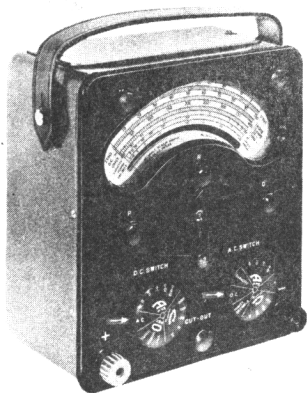




RECOMMENDED SPARES LIST

Models 7 and 7x Mk.1
and Mk. 2
Avometers

AVO LIMITED · AVOCET HOUSE · DOVER · ENGLAND

CONTENTS

	Page
Abbreviated specification	3
Recommended spares list:	
front panel	4
case assembly	5
panel assembly	5
panel sub-assembly	6
switch ring assemblies	7
top resistance board assembly	8
bottom resistance board assembly	9
movement assembly	10
Appendix	11
Circuit diagram	12

Procedure for ordering Spare Parts

If you will kindly follow the procedure set out below, delays will not occur due to the exchange of unnecessary correspondence:

- (1) Study this manual carefully and identify the part(s) required.
- (2) State the reference number of the part(s) required, the location in the instrument and the quantity required.
- (3) State the serial number of your instrument if known.
This will be found on the instrument scaleplate.

Overseas users of our instruments should send their requirements to our Representatives on their territory. If the parts are required in Great Britain, application should be made direct to Avo Limited.

Appendix to this Recommended Spares List details certain spares which are applicable only to very early models but which are still available.

CONTENTS

	Page
Abbreviated specification	3
Recommended spares list:	
front panel	4
case assembly	5
panel assembly	5
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ABBREVIATED SPECIFICATION

1. RANGES

Current and Voltage tests at full scale should be made on successive ranges in the following order, as far as faults present will permit:

- (a) D.C. Ranges: 2mA to 10A, 1V to 1000V including $\div 2$ feature on some ranges.
- (b) A.C. Ranges: 10mA to 10A, 10V to 1000V.
- (c) Resistance Ranges: Mid-scale readings on 10,000 Ω , 100,000 Ω and 1M Ω ranges.
Mid-scale readings 50 Ω , 500 Ω , 5k Ω .

2. ACCURACY

The standard required after repair calls for the following accuracies when the instrument is tested in the horizontal position:

- D.C. Current and Voltage: $\pm 1\%$ of full scale throughout.
- A.C. Current and Voltage: $\pm 2.25\%$ of full scale throughout.
- Resistance: $\pm 5\%$ of indication between 10% and 80% of scale length $\pm 10\%$ of indication at positions 10% and 90% of scale length.

3. MOVEMENT SENSITIVITY

Full scale movement current 1mA.

4. CUT-OUT OPERATION

The application of a sudden forward overload of 12:1 should cause it to trip every time, an overload of 4:1 should not.

RECOMMENDED SPARES LIST

FRONT PANEL

Item No.	Description	Circuit Ref.	Part No. 7 Mk. 2	Part No. 7X Mk.2
1.	Model Button		3258-102	3258-104
2.	Red Terminal Assembly		15536-A	15536-A
3.	Black Terminal Assembly		15536-B	15536-B
4.	Red Terminal Cap		3816-503	3816-503
5.	Black Terminal Cap		3816-502	3816-502
6.	'Q' Zero Knob		3156-510	3156-512
7.	Rev. M.C. Button		3828-304	3828-305
8.	'R' Zero Knob		3153-302	3153-303
9.	Movement Zero Adjuster (moulding & spiral)		15539-A	15539-AX
10.	Leads (mark 1) red and black (hook termination)		20913-AB	20913-AB
11.	Leads (mark 2) red and black (plug-in termination)		20913-EF	20913-EF
12.	Crocodile clips		12381-B	12381-B
13.	Old type test prod Red		45012	45012
14.	Old type test prod Black		45013	45013
15.	Pair of Long Reach Safety Clips (mark 2) in case		21509-A	21509-A
16.	Items 10, 12, 13 and 14 supplied as a set		16103-N	16103-N
17.	Items 11, 12, 13 and 14 supplied as a set		16103-P	16103-P
18.	'P' Zero Knob		3153-310	3153-701
19.	Power Factor Socket Dust Excluder		3826-702	3826-702
20.	Sealing Ring		3812-812	3812-812

