




## Test Monitoring Center

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MEMORANDUM: 11-016  
DATE: May 27, 2011  
TO: L-37 Surveillance Panel  
FROM: Scott Parke   
SUBJECT: Untransformed L-37 Test Targets

During a May 11, 2011 meeting, the L-37 Surveillance Panel finalized the untransformed test targets initially implemented in November of 2011. Approved, untransformed targets for all hardware/oil combinations along with the data used to generate them are shown in the tables that follow.

Untransformed targets for historic hardware/oil combinations were computed using the first 30 chartable tests for each combination. Because the various exigencies incorporated into the targets over the years can not be recreated in all cases, these 30 tests may not be the same 30 tests used to create the original transformed targets. Also, in some instances all tests reported for a given combination reported the same value thus giving a standard deviation of zero. For historic, now-depleted hardware/oil combinations, this does not present a problem; all results that will ever use that particular target are known to exactly match the target thus producing a shewhart chart value of zero, or “on-target” performance (the standard deviation then is irrelevant).

Currently-in-use hardware/oil combinations, however, remain free to produce results that either are or are not equal to the target. When a result differs from target, a zero standard deviation does present a problem. For the nonlubricated, VIL417/155 hardware/oil combination, all 10 of the tests reported have produced identical results for spitting and wear. If this were the case for 30 tests, the surveillance panel might be confident that the true performance of that combination is indeed invariant. Until that point, however, a non-zero target standard deviation may be necessary. The data from the historic hardware/oil combinations indicate that spitting standard deviation can be expected to range anywhere from 0.040 to 4.879 and wear can range from 0.289 to 2.038. The panel chose to adopt the conservative approach and use the smallest, non-zero standard deviation where the actual standard deviation is zero until permanent targets are computed after the accumulation of 30 tests.

SDP/sdp/mem11-016.sdp.doc

cc: Frank Farber  
Jeff Clark

<ftp://ftp.astmtmc.cmu.edu/docs/gear/137/memos/mem11-016.pdf>

Distribution: email

## Targets for Historic Hardware/Oil Combinations

			n	Ridging			Rippling			Spitting			Wear		
			x	s	Band	x	s	Band	x	s	Band	x	s	Band	
LUBRITED	C1L308	128	15	6.53	1.407	4 - 9	7.63	1.420	5 - 10	8.83	1.754	6 - 10	5.60	1.298	3 - 8
		128-1	7	7.00	0.000	7 - 7	8.00	0.577	7 - 9	8.84	1.723	6 - 10	5.57	0.535	5 - 7
		129	5	9.00	0.000	9 - 9	8.40	0.894	7 - 10	9.56	0.089	9.4 - 9.7	6.80	1.483	4 - 9
	C1L426	128	7	7.57	0.976	6 - 9	8.29	1.380	6 - 10	6.83	2.357	3 - 10	5.71	0.488	5 - 7
		128-1	7	7.71	1.113	6 - 10	7.86	0.690	7 - 9	7.57	3.187	2 - 10	6.00	0.577	5 - 7
		129	2	9.00	0.000	9 - 9	9.50	0.707	8 - 10	9.60	0.141	9.3 - 9.9	7.50	0.707	6 - 9
	L247	128-1	10	7.40	0.516	6 - 8	7.60	1.075	6 - 10	9.02	0.892	7 - 10	5.80	0.422	5 - 7
		151-3	10	8.80	0.422	8 - 10	8.60	0.516	8 - 10	9.49	0.586	8 - 10	6.00	0.000	6 - 6
		155	1	9.00	0.000	9 - 9	8.00	0.000	8 - 8	9.30	0.000	9.3 - 9.3	6.00	0.000	6 - 6
	V1L303	128	1	7.00	0.000	7 - 7	7.00	0.000	7 - 7	8.00	0.000	8 - 8	6.00	0.000	6 - 6
		128-1	30	7.30	1.264	5 - 10	6.97	1.497	4 - 10	5.26	3.144	0 - 10	5.67	0.959	4 - 7
		129	9	8.11	0.601	7 - 9	8.56	0.527	8 - 10	9.61	0.366	9 - 10	6.56	0.527	6 - 8
	V1L686	128-1	20	6.35	0.813	5 - 8	7.20	1.473	5 - 10	9.77	0.421	9.0 - 10	6.40	0.598	5 - 7
		151-3	21	6.43	1.207	4 - 9	8.71	0.463	8 - 10	9.68	0.632	9 - 10	6.57	0.598	5 - 8
		152	4	5.25	0.500	4 - 6	8.25	0.500	7 - 9	9.53	0.359	9 - 10	6.25	0.500	5 - 7
		153	2	5.00	0.000	5 - 5	8.00	0.000	8 - 8	9.30	0.424	9 - 10	5.50	0.707	4 - 7
		155	1	7.00	0.000	7 - 7	9.00	0.000	9 - 9	9.90	0.000	9.9 - 9.9	7.00	0.000	7 - 7

