Dredner Bank

IBM

729

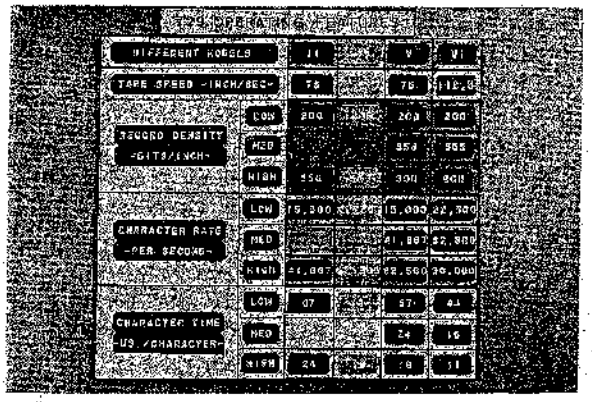
MAINTENANCE

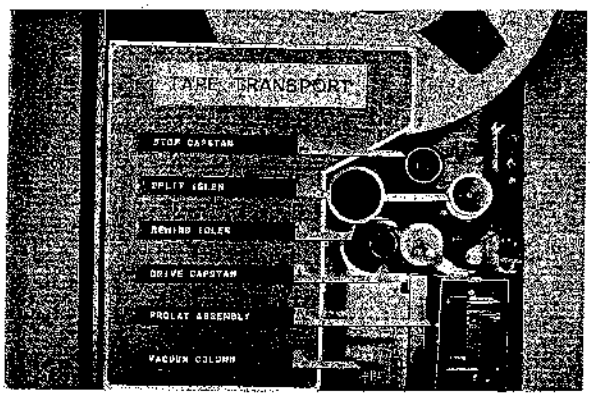
IBM Form UK9-0032

IBM WTC DP CE DEPT. - PRINTED IN UNITED KINGDOM

TAPE UNITS
729 RELAY
729 NOR
729 NORLAY

This chart shows the various character rates, densities and speeds of the 729 transistorised tape drives





TAPE

TRANSPORT

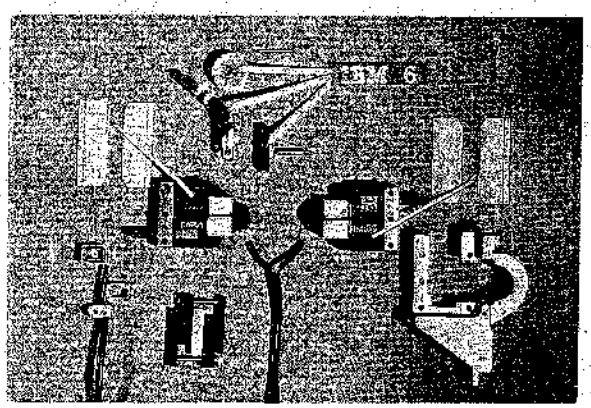
PROLAY ASSEMBLY AND STOP CAPSTAN

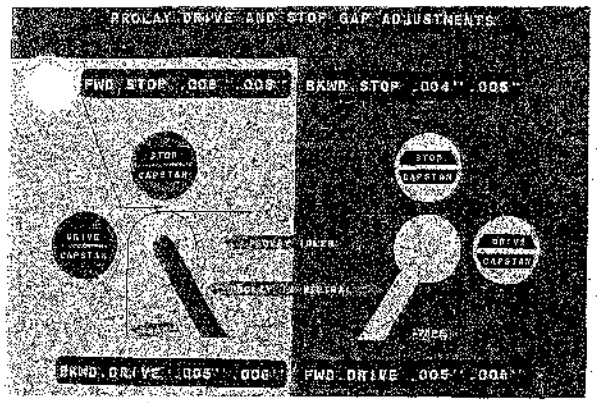
LUBRICATION(may be performed on-line)

Every three months lubricate the nylon pulley shafts with IBM 6. Mark the position and direction of rotation of the pulleys before removal.
Every four months on Mod IV and VI or
Every six months on Mod II and V lubricate the sintered bronze prolay parts with IBM 8 oil.

VISUAL INSPECTION & OPERATIONAL CHECK

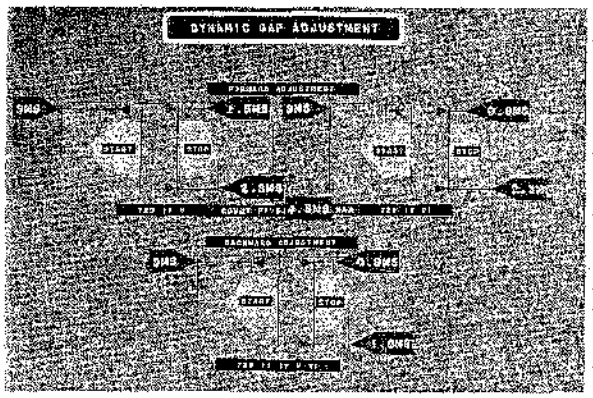
Every four months on Mod IV and VI or
Every six months on Mod II and V mark the positions of the prolay arm assembly and armatures and remove. Replace the set screws on the moving pulley and armature pivots. Make sure the residual plastic strips are mounted as shown in the picture.
CAUTION! The removal and replacement of the prolay arm assembly must be performed with power OFF to avoid damaging the plastic strips.





