



Test Monitoring Center

6555 Penn Avenue
Pittsburgh, PA 15206-4489
(412) 365-1000

L-37 Information Letter 01-2
Sequence Number 23

September 24, 2001

ASTM consensus has not been obtained on this information letter. An appropriate ASTM ballot will be issued in order to achieve such consensus.

TO: L-37 Mailing List

SUBJECT: 1. Ring Correction Factor for V1L686/P4L626A Lubrified Gears
2. Addition of Annex A12 Addressing Distress Rating Exclusion Comments
3. Revised Report Forms

1. At the June 12, 2001 L-37 Surveillance Panel meeting, the panel approved a motion that requires a correction factor of 0.9922 be added to the ring transformed ridging distress for lubrified hardware, V1L686/P4L626A gear sets. This correction factor shall only be applied to non-reference oil tests. The final merit result shall be rounded to one decimal place. A revised Section 12.2.3.4 of Test Method D6121 is attached. The effective date is June 12, 2001.

2. At the August 29, 2001 L-37 Surveillance Panel meeting, the panel approved the addition of Annex A12 to Test Method D6121. Annex A12 was added so that gear batch rating exclusion comments would be standardized on report forms. The effective date is November 1, 2001.

3. At the August 29, 2001 L-37 Surveillance Panel meeting, the panel approved a revised data dictionary and report form set, which are attached. The effective date is November 1, 2001.

Donald T. Bartlett
Chairman
L-37 Surveillance Panel

John L. Zalar
Administrator
ASTM Test Monitoring Center

Attachment

(Revises Test Method D 6121-00 as amended by Information Letters 00-1 through 01-1)

12.2.3.4. When using the lubrited hardware, gear set V1L686/P4L626A, for non-reference oil tests, add a correction factor of 0.5186 to the pinion transformed ridging test result and add a correction factor of 0.9922 to the ring transformed ridging test result. Record these results on Form 1 of the test report (Figure A7.2).

ANNEX A12. GEAR BATCH EXCLUSIONS

A12.1 Comments have been developed to accurately describe approved gear batch exclusions. When reporting test results, place one of the comments in Table A12.1 on Form 2 (Figure 7.3) in the area of Exclusion Comments.

Table A12.1 Gear Batch Exclusion Comments

Gear Batch	Comment
C1L426/P4L415A Non-lubrited Hardware Only (Reference & Non-reference Tests)	Excludes any pitting/spalling values between 9.3 and 9.9 inclusively, in the wear step area (1/16 th in.) of the drive side pinion tooth. (Information letter 99-1).
V1L303/P4L514A Non-lubrited Hardware Only (Reference & Non-reference Tests)	Excludes any pitting/spalling values between 3.0 and 9.9 inclusively, in the wear step area (1/16 th in.) of the drive side pinion tooth. (Information Letter 99-1)
V1L686/P4L626A Non-lubrited Hardware Only (Reference & Non-reference Tests)	References how to report the observations of a thin polished line that is sometimes visible in the root heel of the pinion and on the crown of the ring gear. This condition is normal and not oil-related and is to be noted as 'Root and tip line polishing and a function of the gear set manufacturing process'. (Information letter 00-1)
Applies to All Gear Batches With No Exclusions	No exclusion applied

A7. Report Forms
TEST METHOD D6121
L-37 LOAD EVALUATION
VERSION 20010927

CONDUCTED FOR
TSTSPON1
TSTSPON2

LABVALID	V = VALID
	I = INVALID
	N = RESULTS CANNOT BE INTERPRETED (REFER TO COMMENT SECTION)

<i>TSTOIL</i>	NR = Non-Reference Test Oil
	RO = Reference Oil Result

Test Number			
Test Stand: STAND		Stand Run Number: STRUN	
Date Completed: DTCOMP		Time Completed: EOTTIME	
Oil Code: OILCODE			
Formulation/Stand Code: FORM			
Alternate Codes:	ALTCODE1	ALTCODE2	ALTCODE3
Test Hardware ^A : TESTHARD		Test Version ^B : TVERSION	

In my opinion this test ^{OPVALID}been conducted in a valid manner in accordance with Test Method D6121 and the appropriate amendments through the information letter system. The remarks included in this report describe the anomalies associated with this test.

^A Nonlubricated or Lubricated

^B Standard or Canadian

SUBMITTED BY: _____

SUBLAB
Testing Laboratory
SUBSIGIM

Signature
SUBNAME

Typed Name
SUBTITLE

Title
SUBJECT

Section

Fig. A7.1 TEST REPORT COVER

TEST METHOD D6121
L-37
FORM 1
TEST RESULT SUMMARY SHEET

OIL TEST			
LAB	STAND		STAND RUN #
LAB	STAND		STRUN
START DATE	DATE COMPLETED	END OF TEST TIME	TEST LENGTH
DTSTRT	DTCOMP	EOTTIME	TESTLEN
TMC OIL CODE	OILCODE		VISCOSITY GRADE
IND	OILCODE		SAE VISC
LABORATORY OIL CODE:		LABOCODE	
FORMULATION STAND CODE:		FORM	
LATEST INFORMATION LETTER TEST WAS RUN UNDER:		INFOLETN	
TEST HARDWARE:	TESTHARD	TEST VERSION:	TVERSION
PINION BATCH:	PINBAT	RING BATCH:	RINGBAT

