



COORDINATING RESEARCH COUNCIL, INC.

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November 4, 2005

CRC Project No. CD-16

To The Participants of the
CRC Heavy Duty Rating Workshop

The 2005 CRC Heavy Duty Workshop was held October 16, 2005 through Thursday, October 20, 2005. Enclosed are the minutes for the workshop and a copy of all of the data generated. Also enclosed is your certificate of participation.

I would like to take this opportunity to thank you for your participation in this workshop. It is the full participation of the entire rating community that allows the CRC rating method to be the vital industry tool that it is. The input of each and every rater is a valued component of that tool.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Parke', is written over a light gray circular stamp. The signature is fluid and cursive.

Scott Parke
CRC Workshop Coordinator

Enclosure

MINUTES
CRC HEAVY DUTY RATING WORKSHOP
SAN ANTONIO, TX

October 15-20, 2005

CRC Workshop Coordinator: Scott Parke
CRC Deposit Rating Panel Leader: Tony Barrera

Sunday, October 15, 2005 – Workshop equipment was set up between 07:00 and 08:00 by CRC workshop coordinator Scott Parke and Frank Farber of the TMC. Several volunteers from among the attendees also lent a hand. The equipment had been collected from storage and brought to the hotel by Scott and Frank the day before.

Hardware available for rating included aluminum pistons of both square cut and keystone ring groove design, the crowns of two-piece iron pistons from Mack and Caterpillar, and one-piece iron Caterpillar C13 pistons. A Cummins rocker cover and oil pan for sludge rating and liners and rings from a 6V92 were also available.

As per usual practice, the session began with every rater being issued a new CRC rust/varnish rating scale. Each rater then rated both of the composite calibration pistons. Once the last rater finished the calibration pistons, the data was reviewed by the group and any discrepancies, or misunderstandings, or misapplication of definitions was discussed with the goal being for each rater to make whatever adjustments were necessary. Basic descriptive statistics (the so-called “Yi” data) were used to aid in evaluating the data generated. These tools have been used in the workshop in various iterations since 1997.

With calibration completed, raters were divided into three groups to ensure that data generation was evenly distributed among both raters and parts (see page labeled “Rater/Parts Crosstab” at beginning of attached data). Raters were asked to focus their attention first on their “primary” pistons (indicated by blue shading) before moving on to their “secondary” pistons (indicated by pink shading). Of course, all raters were encouraged to rate as many of the other pistons as they were able to as well. When rating concluded for the day (approximately 17:00), a total of 99 ratings were completed.

Monday, October 16, 2005 – Rating began at approximately 08:00 and continued throughout the day until approximately 17:30.

Tuesday, October 17, 2005 – Rating again began at approximately 08:00. Data was collected until 10:00. After a break to allow data printout and copying, data review began at 11:00 continuing until 12:00. A total of 183 ratings were completed by the first group.

At 13:30, the session began with rating of the calibration pistons. The data from these ratings was reviewed and discussion closed out the day at approximately 17:00.

Wednesday, October 18, 2005 – Rating began at approximately 08:00 and continued throughout the day until approximately 17:00.

Thursday, October 19, 2005 – Rating again began at approximately 08:00. Data was collected until 10:30. After a break to allow data printout and copying, data review began at 11:00 continuing until 12:00. A total of 144 ratings were completed by the second group. At both sessions, rater color grouping was discussed. The familiarity the raters have gained with this tool over the past few workshops has deepened their understanding of how it can help them.

Over the course of the workshop, a number of the raters had had some discussion regarding the unavailability of training at recent workshops. Currently, Level II data is the mechanism available for assisted rating and this option was used by a few of the raters. In the meeting wrap-up, workshop coordinator Scott Parke opened the issue of training as a discussion topic.

Scott gave some of the history of recent workshop evolution and explained that training was removed as a component of the workshops because some of the participating companies felt that by providing training, their personnel were performing a service for the industry (in some cases competitors) for which they were not being compensated. Furthermore, these companies felt that it was detrimental to their organizations to have their most highly skilled raters unavailable to them for an extended period. The group was understanding of these concerns but nonetheless felt that there needs to be a formalized training mechanism available through CRC.

Scott described to the group one of the ideas that had arisen during the week. One option might be to have a separate session for novice raters held either stand-alone or in conjunction with the workshop. This session would, of course, require its own fee. The group (especially the novices) stated that they would be willing to pay for this additional service.

Some of the raters who had at least some experience or maybe had plenty of experience but with different hardware said that for them, a more helpful approach would be a return to the former workshop practice of having several of the very experienced raters available to provide occasional guidance. This idea, however, again would raise the issue of compensation for that service.

Earlier in the week, Mike Pansza had described a format used for some of the European workshops. In this format, the session begins with rating several calibration pistons as is the case here. After that but before moving on to rating the “assigned” pistons, there is a session where several pistons are rated with some guidance for those raters who request it. Discussion is freely permitted and encouraged during this session. A third and final session is then held in the same fashion as here with several more pistons. This option may be explored for a future workshop.

Heavy Duty Rating Workshop

Rater/Parts Crosstab

	Total parts rated	Calibration_Piston_1	Calibration_Piston_2	A1_square	A2_keystone	A3_two-piece	A4_two-piece	A5_two-piece	A6_two-piece	B1_square	B2_keystone	B3_two-piece	B4_two-piece	B5_two-piece	B6_two-piece	C1_square	C2_keystone	C3_two-piece	C4_two-piece	C5_two-piece	C6_two-piece	Sludge	6V92
Avis, Steve	14	●	●	●	●	●	●	●	●	●	●	●	●	●	●					●		●	
Barrera, Tony	16	●	●	●	●	●	●	●	●	●	●	●	●	●	●							●	●
Borland, Robert	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
Caproni, David	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●							●	
Castillo, George	13	●	●				●			●	●	●	●	●	●	●	●	●	●	●			
Clapperty, Leon	10	●	●	●	●	●	●	●	●	●	●	●	●	●	●							●	
Cole, Steve	5			●	●	●	●	●	●														
Foecking, Brian	13	●	●	●	●	●	●	●	●			●	●	●	●				●	●		●	
Greenland, Paul	12	●	●							●	●	●	●	●	●	●	●	●	●	●		●	
Hill, Howard	9	●	●							●	●	●	●	●	●	●	●	●	●	●		●	
Hills, Barry	16	●	●	●	●	●	●	●	●	●	●	●	●	●	●					●	●	●	
Kobrinetz, Jack	21	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Kuipers, Jacques	11	●	●							●	●	●	●	●	●	●	●	●	●	●	●		
Langford, Mike	11	●	●	●	●	●										●	●	●	●	●	●	●	
Lopez, Frank	13	●	●	●	●	●										●	●	●	●	●	●	●	●
May, Marianne	20	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Mundt, Torsten	10	●								●	●	●	●	●	●	●	●	●	●	●	●	●	
Pansza, Mike	16	●	●	●	●	●	●			●	●				●	●	●	●	●	●	●	●	
<i>Piggott, Gary</i>	1			●	●	●										●	●	●	●	●	●	●	●
Radonich, Pete	14	●	●	●	●	●						●				●	●	●	●	●	●	●	●
Rappmund, Scott	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●							●	●
Rodriguez, Jesse	12	●	●				●	●	●	●						●	●	●	●	●	●	●	●
Sanchez, Art	12	●	●				●	●	●	●						●	●	●	●	●	●	●	●
Smith, Russell	10	●	●				●	●	●	●	●	●	●	●	●								
Tschirhart, Garland	13	●	●	●			●	●	●							●	●	●	●	●	●	●	●
Viera, Ralph	12	●	●				●	●	●							●	●	●	●	●	●	●	●
Yanchar, Paul	11			●	●	●	●	●	●	●	●	●	●	●	●								
Total Ratings	327	24	23	17	15	16	19	14	17	16	14	13	14	13	13	14	14	14	12	12	11	17	5

MIN RATINGS/RATER 1
 MAX RATINGS/RATER 21
 AVG RATINGS/RATER 12

MIN RATINGS/PART 5
 MAX RATINGS/PART 19
 AVG RATINGS/PART 15

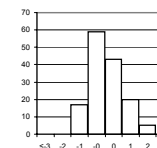
Piston Assignment Key:
 Primary Part =
 Secondary Part =

Heavy Duty Diesel Rating Workshop

PART ID = Calibration Piston 1

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 2	Land 3	TGF										UWPD	WPD
Radonich, Pete	29.50	10.18	2.60	28.00	3.76	10.00										74.04	74.04
Castillo, George	30.50	8.28	3.21	23.36	4.07	10.00										69.42	69.42
Barrera, Tony	28.68	8.96	2.20	27.24	2.75	8.00										69.83	69.83
Tschirhart, Garland	30.00	6.44	2.10	30.20	2.90	11.00										71.64	71.64
Foecking, Brian	29.00	9.89	2.61	27.72	2.84	14.00										72.06	72.06
Lopez, Frank	28.25	9.92	2.64	26.50	2.80	12.00										70.11	70.11
Avis, Steve	31.50	8.23	2.36	22.80	2.32	15.00										67.21	67.21
Caproni, David	28.75	6.60	2.09	22.40	3.10	12.00										62.94	62.94
Kobrinetz, Jack	29.25	8.70	2.42	23.60	3.33	16.00										67.30	67.30
May, Marianne	29.75	10.49	2.28	26.98	3.39	12.00										72.89	72.89
Pansza, Mike	30.00	9.32	1.83	20.98	3.29	21.00										65.42	65.42
Mundt, Torsten	36.25	9.68	2.30	28.92	2.86	38.00										80.01	80.01
Viera, Ralph	30.50	7.96	1.98	24.34	2.64	11.00										67.42	67.42
Sanchez, Art	33.75	6.60	1.88	26.55	2.62	15.00										71.40	71.40
Rodriguez, Jesse	28.80	9.10	1.86	28.31	2.97	8.00										71.04	71.04
Hills, Barry	28.75	10.80	1.91	25.57	2.60	23.00										69.63	69.63
Greenland, Paul	31.00	6.50	2.49	22.98	3.48	7.00										66.45	66.45
Langford, Mike	30.50	6.64	2.47	27.60	2.88	7.00										70.09	70.09
Smith, Russell	30.78	8.84	3.13	23.17	2.70	7.00										68.62	68.62
Rappmund, Scott	33.25	7.50	3.23	34.25	4.05	6.00										82.28	82.28
Kuipers, Jacques	35.25	9.90	3.80	26.32	4.25	32.00										79.52	79.52
Clapperty, Leon	33.75	10.20	1.48	28.57	1.97	17.00										75.97	75.97
Borland, Robert	26.35	6.43	1.96	30.22	4.10	23.00										69.06	69.06
Hill, Howard	25.90	7.80	2.55	20.75	2.94	21.00										59.94	59.94
MAXIMUM	36.25	10.80	3.80	34.25	4.25	38.00										82.28	82.28
MINIMUM	25.90	6.43	1.48	20.75	1.97	6.00										59.94	59.94
RANGE (MAX-MIN)	10.35	4.37	2.32	13.50	2.28	32.00										22.34	22.34
MEAN	30.42	8.54	2.39	26.14	3.11	14.83										70.60	70.60
STD	2.53	1.46	0.54	3.26	0.59	8.08										5.16	5.16



yi within 1 71%
 yi within 2 97%
 yi within 3 100%

PART ID = Calibration Piston 1

YI VALUES

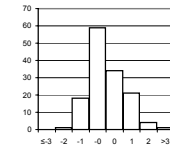
	Groove 1	Groove 2	Groove 3	Land 2	Land 3	TGF										UWPD	WPD	MEAN	STD
Radonich, Pete	-0.36	1.13	0.39	0.57	1.10	-0.60										0.67	0.67	0.44	0.63
Castillo, George	0.03	-0.18	1.53	-0.85	1.62	-0.60										-0.23	-0.23	0.14	0.93
Barrera, Tony	-0.69	0.29	-0.36	0.34	-0.60	-0.85										-0.15	-0.15	-0.27	0.44
Tschirhart, Garland	-0.16	-1.44	-0.54	1.24	-0.35	-0.47										0.20	0.20	-0.17	0.77
Foecking, Brian	-0.56	0.93	0.41	0.48	-0.45	-0.10										0.28	0.28	0.16	0.50
Lopez, Frank	-0.86	0.95	0.46	0.11	-0.52	-0.35										-0.09	-0.09	-0.05	0.57
Avis, Steve	0.43	-0.21	-0.06	-1.02	-1.33	0.02										-0.66	-0.66	-0.44	0.58
Caproni, David	-0.66	-1.33	-0.56	-1.15	-0.01	-0.35										-1.48	-1.48	-0.88	0.56
Kobrinetz, Jack	-0.46	0.11	0.05	-0.78	0.37	0.14										-0.64	-0.64	-0.23	0.45
May, Marianne	-0.26	1.34	-0.21	0.26	0.47	-0.35										0.44	0.44	0.27	0.55
Pansza, Mike	-0.16	0.54	-1.05	-1.58	0.30	0.76										-1.00	-1.00	-0.40	0.87
Mundt, Torsten	2.31	0.78	-0.17	0.85	-0.42	2.87										1.82	1.82	1.23	1.17
Viera, Ralph	0.03	-0.40	-0.77	-0.55	-0.79	-0.47										-0.62	-0.62	-0.52	0.26
Sanchez, Art	1.32	-1.33	-0.95	0.13	-0.82	0.02										0.16	0.16	-0.17	0.84
Rodriguez, Jesse	-0.64	0.38	-0.99	0.67	-0.23	-0.85										0.09	0.09	-0.19	0.60
Hills, Barry	-0.66	1.55	-0.90	-0.17	-0.86	1.01										-0.19	-0.19	-0.05	0.89
Greenland, Paul	0.23	-1.40	0.18	-0.97	0.62	-0.97										-0.80	-0.80	-0.49	0.73
Langford, Mike	0.03	-1.31	0.15	0.45	-0.38	-0.97										-0.10	-0.10	-0.28	0.59
Smith, Russell	0.14	0.21	1.38	-0.91	-0.69	-0.97										-0.38	-0.38	-0.20	0.77
Rappmund, Scott	1.12	-0.71	1.57	2.49	1.58	-1.09										2.26	2.26	1.18	1.37
Kuipers, Jacques	1.91	0.93	2.63	0.06	1.92	2.12										1.73	1.73	1.63	0.79
Clapperty, Leon	1.32	1.14	-1.70	0.74	-1.92	0.27										1.04	1.04	0.24	1.30
Borland, Robert	-1.61	-1.45	-0.80	1.25	1.67	1.01										-0.30	-0.30	-0.07	1.24
Hill, Howard	-1.79	-0.51	0.30	-1.65	-0.28	0.76										-2.06	-2.06	-0.91	1.12
YI MAXIMUM	2.31	1.55	2.63	2.49	1.92	2.87										2.26	2.26	1.63	1.37
YI MINIMUM	-0.16	-0.18	-0.06	0.06	-0.01	-0.10										-0.09	-0.09	-0.05	0.26
YI MEAN	0.00	0.00	0.00	0.00	0.00	0.00										0.00	0.00		
YI STD	1.00	1.00	1.00	1.00	1.00	1.00										1.00	1.00		
Ratings MEAN	30.42	8.54	2.39	26.14	3.11	14.83										70.60	70.60		
Ratings STD	2.53	1.46	0.54	3.26	0.59	8.08										5.16	5.16		

Heavy Duty Diesel Rating Workshop

PART ID = Calibration Piston 2

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 2	Land 3	TGF									UWPD	WPD
Tschirhart, Garland	42.10	9.80	0.20	21.55	1.54	33.00									75.19	75.19
Kobrinetz, Jack	38.48	11.82	0.32	24.70	1.16	27.00									76.48	76.48
Lopez, Frank	39.38	12.37	0.32	23.15	2.83	35.00									78.05	78.05
Foecking, Brian	40.05	13.81	0.16	22.22	1.40	26.00									77.64	77.64
Barrera, Tony	41.91	12.05	0.11	26.81	0.89	37.00									81.77	81.77
Avis, Steve	46.90	12.42	0.40	23.18	2.94	38.00									85.84	85.84
Radonich, Pete	37.35	13.48	0.45	24.09	2.70	28.00									78.07	78.07
Caproni, David	48.53	11.43	0.20	22.36	2.55	47.00									85.07	85.07
Castillo, George	35.55	12.27	0.16	22.54	1.36	30.00									71.88	71.88
May, Marianne	42.33	13.88	0.58	23.87	1.44	35.00									82.10	82.10
Pansza, Mike	40.99	12.32	0.27	21.58	1.09	38.00									76.25	76.25
Rodriguez, Jesse	45.00	13.30	0.28	30.66	0.76	37.00									90.00	90.00
Hills, Barry	43.33	13.70	0.12	23.38	1.53	40.00									82.06	82.06
Sanchez, Art	37.09	10.48	0.05	26.69	1.65	30.00									75.96	75.96
Smith, Russell	42.28	14.23	0.25	22.98	1.30	27.00									81.04	81.04
Rappmund, Scott	53.70	11.90	0.42	31.75	2.09	17.00									99.86	99.86
Greenland, Paul	41.41	10.67	0.32	25.30	1.48	32.00									79.18	79.18
Langford, Mike	48.65	14.19	0.17	28.85	3.08	35.00									94.94	94.94
Viera, Ralph	47.74	11.72	0.22	23.37	1.66	36.00									84.71	84.71
Clapperty, Leon	43.51	13.91	0.26	24.90	2.56	37.00									85.14	85.14
Kuipers, Jacques	42.25	12.90	0.28	25.18	1.87	65.00									82.48	82.48
Borland, Robert	36.76	11.46	0.15	21.54	2.75	44.00									72.66	72.66
Hill, Howard	35.72	13.24	0.30	23.60	0.68	34.00									73.53	73.53
MAXIMUM	53.70	14.23	0.58	31.75	3.08	65.00									99.86	99.86
MINIMUM	35.55	9.80	0.05	21.54	0.68	17.00									71.88	71.88
RANGE (MAX-MIN)	18.15	4.43	0.53	10.21	2.41	48.00									27.98	27.98
MEAN	42.22	12.49	0.26	24.53	1.80	35.13									81.30	81.30
STD	4.63	1.24	0.12	2.78	0.74	9.11									6.90	6.90



yi within 1 67%
 yi within 2 96%
 yi within 3 99%

PART ID = Calibration Piston 2

YI VALUES

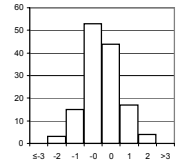
	Groove 1	Groove 2	Groove 3	Land 2	Land 3	TGF									UWPD	WPD	MEAN	STD
Tschirhart, Garland	-0.03	-2.17	-0.49	-1.07	-0.35	-0.23									-0.89	-0.89	-0.76	0.67
Kobrinetz, Jack	-0.81	-0.54	0.49	0.06	-0.86	-0.89									-0.70	-0.70	-0.49	0.50
Lopez, Frank	-0.61	-0.10	0.49	-0.50	1.40	-0.01									-0.47	-0.47	-0.04	0.68
Foecking, Brian	-0.47	1.06	-0.82	-0.83	-0.53	-1.00									-0.53	-0.53	-0.46	0.64
Barrera, Tony	-0.07	-0.36	-1.22	0.82	-1.22	0.21									0.07	0.07	-0.21	0.71
Avis, Steve	1.01	-0.06	1.14	-0.49	1.55	0.31									0.66	0.66	0.60	0.66
Radonich, Pete	-1.05	0.79	1.55	-0.16	1.22	-0.78									-0.47	-0.47	0.08	0.97
Caproni, David	1.36	-0.86	-0.49	-0.78	1.02	1.30									0.55	0.55	0.33	0.92
Castillo, George	-1.44	-0.18	-0.82	-0.72	-0.59	-0.56									-1.37	-1.37	-0.88	0.46
May, Marianne	0.02	1.12	2.60	-0.24	-0.48	-0.01									0.12	0.12	0.41	1.00
Pansza, Mike	-0.27	-0.14	0.08	-1.06	-0.95	0.31									-0.73	-0.73	-0.44	0.50
Rodriguez, Jesse	0.60	0.65	0.16	2.20	-1.40	0.21									1.26	1.26	0.62	1.05
Hills, Barry	0.24	0.97	-1.14	-0.41	-0.36	0.53									0.11	0.11	0.01	0.65
Sanchez, Art	-1.11	-1.62	-1.71	0.78	-0.20	-0.56									-0.77	-0.77	-0.75	0.80
Smith, Russell	0.01	1.40	-0.08	-0.56	-0.67	-0.89									-0.04	-0.04	-0.11	0.70
Rappmund, Scott	2.48	-0.48	1.30	2.59	0.40	-1.99									2.69	2.69	1.21	1.76
Greenland, Paul	-0.17	-1.47	0.49	0.28	-0.43	-0.34									-0.31	-0.31	-0.28	0.58
Langford, Mike	1.39	1.37	-0.73	1.55	1.74	-0.01									1.98	1.98	1.16	0.99
Viera, Ralph	1.19	-0.62	-0.33	-0.42	-0.18	0.10									0.49	0.49	0.09	0.60
Clapperty, Leon	0.28	1.14	0.00	0.13	1.03	0.21									0.56	0.56	0.49	0.42
Kuipers, Jacques	0.01	0.33	0.16	0.23	0.10	3.28									0.17	0.17	0.56	1.10
Borland, Robert	-1.18	-0.83	-0.90	-1.08	1.29	0.97									-1.25	-1.25	-0.53	1.04
Hill, Howard	-1.40	0.60	0.28	-0.34	-1.51	-0.12									-1.13	-1.13	-0.59	0.81
Yi MAXIMUM	2.48	-2.17	2.60	2.59	1.74	3.28									2.69	2.69	1.21	1.76
Yi MINIMUM	-0.03	-0.06	0.00	-0.16	-0.18	-0.01									-0.04	-0.04	-0.04	0.42
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00									0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00									1.00	1.00		
Ratings MEAN	42.22	12.49	0.26	24.53	1.80	35.13									81.30	81.30		
Ratings STD	4.63	1.24	0.12	2.78	0.74	9.11									6.90	6.90		

Heavy Duty Diesel Rating Workshop

PART ID = Piston A1 - square cut

RATED VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 2	Land 3	Land 4	TGF						UWPD	WPD
Yanchar, Paul	39.58	13.30	0.19	0.05	21.88	1.08	0.37	30.00						76.45	293.86
Foecking, Brian	38.31	13.09	0.26	0.04	24.50	1.44	0.44	30.00						78.08	311.06
Barrera, Tony	40.39	16.41	0.17	0.30	23.48	0.71	0.25	31.00						81.71	336.57
Avis, Steve	39.61	13.81	0.60	0.40	22.53	0.93	0.49	29.00						78.37	341.32
Caproni, David	35.56	8.72	0.20	0.10	22.38	1.48	0.38	29.00						68.82	257.99
Pansza, Mike	35.76	15.26	0.30	0.10	23.17	1.78	0.82	28.00						77.19	351.26
Lopez, Frank	43.49	17.69	0.20	0.10	21.84	1.83	0.45	34.00						85.60	363.18
Radonich, Pete	33.35	14.90	0.15	0.05	24.79	1.45	0.46	21.00						75.15	322.97
Kobrinetz, Jack	39.08	14.51	0.05	0.05	21.79	1.00	0.33	27.00						76.81	297.25
May, Marianne	43.90	15.41	0.03	0.02	21.93	1.22	0.42	33.00						82.93	316.31
Tschirhart, Garland	30.40	15.00	0.10	0.10	21.05	0.80	0.54	26.00						67.99	299.48
Borland, Robert	28.37	14.02	0.04	0.00	23.07	1.44	0.59	21.00						67.53	300.17
Hills, Barry	37.50	19.71	0.10	0.10	26.52	0.64	0.28	24.00						84.85	360.52
Cole, Steve	34.73	9.71	0.05	0.00	14.28	2.43	0.72	26.00						61.92	257.36
Clapperty, Leon	40.07	16.10	0.24	0.19	20.37	1.02	0.68	33.00						78.67	338.27
Langford, Mike	44.26	14.81	0.62	0.30	18.30	1.79	0.78	30.00						80.86	362.21
Rappmund, Scott	36.48	19.24	0.28	0.20	24.67	1.53	0.80	32.00						83.20	397.63
MAXIMUM	44.26	19.71	0.62	0.40	26.52	2.43	0.82	34.00						85.60	397.63
MINIMUM	28.37	8.72	0.03	0.00	14.28	0.64	0.25	21.00						61.92	257.36
RANGE (MAX-MIN)	15.89	10.99	0.59	0.40	12.24	1.79	0.57	13.00						23.68	140.27
MEAN	37.70	14.81	0.21	0.12	22.15	1.33	0.52	28.47						76.83	323.96
STD	4.44	2.82	0.17	0.12	2.78	0.47	0.18	3.91						6.71	37.89



yi within 1 71%
 yi within 2 95%
 yi within 3 100%

PART ID = Piston A1 - square cut

Yi VALUES

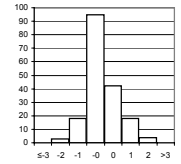
	Groove 1	Groove 2	Groove 3	Groove 4	Land 2	Land 3	Land 4	TGF						UWPD	WPD	MEAN	STD
Yanchar, Paul	0.42	-0.53	-0.12	-0.63	-0.10	-0.53	-0.80	0.39						-0.06	-0.79	-0.27	0.45
Foecking, Brian	0.14	-0.61	0.29	-0.72	0.85	0.24	-0.42	0.39						0.19	-0.34	0.00	0.50
Barrera, Tony	0.61	0.57	-0.23	1.52	0.48	-1.31	-1.46	0.65						0.73	0.33	0.19	0.93
Avis, Steve	0.43	-0.35	2.25	2.38	0.14	-0.84	-0.15	0.14						0.23	0.46	0.47	1.05
Caproni, David	-0.48	-2.16	-0.06	-0.20	0.08	0.32	-0.75	0.14						-1.19	-1.74	-0.60	0.85
Pansza, Mike	-0.44	0.16	0.52	-0.20	0.37	0.96	1.64	-0.12						0.05	0.72	0.37	0.62
Lopez, Frank	1.31	1.02	-0.06	-0.20	-0.11	1.07	-0.37	1.42						1.31	1.03	0.64	0.73
Radonich, Pete	-0.98	0.03	-0.35	-0.63	0.95	0.26	-0.31	-1.91						-0.25	-0.03	-0.32	0.76
Kobrinetz, Jack	0.31	-0.10	-0.93	-0.63	-0.13	-0.69	-1.02	-0.38						0.00	-0.71	-0.43	0.44
May, Marianne	1.40	0.21	-1.04	-0.89	-0.08	-0.23	-0.53	1.16						0.91	-0.20	0.07	0.84
Tschirhart, Garland	-1.64	0.07	-0.64	-0.20	-0.40	-1.12	0.12	-0.63						-1.32	-0.65	-0.64	0.58
Borland, Robert	-2.10	-0.28	-0.99	-1.06	0.33	0.24	0.39	-1.91						-1.39	-0.63	-0.74	0.91
Hills, Barry	-0.04	1.74	-0.64	-0.20	1.57	-1.46	-1.29	-1.14						1.19	0.96	0.07	1.22
Cole, Steve	-0.67	-1.81	-0.93	-1.06	-2.84	2.34	1.10	-0.63						-2.22	-1.76	-0.85	1.55
Clapperty, Leon	0.53	0.46	0.17	0.57	-0.64	-0.65	0.88	1.16						0.27	0.38	0.31	0.58
Langford, Mike	1.48	0.00	2.37	1.52	-1.39	0.98	1.43	0.39						0.60	1.01	0.84	1.03
Rappmund, Scott	-0.27	1.58	0.40	0.66	0.91	0.43	1.54	0.90						0.95	1.94	0.90	0.65
Yi MAXIMUM	-2.10	-2.16	2.37	2.38	-2.84	2.34	1.64	-1.91						-2.22	1.94	0.90	1.55
Yi MINIMUM	-0.04	-0.10	-0.06	-0.20	-0.08	-0.23	-0.15	-0.12						0.00	-0.03	0.00	0.44
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						1.00	1.00		
Ratings MEAN	37.70	14.81	0.21	0.12	22.15	1.33	0.52	28.47						76.83	323.96		
Ratings STD	4.44	2.82	0.17	0.12	2.78	0.47	0.18	3.91						6.71	37.89		

