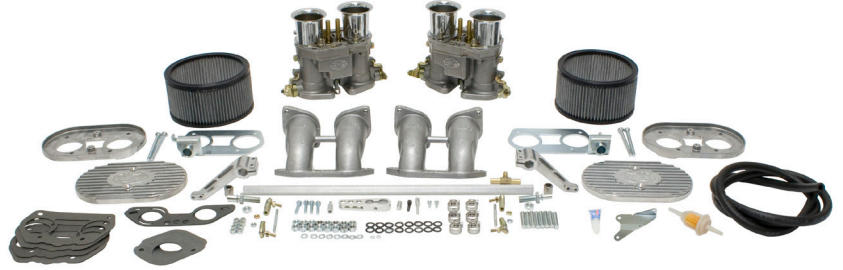
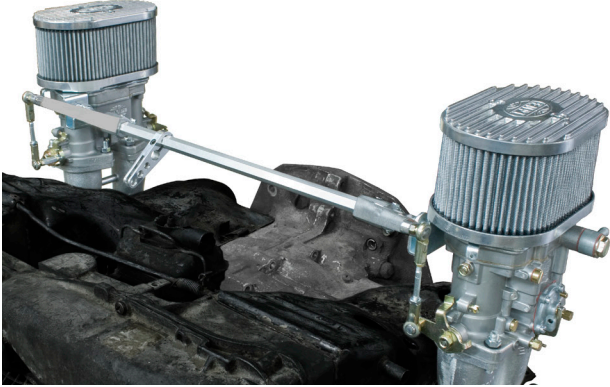


# Type 4

## Installation Instructions - Deluxe EMPI Dual-D Carburetor Kits – Type 4, 44-1031 & 44-1032



These instructions are specific to the installation of the EMPI Dual-D Carburetor Kits. These instructions should be accompanied by a good VW Repair Manual. Follow the basic steps for Automotive Repair, i.e.; disconnect battery, removal of existing carburetor & manifold, etc.

If you are replacing Factory Fuel Injection, follow your VW Repair Manual closely to remove all components where necessary. **You cannot use the Fuel Injection Fuel Pump. You must replace it with a mechanical or electrical fuel pump and Fuel Pressure Regulator.** Check the EMPI Catalog for choices of Pumps and Regulators.

Deluxe is an understatement! These **EMPI Dual-D Carburetor Kits** feature only the best components available...

- A pair of **EMPI D Carburetors** – Engine Tested, Adjusted and baseline Jetted.
- **EMPI Manifolds** – for 4-Bolt or 3-Bolt Heads.
- **Best Hex Bar Linkage in the industry** – Easy to adjust and rock solid in maintaining that adjustment for miles of performance driving...featuring Needle Bearing Rod Ends.
- **EMPI Cast Aluminum Air Cleaner Top & Base**...great looks and features the EMPI logo.
- A **COMPLETE** Kit – with everything you need including all gaskets, hardware & fuel line.

1. First lay out all of the Kit components on a clean work area. Make certain that no small parts are lost in the packing material.
2. Pre-assemble the Linkage Down Rods. Hex Shaft, Left & Right Lock Nuts, Left & Right Threaded Rod Ends.
3. Install the Needle Bearings into the Linkage Bases.
  - a. Remove the cap of the Loctite 430 Adhesive and pierce the sealed opening with a pin. Immediately replace the cap until you are ready to install the bearing.
  - b. Place a Needle Bearing on one of the new Hex Bar Rod Ends from this kit (refer to photo for proper direction of bearing).
  - c. Apply Loctite liberally to the outside of the Needle Bearing Cage and slide bearing about two thirds of the way into the Linkage Stand Bearing Retainer. (Once you have applied the Loctite, you have only a few seconds to install the bearing)
  - d. Pull the Hex Bar Rod End out of the bearing and proceed to push the bearing into the Retainer with your finger so that you can feel when the face of the Bearing becomes flush with the Retainer. Do not allow the Loctite to get into the Bearing, on the Hex-Bar Rod End or on your fingers. Immediately replace the cap until you are ready to use it again.
  - e. Immediately clean any excess Loctite from the end of the Bearing Retainer and the Rod End Shaft.
  - f. Install the Bearing on the other side in the same way.

