



CHEMWAY GAIA

SNO.5388

配布先

客先	船主	3
船務・配付	NK支部	3
工場	検査	1
設計	機装	1
	合計	8

RESULT OF SEA TRIAL

(MACHINERY PART)

- FINISHED PLAN -

Career ;

Witnessed by Owner

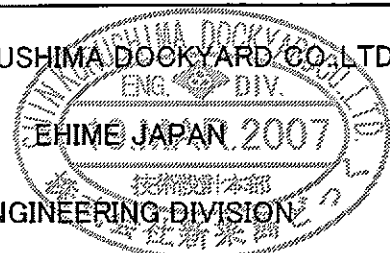
永昌健二

LIST NO.
1M-7

IMO NO. 9354492

A4 36	GENERAL	
A3	MANAGER	
A2	ASST. G.	<i>T. Shiraishi</i>
A1	MANAGER	<i>T. Ayagi</i>
A0	MANAGER	<i>S. Kagen</i>
	ASST. MANAGER	<i>H. Ishimoto</i>
	STAFF	<i>H. Ishimoto</i>
	DRAWN	<i>H. Ishimoto</i>
TOTAL		

SHIN KURUSHIMA DOCKYARD CO. LTD.



DATE 2007 / 3 / 17

DWG.
NO.

M30-750-00-000

SCALE ~

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Type		Kobe Diesel-Mitsubishi UE Diesel Engine Uniflow scavenging exhaust-turbocharged two-stroke single-acting crosshead type	
Model		6UEC52LS	
Engine number		UE-2684	
Number of cylinder		6	
Cylinder bore	mm	500	
Stroke	mm	1950	
Maximum continuous rating	Output	kW	8670
		PS	11788
	Engine speed	min ⁻¹	127
	Mean piston speed	m/s	8.26
	Max. combustion pressure	MPa	147.02
	Brake mean effective pressure	MPa	1.783
	Indicated mean effective pressure	MPa	1.877
Cylinder center distance		880 mm	
Overall length		6687 mm	
Width of bed plate		3100 mm	
Total height		8950 mm	
Height from crank center to engine top		7302 mm	
Piston drawing height from crank center		8900 mm	
Direction of rotation		Clockwise (on ahead running, viewing from driving end)	
Supercharging system		Constant-pressure turbocharging	
Reversing gear		Self reversing	
Firing system		Compression ignition	
Firing order		1-6-2-4-3-5	
Cooling system		PistonLub.oil Cylinder jacket ...Fresh water Exhaust valve.....Fresh water Air cooler.....Sea water	
Starting system		Compressed air	
Turning gear		Electric motor driven	

2-1 AUX. MACHINERY

A. PUMPS

ITEM	NO.	TYPE	CAPACITY m ³ /h x MPa	MOTOR kW x min ⁻¹
LUBRICATING OIL PUMP	2	VERTICAL CENTRIFUGAL	175 x 0.43	55 x 1800
COOLING SEA WATER PUMP	2	VERTICAL CENTRIFUGAL	490 x 0.20	45 x 1800
COOLING FRESH WATER PUMP	2	VERTICAL CENTRIFUGAL	65 x 0.25	7.5 x 3600
FUEL OIL SUPPLY PUMP	2	VERTICAL GEAR	4.5 x 0.39	3.7 x 1200
FUEL OIL CIRCULATING PUMP	2	VERTICAL GEAR	7.0 x 0.98 (+0.39)	5.5 x 1200
EXH. V. DRIV. OIL PUMP	2	HORIZONTAL GEAR	7.5 x 0.49 (+0.20)	2.2 x 1200

B. HEAT EXCHANGER

ITEM	NO.	TYPE	CAPACITY (m ²)
LUBRICATING OIL COOLER	1	SHELL & TUBE	140.0
FRESH WATER COOLER	1	SHELL & TUBE	27.0
FUEL OIL HEATER	1	BENDEK	7000 L/h
JACKET PRE HEATER	1	PLATE CORE	3400 L/h

2-2 PROPELLER

TYPE	5-BLADES SOLID, KEYLESS SKEWD TYPE
DIAMETER mm	5750.0
PITCH mm	4026.2
MATERIAL	Ni-Al-BLONZE
MAKER	NAKASHIMA PROPELLER CO., LTD.
REMARKS	

PLACE			IYO SEA			
DATE			Mar. 14, 2007			
KIND OF LOAD			50%	70%	85%	100%
KIND OF FUEL & CALORIFIRE VALUE			HEAVY FUEL OIL		40670	KJ/kg
SPEED OF REVOLUTION			105.0	117.3	125.0	131.4
BREAKE HORSE POWER (B. H. P.)			4553	5993	7260	8653
BREAKE HORSE POWER (B. H. P.)			6190	8148	9872	11765
SHIP SPEED (knots)			13.20	14.62	15.38	15.97
FUEL CONSUMPTION						
	NET PRE HOUR	Kg/h	804.0	1057.7	1267.0	1492.1
	NET PRE HOUR (42700 kJ/kg)	Kg/h	765.8	1007.4	1206.8	1421.2
	g/BHP/HOUR (42700 kJ/kg)	g/KW. h	168.2	168.1	166.2	164.3
	g/kW/HOUR (ISO CONDITION)	g/kWh	168.5	168.2	166.3	164.5
	g/PS/HOUR (ISO CONDITION)	(g/PSh)	123.9	123.7	122.3	121.0
FUEL PUMP RACK SCALE			42.6	50.4	56.3	61.7
PRESSURE (LOCAL)						
	MAX. COMBUSTION PRESS. (MEAN)	MPa	9.58	11.67	13.21	14.01
	COMPRESSION PRESS. (MEAN)		6.23	8.22	9.68	11.11
	SCAVENG. AIR MANIFOLD		0.08	0.14	0.18	0.22
	CYL. COOLING WATER (REMOTE)		0.29	0.28	0.28	0.28
	LUBRICATION OIL		0.21	0.22	0.22	0.22
	TURBOCHARGER LUB. OIL		0.14	0.13	0.14	0.14
	FUEL OIL (REMOTE)		0.65	0.65	0.64	0.63
	EXH. V. DRIV. OIL		0.40	0.39	0.38	0.37
	START. AIR		2.23	1.93	2.06	2.08
	COOL. SEA WATER (REMOTE)		0.22	0.22	0.22	0.22
	CYL. OIL. INLET		0.07	0.07	0.07	0.07
	BAROMETRIC PRESS.	(hPa)	1014	1014	1014	1014
TEMPERATURE (LOCAL)						
	ROOM	2ND DECK	20.8	20.8	21.0	21.0
		3RD DECK	22.0	22.8	23.3	24.0
		LOWER	21.5	21.5	22.0	22.5
	FUEL OIL INLET		124.0	124.5	125.0	123.0
	CYL. COOL. WATER	INLET	78.0	76.0	75.0	72.0
		OUTLET (MEAN)	85.0	84.8	85.0	85.0
	PISTON COOLLING OIL	OUTLET (MEAN)	51.8	54.0	54.9	56.0
	LUBRICATION OIL INLET		47.5	48.0	48.0	48.0
	EXH. GAS AT CYLINDER OUTLET (MEAN)	REMOTE	326.9	325.3	335.9	354.6
	CYL. OIL. INLET		48.0	48.5	47.0	47.0
SCAVENG. AIR MANIFOLD			28.5	35.5	40.0	45.0
TURBOCHARGER						
	SPEED OF REVOLUTION (MEAN)	min ⁻¹	8425	10225	11250	12050
	EXH. GAS AT TURBOCHARGER	INLET °C	352	359	375	401
		OUTLET °C	276	252	248	257
	EXH. GAS PRESS. TURBINE OUTLET	mmAq	49	107	160	209
	LUB. OIL TEMP.	OUTLET °C	56.8	62.5	65.8	68.0
	T/C BLOWER INLET TEMP.	°C	22.0	22.5	22.5	23.0
REMARKS			MAIN ENGINE: KOBEL DIESEL-MITSUBISHI 6UEC52LS 8670 kW × 127 min ⁻¹ STOP WATCH: MST 0200 THERMOMETER: MTE 1100			

RUN NO.	TIME	COUNTER ENG. RPM	BHP (PS)	BHP kw			HADLE DATA	F. O. RACK
GO	5:55	104.9	6207	4565			6.50	42.0
RETURN	6:45	105.0	6173	4540			6.50	41.5
MEAN	—	105.0	6190	4553			6.50	41.8

F. O. RACK SCALE

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	43.0	43.0	43.0	43.0	42.5	42.0			42.8
RETURN	43.0	42.5	42.5	42.5	42.5	41.5			42.4
									42.6

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	—	—	—	—	—	—	—	—	
RETURN	—	—	—	—	—	—	—	—	

COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	6.20	6.30	6.20	6.30	6.30	6.30			6.27
RETURN	6.20	6.20	6.20	6.20	6.20	6.20			6.20
									6.23

MAX. COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	9.70	9.70	9.70	9.70	9.60	9.70			9.68
RETURN	9.50	9.50	9.40	9.50	9.40	9.50			9.47
									9.58

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	—	—	—	—	—	—	—	—	
RETURN	—	—	—	—	—	—	—	—	

PRESSURE (MPa) (REMOTE/LOCAL)

RUN NO.	EXH. V. SPRING AIR		SCAVEN. AIR		CYL. C. F. W.		MAIN LUB. OIL		FUEL. OIL	
GO	—	0.62	0.08	—	0.29	—	0.22	0.22	0.65	—
RETURN	—	0.60	0.08	—	0.28	—	0.22	0.21	0.65	—
MEAN		0.61	0.08	—	0.29		0.22	0.21	0.65	

RUN NO.	COOL. SEA WATER		START. AIR		CONTROL. AIR		EXH. V. DRIV. O. IN		BAROMETRIC (hPa)	
GO	0.22	—	—	2.17	0.66	—	0.41	0.40	—	1014
RETURN	0.22	—	—	2.28	0.66	—	0.39	0.39	—	1014
MEAN	0.22			2.23	0.66		0.40	0.40		1014

RUN NO.	M/E CYL. O. IN									
GO	—	0.07								
RETURN	—	0.07								
MEAN		0.07								

TEMPERATURE (°C) (REMOTE/LOCAL)

RUN NO.	SCAVEN. AIR		LUB. OIL IN		FUEL OIL IN		CYL. COOL. F. W. IN		THRUST PAD	
GO	29.0	—	47.0	—	120.0	123.0	78.0	78.0	48.0	48.0
RETURN	28.0	—	48.0	—	123.0	125.0	78.0	78.0	49.0	49.0
MEAN	28.5		47.5		121.5	124.0	78.0	78.0	48.5	48.5

RUN NO.	SEA WATER		EXH. V. DRIV. OIL IN		M/E CYL. OIL IN		C. F. W. CYL COM OUT			
GO	13.0	—	—	48.0	—	48.0	—	85.0		
RETURN	13.0	—	—	47.5	—	48.0	—	85.0		
MEAN	13.0			47.8		48.0		85.0		

JACKET COOL. F. W. CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	85.0	85.0	85.0	85.0	85.0	85.0			85.0
RETURN	85.0	85.0	85.0	85.0	84.0	84.0			84.7
									84.8

JACKET COOL. F. W. CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	85.0	85.0	85.0	85.0	85.0	85.0			85.0
RETURN	85.0	85.0	85.0	85.0	85.0	85.0			85.0
									85.0

