



## **SystemAX™**

**CHEVROLET ENGINE SYSTEM, NON-EMISSION  
1967 - 1987 SMALL BLOCK CHEVROLET  
Part Number 300-502**

## **SystemAX II™**

**CHEVROLET ENGINE SYSTEM, NON-EMISSION  
1962 - 1987 CHEVROLET 302, 327, 350 C.I.D. ENGINES  
Part Number 300-503-1**

## **Installation Instructions**

**NOTE:** These instructions must be read and fully understood before beginning installation. If this manual is not fully understood, installation should not be attempted.

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## INTRODUCTION:

**SystemeMAX** engine systems offer a new approach to street performance. These systems come in three levels of performance. Each system component is designed in conjunction with the others to provide an unmatched level of performance.

**SystemeMAX** engine systems are engineered to produce maximum power. A "system-designed" approach was considered from the beginning as the only logical and practical way to proceed with the development. The performance results attained have confirmed this was the correct approach. Using race-bred experience and technology, Holley engineers have developed a powerful package for the 350 C.I.D. Chevrolet engine. Simply stated, **SystemeMAX** offers total airflow management.

The **SystemeMAX I** package, part number 300-502, contains a camshaft, intake manifold, timing chain and gear set, and hydraulic lifters.

The **SystemeMAX II** package, part number 300-503-1, contains a camshaft, intake manifold, timing chain and gear set, hydraulic lifters, head bolts, hardened push rods, and cylinder heads.

Holley Performance Products has written this manual for the installation of the Chevy **SystemeMAX I & SystemeMAX II** engine systems. This manual contains all the information needed to install these systems. Please read all the **WARNINGS** and **NOTES**, they contain valuable information that can save you time and money. It is our intent to provide the best possible products for our customer; products that perform properly and satisfy your expectations. Should you need information or parts assistance, please do not return the unit to the store without first contacting technical service at 1-270-781-9741, Monday through Friday, 7 a.m. to 5 p.m. CST. By using this number, you may obtain any information and/or parts assistance that you may require. Please have the part number of the product you purchased when you call.

## IMPORTANT INSTALLATION NOTES:

This instruction manual will take the installer through a step by step process to install the engine systems with the engine in the vehicle. Before beginning the installation of the engine systems, several things must be considered:

1. The vehicle will be out of service for a day or so, depending on your experience, with a camshaft and lifter kit installation. Considerations should be taken accordingly.
2. The installation should only be performed by those familiar and comfortable enough with carburetor, intake manifold, camshaft, and cylinder head removal and installations. Inexperience with critical necessary procedures will cause poor vehicle performance and/or engine damage.
3. If the vehicle is equipped with air conditioning, carefully inspect the amount of room available for removal of the camshaft with respect to the air compressor. If removal and installation of **SystemeMAX** components requires removal of either the condenser or air compressor, the air conditioning system must first be evacuated. Take the vehicle to a certified air conditioning technician to recover and evacuate the air conditioning system.

**DANGER!** THIS TYPE OF WORK MUST BE PERFORMED IN A WELL-VENTILATED AREA. DO NOT SMOKE OR HAVE AN OPEN FLAME NEAR GASOLINE VAPORS OR AN EXPLOSION MAY RESULT CAUSING SERIOUS PERSONAL INJURY, PROPERTY DAMAGE, AND/OR DEATH.

**DANGER!** ALWAYS WEAR SAFETY GLASSES WHEN WORKING ON A VEHICLE. FAILURE TO WEAR EYE PROTECTION MAY RESULT IN SERIOUS EYE INJURY.

**DANGER!** DO NOT SMOKE OR HAVE AN OPEN FLAME PRESENT NEAR GASOLINE VAPORS OR AN EXPLOSION MAY RESULT CAUSING SERIOUS PERSONAL INJURY, DEATH, AND/OR PERSONAL PROPERTY DAMAGE.

**WARNING!** A THOROUGH KNOWLEDGE OF THE VEHICLE'S MECHANICAL AND ELECTRICAL SYSTEMS IS NECESSARY FOR A SAFE AND RELIABLE INSTALLATION OF THE CAMSHAFT AND LIFTERS. OTHERWISE, ONLY A PROFESSIONAL MECHANIC SHOULD DO THE INSTALLATION. AN IMPROPERLY INSTALLED MANIFOLD CAN CAUSE POOR PERFORMANCE, PERSONAL INJURY, AND/OR PROPERTY DAMAGE.

