

MHRC

REPAIR ORDER INVOICE

Customer Number:			Invoice Number: R002137001855PA	
Tax Status	Terms	P.O.#	Service Date	Invoice Date
TAX	CHARGE	138	2/27/2020	3/05/2020



Midwest Concrete Materials Inc
701 S 4th St
Manhattan KS 66502-6426

Serial Number	Unit Number	Make / Model	Year	License Number	Mileage
1XKDDP9X4CJ328443	138	KENWORTH/T800	2012		332354

OPERATION 1

COMPLAINT: CA FOR CEL
VMRS CODE: 01-044-003-001-03-51
01-043-007-165-03-51
CORRECTION: REPLACE WITH NEW-FUEL PUMP ASSEMBLY-FUEL PUMP-INOPERATIVE
REPLACE WITH NEW-INJECTOR - DOSER VALVE-SELECTIVE
CATALYTIC REDUCTION SYSTEM (SCR)-INOPERATIVE
HOOKED UP TO THE UNIT AND FOUND THE UNIT HAD OVER 100
COUNTS FOR NUMBER 6 CYLINDER AND ALL OTHER CYLINDER TORQUE
CONTRIBUTION FAULTS. WHILE RUNNING, FELT THE PULSE OF ALL 6
LINES TO FIND NUMBER 6 WAS DEAD. ADVISED THE NUMBER 6
INJECTOR AND PUMP WOULD NEED TO BE REPLACED. REPLACED THE
COMPONENTS AND THEN RAN THE OVERHEAD. RANT HE UNIT AGAIN TO
FIND THE NUMBER 3 HOLE WAS NOW HAVING ISSUES. REMOVED THE
ACCESS ITEMS AND THEN PULLED THE NUMBER 3 PUMP AND INJECTOR.
PRESSURIZED THE HOLE TO FIND IT HELD PRESSURE WITH OUT
ISSUE. CLEANED THE BORE AND INSTALLED THE INJECTOR.
REINSTALLED THE ACCESS ITEMS AND RAN THE UNIT TO FIND NO
FURTHER ISSUES. RAN A REGEN, TOOK THE UNIT FOR A ROAD TEST,
AND MOVED TO THE NEXT STEP.

Labor Total --

RX1861200PRX	FUEL PUMP, MX-13 EPA 1	1
CX1861200PRX	FUEL PUMP, MX-13 EPA 1	1
CR1861200PRX	FUEL PUMP, MX-13 EPA 1	1-
1830688PE	BOLT-FLANGE INJ HOLD D	2
1904646PE	PIPE-FUEL INJECTION HI	1
RX1825900PEX	INJECTOR-DMCI	1
CX1825900PEX	INJECTOR-DMCI	1
CR1825900PEX	INJECTOR-DMCI	1-
1313120PE	BOLT-FLANGE M8X55	1
1924761PE	GASKET-VALVE COVER	1
0331328PE	RING-COPP 12X17X1.5MM	2
0331327PE	RING-COPPER 10.2X14.9X	4

CONTINUED

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- ARBITRATION:** Any controversy or claim arising out of or relating to this Order shall be decided by arbitration administered by the American Arbitration Association in accordance with its Commercial Arbitration Rules, subject to the limitations and restrictions as set forth in the Terms and Conditions contained at www.midwestconcrete.com/dealer/terms

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OPERATION 1

0244680PE	RING-COPPER 14.2X19.9X	2
1904646PE	PIPE-FUEL INJECTION HI	1
1313120PE	BOLT-FLANGE M8X55	1
FREIGHT	CHARGE FREIGHT	1
08880MM	BRAKE CLEAN	2

Parts Total --
Total Operation 1 --

OPERATION 2

COMPLAINT: CA FOR NO POWER TO WASHER PUMP MOTOR FROM SWITCH
VMRS CODE: 01-999-000-000-AD-00
CORRECTION: ADDITIONAL-TOTAL VEHICLE COMPONENTS-TOTAL VEHICLE-NO
FAILURE

