OVERHAUL MANUAL

S.104 FORM 3 - AMMETER OR VOLTMETER

SANGAMO WESTON LIMITED

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THIS MANUAL HAS BEEN COMPILED AND PRINTED BY THE ENGINEERING DEPARTMENT, SANGAMO WESTON LTD.

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This Manual complies with British Civil Airworthiness Requirements, Chapter A6-2. The technical accuracy of this manual has been verified and is certified correct.

Signed. 

Date. October 1970

A.R.B. Design Approval No. AD/1147/47

S.104 FORM 3 - AMMETER OR VOLTMETER

REVISION RECORD SHEET

Revision No.	Date of Issue	Incorporated by:	Date	Remarks
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The introduction of any amendment or revision not certified in accordance with British Civil Airworthiness Requirements Chapter A6-2 will invalidate the statement of certification on Model S.104 Form 3
Amendments or revisions embodied in this manual, which have been certified under an approval authorisation other than that applicable to the initial certification must be recorded on separate record sheets.

SANGAMO WESTON LTD.

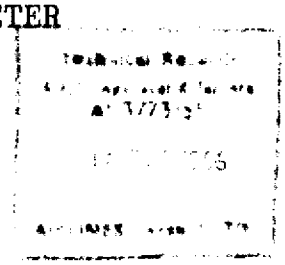
OVERHAUL MANUAL 31-09-106

MODEL S.104 FORM 3 - AMMETER OR VOLTMETER

LETTER OF TRANSMITTAL

FOR

REVISION No. 1



Issued September **1965**
by
Sangamo Weston Ltd., Enfield, Middlesex, England

ACTION	**REASON**
1. Remove and destroy pages 1/2, 7 to 22 and 25/26 of Overhaul Manual 31-09-106 and substitute pages 1/2, 7 to 22 and 25/26 incorporating Revision 1.	Title page, paragraphs 1, 2, 4, 5, 6, 8 and 10, Fig. 2 and 3 and Parts List revised; pages 1, 7, 9, 10, 12-19, 22 and 26.
2. Record the incorporation of this revision on the Revision Record Sheet on page 3.	
3. Retain this Letter of Transmittal.	This certifies compliance with Section A, Chapter A6-2, of British Civil Airworthiness Requirements.

This revision complies with British Civil Airworthiness Requirements, Section A, Chapter A6-2. The technical accuracy of this revision has been verified and is certified accurate.

Signed: N.B. Longman.

Date: 22nd October, 1965

A.R.B. Design Approval No. AD/1147/47

SANGAMO WESTON LTD.

OVERHAUL MANUAL 31-09-106

MODEL S.104 FORM 3 - AMMETER OR VOLTMETER

LETTER OF TRANSMITTAL

FOR

REVISION No. 2

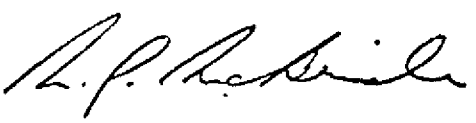
Issued October 1970

by

Sangamo Weston Ltd., Enfield, Middlesex, England

ACTION	REASON
1. Remove and destroy pages 1,2 and 23/24 Substitute pages 1,2 and 23/24	Page 1 and 2 revised. Page 24 Overhaul period revised.
2. Record the incorporation of this revision on the Revision Record Sheet.	
3. Retain this Letter of Transmittal.	This certifies compliance with Section A, Chapter A6-2, of British Airworthiness Requirements.

This revision complies with British Civil Airworthiness Requirements, Section A, Chapter A6-2 The technical accuracy of this revision has been verified and certified accurate.

Signed: 

Date: 14th October 1970

A.R.B. Design Approval No. AD/1147/47

OVERHAUL MANUAL

MODEL S.104 FORM 3 - AMMETER OR VOLTMETER

TABLE OF CONTENTS

ILLUSTRATIONS

S.104 FORM 3 - AMMETER OR VOLTMETER

The overhaul procedure contained in this manual is applicable, in general, to all S.104 Form 3 indicators. The addenda at the end of the manual provide details of particular versions of this indicator together with references to the applicable information in the main part of the manual.

1. Description and Operation

A. General

Model S.104 Form 3 is basically a d.c. permanent magnet, moving coil indicator with applications as an ammeter or voltmeter. A rectifier is incorporated when the indicator is to be used for a.c. measurement.

B. Detail. (Refer to Fig.1)

The movement consists of a coil of fine copper wire wound on a copper or aluminium frame and pivoted in adjustable jewelled bearings which are inset in the top and bottom bridges (29) and (33). The coil, which rotates backwards and forwards in the gap between a core (40) and a pole piece (42), has a pointer, balance arms and two control springs attached to its pivot bases. The pole piece assembly is secured to the base by two screws, which engage in threaded mounting pillars, and also by two nutted studs. The studs are positioned in the lower part of the base and fit into grooves in the sides of the permanent magnet (20) in order to retain the latter in its correct position between the pole piece assembly plate (42) and the base (49). Small, threaded pillars, fitted to the pole piece assembly plate at the front of the indicator, and to the pole piece at the rear, support the two bridge assemblies (29) and (33). An appropriately calibrated scale (15) is mounted on a shield plate (16) and is secured by two screws (12) to two tapped pillars on the pole piece assembly plate; the two screws also secure the two pointer stops (14). A two-pin breeze connector (47) or, alternatively, a pair of terminals 48 (not shown in Fig.1) is fitted to the base. The breeze connector is secured to the base (49) with screws (45) (46), lockwashers (44) and nuts (43). The base is secured in the cover assembly by two countersunk screws (6) and a sealing screw (4). A pointer zero adjuster is incorporated, the adjusting screw (11) being captive in the cover. A metal shield (3) is fitted over the rear of the indicator and is secured by three cheesehead screws (1).

