

MODEL-VO

JUDSON SUPERCHARGER

This data should be delivered to the purchaser upon completion of installation

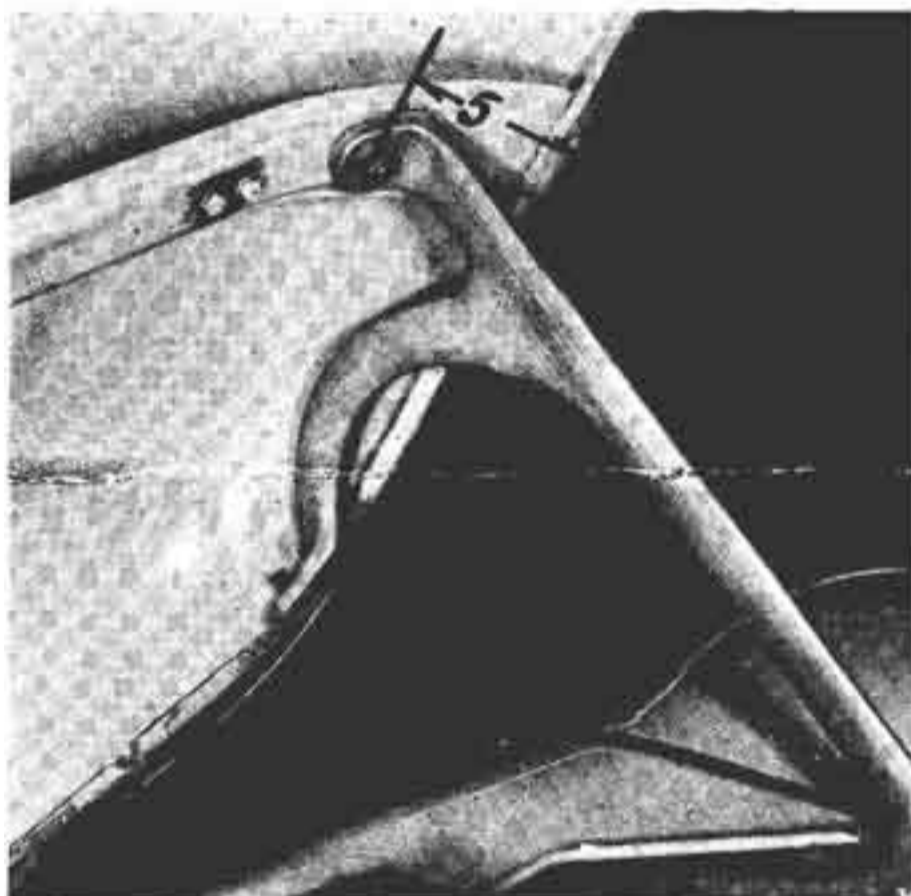
INSTALLATION INSTRUCTIONS - GENERAL DATA

Instructions Are Presented in a Step by Step Sequence. Follow Instructions Carefully.

— A —

1. Disconnect fuel line from fuel pump. Disconnect vacuum advance line, throttle linkage and choke line from carburetors. Remove intake manifold with carburetors from engine.
2. Drain radiator and remove (4 bolts, 2 hoses). Remove fan blade (4 bolts).

— B —



NOTE: On Volvo Model PV544 it is necessary to replace the hood hinge on right side (this is not necessary on Model 122S). Proceed as follows:

