

## Alternators with “K” Terminal on Mazda Vehicles with I-Eloop

A whole new level of complexity is now in the charging systems of Mazda Vehicles with I-Eloop. These vehicles listed below with ANJ622GQ and ANJ628GQ fitted use a Regenerative Braking system where the Alternator charges at up to 25 Volts into a large capacitor while the vehicle is slowing or braking which in turn supplies the vehicle's electrical load and maintains the battery via a DC to DC Converter. This allows rapid charging of the capacitor (7 seconds is quoted) from the alternator to capture wasted energy normally used in braking. The energy stored in the capacitor is then used to supply the vehicle via the DC to DC converter. A fuel reduction of 5-10% is also claimed with a disclaimer that actual results depend on operating conditions, in other words stop start traffic.

 A video from Mazda shows this system: <https://youtu.be/BJHAr4wA2fc>

It is imperative that OE numbers are checked when quoting on these units so that the correct Alternator is supplied. The other issue will be correct diagnosis where for the first time the vehicles alternator is not directly connected to the battery but through the Capacitor and then the DC-DC Converter, so if the battery does not appear to be charging is it....

- The Alternator?
- The Capacitor?
- The DC-DC Converter?
- The ECU which controls the Alternator?
- A Combination of all of the above?
- Nothing as the ECU may be conserving energy by turning the Alternator off?

RP66



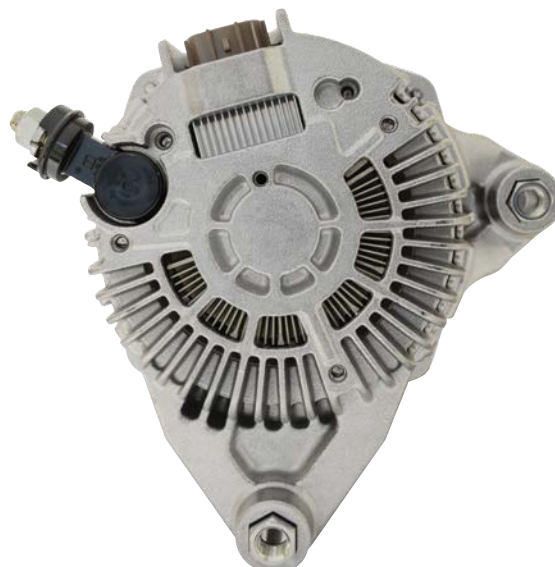
IG C K

IG: Ignition

C: Computer Control

K: Feedback to the ECU

ANJ622GQ



## **ANJ622GQ** With Brake Energy Regeneration Mazda CX-3, CX-5, CX-9, Mazda 2 ,3, 5 Petrol Applications:

A002TXV191  
A2TX9091  
A2TX9391  
A2TXV191  
P58G-18-300  
PY1C-18-300



## **ANJ598** Equivalent Without (BER):

A005TL0491  
A2TX2291  
A5TJ0591  
A5TJ0591ZT  
A5TL0491  
P31H-18-300  
P31H-18-300B  
P53N-18-300  
P53N18300  
PE01  
PE01-18-300  
PE0118300



## **ANJ628GQ** With Brake Energy Regeneration Mazda CX-5, CX-8, Mazda 3, 6 Diesel Models:

A2TX9181  
SH1N  
SH1N-18-300  
SH1N-18-300A  
SH1N18300  
SH1N18300A

## **ANJ601** Without (BER):

A002TX3081  
A2TX3081  
SH01  
SH01-18-300