PISTON COOL. OIL OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	50.0	51.0	51.0	51.0	51.0	51.0			50.8
RETURN	51.0	52.0	52.0	53.0	52.0	52.0			52.0
									51.4

PISTON COOL. OIL OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	50.5	51.0	51.5	51.0	51.5	51.0			51.1
RETURN	52.0	52.5	53.0	52.5	53.0	52.5			52.6
									51.8

EXH. GAS CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	330	330	331	321	330	323			327.5
RETURN	330	325	333	322	328	320			326.3
									326.9

EXH. GAS CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-			
RETURN	-	-	-	-	-	-			

TURBOCHARGER								
RUN NO.	SPEED (min-1)	BLOWER IN		EXH. GAS TEMP. (REMOTE/LOCAL)				BACK PRESS. (mmAq)
		P (kPa)	T (°C)	IN (°C)	OUT (°C)			
GO	8550	0.17	22.0	354	-	275	-	49
RETURN	8300	0.17	22.0	350	-	276	-	49
MEAN	8425	0.17	22.0	352		276		49

TURBOCHARGER					
RUN NO.	LUB. OIL (REMOTE/LOCAL)				
	P (MPa)	IN (°C)	OUT (°C)		
GO	0.16	0.14	-	57.0	56.5
RETURN	0.16	0.14	-	57.0	57.0
MEAN	0.16	0.14		57.0	56.8

RUN NO.	E/R TEMP. (°C)		
	2ND	3RD	LOW.
GO	21.0	22.0	21.5
RETURN	20.5	22.0	21.5
MEAN	20.8	22.0	21.5

AIR COOLER

RUN NO.	AIR TEMP. (°C)		C. W. TEMP. (°C)		PRESS. DROP kPa
	IN	OUT	IN	OUT	
GO	80.0	31.0	21.0	26.0	0.60
RETURN	78.0	29.0	21.0	25.0	0.60
MEAN	79.0	30.0	21.0	25.5	0.60

RUN NO.	S/T TEMP. (°C)		S/T L. O. (MPa)			INTERM. SHAFT BRG. TEMP. °C (LOCAL)		
	L. O.	FWD SEAL TK				NO. 1		
GO	24.0	39.0		0.103		28.0		
RETURN	25.0	39.5		0.103		28.0		
MEAN	24.5	39.3		0.103		28.0		

RUN NO.	F. O. CONSUMPTION		
	ACTUAL	42700 kJ/kg	
	kg/h	kg/h	g/kWh
GO	814.7	776.0	170.0
RETURN	793.3	755.5	166.4
MEAN	804.0	765.8	168.2

RUN NO.	SHIP
	SPEED
	knots
GO	13.22
RETURN	13.18
MEAN	13.20

PUMPS

	L. O.	JACKET C. F. W.	EXH. V. D. O.	COOL. S. W.	CYL. O. CIRC.	F. O. SUPPLY	F. O. CIRC.
USED NO.	1	1	1	1	1	1	1
SUC. PRESS. (MPa)	—	0.13	0.23	0.050	0.05	0.08	0.44
DEL. PRESS. (MPa)	0.33	0.28	0.40	0.225	0.07	0.44	0.65
CURRENT (Amp)	70.0	11.0	4.5	62.0	—	4.2	5.2

COOLER

	L. O.	C. F. W.	
L. O. or F. W. IN (°C)	52.0	85.0	
L. O. or F. W. OUT (°C)	40.0	27.0	
S. W. or F. W. IN (°C)	20.0	22.0	
S. W. or F. W. OUT (°C)	22.0	25.0	

HEATER

	F. O.			
F. O. IN (°C)	117.0			
F. O. OUT (°C)	125.0			

TEMP. CONT. VALVE & VISCO. CONT. VALVE

	F. O. (°C)	VISCO. (cSt)
SET	—	13.0
ACTUAL	—	13.0
VALVE OPEN	—	6/10

TEMP. CONT. VALVE

	L. O.	COOL F. W.			
SET (°C)	48.0	85.0			
ACTUAL (°C)	48.0	85.0			
VALVE OPEN	B-0.5	B-3			

STRAINER

	L. O. 2ND	F. O. 2ND		
IN PRESS. (MPa)	0.24	0.65		
OUT PRESS. (MPa)	0.23	0.64		
DIFF. PRESS. (MPa)	0.01	0.01		

RUN NO.	TIME	COUNTER ENG. RPM	BHP (PS)	BHP kw			HADLE DATA	F. O. RACK
GO	7:35	117.3	8199	6030			7.6	51.5
RETURN	8:15	117.3	8097	5955			7.6	51.5
MEAN	-	117.3	8148	5993			7.6	51.5

F. O. RACK SCALE

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	51.0	51.0	50.5	50.5	50.5	50.5			50.7
RETURN	50.5	50.0	50.0	50.0	50.0	50.0			50.1
									50.4

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	8.2	8.3	8.2	8.2	8.3	8.3			8.3
RETURN	8.2	8.2	8.1	8.2	8.2	8.2			8.2
									8.2

MAX. COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	11.8	11.8	11.8	11.8	11.8	11.8			11.8
RETURN	11.6	11.5	11.5	11.5	11.5	11.6			11.5
									11.7

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

PRESSURE (MPa) (REMOTE/LOCAL)

RUN NO.	EXH. V. SPRING AIR		SCAVEN. AIR		CYL. C. F. W.		MAIN LUB. OIL		FUEL. OIL	
GO	-	0.65	0.14	-	0.28	-	0.22	0.22	0.65	-
RETURN	-	0.64	0.14	-	0.28	-	0.22	0.22	0.65	-
MEAN		0.65	0.14	-	0.28		0.22	0.22	0.65	

RUN NO.	COOL. SEA WATER		START. AIR		CONTROL. AIR		EXH. V. DRIV. O. IN		BAROMETRIC (hPa)	
GO	0.22	—	—	1.9	0.69	—	0.38	0.39	—	1014
RETURN	0.22	—	—	1.95	0.69	—	0.38	0.38	—	1014
MEAN	0.22			1.93	0.69		0.38	0.39		1014

RUN NO.	M/E CYL. O. IN					
GO	-	0.07				
RETURN	-	0.07				
MEAN		0.07				

TEMPERATURE (°C) (REMOTE/LOCAL)

FORM B-100 (REV. 1-67) (REMOVE LOCAL)										
RUN NO.	SCAVEN. AIR		LUB. OIL IN		FUEL OIL IN		CYL. COOL. F. W. IN		THRUST PAD	
GO	35.0	—	48.0	—	123.0	124.0	78.0	76.0	50.0	49.6
RETURN	36.0	—	48.0	—	123.0	125.0	76.0	76.0	50.0	49.6
MEAN	35.5		48.0		123.0	124.5	77.0	76.0	50.0	49.6

RUN NO.	SEA WATER	EXH. V. DRIV. OIL IN	M/E CYL. OIL IN	C. F. W. CYL COM OUT	
GO	13.0	-	48.0	-	86.0
RETURN	13.0	-	48.0	-	85.0
MEAN	13.0		48.0		85.5

JACKET COOL. F. W. CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.									MEAN
	1	2	3	4	5	6				
GO	85.0	85.0	85.0	85.0	85.0	85.0				85.0
RETURN	84.0	85.0	84.0	85.0	84.0	84.0				84.3
										84.7

JACKET COOL. F. W. CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.									MEAN
	1	2	3	4	5	6				
GO	85.0	85.0	85.0	85.0	85.0	85.0				85.0
RETURN	84.0	85.0	85.0	85.0	85.0	84.0				84.7
										84.8

PISTON COOL. OIL OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.									MEAN
	1	2	3	4	5	6				
GO	53.0	54.0	54.0	54.0	54.0	54.0				53.8
RETURN	53.0	54.0	54.0	54.0	54.0	54.0				53.8
										53.8

PISTON COOL. OIL OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.									MEAN
	1	2	3	4	5	6				
GO	53.5	54.0	54.0	54.0	54.5	54.0				54.0
RETURN	53.5	54.0	54.0	54.0	54.5	54.0				54.0
										54.0

EXH. GAS CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.									MEAN
	1	2	3	4	5	6				
GO	324	326	325	320	330	325				325.0
RETURN	325	325	325	322	329	327				325.5
										325.3

EXH. GAS CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.									MEAN
	1	2	3	4	5	6				
GO	-	-	-	-	-	-				
RETURN	-	-	-	-	-	-				

TURBOCHARGER							
RUN NO.	SPEED (min-1)	BLOWER IN		EXH. GAS TEMP. (REMOTE/LOCAL)			BACK PRESS. (mmAq)
		P (kPa)	T (°C)	IN (°C)	OUT (°C)		
GO	10250	0.30	22.5	358	-	252	107
RETURN	10200	0.30	22.5	360	-	252	107
MEAN	10225	0.30	22.5	359		252	107

TURBOCHARGER				
RUN NO.	LUB. OIL (REMOTE/LOCAL)			
	P (MPa)	IN (°C)	OUT (°C)	
GO	0.15	0.14	-	62.0 62.5
RETURN	0.15	0.13	-	63.0 62.5
MEAN	0.15	0.13		62.5 62.5

RUN NO.	E/R TEMP. (°C)		
	2ND	3RD	LOW.
GO	20.5	22.5	21.5
RETURN	21.0	23.0	21.5
MEAN	20.8	22.8	21.5

AIR COOLER

RUN NO.	AIR TEMP. (°C)		C. W. TEMP. (°C)		PRESS. DROP kPa
	IN	OUT	IN	OUT	
GO	106.0	37.0	22.0	31.0	0.85
RETURN	105.0	37.0	22.0	30.5	0.80
MEAN	105.5	37.0	22.0	30.8	0.83

RUN NO.	S/T TEMP. (°C)		S/T L. O. (MPa)				INTERM. SHAFT BRG. TEMP. °C (LOCAL)	
	L. O.	FWD SEAL TK					NO. 1	
GO	26.0	43.0		0.103			29.5	
RETURN	27.5	44.0		0.103			30.0	
MEAN	26.8	43.5		0.103			29.8	

RUN NO.	F. O. CONSUMPTION		
	ACTUAL	42700 kJ/kg	
	kg/h	kg/h	g/kWh
GO	1064.9	1014.2	168.2
RETURN	1050.5	1000.6	168.0
MEAN	1057.7	1007.4	168.1

RUN NO.	SHIP
	SPEED
	knots
GO	14.49
RETURN	14.75
MEAN	14.62

PUMPS

	L. O.	JACKET C. F. W.	EXH. V. D. O.	COOL. S. W.	CYL. O. CIRC.	F. O. SUPPLY	F. O. CIRC.
USED NO.	1	1	1	1	1	1	1
SUC. PRESS. (MPa)	-	0.13	0.23	0.048	0.05	0.08	0.43
DEL. PRESS. (MPa)	0.32	0.29	0.4	0.225	0.07	0.43	0.65
CURRENT (Amp)	70.0	11.0	4.5	62.0	-	4.2	5.2

COOLER

	L. O.	C. F. W.	
L. O. or F. W. IN (°C)	55.0	85.0	
L. O. or F. W. OUT (°C)	44.0	29.0	
S. W. or F. W. IN (°C)	22.0	25.0	
S. W. or F. W. OUT (°C)	25.0	29.0	