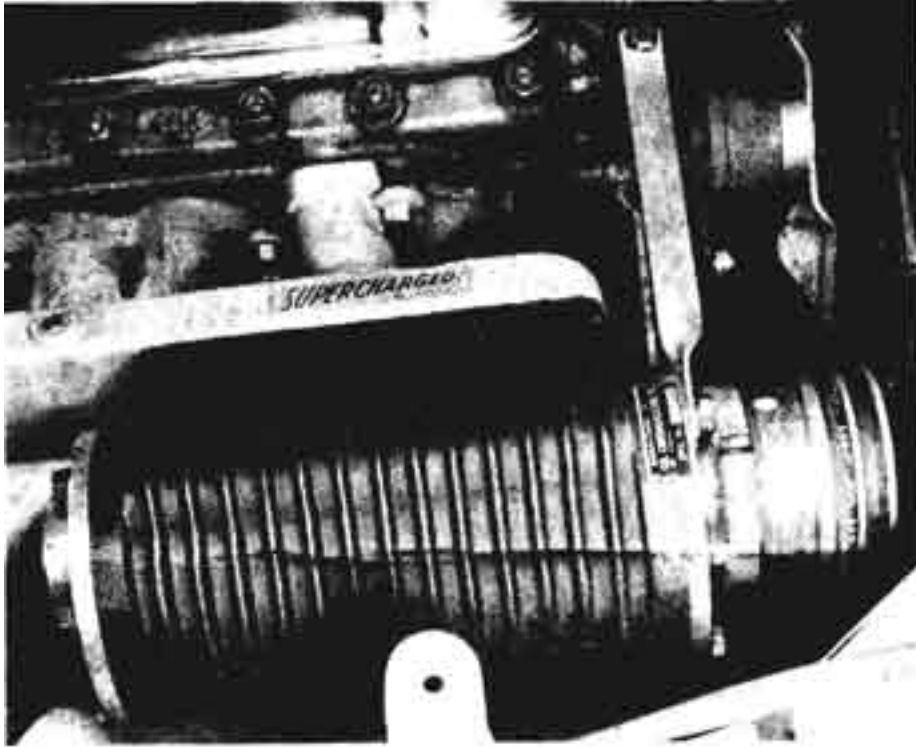
1. Remove the front right wheel. This exposes the main hinge bolt which is beside headlight well in body. Remove bolt noting position of large washers. It is necessary to support the hood while replacing the hinge. Fasten new hinge furnished with kit to body loosely with original bolt and washers (Do not tighten).
2. Drill 5/16" hole in center of hood cross support as shown in photo 5" from side of hood. Fasten new hinge to hood as shown using steel back up plate (with stud inserted) placed in back of hood support. This is a reinforcement.
3. Clamp forward part of hinge to hood and drill 1/4" hole to match hole already drilled in hinge. Fasten with flathead 1/4" screw, lockwasher and nut. Head of screw should be hit with hammer and re-tightened so that screw head is flush with hood lip.
4. Close hood carefully and lock. Tighten lower main support bolt in body. This lower bolt is the adjustment to provide clearance between cowl and hood. If necessary hinge may be bent as it is an aluminum alloy.
5. Check hood for fit, replace front wheel and re-open hood

— C —

1. Remove nut from end of crankshaft. This is done by straightening flat retaining washer in back of nut. If nut is too tight to remove with a wrench, use a hammer and cold chisel. Original crankshaft pulley is **not** removed.
2. Place aluminum crankshaft pulley furnished with kit on crankshaft making sure that the two pins are inserted into holes in original crank pulley and that lip on aluminum pulley is centered in original crank pulley. Place ~~new~~ lockwasher ~~furnished with kit~~ on crankshaft and replace original crankshaft nut using socket furnished with kit.
3. Place aluminum spacer between fan blade and pulley and fasten with four longer heat treated bolts furnished. Use lockwashers.
4. Replace radiator and refill. Check generator belt for proper tension and tighten if necessary.



— D —



NOTE: MODEL 122S ONLY: It is necessary to move the voltage regulator located on the side of the fender well 2" towards outside of fender to provide necessary clearance for supercharger. Wires need not be disconnected and original self tapping screws are used to re-fasten regulator.

