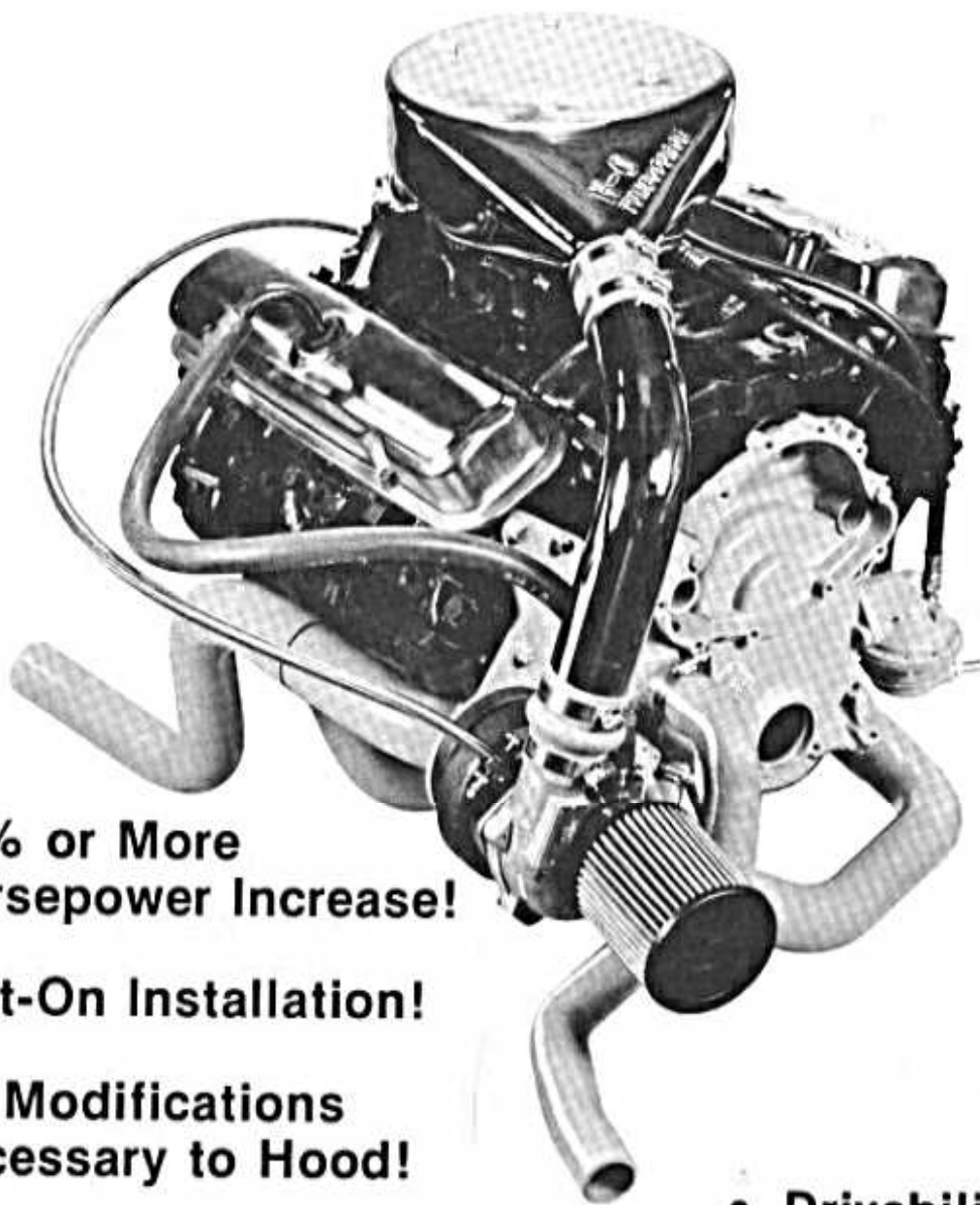


# H-O TurboFORCE

## A Complete, Bolt-On Turbocharger Installation Package for 1973-1979 Firebirds



- 50% or More Horsepower Increase!
- Bolt-On Installation!
- No Modifications Necessary to Hood!
- Fits with Virtually All Factory Equipment!

AS FEATURED IN:

**HOT ROD**

**CAR**  
and CRAFT

**HOT RODDING**

- Drivability and Comfort Retained—Quiet Horsepower!