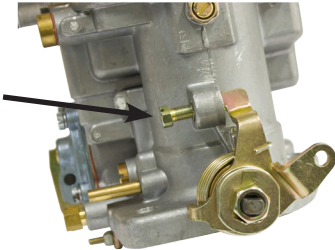


The closed end of the Bearing Cage – look for the part numbers – is to be installed toward (into) the Bearing Retainer.

4. Pre-assemble the Hex-Bar. Install Driver Side Linkage Arm, with bolts, washers and nuts loosely fitted. Install the Center Pull Lever, with Allen bolt loosely fitted onto the Hex-Bar with approximately 60° between the centerline of the Linkage compared to the centerline of the Pull Lever. Install the Passenger Side Linkage Arm with bolts, washers and nuts loosely fitted. Install the Ends & Adjusting Nuts threading them all the way into the Hex-Bar.
5. Install the Linkage Base to the carburetors. Note that the Bases install with the Linkage Receivers facing down. First install the Air Cleaner Gasket, the Linkage Base, a Gasket, the cast A/C Base then Velocity Stacks and using the supplied lock nuts and washers. Tighten to 1 ½ -2 ft. lbs.

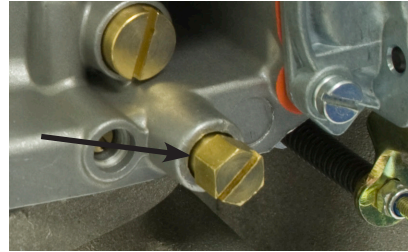


6. Install the Hex Rod Extension onto the Driver Side Carburetor Linkage Arm using the Lock Nut provided. The Passenger Side does not require an extension – the Rod End bolts directly to the Carburetor Linkage Arm. These are only 10/32 studs, so do not over-tighten or they will break.
7. Install four (4) studs in each Manifold. Using just a drop of Blue Thread Sealer, run the studs into the manifold until one or two threads protrude thru the bottom of the flange.
8. Making certain that the cylinder head intake manifold surface area is clean and void of any dirt or previous gasket material and that the intake ports are also clean of any debris, install the Intake Gaskets (do not use sealer), then the manifolds using the brass long hex nuts provided. Torque to 14 ft. lbs. if possible.
9. Pre-check carburetor adjustments:



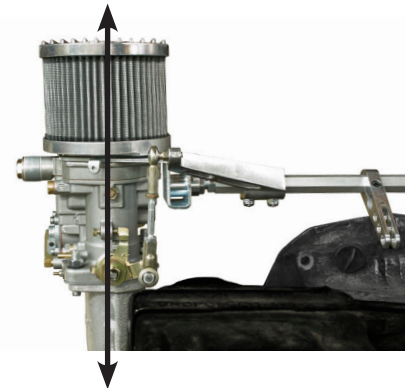
Turn Idle Speed Screw 1 full turn in, with Idle Speed Screw barely touching throttle arm.

More adjustments may be needed later, once carb is installed and ready to be synchronized.



Idle Mixture Screws: 3 turns out from seat. Turn each Mixture Screw IN until LIGHTLY seated. Then, counting by half-turn, turn the Mixture Screw OUT 3 complete turns.

