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Colin Hinson

In the village of Blunham, Bedfordshire.

creed

MODEL 92 Mk. III TAPE READER
AND
S4181 TAPE READER UNIT

maintenance instructions

Creed & Company Limited

C R E E D H O U S E
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MODEL 92 MARK III TAPE READER

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INTRODUCTION

This 4th Edition of Instruction Book No. 92 provides maintenance and adjustment instructions for both the Mark III version of the Model 92 Tape Reader and for the S4181 Tape Reader Mechanism, these two units being identical except for the cover.

A 'Mark III' machine can be quickly identified by the upturned ends of the two tape guide plates shown at K and L on Figure 2. The reader mechanism itself can be identified by comparing it with Figure 1 of this book and noting the bail bar linkage which is a feature found only on the S4181 mechanism.

Customers who are not familiar with tape reader terminology should refer to Figure 1 which illustrates the important parts of the reader mechanism and gives their names.

DATA SUMMARY

VERSIONS

| | | |
|---------------|-----------------|--|
| 5-track | 11/16 inch tape | Any version can be supplied with a 100V, 50V, 24V or 12V drive magnet. |
| 6-track | 7/8 inch tape | |
| 7-track | 7/8 inch tape | |
| 8-track | 1 inch tape | |

READING SPEED Up to 20 characters per second.

OUTPUT DATA

| | |
|---------------------|---|
| Form | Parallel. One change-over contact for each code track. One change-over contact to indicate 'tape out' condition. Tight-tape condition indicated by a break contact set. |
| Timing | Code available 18 ms after end of feed pulse. |
| Cycle time | 50 ms |
| Read-out time | 17 ms max |

} at 20 ch/sec.

INPUT DATA

| | |
|------------------------------|---------------------------------|
| Feed pulse length | ⋈ 20 ms, ⋈ half the cycle time. |
| Feed magnet resistance | see table on Figs.10A and 10B. |

D.C. RATINGS

| | |
|----------------------------|---|
| Code contacts | 100V, 200 mA max, resistive. |
| Tape-Out contacts | 100V, 200 mA max, resistive. |
| Tight-Tape contacts | 250V, 1A, resistive. |
| Magnet feed contacts | 250V, 500 mA, resistive. |
| Drive magnet coil | 50% rating. Coil should not be energised continuously for more than 60 seconds. 'Off' period ⋈ 'on' period. |

TAPE SPECIFICATION

| | |
|------------------------------|--|
| Punching | fully-punched tapes only. |
| Feed & Code Hole Pitch | 1/10 inch. |
| Code Hole dimensions | .072 inch diameter with 1/10 inch laterally between centres. |
| Feed Hole dimensions | .046 inch diameter. |

GENERAL

| | |
|------------------|--|
| Dimensions | 5-7/8" x 4-3/8" x 9-1/16" (14.9 x 11.1 x 23 cm) |
| Weight | 7.8 lb (3.5 kg) |
| Finish | Grey hammer-effect enamel. |

INSTALLATION INSTRUCTIONS

1. Unpack the reader and check that it has not suffered any superficial damage in transit.
2. Unscrew the four rubber feet and take off the baseplate. Check that each part of the mechanism operates correctly by hand.
3. Ascertain whether the reader is to operate on centre or advanced feed hole tape and then check, by referring to adjustment 4 on page 11, that the feed wheel is adjusted correctly.
4. Confirm that the magnitude and duration of the drive pulses which will be supplied to the feed magnet are as recommended in the section headed 'Input' on page 4.
5. Test the frame earth connection to pin 33 of reader plug and confirm that it will be connected to earth when the reader is plugged into the associated equipment. Note that Readers employed with special equipment such as Tape Verifying Sets, may have earth on a different pin.
6. Carry out the lubrication instructions given on page 7.
7. Check that all nuts, screws and soldered joints are secure. Replace base-plate.
8. Connect the reader to its associated equipment, load it with a tape which has been perforated with combinations which will test the operation of every track and switch on the drive pulse to the electromagnet.
9. Check that the tape feeds through the reader easily and smoothly and that the output signals are satisfactory. Check the operation of the tight-tape and tape-out facilities.

MAINTENANCE INSTRUCTIONS

Routine Maintenance

Carry out the following maintenance procedure at intervals of 1000 hours:-

1. Inspect the machine for any signs of damage or deterioration. Thoroughly test its operation and all special facilities such as tight-tape device.
2. Clean out all paper dust from the tape track and from around the pecker lever slots with a clean dry brush.
3. Remove the mechanism from its case (refer to Check 2.4 of the Adjustment Instructions for procedure) and clear out any paper dust that may have found its way through the slots in the cover plate F, Fig.3.
4. Inspect, clean and burnish contacts on levers C, Fig. 6, and their associated contact assemblies E and J.
5. Inspect, clean and burnish the contacts of the tight-tape contact assembly, (Fig.1) and electromagnet contacts (Fig.1).
6. Check the following adjustments from the full list of instructions in adjustment section. These adjustments are indicated by the symbol "**".
 - 2.1 Tape Retaining Plate.
 - 4.1 Feed Shaft Retention Roller.
 - 5.1 Feed Mechanism.
 - 6.1 Pecker Lever Height.
 - 7.1 Tape-out Lever Height.
7. Lubricate the mechanism sparingly at the points listed in the lubrication instructions on page 7.

8. Check that the tape roller A, Fig.3, and retention roller D, Fig.4, are free to turn and that all nuts, screws and bolts are tight.
9. Replace the mechanism in its case and screw down the main plate. Replace the base plate and the four rubber feet.
10. Connect the reader to its controlling equipment and check its performance and all special facilities under working conditions before putting it back into service.

LUBRICATION INSTRUCTIONS

Although all units are lubricated before leaving the factory there is a possibility that some oil may be lost in transit or in storage. It is therefore advisable to lubricate the unit before putting it into service.

