MODEL-TR
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 battery by removing one cable from terminal.

2. Remove fuel and vacuum lines from engine. Remove carburetors and intake manifold from engine.

3. Insert square headed bolt in rear exhaust manifold support lug with nut on each side of lug as shown. Do not lock nuts on bolt as this must be adjusted later.

4. Fasten throttle bracket to throttle control arm with screw, nut and lockwasher provided.

— B —

1. Loosen generator and remove belt from generator and water pump pulley (do not remove belt from engine).

2. Loosen nuts that fasten bottom of radiator to frame (do not remove nuts but loosen only).

3. Remove top radiator support rod from carburetor side of engine. Remove top radiator hose. Adjust radiator support rod on opposite side of engine as far forward as possible so that radiator is at an angle. Filler neck on radiator is slanted forward. The end of the radiator support rod should be flush with the rear nut.

4. Remove original pulley from water pump by removing locknut and washer on end of shaft. Remove horn from body bracket (it is not necessary to disconnect the wires from the horn).

5. With a hack saw remove one radiator support bracket from fender as shown in photo.

6. With hack saw remove end of front carburetor support from exhaust manifold as shown. Measure 3" from head as illustrated.

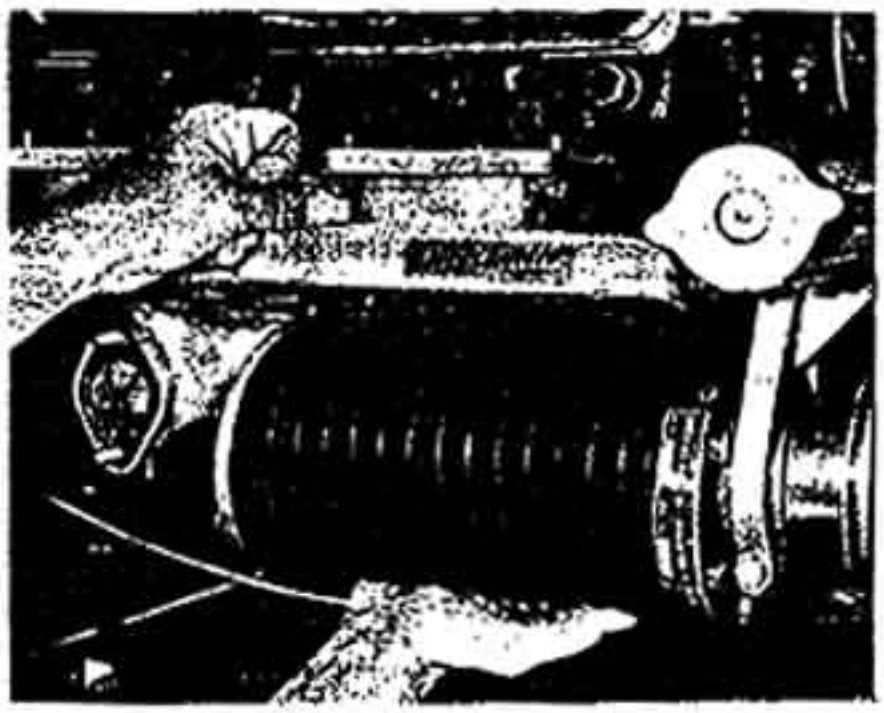
7. With hack saw remove front of horn bracket so that it is even with outer edge of nut that is welded to underneath of bracket.

8. Install new pulley on water pump using original washer and locknut.

9. Reinstall original belt around crankshaft pulley, water pump and generator. Remove slack from belt by adjusting generator.

10. Bolt horn to new bracket. Top side-horn end of bracket is identified by a black dot. Use one original bolt to fasten bracket as shown. Tighten. Drill ¼" hole for rear screw and fasten with screw and locknut furnished.

11. Attach radiator support rod to radiator. Do not tighten nut. Place new radiator fender support on rod. Place rod in position as shown, scribe holes on fender and drill with ¼" drill. Rod should be approximately 1⅝" from cowl support. Remove rod from bracket, fasten with ¼" screws and locknuts furnished. Reinstall rod in bracket and tighten in position with screws furnished.



— C —

1. Install supercharger on engine as follows: Insert original lugs and nuts on the two lower manifold studs. Supercharger is lowered into position so that the two dowels in head match the holes in the supercharger manifold. Supercharger is tilted as shown in photo and lugs and nuts placed on upper studs. The upper nuts must be screwed on to the studs gradually as clearance is limited (tighten first nut a few turns, then second nut, third, fourth and repeat). Tighten bottom lug nuts making sure that lug is angled so that it clamps the manifold. The front lower lug is tightened with a thin 9/16" open end wrench. Nut can be seen by shining flashlight between manifold from the top. Rear lower lug can be tightened with same wrench or socket and universal joint.

