WESTON
ELECTRICAL INSTRUMENTS
FOR AIRCRAFT

Weston Aircraft Instruments are supplied to the Air Ministry and to leading military and civil aircraft manufacturers throughout the world.

Sangamo Weston Ltd. are Design Approved by the Ministry of Supply, and the engineers at our Works and at our Branches are always available to discuss any problems or to give any assistance which may be required in connection with these instruments. Enquiries at any of our addresses will receive immediate attention.

MODEL S114 I.L.S. INDICATOR

Information contained in this manual affecting safe operation and maintenance has been verified and approved by the Air Registration Board in accordance with Chapter A6-2 of British Civil Airworthiness Requirements. 29. 9. 54.

SANGAMO WESTON LIMITED.

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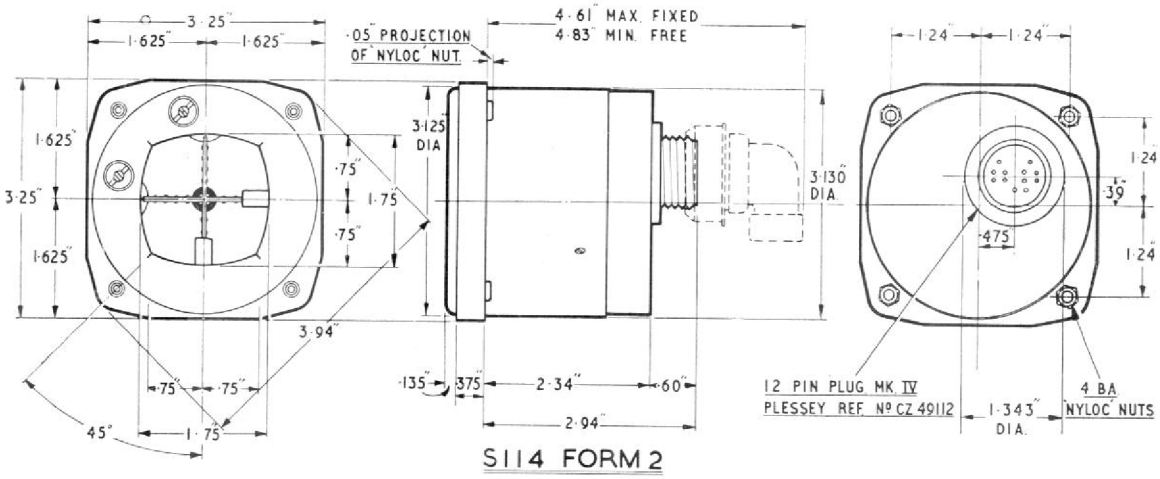
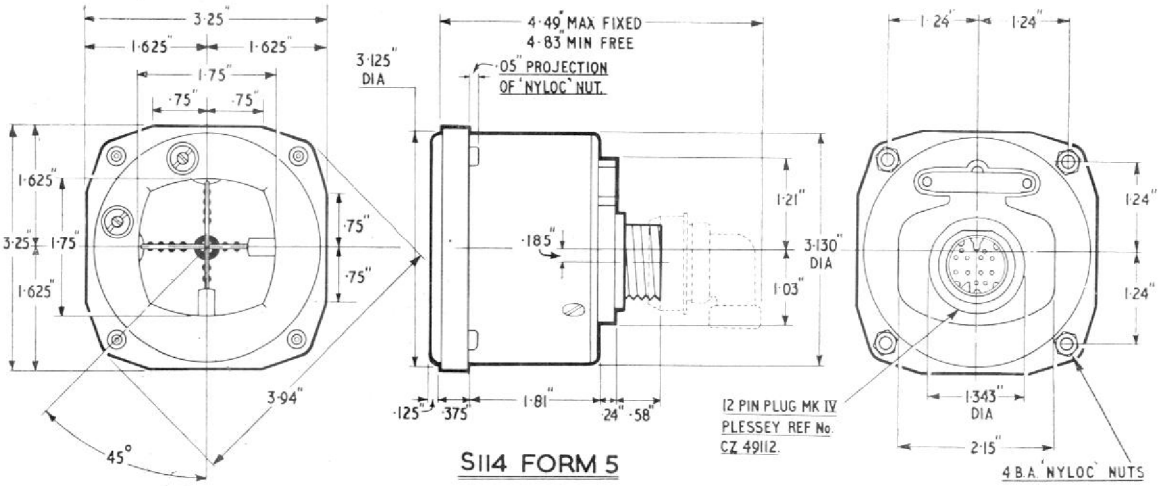
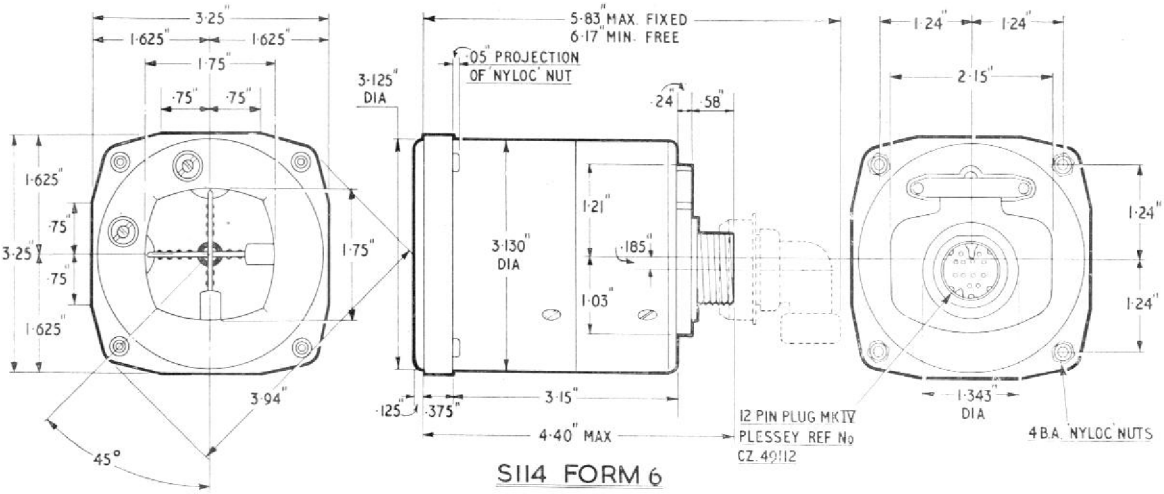


S114 FORM 2



S114 FORM 5



S114 FORM 6

INTRODUCTION.

This model is used in conjunction with electrical and radio aids to indicate the departure of an aircraft from the azimuth and glide path tracks of an instrument landing system. It incorporates monitoring devices which show the condition of the indicators.

The instrument was designed in accordance with British Standard Specification G.128, and passes the relevant inspection clauses.

DESCRIPTION.

Four separate microammeters are contained in a large S.A.E. case. Two are used to indicate navigational position, whilst the other two operate the monitor flags.

The vertical pointer has its movement pivot centre at the top of the case, and denotes deviation from azimuth. The other pointer is horizontal with its movement pivot centre at the left when viewed from the front, and indicates departure from glide path. Both pointers extend over the full span of the scale when undeflected from the centre. The horizontal indicator is nearest to the scale.

The two other movements carry monitor flags. These show in a positive manner whether or not the indicator movements are working satisfactorily. When these movements are unoperated, the flags obscure the ends of the adjacent pointers, but, when operated, carry the monitor flags behind the front screen where they are no longer visible.

The complete instrument is contained in a cylindrical black bakelite case with a flange at the front so that when mounted, the cover glass is approximately flush with the panel.

Connection to the I.L.S. receiver is made through a Mark IV 12-way plug and socket. The plug is mounted directly on to a black bakelite base.

All movements are insulated from earth and from each other to withstand a potential of 250 volts D.C. Internal metal parts are insulated to withstand a potential of 1,000 volts A.C. applied between the movements and any external part, including a screwdriver held in either zero adjusting screw.

