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Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS

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June 1, 2001

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Unapproved Minutes of the May 23, 2001 Joint Sequence IID/IIIE/IIIF Surveillance Panel Meeting held in San Antonio, Texas

The meeting was called to order at 1:00pm by Chairman Nahumck. A membership list was circulated for members & guests to sign in. It's shown in Attachment 1.

Agenda Review

Ben Weber is Action & Motion recorder.

The Agenda was accepted as attached (Attachment 2).
TGC report has been attached to the meeting minutes for review (Attachment 3).
The status of Sequence IIIF Standard was added to agenda.

Sequence IIIF Surveillance Panel Meeting
May 23, 2001 San Antonio, TX

Membership Changes
Dave Glaenzer replaces Daryl Baumgartner as the Ethyl Corporation member.

Meeting Minute Status
May 25, 2000 Approved
November 17, 2000 Approved
September 27, 2000 Chairman has placed in mail, approval still pending.

IID/IIIE Issues
There were no Sequence IID reference oil tests reported this period.
IID/IIIE part inventories will be purged at the end of May by Bowden Manufacturing. Any parts requests should be submitted immediately.
A motion to disband the Sequence IID Surveillance Panel and TMC monitoring was approved (Motioner:Chairman, seconded by Dwight Bowden).

Currently, there are no Sequence IIIE stands calibrated in industry.
A motion to disband the Sequence IIIE Surveillance Panel and TMC monitoring was approved (Motioner: Sid Clark, seconded by Dwight Bowden).

TMC Sequence IIIF Semi-Annual Report
See TMC ftp site for report :
ftp://tmc.astm.cmri.cmu.edu/docs/gas/sequenceiii/semiannualreports/

Pat Lang noted a possible severity trend around test 40 - 45 on the industry EWMA severity chart for WPD. Mike Kasimirsky responded that no hardware batch changes occurred during that period. The TMC presented possible test targets for viscosity increase @ 60 hours that did not use transforms. Phil Scinto noted that the HDEOCP looked at viscosity increase at 60 using a natural log transformation. Phil suggested that the TMC consult with the HDEOCP to determine whether a transform is required by the HDEOCP. The chairman and TMC will review the 60-hour viscosity increase targets and forward new targets to the panel. This parameter is for information purposes only and is not a Sequence IIIF pass/fail parameter. A discussion on test length occurred regarding the 60-hour viscosity increase requirement (60 vs. 80 hours). The panel determined that additional information from the HDEOCP was needed to resolve several issues. The chairman was going to oversee further progress on these issues.

Reference oil 1008 supplies are low, it is reblendable at this time. However, 1008 may not be reblendable long term. The panel instructed the TMC to obtain a reblend of 1008. Reference oil 433-1 needs to be brought into the system because of the supply of 433 is low. A motion was made to conduct reference oil tests on 433-1 to generate targets. The TMC was given latitude to schedule these tests to minimize lab inconvenience. The TMC will revoke calibration status on the appropriate number of stands to receive a minimum of 4 tests to generate targets. Some stands may have calibration periods extended or shorted so that targets can be generated. The panel rejected a proposal to update 433 targets due to the low remaining quantity of 433 (only 4 tests worth of oil exists in the industry). The TMC was instructed not to assign the remaining supplies of reference oil 433.

A discussion regarding camshaft wear vs. pour code yielded the following: TMC supplied wear vs. pour code plots Attachment 4.

JB pour codes were used for the Precision Matrix.

MB pour codes are showing a high rate of exceeding the 20μm limit. JB and LC pour codes are not.

Recent MB camshaft runs reviewed indicate that 1006 data no longer indicates 1006 as a low wear oil.

Oil	ACLW	MCLW	Cam Wear	Comment
1006	4.5	?	0	(Destroyed Bushings)
1006	15.1	21	0	
1006	13.1	18	0	
1008	9.3	12	0	

Sid Clark presented non-reference oil failure rate ACLW data supplied by the independent labs at the @20μm limit showing that MB camshaft tests had a significant higher failure rate than JB and LC cams. Attachment 5. Sid also presented failure rate data at a proposed 30μm limit (Attachment 4).

Dwight Bowden raised concern regarding the use of EF-411 for build-up versus past practices of using test oil. Dwight felt that the use of EF-411 during build-up was a possible reason for the tests showing different wear than previously seen during the matrix. Dwight stated that he believed something was wrong with the test in regards to wear and that the industry would be best served by investigating the problem. No action was taken.

Sid suggested changing the ACLW limit to 30 μm based upon candidate data. No action was taken. The panel felt that an industry correction factor for MB camshafts was a better way of addressing the problem of tests exceeding the 20μm limit. A motion was made based on non-reference and reference oil data presented at this meeting to apply a correction factor of -10μm to non-reference oil tests ACLW results for MB camshaft tests run to date effective immediately. A Task Force will be formed in the meantime to investigate this problem in more detail date and report their findings within 90 days. The vote was 11 approved/0 opposed/ 2 waives (Motioner: Mike Yowell, seconded by Sid Clark).

Report Form 4 needs to be modified for the correction factor.

As long as the MB pour code correction factor is in place the reference oil ACLW limit is to be 30 μm for MB camshafts. (Motioner: Pat Lang, seconded Mike Yowell)

TMC report accepted.

Fuel Supplier Report

Bob Rumford reviewed batch EEE fuel analysis for panel Attachment 6. Bob was tasked with supplying the panel with a Certificate of Analysis on fuel batches from the Detroit distribution facility. Report was accepted.

O&H Report

Pat Lang presented (Attachment 7).
Dipstick calibration curve needs to be placed in the procedure(Attachment 8). Approved.

The Quality Index presentation by the TMC regarding submitted operational data yielded the two items.

Update Speed U & L's using stand 3111 cmir 52 equal to zero. (Motioner: Pat Lang, seconded by Michael Kasimirsky) (Attachment 9).

Update Condenser Coolant Out Temperature U & L values based on test stand 59 cmir 59c1 (Motioner: Bill Nahumck, seconded by Dave Glaenzer) (Attachment 10).

See O&H Report motions 1 through 5 which were were approved, (Motioner: Bill Nahumck, seconded Mark Mosher). Dipstick Calibration Curve Version May 8, 2001. All items are effective May 23,2001.

CRC Deposit/Distress Presentation

Mike Pansza presented Attachment 11. Mike stated that the lack of volunteers for organizing a Light Duty Rating Workshop is currently a problem. A suggested option is to have TMC or other industry group provide resources to hold a workshop. Industry could seek a commercial organization to hold the workshop with limited industry support. The CRC Deposit/Distress Operations and Procedures Manual can be used to conduct and manage this activity.

Zack Bishop offered to hold a Sequence IIIF workshop under his Light Duty Rating Task Force this year

Modifications to CCS and MRV Text in Procedure

Bill Nahumck presented proposed changes to Cold Crank Simulator and Mini Rotary Viscometer text that appears in the procedure Attachment 12. These changes were approved (Motioner: Bill Nahumck, seconded Pat Lang). Effective May 23, 2001.

TVTM Reporting Issues

Bill Nahumck presented Attachment 13 that addressed reporting zero or negative viscosity increase results and TVTM situations. These changes were approved (Motioner: Bill Nahumck, seconded Pat Lang). Effective May 23, 2001. Previously reported data is to be corrected to adhere to these conventions for control charting and target generation purposes. TMC is to correct the reference oil database and issue revised severity adjustments. Effective June 1, 2001.

RSI Report

Rick Oliver presented Attachment 14. Note, RSI website URL has changed to http://www.registration-systems.com.

5W-30 ACLW performance for recent months stand out for 3+ standard deviation performance from past targets.

Non-Interpretable Discussion

Rick Oliver presented the ACC Laboratory Conformance Statement Form and requested clarification on what special case situations existed in the Sequence IIIF. Rick requested that non-interpretable issues be clearly identified in the test procedure. Section 13 of the Sequence IIIF procedure already contains these items.

Special Parts Supplier Report

Sid Clark presented Attachment 15. Part supplies of several critical engine components are extremely low.

Connecting Rods
Crankshafts
Cylinder Heads
Engine Blocks
Front Covers

GM Race Shop was not providing adequate part inventory monitoring. GM Powertrain is assuming responsibility of inventory monitoring from this point forward. Powertrain's goal will be to stockpile a 6-month "finished part" inventory. Several new part shipments will occur late-May to mid-June. Sid apologized for this oversight and expressed his commitment to keep the industry supplied with parts. He requested that laboratories make current inventories available for possible part redistribution so that industry experiences no downtime. Already low laboratory inventories may not provide any relief through redistrubution. Cylinder heads are particularly in short supply. One time reuse of cylinder heads was discussed with exhaust valve recession as a concern. The panel agreed to reuse reconditioned race shop heads or use production heads after dressing seats and checking valve guides. Comments in the final test report should be included to explain the details on cylinder head use. This is an interim solution and should cease once new part shipments occur. This motion was accepted on a vote of 9 approves/0 opposed/4 waives. (Motioner: Sid Clark, seconded Pat Lang).

Report approved.

Central Parts Distributor Report

Dwight Bowden presented Attachment 16.

MB camshafts were reworked for a 10 R_a maximum bearing journal surface finish specification to prevent camshaft bearing problems. This change was approved on 5/11/2001. Previous camshafts had no surface finish specification.

Sequence IIIF Surveillance Panel Meeting
May 23, 2001 San Antonio, TX

Data Dictionary Revisions

A motion was made an accepted to change the data dictionary Viscosity transformation precision from 7 to 6 decimal places was approved (motioner: Bill Nahumck).

New Business

Zack Bishop distributed the ASTM Rater Calibration Task Force report (ftp://tmc.astm.cmri.cmu.edu/docs/rater_calibration/) was distributed, if there are any questions contact Zack Bishop. No presentation was given.

Motions and Action Items

May 23, 2001 Sequence III Surveillance Panel Meeting
San Antonio, Texas
Motions and Actions Items as Recorded at the Meeting

1. The May 25, 2000 and November 17, 2000 meeting minutes were approved as written.
2. [Motion made by Bill N and seconded by Dwight Bowden] Disband the Sequence IID Surveillance Panel. Passed unanimously.
3. [Motion made by Sid Clark and seconded by Dwight Bowden] Disband the Sequence IIIE Surveillance Panel. Passed unanimously.
4. [Motion made by Mike Kasimirsky and seconded by Pat Lang] Accept the TMC IIIF test report as written. Passed unanimously.
5. [Action Item] A letter will be written by the Sequence III chairman concerning the HD use of the IIIF at 60 hours. Should we adopt another test name and separate report forms for this HD requirement? Will RSI registration occur for both test types? Log transformations need to be investigated for the 60-hour severity adjustments. The 60-hour result only applies for the severity adjustment and won't effect the 80-hour stand calibration in anyway. There is no way to fail a reference test on the 60-hour result in terms of severity or precision.
6. [Motion made by Gordon Farnsworth and seconded by Dwight Bowden] TMC to choose a day within the next month-and-a-half to two months to bring in a minimum of 4 reference tests on oil 433-1 one test at each of the four labs using test stands that are currently in reference or just gone out of reference. Reference periods will be adjusted as appropriate. Passed unanimously.
7. [Action Item] A re-blend of 1008 will be requested.
8. [Action Item] Bob Rumford will include the fuel analysis from the Detroit storage facility in future fuel supplier updates.
9. [Motion made by Pat Lang and seconded by Mike Kasimirsky] Reset the following QI U and L values:
   - Engine speed U and L values based on the graph presented with a QI of –0.092 (CMIR-52).
   - Condenser coolant temperature based on the graph presented with a QI of –1.689 (CMIR-59C1).

   Passed unanimously.
10. [Motion made by Bill Nahumck and seconded by Mark Mosher] The O&H panel report and motions within were unanimously accepted as presented. This also included the request to add the May 8, 2001 dipstick calibration curve to the Test Method. Effective date is today.
11. [Motion made by Bill Nahumck and seconded by Pat Lang] Accept the verbage regarding the MRV/CCS protocol as presented in Bill Nahumck's handout at the meeting. Effective today. Passed unanimously.

Motions and Action Items (continued)

12. [Motion made by Bill Nahumck and seconded by Pat Lang] Accept the verbage regarding special cases of viscosity increase as presented in Bill Nahumck's handout at the meeting to be included in section 13.13 of the Test Method. The TMC will use this method for calculating any new reference oil test targets. New severity adjustments and LTMS lab/stand charts will also be calculated for each of the test lab using this new methodology. Effective June 1, 2001. Passed unanimously.
13. [Action Item] The labs are to inventory their cylinder heads and provide this information to Sid Clark for possible redistribution to balance the inventory across all test labs.??????????
14. [Motion made by Sid Clark and seconded by Pat Lang] The test labs can recondition any of their Race Shop heads one time by dressing the seats, checking the valve guides and using new valves for all testing during this interim short inventory period. Production heads can also be used. We will switch back to Race Shop hardware as soon as it is available. Use of any modified hardware must be noted in the Test Report. Effective immediately. Motion passed 9-0-4.
15. [Motion made by Sid Clark and seconded by Bill Nahumck] Sid's report was accepted as presented.
16. [Action Item] The labs are to contact their clients regarding high ACLW results and see if they would be interested in sending the cams and lifters to GM for further hardware testing.
17. [Motion made by Mike Yowell and seconded by Sid Clark] Based on the non-reference and reference data presented at this meeting the Surveillance Panel recommends that a -10 μm Industry Adjustment factor be added to the ACLW result for all non-reference tests using MB camshafts, effective immediately. This recommendation will be retroactive to all non-reference test results. A Task Force will be formed in the meantime to investigate this problem and will report their findings within 90 days. The motion passed 11-0-2.
18. [Motion made by Bill Nahumck and seconded by Pat Lang] TMC will modify form 4 based on motion 17 above. In addition, change the data dictionary from 7 to 6 decimal places regarding the transformed viscosity value. The motion passed unanimously.
19. [Motion made by Pat Lang and seconded by Mike Yowell] For all three IIIF reference oils, the ACLW limit be increased from 20 to 30 μm for as long as the MB correction factor is in effect. The motion passed unanimously.

ASTM SEQUENCE IIIF LIST

MAY 23, 2000

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~~San Antonio, Texas~~

NAME / ADDRESS	PHONE / FAX / E-MAIL		SIGNATURE
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Zack Bishop Oronite Global Technology 4502 Centerview Drive Suite 210 San Antonio, TX 78228 USA	210-731-5605 210-731-5699 zrbi@chevron.com	☑ IIIF SURV PANEL ☐ IIIF MAILING LIST ☑ O&H SUBPANEL ☐ O&H Mailing List	Present ZRB
Dwight H. Bowden OH Technologies, Inc. 9300 Progress Parkway P.O. Box 5039 Mentor, OH 44061-5039 USA	440-354-7007 440-354-7080 dhbowden@ohtech.com	☑ IIIF SURV PANEL ☐ IIIF MAILING LIST ☑ O&H SUBPANEL ☐ O&H Mailing List	Present DH Bowden
Donald Bryant The Lubrizol Corporation 28400 Lakeland Boulevard Wickliffe, OH 44092 USA	440-347-2159 440-943-9004 debr@lubrizol.com	☐ IIIF SURV PANEL ☑ IIIF MAILING LIST ☐ O&H SUBPANEL ☑ O&H Mailing List	Present

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MAY 23, 2000 San Antonio, Texas

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Gil Clark Specified Fuels and Chemicals 117 E. Church Street Lake Orion, MI 48362 USA	248-693-6434 sdclark@Juno.com	☑ IIIF SURV PANEL ☐ IIIF MAILING LIST ☐ O&H SUBPANEL ☑ O&H Mailing List	Present
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Francis R. Duffey DaimlerChrysler 800 Chrysler Road CIMS 482-00-13 Auburn Hills, MI 48236-2757 USA	248-576-7476 248-576-7490 fd13@daimlerchrysler.com	☑ IIIF SURV PANEL ☐ IIIF MAILING LIST ☐ O&H SUBPANEL ☐ O&H Mailing List	Present

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MAY 23, 2000 **San Antonio, Texas**

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MAY 23, 2000 **San Antonio, Texas**

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MAY 23, 2000 **San Antonio, Texas**

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MAY 23, 2000 **San Antonio, Texas**

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MAY 23, 2000 **San Antonio, Texas**

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SEQUENCE IID/IIIE/IIIF SURVEILLANCE PANEL MEETING
GUEST LIST
May 23, 2001
San Antonio, Texas

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Alfredo Montez 4502 Centerview Dr San Antonio Texas 78228	210 731 5604 ammn@chevron.com	AM

Attachment 2
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Reference 5/23/01

AGENDA

SEQUENCE IID/IIIE/IIIF SURVEILLANCE PANEL MEETING

EMBASSY SUITES HOTEL
SAN ANTONIO, TEXAS
May 23, 2001

1. APPOINTMENT OF A MEETING SECRETARY AND RECORDER OF ACTIONS/MOTIONS
2. AGENDA REVIEW
3. MEMBERSHIP CHANGES
4. APPROVAL OF MINUTES FROM MAY 25, 2000 AND NOVEMBER 17, 2000. SEPTEMBER 27, 2000 MINUTES ARE STILL PENDING.

SEQUENCE IID

1. IID OLD BUSINESS
2. IID NEW BUSINESS
3. MOTION TO DISBAND THE SEQUENCE IID SURVEILLANCE PANEL

SEQUENCE IIIE

1. IIIE OLD BUSINESS
2. IIIE NEW BUSINESS
3. MOTION TO DISBAND THE SEQUENCE IIIE SURVEILLANCE PANEL

SEQUENCE IIIF

1. TMC SEMI-ANNUAL REPORT – INVALID DATABASE
2. RSI SEMI-ANNUAL REPORT
3. FUEL SUPPLIER REPORT (IIIF)
4. REPORT ON STATUS OF TEST PARTS – GMR AND OHT
5. O&H SUBPANEL REPORT – PAT LANG
   - A. RECOMMENDATIONS FROM THE MAY 3, 2001 MEETING – PAT LANG
   - B. CALCULATION OF THE VISCOSITY INCREASE – BILL NAHUMCK
   - C. MODIFICATIONS TO THE CCS AND MRV TEXT IN THE TEST PROCEDURE – BILL NAHUMCK
6. UPDATE ON THE CAMSHAFT WEAR INVESTIGATION – PAT LANG/SID CLARK
7. DISCUSSION OF SJ LIMITS AT 60 HOURS WITH THE IIIF TEST – MICHAEL KASIMIRSKY
8. PENDING REBLENDS OF RO 433 AND 1008 – MICHAEL KASIMIRSKY
9. RATER CALIBRATION CRITERIA - – MICHAEL PANSZA
10. DISCUSSION OF "SPECIAL CASE" DEFINITON IN THE TEST PROCEDURE – RICK OLIVER

OLD BUSINESS

SCOPE & OBJECTIVES

NEW BUSINESS

MEETNG LOCATION PROPOSAL – BEN WEBER/JOHN ZALAR

ADJOURNMENT

STATUS OF IIIF STANDARD

Technical Guidance Committee
April 18, 2001 meeting Highlights

Attachment	3
Page	1
Reference	5/23/01

Rater Calibration:

A rater calibration procedure was agreed and details of the procedure are available from Zack Bishop.

- Raters classified by skill level (Category I or II)
- Attend at least one rating workshop per year (make-up sessions allowed in rare instances where attendance not possible)
- Maintain records of internal training classification

Precision for API Conformance Audit calculations:

The TGC recommendation is that "The LTMS Severity Adjustment standard deviation for the specific test type be used and that AMAP testing should only be scheduled during periods when the specific test is in control, as defined by the industry and laboratory LTMS precision charts".

Consensus ratings:

There was agreement that all test procedures should have consistent statements regarding consensus ratings. The statement agreed is "If multiple ratings are deemed necessary of a given part or parts, consensus rating may be used according to the following: The raters shall be from the same laboratory in question or an outside rater if required (no category 1 rater available in the lab). No averaging of ratings is permitted. Only one rating value is to be reported and is to be agreed to by the original rater involved. Any consensus rating shall be documented in the comment section of the test report.".

TMC Web Site:

The TGC approved a recommendation that all reference oil test data, valid or invalid, be posted on the TMC web site. The TMC will post this information as an Excel file.