C. Operation

The indicator operates as a normal d.c. moving-coil meter, the amount of pointer deflection being proportional to the magnitude of the current flowing through the moving coil

S.104 FORM 3 - AMMETER OR VOLTMETER

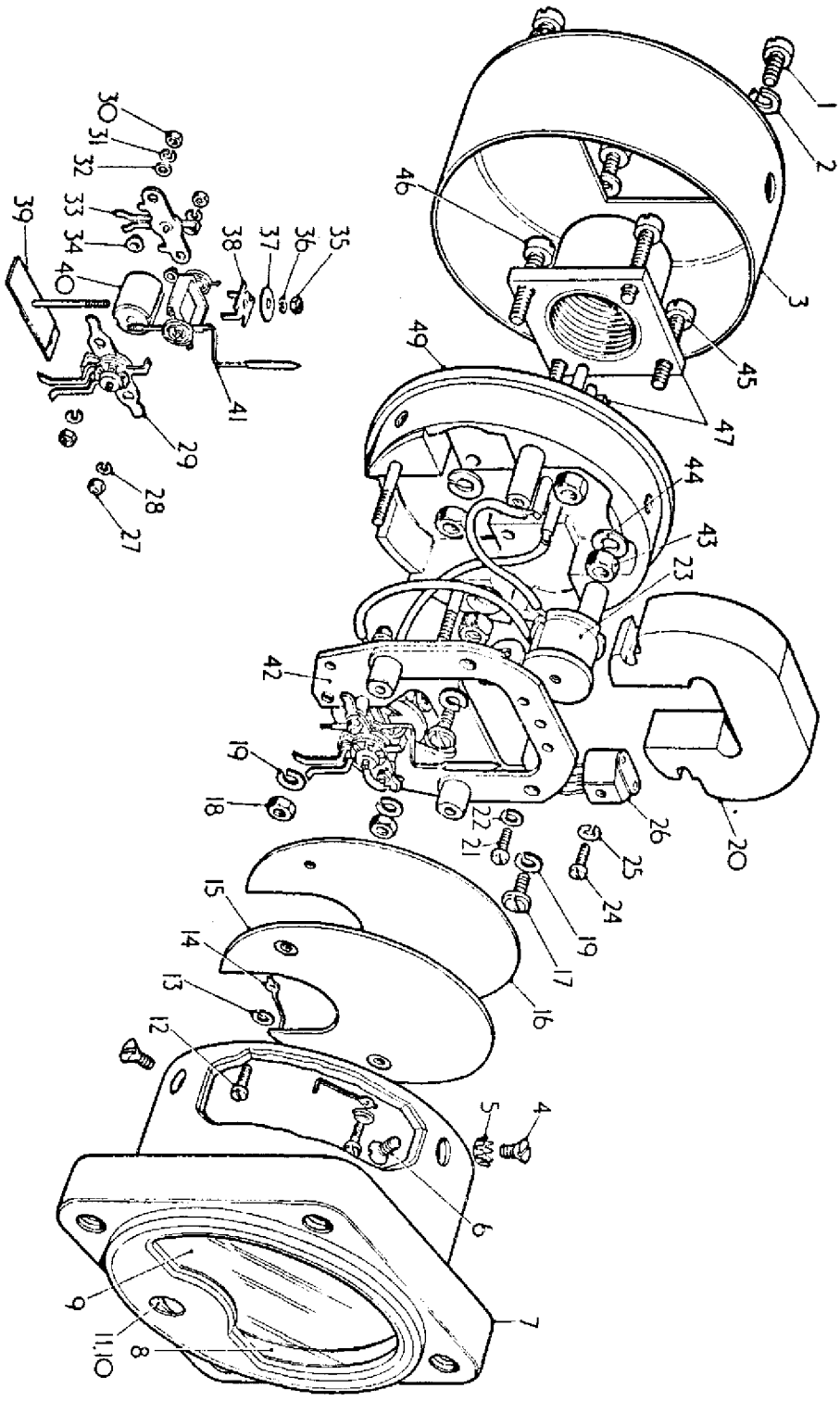


Fig.1 Exploded view of indicator S.104 Form 3

S.104 FORM 3 - AMMETER OR VOLTMETER

KEY TO FIG. 1

1. Shield screw
2. Lockwasher
3. Metal shield
4. Sealing screw
5. Sealing cup
6. Cover retaining screw
7. Cover
8. Bezel ring
9. Glass
10. Zero Stud spring
11. Zero Stud
12. Scale retaining screw
13. Lockwasher
14. Pointer stop
15. Scale plate
16. Shield plate
17. Pole piece assembly plate retaining screw
18. Nut
19. Lockwasher
20. Magnet
21. Spool retaining screw
22. Lockwasher
23. Spool
24. Rectifier retaining screw
25. Lockwasher
26. Rectifier (a.c. indicators)
27. Top bridge retaining nut
28. Lockwasher
29. Top bridge
30. Bottom bridge retaining nut
31. Lockwasher
32. Insulating washer
33. Bottom bridge
34. Insulating bush
35. Core retaining nut
36. Lockwasher
37. Large washer
38. Core clamp
39. Magnet shunt assembly and core retaining screw
40. Core
41. Moving element complete
42. Pole piece assembly plate
43. Connecting plug retaining nut
44. Lockwasher
45. Screw
46. Screw
47. Connecting plug
48. Terminal screw and washer assembly (not shown)
49. Base

2. Disassembly

A. Checks before Dismantling

Check whether the indicator has been returned with a history sheet which may indicate any parts requiring particular attention.

B. Preparation

Observe absolute cleanliness of workbench and tools.

C. Procedure. (Refer to Fig. 1)

(1) Remove the screws (1), lockwashers 2 (3 off-each item) and withdraw the metal shield (3).

(2) Remove sealing screw (4), sealing cup (5), screws 6 (2 off) and withdraw the indicator from the cover assembly (7).

(3) To remove glass (9) from cover assembly (7), remove bezel ring (8).

(4) To remove adjusting screw (11), first remove washer (10) on underside.

(5) Remove screws (12), lockwashers (13) and pointer stops 14 (2 off - each item) in order to remove the scale (15) and shield plate (16).

NOTE: Care must be taken to avoid damaging the pointer when removing the scale.

(6) Remove screws 17 (2 off) and nuts 18 (2 off) together with lockwashers 19 (4 off).

(7) Withdraw movement complete to extent allowed by terminal leads.

