



Equipment Repair Case Study

Situation: **Military Rescue Submarine System (LARS)**
A Vancouver, BC design, fabrication & maintenance company specializing in submarine rescue systems.

Challenge: **Evaluate & Fabricate at Tristar's Delta facility.**
Tristar's Project Manager visited the customer's facility to evaluate manufacturing another unit. The enduser had lost their unit at sea during a military exercise. The existing set of drawings did not match the fabrication of the existing unit and they needed to be adapted to manufacture a new modified unit.



Evaluation:

- Tristar's specialized project manager reverse engineered the available drawings to develop a complete drawing package that represented the manufacturing requirements.
- Tristar needed to create a manufacturing plan, revise existing manufacturing techniques and create a sequence of fabrication events to meet the customers specific needs and strict quality requirements.

Solution:

- Tristar manufactured the frame system, repaired the bell section and modified the critical swivel section of the unit.
- The team of Tristar technicians, project manager, and the customer's engineering representative created and implemented a complete, quality fabrication plan for the submarine rescue system, including new welding procedures.
- Tristar's project team completed the fabrication with a full inspection, including N.D.T., RT and X-Ray to DNV specification.



Benefits: The improved unit was manufactured to the new specifications, within a time critical framework, meeting all of the customer's requirements, for both time and a quality product, in a critical application.

Conclusion: The rescue submarine was re-assembled, by Tristar's personnel, to design specification and delivered to full successful operation at the customer's North Vancouver facility.



For more information or other case studies:
Please call 1-800-663-5606 or visit [.tristarind.com](http://www.tristarind.com)

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Since 1973

"reliability makes the difference"



***Machine Shop Equipment Capabilities
Delta, B.C. Facility
1-800-663-5606***

**74,000sq. ft. facility in Delta, BC. – 3 heated bays,
Rail, Road and Water Access**

Tristar operates a low impact environmental site with a controlled and monitored effluent system.

Lifting Capacity:

- 8 Overhead Cranes
 - Up to 110 ton lifting capacity.
 - With 379" under the hook.

Machining:

Small – Medium Lathes	5	½" Ø to 18" Ø swing by 12' long.
Large Lathes	4	to 14' Ø by 50' long.
Vertical Boring Mill	4	to 18' Ø by 13' under the Bridge.
Horizontal Boring Mill	5	2 with 5" spindles & 3 with 4" spindles.
Floor Mill	1	6' spindle with 40' horiz. by 124" Vert. travel, c/w 25 ton rotary table.
Cylindrical Grinding	3	to 20" Ø by 120" long.
Roll Grinding	1	to 78" Ø by 295" long at a 30 ton capacity.
Surface Grinding	1	60" Ø by 36" under the head.
Balancing	1	to 122" Ø by 480" long at an 80 ton capacity.

Fabrication Materials:

Titanium
Hastelloy
Austenitic 300 Series Stainless
6 – 7% Moly Stainless
2205, 2304 Duplex Stainless Steel
Ferralium

Welding Process:

Gas Metal Arc
Submerged Arc
Gas Tungsten Arc
Plasma Transferred Arc
Ultra-jet Micro-Flow, Flame Spray Build-up & Jet Arc Spray Build-up

Weld Control Processes:

"U" Symbol 23,384 – Construction of Pressure Vessels to ASME Code Section VIII, Division 1
"S" Symbol 33,733 – Construction of Power Boilers to ASME Code, Section I
"R" Symbol 2377 – Repair or alteration of the above equipment to the National Board of Boiler & Pressure Vessel Inspectors Code.

Material Testing Capabilities:

(NDT) Non-destructive & destructive testing offsite.

Certifications:

ASME "U", "S" and "R" Stamps

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