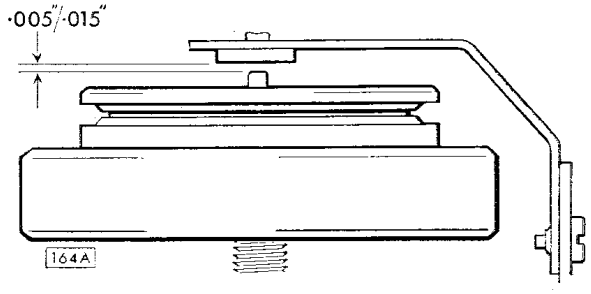
SERVICE NOTES

Numbers in parenthesis refer to Exploded Views

Removal of Flywheel and Capstan Assembly (62)

Unfasten flywheel shaft retainer bracket (63) from side of chassis (two screws) and detach rubber drive belt (74). Lift off take-up clutch assembly (68) after removing small circlip which secures it to its pivot. The flywheel and capstan assembly (62) can now be lifted out. *Do not attempt to remove the flywheel and capstan assembly without first detaching the take-up clutch assembly.*

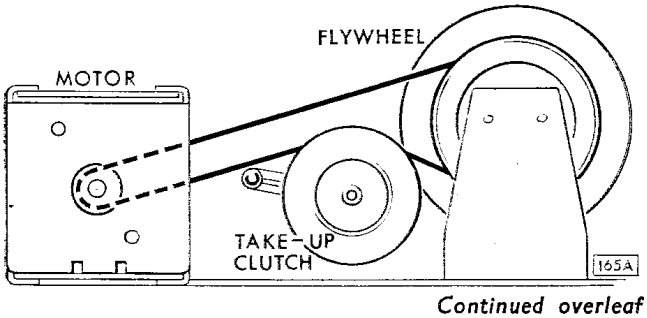


When replacing the flywheel, first ensure that the thrust washer (8L6-018/020) is fitted to the capstan shaft between the flywheel and the capstan bearing assembly: reassembly can then continue in the reverse order to the removal procedure but great care must be exercised to avoid bending or damaging the capstan. When refitting the drive belt, it will be necessary to remove the top screening plate of the motor to ensure that the belt is correctly located in the motor drive pulley. It is essential 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 to .005in.–.015in. 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.

Motor and Motor Control Board Replacement (40)

Take out single screw securing motor screening plate. Hinge plate upwards to enable motor drive belt (74) to be disengaged, then replace cover.

Slacken three screws and washers securing motor assembly then slide the assembly out of slotted holes in chassis. Remove two screws to release motor control board and disconnect main printed board interconnecting leads.



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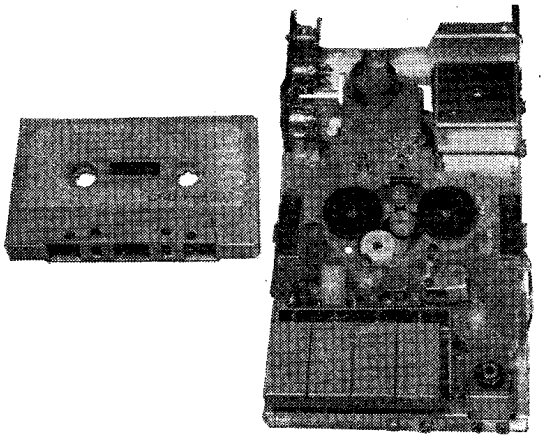
BRC SERVICE MANUAL

Price: Two Shillings

THORN DE21

CASSETTE TAPE DECK



SPECIFICATION

CASSETTE TYPE: C60 or C90 Compact Cassette.

TRACKS: Two (mono).

TAPE SPEED: 1⅞in./sec. capstan drive.

REWIND TIME: 2 minutes approximately (C60).

WOW AND FLUTTER: Better than 0.5% r.m.s.

RECORD LEVEL AND BATTERY INDICATOR: Moving coil meter.

BATTERIES: 7.5V (minimum 5.5V). Five HP11 cells

CONTROL INTERLOCKS AND LATCHES:

(a) Record key is released when any other tape motion key is depressed. It cannot be operated when the PLAY key is depressed.

(b) Cassette 'knock-out' interlock prevents erasure of pre-recorded cassettes.

