

INSTALLATION INSTRUCTIONS

VW Type II for 40hp models after Aug 1960

-- A --

1. Remove large bolt and washer from end of crankshaft. Remove any grease, paint or burrs in bore and on face of Volkswagen pulley. Install supercharger drive pulley by placing lip on back of pulley in bore of original VW pulley. Make sure that the two pins protruding from the back of the Judson pulley are in the slots of VW pulley. Replace bolt and washer. The lip on the back of the Judson pulley must be in the bore of the VW crankshaft pulley before tightening bolt. Start engine and observe supercharger drive pulley.

2. Remove the front pulley flange from the generator. Replace with the new pulley flange furnished. Check generator belt for tension and adjust if necessary using pulley shims.

3. Remove the air cleaner, fuel line, vacuum line and carburetor from the engine.

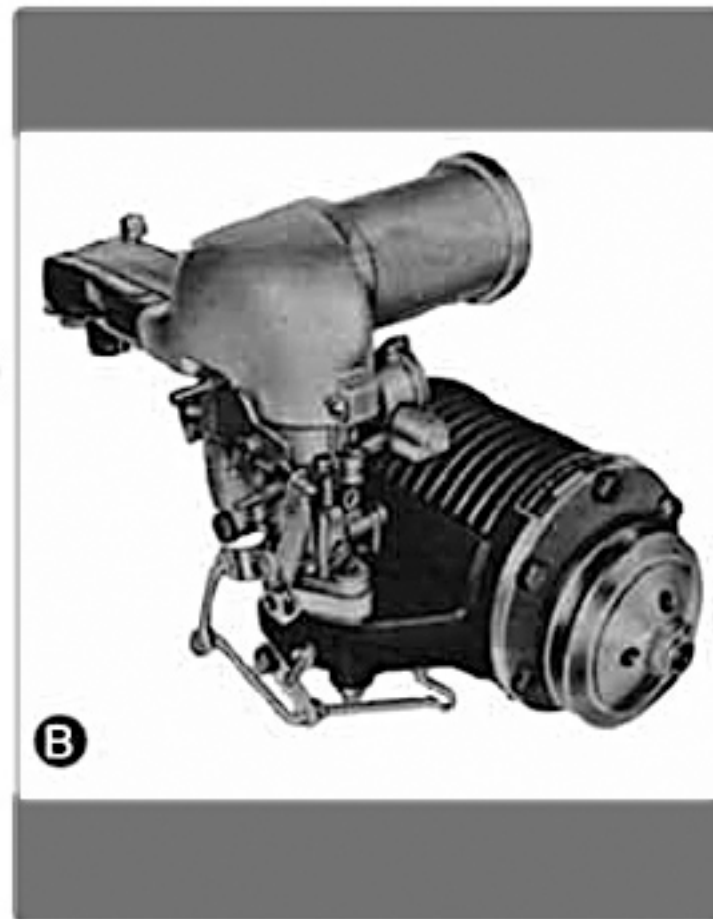


-- B --

1. Remove both studs from the carburetor and replace with new studs furnished. Screw the end of the stud with the least number of threads into the carburetor tightly. Remove the main jet from the side of the carburetor and replace with the new jet furnished with supercharger kit. The main jet is screwed into the brass cap screw which is removed from the side of the carburetor.

2. Place gasket over carburetor studs, aluminium spacer and another gasket. Mount carburetor with gaskets and spacer on supercharger. Place small copper gasket washers on the studs before fastening with special locknuts (do not use lockwashers).

