



REPORT NO.: 10CFR21-0062
DATE: May 11, 1992

10CFR21 REPORTING OF DEFECTS
AND NON-CONFORMANCE

COMPONENT: EMD TURBOCHARGER PLANETARY BEARING SHAFT

SYSTEM: DIESEL GENERATORS WITH EMD 645 SERIES ENGINES
USING TURBOCHARGERS THAT WERE REMANUFACTURED
FROM MAY, 1991 TO JANUARY, 1992

CONCLUSION: DEFECT IS REPORTABLE IN ACCORDANCE WITH 10CFR21

PREPARED BY: Donald D. Galeazzi DATE 5/11/92
Donald D. Galeazzi, Engineering Manager

APPROVED BY: M. Vann Mitchell DATE 5/11/92
M. Vann Mitchell, Quality Manager

SUMMARY

This is a follow-up report to MKW Power Systems' notification to Mr. Thomas Murley of the NRC dated 4/17/92 (see Exhibit 1).

MKW Power Systems received preliminary notification on 4/15/92 from Electro-Motive Division of GM (EMD) about a possible manufacturing defect with the engine turbocharger planetary bearing shaft. Final notification was received on 5/11/92 and is contained in Exhibit 2. One failure of a remanufactured turbocharger was attributed to improper grinding of the planetary bearing shaft by the manufacturer. Users of turbochargers with suspect planets; bearing shafts have been determined and will be notified accordingly.

COMPONENT

EMD turbochargers that were remanufactured from May 1991 to January 1992.

CUSTOMERS AFFECTED

The users affected by this notification are listed below:

<u>CUSTOMER</u>	<u>TURBO S/N</u>	<u>MKW ORDER NO.</u>
Ebasco - Laguna Verde CFE Division 3	73K1-1207	502971
D. E. - PIMS	76K1-1127	6089
Korea Electric Power - KORI 11	79L1-1239	503465
Toledo Edison - Davis-Besse	91C3-5012	503772
Northern States Power - Monticello	91L3-5067	505244

DEFECT

Manufacturer produced the planetary bearing shafts using a centerless grinding process (which is not to EMD specifications). EMD's process specification requires that the shafts be ground on centers. A failed shaft, which was produced improperly, was lobed and out-of-round.

CORRECTIVE ACTION

Turbochargers with serial numbers listed under "Customers Affected" should perform one of the following.

1. Remove the turbocharger, disassemble the carrier bearing support and bearing assembly, idler gear assembly, and remove the gear drive assembly. With the planetary gear assembly removed, inspect the planetary bearing shafts. If the shafts are the centerless ground type, the planet carrier assembly should be replaced. If the shafts have the centering holes, then the turbocharger can be reassembled and replaced on the engine.
2. Remove the turbocharger and ship to EMD for inspection/repair.
3. Remove turbocharger and replace with a qualified Utex assembly. EMD will make turbochargers meeting the critical emergency start criteria available to be charged out at the customer's convenience.

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EXHIBIT 1
(2 pages)

NOTIFICATION TO NRC DATED 4/17/92



April 17, 1992

Mr. Thomas Murley
Director - Office of Nuclear Reactor Regulation
11555 Rockville Pike
Rockville, Maryland 20852

Subject: Potential Reportable Defect for EMD turbocharger

Dear Sir:

On 4/15/92, MKW Power Systems received notification from Electro-Motive Division of General Motors Corporation (EMD) of a possible manufacturing defect with their turbochargers which are used on their 645 series diesel engine. This notification is very preliminary and we do not know the details of the potential defect at this time. The turbochargers in questions are shown on the attached list. We are in the process of reviewing our files to determine the current location of these turbochargers. Most of the turbochargers on the list were shipped to commercial users, but we suspect that some were shipped to nuclear users.

Upon receipt of more thorough information from EMD we will issue a formal report.

Sincerely,

MKW POWER SYSTEMS, INC.