GF-3 Category reference Oil:

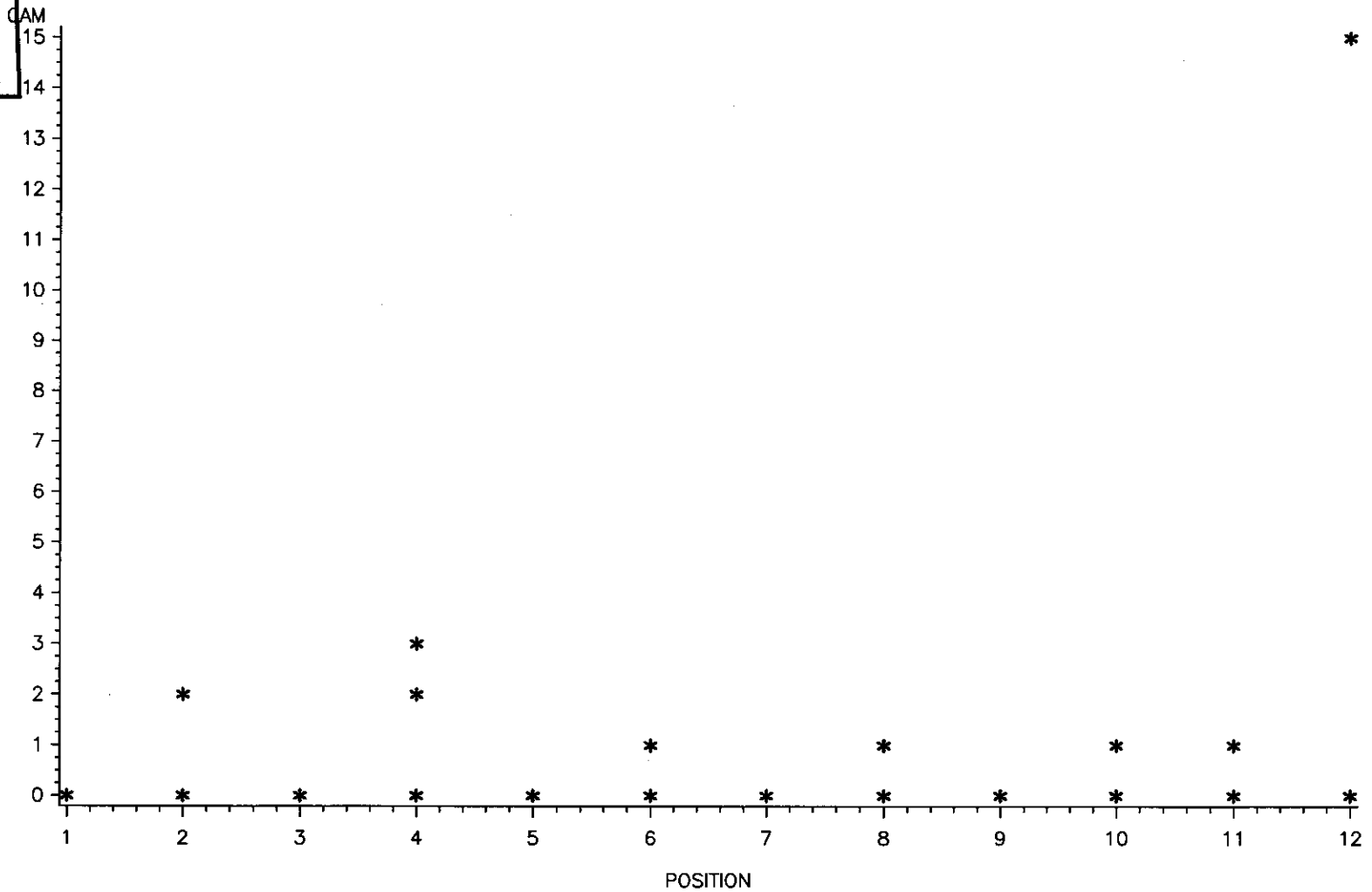
The TGC agreed that a GF-3 reference oil should be pursued and introduced in all GF-3 sequence tests. Anyone wishing to provide an oil to the TMC should supply supporting test data to the TMC by June 1. The only current candidate is TMC 1008. The data for all reference candidates received will be blind coded and circulated to the TGC membership for review. One candidate will be selected.

Attachment 4
Page 1
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft Wear Only, by Position

Reference Oil 1006

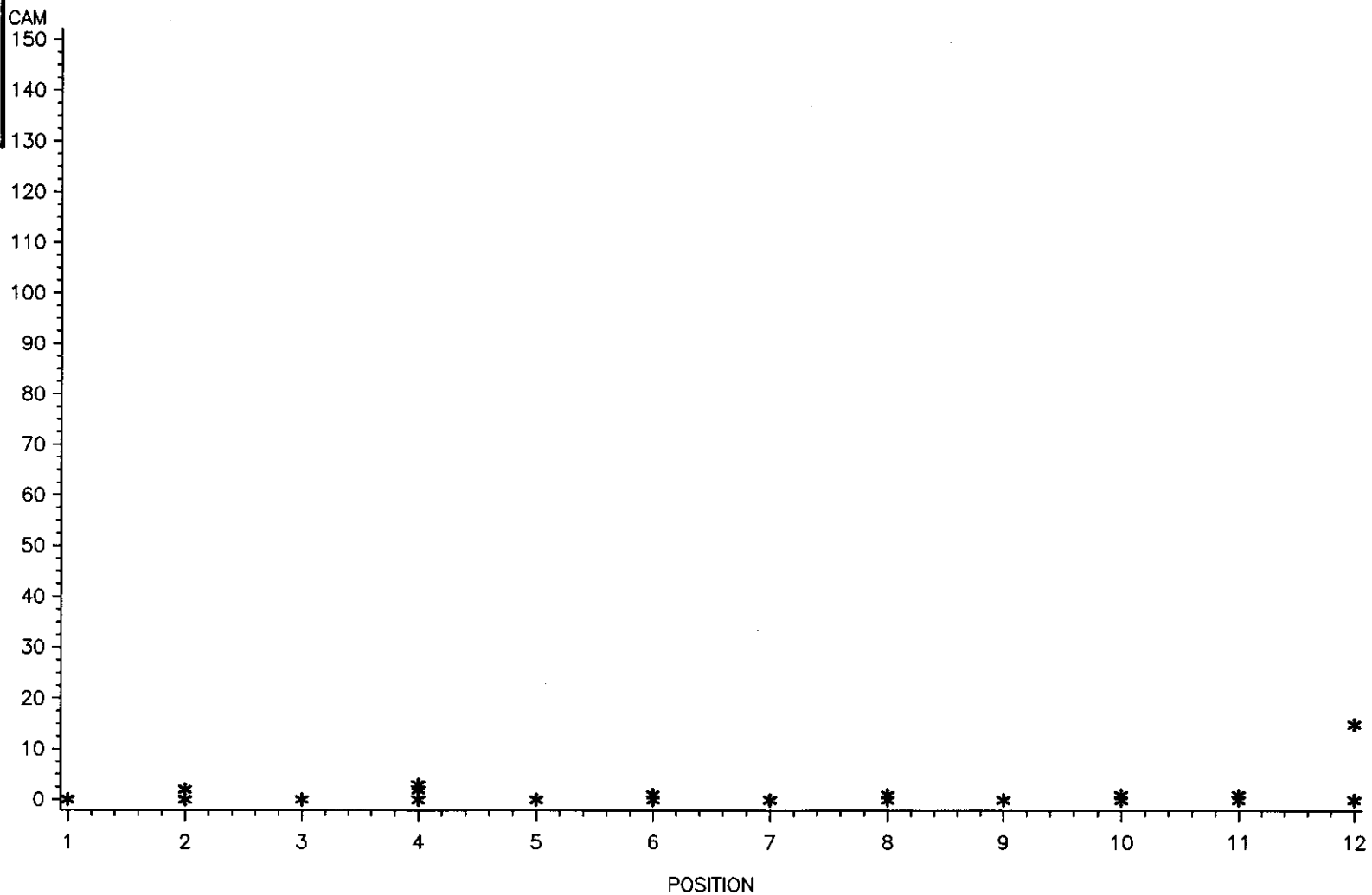


Attachment 4
Page 2
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft Wear Only, by Position

Reference Oil 1006, JB Pour Code

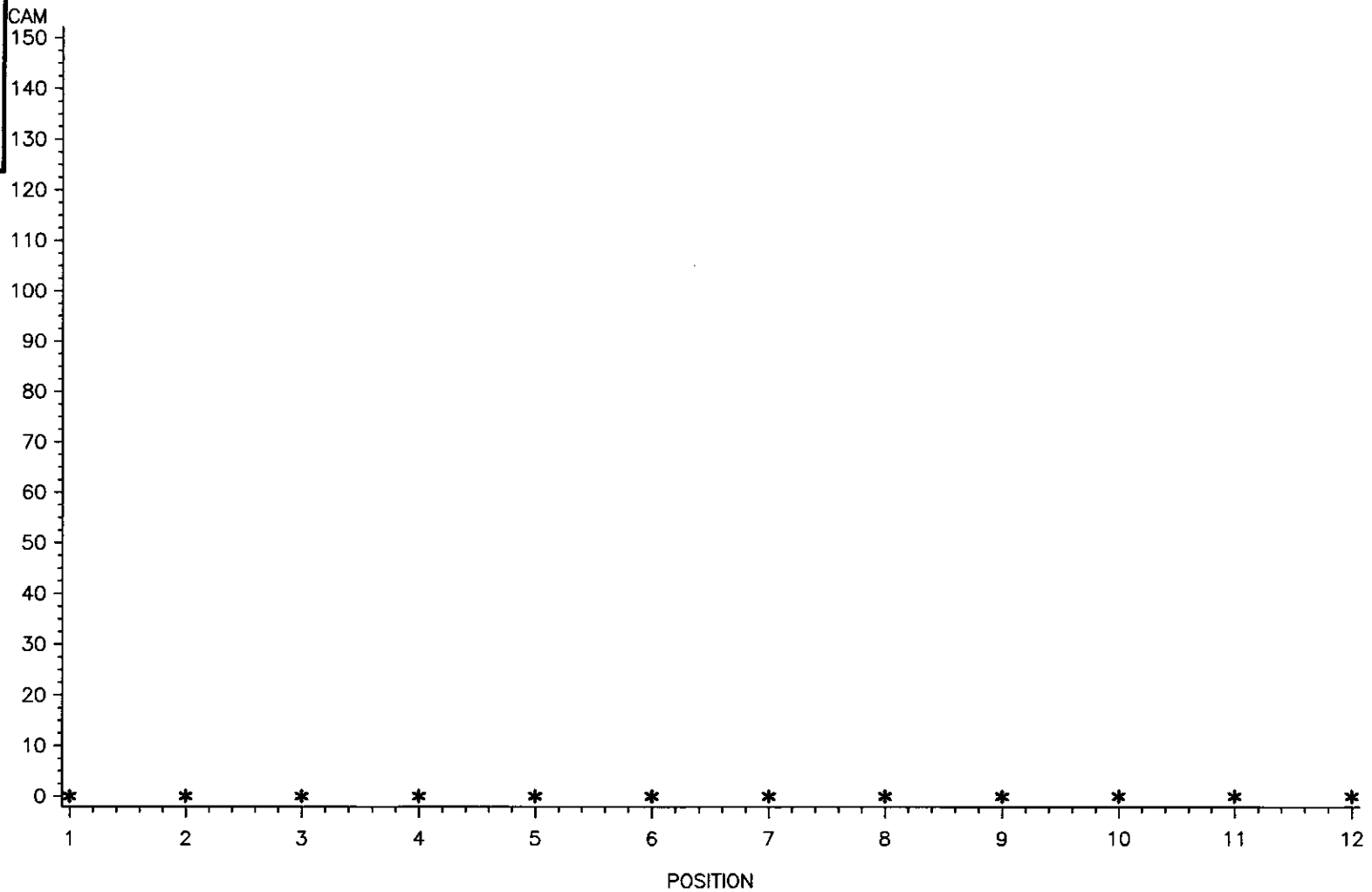


Attachment 4
Page 3
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft Wear Only, by Position

Reference Oil 1006, LC Pour Code

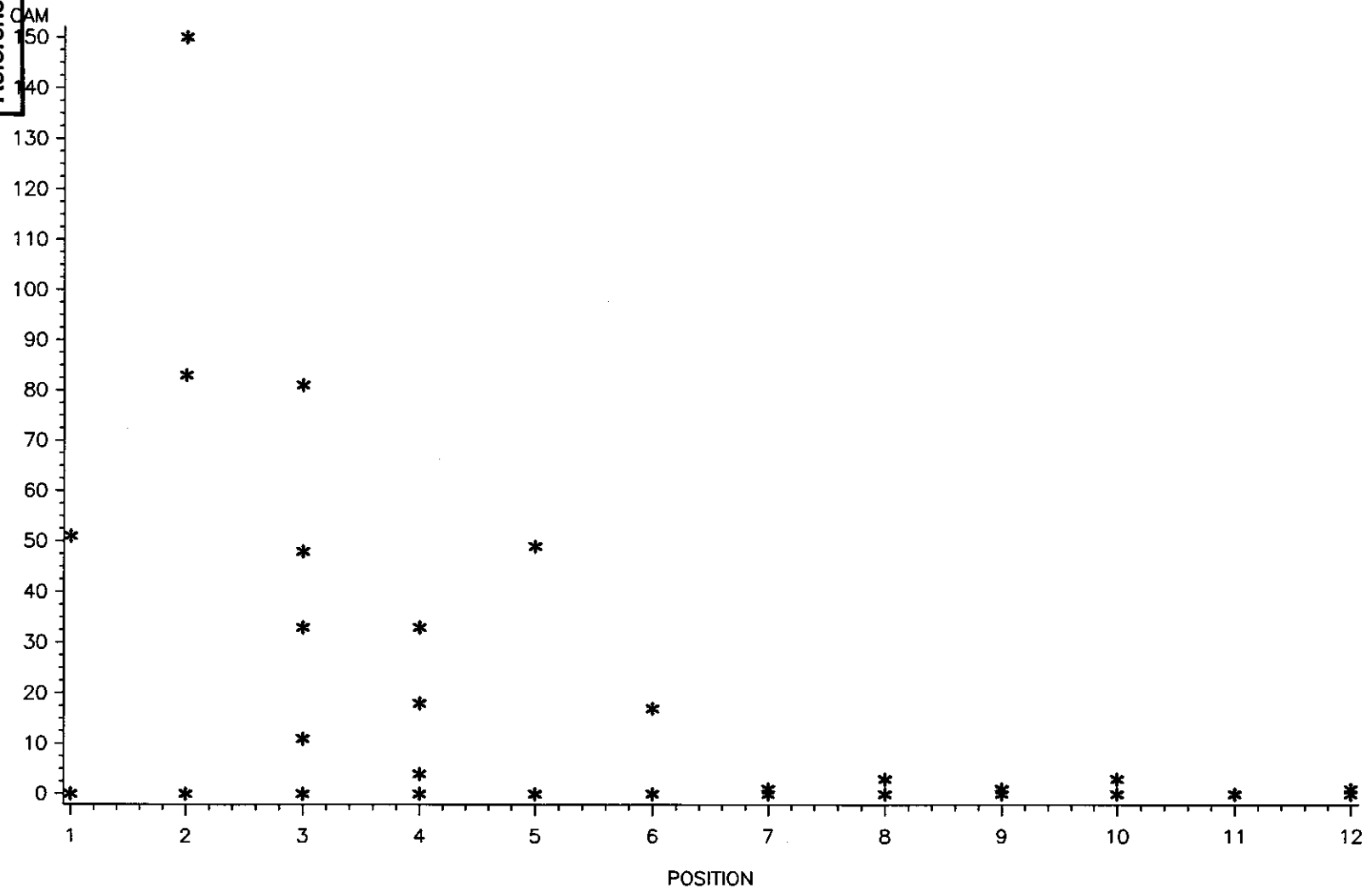


Attachment 4
Page 4
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft Wear Only, by Position

Reference Oil 1008

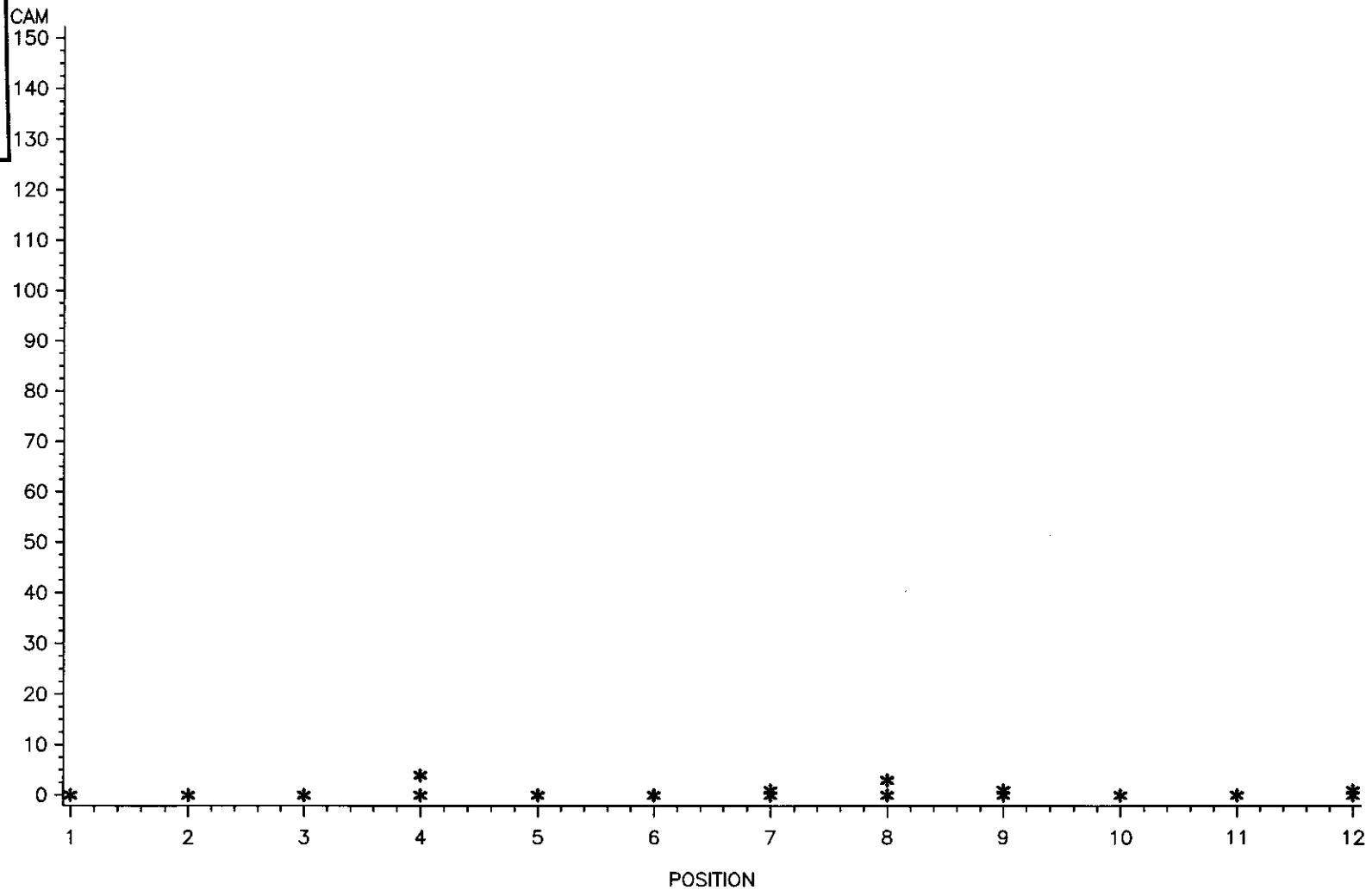


Attachment 4
Page 5
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft Wear Only, by Position

Reference Oil 1008, JB Pour Code

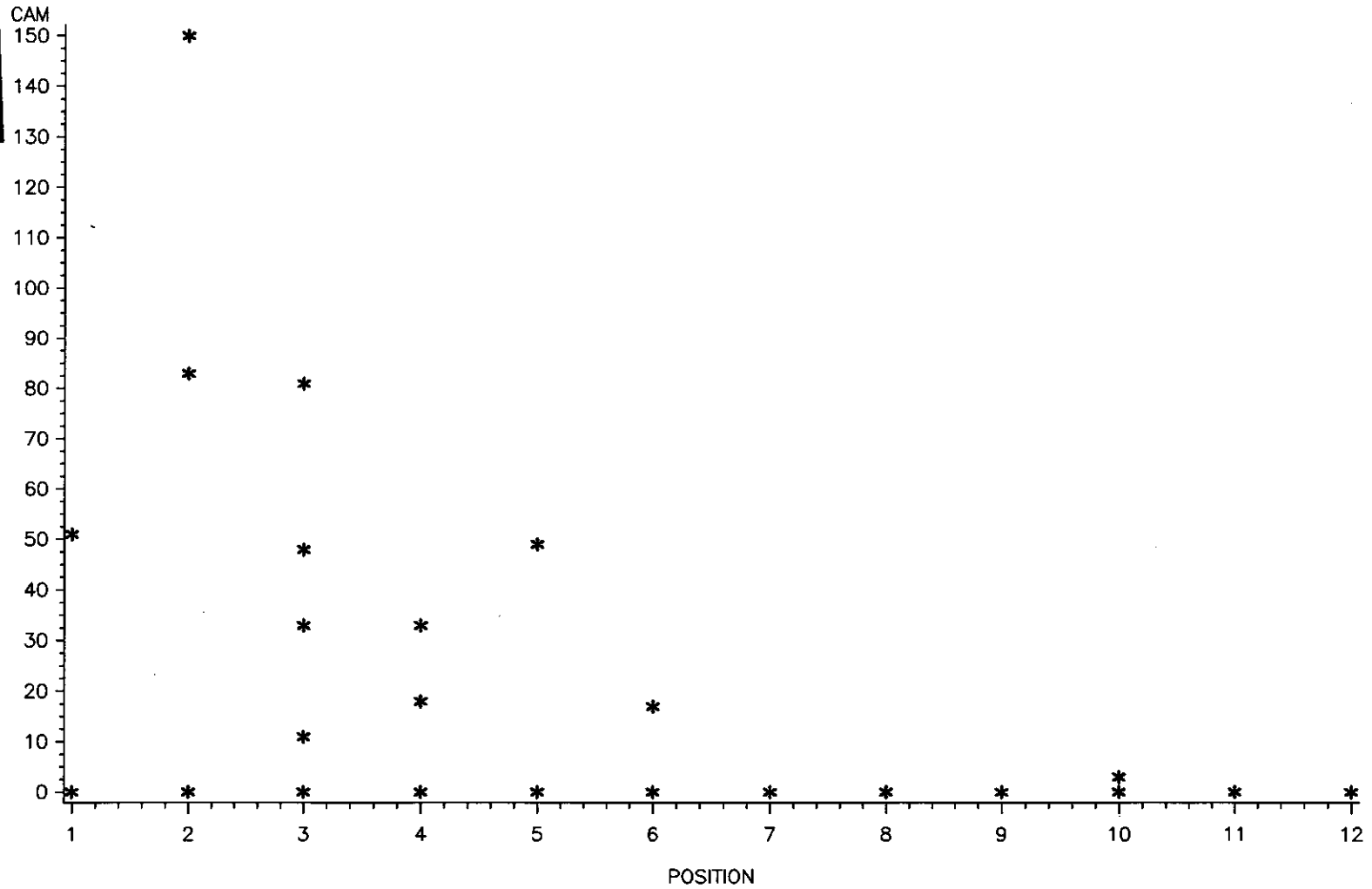


Attachment 4
Page 6
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft Wear Only, by Position

