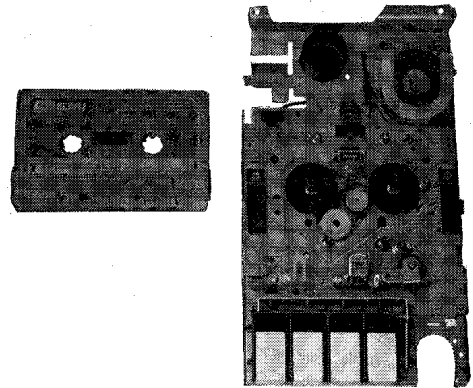


Cassette Tape Deck

DE219

For two-track (mono) operation
using C60, C90 or C120 cassettes



SERVICE NOTES

Figures in parenthesis refer to item numbers in the exploded view drawings.

The deck operates from five cells (HP11 or equivalents). Mains adaptor Type TA22 is available as an extra. The specification and information on the recorder circuits is provided in the individual recorder service manual.

Drive Belt Changing (71)

With care, the drive belt can be removed or refitted without disturbing capstan end float adjustment. The flywheel bracket is sufficiently springy to obtain the small extra clearance required for withdrawing the belt. Note, however, that the belt may pick up some lubricant when changed in this manner, and this must be cleaned off immediately with methylated spirits. When refitting, ensure that the belt is not twisted and that it is correctly located on the pulleys.

Note: In decks with the alternative motor (51a) the motor top screening plate must be hinged upwards after removing one screw, for access to the motor pulley.

Top Plate Removal (25)

The top plate assembly (25) moves on five ballbearings (18) and a black plastic thrust bearing (33), and when dismantling, care should be taken to avoid losing them.

Two of the ballbearings are on top of the top plate and lie under the ball-retainer assemblies (16 and 17); the latter are each secured by a single self-tapping screw (19).

Unsolder the signal head connections (if separate erase and signal heads are fitted, unsolder connections to both heads), then remove the ball-retainer assemblies and ballbearings, also take out two screws (38) which secure the top plate to studs on the pulley release arm (76). The top plate assembly and the three ballbearings beneath can now be removed. Reassemble in the reverse order, ensuring that the three ballbearings are correctly seated in the recesses in the chassis before replacing the top plate, and that a ballbearing is also located in the slot of each ball-retainer assembly.

Removal of Flywheel and Capstan Assembly (70)

Unfasten flywheel shaft retainer bracket (68) from side of chassis (two screws) and detach rubber drive belt (71). Lift off take-up clutch assembly (65) after removing small circlip which secures it to its pivot. The flywheel and capstan assembly (70) can now be lifted out. Do not attempt to remove the flywheel and capstan assembly without first detaching the take-up clutch assembly.

When replacing the flywheel, first ensure that the thrust washer (70a) is on the capstan shaft between the flywheel and the capstan bearing assembly; reassembly can then continue in the reverse order to the removal procedure but great care must be exercised to avoid bending or damaging the capstan. When refitting the drive belt in models where the alternative motor is fitted, it will be necessary to raise the top screening plate of the motor to ensure that the belt is correctly located in the motor drive pulley. It is essential, with either type of motor assembly, that the drive belt is not twisted and it is advisable to clean the belt and all drive surfaces with methylated spirit after reassembly is complete. When refitting the flywheel shaft retainer assembly, it is necessary to set the end float 0.1mm-0.4mm as described under Mechanical Adjustments.

Motor Removal (51)

Release drive belt from motor pulley, then take out a screw (55) from side of unit plate (97) and another screw (58) securing motor bracket to unit plate. Unsolder motor leads from main printed panel.

Note: Some chassis are fitted with alternative motor (51a). This motor must be removed together with its control sub panel (replacements are supplied complete with panel). The screening plate must be hinged upwards after removing one screw for drive belt removal. Slacken three screws securing motor assembly and slide the assembly free of the chassis slots.

After motor replacement (either type) check motor speed and if necessary, adjust as described in the service manual for the individual model.

