



GLENER  
HESSTON  
FENDT  
ROGATOR  
CHALLENGER

HONDA POWER EQUIPMENT  
MORRIS  
HUSQVARNA  
WESTWARD  
ELMERS  
SALFORD



*Engine work*

RO: 19279A

Invoice:

Date: 04/02/2020

Year		Make/Model		Serial Number		
		2012 MF 9560		M95600CHC18145		
Stock No	PO	Misc Information	Tag	Customer	Telephone	
24522						

Cond	OpCode	T	Description	Quantity	List	Net	Total
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Type: COMBINE  
War St: 08/20/12  
Meter In: 2056  
RO Open Date: 10/19/19  
War Exp: 08/20/14  
Sold: 08/29/17  
War Ext: 09/07/19

001 HI HEAT  
DRM- CALLED AND ENGINE DERATED AND MESSAGE POPPED UP ON  
SCREEN SAYING HI HEAT TEMP ON CATALIST OR SOMETHING LIKE THAT.  
DROVE COMBINE HOME DERATED. ON SERVICE CALL TO CHECK OUT.  
FOCT 20 - CUSTOMER CALLED IN WITH HIGH TEMP CODE IN DOC. FOUND  
THE UNIT TO BE RUNNING ROUGH AND BLOWING LARGE AMOUNT OF SMOKE  
FROM EXHAUST. DID A CYLINDER RUN UP TEST AND FOUND #6 HOLE NOT  
MAKING ANY POWER. PISTON BLOWING OIL OUT PAST RINGS. ALSO OIL  
WAS DRIPPING FROM EXHAUST/TURBO CONNECTION. UNIT WILL NEED  
ENGINE REBUILD.  
LAB L LABOUR 1536.05  
Subtotal charges this section 1536.05

002 SERVICE CALL TRAVEL TIME  
F SERVICE CALL TRAVEL TIME  
F OCTOBER 20, 2020  
LAB L LABOUR 271.25  
Subtotal charges this section 271.25

003 PM360 INSPECTION  
D PM360 INSPECTION  
F COMPLETED PM360 INSPECTION OF CUSTOMER'S UNIT.  
NOVEMBER 7-8, 2019  
LAB L LABOUR 899.00  
S TRK SHOP TRUCKING 740.00 740.00  
HASTIE HAULING - BRINGING UNIT FROM FARM TO TOWN  
Subtotal charges this section 1639.00

008 REBUILD ENGINE  
F NOV 12 - CONNECTED EDT AND ENTERED DIAGNOSTIC FUNCTIONS.  
CHECKED FOR ACTIVE OR STORED DTC'S - NONE AVAILABLE. PERFORMED  
COLD ENGINE COMPRESSION TEST - CYLINDER 6 SIGNIFICANTLY LOWER  
THAN THE OTHER SIX CYLINDERS. PERFORMED CYLINDER CUT-OUT TEST -  
NO ERPM DROP OBSERVED DURING CYLINDER 6 CUT-OUT. PERFORMED FUEL  
INJECTION SYSTEM HIGH PRESSURE TEST - TEST SUCCESSFUL.  
PERFORMED A FINAL WARM COMPRESSION TEST - CYLINDER 6 STILL  
FAILS TEST. SAVED ALL TEST LOGS TO EDT. BROUGHT UNIT II SHOP.  
REMOVED ENGINE OIL FILTER. CUT FILTER APART AND INSPECTED  
ELEMENT - FILTER ELEMENT IS FILLED WITH METAL PARTICLES RANGING  
FROM FINE SILT TO 0.120". ENGINE WILL NEED TO BE REMOVED AND  
DISASSEMBLED TO ASSES INTERNAL FAILURE. BEGAN ENGINE REMOVAL  
PROCESS.  
NOV 13 - DRAINED COOLANT. DRAINED ENGINE OIL. REMOVED ENGINE