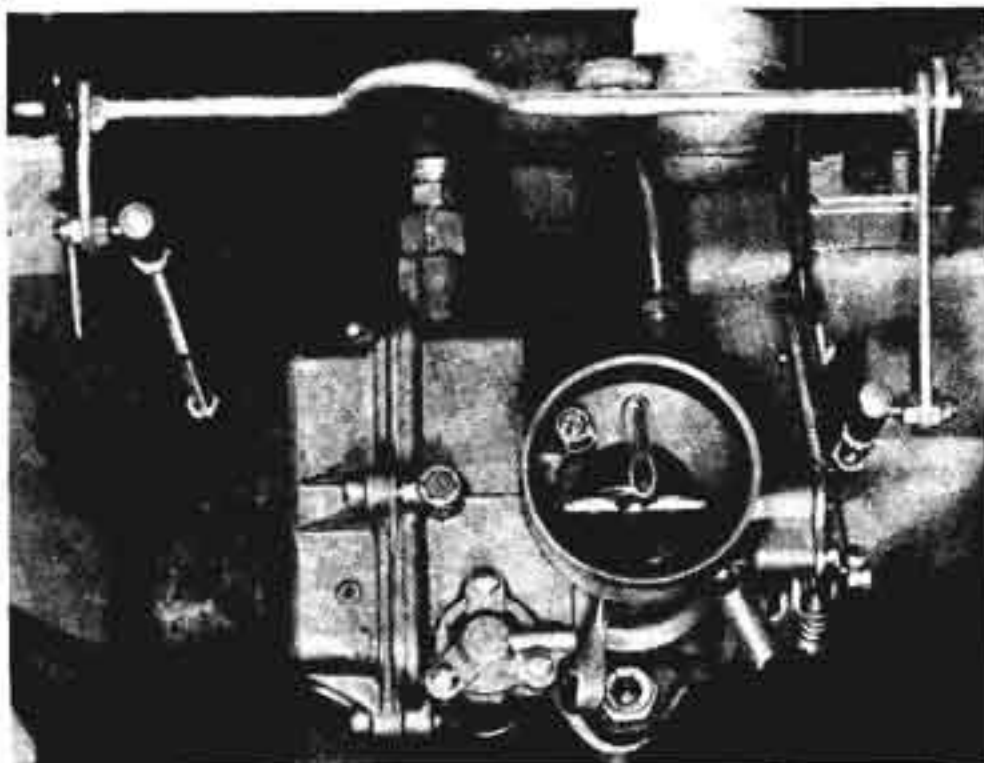
1. Clamp supercharger to head as shown in photo using original washers and nuts making sure that the two tubular inserts in ports recess properly in supercharger manifold.
2. Bolt front brace in position from top bolt on supercharger to bolt on water inlet as shown.
3. Install drive belts for supercharger. Idler pulley is pulled up against underside of belts and clamped making sure that belt clears generator nut and that idler bracket is not rubbing on supercharger pulley.

— E —

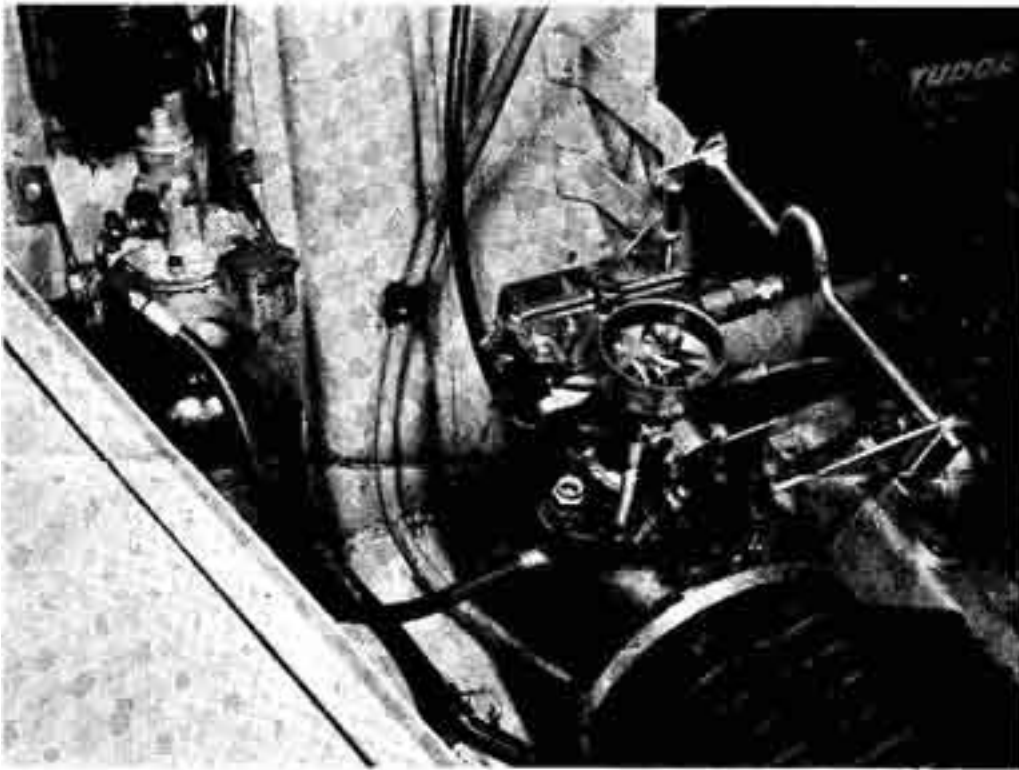
1. Original throttle rod should be unscrewed from bottom plastic ball joint. New threaded rod is then screwed into joint as far as possible and locked into position with nut. Do not pull nut down too tightly or it will damage the threads in plastic joint. Remove rubber gromet from lower hole of throttle bracket located on fire wall and replace in upper hole.
2. Install rear support brace from exhaust header bolt to rear of manifold. Slotted end is fastened to supercharger manifold. Use flat washer and lockwasher.
3. Cut vacuum advance line directly behind original nut and discard nut.



