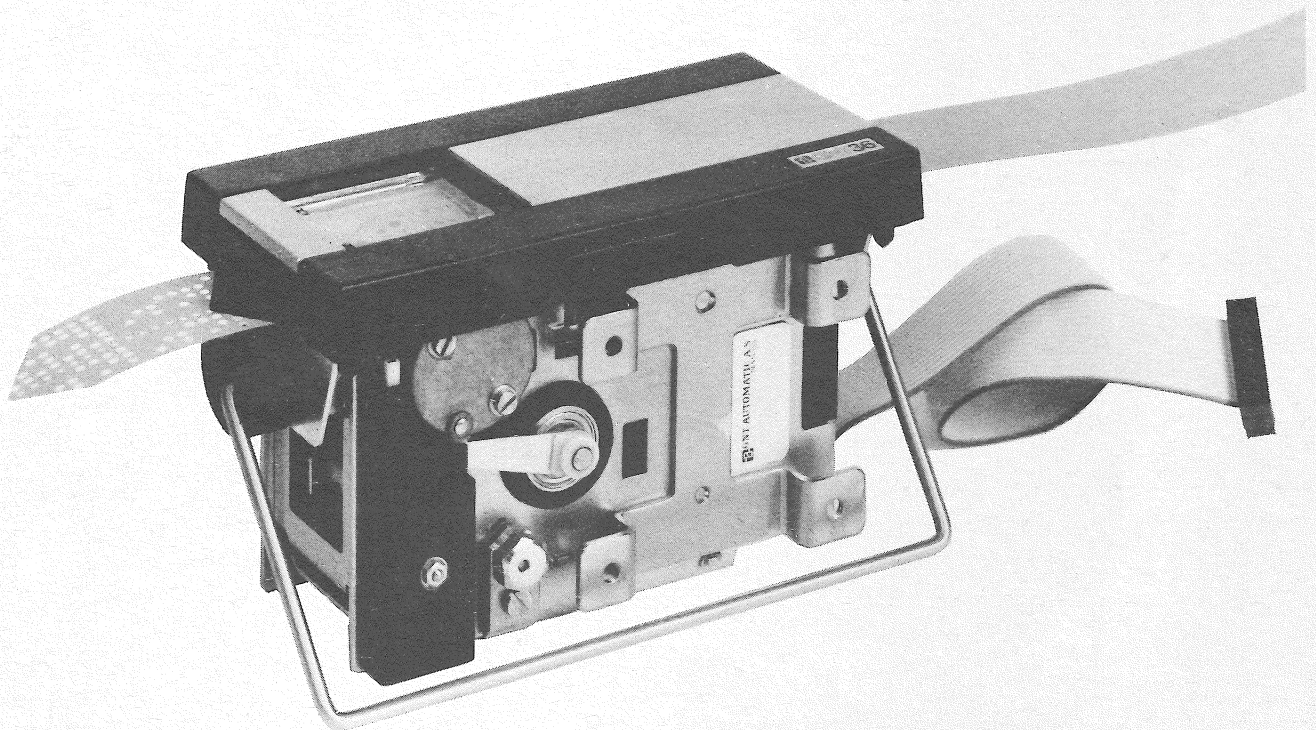


GNT 36
Tape punch mechanism
6-wing version

manual



GNT AUTOMATIC

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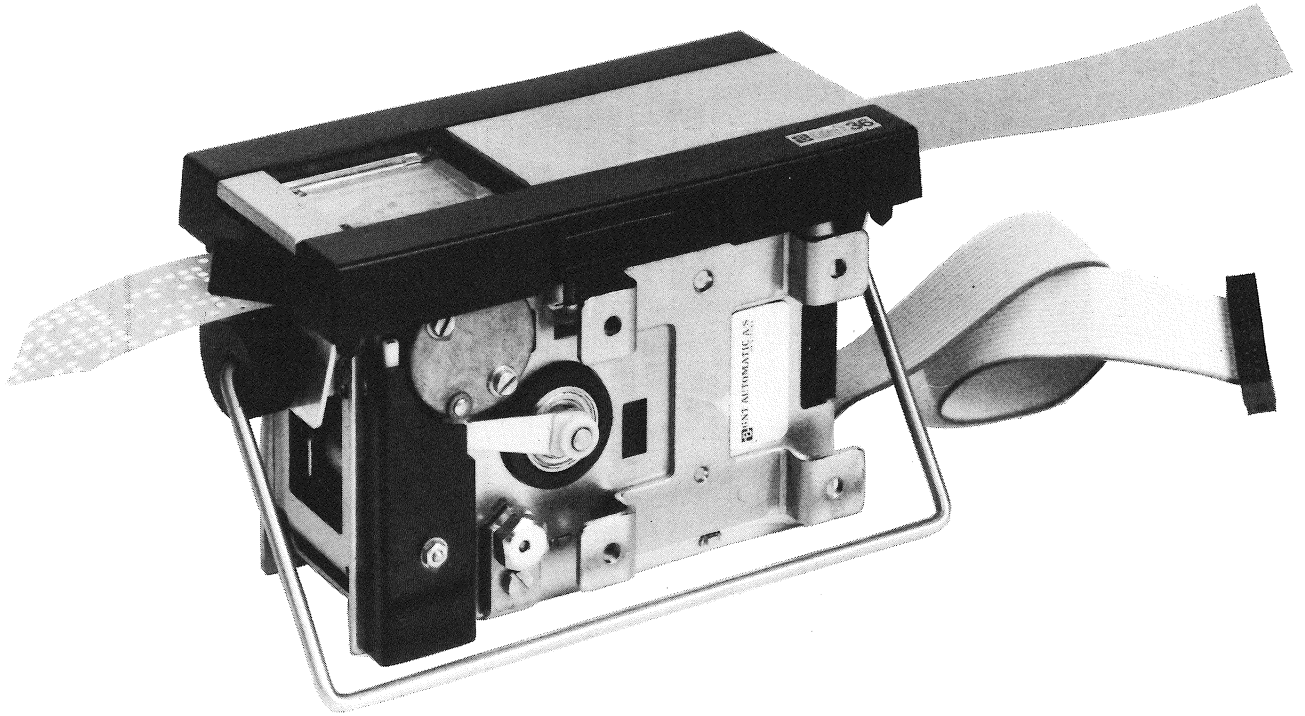


Fig. 1.1 GNT 36 Tape Punch Mechanism

SECTION 1

GENERAL DESCRIPTION

1.1 INTRODUCTION

The GNT 36 Tape Punch Mechanism (Fig. 1.1) is a compact module, ideal for building in wherever registration of data on paper or mylar tape is needed and is especially suited to microprocessor control.

Two versions are available, designed for bi-directional speeds of 50 or 75 char./s.

The mechanism punches 5- and 8-channel ISO or 6-channel JIS. By changing the die block, 6-channel TTS (advanced feed hole) can be punched.

The GNT 36 can be mounted in a rectangular hole by means of a simple clamp with rubber pads. No screws are needed, and noise is kept to a minimum. Alternatively, the side-mounting bracket can be used.

Chad disposal takes place through the flat top cover, and right or left-hand collection can be selected.

1.2 FUNCTIONAL DESCRIPTION

The GNT 36 is a synchronous punch, which means that its main shaft is in constant rotation and that data and feed pulses must be applied at times governed by the angular position of the main shaft. Pulse synchronization is ensured by a photo-electric timing generator.

Perforation of code and feed holes is accomplished by punching needles which are driven through and withdrawn from the tape by an eccentric on the main shaft. The selection of each needle is controlled by an electro-magnet.

The tape is moved forwards or backwards by a sprocket wheel which is driven via an electro-magnetically activated dog clutch.

SECTION 2

SPECIFICATIONS

2.1 GENERAL

Dimensions:	Length: 120 mm Width: 60 mm Height: 77 mm
Weight:	750 g
Colour: (top plate)	Black and aluminium
Mounting:	Flush or side mounting (See Section 3.2)

2.2 ENVIRONMENT

Ambient temperature:	Operating: +5 ⁰ C to +55 ⁰ C Storage: -40 ⁰ C to +70 ⁰ C
Humidity:	Operating: 15 - 95% RH Storage: 5 - 95% RH

2.3 POWER REQUIREMENTS

Main shaft speed:	3000 rpm $\pm 10\%$ (50 char./s) 4500 rpm $\pm 10\%$ (75 char./s)
Torque:	0.02 Nm (paper) 0.03 Nm (mylar)
Pulley diameter:	30 mm
Belt type;	O-ring, $\varnothing$ 3.52 mm

2.4 TAPE

Material:	Oiled or non-oiled paper according to ISO 1729. Mylar/foil/mylar Metalized mylar Polyester
Form:	Coil or fan-fold
Thickness:	0.05 - 0.12 mm
Width:	11/16", (17.5 mm), 5 unit (ISO) 7/8", (22.2 mm), 6 unit (JIS) 1", (25.4 mm), 8 unit (ISO) or 7/8", (22.2 mm), 6 unit (TTS)

2.5 PERFORMANCE

Speed:	0-50 char./s $\pm$ 10% 0-75 char./s $\pm$ 10%
Type of punching:	ISO, 5 and 8 unit (tolerance ISO R1154) and JIS, 6 unit (central feed hole) or TTS, 6 unit (advanced feed hole)
Max. allowable drag from tape dispenser:	1.0 N.

2.6 INPUT AND OUTPUT SIGNALS

Input signals

Selector magnet
drive pulses:

Voltage: 12 VDC $\pm$ 10%

Coil resistance: 75 Ω $\pm$ 10%

Feed magnet
drive pulses:

Voltage: 12 VDC $\pm$ 10%

Coil resistance: 43 Ω $\pm$ 10%

Supply for
reflex sensor:

+ 5V $\pm$ 0.25 V DC

Output signals

Timing signal from reflective object sensor OPB 253 A. See Fig. 2.1

Recommended load resistance: 820 Ω to 0 V

Logical levels on LS TTL input:

Logical 0 (dark) $\leq$ 0.5 V

Logical 1 (light) $\geq$ 2.0 V

Signal connection is via a 16-pole AMP connector and flat cable, length 300 mm. (See Section 3.3, for pin assignment).