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QUICK ACCESS PANELS. REMOVED ENGINE HOOD. DISCONNECTED WIRES FROM AIR INLET SENSORS, COOLANT LEVEL, A/C COMPRESSOR, A/C LOW PRESS. SWITCH, ALTERNATORS, STARTER, AND ENGINE BULKHEAD. REMOVED REAR BRACE BAR. DISCONNECTED PTO CLUTCH LINE AND REMOVED PRIMARY THRESHING BELT AND ITS TENSIONER ASSEMBLY. REMOVED HYDRAULIC PUMP DRIVE BELT. REMOVED UNLOADER DRIVE BELT SHIELDS, BELT, AND TENSIONER ASSEMBLY. DISCONNECTED HYDRAULIC LINES AND ELECTRICAL FROM THRESHING CONTROL VALVE. REMOVED LH ENGINE STEP. DISCONNECTED DOSING VALVE AND COOLANT VALVE ELECTRICAL. DISCONNECTED DEF AND COOLANT LINES FROM DOSING VALVE AND OUTLET FROM COOLANT VALVE. DISCONNECTED SCR COOLANT LINES FROM WATER PUMP. DISCONNECTED FUEL INLET AND RETURN LINES. DISCONNECTED HEATER HOSES. DISCONNECTED OIL HOSE FROM SPINNER. REMOVED TURBO OUTLET PIPE TO AIR-TO-AIR. REMOVED ENGINE INLET PIPE FROM AIR-TO-AIR. DISCONNECTED COOLING SYSTEM VENT HOSES. REMOVED ACCESS PANEL FROM ABOVE AIR-TO-AIR COOLER. DISCONNECTED COOLANT SURGE TANK AND REMOVED WITH THE FRONT BRACE ASSEMBLY. REMOVED ENGINE COOLANT INLET PIPE. REMOVED HEAT SHIELDS FROM AROUND EXHAUST MANIFOLD, TURBO, AND PIPING. REMOVED FILTERED AIR INLET PIPE. REMOVED ASPIRATOR HOSE. DISCONNECTED EXHAUST PIPE FROM TURBO. DISCONNECTED ALL EXHAUST-MOUNTED SCR COMPONENTS AND ROUTED HARNESS ASIDE. REMOVED EXHAUST AND SCR ASSEMBLY. DISCONNECTED LOWER RAD HOSE. REMOVED A/C COMPRESSOR AND SET ASIDE TO AVOID EVACUATING SYSTEM. REMOVED RH FRAME RAIL. DISCONNECTED ENGINE OIL DRAIN HOSE FROM PAN. SUPPORTED ENGINE WITH OVERHEAD CRANE. REMOVED ENGINE MOUNTING HARDWARE, REMOVED ENGINE, AND SET ON BLOCKS. NOV 14 - WASHED ENGINE BEFORE DISASSEMBLY. STARTED TO DISASSEMBLE ENGINE. NOV 15 - CONTINUED DISASSEMBLY OF ENGINE. REMOVED ROTATING GROUP AND LINERS. INSPECTED CRANK SHAFT - IS STILL IN GOOD CONDITION, BUT WILL NEED NEW MAIN AND ROD BEARINGS. NOV 18 - CLEANED CYLINDER LINER BORES AND BLOCK MATING SURFACES. INSTALLED BLOCK TO ROTATING STAND. REMOVED PISTONS FROM RODS. REMOVED INJECTOR TUBES AND INJECTORS FROM DAMAGED HEAD. CLEANED INJECTORS AND TUBES FOR REUSE. CLEANED REUSABLE HEAD MATING SURFACES AND VALVE CHAMBERS. MEASURED CRANKSHAFT AND CAMSHAFT JOURNALS AND PINS FOR OUT OF ROUND AND OVER SPEC. ALL MEASURED WITHIN SPEC. NOV 19 - UNPACKED NEW CYLINDER HEAD AND CLEANED. INSTALLED NEW INJECTOR IN #7 POSITION. TORQUED INJECTOR AND INJECTOR TUBE ALTERNATELY IN STEPS OF 10, 30, AND 37 FT/LB. INSTALLED ORIGINAL INJECTORS AND TUBES IN POSITIONS 6, 5, AND 4 AND REPEATED TIGHTENING SEQUENCE. SWAPPED OVER VARIOUS FITTINGS AND



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BRACKETS FROM OLD HEAD TO NEW ONE. NOTICED THAT NEW HEAD IS MISSING A FROST PLUG. ORDERED NEW FROST PLUG.

NOV 20 - THOROUGHLY CLEANED OUT CYLINDER LINER BORES AND PREPPED FOR NEW LINERS.

DEC 4 - UNPACKAGED VARIOUS ENGINE COMPONENTS FROM REBUILD KIT. STARTED CLEANING CRANKSHAFT AND BEGAN INSTALLING NEW MAIN BEARINGS AND THRUST BEARINGS.

DEC 05 - REPLACED CRANKSHAFT MAIN BEARINGS. REPLACED LINER O-RINGS. INSTALLED NEW LINERS. MEASURED LINER PROTRUSION AND FLANGE HEIGHT - ARE ALL WITHIN SPECIFICATION. BEGAN ASSEMBLING NEW PISTONS TO RODS AND INSTALLING IN BLOCK.

DEC 6 - FINISHED INSTALLATION OF PISTONS AND RODS. INSTALLED NEW CONNECTING ROD BOLTS AND TORQUED TO 30 FT/LB + 60 FT/LB + 90 AND MARKED. SCRAPED OFF OLD OIL PAN GASKET FROM BLOCK AND PAN AND PREPPED MATING SURFACES. REMOVED OIL PRESSURE RELIEF VALVE AND CLEANED. REMOVED VALVES FROM 3CYL HEAD AND INSPECTED. INTAKE VALVES ARE BADLY CUPPED ON FACES AND WORN UNEVENLY. DO NOT RECOMMEND REUSING THESE VALVES, SEATS, OR GUIDES. PRICED OUT REPLACEMENT COMPONENTS AND MACHINING COST VS. COMPLETE HEAD. COMPLETE HEAD IS LESS EXPENSIVE. WILL WAIT FOR APPROVAL AND DECISION ON PARTS. CLEANED MATING SURFACES OF INNER TIMING COVER AND PREPPED FOR REASSEMBLY. REMOVED ENGINE FROM STAND AND SET BLOCKS.

DEC 9 - CLEANED AND ASSEMBLED OIL PUMP. INSTALLED PUMP TO ENGINE. APPLIED THREADLOCKER TO MOUNTING HARDWARE AND TORQUED TO 25FT/LB. INSTALLED INNER TIMING COVER AND TORQUED HARDWARE TO 25FT/LB. WASHED ENGINE OIL PAN. APPLIED FRESH SEALANT TO BLOCK SEAMS AND CORNERS. INSTALLED NEW PAN GASKET AND INSTALLED OIL PAN. TORQUED PAN HARDWARE TO 60FT/LB. USED CONNECTED RIGGING TO ENGINE AND CRANE AND ROLLED ENGINE UPRIGHT AND SUPPORTED ON BLOCKING. CLEANED AND LUBRICATED CAMSHAFT JOURNALS. CLEANED AND LUBRICATED CAMSHAFT. INSTALLED CAMSHAFT AND LOOSELY INSTALLED CAM GEAR. CLEANED AND LUBRICATED LIFTERS AND INSTALLED TO THEIR ORIGINAL POSITIONS. CLEANED TOP OF BLOCK CYLINDER HEAR MATING SURFACE AND PREPPED FOR HEAD INSTALLATION.

