

AMC TECHNICAL INFORMATION

1966-91 V8 290, 304, 343, 360, 390, 401 ENGINES

Camshafts

Camshafts are interchangeable between all years and engine sizes. All factory cams are standard hydraulic types. Erson Cams offers hydraulic and solid lifter cams. Roller camshafts are available special order.

Springs, Retainers and Locks

Do not use the stock springs, retainers and locks with any type of performance cam. Erson offers performance components that can be used with the stock 3/8" diameter stem valves.

Some 1973-74 AMC V8 heads use 11/32" stem exhaust valves. Different retainers and locks are required for the different size. Some 1978-79 AMC heads came from the factory with a shorter installed spring height. Different springs and/or retainers may be required for these as well.

Valves, Guides and Seals

For serious performance applications, we recommend replacing the stock 3/8" stem valves with 11/32" stem stainless steel valves. Bronze guides must be installed in the heads to accept 11/32" stem valves. Stock length Chevrolet small block valves (which are the same length as most AMC valves) can then be used. When using Chevrolet valves, Teflon valve seals must also be used.

With the correct springs and retainers, camshafts with a valve lift of .700" can be accommodated. Camshafts with a lift higher than .700" may require valves .100" longer than stock (which are readily available for Chevrolet small block). 290 and 304 engines can use up to 1.94" diameter intake valves and 1.50" exhaust valves. 343 and larger engines can use up to 2.10" intake valves and 1.75" exhaust valves.

No matter what combination of valve stem diameter, retainer or seal you decide to use in your AMC engine be sure to check the retainer to valve guide seal or to valve guide clearance. Erson Cams recommends .150" at T.D.C. of the lobe checked with the proper length pushrod.

Distributor Drive Gears

AMC V8 engines are unique in that they have a removable distributor drive gear that is keyed to the camshaft.

NOTE: Only prematched gears which are in good condition are to be reused or new distributor drive gears are to be installed and broken-in together. Under no circumstances should an old gear be mated to a new gear.

Valve Timing

Erson Cams recommends that whenever possible you should phase or time your camshaft to the crankshaft known as degreering the cam. Just as an engine runs poorly when ignition timing is not set properly, inaccurate valve timing can cause the following symptoms: sluggish performance, low vacuum, poor mileage, detonation overheating and in extreme circumstances mechanical failure. If you are unsure of how to degree a camshaft or simply do not have the tools, pay a professional engine builder to do it – *it's worth the price.*

Lifters

Erson Cams offers high-performance hydraulic and solid lifters for all AMC V8 engines. Changing from a hydraulic cam to solid (or vice versa) will require a change in pushrod length.

Pushrods and Rocker Arms

Do not use the factory pushrods with performance camshafts or springs. Doing so might break off the ball type ends.

The ideal length of a pushrod depends on many variables. However, in most cases where stock length valves are used, standard length Chevrolet small block pushrods will work with hydraulic camshafts. Standard length Ford 351W pushrods will usually work with solid lifter camshafts. Erson Cams offers both of these pushrods in standard and heat-treated for use with guide plates.

1966-73 AMC engines were supplied from the factory with screw-in studs and stamped steel, non-adjustable rocker arms. However, they can be made adjustable by replacing the stock studs and nuts with 3/8" Chevrolet small block studs and locking nuts available from Erson Cams. Adjustable rockers are required for solid lifter camshafts, and sometimes necessary for high-performance hydraulic camshafts.

The stock rocker arms should not be used with valve lift higher than .510" or spring loads more than 300 lbs, even if they are adjustable. Erson Cams offers forged and billet aluminum roller rocker arms for AMC V8 in 1.6 and 1.7 ratios. 1.7 ratio rockers may require elongation of the hole in the head for pushrod clearance. Erson's roller rockers are available for use with 3/8" or 7/16" studs. Both stud sizes are available from Erson Cams. 7/16" studs are recommended for valve lifts higher than .550" and springs loads more than 350 lbs.

We recommend the use of hardened pushrods and guide plates when using roller rocker arms.

1974-91 AMC V8 engines were supplied with pedestal-bridge type rocker arms from the factory. These rockers are non-adjustable and can only be used with hydraulic camshafts with .510" maximum valve lift. They may also require special length pushrods to get the proper lifter pre-load.