Reference Oil 1008, LC Pour Code

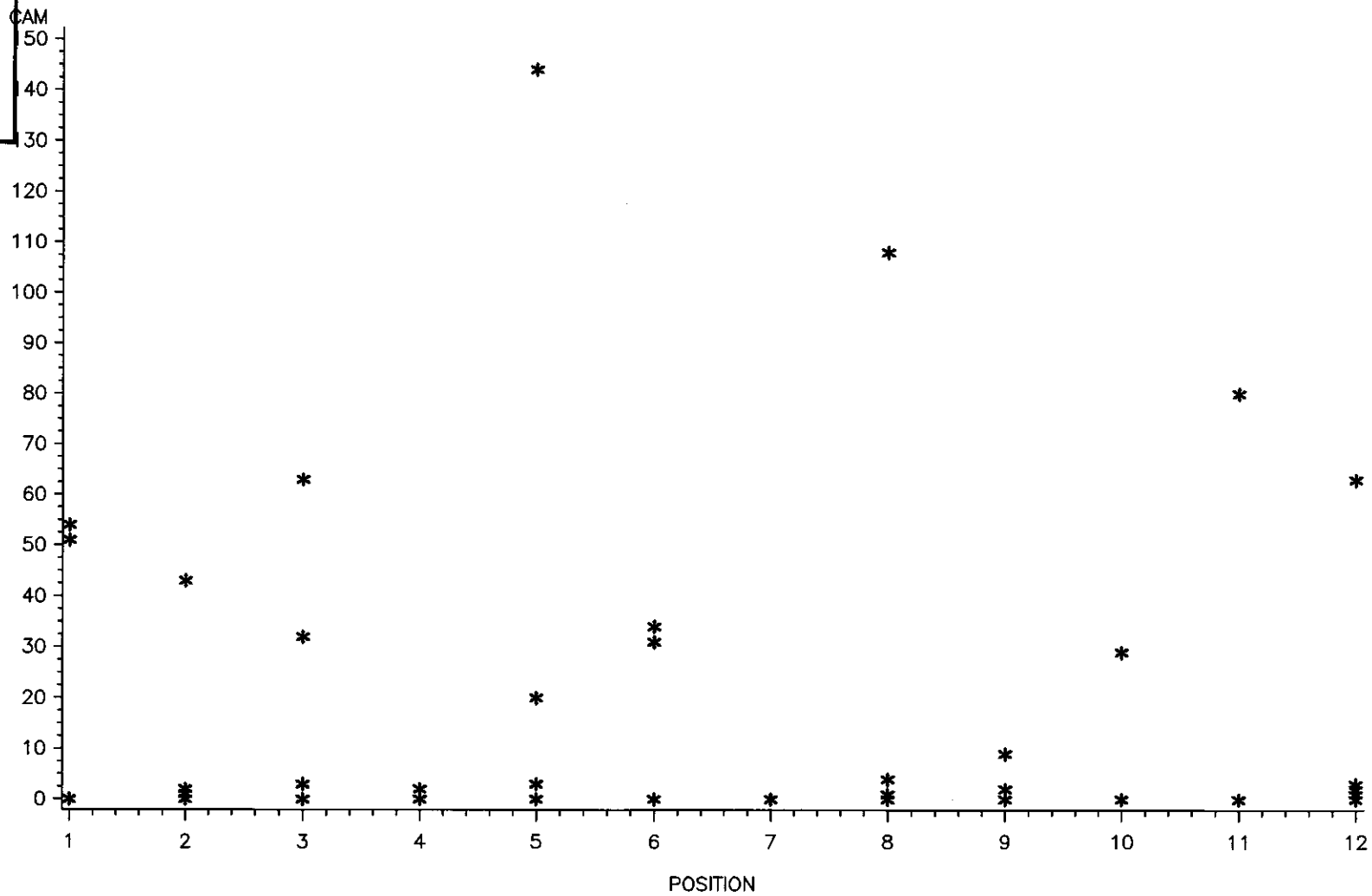


Attachment 4
Page 7
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft Wear Only, by Position

Reference Oil 433



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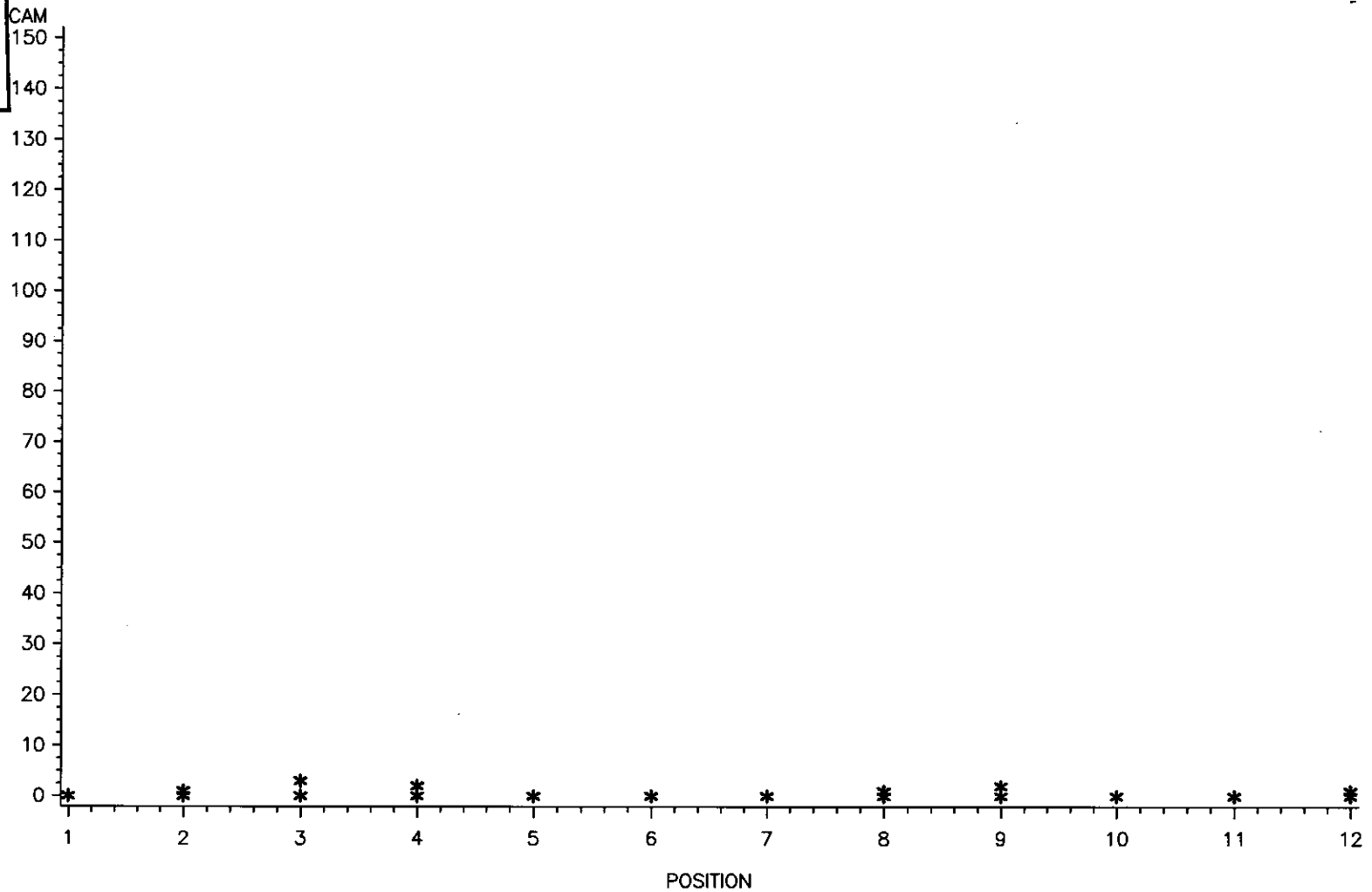
Page 9
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft Wear Only, by Position

Reference Oil 433, JB Pour Code

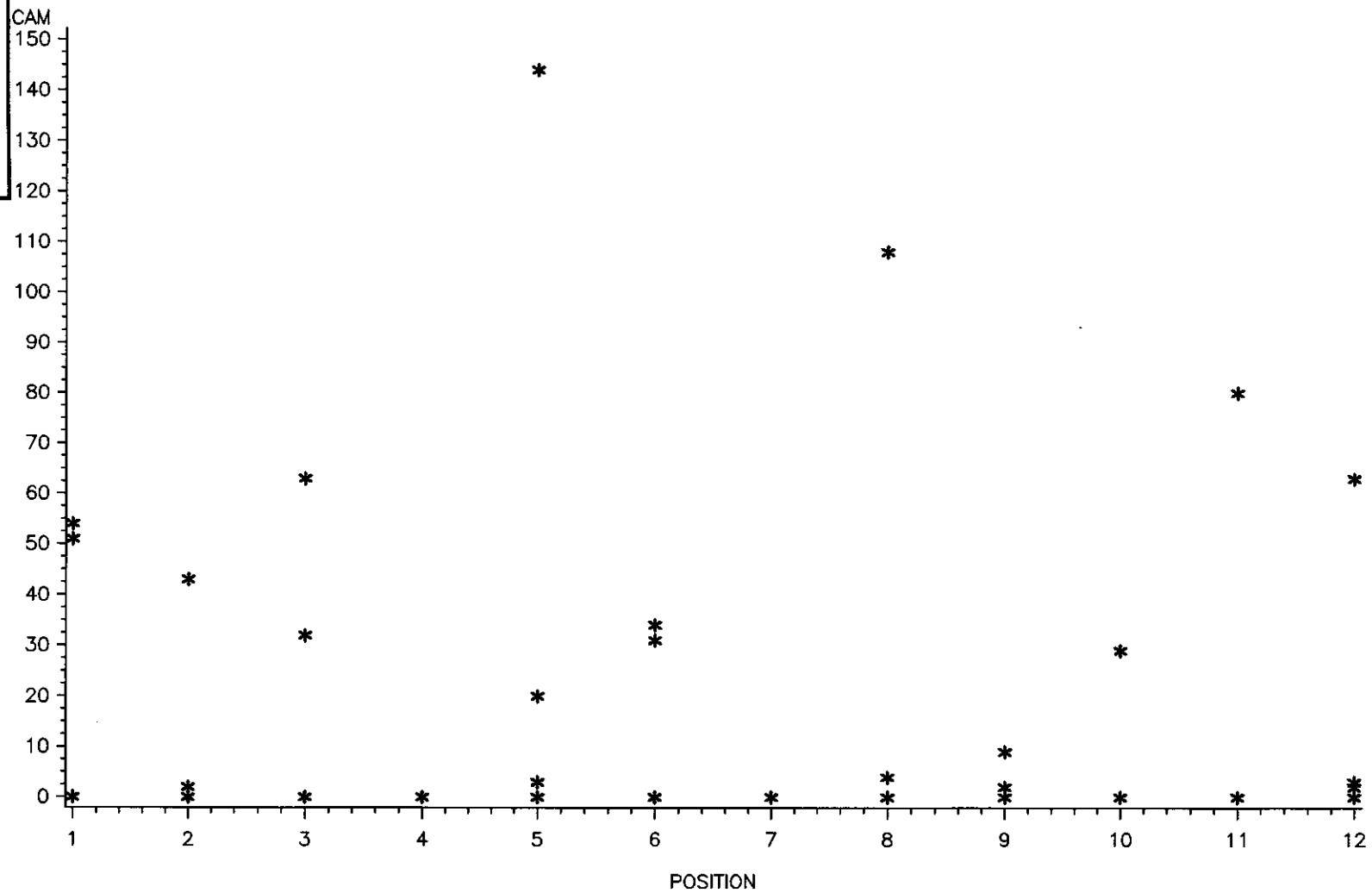


Attachment 4
Page 6
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft Wear Only, by Position

