SECTION ONE

#### 1. INTRODUCTION

This high grade instrument, the second wide range voltmeter to be produced by Advance, has 12 overlapping ranges from 1 mV F.S.D. to 300V F.S.D. The accuracy is  $\pm$  3% F.S.D. over the frequency range of 1 c/s to 1 Mc/s, and the input impedance is 2 megohms shunted by 30 pF.

The scale is calibrated in r.m.s. volts of a sine wave; 0 to 1 and 0 to 3, and also +2 to -12 dB; 0 dB being 1 mW in 600 ohms.

The VM78 consists of three main sections; a high input impedance stage; a two section attenuator and a directly coupled amplifier which feeds the meter via the rectifier circuit.

Mercury cells are used to power the instrument, giving stable operation and long life, without hum, which together with the low noise design make possible the measurement of very small voltages.

Great care has been taken in protecting the instrument against damage from the application of an incorrectly high input voltage, and the instrument has been designed for the wide temperature range of 0 to 45°C.

# ON 2 TWO

# SECTION TWO

## 2. SPECIFICATION

Attenuator Settings
-60 dBm -50 ,, -40 ,, -30 ,, -20 ,, -10 ,, 0 ,, +10 ,, +20 ,, +30 ,, +40 ,, +50 ,,
1 c/s to 1 Mc/s
± 3% F.S.D.

Accuracy ± 3% F.S.D.

Input Impedance 2 megohms shunted by 30 pF.

Overload Protection Protected for inputs up to 400V peak on 0.3V, and higher representation 100V.

Overload Protection

Protected for inputs up to 400V peak on 0.3V and higher ranges, and for 100V r.m.s. on 0.1V and lower ranges.

Power Supply

Battery operation only.

Two mercury cells Mallory Type
TR-233-R.

Three mercury cells Mallory type RM-3. Battery life approximately 350 hours.

Temperature Range  $0 \text{ to } + 45^{\circ}\text{C}.$ 

Noise

Less than 50 microvolts referred to the input when terminated in 47 Kohm or less

on the .001V range.

Residual Reading

Less than 3% F.S.D. on ranges other than

.001V F.S.D.

Turn-on time

High frequency position requires 20 secs.

Low frequency position requires 50 secs.

Accessories

Supplied with VM78 is shielded lead type PL50, which has a capacity of 60pF. Also available is lead type PL45A which has a 10:1 capacity Divider giving an effective

input capacity of 9pF.

Dimensions

 $8\frac{7}{8}$ " wide x  $6\frac{1}{2}$ " high x  $5\frac{1}{2}$ " deep.

Weight

6 lbs. 10 ozs.

Colour

Front panel: Off white to B.S. 2660, tint

No. 9-093.

Case: Egg shell finish, blue to B.S. 2660,

tint No. 7-086.

## SECTION 3 THREE

## SECTION THREE

#### 3. OPERATION

#### 3:1 Function Switch

Check the battery by rotating switch to the BAT. TEST position. The meter should read above 7V on the 0 to 1 meter scale. If there is no reading or the reading is low, refer to MAINTENANCE, Section 4.

Select the required frequency response.

In general the switch will be used in the 15 c/s to 1 Mc/s position to avoid the longer time constants of the 1 c/s to 1 Mc/s position.

## 3:2 Range Switch

Where possible select a range which will give a reading in the upper two thirds of the meter scale. This will ensure that the accuracy of the instrument is fully utilized.

It is good practice to always switch the instrument to a high voltage range before applying external voltages and then work down to a range which will allow the external voltage to fall on the upper two thirds of the meter scale. This is particularly the case where measurements of small amounts of ripple are being made superimposed on a high D.C. potential.

MAXIMUM PEAK VOLTAGE for which the instrument is protected is 400 VOLTS on ranges 0.3 VOLT and above, and 100 VOLTS R.M.S. on 0.1 VOLT and below. There is D.C. protection of 400 volts on all ranges, but note that peak volts, that is D.C. + peak r.m.s. should not exceed 400V.

## 3:3 Input Terminals

The black terminal is connected to the instrument case and chassis and should normally be connected to the earth side of apparatus being tested if this is not possible care should be taken to insulate the VM78 case from ground.

#### 3:4 Overload Protection

The instrument is fully protected against overload up to 400 volts peak on 0.3V and higher ranges, and 100V r.m.s. on 0.1V and lower ranges. On the upper ranges the method of protection is a D.C. blocking condenser and attenuators. On the lower ranges the method of protection is by diode clamps. If the overload is applied for any length of time, a 60 mA fuse will blow. This can be easily replaced by removing the instrument from its case. A spare fuse will be found adjacent to the instrument fuse in use.

## 3:5 Non-sinusoidal Operation

The instrument is an average responding device calibrated in terms of the r.m.s. value of a sine wave. When harmonics are present additional error is introduced in accordance with the following table:—

Harmonic Content			Error
10%	2nd h	armonic	+ 0.5%
20%	,,	,,	- 2%
50%		**	- 10%
10%	3rd	,,	± 4%
20%	,,	,,	± 8%
50%	,,	,,	- 20% to + 4%

#### 3:6 Decibel Measurement

Set to the range required, bearing in mind the warning of Para. 3:2. The range indicates the number of dB to be added to the meter reading using the -12 dB to +2 dB scale. For example, if the meter reads -10 dB and the range is -40 dB, the level is -50 dB.

To read power directly in dBm the measurement must be made across 600 ohms. (0dBm = 1mW into 600 ohms).

## SECTION FOUR

## 4. MAINTENANCE

The mercury cells should be replaced when the voltage indicated on the meter falls to 7V.

This may be easily carried out by removing the instrument from its case and unscrewing the battery cover. The position and polarity of the individual cells are shown on the top of the battery cover.

Note: The insulating tubing around the RM—3 cells should not be discarded but should be placed on the replacement cells before their insertion in the battery clip.

#### 5. TECHNICAL DESCRIPTION

### 5:1 Circuit Description

The Advance VM78 transistorised A.C. Millivoltmeter consists of three main sections, a high input impedance stage, a two section attenuator and a directly coupled amplifier.

The two section attenuator is arranged with a high impedance input section before the input stage and a low impedance section between the input stage and the main amplifier.

The two sections of the attenuator are arranged to work alternately in the following sequence.

Between 1 mV and .1V inclusive the signal is applied directly to the high input impedance stage and the low impedance attenuator section is operative in five steps.

Between .3V and 10V inclusive the signal is attenuated to one hundredth of its value before being directed to the input stage. The low impedance attenuator section is then operative, over four steps.

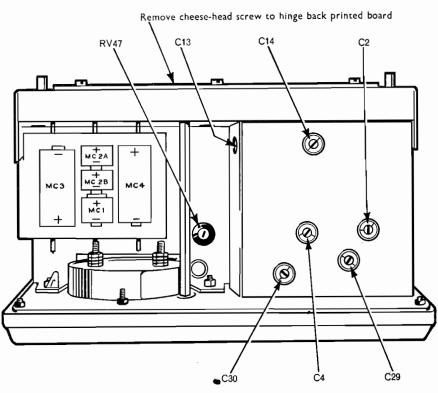
Between 30V and 300V inclusive the signal is attenuated to one ten thousandth of its value before being directed to the input stage. The low impedance attenuator section is then operative over three steps.