**NOTE:** If the condenser or compressor needs to be removed, the air conditioning system will need to be evacuated. This procedure has to be done by a certified air conditioning technician with the proper recovering equipment. Releasing freon gas into the atmosphere is illegal.

## PARTS IDENTIFICATION:

Description	Qty.	SystemAX	SystemAX II
Intake Manifold	1	Yes	Yes
Cylinder Heads	2	No	Yes
Cylinder Head Bolts & Washers	34	No	Yes
Lifters	16	Yes	Yes
Timing Set	1	Yes	Yes
Camshaft	1	Yes	Yes
Push Rods	16	No	Yes



Intake Manifold



Cylinder Heads



Camshaft



Timing Set



Cylinder head bolts & Washers



Pushrods



Lifters

## ADDITIONAL PARTS REQUIRED:

- **Cylinder Head Gaskets** (Felpro gasket, #1003 or equivalent) SystemAX II package only
- **Intake Manifold Gaskets** (Felpro gasket, #1205 or equivalent)
- **Exhaust Manifold Gaskets** (Felpro gasket, #1404 or equivalent) SystemAX II package only
- **Carburetor Mounting Studs and Nuts** (If changing carburetor at this time)
- **Carburetor Mounting Gasket**
- **Valve Cover Gaskets**
- **Permatex Ultrablue Sealer**
- **Anti-seize Compound**
- **Roller Rocker Arms** (Lunati P/N 84146) SystemAX II package only
- **Spark Plugs** (Champion #C61C) SystemAX II package only
- **Timing Cover Gasket Set**
- **Antifreeze**
- **Oil and Oil Filter**
- **Rocker Arm Lock Nuts** (Lunati P/N 8438)

## TOOLS REQUIRED:

- 1/2" Ratchet and Extensions
- 1/2" Deep Standard and Metric Socket Sets
- 3/8" Ratchet and Extensions
- Combination Wrench set, Standard and Metric
- Torque Wrench
- Camshaft installation tool
- Distributor Wrench
- Utility Knife
- Small Hammer
- 1/2" Standard and Metric Socket Sets
- 3/8" Deep Standard and Metric Socket Sets
- 3/8" Standard and Metric Socket Sets
- Standard and Phillips Screwdrivers
- Gasket Scraper
- Harmonic Balancer Removal and Installation Tool
- Timing Light
- Oil Filter Wrench
- Pliers and/or Vice Grips

## REMOVAL OF ENGINE ACCESSORIES:

1. Disconnect the negative cable from the battery.
2. Remove the existing air cleaner assembly.
3. Before disconnecting any vacuum hoses, compare the vacuum hose routing to the underhood vacuum hose decal. It is a good idea to sketch out the vacuum hose routing before disconnecting. Mark all vacuum hoses using masking tape and a pen or marker.
4. Remove the accessory drive belt(s).
5. Drain the coolant from the radiator.

**DANGER! COOLANT INSIDE A HOT ENGINE WILL BE UNDER PRESSURE. ALLOW ENGINE TO COOL BEFORE DRAINING COOLANT. FAILURE TO FOLLOW THIS PROCEDURE MAY RESULT IN SEVERE PERSONAL INJURY.**

6. Remove the upper and lower radiator hoses and heater hoses.
7. For vehicles with automatic transmissions, the transmission lines need to be disconnected from the radiator.
8. Remove the radiator and fan shroud.

**NOTE:** While the radiator is removed, it is recommended that the radiator be serviced by a reputable radiator shop. Higher horsepower engines require greater cooling capacity than lower horsepower engines. Inadequate cooling can lead to engine failure.

9. For vehicles with air conditioning, the condenser may need to be loosened or removed to facilitate camshaft removal and installation.

**NOTE:** If the condenser needs to be removed, the air conditioning system will need to be evacuated. This procedure has to be done by a certified air conditioning technician with the proper recovery equipment. Releasing freon gas into the atmosphere is illegal.

