



Description : This data sheet contains specific design and operating data for your propeller.

Guidance : If any data is modified the data is updated with a higher correction figure and forwarded to building yard as well as customer.

Use : This data sheet provides specific information to which references may be made in our instruction manual or in connection with guidance drawings.

Remarks :

Basic Standards (MBD SB) & Suppl. Drawing No.:					EN21C Surf. roughness	Projection: 	Material / Blank:
					EN21F-m Tolerances	Mass (kg):	Final User Material:
Date	Des.	Chk.	Appd.	A.C.	Change / Replacement		C.No
				*	Replaced by Ident. No.:		5
				*			4
				*			3
				*			2
				*			1
20070711	TMK	TMK		*			0
Similar Drawing No.:					Replacement for Ident. No.:		
Scale: 	Size: A4	Type: Propeller equipment			Page No.: 01 (06)	MAN B&W Diesel A/S	
Info. No.: 3P0125		Description: Plant specific data				Ident. No.: 2126291-1	
Final User Info. No.:		Final User Description:				Final User Ident. No.:	

Shipyard: Aker Yards, Norway

P-Nos.: 20572 - 20579, 20662 - 20663

Engine type: 2 x 7+8L27/38

Gear type: 2 x Renk NDSHL-2500. Twin in/Single out reduction gear.

Propeller type: 2 x VBS1080/ODG

Seal type: DSS Sternguard 4BL & Sternguard Mk2

rpm engine/propeller: 800/145

Classification: Der Norske Veritas. No ice

Propeller blades dismantable under water

☐ Yes☒ No

Calculated propeller pitch movement

Full ahead: 96 mm

Full astern: 76 mm

Oil quantity

Lubricating oil system: ~1600 l

Servo oil system: ~1400 l

Weight and centre of gravity

L (mm)

Weight (kg)

Fig. 1

Complete, approx.

