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Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS

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January 21, 2005

Reply to:

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ASTM D02.B0.03 L-37 Surveillance Panel

Members and Guests:

Attached for your review and comment are the unconfirmed minutes of the January 20, 2005 L-37 Surveillance Panel teleconference call. Please direct any corrections or comments to my attention.

Sincerely,

Donald T. Bartlett, Chairman

L-37 Surveillance Panel

Attachments

**Report of Conference Call
L-37 Surveillance Panel
January 20th, 2005, 2:00 p.m. EST**

The teleconference meeting was brought to order at 2:00.

I. Attendees:

ASTM TMC:	Don Lind,	Lubrizol Corp:	Jerry Gropp
Ethyl Corp:	Cory Koglin,	DA Stuart:	Paula Vettel
Lubrizol Corp:	Don Bartlett,	Lubrizol Corp:	Jerry Gropp
PARC:	Dale Smith,	DA Stuart:	Paula Vettel
SwRI:	Brian Koehler,	Dana Corp:	Ken Okamuro,

II. Agenda:

- General overview and discussion of the TMC targets and plots on the new non-lubrited hardware V1L351/P4T771.
- Define any actions to address over the next two weeks before the panel meeting.
- Dana reorganization announcement by Mr. Okamuro

III. Actions:

- Mr. Koehler took the action item to contact Mr. Sanchez, chairman of the GO RTF. The need is to get the RTF discussions published and copies distributed to the SP so that we are prepared to discuss further at our panel meeting.

IV. Motions:

- None

V. Summary of Panel Discussion, Consensus and Motions:

- **Overview and discussions on non-lubrited hardware V1L351/P4T771 with respect to TMC targets and plots.** The following comments were:
TMC/Mr. Lind comments and follow up discussion:
 - Wear for lab E is consistently showing ring wear that is more severe than the pinion. Mr. Smith reported that they have looked at the hardware and note that the data reported is correct, the reversal is real. Mr. Koglin reminded everyone that the ring hardness specification was changed and is now slightly softer than the pinion as recommended by Dana and previously approved by the panel.
Mr. Lind commented that the January 2005 Rating Workshop data points out that there is a great discrepancy in how the raters rate the rings. Everyone should review the data before our meeting. The discrepancy needs to be addressed. Is it

a training issue? Ring gears are harder than the pinion to rate for Wear. Since this was an item discussed in detail by the raters at the rating workshop, Mr. Koehler took the action item to contact Mr. Sanchez, chairman of the GO RTF. The need is to get the RTF minutes published and copies distributed to the SP so that we are prepared to discuss at our panel meeting. The pinion data looked OK.

- TMC 153 - the results are a little more scattered/variable across both test types and mild on both Ridging and Rippling.
- TMC 152 - the results are less variable/more consistent across both test types and still slightly mild.
- With respect to the new targets for the standard test:
 - TMC 151; all tests would be acceptable.
 - TMC 152; one test at lab D would not be acceptable on Rippling.
 - TMC 153; three tests would not be acceptable. One test is out on Wear and Rippling at lab A, one test is out on Ridging at lab D, and one test is out on Rippling at Lab A.
 - Engineering judgment was used to slightly tweak the standard deviation for pitting/spalling to allow a 9.3 value to be acceptable in the future.
 - Attachment 1 is all the data from the matrix and the three non-matrix tests.
 - Attachment 2 represents the target plots.
- Mr. Lind commented/suggested that we may want to visit/discuss the need for a correction factor for low temperature testing, especially because of what we saw and implemented with the P4L626A/V1L686 matrix last fall. Mr. Gropp commented that we should be careful and not generalize. Low temperature may or may not be more severe on low temperature versus standard tests. Based on data and comments previously presented and discussed at the panel, we believe that the differences for the P4L626A/V1L626A gear batch are driven by a hardware issue and are not oil related.
- Mr. Lind asked that others call or leave an email with questions or concerns with respect to the data or plots.

Lubrizol commented on the three extra-donated matrix tests were conducted:

- Extra run on TMC 153 - run to look at potential for ring wear reversal. The pinion and ring were rated pre and post test to identify if the pre rating value was better, equal to, or worse than post test.

- o Extra runs on TMC 128-1 and TMC 27 - since this was new hardware, we felt it a prudent sanity check to run a low temperature test on the two oils to confirm discrimination. Based on the statistical data, we expected a Rippling failure on TMC 128-1 and both Ridging and Rippling failure on TMC 127. Looking at the data, that is indeed what happened. The hardware appears to discriminate between good and bad oils.

Mr. Okamuro Update on Dana Facility Changes:

Dana has made the decision to close the Statesville manufacturing facility by about September 2005. The product currently being made at Statesville is being distributed to 4 or 5 other Dana plants. This will affect the Dana model 30, 44, 60, 70, and 80. The ASTM test axles will now be assembled at a new facility. These will be going to the Dana plant in Lugoff, SC, which is about 30 minutes east of Columbia. Lugoff is a trailer axle assembly plant and will be receiving the large and small axles from Statesville.

At this time, Sales will stay in Statesville and Engineering will be encouraged to move to Heavy Vehicle Systems Engineering Center in Kalamazoo, MI. It is also likely that an Engineering group will stay in Statesville, at least for a while. Ken indicated that he will be separating from the company.

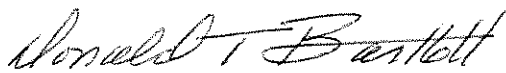
It is difficult to transfer normal production product from one plant to another without problems but the ASTM test hardware is going to take special attention. Kenny Miller has been involved with much of the gear development and only a little on the hardware build out. Ken indicated that he will be working with Kenny or Joe Manning, who appears to be the logical contact individuals that ASTM will be working with moving forward.

The machining sources will remain the same and production of the ring and pinion will remain with the Ft. Wayne facility. Ken recommends that the Hardware TF make a trip to Lugoff, SC with the next build out.

We extended our best wishes to Ken and certainly have appreciated his vast knowledge and skill he brought to support our ASTM needs. We wish him the best for the future and extend our heart felt thanks and appreciation for all he has done for us.

The teleconference was adjourned at 2:37.