10. Remove the labeled vacuum lines from the existing carburetor.
11. Disconnect the existing fuel line from the carburetor.

**DANGER! BEFORE DISCONNECTING OR REMOVING FUEL LINES, MAKE SURE THE ENGINE IS COLD. DO NOT SMOKE. EXTINGUISH ALL OPEN FLAMES. AN OPEN FLAME, SPARK, OR EXTREME HEAT NEAR GASOLINE COULD RESULT IN A FIRE AND/OR EXPLOSION CAUSING SERIOUS INJURY OR DEATH!**

12. Remove one of the following choke connections:
  - Unplug electrical connection from electric choke, or
  - Disconnect mechanical choke linkage, or
  - Disconnect divorced choke rod, or
  - Disconnect heat source from thermostatic choke.
13. Remove the throttle cable and transmission kickdown cable or linkage, along with any brackets.
14. Remove the carburetor. The fuel bowls will be full of fuel. Take care not to spill fuel out of the carburetor.

**DANGER! BEFORE DISCONNECTING OR REMOVING FUEL LINES, MAKE SURE THE ENGINE IS COLD. DO NOT SMOKE. EXTINGUISH ALL OPEN FLAMES. AN OPEN FLAME, SPARK, OR EXTREME HEAT NEAR GASOLINE COULD RESULT IN A FIRE AND/OR EXPLOSION CAUSING SERIOUS INJURY OR DEATH!**

- For **SystemAX II** Installation Only.

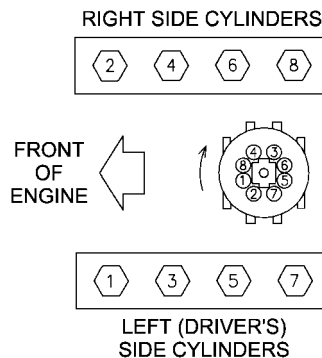
15. Remove accessories bolted to the cylinder heads.
16. On air conditioned vehicles, the air conditioning compressor can usually be moved and secured near an inner fender.

**NOTE:** If the condenser needs to be removed, the air conditioning system will need to be evacuated. This procedure has to be done by a certified air conditioning technician with the proper recovery equipment. Releasing freon gas into the atmosphere is illegal.

**DANGER! FAILURE TO PROPERLY EVACUATE THE AIR CONDITIONING SYSTEM COULD CAUSE SERIOUS INJURY UPON OPENING OF THE SYSTEM.**

## DISTRIBUTOR REMOVAL:

1. Identify and mark each spark plug wire and remove from all eight spark plugs. Leave wires attached to distributor cap.



CYLINDER NUMBERS AND DISTRIBUTOR  
SPARK PLUG LOCATIONS

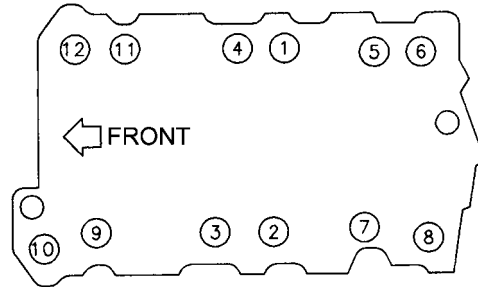
**Figure 1**

2. Locate the #1 cylinder spark plug wire.
3. Using a scribe or permanent marker, make a mark on the distributor, not the cap, under #1 spark plug terminal.
4. Remove the distributor cap, with the plug wires attached, and all eight spark plugs.
5. Using the appropriate socket, rotate the crankshaft clockwise until the rotor is pointing at the mark made in step 3 on the distributor to identify #1 cylinder. The timing mark on the harmonic balancer should also be on zero on the timing tab. Make sure to note and remember where the rotor physically is pointing for reassembly. It is helpful to place marks on the firewall and the distributor shaft with a marker to aid in distributor placement during reassembly.
6. Remove the distributor hold down and bolt.
7. Remove the distributor.

## INTAKE MANIFOLD REMOVAL:

**NOTE:** It may be necessary to loosen or remove accessories or accessory brackets to perform these steps.

1. Remove the valve covers.
2. Remove the upper radiator hose water neck and thermostat. The water neck and thermostat will need to be installed on the new intake manifold.
3. Loosen the lower intake bolts 1/2 turn in the reverse torque sequence. After loosening all the intake bolts, the bolts can be removed.



