

BRANDEIS MACHINERY AND SUPPLY COMPANY  
 ANTHONY HILLYARD  
 1801 WATTERSON TRAIL  
 LOUISVILLE, KY 40299

# KOWA

ISO 9001 REGISTERED  
 11350 Bluegrass Parkway  
 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**ABNORMAL** ON 16-Sep-10

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: ENGINE  
 COMP. REF. NO.: 157023  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL 15W40
COMPONENT TYPE DIESEL ENGINE (TURBO CHARGED)	COMPONENT MANUFACTURER AND MODEL KOMATSU SAA6D102E-2	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 4267 Reported On 2010-09-23 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES ABNORMAL CONDITIONS! MODERATE levels of OXIDATION and NITRATION present. CHECK for air intake and/or exhaust restriction. Data provided indicates oil and filter were changed at sampling. RESAMPLE at 1/2 normal interval.

EVAL ID: 3810	SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT																			SAMPLE DRAWN		
	LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium		Magnesium	Antimony
3197	54	5	<1	6	4	18	<1	0.3	<1	36	77	22	22	75	1336	1825	3726	<10	25	<30	<1	07-Feb-06
792	38	3	<1	3	<1	4	<1	<1	<1	9	35	7	<10	<5	1141	1491	2646	<10	96	<30	<1	20-Oct-06
5324	42	4	<1	5	3	19	<1	<1	<1	9	43	3	<10	<5	1429	1799	3581	<10	149	<30	<1	10-Aug-07
4494	17	1	<1	3	<1	1	<1	<1	<1	5	57	16	<10	<5	1234	1471	3151	<10	115	<30	<1	05-Aug-09
2039	5	<1	<1	<1	<1	<1	<1	<1	<1	4	33	3	<10	<5	911	1038	2010	<10	16	<30	<1	13-Nov-09
4267	24	1	<1	2	4	11	<1	<1	<1	3	34	12	<10	<5	998	1254	2662	<10	96	<30	<1	16-Sep-10

SAMPLE INFORMATION						PHYSICAL TEST RESULTS								
LAB NO.	MI/HR Unit	MI/HR Oil	Oil Add	FLTR CHG	OIL CHG	FUEL %VOL	FUEL SOOT	ABS OXID	ABS NITR	WTR. %VOL	GLYCOL TEST	VIS 100°C	CS	SAE GRADE
3197	559	559				<1.0	0.2	N/R	14	<10	Negative	13.0		40
792	916					<1.0	0.1	N/R	11	<10	Negative	14.0		40
5324	1457			y	C	<1.0	0.1	18	10	<10	Negative	13.1		40
4494	2161	177		n	n	<1.0	<1	14	8	<10	Negative	13.0		40
2039	2577	593	6	y	y	<1.0	<1	36	5	<10	Negative	15.1		40
4267	3331		7	y	y	<1.0	0.2	21	11	<10	Negative	14.6		40

UNDERLINED RESULTS INDICATE SIGNIFICANT VALUES BASED ON KOWA GUIDELINES. SINGLE UNDERLINES INDICATE "MONITOR" OR "CAUTION" LEVELS. DOUBLE UNDERLINES INDICATES CRITICAL LEVELS.

FOR LEGEND AND EXPLANATION OF KOWA TESTS PLEASE CLICK ON THE "LEGEND" TAB AT THE TOP OF ANY KOWA ONLINE WEB PAGE.  
 KOWA SAMPLE ANALYSIS IS PERFORMED BY AN INDEPENDENT LABORATORY.

FOR LEGEND AND EXPLANATION OF ADDITIONAL TESTS PLEASE CLICK ON THE "GLOSSARY" TAB AT THE TOP OF ANY KOWA ONLINE WEB PAGE.

NOTE: 'L' after SAMPLE DRAWN indicates date was NOT provided, displayed date is process date.

N/R = TEST NOT PERFORMED

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Form No. 6024B 9/00

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 ANTHONY HILLYARD  
 1801 WATTERSON TRAIL  
 LOUISVILLE, KY 40299

# KOWA

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 11350 Bluegrass Parkway  
 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**Normal** ON 16-Sep-10

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: SWING GEAR  
 COMP. REF. NO.: 157021  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL SAE 30
COMPONENT TYPE SWING GEAR	COMPONENT MANUFACTURER AND MODEL KOMATSU -	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 4269 Reported On 2010-09-23 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS WERE ACCEPTABLE. Data reflects the system was serviced and this fluid was drained at the time of sampling. RESAMPLE at the next scheduled interval.

**SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT**

EVAL ID: 3810	LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	SAMPLE DRAWN
	3195	82	2	<1	2	<1	2	<1	<1	<1	20	6	5	<10	<5	820	798	3937	21	18	<30	<1	07-Feb-06
	5326	34	1	<1	1	<1	3	<1	<1	<1	11	13	<1	<10	<5	1309	1503	3169	<10	132	<30	<1	10-Aug-07
	4493	16	<1	<1	1	<1	1	<1	<1	<1	6	8	1	<10	<5	1087	1230	2682	<10	26	<30	<1	05-Aug-09
	2038	20	<1	<1	<1	1	<1	1	<1	<1	5	3	3	<10	<5	856	968	2148	<10	21	<30	<1	13-Nov-09
	4269	29	<1	<1	<1	<1	<1	<1	<1	<1	5	3	6	<10	<5	921	1041	2311	<10	21	<30	<1	16-Sep-10

**SAMPLE INFORMATION**

**PHYSICAL TEST RESULTS**

LAB NO.	Mi/HR Unit	Mi/HR Oil	Oil Add	FLTR CHG	OIL CHG	WATER % VOL	VIS CS 100°C
3195	559	559				<.10	12.3
5326	1457					<.10	11.0
4493	2161	177			n	<.10	11.2
2038	2577	593			n	<.10	11.1
4269	3331		2		y	<.10	11.0



UNDERLINED RESULTS INDICATE SIGNIFICANT VALUES BASED ON KOWA GUIDELINES. SINGLE UNDERLINES INDICATE "MONITOR" OR "CAUTION" LEVELS. DOUBLE UNDERLINES INDICATES CRITICAL LEVELS.

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 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**ABNORMAL** ON 13-Nov-09

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: HYDRAULIC  
 COMP. REF. NO.: 157022  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL SAE 10
COMPONENT TYPE HYDRAULIC SYSTEM	COMPONENT MANUFACTURER AND MODEL KOMATSU -	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 2035 Reported On 2009-11-17 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES ABNORMAL COMPONENT CONDITIONS! Pump, valve and/or cylinder area wear. PERFORM diagnostics and institute repairs/inspections accordingly. CHANGE the OIL and FILTER(s) if not already performed. RESAMPLE after diagnostics / corrective action to confirm improvement.

**SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT**

EVAL ID: 3810	SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT																			SAMPLE DRAWN		
LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	SAMPLE DRAWN
3196	19	<1	<1	2	2	5	<1	<1	<1	5	88	4	<10	75	1010	1143	2774	<10	17	<30	<1	07-Feb-06
789	48	<1	<1	2	<1	6	<1	<1	<1	4	88	2	<10	65	939	1061	2499	<10	17	<30	<1	27-Oct-06 L
5328	46	1	<1	5	2	9	<1	<1	<1	14	162	2	<10	113	1403	1658	3831	<10	21	<30	<1	10-Aug-07
4492	194	1	1	4	2	14	<1	<1	<1	8	132	5	<10	94	1127	1324	3123	<10	16	<30	<1	05-Aug-09
2035	110	<1	<1	2	1	6	1	<1	<1	6	45	13	<10	33	947	1142	2746	<10	13	<30	<1	13-Nov-09

**SAMPLE INFORMATION**

**PHYSICAL TEST RESULTS**

LAB NO.	Mi/HR Unit	Mi/HR Oil	Oil Add	FLTR CHG	OIL CHG	WATER % VOL	VIS CS 100°C
3196	559	559				<.10	6.7
789	916					<.10	6.5
5328	1457					<.10	6.4
4492	2161	2161		n	n	<.10	6.5
2035	2577	416	5	n	n	<.10	6.7



UNDERLINED RESULTS INDICATE SIGNIFICANT VALUES BASED ON KOWA GUIDELINES. SINGLE UNDERLINES INDICATE "MONITOR" OR "CAUTION" LEVELS. DOUBLE UNDERLINES INDICATES CRITICAL LEVELS.