STARTED BY CHECKING FUSES AND ALL ARE GOOD. NEXT CHECKED
POWER AT CONNECTOR AND ONLY GETTING .15 VOLTS. CHECKED
WIRING AND FOUND 2 BUTT CONNECTORS CORRODED. RECONNECTED
WITH NEW ONES AND RECHECKED AND SAME RESULT .15 VOLTS. GOT
DIAGRAM OFF ECAT. NEXT TRACED WIRES TO YELLOW POWER WIRE TO
THE CHASSIS NODE. OPENED PIN 17 AND CONNECTOR C. HAS .3
OHMS. LOOKED OVER THE CHASSIS NODE DIAGRAM AND FOUND THE
WASHER PUMP IS POWERED THROUGH PIN 17 AT CONNECTOR C. THERE
ARE ALSO TWO BATTERY POWER PINS ON CONNECTOR C. PINS 15 AND
19. 19 HAD GOOD POWER AND CARRIED A LOAD. 15 DID NOT. I
JUMPED POWER FROM 19 TO 17 AND THE WASHER POWER OPERATED.
THE WIRING BETWEEN THE CHASSIS NODE AND WASHER PUMP IS GOOD.
FOUND THE PROBLEM IS THAT THERE ISN'T ANY POWER ON BATTERY
SUPPLY PIN 15 WIRE RED1128. RAN A OVERLAY FROM THE CHASSIS
LOAD CENTER CONNECTOR TO PIN 15 AT CONNECTOR C. THE WIRE WAS
SECURED AND THE WASHER PUMP WORKS CORRECTLY.

Labor Total --

71984IMP

WIRE HARNESS TAPE-25

1
Parts Total --
Total Operation 2 --

CONTINUED

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* OPEN 24/7 FOR ALL MAKES SERVICE AND PARTS *

Labor Total
Parts Total
Shop Supplies
Sales Tax
Freight

Customer Copy

TOTAL DUE

6,490.27

08-6811

MAR - - 2020

TT0138
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2. **ARBITRATION** - Any controversy or claim arising out of or relating to the Order shall be decided by arbitration administered by the American Arbitration Association in accordance with its Commercial Arbitration Rules, subject to the limitations and restrictions as set forth in the Terms and Conditions contained at www.italtruck.com/terms-conditions.

MHC5040 (02/16)

Tax Status	Terms	P.O.#	Service Date	Invoice Date
TAX	CHARGE	TT0138	3/11/2020	6/30/2020



Serial Number	Unit Number	Make / Model	Year	License Number	Mileage
1XKDDP9X4CJ328443	138	KENWORTH/T800	2012		333932

OPERATION 1

COMPLAINT: CA FOR CEL PER DRIVER ENGINE BRAKES ARE IN OP - REF RO
165564

VMRS CODE: 01-044-003-001-03-51

CORRECTION: REPLACE WITH NEW FUEL PUMP ASSEMBLY FUEL PUMP INOPERATIVE
BROUGHT THE UNIT INTO THE SHOP AND FOUND THE ENGINE BRAKES
WORKED PERFECT WHILE DRIVING AROUND THE LOT. HOOKED UP TO
THE UNIT AND FOUND CONTRIBUTION CODES FOR NUMBER 3 CYLINDER
TOO LOW. IN ADDITION FOUND A CODE FOR CYLINDER NUMBER 1
CONTRIBUTION TOO HIGH. RAN AN INJECTOR PERFORMANCE TEST AND
THEN PULLED THE FUEL PRESSURE REGULATOR TO FIND IT WAS NOT
DAMAGED. CLEARED THE CODES AND THEN RAN THE UNIT. REVED THE
UNIT AND LET THE UNIT IDLE TO FIND CODE P0269 BECAME ACTIVE
FOR NUMBER 3 CONTRIBUTION TOO LOW. REPLACED THE NUMBER 3
HIGH PRESSURE PUMP, PROGRAMMED IN THE PUMP CODE, AND STARTED
THE UNIT. LET THE UNIT RUN AND FOUND NO NEW CODES APPEARED.
CLEARED THE CODES AND TOOK THE UNIT FOR A ROAD TEST.