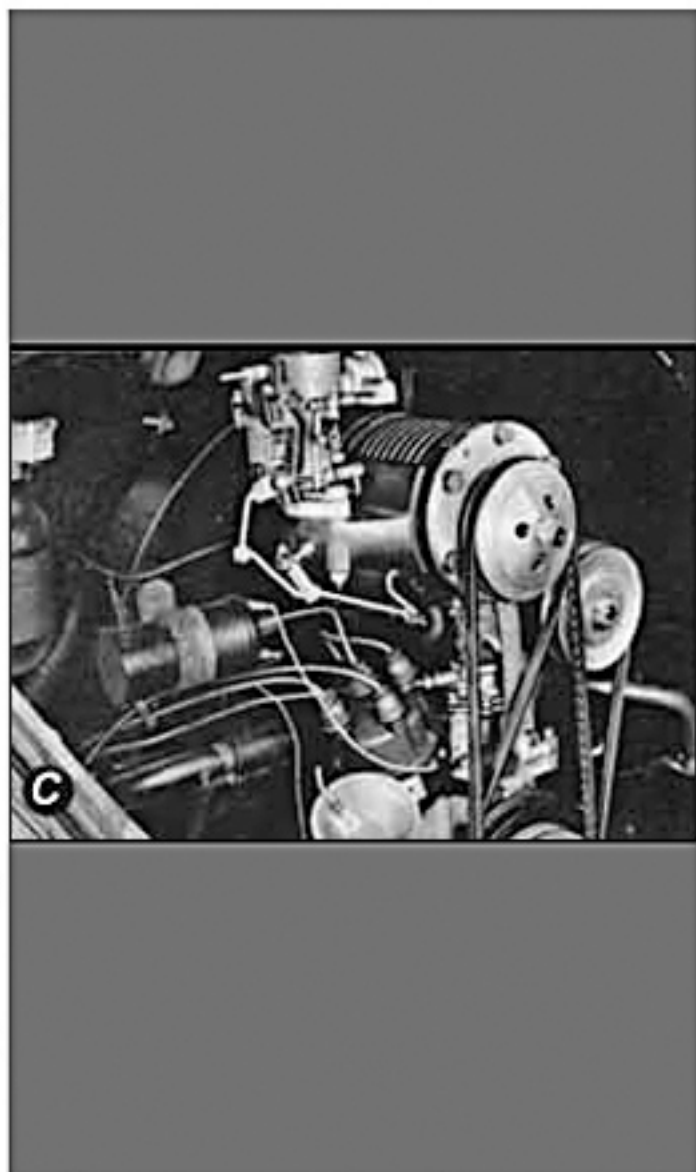
3. Connect throttle linkage to carburetor as shown in photo. Carburetor throttle arm is fastened to the throttle shaft of the carburetor with the original nut. Do not install air cleaner on carburetor at this time.



-- C --

1. Remove both bolts from the ignition coil bracket and move ignition coil down to lower hole as shown in photo. Secure with one bolt. Place gasket over studs on supercharger and drop supercharger into position on intake manifold. Fasten supercharger to manifold using lockwashers and regular nuts. Install slotted brace from under head of bolt on crankcase to bottom bolt on supercharger as shown. It is necessary to remove nut and washer from crankcase bolt to install supercharger brace. **IMPORTANT:** The drive belt should have approximately 1/2"(13mm) slack. If belt is too loose additional gaskets should be inserted between the supercharger and the manifold.

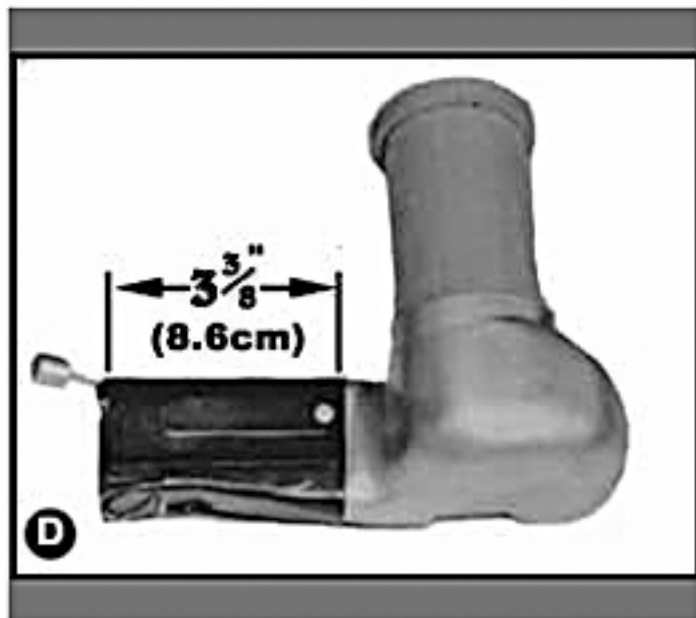
2. Connect throttle. Place small sleeve, furnished with kit, over end of throttle rod protruding from the shroud, place throttle rod through eye of the throttle lever on the supercharger. Bend the throttle tube coming through the shroud down slightly to line up with the throttle lever. Use the original throttle rod clamp from the carburetor on end of throttle rod as shown leaving approximately 1/16"(1.5mm) clearance between the clamp and lever. The formed throttle lever furnished with the supercharger may have to be slightly reformed to provide for free throttle movement.



