**SPECIFICATION 302 – MAIN ENGINE UNIT OVERHAUL (PISTON UNITS)**

**SFI Group Reference**: 231 – Main Engine Components

**🔹 DESCRIPTION**

This specification includes the **complete overhaul of xx number of main engine units**, including:

* **Piston removal and cleaning**
* **Inspection and honing of liners**
* **Overhaul of valves, injectors, and stuffing boxes**
* **All work performed in accordance with OEM procedures**

**🔹 SCOPE OF WORK / INSTRUCTIONS**

1. **Cylinder Head Removal and Overhaul**
   * Disconnect cylinder head, dismantle all mountings
   * Remove to workshop, clean, **Dye Penetration Test**, and **pressure test**
2. **Piston Removal and Cylinder Overhaul**
   * Remove piston and inspect crown, rings, and skirt
   * Remove ridge at liner top using vessel’s equipment
   * Clean and calibrate liner bore
   * Inspect and hone liner (if required – separate quote)
   * Exchange O-rings if liner is pulled (quote separately)
3. **Component Overhaul**
   * Overhaul and test the following (owner-supplied spares):
     + Indicator cocks
     + Safety valves
     + Starting air valves
     + Fuel injectors (with pressure adjustment)
4. **Stuffing Box Overhaul**
   * Fully dismantle and clean stuffing box
   * Measure wear, renew quill O-rings
   * Reassemble and test
5. **Cooling Jacket Handling**
   * Open and clean cylinder cover cooling jacket
   * Replace owner-supplied O-rings
6. **Pressure Testing**
   * Perform pressure test on cylinder head, cooling passages, and relevant piping
7. **Cleaning**
   * Clean crankcase compartment and work area to Chief Engineer's satisfaction
8. **Final Verification**
   * Conduct performance test with Chief Engineer during sea trial or undocking condition
   * All measurements and readings to be recorded and submitted

**🔹 MATERIALS & SUPPORT**

* All spares: **Owner-supplied**
* Yard to include in tender:
  + **Staging, lighting, hot work permits, access, cleaning tools**
  + **Transport to workshop**
  + **Pressure test rigs**
  + **Manpower and supervision**

**🔹 SERVICES LINES**

| **Service Line #** | **Service Description** | **UoM** | **Qty** |
| --- | --- | --- | --- |
| 302.1 | Disconnect cylinder head, dismantle all mountings, clean, inspect, NDT & pressure test | Piece | TBD |
| 302.2 | Transport inside yard | Lumpsum | 1 |
| 302.3 | Clean and reassemble cylinder cover cooling jacket, change O-rings | Piece | TBD |
| 302.4 | Indicator cock overhaul (remove, test, refit – owner parts) | Piece | TBD |
| 302.5 | Safety valve overhaul (remove, test, refit – owner parts) | Piece | TBD |
| 302.6 | Starting air valve overhaul (remove, test, refit – owner parts) | Piece | TBD |
| 302.7 | Fuel injector overhaul and pressure adjustment (owner parts) | Piece | TBD |
| 302.8 | Main engine piston unit overhaul – full scope per unit | Piece | TBD |
| 302.9 | Cylinder liner replacement – quote per unit | Piece | TBD |
| 302.10 | Pressure testing (cylinder heads, jackets, etc.) | Piece | TBD |
| 302.11 | Cleaning of crankcase and work area | Lumpsum | 1 |
| 302.12 | Honing of cylinder liners – by authorized service engineer (quote per unit) | Piece | TBD |

**🔹 APPROVAL & SUPERVISION**

* All work to be recorded and approved by:
  + **Chief Engineer**
  + **Owner’s Representative**