HOLBAY

HIGH PERFORMANCE ROAD AND COMPETITION CAMSHAFTS

HOLBAY RACING ENGINES

Holbay was founded in 1959 and quickly became well-known throughout the motoring world, firstly by its highly successful racing engines, and later by its involvement with Ford, Lotus, Chrysler U.K. and the British Motor Corporation in developing high performance versions of their engines for racing, rallying and for use in fast touring cars

Engine Department

An efficient re-building service is available for all makes of competition and road engines. There is a development facility for new products with dynamometer capacity up to 600 b.h.p.

Machining facility

A comprehensive machine shop is available for customer service carrying out all engine related operations including cylinder boring, crankshaft grinding, line boring, honing, cylinder head servicing, flywheel reconditioning, dynamic and static balancing etc.

Production engineering

High technology automatic tape controlled machines make small batches of precision engine components both for our own requirements and for many other top engine builders. Holbay's manufacturing ability is backed up by a design service for the industry

Crankshaft Division

Our modern plant has been designed for maximum versatility to specialise in competitively priced 'one-offs' or small production batches made to the highest standards of engineering excellence. Holbay is fast becoming the major supplier to foremost engine builders, including Formula One Grand Prix engine manufacturers

We have a wide range of crankshafts for Ford and other popular competition engines for immediate delivery

Camshaft Department

Holbay have been prominent in the field of camshaft design for many years. Our camshafts are used for almost every type of racing and in engines powering cars to success in international rallies. A regrinding and heat treatment service is available for all makes

The Tornado range is especially for uprating the power of normal road engines and are designed to fit in place of the original without modification to pistons, tappets, etc., wherever this is possible

Holbay-Tornado camshafts are available for most production car engines

Connecting Rod Manufacture

Holbay have an extensive range of EN24 steel forgings from which we make a variety of high duty connecting rods. Those for Ford based variants are available from stock and prototypes and specials are available at short notice

Pistons

Forged RR 59 alloy pistons to Holbay design are made for most competition engines including over-sizes for increased cylinder capacity

Valve Springs

In conjunction with the world's leading spring makers we have extended the production range of the famous Holbay 'Rocket' springs. These are designed for continuous high performance and are now made for different engine types

Cylinder Head Department

A complete service is available for gas flowing and other modifications to cylinder heads of all types

HOLBAY RACING ENGINES LIMITED

4 Betts Avenue, Martlesham Heath, Ipswich, Suffolk IP5 7RH.
Tel: 0473 623000 · Fax: 0473 610587 · Telex: 987336 HOLBAY G.

HOLBAY
RACING ENGINES

HOLBAY COMPETITION CAMSHAFT PROFILES

HOLBAY COMPETITION camshafts have been winning since 1959! Whatever your class of competition, whatever your engine, we can help you. Our published list shows the popular applications. If your requirements are not listed, please let our engineers advise you.

TYPE	DESCRIPTION	POWER* OPERATING RANGE (RPM)	TORQUE* PEAK (RPM)	BHP* PEAK (RPM)	ACHIEVABLE* BHP/LITRE	TIMING FIGURES (DEGREES)	VALVE LIFT (INCHES) INLET / EXHAUST	PERIOD @ CRANKSHAFT (DEGREES) INLET / EXHAUST	FOLLOWER TYPE
FORD PINTO SINGLE OHC									
4011 (83-91)	FAST ROAD	1500/6000	4000	5200	54.5	30/66 72/24	.422	276	
4011A	FAST ROAD	2000/6400	4500	5950	79	40/76 30/62	.443 / .422	296 / 272	
4011B	ROAD/RALLY	2400/7000	4750	6200	83	28/90 84/25	.419	298 / 289	
4011C	RALLY	3200/8000	5000	6900	88	51/89 68/42	.472	320 / 290	
4011F	RALLY/RACE	3500/8200	5250	7230	90	54/80 88/44	.475	314 / 312	
4011FHL	RALLY/HILL CLIMB	3600/8400	5650	7300	92	54/80 88/44	.539	314 / 312	
4011D (665)	RACE	3770/8500	6000	7425	94	60/104 79/53	.539	344 / 312	
4011T (M15)	TURBO	1500/6500	4000	5500	**	29/65 56/20	.467 / .462	274 / 256	
** NOTE Boost pressure related.									
509T	FAST ROAD	1500/6000	4200	5500	75	35/75 75/35	.415	290	FOR USE
509M	RALLY	3200/8000	5100	6900	98	56/76 74/54	.437	312 / 308	WITH HOLBAY
509R	RACE	3700/8500	5950	7400	101	42½/77½ 77½/42½	.415	300	ROLLER ROCKER
PR62	RACE	3750/8500	6000	7600	104	60/104 73/59	.512 / .501	344 / 312	ASSY. ONLY.
CROSSFLOW OHV									
R90	FAST ROAD	1100/6200	4100	5600	65.6	31/61 61/31	.353	300	
R120	FAST ROAD/RALLY	1500/6800	4500	6200	75	37/67 71/33	.435	284	
K3A	RALLY/RACE	3200/8000	5900	7400	90.6	58/88 74/50	.411	326 / 304	
747	RALLY/RACE	3150/8000	5500	7000	88	56/76 76/56	.448	312	
658	RACE	4500/10800	7200	8300	102	66/88 88/66	.421	334	
700	RACE	6000/9750	7250	8450	106	68/90 90/68	.421	338	
751	RACE	6150/9400	7300	8470	110	68/90 90/68	.445	338	

* N.B. These figures relate to a 2.0 litre engine. Power peaks and operating range will change with alternative capacities.
BHP/Litre figures should be multiplied by engine capacity to arrive at feasible power targets; i.e. Type 4011C camshaft in a 2.1 Litre engine would be:- 88 x 2.1 = 184.8 BHP.

* N.B. These figures relate to a 1.6 litre engine. Power peaks and operating range will change with alternative capacities.
BHP/Litre figures should be multiplied by engine capacity to arrive a feasible power targets; i.e. Type 658 camshaft in a 1700cc engine would be:- 102 x 1.7 = 187 BHP.

FORD CVH

1L / 1LO

HOLBAY CAMSHAFTS Ford four cylinder Kent range of engines -

Type R90: Designed as a replacement for the standard camshaft where increased torque and maximum power is required without modification to any other components and where quiet operation, normal idling and good low speed operation is essential. Suitable for use in all models. Standard valve springs and camfollowers are suitable.

Technical Specifications

Lift at cam	.232"
Lift at valve - no clearance	.353"
Angle of relationship	105°
Period at running clearance	150°
Full lift angle	105° ATDC
Inlet - lift at T.D.C. (running clearance)	.055"
Inlet timing at .016" clearance in degrees	31 / 61
Exhaust timing at .026" clearance do.	61 / 31
Running clearances cold: Inlet	.012"
Exhaust	.022"

Use standard Ford timing procedure.