Piano Key Replacement (1)

Take out two screws from each end of the key support bracket (5) to release the piano key assembly, then remove the appropriate circlip (10) to permit withdrawal of the key pivot shaft (6) sufficiently to release the faulty key. When fitting the replacement ensure that the key levers engage correctly with the associated levers under the chassis.

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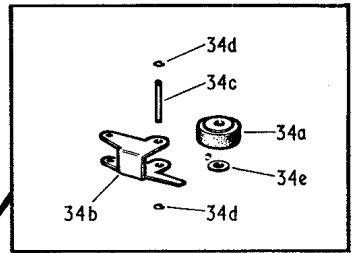
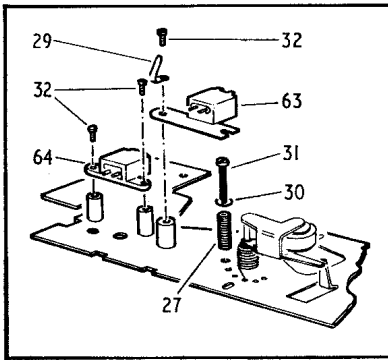
SERVICE DEPOTS

LONDON: P.O. Box 121, Lea Valley Trading Estate, Edmonton, N18 3BP; Tel. 01-807 3060, Spares ordering only: 01-807 0791, or Recordcall: 01-807 6332, Telex: 264905, Cablegrams: Britradco Edmonton. MANCHESTER: Thorn House, Derby Street, Cheetham, Manchester 8; Tel. 061-832 2499. GLASGOW: 155 Shieldhall Road, Glasgow, SW1; Tel. 041-882 4512.

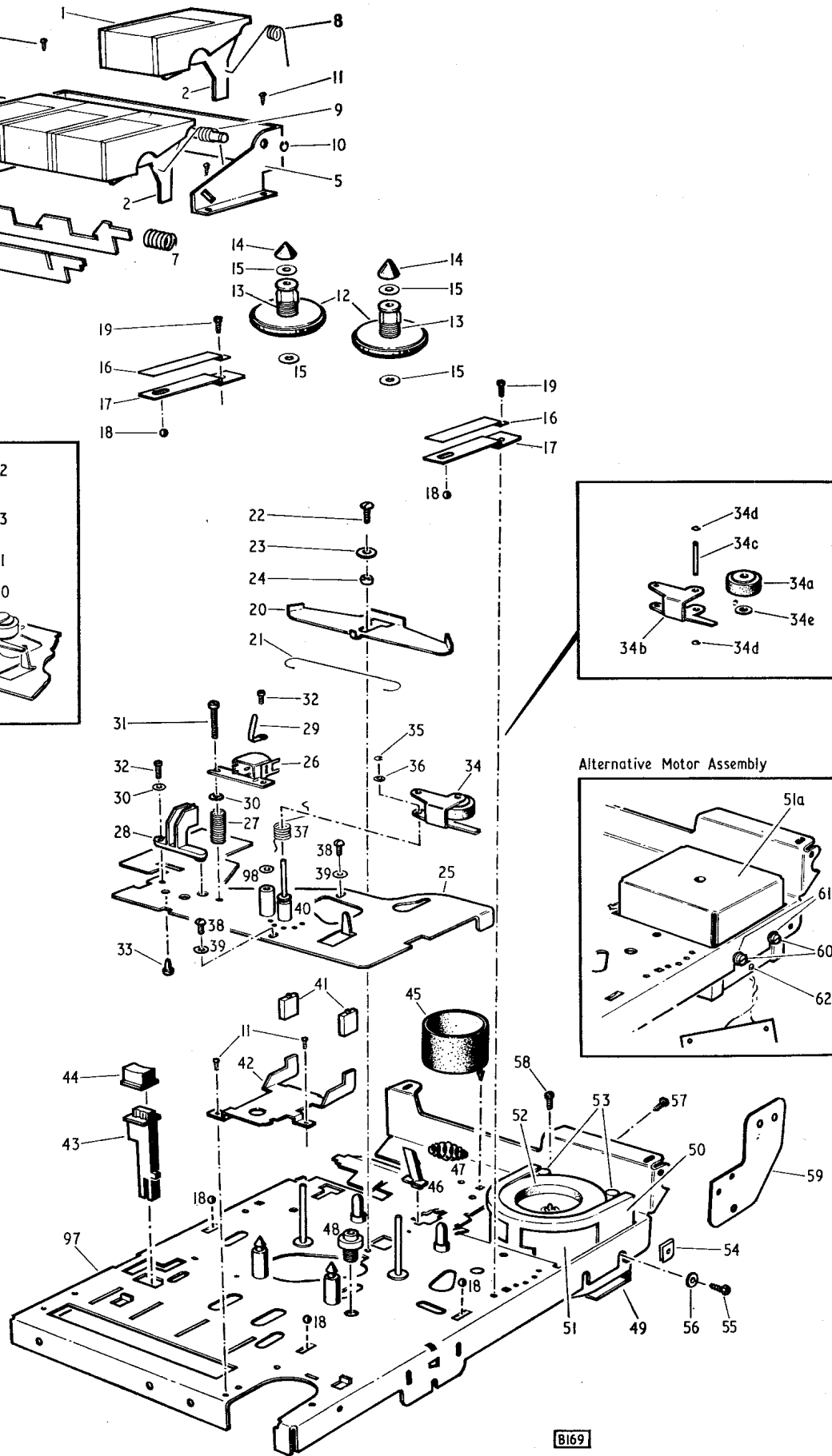
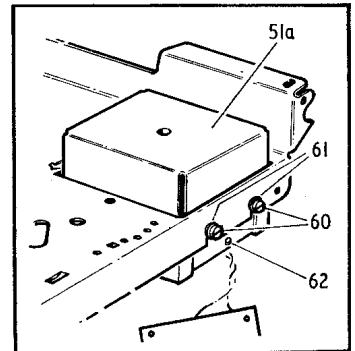
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Alternative Head Plate Assembly