To install earlier style adjustable rockers or Erson Cams roller rockers, the heads must be machined to allow the installation of screw-in studs. Guide plates and hardened pushrods must be used with adjustable/roller rockers on 1974-91 AMC heads.

HIGH PERFORMANCE HYDRAULIC FLAT TAPPET CAMSHAFTS

APPLICATIONS/CHARACTERISTICS	BASIC RPM RANGE	PART NO. GRIND NO.	DURATION ADVERTISED	DURATION @ .050"	GROSS LIFT	LOBE CENTER	ADVANCE	VALVE LASH
Excellent replacement cam for stock engines wishing to improve low end torque without sacrificing driveability or mileage. Compatible with stock gearing.	1,000-4,000	E720111 RV5H	274° IN 280° EX	202° IN 208° EX	.437" IN .448" EX	110°	4°	.000" IN .000" EX
Improved low end torque and mid-range horsepower with minor modifications. Works best with 8.5-9.5:1 compression using headers and or free flowing exhaust system. Great for rock crawling in low range or towing light to moderate loads.	1,500-4,500	E720112 RV12H	280° IN 288° EX	208° IN 214° EX	.448" IN .458" EX	112°	4°	.000" IN .000" EX
The "Performer". Street performance at its best. Increased torque and great mid-range performance when installed in slightly modified engines. Fair idle.	2,000-5,000	E723121 TQ20H	292° IN 292° EX	214° IN 214° EX	.478" IN .478" EX	112°	4°	.000" IN .000" EX
One of Erson's premier profiles. High-lift, short duration, single pattern camshaft delivers greater mid-range torque and top end horsepower than most other brands. Should have no less than 9.5:1 compression, aluminum aftermarket intake, 500 cfm 2-barrel or 390 cfm 4-barrel and headers for best results.	2,500-5,500	E720321 Hi Flow AH	284° IN 284° EX	220° IN 220° EX	.504" IN .504" EX	110°	4°	.000" IN .000" EX

CAMSHAFT ACCESSORY KIT FOR AMC/JEEP INLINE 6 CYLINDER ENGINES EQUIPPED WITH HYDRAULIC FLAT TAPPET CAMSHAFTS

E872010 KIT INCLUDES THESE COMPONENTS:

- 12 hydraulic tappets.....E914772
- 12 valve springs, 1.680 x 1.430.....E915022
- 12 H.T. steel retainers, 7° x 3/8.....E961042
- 12 pair H.T. valve locks, 7° x 3/8.....E911272
- 1 tube Moly Lube, 1/4 oz.....E911001

OPTIONAL HIGH PERFORMANCE PARTS FOR AMC ENGINES EQUIPPED WITH HYDRAULIC FLAT TAPPET VALVETRAINS

- H.T. Steel retainers, 7° x 3/8.....E961042
- H.T. valve locks, machined 7° 4130.....E911122
- Lash caps, 3/8.....E911531
- P.C. seals, 3/8.....E910213
- Degree wheel.....E911004
- Moly Lube, 2 oz. tube.....E911002

NOTE —
It may be necessary to machine spring seat on some AMC/Jeep cylinder heads. For information regarding this procedure, call Erson's Technical Service Team at 775.882.1622.

NOTE —
For engines with non-adjustable valvetrains, it may be necessary to shim the rocker arm bridges to eliminate excessive hydraulic lifter pre-load.

TECH TIP —
Most American production engines cannot accept more than .500" lift without modifying the valve guides. When installing a cam with more than .500" lift, it is absolutely essential that clearance between the valve spring retainer and guide be checked. Do not attempt to operate an engine with less than .150" retainer-to-guide clearance. If you are using valve seals, check the clearance from the top of the seal rather than the top of the guide.
When using a flat tappet camshaft and high pressure valve springs with more than 130 lbs. of seat lead or 330 lbs. of nose load, Erson Cams requires a 30 minute break-in period using only the outer springs. Install the inner spring only after the break-in period. Following this procedure will greatly reduce the chance of camshaft or lifter failure.
When installing a hydraulic lifter racing cam in an engine that does not have adjustable rocker arms, care must be taken to ensure that the lifter is still able to adjust itself. If the cam has more than .500" valve lift, or if the heads or block have been milled excessively, the engine must be converted to adjustable rockers or adjustable pushrods.
We recommend that all competition roller camshafts be ordered directly through our Technical Department. By doing so, you will have access to our entire profile selection. You can select any combination of profiles and lobe centers. We will custom grind camshafts with dual patterns, special base circle sizes, etc.
For questions regarding the selection and/or installation of Erson Cams products, contact Erson's Technical Service Team at 775.882.1622.



