

MECHANICAL DATA SHEET FOR FIRE WATER DIESEL PUMPS

1	GENERAL DATA (NOTE 6)				
2	ITEM	10-P-0803 A/B/C (NOTE 4 & 10)	NO. OF MAIN / STAND BY UNITS		3 /
3	SERVICE	FIRE WATER SUPPLY PUMPS	INSTALLATION:	UNDER SHELTER	
4	OPERATION:	CONTINUOUS (NOTE 1)	PARALLEL	PARALLEL	
5	TYPE OF DRIVER	DIESEL MOTOR	FOR UNITS	DATA SHEET NO.	
6	TYPE OF DRIVER		FOR UNITS	DATA SHEET NO.	
7	ELECTRICAL SUPPLY:	VOLTAGE	FREQUENCY	PHASES NO.	
8		HEATING	VOLTAGE	FREQUENCY	PHASES NO.
9	CHARACTERISTICS OF HANDEL LIQUID (NOTE 13)				
10	TYPE OF HANDLED LIQUID		FIRE WATER(NOTE 8)		
11	PUMPING TEMPERATURE	MIN/ NORM/ MAX (NOTE 2)	°C	/	AMB /
12	DENSITY AT TEMPERATURE MIN/ NORM/ MAX		kg/m³	/	998 /
13	VISCOSITY AT TEMPERATURE MIN/ NORM/ MAX		mPa.s	/	0.8804 /
14	VAPOR PRESSURE AT NORMAL PUMPING TEMPERATURE		bar a	0.1107	
15	FREEZING POINT / POUR POINT		°C	Not applicable	
16	DISSOLVED GAS	(yes-no)	NO		
17	CORROSIVE/ EROSIVE/ HAZARDOUS AGENTS	(yes-no)	NO	/	NO / NO
18	SUSPENDE SOLIDS:	TYPE/ DIMENSIONS/ VOLUME%	mm	NO	/ NO / NO
19	OPERATING CONDITIONS				
20	SUCTION PRESSURE	MIN/ NORM/ MAX	bar a	1.117 /	2.404 / 2.434
21	DISCHARGE PRESSURE AT RATED CAPACITY		bar a	/	9.5 /
22	DEFERENTIAL PRESSURE AT RATED CAPACITY		bar	8.383 (NOTE 5)	
23	CAPACITY	MIN/ NORM/ RATED	m³/h	/	908.4 (NOTE 12) / (NOTE 9)
24	HEAD AT RATED CAPACITY		m	85.625	
25	NPSH AVAILABLE		m	10.063	
26	MAX ALLOWABLE HEAD AT SHUT-OFF		m	144.734	
27	ESTIMATED ABSORBED POWER AT PUMP SHAFT		KW	424 (NOTE 20)	
28	FLOW CONTROLLED BY: pressure controller- level controlled- flow controller- other				
29	REACCELERATION/ AUTOMATIC START-UP	(yes-no)	NO	/	YES
30	START-UP WITH DELIVERY VALVE:	(open- closed)	OPEN		
31					
32					
33					
34	MECHANICAL DATA				
35	SEALING TYPE		PACKING		
36	CONTAMINATION OF LIQUID HANDLED ALLOWED	(yes-no)			
37	AIR ENTERAINMENT ALLOWED	(yes-no)			
38	LEAKS ALLOWED	(yes-no)	YES		
39	ANT FREEZING PROTECTION	(yes-no)	NO		
40	PUMP DESIGN CODE		NFPA 20- Latest Edition		
41	PROJECT SPECIFICATION				
42					
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45					

