

# VALVE EQUIVALENTS

INDEX	Brimar	Cossor	Ever Ready	Ferranti	Marconi	Mazda	Mullard	Osram	Tungsrarn	Emitron	INDEX
A11B A11C A11D A20B A23A A27D	R2 R3 DDA41 11A2	43 IU 43 IU DDL4 DDT	A11B A11C A11D A20B A23A A27D	R42  SD H4D	MUI2/14 MUI2/14 MUI2/14 D41 MHD4	UU6* UU5 UU5 V914 ACHLDD AC2PenDD	IW4/350 IW4/500 IW4/350 2D4A TDD4 Pen4DD	MUI2/14 MUI2/14 MUI2/14 D41 MDH4	APV4 APV4 APV4 DD4 DDT4 DDPP4B		A11B A11C A11D A20B A23A A27D
A30B A30D A36A A36B, C A40M	HLA1 HLA2 20A1 20A1 9A1	41MTL 41STH 4THA MVSPen	A30B A30D A36A A36C A40M	D4	MH41 MH4 X42  VMS4B	AC2HL ACHL  ACTH1 ACSGVM	354V TH4 TH4B VP4	MH41 MH4 X42  VMS4B	HL4+ HL4+ TX4 TH4B AS4125		A30B A30D A36A A36B, C A40M
A50A A50B A50M A50N A50P	8A1  9A1 9A1	MSPen MSPenB MVSPen MVSPen	A50A A50B A50M A50N A50P	SPT4A  VPT4 VPT4A	MSP4  VMP4G VMP4G	ACS2Pen  ACVPI ACVP2	SP4 SP4B VP4 VP4A VP4B	MSP4  VMP4G VMP4G	HP4101 SP4B HP4101c HP4115c VP4B		A50A A50B A50M A50N A50P
A70B A70C, D A70E A80A ABI	7A2 7A3  15A2	MPPen 42 OT 41MPG DDL4	A70B A70D A70E A80A	PT4  VHT4	MKT4 KT41  MX40	ACPen AC2Pen AC4Pen	Pen4VA PenA4 PenB4 FC4 2D4A*	MKT4 KT41  MX40	APP4A APP4B APP4E VO4 DD4s†		A70B A70C, D A70E A80A ABI
AB2 ABCI ABLI AC2Pen AC2PenDD	7A3	DDT 42 OT 42 OTDD	A70D A27D*	PT4 PT4D	KT41 DN41	AC2Pen AC2PenDD	2D4A* TDD4* Pen4DD* PenA4 Pen4DD*	KT41 DN41	DD4s DDT4s DDPP4Bs APP4B DDPP4B		AB2 ABCI ABLI AC2Pen AC2PenDD
AC4Pen AC5Pen AC104 ACO44 ACPI	PA1	PT10 4XP 4XP 41MXP	A70E S30C S30C	LP4 LP4	PX4 PX4	AC4Pen AC5Pen PP3/250 PP3/250	PenB4  ACO44	PX4 PX4	APP4E P12/250 P12/250 LL4		AC4Pen AC5Pen AC104 ACO44 ACPI
ACTH1 ACVPI ACVP2 AF2 AF3	20A1 9A1	41STH MVSPen MVSPenB	A36C A50M A50P	VPT4 VPT4B	X41 VMP4G W42 VMP4G	ACTH1 ACVPI ACVP2	TH4B VP4B* VP4B  VP4B*†	X41 VMP4G W42 VMP4G	TH4A/B HP4106c VP4B HP4105 VP4s		ACTH1 ACVPI ACVP2 AF2 AF3
AF7 AK1 APP4a APP4B APP4E	7A2 7A3	MPPen 42MPPen		PT4	MKT4 KT41	ACPen AC2Pen	SP4* FC4* Pen4VA PenA4 PenB4	MKT4 KT41	SP4s VO4s APP4a APP4B APP4E		AF7 AK2 APP4a APP4B APP4E
APV4 B21 B65 B22B B309	R3 6SN7GT 12AT7	43 IU 220B 6SN7GT 210HF	A11D	R42  HL2	MUI4 B21 B65 HL2 B309	UU5 PD220	IW4/350  PM2HL ECC81	MUI4 B21 B65 HL2 B309	APV4 CB215 6SN7GT HL2 12AT7	12AT7	APV4 B21 B65 B22B B309
BVA132 BVA142 BVA162 BVA172 BVA211	R2	43 IU	A11D	R4	U14	HL23DD VP23 Pen25 TP25 UU5	DW4/350	U14	APV4		BVA132 BVA142 BVA162 BVA172 BVA211
BVA214 BVA215 BVA216 BVA243 BVA246	R2 R2 R2 6K7G 6K7G	43 IU 43 IU 43 IU OM6 OM6	A11D A11D A11D EF39 EF39	R4 R4 R4 VPT62 VPT62	U14 U14 U14	UU5 UU5 UU5	DW4/350 DW4/350 DW4/350 EF39 EF39	U14 U14 U14	APV4 APV4 APV4 EF39 EF39		BVA214 BVA215 BVA216 BVA243 BVA246

