

# **FERRANTI**

## **TECHNICAL HANDBOOK**

### **VALVES AND CATHODE RAY TUBES**



# FERRANTI LTD

*Head Office*

**HOLLINWOOD, LANCASHIRE, ENGLAND**

*Telephone FAIlsworth 2000*

*Works*

HOLLINWOOD, LANCASHIRE

MOSTON, MANCHESTER, 10

WEST GORTON, MANCHESTER, 12

GEM MILL, CHADDERTON, OLDHAM, LANCS.

FERRY ROAD, EDINBURGH, 5

KINGS CROSS ROAD, DUNDEE

*London Office*

KERN HOUSE, 36 KINGSWAY, W.C.2

*Telephone TEMple Bar 6666*

*Canada*

FERRANTI ELECTRIC LTD

MOUNT DENNIS, TORONTO 15, ONTARIO

*USA*

FERRANTI ELECTRIC INC

30 ROCKEFELLER PLAZA, NEW YORK 20, N.Y.

*Enquiries for these products to*

**FERRANTI LTD.,**

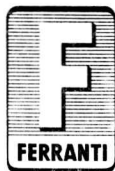
**GEM MILL, CHADDERTON, OLDHAM, LANCS.**

*Telephone MAIn 6661*

*Telegrams GEM, OLDHAM*

ELECTRIC FIRES - CONVECTORS

FRIDGE-HEATERS - CASTINGS





## Technical Handbook - Valves & Cathode Ray Tubes

# INDEX

Data Sheets are arranged in alphabetical order in each section.  
 (Note : Sheets marked \* are in course of preparation and will be issued with later distributions.)

	Page Nos.	Issue No.	Date
Title Page ... ..	1	3	Dec. 1957
<b>DIVIDER—"GENERAL"</b>			
Index ... ..		3	June 1960
Interpretation of Valve Data ... ..	1, 2, 3, 4, 5, 6	2	April 1957
Symbols ... ..	1, 2	2	Mar. 1957
General Recommendations for Operation of Receiving Valves	1, 2	2	April 1957
<b>DIVIDER—"RECEIVING VALVES"</b>			
DAF91/1S5 ... ..	1, 2, 3, 4	1	Aug. 1957
DAF96/1AH5... ..	1, 2, 3, 4	1	Dec. 1957
DD6 ... ..	1, 2	4	Aug. 1957
DF91/1T4 ... ..	1, 2	1	Dec. 1957
DF92/1L4 ... ..	1, 2	1	Dec. 1957
DF96/1AJ4 ... ..	1, 2, 3, 4	2	Dec. 1957
DF97 ... ..	1, 2	1	Dec. 1957
DK91/1R5 ... ..	1, 2, 3, 4	1	Dec. 1957
DK92/1AC6 ... ..	1, 2	1	Dec. 1957
DK96/1AB6 ... ..	1, 2, 3, 4	2	Dec. 1957
DL96/3C4 ... ..	1, 2, 3, 4, 5, 6	2	Dec. 1957
DP61 ... ..	1, 2	2	Feb. 1954
EABC80 ... ..	1, 2, 3, 4	2	Dec. 1957
EB91 ... ..	1, 2	4	Aug. 1957
EBF80 ... ..	1, 2	1	Jan. 1957
EC90 ... ..	1, 2	1	June 1956
EC91/6AQ4 ... ..	—	*	*
ECC81... ..	1, 2	3	Aug. 1957
ECC82... ..	1, 2	2	Aug. 1957
ECC83... ..	1, 2, 3, 4	2	Aug. 1957
ECC84... ..	1, 2	1	Aug. 1957
ECC85... ..	1, 2, 3, 4	1 (T)	Dec. 1955
ECC91... ..	1, 2	1	Dec. 1955
ECF80 ... ..	1, 2, 3, 4	1	May 1960
ECF82 ... ..	—	*	*
ECH81/6AJ8 ... ..	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	2	June 1960
ECL80 ... ..	1, 2, 3, 4	2	Aug. 1957
ECL82 ... ..	1, 2, 3, 4, 5, 6	2	June 1960
ECL83 ... ..	—	*	*
EF80 ... ..	1, 2, 3, 4	1	Mar. 1956
EF85 ... ..	1, 2	1	Mar. 1956
EF86 ... ..	1, 2, 3, 4	2	June 1960
EF89 ... ..	1, 2	1 (T)	Sept. 1956
EF183 ... ..	—	*	*
EL81 ... ..	1, 2, 3, 4	2	Feb. 1960