Last Reference Oil Calibrating Stand Information - Fill Out For Non-reference Oil Tests Only			
STAND: STAND	STAND RUN #: LRSTRUN	TMC OIL CODE: LRIND	DATE COMPLETED: LRDTCOMP
TEST HARDWARE: LRHARD	PINION BATCH: LRPINBAT	RING BATCH: LRRNGBAT	TEST VERSION: LRTVER

	RING GEAR RESULTS				
	Wear	Rippling	Ridging	Pitting/Spalling	Scoring
Original Merit Results	WEARR	RIPPR	RIDGR	SPITR	SCORR
Transformed Results	TWEARR	TRIPPR	TRIDGR	TSPITR	TSCORR
Correction Factor	WEARRCF	RIPPRCF	RIDGRCF	SPITRCF	SCORRCF
Corrected Transformed Results	TWEARRCR	TRIPPRCR	TRIDGRCR	TSPITRCR	TSCORRCR
Severity Adjustment ^A	WEARRSA	RIPPRSA	RIDGRSA	SPITRSA	SCORRSA
Final Transformed Results	TWEARRFN	TRIPPRFN	TRIDGRFN	TSPITRFN	TSCORRFN
Final Merit Results	WEARRFNL	RIPPRFNL	RIDGRFNL	SPITRFNL	SCORRFNL

	PINION GEAR RESULTS				
	Wear	Rippling	Ridging	Pitting/Spalling	Scoring
Original Merit Results ^B	WEAR	RIPP	RIDG	SPIT	SCOR
Transformed Results	TWEAR	TRIPP	TRIDG	TSPIT	TSCOR
Correction Factor	WEARCF	RIPPCF	RIDGCF	SPITCF	SCORCF
Corrected Transformed Results	TWEARCR	TRIPPCR	TRIDGCR	TSPITCR	TSCORCR
Severity Adjustment ^A	WEARSA	RIPPSA	RIDGSA	SPITSA	SCORSA
Final Transformed Results	TWEARFN	TRIPPFN	TRIDGFN	TSPITFN	TSCORFN
Final Merit Results	WEARFNL	RIPPFNL	RIDGFNL	SPITFNL	SCORFNL

^A AT THE PRESENT TIME THERE ARE NO SEVERITY ADJUSTMENTS

^B WITH ANY APPLICABLE EXCLUSIONS APPLIED

Fig. A7.2 TEST RESULT SUMMARY SHEET

TEST METHOD D6121
L-37
FORM 2

GEAR TOOTH SURFACE CONDITION

LAB: LAB	STAND NO.: STAND	STAND RUN NO.: STRUN	
OIL CODE:	OILCODE	TEST VERSION:	TVERSION

GEAR BATCH IDENTIFICATION			
TEST HARDWARE:	TESTHARD	PINION BATCH: PINBAT	RING BATCH: RINGBAT
MATCH NO: MATCHNO	ASSEMBLY DATE: ASMBDT		
PATTERN CONTACT LENGTH RATING: LPCRAT		PATTERN CONTACT FLANK RATING: FPCRAT	

GEAR TESTING PHASE - AFTER COMPLETION OF PINION AND RING GEAR DRIVE SIDE INSPECTION				
RATER'S INITIALS: RINIT				
GEAR CONDITION	ORIGINAL RING RATING	ORIGINAL PINION RATING		
BURNISH	RGBURN	PGBURN		
DISCOLORATION	RDISCOL	PDISCOL		
CORROSION	RCORRSN	PCORRSN		
DEPOSITS	RDEPOST	PDEPOST		
				PINION RATING WITH EXCLUSION APPLIED IF APPLICABLE
WEAR	WEARR	WEARPIN		WEAR
RIPPLING	RIPPR	RIPPIN		RIPP
RIDGING	RIDGR	RIDGPIN		RIDG
PITTING/SPALLING	SPITR	SPITPIN		SPIT
SCORING	SCORR	SCORPIN	SCOR	

TEST METHOD DEFINED RATING EXCLUSION COMMENTS (SEE ANNEX A12)	
TOTAL LINES OF TEST METHOD EXCLUSIONS: TOTEXL	
EXCLR001	

Fig. A7.3 GEAR TOOTH SURFACE CONDITION

TEST METHOD D6121
L-37
FORM 3

OPERATIONAL SUMMARY SHEET

LAB: LAB	STAND: STAND	STAND RUN NO.: STRUN
OIL CODE: OILCODE		
TEST HARDWARE TESTHARD		TEST VERSION: TVERSION

PINION TORQUE CHECKS - FULL AXLE ASSEMBLY		
	BREAK	TURN
Before Test (lbf-in.)	SBTFAXBK	SBTFAXTN
After Test - hot (lbf-in.)	SATFXHBK	SATFXHTN
After Test - cool (lbf-in.)	SATFXCBK	SATFXCTN

BACK LASH MEASUREMENTS			
	MAXIMUM	MINIMUM	AVERAGE
Before Test (in.)	BBKLSSTR	BBKLSFIN	BBKLSAVG
After Test (in.)	ABKLSSTR	ABKLSFIN	ABKLSAVG
Difference (in.)			DBKLSAVG

