PERFORMER RPM HYDRAULIC ROLLER CAMSHAFT
For Chevrolet LS1 Engines
Catalog #2218
INSTALLATION INSTRUCTIONS

PLEASE study these instructions carefully before installing your new Performer RPM Hydraulic Roller Camshaft. If you have any questions, do not hesitate to contact our **Technical Hotline at: 1-800-416-8628**, from 7am-5pm Monday-Friday, Pacific Standard Time or via e-mail at: **Edelbrock@Edelbrock.com.**

IMPORTANT NOTE:
Proper installation is the responsibility of the installer. Improper installation will void warranty and may result in poor performance and engine or vehicle damage.

DESCRIPTION: The Performer RPM Hydraulic Roller Camshaft for Chevrolet LS1 engines is designed for optimum power and torque in the 1500-6500 rpm range. This camshaft is well suited for street driven performance vehicles equipped with an LS1, either from the factory or in an engine swap application. It is designed to work with OEM and aftermarket fuel injection systems, as well as applications that have been retro-fitted with a carburetor using Edelbrock's Performer RPM LS1 Carbureted Intake Manifold #7118. In our testing, a stock fuel injected LS1 engine using our CNC ported heads and the #2218 camshaft made 463 horsepower. Stock lifters are compatible with this camshaft, but stock pushrods are too short on certain applications. You will need to purchase longer pushrods if you are unable to achieve a full turn of pre-load past zero lash before the rocker arm bottoms out. Edelbrock Sure Seat Valve Springs #5768 or equivalent MUST be used with this camshaft. Always check your valvetrain clearances by rotating the engine over by hand; using the starter can cause severe engine damage.

BEFORE BEGINNING: This installation can be accomplished using common tools and procedures. However, you should have a basic knowledge of automotive repair and modification and be familiar with and comfortable working on your vehicle. If you do not feel comfortable working on your vehicle, it is recommended to have the installation completed by a professional mechanic. Due to the wide variety vehicles that will accept an LS1 engine swap, these installation instructions only cover the camshaft installation procedure itself. It is highly recommended to have a factory service manual for your vehicle, and for an LS1 factory-equipped vehicle on hand during this installation. A service manual will cover certain steps in this instruction sheet in full detail, and also provide proper bolt torque values and sequences. **REMEMBER: When working on your engine, especially when oil or fuel is present, always work in a well ventilated area. Keep all sparks, open flames, or other sources of ignition away from the work area. Failure to do so could result in a fire or explosion causing vehicle or property damage, personal injury, and/or death.** If the Air Conditioning condenser needs to be removed to provide clearance for camshaft removal, have the system evacuated by an appropriate repair facility BEFORE starting the installation. The same facility can recharge the system after installation.

NOTE: Make sure your engine is in good running condition before installing the Edelbrock Performer RPM Hydraulic Roller Camshaft. If your engine is not in good working order, installation of a high performance camshaft could result in premature engine wear.

NOTE: This installation is most easily accomplished with the engine out of the vehicle. However, if your engine is in the vehicle, the removal of all vehicle pieces in order to provide access to the engine front cover and the removal of parts in order to provide clearance to remove and install the camshaft will not be covered. These items may include the cooling fans, radiator, emissions equipment bracketry, A/C brackets, A/C condenser, etc. Depending on the model of your vehicle, if the engine is in the vehicle, temporarily raising the engine in the engine compartment may be required to gain enough clearance to remove and install the camshaft. Please refer to your factory service manual for these procedures. If the vehicle needs to be raised for any reason, always use the factory recommended lift points and methods of supporting the vehicle. **Failure to do so could result in vehicle damage, personal injury, and/or death.**

Preparation Checklist

Kit Contents:

Qty.	Description
1	Hydraulic Roller Camshaft
1	2 oz. Container, Moly Assembly Lube

Special Tools:
(Use the Supplied GM part numbers or equivalent)
1. GM # J-41816 - Crankshaft Balancer Remover
2. GM # J-41816-2 - Crankshaft End Protector
3. GM # J-41476 - Front/Rear Cover Alignment Tool
4. GM # J-42386 - Flywheel Holding Tool (if engine is out of vehicle)

Parts Recommended for Installation:
1. Edelbrock Sure Seat Valve Springs #5768 (required)
2. Crankshaft Balancer Bolt (required)
3. Camshaft Sprocket Bolts (required)
4. Camshaft Retaining Plate Bolts (required)
5. Valve Cover Gaskets
6. Front Cover Gasket
7. Water Pump Gaskets
8. Oil Pan Gasket

NOTE: *The LS1 uses o-ring type gaskets which can normally be re-used. Inspect the gaskets listed above during the installation and replace, if necessary.*

