

**PDVSA**

Occidente

**4 x TRENT 60 WLE Dual Fuel 60Hz Power Generation Package****Spare Parts Delivery Terms: FOB Mt. Vernon, USA.****Maintenance & Operational Spares**

Part No.	Tag No.	Description	Quantity (per Unit)	Leadtime (weeks)
----------	---------	-------------	------------------------	---------------------

***Liquid Fuel System***

RRE005241	PDT1050	Supply Filter Pressure Differential Transmitter	2	11
RRE005204	PT1019	Supply Line Pressure Transmitter	2	11
RRE008155	FCV1010	Fuel Control Valve	2	18
RRE006817	88FLIM	Fuel Control Valve Motor Controller	2	23
RRE010280	FV1017	Primary Fuel Isolation Valve	2	12
RRE006816	FV1015	Secondary Fuel Isolation Valve	2	14
RRE005197	PSV1000	Pump Discharge Pressure Safety Valve	2	10
RRE019969	ELEMENT1000	Fuel Supply Simplex Filter Replacement Element	2	8

***Gas Fuel System***

RRE005204	PT0600	Gas Supply Press Transmitter	2	11
RRE026592	TE0602	Fuel Gas Supply Temperature RTD	2	9
RRE006818	FCV0610	Fuel Control Valve	2	24
RRE009756	SPM0600/1	Fuel Control Valve Static Pressure Meter (SPM)	2	19
RRE018555	FV0620	Fuel Supply Drain Valve	2	11

***Instrument Air System***

RRE005229	PT1901	Inlet Supply Pressure Transmitter	2	7
RRE005226	PDT1924	Pressure Differential Transmitter	2	11
RRE005191	PSV1900	P30 Reference Pressure Safety Valve	2	7

#### **Liquid Fuel Purge System**

RRE005226	PDT0858	P30 Supply Orifice Pressure Diff Transmitter	2	11
RRE006841	TE0860A/B	Cooler Outlet RTD	2	11
RRE005239	PT0854	Cooler Outlet Pressure Transmitter	2	11

#### **WLE Water Flush System**

RRE005224	PT1714	Pump Discharge Pressure Transmitter	2	5
RRE005242	FCV1710	Water Flush Supply Flow Control Valve	2	12
RRE005234	STR1710	Supply Strainer	2	9
RRE005238	PSV1710	Pump Discharge Pressure Safety Valve	2	10
RRE019971	ELEMENT1710	Pump Discharge Filter Replacement Element	2	7

#### **WLE Water Injection System**

RRE006842	TE1701	Inlet Supply Temperature Transmitter	2	11
RRE005227	FCV1701	Water Injection Supply Flow Control Valve	2	14
RRE011109	PSV1700	Water Injection Pump Discharge Safety Valve	2	8
RRE019969	ELEMENT1701	Water Injection Pump Discharge Filter Replacement Element	8	7

#### **Engine Lube & Hyd Start System**

RRE008211	PDI0729	Lube Oil Tank Strainer Pressure Diff Indicator	2	5
RRE008183	LT0700	Lube oil Tank Level Transmitter	2	10
RRE008208	PDT0702	Lube Oil Pump Discharge Duplex Filter Pressure Diff Transmitter	2	9
RRE008228	PT0703	Lube Oil Supply Pressure to Bearings	2	7
RRE027125	PDT0705A/B	Across Bearing Pressure Diff Transmitter	2	14

RRE009236	PT0708	Scavenge Return Pressure Transmitter	2	7
RRE008209	TE0707	Oil Mist Cooler Temperature RTD	2	10
RRE008235	PT0731	Hyd Pump Discharge Pressure Transmitter	2	11
<b>RRE022701</b>	ELEMENT0700	Lube Oil Tank Filling Filter Replacement Element	4	9
RRE022702	ELEMENT0702	Lube Oil Pump Discharge Duplex Filter Replacement Element	8	6
RRE008234	PRV0721	Scavenge Return Relief Valve	2	6
RRE028264	ELEMENT0701	Demister Replacement Element	12	6
<b>RRE021746</b>	GASKET0701	Demister Top Cover Gasket	2	6
RRE026753	ELEMENT0704	Hydraulic Start Motor Return Filter Replacement Element	4	4
RRE022703	ELEMENT0703A	Cooling Oil Supply Filter Element	4	11
RRE008226	PRV0743	Cooling Oil Relief Valve	2	5
RRE008234	PRV0741	Start Pump Return Relief	2	6
RRE008239	PRV0746	Starter Motor Return Relief	2	12