GENERAL OPERATING CONDITIONS				
GEAR CONDITIONING PHASE:	START	FINISH	AVERAGE	TOTAL
1. Time (hh:mm)	HSLTTIMS	HSLTTIMF		HSLTTIMT
Time (mmmmmm)				HSLTTIMM
	MAXIMUM	MINIMUM	AVERAGE	
2. Gear-lubricant Temperature (°F)	GCLUBTPX	GCLUBTPI	GCLUBTPA	
3. Dyno Torque 1 (lbf-ft)	CDYTOR1X	CDYTOR1I	CDYTOR1A	
Dyno Torque 2 (lbf-ft)	CDYTOR2X	CDYTOR2I	CDYTOR2A	
4. Dyno Speed 1 (r/min)	CDYSPD1X	CDYSPD1I	CDYSPD1A	
Dyno Speed 2 (r/min)	CDYSPD2X	CDYSPD2I	CDYSPD2A	
GEAR TESTING PHASE:				
1. Time (hh:mm)	LSHTTIMS	LSHTTIMF		LSHTTIMT
Time (mmmmmm)				LSHTTIMM
	MAXIMUM	MINIMUM	AVERAGE	
2. Gear-lubricant Temperature (°F)	GTLUBTPX	GTLUBTPI	GTLUBTPA	
3. Dyno Torque 1 (lbf-ft)	TDYTOR1X	TDYTOR1I	TDYTOR1A	
Dyno Torque 2 (lbf-ft)	TDYTOR2X	TDYTOR2I	TDYTOR2A	
4. Dyno Speed 1 (r/min)	TDYSPD1X	TDYSPD1I	TDYSPD1A	
Dyno Speed 2 (r/min)	TDYSPD2X	TDYSPD2I	TDYSPD2A	

Fig. A7.4 OPERATIONAL SUMMARY SHEET

**TEST METHOD D6121
L-37
FORM 4**

LOST TIME AND COMMENTS SHEET

LAB LAB	STAND NO. STAND	STAND RUN NO. STRUN
OIL CODE OILCODE		
TEST HARDWARE TESTHARD		TEST VERSION: TVERSION

TEST LOST TIME:

RECORD: THE TIME SHUTDOWN, TIME OFF TEST CONDITIONS, EARLY INSPECTIONS/TERMINATION WITH REASONS AND MINIMUM OIL TEMPERATURE IN DEGREES FAHRENHEIT.

Number of Downtime Occurrences			DWNOCR
Test Hours	Date	Downtime	Reasons
DOWNR001	DDATR001	DTIMR001	DREAR001
TOTLDOWN			Total Downtime

Other Comments		
Number of Comment Lines	TOTCOM	
OCOMR001		

Fig. A7.5 LOST TIME AND COMMENTS SHEET

TEST METHOD D6121
(L-37)
FORM 5
OPERATIONAL VALIDITY SUMMARY

LAB: <i>LAB</i>	STAND NO.: <i>STAND</i>	STAND RUN NO.: <i>STRUN</i>
OIL CODE: <i>OILCODE</i>		
TEST HARDWARE: <i>TESTHARD</i>		TEST VERSION: <i>TVERSION</i>

CONTROLLED PARAMETER	GEAR CONDITIONING			GEAR TESTING		
	ALLOWABLE % OUT	THIS TEST % OUT	ACTUAL TIME OUT min:s	ALLOWABLE % OUT	THIS TEST % OUT	ACTUAL TIME OUT min:s
GEAR OIL TEMPERATURE	5	<i>COILTOUT</i>	<i>CATOTOT</i>	5	<i>OILTPOUT</i>	<i>ATOTOT</i>
WHEEL SPEED 1	5	<i>WHLSP1WM</i>	<i>WHLSP1WT</i>	5	<i>WHLSP1OT</i>	<i>WHLSP1AT</i>
WHEEL SPEED 2	5	<i>WHLSP2WM</i>	<i>WHLSP2WT</i>	5	<i>WHLSP2OT</i>	<i>WHLSP2AT</i>
DYNO LOAD 1	5	<i>WHLOD1WM</i>	<i>WHLOD1WT</i>	5	<i>WHLOD1OT</i>	<i>WHLOD1AT</i>
DYNO LOAD 2	5	<i>WHLOD2WM</i>	<i>WHLOD2WT</i>	5	<i>WHLOD2OT</i>	<i>WHLOD2AT</i>