CASE ASSEMBLY

Item No.	Description	Part No. 7 Mk. 2	Part No. 7X Mk. 2
1.	Complete Case Assembly (Bakelite)	4151-102	4151-101
2.	Case with studs, bushes, Insulation and feet (Bakelite)	6330-007	6330-009
3.	Case Bare (Bakelite)	3883-109	3883-128
4.	Battery Box Assembly	6330-004	6330-011
5.	Battery Box Moulding	6340-011	6340-012
6.	Battery Contact Top	3665-111	3665-111
7.	Battery Contact Bottom	3665-101	3665-101
8.	Battery Box Cover	6130-049	6130-050
9.	Instruction Plate (English)	3271-135	3271-134
10.	Handle	3855-103	3855-103
11.	Handle Stud	3366-307	3366-307
12.	Set of Rubber Feet etc. (for bakelite case)	2/24/8	2/24/8
†13.	1.5V Battery Holder Assembly	6130-066	6130-066

PANEL ASSEMBLY

Item No.	Description	Part No. 7 Mk. 2	Part No. 7X Mk. 2
1.	Bottom Resistance Board Assembly	6230-006	6230-018
2.	Transformer Complete	6230-087	6230-091
*3.	3·68Ω Wound Bobbin	6130-016	6130-023
†4.	Diode Assembly	6130-029	6130-029
5.	Top Resistance Board Assembly	6230-005	6230-017

* On earlier models this would be a winding on a resistor board with items 3 and 4 listed for the Top Resistance board assembly. Individual bobbins or metal film resistors are interchangeable with the original wound sections.

‡ For U2 battery—R 1662 no longer available.

† 5mA and surge rectifiers no longer used. Diode Assembly 6130-029 is a replacement for 5mA rectifier. If faulty the surge rectifier can be removed.

PANEL SUB-ASSEMBLY

Item No.	Description	Part No. 7 Mk. 2	Part No. 7X Mk. 2
1.	Brush Arm for 'R' Control	3674-105	3674-105
2.	Contact Arm for 'R' Knob spindle	3627-103	3627-102
3.	Potentiometer Strip 'R'	6120-051	6120-051
4.	Knob Assembly Complete 'R'	15534-A	15534-AX
5.	Cut-out Fixed Contact Assembly (left-hand)	16103-E	16103-E
6.	Cut-out Fixed Contact Assembly (right hand)	16103-F	16103-F
7.	Cut-out Mounting Platform	3865-109	3865-110
8.	Cut-out moving contact complete	6120-076	6120-076
9.	Cut-out Thrust rod	3216-701	3216-701
10.	Half of Switch contact assembly for d.c. ranges switch	16103-J	16103-J
11.	Half of Switch contact assembly for d.c. ranges switch	16103-H	16103-H
12.	Switch contact assembly for a.c. ranges switch	6230-008	6230-015
13.	Brush Arm for 'P' control	3674-706	3674-706
14.	'P' contact pillar	3374-503	3374-503
15.	Potentiometer Strip 'P'	6130-006	6130-006
16.	Knob assembly complete 'P'	15052-A	15052-AX
17.	Movement Zero Adjuster with spiral	15539-A	15539-B
18.	Cut-out Knob with sleeve and spindle and circlip	16103-AT	16103-AU
19.	Cut-out Knob return spring	3177-802	3177-802
20.	Cut-out Table Assembly	16103-G	16103-GX
21.	Wire Guide for Thrust Rod	3628-204	3628-204
22.	Cut-out crank with jewel	3116-701	3116-701
23.	Cut-out Guide Pillar Stop Spring	3171-505	3171-505
24.	Cut-out Guide Pillar	3343-108	3343-109
25.	Set of screws and Washers for cut-out table	16103-T	16103-T
26.	Lever Spring	3615-105	3615-105
27.	Lever	3558-401	3558-401
28.	Cut-out table Bare	3711-307	3711-308
29.	Brush Arm for 'Q' Control	3674-706	3674-706
30.	Spring contact 'Q'	6150-027	6150-027

