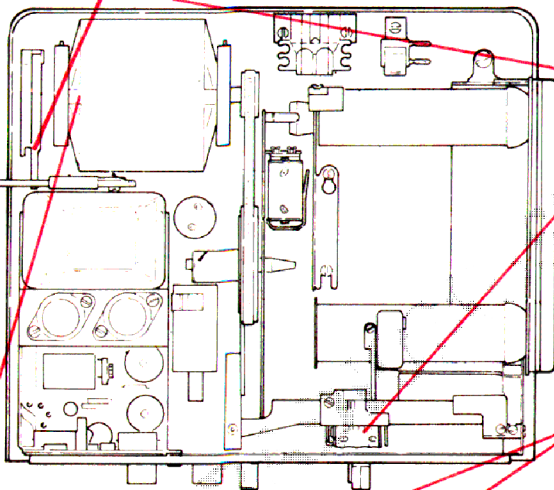
NO 8 Other Mike/Foot Pedal Functions Operating?

YES Replace Motor

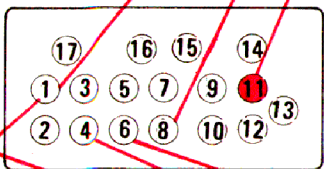
NO 9



M - CONNECTOR



Use M-11 Or Machine Frame As Ground



START

LETTER MARKER

Jumper M-1 To M-10 Ltr. Solenoid Picks?

YES Check Continuity Of Cord (M-1 And M-10) And Foot Pedal Switch Adjustment 71, Page 8

START

BACKSPACE

Mike/Foot Pedal In Backspace Position Backspace Magnet Picks?

YES But Magnet Weak Mechanical: Check Backspace Mechanism For Binds And Adjustments 47 Through 53, Page 6

NO 5

Jumper M-1 To M-8, Backspace Magnet Picks?

YES Check Continuity Of Cord (M-1 And M-8) And Foot Pedal Switch. Adjustment 71, Page 8

NO Check Continuity Of Wiring And Magnet. Check Diode On Magnet For A Possible Short.

Jumper M-1, M-4 And M-6 Together Machine Recalls?

YES Check Adjustment 71, Page 8 Check Continuity Of Cord (M-4 And M-6). Check N/C Switch In Foot Pedal. If OK, Replace Foot Pedal Board. Clean And Adjust Clutch Contacts. Adjustments 15 and 16, Page 4

NO Note: Unplug Machine Before Cleaning Contacts

4

Ohms X1 Scale Continuity Of Ltr. Solenoid And Wiring OK?

YES Check For Binds. Check Adjustments 54 Through 59, Page 7

NO Repair Or Replace Solenoid And/Or Punch Assembly

9

300 VAC Scale 110-120 VAC Outlet And Linecord?

YES

10

NO Have Outlet Fixed Or Replace Linecord

10

Ohms X1 Scale Continuity Of On-Off Switch And Wiring OK?

YES Replace Amp Board

NO Adjust And/Or Replace Switch, Adjustment 6, Page 3

START

WORD RECALL

1

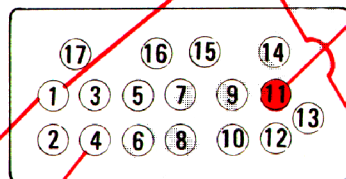
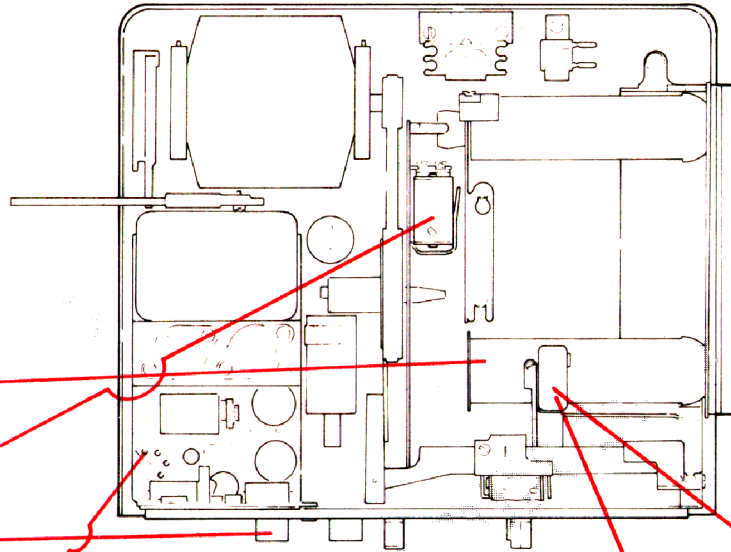
Recall Switch In Position 1-5, Recall Magnet Picks?

