GULF STATES UTILITIES COMPANY

RIVER BEND STATION POST OFFICE BOX 220 ST. FRANCISVILLE, LOUISIANA 70775

AREA CODE 504 635-6094 346-8651

May [illegible], 1985
RBG- 20,891
File Code G9.5

Mr. Harold R. Denton, Director
Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

River Bend Station-Unit 1
Docket No. 50-458

Enclosed for your review is the Gulf States Utilities Company (GSU) Total Inspection Report (Attachment 1) and Owners Group Modification Report (Attachment 2) for the River Bend Station (RBS) Transamerica Delaval, Inc. (TDI) Standby Diesel Generators. The Total Inspection Report lists each diesel generator part by component number as identified in the Design Review and Quality Revalidation (DR/QR) Report through Revision 1 (see the letter from J. C. Deddens (GSU) to H. R. Denton (NRC) dated March 7, 1985 with a GSU Letter No. RBG-20351). The governing work document, remaining scope of work, scheduled completion date and status as of April 26, 1985 are also provided. Finally, the type of inspection being performed is indicated with PTI standing for post-test inspection and INS standing for the TDI Owners Group Inspections. Notes are provided at the end of Attachment 1 to clarify points made in the Total Inspection Report.

Attachment 2 contains the Owners Group Modification Report which when cross-referenced by component number to the DR/QR Report, Revision 1 provides a discussion, schedule and status (through April 26, 1985) of each modification recommended by the TDI Owners Group. Notes are provided at the end of Attachment 2 to clarify points made in the Owners Group Modification Report.

Sincerely,

J. E. Booker

J. E. Booker
Manager-Engineering,
Nuclear Fuels & Licensing
River Bend Nuclear Group

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JEB/WJR/JWL/amg
Attachments (2)

RIVER BEND STIE
TRANSAMERICA DELAVAL DIESEL GENERATOR
TOTAL INSPECTION REPORT
APRIL 22 1985

COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
E-968	Intercooler	M5000290	Visual for leakage and security	PTI-A&B	Fuel Load	Complete
		C-27188		PTI-A&B		
		M5000296	Retorque bolts	PTI-A&B	Fuel Load	Complete
MP-020	Turbocharger	M4000592	VI thrust bearings	INS-A&B	Fuel Load	Open
		RCFM59384		INS-A&B		
		RCFM708		INS-A&B		
		C-27325	VI core plugs according to SIM 300	INS-A&B	Fuel Load	Open
			Perform LP test on weld of nuts	INS-A&B	Fuel Load	Open
MP-020	Turbocharger	C-27188	LP stationary nozzle ring for cracks	PTI-A&B	Fuel Load	Open
			VI stationary nozzle ring for missing	PTI-A&B	Fuel Load	Open
			blades	PTI-A&B		
			Measure axial thrust clearance	PTI-A&B	Fuel Load	Open
		C-27188	VI thrust bearings	PTI-A&B	Fuel Load	Open
			Turbocharger lube oil pressure readings	PTI-A&B	Fuel Load	Open
			during engine run at 100%.	PTI-A&B		
			Bolt torque verification per SIM 300	PTI-A&B	Fuel Load	Open
			Oil analysis (See 93-829A)	PTI-A	Fuel Load	Open
			Oil analysis (See 93-829B)	PTI-B	Fuel Load	Complete
00-491	Air Inlet Adapter	M5000275	Visual for security	PTI-A&B	Fuel Load	Complete
		C-27188		PTI-A&B		

ATTACHMENT 1

RIVER GLEN SITE
TRANSAMERICA DELAVAL DIESEL GENERATOR
TOTAL INSPECTION REPORT
APRIL 22 1985

COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
90-405	Exhaust Outlet Adapter	M5000276	Visual for security	PTI-A&E	Fuel Load	Complete
		C-27188		PTI-A&E		
03-305ACD	Main Bearing Caps	C-27237	VT of #5 main bearing cap mating surface	INS-E	Fuel Load	Complete
		M5000150	for evidence of fretting	INS-E		
		RCFM50416	Verify preload bearing cap & stud nuts	INS-A	Fuel Load	Complete
		RCFM50433	torque	INS-A		
		RCFM50443	Verify preload bearing cap & stud nuts	INS-E	Fuel Load	Complete
			torque	INS-E		
03-305ACD	Main Bearing Caps	M5000236	VT of outside bearing caps for absence	PTI-A&E	Fuel Load	Complete
			of discoloration. Inspect 7 of 7.	PTI-A&E		
		M5000236	VT of cotter pin security at nuts (100%	PTI-A&E	Fuel Load	Complete
			of bearing caps between connect rods)	PTI-A&E		
		C-27188	Main bearing caps temperature with heat	PTI-A&E	5% Power	Open
			gun. (Inspect mains between connecting	PTI-A&E		
			rod bearings). Inspect 7 of 7	PTI-A&E		
		RRL20208	Oil analysis (See 03-820A)	PTI-E	Fuel Load	Complete
			Oil analysis (See 03-820A)	PTI-A	Fuel Load	
03-305E	Main Bearing Bolting	C-27325	Dimensional verification of uniform	INS-A&E	First Outage	Open
			washer thickness on accessible washer	INS-A&E		
			(P/O 03-305-02-AQ)	INS-A&E		

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TRANSAMERICA DELAVAL DIESEL GENERATOR
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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
03-307A	Lube Oil Fittings - Internal	M5000237	VI accessible internal lube oil fittings	PII-A&B	Fuel Load	Complete
03-310A	Crankshaft	M4000876	VI crankpin journal surfaces	INS-A&B	Fuel Load	Complete
		M4000841		INS-A&B		
03-310A	Crankshaft	M&P 3317	Crankshaft web deflection - After 8 hrs.	PII-A&B	Fuel Load	Open
			@ 3159 kw	PII-A&B		
		C-27188	Dimensional check of crankshaft thrust	PII-A&B	Fuel Load	Open
			bearing clearance. Use feeler gages &	PII-A&B		
			dial indicators.	PII-A&B		
03-310B	Main Bearings	RBG20708	Perform oil analysis (See 03-829A)	INS-B	Fuel Load	Complete
			Perform oil analysis (See 03-829A)	INS-A	Fuel Load	Open
03-310B	Main Bearings		Dimensional check of bearing shells	INS-A&B	Fuel Load	Complete
				INS-A&B	See Note 1	
03-315A	Cylinder Block	M4000841	Dimensional check on cylinder liners	INS-B	Fuel Load	Complete
			area	INS-B		
		M4000823	Liquid penetrant test on cylinder block	INS-B	Fuel Load	Complete
			liner landings	INS-B		
03-315A	Cylinder Block		Visual for normal wear of liners	PII-A&B	Fuel Load	Open
		M5000315	Visual for cleanliness, water leakage	PII-A&B	Fuel Load	Complete
			in area of block-top	PII-A&B		