The pointers are set by weatherproof zero adjusters fitted to the cover. Care must be taken to slacken off the hollow screws before the inner adjusting screws are moved. After setting the pointers, the hollow screws must be locked in a clockwise direction on their washers.

The centre of the dial is marked with a circle $\frac{1}{4}$ inch mean diameter, $\frac{5}{64}$ inch thick. On a horizontal line passing through the centre, eight dots $\frac{5}{64}$ inch diameter are marked, four on each side of the circle. Eight similar dots are marked on a vertical line. The distances of these dots from the centre of the $\frac{1}{4}$ inch diameter circle are $\frac{1}{4}$ inch, $\frac{3}{8}$ inch, $\frac{1}{2}$ inch and $\frac{5}{8}$ inch.

These dial markings are in fluorescent paint on a matt black background.

INSTALLATION NOTES.

The instrument must be insulated from aircraft vibrations. Under certain circumstances it may be desirable to use an anti-vibration mounting of the type 10A/12954. Normally it should be fitted to the Instrument Flying Panel, where it will operate satisfactorily.

The indicator is fitted to the rear of the panel and is secured in position by four No. 4 BA. bolts. It must be mounted with its scale in a vertical plane when the aircraft is in level flight.

TABLE OF CONNECTIONS.

Vertical Pointer Azimuth. Pins A and B.	Horizontal Pointer Glide Path. Pins C and D.	Monitor Flag Azimuth. Pins J and K.	Monitor Flag Glide Path. Pins L and M.
Deflection to Right.	Deflection Upwards.	Deflection to Right.	Deflection Upwards.
A + VE	C + VE	J + VE	L + VE

Pin G is connected to internal metal parts

DECLARATION

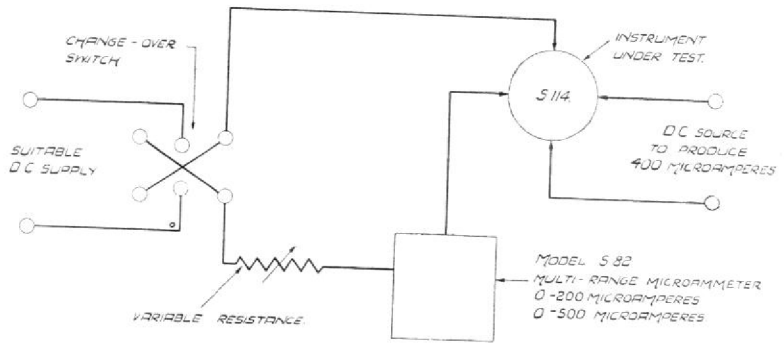
INFORMATION REQUIRED BY BRITISH STANDARD G.100.

MODEL S114, FORMS 5 AND 6.

Weight	22½ ozs.
Maximum Storage period without preservation packing	6 months.
Acceleration Grade	1B
Climatic Grade and	1
Altitude Rating	60,000 ft.
Vibration Grade	3 when mounted on instrument flight panel.
Fire Resistance Grade	Fire Resistant.
Compass Safe Distance	12 inches.
C.G. Position	1½ in. from glass along geometric centre.

METHOD OF TESTING.

The instrument is tested most conveniently by removing it from the aircraft and operating it in the simple test circuit, as shown.



The resultant performance should meet the following requirements.

INDICATOR MOVEMENTS.

Sensitivity:

The current required to deflect the indicator pointer from its centre zero to either end of the scale as shown by the white dots at the extreme positions from the centre, should be 150 ±10 microamperes.

Scale Characteristics:

The relationship between the current in the movement and the angular deflection of the indicator pointer is such that increments of current must cause equal increments of deflection.

Damping:

Indicator pointers must not deflect beyond their steady state value when operating in a circuit of infinite impedance.

Resistance:

The resistance of the movements measured between the base connections must be 1,000 ohms ±30 ohms.

Attenuation:

The indicator should be supplied with a sinusoidal varying current of 2, 4 and 6 cycles per second having a peak amplitude of 150 microamperes. Under these conditions the maximum deflection of the indicator from zero must not exceed 20, 10 and 3 per cent. respectively of the value it would have attained if it had been supplied with 150 microamperes D.C.

MONITOR FLAG MOVEMENTS.

Sensitivity:

The monitor flags should remain in their unoperated position until an operating current in excess of 185 +15 −10 microamperes is applied. Thereafter, a current of 415 +10 −15 microamperes should be sufficient to move the monitor flags out of sight behind the mask.

Resistance:

The resistance of the movement measured between the base terminals should be 400 ohms ±20 ohms.

MAINTENANCE AND REPAIR.

If a fault is obviously electrical, the first step is to check the connections to the movement. An electrical check of the movement itself will be necessary if no fault is revealed by the initial investigation.

Make sure that the moving coil is definitely the part affected and that the fault is not caused by a defective spool or damaged return springs. If these appear intact, make a resistance test across the coils.

To do this, remove the cover and unsolder the coloured lead connected to the top bridge of the suspected movement. A resistance measurement taken between the top and bottom bridges should give between 84 and 100 ohms for the indicator movements, and between 300 and 400 ohms for the monitor movements.

The following procedure should be adopted where it is necessary to replace an open circuit moving coil. Refer to the exploded illustration and read carefully through the following instructions before starting operations.

Strip down to the movement complete. Slacken the magnet clamps on either side of the affected movement, and take out the magnet. Upon removal of the screws, the movement will become loose, and may be withdrawn with a slight turning action.

Disconnect the top spring and the bottom spring. Take off top and bottom bridges. Remove cross-arm, carefully noting the original position of springs and cross-arm for re-assembly purposes. Slacken off and take out screw, and remove core clamp. The core may now be removed. *When performing this last operation, care must be taken not to damage the spring.*

Place the new coil over the core, and gently lower into place. Looking along the pointer from the movement, the soldered joint must be on the right-hand side. Re-assemble in a sequence of operations in a reverse order to those already quoted, but before replacing the bridges make sure that the springs are in their original angular position relative to the coil. When this has been verified, the bridges may be refitted.

Carry out jewel adjustment by turning the jewel screw clockwise in small increments in the order of 1/10th turn until pointer " flop " just disappears. (" Flop " is the movement of the pointer due to the pivots being able to move laterally in the jewels). Back off the jewel screw by an amount 1/10th to 1/8th turn until a definite pointer " flop " is apparent.

The outer ends of the springs should now be soldered into position on the bridges.

It should be stressed that if one spring is damaged, both springs on the movement must be replaced so that the correct torque is maintained.

RAISING THE MAGNETS.

Replace the movements on to the mounting plate, and slacken off *all* pole piece screws and magnet clamps. The single turn raising bar is positioned through the diametric centre of the magnet system, and a current of approximately 10,000 amperes passed through it to saturate the magnets.

After this operation, the assembly will be found held together by magnetic attraction, and should be clamped in this position.

AGEING THE MAGNETS.

In their present state the magnets are in a saturated condition, and the gap fluxes must be reduced to give the magnetic circuit its required stability.

A single conductor is inserted through the diametric centre of the magnet system, and a current of 150 amperes 50 cycles A.C. passed through it. This current must be raised to its maximum and reduced to zero over a period of not less than 5 seconds, once only.

SENSITIVITY AND MAGNETIC POLARITY CHECKS.

Each movement must be checked for sensitivity and polarity and should meet the conditions specified below.

Indicators:

Sensitivity (saturated, aged, and with shields in position) should be between 82—100 microamperes.

Monitors:

With a current of 128 microamperes passing through the monitor movement, adjust the abutment until the flag is in the unoperated position. The current now required to just deflect the monitor behind the mask should be between 247—303 microamperes.

If the movements are less sensitive than the figures quoted, the raising procedure should be investigated and repeated.

Polarities:

During the sensitivity check, the following polarities should be observed :

Vertical Indicator with Top Bridge Positive deflects to the right.
Horizontal Indicator with Top Bridge Positive deflects upwards.
Vertical Monitor with Top Bridge Negative deflects clockwise
Horizontal Monitor with Top Bridge Negative deflects clockwise.

BALANCING THE MOVEMENTS.