Note: Continuous Recall Without Touching Foot Pedal - Replace Board In Foot Pedal

YES But No Recall Mechanical: Check Drive And Recall Adjustments 8 Through 26, Page 3 and 4

NO 6

START



Use M-11 Or Machine Frame As Ground

1 Machine Plays Back Test Belt Through Both Speakers?
 YES **9**
 But Bad Quality (Or Low Volume)

2 Magnabelt Turning?
 YES **6**
 NO **3**

3 Clutch Magnet Picked?
 YES Check Drive Adjustments 8 Through 21, Page 3 and 4
 NO **4**

6 Volume At Max.; Noise At Microphone Speaker?
 YES **7**
 NO **8**

7 Touch Red Soundhead Lead. Indicator Bulb Glows?
 YES Clean And/Or Adjust Clutch Contacts – Adjustments 15 And 16, Page 4 Replace Record Relay Wires. Clean And Adjust Record Relay. Check Adjustment 72, Page 8
 NO Replace Amp Board

4 Unplug Mike, Jumper M-1 To M-4 Clutch Picks?
 YES Check Continuity Of Mike Cord Clean And Adjust Contacts – Adjustment 68, Page 8
 NO **5**

12 Replace Soundhead, Machine Quality OK?
 YES Functionally Check Machine
 NO Replace Amp Board

5 30 VDC Scale 30 VDC At M-1?
 YES Check Continuity Of Clutch Magnet Check For Shorted Diode At Magnet Check For A Mechanical Bind At The Clutch Armature Check Adjustments 16 And 17, Page 4
 NO See Voltage Distribution Chart, Page 13

8 Volume At Max.; Noise At Machine Speaker?
 YES Check Continuity Of Mike Element For Approximately 100Ω. Check Continuity Of Mike Cord M-11 To M-9. Check Continuity Of Speaker Switch. Replace Defective Part
 NO **7**

9 Test Belt Signal Constant?
 YES **10**
 NO Check Drive Adjustments 8 Through 21, Page 3 and 4

10 Playback Signal Weak Or Low?
 YES **11**
 NO **13**

11 Soundhead Properly Positioned And Clean?
 YES **12**
 NO Clean And Adjust Soundhead Check Adjustments 43 Through 45, Page 6

13 Static Noise Present In Playback?
 YES Clean And/Or Adjust Clutch Contacts. Replace Record Relay Wires. Clean And Adjust Record Relay. Check Adjustment 72, Page 8
 NO Functionally Check Machine

START

Machine Records?

1

YES **5** But Bad Quality (Or Weak)

NO **2**

Input Volume Control At Max. Voice Level Indicator Light Glows?

2

YES **3** **NO** **4**

Clean And Adjust Clutch Contacts. Machine Quality OK?

