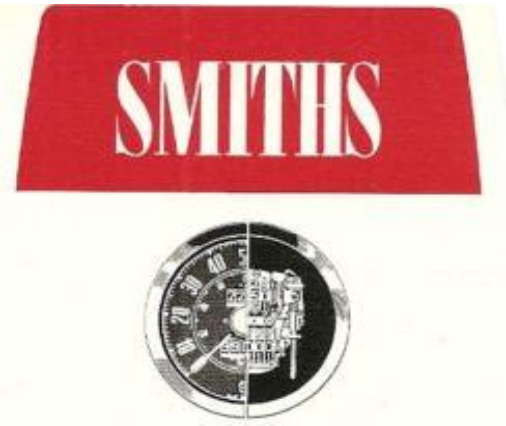
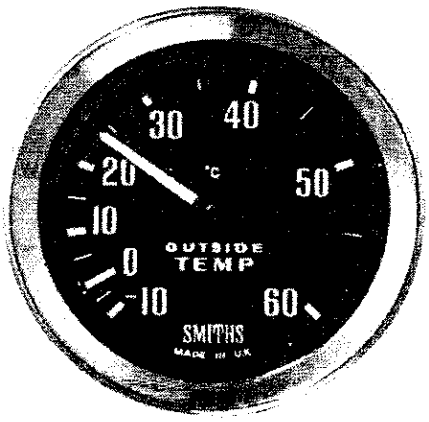
Smiths Supplementary Instruments of 60’s

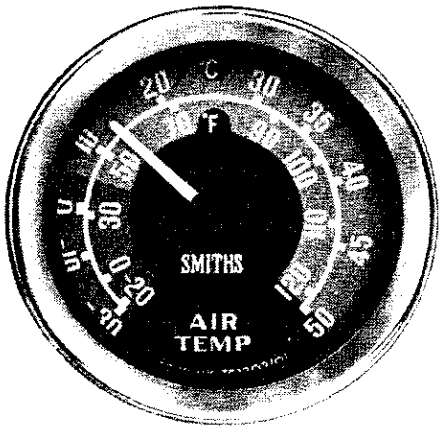


Compiled by J. Scott Morris [jstmorris@yahoo.com]

SMITHS AIR TEMPERATURE GAUGE



CODE ATB
Black dial, white figures,
white pointer, chrome bezel



CODE ATC
Red, green and black dial,
white pointer, chrome bezel.

INTERNAL ILLUMINATION • SIMPLE TO INSTALL • ACCURATE & RELIABLE • 12 MONTHS GUARANTEE

This is an accurate, precision-engineered instrument designed to show the ambient air temperature outside the car, whilst stationary or moving. The gauge is internally illuminated for night driving. It can either be mounted in the existing dashboard, if there is sufficient space, or in a special Smiths instrument mounting panel—further details of which are shown overleaf. The gauge is connected by a length of capillary to a temperature sensing unit which is fitted externally.

ICE WARNING

The air temperature gauge provides a warning of freezing conditions, indicating the risk of encountering ice on the roads. It will be a valuable contribution to YOUR SAFETY. Also as winter approaches, low readings on the gauge provide an accurate indication as to when it is neccessary to add Bluecol Anti-Freeze to the cooling system.

SIMPLE INSTALLATION

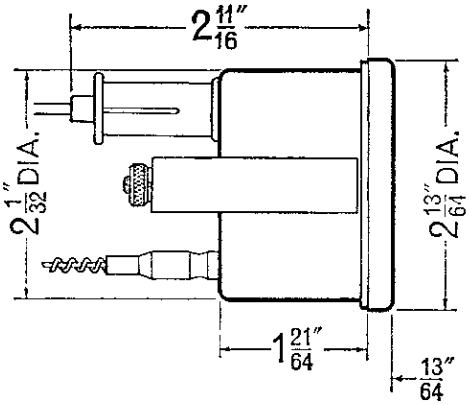
The instrument is supplied as a complete kit ready to fit. No special tools are required and complete instructions are provided overleaf.

ATB

This instrument is calibrated in degrees centigrade and has a temperature range of −10°C to +60°C. It is supplied with a 10 foot capillary.

ATC

For those motorists who are likely to encounter extremely cold conditions this instrument is calibrated from −30°C to +50°C. It also shows fahrenheit equivalents. The ATC has a coloured dial in two sections, green and red. The red section serves to indicate when ice is likely to be encountered on the road. This instrument is supplied with a 13 foot capillary.



CODES ATB and ATC

WILL INDICATE

Outside air temperature
Danger of ice on roads
Need for Bluecol Anti-Freeze in cooling system

Recommended
Retail Prices

ATB 85/-

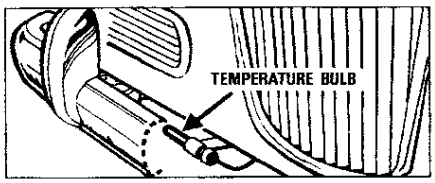
ATC 95/-

AIR TEMPERATURE GAUGE FITTING INSTRUCTIONS

Establish a suitable position for mounting the instrument, either in the dashboard if there is space, or in a Smiths Instrument Mounting Panel. The sensing unit (temperature bulb) should be clamped in a convenient position behind the front bumper, out of the main air-stream, but not too close to the radiator. The bracket supplied to hold the sensing unit can usually be clamped to one of the existing bumper bolts, otherwise a separate bolt will have to be used. In some cases there is an existing hole in the bulkhead through which the capillary tube can be run; if not, a 1" diameter hole must be cut. After fitting, the grommet provided on the capillary tube should be inserted in this hole to hold the capillary steady and to prevent draughts. The capillary tube should be cleated to the car body near to the bulb fixture behind the front bumper, without any intervening coils. Thereafter cleat the capillary to the car body, at points that do not become excessively hot, so that unsupported lengths do not exceed 8". Any excess length of capillary should be formed into coils of not less than 2" diameter at a convenient place between two points where the tube is cleated to the car body. Connect the lead from the bulb holder, supplied with the instrument, to a convenient point in the existing lighting circuit. Ensure that the instrument case is properly earthed, making a separate earthing connection if necessary.

IMPORTANT—THE CAPILLARY TUBE:

1. On no account must it be disconnected from the bulb or the gauge
2. It must not be sharply bent or twisted.
3. All bends should be made with the fingers and should not be less than 1" radius.
4. No sharp tools should be applied to it.

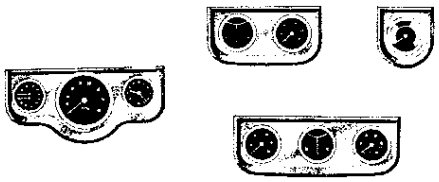


INSTRUMENT MOUNTING PANELS

When mounting additional instruments, it is not always convenient or possible to cut the necessary apertures in the dashboard. In such cases one of the range of attractively designed Smiths instrument mounting panels should be used. A few details are given below.