M. Vann Mitchell

M. Vann Mitchell
Quality Manager

dg

attachment

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JPP

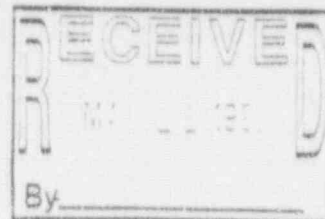
SORTED BY MKW ORD. 1

EMD ORDER #	ORDER DATE	PART #	SERIAL #	UTEX OR R&R	MKW PO #
HA91015001	1/15/91	9526864	73K1-1207	R	65959
HA91108002	4/18/91	9529908	79K1-1006	R	65497
BD91093005	4/3/91	8377586	91B3-5044	U	65565
LG91122007	5/02/91	9526864	91C3-6039	U	66694
HA91137001	5/17/91	X911279	91F3-5006	U	66785
BD91150009	5/30/91	8368596	90M3-5032	U	66944
BD91150009	5/30/91	836 206	91B3-5048	U	66944
LG91151017	5/31/91	8370751	91B3-5047	U	66948
PD91183003	7/02/91	8377586	91E3-5070	U	67206
LG91214012	8/02/91	9529908	91G3-5016	U	67264
LG91214013	8/02/91	9521991	91G3-5017	U	67264
LG91247023	9/04/91	9523864	91J3-5052	U	67281
CA91232001	8/20/91	9526864	91G3-6011	U	67388
BD91232013	8/20/91	9536274	91D3-5002	U	67390
LG91246016	9/03/91	9521991	91H3-5022	U	67410
HA91274001	10/01/91	9526867	73K1-1006	R	67547
LG91261017	9/18/91	8377586	91F3-5033	U	67551
HA91261001	9/18/91	8370751	91J3-5023	U	67601
HA91276001	10/03/91	9526864	91K3-5040	U	67645
HA91323002	11/19/91	8377586	88J3-5001	R	67883
HA91323001	11/19/91	8370751	89J3-6044	R	67883
LG91336030	12/02/91	9526867	76K1-1057	R	67899
LG91336030	12/02/91	9526867	76K1-1127	R	67899
LG91301026	10/28/91	8377586	91H3-5008	U	67902

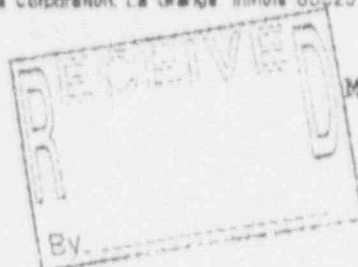
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EXHIBIT 2
(2 pages)

EMD NOTIFICATION



Electro-Motive Division General Motors Corporation, La Grange Illinois 60525 (708) 337-6000



May 8, 1992

Mr. Don Galeazzi
MKW POWER SYSTEMS, INC.
Station Square, Suite 100
301 South Church Street
Rocky Mount, NC 27804-1928

SUBJECT: PLANETARY BEARING SHAFTS, TURBOCHARGER

Dear Mr. Galeazzi:

Turbocharger planetary bearing shafts supplied by a vendor are suspected of causing a failure on one remanufactured turbocharger. The cause of failure was determined to be a planetary bearing shaft lobed and over the roundness spec. Further investigation revealed that the vendor produced the planetary bearing shafts using a centerless grinding process (which is not to EMD print spec). EMD's process specification requires that the shafts be ground on centers.

The following turbos in nuclear standby may have a planetary bearing shaft produced by the centerless grinding process:

	<u>Serial Number</u>	<u>CUSTOMER</u>
1)	73K1-1207	EBASCO
2)	75K1-1057	Wisconsin Electric
3)	76K1-1127	GE - P.I.M.S.
4)	79L1-1239	Korea Electric Power
5)	91C3-5012	Toledo Edison
6)	91L3-5067	Northern States Power

This does not indicate that centerless ground shafts are defective, but these turbos should be inspected.

UNIT AT MKW FOR REBUILD
MKW WILL CHECK / REPLACE TURBO

Continued on Page 2

Mr. Don Galeazzi
MKW Power Systems, Inc.
May 8, 1982

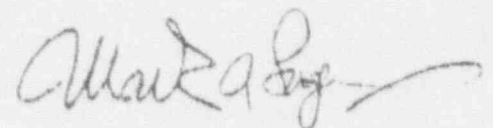
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Depending on the customer and his operating conditions, one of the following scenarios could be used to insure the turbo reliability:

1. Remove the turbo, disassemble the carrier bearing support and bearing assembly, idler gear assembly, and remove the gear drive assembly. With the planetary gear assembly removed, inspect the planetary bearing shafts. If the shafts are the centerless ground type, the planet carrier assembly should be replaced. If the shafts have the centering holes, then the turbo can be reassembled and replaced on the engine.
2. Remove the turbo and ship to EMD for inspection/repair.
3. Remove turbo and replace with a qualified Utex assembly. EMD will make turbochargers meeting the critical emergency start criteria available to be changed out at the customer's convenience.

Again, it should be stressed that only one turbo failure out of approximately 1400 turbos rebuilt has been attributed to the centerless ground planetary bearing shaft.

We will continue to work closely with you to resolve this issue. If you have additional questions, please advise.



M. A. Lagomarcino
Manager
Power Products Service

CJF/MAL:vad

cc: C. J. Farber