For the purpose of these checks, the instrument should be set alternately vertical and horizontal.

Indicators :

When balancing the indicator movements, the tail and side arm balance is to be such that the pointer does not move over half the width of the extreme dot on the scale.

Monitors :

Free the monitors from their stops by passing a current of approximately 200 microamperes through both movements connected in series. Adjust the abutments to give approximately half-scale deflection. The balance of the monitor flags must be as good as possible. The corner of the flag can be adjusted (by the current in the coil) to coincide with the edge of the mask when checking the out of balance movement. Set the pointer stop on the monitor to give the suppressed (zero) position with the monitor flag centrally disposed over the indicator pointer with the latter at centre zero.

ADJUSTMENTS.

Mount the shielded cover, which incidentally, must be in place before adjustments are made, place the instrument with its scale in the vertical plane, then adjust in accordance with the following instructions.

Indicators :

Shunt the moving coil of one movement by means of a resistance box to a sensitivity of 150 $\pm$ 3microamperes. Note the value of the shunt, which should be between 100 and 160 ohms. Using a low volt ohmmeter, measure the resistance required in series with the shunted movement to bring the total resistance up to 1,000 $\pm$20 ohms. This series resistance should be between 940—955 ohms.

This check must be repeated for the other indicator movement.

Monitors :

Each monitor movement should be adjusted in the manner described below.

Pass a current through the moving coil until the flag just disappears behind the mask. Note the current required, and designate it as (a). Now pass a current through the moving coil so that the flag just moves away from the zero position. This is current (b). The ratio (a)/(b) must be approximately 2.24.

If the ratio is greater, the spring abutment must be moved by a small amount in an anti-clockwise direction. The abutment, of course, must be moved in a clockwise direction if the ratio is too small.

Now shunt the moving coil through a resistance box so that the flag just disappears behind the mask for a current of 415 $\pm$5 microamperes. Reduce the current and note its value when the flag just moves away from the zero position. This should be 185 $\pm$5 microamperes. Note the value of the shunt, which should lie between 400—1,200 ohms.

Measure the value of the resistance required in series with the shunted movement to make the total resistance up to 400 $\pm$15 ohms. This series resistance should be 130—210 ohms.

Fit spools to determined values, and note that all shunt spools are copper wound, and all series spools are constantan wound.

FINAL CHECKS.

(*a*) Re-check sensitivities to previously stated limits.

(*b*) Check response time of indicators. Set indicators to full-scale deflection. Switch off circuit, and with a suitable stopwatch, measure the time taken for the pointers to reach to within 1 per cent. of zero. This should lie between 1·2—2·4 seconds.

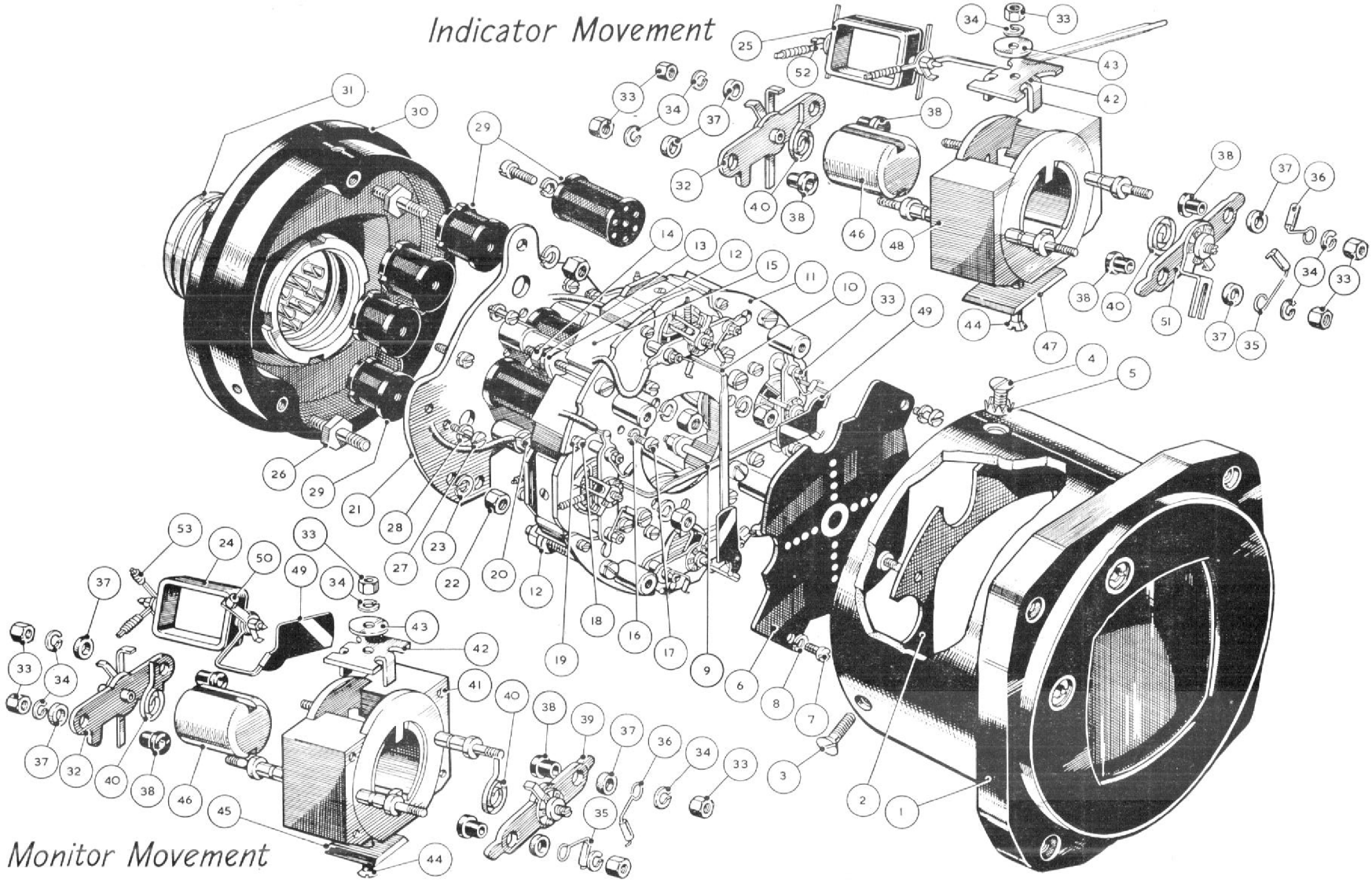
(*c*) Apply 250 volts D.C. between pin G and each of the pins A, C, J, L in succession. Use a 5-megohm resistor in series with the supply. The current flowing in the circuit must not exceed 2 microamperes.

INSPECTION.

