

REPAIR ORDER INVOICE

Customer Number:		Phone:	Invoice Number:	
Tax Status	Terms	P.O.#	Service Date	Invoice Date
EXP	CHARGE	N/A	2/20/2019	3/20/2019

Serial Number	Unit Number	Make / Model	Year	License Number	Mileage
3BKDX40X16F132847	847	Kenworth/T800	2006		15749

OPERATION 1

COMPLAINT: ROAD CALL TO CUSTOMER LOCATION

VMRS CODE: 10-999-999-999-16-51

10-045-000-000-09-51

CORRECTION: ROAD CALL (DEDICATED SERVICE TRUCK ONLY)-TOTAL VEHICLE-

TOTAL VEHICLE-INOPERATIVE

TROUBLESHOOTING-POWER PLANT-POWER PLANT-INOPERATIVE

PERFORMED ROAD CALL TO CUSTOMERS LOCATION. STARTED TROUBLE-

SHOOTING COMPLAINT.

Labor Total --

Total Operation 1 --

OPERATION 2

COMPLAINT: DIAGNOSE ENGINE KNOCK AND ADVISE CLYMORE ON FINDINGS.

VMRS CODE: 10-045-000-000-09-51

10-041-001-000-06-15

10-045-000-000-03-00

CORRECTION: TROUBLESHOOTING-POWER PLANT-POWER PLANT-INOPERATIVE
INSPECT-AIR CLEANER-AIR CLEANER-FOREIGN MATERIAL PRESENT
REPLACE WITH NEW-POWER PLANT-POWER PLANT-NO FAILURE
HOOKED TO TRUCK WITH PC. HAD SEVERAL INACTIVE VOLTAGE CODES
IN IT FROM NEW ECM BEING BENCH PROGRAMMED AT SHOP. NO OTHER
CODES. STARTED ENGINE. ENGINE CRANKED SLOW THEN FIRED.
ENGINE HAD KNOCKING NOISE AROUND 3 AND 4 CYLINDER. RAN
CYLINDER CUT OUT TEST. ALL PASSED. RAN CYLINDER PERFORMANCE
TEST. ALL PASSED. CHECKED ECM PROGRAMMING TO MAKE SURE IT
WAS CORRECT. ALL LOOKED CORRECT. CHECKED FUEL PRESSURE AND
FUEL RESTRICTION. BOTH WHERE IN SPEC. REMOVED AIR FILTER
CROSS TUBE. REMOVED VALVE COVER. INSPECTED CAMS ROCKER AND
SPRINGS. ALL LOOKED OK. WENT TO RUN OVERHEAD AND ENGINE
WOULDN'T BAR OVER EITHER WAY. FELT LIKE PISTON HAD FLUID ON
TOP OF IT. CHECKED COOLANT LEVEL. IT WAS FULL. REMOVED
INTAKE PIPE. INSPECTED INTAKE SIDE OF HEAD. DIDN'T LOOK LIKE