The high input impedance stage is basically two emitter followers in cascade. There is feedback to the collector of the first emitter follower, however, to minimise the effect of the base-collector impedance.

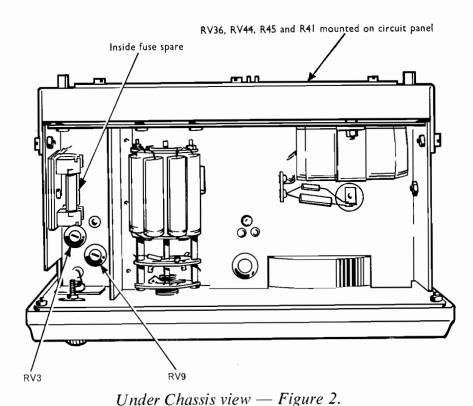
Two diodes are also employed in the input circuit to give protection against overload by clamping the voltage swing at the input base to approximately  $\pm$  3V, the excess voltage swing is absorbed by R13.

A 60 mA fuse in series with the input circuit will blow if large overload currents flow for more than a few seconds. The main high gain amplifier which follows the low impedance section of the attenuator is directly coupled in order to extend its frequency response down to 1 c/s. A.C. and D.C. feedback paths are arranged to keep the amplifier gain constant between 1 c/s and 1 Mc/s. The feedback and meter circuit time constants must necessarily be large for accurate measurements down to 1 c/s.

This means that several seconds must elapse after a voltage change before taking a reading off the meter. To obviate this the function switch is arranged to switch out some of the circuit capacitance if readings below 15 c/s are not required. The speed of response of the instrument is then correspondingly increased.



Upper Chassis view — Figure 1.



5:2 Calibration Procedure

- 1 Set battery volts. Before batteries are inserted apply 12 volts D.C. to R45, switch to Bat. Test position of the function switch and set meter to read 8.2V by means of RV47.
- 2 Insert batteries. Place shorting link across input terminals. Set range switch to 300V. Set function switch to the 15 c/s - 1 Mc/s position.
- 3 Measure voltage between ground and collector of TR7, set to 2.2V by means of RV36.
- 4 Check that voltage across R41 is approximately 0.6V.
- 5 Set range switch to 1 mV position. Note that meter reading does not exceed 50  $\mu$ V.
- 6 Set Function switch to 1 c/s 1 Mc/s position. Allow approximately  $1\frac{1}{2}$  mins. for instrument to stabilise. Check that meter reading again does not exceed 50  $\mu$ V.
- 7 Set range switch to 3 mV. The input signal to be 3 mV at 1 Kc/s. Adjust RV44 for full scale in this range.
- 8 Adjustments to input Capacity. Connect the input terminals to a Q Meter (for example Advance type T2) whose internal capacity is set to a minimum. Switch to the 10 mV range. Plug in any suitable coil and resonate in the frequency range 200 Kc/s to 3 Mc/s. Switch to the 10V range and using an insulated trimmer adjust C29 to resonance. Switch to the 100V range and similarly adjust C30.

## 9 Attenuator Alignment

Input frequency 1 Kc/s from low impedance source.

Function switch at 15 c/s - 1Mc/s.

- a 0.3V input, switch to 0.3V, set RV3 for full scale
- b 30V , , , , 30V , RV9 , , , Input frequency 1 Mc/s from low impedance source.
- c 3 mV input, switch to 3 mV, set C28 for full scale
- d 30 mV , , , 30 mV, ,, C13 ,, ,, ,,
- e 100 mV , , , , 100 mV, , C14 , , ,
- 0-3V ,, ,, 0-3V, ,, C2 ,, ,,
- " " " 30V, " C4 " " "

Check through and repeat all 9 if necessary.