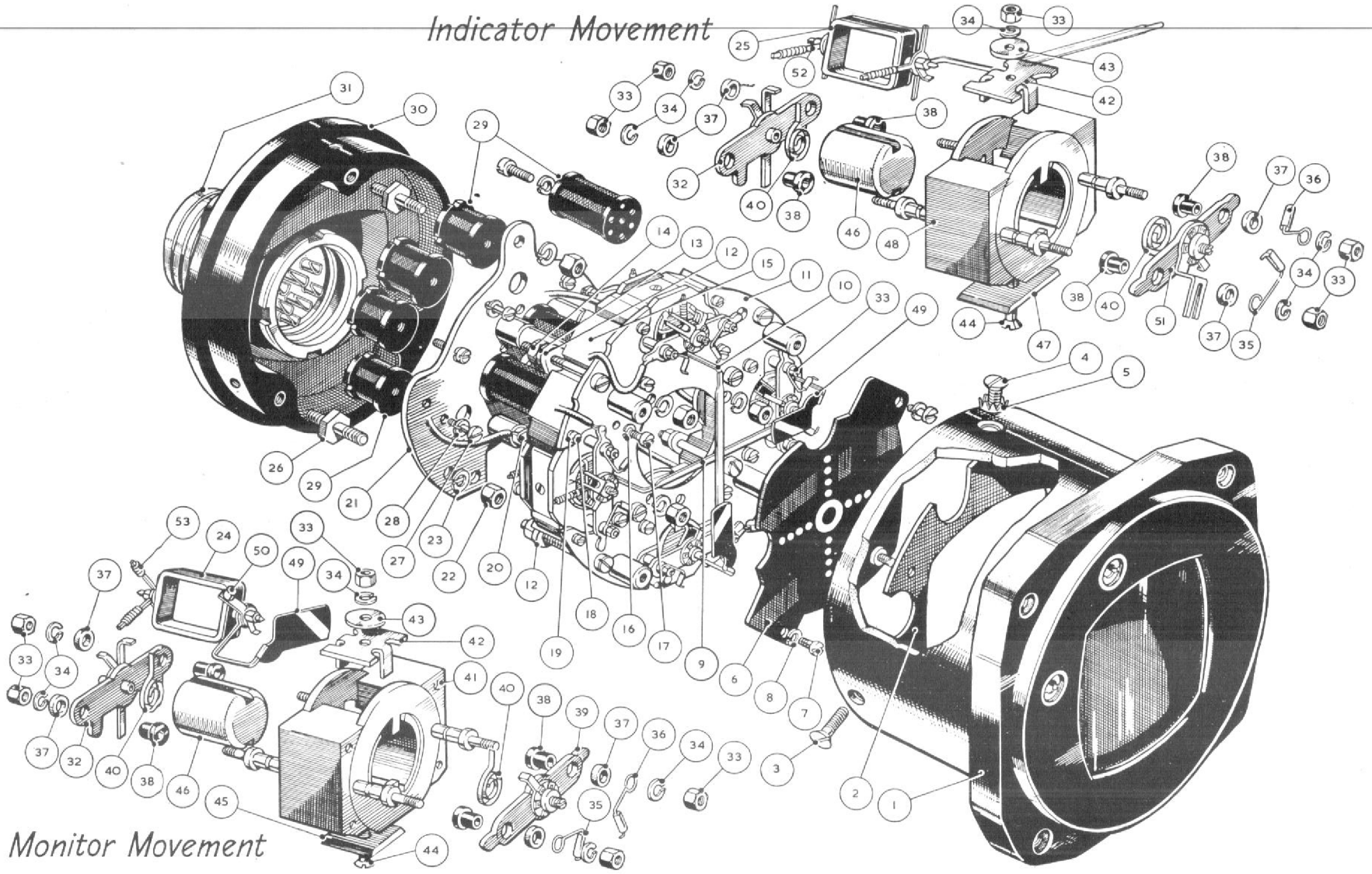
Subsequent to satisfactory installation, the instrument should be checked visually to ensure that the glass is unbroken and that the terminal screws, or plugs and sockets are tightly connected. No other maintenance is necessary for a period of 1,000 flying hours. On the completion of this period, the instrument should be checked for accuracy, preferably in situ, as apparatus of this nature is more liable to damage from handling than from years of service. If the instrument is within permissible limits, it should be passed as serviceable for a further 1,000 hours service.

PARTS LIST
MODEL S114, FORM 5.

Reference	Description	Part No.	No. Off
1	Cover Assem.	166955	1
2	Mask for Cover	164676	1
3	Screw 6BA.	150146	2
4	Sealing Screw 6BA.	168862	1
5	Sealing Cup	168013	1
6	Dial	164718	1
7	Screw 10BA. × $\frac{3}{16}$ (Scale)	156396	2
8	Lock Washer 10BA.	159306	2
9	Pointer Assem. (L.H.)	164705	1
10	Pointer Assem. (Upper)	164704	1
11	Mounting Plate Ass.	164681	1
12	Magnet Clamp	164713	4
13	Lock Washer 8BA.	103858	8
14	Nut 8BA	150164	8
15	Magnet	154712	4
16	Lock Washer 10BA.	153367	8
17	Screw 10BA. Ch. Hd. × $\frac{1}{8}$"	155546	8
18	Screw 12BA. Ch. Hd. × $\frac{1}{8}$"	150122	8
19	Lock Washer 12BA.	155830	8
20	Terminal Tag 8BA.	164637	1
21	Sub-Mtg. Plate Ass.	166958	1
22	Nut 6BA.	150166	3
23	Lock Washer 6BA.	156976	3
24	Moving Coil Wd. (Monitor Mov.)	Specify Code	2
25	Moving Coil Wd. (Indicator Mov.)	Specify Code	2
26	Mtg. Plate Pillar	166965	3
27	Screw 10BA. × $\frac{3}{16}$" (Spool)	150330	8
28	Lock Washer 10BA. (Spool)	153367	8
29	Spools	Specify Letter No.	9
30	Base Drilled	166926	1
31	Plug 12 Pin	164717	1
32	Bridge Ass. Bott.	164694	4
33	Nut 12BA.	155125	20
34	Lock Washer 12BA.	155830	20
35	Pointer Stop (L.H.)	164711	4
36	Pointer Stop (R.H.)	164710	4
37	Bridge Insul. Washer	154399	16
38	Bridge Insul. Bush	154397	16
39	Bridge Ass. Top (Flag)	164696	2
40	Spring. Specify Code A	156895	8
41	Pole Piece Ass. (Flag)	168480	2
42	Core Clamp	157521	4
43	Washer 12BA. Large	159596	4
44	Core Screw 12BA.	155584	4
45	Core Plate (Flag)	164715	2
46	Core .4	155580	4
47	Core Plate (Pointer)	164714	2
48	Pole Piece Assem. (Pointer)	168481	2
49	Flag Assem. / Flag Off Lower / Flag Off R.H.	164698 / 167110 / 167111	Specify 2
50	Counter Weight	157241	2
51	Bridge Assem. Top (Upper) / Bridge Assem. Top (L.H.)	164692 / 164690	1
52	Bott. Balance Cross (Pointer)	164709	2
53	Bott. Balance Cross (Flag)	164701	2



Model S114 Form 5



Model S114 Form 5

SANGAMO WESTON

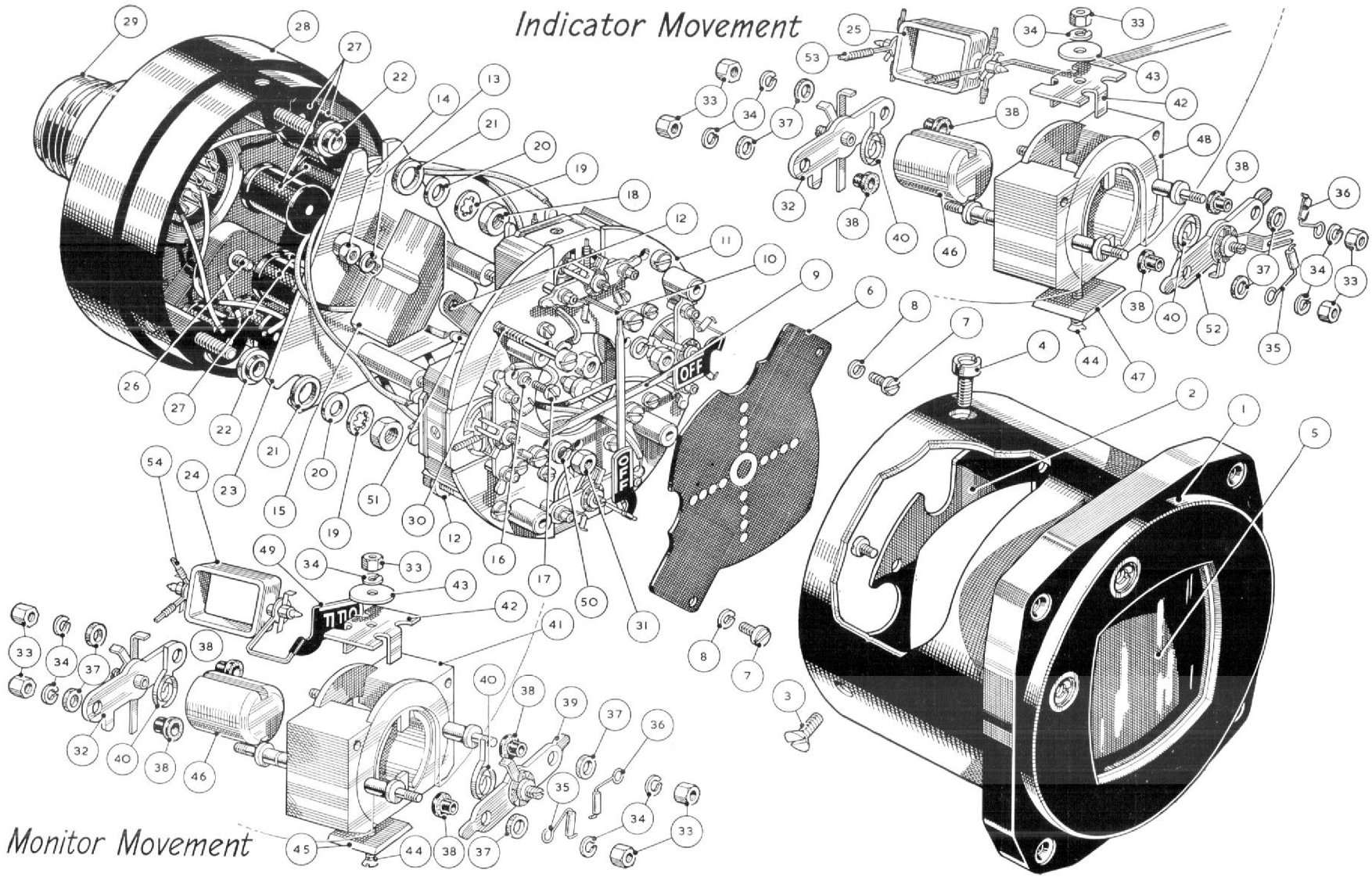
PARTS LIST
MODEL S114, FORM 5.