INSTALLATION PROCEDURE

PARTS REMOVAL

1. Make sure the vehicle is on level ground and supported properly. Drain engine oil and coolant, storing them in appropriate containers or disposing of them properly. Refer to the factory service manual for proper draining procedure. Make sure the negative battery cable is disconnected.
2. After getting access to the front of the engine, remove the serpentine accessory drive belt, accessory drive belt tensioner, drive belt idler pulley, and any hoses connected to the water pump. Follow the factory service manual procedure.
3. Remove the water pump *(See service manual).*
4. ***NOTE:*** *Some LS1 engines (originally installed in Corvettes) do not use a key or keyway to position the crankshaft balancer on the crank. If your engine does not use a key, mark or scribe the end of the crankshaft and the balancer before removal.* Remove the balancer bolt. Using the Crankshaft Balancer Remover *(J-41816)* and the Crankshaft End Protector *(J-41816-2)*, remove the balancer from the crankshaft.
5. Loosen the oil pan bolts enough to pull the oil pan away from the engine slightly to provide clearance for removing the front cover. Remove the front cover and gasket. Be careful not to damage the seals in the timing cover. Replace, if necessary. At this time, you should to inspect the oil pan gasket for damage. Remove the oil pan and replace the gasket if necessary *(See service manual)*.
6. Remove the oil pump *(See service manual)*.
7. Remove the ignition coil harness connectors, and remove the valve covers. The individual coils do not have to be removed to do this. Remove the rocker arm bolts , rocker arms, and rocker arm pivot support. Make sure to keep parts in order, so they can be re-installed in their original locations. The pushrods do not need to be removed.
8. Rotate the crankshaft two full revolutions *(use flywheel holding tool J-42386, if necessary)*. This will raise the lifters up into the lifter guides. The lifter guides will hold the lifters away from the camshaft so that it may be removed without the need to remove the lifters. Continue rotating the engine until the timing marks on the timing chain are in line ***(See Fig. 1)***. Remove the three bolts holding the camshaft sprocket and carefully remove the cam sprocket. You can allow the timing chain to rest on the crankshaft sprocket. *(**NOTE:** Now is a good time to inspect the timing set. Replace, if necessary, following the service manual procedure.)*
9. Remove the camshaft sensor bolt and lift the sensor away from the camshaft. ***NOTE:*** *Camshaft sensor MUST be disengaged prior to removing or installing the camshaft, or damage to the sensor could occur.* Remove the camshaft retaining plate and carefully remove the camshaft. Keep it straight as you remove it as to not damage the camshaft bearings. *(**NOTE:** Installing three 8mm x 1.25 x 100mm long bolts into the front of the camshaft can give you a "handle" to help hold the camshaft.* Carefully rotating the cam while removing it eases the removal.) Inspect the camshaft lobes for any signs of unusual wear or damage. If damaged, the lifters may also need replacement. Removal of the cylinder heads is required to remove lifters *(See service manual)*.

INSTALLATION PROCEDURE

1. Liberally coat the new Performer RPM camshaft journals and lobes with the supplied moly lube. Use the 100mm long bolts to create a "handle" and carefully insert the cam into the engine.
2. Replace the camshaft retaining plate using new bolts and tighten the bolts to the factory specification. Replace camshaft sensor.
3. Replace the timing chain and camshaft sprocket. Make sure to align the timing marks on the cam and crankshaft sprockets ***(See Fig. 1)***. Using new bolts, tighten bolts to factory specifications *(See service manual)*.
4. Carefully press down on each pushrod to put each lifter back into contact with the camshaft. Make sure the pushrods are properly seated into the lifters.
5. Install the rocker arm pivot supports, rocker arms and rocker arm bolts. Finger tighten ONLY at this time.
6. Make sure the timing sprockets are still aligned as shown in ***Fig. 1.*** If they are not, rotate the engine in the direction of operation until the timing marks are aligned. Tighten the rocker arm bolts in the sequence described below:
   A. With the timing marks aligned ***(Fig. 1)***, tighten exhaust valve rocker arm bolts 1, 2, 7, & 8 to 22 ft./lbs. Tighten intake valve rocker arm bolts 1, 3, 4, & 5 to 22 ft./lbs.
   B. Rotate the engine 360°, in the direction of operation. The timing marks should both be in the 12 o'clock position.
   C. Tighten exhaust valve rocker arm bolts 3, 4, 5, & 6 to 22 ft./lbs. Tighten intake valve rocker arm bolts 2, 6, 7, & 8 to 22. ft./lbs.