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TRANSAMERICA DELAVAL DIESEL GENERATOR
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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
E-068	Intercooler	M5000290	Visual for leakage and security	PTI-A&B	Fuel Load	Complete
		C-27188		PTI-A&B		
		M5000296	Retorque bolts	PTI-A&B	Fuel Load	Complete
MF-020	Turbocharger	M4000592	VI thrust bearings	INS-A&B	Fuel Load	Open
		RCFM59384		INS-A&B		
		RCFM708		INS-A&B		
		C-27325	VI core plugs according to SIm 300	INS-A&B	Fuel Load	Open
			Perform LP test on weld of nuts	INS-A&B	Fuel Load	Open
MF-020	Turbocharger	C-27188	LP stationary nozzle ring for cracks	PTI-A&B	Fuel Load	Open
			VI stationary nozzle ring for missing blades	PTI-A&B	Fuel Load	Open
				PTI-A&B		
			Measure axial thrust clearance	PTI-A&B	Fuel Load	Open
		C-27188	VI thrust bearings	PTI-A&B	Fuel Load	Open
			Turbocharger lube oil pressure readings during engine run at 100%	PTI-A&B	Fuel Load	Open
				PTI-A&B		
			Bolt torque verification per SIM 300	PTI-A&B	Fuel Load	Open
			Oil analysis (See 83-820A)	PTI-A	Fuel Load	Open
			Oil analysis (See 83-820A)	PTI-B	Fuel Load	Complete
00-491	Air Inlet Adapter	M5000275	Visual for security	PTI-A&B	Fuel Load	Complete
		C-27188		PTI-A&B		

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ATTACHMENT 1

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TRANSAMERICA DELAVAL DIESEL GENERATOR
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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK ENGINE	SCHEDULE COMPLETION DATE	STATUS
06-305	Exhaust Outlet Adapter	M5900276	Visual for security	PTI-A&E	Fuel Load	Complete
		C-27188		PTI-A&E		
03-305ACD	Main Bearing Caps	C-27237	VT of #5 main bearing cap mating surface	INS-E	Fuel Load	Complete
		M5900150	for evidence of fretting	INS-E		
		RCFM50416	Verify preload bearing cap & stud nuts	INS-A	Fuel Load	Complete
		RCFM50433	torque	INS-A		
		RCFM50443	Verify preload bearing cap & stud nuts	INS-B	Fuel Load	Complete
			torque	INS-B		
03-305ACD	Main Bearing Caps	M5900236	VT of outside bearing caps for absence	PTI-A&E	Fuel Load	Complete
			of discoloration. Inspect 2 of 2	PTI-A&E		
		M5900236	VT of cotter pin security of nuts (100%	PTI-A&E	Fuel Load	Complete
			of bearing caps between connect rods)	PTI-A&E		
		C-27188	Main bearing caps temperature with heat	PTI-A&E	5% Power	Open
			gun. (Inspect mains between connecting	PTI-A&E		
			rod bearings). Inspect 2 of 2	PTI-A&E		
		RRL20208	Oil analysis (See 03-820A)	PTI-E	Fuel Load	Complete
			Oil analysis (See 03-820A)	PTI-A	Fuel Load	
03-305E	Main Bearing Bolting	C-27325	Dimensional verification of uniform	INS-A&E	First Outage	Open
			washer thickness on accessible washer	INS-A&E		
			(P/O 03-305-02-AQ)	INS-A&E		

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TRANSAMERICA DELAVAL DIESEL GENERATOR
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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
03-307A	Lube Oil Fittings - Internal	M5000237	VI accessible internal lube oil fittings	PTI-A&B	Fuel Load	Complete
03-310A	Crankshaft	M4000878	VI crankpin journal surfaces	INS-A&B	Fuel Load	Complete
		M4000841		INS-A&B		
03-310A	Crankshaft	MSP 3317	Crankshaft web deflection - After 8 hrs @ 3139 kw	PTI-A&B	Fuel Load	Open
				PTI-A&B		
		C-27188	Dimensional check of crankshaft thrust bearing clearance. Use feeler gages & dial indicators.	PTI-A&B	Fuel Load	Open
				PTI-A&B		
				PTI-A&B		
03-310B	Main Bearings	EB620708	Perform oil analysis (See 03-929A)	INS-B	Fuel Load	Complete
			Perform oil analysis (See 03-929A)	INS-A	Fuel Load	Open
03-310B	Main Bearings		Dimensional check of bearing shells	INS-A&B	Fuel Load	Complete
				INS-A&B	See Note 1	
03-315A	Cylinder Block	M4000841	Dimensional check on cylinder liners area	INS-B	Fuel Load	Complete
				INS-B		
		M4000823	Liquid penetrant test on cylinder block liner landings	INS-B	Fuel Load	Complete
				INS-B		
03-315A	Cylinder Block		Visual for normal wear of liners	PTI-A&B	Fuel Load	Open
		M5000315	Visual for cleanliness, water leakage in area of block-top	PTI-A&B	Fuel Load	Complete
				PTI-A&B		

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	Status
03-3150	Cylinder Liner	M5000343	Material comparitor test on liner	INS-E	Fuel Load	Complete
		M4000857	Verify liner dimensions	INS-A&B	Fuel Load	Complete
		M4000885	VT liners over zone of piston travel	INS-A&B	Fuel Load	Complete
		M4000490	VT liners outside pilot diameters	INS-A&B	Fuel Load	Complete
03-3150	Cylinder Liner	C-27188	Visual for normal wear of liners. Use	FTI-A&B	Fuel Load	Open
			Boroscope for combustion chamber	FTI-A&B		
			inspection. Use side doors for	FTI-A&B		
			lower liner inspection. (Take photos)	FTI-A&B		
03-3158	Jacket Water Manifold (LB)	C-27237	Flange bolting to be (Grade 5) or better	INS-A&B	Fuel Load	Complete
		M5000182		INS-A&B		
		C-27237	Torque verification	INS-A&B	Fuel Load	Complete
		M5000182		INS-A&B		
03-315E	Cylinder Block Studs	M4000834	VT head studs for stress	INS-B	Fuel Load	Complete
		M4000856	Verify head studs torque	INS-B	Fuel Load	Complete
03-315F	Cylinder Head Nuts	M4000835	VT head nuts for ID marks & forging mark	INS-B	Fuel Load	Complete
		M4000963	Verify head nuts proper installation	INS-B	Fuel Load	Complete
			& torque	INS-B		
03-3156	Cylinder Liner Seals	C-27210	Verify proper cylinder liner "O" ring	INS-A&B	Fuel Load	Complete
		M5000191	seals were installed	INS-A&B		