Type R120: A Holbay design commissioned by Ford Motor Company and used in the victorious Mexico Rally Escorts. This is the most successful special camshaft design ever produced and is in demand by expert engineers and rally teams the World over. Produces a dramatic increase in power with quiet operation and exceptional reliability. Good low speed operation with slightly irregular idle. Suitable for all models from 1500 c.c. capacity upward. Non standard valve springs are required due to increased valve lift. Holbay heavy duty camfollowers are recommended. When used in crossflow engines the piston crowns will require deeper valve pockets. The dimension between the closed valve head and piston crown at T.D.C. must not be less than.150". First measure the depth of valve head from cylinder head face. Add to this the gasket thickness (.025") and the depth of the piston from the block face at T.D.C. If the total of these three dimensions is less than .150" the piston valve pockets should be increased in depth by the appropriate amount. Alternatively, pistons with the correct pockets are available from our stores. The R120 may be used with the standard 'GT' Weber carburettor in which case the primary main jet should be increased to the next larger size for maximum performance. Twin choke Weber 40DCOEs should be calibrated as follows: Main jets 115; Air jets 150; Emulsion tubes F16; Slow run jets 45F8; Chokes 30. This assumes the use of micro-mesh air cleaners only.

Technical Specification

Lift at cam	.286"
Lift at valve	.435"
Angle of relationship	107°
Inlet period with .022" clearance	142°
Exhaust period with .025" clearance	142°
Full lift at 105° A.T.D.C.	
Inlet lift at T.D.C. (running clearance)	.099"
Inlet timing at .022" clearance in degrees	37 / 67
Exhaust timing at .025 clearance in degrees	71 / 33
Running clearances cold Inlet	.016"
Exhaust	.019"

Use standard Ford timing procedure.

HOLBAY RACING ENGINES LTD.

PL2 4 Betts Avenue, Martlesham Heath, Ipswich, Suffolk IP5 7RH JUNE 1992
Tel: Ipswich (0473) 623000
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Telex: 987336 Holbay G

HOLBAY RACING ENGINES LTD - PRICE LIST
KENT 4 CYLINDER OHV ENGINES 105E TO 711M 997/1998cc

Cylinder and Heads associated equipment including valve gear and camshaft drive

Part No.	Price £
ASD 151	941.43
ASD 151 bare	673.36
HDD 151	1307.75
HCF 204 F	778.00
K208-1	14.02
K209-1	14.02
K210-1	14.02
K211-1	14.02
K214-1	14.02
K215-1	14.02
K215-1	14.02
K216A1	14.02
K216B-1	14.02
K217-1	14.02
K218-1	14.02
K219-1	14.02
K220-1	4.44
K221-1	4.82
K223-1 MK2 (set)	41.00
K225-1Rocket, set	98.96
K231-1	6.36
K232-1	6.36
K233-1	6.36
K234-1	20.58
K235-1	20.58
K236-1	4.50
K237-1	6.03
K238-1	.88
K239-1	.88
K240-1	6.00
K241.1	6.00
K242-1	3.47
K243-1	3.47
K244-1	3.47
K245-1	7.93
K246-1	9.09
K247-1	107.99
K247-250/1	221.57
K247A1	196.35
K247B1	196.35
K248-1	11.69
K249-1	11.69
K250-1	20.06

Part No.	Price £
K253-1	6.09
K254-1	6.09
K255-1	6.09
K256-1	6.09
K257-1	6.09
K258-1	65.00
K259-1	65.00
K260-1	65.00
K261-1	65.00
K262-1	6.28
K263-1	2.54
K264-1	24.45
K265-1	53.36
K266-1	237.58
Camshaft	
R90	69.41
R120	110.00
BTX	110.00
K3A	110.00
658	110.00
700	110.00
747	110.00
751	110.00
Group 2 Cylinder Block Assembly	
K275-2	12.07
K276-2	12.44
K277-2	13.09
K301-2	343.03
K302-2	382.41
K303-2	479.82
K304-2	524.81
K308-2	551.07
K309-2	603.48
K310-2	222.33
K311-2	222.33
K312-2	133.40

Part No.	Price £
Group 3 Crankshaft Assembly	
K401-3	851.00
K402-3	851.00
K403-3	851.00
K404-3	851.00
K405-3	851.00
K406-3	851.00
K407-3	851.00
K408-3	851.00
K409-3	851.00
K410-3	851.00
K411-3 Set	396.40
K412-3 "	396.40
K413-3 "	396.40
K413A-3 "	413.56
K414-3 "	396.40
K414A/B-3 "	396.40
K415-3 "	396.40
K416-3 "	396.40
K417-3 "	396.40
K418-3 "	396.40
K419-3	640.00
K420-3	640.00
K421-3	640.00
K422-3	640.00
K423-3	640.00
K424-3	640.00
K425-3	640.00
K426-3	640.00
K427-3	640.00
K428-3	640.00
K429-3	640.00
K430-3	640.00
K431-3	640.00
K432-3	640.00
K433-3	640.00
K434-3	640.00
K435-3	640.00
K436-3	54.63
K437-3	75.97
K438-3	36.05
K439-3	45.57

Part No	Price £
K440-3	23.50
K441-3-6056	64.50
K442-3	P.O.A.
k442-A3	4.05
K443-3	285.00
K444-3	285.00
K445-3	285.00
K446-3	296.00
K447-3	POA
K448-3	POA
K449-3	POA

Group 4
Induction system

K501-4		121.97
K502-4		147.00
K503-4		147.00
K504-4		114.53
K505-4		114.53
K506-4		119.62
K507-4	Set	27.92
K508-4	"	27.92
K509-4	"	27.92
K510-4		7.75

Group 5 Fuel Injection
Prices on application

Group 6 Lubrication Systems

K701-6	349.38
K702-6	27.64
K703-6	298.56
K704-6	92.09
K705-6	92.09
K706-6	255.00
K707-6	255.00
K708-6	255.00
K709-6	255.00
K710-6	255.00
K711-6	32.91
K725-6	387.00
K725-6A	258.00
K725-6B	129.00

Part No	Price £
Group 7 Ancillaries	
K801-7	54.30
K802-7	34.30
K803-7	112.06
K804-7	63.14
Group 8 Electrical	
K901-8	110.00
K902-8	158.00
K903A-8	186.00
K904-8	7.04
K905-8	11.69
K906-8	18.58
K907-8	22.68

Group 9 Gaskets and Seals

K951-9	34.20
K952-9	49.22
K953-9	11.11
K954-9	34.30
K955-9	43.20
K956-9	12.24
K957-9	63.50
K961-9	5.74
K962-9	10.68

This parts list supercedes all previous issues. Prices and specifications subject to change without notice. All parts sold to our standard Conditions of Sale. Copy available on request.

JUNE 1992

P A R T S L I S T

Kent four cylinder OHV engines - 105E/711M 997/1998cc

HIGH PERFORMANCE CYLINDER HEADS

Application: 997-1098cc engines.

ASD 151 - To full race specification only - Fitted bronze guides, nimonic valves, steel retainers and platforms - Rocket valve springs and Bullock cotters. Adapted for 10 mm sparking plugs.

HDD 151 - As ASD 151 but having cast in 'down-draught' inlet ports.

Application: Cross-flow 1298-1998cc engines.