10. Install the Carburetor Base Gaskets (do not use sealer), then the Carburetors using the wave washers and nuts provided. Leave the nuts loose at this time.
11. Install the Hex Bar by inserting the Driver Side end into the needle bearing first. Then lift the Passenger Side Carburetor to align the Hex Bar to allow the Hex Bar End to enter the needle bearing then lower the carburetor to the manifold. Torque the Carburetor Nuts to 10-12 ft. lbs. Adjust the Hex Rod Ends equally left & right to move the ends into the needle bearing. Allow for a 1/16" – 1/8" Gap between the flat surface of the Rod End and the face of the needle bearing. Depending on your engine, it may be necessary to trim or shorten the Hex Bar. You can grind or cut either or both ends of the Hex Bar to accommodate a narrow engine build. Double check everything before modifying. Measure twice....cut once. Once your Hex Bar is installed and centered, tighten the jam nuts against the Hex Rod to hold your adjustment.
12. Slide the Linkage Arms toward each carburetor and install the Heim Joints into the Linkage Arms and the Hex Rod Extensions on the Carburetor linkage Arms. Confirm that the Linkage Down Rods are as vertically straight as possible then tighten the Bolts & Nuts on the Linkage Arms.
13. Adjust the Hex Rods to confirm that the throttle is completely closed at rest and completely open at full throttle. Adjust accordingly then tighten the nuts to the rod ends to hold the adjustment.
14. Slide the Hex Rod Throttle Arm in line with the throttle cable then tighten the Allen bolt. Install the throttle cable barrel nut provided and cable end, and thread the cable through. To prevent damage to the carburetor shafts and linkage, it is best to set your cable at full throttle. Have someone depress the throttle pedal, rotate the Hex Rod Throttle Arm and check that you have full throttle at the carbs, then tighten the cable nut to secure the cable. Re-check that you have completely closed throttle at rest and full throttle when pedal is depressed and that the throttle plates snap closed when you release the throttle. If the return is sluggish, check for binding or lack of lubrication in your cable tube. If slow or sluggish throttle return continues, additional return springs may be required.
15. Adjusting the EMPI "D" Carburetors are not like adjusting the HPMX or IDF carburetors. See separate page for proper adjusting procedure. **NOTE- Depending on engine CC, cam size, compression ratio etc... re-jetting of carburetors may be required. We are adding a few extra Idle and Main Jets in this kit. If more tuning is needed for certain engine applications, further jets may need to be purchased.**
16. Install the Air Filter Elements, then the Air Filter Top using the long Phillips screws provided. Use a drop of Blue thread locker on the tip of the bolts. Do not over-tighten so as to crush the Air Filter.
17. The Return Springs on the Carburetors are strong and in most applications are plenty strong enough to return throttle. The Linkage Brackets have Return Spring locations if you choose to use them. Additional Return Springs are not included in the kit.