MANIFOLD TIGHTENING SEQUENCE

Figure 2

**WARNING!** DURING REASSEMBLY, USE THE ABOVE TIGHTENING SEQUENCE. FAILURE TO DO SO CAN RESULT IN PARTS OR ENGINE DAMAGE.

4. Remove the intake manifold and place a clean towel or shop rag over the engine valley to prevent dirt and contaminants from getting into the engine.

## CAMSHAFT REMOVAL:

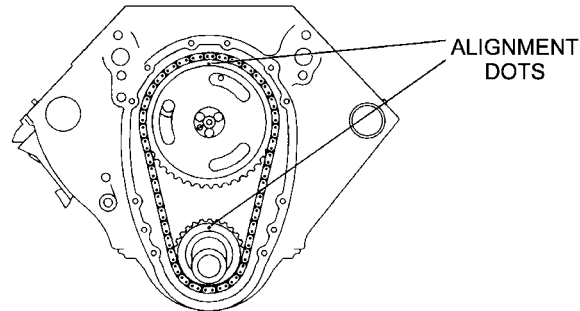
**NOTE:** Stock push rods and rocker arms will work with the **SystemMAX I** package. Stock rocker arms and stock push rods should not be used with the **SystemMAX II** package. Replacement push rods are included in the **SystemMAX II** package, however, quality aftermarket rocker arms will need to be purchased.

1. Remove rocker arms and nuts, and mark each item as to which cylinder and valve they were removed (For **SystemMAX I** package installation).
2. Remove push rods, and mark each as to which cylinder and valve they were removed. For those installing the **SystemMAX II** system, the stock push rods may be discarded.
3. Remove the old lifters and discard.
4. Remove the water pump.
5. Remove the harmonic balancer using the harmonic balancer removal tool.



Figure 3

- Remove the timing cover.
- Before removing the timing chain and gears, be sure the timing marks on the crank and cam gear are on the top of the gears as shown below. If the marks are not at the top of the gears as shown, rotate the crankshaft until the marks are aligned as shown. These marks should be on top of the gears when at #1 TDC. Remove timing chain and gears and discard.



ALIGNMENT OF TIMING MARKS  
WHEN AT #1 TDC

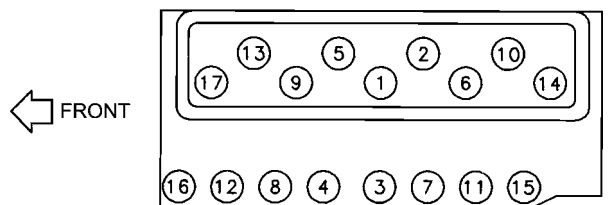
**Figure 4**

- Using a camshaft installation and removal tool, carefully remove the camshaft, so as not to nick or damage the cam bearings. At this time clean up all gasket sealing surfaces on the engine block.

## CYLINDER HEAD REMOVAL:

For those installing **SystemMAX I** package, please skip this section and go to the **SYSTEMAX CAMSHAFT INSTALLATION** section.

- Loosen and remove exhaust manifold / header bolts from cylinder head.
- Loosen or remove collector bolts to gain access to the cylinder head bolts. It may be necessary on some vehicles to completely remove the exhaust manifolds / headers.
- Loosen and remove cylinder head bolts. Loosen all the cylinder head bolts 1/4 turn in a reverse torquing sequence before removing.



CYLINDER HEAD BOLT TIGHTENING SEQUENCE

**Figure 5**

- Remove the cylinder heads.
- Take time now to transfer any sensors and brackets from the original cylinder heads to the Holley SystemMAX cylinder heads. The tapped holes in the water jackets of the Holley heads are 1/2" NPT. A 1/2" to 3/8" pipe adapter may be needed to install the water temperature sensor in some applications.