### With these new features for 1979

- IMPROVED AIR BONNET
- LOWER RESTRICTION AIR FILTER SYSTEM
- MORE DIRECT TURBO OIL DRAIN SYSTEM
- IMPROVED ACCELERATOR PUMP SEAL
- LARGER TURBO MOUNT FLANGE OUTLET
- IMPROVED PRESSURE BALANCE PLATE
- NEW CARBURETOR WELL SEAL KIT
- NEW WASTE GATE
- NEW BOOST GAUGES
- IMPROVED INSTALLATION INSTRUCTIONS

# Why Turbocharge?



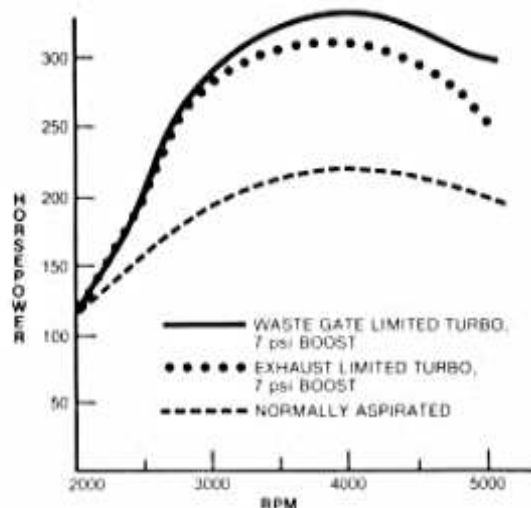
Turbocharging an engine is the most cost-effective method of achieving a major performance gain. This gain is achieved without sacrificing economy, drivability or engine reliability. Late model Pontiac engines with low compression ratio are good engines to turbocharge for super performance. The H-O TurboFORCE package makes turbocharging a 1973-79 Firebird a snap!

Turbocharging is one of the best ways to achieve at least a 50% torque and horsepower gain on a street driven engine. At a boost level of 8 psi, the engine torque is increased 1.5 times over normally aspirated. To achieve a 50% power gain by normal hot rodding techniques, the engine rpm must be increased 1.5 times and many special parts are required. Turbocharging is preferred by Indy, Formula One and other racing engine builders and mechanics. Turbocharged street cars have been around for many years with a recent resurgence by Porsche, Saab, Buick and Ford.

The advantages of turbocharging are many. Because the turbocharger "free wheels" when not near full

throttle, the basic low- and mid-range efficiency of the engine is unaffected, resulting in no change in gas mileage under normal driving conditions. Of course, using a heavy foot to feel the turbocharger's performance will reduce mileage. The drivability is likewise unaffected from stock; you will not know a turbocharger is installed until you put your foot down. There is little sacrifice in engine reliability because the power gain is achieved at the stock rpm level, not at an elevated rpm. Another important advantage is that a turbocharger is very quiet at normal speeds and will not detract from the luxury aspects of the car.

TurboFORCE is specifically engineered to fit 1973-79 Firebirds and other applications listed, and is 100% bolt-on. Aftermarket turbocharger installation kits, although initially less expensive, require special fabrication, scoops or bubbles on the hood and much trial and error during assembly. The ultimate cost can be far more than with TurboFORCE. There is also the possibility with an aftermarket kit that the components are not properly matched for best performance on your Pontiac engine.



Because a turbo system pumps more air and fuel into an engine, more horsepower is generated at normal rpm's. Stock exhaust systems will limit boost to less than 7 psi because of the high back-pressure on the turbine. With low restriction exhaust systems boost pressures will run higher and come up faster, but boost must be limited to about 7 or 8 psi to prevent excessive detonation and possible engine damage. A waste gate will bypass some of the exhaust around the turbine in response to boost level, and will thus hold the boost to the recommended 7 psi. Horsepower increases are directly related to boost levels and at 7 psi boost, power increase would be 7 psi/14.7 psi (normal atmospheric pressure) or 48% increase in horsepower!

