QC Metallurgical, Inc.
Testing & Consulting Services

Martin & Ottaway, Inc.
QCM Job No. 22FM-344

July 7, 2022

DATA ANALYSIS

Item Description: M32 Fuel Injection Pump, Item # CJ2-001, Case # 1301533

Inspection for Leaks and Torque Values on Banjo Bolts on Bypass Tube Assembly

Equipment Used:
Torque Wrench ½ Dr., 0 – 250 ft.lbs., S/N 02163748 TW Proto J6125F with 3/4 Socket

Notes: Heavy black sludge is built up on unit

Results of Inspection:

Removed Banjo Bolt "A" = 7.5 ft.lbs. break away torque

Removed Banjo Bolt "B" = 15.0 ft.lbs. break away torque

Banjo Bolt "A" Upper Copper Washer Thickness = 0.063"

Banjo Bolt "A" Lower Copper Washer Thickness = 0.059"

Banjo Bolt "B" Upper Copper Washer Thickness = 0.062"

Banjo Bolt "B" Lower Copper Washer Thickness = 0.068"

No Loctite or sealant used. All washers have normal usage marks.

The Banjo tube was cleaned and inspected under stereomicroscope. Observed was that the tube was bent to accommodate the offset of the tubes. Machine mark lines were noted longitudinal to fracture. On both ends cracks are on the stressed side of where the tube was mounted.

Other Results:

	Banjo Bolt #1 (No. 507)	Banjo Bolt #2 (No. 507)
Bolt Head Markings	None	None
Thread Pitch	150 mm	150 mm
Condition of Bolts & Threads	Good	Good
Bolt Overall Length	30.94mm / 1.218"	30.94mm / 1.218"
Bolt Thread Length	14.05mm / 0.553"	14.05mm / 0.553"
Bolt Shank Length	12.18 mm	12.18 mm

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Joint Rings 2X	0.062"	0.063"
POS Item 506 & 510	0.068"	0.059"

Questions per your email dated 7/6/22:

Were all copper gaskets correctly installed? Yes

Were the copper gaskets of the correct dimensions? Was not given exact dimensions.

How was the general condition of the copper gaskets? Acceptable.

Any other issues related to the above mentioned gaskets? Normal wear install marks present. Recorded thickness as removed.

[redacted]

Jerry Iaciofano