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# IRON EDGE INDUSTRIES LTD.

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## WORK ORDER 031

|                |            |                |                   |
|----------------|------------|----------------|-------------------|
| REQUESTER NAME | Nexson Ltd | DATE STARTED   | March 27, 2025    |
| PHONE          |            | DATE FINISHED  | April 4, 2025     |
| EMAIL          |            | INVOICE NUMBER | April 4/25        |
| UNIT NUMBER    | 608        | UNIT TYPE      | Truck             |
| UNIT MAKE      | Kenworth   | UNIT VIN       | 1XKWD40X5PR990558 |
| UNIT KMS       | 857,005    | UNIT HOURS     | 21,836            |

### REQUEST DESCRIPTION

Diagnose and repair coolant loss issue

### DESCRIPTION OF WORK COMPLETED

Bring unit into shop and confirm complaint by pressurizing coolant system – coolant level dropping – found one external leak, repaired leak with new hose clamp, pressurize system again and still losing coolant – internally. Check transmission cooler – not leaking, check EGR cooler – shows sign of slight leak but not enough to match loss amount, check turbo – not leaking, check air compressor – not leaking, remove oil fill cap – signs of coolant in oil, remove EGR crossover tube and valve cover hose, remove valve cover – signs of coolant in oil. Reassemble and take unit outside and wash engine to further tear down engine. Bring unit back in and drain engine oil, remove oil pan, oil pick up tube, and block stiffener plate and pressurize coolant system, coolant leaking from liner # 3 & 5 on exhaust side. Notify customer and get approval to tear apart engine for rebuild. Begin engine tear down, drain coolant and freon (only had 1 lb.), remove intake and exhaust piping, rad pack, fan and a/c belt, fan shroud, fan, fan hub, accessory bracket, turbo, exhaust manifold, thermostat housing, air compressor intake piping, crankcase breather assembly, power steering reservoir, intake manifold, fuel lines, fuel manifold, front gear cover, camshaft gear, camshaft idler gear, upper idler gear, valve cover, engine brake/injector harness, rocker shaft assemblies, fuel injectors, camshaft, head support brackets, and head. Clean up block and check liner protrusions- protrusions sitting at .009" - .010" across the deck, well within spec. Remove piston cooling nozzles, connecting rod and piston assemblies, and liners. Check block counterbore for signs of fretting and cracks – slightest hairline fracture on #5 just a surface crack and does not catch. Notify customer and get approval for work moving forward. Removed EGR cooler and transmission cooler to

eliminate further coolant loss areas. Removed oil cooler and replaced cooler element and gaskets. Clean up all surfaces and parts – Found slight wear starting on camshaft (customer wants re-used), found broken valve cover corner bolts, crankcase breather return line, broken bolts, coolant hoses worn to cords, and engine brake rocker detents worn out. Replaced all parts except camshaft that were worn or broken. Cleaning all parts took longer than usual due to coolant contamination. Replaced and torqued main bearings, pistons and pins, connecting rod bearings, installed new liner and measured protrusions – sitting at .011" across the deck (old liners had O-rings fail), continued reassembly of engine with new head, all new gaskets and seals, new oil cooler element, new oil thermostat and relief valve, new coolant thermostat, new EGR coolant bypass tube (all EGR parts stayed off of engine), new exhaust manifold end piece (difficult to remove existing manifold end piece – took longer than usual), new coolant hose for turbo, new coolant hoses for worn out hoses, new crankcase breather oil drain line, and new valve cover gasket and corner bolts. Reinstall all parts that were removed for engine rebuild. Install new oil filter and fill with oil. Fill power steering reservoir. Fill coolant system. Fill Freon. Fire up unit – running good. Get programmer to hook up to unit and check ECM tune – tune is an OK tune, could use some fuel mapping alterations to improve fuel economy, engine running cooler, and engine running smoother. Customer wants to take unit as is for time being. Release unit to customer.

|                              |                |             |               |
|------------------------------|----------------|-------------|---------------|
| <b>WORK<br/>COMPLETED BY</b> | Michael Rempel | <b>DATE</b> | April 4, 2025 |
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