## Targets for Historic Hardware/Oil Combinations

			n	Ridging			Rippling			Spitting			Wear		
				x	s	Band	x	s	Band	x	s	Band	x	s	Band
NONLUBRITED	C1L308	127	17	6.41	2.033	3 - 10	6.06	1.784	3 - 9	9.54	0.450	9 - 10	6.82	2.038	3 - 10
		128	30	7.93	0.980	6 - 10	5.90	2.426	2 - 10	9.71	0.306	9.2 - 10	6.37	0.718	5 - 8
		128-1	8	8.38	0.744	7 - 10	5.75	1.982	2 - 9	9.43	0.883	8 - 10	6.50	0.535	6 - 7
		128-2	1	8.00	0.000	8 - 8	6.00	0.000	6 - 6	8.00	0.000	8 - 8	6.00	0.000	6 - 6
		129	19	9.26	0.933	8 - 10	9.89	0.315	9 - 10	9.89	0.091	9.7 - 10	8.11	0.875	7 - 10
	C1L426	127	10	7.25	1.752	4 - 10	8.30	1.767	5 - 10	9.40	1.039	8 - 10	6.50	0.972	5 - 8
		128	10	7.90	0.738	7 - 9	8.20	0.789	7 - 10	9.21	0.998	7 - 10	5.80	0.422	5 - 7
		128-1	11	8.36	0.674	7 - 10	8.00	1.095	6 - 10	9.54	0.785	8 - 10	5.73	0.467	5 - 7
		128-2	2	8.00	0.000	8 - 8	7.50	0.707	6 - 9	9.90	0.000	9.9 - 9.9	6.00	0.000	6 - 6
		129	8	9.50	0.535	9 - 10	9.75	0.463	9 - 10	9.96	0.052	9.9 - 10	7.00	1.195	5 - 9
	V1L176	127	2	7.00	2.828	2 - 10	8.00	0.000	8 - 8	6.45	4.879	0 - 10	6.00	1.414	3 - 9
		128-1	12	8.25	0.754	7 - 10	7.17	2.038	4 - 10	9.72	0.208	9.3 - 10	6.08	0.289	6 - 7
		128-2	1	7.00	0.000	7 - 7	9.00	0.000	9 - 9	9.90	0.000	9.9 - 9.9	6.00	0.000	6 - 6
		151-3	14	9.14	0.363	8 - 10	8.86	0.363	8 - 10	9.56	1.314	7 - 10	6.64	0.633	6 - 8
	V1L303	127	3	6.67	1.155	5 - 9	6.67	2.082	3 - 10	9.80	0.173	9.5 - 10	6.00	0.000	6 - 6
		128-1	13	8.08	0.494	7 - 9	6.92	1.656	4 - 10	8.07	2.451	4 - 10	5.85	0.376	5 - 7
		129	4	9.50	0.577	8 - 10	9.00	0.816	8 - 10	9.93	0.050	9.8 - 10	6.75	0.957	5 - 8
	V1L351	151-3	5	9.20	1.304	7 - 10	9.20	0.447	8 - 10	9.92	0.045	9.8 - 10	7.00	1.000	5 - 9
		152	5	9.40	0.548	8 - 10	8.80	0.447	8 - 10	9.88	0.045	9.8 - 10	7.20	0.837	6 - 9
		153	9	7.22	0.972	5 - 9	7.22	0.972	5 - 9	9.62	0.618	9 - 10	6.44	0.726	5 - 8
		155	3	9.33	0.577	8 - 10	8.67	0.577	8 - 10	9.90	0.000	9.9 - 9.9	7.00	1.000	5 - 9
	V1L417	152	6	9.17	0.408	8 - 10	9.17	0.408	8 - 10	9.90	0.000	9.9 - 9.9	8.00	0.632	7 - 9
		153	4	9.00	0.816	8 - 10	8.25	0.500	7 - 9	9.88	0.050	9.8 - 10	7.50	0.577	6 - 9
	V1L686	127	9	7.00	2.000	3 - 10	7.56	1.236	5 - 10	9.71	0.643	9 - 10	6.67	0.500	6 - 8
		128-1	8	7.50	0.926	6 - 9	5.63	1.188	3 - 8	9.93	0.046	9.8 - 10	6.88	0.641	6 - 8
		129	2	9.50	0.707	8 - 10	10.00	0.000	10 - 10	10.00	0.000	10 - 10	8.00	1.414	5 - 10
		151-2	11	9.09	0.701	8 - 10	8.73	0.647	8 - 10	9.92	0.040	9.8 - 10	7.55	0.688	6 - 9
		151-3	1	9.00	0.000	9 - 9	8.00	0.000	8 - 8	9.90	0.000	9.9 - 9.9	7.00	0.000	7 - 7

## Targets for Currently-In-Use Hardware/Oil Combinations

			n	Ridging			Rippling			Spitting			Wear		
			x	s	Band	x	s	Band	x	s	Band	x	s	Band	
NONLUBRITED	V1L417	151-3	30	9.47	0.507	9-10	9.33	0.606	8-10	9.71	1.080	8-10	8.00	0.587	7-9
		152-1	15	9.47	0.640	8-10	9.40	0.507	8-10	9.44	1.782	6-10	8.00	0.378	7-9
		153-1	20	8.80	0.616	8-10	8.90	0.447	8-10	9.89	0.049	9.8-10	7.55	0.605	6-9
		155	10	9.50	0.527	9-10	9.60	0.516	9-10	9.90	<b>0.040*</b>	<b>9.8-10*</b>	8.00	<b>0.289*</b>	<b>7-9*</b>
	V1L500	152-1	13	8.85	0.689	8-10	9.39	0.506	8-10	9.89	0.028	9.8-9.9	7.46	0.519	7-8
		155	15	9.07	0.594	8-10	9.33	0.488	8-10	9.84	0.124	9.6-10	7.47	0.516	7-8

\*Values altered from actual data as a result of substituting smallest known non-zero standard deviation.

## Reported Test Results

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	C1L308	128	19950120	20556	B	1	5	6	9.6	6
LUBRITED	C1L308	128	19950202	20557	B	2	7	8	9.0	6
LUBRITED	C1L308	128	19950208	19789	E	3	5	7	9.0	5
LUBRITED	C1L308	128	19950209	21047	E	4	5	7	9.3	5
LUBRITED	C1L308	128	19950214	20676	A	5	7	7	9.0	3
LUBRITED	C1L308	128	19950218	20677	A	6	7	5	9.7	5
LUBRITED	C1L308	128	19950223	22569	C	7	5	9	9.7	5
LUBRITED	C1L308	128	19950302	22571	C	8	5	7	9.0	5
LUBRITED	C1L308	128	19950328	19268	D	9	7	10	7.0	5
LUBRITED	C1L308	128	19950330	19270	D	10	9	10	9.7	9
LUBRITED	C1L308	128	19951015	22772	A	11	5	6	9.6	5
LUBRITED	C1L308	128	19970807	25973	B	12	7	8	9.7	6
LUBRITED	C1L308	128	19970815	22918	C	13	8	8	9.7	7
LUBRITED	C1L308	128	19980110	25978	B	14	8	8	3.0	6
LUBRITED	C1L308	128	19980711	30657	B	15	8	8.5	9.5	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	C1L308	128-1	19990320	31022	B	1	7	8	9.3	5
LUBRITED	C1L308	128-1	20021019	44285	E	2	7	9	9.8	6
LUBRITED	C1L308	128-1	20040304	49197	E	3	7	8	5.0	6
LUBRITED	C1L308	128-1	20040309	49198	E	4	7	8	9.0	5
LUBRITED	C1L308	128-1	20041006	51854	E	5	7	8	9.6	6
LUBRITED	C1L308	128-1	20041202	51856	E	6	7	8	9.9	6
LUBRITED	C1L308	128-1	20050222	54421	E	7	7	7	9.3	5

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	C1L308	129	19950122	20047	B	1	9	8	9.6	6
LUBRITED	C1L308	129	19950210	19792	E	2	9	9	9.5	7
LUBRITED	C1L308	129	19950213	20049	A	3	9	9	9.5	7
LUBRITED	C1L308	129	19950401	20060	D	4	9	9	9.7	9
LUBRITED	C1L308	129	19950413	22570	C	5	9	7	9.5	5