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK ENGINE	SCHEDULE COMPLETION DATE	STATUS
03-317A&B	Jacket Water Discharge (LB)		Visual for security and leak tightness	PII-A&B	5% Power	Complete
		C-27237	Verify bolt material	INS-A&B	Fuel Load	Complete
		M5000183		INS-A&B		
		C-27237	Verify bolt torque	INS-A&B	Fuel Load	Complete
		M5000186		INS-A&B		
03-330E	Flywheel Bolting	C-27325	Verify IPI Installation Procedures were	INS-A&B	Fuel Load	Complete
		M3000453-B	used at engine assembly & precautions	INS-A&B		
		M3000209	were used to keep flywheel, generator,	INS-A&B		
		(A&B)	shaft, & crankshaft flanges dry &	INS-A&B		
		M3000462-A	clean of lubricants during assembly	INS-A&B		
		M5000367	Verify cotter pin security	INS-A&B	5% Power	Complete
03-330E	Flywheel Bolting		Verify installation bolt torque	INS-A&B	Fuel Load	Complete
03-331A	Flywheel Guard	C-27188	VI of flywheel guard for security	PII-A&B	Fuel Load	Complete
03-332A	Gear Case	C-27188	VI of gear case for security	PII-A&B	Fuel Load	Complete
		C-27188	Verify bolt torques	PII-A&B	Fuel Load	Complete
		M5000291		PII-A&B		
03-340A	Connecting Rods	C-27188	Visual, for normal wear and absence of	PII-A&B	Fuel Load	Complete
		M5000238	discoloration 8 of 8	PII-A&B		
		M4000423		PII-A&B		

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COMPONENT DRAWG	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
		RB620708	Oil analysis (See 03-820A)	PTI-B	Fuel Load	Complete
			Oil analysis (See 03-820A)	PTI-A	Fuel Load	Open
			Connecting rod cap temperature with heat	PTI-A&B	Fuel Load	Open
			gun 8 of 8 (during web deflection ck)	PTI-A&B		
		RCFM503.7	Verify connecting rod bolt torques	INS-A	Fuel Load	Complete
		RCFM50433	Verify connecting rod bolt torques	INS-B	Fuel Load	Complete
03-340B	Con Rod Bearing Shells		X-ray replacement bearing shells (spare)	INS-A&B	First Outage	Open
03-341A	Pistons		Perform visual inspection of piston	INS-B	Fuel Load	Complete
			crown outside diameter for scuffing	INS-B	See Note 2	
			and the combustion bowl in the crown	INS-B		
			for pitting	INS-B		
03-341A	Pistons	C-27188	VI piston for normal wear from crankcase	PTI-A&B	Fuel Load	Complete
			Borescope inspection of piston crown	PTI-A&B	Fuel Load	Open
			and combustion chamber	PTI-A&B		
		RB620708	Oil analysis (See 03-820A)	PTI-B	Fuel Load	Complete
			Oil analysis (See 03-820A)	PTI-A	Fuel Load	Open
03-341B	Piston Rings	M4000595	Piston rings installed in compliance	INS-A	Fuel Load	Complete
			with TDI assembly requirements	INS-A		
		M4000595	Piston rings inspection for wear	INS-A	Fuel Load	Complete
			verified	INS-A		

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMARKS SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
		M4000595	Verify new Muskegon piston rings	INS-A	Fuel Load	Complete
			VT piston ring for wear	INS-B	Fuel Load	Complete
				INS-B	See Note 3	
			VT piston rings for carbon buildup	INS-B	Fuel Load	Complete
				INS-B	See Note 3	
03-341C	Piston Pin Assembly	M4000892	Wrist pins 100% LP tested before	INS-A&	Fuel Load	Complete
		M4000557	installation into engines	INS-A&B		
		M4000556		INS-A&B		
		M4000400		INS-A&B		
03-341C	Piston Pin Assembly	M5000335	Perform material comparator and hardness	INS-A&B	Fuel Load	Complete
			test on one satisfactorily inspected	INS-A&B		
			wrist pin and one rejectable wrist pin	INS-A&B		
			Comparitor sample to be AISI-8630	INS-A&B		
		M4000896	Diamensional check on one spare wrist	INS-A&B	Fuel Load	Complete
		M5000335	pin	INS-A&B		
03-345A	Tappets and Guides	M5000265	VT of tappet roller for security and	PTI-A&B	Fuel Load	Complete
			normal wear	PTI-A&B		
		M5000265	Check for excessive valve leak during	PTI-A&B	Fuel Load	Complete
			engine barring	PTI-A&B		
		M5000265	Check tappet roller clearances by using	PTI-A&B	Fuel Load	Complete

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	DETAILING SCOPE OF WORK	TYPE WORK ENGINE	SCHEDULE COMPLETION DATE	STATUS
			bump test	PII-A&B		
03-350A	Camshaft Assembly	M4000870	Inspect cam lobes before and after	INS-B	Fuel Load	Complete
		M4001017	engine 1B performance run	INS-B		
03-350A	Camshaft Assembly	M4000449	Determine the material of the cam lobes	INS-A&B	Fuel Load	Complete
		M4000822	by use of a comparitor.	INS-A&B	See Note 4	
			Perform a hardness test on the cam lobes	INS-B	Fuel Load	Complete
			on engine 1B.	INS-B	See Note 4	
03-350A	Camshaft Assembly	C-27188	Where accessible, VI camshaft gallery	PII-A&B	Fuel Load	Complete
		M5000297	for cracks.	PII-A&B		
		M5000297	Verify valve timing by assembling	PII-A&B	Fuel Load	Complete
			Pyrometer data and comparing to	PII-A&B		
			adjacent cylinders.	PII-A&B		
03-350C	Camshaft Support & Gear	M4000819	VI cam gear for signs of wear	INS-A	Fuel Load	Complete
		M4001022	VI cam gear for signs of wear	INS-B	Fuel Load	Complete
03-355C	Camshaft - Supports & Gear	M4000819	Verify support bolts are secured & lock	INS-A	Fuel Load	Complete
		M5000330	tabs are in place	INS-A	See Note 5	
		M4000872	Verify support bolts are secured and	INS-B	Fuel Load	Complete
		M5000330	lock tabs are in place	INS-B	See Note 5	
		M4001019	VI crank to pump gear	INS-A&B	Fuel Load	Complete
		M4001019	VI of crank to pump gear (take photos)	INS-B	Fuel Load	Complete
03-355A	Crank to Pump Gear		Hardness test deleted. Ref. Owners Group	INS-A&B	Fuel Load	Complete

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
			Revision 1 Report	INS-A&B		
03-355A	Crank to Pump Gear	C-27188	Where accessible, VT crank to pump gear	PTI-A&B	Fuel Load	Complete
		M5000339	for normal wear & security. Take photo	PTI-A&B		
03-355B	Idler Gear	M4000948	VT idler gear test engine 1A	INS-A	Fuel Load	Open
		M4001019	VT idler gear test engine 1B	INS-B	Fuel Load	Complete
		M4000871		INS-B		
			Material and hardness test of gear	INS-A&B	Fuel Load	Open
C3-359	A Start Valves	N&D 2616	Verify copper gaskets	INS-A&B	Fuel Load	Complete
		N&D 2616	Verify proper capscrews & torque	INS-A&B	Fuel Load	Complete
		M4000953	Engine 1A hot torque per SIM 360	INS-A	Fuel Load	Complete
		M4000954	Engine 1B initial torque	INS-B	Fuel Load	Complete
		M4000954	Engine 1B diamensional check	INS-B	Fuel Load	Complete
		M4000954	Engine 1B locking pins check	INS-B	Fuel Load	Complete
03-359	Air Start Valves	C-27237	Perform a visual inspection to verify	INS-A&B	Fuel Load	Complete
			no carbon deposits exist on valve	INS-A&B	See Note 5	
			intervals, use differential	INS-A&B		
			temperature measurements	INS-A&B		
		C-27237	Perform a material comparitor test on	INS-A&B	Fuel Load	Complete
		M5000356	the bolt-down capscrews	INS-A&B		
		C-27237	Perform a visual inspection on the air	INS-A&B	Fuel Load	Complete
			start valve for wear and corrosion.	INS-A&B	See Note 5	

