1. GENERAL

End of tape feed-out timing contacts for noninterfering LTRS and BLANK tape feed-out mechanisms...

2. BASIC UNITS

Axial positioning mechanism...

Detent assemblies...

Function box mechanism...

Function cam clutch trip mechanism...

Main shaft and jack shaft mechanisms (two shaft unit)...

Main shaft mechanism...

Printing mechanism...

Punch mechanism (for chadless tape)...

Punch mechanism (for fully perforated tape)...

Push bars...

Range finder mechanism...

Ribbon feed mechanism (later design)...

Rocker bail mechanism...

Rotary positioning mechanism...

Selector mechanism...

Signal bell contact mechanism...

Slack tape mechanism (for 28 tape printer unit)...

Transfer mechanism...

Typing reperforator unit...

3. VARIABLE FEATURES

Automatic and remote control non-interfering BLANK tape feed-out mechanisms...

Automatic and remote control non-interfering LTRS and BLANK tape feed-out mechanisms...

Automatic and remote control non-interfering LTRS tape feed-out mechanisms...

Backspace mechanism for chadless tape (manual)...

Backspace mechanism for chadless tape (power drive)...

Backspace mechanism for fully perforated tape (power drive)...

Blank delete mechanism...

Code reading contacts...

4. EARLIER DESIGN MECHANISMS

Remote control noninterfering BLANK tape feed-out mechanism...

Ribbon feed mechanism...

Timing contacts...
OPERATING SPEEDS IN WORDS PER MINUTE

<table>
<thead>
<tr>
<th>Speed (Words/Min)</th>
<th>Lubrication Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>3000 hours or 1 year*</td>
</tr>
<tr>
<td>75</td>
<td>2400 hours or 9 months*</td>
</tr>
<tr>
<td>100</td>
<td>1500 hours or 6 months*</td>
</tr>
</tbody>
</table>

*Whichever occurs first.

1.03 Use TP88970 (KS7470) oil at all locations where the use of oil is indicated. Use TP88973 (KS7471) grease on all surfaces where grease is indicated. If the function cam needle bearings are disassembled at any time, repack the bearings with TP195298 grease (Beacon 325 grease or its equivalent).

1.04 All spring wicks and felt oilers should be saturated. The friction surfaces of all moving parts should be thoroughly lubricated. Over lubrication, however, which will permit oil or grease to drip or be thrown on other parts, should be avoided. Take special care to prevent oil or grease from getting between armatures and pole faces or between electrical contact points. Pull a piece of "BOND" paper between the armature and the pole pieces to remove any oil or foreign matter that may be present. Make certain that no lint or pieces of paper remain between the pole pieces and armature.

1.05 Apply a thick film of grease to all gears.

1.06 Apply oil to all cams, including the camming surfaces of each clutch disc.

1.07 The photographs show the paragraph numbers referring to particular line drawings of mechanisms and where these mechanisms are located on the unit. Parts in the line drawings are shown in an upright position unless otherwise specified.

1.08 The illustration symbols indicate the following lubrication directions:

- O1 Apply 1 drop of oil.
- O2 Apply 2 drops of oil.
- O3 Apply 3 drops of oil, etc.
- G Apply thin film of grease.
- SAT Saturate (felt oilers, washers, wicks) with oil.

2. BASIC UNITS

2.01 Typing Reperforator Unit
2.02 Ribbon Feed Mechanism (Later Design)

(For Earlier Design See Part 4.)

(FRONT VIEW)

(HOOKS (2) SPRING
PIVOT POINT FEED PAWL
PIVOT CHECK PAWL
PIVOT POINTS (2) REVERSING ARM
CONTACTING DRIVE ARM SURFACE ADJUSTABLE EXTENSION
G SAT FELT WASHER DRIVE ARM ROLLER

(REAR VIEW)

(HOOKS (2) SPRINGS (2) RATCHET WHEEL
TEETH RATCHET WHEEL ROLLERS (2)
SHAFT FELT WHEEL RATCHET WHEEL
SHAFT, FELT WASHERS (2)
PIVOT DETENT
CONTACTING DETENT SURFACES DETENT
UPPER AND LOWER SLIDE LEVER SLIDE LEVER BUSHING
PIVOT DRIVE ARM
DRIVE ARM ROLLER)
2.03 Punch Mechanism for Chadless Tape
2.04 Punch Mechanism for Chadless Tape continued