Reference	Description	Part No.	No. Off
1	Cover Assem.	166955	1
2	Mask for Cover	164676	1
3	Screw 6BA.	150146	2
4	Sealing Screw 6BA.	168862	1
5	Sealing Cup	168013	1
6	Dial	164718	1
7	Screw 10BA. × $\frac{3}{16}$ (Scale)	156396	2
8	Lock Washer 10BA.	159306	2
9	Pointer Assem. (L.H.)	164705	1
10	Pointer Assem. (Upper)	164704	1
11	Mounting Plate Ass.	164681	1
12	Magnet Clamp	164713	4
13	Lock Washer 8BA.	103858	8
14	Nut 8BA	150164	8
15	Magnet	164712	4
16	Lock Washer 10BA.	153367	8
17	Screw 10BA. Ch. Hd. × $\frac{1}{8}$″	155546	8
18	Screw 12BA. Ch. Hd. × $\frac{1}{8}$″	150122	8
19	Lock Washer 12BA.	155830	8
20	Terminal Tag 8BA.	164637	1
21	Sub-Mtg. Plate Ass.	166958	1
22	Nut 6BA.	150166	3
23	Lock Washer 6BA.	156976	3
24	Moving Coil Wd. (Monitor Mov.)	Specify Code	2
25	Moving Coil Wd. (Indicator Mov.)	Specify Code	2
26	Mtg. Plate Pillar	166965	3
27	Screw 10BA. × $\frac{3}{16}$″ (Spool)	150330	8
28	Lock Washer 10BA. (Spool)	153367	8
29	Spools	Specify Letter No.	9
30	Base Drilled	166926	1
31	Plug 12 Pin	164717	1
32	Bridge Ass. Bott.	164694	4
33	Nut 12BA.	155125	20
34	Lock Washer 12BA.	155830	20
35	Pointer Stop (L.H.)	164711	4
36	Pointer Stop (R.H.)	164710	4
37	Bridge Insul. Washer	154399	16
38	Bridge Insul. Bush	154397	16
39	Bridge Ass. Top (Flag)	164696	2
40	Spring : Specify Flag or Pointer Movt. and Inst. Code No.	-	8
41	Pole Piece Ass. (Flag)	168480	2
42	Core Clamp	157521	4
43	Washer 12BA. Large	159596	4
44	Core Screw 12BA.	155584	4
45	Core Plate (Flag)	164715	2
46	Core .4	155580	4
47	Core Plate (Pointer)	164714	2
48	Pole Piece Assem. (Pointer)	168481	2
49	Flag Assem. / Flag Off Lower / Flag Off R.H.	164698 / 167110 / 167111	Specify 2
50	Counter Weight	157241	2
51	Bridge Assem. Top (Upper) / Bridge Assem. Top (L.H.)	164692 / 164690	1
52	Bott. Balance Cross (Pointer)	164709	2
53	Bott. Balance Cross (Flag)	164701	2

SANGAMO WESTON

PARTS LIST
MODEL SII4, FORM 2.

Reference	Description	Part No.	No. Off
1	Cover Assem.	164673	1
2	Mask	164676	1
3	Screw 6BA. × $\frac{5}{16}$″ (Cover)	155128	2
4	Sealing Screw	166783	1
5	Glass	164677	1
6	Dial	164718	1
7	Screw 10BA. × $\frac{3}{16}$″ (Dial)	156396	2
8	Lockwasher 10BA.	159306	2
9	Pointer Assem. (L.H.)	164705	1
10	Pointer Assem. (Upper)	164704	1
11	Mounting Plate Ass.	164681	1
12	Magnet Clamp	164713	4
13	Lock Washer 8BA.	103854	8
14	Nut 8BA.	150168	8
15	Magnet	164712	4
16	Lock Washer 10BA.	153367	8
17	Screw 10BA. × $\frac{1}{8}$″ Ch. Hd.	155546	8
18	Nut 4 BA.	150164	3
19	Lock Washer 4BA.	150404	3
20	Washer 4BA.	90031	3
21	Insul. Washer	164751	3
22	Insul. Bush	164716	3
23	Sub. Mtg. Plate	164687	1
24	Moving Coil Wd. (Monitor Mov.)	Specify Code	2
25	Moving Coil Wd. (Indicator Mov.)	Specify Code	2
26	Stud 10BA. (Spools)	153496	8
27	Spools Wd.	Specify Code Letter	8
28	Base	164671	1
29	12 Pin Plug	164717	1
30	Screw 8BA. × $\frac{13}{16}$″ Ch. Hd.	155373	8
31	Nut 6BA	150166	3
32	Bridge Assem. Bott.	164694	4
33	Nut 12BA.	155125	20
34	Lock Washer 12BA.	155830	20
35	Pointer Stop (L.H.)	164711	4
36	Pointer Stop (R.H.)	164710	4
37	Bridge Insul. Washer	154399	16
38	Bridge Insul. Bush	154397	16
39	Bridge Ass. Top (Flag)	164696	2
40	Spring. Specify Code A	156895	8
41	Pole Piece Ass. (Flag)	168480	2
42	Core Clamp	157521	4
43	Washer 12BA. Large	159596	4
44	Core Screw 12BA.	155584	4
45	Core Plate (Flag)	164715	2
46	Core .4	155580	4
47	Core Plate (Pointer)	164714	2
48	Pole Piece (Pointer)	168481	2
49	Flag Assem.	164698	Specify 2
	Flag Assem. off Lower	167110	
	Flag Assem. off R.H.	167111	
50	Lock Washer 6BA.	156978	3
51	Terminal Tag 8BA.	164637	1
52	Bridge Assem. (Upper)	164692	2
	Bridge Assem. (L.H.)	164690	
53	Balance Cross (Pointer)	164709	2
54	Balance Cross (Flag)	164701	2