HCF 203F - Inlet and exhaust ports flowed. Inlet port highly polished. Fitted replaceable valve guides. Inlet and exhaust valves manufactured from high chromium/manganese austenitic steel for strength at elevated temperature and speed. Head diameters inlet 41 mm, exhaust 35.7 mm. Double valve springs of silicon chrome vanadium steel. Special retainers and cotters. Valve springs permit use of high lift camshafts. Fully assembled and ready for fitment.

Note:- Order on Part No HCF 203C if chambered head required.

Application: Full race 1298-1998cc engines.

HCF 204F - Inlet and exhaust ports flowed and polished for maximum efficiency at high engine speeds. Fitted replacement Hydural bronze guides. Inlet and exhaust valves manufactured from nomonic 80A steel for maximum durability at ultra high speeds and temperature imposed by racing conditions. Valves have hard chromium flashed stems and 'Stellite' tips. Head diameter can be to customers' choice but are normally inlet 41 mm, exhaust 35.7 mm. Holbay 'Rocket' double valve springs wound from a special steel developed for the aerospace industry, and capable of controlling valves at crank speeds up to 10500 RPM when used with Holbay type 658 or 700 camshafts. Fully assembled and ready for fitment.

Note:- Order on Part No HCF 204C if chambered head required.

Part Nos HCF 203 and 204 supplied on exchange basis. For outright sale add current price of standard component.

CYLINDER HEAD ASSOCIATED - EQUIPMENT INCLUDING VALVE GEAR AND CAMSHAFT DRIVE

VALVES

Application: Cross-flow heads - Nimonic steel forgings or similar for racing use
K 208-1 Inlet - head diameter 40 mm. Nom. stem diameter 5/16" (7.9 mm).
K 209-1 Inlet - head diameter 41 mm. Nom. stem diameter 9/32" (7.1 mm).
K 210-1 Exhaust - head diameter 34 mm. Nom. stem diameter 5/16" (7.9 mm).
K 211-1 Exhaust - head diameter 35.4 mm. Nom. stem diameter 9/32" (7.1 mm).

Application: Cross-flow heads - Material high chromium/manganese austenitic steel
K 212-1 Inlet - head diameter 40 mm. Nom. stem diameter 5/16" (7.9 mm).
K 213-1 Exhaust - head diameter 34 mm. Nom. stem diameter 5/16" (7.9 mm).

Application: Non cross-flow head - Nimonic steel forging or similar for racing use
K 214-1 Inlet - head diameter 1.40" (35.56 mm). Nom. stem diameter 9/32" (7.1 mm)
K 215-1 Inlet - head diameter 1.55" (39.37 mm). Nom. stem diameter 9/32" (7.1 mm)
K 216A Inlet - head diameter 1.50" (38.1 mm). Nom. stem diameter 9/32" (7.1 mm)
K 216B Exhaust - head diameter 1 5/16 (33.2 mm). Nom. stem diameter 9/32" (7.1 mm)
K 216-1 Inlet - head diameter 1.50" (38.1 mm). Nom. stem diameter 5/16" (7.9 mm)
K 217-1 Exhaust - head diameter 1.250" (31.75 mm). Nom. stem diameter 9/32" (7.1 mm)
K 218-1 Exhaust - head diameter 1.33" (33.78 mm). Nom. stem diameter 9/32" (7.1 mm)
K 219-1 Exhaust - head diameter 1.435" (36.44 mm). Nom. stem diameter 5/16" (7.9 mm)

VALVE SPRINGS

K 220-1 Single silicon chrome vanadium steel to replace standard Ford spring without modification.

K 221-1 Single silicon chrome vanadium steel designed for use with high lift camshafts. Maximum operating speed with type R90 camshaft 7000 RPM. Requires special retainers and cotters.

K 222-1 Retainer and cotter kit for use with K 221-1.

K 223-1-MK2 Double Oteva wire spring designed for rally/race use when RPM does not exceed 8000 RPM with K3A camshaft. May be used without inner spring if stem seal required. Special retainers, platforms and cotters required.

K 224-1 Special retainers, platforms and cotter kit for use with K 223-1-MK2. Modifications to cylinder head necessary.

K 225-1-Rocket Double spring wound from special steel developed for rocket research. Essential for engines operating in the 8000 plus RPM range and highly recommended for Holbay camshafts type 658 and 700. For use to 10500 RPM with suitable associated equipment.

VALVE SPRING RETAINERS - HARDENED STEEL

To suit:	K 231-1 5/16" (7.9 mm) valves,	rocket or MK2 springs.	Bullock cotters.
"	K 232-1 9/32" (7.1 mm) valves,	rocket or MK2 springs.	Bullock cotters.
"	K 233-1 5/16" (7.9 mm) valves,	rocket or MK2 springs.	Standard Ford cotters.

VALVE SPRING RETAINERS - AEROSPACE TITANIUM

To suit: K 234-1 5/16" (7.9 mm) valves, rocket or MK2 springs. Bullock cotters.
" K 235-1 9/32" (7.1 mm) valves, rocket or MK2 springs. Bullock cotters.

VALVE SPRING PLATFORMS HARDENED STEEL

K 236-1 Application rocket or MK2 springs - to locate on ½" (12.7 mm) guide.

SPRING PRESSURE ADJUSTMENT SHIM SETS

K 237-1 To locate on ½" (12.7 mm) guide - Dimensions .005" (0.12 mm) .010" (.25 mm) .020" (.5 mm).

COTTERS VALVE RETAINING

K 238-1 Bullock type for 5/16" (7.9 mm) stem.
K 239-1 Bullock type for 9/32" (7.1 mm) stem.

CAM FOLLOWERS (TAPPETS)

K 240-1 High strength alloy - Precision ground and phosphate treated to prevent premature wear suitable pre-cross-flow engine (small stem).
K 241-1 Application: Cross-flow engine (large stem).

VALVE GUIDES

K 242-1 Nominal dimension O/D 7/16" (11.1 mm) - I/D 5/16" (7.9 mm) - Material high grade iron.

K 243-1 Nominal dimension O/D ½" (12.7 mm) - I/D 5/16" (7.9 mm) - Material high grade iron.

K 244-1 Nominal dimension O/D ½" (12.7 mm) - I/D 9/32" (7.1 mm) - Material high grade iron.

K 245-1 Nominal dimension O/D ½" (12.7 mm) - I/D 5/16" (7.9 mm) - Material bronze alloy.

K 246-1 Nominal dimension O/D ½" (12.7 mm) - I/D 9/32" (7.1 mm) - Material bronze alloy.

ROCKER HOUSING - SHAFT - FINGERS

K 247-1 Two piece aluminium alloy housing having rigid support bearings between each rocker finger - Essential for high speed racing engines.
K 248-1 Rocker fingers - Linished and crack tested L.H.
K 249-1 Rocker fingers - Linished and crack tested R.H.
K 250-1 Rocker shaft
K 251-1 Screw nut assembly - Valve adjustment.
K 252-1 Cap screw - Rocker housing/cylinder head.

PUSH RODS

Light weight high quality steel push rods in the following lengths:

K 253-1	6½"	(165 mm)
K 254-1	6 5/8"	(168 mm)
K 255-1	7 1/8"	(181 mm)
K 256-1	7 7/16"	(189 mm)
K 257-1	7 23/32"	(196 mm)

ROCKER COVER

Die cast aluminium alloy - Designed to give clearance to large diameter valve springs.