- O1 SLIDING SURFACE (5) (UPPER GUIDE) PUNCH PIN
- O1 SPRING-EACH END RETRACTOR
- O1 PIVOT AND FELTS RETRACT BAIL
- G SLIDING SURFACE (5) (RETRACTOR NOTCH) PUNCH PIN
- O1 SLIDING SURFACE (5) (LOWER GUIDE) PUNCH PIN
- O1 SLIDING SURFACE (5) PUNCH SLIDE GUIDE
- G RATCHET TEETH FEED WHEEL
- O2 OIL HOLE FEED WHEEL
- SAT PIVOT POINT (FELT WASHER) FEED WHEEL
- SAT PIVOT POINT (FELT WASHER) DIE WHEEL
- O2 PIVOT POINTS (2) HANDWHEEL BEARING
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2.05 Punch Mechanism for Fully Perforated Tape
2.06 Punch Mechanism for Fully Perforated Tape continued

- O1 SLIDING SURFACE (6) (UPPER GUIDE)
- PUNCH PIN
- O1 SLIDING SURFACE (6) (LOWER GUIDE)
- PUNCH PIN
- O1 SLIDING SURFACE (6)
- PUNCH PIN
- O1 SLIDING SURFACE (6)
- PUNCH SLIDE GUIDE
- O1 HOOKS-EACH END
- SPRING

- G
- RATCHET TEETH
- FEED WHEEL
- O2
- OIL HOLE
- FEED WHEEL
- SAT
- PIVOT POINT (FELT WASHER)
- FEED WHEEL
- SAT
- PIVOT POINT (FELT WASHER)
- DIE WHEEL
- O2
- PIVOT POINTS (2)
- HANDWHEEL BEARING
2.07 Typing Reperforator Unit
2.08 Rotary Positioning Mechanism

- TEETH
- SPECIAL TEETH
- PIVOT POINT
- PIVOT POINTS (2)
- PIVOT POINTS (3) (FELT WASHERS)
- SLIDING SURFACE

- ROTARY OUTPUT RACK
- ROTARY OUTPUT RACK
- ROTARY CORRECTING LEVER
- ROTARY CORRECTING LEVER SHAFT
- CONNECTING RODS
- DETENT LEVERS (3)
- SPRINGS (4)
- DETENT LEVERS (8)
- CROSS LINKS
- ROTARY OUTPUT RACK

2.09 Selector Mechanism

- BEARING GUIDE SLOTS (5)
- HOOKS - EACH END (12)
- ENGAGING SURFACES (5)
- GUIDE SLOT
- WICK

- PUSH LEVER GUIDE BEARING
- SELECTOR Wick
- SPRINGS
- PUSH LEVERS
- MARKING LOCK LEVER
- LUBRICATOR WICK
- FILL UP (AVOID AIRLOCK)
- LUBRICATOR RESERVOIR

- HOOKS - EACH END (12)
- BEARING GUIDE SLOTS (6)
- GUIDE SLOTS

- SELECTOR LEVER GUIDE BEARING
- SELECTOR AND PUSH LEVER GUIDE
2.10 Range Finder Mechanism

G TEETH KNOB

G TEETH RACK

SAT FELT WASHERS (2) CLUTCH STOP ARM

O1 HOCKS - EACH END SPRING

2.11 Main Shaft Mechanism

*IF FUNCTION CAM NEEDLE BEARINGS ARE DISASSEMBLED AT ANY TIME, REPACK BEARINGS WITH GREASE (BEACON 325) (TP195298) OR ITS EQUIVALENT.