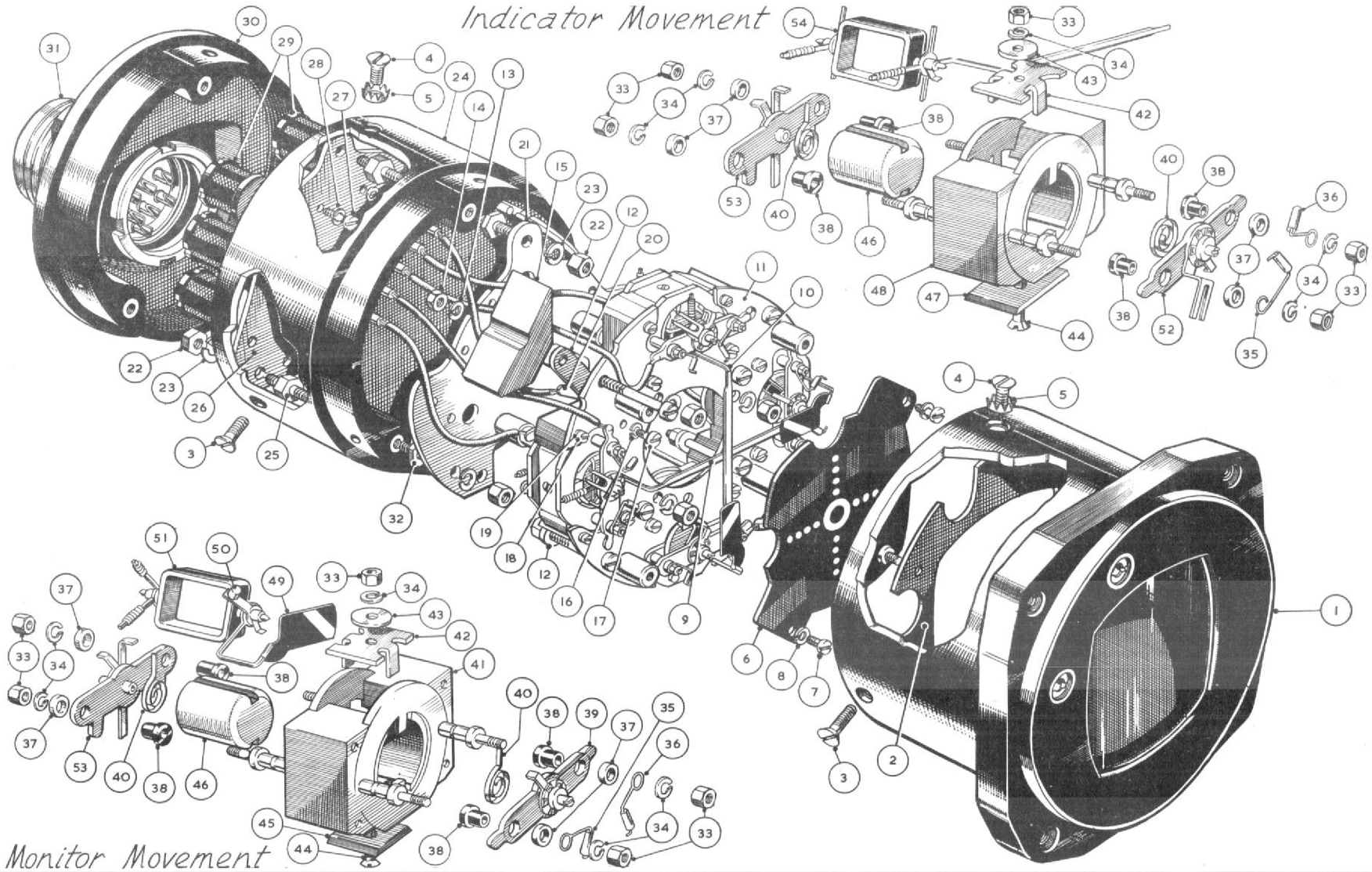


Model S114 Form 2

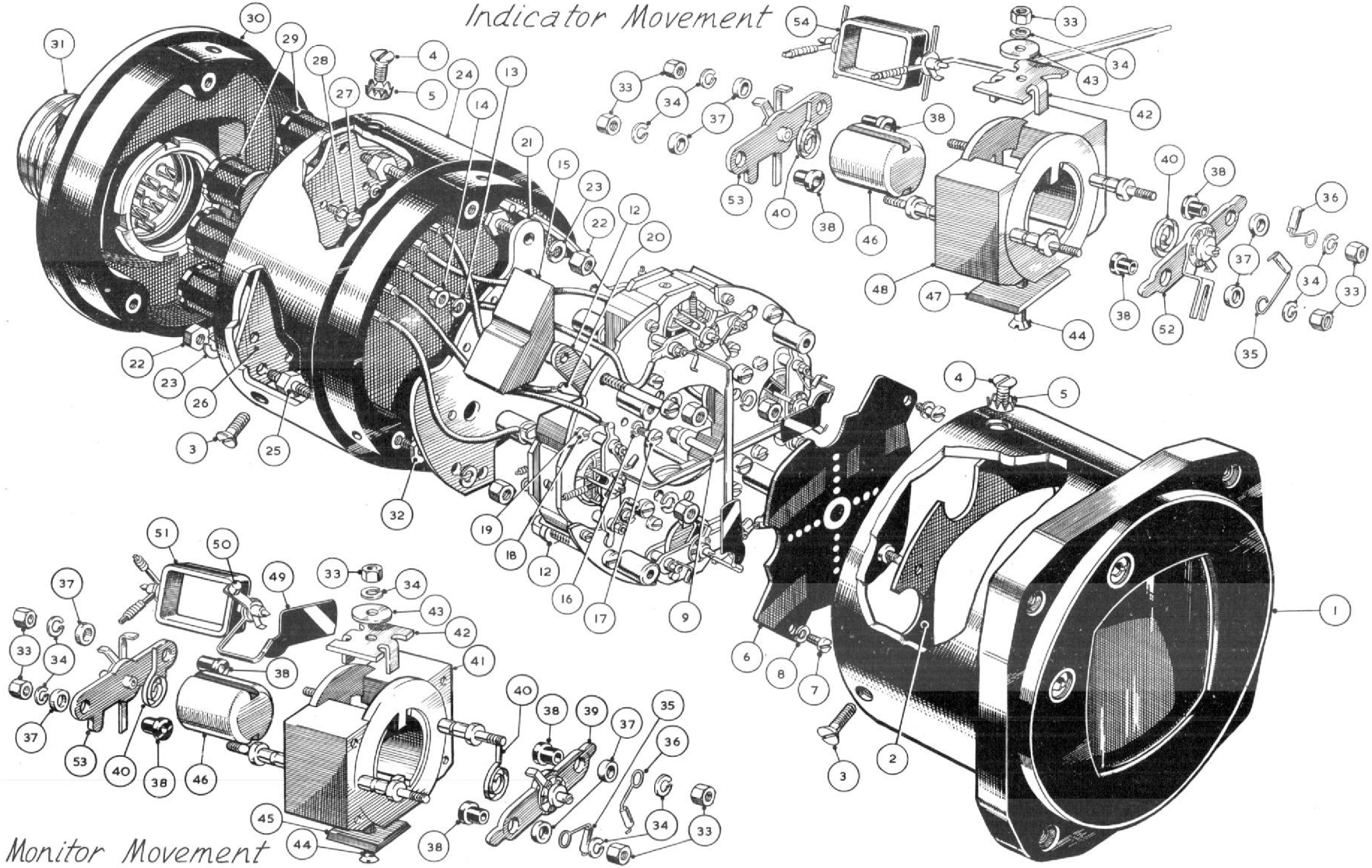
SANGAMO WESTON

PARTS LIST
MODEL SII4. FORM 2.

