

# **Holden Valve Train Components**

Crane Cams were the first US camshaft manufacturer to develop a range of camshafts and do extensive testing in the USA. In 1976 Crane released a range of cams for the 253-308 Holden engine that set the standard for performance in these engines and have been constantly updated ever since. Crane have made more Holden camshafts than any other manufacturer in the world and it is this engineering experience and quality that will give you the edge in performance and reliability. For 307, 327, 350 "Chev" Engines, & LS1/LS2, See the Crane Master Catalogue.



### Notes:

1. When fitting hydraulic roller camshafts in Holden engines not originally fitted with roller cams, and using Crane 24532-16 hydraulic roller lifters, camshafts specifically made for this purpose must be used to stop exposing the oil gallery to the lifter wheel slot on maximum lift.
2. The same issue applies to solid roller camshafts and Crane 24518-16 roller lifters. The engine builder must check with the lobe at maximum lift to ensure the oil gallery is not exposed, otherwise intensive oil leakage will occur. When using a full size lobe, we recommend sleeving lifter bores to eliminate this issue. The nose of the Cam usually needs to be about .050" below the journal to work but all engines vary, so checking is essential.



## Super Lube Concentrate For Cam & Lifter Installation

Part No. 99003-1; - 8-ounce container

Super Lube break-in concentrate is an anti-wear additive formulated with a high concentration of special Zinc dithiophosphate to provide sustained protection against Cam lobe & lifter scuffing & wear. Most modern oils, designed for roller-type camshafts, no longer contain Zinc, due to emissions requirements and risk of possible catalytic converter damage. You must ensure that the oil you use in your engine still contains zinc. Some Kendall, Penrite, Pennzoil, Torco and some Diesel oils still contain Zinc - check with your oil supplier as to Zinc content.

The most critical time in the life of a flat tappet cam is the first 20 minutes of run-in during which time the lifter faces bed into the cam lobes. Once run-in is complete, Cam/Lifter contact face loads decrease dramatically as cam/lifter contact area increases. Crane super lube must be added to the engine oil for the initial run-in period and should be poured over the camshaft & lifters prior to start-up.

**Caution** - We do not recommend synthetic oils for run-in. We strongly recommend mineral oils with flat tappet cams to ensure proper lifter rotation. Flat tappet cams have the lobes ground on a slight taper and the lifter appears to sit offset from the lobe centerline. This induces a rotation of the lifter on the lobe which draws oil to the contact surface between the cam lobe & lifters. Synthetic oils are too slippery, and do not promote proper lifter rotation.

**Lack of lifter rotation WILL cause camshaft failure! Ensure Lifters are rotating on start up!**

Inner valve springs should be removed from dual springs for run-in, and spring pressures on the nose of the Cam should not exceed 330lb for run-in, and preferably be below 300lb. RPM of engine should be between 2000-3000 during run-in, not below! Do not allow engine to idle. Vary the RPM, do not hold the engine at a constant RPM.

Full Run-in procedure instructions can be found on the Crane Website: [www.cranecams.com.au](http://www.cranecams.com.au)

## Lifters - Hydraulic Roller

Crane hydraulic roller lifters are offered in two basic designs: Those for use with standard factory alignment bars (on engines originally equipped with hydraulic roller lifters); and vertical locking bar drop-in lifters (designed to retrofit engines not factory equipped with hydraulic roller lifters). The Holden standard alignment bar lifters are available in a standard dimensioned version, intended for use with standard lobe lift and standard base circle diameter cams. When lobe lifts increase, and base circle diameters decrease, our exclusive long travel design lifters must be used to prevent the lifters from dropping out of the factory alignment bars when on the base circle of the camshaft. This would allow the lifters to rotate, causing severe engine damage. As these lifters are for engines originally equipped with hydraulic roller lifters, special length pushrods are not usually required. Our vertical locking bar lifters are available to retrofit non-hydraulic roller equipped engines. They can also be used in many applications to replace factory hydraulic roller lifters and alignment mechanisms. No machining is normally required for the drop-in installation of these lifters, however with differences in block castings and camshaft base circle diameters, care must be taken to insure that neither the locking bar, or its attaching rivets, contact the block casting throughout their normal cycles. If there is any interference, the block can be ground to provide the necessary clearance. This should be checked prior to final engine assembly. For use in retrofit applications, special length pushrods are required. When using 24532-16 or 10535-16 lifters, camshaft lobe height must be limited to .100" under the journal to prevent unmasking the oil gallery on full lift. All Crane RF Holden cams are designed this way.

**Part No. 10530-16;** Standard replacement for VT onwards, Originally equipped with roller cams.

**Part No. 10535-16;** For engines originally equipped with roller cams using small base circle arms and original alignment bars. Lobe height must be restricted to .100" under journal to prevent unmasking of the oil gallery. Use RF cams.

**Part No. 24532-16;** For roller cams in any Holden V8 engine. Lobe height must be restricted to .100" under the journal to prevent unmasking of the oil gallery. Use RF cams.