Heavy Duty Diesel Rating Workshop

PART ID = Piston A2 - keystone

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Upper Skirt	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD
Yanchar, Paul	27.00	57.24	2.36	5.74	31.04	5.12	1.26	2.37	12.00	72.00	0.00	0.00			132.13	460.54
Barrera, Tony	25.00	56.39	2.56	5.40	33.42	4.97	1.06	2.24	8.00	73.00	0.00	0.00			131.04	446.96
Caproni, David	25.50	38.92	2.26	6.52	34.83	5.71	0.94	2.79	4.00	45.00	0.00	0.00			117.47	440.03
Avis, Steve	25.75	30.95	1.98	5.70	26.86	5.57	0.87	3.90	7.00	50.00	0.00	0.00			101.58	427.86
Pansza, Mike	27.50	33.28	2.49	7.98	27.97	5.51	1.06	3.16	12.00	31.00	0.00	0.00			108.95	443.32
Radonich, Pete	28.75	46.01	2.17	5.53	29.35	6.14	0.95	2.18	10.00	35.00	0.00	0.00			121.08	445.87
Foecking, Brian	25.00	52.74	2.27	5.30	30.14	5.44	0.33	2.14	13.00	75.00	0.00	0.00			123.36	404.10
Lopez, Frank	25.00	40.62	2.44	10.00	31.75	5.47	1.23	3.16	18.00	40.00	0.00	0.00			119.67	462.63
Kobrinetz, Jack	25.75	51.40	2.66	5.80	25.00	5.60	1.18	2.90	12.00	63.00	0.00	0.00			120.29	470.03
May, Marianne	25.00	44.33	2.34	3.50	26.61	6.40	0.90	2.68	9.00	69.00	0.00	0.00			111.76	451.21
Clapperty, Leon	28.25	41.65	1.49	11.54	21.32	5.21	0.58	1.25	17.00	70.00	0.00	0.00			111.29	359.21
Borland, Robert	29.00	20.67	3.15	4.98	42.62	6.47	1.18	0.29	25.00	23.00	0.00	0.00			108.36	427.41
Langford, Mike	25.00	51.92	2.44	3.48	33.38	6.27	0.86	2.19	4.00	60.00	0.00	0.00			125.54	456.79
Rappmund, Scott	28.75	42.00	4.20	4.83	28.60	6.40	1.56	4.40	22.00	72.00	0.00	0.00			120.74	570.56
Hills, Barry	25.00	32.14	1.83	5.92	27.88	5.12	1.24	1.84	14.00	30.00	0.00	0.00			100.97	392.06
MAXIMUM	29.00	57.24	4.20	11.54	42.62	6.47	1.56	4.40	25.00	75.00	0.00	0.00			132.13	570.56
MINIMUM	25.00	20.67	1.49	3.48	21.32	4.97	0.33	0.29	4.00	23.00	0.00	0.00			100.97	359.21
RANGE (MAX-MIN)	4.00	36.57	2.71	8.06	21.30	1.50	1.23	4.11	21.00	52.00	0.00	0.00			31.16	211.35
MEAN	26.42	42.68	2.44	6.15	30.05	5.69	1.01	2.50	12.47	53.87	0.00	0.00			116.95	443.90
STD	1.61	10.41	0.62	2.18	4.95	0.52	0.30	1.00	6.06	18.45	0.00	0.00			9.57	45.96



yi within 1 76%
 yi within 2 96%
 yi within 3 100%

PART ID = Piston A2 - keystone

Yi VALUES

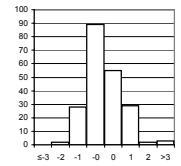
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Upper Skirt	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD	MEAN	STD
Yanchar, Paul	0.36	1.40	-0.13	-0.19	0.20	-1.11	0.83	-0.13	-0.08	0.98	0.00	0.00			1.59	0.36	0.29	0.71
Barrera, Tony	-0.88	1.32	0.19	-0.34	0.68	-1.40	0.16	-0.26	-0.74	1.04	0.00	0.00			1.47	0.07	0.09	0.83
Caproni, David	-0.57	-0.36	-0.30	0.17	0.97	0.03	-0.25	0.29	-1.40	-0.48	0.00	0.00			0.05	-0.08	-0.14	0.52
Avis, Steve	-0.41	-1.13	-0.75	-0.21	-0.65	-0.24	-0.48	1.40	-0.90	-0.21	0.00	0.00			-1.61	-0.35	-0.40	0.68
Pansza, Mike	0.67	-0.90	0.08	0.84	-0.42	-0.36	0.16	0.66	-0.08	-1.24	0.00	0.00			-0.84	-0.01	-0.10	0.61
Radonich, Pete	1.45	0.32	-0.44	-0.28	-0.14	0.87	-0.21	-0.32	-0.41	-1.02	0.00	0.00			0.43	0.04	0.02	0.61
Foecking, Brian	-0.88	0.97	-0.28	-0.39	0.02	-0.49	-2.30	-0.36	0.09	1.15	0.00	0.00			0.67	-0.87	-0.19	0.86
Lopez, Frank	-0.88	-0.20	0.00	1.76	0.34	-0.43	0.73	0.66	0.91	-0.75	0.00	0.00			0.28	0.41	0.20	0.69
Kobrinetz, Jack	-0.41	0.84	0.35	-0.16	-1.02	-0.18	0.56	0.40	-0.08	0.49	0.00	0.00			0.35	0.57	0.12	0.49
May, Marianne	-0.88	0.16	-0.17	-1.21	-0.70	1.37	-0.38	0.18	-0.57	0.82	0.00	0.00			-0.54	0.16	-0.13	0.68
Clapperty, Leon	1.14	-0.10	-1.55	2.47	-1.77	-0.94	-1.46	-1.25	0.75	0.87	0.00	0.00			-0.59	-1.84	-0.30	1.28
Borland, Robert	1.61	-2.11	1.15	-0.53	2.54	1.51	0.56	-2.21	2.07	-1.67	0.00	0.00			-0.90	-0.36	0.12	1.53
Langford, Mike	-0.88	0.89	0.00	-1.22	0.67	1.12	-0.52	-0.31	-1.40	0.33	0.00	0.00			0.90	0.28	-0.01	0.79
Rappmund, Scott	1.45	-0.07	2.86	-0.60	-0.29	1.37	1.84	1.90	1.57	0.98	0.00	0.00			0.40	2.76	1.01	1.12
Hills, Barry	-0.88	-1.01	-1.00	-0.10	-0.44	-1.11	0.76	-0.66	0.25	-1.29	0.00	0.00			-1.67	-1.13	-0.59	0.69
Yi MAXIMUM	1.61	-2.11	2.86	2.47	2.54	1.51	-2.30	-2.21	2.07	-1.67	0.00	0.00			-1.67	2.76	1.01	1.53
Yi MINIMUM	0.36	-0.07	0.00	-0.10	-0.14	-0.18	0.16	-0.13	-0.08	-0.21	0.00	0.00			0.05	-0.01	-0.01	0.49
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00			1.00	1.00		
Ratings MEAN	26.42	42.68	2.44	6.15	30.05	5.69	1.01	2.50	12.47	53.87	0.00	0.00			116.95	443.90		
Ratings STD	1.61	10.41	0.62	2.18	4.95	0.52	0.30	1.00	6.06	18.45	0.00	0.00			9.57	45.96		

Heavy Duty Diesel Rating Workshop

PART ID = Piston A3 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD
Yanchar, Paul	25.68	14.18	1.10	34.71	9.95	2.28	0.80	5.00	5.25	5.00	4.00	27.00	1.00		98.95	281.69
Foecking, Brian	25.75	13.88	1.49	33.79	9.48	2.31	1.46	2.40	1.95	7.00	3.00	26.00	0.00		92.51	322.35
Barrera, Tony	26.52	12.56	1.22	34.55	8.89	2.32	1.38	1.65	1.59	7.00	6.00	25.00	0.00		90.68	307.99
Caproni, David	26.34	13.58	2.20	30.02	7.91	1.80	1.71	7.19	7.40	7.00	3.00	20.00	0.00		98.15	340.66
Avis, Steve	25.32	12.12	1.09	29.30	8.08	1.25	0.61	2.50	2.50	5.00	2.00	19.00	0.00		82.77	227.69
Radonich, Pete	24.85	12.10	0.98	32.50	9.13	2.00	1.00	3.90	4.50	8.00	3.00	24.00	0.00		90.96	271.64
Lopez, Frank	25.50	12.87	1.47	38.36	7.84	1.80	0.70	1.96	7.87	11.00	4.00	24.00	1.00		98.37	264.79
Pansza, Mike	25.00	12.35	2.10	35.92	6.85	2.62	1.87	2.40	6.90	8.00	4.00	28.00	0.00		96.01	355.97
Kobrinetz, Jack	25.20	13.94	1.69	29.99	9.09	2.90	2.35	6.14	7.12	10.00	3.00	22.00	0.00		98.42	391.98
May, Marianne	26.16	14.23	1.25	39.54	10.62	2.52	1.59	6.60	7.35	10.00	8.00	29.00	2.00		109.86	347.49
Cole, Steve	25.81	14.67	2.50	21.23	7.86	3.17	1.58	8.50	5.50	8.00	3.00	30.00	0.00		90.82	359.89
Hills, Barry	26.10	13.27	1.01	35.11	10.51	2.55	1.31	2.40	1.80	13.00	7.00	17.00	0.00		94.06	311.75
Langford, Mike	25.75	14.24	1.75	37.74	7.46	1.88	1.45	1.50	1.96	1.00	0.00	22.00	0.00		93.73	316.42
Rappmund, Scott	25.75	13.34	2.31	37.53	7.48	2.60	1.20	4.50	3.60	5.00	1.00	20.00	0.00		98.31	327.99
Borland, Robert	38.43	14.27	2.26	25.78	9.49	2.74	1.50	6.75	1.50	28.00	12.00	12.00	0.00		102.72	371.42
Clapperty, Leon	24.25	12.33	0.84	26.74	6.35	1.18	0.82	2.84	7.02	7.00	8.00	10.50	0.00		82.37	227.23
MAXIMUM	38.43	14.67	2.50	39.54	10.62	3.17	2.35	8.50	7.87	28.00	12.00	30.00	2.00		109.86	391.98
MINIMUM	24.25	12.10	0.84	21.23	6.35	1.18	0.61	1.50	1.50	1.00	0.00	10.50	0.00		82.37	227.23
RANGE (MAX-MIN)	14.18	2.57	1.66	18.31	4.27	1.99	1.74	7.00	6.37	27.00	12.00	19.50	2.00		27.49	164.75
MEAN	26.40	13.37	1.58	32.68	8.56	2.25	1.33	4.14	4.61	8.75	4.44	22.22	0.25		94.92	314.18
STD	3.26	0.88	0.55	5.12	1.27	0.56	0.47	2.27	2.46	5.85	3.05	5.66	0.58		6.89	48.74



yi within 1 69%
 yi within 2 97%
 yi within 3 99%

PART ID = Piston A3 - two-piece

Yi VALUES

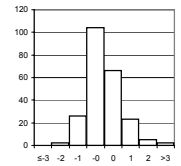
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD	MEAN	STD
Yanchar, Paul	-0.22	0.92	-0.87	0.40	1.09	0.06	-1.15	0.38	0.26	-0.64	-0.14	0.84	1.30		0.59	-0.67	0.14	0.75
Foecking, Brian	-0.20	0.58	-0.16	0.22	0.72	0.12	0.27	-0.77	-1.08	-0.30	-0.47	0.67	-0.43		-0.35	0.17	-0.07	0.52
Barrera, Tony	0.04	-0.93	-0.66	0.37	0.26	0.13	0.10	-1.10	-1.23	-0.30	0.51	0.49	-0.43		-0.62	-0.13	-0.23	0.57
Caproni, David	-0.02	0.24	1.13	-0.52	-0.51	-0.80	0.81	1.34	1.13	-0.30	-0.47	-0.39	-0.43		0.47	0.54	0.15	0.71
Avis, Steve	-0.33	-1.43	-0.89	-0.66	-0.38	-1.78	-1.55	-0.72	-0.86	-0.64	-0.80	-0.57	-0.43		-1.76	-1.77	-0.97	0.53
Radonich, Pete	-0.48	-1.45	-1.09	-0.03	0.45	-0.44	-0.72	-0.11	-0.05	-0.13	-0.47	0.31	-0.43		-0.57	-0.87	-0.41	0.51
Lopez, Frank	-0.28	-0.57	-0.20	1.11	-0.57	-0.80	-1.36	-0.96	1.32	0.38	-0.14	0.31	1.30		0.50	-1.01	-0.06	0.86
Pansza, Mike	-0.43	-1.17	0.95	0.63	-1.35	0.67	1.15	-0.77	0.93	-0.13	-0.14	1.02	-0.43		0.16	0.86	0.13	0.83
Kobrinetz, Jack	-0.37	0.65	0.20	-0.52	0.42	1.17	2.18	0.88	1.02	0.21	-0.47	-0.04	-0.43		0.51	1.60	0.47	0.80
May, Marianne	-0.07	0.98	-0.60	1.34	1.62	0.49	0.55	1.08	1.11	0.21	1.17	1.20	3.03		2.17	0.68	1.00	0.89
Cole, Steve	-0.18	1.48	1.68	-2.23	-0.55	1.65	0.53	1.92	0.36	-0.13	-0.47	1.37	-0.43		-0.60	0.94	0.36	1.16
Hills, Barry	-0.09	-0.11	-1.04	0.48	1.53	0.55	-0.05	-0.77	-1.14	0.73	0.84	-0.92	-0.43		-0.12	-0.05	-0.04	0.76
Langford, Mike	-0.20	0.99	0.31	0.99	-0.87	-0.65	0.25	-1.16	-1.08	-1.33	-1.45	-0.04	-0.43		-0.17	0.05	-0.32	0.78
Rappmund, Scott	-0.20	-0.03	1.34	0.95	-0.85	0.63	-0.29	0.16	-0.41	-0.64	-1.13	-0.39	-0.43		0.49	0.28	-0.03	0.68
Borland, Robert	3.69	1.03	1.24	-1.35	0.73	0.89	0.36	1.15	-1.27	3.29	2.48	-1.81	-0.43		1.13	1.17	0.82	1.59
Clapperty, Leon	-0.66	-1.19	-1.35	-1.16	-1.74	-1.90	-1.10	-0.57	0.98	-0.30	1.17	-2.07	-0.43		-1.82	-1.78	-0.93	0.99
Yi MAXIMUM	3.69	1.48	1.68	-2.23	-1.74	-1.90	2.18	1.92	1.32	3.29	2.48	-2.07	3.03		2.17	-1.78	1.00	1.59
Yi MINIMUM	-0.22	-0.03	-0.16	-0.03	0.26	0.06	-0.05	-0.11	-0.05	-0.13	-0.14	-0.04	-0.43		-0.12	-0.05	-0.03	0.51
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Ratings MEAN	26.40	13.37	1.58	32.68	8.56	2.25	1.33	4.14	4.61	8.75	4.44	22.22	0.25		94.92	314.18		
Ratings STD	3.26	0.88	0.55	5.12	1.27	0.56	0.47	2.27	2.46	5.85	3.05	5.66	0.58		6.89	48.74		

Heavy Duty Diesel Rating Workshop

PART ID = Piston A4 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD
Yanchar, Paul	32.60	6.14	1.30	27.25	19.35	7.70	1.00	2.85	24.00	1.00	3.00	1.00			98.19	411.77
Barrera, Tony	37.76	6.42	1.79	26.50	20.86	6.84	0.92	4.50	39.00	1.00	2.00	0.00			105.59	416.16
Foecking, Brian	32.14	6.22	1.85	26.77	19.57	7.49	2.10	1.50	22.00	1.00	3.00	1.00			97.64	482.72
Caproni, David	23.98	4.05	1.70	32.50	21.93	6.89	2.36	7.50	15.00	1.00	10.00	0.00			100.91	479.30
Tschirhart, Garland	44.75	4.93	0.30	32.50	21.45	6.05	0.40	1.50	32.00	0.00	10.00	0.00			111.88	353.64
Avis, Steve	29.45	4.31	1.15	25.00	18.76	7.60	0.72	2.50	27.00	1.00	0.00	0.00			89.49	373.81
Castillo, George	36.72	6.39	2.36	26.18	18.37	6.76	1.47	3.90	28.00	1.00	2.00	1.00			102.15	448.40
May, Marianne	33.11	8.07	2.66	26.50	21.59	7.53	1.83	5.10	38.00	1.00	2.00	1.00			106.39	500.40
Pansza, Mike	27.17	4.58	2.00	27.20	18.35	6.30	1.77	5.25	34.00	4.00	4.00	0.00			92.62	427.78
Kobrinetz, Jack	31.67	6.23	2.50	25.75	18.46	7.87	1.60	7.50	23.00	0.20	1.00	2.00			101.58	474.06
Rappmund, Scott	34.82	5.92	1.80	28.75	18.33	7.90	1.70	5.10	25.00	1.00	5.00	0.00			104.32	472.24
Hills, Barry	28.65	4.99	1.80	22.76	22.60	6.54	0.68	1.81	23.00	2.00	0.00	0.00			89.83	372.24
Cole, Steve	44.33	6.55	3.00	34.65	36.53	8.69	0.00	2.50	26.00	0.00	14.00	0.00			136.25	488.85
Clapperty, Leon	33.73	6.84	1.03	23.64	19.01	6.06	0.75	2.70	30.00	1.00	0.00	0.00			93.76	358.15
Viera, Ralph	40.18	6.32	2.64	21.25	21.00	1.99	2.19	7.50	30.00	1.00	3.00	1.00			103.07	415.07
Rodriguez, Jesse	45.82	6.49	1.80	28.75	23.85	7.24	1.19	3.60	23.00	1.00	5.00	1.00			118.74	467.21
Sanchez, Art	40.41	3.84	1.17	29.45	20.11	13.62	0.67	4.80	30.00	1.00	3.00	0.00			114.07	522.92
Borland, Robert	33.06	5.85	2.36	27.04	27.65	7.57	1.71	0.00	19.00	3.00	4.00	0.00			105.24	494.86
Smith, Russell	42.45	4.78	1.68	29.35	20.52	7.32	1.70	2.40	41.00	1.00	7.00	1.00			110.20	474.55
MAXIMUM	45.82	8.07	3.00	34.65	36.53	13.62	2.36	7.50	41.00	4.00	14.00	2.00			136.25	522.92
MINIMUM	23.98	3.84	0.30	21.25	18.33	1.99	0.00	0.00	15.00	0.00	0.00	0.00			89.49	353.64
RANGE (MAX-MIN)	21.84	4.23	2.70	13.40	18.20	11.63	2.36	7.50	26.00	4.00	14.00	2.00			46.76	169.28
MEAN	35.41	5.73	1.84	27.46	21.49	7.26	1.30	3.82	27.84	1.17	4.11	0.47			104.31	443.90
STD	6.26	1.10	0.66	3.35	4.32	2.06	0.66	2.17	6.85	0.95	3.77	0.61			11.07	51.89



yi within 1 75%
 yi within 2 96%
 yi within 3 99%

PART ID = Piston A4 - two-piece

Yi VALUES

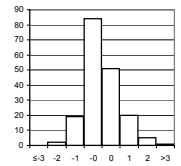
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD	MEAN	STD
Yanchar, Paul	-0.45	0.37	-0.81	-0.06	-0.50	0.21	-0.46	-0.45	-0.56	-0.18	-0.29	0.86			-0.55	-0.62	-0.25	0.45
Barrera, Tony	0.38	0.63	-0.07	-0.29	-0.15	-0.20	-0.58	0.32	1.63	-0.18	-0.56	-0.77			0.12	-0.53	-0.02	0.62
Foecking, Brian	-0.52	0.44	0.02	-0.21	-0.44	0.11	1.21	-1.07	-0.85	-0.18	-0.29	0.86			-0.60	0.75	-0.06	0.67
Caproni, David	-1.83	-1.53	-0.21	1.50	0.10	-0.18	1.60	1.70	-1.87	-0.18	1.56	-0.77			-0.31	0.68	0.02	1.26
Tschirhart, Garland	1.49	-0.73	-2.31	1.50	-0.01	-0.59	-1.37	-1.07	0.61	-1.24	1.56	-0.77			0.68	-1.74	-0.28	1.27
Avis, Steve	-0.95	-1.29	-1.03	-0.74	-0.63	0.16	-0.88	-0.61	-0.12	-0.18	-1.09	-0.77			-1.34	-1.35	-0.77	0.47
Castillo, George	0.21	0.60	0.79	-0.38	-0.72	-0.24	0.25	0.04	0.02	-0.18	-0.56	0.86			-0.20	0.09	0.04	0.47
May, Marianne	-0.37	2.13	1.24	-0.29	0.02	0.13	0.80	0.59	1.48	-0.18	-0.56	0.86			0.19	1.09	0.51	0.79
Pansza, Mike	-1.32	-1.05	0.25	-0.08	-0.73	-0.47	0.71	0.66	0.90	2.99	-0.03	-0.77			-1.06	-0.31	-0.02	1.11
Kobrinetz, Jack	-0.60	0.45	1.00	-0.51	-0.70	0.30	0.45	1.70	-0.71	-1.02	-0.82	2.49			-0.25	0.58	0.17	1.04
Rappmund, Scott	-0.09	0.17	-0.05	0.38	-0.73	0.31	0.60	0.59	-0.41	-0.18	0.24	-0.77			0.00	0.55	0.04	0.45
Hills, Barry	-1.08	-0.68	-0.05	-1.40	0.26	-0.35	-0.94	-0.93	-0.71	0.88	-1.09	-0.77			-1.31	-1.38	-0.68	0.66
Cole, Steve	1.42	0.74	1.75	2.15	3.49	0.69	-1.98	-0.61	-0.27	-1.24	2.62	-0.77			2.88	0.87	0.84	1.65
Clapperty, Leon	-0.27	1.01	-1.21	-1.14	-0.57	-0.58	-0.84	-0.52	0.32	-0.18	-1.09	-0.77			-0.95	-1.65	-0.60	0.68
Viera, Ralph	0.76	0.53	1.21	-1.86	-0.11	-2.56	1.34	1.70	0.32	-0.18	-0.29	0.86			-0.11	-0.56	0.08	1.18
Rodriguez, Jesse	1.66	0.69	-0.05	0.38	0.55	-0.01	-0.17	-0.10	-0.71	-0.18	0.24	0.86			1.30	0.45	0.35	0.63
Sanchez, Art	0.80	-1.72	-1.00	0.59	-0.32	3.08	-0.96	0.45	0.32	-0.18	-0.29	-0.77			0.88	1.52	0.17	1.22
Borland, Robert	-0.38	0.11	0.79	-0.13	1.43	0.15	0.62	-1.76	-1.29	1.94	-0.03	-0.77			0.08	0.98	0.12	1.00
Smith, Russell	1.12	-0.87	-0.24	0.56	-0.22	0.03	0.60	-0.65	1.92	-0.18	0.77	0.86			0.53	0.59	0.35	0.75
Yi MAXIMUM	-1.83	2.13	-2.31	2.15	3.49	3.08	-1.98	-1.76	1.92	2.99	2.62	2.49			2.88	-1.74	0.84	1.65
Yi MINIMUM	-0.09	0.11	-0.05	-0.06	-0.01	-0.01	-0.17	-0.10	-0.12	-0.18	-0.03	-0.77			-0.11	-0.31	-0.02	0.45
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Ratings MEAN	35.41	5.73	1.84	27.46	21.49	7.26	1.30	3.82	27.84	1.17	4.11	0.47			104.31	443.90		
Ratings STD	6.26	1.10	0.66	3.35	4.32	2.06	0.66	2.17	6.85	0.95	3.77	0.61			11.07	51.89		