HEATER

	F. O.			
F. O. IN (°C)	117.0			
F. O. OUT (°C)	125.0			

TEMP. CONT. VALVE & VISCO. CONT. VALVE

	F. O. (°C)	VISCO. (cSt)
SET	-	13.0
ACTUAL	-	13.0
VALVE OPEN	-	6.5/10

TEMP. CONT. VALVE

	L. O.	COOL F. W.			
SET (°C)	48.0	85.0			
ACTUAL (°C)	48.0	85.0			
VALVE OPEN	0	B-2.5			

STRAINER

	L. O. 2ND	F. O. 2ND			
IN PRESS. (MPa)	0.24	0.65			
OUT PRESS. (MPa)	0.23	0.64			
DIFF. PRESS. (MPa)	0.01	0.01			

RUN NO.	TIME	COUNTER ENG. RPM	BHP (PS)	BHP kw			HADLE DATA	F. O. RACK
GO	9:00	125.0	9878	7265			8.3	56.5
RETURN	9:40	125.0	9865	7255			8.3	56.5
MEAN	-	125.0	9872	7260			8.3	56.5

F. O. RACK SCALE

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	57.0	56.5	56.5	56.5	56.0	55.5			56.3
RETURN	56.5	56.5	56.0	56.5	56.0	55.5			56.2
									56.3

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	9.7	9.7	9.6	9.7	9.7	9.7			9.7
RETURN	9.7	9.7	9.6	9.7	9.7	9.7			9.7
									9.7

MAX. COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	13.3	13.3	13.3	13.2	13.2	13.2			13.3
RETURN	13.2	13.2	13.2	13.2	13.1	13.1			13.2
									13.2

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

PRESSURE (MPa) (REMOTE/LOCAL)

RUN NO.	EXH. V. SPRING AIR		SCAVEN. AIR		CYL. C. F. W.		MAIN LUB. OIL		FUEL. OIL	
GO	-	0.62	0.18	-	0.28	-	0.22	0.22	0.64	-
RETURN	-	0.64	0.18	-	0.28	-	0.22	0.22	0.64	-
MEAN		0.63	0.18		0.28		0.22	0.22	0.64	

RUN NO.	COOL. SEA WATER		START. AIR		CONTROL. AIR		EXH. V. DRIV. O. IN		BAROMETRIC (hPa)	
GO	0.22	-	-	2.19	0.67	-	0.38	0.38	-	1014
RETURN	0.22	-	-	1.92	0.70	-	0.38	0.37	-	1014
MEAN	0.22			2.06	0.69		0.38	0.38		1014

RUN NO.	M/E CYL. O. IN									
GO	-	0.07								
RETURN	-	0.07								
MEAN		0.07								

TEMPERATURE (°C) (REMOTE/LOCAL)

RUN NO.	SCAVEN. AIR		LUB. OIL IN		FUEL OIL IN		CYL. COOL. F. W. IN		THRUST PAD	
GO	40.0	-	48.0	-	123.0	125.0	76.0	75.0	50.0	50.0
RETURN	40.0	-	48.0	-	124.0	125.0	75.0	75.0	50.0	50.1
MEAN	40.0		48.0		123.5	125.0	75.5	75.0	50.0	50.1

RUN NO.	SEA WATER		EXH. V. DRIV. OIL IN		M/E CYL. OIL IN		C. F. W. CYL COM OUT			
GO	13.0	-	-	48.0	-	47.0	-	85.0		
RETURN	13.0	-	-	48.0	-	47.0	-	85.0		
MEAN	13.0			48.0		47.0		85.0		

JACKET COOL. F. W. CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	85.0	86.0	86.0	86.0	85.0	85.0			85.5
RETURN	84.0	85.0	84.0	85.0	84.0	84.0			84.3
									84.9

JACKET COOL. F. W. CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	85.0	85.0	85.0	85.0	85.0	85.0			85.0
RETURN	85.0	85.0	85.0	85.0	85.0	85.0			85.0
									85.0

PISTON COOL. OIL OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	54.0	55.0	55.0	55.0	55.0	55.0			54.8
RETURN	54.0	55.0	55.0	55.0	55.5	55.0			54.9
									54.9

PISTON COOL. OIL OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	54.5	55.0	55.0	55.0	55.5	55.0			55.0
RETURN	54.0	55.0	55.0	55.0	55.0	55.0			54.8
									54.9

EXH. GAS CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	334	333	333	336	346	337			336.5
RETURN	335	335	334	334	341	333			335.3
									335.9

EXH. GAS CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-			
RETURN	-	-	-	-	-	-			

TURBOCHARGER								
RUN NO.	SPEED (min-1)	BLOWER IN		EXH. GAS TEMP. (REMOTE/LOCAL)				BACK PRESS. (mmAq)
		P(kPa)	T (°C)	IN (°C)		OUT (°C)		
GO	11250	0.35	22.5	374	-	248	-	160
RETURN	11250	0.38	22.5	375	-	248	-	160
MEAN	11250	0.37	22.5	375		248		160

TURBOCHARGER					
RUN NO.	LUB. OIL (REMOTE/LOCAL)				
	P	(MPa)	IN (°C)	OUT (°C)	
GO	0.15	0.14	-	66.0	65.5
RETURN	0.15	0.14	-	66.0	66.0
MEAN	0.15	0.14		66.0	65.8

RUN NO.	E/R TEMP. (°C)		
	2ND	3RD	LOW.
GO	21.0	23.0	22.0
RETURN	21.0	23.5	22.0
MEAN	21.0	23.3	22.0

AIR COOLER

RUN NO.	AIR TEMP. (°C)		C. W. TEMP. (°C)		PRESS. DROP kPa
	IN	OUT	IN	OUT	
GO	123.0	42.5	22.0	32.5	0.95
RETURN	123.0	43.0	21.5	32.0	0.90
MEAN	123.0	42.8	21.8	32.3	0.93

RUN NO.	S/T TEMP. (°C)			S/T L. O. (MPa)			INTERM. SHAFT BRG. TEMP. °C (LOCAL)		
	L. O.	FWD SEAL TK					NO. 1		
GO	28.0	46.0		0.103			30.0		
RETURN	28.0	46.5		0.103			30.0		
MEAN	28.0	46.3		0.103			30.0		

RUN NO.	F. O. CONSUMPTION		
	ACTUAL	42700 kJ/kg	
	kg/h	kg/h	g/kWh
GO	1268.2	1208.0	166.3
RETURN	1265.7	1205.6	166.2
MEAN	1267.0	1206.8	166.2

RUN NO.	SHIP
	SPEED
	knots
GO	15.18
RETURN	15.58
MEAN	15.38

PUMPS

	L. O.	JACKET C. F. W.	EXH. V. D. O.	COOL. S. W.	CYL. O. CIRC.	F. O. SUPPLY	F. O. CIRC.
USED NO.	1	1	1	1	1	1	1
SUC. PRESS. (MPa)	-	0.13	0.23	0.048	0.05	0.08	0.43
DEL. PRESS. (MPa)	0.33	0.29	0.39	0.225	0.07	0.43	0.65
CURRENT (Amp)	70.0	11.0	4.5	62.0	-	4.2	5.2

COOLER

	L. O.	C. F. W.	
L. O. or F. W. IN (°C)	56.0	85.0	
L. O. or F. W. OUT (°C)	44.0	30.0	
S. W. or F. W. IN (°C)	22.0	26.0	
S. W. or F. W. OUT (°C)	26.0	31.0	

HEATER

	F. O.			
F. O. IN (°C)	116.0			
F. O. OUT (°C)	125.0			

TEMP. CONT. VALVE & VISCO. CONT. VALVE

	F. O. (°C)	VISCO. (cSt)
SET	-	13.0
ACTUAL	-	13.0
VALVE OPEN	-	7/10

TEMP. CONT. VALVE

	L. O.	COOL F. W.			
SET (°C)	48.0	85.0			
ACTUAL (°C)	48.0	85.0			
VALVE OPEN	C-0.5	B-2			

STRAINER

	L. O. 2ND	F. O. 2ND			
IN PRESS. (MPa)	0.24	0.65			
OUT PRESS. (MPa)	0.23	0.64			
DIFF. PRESS. (MPa)	0.01	0.01			

RUN NO.	TIME	COUNTER ENG. RPM	BHP (PS)	BHP kw			HADLE DATA	F. O. RACK
GO	10:25	131.2	11646	8565			8.8	61.0
RETURN	11:05	131.5	11884	8740			8.8	62.0
MEAN	-	131.4	11765	8653			8.8	61.5

F. O. RACK SCALE

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	61.5	61.5	61.5	61.0	61.0	60.5			61.2
RETURN	62.5	62.5	62.5	62.0	62.5	61.5			62.3
									61.7

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	11.0	11.1	11.0	11.0	11.1	11.1			11.1
RETURN	11.1	11.2	11.1	11.2	11.2	11.2			11.2
									11.1

MAX. COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	14.0	14.0	14.0	14.0	14.0	14.0			14.0
RETURN	14.0	14.1	14.0	14.0	14.0	14.0			14.0
									14.0

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

PRESSURE (MPa) (REMOTE/LOCAL)

RUN NO.	EXH. V. SPRING AIR		SCAVEN. AIR		CYL. C. F. W.		MAIN LUB. OIL		FUEL. OIL	
GO	-	0.63	0.21	-	0.28	-	0.22	0.22	0.63	-
RETURN	-	0.67	0.22	-	0.28	-	0.22	0.22	0.63	-
MEAN		0.65	0.22		0.28		0.22	0.22	0.63	

RUN NO.	COOL. SEA WATER		START. AIR		CONTROL. AIR		EXH. V. DRIV. O. IN		BAROMETRIC (hPa)	
GO	0.22	—	—	2.43	0.63	—	0.37	0.37	—	1014
RETURN	0.22	—	—	1.73	0.63	—	0.37	0.37	—	1014
MEAN	0.22			2.08	0.63		0.37	0.37		1014

RUN NO.	M/E CYL. O. IN								
GO	-	0.07							
RETURN	-	0.07							
MEAN		0.07							

TEMPERATURE (°C) (REMOTE/LOCAL)

RUN NO.	SCAVEN. AIR		LUB. OIL IN		FUEL OIL IN		CYL. COOL. F. W. IN		THRUST PAD	
GO	45.0	-	48.0	-	121.0	123.0	73.0	72.0	50.0	50.5
RETURN	45.0	-	48.0	-	122.0	123.0	73.0	72.0	50.0	50.5
MEAN	45.0		48.0		121.5	123.0	73.0	72.0	50.0	50.5

RUN NO.	SEA WATER		EXH. V. DRIV. OIL IN		M/E CYL. OIL IN		C. F. W. CYL COM OUT			
GO	13.0	-		48.0	-	47.0	-	85.0		
RETURN	13.0	-		48.0	-	47.0	-	85.0		
MEAN	13.0			48.0		47.0		85.0		

JACKET COOL. F. W. CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	83.0	84.0	83.0	84.0	83.0	83.0			83.3
RETURN	84.0	84.0	84.0	84.0	83.0	84.0			83.8
									83.6

JACKET COOL. F. W. CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	85.0	85.0	85.0	85.0	85.0	85.0			85.0
RETURN	85.0	85.0	85.0	85.0	85.0	85.0			85.0
									85.0

PISTON COOL. OIL OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	55.0	56.0	56.0	56.0	56.0	56.0			55.8
RETURN	55.0	56.0	56.0	57.0	56.0	56.0			56.0
									55.9

PISTON COOL. OIL OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	55.0	56.0	56.0	56.0	57.0	56.0			56.0
RETURN	55.5	56.0	56.0	56.5	56.5	56.0			56.1
									56.0

