



Exploration & Production

GENERAL SPECIFICATION

ROTATING MACHINERY

DS MEC 212

Gas turbine data sheet

01	08/03	Change of Group name and logo
00	11/01	First issue
Rev.	Date	Notes



Exploration & Production

General Specification

Date: 08/03

DS MEC 212

Rev: 01

CUSTOMER :		ITEM :		SPECIF.	
LOCATION :		Nbr. of units :			
JOB N° :		UNIT :		Page : /	
1 ☐ APPLICABLE TO ☐ PROPOSAL ☐ PURCHASE ☐ AS-BUILT					
2 Manufacturer : Manufacturing plant :					
3 Size & Type : Functional design : ☐ Package ☐ Unit					
4 Service : ☐ Continuous ☐ Intermittent ☐ Standby					
5 Driven equipment type : ISO 3977 classification ☐ A ☐ B ☐ C ☒ D					
SERVICE CONDITIONS :				APPLICABLE SPECIFICATIONS	
7 Cycle : ☐ Simple ☐ Exhaust heat recovery ☐ Steam production				☐ API std 616 ☐ API std 614	
8 Type : ☐ Single shaft ☐ Two shaft ☐ Multiple shaft				☐ API std 670 ☐ API std 671	
9 ☐ Driven equipment Shaft power : Rated (kw) at RPM				☐ ISO 3977 ☐	
10 Maximum (kw) at RPM					
11 ☐ Power turbine nominal power (ISO condition) kw at RPM				INSTALLATION DATA	
12 ☐ Output shaft speed range : ☐ Mini : ☐ Maxi : RPM				See specification :	
13 ☐ Minimum required site power (kw) : at RPM				Altitude : m Barometer : mbar	
14 ☐ Operation : ☐ Attended ☐ Unattended ☐ Remote control				Ambient temperature: Mean value : °C	
15 ☐ Starts frequency (ISO 3977) : ☒ I ☐ II ☐ III ☐ IV				Mini: Maxi: Design: °C	
16 ☐ Auxiliaries starting : ☐ Manual ☐ Automatic ☐ Remote control				Humidity at design temperature : %	
17 ☐ Minimum continuous operation between maintenance : hour				Wind speed : m/s	
18 ☐ Potential maximum power (kw) :				Atmospheric air ☐ Dust ☐ Fume	
19				Particle > 10 µm g/m3	
20 SHOP TEST / INSPECTION				Particle < 10 µm g/m3	
21 ☒ Shop inspection ☐ by control agency				Corrosion by :	
22 ☒ Tests :					
23 Manufacturer standard test				Installation: ☐ Indoor ☐ Off shore	
24 Cleanliness inspection of equipment				☐ Heated ☐ Outdoor ☐ Under roof	
25 Hydrostatic test				☐ Winterisation ☐ Tropicalisation	
26 Rotor(s) residual unbalance check				Area classification : ☐ Safe ☐ Hazardous	
27 Rotor(s) dynamic balancing test				Group of explosion : ☐ II A ☐ II B	
28 ☐ Full speed ☐ Under vacuum				Auto ignition temp. : ☐ T3 ☐ °C	
29 Performance test					
30 Mechanical 4 hour run test				Starting : ☐ Local ☐ Remote	
31 ☐ Tape recordings of real-time vibration data				☐ Manual ☐ Automatic	
32 ☐ Load gear test ☐ Auxilliary-equip. test					
33 Dismantling after test				AVAILABLE UTILITIES	
34 Spare rotor fit in				Cooling water :	
35 Spare rotor mechanical run test				Pressure bar g	
36 String test : ☐ Full load ☐ Full speed				Allowable dP bar	
37 Fire & Gas detection and protection system test				Temperature °C	
38				Allowable dT °C	
39				Steam :	
40 ACCESSORIES BY MANUFACTURER (M) OR OTHER (O)				Pressure bar g	
41				Temperature °C	
42 Base plate ☐ with drip rim				Instrument air :	
43 ☐ Lube oil unit				Pressure mini bar g	
44 ☐ Fuel treatment system(s)				Pressure maxi bar g	
45 ☐ Compressor cleaning system				Temperature °C	
46 ☐ Fire & Gas detection system				Dew point °C	
47 ☐ Fire protection system					
48 ☐ Fuel gas KO pot				Electricity : AC/DC Volts Phase / Hertz	
49 ☐ Handling devices					
50 ☐ Instrumentation					
51 ☐ Local control panel					
52 ☐ Control system					
53 ☐ Motor control center				Control	
54 Turbine enclosure ☐ Soundproof				PAINTING	
55 Driven equipment enclosure				☐ Supplier stand'd ☐ SHIPMENT	
56 Vibration analysis				☐ Other ☐ Standard	
57				☐ Sea boxing	
58				☐ Outdoor storage	
59 Notes: Information to be completed : ☐ By purchaser ☐ By manufacturer ☐ Either by purchaser or manufacturer					
60					
61					
62					
63					
64					
65					
66					
67					
68					