Next check the start and stop timings. If these are incorrect, carry out mechanical adjustments to obtain:

.005 to .006" forward drive gap
.008 to .008" forward stop gap
.005 to .006" backward drive gap
.004 to .005" backward stop gap



After completing the mechanical adjustments, carry out dynamic gap adjustments:

1. Use P5 to set drive current to 4 Amps. This corresponds to 2 volts on-
TB11 between 8 & 9 on 729 RELAY
TB11 between 3 & 8 on 729 NOR
(Note:on some relay type machines the reading must be 4 volts-refer to SC 729 WTC 57)

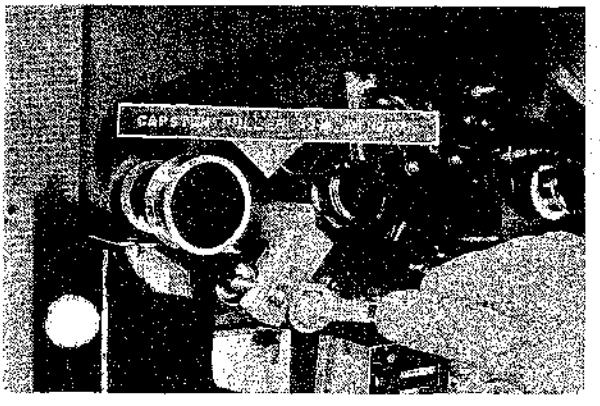
2. Use P4 to adjust the neutral current to give 2.7 ± 2 volts on -
TB11 between 6 & 7 for 729 NORLAY
TB11 between 3 & 7 for 729 NOR

3. Bring P6 and P7 to zero by turning counter-clockwise.

4. Use an HD tape and adjust the start and stop times to obtain a correct envelope.

5. Adjust to obtain the following timings:

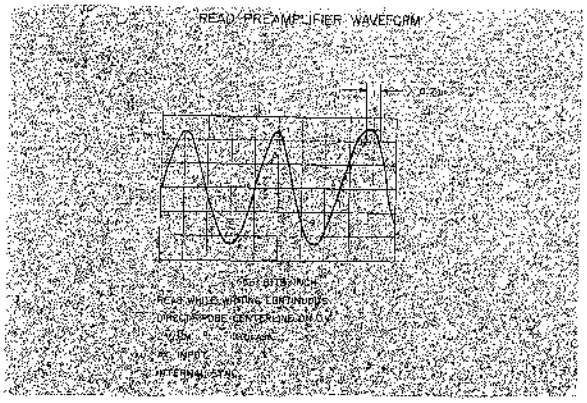
	Amplitude 0-100%	100%	100%-0
729II & V			
forward and backward start	3ms		
forward stop		1.5ms	2.3ms
backward stop		0.9ms	1.8ms
729IV & VI			
forward and backward start	3ms		
forward stop		0.9ms	2.3ms
backward stop		0.9ms	1.8ms



DRIVE CAPSTAN

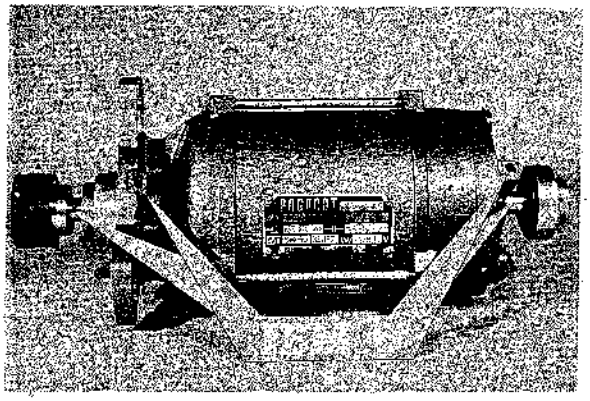
Count five troubles may be caused by a glazed rubber capstan. This may be replaced in the field by using a special tool P/N 8019875. Refer to SA/WTC 275.

Reading troubles may be caused by substantial play of the forward capstan bearing. This play creates vibrations which result in read bus variations or a wavy rear edge on track C of the tape. To check this play, examine the variation of the read buses at the fifth peak after starting. The variation must not exceed 0.7 microseconds.



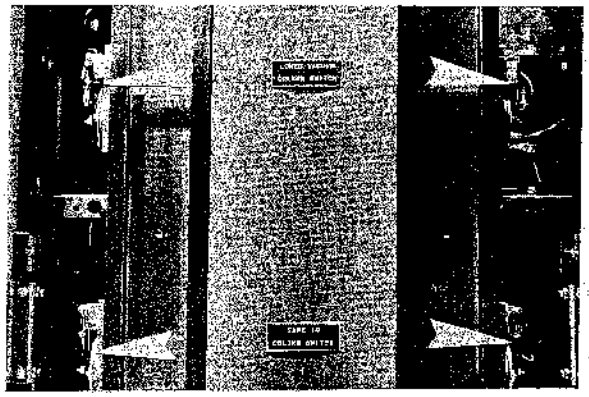
LUBRICATION

Every three months saturate the oil tubes of the capstan motor with IBM 6 oil. Pour a thin film of oil on the capstan motor shaft and wipe the capstan to keep it perfectly clean.



