

A 912

Issue 1/956

**GAUMONT-KALEE**  
**MAGNETIC SOUNDHEAD**  
**TYPE 912**

**MANUAL**  
**and**  
**SPARES LIST**



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# OPERATORS' MANUAL and SPARE PARTS LIST

AP 912,000

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## SPECIFICATION

### For use with:

Four Channel Magnetic Sound systems.

Single Channel Magnetic Sound systems.

<b>Electrical connections</b> ... ..	Four twin screened cables type 466
--------------------------------------	---------------------------------------

### Dimensions:

Height (max.) ... ..	5 $\frac{3}{4}$ in. (14.5 cm.)
Width ... ..	11 $\frac{1}{2}$ in. (29 cm.)
Depth (max.) ... ..	6 in. (15 cm.)
Weight (nett) ... ..	14 $\frac{1}{4}$ lb. (6.25 kgm.)
<b>Fixing screws</b> ... ..	Three, 83,022



## INTRODUCTION TO THE 912 MAGNETIC SOUNDHEAD

The 912 Magnetic Soundhead can be employed with standard 35mm four-track magnetic prints, and also for single track reproduction. The four-track Magnetic Head Type 964 (Part Number 964,000) is fitted to all these Soundheads as standard, irrespective of whether a single or four track system is to be used. (*N.B.* On certain Type 912 Soundheads issued shortly after the introduction of Single Track Magnetic Installations, a type 1208 Magnetic Head with only two tracks was provided, this type has now been discontinued.) The signal output from the Magnetic Head is connected direct to the Pre-amplifier by a screened cable.

Adaptor Brackets which allow the Soundhead to be fitted to most British and American projectors can be supplied on request. On certain types of existing Gaumont-Kalee equipment it is necessary to fit special Fire Traps when Magnetic Soundheads are installed.

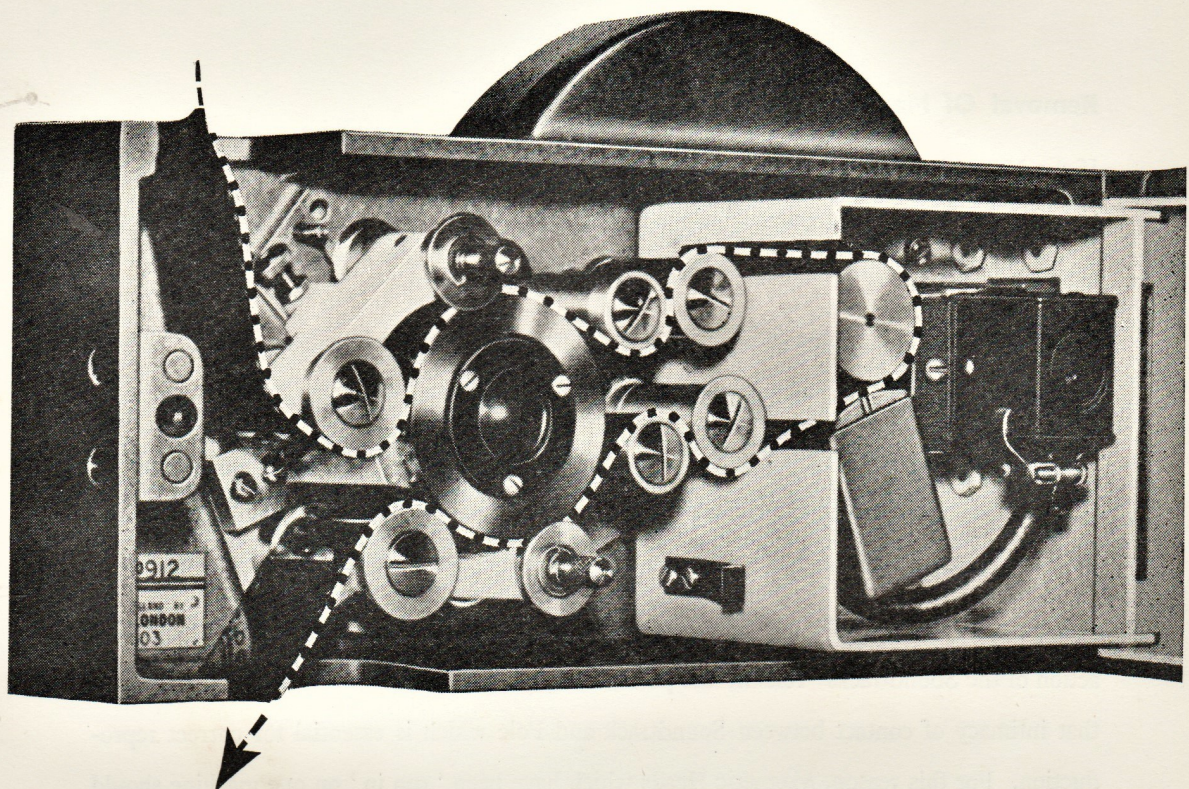


FIGURE 1. 912 MAGNETIC SOUNDHEAD



## OPERATING INSTRUCTIONS

### Threading

When running Film with an optical Soundtrack, the 912 Magnetic Soundhead should be bypassed.

When running Film with Magnetic Soundtracks, it should be threaded as shown in Figure 1.

The Film should be laced so that the Floating Rollers are approximately  $\frac{5}{8}$  in. (15mm) apart, to give the correct Film tension. When threading, great care should be taken that the Film lies properly against the poles of the Magnetic Head.

It will be found that the Soundhead can be laced more easily if sufficient film is drawn down from the Top Spoolbox to allow the Projector Mechanism to be threaded first. The Soundhead can then be laced in the reverse direction, working upwards.

### Removal Of Magnetic Head

If the Magnetic Head has to be removed, first withdraw the plug, then carefully remove the two securing screws Part 912087, and withdraw the Head. (When withdrawing the Head, remember that two dowels locate it in position in the Casting.)

**Do not touch the poles** of the Magnetic Head with any hard or metallic object. These poles are highly polished, and are made of high-permeability steel which can be easily damaged.

When replacing, take care that the base of the Head, and the locating Dowels, are perfectly clean, so that the Head will seat correctly in position. The dimensions of the Head are machined to close limits to ensure correct location of the poles in relation to the Soundtrack.

Magnetic Heads should not be disturbed unless absolutely necessary, since the abrasive action of the Soundtracks 'runs in' the poles, and the slightest change of position may disturb that intimacy of contact between Soundtrack and Pole which is essential for correct reproduction. For this reason, Magnetic Heads which have been 'run in' on one machine should never be removed and replaced in a different Soundhead.