1	MECHANICAL DATA					
2	SUCTION LINE:	DIAMETER/ RATING/ FACING	ANSI	NSP	14"	/ 150# / RF
3	DISCHARGE LINE:	DIAMETER/ RATING/ FACING	ANSI	NSP	12"	/ 150# / RF
4	VENT/ DRAIN REQUIRED (yes-no)				YES	/ YES
5	MATERIAL IN CONTACT WITH LIQUID HANDLED (minimum requirement)				CAST IRON(VENDOR TO VERIFY/CONFIRM)	
6	PUMP CASING MATERIAL (minimum requirement)				CAST IRON(VENDOR TO VERIFY/CONFIRM)	
7	PUMP IMPELLER MATERIAL (minimum requirement)				CAST IRON(VENDOR TO VERIFY/CONFIRM)	
8	PUMP INTERNAL PARTS MATERIAL (minimum requirement)				CAST IRON(VENDOR TO VERIFY/CONFIRM)	
9	CASING CORROSION ALLOWANCE				mm	
10	MINIMUM DESIGN METAL TEMP./ AT A PRESSURE OF				°C / bar g	
11	COOLING FLUID:	TYPE/ DESIGN PRESS./ OPERATING TEMP.		bar g / °C	/	
12	HEATING FLUID:	TYPE/ DESIGN PRESS./ OPERATING TEMP.		bar g / °C	/	
13						
14	FLUSHING FLUID					
15	TYPE					
16	PRESSURE	MIN/ NORM/ MAX		bar g		
17	TEMPERATURE	MIN/ NORM/ MAX		°C		
18	DENSITY AT TEMPERATURE	MIN/ NORM/ MAX		kg/m3		
19	VAPOR PRESSURE AT MAX TEMPERATURE				bar	
20	FREEZING POINT/ POUR POINT				°C	
21	HAZARDOUS AGENTS (yes-no)					
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1	MFR	MODEL	
2	PURCHASE ORDER NO.	REV.	DATE
3	OFFER NO.	REV.	DATE
4	CODES AND STD FOR CONSTRUCTION	NFPA 20	
5	PERFORMANCE	REQUIRED DATA	SUPPLIER DATA
6	CHARACTERISTIC CURVE NO.		
7	RATED CAPACITY (line 22 sh. 3)	m³/h908.4	
8	CAPACITY AT BEST EFFICIENCY POINT	m³/h	
9	MINIMUM CONTINUOUS CAPACITY	m³/h	
10	HEAD AT RATED CAPACITY (line 23 sh. 3)	m85.625	
11	MAXIMUM HEAD	m	
12	HEAD WITH MAXIMUM IMPELLER DIAMETER @ RATED CAPACITY	m	
13			
14			
15	PUMP SPEED	RPM	
16	NPSH REQUIRED AT RATED CAPACITY	m	
17	EFFICIENCY AT RATED CAPACITY	%	
18	ABSORBED POWER RATED CAPACITY	KW	
19	MAX ABSORBED POWER WITH IMPELLER DESIGN/ MAX DIAMETER	KW/	
20	ABSORBED POWER BY OIL PUMP / HEATER	KW/	
21	DIFFERENCE: (NPSH AVAILABLE -NPSH REQUIRED)	m	
22	MAX OPERATION TIME AT SHUT-OFF	s	
23	RATIO: IMPELLER DIAMETER / IMPELLER EYE AREA		
24	SPECIFIC SPEED		
25	SUCTION SPECIFIC SPEED (SI UNITS: RPM, M³ / s,m)		
26	CAPTIVITY RATIO: RATED / AT B. E. P.	%	
27	HEAD RATIO: MAX / AT RATED CAPACITY	%	
28	IMPELLER RATIO: DESIGN IMPELLER DIAMETER / MAX IMPELLER DIAMETER	%	
29	CONSTRUCTION FEATURES		
30	MAX ALLOWABLE TEMPERATURE	°C	
31	MAX ALLOWABLE PRESSURE AT MAX ALLOWABLE TEMPERATURE	barg	
32	HYDROSTATIC TEST PRESSURE	barg1.5x MAWP	
33	ALLOWABLE LOADS ON FLANGES AS PER API 610	(yes-no)2 X API610	
34	LATERAL CRITICAL SPEED	RPM	
35	MOMENT OF INERTIA	kg/m3	
36	AXIAL THRUST ON SHAFT (+ = to driver; - = opposite to driver)	N	
37	MAX TORQUE AT 100% OF PUMP SPEED	N.m	
38	MASSES: PUMP/ 1GEARBOX/ BASE PLATE	kg	
39	DRIVER/ TOTAL	kg	
40	OUTLINE DIMENSIONS OF UNIT: LENGTH / WIDTH/ HEIGHT	m	
41	NOISE LEVEL OF COMPLETE UNIT: SPLAT 1m/ PWL (NOTE 7)	dB(A)≤85	