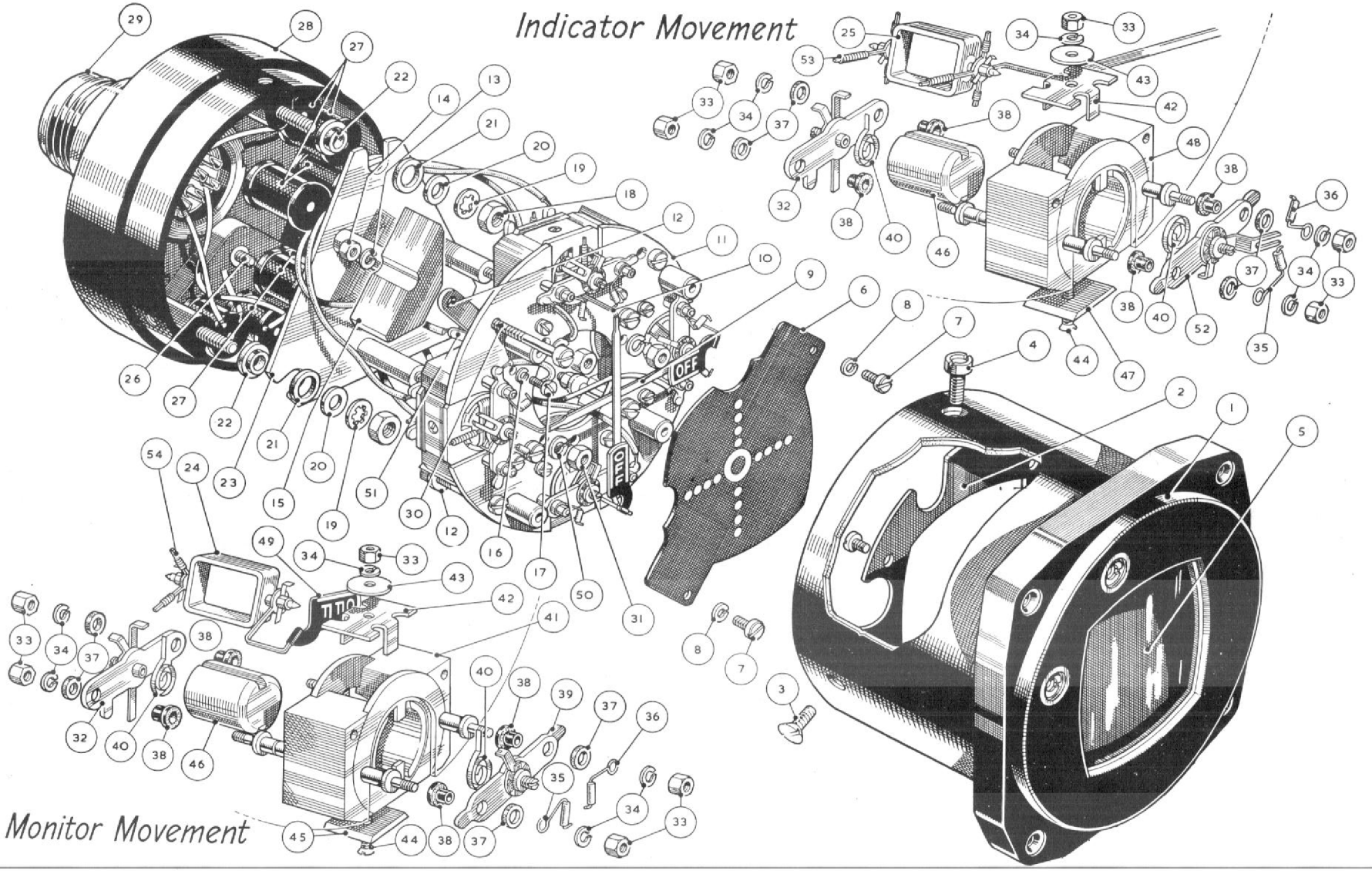
Reference	Description	Part No.	No. Off
1	Cover Assem.	164673	1
2	Mask	164676	1
3	Screw 6BA. × $\frac{5}{16}$″ (Cover)	155128	2
4	Sealing Screw	166783	1
5	Glass	164677	1
6	Dial	164718	1
7	Screw 10BA. × $\frac{3}{16}$″ (Dial)	156396	2
8	Lockwasher 10BA.	159306	2
9	Pointer Assem. (L.H.)	164705	1
10	Pointer Assem. (Upper)	164704	1
11	Mounting Plate Ass.	164681	1
12	Magnet Clamp	164713	4
13	Lock Washer 8BA.	103854	8
14	Nut 8BA.	150168	8
15	Magnet	164712	4
16	Lock Washer 10BA.	153367	8
17	Screw 10BA. × $\frac{1}{8}$″ Ch. Hd.	155546	8
18	Nut 4 BA.	150164	3
19	Lock Washer 4BA.	150404	3
20	Washer 4BA.	90031	3
21	Insul. Washer	164751	3
22	Insul. Bush	164716	3
23	Sub. Mtg. Plate	164687	1
24	Moving Coil Wd. (Monitor Mov.)	Specify Code	2
25	Moving Coil Wd. (Indicator Mov.)	Specify Code	2
26	Stud 10BA. (Spools)	153496	8
27	Spools Wd.	Specify Code Letter	8
28	Base	164671	1
29	12 Pin Plug	164717	1
30	Screw 8BA. × $\frac{13}{16}$″ Ch. Hd.	155373	8
31	Nut 6BA	150166	3
32	Bridge Assem. Bott.	164694	4
33	Nut 12BA.	155125	20
34	Lock Washer 12BA.	155830	20
35	Pointer Stop (L.H.)	164711	4
36	Pointer Stop (R.H.)	164710	4
37	Bridge Insul. Washer	154399	16
38	Bridge Insul. Bush	154397	16
39	Bridge Ass. Top (Flag)	164696	2
40	Spring : Specify Flag or Pointer Movt. and Inst. Code No.		8
41	Pole Piece Ass. (Flag)	168480	2
42	Core Clamp	157521	4
43	Washer 12BA. Large	159596	4
44	Core Screw 12BA.	155584	4
45	Core Plate (Flag)	164715	2
46	Core .4	155580	4
47	Core Plate (Pointer)	164714	2
48	Pole Piece (Pointer)	168481	2
49	Flag Assem. / Flag Assem. off Lower / Flag Assem. off R.H.	164698 / 167110 / 167111	Specify 2
50	Lock Washer 6BA.	156978	3
51	Terminal Tag 8BA.	164637	1
52	Bridge Assem. (Upper) / Bridge Assem. (L.H.)	164692 / 164690	2
53	Balance Cross (Pointer)	164709	2
54	Balance Cross (Flag)	164701	2