Fig. A7.6 OPERATIONAL VALIDITY SUMMARY

Data Dictionary

Sequence	Form	Test Area	Field Name	Field Length	Decimal Size	Data Type	Units/Format	Description
10	0	L37	VERSION	8	0	C	YYYYMMDD	L37 VERSION 20010927
20	0	L37	TSTSPON1	40	0	C		CONDUCTED FOR, FIRST LINE
30	0	L37	TSTSPON2	40	0	C		CONDUCTED FOR, SECOND LINE
40	0	L37	LABVALID	1	0	C	V, I OR N	TEST LAB VALIDATION
50	0	L37	TSTOIL	2	0	C	NR or RO	OIL TEST TYPE
60	0	L37	STAND	5	0	C		STAND
70	0	L37	STRUN	4	0	C		STAND RUN
80	0	L37	DTCOMP	8	0	C	YYYYMMDD	COMPLETED DATE
90	0	L37	EOTTIME	5	0	C	HH:MM	END OF TEST TIME
110	0	L37	OILCODE	38	0	C		OIL CODE
120	0	L37	FORM	38	0	C		FORMULATION/STAND CODE
130	0	L37	ALTCODE1	10	0	C		ALTERNATE OIL CODE 1
140	0	L37	ALTCODE2	10	0	C		ALTERNATE OIL CODE 2
150	0	L37	ALTCODE3	10	0	C		ALTERNATE OIL CODE 3
160	0	L37	TESTHARD	11	0	C		TEST HARDWARE
170	0	L37	TVERSION	8	0	C		TEST VERSION
180	0	L37	OPVALID	8	0	C	HAS/HAS NOT	OPERATIONAL VALIDITY - HAS/HAS NOT
190	0	L37	SUBLAB	40	0	C		SUBMITTED BY: TESTING LABORATORY
200	0	L37	SUBSIGIM	70	0	C		SUBMITTED BY: SIGNATURE IMAGE
210	0	L37	SUBNAME	40	0	C		SUBMITTED BY: SIGNATURE TYPED NAME
220	0	L37	SUBTITLE	40	0	C		SUBMITTED BY: TITLE
230	0	L37	SUBSECT	40	0	C		SUBMITTED BY: SECTION
240	1	L37	LAB	2	0	C		LAB CODE
260	1	L37	DTSTRT	8	0	C	YYYYMMDD	STARTING DATE
270	1	L37	TESTLEN	6	0	C	HH:MM	TEST LENGTH
275	1	L37	IND	6	0	C		TMC OIL CODE
280	1	L37	SAEVISC	7	0	C		SAE VISCOSITY GRADE
290	1	L37	LABOCODE	12	0	C		LABORATORY INTERNAL OIL CODE
300	1	L37	INFOLETN	8	0	C		INFORMATION LETTER NUMBER
310	1	L37	PINBAT	8	0	C		PINION BATCH IDENTIFIER
320	1	L37	RINGBAT	8	0	C		RING BATCH IDENTIFIER
330	1	L37	LRSTRUN	4	0	C		LAST REFERENCE STAND RUN
340	1	L37	LRIND	6	0	C		LAST REFERENCE TMC OIL CODE
350	1	L37	LRDTCOMP	8	0	C	YYYYMMDD	LAST REFERENCE COMPLETED DATE
360	1	L37	LRHARD	11	0	C		LAST REFERENCE TEST HARDWARE
370	1	L37	LRPINBAT	8	0	C		LAST REFERENCE PINION BATCH IDENTIFIER
380	1	L37	LRRNGBAT	8	0	C		LAST REFERENCE RING BATCH IDENTIFIER
390	1	L37	LRTVER	8	0	C		LAST REFERENCE TEST VERSION
400	1	L37	WEARR	5	1	N	MERITS	RING GEAR WEAR
410	1	L37	RIPPR	5	1	N	MERITS	RING GEAR SURFACE FATIGUE RIPPLING
420	1	L37	RIDGR	5	1	N	MERITS	RING GEAR SURFACE FATIGUE RIDGING
430	1	L37	SPITR	5	1	N	MERITS	RING GEAR SURFACE FATIGUE PITTING/SPALLING
440	1	L37	SCORR	5	1	N	MERITS	RING GEAR SCORING
450	1	L37	TWEARR	8	4	N	TRANS UNITS	RING GEAR WEAR TRANSFORMED RESULTS
460	1	L37	TRIPPR	8	4	N	TRANS UNITS	RING GEAR RIPPLING TRANSFORMED RESULTS
470	1	L37	TRIDGR	8	4	N	TRANS UNITS	RING GEAR RIDGING TRANSFORMED RESULTS
480	1	L37	TSPITR	8	4	N	TRANS UNITS	RING GEAR PITTING/SPALLING TRANSFORMED UNITS
490	1	L37	TSCORR	8	4	N	TRANS UNITS	RING GEAR SCORING TRANSFORMED RESULTS
500	1	L37	WEARRCF	8	4	N	TRANS UNITS	RING GEAR WEAR CORRECTION FACTOR
510	1	L37	RIPPRCF	8	4	N	TRANS UNITS	RING GEAR SURFACE FATIGUE RIPPLING CORRECTION FACTOR
520	1	L37	RIDGRCF	8	4	N	TRANS UNITS	RING GEAR SURFACE FATIGUE RIDGING CORRECTION FACTOR
530	1	L37	SPITRCF	8	4	N	TRANS UNITS	RING GEAR PITTING/SPALLING CORRECTION FACTOR
540	1	L37	SCORRCF	8	4	N	TRANS UNITS	RING GEAR SCORING CORRECTION FACTOR