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
			Use differential temp. measurements.	INS-A&B		
		C-27237	Hot torque verification of hold down	INS-A&B	Fuel Load	Complete
		M5000356	capscrews per SIM 369	INS-A&B		
03-359	Air Start Valves	C-27188	Borescope VI inspect. of air start vlvs.	PII-A&B	Fuel Load	Open
			from combustion chamber for security.	PII-A&B		
		C-27188	VI air start supply filter for foreign	PII-A&B	Fuel Load	Complete
		M5000266	contaminants.	PII-A&B		
03-360A	Cylinder Heads	C-27188	Borescope inspection of combustion	PII-A&B	Fuel Load	Open
			chamber and valves. Take photos	PII-A&B		
		M5000338	Inspect gaskets for leak tightness	PII-A&B	Fuel Load	Complete
			during engine run	PII-A&B		
		M5000338	Bar engine with cylinder cocks open	PII-A&B	Fuel Load	Complete
			for leakage	PII-A&B		
03-360B	Cylinder Head Valves	C-27237	VI of valve and valve rine for	INS-B	Fuel Load	Complete
		M4000502	scuffing and erosion. Valves were	INS-B		
		M4000916	all blue-checked into valve seats.	INS-B		
		M4000923		INS-B		
		M5000324		INS-B		
		C-27237	Remove subcover bonnet and inspect	INS-A	Fuel Load	Complete
		M5000185	internal for soot blowby	INS-A		
		M4000483		INS-A		

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
		M5000203	Remove subcover bonnet and inspect	INS-B	Fuel Load	Complete
			internals for soot blowby	INS-B		
03-360C	Cylinder Head-Bolts & Gaskets	M4000962	Verify proper gaskets installed	INS-B	Fuel Load	Complete
		M4001021	VT engine block to head mating surface	INS-B	Fuel Load	Complete
			during run to determine if any gasket	INS-B		
			leaks	INS-B		
03-362A	Subcovers		Perform a liquid penetrant test of the	INS-B	First Outage	Open
			subcovers on the machined surfaces of	INS-B	See Note 7	
			rocker shaft assembly bolt boss	INS-B		
			pedestal for evidence of linear	INS-B		
			indications. Repeat at five-year	INS-B		
			intervals (B)	INS-B		
		M4000629	VT engine subcovers	INS-B	Fuel Load	Complete
		M4000415	VT and LP engine subcovers	INS-A	Fuel Load	Complete
03-365B	Fuel Injection Tips	C-27188	Visual on tips for normal firing,	PTI-A&B	5% Power	Open
			roundness	PTI-A&B		
03-365C	Fuel Injection Tubes	C-27325	VT of fuel injection equipment for	INS-A&B	Fuel Load	Complete
		M5000332	leaks during operation. Check outside	INS-A&B		
			of shrouds during/after operation	INS-A&B		

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
			All high pressure fuel lines examined by	INS-A&B	Fuel Load	Open
			Eddy Current on both ends of the tube	INS-A&B	See Note 8	
			Autofrettaged fuel oil lines installed	INS-A&B	Fuel Load	Open
03-371A	Fuel Pump Linkage	M4000996	Verify fuel pump linkage is free to	INS-B	Fuel Load	Complete
			move & proper lubrication used in	INS-B		
			each bearing cup prior to operation	INS-B		
03-371B	Fuel Pump Linkage	C-27188	Visual for security and free movement	PTI-A&B	Fuel Load	Complete
		M5000267		PTI-A&B		
		M4000443		PTI-A&B		
03-375	Intake Manifold	M4000949	VT intake manifold elbow flanges	INS-B	Fuel Load	Complete
		RCF-M-440	Verify bolt torque on bottom rectangular	INS-A&B	Fuel Load	Complete
			flange of the intercooler	INS-A&B		
03-375	Intake Manifold	C-27188	Verify bolt torque	PTI-A&B	Fuel Load	Complete
		M5000292		PTI-A&B		
		M5000292	VT of intake manifold elbows for corner	PTI-A&B	Fuel Load	Complete
			cracks. (8 of 8)	INS-A&B		
		M5000292	VT of intake manifold for leaks during	PTI-A&B	Fuel Load	Complete
			engine run	PTI-A&B		
03-380A	Exhaust Manifold	C-27188	VT of exhaust manifold for leaks and	PTI-A&B	Fuel Load	Complete

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		M5000298	security during engine run	PTI-A&B		
03-330E	Exhaust Manifold Gasket/Bolt	M4001092	Verify exhaust pipe flange capscrews	INS-A&B	Fuel Load	Complete
			torque	INS-A&B		
		M4001092	Verify no binding on exhaust manifold	INS-B	Fuel Load	Complete
			& proper gasket & bolting installed	INS-B		
		N&B7399	Perform dimensional check of capscrews	INS-A&B	Fuel Load	Complete
		M4001092	VT manifold flange fillets	INS-B	Fuel Load	Complete
03-385E	Block Cover Gaskets and Bolts	C-27188	Verify bolt torque	PTI-A&B	Fuel Load	Complete
		M5000278		PTI-A&B		
03-385B	Block Cover Gaskets and Bolts	M4001037	Verify proper bolting & torque applied	INS-A	Fuel Load	Complete
		M4001037	VT block cover gaskets for deterioration	INS-A	Fuel Load	Complete
03-387A	Crankcase Ventilator	C-27188	VT outside case for oil buildup and	PTI-A&B	Fuel Load	Complete
		M5000268	security	PTI-A&B		
03-390A	Rocker Arms and Pushrods	C-27188	Visual for normal wear	PTI-A&B	Fuel Load	Complete
		M5000269		PTI-A&B		
		M5000269	Verify valve lash and clearances	PTI-A&B	Fuel Load	Complete
			Verify lubrication (use pre-lube pump)	PTI-A&B	Fuel Load	Open

COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
03-3908AB	Pushrods		Perform a liquid penetrant test or a	INS-A&B	Fuel Load	Complete
			visual inspection of the friction	INS-A&B	See Note 9	
			welded main and intermediate connector	INS-A&B		
			pushrods. No surface cracks allowed	INS-A&B		
		M4000428	Verify friction welded pushrods are	INS-A	Fuel Load	Complete
		M4000427	installed	INS-A		
		M4000959	Verify friction welded pushrods are	INS-B	Fuel Load	Complete
		M4000960	installed	INS-B		
			Spare pushrods to specify destructive	INS-A&B	Commercial	Open
			verification of weld quality	INS-A&B		
04-3906	Rocker Arm Bolting	M4000958	Verify engine 18 rocker arm capscrew	INS-B	Fuel Load	Complete
			torques	INS-B		
03-4628	Governor Drive		Material comparator of governor drive	INS-A	Fuel Load	Open
			gear and governor driven gear	INS-A		
			Material to be AISI 4142	INS-A		
			LP of govern drive	INS-A&B	Fuel Load	Complete
			a. Gear/shift contact surface	INS-A&B	See Note 10	
			b. Gear vent and bore	INS-A&B		
			c. Vertical shaft/gear keyway	INS-A&B		
			d. Reduced shaft diameter at coupling	INS-A&B		

