



Action code: AT FIRST OPPORTUNITY

Approved Method for the MAN B&W L50MC Engine Type

and Information on the Approved Method Process

SL2014-592/SVH
August 2014

Concerns

Owners and operators of MAN B&W two-stroke engines built from 1990 to 2000, type MC.

Summary

MAN Diesel & Turbo has developed an Approved Method for the L50MC engine type and stresses the procedures introduced in a new IMO circular.

Dear Sirs

This service letter describes the new Approved Method (AM) for the L50MC MAN B&W two-stroke engine type and the procedures for introducing AMs on board. The AM is introduced as a consequence of the 'existing' engine regulation based on the revised MARPOL Annex VI and the NO_x Technical Code 2008.

The Approved Method Process is discussed based on a newly published IMO resolution (MEPC.242 (66) adopted on 4 April 2014), describing the AM process and responsibilities.

AMs have already been introduced for S50MC, S60MC and S70MC engine types, see SL11-548/SVH August 2011, with notification by the IMO Secretariat, following the approval by the Danish Maritime Authority. The approval follows the latest guidelines discussed at the recent MEPC sub-committee PPR1 in February 2014 (IMO resolution MEPC.243 (66) adopted on 4 April 2014).

The MAN Diesel & Turbo home page on AMs www.mandieselturbo.com/AM will be updated once IMO has been notified.

Yours faithfully

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Enclosures



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MAN Diesel & Turbo has developed an Approved Method for the L50MC engine type and stresses the procedures introduced in a new IMO circular.

Approved method

MAN Diesel & Turbo has developed an Approved Method for the L50MC Mk5/6 engine within certain limitations, as specified in Attachment 1.

Approved method Process

MAN Diesel & Turbo has reviewed our guidelines for licensees and customers on the introduction of AMs on MAN B&W two-stroke engines in agreement with the recently published IMO circulars discussed at the PPR1 sub-committee meeting. Details are given in Attachment 2. Additional guidance may be found in 'A Guideline for MAN B&W Approved Methods' (to be published.)

Action

When a vessel renewal survey is coming up following 1 July 2010, the shipowner must verify whether an AM has been released for his engine type.

If an AM is available, the shipowner should introduce the AM on board no later than at the first renewal survey, which is conducted one year or more after the IMO notification. If no AM is available, the engine is in compliance, but the Class must amend the IAPP that no AM exists.

Visit the home page at: www.mandieselturbo.com/AM

For further advice or clarification, contact the engine manufacturer or our PrimeServ department in Copenhagen on e-mail: PrimeServ-cph@mandieselturbo.com



ATTACHMENT 1

APPROVED METHOD(s) FOR MAN B&W L50MC

Date of notification: 4 June 2014

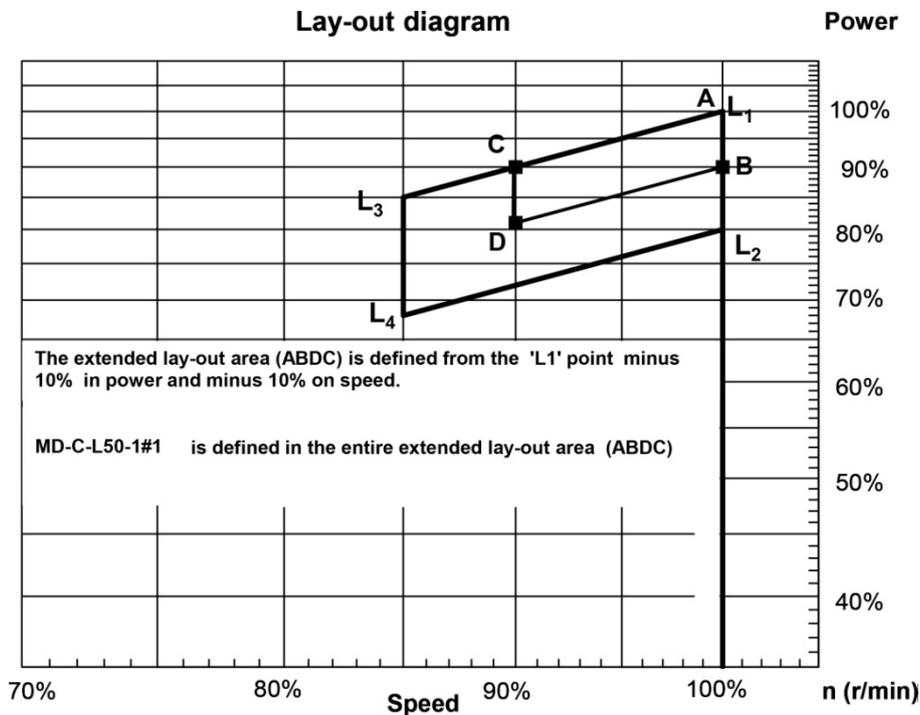
The AMs complies with the following requirements: Reg. 13.7.5.1 and Reg. 13.7.5.2