Heavy Duty Diesel Rating Workshop

PART ID = Piston A5 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD
Yanchar, Paul	47.25	39.34	0.71	17.57	30.82	2.40	0.50	7.02	7.93	35.00	37.00	0.00	1.00		153.54	425.74
Avis, Steve	31.68	25.27	0.71	23.20	26.73	1.98	0.20	19.15	6.90	28.00	21.00	11.00	0.00		135.82	330.96
Foecking, Brian	45.75	31.06	1.03	8.42	21.72	2.65	0.29	4.45	4.77	39.00	35.00	0.00	0.00		120.14	356.10
Barrera, Tony	46.25	42.93	0.35	21.80	31.02	2.55	0.28	5.00	3.75	37.00	44.00	0.00	0.00		153.93	417.83
Caproni, David	35.00	30.46	1.28	23.40	22.66	2.46	0.80	7.04	7.50	22.00	12.00	0.00	0.00		130.60	386.35
Tschirhart, Garland	33.75	23.80	0.56	18.60	24.70	1.80	0.20	1.50	4.50	22.00	20.00	0.00	0.00		109.41	294.55
Kobrinetz, Jack	44.00	40.00	0.77	18.73	23.74	2.09	0.30	6.46	7.98	35.00	42.00	0.00	1.00		144.07	383.60
Rappmund, Scott	47.00	38.25	2.35	25.00	28.30	2.45	0.30	4.20	5.10	45.00	30.00	0.00	0.00		152.95	439.40
Cole, Steve	50.00	29.62	3.00	8.62	10.54	2.55	0.00	6.60	7.50	32.00	16.00	0.00	0.00		118.43	350.45
Hills, Barry	32.25	26.77	0.94	19.88	28.69	1.50	0.12	6.60	6.74	32.00	22.00	0.00	0.00		123.49	316.73
Clapperty, Leon	40.00	30.02	0.59	22.96	26.36	0.79	0.21	4.80	7.26	39.00	7.00	0.00	0.00		132.99	320.73
Sanchez, Art	56.00	29.15	1.16	13.80	26.55	1.48	0.57	5.30	7.24	35.00	14.00	0.00	0.00		141.25	388.82
Rodriguez, Jesse	47.50	26.77	0.72	16.83	26.76	1.70	0.10	6.30	6.00	47.00	15.00	0.00	0.00		132.68	336.12
Borland, Robert	47.25	26.12	2.11	16.45	31.64	2.40	0.31	13.30	6.00	27.00	24.00	5.00	0.00		145.58	409.33
MAXIMUM	56.00	42.93	3.00	25.00	31.64	2.65	0.80	19.15	7.98	47.00	44.00	11.00	1.00		153.93	439.40
MINIMUM	31.68	23.80	0.35	8.42	10.54	0.79	0.00	1.50	3.75	22.00	7.00	0.00	0.00		109.41	294.55
RANGE (MAX-MIN)	24.32	19.13	2.65	16.58	21.10	1.86	0.80	17.65	4.23	25.00	37.00	11.00	1.00		44.52	144.85
MEAN	43.12	31.40	1.16	18.23	25.73	2.06	0.30	6.98	6.37	33.93	24.21	1.14	0.14		135.35	368.34
STD	7.40	6.16	0.78	5.18	5.32	0.54	0.21	4.34	1.37	7.51	11.62	3.13	0.36		14.05	45.34



yi within 1 74%
 yi within 2 96%
 yi within 3 99%

PART ID = Piston A5 - two-piece

Yi VALUES

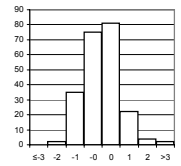
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD	MEAN	STD
Yanchar, Paul	0.56	1.29	-0.58	-0.13	0.96	0.63	0.98	0.01	1.14	0.14	1.10	-0.36	2.36		1.29	1.27	0.71	0.78
Avis, Steve	-1.55	-0.99	-0.58	0.96	0.19	-0.14	-0.48	2.80	0.39	-0.79	-0.28	3.14	-0.39		0.03	-0.82	0.10	1.32
Foecking, Brian	0.36	-0.05	-0.17	-1.89	-0.75	1.09	-0.04	-0.58	-1.17	0.68	0.93	-0.36	-0.39		-1.08	-0.27	-0.25	0.81
Barrera, Tony	0.42	1.87	-1.04	0.69	0.99	0.91	-0.09	-0.46	-1.91	0.41	1.70	-0.36	-0.39		1.32	1.09	0.34	1.05
Caproni, David	-1.10	-0.15	0.15	1.00	-0.58	0.74	2.43	0.01	0.83	-1.59	-1.05	-0.36	-0.39		-0.34	0.40	0.00	1.00
Tschirhart, Garland	-1.27	-1.23	-0.77	0.07	-0.19	-0.47	-0.48	-1.26	-1.37	-1.59	-0.36	-0.36	-0.39		-1.85	-1.63	-0.88	0.61
Kobrinetz, Jack	0.12	1.40	-0.50	0.10	-0.37	0.06	0.01	-0.12	1.18	0.14	1.53	-0.36	2.36		0.62	0.34	0.43	0.83
Rappmund, Scott	0.52	1.11	1.53	1.31	0.48	0.72	0.01	-0.64	-0.93	1.47	0.50	-0.36	-0.39		1.25	1.57	0.54	0.84
Cole, Steve	0.93	-0.29	2.36	-1.85	-2.85	0.91	-1.45	-0.09	0.83	-0.26	-0.71	-0.36	-0.39		-1.20	-0.39	-0.32	1.27
Hills, Barry	-1.47	-0.75	-0.29	0.32	0.56	-1.03	-0.87	-0.09	0.27	-0.26	-0.19	-0.36	-0.39		-0.84	-1.14	-0.44	0.58
Clapperty, Leon	-0.42	-0.22	-0.74	0.91	0.12	-2.33	-0.43	-0.50	0.65	0.68	-1.48	-0.36	-0.39		-0.17	-1.05	-0.38	0.84
Sanchez, Art	1.74	-0.36	0.00	-0.86	0.15	-1.06	1.31	-0.39	0.64	0.14	-0.88	-0.36	-0.39		0.42	0.45	0.04	0.79
Rodriguez, Jesse	0.59	-0.75	-0.57	-0.27	0.19	-0.66	-0.96	-0.16	-0.27	1.74	-0.79	-0.36	-0.39		-0.19	-0.71	-0.24	0.68
Borland, Robert	0.56	-0.86	1.22	-0.34	1.11	0.63	0.06	1.46	-0.27	-0.92	-0.02	1.23	-0.39		0.73	0.90	0.34	0.78
Yi MAXIMUM	1.74	1.87	2.36	-1.89	-2.85	-2.33	2.43	2.80	-1.91	1.74	1.70	3.14	2.36		-1.85	-1.63	-0.88	1.32
Yi MINIMUM	0.12	-0.05	0.00	-0.13	0.12	-0.14	-0.04	0.01	-0.27	0.14	-0.02	-0.36	-0.39		0.03	-0.27	0.00	0.58
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Ratings MEAN	43.12	31.40	1.16	18.23	25.73	2.06	0.30	6.98	6.37	33.93	24.21	1.14	0.14		135.35	368.34		
Ratings STD	7.40	6.16	0.78	5.18	5.32	0.54	0.21	4.34	1.37	7.51	11.62	3.13	0.36		14.05	45.34		

Heavy Duty Diesel Rating Workshop

PART ID = Piston A6 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD
Yanchar, Paul	47.00	5.70	0.52	41.10	17.77	1.09	0.10	6.00	5.10	36.00	1.00	22.00	2.00		124.38	252.26
Avis, Steve	33.50	4.82	0.48	35.98	15.52	0.73	0.10	6.50	4.50	42.00	1.00	11.00	0.00		102.13	202.95
Foecking, Brian	43.00	6.37	0.85	26.68	15.82	1.14	0.40	1.74	1.95	48.00	0.00	6.00	5.00		97.95	245.77
Barrera, Tony	47.75	4.88	0.40	45.31	15.83	0.86	0.30	1.50	1.65	52.00	1.00	29.00	2.00		118.48	248.47
Tschirhart, Garland	37.25	3.90	0.56	38.05	19.50	0.52	0.30	1.50	1.50	28.00	0.00	18.00	0.00		103.08	224.60
Caproni, David	29.75	3.99	1.45	26.00	18.95	1.56	0.50	7.50	7.50	22.00	0.00	2.00	0.00		97.20	255.77
Kobrinetz, Jack	41.00	4.92	0.55	34.12	17.73	0.61	0.22	6.66	4.20	38.00	0.30	13.00	3.00		110.01	229.23
May, Marianne	43.75	6.67	0.50	43.41	18.66	1.26	0.30	3.60	7.20	45.00	1.00	25.00	3.00		125.35	267.30
Rappmund, Scott	40.75	5.01	1.10	26.95	16.60	1.60	0.80	5.70	5.40	35.00	0.00	10.00	0.00		103.91	283.68
Viera, Ralph	47.75	6.30	0.84	38.18	17.74	0.90	0.24	4.51	6.00	55.00	1.00	18.00	4.00		122.46	262.51
Rodriguez, Jesse	53.50	5.90	0.72	38.61	18.56	1.20	0.20	4.20	5.25	43.00	1.00	19.00	2.00		128.14	276.22
Clapperty, Leon	39.00	4.43	0.47	26.04	18.23	0.47	0.27	1.35	6.00	44.00	1.00	2.00	0.00		96.26	211.37
Borland, Robert	41.00	6.65	1.64	27.00	14.34	1.08	0.18	9.49	2.10	31.00	3.00	5.00	0.00		103.48	247.71
Hills, Barry	25.75	5.38	0.62	38.67	18.31	0.94	0.10	6.90	3.00	17.00	1.00	21.00	0.00		99.67	206.84
Sanchez, Art	53.54	4.06	0.79	18.50	16.00	0.65	0.30	4.50	3.74	36.00	1.00	30.00	0.00		102.08	238.93
Cole, Steve	29.77	7.41	2.01	29.01	25.97	1.27	0.00	1.65	7.32	52.00	0.00	25.00	0.00		104.41	259.60
Smith, Russell	46.25	4.88	1.30	37.91	14.84	1.30	1.00	3.30	3.60	42.00	1.00	20.00	2.00		114.38	306.67
MAXIMUM	53.54	7.41	2.01	45.31	25.97	1.60	1.00	9.49	7.50	55.00	3.00	30.00	5.00		128.14	306.67
MINIMUM	25.75	3.90	0.40	18.50	14.34	0.47	0.00	1.35	1.50	17.00	0.00	2.00	0.00		96.26	202.95
RANGE (MAX-MIN)	27.79	3.51	1.61	26.81	11.63	1.13	1.00	8.14	6.00	38.00	3.00	28.00	5.00		31.88	103.72
MEAN	41.19	5.37	0.87	33.62	17.67	1.01	0.31	4.51	4.47	39.18	0.78	16.24	1.35		109.02	248.23
STD	8.06	1.05	0.47	7.52	2.63	0.34	0.25	2.48	1.99	10.50	0.74	9.02	1.66		10.87	27.79



yi within 1 71%
 yi within 2 96%
 yi within 3 99%

PART ID = Piston A6 - two-piece

Yi VALUES

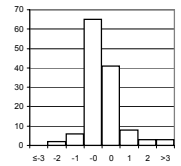
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD	MEAN	STD
Yanchar, Paul	0.72	0.32	-0.74	0.99	0.04	0.23	-0.84	0.60	0.32	-0.30	0.30	0.64	0.39		1.41	0.15	0.28	0.59
Avis, Steve	-0.95	-0.52	-0.83	0.31	-0.82	-0.82	-0.84	0.81	0.01	0.27	0.30	-0.58	-0.82		-0.63	-1.63	-0.45	0.65
Foecking, Brian	0.22	0.96	-0.04	-0.92	-0.70	0.38	0.34	-1.12	-1.26	0.84	-1.06	-1.13	2.20		-1.02	-0.09	-0.16	1.00
Barrera, Tony	0.81	-0.47	-1.00	1.55	-0.70	-0.44	-0.05	-1.21	-1.42	1.22	0.30	1.41	0.39		0.87	0.01	0.09	0.96
Tschirhart, Garland	-0.49	-1.40	-0.66	0.59	0.70	-1.44	-0.05	-1.21	-1.49	-1.06	-1.06	0.20	-0.82		-0.55	-0.85	-0.64	0.71
Caproni, David	-1.42	-1.32	1.23	-1.01	0.49	1.61	0.74	1.21	1.52	-1.64	-1.06	-1.58	-0.82		-1.09	0.27	-0.19	1.23
Kobrinetz, Jack	-0.02	-0.43	-0.68	0.07	0.02	-1.17	-0.36	0.87	-0.14	-0.11	-0.65	-0.36	0.99		0.09	-0.68	-0.17	0.57
May, Marianne	0.32	1.24	-0.79	1.30	0.38	0.73	-0.05	-0.37	1.37	0.55	0.30	0.97	0.99		1.50	0.69	0.61	0.66
Rappmund, Scott	-0.06	-0.34	0.49	-0.89	-0.41	1.72	1.92	0.48	0.47	-0.40	-1.06	-0.69	-0.82		-0.47	1.28	0.08	0.95
Viera, Ralph	0.81	0.89	-0.06	0.61	0.03	-0.32	-0.28	0.00	0.77	1.51	0.30	0.20	1.60		1.24	0.51	0.52	0.62
Rodriguez, Jesse	1.53	0.51	-0.32	0.66	0.34	0.55	-0.44	-0.12	0.39	0.36	0.30	0.31	0.39		1.76	1.01	0.48	0.60
Clapperty, Leon	-0.27	-0.90	-0.85	-1.01	0.21	-1.58	-0.17	-1.28	0.77	0.46	0.30	-1.58	-0.82		-1.17	-1.33	-0.61	0.77
Borland, Robert	-0.02	1.22	1.63	-0.88	-1.26	0.20	-0.52	2.01	-1.19	-0.78	3.01	-1.24	-0.82		-0.51	-0.02	0.06	1.32
Hills, Barry	-1.92	0.01	-0.53	0.67	0.24	-0.21	-0.84	0.97	-0.74	-2.11	0.30	0.53	-0.82		-0.86	-1.49	-0.45	0.93
Sanchez, Art	1.53	-1.25	-0.17	-2.01	-0.63	-1.06	-0.05	0.00	-0.37	-0.30	0.30	1.53	-0.82		-0.64	-0.33	-0.29	0.93
Cole, Steve	-1.42	1.95	2.42	-0.61	3.15	0.76	-1.23	-1.15	1.43	1.22	-1.06	0.97	-0.82		-0.42	0.41	0.37	1.46
Smith, Russell	0.63	-0.47	0.91	0.57	-1.07	0.85	2.71	-0.49	-0.44	0.27	0.30	0.42	0.39		0.49	2.10	0.48	0.97
Yi MAXIMUM	-1.92	1.95	2.42	-2.01	3.15	1.72	2.71	2.01	1.52	-2.11	3.01	-1.58	2.20		1.76	2.10	-0.64	1.46
Yi MINIMUM	-0.02	0.01	-0.04	0.07	0.02	0.20	-0.05	0.00	0.01	-0.11	0.30	-0.36	0.39		-0.42	-0.02	-0.16	0.57
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Ratings MEAN	41.19	5.37	0.87	33.62	17.67	1.01	0.31	4.51	4.47	39.18	0.78	16.24	1.35		109.02	248.23		
Ratings STD	8.06	1.05	0.47	7.52	2.63	0.34	0.25	2.48	1.99	10.50	0.74	9.02	1.66		10.87	27.79		

Heavy Duty Diesel Rating Workshop

PART ID = Piston B1 - square cut

RATED VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 2	Land 3	Land 4	TGF							UWPD	WPD
Yanchar, Paul	80.50	23.00	0.07	0.17	35.09	0.34	0.69	91.00							139.86	478.62
Castillo, George	83.25	23.78	0.21	0.39	25.64	0.60	0.69	94.00							134.56	481.59
May, Marianne	90.00	19.73	0.02	0.13	39.92	0.32	0.42	97.00							150.54	457.92
Kobrinetz, Jack	85.75	18.70	0.05	0.12	23.08	0.19	0.37	92.00							128.26	380.43
Barrera, Tony	87.00	23.42	0.02	0.04	30.96	0.28	0.35	95.00							142.07	450.91
Caproni, David	90.00	21.32	0.10	0.10	21.60	1.10	1.91	90.00							136.13	478.15
Mundt, Torsten	86.25	26.35	0.06	0.09	28.13	0.48	1.04	81.00							142.40	502.61
Avis, Steve	80.50	20.63	0.10	0.10	23.87	0.30	0.57	83.00							126.07	406.80
Pansza, Mike	90.00	24.07	0.20	0.40	21.54	0.70	0.88	88.00							137.79	485.89
Kuipers, Jacques	79.00	30.50	0.00	0.00	25.00	0.25	1.02	76.00							135.77	512.20
Greenland, Paul	79.75	24.27	0.20	0.30	23.29	0.37	0.81	91.00							128.99	467.72
Hills, Barry	86.50	24.12	0.09	0.09	81.07	0.02	0.36	88.00							192.25	633.90
Smith, Russell	94.50	33.82	1.00	1.00	31.03	1.50	1.71	92.00							164.56	736.16
Hill, Howard	94.50	25.84	0.08	0.03	23.12	0.05	0.44	85.00							144.06	455.12
Rappmund, Scott	90.00	27.70	0.40	0.50	31.53	0.80	1.21	90.00							152.14	584.71
Clapperty, Leon	66.00	22.53	0.21	0.32	22.36	0.30	0.41	87.00							112.13	419.66
MAXIMUM	94.50	33.82	1.00	1.00	81.07	1.50	1.91	97.00							192.25	736.16
MINIMUM	66.00	18.70	0.00	0.00	21.54	0.02	0.35	76.00							112.13	380.43
RANGE (MAX-MIN)	28.50	15.12	1.00	1.00	59.53	1.48	1.56	21.00							80.12	355.73
MEAN	85.22	24.36	0.18	0.24	30.45	0.48	0.81	88.75							141.72	495.77
STD	7.10	3.90	0.24	0.25	14.51	0.39	0.48	5.43							18.01	89.03



yi within 1 83%
 yi within 2 94%
 yi within 3 98%

PART ID = Piston B1 - square cut

Yi VALUES

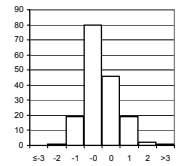
	Groove 1	Groove 2	Groove 3	Groove 4	Land 2	Land 3	Land 4	TGF							UWPD	WPD	MEAN	STD
Yanchar, Paul	-0.66	-0.35	-0.44	-0.26	0.32	-0.35	-0.24	0.41							-0.10	-0.19	-0.19	0.33
Castillo, George	-0.28	-0.15	0.14	0.61	-0.33	0.32	-0.24	0.97							-0.40	-0.16	0.05	0.45
May, Marianne	0.67	-1.19	-0.64	-0.42	0.65	-0.40	-0.81	1.52							0.49	-0.43	-0.05	0.84
Kobrinetz, Jack	0.07	-1.45	-0.52	-0.46	-0.51	-0.73	-0.91	0.60							-0.75	-1.30	-0.59	0.60
Barrera, Tony	0.25	-0.24	-0.64	-0.78	0.04	-0.50	-0.95	1.15							0.02	-0.50	-0.22	0.61
Caproni, David	0.67	-0.78	-0.31	-0.54	-0.61	1.60	2.31	0.23							-0.31	-0.20	0.21	1.03
Mundt, Torsten	0.15	0.51	-0.48	-0.58	-0.16	0.01	0.49	-1.43							0.04	0.08	-0.14	0.57
Avis, Steve	-0.66	-0.96	-0.31	-0.54	-0.45	-0.45	-0.49	-1.06							-0.87	-1.00	-0.68	0.27
Pansza, Mike	0.67	-0.07	0.10	0.65	-0.61	0.58	0.16	-0.14							-0.22	-0.11	0.10	0.42
Kuipers, Jacques	-0.88	1.58	-0.72	-0.93	-0.38	-0.58	0.45	-2.35							-0.33	0.18	-0.40	1.02
Greenland, Paul	-0.77	-0.02	0.10	0.25	-0.49	-0.27	0.01	0.41							-0.71	-0.32	-0.18	0.40
Hills, Barry	0.18	-0.06	-0.35	-0.58	3.49	-1.17	-0.93	-0.14							2.80	1.55	0.48	1.59
Smith, Russell	1.31	2.43	3.40	3.02	0.04	2.63	1.89	0.60							1.27	2.70	1.93	1.10
Hill, Howard	1.31	0.38	-0.39	-0.82	-0.51	-1.09	-0.76	-0.69							0.13	-0.46	-0.29	0.71
Rappmund, Scott	0.67	0.86	0.93	1.04	0.07	0.83	0.85	0.23							0.58	1.00	0.71	0.32
Clapperty, Leon	-2.71	-0.47	0.14	0.33	-0.56	-0.45	-0.83	-0.32							-1.64	-0.85	-0.74	0.88
Yi MAXIMUM	-2.71	2.43	3.40	3.02	3.49	2.63	2.31	-2.35							2.80	2.70	1.93	1.59
Yi MINIMUM	-0.28	-0.02	-0.31	-0.26	0.04	-0.27	-0.24	-0.14							-0.10	-0.11	-0.05	0.27
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	0.00	0.00	0.00
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00							1.00	1.00		
Ratings MEAN	85.22	24.36	0.18	0.24	30.45	0.48	0.81	88.75							141.72	495.77		
Ratings STD	7.10	3.90	0.24	0.25	14.51	0.39	0.48	5.43							18.01	89.03		