(8) Remove magnet (20).

NOTE: Due to the magnetic circuit having been broken, it is essential for the magnet to be raised at assembly in order to regain the required moving coil sensitivity. The procedure is detailed in paragraph 6.

(9) Unsolder terminal leads from terminals and bridges.

NOTE: Further disassembly will depend upon the extent of the necessary repairs. The sequence for dismantling the movement down to the moving element is contained in sub-para. (10) onwards.

(10) Remove screw (21) and lockwasher (22) to dismount spool (23); and remove screw (24) and lockwasher (25) to remove rectifier (26).

(11) Unsolder the outer ends of the coiled control springs and remove nuts 27 (2 off) lockwashers 28 (2 off) and the top bridge (29).

(12) Remove the nuts 30 (2 off), lockwashers 31 (2 off), insulating washers 32 (2 off); remove the bottom bridge assembly (33) and insulated bushes 34 (2 off).

(13) Remove nut (35), lockwasher (36), plain washer (37), core clamp (38) and magnet shunt assembly (39).

(14) With great care, withdraw the moving element complete with the core (40) from the top of the pole piece assembly plate (42).

(15) Slide the core (40) from the moving element (41).

If the indicator is fitted with a breeze connector, proceed as in operation (16); if not, proceed as in operation (17).

(16) To remove breeze connector (47) from base (49), remove nuts 43 (4 off), lockwashers 44 (4 off) screws 45 (2 off) and screws 46 (2 off).

(17) Remove terminal screws with captive washers 48 (2 off) from terminal moulding.

3. Cleaning

A. Schedule of Cleaning Materials

(1) Camel-hair brush, No. 12, round.

(2) Acetone, B.P.C.

(3) A small piece of wash-leather

B. Procedure

(1) Use a soft brush to remove all dust etc. from the case. Blow out the magnet gap with a fine jet of clean, dry air.

(2) Use acetone to remove all Bostik adhering to threads of screws and nuts, and to all other components which have been disturbed. Ensure that the acetone does not come into contact with insulation or varnished surfaces.

(3) Clean the glass of cover (7) with the wash-leather before final assembly.

4. Inspection

A. Procedure

Examine all metal components for corrosion; check screws, nuts and threaded holes for condition and serviceability of threads.

B. Detail Procedure

(1) Use a X10 magnifier to examine the gap in which the moving coil swings for obstructions; small particles adhering to the core or to the pole piece must be removed with a shaped piece of wood or celluloid.

CAUTION: UNDER NO CIRCUMSTANCES MAY A METALLIC NEEDLE BE USED FOR THIS PURPOSE. AVOID DAMAGE TO THE CONTROL SPRINGS.

(2) Examine the cover (7), and base (49) for distortion, scoring, cracks, bent terminals, and for a broken or loose glass.

(3) Check that the moving coil moves freely, and that the pointer is not bent or damaged.

(4) Check that the resistance of the moving element is within the limits stated in the appropriate addendum.

5. Repair

A. Schedule of materials

(1)	Bostik cement No.772	B.B. Chemical Co. Ltd.
(2)	Inhibisol	Penetrone Paripan Ltd.
(3)	Genklene	I.C.I. Ltd.
(4)	Acetone	B.P.C.

B. Cover and Base

If either part is defective, it must be renewed.

C. Broken Glass (Refer to Fig.1)

(1) Prise out the bezel ring (8) and glass (9) from the cover (7).

(2) Use Genklene (if available), Inhibisol or acetone as a solvent and remove all Bostik adhering to cover.

NOTE: On some earlier indicators Bostik cement No.1261 may have been used for glass/cover adhesion this cement is best removed with Toluene.

(3) Apply Bostik cement No.772 evenly around the inside lip of the cover. Press down the new glass firmly into the cement, ensuring that all air bubbles are eliminated and that the cement covers the edge of the glass and fills all gaps.

(4) Apply more Bostik around the internal surface of the cover immediately above the glass.

(5) Insert the bezel ring and press down firmly into the cement so that a layer of Bostik forms between the bezel ring and glass.

(6) Allow to air dry for a minimum of 48 hours.

(7) Support the glass to prevent it becoming loose, and trim off the surplus Bostik with a sharp wet knife.

D. Pointer Adjuster

(1) Remove a damaged pointer adjuster as detailed in paragraph 2C(4) and renew.

6. Assembly

During assembly, apply a spot of B.S.104 to all threaded holes, nuts and screwheads to lock these items against vibration. Cement jewel screws and coat all soldered connections with Red Thermolene Lacquer. After final adjustment and calibration, apply a thin coat of B.S.43 to the cover-to-base joint and to the internal surface of the cover. These finishes, to SANGAMO WESTON B.S. specification, may be obtained from Messrs. SANGAMO WESTON LTD., ENFIELD, MIDDLESEX, ENGLAND, or obtained directly from the suppliers.

B.S.104	Bostik No. 772 thinned with acetone to a brushable consistency.
Thermolene Lacquer	Messrs. Canning's Red Thermolene Lacquer.
B.S.43	Messrs. Gulf Oil Co. Gulfcrown No.3 grease.

A. **Procedure.** (Refer to Fig.1)

Observe scrupulous cleanliness.

(1) Fit moving element complete with pointer and springs over core.

(2) Taking care not to damage the pointer, insert the moving element (41) complete with the core (40) into the aperture in the pole piece assembly (42).

(3) Fit the magnet shunt assembly (39); pass the screw through the core (40) and secure with the core clamp (38), the plain washer (37) lockwasher (36) and nut (35).

(4) Fit the insulating bushes 34 (2 off) on to the threaded pillars on the underside of the pole piece assembly. Mount the bottom bridge assembly (33) on the pillars, fit the insulating washers 32 (2 off) and secure with lockwashers 31 (2 off) and nuts 30 (2 off).

(5) Locate the moving element bottom pivot in its jewelled bearing on the bottom bridge assembly.

(6) Mount the top bridge assembly (29) on the threaded pillars on the top face of the pole piece assembly. Secure with lockwashers 28 (2 off) and nuts 27 (2 off).

