

Application Guidance Notes: Technical Information from Cummins Generator Technologies

## AGN 156 – STAMFORD Alternators Direction of Rotation

### DESCRIPTION

Some alternators within the STAMFORD range are fitted with a shaft mounted cooling fan that has inclined fan blades. This fan provides optimum cooling performance when the alternator is rotating in a clockwise Direction of Rotation (DoR), when viewed from the Drive End (DE). This is satisfied by having the fan’s blades backward inclined from a perfect radial position under the Generating Set’s normal DoR.

If it becomes necessary to run the alternator in an Anti-clockwise DoR, when viewed from the Drive End (DE), the inclined fan blades are now forward inclined and so, change the alternator’s performance characteristics.

The fan’s ability to move sufficient cooling air to keep the alternator operating temperatures within designed limits has now changed. Therefore; the alternator can no longer be operated at its published continuous Class ‘F’ or ‘H’ Industrial or Marine ratings without the need for a de-rate. These de-rates will also apply for operation at Stand-By ratings.

### De-rates for anti-clockwise DoR by frame size:

S0/S1	5%
P0/P1	5%
UC 22	0%
UC 27	0%
UCD 27	Anti-clockwise DoR is not allowed
S4 (HC4)	0% (5% derate required on S4 dedicated)
S5 (HC5)	0% (5% derate required on S5 Dedicated)
S6 (HC6)	5%

De-rates for anti-clockwise DoR by frame size:

P7 (Cores A/B/C/D/E/F/G)	10% with a standard fan
P7 Core H	Anti-clockwise DoR is not allowed
P7 (except H core)	0% with a dedicated fan factory fitted for ACW rotation
S7 (Cores C/D/E/F/G/H)	10% with a standard fan
S7 Core J	Anti-clockwise DoR is not allowed
S7 (except J core)	0% with a dedicated fan factory fitted for ACW rotation.
MV7	10%
P80	0% (A dedicated fan is factory fitted, depending on DoR requirement).
S9	15% with a standard fan
	0% with a dedicated fan

**NOTE:**

It must be remembered that when operating in an anti-clockwise DoR, the alternator's electrical output will have a 'reversed' phase rotation. This must be compensated for, by setting the appropriate phase rotation of the 'customer' connections. Refer to wiring diagram DA\*-R01.