O'Reilly Auto Parts

Engine Installation Procedure

1. Before beginning, determine why the old engine failed. Check the vehicle's computer for trouble codes. Repair or replace any faulty parts.

2 Remove the old engine from the vehicle. Remove all accessories from the old engine that will be needed on the new engine. These parts must be thoroughly cleaned and inspected for usability before being installed on your new engine. All sheet metal parts and the intake manifold should be cleaned by a qualified machine shop to remove carbon deposits. Failure to properly clean and inspect these components can lead to catastrophic engine failure.

3. Refer w the Engine Warranty Guidelines sheet for a list of parts that *MUST* be replaced and inspected for usability.

4. Before installing the oil pump, install a NEW pickup screen and tube assembly. Always use the proper tube installation tool to avoid damaging the new tube. *DO NOT USE* the old tube and screen. It is impossible to remove all contaminates from these screens and some tubes can fall out due to a loose fit.

5. Submerge the new pump in clean oil and rotate the pump gears to assure the pump is primed and working. (Does not apply to integral front cover style pumps.)

6. After the oil pump has been primed and installed on the engine, install the cleaned oil pan and other components to complete the engine assembly.

7. Once the engine assembly is completed, you must prime the oil system. The preferred method is to use a pre-lube oiler or pressure primer. Refer to the instructions provided with the primer to complete this step. If a pressure primer is not available, you may prime the engine by using the correct priming tool and an electric drill. Refer to the instruction sheet provided with the engine for priming tool instruction and correct engine rotation chart. Those engines with an integral front cover style oil pump *Must Be Primed* using a pressure primer. Both pressure primers and primer shafts are available as free rental tools from your O'Reilly Auto Parts Store.

8. Complete the installation of the engine into the vehicle, being sure to replace those components listed on the Engine Warranty Guidelines sheet to validate the warranty for your new engine. Double check all fluid levels and all electrical connections before starting the engine. Consult the manufacturers service manual for correct procedures to fill the cooling system of your vehicle. Some vehicles are prone to air pockets in the cooling system that can lead to thermostat failure and hot spots or overheating of the engine.

9. Start the engine. DO NOT REV THE NEW ENGINE. Bring the engine to a fast idle approximately 1,000 to 1,200 RPM, and let the engine run until it reaches its operating temperature. Monitor the oil pressure and temperature closely. When the engine reaches its normal operating temperature, return the engine to normal idle and check the ignition timing and oil pressure at hot idle.

   If the engine temperature starts to rise rapidly or exceeds normal operating temperature, immediately shut off the engine and let it cool. Check the cooling system for defects and correct before attempting to re-fire the engine.

10. After initial start up, allow the engine to cool, retorque the cylinder heads and readjust the valves if applicable, (consult the manufacturers service manual for your particular application.)

11. After retorquing the cylinder heads and readjusting the valves, make the necessary final adjustments to the ignition timing and carburetor, if applicable. Road test the vehicle. In high gear, run the vehicle up to 35 to 40 MPH and let it coast back down. Repeat 10 times. Do not run engine at steady speed for a prolonged period for the first 150 miles.

12. Return to your local O'Reilly Auto Parts store for the Post Installation Inspection and to receive a copy of your new engine warranty.

Oil Pump Priming Tool Rotation Guide

The information contained in this guide is "Generic" and may not be applicable to your specific application. Please consult a manufacturer's factory repair manual for more specific information.