VACUUM COLUMNS

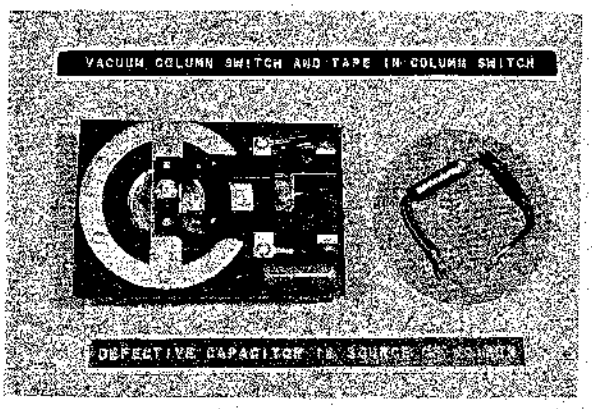
Intermittent troubles which are difficult to detect may result from noise caused by the column switch contacts. The capacitors at the contact terminals must be kept in perfect condition.



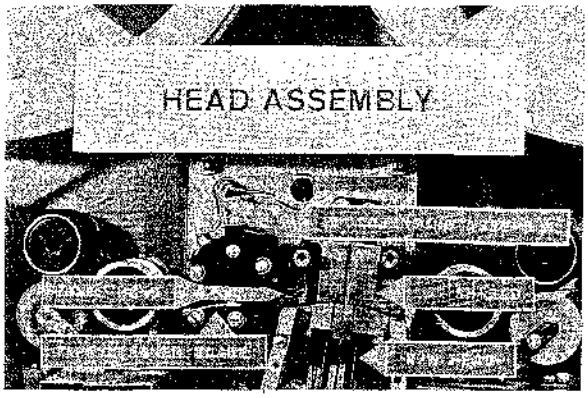
VISUAL INSPECTION & OPERATIONAL CHECK

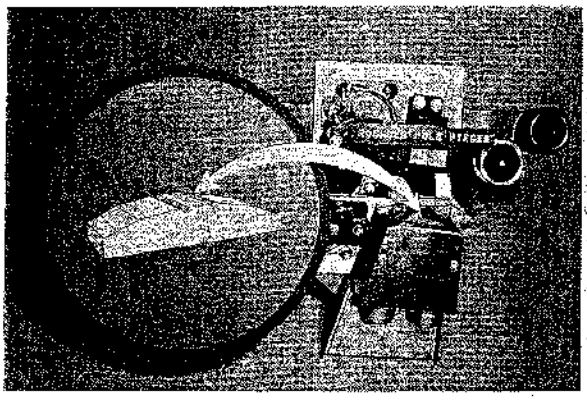
Every four months on Mod IV and VI or Every six months on Mod II and V check the vacuum switches and tape in column switches for incorrectly adjusted or dirty contacts.

Also check that the column switch RC filters are in good condition. A defective RC filter has a deformed capacitor and a burnt resistor.



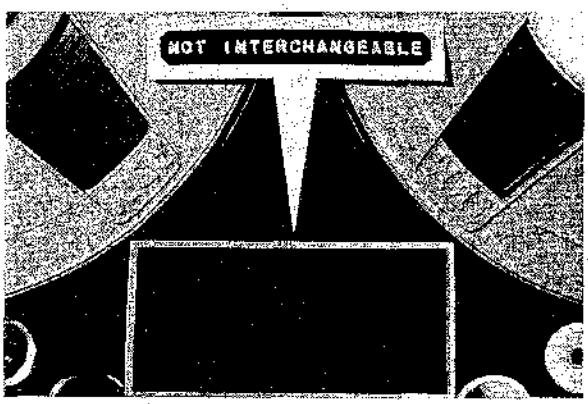
TAPE HEAD ASSEMBLY





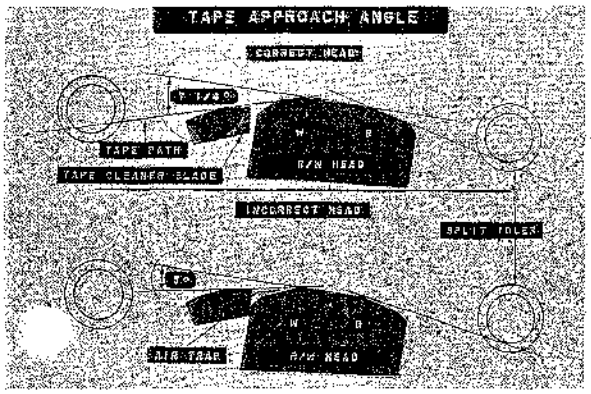
READ/WRITE HEAD

Two types of read/write head are in use on 729's, 800 B. P. I. and 556 B. P. I. These heads have rounded pole pieces to avoid noise when reading or writing.



A deeply grooved head surface indicates that the head is worn out and will give a weak and unreliable signal (15 mv or less). This will make the skew and asymmetry adjustments difficult.