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OPERATION 2

COOLANT WAS COMING FROM EGR COOLER. NEXT STEP IS TO PULL ALL THE INJECTORS TO SEE WHAT CYLINDER COOLANT IS COMING FROM. DAVID WANTED ME TO PUT IT BACK TOGETHER AND HAVE TOWED TO SHOP. REINSTALLED VALVE COVER AND INTAKE TUBES. TOWED TRUCK IN SHOP. TRUCK WOULD NOT STAY RUNNING AND SOMETIMES WOULD NOT START. CHECKED FUEL TANKS AND FUEL DIDN'T LOOK GOOD. REMOVED PRIMARY FILTER AND DIDN'T SEE ANY MAJOR SIGNS. REMOVED SUCTION AND RETURN LINES TO LIFT PUMP AND RAN INTO A CLEAN BUCKET OF FUEL AND TRUCK STILL WOULD DIE AND NOT RUN. CHECKED ALL BATTERY CONNECTIONS AND FOUND SOME EYELETS BROKEN. REMOVED AND REPLACED EYELETS AND TRIED AGAIN AND STILL SAME ISSUE. CHECKED POWER TO FUEL SHUT OFF SOLENOID. WHEN THE TRUCK DIED IT WAS BECAUSE ECM WAS LOSING POWER TO FUEL SHUT OFF VALVE. OHMED AND LOAD TESTED WIRE FROM VALVE TO ECM AND ITS GOOD. CHECKED VOLTAGE TO ECM CONNECTOR AND HAD 12V AND DID NOT SEE ANY ISSUES TO POWER TO ECM. RAN POWER AND GROUND WIRES TO ECM AND TRUCK WOULD START AND RUN AND NOT DIE. TESTED BOTH GROUND AND POWER WIRES TO ECM AND FOUND POWER WIRE WOULD NOT CARRY A LOAD. RAN AN OVERLAY POWER WIRE WITH A FUSE TO ECM FROM BATTERY. GOT TRUCK RUNNING AND HEARD KNOCKING FROM MIDDLE OF ENGINE. REMOVED VALVE COVER AND INSPECTED CAMS AND ROCKERS AND DID NOT FIND ANY ISSUES. TRIED BARRING ENGINE OVER TO RUN OVERHEAD AND COULD NOT GET IT TO TURN EITHER WAY LIKE PREVIOUS TECH BUT IT DOES RUN. BEFORE REMOVING VALVE COVER RAN A CUT OUT TEST AND PERFORMANCE TEST AND CYLINDERS 2 & 4 WERE WEAK. PERFORMANCE TEST PASSED ALL CYL. LOOSENED FRONT ROCKER ASSEMBLY AND CHECKED. STILL COULD NOT TURN ENGINE OVER. PULLED REAR ROCKER ASSEMBLY AND AGAIN CHECKED AND COULD NOT TURN ENGINE OVER. PULLED INJECTOR ROCKER ASSEMBLIES, FRONT FIRST AND THEN THE REAR AND STILL COULD NOT TURN ENGINE OVER. LOOKED DOWN ON TOP OF PISTON AND COULD NOT SEE ANY ISSUES WITH LIMITED VISIBILITY. DRAINED OIL AND REMOVED OIL PAN AND FOUND LOTS OF COPPER IN PAN. REMOVED PICK UP TUBE AND STIFFNER PLATE AND INSPECTED ROD CAPS AND MAIN CAPS. FOUND NUMBER FIVE ROD CAP WAS TIGHT ON CRANK. REMOVED ROD CAP #5 AND FOUND LOTS OF BEARING AND CRANK SHAFT FAILURE. REMOVED #4 MAIN CAP AND FOUND MAIN BEARING DAMAGE. AIR FILTERS ARE FULL OF DIRT REAL BAD. LOOKS LIKE ENGINE GOT DUSTED. ADVISED. PULLED DOWN ALL MAINS. ALL LOOK OK. GOT ENGINE TO TURN OVER. ONLY #5 ROD IS SPUN. TOOK PICS AND PUT THEM ON EDS CASE. GOT WITH RAPID SERVE. THEY SAID THEY NEED MORE PICS SENT. HAVE BEEN WITH CUMMINS MOST OF THE DAY. THEY SAID TO PUT A SHORT BLOCK IN AND IF HEAD IS DAMAGED PUT IN A COMPLETE ENGINE. DRAINED COOLANT AND RECOVERED FREON. TOWED TRUCK OVER AND STEAMED ENGINE OFF. PULLED RADIATOR. PULLED PARTS OFF TO PULL ENGINE OUT. REMOVED ENGINE AND CYLINDER HEAD. FOUND #5 PISTON HIT THE HEAD. TOOK PICS, PUT ON EDS. PUT ENGINE CORE BACK TOGETHER. TOOK CAC OFF AND TOOK OVER TO WASH BAY TO CLEAN OUT. FOUND HOLES IN CAC. STARTED SWAPPING PARTS FROM OLD ENGINE TO NEW ENGINE. FINISHED SWAPPING PARTS AND INSTALLED ENGINE. MOTOR MOUNT BOLTS NOT TIGHTENING UP. BOLTED UP TRANS, CLUTCH, & CLUTCH LINKAGE. HOOKED UP EXHAUST

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OPERATION 2

AND COOLANT HOSES. RAN WIRING. HOOKED UP STARTER. INSTALLED FUEL LINES. HOOKED UP ALTERNATOR. INSTALLED AIR LINE FOR TURBO ACTUATOR. INSTALLED A NEW A/C DRYER AND HOOKED UP ALL THE A/C LINES. SECURED WIRING. INSTALLED NEW AIR FILTERS, AIR FILTER PIPING, AND CAC PIPES. INSTALLED BELLY PAN. HOOKED UP BATTERIES. INSTALLED LOWER RADIATOR PIPE. FILLED WITH COOLANT. GOT ENGINE RUNNING. TOPPED OFF ENGINE OIL. CHARGED AC WITH 3 LBS 4OZ FREON. INSTALLED ECM TEMPLATE FROM OLD ENGINE TO NEW ENGINE. TOOK TO WASH BAY AND STEAMED OFF. RAN ENGINE. FOUND NO LEAKS. TOPPED OFF COOLANT. HOOKED UP HOOD CABLES. PUT MIRROR BRACKETS ON. REMOVED AND REPLACED CONSTANT TORQUE CLAMP. DIDN'T FIND ANY ISSUES. TOOK TRUCK ON LONG ROAD TEST, ALL OKAY EXCEPT FOR SPEDOMETER WILL NOT WORK UNTIL TRUCK REACHES APPROX 30 MPH. PULLED BACK IN. REINSPECTED. FOUND NEW EXTENSION HARNESS AT TRANS OUTPUT SHAFT SPEED SENSOR AND THE SPEEDO IN DASH HAS ALREADY BEEN REPLACED. FOUND AIR LEAK WHERE AIR COMPRESSOR DISCHARGE LINE MEETS LINE TO AIR DRYER IN BETWEEN FRAME RAIL AND TRANSMISSION. CHECKED DIP SWITCH SETTINGS ON SPEEDO, OK. REMOVED VSS FOR INSPECTION, END DAMAGED BY TONE RING. CLEANED UP THREADS IN HOUSING. REPLACED AND ADJUSTED SPEED SENSOR. RECHECKED, STILL DOES NOT READ AT SLOW SPEED. TRACED WIRING, EXCESSIVE RESISTANCE IN SPEEDO WIRING. CUT HARNESS LOOSE AND REPAIRED WIRING NEAR PTO. RECHECKED SPEEDO, WORKS PROPERLY AT ALL SPEEDS. ROAD TESTED, CRUISE INOP. CONNECTED TO INSITE AND MONITORED SWITCHES, SET /RESUME INOP. CHECKED WIRING, OK. NEEDS SWITCH.