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## PARTS LIST

Ref.   Description   Part No.   Ref.   Description   Part No.   Part No.   Ref.   Description   Part No.   Par		RESISTORS	I	CAPA	ACITORS (cont.)		
Po K Ω ± 1/2, R.R.C. 2HS2	Ref.	Description Pa	ırt No.	Ref.	Description	Part. No.	
Po K Ω ± 1/2, R.R.C. 2HS2		2 M $\Omega$ $\pm$ 1% R.R.C. 2HS2				11495	
R4   2M Ω ± 1/2, R.R.C. 2HS2   1724   C8   10 pF Lemcos/M 10%, 500V. 1510 Insul.   1737   R6   2710 ± 1/2, R.R.C. 2HS2   1726   C10   250 μF 6V. Wima Printily 1036   1743   1744   1		19.6 K $\Omega \pm 1\%$ R.R.C. 2HS2			033 μF 10% Mullard C296 AA/A		
R5   221 Ω + 1/2, R.R.C. 2HS2   11502   C9   500 µF 3V. Wima Printily 1038   1742   R8   1500 Ω ± 1/2, R.R.C. 2HS2   11498   C11   100 µF 12V. Wima Printily 1074   1744   1745   R8   1500 Ω ± 1/2, R.R.C. 2HS2   11498   C11   100 µF 12V. Wima Printily 1074   1744   1745   R10   470 K Ω ± 10/2, Dublier B.T.T.   10732   C12   10 µF 12V. Wima Printily 1074   1744   1745   R10   170 K Ω ± 10/2, Dublier B.T.T.   10732   C13   15 to 60 µF 12V. Wima Printily 1074   1744   1745   R10   1745   R10   1745   R10   1745   R10   1745   R10		2.2 K \(\Omega\) Potentiometer Plessey M.P. Deale					
R6 2-7Ω ±5%, R.R.C. 2HS2   1726   C10   250 μF 6V. Wima Printily; 1036   1743   RV9   22 κ Ω Potentiometer Plessey M.P. Dealer 1736   C11   100 μF 12V. Wima Printily; 1036   1744   1744   RV9   22 κ Ω Potentiometer Plessey M.P. Dealer 1736   C12   10 μF 30V. Wima Printily; 1036   1745   1745   RV9   22 κ Ω Potentiometer Plessey M.P. Dealer 1736   C12   10 μF 30V. Wima Printily; 1036   1745   1745   RV9   22 κ Ω Potentiometer Plessey M.P. Dealer 1736   C12   10 μF 30V. Wima Printily; 1036   1745   1745   RV9   C12   C14   C15   C15   C16		$2M \Omega \pm 1\% R.R.C. 2HS2$			500 uF 3V Wima Printilyt 1038		
1800		$2.7 \Omega + 5\%$ R.R.C. 2HS2					
R10   20 KΩ ±10%, Dubliler B.T.T.   1732   CA, A/60E   Timmer Mullard C010   1866   CA   10%, Dubliler B.T.T.   1732   CA, A/60E   Timmer Mullard C010   1866   CA   10%, Dubliler B.T.T.   10621   CA, A/60E   Timmer Mullard C010   1866   CA   10%, Dubliler B.T.T.   10621   CA, A/60E   Timmer Mullard C010   1866   CA   10%, Dubliler B.T.T.   10621   CA, A/60E   Timmer Mullard C010   1866   CA   10%, Dubliler B.T.T.   10621   CA, A/60E   Timmer Mullard C010   1866   CA   10%, Dubliler B.T.T.   1130   CA, A/60E   CA   10%, Dubliler B.T.T.   1130   CA   2000 μF 12V. Wima Printily 1074   1744   CA   2000 μF 12V. Wima Printily 1075   1745   CA   2000 μF 12V. Wima Printily 1075   1746   CA   2000 μF 12V. Wima Printily 1075   1746   CA   2000 μF 12V. Wima Printily 1074   1744   CA   2000 μF 12V. Wima Printily 1075   CA   2000 μF 12V. Wima Printily 1075   CA   2000 μF 12V. Wima Printily 1074   1744   CA   2000 μF 12V. Wima Printily 1074   1744   CA   2000 μF 12V. Wima Printily 1075   CA   2000 μF 12V. Wima Printily 1074   1746   CA   2000 μF 12V. Wima Printily 1074   CA   2000 μF 12V. Wima Printily 1074   CA   2000 μF 12V. Wima Printily 1074   CA   2000 μF 12V. Wima Printily 1075   CA   2000 μF 12V. Wima Printily 1075   CA   2000 μF 12V. Wima Printily		1500 $\Omega \pm 1\%$ R.R.C. 2HS2	11498	C11	100 μF 12V. Wima Printilyt 1074	1744	
R11   120 KΩ ±10%, Dublider B.T.T.   1732   C14   1732   C15   C16		2.2 K Ω Potentiometer Plessey M.P. Deale				1745	
R13   1000 Ω ± 10°, Dubliler B.T.T.   10991   1000 μ ± 10°, Dubliler B.T.T.   10921   1000 μ ± 10°, Dubliler B.T.T.   10021   1000 μ ± 10°, Dubliler B.T.T.   11316   11316   1200 Ω ± 10°, Dubliler B.T.T.   11316   13		470 K $\Omega \pm 10\%$ Dubilier B.T.T.		C13		1966	
R13   1000 Ω ± 10°, Dubliler B.T.T.   10991   1000 μ ± 10°, Dubliler B.T.T.   10921   1000 μ ± 10°, Dubliler B.T.T.   10021   1000 μ ± 10°, Dubliler B.T.T.   11316   11316   1200 Ω ± 10°, Dubliler B.T.T.   11316   13		120 K $\Omega \pm 10^{\circ}$ Dubilier B.T.T.		C14		1000	
R14 5600 Ω ±10%, Dublier B.T.T. 10621 R15 1200 Ω ±10%, Dublier B.T.T. 1130 R16 15 K Ω ±10%, Dublier B.T.T. 11316 R17 68 K Ω ±10%, Dublier B.T.T. 11316 R18 6.8 K Ω ±10%, Dublier B.T.T. 11316 R18 6.8 K Ω ±10%, Dublier B.T.T. 11316 R18 6.8 K Ω ±10%, Dublier B.T.T. 11316 R19 A 3419 Ω ±0.3%, Electronic A.P.½ 1853 R19 A 3419 Ω ±0.3%, Electronic A.P.½ 1853 R19 A 3419 Ω ±0.3%, Electronic A.P.½ 1853 R19 C341-9 Ω ±0.3%, Electronic A.P.½ 1854 R19 C341-9 Ω ±0.3%, Electronic A.P.½ 1855 R19 C341-9 Ω ±0.3%, Electronic A.P.½ 1856 R19 E30 Ω ±0.3%, Electronic A.P.½ 1856 R19 E30 Ω ±0.3%, Electronic A.P.½ 1856 R19 E30 Ω ±0.3%, Electronic A.P.½ 1856 R10 R19 E30 Ω ±0.3%, Electronic A.P.½ 1856 R11 R19 E30 Ω ±0.3%, Electronic A.P.½ 1856 R12 G34 Ω ±10%, R.R.C. 2HS2 1727 R13 R19 L10 R19		$1000 \Omega + 2\% R.R.C. N.25$				1866	
R16   15 K Ω ± 10%, Dubblier B.T.T.   1130   C17   2000 μF 12V, Plessey CE 1237/1   1864   R17   68 K Ω ± 10%, Dubblier B.T.T.   11316   C18   250 μF 6V. Wima Printilyt 1056   1743   1744	R14	5600 $\Omega \pm 10\%$ Dubilier B.T.T.					
Riff   68 K $\Omega \pm 10\%$   Dublier B.T.T.   11316   1733   1746   1743   1746   1744		$1200 \Omega \pm 10\%$ Dubilier B.T.T.					
R194   3419 Ω ±0-3%   Electronic A.P.\( \frac{1}{4} \)   1854   1854   1855   1743   1854   1855		15 K $\Omega \pm 10\%$ Dubilier B.1.1.					
R194   3419 Ω ±0-3%   Electronic A.P.\( \frac{1}{4} \)   1854   1854   1855   1743   1854   1855		$6.8 \text{ K} \Omega \pm 10\%$ Dubilier B.T.T.					
R19C   341-90 ± 9-3%   Electronic A.P-½   1855   1856	R19A	3419 $\Omega \pm 0.3\%$ Electronic A.P. $\frac{1}{4}$					
R19C   341-90 ± 9-3%   Electronic A.P-½   1855   1856	R19B	1081 $\Omega \pm 0.3\%$ Electronic A.P. $\frac{1}{4}$		C21	250 μF 6V. Wima Printilyt 1056		