Model S114 Form 6



Model S114 Form 6

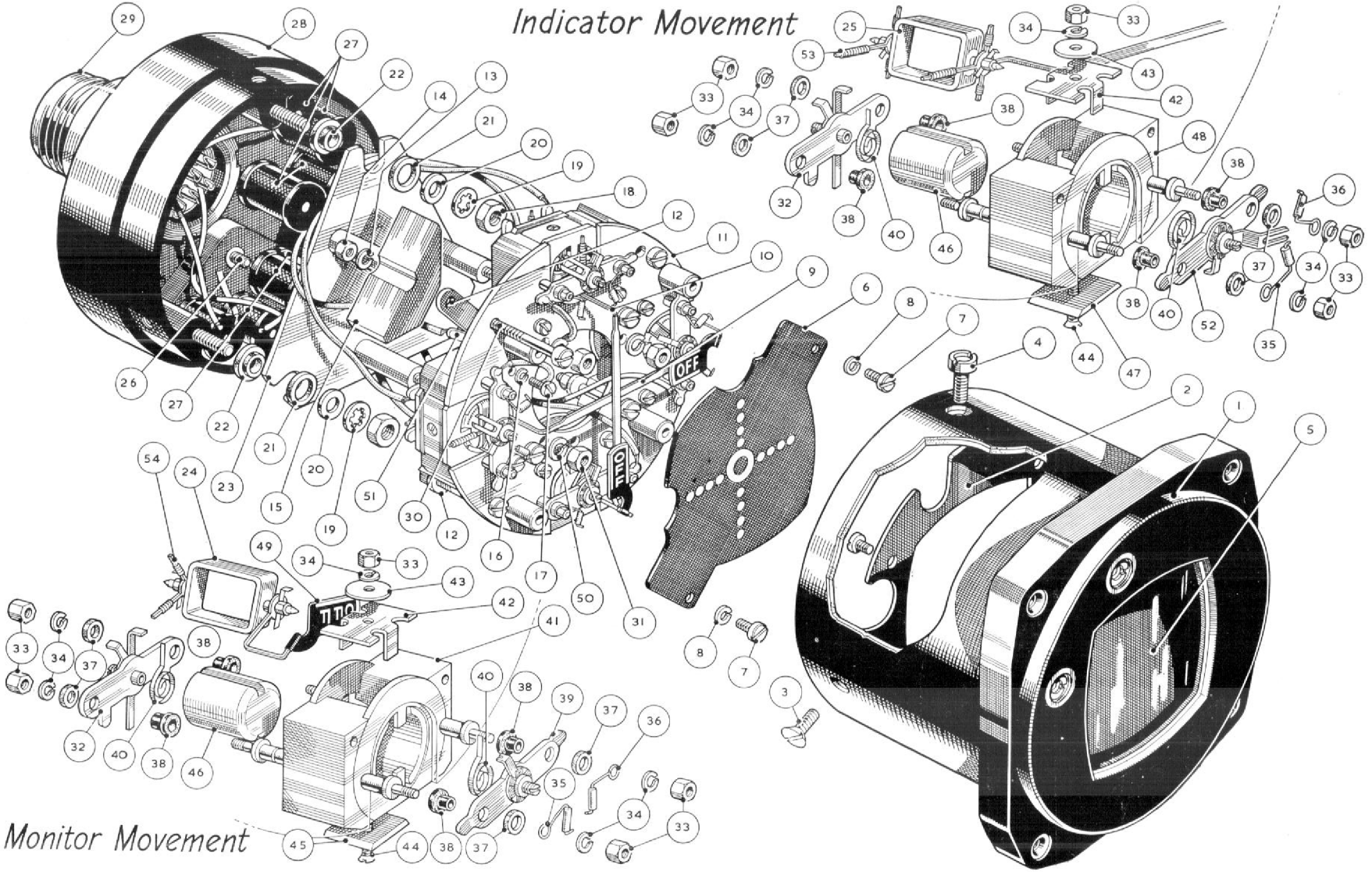


Model S114 Form 6

PARTS LIST

MODEL S114, FORM 6.

Reference	Description	Part No.	No. Off.
1	Cover Assem.	166955	1
2	Mask for Cover	164676	1
3	Screw 6BA. Cover	150146	4
4	Sealing Screw 6BA.	168862	2
5	Sealing Cup	168013	2
6	Dial Fin.	164718	1
7	Screw 10BA. × $\frac{3}{16}$″ (Scale)	156396	2
8	Lock Washer 10BA.	159306	2
9	Pointer Assem. L.H.	164705	1
10	Pointer Assem. Upper	164704	1
11	Mounting plate Assem.	164681	1
12	Magnet Clamp	164713	4
13	Lock Washer 8BA.	103854	8
14	Nut 8BA.	150168	8
15	Magnet	154712	4
16	Lock Washer 10BA.	153367	8
17	Screw 10BA. CH.HD. $\frac{1}{8}$ lg.	155546	8
18	Screw 12BA. CH.HD. $\frac{1}{8}$ lg.	150122	8
19	Lock Washer 12BA.	155830	8
20	Terminal Tag 8BA.	164637	1
21	Sub-Mtg. Plate Ass.	166958	1
22	Nut 6BA.	150166	9
23	Lock Washer 6BA.	156976	9
24	Base (Well Type)	168576	1
25	Mtg. Plate Pillar	166966	3
26	Mtg. Plate (Well Type)	168616	1
27	Screw 10BA. × $\frac{3}{16}$″ (Spool)	150330	8
28	Lock Washer 10BA. (Spool)	153367	8
29	Spools	Specify Letter and Code No.	
30	Base Drilled	166926	1
31	12 Pin Plug	164717	1
32	Sub-Mtg. Plate Pillar	166965	3
33	Nut 12BA.	155125	20
34	Lock Washer 12BA.	155830	20
35	Pointer Stop L.H.	164711	4
36	Pointer Stop R.H.	164710	4
37	Bridge Insul. Washer	154399	16
38	Bridge Insul. Bush	154397	16
39	Bridge Ass. Top (Flag)	164696	2
40	Spring	156895	8
41	Pole Piece Assem. (Flag).	168480	2
42	Core Clamp	157521	4
43	Washer 12BA. Large	159596	4
44	Core Screw 12BA.	155584	4
45	Core Plate (Flag)	164715	2
46	Core .4″	155580	4
47	Core Plate (Pointer)	164714	2
48	Pole Piece Assem. (Pointer)	168481	2
49	Flag Assem.	164698	Specify 2
	Flag Off R.H.	167110	
	Flag Off Lower	167111	
50	Counter Weight	157241	2
51	Moving Coil Wd. (Monitor Mov.)	Specify Code	2
52	Bridge Ass. Top (Upper)	164692	2
	Bridge Ass. Top (L.H.)	164690	
53	Bridge Ass. Bott.	164694	4
54	Moving Coil Wd. (Indicator Mov.)	Specify Code	2
	Balance Weight	—	As required



Model S114 Form 6

SANGAMO WESTON

PARTS LIST

MODEL S114, FORM 6.

Reference	Description	Part No.	No. Off.
1	Cover Assem.	166955	1
2	Mask for Cover	164676	1
3	Screw 6BA. Cover	150146	4
4	Sealing Screw 6BA.	168862	2
5	Sealing Cup	168013	2
6	Dial Fin.	164718	1
7	Screw 10BA. × 3/16″ (Scale)	156396	2
8	Lock Washer 10BA.	159306	2
9	Pointer Assem. L.H.	164705	1
10	Pointer Assem. Upper	164704	1
11	Mounting plate Assem.	164681	1
12	Magnet Clamp	164713	4
13	Lock Washer 8BA.	103854	8
14	Nut 8BA.	150168	8
15	Magnet	164712	4
16	Lock Washer 10BA.	153367	8
17	Screw 10BA. CH.HD. 1/8 lg.	155546	8
18	Screw 12BA. CH.HD. 1/8 lg.	150122	8
19	Lock Washer 12BA.	155830	8
20	Terminal Tag 8BA.	164637	1
21	Sub-Mtg. Plate Ass.	166958	1
22	Nut 6BA.	150166	9
23	Lock Washer 6BA.	156976	9
24	Base (Well Type)	168576	1
25	Mtg. Plate Pillar	166966	3
26	Mtg. Plate (Well Type)	168616	1
27	Screw 10BA. × 3/16″ (Spool)	150330	8
28	Lock Washer 10BA. (Spool)	153367	8
29	Spools	Specify Letter and Code No.	
30	Base Drilled	166926	1
31	12 Pin Plug	164717	1
32	Sub-Mtg. Plate Pillar	166965	3
33	Nut 12BA.	155125	20
34	Lock Washer 12BA.	155830	20
35	Pointer Stop L.H.	164711	4
36	Pointer Stop R.H.	164710	4
37	Bridge Insul. Washer	154399	16
38	Bridge Insul. Bush	154397	16
39	Bridge Ass. Top (Flag)	164696	2
40	Spring : Specify Flag or Pointer Movt. and Inst. Code No.		8
41	Pole Piece Assem. (Flag)	168480	2
42	Core Clamp	157521	4
43	Washer 12BA. Large	159596	4
44	Core Screw 12BA.	155584	4
45	Core Plate (Flag)	164715	2
46	Core .4″	155580	4
47	Core Plate (Pointer)	164714	2
48	Pole Piece Assem. (Pointer)	168481	2
49	Flag Assem.	164698	Specify 2
	Flag Off R.H.	167110	
	Flag Off Lower	167111	
50	Counter Weight	157241	2
51	Moving Coil Wd. (Monitor Mov.)	Specify Code	2
52	Bridge Ass. Top (Upper)	164692	2
	Bridge Ass. Top (L.H.)	164690	
53	Bridge Ass. Bott.	164694	4
54	Moving Coil Wd. (Indicator Mov.)	Specify Code	2
	Balance Weight	—	As required