De-Luxe Sub Panel—Code PAD. To hold two 2" instruments. This has a chromium bezel and silver background.

Standard Mounting Panels—Codes PA1, PA2, PA3. To hold one, two or three 2" instruments. These have a silver grey finish which can easily be coloured to match the existing dashboard if required.



Super Sub Panels—Codes SP1, SP2, SP3, SPT3. To hold one, two or three 2" instruments or (SPT3) to hold two 2" instruments and one Impulse Tachometer 3⅛" diameter. These panels have an attractive simulated black leather grained finish.

Full details of Smiths Instrument Mounting Panels are provided on a separate leaflet.

OTHER SMITHS SUPPLEMENTARY INSTRUMENTS

Designed to save you time, trouble and money by telling you the facts about your car before the failures occur.

WATER TEMPERATURE GAUGE
IMPULSE TACHOMETER
BATTERY CONDITION INDICATOR
ELECTRIC CLOCK
OIL TEMPERATURE GAUGE
VACUUM GAUGE
OIL PRESSURE GAUGE
PERFORMANCE GAUGE
AMMETER
DUAL GAUGE

SMITHS INDUSTRIES LIMITED

MOTOR ACCESSORY DIVISION

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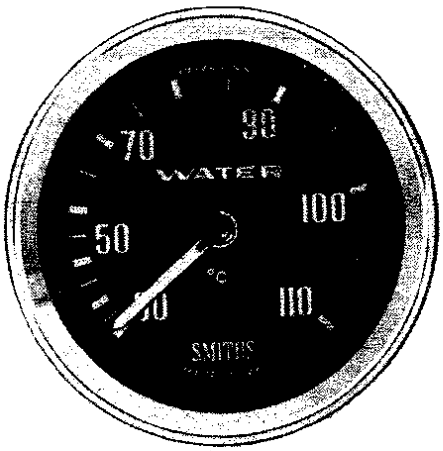
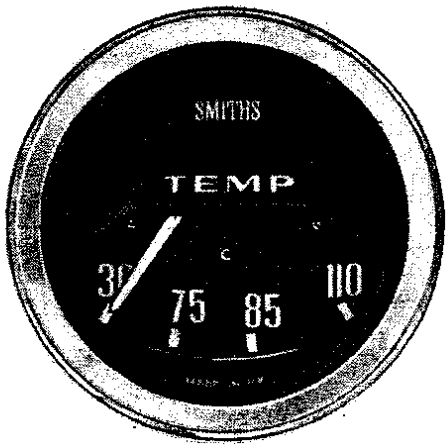
SMITHS WATER TEMPERATURE GAUGES



CODE TB
Full scale,
black dial,
white figures,
white pointer,
chrome bezel



CODE TSB
Short scale,
black dial,
white figures,
white pointer,
chrome bezel

INTERNAL ILLUMINATION • SIMPLE INSTALLATION • ACCURATE & RELIABLE • 12 MONTHS GUARANTEE

Extremes of heat and cold are bad for any engine; overheating is indicative of several forms of trouble, whilst an engine that never warms up properly is inefficient. Where a heater is fitted a temperature gauge will show if the water to the heater is hot enough for maximum output. On vehicles fitted with a radiator blind a temperature gauge is essential for proper control of the running temperature.

The TB instruments consist of a bulb and indicator interconnected by a sealed length of capillary tube. When the bulb is heated, the increase in vapour pressure of the fluid inside it is shown by the instrument, which is calibrated 30–110°C. Each gauge is supplied complete with 6'6" of capillary tubing and special fittings to facilitate connection to the cooling system.

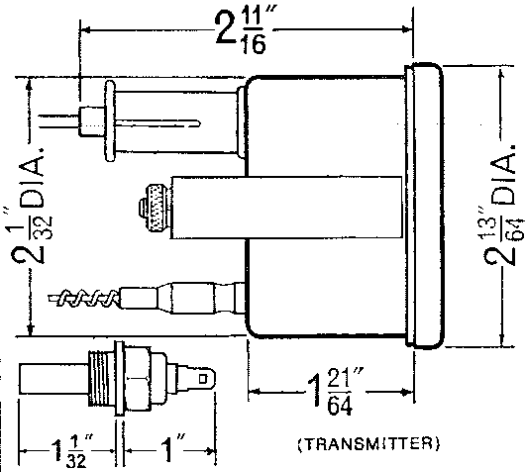
The TSB short-scale instrument is a semi-conductor type temperature indicator. It is supplied as a complete kit, consisting of two units —an indicator as shown above and a transmitter which is inserted in the vehicle cooling system. When installed the two units are linked by a single wire lead.

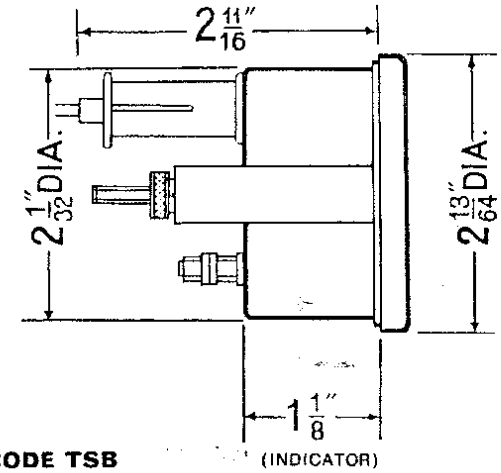
These instruments are supplied as complete kits, ready to fit. On some vehicles provision is made on the dashboard for mounting extra instruments. Where there is no provision, we provide an attractive range of mounting panels. They are available in several types of finish and to hold one, two or three instruments. Full details of these mounting panels are provided on a separate leaflet.

WILL INDICATE

Lack of coolant • Faulty water pump
Blocked radiator or hoses
Faulty thermostat, etc.

CODE TB





CODE TSB

FITTING INSTRUCTIONS OVERLEAF

WATER TEMPERATURE GAUGES
FITTING INSTRUCTIONS

CODE TB (FULL SCALE INSTRUMENT)

These kits contain a temperature gauge, hose connector and double ended union. To enable the bulb and capillary to pass through the bulkhead, it is necessary to cut a 1" diameter hole. After fitting the instrument, the grommet provided should be inserted in this hole to hold the capillary tubing steady and to prevent draughts. The method of connecting the temperature gauge bulb to the engine varies according to the car.