	Page Nos.	Issue No.	Date
<b>"RECEIVING VALVES"</b> — <i>continued</i>			
EL84 ... ..	1, 2, 3, 4	1 (T)	Dec. 1956
EM80 ... ..	1, 2	1 (T)	Dec. 1955
EM81 ... ..	1, 2	1 (T)	Mar. 1957
EY51 ... ..	1, 2	2	Mar. 1959
EY86 ... ..	1, 2	1 (T)	Dec. 1955
EZ80 ... ..	1, 2	2 (T)	Dec. 1957
EZ90 ... ..	1, 2	2	Dec. 1957
GZ32 ... ..	—	*	*
HR1 ... ..	1, 2	2	Oct. 1952
PABC80 ... ..	1, 2	2	Dec. 1957
PCC84... ..	1, 2	2	Dec. 1957
PCC85... ..	1, 2, 3, 4, 5, 6	2 (T)	Dec. 1957
PCC89... ..	—	*	*
PCF80 ... ..	1, 2	2	Aug. 1957
PCF82 ... ..	1, 2, 3, 4	1	Jan. 1955
PCF86 ... ..	—	*	*
PCL82 ... ..	—	*	*
PCL83 ... ..	—	*	*
PCL84 ... ..	—	*	*
PL36 ... ..	1, 2, 3, 4	1	Feb. 1957
PL81 ... ..	1, 2, 3, 4	1	Dec. 1955
PL82 ... ..	1, 2, 3, 4	1	Mar. 1956
PL83 ... ..	1, 2	1	Mar. 1956
PL84 ... ..	—	*	*
PY81/1723 ... ..	1, 2	2	May 1960
PY82 ... ..	1, 2	1 (T)	Aug. 1955
PY83 ... ..	1, 2	1	May 1960
PY88 ... ..	—	*	*
R42 ... ..	1, 2	2	Sept. 1952
R52 ... ..	1, 2	2	Sept. 1952
UABC80 ... ..	1, 2	2	Dec. 1957
UBF80 ... ..	—	*	*
UBF89 ... ..	—	*	*
UCC84 ... ..	1, 2	1	Dec. 1957
UCC85 ... ..	1, 2	2 (T)	Dec. 1957
UCF80... ..	1, 2	1	Dec. 1957
UCH81 ... ..	—	*	*
UCL82 ... ..	—	*	*
UCL83 ... ..	—	*	*
UF80 ... ..	1, 2, 3, 4	1	Aug. 1957
UF89 ... ..	1, 2, 3, 4	1	May 1960
UL84 ... ..	—	*	*
UY85 ... ..	—	*	*
1AB6 ... ..	See DK96		
1AC6 ... ..	See DK92		
1AH5 ... ..	See DAF96		
1AJ4 ... ..	See DF96		
1L4 ... ..	See DF92		
1R5 ... ..	See DK91		
1S5 ... ..	See DAF91		
1T4 ... ..	See DF91		
3C4 ... ..	See DL96		
5U4G ... ..	1, 2, 3, 4	3	Mar. 1956
5Y3GT ... ..	1, 2, 3, 4, 5, 6	3	Mar. 1956
5Z4G/GT ... ..	1, 2	2	June 1953
6AB8 ... ..	1, 2, 3, 4	2	Aug. 1957
6AJ8 ... ..	See ECH81		
6AK5 ... ..	1, 2	2	Feb. 1954

