

Date 03/28/17	Time 22:09:43 (B)	Page 01
Account No OAKTO001	Phone No 4176821605	Inv No W05610
Ship Via		Purchase Order
Tax ID No		
		Salesperson 038 / 091

SERVICE INVOICE

STK#/FLEET#		HRS	PIN/EIN	WARRANTY DATE	HRS
001577	WATER PUMP	2380	1166071/18		
	CD225M		X		

REPAIR# 1 C 1103 NA 02/24/17 02/15/17 02/28/17

INSPECTION REPAIRS

COMPLAINT:

1. INSPECT MACHINE AND MAKE ESTIMATE FOR REPAIRS.
2. PERFORM COMPLETE SERVICE.
3. REPLACE FAILED GAUGES.
4. REPLACE FAILED VALVES.
5. DRAIN FUEL TANK.

CAUSE:

PUMP REBUILD.

CORRECTION:

RELOCATED THE MACHINE TO THE SHOP. INSPECTED THE MACHINE. LOOKED UP NECESSARY PARTS FOR SERVICE AND REPAIRS. DROVE THE MACHINE TO THE FUEL ISLAND. ADDED 15 GALLONS OF FRESH FUEL IN THE TANK. RELOCATED THE MACHINE TO THE SHOP. CHANGED THE FUEL FILTERS. BLED FUEL SYSTEM. STARTED THE MACHINE AND ALLOWED IT TO RUN AND WARM UP. SHUT THE MACHINE OFF. CHANGED ENGINE AND OIL FILTER, TOOK OIL SAMPLE. STARTED THE MACHINE AND CONFIRMED THE OIL LEVEL. CHANGED THE AIR FILTERS ON THE ENGINE AND THE AIR COMPRESSOR. CHANGED THE OIL ON THE WATER PUMP. INSTALLED THE NEW PUMP OUTLET PRESSURE GAUGE. INSTALLED THE PUMP END TEST PLATE AND CHECKED THE OPERATION OF THE PUMP END, IT FAILED. REMOVED THE COVER FOR THE PUMP OUTLET VALVE, FOUND THE VALVE WASN'T PROPERLY ALIGNED AND SEVERELY CONTAMINATED WITH HEAVY RUST. CLEANED OUT RUST CONTAMINATION AND REALIGNED THE VALVE. REINSTALLED THE COVER.

STARTED THE MACHINE AND TESTED THE PUMP END, IT FAILED.

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MACHINE PULLED VERY LITTLE VACUUM AND WOULDN'T HOLD IT. NOTICED OIL LEAKING BEHIND THE PUMP IMPELLER. LOOKED UP THE NECESSARY PARTS FOR THE COMPLETE PUMP REBUILD. SUBMITTED THE PARTS LIST ON QUOTE # 1360.

DISASSEMBLED THE PUMP END. UNBOLTED AND LIFTED SUCTION ADAPTER FROM THE MACHINE. UNBOLTED AND LIFTED OUTLET SIDE OF THE PUMP. UNBOLTED FACE OF PUMP USING FORCING BOLTS. SPLIT FRONT FACE OF PUMP FROM THE HOUSING. REMOVED AIR LINE FROM THE COMPRESSOR. ONCE FREED, LIFTED FRONT PIECE OUT OF THE WAY. USED A DRIVING TOOL AND A HAMMER TO TRY KNOCKING IMPELLER LOOSE BUT IT WOULDN'T MOVE. HEATED IMPELLER WITH A TORCH AND DROVE IMPELLER UNTIL IT POPPED FREE. UNTHREADED THE IMPELLER AND LAID IT TO THE SIDE. REMOVED THE MOUNTING BOLTS FROM THE PUMP HOUSING. REMOVED THE MOUNTING BOLTS FOR THE REAR OF THE PUMP. USING THE JAM NUTS FOR THE INNER WEAR PLATE, PRESSED THE HOUSING FREE OF THE REAR SECTION OF THE PUMP. REMOVED HOUSING. CLEANED AND INSPECTED PARTS.

UPDATED QUOTE WITH THE CORRECT PARTS AND THE CUSTOMER CHANGES OR EXPECTATIONS OF THE REPAIR. FILLED OUT PAPERWORK.

