



# X-CELerator™

## WEIAND® X-CELerator™ Intake Manifold P/N 7516

### 351C FORD, 2V CYLINDER HEADS INSTALLATION INSTRUCTIONS

#### APPLICATIONS:

The P/N 7516 X-CELerator™ intake manifold is designed for square-bore carburetor applications on 1970-74 U.S. manufactured 2V 351C and 1972-82 Australian 2V 302C and 351C Ford engines (9.20" deck height, not equipped with EGR). This intake manifold will also work with any 351C engine equipped with aftermarket 2V cylinder heads, as long as they have standard port flange opening and bolt-hole locations.

This X-CELerator™ mid-rise single-plane intake manifold is designed to provide the best performance for mildly modified street-performance or more heavily modified strip/track engine applications to a maximum engine speed of 7000+ RPM. The square-bore carburetor-mounting pad is designed to accept all square-bore carburetors with manual or electric chokes. WEIAND® X-CELerator™ series intake manifolds are a mid-rise design intended to accept most stock hardware. The higher than stock and centered carburetor flange location may be different from the stock location. Before final installation of the intake manifold, it should be confirmed that the 7516 carb location will be compatible with the vehicle's throttle and automatic transmission kick-down linkages. Especially when converting from a 2V carburetor and intake manifold to the 7516 manifold and square-bore 4V carburetor, some modifications to the OE throttle and transmission kick-down linkage may be required. Air cleaner to hood clearance should also be confirmed before final installation of the intake manifold.

It should also be noted that the mounting flanges on the 7516 intake manifold casting introduced after January of 2013 are designed to cover and seal the intake manifold gasket for a 4V 351C cylinder head. This may allow modifications to a 7516 intake manifold for 4V or other cylinder head applications that have a standard 2V/4V mounting bolt-hole locations.

#### EMISSIONS EQUIPMENT:

P/N 7516 does not accept an EGR valve, hot-air choke, or some OE carburetors for these engine applications. This part is not legal for sale or use for motor vehicles with pollution-controlled equipment.

#### BEFORE YOU BEGIN INSTALLATION:

The following installation instructions must be carefully read and understood before you begin installation. Below is a preliminary check list that should be completed before you begin installation. Improper application or installation of this product may result in unsatisfactory performance, fuel mileage, or emissions. Failure to follow these installation instructions could result in engine damage and may void your warranty. If you require any assistance regarding this product, please contact Weiland® Technical Support Toll Free at: 1-866-464-6553 or for online assistance refer to the Tech Service section of our website at [www.holley.com](http://www.holley.com).

#### PRELIMINARY CHECKLIST:

- Carefully read and understand these installation instructions.
- Make sure that this intake manifold is the correct choice for your engine application, desired performance level, and local emissions laws.
- This intake manifold will require a manual or electric choke for square-bore carburetors.
- Inspect the manifold for any damage that may have occurred during shipping. If damaged, contact your dealer immediately.
- Check that all of the parts shown in the Kit Contents List (below) have been included with your intake manifold kit.
- Inspect all threaded holes.
- Although all WEIAND parts pass several inspections, it is imperative that the installer personally inspects the part before installation. Run a stiff wire through passages while shining a bright light into it. Also, wash the part using a mild soap and water solution. Check the fit on all bolt holes for proper alignment and thread any fittings in first by hand. Failure to perform these simple checks could result in engine damage and may void your warranty.**
- Check for sufficient hood clearance with this intake manifold and intended carburetor/air cleaner combination to be used.
- Check that you have all of the parts required for the installation. These include the intake manifold gasket set, gasket adhesive, RTV silicone sealant, and pipe thread sealant, as shown in the Parts Required List below.
- Check that you have all the tools you will need to perform the intake manifold installation. A recommended but not exhaustive Tools Required List is located below.
- Check that you have the proper intake manifold fasteners for this application.