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1	CONSTRUCTION FEATURES			REQUIRED DATA	SUPPLIER DATA
2	CASING:	MOUNTING:	centerline- foot- near centerline	FOOT	
3		SPLIT:	axial- radial- barrel	AXIAL	
4		TYPE:	single volute- double volute- diffuser		
5	THICKNESS/ CORROSION/ ALLOWANCE			mm	/ -
6	IMPELLERS:	NUMBER		1	
7		TYPE:	open - closed	CLOSED	
8		DIAMETER:	MIN/ DESIGN/ MAX	/ /	
9		MOUNTING:	overhung- between bearings	BETWEEN BEARING	
10		CONFIGURATION:	one way- opposed		
11		1st STAGE SUCTION:	single- double		
12	ROTATION VIEWED FROM COUPLING END			(CW-CCW)	
13	CASING WEAR RINGS:	SUCTION/ REAR	(yes-no)	YES / YES	
14	IMPELLER WEAR RINGS:	SUCTION/ REAR	(yes-no)	YES / YES	
15	RADIAL / THRUST BEARING TYPE			BALL / BALL	
16	LUBRICATION TYPE:	grease - oil ring- forced		OIL RING	
17	SUCTION NOZZLE:	SIZE / RATING/ FACING	NPS	14"/ 150# / RF	
18		FINISHING/ LOCATION		125AARH / SIDE	
19	DISCHARGE NOZZLE:	SIZE / RATING/ FACING	NPS	12" / 150# / RF	
20		FINISHING/ LOCATION		125AARH / SIDE	
21	SEAL:	TYPE		PACKING	
22		MANUFACTURER/ MODEL		/	
23		API CODE			
24		API FLUSHING PLAN			
25		STUFFING BOX PRESSURE	bar		
26		SHAFT DIAMETER AT SEAL	mm		
27	EXTERNAL FLUSHING CONSUMPTION			m³/h	
28	PUMP COOLING API PLAN / CONSUMPTION			m³/h	/
29	HEATING FLUID CONSUMPTION			kg/h	
30	COUPLING MANUFACTURER / MODEL			/ FLEX METAL	
31	GEARBOX:	TYPE/ MANUFACTURER		/	
32		AGMA SERVICE FACTOR			
33		INTEL / OUTLET ROTATIONAL SPEED	RPM	/	
34		DATA SHEET NO.			
35	MATERIALS				
36	API 610 CODE				
37	CASING/ BARREL			CAST IRON (VENDOR TO VERIFY/CONFIRM)	/
38	IMPELLER			CAST IRON (VENDOR TO VERIFY/CONFIRM)	
39	SHAFT SLEEVE				
40	SHAFT				
41	CASING/ IMPELLER WEAR RING				/
42	INTERNAL PARTS				
43	FLUSHING/ COOLING/ OIL PIPING			/ /	/ /
44	BASE PLATE			STEEL	

1	EXTERNAL OF SUPPLY (<input checked="" type="checkbox"/> INCLUSIONS)			
2	<input checked="" type="checkbox"/> DRIVERS	<input type="checkbox"/> GEARBOXES	<input checked="" type="checkbox"/> COMMON BASE PLATES FOR PUMP/ DRIVER/CONTROLLER	
3	<input checked="" type="checkbox"/> COUPLINGS	<input checked="" type="checkbox"/> COUPLING GUARDS	<input checked="" type="checkbox"/> NOT- SPARKING	<input checked="" type="checkbox"/> FOUNDATION BOLTS <input checked="" type="checkbox"/> BOLTS FOR DRIVERS AND GEARBOXES
4	<input checked="" type="checkbox"/> UNIT ASSEMBLY AT FACTORY		<input checked="" type="checkbox"/> CASING DRAINS	<input checked="" type="checkbox"/> WITH VALVES FLANGED
5	<input type="checkbox"/> MECHANICAL SEALS		<input checked="" type="checkbox"/> CASING VENTS	<input checked="" type="checkbox"/> WITH VALVES (IF ANY)
6	<input type="checkbox"/> MECHANICAL SEALS ACCESSORIES		<input checked="" type="checkbox"/> SHOP TESTS	
7	<input checked="" type="checkbox"/> COOLING AND FLUSHING PIPING FOR DIESEL ENGINE		<input checked="" type="checkbox"/> SPARE PARTS FOR START-UP	