Reference Oil 433, LC Pour Code

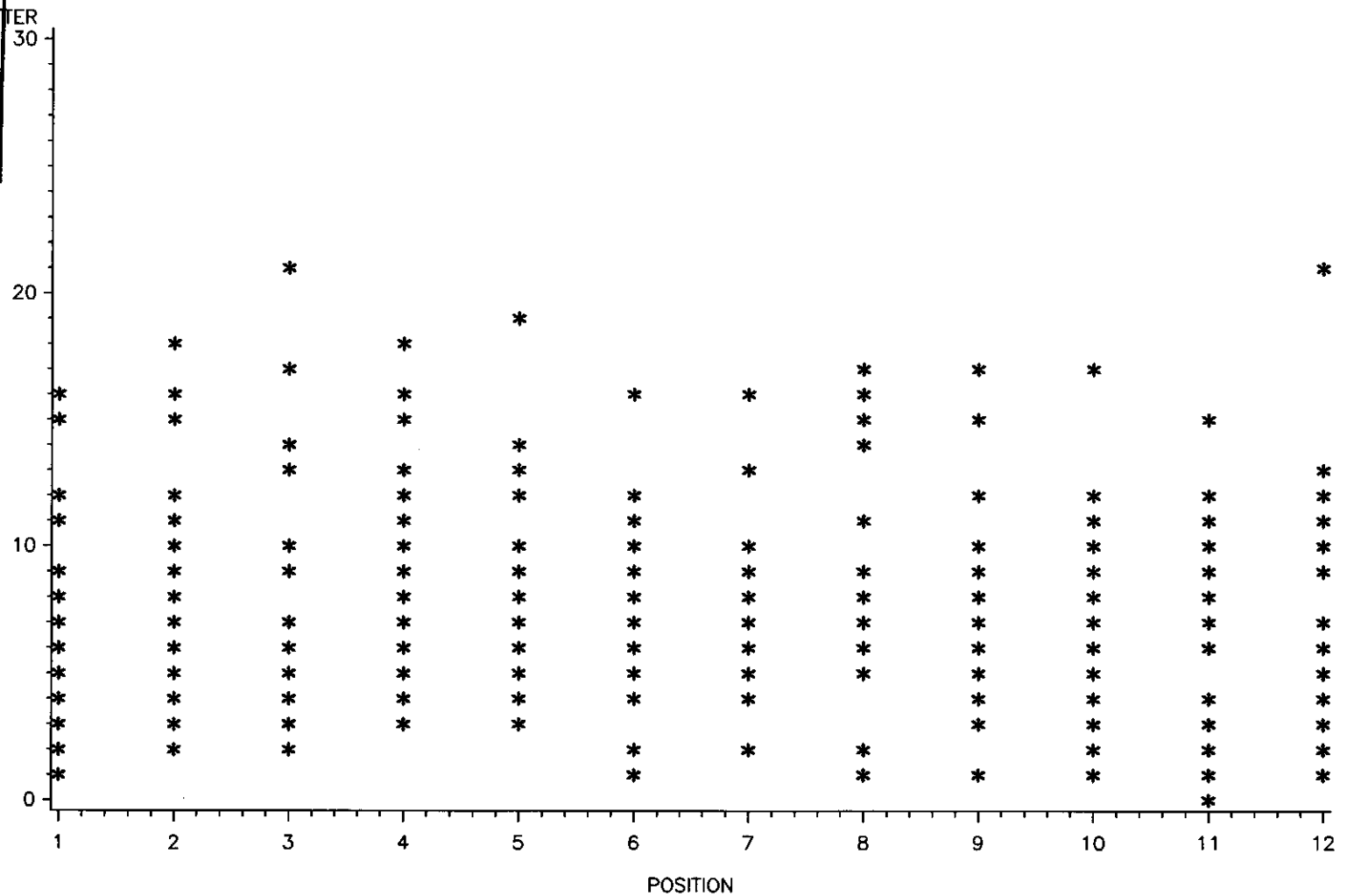


Attachment 4
Page 10
Reference 5/23/01

Sequence IIIF Wear Performance

Lifter Wear Only, by Position

Reference Oil 1006

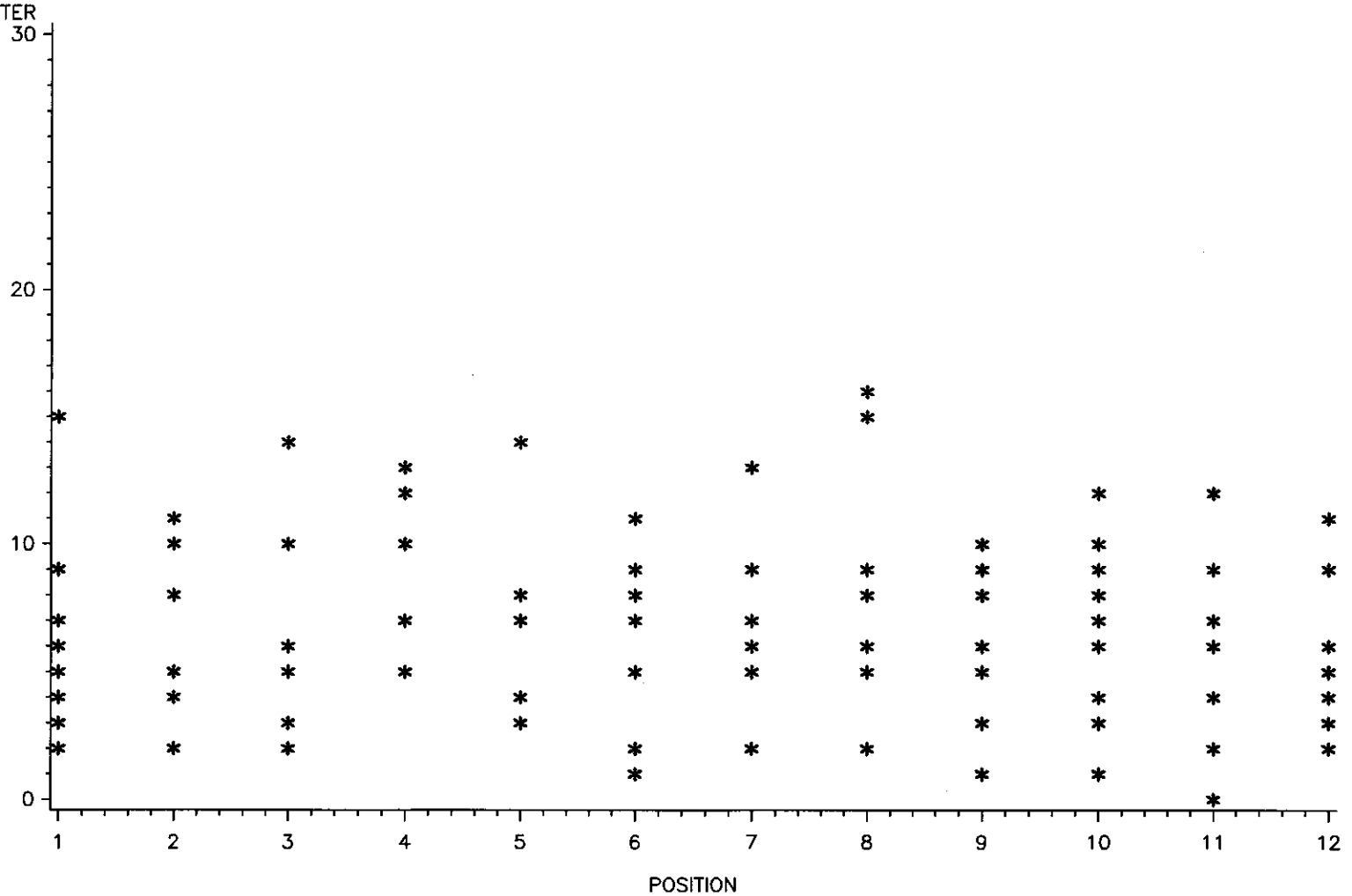


Attachment 4
Page 11
Reference 5/23/01

Sequence IIIF Wear Performance

Lifter Wear Only, by Position

Reference Oil 1006, JB Pour Code

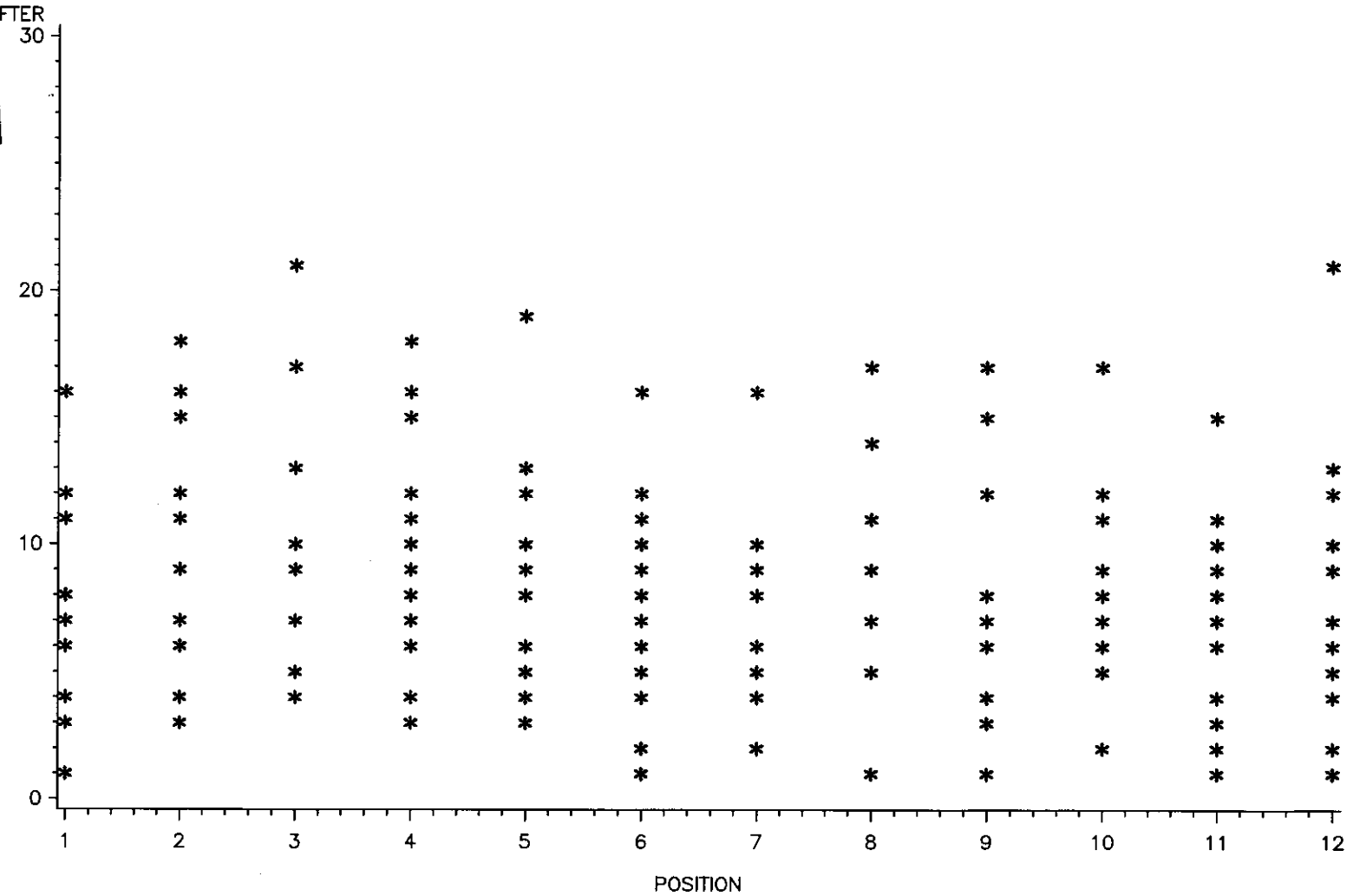


Attachment 4
Page 12
Reference 5/23/01

Sequence IIIF Wear Performance

Lifter Wear Only, by Position

Reference Oil 1006, LC Pour Code



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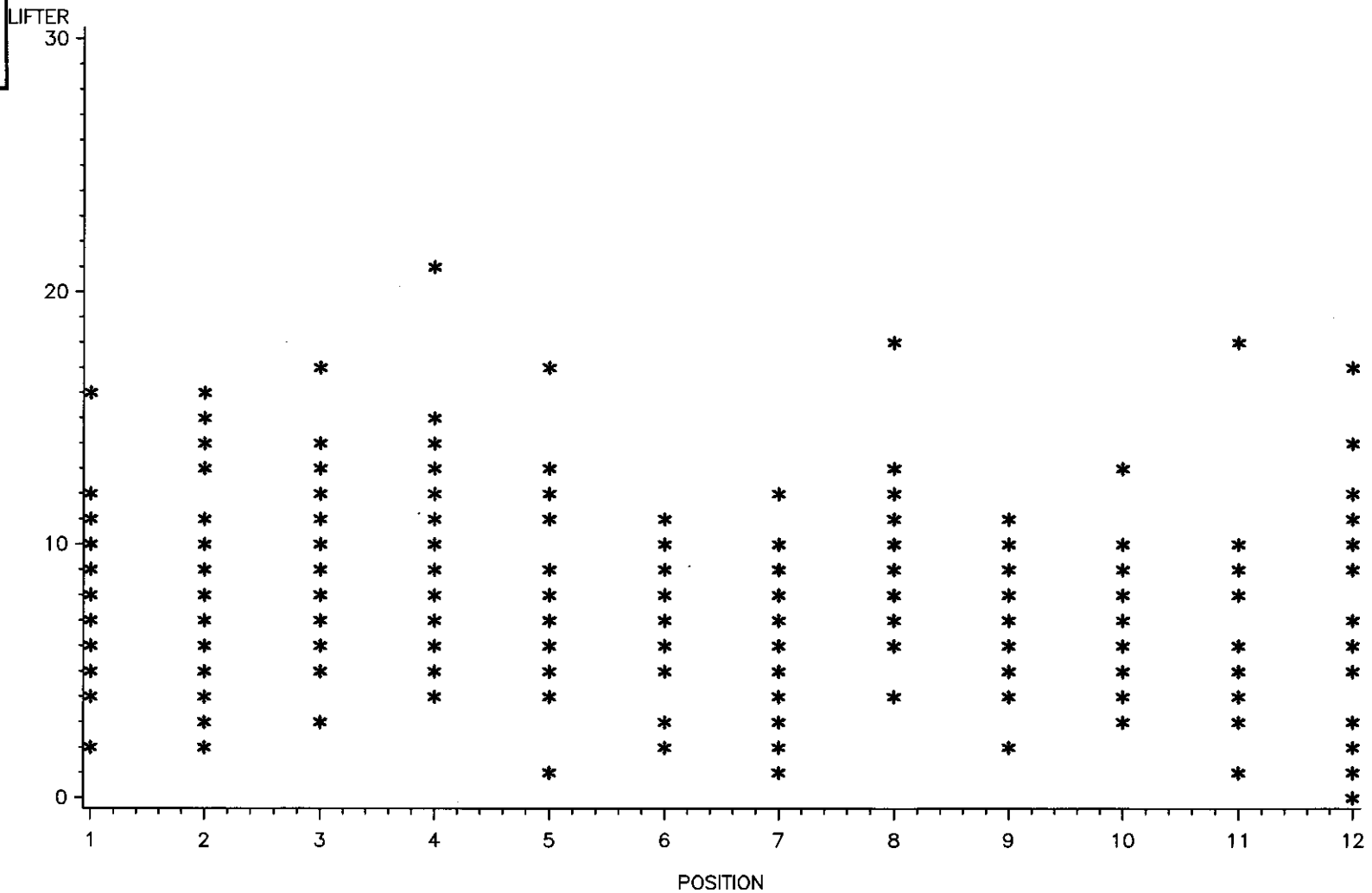
Reference 5/23/01

Sequence IIIF Wear Performance

Lifter Wear Only, by Position

Reference Oil 1008



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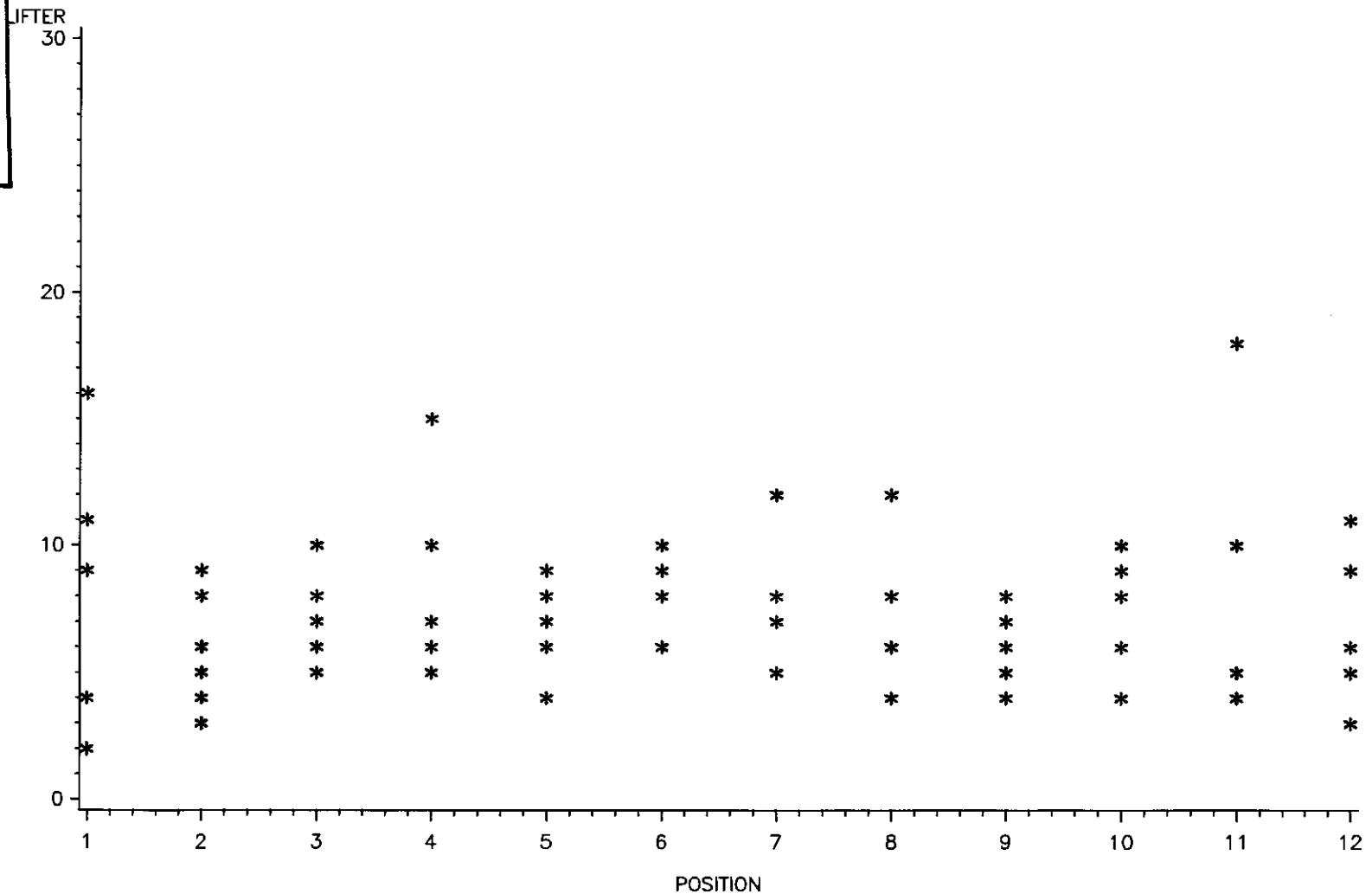
Page Reference 14
5/23/01

Sequence IIIF Wear Performance

Lifter Wear Only, by Position

Reference Oil 1008, JB Pour Code



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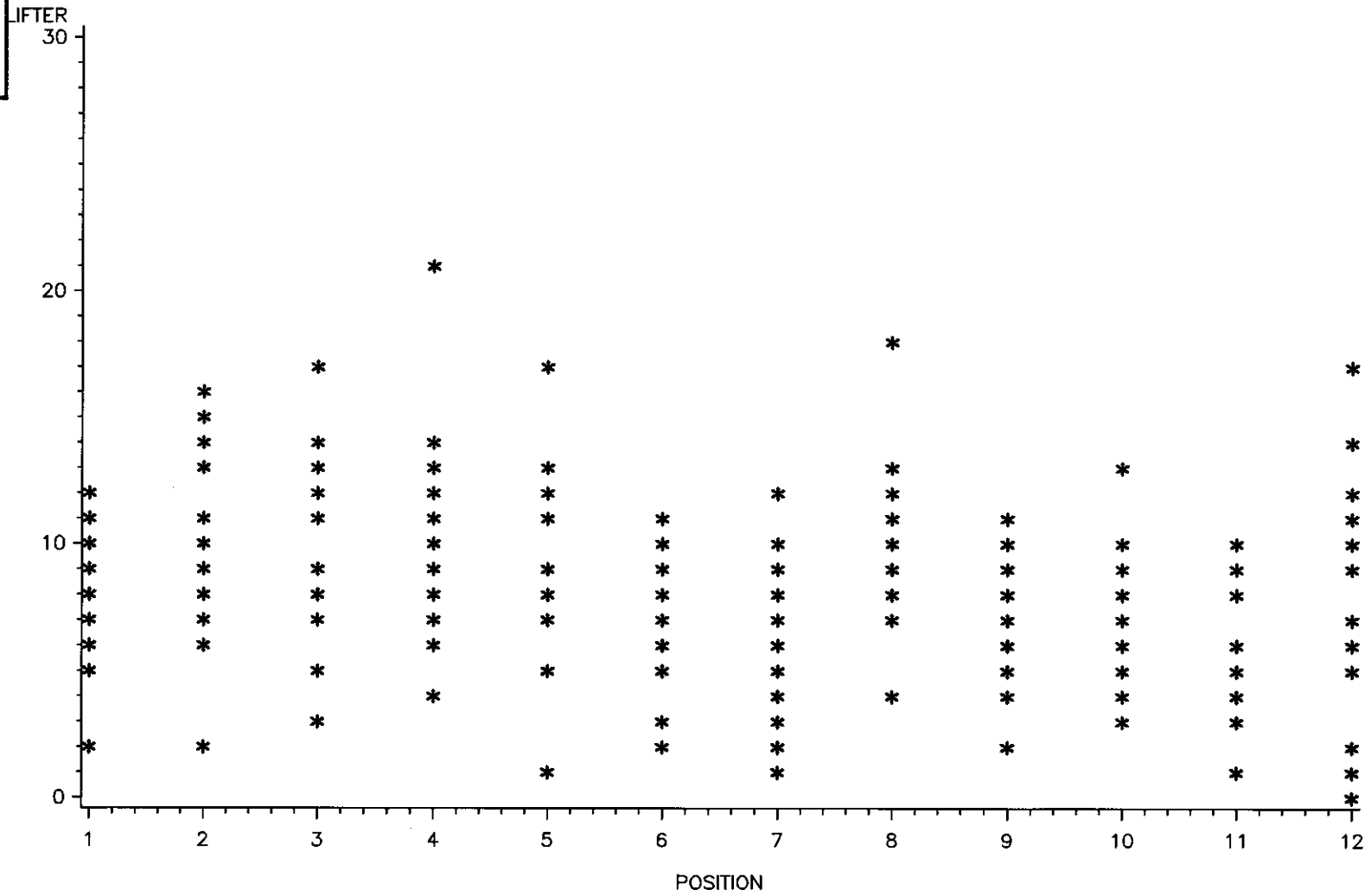
Page 15
Reference 5/23/01

Sequence IIIF Wear Performance

Lifter Wear Only, by Position

Reference Oil 1008, LC Pour Code



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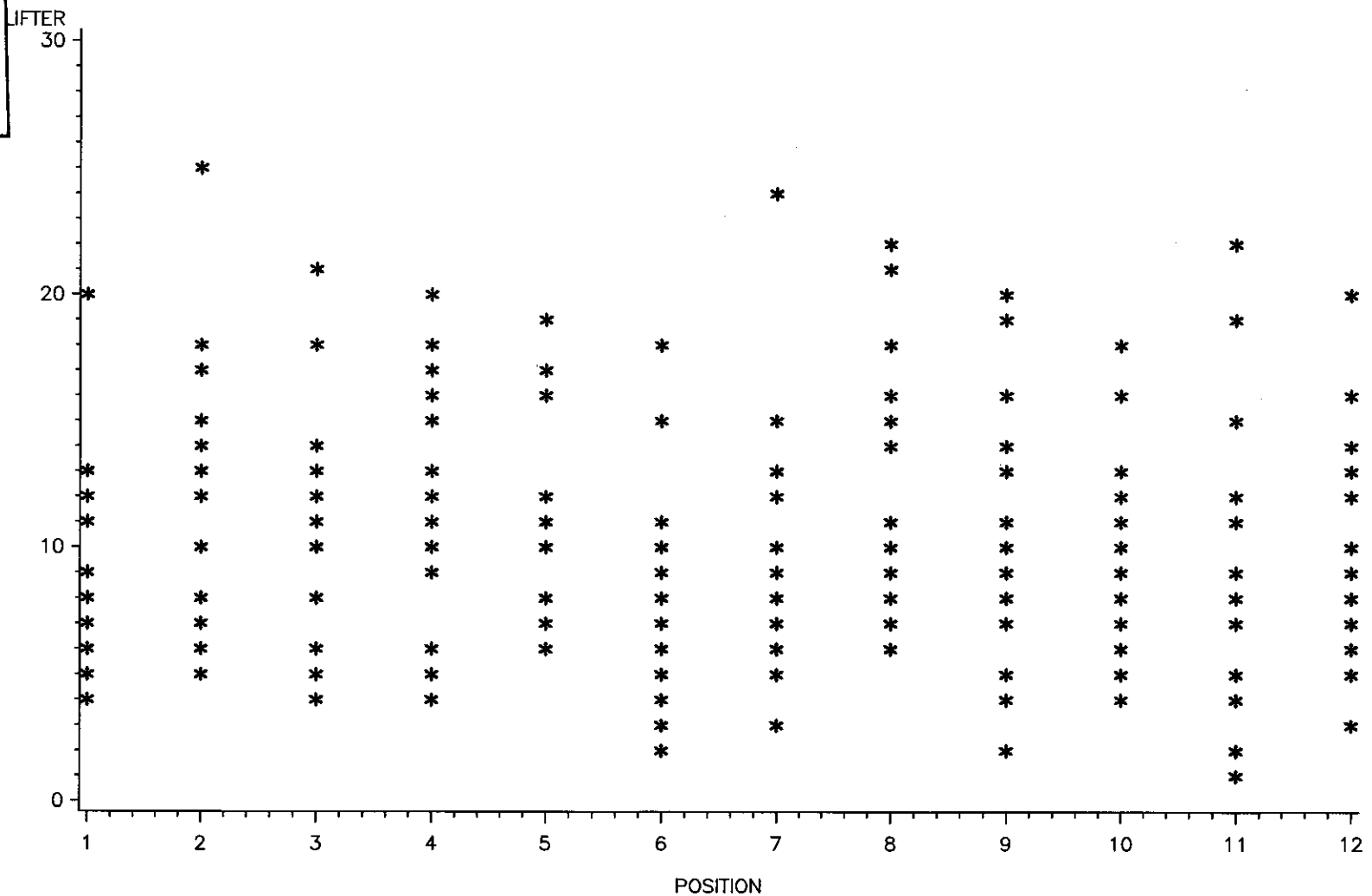
Page 16
Reference 5/23/01

Sequence IIIF Wear Performance

Lifter Wear Only, by Position

Reference Oil 433



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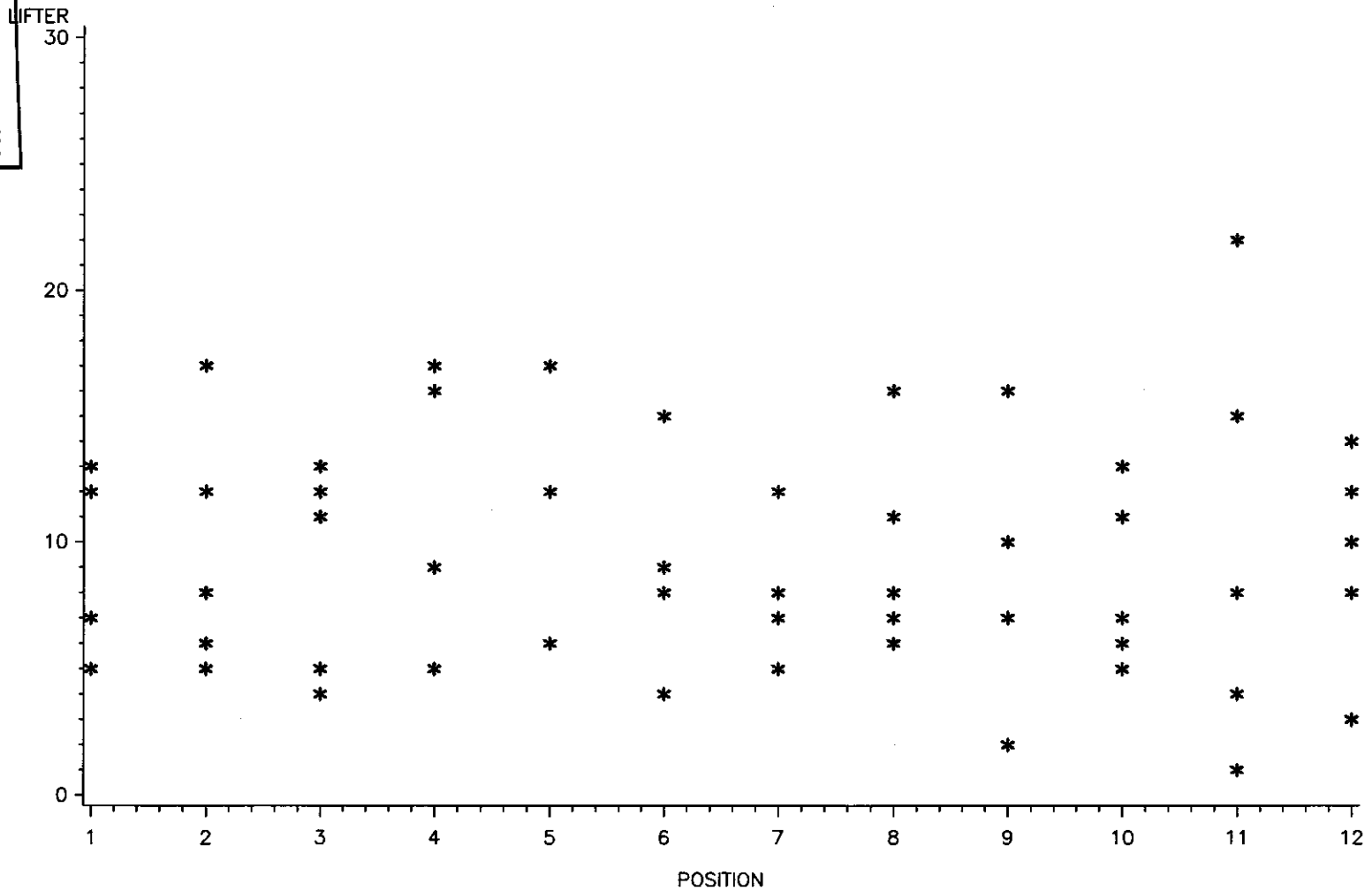
Page 17
Reference 5/23/01

