Certificate No: LR25167010TA
Issue Date: 21/07/2025
Expiry Date: 12/01/2029

# 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 for Caterpillar Engines<br>ECM Part Number: 488-4881, 488-4884 |
| **Trade Name** | ADEM IV (A4E4v3.1) |
| **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. |
| **Other Conditions** | Installation of this equipment for marine applications is to be in accordance with current Lloyd's Register Rules and Regulations.<br>Validity of this Type Approval is conditional upon a valid Lloyd's Register |

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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

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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# Type Approval Certificate

Software Conformity Assessment Certificate.

A separate, independent safety system is to be provided.

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 IV (A4E4v3.1) 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:** LR21449129TA

The Design Appraisal Document LR25167010TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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