

S H O P T E S T R E P O R T

MAN B&W DIESEL, Alpha Diesel

PLANT INFO	S-no: 5295	Engine no: 18070
	Customer: FYLKESBAATANE I SOGN OG FJORDANE	
	Yard : LAKSEVÅG VERFT A/S	

ENGINE INFO	TEST INFO
Type : 8L23/30A	Test date : 96.10.25
MCR power : 1280 kW	Test stand no. : 3
at : 900 rpm	Tested by : LARS JOHANSSON
Direct.of rotation: ANTICLOCKW	Fuel type : MDO
Camshaft pos. A: 0,00	Lower cal. value: 42,70 MJ/kg
B:	Lub. oil type : BP DS3 153
Idle speed : 500 rpm	Built-on pumps : FW [X] SW [X] Bilge [] Fuel [X] L.O. [X] Other []
GEAR INFO	
Type : 23V08	Waterbrake : L7
No. : 4397	
TURBOCHARGER INFO	
Make - : MAN B&W	GOVERNOR INFO
Type : NR20/2182	Make: : WOODWARD
Serial no.A-bank: 1182331	Type: : UG 8L
B-bank:	Serial no. : 11536758
Max. speed : 44000 rpm	Compensation : 8
Max.temperature : 650 °C	Overspeed adj. : 1050 rpm

REMARKS:

Approved by: *Peter Colowen*

Test date:96.10.25	S H O P T E S T R E P O R T								Engine no:	18070
Test no: 1	MAN B&W DIESEL, Alpha Diesel								Engine type:	8L23/30A
Tested by:LARS JOHANSSON										
Load, Power, Fuel					Turbocharger			A	B	
Load:	%	100,0	Turbine, RPM:		RPM					
Engine speed:	RPM	900	Turbine Exh.temp.outlet:		°C	300				
Propeller speed:	RPM	399	Temp. after compressor:		°C	168				
Power engine:	kW	1280	Ch. air cooler loss:		mmWc	180				
Power Gear flange:	kW	1251	Exhaust back press.:		mmWc	20				
Mean press:	bar	17,9	Ch.air.temp.after cooler:		°C	38				
Fuel consump:	g/kWh	202,3	Ch.air pressure:		bar	2,03				
Fuel index (avrg.)	mm	26,0	Cooling system LT, HT							
Exhaust temp.(avrg.)	°C	352	LT.cooling water press.:		bar	2,30				
Lub. oil			LT. Inlet air cooler:		°C	25				
Press. after filter:	bar	4,0	LT. Outlet air cooler:		°C	30				
Temp., inlet:	°C	56	LT. Outlet, F.W. cooler:		°C	42				
Temp., outlet:	°C	68	HT. cooling water press.:		bar	2,10				
Instrument panel			HT. cooling water inlet:		°C	72				
Lub.oil pres.bef.filter:	bar	4,7	HT. cooling water outlet:		°C	78				
Lub.oil pres.aft.filter:	bar	4,0	Crankcase pressure:		mmWc	15				
Fuel oil press.:	bar	2,0	Ambient							
Ch. air press.:	bar	2,00	Fuel oil temp.:		°C	25				
Ch. air temp aft.cooler:	°C	38	Air inlet temp:		°C	26				
LT.cooling water press.:	bar	2,30	Barometric pressure:		mbar	1029				
HT.cooling water press.:	bar	2,10								
	Cyl. no.	1	2	3	4	5	6	7	8	9
Fuel pump - Index [mm]	A-bank B-bank	25,5 26,0	26,0	26,0	26,5	26,0	26,0	26,0	26,0	
Max. press. [bar]	A-bank B-bank	135 135	135	135	135	136	135	136	136	
Comp. press. [bar]	A-bank B-bank	110 110	110	109	110	110	110	110	110	
Exhaust temp. [°C]										
(Dial) (NiCr-Ni)	A-bank A-bank	385 432	360 413	360 403	330 377	335 383	350 373	345 385	350 404	
(Dial) (NiCr-Ni)	B-bank B-bank									