On engines where provision exists, i.e., most Fords, B.M.C. 1100 series, etc., the union supplied can be screwed direct into the tapping provided after partially draining the radiator. To fit the gauge, remove the plug from the tapping and screw in the double ended union supplied. The temperature gauge bulb is then inserted into the union and the union nut screwed down (Fig. 2), taking care not to twist the capillary tubing. Where this type of fitting is not feasible, connection should be made to the top radiator hose, for which a special hose connector is supplied (Fig. 1). To fit this connector, partially drain the radiator, remove hose and with the aid of the hose cutter provided, cut an $\frac{11}{16}$" diameter hole in a suitable position. Fit the rubber washer over the screwed connector, and pass it through the wall of the hose from the inside. Place the curved portion over the protruding head and tighten up with the nut. A proprietary sealing compound should be used to ensure that all joints are watertight.

Where neither of the above methods is possible, the alternative is to fit the temperature gauge bulb to the header tank. For this type of installation, it is necessary to cut a $\frac{5}{8}$" diameter hole in a suitable position in the header tank into which should be soldered the double ended union provided, ensuring that the shorter thread on the union is inserted into the hole in the header tank. The temperature gauge bulb is then inserted into the union and the union nut screwed into position (Fig. 3).

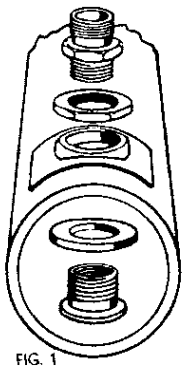


FIG. 1
RADIATOR HOSE

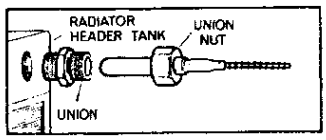


FIG. 3

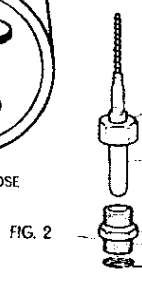


FIG. 2
UNION
TAPPING PROVIDED
ON CYLINDER BLOCK

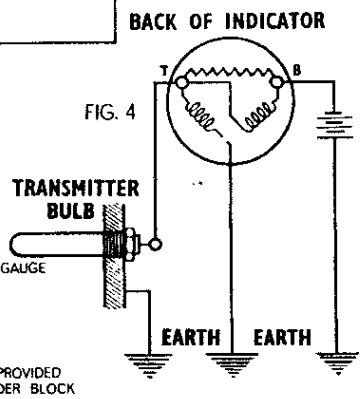


FIG. 4

CODE TSB (SHORT SCALE INSTRUMENT)

This kit contains a temperature gauge, transmitter, hose connector and wiring. On cars where provision exists the transmitter can be screwed direct into the tapping after partially draining the radiator. Having fitted the transmitter in position, it should then be wired up by taking the long lead provided and connecting the eye-letted end to the terminal marked 'T' on the rear of the instrument. The other end, terminating in a female blade connector, should be pushed into position onto the top of the transmitter taking the short lead, provided with the kit, to the second terminal marked 'B' on the rear of the temperature gauge, connect it to the ignition switch or any switched fused circuit (see Fig. 4).

Ensure that the instrument case is properly earthed making a separate connection if necessary.

Where this type of fitting is not possible, connection should be made to the top radiator hose, as described for the TB instrument. In this case though it is essential that the hose connector be earthed, otherwise a reading will not be obtained on the gauge.

IMPORTANT—THE CAPILLARY TUBE

1. On no account must it be disconnected from the bulb or the gauge.
2. It must not be sharply bent or twisted.
3. All bends should be made with the fingers and should not be less than 1" in radius.
4. No sharp tools should be applied to it.
5. Cleat it to the engine, within 4" to 6" of the bulb fixture to the engine, without any intervening coils and thereafter cleat it to the engine or body, at points that do not become excessively hot, so that unsupported lengths do not exceed 8".
6. Three coils of not less than 2" diameter must be made between the points where it is last cleated to the engine and first cleated to the body.

Note: Connect the lead from the bulb holder, supplied with the instrument, to a convenient point in the existing instrument illumination circuit. Ensure that the instrument case is properly earthed, making a separate earthing connection if necessary. When the temperature gauge is fitted in the thermostat housing, radiator hose or to the header tank, no reading will be obtained on the gauge until the engine has reached normal operating temperature, i.e., when the thermostat opens. If a reading is obtained immediately when the car is started from cold, the thermostat is not operating correctly and should be replaced.

On some models of car the capillary type (TB) temperature gauge should not be fitted. This is due to insufficient clearance between the bulb fitting point and the body panels causing the capillary tube to vibrate against the body panels leading to eventual fracture of the capillary. In such cases the TSB type gauge should be fitted.

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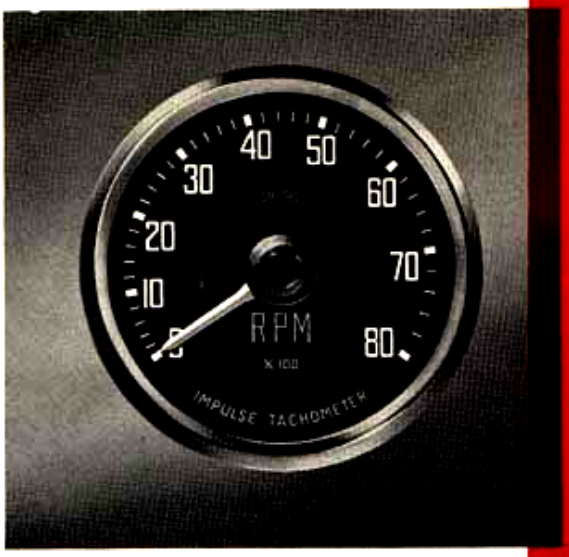


SMITHS

IMPULSE TACHOMETER FOR CARS

For the real enthusiast, it is essential at all times to know the R.P.M. of the engine. Only by having this information can the expert driver be fully aware of engine and gearbox behaviour.

The use of transistor and printed circuit techniques and the vast experience of SMITHS instrument engineers have led to the development of this attractive and reasonably priced tachometer; it has none of the installation disadvantages previously associated with a mechanical "optional extra" revolution indicator.