(7) Ensure that both pivots of the moving element are correctly located in their jewelled bearings before finally tightening nuts.

CAUTION: DO NOT FORCE THE JEWELS AND PIVOTS ON TO EACH OTHER. GREAT CARE MUST BE TAKEN TO AVOID DAMAGING THESE COMPONENTS.

(8) Adjust the jewelled bearings to centralize the position of the moving coil in the pole piece.

(9) Solder the outer ends of the two control springs to the spring terminations provided on the top and bottom bridges.

CAUTION: DO NOT ALLOW THE CONTROL SPRINGS TO BECOME OVERHEATED. EXCESS HEAT MAY CAUSE PERMANENT DAMAGE TO SPRINGS.

(10) Check that the moving coil is centred evenly and turn jewel screws clockwise in increments of approx. 1/10th of a turn until 'pointer flop' (the movement of the pointer due to the pivots being able to move laterally in the jewel bearings) is just eliminated.

(11) Back off the jewel screws by 1/10th to 1/8th of a turn until a slight pointer flop is just perceptible.

(12) Resolder the connections between the positive terminal and the spool and between the spool and the soldering tag on the bottom bridge assembly; and resolder the connection between the negative terminal and the tag on the top bridge. Position the magnet (20) on the pole piece assembly plate.

(13) Due to the magnetic flux having been broken during disassembly, the magnet must be raised by subjecting it, in the assembled movement, to a magnetizing force of not less than 20,000 ampere-turns.

(14) Ensure that the gap in which the moving coil swings is free from dirt or small particles adhering to the surface of the core or pole piece. If necessary, clean as described in paragraph 4.

(15) Secure the pole piece assembly plate (42) on the base (49). Secure the plate to the mounting pillars on the base with lockwashers 19 (2-off) and screws 17 (2-off), and to the studs on the base with lockwashers 19 (2-off) and nuts 18 (2-off).

(16) Mount the shield plate (16) and the scale (15) complete with pointer stops 14 (2 off) onto the supporting pillars on the pole piece assembly and secure with lockwashers 13 (2 off) and screws 12 (2 off).

NOTE: Care must be taken to avoid damage to the pointer during this operation.

(17) Balance the movement as described in section B.

(18) Temporarily assemble the metal shield (3) to the base (49) and age the magnet as follows:

NOTE: The magnetic shunt must be set in the position to give minimum deflection, i.e. the ends of the shunt components must be in line.

(a) Apply the specified current (quoted in the appropriate addendum) for full scale deflection.

(b) Use a coil which is suitable for connection to a 50 c/s supply and age the magnet until the pointer registers full scale deflection. The ageing process may be accomplished by the gradual approach and recession of the coil, or by slowly increasing and decreasing the current in the magnetizing coil. The process must be continued until the correct pointer deflection is obtained.

(19) Temporarily assembly the cover (7) and metal shield (3) to the base (49) and secure with the screws 6 (2-off) and screw 4. Bake the indicator for not less than eight hours at a temperature of 70°C to stabilize the magnet. The indicator is then ready for adjustment and calibration.

NOTE: Final assembly of the indicator is not to be carried out until calibration has been completed.

(20) Complete the assembly sequence by applying a thin coat of B.S.43 to the cover-to-base joint and a further coat to the internal surface of the cover (7) and base (49).

(21) Fit the cover (7) to the base (49) and secure with screws 6 (2 off), sealing cup (5) and sealing screw(4).

(22) Fit the metal shield (3) and secure with lockwashers 2 (3-off) and screws 1 (3-off).

B. Balancing The Movement

(1) Check the jewelled bearings for correct adjustment; then proceed as follows;

NOTE: During initial balancing, pointer error must not exceed 1.0% of full scale range value and must not exceed 2.0% on final check.

(2) Adjust the balance weights in the following manner to maintain the pointer within the permissible limits:

(a) With the indicator scale in the horizontal position, and the pointer in alignment with the scale zero cardinal, proceed as below.

(b) Turn the indicator to bring the pointer parallel to the table edge.

(c) Raise the indicator slowly until the scale is vertical; the pointer deviation from the zero cardinal must not exceed the permissible limit. If outside the limit, readjust the position of the tail weight.

(d) Repeat operation (b) but with the side arms parallel to the table edge.

(e) Repeat operation (c); adjust the side arms to correct any deviation in the balance.

8. Testing

A. Ammeter. (Refer to Fig.2)

(1) Connect the indicator to the circuit. Indicators which are fundamentally millivoltmeters must be adjusted as described in para. B and then checked with their shunts as shown in Fig. 2A.

NOTE: In this instance, the test instrument will be the same as that used for millivoltmeters in d.c. indicators. When a rectifier is used for a.c. indicators, check that the waveform for the input is sinusoidal.

(2) With the variable series resistance set to a maximum value, apply the appropriate current quoted in the addendum for the variant.

(3) Set the variable resistance, in turn, from the value giving a zero reading, through each intermediate value to the maximum scale value and check the accuracy of the indicator against the precision test instrument (see paragraph 11).

NOTE: Ensure that the indicator is mounted on a vertical panel during adjustment and calibration, or mounted as instructed in the addendum for the variant.

(4) Calibrate the indicator, as instructed in the appropriate addendum.

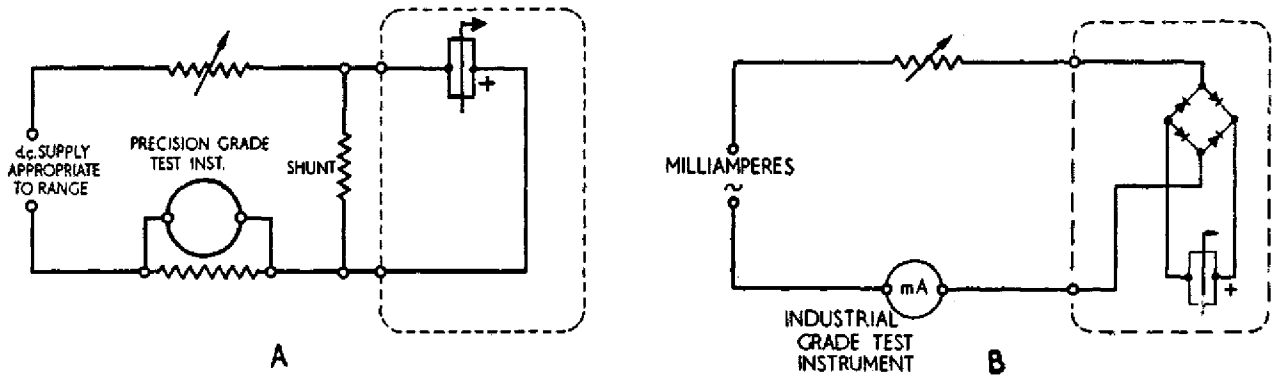


Fig. 2 Test circuit for Ammeters.