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
03-402B	Governor Drive Coupling	C-27188	VT security of governor drive coupling	FTI-A&B	Fuel Load	Open
		M4001018	VT coupling on engine 1B	INS-B	Fuel Load	Complete
		M4001013	Verify set screw & drive pin properly	INS-B	Fuel Load	Complete
			installed on engine 1B	INS-B		
03-410A	Overspeed Trip Governor		Verify proper installation & calibration	INS-A&B	Fuel Load	Complete
			of overspeed trip in accordance "The	INS-A&B	See Note 11	
			Installation and Oil Supply Topic of	INS-A&B		
			Woodward Documentation"	INS-A&B		
		M4000985	Overspeed trip governor inspected & test	INS-B	Fuel Load	Complete
			by Woodward governor vendor engine 1B	INS-B		
		M5000331	After setting overspeed governor, the	INS-A&B	Fuel Load	Complete
			adjustment screw position should be	INS-A&B		
			marked with torque seal	INS-A&B		
03-410A	Overspeed Trip Governor	C-27188	VT security of governor drive coupling	FTI-A&B	Fuel Load	Complete
		M5000342		FTI-A&B		
03-410B	Overspeed Trip Drive	M5000329	Material comparitor test of gear	INS-A	Fuel Load	Complete
		M4000866	Shaft/bearing clearances Sat. in	INS-A	Fuel Load	Complete
			accordance with TDI manual	INS-A		
		M4000884	Shaft/bearing clearances Sat. in	INS-B	Fuel Load	Complete
			accordance with TDI manual	INS-B		
		M4000866	VT gear for wear, spalling cracks	INS-A	Fuel Load	Complete

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK REQUIRED	SCHEDULE COMPLETION DATE	STATUS
03-410C	Overspeed Trip Couplings	M4000867	VI couplings for deterioration	INS-A	Fuel Load	Complete
		M4000883	VI couplings for deterioration	INS-B	Fuel Load	Complete
03-415	Governor Linkage	M4000726	VI of governor linkage for signs of distress	INS-A INS-A	Fuel Load	Complete
		M4000986	VI of governor linkage for signs of distress	INS-B INS-B	Fuel Load	Complete
03-415	Governor Linkage	C-27188	VI governor linkage for security and free movement	PTI-A&B PTI-A&B	Fuel Load	Complete
03-415A	Woodward Governor		Review site instruction to ensure detail and clarity exists in order to properly set governor	INS-A&B INS-A&B INS-A&B INS-A&B	Fuel Load	Open
03-415B	Governor Boost cylinder	C-27237	Booster servomotor is mounted lower than governor	INS-A&B INS-A&B INS-A&B	Fuel Load	Complete
		M5000183	Inlet booster line is 3/8 inch and outlet booster line is at least 1/4 inch	INS-A&B INS-A&B INS-A&B	Fuel Load	Complete
		M5000183	Oil line should slope upward from the booster to the governor and should have minimum number of loops or bends	INS-A&B INS-A&B INS-A&B	Fuel Load	Complete

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
03-429A	Lube Oil Pump-Engine Driven	C-27188	Verify pump performance	PII-A&B	Fuel Load	Complete
		M5000304		PII-A&B		
03-425A	Engine-Driven Water Pump	C-27215	Pump shaft hardness	IHS-A	Fuel Load	Open
			Pump shaft material	IHS-A		
			VI pump shaft photograph	IHS-A		
			VI pump gears photograph	IHS-A		
			LE gear teeth and transition area	IHS-A		
			VI wear ring	IHS-A		
03-425A	Engine-Driven Water Pump		Verify new pump performance	PII-A&B	Fuel Load	Open
03-435A	Jacket Water Fittings	C-27188	VI jacket water fittings for security	PII-A&B	Fuel Load	Open
			and leaks	PII-A&B		
03-437A	Turbo Water Fittings	C-27188	VI water fittings for security & leaks	PII-A&B	Fuel Load	Complete
		M5000310		PII-A&B		
03-441A	Starting Air Lines	C-27188	VI starting air lines security & leaks	PII-A&B	Fuel Load	Complete
		M5000309		PII-A&B		
		M5000266	Air supply filter cleanliness	PII-A&B	Fuel Load	Complete
			(See 93-359)	PII-A&B		
03-441ALE	Start Air Manifold (LE)	C-27237	Bolting is to be (Grade 5) or better	IHS-A&B	Fuel Load	Complete

COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
		M5000187	on flanges	INS-A&B		
		M5000187	torque verification	INS-A&B	Fuel Load	Complete
03-442A	Start Air Distributor		Verify the proper timing of the air	INS-A&B	Fuel Load	Open
			start distributor as described in the	INS-A&B	See Note 12	
			TDI manual	INS-A&B		
			After verifying the correct timing of	INS-A&B	Fuel Load	Complete
			each starting air distributor, the	INS-A&B	See Note 12	
			evaluation of wear on the cam and	INS-A&B		
			valve contacts should be performed as	INS-A&B		
			follows:	INS-A&B		
			a. Remove the distributor from engine	INS-A&B		
			b. Visually inspect the wear marks on	INS-A&B		
			the cam lobes. Note the position	INS-A&B		
			and orientation of the lube oil jet	INS-A&B		
			Oil flow from the jet should cover	INS-A&B		
			the wear mark region on the cam	INS-A&B		
			lobe.	INS-A&B		
			c. Visually inspect the wear marks on	INS-A&B		
			the end of each valve spool where	INS-A&B		
			it slides on the cam. Measure the	INS-A&B		
			average diameter of the "flat" worn	INS-A&B		
			area on the end of each spool to	INS-A&B		

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			the nearest 1/64 inch. If the	INS-A&B		
			largest of these measurements is	INS-A&B		
			more than 1.5 times the smallest,	INS-A&B		
			an engineering evaluation of the	INS-A&B		
			observed wear should be performed	INS-A&B		
			and a superficial hardness measure-	INS-A&B		
			ment should be made on the end	INS-A&B		
			"wear flat" of each valve spool.	INS-A&B		
			If the hardness of any spool end is	INS-A&B		
			significantly below 50 Rc, it	INS-A&B		
			should be replaced.	INS-A&B		
			Verify the installation of the follower	INS-A&B	Fuel Load	Complete
			tube on the camshaft (1 engine only)	INS-A&B	See Note 12	
03-442A	Start Air Distributor	C-27188	VI security & leaks during air roll	PTI-A&B	Fuel Load	Complete
		M5000271		PTI-A&B		
03-445A	Fuel Booster Pump	C-27188	Visual for security and leaks	PTI-A&B	Fuel Load	Complete
		M5000279		PTI-A&B		
03-455A	Fuel Oil Filters	M4000875	Verify torque on filter attach bolts	INS-B	Fuel Load	Complete
			D.P. gauges installed on panel	INS-A&B	Fuel Load	Complete
03-459A	Duplex Lube Oil Strainer	C-27188	VI cleanliness of strainer element	PTI-A&B	Fuel Load	Complete