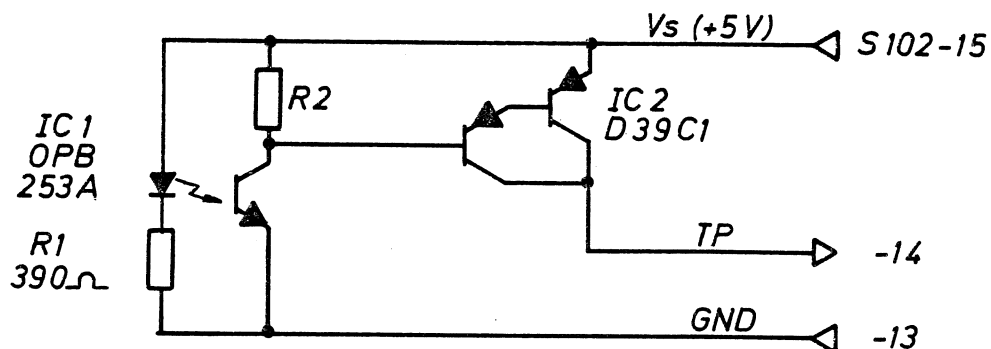


Fig. 2.1a, Timing Signal Circuit

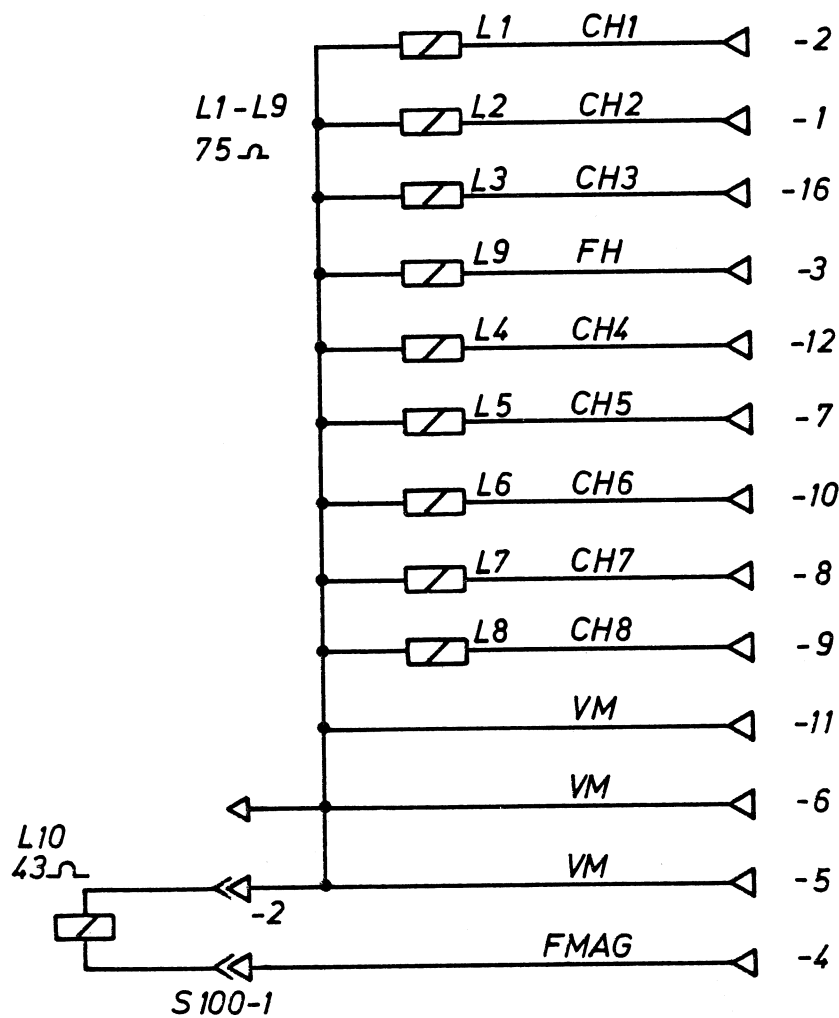


Fig. 2.1b, Timing Signal Circuit

2.7 RELIABILITY

MTBF	10^8 char.
MTBE	10^7 char.
MTTR	10 min.
Life:	
Die block:	1.5×10^8 char. (paper)
	5×10^7 char. (mylar)
Mechanism:	3×10^8 char.

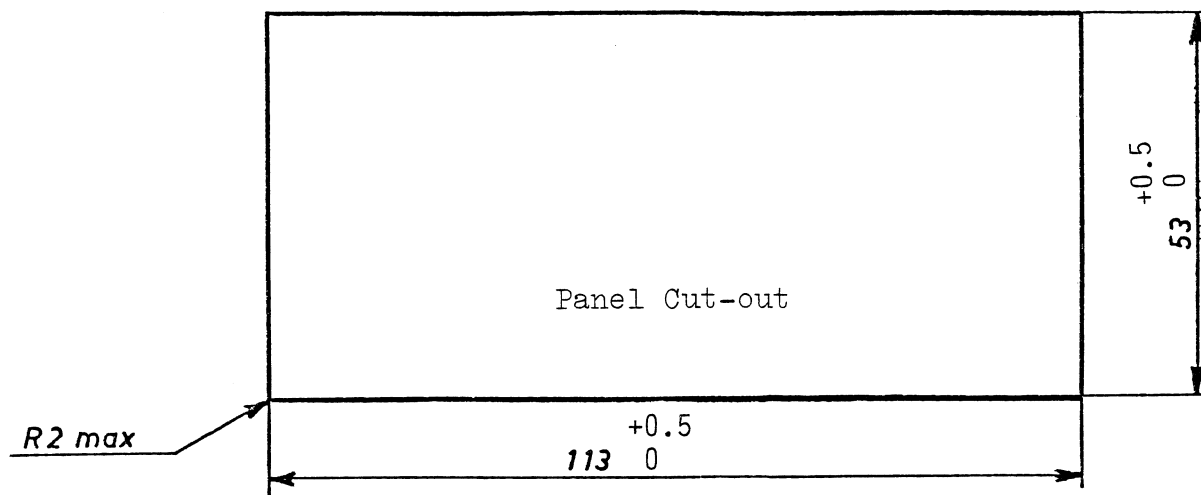


Fig. 3.1a Flush Mounting

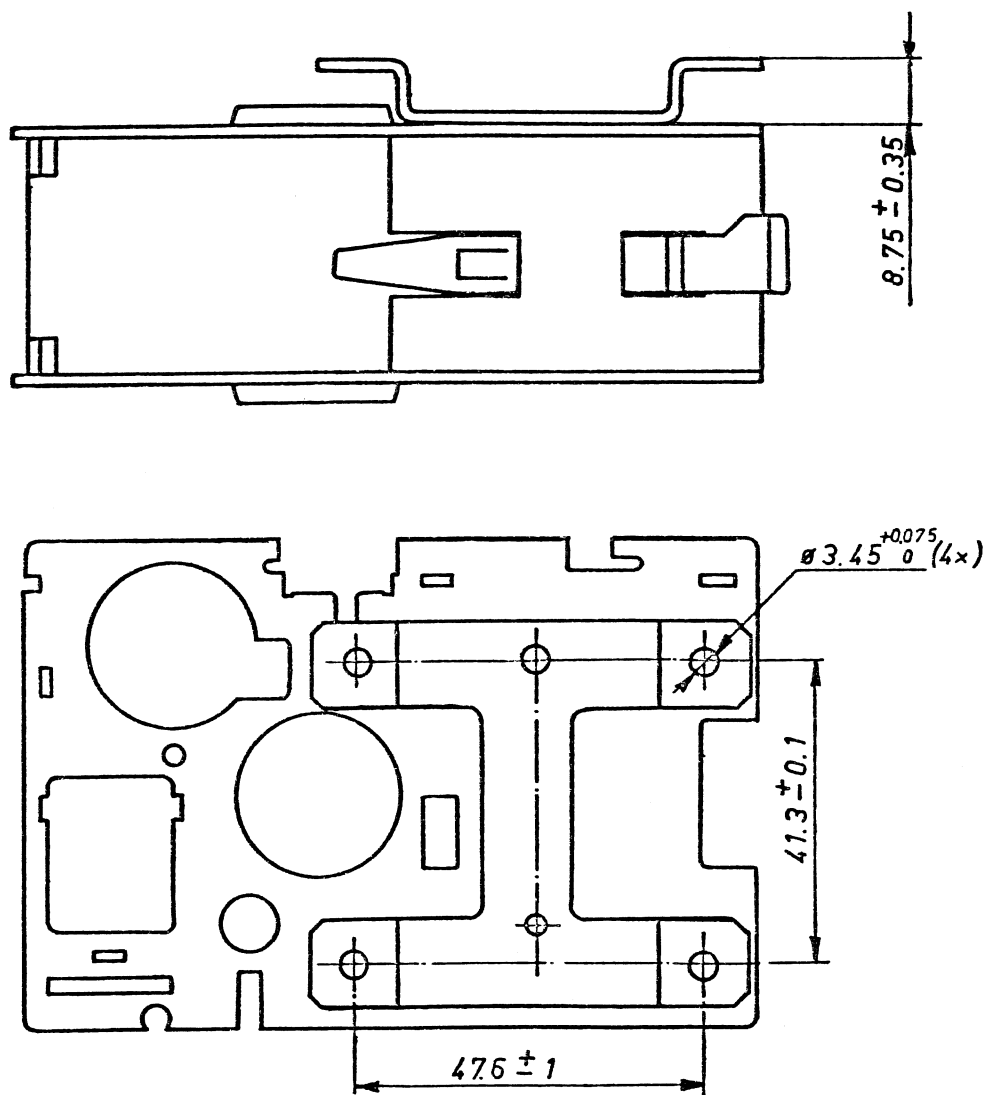


Fig. 3.1b Side Mounting

SECTION 3

OPERATING INFORMATION

3.1 UNPACKING AND INSPECTION

Inspect the shipping carton for visible signs of damage incurred during transit. Unpack the carton, and check the contents against the shipping documents. Any damage or omissions should be reported immediately.

3.2 INSTALLATION

3.2.1 FLUSH MOUNTING

Be sure that the mounting hole has the correct dimensions (See Fig. 3.1a), place the GNT 36 in position in the opening, and from below, clip the mounting clamp into the 2 holes in the top cover brackets. Be sure that the flats on the rubber pads are turned towards the mounting plate. Twist the 2 pads so that the mechanism is held fast against the plate.

3.2.2 BRACKET MOUNTING

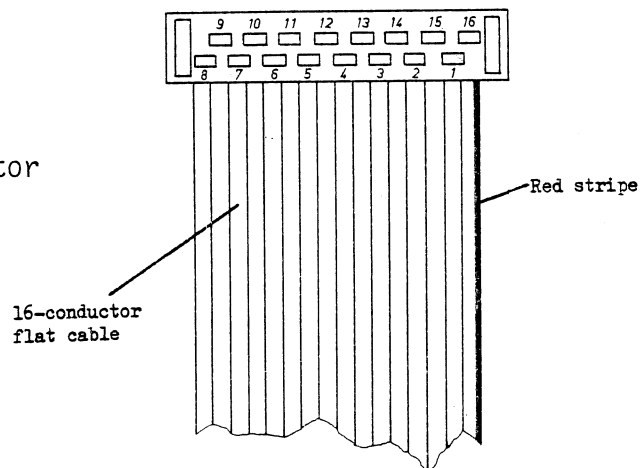
Be sure that the 4 holes in the vertical mounting plate have the correct size and location to match the bracket (See Fig. 3.1b). Screw the mechanism to the mounting plate using self-tapping screws.

3.3 CONNECTIONS

Signals are fed to the GNT 36 Punch Mechanism via a 16-conductor flat cable. The signal connector is a 16-pole AMP type. Pin connections are as follows: (See Fig. 3.2).

Pin 1	CH 2	Pin 9	CH 8
- 2	CH1	- 10	CH 6
- 3	Feed Hole	- 11	Vm
- 4	Tape Magnet	- 12	CH4
- 5	Vm	- 13	GND
- 6	Vm	- 14	Timing Pulses
- 7	CH 5	- 15	Vs (+5 V)
- 8	CH 7	- 16	CH 3

Fig. 3.2 Signal Connector



3.4 TAPE INSERTION

Be sure that the 2 tape guide springs are correctly placed for the width of tape being used. See Fig. 3.3. Depress the tape release lever (Fig. 3.4) so that the window pops up. Insert the tape, and push it forward until the sprocket wheel is covered. Then close the pop-up window, and punch enough tape to give a leader.

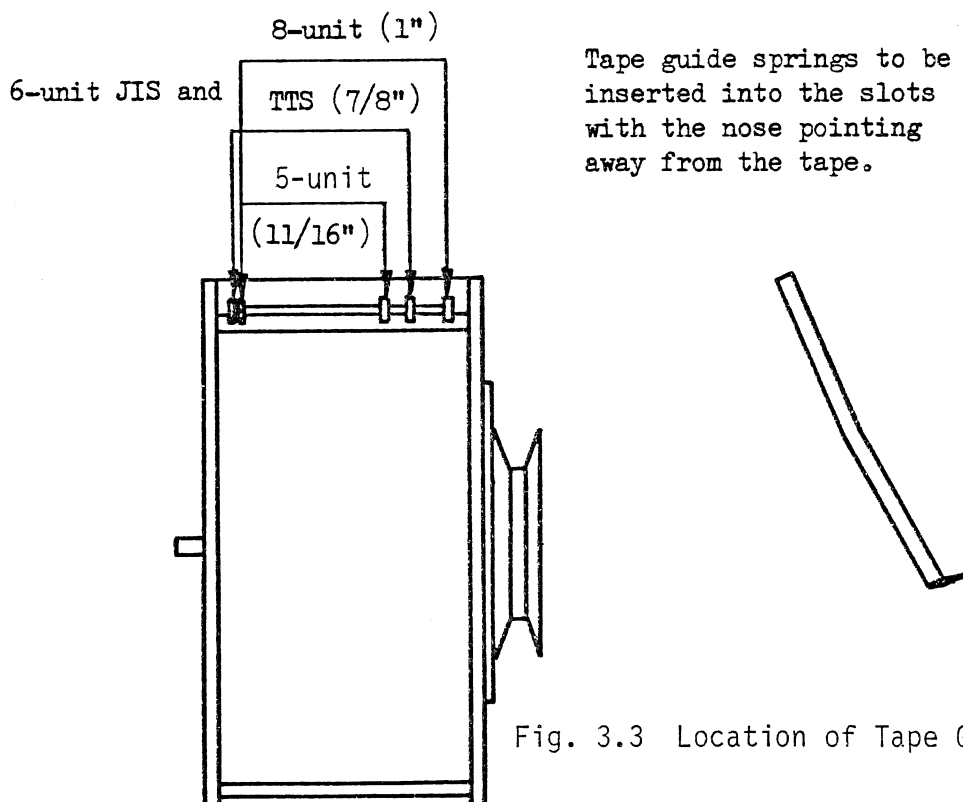


Fig. 3.3 Location of Tape Guide Springs

3.5 CHAD COLLECTION

Chad can be collected either on the right or left side of the mechanism. For right hand collection, the top cover configuration is as shown in Fig. 3.4. Lift off the magnetically held cover plate. Then remove the chad diverter, and use the diverter to press out the small blanking plate. Snap the blanking plate in place on the opposite side, replace the diverter in its new position and replace the cover plate.