RECEIVED PARTS AND TOOK INVENTORY. REMOVED THE REAR INNER WEAR PLATE. REMOVED THE SET SCREWS FOR THE MECHANICAL SEAL. CLEANED THE RUST FROM THE PUMP SHAFT. INSTALLED A PULLER AND PULLER THE MECHANICAL SEAL OFF THE SHAFT. FINISHED UP CLEANING THE SHAFT. REMOVED THE SHAFT OIL SEAL. INSPECTED THE SHAFT AND FOUND A DEEP GROVE IN THE SHAFT CAUSED BY THE OIL SEAL. WORKED WITH KSMI PARTS AND ORDERED A SPEEDY REPAIR SLEEVE FOR THE SHAFT. REMOVED THE GREASE SEAL

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HOUSING AND THE REAR GREASE SEAL. CLEANED
THE HOUSING AND INSTALLED A NEW SEAL. REINSTALLED THE SEAL
HOUSING. CLEANED UP THE OIL CAVITY HOUSING.

RECEIVED ADDITIONAL PARTS. CLEANED THE PUMP SHAFT TO
PREPARE FOR THE INSTALLATION OF THE SPEEDY SLEEVE. CHECKED
AND FOUND THE INSTALLATION TOOL THAT WAS PROVIDED WITH THE
SLEEVE WASN'T DESIGNED TO INSTALL THE SLEEVE ON THIS SHAFT.
WORKED TO LOCATE A TOOL THAT WOULD WORK FOR THIS
APPLICATION.

USED CORRECT SPEEDY SLEEVE INSTALLATION TOOL TO INSTALL THE
NEW SPEEDY SLEEVE. CLEANED UP THE SPECIAL SPACER FOR THE
MECHANICAL SEAL AND INSTALLED. INSTALLED THE NEW MECHANICAL
SEAL ASSEMBLY WITH THE SPECIAL GREASE NEEDED FOR THIS SEAL.
INSTALLED THE NEW CERAMIC SEAL IN THE INNER REAR WEAR
PLATE. INSTALLED THIS WEAR PLATE WITH SPECIAL CARE FOR THE
CLEANLINESS OF THE MECHANICAL SEAL SEALING SURFACE.
INSTALLED THE NEW IMPELLER AND CHECKED THE CLEARANCE
BETWEEN THE IMPELLER AND THE INNER REAR WEAR PLATE. CHECKED
THE CLEARANCE. REMOVED THE IMPELLER AND ADJUSTED THE SHIM
PACK TO THE NEEDED DIMENSION. REINSTALLED THE IMPELLER AND
CONFIRMED THE CLEARANCE TO SPEC. (0.015 X 0.020 INCH.)
REMOVED THE STUDS FROM THE WORN OUTER REAR WEAR. STARTED
CLEANING THE VOLUTE HOUSING.

FINISHED CLEANING THE VOLUTE HOUSING. INSTALLED THE STUDS
IN THE NEW OUTER REAR WEAR PLATE. INSTALLED THE NEW OUTER
REAR WEAR PLATE. INSTALLED THE IMPELLER AND CHECKED
CLEARANCE TO SPEC. OF (0.015 X 0.020 INCH) REMOVED THE

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CD225M		X		

IMPELLER AND ADJUSTED THE PACK. REINSTALLED THE IMPELLER AND CONFIRMED THE CLEARANCE TO SPEC. IT WAS GOOD. REMOVED THE COMPRESSOR DRIVE BELT GUARD. REMOVED THE COMPRESSOR MOUNTING BOLTS AND TIPPED THE COMPRESSOR ENOUGH TO REMOVE FROM THE DRIVE BELT FROM THE COMPRESSOR DRIVE PULLEY. REMOVED THE BELL HOUSING BOLTS AND USING SERVICE TRUCK CRANE TO REMOVE THE PUMP HOUSING FROM THE ENGINE. REMOVED THE WORN DRIVE BELT AND INSTALLED THE NEW DRIVE BELT. REINSTALLED THE PUMP ASSEMBLY. INSTALLED THE BELT ON THE COMPRESSOR. CLEANED UP THE COMPRESSOR MOUNTING BASE AND INSTALLED A NEW GASKET AND REINSTALLED THE COMPRESSOR MOUNTING BOLTS. REINSTALLED THE BELT GUARDS. CLEANED UP THE PUMP INLET HOUSING AND INSTALLED IT. CHECKED THE CLEARANCE BETWEEN THE FRONT WEAR PLATE AND THE IMPELLER. (SPEC. 0.020 X 0.025 INCH) CLEARANCE WAS TOO GREAT. REMOVED THE HOUSING AND REMOVED THE FRONT WEAR PLATE. REMOVED THE EXISTING SHIMS. CLEANED THE SHIMS AND MEASURED THEM. CLEANED UP THE WEAR PLATE AND MOUNTING FACE. INSTALLED THE NEW SHIM PACK AND REINSTALLED THE FRONT WEAR PLATE. REINSTALLED THE INLET HOUSING AND CHECKED AND CONFIRMED THE CORRECT CLEARANCE, IT WAS GOOD.