PANEL SUB-ASSEMBLY (Continued)

Item No.	Description	Part No. 7 Mk. 2	Part No. 7X Mk. 2
31.	Potentiometer Strip 'Q'	6130-010	6130-010
32.	Knob Assembly Complete 'Q'	16103-V	16103-VX
33.	Divide by two Fixed Contacts (on board)	6150-028	6150-032
34.	Divide by two Spring Contact	6150-026	6150-026
35.	Divide by two Fixed Contact	6150-024	6150-025

See Page 11 for details of the new cut-out which is incorporated in recent models.

SWITCH RING ASSEMBLIES

Item No.	Description	Part No. 7 Mk. 2	Part No. 7X Mk. 2
1.	Front Panel Moulded (Bare)	6440-001	6440-002
2.	Switch Cam (for d.c. range switch)	3161-302	3161-307
3.	Switch Brush Arm Assembly	16103-C	16103-C
4.	Switch ring	6340-010	6340-010
5.	Click Ball Spring	3171-305	3171-305
6.	Click Ball	23148-505	23148-505
7.	D.C. Switch Knob and Carrier (Engraved A.C.)	6230-003	6230-013
8.	Contact Plate	3553-702	3553-702
9.	A.C. Switch Knob and Carrier (Engraved DC)	6230-004	6230-014
10.	Switch Cam (for a.c. Switch)	3161-106	3161-107
11.	Set of Window Clips	16103-AO	16103-AO
12.	Window Glass	6120-046	6120-046

TOP RESISTANCE BOARD ASSEMBLY

Item No.	Description	Part No. 7 Mk. 2	Part No. 7X Mk. 2
1.	Top Resistance Board Bare	3842-348	3842-348
*2.	4922 Ω Resistor $\pm$ 5% MF	26454-717	26454-717
*3.	17.7 Ω Resistor $\pm$ 5% MF	26438-977	26438-977
*4.	438 Ω Resistor $\pm$ 5% MF	26447-645	26447-645
5.	450 Ω Resistor $\pm$ 3% MF	26447-710	26447-710
6.	4.5k Ω Resistor $\pm$ 3% MF	26454-510	26454-510
7.	44.2k Ω Resistor $\pm$ 3% MF	26461-264	26461-264
8.	750 Ω Resistor $\pm$ 10% CARBON	26125-770	26125-770
9.	149.2k Ω Resistor $\pm$ 3% MF	26463-793	26463-793
10.	20 Ω Resistor $\pm$ 3% MF	26441-213	26441-213
11.	10 Ω Resistor $\pm$ 1% MF	26437-819	26437-819
12.	100 Ω Resistor $\pm$ 2% MF	26444-612	26444-612
13.	25 Ω Resistor $\pm$ 5% MF	26835-012	26835-012
14.	20k Ω Resistor $\pm$ 5% CARBON	26132-804	26132-804
15.	300k Ω Resistor $\pm$ 3% MF	26465-219	26465-219
16.	200k Ω Resistor $\pm$ 20% CARBON	26135-828	26135-828
17.	60 Ω Wound Bobbin $\pm$ 3%	6130-017	6130-024

* On earlier models these would be windings on a resistor board with Item 3 listed under Panel Assembly. Individual bobbins or metal film resistors are interchangeable with the original wound sections.

+ On earlier models this resistor is located in the battery box.

NOTE: The 0.0001 μ F capacitor previously located on this board not used in current production. See APPENDIX for earlier models. R6, R8 supplementaries if required — nominal value.