DEC 10 - REINSTALLED CAMSHAFT GEAR AND TORQUED NUT TO 150 FT/LBS. CLEANED FUEL PUMP AND INSTALLED. CLEANED AND REINSTALLED BULL GEAR IDLER ASSEMBLY. REINSTALLED ACESSORY IDLER ASSEMBLY. TIMED ENGINE ROTATING GROUP. SET ON REAR CYLINDER HEAD AND LOOSELY INSTALLED HARDWARE. LINED UP FRONT HEAD GASKET AND ATTEMPTED TO INSTALL HEAD, BUT FOUND THAT IT IS THE WRONG ONE. RETURNED TO PARTS AND ORDERED THE CORRECT HEAD - ALSO ORDERED NEW EXHAUST STUDS.

DEC 11 - CLEANED AND PREPPED ALL ENGINE INTAKE, EXHAUST OIL AND



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COOLANT COMPONENT GASKET SURFACES AND O-RING LANDS. REPLACED O-RINGS. CLEANED ROCKER SHAFTS AND REPLACED ROCKER ARMS AND END CAP ON #7 POSITION. CLEANED VALVE TRAIN COMPONENTS, HARDWARE, ROCKER BOXES AND VALVE COVERS. DISASSEMBLED THERMOSTAT HOUSING AND INSTALLED NEW THERMOSTATS - NOTE THAT ONE OF THE THERMOSTATS WAS ALREADY STARTING TO COME APART. REASSEMBLED HOUSING WITH NEW GASKETS AND O-RINGS. COVERED ENGINE AND CLEANED PARTS.

DEC 12 - UNPACKAGED NEW CYLINDER HEAD AND CLEANED. INSTALLED INJECTORS, INJECTOR TUBES, TEMP SENSOR, AND VARIOUS FASTENERS. INSTALLED HEAD TO BLOCK. TEMPORARILY INSTALLED COOLANT BRIDGE AND EXHAUST MANIFOLD TO ALIGN HEADS. TORQUED HEAD BOLTS TO 60 FT/LB + 90 + 90.

DEC 13 - CLEANED AND ASSEMBLED ROCKER SHAFTS. INSTALLED NEW ROCKERS FOR #7 POSITION. REINSTALLED PUSHRODS TO THEIR ORIGINAL LOCATIONS. INSTALLED ROCKER BRIDGES. INSTALLED ROCKER SHAFT ASSEMBLIES. ADJUSTED VALVE CLEARANCES TO .014". INSTALLED ROCKER BOXES. INSTALLED INJECTOR HARNESSSES. INSTALLED VALVE COVERS. INSTALLED EXHAUST STUDS. INSTALLED CYLINDER HEAD COOLANT BRIDGE WITH NEW GASKET. INSTALLED EXHAUST MANIFOLD ASSEMBLY. INSTALLED AND INDEXED TURBOCHARGER. INSTALLED TURBO OIL PIPES AND PRIMED TURBO WITH OIL. INSTALLED INTAKE MANIFOLD, INLET PIPE, GRID HEATER, AND HIGH PRESSURE RAIL. INSTALLED FUEL FILTER BRACKET AND FILTER HEAD. CLEANED AND REINSTALLED ALL FUEL INJECTION SYSTEM LINES. REINSTALLED OIL SPINNER.

DEC 16 - INSTALLED THERMOSTAT HOUSING. INSTALLED WATER PUMP. INSTALLED NEW FRONT CRANK SEAL TO OUTER TIMING COVER. INSTALLED OUTER TIMING COVER. PRIMED AND TOUCHED UP PAINT ON ENGINE ASSEMBLY. INSTALLED ENGINE LIFTING EYES. INSTALLED DAMPER AND CRANK PULLEY. INSTALLED MOUNTING BRACKETS AND ACCESSORY DRIVE COMPONENTS. INSTALLED BOTH ALTERNATORS. INSTALLED ASPIRATOR. INSTALLED NEW FRONT ENGINE DRIVE BELTS. INSTALLED STARTER. INSTALLED NEW OIL FILTER. INSTALLED ECM. INSTALLED ENGINE WIRING HARNESS AND SECURED WITH ZIP TIES.

DEC 17 - INSTALLED PTO ASSEMBLY. INSTALLED REAR ENGINE MOUNT BRACKET. PRIMED AND INSTALLED FUEL FILTERS. INSTALLED UNLOADER DRIVE TENSIONER BRACKET AND THRESHING VALVE ASSEMBLY. CLEANED UP WORK AREA AROUND COMBINE. WASHED OUT COMBINE ENGINE BAY. CONNECTED APPROPRIATE RIGGING TO OVERHEAD CRANE, LIFTED ENGINE ASSEMBLY INTO COMBINE, AND SECURED ENGINE MOUNTING HARDWARE.

DEC 18 - RECONNECTED ENGINE OIL DRAIN HOSE. REINSTALLED RH FRAME ASSEMBLY. REINSTALLED A/C COMPRESSOR AND BELT. RECONNECTED LOWER RAD HOSE. REINSTALLED EXHAUST AND SCR ASSEMBLY (HAD TO REPLACE ONE BROKEN EXHAUST FLANGE BOLT).