	Page Nos.	Issue No.	Date
6AK8 ... ..	1, 2, 3, 4	2	Dec. 1957
6AL5 ... ..	1, 2	4	Aug. 1957
6AQ8 ... ..	1, 2, 3, 4	1 (T)	Dec. 1955
6B8G ... ..	1, 2	2	Oct. 1952
6BM8 ... ..	See ECL82		
6BQ5 ... ..	1, 2, 3, 4	1 (T)	Dec. 1956
6BR5 ... ..	See EM80		
6BX6 ... ..	1, 2, 3, 4	1	Mar. 1956
6BY7 ... ..	1, 2	1	Mar. 1956
6C4 ... ..	1, 2	3	Feb. 1957
6CJ6 ... ..	See EL81		
6DA6 ... ..	1, 2	1 (T)	Sept. 1956
6F6G ... ..	1, 2	3	Feb. 1953
6J6 ... ..	1, 2	1	Dec. 1955
6J7G/GT ... ..	1, 2	2	Feb. 1953
6K7G/GT ... ..	1, 2	4	Mar. 1954
6K8G/GT ... ..	1, 2	3	Sept. 1952
6N8 ... ..	1, 2	1	Jan. 1957
6Q7G/GT ... ..	1, 2	3	Sept. 1952
6S2 ... ..	See EY86		
6SJ7GT ... ..	1, 2	3	Oct. 1952
6SK7GT ... ..	1, 2	3	Oct. 1952
6SL7GT ... ..	1, 2	2	Dec. 1955
6SN7GT ... ..	1, 2	1	Feb. 1954
6SQ7GT ... ..	1, 2	3	Oct. 1952
6V4 ... ..	1, 2	2 (T)	Dec. 1957
6V6G/GT ... ..	1, 2	5	Dec. 1955
6X2 ... ..	1, 2	2	Mar. 1959
6X4 ... ..	1, 2	2	Dec. 1957
6X5GT ... ..	1, 2	2	Sept. 1953
7AN7 ... ..	1, 2	2	Dec. 1957
7C5 ... ..	1, 2	1	Feb. 1954
7C6 ... ..	1, 2	3	Oct. 1952
7H7 ... ..	1, 2	1	Dec. 1955
7K7 ... ..	1, 2	2	Jan. 1955
7S7 ... ..	1, 2	1	Dec. 1955
7Y4 ... ..	1, 2	2	Mar. 1954
9A8 ... ..	1, 2	2	Aug. 1957
9AK8 ... ..	1, 2	2	Dec. 1957
9AQ8 ... ..	See PCC85		
9U8 ... ..	1, 2, 3, 4	1	Jan. 1955
12AT7 ... ..	1, 2	3	Aug. 1957
12AU7 .. ...	1, 2	2	Aug. 1957
12AX7 ... ..	1, 2, 3, 4	2	Aug. 1957
12C8GT ... ..	—	1	Feb. 1954
12J7GT, 12K7GT 12K8GT, 12Q7GT 12SJ7GT, 12SK7GT 12SL7GT, 12SQ7GT	1, 2	3	April 1956
15A6 ... ..	1, 2	1	Mar. 1956
16A5 ... ..	1, 2, 3, 4	1	Mar. 1956
16A8 ... ..	See PCL82		
17Z3 ... ..	See PY81		
19D8 ... ..	See UCH81		
19Y3 ... ..	1, 2	1 (T)	Aug. 1955
21A6 ... ..	1, 2, 3, 4	1	Dec. 1955
25E5 ... ..	1, 2, 3, 4	1	Feb. 1957
35L6G/GT ... ..	1, 2	3	Jan. 1953
35Z4GT ... ..	1, 2	2	Dec. 1952
42 ... ..	1, 2	2	Feb. 1954