BOTTOM RESISTANCE BOARD ASSEMBLY

Item No.	Description	Part No. 7 Mk. 2	Part No. 7X Mk. 2
1.	Bottom Resistance Board Bare	3842-348	3842-348
*2.	470 Ω Resistor $\pm 1\%$ MF	26835-013	26835-013
*3.	4940 Ω Resistor $\pm 1\%$ CARBON	26783-523	26783-523
*4.	250 Ω Resistor $\pm 1\%$ MF	26446-478	26446-478
*5.	1·125 Ω Wound Bobbin	6130-014	6130-025
*6.	11·25 Ω Wound Bobbin	6130-015	6130-026
7.	0·01 μ F Capacitor	27536-336	27536-336
8.	1 μ F Capacitor $\pm 2\%$ —10%	27538-337	27538-337
†9.	0·047 μ F Capacitor (as required)	27538-303	27538-303
†10.	0·1 μ F Capacitor (as required)	27538-307	27538-307
‡11.	·1125 Ω Winding	_____	_____
‡12.	·0125 Ω Winding	_____	_____

* On earlier models these resistors may be wire wound. They can be replaced by metal film resistors or complete assemblies with minor circuit modification.
Item 2 originally 470 Ω , changed to 477 Ω , now 470 Ω again.

† Items 9 and 10 used in some models across 1 μ F capacitor as required.

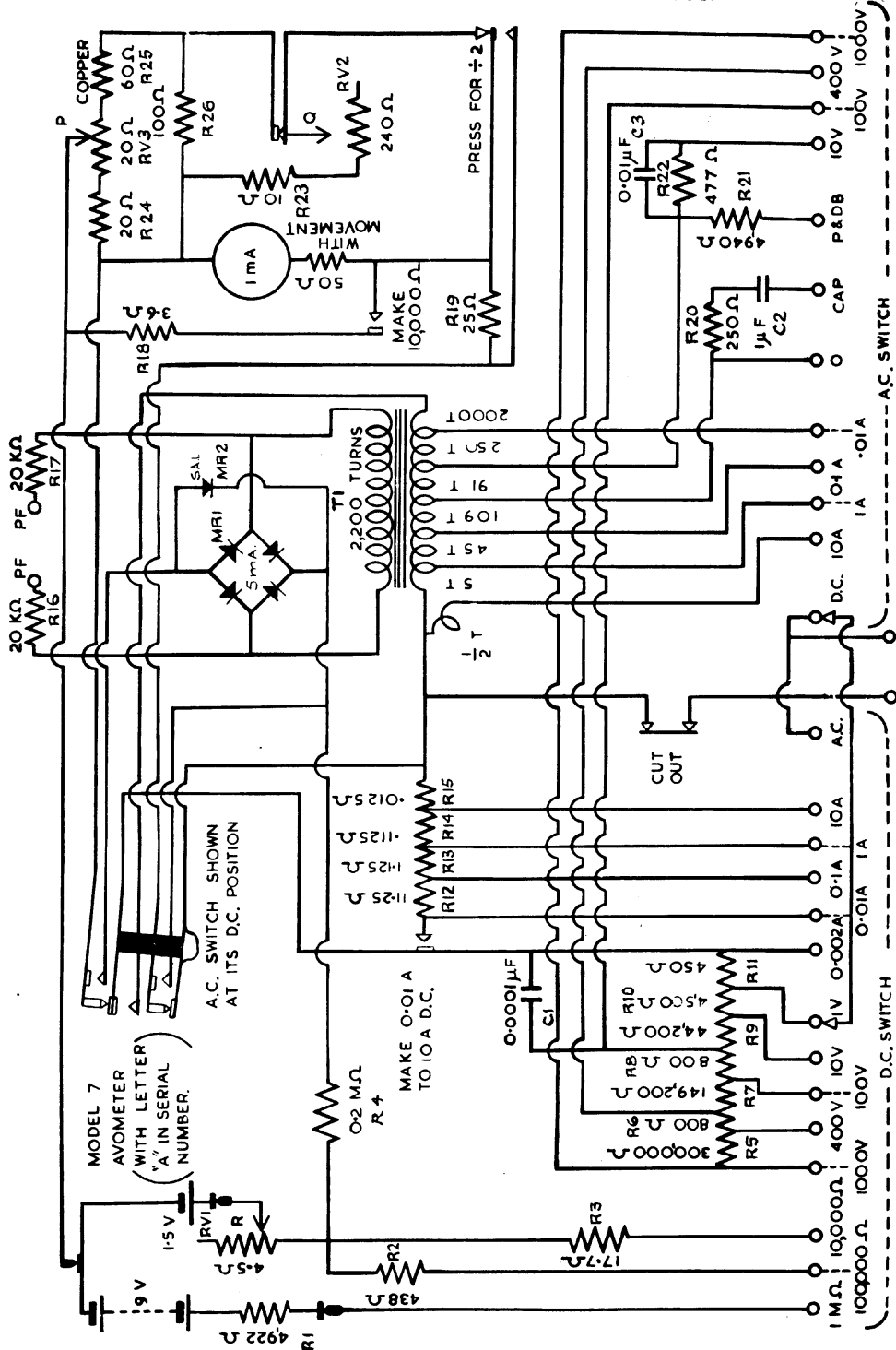
‡ Not supplied as a spare.