Read Erson Cams AMC Technical Information at the beginning of this section or call Erson's Technical Service Team at 775.882.1622 for more information about your AMC/Jeep® products.

290-401 CID ENGINES

PROFERAL BILLET

HIGH PERFORMANCE HYDRAULIC FLAT TAPPET CAMSHAFTS

APPLICATIONS/CHARACTERISTICS	BASIC RPM RANGE	PART NO. GRIND NO.	DURATION ADVERTISED	DURATION @ .050"	GROSS LIFT	LOBE CENTER	ADVANCE	VALVE LASH
The "Commuter". Excellent replacement camshaft for stock vehicles wishing to improve low end torque and driveability. Compatible with stock compression, torque converter and gearing. Good idle.	1,000-4,000	E710112 RV12H	280° IN 288° EX	208° IN 214° EX	.448" IN .458" EX	110°	0°	.000" IN .000" EX
The "Performer". Erson's most popular grind for improving all around street performance with minor modifications. A 600 cfm 4-barrel and free flowing dual exhaust system increases low end torque and mid-range horsepower. OK with stock converter.	1,500-4,500	E710121 TQ20H	292° IN 292° EX	214° IN 214° EX	.478" IN .478" EX	111°	4°	.000" IN .000" EX
High-lift, short duration, dual pattern camshaft offers great mid-range performance in slightly modified engines with no less than 9.0:1 compression. Should have good dual plane intake, 4-barrel carburetor and headers for best results. Automatic cars advance cam 4°.	2,200-5,500	E710321 TQ40H	284° IN 296° EX	220° IN 228° EX	.504" IN .504" EX	110°	0°	.000" IN .000" EX
High-performance street machines seeking increased mid-range and top end performance from modified 360-401 CID engines. Should have no less than 9.5:1 compression, torker style intake, up to 750 cfm 4-barrel and headers to complete package.	3,000-6,300	E710421 Hi Flow I H	296° IN 296° EX	228° IN 228° EX	.504" IN .504" EX	108°	0°	.000" IN .000" EX
Hot Street/E.T. Brackets. Recommended for 390-413 CID engines with no less than 10.5:1 compression. Should have modified cylinder heads, single plane intake, 750 cfm 4-barrel and headers for increased upper mid-range torque and top end horsepower. Automatic cars use 3,500 RPM converter. OK with nitrous oxide.	3,500-6,800	E710621 Hi Flow IV H	312° IN 320° EX	248° IN 256° EX	.536" IN .552" EX	110°	4°	.000" IN .000" EX

CAMSHAFT ACCESSORY KIT FOR AMC V8 ENGINES EQUIPPED WITH HYDRAULIC FLAT TAPPET CAMSHAFTS

E871010 KIT INCLUDES THESE COMPONENTS:

- 16 hydraulic tappets.....E914641
- 16 valve springs, 1.800 x 1.500.....E915011
- 16 H.T. steel retainers, 7° x 3/8.....E961101
- 16 H.T. valve locks, 7° x 3/8.....E911271
- 1 tube Moly Lube, 1/4 oz.....E911001

OPTIONAL HIGH PERFORMANCE PARTS FOR AMC ENGINES EQUIPPED WITH HYDRAULIC FLAT TAPPET VALVETRAINS

- Valve springs, 1.800 x 1.450E915310
- Roller timing chain setE991906
- C.M. pushrods, 5/16 x 7.800.....E917101
- C.H. pushrods, 5/16 x 7.800E917111
- C.H. pushrods, 5/16 x 7.900E917214
- H.T. machined valve locks, 4130.....E911121
- P.C. seals, 3/8.....E910213
- Lash caps, 3/8.....E911531
- Degree wheelE911004
- H.T. steel retainers, 7° x 3/8.....E961311
- Moly Lube, 2 oz. tubeE911002