## DESCRIPTION

The Type 912 Magnetic Soundhead is of the 'pull-through' type, not driven. It achieves stability by the tight-loop system, with the Film passing round a flywheel-stabilised non-magnetic Drum. It has a large single undriven Sprocket, with two Sprocket Rollers, and two Filter Rollers which are spring loaded to provide the tension in the loop. Two Guide Rollers guide the Film round the Sound Drum. The Sound Drum Shaft runs in precision ball bearings. To reduce the load on the Film, ball bearings are used in all rotating parts except the Sprocket Rollers, which are Oilite bushed.

A selection of Adaptor Brackets is available which makes it possible to fit the Soundhead to most British and American Projectors. When ordering Magnetic Soundheads, it is important that the Projector Mechanism for which they are required should be described in full. This ensures that the correct Adaptor Bracket will be supplied.

These Adaptor Brackets not only permit the mechanical attachment of the Soundhead to the Projector Mechanism and the Top Spoolbox with the minimum of alteration, but also ensure that the spacing between the Magnetic Pickup Head and the Picture Gate is correctly set at 28 frames. To maintain synchronisation between picture and sound, additional rollers are incorporated in the Adaptor Bracket for those Projectors where the Magnetic Head to Picture Gate spacing would otherwise be less than 28 frames.

All moving parts of these Soundheads are robustly constructed to ensure long life; and whenever possible, non-magnetic materials are employed. The complete Magnetic Soundhead is rustproofed, and suitable for tropical use.

## INSTALLATION

- NOTE (i) Where GK 21 Top Spoolboxes or certain other types are in use, special Fire traps may be required. These will be supplied with the Adaptor Brackets if the equipment has been properly described in the order.
- (ii) When ordering Magnetic Soundheads, quote the make, type number, serial number and, if possible, the date of installation of the Projector Mechanisms to which they are to be fitted.
- (a) Remove the Top Spoolbox from the Projector.
  - (b) Remove the original Fire Traps if replacements are supplied.
  - (c) Fit the Adaptor Bracket to the top of the Projector and fit the new Fire Traps if necessary.
  - (d) Re-fit the top Spoolbox above the Adaptor Bracket.
  - (e) Remove the Flywheel Cover 912024 from the Soundhead, by withdrawing the two securing screws.
  - (f) Fit the 912 Magnetic Soundhead into position on the Adaptor Bracket.
  - (g) Tighten the three securing screws 83,022, passing through the rubber bushes 83,023 in the Adaptor Bracket, into the threaded holes in the Soundhead Casting.
  - (h) Unpack the Flywheel and fit it to the Sound Drum Shaft. Tighten the Flywheel retaining nut on the Shaft.
  - (i) Fit the Flywheel Cover and tighten the retaining screws.
  - (j) Take the Magnetic Head and fit it into position with the two special retaining screws. Refer to Page AP 912/ 'Removal of Magnetic Head.'
  - (k) Before operation, electrical connections must be made as over.



**Electrical Connections**

Connection to the Soundhead is made in the connection box at the front of the Soundhead. This connection box carries a 12 way socket, mating with the 12 way plug of the short lead from the Magnetic Head.

- (a) To facilitate connection, unplug the lead from the Magnetic Head, and remove the connection box from the Soundhead by withdrawing the four sockethead cap screws securing it.
- (b) Cut four lengths of the Type 466 screened cable supplied with the Soundhead, so that they are long enough to reach the appropriate pre-amplifier by the shortest practical route.

NOTE: The leads between Soundhead and Pre-amplifier should be enclosed in flexible conduit which conforms to local regulations.

- (c) The connections from the Pre-amplifier to the numbered socket terminals are as follows:

1. The name of the soundhead socket terminals are as follows

A		
THREE OR FOUR CHANNEL INSTALLATIONS		
PRE-AMPLIFIER TYPE 914	SOUNDHEAD TYPE 912	
Terminal	Markings	Terminal Numbers
Left	Line	1
	Ey.	4
Centre	Line	2
	Ey.	5
Right	Line	3
	Ey.	6
Effects	Line	10
	Ey.	11
Earth connections		7 and 8

NOTE: Where no EFFECTS channel is required, one length of Type 466 cable, connected to terminals 10 and 11, may be omitted.

B			
SINGLE CHANNEL INSTALLATIONS			
PRE-AMPLIFIER TYPE 1189	SOUNDHEAD TYPE 912		
Terminal	Markings	Terminal Numbers	Machine No.
Left	Line	2	1
	Ey.	5	1
Effects	Line	2	2
	Ey.	5	2
Earth connections		7 and 8	1 and 2

NOTE: In single channel installations, one Type 1189 unit, containing only two Pre-amplifiers fitted in the positions marked "Left" and "Effects", serves both Magnetic Soundheads.



It is essential that the correct phase relationship between signals be maintained, therefore the cables must be correctly connected between the appropriate terminals of each Pre-amplifier and the respective 'LINE' and 'Ey' socket terminals of the Soundhead.

The screen of the 466 cables between the Soundhead and the Pre-amplifier must not be connected at the socket end. It should be connected at the Pre-amplifier end to the 'Ey' side of the appropriate input terminal. The smallest possible amount of screening should be removed from the end of the type 466 cable on connecting.

### **Demagnetisation**

Even Stainless Steel and other parts nominally non-magnetic may retain some magnetism. Since any magnetism in Soundhead or Projector parts may cause deterioration of Magnetic Soundtracks when run, this Soundhead should be tested for magnetisation, and demagnetised if necessary, on installation or after adjustment or replacement of parts.

The testing and demagnetising methods recommended are described fully in a separate publication, *Technical Information Sheet No. 4, Demagnetisation of Equipment Before Running Magnetically Striped Film.*

Demagnetisation should be carried out by the Engineer responsible for the Installation or Servicing of the Sound Equipment. Special care should be taken to demagnetise the heavy steel plate at the rear of the Magnetic Head. For demagnetising the head should be removed as described above (Sheet AP 912/2b).







## **SPARE PARTS LIST**

When ordering Spare Parts from this List, always give as much information as possible. In addition to the number of the part to be replaced, quote its name, the type and serial numbers of the unit in which it is fitted.

**IMPORTANT:** The Part Number must **ALWAYS** be quoted.

**NOTE:** Every major assembly has a Part Number ending in three noughts. The Number prefixing these three noughts is known as the Type Number, normally used to describe the assembly. Each sub-assembly or part produced for this assembly has a three figure Part Number prefixed by this Type Number. Exceptions are proprietary parts which are given a Stock Reference Number, prefixed by identifying letters.

**E.G.:** The Soundhead covered by this manual is Type 912, its Part Number is 912,000. The Part Number of the Flywheel is 912,038. A securing screw is SCX 1073. The Magentic Pick-up Head is Type 964, but should be ordered under its Part Number of 964,000.



