Applications and Instructions
Matched Spring and Retainer Kit
Part Numbers (See Below)

For more information, see www.cranecams.com

READ YOUR APPLICATION COMPLETELY BEFORE YOU BEGIN INSTALLATION

Find your specific application from the listing below. Read very carefully for any special installation instructions and familiarize yourself with the recommended installed spring pressure and height, open checking pressure and height, and maximum recommended valve lift and RPM for your application.

American Motors V-8 66-91 290-304-343 ---------------PN 64308-1
-360-390-401 cu. in.
Valve Spring PN 99939-16 Steel Retainer PN 99957-16
- Recom'd installed spring pressure and height (valve closed)---------121 lbs. @ 1.800"
- Open checking pressure and height-----------------------------298 lbs. @ 1.300"
- Maximum recommended valve lift and RPM---------------------580° - 6500 RPM

Chevrolet V-8 67-87 262-267-283 ---------------PN 11308-1
-305-307-327-350-400 cu. in.
Valve Spring PN 99848-16 Steel Retainer PN 99915-16
- Recom'd installed spring pressure and height (valve closed)----114 lbs. @ 1.700"
- Open checking pressure and height-----------------------------340 lbs. @ 1.200"
- Maximum recommended valve lift and RPM---------------------510° - 6500 RPM

Chevrolet V-8 67-87 262-267-283 ---------------PN 11309-1
(H-11 material, Saturday Night Special)
Valve Spring PN 99946-16 Steel Retainer PN 99915-16
Lock PN 99905-1
- Recom'd installed spring pressure and height (valve closed)-------125 lbs. @ 1.800"
- Open checking pressure and height-----------------------------383 lbs. @ 1.200"
- Maximum recommended valve lift and RPM---------------------600° - 7500 RPM

Chevrolet 57-98 V-8 262-400 cu. in. ---------------PN 11310-1
(Requires cyl. head machining)
Valve Spring PN 99938-16 Steel Retainer PN 99944-16
- Recom'd installed spring pressure and height (valve closed)-------112 lbs. @ 1.650"
- Open checking pressure and height-----------------------------336 lbs. @ 1.100"
- Maximum recommended valve lift and RPM---------------------600° - 7500 RPM

Chevrolet V-8 94-99 350 LT1 (w/Iron cylinder heads)------PN 10309-1
and Chevrolet V-8 95-96 Vortec 350 cu. in.
Valve Spring PN 99845-16 Steel Retainer PN 99914-16
This kit is specifically designed for 1994 and newer Chevrolet LT1 engines with cast iron cylinder heads and will also fit most 1996-1999 GM Vortec V-8 truck engines. Original equipment valve locks should be used to obtain the below specifications. Crane number 99997-1 valve locks can be used, however they will reduce the assembly height and travel by .020" when compared with stock valve locks.
- Recom'd installed spring pressure and height (valve closed)-------124 lbs. @ 1.750"
- Open checking pressure and height-----------------------------374 lbs. @ 1.150"
- Maximum recommended valve lift and RPM---------------------590° - 8500 RPM

Chevrolet V-8 65-98 396-402-427-454-502 cu. in. ---------------PN 13308-1
(Except 80-Up Truck Engine)
Valve Spring PN 99939-16 Steel Retainer PN 99948-16
Lock PN 99907-1 Shim PN 99905-1
- Recom'd installed spring pressure and height (valve closed)-------121 lbs. @ 1.800"
- Open checking pressure and height-----------------------------298 lbs. @ 1.300"
- Maximum recommended valve lift and RPM---------------------580° - 6500 RPM

For hydraulic, mechanical and hydraulic roller equipped engines
- Recom'd installed spring pressure and height (valve closed)-------130 lbs. @ 1.850"
- Open checking pressure and height-----------------------------402 lbs. @ 1.150"
- Maximum recommended valve lift and RPM---------------------600° - 7000 RPM

For mechanical street roller equipped engines
- Recom'd installed spring pressure and height (valve closed)-------145 lbs. @ 1.812"
- Open checking pressure and height-----------------------------426 lbs. @ 1.110"
- Maximum recommended valve lift and RPM---------------------600° - 7500 RPM