#### Combustion Air System

RRE020220	PDT0101	Combustion Filter Pressure Diff Transmitter	2	4
<b>RRE020213</b>	AT0800	Humidity Sensor	2	4
RRE024070	N/A	Combustion Air Filters - complete set	480	9

#### GT & AC Gen Ventilation System

RRE028675	ZSL0907/8/9	Enclosure Access Door Microswitches	2	4
RRE028676	ZSL0901/3	Enclosure Fire Damper Microswitches - Open Position	2	4
RRE028937	ZSH0900/2	Enclosure Fire Damper Microswitches - Closed Position	2	4

#### Hydraulic Control System

RRE008212	PT0760	Combined Pump Discharge Pressure Transmitter	2	7
<b>RRE022701</b>	ELEMENT0703	Tank Pre-Charge Filter Replacement Element	4	9
RRE008255	FILTER0705	Tank Vent Filter	8	10
RRE008246	PSV0771/2	Hydraulic Control Pump Discharge Relief Valve	4	7
RRE018102	ELEMENT0761	Pump Discharge Duplex Filter Replacement Element	4	3
RRE008256	STR0708	Hydraulic Return Strainer	2	7



### **IGV & BOV Control System**

<b>RRE009237</b>	PT0247	LP Thrust Piston Pressure Transmitter	2	10
------------------	--------	---------------------------------------	---	----

### **Fire & Gas System**

RRE014788	YSY1323A/B/C/D	GT CO2 Bottle Manual Release Lever/Solenoid Valve	2	55
RRE014789	YSY1323A/B/C/D	GT CO2 Bottle Manual Release Lever Control Head	2	55
RRE014783	FH1300A thro' P	GT CO2 Bottle Control Head Valve	4	10
RRE014786	PSE1328	GT Manifold Discharge Bursting Disc	2	55
RRE014790	PSS1320	GT Manifold Discharge Pressure Switch	2	55
RRE010823	RST1300/1/2/3	GT Flame Detector	2	10
RRE005919	TSS1304/5	GT Heat Detector	2	9
RRE009243	QST1306/7	GT Gas Detector	2	8
RRE009218	YSL1308/9/47	Xenon Beacons	2	9
RRE009219	YSA1309/47	Sounder Horn	2	9

### **AC Generator Spares**

#### **Generator Control Panel**

RRE019827	?	Relay	2	13
RRE019826	?	Relay	4	7
RRE019828	?	Relay	2	9
RRE019829	?	Timer Block	2	10
<b>RRE019831</b>	?	Contactor - 24v DC	2	10
RRE019832	?	Contactor Latch 24v (set of 2)	2	13
RRE019835	?	LED Indicator (set of 5)	2	8
RRE019836	?	Fuse (set of 10)	2	11
RRE028945	?	Transducer	2	8
RRE028793	?	Annunciator Alarm Module	2	10
RRE019957	?	Annunciator Flasher Driver	2	11
RRE019842	?	Annunciator Lamp (set of 10)	2	9
RRE019837	?	Fuse 10A (set of 10)	2	6

RRE028790	?	Communication Converter	2	12
RRE028788	?	Standby Control Card	2	12
RRE028787	?	Utilities Card	2	12
RRE028766	?	A30-CON Complete	2	12
RRE028765	?	A30-MON Complete	2	12
RRE019852	?	Auto Synchroniser MAS100	2	15
RRE019853	?	Check Synchroniser MCS100	2	19
RRE028800	?	R10 Receiver Assembly	2	12
<b>RRE031769</b>	?	Controller, Exciter	2	9