# KEYPLATE

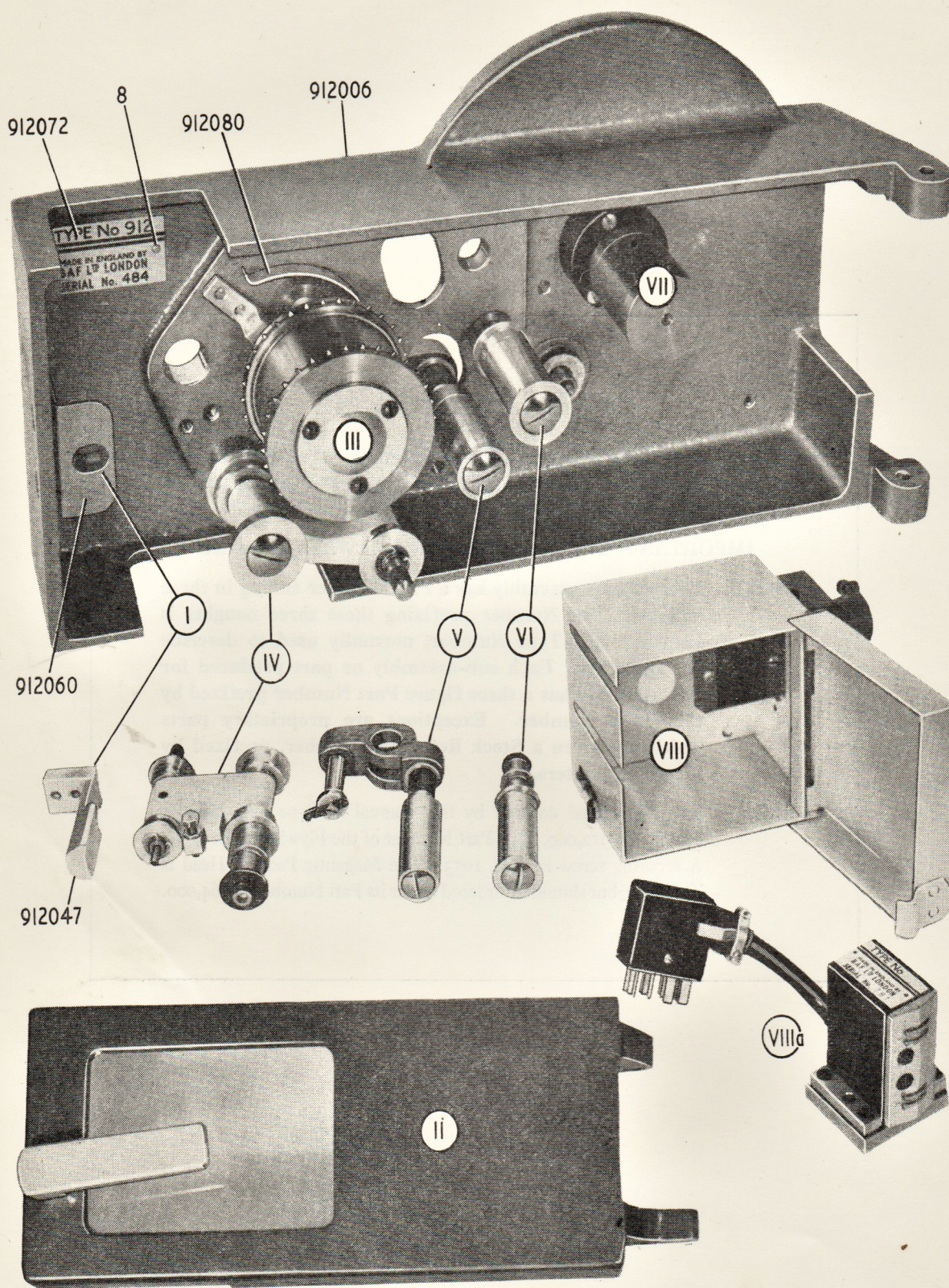
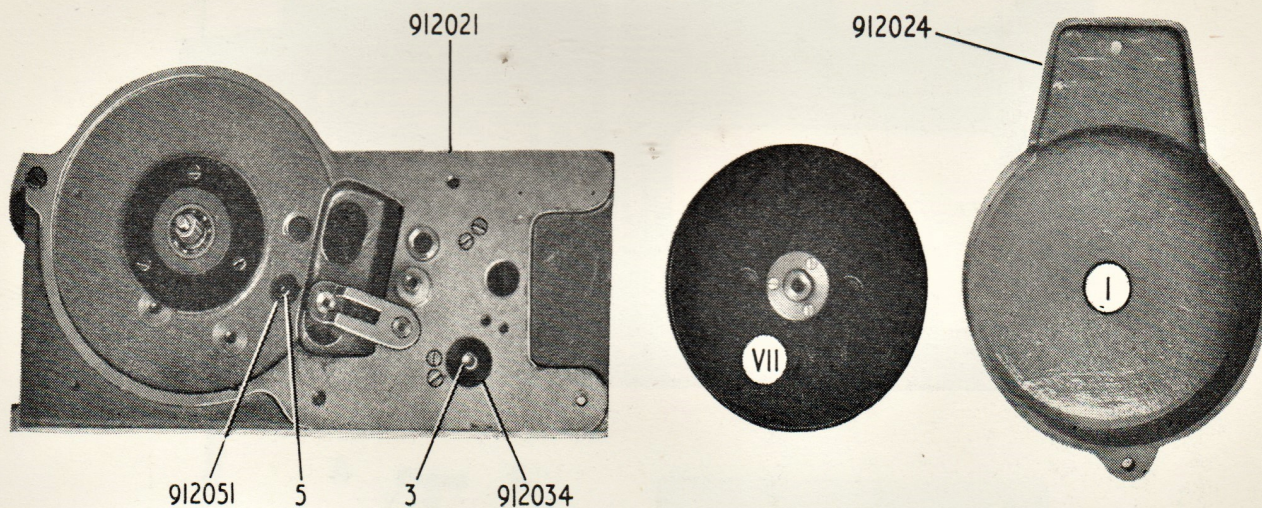


FIGURE 2. KEYPLATE AND FINAL ASSEMBLY 912 SOUNDHEAD



# PLATE I

FIGURE 3. KEYPLATE AND FINAL ASSEMBLY, 912 SOUNDHEAD (REAR)



## KEYPLATE—912 MAGNETIC SOUNDHEAD

Plate No.	Description
I	Soundhead Body accessories
II	Door assembly
III	Sprocket assembly
IV	Sprocket Roller assemblies
V	Floating Roller assemblies
VI	Guide Roller assemblies
VII	Sound Drum and Flywheel assemblies
VIII	Screening Can and Adaptor assembly
VIIIa	Magnetic Pick-up Heads

