

NORTON MANX® PARTS LIST

The following pages list the parts we can supply for the Manx Norton. Unless otherwise stated all parts are to 1961 specification, although we can supply some parts for DOHC long stroke and the Oldham Coupling short stroke motors. The Norton part numbers were issued sequentially, so the higher the part number the later that design was introduced. Part number 17000 equates with 1954, so parts with numbers before this fit the long stroke motors.

Whilst we ensure that our parts are made to the highest standards, as the fitment and use are outside our control, and as use for racing is likely to ultimately result in failure, we can accept no liability whatsoever for damage arising from such failure. This is a condition of our business, which you are deemed to have accepted upon purchasing parts from us. However, if on receipt of goods purchased from John Cronshaw Gold Star Spares & Racing Ltd., you are not totally satisfied with the quality of workmanship we will be happy to supply replacements or refund any monies paid.

Part No.	DESCRIPTION	Qty. Req	Model
A. CAMBOX			
	Cambox, complete, assembled. State 350 or 500	1	
	Cambox, complete, for Oldham coupling engines	1	
22369	Cambox shell	1	Both
22067	Cambox outer cover	1	Both
15002	Cambox outer cover 1/4" stud (short)	10	Both
15005	Cambox outer cover 1/4" stud (long)	2	Both
14600	Nuts for outer cover studs	14	Both
T2221	Washer for outer cover stud	16	Both
18028	Outrigger plate	1	Both
18448	Outrigger plate support stud	3	Both
VP008	Nut & washer for outrigger plate studs	3	Both
17329	Shim for outrigger plate. State 3 or 5 thou	As reqd	Both
18358	Cambox bevel cover	1	Both
E6430	Gasket for bevel cover	1	Both
14105	Screws for bevel cover	4	Both
20595	Cambox input bevel gear	1	Both
E4047	Nut – bevel gear retaining	1	Both
16121	Vernier peg – bevel gear	1	Both
E5944	Shim for 20595 bevel gear. State 5 or 28 thou	As reqd	Both
15996	Input bevel shaft	1	Both
15989	Input shaft spacer	1	Both
10338	Spur gear – input shaft	1	Both
E3683	Woodruff key – input shaft spur gear	1	Both
10370	Nut – L.H. – input spur gear	1	Both
18322	Ball race for input shaft, behind bevel gear	1	Both
E4209	Ball race retainer plate	1	Both
E3822	Csk screw for retainer plate	3	Both
18387	Roller bearing for input shaft (in outrigger plate)	1	Both
17517	Idler shaft	2	Both
17239	Idler gear	2	Both
10345	Idler gear bearing cage	2	Both
18367	Idler gear rollers	32	Both
10365	Idler gear thrust washer – plain	2	Both
17519	Idler gear thrust washer – drilled & grooved	2	Both
10372	Idler gear retaining washer (presses into gear)	2	Both
VP009	Nut & washer – idler shaft	2	Both
10361	Camshaft	2	Both
10364	Camshaft nut (left hand thread)	2	Both
18366	Camshaft ball race (in main casting)	2	Both
18387	Camshaft roller bearing (in outer cover)	2	Both
23553	Roller bearing housing (in outer cover)	2	Both
22384	Shim for 23553 bearing housing. State 5 or 10 thou	As reqd	Both
22068	Blanking plug for camshaft hole (aluminium alloy)	2	Both
22069	Shim for 22068 plug. State 5, 10 or 15 thou	As reqd	Both
14598	Locking plate for 22068	2	Both
17249	Camshaft top hat bush (shaft to roller bearing)	2	Both
10376	Shim – 15 thou – for camshaft	As reqd	Both
22390	Cam gear	2	Both