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BVA247 BVA264 BVA265 BVA266 BVA267	6K7G 6AG6G 6AG6G 6AG6G	OM6	EF39 EL33 EL33 EL33	VPT62	KT61 KT61 KT61 KT61		EF39 EL33 EL33 EL33 EL33	KT61 KT61 KT61 KT61	EF39 EL33 EL33 EL33		BVA247 BVA264 BVA265 BVA266 BVA267
BVA274 BVA275 BVA276 C10B C20C	6K8G 6K8G 6K8G 1D5 10D1	OM10 OM10 OM10 40SUA	ECH35 ECH35 ECH35 C10B C20C	6K8G 6K8G 6K8G RZ ZD	X61M X61M X61M	U4020	ECH35 ECH35 ECH35 UR1C 2D13C	X61M X61M X61M	ECH35 ECH35 ECH35 V30 DD13		BVA274 BVA275 BVA276 C10B C20C
C23B C30B C36A C36B C36C	11D3 4D1	202DDT 202STH 302THA	C23B C20B C36A C36B C36C	HAD DA		HLDD1320 HL1320 TH2321 TH2321 TH2320	TDD13C HL13C TH21C TH30C		DDT13 HL13 TX21 TH29 TH30		C23B C30B C36A C36B C36C
C50B C50N C70D C70E C80B	8D2 9D2 7D6 15D1	13SPA 13VPA 332Pen* 13PGA	C50B C50N C70D C70E C80B			VPI322 Pen383* Pen3520	SP13C VPI3C CL33* CL33* FC13C		SP13 VPI3K PP35 VO13		C50B C50N C70D C70E C80B
CYIC D1 D4 D41 D63	1D5 HLA2 6H6G	40SUA 41MTL DDL4	C10B A30D A20B	RZ D4 SD		U4020 D1 ACHL V914	UR1C T4D 354V 2D4A		V20		CYIC D1 D4 D41 D63
D77 D152 D400 D1300 DA	6AL5 6AL5 4D1	6AL5 6AL5 DDL4	A20B C30B	DD6 DD6 SD DA	D77 D152 D41	6D2 6D2 V914 HL1320	EB91 EB91 2D4A 2D13A HL13C†	D77 D41	EB91 6AL5 DD4 DD13s HL13	6AL5 6AL5	D77 D152 D400 D1300 DA
DA30 DAC32 DAF91 DD4 DD6(Fer.)	1H5G IS5 6AL5	1H5G IS5 DDL4 6AL5	DAC32 DAF91 A20B	SD DD6	DA30 HD14 ZD17 D41 D77	1FD9 V914 6D2	DAC32 DAF91 2D4A EB91	DA30 HD14 ZD17 D41 D77	PP30/500 1H5G IS5 DD4 DD6*	IS5 6AL5	DA30 DAC32 DAF91 DD4 DD6(Fer.)
DD6(Tung.) DD620 DDA1 DDL4 DDPP4B	10D1	220DD DDL4 DDL4	C20C A20B A20B	DD6* ZD SD SD	D41 D41 DN41	DD620 DD620 V914 V914 AC2PenDD	EB34* EB34* 2D4A 2D4A Pen4DD*	D41 D41 DN41	DD6 DD6 DD4 DD4 DDPP4B		DD6(Tung.) DD620 DDA1 DDL4 DDPP4B
DDPP6B DDPP39 DDT DDT13 DF33	11A2 1N5G	DDT 202DDT† 1N5G	A23A DF33	H4D 1N5G	MHD4 Z14	PenDD4020† ACHLDD HL133DD*	EBL31* CBL31* TDD4† TDD13C DF33	MHD4 Z14	DDPP6B DDPP39 DDT DDT13 1N5G		DDPP6B DDPP39 DDT DDT13 DF33
DF91 DF92 DH30 DH42 DH63	1T4 1L4 11A2 6Q7G	1T4 6Q7G	DF91 A23A	1T4 HSD HAD 6Q7G	W17 DH30 MHD4 DH63	IF3 IF2 ACHLDD	DF91 DF92 TDD4 6Q7G	W17 DH30 MHD4 DH63	1T4 1L4 DDT4 6Q7G	IT4	DF91 DF92 DH30 DH42 DH63
DH142 DH147 DH149 DH150 DK32	7C6 1A7G	OM4 7C6 62DDT 1A7G	DK32		DH142 DH147 DH149 DH150 X14	10LD3 6LD3	UBC41 EBC33 EBC41 DK32	X14	EBC33 7C6 1A7G		DH142 DH147 DH149 DH150 DK32
DK91 DK92 DL33 DL35 DL63	1R5 1AC6 3Q5G 1C5G 6R7G	1R5 1AC6 1C5G	DK91 DK92 DL35	1R5	X17 X18 N16 N14 DL63	1C1 1C2	DK91 DK92 DL33 DL35	X17 X18 N16 N14 DL63	1R5 3Q5G 1C5G 6R7G	1R5	DK91 DK92 DL33 DL35 DL63
DL92 DL93 DL94 DL145 DN41	3S4 3V4	3S4 3A4 420TDD	DL92 DL94	3S4 PT4D	N17 N19 DL145 DN41	IP10 IP11 10LD11 AC2PenDD	DL92 DL93 DL94	N17 N19 DN41	3S4 3A4 3V4 DDPP4B	3S4 3A4	DL92 DL93 DL94 DL145 DN41
DN143 DO24 DO26 DO30 DO42					DN143 PX25 PX25 DA30	PP5/400 PP5/400	EBL21 Pen4DD	DN143 PX25 PX25 DA30	P27/500 P27/500 P30/500 DDPP4M		DN143 DO24 DO26 DO30 DO42
DP4480 DS DT215 DT436 DT1336	11A2 11D3	210DDT DDT 202DDT	K23B A23A C23B	DS HD2 HAD	H30 HD21 MHD4	HL21DD ACHLDD HLDD1320	TDD4 TDD13C	H30 HD21 MHD4	DDPP39M DDT2 DDT4 DDT13		DP4480 DS DT215 DT436 DT1336
DW2 DW3 DW4 DW4/350 DW4/500	R1 R3 R3 R3 R3	43 IU 43 IU 43 IU 43 IU 43 IU	11A		U10 U14 U14 U14 U14	UU5 UU5 UU5 UU5 UU5	DW2 DW4/350 DW4/500 DW4/350 DW4/500	U10 U14 U14 U14 U14	PV495 RV120/350 RV120/350 RV120/350 RV120/500		DW2 DW3 DW4 DW4/350 DW4/500
E220B E235 E430N E446 EA50		230XP 41MXP SD61	K33A	HP2 LP2	P2 MSP4	PD220 P240 6D1	PM202 EA50	P2 MSP4	CB215 SP230 LL4 HP4101c		E220B E235 E430N E446 EA50
EB91 EBC33 EBC41 EBF2 EBF32	6AL5	6AL5 OM4	EBC33	DD6	D152 DH63 DH150 ZD152* ZD152*	6D2 6LD3	EB91 EBC33 EBC41 EBF80* EBF80*	D77 DH63	EB91 EBC33	6AL5	EB91 EBC33 EBC41 EBF2 EBF32

\* Change of base or base wiring needed.

† Modifications may be needed: compare characteristics.

