Alternators
Installation Note

Electrical Connections

The electrical connections to the F, G and K-type alternators are shown in the diagram.

The power output is from the B+ terminal. Use a cable, large enough to carry the current output of the alternator, to connect this terminal to the vehicle electrical system. The terminal should be tightened to 4Nm max for M6 terminals, 6Nm max for M8 terminals.

The return circuits for the alternator output and for the internal electronics of the regulator are both via the alternator body, so it is essential to provide a low resistance connection to ground (usually the vehicle frame). If rubber or polymer anti-vibration mountings are used, a cable must be fitted to connect the alternator to ground.

The excitation coils in the rotor draw current from the vehicle battery via the Ignition (IG) connection. IG should be disconnected when the engine is not running, otherwise it will slowly drain the battery.

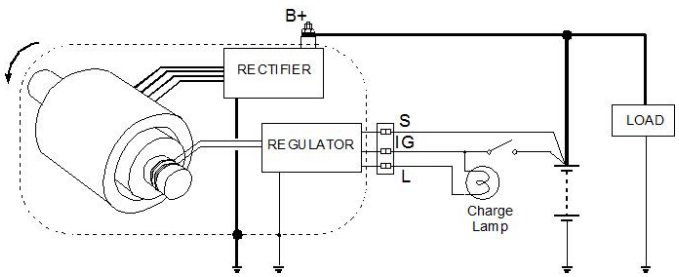
When IG is disconnected, the excitation coils are not magnetised and the alternator does not deliver any current. IG may be disconnected while the alternator is being driven: the alternator will not be damaged and the load on the engine is decreased.

The Sense (S) connection, where fitted, should be connected to the vehicle battery via a dedicated wire which is not connected to any other circuit. This ensures that the regulator, inside the alternator, monitors the voltage at the battery and continually adjusts to keep it constant. If the sense wire is connected to the alternator B+ terminal, the battery voltage will be less than 13.5V because the alternator will not compensate for the voltage drop caused by the resistance of the wires joining the alternator to the battery.

On F-type alternators, the Sense connection is internally connected to the B+ terminal and is not available externally.

On single connection G and K-type alternators, the Ignition and Sense connections are through the power output (B+) terminal.

The Lamp (L) connection is for the charge indicator lamp which should be connected as shown. The lamp is lit when the alternator output voltage is less than the battery voltage (ie the battery is not charging). The maximum current that the alternator can drive through the lamp is 250mA. The lamp is not necessary for proper operation of the alternator and may be left unconnected.



Mechanical

F, G and K-type alternators are uni-directional. Ensure that the alternator is rotated in the direction shown in the relevant

Product Summary.

F-type rotor moment of inertia: $0.693 \times 10^{-3} kgm^2$

G-type rotor moment of inertia: $1.04 \times 10^{-3} kgm^2$

K-type rotor moment of inertia: $2.20 \times 10^{-3} kgm^2$

Torque and efficiency curves are available on request.

Axial Loading

F, G and K-type alternators must not be subjected to direct axial loading during installation, for example by press fitting a shaft adaptor. If a direct drive is required, the shaft can be modified to accept a suitable key on request.

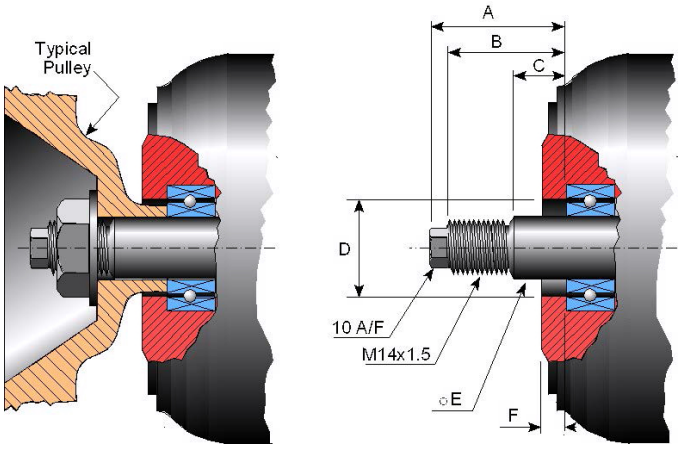
Pulley Mounting

The recommended method of mounting a pulley to an F, G or K-type alternator is shown in the drawing.

The pulley hub should be a close sliding fit on the rotor shaft. To prevent the pulley spinning, it is clamped against the inner race of the shaft bearing.

A 10A/F hex is provided on the end of the shaft to lock the rotor in place while tightening the retaining nut. Alternatively, a pneumatic impact wrench may be used.

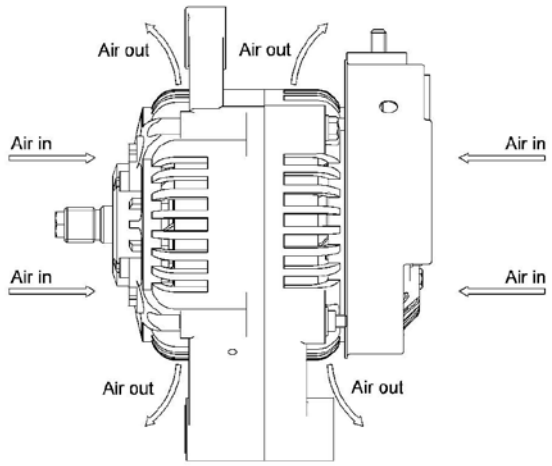
Alternator Type	Dimension (mm)					
	A	B	C	D	E	F
F-Type	28.30	24.80	10.80	Ø29.20	Ø15(g6)	5.88
G-Type	25.40	22.00	8.0	Ø29.30	Ø15(g6)	3.40
K-Type	26.85	21.85	7.2	Ø35.20	Ø17(g6)	5.17



Air Flow Through Alternators

F, G and K-type alternators are air cooled. Air enters the alternator from the front and rear and exits at the side as shown in the diagram.

Sufficient air flow should be maintained to ensure that the maximum operating temperatures are not exceeded.



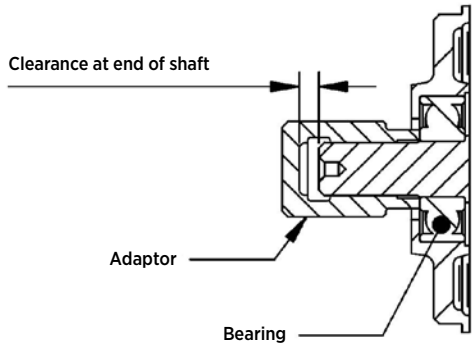
Permanent Magnet Alternators

Permanent magnet alternators are designed to be directly mounted to an engine. Drive is via a spline. Radial and axial loading should be avoided and the drive should be concentric to the alternator shaft.

The shaft dimensions are shown in the Product Summary.

The hub, shaft or adaptor that carries the mating spline should be seated on the inner race of the alternator front bearing.

It must not bottom out on the end of the shaft and clearance should be left to prevent this.



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