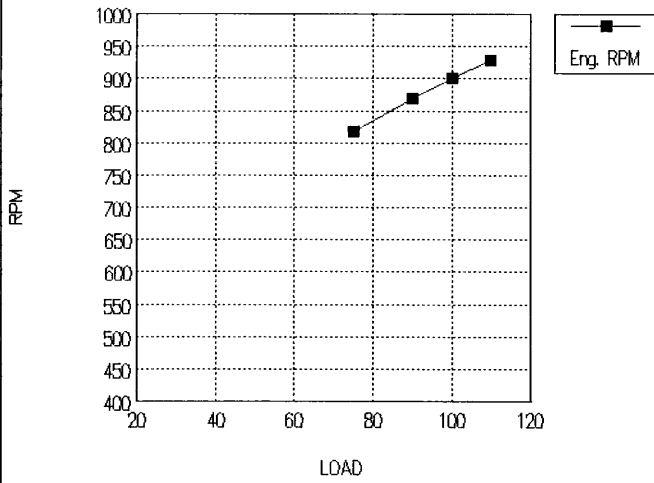
Test date:96.10.25	S H O P T E S T R E P O R T							Engine no:	18070		
Test no: 2	MAN B&W DIESEL, Alpha Diesel							Engine type:	8L23/30A		
Tested by:LARS JOHANSSON											
Load, Power, Fuel				Turbocharger				A		B	
Load:	%	110,0		Turbine, RPM:	RPM						
Engine speed:	RPM	929		Turbine Exh.temp.outlet:	°C	315					
Propeller speed:	RPM	411		Temp. after compressor:	°C	186					
Power engine:	kW	1408		Ch. air cooler loss:	mmWc	210					
Power Gear flange:	kW	1377		Exhaust back press.:	mmWc	20					
Mean press:	bar	19,0		Ch.air.temp.after cooler:	°C	40					
Fuel consump:	g/kWh			Ch.air pressure:	bar	2,30					
Fuel index (avrg.)	mm	28,0		Cooling system LT, HT							
Exhaust temp.(avrg.)	°C	394									
Lub. oil				LT.cooling water press.:	bar	2,50					
Press. after filter:	bar	4,0		LT. Inlet air cooler:	°C	26					
Temp., inlet:	°C	56		LT. Outlet air cooler:	°C	30					
Temp., outlet:	°C	68		LT. Outlet, F.W. cooler:	°C	44					
Instrument panel				HT. cooling water press.:	bar	2,20					
Lub.oil pres.bef.filter:	bar	4,7		HT. cooling water inlet:	°C	72					
Lub.oil pres.aft.filter:	bar	4,0		HT. cooling water outlet:	°C	78					
Fuel oil press.:	bar	2,0		Crankcase pressure:							
Ch. air press.:	bar	2,30			mmWc	15					
Ch. air temp aft.cooler:	°C	40		Ambient							
LT.cooling water press.:	bar	2,50		Fuel oil temp.:	°C	25					
HT.cooling water press.:	bar	2,20		Air inlet temp:	°C	27					
				Barometric pressure:	mbar	1029					
	Cyl. no.	1	2	3	4	5	6	7	8	9	
Fuel pump - Index [mm]	A-bank B-bank	27,5	28,0	28,0	28,5	28,0	28,0	28,0	28,0		
Max. press. [bar]	A-bank B-bank	0	0	0	0	0	0	0	0		
Comp. press. [bar]	A-bank B-bank	0	0	0	0	0	0	0	0		
Exhaust temp. [°C]											
(Dial) (NiCr-Ni)	A-bank A-bank	430 479	410 459	410 452	360 408	380 426	385 413	385 424	395 454		
(Dial) (NiCr-Ni)	B-bank B-bank										