Sequence IIIF Wear Performance

Lifter Wear Only, by Position

Reference Oil 433, JB Pour Code



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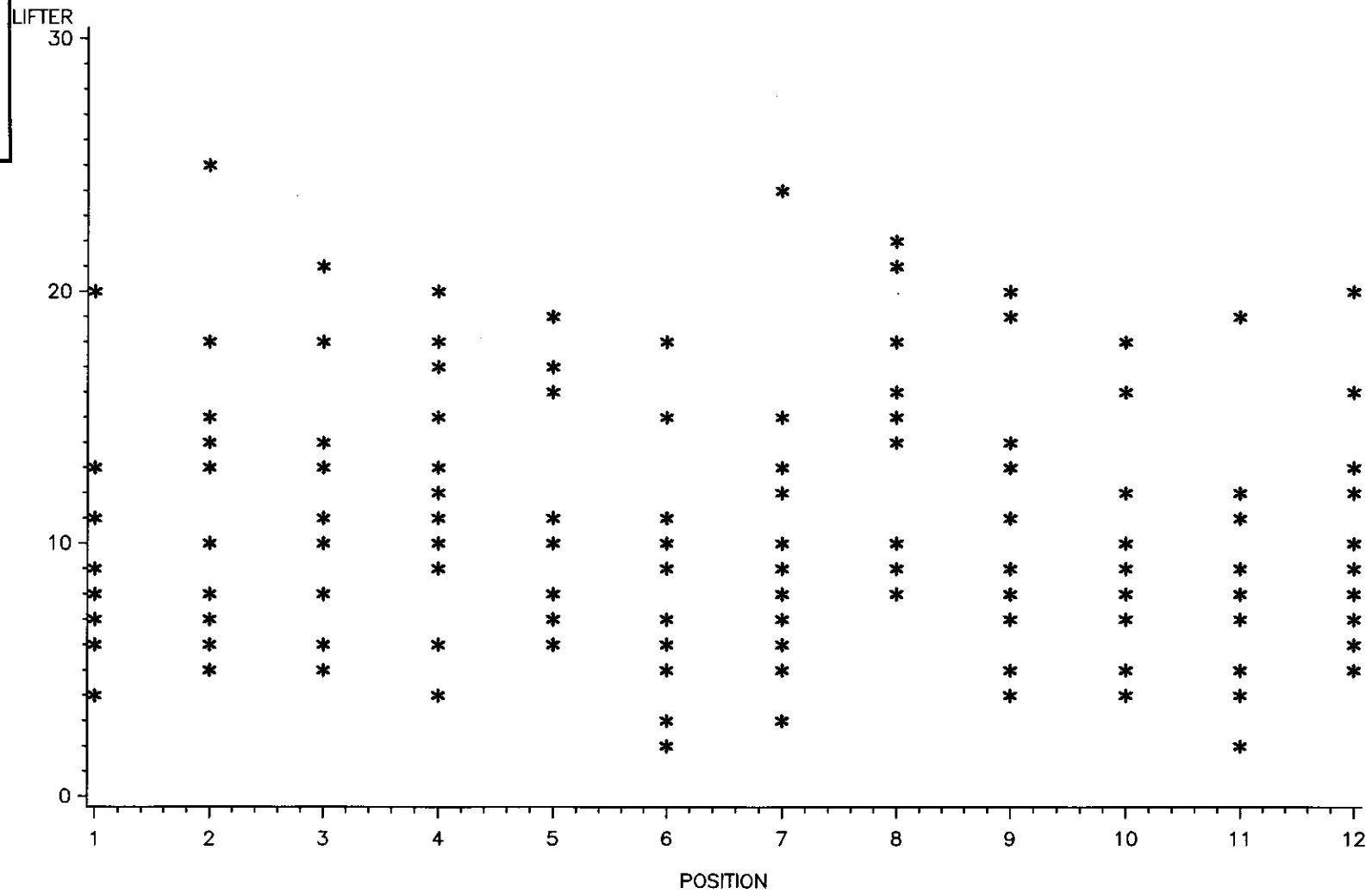
Page 18
Reference 5/23/01

Sequence IIIF Wear Performance

Lifter Wear Only, by Position

Reference Oil 433, LC Pour Code

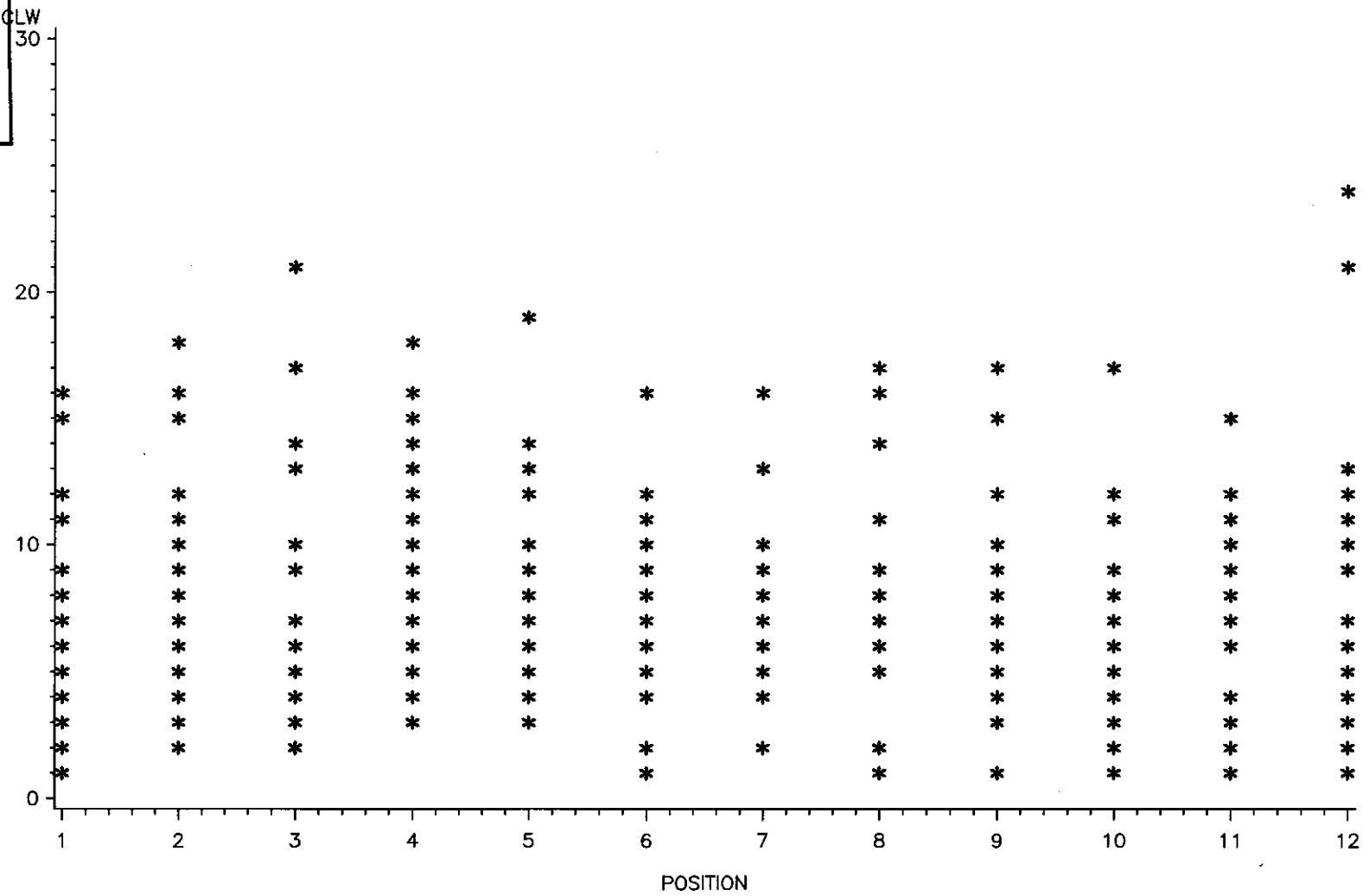


Attachment 4
Page 14
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft–plus–Lifter Wear, by Position

Reference Oil 1006



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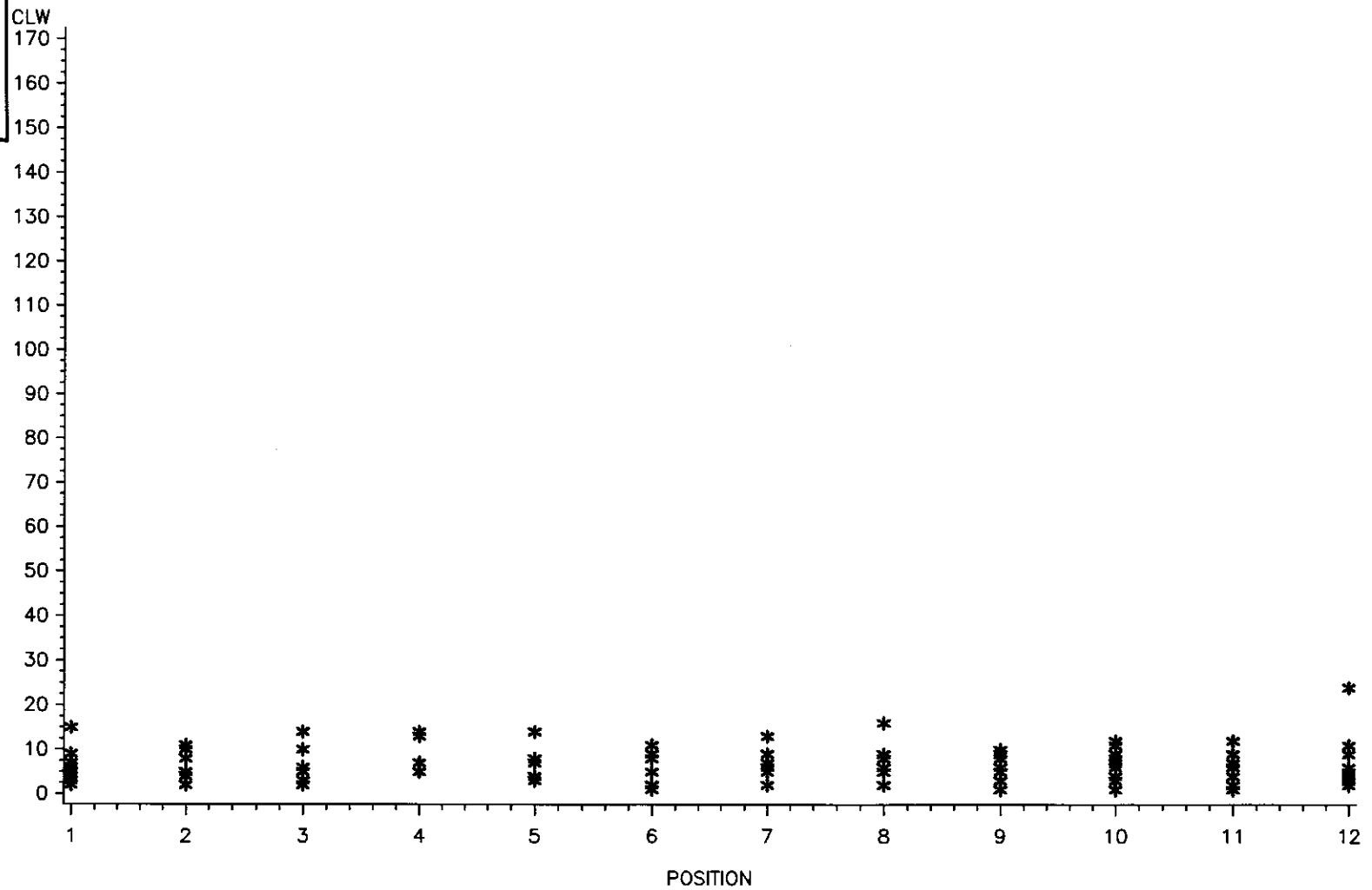
Page 20
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft–plus–Lifter Wear, by Position

Reference Oil 1006, JB Pour Code



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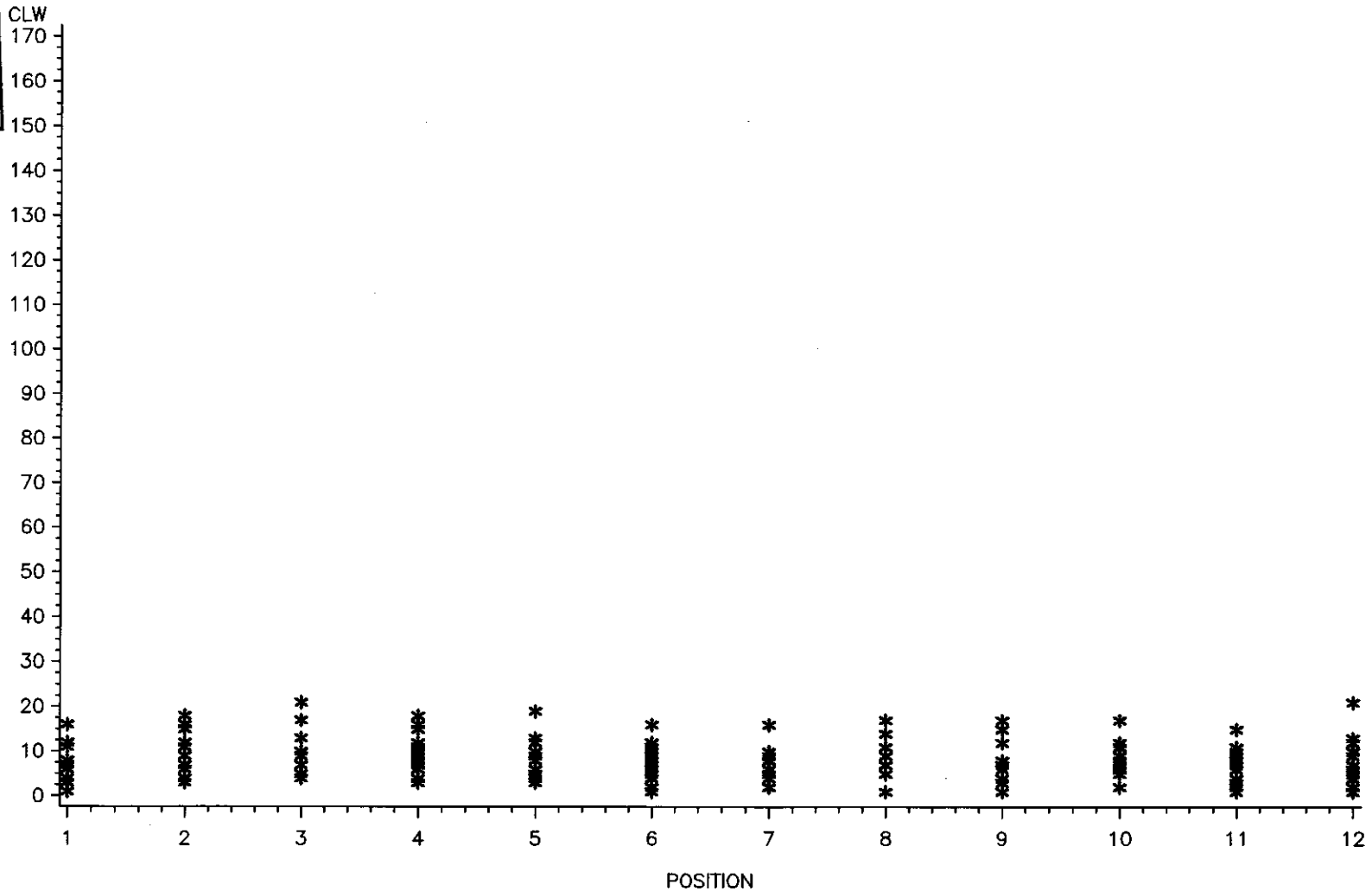
Page 21
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft–plus–Lifter Wear, by Position

Reference Oil 1006, LC Pour Code

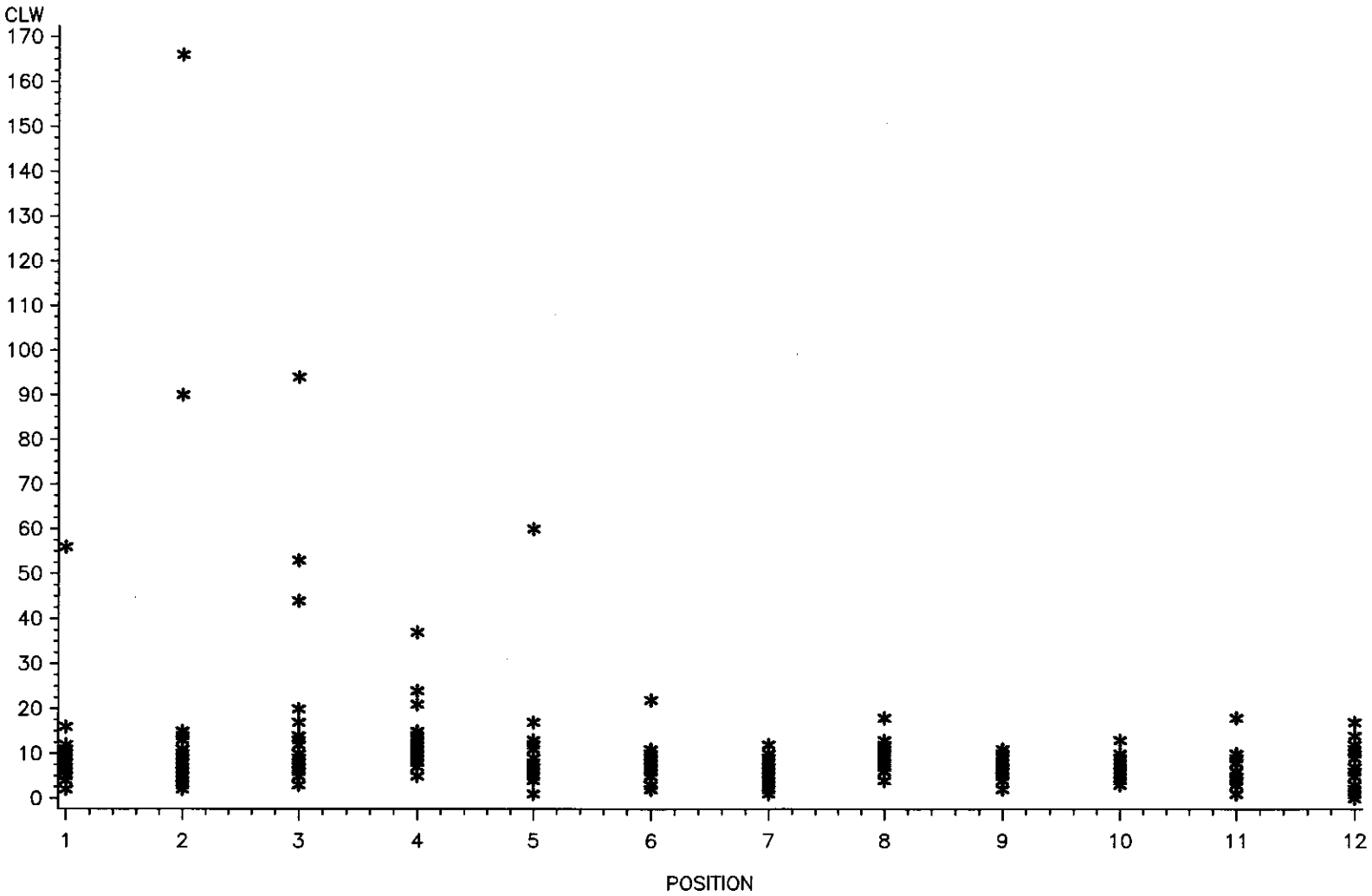


Attachment 4
Page 22
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft–plus–Lifter Wear, by Position

Reference Oil 1008

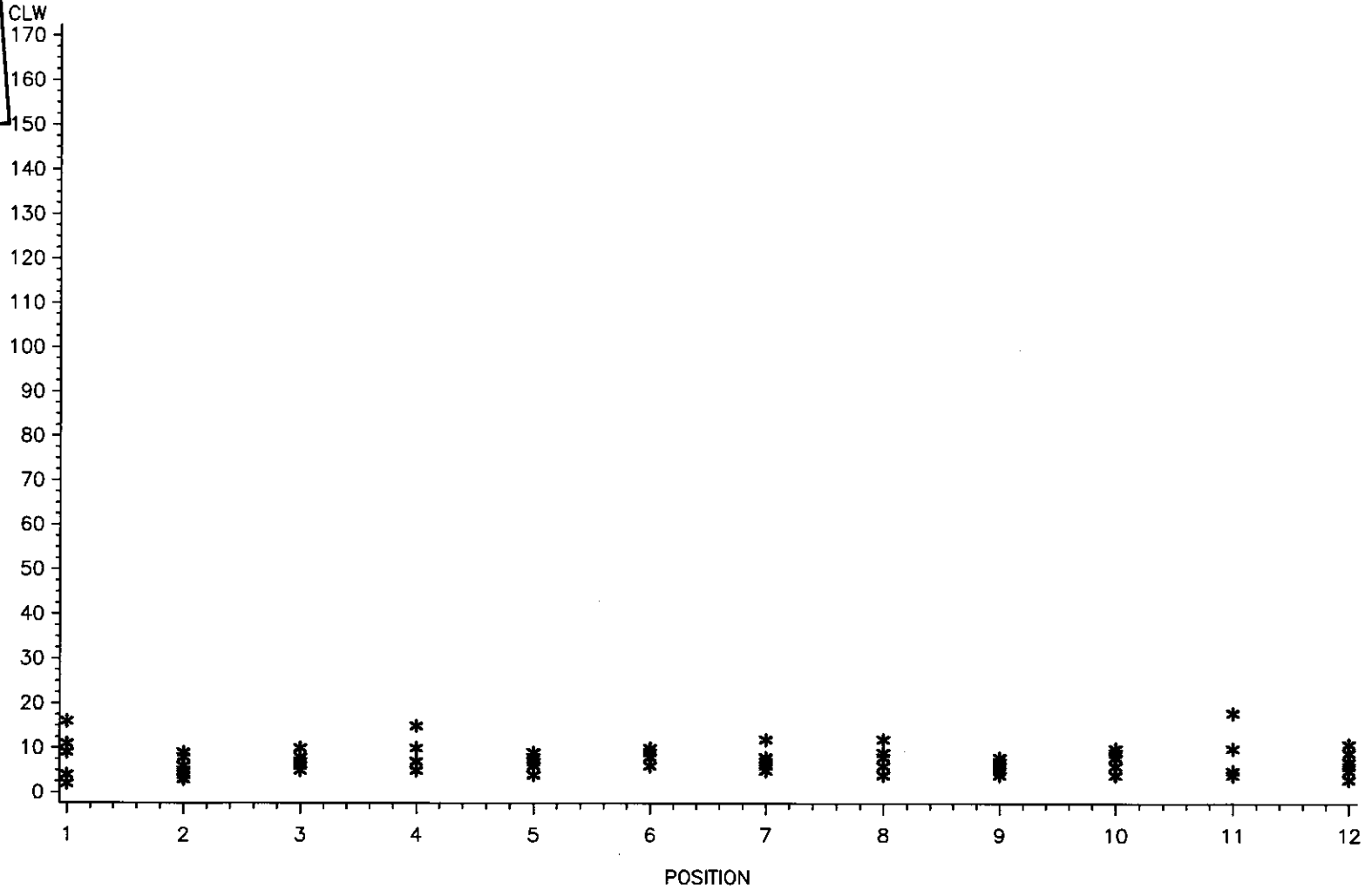


Attachment 4
Page 23
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft–plus–Lifter Wear, by Position