Supplied as a kit complete with instrument head, mounting bracket and requisite leads, these new instruments for 12 volt, 4 or 6 cylinder vehicles with positive earth coil ignition I.C. engines, have many advantages.

simple installation
(see instructions overleaf)

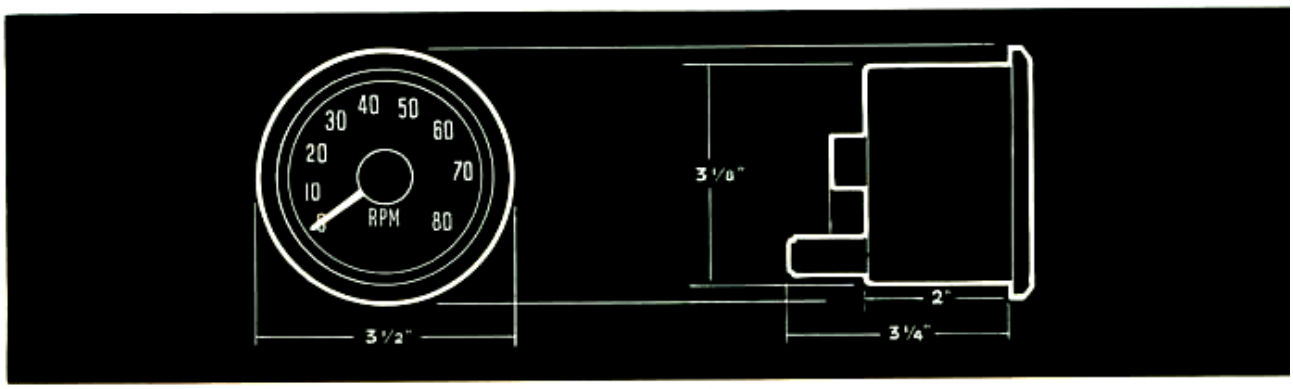
accurate and reliable

no take-off from engine

internal illumination

cannot be affected by eddy currents in the H.T. lead, by the distributor contact setting, by erosion of the sparking plug points or differences in gap setting.

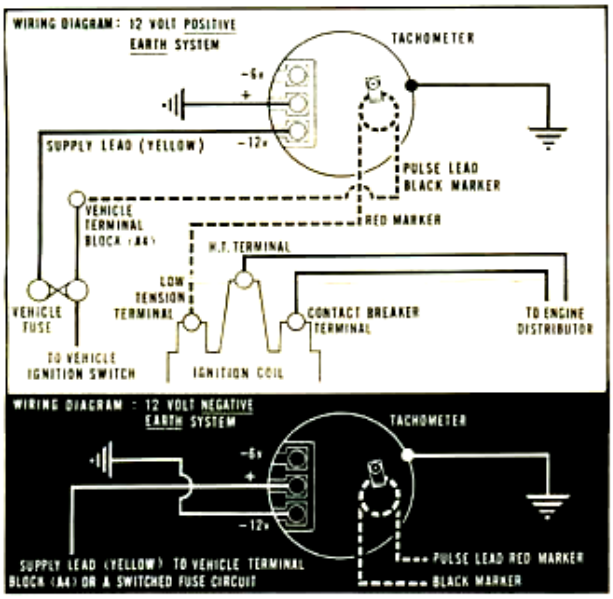
retail price £9 - 15 - 0



IMPULSE TACHOMETER FOR CARS

FITTING INSTRUCTIONS

The instruments for 4 and 6 cylinder vehicles are identical in size and method of fitting. Each has a black dial, white figures, white pointer, chrome bezel and internal illumination. CALIBRATION: 0-8000 R.P.M. only.
FOR 4 CYLINDER I.C. ENGINES (and 2 cylinder 2 stroke) I.C. petrol engines employing a 6 v. or 12 v. coil-ignition system. Code No. KP1250/00 80 mm. diameter, positive or negative earth operation.
FOR 6 CYLINDER I.C. ENGINES (and 3 cylinder 2 stroke) I.C. petrol engines employing a 6 v. or 12 v. coil-ignition system. Code No. KP1250/01 80 mm. diameter, positive or negative earth operation.



INSTRUMENT MOUNTING

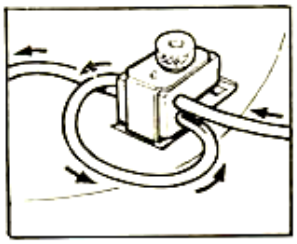
Every tachometer is supplied complete with the bracket illustrated. If there is insufficient room on the existing dashboard to cut an aperture of $3\frac{3}{16}$" diameter, this bracket can be used to mount the instrument in a convenient position under the dashboard.

POSITIVE EARTH CONNECTIONS

Locate the battery feed lead which runs from the ignition switch to the low tension (S.W.) terminal on the coil. Disconnect this lead from the coil and connect the white lead, identified by a red marker, in its place. Connect the other end of the white lead, identified by a black marker, to the lead that has been removed from the coil, making certain that this connection is properly insulated. Determine the vehicle battery voltage and cut the yellow lead supplied to required length and connect from appropriate terminal, i.e. —12 volt or —6 volt, located on the rear of tachometer and thence to A4 terminal on the vehicle terminal block or to a switched fused circuit. *It is most important to determine the correct voltage and to exercise care in selection of the appropriate instrument terminal as incorrect connection will damage the movement within.* From the centre terminal on the tachometer marked '+' connect the balance of the yellow lead and earth instrument to a suitable point on the engine frame. Finally connect the lead from the bulb holder, supplied with the tachometer, to a suitable point in the existing instrument illumination circuit.

NEGATIVE EARTH CONNECTIONS

To operate the instrument on a vehicle with a negative earth electrical system, the ignition impulse lead and electrical supply lead are connected as follows:
Impulse Lead: black marker to ignition coil terminal, red marker to disconnected cable.
Electrical Supply: lead from —12 volt or —6 volt terminal (as applicable) to earth. Lead from terminal marked '+' to A4 terminal or a switched fused circuit.



IMPORTANT

If it should be necessary to adjust the length of white pulse lead on either side of the plastic moulding at the rear of the instrument *do not remove* the white lead, but make any adjustment by moving the lead through the block as indicated in the sketch.

SMITHS MOTOR ACCESSORY DIVISION
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Ref. No. S.1704/1

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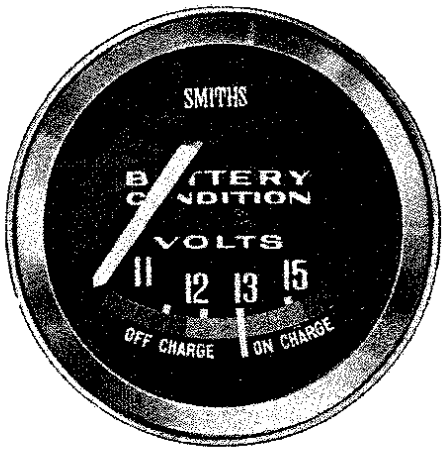
SMITHS BATTERY CONDITION INDICATOR



CODE BC

Black dial, coloured segments, white figures, white pointer, chrome bezel

For 12 volt systems only

INTERNAL ILLUMINATION • SIMPLE INSTALLATION • ACCURATE & RELIABLE • 12 MONTHS GUARANTEE

WHY DO YOU NEED ONE?

1. Because one of the most frequent causes of breakdowns today is a flat or worn out battery. Hardly surprising considering the ever increasing demands made on a battery today by all the equipment of modern motor cars—such as windscreen wipers, lighting equipment, heater, radio and the many optional extras available.