Alternative Motor Assembly



B169

Top view of tape deck

The manufacturers reserve the right to vary specifications or use alternative materials as may be deemed necessary or desirable at any time.

REPLACEMENT PARTS

When ordering replacement parts, please quote tape deck number, description and item number as listed.

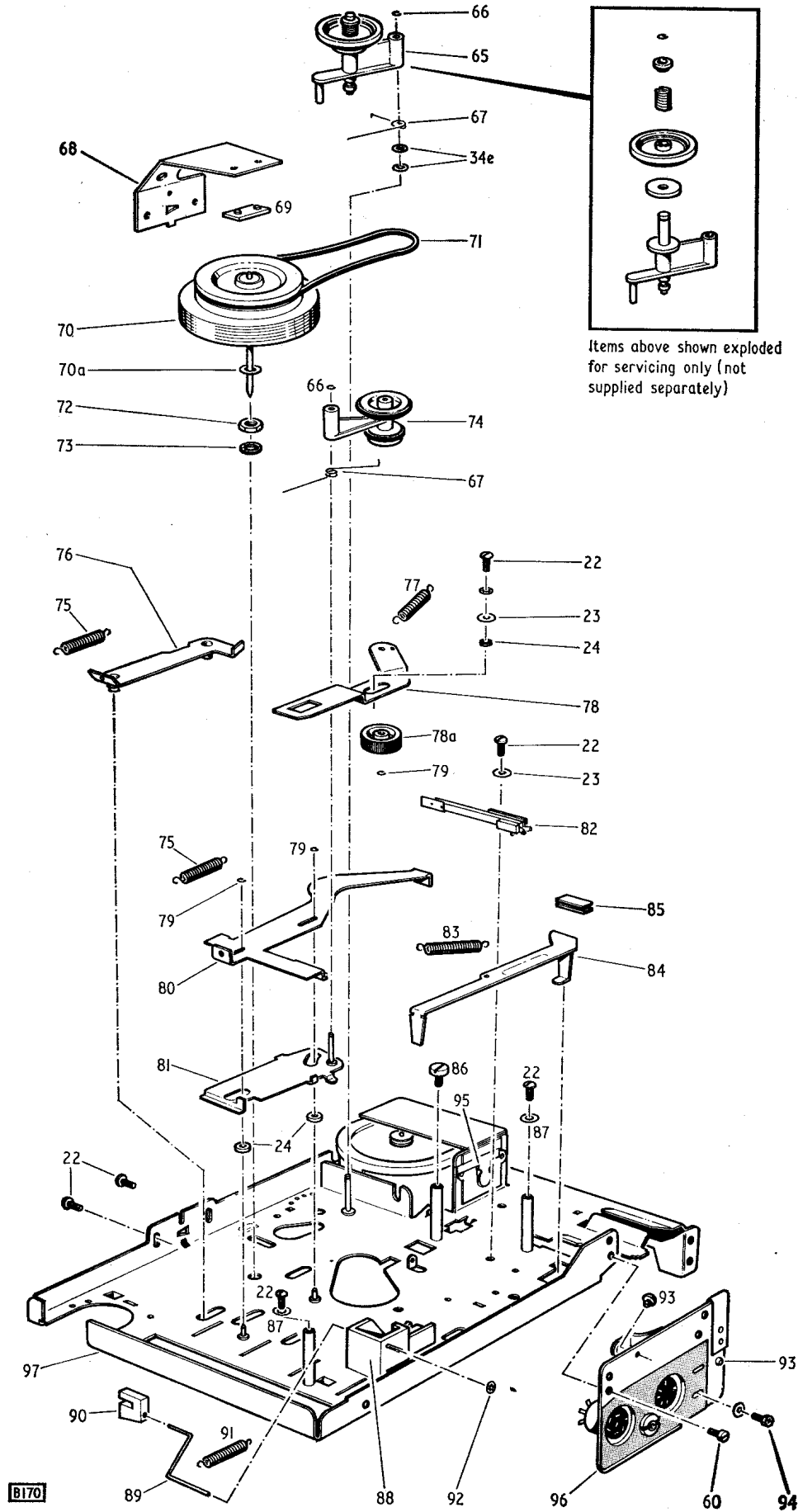
Top View

	Item
Piano key	1
Piano key insert	2
Latch plate	3
Latch guide plate	4
Key support bracket	5
Key pivot shaft	6
Latch plate return spring	7
Play key return spring	8
Key return spring	9
Circlip securing item 6	10
Screw retaining items 5 and 42	11
Spool carrier	12
Spool carrier spring	13
Spool carrier retaining cap*	14
Washer for item 13	15
Ballbearing retaining spring	16
Ballbearing retainer	17
Ballbearing	18
Screw securing items 16 and 17	19
Brake	20
Brake return spring	21
Retaining screw for items 20, 68, 78, 82 and 87	22
Washer for items 20, 78 and 82	23
Spacing bush for items 20, 78 and 81	24
Top plate assembly	25
Combined Record/Play/Erase head	26
Head azimuth spring	27
Tape guide	28
Solder tag under Record head securing screw	29
Washer for items 31 and 32	30
Azimuth screw	31
Screw securing items 26 and 28	32
Thrust bearing on item 25	33