Reference Oil 1008, JB Pour Code

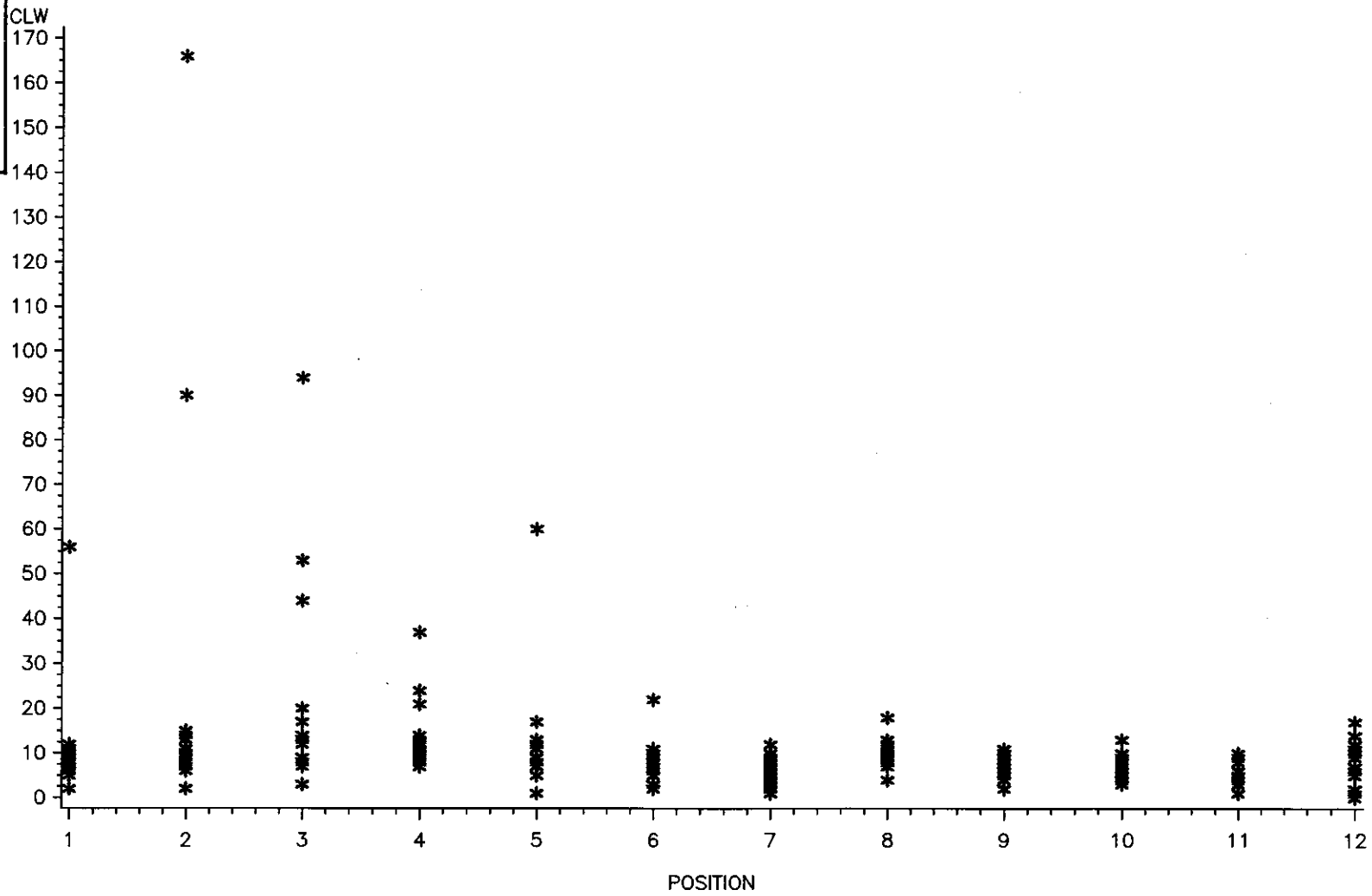


Attachment 4
Page 24
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft–plus–Lifter Wear, by Position

Reference Oil 1008, LC Pour Code

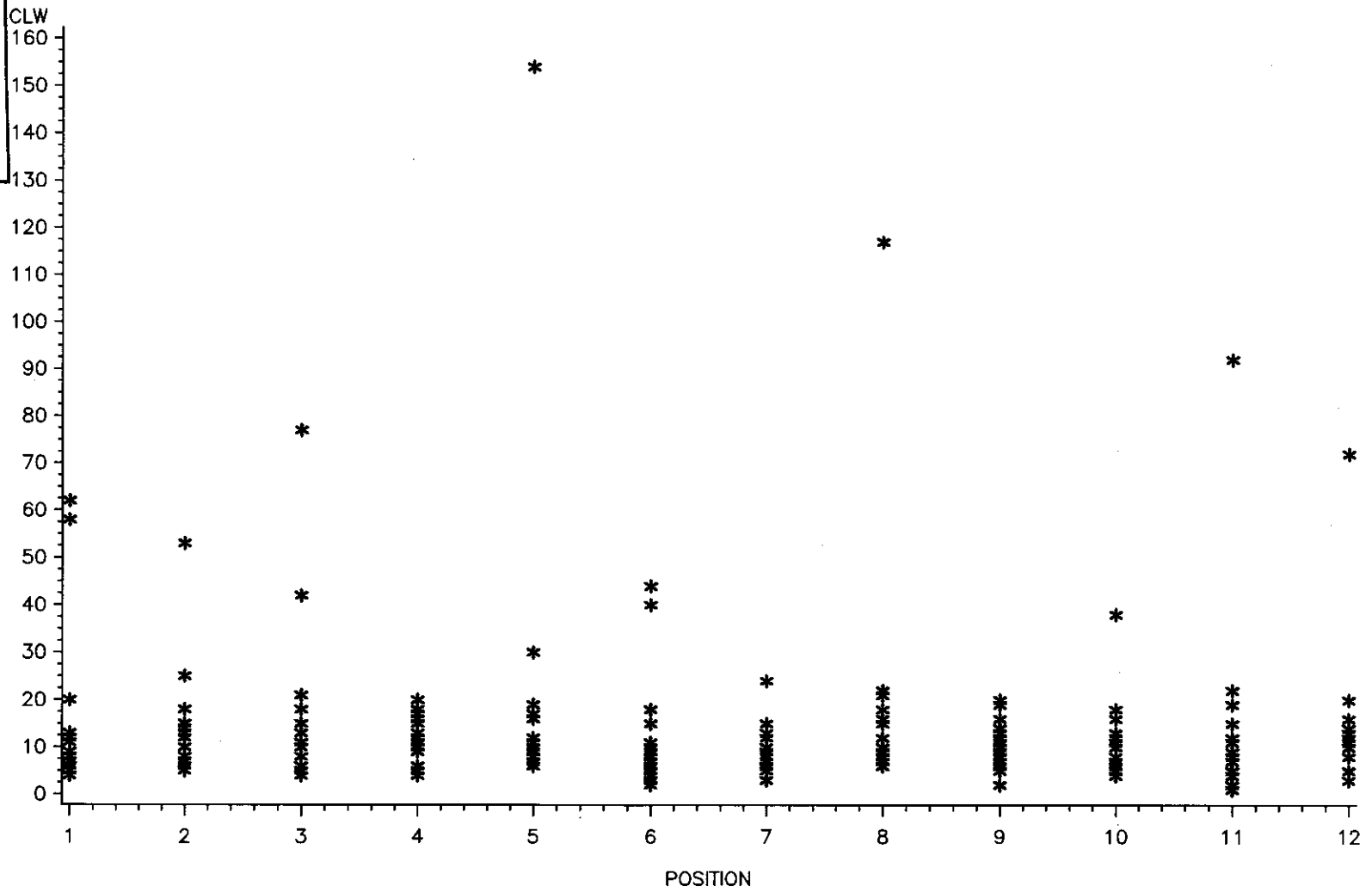


Attachment 4
Page 25
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft–plus–Lifter Wear, by Position

Reference Oil 433

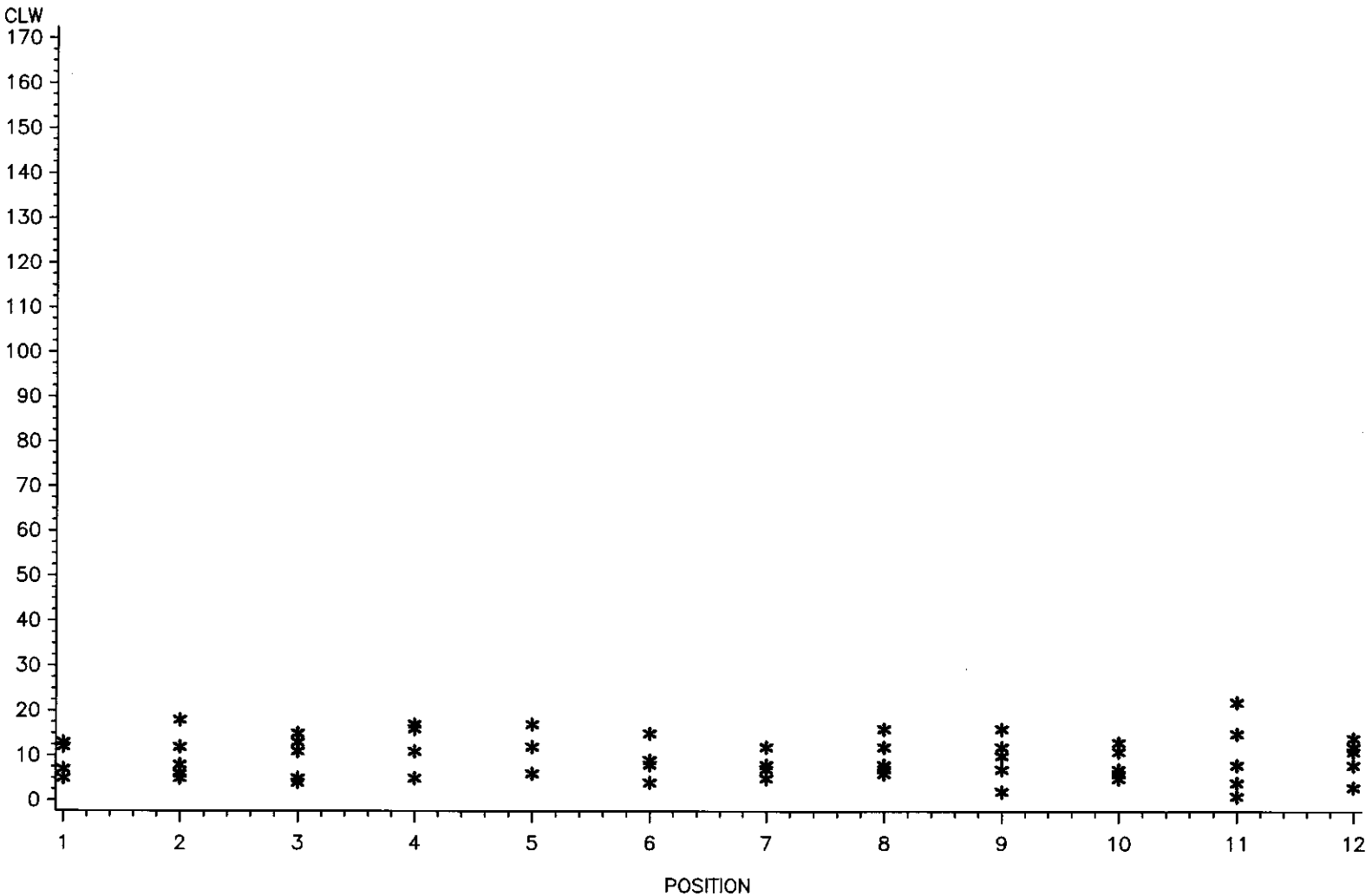


Attachment 4
Page 26
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft–plus–Lifter Wear, by Position

Reference Oil 433, JB Pour Code

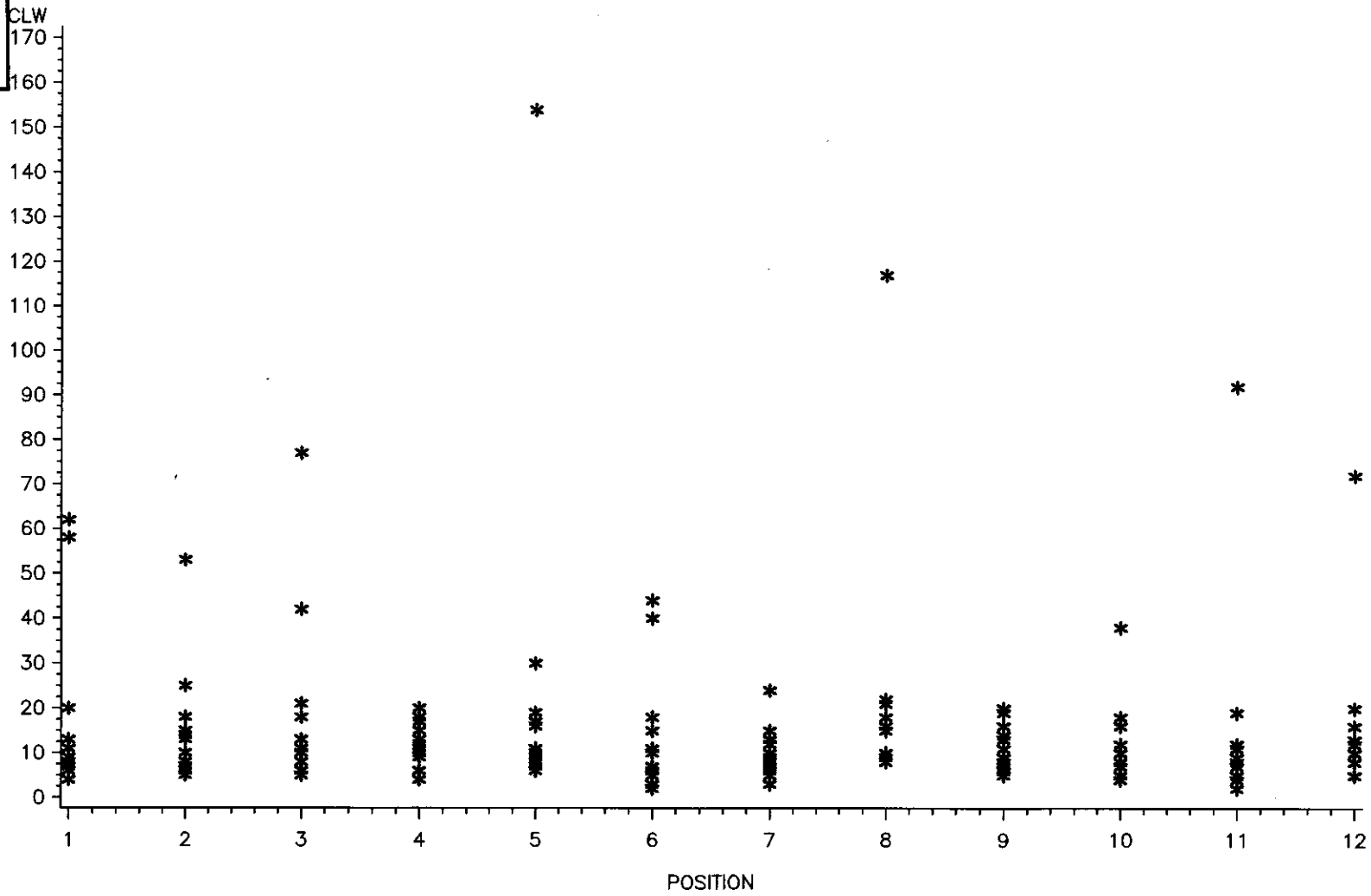


Attachment 4
Page 27
Reference 5/23/01

Sequence IIIF Wear Performance

Camshaft–plus–Lifter Wear, by Position

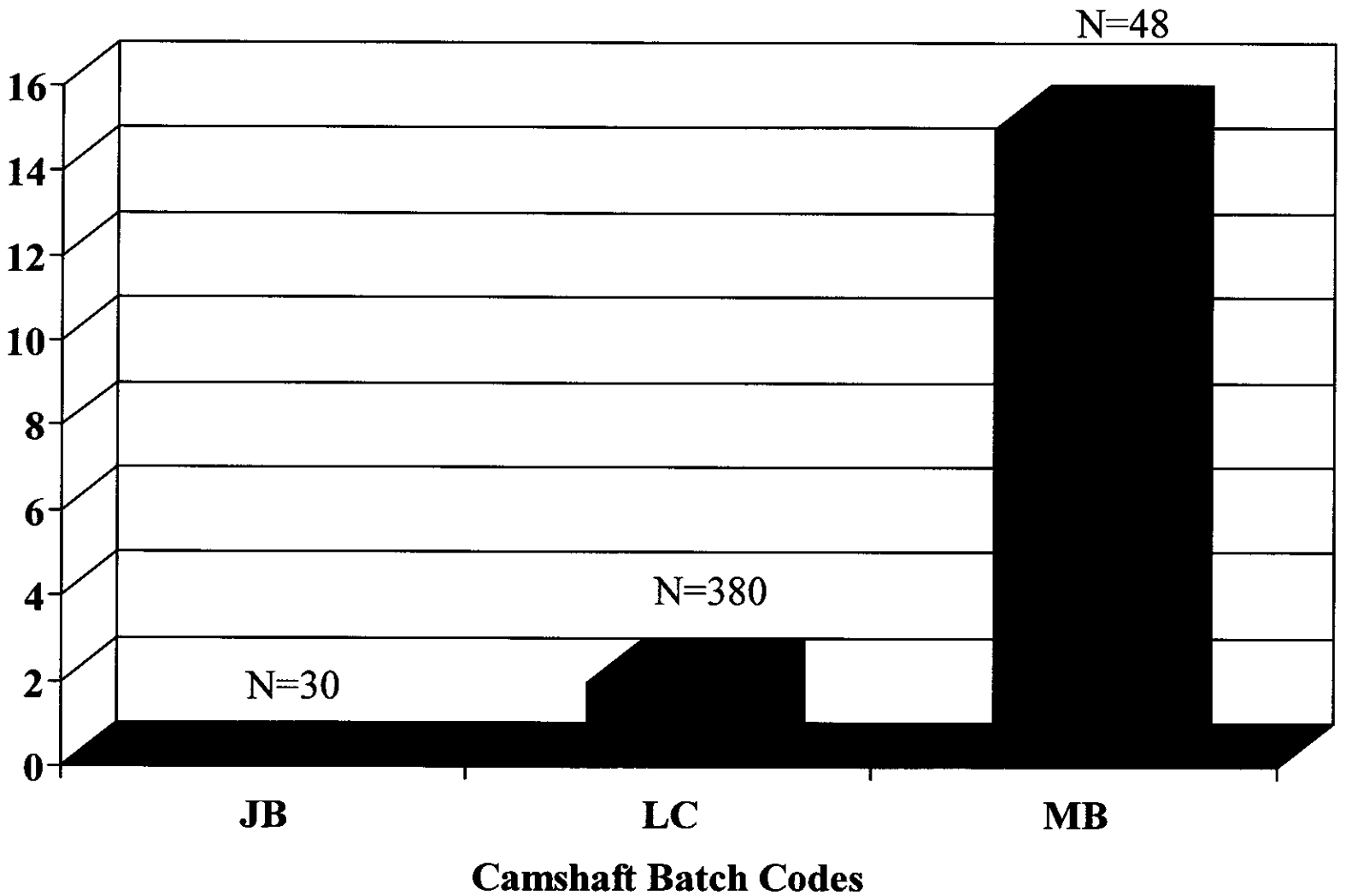
Reference Oil 433, LC Pour Code



Attachment 5
Page 1
Reference 5/23/01

IIIF Status at the Independents

CANDIDATE % Fails on ACLW @ 20 ONLY



Attachment 5
Page 2
Reference 5/23/01

IIIF Status at the Independents

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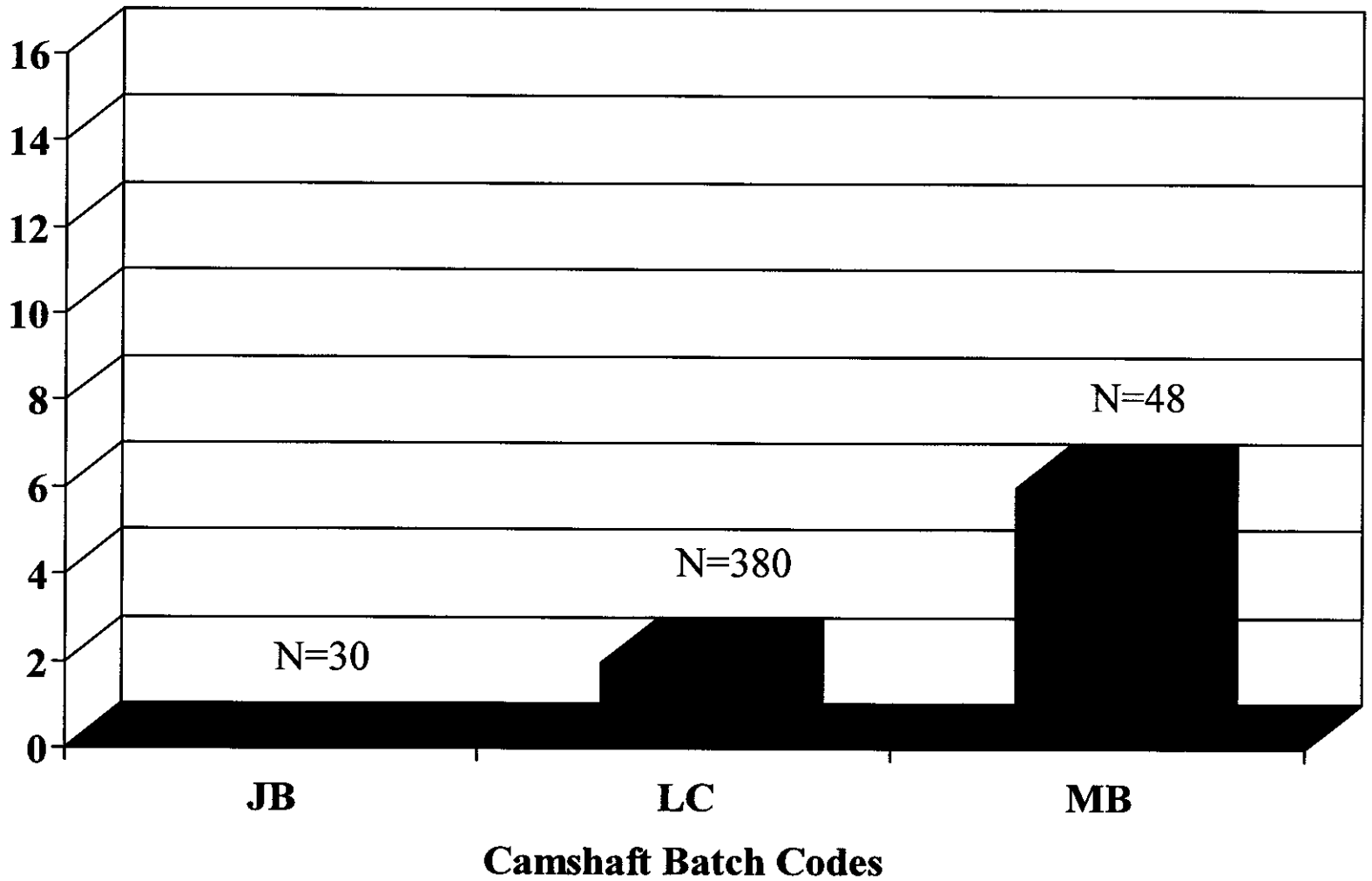