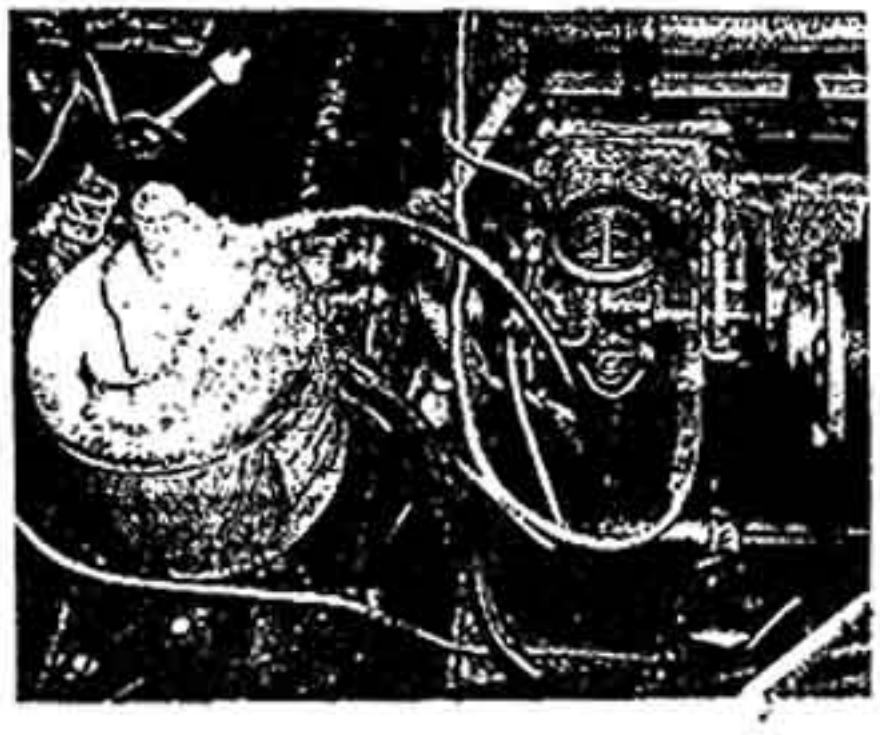
2. Screw square headed bolt that was inserted in rear exhaust manifold lug so that it supports underside of manifold on supercharger. Do not screw up too tightly. Manifold is just to rest on bolt. Lock bolt in place with nuts.

— D —

1. Fasten carburetor to studs on supercharger manifold using gasket and locknuts supplied.

2. Install throttle rod as shown. Adjust throttle rod so that the accelerator pedal is in original position. Tighten locking nuts on throttle rod. The original throttle return spring is retained as shown in photo. The accelerator pedal stop located under the pedal may have to be adjusted to give full throttle opening. To check, depress accelerator pedal to its maximum and make sure that the lower butterfly in the carburetor is fully open.

3. Loosen the outside screw fastening the starter solenoid to the fire-wall. Break off wire harness clip with pliers. Remove the clamp from brake line. Pull brake line over and place lubricator in position as shown with one end under starter solenoid. Tighten solenoid screw clamping one end of plate of lubricator. Drill 1/8" hole and use screw furnished to fasten other end of lubricator plate. Re-position the original brake line, drill 1/8" hole and fasten using the original clamp and screw.



— E —

1. Cut off vacuum advance line at original carburetor fitting. Do not cut fuel line. Insert new short section of vacuum advance line in carburetor. Tighten fitting at carburetor. Insert original vacuum advance line into hose as far as possible. Reform original vacuum advance line around the back of engine to attach to distributor as shown.