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EBF80 ECC31 ECC32 ECC35 ECC81	6SL7GT* 12AT7				ZD152 B65 B65 B309		EBF80 ECC33* ECC33 ECC35 ECC81	B65 B65 B309	12AT7	12AT7	EBF80 ECC31 ECC32 ECC35 ECC81
ECC82 ECC83 ECH35 ECH42 ECL80	12AU7 12AX7	OM10 62TH 6AB8			X61M X150 LN152	6C31† 6C10	ECC82 ECC83 ECH35 ECH42 ECL80	X61M	ECH35		ECC82 ECC83 ECH35 ECH42 ECL80
EF39 EF50 EF80 EF86 EF91	6BW7 6BR7* 8D3	OM6 63SPT 6BX6 6AM6	EF39		Z152 Z77	6F12	EF39 EF50 EF80 EF86 EF91	Z90 Z729 Z77	EF39 EF91	6AM6	EF39 EF50 EF80 EF86 EF91
EF92 EK32 EL32 EL33 EL37	9D6 6L6G†	VP6 OM8 OM9 6L6G†	EL32 EL33		W77 KT61 KT66	6P25†	EF92 EK32 EL32 EL33 EL37	W77 KT61 KT66			EF92 EK32 EL32 EL33 EL37
EL91 EM35 EY51 EZ40 FC2	6AM5 6U5G R12	6AM5 SU61 210PG	K80A		N77 U151 X22	UU9	EL91 EY51 EZ40 FC2	N77 X22		6AM5 6W2 O2	EL91 EM35 EY51 EZ40 FC2
FC2A FC4 FC13C FW4/500 FW4/800	15A2 15D1	210SPG 41MPG 13PGA 45 IU	K80B A80A C80B	VHT4	MX40 U18/20 U18/20		FC2A FC4 FC13C FW4/500 FW4/800	MX40 U18/20 U18/20	VO2 VO4 VO13 RV200/600 RV200/600	45 IU	FC2A FC4 FC13C FW4/500 FW4/800
FY G429 G431 G470 G2080s/c		412SU 43 IU 43 IU 40SUA*	SIID	R4	U10 U10	UU120/350 U4020*	PM24M DW2 DW2 CY1	U10 U10	PP4 PV495 PV495 V20s		FY G429 G431 G470 G2080s/c
G2080(5-pin) G4120 G4120N GN24 H2	ID5 R3 R3	40SUA 43 IU 43 IU 43 IU 210RC	AIID K30A	RZ R4A	U14 MU14 U14 HL2	U4020 UU120/500 UU4 H2	URIC DW4/500 IW4/350 DW4/350 PM2HL	U14 MU14 MU14 HL2	V30 RV120/500 APV4 RV120/350 HL2		G2080(5-pin) G4120 G4120N GN24 H2
H2D HAD H30 HAD HD2	11A2 11D3	210DDT DDT 202DDT 210HF	K23B A23A C23B K30A	H2D HAD DS HAD	HD24 MHD4 H30 H2	HL23DD* ACHLDD HL133DD* HL210	TDD2A TDD4† TDD13C† PM1A	HD24 MHD4 H30 H2	DD2B DDT4 DDT13 HR210		H2D HAD H30 HAD HD2
HD14 HD22 HD23 HD24 HL2	1H5G	1H5G 210DDT 210DDT 210DDT 210HL	1H5G K23B K23B K23B K30K	1H5G	HD14 HD24 HD24 HD24 HL2	HL23DD* HL23DD* HL23DD* HL23*	DAC32 TDD2A TDD2A TDD2A PM2HL	HD14 HD24 HD24 HD24 HL2	1H5G DDT2 DDT2 DDT2 HL2		HD14 HD22 HD23 HD24 HL2
HL13C HL21 HL21DD HL1320 HLA1	4D1 4D1 HLA2	210HL 210DDT 41MTL	C30B K30K K23B C30B A30B	DA DA	HL2 HD24 MH41	HL1320 HL23* HL23DD* HL1320 AC2HL	HL13C PM2HL TDD2A HL13C	HL2 HD24 MH41	HL13 HL2 DDT2 HL13 HL4+		HL13C HL21 HL21DD HL1320 HLA1
HLA2 HLB1 HLDD1320 HSD HVR1	HLA2	41MTL 210HL 202DDT SU2150	A30D K30K C23B	HAD HSD	MH4 HL2 DH30 U16	AC2HL HL2 HLDD1320	354V PM2HL† TDD13C†	MH4 HL2 DH30 U16	HL4+ HL2 DDT13		HLA2 HLB1 HLDD1320 HSD HVR1
HVR2 HVR2A IW2 IW3 IW4	VLS61 R3 R3 R3	SU2150A 43 IU 43 IU 43 IU	A11C A11C A11C		MU14 MU14 MU14	UU5 UU5 UU5	HVR2 HVR2A IW4/500 IW4/350 IW4/500	MU14 MU14 MU14	APV4 APV4 APV4	SU2150A	HVR2 HVR2A IW2 IW3 IW4
IW4/350 IW4/500 K23A K23B K30A	R3	43 IU 43 IU 210DDT 210DDT 210HF	A11C A11C K23A K23B	H2D	MU14 MU14 HL2	UU5 UU5 L2DD HL23DD* H2	IW4/500 IW4/500 TDD2A TDD2A PM2HL	MU14 MU14 HD24 HL2	APV4 APV4 DDT2 DDT2 HR210		IW4/350 IW4/500 K23A K23B K30A
K30B K30C K30D K30E K30G		210HL 210HF 210HF 210HF 230XP	K30B K30D K30D K30G		HL2 HL2 HL2 HL2 LP2	HL2 HL210 L2 L2 P220	PM2HL† PM2HL PM2HL PM2DX PM2A	HL2 HL2 HL2 HL2 LP2	LD210 HL2 LD210 LL2 LP220		K30B K30C K30D K30E K30G
K30K K33A K40B K40N K50M	5B1	210HL 220B 210SPT 210VPT 210VPT	K30K K33A K40B K40N K50M	HP2 VS2	HL2 B21 Z21 W21 W21	HL23* PD220 S215B S215VM VP210	PM2HL PM12M† PM12M VP2	HL2 B21 Z21 W21 W21	HL2 CB215 SS210 SE211c HP211c		K30K K33A K40B K40N K50M
K50N K70B K70D K77B K80A	PenB1	220 OT 210PG	K50N K70B K70D K77B K80A	VHT2	KT2 KT24 X21	Pen220 Pen231	VP2B PM22A PM22D QP22B FC2	KT2 KT24 X21	VX2 PP2 VO2		K50N K70B K70D K77B K80A
K80B KT2 KT21 KT24 KT30	PenB1 7D5	210SPG 220 OT	K80B K70B K70D K70D	PTA	X22 KT2 KT24 KT24 N30	Pen220 Pen231 Pen231	FC2A PM22A PM22D PM22A	X22 KT2 KT24 N30	VO2 PP2 PPI3A		K80B KT2 KT21 KT24 KT30