-- D --

1. Remove heater section from original air cleaner. Use hacksaw and cut as shown in photo. Insert heater section over flange on air cleaner as illustrated and drill 1/8"(3mm) hole through heater section and air cleaner body, top and bottom. Fasten heater section to new air cleaner as shown in photo using the two small self tapping screws furnished with kit.

The nipple on the side of the air cleaner is for the crankcase vent tube. If car is an early model without vent tube, remove nipple and plug hole with 1/4"(6mm) pipe plug.

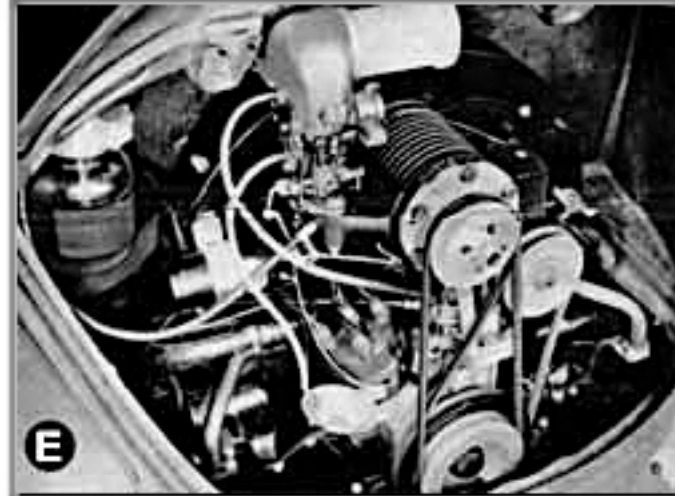


-- E --

1. Replace wire to automatic choke on carburetor. Install new fuel line from fuel pump to carburetor. Install new vacuum advance line from distributor to carburetor. Place air cleaner assembly on carburetor. This is done by closing hood slightly and placing air cleaner on carburetor. Tighten clamping bolt on air cleaner. Connect air heater hose to air cleaner assembly using original clamp.

2. Mount the lubricator on the fire wall as shown in photo using the 4 self-tapping metal screws furnished with the kit. Drill 1/8"(3mm) holes for the screws. Mount lubricator high enough so that the rear spark plug is accessible for removal and the fill spout accessible for refill.

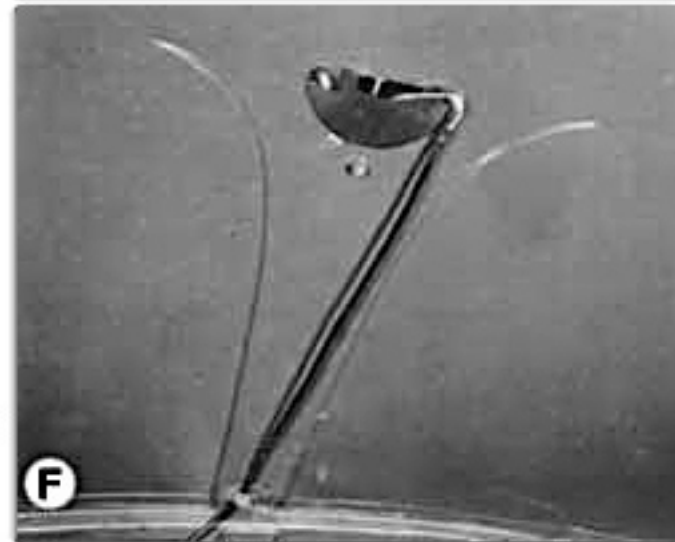
3. Connect the oil line from the lubricator to the supercharger by inserting fitting on end of oil line in lubricator and pushing the other end of the oil line with aluminium ferrule on fitting screwed into supercharger.