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Part No.	DESCRIPTION	Qty. Req	Model
22405	Cam gear vernier peg	2	Both
23687	Cam – Inlet no. I 3823	1	350
22388	Cam – Exhaust no. M 3916	1	350
22387	Cam – Inlet no. I 5822	1	500
22389	Cam – Exhaust no. M 5914	1	500
15132	Pusher bush	2	Both
23668	Pusher 2 thou oversize available at £10.00 extra	2	Both
17498	Pusher cap	2	Both
10356	Cam oil feed jet	2	Both
10354	Holder for oil feed jet	2	Both
10011	Spring for oil feed jet	2	Both
10355	Nut for jet holder	2	Both
10999	Union for cambox oil feed hose	1	Both
	Note: Complete cambox assembly includes all the above components.		
17886	Cambox through bolt – front – extended	2	Both
17885	Cambox through bolt – rear	2	Both
E5376	Washer – Cambox bolts	4	Both
19639	Tacho gearbox	1	Both
18386	Spacer tacho gearbox	1	Both
16049	Screw – tacho gearbox retaining	2	Both
16050	Nut for 16049	2	Both
20690	Cambox oil feed hose assy	1	Both
E6004	Union for valve guide oil feed (hairpin spring only)	2	Both
VP104	Blanking plug to replace E6004, coil spring engines	2	Both
B. CYLINDER HEAD			
	All following parts are to 1961 spec. We have stocks of most earlier type components, many being original Norton parts.		
23697	Cylinder head, c/w seats and guides, beautifully gas flowed	1	500
23577	Cylinder head, c/w seats and guides, beautifully gas flowed	1	350
23502	Valve guide – Inlet – 5/16" stem – "Colsibro"	1	Both
	Oversize inlet valve guide + 1/2, +1, +3, +6, +20 thou	As reqd	Both
16584	Valve guide – Exhaust – 13/32" stem – "Colsibro"	1	Both
23514	Inlet valve	1	500
19104	Exhaust valve	1	500
23515	Inlet valve	1	350
19105	Exhaust valve	1	350
17497	Valve cap – Inlet	1	Both
17496	Valve cap – Exhaust	1	Both
23503	Valve collets – Inlet	1 Pr	Both
18670	Valve collets – Exhaust	1 Pr	Both
23499	Valve spring top collar for hairpin springs	2	Both
14897	Hairpin valve spring – cranked	2	Both
14898	Hairpin valve spring – straight (For long stroke engines use 4 off 14898 straight valve spring)	2	Both
17860	Valve spring bottom plate for hairpin spring	2	Both
18024	Retainer stud for 17860	4	Both
18373	Shim for 17860 – State 5, 10, or 15 thou	As reqd	Both
14600	Nut for 18024	4	Both
16600	Inlet valve guide oil feed pipe & sleeve nut	1	Both
16601	Exhaust valve guide oil feed pipe & sleeve nut	1	Both
15173	Cylinder head sleeve nut	4	Both
15175	Washer for sleeve nut	4	Both
23692	Carb spacer – alloy	1	500
23693	Carb spacer – alloy	1	350
20332	Tufnol insulating spacer	1	500
23694	Tufnol insulating spacer	1	350
23695	Carb mounting stud	2	500
23696	Carb mounting stud	2	350
VP008	Nut – carb stud	2	Both
11790	Cylinder head to cambox dowel	2	Both