290-401 CID ENGINES

PROFERAL BILLET

HIGH PERFORMANCE FLAT TAPPET CAMSHAFTS

APPLICATIONS/CHARACTERISTICS	BASIC RPM RANGE	PART NO. GRIND NO.	DURATION ADVERTISED	DURATION @ .050"	GROSS LIFT	LOBE CENTER	ADVANCE	VALVE LASH
Excellent entry level camshaft for high-performance street machines seeking strong mid-range power. 360-401 cubic inch engines should have no less than 10.5:1 compression and aftermarket intake and exhaust systems for best results. 4-speed manual transmission or automatics with 2,500-3,000 RPM converter recommended.	3,000-6,500	E710501 Hi Flow AM	286° IN 294° EX	242° IN 246° EX	.544" IN .544" EX	108°	0°	.022" IN .022" EX
Pro Street/E.T. Brackets. 390-401 cubic inch engines with 10.5-11.5:1 compression need modified cylinder heads, matched to a single plane intake, 750 cfm 4-barrel, 1.750" primary tube headers and 3" exhaust for best results. 2,800-3,400 lb. automatic cars use 3,500 RPM converter, 28" tire and 4.56 gear.	3,500-7,000	E710502 F-296-1	296° IN 302° EX	258° IN 264° EX	.600" IN .600" EX	108°	2°	.028" IN .030" EX
E.T. Brackets, 2,600-3,200 lb. Javelins, AMXs, Gremlins, etc. using 390-413 cubic inch engines with no less than 11.5:1 compression produce consistent and reliable top end power. Compatible in 4-speed or automatic cars with 4,500 RPM converter.	4,000-7,500	E710503 F-306-1A	306° IN 314° EX	268° IN 276° EX	.600" IN .600" EX	108°	0°	.028" IN .030" EX

CAMSHAFT ACCESSORY KIT FOR AMC V8 ENGINES EQUIPPED WITH FLAT TAPPET CAMSHAFTS

E871013 KIT INCLUDES THESE COMPONENTS:

- 16 mechanical tappets.....E914291
- 16 valve springs, 1.900 x 1.440E915251
- 16 H.T. steel retainers, 7° x 3/8.....E961011
- 16 pair H.T. valve locks, 7° x 3/8.....E911271
- 1 tube Moly Lube, 1/4 oz.....E911001

The springs in this kit are designed to fit stock heads. No machine work is required.

OPTIONAL HIGH PERFORMANCE PARTS FOR AMC ENGINES EQUIPPED WITH FLAT TAPPET VALVETRAINS

- Roller timing chain set.....E991906
- Roller rocker, forged aluminum, 1.6 x 3/8.....E928025
- Roller rocker, forged aluminum, 1.6 x 7/16.....E928026
- C.H. pushrods, 5/16 x 8.156.....E917241
- H.T. machined valve locks, 7° x 3/8 4130E911121
- P.C. seals, 3/8.....E910213
- Screw-in studs, 7/16 x 20E912152
- Screw-in studs, 3/8 x 24E912161
- Degree wheel.....E911004
- Moly Lube, 2 oz. tube.....E911002

NOTE — For additional parts and information regarding AMC 290-401 CID V8 engines, call Erson's Technical Service Team at 775.882.1622.

PROFERAL BILLET

231 CID DAUNTLESS ODDFIRE ENGINES

HIGH PERFORMANCE HYDRAULIC CAMSHAFTS

APPLICATIONS/CHARACTERISTICS	BASIC RPM RANGE	PART NO. GRIND NO.	DURATION ADVERTISED	DURATION @ .050"	GROSS LIFT	LOBE CENTER	ADVANCE	VALVE LASH
Excellent camshaft for early Jeeps wishing to improve low end torque and horse power. Great for rock crawling or open road driving. Good idle.	800-4,000	E690111 RV5H	202° IN 208° EX	274° IN 280° EX	.418" IN .428" EX	108°	0°	.000" IN .000" EX
Super low end torque with improved mid-range performance. Great on- or off-road drivability in slightly modified engines. Good idle.	1,500-4,700	E690112 RV12H	208° IN 214° EX	280° IN 288° EX	.428" IN .438" EX	110°	4°	.000" IN .000" EX
Jeeps seeking strong low end and controllable mid-range power look no further. Should have 8.5-9.5:1 compression with headers and free flowing exhaust for best results.	2,000-5,200	E690201 RV15H	214° IN 214° EX	288° IN 288° EX	.438" IN .438" EX	110°	4°	.000" IN .000" EX