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 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**Normal** ON 13-Nov-09

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: FINAL DRIVE LEFT  
 COMP. REF. NO.: 157019  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL SAE 30
COMPONENT TYPE FINAL DRIVE	COMPONENT MANUFACTURER AND MODEL KOMATSU -	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 2036 Reported On 2009-11-17 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS WERE ACCEPTABLE. Data reflects the system was serviced and this fluid was drained at the time of sampling. RESAMPLE at the next scheduled interval.

### SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT

EVAL ID: 3810	LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	SAMPLE DRAWN
	3194	178	3	<1	2	<1	84	<1	<1	<1	38	<1	11	11	<5	621	729	3698	41	16	<30	<1	07-Feb-06
	790	261	5	<1	6	<1	139	<1	<1	<1	47	<1	8	18	<5	480	725	3642	36	14	<30	1	20-Oct-06
	5325	344	7	1	18	1	230	<1	<1	1	98	<1	7	<10	<5	931	1174	4483	50	18	<30	<1	10-Aug-07
	4495	65	1	<1	3	<1	8	<1	<1	<1	16	5	2	<10	<5	1041	1181	2579	<10	17	<30	<1	05-Aug-09
	2036	197	7	<1	11	<1	15	<1	<1	1	56	2	4	<10	<5	849	953	2129	<10	13	<30	1	13-Nov-09

### SAMPLE INFORMATION

### PHYSICAL TEST RESULTS

LAB NO.	Mi/HR Unit	Mi/HR Oil	Oil Add	FLTR CHG	OIL CHG	WATER % VOL	VIS CS 100°C
3194	559	559				<.10	11.3
790	916					<.10	11.2
5325	1457					<.10	11.0
4495	2161	177			n	<.10	9.0
2036	2577	416	1.2		y	<.10	8.8



UNDERLINED RESULTS INDICATE SIGNIFICANT VALUES BASED ON KOWA GUIDELINES. SINGLE UNDERLINES INDICATE "MONITOR" OR "CAUTION" LEVELS. DOUBLE UNDERLINES INDICATES CRITICAL LEVELS.

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 11350 Bluegrass Parkway  
 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**Normal** ON Lab # 2037

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: FINAL DRIVE RIGHT  
 COMP. REF. NO.: 157020  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL SAE 30
COMPONENT TYPE FINAL DRIVE	COMPONENT MANUFACTURER AND MODEL KOMATSU -	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 2037 Reported On 2009-11-17 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS WERE ACCEPTABLE. Data reflects the system was serviced and this fluid was drained at the time of sampling. RESAMPLE at the next scheduled interval.

### SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT

EVAL ID: 3810	SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT																			SAMPLE DRAWN		
LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	
3198	169	4	<1	3	<1	82	<1	<1	<1	37	<1	10	11	<5	646	750	3791	41	18	<30	<1	07-Feb-06
791	203	4	<1	3	<1	130	<1	<1	<1	37	1	7	12	<5	563	804	3643	33	29	<30	<1	23-Oct-06
5327	481	8	1	115	<1	241	<1	<1	4	301	<1	7	27	<5	876	1098	4234	50	38	<30	<1	10-Aug-07
4491	87	2	<1	5	<1	9	<1	<1	<1	26	5	2	<10	<5	1036	1166	2537	<10	19	<30	<1	05-Aug-09
2037	255	7	<1	13	<1	16	<1	<1	1	70	1	4	<10	<5	860	969	2165	<10	14	<30	1	17-Nov-09 L

### SAMPLE INFORMATION

### PHYSICAL TEST RESULTS

LAB NO.	Mi/HR Unit	Mi/HR Oil	Oil Add	FLTR CHG	OIL CHG	WATER % VOL	VIS CS 100°C
3198	559	559				<.10	11.4
791	916					<.10	11.0
5327	1457					<.10	10.9
4491	2161	177			n	<.10	9.0
2037	2577	416	1.2		y	<.10	8.8



UNDERLINED RESULTS INDICATE SIGNIFICANT VALUES BASED ON KOWA GUIDELINES. SINGLE UNDERLINES INDICATE "MONITOR" OR "CAUTION" LEVELS. DOUBLE UNDERLINES INDICATES CRITICAL LEVELS.