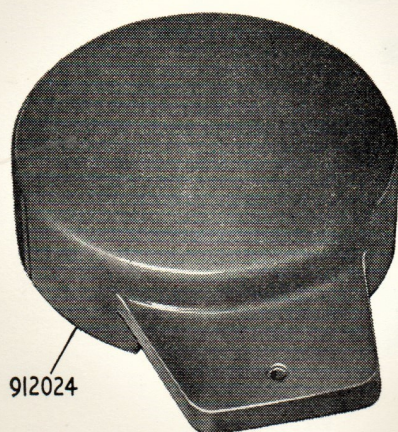


FIGURE 4  
FINAL ASSEMBLY  
912 SOUNDHEAD PARTS

## PLATE I

Part No.	Description
912,021	Main Casting
912,024	Flywheel Cover
912,046	Roller Arm Stop
912,047	Stripper
912,060	Bracket
912,073	Nameplate
912,051	Special washer
912,034	Special washer
912,087	Special screw

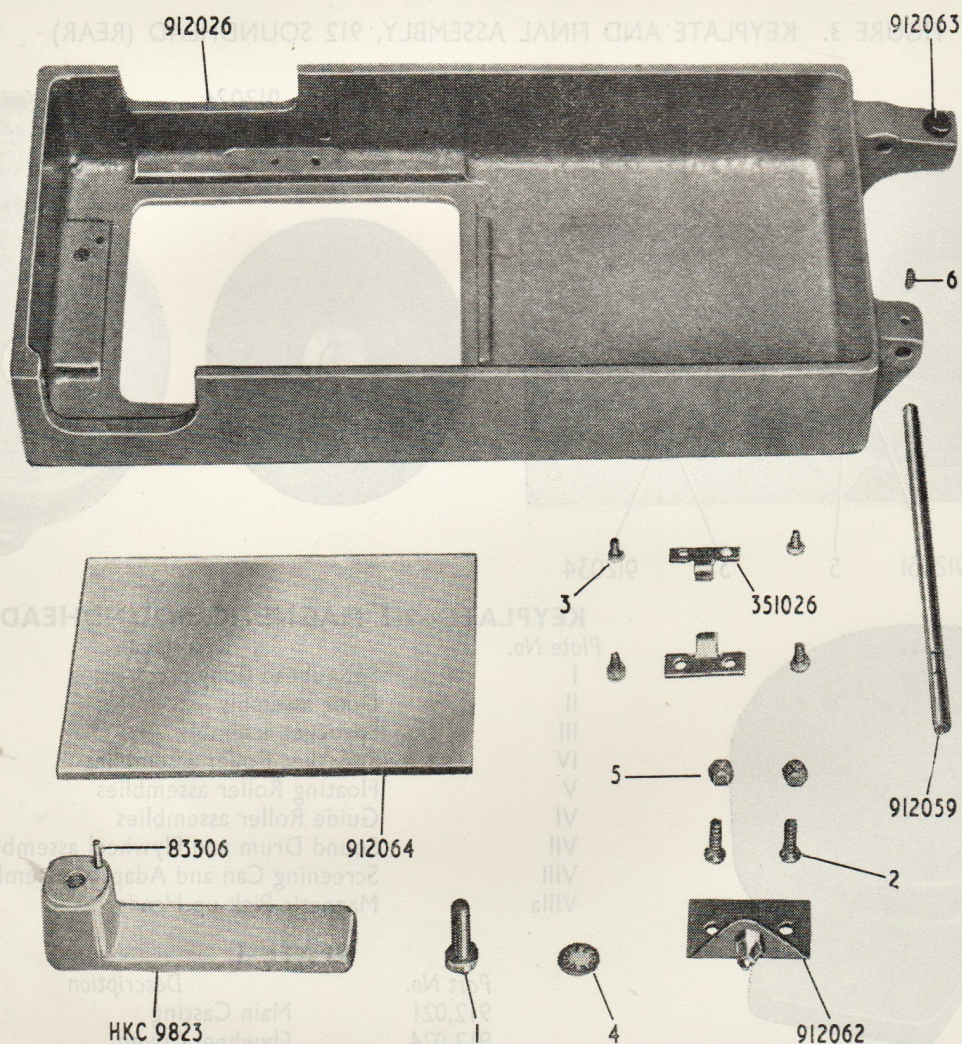
## SCREWS, ETC.

Annotation		
1	SCX 1051	2BA. $\frac{5}{16}$ in. cheesehead screw
2	SCX 1072	2BA. $\frac{1}{2}$ in. cheesehead screw
3	GRC 66	2BA. $\frac{7}{16}$ in. socket cap screw
4	SCX 87	4BA. $\frac{1}{4}$ in. countersunk screw
5	GRC 23	4BA. $\frac{1}{4}$ in. socket cap screw
6	SCX 2087	4BA. $\frac{1}{4}$ in. cheesehead screw
7	SCX 66	4BA. $\frac{7}{16}$ in. countersunk screw
8	S2 99001	No. 00 $\frac{1}{8}$ in. PK screw
9	NUO 2/4TI	4BA. Oddie Nut



# PLATE II

FIGURE 5. DOOR ASSEMBLY



## PLATE II DOOR ASSEMBLY

Part No.	Description
912,026	Door
912,062	Door bracket
912,063	Rubber Stop
912,064	Window
912,059	Hinge Pin
HKC 9823	Handle
83,306	Dowel Pin
351,026	Clamp
SSBV 1700	Stud
SCREWS, ETC.	
1 SCX 1039	2BA. $\frac{3}{4}$ in. cheesehead screw
2 SCX 66	4BA. $\frac{7}{16}$ in. countersunk screw
3 SCX 1032	6BA. $\frac{3}{16}$ in. cheesehead screw
4 WAS 508	2BA. shakeproof washer
5 NUO 2/4TI	4BA. Oddie nut
6 GRU 2/	6BA. $\frac{3}{16}$ in. socket grub screw