R19E   50 Ω ±0-3%   Electronic A.P.↓   1857   C24   50 μF 6V. Wima Printilyt 1052   1746   1743   1727   C25   250 μF 6V. Wima Printilyt 1056   1743   1743   C25   250 μF 6V. Wima Printilyt 1056   1743   C25   250 μF 6V. Wima Printilyt 1056   1743   C26   250 μF 6V. Wima Printilyt 1056   1743   C26   C27   C20 μF 6V. Wima Printilyt 1056   1743   C27   C27   C20 μF 6V. Wima Printilyt 1056   1743   C27   C27   C20 μF 6V. Wima Printilyt 1056   1743   C28   L27   C27   C20 μF 6V. Wima Printilyt 1056   1743   C28   L27   C27   C20 μF 6V. Wima Printilyt 1056   L27   C27	R19C	$341.9 \Omega \pm 0.3\%$ Electronic A.P. $\frac{1}{4}$					
R20         1080 Ω ± 1½ R.R.C. 2HS2         1727         C25         250 µF 6V. Wima Printilyt 1056         1743           21         634 Ω ± 1½ R.R.C. 2HS2         1728         C25         250 µF 6V. Wima Printilyt 1056         1743           R22         920 Ω ± 1½ R.R.C. 2HS2         1729         C26         250 µF 6V. Wima Printilyt 1056         1743           R23         1030 Ω ± 1½ R.R.C. 2HS2         1730         C29         6.30 µF Trimmer Cyldon MT 31A/5         1738           R24         15 K Ω ± 10½ Dubliler B.T.T.         10732         C29         6.30 µF Trimmer OldA/10B/D50         2097           R25         56 K Ω ± 10½ Dubliler B.T.T.         10733         C29         6.30 µF Trimmer OldA/10B/D50         2097           R26         27 K Ω ± 10½ Dubliler B.T.T.         10733         C29         6.30 µF Trimmer OldA/10B/D50         2097           R27         4700 Ω ± 10½ Dubliler B.T.T.         11240         TRA         1180         1180           R28         3300 Ω ± 10½ Dubliler B.T.T.         1128         TRA         1400 Ω ± 10½ Mullard         1557           R31         47 K Ω ± 10½ Dubliler B.T.T.         11240         TR5         O.C. 170 Mullard         1557           R33         18 K Ω ± 10½ Dubliler B.T.T.         1130         TR	RI9D P10E	$108 \cdot 102 \pm 0.3\%$ Electronic A.P. $\frac{1}{4}$					
R21         634 Ω ± 1½, R.R.C. 2HS2         1728         C26         250 μF 6V. Wima Printity 1056         1743           R22         290 Ω ± 1½, R.R.C. 2HS2         1730         C28         C27 C0 Dp F 5½, Lemco S/M 350V. 1106 Insul. 11931           R23         1030 Ω ± 1½, R.R.C. 2HS2         1730         C28         C27 C0 Dp F 5½, Lemco S/M 350V. 1106 Insul. 11931           R24         15 K Ω ± 10½, Dubilier B.T.T.         10732         C29         C29 F 57½, Lemrer Oy4A/10B/D50         2097           R25         56 K Ω ± 10½, Dubilier B.T.T.         10733         C29         C30         4/20 pF Trimmer Oy4A/10B/D50         2097           R26         27 K Ω ± 10½, Dubilier B.T.T.         10733         TR30         C29         C30         4/20 pF Trimmer Oy4A/10B/D50         2097           R28         3300 Ω ± 10½, Dubilier B.T.T.         11240         TR30         TR30         TR30         TR30         TR30         TR30         CC 170 Mullard         1557           R30         47 K Ω ± 10½, Dubilier B.T.T.         1128         TR3         TR30         CC 170 Mullard         1557           R31         47 K Ω ± 10½, Dubilier B.T.T.         11240         TR6         OC. 139 Mullard         1557           R31         4700 Ω ± 10½, Dubilier B.T.T.         1130         TR30		$1080 \Omega + 1^{\circ}/RR.C. 2HS2$					
R22         920 Ω ±1½, R.R.C. 2HS2         1729         C27         200 pF 5½, Lemco S/M 350 V. 1106 Insul.         11931           R23         103 Ω ±1½, R.R.C. 2HS2         1730         C28         140 pF Trimmer Cyldon MT 314/5         1738           R24         15 K Ω ± 10% Dubilier B.T.T.         11032         C29         6-30 pF Trimmer Od4A/10B         1580           R26         27 K Ω ± 10% Dubilier B.T.T.         110732         TRANSISTORS         1875           R28         3300 Ω ± 10% Dubilier B.T.T.         110991         TRANSISTORS           R29         5600 Ω ± 10% Dubilier B.T.T.         1128         TRANSISTORS           R31         47 K Ω ± 10% Dubilier B.T.T.         1128         TRA         0.C. 170 Mullard         1557           R31         47 K Ω ± 10% Dubilier B.T.T.         1128         TR4         0.C. 170 Mullard         1557           R31         47 K Ω ± 10% Dubilier B.T.T.         11240         TR7         0.C. 170 Mullard         1557           R31         47 K Ω ± 10% Dubilier B.T.T.         11240         TR7         0.C. 170 Mullard         1557           R34         4700 Ω ± 10% Dubilier B.T.T.         11240         TR7         0.C. 170 Mullard         1557           R34         4700 Ω ± 10% Dubilier B.T.T. <td< td=""><td></td><td><math>634 \Omega + 1\%</math> R.R.C. 2HS2</td><td></td><td></td><td></td><td></td><td></td></td<>		$634 \Omega + 1\%$ R.R.C. 2HS2					
R24         15 K Ω ± 10% Dubliter B.T.T.         1130 Display Dubliter B.T.T.         C29 G-30 pF Trimmer 004A/10B/D50         2097 PT Trimmer Triko 004a/10B         11580           R25         56 K Ω ± 10% Dubliter B.T.T.         10732 Dubliter B.T.T.         10733 Dubliter B.T.T.         10733 Dubliter B.T.T.         10733 Dubliter B.T.T.         11240 Dubliter B.T.T.         11240 Dubliter B.T.T.         11240 Dubliter B.T.T.         1125 Dubliter B.T.T.         1126 Dubliter B.T.T.         1128 Dubliter B.T.T.         1120 Dubliter B.T.T.         11240 Dubl	R22	920 $\Omega + 1\%$ R.R.C. 2HS2			200 ρF 5% Lemco S/M 350V. 1106 Insul.		