EXH. GAS CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	353	357	354	350	357	356			354.5
RETURN	351	352	353	354	359	359			354.7
									354.6

EXH. GAS CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-			
RETURN	-	-	-	-	-	-			

TURBOCHARGER								
RUN NO.	SPEED (min-1)	BLOWER IN		EXH. GAS TEMP. (REMOTE/LOCAL)				BACK PRESS. (mmAq)
		P (kPa)	T (°C)	IN (°C)	OUT (°C)			
GO	12000	0.45	23.0	399	-	256	-	208
RETURN	12100	0.46	23.0	402	-	257	-	210
MEAN	12050	0.46	23.0	401		257		209

TURBOCHARGER					
RUN NO.	LUB. OIL (REMOTE/LOCAL)				
	P (MPa)	IN (°C)	OUT (°C)		
GO	0.15	0.14	-	68.0	68.0
RETURN	0.15	0.14	-	68.0	68.0
MEAN	0.15	0.14		68.0	68.0

RUN NO.	E/R TEMP. (°C)		
	2ND	3RD	LOW.
GO	21.0	24.0	22.5
RETURN	21.0	24.0	22.5
MEAN	21.0	24.0	22.5

AIR COOLER

RUN NO.	AIR TEMP. (°C)		C. W. TEMP. (°C)		PRESS. DROP kPa
	IN	OUT	IN	OUT	
GO	135.0	49.0	22.0	36.0	0.95
RETURN	137.0	49.0	22.0	36.5	0.95
MEAN	136.0	49.0	22.0	36.3	0.95

RUN NO.	S/T TEMP. (°C)		S/T L. O. (MPa)				INTERM. SHAFT BRG. TEMP. °C (LOCAL)		
	L. O.	FWD SEAL TK					NO. 1		
GO	28.5	47.5		0.103			31.0		
RETURN	28.5	48.0		0.103			32.0		
MEAN	28.5	47.8		0.103			31.5		

RUN NO.	F. O. CONSUMPTION		
	ACTUAL	42700 kJ/kg	
	kg/h	kg/h	g/kWh
GO	1477.4	1407.1	164.3
RETURN	1506.8	1435.2	164.2
MEAN	1492.1	1421.2	164.3

RUN NO.	SHIP SPEED
	knots
GO	15.71
RETURN	16.23
MEAN	15.97

PUMPS

	L. O.	JACKET C. F. W.	EXH. V. D. O.	COOL. S. W.	CYL. O. CIRC.	F. O. SUPPLY	F. O. CIRC.
USED NO.	1	1	1	1	1	1	1
SUC. PRESS. (MPa)	-	0.13	0.23	0.045	0.05	0.08	0.42
DEL. PRESS. (MPa)	0.33	0.29	0.38	0.225	0.07	0.42	0.65
CURRENT (Amp)	70.0	11.0	4.5	62.0	-	4.2	5.2

COOLER

	L. O.	C. F. W.	
L. O. or F. W. IN (°C)	57.0	85.0	
L. O. or F. W. OUT (°C)	45.0	32.0	
S. W. or F. W. IN (°C)	22.0	27.0	
S. W. or F. W. OUT (°C)	27.0	33.0	

HEATER

	F. O.			
F. O. IN (°C)	115.0			
F. O. OUT (°C)	125.0			

TEMP. CONT. VALVE & VISCO. CONT. VALVE

	F. O. (°C)	VISCO. (cSt)
SET	-	13.0
ACTUAL	-	13.0
VALVE OPEN	-	7.5/10

TEMP. CONT. VALVE

	L. O.	COOL F. W.			
SET (°C)	48.0	85.0			
ACTUAL (°C)	48.0	85.0			
VALVE OPEN	C-1	B-1.5			

STRAINER

	L. O. 2ND	F. O. 2ND			
IN PRESS. (MPa)	0.24	0.65			
OUT PRESS. (MPa)	0.23	0.64			
DIFF. PRESS. (MPa)	0.01	0.01			

KIND OF OIL		FUEL OIL	
NAME		DIESEL OIL	HEAVY FUEL OIL
SPECIFIC GRAVITY 15/4°C		0.8743	0.954
VISCOCITY	(cSt at 50.0°C)	2.791	152
FLASH POINT °C		73.5	88.5
POUR POINT °C		-20.0	-22.5
WATER CONTENT VOL. %		0	0.05
CARBON RESIDUE WT. %		0.005	12.3
NITROGEN %		0.03	0.25
SULPHUR %		0.71	2.59
HIGH CALORIFIC VALUE kJ/kg		44920	43090
LOWER CALORIFIC VALUE kJ/kg		42210	40670

6. RESULT OF MAIN ENGINE MINIMUM RUNNING TEST

MEASURED ITEM	RESULT	REMARKS
MAIN ENGINE REVOLUTION	35.0 min ⁻¹	
FUEL OIL RACK	18.0	
TURBO CHARGER REVOLUTION	1950 min ⁻¹	
SCAV, AIR PRESSURE	0.05 MPa	
SCAV, AIR TEMPERATURE	28.0 °C	

7. M/E EMERGENCY STOP TEST

RESULT

1) OVER SPEED TRIP (M/E R. P. M. FOR TEST 100 min ⁻¹)	<u>100min⁻¹</u>
2) M/E BRG L. O. LOW PRESSURE TEST (SET 0.08 MPa)	<u>0.08MPa</u>
3) EXH. DRIVE OIL LOW PRESSURE TEST (SET 0.20 MPa)	<u>0.2MPa</u>
4) EXH. V. SPRING AIR LOW PRESSURE TEST (SET 0.44 MPa)	<u>0.45MPa</u>
5) MANUAL EMERGENCY STOP C/R	<u>GOOD</u>

8. RESULT OF STARTING INTERLOCK TEST

RESULT

1) TURNING GEAR "ENGAGED"	(ENGAGED)	<u>GOOD</u>
2) LUB OIL LOW PRESS.	(SET 0.08 MPa)	<u>GOOD</u>
3) CAM SHAFT STOPPER "DISENGAGED"	(DISENGAGED)	<u>GOOD</u>

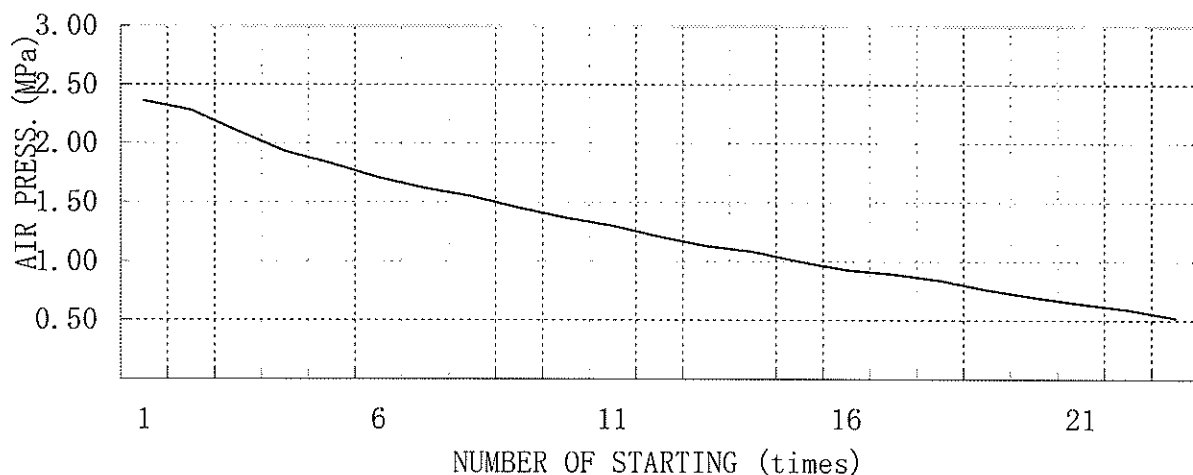
DATE		13-Mar-07
ROOM TEMPERATURE	°C	22
LUB. OIL INLET TEMP.	°C	48
FUEL OIL INLET TEMP.	°C	25
CYL. C.W. INLET TEMP.	°C	44

RESULT OF TEST (No. 2 AIR RESERVOIR USED)

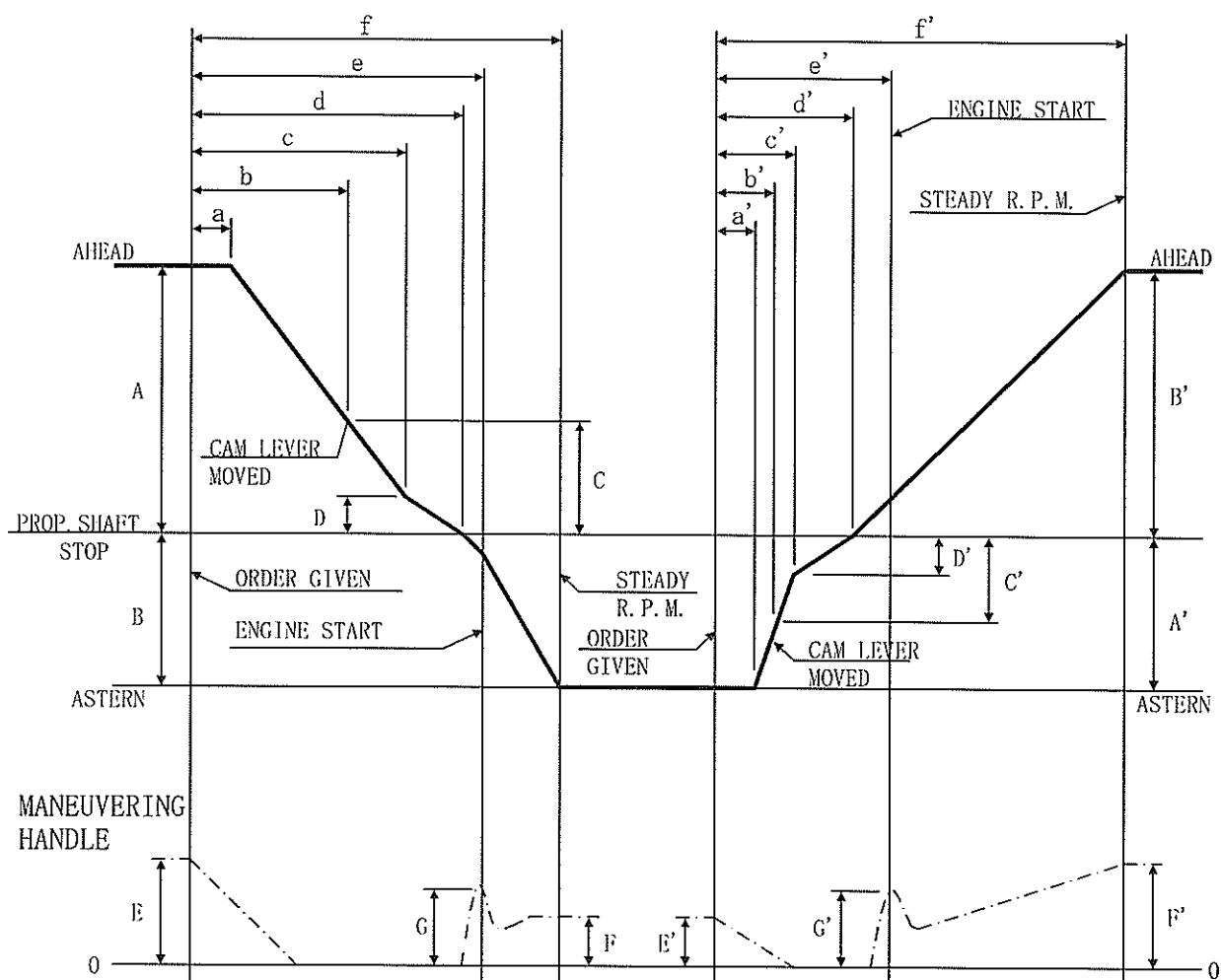
NUMBER OF START.	AIR VESSEL PRESS. (MPa)		NOTE	NUMBER OF START.	AIR VESSEL PRESS. (MPa)		NOTE
	BEFORE STARTING	AFTER STARTING			BEFORE STARTING	AFTER STARTING	
1	2.36	2.28	AHEAD	18	0.84	0.76	ASTERN
2	2.28	2.10	ASTERN	19	0.76	0.70	AHEAD
3	2.10	1.93	AHEAD	20	0.70	0.64	ASTERN
4	1.93	1.83	ASTERN	21	0.64	0.59	AHEAD
5	1.83	1.71	AHEAD	22	0.59	0.52	ASTERN
6	1.71	1.62	ASTERN	23	0.52	FAIL	AHEAD
7	1.62	1.55	AHEAD	24			ASTERN
8	1.55	1.45	ASTERN	25			AHEAD
9	1.45	1.37	AHEAD	26			ASTERN
10	1.37	1.30	ASTERN	27			AHEAD
11	1.30	1.21	AHEAD	28			ASTERN
12	1.21	1.13	ASTERN	29			AHEAD
13	1.13	1.08	AHEAD	30			ASTERN
14	1.08	1.00	ASTERN	31			AHEAD
15	1.00	0.93	AHEAD	32			ASTERN
16	0.93	0.89	ASTERN	33			AHEAD
17	0.89	0.84	AHEAD	34			ASTERN