PLATE III

FIGURE 6. SPROCKET ASSEMBLY

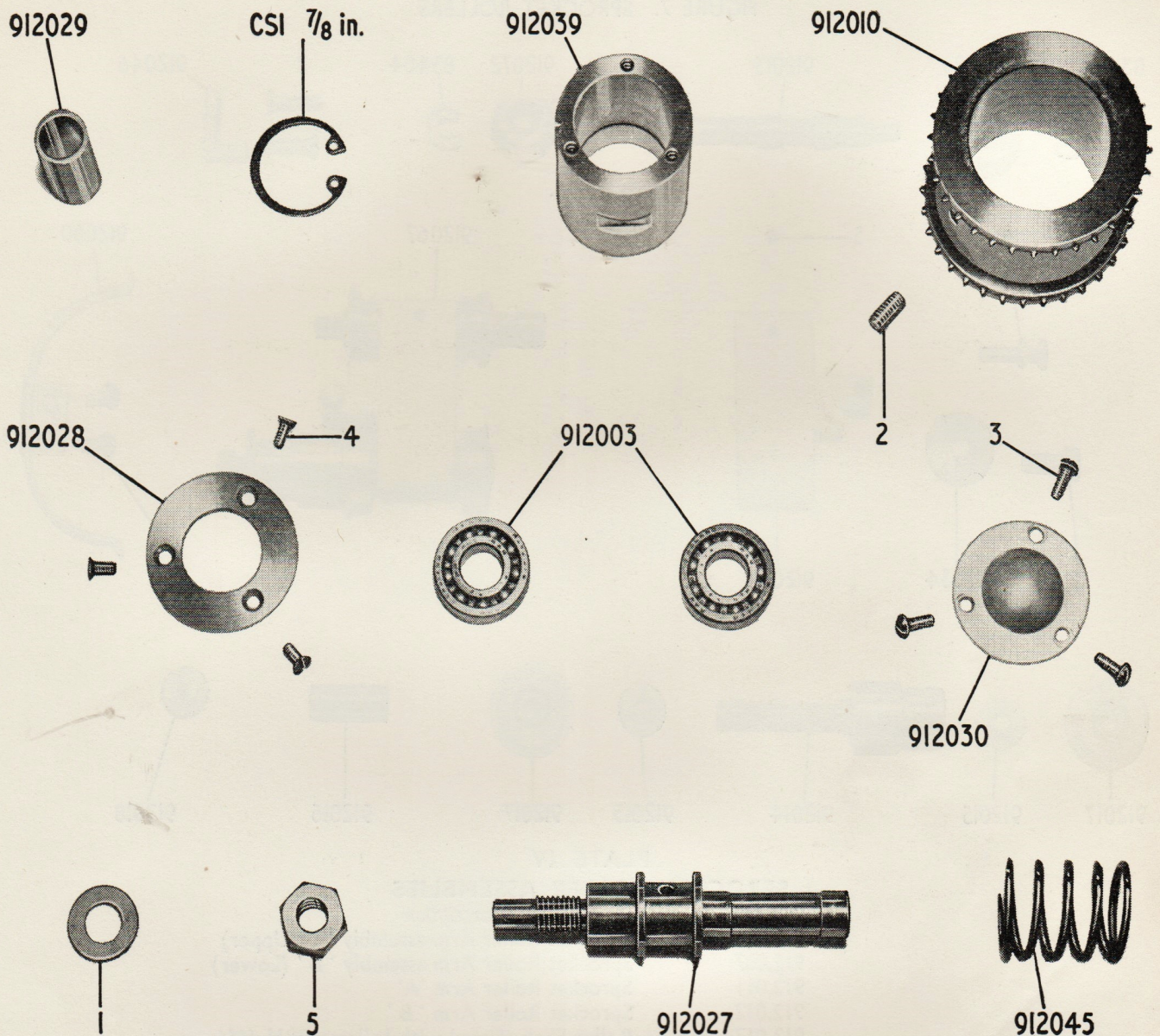


PLATE III

SPROCKET ASSEMBLY 912002

Part No.	Description
912,002	Complete Sprocket assembly
912,010	Sprocket
912,003	Ballrace
912,027	Spindle
912,028	Location Plate
912,029	Spacer
912,030	Cover
912,039	Sleeve
912,045	Spring
CSI 7/8 in.	Internal Circlip

Annotation

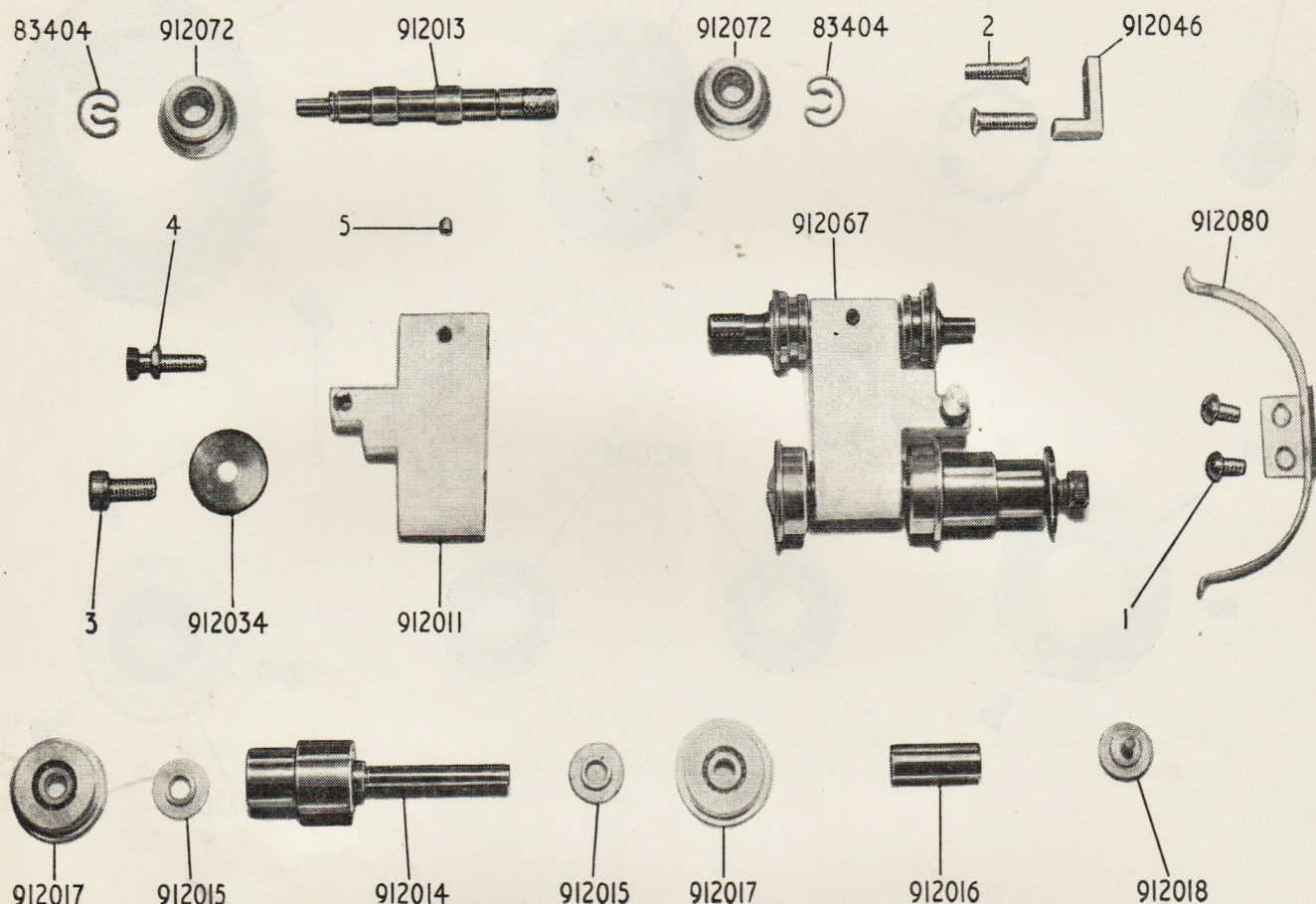
SCREWS, ETC.