8	<input checked="" type="checkbox"/> LUBRICATION SYSTEM		<input checked="" type="checkbox"/> SPARE PARTS FOR	2 YEARS OF OPERATION
9	<input type="checkbox"/> SHOP FABRICATION OF PIPING FROM OIL CONSOLE TO PUMP		<input checked="" type="checkbox"/> SPECIAL TOOLS AND WRENCHES	
10	<input checked="" type="checkbox"/> AUTOMATIC AIR RELEASE		<input checked="" type="checkbox"/> INSTRUCTION MANUALS NO.	COPIES (IN ENGLISH) (NOTE 14)
11	<input checked="" type="checkbox"/> DIESEL ENGINE DRIVER		<input checked="" type="checkbox"/> PAINTING	
12	<input checked="" type="checkbox"/> RELIEF VALVE		<input checked="" type="checkbox"/> DOCUMENTATION	
13	<input checked="" type="checkbox"/> INSTRUMENTS AS PER PID #10-08-A1-SA-0804-N		<input checked="" type="checkbox"/> LOCAL CONTROL PANEL	
14	<input checked="" type="checkbox"/> PUMP SUCTION LINE STRAINER AS PER PID #10-08-A1-SA-0804-N			
15	<input checked="" type="checkbox"/> FUEL SUPPLY DAILY TANK (NOTE 15)			
16	<input checked="" type="checkbox"/> FUEL SUPPLY MAIN TANK (NOTE 21)			
17	<input checked="" type="checkbox"/> FUEL SUPPLY MAIN PUMP (NOTE 21)			
18	INSPECTION AND TESTING	<input checked="" type="checkbox"/> INCLUSIONS)		
19	<input checked="" type="checkbox"/> HYDROSTATIC TEST			
20	<input checked="" type="checkbox"/> PERFORMANCE TEST (WITNESS)			
21	<input checked="" type="checkbox"/> NPSH TEST (IF REQUIRED)			
22	<input checked="" type="checkbox"/> MECHANICAL RUNNING TEST (4 HR)(WITNESS)			
23	<input checked="" type="checkbox"/> DISMANTELLING AFTER MECHANICAL RUNNING TEST (NOTE 16)			
24	<input checked="" type="checkbox"/> SITE PERFORMANCE TEST			
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NOTES

1	1) Fire pumps are in continuous operation in case of fire only
2	2) Pumps Design temperature 65° C.
3	3) Deleted
4	4) Pumps shall comply with NFPA 20 requirements (latest edition)
5	5) The worst case is considered for differential pressure
6	6) This document is based on process data sheet N° 10-08-DSH-SA-0803-N.
7	7) Including driver.
8	8) For fire water quality refer to Utilities Specification N° 10-00-DSH-PR-0002-L
9	9) The pump shall be performance tested at rated speed. The pump shall furnish not less than 150% of rated capacity at a pressure not less than 65%
10	of rated head
11	10) Hazardous Area Classification: Non- hazardous.
12	11) Shut off pressure shall not exceed 140% of rated head. PSV, if any , corresponding flow detector will be provided by pump vendor
13	12) According to table 4.9.2 of NFPA 20 (2016 Edition)
	13) A certified test curve indicating the flow, head, power and efficiency will be provided after finalizing with pump supplier
14	14) As per related material requisition
	15) Each diesel engine will include a daily fuel tank with a capacity of 8 hours running.