- If using your old carburetor, before you remove it from the engine make sure it is working properly and that the carburetor is tuned properly. Consult the shop manual or installation instructions for that carburetor to determine if the carburetor is in proper tune.
- If you are using a new carburetor, make sure you have read and understand the installation instructions for that carburetor and that the initial adjustments are within the manufacturer's specifications.
- Before removing your old intake manifold, make sure that your ignition system is in good working order; check and note the current ignition timing. Make sure that the timing marker is legible and understandable. With the engine at top dead center on the #1 cylinder, note and mark the orientation of the distributor body to the engine and the orientation of the rotor to the distributor body. This will aid in the re-installation of the distributor if the distributor is removed for the intake manifold installation. Consult these installation instructions and your vehicle shop manual for specific instructions.
- Before removing your old intake manifold check the adjustment of your automatic transmission kick-down linkage to make sure it is adjusted properly. Consult your shop manual and make sure that you understand the kick-down linkage adjustment and how to properly adjust or modify the linkage when you install your new intake manifold.
- Before removing your old intake manifold, check all of your fuel / vacuum hoses and their connections. Make sure that there are no leaks and that the hoses are in good condition. Mark the locations of your hoses making sure that there is a corresponding location on your new intake manifold for all of the hose fittings and gauge sensors. Fittings and hoses should be replaced that are not in good condition.

## KIT CONTENTS:

- 1 – 7516 Intake Manifold
- 1 – Installation Instructions
- 1 – Warranty Card

## PARTS REQUIRED:

**NOTE:** It will be necessary to purchase some of the parts listed below (or their equivalents) in order to properly complete the manifold installation. Determination of equivalency is the responsibility of the consumer. WEIAND does not assume that responsibility.

- Intake manifold gasket set (Mr. Gasket P/N 5836 & 211)
- Valve cover gasket set (Mr. Gasket P/N 5871)
- Oil-resistant, silicone-based sealant (Mr. Gasket P/N 78080G or equivalent)
- Spray gasket adhesive (Permatex® 80064 High Tack™ Spray-A-Gasket™ sealant or equivalent).
- Carburetor-base gasket (Mr. Gasket P/N 54C)
- Thread sealer (Earl's P/N D024ERL)
- Pipe plugs, hose-to-pipe port fittings, & vacuum hoses, as needed

**NOTE:** Never install tapered (pipe) fittings or plugs in an aluminum manifold dry without thread sealer or thread damage will occur.

## TOOLS REQUIRED:

- |   |   |
|---|---|
| Socket wrench set 3/8"-drive ratchet and extensions   | Open end wrenches 3/8" to 1"                          |
| Box end/flare wrenches (optional)   | 10" adjustable wrench (crescent)                      |
| Ignition wrench set   | Screwdrivers, standard and Phillips - various lengths |
| Gasket scraper  | Needle nose pliers                                    |
| Drain bucket  | Timing light  |
| Torque wrench   | File  |
| 3/8-16 NC and 5/16-18 thread chaser, or tap<br>(for cleaning bolt holes in the cylinder head) | Vacuum gauge  |

## OTHER USEFUL SUPPLIES:

- |                                 |               |
|---------------------------------|---------------|
| Engine coolant                  | Engine oil    |
| Shop towels, paper and/or cloth | Masking tape  |
| Pad and pencil                  | Modeling clay |

## INSTALLATION INSTRUCTIONS:

These instructions are designed to cover a wide variety of vehicle applications. If your vehicle is not equipped with any items referred to in these instructions, such as transmission kick-down linkage, air conditioning, or power brakes, proceed to the next step. Also, if you are unfamiliar with any of the procedures in these instructions consult a shop manual for your vehicle and engine application.

## CHECK FOR ADEQUATE HOOD HEIGHT:

1. We recommend making several columns of modeling clay and placing them on your air cleaner in various positions.
2. Close the hood completely and then reopen it.
3. Measure the clay columns and record your hood clearance.
4. Compare the A-B height of your old intake manifold with your new intake manifold. The A-B height of the 7516 intake manifolds is A – 4.28", B – 5.36". Also consider that the carburetor/air cleaner combination determines the difference in the air cleaner to hood clearance.