K 258-1 With oil filler at front (wet sump engines).
K 259-1 With oil filler at rear (wet sump engines).
K 260-1 With breather pipe at front (dry sump engines).
K 261-1 With breather pipe at rear (dry sump engines).
K 262-1 Gasket - rocker cover.
K 263-1 Cap screws/rocker cover (set).

CAMSHAFT RETAINING PLATE - STEEL

K 264-1 Hardened and ground - essential with racing camshafts.

CAMSHAFT DRIVE ASSEMBLY - CHAIN

K 265-1 Comprising 2 double row sprockets and 3/8" (9.52 mm) pitch chain.

CAMSHAFT DRIVE ASSEMBLY - GEAR

K 266-1 Comprising crankshaft gear, camshaft gear and idler gear. Idler shaft, needle roller bearing and thrust washer.
Special main bearing cap required for mounting of idler shaft.

CAMSHAFTS

Precision ground to exacting standards from new material. Eight designs are available to suit every application. The following are brief descriptions. Full details and application advice is available from our Technical Department.

Type M55 Group 1 Escort/Fiesta - Designed to take maximum advantage of Homologation license.

Type R90 A more powerful replacement for the standard GT camshaft and suitable for road use. No further modifications necessary.

Type R120 As used by Ford Motor Company in the victorious Mexico Rally Excort. This type is ideal where it is necessary to restrict maximum RPM to 7200. Also ideal for fast road use.

Type BTX Road-race - particularly suitable where crank speeds are limited.

Type K3A A high torque race camshaft. Widely used for 1.6/1.8 litre rally engines and in almost universal use by Formula 1300 and Formula 4 engine builders.

Type 658 High speed - Full race circuit camshaft. Giving an excellent balance between high maximum power output and good mid range power in engines of all capacities.

Type 700 The ultimate camshaft for maximum power - Should only be used in engines having safe high crankshaft speed capabilities.

Type 747 The latest racing camshaft in the Holbay range. This is a very high lift, short duration design giving extremely high power at moderate crankshaft speeds in engines from 1.3 to 1.9 litres. Especially useful where the widest possible power band is desired.

We recommend the use of Holbay heavy duty cam followers with camshaft types BTX, K3A, 658, 700 and 747.

CAMSHAFT BEARING SETS

K 275-2 Standard O/D. Standard I/D.
K 276-2 Oversize O/D + .015 (.38 mm) - Standard I/D.
K 277-2 Oversize O/D + .015 (.38 mm) - unfinished I/D for boring in line.

CYLINDER BLOCKS TYPE 711M PRODUCTION 1600cc FIVE MAIN BEARING PUSHROD TYPE

Main bearing split line to top deck dimension 8.25" (209.55 mm).

K 301-2 Standard 80.9 mm bore - Standard main caps.
K 302-2 83.5 mm bore - Standard main caps.
K 303-2 Standard 80.9 mm bore - Steel caps bored in line.
K 304-2 83.5 mm bore - Steel caps bored in line.

TYPE 120E PRODUCTION 1500cc FIVE MAIN BEARING PUSHROD TYPE

Main bearing split line to top deck dimension 7.875" (200 mm).

K 305-2 Standard 80.9 mm bore - Line bored with heavy duty iron caps and suitable for 4.8" (121.9 mm) connecting rod version of 1300cc racing engine.

K 306-2 Special thick wall casting - bore diameter from 80 to 85 mm - Steel main bearing caps. Oil gallery modified and fitted union to front face of block - Bore size to 86.5 mm at customer's risk only.

K 307-2 As K 306-2 but with extension to top deck increasing the main bearing split line to deck dimension by up to . 375" (9.5 mm) - Bore diameter 81 to 85 mm or up to 86.5 mm at customer's own risk.

TYPE 105/109E PRODUCTION 998/1200 THREE MAIN BEARING PUSHROD TYPE

Main bearing split line to top deck dimension 7 1/8" (181 mm).

K 308-2 Standard 80.9 mm bore - Steel main bearing caps bored in line- Modification to center main bearing web. Front main cap includes cam drive gear location. Oil gallery modified for front entry and direct feed to rocker gear.

K 309-2 As K 308-2 but with 85 mm cylinder bore.

STEEL MAIN BEARING CAPS

K 310-2 Set of five - Rough bored - for chain drive camshaft.
K 311-2 Set of five - Rough bored - for gear drive camshaft.
K 312-2 Set of three - Rough bored - for gear drive camshaft.

CONNECTING RODS

Forged EN24 Steel - Fitted 180,000 PSI/UTS Aerospace bolts

	Length	S/E Bore	B/E Width	For C/Pin Dia.
419-3	4.6" (116.8 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)
420-3	4.8" (121.9 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)
421-3	4.8" (121.9 mm)	13/16" (20.64 mm)	15/16" (23.8 mm)	1.937" (49.2 mm)
422-3	4.9" (124.5 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)
423-3	4.9" (124.5 mm)	13/16" (20.64 mm)	15/16" (23.8 mm)	1.937" (49.2 mm)
424-3	5.0" (127.0 mm)	13/16" (20.64 mm)	15/16" (23.8 mm)	1.937" (49.2 mm)
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426-3	5.1" (129.5 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)
427-3	5.1" (129.5 mm)	13/16" (20.64 mm)	15/16" (23.8 mm)	1.937" (49.2 mm)
428-3	5.166" (131.2 mm)	3/4" (19.0 mm)	7/8" (22.2 mm)	1.8" (45.7 mm)
429-3	5.23" (132.8 mm)	13/16" (20.64 mm)	15/16" (23.8 mm)	1.937" (49.2 mm)
430-3	5.23" (132.8 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)
431-3	5.250" (133.4 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)
432-3	5.250" (133.4 mm)	13/16" (20.64 mm)	15/16" (23.8 mm)	1.937" (49.2 mm)
433-3	5.437" (138.1 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)
434-3	5.437" (138.1 mm)	13/16" (20.64 mm)	15/16" (23.8 mm)	1.937" (49.2 mm)
435-3	5.450" (138.4 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)

Special connecting rods made to order.

BEARINGS

Mains - Copper-lead Competition type

Application: Five main bearing engines

436-3 Mains - Standard housing diameter - Standard bore - per set.

437-3 Mains O/S housing diameter - Standard bore - per set.
Available in undersizes .010" (.25 mm) .020" (.50 mm) .030" (.75 mm).

Application: Three main bearing engines

438-3 Mains - Standard housing diameter - Standard bore - per set.

439-3 Mains O/S housing diameter - Standard bore - per set.

Connecting rod - Copper-lead Competition type

	C/Pin Diameter	Width
440-3	1.937" (49.2 mm)	1.030" (26.16 mm)
441-3	1.937" (49.2 mm)	.970" (24.63 mm)
442-3	1.8" (45.72 mm)	.875" (22.2 mm)

Available in undersizes .010" (.25 mm) .020" (.50 mm) .030" (.75 mm).