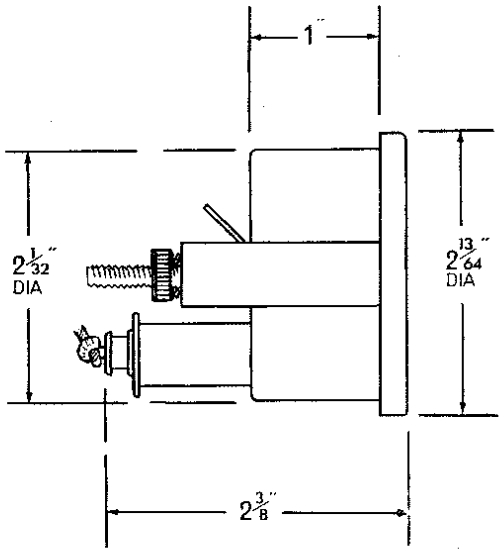
2. Because it pays to take care of your battery. The working life of a battery when neglected is considerably shortened and a replacement is an expensive item.

3. Because fewer cars today have starting handles and a flat battery may leave you stranded.

WHAT DOES IT TELL YOU?

1. The state of charge of the battery. A well charged battery helps you make a quick start. It also means you can leave your sidelights on for long periods without fear of a flat battery. A Smiths Battery Condition Indicator tells you the state of charge of your battery at a glance.

2. The charging voltage. It is harmful to charge a battery at too high a voltage as this shortens its life. If the battery is charged at too low a voltage it will eventually become flat. In both cases the Smiths Battery Condition Indicator warns you well in advance, giving you time to correct the fault before a breakdown occurs.



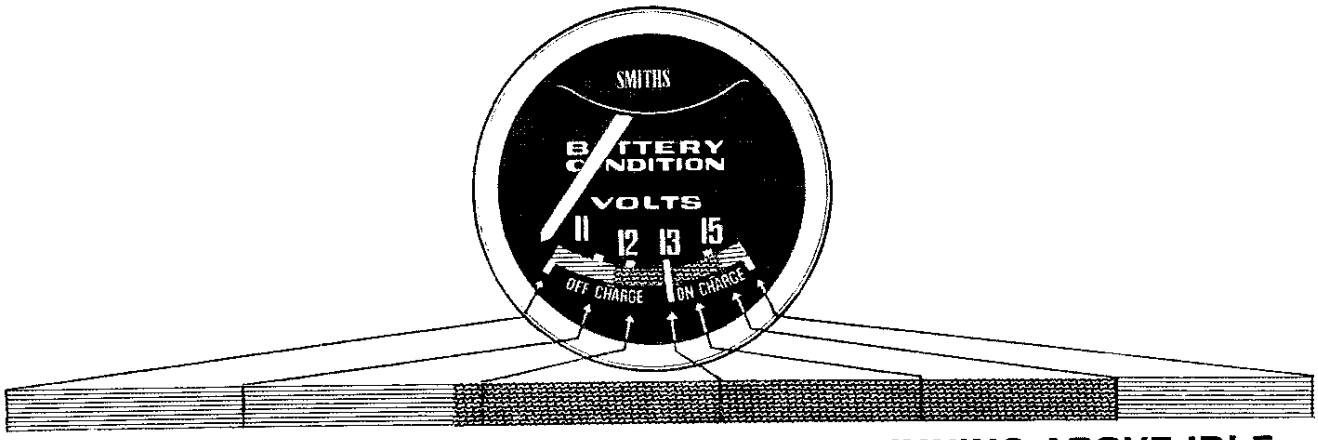
CODE BC

WILL INDICATE

State of charge of battery

Charging voltage too high or too low

FITTING INSTRUCTIONS OVERLEAF



ENGINE NOT RUNNING

ENGINE RUNNING ABOVE IDLE

BATTERY CHARGE EXTREMELY LOW	BATTERY CHARGE LOW	BATTERY WELL CHARGED	CHARGING VOLTAGE LOW	CHARGING VOLTAGE SATISFACTORY	CHARGING VOLTAGE TOO HIGH
If with the ignition and electrical equipment, e.g., headlights, etc., switched on, but with the engine not running the indicator settles in this section, your battery requires attention.		Ideally the indicator should settle in this section when the ignition and electrical equipment, e.g., headlights, etc., are switched on and engine is not running.	This condition may be indicated when the headlights and other equipment are in use.	The indicator should point to this section when the engine is running above idle.	If the indicator continues to point to this section after 10 minutes' running, either your voltage regulator requires adjustment or some other fault has developed.

IMPORTANT All readings on the indicator should be ignored when the engine is idling, since readings may vary at very slow engine speeds due solely to operation of the voltage regulator.

OFF CHARGE

This means more energy is being used from your battery than is being replaced by the generator on your car. This condition is satisfactory provided it does not persist for long periods, when the engine is running above idle or at speed. If the indicator remains in this section, it may mean that you have a broken or slipping fan belt, a faulty generator, a badly adjusted voltage regulator or some other fault.

ON CHARGE

This means your battery is having more energy put into it than is being taken out of it. In the ordinary way this condition predominates and your battery is continuously being recharged by the generator whenever the engine is running above idle. If, however, the engine is continually running slowly as may be the case in traffic—or when, in winter, lights and cold starting make extra demands on the battery—you may find the rate of discharge exceeds the rate of charge—that is to say the battery is running down, as will be indicated on your Battery Condition Indicator and you may need an extra charge if 'battery charge low or extremely low' is indicated by the instrument.

FITTING INSTRUCTIONS

Disconnect the battery. Fit one end of the green wire supplied to one of the instrument terminals. Connect the other end to the A4 (auxiliary equipment) terminal. Fit the Lucar connector on the black wire supplied to the other instrument terminal. Connect the bare end to a suitable earthing point on the car. It does not matter which of the instrument terminals is earthed. Connect the lead from the bulb holder, supplied with the instrument, to a convenient point in the existing instrument illumination circuit. Ensure that the instrument case is properly earthed, making a separate earthing connection if necessary.

Check that the electrical connections are secure and properly insulated. (The insulating sleeves on the wires should be pushed over the Lucar connectors.) Then reconnect the battery. Switch on the ignition and the pointer on the instrument should move slowly towards the green sector in the 'off charge' position, providing the battery is adequately charged. Full details of the instrument in operation are shown in the illustration above.

The instrument is designed so that the pointer adjusts slowly, giving a clear and steady reading. It should not oscillate rapidly.