## SystemMAX CAMSHAFT INSTALLATION:

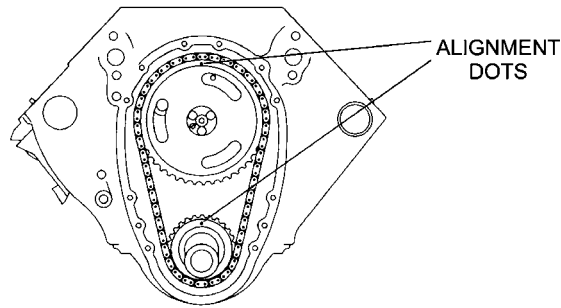
**WARNING!** LIFTERS INCLUDED WITH THIS KIT MUST BE USED WITH THE NEW CAMSHAFT. FAILURE TO USE THE NEW LIFTERS WITH THE NEW CAMSHAFT WILL RESULT IN PREMATURE CAMSHAFT FAILURE.

**WARNING!** NEVER INSTALL CAMSHAFT AND LIFTERS WITHOUT LUBRICATING THEM BEFORE INSTALLATION. USE THE INCLUDED ASSEMBLY LUBE TO COMPLETELY LUBE THE LIFTERS AND CAMSHAFT BEFORE ASSEMBLY. FAILURE TO DO SO WILL RESULT IN PREMATURE CAMSHAFT FAILURE.

**NOTE:** There are differences in the **SystemMAX I & SystemMAX II** camshafts. These differences will not change installation procedures.



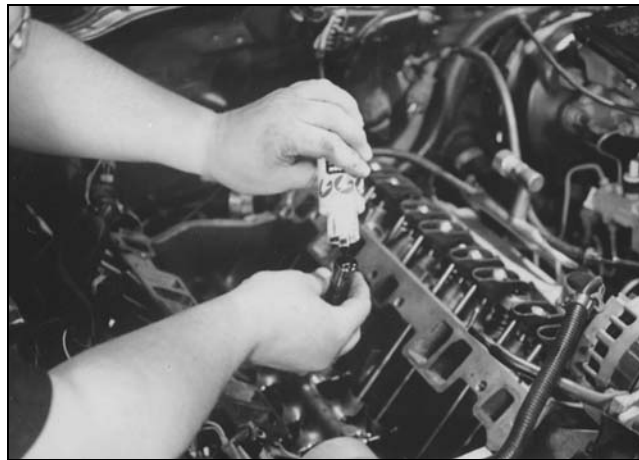
1. Lube the camshaft bearing journals, camshaft lobes, and the distributor gear with the assembly lube included. Be sure to completely lube the bearing journals and lobes. Failure to do so will result in premature camshaft failure.
2. Using the camshaft installation tool, install the camshaft into engine block. Take care not to damage the camshaft bearings.
3. Please read the assembly instructions included with the timing chain and gear set. After deciding how the crankshaft gear is to be installed, install the timing chain and gears. Be sure the timing marks are at the 12 o'clock position, at the top of the gears (see Figure 6), or poor engine performance will result. Torque cam gear retaining bolts to 20 ft./lbs.



ALIGNMENT OF TIMING MARKS  
WHEN AT #1 TDC

**Figure 6**

4. Install the timing cover with the appropriate gaskets. Torque timing cover bolts to 12 ft./lbs.
5. Install the harmonic balancer. Torque the harmonic balancer to 60 ft./lbs.
6. Install the water pump using new gaskets. Torque water pump bolts to 30 ft./lbs.
7. Lube the entire lifter and install the lifters into the lifter bores. Do not leave any dry areas on the lifter.



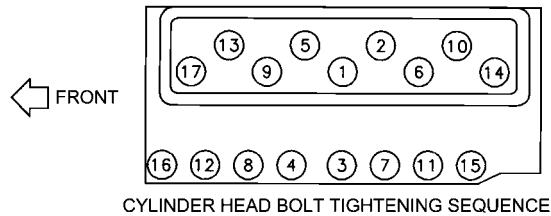
**Figure 7**

### **SystemMAX CYLINDER HEAD INSTALLATION:**

1. Be sure the deck surface is clean and free of oils or cleaning solutions.
2. Install the head gaskets (Felpro gasket, #1003 or equivalent).
3. Install the **SystemMAX II** cylinder heads with all parts transferred from the original cylinder heads, using the supplied cylinder head bolts.
4. Apply Permatex Ultrablue sealer to the threads of the new head bolts as they are installed.

