



# INSTALLATION INSTRUCTIONS FOR TYPE 1 DUAL EMPI HPMX & IDF KITS



**READ THOROUGHLY ALL STEPS OF THESE INSTRUCTIONS BEFORE BEGINNING THIS INSTALLATION.**

## TOOLS AND EQUIPMENT NEEDED:

Combination, box or open end wrenches (metric + U.S.)  
 Socket set metric  
 Screwdriver (Regular and Phillips)  
 Pliers 3/8" Drive Ratchet  
 Gasket Scraper 3/8" Drive Swivel  
 Rags 3/8" Drive Extension (10-12")  
 Cleaning Solvent 3/8" open-end Wrench  
 Knife Wire Cutters  
 Gasket Sealer

## PARTS SUPPLIED WITH INSTALLATION KIT:

1 - Gasket set  
 1 - Hardware Kit  
 2 - Linkage Mounts  
 2 - Carburetors  
 2 - Intake Manifolds  
 2 - Air Filter Assemblies  
 1 - Alum. Hex Bar  
 1 - Fuel Line

Your EMPI carburetor(s) come equipped with the Main, Air, and Idle jets most often used in the kit's particular application. Although it is a bolt-on kit, with the necessary hardware, gaskets and linkage to install the carburetor(s) onto the desired motor - The carburetor(s) are not jetted engine size specific. Multiple engine displacements, compression, camshafts, ignition, cylinder heads, and many other items such as operating elevation, will affect the overall requirements of the air/fuel ratio and may require additional jetting and tuning. A wide variety of jets and components are available at your EMPI dealer.

The following instructions are based on an engine in stock condition. If you have made modifications to your engine, some of the following steps may not apply to your application.

1. Remove the vehicle's gas cap.
2. Disconnect the battery.
3. Remove the stock air filter and attached components.
4. Remove the distributor cap and ignition wires. Identify the wires for correct reassembly.
5. Disconnect the ignition coil wires and remove the coil and bracket from the fan shroud. Identify the coil wires for correct reassembly.
6. Remove the fan belt, pulley nut and pulley from the generator.
7. Remove fuel line from the pump to the carburetor. Plug the outlet to prevent leakage.
8. Disconnect the throttle cable and electric choke wire/idle cut-off solenoid wire from the carburetor. (Insulate the wire connectors to prevent any shorts. These wires will not be reused).
9. Disconnect the stock heat riser tubes.
10. Remove the rear engine sheet metal.
11. Remove the clamps securing the intake manifold boots. Unbolt and remove the end castings from the heads. Insert a clean rag in the intake ports to prevent dirt and debris from entering the engine.
12. Loosen the side bolts on the fan shroud. Remove the manifold center section securing bolt.
13. Loosen the generator retaining strap and slide it back toward the shroud. Disconnect the wires from the generator. Identify the wires for correct reassembly.
14. Lift the generator and fan shroud enough to remove the intake manifold and carburetor as a complete unit. (Removal of fan and generator completely will make this step easier on some applications).
15. Thoroughly clean the intake mounting surfaces using a gasket scraper.
16. Replace the fan shroud and generator in their original position. Replace the generator pulley, nut and fan belt.
17. Replace the rear engine sheet metal and screws.
18. Remove the rear fuel pump-mounting nut. If the intake manifold was not previously secured to the engine case, remove the engine case nut directly behind the fuel pump. If the intake manifold was secured to the engine case, the stud to which it was attached must be removed. **NOTE: IF THE CORRECT STUD TOOL IS NOT AVAILABLE, THE "DOUBLE NUT" METHOD CAN BE USED. LOCK TWO NUTS APPROXIMATELY 1/3 OF THE WAY DOWN THE STUD. USING A SUITABLE WRENCH ON THE BOTTOM NUT, REMOVE THE STUD FROM THE FLANGE.**
19. Place the coil adapter over the rear fuel pump stud and center the slot over the hole directly behind the fuel pump. Reinstall the fuel pump nut and case nut to secure the bracket. (If the case stud was removed, install the M8 x 45mm bolt supplied in the kit). Torque the case nut/bolt to 15FT/LBS.
20. Reuse the original screws or use the M6 x 10 bolts & washers supplied, to install the coil on the adapter, with the wire terminals facing towards the #3 & #4 cylinders. Reconnect the coil wires.