CONNECTING RODS

Forged EN24 Steel - Fitted 180,000 PSI/UTS Aerospace bolts

	Length	S/E Bore	B/E Width	For C/Pin Dia.
419-3	4.6" (116.8 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)
420-3	4.8" (121.9 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)
421-3	4.8" (121.9 mm)	13/16" (20.64 mm)	15/16" (23.8 mm)	1.937" (49.2 mm)
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435-3	5.450" (138.4 mm)	13/16" (20.64 mm)	1 1/16" (27.0 mm)	1.937" (49.2 mm)

Special connecting rods made to order.

BEARINGS

Mains - Copper-lead Competition type

Application: Five main bearing engines

436-3 Mains - Standard housing diameter - Standard bore - per set.

437-3 Mains O/S housing diameter - Standard bore - per set.
Available in undersizes .010" (.25 mm) .020" (.50 mm) .030" (.75 mm).

Application: Three main bearing engines

438-3 Mains - Standard housing diameter - Standard bore - per set.

439-3 Mains O/S housing diameter - Standard bore - per set.

Connecting rod - Copper-lead Competition type

	C/Pin Diameter	Width
440-3	1.937" (49.2 mm)	1.030" (26.16 mm)
441-3	1.937" (49.2 mm)	.970" (24.63 mm)
442-3	1.8" (45.72 mm)	.875" (22.2 mm)

Available in undersizes .010" (.25 mm) .020" (.50 mm) .030" (.75 mm).

FLYWHEELS

Forged aluminium alloy - Steel clutch facing - Maximum weight saving with safe capacity for high crankshaft speeds.

	Approx Dia Over Teeth	Teeth	Bolt Fixing	Clutch Type	Cover PCD
443-3	11 1/8" (282.5 mm)	110	6	7 1/4" (184 mm) Sintered	7 7/8" (200 mm)
444-3	11 1/8" (282.5 mm)	110	6	8 1/2" (216 mm) Organic	246.0 mm
445-3	10 7/16" (265.0 mm)	104	6	7 1/4" (184 mm) Sintered	7 7/8" (200 mm)
446-3	9 3/16" (233.0 mm)	90	6	7 1/4" (184 mm) Sintered	7 7/8" (200 mm)

CLUTCH ASSEMBLIES

447-3 7 1/4" (184 mm) Racing type - Sintered bronze driven plate.
448-3 7 1/4" (184 mm) Racing type - Twin sintered bronze driven plate.
449-3 8 1/2" (216 mm) Competition type - Organic single plate.

Please specify engine type or give spline details and spring pressure colour code.

INLET MANIFOLDS

501-4 Pre-cross-flow - Side draught 40/45 DCO Weber flanges.
502-4 Pre-cross-flow - Down draught 44 IDF Weber flanges.
503-4 Cross-flow - Vertical engine 40 DCO Weber flanges.
504-4 Cross-flow - Vertical engine 45 DCO Weber flanges.
505-4 Cross-flow 15° engine 45 DCO Weber flanges.
506-4 Cross-flow 15° engine 48 DCO Weber flanges.

'O' RING CARRIERS

Application: Holbay inlet manifolds supplied with 'O'Rings.

507-4 40 mm
508-4 45 mm
509-4 48 mm

FUEL INJECTION SYSTEMS

Application: Engines 1 to 2 litre capacity - Details on application.

OIL PUMPS AND DRY SUMP LUBRICATION EQUIPMENT

701-6 Front mounted pressure scavenge pump assembly replacing standard chain cover and driven from extension of camshaft gear or sprocket - Externally adjustable pressure relief valve.

702-6 Drive dog for use with 701-6.

703-6 Side mounted pressure/scavenge pump assembly driven from camshaft gear and having externally adjustable pressure relief valve.

704-6 Overhaul kit - Front mounted pump - Including pressure and scavenge rotor - Annulus assembly and seals.

705-6 Overhaul kit - Side mounted pump - Including pressure and scavenge rotor - Annulus assembly and seals.

All parts of Holbay oil pumps may be purchased separately.

OIL SUMPS

Application: Three main bearing engines of 1 to 1.2 litre capacity - Fitted windage tray and provision for scavenge pump protective filter cartridge - Specify front or side scavenge entry.

706-6 Vertical engine installation.
707-6 15° engine installation.
708-6 30° engine installation.

Application: Five main bearing engines of 1.3 to 2 litre capacity - Fitted windage tray and provision for scavenge pump protective filter cartridge - Specify front or side scavenge entry.

709-6 Vertical engine installation.
710-6 15° engine installation.
711-6 Filter cartridge for protection of scavenge pump - Please specify type of sump.

Sumps are normally supplied with fittings for connection to scavenge pump. Please give details at time of ordering.

ANCILLARIES

WATER PUMP DRIVE ASSEMBLY

801-7 Tooth belt with crankshaft and water pump pulleys.

TACHOMETER DRIVES

802-7 Chain cover with provision for mounting tachometer gearbox.
803-7 Aluminium housing to replace standard oil pump with provision for mounting tachometer gearbox.
804-7 Tachometer gearbox.

IGNITION EQUIPMENT

901-8 Racing distributor with optimum advance curve.
902-8 Distributor with optimum advance curve and fitted electronic triggering mechanism - Supplied with amplifier.
903-8 Special short distributor for 1300cc engine with optimum advance curve and electronic triggering mechanism - Supplied with amplifier.
903A-8 Racing distributor with optimum advance curve and fitted electronic triggering mechanism. Including amplifier and coil.

Advise engine type and specification with order.

904-8 Sparking plug leads set.
905-8 Sparking plug covers set.
K907-8 Sparking plug lead/cover set.

GASKETS AND SEALS

Application: 105/109 997-1098cc racing engines including Holbay type R59 to R70 inclusive.

951-9 Cylinder head gasket.
952-9 Complete gasket set.
953-9 Complete seal set.
Specify engine bore diameter with order.

Application: Cross-flow cylinder head racing engines.

954-9 Cylinder head gasket.
955-9 Complete gasket set.
956-9 Complete seal set.
957-9 Cylinder head set comprising gas filled rings and soft gasket for bores up to 86 mm diameter.
Specify cylinder bore diameter with order.

961-9 Rocker Cover Gasket
962-9 Cross-flow Exhaust Gasket (copper faced)

Cylinder blocks are now available to increase capacity to 1985cc. Details upon request.

Factory Overhaul Service available for the following:

- Complete engines
- Rocker housings
- Cylinder pumps
- Oil pumps
- Flywheels
- Clutches
- Ignition distributors
- Crankshafts

PART NO. K725-6

Lubrication system incorporating the benefits of dry sumping but with oil carried in sump to comply with regulations where dry sump systems are not allowed. Comprising sump with hinged baffles and windage tray and special high pressure oil pump. Supplied with external piping and filter cartridge

ALL PRICES ARE SUBJECT TO V.A.T. AT CURRENT RATE

HOLBAY RACING ENGINES LTD.

4 Betts Avenue, Martlesham Heath, Ipswich, Suffolk IP5 7RH

Tel: Ipswich (0473) 623000
Fax: Ipswich (0473) 610587
Telex: 987336 Holbay G

PARTS LIST

Kent four cylinder OHV engines - 105E/711M 997/1998cc

HIGH PERFORMANCE CYLINDER HEADS

Application: 997-1098cc engines.