CLEANED THE REAR INLET EXTENSION PIPE AND INSTALLED. REMOVED THE VENTURI HOUSING AND SCREEN. REMOVED THE FAILED CHECK BALL AND SEAT. (THE SEAT WAS SEIZED IN PLACE AND HAD TO BE HEATED FOR REMOVAL). CLEANED THIS HOUSING AND REMOVED THE VENTURI. CLEANED AND INSPECTED. INSTALLED THE BALL AND SEAT, REINSTALLED THE VENTURI ASSEMBLY. REINSTALLED THE HOUSING WITH NEW SCREEN. INSTALLED THE NEW VENTURI BLOW OFF HOSE. REMOVED THE FAILED COMPRESSOR RELIEF VALVE AND

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INSTALLED NEW VALVE. REMOVED THE 2 FAILED GAUGES AND
 INSTALLED NEW GAUGES. USING SERVICE TRUCK CRANE TO RAISE
 THE DISCHARGE HOUSING TO THE WORK BENCH AND CLEANED IT.
 USED THE CRANE AND INSTALLED THE DISCHARGE HOUSING ON THE
 PUMP UNIT. STARTED THE MACHINE AND INSTALLED THE PUMP TEST
 PLATE ON THE INLET OF THE PUMP. CHECKED THE VACUUM OF THE
 PUMP, IT WAS IN SPEC. SHUT OFF MACHINE AND ALLOWED IT TO
 SET FOR 15 MINUTES. CHECKED AND FOUND NO VACUUM DROP. TEST
 COMPLETE, RESULTS WERE GOOD.

CHECKED AND CORRECTED THE TIRE AIR PRESSURE. PERFORMED
 FINAL INSPECTION, IT WAS GOOD. TOOK MACHINE TO WASH RACK.
 CLEANED UP THE WORK AREA. FILLED OUT PAPERWORK. *COMPLETE.

BF7949-D	SECONDARY FUEL/	1	
	SECONDARY FUEL/WATER		
BF9891-D	PRIMARY FUEL FI	1 0	
	PRIMARY FUEL FILTER		
B7322	LUBE SPIN-ON	1	
FI	FREIGHT IN	3	
GPCD225MSK07	MECHANICAL SEAL	1 N	
	MECHANICAL SEAL KIT		
GPV8150G	GASKET	1 N	
PA2830	REPLACEMENT FOR	1	
	REPLACEMENT FOR ECOL		
PA3419	MICROLITE AIR E	1	
	MICROLITE AIR ELEMEN		
RB12	OIL SAMPLE	1	
	KOWAB		
RE526834	FILTER KIT	1	
SUBLETP	DIESEL	1	

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0-160	0-160 GAUGE		1		
08880	BRAKE CLEAN		4		
1074928	15w40 1 ga		5		
119014M40	BELT		1 S		
1204650115	WEARPLATE		1 S		
1204720116	REAR WEAR PLATE		1 S		
1206563015	IMPELLER		1 S		
2304122011	SEAT		1 N		
2306309913	SCREEN		1 N		
30TO30	VACUUM GAUGES		1		
3810715613	GASKET		1 S		
3813414112A	LIP SEAL		1 S		
3813816112A	LIP SEAL SLEEVE		1 N		
3906414113A	EJECTOR BELL		1 N		
4400369912A	VALVE RELIEF		1 N		

11000000

REPAIR

SUB TOTAL==>

13162.44

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