CAPACITY OF STARTING AIR BOTTLE	m ³	4.0
NUMBER OF STARTING	NUNBER	22
PRESSURE DROP FOR STARTING	MPa	1.84
TOTAL AIR CONSUMPTION	m ³	72.6
AIR CONSUMPTION PER ON STARTING(FREE AIR)	m ³	3.30
STROKE VOLUME	m ³	2.3573
AIR CONSUMPTION PER ON STARTING / STROKE VOLUME		1.40

-DIAGRAPH- (C/R CONTROL)
STARTING AIR PRESS. - NUMBER OF STARTUNG



M/E REVOLUTION (min-1)	AT ORDER GIVEN AT STEADY R. P. M. AT CAM MOVED AT OPERATION FOR START	AH → AS		AS → AH	
		A	131.4	A'	95
		B	95	B'	131.4
		C	42	C'	42
TIME (MIN. & SEC.)	FROM ORDER TO HANDLE STOP FROM ORDER TO CAM MOVED FROM ORDER TO OPERATION FOR START FROM ORDER TO M/E STOP FROM ORDER TO M/E START FROM ORDER TO STEADY R. P. M.	D	30	D'	30
		a	10''	a'	7''
		b	3' 27''	b'	11''
		c	3' 28''	c'	13''
		d	3' 29''	d'	14''
		e	3' 30''	e'	15''
POSITION OF MANEUVRING HANDLE	AT ORDER GIVEN AT STEADY R. P. M. AT STARTING	E	8.7	E'	5.5
		F	5.5	F'	8.7
		G	-	G'	-
AIR PRESSURE (MPa)	BEFORE START AFTER START		2.40		1.77
			2.01		1.62

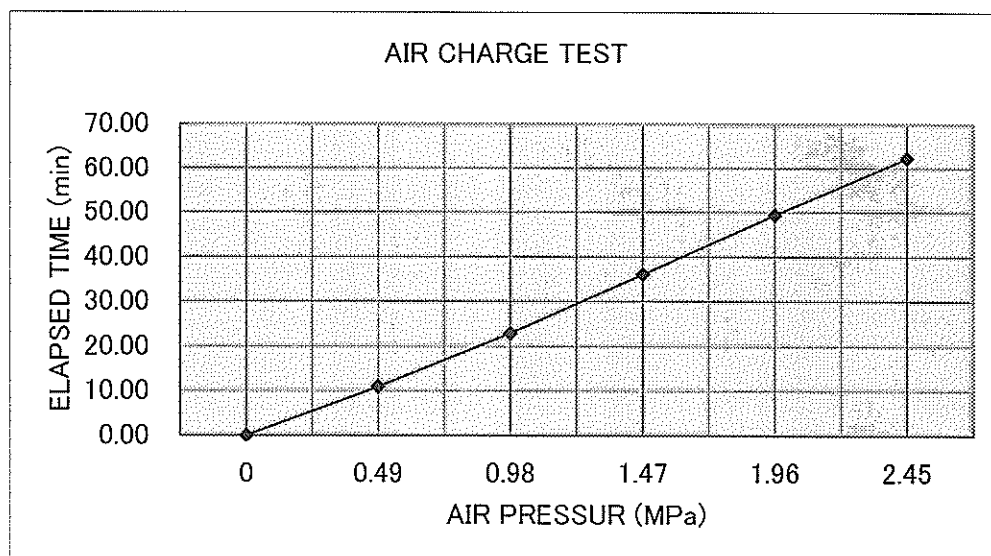


This test to be carried out to confirm the elapsed time to charge an air vessel with compressed air from 0 MPa to 2.45 MPa satisfies the requirement of classification society.

DATE	13-Mar-07
Type of air compressor	C220
Room temp.	26
Capacity of air vessel	4 m ³

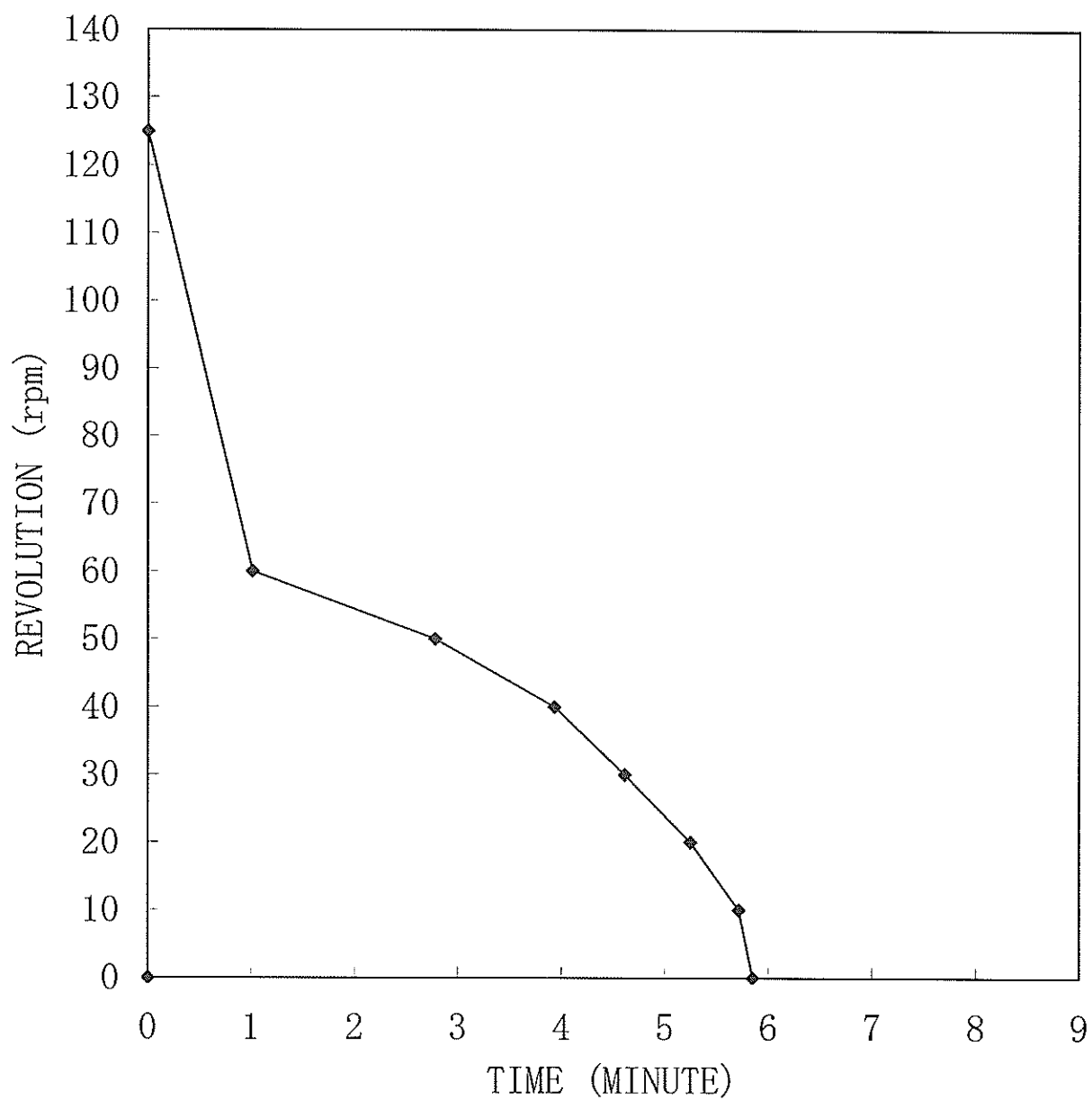
NO. 1 AIR COMP. → NO. 2 AIR RESERV.

AIR PRESSURE MPa	Elapsed time (min. & sec.)	
0 - 0.49	10	52
0 - 0.98	22	52
0 - 1.47	36	5
0 - 1.96	49	21
0 - 2.45	62	11



DATE			14-Mar-07					
DISTILER	TYPE		KE20					
	RATE OUTPUT	m ³ /24h	20					
MAIN ENGINE LOAD (%)					85% (ジャケット)	85% (スチーム)		
DISTILATE	MEASURE. TIME	min			30	15		
	CAPACITY	m ³ /24h			20.16	20.54		
	SALINITY	P. P. M.			1.7~5.5	1.6~5.0		
EVAPORATOR								
JACKET WATER IN			°C			85.5	71.5	
JACKET WATER OUT			°C			66.5	62.5	
DIFF.			°C			19	9	
CONDENSER								
SEA WATER IN			°C			15	15	
SEA WATER OUT			°C			25	24.5	
DIFF.			°C			10	9.5	
SHELL TEMPERATURE			°C			46	45.5	
SHELL VACUUM			cmHg			-68	-68	
EJECTOR PUMP SUCTION			MPa			0.085	0.085	
EJECTOR PUMP DISCHARGE			MPa			0.545	0.55	
WATER EJECTOR INLET			MPa			0.045	0.05	
DISTILLATE PUMP DEL			MPa			0.16	0.16	
FEED WATER PRESSURE			MPa			0.41	0.41	
BY-PASS VALVE (FROM FULL OPEN)						4.5/10	-	
STEAM PRESSURE			MPa			-	0.56	
COMMENTS								

M/E REVOLUTION (min^{-1})	125	60	50	40	30	20	10	0
TIME (MINUTE)	0' 00"	1' 01"	2' 47"	3' 56"	4' 37"	5' 15"	5' 43"	5' 51"
M/E REVOLUTION (min^{-1})								
TIME (MINUTE)								