5. Sequentially torque all bolts in the following manner, shown in Figure 8, first to 35 ft./lbs., then to 50 ft./lbs., and then to 65 ft./lbs.

**WARNING! BE SURE TO TORQUE BOLTS IN THE DESIGNATED SEQUENCE TO THE CORRECT TORQUE. FAILURE TO DO SO CAN RESULT IN ENGINE DAMAGE.**



**Figure 8**

6. Install the push rods supplied with the **SystemAX II** kit. Be sure to lube both ends of the push rods.

**WARNING! PISTON TO VALVE CLEARANCE SHOULD BE CHECKED PRIOR TO INSTALLING THE HEADS. MINIMUM INTAKE VALVE CLEARANCE SHOULD BE .080". MINIMUM EXHAUST VALVE CLEARANCE SHOULD BE .110". CYLINDER HEADS WITH 2.020" INTAKE VALVES MAY REQUIRE REMACHINING OF THE PISTON TOP EYEBROWS.**

7. Install the rocker arms onto the rocker studs.
8. To adjust the rocker arms:

**SystemAX I** package: With the #1 cylinder at TDC on the compression stroke, turn the rocker arm nut on the intake valve, until all clearance is removed between the tip of the valve and the rocker arm with the push rod in it's seat, both in the lifter and the rocker arm. Turn the rocker arm nut an additional 1/4 turn to set the appropriate lash. The valve is now lashed. Repeat the above procedure on the exhaust valve. After finishing #1 cylinder, rotate the crankshaft 90 degrees until both #8 valves are closed. Repeat the lash procedure for #8 cylinder. Rotate the crank 90 degrees for each cylinder in the firing order, 1-8-4-3-6-5-7-2.

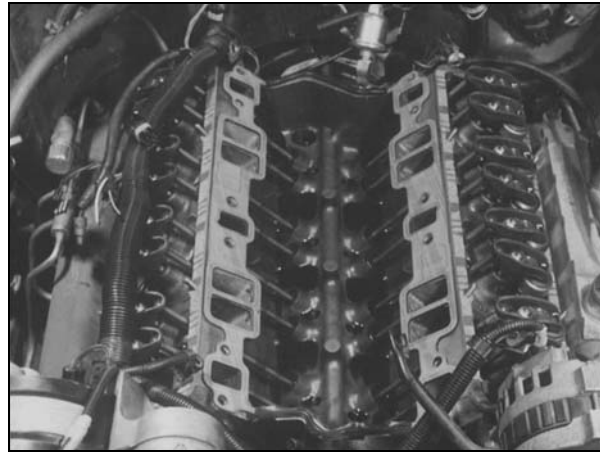
**SystemAX II** package: With the #1 cylinder at TDC on the compression stroke, turn the rocker arm nut on the intake valve, until all clearance is removed between the tip of the valve and the rocker arm with the push rod in it's seat, both in the lifter and the rocker arm. Turn the rocker arm nut an additional 1/4 turn to set the appropriate lash. Tighten the lock nut against the stud following the manufacturer's procedure. The valve is now lashed. Repeat the above procedure on the exhaust valve. After finishing #1 cylinder, rotate the crankshaft 90 degrees, until both #8 valves are closed. Repeat the lash procedure for #8 cylinder. Rotate the crank 90 degrees for each cylinder in the firing order, 1-8-4-3-6-5-7-2.

**NOTE:** It is best to go through this procedure twice as a precautionary check.

9. Rotate the crankshaft to #1 TDC.

## **SystemAX INTAKE MANIFOLD INSTALLATION:**

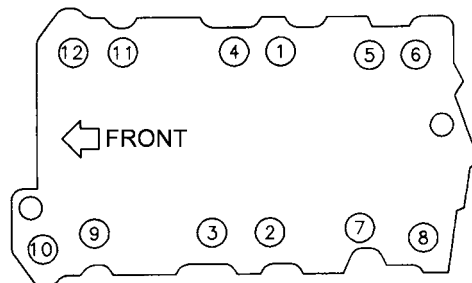
1. Be sure all gasket surfaces are clean and free of oils and cleaning solutions. Wipe the gasket surfaces with a clean shop rag to remove any contamination. Remove the valley rags.
2. Install the front and rear end seals, if they have an adhesive backing. If the front and rear seals do not have an adhesive backing, discard the front and rear seals and use the Permatex Ultrablue Sealer as your gasket.
3. Install the new intake gaskets on the cylinder heads. If you are using the front and rear end seals with the adhesive back as the front and rear seals, apply a small amount of Ultrablue Sealer in the corners where the cork gasket and intake gaskets intersect. Follow the instructions on the sealer before assembling.