Remember that most lubrication will be carried out with the reader upside down. Lubricate *sparingly* so that the oil will not run down on to the electrical contacts when the reader is turned the right way up.

Creed No.2 Lubricant every 1000 hours

| | |
|--|-------|
| Pivot of tape retaining plate B | Fig.3 |
| Pivot of catch lever H | Fig.3 |
| Bearings of tape roller A | Fig.3 |
| Eccentric pivot | Fig.1 |
| Feed pawl pivot P | Fig.7 |
| Armature linkage bearings (5 felt washers) | |
| Bail arm Q (one felt washer) | Fig.7 |
| Bail arm pivot R | Fig.7 |
| Armature arm pivot | Fig.1 |
| All pivots on tight-tape mechanism | Fig.8 |

Creed No.6 Lubricant every 1000 hours

| | |
|---|-------|
| Retention wheel teeth | Fig.1 |
| Feed ratchet teeth | Fig.1 |
| Pivots of pecker lever pivot block (oil sparingly) | |
| Electromagnet contact arm face | Fig.5 |
| Pawl stop plate face | Fig.1 |
| Armature stop screw faces | Fig.1 |
| Between bail bar and pecker levers | Fig.1 |
| All knife faces and edges on tight-tape mechanism | Fig.8 |
| All spring anchor points (when not secured by screws) | |

RECOMMENDED LUBRICANTS

No.2 Lubricant - Medium mineral oil (SAE 30) such as:-

- (a) Shell Talpa Oil 30 (formerly CY2)
- (b) Wakefield Castrol XL
- (c) G.P.O. Oil No.14.

No.6 Lubricant - High melting-point molybdenum disulphide grease such as:-

- (a) Rocol Molytone LM Grease.

These lubricants can be obtained from Creed & Company, Limited, under the stock numbers given below:

No.2 Lubricant TA1096 ¼ pint tin
No.6 Lubricant TA1317 2 oz. tube.

ADJUSTMENT INSTRUCTIONS

1. Tape Roller Assembly (Fig. 2)

Check

- 1.1 Ensure that the axis of tape roller A is parallel to the edge of tape retaining Plate B by checking that the rear edge of roller assembly, secured by four screws C, is in line with the rear edge of the tape retaining plate B.

Action

- 1.2 If this is not so, slacken four screws C and move the complete roller assembly so that the rear edge of it is in line with the rear edge of retaining plate B. Tighten screws C.

2. Tape Retaining Plate (Figs. 2 and 3)

Check

- *2.1 With retaining plate B closed, check that:-

- (a) the axis of roller A lies vertically over the tips of pecker levers E and
- (b) that the lateral position of roller A is such that the tips of pecker levers E lie centrally in the grooves of roller A.

- 2.2 These conditions cannot be observed directly but can be checked as follows:-

- (a) cut out a strip of carbon paper about 2 inches long and the width of tape roller A.
- (b) open retaining plate and place the strip (carbon side upwards) over the peckers and cover it with a length of unperforated tape.
- (c) hold the carbon paper and tape and close retaining plate B.
- (d) lift plate B and separate the tape and carbon paper.
- (e) inspect the impression made by the roller and peckers on the under side of the tape and check the conditions in 2.1 (a) and (b) above are satisfied.

Action

- 2.3 Slacken the two screws D and move retaining plate B until roller A satisfies check 2.1 above. Tighten screws D. Note: The stop screw G must locate in cut out of plate K.

Check

- 2.4 Remove mechanism from its case by undoing the four screws securing base plate and rubber feet and the four corner screws of top plate. Operate the electromagnet (Fig.1) by hand so that pecker levers E, Fig.3, are withdrawn into their slots in cover plate F.
- 2.5 With the tips of pecker levers held below the surface of cover plate, close tape retaining plate B and check that there is a clearance of .007-.009 inch (.18-.23 mm.) between roller A and cover plate F, i.e. dimension 'b'.

Action

- 2.6 To adjust, slacken locknut (6BA Spanner) of stop screw G and turn the screw until dimension 'b' is obtained. Clamp stop screw in position with its lock nut.

Check

- 2.7 Close tape retaining plate B and check that catch lever H passes freely on to the head of catch plate screw J. Check that no vertical movement can be detected in the tape retaining plate B once it has latched.

Action

- 2.8 Slacken locknut (6BA spanner) beneath the head of catch plate screw J and adjust screw J until check 2.7 above is satisfied. Hold screw J with a screw-driver and clamp it into position with its locknut.

3. Alignment of Tape Guide Plates (Fig. 2)

Note: The Mk.III Model 92 Reader can be set to accommodate 11/16 in., 7/8 in. or 1 inch wide tape by adjusting and/or changing the tape guide plates K,L,M and N. The part numbers and positions of these guide plates are summarised in the table below.

| | 11/16 inch tape 5-track | 7/8 inch tape 6- and 7-track | 1 inch tape 8-track |
|---------------|---|---|---|
| Dimension 'a' | 11/16 + .020 inch | 7/8 + .020 inch | 1 + .020 inch |
| Plate K | 4181/31 | 4181/31 | 4181/31 |
| Plate L | 4181/19 on inner holes | 4181/18 on outer holes | 4181/19 on outer holes |
| Plate M | 4181/16 | 4181/16 | 4181/16 |
| Plate N | 4181/16 on inner holes with narrow edge towards tape | 4181/16 on outer holes with wide edge towards tape | 4181/16 on outer holes with narrow edge towards tape |

Check

- 3.1 Place a length of perforated tape of the required width into the reader and locate it *squarely* over peckers E. Close tape retaining plate B and, with the tape held tight and square, check that guide plates K and L lie parallel to, and an estimated .010 inch (.25 mm.) from each edge of the tape.