## **BENCH ASSEMBLY**

- (A) Install the studs into the intake manifolds.
- (B) Install the throttle levers and spacers (**See Figures 1 & 2**). On left carburetor it will be necessary to install the throttle stop tab prior to installing the throttle lever. (On some models this step may not be necessary). It will also be necessary to move the idle speed screw to the other side of carburetor. (The side with new levers installed). Install long spacer on left carburetor and shorter spacer on right carburetor. Re-install throttle shaft nuts on each carburetor. (**DO NOT OVER TIGHTEN NUTS, 4-5 FT/LBS MAXIMUM**).
- (C) Install the flange gaskets and carburetors onto the manifolds. Secure them in place using the lockwashers and nuts from the kit. **DO NOT OVER TIGHTEN THE CARBURETOR HOLD DOWN NUTS. (12-14 FT/LBS MAXIMUM)**.
- (D) Slide the center pull-lever and the left and right extension arms onto the hex bar so there is approximately 60° between the centerline of the arms compared to the center pull lever (**See Figure 3**). Install retention hardware onto the parts, but **DO NOT** fully tighten at this time. Install the jam nuts onto the ball-ends and thread the ball-ends into each end of the hex bar.

## FINAL INSTALLATION

21. Remove the rags from the intake ports and install the manifold gaskets supplied in the kit. Install the left-side (Driver's side) manifold and carburetor assembly first. Secure the manifold in place using the nuts from the kit. Install the right side (Passenger's Side) manifold and carburetor in the same manner.
22. Reinstall the distributor cap and ignition wires.
23. Install the linkage mount and air cleaner assembly (See Figure 4) (Leave off element and A/C top) on the left-side (Driver's Side) carburetor, using the lockwashers and nuts provided. (On some models stud removal may be necessary, go ahead and remove studs. Use M6 x 20 & M6 x 35 bolts and lockwashers that are supplied). **NOTE: DO NOT INSTALL THE RIGHT SIDE COMPONENTS AT THIS TIME. DUE TO THE LENGTH REQUIRED FOR THE HEX BAR TO SEAT PROPERLY IN THE BRACKET, THE RIGHT AND LEFT SIDE ASSEMBLY OF PARTS CANNOT BE DONE SIMULTANEOUSLY.**
24. Install the teflon sleeve into the left hex bar linkage bracket then install the self-centering spring inside the left bracket bushing.
25. Insert the left hand ball-end of the hex bar assembly into the left bracket bushing and centering spring. Temporarily support to perform next step.
26. Install the linkage mount and air cleaner assembly (Leave off element and A/C top) on the right-side carburetor. **DO NOT BOLT DOWN COMPONENTS.** Install the bushing and the centering spring. Unbrace the hex bar and insert the ball-end into the right bracket bushing. Once the hex bar has seated in the bushing, secure the assembly down using the lockwashers and nuts (or bolts) provided. **NOTE: THE HEX BAR AND BALL-ENDS HAVE BEEN DESIGNED WITH SUFFICIENT THREAD LENGTH TO ACCOMMODATE CUTTING THE BAR IF NECESSARY OR EXTENDING THE BAR ENDS OUT TO GAIN PROPER INSTALLATION. BAR CAN BE CUT APPROXIMATELY 1" ON EITHER END AND STILL HAVE SUFFICIENT THREAD FOR BALL-END INSTALLATION.**
