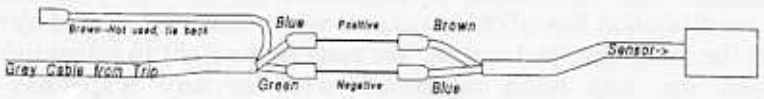
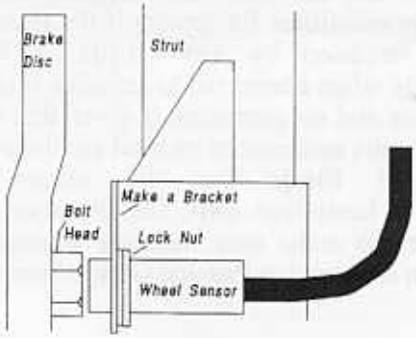
Input is 'dioded' to prevent interaction of the interface and the vehicle if the meter is switched off. Divide ratio = figure on the rotary switch (1 to 15) zero is not valid. Power source from meter is 5volts, interface is not protected from reverse connection. Output is open collector. Before fitting any type of sensor to a vehicle, connect it up to the Brantz meter and check its' correct operation by rotating the inner of speedometer cable types, or repeated touching of wheel types to a metal object. Use a low calibration figure on the meter, and watch the readouts increment. If the readouts do not increment there is a problem which should be investigated. Make absolutely sure that sensors are correctly connected before turning on the meter as they will be destroyed by reverse current.

WHEEL SENSOR INSTALLATION:

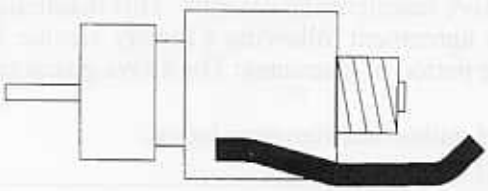


STRUT



A bracket to mount the wheel sensor to the suspension strut should be made rigid enough to prevent flexing. Bolt heads (a minimum of four for accuracy, and NOT of the socket head type as these cause problems) should pass squarely across the centre of the face of the sensor all at the same distance of 1mm.
Correct fitting can be checked when the meter has been wired to the sensor.
Select calibration 001 and switch on the meter. Zero the meter readouts.
Rotate the wheel having the sensor fitted. Each bolt head passing the sensor should cause the meter to increment.

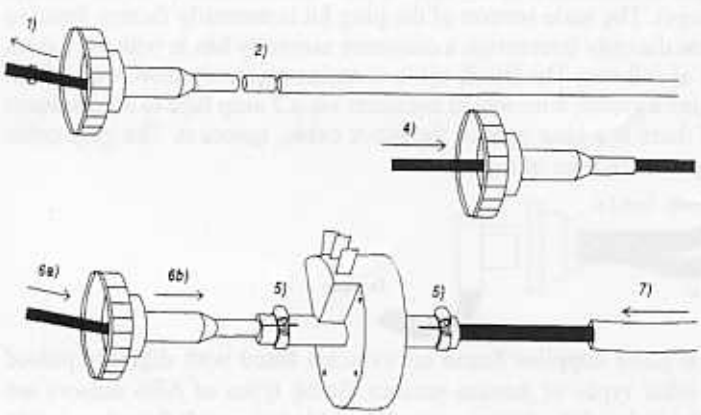
GEARBOX TYPE SCREW-IN SENSORS
JAP / FORD TYPE DRAWING



Most Japanese manufacturers have standardised their gearbox outputs to accept a M20 x 1.5 threaded sensor which has a round peg drive with a 'lug' pinched onto the side. Unscrew the original speedometer cable from the gearbox, screw in the Brantz Jap sensor with the drive pin in place, and screw the original speedometer cable into the sensor. Wiring is to the Brantz GREY cable as follows: Green to Green, Blue to Blue, Brown to Brown. Some Jap sensors have a different colour code and are wired as follows: Green to Black or Silver, Brown to Red, Blue to White. Many Ford/GM/Vauxhall/Fiat/VW/Skoda/Lada gearbox outputs are similar in that they have a square drive and a M18 x 1.5 screw thread. The Brantz Ford/GM sensor will fit many of these vehicles but will require some degree of filing/cutting/drilling before they are an acceptable engineering fit. Select this sensor only if you have the skills to do this. Wiring is the same as for the Jap sensor above.