## Here is what you get in the basic TurboFORCE package:

All components, parts and hardware (except the turbocharger itself) necessary to install the TurboFORCE system. This includes:



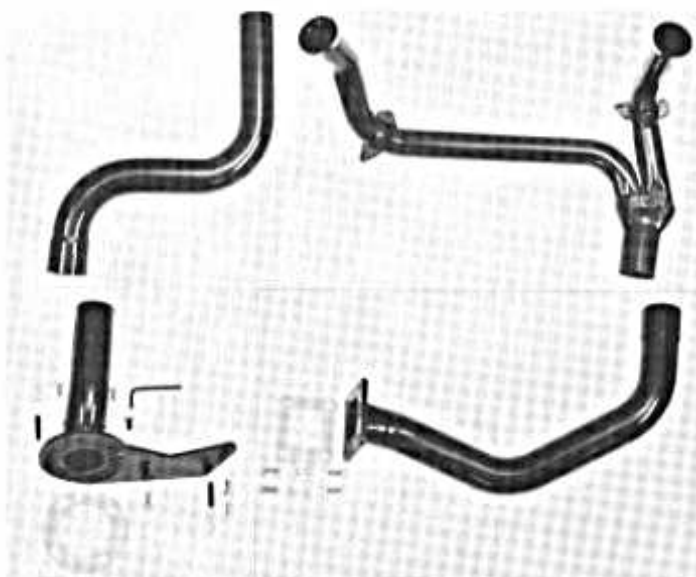
**AIR BONNET ASSEMBLY.** (Patent applied for). The bonnet is designed and manufactured by H-O to blow through the Quadrajets carburetor. It ducts and distributes pressurized air from the turbocharger outlet pipe to the QJet air horn ring. It allows the Trans Am hood scoop to be mounted in the stock location. Special seals are used to prevent air and fuel leakage from the stock Quadrajets carburetor under boost conditions.



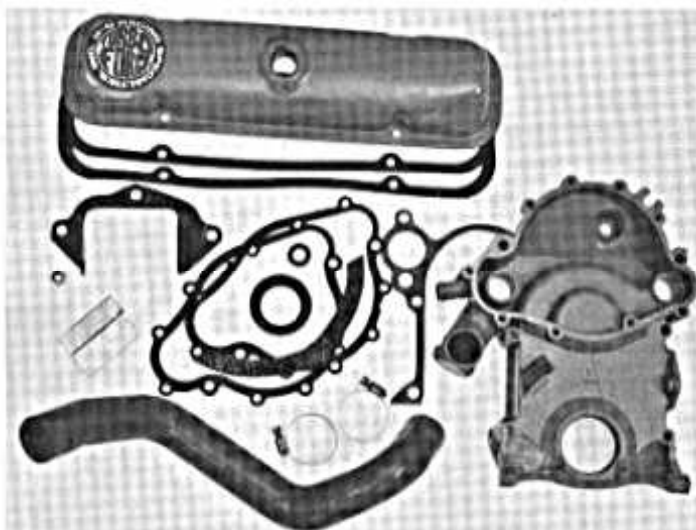
**FUEL SYSTEM.** A specially modified pressure-balanced mechanical fuel pump provides fuel at a steady seven psi above air bonnet pressure. An electric fuel pump is used at the back to assure adequate fuel delivery.



**OIL SYSTEM.** Heavy-duty truck and high temperature silicone rubber lines are used to assure good oil delivery and maximum resistance to wear.



**EXHAUST SYSTEM.** All exhaust pipes, connections and attaching parts are provided. The stock exhaust manifolds are retained for maximum reliability. The turbo outlet pipe must be custom connected after installation to the existing muffler system.



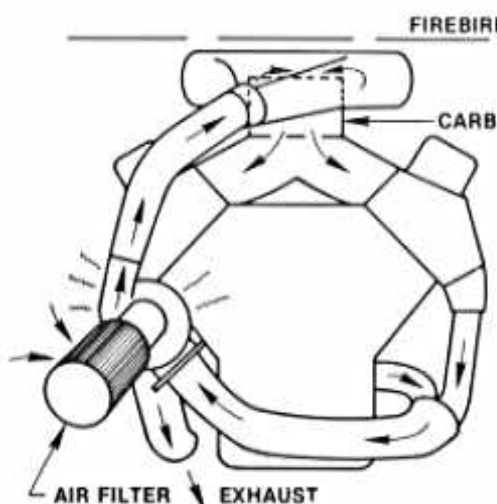
**TIMING COVER.** A modified stock timing cover is provided to reroute the lower radiator hose and provide an oil drain connection. All necessary special parts such as brackets, mounts, adapters, spacers, hoses and mounting hardware are provided.