R27       4700 Ω ± 10% Dubliler B.T.T.       11240       TRANSISTORS         R28       330 Ω ± 10% Dubliler B.T.T.       10991       TR2       0.C. 170 Mullard       1557         R30       47 K Ω ± 10% Dubliler B.T.T.       1128       TR3       O.C. 170 Mullard       1557         R31       47 K Ω ± 10% Dubliler B.T.T.       1128       TR4       O.C. 170 Mullard       1557         R32       180 Ω ± 10% Dubliler B.T.T.       1735       TR5       O.C. 170 Mullard       1557         R32       180 Ω ± 10% Dubliler B.T.T.       11240       TR7       O.C. 170 Mullard       1557         R34       4700 Ω ± 10% Dubliler B.T.T.       11240       TR7       O.C. 170 Mullard       1557         R34       4700 Ω ± 10% Dubliler B.T.T.       11240       TR7       O.C. 170 Mullard       1557         R35       15 K Ω ± 10% Dubliler B.T.T.       1130       TR7       O.C. 170 Mullard       1557         R37       4700 Ω ± 10% Dubliler B.T.T.       1130       TR7       O.C. 170 Mullard       1557         R39       15 K Ω ± 10% Dubliler B.T.T.       1130       CR2       CR1       O.A. 200 Mullard       1874         R39       15 K Ω ± 10% Dubliler B.T.T.       10988       SW1       SW1 TCHES       SW1TC		$1030 \Omega \pm 1\%$ R.R.C. 2HS2					
R27       4700 Ω ± 10% Dubliler B.T.T.       11240       TRANSISTORS         R28       330 Ω ± 10% Dubliler B.T.T.       10991       TR2       0.C. 170 Mullard       1557         R30       47 K Ω ± 10% Dubliler B.T.T.       1128       TR3       O.C. 170 Mullard       1557         R31       47 K Ω ± 10% Dubliler B.T.T.       1128       TR4       O.C. 170 Mullard       1557         R32       180 Ω ± 10% Dubliler B.T.T.       1735       TR5       O.C. 170 Mullard       1557         R32       180 Ω ± 10% Dubliler B.T.T.       11240       TR7       O.C. 170 Mullard       1557         R34       4700 Ω ± 10% Dubliler B.T.T.       11240       TR7       O.C. 170 Mullard       1557         R34       4700 Ω ± 10% Dubliler B.T.T.       11240       TR7       O.C. 170 Mullard       1557         R35       15 K Ω ± 10% Dubliler B.T.T.       1130       TR7       O.C. 170 Mullard       1557         R37       4700 Ω ± 10% Dubliler B.T.T.       1130       TR7       O.C. 170 Mullard       1557         R39       15 K Ω ± 10% Dubliler B.T.T.       1130       CR2       CR1       O.A. 200 Mullard       1874         R39       15 K Ω ± 10% Dubliler B.T.T.       10988       SW1       SW1 TCHES       SW1TC		15 K $\Omega \pm 10\%$ Dubilier B.1.1.					
R27       4700 Ω ± 10% Dubliler B.T.T.       11240         R28       330 Ω ± 10% Dubliler B.T.T.       10991       TR2       O.C. 170 Mullard       1557         R30       47 K Ω ± 10% Dubliler B.T.T.       1128       TR3       TR3       O.C. 170 Mullard       1557         R31       47 K Ω ± 10% Dubliler B.T.T.       1128       TR3       O.C. 170 Mullard       1557         R32       180 Ω ± 10% Dubliler B.T.T.       1735       TR5       O.C. 170 Mullard       1557         R32       180 Ω ± 10% Dubliler B.T.T.       11240       TR4       O.C. 170 Mullard       1557         R33       150 Ω ± 10% Dubliler B.T.T.       11240       TR7       O.C. 139 Mullard       1067         R34       4700 Ω ± 10% Dubliler B.T.T.       11240       TR7       O.C. 170 Mullard       1557         R34       4700 Ω ± 10% Dubliler B.T.T.       11240       TR7       O.C. 170 Mullard       1557         R37       4700 Ω ± 10% Dubliler B.T.T.       1130       TR7       O.C. 170 Mullard       1557         R37       4700 Ω ± 10% Dubliler B.T.T.       1130       TR7       O.C. 170 Mullard       1557         R37       4700 Ω ± 10% Dubliler B.T.T.       1130       CR2       CR2       O.A. 200 Mullard       1874 <td></td> <td>27 K <math>\Omega + 10\%</math> Dubilier B.T.T.</td> <td></td> <td>C30</td> <td>4/20 pr. Tillillilet Titko 004a/10B</td> <td>11300</td> <td></td>		27 K $\Omega + 10\%$ Dubilier B.T.T.		C30	4/20 pr. Tillillilet Titko 004a/10B	11300	
R29         5600 Ω ± 10% Dubliler B.T.T.         10991         TR2         O.C. 170 Mullard         1557           R30         47 K Ω ± 10% Dubliler B.T.T.         1128         TR3         O.C. 170 Mullard         1557           R31         47 K Ω ± 10% Dubliler B.T.T.         1735         TR3         O.C. 170 Mullard         1557           R32         180 Ω ± 10% Dubliler B.T.T.         11062         TR6         O.C. 170 Mullard         1557           R34         4700 Ω ± 10% Dubliler B.T.T.         11240         TR7         O.C. 170 Mullard         1557           R35         15 K Ω ± 10% Dubliler B.T.T.         11240         TR7         O.C. 170 Mullard         1557           R37         4700 Ω ± 10% Dubliler B.T.T.         11240         TR7         O.C. 170 Mullard         1557           R33         15 K Ω ± 10% Dubliler B.T.T.         1130         TR7         O.C. 170 Mullard         1557           R34         4700 Ω ± 10% Dubliler B.T.T.         1130         TR7         O.C. 170 Mullard         1557           R37         4700 Ω ± 10% Dubliler B.T.T.         1130         CR2         O.A. 200 Mullard         1874           R39         15 K Ω ± 10% Dubliler B.T.T.         1130         CR3         I.S. 916 Texas         1949      <		$4700 \Omega \pm 10\%$ Dubilier B.T.T.			TRANSISTORS		