6.5 Hours Labor Total --

RX1861200PRX	FUEL PUMP, MX-13 EPA 1	1	631.95
CX1861200PRX	FUEL PUMP, MX-13 EPA 1	1	475.86
CR1861200PRX	FUEL PUMP, MX-13 EPA 1	1	475.86
1830688PE	BOLT-FLANGE INJ HOLD D	2	1.81

Parts Total --

Total Operation 1 --

OPERATION 2

COMPLAINT: TRUCK RETURNED FOR CEL

VMRS CODE: 01-045-007-000-03-12

CORRECTION: REPLACE WITH NEW CYLINDER HEAD CYLINDER HEAD BROKEN
HOOKED BACK UP TO THE UNIT AND FOUND CODES FOR ACTIVE LOW
CONTRIBUTION FOR NUMBER 3. IN ADDITION FOUND AN AUDIBLE
ENGINE STUMBLE PRESENT. CHECKED THE PUMPS TO FIND THEY WERE
ALL HITTING. NEXT, CHECKED THE EXHAUST MANIFOLD AND THEN THE

CONTINUED

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MHC-2505-010217181

Tax Status	Terms	P.O.#	Service Date	Invoice Date
TAX	CHARGE	TT0138	3/11/2020	6/30/2020

OPERATION 2

TEMPS TO FIND THEY WERE OK. REVIEWED THE SNAP SHOT AND FOUND THE CODES SET AT <2MIN., AND AT 2 MIN. 30 SEC. OF THE ENGINE RUN TIME. ENGINE COLD AND AT IDLE WHEN THEY SET. THEN #1 HITS TOO HARD TO COMPENSATE FOR LOWER CRANKSHAFT SPEED. LOOKED INTO THE SUCTION SIDE OF THE FUEL SYSTEM THINKING THERE MAY BE SOME LEAKAGE ON THE SUCTION SIDE. ALL TIGHT AND FULL OF FUEL. WAS GOING TO CHECK THE VALVE ADJUSTMENT AND NOTICED WHEN THE AIR FILTER WAS REMOVED IT HAD A NEW FILTER INSTALLED LATELY. LOOKED ON THE CLEAN SIDE OF THE FILTER HOUSING AND IT HAS LOTS OF DUST IN IT. PULLED OTHER TUBES AND CHECKED THE TURBO FINS AND THE TIPS OF THE FINS ARE ROUNDING OFF, POSSIBLY A DUSTED ENGINE. REMOVED THE ACCESS ITEMS AND THEN REMOVED THE HEAD. WITH THE HEAD OFF, LOOKED OVER THE PISTONS, THE LINERS, THE SCRAPERS, THE LIFTERS, THE CAM, AND THEN REMOVED THE NUMBER 3 PUMP AND LIFTER TO FIND NO ISSUES. THE PISTON HEIGHTS WERE ALL THE SAME. LOOKED AT THE HEAD AND FOUND THE VALVES SEATS ON CYLINDER 3 WERE DUSTED. CLEANED THE BLOCK OFF, CHECKED LINER PROTRUSION, ASSEMBLED THE HEAD ASSEMBLY ON A TABLE, APPLIED THE NEW HEAD GASKET, AND THEN INSTALLED THE HEAD ONTO THE BLOCK. INSTALLED THE HEAD BOLTS, RAN THE OVERHEAD, INSTALLED THE VALVE COVER, INSTALLED THE ITEMS ON THE LEFT SIDE OF THE ENGINE, AND THEN INSTALLED THE ITEMS ONTO THE RIGHT SIDE AND FRONT OF THE ENGINE. ONCE ASSEMBLED, CHARGED THE UNIT WITH PREON, AND THEN VERIFIED THAT ALL OF THE OTHER FLUIDS WERE FILLED TO SPEC. STARTED THE UNIT AND FOUND NO LEAKS. TOOK THE UNIT FOR A ROAD EST AND FOUND THE UNIT WAS NOT PERFORMING CORRECT INITIALLY AND SET A CEL BUT, IT THEN CLEARED AND WOULD THEN RUN SMOOTH. ONCE IT SMOOTHED OUT THE CEL WENT OUT BUT, THEN IT BEGAN TO RUN INCORRECT. MONITORED THIS TO FIND WHEN THE CEL CAME ON THE EGR WOULD SHUT OFF BUT, THEN WHEN THE CEL WOULD GO OFF THE EGR WOULD OPEN UP. INSPECTED THE EGR VALVE TO FIND IT LOOKED NEW. ATTEMPTED TO INITIALIZE THE EGR AND FOUND IT WOULD BECAUSE IT WAS SEEING THE PARK BRAKES SET. REPLACED THE PARKING BRAKE SWITCH AND THEN INITIALIZED THE EGR AND BPV. TOOK THE UNIT FOR ANOTHER ROAD TEST TO FIND CODE P0303 CAME ON. CONTINUED T/S BY REMOVING THE AIR CLEANER, THE VALVE COVER, THE NUMBER 1 AND 3 ROCKER ASSEMBLIES, AND THEN SWAPPED THEM. REASSEMBLED THE UNIT MAKING SURE TO SET THE PROPER VALVE LASH ON THESE TWO CYLINDERS. WENT TO ROAD TEST THE UNIT AND FOUND THE CEL CAME BACK ON. REINITIALIZED THE EGR AND BPV AND CLEARED THE CODES. AGAIN WENT TO TAKE THE UNIT FOR A ROAD TEST TO FIND IT SET ANOTHER CEL. INSPECTED THE COMPONENTS TO FIND THE J3 HARNESS WAS MISSING IT'S HOLD DOWNS TO THE PCI AND THE LOCK DOWN WAS NOT FULLY SECURED. IN ADDITION FOUND THAT QUITE A BIT OF OIL WAS PRESENT BY THE HARNESS. WENT TO CHECK THE OIL PRESSURE CONNECTOR TO FIND THE SENSOR BROKE OFF. INSPECTED THE SENSOR CLOSER TO FIND IT WAS DRY ON THE ELECTRICAL SIDE. REPLACED THE SENSOR AND CLEARED THE FAULTS. RAN THE AUTOMATIC CYLINDER TEST, THE EGR VALVE TEST, THE TURBO TEST, AND FOUND THEY ALL PASSED. ALTHOUGH, DID FIND THAT CYLINDER 3 WAS TESTING LOWER THAN THE OTHERS. REMOVED THE AIR FILTER