Pinchwheel and bracket assembly	34
Pinchwheel	34a
Pinchwheel bracket	34b
Pinchwheel pivot pin	34c
Circlip retaining item 34c	34d
Washer under item 34a	34e
Circlip securing pinch wheel bracket	35
Washer under item 35	36
Pinch wheel loading spring	37
Screw securing pulley release arm	38
Washer under item 38	39
Pinch wheel pivot	40
Rubber mount for record level/battery check meter...	41
Meter and record level control mounting bracket	42
Record button stem	43
Record button cap	44
Loudspeaker mounting grommet	45
Cassette thrust...	46
Cassette thrust spring	47
Flywheel bush	48
Motor mounting bracket	49
Motor housing	50
Motor and choke assembly	51
Motor complete (alternative motor assembly)	51a
Self-adhesive polyurethane foam	52
Motor noise suppression choke	53
'U' nut on motor housing	54
Screw securing motor housing	55
Washer under item 55	56
Special screw securing motor housing	57
Screw securing motor bracket	58
Paxolin battery contact assembly	59
Screw securing alternative motor assembly and item 96	60
Washer on item 60	61
Screw securing cover (alternative motor)	62
Record/Play head (alternative head plate assembly)...	63
Erase head (alternative head plate assembly)	64

*If removed, this cap should be renewed.