Heavy Duty Diesel Rating Workshop

PART ID = Piston B2 - keystone

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Upper Skirt	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD
Yanchar, Paul	25.75	28.75	1.36	8.30	54.16	2.85	0.72	0.89	7.00	23.00	0.00	0.00			122.78	303.26
Castillo, George	25.75	36.02	1.48	10.19	49.64	2.70	0.62	0.80	8.00	35.00	0.00	0.00			127.20	303.99
May, Marianne	25.25	35.50	0.92	4.78	60.40	2.66	0.64	0.92	9.00	32.00	0.00	0.00			131.07	296.21
Kobrinetz, Jack	25.75	32.09	1.86	7.97	58.60	2.75	0.67	0.94	11.00	26.00	0.00	0.00			130.63	320.88
Barrera, Tony	26.00	38.34	1.60	6.58	63.18	2.10	0.75	1.01	10.00	39.00	0.00	0.00			139.56	316.47
Caproni, David	25.75	33.25	1.36	2.01	65.50	3.21	1.70	1.15	8.00	14.00	0.00	0.00			133.93	378.26
Mundt, Torsten	25.75	35.50	1.19	7.43	65.41	2.82	0.64	0.79	4.00	18.00	0.00	0.00			139.53	312.77
Greenland, Paul	26.25	34.75	2.33	3.40	62.59	2.85	0.75	1.15	6.00	25.00	0.00	0.00			134.07	347.49
Kuipers, Jacques	27.00	31.00	1.95	2.41	48.93	2.40	0.57	1.80	9.00	9.00	0.00	0.00			116.06	311.59
Smith, Russell	27.00	29.29	1.98	11.39	65.32	3.61	1.83	2.40	11.00	16.00	0.00	0.00			142.82	440.40
Hills, Barry	20.25	24.76	0.77	4.31	51.85	2.56	5.29	0.55	15.00	19.00	0.00	0.00			110.34	482.43
Hill, Howard	23.30	33.40	1.65	6.33	55.13	2.85	0.50	0.85	16.00	28.00	0.00	0.00			124.01	301.01
Rappmund, Scott	26.50	34.00	2.42	5.15	57.75	3.41	0.76	1.70	14.00	21.00	0.00	0.00			131.69	371.40
Pansza, Mike	25.50	25.50	1.15	9.31	62.82	2.62	0.82	1.09	12.00	14.00	0.00	0.00			128.81	305.68
MAXIMUM	27.00	38.34	2.42	11.39	65.50	3.61	5.29	2.40	16.00	39.00	0.00	0.00			142.82	482.43
MINIMUM	20.25	24.76	0.77	2.01	48.93	2.10	0.50	0.55	4.00	9.00	0.00	0.00			110.34	296.21
RANGE (MAX-MIN)	6.75	13.58	1.65	9.38	16.57	1.51	4.79	1.85	12.00	30.00	0.00	0.00			32.48	186.22
MEAN	25.41	32.30	1.57	6.40	58.66	2.81	1.16	1.15	10.00	22.79	0.00	0.00			129.46	342.27
STD	1.73	4.00	0.49	2.88	5.88	0.39	1.25	0.49	3.44	8.64	0.00	0.00			9.02	57.20



yi within 1 75%
 yi within 2 98%
 yi within 3 99%

PART ID = Piston B2 - keystone

Yi VALUES

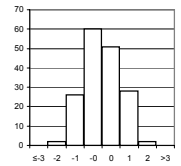
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Upper Skirt	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD	MEAN	STD
Yanchar, Paul	0.19	-0.89	-0.43	0.66	-0.77	0.09	-0.35	-0.52	-0.87	0.02	0.00	0.00			-0.74	-0.68	-0.31	0.47
Castillo, George	0.19	0.93	-0.19	1.32	-1.54	-0.29	-0.43	-0.70	-0.58	1.41	0.00	0.00			-0.25	-0.67	-0.06	0.81
May, Marianne	-0.09	0.80	-1.32	-0.56	0.30	-0.39	-0.42	-0.46	-0.29	1.07	0.00	0.00			0.18	-0.81	-0.14	0.62
Kobrinetz, Jack	0.19	-0.05	0.58	0.55	-0.01	-0.16	-0.39	-0.42	0.29	0.37	0.00	0.00			0.13	-0.37	0.05	0.32
Barrera, Tony	0.34	1.51	0.05	0.06	0.77	-1.83	-0.33	-0.27	0.00	1.88	0.00	0.00			1.12	-0.45	0.20	0.92
Caproni, David	0.19	0.24	-0.43	-1.52	1.16	1.02	0.43	0.01	-0.58	-1.02	0.00	0.00			0.50	0.63	0.04	0.74
Mundt, Torsten	0.19	0.80	-0.77	0.36	1.15	0.02	-0.42	-0.72	-1.74	-0.55	0.00	0.00			1.12	-0.52	-0.08	0.79
Greenland, Paul	0.48	0.61	1.53	-1.04	0.67	0.09	-0.33	0.01	-1.16	0.26	0.00	0.00			0.51	0.09	0.12	0.68
Kuipers, Jacques	0.92	-0.32	0.76	-1.39	-1.66	-1.06	-0.47	1.32	-0.29	-1.60	0.00	0.00			-1.49	-0.54	-0.41	0.96
Smith, Russell	0.92	-0.75	0.82	1.74	1.13	2.04	0.53	2.54	0.29	-0.79	0.00	0.00			1.48	1.72	0.83	1.01
Hills, Barry	-2.98	-1.88	-1.62	-0.73	-1.16	-0.65	3.29	-1.21	1.45	-0.44	0.00	0.00			-2.12	2.45	-0.40	1.76
Hill, Howard	-1.22	0.28	0.16	-0.02	-0.60	0.09	-0.53	-0.60	1.74	0.60	0.00	0.00			-0.60	-0.72	-0.10	0.72
Rappmund, Scott	0.63	0.43	1.71	-0.43	-0.16	1.53	-0.32	1.12	1.16	-0.21	0.00	0.00			0.25	0.51	0.44	0.70
Pansza, Mike	0.05	-1.70	-0.85	1.01	0.71	-0.50	-0.27	-0.11	0.58	-1.02	0.00	0.00			-0.07	-0.64	-0.20	0.72
Yi MAXIMUM	-2.98	-1.88	1.71	1.74	-1.66	2.04	3.29	2.54	1.74	1.88	0.00	0.00			-2.12	2.45	0.83	1.76
Yi MINIMUM	-0.09	-0.05	-0.19	-0.02	-0.01	0.02	-0.27	-0.11	-0.29	0.02	0.00	0.00			-0.07	-0.37	-0.06	0.32
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00			1.00	1.00		
Ratings MEAN	25.41	32.30	1.57	6.40	58.66	2.81	1.16	1.15	10.00	22.79	0.00	0.00			129.46	342.27		
Ratings STD	1.73	4.00	0.49	2.88	5.88	0.39	1.25	0.49	3.44	8.64	0.00	0.00			9.02	57.20		

Heavy Duty Diesel Rating Workshop

PART ID = Piston B3 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD
Yanchar, Paul	31.00	24.11	0.98	38.05	12.98	2.25	0.22	4.65	1.96	17.00	12.00	24.00	7.00		116.20	294.75
Castillo, George	31.50	23.88	0.92	28.08	10.43	2.42	0.34	6.75	5.70	24.00	10.00	7.00	7.00		110.02	290.81
Kobrinetz, Jack	30.00	21.05	0.94	41.88	13.59	2.24	0.48	7.06	1.68	16.00	6.00	24.00	9.00		118.92	306.10
Mundt, Torsten	29.02	22.93	1.52	43.89	10.63	2.76	0.19	7.20	5.70	19.00	3.00	33.00	10.00		123.84	309.66
May, Marianne	32.00	22.38	0.98	48.08	13.81	2.81	0.44	6.00	7.20	25.00	8.00	34.00	8.00		133.70	332.45
Barrera, Tony	30.00	23.86	0.51	46.94	11.20	3.05	0.33	1.59	1.59	19.00	13.00	31.00	6.00		119.07	305.51
Avis, Steve	30.75	20.40	1.05	31.75	11.97	2.00	0.32	6.60	4.94	18.00	4.00	15.00	0.00		109.78	279.63
Hills, Barry	27.50	22.56	0.42	33.30	15.30	2.20	0.14	7.05	1.96	23.00	15.00	14.00	0.00		110.43	270.71
Greenland, Paul	32.25	24.06	1.68	55.25	11.45	2.50	0.60	3.50	7.26	20.00	10.00	31.00	5.00		138.55	353.01
Rappmund, Scott	30.50	20.05	2.10	43.75	17.80	2.10	1.24	3.60	2.10	15.00	2.00	25.00	2.00		123.24	381.35
Kuipers, Jacques	35.75	23.68	2.03	40.50	12.89	2.90	0.30	0.00	0.00	25.00	6.00	21.00	11.00		118.05	338.31
Smith, Russell	36.00	25.40	2.30	39.42	11.26	2.40	1.15	4.50	4.50	22.00	16.00	25.00	12.00		126.93	391.15
Hill, Howard	32.50	22.45	1.09	39.94	13.30	1.68	0.29	2.62	1.50	26.00	18.00	23.00	6.00		115.37	288.36
MAXIMUM	36.00	25.40	2.30	55.25	17.80	3.05	1.24	7.20	7.26	26.00	18.00	34.00	12.00		138.55	391.15
MINIMUM	27.50	20.05	0.42	28.08	10.43	1.68	0.14	0.00	0.00	15.00	2.00	7.00	0.00		109.78	270.71
RANGE (MAX-MIN)	8.50	5.35	1.88	27.17	7.37	1.37	1.10	7.20	7.26	11.00	16.00	27.00	12.00		28.77	120.44
MEAN	31.44	22.83	1.27	40.83	12.82	2.41	0.46	4.70	3.55	20.69	9.46	23.62	6.38		120.32	318.60
STD	2.39	1.58	0.60	7.24	2.06	0.39	0.35	2.34	2.42	3.71	5.16	7.95	3.86		8.86	38.12



yi within 1 66%
 yi within 2 98%
 yi within 3 100%

PART ID = Piston B3 - two-piece

Yi VALUES

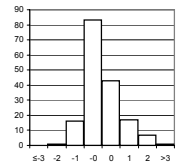
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD	MEAN	STD
Yanchar, Paul	-0.19	0.81	-0.48	-0.38	0.08	-0.41	-0.71	-0.02	-0.65	-1.00	0.49	0.05	0.16		-0.46	-0.63	-0.22	0.49
Castillo, George	0.02	0.66	-0.58	-1.76	-1.16	0.03	-0.36	0.88	0.89	0.89	0.10	-2.09	0.16		-1.16	-0.73	-0.28	0.96
Kobrinetz, Jack	-0.60	-1.13	-0.55	0.14	0.38	-0.43	0.04	1.01	-0.77	-1.27	-0.67	0.05	0.68		-0.16	-0.33	-0.24	0.64
Mundt, Torsten	-1.01	0.06	0.41	0.42	-1.06	0.90	-0.79	1.07	0.89	-0.46	-1.25	1.18	0.94		0.40	-0.23	0.10	0.84
May, Marianne	0.23	-0.29	-0.48	1.00	0.48	1.03	-0.07	0.56	1.51	1.16	-0.28	1.31	0.42		1.51	0.36	0.56	0.67
Barrera, Tony	-0.60	0.65	-1.27	0.84	-0.78	1.64	-0.39	-1.33	-0.81	-0.46	0.69	0.93	-0.10		-0.14	-0.34	-0.10	0.87
Avis, Steve	-0.29	-1.54	-0.37	-1.25	-0.41	-1.04	-0.42	0.81	0.58	-0.73	-1.06	-1.08	-1.65		-1.19	-1.02	-0.71	0.71
Hills, Barry	-1.65	-0.17	-1.41	-1.04	1.21	-0.53	-0.94	1.00	-0.65	0.62	1.07	-1.21	-1.65		-1.12	-1.26	-0.52	1.02
Greenland, Paul	0.34	0.78	0.68	1.99	-0.66	0.23	0.39	-0.51	1.53	-0.19	0.10	0.93	-0.36		2.06	0.90	0.55	0.85
Rappmund, Scott	-0.39	-1.76	1.38	0.40	2.42	-0.79	2.24	-0.47	-0.60	-1.54	-1.45	0.17	-1.14		0.33	1.65	0.03	1.36
Kuipers, Jacques	1.80	0.54	1.26	-0.05	0.04	1.26	-0.47	-2.01	-1.46	1.16	-0.67	-0.33	1.19		-0.26	0.52	0.17	1.08
Smith, Russell	1.91	1.63	1.71	-0.20	-0.76	-0.02	1.98	-0.09	0.39	0.35	1.27	0.17	1.45		0.75	1.90	0.83	0.91
Hill, Howard	0.44	-0.24	-0.30	-0.12	0.23	-1.86	-0.50	-0.89	-0.84	1.43	1.66	-0.08	-0.10		-0.56	-0.79	-0.17	0.88
Yi MAXIMUM	1.91	-1.76	1.71	1.99	2.42	-1.86	2.24	-2.01	1.53	-1.54	1.66	-2.09	-1.65		2.06	1.90	0.83	1.36
Yi MINIMUM	-0.19	0.06	-0.30	-0.05	0.04	-0.02	-0.07	-0.02	-0.60	-0.19	0.10	0.05	-0.10		-0.14	-0.23	-0.10	0.49
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Ratings MEAN	31.44	22.83	1.27	40.83	12.82	2.41	0.46	4.70	3.55	20.69	9.46	23.62	6.38		120.32	318.60		
Ratings STD	2.39	1.58	0.60	7.24	2.06	0.39	0.35	2.34	2.42	3.71	5.16	7.95	3.86		8.86	38.12		

Heavy Duty Diesel Rating Workshop

PART ID = Piston B4 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD
Yanchar, Paul	42.55	18.68	2.35	23.54	24.23	2.19	1.90	3.45	37.00	4.00	2.00	0.00			118.89	445.62
Mundt, Torsten	40.11	17.70	2.57	23.30	22.30	2.66	2.09	6.75	41.00	1.00	2.00	0.00			117.48	460.27
Kobrinetz, Jack	46.56	17.75	3.31	21.76	22.53	2.44	2.19	7.20	47.00	3.00	1.00	0.00			123.74	489.32
Castillo, George	39.79	16.99	2.89	21.60	22.99	2.24	2.12	2.85	38.00	8.00	0.00	0.00			111.47	453.77
May, Marianne	45.50	17.65	3.40	24.10	24.30	2.94	2.05	2.10	47.00	5.00	2.00	0.00			122.04	492.85
Avis, Steve	34.75	17.96	1.46	22.90	22.59	1.51	0.66	5.26	39.00	4.00	0.00	0.00			107.09	318.31
Foecking, Brian	43.08	18.79	3.04	23.13	24.13	2.28	2.09	1.80	40.00	5.00	1.00	2.00			118.34	471.65
Radonich, Pete	37.53	19.20	2.70	21.77	23.08	2.40	1.00	5.10	29.00	4.00	2.00	0.00			112.78	390.77
Barrera, Tony	54.33	19.00	2.64	20.95	24.90	2.60	1.52	4.50	59.00	9.00	1.00	0.00			130.44	461.81
Hills, Barry	44.00	20.55	1.60	23.64	23.87	2.15	1.40	0.45	35.00	14.50	2.00	0.00			117.66	404.35
Greenland, Paul	55.50	17.00	2.88	25.00	23.65	3.18	1.88	4.50	55.00	6.00	0.00	0.00			133.59	496.45
Kuipers, Jacques	29.00	24.00	2.95	27.60	22.00	3.62	3.05	0.00	12.00	6.00	6.00	0.00			112.22	538.00
Smith, Russell	55.26	23.01	2.65	30.65	27.61	2.39	1.55	1.50	45.00	9.00	11.00	1.00			144.62	488.33
Hill, Howard	53.67	17.05	1.70	19.30	22.20	1.90	0.65	1.50	55.00	12.00	1.00	0.00			117.97	356.89
MAXIMUM	55.50	24.00	3.40	30.65	27.61	3.62	3.05	7.20	59.00	14.50	11.00	2.00			144.62	538.00
MINIMUM	29.00	16.99	1.46	19.30	22.00	1.51	0.65	0.00	12.00	1.00	0.00	0.00			107.09	318.31
RANGE (MAX-MIN)	26.50	7.01	1.94	11.35	5.61	2.11	2.40	7.20	47.00	13.50	11.00	2.00			37.53	219.69
MEAN	44.40	18.95	2.58	23.52	23.60	2.46	1.73	3.35	41.36	6.46	2.21	0.21			120.60	447.74
STD	8.11	2.18	0.61	2.84	1.47	0.53	0.65	2.26	11.94	3.67	2.94	0.58			9.94	60.15



yi within 1 75%
 yi within 2 95%
 yi within 3 99%

PART ID = Piston B4 - two-piece

Yi VALUES

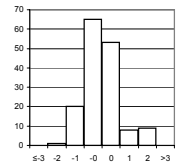
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD	MEAN	STD
Yanchar, Paul	-0.23	-0.12	-0.38	0.01	0.43	-0.52	0.27	0.04	-0.36	-0.67	-0.07	-0.37			-0.17	-0.04	-0.16	0.30
Mundt, Torsten	-0.53	-0.58	-0.02	-0.08	-0.88	0.37	0.56	1.50	-0.03	-1.49	-0.07	-0.37			-0.31	0.21	-0.12	0.70
Kobrinetz, Jack	0.27	-0.55	1.20	-0.62	-0.73	-0.05	0.71	1.70	0.47	-0.94	-0.41	-0.37			0.32	0.69	0.12	0.78
Castillo, George	-0.57	-0.90	0.51	-0.67	-0.41	-0.42	0.60	-0.22	-0.28	0.42	-0.75	-0.37			-0.92	0.10	-0.28	0.51
May, Marianne	0.14	-0.60	1.35	0.21	0.48	0.90	0.50	-0.55	0.47	-0.40	-0.07	-0.37			0.15	0.75	0.21	0.58
Avis, Steve	-1.19	-0.46	-1.84	-0.22	-0.69	-1.81	-1.63	0.84	-0.20	-0.67	-0.75	-0.37			-1.36	-2.15	-0.89	0.82
Foecking, Brian	-0.16	-0.07	0.75	-0.14	0.36	-0.35	0.56	-0.69	-0.11	-0.40	-0.41	3.08			-0.23	0.40	0.19	0.93
Radonich, Pete	-0.85	0.11	0.20	-0.62	-0.35	-0.12	-1.11	0.77	-1.03	-0.67	-0.07	-0.37			-0.79	-0.95	-0.42	0.54
Barrera, Tony	1.22	0.02	0.10	-0.90	0.89	0.26	-0.31	0.51	1.48	0.69	-0.41	-0.37			0.99	0.23	0.31	0.69
Hills, Barry	-0.05	0.73	-1.61	0.04	0.18	-0.59	-0.50	-1.28	-0.53	2.19	-0.07	-0.37			-0.30	-0.72	-0.21	0.91
Greenland, Paul	1.37	-0.90	0.49	0.52	0.04	1.35	0.24	0.51	1.14	-0.13	-0.75	-0.37			1.31	0.81	0.40	0.76
Kuipers, Jacques	-1.90	2.32	0.61	1.44	-1.09	2.19	2.03	-1.48	-2.46	-0.13	1.29	-0.37			-0.84	1.50	0.22	1.61
Smith, Russell	1.34	1.86	0.11	2.51	2.73	-0.14	-0.27	-0.82	0.31	0.69	2.99	1.36			2.42	0.67	1.13	1.23
Hill, Howard	1.14	-0.87	-1.45	-1.48	-0.95	-1.07	-1.65	-0.82	1.14	1.51	-0.41	-0.37			-0.26	-1.51	-0.50	1.06
Yi MAXIMUM	-1.90	2.32	-1.84	2.51	2.73	2.19	2.03	1.70	-2.46	2.19	2.99	3.08			2.42	-2.15	1.13	1.61
Yi MINIMUM	-0.05	-0.07	-0.02	0.01	-0.35	-0.05	0.24	0.04	-0.03	-0.13	-0.07	-0.37			-0.17	-0.04	-0.12	0.30
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Ratings MEAN	44.40	18.95	2.58	23.52	23.60	2.46	1.73	3.35	41.36	6.46	2.21	0.21			120.60	447.74		
Ratings STD	8.11	2.18	0.61	2.84	1.47	0.53	0.65	2.26	11.94	3.67	2.94	0.58			9.94	60.15		

Heavy Duty Diesel Rating Workshop

PART ID = Piston B5 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD
May, Marianne	43.52	10.86	3.77	25.08	36.76	7.77	1.76	2.10	52.00	2.00	3.00	2.00			131.62	593.48
Kobrinetz, Jack	41.53	8.54	3.22	24.09	35.90	8.04	2.18	7.50	37.00	1.00	2.00	2.00			131.00	603.97
Castillo, George	36.80	7.36	2.50	24.58	27.64	8.20	1.28	2.40	40.00	3.00	2.00	2.00			110.76	496.38
Mundt, Torsten	41.36	10.64	3.11	24.19	36.17	7.60	2.53	1.50	42.00	0.00	2.00	2.00			127.10	614.84
Avis, Steve	34.30	8.64	2.40	23.90	31.25	7.84	0.70	7.50	40.00	1.00	1.00	0.00			116.53	466.47
Foecking, Brian	35.52	9.07	3.33	23.89	33.54	8.38	2.14	2.10	38.00	2.00	2.00	3.00			117.97	587.46
Barrera, Tony	44.15	9.10	2.98	23.11	36.72	7.21	1.35	1.50	55.00	3.00	1.00	2.00			126.12	535.17
Hills, Barry	26.93	10.58	2.26	25.21	39.12	7.46	2.45	0.10	28.00	7.00	3.00	0.00			114.11	569.67
Smith, Russell	56.10	10.54	2.10	23.80	49.15	10.92	2.00	2.50	65.00	3.00	3.00	5.00			157.11	697.97
Greenland, Paul	38.25	7.65	2.98	24.85	34.31	7.92	2.25	2.40	45.00	2.00	2.00	2.00			120.61	582.63
Kuipers, Jacques	38.28	8.10	3.45	28.75	27.25	8.16	3.00	4.50	25.00	1.00	5.00	3.00			121.49	628.06
Rappmund, Scott	42.32	12.30	3.00	25.45	36.75	9.95	2.50	3.90	32.00	8.00	4.00	0.00			136.17	670.14
Hill, Howard	30.60	5.36	4.80	24.20	27.05	7.00	1.00	0.75	42.00	1.00	2.00	1.00			100.76	479.38
MAXIMUM	56.10	12.30	4.80	28.75	49.15	10.92	3.00	7.50	65.00	8.00	5.00	5.00			157.11	697.97
MINIMUM	26.93	5.36	2.10	23.11	27.05	7.00	0.70	0.10	25.00	0.00	1.00	0.00			100.76	466.47
RANGE (MAX-MIN)	29.17	6.94	2.70	5.64	22.10	3.92	2.30	7.40	40.00	8.00	4.00	5.00			56.35	231.50
MEAN	39.20	9.13	3.07	24.70	34.74	8.19	1.93	2.98	41.62	2.62	2.46	1.85			123.95	578.89
STD	7.18	1.84	0.71	1.38	5.93	1.09	0.68	2.31	10.95	2.36	1.13	1.41			13.81	69.82



yi within 1 76%
 yi within 2 94%
 yi within 3 100%

PART ID = Piston B5 - two-piece

Yi VALUES

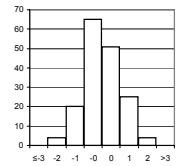
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD	MEAN	STD
May, Marianne	0.60	0.94	0.98	0.27	0.34	-0.38	-0.26	-0.38	0.95	-0.26	0.48	0.11			0.56	0.21	0.30	0.49
Kobrinetz, Jack	0.32	-0.32	0.21	-0.44	0.20	-0.14	0.36	1.96	-0.42	-0.68	-0.41	0.11			0.51	0.36	0.12	0.65
Castillo, George	-0.34	-0.96	-0.80	-0.09	-1.20	0.01	-0.97	-0.25	-0.15	0.16	-0.41	0.11			-0.96	-1.18	-0.50	0.49
Mundt, Torsten	0.30	0.82	0.06	-0.37	0.24	-0.54	0.88	-0.64	0.04	-1.11	-0.41	0.11			0.23	0.51	0.01	0.57
Avis, Steve	-0.68	-0.27	-0.94	-0.58	-0.59	-0.32	-1.83	1.96	-0.15	-0.68	-1.30	-1.31			-0.54	-1.61	-0.63	0.90
Foecking, Brian	-0.51	-0.03	0.37	-0.59	-0.20	0.18	0.31	-0.38	-0.33	-0.26	-0.41	0.82			-0.43	0.12	-0.10	0.41
Barrera, Tony	0.69	-0.02	-0.13	-1.15	0.33	-0.90	-0.86	-0.64	1.22	0.16	-1.30	0.11			0.16	-0.63	-0.21	0.73
Hills, Barry	-1.71	0.79	-1.13	0.37	0.74	-0.67	0.76	-1.25	-1.24	1.85	0.48	-1.31			-0.71	-0.13	-0.23	1.07
Smith, Russell	2.35	0.76	-1.36	-0.65	2.43	2.51	0.10	-0.21	2.14	0.16	0.48	2.24			2.40	1.71	1.08	1.33
Greenland, Paul	-0.13	-0.81	-0.13	0.11	-0.07	-0.25	0.47	-0.25	0.31	-0.26	-0.41	0.11			-0.24	0.05	-0.11	0.31
Kuipers, Jacques	-0.13	-0.56	0.53	2.93	-1.26	-0.03	1.58	0.66	-1.52	-0.68	2.25	0.82			-0.18	0.70	0.37	1.27
Rappmund, Scott	0.43	1.72	-0.10	0.54	0.34	1.62	0.84	0.40	-0.88	2.28	1.37	-1.31			0.88	1.31	0.67	0.99
Hill, Howard	-1.20	-2.05	2.43	-0.36	-1.30	-1.09	-1.38	-0.97	0.04	-0.68	-0.41	-0.60			-1.68	-1.43	-0.76	1.08
Yi MAXIMUM	2.35	-2.05	2.43	2.93	2.43	2.51	-1.83	1.96	2.14	2.28	2.25	2.24			2.40	1.71	1.08	1.33
Yi MINIMUM	-0.13	-0.02	0.06	-0.09	-0.07	-0.03	-0.26	-0.21	-0.15	-0.26	-0.41	0.11			0.16	0.05	0.01	0.31
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Ratings MEAN	39.20	9.13	3.07	24.70	34.74	8.19	1.93	2.98	41.62	2.62	2.46	1.85			123.95	578.89		
Ratings STD	7.18	1.84	0.71	1.38	5.93	1.09	0.68	2.31	10.95	2.36	1.13	1.41			13.81	69.82		