27. Adjust the hex bar ball-ends to achieve a 1/32" clearance between the bushing flange and ball flange. Once the ball-ends are adjusted correctly, lock the jam nuts in place (See Figure 1).
28. Install the carburetor linkage rods to each of the extension arms on the hex bar and to the spacers on carburetor throttle levers (See Figures 1 & 2). At this time tighten rod ends fully at carburetor spacers, set linkage rod length to center of adjustment with jam nuts loose, and fully tighten rod ends at hex bar extension arms. Location of hex bar arms should be almost to end of bar so down rods are "centered" vertically. Extension arms (on hex bar) should be fully tightened at this time. **CAUTION: BE SURE CENTER PULL LEVER IS POSITIONED FOR CORRECT THROTTLE CABLE HOOK-UP, AT IDLE AND FULL THROTTLE POSITIONS.** Install carburetor return springs in holes on carburetor arms and linkage mounts. **CHECK THROTTLE OPERATION FOR FREE MOVEMENT. IF THERE IS ANY INDICATIONS OF STICKING OR BINDING, CORRECT AS NECESSARY BEFORE PROCEEDING.**
29. Remove the plug from the fuel pump outlet and install the new fuel lines supplied in the kit. Inspect hose barb on carburetor and determine if location is correct for your application. Fitting can be moved to face forward or backward. **BEFORE STARTING ENGINE TO SYNCHRONIZE THE CARBURETORS, BE SURE CARBURETOR LINKAGE MOVES FREELY AND IGNITION PLUG WIRES HAVE BEEN REPLACED IN PROPER FIRING ORDER.**
30. Replace the gas cap and reconnect the battery.
31. Start the engine and check for fuel and vacuum leaks. Correct, if necessary, before proceeding.
32. Synchronize and set idle mixture as per the special instructions included with this kit.
33. After carburetor synchronizing is completed, turn engine off and proceed with throttle cable installation.
34. Install the throttle cable trunion and shortner. Align the center pull lever on the hex bar with the throttle cable and tube. Secure it in place by tightening the set screw.
35. Position the stock throttle cable next to the shortner and measure the excess cable to be cut.
36. Once you have correctly measured the amount of cable to be removed, cut the cable. Install the new cable end into the shortner. Lock the cable in place by tightening down the set screw. **NOTE: WHEN SETTING THE CABLE ADJUSTMENT AT CENTER PULL LEVER, BE SURE TO SET AT "FULL THROTTLE POSITION". THIS MEANS THE ACCELERATOR PEDAL SHOULD BE AT "FULL STOP" AND THEN CABLE IS SET AT CARBURETOR "FULL THROTTLE STOP". THIS WILL KEEP YOU FROM OVER-EXTENDING YOUR CARBURETOR LINKAGE AND THROTTLE SHAFTS.**
37. Complete the installation of the air filter assemblies.
38. **CHECK FOR ADEQUATE HOOD CLEARANCE BEFORE CLOSING THE HOOD.**

Figure 1  
(Left View)



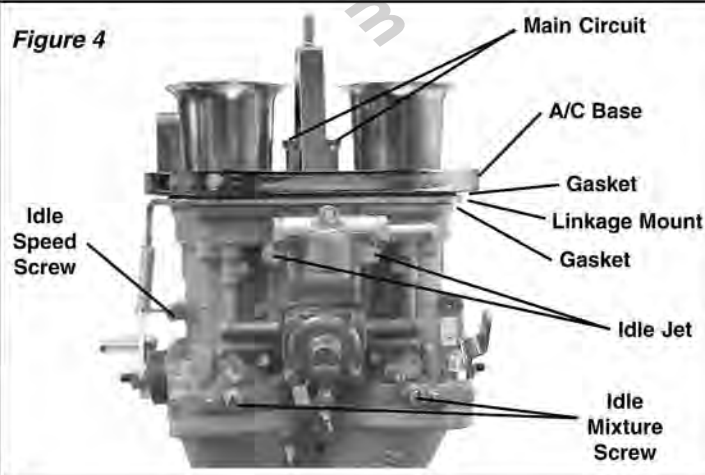
Figure 2  
(Right View)