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REINSTALLED EXHAUST SHIELDS. RECONNECTED SCR HARNESS.  
REINSTALLED ASPIRATOR HOSE. REINSTALLED AIR INLET PIPE.  
REINSTALLED UPPER RAD PIPING AND CONNECTED HOSES. RECONNECTED  
FUEL LINE TO PUMP. RECONNECTED HEATER HOSES. RECONNECTED SCR  
COOLANT LINES TO WP MANIFOLD. REINSTALLED FRONT ENGINE FRAME  
BAR AND COOLANT RESERVOIR ASSEMBLY. REINSTALLED AND SECURED ALL  
THE P-CLAMPS FOR THE VARIOUS HOSES AND LINES. REINSTALLED  
ACCESS PANEL ABOVE AIR-TO-AIR COOLER. RECONNECTED COOLANT TANK  
HOSE TO WATER PUMP. RECONNECTED COOLING SYSTEM VENT HOSES.  
INSTALLED ENGINE AIR INLET PIPE FROM AIR-TO-AIR COOLER.  
RECONNECTED HOSE TO OIL SPINNER. RECONNECTED SCR COOLANT VALVE  
OUTLET LINE AND ELECTRICAL. RECONNECTED DOSING VALVE LINES AND  
ELECTRICAL. RECONNECTED FUEL LINE TO FILTER HEAD. RECONNECTED  
ENGINE HARNESS BULKHEAD. RECONNECTED A/C LP SWITCH, COMPRESSOR,  
COOLANT SENSOR, AND LH ALTERNATOR, WIRES. RECONNECTED STARTER  
ELECTRICAL - REPAIRED STARTER SIGNAL WIRE WHERE INSULATION WAS  
BARED. ROUTED WIRE DIFFERENTLY TO PREVENT DAMAGE AGAIN.  
RECONNECTED RH ALTERNATOR. REINSTALLED TURBO OUTLET PIPE TO  
AIR-TO-AIR COOLER. RECONNECTED ELECTRICAL AND HYDRAULIC LINES  
TO THRESHING CONTROL VALVE. REINSTALLED LH ENGINE STEP  
ASSEMBLY. RECONNECTED WIRES TO INLET AIR SENSORS.  
DEC 19 - REINSTALLED UNLOADER DRIVE BELT, BELT GUIDES, AND  
TENSIONER ASSEMBLY. REINSTALLED HYDRAULIC DRIVE BELT AND  
TENSIONER. REINSTALLED THRESHING DRIVE BELT AND TENSIONER  
ASSEMBLY AND RECONNECTED CLUTCH LINE. REINSTALLED REAR ENGINE  
BAY FRAME BAR. FILLED ENGINE WITH 34L OF 15W40. FILLED COOLING  
SYSTEM WITH 45L OF PREMIXED COOLANT. FOUND THAT ONE OF THE  
COOLANT VENT HOSE FITTINGS IS CRACKED - ORDERED NEW ONE AND  
CAPPED OFF VENT LINE TEMPORARILY TO RUN UNIT. REINSTALLED  
ENGINE HOOD AND SIDE PANELS. CONNECTED EDT TO MONITOR ENGINE  
PARAMETERS. PRIMED LUBRICATION SYSTEM. PRIMED FUEL SYSTEM.  
STARTED ENGINE AND DID LEAK CHECK - NO LEAKS. ENGINE STARTS AND  
RUNS GOOD. REINSTALLED FRAME AND STEP TO RH SIDE OF COMBINE.  
TOOK UNIT OUTSIDE. RAN ENGINE TO OPERATING TEMPERATURE WHILE  
MONITORING PARAMETERS - ALL SYSTEMS NORMAL. TOOK UNIT TO EAST  
LOT AND RAN WITH THRESHER ON FOR A WHILE TO TEST ENGINE  
PERFORMANCE UNDER LOAD. DROVE UNIT DOWN ROAD AND PULLED SEVERAL  
HILLS TO LOAD ENGINE. ALL SYSTEM PARAMETERS ARE NORMAL AND  
ENGINE IS RUNNING SMOOTHLY. CHECKED OVER FOR LEAKS - NO LEAKS.  
DEC 23 - DRAINED OUT SOME COOLANT TO BRING LEVEL BELOW THE  
BROKEN VENT PIPE FITTING. REMOVED PLUG AND INSTALLED NEW  
FITTING. RECONNECTED VENT LINE. TOPPED COOLING SYSTEM BACK UP.  
MAR 25 - REMOVES INTAKE PIPE. DISCONNECTED VENT TUBE. REMOVED  
VALVE COVER. SET VALVES. ASSEMBLED IN REVERSE ORDER WITH NEW



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VALVE COVER GASKETS. THE OLD ONES WERE SWELLED AND NO LONGER FIT.

MAR 27 - CONNECTED EDT. PERFORMED CYLINDER RUN-UP TEST.

PERFORMED CYLINDER CUT-OUT TEST. PERFORMED COMPRESSION TEST.

PERFORMED HIGH PRESSURE FUEL RAIL TEST. ALL TESTS SUCCESSFUL

WITH NO ABNORMALITIES. RAN UNIT PLACED VARYING LOADS ON ENGINE.