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 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**Normal** ON 13-Nov-09

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: SWING GEAR  
 COMP. REF. NO.: 157021  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL SAE 30
COMPONENT TYPE SWING GEAR	COMPONENT MANUFACTURER AND MODEL KOMATSU -	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 2038 Reported On 2009-11-17 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS ARE ACCEPTABLE. RESAMPLE at the next scheduled interval.

### SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT

EVAL ID: 3810	LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	SAMPLE DRAWN
	3195	82	2	<1	2	<1	2	<1	<1	<1	20	6	5	<10	<5	820	798	3937	21	18	<30	<1	07-Feb-06
	5326	34	1	<1	1	<1	3	<1	<1	<1	11	13	<1	<10	<5	1309	1503	3169	<10	132	<30	<1	10-Aug-07
	4493	16	<1	<1	1	<1	1	<1	<1	<1	6	8	1	<10	<5	1087	1230	2682	<10	26	<30	<1	05-Aug-09
	2038	20	<1	<1	<1	1	<1	1	<1	<1	5	3	3	<10	<5	856	968	2148	<10	21	<30	<1	13-Nov-09

### SAMPLE INFORMATION

### PHYSICAL TEST RESULTS

LAB NO.	Mi/HR Unit	Mi/HR Oil	Oil Add	FLTR CHG	OIL CHG	WATER % VOL	VIS CS 100°C
3195	559	559				<.10	12.3
5326	1457					<.10	11.0
4493	2161	177		n		<.10	11.2
2038	2577	593		n		<.10	11.1



UNDERLINED RESULTS INDICATE SIGNIFICANT VALUES BASED ON KOWA GUIDELINES. SINGLE UNDERLINES INDICATE 'MONITOR' OR 'CAUTION' LEVELS. DOUBLE UNDERLINES INDICATES CRITICAL LEVELS.

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 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**ABNORMAL** ON 13-Nov-09

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: ENGINE  
 COMP. REF. NO.: 157023  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL 15W40
COMPONENT TYPE DIESEL ENGINE (TURBO CHARGED)	COMPONENT MANUFACTURER AND MODEL KOMATSU SAA6D102E-2	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 2039 Reported On 2009-11-17 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES ABNORMAL CONDITIONS! EXCESSIVE level of OXIDATION products present. Condition may be due to high operating temperatures, excessive load, or over-extended oil drain interval. Data provided indicates oil and filter were changed at sampling. RESAMPLE at the next scheduled interval.

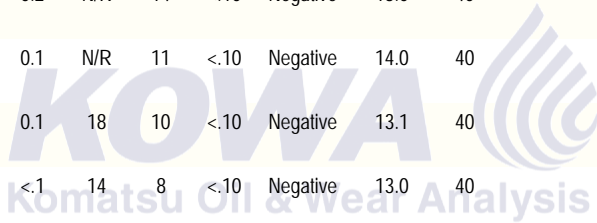
### SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT

EVAL ID: 3810	SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT																			SAMPLE DRAWN		
	LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium		Magnesium	Antimony
3197	54	5	<1	6	4	18	<1	0.3	<1	36	77	22	22	75	1336	1825	3726	<10	25	<30	<1	07-Feb-06
792	38	3	<1	3	<1	4	<1	<1	<1	9	35	7	<10	<5	1141	1491	2646	<10	96	<30	<1	20-Oct-06
5324	42	4	<1	5	3	19	<1	<1	<1	9	43	3	<10	<5	1429	1799	3581	<10	149	<30	<1	10-Aug-07
4494	17	1	<1	3	<1	1	<1	<1	<1	5	57	16	<10	<5	1234	1471	3151	<10	115	<30	<1	05-Aug-09
2039	5	<1	<1	<1	<1	<1	<1	<1	<1	4	33	3	<10	<5	911	1038	2010	<10	16	<30	<1	13-Nov-09

### SAMPLE INFORMATION

### PHYSICAL TEST RESULTS

LAB NO.	MI/HR Unit	MI/HR Oil	Oil Add	FLTR CHG	OIL CHG	FUEL %VOL	FUEL SOOT	ABS OXID	ABS NITR	WTR. %VOL	GLYCOL TEST	VIS 100°C	CS GRADE	SAE
3197	559	559				<1.0	0.2	N/R	14	<10	Negative	13.0		40
792	916					<1.0	0.1	N/R	11	<10	Negative	14.0		40
5324	1457			y	C	<1.0	0.1	18	10	<10	Negative	13.1		40
4494	2161	177		n	n	<1.0	<1	14	8	<10	Negative	13.0		40
2039	2577	593	6	y	y	<1.0	<1	36	5	<10	Negative	15.1		40



