

ES7

SERVICE INVOICE

STK#/FLEET#		HRS	PIN/EIN	WARRANTY DATE	HRS
X112228	EXCAVATOR	4069	1FF350GXVDE809302	05/16/14	
	350				7000

SEGMENT# 1 C KHM01 RDO-020-DIAG 04/09/21 04/09/21

ENGINE DIAGNOSTICS

CONDITION:

The customer states that the engine was smoking and died. They said the engine would turn over very hard.

CAUSE:

EGR cooler has failed.

CORRECTION:

Checked coolant level, there is no coolant in the surge tank. DTC 111.17 is stored 115 times over the last 100 hrs. Removed engine compartment hood. Barred engine over by hand, engine spins freely. Removed EGR cooler hot and cold side tubes, coolant is present in EGR cooler. Two bolts broke off the exhaust manifold while removing the hot side tube. Determined that EGR cooler has failed. Started engine to see if I would run, engine starts and runs, there is a popping noise coming from the exhaust manifold. Performed cylinder cutout test, all cylinders are firing, the popping noise disappears when cylinder 3 is cut out, it appears that the exhaust valves are leaking. Performed electronic compression test, cylinder 4 is lower than the other cylinders. Determined that a compression test, and leak down test should be performed. Fabricates block off plates for the EGR cooler and re filled cooling system so

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Thank you for your business

82659

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the machine could be loaded on a truck and brought to the shop.

TY26576	COOL-GARD TM	2	36.75	
			PARTS	
			LABOR	

10401099	SEGMENT TOTAL==>
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SEGMENT# 2 C KHM01 STT-20 04/09/21 04/09/21

TRAVEL, ROUND TRIP

CONDITION:

Take the exit at Best West Ramkota.

Lacrosse St. on the on rap.

Todd 605-390-9762

CAUSE:

4.9.22, shop to machine, 5 miles.

CORRECTION:

4.9.21, 20 miles.

	LABOR
10401099	SEGMENT TOTAL==>

SEGMENT# 3 C JUZ01 RDO-020-DIAG 04/09/21 04/12/21

ENGINE DIAGNOSTICS

CONDITION:

In shop diagnostics.

CORRECTION:

Pulled unit into the shop then pulled the hood and DPF panel, removed the exhaust from the turbo to exhaust. Pulled the intake piping and then started pulling the exhaust support bracket and the turbo drain line off at the turbo. Then pulled the turbo oil supply line and the wire

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harness connections and harness running across the valve cover. Removed the valve cover and then pulled the injector quill tubes and then pulled the injectors out, had trouble getting them out of the head had to clean and lube the quill tubes and use a puller to get the injectors out to the head. Cycled the engine to get the fuel out of the cylinders then set up compression tester and then tested each cylinder. Found cylinder 4 was at 260 psi the spec is average 10% between cylinders and the psi range is 430. Cyl 1 was at 550 psi and 3,5,and 6 were at 340. Recommend replacing the engine. Put together quote to replace complete engine for the customer and showed then what we found and why the unit needs an engine. The customer had to get his company approval to do the swap. Customer called back and requested two other quotes one to rebuild the engine and one to put the engine back together with only replacing the damaged parts. looked up all the parts and put the two separate quotes together to present to the customer. Put the cylinder head back on the engine block, installed the turbos, reassembled the engine and all the supports, lines, and components removed in the diag process, put the engine on the stand and returned for core

4436535	SENSOR	1	
582	HARDWARE	2 N	

PARTS
LABOR

10401099 SEGMENT TOTAL==>

SEGMENT# 4 C JUZ01 10-020-070 04/09/21 04/22/21
ENGINE WIT4, R&R

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X112228 EXCAVATOR 350	4069	1FF350GXVDE809302	05/16/14	7000

CORRECTION:

Got customer approval to replace the engine and aftertreatment due to the engine failure. Started draining engine oil, and removing all the fluid lines to the engine and plugging them off. Pulled the charge air piping off at the engine and the cooler to remove them from the machine, pulled the a/c compressor mount and the hydraulic fan drive pump. Then pulled the battery connections at the battery and removed all the electrical connections from the engine. Pulled the upper panel above the aftertreatment and pulled the mount hardware, then rigged up the crane and lifted the aftertreatment system out. Rigged up the crane again to the hydraulic drive pumps, removed the mounting hardware and separated the pumps off the engine and secured them to the sub frame of the machine. Went to pull the remote oil filter lines off the connection at the engine and found the line gualded to the adapter, put some heat to the fitting but could not get the leverage to get the fitting loose. Got the fitting to move enough that the end of the line would swivel, then the entire filter adapter could be removed. Pulled the line connection at the filter head and the isolator mount and removed the line and filter adapter, got the pieces out of the machine and pulled the line and it pulled the treads with it, so then looked up and ordered a new line and the new engine had the adapter fitting so we did not need that part. Pulled the front motor mounts and found they would not come out, tried to heat the bolts but they were gualded in the mounts, ended up cutting the bolts out. The rear motor mounts would not come out at the frame connection and clear when lifting the unit out so then had

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EXCAVATOR				
350				7000

to build tooling to access the bolt at the bell housing connection.. Once the rear mount bolts were loose, then rigged up the crane and lifted the engine out and set on stands. Began swapping over components needed on the new engine along with a new pump drive coupler and cleaning out all the mounting connection treads, rigged up the crane to the new engine and installed it in the machine with the new front motor mount isolators and hardware. Began connecting all the electrical connections and the removed components reassembling the unit in reverse order, then disassembled the dpf and had to heat the fittings to get them out of the dpf assembled the new dpf and doc and put into the enclosure then rigged up and set in place in the machine. Connected all the exhaust and filled the fluids, reprogramed the new ecm and then put the new calibrations in for the new aftertreatment. Started and ran the unit verified no leaks at this time, put all the lower panels back on then the upper engine compartment panels on. Shut the engine down and checked the fluids then started the unit and put threw service regen and verified all proper functioning and no codes. Once the regen was complete took the unit out and ran threw all the functions, unit functioning properly at this time. Got the new a/c belt, went out to the unit in the yard removed and replaced the the belt. Put the unit on the ready line for customer pickup.