Sequence	Form	Test Area	Field Name	Field Length	Decimal Size	Data Type	Units/Format	Description
550	1	L37	TWEARRCR	8	4	N	TRANS UNITS	RING GEAR WEAR CORRECTED TRANSFORMED RESULT
560	1	L37	TRIPPCR	8	4	N	TRANS UNITS	RING GEAR RIPPLING CORRECTED TRANSFORMED RESULT
570	1	L37	TRIDGRCR	8	4	N	TRANS UNITS	RING GEAR RIDGING CORRECTED TRANSFORMED RESULT
580	1	L37	TSPITRCR	8	4	N	TRANS UNITS	RING GEAR PITTING/SPALLING CORRECTED TRANSFORMED RESULT
590	1	L37	TSCORRCR	8	4	N	TRANS UNITS	RING GEAR SCORING CORRECTED TRANSFORMED RESULT
600	1	L37	WEARRSA	8	4	N	TRANS UNITS	RING GEAR WEAR SEVERITY ADJUSTMENT
610	1	L37	RIPPSA	8	4	N	TRANS UNITS	RING GEAR SURFACE FATIGUE RIPPLING SEVERITY ADJUSTMENT
620	1	L37	RIDGRSA	8	4	N	TRANS UNITS	RING GEAR SURFACE FATIGUE RIDGING SEVERITY ADJUSTMENT
630	1	L37	SPITRSA	8	4	N	TRANS UNITS	RING GEAR PITTING/SPALLING SEVERITY ADJUSTMENT
640	1	L37	SCORRSA	8	4	N	TRANS UNITS	RING GEAR SCORING SEVERITY ADJUSTMENT
650	1	L37	TWEARRFN	8	4	N	TRANS UNITS	RING GEAR WEAR FINAL TRANSFORMED RESULT
660	1	L37	TRIPRFN	8	4	N	TRANS UNITS	RING GEAR RIPPLING FINAL TRANSFORMED RESULT
670	1	L37	TRIDGRFN	8	4	N	TRANS UNITS	RING GEAR RIDGING FINAL TRANSFORMED RESULT
680	1	L37	TSPITRFN	8	4	N	TRANS UNITS	RING GEAR PITTING/SPALLING FINAL TRANSFORMED RESULT
690	1	L37	TSCORRFN	8	4	N	TRANS UNITS	RING GEAR SCORING FINAL TRANSFORMED RESULT
700	1	L37	WEARRFNL	5	1	N	MERITS	FINAL RING GEAR WEAR
710	1	L37	RIPRFNL	5	1	N	MERITS	FINAL RING GEAR SURFACE FATIGUE RIPPLING
720	1	L37	RIDGRFNL	5	1	N	MERITS	FINAL RING GEAR SURFACE FATIGUE RIDGING
730	1	L37	SPITRFNL	5	1	N	MERITS	FINAL RING GEAR SURFACE FATIGUE PITTING/SPALLING
740	1	L37	SCORRFNL	5	1	N	MERITS	FINAL RING GEAR SCORING
750	1	L37	WEAR	5	1	N	MERITS	PINION GEAR WEAR
760	1	L37	RIPP	5	1	N	MERITS	PINION GEAR SURFACE FATIGUE RIPPLING
770	1	L37	RIDG	5	1	N	MERITS	PINION GEAR SURFACE FATIGUE RIDGING
780	1	L37	SPIT	5	1	N	MERITS	PINION GEAR SURFACE FATIGUE PITTING/SPALLING
790	1	L37	SCOR	5	1	N	MERITS	PINION GEAR SCORING
800	1	L37	TWEAR	8	4	N	TRANS UNITS	PINION GEAR WEAR TRANSFORMED RESULTS
810	1	L37	TRIPP	8	4	N	TRANS UNITS	PINION GEAR RIPPLING TRANSFORMED RESULTS
820	1	L37	TRIDG	8	4	N	TRANS UNITS	PINION GEAR RIDGING TRANSFORMED RESULTS
830	1	L37	TSPIT	8	4	N	TRANS UNITS	PINION GEAR PITTING/SPALLING TRANSFORMED UNITS
840	1	L37	TSCOR	8	4	N	TRANS UNITS	PINION GEAR SCORING TRANSFORMED RESULTS
850	1	L37	WEARCF	8	4	N	TRANS UNITS	PINION GEAR WEAR CORRECTION FACTOR
860	1	L37	RIPPCF	8	4	N	TRANS UNITS	PINION GEAR SURFACE FATIGUE RIPPLING CORRECTION FACTOR
870	1	L37	RIDGCF	8	4	N	TRANS UNITS	PINION GEAR SURFACE FATIGUE RIDGING CORRECTION FACTOR
880	1	L37	SPITCF	8	4	N	TRANS UNITS	PINION GEAR PITTING/SPALLING CORRECTION FACTOR
890	1	L37	SCORCF	8	4	N	TRANS UNITS	PINION GEAR SCORING CORRECTION FACTOR
900	1	L37	TWEARCR	8	4	N	TRANS UNITS	PINION GEAR WEAR CORRECTED TRANSFORMED RESULT
910	1	L37	TRIPPCR	8	4	N	TRANS UNITS	PINION GEAR RIPPLING CORRECTED TRANSFORMED RESULT
920	1	L37	TRIDGCR	8	4	N	TRANS UNITS	PINION GEAR RIDGING CORRECTED TRANSFORMED RESULT
930	1	L37	TSPITCR	8	4	N	TRANS UNITS	PINION GEAR PITTING/SPALLING CORR. TRANSFORMED RESULT
940	1	L37	TSCORCR	8	4	N	TRANS UNITS	PINION GEAR SCORING CORRECTED TRANSFORMED RESULT
950	1	L37	WEARSA	8	4	N	TRANS UNITS	PINION GEAR WEAR SEVERITY ADJUSTMENT
960	1	L37	RIPPSA	8	4	N	TRANS UNITS	PINION GEAR SURFACE FATIGUE RIPPLING SEVERITY ADJUSTMENT
970	1	L37	RIDGSA	8	4	N	TRANS UNITS	PINION GEAR SURFACE FATIGUE RIDGING SEVERITY ADJUSTMENT
980	1	L37	SPITSA	8	4	N	TRANS UNITS	PINION GEAR PITTING/SPALLING SEVERITY ADJUSTMENT
990	1	L37	SCORSA	8	4	N	TRANS UNITS	PINION GEAR SCORING SEVERITY ADJUSTMENT
1000	1	L37	TWEARFN	8	4	N	TRANS UNITS	PINION GEAR WEAR FINAL TRANSFORMED RESULT
1010	1	L37	TRIPPFN	8	4	N	TRANS UNITS	PINION GEAR RIPPLING FINAL TRANSFORMED RESULT
1020	1	L37	TRIDGFN	8	4	N	TRANS UNITS	PINION GEAR RIDGING FINAL TRANSFORMED RESULT
1030	1	L37	TSPITFN	8	4	N	TRANS UNITS	PINION GEAR PITTING/SPALLING FINAL TRANSFORMED RESULT
1040	1	L37	TSCORFN	8	4	N	TRANS UNITS	PINION GEAR SCORING FINAL TRANSFORMED RESULT
1050	1	L37	WEARFNL	5	1	N	MERITS	FINAL PINION GEAR WEAR
1060	1	L37	RIPPFNL	5	1	N	MERITS	FINAL PINION GEAR SURFACE FATIGUE RIPPLING
1070	1	L37	RIDGFNL	5	1	N	MERITS	FINAL PINION GEAR SURFACE FATIGUE RIDGING
1080	1	L37	SPITFNL	5	1	N	MERITS	FINAL PINION GEAR SURFACE FATIGUE PITTING/SPALLING