PRODUCT INFORMATION

Haltermann PRODUCTS

T (281) 457-2768 F (281) 457-1469

Attachment
Page
Reference

RESPONSIBLE CARE
ISO 9001 CERTIFIED

PRODUCT: EEE Unleaded Gasoline

PRODUCT CODE: HF003

Batch No.:	01C-11	01C-10	01C-08	01C-07
TMO No.:	24892	24839	24786	24394
Tank No.:	2012	2012	2012	2012
Analysis Date:	5/8/01	4/24/01	3/23/01	3/5/01
Shipment Date:	5/18/01	5/9/01	4/30/01	3/14/01

TEST	METHOD	UNITS	HALTERMANN Specs			RESULTS	RESULTS	RESULTS	RESULTS
			MIN	TARGET	MAX				
Distillation - IBP	ASTM D86	°F	75		95	83	85	87	90
5%		°F				112	111	111	115
10%		°F	120		135	125	125	124	126
20%		°F				146	146	144	145
30%		°F				170	171	167	169
40%		°F				200	200	169	199
50%		°F	200		230	221	223	216	221
60%		°F				234	235	232	234
70%		°F				245	248	244	245
80%		°F				268	271	264	267
90%		°F	305		325	320	324	319	323
95%		°F				336	341	336	339
Distillation - EP		°F			415	402	400	401	401
Recovery		vol %		Report		97.9	97.8	98.0	98.0
Residue		vol %		Report		1.0	1.0	1.0	1.0
Loss		vol %		Report		1.1	1.2	1.0	1.0
Gravity	ASTM D4052	°API	58.7		61.2	59.1	58.9	59.1	59.1
Density	ASTM D4052	kg/l	0.734		0.744	0.742	0.743	0.742	0.742
Reid Vapor Pressure	ASTM D323	psi	8.7		9.2	9.2	9.1	9.2	9.2
Reid Vapor Pressure	ASTM D5191	psi		Report		9.10	9.10	9.10	9.10
Carbon	ASTM D3343	wt fraction		Report		0.8653	0.8654	0.8666	0.8657
Carbon	ASTM E191	wt fraction		Report		0.8667	0.8664	0.8654	0.8567
Hydrogen	ASTM E191	wt fraction		Report		0.1304	0.1322	0.1308	0.1327
Hydrogen/Carbon ratio	ASTM E191	mole/mole		Report		1.793	1.818	1.801	1.835
Oxygen	ASTM D4815	wt %			0.05	<0.05	<0.05	<0.05	<0.05
Sulfur	ASTM D3120	ppm			1000	5	8	8	3
Sulfur	ASTM D2622	wt%		Report		<0.001	0.0011	0.0015	<0.001
Lead	ASTM D3237	g/gal			0.01	<0.01	<0.01	<0.01	<0.01
Phosphorous	ASTM D3231	g/gal			0.005	<0.0008	<0.0008	<0.0008	<0.0008
Composition, aromatics	ASTM D1319	vol %			35.0	28.9	29.0	31.0	29.8
Composition, olefins	ASTM D1319	vol %			10.0	0.5	0.6	1.2	0.6
Composition, saturates	ASTM D1319	vol %		Report		70.6	70.4	67.8	69.6
Particulate matter	ASTM D5452	mg/l			1	0.8	0.6	0.6	0.6
Oxidation Stability	ASTM D525	minutes	240			>1000	>1000	>1000	>1000
Copper Corrosion	ASTM D130				1	1	1	1	1
Gum content, washed	ASTM D381	mg/100mls			5	1	1	<1	1
Fuel Economy Numerator/C Density	ASTM E191		2401		2441	2435	2431	2434	2426
C Factor	ASTM E191			Report		1.0085	1.0079	1.0028	0.9942
Research Octane Number	ASTM D2699		96.0			96.8	96.4	96.6	97.4
Motor Octane Number	ASTM D2700			Report		87.8	87.6	88.2	88.4
Sensitivity			7.5			9.0	8.8	8.4	9.0
Net Heating Value, btu/lb	ASTM D3338	btu/lb		Report		18474	18474	18441	18465
Net Heating Value, btu/lb	ASTM D240	btu/lb		Report		18314	18324	18443	18396
Color	VISUAL	1.75 ptb		Report		Red	Red	Red	Red

Attachment	7
Page	1
Reference	5/23/01

SEQUENCE IIIF

OPERATIONS AND HARDWARE SUBPANEL REPORT

SAN ANTONIO, TEXAS

MAY 23, 2001

PRESENTED BY: PAT LANG

Attachment	# 7
Page	2
Reference	5/23/01

The IIIFO&H Panel met on May 3, 2001 in Cleveland, Ohio. The meeting minutes from this meeting were mailed out on May 11, 2001. Thanks to John Pandosh (meeting secretary) and Dwight Bowden (action and motion recorder) for making this happen in a timely manner.

The following action items resulted from the meeting:

1.) **Dipstick Calibration Curve**
Lubrizol to complete by 05/11/01.

2.) **"Standard" Blowby Cart Arrangement**
Sid Clark to define arrangement during procedure review and finalize prior to May 2001 Surveillance Panel meeting.

3.) **Fluid Rack Flushing Proposal**
Sid Clark to check for inclusion in procedure.

4.) **Hardware Control**
Not complete, see Item 13.

5.) **Cylinder Head Calibration Round Robin**
Pat Lang to initiate process and complete by 11/01 or sooner.

6.) **Oil Consumption Differences in LTMS**
Pat Lang and Bill Nahumck to review.

7.) **Meeting Minutes**
O&H subpanel to recommend to the Surveillance Panel that meeting minutes be issued and approved in a timely manner.

8.) **Connecting Rod Rejections**
Laboratories to inspect, document and report connecting rod rejections to GM Race Shop and Sid Clark.

Inspection report summary to be issued to Surveillance Panel.

Inspection process for connecting rods to be included in assembly manual.

OHT to develop inspection gage to qualify connecting rods and distribute to laboratories.

OHT to check with connecting rod bearing vendor to determine if future bearings can be manufactured with modified tangs to fit all GM connecting rods.

Attachment	7
Page	3
Reference	5/23/01

9.) Fluid Control Racks

Laboratories to forward issues/corrective actions to fluid control racks to Brian Kundinger (email address: bkundinger@kundinger.com) for consolidation, summary and distribution to laboratories.

Task force to be established to create a list of allowable components. Sid Clark to chair task force.

10.) AFR Schematic

Pat Lang and Dwight Bowden to develop schematic.

11.) Quality Index

TMC to review and plot tests for QI.

Laboratories to send QI data for the following items to TMC by 05/11/01:

- AFR
- Condenser Temperature and Flow
- Engine Coolant Flow

TMC to present data and plots to the Surveillance Panel at the May 2001 meeting.

12.) EF-411

Laboratories to furnish a 4 oz. Sample of EF-411 to Lubrizol (Attention: Bill Nahumck) for analysis.

13.) Batch Concept/Hardware Control

Task force to generate Information Letter 60 type document for IIIF.

14.) GM Parts

GM to furnish rejection report for GM Race Shop parts.

The following motions were made:

#1 Documentation for Assembly Manual / Dwight Bowden, Carl Stephens

-Accept documentation form presented by Sid Clark (see handout). Form to be modified to show:

Current revision and date
Previous revision and date

-Sid Clark/GM to notify TMC of new revisions
-TMC to electronically notify Surveillance Panel of revisions.

Passed: 10-0-0

Attachment #7
Page 4
Reference 5/23/01

#2 Elimination of Breather Tube Flow as a QI Parameter / Pat Lang, Mike Yowell

Passed: 10-0-1

#3 Addition of New Oil at EOT Oil Level/ Sid Clark, Bill Nahumck
- Accept Sid Clark's proposal and modified form.

Passed: 11-0-0

#4 Replacement Breather Tube / Bill Nahumck, Mike Kasimirsky
-Accept OHT P/N OHT3F-075-1 Breather Tube as replacement for P/N BX-212-1

Passed: 10-0-1

#5 Natural Orange Cleaner / Bill Nahumck, Carl Stephens Clarification
-Show both part numbers NAT-50 (old part number) and PDN-50 (new part number) for this material in procedure. IL needed

Passed: 11-0-0

An engine build workshop was conducted at SwRI and PerkinElmer in October of 2000.

Sequence IIIF Revised OHT Dipstick Calibration

Oil Pan without Plug

1995 Buick 3800 Series II L36

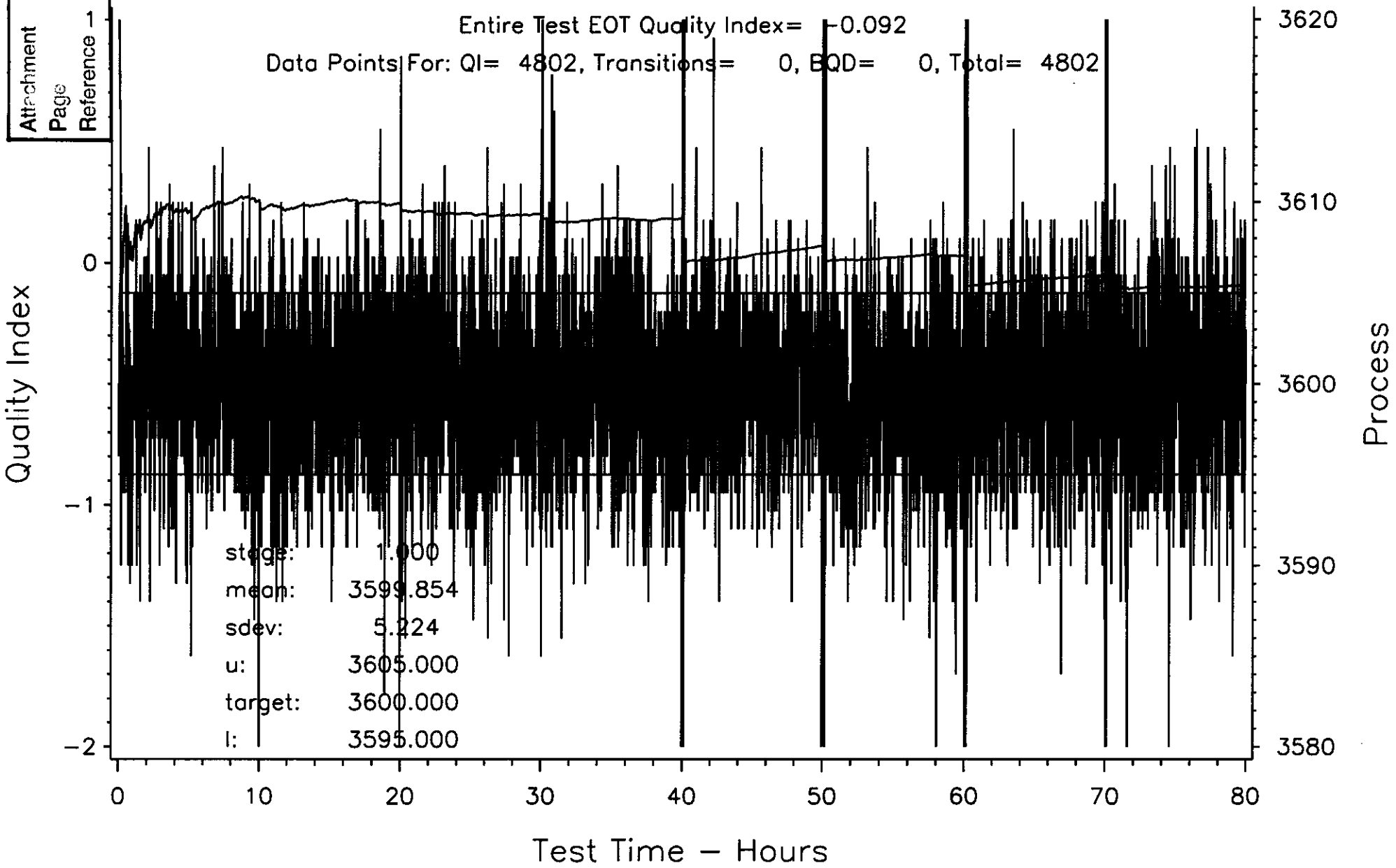
Attachment 8
Page 1
Reference 5/23/01

ml total	mm on dipstick	ml total	mm on dipstick	ml total	mm on dipstick	ml total	mm on dipstick	ml total	mm on dipstick
500		2276	124.5	3094	100.0	3927	75.5	4830	51.0
1000		2292	124.0	3111	99.5	3944	75.0	4848	50.5
1476	148.0	2308	123.5	3128	99.0	3961	74.5	4856	50.0
1488	147.5	2324	123.0	3145	98.5	3978	74.0	4884	49.5
1500	147.0	2340	122.5	3162	98.0	3995	73.5	4902	49.0
1518	146.5	2356	122.0	3179	97.5	4012	73.0	4920	48.5
1536	146.0	2372	121.5	3196	97.0	4029	72.5	4938	48.0
1554	145.5	2388	121.0	3213	96.5	4046	72.0	4956	47.5
1572	145.0	2404	120.5	3230	96.0	4065	71.5	4974	47.0
1590	144.5	2420	120.0	3247	95.5	4084	71.0	4992	46.5
1608	144.0	2436	119.5	3264	95.0	4103	70.5	5010	46.0
1626	143.5	2452	119.0	3281	94.5	4122	70.0	5028	45.5
1644	143.0	2468	118.5	3298	94.0	4141	69.5	5046	45.0
1662	142.5	2484	118.0	3315	93.5	4160	69.0	5064	44.5
1680	142.0	2500	117.5	3332	93.0	4179	68.5	5082	44.0
1698	141.5	2516	117.0	3349	92.5	4198	68.0	5101	43.5
1716	141.0	2533	116.5	3366	92.0	4217	67.5	5120	43.0
1734	140.5	2550	116.0	3383	91.5	4236	67.0	5139	42.5
1752	140.0	2567	115.5	3400	91.0	4255	66.5	5158	42.0
1770	139.5	2584	115.0	3417	90.5	4274	66.0	5177	41.5
1788	139.0	2601	114.5	3434	90.0	4293	65.5	5196	41.0
1806	138.5	2618	114.0	3451	89.5	4312	65.0	5215	40.5
1824	138.0	2635	113.5	3468	89.0	4331	64.5	5234	40.0
1842	137.5	2652	113.0	3485	88.5	4350	64.0	5253	39.5
1860	137.0	2669	112.5	3502	88.0	4369	63.5	5272	39.0
1878	136.5	2686	112.0	3519	87.5	4388	63.0	5291	38.5
1896	136.0	2703	111.5	3536	87.0	4407	62.5	5310	38.0
1914	135.5	2720	111.0	3553	86.5	4426	62.0	5329	37.5
1932	135.0	2737	110.5	3570	86.0	4445	61.5	5348	37.0
1950	134.5	2754	110.0	3587	85.5	4446	61.0	5367	36.5
1968	134.0	2771	109.5	3604	85.0	4483	60.5	5386	36.0
1986	133.5	2788	109.0	3621	84.5	4502	60.0	5405	35.5
2004	133.0	2805	108.5	3638	84.0	4521	59.5	5424	35.0
2020	132.5	2822	108.0	3655	83.5	4540	59.0	5443	34.5
2036	132.0	2839	107.5	3672	83.0	4559	58.5	5462	34.0
2052	131.5	2856	107.0	3689	82.5	4578	58.0	5481	33.5
2068	131.0	2873	106.5	3706	82.0	4596	57.5	5500	33.0
2084	130.5	2890	106.0	3723	81.5	4614	57.0		
2100	130.0	2907	105.5	3740	81.0	4632	56.5		
2116	129.5	2924	105.0	3757	80.5	4650	56.0		
2132	129.0	2941	104.5	3774	80.0	4668	55.5		
2148	128.5	2958	104.0	3791	79.5	4686	55.0		
2164	128.0	2975	103.5	3808	79.0	4704	54.5		
2180	127.5	2992	103.0	3825	78.5	4722	54.0		
2196	127.0	3009	102.5	3842	78.0	4740	53.5		
2212	126.5	3026	102.0	3859	77.5	4758	53.0		
2228	126.0	3043	101.5	3876	77.0	4776	52.5		
2244	125.5	3060	101.0	3893	76.5	4794	52.0		
2260	125.0	3077	100.5	3910	76.0	4812	51.5		

NOTE: SUPERCEDES FILE: 981110 iiifdiprwnote.xls Dated 11/10/98

Attachment 9
Page 1
Reference – 5/23/01

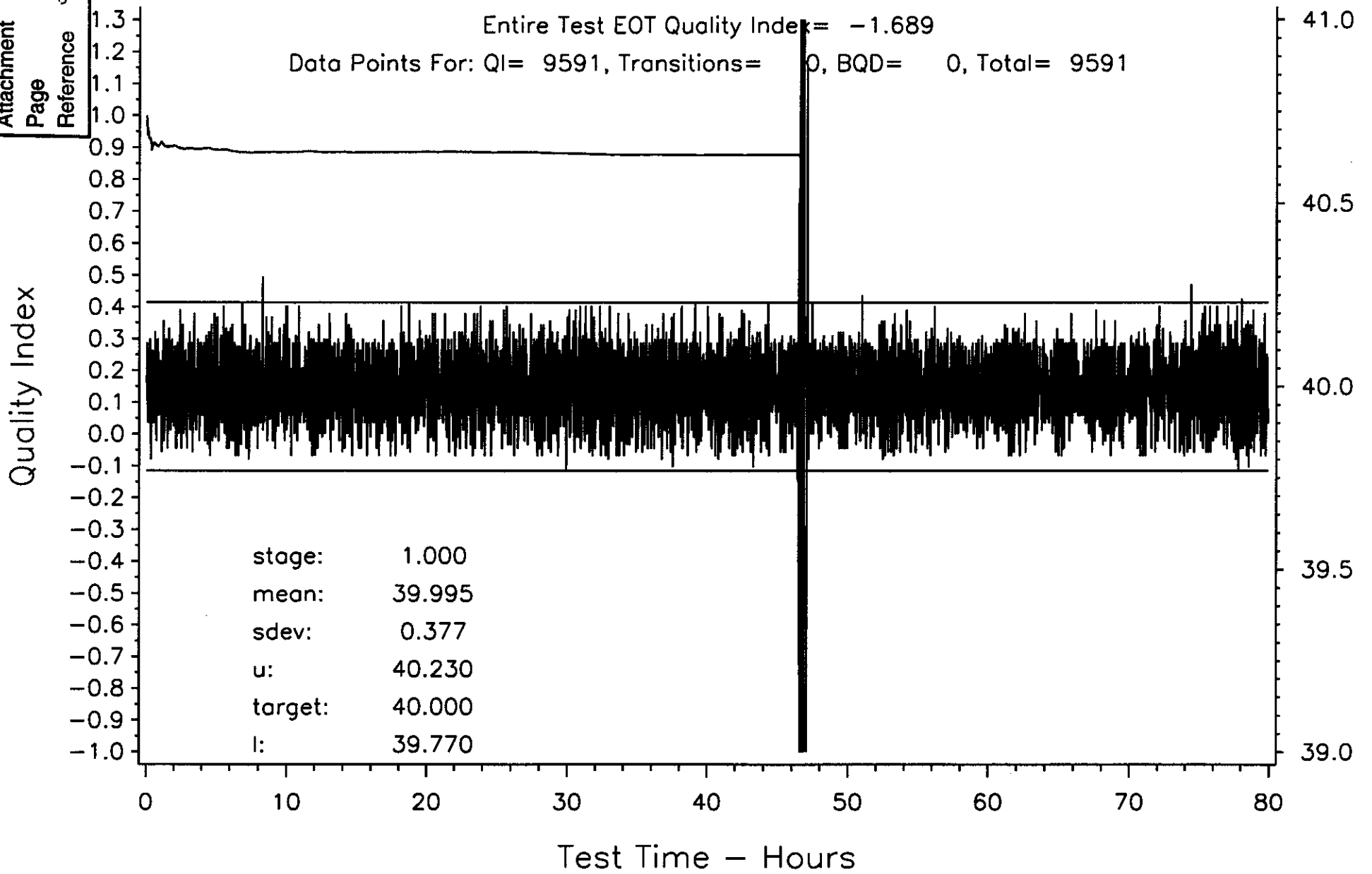
IIIF QUALITY INDEX STUDY
Engine Speed – r/min (CONTROL)
LAB= F Stand= 3111 CMIR= 52



Attachment 10
Page 1
Reference 5/23/01

Attachment
Page
Reference

IIIF QUALITY INDEX STUDY
Condenser Coolant Out – Degrees C (CONTROL)
LAB= A Stand= 59 CMIR= 59c1



CRC Presentation to the ASTM Surveillance Panels San Antonio, Texas May 2001

Attachment 11
Page 1
Reference 5/23/01

Deposit/Distress training has been a luxury afforded to many by a few for many years. The industry has benefited as a whole. Product Performance Evaluations for the standardized testing activity along with across the board field testing have improved from unacceptable to above what can be expected.

