

SPA Classic Tacho
INSTALLATION AND OPERATING MANUAL

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SPA TACHO AND COMBINED UNIT MANUAL

INSTRUMENT FEATURES

FAST AND SMOOTH STEPPER MOTOR DRIVEN NEEDLE

MICROPROCESSOR ACCURACY

WHITE BACKLIT SCALE AND NEEDLE

'LIGHTS ON' WIRE FOR BACKLIGHT

MAXIMUM RECALL/RESET

SPA TACHO AND COMBINED UNIT MANUAL

OPERATING INSTRUCTIONS:-

When the SPA tachometer is first switched you will see the needle drive back to the brass stop pin and then forward to the zero mark. The tachometer will now register engine RPM.

Pressing the red button after this will recall any stored maximum RPM on the tachometer, or reset maximum when held down for more that 4 seconds.

The SPA Microprocessor tachometer is factory set 4 cylinders, but may be easily be adjusted to your requirements using a menu system that will be explained further on.

If the supply voltage to the instrument drops to below 8.00 Volts, the backlight will no longer function. The tachometer will still function normally at this voltage, but if the voltage drops down below 5.5 volts, the instrument will reset itself.

MENU SYSTEM:-

To access the cylinders menu, hold down the red button and then switch on the instrument. After its finishing its start up, the needle will now point to the menu item number using the large scale digits (IE "1" for cylinders menu). Currently there is only one menu item. Now release the button.

Press and hold the red button again to access menu 1 for the cylinders. The needle will no point to the number of cylinders the tachometer is currently set to using the minor increments on the scale. The factory default is 4, and the maximum is currently 8 cylinders.

Single click to change this to the desired cylinders. When it reaches 8, it will roll back around to 1 cylinder on the minor scale increments.

The data is now stored so simply switch off the tachometer to exit the menu, and then back on again when required.

SPA TACHO AND COMBINED UNIT MANUAL

INSTALLATION, DO'S & DON'TS :-

DO'S

DO ensure that the front of the instrument and the exposed plug is protected if it is likely to get any water spray on it.

DO ensure that the speedo cable is not run next to the tacho cable or any power cable, try to run it next to the chassis.

DONT'S

DO NOT allow cables to run through sharp edged apertures without protection.

DO NOT fix the cables next to or onto any surface likely to exceed 80 degrees Centigrade.

SPEEDO SENSOR INSTALLATION, DO'S & DON'TS :-

DO'S

DO ensure that the sensor is aligned with the end of the magnet when the suspension is under normal load (not jacked up).

SPA TACHO AND COMBINED UNIT MANUAL

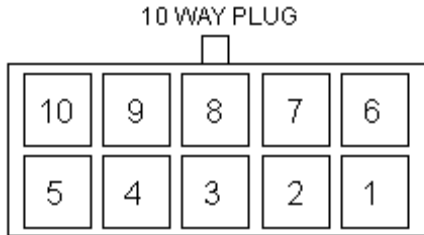
APPENDIX

TACHO IGNITION CONNECTION

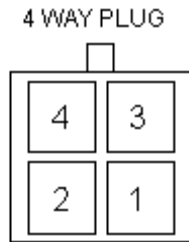
Please use a tacho output of the management, ECU or ignition box if this available. Most modern vehicles have tacho outputs. Some have weak outputs and do not like being loaded down to earth (SPA tacho puts on a 10K resistive load), in this case you need to connect the red wire to +12v batt, and the black wire to tacho output. If there is no tacho output available, you can connect the inductive pickup output from the crank sensor, also on Motorcycles you can usually pick up from one of the alternator phases, although these will require the cylinders settings to be changed to read correctly. For a crank sensor, set the cylinders to 2, for a motorcycle (crank driven) alternator set the cylinders to 12.

If you wish to connect to the ignition coil (see schematic) the SPA tacho is fully protected. It will connect to any coil including magneto's and is not damaged by reverse polarity. Connect black to chassis, and red to the ignition pulse side of the coil. **Do not** make any kind of connection to the HT leads or spark plugs, this voltage is highly destructive.