Underside View

Take-up clutch assembly	65
Circlip securing items 65 and 74	66
Tension spring for items 65 and 74	67
Flywheel shaft retaining bracket	68
Flywheel shaft thrust bearing	69
Flywheel and capstan assembly	70
Thrust washer for item 70	70a
Drive belt	71
Nut securing flywheel bush	72
Washer under item 72	73
Idler and spooling wheel arm assembly	74
Tension spring for items 76 and 80	75
Pulley release arm assembly	76
Tension spring for item 78	77
Rewind jockey wheel assembly	78
Rewind jockey wheel	78a
Circlip securing items 78a and 80	79
Switch actuating arm	80
Rewind bracket assembly	81
Battery switch	82
Tension spring for item 84	83
Interlock bracket	84
Interlock bracket buffer	85
Cheesehead screw securing printed board	86
Fibre isolating washer	87
Record/Play switch ramp	88
Switch ramp arm	89
Record/Play switch coupling	90
Switch ramp arm return spring	91
Switch ramp arm retaining clip	92
Rubber insulator	93
Self-tapping screw securing in-out socket panel	94
Battery positive connector	95
In-out socket, battery connector panel	96
Unit plate riveted assembly	97
Head adjustment shim	98



Items above shown exploded for servicing only (not supplied separately)

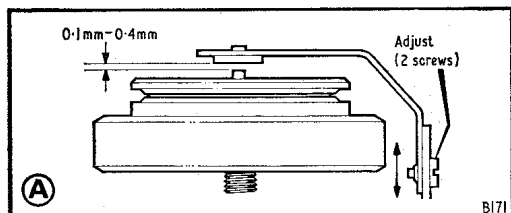
Underside view of tape deck

MECHANICAL ADJUSTMENTS

Mechanical tolerances and clearances given below are provided as a guide for use when clearing a mechanical fault. A correctly operating deck need not necessarily be within the stated limits. However, if a part has been replaced or subjected to mechanical strain, one or more of the following adjustments may be necessary.

Flywheel End Float Adjustment—Diagram A

The fixing holes in the flywheel shaft retainer bracket are slotted to permit adjustment. To adjust, slightly loosen flywheel shaft bracket retainer screws, and gently twist a small screwdriver blade inserted into the tapered slot in the chassis located between the flywheel shaft retainer fixing screws.

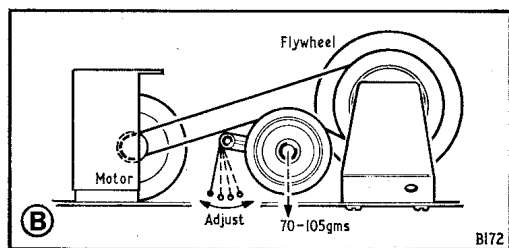


Take-up Clutch Assembly—Diagram B

Take-up torque at the spool carrier should be 35 gm/cm-55 gm/cm. Insufficient take-up torque can lead to tape spillage. Before suspecting the take-up mechanism, check the cassette for damaged tape or stiffness in the rotation of the reels. If the cassette is satisfactory, check that the take-up spool carrier rotates freely. Check the drive surfaces of spool carrier tyre and take-up pulley; if necessary clean these surfaces. If the fault is still present after the foregoing checks, measure the tension at centre of the idler arm as shown in Diagram B. Depress the play key and note the spring balance reading when the take-up pulley just fails to drive; a reading of 70 gm-105 gm is satisfactory. If incorrect, move spring end to alternative anchor hole in chassis, i.e. clockwise to reduce tension or anticlockwise to increase. If at this point the take-up is still unsatisfactory, proceed as follows:

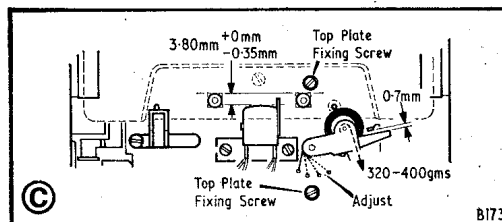
(a) Take-up too fierce—replace complete take-up clutch assembly (65).