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KT31 KT32 KT41 KT42 KT61	25L6GT 7A3 7A2 6AG6G	42 OT MPPen	A70D A70B	PTSA	N31 KT32 KT41 MKT4 KT61	AC2Pen ACPen 6P25†	PenA4† Pen4VA EL33†	N31 KT32 KT41 MKT4 KT61	25L6GT APP4B APP4a EL33†		KT31 KT32 KT41 KT42 KT61
KT63 KT66 KTW63 KTZ63 L21DD	6F6G 6L6G 6K7G 6J7GT	6V6G† 6L6G			KT63 KT66 KTW63 KTZ63 HD24		6F6G EL37 6K7G 6S7G TDD2A	KT63 KT66 KTW63 KTZ63 HD24	6F6G PP60 6U7G 6J7GT DDT2B		KT63 KT66 KTW63 KTZ63 L21DD
L63 LL2 LL4 LNI52 LP4	6J5G	6J5G 210HF 41MP 6AB8 4XP		6J5G L4 LP4	L63 HL2 ML4 LNI52 PX4	HL2 ACP	PM2HL ECL80 ACO44	L63 HL2 ML4 PX4	6J5GT LL2 LL4 PI2/250		L63 LL2 LL4 LNI52 LP4
MM4 MH41 MH4105 MHD4 MKT4	HLA2 15A2 11A2 7A2	41MTL 41MTL 41MPG DDT MPPen	A30D A30B A23A A70B	D4 H4D	MM4 MH41 MX40 MHD4 MKT4	ACHL AC2HL ACHLDD ACPen	354V 904V TDD4† Pen4VA	MM4 MH41 MX40 MHD4 MKT4	HL4+ HL4+ MH4105 DDT4 APP4a		MM4 MH41 MH4105 MHD4 MKT4
MM4V MPPen MPT4 MPT4K MS4	9A1 7A2 7A2 7A2	MVSPen MPPen MPPen MPPen	A40M A70B A70B A70B		VMS4B MKT4 MKT4 MKT4 MS4B	ACSGVM ACPen ACPen ACPen ACSG	Pen4VA Pen4VA Pen4VA SP4	VMS4B MKT4 MKT4 MKT4 MS4B	AS4125 APP4a APP4a APP4a AS4120		MM4V MPPen MPT4 MPT4K MS4
MS4B MSGHA MSGLA MSP4 MSPen	SGA1 SGA1 8A1 8A1	MSPen MSPen MSPen MSPen	A50A A50A	SPT4A SPT4A	MS4B MS4B MS4B MSP4 MSP4	ACSG ACSG ACSG ACS2Pen ACS2Pen	SP4 SP4 SP4 SP4 SP4	MS4B MS4B MS4B MSP4 MSP4	AS4120 AS4120 AS4120 HP4101c HP4101c		MS4B MSGHA MSGLA MSP4 MSPen
MSPenA MSPenB MUI2 MUI4 MVSG	8A1 R3 R3	MSPen MSPenB 43 IU 43 IU MVSPen	A50A A50B A11C A11C A40M		MSP4 MUI4 MUI4 VMS4B	ACS2Pen UUS UUS ACSGVM	SP4 SP4B IW4/350 IW4/500 S4VB	MSP4 MUI4 MUI4 VMS4B	HP4101c SP4 APV4 AS4125		MSPenA MSPenB MUI2 MUI4 MVSG
MVSPen MVSPenB MX40 N14 N16	9A1 15A2 IC5G 3Q5G	MVSPen MVSPenB 41MPG IC5G	A50M A80A IC5G	VPT4 VHT4 IC5G	VMP4G W42 MX40 N14 N16	ACVPI† ACVP2	VP4 VP4B† DL35 DL33	VMP4G W42 MX40 N14 N16	HP4115c VP4 MH4105 IC5G 3Q5G		MVSPen MVSPenB MX40 N14 N16
N17 N18 N19 N30 N41	354 3Q4 3V4 7D5 7A3	354	DL92		N17 N18 N19 KT30 KT41	IPI0 IPI1	DL92 DL94* DL94	N17 N18 N19 KT30 KT41	354 3V4 PPI3A APP4B	354	N17 N18 N19 N30 N41
N66 N77 N142 N144 N145	6AM5 6AM5	6AM5 6AM5			N66 N77 N142 N144 N145		EL37 EL91 UL41 EL91	N66 N77		6AM5	N66 N77 N142 N144 N145
N147 N148 N150 N151 N152	6AG6G 7C5	7C5			N147 N148 N150 N151 N152	6P25†	EL33 EL41 EL42 PL81		6M6G	7C5	N147 N148 N150 N151 N152
N309 N339 OM1 OM4 OM5		21A6 OM1 OM4 OM5	EBC33		N309 N152 DH147		PL83 PL81 CY31 EBC33 EF36	N309 N339		CY31 EBC33	N309 N339 OM1 OM4 OM5
OM5A OM5B OM6 OM7 OM8		OM5A OM5B OM6 OM7 OM10†	EF35		W147		EF37 EF37A EF39 EF39 EK32		EF39 EF39		OM5A OM5B OM6 OM7 OM8
OM9 OM10 OP41 OP42 OZD	6K8G† 7A3 10D1	OM9 OM10 420 OT	A70E A70D C20C	PT4 ZD	X147† KT41	6C31† AC4Pen AC2Pen	EL32 CCH35 PenB4 AC2Pen 2D13C	KT41	EL32 APP4E APP4B DD13		OM9 OM10 OP41 OP42 OZD
PI2/250 Pen4DD Pen4V Pen4VA Pen4VB	7A2 7A2 7A3	4XP* MPPen MPPen 42 OT	A27D A70B A70B A70D	LP4	PX4 MKT4 MKT4 KT41	PP3/250 AC2PenDD* ACPen ACPen AC2Pen	ACO44 Pen4DD Pen4VA† Pen4VA PenA4	PX4 MKT4 MKT4 KT41	PI2/250 DDPP4M APP4a APP4a APP4B		PI2/250 Pen4DD Pen4V Pen4VA Pen4VB
Pen13C Pen24 Pen36C Pen40DD Pen44	7D8 7D6	332Pen*	C70E A70*			Pen1340 Pen25 Pen3520 PenDD4020, Pen44	Pen13C KL35*† CL33* CBL31* PenB4*		PP35 DDPP39M		Pen13C Pen24 Pen36C Pen40DD Pen44
Pen383 Pen1340 Pen3520 PenA1 PenA4	7D6* 7D8 7D6 PenA1 7A2	332Pen* 332Pen* PT41 42 OT	C70D* C70E A70D	PTZ*		Pen383 Pen1340 Pen383*	CL33* CL33* PM24M PenA4	PT4 KT41	PP34* PP35 PP4 APP4B		Pen383 Pen1340 Pen3520 PenA1 PenA4
PenB4 PenDD4020 PA1 PA20 PA40	PA1	41MXP 2P	S30D		DA30	AC/4Pen PenDD4020	PenB4 CBL31* 054V ACO42 DO30		APP4E DDPP39 LL4 P30/500		PenB4 PenDD4020 PA1 PA20 PA40