O6 * FUNCTION CAM NEEDLE BEARING SLEEVE (3) BOTH ENDS OF SLEEVE AND OIL HOLE IN SLEEVE MAIN SHAFT

O2 BEARING

SELECTOR CAM

O2 CAM SURFACES (EACH CAM)

FUNCTION CAM

O2 CAMMING SURFACES (2)

FUNCTION CAM

O2 ROLLER PIVOT

MAIN SHAFT DRIVEN GEAR (IF UNIT IS SO EQUIPPED)
2.12 Transfer Mechanism

- PIVOT POINTS (5)
- CONTACT SURFACES (5)
- CONTACT POINTS (5) (EACH END)
- HOOKS - EACH END
- PULSE BEAMS
- TRANSFER LEVERS
- PULSE BEAMS
- SPRING
- TRANSFER LEVERS
- GUIDE BRACKET

2.13 Push Bars

- RACK TEETH (7)
- CONTACT SURFACES (7)
- CONTACT SURFACES (6)
- PUSH BARS

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SECTIO\n
2.14 Typing Reperforator Unit

Page 12
2.15 Function Box Mechanism

- SLIDING SURFACES (EACH SIDE)
- PIVOT POINTS
- HOOKS - EACH END (2)
- HOOKS - EACH END (2)
- SLIDING SURFACES (EACH SIDE)
- CONTACT POINTS (2)
- HOOKS - EACH END
- PIVOT POINT
- ROLLER SURFACE
- HOOKS - EACH END
- HOOKS - EACH END
- PIVOT POINT
- HOOKS - EACH END
- PIVOT POINT
- PIVOT POINTS (6)
- PIVOT POINTS

2.16 Axial Positioning Mechanism

- SLIDING GUIDE SURFACES
- HOOKS - EACH END
- PIVOT POINT
- PIVOT POINT
- CONTACT POINTS
- TEETH
- PIVOT POINT
- TEETH
- CONTACT SURFACE
- PIVOT POINTS (FELT WASHERS)
- PIVOT POINT
- PIVOT POINT (FELT WASHER)
2.17 Axial Positioning Mechanism continued (Left Side View)

2.18 Detent Assemblies (Bottom View)

NOTE: THERE ARE TWO DETENT ASSEMBLIES ON THE AXIAL POSITIONING MECHANISM.
2.19 Printing Mechanism With Steel Print Hammer (Left Side View)

2.20 Printing Mechanism With Resilient Print Hammer (Left Side View): The printing mechanism with resilient print hammer (not illustrated) shall be lubricated in the same manner as the steel print hammer shown in 2.19 but in addition, the felt washer between the resilient print hammer accelerator and the frame shall be saturated with oil in accordance with general lubrication procedures. Where a mechanism is equipped with print suppression parts, a thin film of grease shall be applied on print hammer stop at the point of contact with the print hammer lever.
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2.21 Rocker Bail Mechanism (Rear View)

- **G** CONTACT SURFACE
- **01** PIVOT POINTS
- **SAT** SLIDING SURFACE (FELT WASHER UNDER BLADE)
- **G** PIVOT POINT
- **01** PIVOT POINT
- **01** ROLLER SURFACE
- **01** PIVOT POINT
- **SAT** PIVOT POINT (FELT STRIP)
- **01** ROLLER SURFACE
- **01** CONTACT SURFACE

- **G** RIBBON FEED ECCENTRIC STUD
- **01** PUSH BAR OPERATING BLADE
- **01** PUSH BAR OPERATING BLADE
- **01** CORRECTING DRIVE LINK
- **01** OSCILLATING DRIVE LINK
- **01** CAM FOLLOWER ROLLER (UPPER AND LOWER)
- **01** CAM FOLLOWER ROLLERS
- **01** PRINTING DRIVE LINK
- **01** ROCKEB BAIL
- **01** CAM FOLLOWER ROLLER
- **01** FUNCTION CAM
2.22 Function Cam Clutch Trip Mechanism

- CONTACT POINTS (2)
- MAIN TRIP LEVER
- END OF LEVER
- CLUTCH TRIP SHAFT
- hooks - each end
- CLUTCH RELEASE SPRING
- CONTACT SURFACE
- RESET LEVER
- FELT WASHERS
- CLUTCH TRIP SHAFT
- SAT
- CLUTCH STOP LUG
- FELT WASHERS
- CLUTCH TRIP SHAFT
- hooks - each end
- Follower Lever Spring
- PIVOT POINT
- Trip Cam Follower Lever
- Contacting surfaces - each end
- Trip Cam Follower Lever
- Contact point
- Main Trip Lever
- Contact surface
- Main Trip Lever
- hooks - each end
- Main Trip Lever Spring
- Pivot point
- Main Trip Lever

2.23 Slack Tape Mechanism

- Pivot Points
- Tape Depressor
- Contacting surfaces - each end
- Clamp Plate spring
- Roller surface
- Drive roller
2.24 Main Shaft and Jack Shaft Mechanisms (Two Shaft Unit)

*IF FUNCTION CAM NEEDLE BEARINGS ARE DISASSEMBLED AT ANY TIME, REPACK BEARINGS WITH GREASE (BEACON 325) (TP195298) OR ITS EQUIVALENT.