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	C1L426	128	19970521	26025	A	1	8	7	8.0	6
LUBRITED	C1L426	128	19970621	26511	D	2	6	6	7.0	5
LUBRITED	C1L426	128	19970708	27017	E	3	7	9	9.3	6
LUBRITED	C1L426	128	19971209	26512	D	4	9	10	3.0	6
LUBRITED	C1L426	128	19980415	27019	E	5	7	9	6.0	5
LUBRITED	C1L426	128	19990105	27239	D	6	8	8	5.0	6
LUBRITED	C1L426	128	19990519	27240	D	7	8	9	9.5	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	C1L426	128-1	19980716	30627	A	1	9	9	9.3	6
LUBRITED	C1L426	128-1	19980720	30629	A	2	7	8	9.9	7
LUBRITED	C1L426	128-1	19980814	30999	A	3	8	8	9.0	6
LUBRITED	C1L426	128-1	19981119	33394	A	4	9	8	4.0	6
LUBRITED	C1L426	128-1	19981124	33395	A	5	8	8	2.0	5
LUBRITED	C1L426	128-1	19990218	33400	A	6	7	7	9.5	6
LUBRITED	C1L426	128-1	20040311	50175	D	7	6	7	9.3	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	C1L426	129	19970928	23622	A	1	9	9	9.7	7
LUBRITED	C1L426	129	19980722	27244	D	2	9	10	9.5	8

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	L247	128-1	20050429	54418	B	1	8	8	9.0	6
LUBRITED	L247	128-1	20050928	55502	E	2	7	8	9.6	6
LUBRITED	L247	128-1	20051115	54416	B	3	7	8	9.0	5
LUBRITED	L247	128-1	20060219	55174	D	4	8	6	9.0	5
LUBRITED	L247	128-1	20060222	55182	B	5	8	9	9.9	6
LUBRITED	L247	128-1	20060225	55183	B	6	7	9	8.0	6
LUBRITED	L247	128-1	20070225	55503	E	7	8	6	9.5	6
LUBRITED	L247	128-1	20070310	59297	B	8	7	8	9.7	6
LUBRITED	L247	128-1	20070329	61596	A	9	7	7	7.0	6
LUBRITED	L247	128-1	20070404	61597	A	10	7	7	9.5	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	L247	151-3	20050504	54420	B	1	9	9	9.0	6
LUBRITED	L247	151-3	20050511	55186	B	2	9	9	9.7	6
LUBRITED	L247	151-3	20050622	51851	E	3	9	8	9.7	6
LUBRITED	L247	151-3	20050908	55187	B	4	9	8	9.8	6
LUBRITED	L247	151-3	20051006	50339	D	5	9	9	9.8	6
LUBRITED	L247	151-3	20060109	53459	E	6	9	8	9.9	6
LUBRITED	L247	151-3	20061114	54428	A	7	8	9	9.9	6
LUBRITED	L247	151-3	20061125	56559	B	8	8	9	9.5	6
LUBRITED	L247	151-3	20061220	55507	E	9	9	8	8.0	6
LUBRITED	L247	151-3	20070612	58285	B	10	9	9	9.6	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	L247	155	20060602	58919	E	1	9	8	9.3	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	V1L303	128	19991001	27241	D	1	7	7	8.0	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	V1L303	128-1	19981016	31004	A	1	9	4	9.0	6
LUBRITED	V1L303	128-1	19981021	31005	A	2	8	6	3.0	7
LUBRITED	V1L303	128-1	19990205	31018	B	3	4	5	3.0	6
LUBRITED	V1L303	128-1	19990226	31019	B	4	7	9	8.0	6
LUBRITED	V1L303	128-1	19990309	31071	E	5	7	7	1.0	4
LUBRITED	V1L303	128-1	19990309	31020	B	6	7	8	8.0	6
LUBRITED	V1L303	128-1	19990311	31021	B	7	4	9	1.0	3
LUBRITED	V1L303	128-1	19990401	31023	B	8	7	8	3.0	6
LUBRITED	V1L303	128-1	19990408	34201	B	9	8	8	3.0	5
LUBRITED	V1L303	128-1	19990417	34202	B	10	7	9	2.0	6
LUBRITED	V1L303	128-1	19990418	34203	B	11	8	8	8.0	6
LUBRITED	V1L303	128-1	19990917	34204	B	12	7	7	1.0	6
LUBRITED	V1L303	128-1	20000202	34455	B	13	8	8	2.0	6
LUBRITED	V1L303	128-1	20000229	34214	A	14	9	6	6.0	7
LUBRITED	V1L303	128-1	20000302	34215	A	15	9	5	9.9	6
LUBRITED	V1L303	128-1	20000303	34216	A	16	9	7	3.0	6
LUBRITED	V1L303	128-1	20000307	34217	A	17	8	6	3.0	6
LUBRITED	V1L303	128-1	20000413	34210	E	18	8	8	7.0	6
LUBRITED	V1L303	128-1	20000702	35674	D	19	7	6	9.0	6
LUBRITED	V1L303	128-1	20000711	34220	A	20	8	6	7.0	6
LUBRITED	V1L303	128-1	20000801	34211	E	21	8	8	7.0	6
LUBRITED	V1L303	128-1	20000824	34461	B	22	7	8	9.8	6
LUBRITED	V1L303	128-1	20000831	34462	B	23	7	8	8.0	5
LUBRITED	V1L303	128-1	20001106	37029	D	24	5	7	2.0	3
LUBRITED	V1L303	128-1	20001109	37030	D	25	8	9	3.0	7
LUBRITED	V1L303	128-1	20010103	35689	E	26	7	8	2.0	5
LUBRITED	V1L303	128-1	20010301	37031	D	27	7	7	7.0	6
LUBRITED	V1L303	128-1	20010607	37016	A	28	7	4	9.3	6
LUBRITED	V1L303	128-1	20010608	37017	A	29	8	5	9.7	5
LUBRITED	V1L303	128-1	20010612	39389	A	30	6	5	3.0	5

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	V1L303	129	19990420	22721	B	1	8	9	9.8	6
LUBRITED	V1L303	129	19990608	30639	A	2	8	8	9.8	6
LUBRITED	V1L303	129	19990824	27028	E	3	9	9	9.9	6
LUBRITED	V1L303	129	19991031	35604	A	4	7	9	9.9	7
LUBRITED	V1L303	129	19991102	35605	A	5	8	8	9.8	7
LUBRITED	V1L303	129	20000129	31061	D	6	9	9	9.0	7
LUBRITED	V1L303	129	20001110	37033	D	7	8	9	9.5	7
LUBRITED	V1L303	129	20001207	36044	A	8	8	8	9.0	7
LUBRITED	V1L303	129	20010202	31029	B	9	8	8	9.8	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	V1L686	128-1	20011026	35686	B	1	6	8	9.8	6
LUBRITED	V1L686	128-1	20020117	37039	E	2	7	8	9.7	7
LUBRITED	V1L686	128-1	20020420	38867	D	3	7	9	9.7	7
LUBRITED	V1L686	128-1	20020521	39385	B	4	7	8	9.9	6
LUBRITED	V1L686	128-1	20021210	44312	D	5	6	6	9.9	7
LUBRITED	V1L686	128-1	20030123	44281	B	6	7	9	9.8	7
LUBRITED	V1L686	128-1	20030729	46791	E	7	6	5	9.9	7
LUBRITED	V1L686	128-1	20030924	46803	A	8	6	7	9.9	6
LUBRITED	V1L686	128-1	20031012	46774	B	9	7	8	9.9	6
LUBRITED	V1L686	128-1	20031015	46786	D	10	7	8	9.9	6
LUBRITED	V1L686	128-1	20040517	50081	E	11	5	6	9.9	7
LUBRITED	V1L686	128-1	20040603	49556	A	12	7	5	9.9	6
LUBRITED	V1L686	128-1	20041007	49557	A	13	5	5	8.0	5
LUBRITED	V1L686	128-1	20041020	50343	B	14	7	9	9.9	7
LUBRITED	V1L686	128-1	20041111	50333	D	15	5	7	9.8	6
LUBRITED	V1L686	128-1	20041216	50344	B	16	7	6	9.8	7
LUBRITED	V1L686	128-1	20050208	50350	A	17	5	6	9.9	6
LUBRITED	V1L686	128-1	20061103	55176	D	18	6	9	9.9	6
LUBRITED	V1L686	128-1	20061107	59319	A	19	7	9	9.9	6
LUBRITED	V1L686	128-1	20070427	55178	D	20	7	6	9.9	7