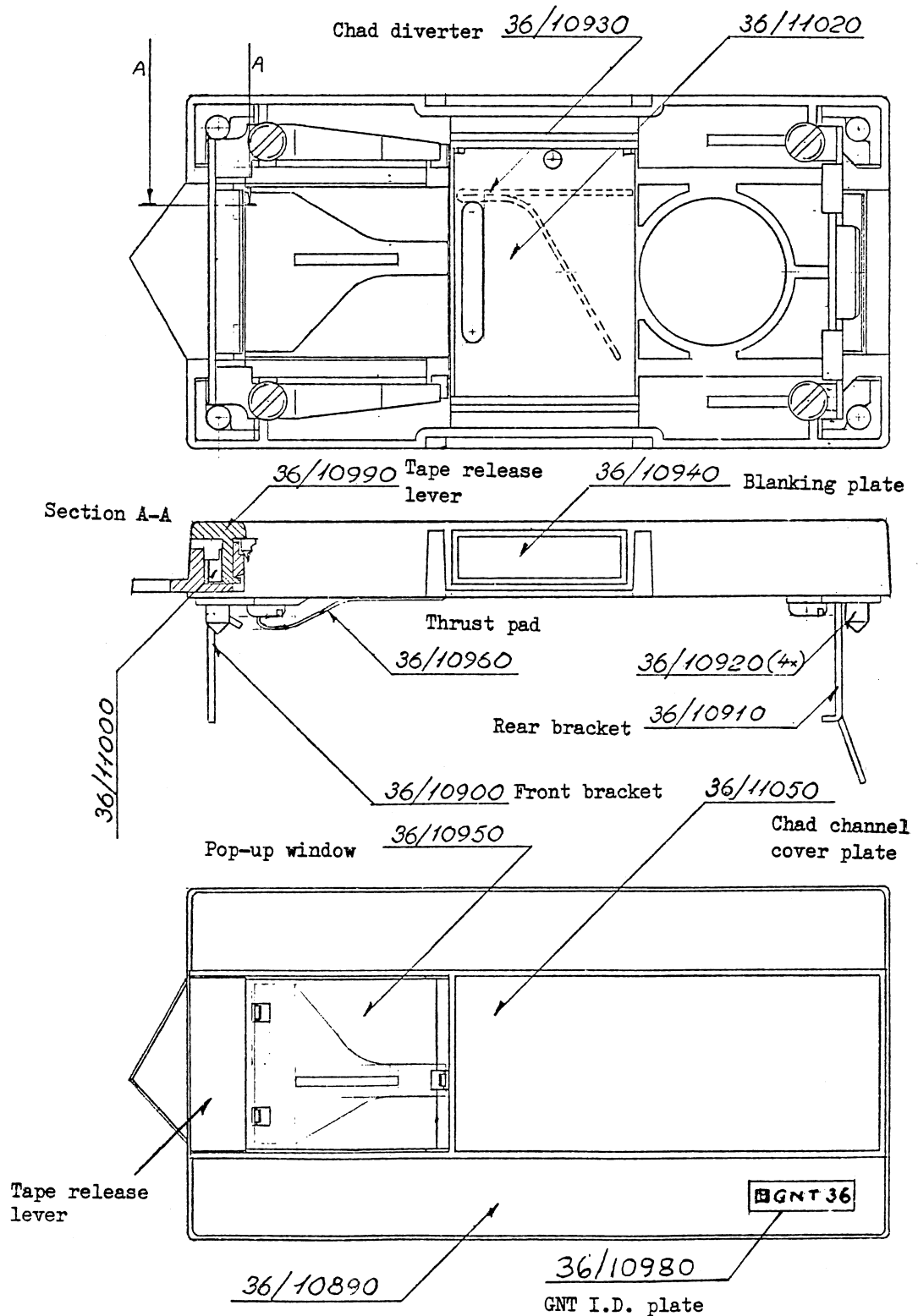


Fig. 3.4 Top Cover

3.6 INPUT/OUTPUT SIGNALS

The mechanism is equipped with a photo-electric timing generator, the output of which is used to synchronize the data and tape feed pulses with the angular position of the shaft. The timing generator consists of a timing disc and reflective object sensor.

Fig. 3.5 shows the timing disc, which is on the back of the main shaft flywheel. Data signals to the selector box must be applied throughout zones 5, 0 and 1. Feed forward occurs after data selection in zones 3, 4, 5 and 0. Back-space is 180° out of phase with feed forward and therefore occurs in zones 0, 1, 2 and 3. On some versions, a disc having 4 reflective "wings" is used, but the principle is the same.

The timing diagram for the input and output signals is shown in Fig. 3.6. Note that 0° in the mechanical cycle is defined when the main shaft's punch eccentric is at TDC (top dead center).

Refer to Section 4.4, Timing.

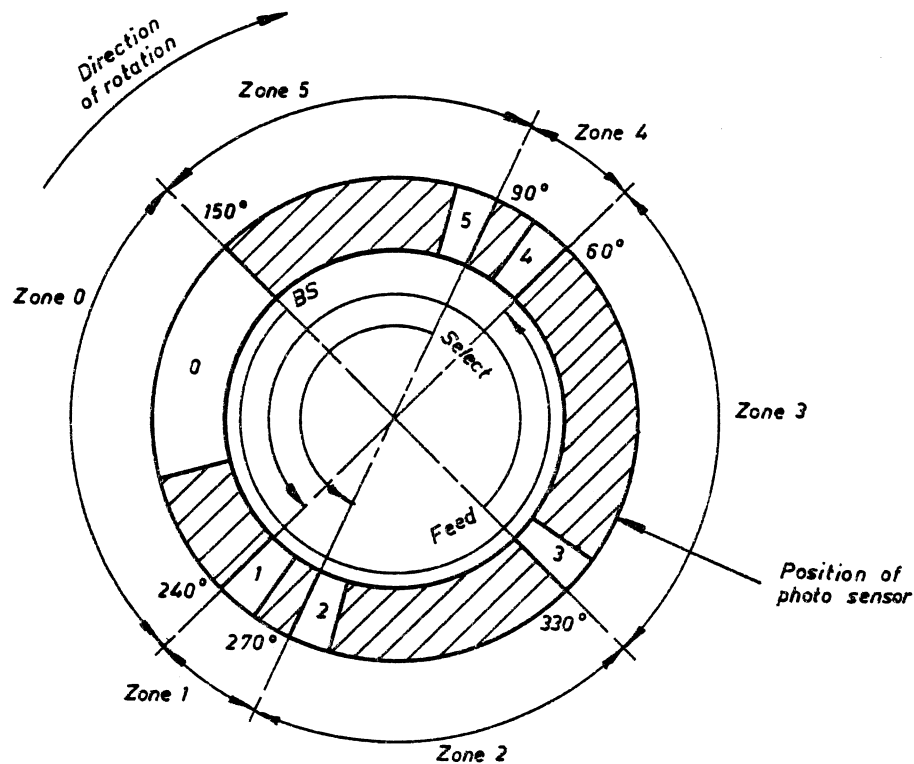


Fig. 3.5 Timing Disc

(Shown at the punch eccentric's TDC; as seen by photo sensor. The unshaded areas are reflective.)

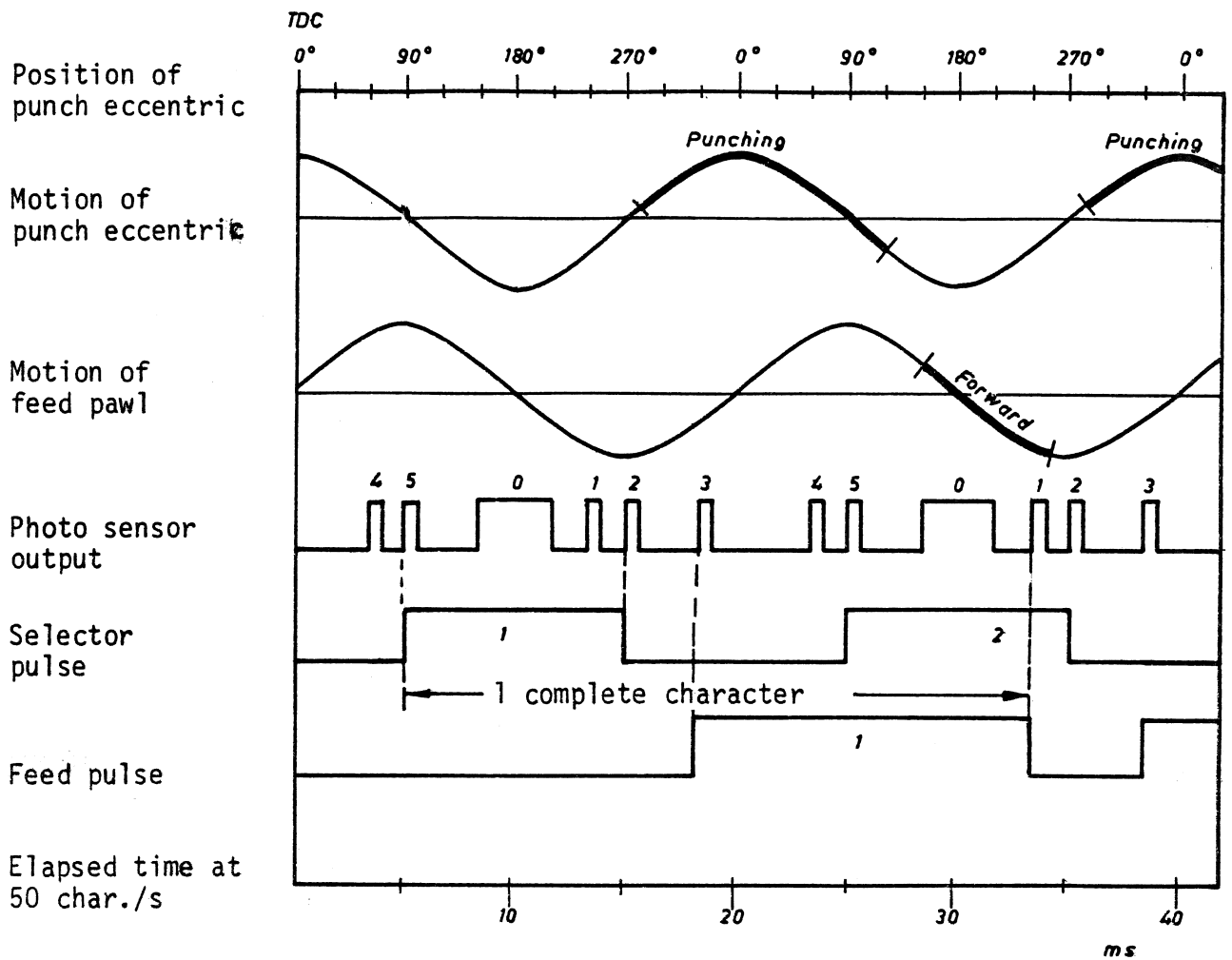


Fig.3.6a Timing Diagram , forward step .