CUSTOMER :				ITEM :				SPECIF.			
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1 PERFORMANCE (SITE CONDITION)											
2 ☐ Gas turbine net power at drive shaft all losses deducted											
		Site rated (\$ 1.4.34)		Normal duty (\$ 1.4.16)		Site maximum Temperature		Site minimum Temperature			
3											
4											
5 ☐ Dry bulb temperature		°C									
6 ☐ Relative humidity		%									
7 ☐ Barometer		mbar									
8 ☐ Turbine output shaft power		kw									
9 ☐ Turbine output shaft speed		RPM									
10 ☐ Heat rate ; LHV		kJ/kwh									
11 ☐ Air flow		kg/s									
12 ☐ Exhaust flow (1)		kg/s									
13 ☐ Firing temperature		°C									
14 ☐ GG exhaust temperature		°C									
15 ☐ PT exhaust temperature		°C									
16 ☐ Certified point											
17 ☐ Steam flow		kg/h									
18 ☐ Water flow		m3/h									
19 (1) Including ☐ Steam ☐ Water effects for ☐ Emission control ☐ Power Augmentation											
20											
21 FUEL SYSTEM											
22 Type ☐ Gas ☐ Liquid ☐ Dual (Gas/Liquid) ☐ Dual (Gas/Gas) ☐ Dual (liquid/liquid)											
23 Dual system requirements ☐ Manual ☐ Automatic ☐ Transfer under load ☐ Shutdown to transfer											
24 ☐ Transfer at rated load ☐ Transfer at % rated load ☐ Maxi. time allowed to complete transfer : Sec.											
25 ☐ Complete fuel receiving system ☐ Filter number : ☐ Continuous flowTransfer valve											
26 ☐ Filtration (µ): ☐ dP clean / maxi (bar) : ☐ Filter material; Body/Internal :											
27											
28 Gas fuel						Liquid fuel					
29 ☐ Gas fuel analysis % ☐ Weight ☐ Mole						☐ Fuel grade					
30 Composition		MW	Normal	Starting	Alternate	ASTM D1655 JET ☐ A ☐ A-1 ☐ B					
31 Nitrogen N2		28.01				ASTM D2880 ☐ 0GT ☐ 1GT ☐ 2GT ☐ 3GT					
32 Water vapor H2O		18.02				☐ Other, indicate analysis below					
33 Carbon monoxide CO		28.01				Liquid fuel treatment required ☐ Yes ☐ No					
34 Carbon dioxide CO2		44.01				Treatment system by ☐ Vendor ☐ Other					
35 Hydrogen sulfide H2S		34.08				Pumping ☐ Compression ☐					
36 Hydrogen H2		2.02				Heating required ☐ Yes ☐ No					
37 Methane C1		16.04				Drying required ☐ Yes ☐ No					
38 Ethylene C2H4		28.05				Centrifuging required ☐ Yes ☐ No					
39 Ethane C2H6		30.07									
40 Propylene C3H6		42.08				☐ Fuel characteristic		Normal	Starting	Alternate	
41 Propane C3H8		44.09				Specific gravity					
42 i-Butane iC4		58.12				Viscosity					
43 n-Butane nC4		58.12				Flash point °C					
44 i-Pentane iC5		72.15				Pour point °C					
45 n-Pentane nC5		72.15				Sulfur content %wt max,					
46 Hexane plus C6+						Aromatic content					
47						Water content					
48											
49											
50 Total											
51 Average molecular weight						LHV (kJ/kg) (kJ/m3/h)					
52 LHV (kJ/kg) (kJ/m3/h)						HHV (kJ/kg) (kJ/m3/h)					
53 Pressure Maxi./Mini. (bar g)						Pressure (bar g)					
54 Temperature Maxi./Mini. (°C)						Temperature (°C)					
55											
56 Fuel system piping											
57 ☐ By pass & vent valve ☐ Isolation block valves ☐ Stainless steel piping ☐ Complete system ☐ Downstream filters											
58											
59 Notes:											
60											
61											
62											
63											
64											
65											
66											
67											
68 DESIGNATION Date By Appr Rev DESIGNATION Date By Appr Rev											