**Figure 9**

4. Apply a small amount of anti-seize compound to each intake bolt and install.
5. Sequentially torque all intake bolts to 30 ft./lbs. in 10 ft./lb. increments using the sequence in Figure 10.

**WARNING! BE SURE TO TORQUE BOLTS IN THE DESIGNATED SEQUENCE TO THE CORRECT TORQUE. FAILURE TO DO SO CAN RESULT IN ENGINE DAMAGE.**



**MANIFOLD TIGHTENING SEQUENCE**

**Figure 10**

6. Install the thermostat and water neck removed from original intake manifold. Use anti-seize compound on the bolts securing the water neck along with a new gasket. Torque the water neck bolts to 30 ft./lbs.
7. Transfer the remaining items (sensors, switches) from the original intake manifold to the new **SystemMAX** intake manifold. Plug any unused ports on the manifold.
8. Install the valve covers with new gaskets. Torque the valve cover bolts to 8 ft./lbs.

## **DISTRIBUTOR INSTALLATION:**

1. Insert the distributor, so rotor points in the same direction as before it was removed.
2. Install the distributor hold down and bolt. Align mark on the distributor shaft to the mark on the firewall during disassembly. **DO NOT** tighten the distributor hold down bolt at this time.
3. Install the distributor cap and spark plug wires.
4. Install the spark plugs. For **SystemMAX II** heads, Champion plug number C61C or equivalent is recommended as a start. Hotter or colder plugs may be needed depending on your application. Use a small amount of anti-seize compound on each spark plug's threads before installing.
5. Install the spark plug wires on the corresponding spark plug.

**NOTE:** The cylinder location is numbered on the intake manifold. Firing order is 1-8-4-3-6-5-7-2. The distributor rotates clockwise.

## INSTALLATION OF ENGINE ACCESSORIES:

1. Install the carburetor-mounting studs, if applicable.
2. Install the new carburetor-mounting gasket.
3. Install the carburetor.
4. Tighten the carburetor nuts or bolts. Torque to 7 ft./lbs.
5. Install the fuel line and tighten securely.
6. Install the throttle linkage, transmission kick-down linkage, and throttle return spring. Work the throttle linkage back and forth several times to ensure it operates smoothly with no binding or sticking.

**DANGER! FAILURE TO ATTACH THROTTLE RETURN SPRING OR TO CORRECT A STICKING THROTTLE OR LINKAGE MAY RESULT IN UNCONTROLLED ENGINE OR VEHICLE SPEED, WHICH COULD CAUSE PERSONAL PROPERTY DAMAGE, SERIOUS INJURY, OR DEATH.**

7. Install the choke linkage.
8. Reconnect all vacuum hoses as shown on the underhood vacuum decal or using the labels created during disassembly.
9. Reinstall the air conditioning condenser, if removed.

**NOTE:** If the air conditioning system was evacuated, the air conditioning system will need to be recharged. This procedure has to be done by certified air conditioning technicians with the proper recycling and recharging equipment.

10. Reinstall the radiator and fan shroud.
11. Install the upper and lower radiator and heater hoses. Check condition of all hoses before installing. If any signs of aging are present, it is recommended the hoses be replaced.
12. Fill cooling system with a 50/50 antifreeze and water mix.
13. Reinstall the accessories and accessory brackets that were removed or loosened during installation.
14. Install the belt(s). Check condition of all belts before installing. If any signs of aging are present, it is recommended the belt(s) be replaced.
15. Install air cleaner. Inspect the air filter element at this time. Replace if necessary.
16. Drain the oil from the crankcase and remove the old oil filter. Install the new oil filter and refill the crankcase with fresh oil to the manufacturer's specifications.