Test date:96.10.25	S H O P T E S T R E P O R T							Engine no:	18070		
Test no: 3	MAN B&W DIESEL, Alpha Diesel							Engine type:	8L23/30A		
Tested by:LARS JOHANSSON											
Load, Power, Fuel					Turbocharger			A	B		
Load:	%	90,0		Turbine, RPM:	RPM						
Engine speed:	RPM	869		Turbine Exh.temp.outlet:	°C	300					
Propeller speed:	RPM	385		Temp. after compressor:	°C	155					
Power engine:	kW	1152		Ch. air cooler loss:	mmWc	170					
Power Gear flange:	kW	1124		Exhaust back press.:	mmWc	15					
Mean press:	bar	16,6		Ch.air.temp.after cooler:	°C	37					
Fuel consump:	g/kWh	201,4		Ch.air pressure:	bar	1,79					
Fuel index (avrg.)	mm	24,0		Cooling system LT, HT							
Exhaust temp.(avrg.)	°C	334		LT.cooling water press.:	bar	2,10					
Lub. oil				LT. Inlet air cooler:	°C	26					
Press. after filter:	bar	4,0		LT. Outlet air cooler:	°C	29					
Temp., inlet:	°C	56		LT. Outlet, F.W. cooler:	°C	40					
Temp., outlet:	°C	66		HT. cooling water press.:	bar	1,90					
Instrument panel				HT. cooling water inlet:	°C	72					
Lub.oil pres.bef.filter:	bar	4,6		HT. cooling water outlet:	°C	78					
Lub.oil pres.aft.filter:	bar	4,0		Crankcase pressure:	mmWc	12					
Fuel oil press.:	bar	2,0		Ambient							
Ch. air press.:	bar	1,80		Fuel oil temp.:	°C	25					
Ch. air temp aft.cooler:	°C	37		Air inlet temp:	°C	26					
LT.cooling water press.:	bar	2,10		Barometric pressure:	mbar	1028					
HT.cooling water press.:	bar	1,90									
	Cyl. no.	1	2	3	4	5	6	7	8	9	
Fuel pump - Index [mm]	A-bank B-bank	23,5	24,0	24,0	24,5	24,0	24,0	24,0	24,0		
Max. press. [bar]	A-bank B-bank	130	131	132	130	128	128	129	130		
Comp. press. [bar]	A-bank B-bank	103	101	102	102	101	101	102	101		
Exhaust temp. [°C]											
(Dial) (NiCr-Ni)	A-bank A-bank	365 413	345 397	345 388	315 359	320 364	325 349	330 367	330 382		
(Dial) (NiCr-Ni)	B-bank B-bank										

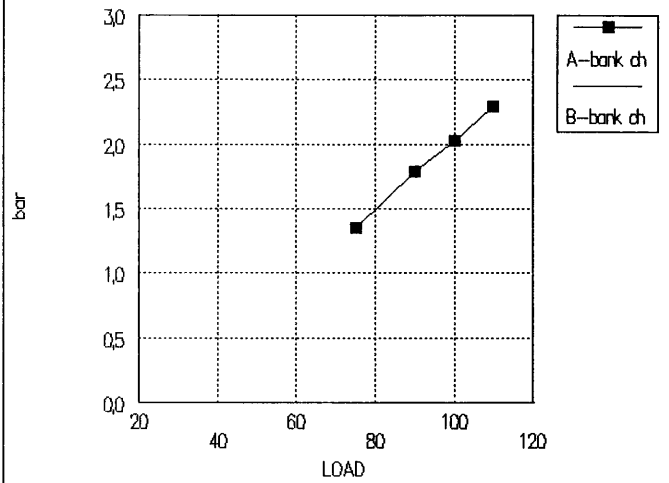
Test date:96.10.25	S H O P T E S T R E P O R T							Engine no:	18070		
Test no: 4	MAN B&W DIESEL, Alpha Diesel							Engine type:	8L23/30A		
Tested by:LARS JOHANSSON											
Load, Power, Fuel					Turbocharger					A	B
Load:	%	75,0	Turbine, RPM:			RPM					
Engine speed:	RPM	818	Turbine Exh.temp.outlet:			°C	300				
Propeller speed:	RPM	362	Temp. after compressor:			°C	133				
Power engine:	kW	960	Ch. air cooler loss:			mmWc	150				
Power Gear flange:	kW	934	Exhaust back press.:			mmWc	15				
Mean press:	bar	14,7	Ch.air.temp.after cooler:			°C	34				
Fuel consump:	g/kWh	203,0	Ch.air pressure:			bar	1,35				
Fuel index (avrg.)	mm	22,0	Cooling system LT, HT								
Exhaust temp.(avrg.)	°C	308									
Lub. oil			LT.cooling water press.:		bar	1,90					
Press. after filter:	bar	3,9	LT. Inlet air cooler:		°C	25					
Temp., inlet:	°C	58	LT. Outlet air cooler:		°C	28					
Temp., outlet:	°C	66	LT. Outlet, F.W. cooler:		°C	38					
Instrument panel			HT. cooling water press.:		bar	1,80					
Lub.oil pres.bef.filter:	bar	4,5	HT. cooling water inlet:		°C	72					
Lub.oil pres.aft.filter:	bar	3,9	HT. cooling water outlet:		°C	77					
Fuel oil press.:	bar	2,0	Crankcase pressure:		mmWc	12					
Ch. air press.:	bar	1,35	Ambient								
Ch. air temp aft.cooler:	°C	34	Fuel oil temp.:		°C	25					
LT.cooling water press.:	bar	1,90	Air inlet temp:		°C	28					
HT.cooling water press.:	bar	1,80	Barometric pressure:		mbar	1028					
	Cyl. no.	1	2	3	4	5	6	7	8	9	
Fuel pump - Index [mm]	A-bank	21,5	22,0	22,0	22,5	22,0	22,0	22,0	22,0		
	B-bank										
Max. press. [bar]	A-bank	115	117	118	117	115	113	118	116		
	B-bank										
Comp. press. [bar]	A-bank	85	83	83	83	83	82	82	83		
	B-bank										
Exhaust temp. [°C]											
(Dial)	A-bank	325	320	315	300	295	305	300	300		
(NiCr-Ni)	A-bank	368	369	352	343	341	332	343	352		
(Dial)	B-bank										
(NiCr-Ni)	B-bank										