ASD 151 - To full race specification only - Fitted bronze guides, nimonic valves, steel retainers and platforms - Rocket valve springs and Bullock cotters. Adapted for 10 mm sparking plugs.

HDD 151 - As ASD 151 but having cast in 'down-draught' inlet ports.

Application: Cross-flow 1298-1998cc engines.

HCF 203F - Inlet and exhaust ports flowed. Inlet port highly polished. Fitted replaceable valve guides. Inlet and exhaust valves manufactured from high chromium/manganese austenitic steel for strength at elevated temperature and speed. Head diameters inlet 41 mm, exhaust 35.7 mm. Double valve springs of silicon chrome vanadium steel. Special retainers and cotters. Valve springs permit use of high lift camshafts. Fully assembled and ready for fitment.

Note:- Order on Part No. HCF 203C if chambered head required.

Application: Full race 1298-1998cc engines.

HCF 204F - Inlet and exhaust ports flowed and polished for maximum efficiency at high engine speeds. Fitted replacement Hydural bronze guides. Inlet and exhaust valves manufactured from nimonic 80A steel for maximum durability at ultra high speeds and temperature imposed by racing conditions. Valves have hard chromium flashed stems and 'Stellite' tips. Head diameter can be to customer's choice but are normally inlet 41 mm, exhaust 35.7 mm. Holbay 'Rocket' double valve springs wound from a special steel developed for the aerospace industry and capable of controlling valves at crank speeds up to 10500 rpm when used with Holbay type 658 or 700 camshafts. Fully assembled and ready for fitment.

Note:- Order on Part No. HCF 204C if chambered head required.

Part Nos HCF 203 and 204 supplied on exchange basis. For outright sale add current price of standard component.

CYLINDER HEAD ASSOCIATED - EQUIPMENT INCLUDING VALVE GEAR AND CAMSHAFT DRIVE

VALVES

Application: Cross-flow heads - Nimonic steel forgings or similar for racing use.

K 208-1 Inlet - head diameter 40mm. Nom. stem diameter 5/16" (7.9mm).
K 209-1 Inlet - head diameter 41mm. Nom. stem diameter 9/32" (7.1mm).
K 210-1 Exhaust - head diameter 34mm. Nom. stem diameter 5/16" (7.9mm).
K 211-1 Exhaust - head diameter 35.4mm. Nom. stem diameter 9/32"(7.1mm).

Application: Cross-flow heads - Material high chromium/manganese austenitic steel

K 212-1 Inlet - head diameter 40mm. Nom.stem diameter 5/16" (7.9mm)
K 213-1 Exhaust - head diameter 34mm. Nom.stem diameter 5/16" (7.9mm)

Application: Non cross-flow head - Nimonic steel forging or similar for racing use

K 214-1 Inlet - head diameter 1.40" (35.56mm). Nom.stem diam.9/32"(7.1mm)
K 215-1 Inlet - head diameter 1.55" (39.37mm). Nom.stem diam.9/32"(7.1mm)
K 216A Inlet - head diameter 1.50" (38.1mm). Nom.stem diam.9/32"(7.1mm)
K 216B Ex. - head diameter 1 5/16 (33.2mm). Nom.stem diam.9/32"(7.1mm)
K 216-1 Inlet - head diameter 1.50" (38.1mm). Nom.stem diam.5/16"(7.9mm)
K 217-1 Ex. - head diameter 1.250"(31.75mm). Nom.stem diam.9/32"(7.1mm)
K 218-1 Ex. - head diameter 1.435"(36.44mm). Nom.stem diam.5/16"(7.9mm)

VALVE SPRINGS

K 220-1 Single silicon chrome vanadium steel to replace standard Ford spring without modification.

K 221-1 Single silicon chrome vanadium steel designed for use with hi[gh] lift camshafts. Maximum operating speed with type R90 camshaft[s] 7000rpm. Requires special retainers and cotters.

K 223-1-MK2 Double Oteva wire spring designed for rally/race use when rpm does not exceed 8000 rpm with K3A camshaft. May be used without inner spring if stem seal required. Special retainers, platforms and cotters required. THESE BEST FOR R120

K 225-1 Rocker Double spring wound from special steel developed for rocket research. Essential for engines operating in the 8000 plus rpm range and highly recommended for Holbay camshafts type 658 and 700. For use to 10500 rpm with suitable associated equipment.

VALVE SPRING RETAINERS - HARDENED STEEL

To suit: K231-1 5/16"(7.9mm)valves, rocket or MK2 springs. Bullock cotters
" K232-1 9/32"(7.1mm)valves, rocket or MK2 springs. Bullock cotters
" K233-1 5/16"(7.9mm)valves, rocket or MK2 springs. Bullock cotters
THIS ITEM SUITS STANDARD FORD VALVE WITH STD. COTTERS.

VALVE SPRING RETAINERS - AEROSPACE TITANIUM

To suit: K234-1 5/16"(7.9mm)valves, rocket or MK2 springs. Bullock cotters
" K235-1 9/32"(7.1mm)valves, rocket or MK2 springs. Bullock cotters

VALVE SPRING PLATFORMS HARDENED STEEL

K236-1 Application Rocket or MK2 springs - to locate on 1/2" (12.7mm) guide.

SPRING PRESSURE ADJUSTMENT SHIM SETS

K237-1 To locate on 1/2" (12.7mm) guide - Dimensions .005"(0.12mm) .010" (.25mm) .020" (.5mm).

COTTERS VALVE RETAINING

K 238-1 Bullock type for 5/16" (7.9mm) stem.
K 239-1 Bullock type for 9.32" (7.1mm) stem.

CAM FOLLOWERS (TAPPETS)

K 240-1 High strength alloy - Precision ground and phosphate treated to prevent premature wear suitable pre-cross-flow engine (small stem).
K 241-1 Application: Cross-flow engine (large stem).

VALVE GUIDES

K 242-1 Nominal dimension O/D 7/16" (11.1mm) - I/D 5/16" (7.9mm) - Material high grade iron.
K 243-1 Nominal dimension O/D 1/2" (12.7mm) - I/D 5/16" (7.9mm) - Material high grade iron.
K 244-1 Nominal dimension O/D 1/2" (12.7mm) - I/D 9/32" (7.1mm) - Material high grade iron.
K 245-1 Nominal dimension O/D 1/2" (12.7mm) - I/D 5/16" (7.9mm) - Material bronze alloy.
K 246-1 Nominal dimension O/D 1/2" (12.7mm) - I/D 9.32" (7.1mm) - Material bronze alloy.

ROCKER HOUSING - SHAFT - FINGERS

K 247-1 Two piece aluminium alloy housing having rigid support bearings between each rocker finger - Essential for high speed racing engines.
K 247-250-1 Two piece aluminium Rocker shaft assembly
K 247A-1 Roller Rocker shaft assembly (standard)
K 247A-1 Roller Rocker shaft assembly high ratio
K 248-1 Rocker fingers - Linished and crack tested L.H.
K 249-1 Rocker fingers - Linished and crack tested R.H.
K 250-1 Rocker shaft

PUSH RODS

Lightweight high quality steel push rods in the following lengths:

K 253-1	6 1/2"	(165mm)
K 254-1	6 5/8"	(168mm)
K 255-1	7 1/8"	(181mm)
K 256-1	7 7/16"	(189mm)
K 257-1	7 23/32"	(196mm)

ROCKER COVER

Die cast aluminium alloy - Designed to give clearance to large diameter valve springs.