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1 CONSTRUCTION FEATURES (Note 1)																																																																			
2 ☐ GT designation :																																																																			
3 Number of shafts :																																																																			
4 ☐ Rotation, viewed from drive end ☐ CW ☐ CCW																																																																			
5 ☐ Speeds :																																																																			
6 Maximum continuous : RPM Trip : RPM																																																																			
7 ☐ Lateral critical speeds (Gas Generator)																																																																			
8 ☐ Damped ☐ Undamped																																																																			
9 First critical : RPM Mode																																																																			
10 Second critical : RPM Mode																																																																			
11 Third critical : RPM Mode																																																																			
12 Fourth critical : RPM Mode																																																																			
13 Found by : ☐ Calculation ☐ Test																																																																			
14 ☐ Lateral critical speeds (Power Turbine)																																																																			
15 ☐ Damped ☐ Undamped																																																																			
16 First critical : RPM Mode																																																																			
17 Second critical : RPM Mode																																																																			
18 Third critical : RPM Mode																																																																			
19 Fourth critical : RPM Mode																																																																			
20 Found by : ☐ Calculation ☐ Test																																																																			
21 ☐ Train lateral analysis required																																																																			
22 ☐ Undamped stiffness map required																																																																			
23 ☐ Train torsional analysis required																																																																			
24 ☐ Torsional critical speeds																																																																			
25 First critical : RPM																																																																			
26 Second critical : RPM																																																																			
27 Third critical : RPM																																																																			
28 Fourth critical : RPM																																																																			
29 Found by : ☐ Calculation ☐ Test																																																																			
30 ☐ Vibration :																																																																			
31 Allowable test level : microns (peak to peak)																																																																			
32																																																																			
33 ☐ Materials :																																																																			
34 Inlet casing :																																																																			
35 GG compressor casing :																																																																			
36 Stator vanes / Rotor blades :																																																																			
37 Shaft / wheel :																																																																			
38 Vanes / Blades coating :																																																																			
39 Combustor casing / Combustors :																																																																			
40 GG turbine casing																																																																			
41 Stage 1 2 3 4																																																																			
42 Stator vanes																																																																			
43 Rotor blades																																																																			
44 Wheels / discs																																																																			
45 Power Turbine casing																																																																			
46 Stage 1 2 3 4																																																																			
47 Stator vanes																																																																			
48 Rotor blades																																																																			
49 Wheels - discs																																																																			
50 Output shaft :																																																																			
51 ☐ Purchaser connections :																																																																			