B. Voltmeters and Millivoltmeters. Refer to Figs. 3, 3A and 3B.

(1) Connect the indicator to the circuit.

NOTE: The test instrument for d.c. indicators must be precision grade similar to SANGAMO WESTON Model S.82. For a.c. indicators, an instrument of similar grade must be used.

(2) With the variable series resistance set to maximum value, apply the appropriate voltage quoted in the addendum for the variant.

(3) Set the variable resistance, in turn, from a value giving a zero scale reading, through each intermediate value to the maximum scale value and check the accuracy of the indicator against the precision test instrument (see paragraph 11).

NOTE: (1) Ensure that the indicator is mounted on a vertical panel during adjustment and calibration, or mounted as instructed in the addendum for the variant.

(2) Adjusted spools are fitted to the indicator. If a spool is changed, connect the adjusted replacement spool in series with the moving coil and then age the magnet to give full scale deflection of the pointer with the correct voltage quoted in the appropriate addendum applied to the circuit.

(4) Calibrate the indicator as instructed in the appropriate addendum.

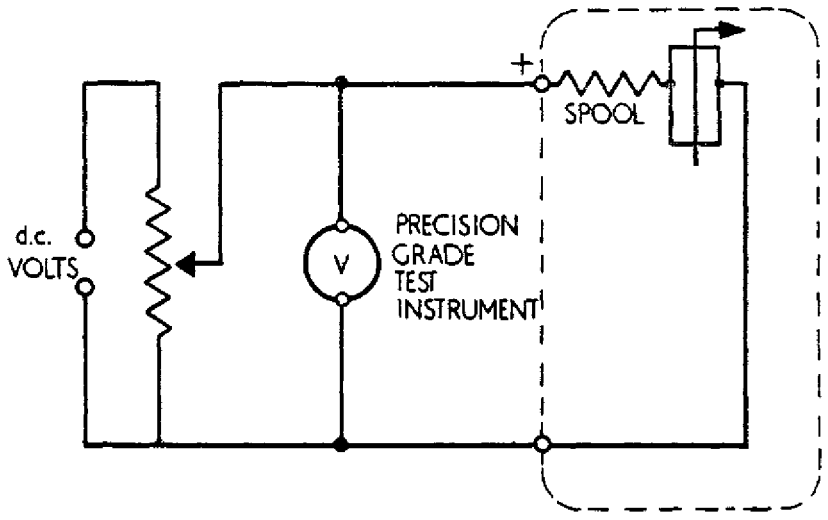


Fig. 3 Test circuit for d.c. Voltmeter

8. Testing

A. Ammeter. (Refer to Fig. 2)

(1) Connect the indicator to the circuit. Indicators which are fundamentally millivoltmeters must be adjusted as described in para. B and then checked with their shunts as shown in Fig. 2A.

NOTE: In this instance, the test instrument will be the same as that used for millivoltmeters in d.c. indicators. When a rectifier is used for a.c. indicators, check that the waveform for the input is sinusoidal.

(2) With the variable series resistance set to a maximum value, apply the appropriate current quoted in the addendum for the variant.

(3) Set the variable resistance, in turn, from the value giving a zero reading, through each intermediate value to the maximum scale value and check the accuracy of the indicator against the precision test instrument (see paragraph 11).

NOTE: Ensure that the indicator is mounted on a vertical panel during adjustment and calibration, or mounted as instructed in the addendum for the variant.

(4) Calibrate the indicator, as instructed in the appropriate addendum.

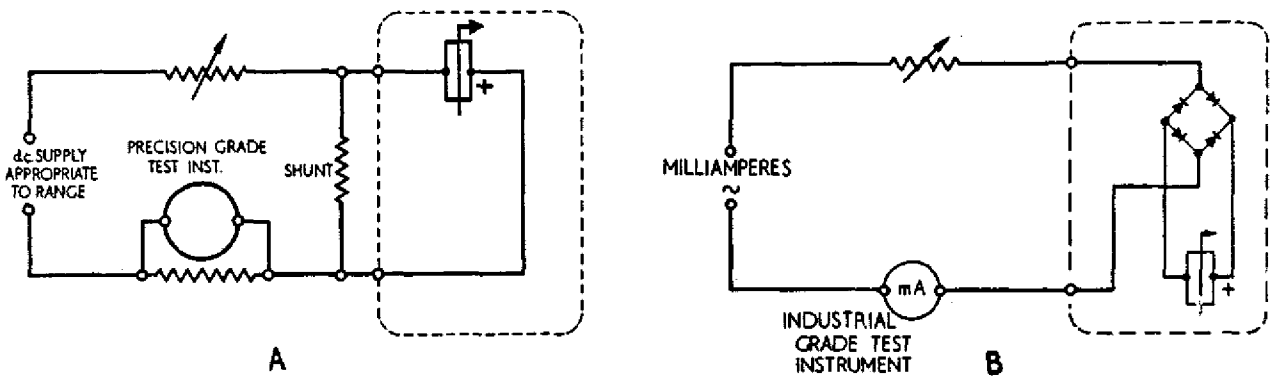


Fig. 2 Test circuit for Ammeters.

B. Voltmeters and Millivoltmeters. Refer to Figs. 3, 3A and 3B.

(1) Connect the indicator to the circuit.

NOTE: The test instrument for d.c. indicators must be precision grade similar to SANGAMO WESTON Model S.82. For a.c. indicators, an instrument of similar grade must be used.