UNDERLINED RESULTS INDICATE SIGNIFICANT VALUES BASED ON KOWA GUIDELINES. SINGLE UNDERLINES INDICATE "MONITOR" OR "CAUTION" LEVELS. DOUBLE UNDERLINES INDICATES CRITICAL LEVELS.

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NOTE: 'L' after SAMPLE DRAWN indicates date was NOT provided, displayed date is process date.

N/R = TEST NOT PERFORMED

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Form No. 6024B 9/00

BRANDEIS MACHINERY AND SUPPLY COMPANY  
 ANTHONY HILLYARD  
 1801 WATTERSON TRAIL  
 LOUISVILLE, KY 40299

# KOWA

ISO 9001 REGISTERED  
 11350 Bluegrass Parkway  
 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**Normal** ON 05-Aug-09

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: FINAL DRIVE RIGHT  
 COMP. REF. NO.: 157020  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL SAE 30
COMPONENT TYPE FINAL DRIVE	COMPONENT MANUFACTURER AND MODEL KOMATSU -	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 4491 Reported On 2009-08-06 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS ARE ACCEPTABLE. RESAMPLE at the next scheduled interval.

**SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT**

EVAL ID: 4666	SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT																			SAMPLE DRAWN		
LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	
3198	169	4	<1	3	<1	82	<1	<1	<1	37	<1	10	11	<5	646	750	3791	41	18	<30	<1	07-Feb-06
791	203	4	<1	3	<1	130	<1	<1	<1	37	1	7	12	<5	563	804	3643	33	29	<30	<1	23-Oct-06
5327	481	8	1	115	<1	241	<1	<1	4	301	<1	7	27	<5	876	1098	4234	50	38	<30	<1	10-Aug-07
4491	87	2	<1	5	<1	9	<1	<1	<1	26	5	2	<10	<5	1036	1166	2537	<10	19	<30	<1	05-Aug-09

**SAMPLE INFORMATION**

**PHYSICAL TEST RESULTS**

LAB NO.	Mi/HR Unit	Mi/HR Oil	Oil Add	FLTR CHG	OIL CHG	WATER % VOL	VIS CS 100°C
3198	559	559				<.10	11.4
791	916					<.10	11.0
5327	1457					<.10	10.9
4491	2161	177		n		<.10	9.0



UNDERLINED RESULTS INDICATE SIGNIFICANT VALUES BASED ON KOWA GUIDELINES. SINGLE UNDERLINES INDICATE "MONITOR" OR "CAUTION" LEVELS. DOUBLE UNDERLINES INDICATES CRITICAL LEVELS.

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NOTE: 'L' after SAMPLE DRAWN indicates date was NOT provided, displayed date is process date.

N/R = TEST NOT PERFORMED

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Form No. 6024B 9/00

BRANDEIS MACHINERY AND SUPPLY COMPANY  
 ANTHONY HILLYARD  
 1801 WATTERSON TRAIL  
 LOUISVILLE, KY 40299

# KOWA

ISO 9001 REGISTERED  
 11350 Bluegrass Parkway  
 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**ABNORMAL** ON 05-Aug-09

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: HYDRAULIC  
 COMP. REF. NO.: 157022  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE - FACTORY FILL SAE 10
COMPONENT TYPE HYDRAULIC SYSTEM	COMPONENT MANUFACTURER AND MODEL KOMATSU -	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 4492 Reported On 2009-08-06 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES ABNORMAL COMPONENT CONDITIONS! The LEVEL of wear metal(s) has INCREASED. Pump, valve and/or cylinder area wear. PERFORM diagnostics and institute repairs/inspections accordingly. Other test results are satisfactory. RESAMPLE after diagnostics / corrective action to confirm improvement.

**SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT**

EVAL ID: 4666	LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	SAMPLE DRAWN
	3196	19	<1	<1	2	2	5	<1	<1	<1	5	88	4	<10	75	1010	1143	2774	<10	17	<30	<1	07-Feb-06
	789	48	<1	<1	2	<1	6	<1	<1	<1	4	88	2	<10	65	939	1061	2499	<10	17	<30	<1	27-Oct-06 L
	5328	46	1	<1	5	2	9	<1	<1	<1	14	162	2	<10	113	1403	1658	3831	<10	21	<30	<1	10-Aug-07
	4492	194	1	1	4	2	14	<1	<1	<1	8	132	5	<10	94	1127	1324	3123	<10	16	<30	<1	05-Aug-09

**SAMPLE INFORMATION**

**PHYSICAL TEST RESULTS**

LAB NO.	Mi/HR Unit	Mi/HR Oil	Oil Add	FLTR CHG	OIL CHG	WATER % VOL	VIS CS 100°C
3196	559	559				<.10	6.7
789	916					<.10	6.5
5328	1457					<.10	6.4
4492	2161	2161	n	n		<.10	6.5



UNDERLINED RESULTS INDICATE SIGNIFICANT VALUES BASED ON KOWA GUIDELINES. SINGLE UNDERLINES INDICATE "MONITOR" OR "CAUTION" LEVELS. DOUBLE UNDERLINES INDICATES CRITICAL LEVELS.

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NOTE: 'L' after SAMPLE DRAWN indicates date was NOT provided, displayed date is process date.

N/R = TEST NOT PERFORMED

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Form No. 6024B 9/00

BRANDEIS MACHINERY AND SUPPLY COMPANY  
 ANTHONY HILLYARD  
 1801 WATTERSON TRAIL  
 LOUISVILLE, KY 40299

# KOWA

ISO 9001 REGISTERED  
 11350 Bluegrass Parkway  
 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**Normal** ON 05-Aug-09

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: SWING GEAR  
 COMP. REF. NO.: 157021  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL SAE 30
COMPONENT TYPE SWING GEAR	COMPONENT MANUFACTURER AND MODEL KOMATSU -	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 4493 Reported On 2009-08-06 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS ARE ACCEPTABLE. RESAMPLE at the next scheduled interval.

### SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT

EVAL ID: 4666	LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	SAMPLE DRAWN
	3195	82	2	<1	2	<1	2	<1	<1	<1	20	6	5	<10	<5	820	798	3937	21	18	<30	<1	07-Feb-06
	5326	34	1	<1	1	<1	3	<1	<1	<1	11	13	<1	<10	<5	1309	1503	3169	<10	132	<30	<1	10-Aug-07
	4493	16	<1	<1	1	<1	1	<1	<1	<1	6	8	1	<10	<5	1087	1230	2682	<10	26	<30	<1	05-Aug-09

### SAMPLE INFORMATION

### PHYSICAL TEST RESULTS

LAB NO.	Mi/HR Unit	Mi/HR Oil	Oil Add	FLTR CHG	OIL CHG	WATER % VOL	VIS CS 100°C
3195	559	559				<.10	12.3
5326	1457					<.10	11.0
4493	2161	177		n		<.10	11.2



UNDERLINED RESULTS INDICATE SIGNIFICANT VALUES BASED ON KOWA GUIDELINES. SINGLE UNDERLINES INDICATE 'MONITOR' OR 'CAUTION' LEVELS. DOUBLE UNDERLINES INDICATES CRITICAL LEVELS.

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NOTE: 'L' after SAMPLE DRAWN indicates date was NOT provided, displayed date is process date.

N/R = TEST NOT PERFORMED

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# KOWA

BRANDEIS MACHINERY AND SUPPLY COMPANY  
 ANTHONY HILLYARD  
 1801 WATTERSON TRAIL  
 LOUISVILLE, KY 40299

ISO 9001 REGISTERED  
 11350 Bluegrass Parkway  
 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**Normal** ON 05-Aug-09

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: ENGINE  
 COMP. REF. NO.: 157023  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL 15W40
COMPONENT TYPE DIESEL ENGINE (TURBO CHARGED)	COMPONENT MANUFACTURER AND MODEL KOMATSU SAA6D102E-2	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 4494 Reported On 2009-08-06 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS ARE ACCEPTABLE. RESAMPLE at the next scheduled interval.