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	V1L686	151-3	20010619	37940	B	1	6	9	9.8	7
LUBRITED	V1L686	151-3	20010731	37581	E	2	6	9	9.9	6
LUBRITED	V1L686	151-3	20011215	39375	D	3	5	9	9.8	7
LUBRITED	V1L686	151-3	20020130	37942	B	4	6	9	9.6	6
LUBRITED	V1L686	151-3	20020517	37584	E	5	7	9	9.9	7
LUBRITED	V1L686	151-3	20020802	42494	B	6	3	8	7.0	6
LUBRITED	V1L686	151-3	20020807	42497	B	7	6	9	9.6	6
LUBRITED	V1L686	151-3	20020820	42482	D	8	7	9	9.9	7
LUBRITED	V1L686	151-3	20030319	46788	E	9	6	8	9.8	7
LUBRITED	V1L686	151-3	20030508	42481	A	10	8	8	9.9	7
LUBRITED	V1L686	151-3	20030514	46785	D	11	7	9	9.9	7
LUBRITED	V1L686	151-3	20030625	46082	B	12	6	8	9.3	6
LUBRITED	V1L686	151-3	20031016	49499	D	13	8	9	9.9	7
LUBRITED	V1L686	151-3	20040130	46800	A	14	7	9	9.9	7
LUBRITED	V1L686	151-3	20040211	49045	B	15	5	9	9.8	5
LUBRITED	V1L686	151-3	20040214	49048	B	16	6	8	9.8	6
LUBRITED	V1L686	151-3	20040722	51845	B	17	8	9	9.9	7
LUBRITED	V1L686	151-3	20040730	49203	E	18	6	8	9.9	7
LUBRITED	V1L686	151-3	20040804	50180	D	19	7	9	9.9	7
LUBRITED	V1L686	151-3	20041013	49560	A	20	7	9	9.9	6
LUBRITED	V1L686	151-3	20070302	50399	D	21	8	9	9.9	7

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	V1L686	152	20041218	53453	B	1	5	8	9.0	6
LUBRITED	V1L686	152	20050116	53540	B	2	5	8	9.6	6
LUBRITED	V1L686	152	20050610	53531	D	3	5	8	9.8	7
LUBRITED	V1L686	152	20050622	53487	A	4	6	9	9.7	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	V1L686	153	20050426	53545	B	1	5	8	9.0	5
LUBRITED	V1L686	153	20051014	53490	A	2	5	8	9.6	6



HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
LUBRITED	V1L686	155	20060713	58904	D	1	7	9	9.9	7

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	C1L308	127	19950207	20048	B	1	7	9	9.3	3
NONLUBRITED	C1L308	127	19950219	20150	B	2	7	7	9.8	5
NONLUBRITED	C1L308	127	19950404	20054	A	3	3	3	9.3	5
NONLUBRITED	C1L308	127	19950420	19786	E	4	3	5	9.3	5
NONLUBRITED	C1L308	127	19950505	22575	C	5	5	9	9.5	5
NONLUBRITED	C1L308	127	19951001	20143	A	6	6	5	9.9	8
NONLUBRITED	C1L308	127	19951008	20551	D	7	7	5	9.9	9
NONLUBRITED	C1L308	127	19960305	20145	A	8	3	5	8.0	4
NONLUBRITED	C1L308	127	19960327	22462	D	9	7	5	9.5	7
NONLUBRITED	C1L308	127	19960413	22771	A	10	9	7	9.9	9
NONLUBRITED	C1L308	127	19960416	21048	E	11	6	7	9.7	7
NONLUBRITED	C1L308	127	19960823	22744	B	12	8	9	9.7	6
NONLUBRITED	C1L308	127	19970401	23616	A	13	8	5	9.5	9
NONLUBRITED	C1L308	127	19980416	26506	D	14	7	6	9.9	9
NONLUBRITED	C1L308	127	19980723	30633	A	15	5	5	9.6	7
NONLUBRITED	C1L308	127	19980815	30634	A	16	9	4	9.7	9
NONLUBRITED	C1L308	127	19991228	33396	A	17	9	7	9.7	9