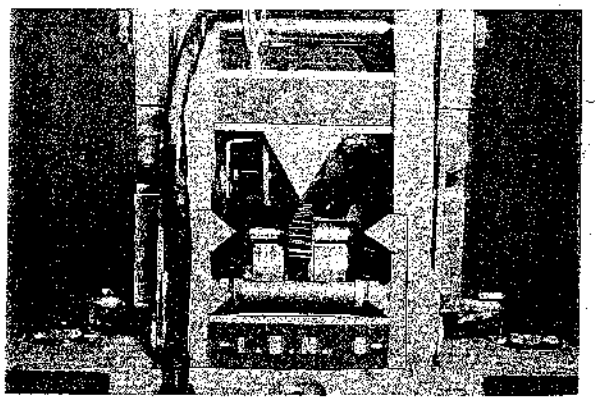
Be careful when inspecting two 729 machines simultaneously. Do not interchange the head covers as this would interfere with the locking of the head in the low position.



The approach angle of the tape to the head is critical. Incorrect positioning of the head could cause trapping of air bubbles between the tape and head. These bubbles will raise the head and cause read and write errors.
Never remove the tape cleaner blade assembly; its position affects the approach angle.

LUBRICATION

Every four months on Mod IV and VI or
Every six months on Mod II and V, lubricate the felt pads and links with IBM 6 oil. Lubricate the head raising gear with IBM 17 grease.

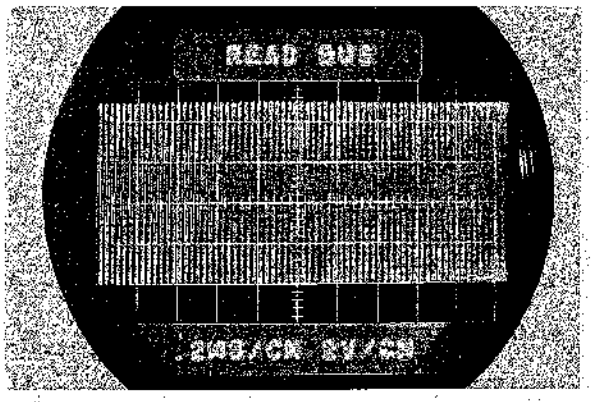


VISUAL INSPECTION & OPERATIONAL CHECK

Every four months on Mod IV and VI or
Every six months on Mod II and V check the read and write conditions:

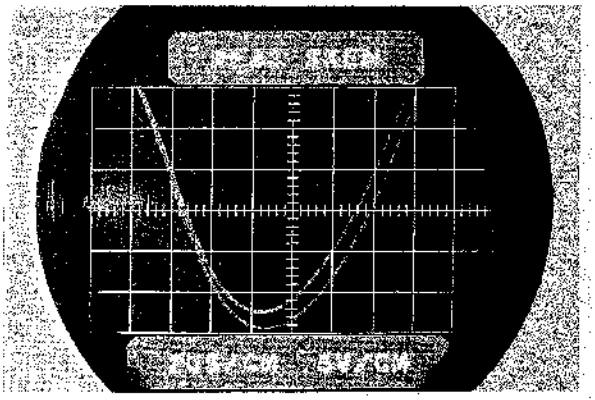
First use the preamplifier calibration tape, P/N 432152 and check the read bus levels to obtain the following readings:

8 volts for Mod II and IV (556 B. P. I. head)
9 volts for Mod V and VI (800 B. P. I. head)



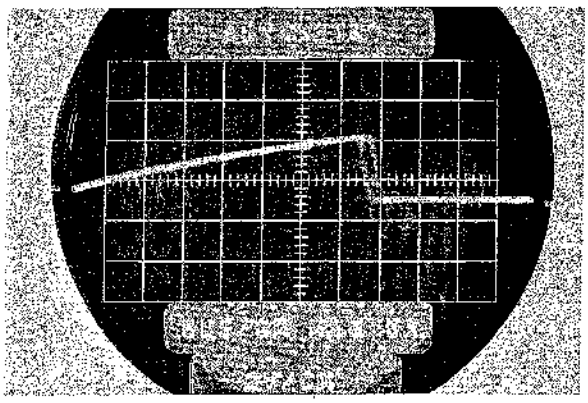
Next use the appropriate master skew tape to check the read skew as follows:

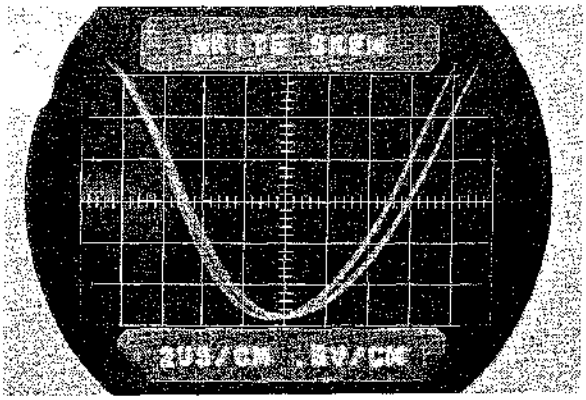
master skew tape	P/n 432154	P/n 433153
tape head	556 BPI	800 BPI
tape units	729II 729IV	729V 729VI
max read skew (microseconds)	2.3 1.5	0.25 0.25



Check the asymmetry on 729V and VI using good quality tape such as HD, and refer to SA WTC 159 (128). After adjusting the read bus and asymmetry off-line they must be checked at the output of the read register in TAU on line.