CONTINUED

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TAX	CHARGE	TT0138	3/11/2020	6/30/2020

OPERATION 2

HOUSING, THE VALVE COVER, AND VERIFIED THE INJECTORS AND UNIT PUMPS WERE ALL PROGRAMMED CORRECTLY. STARTED A TCS CASE AND THEN RAN A CRANKSHAFT ROTATION TEST AT IDLE, CHECKED THE INJECTOR LINE WHILE THE TEST WAS RUNNING, AND FOUND THE NUMBER 2 LINE WAS HARDLY HITTING. SENT ALL OF THE DATA TO THE TCS CASE. REVIEWED THE CASE ONCE MORE AND THEN REMOVED THE AIR CLEANER, THE VALVE COVER, THE LINES TO THE FUEL FILTER HOUSING, THE FILTER HOUSING FROM THE ENGINE, THE AFTERTREATMENT FUEL VALVE, THE INJECTOR LINE, THE INJECTOR, AND THE UNIT PUMP AT THE NUMBER 4 POSITION. REMOVED THE LIFTER AND CHECKED THE CAM TO FIND NO ISSUES AT THE CAM. CLEANED THE FUEL FROM THE CYLINDER AND INSTALLED A DUMMY INJECTOR TO LEAK CHECK THE CYLINDER TO FIND NO ISSUES. INSTALLED THE NEW INJECTOR, THE NEW FUEL LINE, THE NEW UNIT PUMP, THE HARDWARE, AND THEN REINSTALLED THE ACCESS ITEMS THAT WERE REMOVED FOR ACCESS. PRIMED THE FUEL SYSTEM, PROGRAMMED THE NEW COMPONENTS, AND THEN RAN A CYLINDER PERFORMANCE TEST TO FIND NUMBER 3 WAS SHOWING LOW PERFORMANCE. WENT TO TEST DRIVE THE UNIT AND FOUND A CEL CAME ON FOR NUMBER 3 LOW TORQUE AND NUMBER 1 HIGH TORQUE. REMOVED THE ACCESS ITEMS AND SWAPPED THE INJECTORS AROUND BETWEEN THE NUMBER 2 AND 3 POSITIONS. REASSEMBLED THE UNIT AND RAN THE UNIT TO FIND THE NUMBER 5 AND 3 INJECTORS WERE NEEDING TO BE REPLACED. REMOVED VALVE COVER, ALL OF SECONDARY FUEL FILTER HOUSING, AND SHUT OFF VALVE. REMOVED BRACKETS AND CLAMPS BEHIND ALT AND REMOVED FUEL LINES 1,2,3, AND 5 AND INSTALLED ALL NEW. THEN REMOVED THE INJECTORS 1,3, AND 5. INSTALLED NEW INJECTORS AFTER CLEANING BORES AND HOLES OUT. TORQUED INJECTORS AND THEN ALL LINES DOWN. REINSTALLED ALL REMOVED PARTS. STARTED UP TRUCK AFTER PRIMING AND LET IT IDLE FOR A BIT. RAN THE CYLINDER TEST AND SHOWS NUMBER 5 TO BE INCORRECT FUELING AND NUMBER 2. AFTER LETTING IT IDLE LONGER. FOUND NUMBER 2 CYLINDER LOW CONTRIBUTION FAULT CAME UP. INFORMED FOREMAN AND GOT A NEW UNIT PUMP BECAUSE NUMBER TWO UNIT PUMP FELT REALLY WEAK. REMOVED BRACKETS BEHIND ALT AND REMOVED UNIT PUMP. INSTALLED NEW UNIT PUMP AND REINSTALLED BRACKETS. RAN TRUCK AND THE PULSES FELT STRONGER NOW. RAN TEST AGAIN AND STILL SHOWED NUMBER 5 TO BE WEAK AND ALSO NUMBER 2. GOT TOLD TO REPLACE NUMBER 2 INJECTOR AGAIN BECAUSE PREVIOUS TEST FOUND THAT A LOW SPOT FOR MATCHING CYLINDERS FOLLOWED WHEN THE NEW NUMBER 3 INJECTOR WAS MOVED TO NUMBER 2. REMOVED AIR CLEANER AND VALVE COVER AND REMOVED LINE. REMOVED INJECTOR AND INSTALLED NEW INJECTOR ON NUMBER 2. THEN REINSTALLED REMOVED PARTS. STARTED UP TRUCK AND RAN TEST. TEST LOOKS A WHOLE LOT MORE IN SPEC NOW. ALL UNIT PUMPS HAVE A STRONGER PULSE. ZIP TIED WIRING BACK UP AND BACKED OUT TRUCK AND TOOK ON TEST DRIVE TO SPRING HILL AND DID NOT HAVE ANY FAULTS RETURN.