C.W. = Clock Wise C.C.W = Counter Clock Wise

AMC:	258 – 360 C.I.D.	6cyl - V8	PUMP ROTATION	C.W.
Buick:	181 – 231 C.I.D.	V6's	PUMP ROTATION	C.W.
Buick:	252 - 350 C.I.D.	6cyl. –V8	PUMP ROTATION	C.W.
Chevy:	283 –454 C.I.D.	V8's	PUMP ROTATION	C.W.
Chevy:	173 –292 C.I.D.	6cyl's & V6's	PUMP ROTATION	C.W.
Chevy:	122 C.I.D.	4cyl.	PUMP ROTATION	C.W.
Chrys:	225 C.I.D.	6cyl	PUMP ROTATION	C.W.
Chrys:	318 – 360 C.I.D.	V8	PUMP ROTATION	C.W.
Chrys:	383 - 440 C.I.D.	V8	PUMP ROTATION	C.W.
Ford:	140 C.I.D.	4cyl	PUMP ROTATION	C.W.
Ford:	171 – 300 C.I.D.	6cyl & V6's	PUMP ROTATION	C.W.
Ford:	255 – 460 C.I.D.	V8	PUMP ROTATION	C.C.W
Olds:	307 C.I.D.	V8	PUMP ROTATION	C.C.W.
Olds:	260 –350 C.I.D.	V8	PUMP ROTATION	C.W.
Pont:	151 C.I.D.	4cyl	PUMP ROTATION	C.W.
Pont:	301 – 400 C.I.D.	V8	PUMP ROTATION	C.C.W.

Conditions and Failures Not Covered By the Warranty.

Congratulations, you have purchased one of the finest quality remanufactured engines on the market today. In order to keep your new engine running smoothly for years to come, we would like to point out a few conditions *that* can cause catastrophic engine failure and are not covered by the engine's warranty. If you suspect any of the following conditions are present during the normal operation of the engine please consult a qualified A.S.E. certified technician immediately for repairs. Again, engine failure due to the following conditions are not covered by the engine's warranty and are the responsibility of the vehicle owner.

- Detonation and Pre-Ignition: Detonation and pre-ignition are forms of abnormal combustion that can occur in the combustion chamber of the engine. Often called spark knock or pinging, these conditions often lead to severe damage of the pistons, valves and piston rings. Some common causes of these conditions are: lean fuel mixture, incorrect heat range of spark plugs, ignition cross firing, vacuum leaks and overheating of the engine.

- Fuel Wash: This condition contributes to the rapid wear of piston rings and cylinder walls of the engine block. Over-fueling or flooding of an engine on initial start up or in early operation of a newly rebuilt engine will wash the oil film from the engine cylinder walls. When this condition occurs it allows metal-to-metal contact of the piston rings and cylinder walls and "scuffing" takes place. This condition is similar to and sometimes referred to as "dry start". Proper fuel system and fuel delivery system maintenance is essential to prevent this type of failure.

- Vacuum Leaks: Vacuum leaks on fuel injected and carburated engines can have devastating effects. In carburated engines, vacuum leaks will cause a lean fuel mixture and contribute to detonation, excessive combustion chamber temperatures, a poor running engine and eventually catastrophic failure of the engine. In modern fuel injected engines, the effects of a vacuum leak will lead to a fuel wash condition. This occurs as a result of the oxygen sensor detecting a lean fuel condition, which in turn causes the computer to instruct the fuel delivery system to deliver more fuel. The result is an over-supply of fuel which causes fuel wash to occur. To avoid vacuum leaks, all vacuum lines and fittings should be inspected for cracks, tightness, etc.

- Dry Start: Dry start occurs when an engine is started without proper lubrication to critical engine parts. Pre-lubrication of the engine cannot be over emphasized. The use of a pressurized priming tank or appropriate oil pump priming tool is essential to avoid the affects of a dry start condition. Without proper lubrication engine bearings, piston rings and cylinder walls will have metal-to-metal contact and result in permanent engine damage.

- Foreign Debris or Dirt: Engine failure, as the result of foreign debris or dirt, can easily be avoided. Most often dirt or foreign debris enters the engine oiling system as the result of improperly cleaned parts transferred from the original engine. **The original oil pump pick up screen and tube should never be** reused. Trying to clean the original screen often only loosens carbon deposits and debris trapped in the tube by a layer of varnish. The varnish is softened in the cleaning process but not totally dissolved. This allows the debris to be dislodged when it comes in contact with hot oil.