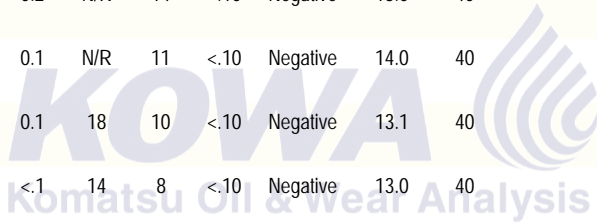
### SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT

EVAL ID: 4666	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	SAMPLE DRAWN
LAB NO. 3197	54	5	<1	6	4	18	<1	0.3	<1	36	77	22	22	75	1336	1825	3726	<10	25	<30	<1	07-Feb-06
792	38	3	<1	3	<1	4	<1	<1	<1	9	35	7	<10	<5	1141	1491	2646	<10	96	<30	<1	20-Oct-06
5324	42	4	<1	5	3	19	<1	<1	<1	9	43	3	<10	<5	1429	1799	3581	<10	149	<30	<1	10-Aug-07
4494	17	1	<1	3	<1	1	<1	<1	<1	5	57	16	<10	<5	1234	1471	3151	<10	115	<30	<1	05-Aug-09

### SAMPLE INFORMATION

### PHYSICAL TEST RESULTS

LAB NO.	MI/HR Unit	MI/HR Oil	Oil Add	FLTR CHG	OIL CHG	FUEL %VOL	FUEL SOOT	ABS OXID	ABS NITR	WTR. %VOL	GLYCOL TEST	VIS 100°C	CS SAE GRADE
3197	559	559				<1.0	0.2	N/R	14	<.10	Negative	13.0	40
792	916					<1.0	0.1	N/R	11	<.10	Negative	14.0	40
5324	1457			y	C	<1.0	0.1	18	10	<.10	Negative	13.1	40
4494	2161	177		n	n	<1.0	<.1	14	8	<.10	Negative	13.0	40



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BRANDEIS MACHINERY AND SUPPLY COMPANY  
 ANTHONY HILLYARD  
 1801 WATTERSON TRAIL  
 LOUISVILLE, KY 40299

# KOWA

ISO 9001 REGISTERED  
 11350 Bluegrass Parkway  
 Louisville KY 40299  
 PH: (502)266-9776 FAX: (502)266-9779

STATUS WAS

**Normal** ON 05-Aug-09

MODEL SERIAL #: A87472 / C5350  
 COMPONENT: FINAL DRIVE LEFT  
 COMP. REF. NO.: 157019  
 P.O./REF NO.: POWER EQUI

WORKSITE	MODEL MANUFACTURER KOMATSU PC200LC-7L	OIL TYPE CASTROL SAE 30
COMPONENT TYPE FINAL DRIVE	COMPONENT MANUFACTURER AND MODEL KOMATSU -	COMPONENT SERIAL NUMBER

MAINTENANCE RECOMMENDATIONS FOR LAB NO. 4495 Reported On 2009-08-06 From: POWER EQUIPMENT COMPANY, LA VERGNE, TN



ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS ARE ACCEPTABLE. RESAMPLE at the next scheduled interval.

**SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT**

EVAL ID: 4666	SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION BY WEIGHT																				SAMPLE DRAWN	
LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	SAMPLE DRAWN
3194	178	3	<1	2	<1	84	<1	<1	<1	38	<1	11	11	<5	621	729	3698	41	16	<30	<1	07-Feb-06
790	261	5	<1	6	<1	139	<1	<1	<1	47	<1	8	18	<5	480	725	3642	36	14	<30	1	20-Oct-06
5325	344	7	1	18	1	230	<1	<1	1	98	<1	7	<10	<5	931	1174	4483	50	18	<30	<1	10-Aug-07
4495	65	1	<1	3	<1	8	<1	<1	<1	16	5	2	<10	<5	1041	1181	2579	<10	17	<30	<1	05-Aug-09

**SAMPLE INFORMATION**

**PHYSICAL TEST RESULTS**

LAB NO.	Mi/HR Unit	Mi/HR Oil	Oil Add	FLTR CHG	OIL CHG	WATER % VOL	VIS CS 100°C
3194	559	559				<.10	11.3
790	916					<.10	11.2
5325	1457					<.10	11.0
4495	2161	177	n			<.10	9.0



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