30.0 Hours Labor Total --

1664755PE	O-RING UNIT PUMP UPPER	1
1664754PE	O-RING UNIT PUMP MIDDLE	1
1664753PE	O-RING UNIT PUMP LOWER	1

CONTINUED

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TAX	CHARGE	TT0138	3/11/2020	6/30/2020

OPERATION 2

1830688PE	BOLT-FLANGE INJ HOLD D	2
1313120PE	BOLT-FLANGE M8X55	6
2126981PE	SENSOR-PRESSURE, TURBO	1
1638271PE	O-RING INJECTOR	6
1805233PE	GASKET-EXHTURBO	1
1866163PE	NUT-HEX METRIC M10X1	4
0322364PE	RING-COPPER 16.2X21.9X	4
0244680PE	RING-COPPER 14.2X19.9X	4
0331328PE	RING-COPP 12X17X1.5MM	4
0331327PE	RING-COPPER 10.2X14.9X	4
730393ATC	WASHER-SEALING	2
77611IMP	WASHER FLAT 1/4	6
730395ATC	WASHER-SEALING	4
12621IMP	WASHER M8 FLAT	12
12452IMP	NUT 8X1.25	6
15152IMP	BOLT M8X2010.9	6
CT05512	TIE-CABLE 15.25" LARGE	25
CT05317	TIE WRAP BLACK 15.5	25
1786103PE	GASKET-AIR INLET	2
1976452PE	V-CLAMP, D=93.8	1
1867382PE	O-RING	4
RF5100	COOLANT GALLON	1
RX1861200PRX	FUEL PUMP, MX-13 EPA 1	1
CX1861200PRX	FUEL PUMP, MX-13 EPA 1	1
CR1861200PRX	FUEL PUMP, MX-13 EPA 1	1
RX1825900PEX	INJECTOR-DMCI	3
CX1825900PEX	INJECTOR-DMCI	3
CR1825900PEX	INJECTOR-DMCI	3
1313120PE	BOLT-FLANGE M8X55	3
1904646PE	PIPE-FUEL INJECTION HI	3
RX1825900PEX	INJECTOR-DMCI	1
CX1825900PEX	INJECTOR-DMCI	1
CR1825900PEX	INJECTOR-DMCI	1
RX1861200PRX	FUEL PUMP, MX-13 EPA 1	1
CX1861200PRX	FUEL PUMP, MX-13 EPA 1	1
CR1861200PRX	FUEL PUMP, MX-13 EPA 1	1
1830688PE	BOLT-FLANGE INJ HOLD D	2
B9226-0406TRP	CLAMP-T BOLT 4.06 STD	1
1313120PE	BOLT-FLANGE M8X55	1
SUBLET	HEAD INSPEPO#1547966	1
RX2184936PEX	CYLINDER HEAD, MX-13,	1
CX2184936PEX	CYLINDER HEAD, MX-13,	1
CR2184936PEX	CYLINDER HEAD, MX-13,	1
2140883PE	GASKET SET, CYLINDER H	1
1305195PE	O-RING, 25.07MM ID X 2	2
RF80685	SWITCH-PRESSURE LOW AI	1
2127356PE	SENSOR-OIL PRESSURE	1
1830688PE	BOLT-FLANGE INJ HOLD D	2
1904646PE	PIPE-FUEL INJECTION HI	1
1889038PE	QUICK MX QUICK RELEASE	1