R30         47 K Ω ± 10% Dublier B.T.I.         1128         TR3         O.C. 170 Mullard         1557           R31         47 K Ω ± 10% Dublier B.T.T.         1128         TR4         O.C. 170 Mullard         1557           R32         180 Ω ± 10% Dublier B.T.T.         1735         TR5         O.C. 139 Mullard         1067           R33         1500 Ω ± 10% Dublier B.T.T.         11240         TR7         O.C. 170 Mullard         1557           R34         4700 Ω ± 10% Dublier B.T.T.         1130         TR7         O.C. 170 Mullard         1557           R35         15 K Ω ± 10% Dublier B.T.T.         11240         TR7         O.C. 170 Mullard         1557           R34         4700 Ω ± 10% Dublier B.T.T.         11240         TR7         O.C. 170 Mullard         1557           R35         15 K Ω ± 10% Dublier B.T.T.         11240         TR7         O.C. 170 Mullard         1557           R35         15 K Ω ± 10% Dublier B.T.T.         11240         TR7         O.C. 170 Mullard         1557           R35         15 K Ω ± 10% Dublier B.T.T.         11240         CR1         O.A. 200 Mullard         1874           R38         180 Ω ± 10% Dublier B.T.T.         1130         CR2         O.A. 200 Mullard         1874	R28	3300 $\Omega \pm 10\%$ Dubilier B.T.T.		TR1	N.K.T. 144 Newmarket	1875	
R32       180 Ω ± 10% Dubilier B.T.T.       1735       TR5       O.C. 139 Mullard       1067         R33       1500 Ω ± 10% Dubilier B.T.T.       11240       TR6       O.C. 170 Mullard       1557         R34       4700 Ω ± 10% Dubilier B.T.T.       1130       TR7       O.C. 170 Mullard       1557         R35       15 K Ω ± 10% Dubilier B.T.T.       1130       TR7       O.C. 170 Mullard       1557         R37       4700 Ω ± 10% Dubilier B.T.T.       11240       TR7       O.C. 170 Mullard       1557         R38       180 Ω ± 10% Dubilier B.T.T.       1130       CR2       O.A. 200 Mullard       1874         R39       15 K Ω ± 10% Dubilier B.T.T.       11130       CR2       O.A. 200 Mullard       1874         R40       3300 Ω ± 10% Dubilier B.T.T.       11130       CR3       1.S. 916 Texas       1949         R41       680 Ω ± 10% Dubilier B.T.T.       10988       SWITCHES       SWITCHES         R42       100 Ω ± 10% Dubilier B.T.T.       10995       SWITCHES         R45       2700 Ω ± 10% Dubilier B.T.T.       1732       SWITCHES         R46       120 K Ω ± 10% Dubilier B.T.T.       1732       SWITCHES       BATTERIES         R48       180 Ω ± 10% Dubilier B.T.T.       1126		5600 $\Omega \pm 10\%$ Dubilier B.T.T.					
R32       180 Ω ± 10% Dubilier B.T.T.       1735       TR5       O.C. 139 Mullard       1067         R33       1500 Ω ± 10% Dubilier B.T.T.       11240       TR6       O.C. 170 Mullard       1557         R34       4700 Ω ± 10% Dubilier B.T.T.       1130       TR7       O.C. 170 Mullard       1557         R35       15 K Ω ± 10% Dubilier B.T.T.       1130       TR7       O.C. 170 Mullard       1557         R37       4700 Ω ± 10% Dubilier B.T.T.       11240       TR7       O.C. 170 Mullard       1557         R38       180 Ω ± 10% Dubilier B.T.T.       1130       CR2       O.A. 200 Mullard       1874         R39       15 K Ω ± 10% Dubilier B.T.T.       11130       CR2       O.A. 200 Mullard       1874         R40       3300 Ω ± 10% Dubilier B.T.T.       11130       CR3       1.S. 916 Texas       1949         R41       680 Ω ± 10% Dubilier B.T.T.       10988       SWITCHES       SWITCHES         R42       100 Ω ± 10% Dubilier B.T.T.       10995       SWITCHES         R45       2700 Ω ± 10% Dubilier B.T.T.       1732       SWITCHES         R46       120 K Ω ± 10% Dubilier B.T.T.       1732       SWITCHES       BATTERIES         R48       180 Ω ± 10% Dubilier B.T.T.       1126		4/ K $\Omega \pm 10\%$ Dubilier B.1.1.					
R33       1500 Ω ±10% Dubilier B.T.T.       10622 Dubilier B.T.T.       The control of the contr		$180 \Omega + 10\%$ Dubilier B.T.T.					
R35         15 K Ω ±10% Dubilier B.T.T.         1130           RV36         22 K Ω Potentiometer Plessey M.P. Dealer         1757           R37         4700 Ω ±10% Dubilier B.T.T.         11240           R38         180 Ω ±10% Dubilier B.T.T.         1735           R39         15 K Ω ±10% Dubilier B.T.T.         1130           R40         3300 Ω ±10% Dubilier B.T.T.         1130           R41         680 Ω ±10% Dubilier B.T.T.         10988           R42         100 Ω ±10% Dubilier B.T.T.         10985           R44         50 Ω Potentiometer Egen 195         1858           R45         2700 Ω ±10% Dubilier B.T.T.         1732           R46         120 K Ω ±10% Dubilier B.T.T.         1732           R47         56 K Ω Potentiometer Plessey M.P. Dealer         1758           R48         180 Ω ±10% Dubilier B.T.T.         1732           R49         150 K Ω ±10% Dubilier B.T.T.         1126           R48         180 Ω ±10% Dubilier B.T.T.         1126           R50         4700 Ω ±10% Dubilier B.T.T.         1126           R51         5600 Ω ±10% Dubilier B.T.T.         10991           R53         37·35 Ω ±1% R.R.C. 2HS2         1860           R55         30 Ω ±1% R.R.C. 2HS2         1861		$1500 \Omega \pm 10\%$ Dubilier B.T.T.	10622				
RV36   22 K Ω   Potentiometer Plessey M.P. Dealer   1757   R37   4700 Ω ± 10%   Dubilier B.T.T.   11240   R40   3300 Ω ± 10%   Dubilier B.T.T.   1130   CR2   O.A. 200 Mullard   1874   CR3   I.S. 916 Texas   1949   R41   680 Ω ± 10%   Dubilier B.T.T.   10985   R42   100 Ω ± 10%   Dubilier B.T.T.   10985   R45   2700 Ω ± 10%   Dubilier B.T.T.   10985   R45   2700 Ω ± 10%   Dubilier B.T.T.   1732   RV47   56 K Ω   Potentiometer Egen 195   1858   R48   180 Ω ± 10%   Dubilier B.T.T.   1732   RV47   56 K Ω   Potentiometer Plessey M.P. Dealer   1758   R48   180 Ω ± 10%   Dubilier B.T.T.   1126   R50   4700 Ω ± 10%   Dubilier B.T.T.   1126   R51   5600 Ω ± 10%   Dubilier B.T.T.   11240   B2   4V. Mercury Mallory TR-233R   1761   R51   5600 Ω ± 10%   Dubilier B.T.T.   11240   B3   1-34V. Mercury Mallory RM-3   1760   R53   37-35 Ω ± 1%   R.R.C. 2HS2   1861   R55   30 Ω ± 1%   R.R.C. 2HS2   1861   R55   30 Ω ± 1%   R.R.C. 2HS2   1862   R56   3-3 K Ω ± 10%   Dubilier B.T.T.   7116   L1   ImH   C153   CHOKES   C1   0-47 μF 400V. Mullard C296 AC/A 470 K   1740   C2   2 to 8 ρF Trimmer Triko 10 B.M. D20   11495   C3   560 μF 20%   Eric Ceramicon HI-K AD   M15   100 μ μ 100	R34	4700 $\Omega \pm 10^{\circ}$ Dubilier B.T.T.					