## MANIFOLD REMOVAL PROCEDURE:

1. Disconnect the ground cable from the battery.
2. Clean any loose debris, dirt, and grease from the top of the engine adjacent to the intake manifold and valve covers. This will help prevent harmful debris from falling into the engine during the intake manifold removal and installation process.
3. Identify the vacuum and crankcase ventilation hoses (if any) leading to the air cleaner and note the routing and connection points. Remove the air cleaner.
4. Prior to removing any other vacuum lines, identify the routing of the lines. Mark and remove the vacuum lines from the carburetor and/or intake manifold.

**WARNING! Hot water and steam may be present if the engine is still warm.**

**NOTE:** The 351C engine does not require removal of the thermostat housing or breaking into the engine coolant system to remove and replace the intake manifold. If removal of the upper radiator hose, heater hoses, or thermostat housing is desired during the intake manifold installation, follow instructions pertaining to the coolant system. Otherwise, ignore coolant system instructions.

5. Drain the radiator. (It may be necessary to remove the bottom radiator hose if there is no drain plug in the radiator.)
6. Disconnect the throttle linkage, transmission kick-down linkage (auto trans. only), and choke rod from the carburetor, (if applicable).
7. Loosen the gas cap to relieve pressure from the fuel system. Disconnect the fuel line at the carburetor. Plug the end of the fuel line to prevent fuel leakage.
8. Remove the carburetor.
9. Tag and disconnect the ignition coil and sensor wires. Remove the ignition coil bracket and the coil.
10. Remove the radiator hose, thermostat housing, and the thermostat.
11. Remove all vacuum hoses and fittings from the manifold.
12. Remove all remaining brackets (if any) from the manifold.
13. Loosen and remove the valve covers to assist in the manifold removal and the new manifold installation if the valve covers restrict removal and installation of the intake manifold.

#### 14. DISTRIBUTOR REMOVAL PROCEDURE:

**NOTE:** For the 351C engine, distributor removal is not required to remove and install the intake manifold. If it is desired to remove the distributor during the intake manifold installation follow the instructions. If not, ignore the instructions pertaining to distributor removal and installation.

**CAUTION! FOLLOW THESE INSTRUCTIONS CAREFULLY, AS SERIOUS DAMAGE CAN OCCUR WHEN THE IGNITION IS NOT RE-INSTALLED CORRECTLY.**

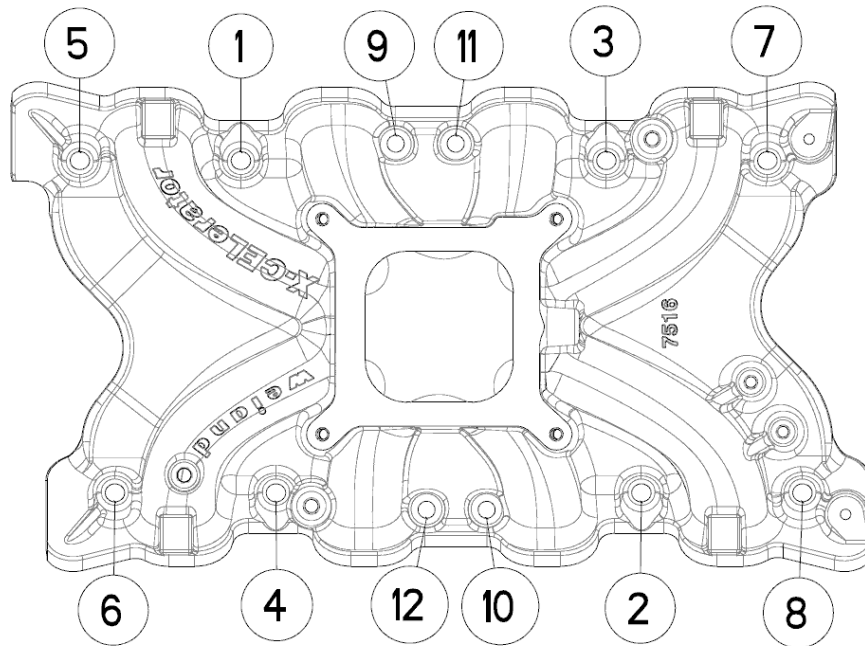
- Set the engine on Top Dead Center (after compression stroke) for #1 cylinder using the crankshaft timing marker.
- Remove the distributor cap.
- Note the position of the rotor and make a mark on the distributor body in line with the rotor tip (it should point to the position of the cylinder #1 spark plug wire on the distributor cap).
- Note the position of the distributor vacuum canister (or other distributor body feature) and place some type of reference mark on a convenient surface not attached to the intake manifold.
- Note the position of the points. If open, how much? If closed, note the distance from the point block to the cam lobe. If the distributor has a magnetic pickup, note the position of the trigger wheel with respect to the pick-up.
- Remove the distributor. DO NOT rotate the engine after removing the distributor (but if you do, the crankshaft timing marker is your reference).