AM	Load Cycle	Specification of engine type ^{iv}			Specification of performance ^{iv}			
		'Existing' fuel nozzles drawing number/ IMO ID number ⁱ	MCR per cylinder (kW/cyl) ⁱⁱ	Rated speed (rpm) ⁱⁱ	Pmax at max tolerance (barabs) ⁱⁱⁱ		Pmax-Pcomp at max tolerance (bar) ⁱⁱⁱ	
					100%	75%	100%	75%
MD-C-L50-1#1 1144789-3 (AM-1)	E3	1242912-0 (M1)	1075-1330	133-148	144	134	29	49

- ⁱ Not all fuel nozzles are marked, but if drawings are referenced to original MAN B&W (drilling) drawings (i.e. identical nozzles), these engines are also included in the AM.
- ⁱⁱ Within the range bounded by MCR per cylinder and rated speed as defined in the attached lay-out graph, a +/- 25 kW tolerance shall be allowed on the power limits, respectively, to allow for minor conversion errors (a metric conversion factor of 0.7355 kW/bHp is used).
- ⁱⁱⁱ At ISO ambient conditions based on original test bed data at 75 and 100% loads (or interpolated from adjacent loads, if not available) (performance data to be specified with one decimal, P_{max} rounded up and P_{comp} rounded down)
- ^{iv} Exemptions may be introduced on approval by the Administration after evaluation by the Contact Point

Contact Point (CP): MDT in Copenhagen, PrimeServ Dept. DR (DR-cph@mandieselturbo.com)

Lay-out area graph (with AM-#'s indicated, if appropriate)



For L50MC L₁: 1330 kW/cyl and 148 r/min

Comment: To avoid errors with unit conversions, a +/-25 kW/cyl power allowance is observed for upper and lower power limits, respectively (a metric conversion factor of 0.7355 shall be used).



ATTACHMENT 2

Instruction for an AM Installation

This instruction describes MAN Diesel & Turbo's Approved Method (AMs) installation procedures reviewed after the IMO PPR1 Sub-committee meeting, 3-7 February 2014.

The instruction provides AM info to shipowners and operators on B&W two-stroke marine diesel engines and explains how to stay in compliance with MARPOL Annex VI.

APPROVED METHOD PROCEDURES

*)	Task	Comments
1-3	I. AM development	MDT responsibility
3	IMO issues AM circular	With notification date
4	II. SO checks 'core' parameters in IMO Circular	Core parameters: Engine model, engine cycle, original fuel nozzle**), rated power and speed (w. tolerances and conversion factor) If not compliant, SO investigates again at next renewal survey (overhaul)
5	SO checks detailed parameters in IMO Circular	P_{max} and p_{comp} (ISO ambient corrected, rounding up/down)
6	SO submits result to SA for agreement	If all parameters are within MEPC.1/Circ.x requirements
7-9	III. Applicability 'exemption' loop	If detailed parameters are outside the IMO circular criteria or engine NO_x components have been modified after vessel delivery
7	SO to contact CP for exemption	SO submits application to CP – needed info: <ul style="list-style-type: none"> ▪ Engine model, manufacturer and engine No. ▪ Original fuel nozzle ▪ Rated power and speed (from nameplate) ▪ Test-bed report (TB) ▪ VIT & on-board charge-air cooling system ▪ Other modifications after delivery
9-10	SA issues non-applicability documentation – agree with AMC (***)	If CP advises non-applicability, AMC (or CP) submit document to SA (and informs SO)
9,6	AMC issues applicability documentation	AMC (or CP) to inform SO, SA to agree
11	IV. SO decides on compliance route	Compliance 1) by introducing AM or 2) by measurement following NTC 2008
12-13	Measurement and approval following NTC 2008	SO to contact measurement company (or MA) for measurement, technical file and survey
14	SO orders AM from CP (or MA) <i>See check list for installation</i>	Info to be given CP: <ul style="list-style-type: none"> ▪ As in item 7 ▪ Additional maintenance to be carried out ▪ Docking schedule, delivery address