Parts Total ..
Total Operation 2 ..

Customer Copy

CONTINUED

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OPERATION 3

COMPLAINT: EXHAUST LEAK ON EGR VALVE
 VMRS CODE: 01-045-007-007-03-18
 CORRECTION: REPLACE WITH NEW-GASKET - CYLINDER HEAD, ENGINE-CYLINDER HEAD-LEAKING
 REMOVED CLAMP FROM EGR FLEX PIPE TO MANIFOLD AND FOUND GASKET WAS COMPLETELY BLOWN OUT. GOT NEW GASKET AND INSTALLED AND REINSTALLED CLAMP. RAN TRUCK AND FOUND NO FURTHER LEAKS.

Labor Total ..

1786103PE

GASKET-AIR INLET

1
Total Operation 3 ..

OPERATION 4

COMPLAINT: REPLACE WATER PUMP
 VMRS CODE: 01-045-021-000-03-18
 CORRECTION: REPLACE WITH NEW-ELECTRONIC ENGINE CONTROLS-ELECTRONIC ENGINE CONTROLS-LEAKING
 DRAINED COOLANT AND REMOVED BELT. NEXT REMOVED WATER PUMP AND REPLACED. PUT BELT ON AND FILLED COOLANT AND RAN WITH NO ISSUES. TOPPED OFF COOLANT THE REST OF WAY. NEXT REPLACED AIR FITTING THAT WAS LEAKING AT THE AIR SHUTOFF VALVE.

Labor Total ..

1942598PE

PUMP-COOLANT INCOMPLET
 O-RING D=126.59

1
1

Parts Total ..

Total Operation 4 ..

OPERATION 5

COMPLAINT: CHECK AND ADVISE FOR CEL AND ENGINE RUNS POORLY
 VMRS CODE: 01-999-999-999-AD-00
 01-043-001-049-03-18
 01-043-007-071-03-51
 CORRECTION: ADDITIONAL-TOTAL VEHICLE-TOTAL VEHICLE-NO FAILURE
 REPLACE WITH NEW-COOLER - EGR-EMISSION CONTROLS-LEAKING
 REPLACE WITH NEW-SENSOR - NOX NITROGEN OXIDE DIESEL EXH-
 SELECTIVE CATALYTIC REDUCTION SYSTEM (SCR)-INOPERATIVE
 HOOKED UP TO THE UNIT AND FOUND FAULTS FOR LOW COOLANT.
 OPENED THE HOOD TO FIND THE COOLANT WAS ABOVE THE MIN MARK.
 KEYED THE UNIT OFF AND BACK ON TO FIND THE LOW COOLANT LIGHT
 WAS STILL ON. TESTED THE SENSOR USING A MAGNET TO FIND THE
 SENSOR WAS READING CORRECTLY. CHECKED OVER THE REST OF THE
 UNIT TO FIND WHAT APPEARED TO BE DRY SOOT OVER THE NEW
 INJECTOR LINES ON POSITION 1 AND 2. ALSO, FOUND SOOT ALL
 OVER THE INTAKE HORN THAT WAS MOUNTED TO THE CYLINDER HEAD.
 RAN THE UNIT AT HIGH RPMs AND SPRAYED THE UNIT DOWN WITH
 SOAPY WATER TO FIND A GASKET AT THE TOP OF THE INTAKE HORN
 WAS LEAKING. TOOK PHOTOS OF THIS, THE DRIED COOLANT ON THE
 OUTLET OF THE EGR CLAMP, AND REMOVED THE OUTLET PIPE BETWEEN
 THE EGR AND VENTURI TO FIND COOLANT WAS PRESENT INSIDE THE
 PIPE AND ALL OVER THE INSIDE OF THE EGR WAS WET. REMOVED THE
 HEAT SHIELD, THE INTAKE PIPE TO THE EGR, AND FOUND IT WAS