Figure 3



Figure 4





# CARBURETOR SYNCHRONIZING & IDLE MIXTURE ADJUSTMENT FOR 00-5746-0 & 43-5712-0

## PROCEDURE

1. Remove the air filter assemblies.
2. Disconnect the throttle linkage rods on **ALL** carburetors.
3. Turn "out" (counter clock-wise) the idle speed screw, on each carburetor, until the tip of the screw is flush with the casting. Check for binding or sticking of the throttle plates. With the idle speed screw in this position, the throttle plates should be completely closed in the bores. Correct any misalignment or binding **BEFORE** proceeding.
4. Turn "in" (clockwise) the idle speed screw, on each carburetor, until the tip of the screw just touches the carburetor lever. From this "contact" position, turn each idle speed screw exactly one (1) full turn "in". This is your preliminary set point.
5. Start the engine. **CAUTION: Be sure the loose throttle-rods are not interfering with other linkage components.**
7. To synchronize the carburetors, adjust each idle speed screw until a balanced airflow reading is obtained on the Syncrometer.
8. After the carburetors are synchronized, reinstall the linkage rods. If the linkage rod length is not correct the throttle lever position will be affected. To adjust linkage rod length loosen the right and left handed nuts and turn the rod shaft to shorten or lengthen the rod as necessary. **NOTE: When linkage rods are properly adjusted the Syncrometer reading will remain as originally set. When rods are adjusted, lock the rod nuts in place.**
9. If idle mixture and idle speed adjustments are not required, turn engine off and remove syncrometer. Replace air filter assemblies and this procedure is complete. If idle speed adjustment is necessary, see next step.

## IDLE MIXTURE & IDLE SPEED ADJUSTMENT

This "Lean-Best" idle setting procedure can be used to adjust your carburetor in the absence of an Infrared Exhaust Analyzer. Those with an analyzer can set idle mixture to the engine manufacturer's specification.

10. If a tachometer is available, install it prior to starting the engine. If a tachometer is not available, set idle mixture "by ear".
11. Start engine. Be sure engine is at operating temperature and choke is not engaged.
12. Turn "in" (clockwise) the idle mixture screw until the engine RPM begins to fluctuate on the tachometer. (If adjusting "by ear," until a noticeable change in speed is heard).
13. Turn "out" (counter-clockwise) the idle mixture screw slowly, until the engine idle speed becomes steady. Try to obtain the leanest setting without affecting the idle speed. If necessary repeat steps 13 and 14 until best setting is achieved. Repeat this procedure for each carburetor. Try to maintain a balanced setting between all carburetors. **EXAMPLE: Each carburetor idle mixture screw should be within 1/4 turn of each other.**
14. Once the idle mixture has been set, fine tune the idle speed if necessary, to meet the engine manufacturer's specification using the idle speed screw. Try to keep the adjustment equal on all carburetors.
15. Recheck the carburetor synchronization if any idle speed adjustment is made and check the linkage rod position.
16. Turn the engine off. Remove tachometer and synchronizer. Replace the air filter assemblies.

## GENERAL INSTRUCTIONS FOR INSTALLING EMPI HPMX & IDF TYPE CARB. ON PORSCHE / VOLKSWAGEN AIR COOLED ENGINES

1. If vehicle was originally equipped with fuel injection, it will be necessary to change to a low pressure fuel pump, or install a fuel pressure regulator (00-9102-0). The carburetors do not have a provision for a vacuum distributor. The original vacuum operated distributor will have to be replaced by a fully mechanical advance model (00-9430-B).
2. When changing levers, do not over tighten the shaft nuts (**4-5FT/LBS MAXIMUM**).
3. The manifold to cylinder gasket may have to be trimmed to fit inside the sheet metal. Remove just enough material so it will fit properly.
4. Be sure all old gasket material is removed. Plug the cylinder head intake ports with rags, or paper towels to keep old gasket material out.
5. When installing mounting studs in manifolds or adaptors use a liquid thread locker.
6. Before starting and driving the vehicle be sure the linkage does not bind, or jam over center. Also the carburetors should close when accelerator is released. See that all parts are secure, and there is no interference or contact between linkage, fuel lines, wires, exhaust system, or other parts where damage could occur.