REMEMBER to check the skew adjustments after adjusting the asymmetry.

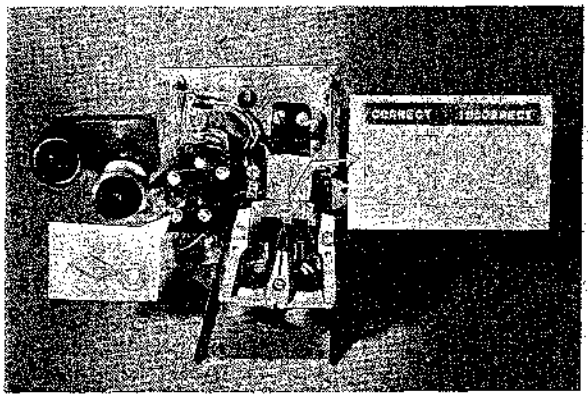




Check that the write skew does not exceed:

2.3 microsec for the 729 II
1.6 microsec for the 729 IV
0.25 microsec for the 729 V and VI

REMEMBER to check the asymmetry after altering the skew adjustment.



ERASE HEAD

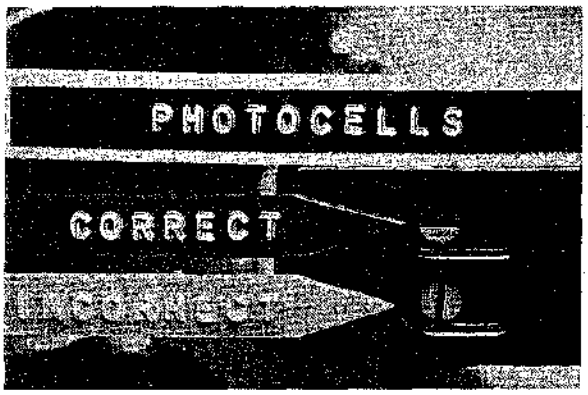
Every twelve months check the erase head for good operation and correct positioning.

H - SHIELD

Every twelve months check that the H-shield is correctly positioned with its centre to the right of the centre head laminations.

TAPE CLEANER BLADE

Every twelve months check the condition of the blade. When replacing a worn tape cleaner blade, the ground jumper must be installed over and not under it to avoid altering the approach angle. Similarly, an incorrect position of the tape cleaner blade assembly may alter the approach angle so do not remove this assembly.

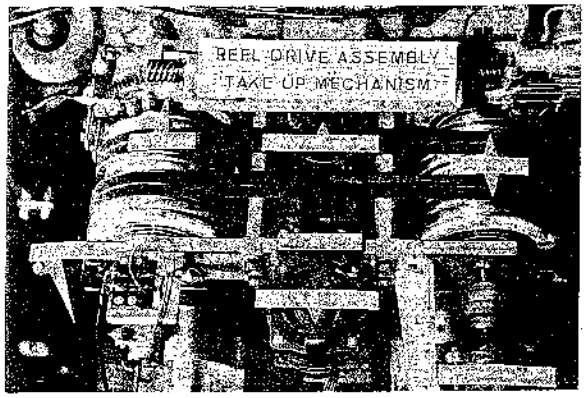


PHOTOSENSING ASSEMBLY

Bad sensing of the load point and end of tape reflective spots may be caused by worn out or incorrectly positioned photocells. The photocell slot must be parallel to the tape.

VISUAL INSPECTION & OPERATIONAL CHECK

Every six months check the lamp sockets for good contact, otherwise noise may be generated.



REEL DRIVE & TAKE-UP MECHANISM

TAKE UP MECHANISM & TAKE UP MOTORS

LUBRICATION

Every four months on Mod IV and VI or
Every six months on Mod II and V lubricate the take up mechanism shaft with IBM 17 grease.

VISUAL INSPECTION & OPERATIONAL CHECK

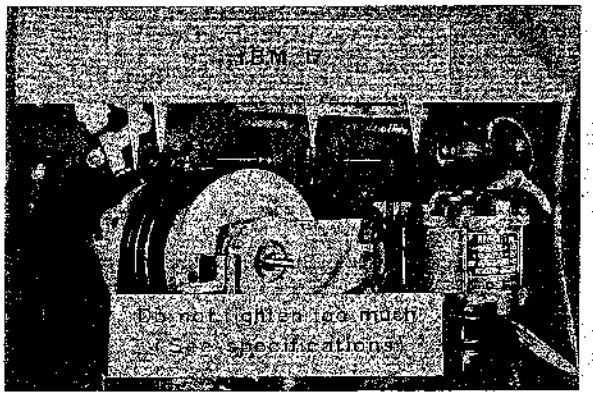
Every twelve months make a visual inspection of the tape take up motor and head take up motor.

REEL CLUTCH & REEL BRAKE

The clutch shaft locknut is tightened in the plant with a torque wrench. Do not overtighten after replacing the magnetic powder or the shaft may become deformed.