Respectfully submitted,



Donald T. Bartlett,
L-37 Surveillance Panel Chairman

L-37 Non-Lubrited Hardware V1L351/P4T771
as of 1-14-05

Attachment 1
Page 42
Reference L-37

CMIR	Lab	Std.	Oil	Pinbat	Ringbat	DTCOMP	Pwear	Pridg	Pripp	Pspit	Rwear	Rridg	Rripp	Rspit	Test Type	Match #	ASMBDI	lperat	fpccrat
49553	A	2	127	V1L351	P4T771	20040909	5	3	7	9.9	5	4	9	9.9	STANDARD	0N	036-04-A	2	0
45997	B	191	127	V1L351	P4T771	20040905	6	6	9	9.9	6	5	10	9.9	STANDARD		231-04-A	2	0
44307	D	3A	127	V1L351	P4T771	20040919	7	6	5	9.8	6	8	9	10	STANDARD	1C	233-04-B	2	0
44288	E	2	127	V1L351	P4T771	20040917	6	7	7	9.9	7	8	9	9.9	STANDARD	2L	233-04-B	2	0
52490	A	2	152	V1L351	P4T771	20041027	8	9	10	9.9	8	10	10	9.9	LOWTEMP	5N	236-04-A	2	0
53486	A	2	152	V1L351	P4T771	20041119	8	10	9	9.9	8	10	9	9.9	LOWTEMP	0L	236 04 A	2	0
52397	B	191	152	V1L351	P4T771	20041012	8	9	8	9.9	8	10	9	10	LOWTEMP	2L	232-04-B	2	0
53452	B	191	152	V1L351	P4T771	20041025	8	10	8	10	8	10	9	10	LOWTEMP	7J	232-04-B	2	0
52417	D	3A	152	V1L351	P4T771	20041007	9	10	9	9.9	9	10	10	10	LOWTEMP	1A	233-04-B	2	0
53446	D	3A	152	V1L351	P4T771	20041101	8	9	10	9.9	9	10	10	10	LOWTEMP	2V	233-04-A	2	1
52405	E	2	152	V1L351	P4T771	20041020	8	9	9	9.6	7	10	9	9.4	LOWTEMP	0V	231-04-A	2	1
52407	E	2	152	V1L351	P4T771	20041029	6	9	9	9.9	7	10	9	9.9	LOWTEMP	2X	232-04-B	2	0
52489	A	2	152	V1L351	P4T771	20041026	8	9	8	9.9	8	10	9	9.9	STANDARD	5A	236-04-A	2	0
53485	A	2	152	V1L351	P4T771	20041113	6	10	8	9.9	7	10	9	9.9	STANDARD	1J	234-04-B	2	0
52396	B	191	152	V1L351	P4T771	20041010	8	9	9	10	8	10	10	10	STANDARD	0X	233-04-A	2	1
52398	B	191	152	V1L351	P4T771	20041015	7	9	9	9.9	8	10	9	9.9	STANDARD	5P	234-04-A	2	0
52418	D	3A	152	V1L351	P4T771	20041016	7	10	10	9.9	9	10	9	10	STANDARD	1L	236-04-A	1	1
53447	D	3A	152	V1L351	P4T771	20041108	8	10	10	9.9	9	10	10	10	STANDARD	0P	237-04-B	1	1
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52392	A	2	153	V1L351	P4T771	20041111	8	10	9	9.9	8	10	9	9.9	LOWTEMP	0H	192-04-A	2	1
53489	A	2	153	V1L351	P4T771	20041130	8	10	9	9.8	8	10	9	9.9	LOWTEMP	5J	236-04-B	3	0
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52422	D	3A	153	V1L351	P4T771	20041030	8	9	10	9.9	9	10	10	10	LOWTEMP	5T	236-04-A	2	1
53448	D	3A	153	V1L351	P4T771	20041116	8	10	9	9.9	8	10	10	10	LOWTEMP	1P	233-04-A	2	0
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53463	E	2	153	V1L351	P4T771	20041103	8	10	9	9.9	7	10	9	9.9	LOWTEMP	2J	232-04-B	2	0
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52393	A	2	153	V1L351	P4T771	20041123	5	5	5	9.8	7	6	9	9.9	STANDARD	2T	234-04-A	2	0
52402	B	191	153	V1L351	P4T771	20041013	6	7	6	9.3	7	9	9	9.5	STANDARD	2J	236-04-A	2	0
53455	B	191	153	V1L351	P4T771	20041026	6	7	8	9.8	7	8	9	9.9	STANDARD	5L	234-04-A	2	0
53449	D	3A	153	V1L351	P4T771	20041122	7	10	8	9.9	8	10	10	10	STANDARD	0C	233-04-A	2	1
53535	D	3A	153	V1L351	P4T771	20041206	8	9	9	9.9	7	10	10	10	STANDARD	0T	233-04-A	2	0
52413	E	2	153	V1L351	P4T771	20041027	8	8	9	9.5	7	9	9	9.9	STANDARD	0X	232-04-B	2	0
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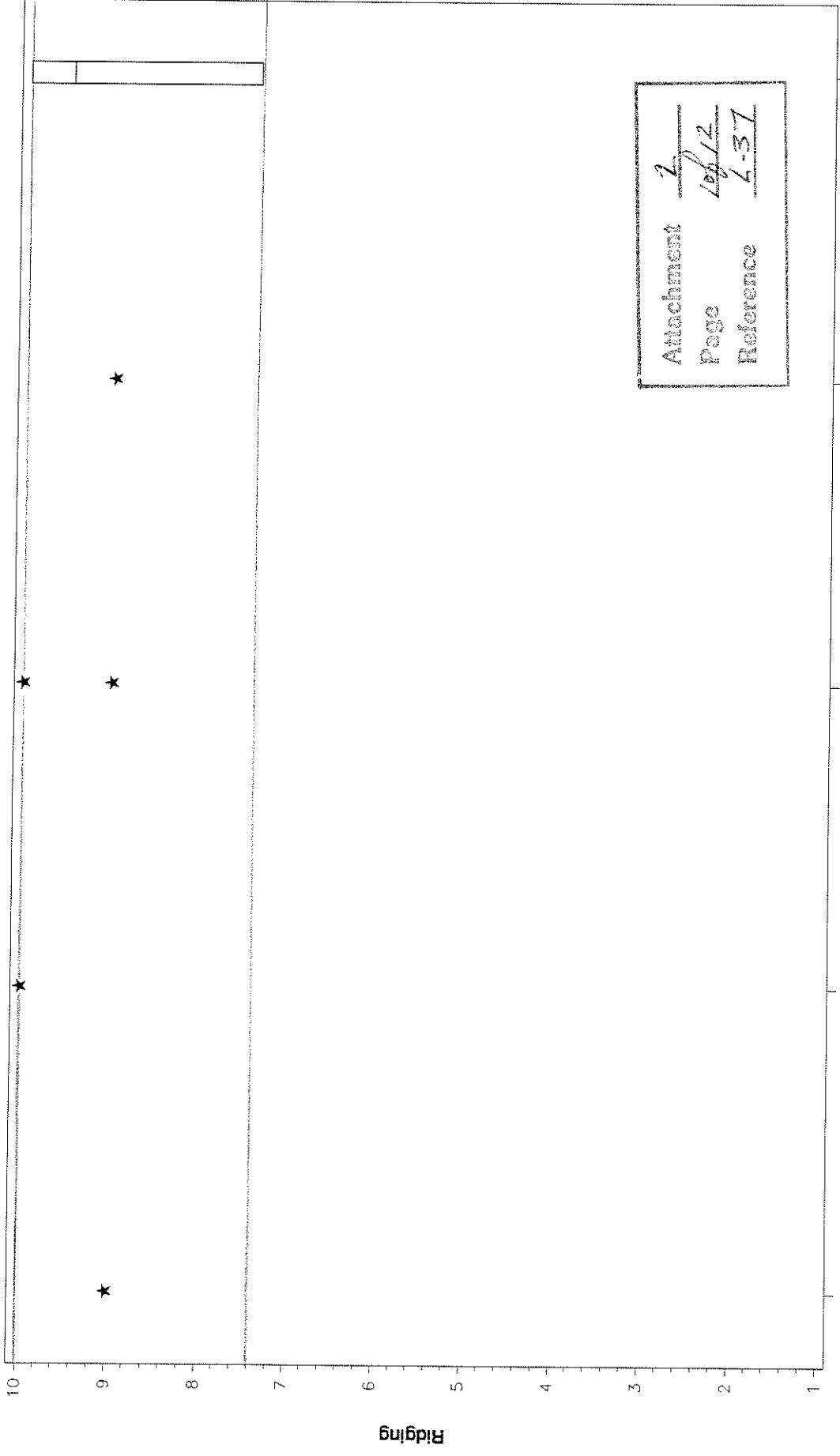
CMIR	Lab	Std.	Oil	Pinbat	Ringbat	DTCOMP	Pwear	Pridg	Pripp	Pspit	Rwear	Rridg	Rripp	Rspit	Test Type	Match #	ASMBDT	ipcrat	fpcrat
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49559	A	2	151-3	V1L351	P4T771	20041022	6	9	9	9.9	7	10	9	9.9	STANDARD	1J		2	0
51847	B	191	151-3	V1L351	P4T771	20040930	6	10	9	10	8	10	10	9.8	STANDARD	7P	196-04-A	2	1
51848	B	191	151-3	V1L351	P4T771	20041009	7	10	9	9.7	8	10	9	9.9	STANDARD	7T	243-04-B	2	0
50181	D	3A	151-3	V1L351	P4T771	20041002	8	9	9	9.9	8	10	10	10	STANDARD	5H	233-04-A	2	0
50337	D	3A	151-3	V1L351	P4T771	20041202	6	10	9	9.9	9	10	10	10	STANDARD	7T	234-04-A	1	0
50083	E	2	151-3	V1L351	P4T771	20040924	7	9	9	9.9	7	10	9	9.9	STANDARD	2L	232-04-A	2	0
50084	E	2	151-3	V1L351	P4T771	20041105	7	9	9	9.9	7	10	9	9.9	STANDARD	7P	232-04-B	2	0

