

**GE MINING BULLETIN 35445:
GE ALTERNATOR PARAMETERS – LOAD DUMP &
EARTH LEAKAGE TRIP
SAFETY ALERT SA17-06
“Flameproof alternators supplying intrinsically safe
equipment”**

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GE Industrea Emerald
07 4982 0066

Alternator Details:

Manufacturer: PJB / Industrea / GE Mining Industrea / GE Mining
Model: Ex'd' Alternator GE0037M-X
Approval Number: ANZEx 09.3007X
GA Number: M28800 (30 Amp version), 7-083342-700 (24 Amp version)

BACKGROUND

This Bulletin is provided in response to Safety Alert, SA17-06 – “Flameproof alternators supplying intrinsically safe equipment” issued by the NSW Department of Planning & Environment.

GE Mining has carried out certain testing of the flameproof alternators identified above to establish the maximum overvoltage that can be produced in a load dump scenario. The results of such testing are provided below for informational purposes only. Results are indicative only. Owners and end users should perform their own assessments.

COMMUNICATION: GE Alternator Parameters – Load Dump

GE Mining has performed testing for the load dump condition and Earth Leakage Trip (ELT) over a range of rpm and loads for the GE alternator.

The Alternator was released with two different current ratings, 30 amps and 24 amps.

Results for both versions are presented herein for informational purposes only.

1 Legacy version, 30 Amp (PJB – GE0037M-X)

1.1 Load Dump

The PJB GE0037M-X alternator was bench tested to the maximum achievable load setting for the utilised test equipment, resulting in a full load current of 29.1Amps. The load was then removed and the transient overvoltage recorded.

Overvoltage Result: 24.0 Volts Peak

Note: GE Mining has been informed that other testing has been performed by an external source on the alternator and reported a result of 28.0 Volts.

This result was not able to be reproduced by GE Mining but should be considered for the installation assessment.

2 Current version, 24 Amp (GE Industrea – GE0037M-X)

2.1 Load Dump

The GE Industrea GE0037M-X alternator was bench tested to the maximum achievable load setting for the utilised test equipment, resulting in a full load current of 23.85Amps. The load was then removed and the transient overvoltage recorded.

Overvoltage Result: 23.0 Volts Peak

3 Earth leakage trip - Applicable to both 30 & 24 A versions

When a ground fault was applied and repeated, disconnection was affected in less than 2.5ms. The regulatory requirement is for disconnection to be affected within 100 ms.

4 Output voltages to ground - Applicable to both 30 & 24 A versions

Voltage from +ve output to chassis was measured at 10.2Vdc, (15.1Vpk)
Voltage from -ve output to chassis was measured at 2.7Vdc, (3.81Vpk)

5 Conclusion

Results have been provided for the GE alternator in both the 30A and 24A versions. Owners, end users should assess electrical installations as per the recommendations of Safety Alert SA17-06 "Flameproof alternators supplying intrinsically safe equipment".

Please distribute this bulletin to all relevant personnel

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