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Part No.	DESCRIPTION	Qty. Req	Model
22773	Cylinder head to cambox spacer	1	500
23042	Cylinder head to cambox spacer	1	350
C. BARREL/ PISTON			
23512	Cylinder barrel, cast as original	1	500
17266	Barrel through stud	4	500
16575	Compression plate, state 5, 10 or 125 thou thick	As reqd	500
23507	Bare 2 ring piston, pin & circlips	1	500
	Spare circlips for our piston only	As reqd	500
20624	Compression ring – steel nitrided	1	500
20622	Oil ring – low friction	1	500
17464	Little end bush – scrolled	1	500
	Please note that our forged 500cc piston is a modern design based on the 1961 drawing. It is 125 grammes (4 ounces) lighter than pattern pistons available elsewhere. Superior materials have allowed us to use a smaller diameter gudgeon pin, but this does necessitate the fitting of a new little end bush.		
23513	Cylinder barrel – cast	1	350
20349	Barrel through stud	4	350
16574	Compression plate – State thickness	1	350
23509	Bare 2 ring piston, pin & circlips	1	350
	Spare circlip for our piston only	As reqd	350
20625	Compression ring – steel	1	350
20623	Oil ring – low friction	1	350
17467	Little end bush – scrolled	1	350
	Our forged 350cc piston is also based on the 1961 drawing. It is 75 grammes (3 ounces) lighter than pattern pistons available elsewhere. It also uses a smaller (20mm) gudgeon pin than original, which gives a stronger component, but requires a new little end bush.		
D. CRANKCASE ASSEMBLY			
20628	Crankcases	1	500
20629	Crankcases	1	350
17275	Drive side main bearing assembly	1	Both
21485	Shim washer for drive side main bearing	1	Both
17199	Retaining plate for drive side main bearing	1	Both
E3822	Screw for 17199	4	Both
18927	Timing side main bearing assembly	1	Both
22720	Retaining screw for timing side main bearing	6	Both
	Crank assembly, see non standard engine parts Original con rod	1	
	Standard big end bearing assembly, state flanged or plain	1	Both
---	Special INA big end assembly for standard flywheels	1	Both
17186	Big end nut	2	Both
E4221	Crankshaft shim – 10 thou thick	As reqd	Both
22724	Crankcase drain plug. With magnet fitted	1	Both
	Copper washer for drain plug	1	Both
10999	Union – Crankcase breather (1/4 BSP)	4	Both
10992	Sleeve nut for 10999	As reqd	Both
15843	Oil scavenge pick up tube (cut to length on installation)	1	Both
15011	Union – oil feed/return pipes	2	Both
20593	Crankshaft bevel gear	1	Both
22774	Shim for bevel gear – State 5 thou or 10 thou thick	As reqd	Both
18992	Crankshaft half time pinion (22T)	1	Both
E3683	Woodruff key for 18992 & 20593	2	Both
E4073	Nut for 18992 (left hand thread)	1	Both
E6487	Oil pump	1	Both
E6497	Pump body screws (included with pump)	2	Both
18871	Pump wear plate (alloy)	1	Both
E6498	Pump retaining screw	2	Both
10711	Oil pump drive dog plate	1	Both
20787	Oil pump drive pionion (44T) with integral shaft	1	Both
15006	Oil pressure relief valve screw	1	Both