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	C1L308	128	19950204	20559	B	1	9	10	9.0	6
NONLUBRITED	C1L308	128	19950206	20561	B	2	8	5	9.8	6
NONLUBRITED	C1L308	128	19950402	20679	A	3	7	3	9.7	5
NONLUBRITED	C1L308	128	19950403	22767	A	4	7	3	9.9	7
NONLUBRITED	C1L308	128	19950408	22708	B	5	9	8	9.9	6
NONLUBRITED	C1L308	128	19950415	22768	A	6	9	3	9.3	7
NONLUBRITED	C1L308	128	19950418	22775	E	7	7	3	9.9	7
NONLUBRITED	C1L308	128	19950419	22776	E	8	7	3	9.9	7
NONLUBRITED	C1L308	128	19950502	22574	C	9	7	7	9.0	5
NONLUBRITED	C1L308	128	19950504	22576	C	10	9	7	9.9	7
NONLUBRITED	C1L308	128	19950519	22711	B	11	9	9	9.7	7
NONLUBRITED	C1L308	128	19950620	22770	A	12	7	3	9.3	7
NONLUBRITED	C1L308	128	19950715	22713	B	13	8	8	9.9	6
NONLUBRITED	C1L308	128	19950822	22714	B	14	7	9	9.7	7
NONLUBRITED	C1L308	128	19951011	22472	D	15	7	7	10.0	5
NONLUBRITED	C1L308	128	19951012	22719	B	16	9	8	9.7	6
NONLUBRITED	C1L308	128	19951014	23064	D	17	7	7	9.9	5
NONLUBRITED	C1L308	128	19951115	23350	E	18	8	5	9.7	7
NONLUBRITED	C1L308	128	19951125	23065	D	19	6	7	10.0	7
NONLUBRITED	C1L308	128	19951214	22773	A	20	7	3	9.9	7
NONLUBRITED	C1L308	128	19951223	22722	B	21	9	7	9.9	6
NONLUBRITED	C1L308	128	19960105	22913	C	22	7	10	10.0	7
NONLUBRITED	C1L308	128	19960119	23066	D	23	7	7	10.0	6
NONLUBRITED	C1L308	128	19960127	22774	A	24	9	5	9.8	7
NONLUBRITED	C1L308	128	19960221	23351	E	25	8	7	9.7	7
NONLUBRITED	C1L308	128	19960308	22727	B	26	9	4	9.9	6
NONLUBRITED	C1L308	128	19960815	26020	A	27	9	4	9.0	6
NONLUBRITED	C1L308	128	19961120	25971	B	28	8	9	9.9	6
NONLUBRITED	C1L308	128	19961123	26021	A	29	9	3	9.4	7
NONLUBRITED	C1L308	128	19970129	26024	A	30	9	3	9.6	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	C1L308	128-1	19960813	27264	D	1	7	9	10.0	7
NONLUBRITED	C1L308	128-1	19970725	27272	A	2	8	3	8.0	6
NONLUBRITED	C1L308	128-1	19971202	27273	A	3	9	4	9.8	6
NONLUBRITED	C1L308	128-1	19980819	31000	A	4	9	4	9.9	7
NONLUBRITED	C1L308	128-1	19980828	31002	A	5	9	6	9.8	7
NONLUBRITED	C1L308	128-1	19980903	31003	A	6	9	7	10.0	7
NONLUBRITED	C1L308	128-1	20041123	51855	E	7	8	6	8.0	6
NONLUBRITED	C1L308	128-1	20041130	51857	E	8	8	7	9.9	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	C1L308	128-2	20041202	42465	E	1	8	6	8.0	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	C1L308	129	19950213	20555	B	1	10	10	9.9	7
NONLUBRITED	C1L308	129	19950405	20051	A	2	9	10	9.7	9
NONLUBRITED	C1L308	129	19950414	20553	E	3	9	9	9.9	9
NONLUBRITED	C1L308	129	19950428	22573	C	4	9	10	9.9	7
NONLUBRITED	C1L308	129	19950516	20053	A	5	7	10	9.9	9
NONLUBRITED	C1L308	129	19950721	22914	C	6	7	10	10.0	7
NONLUBRITED	C1L308	129	19950822	20141	A	7	9	10	9.7	9
NONLUBRITED	C1L308	129	19951003	20550	D	8	10	10	9.9	9
NONLUBRITED	C1L308	129	19951012	20552	D	9	9	10	10.0	9
NONLUBRITED	C1L308	129	19951109	20142	A	10	9	10	9.8	8
NONLUBRITED	C1L308	129	19960109	20554	E	11	9	9	9.9	8
NONLUBRITED	C1L308	129	19960204	20558	B	12	10	10	9.8	7
NONLUBRITED	C1L308	129	19960222	22466	D	13	10	10	10.0	9
NONLUBRITED	C1L308	129	19960502	22705	B	14	10	10	10.0	9
NONLUBRITED	C1L308	129	19960612	23614	A	15	10	10	9.9	7
NONLUBRITED	C1L308	129	19961004	22710	B	16	10	10	9.9	8
NONLUBRITED	C1L308	129	19961008	26416	D	17	10	10	10.0	7
NONLUBRITED	C1L308	129	19961018	23617	A	18	10	10	9.9	8
NONLUBRITED	C1L308	129	19970524	22915	C	19	9	10	9.9	8

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	C1L426	127	19970319	22470	D	1	8	9	10.0	7
NONLUBRITED	C1L426	127	19980307	22706	B	2	6	9	7.0	6
NONLUBRITED	C1L426	127	19980702	22726	B	3	5.5	9	9.8	6
NONLUBRITED	C1L426	127	19980714	26022	A	4	4	9	8.0	6
NONLUBRITED	C1L426	127	19980716	30630	A	5	9	5	9.9	7
NONLUBRITED	C1L426	127	19980717	30631	A	6	8	5	10.0	6
NONLUBRITED	C1L426	127	19980718	30632	A	7	10	10	10.0	9
NONLUBRITED	C1L426	127	19980915	27024	E	8	7	9	9.9	6
NONLUBRITED	C1L426	127	19980918	27025	E	9	8	9	9.9	6
NONLUBRITED	C1L426	127	20030429	44287	E	10	7	9	9.5	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	C1L426	128	19960531	25998	E	1	8	9	9.6	6
NONLUBRITED	C1L426	128	19960927	27015	E	2	7	8	9.9	6
NONLUBRITED	C1L426	128	19961122	26510	D	3	7	7	9.9	6
NONLUBRITED	C1L426	128	19970520	27016	E	4	7	7	9.9	6
NONLUBRITED	C1L426	128	19970612	25972	B	5	8	9	9.9	5
NONLUBRITED	C1L426	128	19971116	25976	B	6	8	8	8.0	6
NONLUBRITED	C1L426	128	19971118	25977	B	7	9	8	7.0	6
NONLUBRITED	C1L426	128	19980515	26513	D	8	8	9	9.9	5
NONLUBRITED	C1L426	128	19980630	30655	B	9	8	8	9.0	6
NONLUBRITED	C1L426	128	19981101	27238	D	10	9	9	9.0	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	C1L426	128-1	19960813	27260	E	1	7	7	9.9	6
NONLUBRITED	C1L426	128-1	19980713	30626	A	2	9	8	10.0	6
NONLUBRITED	C1L426	128-1	19980717	30628	A	3	9	6	8.0	6
NONLUBRITED	C1L426	128-1	19980719	30998	A	4	9	7	10.0	6
NONLUBRITED	C1L426	128-1	19980825	31001	A	5	9	8	10.0	5
NONLUBRITED	C1L426	128-1	19981212	33397	A	6	9	7	10.0	6
NONLUBRITED	C1L426	128-1	20020719	39840	E	7	8	9	9.3	6
NONLUBRITED	C1L426	128-1	20031028	49194	E	8	8	9	9.9	6
NONLUBRITED	C1L426	128-1	20040713	50082	E	9	8	9	8.0	6
NONLUBRITED	C1L426	128-1	20050414	54425	E	10	8	9	9.9	5
NONLUBRITED	C1L426	128-1	20050816	55501	E	11	8	9	9.9	5