#### Factory Baseline Jetting

**44-1031**

**EMPI Dual-D 40mm Deluxe Carburetor Kit,**

Type 4 – to 2000cc Stock to Mild Build

**Factory Jetting:** .140 Main, .180 Air, .60 Idle, 1.50 Inlet Valve, .35 Pump, #2 E-Tube & 34mm Venturis

**NOTE:** We have added the following jets to your kit if further tuning is needed: .145 Main, .65 Idle

**44-1032**

**EMPI Dual-D 45mm Deluxe Carburetor Kit,**

Type 4 – Everything Else, Larger CC Engines and Most Race Applications

**Factory Jetting:** .162 Main, .200 Air, .70 Idle, 1.50 Inlet Valve, .55 Pump, #2 E-Tube & 38mm Venturis

**NOTE:** We have added the following jets to your kit if further tuning is needed: .170 Main, .75 Idle

#### IMPORTANT NOTE:

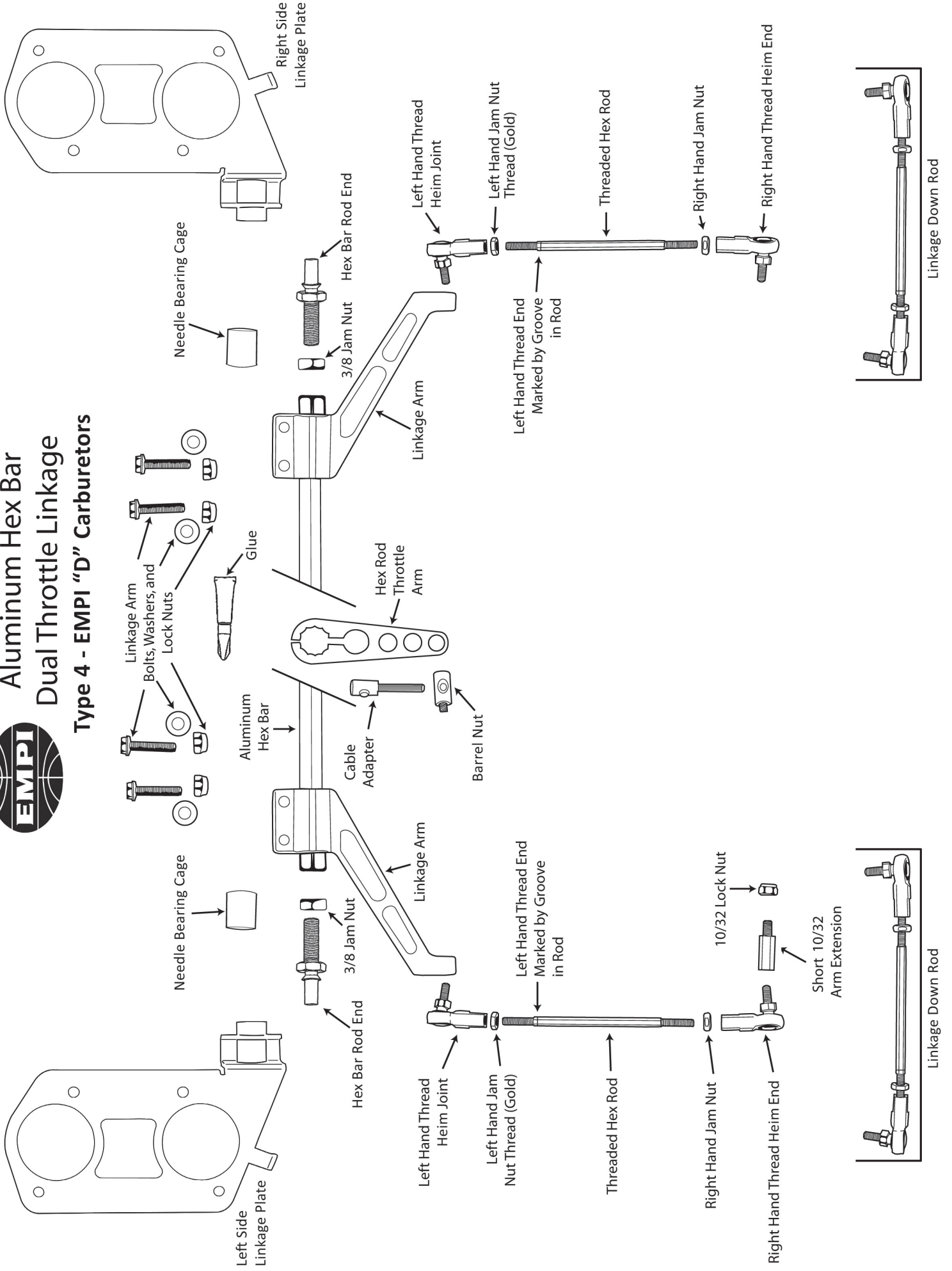
The EMPI D Carburetors, like most Performance Carburetors, require a Fuel Pressure Regulator. Maximum fuel pressure must not exceed 3lbs. Excessive fuel pressure can cause poor performance, fuel over-run, premature failure of the needle & seat and could result in an engine fire.