\* Change of base or base wiring needed.

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PL81 PL82 PL83 PM2B PM2BA		21A6 16A5  220B 220B	  K33A K33A		N152 N37 N309 B21 B21	  PD220 PD220	PL81 PL82 PL83 PM2B PM2B	N339 N37 N309 B21 B21	  CB215 CB220		PL81 PL82 PL83 PM2B PM2BA
PM24B PM24E PM24M PP3/250 PP5/400	PenA1	PT41B PT41 4XP	 S30C	LP4	PT25 PT4 PX4 PX25	PP3/250 PP5/400	Pen24D PM24E PM24M ACO44 DO24	PT25 PT4 PX4 PX25	PP4 P12/250 P27/500		PM24B PM24E PM24M PP3/250 PP5/400
PT4(Fer.) PT4(M.O.) PT4D PT10 PT25	PenA1	PT41 42 OTDD PT10		PT4 PT4D	PT4 DN41  PT25	AC/2Pen AC/2PenDD AC/5Pen	PenA4M PM24M Pen4DD*	PT4 DN41	APP4B PP4 DDPP4B		PT4(Fer.) PT4(M.O.) PT4D PT10 PT25
PT41 PT41B PTA PTSA PTZ	PenA1	PT41 PT41B  332Pen*		PTA PTSA	PT4 KT30 KT31	  Pen383*	PM24M Pen24D  CL33*	PT4 KT30 KT31	PP4 PPI3A PP35		PT41 PT41B PTA PTSA PTZ
PX4 PX25 PX25A PY80 PY81		4XP  17Z3	S30C	LP4	PX4 PX25 PX25 U152 U153	PP3/250 PP5/400	ACO44 DO24 DO24 PY80 PY81	PX4 PX25 PX25 U309 U329	P12/250 P27/500 P26/500		PX4 PX25 PX25A PY80 PY81
PY82 PZ30 QVO5-25 R1 R2	R14 807 R1 R3	19Y3 807 43 IU 43 IU	 S11A A11B	807 R4	U154 U10 MU14	UU5 UU5	PY82 PZ30 QVO5-25 DW2 IW4/350	U319  U10 MU14	807 PV495 APV4	807	PY82 PZ30 QVO5-25 R1 R2
R3 R4 R4A R12 R14	R3  R12 R14	43 IU 43 IU 45 IU SU61	A11C S11D	R4A R4A R4A 6X2	MU14 U14  U151	UU5  UU5	IW4/500 DW4/350 DW4/500 EY51 PZ30	MU14 U14	APV4 RV120/350 RV120/500	6W2†	R3 R4 R4A R12 R14
R16 RZ S11A S11D S30C	R16 ID5 R1 R2	40SUA 506BU 43 IU 4XD	C10B S11A S11D S30C	RZ R4 LP4	U37 U10 U14 PX4	U4020  PP3/250	UR1C DW2 DW4/350 ACO44	U37 U10 U14 PX4	V30 PV495 RV120/350 P12/250		R16 RZ S11A S11D S30C
S30D SD61 SGA1 SP4 SP4B	SGA1 8A1	2P SD61 MSPen MSPen MSPenB	S30D  A50A A50B		MS4B MSP4	PA20 6D1 AC/SG AC/SG	AC042 EA50 S4VB SP4 SP4B	MS4B MSP4	AS4120 HP4101c SP4B		S30D SD61 SGA1 SP4 SP4B
SP6 SPI3C SPI320 SU61 SU2130	8D3 8D2 8D2 R12	6AM6 13SPA  SU61 SU2150	C50B	6X2	Z77  U151 U16	6F12  SPI320	EF91 SPI3C SPI3C EY51 HVR1	Z77  U16	EF91 SPI3B SPI3B	6AM6  6W2†	SP6 SPI3C SPI320 SU61 SU2130
SU2150 SU2150A T4D T41 (Ekco) TDD4	HLA2 11A2	SU2150 SU2150A 41MTL DDT	A30D A23A	D4 H4D	MH4 MHD4	U21 D1 AC/HL AC/HLDD	HVR2A T4D 354V TDD4	MH4 MHD4	HL4+ DDT4	SU2150A	SU2150 SU2150A T4D T41 (Ekco) TDD4
TDD13C TH2 TH4 TH4A TH4B	20A1 20A1	202DDT† 220TH 41STH 4THA 4THA	C23B  A36C A36C	HAD	X24 X41	HL133DD*  AC/TH1 ACTH1 ACTH1	TDD13C TH2 TH4 TH4B TH4B	X24 X41	DDT13 TX4 TH4A TH4B		TDD13C TH2 TH4 TH4A TH4B
TH21C TH22C TH30C TH41 TH233	20A1*	202STH 302THA 302THA 41STH* 302THA*	C36A C36C C36C A36C* C36B*		X41*	TH2321 TH2321 TH2321 TH41 TH233	TH21C TH30C TH30C TH4B* TH30C*	X41*	TX21 TH29 TH30 TH4A,B* TX21*		TH21C TH22C TH30C TH41 TH233
TH2321 TSP4 TT4 U10 U12	R1 R3	302THA 4TPB† 41MP 43 IU 43 IU	C36C  S11A		ML4 U10 U14	TH2321 ACSP3 ACP UU5 UU5	TH30C TSP4 TT4 DW2 DW4/350	ML4 U10 U14	TH30 LL4 PV495 RV120/500		TH2321 TSP4 TT4 U10 U12
U14 U16 U18/U20 U21 U22	R3	43 IU SU2150 45 IU SU2150 SU2150*			U14 U16 U18/U20	UU5  U22* U22	DW4/500 HVR1 FW4/500	U14 U16 U18/U20	RV120/500 RV200/600		U14 U16 U18/U20 U21 U22
U37 U50 U70 U82 U101	R16 5Y3G 7Z4	54KU† 6X5G			U37 U50 U70 U82 U101	5Y3G	EZ35 EZ35* UY1N*	U37 U50 U70 U82 U101	5Y3GT 6X5G*		U37 U50 U70 U82 U101
U142 U143 U145 U147 U149	6X5 7Y4	6X5 7Y4			U142 U143 U145 U147 U149	U404 U404	UY41 AZ31 UY41 EZ35 EZ35*		AZ31 6X5 6X5	7Y4	U142 U143 U145 U147 U149
U150 U151 U152 U153 U154	R12	66KU SU61  17Z3 19Y3		6X2	U150 U151 U152 U153 U154	UU9	EZ40 EY51 PY80 PY81 PY82	U309 U329 U319		6W2†	U150 U151 U152 U153 U154