RAN ALL EDT DIAGNOSTIC TESTS AGAIN - ALL TESTS SUCCESSFUL AND

PARAMETERS ARE NORMAL. \*WORK COMPLETE\*

LAB	L LABOUR						16460.40
	P V837073593 TURBOCHARG	1.00		7102.34			7102.34
	P V837079432 INJECTOR-C	1.00		1830.58			1830.58
	P CORES: Core Chrgs	1.00		507.89			507.89
	P VX92 CORE-FUEL	1.00		451.07			-451.07
	P V836873510 CONN. ROD	15.00		12.15			182.25
	P V837073089 VALVE BRID	1.00		86.64			86.64
	P V837084638 GASKET	1.00		18.82			18.82
	P V836866808 GASKET	1.00		27.49			27.49
	P V837073202 CYLINDER H	1.00		2300.45			2300.45
	P V836873029 OIL SUMP G	1.00		110.40			110.40
	P V640016045 CUP PLUG	1.00		5.69			5.69
	P V837069013 ROCKER ARM	1.00		52.28			52.28
	P V837069011 ROCKER ARM	1.00		171.79			171.79
	P V837069020 PLUG	1.00		19.27			19.27
	P ACP0436220 OVERHAUL K	1.00		4672.78			4672.78
	P V836855995 STUD BOLT	4.00		12.43			49.72
	P V513601002 NUT	14.00		6.75			94.50
	P V836331590 THERMOSTAT	1.00		115.90			115.90
	P V836015156 THERMOSTAT	1.00		54.44			54.44
	P V837086472 CYLINDER H	1.00		1646.18			1646.18
	P V836859188 STUD BOLT	10.00		5.27			52.70
	P V837084617 BRACKET	1.00		429.58			429.58
	P VHC8328 HEX SOCKET	1.00		1.16			1.16
	P FWZC14 1/4" FLAT	2.00		0.08			0.16
	P 71478776 V-BELT-6 R	1.00		61.30			61.30
	P V685040894 MULTIRIBBE	1.00		123.81			123.81
	P 71448150 BELT	1.00		103.07			103.07
	P 71438552 SERPENTINE	1.00		51.41			51.41
	P V837091129 FUEL FILTE	1.00		132.45			132.45
	P 71448122 CAPSCREW-M	1.00		1.60			1.60
	P 5404-04-02 ADAPTER	1.00		1.93			1.93
	P 5406-C-04 CAP	1.00		2.82			2.82
	P 71438534 AIR FITR.E	1.00		246.11			246.11
	P 1097108 ANTIFREEZE	5.00		42.89			214.45
	P 15W40 BULK OIL	34.00		6.06			206.04



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			P ENVIRO OIL CHARGE BULK	34.00		0.10	3.40
			P 71406629 ELBOW FITT	1.00		11.51	11.51
			P V837070128 COVER GASK	1.00		64.23	64.23
			P V837067881 COVER GASK	1.00		50.75	50.75
			P *DISCOUNT 10%				-2035.34
							34781.88

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REPAIRS CUSTOMER WILL DO  
F REPAIRS THAT WE HIGHLY RECOMMEND GET REPAIRED OR THERE COULD BE MAJOR ISSUES:

- FEEDER FRONT JACKSHAFT LH SIDE HUB IS LOOSE AND WALKED OUT ON SHAFT. HUB AND PULLEY ARE DAMAGED. DISASSEMBLE AND INSPECT SHAFT AND KEYWAY FOR DAMAGE. RECOMMEND REPLACING HUB. BELT IS ALSO WORN ON OUTSIDE EDGE.
- CHOPPER SHAFT PULLEY HAS WALKED OUT ON THE SHAFT. INSPECT SHAFT, KEYWAY AND PULLEY HUB FOR DAMAGE. IF OK, REPOSITION PULLEY AND SECURE.
- 90 DEGREE GEARBOX LEAKING FROM OUTPUT SHAFT SEAL.
- REPLACE FOAM SEAL UNDER GRAIN ELEVATOR LID. (WILL ALLOW CANOLA TO LEAK RIGHT OUT OF THE ELEVATOR INTO THE FIELD.)
- ACTIVE SCR FAULT CODE FOR NOX LEVEL IMPLAUSIBLE. MAY BE CAUSED BY CATALYST OR NOX SENSOR DAMAGE RESULTING FROM ENGINE FAILURE. DIAGNOSE.

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OTHER REPAIRS THAT STILL NEED TO BE ADDRESSED:

- LH FINAL DRIVE LEAKING FROM HUB SEAL. REMOVE AND DISASSEMBLE FINAL DRIVE TO REPAIR.
- FRONT DRUM VERTICAL TRAVEL BUMPER BROKEN ON LH SIDE. REPLACE PAD.
- FEEDER HYDRAULIC HOSES ARE NEARLY WORN THROUGH NEAR UPPER P-CLAMP (LH). MAKE NEW HOSES A FEW INCHES LONGER TO PREVENT CONTACT (JUST THE 3 SMALLER HOSES).
- REPLACE FEEDER REVERSER DRIVE CHAIN.
- RETURNS PADDLE CHAIN LOWER SPROCKET IS LOOSE ON SHAFT AND SPROCKET TEETH WORN EXCESSIVELY. REPLACE SPROCKET AND ROLL PIN.
- LOWER RETURNS AUGER RH SIDE BEARING FLANGE IS LOOSE. TIGHTEN HARDWARE.
- REPLACE BROKEN BATTERY DOOR HINGE.
- REPLACE UPPER KING PIN SHIM ON RH STEERING KNUCKLE.
- CHOPPER SPEED SENSOR COVER IS CRACKED. WELD REPAIR.
- CHECK/ADJUST REAR WHEEL TOE-IN. UNIT IS DIFFICULT TO CONTROL AT ROADING SPEED.
- HARDWARE MISSING FROM ROTOR LOSS SENSOR BRACKETS. REPLACE MISSING. RECOMMEND NEW STYLE REINFORCED BRACKETS TO PREVENT FAILURE.