*)	Task	Comments
14-15	CP to check applicability of AM	CP (MDT or MA) to check AM criteria for engine type (MEPC.1/Circ.x) a) If CP accepts SO evaluation, CP prepare specific AMF for AMC approval b) If CP does not accept, CP to inform SO on possibilities: 1. Return to RO (SA) to accept responsibility (item 6) or 2. Return to AMC for issuing 'non-applicability' document (item 10)
15	AMC approves specific AMF	
16-17, 19-20	V. Commercial availability loop	SO establishes from MDT (or MA) if commercial available
19	Non-available document	MDT (or MA) issues document, SO to submit
17	VI. Installation of AM (see check list for installation)	If AM available, install the AM (or only AMF document if SL already installed)
18	On-board survey	SO performs survey, fill out AMF Appendix A signed by chief engineer
13, 18, 21	Approval	SO submits to SA (RO) for amending/issuing new IAPP certificate (or EPA EIAPP certificate)

*) Numbers refer to boxes in *Fig.1 - Approved Method Process Flowchart* (from IMO resolution MEPC.242 (66)).

**) The original fuel nozzle was not included in the PPR 1 report as a core parameter, but at the meeting, MDT included the nozzle due to the very clear definition in the new IMO criteria.

***) There will be a special fee for issuing a non-applicability document (from AMC or CP).

ABBREVIATIONS:

AM	Approved Method
AMC	AM Certifying administration
AMF	Approved Method File
CA	Commercial Available
CP	Contact Point
GL	Germanischer Lloyd
IAPP	International Air Pollution Prevention certificate
IMO	International Maritime Organization
ISO	International Standard Organization
MA	Manufacturer (approved for issuing specific AMF)
MDT	MAN Diesel & Turbo
MEPC	Marine Environmental Protection Committee
NTC	NOx Technical Code 2008
PPR1	1 st Pollution Prevention and Response sub-committee meeting
RO	Recognized Organization (on behalf of the Flag State or SA)
SA	Ships Administration
SL	AM Slide valve
SO	Ship Owner
TB	Test Bed
VIT	Variable Injection Timing



CHECK LIST FOR INSTALLATION

	Task	Comments	Check date
0	SO orders AM from CP (or MA) <i>See AM procedures</i>	Info to be given CP: <ul style="list-style-type: none"> ▪ As in item 7 in 'AM PROCEDURES' ▪ Additional maintenance to be carried out ▪ Docking schedule, delivery address 	
1	Applicability of AM	Confirmed by CP (MDT)	
2	Installation date (Dry dock or Port)		
3	Detailed order for installation of AM	This includes, depending on order of: AMF, installation services *), engine adjustment and on-board survey	
4		Confirm VIT and actual cooling system on board for establishing final (individual) AMF to MDT (<i>see item 7 in 'AM PROCEDURES'</i>)	
5	Order Class (RO) to perform renewal survey (issue new or amend IAPP certificate)	Will the Class (RO) be present on board during the survey or is data received after sea trial ok?	
6		Submit preliminary (sample) AMF for Class (RO) info	
7	Installation of AM hardware (during dry docking or in port)	Modification of cylinder cover (+ additional overhauls, as found necessary: cam, pump, VIT, etc.)	
8		Installation of SLs at the same time?	
9		Class (RO) approval of installation?	
10	Received final (specific) AMF from CP (MDT)	Individual AMF (approved by GL) based on the originally approved AMF (MEPC.1/Circ.x) identifying engine and actual engine conditions	
11	On-board survey (incl. performance adjustment)	On-board engine performance adjustment	
12		Fill out AMF survey (Appendix A) and attach to AMF (or Engine log book)	
13	Approval of AM <i>(Return to AM procedures)</i>	Forward specific AMF w. final survey (new Appendix A) to Class (RO)	
14		Local Class (RO) to issue new (or amend) IAPP based on the on-board survey	
15		Submit approved AMF incl. survey to MDT	

*) The engine shall be as in the original state before installing the AM (a status for the actual engine performance may be needed to evaluate engine condition before installation.)