K258-1 With oil filler at front (wet sump engines)
K259-1 With oil filler at rear (wet sump engines)
K260-1 With breather pipe at front (dry sump engines)
K261-1 With breather pipe at rear (dry sump engines)
K262-1 Gasket - rocker cover
K263-1 Cap screws/rocker cover (set)

CAMSHAFT RETAINING PLATE - STEEL

K264-1 Hardened and ground - essential with racing camshafts.

CAMSHAFT DRIVE ASSEMBLY - CHAIN

K265-1 Comprising 2 double row sprockets and 3/8" (9.52mm) pitch chain.

CAMSHAFT DRIVE ASSEMBLY - GEAR

K266-1 Comprising crankshaft gear, camshaft gear and idler gear. Idler shaft, needle roller bearing and thrust washer.
Special main bearing cap required for mounting of idler shaft.

CAMSHAFTS

Precision ground to exacting standards from new material. Eight designs are available to suit every application. The following are brief descriptions. Full details and application advice is available from our Technical Department.

Type M55 Group1 Escort/Fiesta - Designed to take maximum advantage of Homologation license.

Type R90 A more powerful replacement for the standard GT camshaft and suitable for road use. No further modifications necessary.

Type R120 As used by Ford Motor Company in the victorious Mexico Rally Escort. This type is ideal where it is necessary to restrict maximum rpm to 7200. Also ideal for fast road use.

Type BTX Road-race - particularly suitable where crank speeds are limited. REPLACED BY 747

Type K3A A high torque race camshaft. Widely used for 1.6/1.8 litre rally engines and in almost universal use by Formula 1300 and Formula 4 engine builders.

Type 658 High speed - Full race circuit camshaft. Giving an excellent balance between high maximum power output a good mid range power in engines of all capacities.

Type 700 The ultimate camshaft for maximum power - Should only be used in engines having safe high crankshaft speed capabilities.

Type 747 The latest racing camshaft in the Holbay range. This is a very high lift short duration design giving extremely high power at moderate crankshaft speeds in engines from 1.3 to 1.9 litres. Especially useful where the widest possible power band is desired.

We recommend the use of Holbay heavy duty cam followers with camshaft types BTX, K3A, 658, 700 and 747.

CAMSHAFT BEARING SETS

K 275-2 Standard O/D. Standard I/D
K 276-2 Oversize O/D + .015 (.38mm) - Standard I/D
K 277-2 Oversize O/D + .015 (.38mm) - Unfinished I/D for boring in line.

CYLINDER BLOCKS TYPE 711M PRODUCTION 1600cc
FIVE MAIN BEARING PUSHROD TYPE

Main bearing split line to 8.25" (209.55mm)

K 301-2 Standard 80.9mm bore - Standard main caps
K 302-2 83.5mm bore - Standard main caps
K 303-2 Standard 80.9mm bore - Steel caps bored in line
K 304-2 83.5mm bore - Steel caps bored in line.

TYPE 120E PRODUCTION 1500cc
FIVE MAIN BEARING PUSHROD TYPE

Main bearing split line to top deck dimension 7.875" (200mm)

TYPE 105/109E PRODUCTION 998/1200
THREE MAIN BEARING PUSHROD TYPE

Main bearing split line to top deck dimension 7 1/8" (181mm).

K 308-2 Standard 80.9mm bore - Steel main bearing caps bored in line - Modification to centre main bearing web. Front main cap includes cam drive gear location. Oil gallery modified for front entry and direct feed to rocker gear.

K 309-2 As K 308-2 but with 85mm cylinder bore.

STEEL MAIN BEARING CAPS

K 310-2 Set of five - Rough bored - for chain drive camshaft
K 311-2 Set of five - Rough bored - for gear drive camshaft
K 312-2 Set of three - Rough bored - for gear drive camshaft.

CRANKSHAFTS
STEEL BILLET OR FORGINGS - FULLY COUNTERBALANCED

Application: 997/1098cc eines
401-3 Three main bearings 48.4 mm stroke
402-3 Five main bearings 48.4mm stroke

Application: 1298/1850cc engines
Five main bearings
Production range as follows (approximate capacities):
404-3 62.00mm stroke (1300cc with 80.9mm bore)
404-3 70.20mm stroke (1600cc with 85 mm bore)
405-3 72.20mm stroke (1700cc with 86.5mm bore)
406-3 73.00mm stroke (1500cc with 80.9mm bore)
407-3 77.60mm stroke (1600cc with 80.9mm bore)
(1700cc with 83.5mm bore)
(1761cc with 85 mm bore)
(1824cc with 86.5mm bore)
408-3 91.00mm stroke (2000cc with 83.5mm bore)
Strokes from 59 to 91mm to special order.

Nitrided EN40B Steel forged crankshaft of lightweight design
Main journals standard diameter - Connecting rod journals 1.8" (45.72mm) for use with connecting rod 442-3/

409-3 73mm stroke (1600cc with 83.5mm bore or 1700cc with 86.5mm bore)
410-3 91mm stroke (2000cc with 83.5mm bore)

PISTONS

	Bore Diameter	Compression Height	Crown
411-3	80.96 mm	1.47 "(37.3 mm)	Chamber
412-3	80.96 mm	1.68 "(42.7 mm)	Chamber
413-3	80.96 mm	1.325"(33.67 mm)	Flat
413A-3	80.96 mm	1.34 "(34.03 mm)	Flat
414-3	83.50 mm	1.456"(36.98 mm)	Flat
414A-3 (No 1/3)	83.50 mm	1.465"(37.21 mm)	Chamber
414B-3 (No 2/4)	83.50 mm	1.465"(37.21 mm)	Chamber
415-3	85.00 mm	1.208"(30.77 mm)	Flat
416-3	85.00 mm	1.566"(39.78 mm)	Chamber
417-3	85.75 mm	1.566"(39.78 mm)	Chamber
418-3	86.50 mm	1.566"(39.78 mm)	Chamber

Piston ring sets available to suit above. Please specify piston type with order.