#### **Generator**

RRE019813	0101	Gasket - Stator (set of 4)	2	6
RRE019812	0102	Gasket - Stator (set of 6)	2	6
RRE019811	0103	Gasket - Stator (set of 8)	4	6
RRE019589	0105	Gasket - Terminal Bush (set of 6)	2	6
RRE028780	0106	Gasket - Str Terms (set of 2)	2	8
RRE019594	0107	Gasket - Pipe (set of 2)	4	6
RRE019587	0108	Gasket - Pipe (set of 4)	4	6
RRE028773	0109	Gasket - Pipe (set of 8)	2	8
RRE028772	0110	Gasket - Joint	2	8
RRE019588	0111	Gasket - Joint	2	6
RRE028771	0112	Washer - Joint	2	8
RRE028775	0128	Valve - Block and Bleed	2	10
RRE019821	0185	Brush - Carbon	2	11
RRE019822	0186	Brush Holder	2	15

#### **Exciter**

RRE019809	0200	Gasket - Exciter (set of 4)	2	6
RRE019810	0201	Gasket - Exciter	2	6
RRE019807	0203	Gasket - Exciter (set of 2)	2	6
RRE019808	0204	Gasket - Exciter (set of 2)	2	6
RRE019898	0220	Rotor Earth Fault Aerial	2	15
RRE019897	0222	Rotor Earth Fault Transmitter	2	19

#### **Bearings**

RRE019815	0500	Gasket - Bearing Proximity Probe (set of 2)	4	6
RRE028786	0501	Proximity Transducer	2	10
RRE019591	0502	Gasket - Endframe (set of 2)	2	6

RRE019584	0503	Washer - Joint	8	6
RRE028767	0504	Seal Washer (set of 4)	2	10
RRE019588	0505	Gasket - Joint	2	6
RRE019582	0506	Seal Washer	8	10
RRE019592	0507	Gasket - Bearing (set of 2)	2	6
RRE019593	0508	Gasket - Bearing	2	6
RRE019581	0509	Dowty Washer	20	6
RRE019590	0510	Gasket - Endframe (set of 2)	2	6
RRE028768	0511	Seal Washer	4	12
RRE019597	0512	Gasket - Bearing (set of 2)	2	6
RRE019595	0513	Gasket - Bearing Seal (set of 2)	2	6
RRE019596	0514	Gasket - Bearing	4	6
RRE019894	0550	Bearing Seal Fastener Kit	2	10
RRE028783	0572	Vibration Sensor	2	10

#### **Consumables**

RRE019819	0800	Metric Fixing Kit	2	6
RRE019579	0803	Sealing Compound (set of 3)	2	5
RRE019580	0804	Locking Compound	2	5
RRE028802	0810	Locking Plate (set of 80)	2	14

#### ***AC Gen Instrumentation***

RRE019818	TE1213	Exciter Temperature RTD	2	16
RRE019818	TE1210	Generator NDE Inlet Air Temperature RTD	2	16
RRE019818	TE1209	Generator DE Inlet Air Temperature RTD	2	16
RRE019823	TE1215	Generator NDE Bearing Temperature RTD	2	20
RRE019824	TE1214	Generator DE Bearing Temperature RTD	2	20

#### ***AC Generator Lube Oil System***

RRE019951	0855	Lube Oil Supply Cooler Temperature Control Valve	2	10
RRE019953	0869	Lube Oil Supply Duplex Filter Pressure Diff Transmitter	2	14
RRE028543	0127	Lube Oil Supply to Bearings Pressure Transmitter	2	14
RRE028544	0163	Jacking Oil Supply Pressure Transducer/Switch	2	14
RRE019952	0866	AC Lube Oil Pump Discharge Relief Valve	2	16

RRE019570	0856	Lube Oil Supply Duplex Filter Element	4	16
RRE019872	0875	DE Jacking Oil Pump Discharge Relief Valve	2	19
RRE019872	0875	NDE Jacking Oil Pump Discharge Relief Valve	2	19