ADDITIONAL TESTS FOR MATRIX EVALUATION

CMIR	Lab	Std.	Oil	Pinbat	Ringbat	DTCOMP	Pwear	Pridg	Pripp	Pspit	Rwear	Rridg	Rripp	Rspit	Test Type	Match #	ASMBDT	ipcrat	fpcrat
53449	B	191	127	V1L351	P4T771	20050111	6	4	6	9.9	6	5	9	9.9	LOWTEMP	5C	231-04-B	2	0
52393	B	191	128-1	V1L351	P4T771	20050110	8	9	5	10	7	10	8	10	LOWTEMP	7X	232-04-B	2	0
53535	B	191	153	V1L351	P4T771	20041127	8	10	9	9.9	8	10	10	10	LOWTEMP	7T	232-04-B	2	0

L-37 Non-lubricated Hardware, Pinion Batch V1L351/P4T771
Reference Oil 151-3.
Test Target Data Set and Shewhart Severity Limits

Pinion Ridging, Industry Pooled S.D.

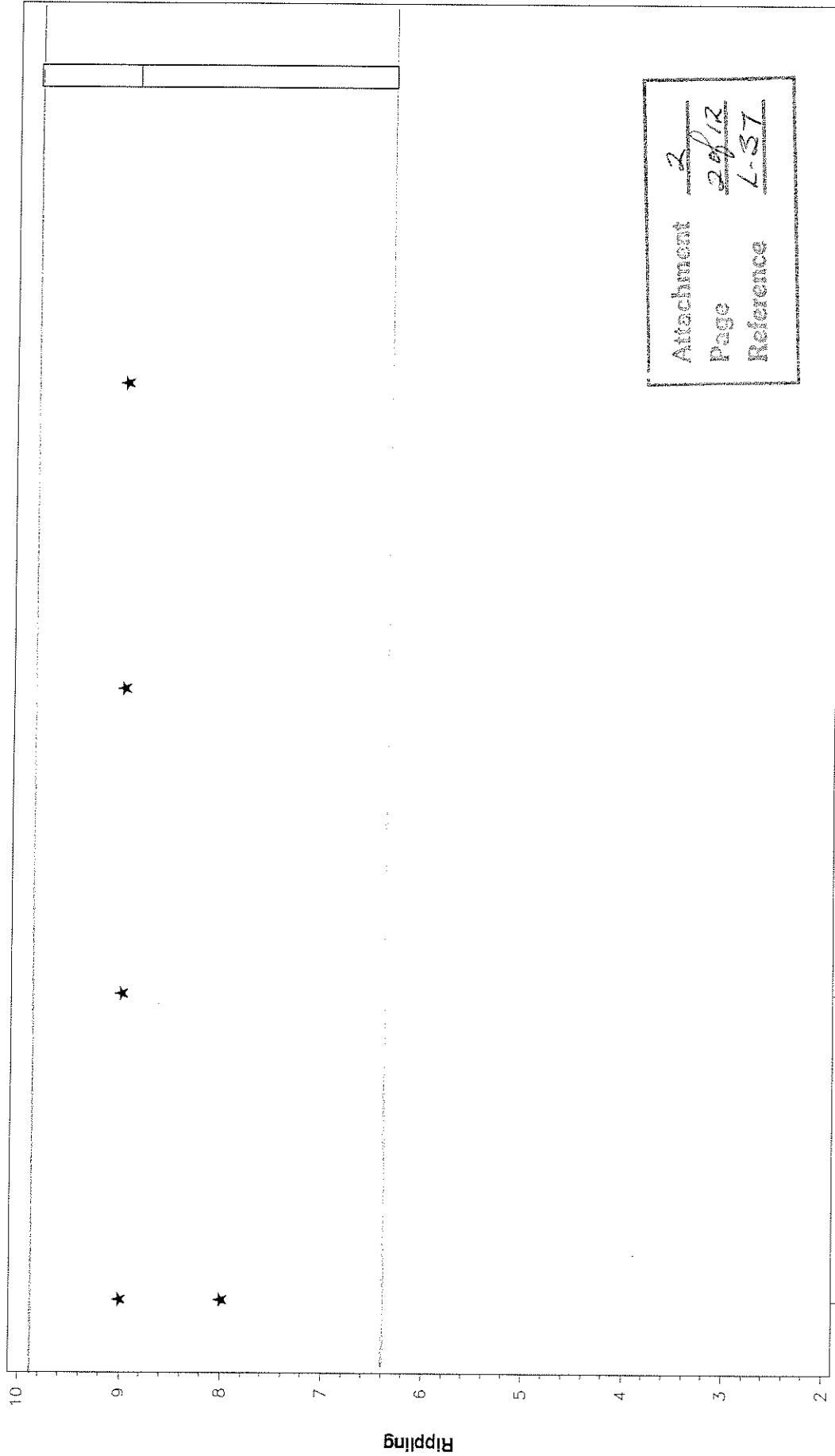


151-3

Data Group

L-37 Non-lubricated Hardware, Pinion Batch V1L351/P4T771
Reference Oil 151-3
Test Target Data Set and Shewhart Severity Limits