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	C1L426	128-2	20041207	42466	E	1	8	7	9.9	6
NONLUBRITED	C1L426	128-2	20041208	42467	E	2	8	8	9.9	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	C1L426	129	19970121	22715	B	1	10	9	9.9	7
NONLUBRITED	C1L426	129	19970124	26417	D	2	9	10	10.0	7
NONLUBRITED	C1L426	129	19970403	22716	B	3	10	10	10.0	7
NONLUBRITED	C1L426	129	19971011	26418	D	4	10	10	10.0	9
NONLUBRITED	C1L426	129	19971205	23353	E	5	9	10	9.9	5
NONLUBRITED	C1L426	129	19980513	30637	A	6	10	9	10.0	7
NONLUBRITED	C1L426	129	19990316	31058	D	7	9	10	10.0	8
NONLUBRITED	C1L426	129	19990622	27027	E	8	9	10	9.9	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L176	127	20030710	40264	A	1	5	8	3.0	5
NONLUBRITED	V1L176	127	20030717	44294	A	2	9	8	9.9	7

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L176	128-1	20030314	44313	D	1	9	9	10.0	6
NONLUBRITED	V1L176	128-1	20030325	46781	D	2	8	7	9.9	6
NONLUBRITED	V1L176	128-1	20030515	44282	B	3	8	9	10.0	7
NONLUBRITED	V1L176	128-1	20030819	46782	D	4	8	5	9.9	6
NONLUBRITED	V1L176	128-1	20031126	46802	A	5	9	4	9.7	6
NONLUBRITED	V1L176	128-1	20031213	46778	B	6	7	9	9.7	6
NONLUBRITED	V1L176	128-1	20040330	46799	A	7	9	5	9.7	6
NONLUBRITED	V1L176	128-1	20040425	46935	B	8	8	9	9.4	6
NONLUBRITED	V1L176	128-1	20040603	50341	B	9	8	9	9.7	6
NONLUBRITED	V1L176	128-1	20040804	51853	E	10	7	9	9.7	6
NONLUBRITED	V1L176	128-1	20041201	50349	A	11	9	6	9.5	6
NONLUBRITED	V1L176	128-1	20050901	50351	A	12	9	5	9.4	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L176	128-2	20041130	42491	B	1	7	9	9.9	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L176	151-3	20021221	42473	E	1	9	9	9.9	6
NONLUBRITED	V1L176	151-3	20030215	42490	D	2	9	9	10.0	8
NONLUBRITED	V1L176	151-3	20030306	42480	A	3	9	8	9.9	7
NONLUBRITED	V1L176	151-3	20030723	46796	A	4	10	9	9.9	6
NONLUBRITED	V1L176	151-3	20030813	46084	B	5	9	9	9.9	6
NONLUBRITED	V1L176	151-3	20040114	49502	D	6	9	9	9.9	7
NONLUBRITED	V1L176	151-3	20040418	50346	B	7	9	9	5.0	6
NONLUBRITED	V1L176	151-3	20040423	50347	B	8	9	8	9.7	7
NONLUBRITED	V1L176	151-3	20040803	49202	E	9	9	9	9.9	7
NONLUBRITED	V1L176	151-3	20040805	46801	A	10	9	9	9.9	7
NONLUBRITED	V1L176	151-3	20040914	51846	B	11	10	9	9.9	6
NONLUBRITED	V1L176	151-3	20041219	51849	B	12	9	9	10.0	7
NONLUBRITED	V1L176	151-3	20050419	50355	A	13	9	9	10.0	7
NONLUBRITED	V1L176	151-3	20051116	51852	E	14	9	9	9.9	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L303	127	19990731	27234	D	1	6	5	9.9	6
NONLUBRITED	V1L303	127	19990805	31006	A	2	6	9	9.9	6
NONLUBRITED	V1L303	127	20001031	33385	E	3	8	6	9.6	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L303	128-1	19990218	33398	A	1	9	4	8.0	6
NONLUBRITED	V1L303	128-1	19990223	33401	A	2	8	4	8.0	6
NONLUBRITED	V1L303	128-1	19991116	33381	E	3	9	8	9.9	6
NONLUBRITED	V1L303	128-1	19991123	33383	E	4	8	7	8.0	6
NONLUBRITED	V1L303	128-1	19991130	34454	B	5	8	8	10.0	6
NONLUBRITED	V1L303	128-1	19991201	31057	D	6	8	8	3.0	6
NONLUBRITED	V1L303	128-1	20000216	33384	E	7	8	7	7.0	6
NONLUBRITED	V1L303	128-1	20000325	34198	D	8	8	5	3.0	6
NONLUBRITED	V1L303	128-1	20000412	34459	B	9	8	8	9.0	5
NONLUBRITED	V1L303	128-1	20011030	37037	E	10	8	8	9.9	6
NONLUBRITED	V1L303	128-1	20040528	50176	D	11	7	6	9.3	5
NONLUBRITED	V1L303	128-1	20040930	50177	D	12	8	9	9.8	6
NONLUBRITED	V1L303	128-1	20050118	50335	D	13	8	8	10.0	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L303	129	19990701	22736	B	1	9	9	9.9	6
NONLUBRITED	V1L303	129	19990917	30640	A	2	10	8	9.9	7
NONLUBRITED	V1L303	129	19990923	31009	A	3	10	10	10.0	8
NONLUBRITED	V1L303	129	20010316	35691	E	4	9	9	9.9	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L351	151-3	20050324	54419	B	1	10	9	10.0	8
NONLUBRITED	V1L351	151-3	20051224	50340	D	2	10	9	9.9	6
NONLUBRITED	V1L351	151-3	20060104	56555	B	3	9	9	9.9	7
NONLUBRITED	V1L351	151-3	20060503	56558	B	4	10	10	9.9	6
NONLUBRITED	V1L351	151-3	20070119	58311	A	5	7	9	9.9	8

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L351	152	20050714	55380	B	1	9	9	9.9	6
NONLUBRITED	V1L351	152	20050803	53534	D	2	10	8	9.9	7
NONLUBRITED	V1L351	152	20051130	53556	A	3	10	9	9.8	7
NONLUBRITED	V1L351	152	20060901	58315	A	4	9	9	9.9	8
NONLUBRITED	V1L351	152	20061031	58316	A	5	9	9	9.9	8

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L351	153	20050221	53458	B	1	8	9	9.9	6
NONLUBRITED	V1L351	153	20050420	53536	D	2	9	8	9.9	8
NONLUBRITED	V1L351	153	20051013	55386	B	3	7	7	9.8	6
NONLUBRITED	V1L351	153	20060506	58294	B	4	7	6	8.0	6
NONLUBRITED	V1L351	153	20060510	58295	B	5	6	6	9.9	6
NONLUBRITED	V1L351	153	20060512	58296	B	6	7	7	9.6	6
NONLUBRITED	V1L351	153	20060602	58320	A	7	7	7	9.9	7
NONLUBRITED	V1L351	153	20061101	58321	A	8	8	8	9.9	7
NONLUBRITED	V1L351	153	20070125	58322	A	9	6	7	9.7	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L351	155	20060228	58908	A	1	9	9	9.9	7
NONLUBRITED	V1L351	155	20060326	58918	E	2	9	8	9.9	8
NONLUBRITED	V1L351	155	20060410	58903	D	3	10	9	9.9	6