**Diagram**

- TEETH
- GEAR (2)
- FUNCTION CAM
- BOTH ENDS OF SLEEVE AND OIL HOLE IN SLEEVE
- MAIN SHAFT
- CLUTCH CAM DISK
- FUNCTION CLUTCH DRUM JACK SHAFT
- GEARS (2)

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2. 25  Tape Mechanism for 28 Tape Printer Unit

(THE LUBRICATION INSTRUCTION PLUS APPLICABLE 28 TYPING REPERFORATOR LUBRICATION INSTRUCTIONS ARE REQUIRED TO LUBRICATE THE 28 TAPE PRINTER UNIT)
3. VARIABLE FEATURES

3.01 Unshift-On-Space Mechanism

3.02 Signal Bell Contact Mechanism (Right Side View)
3.03 Manual and Solenoid Operated Interfering LTRS Tape Feed-Out Mechanism and Signal Bell Mechanism

3.02

3.04
3.04 Manual and Solenoid Operated Interfering LTRS Tape Feed-Out Mechanism

Diagram:

- O2 Bearing Surface
- PLUNGER
- O1 Bearing Surfaces (2)
- Drive Shaft
- O2 Bearing Surfaces
- START LEVER
- O1 Hooks - EACH END
- SPRING
- G Contact Trip Lever
- SPRING
- O1 Hooks - EACH END

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3.05 Automatic and Remote Control Noninterfering LTRS Tape Feed-Out Mechanisms
3.06 Automatic and Remote Control Noninterfering LTRS and BLANK Tape Feed-Out Mechanisms

NOTE: PARTS ASSOCIATED ONLY WITH THE AUTOMATIC MECHANISMS.

SAT FELT WASHER

DRIVE LINK

SAT FELT WASHER

O1 HOOKS-EACH END

O2 BEARING SURFACE

O2 BEARING SURFACE

G CONTACT SURFACES (3)

O2 BEARING SURFACES (2)

LATCH LEVER

RESET CAM FOLLOWER

SPRINGS (3)

RELEASE LEVER

SAFETY LATCH
3.07  Remote Control Noninterfering LTRS and BLANK Tape Feed-Out Mechanism

- O2  PIVOT POINT
- ROLLER SURFACE
- O2  PIVOT POINT
- O2  PIVOT POINT
- G  CONTACT POINT
- G  CONTACT POINT
- G  CONTACT POINT
- O1  HOOKS-EACH END (2)
- ARMATURE HINGE
- DRIVE BAIL ROLLER
- DRIVE BAIL ROLLER
- DRIVE BAIL
- BLOCKING BAIL
- DRIVE BAIL
- BLOCKING LATCH
- SPRING

- O2  PIVOT POINT
- SLIDE SURFACE
- G  CONTACT POINT
- G  CONTACT POINT
- HOOKS-EACH END
- DRIVE LINK
- DRIVE LINK
- RELEASE LEVER
- LATCH LEVER
- SPRING
3.08 Automatic and Remote Control Noninterfering LTRS and BLANK Tape Feed-Out Mechanisms continued

- **O1** HOOKS-EACH END
- **SPRING**
- **RELEASE ARM**
- **SPRING**

- **O2** BEARING SURFACE
- **LATCH LEVER**
- **TIME DELAY LEVER**

- **O2** BEARING SURFACE
- **TIME DELAY LEVER**
- **TIME DELAY CAM**

- **O1** HOOKS-EACH END
- **CAMMING SURFACE**

- **G** BEARING SURFACE

- **O2** BEARING SURFACE
- **CONTACT SURFACE**
- **RELEASE ARM**

- **O1** HOOKS-EACH END
- **CAMMING SURFACE**

- **O2** BEARING SURFACE
- **CAMMING SURFACE**

- **O2** BEARING SURFACES

- **O2** BEARING SURFACES (2)