	Page Nos.	Issue No.	Date
50L6G/GT ... ..	1, 2	2	April 1953
80 ... ..	1, 2	3	Mar. 1956
<b>DIVIDER—" TELEVISION TUBES "</b>			
MW31-74 ... ..	1, 2	1	April 1956
MW36-24 ... ..	1, 2	1	Mar. 1957
MW43-64 ... ..	1, 2, 3, 4	1	Mar. 1957
MW43-69 ... ..	1, 2, 3, 4	1	Mar. 1957
MW53-80 ... ..	—	*	*
T12/44, T12/549	1, 2	3	Dec. 1955
T12/72 ... ..	1, 2	2	Dec. 1955
TR14/8 ... ..	1, 2	2	May 1956
TR14/12, TR14/13	1, 2	2	Feb. 1954
TR14/21 ... ..	1, 2	1	April 1956
TR17/7, TR17/8	1, 2	1	Oct. 1953
TR17/21, TR17/22	1, 2	1	Mar. 1956
<b>DIVIDER—INDUSTRIAL VALVES</b>			
AD30 ... ..	1, 2	3	Mar. 1956
AD40-AD80 ... ..	1, 2	3	April 1954
ASP2 ... ..	1, 2	5	Jan. 1958
B110 ... ..	1, 2	1	Mar. 1957
B120 ... ..	1, 2	1 (T)	Mar. 1957
B210D ... ..	1, 2	2	Aug. 1957
BDM10 ... ..	1, 2	1	Dec. 1957
BDM20 ... ..	1, 2	3	Mar. 1956
BM10 ... ..	1, 2	1 T	Dec. 1955
BM20 ... ..	1, 2	1 T	Dec. 1957
BM30 ... ..	1, 2	1 T	Sept. 1955
CL40, CL41 ... ..	1, 2	1	Jan. 1955
CL50, CL52 ... ..	—	*	*
CL55-CL58 ... ..	—	*	*
CL60-CL66 ... ..	1, 2	4	Aug. 1958
	3, 4	4	June 1958
CL70-CL76 ... ..	—	*	*
EDN10 ... ..	—	*	*
EN30 ... ..	1, 2, 3, 4	6	Aug. 1959
EN40 ... ..	1, 2	3	Mar. 1958
EN50 ... ..	1, 2	3	May 1960
EN55 ... ..	1, 2	1 T	Aug. 1959
EN60 ... ..	1, 2	2 T	Oct. 1959
GE10 ... ..	1, 2, 3	2	Mar. 1957
GK3 ... ..	1, 2	5	Mar. 1956
GK10 ... ..	1, 2	2	July 1955
GK32, GK33 ... ..	1, 2	3	Dec. 1955
GK40, GK41 ... ..	1, 2	3	Dec. 1955
GK45 ... ..	—	*	*
GL1 ... ..	1, 2	4	Sept. 1955
GN10 ... ..	1, 2	3	Jan. 1958
GN20 ... ..	1, 2	1	Aug. 1955
GRD7 ... ..	1, 2, 3, 4	3	April 1959
HG25 ... ..	1, 2	1	Mar. 1957
HL10 ... ..	1, 2, 3, 4	2 (T)	Feb. 1957
HL22 ... ..	1, 2	1 T	April 1956
HR2 ... ..	1, 2	3	Feb. 1954
HR3 ... ..	1, 2	3	Feb. 1954
HR6 ... ..	1, 2	3	Dec. 1955
HR8 ... ..	1, 2	1	Feb. 1954
HR9 ... ..	1, 2, 3, 4	2	May 1960
KD21, KD24, KD25	1, 2	1	Feb. 1954

	Page Nos.	Issue No.	Date
<b>INDUSTRIAL VALVES—continued</b>			
KD60, KD61 ... ..	1, 2	5	Mar. 1956
KD63 ... ..	1, 2	4	July 1957
NSP1 ... ..	1, 2	7	July 1957
NSP2 ... ..	1, 2, 3, 4	7	July 1957
	5, 6	7 (a)	Mar. 1959
	7, 8	7	July 1958
2X2A ... ..	1, 2	1 (T)	July 1958
3C23 ... ..	1, 2	1	April 1956
5R4GY ... ..	1, 2	1	Feb. 1954
807 ... ..	1, 2	1	Aug. 1957
866A ... ..	1, 2	1	Mar. 1957
<b>DIVIDER—"CATHODE RAY TUBES" (INDUSTRIAL)</b>			
A Phosphor ... ..	1, 2	1	Sept. 1957
C Phosphor ... ..	1, 2	1	Mar. 1957
D Phosphor ... ..	1, 2	1	Oct. 1956
G Phosphor ... ..	1, 2	1	Aug. 1957
H Phosphor ... ..	1, 2	1	April 1957
J Phosphor ... ..	1, 2	1	April 1957
J2 Phosphor ... ..	—	*	*
L Phosphor ... ..	1, 2	1	Aug. 1957
L2 Phosphor ... ..	—	*	*
M Phosphor ... ..	1, 2	1	June 1960
P Phosphor ... ..	1, 2	1	Oct. 1956
Q Phosphor ... ..	1, 2	1	Aug. 1957
Q2 Phosphor ... ..	—	*	*
R Phosphor ... ..	—	*	*
T Phosphor ... ..	1	1	Mar. 1957
Z Phosphor ... ..	1, 2	1	June 1960
3X1/53D ... ..	—	*	*
3/02AM ... ..	1, 2	1	Mar. 1957
3/03AM ... ..	—	*	*
5/03HM, JM... ..	1, 2	1	Mar. 1957
5/04TM ... ..	1, 2	1	Mar. 1957
5/52L2M, MM ... ..	1, 2	4 (T)	Nov. 1959
5/61CM, GM, PM ... ..	1, 2	3	Nov. 1958
5/62CM, GM, PM ... ..	1, 2	3	Aug. 1957
5/71CM, PM, QM ... ..	1, 2, 3, 4	2	June 1960
5X3/53D ... ..	1, 2	3 (T)	June 1960
5X4/03TB ... ..	—	*	*
6/20PM ... ..	1, 2	2 (T)	June 1960
6/22AM, PM, QM ... ..	1	2	July 1957
6/23CM ... ..	1	1 (T)	Sept. 1956
6/32PM ... ..	1	1	Aug. 1957
6/33AM ... ..	1	1	Aug. 1957
6/44DM, PM ... ..	1	1 (T)	Nov. 1959
6/61GM, 6/62GM ... ..	1, 2, 3, 4	3	June 1960
8/03AM, QM ... ..	1, 2	3	May 1960
8/04TM ... ..	1, 2	2	May 1958
8/52HM, LM ... ..	1, 2	2	May 1958
8A/52LM ... ..	—	*	*
8A/54LM ... ..	—	*	*
9/02HM, JM ... ..	1, 2	1	April 1957
9/03HB, JB ... ..	1, 2	1	Mar. 1957
9/22AM, PM, QM ... ..	1, 2	2	June 1960
10FP4A ... ..	1, 2	1	Aug. 1959
10WP7 ... ..	1, 2	1	Aug. 1959
11/01TM ... ..	1, 2	1	July 1959