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Stock No	PO	Misc Information	Tag	Customer	Telephone
24522					

Cond	OpCode	Description	Quantity	List	Net	Total
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- CLEAN OUT CHAFF AND DIRT FROM LH ELECTRICAL BOX.
- SHOE DRIVE BELT MISALIGNED ON PULLEY. INSTALL PROPERLY.
- REPLACE BEARINGS IN UPPER CHOPPER DRIVE PULLEY.
- ENGINE HOOD LATCH IS BENT AND DOESN'T LATCH PROPERLY. REPLACE LATCH ASSEMBLY.
- LIFT ASSIST STRUTS WEAK FOR VARIATOR ACCESS DOOR. REPLACE.
- BROKEN CATCH FOR LH LATCH ON PTO ACCESS DOOR. REPLACE.
- POOR CONNECTION AT ELECTRIC ENGINE FAN. CONNECTOR HAS BURNT TERMINAL AND MELTED CONNECTOR. REPAIR.
- RH LATCH BROKEN FOR FUEL FILTER ACCESS DOOR. REPLACE.
- REPLACE BUBBLE UP AUGER DRIVE CHAIN.
- REPLACE WEAR PAD FOR YIELD MONITOR. IS WORN THROUGH AND STARTING TO TEAR AWAY FROM RIVETS.
- REPLACE PLASTIC FINGERS ABOVE MOISTURE SENSOR. WORN EXCESSIVELY.
- EXTRACT AND REPLACE BROKEN BOLT FOR REAR LH HANDRAIL (ABOVE CHOPPER PULLEY).
- UPPER RH CAB AIR VENT BROKEN, REPLACE.
- SIGNS OF MICE IN CAB CLEAN OUT AND SEAL (CAN BE A BIG JOB).
- PLAY IN HEADER/FEEDER CLUTCH BEARINGS. REPLACE.
- CHECK/ADJUST TIRE PRESSURES.
- RETORQUE WHEELS.
- CHANGE ALL GEARBOX OILS.
- CHANGE CAB AIR INLET FILTER.
- CLEAN CAB RECIRC FILTER.
- CHANGE DEF FILTER.
- CHANGE HYDRAULIC FILTER.
- CHANGE TRANS OIL.
- CHANGE FINAL DRIVE OILS.
- GREASE
- REPLACE 90 DEGREE GEARBOX BREATHER.
- REPLACE OR RECHARGE FIRE EXTINGUISHER.
- CALIBRATE
- REATTACH HEATER HOSE P-CLAMP UNDER HVAC BOX.

LAB L LABOUR

Subtotal charges this section

M Shop Supplies

300.00

THANK YOU FOR YOUR BUSINESS!  
QUESTIONS? PLEASE CALL US AT 403-442-3866





GLENER  
HESSTON  
FENDT  
ROGATOR  
CHALLENGER

*Engine  
work*

HONDA POWER EQUIPMENT  
MORRIS  
HUSQVARNA  
WESTWARD  
ELMERS  
SALFORD

VERSATILE



RO: 19279A

Invoice:

Date: 04/02/2020

Year		Make/Model		Vehicle Identification		
		2012 MF 9560		M95600CHC18145		
Stock No	PO	License		Tag	Customer	Telephone
24522						

Cond	OpCode	T	Description	Quantity	List	Net	Total
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A/R 10389

40454.59

TERMS

Account due 15th of month following purchase. Service charge of 2% per month ( 24% annual) on unpaid balance

DESC	TOTALS
LABOR	19166.70
PARTS	18321.48
SUBLET	740.00
MISC	300.00
OTHER	
SUBTOTAL	38528.18
GST	1926.41
PST	
TOTAL	40454.59

Signature: \_\_\_\_\_



GLENER  
HESSTON  
FENDT  
ROGATOR  
CHALLENGER

HONDA POWER EQUIPMENT  
MORRIS  
HUSQVARNA  
WESTWARD  
ELMERS  
SALFORD  
VERSATILE



*Insurance  
work done*

RO: 19707A

Invoice:

Date: 03/31/2020

Year		Make/Model		Serial Number		
2012		MF 9560		M95600CHC18145		
Stock No	PO	Misc Information		Tag	Customer	Telephone
24522						

Cond	OpCode	T	Description	Quantity	List	Net	Total
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Type: COMBINE RO Open Date: 01/13/20 Sold: 08/29/17  
War St: 08/20/12 War Exp: 08/20/14 War Ext: 09/07/19  
Meter In: 2061

001

INSURANCE REPAIR - ROCK INJECT  
D INSURANCE REPAIR - ROCK INJECTION  
D CLAIM #0032758385

F JAN 29 - GOT UNIT STARTED OUTSIDE AND WARMED UP. BROUGHT INTO SHOP AND REMOVED PANELS AND SHIELDS TO INSPECT FEEDING, THRESHING, CLEANING AND RESIDUAL COMPONENTS. TOOK PHOTOS AND BEGAN POPULATING LIST OF DAMAGED COMPONENTS.  
JAN 30 - FINISHED PARTS LIST AND QUOTED LABOR TIMES. SUBMITTED FOR APPROVALS. REINSTALLED PANELS AND SHIELDS AND MOVED UNIT BACK OUTSIDE.  
MAR 03 - REMOVED FEEDER HOUSING FROM UNIT. REMOVED CHAIN FROM FEEDER. REMOVED SLIP CLUTCH OFF OF SHAFT. REMOVED SET SCREWS OUT OF SPROCKETS.  
MAR 04 - REMOVED UPPER FEEDER SHAFT. HEATED UP SPROCKETS TO REMOVE. ALSO CLEANED UP PARTS. HAD TO PEEN BEARING HOUSING AND USE RETAINER COMPOUND TO REPAIR BAD HOLE. REPLACED CANVAS SEAL UNDER FEEDER HOUSE. UPPER FEEDER SHAFT MUSHROOMED. HAD TO BUFF FOR CLUTCH TO SLIDE ON SHAFT.  
MAR 05 - INSTALLED FEEDER CHAIN. HAD TO REPLACE LOWER DRUM ARM WHICH BENT AND WOULDN'T ALLOW DRUM TO MOVE UP AND DOWN SPROCKET GEARS. ADJUSTED CHAIN. WORKED ON FEEDER DRUM REMOVAL. HAD TO CUT BEARING OFF WITH TORCH TO BE ABLE TO REMOVE.  
MAR 06 TURNED UNIT AROUND TO REMOVE ROTOR. STARTED TO REMOVE REAR END COMPONENTS TO REMOVE THE ROTOR.  
MAR 09 - REMOVED STRAW CHOPPER, REVERSE MOTOR, UPPER CABINET DOOR. REMOVED ALL BOLTS FOR ROTOR.  
MAR 10 - REMOVED ROTOR FROM COMBINE. SET UP ON STAND FOR REBUILD AND BALANCE. CHANGED OUT THRESHING ELEMENTS. RETORQUED. CHANGED OUT TINES AND PADDLES. INSPECTED EXTERNAL ROTOR HOUSING. LOOKS OK.  
MAR 11 - REPLACED DAMAGED STRAW DEFLECTORS. REMOVED DRIVE COUPLER. REMOVED END BEARING ON ROTOR FOR REPLACEMENT.  
MAR 12 - INSTALLED NEW ROTOR BEARING AND TORQUED. INSTALLED ROTOR IN COMBINE. STARTED TO INSTALL REAR ROTOR DRIVE.  
MAR 13 - WORK ON INSTALLING ROTOR AND HARDWARE ON BACK END OF COMBINE.  
MAR 16 - INSTALLED ROTOR REVERSER MOTOR. HAD TO GRIND CRUSH NUTS OFF OF THE DECKING WHICH BOLTS WERE BROKEN OFF. INSTALLED CHOPPER BACK SIDE PANELS. STARTED TO CHANGE OUT CHOPPER FINS.  
MAR 17 - WORK ON TIGHTENING UP FRONT OF ROTOR BEARING.