— F —

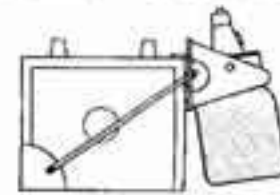


1. Bolt carburetor to supercharger manifold using gasket and two locknuts.
2. Connect throttle control arm to supercharger and fire wall bracket as shown. Make sure that throttle rod turns freely between the two supports before connections are made to carburetor and rod from accelerator pedal. Adjust throttle rods so that throttle is completely closed. Check to make sure that throttle is fully opened when accelerator pedal is fully depressed.
3. Connect original choke wire to carburetor. Choke butterfly in throat of carburetor should be fully opened when choke button on dash panel is pushed in completely. Install new fuel line and connect original vacuum advance line to carburetor using new nut in carburetor. Vacuum advance tube should be inserted into carburetor as far as possible before tightening nut.



1A. MODEL PV544 — Lubricator is installed on the fire wall with self tapping screws as shown in photo. $\frac{1}{8}$ " holes are drilled for self-tapping screws furnished with kit. Jar must clear body frame underneath by at least $\frac{1}{4}$ ". Lubricator must be bolted to bracket using holes circled with paint.

1B. MODEL 122S — Lubricator is clamped to battery using longer clamp bolts and bracket furnished with kit.



2. Connect oil line from supercharger manifold to lubricator using oil line and aluminum ferrules furnished.

3. Fasten air cleaner to carburetor.

Fill the automatic lubricator with No. 10 HD (detergent) motor oil. The engine must not be started unless the lubricator is connected and filled with oil. The lubricator jar has a capacity of 1 qt.

INSTALLATION IS COMPLETE

Fill float chamber of carburetor by pumping lever on side of fuel pump and start the engine. As soon as the engine is running, adjust the lubricator as per instructions under lubrication. After engine is warm, set idle mixture on carburetor. The idle mixture adjustment on the carburetor is the slotted brass screw located on the side of the carburetor. Adjust back and forth until a smooth idle is obtained. The idle speed adjustment screw is spring loaded and located on the throttle arm of the carburetor. Set idle speed at 800 RPM to 1000 RPM.

ENGINE TUNE-UP DATA

VALVE CLEARANCE — The stock valve clearance is recommended. Check to make sure that both intake and exhaust valves have a clearance of .020 with warm engine.

HEAD BOLTS — Tightness of head bolts should be checked to 50 to 60 ft. lbs. starting from center bolts and working toward ends of head.

SPARK PLUGS — Remove the spark plugs and examine for wear and corrosion. If spark plugs are not in good condition they should be replaced. Use Champion J-6 spark plug gapped at .028 to .032. Tighten to 32 ft. lbs.

IGNITION POINT SETTING — Stock gap of .016 to .020 is recommended (48 to 52 degrees if set with cam dwell indicator).

IGNITION TIMING — In most cases the stock ignition setting is recommended. If detonation or "ping" is encountered with this setting because of carbon deposits or available fuel, it will be necessary to retard the timing a few degrees. See owners manual for details on checking and setting ignition timing.

CARBURETOR — The carburetor furnished with the supercharger has fixed jets and has been specifically set up for the supercharged Volvo. It provides the correct fuel air ratio throughout the entire speed range of the engine. The only adjustment provided for on this carburetor is for the idle mixture and idle speed.