6190

22290

Fig. 2

Without coupling flange

5530

21090

Fig. 3

Coupling flange

1200

Fig. 4

Without blades and coupling flange

6660

17480

Fig. 5

Intermediate shaft

3040

3620

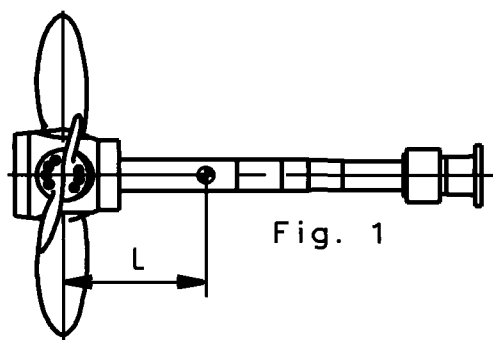


Fig. 1

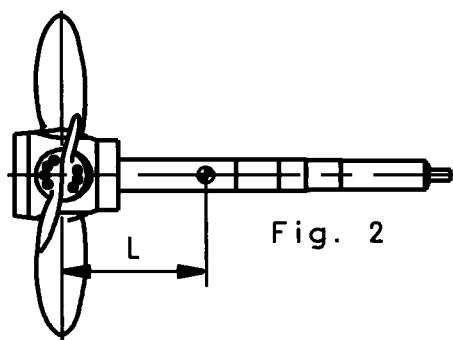


Fig. 2

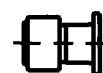


Fig. 3

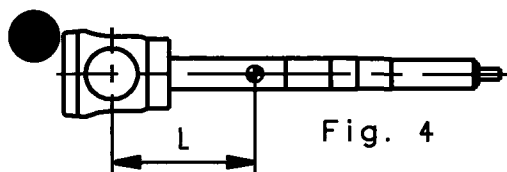


Fig. 4

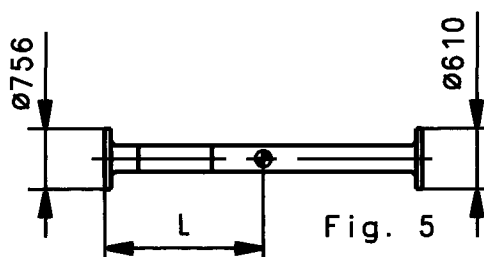


Fig. 5

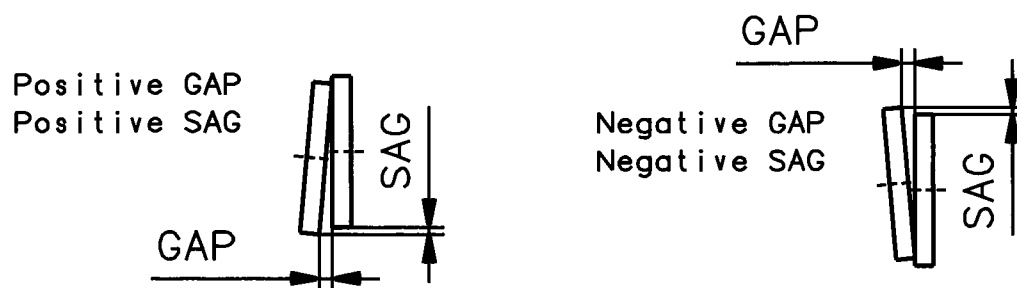
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20070711	TMK	TMK		*		0
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	A4	Propeller equipment	02 (06)			
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Alignment of propeller shafting

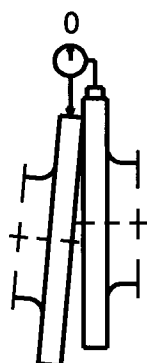
The alignment procedure is based on the GAP and SAG method using precalculated measurements between the disconnected flange connections.

GAP is the horizontal distance between the angled flanges measured in mm.

SAG is the vertical distance between the angled flanges measured in mm.

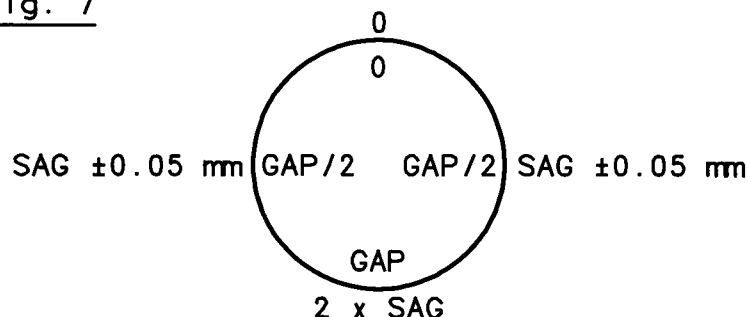


As an example fig. 7 shows a flange connection as it would look, if SAG is measured with a dial gauge adjusted to zero in top position and GAP is measured with a feeler gauge.



Flange connection
viewed from the side

Fig. 7



Flange connection viewed from aft

Thermal and mechanical deflections of hull and foundation are not taken into account in the calculations and possible corrections may need to be considered.

To be checked before alignment:

1. That the vessel is floating preferably in its normal loaded condition.
2. That there are no undue temperature differences between the ship and propulsion plant.
3. That all major weldings in the foundation area are completed and temperatures normalised.
4. That the installation dimension for the aft stern tube seal is correct.

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Alignment procedure:

The propeller shafting and the servo oil pipes shall be disconnected.

The hydraulically fitted coupling flange shall be installed on the tail shaft - see separate Work card No. 10 304A-01.

In horizontal plane the shaft line has to be straight, within a tolerance of ± 0.05 mm - see fig. 7.