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Part No.	DESCRIPTION	Qty. Req	Model
15007	Oil pressure relief valve nut	1	Both
13665	Oil pressure relief valve spring	1	Both
17706	Oil pressure relief valve ball	1	Both
16598A	Breather pipe 'U' shape behind timing cover	1	Both
16598B	Breather pipe front of crankcase	1	Both
16598C	Breather pipe behind drive sprocket/pulley	1	Both
16138	Oil filter bolt (screws in front of crankcase)	1	Both
15531	Copper washer for 16138	1	Both
18378	Inner timing cover with bush	1	Both
E4048	Bush for inner timing cover, scrolled	1	Both
15845	Gasket – Inner cover to crankcase	1	Both
16181	Stud – Inner cover to crankcase (top)	1	Both
VP009	Nut for 16181	1	Both
16253	Lock washer for 16181	1	Both
14105	Screw – Inner cover to crankcase	5	Both
18370	Outer timing cover	1	Both
14105	Screw – Outer cover – short	4	Both
22639	Screw – Outer cover – long (bottom)	1	Both
10007	Big end oil feed jet	1	Both
10011	Spring for oil feed jet	1	Both
10237	Holder for big end oil feed jet	1	Both
10238	Round cover nut for big end oil feed jet	1	Both
16660	Magneto bottom drive sprocket	1	Both
VP009	Nut for 16660	1	Both
15745	Magneto top driven sprocket	1	Both
18388	Magneto chain	1	Both
16137	Oil filter gauze – in timing cover	1	Both
14930	Oil filter slotted tube/blanking plug assembly	1	Both
14979	Copper washer for oil filter	1	Both
	Felt for magneto seal	1	Both
F. BEVEL DRIVE ASSEMBLY			
23489	Lighthouse tower	1	350
23496	Lighthouse tower	1	500
E6163	Stud – lighthouse tower to crankcase	4	Both
VP132	Nut for E6163	4	Both
VP014	Washer for E6163	4	Both
22394	Bottom bevel shaft	1	Both
23505	Splined connecting tube	1	350
23504	Splined connecting tube	1	500
22393	Top bevel shaft	1	Both
22400	Needle roller bearing for bevel shafts	4	Both
22403	Spacer between bearings	2	Both
22775	Bronze thrust washer	2	Both
22774	Bevel shaft shims – 5 or 10 thou thick	As reqd	Both
22402	'O' Ring – top of lighthouse tower	1	Both
OLDHAM COUPLING ENGINES 1954-1958			
18018	Top bevel Housing fitted with needle rollers to take splined bevels	1	Both
14942	Rubber seal – cambox to cylinder head	1	Both
17962	Shim for 14942 seal	1	Both
17314	Tube	1	Both
18042	'O' ring – tube to barrel	1	Both
18589	Large gland nut	1	Both
E5555	Copper/asbestos washer for 18589 nut	1	Both
18384	'O' ring for 18589 nut	2	Both
20626	Bottom bevel housing fitted with needle rollers to take splined bevels	1	Both

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Part No.	DESCRIPTION	Qty. Req	Model
NON STANDARD ENGINE PARTS			
NR340	Pressed up crank assembly, for increased rigidity INA needle roller big end, carillo con rod	1	500
NR341	As above with titanium con rod	1	500
NR342	Crank assembly, carillo con rod	1	350
NR343	Crank assembly, titanium con rod	1	350
NR323	Coil valve spring, inner/outer	2	Both
NR323A	High performance coil valve springs, tested to 9000 rpm	2	Both
NR324	Coil valve spring top collar, yitanium	2	Both
NR325	Enclosures for coil valve spring	2	500
NR326	Enclosures for coil valve spring	2	350
NR320	Lightweight exhaust valve – 5/16" stem, stainless	1	500
NR321	Lightweight exhaust valve – 5/16" stem, stainless	1	350
	NOTE: Use INLET valve guide, collets & cap with NR320 & 321		
NR327	Oil drain union for coil spring engines	2	Both
NR328	Packer for valve spring, state 40, 60, 80, 100 thou	As reqd	Both
NR330	Exhaust lock ring, cast in al. alloy, lighter but weaker	1	Both
NR331	Kit of parts to convert Oldham coupling drive tower to splined drive specification Above parts supplied & fitted to your original tower castings NOTE: When fitting NR331 to Pre '57 fine pitch engines you also need to fit new coarse pitch crankshaft bevel gear, part no. 20593 and cambox bevel gear, part no. 20595, and modify the crankcases.		
NR329	Vernier belt drive assembly for magneto (replaces chain) A range of light alloy and titanium parts are also available, prices on application. Details of our 90 and 95 bore short stroke 500cc engines are also available on request.	1	Both
G. PRIMARY DRIVE & GEARBOX			
19834	Engine sprocket – state teeth, 18T-23T available	1	Both
E4210	Nut for engine sprocket	1	Both
17200	Lock washer for E4210	1	Both
---	Belt drive assembly	1	Both
NR345	Drive side oil seal assembly (for use with belt drive)	1	Both
---	Quaife 5 speed gearbox, properly set up and ready to go	1	Both
---	Quaife 6 speed gearbox, various options	1	Both
12368	Gearbox sprocket – state teeth, 18T-22T available	1	Both
---	Alloy belt guard with all fittings	1	Both
---	Fibreglass belt cover no fittings	1	Both
H. ENGINE PLATES AND MOUNTINGS			
NR210	Set of engine plates	1	Both
E6139	Crankcase mouth clamp bolt, nut, washer	2	Both
15242	3/8" Front eng plate/c.case through bolt, nut, washer	2	Both
15732	3/8" Front bottom crankcase stud, nuts, washers	1	Both
14191	5/16" Crankcase sump, bolt, nut, washer	4	Both
16676	5/16" Rear bottom eng plate/c.case thru bolt, nut, w	1	Both
15239	3/8" Rear eng plate/c.case through bolt, nut, washer	3	Both
15247	Engine plate to frame bolt, nut, washer	6	Both
23516	Head steady plate assembly	1	500
23518	Head steady plate assembly	1	350
16016	Head steady adjustable strut	1	Both
15142	Gearbox top mounting bolt & nut	1	Both
FG50	Gearbox bottom mounting stud & nuts	1	Both
15162	Gearbox adjuster & nuts	1	Both
15115	Anchor bolt for gearbox adjuster	1	Both