14. SUMMARY OF OFFICIAL TRIAL
(BALLAST CONDITION)

SNO. 5388

P- 23/

PLACE			IYO SEA					
DATE			Mar. 4, 2007					
KIND OF LOAD			50%	70%	85%	100%		
KIND OF FUEL & CALORIFIRE VALUE			HEAVY FUEL OIL		40670	KJ/kg		
SPEED OF REVOLUTION			min ⁻¹	105.9	118.4	125.9	131.9	
BREAKE HORSE POWER (B. H. P.)			KW	4643	6268	7470	8735	
BREAKE HORSE POWER (B. H. P.)			(PS)	6313	8522	10157	11877	
SHIP SPEED (knots)				13.86	15.24	16.19	16.72	
FUEL CONSUMPTION								
	NET PRE HOUR	Kg/h	813.6	1089.6	1307.9	1518.4		
	NET PRE HOUR (42700 kJ/kg)	Kg/h	774.9	1037.8	1245.7	1446.2		
	g/BHP/HOUR (42700 kJ/kg)	g/KW. h	166.9	165.6	166.8	165.6		
	g/kW/HOUR (ISO CONDITION)	g/kWh	167.0	165.5	166.7	165.6		
	g/PS/HOUR (ISO CONDITION)	(g/PS _h)	122.8	121.7	122.6	121.8		
FUEL PUMP RACK SCALE			43.0	52.2	57.3	62.2		
PRESSURE (LOCAL)			MPa					
	MAX. COMBUSTION PRESS. (MEAN)		9.59	11.75	13.20	13.83		
	COMPRESSION PRESS. (MEAN)		6.34	8.43	10.18	11.18		
	SCAVENG. AIR MANIFOLD		0.09	0.15	0.19	0.23		
	CYL. COOLING WATER (REMOTE)		0.28	0.28	0.28	0.28		
	LUBRICATION OIL		0.21	0.21	0.20	0.20		
	TURBOCHARGER LUB. OIL		0.13	0.14	0.13	0.13		
	FUEL OIL (REMOTE)		0.64	0.64	0.64	0.64		
	EXH. V. DRIV. OIL		0.39	0.38	0.38	0.38		
	START. AIR		2.10	2.13	2.10	2.10		
	COOL. SEA WATER (REMOTE)		0.19	0.19	0.19	0.18		
	CYL. OIL. INLET		0.07	0.07	0.07	0.07		
	BAROMETRIC PRESS.		(hPa)	1014	1014	1014	1014	
TEMPERATURE (LOCAL)			°C					
	ROOM	2ND DECK	24.0	24.3	24.8	25.0		
		3RD DECK	24.5	25.8	26.8	27.0		
		LOWER	24.3	24.5	25.0	25.5		
	FUEL OIL INLET		125.0	126.0	127.0	127.0		
	CYL. COOL. WATER	INLET	78.5	78.0	77.0	75.0		
		OUTLET (MEAN)	85.7	85.6	85.8	85.4		
	PISTON COOLLING OIL		OUTLET (MEAN)	53.0	54.4	55.8	56.9	
	LUBRICATION OIL INLET		48.0	48.0	48.0	48.0		
	EXH. GAS AT CYLINDER OUTLET (MEAN)							
		REMOTE	325.3	325.7	337.7	358.2		
	CYL. OIL. INLET		52.5	52.0	52.0	52.0		
SCAVENG. AIR MANIFOLD			29.0	37.5	40.0	45.0		
TURBOCHARGER								
	SPEED OF REVOLUTION (MEAN)		min ⁻¹	8600	10500	11500	12200	
	EXH. GAS AT TURBOCHARGER	INLET °C	354	362	379	406		
		OUTLET °C	275	252	248	259		
	EXH. GAS PRESS. TURBINE OUTLET		mmAq	51	112	167	218	
	LUB. OIL TEMP.							
		OUTLET °C	58.3	63.0	66.5	69.0		
	T/C BLOWER INLET TEMP.		°C	25.0	25.5	26.0	26.5	
REMARKS								
MAIN ENGINE: KOBE DIESEL-MITSUBISHI 6UEC52LS								
8670 kW × 127 min ⁻¹								
STOP WATCH: MST 0200 THERMOMETER: MTE 1100								

15. DATA SHEET OF SEA TRIAL
(BALLAST CONDITION)

ENGINE LOAD 50%

SNO. 5388

P- 24/

RUN NO.	TIME	COUNTER ENG. RPM	BHP (PS)	BHP kw			HADLE DATA	F. O. RACK
GO	6:05	105.9	6343	4665			6.60	43.0
RETURN	6:45	105.9	6282	4620			6.60	42.0
MEAN	-	105.9	6313	4643			6.60	42.5

F. O. RACK SCALE

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	43.5	43.5	43.5	43.5	43.5	43.0			43.4
RETURN	43.0	42.5	42.5	43.0	42.5	42.0			42.6
									43.0

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	6.40	6.40	6.40	6.40	6.40	6.40			6.40
RETURN	6.30	6.30	6.20	6.30	6.30	6.30			6.28
									6.34

MAX. COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	9.80	9.60	9.80	9.80	9.70	9.60			9.72
RETURN	9.50	9.40	9.50	9.50	9.40	9.50			9.47
									9.59

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

PRESSURE (MPa) (REMOTE/LOCAL)

PRESSURE (IN & REMOTE/DOCK)										
RUN NO.	EXH. V. SPRING AIR		SCAVEN. AIR		CYL. C. F. W.		MAIN LUB. OIL		FUEL. OIL	
GO	-	0.61	0.09	-	0.28	-	0.22	0.21	0.64	-
RETURN	-	0.65	0.09	-	0.28	-	0.22	0.21	0.64	-
MEAN		0.63	0.09	-	0.28		0.22	0.21	0.64	

RUN NO.	COOL. SEA WATER		START. AIR		CONTROL. AIR		EXH. V. DRIV. O. IN		BAROMETRIC (hPa)	
GO	0.18	—	—	2.30	0.65	—	0.39	0.39	—	1014
RETURN	0.19	—	—	1.90	0.62	—	0.39	0.39	—	1014
MEAN	0.19			2.10	0.64		0.39	0.39		1014

RUN NO.	M/E CYL. O. IN								
GO	-	0.07							
RETURN	-	0.07							
MEAN		0.07							

TEMPERATURE (°C) (REMOTE/LOCAL)

TEST DATA FOR (C) (REMOTE/LOCAL)										
RUN NO.	SCAVEN. AIR		LUB. OIL IN		FUEL OIL IN		CYL. COOL. F. W. IN		THRUST PAD	
GO	29.0	—	48.0	—	124.0	125.0	78.0	78.0	49.0	48.6
RETURN	29.0	—	48.0	—	125.0	125.0	78.0	79.0	49.0	48.6
MEAN	29.0		48.0		124.5	125.0	78.0	78.5	49.0	48.6

RUN NO.	SEA WATER		EXH. V. DRIV. OIL IN		M/E CYL. OIL IN		C. F. W. CYL COM OUT			
GO	13.0	--	--	47.5	--	53.0	--	86.0		
RETURN	13.0	--	--	47.5	--	52.0	--	86.0		
MEAN	13.0			47.5		52.5		86.0		

JACKET COOL. F. W. CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	85.0	86.0	85.0	85.0	85.0	85.0			85.2
RETURN	86.0	86.0	86.0	86.0	85.0	85.0			85.7
									85.4

JACKET COOL. F. W. CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	86.0	86.0	86.0	85.0	85.0	86.0			85.7
RETURN	86.0	86.0	86.0	85.0	85.0	86.0			85.7
									85.7

PISTON COOL. OIL OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	51.0	52.0	52.0	53.0	52.0	52.0			52.0
RETURN	51.0	52.0	52.0	53.0	52.0	52.0			52.0
									52.0

PISTON COOL. OIL OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	52.5	53.0	53.0	53.0	53.5	53.0			53.0
RETURN	52.5	53.0	53.5	53.0	53.5	53.0			53.1
									53.0

EXH. GAS CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	323	328	321	323	328	325			324.7
RETURN	330	328	321	322	329	325			325.8
									325.3

EXH. GAS CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-			
RETURN	-	-	-	-	-	-			

TURBOCHARGER								
RUN NO.	SPEED (min-1)	BLOWER IN		EXH. GAS TEMP. (REMOTE/LOCAL)				BACK PRESS. (mmAq)
		P (kPa)	T (°C)	IN (°C)	OUT (°C)			
GO	8750	0.16	25.0	352	-	273	-	49
RETURN	8450	0.16	25.0	355	-	277	-	52
MEAN	8600	0.16	25.0	354		275		51

TURBOCHARGER					
RUN NO.	LUB. OIL (REMOTE/LOCAL)				
	P (MPa)	IN (°C)	OUT (°C)		
GO	0.14	0.13	-	58.0	58.5
RETURN	0.14	0.13	-	58.0	58.0
MEAN	0.14	0.13		58.0	58.3

RUN NO.	E/R TEMP. (°C)		
	2ND	3RD	LOW.
GO	24.0	24.0	24.5
RETURN	24.0	25.0	24.0
MEAN	24.0	24.5	24.3

AIR COOLER

RUN NO.	AIR TEMP. (°C)		C. W. TEMP. (°C)		PRESS. DROP kPa
	IN	OUT	IN	OUT	
GO	85.0	31.0	21.0	27.0	0.62
RETURN	84.0	30.0	21.0	27.0	0.60
MEAN	84.5	30.5	21.0	27.0	0.61

RUN NO.	S/T TEMP. (°C)		S/T L. O. (MPa)			INTERM. SHAFT BRG. TEMP. °C (LOCAL)		
	L. O.	FWD SEAL TK				NO. 1		
GO	22.0	39.5			0.103	27.0		
RETURN	24.0	40.5			0.103	28.0		
MEAN	23.0	40.0			0.103	27.5		

RUN NO.	F. O. CONSUMPTION		
	ACTUAL	42700 kJ/kg	
	kg/h	kg/h	g/kWh
GO	827.9	788.5	169.0
RETURN	799.2	761.2	164.8
MEAN	813.6	774.9	166.9

RUN NO.	SHIP
	SPEED
	knots
GO	14.49
RETURN	13.23
MEAN	13.86

PUMPS

	L. O.	JACKET C. F. W.	EXH. V. D. O.	COOL. S. W.	CYL. O. CIRC.	F. O. SUPPLY	F. O. CIRC.
USED NO.	2	2	2	2	2	2	2
SUC. PRESS. (MPa)	—	0.13	0.22	0.02	0.05	0.08	0.42
DEL. PRESS. (MPa)	0.31	0.29	0.40	0.23	0.07	0.42	0.68
CURRENT (Amp)	70.0	12.0	4.5	65.0	—	4.4	5.2

COOLER

	L. O.	C. F. W.	
L. O. or F. W. IN (°C)	54.0	85.0	
L. O. or F. W. OUT (°C)	42.0	27.0	
S. W. or F. W. IN (°C)	21.0	22.0	
S. W. or F. W. OUT (°C)	22.0	25.0	

