Certificate No: LR25167079TA
Issue Date: 21/07/2025
Expiry Date: 03/03/2030

# Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

| | |
|---|---|
| **Manufacturer** | **Caterpillar Inc (Indiana)** |
| **Address** | 3701 State Road 26 East, Lafayette, Indiana, 47905, United States |
| **Place of Production** | BorgWarner Morse Systems México, S.A. de C.V.<br>Calle 2 N° 10543Parque Industrial El Salto, El Salto, Jalisco, JAL, 45680, Mexico |
| **Type** | Electronic Control Module |
| **Description** | Electronic control module with optional sequential turbo valve system for caterpillar gas and diesel engines.<br>ECM Part Number: 488-9094, 488-9093<br>Sequential Turbo Valve System comprising:<br>Sequential Turbo Valve, Part Number: 571-8831<br>Turbo Speed Sensor, Part Number: 557-6230<br>Compressor Bypass Valve, Part Number: 365-3006 |
| **Trade Name** | ADEM V (A5E4v2) |
| **Application** | For use in environmental category ENV4 as defined in Lloyd's Register Test Specification Number 1, 2021. |
| **Specified Standard** | Lloyd's Register Test Specification Number 1, 2021.<br>IACS UR E27 Rev. 1, 2023. |

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**Peter Huntley-Hawkins**

Electrical & Control Technical Manager - UK & America to Lloyd's Register EMEA
A member of the Lloyd's Register group

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**Other Conditions**

Installation of this equipment for marine applications is to be in accordance with current Lloyd's Register Rules and Regulations.

Validity of this Type Approval is conditional upon a valid Lloyd's Register Software Conformity Assessment Certificate.

A separate, independent safety system is to be provided.

Radiated and conducted emissions meet the requirement for equipment in general power distribution zones.

Communications with the Engine Control Modules are via CAN J1939 and CAT Data Link (CDL) network connections. Access from untrusted network is not allowed. There are no security configuration guidelines available as the ADEM V (A5E4v2) does not have Ethernet and wireless network connections that need network and security parameters. Information supporting the intended ship owner's incident response and recovery plan is to be made available when required by the system integrator.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

**Previous Version:** *LR2001735TA*

The Design Appraisal Document LR25167079TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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