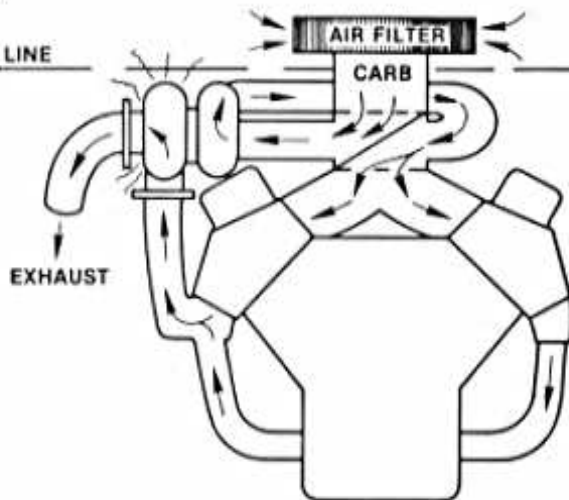
**AIR FILTER.** K & N air filters are used for minimum inlet restriction. Heavy duty duct used as required.



# Why Blow Through The Carb?



H-O TurboFORCE BLOW-THRU INSTALLATION

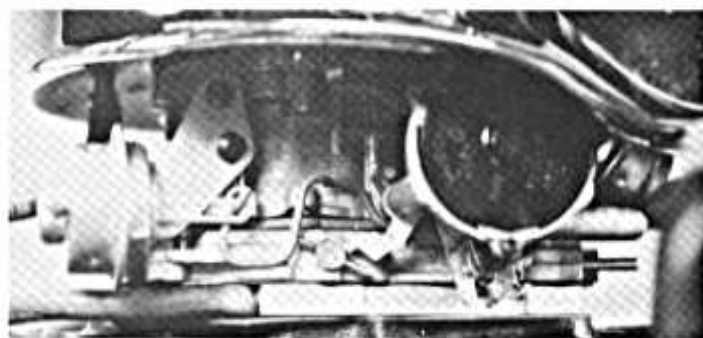


TYPICAL V-8 DRAW-THRU INSTALLATION

Turbocharger systems can be designed and installed in basically two ways: blow through the carburetor by placing the turbocharger between the air filter and the carb or draw through by placing the turbocharger between carb and the intake manifold. There are advantages and disadvantages to both configurations. H-O chose to blow through the carburetor even though it meant more engineering design work and a special air bonnet for the carburetor because it was the only way to make the installation low enough to work with the stock Firebird hood.

package solves these problems.

- Fuel pressure at the carburetor or air box inlet must always be above the boost pressure, otherwise the fuel cannot enter the carburetor. This is solved in the H-O TurboFORCE by using a pressure-compensated mechanical fuel pump which will always provide fuel at seven psi above boost pressure if adequate fuel is delivered to the pump inlet. A #CF-17 electric fuel pump is also supplied to assure adequate fuel delivery. It is installed by the gas tank to act as a pusher pump.
- The carburetor must be sealed, enclosed, or pressure compensated to prevent air/fuel mix from leaking out during boost. The special H-O TurboFORCE air bonnet pressurizes the air horn ring and bowl vent directly. It bolts on similar to an air cleaner and does not enclose the carb. The throttle shafts are pressurized by a balance plate installed between the carb and manifold. The accelerator pump shaft is sealed with a special Viton o-ring assembly. The choke is pressure balanced from the air bonnet.



The acknowledged advantages of blowing through the carburetor:

- There is no "turbo lag" which means that you get instantaneous power when you step on the throttle.
- No relocation of the carburetor and its associated linkage, fuel line, vacuum hoses, emission controls, etc. Relocating the carb and its associated parts can present tremendous installation problems in draw-through configurations. This is avoided with TurboFORCE.
- Turbocharger inlet pressure is always at atmospheric (not throttled) level so maximum capacity is always available.

Other considerations are:

- The carburetor float must be nitrofil material, not hollow brass. All QJets already use a nitrofil float.
- The PCV line at the valve cover must be moved to the inlet side of the turbocharger. The turbocharger used in H-O TurboFORCE has this provision.
- Fuel evap and some other lines must have check valves and these are provided in the H-O TurboFORCE package.

The supposed disadvantages of blowing through the carburetor are listed below. The H-O TurboFORCE