52 <table border="1"><tr><td>Connections</td><td>Design approval required § 2.10.4.6.4.</td><td>☐ Size</td><td>☐ Facing & rating</td><td>☐ Position § 2.4.1</td><td>☐ Flanged or Studded § 2.4.1</td><td>Mating flange & gasket by vendor</td><td>☐ Gas velocity m/sec</td></tr><tr><td>55 ☐ Inlet</td><td>☐</td><td></td><td></td><td></td><td></td><td>☐</td><td></td></tr><tr><td>56 ☐ Exhaust</td><td>☐</td><td></td><td></td><td></td><td></td><td>☐</td><td></td></tr><tr><td>57 ☐ Fuel supply (G)</td><td>☐</td><td></td><td></td><td></td><td></td><td>☐</td><td></td></tr><tr><td>58 ☐ Fuel supply (L)</td><td>☐</td><td></td><td></td><td></td><td></td><td>☐</td><td></td></tr><tr><td>59 ☐</td><td>☐</td><td></td><td></td><td></td><td></td><td>☐</td><td></td></tr><tr><td>60</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>												Connections	Design approval required § 2.10.4.6.4.	☐ Size	☐ Facing & rating	☐ Position § 2.4.1	☐ Flanged or Studded § 2.4.1	Mating flange & gasket by vendor	☐ Gas velocity m/sec	55 ☐ Inlet	☐					☐		56 ☐ Exhaust	☐					☐		57 ☐ Fuel supply (G)	☐					☐		58 ☐ Fuel supply (L)	☐					☐		59 ☐	☐					☐		60							
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59 ☐	☐					☐																																																													
60																																																																			
61 Notes: (1) For mutple shaft turbines, complete all applicable portion for each shaft,																																																																			
62																																																																			
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1 LUBE OIL SYSTEM (API std 614 ☐)															
2 ☐ Oil system : ☐ Common to complete shaft line				☐ Reservoir : ☐ In baseplate ☐ Separate											
3 Separate for ☐ Gas generator				Material : Coating :											
4 Separate for ☐ Driven equipment(s) ☐ Power Turbine				Capacity : m3 Retention : minutes											
5 ☐ Mounting on baseplate ☐ Separate console															
6 ☐ Lube oil viscosity; ISO grade : ; Common to :				☐ Heater : ☐ Type electrical ☐ Other :											
7 ☐ Gas generator / single shaft turbine ☐ Load gear				Manufacturer: Power : kw											
8 ☐ Free power turbine ☐ Driven equipment ☐ Auxiliaries															
9 ☐ Systeme designed for synthetic lubricant				☐ Filter : ☐ Single ☐ Dual Filtration : µ											
10 ☐ Lube specification : ; Common to :				dP clean : bar dP maxi : bar											
11 ☐ Gas generator ☐ Power turbine ☐ Load gear				Filter material : Body material :											
12 ☐ Driven equipment ☐ Auxiliaries															
13 ☐ Oil requirements: m3/h bar g kJ/h				☐ Switch valve : Number : Material :											
14 GG or SS turbine				Manufacturer: Type :											
15 Power Turbine															
16 Gear				☐ Cooler : ☐ Air cooler ☐ Single ☐ Dual											
17 Driven equipment				Manufacturer : Type :											
18				Fouling factor : Surface : m2											
19 ☐ Capacity (m3/h) : Pressure (bar g) :				Duty: Material :											
20 ☐ Relief valve setting (bar g) :															
21				☐ Accumulator type: ☐ Bladder ☐ Piston ☐ Direct contact											
22 ☐ Pumps Main Standby Emergency				Manufacturer: Capacity : L											
23 Type															
24 Driver				☐ Stainless steel ☐ 316L ☐ 321 ☐ Piping ☐ Fittings											
25 Mounting				☐ Valves ☐ After filter ☐ Complete system											
26 Flow m3/h															
27 Pressure bar g				☐											
28 Power kW															
29 Speed RPM															
30 Material															
31															
32															
33 ACCESSORIES															
34 Inlet system						35 Exhaust system									
36 ☐ Air filter Number of filtration stage : ☐ Self cleaning						☐ External insulation ☐ See sketch :									
37 ☐ Inertial type separator ☐ Implosion door ☐ Anti-icing						☐									
38 Location : ☐ Ground level ☐ Elevated						☐ Emissions control system									
39 ☐ Support structure ☐ Height of air intake : m						☐ Emissions sampling system									
40 ☐ Prefilter manuf'r : Type :						☐ Expens. joint manuf'r : Type :									
41 ☐ Filter manuf'r : Type :						☐ Expansion joint material :									
42 ☐ Housing manuf'r : ☐ Material :						☐ Silencer manuf'r : Type :									
43 ☐ @110% rated air flow dP (mm H2O) Clean: Alarm:						☐ Plate element mat'l : dP : mm H2O									
44 ☐ Silencer manufact'er: Type :						☐ Ducting manuf'r : ☐ Material :									
45 ☐ Plate element mate'l: dP : mm H2O						☐ Exhaust heat recovery system ☐ dP : mm H2O									
46 ☐ Expens. joint manuf'r: Type :						Manufacturer Type :									
47 ☐ Expansion joint material :						Steam generated : Rate : kg/h									
48 ☐ Ducting manufact'er: ☐ Material :						Pressure : bar g Temperature : %C									
49 ☐ System site rated pressure drop : mm H2O						☐ Stack manuf'r : ☐ Material :									
50 ☐ @ 110% rated air flow						☐ Support structure ☐ Height of stack : m									
51 ☐ Manometer						☐ System site rated pressure drop : mm H2O									
52 ☐ Filtration efficiency : %															
53 ☐ Cleaning frequency : days															
54 ☐ Maintenance interval : months															
55															
56															
57 Notes: GG = gas generator ; SS turbine = single shaft turbine ;															
58															
59															
60															
61															
62															
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DESIGNATION				Date	By	Appr	Rev	DESIGNATION				Date	By	Appr	Rev