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PIN NUMBER	FUNCTION	NOTE
5	GROUND (0V)	4
4	+12 VOLTS BATTERY	1
1	TACHO+	
6	TACHO -	
7	'LIGHTS ON' PIN	2
2	SWITCH (GROUND)	
3	SWITCH (SIGNAL)	3
9	+12 VOLT OUT	
10	SPEED SENSOR SIGNAL	5
8	SPEED SENSOR GROUND	

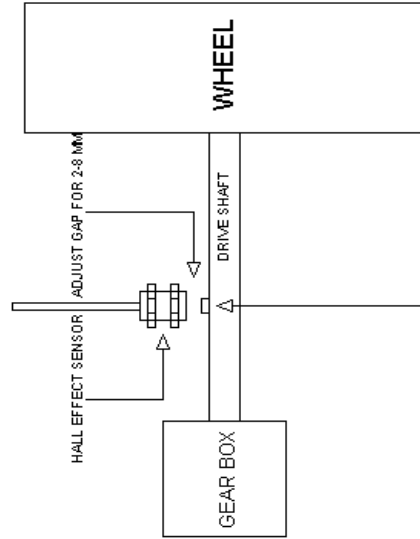


PIN NUMBER	FUNCTION	
1	+12 VOLTS BATTERY	6
2	EXTERNAL SHIFT LIGHT 1	7
4	EXTERNAL SHIFT LIGHT 2	7
3	EXTERNAL SHIFT LIGHT 3	7

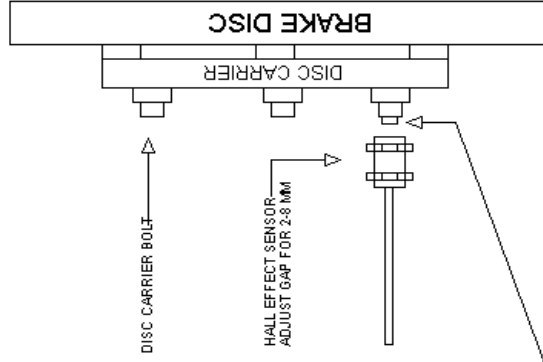
- NOTE 1) 28V MAXIMUM SUPPLY
- NOTE 2) CONNECT TO VEHICLE LIGHTING +12 FEED
- NOTE 3) NORMALLY OPEN SWITCH
- NOTE 4) CONNECT DIRECT TO CHASSIS
- NOTE 5) 5V SIGNAL WITH 10K PULL UP
- NOTE 6) 500mA MAX LOAD
- NOTE 7) 100mA MAX LOAD

SPEEDO SENSOR INSTALLATION GUIDE

TYPICAL CAR INSTALLATION



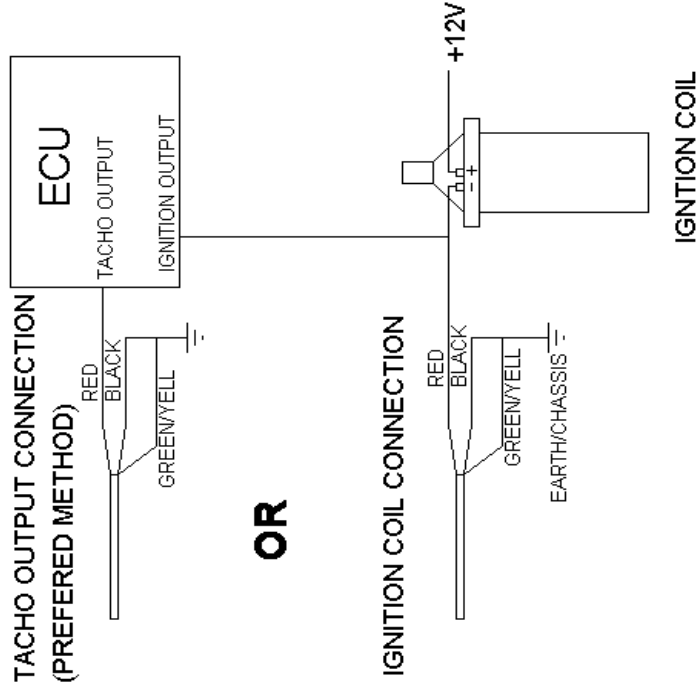
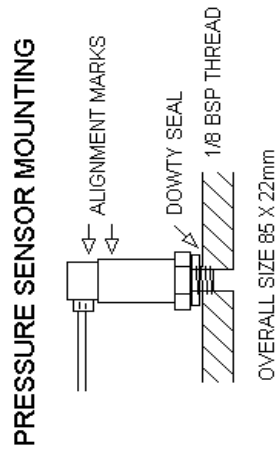
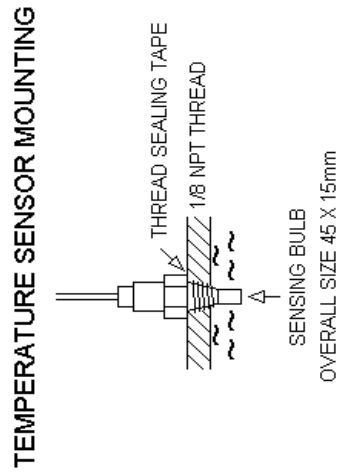
TYPICAL MOTORCYCLE INSTALLATION