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Part No.	DESCRIPTION
J. FORKS AND YOKES	
NR044	Top yoke, dural replica, saves 600g Standard finish is polished, add £6.00 for black stove enamel
19699	Steel bottom yoke / stem, including pinch bolts
VP407	Bottom yoke, dural, our design, saves 400g, cannot be used with original steering damper
VP086	Steering column top nut, stainless
VP042	Steering column adjuster nut, stainless
VP088	Steering bearing cover plate, stainless
67604	Steering bearing, sealed
VP410	'Clip On' handlebars, our design, stainless
VP410LW	'Clip On' handlebars, lightweight aluminium
22908	Front cowl ('Fly screen') black glass fibre 1961 specification
22907	Perspex screen for cowl
22856	Top mounting bracket for cowl / rev counter
22905	Lower, side brackets for front cowl
---	Complete set of forks, excluding yokes for 2LS conical hub, using cast sliders
---	Complete set of forks, excluding yokes for 4LS hub using forged sliders (can also be used for 2LS)
50150	Original type steering damper, incl wing nut & bottom plate
19706	Alloy front mudguard, stoved black
19483	Polished alloy Y brackets for front guard
	Both types of fork assembly can be supplied as original with steel stanchion top nuts and enclosed fork springs, or in lightweight format with exposed stainless springs and dural nuts and retainers. NB. Cast sliders are a budget option, not an exact replica of originals. All fork component parts can be supplied individually, phone for a price list.
K. FRAME & FITTINGS	
	We do not claim that parts in this section of the catalogue are exact replicas of the original Norton parts. They are our Manx parts for Classic racing today.
23483	Featherbed frame and swing arm, made to original drawing but using lighter gauge T45 tube. Available either in Standard specification, or Grand Prix specification which has integral fairing mounts etc.
VP291	Swing arm spindle, 1/2" diameter, solid 1951-60
23415	Swing arm spindle, 3/4" diameter, hollow 1961 onwards
20638	'Hagon' shocks – chrome springs (state rider weight)
---	All alloy 'Falcon' shocks (excellent performance saves 1lb)
FY6	Suspension mounting bolts (4)
NR420	Alloy knurled footrests
NR421	Adapters to mount footrest to hollow swing arm
22723	Alloy rollover gearchange pedal, linkage & gearbox toggle
19801	Alloy brake pedal
15819	Brake rod assembly
16182	5 Gallon alloy tank, unpolished, unpainted
---	2.5 Gallon alloy short circuit petrol tank, unpolished, unpainted
18445	Petrol tank mounting rubbers
23582	Alloy oil tank, unpolished, unpainted
---	Painting & lining petrol tanks
---	Painting & lining oil tanks
---	Polishing petrol tanks
---	Polishing oil tanks
19812	Rubber petrol tank strap assembly, state large or small tank
19812	Original metal tank strap
19814	Original type petrol tank toggle assembly, chrome
23584	Oil tank mounting assy, including rubber bottom restraining bands
18912	Oil tank feed union & filter assy (not original type)
23528	Oil feed pipe (to suit above)
23529	Oil return pipe
20250	Rear wheel enclosure / mudguard, black carbon fibre
19706C	Front mudguard, black carbon fibre
---	Seat base, black carbon fibre
22873	Complete seat, carbon base
---	'Flowline' two piece metallic silver carbon fibre fairing
---	'Kirby' Molnar Manx metallic silver fairing with belly pan in carbon
---	'Kirby' fairing in glass fibre