LUBRICATION

Every four months on Mod IV and VI or
Every six months on Mod II and V lubricate the stop clutch gears with IBM 17 grease.

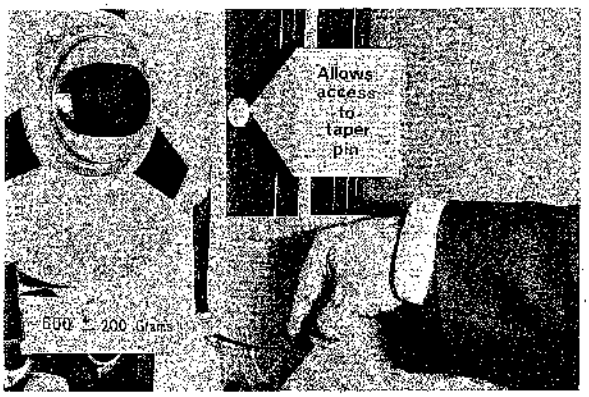


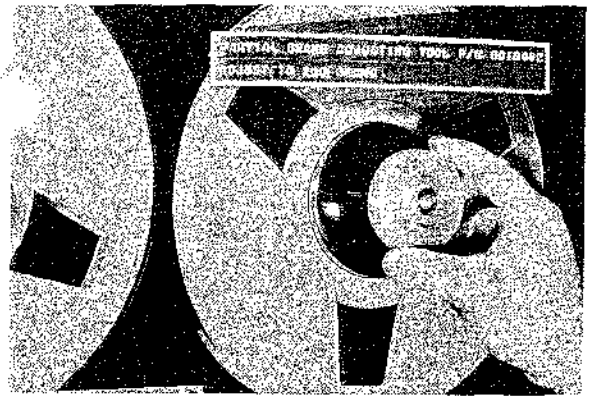
VISUAL INSPECTION & OPERATIONAL CHECK

Every four months on Mod IV and VI or
Every six months on Mod II and V inspect and adjust the brakes as follows:

a) Partial right brake adjustment

1. Place full reel on right hub
2. If right reel is full, turn reel over with file protect ring outside.
3. Disconnect HS rewind motor and trip mercury switch.
4. Depress load rewind and reset switches sequentially.
5. Check partial right brake for 600 ± 200 grams tension. Adjust with P1 for 729 NOR and NORLAY, and P3 for the 729 RELAY.

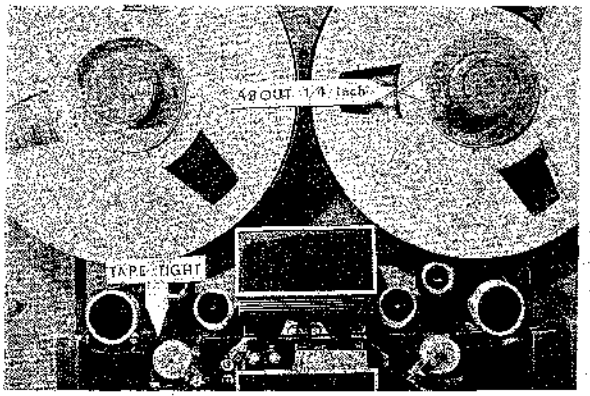




b) Tape wrinkling adjustment

i) With special tool P/N 8018462
1. Depress the unload and load rewind switches in succession.
2. Adjust by means of P3 for 729 NOR and NORLAY or P8 for 729 RELAY to disengage the knurled disc of the tool. This gives about 200 grams of tape wrinkling.

ii) With gram gauge
Proceed as above, adjusting P3 or P8 to obtain 200 grams on the right reel.

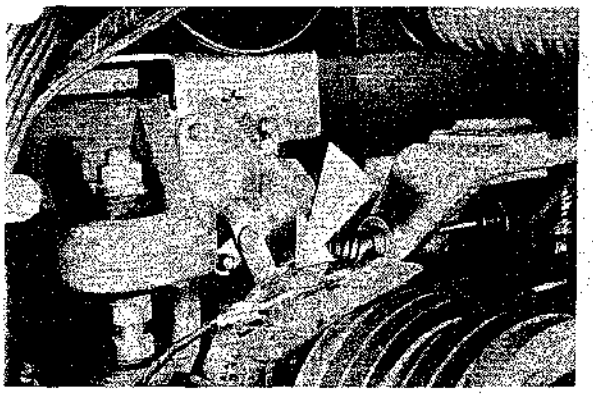


c) HS rewind adjustment

1. Connect the HS rewind motor
2. Disconnect the take up motor
3. Release the mercury switch
4. perform the HS rewind operation

When the reels stop at the end of the HS rewind operation, check that the thickness of the tape on the right reel is about $\frac{1}{4}$" (5 to 6 mm)

Make sure the tape is tight between the pulley idlers, without looping above the left vacuum column. If the tape is not tight, adjust P2, controlling the partial left brake.



d) Mechanical brake adjustment

Check with power OFF for pressure of about 70 grams between the shoe and the brake. Wipe all grease from the stop clutch braking surface.

Weak pressure of the mechanical brake is indicated if the reels slowly rotate in load status.

e) Check the condition of belts, brushes and clutch commutator rings. Check the magnetic clutch for powder leaks.