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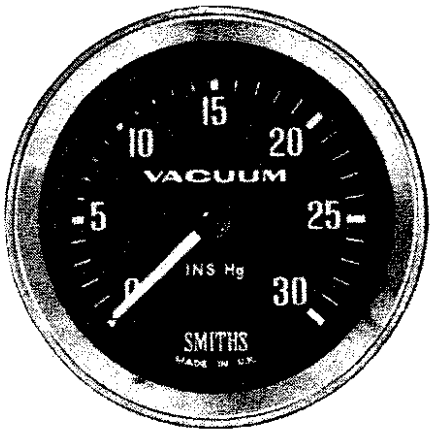
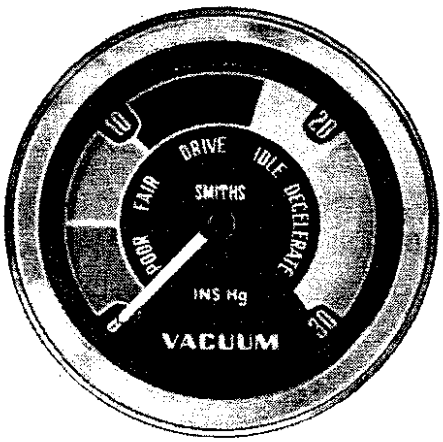
SMITHS VACUUM & PERFORMANCE GAUGES



CODE VB
Black dial, white figures, white pointer, chrome bezel



CODE PF
Black dial, coloured segments, white pointer, chrome bezel

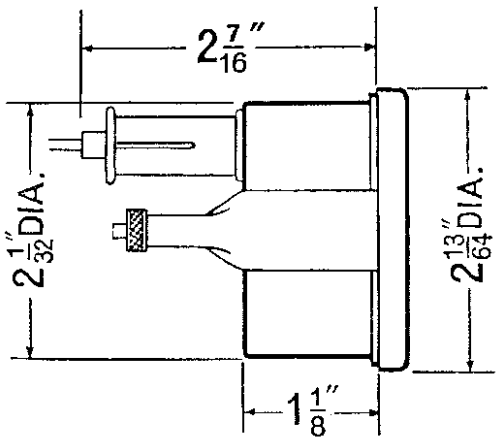
INTERNAL ILLUMINATION • SIMPLE INSTALLATION • ACCURATE & RELIABLE • 12 MONTHS GUARANTEE

These sensitive instruments record the difference in pressure between the outside atmosphere and the inlet manifold. The lower pressures in the inlet manifold are usually referred to as a 'vacuum'. It is this 'vacuum' which governs the petrol/air mixture supplied to the engine. A gauge which shows an accurate vacuum reading enables the motorist to obtain maximum fuel economy from his engine. In addition it will indicate immediately faults such as a faulty or badly adjusted carburettor; poor compression; faulty ignition timing, piston rings, valves and incorrect valve settings; faulty sparking plug gap settings, and contact breaker point settings. These instruments are also a great asset for tuning engines and making the correct setting of the idling mixture. Hence they amount to one of the most valuable accessories available for a vehicle.

The performance gauge is a specially designed vacuum gauge with a dial printed with coloured segments to indicate different engine conditions when the engine is running.

Both the vacuum and performance gauges are calibrated from 0–30″ of Mercury. They are supplied as complete kits ready to fit. We also provide an attractive range of mounting panels for use with these instruments if required. Full details are available on a separate leaflet.

A specially prepared and illustrated leaflet (Ref. No. S.4085) on engine fault analysis is available on request for use in conjunction with these gauges.



CODES VB and PF

WILL INDICATE

HEAVY FUEL CONSUMPTION DUE TO POOR DRIVING
INCORRECT IGNITION TUNING
INCORRECT CONTACT BREAKER SETTING
SPARK PLUG GAPS INCORRECTLY SET
CARBURETTOR IN NEED OF ADJUSTMENT, ETC.

FITTING INSTRUCTIONS OVERLEAF

VACUUM/PERFORMANCE GAUGES
FITTING INSTRUCTIONS

These kits contain the gauge and the items required for fitting as illustrated below.

Connect the union to the back of the instrument, making sure that the small leather washer is seated correctly around the restrictor hole, to ensure an air tight joint. Connection to the induction manifold is effected by drilling (No. 6 drill) and tapping ($\frac{1}{4}$" B.S.F.) at a point on the manifold as near top centre as possible. Then fit the hose connector and copper washer into the tapping, insert the restrictor valve into the rubber tubing at the manifold end with the 'tail' pointing towards the instrument and push the rubber hose on to the connector on the manifold. The hose should then be taken by the most convenient route to the gauge through a $\frac{1}{2}$" diameter hole drilled in the bulkhead and pushed onto the union on the back of the instrument (see Diagram below).

Connect the lead from the bulb holder, supplied with the instrument, to a convenient point in the existing instrument illumination circuit. Ensure that the instrument case is properly earthed, making a separate earthing connection if necessary.

The performance gauge is a vacuum gauge arranged in coloured segments to indicate engine performance. See column on the right for the comparative zones.

IMPORTANT

When drilling and tapping the induction manifold, it is recommended that the manifold is removed before drilling to obviate the risk of metal particles falling into the manifold and thus being drawn into the engine. For twin carburettor installations, ideally the connection should be made in a central position on the balance pipe but due to the differences between various types of twin carburettor installations it is recommended that reference be made to the car manufacturer for advice regarding the most suitable point at which the union should be fitted.

0-5 ins. hg RED

Throttle open. Engine pulling under heavy load or high rate of acceleration. Sudden depression of the throttle pedal will cause pointer to drop to '0'. Wasteful fuel consumption which can be amended by changing to a lower gear. Pointer remaining in red sector indicates leak in manifold, carburettor or carburettor gasket.

5-10 ins. hg ORANGE

Throttle approximately half open. Fast cruising condition or medium rate of acceleration. Efficient fuel consumption allied with relative performance. Slow oscillation in blue sector indicates incorrect sparking plug gapping or contact breaker points pitted or carburettor out of adjustment.

10-18 ins. hg BLUE

Throttle approximately quarter open. Normal cruising condition with engine pulling easily under light load. Maximum fuel economy. Pointer dropping slightly from normal position suggests leaky or burnt valves.

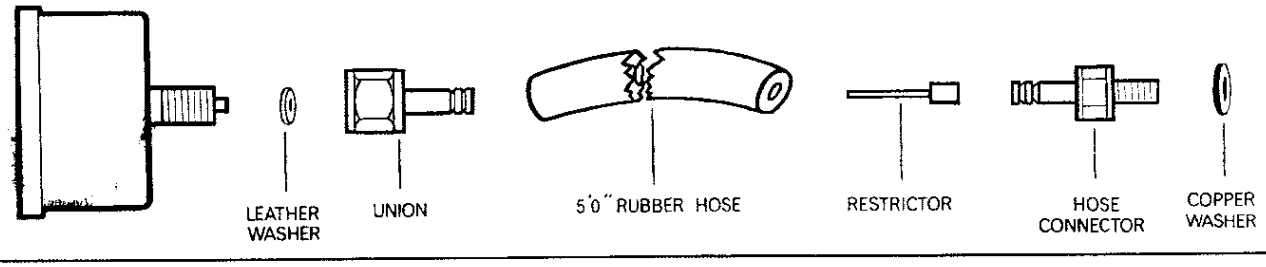
18-21 ins. hg GREEN

Throttle closed. Engine idling under no load or throttle slightly open with engine decelerating. Pointer giving steady low reading indicates incorrect ignition or valve timing or poor condition of piston rings.