CONTINUED

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2. **ARBITRATION** Any controversy or claim arising out of or relating to the Order shall be decided by arbitration administered by the American Arbitration Association in accordance with its Commercial Arbitration Rules, subject to the limitations and restrictions as set forth in the Terms and Conditions contained at www.mhcdirect.com/dealer/terms

Tax Status	Terms	P.O.#	Service Date	Invoice Date
TAX	CHARGE	TT0138	3/11/2020	6/30/2020

OPERATION 5

DRY. PRESSURIZED THE COOLANT SYSTEM AND FOUND THE OUTLET OF THE EGR WAS LEAKING. REVIEWED THE FAULTS FROM THE ORIGINAL REPAIR TO FIND NONE WERE PRESENT RELATING TO THE COOLANT SYSTEM. DRAINED THE COOLANT, REMOVED THE CAC PIPE, THE INTAKE HORN, THE TURBO, THE LINES, THE BPV FLEX, THE EGR LINES, THE EGR BRACKET, THE EGR COOLER, AND THEN CLEARED OFF THE SEALING SURFACES. REASSEMBLED THE UNIT USING A NEW COOLER AND SEALS. FILLED THE UNIT WITH COOLANT, RAN THE TRUCK, AND FOUND NO NEW LEAKS. REMOVED THE DRIVER SIDE CAC PIPE AND FOUND THE INTAKE HORN GASKET WAS BLOWN OUT. REPLACED THE GASKET AND RAN A REGEN TO FIND AN OUTLET NOX CODE SET. CHECKED THE WIRING TO FIND IT CHECKED OUT OK. REPLACED THE SENSOR AND RAN A REGEN. NO NEW FAULTS SET. CLEARED THE CODES. CHECKED INTO THE A/C BEING INOP TO FIND THE HEATER CONTROL VALVE WAS NOT FUNCTIONING CORRECTLY. REPAIRED THE STEERING SHAFT BOOT AND THEN REPAIRED SOME EXPOSED WIRING. PARKED THE UNIT TO GO BACK TO THE CUSTOMER.

Labor Total --

RX1933207PEX	EGR COOLER-MX13 EPA10	1
CX1933207PEX	EGR COOLER-MX13 EPA10	1
CR1933207PEX	EGR COOLER-MX13 EPA10	1-
1907399PE	GASKET-AIRINTAKE	1
1782988PE	GASKET-AIR INLET	2
1786103PE	GASKET-AIR INLET	2
1791610PE	O RING	1
1791611PE	O RING	1
1894764PE	GASKET-PIPE FLANGE	2
1805233PE	GASKET-EXHTURBO	1
1866163PE	NUT-HEX METRIC M10X1	4
0244680PE	RING-COPPER 14.2X19.9X	2
0331327PE	RING-COPPER 10.2X14.9X	2
0331328PE	RING-COPP 12X17X1.5MM	2
1867382PE	O-RING	1
1827279PE	GASKET-EXHUAST	1
1827519PE	GASKET-EXHTURBO FLEX	1
1782988PE	GASKET-AIR INLET	1
D42-1003	GASKET-CACPIPING	1
RX1889126PEX	NOX UPSTREAM SENSOR	1
CX1889126PEX	SENSOR-GAS EXHAUST IN	1
CR1889126PEX	SENSOR-GAS EXHAUST IN	1-
1825888PE	SENSOR-MOTION COOLANT	1