Action

- 3.2 If the guide plates require adjustment, place the perforated tape in the position described in 3.1 above and fasten it to the top plate with adhesive tape. Slacken two screws clamping guide plates K and L and adjust plates to satisfy check 3.1 above. Tighten guide plate clamping screws.

Check

- 3.3 Place a length of perforated tape of the required width into the reader and locate it *squarely* over peckers E. Close tape retaining plate B, and, with the tape held tight and square, check that guide plates M and N lie parallel to and an estimated .010 inch (.25 mm.) from each edge of the tape.

Action

- 3.4 If the guide plates require adjustment place the perforated tape in the position described in 3.3 above and fasten it to the top plate with adhesive tape. Slacken two screws clamping guide plates M and N and adjust plates to satisfy check 3.3 above. Tighten guide plate clamping screws.

4. Feed Shaft Retention Roller (Fig. 4)

Note: To set the reader for *centre feed hole* working, carry out adjustment 4 with a length of centre feed-hole tape. If it is required to set the reader to accept tape with *advanced feed holes*, use a length of advanced feed hole tape.

Check

- 4.1 Place a length of tape of the required width, perforated with an all-mark combination, in the tape track and hold the feed holes lightly on the pins of the feed wheel. Do not close the tape retaining plate. Pull the tape gently against the direction of feed (See figure 2) to take up any slackness. Check that the tip of each pecker lever lies in the centre of its associated hole in the tape.

Action

- 4.2 If the pecker lever tips are not central, slacken screw A, Figure 4. Turn eccentric pivot B to move the tape feed wheel and hence the tape until check 4.1 is satisfied. Care should be taken when inserting the screw-driver through terminal block not to damage the tags. Ensure that the eccentric pivot B is in the lower half of its travel so that maximum spring pressure is obtained. Tighten screw A.

5. Feed Mechanism (Fig. 1)

Check

- *5.1 Push the feed pawl to the fully operated position against the pawl stop plate.

Check that:-

- (a) The roller on retention arm is located at the bottom of a tooth of retention wheel.
(b) On centre feed machines only, that the top pin is in line with the tips of the peckers.

If either of these conditions are not satisfied the whole of action 5.2 should be carried out.

Action

- 5.2 Slacken two screws holding pawl stop plate. Slacken locking nut (4BA) on stop screws and retract screws clear of armature arm. Slacken two screws holding the electromagnet cone to the vertical support plate.

Push **feed pawl** to fully operated position so that the pawl moves to the root of feed ratchet and is fed one tooth forward. Maintain feed pawl in this position throughout action.

Check that the retention roller is fully seated in the retention wheel. Screw up the lower stop screw, as viewed in Fig.1.

Move pawl stop plate so that it touches the pawl and tighten two screws to clamp the plate in position.

Insert an .008 inch. (.20 mm.) feeler gauge between armature and the electromagnet core. Push the electromagnet in direction of pecker assembly so that gauge is held between core face and the armature. Tighten two screws which hold core against its support plate.

Advance lower stop screw a further half-turn and then adjust top stop screw to give a gap of .068 - .072 inch (1.7 - 1.8 mm.) between arm and the top stop screw.

Operate the mechanism by hand and ensure that it now satisfies check 5.1.

Check

- 5.3 Refer to Fig.4. Check that a force of 205-235 grams, i.e. force F_1 applied to the pivot of retention roller will just move the roller away from the retention wheel.

Action

- 5.4 If this is not so and there is no obvious mechanical fault renew the retention arm spring C (Creed Part Number 3921/130) and repeat check 5.3.

6. Pecker Lever Height (Figs. 1, 3, 6 and 7)

Check

*6.1 Lift the tape retaining plate, B, Fig.3, and check

- (a) that the tips of pecker levers A, Fig.6, are level and project .024-.032 inch (.61-.81 mm.) i.e. dimension 'c' above the cover plate B.
- (b) that there is a gap of .005 - .008 in. (.13 - .20 mm) i.e. dimension 'd', between the tongue C and the space contacts J associated with each code pecker. Check also that the code contacts start to move just before the feed action commences.

Action

6.2 If the requirements in Check 6.1 are not satisfied, readjust the bail bar and code contacts as follows:-

- (a) Slacken screws D and retract mark contacts E until they are clear of the tongue C.
- (b) Slacken the two bail-bar locking nuts H, Fig.7 and set the height of the peckers to .028 in. (.71 mm.) by turning screw G. Tighten nuts H.
- (c) Screw the mark contacts E inwards until they just make contact with tongue C. Adjust the space contacts J to give a clearance of .005 - .008 in. (.13 - .20 mm.) i.e. dimension 'd', between contacts J and tongue C.
- (d) Tighten all locking screws D. The bail clearance is then adjusted by the bail operating screw G so that the code contacts move just before the feed action commences.

Check

6.3 Press the electromagnet armature slowly towards the core and check that all the tongues C, Fig.6, leave their associated mark contacts E at the same instant. Check also that the tongues move away from the mark contacts when there is an estimated .005-.010 inch (.13-.25 mm.) gap between the feed pawl (Figure 1) and the tooth of ratchet wheel.

Action

6.4 If this is not so, slacken nuts H, Fig.7, on the bail bar linkage and by turning screw G adjust the bail/pecker clearance to satisfy the requirements in check 6.4 above.

7. Tape-Out Lever Height (Fig. 6, inset)

Check

*7.1 With the tape retaining plate lifted, check that the tips of the tape out lever K project .028-.034 inch (.71-.86 mm.) i.e. dimension 'e' above the cover plate. Check also that there is a gap of .007-.009 inch (.18-.23 mm.) i.e. dimension 'd' between tongue C and left-hand contact J.

Action

7.2 Slacken lock screws D of tape out lever and adjust right-hand screw E until the .028-.034 inch (.71-.86 mm.), i.e. dimension 'e' is achieved. Adjust left-hand contact to give a gap of .007-.009 inch, i.e. dimension 'd'. Tighten lock screws D.