Heavy Duty Diesel Rating Workshop

PART ID = Piston B6 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD
Yanchar, Paul	45.50	11.20	2.23	42.25	18.71	1.42	0.08	5.85	5.40	42.00	2.00	23.00	0.00		132.64	309.33
May, Marianne	54.75	12.15	1.83	41.18	22.43	1.82	0.43	4.20	8.08	67.00	5.00	22.00	4.00		146.87	361.46
Kobrinetz, Jack	49.75	10.37	1.73	34.82	15.99	1.28	0.17	6.75	5.83	57.00	2.00	14.00	2.00		126.69	293.47
Castillo, George	45.20	10.76	2.07	27.52	14.73	1.58	0.06	6.75	6.30	55.00	6.00	4.00	3.00		114.97	280.89
Mundt, Torsten	49.75	11.87	2.50	46.00	23.52	1.92	0.31	4.80	5.70	53.00	1.00	28.00	1.00		146.37	366.32
Barrera, Tony	54.75	11.68	1.16	43.08	18.40	1.98	0.18	3.00	2.70	54.00	4.00	28.00	0.00		136.93	320.77
Pansza, Mike	44.00	10.50	2.40	46.00	14.59	1.02	0.20	4.50	5.85	46.00	6.00	28.00	0.00		129.06	297.10
Caproni, David	45.00	10.09	1.53	33.75	13.21	1.45	0.30	6.00	5.70	32.00	3.00	15.00	0.00		117.03	280.10
Hills, Barry	45.25	12.04	1.19	49.75	16.30	1.14	0.50	6.30	5.10	42.00	9.00	33.00	0.00		137.57	310.72
Kuipers, Jacques	46.50	9.99	2.90	38.50	13.43	1.28	1.00	4.80	5.70	34.00	1.00	18.00	0.00		124.10	353.01
Greenland, Paul	31.80	10.90	2.80	37.00	15.48	1.85	0.40	3.00	7.20	58.00	4.00	16.00	0.00		110.43	303.34
Smith, Russell	54.75	9.75	1.73	37.55	17.70	1.70	1.00	4.50	3.16	56.00	7.00	18.00	0.00		131.84	364.08
Hill, Howard	55.50	12.80	1.72	36.78	17.28	1.52	0.38	1.12	3.75	51.00	5.00	20.00	0.00		130.85	328.62
MAXIMUM	55.50	12.80	2.90	49.75	23.52	1.98	1.00	6.75	8.08	67.00	9.00	33.00	4.00		146.87	366.32
MINIMUM	31.80	9.75	1.16	27.52	13.21	1.02	0.06	1.12	2.70	32.00	1.00	4.00	0.00		110.43	280.10
RANGE (MAX-MIN)	23.70	3.05	1.74	22.23	10.31	0.96	0.94	5.63	5.38	35.00	8.00	29.00	4.00		36.44	86.22
MEAN	47.88	11.08	1.98	39.55	17.06	1.54	0.39	4.74	5.42	49.77	4.23	20.54	0.77		129.64	320.71
STD	6.52	0.95	0.56	5.98	3.15	0.31	0.30	1.66	1.50	10.05	2.42	7.70	1.36		11.15	31.35



yi within 1 69%
 yi within 2 95%
 yi within 3 100%

PART ID = Piston B6 - two-piece

Yi VALUES

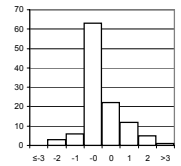
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD	MEAN	STD
Yanchar, Paul	-0.37	0.12	0.44	0.45	0.52	-0.38	-1.01	0.67	-0.01	-0.77	-0.92	0.32	-0.56		0.27	-0.36	-0.11	0.56
May, Marianne	1.05	1.12	-0.28	0.27	1.70	0.93	0.15	-0.32	1.77	1.71	0.32	0.19	2.37		1.55	1.30	0.92	0.83
Kobrinetz, Jack	0.29	-0.75	-0.45	-0.79	-0.34	-0.83	-0.71	1.22	0.27	0.72	-0.92	-0.85	0.90		-0.26	-0.87	-0.23	0.72
Castillo, George	-0.41	-0.34	0.15	-2.01	-0.74	0.15	-1.07	1.22	0.59	0.52	0.73	-2.15	1.64		-1.32	-1.27	-0.29	1.14
Mundt, Torsten	0.29	0.82	0.92	1.08	2.05	1.25	-0.25	0.04	0.19	0.32	-1.33	0.97	0.17		1.50	1.45	0.63	0.84
Barrera, Tony	1.05	0.62	-1.47	0.59	0.43	1.45	-0.68	-1.05	-1.81	0.42	-0.10	0.97	-0.56		0.65	0.00	0.03	0.96
Pansza, Mike	-0.60	-0.61	0.74	1.08	-0.78	-1.68	-0.61	-0.14	0.29	-0.38	0.73	0.97	-0.56		-0.05	-0.75	-0.16	0.78
Caproni, David	-0.44	-1.04	-0.81	-0.97	-1.22	-0.28	-0.28	0.76	0.19	-1.77	-0.51	-0.72	-0.56		-1.13	-1.30	-0.67	0.63
Hills, Barry	-0.40	1.00	-1.42	1.70	-0.24	-1.29	0.38	0.94	-0.21	-0.77	1.97	1.62	-0.56		0.71	-0.32	0.21	1.08
Kuipers, Jacques	-0.21	-1.15	1.64	-0.18	-1.15	-0.83	2.02	0.04	0.19	-1.57	-1.33	-0.33	-0.56		-0.50	1.03	-0.19	1.06
Greenland, Paul	-2.47	-0.19	1.46	-0.43	-0.50	1.03	0.05	-1.05	1.19	0.82	-0.10	-0.59	-0.56		-1.72	-0.55	-0.24	1.07
Smith, Russell	1.05	-1.40	-0.45	-0.33	0.20	0.54	2.02	-0.14	-1.51	0.62	1.14	-0.33	-0.56		0.20	1.38	0.16	0.99
Hill, Howard	1.17	1.80	-0.47	-0.46	0.07	-0.05	-0.02	-2.18	-1.11	0.12	0.32	-0.07	-0.56		0.11	0.25	-0.07	0.91
Yi MAXIMUM	-2.47	1.80	1.64	-2.01	2.05	-1.68	2.02	-2.18	-1.81	-1.77	1.97	-2.15	2.37		-1.72	1.45	0.92	1.14
Yi MINIMUM	-0.21	0.12	-0.28	-0.18	-0.24	-0.05	-0.02	-0.14	-0.01	-0.38	-0.10	-0.07	-0.56		-0.05	-0.32	-0.07	0.56
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Ratings MEAN	47.88	11.08	1.98	39.55	17.06	1.54	0.39	4.74	5.42	49.77	4.23	20.54	0.77		129.64	320.71		
Ratings STD	6.52	0.95	0.56	5.98	3.15	0.31	0.30	1.66	1.50	10.05	2.42	7.70	1.36		11.15	31.35		

Heavy Duty Diesel Rating Workshop

PART ID = Piston C1 - square cut

RATED VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 2	Land 3	Land 4	TGF							UWPD	WPD
Tschirhart, Garland	79.00	3.07	0.20	0.10	14.34	0.92	0.92	80.00							98.55	224.49
Radonich, Pete	68.50	3.41	0.20	0.10	10.55	1.00	1.25	68.00							85.01	217.28
Pansza, Mike	79.50	3.22	0.30	0.10	13.37	1.40	1.50	76.00							99.39	256.50
Lopez, Frank	70.00	5.91	0.68	0.10	10.78	1.47	1.22	68.00							90.16	269.73
Kobrinetz, Jack	64.80	3.41	0.20	0.10	9.08	0.67	0.64	61.00							78.90	180.48
May, Marianne	62.27	4.92	0.17	0.10	10.83	0.66	0.64	66.00							79.59	197.93
Castillo, George	68.25	3.53	0.17	0.19	10.18	0.89	0.86	64.00							84.07	206.33
Mundt, Torsten	69.75	3.66	0.31	0.09	10.02	1.15	1.04	63.00							86.02	217.97
Sanchez, Art	77.50	3.43	0.41	0.20	21.32	0.70	0.80	75.00							104.36	256.77
Langford, Mike	75.50	2.77	0.68	0.20	11.43	1.40	1.30	70.00							93.28	254.51
Rodriguez, Jesse	71.25	9.20	0.19	0.10	9.32	0.92	0.76	65.00							91.74	254.52
Viera, Ralph	69.00	3.29	0.29	0.13	8.22	0.72	0.61	67.00							82.26	185.67
Greenland, Paul	72.00	2.53	0.32	0.20	11.70	0.97	1.16	65.00							88.88	223.45
Kuipers, Jacques	56.25	1.68	0.25	0.00	10.16	2.15	2.10	44.00							72.59	233.86
MAXIMUM	79.50	9.20	0.68	0.20	21.32	2.15	2.10	80.00							104.36	269.73
MINIMUM	56.25	1.68	0.17	0.00	8.22	0.66	0.61	44.00							72.59	180.48
RANGE (MAX-MIN)	23.25	7.52	0.51	0.20	13.10	1.49	1.49	36.00							31.77	89.25
MEAN	70.26	3.86	0.31	0.12	11.52	1.07	1.06	66.57							88.20	227.11
STD	6.47	1.83	0.17	0.06	3.25	0.41	0.41	8.42							8.80	28.40



yi within 1 76%
 yi within 2 92%
 yi within 3 99%

PART ID = Piston C1 - square cut

Yi VALUES

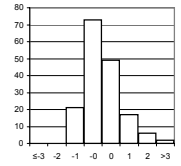
	Groove 1	Groove 2	Groove 3	Groove 4	Land 2	Land 3	Land 4	TGF							UWPD	WPD	MEAN	STD
Tschirhart, Garland	1.35	-0.43	-0.66	-0.39	0.87	-0.37	-0.34	1.60							1.18	-0.09	0.27	0.87
Radonich, Pete	-0.27	-0.25	-0.66	-0.39	-0.30	-0.18	0.47	0.17							-0.36	-0.35	-0.21	0.32
Pansza, Mike	1.43	-0.35	-0.07	-0.39	0.57	0.79	1.08	1.12							1.27	1.03	0.65	0.68
Lopez, Frank	-0.04	1.12	2.16	-0.39	-0.23	0.96	0.40	0.17							0.22	1.50	0.59	0.82
Kobrinetz, Jack	-0.84	-0.25	-0.66	-0.39	-0.75	-0.97	-1.02	-0.66							-1.06	-1.64	-0.82	0.39
May, Marianne	-1.23	0.58	-0.83	-0.39	-0.21	-1.00	-1.02	-0.07							-0.98	-1.03	-0.62	0.58
Castillo, George	-0.31	-0.18	-0.83	1.19	-0.41	-0.44	-0.48	-0.31							-0.47	-0.73	-0.30	0.56
Mundt, Torsten	-0.08	-0.11	-0.01	-0.56	-0.46	0.19	-0.04	-0.42							-0.25	-0.32	-0.21	0.24
Sanchez, Art	1.12	-0.23	0.57	1.37	3.02	-0.90	-0.63	1.00							1.84	1.04	0.82	1.18
Langford, Mike	0.81	-0.59	2.16	1.37	-0.03	0.79	0.59	0.41							0.58	0.96	0.70	0.74
Rodriguez, Jesse	0.15	2.91	-0.72	-0.39	-0.68	-0.37	-0.73	-0.19							0.40	0.97	0.14	1.12
Viera, Ralph	-0.19	-0.31	-0.13	0.14	-1.02	-0.85	-1.09	0.05							-0.67	-1.46	-0.55	0.54
Greenland, Paul	0.27	-0.73	0.05	1.37	0.06	-0.25	0.25	-0.19							0.08	-0.13	0.08	0.54
Kuipers, Jacques	-2.16	-1.19	-0.36	-2.14	-0.42	2.60	2.55	-2.68							-1.77	0.24	-0.53	1.88
Yi MAXIMUM	-2.16	2.91	2.16	-2.14	3.02	2.60	2.55	-2.68							1.84	-1.64	-0.82	1.88
Yi MINIMUM	-0.04	-0.11	-0.01	-0.39	-0.03	-0.18	-0.04	-0.07							-0.25	-0.09	-0.21	0.24
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00							1.00	1.00		
Ratings MEAN	70.26	3.86	0.31	0.12	11.52	1.07	1.06	66.57							88.20	227.11		
Ratings STD	6.47	1.83	0.17	0.06	3.25	0.41	0.41	8.42							8.80	28.40		

Heavy Duty Diesel Rating Workshop

PART ID = Piston C2 - keystone

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Upper Skirt	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD
Tschirhart, Garland	42.50	28.75	0.20	13.89	30.15	0.88	0.10	0.50	34.00	20.00	5.00	0.00			116.97	192.92
Pansza, Mike	35.75	33.25	0.90	22.90	23.40	0.53	0.00	0.75	31.00	22.00	2.00	0.00			117.48	200.55
Radonich, Pete	38.75	32.50	0.26	17.14	26.55	0.61	0.20	0.63	29.00	15.00	5.00	0.00			116.64	194.92
Lopez, Frank	34.00	55.00	0.85	18.62	23.96	1.35	0.31	1.68	29.00	48.00	1.00	0.00			135.77	280.18
Kobrinetz, Jack	40.25	63.08	0.42	13.27	25.81	0.42	0.13	0.54	34.00	57.00	0.00	11.00			143.92	232.38
May, Marianne	38.75	66.25	0.34	11.80	26.50	0.56	0.08	1.12	34.00	64.00	1.00	9.00			145.40	244.70
Castillo, George	37.50	66.25	0.74	11.87	24.26	0.86	0.24	0.82	36.00	66.00	1.00	6.00			142.54	260.16
Mundt, Torsten	39.75	66.25	0.27	14.88	35.01	0.34	0.06	0.54	35.00	59.00	1.00	0.00			157.10	237.94
Langford, Mike	46.50	67.00	0.60	16.09	32.05	0.86	0.10	1.00	30.00	65.00	1.00	0.00			164.20	279.89
Sanchez, Art	46.75	76.00	0.32	16.24	38.57	1.11	1.20	0.72	60.00	77.00	7.00	8.00			180.91	349.09
Viera, Ralph	46.25	65.50	0.36	13.68	26.63	0.38	0.07	0.75	40.00	62.00	0.00	7.00			153.62	244.94
Rodriguez, Jesse	36.25	67.00	0.30	10.69	34.00	0.98	0.32	0.85	22.00	70.00	1.00	0.00			150.39	264.57
Kuipers, Jacques	45.00	64.00	1.30	9.29	30.52	0.84	0.08	0.80	33.00	30.00	1.00	0.00			151.83	276.81
Greenland, Paul	46.00	66.25	0.58	8.91	31.75	0.43	0.20	0.80	35.00	63.00	1.00	7.00			154.92	260.29
MAXIMUM	46.75	76.00	1.30	22.90	38.57	1.35	1.20	1.68	60.00	77.00	7.00	11.00			180.91	349.09
MINIMUM	34.00	28.75	0.20	8.91	23.40	0.34	0.00	0.50	22.00	15.00	0.00	0.00			116.64	192.92
RANGE (MAX-MIN)	12.75	47.25	1.10	13.99	15.17	1.01	1.20	1.18	38.00	62.00	7.00	11.00			64.27	156.17
MEAN	41.00	58.36	0.53	14.23	29.23	0.73	0.22	0.82	34.43	51.29	1.93	3.43			145.12	251.38
STD	4.45	15.20	0.32	3.81	4.64	0.30	0.30	0.30	8.48	20.64	2.13	4.26			18.59	41.12



yi within 1 73%
 yi within 2 95%
 yi within 3 99%

PART ID = Piston C2 - keystone

Yi VALUES

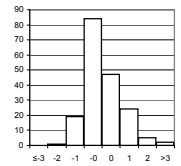
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Upper Skirt	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD	MEAN	STD
Tschirhart, Garland	0.34	-1.95	-1.05	-0.09	0.20	0.51	-0.41	-1.07	-0.05	-1.52	1.44	-0.81			-1.51	-1.42	-0.53	0.96
Pansza, Mike	-1.18	-1.65	1.16	2.27	-1.26	-0.64	-0.74	-0.24	-0.40	-1.42	0.03	-0.81			-1.49	-1.24	-0.54	1.10
Radonich, Pete	-0.51	-1.70	-0.86	0.76	-0.58	-0.38	-0.07	-0.64	-0.64	-1.76	1.44	-0.81			-1.53	-1.37	-0.62	0.90
Lopez, Frank	-1.57	-0.22	1.00	1.15	-1.14	2.05	0.30	2.85	-0.64	-0.16	-0.44	-0.81			-0.50	0.70	0.18	1.24
Kobrinetz, Jack	-0.17	0.31	-0.35	-0.25	-0.74	-1.00	-0.30	-0.93	-0.05	0.28	-0.91	1.78			-0.06	-0.46	-0.20	0.71
May, Marianne	-0.51	0.52	-0.60	-0.64	-0.59	-0.54	-0.47	0.99	-0.05	0.62	-0.44	1.31			0.02	-0.16	-0.04	0.65
Castillo, George	-0.79	0.52	0.66	-0.62	-1.07	0.44	0.06	0.00	0.19	0.71	-0.44	0.60			-0.14	0.21	0.02	0.57
Mundt, Torsten	-0.28	0.52	-0.82	0.17	1.25	-1.27	-0.54	-0.93	0.07	0.37	-0.44	-0.81			0.64	-0.33	-0.17	0.71
Langford, Mike	1.24	0.57	0.22	0.49	0.61	0.44	-0.41	0.59	-0.52	0.66	-0.44	-0.81			1.03	0.69	0.31	0.62
Sanchez, Art	1.29	1.16	-0.67	0.53	2.01	1.27	3.29	-0.34	3.01	1.25	2.38	1.07			1.93	2.38	1.47	1.14
Viera, Ralph	1.18	0.47	-0.54	-0.15	-0.56	-1.13	-0.51	-0.24	0.66	0.52	-0.91	0.84			0.46	-0.16	0.00	0.70
Rodriguez, Jesse	-1.07	0.57	-0.73	-0.93	1.03	0.84	0.33	0.09	-1.47	0.91	-0.44	-0.81			0.28	0.32	-0.08	0.82
Kuipers, Jacques	0.90	0.37	2.42	-1.30	0.28	0.38	-0.47	-0.07	-0.17	-1.03	-0.44	-0.81			0.36	0.62	0.07	0.93
Greenland, Paul	1.12	0.52	0.15	-1.40	0.54	-0.97	-0.07	-0.07	0.07	0.57	-0.44	0.84			0.53	0.22	0.12	0.69
Yi MAXIMUM	-1.57	-1.95	2.42	2.27	2.01	2.05	3.29	2.85	3.01	-1.76	2.38	1.78			1.93	2.38	1.47	1.24
Yi MINIMUM	-0.17	-0.22	-0.35	-0.09	0.20	-0.38	-0.07	0.00	-0.05	-0.16	0.03	-0.81			-0.06	-0.16	0.00	0.57
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Ratings MEAN	41.00	58.36	0.53	14.23	29.23	0.73	0.22	0.82	34.43	51.29	1.93	3.43			145.12	251.38		
Ratings STD	4.45	15.20	0.32	3.81	4.64	0.30	0.30	0.30	8.48	20.64	2.13	4.26			18.59	41.12		

Heavy Duty Diesel Rating Workshop

PART ID = Piston C3 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD
Lopez, Frank	27.00	5.55	0.90	36.86	3.63	2.17	0.72	1.96	5.18	14.00	0.00	22.00	0.00		83.97	227.55
Tschirhart, Garland	29.20	4.77	0.30	42.45	4.85	1.19	0.30	4.50	6.00	9.00	0.00	35.00	0.00		93.56	185.01
Pansza, Mike	27.25	5.09	1.12	30.37	5.55	2.25	1.30	2.25	2.10	9.00	1.00	15.00	0.00		77.28	265.49
Radonich, Pete	28.25	5.73	0.98	34.12	5.02	1.85	0.20	4.50	3.01	10.00	0.50	25.00	0.00		83.66	197.48
Castillo, George	28.25	4.96	1.16	21.82	5.85	2.54	0.92	5.40	5.70	10.00	1.00	8.00	0.00		76.60	248.20
May, Marianne	28.75	7.30	1.41	33.28	8.30	2.56	0.95	3.30	7.20	12.00	1.00	25.00	1.00		93.05	280.88
Kobrinetz, Jack	27.50	5.49	0.77	26.16	7.35	2.59	0.74	5.71	1.60	12.00	0.10	13.00	1.00		77.91	237.79
Mundt, Torsten	28.50	5.10	1.16	26.14	4.94	2.80	0.58	3.90	1.50	8.00	0.00	17.00	3.00		74.62	231.91
Langford, Mike	29.25	6.48	0.97	34.00	6.52	1.43	0.70	1.50	1.80	5.00	0.00	12.00	0.00		82.65	223.90
Viera, Ralph	28.39	5.81	1.12	34.49	6.20	2.54	0.28	4.20	4.96	16.00	1.00	15.00	2.00		87.99	223.98
Sanchez, Art	30.75	4.24	0.76	42.85	5.06	1.85	1.27	7.50	7.19	43.00	1.00	27.00	2.00		101.47	271.75
Greenland, Paul	49.75	4.95	1.33	42.25	4.53	2.73	0.65	3.00	7.20	9.00	0.00	23.00	0.00		116.39	296.99
Rodriguez, Jesse	27.25	7.28	0.87	29.53	5.37	2.48	0.85	2.10	1.65	5.00	1.00	15.00	0.00		77.38	242.91
Kuipers, Jacques	26.75	5.98	2.00	30.25	4.45	2.10	1.15	5.40	3.90	12.00	0.00	7.00	0.00		81.98	273.39
MAXIMUM	49.75	7.30	2.00	42.85	8.30	2.80	1.30	7.50	7.20	43.00	1.00	35.00	3.00		116.39	296.99
MINIMUM	26.75	4.24	0.30	21.82	3.63	1.19	0.20	1.50	1.50	5.00	0.00	7.00	0.00		74.62	185.01
RANGE (MAX-MIN)	23.00	3.06	1.70	21.03	4.67	1.61	1.10	6.00	5.70	38.00	1.00	28.00	3.00		41.77	111.98
MEAN	29.77	5.62	1.06	33.18	5.54	2.22	0.76	3.94	4.21	12.43	0.47	18.50	0.64		86.32	243.37
STD	5.85	0.90	0.39	6.42	1.23	0.49	0.35	1.71	2.26	9.31	0.49	7.92	1.01		11.58	31.84



yi within 1 72%
 yi within 2 96%
 yi within 3 99%

PART ID = Piston C3 - two-piece

Yi VALUES

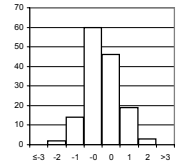
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD	MEAN	STD
Lopez, Frank	-0.47	-0.08	-0.42	0.57	-1.56	-0.10	-0.11	-1.16	0.43	0.17	-0.96	0.44	-0.64		-0.20	-0.50	-0.31	0.61
Tschirhart, Garland	-0.10	-0.95	-1.97	1.44	-0.57	-2.11	-1.31	0.32	0.79	-0.37	-0.96	2.08	-0.64		0.63	-1.83	-0.37	1.24
Pansza, Mike	-0.43	-0.59	0.15	-0.44	0.00	0.06	1.56	-0.99	-0.94	-0.37	1.07	-0.44	-0.64		-0.78	0.69	-0.14	0.74
Radonich, Pete	-0.26	0.12	-0.21	0.15	-0.43	-0.76	-1.60	0.32	-0.53	-0.26	0.06	0.82	-0.64		-0.23	-1.44	-0.33	0.63
Castillo, George	-0.26	-0.74	0.26	-1.77	0.25	0.66	0.47	0.85	0.66	-0.26	1.07	-1.33	-0.64		-0.84	0.15	-0.10	0.83
May, Marianne	-0.18	1.86	0.91	0.02	2.24	0.70	0.55	-0.38	1.32	-0.05	1.07	0.82	0.35		0.58	1.18	0.73	0.74
Kobrinetz, Jack	-0.39	-0.15	-0.75	-1.09	1.47	0.76	-0.05	1.03	-1.16	-0.05	-0.75	-0.69	0.35		-0.73	-0.18	-0.16	0.78
Mundt, Torsten	-0.22	-0.58	0.26	-1.10	-0.49	1.19	-0.51	-0.03	-1.20	-0.48	-0.96	-0.19	2.34		-1.01	-0.36	-0.22	0.93
Langford, Mike	-0.09	0.95	-0.24	0.13	0.79	-1.62	-0.17	-1.43	-1.07	-0.80	-0.96	-0.82	-0.64		-0.32	-0.61	-0.46	0.73
Viera, Ralph	-0.24	0.21	0.15	0.20	0.53	0.66	-1.37	0.15	0.33	0.38	1.07	-0.44	1.35		0.14	-0.61	0.17	0.66
Sanchez, Art	0.17	-1.53	-0.78	1.51	-0.39	-0.76	1.47	2.07	1.32	3.28	1.07	1.07	1.35		1.31	0.89	0.80	1.25
Greenland, Paul	3.42	-0.75	0.70	1.41	-0.83	1.04	-0.31	-0.55	1.32	-0.37	-0.96	0.57	-0.64		2.60	1.68	0.56	1.35
Rodriguez, Jesse	-0.43	1.84	-0.49	-0.57	-0.14	0.53	0.26	-1.08	-1.14	-0.80	1.07	-0.44	-0.64		-0.77	-0.01	-0.19	0.82
Kuipers, Jacques	-0.52	0.40	2.44	-0.46	-0.89	-0.25	1.13	0.85	-0.14	-0.05	-0.96	-1.45	-0.64		-0.38	0.94	0.00	1.00
Yi MAXIMUM	3.42	1.86	2.44	-1.77	2.24	-2.11	-1.60	2.07	1.32	3.28	1.07	2.08	2.34		2.60	-1.83	0.80	1.35
Yi MINIMUM	-0.09	-0.08	-0.21	-0.44	-0.14	-0.10	-0.05	-0.03	-0.14	-0.05	-0.75	-0.19	-0.64		-0.20	-0.01	-0.10	0.61
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Ratings MEAN	29.77	5.62	1.06	33.18	5.54	2.22	0.76	3.94	4.21	12.43	0.47	18.50	0.64		86.32	243.37		
Ratings STD	5.85	0.90	0.39	6.42	1.23	0.49	0.35	1.71	2.26	9.31	0.49	7.92	1.01		11.58	31.84		