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

BRITISH RADIO CORPORATION LIMITED

SERVICE DEPOTS

LONDON
PO Box No. 121, Eley's Estate, Angel Rd., Edmonton, N.18
Tel. 01-807 3060 *Ansafone Spares Tel. 01-807 6332*

BIRMINGHAM
24 Sheepcote St., 15 *Tel. 021-643 9988*

GLASGOW
160/162 Battlefield Rd., S.2
Tel. Langside 9251/2/3/4

THORN

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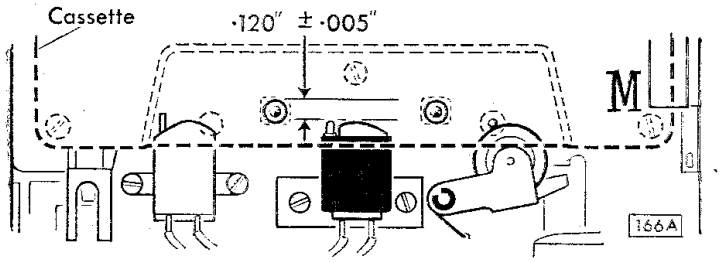
Reassemble in the reverse order, ensuring that the drive belt is not twisted and that the belt and all drive surfaces are clean. It may also be necessary to readjust the motor speed control (R47 — See Tape Recorder Manual) to obtain the correct tape speed. Note correct position of the rubber drive belt as indicated in the diagram.

Top Plate Assembly Removal

The top plate assembly (13) moves on six ballbearings (27) and when dismantling care should be taken to avoid losing them.

Two of these ballbearings are on top of the top plate and lie under the ball-retainer assemblies (24 and 26); the latter are each secured by a single self-tapping screw (25).



Unsolder the erase and play head connections, then remove the ball-retainer assemblies and ballbearings, and also take out two screws (23) which secure the top plate to studs on the pulley release arm (54).

The top plate assembly and the four ballbearings beneath can now be removed.

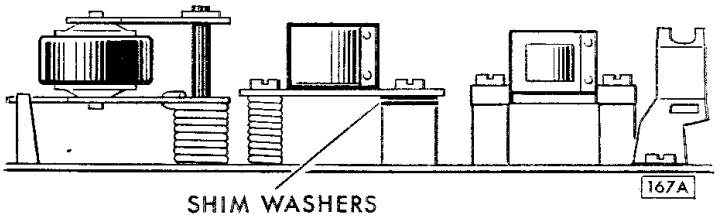
Reassemble in the reverse order ensuring that the four ballbearings are correctly seated in the recesses in the chassis before replacing the top plate, and that a ballbearing is also located in the slot of each ball-retainer assembly.

Record/Play Head

The two screws (23) passing through slotted holes into the studs of the pulley release-arm assembly (54) provide fore and aft adjustment to achieve the correct penetration of the record/play head into the cassette.

The distance from the front face of the record/play head to the back edge of the cassette locator should be .120in. ± .005in. when the play key is depressed. Reseal the screw heads with paint following this adjustment which is shown above in the diagram.

When replacing a record/play head it may be necessary to add or remove one or two fibre (8L6-001/022) shim washers to maintain alignment between the erase head, record/play head and the pinch wheel, see diagram below.