Sequence	Form	Area	Test Field Name	Field Length	Decimal Size	Data Type	Units/Format	Description
1090	1	L37	SCORFNL	5	1	N	MERITS	FINAL PINION GEAR SCORING
1100	2	L37	MATCHNO	5	0	N		MATCH NUMBER
1110	2	L37	ASMBDT	8	0	C	DDD-YY-C	ASSEMBLY DATE
1120	2	L37	LPCRAT	1	0	N		PATTERN CONTACT LENGTH RATING
1130	2	L37	FPCRAT	2	0	N		PATTERN CONTACT FLANK RATING
1140	2	L37	RINIT	3	0	C		RATER'S INITIALS
1150	2	L37	RGBURN	25	0	C		RING GEAR BURNISH
1160	2	L37	PGBURN	25	0	C		PINION GEAR BURNISH
1170	2	L37	RDISCOL	5	1	N		RING GEAR DISCOLORATION
1180	2	L37	PDISCOL	5	1	N		PINION GEAR DISCOLORATION
1190	2	L37	RCORRSN	5	1	N		RING GEAR CORROSION
1200	2	L37	PCORRSN	5	1	N		PINION CORROSION
1210	2	L37	RDEPOST	5	1	N		RING GEAR DEPOSITS
1220	2	L37	PDEPOST	5	1	N		PINION DEPOSITS
1240	2	L37	WEARPIN	5	1	N	MERITS	PINION WEAR
1260	2	L37	RIPPIN	5	1	N	MERITS	PINION SURFACE FATIGUE RIPPLING
1280	2	L37	RIDGPIN	5	1	N	MERITS	PINION SURFACE FATIGUE RIDGING
1300	2	L37	SPITPIN	5	1	N	MERITS	PINION SURFACE FATIGUE PITTING/SPALLING
1320	2	L37	SCORPIN	5	1	N	MERITS	PINION SCORING
1330	2	L37	TOTEXL	3	0	Z		TOTAL LINES OF TEST METHOD EXCLUSIONS
1340	2	L37	EXCLRxxx	70	0	C		TEST METHOD EXCLUSIONS
1350	3	L37	SBTFAXBK	6	0	N	LBF-IN.	STABILITY BEFORE TEST FULL AXLE ASSEMBLY BREAK
1360	3	L37	SBTFAXTN	6	0	N	LBF-IN.	STABILITY BEFORE TEST FULL AXLE ASSEMBLY TURN
1370	3	L37	SATFXHBK	6	0	N	LBF-IN.	STABILITY AFTER TEST FULL AXLE ASSEMBLY-HOT- BREAK
1380	3	L37	SATFXHTN	6	0	N	LBF-IN.	STABILITY AFTER TEST FULL AXLE ASSEMBLY--HOT--TURN
1390	3	L37	SATFXCBK	6	0	N	LBF-IN.	STABILITY AFTER TEST FULL AXLE ASSEMBLY-COOL- BREAK
1400	3	L37	SATFXCTN	6	0	N	LBF-IN.	STABILITY AFTER TEST FULL AXLE ASSEMBLY-COOL-TURN
1410	3	L37	BBKLSSTR	6	3	N	IN	BEFORE TEST BACKLASH START
1420	3	L37	BBKLSFIN	6	3	N	IN	BEFORE TEST BACKLASH FINISH
1430	3	L37	BBKLSAVG	6	3	N	IN	BEFORE TEST BACKLASH AVERAGE
1440	3	L37	ABKLSSTR	6	3	N	IN	AFTER TEST BACKLASH START
1450	3	L37	ABKLSFIN	6	3	N	IN	AFTER TEST BACKLASH FINISH
1460	3	L37	ABKLSAVG	6	3	N	IN	AFTER TEST BACKLASH AVERAGE
1470	3	L37	DBKLSAVG	6	3	N	IN	AFTER TEST BACKLASH DIFFERENCE
1480	3	L37	HSLTTIMS	5	0	C	HH:MM	HIGH-SPEED, LOW-TORQUE TIME START
1490	3	L37	HSLTTIMF	5	0	C	HH:MM	HIGH-SPEED, LOW-TORQUE TIME FINISH
1500	3	L37	HSLTTIMT	6	0	C	HHH:MM	HIGH-SPEED, LOW-TORQUE TIME TOTAL
1510	3	L37	HSLTTIMM	5	0	C	MMMM	HIGH-SPEED, LOW-TORQUE TIME MINUTES
1520	3	L37	GCLUBTPX	6	1	N	°F	GEAR CONDITIONING PHASE GEAR-LUBRICANT TEMP MAX.
1530	3	L37	GCLUBTPI	6	1	N	°F	GEAR CONDITIONING PHASE GEAR-LUBRICANT TEMP MIN.
1540	3	L37	GCLUBTPA	6	1	N	°F	GEAR CONDITIONING PHASE GEAR-LUBRICANT TEMP AVG.
1550	3	L37	CDYTOR1X	6	1	N	lbf-ft	GEAR CONDITIONING DYNO TORQUE 1 MAXIMUM
1560	3	L37	CDYTOR1I	6	1	N	lbf-ft	GEAR CONDITIONING DYNO TORQUE 1 MINIMUM
1570	3	L37	CDYTOR1A	6	1	N	lbf-ft	GEAR CONDITIONING DYNO TORQUE 1 AVERAGE
1580	3	L37	CDYTOR2X	6	1	N	lbf-ft	GEAR CONDITIONING DYNO TORQUE 2 MAXIMUM
1590	3	L37	CDYTOR2I	6	1	N	lbf-ft	GEAR CONDITIONING DYNO TORQUE 2 MINIMUM
1600	3	L37	CDYTOR2A	6	1	N	lbf-ft	GEAR CONDITIONING DYNO TORQUE 2 AVERAGE
1610	3	L37	CDYSPD1X	6	1	N	r/min	GEAR CONDITIONING DYNO SPEED 1 MAXIMUM
1620	3	L37	CDYSPD1I	6	1	N	r/min	GEAR CONDITIONING DYNO SPEED 1 MINIMUM
1630	3	L37	CDYSPD1A	6	1	N	r/min	GEAR CONDITIONING DYNO SPEED 1 AVERAGE
1640	3	L37	CDYSPD2X	6	1	N	r/min	GEAR CONDITIONING DYNO SPEED 2 MAXIMUM
1650	3	L37	CDYSPD2I	6	1	N	r/min	GEAR CONDITIONING DYNO SPEED 2 MINIMUM
1660	3	L37	CDYSPD2A	6	1	N	r/min	GEAR CONDITIONING DYNO SPEED 2 AVERAGE
1670	3	L37	LSHTTIMS	5	0	C	HH:MM	LOW-SPEED, HIGH-TORQUE TIME COUNTER START