GLENER  
HESSTON  
FENDT  
ROGATOR  
CHALLENGER

HONDA POWER EQUIPMENT  
MORRIS  
HUSQVARNA  
WESTWARD  
ELMERS  
SALFORD



*Washburn  
Work*

RO: 19707A

Invoice:

Date: 03/31/2020

Year	Make/Model	Serial Number				
2012	MF 9560	M95600CHC18145				
Stock No	PO	Misc Information	Tag	Customer	Telephone	
24522						

Cond	OpCode	T	Description	Quantity	List	Net	Total
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INSTALLED GREASE LINE. WORKED ON REMOVING INNER SIDE SHIELDS  
BESIDE BEATER. ALSO PUT BACK CONCAVES IN UNIT. WORKED ON  
LEVELLING CONCAVES. THE ADJUSTERS WERE SEIZED.  
MAR 18 - REPAIRED CONCAVE ADJUSTERS. LEVELLED OUT CONCAVES.  
WORK ON INSTALLING STEEL PANELS ON WALLS BEATER HOUSING. HAD TO  
DRILL HOLES IN NEW SHIELD TO FIT COMBINE HOLES.  
MAR 19 - INSTALLED FEED BEATER. INSTALLED SHAFT KEYS. INSTALLED  
THROUGH SHAFT IN FEED BEATER. INSTALLED FEED BEATER BEARINGS.  
INSTALLED BEATER SIDE SHIELDS. INSTALLED MORE CHOPPER FINNS.  
MAR 20 - INSTALLED HEADER DRIVE CLUTCH ASSEMBLY. INSTALLED  
TAILINGS DRIVE ASSEMBLY. TEST RUN AND HEAT CHECKED FRONT BEATER  
BEARINGS. INSTALLED FEEDER HOUSE, CENTER FEEDER CHAIN AND  
SPROCKETS AND TIGHTEN. INSTALLED SHOE DRIVE BELT AND TENSIONER.  
MAR 23 - ASSEMBLED SHIELD FRAMES. REPAIRED CONNECTORS ON HEADER  
ENGAGE CLUTCH. INSTALLED SOME SHIELDS. REMOVED FEEDER HOUSE  
SLIP CLUTCH TO ENSURE SPACER INSTALLED. INSTALLED FEEDER HOUSE  
DRIVE BELT. INSTALLED CLEANING FAN BELT. INSTALLED TAILINGS  
DRIVE BELT. TENSIONED BELTS.  
MAR 24 - ROUTE HYDRAULIC AND ELECTRICAL LINES UNDER CAB.  
INSTALLED LH FEEDERHOUSE BELT AND TENSIONER. INSTALLED LH  
FEEDER HOUSE SHIELD MOUNTING BRACKETS. INSTALLED FIN ON  
TAILBOARD. ATTACH MULTICOUPLER.  
MAR 25 - FINISHED SHIELD INSTALL. RAN MACHINE TO CONFIRM PROPER  
FUNCTION. \*WORK COMPLETE\*

LAB	L LABOUR	100.00	151.00	15100.00
	P 71387896 SHAFT-3/4"	1.00	310.70	310.70
	P 71450454 PADDLE	4.00	62.88	251.52
	P 71441691 HINGE	1.00	84.10	84.10
	P 71411425 CONVEYOR D	1.00	1335.84	1335.84
	P 71401420 BEARING AS	2.00	345.07	690.14
	P ACW3786990 FELT SEAL	1.00	55.27	55.27
	P 5000030X1 LOCKNUT-M1	38.00	3.66	139.08
	P 3019124X1 HEX FLANGE	44.00	3.00	132.00
	P 71433839 RASP BAR	28.00	50.50	1414.00
	P 385372X1 CARRIAGE B	6.00	2.95	17.70
	P 71447108 FEEDER CHA	1.00	4811.04	4811.04
	P 71447413 FELT SEAL	1.00	35.84	35.84
	P 71432171 ANGLE	1.00	173.28	173.28
	P 71411427 SUPPORT BA	1.00	135.19	135.19
	P ACW3478820 BEATER	1.00	4387.70	4387.70
	P 71433841 RASP BAR	10.00	51.35	513.50
	P 385370X1 CARRIAGE B	44.00	3.52	154.88
	P 3009228X1 HEX. FLANG	38.00	8.62	327.56
	P 385373X1 CARRIAGE B	10.00	3.01	30.10