Heavy Duty Diesel Rating Workshop

PART ID = Piston C4 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD
Tschirhart, Garland	49.75	19.40	0.90	23.95	30.60	1.80	0.35	4.50	37.00	3.00	5.00	0.00			131.25	352.95
Pansza, Mike	33.25	16.98	1.24	21.41	27.05	2.95	1.62	4.50	38.00	6.00	3.00	0.00			109.00	405.50
Lopez, Frank	36.25	18.78	1.34	23.30	30.12	2.11	0.68	0.50	38.00	4.00	2.00	0.00			113.08	352.80
May, Marianne	40.00	18.65	1.88	22.86	28.47	2.75	0.98	3.90	40.00	4.00	2.00	1.00			119.49	399.52
Radonich, Pete	47.25	18.85	1.16	22.10	27.65	2.19	0.20	4.50	42.00	4.00	2.00	0.00			123.90	339.60
Castillo, George	40.50	15.62	1.65	22.22	26.58	2.44	1.20	3.60	39.00	4.00	2.00	0.00			113.81	387.22
Kobrinetz, Jack	46.50	17.54	2.30	22.51	26.89	2.25	1.13	8.93	36.00	1.00	1.00	0.00			128.05	416.53
Foecking, Brian	40.25	17.42	1.62	22.64	27.54	3.25	1.19	4.61	34.00	3.00	2.00	0.00			118.52	411.43
Viera, Ralph	47.50	17.77	1.68	22.03	26.65	2.15	1.62	7.20	45.00	4.00	2.00	1.00			126.60	431.29
Langford, Mike	50.00	17.14	1.36	23.05	30.53	2.67	0.81	5.40	35.00	2.00	2.00	1.00			130.96	400.66
Rodriguez, Jesse	48.00	14.85	1.72	23.42	27.76	2.18	0.96	5.70	40.00	4.00	3.00	0.00			124.59	388.55
Sanchez, Art	53.25	15.07	1.25	24.48	34.66	2.77	0.99	6.90	43.00	3.00	5.00	1.00			139.37	426.87
MAXIMUM	53.25	19.40	2.30	24.48	34.66	3.25	1.62	8.93	45.00	6.00	5.00	1.00			139.37	431.29
MINIMUM	33.25	14.85	0.90	21.41	26.58	1.80	0.20	0.50	34.00	1.00	1.00	0.00			109.00	339.60
RANGE (MAX-MIN)	20.00	4.55	1.40	3.07	8.08	1.45	1.42	8.43	11.00	5.00	4.00	1.00			30.37	91.69
MEAN	44.38	17.34	1.51	22.83	28.71	2.46	0.98	5.02	38.92	3.50	2.58	0.33			123.22	392.74
STD	6.15	1.51	0.38	0.87	2.39	0.42	0.43	2.11	3.29	1.24	1.24	0.49			8.80	29.98



yi within 1 74%
 yi within 2 97%
 yi within 3 100%

PART ID = Piston C4 - two-piece

Yi VALUES

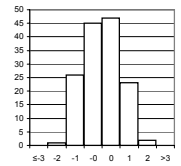
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD	MEAN	STD
Tschirhart, Garland	0.87	1.37	-1.62	1.29	0.79	-1.57	-1.45	-0.25	-0.58	-0.40	1.95	-0.68			0.91	-1.33	-0.05	1.22
Pansza, Mike	-1.81	-0.24	-0.71	-1.64	-0.70	1.17	1.49	-0.25	-0.28	2.01	0.34	-0.68			-1.62	0.43	-0.18	1.17
Lopez, Frank	-1.32	0.96	-0.45	0.54	0.59	-0.83	-0.69	-2.14	-0.28	0.40	-0.47	-0.68			-1.15	-1.33	-0.49	0.87
May, Marianne	-0.71	0.87	0.99	0.03	-0.10	0.69	0.01	-0.53	0.33	0.40	-0.47	1.35			-0.42	0.23	0.19	0.62
Radonich, Pete	0.47	1.00	-0.93	-0.84	-0.44	-0.64	-1.80	-0.25	0.94	0.40	-0.47	-0.68			0.08	-1.77	-0.35	0.87
Castillo, George	-0.63	-1.14	0.38	-0.70	-0.89	-0.05	0.51	-0.67	0.03	0.40	-0.47	-0.68			-1.07	-0.18	-0.37	0.55
Kobrinetz, Jack	0.35	0.13	2.11	-0.37	-0.76	-0.50	0.35	1.86	-0.89	-2.01	-1.28	-0.68			0.55	0.79	-0.02	1.14
Foecking, Brian	-0.67	0.05	0.30	-0.22	-0.49	1.88	0.49	-0.19	-1.50	-0.40	-0.47	-0.68			-0.53	0.62	-0.13	0.79
Viera, Ralph	0.51	0.29	0.46	-0.92	-0.86	-0.74	1.49	1.03	1.85	0.40	-0.47	1.35			0.38	1.29	0.43	0.91
Langford, Mike	0.91	-0.13	-0.39	0.25	0.76	0.50	-0.39	0.18	-1.19	-1.21	-0.47	1.35			0.88	0.26	0.09	0.77
Rodriguez, Jesse	0.59	-1.65	0.56	0.68	-0.40	-0.67	-0.04	0.32	0.33	0.40	0.34	-0.68			0.16	-0.14	-0.01	0.65
Sanchez, Art	1.44	-1.50	-0.69	1.90	2.50	0.74	0.03	0.89	1.24	-0.40	1.95	1.35			1.84	1.14	0.89	1.14
Yi MAXIMUM	-1.81	-1.65	2.11	1.90	2.50	1.88	-1.80	-2.14	1.85	2.01	1.95	1.35			1.84	-1.77	0.89	1.22
Yi MINIMUM	-0.63	-0.13	-0.39	0.03	-0.10	-0.05	-0.04	-0.19	-0.28	-0.40	0.34	-0.68			-0.42	-0.14	-0.01	0.55
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Ratings MEAN	44.38	17.34	1.51	22.83	28.71	2.46	0.98	5.02	38.92	3.50	2.58	0.33			123.22	392.74		
Ratings STD	6.15	1.51	0.38	0.87	2.39	0.42	0.43	2.11	3.29	1.24	1.24	0.49			8.80	29.98		

Heavy Duty Diesel Rating Workshop

PART ID = Piston C5 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD
Pansza, Mike	35.80	8.14	3.30	33.89	25.82	5.00	1.70	1.50	33.00	4.00	17.00	0.00			115.15	476.87
Lopez, Frank	31.58	9.27	1.13	32.27	23.74	6.16	1.58	2.20	25.00	1.00	14.00	1.00			107.93	437.26
Tschirhart, Garland	36.75	9.12	4.05	33.20	32.40	5.50	1.00	1.50	38.00	1.00	20.00	0.00			123.52	483.76
May, Marianne	44.08	10.58	5.03	30.80	28.52	6.62	2.10	7.50	55.00	2.00	14.00	7.00			135.23	602.76
Radonich, Pete	34.05	10.33	2.10	33.69	30.90	5.91	1.00	1.50	30.00	2.50	19.00	0.00			119.48	447.18
Kobrinetz, Jack	40.92	9.42	3.34	28.21	30.17	6.23	2.11	7.50	42.00	1.00	11.00	6.00			127.90	554.32
Avis, Steve	31.12	8.77	2.70	29.58	25.82	6.07	0.70	7.50	30.00	1.00	12.00	2.00			112.26	420.49
Foecking, Brian	33.74	11.27	2.16	31.38	32.03	6.11	1.93	4.20	39.00	1.00	16.00	5.00			122.82	514.16
Viera, Ralph	40.76	9.65	4.23	30.71	32.90	6.38	1.77	2.50	35.00	3.00	14.00	6.00			128.90	560.78
Langford, Mike	39.20	10.55	2.80	32.21	32.34	6.55	1.50	2.70	40.00	0.00	14.00	8.00			127.85	518.98
Sanchez, Art	34.05	8.23	1.83	31.33	31.64	5.18	1.01	7.50	34.00	1.00	18.00	7.00			120.77	427.34
Rodriguez, Jesse	47.50	11.39	2.62	31.23	31.92	6.84	2.15	7.50	37.00	2.00	16.00	6.00			141.15	581.86
MAXIMUM	47.50	11.39	5.03	33.89	32.90	6.84	2.15	7.50	55.00	4.00	20.00	8.00			141.15	602.76
MINIMUM	31.12	8.14	1.13	28.21	23.74	5.00	0.70	1.50	25.00	0.00	11.00	0.00			107.93	420.49
RANGE (MAX-MIN)	16.38	3.25	3.90	5.68	9.16	1.84	1.45	6.00	30.00	4.00	9.00	8.00			33.22	182.27
MEAN	37.46	9.73	2.94	31.54	29.85	6.05	1.55	4.47	36.50	1.63	15.42	4.00			123.58	502.15
STD	5.10	1.10	1.11	1.66	3.12	0.57	0.51	2.77	7.57	1.11	2.75	3.13			9.43	62.91



yi within 1 64%
 yi within 2 98%
 yi within 3 100%

PART ID = Piston C5 - two-piece

Yi VALUES

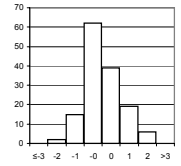
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	TGF	2nd GF	TLHC, %	TLFC, %			UWPD	WPD	MEAN	STD
Pansza, Mike	-0.33	-1.44	0.32	1.42	-1.29	-1.84	0.30	-1.07	-0.46	2.14	0.58	-1.28			-0.89	-0.40	-0.30	1.14
Lopez, Frank	-1.15	-0.42	-1.63	0.44	-1.96	0.20	0.07	-0.82	-1.52	-0.56	-0.52	-0.96			-1.66	-1.03	-0.82	0.74
Tschirhart, Garland	-0.14	-0.55	1.00	1.00	0.82	-0.96	-1.08	-1.07	0.20	-0.56	1.67	-1.28			-0.01	-0.29	-0.09	0.92
May, Marianne	1.30	0.78	1.88	-0.45	-0.43	1.01	1.10	1.09	2.44	0.34	-0.52	0.96			1.23	1.60	0.88	0.88
Radonich, Pete	-0.67	0.55	-0.76	1.30	0.34	-0.24	-1.08	-1.07	-0.86	0.79	1.31	-1.28			-0.43	-0.87	-0.21	0.90
Kobrinetz, Jack	0.68	-0.28	0.36	-2.01	0.10	0.32	1.12	1.09	0.73	-0.56	-1.61	0.64			0.46	0.83	0.13	0.95
Avis, Steve	-1.24	-0.87	-0.22	-1.18	-1.29	0.04	-1.67	1.09	-0.86	-0.56	-1.24	-0.64			-1.20	-1.30	-0.80	0.72
Foecking, Brian	-0.73	1.41	-0.70	-0.10	0.70	0.11	0.76	-0.10	0.33	-0.56	0.21	0.32			-0.08	0.19	0.13	0.59
Viera, Ralph	0.65	-0.07	1.16	-0.50	0.98	0.59	0.44	-0.71	-0.20	1.24	-0.52	0.64			0.56	0.93	0.37	0.65
Langford, Mike	0.34	0.75	-0.13	0.40	0.80	0.89	-0.09	-0.64	0.46	-1.46	-0.52	1.28			0.45	0.27	0.20	0.72
Sanchez, Art	-0.67	-1.36	-1.00	-0.13	0.57	-1.53	-1.06	1.09	-0.33	-0.56	0.94	0.96			-0.30	-1.19	-0.33	0.90
Rodriguez, Jesse	1.97	1.51	-0.29	-0.19	0.66	1.40	1.19	1.09	0.07	0.34	0.21	0.64			1.86	1.27	0.84	0.74
Yi MAXIMUM	1.97	1.51	1.88	-2.01	-1.96	-1.84	-1.67	1.09	2.44	2.14	1.67	1.28			1.86	1.60	0.88	1.14
Yi MINIMUM	-0.14	-0.07	-0.13	-0.10	-0.43	-0.24	0.07	-0.10	-0.20	-0.56	-0.52	-0.64			-0.01	-0.29	-0.09	0.59
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Ratings MEAN	37.46	9.73	2.94	31.54	29.85	6.05	1.55	4.47	36.50	1.63	15.42	4.00			123.58	502.15		
Ratings STD	5.10	1.10	1.11	1.66	3.12	0.57	0.51	2.77	7.57	1.11	2.75	3.13			9.43	62.91		

Heavy Duty Diesel Rating Workshop

PART ID = Piston C6 - two-piece

RATED VALUES

	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD
Pansza, Mike	51.50	12.93	2.72	29.41	12.52	2.16	0.80	3.00	4.50	44.00	12.00	9.00	0.00		119.54	359.61
Tschirhart, Garland	52.50	13.54	1.95	41.35	21.65	0.69	0.30	1.50	7.45	40.00	5.00	25.00	0.00		140.93	327.95
Lopez, Frank	45.75	13.78	2.20	29.42	18.07	2.42	0.32	1.50	10.00	40.00	4.00	7.00	0.00		123.46	334.57
Radonich, Pete	51.75	13.55	2.07	32.00	14.38	1.92	0.25	4.50	5.53	44.00	3.00	12.00	0.00		125.95	321.36
May, Marianne	57.00	15.17	3.34	31.92	17.27	3.03	0.37	2.70	10.70	59.00	3.00	11.00	4.00		141.50	400.89
Kobrinetz, Jack	50.00	13.22	2.41	28.08	15.42	2.12	0.67	6.44	9.82	53.00	5.00	5.00	5.00		128.18	356.15
Viera, Ralph	48.50	12.72	2.33	35.85	17.41	2.78	0.38	6.90	12.13	55.00	9.00	17.00	2.00		139.00	361.21
Rodriguez, Jesse	57.75	13.48	2.01	28.85	15.78	2.10	0.16	4.30	11.52	63.00	11.00	7.00	0.00		135.95	333.99
Langford, Mike	52.25	13.05	2.20	28.60	19.03	1.77	0.58	1.66	9.01	50.00	6.00	6.00	0.00		128.15	349.71
Sanchez, Art	60.25	15.70	2.22	28.61	15.58	2.14	0.59	6.60	7.72	42.00	5.00	8.00	2.00		139.41	376.01
Hills, Barry	31.75	14.05	1.35	25.52	16.44	1.28	0.34	6.60	5.10	29.00	7.40	5.00	0.00		102.43	262.64
MAXIMUM	60.25	15.70	3.34	41.35	21.65	3.03	0.80	6.90	12.13	63.00	12.00	25.00	5.00		141.50	400.89
MINIMUM	31.75	12.72	1.35	25.52	12.52	0.69	0.16	1.50	4.50	29.00	3.00	5.00	0.00		102.43	262.64
RANGE (MAX-MIN)	28.50	2.98	1.99	15.83	9.13	2.34	0.64	5.40	7.63	34.00	9.00	20.00	5.00		39.07	138.25
MEAN	50.82	13.74	2.25	30.87	16.69	2.04	0.43	4.15	8.50	47.18	6.40	10.18	1.18		129.50	344.01
STD	7.59	0.93	0.49	4.38	2.44	0.65	0.20	2.21	2.64	9.87	3.09	6.06	1.83		11.79	35.44



yi within 1 71%
 yi within 2 94%
 yi within 3 100%

PART ID = Piston C6 - two-piece

Yi VALUES

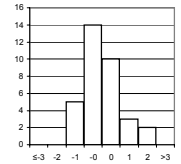
	Groove 1	Groove 2	Groove 3	Land 1	Land 2	Land 3	Land 4	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %		UWPD	WPD	MEAN	STD
Pansza, Mike	0.09	-0.88	0.94	-0.33	-1.71	0.19	1.86	-0.52	-1.52	-0.32	1.81	-0.19	-0.64		-0.84	0.44	-0.11	1.05
Tschirhart, Garland	0.22	-0.22	-0.62	2.39	2.04	-2.08	-0.67	-1.20	-0.40	-0.73	-0.45	2.44	-0.64		0.97	-0.45	0.04	1.34
Lopez, Frank	-0.67	0.04	-0.11	-0.33	0.57	0.59	-0.57	-1.20	0.57	-0.73	-0.78	-0.52	-0.64		-0.51	-0.27	-0.30	0.54
Radonich, Pete	0.12	-0.21	-0.37	0.26	-0.95	-0.18	-0.92	0.16	-1.13	-0.32	-1.10	0.30	-0.64		-0.30	-0.64	-0.40	0.49
May, Marianne	0.81	1.54	2.20	0.24	0.24	1.53	-0.32	-0.66	0.84	1.20	-1.10	0.13	1.54		1.02	1.61	0.72	0.94
Kobrinetz, Jack	-0.11	-0.57	0.31	-0.64	-0.52	0.13	1.20	1.04	0.50	0.59	-0.45	-0.85	2.08		-0.11	0.34	0.20	0.80
Viera, Ralph	-0.31	-1.11	0.15	1.14	0.30	1.15	-0.27	1.25	1.38	0.79	0.84	1.12	0.45		0.81	0.49	0.54	0.70
Rodriguez, Jesse	0.91	-0.29	-0.50	-0.46	-0.37	0.10	-1.38	0.07	1.15	1.60	1.49	-0.52	-0.64		0.55	-0.28	0.09	0.86
Langford, Mike	0.19	-0.75	-0.11	-0.52	0.96	-0.41	0.74	-1.13	0.19	0.29	-0.13	-0.69	-0.64		-0.11	0.16	-0.13	0.57
Sanchez, Art	1.24	2.11	-0.07	-0.52	-0.45	0.16	0.80	1.11	-0.30	-0.53	-0.45	-0.36	0.45		0.84	0.90	0.33	0.81
Hills, Barry	-2.51	0.33	-1.83	-1.22	-0.10	-1.17	-0.47	1.11	-1.29	-1.84	0.32	-0.85	-0.64		-2.30	-2.30	-0.98	1.08
Yi MAXIMUM	-2.51	2.11	2.20	2.39	2.04	-2.08	1.86	1.25	-1.52	-1.84	1.81	2.44	2.08		-2.30	-2.30	-0.98	1.34
Yi MINIMUM	0.09	-0.21	-0.07	-0.33	-0.10	-0.18	-0.27	-0.52	-0.30	-0.32	-0.13	-0.19	-0.64		-0.11	-0.27	-0.11	0.49
Yi MEAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		
Yi STD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Ratings MEAN	50.82	13.74	2.25	30.87	16.69	2.04	0.43	4.15	8.50	47.18	6.40	10.18	1.18		129.50	344.01		
Ratings STD	7.59	0.93	0.49	4.38	2.44	0.65	0.20	2.21	2.64	9.87	3.09	6.06	1.83		11.79	35.44		

Heavy Duty Diesel Rating Workshop

PART ID = M11 Sludge

RATED VALUES

	Rocker Cover 1	Oil Pan 1																		
Tschirhart, Garland	9.43	9.37																		
Radonich, Pete	9.22	9.14																		
Foecking, Brian	9.17	9.22																		
Lopez, Frank	9.29	9.26																		
Avis, Steve	9.25	9.22																		
Pansza, Mike	9.37	9.31																		
Kobrinetz, Jack	9.38	9.25																		
May, Marianne	9.30	9.30																		
Caproni, David	9.20	9.15																		
Barrera, Tony	9.58	9.60																		
Viera, Ralph	9.50	9.30																		
Hill, Howard	9.43	9.20																		
Sanchez, Art	9.31	9.29																		
Clapperty, Leon	9.34	9.28																		
Greenland, Paul	9.38	9.28																		
Hills, Barry	9.30	9.27																		
Rodriguez, Jesse	9.51	9.43																		
MAXIMUM	9.58	9.60																		
MINIMUM	9.17	9.14																		
RANGE (MAX-MIN)	0.41	0.46																		
MEAN	9.35	9.29																		
STD	0.11	0.11																		



yi within 1 71%
 yi within 2 94%
 yi within 3 100%

PART ID = M11 Sludge

Yi VALUES

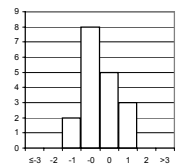
	Rocker Cover 1	Oil Pan 1																			MEAN	STD	
Tschirhart, Garland	0.70	0.78																				0.74	0.06
Radonich, Pete	-1.15	-1.36																				-1.25	0.15
Foecking, Brian	-1.58	-0.62																				-1.10	0.68
Lopez, Frank	-0.53	-0.25																				-0.39	0.20
Avis, Steve	-0.88	-0.62																				-0.75	0.19
Pansza, Mike	0.17	0.22																				0.19	0.03
Kobrinetz, Jack	0.26	-0.34																				-0.04	0.42
May, Marianne	-0.44	0.13																				-0.16	0.40
Caproni, David	-1.32	-1.27																				-1.29	0.04
Barrera, Tony	2.01	2.91																				2.46	0.64
Viera, Ralph	1.31	0.13																				0.72	0.84
Hill, Howard	0.70	-0.80																				-0.05	1.06
Sanchez, Art	-0.36	0.03																				-0.16	0.27
Clapperty, Leon	-0.09	-0.06																				-0.08	0.02
Greenland, Paul	0.26	-0.06																				0.10	0.22
Hills, Barry	-0.44	-0.15																				-0.30	0.21
Rodriguez, Jesse	1.40	1.33																				1.37	0.05
Yi MAXIMUM	2.01	2.91																				2.46	1.06
Yi MINIMUM	-0.09	-0.06																				-0.04	0.02
Yi MEAN	0.00	0.00																					
Yi STD	1.00	1.00																					
Ratings MEAN	9.35	9.29																					
Ratings STD	0.11	0.11																					

Heavy Duty Diesel Rating Workshop

PART ID = 6V92

RATED VALUES

	Scuffing %	Fire Ring Distress	2nd & 3rd Ring Distress															
Piggott, Gary	20.33	0.09	0.19															
Lopez, Frank	18.50	0.05	0.20															
Campbell, Andy	19.25	0.09	0.19															
Radonich, Pete	28.30	0.14	0.20															
Viera, Ralph	22.33	0.10	0.20															
Barrera, Tony	19.20	0.08	0.19															
MAXIMUM	28.30	0.14	0.20															
MINIMUM	18.50	0.05	0.19															
RANGE (MAX-MIN)	9.80	0.08	0.02															
MEAN	21.32	0.09	0.19															
STD	3.67	0.03	0.01															



yi within 1 72%
 yi within 2 100%
 yi within 3 100%

PART ID = 6V92

Yi VALUES

	Scuffing %	Fire Ring Distress	2nd & 3rd Ring Distress																MEAN	STD
Piggott, Gary	-0.27	-0.10	-0.74																-0.37	0.33
Lopez, Frank	-0.77	-1.51	0.36																-0.64	0.94
Campbell, Andy	-0.56	0.02	-1.26																-0.60	0.64
Radonich, Pete	1.90	1.56	1.49																1.65	0.22
Viera, Ralph	0.28	0.39	0.58																0.42	0.15
Barrera, Tony	-0.58	-0.36	-0.42																-0.45	0.11
Yi MAXIMUM	1.90	1.56	1.49																1.65	0.94
Yi MINIMUM	-0.27	-0.10	-0.42																-0.37	0.11
Yi MEAN	0.00	0.00	0.00																	
Yi STD	1.00	1.00	1.00																	
Ratings MEAN	21.32	0.09	0.19																	
Ratings STD	3.67	0.03	0.01																	

Heavy Duty Rating Workshop

	Number of Parts Rated	-1 < yi ≤ 1	-2 < yi ≤ 2	-3 < yi ≤ 3	>3	Yi STD	Group	
Avis, Steve	13	71.8%	96.9%	99.2%	0.8%	0.87	White	
Barrera, Tony	14	74.1%	100.0%	100.0%	0.0%	0.84	White	
Borland, Robert	8	44.9%	87.2%	96.2%	3.8%	1.33	Yellow	
Caproni, David	11	63.3%	97.2%	100.0%	0.0%	0.95	White	
Castillo, George	13	84.6%	97.7%	100.0%	0.0%	0.75	Red	
Clapperty, Leon	9	62.8%	95.3%	100.0%	0.0%	0.97	White	
Cole, Steve	5	43.6%	81.8%	96.4%	3.6%	1.49	Yellow	
Foecking, Brian	12	86.1%	99.2%	100.0%	0.0%	0.75	Blue	
Greenland, Paul	11	79.6%	98.1%	99.1%	0.9%	0.81	White	
Hill, Howard	8	63.6%	96.1%	100.0%	0.0%	0.94	White	
Hills, Barry	15	62.6%	96.1%	98.7%	1.3%	1.02	White	
Kobrinetz, Jack	20	83.2%	98.1%	100.0%	0.0%	0.79	Red	
Kuipers, Jacques	11	53.7%	82.4%	99.1%	0.9%	1.30	Yellow	
Langford, Mike	11	75.0%	98.1%	100.0%	0.0%	0.87	White	
Lopez, Frank	11	75.9%	96.3%	100.0%	0.0%	0.88	White	
May, Marianne	19	73.5%	97.4%	100.0%	0.0%	0.83	White	
Mundt, Torsten	10	78.4%	97.1%	100.0%	0.0%	0.84	White	
Pansza, Mike	15	71.3%	97.3%	100.0%	0.0%	0.91	White	
Radonich, Pete	12	79.8%	100.0%	100.0%	0.0%	0.72	White	
Rappmund, Scott	12	65.8%	94.2%	100.0%	0.0%	1.01	White	
Rodriguez, Jesse	11	79.5%	98.2%	100.0%	0.0%	0.83	White	
Sanchez, Art	11	55.4%	90.2%	95.5%	4.5%	1.19	Yellow	
Smith, Russell	10	64.0%	85.0%	98.0%	2.0%	1.14	Yellow	
Tschirhart, Garland	12	57.5%	93.3%	100.0%	0.0%	1.03	Yellow	
Viera, Ralph	10	76.0%	99.0%	100.0%	0.0%	0.81	White	
Yanchar, Paul	11	93.3%	100.0%	100.0%	0.0%	0.61	Blue	