CONNECTING RODS

Forged EN24 Steel - Fitted 180,000 PSI/UTS Aerospace bolts

	Length	S/E Bore	B/E Width	For C/Pin Dia
419-3	4.6" (116.8 mm)	13/16" (20.64mm)	1 1/16" (27.0mm)	1.937"(49.2mm)
420-3	4.8" (121.9 mm)	13/16" (20.64mm)	1 1/16" (27.0mm)	1.937"(49.2mm)
421-3	4.8" (121.9mm)	13/16" (20.64mm)	15/16" (23.8mm)	1.937"(49.2m
422-8	4.9" (124.5mm)	13/16" (20.64mm)	1 1/16" (27.0mm)	1.937"(49.2m
423-3	4.9" (124.5mm)	13/16" (20.64mm)	15/16" (23.8mm)	1.937"(49.2mm)
424-3	5.0" (127.0mm)	13/16" (20.64mm)	15/16" (23.8mm)	1.937"(49.2mm)
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431-3	5.250"(133.4mm)	13/16" (20.64mm)	1 1/16" (27.0mm)	1.937"(49.2mm)
432-3	5.250"(133.4mm)	13/16" (20.64mm)	15/16" (23.8mm)	1.937"(49.2mm)
433-3	5.437"(138.1mm)	13/16" (20.64mm)	1 1/16" (27.0mm)	1.937"(49.2mm)
434-3	5.437"(138.1mm)	13/16" (20.64mm)	15/16" (23.8mm)	1.937"(49.2mm)
435-3	5.450"(138.4mm)	13/16" (20.64mm)	1 1/16" (27.0mm)	1.937"(49.2mm)

Special connecting rods made to order.

BEARINGS

Mains - Copper-lead Competition type

Application: Five main bearing engines

436-3 Mains - Standard housing diameter - Standard bore - per set.

437-3 Mains O/S housing diameter - Standard bore - per set.
Available in undersizes .010" (.25mm) .020"(.50mm) .030"(.75mm).

Application: Three main bearing engines

438-3 Mains - Standard housing diameter - Standard bore - per set

439-3 Mains O/S housing diameter - Standard bore - per set

Connecting rod - Copper-lead Competition type

	C/Pin Diameter	Width
440-3	1.937" (49.2mm)	1.030" (26.167mm)
441-3	1.937" (49.2mm)	.970" (24.673mm)
442-3	1.8" (45.72mm)	.875" (22.2mm)

Available in undersizes .010" (.25mm) .020" (.50mm) .030" (.75mm)

FLYWHEELS

Forged aluminium alloy - Steel clutch facing - Maximum weight saving with safe capacity for high crankshaft speeds.

	Approx Dia Over Teeth	Teeth	Bolt Fixing	Clutch Type	Cover PCD
443-3	11 1/8"(282.5mm)	110	6	7 1/4"(184mm) Sintered	7 7/8"(200m
444-3	11 1/8"(282.5mm)	110	6	8 11/2"(216mm) Organic	246.0mm
445-3	10 7/16"(265.0mm)	104	6	7 1/4"(184mm) Sintered	7 7/8"(200mm
446-3	9 3/16"(233.0mm)	90	6	7 1/4"(184mm) Sintered	7 7/8"(200mm

CLUTCH ASSEMBLIES

447-3 7 1/4" (184mm) Racing type - Sintered bronze driven plate
448-3 7 1/4" (184mm) Racing type - Twin sintered bronze driven plate
449-3 8 1/2" (216mm) Competition type - Organic single plate

Please specify engine type or give spline details and spring pressure colour code.

INLET MANIFOLDS

501-4 Pre-cross-flow - Side draught 49/45 DCO Weber flanges
502-4 Pre-cross-flow - Down draught 44 IDF Weber flanges
503-4 Cross-flow - Vertical engine 40 DCO Weber flanges
504-4 Cross-flow - Vertical engines 45 DCO Weber flanges
505-4 Cross-flow 15 degree engine 45 DCO Weber flanges
506-4 Cross-flow 15 degree engine 48 DCO Weber flanges.

'O' RING CARRIERS

Application: Holbay inlet manifolds supplied with 'O' Rings.

507-4 40mm
508-4 45mm
509-4 48mm

FUEL INJECTION SYSTEMS

Application: Engines 1 to 2 litre capacity - Details on application.

OIL PUMPS AND DRY SUMP LUBRICATION EQUIPMENT

701-6 Front mounted pressure scavenge pump assembly replacing standard chain cover and driven from extension of camshaft gear or sprocket - Externally adjustable pressure relief valve.

702-6 Drive dog for use with 701-6.

703-6 Side mounted pressure/scavenge pump assembly driven from camshaft gear and having externally adjustable pressure relief valve.

704-6 Overhaul kit - Front mounted pump - Including pressure and scavenge rotor - Annulus assembly and seals.

705-6 Overhaul kit - Side mounted pump - Including pressure and scavenge rotor - Annulus assembly and seals.

All parts of Holbay oil pumps may be purchased separately.

OIL SUMPS

Application: Three main bearing engines of 1 to 1.2 litre capacity - Fitted windage tray and provision for scavenge pump protective filter cartridge - Specify front or side scavenge entry.

706-6 Vertical engine installation.
707-6 15 degree engine installation.
708-6 30 degree engine installation.

Application: Five main bearing engines of 1.3 to 2 litre capacity - Fitted windage tray and provision for scavenge pump protective filter catridge - Specify front or side scavenge entry.

709-6 Vertical engine installation
710-6 15 degree engine installation
711-6 Filter cartridge for protection of scavenge pump - Please specify type of sump.

Sumps are normally supplied with fittings for connection to scavenge pump. Please give details at time of ordering.

K 725-6 Lubrication system incorporating the benefits of dry sumping but with oil carried in sump to comply with regulations where dry sump systems are not allowed. Comprising sump with hinged baffles and windage tray and special high pressure oil pump. Supplied with external piping and filter cartridge.

K 725-6A Wet dry sump only

K 725-6B Wet dry sump pump only

ANCILLARIES
WATER PUMP DRIVE ASSEMBLY

801-7 Tooth belt with crankshaft and water pump pulleys

TACHOMETER DRIVES

802-7 Chain cover with provision for mounting tachometer gearbox.
803-7 Aluminium housing to replace standard oil pump with provision for mounting tachometer gearbox.
804-7 Tachometer gearbox.

IGNITION EQUIPMENT

901-8 Racing distributor with optimum advance curve.
902-8 Distributor with optimum advance curve and fitted electronic triggering mechanism - Supplied with amplifier.
903-8 Special short distributor for 1300cc engine with optimum advance curve and electronic triggering mechanism - Supplied with amplifier.
903A-8 Racing distributor with optimum advance curve and fitted electronic triggering mechanism. Including amplifer and coil.

Advise engine type and specification with order.

904-8 Sparking plug leads set.
905-8 Sparking plug covers set.
K907-8 Sparking plug lead/cover set.

GASKETS AND SEALS

Application: 105/109 997-1098cc racing engines including Holbay type R59 to R70 inclusive.

951-9 Cylinder head gasket.
952-9 Complete gasket set.
953-9 Complete seal set.
Specify engine bore diameter with order.

Application: Cross-flow cylinder head racing engines.

954-9 Cylinder head gasket.
955-9 Complete gasket set.
956-9 Complete seal set.
957-9 Cylinder head set comprising as filled rings and soft gasket for bores up to 86mm diameter.
Specify cylinder bore diameter with order.

961-9 Rocker Cover Gasket
962-9 Cross-flow Exhaust Gasket (copper faced).

Cylinder blocks are now available to increase capacity to 1985cc.
Details upon request.

Factory Overhaul Service available for the following:
- Complete engines
- Rocker housings
- Cylinder pumps
- Oil pumps
- Flywheels
- Clutches
- Ignition distributors
- Crankshafts

ALL PRICES ARE SUBJECT TO V.A.T. AT CURRENT RATE.