   NOTE: *Engine firing order is 1-8-7-2-6-5-4-3.*

   NOTE: *Cylinders 1, 3, 5, & 7 are the driver's side bank, while cylinders 2, 4, 6, & 8 are the passenger's side bank.*

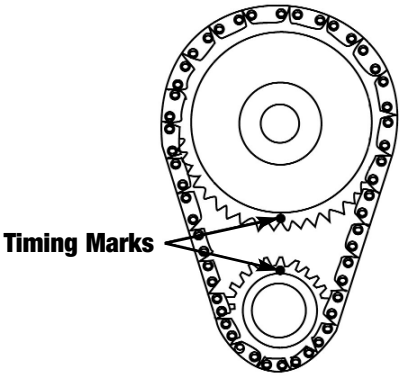

Figure 1 - Timing Mark Alignment

7. Install the valve covers and reconnect the coil harness plugs. Use new valve cover gaskets, if necessary.
8. Install the oil pump *(See service manual for torque specs).*
9. Install the front cover, using a new gasket if needed. Install front cover bolts hand tight ONLY. Use front/rear cover alignment tool J-41476 and align the tapered legs of the tool with the machined alignment surfaces on the front cover ***(See Fig. 2)***. Install the crankshaft balancer bolt and tighten by hand until snug. Tighten the front cover bolts to 18 ft./lbs. Make sure the bottom of the front cover is flush with the oil pan gasket surface.
10. Apply a small amount of sensor safe RTV silicone to the areas of the front cover that meet the oil pan sealing surface ***(See Fig. 3)***. Tighten the oil pan bolts.
11. Install the crankshaft balancer using a new balancer bolt. Make sure it is aligned as marked previously. If your engine uses a keyway, use the original key to align the balancer properly.
12. Install the water pump, serpentine accessory drive belt idler pulley and tensioner. Install the serpentine belt and any components that were removed in order to gain access to the front of the engine *(See service manual for installation procedures).*

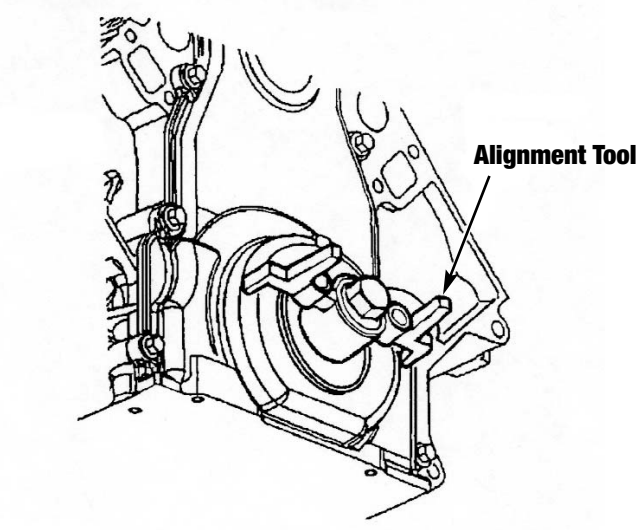

Figure 2 - Front Cover Alignment Tool

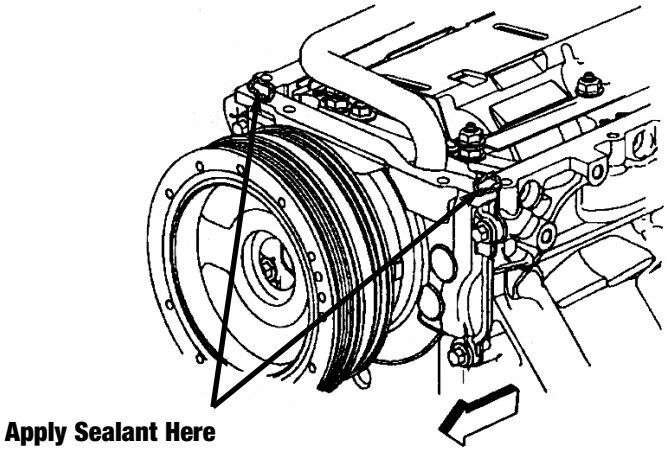

Figure 3 - Sealant Locations

Edelbrock Corporation • 2700 California St. • Torrance, CA 90503
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E-Mail: Edelbrock@Edelbrock.com

CAMSHAFT: Performer RPM Hydraulic Roller
CATALOG #: 2218
ENGINE: Chevrolet LS1 V8
RPM RANGE: 1500-6500

Duration at 0.006" Lift:	Intake 254°	Exhaust 281°
Duration at 0.050" Lift:	Intake 207°	Exhaust 220°
Lift at Cam:	Intake 0.337"	Exhaust 0.341"
Lift at Valve:	Intake 0.573"	Exhaust 0.580"
Intake Centerline:	119.5°	
Lobe Separation:	118.5°	
Timing at 0.050" Lift:	Open	Close
Intake:	16° ATDC	43° ABDC
Exhaust:	47.6° BBDC	7.4° BTDC

Rev. 11/07 - AJ/mc
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Brochure #63-2218C

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