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REPLACEMENT PARTS

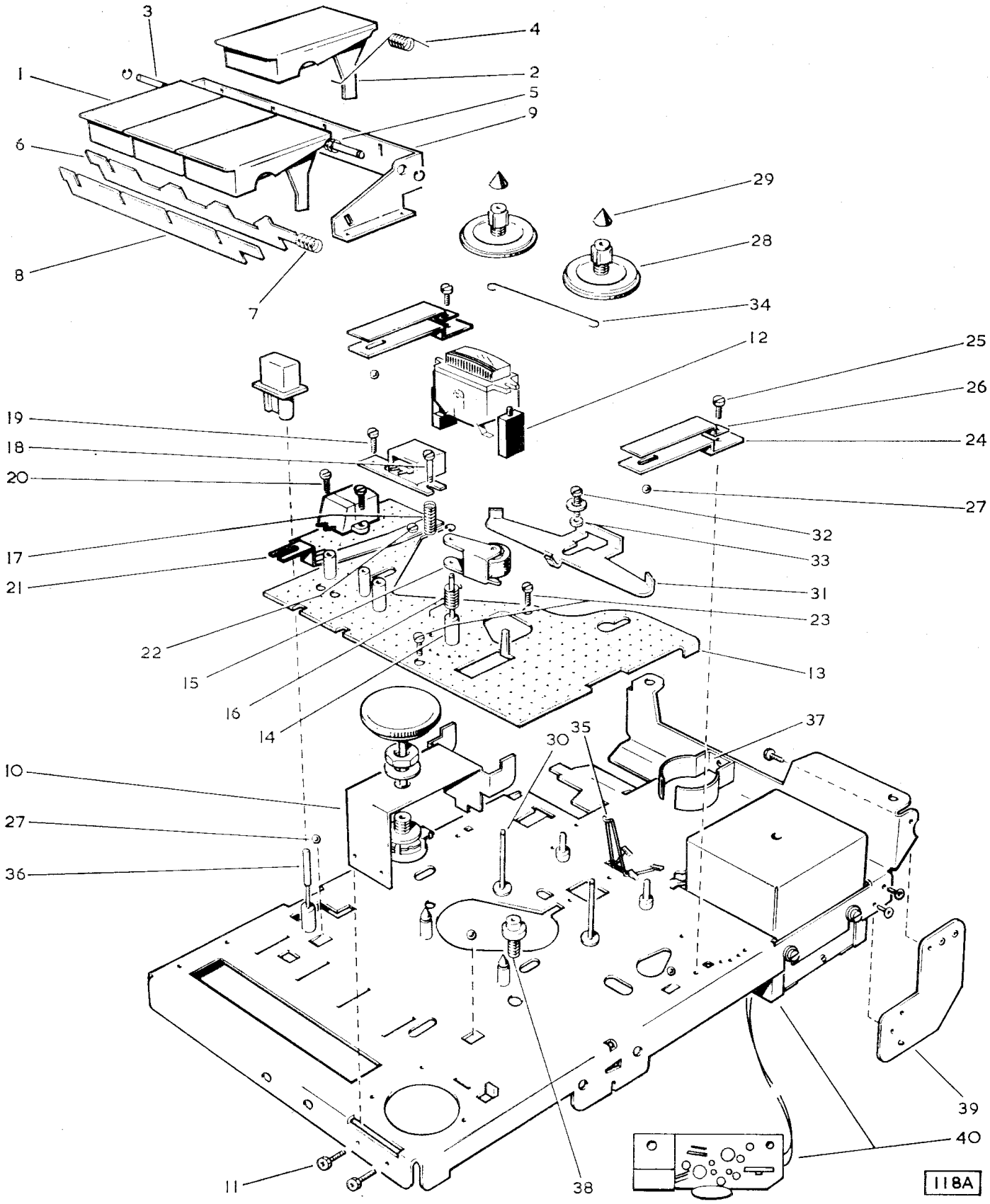
Top View

1.	Piano key—grey	8C8-074/001
	Piano key—white	8C8-074/002
2.	Piano key insert	8B0-025
3.	Key pivot shaft (circlip 8L3-008)	8B3-085
4.	Play key return spring	8B5-067
5.	Key return spring	8B5-075
6.	Latch plate	8B0-026
7.	Latch plate return spring	8B5-068
8.	Latch guide plate	8B0-027
9.	Key support bracket (screw SZ02RP02)	8B1-122
10.	Meter and volume control bracket	8B1-123
11.	Screw securing meter and volume control bracket	SZ04HP03
12.	Meter mounting pad	8B4-014
13.	Top plate assembly ' I '- type heads	8M1-040/003
14.	Pinch wheel pivot pin (8B3-108) 13 & 14—for ' M '-type heads	8M1-040/001
15.	Pinch wheel and bracket assembly (circlip 8L3-020)	8M1-041
16.	Pinch wheel loading spring	8B5-081
17.	Record head azimuth spring	8B5-080
18.	Record head retaining screw	8L6-029
19.	Record head retaining screw	8L6-032
20.	Erase head retaining screw	8L6-033
21.	Record button latch spring	8B5-069
22.	Screw securing record button latch spring	8L6-030
23.	Screw securing top plate to pulley release arm	8L6-025
24.	Ballbearing retainer	8B1-119
25.	Screw securing ballbearing retainer	SZ04HP03
26.	Ballbearing retaining spring	8B5-066
27.	Ballbearing	8C5-041
28.	Spool carrier assembly	8M4-064
29.	Spool carrier assembly retaining cap*	8C8-067
30.	Spool carrier spindle	8B3-103
31.	Brake	8B1-130
32.	Brake retaining screw	8L6-026
33.	Brake spacing bush	8L7-011
34.	Brake return spring	8B5-079
35.	Cassette retaining spring	8B5-072
36.	Record button pillar	8B3-106
37.	Loudspeaker retaining clip	8B5-076
	Alternative retaining grommet	8C8-131
38.	Capstan bearing housing assembly	8M4-067
39.	Battery contact assembly (small)	8M1-037
40.	Motor and motor control board assembly	8D9-008