## Lifters - Mechanical Roller

**Part No. 24518-16;** Roller lifters for all Holden V8 engines. Includes pressure oiling to bearings. Nose of lobe should be kept .050" under journal when using these lifters unless lifter bores are sleeved.

**Part No. 24570-16;** Ultra-pro roller lifters made from 8620 chrome moly, premium wheels & axles, oil pressure fed to bearings, Mikronited bodies, special design to prevent unmasking of the oil gallery at full lift with a full lobe height.

NOTE: Mechanical roller lifters available for group A .875" and .904" lifter bores. Call for details



## Roller Rocker Arms

**Part No. 24744-16;** Energizer 1.65 ratio, 7/16" Stud Mount

**Part No. 24745-16;** Energizer 1.65 ratio, Bolt on kit - No machining required

**Part No. 3066;** Blue Racer 1.65 ratio, 7/16" Stud Mount

**Part No. 3067;** Blue Racer 1.65 ratio, Bolt on kit - No machining required

**Part No. 28758-16;** Crane Gold 1.65 ratio, 7/16" Stud Mount



## Oil Pump Gear - Coated Steel

**Part No. 88950-1;** Coated Steel Oil Pump Gear  
Use with all cams including steel Roller. Must be used on a new cam only. High volume oil pumps not recommended.



## Holden V8 Valve Train Chart

Chart	A		B		C		D		E	
Valve Springs	99848-16		99838-16	a	99893-16	a	99893-16	a	96870-16	a
Retainers, steel heat treated	99915-16	t	99936-16	t	99953-16	t	99944-16	t	99943-16	t
Valve stem seals teflon	99820-16	a	99820-16	a	99820-16	a	99820-16	a	99820-16	a
Valve locks stamped heat treated	99041-1	b								
Valve locks machined steel heat treated	99097-1	b	99097-1	b	99097-1	b	99097-1	b	99097-1	b
Pushrods C/Moly heat treated	24621-16	c	24621-16	c	24622-16	f	24624-16	i	24625-16	k
					24623-16	h			95643-16	l
Pro Series 1pc pushrods	95654-16	d	95654-16	d		g	95656-16	j	95645-16	k
	95642-16	e							95643-16	l
Timing gear set Premium	RCS6000	m	RCS6000	m	RCS6000	m	RCS6000	m	RCS6000	m
Timing gear set Econo	REC6000	n	REC6000	n	REC6000	n	REC6000	n	REC6000	n
Energizer R/Rockers 1.65 x 7/16	24744-16	a	24744-16	a	24744-16	a	24744-16	a	24744-16	a
Energizer Bolt on kit 1.65	24745-16	o	24745-16	o					24745-16	o
Blue Racer R/Rockers 1.65 x 7/16	3066	a	3066	a	3066	a	3066	a	3066	a
Blue Racer Bolt on kit 1.65	3067	o	3067	o					3067	o
Gold Race R/Rockers 1.65 x 7/16	28758-16	a	28758-16	a	28758-16	a	28758-16	a	28758-16	a
Oil pump gear - Coated Steel	88950-1		88950-1		88950-1		88950-1		88950-1	
Rocker bridge shim kit	99179-1		99179-1		99179-1		99179-1		99179-1	

### IMPORTANT NOTE: CR99003-1 Crane Super Lube Must Be Used During Run-In Of All Hydraulic & Solid Flat Tappet Cams.

<sup>a</sup> Must Machine Cyl. Heads. 99892-16 can be used as an upgraded endurance spring in place of 99893-16.

<sup>b</sup> Optional Locks - Tall assy. Heat treated +.050" CR99095-1  
- Short assy. Heat treated -.050" CR99096-1

<sup>c</sup> 8.688" (Std)

<sup>d</sup> 8.70" (+.012")

<sup>e</sup> For Cams 889700 / 889710 Use STK 8.083" or 95642-16 8.10"

<sup>f</sup> 8.865" (+.175")

<sup>g</sup> 8.850" (+.160")

<sup>h</sup> 9.00" for L34 Heads (+.312")

<sup>i</sup> 8.786" (+.098")

<sup>j</sup> 8.80" (+.112")

<sup>k</sup> 8.250" Use with 888131, 888141, 888151 Cams.

<sup>l</sup> 8.150" Use with 888231, 888241, 888251 Cams.

<sup>m</sup> Rollmaster with 9 keyway crank gear Iwis Chain.

<sup>n</sup> Rollmaster with 3 keyway crank gear Rolon Chain.

<sup>o</sup> Includes Roller Rockers / Posilocks / Studs / Guideplates / Loctite. Fits without machining Heads.

<sup>p</sup> CRC969C-16 Chilled Iron Base Lifters.

<sup>q</sup> C73-16 Replacement Hydraulic Lifters.

<sup>r</sup> 99284-16 Anti-Pump Lifters.

<sup>s</sup> 99384-16 Hi Intensity Hydraulic Lifters.

<sup>l</sup> Nominal Installed Height with 99097-16 locks & Std length Valves.

99915-16	1.730"
99936-16	1.715"
99953-16	1.840"
99944-16	1.780"
99943-16	1.840"