#### Controls System

E-01E-001-082	0036	Fluorescent Lamp	4	8
RRE018658	0067	Thermostat	2	15
RRE018972	0150	Cabinet Heater	2	4
E-04S-001-008	0153	Door Switch	2	6
E-01E-001-107	0190	Enclosure Button	2	5
RRE014502	0211	Intrinsic Barrier	2	13
E-01E-001-103	0253	Intrinsic Barrier	2	7
E-88E-108-103	0305	Ethernet Switch	2	8
E-88E-058-009	0370	PLC Computer	2	6
		PLC Computer		8
RRE014511	0410		2	6
E-88E-058-011	0411	PLC Computer	2	6
RRE020296	0412	PLC Computer	2	6
RRE007069	0540	PLC Computer	4	7
RRE007113	0541	PLC Computer (2-88E-058-227)	2	4
RRE007070	0601	PLC Computer	2	7
RRE007063	0602	Terminal Block	8	6
		PLC Computer		7
RRE007072	0603		4	7
		PLC Computer		7
RRE007065	0610		2	7
		PLC Computer		7
RRE007067	0611		2	7
		PLC Computer		7
RRE020911	0612		2	7
		PLC Computer		7
RRE007074	0613		2	7

RRE007071	0615	PLC Computer	2	7
RRE007073	0617	PLC Computer	2	6
RRE014495	0618	PLC Computer	2	8
RRE006592	0701	Fire & Gas Controller	2	7
RRE005911	0702	Ground Fault Monitor	2	7
RRE011063	1204	LVDT Rail Card	2	36
RRE016676	1210	Signal Conditioner	2	13
RRE013867	1212	Signal Conditioner	2	13
RRE014510	1401	PLC Non-C1D2 Relay	8	8
<b>RRE027690</b>	1475	PLC Relay	8	6
E-01E-001-007	1476	Safety Relay	2	13
RRE004192	1501	Circuit Breaker	2	6
RRE007004	1511	125VDC Power Converter	2	10
E-01E-001-102	1513	Power Converter	2	8
E-06C-001-008	1524	Power Filter	2	10
G513-067C.B06	1596	Component Carrier	2	21
G513-067C.B07	1597	Component Carrier	2	11
204E212510	1725	Red Button	2	7
E-04S-635-002	1785	Selector Switch	2	6
204E212006	1795	Contact Block	2	7
RRE004098	1810	Feed Through Terminal	12	14
RRE004101	1811	End Plate Terminal	8	6
RRE004100	1812	Fused Disc Terminal	12	12
RRE014491	1818	Disc Terminal	12	6
E-10E-111-016	1819	Large Terminal	2	8
RRE026274	1828	LED, 16A Terminal	2	9



RRE007040	1861	1A Fuse	24	15
RRE007041	1862	2A Fuse	24	12
RRE007043	1863	5A Fuse	24	16
RRE007044	1865	10A Fuse	24	10
210E002601	1873	1.25" 15A Fuse	24	8
RRE019517	2006	PLC Computer	2	6
RRE026181	2024	Galvanic Separation Unit	2	7
E544055A14	2301	FT-55 Main Module	2	30
ZE544055A10022302		32DI Internal Module	2	27
ZE544055A20022303		16DO Internal Module	2	27
ZE544055A30022305		6FI Internal Module	2	19
ZE544055A40022306		12AO Internal Module	2	26
ZE544055A50022307		16AI Internal Module	2	26
ZE544055A52022308		12RTD Internal Module	2	26
ZE544055A54022309		16TC Internal Module	2	26
ZE544055A19012310		26C Cable	2	13
ZE544055A19010313		40C Cable	2	13
ZE544055A19012314		40C Cable	2	13
ZE544001A54120316		Cold Junction Module	2	20
210E172910	2351	Comms Module	2	8
E-10E-001-030	3301	PLC Computer	2	33
RRE019515	3405	PLC Computer	2	6
RRE019516	3406	PLC Computer	2	5
G513-067C.B03	3410	Component Carrier	2	24