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Part No.	DESCRIPTION
---	Mounting kit for above fairings Parts listed in carbon fibre are available in alternative colours, or in glass fibre, to special order, prices on application.
L. WHEELS	
NR003	8" TLS conical front hub assembly, magnesium alloy, complete, '57 - '61 specification
NR004	As NR003, in aluminium alloy
NR080	7" 4LS double sided front hub assembly, '62 specification magnesium alloy, complete
NR081	As NR080 in aluminium alloy
NR100	Conical rear hub assembly, magnesium alloy, complete
NR101	As NR100 in aluminium alloy
NR110	Rear wheel sprocket, state teeth, 44-48T Rear wheel sprocket, 49T upwards
---	Conversion of rear brake to floating, including torque stay
18255	Rear wheel adjusters – stainless
15704	Rear brake torque stay – dural blank for you to drill
15704	Rear brake torque stay – fully machined and polished
19635	Guide stay for front brake cable
21157	Regina Grand Prix chain – light & strong
	Data sheets for hubs are available on request. All hub component parts are available individually, phone for a price list. We can have hubs built up into a wheel. using valanced alloy rim and stainless steel spokes.
M. ANCILLARIES	
20330	GP carb – most bore sizes
---	Gardner carb – state bore size
18442	Twist grip – state original 'Amal' type or 'Tomasselli' quick action
---	Float chamber – modified design, suits GP or Gardner, & mounting stud
18404	Rubber mount for float chamber
17894	Float chamber mounting bracket & rivets – late type
19587	Conical rev counter, 9000 RPM, exact replica
---	Conical rev counter, budget replica
19590	Anti vibration mounting ring
19895	Tacho cable, state 24" or 21"
---	Krober electronic rev counter, ugly but accurate!
22856	Tacho & flyscreen top mounting bracket
18196	Exhaust pipe lock ring – finned – bronze
E5555	Copper/asbestos gasket – exhaust pipe to head
Exhaust Systems	We can supply a range of exhausts from original to modern:
22074	Standard chrome 1961 pattern low level exhaust pipe
23672	Standard 1961 pattern chrome Megga – unsilenced
23673	Mounting muff for standard 1961 Megga
---	Slip on silenced Megga for standard pipe approx. 105 dBa. Gives drastic increase in mid range.
	Mild steel
	Stainless
---	Hi-level, lightweight, silenced exhaust system developed for optimum torque & power.
	Mild steel with fittings
	Stainless with fittings
N. WORKSHOP TOOLS	
25000	Magneto sprocket/pulley puller
25001	Oil pump puller
---	5/16" BSF tap, required to tap threads in pump before using 25001
25002	Extended 5/16" Whit 3/8" square drive socket for head & cambox bolts
25003	7/8" Whit box spanner for gearbox sprocket
25004	Front primary drive pulley extractor
25005	'C' spanner for standard exhaust lock ring
25006	Piston ring clamp 86-90mm
25007	Main jet key for GP carb
25008	Extended temporary valve cap to aid setting valve timing
25009	Holding block for cam gear assembly to aid tightening
25010	Cylinder head alignment jig – LighthouseTower engines only
25011	'C' spanner for fork oil seal holder
14797	Sturdy paddock stand complete with bobbins to fit to bottom suspension mount

GLOSSARY

ATDC – After Top Dead Centre. A point in degrees of the crankshaft after the piston has past the top of the cylinder and is going down.