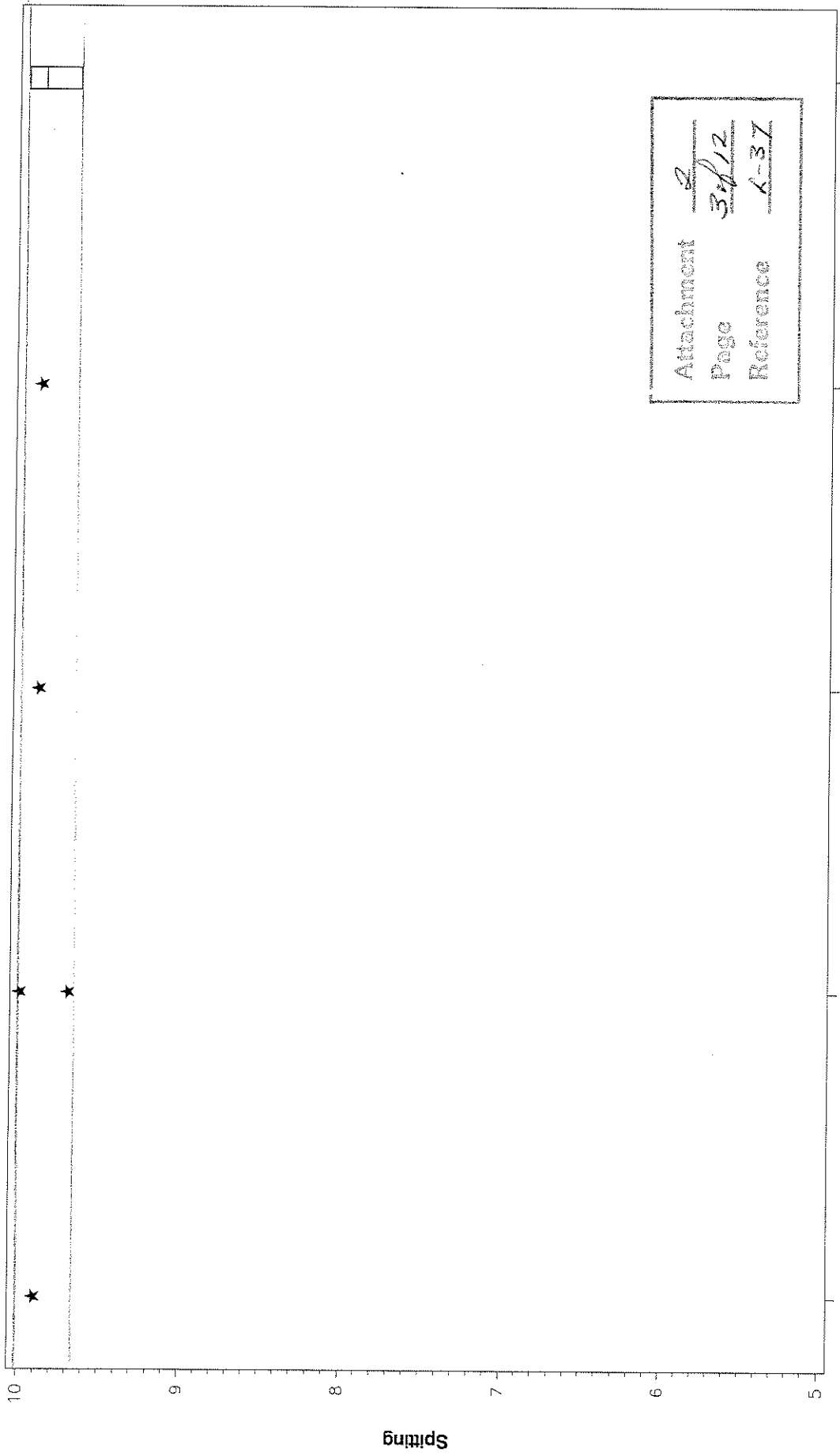
Pinion Rippling, Industry Pooled S.D.



Attachment 2
Page 2 of 12
Reference L-37

L-37 Non-lubricated Hardware, Pinion Batch V1L351/P4T771
 Reference Oil 151-3
 Test Target Data Set and Shewhart Severity Limits

Pinion Spitting. Industry Pooled S.D.



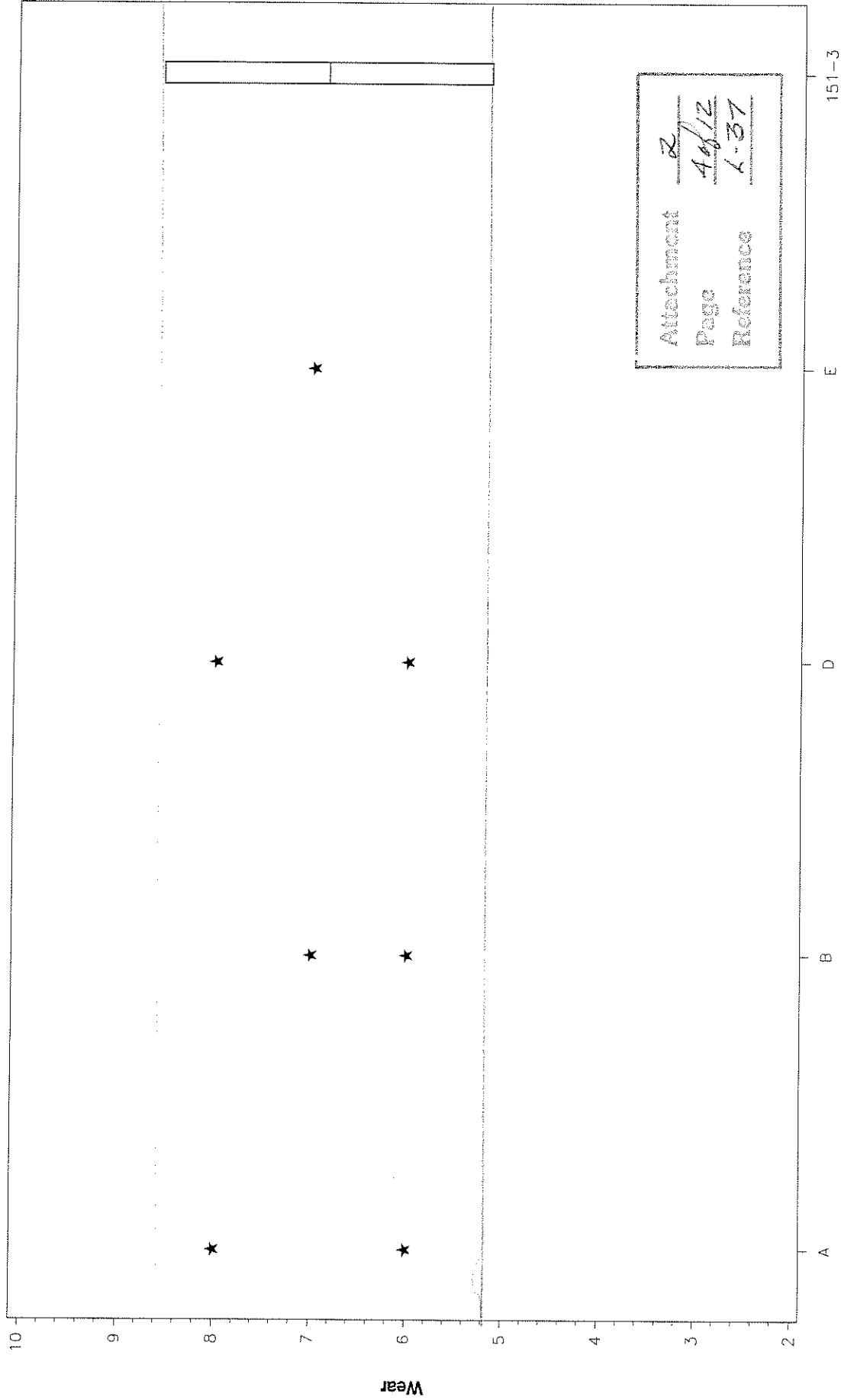
Attachment
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 Reference L-37

151-3

L-37 Non-lubricated Hardware (Pinion Batch V1L351/P4771)
Reference Oil 151-3

Test Target Data Set and Shewhart Severity Limits

Pinion Wear (Industry Pooled S.D.)