PERFORMANCE DIAGRAM ENGINE NO: 18070

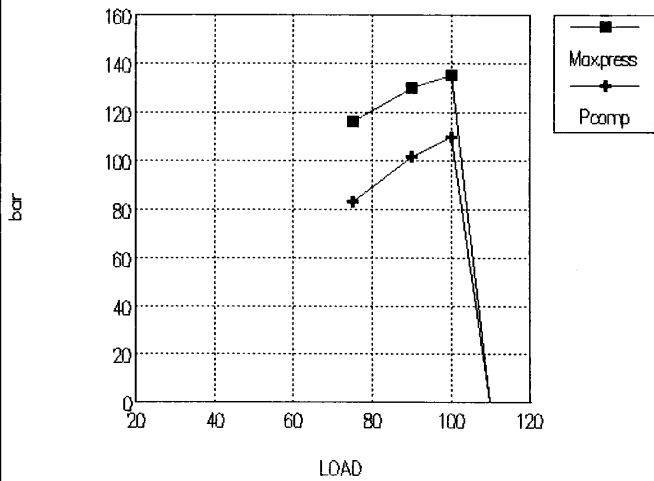
Engine RPM



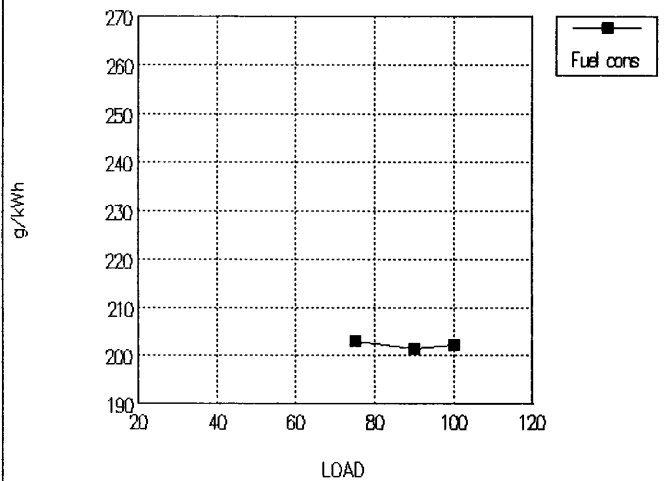
Charging air pressure



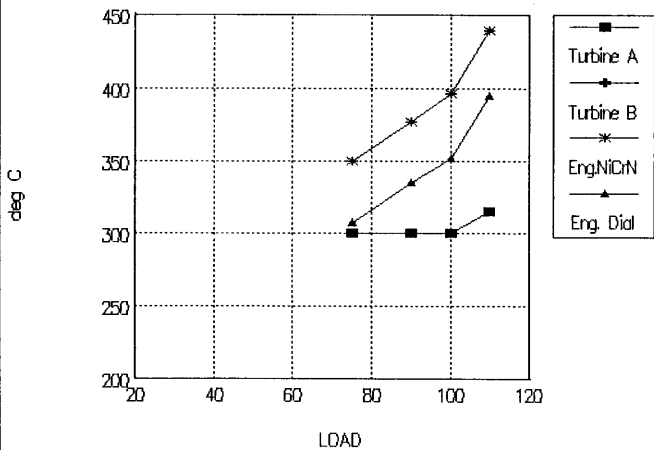
Pressure



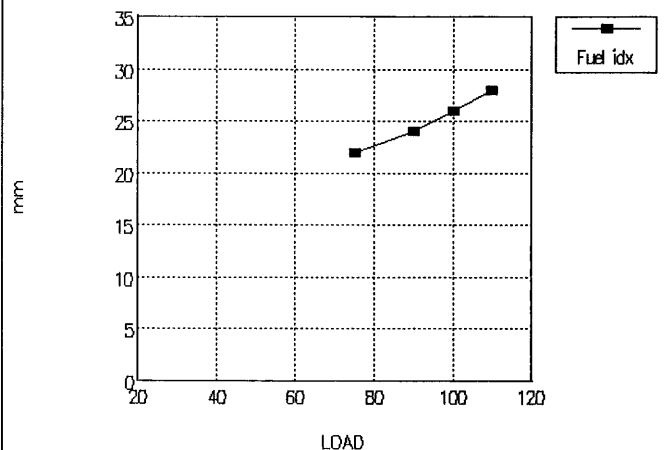
Fuel consumption



Exhaust temp. (avrg.)



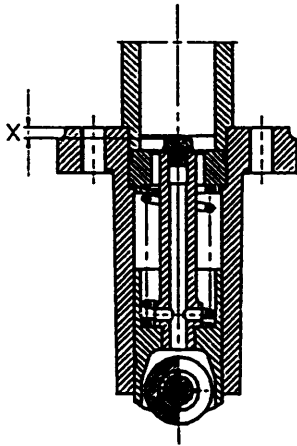
Fuel index



Alpha Diesel

Ernte Subject ADJUSTING OF MAX. COMBUSTION PRESSURE; 23/30 and 23/30A Product no. <u>16006712</u> VKS no. <u>116157</u>	Nr. No. 2020715-5 <hr/> Side Page 1 af of 1 sider pages
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Engine no. 18070 Type 8L23/30A S.no. 5295



X-measure: 5.5 [mm] ± 1 [mm]

By altering the measure "X" 0.1 [mm] the maximum pressure is altered abt. 1 [bar]

By turning the camshaft gearwheel 1 mark the maximum pressure is altered abt. 3 [bar]

On the test bed the X-measure is adjusted as mentioned on the table below.

L23/30 and L23/30A - camshaft position

0,0

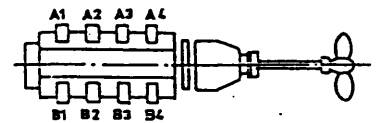