8. Pecker Lever Spring Pressure (Fig. 6)

Check

- 8.1 Check that a force of 140-160 grams, i.e. force F_2 , when applied at anchor hole of spring N, just moves the pecker lever.

Action

- 8.2 Bend the appropriate prong of spring anchor comb L to obtain the spring pressure required in check 8.1 above.

Check

- 8.3 Place a length of tape of the required width which has been perforated with feed holes only, into the reader. Close tape retaining plate. Check that each of the contacts C has moved from mark to space.

Check also that a force of 9-15 grams, i.e. force F_3 applied to the end of each contact lever C in turn causes the contacts to break. Remove tape.

Action

- 8.4 If these requirements cannot be met, new contact lever spring M (Creed Part No. 3921/35) should be fitted.

Check

- 8.5 With no tape in the reader, check that a force of 9-15 grams i.e. force F_4 applied to end of each contact lever C will move lever away from mark contact E.

Action

- 8.6 Adjust by refining the bend in the appropriate prong of anchor comb L. Afterwards re-check that force F_2 (140-160 grams) is still within the required limits. If both forces cannot be satisfied, a new pecker lever spring N (Creed Part No. 3921/36) should be fitted.

9. Tape-Out Lever Spring Pressure (Fig. 6)

Check

- 9.1 Re-load the reader with a length of tape and close the paper retaining plate. Check that the tape-out lever K has caused its contact lever C to move from contact E to touch contact J.

Action

- 9.2 If this is not so, a new contact lever spring (Part No. 3921/132) should be fitted.

Check

- 9.3 Check that a force of 180-220 grams, i.e. force F_2 when applied at anchor hole of tape-out lever spring N just causes the tape-out lever K to move.

Action

- 9.4 If this is not so, bend the prong of anchor comb L on which spring N is anchored so that the tension of the spring lies within the limits given in 9.3.

10. Pawl Cam Wire (Fig. 1)

Check

- 10.1 Check that there is an estimated .002-.005 inch (.05-.13 mm.) between the pawl cam wire (Fig.1, inset) and the feed ratchet.

Action

- 10.2 If this is not so, slacken the screw on the hexagonal wire support (Fig.1, inset) and adjust the wire to give required gap. Tighten screw.

11. Electromagnet Contact Assembly (Fig. 5)

If the electromagnet contact bank does not operate correctly, it should be adjusted to satisfy the requirements listed below. It is recommended that each spring should be adjusted in turn commencing with spring 4, Figure 5.

1. Slacken two screws R and lift out the contact assembly.
2. With spring 3 held away from spring 4, spring 4 should bear on the buffer block with a force of 15-21 grams. (Re-adjust to 16-20 grams). Measure force at tip of contacts.
3. With spring 2 held away from spring 1, spring 1 should bear on the buffer block with a force of 15-21 grams. (Re-adjust to 16-20 grams). Measure force at tip of contacts.

Note: The four conditions indicated below should exist when the electromagnet is in the unoperated position.

4. The stud on lever 2 should rest lightly on blade 5.
5. The stud on lever Spring 3 should rest against stud on lever spring 2 with a force of at least 4 grams.
6. Lever spring 2 should be tensioned upwards sufficiently to hold the lug on spring 1 clear of the buffer block by approximately .004 inch (.10 mm.).
7. The clearance between contacts on springs 3 and 4 should be .010 inch (.25 mm.).
8. Replace contact assembly, tighten screws R. Slacken screw L and adjust arm P so that it just touches blade 5.
9. If these contacts are to be used as a change-over, one set of contacts must break before the others make.

12. Tight-Tape Contact Assembly (Figs. 8 and 9)

Check

- 12.1 Operate the tight-tape arm C, Fig.8, so that knife A moves forward to strike the stud H. Check that the stud is then resting on a level portion of the knife and not on the bevelled face.

Action

- 12.2 If this is not so, slacken two screws D and move contact assembly to satisfy check 12.1. Tighten screws D.

13. Tight-Tape Contact (Figs. 8 and 9)

Check

- 13.1 With tight-tape mechanism operating as in check 12.1, check that the short contact arm L is bearing on its buffer K with a force of 55-65 grams. Check also that stud H is exerting a force of 25-35 grams against knife A.

Action

- 13.2 If necessary, bend contact arms J and L.

14. Tight-Tape Contact Gap (Fig.9)

Check

14.1 With tight-tape mechanism operated as in check 12.1, check that there is a gap of .010-.015 inch (.25-.38 mm.) i.e. dimension 'h' between contacts.

Action

14.2 Adjust the gap by bending buffer K. Ensure that the contact pressures checked in 13 are still within the limits given.