#### **Trent Engine**

L913635		Valve - HP3 Bleed Air	2	20
AGS3707		Insert - LPC Boroscope Plate	4	17
AGS3731		Insert - IPC Boroscope Cover	4	17

AS12943		Washer - Turb. Gas Temp (TGT) Thermocouple	72	17
AS43003-912	L9 - L12 inc	Debris Housing "O" Sea	10	17
AS43013-015		Seal - O-Ring, Chip Det	10	17
AS48538		Bolt - HP3 Bleed Air Valve	48	17
AS60209		Bolt - Intermediate Comp Boroscope Plug	4	17
BLT5509		Bolt - (Boroscope Cover)	4	17
BLT5527		Bolt - IPT Boroscope Plug	4	17
FK25134		Plug - IPT Boroscope Plug	2	17
FK25178		Plug - Intermediate Comp Boroscope	2	17
FK25179		Cover - Boroscope IPC	2	17
TRN17116		BOV - IP8	2	24
LYB1440		Clamp - V-Band, IP/LP TP, 2"	2	23
M83248-1-910		O-Ring - Seal, QDM	10	17
TRN100728		Injector - D/F WLE	46	60
TRN100729		Injector - D/F WLE	6	60
TRN100809		Hose - Diesel, WLE	48	32
TRN11787		Seal - P30 Transducer	6	23
TRN11969		Transducer - Vibration, Front & Centre	4	32
TRN12204		Transducer - Vibration Rear	2	29
TRN12690		Kit - Igniter Lead (4x18ft & 4x24ft Tagged)	2	16
TRN12702		Valve - LP & VIGV Servo	2	30
TRN13851		Actuator - LP Bleed Valve	4	24
TRN13924		Probe - Thermocouple-T44 IP Turb	2	38
TRN14179		Probe - Thermocouple-T25 IP Comp	2	22
TRN14521		Actuator - LP Bleed Valve	4	34
TRN14574		Plug - Boroscope LPT NGV	2	20
TRN14575		Plug - Boroscope LPT NGV	2	24
TRN14800		Probe - Inlet Temp, LP Comp T20	2	17
TRN14880		Probe - IP8 T/C	2	23
TRN15141		Transducer - P30 Pressure, HP Comp	2	17
TRN15142		Transducer - P30 Press Conditioner	4	24
TRN15154		Transducer - CP103 Noise Probe	2	25
TRN15742		Probe - RTD	2	34
TRN15848		Hose - VIGV Retract	2	34
TRN15849		Hose - VIGV Retract	4	34
TRN15850		Hose - VIGV Extend	2	21
TRN15851		Hose - VIGV Extend	4	34
TRN16214		Plug, Igniter - WLE	8	22
TRN17301		Thermocouple - Turb. Gas Temp (TGT)	2	32
TRN17302		Thermocouple - Turb. Gas Temp (TGT)	2	32
TRN17303		Thermocouple - Turb. Gas Temp (TGT)	2	32

TRN17304	Thermocouple - Turb. Gas Temp (TGT)	2	32
TRN17305	Thermocouple - Turb. Gas Temp (TGT)	2	32
TRN17306	Thermocouple - Turb. Gas Temp (TGT)	2	32
TRN17307	Thermocouple - Turb. Gas Temp (TGT)	2	32
TRN17308	Thermocouple - Turb. Gas Temp (TGT)	2	32
TRN17309	Thermocouple - Turb. Gas Temp (TGT)	2	32
TRN17349	"C" Seal - Igniter Seal	32	25
TRN17349	"C" Seal - Central Plu	16	25
TRN17440	Igniter Module	4	29
TRN17444	Probe - Thermocouple-T42 IP Turb	2	30

#### Generator Fin Fan Cooler

RRE028809	1451-INS-0038	Discharge Pressure transmitter	2	6
RRE028814	1451-INS-0039	Temperature transmitter	2	6
RRE028859	2315-1018	Vibration Cut Off Switch	2	6
RRE028860	14155-001-BELT	Drive belts dodge or Equiv	6	6

Total (USD) 5,035,261.30