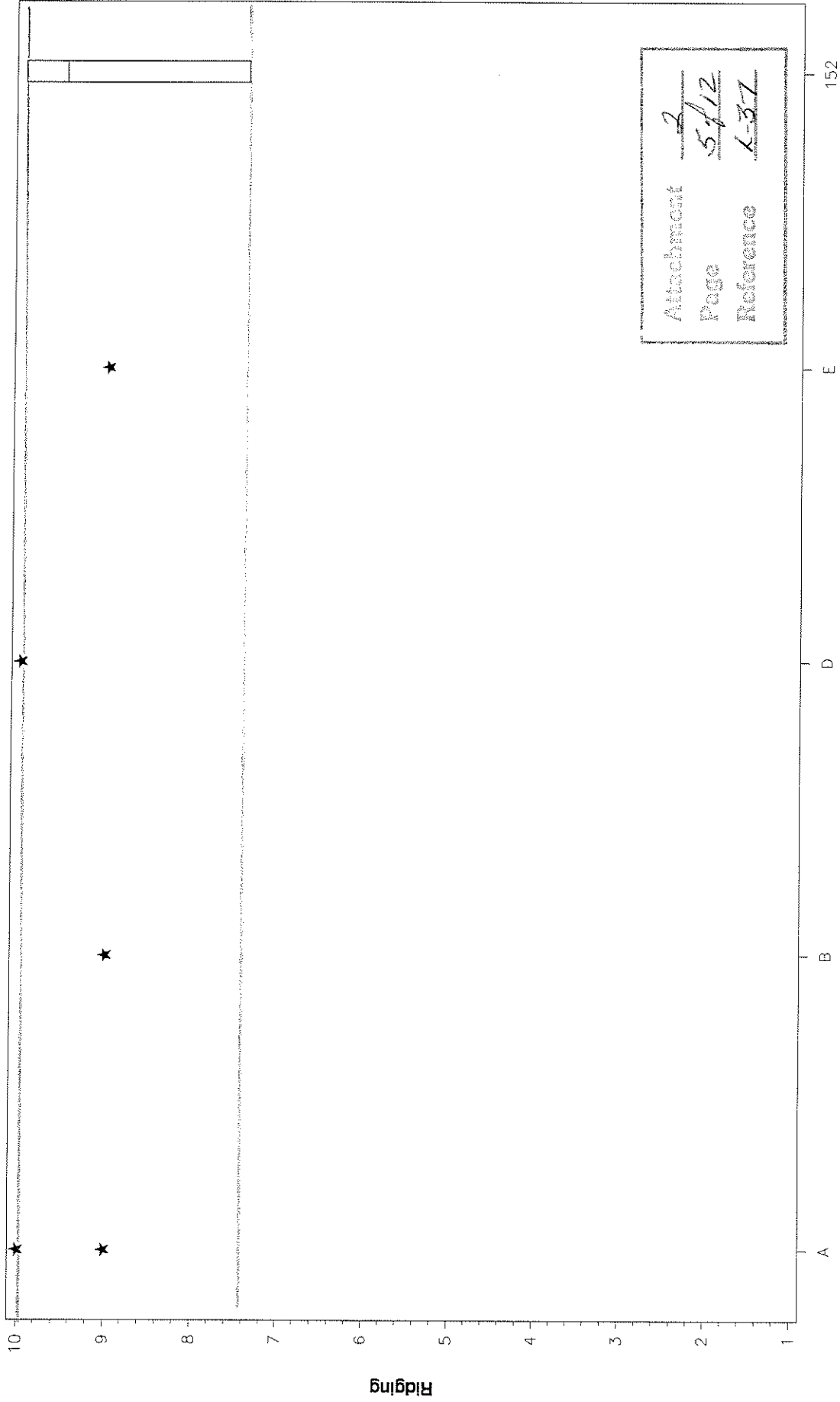


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151-3

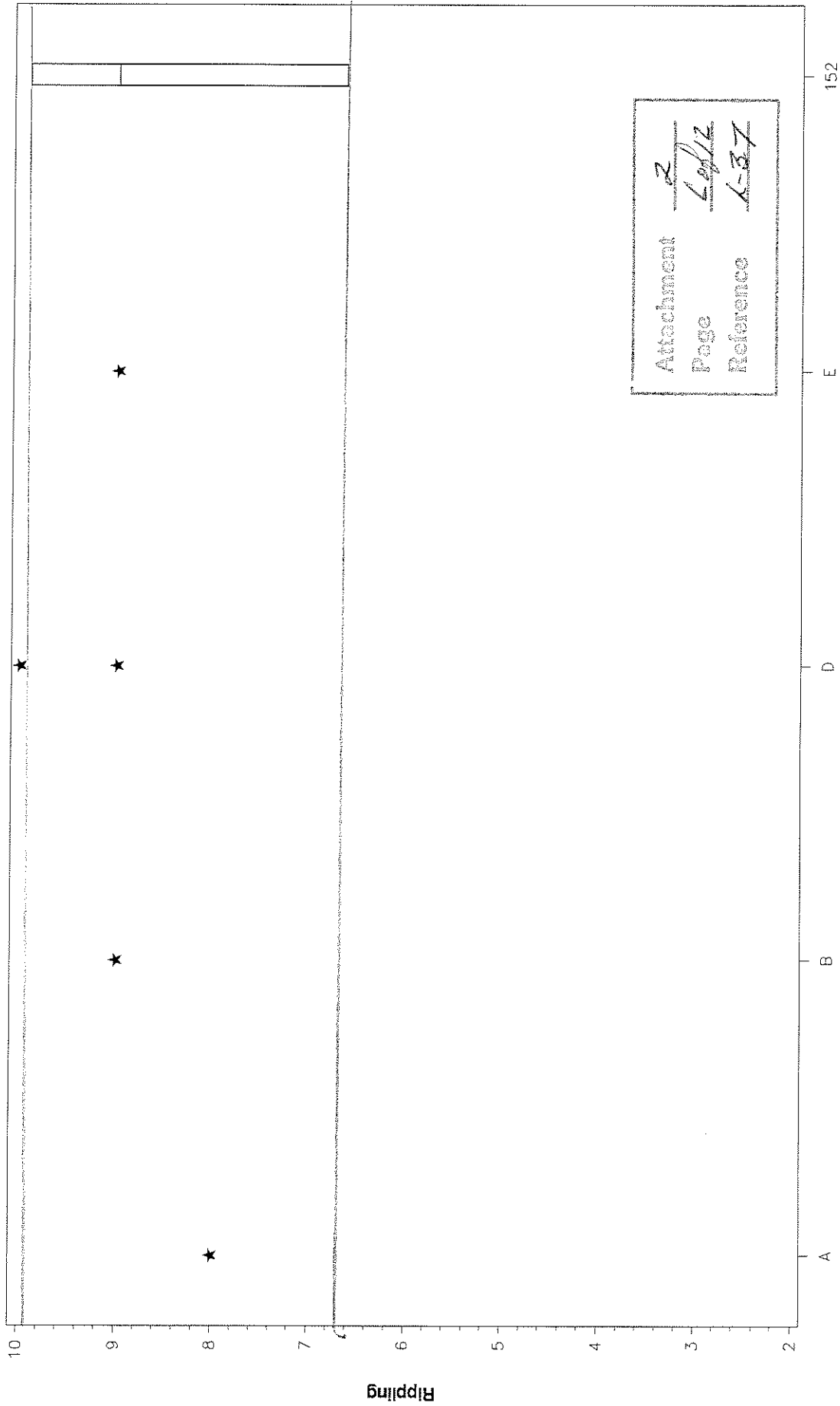
L-37 Non-lubrited Hardware, Pinion Batch V1L351/P4T771
Reference Oil 152
Test Target Data Set and Shewhart Severity Limits

Pinion Ridging, Industry Pooled S.D.