- **O1** HOOKS-EACH END

- **O2** BEARING SURFACE

- **O2** CAMMING SURFACE

- **O2** CAMMING SURFACE

- **O1** HOOKS-EACH END

- **O2** BEARING SURFACES

- **BEARINGS (FRONT AND REAR)**

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3.09 Automatic and Remote Control Noninterfering LTRS and BLANK Tape Feed-Out
Mechanisms continued

- **O1 HOOKS-EACH END**
  - **SPRING (2)**

- **O2 BEARING SURFACES**
  - **PLACE BETWEEN RATCHETS**
  - **RATCHETS (2)**

- **G TEETH**
  - **RATCHETS (2)**

- **O1 HOOKS-EACH END**
  - **SPRING**

- **O1 PIVOT POINT**
  - **REAR CHECK PAWL**

- **O1 HOOKS-EACH END**
  - **SPRING**

- **O1 PIVOT POINT**
  - **RESET BAIL LATCH**

- **O1 PIVOT POINT**
  - **RESET BAIL LINK**

- **O1 CONTACT SURFACES (2) RESET BAIL**

- **O1 CONTACT SURFACE**
  - **RESET BAIL TRIP LEVER**

- **O1 CONTACT SURFACE**
  - **RESET BAIL LINK**

- **O1 HOOKS-EACH END**
  - **SPRING**
3.10 Automatic and Remote Control Noninterfering BLANK Tape Feed-Out Mechanisms

O2 PIVOT POINT
O1 HOOKS-EACH END

SPRING

O2 SLIDING SURFACES (2)

BLOCKING LINK

BLOCKING LINK
3.11  End of Tape Feed-Out Timing Contacts for Noninterfering LTRS and BLANK Tape Feed-Out Mechanisms

- SLIDING SURFACES
- SWINGER INSULATOR BUTTON
- PIVOT POINT
- BAIL W/HUB
- ENGAGING SURFACES
- LOWER BAIL EXTENSION
3.12 Timing Contact Mechanism (Operated by Selector)

- **Metal Face Toward Operating Arm**
- **Swinger Spring Insulator**
- **Felt Washers (3)**
- **Operating Lever**
- **Operating Lever**
- **Operating Lever**
- **Bearings—Each End**
- **Operating Lever**
- **Hooks—Each End**
- **Operating Lever**
- **Coiled Springs**
- **Operating Surface**
- **Cam**
3.13 Print Suppression on Functions
3. 14  Blank Delete Mechanism

SAT FELT WASHER (2)  ARMATURE BAIL

O1 HOOKS - EACH END  SPRING

O2 SLIDING SURFACE  ROD

O2 SLIDING SURFACE  LATCH LEVER

O1 HOOKS - EACH END  SPRING

G ENGAGING SURFACE  BLOCKING LEVER

O2 LOWER END  ROD

O2 SLIDING SURFACE  FEED PAWL EXTENSION

O2 BEARING SURFACE  PLATE WITH BUSHING (FRONT AND REAR)
3.15 Blank Delete Mechanism continued

CONTACT SURFACE
HOOKS - EACH END
FUNCTION BLADE
SPRING

SAT FELT WASHER
BLANK FUNCTION
BLADE

ENGAGING SURFACE
PRINT HAMMER

HOOKS - EACH END
SPRING

SLIDING SURFACE
PRINT HAMMER
3.16 Letters-Figures Contact Mechanism (Later Design)

![Diagram of Contact Mechanism]

- **O1 PIVOT POINT**
- **O1 HOOKS-EACH END**
- **OPERATING LEVER**
- **SPRING**
3.17 Timing Contacts

- G CONTACTING SURFACE
- O1 HOOKS - EACH END (2 SPRINGS)
- SAT FELT WICK
- SAT FELT WASHERS
- SAT FELT WASHERS

CONTACT ACTUATING BAIL
CONTACT ACTUATING BAIL SPRINGS
CONTACT ACTUATING BAIL SPRINGS
CONTACT ACTUATING BAIL SHAFT
CAM FOLLOWER ARM