Cylinder no.	1	2	3	4	5	6	7	8	9
X-measure [mm]	5,5	5,5	5,4	5,5	5,8	5,8	5,7	5,8	

V23/30 and V23/30A - camshaft position

A _____

B _____



A	A1	A2	A3	A4	A5	A6
X-measure [mm]						
B-bank	B1	B2	B3	B4	B5	B6
X-measure [mm]						

Udstedt den Issue day	900903	I kraft den Effect day	931217
Dette skema er udfyldt den This sheet is completed		96.10.23	
Udstedt af Issued by	MAP MAP/KONAM	Udgave Version	002
Dette skema er udfyldt af This sheet is completed by		<i>Peter Blawie</i>	



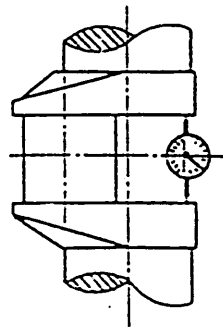
Alpha Diesel

Emne Subject CRANKSHAFT CONTROL FOR 23/30, 23/30A AND 28/32A	Nr. No. 2020713-1
Product no. <u>160006712</u> VKS no. <u>116157</u>	Side Page 1 af 1 sider pages

Engine no. 18070
Type 8L23/30A S.no. 5295

Distance between points of measurement on the webs:

- L23/30A : 108 [mm]
- L23/30 : 104 [mm]
- V23/30 : 144 [mm]
- L28/32A : 120 [mm]
- V28/32A : 184 [mm]



Measurement in 1/100 [mm]
+ indicates increase of distance between webs
- indicates decrease of distance between webs