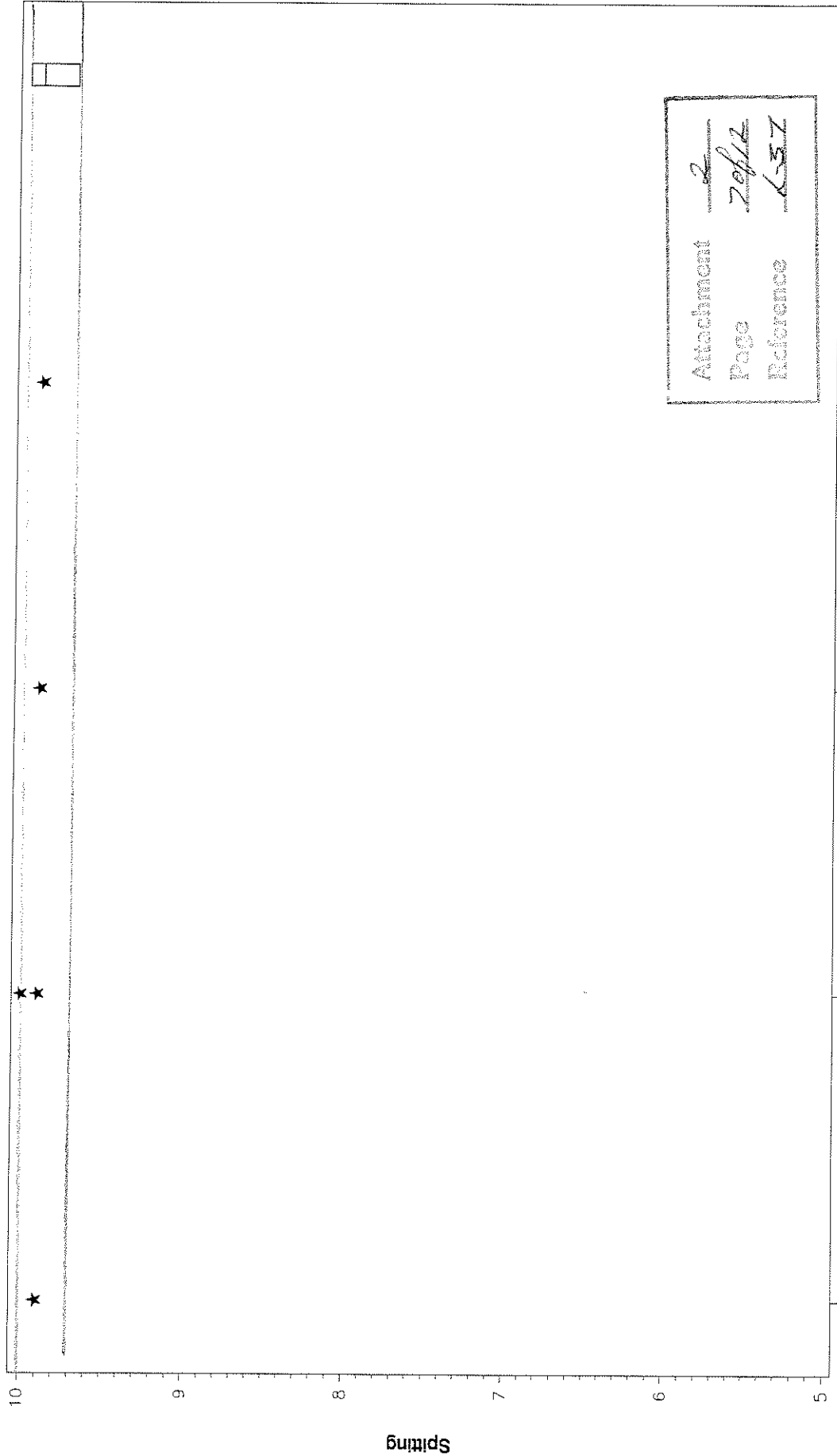
L-37 Non-lubricated Hardware, Pinion Batch V1L351/P4T771
Reference Oil 152
Test Target Data Set and Shewhart Severity Limits

Pinion Rippling, Industry Pooled S.D.



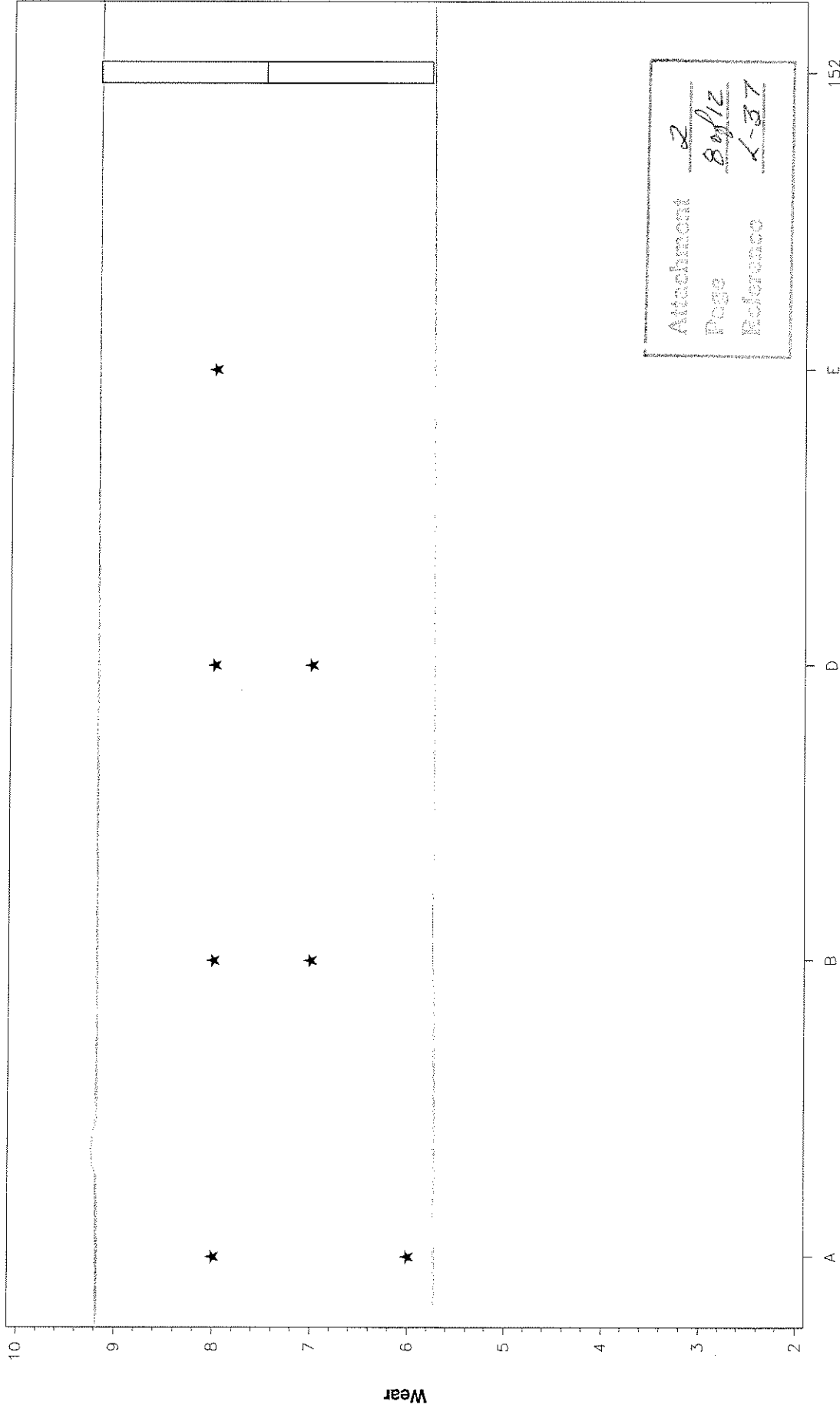
L-37 Non-lubricated Hardware, Pinion Batch V1L351/P4T771
Reference Oil 152
Test Target Data Set and Shewhart Severity Limits

Pinion Spitting, Industry Pooled S.D.



L-37 Non-lubricated Hardware (Pinion Batch V1L351/P4771)
Reference Oil 152
Test Target Data Set and Shewhart Severity Limits

Pinion Wear (Industry Pooled S.D.)