OPTIONAL HIGH PERFORMANCE PARTS FOR BUICK/JEEP V6 ENGINES EQUIPPED WITH HYDRAULIC VALVETRAINS

Hydraulic tappets.....	E914782
Valve springs, 1.625 x 1.250.....	E915162
H.T. steel retainers.....	E911162
Moly Lube, 1/4 oz. tube.....	E911001

The springs are designed to fit stock heads. No machine work is required.

The retainers are designed for use with Buick valve locks.

NOTE —

The camshafts listed above are subject to availability and usually built to order. Call Erson's Technical Service Team at 775.882.1622 for ordering information.

CAUTION —

Do not attempt to operate an engine with less than .150" retainer-to-guide clearance. If you are using valve seals, check the clearance from the top of the seal rather than the top of the guide.

PROFERAL BILLET

196, 231, 252 CID EVENFIRE ENGINES

HIGH PERFORMANCE HYDRAULIC FLAT TAPPET CAMSHAFTS

APPLICATIONS/CHARACTERISTICS	BASIC RPM RANGE	PART NO. GRIND NO.	DURATION ADVERTISED	DURATION @ .050"	GROSS LIFT	LOBE CENTER	ADVANCE	VALVE LASH
Excellent replacement camshaft for vehicles wishing to improve low end performance and driveability. Compatible with stock compression, torque converter and gearing. Approved for use with turbo chargers. Good idle.	1,000-4,000	E670131 RV5H	274° IN 274° EX	202° IN 202° EX	.423" IN .423" EX	110°	4°	.000" IN .000" EX
Designed to improve low end torque and mid-range performance. Great open road driveability and fuel efficiency. Naturally aspirated engines need free flowing dual exhaust system for best results. Enhances turbo charger performance with minimal effort.	1,500-4,800	E670101 RV10H	280° IN 280° EX	208° IN 208° EX	.434" IN .434" EX	111°	4°	.000" IN .000" EX
The "Performer". Erson's most popular Buick Grand National camshaft. Noticeable increase in mid-range performance in both acceleration and turbo response time. May require fuel system modifications for best results.	2,000-5,400	E670121 TQ20H	292° IN 292° EX	214° IN 214° EX	.463" IN .463" EX	111°	4°	.000" IN .000" EX
Naturally aspirated or turbo charged street machines seeking improved mid-range torque and top end horsepower look no further. Prefers 4- or 5-speed manual transmission and mid-3 series gearing for best results.	2,500-5,800	E670321 Hi Flow AH	284° IN 284° EX	220° IN 220° EX	.488" IN .488" EX	112°	4°	.000" IN .000" EX

CAMSHAFT ACCESSORY KIT FOR BUICK V6 ENGINES EQUIPPED WITH HYDRAULIC FLAT TAPPET CAMSHAFTS

E865110 KIT INCLUDES THESE COMPONENTS:

12 hydraulic tappets.....	E914782
12 valve springs, 1.700 x 1.220.....	E915006
12 H.T. steel retainers, 7° x 11/32.....	E961002
1 tube Moly Lube, 1/4 oz.....	E911001

The springs in this kit are designed to fit stock heads. No machine work is required.

The retainers in this kit are designed for use with S.A.E. (14° 15' included angle) 11/32 valve locks.

OPTIONAL HIGH PERFORMANCE PARTS FOR BUICK ENGINES EQUIPPED WITH HYDRAULIC FLAT TAPPET VALVETRAINS

Lash caps, 11/32.....	E911540
P.C. seals, 11/32.....	E910244
Valve springs, 1.625 x 1.250.....	E915162
H.T. valve locks, 7° x 11/32 4130.....	E911112