For the 75 char./s version, the photo sensor output is advanced 30°, i.e. start of the selector pulse appears at 60°, and the feed pulse at 300°.

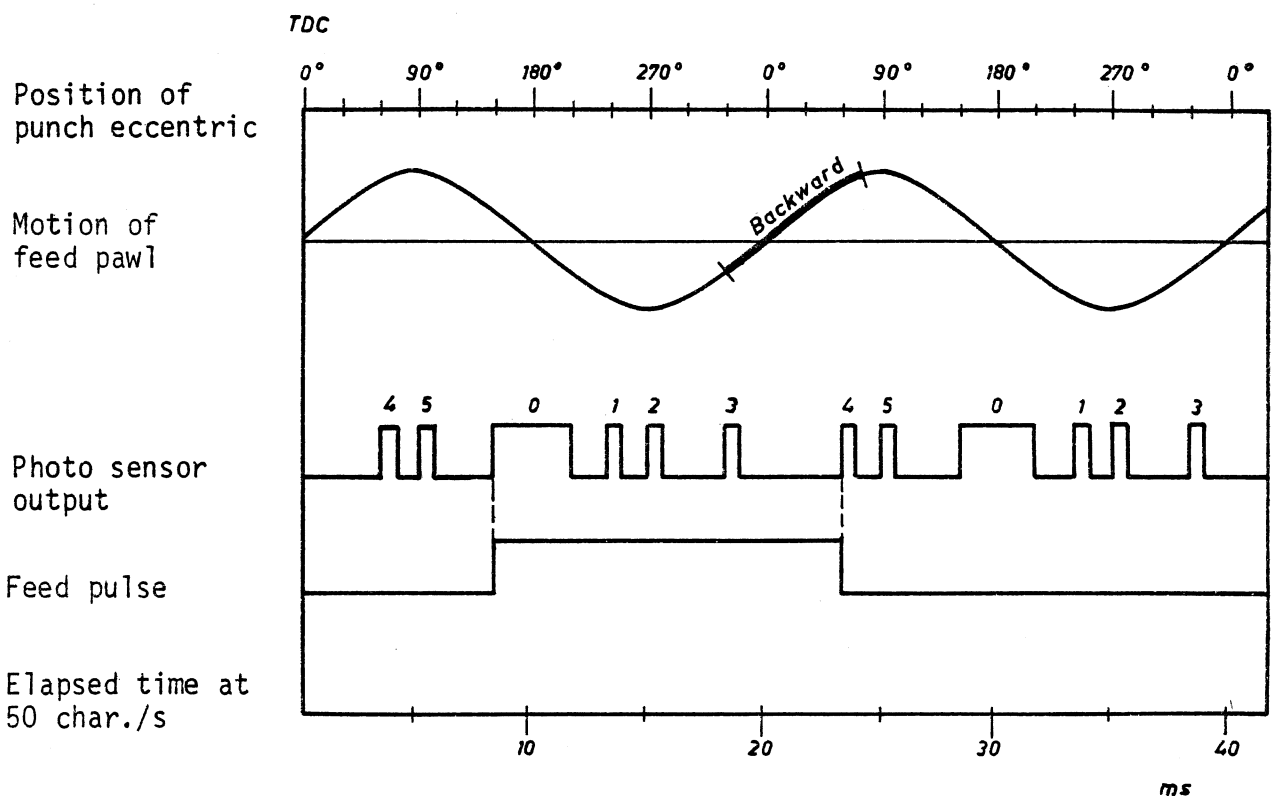


Fig. 3.6b Timing Diagram , backward step .

SECTION 4

TECHNICAL DESCRIPTION

4.1 PUNCHING (SEE FIG. 4.1)

The motor drives the flywheel via a round-sectioned drive belt. The flywheel is connected to the eccentric main shaft which rides on ball bearings at both ends. The main shaft punch eccentric is in constant engagement with the punching bridge which holds the interposers. If a punching needle is to be selected, its corresponding interposer moves forward (solenoid activated) while the punch eccentric is moving through BDC. The interposer tip slides under the needle so that the needle follows the movement of the punching bridge, and is positively driven through the tape. The solenoid is then de-energized, and the interposer withdrawn by a spring as soon as it is free. The needle is positively pulled down by the extractor (See also Section 4.3 .

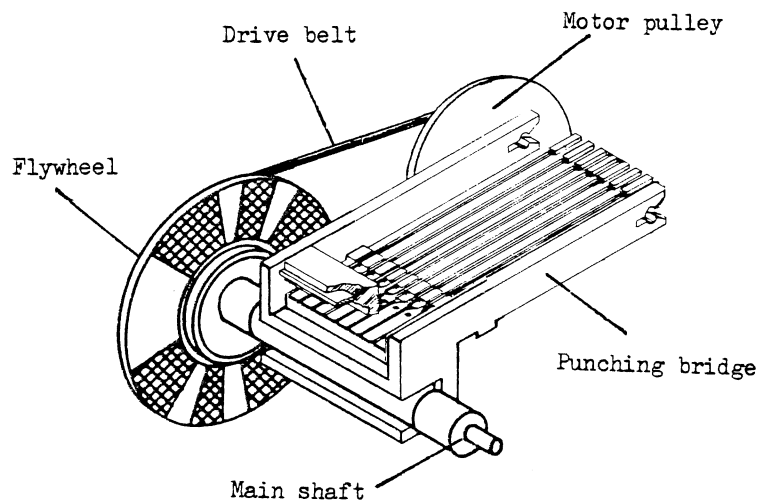


Fig. 4.1a Punching Mechanism

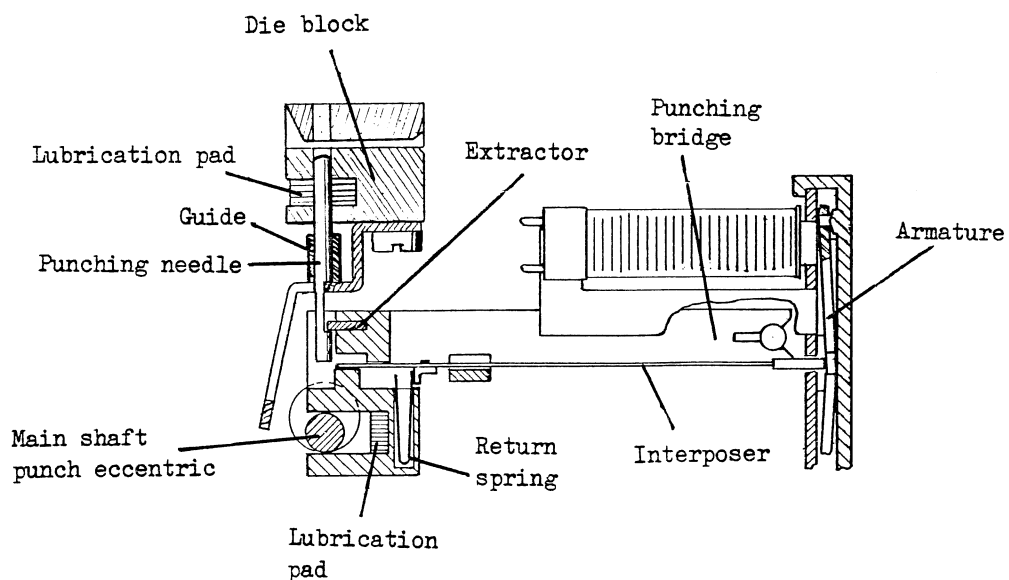


Fig. 4.1b Punching Mechanism

4.2 TAPE FEED (SEE FIG. 4.2)

Tape feed (forward or back) is accomplished by a sprocket wheel which engages with the tape feed holes. The sprocket wheel is fastened concentrically to a jockey wheel which ordinarily is held in position by a sprung jockey arm. On the side of the jockey wheel are radial slots which form the driven part of the dog clutch.

At the end of the main shaft opposite the flywheel is a small feed eccentric. This eccentric is connected by a rod to the feed clutch housing which therefore rocks as the main shaft rotates. Fastened inside the clutch housing is a pawl which moves back and forth across the surface of the jockey wheel, but is held out of engagement by a spring. When the tape feed solenoid is energized, the pawl engages with one of the radial slots on the jockey wheel, and the wheel rotates either forwards or backwards depending on the point of activation. Since the jockey wheel is a unit with the feed sprocket, the tape is moved correspondingly.

If the pawl is held engaged between 110° and 290° the tape will be advanced one pitch (See Fig. 4.2c), and if it is held engaged between 290° and 110° , the tape will move back. See also Fig. 3.6.