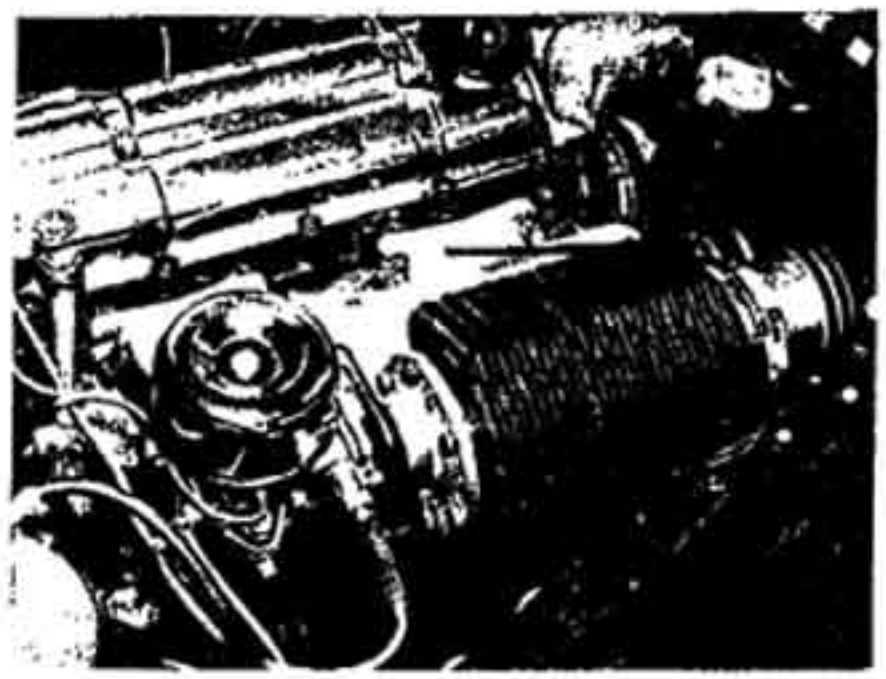
2. Reform original fuel line around rear of engine and use original connecting hose to carburetor. Secure fuel and vacuum lines to heater outlet tube on rear of engine with original clamp over friction tape.

3. Install choke cable through clamp on carburetor and connect choke wire. Loop one end of choke return spring furnished with kit around the brass choke wire connector on the carburetor and place other end of spring over pin at rear top of supercharger manifold.

4. Connect oil line from lubricator to fitting under carburetor flange as shown using aluminum ferrules at both ends.

1. Install air cleaner on carburetor securing with clamping screw. Make sure that the vacuum advance line clears the air cleaner and that the choke operates freely.

2. Loosen bolt clamping the idler bracket to the supercharger. Lower the idler bracket as far as possible. Belts are installed one at a time by placing over the water pump pulley and rolling it on the supercharger pulley by placing the car in fourth gear and pushing car. When both belts have been installed, the idler should be pulled up tightly against underside of belts and the clamping bolt tightened. Make sure there is clearance between the pulley on the supercharger and the idler bracket.



G — Check water level in radiator.

H — 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 tank has a capacity of two quarts.

ENGINE ADJUSTMENTS

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

VALVE CLEARANCE — The stock valve clearance is recommended. Check to make sure that both intake and exhaust valves have a clearance of .010 (engine cold).

HEAD BOLTS — Tightness of head bolts should be checked to 105 ft. lbs. in sequence as shown in owner's manual.

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 the stock Lodge or Champion L-7 spark plug, gapped at .025.

IGNITION POINT SETTING — Stock gap of .015 is recommended (52 to 56 degrees if set with cam dwell indicator).

IGNITION TIMING — The stock ignition timing setting of 4 degrees before top dead center is recommended. If additional adjustment is required because of available fuel or carbon deposits it can be obtained with the knurled screw on the side of the distributor.

CARBURETOR — The carburetor furnished with the supercharger has fixed jets and has been specifically set up for the supercharged Triumph TR-3. 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.

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 adjustment on the carburetor is the slotted brass screw located on the side of the carburetor next to the engine. 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 approximately 800 RPM.

DATA

LUBRICATOR ADJUSTMENT — (Correct 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 three to four 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 or two 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 which will occur at idle will be slight under actual operation and is averaged out over the vacuum range of the engine.

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 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 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 belts are a standard size and can be purchased from any automotive jobber under Gates number 8254 as a matched set. Do not make belts too tight. Belts are of premium quality and should last for at least 30,000 miles.

SUPERCHARGER PRESSURE — 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 6 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 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 — It is very important that the instructions be followed exactly in installing the supercharger on the engine. If the two bottom lugs do not clamp the supercharger manifold on the side of the head securely, a leak will result causing an erratic idle, a flat spot, difficult starting and poor performance in general. As the clamping lugs have a tendency to slip off of the flange as the nut is tightened, this connection should be checked. Mistakes usually made in making installation: idler pulley running on inside of belt instead of back of belt as instructed, choke not completely opened when dash button is pushed in, throttle not opening completely due to throttle pedal hitting stop on floor board, defective high tension ignition wiring, weak coil, worn or incorrect spark plugs, improperly gapped spark plugs or timing not properly adjusted.

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 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 one of the following: 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.

SUPERCHARGED by JUDSON

JUDSON RESEARCH AND MFG. CO.
CONSHOHOCKEN, PA.