R37       4700 Ω ±10% Dubilier B.T.T.       11240       CR1       O.A. 200 Mullard       1874         R38       180 Ω ±10% Dubilier B.T.T.       1735       CR2       O.A. 200 Mullard       1874         R49       3300 Ω ±10% Dubilier B.T.T.       1716       CR3       I.S. 916 Texas       1949         R41       680 Ω ±10% Dubilier B.T.T.       10985       SWITCHES         R42       100 Ω ±10% Dubilier B.T.T.       10985       SWITCHES         R44       50 Ω Potentiometer Egen 195       1858       SW1       Range Switch       1754         R45       2700 Ω ±10% Dubilier B.T.T.       1732       RA66       120 K Ω ±10% Dubilier B.T.T.       1732       SW2       Function Switch       1873         R48       180 Ω ±10% Dubilier B.T.T.       1735       BATTERIES       BATTERIES         R49       150 K Ω ±10% Dubilier B.T.T.       1126       B1       4V. Mercury Mallory TR-233R       1761         R50       4700 Ω ±10% Dubilier B.T.T.       10991       B3       1-34V. Mercury Mallory RM-3       1760         R51       5600 Ω ±10% Dubilier B.T.T.       10991       B4       1-34V. Mercury Mallory RM-3       1760         R53       37.35 Ω ±1% R.R.C. 2HS2       1860       B4       1-34V. Mercury Mallory RM-3 <td></td> <td>15 K <math>\Omega \pm 10\%</math> Dubilier B.T.T.</td> <td></td> <td></td> <td>DIODES</td> <td></td> <td></td>		15 K $\Omega \pm 10\%$ Dubilier B.T.T.			DIODES		
R38		$4700 \odot \pm 10^{\circ}$ Dubilier B T T	11240			40=4	•
R39 15 K Ω ± 10% Dubilier B.T.T. 1130 CR3 3.00 Ω ± 10% Dubilier B.T.T. 7116 CR4 3300 Ω ± 10% Dubilier B.T.T. 10988 R42 100 Ω ± 10% Dubilier B.T.T. 10985 R45 2700 Ω ± 10% Dubilier B.T.T. 10990 R46 120 K Ω ± 10% Dubilier B.T.T. 1732 R49 150 K Ω ± 10% Dubilier B.T.T. 1126 R48 180 Ω ± 10% Dubilier B.T.T. 1126 R49 150 K Ω ± 10% Dubilier B.T.T. 11240 R51 5600 Ω ± 10% Dubilier B.T.T. 11240 R53 37.35 Ω ± 10% Dubilier B.T.T. 11240 R53 37.35 Ω ± 10% Dubilier B.T.T. 10991 R53 37.35 Ω ± 10% R.R.C. 2HS2 1860 R54 180 Ω ± 10% Dubilier B.T.T. 10991 R55 30 Ω ± 10% R.R.C. 2HS2 1860 R54 180 Ω ± 10% Dubilier B.T.T. 7116 R55 30 Ω ± 10% R.R.C. 2HS2 1861 R55 30 Ω ± 10% R.R.C. 2HS2 1861 R55 30 Ω ± 10% R.R.C. 2HS2 1861 R55 30 Ω ± 10% R.R.C. 2HS2 1862 R56 3.3 K Ω ± 10% Dubilier B.T.T. 7116 L2 6.8 μH C153 CHOKES R55 30 Ω ± 10% Dubilier B.T.T. 7116 L2 6.8 μH C155 C154 C2 2 to 8 pF Trimmer Triko 10 B.M. D20 11495 C3 560 μF 20% Eric Ceramicon H1-K AD							
R40       3300 Ω ±10% Dubilier B.T.T.       7116       CR4       680 Ω ±10% Dubilier B.T.T.       10988       CR4       1.S. 916 Texas       1949         R41       680 Ω ±10% Dubilier B.T.T.       10985       SWITCHES         RV44       50 Ω Potentiometer Egen 195       1858       SW1 Range Switch       1754         R45       2700 Ω ±10% Dubilier B.T.T.       1732       SW2 Function Switch       1873         RV47       56 K Ω Potentiometer Plessey M.P. Dealer 1758       BATTERIES         R48       180 Ω ±10% Dubilier B.T.T.       1126       B1       4V. Mercury Mallory TR-233R       1761         R50       4700 Ω ±10% Dubilier B.T.T.       11240       B2       4V. Mercury Mallory TR-233R       1761         R51       5600 Ω ±10% Dubilier B.T.T.       10991       B3       1·34V. Mercury Mallory RM-3       1760         R51       37·35 Ω ±1% R.R.C. 2HS2       1860       B4       1·34V. Mercury Mallory RM-3       1760         R53       37·35 Ω ±1% R.R.C. 2HS2       1861       B5       1·34V. Mercury Mallory RM-3       1760         R55       30 Ω ±1% R.R.C. 2HS2       1861       B5       1·34V. Mercury Mallory RM-3       1760         R55       30 Ω ±1% R.R.C. 2HS2       1862       B1       L1       1mH		15 K $\Omega + 10\%$ Dubilier B.T.T.					
R41 680 $\Omega \pm 10\%$ Dubilier B.T.T. 10985 R42 100 $\Omega \pm 10\%$ Dubilier B.T.T. 10985 R45 2700 $\Omega \pm 10\%$ Dubilier B.T.T. 10990 R46 120 K $\Omega \pm 10\%$ Dubilier B.T.T. 1732 RV47 56 K $\Omega$ Potentiometer Plessey M.P. Dealer 1758 R48 180 $\Omega \pm 10\%$ Dubilier B.T.T. 1735 R49 150 K $\Omega \pm 10\%$ Dubilier B.T.T. 1126 R50 4700 $\Omega \pm 10\%$ Dubilier B.T.T. 11240 R51 5600 $\Omega \pm 10\%$ Dubilier B.T.T. 11240 R53 37·35 $\Omega \pm 10\%$ Dubilier B.T.T. 10991 R53 37·35 $\Omega \pm 10\%$ Dubilier B.T.T. 10991 R54 180 $\Omega \pm 10\%$ Dubilier B.T.T. 10991 R55 30 $\Omega \pm 10\%$ Dubilier B.T.T. 10991 R55 30 $\Omega \pm 10\%$ Dubilier B.T.T. 10991 R56 3·3 K $\Omega \pm 10\%$ Dubilier B.T.T. 10991 R57 30 $\Omega \pm 10\%$ Dubilier B.T.T. 10991 R58 180 $\Omega \pm 10\%$ R.R.C. 2HS2 1860 R55 30 $\Omega \pm 10\%$ Dubilier B.T.T. 7116 CAPACITORS 1862 CHOKES  CAPACITORS 1862 CHOKES  CAPACITORS 1862 CHOKES  CAPACITORS 11495  CAPACITORS 11495  C3 560 μF 20% Erie Ceramicon H1-K AD 11495  C3 560 μF 20% Erie Ceramicon H1-K AD 11495		$3300 \Omega \pm 10\%$ Dubilier B.T.T.					•
RV44 50 Ω Potentiometer Egen 195		$680 \Omega \pm 10\%$ Dubilier B.T.T.					
