

1. Mount instrument and connect tubing to rear of gauge by positioning olive nut on tube followed by the olive. Ensure the tube protrudes at least 1/16" through olive and connect to gauge holding tubing pushed in whilst tightening. Run tubing to engine compartment avoiding positions where chafing could occur.
2. Four adaptors are available for connection to engine:-
 - Part No. ITPA 103 for general usage, with standard manifolds.
 - Part No. ITPA 19 for insertion in 1/2" dia. rubber balance pipe.
 - Part No. ITPA 20 for insertion in 3/8" dia. servo hose.
 - Part No. ITPA 21 carburettor adaptor flange for standard Volkswagens.

Use appropriate adaptor and proceed as follows:-

For ITPA 103 - Remove inlet manifold, select suitable position (preferably on top) and drill with letter 'R' drill (0.339" - 9 m. m) and tap 1/8" N. P. T. taper to suit adaptor. Remove swarf, refit manifold and fit adaptor. Connect up tubing.

For ITPA 19 - Cut out centre section of balance pipe for appropriate length and replace with take-off adaptor. Connect up tubing.

For ITPA 20 - Cut out section of servo hose and replace with take-off adaptor. Connect up tubing.

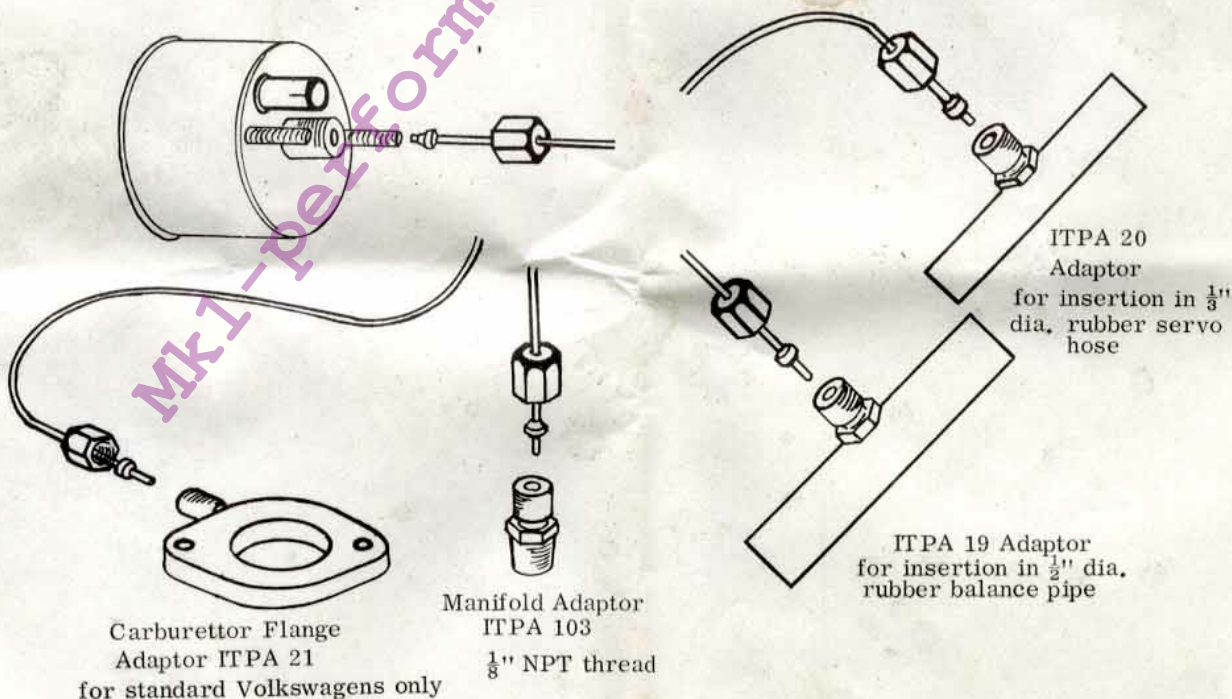
For ITPA 21 - Remove carburettor and replace studs with longer studs supplied. Insert adaptor flange and refit carburettor with new gaskets. Connect up tubing.

Internal Illumination

Ensure instrument casing is earthed and connect single red wire from bulb holder to sidelamp circuit.

Note: The vehicle sidelamp circuit is also generally colour coded red on British made cars.

Volkswagen sidelamp circuit colour coded grey.



The usefulness of a vacuum gauge is its ability to notify the driver of wastage of fuel and deterioration of engine condition. The following list should assist a driver new to the instrument to interpret the gauge readings:-

OPERATING CONDITION	THROTTLE POSITION	CORRECT VACUUM READINGS	REMARKS	FUEL CONSUMPTION
Engine under maximum acceleration or full load	Fully open	0-5 ins-Hg	If this reading cannot be obtained at full throttle check for blockage of air cleaner	Wasteful
Medium acceleration or fast cruising	Approx $\frac{1}{2}$ open	5-10 ins-Hg	Oscillation of needle in 10-17 ins-Hg range indicates sub-standard ignition or weak mixture	Economy/Power Compromise
Engine operation under light load condition	Approx $\frac{1}{4}$ open	10-17 ins-Hg	Needle showing reading in 5-10 ins-Hg range indicates leaking or burnt valves	Economy
Engine idling or decelerating with slightly open throttle	Closed	17-21 ins-Hg	Needle showing steady lower reading suggests incorrect ignition or valve timing, piston ring wear or incorrect mixture	-
Engine being used as brake i.e. overrun condition	Closed	21-30 ins-Hg	If this reading cannot be obtained inspect for manifold air leaks. Constant use in this range produces plug-fouling	-

Note:-

When a vacuum gauge is installed in cars with sports or race type camshafts or with certain special carburettors, the readings obtained will be slightly lower than listed above.