-- F --

1. Remove wire from clamp at tail light. Break clamp off of lid by bending back and forth. Cut bottom bolt of tail light flush with nut if it rubs on the supercharger pulley with deck lid closed. Loosen tail light wire in other clamp and pull wire up and loop over top right hand bolt as shown.

2. Fill the automatic lubricator with No.10 detergent (HD) motor oil. Do not start the engine unless the lubricator is connected and filled with oil.



ENGINE ADJUSTMENTS

The engine must be checked and set up as follows before starting the engine.

VALVE CLEARANCES. Valve clearances should remain stock at .008". (0.20mm).

IGNITION POINT SETTING. Stock gap of .016 is recommended (51 to 55 degrees if set with cam dwell indicator).

IGNITION TIMING. The correct ignition timing will vary with the grade of fuel available in your area and the variation in the advance curve between distributors. In most cases, the best performance is obtained with the stock setting of 10 degrees BTC. If detonation is encountered with this setting, when the engine is under full load, the ignition timing should be retarded 2.5 degrees to 7.5 degrees BTC. There are two marks on the crankshaft pulley. When the right hand mark is lined up with the crankcase centre line, the timing is set at 10 degrees BTC. When the left hand mark is lined up with the crankcase centre line, the timing is set at 7.5 degrees BTC.

SPARK PLUGS. The condition and quality of the spark plugs is extremely important on a supercharged engine. If plugs need replacing or if ping occurs, the spark plugs should be replaced with Champion L-7. Spark plug gap should be set at .025 (0.6mm). Spark plugs should be securely tightened in the head and if possible set with a torque wrench to 25-30 ft./lbs. Ignition wiring and coil should also be checked in the event of ignition failure.

CARBURETTION. The main jet furnished with the supercharger kit provides the correct air fuel ratio throughout the speed range of the engine and no other modifications should be made on the carburettor.

INSTALLATION IS COMPLETE

Start the engine. It will be difficult to start the engine as the gasoline has been drained from the carburettor. As soon as the engine is running adjust the lubricator. Reset the idle speed if necessary after engine is warm.

CONVERTIBLE MODEL. It is necessary to remove a section of the air baffle located on the inside of the lid in order to mount the carburettor and air cleaner.

KARMANN GHIA COUPE. On this model it is necessary to make a revision in the rear deck lid because of insufficient clearance in the engine compartment. A modification or scoop for the rear deck lid is included in the kit for the Ghia Coupe. Complete instructions and a template for mounting the modification is packed with the scoop.

TRANSPORTER, TRUCK AND KOMBI. There is insufficient clearance in the engine compartment to mount an air cleaner unless the panel directly over the carburettor is modified. In order to mount the carburettor it is necessary to remove a 4"(10cm) section of the reinforcing rib located on the underside of the panel directly over the carburettor.

DATA

LUBRICATOR ADJUSTMENT. To adjust the lubricator proceed as follows; Start the engine. The small knurled knob on the very top (under protecting cap) should be unscrewed a half turn to get the oil flowing and then adjusted with your fingers until the lubricator is putting out approximately one drop of oil every six seconds at idle. This can be timed through the small window on the lubricator. Screw clockwise to decrease the amount of oil consumption. Oil consumption should run one quart of oil every 800 to 1000 miles and the oil level should be checked occasionally so that you do not run out of lubricant. Engine and lubricant should be warm while adjustments are being made. The adjustment should be checked after the first 100 miles. The oil from the automatic lubricator is to oil the bore of the supercharger housing and also acts as an upper cylinder lubricant. Use SAE No 10 detergent motor oil. Do not use an upper cylinder lubricant as most top oils are primarily a cleaner and not a lubricant. Do not use a multiple viscosity oil. In making a long descent from high altitudes it is advisable to open the throttle occasionally to insure adequate lubrication. NOTE; The lubricator should be adjusted and left alone as any variance that will occur at idle will be slight under actual operation.