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		M5000272		PTI-A&B		
03-465A	Lube Oil External (LB)	C-27188	Visual for leaks & security	PTI-A&B	Fuel Load	Open
03-467A	Turbo Lube Fittings (LB)	C-27188	Visual for leaks & security	PTI-A&B	Fuel Load	Complete
		M5000307		PTI-A&B		
03-475A&B	Turbo Bracket/Bolting	M40001023	Verify bolt torque at installation	INS-B	Fuel Load	Complete
		RCFM50384	Verify bolt torque at installation	INS-A	Fuel Load	Complete
		C-27237	Retorque bolts	INS-A&B	Fuel Load	Complete
		M5000189		INS-A&B		
			Temperature measurements to verify	INS-A&B	Fuel Load	Open
			temperature differential between	INS-A&B		
			start & engine block	INS-A&B		
03-475A&B	Turbo Bracket/Bolting	C-27188	Visual for integrity of welds, security	PTI-A&B	Fuel Load	Complete
		M5000280		PTI-A&B		
		M5000280	Verify torques	PTI-A&B	Fuel Load	Complete
03-475B	Turbo Butterfly Assembly	C-27325	Hardness test on the shaft (P/N 02-475-	INS-A	Fuel Load	Complete
		M5000336	15A2)	INS-A		
03-475C	Turbo Intake Pipe	C-27237	Verify bolt material (Grade 5) between	INS-A&B	Fuel Load	Complete
		M5000181	intercooler and butterfly valve	INS-A&B		

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
03-500N	Control Panel Terminal Boards	C-27210	Verify no Multi-Amp, states division	INS-A&B	Fuel Load	Open
			terminal blocks, manufactured between	INS-A&B		
			1974 and 1976 are installed	INS-A&B		
03-515	Water Thermostatic Valve	C-27210	Verify valve body material is cast steel	INS-A&B	Fuel Load	Complete
		M5000190		INS-A&B		
03-530	Engine	C-27188	VT ladder for security	PTI-A&B	Fuel Load	Open
03-531	Platform, Ladder	C-27188	VT ladder for security	PTI-A&B	Fuel Load	Complete
		M5000284		PTI-A&B		
03-540A-C	Lube Sump Tank	C-27325	Verify the lube oil sump tank mounting	INS-A&B	Fuel Load	Complete
		M5000334	bolts (skid mounting) torque values.	INS-A&B		
		C-27188	VT sump tank for leaks	PTI-A&B	Fuel Load	Complete
03-540A-C	Lube Sump Tank	RBG20708	Oil analysis (See 03-820A)	PTI-B	Fuel Load	Complete
			Oil analysis (See 03-820A)	PTI-A	Fuel Load	Open
03-550	Foundation Bolts	N&D-3592	Hardness test of bolts missing "stamp"	INS-A&B	Fuel Load	Complete
			be checked to verify proper heat	INS-A&B		
			treatment	INS-A&B		
03-550	Foundation Bolts	C-27188	Verify foundation bolt torque	PTI-A&B	Fuel Load	Open

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK -ENGINE	SCHEDULE COMPLETION DATE	STATUS
03-630	Conduit Supports	C-27188	VT pyrometer conduit security	PTI-A&B	Fuel Load	Open
03-650A	Generator	C-27188	Visual of slip rings and brushes for	PTI-A&B	5% Power	Open
			wear and adjustment	PTI-A&B		
			VT security of pedestal & fnd bolts	PTI-A&B	5% Power	Open
			Pedestal bearing oil analysis	PTI-A&B	Fuel Load	Open
			Grounding straps are intact	PTI-A&B	5% Power	Open
03-650B	Generator Controls	C-27325	Verify no installation of Portec CT P/N	INS-A&B	Fuel Load	Complete
		M5000366	A-01616-4 used in assembling the	INS-A&B		
			exciter. Document installed part no.	INS-A&B		
03-688	Electrical Wiring	C-27188	Check terminations and junction box	PTI-A&B	5% Power	Open
			covers for security	PTI-A&B		
			Flex conduit for security (visual)	PTI-A&B	5% Power	Open
03-689	Off Engine Wiring	C-27188	Check terminations	PTI-A&B	5% Power	Open
			Check conduit and flex fittings	PTI-A&B	5% Power	Open
03-700A	Standpipe	C-27188	VT for security and leaks	PTI-A&B	Fuel Load	Complete
		M5000283		PTI-A&B		
		M5000284		PTI-A&B		

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03-700B	Standpipe Valves	C-27325	Verify proper jacket water valve is	INS-A&B	Fuel Load	Complete
		M5000333	installed (Standpipe drain valve)	INS-A&B		
			Proper installation of jacket water	INS-A&B	Fuel Load	Open
			valve	INS-A&B		
03-700F	Standpipe Misc. Bolting	N-5 Report	Verify as-built condition of installed	INS-A&B	Fuel Load	Open
			bolting material to the IDI drawing.	INS-A&B		
03-715A	Sub-Base	C-27210	Vt grout for cracks or voids under skid	INS-A&B	Fuel Load	Complete
		M5000389	framing	INS-A&B		
03-715B	Sub-Base Bolting	C-27325	Monitor turbocharger for excessive	INS-A&B	5% Power	Open
			vibration using IRB's. If excessive	INS-A&B		
			then torque verify when engine comes	INS-A&B		
			up to engine standby temperature	INS-A&B		
			Replace bolts with unsat torque values	INS-A&B		
03-717A	Auxiliary Skid	C-27188	VT of auxiliary skid piping for leaks	PTI-A&B	Fuel Load	Open
		N-5 Report	Verify bolt torques via ASME	PTI-A&B	Fuel Load	Open
			documentation	PTI-A&B		
03-717I	Sub-Base Lube Valves	C-27210	Verify relief valves installed	INS-A&B	Fuel Load	Open
			per manufacturer's recommendation	INS-A&B		

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	TYPE WORK ENGINE	SCHEDULE COMPLETION DATE	STATUS
03-217N	Sub-Base Fuel Valves	C-27210	Verify proper valve orientation	INS-A&B	Fuel Load	Complete
		M5000188		INS-A&B		
03-209A	Water Heater	C-27188	VI for leaks & security	PII-A&B	Fuel Load	Complete
		M5000282		PII-A&B		
03-005A&B	Intake and Exhaust Equipment	C-27188	VI security of exhaust screens and slotted feet	PII-A&B	5% Power	Open
		M5000389	Verify clean inlet filter	PII-A&B	Fuel Load	Complete
03-810A&B	Jacket Water Equipment	C-27188	VI jacket water equip for leaks & security	PII-A&B	Fuel Load	Complete
		M5000312		PII-A&B		
03-820A	Lube Oil Equipment	C-27188	Visual for leakage and security	PII-A&B	Fuel Load	Open
		KBL26708	Oil Analysis	PII-A&B	Fuel Load	Complete
			Oil analysis	PII-A&B	Fuel Load	Open
03-825A	Fuel Oil Equipment	C-27188	VI fuel oil equip for leaks & security	PII-A&B	Fuel Load	Open

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1. The recommendation is to perform a dimensional check of the bearing shells to verify that the thickness is within TDI specifications. An alternate method of compliance is proposed.