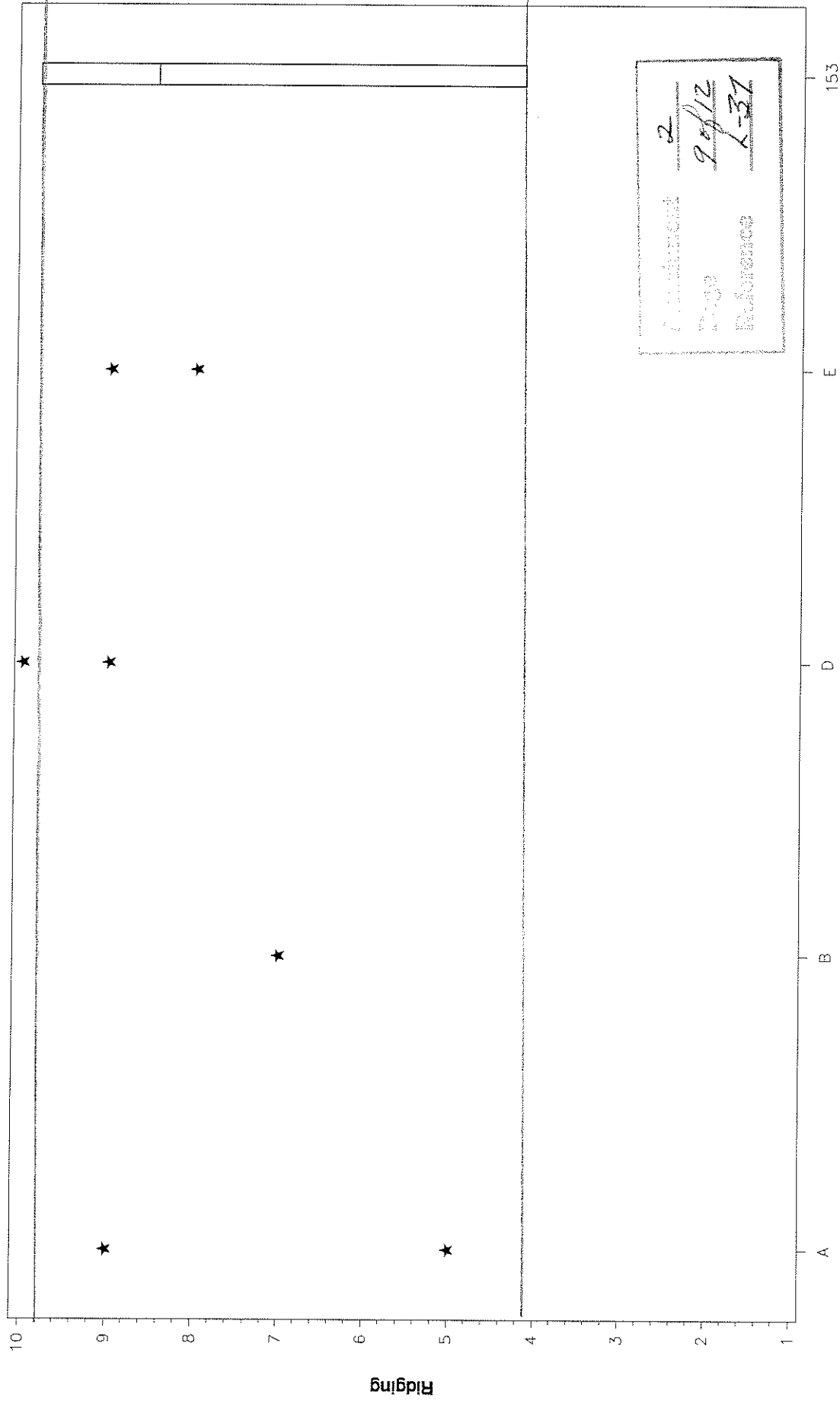


Attachment 2
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Reference L-37

Data Group

L-37 Non-lubricated Hardware, Pinion Batch V1L351/P4T771
Reference Oil 153
Test Target Data Set and Shewhart Severity Limits

Pinion Ridging, Industry Pooled S.D.

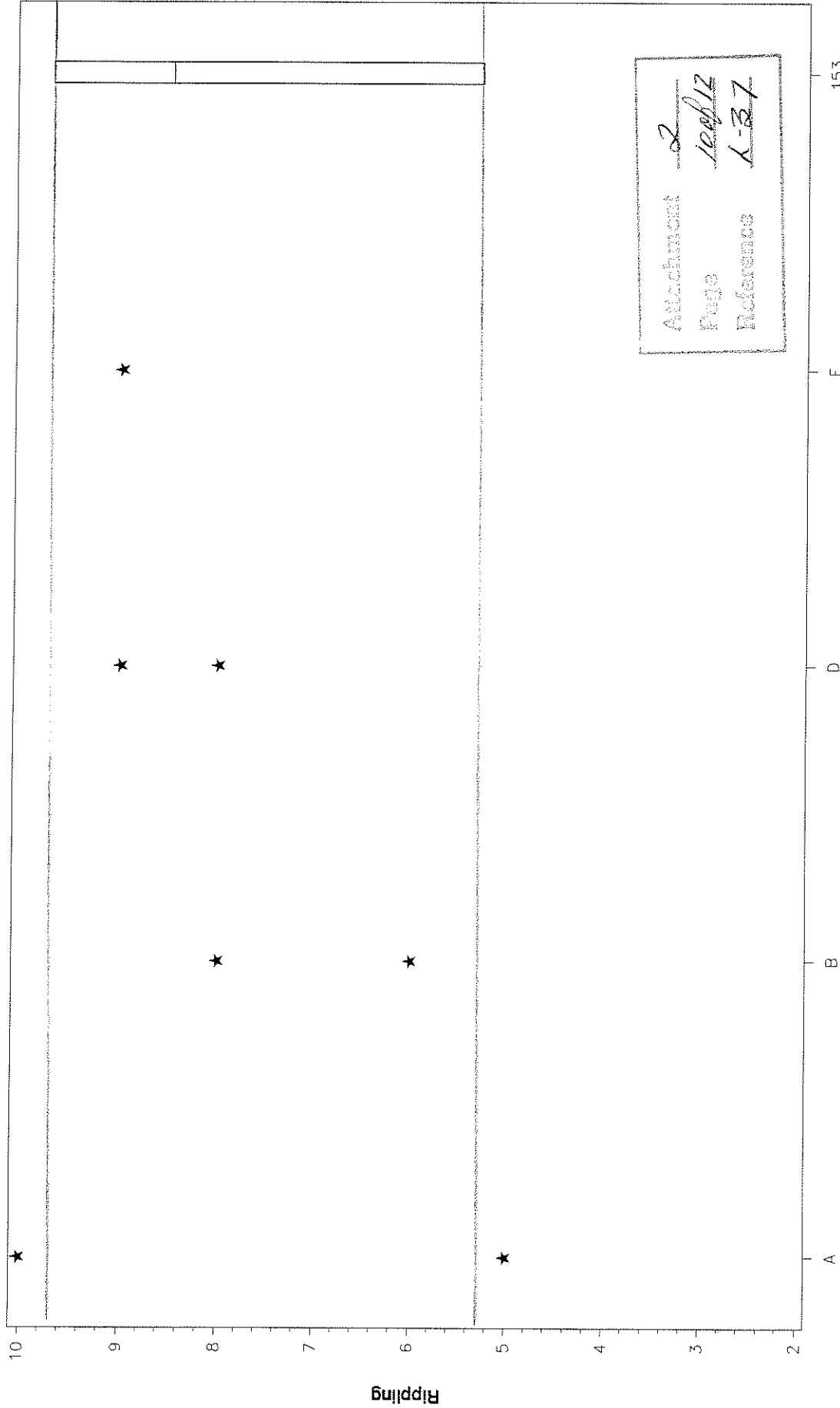


Data Group

153

L-37 Non-lubricated Hardware, Pinion Batch V1L351/P4T771
Reference Oil 153
Test Target Data Set and Shewhart Severity Limits