**For 4 or 3 Bolt Heads**



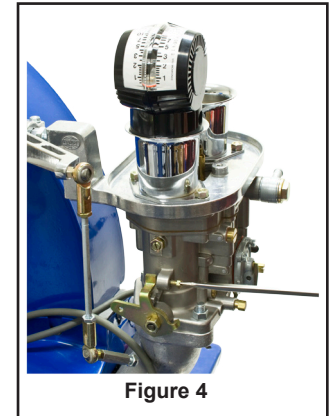
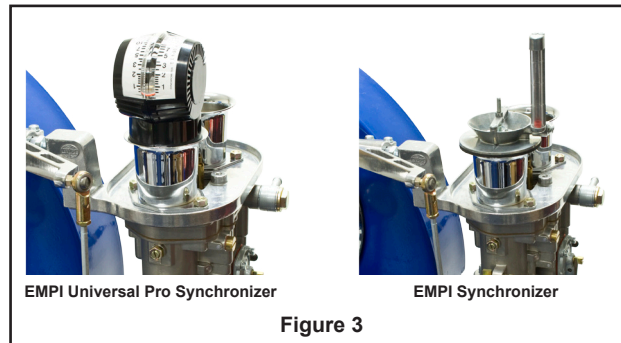
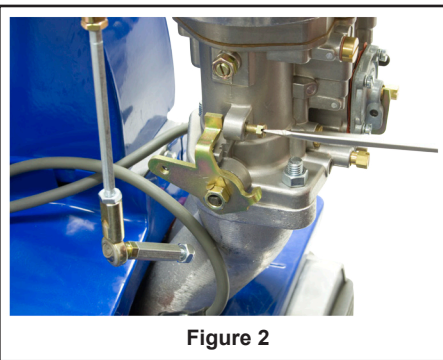
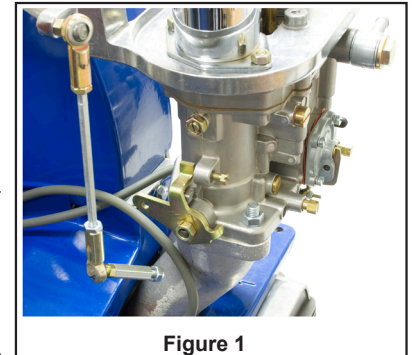
# Aluminum Hex Bar Dual Throttle Linkage Type 4 - EMPI "D" Carburetors





# EMPI "D" TUNING INSTRUCTIONS

1. The first step in tuning your new EMPI "D" carb's is to make sure there are no fuel leaks. You can do this by unplugging the positive lead on the coil and turn the key to the "on" position so the fuel pump is activated. Check all your fuel lines and fittings. You will want to also check under the car to make sure that there are no fuel leaks that can't be seen from above. Now that you hopefully have not found any fuel leaks, you can reattach the positive lead back on the positive side of the coil.
2. Now start your engine and warm it up to operating temperature. Once it's up to temp you can start by disconnecting one side of your linkage down rods (**Figure 1**). When adjusting your idle speed screw's, the EMPI "D" carbs like to run around 1000 rpm so adjust the idle speed screws until the engine is idling at 1000 rpms (**Figure 2**). Now you can take your EMPI synchronizer or EMPI universal pro sync (**Figure 3**) and place it on #2 cylinder's velocity stack and read the number on the sync gauge. Remember that number then put the sync gauge on the #4 cylinder's velocity stack and read that number. Now place the sync gauge on whichever cylinder had the higher number and adjust the idle speed on that carb down slowly until the sync gauge reads the same number as the other cylinder (**Figure 4**). You may have to adjust both sides to bring the engine back to 1000 rpm, but you need to keep checking both sides with the sync gauge while you are doing this so you keep them on the same number or level / equal.



3. Once you have the engine idling at 1000 rpm and both carbs are equal, you can now start adjusting your mixture screws (**Figure 5**). Start with one cylinder and work your way thru all four one at a time. Now turn the mixture screw clockwise until the engine starts to die or you feel it bottom out. Do not over tighten or you could damage it. Back out the mixture screw by turning it 1/2 counter-clockwise at a time until the idle picks up. Keep adjusting until you reach a point the idle does not change and stop there, typically between 3 - 5 turns with large idle jets. Now check with your sync gauge and adjust the idle speed screw accordingly and move on to the next cylinder and repeat the steps on each cylinder until you have done them all.
4. Reinstall your linkage down rods making sure that the idle does not change (**Figure 6**). If it does then you will have to adjust the down rods by twisting the hex bars (**Figure 7**) until they are equal and both carbs are opening at the same time. Recheck with your sync gauge and if everything is equal you are ready to bolt your air cleaners on and go have some fun.