1	WAS 424	5/16 in. washer
2	GRU 23	4BA. 1/4 in. socket grub screw
3	SCR 8/2046	6BA. 1/4 in. round head screw
4	SCR 8/46	6BA. 1/4 in. countersunk screw
5	NUT 104	5/16 Whitworth nut



# PLATE IV

FIGURE 7. SPROCKET ROLLERS



## PLATE IV

### SPROCKET ROLLER ASSEMBLIES

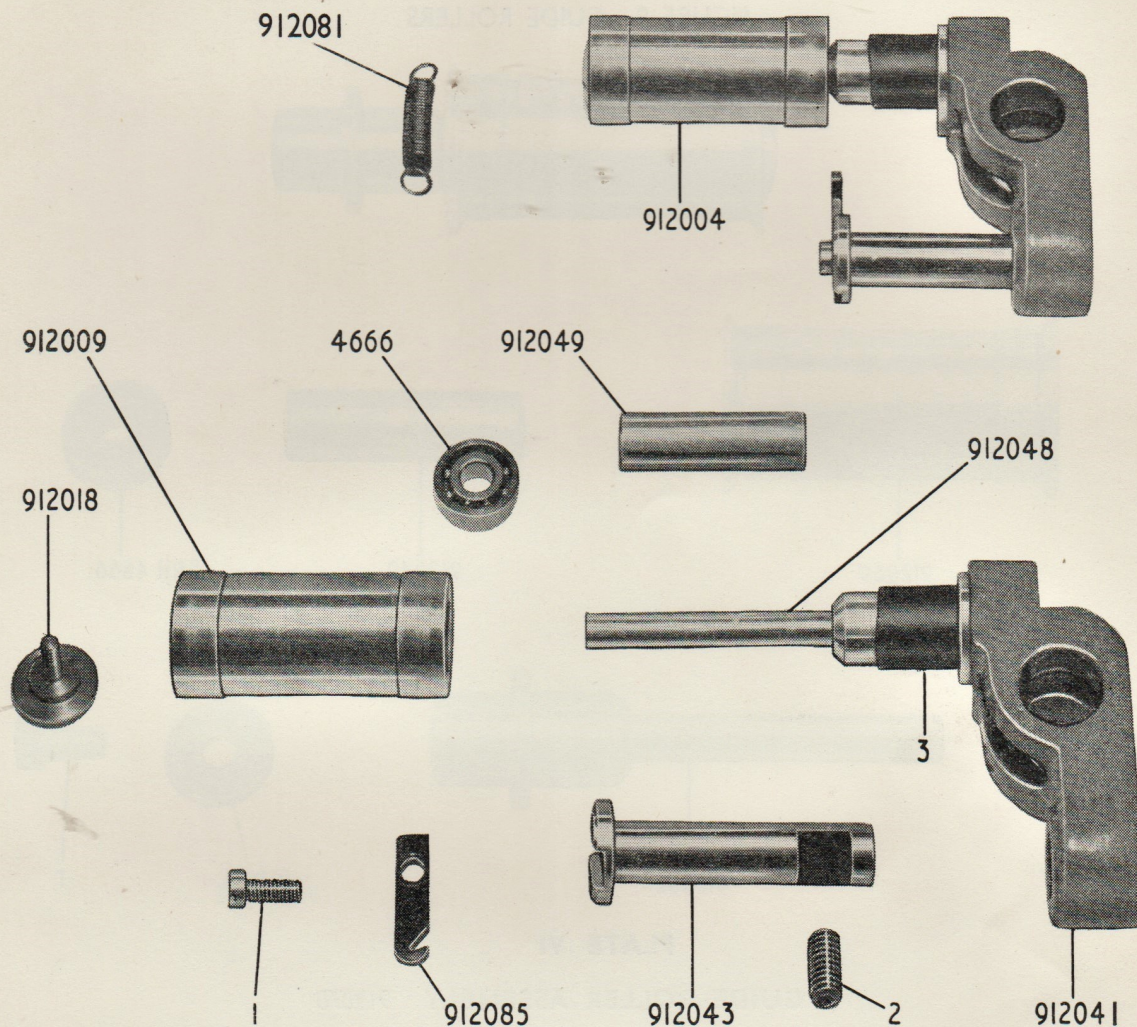
Part No.	Description
912,066	Sprocket Roller Arm assembly 'A' (Upper)
912,067	Sprocket Roller Arm assembly 'B' (Lower)
912,011	Sprocket Roller Arm 'A'
912,012	Sprocket Roller Arm 'B'
912,017	Roller Shell (Fitted with ballrace BRH 4666 and retaining ring 680,139)
912,072	Sprocket Roller
912,016	Spacer
912,014	Sprocket Arm Pivot spindle
912,013	Sprocket Roller Spindle
912,015	Abutment Washer
912,018	End Screw
912,034	Washer
912,046	Stop for Roller Arm
912,080	Sprocket Arm Spring
83,404	Circlip

### SCREWS, ETC.

Annotation	Part No.	Description
1	SCX 2045	4BA. $\frac{1}{4}$ in. round head screw
2	SCX 52	4BA. $\frac{5}{16}$ in. countersunk screw
3	GRC 66	2BA. $\frac{7}{16}$ in. socket cap screw
4	{ SCX 3087	4BA. $\frac{5}{8}$ in. hexagonal adjusting screw
	{ NUT 45	4BA. Locknut
5	GRU 21	4BA. $\frac{1}{8}$ in. socket grub screw



# **PLATE V**

**FIGURE 8. FLOATING ROLLERS**


## **PLATE V**

### **FLOATING ROLLER ASSEMBLY 912004**

Part No.	Description
912,004	Floating Roller assembly, complete
912,041	Floating Roller Arm
912,081	Floating Arm Spring
912,043	Floating Arm Spindle
912,009	Roller assembly
912,018	End Screw
912,049	Spacer
912,085	Spring Arm
912,048	Roller Spindle

#### **SCREWS, ETC.**

Annotation	Part No.	Description
1	SCX 1053	6BA. $\frac{5}{16}$ in. cheesehead screw
2	GRD 64	2BA. $\frac{5}{16}$ in. socket grub screw
3	THN 3 x $\frac{1}{2}$ in.	Hellermann sleeve