For most other roller equipped engines
- Recom'd installed spring pressure and height (valve closed)-------167 lbs. @ 1.750"
- Open checking pressure and height-----------------------------426 lbs. @ 1.110"
- Maximum recommended valve lift and RPM---------------------600° - 7500 RPM

For most other other roller equipped engines
- Recom'd installed spring pressure and height (valve closed)-------195 lbs. @ 1.700"
- Open checking pressure and height-----------------------------426 lbs. @ 1.110"
- Maximum recommended valve lift and RPM---------------------600° - 7500 RPM

CRANE CAMS, INC. 530 Fentress Blvd., Daytona Beach, FL 32114
www.cranecams.com Tech Line: (386) 258-6174 Fax: (386) 258-6167

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a Standard diameter valve springs for 1967-87 cylinder heads with 1.700" assembly height. Check valve guide to lock/retainer clearance at maximum valve lift, valve guide machining may be required.

b Must machine cylinder heads. Check valve guide to lock/retainer clearance at maximum valve lift, valve guide machining may be required.
Chevrolet V-8 80-95 Truck 366-396-402-427-454 cu. in. ---PN 13309-1
(w/Short valve spring assembly height)

Valve Spring PN 96801-16  Steel Retainer PN 99957-16

Most 1981 and newer Chevrolet and GMC Truck 454 cu. in. engines are designed with a valve spring assembly height of 1.880". This kit is designed specifically for those truck applications. Engines designed with the taller assembly height of 1.880" should use Crane Spring and Retainer Kit 13308-1.

- Recom’d installed spring pressure and height (valve closed)--------114 lbs. @ 1.800”
- Open checking pressure and height-------------------------------287 lbs. @ 1.250”
- Maximum recommended valve lift and RPM ----------------------550" - 6500 RPM

Chrysler-Dodge-Plymouth V-8 64-91 “LA” V-8 273 -------PN 69308-1
-340-360 and 67-91 318 cu. in.

Valve Spring PN 99835-16  Steel Retainer PN 99946-16

- Recom’d installed spring pressure and height (valve closed)------113 lbs. @ 1.600”
- Open checking pressure and height-----------------------------260 lbs. @ 1.150”
- Maximum recommended valve lift and RPM ----------------------494" - 6500 RPM

Chrysler-Dodge-Plymouth V-8 58-78 “B” 350-361-383 ------PN 64308-1
-400-413-426-440 cu. in.

Valve Spring PN 99839-16  Steel Retainer PN 99957-16

- Recom’d installed spring pressure and height (valve closed)-------121 lbs. @ 1.800”
- Open checking pressure and height-----------------------------288 lbs. @ 1.300”
- Maximum recommended valve lift and RPM ----------------------580” - 6500 RPM

Ford V-8 62-87 221-302 cu. in.  ------------------------PN 36308-1

Valve Spring PN 96803-16  Steel Retainer PN 99946-16

- Recom’d installed spring pressure and height (valve closed)-------107 lbs. @ 1.700”
- Open checking pressure and height-----------------------------317 lbs. @ 1.150”
- Maximum recommended valve lift and RPM ----------------------527” - 6500 RPM

Ford V-8 62-98 221-302 and 69-97 351W cu. in.  --------PN 11310-1\textsuperscript{D}
(Requires cylinder head machining)

Valve Spring PN 99838-16  Steel Retainer PN 99944-16

- Recom’d installed spring pressure and height (valve closed)-------112 lbs. @ 1.650”
- Open checking pressure and height-----------------------------356 lbs. @ 1.100”
- Maximum recommended valve lift and RPM ----------------------600” - 7500 RPM

Ford V-8 85-00 302-302 H.O.  ----------------------------PN 44308-1\textsuperscript{C}

w/Hydraulic Roller Camshafts

(Convex design, for stock cylinder heads)

Valve Spring PN 99841-16  Steel Retainer PN 99942-16

Lock PNs 99094-1 and 99097-1

This valve spring, retainer and lock set is especially designed for Ford cylinder heads with standard valves. These valves have different keeper groove locations between the intake and exhaust valves. The enclosed components must be installed as outlined below.

Following the installed height and pressure shown on your camshaft specification card, we recommend that you install all 8 intake springs before installing the 8 exhaust springs. If your cam card recommends a different valve spring, installing this kit at 1.950” will yield 118 lbs. closed pressure. The maximum recommended lift is .550”. The larger end of the valve spring must be installed towards the cylinder head surface.