AREA UNDER THE LIFT CURVE – The actual length of the swept contact area of the cam lobe surface, commonly illustrated using curves that show lift and duration in graph form.

BASE CIRCLE – The diameter of the cam lobe from one flank side to the other flank side through the centre of the core usually. Not to be confused with the distance from heel to nose.

BBDC – Before Bottom Dead Centre. A point in degrees of the crankshaft before the piston reaches full bottom in the cylinder.

BDC – Bottom Dead Centre. When the piston reaches the exact bottom of the cylinder.

BOOST PRESSURE – amount of manifold pressure above the atmospheric pressure, as expressed in PSI (pounds per square inch).

BRAKE HORSEPOWER – BHP – The actual power developed at the crankshaft, as measured in dyno tests. **BRAKE MEAN EFFECTIVE PRESSURE, BMEP, BMP** – An imaginary figure calculated from the BHP which indicates average pressure in the cylinders on the power stroke, but allows for the mechanical engine losses.

CAM JOURNALS – The concentric bearing surfaces on a camshaft.

CAMSHAFT – The shaft in the engine that actuates the cam followers with accentric shapes called lobes. It controls the timing of the valves.

DECK HEIGHT – The distance between the outer top edge of the piston and the top of the cylinder. If the piston is higher it is usually called “positive deck height”, and if lower it is called “negative deck height”.

DETONATION – Fuel mixture exploding after its internal heat has built up to the point where it ignites all at once on its own.

DURATION – The number of camshaft degrees that the valve is in motion; also the number of cam degrees from one side of the cam to the other, such as used when checking-heights are given.

FLANK – The distance from where the lifter begins to rise up to the nose.

FLOAT – That point when a tracking follower leaves the cam surface and is literally in the air. Its return to the cam surface will produce a bounce and result in “pulling” material off of either one or both surfaces. In a short while a pronounced wear spot will be produced, and continued wear will result quickly.

HEEL – That portion of the cam lobe that is concentric with the centre of the cam core. . . and is used for adjusting the valve clearance.

HORSEPOWER – A unit of work; equal to 33,000 ft./lb. per minute; work done in lifting 33,000 lbs. a distance of one foot in one minute.

INLET VELOCITY – The speed at which the fuel mixture travels through the inlet tract.

LIFT – There are two lifts to consider in engines. . . cam lift and valve lift. Cam lift is determined by measuring follower lift and valve lift is determined by measuring actual valve lift.

LIFT RATE – The amount of cam lift per degree of cam rotation.

LOBE – The cam lobe is the part of the cam that raises and lowers the follower and is matched to the type of follower used in design; solid, hydraulic, roller, etc.

LOBE CENTRE – The angle in camshaft degrees between the centre-line of the intake and exhaust lobes of the same cylinder. Calculated by subtracting the intake opening from the exhaust opening, adding 180° and dividing by two. . . but, only when the durations of both lobes are the same.

MEAN EFFECTIVE PRESSURE, MEP – also referred to as Mean Indicated Pressure (MIP). The average pressure produced in the cylinders on the power stroke.

MECHANICAL EFFICIENCY – A factor expressed as a percentage, which indicates the amount of power left to do work after all losses take their toll; the percentage difference between MEP and BMEP.

NOSE – The point of highest lift on the lobe; the point farthest from the centre of the cam core.

OVERLAP – The number of crankshaft degrees from where the intake valve opens to where the exhaust valve closes, during which time both valves are open and crossflow is occurring. . . also called scavenge period.

PERCENTAGE OF CRANK BALANCE – The percent of weight used of the actual total weight of the rod and piston assembly to balance the crankshaft. . . i.e., if total weight is 500 grams, then 80% balance is using 400 grams to balance with.