INDEX	Brimar	Cossor	Ever Ready	Ferranti	Marconi	Mazda	Mullard	Osram	Tungsram	Emitron	INDEX
U201 U281 U309 U319 U404		19Y3			U152 U154 U142	U201 U281 U404	CY31 CY31 PY80 PY82 UY41	U309 U319	CY31 CY1*		U201 U281 U309 U319 U404
U4020 UR1 URIC UU2 UU3	ID5 ID5 RI	40SUA 40SUA 506BU 43 IU	C10B C10B	RZ RZ		U4020 U4020 UU5 UU3	URIC CY1 URIC IW4/350 IW4/500 IW4/350*		V20s V20 APV4		U4020 UR1 URIC UU2 UU3
UU4 UU5 UU6 UU9 UY41	R3 R3 R2*	43 IU 43 IU 442BU* 66KU	A11C A11C A11B/D*	R4A R42*	MU14 MU14	UU5 UU5 UU6 U150 U142	IW4/350 IW4/500 IW4/350* EZ40 UY41	MU14 MU14 MU14 U150	APV4 APV4		UU4 UU5 UU6 UU9 UY41
V30 V503 V914 VHT4 VHTA	15A2 15D1	DD4 41MPG	A20B A80A		PX25A D41 MX40	U281* V503 V914	URIC† 2D4A FC4 FC13C†	PX25A D41 MX40	V30 P30/500 DD4 MH4105 VO13		V30 V503 V914 VHT4 VHTA
VHTS VLS61 VM4V VMP4 VMP4G	VLS61 9A1	MVSPen MVSPen	A50M A50N	VPT4	VMP4G VMP4G	AC/SIVM ACVPI†	HVR2 VP4 VP4 VP4A	X30 VMP4G VMP4G	AS4125 HP4105 HP4105		VHTS VLS61 VM4V VMP4 VMP4G
VMS4 VMS4B VMS4/K VP4 VP4A	9A1 9A1	MVSPen MVSPen MVSPen	A40M A40M A50M A50N	VPT4	VMS4 VMS4B VMS4B VMP4G VMP4G	AC/SGVM AC/SGVM AC/VP1 AC/VP1	VP4 VP4 SP4 VP4 VP4B†	VMS4 VMS4B VMS4B VMP4G VMP4G	AS4125 AS4125 HP4106 VP4A		VMS4 VMS4B VMS4/K VP4 VP4A
VP4B VPI3C VP41 (Ekco) VP41 (Mazda) VPI320	9D2	MVSPenB 13VPA MVSPenB* MVSPenB*	A50P C50N A50P* A50P*	VPT4B VPT4B* VPTA	W42 W42*	AC/VP2 VPI322 AC/VP2 AC/VP2* VPI320	VP4B VPI3C VP4B VP4B*	W42 W42 W42*	VP4B VPI3B VP4B VP4B* VPI3		VP4B VPI3C VP41 (Ekco) VP41 (Mazda) VPI320
VPI321 VPI322 VPT4 VPT4B VPTA	9D2 9A1	202VP 13VPA MVSPen	C50N A50M	VPT4 VPT4B VPTA	VMP4G VMP4G	VPI321 VPI322 AC/VP1 AC/VP1 VPI320	VPI3C* VPI3C VP4 VP4	VMP4G VMP4G	VPI3B VPI3B HP4106 HP4106 VPI3		VPI321 VPI322 VPT4 VPT4B VPTA
VSGA1 W17 W30, W31 W42 W63	9A1 6K7GT	MSG/HA IT4 MVSPenB	DF91 A50P	VPTS	MS4B W17 W30 W42 KTW63	AC/SGVM IF3 AC/VP2	S4VA DF91 VP4B	MS4B W17 W30 W42 KTW63	AS4120 IT4 6U7G		VSGA1 W17 W30, W31 W42 W63
W77 W81 W142 W143 W145	9D6 7H7	VP6			W77 W81 W142 W143 W145	10F9* 10F9	EF92 UF41 EF22	W77 W81			W77 W81 W142 W143 W145
W147 W148 W149 W150 WD142	7H7 7B7	OM6 7B7 62VP			W147 W148 W149 W150 WD142	6F1†5	EF39 EF41 UAF42	W81	EF39 7H7 7B7		W147 W148 W149 W150 WD142
WD150 X14 X17 X18 X21	1A7G IR5	1A7G IR5 1A6C 210PG	1A7G DK91 DK92 K80A	1A7G IR5	WD150 X14 X17 X18 X22	IC1 IC2	EAF42 DK32 DK91 DK92 FC2A	X14 X17 X18 X22	1A7G IR5	IR5	WD150 X14 X17 X18 X21
X22 X23 X24 X30 X41	20A1	210PG 220TH 220TH 41STH	K80A	VHTS	X22 X24 X24 X32 X41	AC/TH1	FC2 TH2 TH2 TH4	X22 X24 X24 X32 X41	TX4		X22 X23 X24 X30 X41
X42 X61M X63 X64 X65	15A2 6A8G 6L7G	41MPG	A80A	VHT4	MX40 X61M X63 X64 X65	6C31† 6C31†	FC4† ECH35 ECH35†	MX40 X61M X63 X64 X65	ECH35 6A8G 6L7G ECH35		X42 X61M X63 X64 X65
X77 X81M X142 X143 X145	6BE6 7S7†				X77 X81M X142 X143 X145	10C1	UCH42 ECH21	X77 X81M	6BE6	7S7†	X77 X81M X142 X143 X145
X147 X148 X150 Y61 Y63	6K8G* 7S7 6U5G 6G5G	7S7 62TH			X147 X148 X150 Y61	6C10 6MI 6MI	ECH35 ECH42 EM34† EM34†	X81M Y61	ECH35	7S7	X147 X148 X150 Y61 Y63
Z14 Z63 Z77 Z142 Z145	IN5 617G 8D3	IN5 6AM6	IN5 IN5	IN5	Z14 KTZ63 Z77 Z142	6F12 10F3† 10F1	DF33 6J7G EF91 UF42	Z14 KTZ63 Z77	IN5 6J7G EF91	6AM6	Z14 Z63 Z77 Z142 Z145
Z150 Z152 ZD17 ZD152 Z729	6BW7 IS5 6BR7*	6BX6 IS5	DAF91		Z150 Z152 ZD17 ZD152	6F13† IFD9	EF42 EF80 DAF91 EBF80 EF86	ZD17 Z729	IS5 IS5		Z150 Z152 ZD17 ZD152 Z729