(2) With the variable series resistance set to maximum value, apply the appropriate voltage quoted in the addendum for the variant.

(3) Set the variable resistance, in turn, from a value giving a zero scale reading, through each intermediate value to the maximum scale value and check the accuracy of the indicator against the precision test instrument (see paragraph 11).

NOTE: (1) Ensure that the indicator is mounted on a vertical panel during adjustment and calibration, or mounted as instructed in the addendum for the variant.

(2) Adjusted spools are fitted to the indicator. If a spool is changed, connect the adjusted replacement spool in series with the moving coil and then age the magnet to give full scale deflection of the pointer with the correct voltage quoted in the appropriate addendum applied to the circuit.

(4) Calibrate the indicator as instructed in the appropriate addendum.

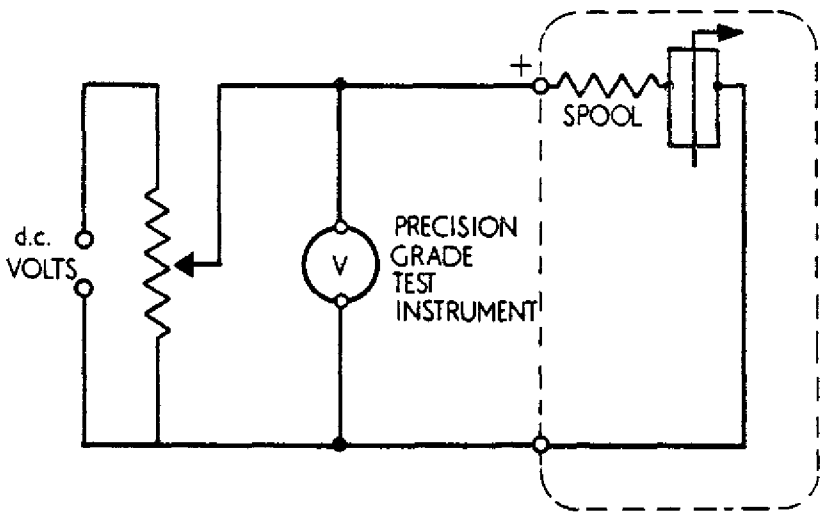


Fig. 3 Test circuit for d.c. Voltmeter

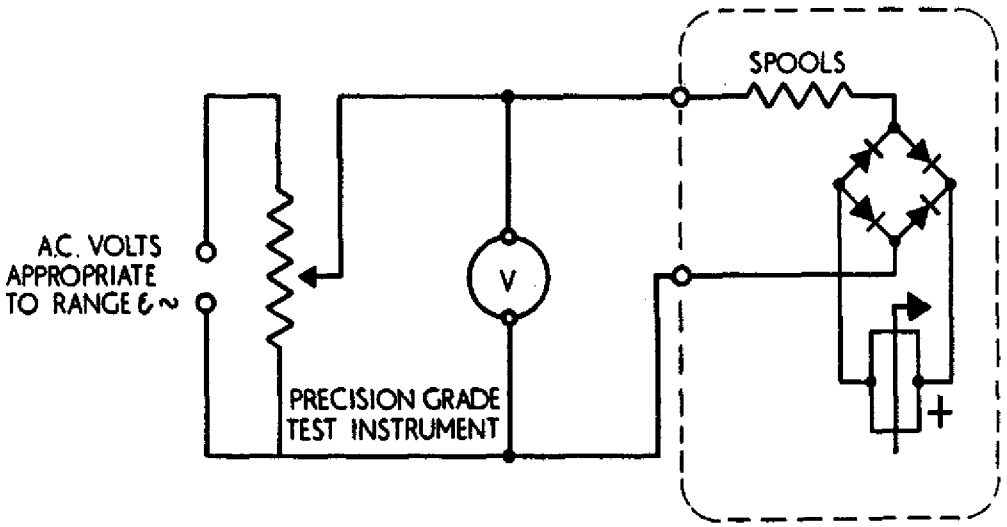


Fig.3A Test circuit for a.c. Voltmeter

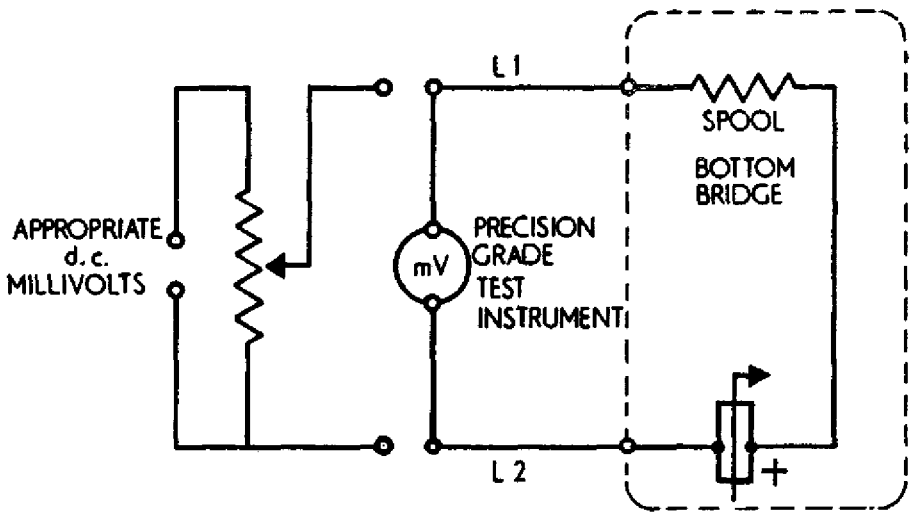


Fig.3B Test circuit for d.c. Millivoltmeter

9. Trouble Shooting. Refer to Fig. 4

A. Causes

The main faults after overhaul are:

(1) Incorrect indication by pointer.

(2) Fluctuation of indication with constant voltage or current applied.

(3) Movement sticking.

B. Correction

(1) Trace fault by means of trouble shooting chart and take suitable remedial action.

(2) Retest indicator after repair and recalibrate as necessary.