REMEMBER that intermittent troubles may be caused by noise originating from bad brushes or incorrect brush pressure on the commutator rings.

REEL DRIVE MOTORS & HS REWIND MOTOR

VISUAL INSPECTION & OPERATIONAL CHECK

Every twelve months visually inspect:

1. The condition of the reel drive motors and their belts.
2. The HS rewind motor - make sure that the coupling is not loose on the shaft.

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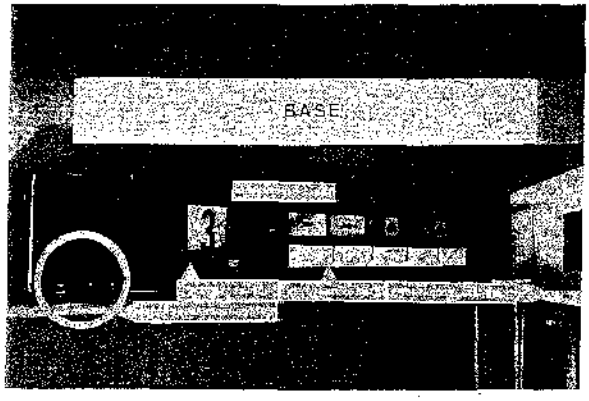


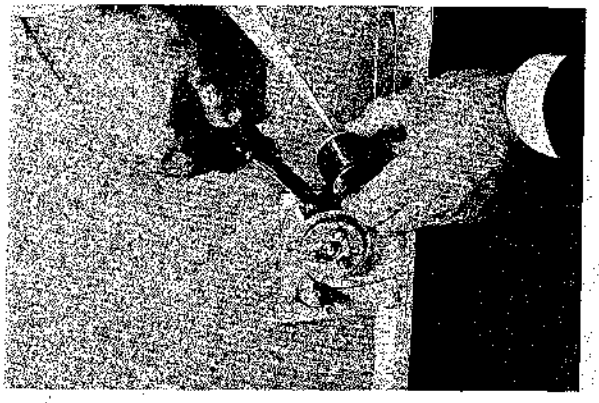
THE

BASE

FRONT DOOR ASSEMBLY

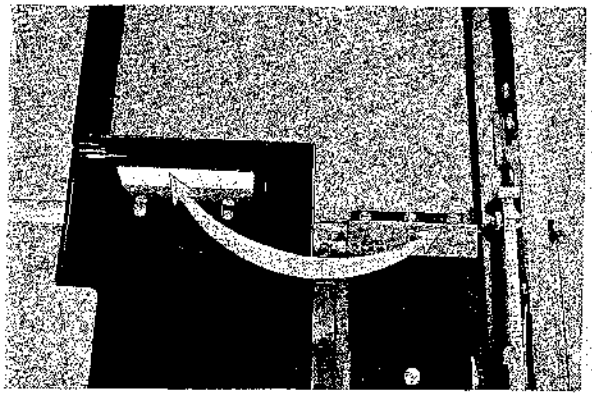
a) Cable doors (old style)
To change a spring of a cable door:

1. First remove cable from pulley.
2. Unscrew spring from negator spring assembly and remove drum assembly.
3. Unwind the old spring from the drum and wind the new spring onto the drum.
4. Attach the spring to the negator spring assembly and replace drum assembly on axle. Ensure the flange is facing the mounting bracket to avoid spring breakage later.
5. Replace cable following reference manual procedure.

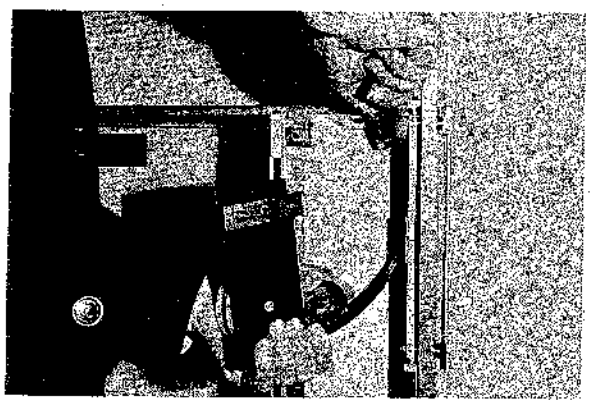


b) Magnetic latch door

To improve the operation of the magnetic latch door scrape the paint from the inside bracket surface.



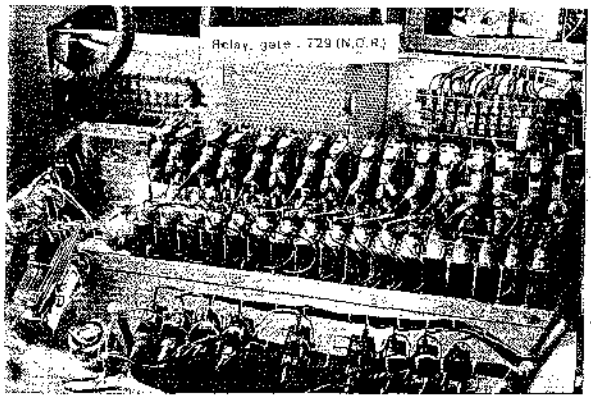
To replace a spring on a magnetic latch door, hold the spring in place with a short-handled screwdriver.