15. Tight-Tape Arm Pressure (Fig. 8)

Check

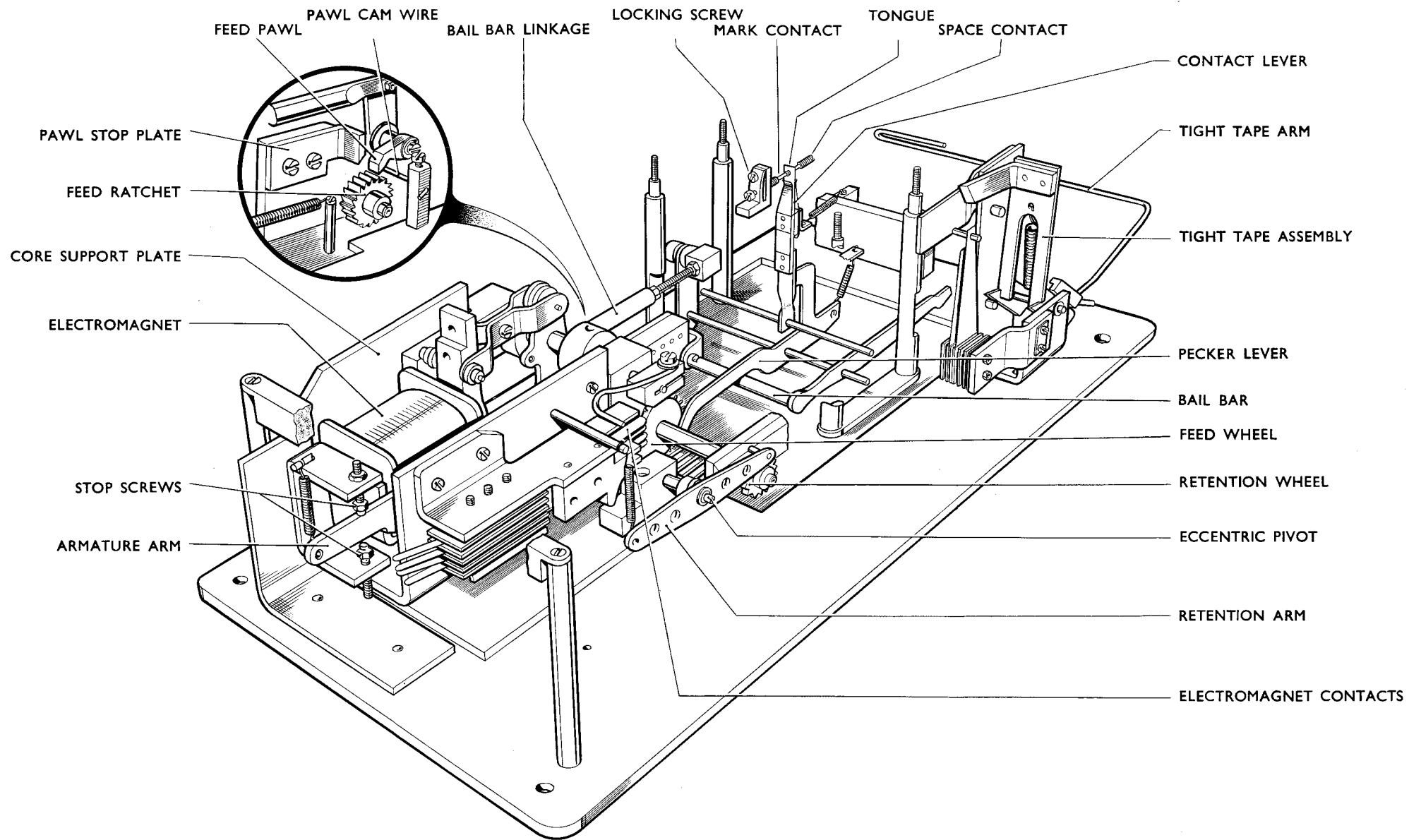
15.1 With the tight-tape mechanism at rest, check that a force of 70-90 grams, applied along the line of arrow F₅, just moves the tight-tape arm.

Action

15.2 If this is not so, remove springs B and G and check their extensions against the values below and, if necessary, replace one or both of the springs.

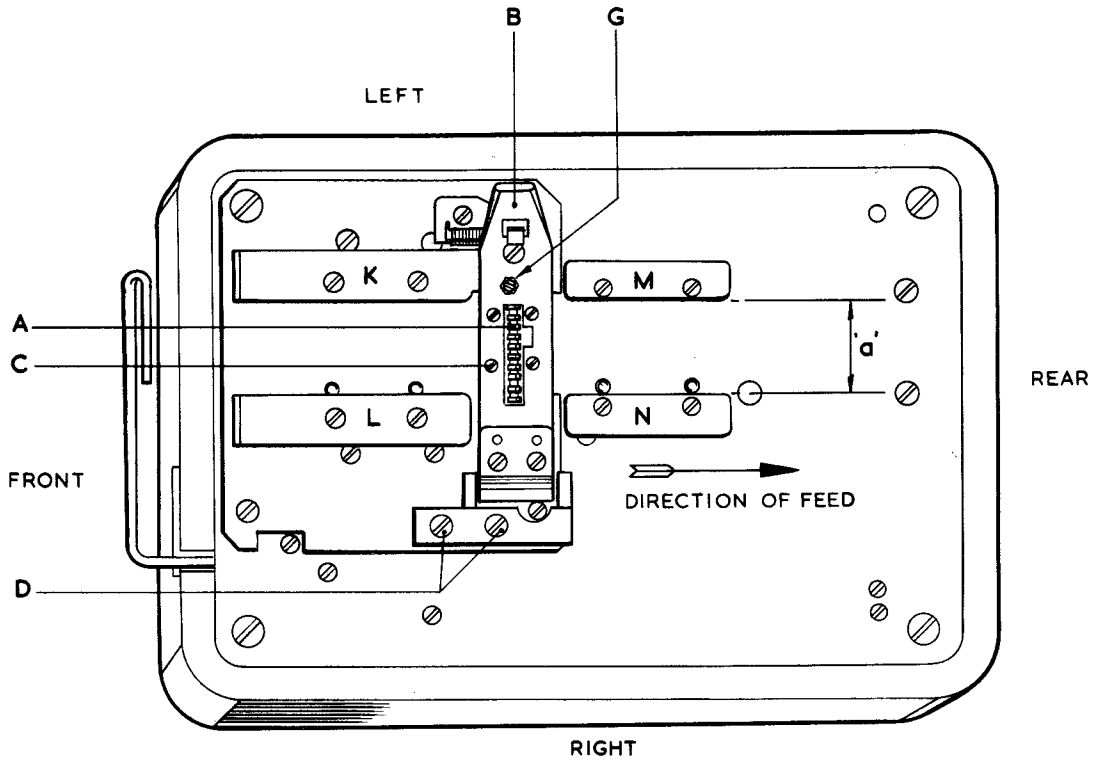
| | | |
|-------------------------------|---|--------------|
| Spring B (Part No.3921/12) | Force to give extension of 15/64 inch (6 mm) | 99-128 grams |
|-------------------------------|---|--------------|

| | | |
|-------------------------------|---|---------------|
| Spring G (Part No.3921/13) | Force to give extension of 1/4 inch (6.4 mm) | 425-480 grams |
|-------------------------------|---|---------------|