\* Change of base or base wiring needed.

† Modifications may be needed: compare characteristics.



# VALVE EQUIVALENTS

## PART TWO: Type Numbers Commencing with a Figure

Refs. : \* Change of base or base wiring needed. † Modifications may be needed : compare characteristics.

INDEX	Brimar	Cossor	Ever Ready	Ferranti	Marconi	Mazda	Mullard	Osram	Tungsram	Emitron	INDEX
IA3 IA7G IAC6 ICI IC2	IA7 IAC6 IR5 IAC6	IA7 IAC6 IAC6	IA7 DK92 DK91 DK92	IA7 IAC6	X14 X18 X17 X18	ID13 IC2 IC1 IC2	DA90 DK32† DK92 DK91 DK92	X14 X18 X17 X18	IA7	IR5	IA3 IA7G IAC6 ICI IC2
IC5G ID5 IF2 IF3 IF5G	IC5G ID5 IL4 IT4	IC5G 40SUA	DL35 C10B DF91 KL35	IC5G RZ	NI4 W17	U4020 IF2 IF3	DL35 DF92 DF91 KL35	NI4 W17	IC5G V30 IL4		IC5G ID5 IF2 IF3 IF5G
IFD9 IH5G IL4 IN5G IP10	IS5 IH5G IL4 IN5G 3S4	IH5G IN5G	DAF91 DAC32 IN5G DL92	IH5G IN5G	ZD17 HD14 Z14 N17	IFD9 IF2 IP10	DAF91 DAC32 DF92 DF33† DL92	ZD17 HD14 Z14 N17	IH5G IL4 IN5G 3Q4	3S4	IFD9 IH5G IL4 IN5G IP10
IP11 IR5 IS4 IS5 IT2	3V4 IR5 IS4 IS5 IT2	IR5 IS4 IS5	DAF91	IR5 IS5	X17 ZD17 U37	IP11 IC1 IFD9	DL94 DK91 DL92* DAF91	X17 ZD17 U37	3V4 IR5 IS4 IS5	IR5 IS5	IP11 IR5 IS4 IS5 IT2
IT4 2A100/A 2D4 2D4A 2D13C	IT4 2A100/A 10D1	IT4 DDL4 DDL4	DF91 A20B C20C	IT4 OZD	W17 D41 D41	IF3 DI V914 V914 DD620†	DF91 TD4 2D4A* 2D4A	W17 D41 D41	IT4 DD465 DD4		IT4 2A100/A 2D4 2D4A 2D13C
2P 2XP 3A4 3Q4 3Q5G	3A4 3Q4 3Q5G	2P 2P 3A4	S30D S30D			PA20 PA20	ACO42 ACO42 DL93 DL94* DL33		3A4 3Q4 3Q5G	3A4	2P 2XP 3A4 3Q4 3Q5G
3S4 3V4 4D1 4THA 4XP	3V4 4D1	4THA 4XP	DL92 DL94 C30B A36B S30C	DA LP4	N18 N15 N17 N19	IP10 IP11 HL1320 AC/TH1 PP3/250	DL92 DL94 HL13C† TH4B ACO44	N17 N19 PX4	3V4 HL13 TH4A PI2/250		3S4 3V4 4D1 4THA 4XP
5U4G 5V4G 5Y3G 5Z4G 6A8G	5U4G 5V4G 5Y3 5Z4 6A8	53KU 54KU 52KU 52KU		5Y3	U52 U50 U50 X63		GZ31 GZ32 GZ30 GZ32 6A8G	U52 U50 U50 X63	5U4G 5V4G 5Y3 5Z4 6A8		5U4G 5V4G 5Y3G 5Z4G 6A8G
6AB8 6AG6G 6AK5 6AL5 6AM5	6AG6G	6AB8		6AK5 DD6	LH152 KT61 D77 N77	6D2	ECL80 EL33 EF95 EB91 EL91	KT61 D77 N77	6M6G 6AL5	6AL5 6AM5	6AB8 6AG6G 6AK5 6AL5 6AM5
6AM6 6BR7 6BX6 6C5G 6C10	8D3 6BR7 6C5	SP6 6BX6 6J5G 62TH			Z77 L63 X150	6F12 6C10	EF91 EP86* EF80 6C5GT ECH42	Z77 Z729*	6AM6		6AM6 6BR7 6BX6 6C5G 6C10
6C31 6D1 6D2 6F11 6F12	6K8 8D3	OM10 SD61 6AL5 62VP 6AM6		DD6	X65 D77 Z77	6C31 6D1 6D2 6F11 6F12	EA50 EB91 EF92 EF91	X65 D77 Z77	ECH35 6AL5 HP6	6AM6	6C31 6D1 6D2 6F11 6F12
6F13 6F15 6F16 6G5G 6J5G	6U5 6C5	63ME 6C5		6J5G	Z150† W150† L63	6F13 6F15 6F16 6MI	EF42† EF41† EF41 EM34† 6J5		6J5		6F13 6F15 6F16 6G5G 6J5G
6J7G 6K7G 6K8G 6L6G 6MI	6J7 6K7G 6K8 6L6G 6U5G	63ME			6J7 Z63 KTW63 X65 KT66 Y63	6MI	6J7 Z63 KTW63 ECH35† EL37†		6J7 X65 KT66 Y63		6J7G 6K7G 6K8G 6L6G 6MI
6M6G 6N8 6P25 6P28 6Q7G	6AG6G		EL33		KT61 DH63	6P25 6P28	EL33 EBF80 EL33 EL38* 6Q7	KT61 DH63	6M6 EL33 EL38* 6Q7		6M6G 6P25 6N8 6P28 6Q7G
6SN7 6U5G 6U7G 6W2 6X2	6SN7 6U5 6U7G R12 R12	63ME SU61 SU61			B85 KTW63 U151 U151	6MI	ECC33† EM34* EY51 EY51	B85 KTW63	6U7G	6W2 6W2	6SN7 6U5G 6U7G 6W2 6X2
6X5G 7A2 7A3 7B6 7C5	6X5 7A2 7A3 7B6 7C5	6X5 MPPen 42 OT	A70B A70D	6X5 PT4	U70 MKT4 KT41 DL82 KT81	AC/Pen AC/2Pen	6X5 Pen4VA PenA4	U70 MKT4 KT41 DL82 KT81	6X5 APP4a APP4B		6X5G 7A2 7A3 7B6 7C5
7C6 7D5 7D6 7D8 7D9	7C6 7D5 7D6 7D8 6AM5	7C6		C70E PTA	DH149 N30 N144	Pen3520 Pen1340	CL33* EL91 EL91	N30 N77	PP13A PP35	7C6 6AM5	7C6 7D5 7D6 7D8 7D9