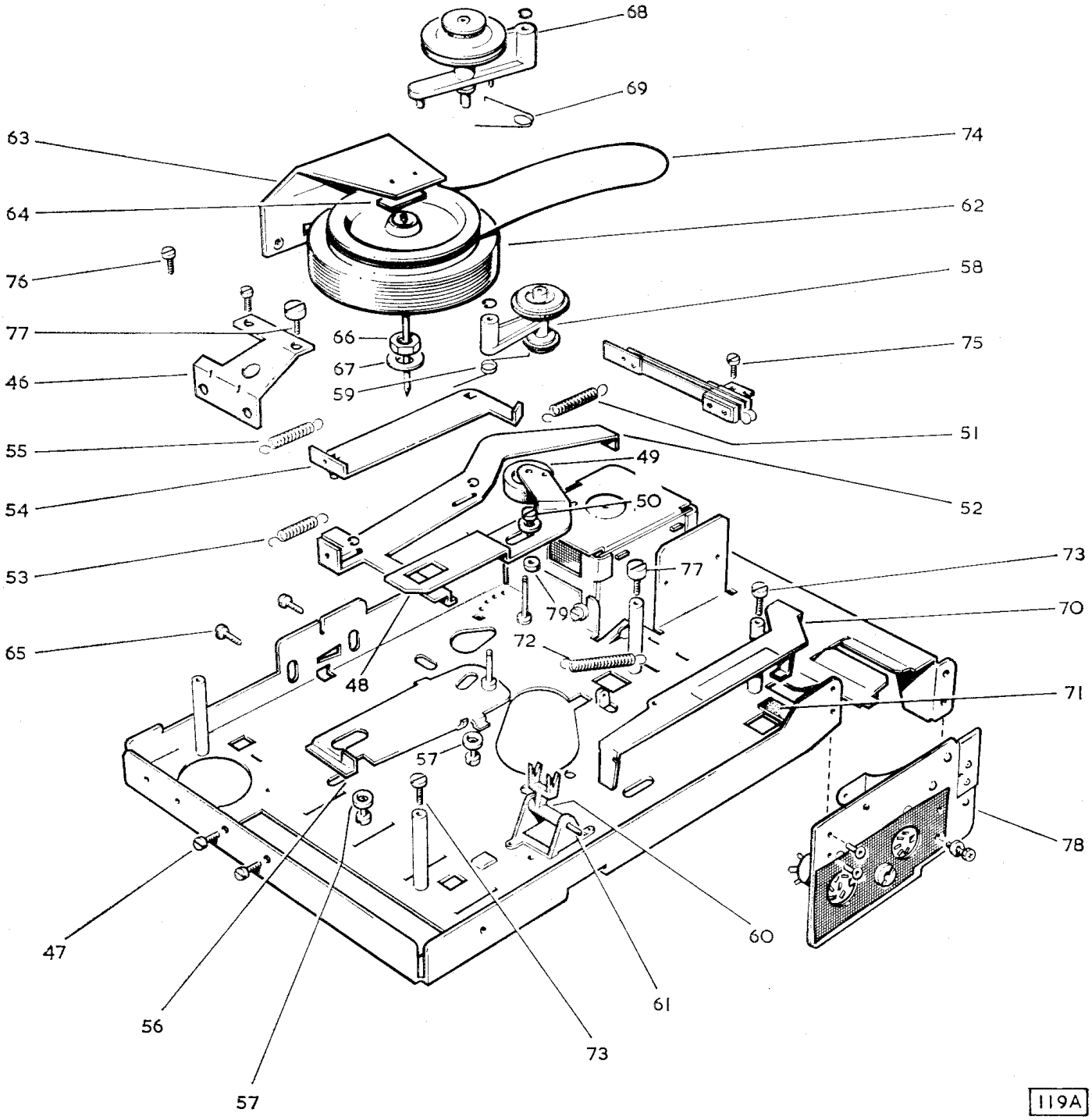
*If removed, this cap should be renewed

Underside View

46.	Regulator board mounting bracket	8B1-129
47.	Screw retaining regulator board bracket	8L6-026
48.	Bracket rewind jockey assembly	8M1-042
49.	Rewind jockey wheel (circlip 8L3-021)	8C8-061
50.	Screw retaining rewind jockey bracket (washer WPMB06)	8L6-026
51.	Rewind jockey bracket tension spring	8B5-071
52.	Switch actuating arm (circlip 8L3-021)	8B1-118
53.	Switch actuating arm tension spring	8B5-071
54.	Pulley release arm assembly	8M1-036
55.	Pulley release arm tension spring	8B5-077
56.	Rewind bracket assembly	8M1-034
57.	Spacing bush	8L7-007
58.	Idler and spooling wheel arm assembly (circlip 8L3-020)	8M4-113
59.	Idler and spooling wheel loading spring	8B5-070
60.	Record switch pivot arm	8C8-063
61.	Record switch pivot pin	8L5-008
62.	Flywheel and capstan assembly	8M4-059
63.	Flywheel shaft retainer bracket	8M1-035
64.	Flywheel shaft thrust bearing—8C8-057	
65.	Screw retaining flywheel shaft bottom bearing bracket	8L6-026
66.	Capstan bearing nut	8L6-023
67.	Capstan bearing washer	8L6-022
68.	Take-up clutch assembly (circlip 8L3-020)	8M4-070
69.	Take-up arm spring	8B5-078
70.	Interlock bracket	8B1-125
71.	Interlock bracket buffer	8C3-011
72.	Interlock tension spring	8B5-071
73.	Main printed board fixing screw	8L6-026
74.	Rubber drive belt	8C8-050
75.	On/Off switch fixing screw	8L6-026
76.	Motor control board fixing screw	8L6-024
77.	Cabinet base retaining screw	8L6-028
78.	Socket and battery terminal assembly	8M1-038
79.	Spacing bush	8L7-007



TOP VIEW OF TAPE DECK



UNDERSIDE VIEW OF TAPE DECK

When ordering replacement parts, please give model number and include the description given with the part number.

A check of horizontal alignment of the heads with the pinch wheel carrier should be made by sighting the pinch wheel between the pips of the signal and erase heads. In later models correction may also be made by rearranging the shim washers above or below the pinch wheel.

NOTE—When replacing either the erase head or the record/play head, reference should be made to the identification code letter stamped on the top plate. A few decks were manufactured fitted with 'M'-type heads with no identification stamp.

	ERASE	RECORD/PLAY
Coded 'I'	8D5-018	8D5-017
Coded 'M'	8D5-011	8D5-010

Piano Key Replacement (1)

Take out two PK screws from each end of the key support bracket (9) to release the complete piano key assembly, then remove the appropriate circlip to permit the withdrawal of the key pivot shaft (3) sufficiently to release the faulty key. When fitting the replacement ensure that the key levers engage correctly in or against the associated levers under the chassis.

The brake (31) is secured by a single 3 mm screw (32), washer and spacing bush (33).