Condition measured before: <i>SHOP TEST</i>		Engine temp. <u>20</u> [°C]									VO-gear connected/disconnected								
Crank no.		1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
Position	Bottom	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Port	-2	0	+1	+1.5	+1	0	0	0	0	0	0	0	0	+1	0	0	0	0
	Top	-4	+1	+2	+2	+1	+1	+1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	Starb.	-1.5	+1	+1	+2	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
	Bottom	0	+1	0	+1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sum																			
Difference																			

Condition measured after:		Engine temp. [°C]									VO-gear connected/disconnected								
Crank no.		1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
Position	Bottom																		
	Port																		
	Top																		
	Starb.																		
	Bottom																		
Sum																			
Difference																			

Sum: A check that the readings are correct.
Difference: Gives information on the bending deformation.

Note: Above values refer to standard plants.
Deviations may occur, depending on type of gearbox and coupling.

Udstedt den Issue day 900531	I kraft den Effect day 940810	Dette skema er udfyldt den This sheet is completed 96.10.16
Udstedt af Issued by MAP MAP/KONAM	Udgave Version 003	Dette skema er udfyldt af This sheet is completed by Peter Blawie

M/F STRYN
Motor nr. 18070



Alpha Diesel

Emne Subject	RECORDING OF GEAR TRIAL	Nr. No.	2020720-2
Product no.	<u>4397</u>	VKS no.	<u>26482400</u>
Side Page	1	af of	1 sider pages

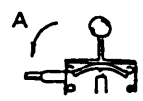
Gear type 23 VO 8 S.no. 5295

RECORDING OF PRESSURE AND TEMPERATURE						Lubricating oil temperature [°C]		
Rec. no.	Clutch shaft		Servo press. Nom. press.	Servo press. Increased	Clutch press. Nom. press.	Lub. oil press. Nom. press.	Lub. oil press. Manoeuvre	Thrust bearing Temperature
	Rev. [rpm]	Power [kW]	[bar]	[bar]	[bar]	[bar]	[bar]	[°C]
1	900		27	40	24	2.5	1.5	49
2	800		28	40	23.5	2.4	1.5	49
3	700		27	38	23.5	2.15	1.3	49
4								
5								

RECORDING OF BEARING TEMPERATURE (only if temperature gauge is connected)								
Rec. no.	Access shaft		Intermediate shaft				Output shaft	
	[°C]	[°C]	STB [°C]		BB [°C]		[°C]	[°C]
	FOR	AFT	FOR	AFT	FOR	AFT	FOR	AFT
1								
2								
3								
4								
5								

PITCH CONTROL ROD STROKE			
According to plant information	Ahead [mm]	Neutral 0 [mm]	Astern [mm]

Pitch control rod stroke is the stroke from neutral position of the piston rod to ahead or astern. In astern-position the pitch control rod flange is aligned with the output shaft flange.

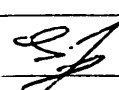

RECORDING OF PITCH CONTROL STROKE ON MANOEUVRE HANDLE					
	A-measure	Ahead [mm]	Neutral [mm]	Astern [mm]	
	Manual control		57	0	46
	Remote control			0	

Final adjusting and recording of servo, clutch, lub. oil pressure and pitch control after final sea trial.

Gear loaded 100% (yes/no): No Tooth contact area (min. 90%): 7 [%]

Effect according to contract 1280 [kW], at 900 [rpm] (access shaft)

Class-marking uklasset.

Udstedt den Issue day	921103	I kraft den Effect day	950907	Dette skema er udfyldt den This sheet is completed	980116
Udstedt af Issued by	 SMJ/KONAP	Udgave Version:	003	Dette skema er udfyldt af This sheet is completed by	 Hans Kihlenskjold

11520105



Alpha Diesel

Seny

Emne Subject	RECORDING OF GEAR TRIAL	Nr. No.	2020720-2
Product no.	<u>190004398</u>	VKS no.	<u>116339</u>
Side Page	1	af of	1 sider pages