UNIVERSAL SPEEDOMETER CABLE SENSOR

This plastic unit fits in the length of almost any speedometer cable, though some old cables require holes to be slightly enlarged due to 'chunky' cable dimensions, and some modern speedometer cables need enginuity to dismantle them as manufacturers seem to want to prevent customers from separating the inner from the outer. Generally with the so-called 'sealed' cables, a section of sheath from the centre of the cable should be removed first to obviate the fixing system used on the ends of the inner. Replacement lengths of sheath can always be put back in after the cable has been separated. Heat-shrink sleeve, particularly the type which is adhesive-lined makes easy repairs to segmented sheaths. To assist with fitting, a cross-section of the universal sensor is shown. Note that the rotor floats in air and puts no additional strain on the speedometer drive, but this construction demands that the sensor should not be subjected to 'end thrust' which could be produced by a worn cable, or being fitted on a bend in the cable. Modern sensors can be stripped to help with fitting in difficult cases. Connections are Brown to Brown, Blue to Blue; Green to Green.



1) Remove inner core. Cut through the outer sheath at the location of the sensor with a fine toothed hacksaw. 32 teeth/inch recommended.
2) Make a second cut through sheath to shorten the sheath by 1/2 inch (13mm).
3) Remove any burrs with a fine file.
4) Wipe off any excess grease and any metal debris from the inner and the outer, and re-insert the inner which has an enlarged end through its' section of sheath.
5) Place clamps (Jubilee clips or preferably screw type petrol hose clips) onto both ends of the plastic sensor.
6) Insert the loose end of the speedometers cable inner into one end of the sensor and push very firmly through the sensor's internal friction bushing until the sheath section is fully seated in the sensor. If your speedometer cable sheath is of a smaller diameter than can be easily clamped by the sensor then build up the diameter of the sheath with adhesive aluminium tape.
Tighten the clamps moderately.
7) Feed the loose end of the inner through the last piece of sheath until it is fully inside the sensor. Tighten the clamps moderately. If you do not wish to use clamps, they could be replaced with adhesive lined heat-shrink sleeve.

Trouble-shooting suspected sensor installations:

If it is suspected that either a wheel or speedometer sensor has been damaged in service (ie tripmeter does not increment on the road) then the output from the sensor can be tested with a voltmeter (voltage varies as wheel or sensor is rotated. Alternatively the tripmeter itself can be proven to be OK by the following test which must be carried out strictly in the order described. a) Switch off the meter. b) Pull off the three push-on connectors from the grey cable to the sensor. c) Ease back the insulating sleeves from the Blue and Green wires of the grey cable described in b). Keep these away from contact with anything else. d) Select calibration 001 on the tripmeter. e) Switch on the tripmeter. f) Press all the zeroing buttons. g) Tap the above Blue and Green wire connectors together electrically many times. The tripmeter should increment. If it does, and there is no increment during normal use on the road with the sensor connected, then the sensor has indeed been damaged and the tripmeter itself is still functional. The other type of misoperation from which a tripmeter can suffer is self-stepping whilst the vehicle's engine is running, or self zeroing, or readouts going on and off by themselves. Assuming the power supply is reliable (try powering the meter directly from a separate battery placed temporarily in the passenger area) then suspect powerful radio interference from home-made H.T. sparkplug leads. This is particularly common with historic vehicles. Replace them with standard proprietary parts from an accessory shop. Testing for interference is easily demonstrated using a portable radio on the AM band (important). Tune away from the stations into a quiet frequency, turn up the volume, then start up the engine. Listen for loud clicks. That's interference which should be cured, as it is far too powerful to defend against with screening etc. Vehicles with interference will normally fail pre-event scrutineering.