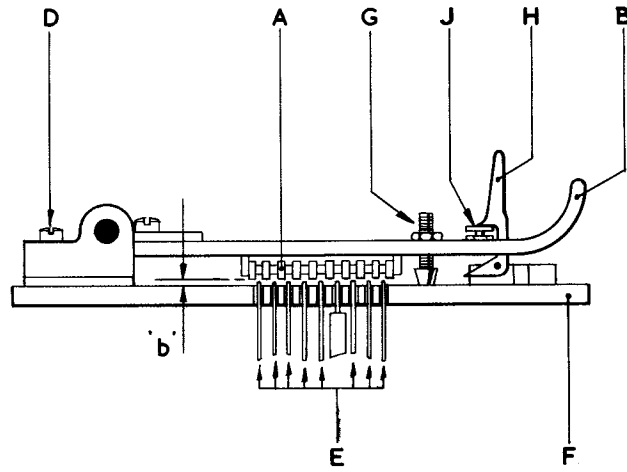


S4181 TAPE READER UNIT

2



3

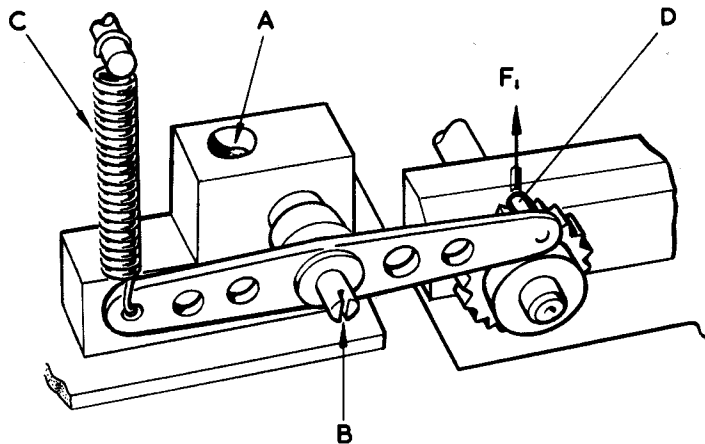


DIMENSIONS

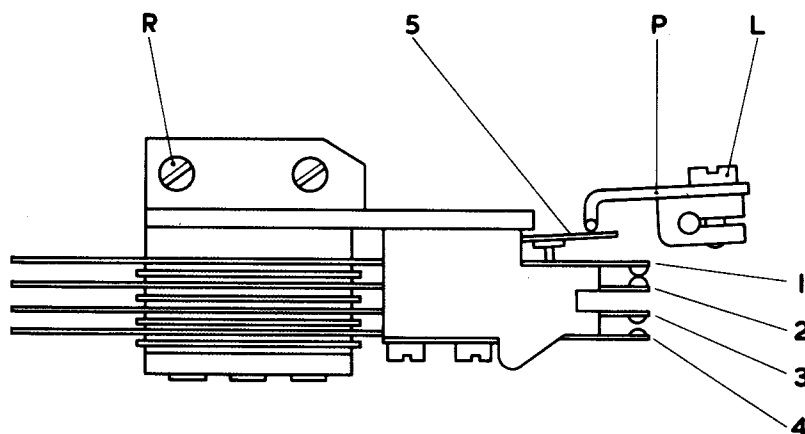
'a' See text

'b' = $\begin{cases} .007 - .009 \text{ in.} \\ .18 - .23 \text{ mm.} \end{cases}$

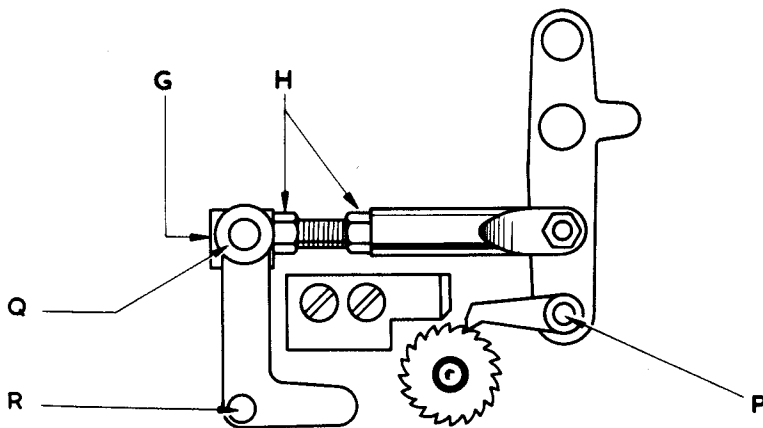
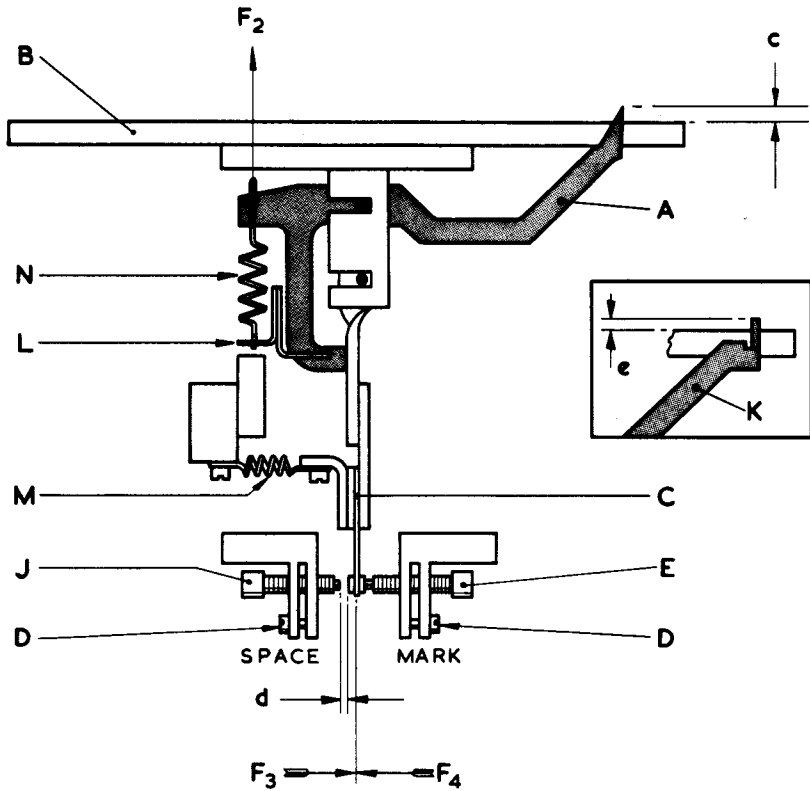
4