Gear type 23V08 S.no. 5295

RECORDING OF PRESSURE AND TEMPERATURE						Lubricating oil temperature <u>45</u> [°C]		
Rec. no.	Clutch shaft		Servo press. Nom. press.	Servo press. Increased	Clutch press. Nom. press.	Lub. oil press. Nom. press.	Lub. oil press. Manoeuvre	Thrust bearing Temperature
	Rev. [rpm]	Power [kW]	[bar]	[bar]	[bar]	[bar]	[bar]	[°C]
1	<u>900</u>	<u>1280</u>			<u>25</u>	<u>2,5</u>		
2	<u>929</u>	<u>1408</u>			<u>26</u>	<u>2,6</u>		
3	<u>869</u>	<u>1152</u>			<u>26</u>	<u>2,6</u>		
4	<u>818</u>	<u>960</u>			<u>26</u>	<u>2,4</u>		
5								

RECORDING OF BEARING TEMPERATURE (only if temperature gauge is connected)								
Rec. no.	Access shaft		Intermediate shaft				Output shaft	
	[°C] FOR	[°C] AFT	STB [°C]		BB [°C]		[°C] FOR	[°C] AFT
1								
2								
3								
4								
5								

PITCH CONTROL ROD STROKE			
According to plant information	Ahead [mm]	Neutral 0 [mm]	Astern [mm]

Pitch control rod stroke is the stroke from neutral position of the piston rod to ahead or astern. In astern-position the pitch control rod flange is aligned with the output shaft flange.

RECORDING OF PITCH CONTROL STROKE ON MANOEUVRE HANDLE					
	A-measure	Ahead [mm]	Neutral [mm]	Astern [mm]	
	Manual control			0	
	Remote control			0	

Final adjusting and recording of servo, clutch, lub. oil pressure and pitch control after final sea trial.

Gear loaded 100% (yes/no): YES Tooth contact area (min. 90%): 100 [%]

Effect according to contract 1280 [kW], at 900 [rpm] (access shaft)

Class-marking _____

Udstedt den Issue day	921103	I kraft den Effect day	950907	Dette skema er udfyldt den This sheet is completed	<u>96.10.25</u>
Udstedt af Issued by	<i>SMJ</i> SMJ/KONAP	Udgave Version	003	Dette skema er udfyldt af This sheet is completed by	<i>Peter Clausen</i>

11.02.05

Kontrolseddel
Inspection sheet

seny



Alpha Diesel

Emne Subject	RECORDING OF GEAR TRIAL	Nr. No.	2020720-2
Product no.	<u>140004397</u>	VKS no.	<u>116338</u>
Side Page	1	af of	1 sider pages

Gear type 23V08

LYST
23 OKT. 1996
S.no. 5295

RECORDING OF PRESSURE AND TEMPERATURE						Lubricating oil temperature <u>45</u> [°C]		
Rec. no.	Clutch shaft		Servo press. Nom. press.	Servo press. Increased	Clutch press. Nom. press.	Lub. oil press. Nom. press.	Lub. oil press. Manoeuvre	Thrust bearing Temperature
	Rev. [rpm]	Power [kW]	[bar]	[bar]	[bar]	[bar]	[bar]	[°C]
1	700		27	40	22	2,1	1,3	41
2	800		28	40	24	2,4	1,6	42
3	900		28	42	24	2,7	1,9	42
4								
5								

RECORDING OF BEARING TEMPERATURE (only if temperature gauges is connected)								
Rec. no.	Access shaft [°C]		Intermediate shaft				Output shaft	
	FCR	AFT	STB [°C]		BB [°C]		FOR	AFT
			FOR	AFT	FOR	AFT		
1								
2								
3								
4								
5								

PITCH CONTROL ROD STROKE			
According to plant information	Ahead [mm]	Neutral [mm]	Astern [mm]
	<u>40</u>	<u>0</u>	<u>30</u>

Pitch control rod stroke is the stroke from neutral position of the piston rod to ahead or astern. In astern-position the pitch control rod flange is aligned with the output shaft flange.

RECORDING OF PITCH CONTROL STROKE ON MANOEUVRE HANDLE					
	A-measure	Ahead [mm]	Neutral [mm]	Astern [mm]	
	Manual control			<u>0</u>	
	Remote control			<u>0</u>	

Final adjusting and recording of servo, clutch, lub. oil pressure and pitch control after final sea trial.

Gear loaded 100% (yes/no): No Tooth contact area (min. 90%): 100 [%] [Z]

Effect according to contract 1280 [kW], at 900 [rpm] (access shaft)

Class-marking NOT CLASSIFIED

11.02.1995

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