GLENER  
HESSTON  
FENDT  
ROGATOR  
CHALLENGER

HONDA POWER EQUIPMENT  
MORRIS  
HUSQVARNA  
WESTWARD  
ELMERS  
SALFORD

VERSATILE



*Insurance work*

RO: 19707A

Invoice:

Date: 03/31/2020

Year		Make/Model		Serial Number		
2012		MF 9560		M95600CHC18145		
Stock No	PO	Miss Information		Tag	Customer	Telephone
24522						)

Cond	OpCode	Description	Quantity	List	Net	Total
		P 3019125X1 HEX FLANGE	35.00		2.34	81.90
		P 71447865 TUBE	1.00		158.80	158.80
		P 3009213X1 HEX. FLANG	4.00		9.53	38.12
		P 71441694 DEFLECTOR,	1.00		171.78	171.78
		P 5000029X1 LOCKNUT-M1	20.00		3.99	79.80
		P 71435872 DEFLECTOR,	2.00		171.78	343.56
		P 71435876 DEFLECTOR,	2.00		186.72	373.44
		P ACW1467820 REAR PLATE	14.00		86.19	1206.66
		Subtotal charges this section				32553.50
002		SUPPLEMENTAL REPAIRS 1				
		F SEE CONDITION ONE FOR REPAIR DETAILS.				
	LAB	L LABOUR	20.00		151.00	3020.00
		P 3009228X1 HEX. FLANG	2.00		8.90	17.80
		P 71154722 BALL BEARI	2.00		99.85	199.70
		P 116108W1 SPROCKET-Z	4.00		223.06	892.24
		P H8CZ34.112 3/4X1-1/2	1.00		1.86	1.86
		P 3019125X1 HEX FLANGE	1.00		2.36	2.36
		P 385370X1 CARRIAGE B	1.00		3.67	3.67
		P 385373X1 CARRIAGE B	2.00		2.95	5.90
		P 71486524 PIVOT SEAL	1.00		31.73	31.73
		P 71370634 BEARING FL	4.00		16.62	66.48
		P 71363526 EYEBOLT-5/	1.00		77.46	77.46
		P 502231-050 CABLE	7.00		1.28	8.96
		P 71390575 BEATER SHA	1.00		1463.08	1463.08
		P 71448512 PULLEY	1.00		414.70	414.70
		P 71432167 SIDE SHEET	1.00		115.87	115.87
		P ACW3821290 SHEET, LEF	1.00		137.43	137.43
		P 2620180W1 KEY	1.00		12.52	12.52
		P Y61879 SQUARE KEY	1.00		6.51	6.51
		Subtotal charges this section				6478.27
003		SUPPLEMENTAL REPAIRS 2				
		F SEE CONDITION ONE FOR REPAIR DETAILS.				
	LAB	L LABOUR	30.00		151.00	4530.00
		P 3019125X1 HEX FLANGE	1.00		2.35	2.35
		P 385373X1 CARRIAGE B	1.00		2.95	2.95
		P LUB62015 RET CMPND	1.00		23.57	23.57
		P 71309117 BEARING SE	2.00		44.46	88.92
		P 5000030X1 LOCKNUT-M1	3.00		3.66	10.98
		P 71488317 COUPLER	1.00		841.36	841.36
		P 71488318 MALE COUPL	1.00		227.55	227.55
		P 71444309 BEARING HO	1.00		288.93	288.93
		P 3012153X1 HEX FLG CA	3.00		1.62	4.86
		P 0175450825 M8-1.25 X	3.00		1.02	3.06
		P AG554278 CABLE TIE-	25.00		0.58	14.50



GLENER  
HESSTON  
FENDT  
ROGATOR  
CHALLENGER

HONDA POWER EQUIPMENT  
MORRIS  
HUSQVARNA  
WESTWARD  
ELMERS  
SALFORD



*Insurance work*

RO: 19707A

Invoice: .

Date: 03/31/2020

Year		Make/Model		Vehicle Identification		
2012		MF 9560		M95600CHC18145		
Stock No	PO	License	Tag	Customer	Telephone	
24522						

Cond	OpCode	T	Description	Quantity	List	Net	Total
			P 502232-050 CABLE	2.00		1.52	3.04
			P Y704726 FLANGE LOC	12.00		1.96	23.52
			P BLTTR1/2-36 PLATED THR	1.00		5.70	5.70
			P 71435875 DEFLECTOR,	1.00		251.51	251.51
			P LUB59575 SUPERFLEX	1.00		19.96	19.96
			P 2588510W1 KEY	2.00		7.73	15.46
			P HAR08-22 KEY STOCK	1.00		8.53	8.53
			P 7771470 HEX. FLANG	4.00		2.77	11.08
			P 7883382 MACHINE SC	2.00		1.53	3.06
			P 71435874 DEFLECTOR,	1.00		251.51	251.51
			P 1602482010 DISCONN. P	1.00		0.78	0.78
				Subtotal charges this section			6633.18

M Shop Supplies

300.00

THANK YOU FOR YOUR BUSINESS!  
QUESTIONS? PLEASE CALL US AT 403-442-3866

A/R 10389

48263.20

TERMS Account due 15th of month following purchase. Service charge of 1% per month ( 24% annual) on unpaid balance	DESC	TOTALS
	LABOR	22650.00
	PARTS	23014.95
	SUBLET	
	MISC	300.00
	OTHER	
	SUBTOTAL	45964.95
	GST	2298.25
	PST	
	TOTAL	48263.20

Signature: \_\_\_\_\_