  The use of an abrasive disc to clean the gasket surfaces is not recommended. These discs use aluminum oxide as their primary agent. Aluminum oxide particles can become embedded in soft or ferrous metals and are released when contacted by hot oil or fuel. Once these particles are in the oil system rapid devastation of the engine bearings will occur. Have your parts cleaned by a professional machine shop equipped with a spray wash cabinet.

O'Reilly AUTO PARTS
PROFESSIONAL PARTS PEOPLE

Engine Warranty Registration Requirements

(Must be completed by delivery date of remanufactured engine.)

(THIS IS NOT AN ENGINE WARRANTY)

To validate your engine warranty, the following items must be replaced upon the installation of this engine. Failure to replace these items will void any expressed or implied warranty of your remanufactured engine.

- ☐ Oil & Filter
- ☐ PCV Valve
- ☐ All Coolant Hoses
- ☐ All Drive Belts
- ☐ Oil Pump Pickup & Drive**
- ☐ Water Pump
- ☐ Thermostat
- ☐ All Filters
- ☐ Pre-Oiler/Primer Tool Rental
- ☐ Anti-Freeze: 50/50 Solution
- ☐ Spark Plugs
- ☐ Post Installation Inspection Performed Within 10 Days of Delivery / Installation Date

** If Not Supplied With Engine

The following items must be cleaned and inspected by a qualified technician and replaced, if necessary. All engine sheet metal and intake manifold must be cleaned and inspected by a professional machine shop and replaced, if necessary. Failure to properly clean, inspect or replace these components can lead to catastrophic engine failure and will not be covered by the warranty.

- ☐ Radiator
- ☐ Fan Clutch
- ☐ Distributor
- ☐ Engine Management Sensors
- ☐ Intake Manifold
- ☐ Oil Pan
- ☐ Timing Cover
- ☐ Valve Cover(s)
- ☐ EGR Valve

To ensure new engine performance, it is strongly recommended the following items be inspected and replaced as needed:

- ☐ Ignition Distributor Cap
- ☐ Ignition Rotor
- ☐ Points & Condenser*
- ☐ Ignition Wires
- ☐ Fuel Pump (mechanical only)
- ☐ Radiator Cap
- ☐ Clutch Disc Assy.***
- ☐ Clutch Pilot Brg.***
- ☐ Flex Plate or Flywheel
- ☐ Vacuum Hoses
- ☐ Engine & Trans. Mounts
- ☐ Carburetor or Fuel Inj. System
- ☐ Trans. Front Seal
- ☐ Harmonic Balancer
- ☐ Exhaust Manifolds

*Except Electronic Ignition

***Standard Transmission Vehicles

_____

O'Reilly Team Member Signature

_____

Customer/Installer Signature

By signing this form, the customer acknowledges all requirements to receive an engine warranty have been explained.

(White Copy = Customer)

Manufacturer: _____

Engine Serial Number: _____

Engine Part Number: _____

Store #: _____ Date of sale: _____

Invoice #: _____

(Canary Copy = Store)

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Post Engine Installation Inspection

(Must be performed by O'Reilly Auto Parts Engine Specialist)

1. Vehicle Make_____ Model _____ Year _____

2. Vehicle Identification Number: _____

3. Engine Oil Level: Full ☐ Low ☐ Amount over full _____ Amount Low _____

4. Is Oil Clean? Yes ☐ No ☐

5. Odometer Reading: _____ Miles.

6. Belts replaced? Yes ☐ No ☐

7. Hoses replaced Yes ☐ No ☐

8. Water Pump replaced? Yes ☐ No ☐

9. Is engine vibrating? Yes ☐ No ☐

10. Is engine knocking? Yes ☐ No ☐

Engine Warranty Validation
A validation stamp must appear below for the engine warranty to be effective. This form must be retained for warranty purposes.

Mgr. Signature_____

11. Check temperature:
    If equipped with a light, is light on Yes ☐ No ☐
    If equipped with a gauge is temp below 220 Yes ☐ No ☐

12. Check oil pressure:
    Equipped with a light, is light on Yes ☐ No ☐
    Equipped with a gauge, Minimum of 10 lbs per 1000rpm / _____ Psi at hot idle.