Total Operation 5 --

OPERATION 6

COMPLAINT: TRUCK RETURNED 4-24-2020 DIED IN INTERSECTION
 VMRS CODE: 01-042-002-009-03-12
 CORRECTION: REPLACE WITH NEW-TANK - SURGE-RADIATOR-BROKEN
 BROUGHT THE UNIT INTO THE SHOP AND FOUND THE CEL, THE SEL,
 AND THE LOW COOLANT LIGHTS WERE ON. TAPPED ON THE COOLANT
 RESERVOIR TO CHECK FOR A STUCK FLOAT BUT, FOUND NO CHANGE.
 NOTATED THAT THE COOLANT LEVEL WAS IN SPEC BUT, THE LIGHT
 REMAINED ON. REMOVED THE SENSOR AND THEN USING A MAGNET,

CONTINUED

Customer Copy

MHC5080 03/21/21

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Tax Status	Terms	P.O.#	Service Date	Invoice Date
TAX	CHARGE	TT0138	3/11/2020	6/30/2020

OPERATION 6

SIMULATED THE COOLANT LEVEL TO FIND NO ISSUES. PLUGGED THE SENSOR BACK IN AND FOUND THE CODES WERE INACTIVE. ADVISED THAT THE UNIT NEEDED TO HAVE A NEW SURGE TANK. DRAINED THE COOLANT, REMOVED THE SURGE TANK, INSTALLED THE NEW SURGE TANK, AND THEN REFILLED THE UNIT WITH COOLANT. RAN A REGEN TO GET THE UNIT UP TO OPERATING TEMP AND THEN VERIFIED THE COOLING SYSTEM PRESSURE WAS NOT PUSHING COOLANT DOWN TO CAUSE LOW COOLANT LIGHTS. ROAD TESTED THE UNIT FOR 80 MILES AND FOUND NO FURTHER ISSUES.

3.5 Hours

Labor Total --

T1673008	TANK ASSY-SURGE, OGP	1
V38-1114	FITTING- STR 3/8" BEAD	1
933-240-10BCMP	CLAMP-CONSTANT TENSION	2
933-160-10GCMP	CLAMP-CONSTANT TENSION	1
5526-062X25FX	SILICONE HOSE 5/8"	1

Parts Total --

Total Operation 6 --

OPERATION 7

COMPLAINT: STEP FOR TOW.
VMRS CODE: 01-999-000-000-AD-00
CORRECTION: ADDITIONAL-TOTAL VEHICLE COMPONENTS-TOTAL VEHICLE-NO
FAILURE
CUSTOMER GOODWILL

Labor Total --

SUBLET	TOW IN	PO#1557243	1
FREIGHT	CHARGE	FREIGHT	1
FREIGHT	COURIER	FEE	1

Total Operation 7 --

OPERATION 8

COMPLAINT: WARRANTY STEP FOR NEW INJECTOR THAT FAILED.
VMRS CODE: 01-044-010-052-03-51
CORRECTION: REPLACE WITH NEW INJECTOR ASSEMBLY - FUEL-CONVERTER -
PROPANE / NATURAL GAS-INOOPERATIVE
NEW INJECTOR ON NUMBER 2 POSITION FOUND FAILED AS OF T/S
FROM 4/2/19. ORIGINALLY INSTALLED BY TECH ON 3/31. SEE STORY
ON JOB STEP 2.

Labor Total --

1904646PE	PIPE-FUEL INJECTION HI	1
RX1825900PEX	INJECTOR-DMCI	1
CX1825900PEX	INJECTOR-DMCI	1
CR1825900PEX	INJECTOR-DMCI	1
1313120PE	BOLT-FLANGE M8X55	1

Parts --

100% Warranty --

Parts Total --

Total Operation 8 --

CONTINUED

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- MHC IS CERTIFIED FOR CATERPILLAR, CUMMINS AND MX
- OVERHAULS/WARRANTY REPAIRS
- MHC OFFERS PARTS AND SERVICE FOR ALL MAKES OF TRUCK

REPAIR ORDER SUMMARY

Labor Total
Parts Total
Sublet
Sales Tax
Warranty

AMOUNT

Customer Copy

TOTAL DUE

23,314.82

08-6811/TT0138 MAJOR REPAIR

TT0138 BY

OK [Signature]



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MHC 256010 (02/18)