15. Remove the 12 intake manifold-to-cylinder head bolts.

16. Remove the intake manifold. If the intake manifold is stuck hard to the mounting flanges, do not pry against cylinder head port flanges. They could become damaged and compromise the gasket sealing with your new intake manifold. Make sure that all of the bolts have been removed and pry upward carefully at the engine block end seal surfaces.

#### INSTALLING YOUR NEW WEIAND® MANIFOLD:

1. Clean the cylinder head port flange and the engine block end seal surfaces. To prevent gasket pieces from falling into ports and the lifter valley when cleaning old gaskets from head surfaces, stuff paper towels into all the inlet port openings and lay rags in the lifter valley. When clean, carefully remove the paper towels from the cylinder head ports and then the rags from the lifter valley. Make sure that all particles that fell on the rags are completely removed. Wipe the flange surfaces with rags soaked in a solvent, such as brake cleaner or lacquer thinner, to remove any oils or grease. This is a must for proper manifold/gasket sealing.
2. Apply a thin coat of gasket adhesive to the cylinder head side of the intake gasket surfaces and the cylinder head port flanges. Allow the adhesive to completely dry. Lay the manifold gaskets in place, making sure that gaskets are adhered to the cylinder head port flange and will not slip from their properly installed positions.
3. Trial fit your new intake manifold before applying any RTV silicone sealant. Place the new intake manifold into position; check that it sits down, properly seated on the intake manifold gaskets. There should be a gap between the engine block and the manifold at the end seal surfaces. Check to make sure all of the intake manifold bolts can be installed. The bolts must have sufficient engagement (9 turns minimum for the eight 3/8-16 bolts and the four 5/16-18 bolts) and should clamp on the manifold flange before bottoming in the threaded hole. It is recommended to use a thick large area (5/8-3/4" O.D. x 3/32-1/8" thick) hardened washer under the manifold bolts. Stock bolts with a flanged under-head are also OK. Make sure bolt washers or under-head flanges are seated squarely on the bosses. If there is any interference, relieve the washer or the intake manifold at the boss to allow the washer to seat properly. If there are any other fit issues, such as hood clearance or installation of components dependent on the manifold, they should be checked at this time.
4. When you are satisfied that there will be no fit issues and are fully prepared to install the intake manifold, apply a 1/4" wide bead approximately 1.5 times thicker than the gap between the manifold and block end seal flanges of oil-resistant RTV-silicone sealant to the front and rear block-sealing surfaces, making sure to overlap manifold gaskets at all four corners. **Do not use the cork or rubber end seal gaskets included in the gasket set.**
5. Carefully lay your WEIAND® 7516 intake manifold in place. If the manifold must be moved significantly, the RTV-silicone may need to be cleaned and re-applied. For the bolts to be installed in bolt holes that are drilled through (i.e. into a pushrod hole), apply a dab of thread sealer on the threads. For the blind bolt holes, apply a drop of motor oil to the bolt threads. Install all the intake bolts and tighten bolts numbered 1-12 (figure below) in steps, tightening to 10 ft./lbs., then 15 ft./lbs., following the sequence shown below. Then tighten bolts 1-8 to 25 ft./lbs. Repeat the sequence for bolts 1-8 until none of the bolts turn with 25 ft./lbs. applied. The bolts at bolt-hole positions 9-12 should then be re-tightened to a torque of 15 ft./lbs. in sequence. Repeat until none of bolts 9-12 move with 15 ft./lbs. applied.