PLEASE NOTE THAT ONLY ONE MAGNET IS NOW NEEDED AND ONE IS SUPPLIED

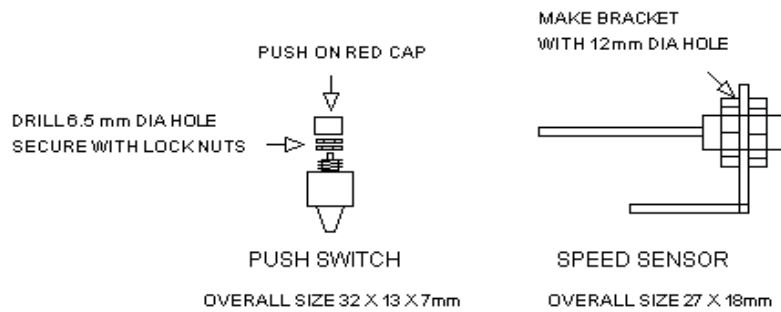
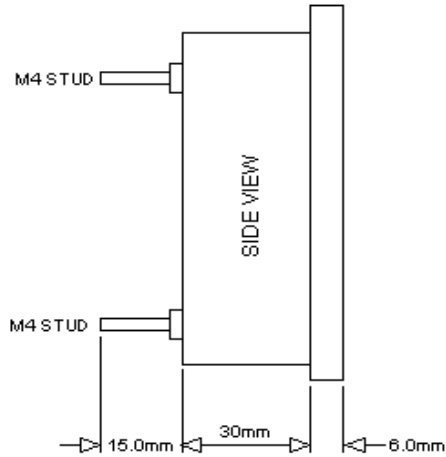
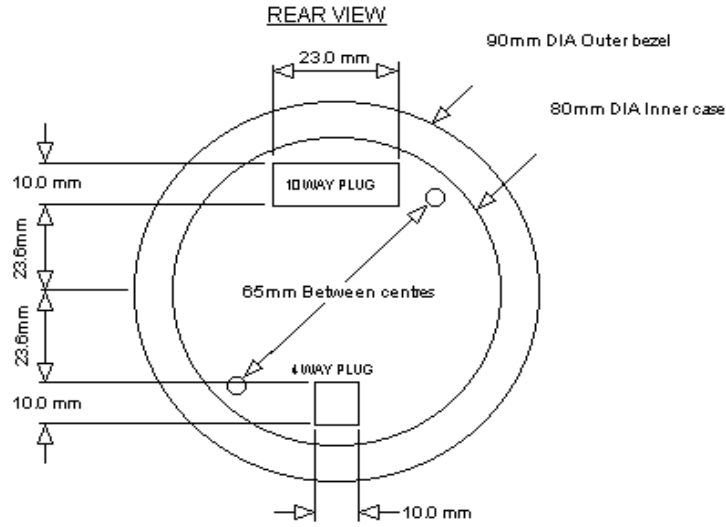
A SUITABLE BRACKET WILL NEED TO BE MADE FOR MOUNTING THE HALL EFFECT SENSOR. THIS SHOULD BE MOUNTED ON A NON MOVING MEMBER.

DISC MAGNET
GLUE WITH NORTH POLE
FACING DOWN* ON THE DRIVESHAFT
USE EPOXY GLUE TO FIX.
EG. ARALDITE OR PERMABOND.
* MARKED BY DIMPLE OR RED PAINT



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SPA TACHO AND COMBINED UNIT MANUAL



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SPECIFICATIONS:-

INPUT VOLTAGE	8.0-26 VOLTS (working)	
CONSUMPTION	150 mA(max) @ 12 VOLTS	
FUSE	20mm glass 500mA Fast(F).	
TACHO ACCURACY:-		0.05%
SPEEDO ACCURACY:-		0.05% TYPICAL
ACCELERATION TIMER	0.1 SEC	
STANDING QUARTER TIMER		0.1 SEC
DATA STORAGE:-		EEPROM
WEIGHT:-		180g INCLUDING FIXINGS
SIZE:-		90mm x 30mm DEEP
CUT OUT FOR MOUNTING		80mm
SPEEDO SENSOR FIXING DIA:-	10mm	
CABLE LENGTHS:- IGNITION LEAD	120"	
WHEEL SPEED SENSOR	120"	
POWER SUPPLY		12"
OPTIONAL EXTERNAL SHIFT LAMP(S)	40"	
ABSOLUTE MAXIMUM RATINGS:-		
INPUT VOLTAGE		28 VOLTS
INSTRUMENT TEMPERATURE		-40 - +80°C