Sequence	Form	Test Area	Field Name	Field Length	Decimal Size	Data Type	Units/Format	Description
1680	3	L37	LSHTTIMF	5	0	C	HH:MM	LOW-SPEED, HIGH-TORQUE TIME COUNTER FINISH
1690	3	L37	LSHTTIMT	6	0	C	HHH:MM	LOW-SPEED, HIGH-TORQUE TIME TOTAL
1700	3	L37	LSHTTIMM	5	0	C	MMMM	LOW-SPEED, HIGH-TORQUE TIME MINUTES
1710	3	L37	GTLUBTPX	6	1	N	°F	GEAR TESTING PHASE GEAR-LUBRICANT TEMP MAX.
1720	3	L37	GTLUBTPI	6	1	N	°F	GEAR TESTING PHASE GEAR-LUBRICANT TEMP MIN.
1730	3	L37	GTLUBTPA	6	1	N	°F	GEAR TESTING GEAR-LUBRICANT TEMP AVG
1740	3	L37	TDYTOR1X	6	1	N	lbf-ft	GEAR TESTING DYNO TORQUE 1 MAXIMUM
1750	3	L37	TDYTOR1I	6	1	N	lbf-ft	GEAR TESTING DYNO TORQUE 1 MINIMUM
1760	3	L37	TDYTOR1A	6	1	N	lbf-ft	GEAR TESTING DYNO TORQUE 1 AVERAGE
1770	3	L37	TDYTOR2X	6	1	N	lbf-ft	GEAR TESTING DYNO TORQUE 2 MAXIMUM
1780	3	L37	TDYTOR2I	6	1	N	lbf-ft	GEAR TESTING DYNO TORQUE 2 MINIMUM
1790	3	L37	TDYTOR2A	6	1	N	lbf-ft	GEAR TESTING DYNO TORQUE 2 AVERAGE
1800	3	L37	TDYSPD1X	6	1	N	r/min	GEAR TESTING DYNO SPEED 1 MAXIMUM
1810	3	L37	TDYSPD1I	6	1	N	r/min	GEAR TESTING DYNO SPEED 1 MINIMUM
1820	3	L37	TDYSPD1A	6	1	N	r/min	GEAR TESTING DYNO SPEED 1 AVERAGE
1830	3	L37	TDYSPD2X	6	1	N	r/min	GEAR TESTING DYNO SPEED 2 MAXIMUM
1840	3	L37	TDYSPD2I	6	1	N	r/min	GEAR TESTING DYNO SPEED 2 MINIMUM
1850	3	L37	TDYSPD2A	6	1	N	r/min	GEAR TESTING DYNO SPEED 2 AVERAGE
1860	4	L37	DWNOCR	2	0	Z		NUMBER OF DOWNTIME OCCURRENCES
1870	4	L37	DWNRxxx	5	0	C	HH:MM	DOWNTIME TEST HOURS XXX
1880	4	L37	DDATRxxx	8	0	C	YYYYMMDD	DOWNTIME DATE XXX
1890	4	L37	DTIMRxxx	5	0	C	HH:MM	DOWNTIME TIME XXX
1900	4	L37	DREARxxx	60	0	C		DOWNTIME REMARKS/REASONS XXX
1910	4	L37	TOTLDOWN	5	0	C	HH:MM	DOWNTIME TIME TOTAL
1920	4	L37	TOTCOM	2	0	Z		TOTAL LINES OF COMMENTS & OUTLIERS
1930	4	L37	OCOMRxxx	70	0	C		OTHER DOWNTIME COMMENT XXX
1940	5	L37	COILTOUT	6	1	N	%	GEAR CONDITIONING OIL TEMPERATURE ALLOWABLE 5% OUT TEST
1950	5	L37	CATOTOT	7	0	C	MMMM:SS	GEAR CONDITIONING ACTUAL TIME OUT OIL TEMPERATURE
1960	5	L37	OILTPOUT	6	1	N	%	GEAR TESTING OIL TEMPERATURE ALLOWABLE 5% OUT TEST
1970	5	L37	ATOTOT	7	0	C	MMMM:SS	GEAR TESTING ACTUAL TIME OUT TEST OIL TEMPERATURE
1980	5	L37	WHLSP1WM	6	1	N	%	WHEEL SPEED 1 ALLOWABLE 5% OUT WARM-UP
1990	5	L37	WHLSP1WT	7	0	C	MMMM:SS	ACTUAL TIME OUT WARM-UP WHEEL SPEED 1
2000	5	L37	WHLSP1OT	6	1	N	%	WHEEL SPEED 1 ALLOWABLE 5% OUT TEST
2010	5	L37	WHLSP1AT	7	0	C	MMMM:SS	ACTUAL TIME OUT TEST WHEEL SPEED 1
2020	5	L37	WHLSP2WM	6	1	N	%	WHEEL SPEED 2 ALLOWABLE 5% OUT WARM-UP
2030	5	L37	WHLSP2WT	7	0	C	MMMM:SS	ACTUAL TIME OUT WARM-UP WHEEL SPEED 2
2040	5	L37	WHLSP2OT	6	1	N	%	WHELL SPEED 2 ALLOWABLE 5% OUT TEST
2050	5	L37	WHLSP2AT	7	0	C	MMMM:SS	ACTUAL TIME OUT TEST WHEEL SPEED 2
2060	5	L37	WHLSP1WM	6	1	N	%	WHEEL LOAD 1 ALLOWABLE 5% OUT WARM-UP
2070	5	L37	WHLSP1WT	7	0	C	MMMM:SS	ACTUAL TIME OUT WARM-UP WHEEL LOAD 1
2080	5	L37	WHLSP1OT	6	1	N	%	WHEEL LOAD 1 ALLOWABLE 5% OUT TEST