HEATER

	F. O.			
F. O. IN (°C)	111.0			
F. O. OUT (°C)	126.0			

TEMP. CONT. VALVE & VISCO. CONT. VALVE

	F. O. (°C)	VISCO. (cSt)
SET	—	13.0
ACTUAL	—	12.8
VALVE OPEN	—	7/10

TEMP. CONT. VALVE

	L. O.	COOL F. W.			
SET (°C)	48.0	85.0			
ACTUAL (°C)	48.0	85.0			
VALVE OPEN	B-0.5	B-3.0			

STRAINER

	L. O. 2ND	F. O. 2ND		
IN PRESS. (MPa)	0.23	0.66		
OUT PRESS. (MPa)	0.22	0.64		
DIFF. PRESS. (MPa)	0.01	0.02		

RUN NO.	TIME	COUNTER ENG. RPM	BHP (PS)	BHP kw			HADLE DATA	F. O. RACK
GO	7:30	118.4	8641	6355			7.7	52.5
RETURN	8:08	118.4	8403	6180			7.7	51.5
MEAN	-	118.4	8522	6268			7.7	52.0

F. O. RACK SCALE

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	53.0	53.0	52.5	53.0	53.0	52.0			52.8
RETURN	52.0	52.0	52.0	51.5	51.5	51.0			51.7
									52.2

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	8.5	8.6	8.5	8.5	8.5	8.5			8.5
RETURN	8.3	8.4	8.3	8.3	8.3	8.4			8.3
									8.4

MAX. COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	12.0	11.8	12.0	12.0	12.0	11.8			11.9
RETURN	11.7	11.5	11.6	11.6	11.6	11.4			11.6
									11.8

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

PRESSURE (MPa) (REMOTE/LOCAL)

RECORDS (M/F) (MEMO/BOOK)										
RUN NO.	EXH. V. SPRING AIR		SCAVEN. AIR		CYL. C. F. W.		MAIN LUB. OIL		FUEL. OIL	
GO	-	0.65	0.15	-	0.28	-	0.22	0.21	0.64	-
RETURN	-	0.60	0.14	-	0.28	-	0.22	0.20	0.64	-
MEAN		0.63	0.15	-	0.28		0.22	0.21	0.64	

RUN NO.	COOL. SEA WATER		START. AIR		CONTROL. AIR		EXH. V. DRIV. O. IN		BAROMETRIC (hPa)	
GO	0.19	—	—	2.00	0.62	—	0.39	0.38	—	1014
RETURN	0.19	—	—	2.25	0.54	—	0.39	0.37	—	1014
MEAN	0.19			2.13	0.58		0.39	0.38		1014

RUN NO.	M/E CYL. O. IN								
GO	-	0.07							
RETURN	-	0.07							
MEAN		0.07							

TEMPERATURE (°C) (REMOTE/LOCAL)

TEMPERATURE (°C) (RELATIVE HUMIDITY)										
RUN NO.	SCAVEN. AIR		LUB. OIL IN		FUEL OIL IN		CYL. COOL. F. W. IN		THRUST PAD	
GO	38.0	-	48.0	-	125.0	126.0	77.0	78.0	50.0	49.4
RETURN	37.0	-	48.0	-	126.0	126.0	79.0	78.0	50.0	49.4
MEAN	37.5		48.0		125.5	126.0	78.0	78.0	50.0	49.4

RUN NO.	SEA WATER	EXH. V. DRIV. OIL IN		M/E CYL. OIL IN		C. F. W. CYL COM OUT			
GO	14.0	-	-	47.5	-	52.0	-	85.0	
RETURN	13.0	-	-	47.5	-	52.0	-	85.0	
MEAN	13.5			47.5		52.0		85.0	

JACKET COOL. F. W. CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	85.0	86.0	85.0	85.0	85.0	85.0			85.2
RETURN	85.0	85.0	86.0	85.0	85.0	85.0			85.2
									85.2

JACKET COOL. F. W. CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	86.0	86.0	86.0	85.0	85.0	86.0			85.7
RETURN	86.0	85.0	86.0	85.0	85.0	86.0			85.5
									85.6

PISTON COOL. OIL OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	53.0	54.0	54.0	54.0	54.0	54.0			53.8
RETURN	53.0	54.0	54.0	54.0	54.0	54.0			53.8
									53.8

PISTON COOL. OIL OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	53.5	54.0	54.5	54.0	54.5	54.5			54.2
RETURN	54.0	54.5	55.0	54.5	55.0	55.0			54.7
									54.4

EXH. GAS CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	324	328	322	324	328	329			325.8
RETURN	323	329	322	323	328	328			325.5
									325.7

EXH. GAS CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-			
RETURN	-	-	-	-	-	-			

TURBOCHARGER								
RUN NO.	SPEED (min-1)	BLOWER IN		EXH. GAS TEMP. (REMOTE/LOCAL)				BACK PRESS. (mmAq)
		P (kPa)	T (°C)	IN (°C)	OUT (°C)			
GO	10600	0.24	25.5	362	-	251	-	112
RETURN	10400	0.24	25.5	362	-	253	-	112
MEAN	10500	0.24	25.5	362		252		112

TURBOCHARGER					
RUN NO.	LUB. OIL (REMOTE/LOCAL)				
	P (MPa)	IN (°C)	OUT (°C)		
GO	0.15	0.14	-	63.0	63.0
RETURN	0.15	0.14	-	63.0	63.0
MEAN	0.15	0.14		63.0	63.0

RUN NO.	E/R TEMP. (°C)		
	2ND	3RD	LOW.
GO	24.0	25.5	24.5
RETURN	24.5	26.0	24.5
MEAN	24.3	25.8	24.5

AIR COOLER

RUN NO.	AIR TEMP. (°C)		C. W. TEMP. (°C)		PRESS. DROP kPa
	IN	OUT	IN	OUT	
GO	114.0	41.0	21.5	33.5	0.78
RETURN	112.0	39.5	21.5	33.5	0.75
MEAN	113.0	40.3	21.5	33.5	0.77

RUN NO.	S/T TEMP. (°C)		S/T L. O. (MPa)			INTERM. SHAFT BRG. TEMP. °C (LOCAL)		
	L. O.	FWD SEAL TK				NO. 1		
GO	27.0	44.5		0.103		29.0		
RETURN	27.5	46.5		0.103		29.5		
MEAN	27.3	45.5		0.103		29.3		

RUN NO.	F. O. CONSUMPTION		
	ACTUAL	42700 kJ/kg	
	kg/h	kg/h	g/kWh
GO	1104.2	1051.8	165.5
RETURN	1075.0	1023.9	165.7
MEAN	1089.6	1037.8	165.6

RUN NO.	SHIP
	SPEED
	knots
GO	15.93
RETURN	14.55
MEAN	15.24

PUMPS

	L. O.	JACKET C. F. W.	EXH. V. D. O.	COOL. S. W.	CYL. O. CIRC.	F. O. SUPPLY	F. O. CIRC.
USED NO.	2	2	2	2	2	2	2
SUC. PRESS. (MPa)	-	0.13	0.22	0.02	0.05	0.08	0.43
DEL. PRESS. (MPa)	0.31	0.29	0.4	0.23	0.07	0.425	0.68
CURRENT (Amp)	70.0	12.0	4.5	65.0	-	4.4	5.2

COOLER

	L. O.	C. F. W.	
L. O. or F. W. IN (°C)	55.0	85.0	
L. O. or F. W. OUT (°C)	43.0	29.5	
S. W. or F. W. IN (°C)	21.5	24.5	
S. W. or F. W. OUT (°C)	24.5	28.0	

HEATER

	F. O.			
F. O. IN (°C)	112.5			
F. O. OUT (°C)	127.0			

TEMP. CONT. VALVE & VISCO. CONT. VALVE

	F. O. (°C)	VISCO. (cSt)
SET	-	13.0
ACTUAL	-	12.5
VALVE OPEN	-	7.5/10

TEMP. CONT. VALVE

	L. O.	COOL F. W.			
SET (°C)	48.0	85.0			
ACTUAL (°C)	48.0	85.0			
VALVE OPEN	0	B-2.5			

STRAINER

	L. O. 2ND	F. O. 2ND			
IN PRESS. (MPa)	0.23	0.66			
OUT PRESS. (MPa)	0.22	0.64			
DIFF. PRESS. (MPa)	0.01	0.02			

RUN NO.	TIME	COUNTER ENG. RPM	BHP (PS)	BHP kw			HADLE DATA	F. O. RACK
GO	8:45	125.9	10313	7585			8.3	57.5
RETURN	9:20	125.9	10000	7355			8.3	56.0
MEAN	-	125.9	10157	7470			8.3	56.8

F. O. RACK SCALE

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	58.5	58.5	57.5	58.0	57.5	57.0			57.8
RETURN	57.0	56.5	56.5	57.0	57.0	56.0			56.7
									57.3

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	10.2	10.2	10.1	10.2	10.2	10.2			10.2
RETURN	10.2	10.2	10.1	10.2	10.2	10.2			10.2
									10.2

MAX. COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	13.4	13.2	13.4	13.3	13.3	13.3			13.3
RETURN	13.2	13.0	13.2	13.0	13.2	12.9			13.1
									13.2

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

PRESSURE (MPa) (REMOTE/LOCAL)

RUN NO.	EXH. V. SPRING AIR		SCAVEN. AIR		CYL. C. F. W.		MAIN LUB. OIL		FUEL. OIL	
GO	-	0.67	0.19	-	0.28	-	0.22	0.20	0.64	-
RETURN	-	0.65	0.18	-	0.28	-	0.22	0.20	0.64	-
MEAN		0.66	0.19		0.28		0.22	0.20	0.64	

RUN NO.	COOL. SEA WATER		START. AIR		CONTROL. AIR		EXH. V. DRIV. O. IN		BAROMETRIC (hPa)	
GO	0.19	-	-	1.80	0.65	-	0.39	0.38	-	1014
RETURN	0.18	-	-	2.40	0.65	-	0.39	0.38	-	1014
MEAN	0.19			2.10	0.65		0.39	0.38		1014

RUN NO.	M/E CYL. O. IN									
GO	-	0.07								
RETURN	-	0.07								
MEAN		0.07								

TEMPERATURE (°C) (REMOTE/LOCAL)

RUN NO.	SCAVEN. AIR		LUB. OIL IN		FUEL OIL IN		CYL. COOL. F. W. IN		THRUST PAD	
GO	40.0	-	48.0	-	127.0	127.0	75.0	77.0	50.0	49.6
RETURN	40.0	-	48.0	-	125.0	127.0	76.0	77.0	50.0	49.6
MEAN	40.0		48.0		126.0	127.0	75.5	77.0	50.0	49.6

RUN NO.	SEA WATER		EXH. V. DRIV. OIL IN		M/E CYL. OIL IN		C. F. W. CYL COM OUT			
GO	13.0	-	-	47.5	-	52.0	-	85.0		
RETURN	14.0	-	-	47.5	-	52.0	-	85.0		
MEAN	13.5			47.5		52.0		85.0		

JACKET COOL. F. W. CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	85.0	85.0	85.0	86.0	86.0	85.0			85.3
RETURN	85.0	85.0	85.0	85.0	85.0	85.0			85.0
									85.2

JACKET COOL. F. W. CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	86.0	86.0	86.0	86.0	85.0	86.0			85.8
RETURN	86.0	85.0	86.0	86.0	85.0	86.0			85.7
									85.8

PISTON COOL. OIL OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	54.0	55.0	55.0	55.0	56.0	55.0			55.0
RETURN	54.0	55.0	55.0	55.0	55.0	55.0			54.8
									54.9

PISTON COOL. OIL OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	55.0	56.0	56.0	56.0	56.5	56.0			55.9
RETURN	55.0	55.5	56.0	56.0	56.0	56.0			55.8
									55.8

EXH. GAS CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	339	345	334	337	341	342			339.7
RETURN	332	340	331	334	339	338			335.7
									337.7