	Page Nos.	Issue No.	Date
11/04TM ... ..	1, 2	1 (T)	July 1959
12/02HM ... ..	1, 2, 3, 4	2	Mar. 1957
12/03HB, JB ... ..	1, 2	1	Aug. 1957
12/04HM, JM ... ..	1, 2, 3, 4	1	Feb. 1957
12/05HM ... ..	1, 2	3	May 1959
14/03AB, QB, Q2B ... ..	1, 2	2	June 1960
14/03TB ... ..	1, 2	1	Aug. 1957
14/04TB ... ..	1, 2	1	Jan. 1958
15/03HB ... ..	1, 2	1	Mar. 1957
16/03HM, JB ... ..	1, 2	1	Aug. 1957
21/03TB ... ..	1, 2	2 (T)	May 1959
21/04HB ... ..	1, 2	1 (T)	Aug. 1959
21/04TB ... ..	1, 2	2 (T)	July 1959
850/04HM ... ..	—	*	*
1240/03HM ... ..	—	*	*
1650/03HB, JB ... ..	1, 2	1	Nov. 1958
1790/03TB ... ..	1, 2	1	April 1959
<b>DIVIDER—" MICROWAVE DEVICES "</b>			
NF40 ... ..	1, 2	*	*
NF41 ... ..	1, 2	1	May 1960
QF10 ... ..	1, 2	2	Nov. 1959
QF11 ... ..	1, 2	2	Nov. 1959
QF12 ... ..	—	*	*
QF28 ... ..	—	*	*
QF31 ... ..	—	*	*
QF40 ... ..	1, 2	4	Nov. 1959
QF41A—QF41K ... ..	1, 2	5	Nov. 1959
QF42A—QF42K ... ..	1, 2	5	Nov. 1959
QF50 ... ..	1, 2	2	Dec. 1958
SY11 ... ..	1, 2, 3, 4, 5, 6	2	May 1960
SY30 ... ..	1, 2, 3, 4	1 (T)	Dec. 1957
SZ11 ... ..	1, 2, 3, 4	2	Nov. 1959
SZ21 ... ..	1, 2, 3, 4	1 (T)	July 1957
SZ30 ... ..	1, 2, 3, 4	1	April 1960
SZ51, SZ51A ... ..	1, 2, 3, 4, 5, 6, 7, 8	1	May 1960
TE10 ... ..	1, 2	2	July 1958
VA201B ... ..	1, 2	2	Oct. 1959
	3, 4	2	Sept. 1959
	5, 6	2	Oct. 1959
VF10 ... ..	—	*	*
WF42 ... ..	1, 2	2	June 1960
WF43 ... ..	1, 2	2	Nov. 1959
WF44 ... ..	1, 2	2	June 1960
WF45 ... ..	1, 2	2	Nov. 1959
WF46 ... ..	—	*	*
WF47 ... ..	—	*	*