## SYSTEMS CHECK:

**NOTE:** Before attempting to start the engine, check the following items:

- Are fuel lines hooked up and securely tightened?
- Are all throttle linkages and return springs connected and working properly?
- Are all vacuum hoses connected?
- Are all radiator and heater hoses connected properly?
- Has the cooling system been filled with a mixture of anti-freeze and water?
- Are all electrical connections that were removed during the installation reconnected:
- Was the crankcase oil and oil filter changed and refilled?

## STARTING THE ENGINE:

1. Reconnect the negative battery cable to the negative battery terminal.
2. If the vehicle has an electric fuel pump, turn the key on a few times to allow the fuel pump to operate. This will allow the fuel bowls in the carburetor to fill with fuel. Check for fuel leaks at this time. If any fuel leaks are present, do not attempt to start the engine before repairs are made.

**DANGER! FAILURE TO REPAIR FUEL LEAKS CAN BE EXTREMELY DANGEROUS. DO NOT SMOKE WHEN WORKING AROUND GASOLINE OR GASOLINE VAPORS. EXTINGUISH ALL OPEN FLAMES. AN OPEN FLAME, SPARK, AND/OR EXTREME HEAT COULD RESULT IN A FIRE AND/OR EXPLOSION CAUSING SERIOUS INJURY, DEATH, AND/OR PROPERTY DAMAGE.**

3. If the area is clear of fuel and/or fuel vapors, start the engine. If the engine turns over excessively or backfires, stop and recheck ignition timing.

**DANGER! DO NOT RUN THE ENGINE IN AN ENCLOSED AREA OR AN AREA WITHOUT PROPER VENTILATION. INHALATION OF EXHAUST GASES MAY CAUSE NAUSEA, SLEEPINESS, OR DEATH!**

**DANGER! DO NOT PLACE ANY PORTION OF YOUR FACE OR BODY NEAR THE CARBURETOR DURING CRANKING. AN OPEN FLAME, SPARK, BACKFIRE, OR EXTREME HEAT NEAR GASOLINE COULD RESULT IN A FIRE AND/OR EXPLOSION CAUSING SERIOUS INJURY OR DEATH!**

4. After the engine starts, set the ignition timing to the specification located on the underhood decal.
5. **During the first 20 minutes of engine operation, do not allow the engine to run below 1800 RPM. This will break in the camshaft and lifters. Low engine speed (less than 1800 rpm) can cause premature camshaft and lifter wear and possible failure.**
6. After the camshaft break in, and the engine reaching full operation temperature, shut the engine down and allow it to cool for a minimum of 8 hours. Re-torque the intake manifold using the sequence from **the SystemeMAX INTAKE MANIFOLD INSTALLATION** section of this manual.
7. After the camshaft break in, operate the vehicle safely, changing the engine speed frequently as dictated by driving conditions.
8. After 100 miles of operation, change the oil and oil filter to remove any debris resulting from the break in process.

## TROUBLESHOOTING:

A	Engine backfires during initial cranking.	<ul style="list-style-type: none"><li>- Check ignition timing with a timing light during cranking.</li><li>- If timing marks align, check to see if distributor was installed 180 degrees out.</li><li>- Check to insure all spark plug wires are located on the appropriate spark plug.</li><li>- Check for vacuum leaks.</li></ul>
B	Decked block or milled heads.	<ul style="list-style-type: none"><li>- If the cylinder heads have been milled or the engine block decked, the cylinder head faces and the end surfaces of the manifold must be milled to compensate. This is necessary to maintain correct port alignment, to minimize the possibility of manifold vacuum and oil leaks, and assure proper engine performance.</li></ul>
C	Rocker arms making noise	<ul style="list-style-type: none"><li>- Readjust the rocker arms following the procedure in this manual.</li></ul>
D	Bent push rods	<ul style="list-style-type: none"><li>- Bent push rods occur due to mechanical interference. Check for interference or coil binding of the valve springs.</li></ul>
E	Noisy lifters	<ul style="list-style-type: none"><li>- Lifter noise may occur for a short time, due to bleed down of the lifters. The noise should diminish and quit after a few minutes.</li></ul>

**Holley Technical Support**

**Phone: 1-270-781-9741**

**Fax: 1-270-781-9772**

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