_____
O'Reilly Team Member Signature

_____
Customer Signature

(White copy=customer) *(Canary copy = Store)*

O'Reilly Automotive Inc.
REMANUFACTURED ENGINE LIMITED WARRANTY

LIMITED WARRANTY:

O'Reilly Automotive, Inc. (hereinafter, O'Reilly Auto Parts) warrants to the original purchaser that it will, at its' sole option, repair, replace or refund the purchase price of any remanufactured longblock engine found by the manufacturer, to be defective in materials or workmanship, during the warranty term.

CONDITIONS TO COVERAGE:

1. Purchaser agrees to install new "Required Replacement Parts" with the engine. Required Replacement Parts include: All engine filters, Spark plugs, PCV Valve, Engine Coolant, All Engine Drive Belt(s) & Hoses, Oil Pump Pick up Screen, Oil Pump Drive Shaft, Water Pump, and Thermostat. Proof of purchase and installation of all "Required Replacement Parts" is required for this Limited Warranty to be valid.

2. If engine is installed by a Licensed Repair Facility, only proof of installation is required to validate this warranty. "Licensed Repair Facility", for the purpose of this document, is any repair facility, otherwise properly licensed by state and local governmental entities which validly holds itself out as having ASE Certification.

3. Authorization to repair. Purchaser must report all warranty concerns to the manufacturer at **1-866-564-8943**, immediately. Failure to report a warranty condition and receive authorization from the manufacturer or O'Reilly Auto Parts for repairs or removal of the engine shall result in this warranty being voided.

POWER TORQUE (No-Fault Warranty Policy [Engines Sold After Jan 1. 2021]):

All customers that purchase a qualifying Power Torque gasoline engine will be entitled to one no charge replacement engine and labor reimbursement ($50/hr for Professional licensed repair facility). Retail purchases will be entitled to the same coverage provided the original installation was performed by a Licensed Repair Facility (proof of installation will be required). All repair must have prior authorization from the Power Torque product support team and a warranty claim opened. Please see policy details for exclusions.

This warranty is limited to defects in materials and workmanship as supplied by the manufacturer and is in no way an unconditional guarantee against all failures or hazards.

This Limited Warranty is the only express warranty made by O'Reilly Auto Parts with respect to the manufacturer's engine. Any implied warranty, including but not limited to, THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. O'Reilly Auto Parts shall not be liable for incidental or consequential damages directly or indirectly associated with use, failure or alleged failure of the product. Some states do not allow limitations on how long an implied warranty last or exclusions and limitations of incidental or consequential damages, so the above limitations may not apply to you. This Limited Warranty gives you specific legal rights and you may have other rights that vary from state to state.

LABOR REIMBUREMENT: Labor reimbursement pursuant to this Limited Warranty is paid only by the Manufacturer, not O'Reilly. Labor reimbursement costs for approved warranty claims are based on Mitchell Labor Guide. All reimbursements are subject to approval by the manufacturer upon inspection and confirmation of alleged defective materials and / or workmanship of product as supplied by the manufacturer. Please see "Exclusions and Limitations" for a list of items, failures and conditions not covered by this warranty. All labor reimbursements are subject to inspection of the failed part(s) and approval by the manufacturer, no exceptions. Claims submitted without failed parts will not be considered.

B: This Limited Warranty does not provide reimbursement for incidental, consequential, special or exemplary damages, including but not limited to:

1. Loss of time, income, sales or profits
2. Towing, Lift, Dock or Storage
3. Rental Vehicle
4. Phone calls or communication expense
5. Tune up or Regularly Scheduled maintenance
6. Motel or Lodging
7. Injury or Death to person(s) or property damage or destruction

C: Products repaired or replaced under warranty shall carry the remainder of the original warranty term or 90 days, whichever is longer.