PLATE VI

FIGURE 9. GUIDE ROLLERS

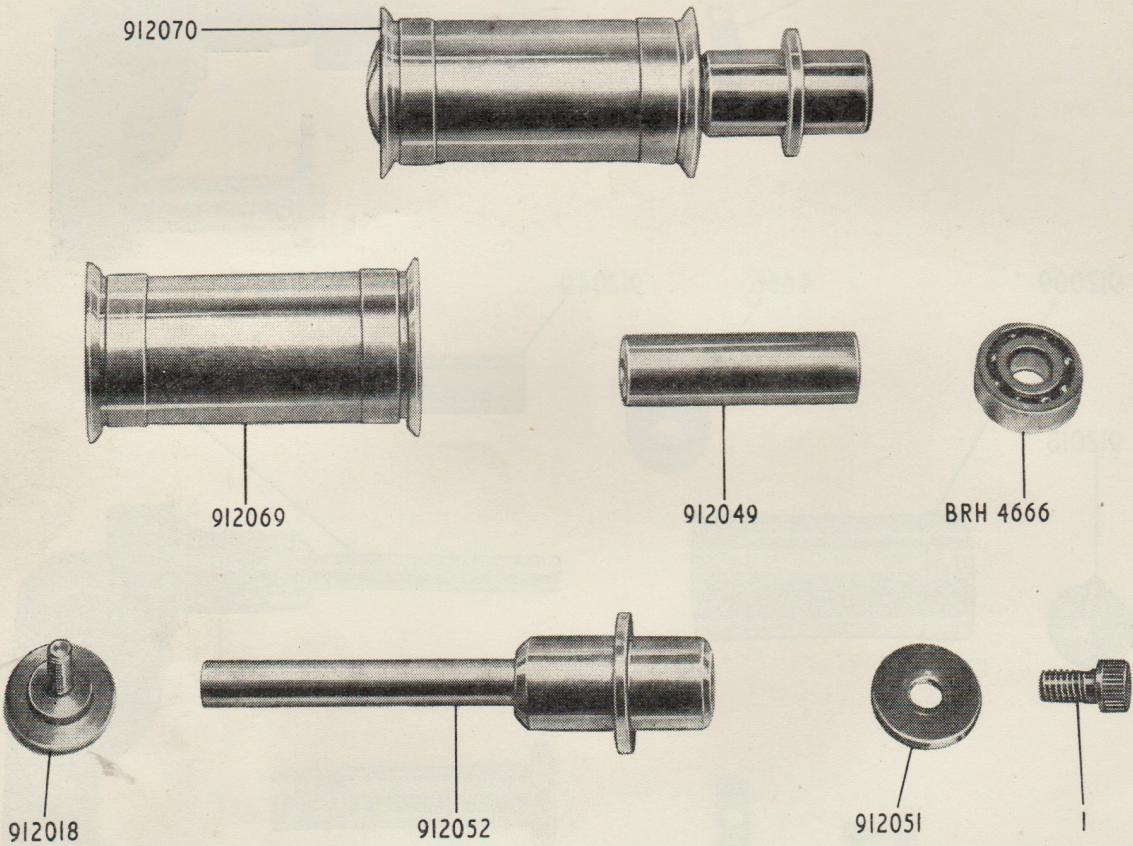


PLATE VI

GUIDE ROLLER ASSEMBLY 912070

Part No.	Description
912,070	Guide Roller assembly, complete
912,069	Guide Roller
912,018	End Screw
912,049	Spacer
912,052	Spindle
912,051	Washer
BRH 4666	Ballrace
Annotation	
SCREWS, ETC.	
I	GRC 23 4BA. $\frac{1}{4}$ in. socket cap screw