3.18 Code Reading Contacts

- G CONTACT SURFACES (BAKELITE)

PUNCH SLIDES
3.19 Manual and Power Drive Backspace Mechanisms (for Chadless Tape)
3.20 Backspace Mechanism for Chadless Tape (Manual)

- **Bearing Surface (Rear)**: Rake Shaft
- **Gear Teeth**: Gear Segment
- **Hooks-Each End**: Pawl Spring
- **Bearing Surface**: Feed Pawl
- **Contact Surface**: Feed Pawl
- **Hooks-Each End (3 Springs)**: Spring
- **Bearing Surface**: Nut, Shoulder
- **Bell Crank**:

3.21 Backspace Mechanism for Chadless Tape (Power Drive)

- **Bearing Surface**: Link
- **Rotating Surface**: Eccentric
- **Sliding Surface**: Eccentric Drive Arm Fork
- **Bearing Surface**: Arm
- **Bearing Surface**: Armature Bail
- **Hooks-Each End (2 Springs)**: Springs
3.22 Backspace Mechanism for Fully Perforated Tape (Power Drive)
3.23 Time Delay Motor Stop Mechanism

- Hooks—Each End
- Engaging Surface
- Felt Washers
- Engaging Surface
- Engaging Surface
- Hooks—Each End
- Felt Washers
- Bearing Surface
- Bearing Surface
- Teeth and Flanges
- Engaging Surface
- Felt Washers
- Bearing Surface (2)
- Bearing Surface
- Hooks—Each End
- Engaging Surface
- Engaging Surface
- Engaging Surface

- Spring
- Contact Operating Pawl and Latch Lever
- Latch Lever
- Bell Crank and Contact Operating Pawl
- Latch Pawl and Latch Lever
- Spring
- Latch Pawl
- Ratchet Wheel Shaft
- Bellcrank and Supporting Stud
- Ratchet Wheels
- Clamp Arm and Bellcrank
- Contact Pawl
- Time Delay Reset Shaft Bushing
- Eccentric Follower Drive Arm and Eccentric
- Spring
- Drive Arm
- Contact Operating Pawl and Contact Insulator
- Selector Reset Bail
- Time Delay Reset Lever
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4. EARLIER DESIGN MECHANISMS

4.01 Ribbon Feed Mechanism
(For Later Design
See Par. 2.02.)
4.02 Remote Control Noninterfering BLANK Tape Feed-Out Mechanism

(For Later Design
See Part 3 Variable Features)
4.03 Remote Control Noninterfering BLANK Tape Feed-Out Mechanism continued
(For Later Design See Part 3 Variable Features)

G : L K T: ; T'NL BK TY P>H>: S>Y, QI Y
@Y RHO=QK @YSV P?: ; >Y HL ; F YG>W>PY
O1 A L M E S/ >; AY>K =Y RNPBK @Y

SAT NQVL T'VLN BK TY G L ; E YG>W>QY
?HTYX : RA >PR Y
O2 NQVL T'VLN BK TY P>G>: S>Y, QI Y
O1 A L L F RYO >; AY>K =Y RNPBK @RY
Remote Control Noninterfering BLANK Tape Feed-Out Mechanism continued
(For Later Design
See Part 3 Variable Features)
4.05 Remote Control Noninterfering BLANK Tape Feed-Out Mechanism continued
(For Later Design See Part 3 Variable Features)

- O2 ROLLER SURFACE KICK-OUT ARM
- G CONTACT POINT FEED-OUT LATCH
- O1 CONTACT SURFACE KICK-OUT ARM
- O2 PIVOT POINT LATCH ARM AND LATCH SHAFT
- O1 HOOKS - EACH END SPRING
- O2 PIVOT POINT ARMATURE BAIL
- O1 HOOKS - EACH END SPRING
- O2 PIVOT POINT NON-INTERFERING LEVER SHAFT
- O1 CONTACT POINT NON-INTERFERING LEVER
4.06 Remote Control Noninterfering BLANK Tape Feed-Out Mechanism continued
(For Later Design See Part 3 Variable Features)
4.07 Remote Control Noninterfering Tape Feed-Out Mechanism continued and Timing Contacts