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L417	152	20061223	58304	E	1	9	9	9.9	8
NONLUBRITED	V1L417	152	20070403	58277	D	2	9	10	9.9	9
NONLUBRITED	V1L417	152	20070510	59301	B	3	10	9	9.9	8
NONLUBRITED	V1L417	152	20070909	61860	A	4	9	9	9.9	7
NONLUBRITED	V1L417	152	20080129	59310	E	5	9	9	9.9	8
NONLUBRITED	V1L417	152	20080318	61861	A	6	9	9	9.9	8

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L417	153	20070110	58281	D	1	10	8	9.9	8
NONLUBRITED	V1L417	153	20070124	59302	B	2	8	8	9.8	7
NONLUBRITED	V1L417	153	20070505	59313	E	3	9	9	9.9	8
NONLUBRITED	V1L417	153	20070708	61863	A	4	9	8	9.9	7

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L686	127	20001129	34208	B	1	4	8	8.0	6
NONLUBRITED	V1L686	127	20001220	35673	D	2	5	5	10.0	6
NONLUBRITED	V1L686	127	20010207	35606	A	3	9	9	9.9	7
NONLUBRITED	V1L686	127	20011202	35682	B	4	5	8	9.9	6
NONLUBRITED	V1L686	127	20020216	35676	D	5	8	7	10.0	7
NONLUBRITED	V1L686	127	20020312	35610	A	6	9	7	9.9	7
NONLUBRITED	V1L686	127	20020319	35690	E	7	8	7	9.9	7
NONLUBRITED	V1L686	127	20020919	44283	B	8	6	9	9.9	7
NONLUBRITED	V1L686	127	20030820	44308	D	9	9	8	9.9	7

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L686	128-1	20000913	37013	A	1	8	5	10.0	6
NONLUBRITED	V1L686	128-1	20010414	35684	B	2	7	7	10.0	6
NONLUBRITED	V1L686	128-1	20010929	38863	D	3	7	6	9.9	8
NONLUBRITED	V1L686	128-1	20011002	38864	D	4	7	6	9.9	7
NONLUBRITED	V1L686	128-1	20011220	39392	A	5	6	6	9.9	7
NONLUBRITED	V1L686	128-1	20020406	39381	B	6	8	7	9.9	7
NONLUBRITED	V1L686	128-1	20021004	44311	D	7	8	4	9.9	7
NONLUBRITED	V1L686	128-1	20021106	44292	A	8	9	4	9.9	7

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L686	129	20000901	35680	D	1	9	10	10.0	9
NONLUBRITED	V1L686	129	20000904	37032	D	2	10	10	10.0	7

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L686	151-2	20000509	36571	A	1	9	8	9.9	7
NONLUBRITED	V1L686	151-2	20000517	36566	D	2	10	9	10.0	7
NONLUBRITED	V1L686	151-2	20000601	36562	E	3	9	9	9.9	7
NONLUBRITED	V1L686	151-2	20000617	36558	B	4	9	9	9.9	7
NONLUBRITED	V1L686	151-2	20010505	36568	D	5	8	8	9.9	8
NONLUBRITED	V1L686	151-2	20010814	36574	A	6	9	8	9.9	7
NONLUBRITED	V1L686	151-2	20010822	36560	B	7	9	8	9.9	7
NONLUBRITED	V1L686	151-2	20020621	36569	D	8	9	10	10.0	8
NONLUBRITED	V1L686	151-2	20020626	36570	D	9	8	9	9.9	8
NONLUBRITED	V1L686	151-2	20020719	36575	A	10	10	9	9.9	9
NONLUBRITED	V1L686	151-2	20020726	37014	A	11	10	9	9.9	8

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L686	151-3	20020628	42492	B	1	9	8	9.9	7
NONLUBRITED	V1L417	151-3	20060124	53460	E	1	9	8	9.9	6
NONLUBRITED	V1L417	151-3	20060124	56556	B	2	10	10	10	8
NONLUBRITED	V1L417	151-3	20060126	53444	D	3	10	10	9.9	9
NONLUBRITED	V1L417	151-3	20060128	50356	A	4	10	9	9.9	8
NONLUBRITED	V1L417	151-3	20060325	56557	B	5	10	10	9.9	8
NONLUBRITED	V1L417	151-3	20060330	55506	E	6	9	8	9.9	8
NONLUBRITED	V1L417	151-3	20060403	53445	D	7	10	10	10	8
NONLUBRITED	V1L417	151-3	20060412	54426	A	8	10	9	9.9	8
NONLUBRITED	V1L417	151-3	20060909	55181	D	9	9	10	9.9	7
NONLUBRITED	V1L417	151-3	20061222	58297	E	10	10	9	9.9	8
NONLUBRITED	V1L417	151-3	20070531	58312	A	11	10	9	9.9	8
NONLUBRITED	V1L417	151-3	20070615	58158	D	12	10	10	10	8
NONLUBRITED	V1L417	151-3	20070731	58286	B	13	9	10	9.9	8
NONLUBRITED	V1L417	151-3	20070819	58159	D	14	9	10	10	8
NONLUBRITED	V1L417	151-3	20070919	58298	E	15	10	9	9.9	7
NONLUBRITED	V1L417	151-3	20071110	58313	A	16	9	10	9.9	8
NONLUBRITED	V1L417	151-3	20080127	58287	B	17	10	10	9.9	8
NONLUBRITED	V1L417	151-3	20080221	58161	D	18	9	9	9.9	9
NONLUBRITED	V1L417	151-3	20080512	58166	D	19	9	9	9.9	9
NONLUBRITED	V1L417	151-3	20080724	65721	A	20	9	9	9.9	8
NONLUBRITED	V1L417	151-3	20080726	58299	E	21	9	9	4	8
NONLUBRITED	V1L417	151-3	20080730	65760	E	22	10	9	9.9	8
NONLUBRITED	V1L417	151-3	20080806	65761	E	23	10	9	9.9	8
NONLUBRITED	V1L417	151-3	20080815	58163	D	24	9	9	9.9	8
NONLUBRITED	V1L417	151-3	20080821	58288	B	25	9	10	9.8	8
NONLUBRITED	V1L417	151-3	20081003	65767	B	26	9	10	9.9	9
NONLUBRITED	V1L417	151-3	20090111	65722	A	27	10	9	9.9	8
NONLUBRITED	V1L417	151-3	20090611	58164	D	28	9	9	9.9	8
NONLUBRITED	V1L417	151-3	20090804	65723	A	29	9	9	9.9	8
NONLUBRITED	V1L417	151-3	20090825	65762	E	30	9	9	9.9	8