15	16) COMPANY / PURCHASER inspectors shall have the right to order dismantelling the pumps, after mechanical running test, if test
16	results are not in accordance with NFPA 20 and related project specification.
17	17) Start ,Stop & Select shall be provided on the local control panel.
18	18) All the instrumentation & signal interfaces in the relevant package battery limit shall be considered.
19	19) Pumps, drivers, materials are requested to be listed for fire pump service by U.L.and approved by F.M.
20	20) Shall be finalized by vendor, with considering 50% efficiency, at least.
21	21) According to "PID for Fire Water Tanks and Pumps: 10-08-A1-SA-0804-N", a Fuel Supply Main Tank and Pump shall be provided by vendor.
22	The following items shall be considered in design as minimum requirements:
23	• Fuel Supply Main Tank (10-TK-0802) :
24	- Working Capacity: 7.2 m3 (vendor to confirm). This tank shall be designed to supply fuel to the three Daily Tanks for once.
25	- Base Material: Carbon Steel
26	- Design Code: NFPA 20
27	• Fuel Supply Main Pump (10-P-0804) :
28	- Normal Capacity: 14 m3/hr (vendor to confirm), this pump shall be designed to supply fuel to the three Daily Tanks in 30 minutes.
29	- Suction Pressure (Min/Norm/Max): 1.1 / 1.2 / 1.2 barg
30	- Max Differential Pressure: 1 bar
31	- Max. Head: 13 m
32	- Base Material: Carbon Steel
33	- Design Code: ISO 5199
34	- In case of receiving low/high fuel level alarm from daily tanks, fuel supply main pump shall be started/stopped manually (by push buttons from
35	central control room and locally) by operator.
36	- In case of receiving low level alarm from fuel supply main tank, fuel supply main pump shall be stopped manually (by push buttons from central
37	control room and locally) by operator.
38	- Piping between Fuel Supply Main Pump and Daily Tanks is not in vendor scope of work and supply.
39	- Piping between Fuel Supply Main Tank and Fuel Supply Main Pump is in vendor scope of work and supply.
40	22) ALL ELECTRICAL /INSTRUMENTTATION JUNCTION BOX'S,PANEL'S,DEVICE'S,... OF DIESEL PUMP 'S SHALL HAVE MINIMUM IP 54
41	23) ELECTRICAL CHARGER OF DIESEL PUMP'S SHALL BE EQUIPED WITH DUAL CHARGER AND DEDICATED
42	INDIVIDUALL BATTERIES
43	24) Suction strainer and discharge PSV according to PID should be supplied by pump vendor
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1	ITEM NO.:	10-P-0803 A/B/C	(NOTE4)	MFR.:	
2	SERVICE:	FIRE WATER SUPPLY PUMP		APPLICABLE CODE & STANDARD:	NFPA 20
3	NO. REQUIRED:	Three (3)			
4	DUTY :	<input checked="" type="checkbox"/> CONTINUOUS	<input type="checkbox"/> STANDBY	<input type="checkbox"/> INTERMITTENT	
5	LOCATION:	<input type="checkbox"/> INDOOR	<input checked="" type="checkbox"/> OUTDOOR	ATMOSPHERIC CONDITION:	/ SEA LEVEL
6	ENGINE DESIGN AND PERFORMANCE				
7	ENGINE MODEL:			ROTATION FROM COUPLING END	<input type="checkbox"/> CW <input type="checkbox"/> CCW