JUDSON

RESEARCH AND MFG. CO.
CONSHOHOCKEN, PENNA.

BULLETIN

TELEPHONE: TAYLOR 8-3011
CABLES JUDCO

MODEL TR SUPERCHARGER

The following revisions have been made in the installation instructions to simplify installation and so that the same kit can be installed on both the TR-3 and the TR-4.

Before installing the supercharger the original fan belt should be inspected for wear or cracks and replaced if necessary.

In removing the front carburetor support from the exhaust manifold or header as described in Item 6 of Section B, measure out 3-1/4" and not 3"

In the event that the manifold studs are too long and prevent the supercharger manifold from coming up flush to the head, file or cut 1/8" off of the end of the studs.

If the radiator filler interferes with the hood or the supercharger belts, the underside of the filler neck should be hammered up to obtain additional belt clearance.

The automatic lubricator with a metal can has been replaced with a universal mounting lubricator equipped with a glass jar. This can be mounted anywhere in the engine compartment. It is vacuum operated and as a consequence its location is not important.

Refer to Item 1 of Section E. Do not connect the vacuum advance line from the ignition distributor to the carburetor. The vacuum advance line from the ignition distributor should be connected to the fitting on top of the supercharger manifold with the plastic line furnished. A short section of the original vacuum advance line is retained at the ignition distributor and this can be inserted into the plastic line. Initial ignition timing should be set at the stock setting unless detonation or "ping" is encountered in which case the timing should be retarded 2° to 4° using the knurled screw on the side of the distributor.

Disregard the following data in the installation instructions when making the installation on the TR-4 as these operations are not required;

Item 3 of Section B
Item 5 of Section B
Item 7 of Section B
Item 10 of Section B
Item 11 of Section B

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19428

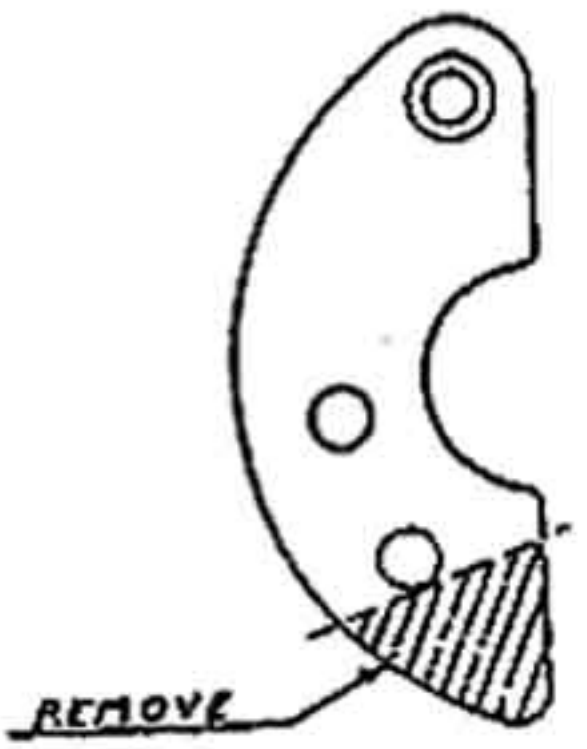
TR-3 SERVICE BULLETIN

Before installing the supercharger the original fan belt should be inspected for checks or cracks and replaced if necessary.

In removing the front carburetor support from the exhaust manifold or header, measure out three inches as per instructions but cut at same angle as exhaust header. Do not cut strieght down or vertically. This prevents cutting through the header.

Do not use lockwashers on the four top manifold studs fastening supercharger to engine. In the event that the manifold studs are too long and prevent the supercharger manifold from coming up flush to the head, file or cut 1/8" off the end of the studs.

Remove the top plate from inside the ignition distributor (plate holding points, condenser, etc.) and check centrifugal weight springs. If the heavy spring is loose, remove the slack by curling end of spring that fastens to the brass link. For maximum performance or if detonation is encountered, the distributor advance curve should be revised. This is done by removing the main shaft with the weight plate from the distributor body. Disassemble weights being careful not to stretch the springs. Cut off heavy end of weights as shown in sketch. Remove burrs from weights and reassemble distributor. With this modification in the advance curve the timing may then be set at 6 to 7 degrees BTDC. This change delays the ignition advance at low RPM where detonation can occur but does not restrict the advance at higher RPM.



If radiator filler cap hits the hood due to the radiator being tilted forward, underside of filler neck should be hammered up to obtain more belt clearance and radiator re-adjusted to clear hood.