Owner's OBLIGATION: Upon Initial startup, valves must be adjusted to original manufacturer's specifications, if applicable. Cylinder head re-torque may be required, refer to factory repair manual for specific applications of vehicle Makes and Models. 500 Mile First Service: Engine oil must be changed at first 500 miles after installation and at original manufacturers suggested maintenance intervals thereafter. Proof of first 500-mile service is required for claims under this Limited Warranty.

Manufacturer _____ **Part #** _____ **Engine Serial Number** _____

Install Date _____ **Vehicle Make** _____ **Model** _____ **Vehicle Year** _____

Vehicle Owner: (please print) _____

Address _____ **Phone #** _____

I have read and understand the terms and conditions set forth in this Limited Warranty and Accept said conditions by my Signature below!

Owners Signature _____ **Date** _____

Witness Signature _____ **Date** _____

O'Reilly Automotive Inc.
REMANUFACTURED ENGINE LIMITED WARRANTY

Standard Warranty Terms

PRODUCT TYPE	WARRANTY TERMS	*Labor Reimbursement Rate Labor Reimbursement	**No Fault Eligible**
Gasoline Engine for vehicles less than 11,000 Pounds Gross Vehicle Weight	4 years, Unlimited mileage	$50, no cap	**Yes**
Gasoline Engines for vehicles 11,000 Pounds, or greater, Gross Vehicle Weight	12 months or 12,000 Miles	$50, no cap	No
Diesel Engines	12 Months or 12,000 miles	$50, no cap	No
High Performance Engines	Long Block 2 years, Unlimited mileage Short Block – 90 Days / No labor Bare Block – Fit and Finish Only	$42, $350 cap	No
Commercial Vehicles less than 11,000 Pounds Gross Vehicle Weight	4 years, Unlimited mileage	$50, no cap	**Yes**
Commercial Vehicles and CNG engines 11,000 Pounds, or greater, Gross Vehicle Weight	12 months or 12,000 Miles	$50, no cap	No
Gasoline Engines for recreational vehicle applications 11,000 pounds or greater Gross Vehicle Weight. **Gasoline engines not offered for these applications.**	**No Warranty** Includes most Class A, B, and C Motorhome, RV, and Bus Conversions.	No	No
Cylinder Heads	12 Months or 12,000 miles Bare heads - Fit and Finish Only	$50, no cap	No
Marine Engines	18 months, Unlimited hours	$50, $800 cap	**Yes****
Farm, Lift Truck and Industrial	12 months, Unlimited hour	$50, $350 cap	No
CNG Engines – Stationary	12 months or 2,000 hours	$50, $350 cap	No
Differentials for vehicles less than 11,000 Pounds Gross Vehicle Weight	3 years, Unlimited mileage	$50, no cap	No
Differentials for vehicles 11,000 Pounds, or greater, Gross Vehicle Weight	12 months or 12,000 miles	$50, no cap	No

* Labor time per Mitchell Labor Guide
** Marine engine (NFWP) is for first time replacement engine only, no labor unless deemed manufacture defect

Warranty Exclusions and Limitations	Covered? Limited	**No Fault**
Defective or improper installation	No	**Yes**
Overheating	No	**Yes**
Freeze damage	No	**Yes**
Burned, scored or melted pistons	No	**Yes**
Lack of lubrication	No	**Yes**
Damage due to foreign objects	No	**Yes**
Damage to crankshaft thrust bearing as a result of defective or improperly installed clutch, torque converter or engine mounts	No	**Yes**
Use with propane or LPG fuels, unless specified by manufacturer	No	**Yes**
Use with Forced Inductions (turbos or superchargers), unless specified by manufacturer	No	**Yes**
Over - fueling or dilution of engine oil	No	**Yes**
Damage as a result of detonation or pre-ignition	No	**Yes**
Misuse, abuse, neglect, vandalism, abnormal operation or accidents	No	No
Improper break-in , over-speeding or over-revving of the engine	No	No
Internal modification or use of performance aftermarket parts	No	No