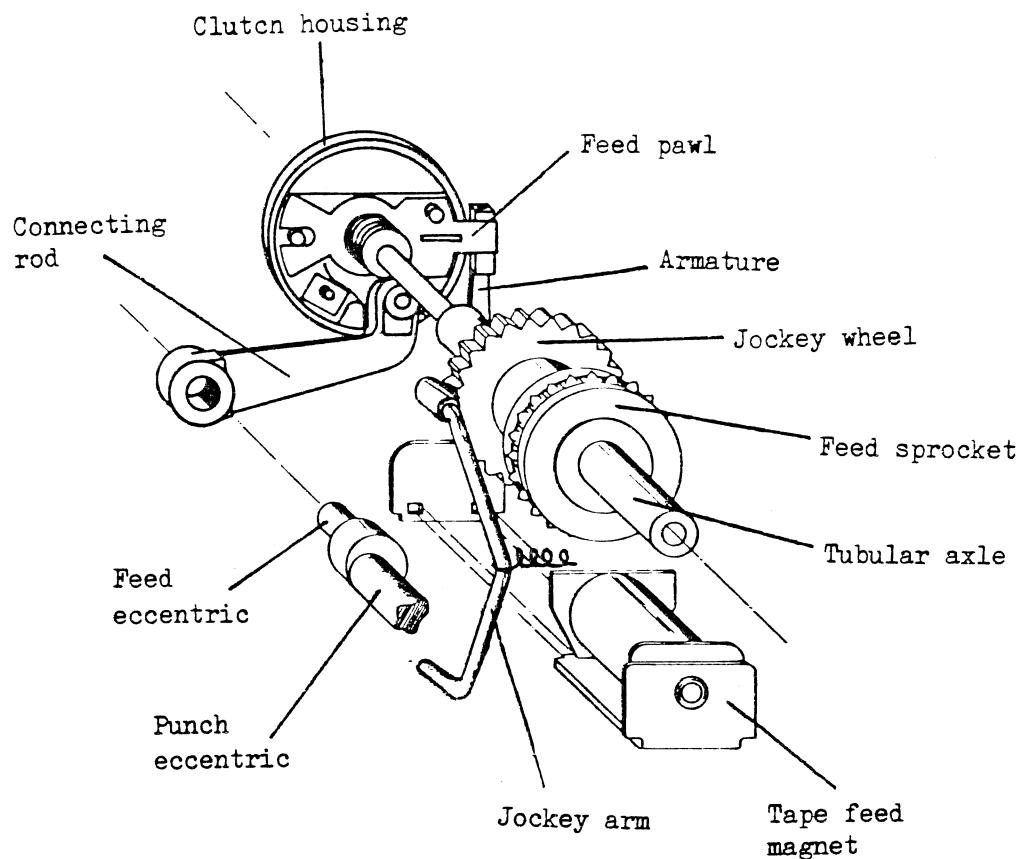


Fig. 4.2a Tape Feed Mechanism

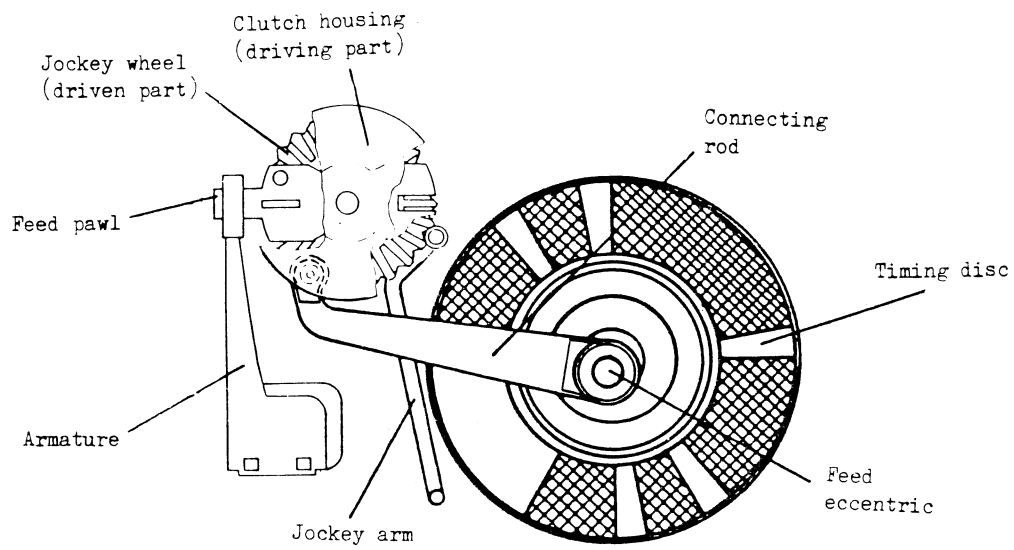
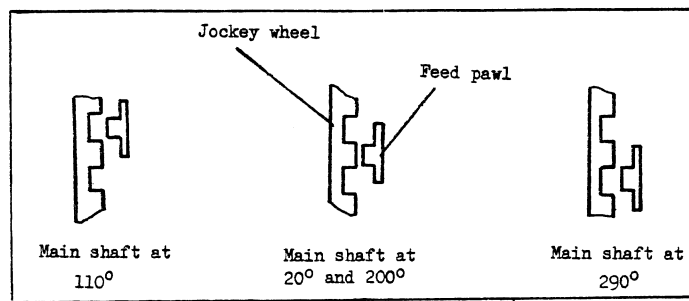


Fig. 4.2b Tape Feed Mechanism



Enlarged View

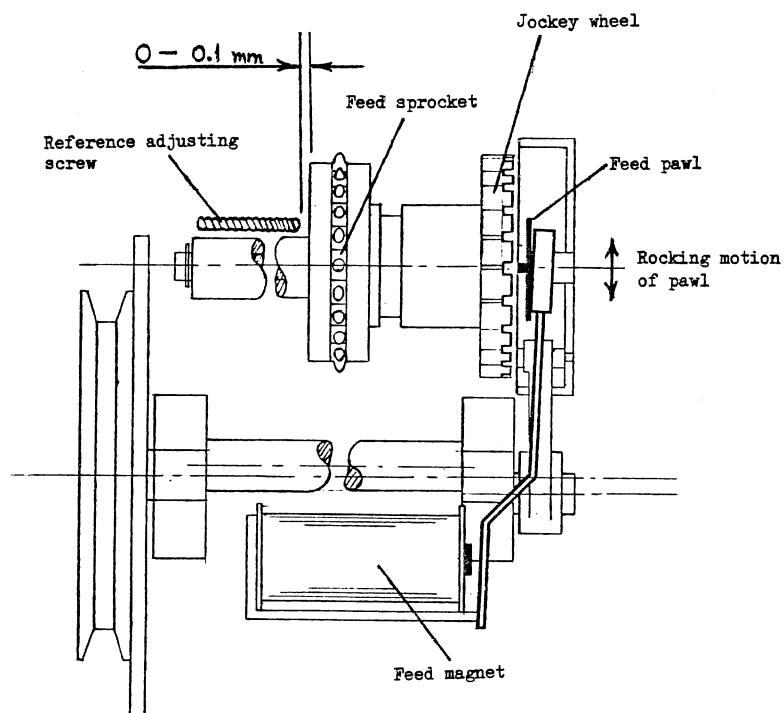


Fig. 4.2c Tape Feed Mechanism

4.3 SELECTOR BOX (SEE FIG. 4.3)

The selector box houses 9 electro-magnets. When the appropriate electro-magnet is energized, the corresponding armature and interposer move forward approx. 1 mm. The interposer tip slides under the lower end of the punching needle so that when the punching bridge moves upward, driven by the main shaft, the needle follows the motion and pierces the tape. Those needles which have not been selected remain down. When the downward motion of the punching bridge begins, the selector magnets have been de-energized, and the interposers are retracted by their springs. The extractor engages with the cut-outs in the needles and withdraws them.

Besides the selector magnets, the selector box also contains the reflective object sensor.

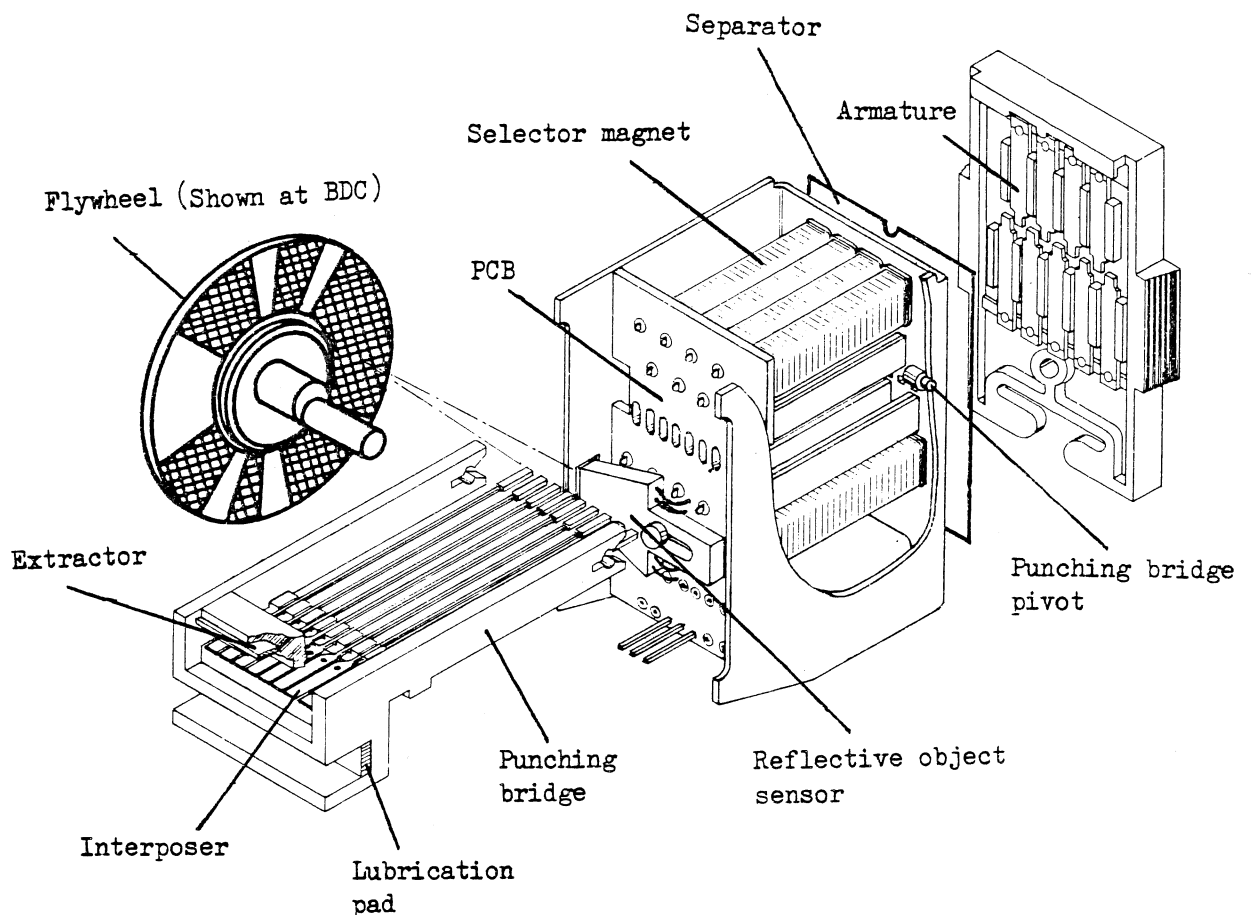


Fig. 4.3 Selector Box

4.4 TIMING

To synchronize the selector and tape movement pulses, the punch is equipped with an LED/photo-transistor timing signal generator. The back of the flywheel is furnished with reflection and absorption sectors (see Fig. 3.5), and these provide the necessary signals. See Section 3.6.

The output signal of the photo-sensor is shown in Fig. 3.6. Note that 0^0 is defined at TDC, i.e. the punch eccentric is in its topmost position.

If all mechanical movements were instantaneous upon initiation of a control signal, the correct time for energizing the selector magnets would be at 180^0 , and the correct time for de-energizing them would be at 0^0 .

However, since the selector magnets have an activation time of approx. 2.5 ms, the selector pulse is applied at 90^0 . The interposers will thus have moved forward by the time the main shaft has reached 180^0 (assuming a shaft speed of 3000 rpm*). The selector pulse is removed at 270^0 , but since the release time is approx. 4 ms, the interposers remain activated until the needles have pierced the tape.

The tape feed magnet has an actuation time of approx. 4 ms. The feed magnet is energized at 330^0 , the pawl is therefore engaged at the correct point, and the forward motion begins. The forward step is not complete until 290^0 , but the pulse is removed at 240^0 , thereby allowing for the release time and ensuring that tape movement and punching do not occur simultaneously.

A similar discussion applies to the back-space pulse, except that this is energized at 150^0 and removed at 60^0 .

* 3000 rpm corresponds to 50 char./s. The timing for 75 char./s version is of course slightly different.

SECTION 5

MAINTENANCE

5.1 DISMANTLING AND REASSEMBLY

5.1.1 REMOVING THE MECHANISM

Flush Mounting

- a) Unclip the clamp from the holes in the top cover brackets.
- b) Unplug the signal cable, and remove the drive belt.
- c) Lift out the mechanism.

Side Mounting

- a) Unplug the signal cable and remove the drive belt.
- b) Unscrew the 4 screws which hold the mechanism.

5.1.2 REMOVING THE TOP COVER (See Fig. 5.1)

- a) Remove the mechanism (See Section 5.1.1)
- b) Pull outwards on the tab at the rear of the mechanism
- c) Lift off the cover.
- d) When fitting a new top cover, see Section 5.1.15, step d.

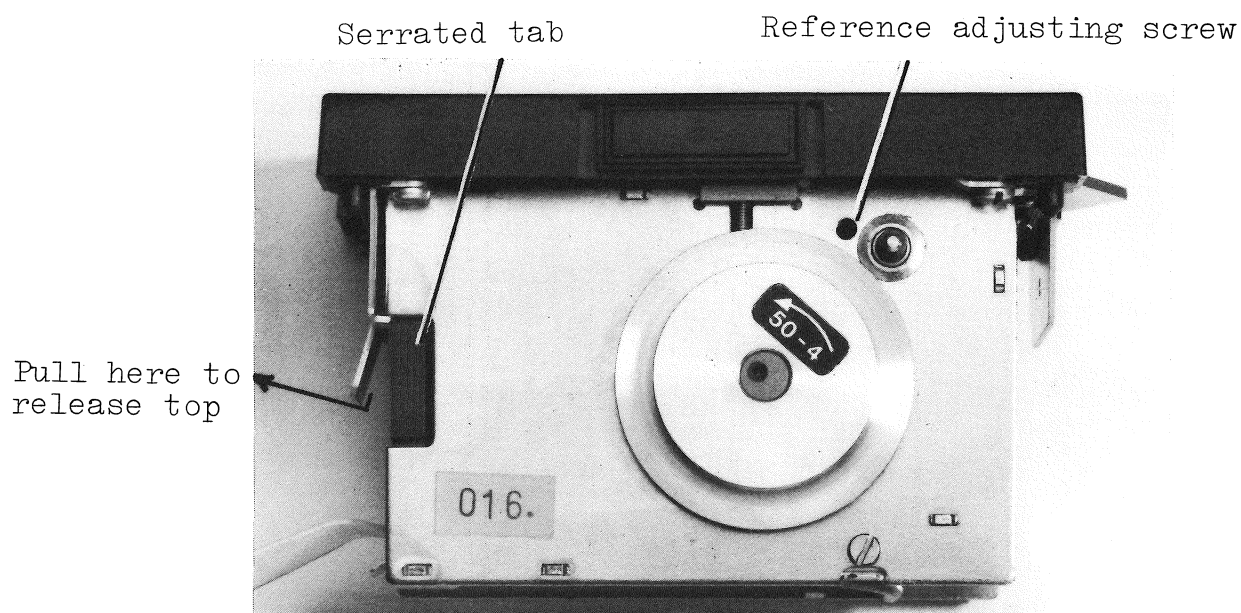


Fig. 5.1 Removing the Top Cover

5.1.3 REMOVING THE SELECTOR BOX (See Fig. 5.2)

- a) Remove the top cover (See Section 5.1.2)
- b) Grasp the selector box by its two serrated tabs (Fig. 5.1), and slide it out while depressing the locking clip.