MOVEMENT ASSEMBLY

Item No.	Description	Part No. 7 Mk. 2	Part No. 7X Mk. 2
1.	Complete Movement	40638-Y	40638-Y
†2.	Scaleplate (Various calibrations selection of six 141, 143-145, 154, 155)	3284	3284
3.	Mirror	3236-202	3236-202
4.	Mirror Retaining Plate	3682-504	3682-504
5.	Top Jewel Screw Assembly	6230-010	6230-010
6.	Locknut for Top Jewel	3457-508	3457-508
7.	Crank Lever	3554-701	3554-701
8.	Crank Lever Plate	3556-101	3556-101
9.	Flat Spring	3512-105	3512-105
10.	Hairspring Assembly	6150-004	6150-004
11.	Moving Coil Assembly	6330-005	6330-005
12.	Magnet and Pole Piece Assembly	6130-009	6130-009
13.	Pivots	3313-103	3313-103
14.	Swamp Bobbin (uncalibrated)	6130-013	6130-013
15.	Pointer	3184-702	3184-702
16.	Locknut for Bottom Jewel Screw	3435-701	3435-701
17.	Movement Frame	6350-004	6350-004
18.	Zero Adjuster	3628-121	3628-121
19.	Ratchet Plate	3147-101	3147-101
20.	Bridge Piece	3557-405	3557-405
21.	Insulator Bottom Jewel	3814-302	3814-302
22.	Shunt Plate	3513-803	3513-803
23.	Bottom Jewel Screw	6230-012	6230-012

† The number marked at the centre base of the scaleplate will be required. However, if the movement has been repaired the characteristics may differ and calibration may not be accurate.

CIRCUIT DIAGRAM (MODEL 7 Mk. 2 AVOMETER)



APPENDIX

NEW CUT-OUT

Recent models incorporate a new cut-out which can be identified by the two horizontal coil springs mounted on the cut-out table.

Spares for this are given below:—

	Part No. Model 7	Part No. Model 7X
Complete Cut-out Kit (Less Fixed Contacts)	6120-019	6120-019
Cut-out Table Assembly	6120-078	6120-078
Cut-out Knob Assembly	6120-077	6120-077
Moving Contact Assembly	6120-076	6120-076

SPARES APPLICABLE TO THE EARLY AVOMETER MODEL 7 and 7X Mk. 2

(Approx. 1950/1955)

	Part No. Model 7	Part No. Model 7X
Terminal Block (Long Type Captive)	3153-505	—
Top Resistance Board	20835-A	20835-AX
Bottom Resistance Board	20834-A	20834-AX
0.0001 μ F Capacitor	27365-420	27365-420
0.01 μ F Capacitor	27352-444	27352-444
1 μ F Capacitor	27538-337	27538-337
Movement Assembly	40638-Y	40638-Y
Moving Coil Assembly	40024-A	40024-A
Hairspring Assembly	3178-304	3178-304
Top Jewel	6230-010	6230-010
Bottom Jewel	6230-012	6230-012
Battery Box Assembly	40022-C	40022-AX



Avo Limited

Avocet House
Dover, Kent, England
Tel : Dover 2626

Telegrams & Cables :
Avocet Dover
Telex : 96283

a member of the Thorn Group



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