5



FORCE F_1 = 205—235 grams.



DIMENSIONS

$$c' = \begin{cases} .024-.032 \text{ in.} \\ .61-.81 \text{ mm.} \end{cases}$$

$$'d' = \begin{cases} .005-.008 \text{ in.} \\ .13-.20 \text{ mm.} \end{cases}$$

$$'e' = \begin{cases} .028-.034 \text{ in.} \\ .71-.86 \text{ mm.} \end{cases}$$

FORCES

$$F_2 = 140-160 \text{ grams. (for pecker levers)} = 180-220 \text{ grams. (for tape-out lever)}$$

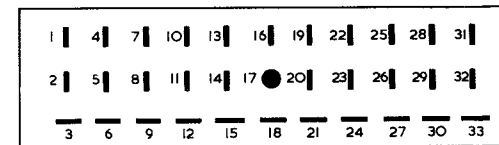
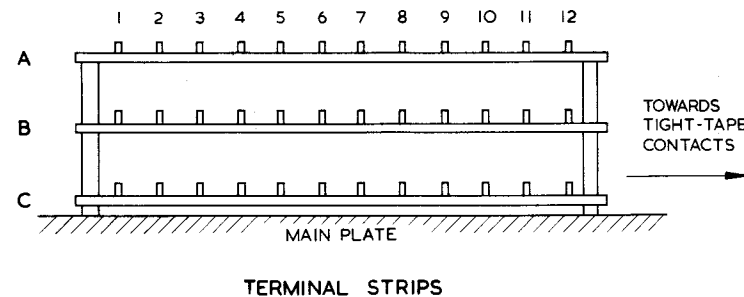
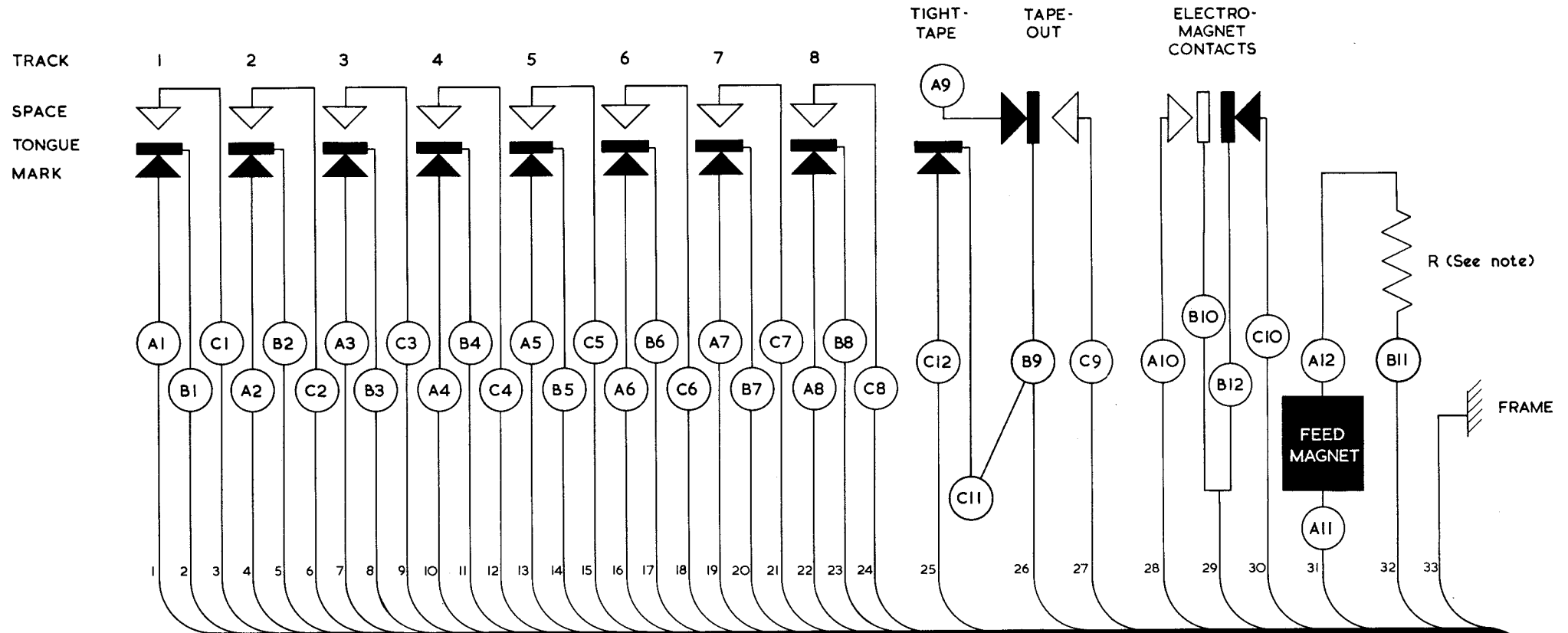
NOTE

- (1) Resistance of feed magnet and its associated series resistor for the various drive voltages are:-

| Operating Voltage | Magnet | Resistor R |
|-------------------|--------|------------|
| 100V | 140Ω | 150Ω |
| 50V | 35Ω | 37.7Ω |
| 24V | 8.5Ω | 8.3Ω |
| 12V | 2.0Ω | 2.2Ω |

- (2) The electromagnet contacts, the 'tight tape' contacts and the 'tape-out' contacts are all shown in their unoperated positions.