5.1.4 REMOVING THE PUNCH SET (See Fig. 7.1)

- a) Remove the selector box (See Section 5.1.3).
- b) Unscrew the two screws which hold the die block.
- c) Lift out the punch set.

5.1.5 REMOVING THE TAPE FEED MAGNET (See Fig. 5.2)

- a) Remove the mechanism (See Section 5.1.1).
- b) Lift the locking clip on the bottom of the mechanism, and unplug the connector.
- c) Press the locking tab on the magnet bracket so that the magnet unit is freed.
- d) Slide the unit out of the chassis.

Reassembly:

- e) To replace, merely snap the unit into place.
- f) Be sure to insert the plug with the rectangular openings towards the locking clip.

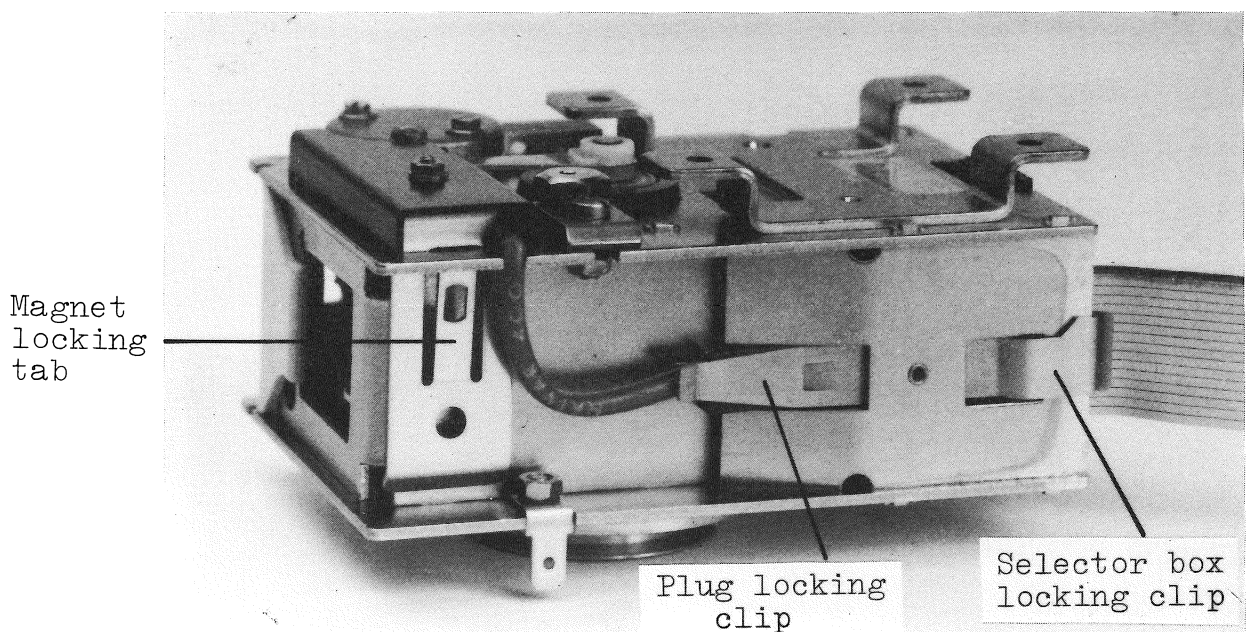


Fig. 5.2 Dismantling

5.1.6 REMOVING THE MAIN SHAFT (See Fig. 7.1)

- a) Remove the punch set (See Section 5.1.4).
- b) Press the shaft out.

5.1.7 REMOVING THE DOG CLUTCH (See Fig. 7.1)*

- a) Remove the top cover (Section 5.1.2).
- b) Remove the tape feed magnet (Section 5.1.5)
- c) Loosen the reference locking screw (Fig. 5.6b)
- d) Slide out the clutch unit.

5.1.8 REMOVING THE TAPE FEED WHEEL (See Fig. 7.1)*

- a) Remove the dog clutch (See Section 5.1.7).
- b) Unsnap the tape guide plate, and rotate it upwards.
- c) Hold the jockey arm out of the way, and withdraw the feed wheel. (See also Fig. 4.2).

* When reassembling, ensure that there is max. 0.1 mm between the feed wheel and the reference adjusting screw (See Section 5.3.5c).

5.1.9 REMOVING THE JOCKEY ARM (See Fig. 7.1)

- a) Unhook the jockey spring from its mooring on the chassis.
- b) Loosen the pitch adjustment locking screw (Fig. 5.6b).
- c) Turn the eccentric hex nut so that the arm is free.
- d) Slide the arm out.

NB: After reassembly, the pitch adjustment procedure must be carried out (Section 5.3.2). See also Section 5.3.5c.

5.1.10 REMOVING THE PUNCHING BRIDGE (See Fig. 7.1)

- a) Remove the selector box (Section 5.1.3).
- b) Grasp the punching bridge with thumb and forefinger, and pull it out.

Reassembly:

- c) To replace, carefully insert the interposers into the slots in the pcb, and snap the bridge into place.

5.1.11 REMOVING THE REFLECTIVE OBJECT SENSOR (See Figs. 7.1 and 4.3)

- a) Remove the punching bridge (Section 5.1.10)
- b) Loosen (do not remove) the 4 screws which hold the shield plate, and remove the plate.
- c) Undo the nut which holds the sensor unit, and lift the unit to give access to the leads.
- d) Unsolder the leads, noting their position.

Reassembly:

- e) When replacing, adjust the sensor unit so that the face is flush with the selector box housing.

5.1.12 REPLACING THE SIGNAL CABLE

- a) Remove the selector box (Section 5.1.3).
- b) Remove the cable clamping yoke.
- c) Pinch the cable and free it from the slot.
- d) Unplug the connector.

Reassembly:

- e) When replacing the cable, be sure that pin No. 1 is located adjacent to the milled edge on the selector box receptacle.

5.1.13 REMOVING THE TAPE GUIDE COVER (See Fig. 7.1)

- a) Remove the punch set (See Section 5.1.4).
- b) Slide the cover into the opening left by the die block.
- c) Lift out the cover.

Note that the tape guide springs fall out when the cover is removed.

5.1.14 REMOVING THE TAPE GUIDE PLATE (See Fig. 7.1)

- a) Remove the punch set (Section 5.1.4).
- b) Unsnap the forward end of the guide plate.
- c) Lift out the guide plate.

5.1.15 REMOVING THE THRUST PAD (See Fig. 3.4)

- a) Remove the top cover (Section 5.1.2).
- b) Depress the latch so that the window pops up.
- c) Unclip the thrust pad.
- d) When fitting a new thrust pad, check the clearance between the thrust pad and the sprocket wheel hub (Fig. 5.3) as follows:
 1. Open the pop-up window.
 2. Insert a strip of paper tape, 5 x 70 mm, into the slot beneath the tear-off tip so that it rests on the sprocket wheel hub with its edge against the sprockets.
 3. Close the window, and check that the paper can move freely.
 4. Repeat steps 1-3 with the paper on the other side of the sprockets.
 5. Repeat the test (steps 1-4) with 3 layers of paper, and check that in this case the strips are clamped tightly between the thrust pad and the hub.
 6. If the above conditions are not met, remove the thrust pad, and bend it .

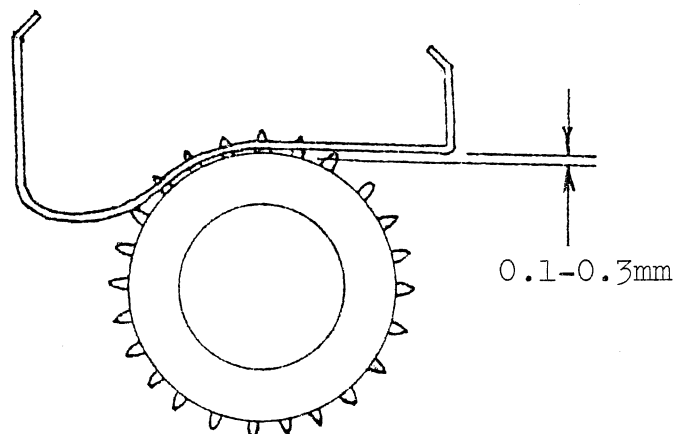


Fig. 5.3 Thrust Pad Clearance

5.1.16 REMOVING THE POP-UP WINDOW (Fig. 3.4)

- a) Remove the top cover (Section 5.1.2).
- b) Unscrew the 2 screws which hold the forward bracket.
- c) Remove the pop-up window and thrust pad.
- d) Unclip the thrust pad.

5.1.17 REMOVING THE FEED PAWL AND FEED PAWL SPRING (Fig. 5.4)

- a) Remove the top cover (Section 5.1.2).
- b) Remove the tape feed magnet (Section 5.1.5).
- c) Remove the circlip and coil spring from the end of the dog clutch shaft, and slide out the clutch and shaft.
- d) Remove the circlip, feed pawlspring and bushing.
- e) Lift out the feed pawl.