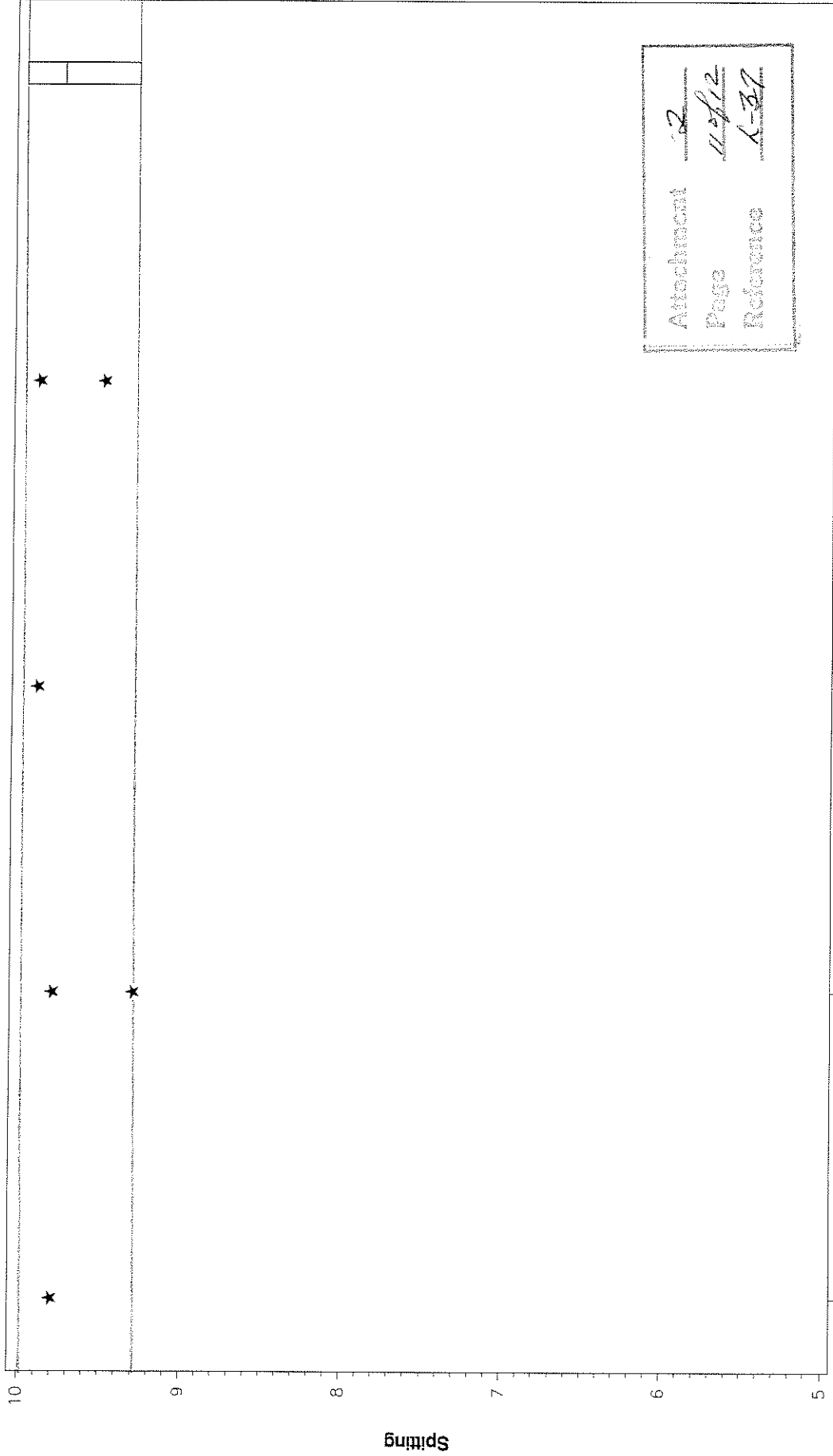
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Attachment 2
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Reference L-37

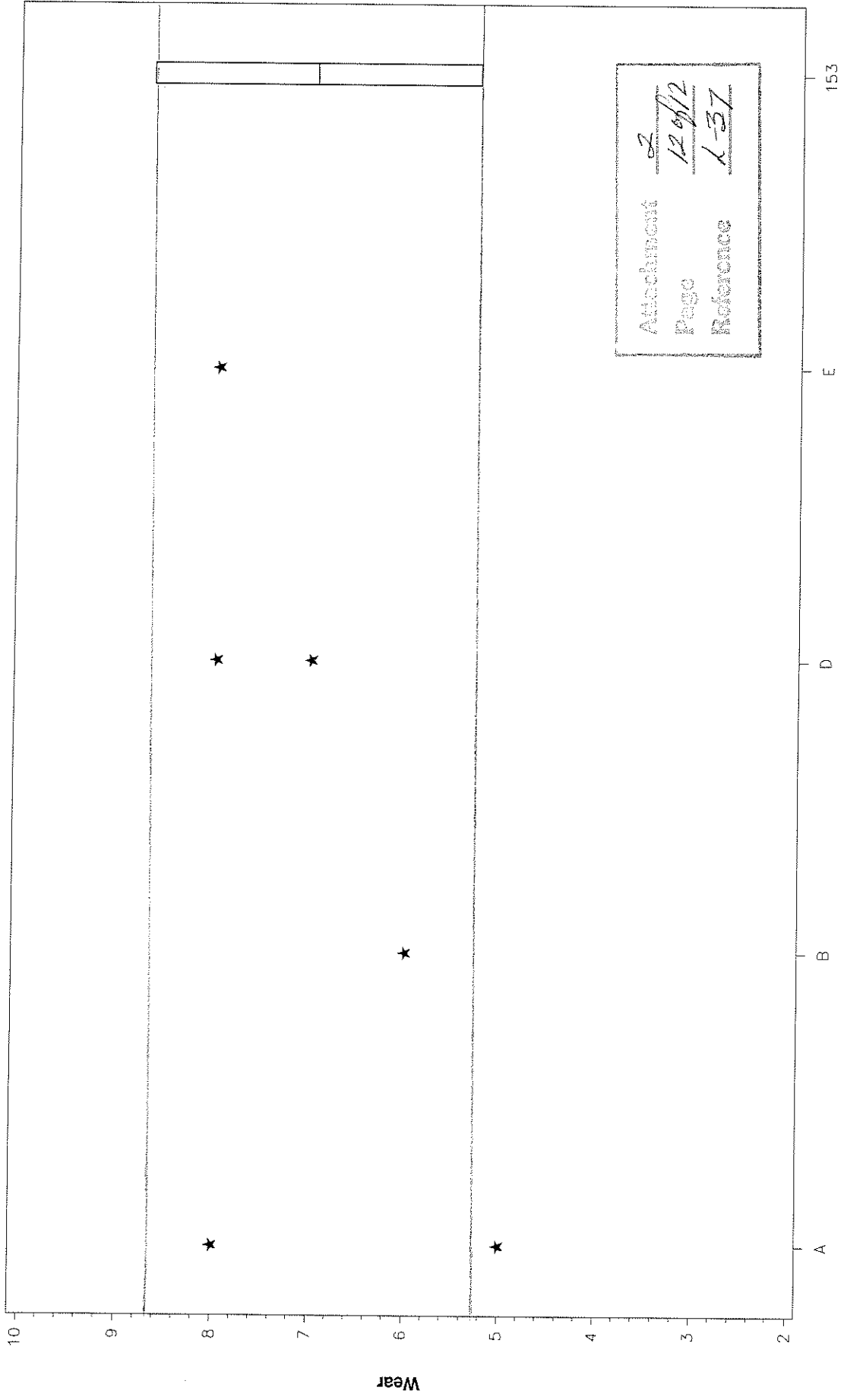
L-37 Non-lubricated Hardware, Pinion Batch V1L351/P4T771
Reference Oil 153
Test Target Data Set and Shewhart Severity Limits

Pinion Spitting, Industry Pooled S.D.



L-37 Non-lubricated Hardware (Pinion Batch V1L351/P4771)
Reference Oil 153
Test Target Data Set and Shewhart Severity Limits

Pinion Wear (Industry Pooled S.D.)



Attachment 8
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Reference L-37