### 351C FORD INTAKE MANIFOLD - BOLT TIGHTENING SEQUENCE

Tighten in 3 steps - 10 ft./lbs, 15 ft./lbs., and 25 ft./lbs. for positions 1-8 only. For positions 9-12, tighten to a maximum of 15 ft./lbs.

6. Install the thermostat, gasket, and thermostat housing. Be sure that the thermostat housing is in good condition and has been cleaned of any old gasket material. If the mounting flange on the thermostat housing is not flat or is damaged, replace it before continuing.
  7. Install the heater hose and bypass fittings, heater hoses, bypass, and radiator hoses.
  8. Install the gauge sensors and vacuum fittings into the manifold. Use thread sealer on the pipe threads of the sensors and fittings. Install pipe plugs in any unused vacuum ports in the manifold (plugs are not provided in the kit).
  9. Install the distributor and gasket, orienting the rotor and the distributor body according to the reference marks made before the distributor was removed (Distributor Removal Section). Make sure that your distributor engages the oil pump drive shaft and seats properly down against the gasket and manifold. Install the distributor clamp and tighten the bolt just enough that the distributor body can still be rotated by hand.
  10. Install your four carburetor studs in the manifold. Place the carburetor gasket on the clean carburetor pad. Do not use any type of sealant on the carburetor gasket.
  11. Install the carburetor. Connect all linkage and throttle springs. Confirm that the driver throttle pedal will open the carburetor throttles until the WOT stop is reached and that the carburetor linkage and throttles return freely to the idle position. For carburetors equipped with vacuum actuated secondary throttles manually cycle the secondary throttle from the idle to WOT positions with the primary throttle at WOT to make sure the secondary throttle operates freely.
  12. Connect all vacuum and fuel lines. Refer to your tags or drawings for correct placement.
  13. **Automatic transmissions only:** Adjust or modify the kick-down or throttle pressure linkage for proper shift points (refer to your vehicle's shop manual for the proper adjustment procedure). Check all linkages, making sure that they function freely.
  14. Reinstall valve covers and new gaskets.
  15. Install the A/C and coil brackets, coil, wires, and all brackets that were removed from the manifold.
  16. Close the drain and fill the radiator to the proper level with coolant. While filling, allow trapped air to bleed from the intake manifold at the heater hose fitting until coolant flows from the fitting. Then, re-install the heater hose and continue adding coolant to the proper level.
- IMPORTANT!** Change the oil to remove any coolant or debris that may have contaminated the crank case.
17. Retighten the gas cap and connect the battery cable.

18. Hook up the timing light and start the engine. Set the timing to factory specs. Tighten the distributor.
19. Check for possible fuel, oil, coolant, or vacuum leaks and for proper choke operation.
20. Install the air cleaner. Confirm that the air cleaner does not contact the carburetor except at the mounting flange and does not interfere with the throttle linkage. Open the throttle to WOT and confirm that it will freely return to the idle position.

**CAUTION! Make sure that there is adequate clearance for the throttle and choke linkages through their full range of travel.**

**IMPORTANT! Check for adequate hood clearance before closing the hood.**

21. Operate the engine for 30 minutes. Allow the engine to cool and re-torque the manifold bolts following step 5 above. Once the engine in the vehicle is in operation, the intake manifold mounting bolts should be re-tightened once every 6 months or 6000 miles.
22. YOUR MANIFOLD INSTALLATION IS COMPLETE.

**Weiand® Technical Support**  
**Toll-Free Phone: 1-866-464-6553**  
**Phone: 1-270-781-9741**

**For online help, please refer to the Tech Service section of our website: [www.holley.com](http://www.holley.com)**

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