DATA

LUBRICATOR ADJUSTMENT — (Lubrication is very important). 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 four to five 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 1,000 miles and the oil level should be checked occasionally so that you do not run out of lubricant. Engine and lubricator should be warm while adjustments are being made. The adjustment should be checked after the first one hundred miles. The oil from the automatic lubricator is to oil the bore of the supercharger housing and also acts as an upper cylinder lubricant. The two main rotor bearings of the supercharger are greased and sealed at the factory. Use any good grade of 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 because of the high vacuum. The lubricator should be adjusted and left alone as any variance that will occur at idle will be slight under actual operation.

and is averaged out over the vacuum range of the engine. The amount of oil fed to the supercharger by the automatic lubricator will vary with the manner in which the car is driven. The automatic lubricator should be adjusted on the basis of oil consumption so that approximately one quart of oil is used every 800 miles.

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

BREAK-IN-PERIOD — No breaking-in-period is required for the Judson Supercharger. We do, however, recommend that the engine be run slowly or at idle for at least fifteen minutes before placing the engine or supercharger under load.

IDENTIFICATION — A (supercharged) identification plate is furnished with the kit with instructions for mounting.

NOISE — The supercharger may sound noisy when it is first started or within the first half hour of operation. This noise is nothing to be concerned about and will disappear completely within the first 20 to 40 miles of hard driving. A slight clicking noise sometimes at idle or after backing off of the throttle after a hard run is 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 belt is a standard size and can be purchased from any automotive jobber under Gates number 8218 as a matched pair.

TEMPERATURE — A severe flat spot will be encountered on acceleration when the engine is cold or if the temperature of the air in the engine compartment is too low. The radiator blind should be used during cold weather so that the air entering the carburetor will not be too cold.

SUPERCHARGER PRESSURE — A supercharger gauge is available as an accessory for the Judson supercharger. This is a compound gauge reading both vacuum and pressure. The gauge is furnished as a complete assembly including fittings and hose. The price is \$8.80. The Judson Supercharger replaces the vacuum in the manifold with a pressure in proportion to the load placed on the engine. There is always a vacuum in the manifold when the engine is at idle or when the engine is not under load. The vacuum in the manifold is replaced with a pressure as the throttle is opened and the engine is placed under load. Highest boost pressures are obtained under full throttle operation when accelerating or going up an incline. Pressure will vary according to condition of engine, altitude, speed, humidity and engine load. Maximum manifold pressure, because of these conditions, will vary between 5 to 7 pounds. Even when the engine is not operating with a manifold pressure at idle or when there is no load on the engine, the efficiency of the engine has been increased due to the improvement in volumetric efficiency. There is a direct relationship between fuel consumption and manifold boost pressure as the horsepower available increases with the boost pressure. When you do not use the additional power afforded by the supercharger by pushing the engine, you do not pay for it through increased fuel consumption.

WARRANTY — The Judson Supercharger is warranted to be free from defects in material and workmanship under normal use and service. In case of failure 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.

ITEMS TO CHECK FOR LACK OF PERFORMANCE

INSTALLATION OF SUPERCHARGER — It is very important that the instructions be followed exactly in installing the supercharger on the engine. Mistakes usually made: throttle improperly adjusted not allowing throttle on carburetor to open or close completely. The throttle on the carburetor must be completely open when the accelerator pedal is fully depressed. Choke butterfly in throat of carburetor should be fully open when choke button on dash panel is pushed in completely. The idler pulley runs against the underside of the belts (on the flat section of the belt). The vacuum advance line must be securely fastened at both the distributor and carburetor. Maximum supercharged performance cannot be obtained by using spark plugs that are worn or in poor condition.

ENGINE — Maximum performance after supercharging is a function of engine condition and tuning. Engine deficiencies often unnoticed before supercharging sometimes prevent the increased performance that can be expected from the 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 a leak in the induction system, improper valve clearance or a faulty ignition system. 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 contributes to poor performance. See installation data for timing, point and plug setting. 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, the use of a special cam or making any other basic modifications on the supercharged engine.

The Judson Supercharger is fully covered by patents and patents pending.



JUDSON RESEARCH AND MFG. CO.
CONSHOHOCKEN, PA.