RELAY TIMER

VISUAL INSPECTION

Every twelve months check the relays, particularly the DP relay as its contacts are a source of noise.



BLOWERS AND FILTERS

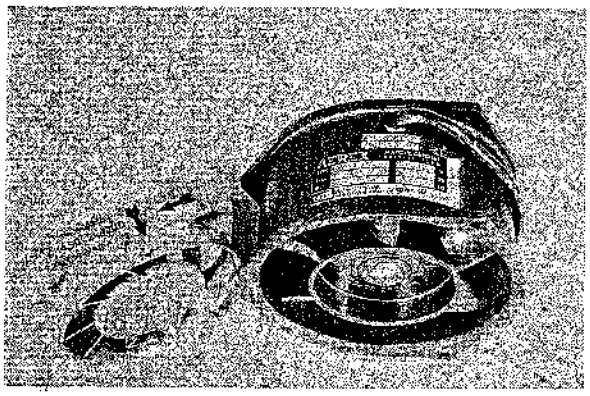
Several types of electronic gate blowers are in use, so when changing a blower, check the direction of rotation and airflow. This is shown by arrows on the blower.

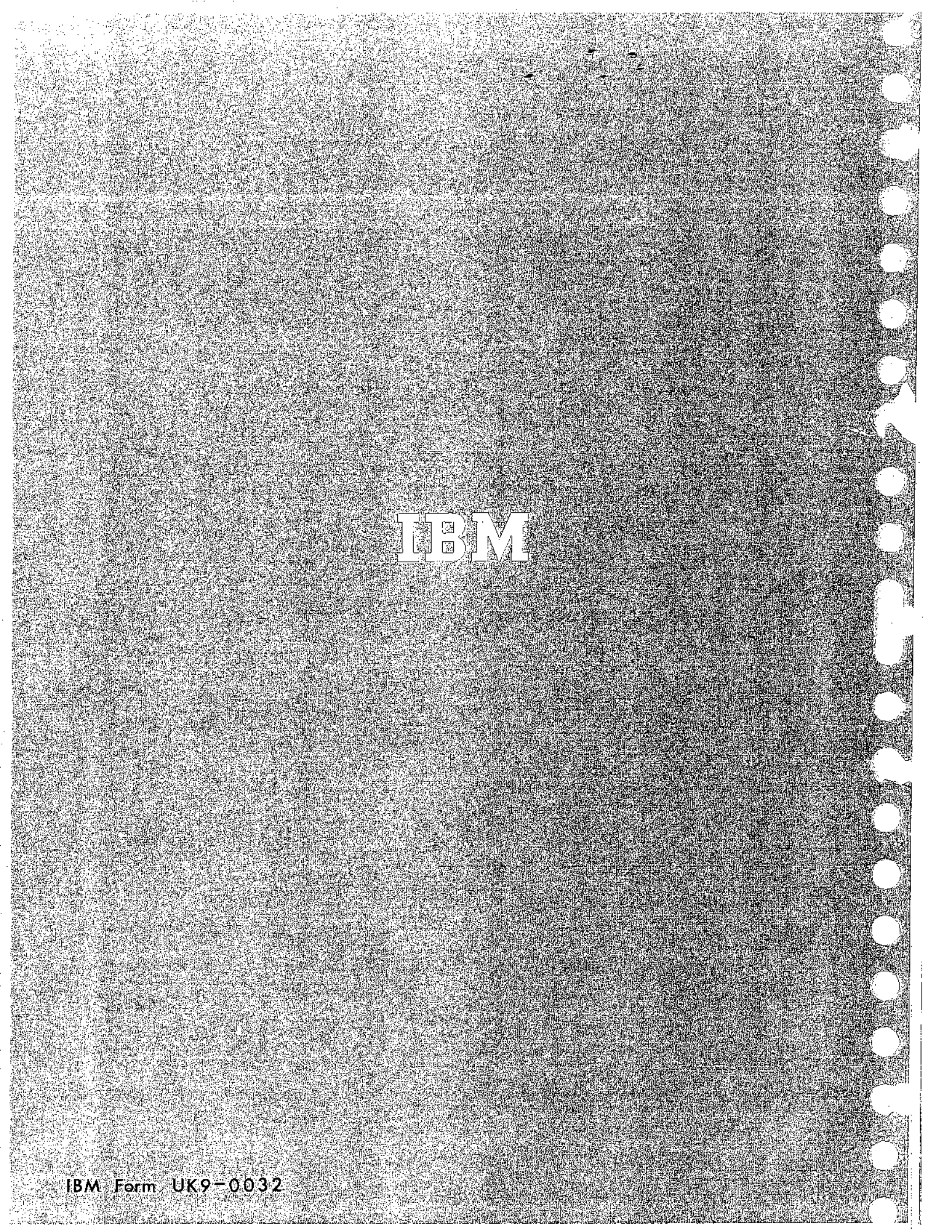
LUBRICATION

Every twelve months lubricate blowers which have the grease nipples, with IBM 17 grease.

VISUAL INSPECTION

Check the general condition of the blowers. Every twelve months change the filter, taking care to install the new filter correctly.





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