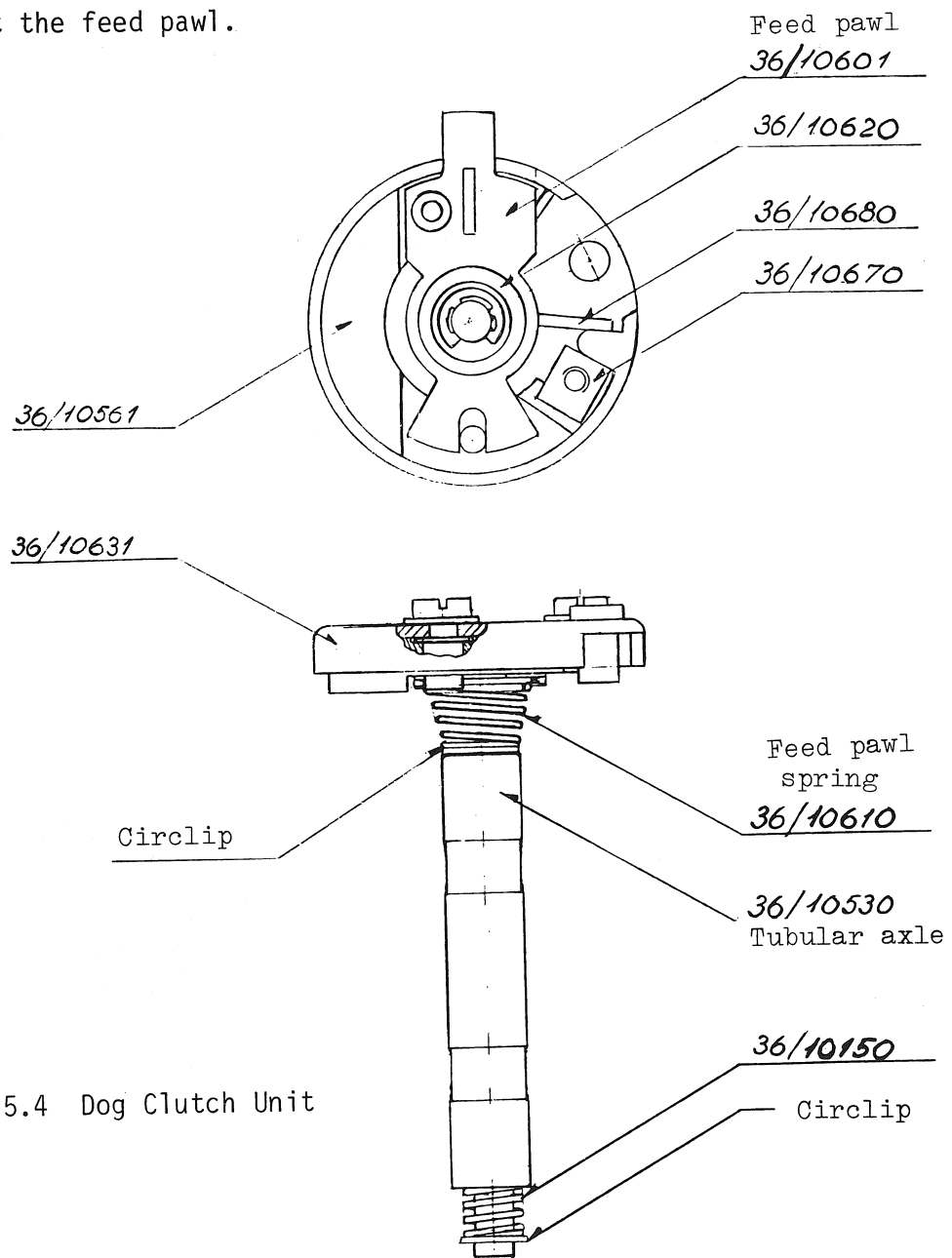


Fig. 5.4 Dog Clutch Unit

5.2 ROUTINE MAINTENANCE

5.2.1 SERVICE INTERVALS

The GNT 36 should be lubricated at 6-monthly intervals or after punching one hundred, 1000 ft. rolls of paper tape, whichever occurs first.

5.2.2 LUBRICANT

Use Esso Millcote K150, GNT No. MP3-00115.

5.2.3 PROCEDURE

- a) Remove the mechanism (Section 5.1.1).
- b) Remove the top cover (Section 5.1.2), selector box (Section 5.1.3), punch set (Section 5.1.4), feed magnet (Section 5.1.5), and tape guide plate (Section 5.1.14).
- c) Lubricate the foam rubber lubrication pad on the die block (Fig. 5.5a).
- d) Lubricate the felt pad on the punching bridge (Fig. 5.5b).
- e) Lubricate both ends of the connecting rod (Fig. 5.5c).
- f) Lubricate both ends of the jockey arm (Fig. 5.5c).
- g) Lubricate the tape feed wheel where it bears on the tubular axle (Fig. 5.5d).

Foam rubber or felt pad

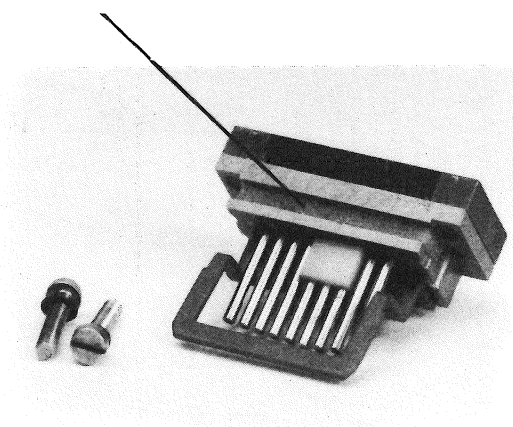


Fig. 5.5a Lubrication

Felt pad

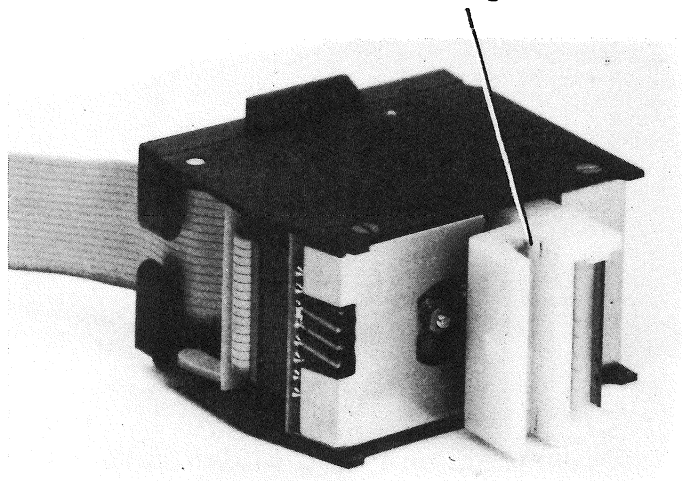


Fig. 5.5b Lubrication

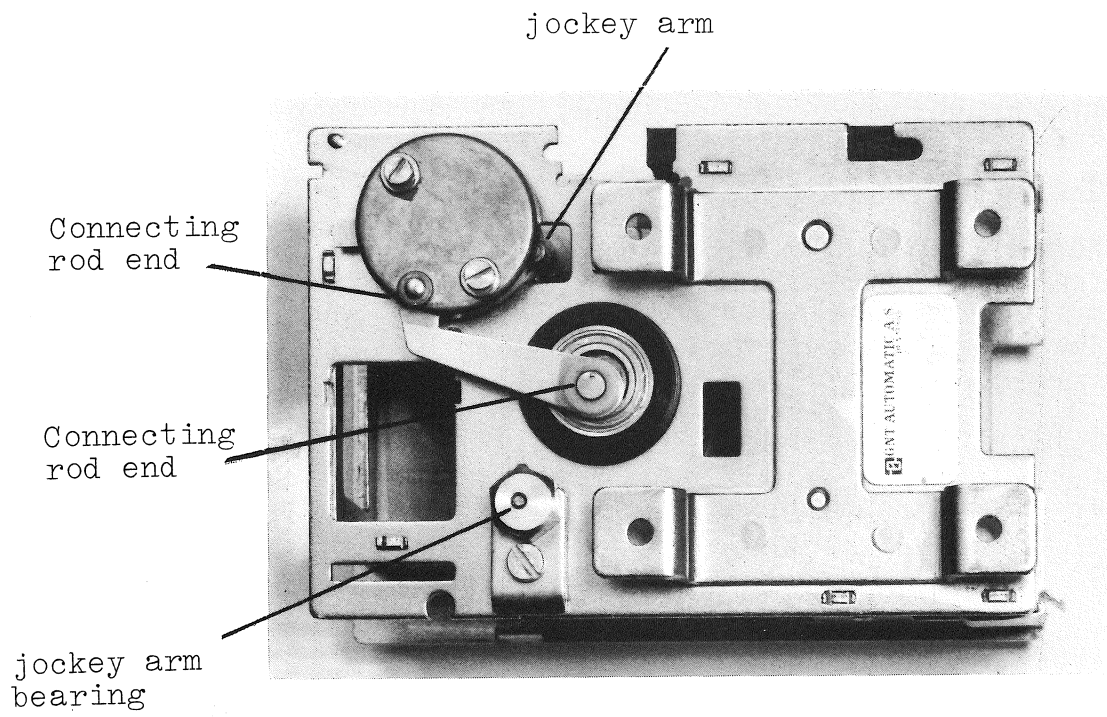


Fig. 5.5c Lubrication

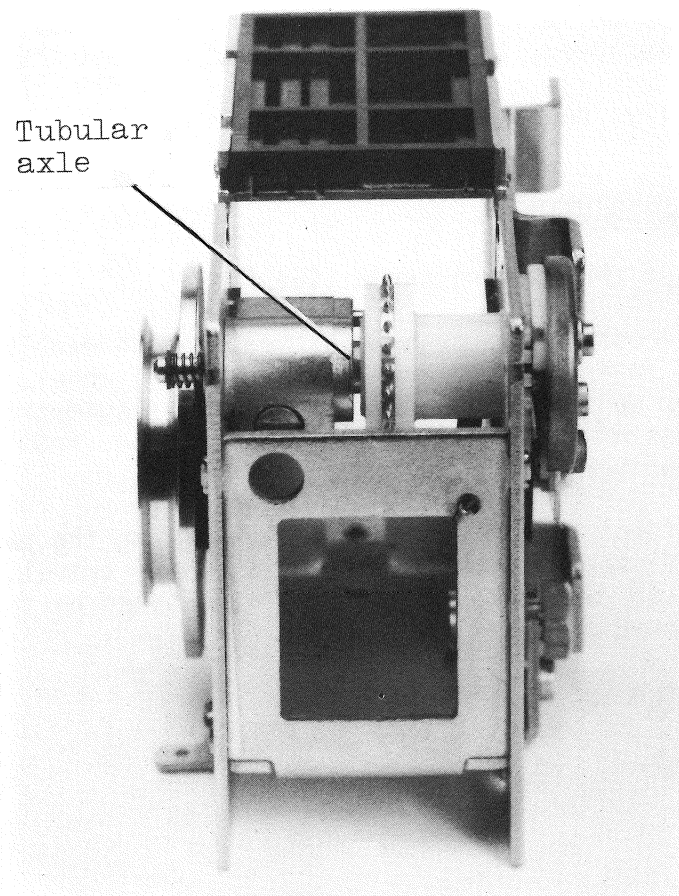


Fig. 5.5d Lubrication

5.3 ADJUSTMENTS

5.3.1 GENERAL

Normally, no adjustments are necessary. However, if a part has been replaced, the adjustments should be checked. The punching mechanism must be removed before the adjustments can be made (See Section 5.1.1). The adjustments should be carried out in the order given.

5.3.2 PITCH (JOCKEY ARM)

- a) Clean the die block, so that no chad are in holes 1 and 8.
- b) Insert a piece of correctly punched tape into the mechanism so that holes 1 and 8 are visible in the die block.
- c) Maintaining a light backwards tension on the tape, turn the pitch eccentric on the side of the punch until the holes are aligned (See Fig. 5.6a). NB: for ISO punch sets, the eccentric should be at approx. 9 o'clock, for TTS, 11 o'clock.
- d) Carry out the pawl adjustment, Section 5.3.3.
- e) After the pawl adjustment has been carried out, the final pitch adjustment is made by punching a piece of tape and checking it against a pitch gauge. Alternatively, measure the distance, center-to-center across 51 feed holes (50 pitches). The distance should be $127.0 \text{ mm} + 0.6 \text{ mm}$. If the tape has been punched with no tape drag, the distance should be near the maximum.
- f) Finally, recheck the pawl adjustment.

5.3.3 PAWL ADJUSTMENT

- a) Loosen the locking screw (See Fig. 5.6a).
- b) If necessary, a rough adjustment can be made by holding the pawl in engagement and rotating the flywheel. Set the adjusting screw so that the jockey roller moves symmetrically to and fro across one tooth of the jockey gear (i.e. from one "valley" to another). (See Fig. 4.2).
- c) The final adjustment is made by holding the pawl in and rotating the flywheel. At both ends of the pawl travel, there should be a "dead" angle of at least 50° (measured on the flywheel) where the feed sprocket does not move.
- d) Tighten the locking screw.

5.3.4 FEED MAGNET ADJUSTMENT

- a) Apply 12 V DC between pin 4 and pin 6. Be sure that the feed pawl engages one of the radial slots on the side of the jockey wheel.
- b) Adjust the nut (Fig. 5.6a), so that the feed pawl is touching the face of the jockey wheel. Then turn the adjusting nut another 1/4 turn clockwise.