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L417	152-1	20070919	63266	B	1	10	10	9.9	9
NONLUBRITED	V1L417	152-1	20071024	61850	D	2	9	9	9.9	8
NONLUBRITED	V1L417	152-1	20080328	65764	B	3	10	10	9.9	8
NONLUBRITED	V1L417	152-1	20080501	61851	D	4	8	9	3	7
NONLUBRITED	V1L417	152-1	20080703	63259	D	5	10	9	9.9	8
NONLUBRITED	V1L417	152-1	20080925	63283	A	6	9	9	9.9	8
NONLUBRITED	V1L417	152-1	20081118	65765	B	7	10	10	9.9	8
NONLUBRITED	V1L417	152-1	20090127	67336	D	8	10	10	9.9	8
NONLUBRITED	V1L417	152-1	20090324	65724	A	9	10	9	9.9	8
NONLUBRITED	V1L417	152-1	20090617	61855	E	10	9	9	9.9	8
NONLUBRITED	V1L417	152-1	20090701	65766	B	11	10	10	9.9	8
NONLUBRITED	V1L417	152-1	20091009	67301	B	12	10	10	9.9	8
NONLUBRITED	V1L417	152-1	20091118	67375	A	13	9	9	9.9	8
NONLUBRITED	V1L417	152-1	20100108	67404	E	14	9	9	9.9	8
NONLUBRITED	V1L417	152-1	20100811	73579	E	15	9	9	9.9	8

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L417	153-1	20071020	63268	B	1	8	9	9.9	7
NONLUBRITED	V1L417	153-1	20071208	64141	D	2	10	9	9.9	8
NONLUBRITED	V1L417	153-1	20071218	63269	B	3	9	9	9.7	7
NONLUBRITED	V1L417	153-1	20080116	64179	A	4	8	8	9.9	8
NONLUBRITED	V1L417	153-1	20080510	64142	D	5	9	9	9.9	8
NONLUBRITED	V1L417	153-1	20080521	64180	A	6	9	9	9.8	7
NONLUBRITED	V1L417	153-1	20080717	67312	B	7	9	8	9.9	6
NONLUBRITED	V1L417	153-1	20080720	67313	B	8	9	9	9.9	8
NONLUBRITED	V1L417	153-1	20081107	64144	D	9	9	10	9.9	8
NONLUBRITED	V1L417	153-1	20081108	67390	A	10	9	9	9.9	8
NONLUBRITED	V1L417	153-1	20081112	67349	D	11	9	9	9.9	7
NONLUBRITED	V1L417	153-1	20090117	64166	B	12	9	9	9.9	7
NONLUBRITED	V1L417	153-1	20090122	64173	E	13	9	9	9.9	8
NONLUBRITED	V1L417	153-1	20090515	64167	B	14	8	9	9.9	8
NONLUBRITED	V1L417	153-1	20090602	67391	A	15	8	8	9.9	7
NONLUBRITED	V1L417	153-1	20091014	67354	D	16	8	9	9.9	8
NONLUBRITED	V1L417	153-1	20091028	64174	E	17	10	9	9.9	8
NONLUBRITED	V1L417	153-1	20091203	67317	B	18	9	9	9.9	7
NONLUBRITED	V1L417	153-1	20100119	67394	A	19	8	9	9.9	8
NONLUBRITED	V1L417	153-1	20100416	64175	E	20	9	9	9.9	8

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L417	155	20060811	58920	E	1	9	9	9.9	8
NONLUBRITED	V1L417	155	20060920	58914	B	2	10	10	9.9	8
NONLUBRITED	V1L417	155	20080529	58917	B	3	9	9	9.9	8
NONLUBRITED	V1L417	155	20090319	63272	B	4	10	10	9.9	8
NONLUBRITED	V1L417	155	20090811	67295	B	5	10	10	9.9	8
NONLUBRITED	V1L417	155	20091007	67371	A	6	10	10	9.9	8
NONLUBRITED	V1L417	155	20091030	63275	E	7	9	9	9.9	8
NONLUBRITED	V1L417	155	20091105	67397	E	8	9	9	9.9	8
NONLUBRITED	V1L417	155	20100116	72063	B	9	9	10	9.9	8
NONLUBRITED	V1L417	155	20100721	76949	B	10	10	10	9.9	8

HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L500	152-1	20091206	67378	A	1	9	9	9.9	7
NONLUBRITED	V1L500	152-1	20091210	67342	D	2	8	9	9.9	8
NONLUBRITED	V1L500	152-1	20091221	67379	A	3	8	9	9.8	7
NONLUBRITED	V1L500	152-1	20091222	67380	A	4	9	9	9.9	7
NONLUBRITED	V1L500	152-1	20091226	67306	B	5	9	9	9.9	8
NONLUBRITED	V1L500	152-1	20091229	67307	B	6	9	9	9.9	8
NONLUBRITED	V1L500	152-1	20100102	72059	B	7	9	10	9.9	7
NONLUBRITED	V1L500	152-1	20100121	67343	D	8	8	9	9.9	7
NONLUBRITED	V1L500	152-1	20100408	73544	B	9	9	9	9.9	8
NONLUBRITED	V1L500	152-1	20100416	73558	D	10	8	10	9.9	7
NONLUBRITED	V1L500	152-1	20100527	75612	B	11	10	10	9.9	8
NONLUBRITED	V1L500	152-1	20100530	75613	B	12	9	10	9.9	8
NONLUBRITED	V1L500	152-1	20100709	75615	B	13	10	10	9.9	7



HARDWARE	PINION	OIL	DATE	CMIR	LAB	n	RIDG	RIPP	SPIT	WEAR
NONLUBRITED	V1L500	155	20091212	67297	B	1	9	10	9.8	7
NONLUBRITED	V1L500	155	20091215	67332	D	2	9	9	9.9	8
NONLUBRITED	V1L500	155	20091216	63282	A	3	8	9	9.9	7
NONLUBRITED	V1L500	155	20091220	67373	A	4	9	9	9.6	7
NONLUBRITED	V1L500	155	20091228	67298	B	5	9	9	9.9	8
NONLUBRITED	V1L500	155	20100116	67333	D	6	8	9	9.9	8
NONLUBRITED	V1L500	155	20100120	67334	D	7	9	9	9.9	8
NONLUBRITED	V1L500	155	20100126	67372	A	8	9	9	9.9	7
NONLUBRITED	V1L500	155	20100218	73540	B	9	9	10	9.9	8
NONLUBRITED	V1L500	155	20100417	72082	A	10	9	9	9.5	7
NONLUBRITED	V1L500	155	20100421	72083	A	11	9	9	9.8	7
NONLUBRITED	V1L500	155	20100427	73566	A	12	9	9	9.9	7
NONLUBRITED	V1L500	155	20100521	73543	B	13	10	10	9.9	8
NONLUBRITED	V1L500	155	20100708	75909	B	14	10	10	9.9	7
NONLUBRITED	V1L500	155	20100715	75910	B	15	10	10	9.9	8