Using the red locks, install the intake valve springs and retainers. Make sure the locks are seated in the valve’s groove. Repeat this step with the remaining intake valves.

Using the black locks, install the exhaust valve springs and retainers. Make sure the locks are seated in the valve’s groove. Repeat this step with the remaining exhaust valves.

- Recom’d installed spring pressure and height (valve closed)-------118 lbs. @ 1.950”
- Open checking pressure and height-----------------------------375 lbs. @ 1.380”
- Maximum recommended valve lift and RPM ----------------------560” - 6500 RPM

\textsuperscript{b} Must machine cylinder heads. Check valve guide to lock/retainer clearance at maximum valve lift, valve guide machining may be required.

\textsuperscript{c} Optional kit for 79-98 302, 302 H.O., and 351W engines to provide increased valve spring travel when using stock cylinder heads.

Ford V-8 70-77 Boss 351-351C-351M-400 cu. in.  ---------PN 52308-1

Valve Spring PN 96801-16  Steel Retainer PN 99948-16

- Recom’d installed spring pressure and height (valve closed)-------114 lbs. @ 1.800”
- Open checking pressure and height-----------------------------287 lbs. @ 1.250”
- Maximum recommended valve lift and RPM ----------------------550” - 6500 RPM

Ford V-8 71-72 Boss 351, 79-82 351M-400  ----------------PN 35308-1
and V-8 68-97 370-429-460 cu. in.

Valve Spring PN 96801-16  Steel Retainer PN 99944-16

- Recom’d installed spring pressure and height (valve closed)-------108 lbs. @ 1.828”
- Open checking pressure and height-----------------------------287 lbs. @ 1.250”
- Maximum recommended valve lift and RPM ----------------------550” - 6500 RPM

Ford V-8 63-76 352-360-390-406-410-427-428 cu. in.  --------PN 13309-1

Valve Spring PN 96801-16  Steel Retainer PN 99957-16

- Recom’d installed spring pressure and height (valve closed)-------114 lbs. @ 1.800”
- Open checking pressure and height-----------------------------287 lbs. @ 1.250”
- Maximum recommended valve lift and RPM ----------------------550” - 6500 RPM

Oldsmobile V-8 67-84 39° 260-307-350-400-403  ---------PN 36308-1
-425-455 and 64-67 45° 330-400-425 cu. in.

Valve Spring PN 96803-16  Steel Retainer PN 99946-16

- Recom’d installed spring pressure and height (valve closed)-------107 lbs. @ 1.700”
- Open checking pressure and height-----------------------------317 lbs. @ 1.150”
- Maximum recommended valve lift and RPM ----------------------520” - 6500 RPM

Oldsmobile V-8 67-84 39° 260-307-350  -------------------PN 11310-1\textsuperscript{b}
-400-403-425-455 and 64-67 45° 330-400-425 cu. in.
(Requires cylinder head machining)

Valve Spring PN 99838-16  Steel Retainer PN 99944-16

- Recom’d installed spring pressure and height (valve closed)-------112 lbs. @ 1.150”
- Open checking pressure and height-----------------------------336 lbs. @ 1.100”
- Maximum recommended valve lift and RPM ----------------------600” - 7500 RPM

Pontiac V-8 55-81 265-287-301-316-326-347-350  ---------PN 28308-1
-370-389-400-421-428-455 cu. in.

Valve Spring PN 99840-16  Steel Retainer PN 99944-16

- Recom’d installed spring pressure and height (valve closed)-------110 lbs. @ 1.550”
- Open checking pressure and height-----------------------------303 lbs. @ 1.100”
- Maximum recommended valve lift and RPM ----------------------510” - 6500 RPM

Pontiac V-8 55-81 265-287-301-316-326-347-350  ---------PN 11310-1\textsuperscript{b}
-370-389-400-421-428-455 cu. in.
(Requires cylinder head machining)

Valve Spring PN 99838-16  Steel Retainer PN 99944-16

- Recom’d installed spring pressure and height (valve closed)-------112 lbs. @ 1.650”
- Open checking pressure and height-----------------------------336 lbs. @ 1.100”
- Maximum recommended valve lift and RPM ----------------------600” - 7500 RPM

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