However, time changes all things, including our industry. The current economics allows no waste, especially in the form of redundancy.

Two needs exist in the deposit/distress evaluation area:

1.) Rater performance verification for standardized testing.

2.) Training for new people going into the activity of rating.

What does the stationary testing community need in the form of rating workshops?

1.) Annually available, focused on specific test hardware, concentrating on those deposits defined by the test procedure.

This defines an ASTM Light Duty Rating Task Force Workshop. This activity has been organized and managed by ASTM since the early 1990's, normally in conjunction with CRC activities.

Because industry **has not** provided a volunteer for the CRC Light Duty New Procedures and Development Sub-Panel there is **no 2001 L.D. Workshop** scheduled. However, this is the **only** activity that has been effected to date. The Heavy Duty Diesel and the Bearing, Seal, and Gear activities have leadership and scheduled activities to provide the mechanism necessary to meet the procedural requirements for these areas.

There are some options available to meet these obligations. The Light Duty workshop can be organized, managed, and coordinated by an ASTM, TMC, or other appropriated industry group. Industry could possibly commercialize the activity with limited support from the industry.

The CRC Deposit/Distress Rating Methods Advisory Panel has recently completed an operations and procedures manual and will make it available to industry third quarter 2001. This manual details all activities and procedures necessary to manage and conduct the Deposit/Distress evaluation activities.

Change is needed to meet the challenges of this new atmosphere that exist in our industry today.

Attachment	12
Page	1
Reference	5/23/01

13.12 End-of-Test Used Oil Sample Testing – Conduct a Cold-Cranking Simulator test (Test Method D5293) and a Mini Rotary Viscometer test (Test Method D4684) on the end-of-test (EOT) used oil sample with the exceptions that follow.

13.12.1 Run a Cold-Cranking Simulator (CCS) test (Test Method D5293) on the end-of-test (80 hour) drain at successively higher temperatures until you obtain a passing result using the table shown in SAE J300, Rev. DEC1999[1]. The W-grade corresponding to the temperature required for a passing result will be considered the used oil passing viscosity grade. One grade less than the new oil viscosity grade is suggested as a starting point. Report the results on Form 6, Used Oil Analysis Results, in the standardized report form set (See A6).

13.12.2 Run the Mini Rotary Viscometer test (Test Method D4684), MRV-TP1, at the recommended temperature (based on the passing used oil CCS result) using the table shown in SAE J300, Rev. DEC1999[1]. Report the end-of-test Mini Rotary Viscometer test results as MRV Temperature in °C as follows. If a **Yield Stress** is obtained at the designated temperature, report the **Yield Stress** in Pa and note the **Apparent Viscosity** as not measured (NM). If a **Yield Stress** is not obtained at the designated temperature, report the **Yield Stress** as not measured (NM) and record the **Apparent Viscosity** in cP. Report the results on Form 6, Used Oil Analysis Results, in the standardized report form set (See A6).

13.12.3 If the % viscosity increase for the kinematic viscosity at EOT is higher than 500% (See13.13), the Cold-Cranking Simulator and Mini Rotary Viscometer tests are not required. A notation is required in the Other Comments & Outliers section of Form 13 (See A.6) indicating that the CCS and MRV were not run and enter not measured (NM) in the standardized report form set (See A6).

13.12.4 If the test oil is a straight-grade oil, the Cold-Cranking Simulator and Mini Rotary Viscometer tests are not required. A notation is required in the Other Comments & Outliers section of Form 13 (See A.6) indicating that the CCS and MRV were not run and enter not measured (NM) in the standardized report form set (See A6).

13.12.5 If the end-of-test used oil sample fails the Cold Cranking Simulator test at **-10°C**, the Mini Rotary Viscometer (MRV) test is not required. A notation is required in the Other Comments & Outliers section of Form 13 (See A.6) indicating that the MRV was not run because the EOT drain did not meet the **-10°C** CCS requirements. Enter not measured (NM) in the standardized report form set (See A6) for the MRV measurement.

[1] SAE J300, Engine Oil Viscosity Classification, December 1999.

Attachment 13
Page 1
Reference 5/23/01

NEW ADDITIONS TO SECTION 13.13

13.13.8 Calculation instructions for special cases related to % Viscosity Increase

13.13.8.1 Instructions for calculating and reporting results if the Final Original Units Result on Form 4 (See A.6) for % Viscosity Increase is **zero or negative**.

13.13.8.1.1 The minimum result considered for the % Viscosity Increase will be 0.1%. Substitute 0.1 for the original unit result and complete the calculations on form 4 (See A6). A notation is required in the Other Comments & Outliers section of Form 13 (See A.6) indicating that the Original Units Result has been modified for a special case.

13.13.8.2 Instructions for calculating and reporting results if the Viscosity Result on Form 6 (See A.6) for Viscosity Increase Data is **Too Viscous to Measure** (TVTM).

13.13.8.2.1 The maximum kinematic viscosity result will be considered 8000 cSt using either equipment noted in 13.13.3, use a tube size of 500 or less. If the measured viscosity is 8000 cSt using tube size 500, this will be considered the maximum reportable viscosity. Report 8000 cSt on Form 6 (See A.6) for entry in the column listed as Viscosity. This value will be used to do the calculations for Change and Percent. (This will provide consistent TVTM data for reporting purposes and it also expands the maximum viscosity to fill the space allowed by the data dictionary.)

13.13.8.2.2 Complete the calculations on Form 4 (See A.6) for % Viscosity Increase using the Percent Value for the final drain from Form 6 except that the Severity Adjustment (SA) displayed and used for % Viscosity Increase calculations will be set to zero (0). A notation is required in the Other Comments & Outliers section of Form 13 (See A.6) indicating that the Severity Adjustment has been modified for a special case.

Attachment	14
Page	1
Reference	5/23/01

RSI Sequence IIIF Semi-Annual Report
Six Month Period Ending March 2001

SEQUENCE IIIF STATUS OF REPORTED TESTS

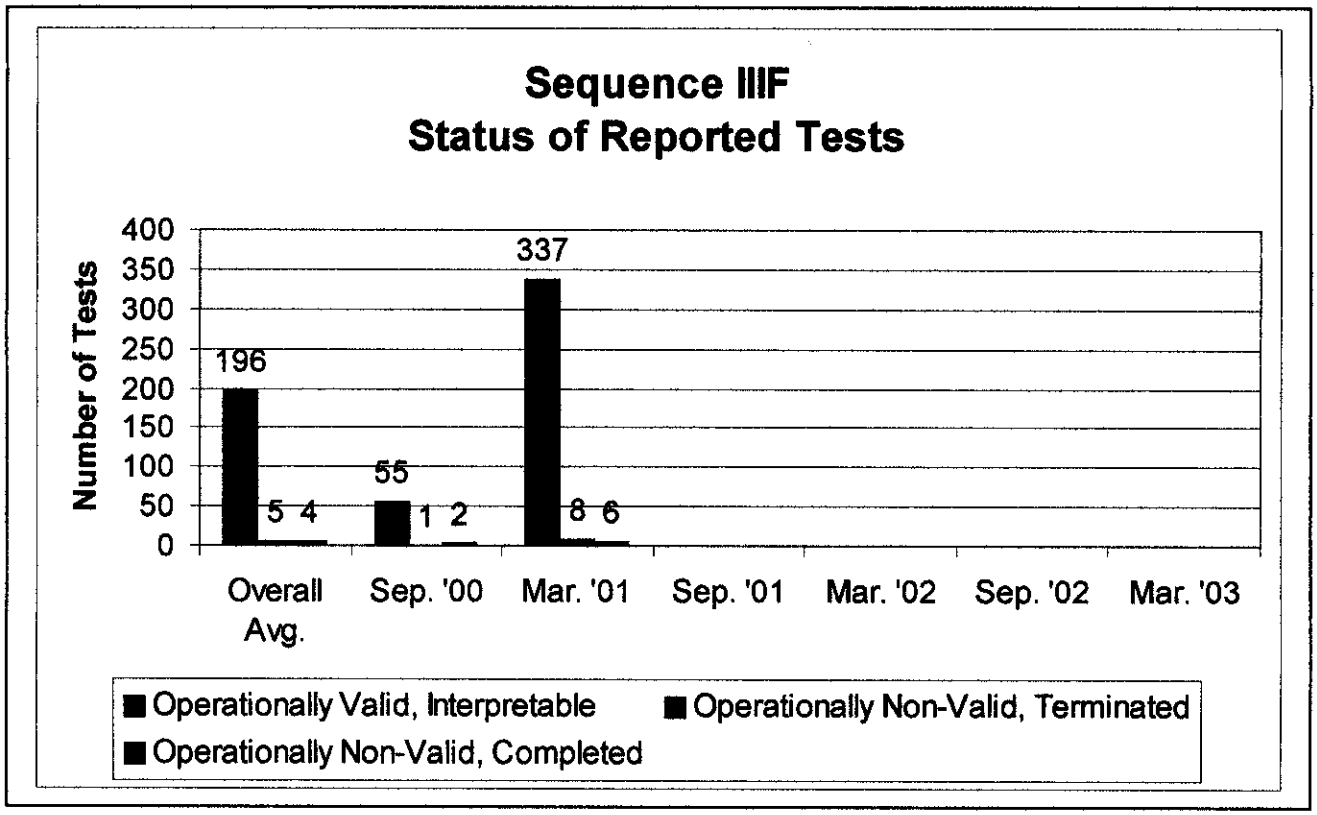
STATUS	N	PERCENT
Operationally Non-Valid, Terminated	8	2.3
Operationally Non-Valid, Completed	6	1.7
Operationally Valid, Interpretable	337	96.0
Total Reported Tests	351	100.0

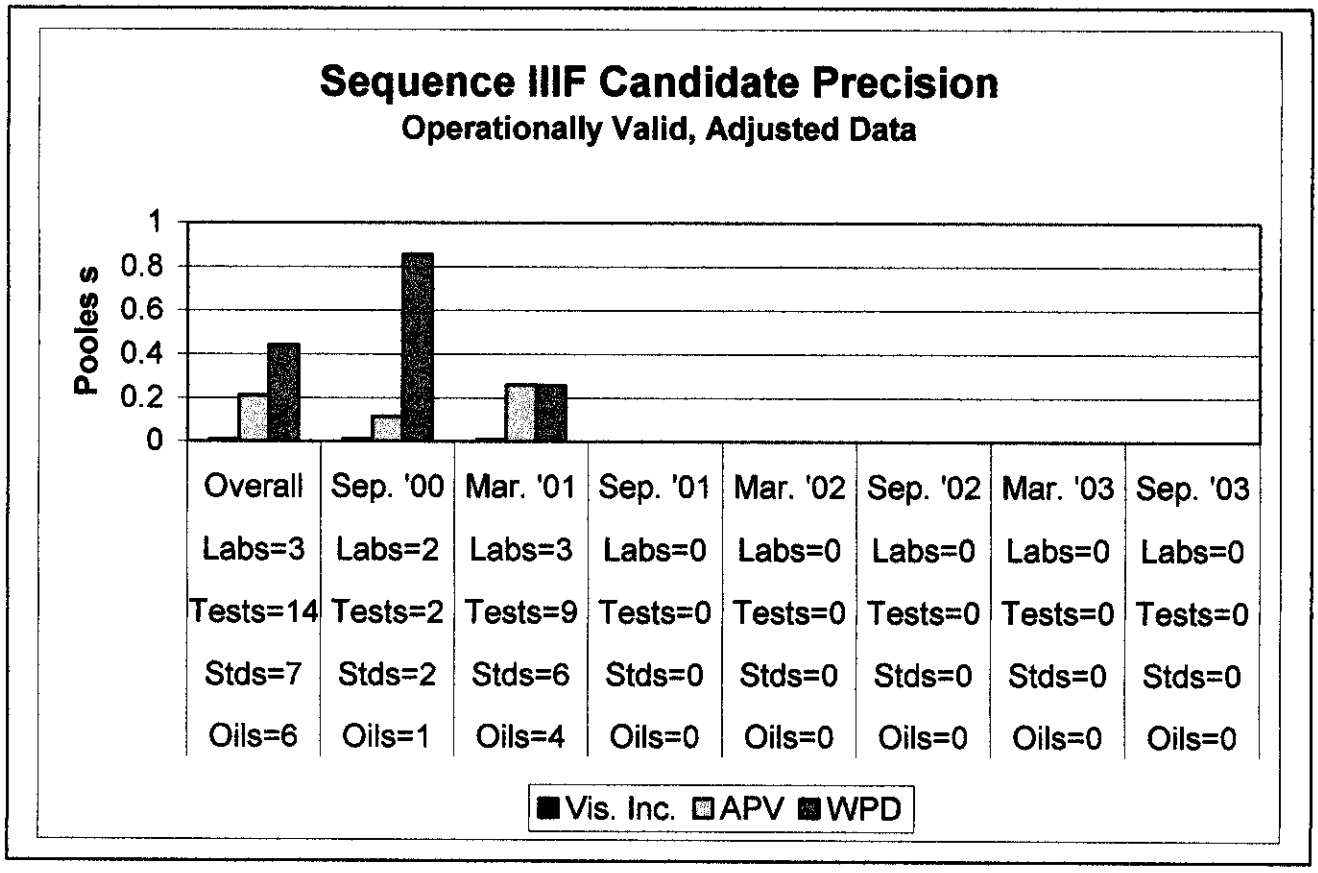
CAUSES FOR LOST TESTS	N
Oil Consumption	1
Control Problems	6
Engine Mechanical Problems	2
Support Equipment Problems	1
Operator Error	1
Sponsor Request	2
Miscellaneous	1

SEQUENCE IIIF PRECISION

COMPONENTS OF REPLICATE DATA BASE	N
Number of Tests	9
Number of Oils	4
Number of Labs	3
Number of Stands	6
Number of Severity Adjusted Percent Viscosity Increase Tests	1
Number of Severity Average Piston Varnish Tests	0
Number of Severity Adjusted Weighted Piston Deposits Tests	0
Number of Severity Adjusted Avg. Cam Plus Lifter Wear Tests	0

VARIABLE	Pooled s	R
Percent Viscosity Increase, Non-Adjusted	0.008	0.022
Percent Viscosity Increase, Adjusted	0.008	0.022
Average Piston Varnish, Non-Adjusted	0.261	0.732
Average Piston Varnish, Adjusted	0.261	0.732
Weighted Piston Deposits, Non-Adjusted	0.258	0.722
Weighted Piston Deposits, Adjusted	0.258	0.722
Avg. Cam Plus Lifter Wear, Non-Adjusted	1.66	4.63
Avg. Cam Plus Lifter Wear. Adjusted	1.66	4.63


Sequence IIIF
Status of Reported Tests
Number of Tests
400
350
300
250
200
150
100
50
0
196
5 4
55
1 2
337
8 6
Overall Avg.
Sep. '00
Mar. '01
Sep. '01
Mar. '02
Sep. '02
Mar. '03
Operationally Valid, Interpretable
Operationally Non-Valid, Terminated
Operationally Non-Valid, Completed


Sequence IIIF Candidate Precision
Operationally Valid, Adjusted Data
Pooles s
1
0.8
0.6
0.4
0.2
0
Overall
Labs=3
Tests=14
Stds=7
Oils=6
Sep. '00
Labs=2
Tests=2
Stds=2
Oils=1
Mar. '01
Labs=3
Tests=9
Stds=6
Oils=4
Sep. '01
Labs=0
Tests=0
Stds=0
Oils=0
Mar. '02
Labs=0
Tests=0
Stds=0
Oils=0
Sep. '02
Labs=0
Tests=0
Stds=0
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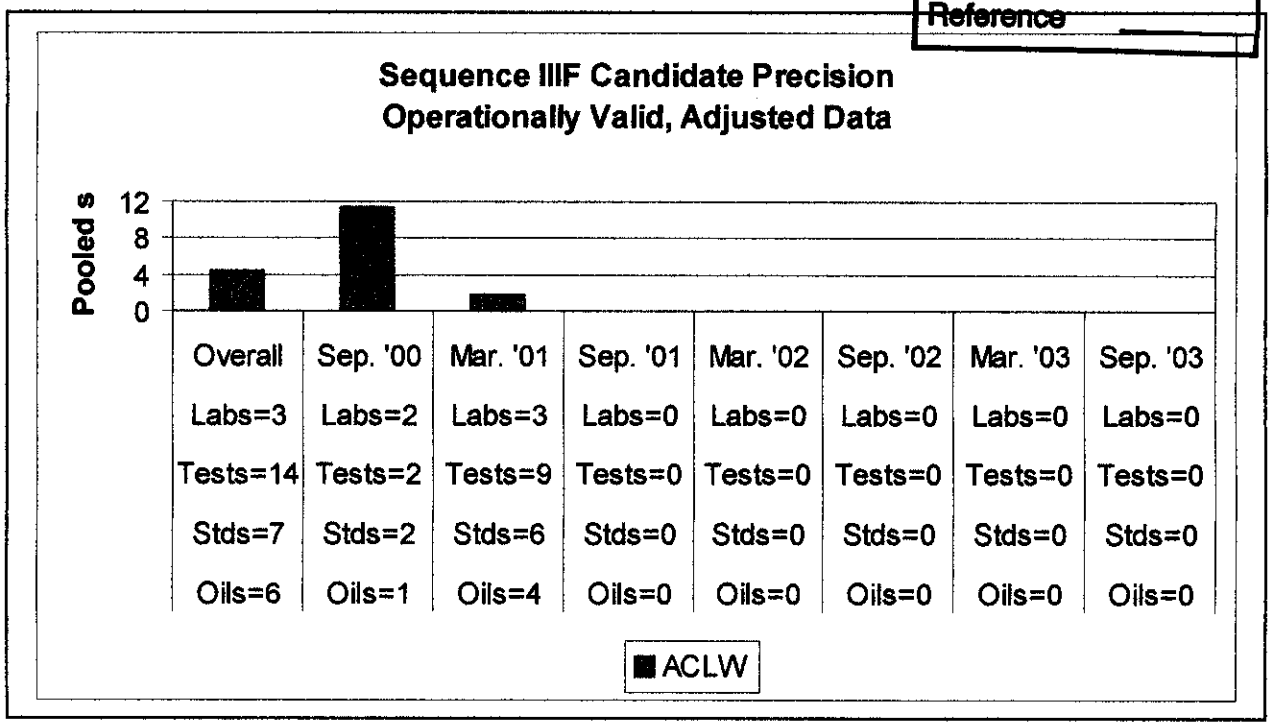
Mar. '03
Labs=0
Tests=0
Stds=0
Oils=0
Sep. '03
Labs=0
Tests=0
Stds=0
Oils=0
Vis. Inc.
APV
WPD

Attachment 14
Page 3
Reference



Attachment 15
Page 1
Reference 5/23/01

GM Race Shop

Special Parts Supplier Report

- Sequence IIIF Rejected Materials: Period ending 5/18/01
  - Connecting Rods
    - 13 pieces for locating tang depth
  - Crankshafts
    - 5 pieces for journal surface finish imperfections
  - Cylinder Heads
    - 14 pieces for loose exhaust seats, pitted deck surface, casting porosity, cracked valve guide.

GM Race Shop

Special Parts Supplier Report

- Engine block inventory at critically low level
- 55 pieces in processing at Schwartz Machine
- Estimated availability week of May 28
- Additional materials on order at plant 36

GM Race Shop

Special Parts Supplier Report

- Cylinder head inventory at critically low level
- 800 pieces in processing at Schwartz Machine
- Estimated availability mid June
- Additional materials on order at plant 36

Attachment 15
Page 4
Reference 5/23/01

GM Race Shop

Special Parts Supplier Report

- Connecting rods at critically low level
- 5000 pieces on order at plant 36
- 1300 pieces to be shipped Tuesday 5/22/01

- 100% visual inspection requested on remaining balance for proper tang depth

Attachment 15
Page 5
Reference 5/23/01

GM Race Shop

Special Parts Supplier Report

- Crankshafts at critically low level
- Materials on order at plant 36

- Front covers at critically low level
- Materials on order at plant 13

GM Race Shop

Special Parts Supplier Report

Corrective action taken:

Powertrain is assuming responsibility of inventory monitoring. Goal is to stockpile a six month "Finished Part" inventory and work off an additional ninety day supply above that level for normal distribution.

GM Race Shop

Special Parts Supplier Report

Race Shop contacts:

1. Bob Herbers 810-239-4122
2. Sherry Fedewa 810-239-4819

Powertrain:

Sid Clark 810-986-1929

Cellular 810-873-1255

Attachment	16
Page	1
Reference	5/23/01

CENTRAL PARTS DISTRIBUTOR REPORT
OH Technologies, Inc.

Sequence IIIF Surveillance Panel Meeting

San Antonio, Texas

May 23, 2001

1.) Rejections after 11//17/2000 to 05/03/2001:

Camshaft / 6 Pieces

Pitted Lobes / 3 Pieces
Cracked Keyways / 3 Pieces
Material replaced

Connecting Rod Bearings / 154 Engine Sets

Defective Machining
Material recalled and replaced

Grade 34 Piston / 1 Piece

Collapsed Skirt
Material replaced

2.) Technical Memos Issued

Technical Memo 3, Dated 12/11/2000
Revised Lifter Serialization Format

Technical Memo 4, Dated 02/02/2001
Connecting Rod Rejection Summary

3.) Breather Tubes (Replacement for BX-212-1)

New part number:
P/N OHT3F-075-1, Breather Tube

Material in stock

Attachment	16
Page	2
Reference	5/23/01

4.) Camshaft Bearing Journal Surface Finish Specification

Specification changed to 10 Ra maximum on 05/11/2001.

MB Camshafts reworked and shipped to laboratories on 05/15/2001.

Reworked camshafts marked with letter "B".

5.) Dipstick Calibration Curve

New dipstick calibration curve sent via email to laboratories on 05/14/2001.

6.) Batch Code Timeline

Attached

7.) Bowden Manufacturing / IIIE Material

Bowden has requested that all orders for remaining material be place no later than 05/31/2001.

Attachment 16
Page 3
Reference 5/23/01

CRITICAL PARTS DISTRIBUTION SPREADSHEET 020218.xls