1. The intermediate shaft is to be aligned in proportion to the tail shaft/coupling flange by adjusting the position of the journal bearing and a jack located as shown in figure 8.
The shaft is to be adjusted so that the GAP and SAG dimensions shown in figure 9 are obtained.
2. The reduction gear is to be aligned in proportion to the intermediate shaft so that the GAP and SAG dimensions shown in figure 10 are obtained. See also separate alignment instruction for the Renk reduction gear.
The location of the intermediate shaft must not be changed in order to obtain the GAP and SAG dimensions.
3. Move the coupling flange and the intermediate shaft aft enabling to install the brake disc and to assemble the servo pipe flanges.
4. Move the intermediate shaft forward and install and tighten the fitted bolts. Note that the "0"-marking on the flanges coincide.
5. Assemble the servo pipe flanges in way of the coupling flange.
6. Move the coupling flange forward and install and tighten the fitted bolts. Note that the "0"-marking on the flanges coincide.
7. Carry out a jack-up test in order to verify the shaft alignment data - refer to page 6.
8. If the jack-up test is acceptable the gear box is to be tightened down and rust inhibitor is to be applied to the shafting.

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Horizontal view of shaft line

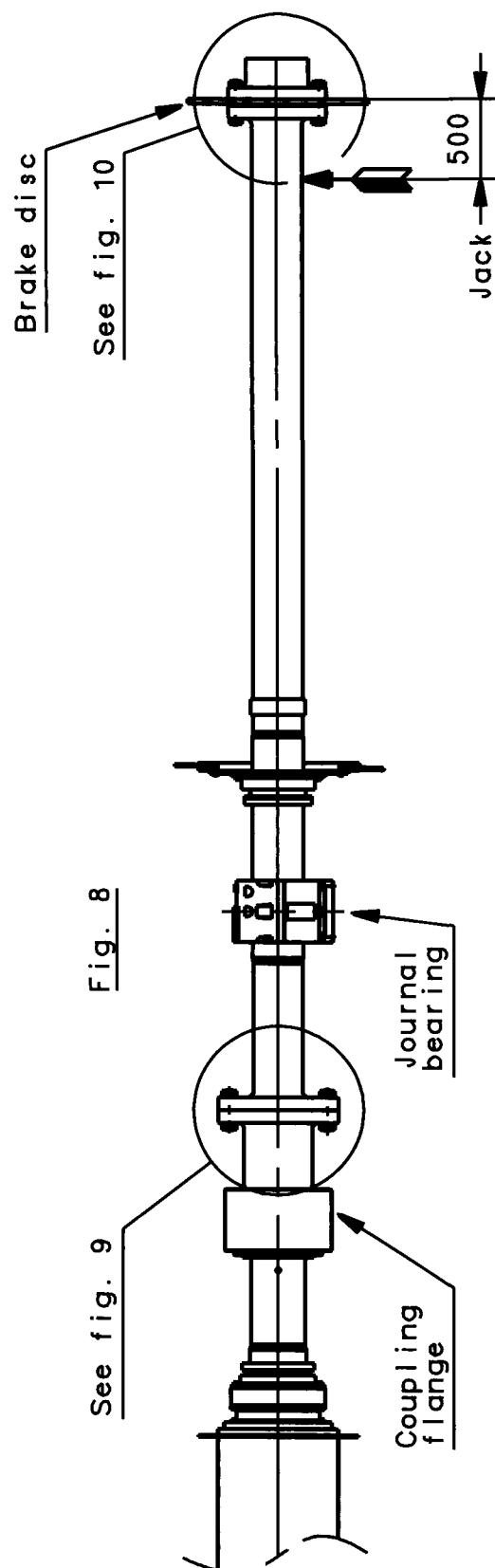
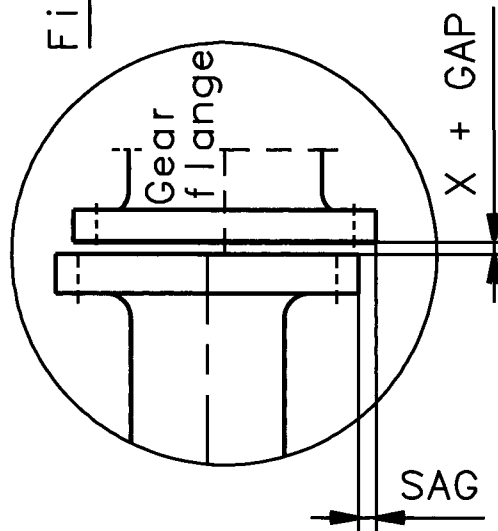