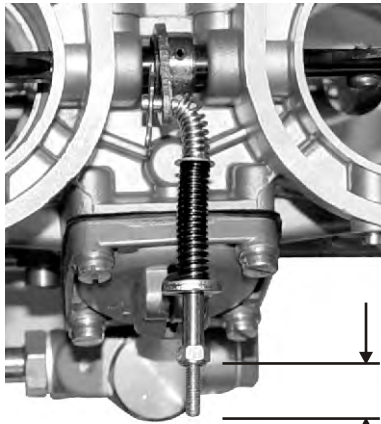
# 40/44 EMPI HPMX Carburetors

## Basic Lean Best Idle Adjustments

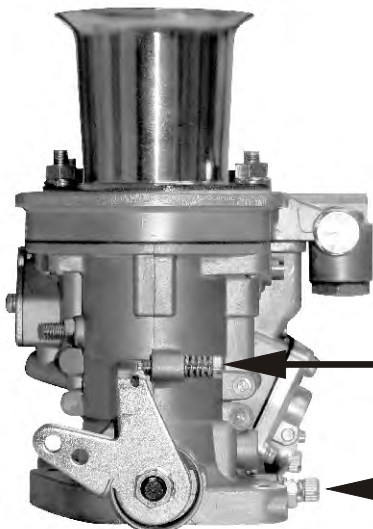
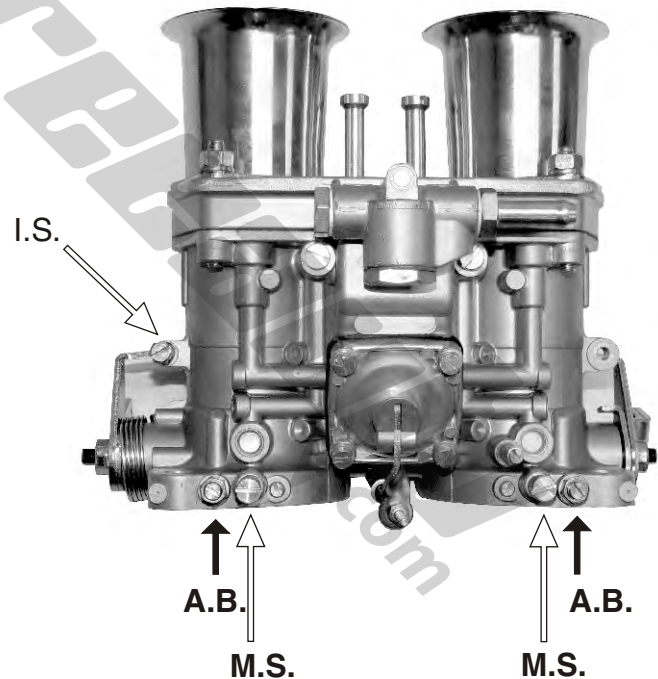
Please note: The adjustments listed on this page are approximate lean best idle starting points. EMPI USA is not responsible for tuner error.

1. Air Bleed screws are to air be lightly seated, Close the air bleed screws clockwise until lightly seated. Tighten the lock nut when bleed screws are closed.
2. Mixture Screws are adjusted from the closed position, turn clockwise until lightly seated, Counter clockwise out 1 ½ turns for adjustment.
3. Idle Speed Screws are adjusted from the first point of contact with the linkage arm. Adjust the Idle speed screw clockwise ½ turn after first contact with the linkage arm.

Adjustment for the accelerator pump rod needs to be 7mm from the end of the rod to the top of the nylock nut. These adjustments have varied on each carburetor. This is critical!



7mm



### Idle Speed Screw

Turn clockwise ½ turn from first contact with the linkage arm

### Mixture Screws

Lightly seat (close) mixture screws clockwise, Then Turn counter clockwise out 1 ½ turns each for setting.