21-30 ins. hg YELLOW

Throttle closed. Vehicle over-running engine and using engine as a brake. Driving under this condition may result in oiled-up plugs and heavy oil consumption in a worn engine. Poor economy. A steady gauge reading well inside the green sector indicates good engine condition.

These instruments are not suitable for 3-cylinder, 2 stroke engines, nor are they recommended for cars with rear mounted engines.



SMITHS INDUSTRIES LIMITED

MOTOR ACCESSORY DIVISION

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OXGATE LANE
LONDON NW2

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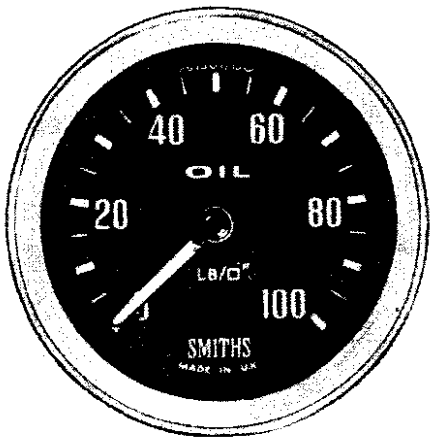
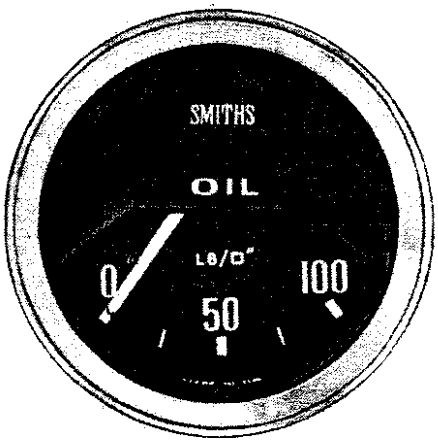
SMITHS OIL PRESSURE GAUGES



CODE PB
Full scale, black dial, white figures, white pointer, chrome bezel



CODE PSB
Short scale, black dial, white figures, white pointer, chrome bezel

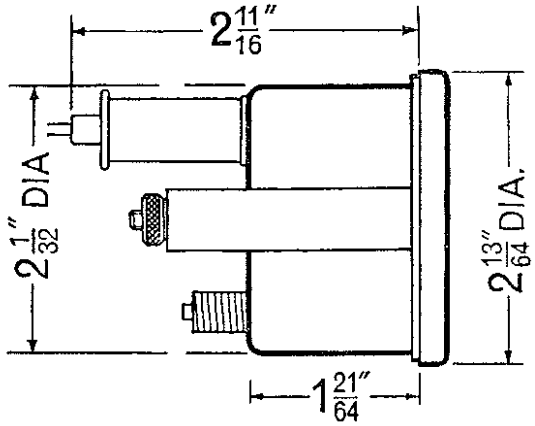
INTERNAL ILLUMINATION • SIMPLE INSTALLATION • ACCURATE & RELIABLE • 12 MONTHS GUARANTEE

Oil pressure is vital and probably the most important instrument one can have on the dashboard is the gauge which indicates this pressure. Many cars are fitted with a warning light to indicate low oil pressure, but as these warning lights only act when the oil pressure is very low, considerable damage may occur before the light comes on.

Smiths oil pressure gauges work on the Bourdon Tube principle and are calibrated 0–100 lbs. per sq. in.

The PSB short scale oil pressure gauge illustrated above is one of a matching range. The other instruments available in this short scale range are the water temperature gauge (code TSB) and the ammeter (code ASB).

All these instruments are supplied in complete kits, ready to fit. In some cars provision is made on the vehicle dashboard for mounting extra instruments, where there is no provision, an attractive range of mounting panels is available with a variety of finishes to hold one, two or three instruments. Further details of these panels are provided overleaf.



CODES PB and PSB

WILL INDICATE

LOW OIL LEVEL IN SUMP • BLOCKED OIL FILTER
FAULTY PRESSURE RELEASE VALVE • BADLY WORN BEARINGS
BLOCKED OR FRACTURED OIL PIPE • LOST SUMP DRAIN PLUG

FITTING INSTRUCTIONS OVERLEAF

OIL PRESSURE GAUGE FITTING INSTRUCTIONS

OIL PRESSURE GAUGE KITS

These kits contain an oil gauge, 5′ pipe line, connector and tee piece. Most cars not fitted with an oil pressure gauge have an oil pressure warning light. To fit the oil pressure gauge, remove the oil pressure warning light switch which is normally located on the side of the engine, and screw the connector into place.

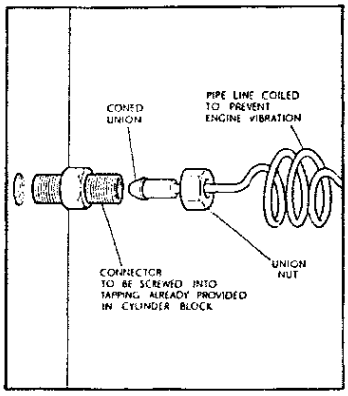


FIG. 1
ILLUSTRATION OF PIPE LINE FITTED

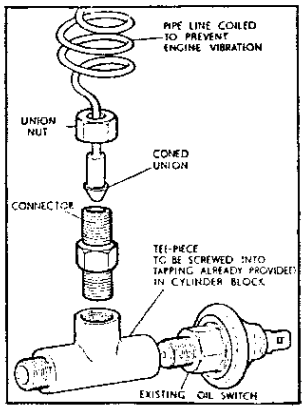


FIG. 2 ILLUSTRATION OF PIPE LINE AND TEE PIECE FITTED

Then fit the pipe line to the connector, ensuring that the end of the pipe line which terminates with a coned union is used (Fig. 1).

Take the pipe line by the most convenient route to the gauge through a $\frac{5}{8}$″ diameter hole drilled in the bulkhead. Coils of not less than 2″ diameter should be made near each end of the tubing to take up engine vibration. The other end of the pipe line, which terminates with a flat union, should then be connected to the gauge, ensuring that the small leather washer is in position. If it is required to retain the use of the oil pressure warning light, the tee piece provided should be used to enable both the warning light switch and pipe line to be fitted (Fig. 2).

(In the case of B.M.C. 'A' series engines, it is advisable to remove the main oil feed pipe in order to screw the tee piece home. The pipe line should be refitted to the branch of the tee piece so that it points forward along the cylinder block, before curving back towards the bulkhead.)

Connect the lead from the bulb holder, supplied with the instrument, to a convenient point in the existing instrument illumination circuit. Ensure that the instrument case is properly earthed, making a separate earthing connection if necessary.