Fig. 10

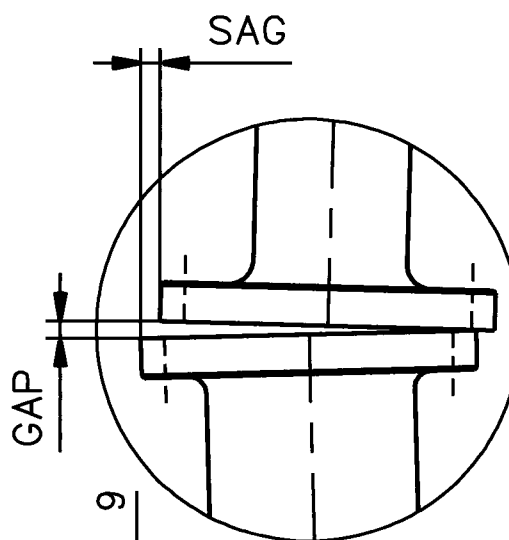


X = Dimension of brake disk

$$\text{GAP} = 0.00 \pm 0.05$$

$$\text{SAG} = 1.20 \pm 0.10$$

Fig. 9

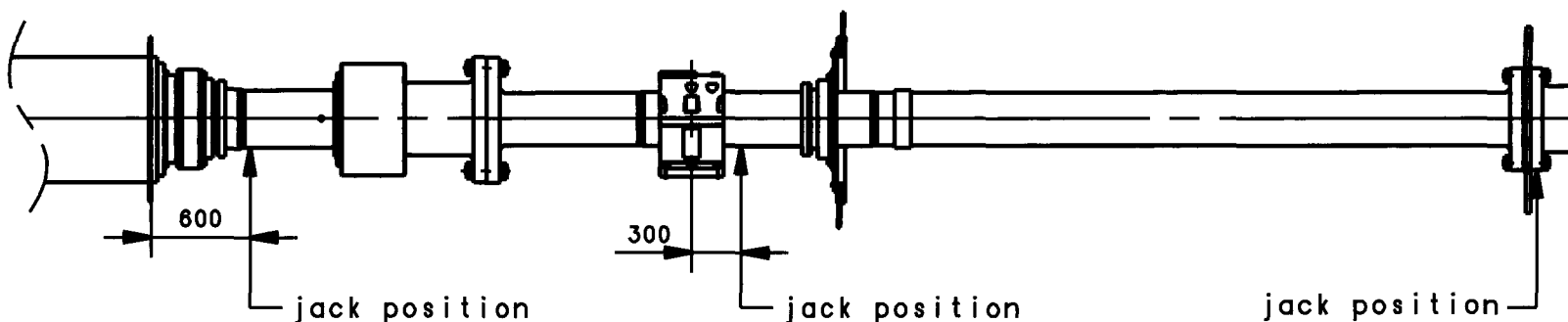


$$\text{GAP} = 0.05 \pm 0.05$$

$$\text{SAG} = 0.60 \pm 0.10$$

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Horizontal view of shaft line



Jack-up test data

Bearing	Jack position	Bearing load, R _b (kN)	Jack factor, C *
Fwd sterntube bearing	see above figure	48.2	0.87
Interm. shaft bearing	see above figure	26.1	1.03
Gear aft bearing	see above figure	38.5	1.34

* The jack factor is based on the position of the jacks as shown in above figure.

$$C = \frac{R_b}{R_j}$$

R_b = bearing load (kN)

R_j = jack load (kN)

Evaluation:

A variation of ±20% of the pre-calculated load is considered fully satisfactory.
 In case the variation exceeds that, MAN B&W should be consulted for an individual evaluation.

Date

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