INDEX	Brimar	Cossor	Ever Ready	Ferranti	Marconi	Mazda	Mullard	Osram	Tungsram	Emitron	INDEX
7H7 7S7 7Y4 8D3 9D6	7H7 7S7 7Y4 8D3 9D6	7S7 7Y4 6AM6		7H7 7S7	W81 X81M U149 Z77 W77	6F12	7H7 EZ35* EF91 EF92	W81 X81M U82* Z77 W77		7H7 7S7 7Y4	7H7 7S7 7Y4 8D3 9D6
10C1 10D1 10F9 10LD3 10LD11	10D1		C20C	ZD	X145 W145 DH142 DL145	10C1 DD620† 10F9 10LD3 10LD11	2D13C UBC41	W145	DD13 UF41		10C1 10D1 10F9 10LD3 10LD11
10P13 11D3 12AT7 12AU7 12AX7	11D3 12AT7 12AU7 12AX7	202DDT	C23B	HAD	N145 B309	10P13 HL133DD*	TDD13C ECC81 ECC82 ECC83	B309		12AT7	10P13 11D3 12AT7 12AU7 12AX7
13DHA 15A2 15A6 15D1 16A5	11D3 15A2 15D1	202DDT 41MPG 13PGA 16A5	C23B A80A C80B	HAD VHT4 VHT4	MX40 N37	HLDD1320	TDD13C FC4† PL83 FC13C† PL82	MX40 N309 N37			13DHA 15A2 15A6 15D1 16A5
17Z3 19X3 19Y3 21A6 25Z4		17Z3 19Y3 21A6			U153 U152 U154 N339 U31		PY81 PY80 PY82 PL81 PY31†	U329 U309 U319 N339 U31			17Z3 19X3 19Y3 21A6 25Z4
40SUA 41MPG 42 OT 42 OTDD 43 IU	1D5 15A2 7A3 R3	40SUA 41MPG 42 OT 42 OTDD 43 IU	C10B A80A A70DC A11D	RZ VHT4 PT4 PT4D	MX40 KT41 DN41 MU14	U4020 AC/2Pen AC/2PenDD UU5	UR1C† FC4 PenA4 IW4/350	MX40 KT41 DN41 MU14	V30 MH4105 APP4B DDPP4B APV4		40SUA 41MPG 42 OT 42 OTDD 43 IU
44 IU 45 IU 52KU 53KU 54KU	R3 5Z4 5U4G	43 IU 45 IU 52KU 53KU 54KU	A11C		MU14 U18/20* U52†	UU5	IW4/500 FW4/500† GZ32	MU14 U18/20* U52†	APV4 RV200/600	45 IU 52KU 53KU	44 IU 45 IU 52KU 53KU 54KU
62TH 62DDT 62VP 63ME 63SPT		62TH 62DDT 62VP 63ME 63SPT		VFT6	Y63 Z152	6C10 6MI	ECH42 EBC41 EF41 EF50		Y63 Z90		62TH 62DDT 62VP 63ME 63SPT
66KU 67PT 80 807 1877	80 807 VLS61	66KU 67PT 807		807		UU9	EZ40 EL41 GZ32* QVO5-25 HVR2		80 807	807	66KU 67PT 80 807 1877

† Modifications may be needed : compare characteristics.