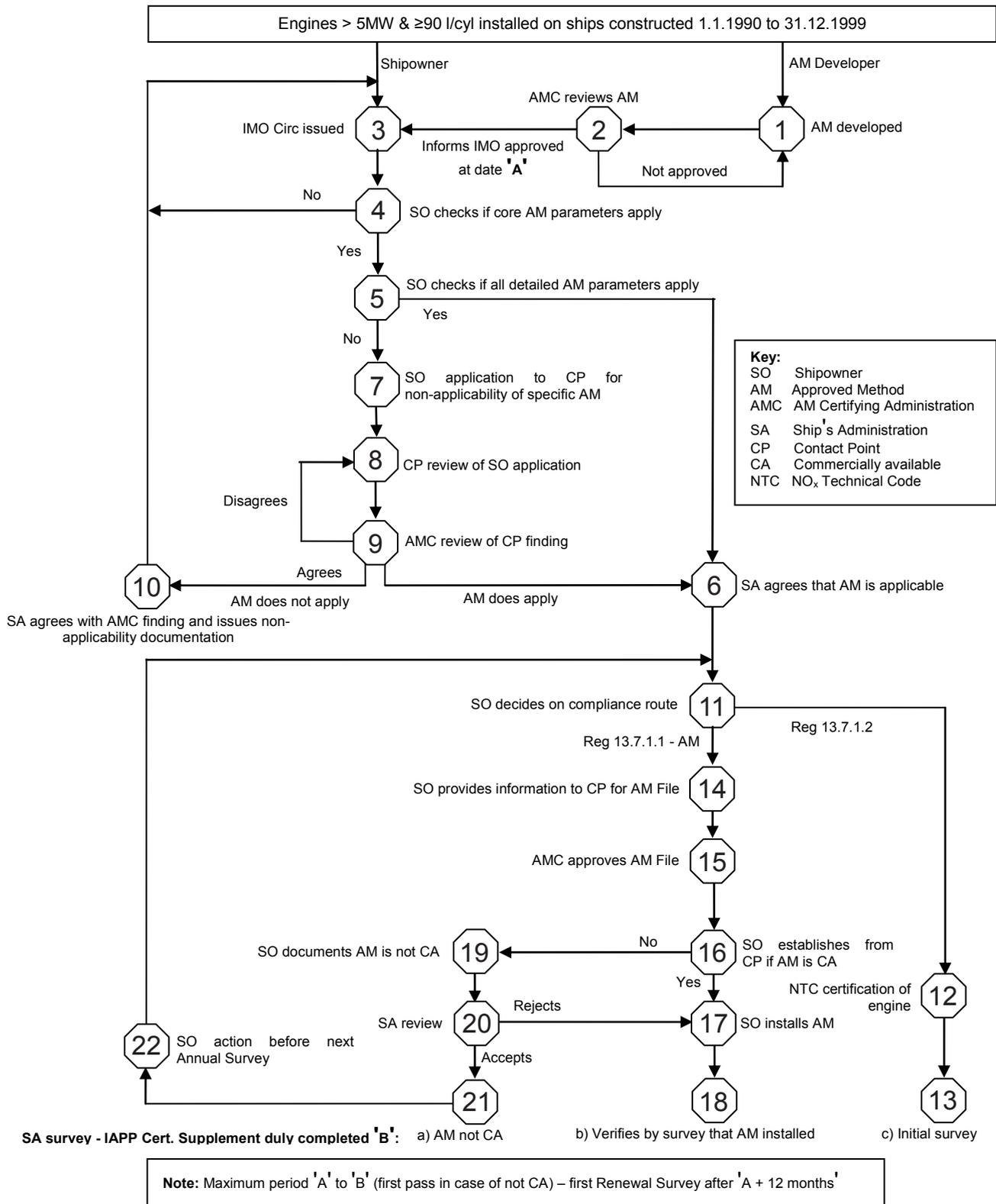


Figure 1 – Approved Method Process Flowchart

(from IMO resolution MEPC.243 (66)).