Labor --
100% Warranty --
Labor Total --

CT05317	TIE WIRE THN.BLK 15.5	6
CT05512	TIE WIRE HD.BLK. 15.2	6
RXDR6152RXCUM	ENGINE ISX15 565 @2000	1
CXDR6152RXCUM	CORE CHRG ENGINE ISX 1	1
CRDR6152RXCUM	CORE CREDTENGINE ISX 1	1
500010047	ROTELLA T5 10W30 CK4 B	12
4925884CUM	SCREW-SOCKET HEAD CAP	1
4988280CUM	GASKET P/SMOUNTING	1
AC10900	O RING-#8 A/C -PKG 25	1
AC11100	O RING-#10A/C -PKG 25	1
AC10650	O RING-#6 PKG 25	1
RF41800651	DRIER A/C FILTER GD11	1
CT05317	TIE WIRE THN.BLK 15.5	12
RF5100	ANTIFREEZEHD ELC 50/50	3

Parts --
100% Warranty -- 33,944.90
Parts Total -- .00
Total Operation 2 -- .00

OPERATION 3

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OPERATION 3

10-044-011-007-03-00
 10-032-001-052-09-00
 10-032-001-001-06-00
 CORRECTION: TROUBLESHOOTING-SWITCH - ON/OFF, CRUISE CONTROL SYSTEM-
 SPEED CONTROL SYSTEM-INOPERATIVE
 REPLACE WITH NEW-SWITCH - ON/OFF, CRUISE CONTROL SYSTEM-
 SPEED CONTROL SYSTEM-NO FAILURE
 TROUBLESHOOTING-WIRING HARNESS - POWER, BATTERY-BATTERY &
 CABLES-NO FAILURE
 INSPECT-BATTERY-BATTERY & CABLES-NO FAILURE
 FINISHED TIGHTENING THE RIGHT UPPER GUSSET AND SECURING THE
 TRANS COOLER HOSE WITH LOOM. REPLACED SET/RESUME SWITCH,
 CRUISE STILL INOP. MONITORED SWITCHES AGAIN, ON/OFF INOP.
 REPLACED SWITCH, ROAD TESTED, OK.

Labor Total --

Q21-6004	SENDER DUAL LEAD 30781	1
K301-301	SWITCH SET/RESUME	1
K301-300	SWITCH CRUISE ON/OFF	1
80866IMP	FUSE HOLDER SEALED (A	1
71209IMP	CONNECTOR	1
72184IMP	FUSE 10AMP RED ATO	1
71062IMP	BUTT BARE 12-10GA CONC	4
84-4000GR0	TUBING HEAX6"1/4 6PCS/	1
FF2203FLG	FILTER FUEFS1023	1
AF25247FLG	AIR FILTER13" P534816	2
15168IMP	HEX CAP 10.9 M8-1.25	4
15485IMP	HEX CAP 10.9 M10X100	4
3690067CUM	TENSIONER BELT 89448D	1
3D2824	SEAL	1
12554IMP	NYLOCK 8MM	1
12554IMP	NYLOCK 8MM	1
9X7317	ORING INJ.B/BLUE	1
90681IMP	FITTING 1/4PIPEX1/4T	1
HE8813	HOSE RAD OVERFLOW 5/1	5
90655IMP	NUT 1/4 FITTING	1
90650IMP	FERREL 1/4PARFLEX HOSE	1
90725IMP	INSERT 1/4 TUBE	1
RF5100	ANTIFREEZEHD ELC 50/50	12
ATF	ATF QUART	3
713379	COOLER CHARGE AIR F31-	1
90377IMP	1/2 ST EL	1
92084IMP	FITTING BARBED 5/8X1	1
RF1135298	BRAKE CLEAN NON-CHLORI	2
17771IMP	HEX BOLT 3/4-16X4	2
17772IMP	BOLT 3/4-16X41/2	2
41163IMP	HEX NUT 3/4-16	4
5-032DSP	LOOM 1" SPLIT BLK CN	2

Parts Total --
 Total Operation 3 -- 3,245.12

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REPAIR ORDER SUMMARY	AMOUNT
Labor Total Parts Total Shop Supplies Warranty	42,436.40-

TOTAL DUE

3,642.58