EXH. GAS CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-			
RETURN	-	-	-	-	-	-			

TURBOCHARGER								
RUN NO.	SPEED (min-1)	BLOWER IN		EXH. GAS TEMP. (REMOTE/LOCAL)			BACK PRESS. (mmHg)	
		P (kPa)	T (°C)	IN (°C)	OUT (°C)			
GO	11600	0.33	26.0	380	-	248	-	166
RETURN	11400	0.32	26.0	378	-	248	-	167
MEAN	11500	0.33	26.0	379		248		167

TURBOCHARGER					
RUN NO.	LUB. OIL (REMOTE/LOCAL)				
	P (MPa)	IN (°C)	OUT (°C)		
GO	0.14	0.13	-	66.0	66.5
RETURN	0.14	0.13	-	66.0	66.5
MEAN	0.14	0.13		66.0	66.5

RUN NO.	E/R TEMP. (°C)		
	2ND	3RD	LOW.
GO	24.5	26.5	25.0
RETURN	25.0	27.0	25.0
MEAN	24.8	26.8	25.0

AIR COOLER

RUN NO.	AIR TEMP. (°C)		C. W. TEMP. (°C)		PRESS. DROP kPa
	IN	OUT	IN	OUT	
GO	129.0	47.0	21.5	31.0	0.82
RETURN	127.0	44.0	22.0	31.0	0.80
MEAN	128.0	45.5	21.8	31.0	0.81

RUN NO.	S/T TEMP. (°C)			S/T L. O. (MPa)		INTERM. SHAFT BRG. TEMP. °C (LOCAL)		
	L. O.	FWD SEAL TK						
GO	28.0	48.0		0.103		NO. 1		
RETURN	29.0	48.5		0.103		30.0		
MEAN	28.5	48.3		0.103		30.0		

RUN NO.	F. O. CONSUMPTION		
	ACTUAL	42700 kJ/kg	
	kg/h	kg/h	g/kWh
GO	1325.0	1262.0	166.4
RETURN	1290.8	1229.5	167.2
MEAN	1307.9	1245.7	166.8

RUN NO.	SHIP
	SPEED
	knots
GO	16.67
RETURN	15.71
MEAN	16.19

PUMPS

	L. O.	JACKET C. F. W.	EXH. V. D. O.	COOL. S. W.	CYL. O. CIRC.	F. O. SUPPLY	F. O. CIRC.
USED NO.	2	2	2	2	2	2	2
SUC. PRESS. (MPa)	—	0.13	0.2	0.02	0.05	0.08	0.42
DEL. PRESS. (MPa)	0.31	0.29	0.40	0.23	0.07	0.42	0.68
CURRENT (Amp)	70.0	12.0	4.5	65.0	—	4.4	5.2

COOLER

	L. O.	C. F. W.	
L. O. or F. W. IN (°C)	56.0	85.0	
L. O. or F. W. OUT (°C)	44.0	31.0	
S. W. or F. W. IN (°C)	22.0	26.0	
S. W. or F. W. OUT (°C)	26.0	31.0	

HEATER

	F. O.			
F. O. IN (°C)	112.0			
F. O. OUT (°C)	127.0			

TEMP. CONT. VALVE & VISCO. CONT. VALVE

	F. O. (°C)	VISCO. (cSt)
SET	—	13.0
ACTUAL	—	12.5
VALVE OPEN	—	8/10

TEMP. CONT. VALVE

	L. O.	COOL F. W.			
SET (°C)	48.0	85.0			
ACTUAL (°C)	48.0	85.0			
VALVE OPEN	C-0.5	B-2.5			

STRAINER

	L. O. 2ND	F. O. 2ND			
IN PRESS. (MPa)	0.22	0.66			
OUT PRESS. (MPa)	0.21	0.64			
DIFF. PRESS. (MPa)	0.01	0.02			

RUN NO.	TIME	COUNTER ENG. RPM	BHP (PS)	BHP kw			HADLE DATA	F. O. RACK
GO	10:05	131.9	12006	8830			8.9	62.5
RETURN	10:35	131.9	11748	8640			8.9	61.0
MEAN	-	131.9	11877	8735			8.9	61.8

F. O. RACK SCALE

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	63.0	63.0	62.5	63.0	63.0	62.0			62.8
RETURN	62.0	62.0	61.5	61.5	61.5	61.0			61.6
									62.2

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	11.2	11.3	11.3	11.3	11.3	11.2			11.3
RETURN	11.1	11.1	11.1	11.1	11.1	11.0			11.1
									11.2

MAX. COMP. PRESS. IN CYL. (MPa)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	14.0	13.8	14.0	14.0	14.0	13.7			13.9
RETURN	13.8	13.6	13.9	13.8	13.8	13.6			13.8
									13.8

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-	-	-	
RETURN	-	-	-	-	-	-	-	-	

PRESSURE (MPa) (REMOTE/LOCAL)

RUN NO.	EXH. V. SPRING AIR		SCAVEN. AIR		CYL. C. F. W.		MAIN LUB. OIL		FUEL. OIL	
GO	-	0.67	0.22	-	0.28	-	0.22	0.20	0.64	-
RETURN	-	0.65	0.24	-	0.28	-	0.22	0.20	0.64	-
MEAN		0.66	0.23		0.28		0.22	0.20	0.64	

RUN NO.	COOL. SEA WATER		START. AIR		CONTROL. AIR		EXH. V. DRIV. O. IN		BAROMETRIC (hPa)	
GO	0.18	-	-	1.80	0.70	-	0.39	0.38	-	1014
RETURN	0.18	-	-	2.40	0.62	-	0.39	0.38	-	1014
MEAN	0.18			2.10	0.66		0.39	0.38		1014

RUN NO.	M/E CYL. O. IN									
GO	-	0.07								
RETURN	-	0.07								
MEAN		0.07								

TEMPERATURE (°C) (REMOTE/LOCAL)

RUN NO.	SCAVEN. AIR		LUB. OIL IN		FUEL OIL IN		CYL. COOL. F. W. IN		THRUST PAD	
GO	45.0	-	48.0	-	125.0	127.0	74.0	75.0	50.0	49.8
RETURN	45.0	-	48.0	-	125.0	127.0	74.0	75.0	50.0	49.9
MEAN	45.0		48.0		125.0	127.0	74.0	75.0	50.0	49.9

RUN NO.	SEA WATER		EXH. V. DRIV. OIL IN		M/E CYL. OIL IN		C. F. W. CYL COM OUT			
GO	14.0	-	-	47.5	-	52.0	-	85.0		
RETURN	14.0	-	-	47.5	-	52.0	-	85.0		
MEAN	14.0			47.5		52.0		85.0		

JACKET COOL. F. W. CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	85.0	85.0	85.0	85.0	85.0	85.0			85.0
RETURN	84.0	85.0	84.0	85.0	84.0	84.0			84.3
									84.7

JACKET COOL. F. W. CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	85.0	85.0	86.0	86.0	85.0	86.0			85.5
RETURN	85.0	85.0	86.0	85.0	85.0	86.0			85.3
									85.4

PISTON COOL. OIL OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	56.0	57.0	57.0	57.0	57.5	57.0			56.9
RETURN	55.0	56.0	57.0	56.0	57.0	56.0			56.2
									56.5

PISTON COOL. OIL OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	56.0	57.0	57.0	57.0	57.5	57.0			56.9
RETURN	56.0	57.0	57.0	57.0	57.5	57.0			56.9
									56.9

EXH. GAS CYL. OUT TMP °C (REMOTE)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	356	364	354	356	364	362			359.3
RETURN	354	367	355	353	354	359			357.0
									358.2

EXH. GAS CYL. OUT TMP °C (LOCAL)

RUN NO.	CYL. NO.								MEAN
	1	2	3	4	5	6			
GO	-	-	-	-	-	-			
RETURN	-	-	-	-	-	-			

TURBOCHARGER

RUN NO.	SPEED (min-1)	BLOWER IN		EXH. GAS TEMP. (REMOTE/LOCAL)				BACK PRESS. (mmAq)
		P (kPa)	T (°C)	IN (°C)	OUT (°C)			
GO	12250	0.40	26.5	408	-	260	-	211
RETURN	12150	0.40	26.5	404	-	257	-	224
MEAN	12200	0.40	26.5	406		259		218

TURBOCHARGER

RUN NO.	LUB. OIL (REMOTE/LOCAL)			
	P (MPa)	IN (°C)	OUT (°C)	
GO	0.14	0.13	-	69.0 69.0
RETURN	0.14	0.13	-	69.0 69.0
MEAN	0.14	0.13		69.0 69.0

RUN NO.	E/R TEMP. (°C)		
	2ND	3RD	LOW.
GO	25.0	27.0	25.5
RETURN	25.0	27.0	25.5
MEAN	25.0	27.0	25.5

AIR COOLER

RUN NO.	AIR TEMP. (°C)		C. W. TEMP. (°C)		PRESS. DROP kPa
	IN	OUT	IN	OUT	
GO	144.0	48.0	22.0	35.0	0.83
RETURN	142.0	48.0	22.0	35.0	0.82
MEAN	143.0	48.0	22.0	35.0	0.83

RUN NO.	S/T TEMP. (°C)		S/T L. O. (MPa)				INTERM. SHAFT BRG. TEMP. °C (LOCAL)	
	L. O.	FWD SEAL TK					NO. 1	
GO	29.5	50.0		0.103			31.5	
RETURN	30.0	50.0		0.103			31.5	
MEAN	29.8	50.0		0.103			31.5	

RUN NO.	F. O. CONSUMPTION		
	ACTUAL	42700 kJ/kg	
	kg/h	kg/h	g/kWh
GO	1536.3	1463.3	165.7
RETURN	1500.4	1429.1	165.4
MEAN	1518.4	1446.2	165.6

RUN NO.	SHIP
	SPEED
	knots
GO	16.74
RETURN	16.70
MEAN	16.72

PUMPS

	L. O.	JACKET C. F. W.	EXH. V. D. O.	COOL. S. W.	CYL. O. CIRC.	F. O. SUPPLY	F. O. CIRC.
USED NO.	2	2	2	2	2	2	2
SUC. PRESS. (MPa)	-	0.13	0.21	0.02	0.05	0.08	0.43
DEL. PRESS. (MPa)	0.31	0.29	0.40	0.215	0.07	0.43	0.67
CURRENT (Amp)	70.0	12.0	4.5	65.0	-	4.4	5.2

COOLER

	L. O.	C. F. W.	
L. O. or F. W. IN (°C)	57.0	85.0	
L. O. or F. W. OUT (°C)	44.0	32.0	
S. W. or F. W. IN (°C)	22.0	26.5	
S. W. or F. W. OUT (°C)	26.5	32.0	

HEATER

	F. O.			
F. O. IN (°C)	112.0			
F. O. OUT (°C)	127.0			

TEMP. CONT. VALVE & VISCO. CONT. VALVE

	F. O. (°C)	VISCO. (cSt)
SET	-	13.0
ACTUAL	-	12.5
VALVE OPEN	-	8.5/10

TEMP. CONT. VALVE

	L. O.	COOL F. W.			
SET (°C)	48.0	85.0			
ACTUAL (°C)	48.0	85.0			
VALVE OPEN	C-1.0	B-2.0			

STRAINER

	L. O. 2ND	F. O. 2ND		
IN PRESS. (MPa)	0.22	0.66		
OUT PRESS. (MPa)	0.21	0.64		
DIFF. PRESS. (MPa)	0.01	0.02		