   GSU inspected a sample of three bearings on standby diesel generator A, which were found to be satisfactory. All the bearings were functionally tested by measuring the temperature of the bearing cap immediately after shutdown during break-in. No abnormal temperatures were present. Trending of oil analysis results will also be performed in service to indicate any signs of distress. We believe these measures indicate that the bearings are satisfactory as installed, and the preventive maintenance program will detect distress in the unlikely event that latent problems should occur.

2. The recommendation is for additional LP inspection of the piston skirts and visual inspection of the piston crown outside diameter for scuffing. GSU will perform the LP inspections either during the next major overhaul or the next time the pistons are removed, whichever comes first. The piston crowns were removed during rebuilding, reworked by TDI factory to the latest configuration and installed with new AE piston skirts. This together with the post test inspection of cylinder liners (see 03-315C) meets the intent of the recommendation.

3. New Muskegon piston rings were installed in both TDI diesel-generators before performance testing. These piston rings were installed under the supervision of a TDI service representative. Trending of oil analysis results will be performed in service in indicate any signs of distress.

   A boroscope inspection of the cylinder liners (see 03-315C) will reveal signs of distress showing on the cylinder liners.

4. The recommendation is to perform material comparitor and hardness tests on the cam lobes. We propose to substitute visual inspections of the cam lobes for signs of abnormal wear, at each refueling outage.

5. The recommendation is to verify camshaft support bolt torque values. We propose to verify support bolts are secure and lock tabs are in place.

6. The recommendation is to perform visual inspections for adequate seating between the valve and the valve ring and that no carbon deposits exist on the valve internals. An alternate position is proposed. The concern is possible leakage from the combustion chamber back to the air start manifold, and starting air distributor. This leakage can be detected during engine operation by abnormally high temperature in the air start piping to each

cylinder, or by exhaust particulates on the engine side of the air start filter. No such leakage has been observed to date.

7. The recommendation is to perform a liquid penetrant inspection of the diesel B subcover pedestals. This inspection was performed on diesel A with satisfactory results. At that time, their recommendation was for inspection of one engine only. We propose to inspect the diesel B subcovers at the first refueling outage.

8. The recommendation is to eddy current inspect both ends of the high pressure fuel tubes. Autofrettaged and shrouded high pressure tubes which have significantly greater resistance to fatigue cracking will be installed. Eddy current inspection of the autofrettaged tubing is not required.

9. The recommendation is for 100% liquid penetrant inspection of the pushrods. At the time of the inspection, the recommendation was for inspection of a sample of the pushrods, and this was satisfactorily completed. We believe that no further inspection is necessary in view of the satisfactory experience with friction welded pushrods.

10. The recommendation is for liquid penetrant inspections of the governor drive. During rebuilding, the gears were visually inspected. Disassembly for LP inspection was found to be possible, only by destructive methods. Visual inspection of the assembly showed no signs of distress. We believe these inspections, together with the commitment to perform visual inspections at the first refueling outage provides adequate assurance.

11. The recommendation is installation of the overspeed trip in accordance with certain Woodward documents. We installed and calibrated the overspeed trip governor under the supervision of the TDI and Woodward governor service representatives.

12. A disassembly inspection for wear and proper lubrication is recommended. An alternate method of verification is proposed. The starting air distributor will be verified for proper operation and timing. We believe that most problems with the distributor are result of corrosion from exhaust gases leaking past the air start valves. Leaking air start valves have not been experienced, therefore, we do not believe a disassembly inspection is appropriate. If problems should develop with the starting air distributor, we would most likely replace the complete assembly. Any problems which might develop with the distributor would be detected during surveillance testing.

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	SCHEDULE COMPLETION DATE	STATUS
03-CFR	Turbo Drip Lube	C-27260	Support at bypass shutoff	Fuel Load	Open
			Support at Riser		
03-375	Intake Manifold		Add seven ribs to bottom of intake manifold	First Outage	Open
03-425A	Engine-Driven Water Pump		Replace existing water pump with latest revised water pump	Fuel Load	Open
03-435B	Jacket Water (SB)	C-27260	Two directional restraint from jacket water return line to turbocharger support brace	Fuel Load	Complete
			Two directional restraint to replace existing rubber grommet support	Fuel Load	Open
03-437B	Turbo Water Supports (SB)	C-27413	Two directional restraint using 3/8 inch diameter	Fuel Load	Open
			Two directional restraint	Fuel Load	Open
03-441ALB	Start Air Manifold (LB)		Supports running parallel to the length of the engine require reinforcement of support members and bolt hole elongation in the East-West direction	Fuel Load	Open

ATTACHMENT 2

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	RING SCOPE OF WORK	SCHEDULE COMPLETION DATE	STATUS
			to allow for thermal expansion		
03-441A	Start Air Manifold (LB)		Free flowing drains installed at the air distributor filters by TDI	Fuel Load	Open
03-441C	Start Air Supports (SB)	C-27260	The 1/4" diameter tubes across the generator end of the engine from the air distributor to the bulk head are not adequately supported. The existing tubing spacers should be provided with cover plates and the assemblies attached rigidly to engine A (A)	Fuel Load	Open
		C-27260	The two 3/4" diameter tubes from the starting air headers to the inlet of the distributors' air filter should be provided with two-directional restraints on the risers at the platform elevation (A)	Fuel Load	Open
		C-27260	The 1/4" diameter tubing from the air start header to the combustion air cooler should be provided with two-directional restraints at 4'0" max.	Fuel Load	Open

COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	SCHEDULE COMPLETION DATE	STATUS
			span intervals. Location of the supports should allow for flexibility by providing a 6-inch minimum offset around bends (A)		
		C-27260	A two-directional restraint should be added on the 1/4 inch diameter air start tubing on the left side of cylinder No. 8, approx. 6 inches below the horizontal run along the cylinder cover (A)	Fuel Load	Open
		C-27260	The two 3/4 inch diameter tubes from the starting air headers to the inlet of the distributor air filters should be provided with two-directional restraints on the risers approx. 12 inches down from the horizontal run (at the platform) (B)	Fuel Load	Open
		C-27260	The U-bolts around the air filter bodies are to be secured (B)	Fuel Load	Open
		C-27260	The 1/4 inch diameter tubing risers to each cylinder (16 locations) should be provided with an additional two-directional restraint approx. 12 inches up	Fuel Load	Open