2090	5	L37	WHLSP1AT	7	0	C	MMMM:SS	ACTUAL TIME OUT TEST WHEEL LOAD 1
2100	5	L37	WHLSP2WM	6	1	N	%	WHEEL LOAD 2 ALLOWABLE 5% OUT WARM-UP
2110	5	L37	WHLSP2WT	7	0	C	MMMM:SS	ACTUAL TIME OUT WARM-UP WHEEL LOAD 2
2120	5	L37	WHLSP2OT	6	1	N	%	WHEEL LOAD 2 ALLOWABLE 5% OUT TEST
2130	5	L37	WHLSP2AT	7	0	C	MMMM:SS	ACTUAL TIME OUT TEST WHEEL LOAD 2

```

#####
#
#           D a t a D i c t i o n a r y R e p e a t i n g           #
#           F i e l d S p e c i f i c a t i o n s                   #
#                                                                 #
#####
# The following contains specifications and field groupings for fields in the
# Data Dictionary that are REPEATING Fields.  These fields can be identified
# in the Data Dictionary by the Hxxx or Rxxx in the last four positions of the
# field name.
#
# Repeating fields are used to specify repeating measurements.
#
# The format for a repeating field name is 4 descriptive characters followed
# by the letter H or R followed by 3 characters for the actual interval
# the measurement was taken. The field will always be a total of 8 characters.
#
# Example ABCDHxxx.
#
# The following is the format of this specification:
#
# Column 1 - 8:   Repeating Field Name
# Column 10 - 17: The Parent Field Name of the Group
# Column 19 - 26: The Measurement Interval Group Name
# Column 30 - 80: Comments about the Repeating Field Group.
#
# The lines following the Repeating Field Name Record will contain the required
# measurements for the particular field. Multiple 80 characters lines
# can be specified. A blank line marks the end of each specification.
#
# The Field Name in Column 10-17 designates the the Group in which the field
# belongs. The First field name in a group is the Parent of the grouping
# and can be used to determine how fields should be grouped.
# The changing of the Parent Field marks the end of a repeating group
# specification.
#
# Example:
#
# VIS_Hxxx, DVISHxxx and PVISHxxx expanded for transmission (8 and 16 hours):
#
#           VIS_H008
#           DVISH008
#           PVISH008
#           VIS_H016
#           DVISH016
#           PVISH016
#
# Note: During electronic transmission, repeating field groups must be kept
# together within the specified group but the order within the group
# does not have to be maintained.
#
#####
#           S t a r t o f F i e l d G r o u p i n g S p e c i f i c a t i o n s           #
#####
#
L37 VERSION 20010927
EXCLRxxx EXCLRxxx EXCLRxxx   TEST METHOD EXCLUSIONS

DOWNRxxx DOWNRxxx DOWNRxxx   DOWNTIME TEST HOURS XXX

DDATRxxx DOWNRxxx DOWNRxxx   DOWNTIME DATE XXX

```

DTIMRxxx DOWNRxxx DOWNRxxx DOWNTIME TIME XXX

DREARxxx DOWNRxxx DOWNRxxx DOWNTIME REMARKS/REASONS XXX

OCOMRxxx OCOMRxxx OCOMRxxx OTHER DOWNTIME COMMENT XXX

OXCLRxxx OXCLRxxx OXCLRxxx OTHER EXCLUSIONS