8	RATED BHP:	GROSS/ AT SITE CONDITION:	HP	RPM:	FLYWHEEL: <input checked="" type="checkbox"/> REQ'D <input type="checkbox"/> NOT REQ'D
9	CYCLE:	<input type="checkbox"/> 2 CYCLES	<input type="checkbox"/> 4 CYCLES	COMPRESSION RATIO:	
10	BORE:	IN	STROKE:	IN	BRAKE MEAN EFFECTIVE PRESS.: PSI
11	NO. OF CYL.			FUEL CONSUMPTION AT RATED:	USGPH
12	ARRANGEMENT OF CYL.	<input type="checkbox"/> V- TYPE	<input type="checkbox"/> VER. INLINE	ENGINE HEAT REJECTION:	kW
13	CHARGING:	<input type="checkbox"/> NOR. ASPIRATED	<input checked="" type="checkbox"/> TURBO- CHARGING	COMBUSTION AIR QUANTITY:	CFM
14	FUEL SYSTEM			EXHAUST SYSTEM	
15	FUEL OIL FILTER	<input checked="" type="checkbox"/> REQ'D	<input type="checkbox"/> NOT REQ'D	EXHAUST MANIFOLD TYPE	<input type="checkbox"/> WET <input checked="" type="checkbox"/> DRY
16	TYPE:			EXH. GAS DRIVEN TURBOCHARGER	<input type="checkbox"/> REQ'D <input checked="" type="checkbox"/> NOT REQ'D
17	DIESEL OIL TANK	<input checked="" type="checkbox"/> CAPACITY:	USGAL	BACK PRESSURE LIMITATION:	PSI
18	SUPPLIED BY	<input type="checkbox"/> PURCHASER	<input checked="" type="checkbox"/> VENDOR	<input checked="" type="checkbox"/> FLEXIBLE PIPE	<input checked="" type="checkbox"/> LAGGING <input type="checkbox"/>
19	MOUNTED BY	<input type="checkbox"/> PURCHASER	<input checked="" type="checkbox"/> VENDOR	SILENCER TYPE	CRITICAL GRADE WITH SPARK ARRESTOR
20	LEVEL SWITCH / GAGE	<input checked="" type="checkbox"/> REQ'D	<input type="checkbox"/> NOT REQ'D	<input type="checkbox"/> DRAIN VALVE	<input type="checkbox"/> STEAM TRAP <input checked="" type="checkbox"/> DRAIN COCK
21	FLAME ARRESTOR	<input checked="" type="checkbox"/> REQ'D	<input type="checkbox"/> NOT REQ'D	APPROXIMATE ATTENUATION:	
22	STARTING SYSTEM			INTAKE AIR SYSTEM	
23	STARTING METHOD:	<input checked="" type="checkbox"/> ELECTRICAL	<input type="checkbox"/> AIR	<input type="checkbox"/> HYDRAULIC	AIR INLET FILTER:
24	STARTING CONTROL:	<input checked="" type="checkbox"/> AUTOMATIC	<input type="checkbox"/> MANUAL		<input checked="" type="checkbox"/> DRY <input type="checkbox"/> OIL BATH
25	AIR START:	<input type="checkbox"/> START MOTOR	<input type="checkbox"/> DISCHARGE PRESS. GAGE	INTAKE SILENCER	<input type="checkbox"/> REQ'D <input type="checkbox"/> NOT REQ'D
26	<input type="checkbox"/> CONTROL VALVE	<input type="checkbox"/> PRESSURE REGULATOR	LUBE OIL SYSTEM		
27	<input type="checkbox"/> STRAINER	LUBRICATION: <input checked="" type="checkbox"/> FORCED <input type="checkbox"/> SPLASH <input type="checkbox"/>			
28	<input type="checkbox"/> AIR RECEIVER VESSEL:	OIL FILTER			
29	<input type="checkbox"/> ACCESSORIES :	<input type="checkbox"/> PS	<input type="checkbox"/> PG	<input type="checkbox"/> RELIEF VALVE	<input checked="" type="checkbox"/> FULL FLOW <input type="checkbox"/> BY- PASS <input type="checkbox"/> SHUNT <input type="checkbox"/> SUMP
30	COOLING WATER SYSTEM			OIL PUMP TYPE:	GEAR STRAINER WIRE MESH
31	C.W. REQ'D FOR	CYLINDER/ OIL COOLING		OIL COOLER:	SHELL & TUBE TEMA TYPE:
32	COOLING WATER FROM	PUMP DISCHARGE		<input type="checkbox"/> RELIEF VALVE	<input checked="" type="checkbox"/> PRESS. GAGE <input checked="" type="checkbox"/> DIP STICK <input checked="" type="checkbox"/> HEATER
33	CONSUMPTION	UGPM		GOVERNOR SYSTEM	
34	INTERPIPING	<input type="checkbox"/> PURCHASER	<input checked="" type="checkbox"/> VENDOR	MODEL:	NAEMA CL.: AS PER NFPA 20
35				TYPE:	<input type="checkbox"/> MECHANICAL <input type="checkbox"/> HYDRAULIC <input checked="" type="checkbox"/> ELECTRICAL
36	CONTROL SYSTEM				
37	ALARM			SHUTDOWN	
38	<input checked="" type="checkbox"/> OVER CRANK	<input checked="" type="checkbox"/> HIGH WATER TEMP	<input checked="" type="checkbox"/> ENGINE OVERSPEED <input type="checkbox"/> LOW OIL PRESSURE		
39	<input checked="" type="checkbox"/> LOW FUEL LEVEL	<input checked="" type="checkbox"/> LOW LOW FUEL LEVEL	<input type="checkbox"/> HIGH JACKET WATER TEMPERATURE		
40	<input checked="" type="checkbox"/> LOW LUBE OIL PRESS.	<input checked="" type="checkbox"/> OVERSPEED	<input type="checkbox"/> CRANKCASE PRESS. <input type="checkbox"/>		
41	<input checked="" type="checkbox"/> HIGH OIL TEMPERATURE	<input type="checkbox"/>			
42					
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1	TEST AND INSPECTION										
2	DIMENSION INSPECTION:		<input checked="" type="checkbox"/>	WITNESS		<input type="checkbox"/>	NON- WITNESS		<input type="checkbox"/>	OBSERVANCE	
3	OPERATION / FUNCTION TEST:		<input checked="" type="checkbox"/>	WITNESS		<input type="checkbox"/>	NON- WITNESS		<input type="checkbox"/>	OBSERVANCE	
4			<input checked="" type="checkbox"/>	4 HOUR RUNNING		<input type="checkbox"/>	DUMMY LOAD		<input checked="" type="checkbox"/>	VENDOR STD.	
5	HYDROSTATIC TEST:		<input checked="" type="checkbox"/>	WITNESS		<input type="checkbox"/>	NON- WITNESS		<input type="checkbox"/>	OBSERVANCE	
6	LOAD TEST		<input type="checkbox"/>	25%	<input type="checkbox"/>	50%	<input type="checkbox"/>	75%	<input type="checkbox"/>	100% <input type="checkbox"/> 110%	
7	CRANKSHAFT ALIGNMENT CHECK:		<input type="checkbox"/>	WITNESS		<input checked="" type="checkbox"/>	REQ'D				
8	GOVERNOR TEST:		<input type="checkbox"/>	WITNESS		<input checked="" type="checkbox"/>	REQ'D				
9	FUEL CONSUMPTION TEST:		<input type="checkbox"/>	WITNESS		<input checked="" type="checkbox"/>	NOT REQ'D		<input type="checkbox"/>	25% <input type="checkbox"/> 50% <input type="checkbox"/> 75% <input type="checkbox"/> 100% <input type="checkbox"/> 110%	
10	NOISE / VIBRATION TEST:		<input type="checkbox"/>	WITNESS		<input checked="" type="checkbox"/>	NOT REQ'D				
11	ENGINE DIMENSION (WxLxH) :					m		PACKAGE DIMENSION (WxLxH)			m
12	ENGINE WEIGHT:							PACKAGE TOTAL WEIGHT:			kg
13											
14	*NOTE										
15	1. Deleted										
16	2. All purchaser's connections shall be terminated at skid edge.										
17	3. See Note15 for diesel engine fuel tank information.										
18											
19											
20											