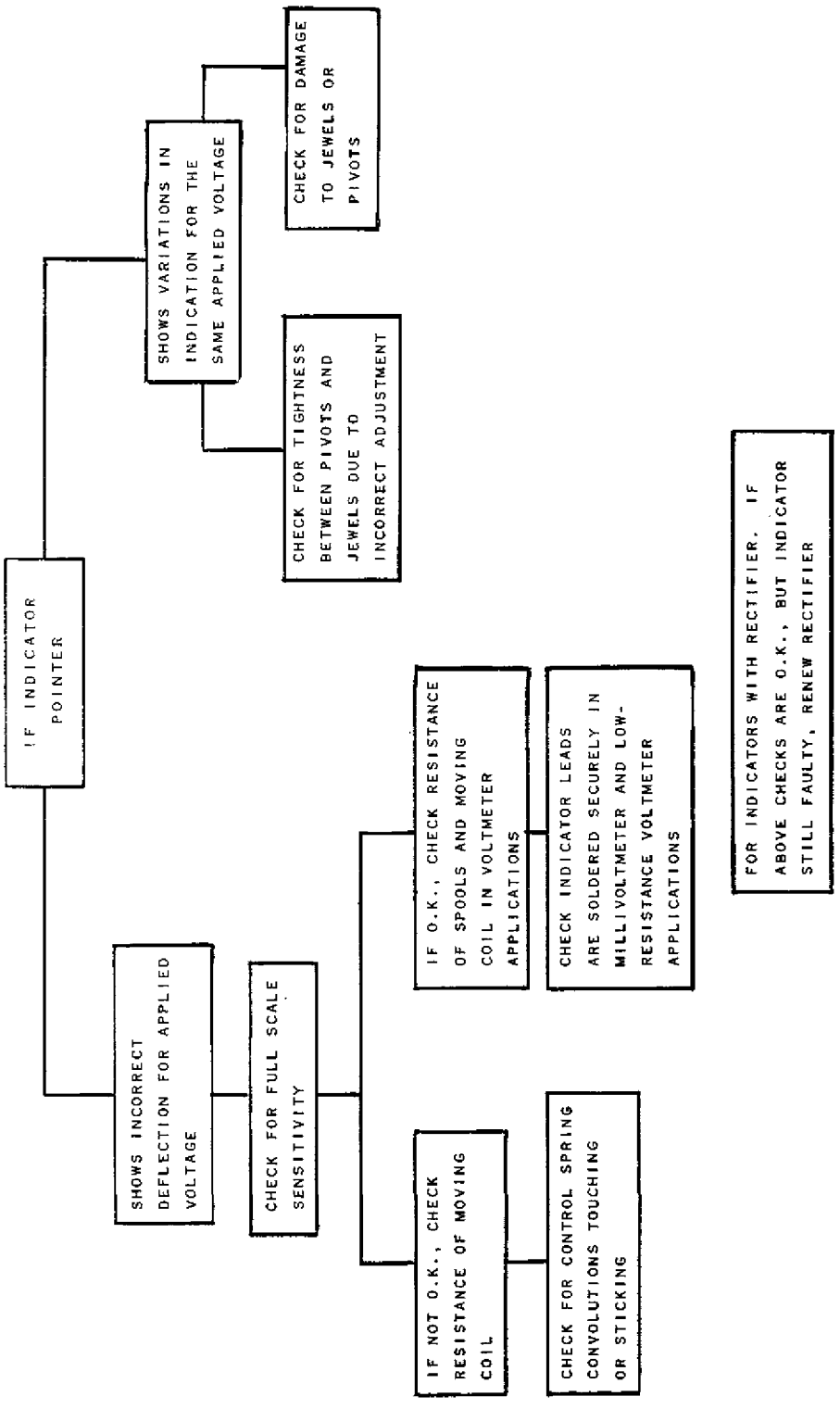


Fig. 4 Trouble shooting chart

S.104 FORM 3 - AMMETER OR VOLTMETER

10. Storage Instructions

A. Preparation and packing

(1) For packing in temperate zones, prepare the following:-

(a) A strong cardboard box, 2¾ in. x 3½ in. x 3½ in. (internal dimensions).

(b) Two squares of corrugated cardboard, 3½ in. x 3½ in.

(c) One strip of corrugated cardboard, 2¾ in. x 36 in. and a second strip 2 in. x 36 in

(d) A polythene bag, 9 in. x 6 in.

(e) Place the indicator in the polythene bag and heat-seal the opening.

(f) Wrap the narrower strip of corrugated cardboard around the cover of the indicator and then wrap the second strip to cover the glass and base.

(g) Place a cardboard square in the bottom of the box, insert the wrapped indicator, place the second cardboard square on top and fit the lid.

(h) Attach a label to the box giving the following details:-

Identification of indicator, e.g., S.104.3.000
Date of removal from aircraft.
Date of last overhaul.
Details and date of any component change.
Modification state of indicator.
Reason for return of indicator.

(2) For packing in tropical zones:-

(a) The indicator must be packed as for temperate zones with the addition of water-resistant paper completely to enwrap the indicator prior to insertion in the polythene bag.

(b) The cardboard box must be closed in a suitable wooden box.

B. Storage Limiting Period

(1) The storage limiting period for the indicator is 5 years.

(2) Indicators which have been stored for five years must be subjected to a calibration check as described in paragraph 8 (Testing).

(3) Indicators must be stored under conditions where humidity does not exceed 50% and where the temperature is within the range $-20^{o}C$ to $+50^{o}C$.

MODEL S.104 FORM 3 - AMMETER OR VOLTMETER

11. Special Tools, Fixtures and Equipment

Item	Description	Part No. or Fixture No.
1	Precision grade ammeter	Model S.69 (appropriate range)
2	Precision grade voltmeter	Model S.82 (appropriate range)
3	Balance weight wrench	271157
4	Magnetizing equipment (20,000 ampere turns minimum)	

13. Overhaul period 'ON CONDITION'

NOTE: The term 'On Condition' is applicable to systems/components on which airworthiness is determined by inspections, measurements and tests, or by other means specified, without extensive disassembly or renewal.