The bracket rewind jockey rivetted assembly (48) is also secured by a single 3 mm screw (50), washer and spacing bush (79). The switch actuating arm (52) and rewind bracket assembly (56) are secured by 1½ mm 'E' clips over spacing bushes (57). The moulded rewind jockey wheel (49) is also retained by a 1½ mm 'E' clip.

The idler and spooling wheel arm assembly (58) and the take-up clutch assembly (68) are retained by 1.9 mm 'E' clips.

Spool Carrier Assembly Replacement

To remove a spool carrier assembly (28) first unclip the conical-shaped moulded retaining cap (29). 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 (30).

Reassemble in the reverse order but note that one or two washers (8L6-018/020) 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 to avoid bending the chassis.

Cleaning and Lubrication

The use of cleaning fluids such as petrol or carbon-tetrachloride, which might damage plastic surfaces or rubber drives, should be avoided.

A soft cloth dampened with methylated spirit should be used to clean drive surfaces and head faces.

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 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.

Pinch Wheel Pressure

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 320gm-400gm 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 (13), i.e. clockwise to reduce pressure and anti-clockwise to increase pressure.

Pinch Wheel Bracket Clearance

In the play position, the clearance between the arm of the pinch wheel bracket and the stop on the top plate should be .03in. This can be adjusted by bending the stop on the top plate.

Take-up Clutch Assembly

Insufficient tension of take-up arm spring (69) will cause the take-up pulley to slip, whereas too much tension may result in defective operation of the take-up clutch. The tension of spring (69) should be 70gm-100gm at the centre of the take-up spindle, and should be measured with a spring balance attached to the idler arm. Depress the play key and note the spring balance reading when the take-up reel just fails to drive. If incorrect, move spring end to alternative anchor hole in chassis, i.e. clockwise to reduce tension and anti-clockwise to increase.

Before checking the pressure of the take-up pulley against the spool carrier tyre, thoroughly clean both the drive surfaces.

Take-up torque at the spool carrier should be 25gm/cm-55gm/cm. A high take-up torque can cause the tape to ride out of the guides and cause damage to the tape. To rectify, it is necessary to replace the complete take-up clutch assembly (68).

All moving parts are lubricated during manufacture and further lubrication during service should rarely be necessary. If, however, 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..

Over-lubrication can also attract dust which may cause excessive drag on parts of the mechanism.