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CUSTOMER :		ITEM :		SPECIF.	
LOCATION :		Nbr. of units :			
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1 ACCESSORIES (continued)					
2 Starting and helper drivers					
3 ☐ Starting system : ☐ Manual ☐ Automatic					
4 ☐ Semiautomatic ☐ Purge time : sec.					
5 ☐ Starter only ☐ Starter / Helper					
6 ☐ Type : ☐ Gas expander ☐ Electrical motor					
7 ☐ IC engine ☐ Hydraulic ☐ Gas turbine					
8 ☐ Starter rating : kW ☐ Helper rating : kW					
9 ☐ Shaft turning device required : Power: kW					
10 ☐ Manual ☐ Automatic					
11 ☐ Manuf'r : Model :					
12 ☐ Electrical motor					
13 Type : Rating : kW					
14 Manufacturer : Model :					
15 ☐ Gas expander					
16 Manufacturer : Model :					
17 Max. gas flow : kg/h Power : kW					
18 ☐ Gas for expansion turbine : ☐ Mini. ☐ Maxi. ☐ Normal					
19 Inlet pressure bar g					
20 Exhaust pressure bar g					
21 Gas inlet temperature °C					
22 Exhaust temperature °C					
23 Molecular weight					
24 ☐ Speed control ☐ Governor ☐ Pressure regulator					
25 ☐ Low speed capability (for comp. cleaning) ☐ Yes ☐ No					
26 ☐ Inlet control valve furnished ☐ Yes ☐ No					
27 ☐ Stainless steel piping & manifold ☐ Yes ☐ No					
28 ☐ Flange material ☐ Carbon steel ☐ Stainless steel					
29 ☐ Y-strainer with breakout flanges ☐ Yes ☐ No					
30 ☐ Relief valve pressure set point (bar g) :					
31 Casing material : Seal type :					
32 ☐ Other starter : Type :					
33 Manufacturer : Model :					
34 Nominal power : kw Speed : RPM					
35					
36 Mounting plates					
37 Type : ☐ Sole plate ☐ Baseplate					
38 ☐ Baseplate furnished for : ☐ Gas turbine only					
39 Extended for : ☐ Gear ☐ Driven equipment					
40 ☐ Stainless steel shim pack thickness (mm) :					
41 ☐ Sub-sole plate required ☐ Drip rim					
42 ☐ Machined mounting pads required					
43 ☐ Baseplate will be on concrete foundation					
44					
45 Couplings and guards					
46 ☐ HS coupling : ☐ API std 671 data sheet provided					
47 Manufacturer : Type :					
48 Model : Spacer length : mm					
49 ☐ Limited end float ☐ Keyed ☐ Hydraulic fit					
50 Lubrication : ☐ Continu. oil lube ☐ Non-lube					
51 ☐ LS coupling : ☐ API std 671 data sheet provided					
52 Manufacturer : Type :					
53 Model : Spacer length : mm					
54 ☐ Limited end float ☐ Keyed ☐ Hydraulic fit					
55 Lubrication : ☐ Continu. oil lube ☐ Non-lube					
56 ☐ HS - LS coupling & guard(s) :					
57 ☐ Vendor mount half coupling					
58 ☐ Fully enclosed coupling guard(s)					
59 ☐ Coupling(s) guard material :					
60					
61 Notes:					
62					
63					
64					
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66					
67					
68					
DESIGNATION		Date	By	Appr	Rev
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1 INSTRUMENT AND CONTROL										
2 Gauge board and control panel :		Control systems :								
3 ☐ Gauge board location :		Type : ☐ Electronic ☐ Electric ☐ Pneumatic								
4 Control panel : ☐ On skid ☐ Off skid local ☐ Off skid remote		☐ Mechanical ☐ Hydraulic								
5 Weather protection required ☐ Yes ☐ No		☐ Microprocessor based ☐ Combined :								
6 ☐ Specification :		☐ Redundancy ☐ Signal source :								