3

YES Functionally Check Machine

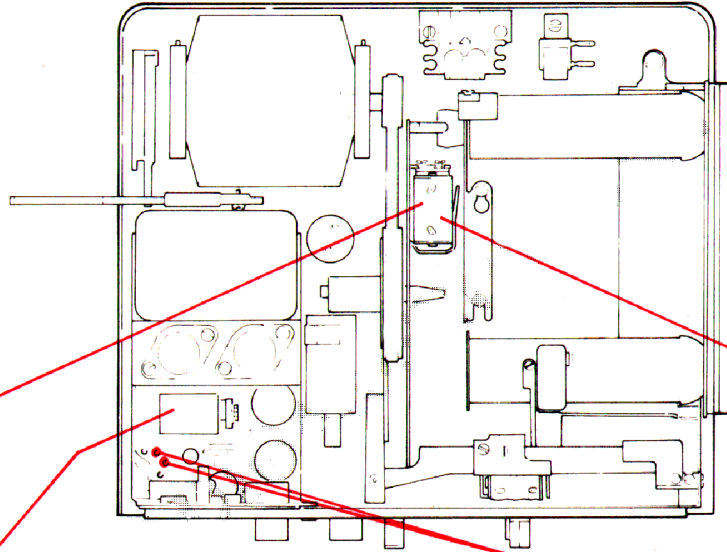
NO Replace Record Relay Wires And Adjust. Adjustment 16, Page 4

Record Relay Picked?

4

YES Replace Record Relay Wires And Adjust - Adjustment 72, Page 8

NO Check Continuity Of Mike Cord M-1 And M-3. Check Adjustment 68, Page 8



5

Record Over Recorded Track. Error Correction Function OK?

YES **9**

NO **6**

6

Crosstalk Corrected With Tuning Knob?

YES Check Backspace Adjustments 47 Through 53, Page 6 And Magnabelt Tracking Adjustments 39 Through 42, Page 5 and 6

NO **7**

7

Clean Clutch Contacts, Machine Quality OK?

YES Functionally Check Machine

NO **8**

8

Ohms X1 Scale Soundhead Continuity Check - White To Shield 3Ω?

YES Replace Amp Board

NO Replace Soundhead

9

Static Noise Recorded?

YES Replace Record Relay Wires And Adjust. Check Adjustment 72, Page 8

NO Functionally Check Machine

210 – SERVICE PROCEDURES

1. Discuss machine problems with operator.
2. Perform a complete functional check of the machine.
 - A. On-Off switch and indicator lamp
 - B. No belt buzzer
 - C. Belt and index slip insertion
 - D. Carriage movement
 - E. Warning and end belt buzzer
 - F. Foot pedal and microphone operator controls
 - G. Vary-tone, volume and tuning (restore to original setting)
 - H. Left and right margin (compare recordings)
 - I. Error correction
 - J. Record light indicator
 - K. Test belt (left margin – wow – flutter)
3. Repair any malfunctions
4. Install engineering changes and machine safety changes
5. Adjustments
 - A. Every call
 1. Check end play in drive mechanism (no binds)
 2. Go–No–Go check (.017"-.025" feeler gauge)
 - B. As needed
 1. Rubber replacement (B/M 1272707)
 2. Burnish and check clutch magnets and microphone control
 3. Tension of record relay

6. Clean

- A. Every call
 1. Soundhead with a soft cloth moistened with IBM cleaning fluid. Use abrasive belts (2 revolutions) on system recorders (check for wear).
 2. Drive and recall mechanism

7. Lubricate (as needed – do not over lubricate)

- | | |
|---|-----------------------|
| A. Motor bearings and lead screw bearings | 1 drop No. 10 oil |
| B. Lead screw | light film No. 10 oil |
| C. Carriage guide rail and support rod | film No. 23 grease |

Note: Flywheel, drive roller, idler roller and idler wheel must be removed for No. 23 lubrication. Apply lubrication during drive replacement or sooner on system recorders.

8. Cover replacement

- A. Check speaker wires to ensure none were pulled loose
- B. Do not pinch wires between covers and frame
- C. Do not overtighten screws
- D. Do not bind mike hanger

9. Clean: Covers, front panel and microphone. Empty index holder, as needed.

10. Functionally check operation of machine.

- A. Compare results obtained with previous recordings
- B. Request operator to try machine