	Minimum Number of Parts Rated	Minimum Yi's within 1 STD of mean	Minimum Yi's within 2 STD of mean	Maximum Overall Yi STD	Group Total	
White	6	60%	90%	1.20	16	62%
Red	6	80%	95%	0.85	2	8%
Blue	6	85%	98%	0.75	2	8%
Yellow	-	-	-	-	6	23%

Heavy Duty Rating Workshop

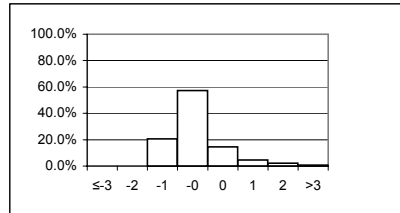
Rater = Avis, Steve

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	0.43	-0.21	-0.06			-1.02	-1.33					0.02				-0.66	-0.66	-0.44	0.58
Calibration Piston_2	1.01	-0.06	1.14			-0.49	1.55					0.31				0.66	0.66	0.60	0.66
A1_square	0.43	-0.35	2.25	2.38		0.14	-0.84	-0.15				0.14				0.23	0.46	0.47	1.05
A2_keystone	-0.41	-1.13	-0.75		-0.21	-0.65	-0.24		-0.48	1.40		-0.90	-0.21	0.00	0.00	-1.61	-0.35	-0.40	0.68
A3_two-piece	-0.33	-1.43	-0.89		-0.66	-0.38	-1.78	-1.55		-0.72	-0.86	-0.64	-0.80	-0.57	-0.43	-1.76	-1.77	-0.97	0.53
A4_two-piece	-0.95	-1.29	-1.03		-0.74	-0.63	0.16	-0.88		-0.61		-0.12	-0.18	-1.09	-0.77	-1.34	-1.35	-0.77	0.47
A5_two-piece	-1.55	-0.99	-0.58		0.96	0.19	-0.14	-0.48		2.80	0.39	-0.79	-0.28	3.14	-0.39	0.03	-0.82	0.10	1.32
A6_two-piece	-0.95	-0.52	-0.83		0.31	-0.82	-0.82	-0.84		0.81	0.01	0.27	0.30	-0.58	-0.82	-0.63	-1.63	-0.45	0.65
B1_square	-0.66	-0.96	-0.31	-0.54		-0.45	-0.45	-0.49				-1.06				-0.87	-1.00	-0.68	0.27
B2_keystone																			
B3_two-piece	-0.29	-1.54	-0.37		-1.25	-0.41	-1.04	-0.42		0.81	0.58	-0.73	-1.06	-1.08	-1.65	-1.19	-1.02	-0.71	0.71
B4_two-piece	-1.19	-0.46	-1.84		-0.22	-0.69	-1.81	-1.63		0.84		-0.20	-0.67	-0.75	-0.37	-1.36	-2.15	-0.89	0.82
B5_two-piece	-0.68	-0.27	-0.94		-0.58	-0.59	-0.32	-1.83		1.96		-0.15	-0.68	-1.30	-1.31	-0.54	-1.61	-0.63	0.90
B6_two-piece																			
C1_square																			
C2_keystone																			
C3_two-piece																			
C4_two-piece																			
C5_two-piece	-1.24	-0.87	-0.22		-1.18	-1.29	0.04	-1.67		1.09		-0.86	-0.56	-1.24	-0.64	-1.20	-1.30	-0.80	0.72
C6_two-piece																			
Yi MAXIMUM	-1.55	-1.54	2.25	2.38	-1.25	-1.29	-1.81	-1.83	-0.48	2.80	-0.86	-1.06	-1.06	3.14	-1.65	-1.76	-2.15	-0.97	1.32
Yi MINIMUM	-0.29	-0.06	-0.06	-0.54	-0.21	0.14	0.04	-0.15	-0.48	-0.61	0.01	0.02	-0.18	0.00	0.00	-0.03	-0.35	0.10	0.27
Yi MEAN	-0.49	-0.78	-0.34	0.92	-0.40	-0.55	-0.54	-0.99	-0.48	0.93	0.03	-0.36	-0.46	-0.39	-0.71	-0.79	-0.97		
Yi STD	0.75	0.49	1.04	2.06	0.71	0.40	0.90	0.62		1.11	0.64	0.48	0.41	1.39	0.51	0.74	0.83		

	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	0	0.0%	-1 < yi ≤ 1	71.8%
-2 lt yi le -1	27	20.6%	-2 < yi ≤ 2	96.9%
-1 lt yi le 0	75	57.3%	-3 < yi ≤ 3	99.2%
0 lt yi le 1	19	14.5%	>3	0.8%
1 lt yi le 2	6	4.6%		
2 lt yi le 3	3	2.3%	Overall Yi STD	0.87
3 lt yi	1	0.8%		
total	131	100.0%	Parts Rated	13

Yi distribution (excluding shaded columns)



Group: White

Heavy Duty Rating Workshop

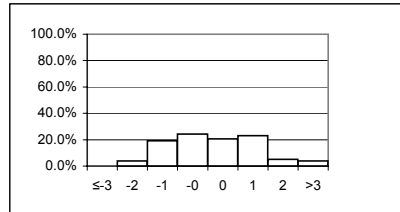
Rater = Borland, Robert

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	-1.61	-1.45	-0.80			1.25	1.67					1.01				-0.30	-0.30	-0.07	1.24
Calibration Piston_2	-1.18	-0.83	-0.90			-1.08	1.29					0.97				-1.25	-1.25	-0.53	1.04
A1_square	-2.10	-0.28	-0.99	-1.06		0.33	0.24	0.39				-1.91				-1.39	-0.63	-0.74	0.91
A2_keystone	1.61	-2.11	1.15		-0.53	2.54	1.51		0.56	-2.21		2.07	-1.67	0.00	0.00	-0.90	-0.36	0.12	1.53
A3_two-piece	3.69	1.03	1.24		-1.35	0.73	0.89	0.36		1.15	-1.27	3.29	2.48	-1.81	-0.43	1.13	1.17	0.82	1.59
A4_two-piece	-0.38	0.11	0.79		-0.13	1.43	0.15	0.62		-1.76		-1.29	1.94	-0.03	-0.77	0.08	0.98	0.12	1.00
A5_two-piece	0.56	-0.86	1.22		-0.34	1.11	0.63	0.06		1.46	-0.27	-0.92	-0.02	1.23	-0.39	0.73	0.90	0.34	0.78
A6_two-piece	-0.02	1.22	1.63		-0.88	-1.26	0.20	-0.52		2.01	-1.19	-0.78	3.01	-1.24	-0.82	-0.51	-0.02	0.06	1.32
B1_square																			
B2_keystone																			
B3_two-piece																			
B4_two-piece																			
B5_two-piece																			
B6_two-piece																			
C1_square																			
C2_keystone																			
C3_two-piece																			
C4_two-piece																			
C5_two-piece																			
C6_two-piece																			
Yi MAXIMUM	3.69	-2.11	1.63	-1.06	-1.35	2.54	1.67	0.62	0.56	-2.21	-1.27	3.29	3.01	-1.81	-0.82	-1.39	-1.25	0.82	1.59
Yi MINIMUM	-0.02	0.11	0.79	-1.06	-0.13	0.33	0.15	0.06	0.56	1.15	-0.27	-0.78	-0.02	0.00	0.00	0.08	-0.02	0.06	0.78
Yi MEAN	0.07	-0.40	0.42	-1.06	-0.65	0.63	0.82	0.18	0.56	0.13	-0.91	0.30	1.15	-0.37	-0.48	-0.30	0.06		
Yi STD	1.89	1.16	1.11		0.48	1.28	0.61	0.44		1.96	0.55	1.82	1.95	1.19	0.33	0.91	0.87		

yi le	count	percent		
-3 lt yi le -2	0	0.0%		
-2 lt yi le -1	3	3.8%	-1 < yi ≤ 1	44.9%
-1 lt yi le 0	15	19.2%	-2 < yi ≤ 2	87.2%
0 lt yi le 1	19	24.4%	-3 < yi ≤ 3	96.2%
1 lt yi le 2	16	20.5%	>3	3.8%
2 lt yi le 3	18	23.1%		
3 lt yi	4	5.1%	Overall Yi STD	1.33
total	3	3.8%	Parts Rated	8

Yi distribution (excluding shaded columns)



Group: Yellow

October 16-20, 2005

Heavy Duty Rating Workshop

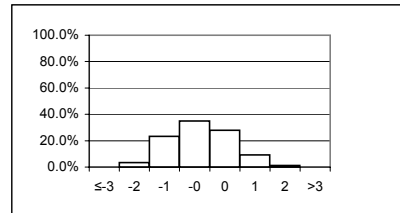
Rater = Clapperty, Leon

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	1.32	1.14	-1.70			0.74	-1.92					0.27				1.04	1.04	0.24	1.30
Calibration Piston_2	0.28	1.14	0.00			0.13	1.03					0.21				0.56	0.56	0.49	0.42
A1_square	0.53	0.46	0.17	0.57		-0.64	-0.65	0.88				1.16				0.27	0.38	0.31	0.58
A2_keystone	1.14	-0.10	-1.55		2.47	-1.77	-0.94		-1.46	-1.25		0.75	0.87	0.00	0.00	-0.59	-1.84	-0.30	1.28
A3_two-piece	-0.66	-1.19	-1.35		-1.16	-1.74	-1.90	-1.10		-0.57	0.98	-0.30	1.17	-2.07	-0.43	-1.82	-1.78	-0.93	0.99
A4_two-piece	-0.27	1.01	-1.21		-1.14	-0.57	-0.58	-0.84		-0.52		0.32	-0.18	-1.09	-0.77	-0.95	-1.65	-0.60	0.68
A5_two-piece	-0.42	-0.22	-0.74		0.91	0.12	-2.33	-0.43		-0.50	0.65	0.68	-1.48	-0.36	-0.39	-0.17	-1.05	-0.38	0.84
A6_two-piece	-0.27	-0.90	-0.85		-1.01	0.21	-1.58	-0.17		-1.28	0.77	0.46	0.30	-1.58	-0.82	-1.17	-1.33	-0.61	0.77
B1_square	-2.71	-0.47	0.14	0.33		-0.56	-0.45	-0.83				-0.32				-1.64	-0.85	-0.74	0.88
B2_keystone																			
B3_two-piece																			
B4_two-piece																			
B5_two-piece																			
B6_two-piece																			
C1_square																			
C2_keystone																			
C3_two-piece																			
C4_two-piece																			
C5_two-piece																			
C6_two-piece																			
Yi MAXIMUM	-2.71	-1.19	-1.70	0.57	2.47	-1.77	-2.33	-1.10	-1.46	-1.28	0.98	1.16	-1.48	-2.07	-0.82	-1.82	-1.84	-0.93	1.30
Yi MINIMUM	-0.27	-0.10	0.00	0.33	0.91	0.12	-0.45	-0.17	-1.46	-0.50	0.65	0.21	-0.18	0.00	0.00	-0.17	0.38	0.24	0.42
Yi MEAN	-0.12	0.10	-0.79	0.45	0.01	-0.45	-1.04	-0.41	-1.46	-0.82	0.80	0.36	0.14	-1.02	-0.48	-0.50	-0.73		
Yi STD	1.19	0.88	0.73	0.17	1.63	0.87	1.03	0.72		0.40	0.17	0.48	1.04	0.85	0.33	1.00	1.10		

	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	3	3.5%	-1 < yi ≤ 1	62.8%
-2 lt yi le -1	20	23.3%	-2 < yi ≤ 2	95.3%
-1 lt yi le 0	30	34.9%	-3 < yi ≤ 3	100.0%
0 lt yi le 1	24	27.9%	>3	0.0%
1 lt yi le 2	8	9.3%		
2 lt yi le 3	1	1.2%	Overall Yi STD	0.97
3 lt yi	0	0.0%		
total	86	100.0%	Parts Rated	9

Yi distribution (excluding shaded columns)



Group: White

Heavy Duty Rating Workshop

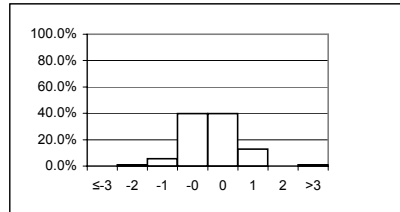
Rater = Greenland, Paul

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	0.23	-1.40	0.18			-0.97	0.62					-0.97				-0.80	-0.80	-0.49	0.73
Calibration Piston_2	-0.17	-1.47	0.49			0.28	-0.43					-0.34				-0.31	-0.31	-0.28	0.58
A1_square																			
A2_keystone																			
A3_two-piece																			
A4_two-piece																			
A5_two-piece																			
A6_two-piece																			
B1_square	-0.77	-0.02	0.10	0.25		-0.49	-0.27	0.01				0.41				-0.71	-0.32	-0.18	0.40
B2_keystone	0.48	0.61	1.53		-1.04	0.67	0.09		-0.33	0.01		-1.16	0.26	0.00	0.00	0.51	-0.09	0.12	0.68
B3_two-piece	0.34	0.78	0.68		1.99	-0.66	0.23	0.39		-0.51	1.53	-0.19	0.10	0.93	-0.36	2.06	0.90	0.55	0.85
B4_two-piece	1.37	-0.90	0.49		0.52	0.04	1.35	0.24		0.51		1.14	-0.13	-0.75	-0.37	1.31	0.81	0.40	0.76
B5_two-piece	-0.13	-0.81	-0.13		0.11	-0.07	-0.25	0.47		-0.25		0.31	-0.26	-0.41	0.11	-0.24	0.05	-0.11	0.31
B6_two-piece	-2.47	-0.19	1.46		-0.43	-0.50	1.03	0.05		-1.05	1.19	0.82	-0.10	-0.59	-0.56	-1.72	-0.55	-0.24	1.07
C1_square	0.27	-0.73	0.05	1.37		0.06	-0.25	0.25				-0.19				0.08	-0.13	0.08	0.54
C2_keystone	1.12	0.52	0.15		-1.40	0.54	-0.97		-0.07	-0.07		0.07	0.57	-0.44	0.84	0.53	0.22	0.12	0.69
C3_two-piece	3.42	-0.75	0.70		1.41	-0.83	1.04	-0.31		-0.55	1.32	-0.37	-0.96	0.57	-0.64	2.60	1.68	0.56	1.35
C4_two-piece																			
C5_two-piece																			
C6_two-piece																			
Yi MAXIMUM	3.42	-1.47	1.53	1.37	1.99	-0.97	1.35	0.47	-0.33	-1.05	1.53	-1.16	-0.96	0.93	0.84	2.60	1.68	0.56	1.35
Yi MINIMUM	-0.13	-0.02	0.05	0.25	0.11	0.04	0.09	0.01	-0.07	0.01	1.19	0.07	-0.10	0.00	0.00	0.08	0.05	0.08	0.31
Yi MEAN	0.33	-0.40	0.52	0.81	0.17	-0.18	0.20	0.16	-0.20	-0.27	1.35	-0.04	-0.07	-0.10	-0.14	0.30	0.15		
Yi STD	1.44	0.79	0.55	0.79	1.24	0.55	0.73	0.26	0.18	0.49	0.17	0.70	0.48	0.63	0.51	1.29	0.73		

	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	1	0.9%	-1 < yi ≤ 1	79.6%
-2 lt yi le -1	6	5.6%	-2 < yi ≤ 2	98.1%
-1 lt yi le 0	43	39.8%	-3 < yi ≤ 3	99.1%
0 lt yi le 1	43	39.8%	>3	0.9%
1 lt yi le 2	14	13.0%		
2 lt yi le 3	0	0.0%	Overall Yi STD	0.81
3 lt yi	1	0.9%		
total	108	100.0%	Parts Rated	11

Yi distribution (excluding shaded columns)



Group: White

October 16-20, 2005

Heavy Duty Rating Workshop

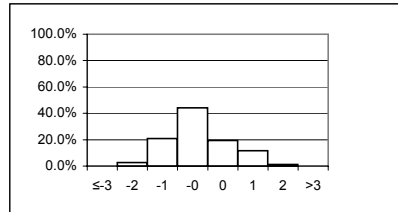
Rater = Hill, Howard

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	-1.79	-0.51	0.30			-1.65	-0.28					0.76				-2.06	-2.06	-0.91	1.12
Calibration Piston_2	-1.40	0.60	0.28			-0.34	-1.51					-0.12				-1.13	-1.13	-0.59	0.81
A1_square																			
A2_keystone																			
A3_two-piece																			
A4_two-piece																			
A5_two-piece																			
A6_two-piece																			
B1_square	1.31	0.38	-0.39	-0.82		-0.51	-1.09	-0.76				-0.69				0.13	-0.46	-0.29	0.71
B2_keystone	-1.22	0.28	0.16		-0.02	-0.60	0.09		-0.53	-0.60		1.74	0.60	0.00	0.00	-0.60	-0.72	-0.10	0.72
B3_two-piece	0.44	-0.24	-0.30		-0.12	0.23	-1.86	-0.50		-0.89	-0.84	1.43	1.66	-0.08	-0.10	-0.56	-0.79	-0.17	0.88
B4_two-piece	1.14	-0.87	-1.45		-1.48	-0.95	-1.07	-1.65		-0.82		1.14	1.51	-0.41	-0.37	-0.26	-1.51	-0.50	1.06
B5_two-piece	-1.20	-2.05	2.43		-0.36	-1.30	-1.09	-1.38		-0.97		0.04	-0.68	-0.41	-0.60	-1.68	-1.43	-0.76	1.08
B6_two-piece	1.17	1.80	-0.47		-0.46	0.07	-0.05	-0.02		-2.18	-1.11	0.12	0.32	-0.07	-0.56	0.11	0.25	-0.07	0.91
C1_square																			
C2_keystone																			
C3_two-piece																			
C4_two-piece																			
C5_two-piece																			
C6_two-piece																			
Yi MAXIMUM	-1.79	-2.05	2.43	-0.82	-1.48	-1.65	-1.86	-1.65	-0.53	-2.18	-1.11	1.74	1.66	-0.41	-0.60	-2.06	-2.06	-0.91	1.12
Yi MINIMUM	0.44	-0.24	0.16	-0.82	-0.02	0.07	-0.05	-0.02	-0.53	-0.60	-0.84	0.04	0.32	0.00	0.00	0.11	0.25	-0.07	0.71
Yi MEAN	-0.19	-0.08	0.07	-0.82	-0.49	-0.63	-0.86	-0.86	-0.53	-1.09	-0.98	0.55	0.68	-0.19	-0.33	-0.76	-0.98		
Yi STD	1.33	1.14	1.11		0.58	0.65	0.70	0.66		0.63	0.19	0.85	0.95	0.20	0.27	0.80	0.71		

yi le -3	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	2	2.6%	-1 < yi ≤ 1	63.6%
-2 lt yi le -1	16	20.8%	-2 < yi ≤ 2	96.1%
-1 lt yi le 0	34	44.2%	-3 < yi ≤ 3	100.0%
0 lt yi le 1	15	19.5%	>3	0.0%
1 lt yi le 2	9	11.7%		
2 lt yi le 3	1	1.3%	Overall Yi STD	0.94
3 lt yi	0	0.0%		
total	77	100.0%	Parts Rated	8

Yi distribution (excluding shaded columns)



Group: White

Heavy Duty Rating Workshop

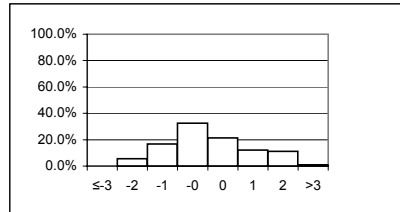
Rater = Kuipers, Jacques

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	1.91	0.93	2.63			0.06	1.92					2.12				1.73	1.73	1.63	0.79
Calibration Piston_2	0.01	0.33	0.16			0.23	0.10					3.28				0.17	0.17	0.56	1.10
A1_square																			
A2_keystone																			
A3_two-piece																			
A4_two-piece																			
A5_two-piece																			
A6_two-piece																			
B1_square	-0.88	1.58	-0.72	-0.93		-0.38	-0.58	0.45				-2.35				-0.33	0.18	-0.40	1.02
B2_keystone	0.92	-0.32	0.76		-1.39	-1.66	-1.06		-0.47	1.32		-0.29	-1.60	0.00	0.00	-1.49	-0.54	-0.41	0.96
B3_two-piece	1.80	0.54	1.26		-0.05	0.04	1.26	-0.47		-2.01	-1.46	1.16	-0.67	-0.33	1.19	-0.26	0.52	0.17	1.08
B4_two-piece	-1.90	2.32	0.61		1.44	-1.09	2.19	2.03		-1.48		-2.46	-0.13	1.29	-0.37	-0.84	1.50	0.22	1.61
B5_two-piece	-0.13	-0.56	0.53		2.93	-1.26	-0.03	1.58		0.66		-1.52	-0.68	2.25	0.82	-0.18	0.70	0.37	1.27
B6_two-piece	-0.21	-1.15	1.64		-0.18	-1.15	-0.83	2.02		0.04	0.19	-1.57	-1.33	-0.33	-0.56	-0.50	1.03	-0.19	1.06
C1_square	-2.16	-1.19	-0.36	-2.14		-0.42	2.60	2.55				-2.68				-1.77	0.24	-0.53	1.88
C2_keystone	0.90	0.37	2.42		-1.30	0.28	0.38		-0.47	-0.07		-0.17	-1.03	-0.44	-0.81	0.36	0.62	0.07	0.93
C3_two-piece	-0.52	0.40	2.44		-0.46	-0.89	-0.25	1.13		0.85	-0.14	-0.05	-0.96	-1.45	-0.64	-0.38	0.94	0.00	1.00
C4_two-piece																			
C5_two-piece																			
C6_two-piece																			
Yi MAXIMUM	-2.16	2.32	2.63	-2.14	2.93	-1.66	2.60	2.55	-0.47	-2.01	-1.46	3.28	-1.60	2.25	1.19	-1.77	1.73	1.63	1.88
Yi MINIMUM	0.01	-0.32	0.16	-0.93	-0.05	0.04	-0.03	0.45	-0.47	0.04	-0.14	-0.05	-0.13	0.00	0.00	0.17	0.17	0.00	0.79
Yi MEAN	-0.02	0.29	1.03	-1.54	0.14	-0.57	0.52	1.33	-0.47	-0.10	-0.47	-0.41	-0.91	0.14	-0.05	-0.32	0.65		
Yi STD	1.34	1.08	1.15	0.86	1.55	0.67	1.27	1.05	0.00	1.23	0.87	1.96	0.48	1.23	0.77	0.93	0.65		

yi le -3	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	6	5.6%	-1 < yi ≤ 1	53.7%
-2 lt yi le -1	18	16.7%	-2 < yi ≤ 2	82.4%
-1 lt yi le 0	35	32.4%	-3 < yi ≤ 3	99.1%
0 lt yi le 1	23	21.3%	>3	0.9%
1 lt yi le 2	13	12.0%		
2 lt yi le 3	12	11.1%	Overall Yi STD	1.30
3 lt yi	1	0.9%		
total	108	100.0%	Parts Rated	11

Yi distribution (excluding shaded columns)



Group: Yellow

Heavy Duty Rating Workshop

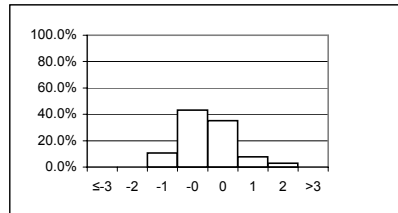
Rater = Mundt, Torsten

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	2.31	0.78	-0.17			0.85	-0.42					2.87				1.82	1.82	1.23	1.17
Calibration Piston_2																			
A1_square																			
A2_keystone																			
A3_two-piece																			
A4_two-piece																			
A5_two-piece																			
A6_two-piece																			
B1_square	0.15	0.51	-0.48	-0.58		-0.16	0.01	0.49				-1.43				0.04	0.08	-0.14	0.57
B2_keystone	0.19	0.80	-0.77		0.36	1.15	0.02		-0.42	-0.72		-1.74	-0.55	0.00	0.00	1.12	-0.52	-0.08	0.79
B3_two-piece	-1.01	0.06	0.41		0.42	-1.06	0.90	-0.79	1.07	0.89	0.89	-0.46	-1.25	1.18	0.94	0.40	-0.23	0.10	0.84
B4_two-piece	-0.53	-0.58	-0.02		-0.08	-0.88	0.37	0.56		1.50		-0.03	-1.49	-0.07	-0.37	-0.31	0.21	-0.12	0.70
B5_two-piece	0.30	0.82	0.06		-0.37	0.24	-0.54	0.88		-0.64		0.04	-1.11	-0.41	0.11	0.23	0.51	0.01	0.57
B6_two-piece	0.29	0.82	0.92		1.08	2.05	1.25	-0.25	0.04	0.19	0.19	0.32	-1.33	0.97	0.17	1.50	1.45	0.63	0.84
C1_square	-0.08	-0.11	-0.01	-0.56		-0.46	0.19	-0.04				-0.42				-0.25	-0.32	-0.21	0.24
C2_keystone	-0.28	0.52	-0.82		0.17	1.25	-1.27		-0.54	-0.93		0.07	0.37	-0.44	-0.81	0.64	-0.33	-0.17	0.71
C3_two-piece	-0.22	-0.58	0.26		-1.10	-0.49	1.19	-0.51		-0.03	-1.20	-0.48	-0.96	-0.19	2.34	-1.01	-0.36	-0.22	0.93
C4_two-piece																			
C5_two-piece																			
C6_two-piece																			
Yi MAXIMUM	2.31	0.82	0.92	-0.58	-1.10	2.05	-1.27	0.88	-0.54	1.50	-1.20	2.87	-1.49	1.18	2.34	1.82	1.82	1.23	1.17
Yi MINIMUM	-0.08	0.06	-0.01	-0.56	-0.08	-0.16	0.01	-0.04	-0.42	-0.03	0.19	-0.03	0.37	0.00	0.00	0.04	0.08	0.01	0.24
Yi MEAN	0.11	0.31	-0.06	-0.57	0.07	0.25	0.17	0.05	-0.48	0.04	-0.04	-0.13	-0.90	0.15	0.34	0.42	0.23		
Yi STD	0.87	0.57	0.54	0.01	0.68	1.03	0.80	0.61	0.09	0.93	1.06	1.24	0.64	0.66	1.03	0.87	0.81		