Note: Special 'T' pieces are available for Rover cars and all Vauxhall models after 1963.

INSTRUMENT MOUNTING PANELS

When mounting additional instruments, it is not always convenient or possible to cut the necessary apertures in the dashboard, so we have designed an attractive range of instrument mounting panels of which a few details are given below.

•

De-Luxe Sub Panel—Code PAD. To hold two 2″ instruments. This has a chromium bezel and silver background.

•

Standard Mounting Panels—Codes PA1, PA2, PA3. To hold one, two or three 2″ instruments. These have a silver grey finish which can easily be coloured to match the existing dashboard if required.

•

Super Sub-Panels—Codes SP1, SP2, SP3, SPT3. To hold one, two or three 2″ instruments or (SPT3) to hold two 2″ instruments and one Impulse Tachometer $3\frac{1}{8}$″ diameter.

These panels have an attractive simulated black leather grained finish.

•

Full details of Smiths Instrument Mounting Panels are provided on a separate leaflet.

OTHER SMITHS SUPPLEMENTARY INSTRUMENTS

Designed to save you time, trouble and money by telling you the facts about your car before the failures occur.

WATER TEMPERATURE GAUGE
IMPULSE TACHOMETER
ELECTRIC CLOCK
VACUUM GAUGE
BATTERY CONDITION INDICATOR
OIL TEMPERATURE GAUGE
AMMETER
PERFORMANCE GAUGE

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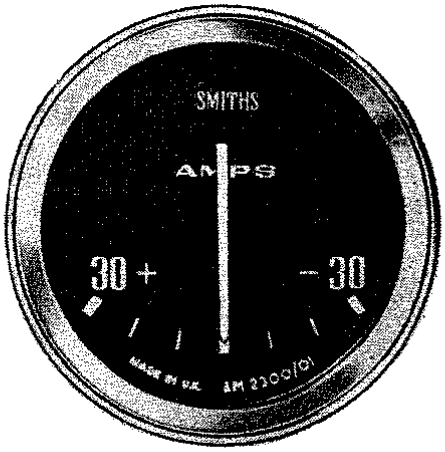
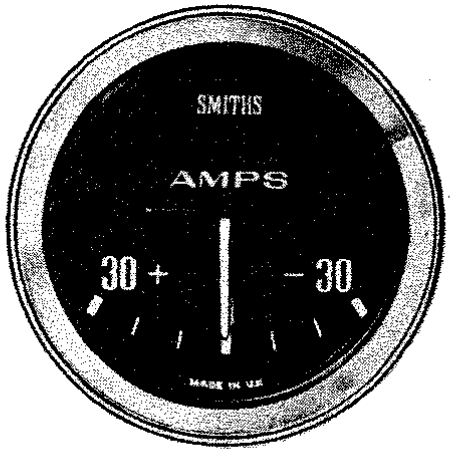
Ref. No. S.4211

SMITHS AMMETERS



CODE AB
Full scale,
black dial,
white figures,
white pointer,
chrome bezel,

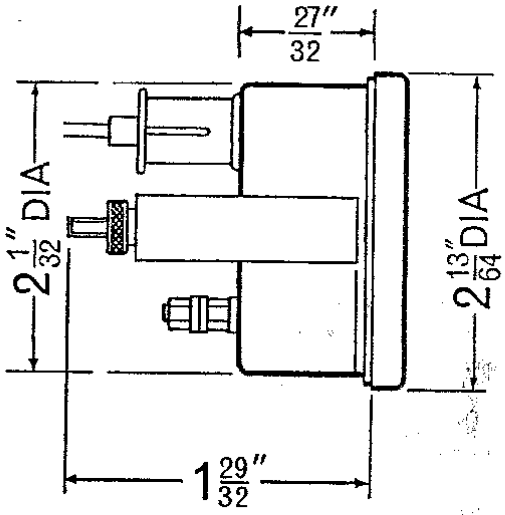


CODE ASB
Short scale,
black dial,
white figures,
white pointer,
chrome bezel

INTERNAL ILLUMINATION • SIMPLE INSTALLATION • ACCURATE & RELIABLE • 12 MONTHS GUARANTEE

An ammeter is an essential instrument which not only shows whether the dynamo is charging, but also the rate of charge and discharge. With the greatly increased demands made on car batteries today by all the electrical equipment and accessories, it is most important to know if the rate of discharge is exceeding the rate of charge. This is shown by just a glance at an ammeter—even at night as the dial is internally illuminated. Another great advantage of the ammeter is that it will immediately indicate discharge if the fan belt breaks, thus giving one time usually to get to a garage and obtain a new fan belt, before the battery becomes completely discharged and the engine stops—leaving one stranded.

The short scale (ASB) ammeter is available to match the short scale water temperature and oil pressure gauges. Both types of ammeter will fit either positive or negative earth, 6 or 12 volt systems. The instruments are supplied as complete kits, ready to fit. They can either be fitted into the existing dashboard, or if there is insufficient space, they can be mounted below the dashboard using one of the Smiths range of mounting panels, further details of which are provided overleaf.



CODES AB and ASB

WILL INDICATE

Broken fan belt • Faulty generator
Short in the electrical system
Defective battery • Battery not charging

FITTING INSTRUCTIONS OVERLEAF

AMMETER FITTING INSTRUCTIONS

The fitting instructions are the same for both the short scale and full scale reading ammeters. These kits contain an ammeter and the wiring required for the electrical connections.

When fitting the ammeter ensure that the main lead from the battery is disconnected. Then locate the lead (heavy duty, colour brown on most vehicles) which runs from the starter solenoid to the control box or regulator box. Disconnect this lead at the most convenient point and connect it to the ammeter using some of the wire provided, to extend the lead if necessary.

If the car has a 'positive earth' circuit, connect this lead to the negative ammeter terminal. If the car has a 'negative earth' circuit connect it to the positive ammeter terminal. Connect the other ammeter terminal using the wire supplied to the point where the original lead was disconnected. Connect the lead from the bulb holder, supplied with the instrument, to a convenient point in the existing instrument illumination circuit. Ensure that the instrument case is properly earthed, making a separate earthing connection if necessary.

Check that the electrical connections have been securely made and are properly insulated, then reconnect the main lead to the battery and check the circuit by starting the engine and accelerating. The pointer should move towards the '+30' marking. If it does not, the connections are incorrect and should be reversed on the ammeter terminals. (Disconnect the main battery lead before doing this.)

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When mounting additional instruments, it is not always convenient or possible to cut the necessary apertures in the dashboard. In such cases one of the range of attractively designed Smiths instruments mounting panels should be used. A few details are given below.

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•

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OIL PRESSURE GAUGE
PERFORMANCE GAUGE
OIL TEMPERATURE GAUGE

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