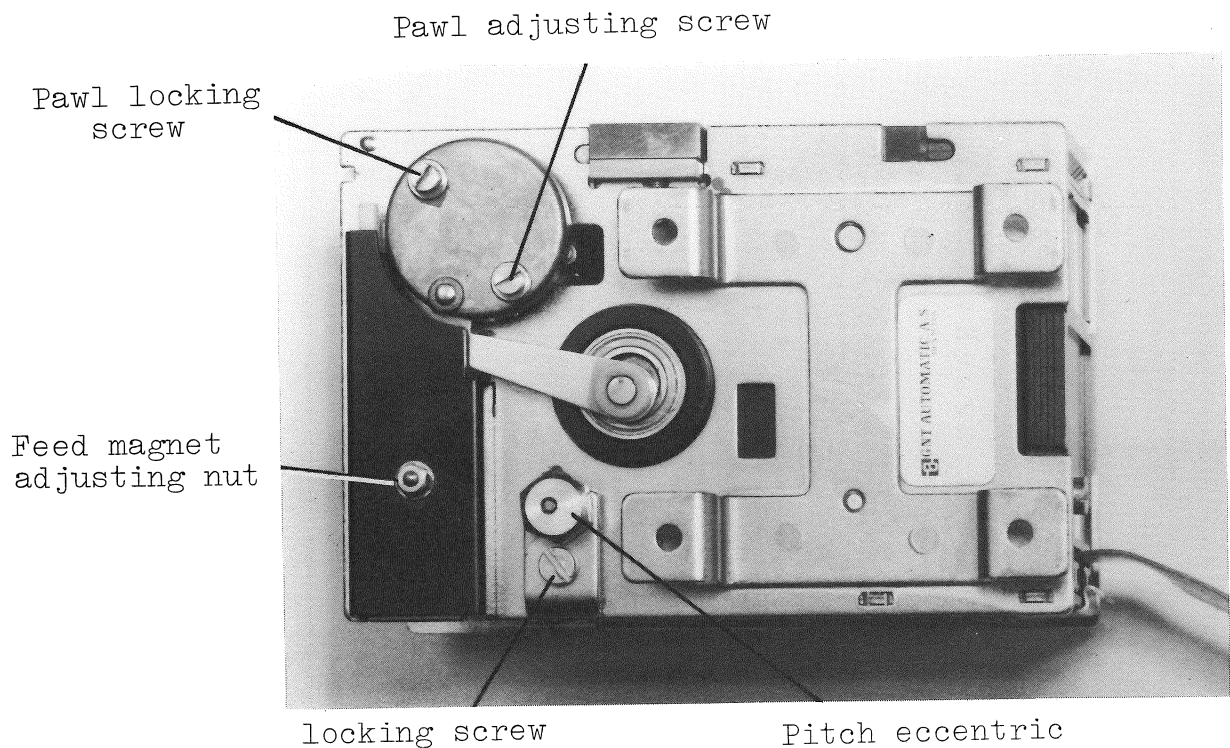


Fig. 5.5a Adjustments

5.3.5 REFERENCE ADJUSTMENT

- a) The distance from the reference edge of the tape to the center of the feed hole should be $9.96 \text{ mm} \pm 0.1 \text{ mm}$ (for TTS, JIS: $11.2 \text{ mm} \pm 0.1 \text{ mm}$). If not, loosen the reference locking screw (Fig. 5.1) and insert a $1\frac{1}{2} \text{ mm}$ allen wrench into the adjustment hole.
- b) To increase the reference distance, turn the screw counter clockwise and vice versa.
- c) Set the tubular axle so there is 0.1 mm between the feed wheel and the adjusting screw (See Fig. 4.2c).
- d) Tighten the reference locking screw. (Fig. 5.6b).

Reference
locking
screw

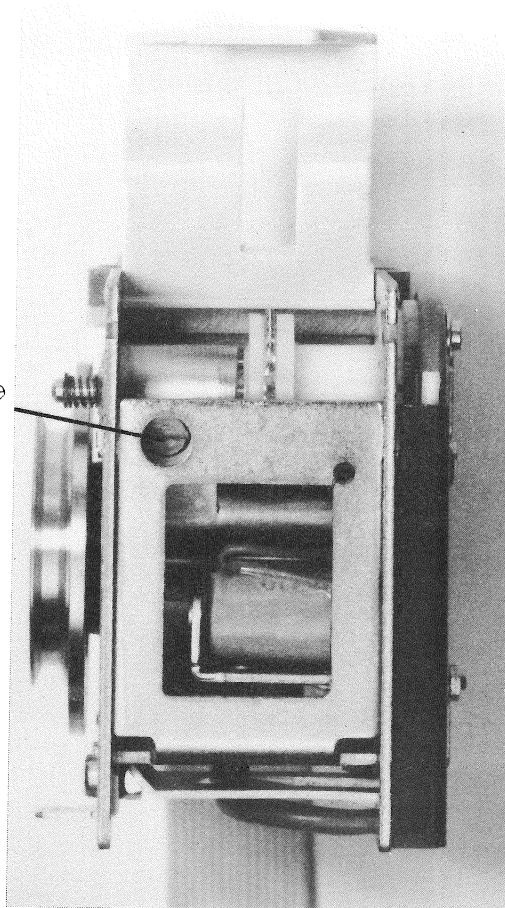


Fig. 5.5b Adjustments

SECTION 6
TROUBLE SHOOTING

SYMPTOM	POSSIBLE CAUSE
Punch does not rotate	Motor faulty No power to motor Drive belt broken, worn or greasy Mechanism jammed
Punch rotates, but tape feed does not function	Main shaft rotation too slow Slipping drive belt Too much resistance from tape dispenser ($> 1.0 \text{ N}$) Defective timing generator Defective feed magnet Pawl out of adjustment Feed magnet out of adjustment
Tape feed operates properly, but data is not punched	Incorrect connection to signal cable Incorrect selector pulses Defective selector box Defective timing generator
Incorrect data punching	Incorrect selector box signals Defective selector box Defective punch set Incorrect connection to signal cable
Damaged feed holes	Too much drag from tape dispenser Incorrect feed pulse (comes during punch cycle) Thrust pad defective
Damaged code holes	Incorrect data signals (wrong timing)
Incorrect pitch	Tape dispenser dragging Pitch adjustment incorrect Thrust pad defective

SECTION 7

PARTS LIST (SEE FIG. 7.1)

REF. NO.	PART. NO.	PART NAME
1	36/10010	Main fram
2	36/10140	Screw, Allen
	36/10150**	Spring for clutch axle (part of 10590, (See Fig. 5.3)
3	36/10170	Pitch eccentric
4	36/10180**	Jockey spring
5	36/10190	Clamp for 36/10170
6	36/10200	Jockey arm
7	{ 36/11850**	Main shaft, 50 char./s, 6-winged
	{ 36/11860**	Main shaft, 75 char./s, 6-winged
8	{ 36/10370**	Punch set, ISO
	{ 36/10450**	Punch set, TTS
9	36/10420*	Nut, for punch set
10	36/10430	Tape guide cover
11	36/10440*	Tape guide spring
12	36/10460	Clamping ring for feed axle
13	36/10470*	Tape guide plate
14	36/10490**	Tape feed wheel
15	36/10590*	Clutch mechanism, unit
	36/10600**	Feed pawl
	36/10610**	Feed pawl spring
		} part of 10590, Se Fig. 5.4
16	36/10690**	Connecting Rod
17	36/10700**	Tape feed magnet, unit
18	36/10840*	Top cover, unit
	36/10890	Top cover, stripped
	36/10930	Chad diverter
	36/10940	Blanking plate
	36/10950	Pop-up window
	36/10960**	Thrust pad
		} Part of 10840, See Fig. 3.4
19	36/10980	GNT 36 I.D. plate

21	36/11120	Felt pad for 36/11070
23	36/11430*	Cable clamping yoke
24	Z36/12310*	Signal cable
25	36/11480*	Mounting clamp
26	36/11490*	Rubber mounting pad
	MY1-52018	Reflective object sensor (part of Z36/12020 and Z36/12050)
20	Z36/12020	Selector box unit, 50 hcar./s
22		
23		
24		
	Z36/12050	Selector box unit, 75 char./s

** Essential Spare

* Recommended Spare

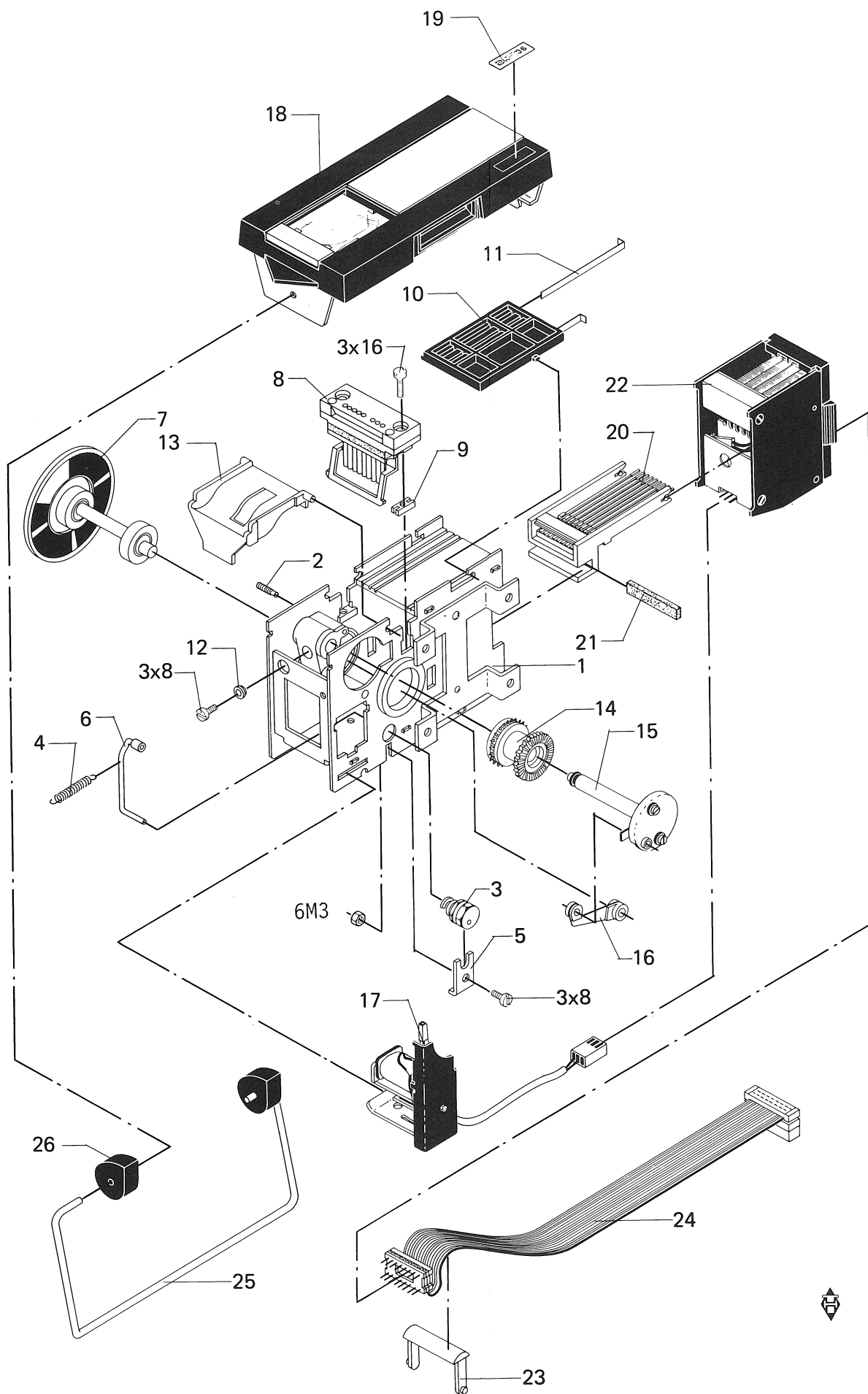
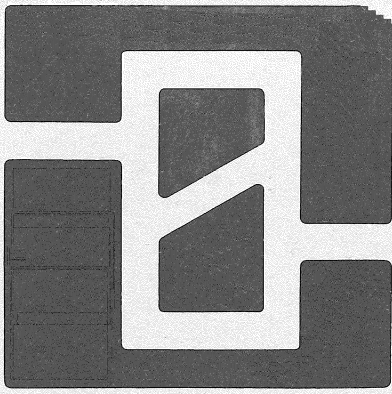


Fig. 7.1, GNT 36, Exploded View



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