R45 $2700 \Omega \pm 10\%$ Dubilier B.T.T.       10990         R46 $120 \text{ K} \Omega \pm 10\%$ Dubilier B.T.T.       1732         RV47 $56 \text{ K} \Omega$ Potentiometer Plessey M.P. Dealer 1758       BATTERIES         R48 $180 \Omega \pm 10\%$ Dubilier B.T.T.       1735         R49 $150 \text{ K} \Omega \pm 10\%$ Dubilier B.T.T.       1126         R50 $4700 \Omega \pm 10\%$ Dubilier B.T.T.       11240         R51 $5600 \Omega \pm 10\%$ Dubilier B.T.T.       10991         R53 $37.35 \Omega \pm 1\%$ R.R.C. 2HS2       1860         R54 $180 \Omega \pm 1\%$ R.R.C. 2HS2       1860         R54 $180 \Omega \pm 1\%$ R.R.C. 2HS2       1861         R55 $30 \Omega \pm 1\%$ R.R.C. 2HS2       1861         R56 $3.3 \text{ K} \Omega \pm 10\%$ Dubilier B.T.T.       7116         CAPACITORS       L1       1mH         C1 $0.47 \mu F$ 400V. Mullard C296 AC/A 470 K       1740         C2 $2 \text{ to } 8 \text{ pF Trimmer Triko } 10 \text{ B.M. D20}$ 11495         C3 $560 \mu F$ 20% Erie Ceramicon HI-K AD       M1       100 $\mu A$ F.S.D. 3009 M       A15026		50.0 Potentiometer Egen 195					
R46 120 K Ω ±10% Dubilier B.T.T. 1732 RV47 56 K Ω Potentiometer Plessey M.P. Dealer R48 180 Ω ±10% Dubilier B.T.T. 1735 R49 150 K Ω ±10% Dubilier B.T.T. 1126 R50 4700 Ω ±10% Dubilier B.T.T. 11240 R51 5600 Ω ±10% Dubilier B.T.T. 11240 R53 37·35 Ω ±1% R.R.C. 2HS2 1860 R54 180 Ω ±1% R.R.C. 2HS2 1861 R55 30 Ω ±1% R.R.C. 2HS2 1862 R56 3·3 K Ω ±10% Dubilier B.T.T. 7116 CAPACITORS C1 0·47 μF 400V. Mullard C296 AC/A 470 K 1740 C2 2 to 8 ρF Trimmer Triko 10 B.M. D20 11495 C3 560 μF 20% Erie Ceramicon H1-K AD The first seven and the first seven ana							
R48       180 Ω ±10% Dubilier B.T.T.       1735         R49       150 K Ω ±10% Dubilier B.T.T.       1126         R50       4700 Ω ±10% Dubilier B.T.T.       11240         R51       5600 Ω ±10% Dubilier B.T.T.       10991         R53       37·35 Ω ±1% R.R.C. 2HS2       1860         R54       180 Ω ±1% R.R.C. 2HS2       1861         R55       30 Ω ±1% R.R.C. 2HS2       1861         R56       3·3 K Ω ±10% Dubilier B.T.T.       7116         CAPACITORS       L1       1mH       C153         C1       0·47 μF 400V. Mullard C296 AC/A 470 K       1740         C2       2 to 8 ρF Trimmer Triko 10 B.M. D20       11495       M1       MISCELLANEOUS         C3       560 μF 20% Erie Ceramicon H1-K AD       M1       100 μA F.S.D. 5000 Ω       A15026		120 K $\Omega \pm 10\%$ Dubilier B.T.T.		SW2	Function Switch	18/3	
R49 150 K Ω ±10% Dubilier B.T.T. 1126 R50 4700 Ω ±10% Dubilier B.T.T. 11240 R51 5600 Ω ±10% Dubilier B.T.T. 10991 R53 37·35 Ω ±1% R.R.C. 2HS2 1860 R54 180 Ω ±1% R.R.C. 2HS2 1861 R55 30 Ω ±1% R.R.C. 2HS2 1861 R55 30 Ω ±1% R.R.C. 2HS2 1862 R56 3·3 K Ω ±10% Dubilier B.T.T. 7116 CAPACITORS CAPACITOR CAPAC		56 K Ω Potentiometer Plessey M.P. Dealer	1758		BATTERIES		
R50 4700 Ω ±10% Dubilier B.T.T. 11240 R51 5600 Ω ±10% Dubilier B.T.T. 10991 R53 37·35 Ω ±1% R.R.C. 2HS2 1860 R54 180 Ω ±1% R.R.C. 2HS2 1861 R55 30 Ω ±1% R.R.C. 2HS2 1862 R56 3·3 K Ω ±10% Dubilier B.T.T. 7116 CAPACITORS CAPACITORS CAPACITORS C1 0·47 μF 400V. Mullard C296 AC/A 470 K 1740 C2 2 to 8 ρF Trimmer Triko 10 B.M. D20 11495 C3 560 μF 20% Eric Ceramicon H1-K AD $\frac{1020}{1000}$ B2 4V. Mercury Mallory RM-3 1760 B4 1·34V. Mercury Mallory RM-3 1760 B5 1·34V. Mercury Mallory RM-3 1760 B4 1·34V. Mercury Mallory RM-3 1760 B5 1·34V. Mercury Mallory RM-3 1/760 B5		$180 \Omega \pm 10\%$ Dubilier B.T.T.		B1	4V. Mercury Mallory TR-233R	1761	
R51 5600 $\Omega \pm 10\%$ Dubilier B.T.T. 10991 R53 37·35 $\Omega \pm 1\%$ R.R.C. 2HS2 1860 R54 180 $\Omega \pm 1\%$ R.R.C. 2HS2 1861 R55 30 $\Omega \pm 1\%$ R.R.C. 2HS2 1862 R56 3·3 K $\Omega \pm 10\%$ Dubilier B.T.T. 7116 C153 CAPACITORS L1 1mH C155 C1 0·47 μF 400V. Mullard C296 AC/A 470 K 1740 C2 2 to 8 ρF Trimmer Triko 10 B.M. D20 11495 C3 560 μF 20% Erie Ceramicon H1-K AD M15 C155 1750		4700 O $\pm 10^{\circ}$ Dubilier B.T.T.					
R53 37·35 Ω ±1% R.R.C. 2HS2 1860 R54 180 Ω ±1% R.R.C. 2HS2 1861 R55 30 Ω ±1% R.R.C. 2HS2 1862 R56 3·3 K Ω ±10% Dubilier B.T.T. 7116 L1 1mH C153 L2 6·8 μH C155 L3 1 μH C154 C154 C1 0·47 μF 400V. Mullard C296 AC/A 470 K 1740 C2 2 to 8 ρF Trimmer Triko 10 B.M. D20 11495 C3 560 μF 20% Erie Ceramicon H1-K AD M1 100 μA F.S.D. 5000 L1055 A15026		$5600 \Omega + 10\%$ Dubilier B.T.T.					
R54 180 Ω ±1% R.R.C. 2H52 1862 R55 30 Ω ±1% R.R.C. 2HS2 1862 R56 3·3 K Ω ±10% Dubilier B.T.T. 7116 L1 1mH C153 CAPACITORS L2 6·8 μH C155 L3 1 μH C154 C1 0·47 μF 400V. Mullard C296 AC/A 470 K 1740 C2 2 to 8 ρF Trimmer Triko 10 B.M. D20 11495 C3 560 μF 20% Erie Ceramicon H1-K AD M1 100 μA F.S.D. 3000 Ω A15026	R53	$37.35 \Omega +1\% R.R.C. 2HS2$					
R55 30 Ω ± 17, R.R.C. 21132 1602 R56 3·3 K Ω ±10% Dubilier B.T.T. 7116  CAPACITORS  C1 0·47 μF 400V. Mullard C296 AC/A 470 K 1740 C2 2 to 8 ρF Trimmer Triko 10 B.M. D20 11495 C3 560 μF 20% Erie Ceramicon H1-K AD  CHOKES  L1 1mH C153 L2 6·8 μH C155 L3 1 μH  MISCELLANEOUS  M1 100 μA F.S.D. 3000 μk  A15026		$180 \Omega \pm 1\%$ R.R.C. 2HS2		ВЭ	•	1700	E.
CAPACITORS  C1 0·47 μF 400V. Mullard C296 AC/A 470 K 1740 C2 2 to 8 ρF Trimmer Triko 10 B.M. D20 11495 C3 560 μF 20% Erie Ceramicon HI-K AD  L2 6·8 μH C155 L3 1 μH C155 C3 1 μH C156 C3 1 μH C156 C4 1 μH C157 C4 μH C1 μ		$30 \Omega \pm 1\%$ R.R.C. 2HS2				04.50	_
CAPACITORS  C1 0.47 μF 400V. Mullard C296 AC/A 470 K 1740 C2 2 to 8 ρF Trimmer Triko 10 B.M. D20 11495 C3 560 μF 20% Erie Ceramicon H1-K AD  L3 1 μH  C154  MISCELLANEOUS  M1 100 μA F.S.D. 5000 Ω  A15026	KOO	3.3 <b>K</b> 22 ±10/0 Duomer <b>B</b> .1.1.	/110				
C1 0·47 μF 400V. Mullard C296 AC/A 470 K 1740 C2 2 to 8 ρF Trimmer Triko 10 B.M. D20 11495 C3 560 μF 20% Erie Ceramicon HI-K AD  MISCELLANEOUS		CAPACITORS					
C2 2 to 8 pF Trimmer Triko 10 B.M. D20 11495 C3 560 µF 20% Erie Ceramicon HI-K AD M1 100 µA F.S.D. 5000 12 A15026	C1		1740	23	•	0101	
C3 560 µF 20% Erie Ceramicon H1-K AD M1 100 µA F.S.D. 5000 22 A15026		2 to 8 pF Trimmer Triko 10 B.M. D20			MISCELLANEOUS		
K120051 329   F1 60 mA Belling Lee L1055 1759	$\overline{C3}$	560 μF 20% Erie Ceramicon HI-K AD	222				
		K120051	329	FI	ou mA Beiling Lee L1055	1/39	

