NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE FOR CRANKCASE OIL MIST DETECTION ARRANGEMENTS

Certificate No. TA21525M

This is to certify that the undernoted product(s) has/have been approved in accordance with the requirements specified in Chapter 6, Part 7 of "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use" and the relevant Society's Rules.

This certificate is issued to

Applicant:	**Carrier Fire & Security Ltd** **8 Newmarket Court, Chippenham Drive, Kingston,** **Milton Keynes, Buckinghamshire, MK10 0AQ** **United Kingdom**
Manufacturer and Place of Manufacturing:	**Carrier Manufacturing Polska Sp. z.o.o.** **U1. Kolejowa 24, 39-100 Ropczyce, Poland**
Product description:	**Graviner Mk 7 Oil Mist Detection System**
Model:	**Mk 7**
Approval No.:	**11A030**
Valid until:	**3 November 2026**

This certificate is subject to the conditions specified in the attached sheet(s).

Issued at Tokyo on 4 November 2021

T. SHIMADA
General Manager
Machinery Department

Note: 1. The manufacturer, if desired, is requested to apply to the Society for renewal prior to the expiration date.
2. This certificate has been issued due to change of manufacturer's name.

Attached sheet -1/2 to the Certificate No. TA21525M

Specification & documents:

1. Rating & Consumption: 24V DC

   Max No. of detectors per control unit: 10
   Max. No. of control unit per system: 10

2. Components and reference drawings:

Component	Type	Drawing
Mk7 Oil Mist Detector	53836-K269 (with base) 53836-K272 (replacement head) 53836-K269-01	53836-K269 Rev 7 53836-K272 Rev 8
Mk7 Control Unit	53836-K270 (With membrane) 53836-K270-01 (For Caterpillar engine) 53836-K276 (Without membrane)	53836-K270 Rev 8
Remote Display Unit	53836-K271	53836-K271 Rev 10 44782-K193 Rev 4 44782-K193CD Rev 9
Control Unit to Detector cable	43682-K286-XXX (straight) 43682-K285-XXX (right angle) 43682-K298-XXX (right angle)	43682-K286-XXX Rev 5 43682-K285-XXX Rev 7 43682-K298-XXX Rev 5

Supporting Documents:

ED868 Rev 3 OMD Mk7 Specification
ED869 Rev 2 OMD Mk7 Control Board Hardware Specification
ED870 Rev 1 OMD Mk7 Control Unit Mechanical Specification
ED871 Rev 2 OMD Mk7 Display Unit Hardware Specification
ED872 Rev 1 OMD Mk7 Display Unit Mechanical Specification
ED874 Rev 1 OMD Mk7 Detector Software Specification
ED875 Rev 2 OMD Mk7 Control Unit Software Specification

3. Test Reports:

   ED881 Rev 3 OMD Mk7 Class Society Test Procedure,
   Test File No. TL1550 Oil Mist Detection System Issue 2 dated 27 October 2011,
   Test File No. TL1550 Environmental Test Report Issue 3 dated 25 July 2011,
   Test File No. TL1550-A Temperature Test Report Issue 01 dated 05 September 2011,
   ED883 Rev 2 OMD Mk7 Class Society Test Results,
   Declaration for flame retardant material (PA-765A),
   TL15082-EMC (14 October 2015), TL15082-ENV (14 October 2015),
   ED912 Rev 3 OMD Mk7 ClassNK Test Results (20/01/16),
   Test Report TL19128 dated 6 February 2020 (IACS E10 Rev.7 basis for Remote Display Unit)

4. Application software:

   Detector: P66100-1xx, Controller: 53836-K270-P66200-1xx, 53836-K270-01-P66220-1xx,
   Display: P66300-1xx

- To be continued -

Attached sheet -2/2 to the Certificate No. TA21525M

Test items & approval conditions:

1. Test items:

Applied testing items are marked with X in accordance with the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use as amended by IACS UR M67 and UR E10 as applicable.

ENVIRONMENTAL TESTS (IACS UR E10 rev.7 basis)		Mark
External examination		X
Operation test and performance test		X
Electric power supply failure test		X
Power supply fluctuation test	Electric	X
	Pneumatic and Hydraulic	--
Insulation resistance test		X
High voltage test		X
Pressure test (Pneumatic and Hydraulic)		--
Dry heat test (Temperature 85℃×16 hours(#) / 70℃×16 hours(others))		X
Damp heat test		X
Vibration test (Acceleration ±4.0g×1.5 hours(#) / ±0.7g×1.5 hours(others)		X
Inclination test		X
Cold test (Temperature 0℃×2 hours + 5℃×16 hours)		X
Salt mist test		--
Electrostatic discharge immunity test		X
Radiated radio frequency immunity test		X
Conducted low frequency immunity test		X
Conducted high frequency immunity test		X
Burst / Fast transient immunity test		X
Surge immunity test		X
Radiated emission test		X
Conducted emission test		X
Flame retardant test		--

#: Detectors

2. Approval condition:

(1) The products are not allowed to be installed in the bridge and on open decks.
(2) Where there are multi engine installations, each engine is to be provided with oil mist detection/monitoring and dedicated alarm.

- The End -