(b) Insufficient take-up—dismantle and clean take-up clutch assembly but do not wipe off special lubricant from bearing spindle.



Head Plate Fore-and-Aft Adjustment—Diagram C

The two screws (38) passing through slotted holes into the studs of the pulley release-arm assembly (76) provide fore-and-aft adjustment to achieve the correct penetration of the signal head into the cassette. The distance from the front face of the signal head to the back edge of the cassette locator should be 3.8 mm $\pm 0 - 0.35$ mm when the play key is depressed. Reseal the screw heads with paint following this adjustment.



Pinch Wheel Pressure—Diagram C

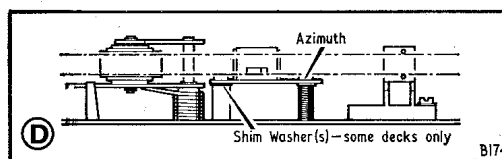
Depress Play key and, with a spring balance attached to the pinch wheel bracket, check the pull required to lift the pinch wheel away from the capstan, i.e. when the pressure roller just fails to turn. This should be 320 gm-400 gm at pinch wheel spindle and may be adjusted, when necessary, by transferring the spring end into any of the five spring fixing holes in the top plate (25), i.e. clockwise to reduce pressure and anticlockwise to increase pressure.

Pinch Wheel Bracket Clearance—Diagram C

In the play position, the clearance between the arm of the pinch wheel bracket and the stop on the top plate should be 0.7 mm. This can be adjusted by bending the stop on the top plate.

Head and Pinch Wheel Alignment—Diagram D

When replacing a record/play or combined head it may be necessary in a few cases to add or remove one or two fibre shim washers to maintain horizontal alignment between the heads and the pinch wheel. A visual check can be made by sighting the pinch wheel between the pips of the head and tape guides. Azimuth adjustment is described in the individual model service manual.



SERVICE NOTES (continued from page 1)

Spool Carrier Assembly Replacement

To remove a spool carrier assembly (12), first unclip the conical-shaped moulded retaining cap (14). Once removed this cap is ineffective and should be replaced by a new part. The spool carrier can now be withdrawn from its support spindle. Reassemble in reverse order noting that one or two washers should be fitted below the spool carrier assembly (as on the original assembly) and a similar washer should be fitted at the top before fitting the replacement conical retaining cap. When applying pressure to replace this cap the chassis should be supported underneath, as near as possible to the spindles. Finally, spin the spool carrier whilst holding off the brake to check that it runs free and true.

General

The brake (20) is secured by a single 3mm screw (22), washer (23) and spacing bush (24). The bracket rewind jockey riveted assembly

(78) is also secured by a single 3mm screw (22), washer (23) and spacing washer.

The switch actuating arm (80) and rewind bracket assembly (81) are secured by 1.5mm 'E' clips (79) over spacing bushes (24). The moulded rewind jockey wheel (78a) is also retained by a 1.5mm 'E' clip (79). The idler and spooling wheel arm (74), and take-up clutch assembly (65) are retained by 1.9mm 'E' clips.

Cleaning and Lubrication

Do not use cleaning fluids such as petrol or carbon-tetrachloride, which might damage plastic surfaces or rubber drives. A soft cloth dampened with methylated spirit should be used to clean drive surfaces and head faces.

All moving parts are lubricated during manufacture and further lubrication during service should rarely be necessary. If it becomes necessary to replace any of the moving parts, only the slightest amount of a very light machine-oil should be applied to the bearing surfaces, ensuring that it does not find its way onto the drive surfaces.