	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	0	0.0%	-1 < yi ≤ 1	78.4%
-2 lt yi le -1	11	10.8%	-2 < yi ≤ 2	97.1%
-1 lt yi le 0	44	43.1%	-3 < yi ≤ 3	100.0%
0 lt yi le 1	36	35.3%	>3	0.0%
1 lt yi le 2	8	7.8%		
2 lt yi le 3	3	2.9%	Overall Yi STD	0.84
3 lt yi	0	0.0%		
total	102	100.0%	Parts Rated	10

Yi distribution (excluding shaded columns)



Group: White

October 16-20, 2005

Heavy Duty Rating Workshop

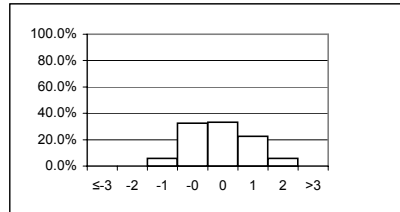
Rater = Rappmund, Scott

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	1.12	-0.71	1.57			2.49	1.58					-1.09				2.26	2.26	1.18	1.37
Calibration Piston_2	2.48	-0.48	1.30			2.59	0.40					-1.99				2.69	2.69	1.21	1.76
A1_square	-0.27	1.58	0.40	0.66		0.91	0.43	1.54				0.90				0.95	1.94	0.90	0.65
A2_keystone	1.45	-0.07	2.86		-0.60	-0.29	1.37		1.84	1.90		1.57	0.98	0.00	0.00	0.40	2.76	1.01	1.12
A3_two-piece	-0.20	-0.03	1.34		0.95	-0.85	0.63	-0.29		0.16	-0.41	-0.64	-1.13	-0.39	-0.43	0.49	0.28	-0.03	0.68
A4_two-piece	-0.09	0.17	-0.05		0.38	-0.73	0.31	0.60		0.59		-0.41	-0.18	0.24	-0.77	0.00	0.55	0.04	0.45
A5_two-piece	0.52	1.11	1.53		1.31	0.48	0.72	0.01		-0.64	-0.93	1.47	0.50	-0.36	-0.39	1.25	1.57	0.54	0.84
A6_two-piece	-0.06	-0.34	0.49		-0.89	-0.41	1.72	1.92		0.48	0.47	-0.40	-1.06	-0.69	-0.82	-0.47	1.28	0.08	0.95
B1_square	0.67	0.86	0.93	1.04		0.07	0.83	0.85				0.23				0.58	1.00	0.71	0.32
B2_keystone	0.63	0.43	1.71		-0.43	-0.16	1.53		-0.32	1.12		1.16	-0.21	0.00	0.00	0.25	0.51	0.44	0.70
B3_two-piece	-0.39	-1.76	1.38		0.40	2.42	-0.79	2.24		-0.47	-0.60	-1.54	-1.45	0.17	-1.14	0.33	1.65	0.03	1.36
B4_two-piece																			
B5_two-piece	0.43	1.72	-0.10		0.54	0.34	1.62	0.84		0.40		-0.88	2.28	1.37	-1.31	0.88	1.31	0.67	0.99
B6_two-piece																			
C1_square																			
C2_keystone																			
C3_two-piece																			
C4_two-piece																			
C5_two-piece																			
C6_two-piece																			
Yi MAXIMUM	2.48	-1.76	2.86	1.04	1.31	2.59	1.72	2.24	1.84	1.90	-0.93	-1.99	2.28	1.37	-1.31	2.69	2.76	1.21	1.76
Yi MINIMUM	-0.06	-0.03	-0.05	0.66	0.38	0.07	0.31	0.01	-0.32	0.16	-0.41	0.23	-0.18	0.00	0.00	0.00	0.28	0.03	0.32
Yi MEAN	0.52	0.21	1.11	0.85	0.21	0.57	0.86	0.96	0.76	0.44	-0.37	-0.13	-0.03	0.04	-0.61	0.80	1.48		
Yi STD	0.84	1.00	0.84	0.27	0.77	1.26	0.74	0.89	1.53	0.82	0.60	1.19	1.25	0.62	0.49	0.91	0.83		

	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	0	0.0%	-1 < yi ≤ 1	65.8%
-2 lt yi le -1	7	5.8%	-2 < yi ≤ 2	94.2%
-1 lt yi le 0	39	32.5%	-3 < yi ≤ 3	100.0%
0 lt yi le 1	40	33.3%	>3	0.0%
1 lt yi le 2	27	22.5%		
2 lt yi le 3	7	5.8%	Overall Yi STD	1.01
3 lt yi	0	0.0%		
total	120	100.0%	Parts Rated	12

Yi distribution (excluding shaded columns)



Group: White

October 16-20, 2005

Heavy Duty Rating Workshop

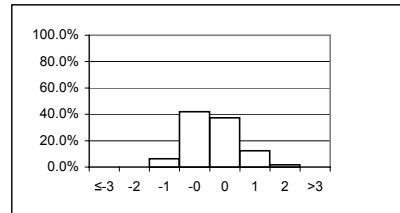
Rater = Rodriguez, Jesse

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	-0.64	0.38	-0.99			0.67	-0.23					-0.85				0.09	0.09	-0.19	0.60
Calibration Piston_2	0.60	0.65	0.16			2.20	-1.40					0.21				1.26	1.26	0.62	1.05
A1_square																			
A2_keystone																			
A3_two-piece																			
A4_two-piece	1.66	0.69	-0.05		0.38	0.55	-0.01	-0.17		-0.10		-0.71	-0.18	0.24	0.86	1.30	0.45	0.35	0.63
A5_two-piece	0.59	-0.75	-0.57		-0.27	0.19	-0.66	-0.96		-0.16	-0.27	1.74	-0.79	-0.36	-0.39	-0.19	-0.71	-0.24	0.68
A6_two-piece	1.53	0.51	-0.32		0.66	0.34	0.55	-0.44		-0.12	0.39	0.36	0.30	0.31	0.39	1.76	1.01	0.48	0.60
B1_square																			
B2_keystone																			
B3_two-piece																			
B4_two-piece																			
B5_two-piece																			
B6_two-piece																			
C1_square	0.15	2.91	-0.72	-0.39		-0.68	-0.37	-0.73				-0.19				0.40	0.97	0.14	1.12
C2_keystone	-1.07	0.87	-0.73		-0.93	1.03	0.84		0.33	0.09		-1.47	0.91	-0.44	-0.81	0.28	0.32	-0.08	0.82
C3_two-piece	-0.43	1.54	-0.49		-0.57	-0.14	0.53	0.26		-1.08	-1.14	-0.80	1.07	-0.44	-0.64	-0.77	-0.01	-0.19	0.82
C4_two-piece	0.59	-1.65	0.56		0.68	-0.40	-0.67	-0.04		0.32		0.33	0.40	0.34	-0.68	0.16	-0.14	-0.01	0.65
C5_two-piece	1.97	1.51	-0.29		-0.19	0.66	1.40	1.19		1.09		0.07	0.34	0.21	0.64	1.86	1.27	0.84	0.74
C6_two-piece	0.91	-0.29	-0.50		-0.46	-0.37	0.10	-1.38		0.07	1.15	1.60	1.49	-0.52	-0.64	0.55	-0.28	0.09	0.86
Yi MAXIMUM	1.97	2.91	-0.99	-0.39	-0.93	2.20	1.40	-1.38	0.33	1.09	1.15	1.74	1.49	-0.52	0.86	1.86	1.27	0.84	1.12
Yi MINIMUM	0.15	-0.29	-0.05	-0.39	-0.19	-0.14	-0.01	-0.04	0.33	0.07	-0.27	0.07	-0.18	0.21	0.39	0.09	-0.01	-0.01	0.60
Yi MEAN	0.53	0.58	-0.36	-0.39	-0.09	0.37	0.01	-0.28	0.33	0.02	0.03	0.03	0.44	-0.08	-0.16	0.61	0.38		
Yi STD	0.97	1.24	0.44		0.60	0.81	0.79	0.80		0.60	0.97	1.00	0.72	0.39	0.67	0.84	0.67		

	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	0	0.0%	-1 < yi ≤ 1	79.5%
-2 lt yi le -1	7	6.3%	-2 < yi ≤ 2	98.2%
-1 lt yi le 0	47	42.0%	-3 < yi ≤ 3	100.0%
0 lt yi le 1	42	37.5%	>3	0.0%
1 lt yi le 2	14	12.5%		
2 lt yi le 3	2	1.8%	Overall Yi STD	0.83
3 lt yi	0	0.0%		
total	112	100.0%	Parts Rated	11

Yi distribution (excluding shaded columns)



Group: White

Heavy Duty Rating Workshop

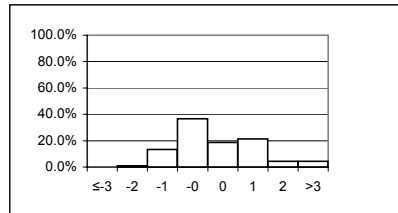
Rater = Sanchez, Art

YI VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	1.32	-1.33	-0.95			0.13	-0.82					0.02				0.16	0.16	-0.17	0.84
Calibration Piston_2	-1.11	-1.62	-1.71			0.78	-0.20					-0.56				-0.77	-0.77	-0.75	0.80
A1_square																			
A2_keystone																			
A3_two-piece																			
A4_two-piece	0.80	-1.72	-1.00		0.59	-0.32	3.08	-0.96	0.45			0.32	-0.18	-0.29	-0.77	0.88	1.52	0.17	1.22
A5_two-piece	1.74	-0.36	0.00		-0.86	0.15	-1.06	1.31	-0.39	0.64	0.14	-0.88	-0.36	-0.39	-0.39	0.42	0.45	0.04	0.79
A6_two-piece	1.53	-1.25	-0.17		-2.01	-0.63	-1.06	-0.05	0.00	-0.37	-0.30	0.30	1.53	-0.82	-0.64	-0.33	-0.29	0.93	
B1_square																			
B2_keystone																			
B3_two-piece																			
B4_two-piece																			
B5_two-piece																			
B6_two-piece																			
C1_square	1.12	-0.23	0.57	1.37		3.02	-0.90	-0.63				1.00				1.84	1.04	0.82	1.18
C2_keystone	1.29	1.16	-0.67		0.53	2.01	1.27		3.29	-0.34		3.01	1.25	2.38	1.07	1.93	2.38	1.47	1.14
C3_two-piece	0.17	-1.53	-0.78		1.51	-0.39	-0.76	1.47	2.07	1.32	3.28	1.07	1.07	1.35	1.31	1.31	0.89	0.80	1.25
C4_two-piece	1.44	-1.50	-0.69		1.90	2.50	0.74	0.03	0.89		1.24	-0.40	1.95	1.35	1.84	1.14	1.14	0.89	1.14
C5_two-piece	-0.67	-1.36	-1.00		-0.13	0.57	-1.53	-1.06	1.09		-0.33	-0.56	0.94	0.96	-0.30	-1.19	-0.33	0.90	
C6_two-piece	1.24	2.11	-0.07		-0.52	-0.45	0.16	0.80	1.11	-0.30	-0.53	-0.45	-0.36	0.45	0.84	0.90	0.33	0.81	
Yi MAXIMUM	1.74	2.11	-1.71	1.37	-2.01	3.02	3.08	1.47	3.29	2.07	1.32	3.28	1.25	2.38	1.35	1.93	2.38	1.47	1.25
Yi MINIMUM	0.17	-0.23	0.00	1.37	-0.13	0.13	0.16	0.03	3.29	0.00	-0.30	0.02	-0.18	-0.29	-0.39	0.16	0.16	0.04	0.79
Yi MEAN	0.81	-0.70	-0.59	1.37	0.13	0.67	-0.10	0.11	3.29	0.61	0.32	0.66	0.02	0.86	0.40	0.68	0.56		
Yi STD	0.94	1.27	0.63		1.28	1.28	1.35	0.99		0.85	0.81	1.36	0.78	1.09	0.93	0.99	1.04		

	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	1	0.9%	-1 < yi ≤ 1	55.4%
-2 lt yi le -1	15	13.4%	-2 < yi ≤ 2	90.2%
-1 lt yi le 0	41	36.6%	-3 < yi ≤ 3	95.5%
0 lt yi le 1	21	18.8%	>3	4.5%
1 lt yi le 2	24	21.4%		
2 lt yi le 3	5	4.5%	Overall Yi STD	1.19
3 lt yi	5	4.5%		
total	112	100.0%	Parts Rated	11

Yi distribution (excluding shaded columns)



Group: Yellow

October 16-20, 2005

Heavy Duty Rating Workshop

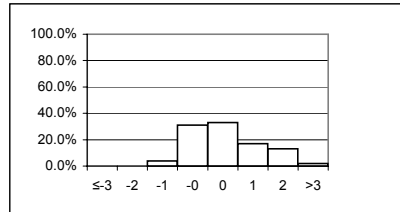
Rater = Smith, Russell

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	0.14	0.21	1.38			-0.91	-0.69					-0.97				-0.38	-0.38	-0.20	0.77
Calibration Piston_2	0.01	1.40	-0.08			-0.56	-0.67					-0.89				-0.04	-0.04	-0.11	0.70
A1_square																			
A2_keystone																			
A3_two-piece																			
A4_two-piece	1.12	-0.87	-0.24		0.56	-0.22	0.03	0.60		-0.65		1.92	-0.18	0.77	0.86	0.53	0.59	0.35	0.75
A5_two-piece																			
A6_two-piece	0.63	-0.47	0.91		0.57	-1.07	0.85	2.71		-0.49	-0.44	0.27	0.30	0.42	0.39	0.49	2.10	0.48	0.97
B1_square	1.31	2.43	3.40	3.02		0.04	2.63	1.89				0.60				1.27	2.70	1.93	1.10
B2_keystone	0.92	-0.75	0.82		1.74	1.13	2.04		0.53	2.54		0.29	-0.79	0.00	0.00	1.48	1.72	0.83	1.01
B3_two-piece	1.91	1.63	1.71		-0.20	-0.76	-0.02	1.98			0.39	0.35	1.27	0.17	1.45	0.75	1.90	0.83	0.91
B4_two-piece	1.34	1.86	0.11		2.51	2.73	-0.14	-0.27		-0.82		0.31	0.69	2.99	1.36	2.42	0.67	1.13	1.23
B5_two-piece	2.35	0.76	-1.36		-0.65	2.43	2.51	0.10		-0.21		2.14	0.16	0.48	2.24	2.40	1.71	1.08	1.33
B6_two-piece	1.05	-1.40	-0.45		-0.33	0.20	0.54	2.02		-0.14	-1.51	0.62	1.14	-0.33	-0.56	0.20	1.38	0.16	0.99
C1_square																			
C2_keystone																			
C3_two-piece																			
C4_two-piece																			
C5_two-piece																			
C6_two-piece																			
Yi MAXIMUM	2.35	2.43	3.40	3.02	2.51	2.73	2.63	2.71	0.53	2.54	-1.51	2.14	1.27	2.99	2.24	2.42	2.70	1.93	1.33
Yi MINIMUM	0.01	0.21	-0.08	3.02	-0.20	0.04	-0.02	0.10	0.53	-0.09	0.39	0.27	0.16	0.00	0.00	-0.04	-0.04	-0.11	0.70
Yi MEAN	1.08	0.48	0.62	3.02	0.60	0.30	0.71	1.29	0.53	0.02	-0.52	0.46	0.37	0.64	0.82	0.91	1.24		
Yi STD	0.72	1.32	1.34		1.16	1.36	1.26	1.13		1.14	0.95	1.00	0.73	1.09	0.96	0.96	0.99		

	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	0	0.0%	-1 < yi ≤ 1	64.0%
-2 lt yi le -1	4	4.0%	-2 < yi ≤ 2	85.0%
-1 lt yi le 0	31	31.0%	-3 < yi ≤ 3	98.0%
0 lt yi le 1	33	33.0%	>3	2.0%
1 lt yi le 2	17	17.0%		
2 lt yi le 3	13	13.0%	Overall Yi STD	1.14
3 lt yi	2	2.0%		
total	100	100.0%	Parts Rated	10

Yi distribution (excluding shaded columns)



Group: Yellow

Heavy Duty Rating Workshop

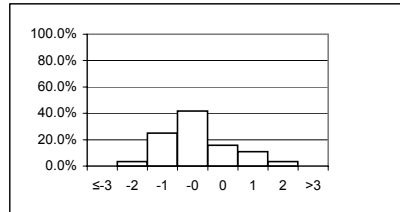
Rater = Tschirhart, Garland

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	-0.16	-1.44	-0.54			1.24	-0.35					-0.47				0.20	0.20	-0.17	0.77
Calibration Piston_2	-0.03	-2.17	-0.49			-1.07	-0.35					-0.23				-0.89	-0.89	-0.76	0.67
A1_square	-1.64	0.07	-0.64	-0.20		-0.40	-1.12	0.12				-0.63				-1.32	-0.65	-0.64	0.58
A2_keystone																			
A3_two-piece																			
A4_two-piece	1.49	-0.73	-2.31		1.50	-0.01	-0.59	-1.37		-1.07		0.61	-1.24	1.56	-0.77	0.68	-1.74	-0.28	1.27
A5_two-piece	-1.27	-1.23	-0.77		0.07	-0.19	-0.47	-0.48		-1.26	-1.37	-1.59	-0.36	-0.36	-0.39	-1.85	-1.63	-0.88	0.61
A6_two-piece	-0.49	-1.40	-0.66		0.59	0.70	-1.44	-0.05		-1.21	-1.49	-1.06	-1.06	0.20	-0.82	-0.55	-0.85	-0.64	0.71
B1_square																			
B2_keystone																			
B3_two-piece																			
B4_two-piece																			
B5_two-piece																			
B6_two-piece																			
C1_square	1.35	-0.43	-0.66	-0.39		0.87	-0.37	-0.34				1.60				1.18	-0.09	0.27	0.87
C2_keystone	0.34	-1.95	-1.05		-0.09	0.20	0.51		-0.41	-1.07		-0.05	-1.52	1.44	-0.81	-1.51	-1.42	-0.53	0.96
C3_two-piece	-0.10	-0.95	-1.97		1.44	-0.57	-2.11	-1.31		0.32	0.79	-0.37	-0.96	2.08	-0.64	0.63	-1.83	-0.37	1.24
C4_two-piece	0.87	1.37	-1.62		1.29	0.79	-1.57	-1.45		-0.25		-0.58	-0.40	1.95	-0.68	0.91	-1.33	-0.05	1.22
C5_two-piece	-0.14	-0.55	1.00		1.00	0.82	-0.96	-1.08		-1.07		0.20	-0.56	1.67	-1.28	-0.01	-0.29	-0.09	0.92
C6_two-piece	0.22	-0.22	-0.62		2.39	2.04	-2.08	-0.67		-1.20	-0.40	-0.73	-0.45	2.44	-0.64	0.97	-0.45	0.04	1.34
Yi MAXIMUM	-1.64	-2.17	-2.31	-0.39	2.39	2.04	-2.11	-1.45	-0.41	-1.26	-1.49	1.60	-1.52	2.44	-1.28	-1.85	-1.83	-0.88	1.34
Yi MINIMUM	-0.03	0.07	-0.49	-0.20	0.07	-0.01	-0.35	-0.05	-0.41	-0.25	-0.40	-0.05	-0.36	0.20	-0.39	-0.01	-0.09	0.04	0.58
Yi MEAN	0.04	-0.80	-0.86	-0.30	1.02	0.37	-0.91	-0.74	-0.41	-0.85	-0.62	-0.28	-0.82	1.37	-0.75	-0.13	-0.91		
Yi STD	0.93	0.96	0.84	0.13	0.82	0.87	0.79	0.59		0.58	1.06	0.82	0.43	0.96	0.25	1.06	0.68		

	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	4	3.3%	-1 < yi ≤ 1	57.5%
-2 lt yi le -1	30	25.0%	-2 < yi ≤ 2	93.3%
-1 lt yi le 0	50	41.7%	-3 < yi ≤ 3	100.0%
0 lt yi le 1	19	15.8%	>3	0.0%
1 lt yi le 2	13	10.8%		
2 lt yi le 3	4	3.3%	Overall Yi STD	1.03
3 lt yi	0	0.0%		
total	120	100.0%	Parts Rated	12

Yi distribution (excluding shaded columns)



Group: Yellow

October 16-20, 2005

Heavy Duty Rating Workshop

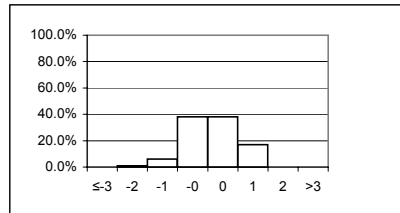
Rater = Viera, Ralph

Yi VALUES

	Groove 1	Groove 2	Groove 3	Groove 4	Land 1	Land 2	Land 3	Land 4	Upper Skirt	Under-crown	Oil Gallery	TGF	2nd GF	TLHC, %	TLFC, %	UWPD	WPD	MEAN	STD
Calibration Piston_1	0.03	-0.40	-0.77			-0.55	-0.79					-0.47				-0.62	-0.62	-0.52	0.26
Calibration Piston_2	1.19	-0.62	-0.33			-0.42	-0.18					0.10				0.49	0.49	0.09	0.60
A1_square																			
A2_keystone																			
A3_two-piece																			
A4_two-piece	0.76	0.53	1.21		-1.86	-0.11	-2.56	1.34		1.70		0.32	-0.18	-0.29	0.86	-0.11	-0.56	0.08	1.18
A5_two-piece																			
A6_two-piece	0.81	0.89	-0.06		0.61	0.03	-0.32	-0.28		0.00	0.77	1.51	0.30	0.20	1.60	1.24	0.51	0.52	0.62
B1_square																			
B2_keystone																			
B3_two-piece																			
B4_two-piece																			
B5_two-piece																			
B6_two-piece																			
C1_square	-0.19	-0.31	-0.13	0.14		-1.02	-0.85	-1.09				0.05				-0.67	-1.46	-0.55	0.54
C2_keystone	1.18	0.47	-0.54		-0.15	-0.56	-1.13		-0.51	-0.24		0.66	0.52	-0.91	0.84	0.46	-0.16	0.00	0.70
C3_two-piece	-0.24	0.21	0.15		0.20	0.53	0.66	-1.37		0.15	0.33	0.38	1.07	-0.44	1.35	0.14	-0.61	0.17	0.66
C4_two-piece	0.51	0.29	0.46		-0.92	-0.86	-0.74	1.49		1.03		1.85	0.40	-0.47	1.35	0.38	1.29	0.43	0.91
C5_two-piece	0.65	-0.07	1.16		-0.50	0.98	0.59	0.44		-0.71		-0.20	1.24	-0.52	0.64	0.56	0.93	0.37	0.65
C6_two-piece	-0.31	-1.11	0.15		1.14	0.30	1.15	-0.27		1.25	1.38	0.79	0.84	1.12	0.45	0.81	0.49	0.54	0.70
Yi MAXIMUM	1.19	-1.11	1.21	0.14	-1.86	-1.02	-2.56	1.49	-0.51	1.70	1.38	1.85	1.24	1.12	1.60	1.24	-1.46	-0.55	1.18
Yi MINIMUM	0.03	-0.07	-0.06	0.14	-0.15	0.03	-0.18	-0.27	-0.51	0.00	0.33	0.05	-0.18	0.20	0.45	-0.11	-0.16	0.00	0.26
Yi MEAN	0.44	-0.01	0.13	0.14	-0.21	-0.17	-0.42	0.04	-0.51	0.45	0.83	0.50	0.60	-0.19	1.01	0.27	0.03		
Yi STD	0.58	0.60	0.66		1.00	0.64	1.06	1.11		0.88	0.53	0.73	0.49	0.66	0.43	0.60	0.85		

	count	percent		
yi le -3	0	0.0%		
-3 lt yi le -2	1	1.0%	-1 < yi ≤ 1	76.0%
-2 lt yi le -1	6	6.0%	-2 < yi ≤ 2	99.0%
-1 lt yi le 0	38	38.0%	-3 < yi ≤ 3	100.0%
0 lt yi le 1	38	38.0%	>3	0.0%
1 lt yi le 2	17	17.0%		
2 lt yi le 3	0	0.0%	Overall Yi STD	0.81
3 lt yi	0	0.0%		
total	100	100.0%	Parts Rated	10

Yi distribution (excluding shaded columns)



Group: White