AT330978	AIR FILTER	1
AT330980	AIR FILTER	1
CRSE502711	Diesel Engine R	1-
DZ101884	Filter Kit	1

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	350				7000
FF502768			Hydraulic Hose	1 M	
FRTIN			SHIP/HANDLING	4	
FYB00003277			Coupling	1 N	
H79910			DOWEL PIN	2	
J921806			CAP SCREW	2 N	
J950018			Nut	2 N	
RESTOCK			RESTOCK FEES	1	
RE304965			Clamp	1 N	
RE52702			CLAMP	6 N	
RE540348			Clamp	1 N	
RE541806			Diesel Oxidatio	1 N	
RE541834			Diesel Particul	1 N	
	Diesel Particulate Filter				
R521053			V-Belt	1 M	
R528085			SCREW	10 N	
R529510			GASKET	1	
R529640			GASKET	1	
SE502711			Diesel Engine R	1 N 3	
	OLD SERIAL=RG6090R042198				
	NEW SERIAL=SE6090R036783				
CRSE502711			Diesel Engine R		
TY26661			BREAK-IN PLUS G	3	
	Break-In Plus Oil 10W30				
TY26663			ENGINE BREAK-IN	1	
	Break-In Plus Oil 10W30				
TY27530			COOL-GARD	60	
T257347			Hose	2 N	
T260471			O-RING	1 N	
14M7277			NUT	2	
19M7968			CAP SCREW	2	

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	350				7000
4622543	Isolator		4	32.24	
				PARTS	
				LABOR	
10401099				SEGMENT TOTAL==>	

SEGMENT# 5 C JUZ01 NA 04/09/21 05/13/21

CLEANING OF ENGINE PARTS

CORRECTION:

Disassembled and cleaned out the air piping and the charge air piping as well, then flushed out the charge air cooler and dried it out. Reassembled and installed the ducting back into the machine with two new cac boots on the cold side pipe along with new clamps.

10401099	LABOR
	SEGMENT TOTAL==>

***** WORK ORDER TOTALS *****

PARTS

LABOR

HAZARDOUS MTL

SRV ACCESSORIES

SUB TOTAL==>

SD CITY TAX

SD STATE TAX

TOTAL DUE RDO

692040

68535.53

+-----+
 | Payments are due on your RDO account 30 days from the invoice date |
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Thank you for your business

PARIS INVOICE

ORDER#: 246775

Part#	Description	Bin	ORD	ISS	SHP	B/O	U	Price	Amount
FYB00003277	Coupling	RCD0092	1	1	1				
3104554	GEAR	RCD0092	1	1	1				
3081085	PINION SHA	VC8C	1	1	1				
FYD00001128	Seal	RCD0092	1	1	1				
FYD00001129	Wear Ring	RCD0092	1	1	1				
40M7120	SNAP RING	VH7C	1	1	1				
TH109453	SEAL	GT19	1	1	1				
3033593	COVER	RCD0092	1	1	1				
AT264339	O-RING	GT2	1	1	1				
40M7178	SNAP RING	RCD0092	1	1	1				
FYB00003257	Gear Case	RCD0092	1	1	1				
4467592	Seal Kit	RCD0927	1	1	1				
2038877	Shaft	RCD0927	1	1	1				
TH111233	Tapered Roller	RCD0927	1	1	1				
	Tapered Roller Bearing								
JD37194	Tapered Roller	RCD0927	1	1	1				
	Tapered Roller Bearing								
3035965	Spacer	RCD0927	1	1	1				
4191665	Nut	RCD0927	1	1	1				
3081023	Shaft	RC03561	1	1	1				

STOCK ORDER
350 EXC

SUB TOTAL==>

Thank you for your Business

Stocked parts can be returned within 30 days with copy of invoice. Special order parts \$20.00 and up may be returned within 30 days with copy of invoice. 20% restock charge will apply to all special order parts. All sales are final on special order non-returnable parts. All parts must be new, uninstalled and in original packaging. No returns on electrical components. No refunds on freight charges.

97608

PARTS INVOICE

ORDER#: 246775

Part#	Description	Bin	ORD	ISS	SHP	B/O	U	Price	Amount
375670	8960073103								
								SD CITY TAX	
								SD STATE TAX	
								TOTAL POWERPLAN B/F	9341.59

PLEASE REMIT TO:

TOTAL WEIGHT=>

This purchase is subject to the terms of the issuer's credit agreement. I grant the issuer a purchase money security interest, except as limited in that agreement, in the goods described. Please remit payments to PowerPlan at the address shown on your PowerPlan statement.

Todd
Porter
LEI

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