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	*SCHEDULE COMPLETION DATE	STATUS
			from the horizontal tubing runs along the left side of the engine (B)		
03-441C	Start Air Supports (SB)		NOTE: It is recommended that the tubing and supports including the above modifications be installed so that both installations on engines A and B are similar		
03-450D	Fuel Oil Header Supports	C-27260	Engine driven fuel oil pump to filter	Fuel Load	Open
			Fuel oil filter to supply header	Fuel Load	Open
			a. increase support stiffner		
			b. add riser support		
			Fuel oil supply and recirculation header		
			a. cylinder #1 restraint modified to three-directional	Fuel Load	Open
			b. two-directional restraints to be shimmed		
		C-27413	Fuel oil drip return header	Fuel Load	Open
			a. cylinder #8 to be a 3-way restraint		
			b. remaining restraints to be a 2-way, using 3/8" diameter V-bolts		
03-465B	Lube Oil External (SB)	RCFI50660	Lube oil to cam shaft bearing	Fuel Load	Complete

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	SCHEDULE COMPLETION DATE	STATUS
			Replace crimped tubing across cam shaft bearing cover	Fuel Load	Complete
		C-27260	Two directional restraint on riser	Fuel Load	Open
		C-27260	Lube oil to rocker arm supply header	Fuel Load	Open
		C-27260	Replace one-bolt clip supports with two-directional restraints	Fuel Load	Open
		C-27260	Nylon tube block support rear header be modified to increase lateral and vertical stiffness	Fuel Load	Open
		C-27260	Rocker arm supply header	Fuel Load	Open
		C-27260	Three-way restraint to restrict axial motion	Fuel Load	Open
		C-27260	Shim remaining two-directional restraints for proper sliding fit	Fuel Load	Open
03-467A	Turbo Lube Fittings (LB)	C-26008A	Remove the single tie-rod assembly surrounding the coupling.	Fuel Load	Complete
03-467B	Turbo Lube Fittings Support	C-27260	Add two directional restraint to the 3/4" lube tubing riser	Fuel Load	Open
03-475B	Turbo Butterfly Assembly	RCFM50416	Addition of grease fittings for SIM 322	Fuel Load	Complete

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	SCHEDULE COMPLETION DATE	STATUS
03-475C	Turbo Intake Pipe		Remove pipe supports	Fuel Load	Open
03-475E	Turbo Bracket Supports		Remove all subject pipe supports	Fuel Load	Open
03-530A	Conduit Supports	C-60970	Provide an additional support at about three feet from terminal point for conduit coming out of the governor box on left	Fuel Load	Open
03-650A	Generator	N&D 3545	Verify status of N&D 3545	Fuel Load	Complete
		N&D 3545	Verify status of N&D 3545	Fuel Load	Complete
03-650B	Generator Controls		Replace field flash contactor with an enclosed type	Fuel Load See Note 3	Complete
			Provide additional ventilation for the generator control cabinet	Fuel Load	Open
		C-60962	Put temperature sensitive label on rectifier assembly diodes. Inspect.	Fuel Load	Open
		C-60962	Put temperature sensitive label on SCR's. Monitor periodically. (Rectifier assembly)	Fuel Load	Open
		C-60957	Coat diodes and SCR's of the bridge rectifier assembly with glyptol	Fuel Load	Open

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	SCHEDULE COMPLETION DATE	STATUS
			inspect to determine if they have moved.		
		C-60957	Voltage regulator board-coat one side of the adjustment screw for the adjustable potentiameters. Inspect for movement.	Fuel Load	Open
			Provide additional ventilation for the exciter cabinet	Fuel Load	Open
			Change the diode mounting configuration in the bridge rectifier assembly	First Outage	Open
			Change the SCR mounting configuration in the bridge rectifier assembly	First Outage	Open
			Redesign bolted-on lug arrangement such that there is a max. of two lugs on each bolt	First Outage	Open
			Install a power supply bypass capacitor on integrated circuits in voltage regulator	ILSP See Note #4	Plant Betterment
			Add large valve capacitor to amp U1 in the voltage regulator	ILSP See Note #4	Plant Betterment
			Install shielded signal leads between the motor operated pot and the voltage regulator	ILSP See Note #4	Plant Betterment

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	SC DULE COMPLETION DATE	STATUS
			Install a bypass capacitor on the feed-	ILSP	Plant
			back circuit	See Note #4	Betterment
			Run SCR gate signals in separate	ILSP	Plant
			bundles	See Note #4	Betterment
			Voltage regulator-direct solder I.C.	ILSP	Plant
			to the PC boards and delete I.C.	See Note #4	Betterment
			sockets		
			Voltage regulator-replace R4 and R5 with	ILSP	Plant
			multi-turn MIL style potentiometers	See Note #4	Betterment
			Voltage regulator-replace single sided	ILSP	Plant
			PC boards with double sided PC boards	See Note #4	Betterment
			Voltage regulator-direct solder	ILSP	Plant
			components to PC board or provide	See Note #4	Betterment
			retaining mechanism		
03 495A	Shutdown Tubing (SB)	C-27260	Add two-directional restraints to line	Fuel Load	Open
			E19, high temperature bearing drip		
			tubing, between each engine casing		
			connection similar to installation		
			on engine B (A)		
			Add three-directional restraints to	Fuel Load	Open
			lines E23H and E24 within 12 inches		
			of the turbo mounted vibra switch (A)		

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	SCHEDULE COMPLETION DATE	STATUS
			All instrument tubing routed along the face of the governor and along sides of engines should have two-directional supports mounted to the engine. Multi-tube support should be designed with spacers and cover plates.	Fuel Load	Open
03-717K	Sub-base Lube Supports	C-27260	Lube oil filter vents (1/4" vent) hand type restraint be replaced with two-directional restraints	Fuel Load	Open
		C-23790A	Pipe support on lube oil booster pump discharge to allow axial pipe expansion	See Note 2	Open
		C-23790A	3/8" line to engine driven lube oil pump to have two-directional restraints at 4'-6" spans	Fuel Load	Complete
		C-27290A	Add two-directional restraint to 1" drain line	Fuel Load	Open
03-717Q	Sub-Base Fuel Oil Supports		Modify support 03-717-01-UX to allow axial pipe expansion	See Note 2	Open
			Modify support 03-717-01-UI to allow axial pipe expansion	See Note 2	Open

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COMPONENT NUMBER	PART DESCRIPTION	WORKING DOCUMENTS	REMAINING SCOPE OF WORK	SCHEDULE COMPLETION DATE	STATUS
			Miter 93-717-01-UX for adjacent pipe clearance	See Note 2	Open

NOTES TO MODIFICATION REPORT

1. Under review by GSU, Impell and TDI. The intake manifold has ribs welded to the inside surface, which may not have been recognized by the Impell review.

2. TDI concurrence has been requested prior to implementing this modification.

3. Efforts to purchase a safety related enclosed contactor complying with the recommendation have been unsuccessful. GSU proposes to implement a preventive maintenance action to clean the contactor quarterly. This meets the intent of the recommendation, which resulted from concern that dust or dirt might reduce the reliability of the contactor.

4. The Integrated Living Schedule Program provides an integrated process for budgeting, managing, and scheduling activities for plant improvement or modification (plant betterment). Items in this category will be provided with other proposed improvements or modifications. Items in this category would most likely be scheduled after the first refueling outage.