PLATE VII

FIGURE 10. FLYWHEEL SHAFT AND SOUND DRUM

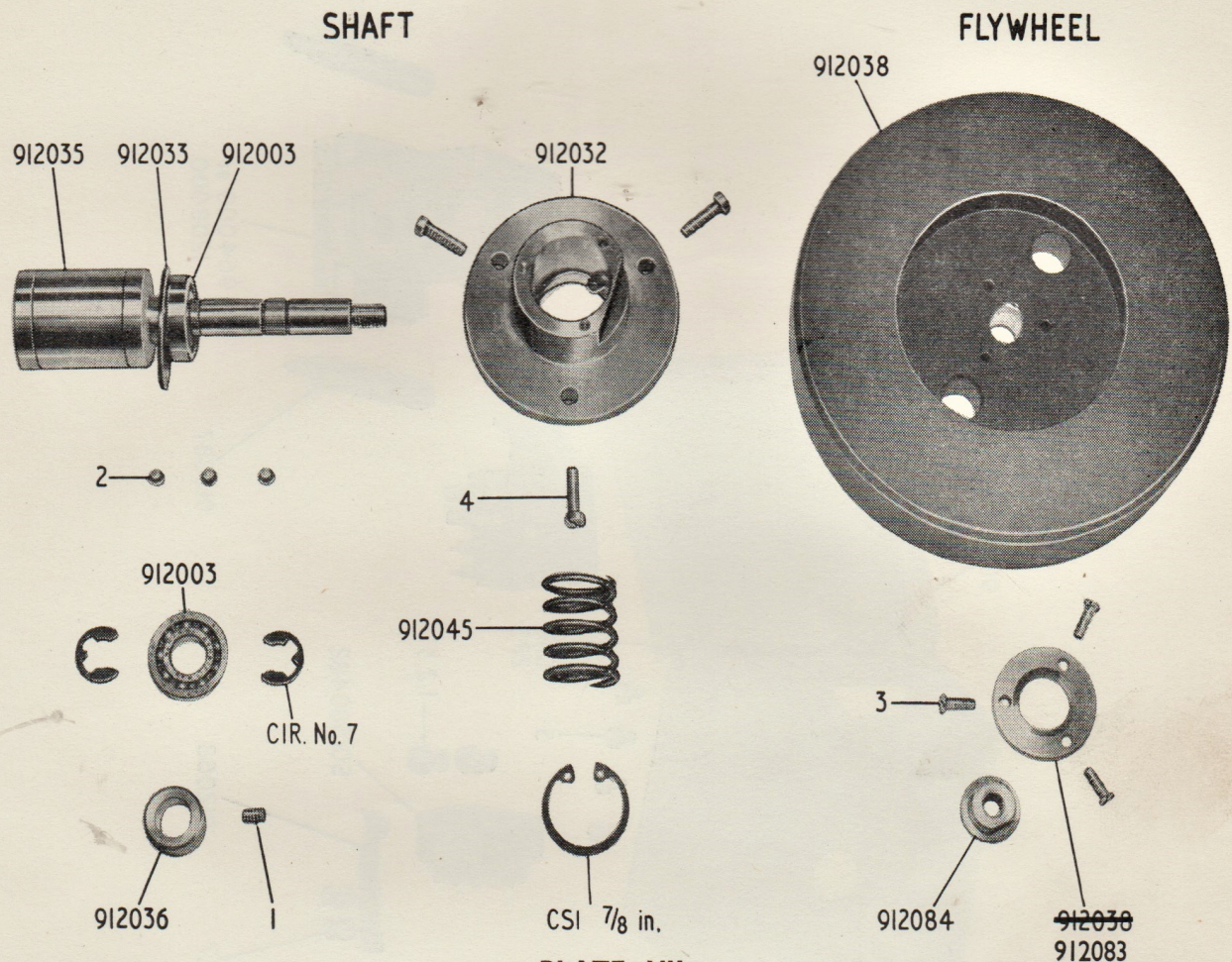


PLATE VII  
SOUND DRUM AND FLYWHEEL ASSEMBLIES

Part No.	Description
912,094	Sound Drum and Bearing assembly, complete
912,003	Ballrace
912,032	Bearing Housing
912,033	Abutment Plate
912,035	Sound Drum Shaft
912,036	Locking Collar
912,045	Spring
CSI $\frac{7}{8}$ in.	Internal Circlip
CIR 7	Retaining Ring
912,093	Flywheel assembly, complete
912,038	Flywheel
912,083	Locking Ring
912,084	Flywheel Extractor Nut
SCREWS, ETC.	
1 GRF 8/21	4BA. $\frac{1}{8}$ in. socket grub screw
2 SCX 32	6BA. $\frac{3}{16}$ in. countersunk screw
3 SCX 60	6BA. $\frac{3}{8}$ in. countersunk screw
4 SCX 1073	4BA. $\frac{1}{2}$ in. cheesehead screw



PLATE VIII

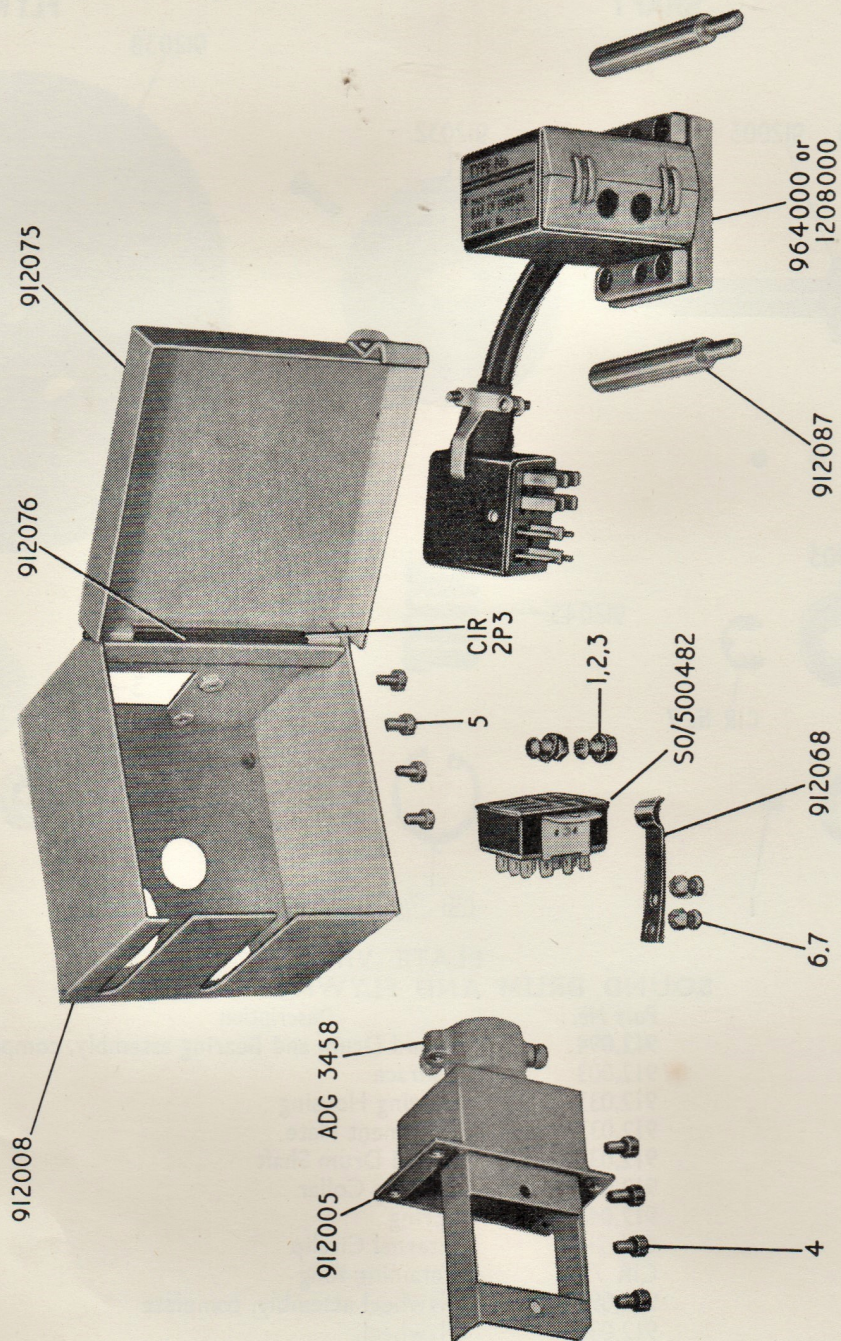


FIGURE II  
SCREENING CAN AND ADAPTOR ASSEMBLY WITH MAGNETIC HEAD



**PLATE VIII**  
**SCREENING CAN AND ADAPTOR ASSEMBLY**

		<i>Part No.</i>	<i>Description</i>
		912,007	Screening Can and Lid assembly, complete
		912,008	Screening Can
		912,068	Spring Catch
		912,075	Screening Can Lid
		912,076	Hinge Pin
		912,087	Magnetic Head Locating Screws
		912,056	Screening Box and Adaptor assembly
		912,005	Screening Box
		ADG 3458	Greenfield Tube Adaptor $\frac{3}{4}$ in.
		SO 500482	12 Point Painton Socket
		CIR 2P3	Retaining Ring
<i>Annotation</i>			SCREWS, ETC.
1	SCX 2059	4BA. $\frac{3}{8}$ in. round head screw	
2	NUT 5	4BA. nut	
3	WAS 506	4BA. shakeproof washer	
4	GRC 23	4BA. $\frac{1}{4}$ in. socket cap screw	
5	SCX 1045	4BA. $\frac{1}{4}$ in. cheesehead screw	
6	SCX 1046	6BA. $\frac{1}{4}$ in. cheesehead screw	
7	NUO 2/6T1	6BA. Oddie nut	

**PLATE VIIIa**  
**MAGNETIC PICK-UP HEADS**

964,000      Type 964 Magnetic Head (Four Track)

NOTE: Only the Type 964 Magnetic Head is now produced, but certain Magnetic Soundheads intended for single track installations have been despatched from the Works fitted with a Magnetic Head Type 1208 (Part No. 1208,000). For greater standardisation, where replacements for a Type 964 are required, a Type 964 Head will normally be supplied.

The fitting of a four-track Head in a single channel installation makes no difference to the operation of the installation.