DRIVE BELT ADJUSTMENT. The tension of the supercharger drive belt should be examined after approximately 200 miles and an adjustment made if required. Belt tension can be increased sufficiently by placing one additional gasket between the supercharger and the manifold. Belt should have 1/2" to 3/4"(13 to 20mm) slack.

AIR CLEANER SERVICE. The air cleaner should be removed from the carburettor and washed out in gasoline or kerosene every 3000 to 5000 miles.

FUEL. Premium grade or high octane gasoline is recommended for maximum performance on the supercharged engine. Super premium fuels are not necessary.

BREAK-IN PERIOD. The supercharged car should not be operated at speeds in excess of 60mph for the first 1000 miles. We do not recommend supercharging a Volkswagen engine with less than 3000 miles of service nor do we recommend consistently exceeding the RPM limit of the engine as specified by Volkswagen.

IDENTIFICATION DECAL. An identification decalcomania for placing on the inside of the windshield is included with the installation. See instructions for mounting on back of decal.

NOISE. The supercharger may sound noisy when it is first started or within the first hour of operation. This noise is nothing to be concerned about and will disappear completely within the first 50 miles of hard driving. A clicking noise sometimes at idle or after backing off of the throttle after a hard run is a characteristic of a vane type supercharger.

BELT REPLACEMENT. In case of drive belt breakage the supercharger will cease functioning but the engine will continue to operate. The drive belts are a standard size and can be purchased from any automotive jobber under Gates number 6267[®]. Belts are of a premium quality and should last for at least 25000 miles.

WARRANTY. The Judson Supercharger is warranted to be free from defects in material and workmanship under normal use and service. In case of any part within ninety (90) days from date of original purchase by user, due to defective material or workmanship, we will repair, replace the defective part or furnish a new supercharger free of charge. F.O.B. factory. Approval must be obtained before returning supercharger or parts to the factory for replacement. All transportation charges on supercharger or parts must be borne by purchaser.

[®] The original Gates belt was 8210 but these are no longer available.

ITEMS TO CHECK FOR LACK OF PERFORMANCE

INSTALLATION. It is very important that the instructions be followed exactly in installing the supercharger on the engine. Mistakes usually made; drive belt too tight, the special lock-nuts are placed on the supercharger mounting studs instead of the carburettor studs, the support brace is mounted upside-down, the small copper washer gaskets are not placed on the carburettor studs and the wire has not been connected to the automatic choke. Lock washers are not required and should not be used on the carburettor studs as the nut furnished is a lock nut. Throttle or acceleration action should be smooth with no binding or excessive play.

ENGINE. Maximum performance after supercharging is a function of engine condition and tuning. Engine deficiencies often unnoticed before supercharging sometimes prevent increased performance that can be expected from supercharged engine. Because of this the supercharger will often be blamed for poor performance when such is not the case. If the installation has been made in accordance with the instructions and the performance is poor it is usually due to one of the following; a leak in the induction system, improper valve clearance or a faulty ignition system. A leak in the induction system upsets the fuel/air ratio resulting in a lean mixture, a hot running engine, a poor idle, engine stalling, detonation, a noisy supercharger and restricted top speed. All connections should be checked for leaks including where the intake manifold is bolted to the head. The manifold itself should be checked for a crack. A leak between the heat riser and intake manifold can be eliminated by blocking off the heat riser at the exhaust.

An incorrect setting of the air regulator ring located on the back of the shroud will cause a hot running engine by not allowing a sufficient volume of air to enter the shroud. In hot climates we suggest the removal of the regulator ring which is fastened to the shroud with two bolts.

The ignition system on the supercharged engine should be in good condition and properly adjusted. Incorrect timing and point setting as well as faulty plugs or ignition wiring affects performance considerably and causes detonation. A leak in the vacuum advance diaphragm on the distributor will restrict the top speed of the Volkswagen above 50mph. A faulty or worn fuel pump, a dirty carburettor or a sticking carburettor float will also account for a hot running engine and restricted top speed.

If poor performance cannot be attributed to any of the above after a thorough checking it can be assumed that the trouble is of an internal mechanical nature and the engine itself should be checked by a competent mechanic.

Best performance for dependability is obtained from the stock engine. We do not recommend increasing the compression ratio or making any other basic engine modifications on the supercharged engine.