- (3) The code contacts are shown in the position they take up when there is no tape in the Reader.



33-WAY PLUG (View of pins)

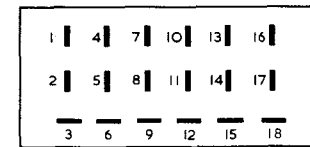
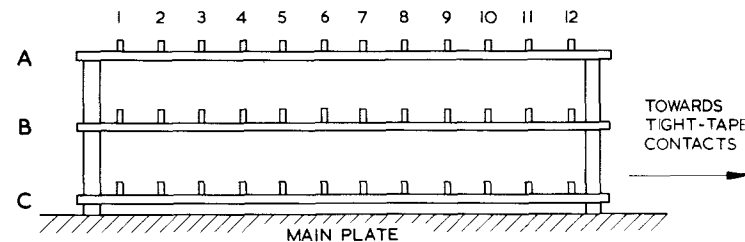
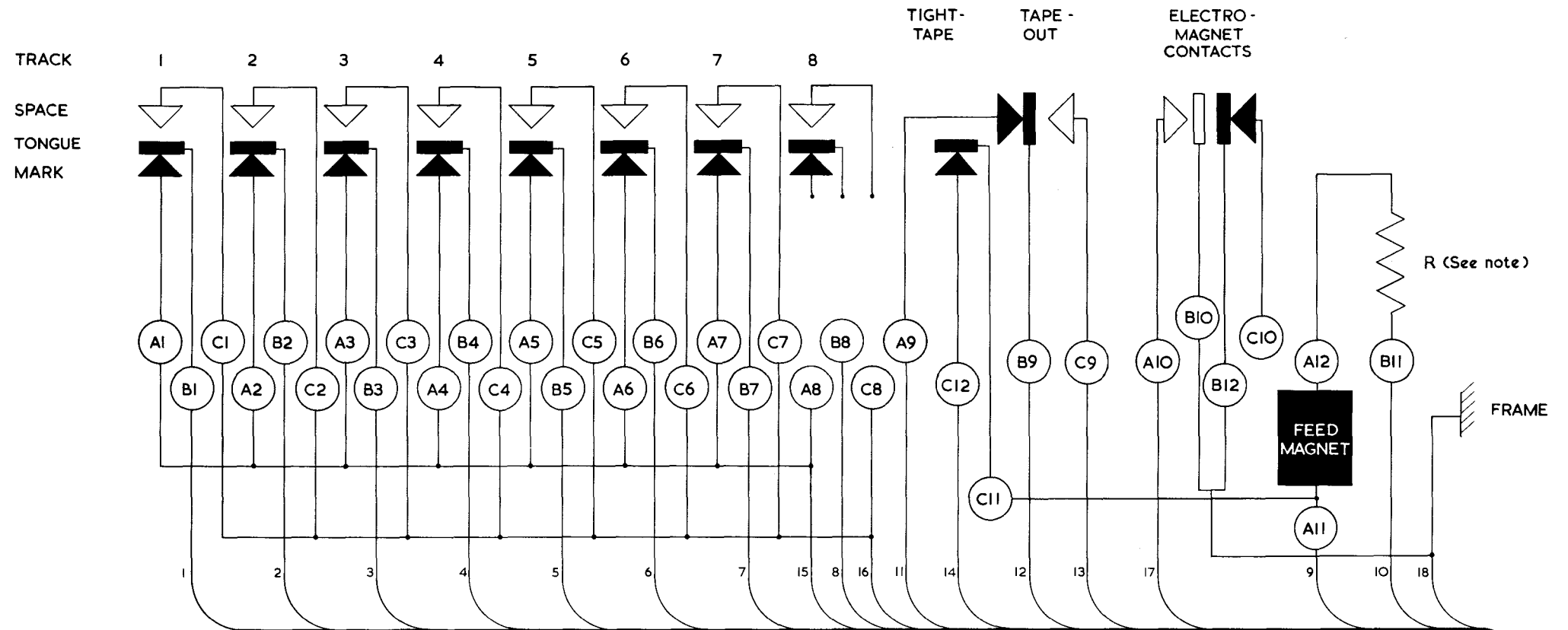
MODEL 92 MARK III SCHEMATIC WIRING DIAGRAM
(General Purpose, 8-track version)

NOTE

- (1) Resistance of feed magnet and its associated series resistor for the various drive voltages are:-

| Operating Voltage | Magnet | Resistor R |
|-------------------|--------|------------|
| 100V | 140 Ω | 150 Ω |
| 50V | 35 Ω | 37.7 Ω |
| 24V | 8.5 Ω | 8.3 Ω |
| 12V | 2.0 Ω | 2.2 Ω |

- (2) The electromagnet contacts, the 'tight tape' contacts and the 'tape-out' contacts are all shown in their unoperated positions.
- (3) The code contacts are shown in the position they take up when there is no tape in the Reader.



18-WAY PLUG (View of pins)
for use with 7-track Verifier

TERMINAL STRIPS

MODEL 92 MARK III SCHEMATIC WIRING DIAGRAM
(as used with Model 90 7-unit Verifier)