7 ☐ Annunciator required ☐ Visual display unit (VDU)		☐ Sensitivity : ☐ Range :								
8 ☐ Table mount VDU ☐		☐ Turbine operating time with AC power failure : min.								
9 Governor :		☐ Shut off valves for shut down sensors								
10 ☐ Mafr's std ☐ Other Make: Model:		Starting system :								
11 ☐ Constant speed ☐ Variable speed		☐ Manual ☐ Semi automatic ☐ Automatic								
12 Mini / maxi speed : RPM ☐ Manual speed changer		☐ Purge time : min.								
13 Remote Shutdown signal : ☐ Electric ☐ Electronic		Normal shutdown :								
14 ☐ Pneumatic ☐ Hydraulic ☐ None		☐ Manual ☐ Semi automatic ☐ Automatic								
15 On control signal or actuator failure maintain turbine on :		☐ Separate safety fuel shut off valve								
16 ☐ Mini speed ☐ Maxi speed ☐ Constand speed		☐ Possible test during operation								
17 INSTRUMENT										
Description		Instrument			(1)					
		Type	Location		by					
19 Gas generator or		I	R	L	LP	UCP	V			
20 Single shaft turbine										
21 Tachometer(s) (Number :)		☐	☐	☐	☐	☐	☐			
22 dPressure air inlet system		☐	☐	☐	☐	☐	☐			
23 Compressor discharge pressure		☐	☐	☐	☐	☐	☐			
24 Fuel filter dPressure		☐	☐	☐	☐	☐	☐			
25 Fuel supply pressure		☐	☐	☐	☐	☐	☐			
26 Starting gas supply pressure		☐	☐	☐	☐	☐	☐			
27 Temp. combustor measurement		☐	☐	☐	☐	☐	☐			
28 Temp. GT control plane		☐	☐	☐	☐	☐	☐			
29 Inlet air temperature		☐	☐	☐	☐	☐	☐			
30 GG comp. discharge temperature		☐	☐	☐	☐	☐	☐			
31 Thrust bearing oil drain temperature		☐	☐	☐	☐	☐	☐			
32 Each bearing oil drain temperature		☐	☐	☐	☐	☐	☐			
33 Temperature fuel manifold		☐	☐	☐	☐	☐	☐			
34 Temperature lube oil reservoir		☐	☐	☐	☐	☐	☐			
35 Fired hour meter		☐	☐	☐	☐	☐	☐			
36 Start number counter		☐	☐	☐	☐	☐	☐			
37 Start sequence timer		☐	☐	☐	☐	☐	☐			
38 Lube oil reservoir level		☐	☐	☐	☐	☐	☐			
39 Lube oil pump PI (Number :)		☐	☐	☐	☐	☐	☐			
40 Lube oil cooler, oil inlet temperature		☐	☐	☐	☐	☐	☐			
41 Lube oil cooler, oil outlet temperature		☐	☐	☐	☐	☐	☐			
42 Lube oil filter dPressure		☐	☐	☐	☐	☐	☐			
43 Lube oil pressure each level		☐	☐	☐	☐	☐	☐			
44 Control oil pressure		☐	☐	☐	☐	☐	☐			
45 Sight flow indicator on each drain		☐	☐	☐	☐	☐	☐			
46 Inlet guide vane position indicator		☐	☐	☐	☐	☐	☐			
47		☐	☐	☐	☐	☐	☐			
48 Power turbine										
49 Tachometer(s) - (No)		☐	☐	☐	☐	☐	☐			
50 Exhaust temperature (2pts mini)		☐	☐	☐	☐	☐	☐			
51 Journal bearing temperature		☐	☐	☐	☐	☐	☐			
52 Thrust bearing temperature		☐	☐	☐	☐	☐	☐			
53 Bearing drain temperature		☐	☐	☐	☐	☐	☐			
54 Site flow indicator each drain		☐	☐	☐	☐	☐	☐			
55 Lube oil inlet pressure		☐	☐	☐	☐	☐	☐			
56 Lube oil inlet temperature		☐	☐	☐	☐	☐	☐			
57		☐	☐	☐	☐	☐	☐			
58 Notes: I = indicating ; R = recording ; L = local ; LP = local panel ; UCP = Unit Control Panel ; V = vendor ;										
59 A = Alarm ; SD = shutdown ;										
60 (1) Transmitter furnished by ; (2) Annunciator point in vendor furnished UCP ; (3) Vendor to advise method of annunciation ;										
61 (4) Sensing device furnished by ; (5) Single shaft turb. or gas generator ; (6) Separate power turbine ;										
62 (7) VDU may use message indicator ;										
63										
64										
65										
66										
67										
68 DESIGNATION		Date	By	Appr	Rev	DESIGNATION	Date	By	Appr	Rev