Inspections or checks of the aircraft indicator are scheduled at intervals shown in the aircraft maintenance schedule which will determine the repairs, replacements and refinishment.

12. ILLUSTRATED PARTS LIST

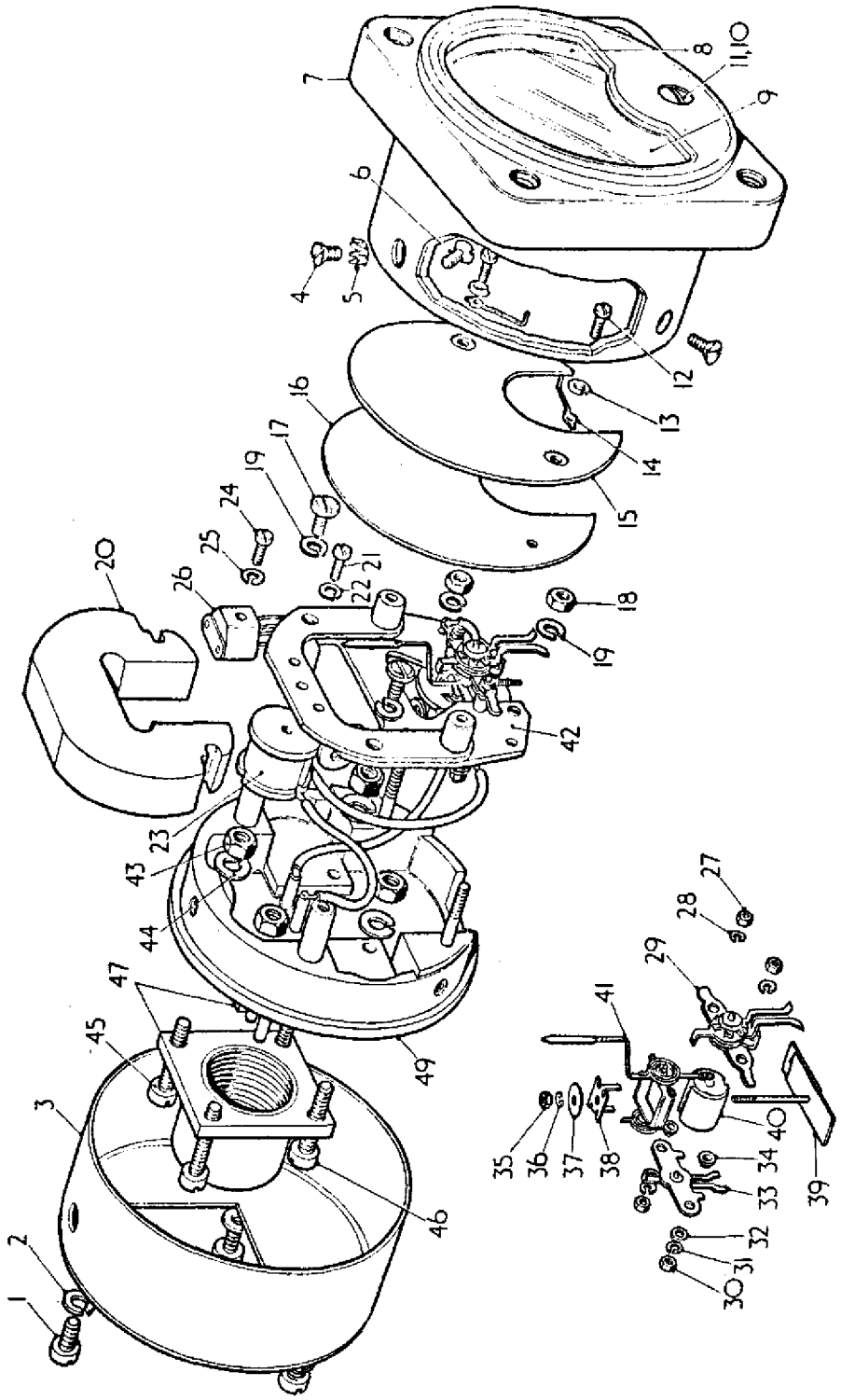


Fig. 5 S.104 Form 3

This List to be used with Variant Parts List for Model S.104 Form 3

COMMON PARTS LIST

MODEL S.104 FORM 3

	Fig. and Index No.	Nomenclature	Part No.	Units per Assy.
	Fig. 5	S.104 Form 3 Indicator	See Variant Parts	
	1	Screw, 6 B.A. (Shield)	157072	3
R	2-3		See Variant Parts	
	4	Screw, Sealing (Cover)	168861	1
	5	Sealing Cup.	168012	1
	6	Screw, 8 B.A. C'sk. (Cover)	100606	2
	7-13		See Variant Parts	
	14	Stop, Pointer	156447	2
R	15		See Variant Parts	
R	16	Plate, Magnetic Shield	160626	1
	17	Screw, 8 B.A. x 3/16 in (Mtg.Plate)	91377	2
	18	Nut, 8 B.A. (Mtg.Plate)	150178	2
	19	Lockwasher, 8 B.A. (Mtg.Plate)	103854	4
	20-26		See Variant Parts	
	27	Nut, 12 B.A. (Top Bridge)	155125	2
	28	Lockwasher, 12 B.A. (Top Bridge)	155830	2
	29	Top Bridge	163424	1
	30	Nut, 12 B.A. (Bottom Bridge)	See Index No. 27	2
	31	Lockwasher, 12 B.A. (Bottom Bridge)	See Index No. 28	2
R				
	33	Bottom Bridge	161019	1
R				
	35	Nut, 12 B.A.	See Index No. 27	1
	36	Lockwasher, 12 B.A.	See Index No. 28	1
	37	Washer, 12 B.A. (Large)	159596	1
	38	Clamp Core	157522	1
	39	Magnet Shunt Assembly	158692	1
	40	Core	154404	1
	41-49		See Variant Parts	

NOTE: Sangamo Weston Code appears on front of Scale

The term 'variant' defines a particular application of the Model. The last figure group of the Sangamo Weston Code number identifies the variant and enables the user to select the correct variant parts list.

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