

# Field Machining Repair to Canada's Largest Ice Breaker



## About In-Place Machining Company

*In-Place Machining Company designs and develops specialized machine tool systems, and provides precision on-site machining and measurement services to a wide range of industries including Marine & Offshore, Steel & Aluminum Production, Nuclear, Fossil, Hydro and Wind Power Generation, Pulp & Paper Manufacturing, Petro-chemical, Infrastructure, Mining, General Manufacturing, and Scientific and Military customers. With over 100 employees in multiple locations around the USA, and perhaps the largest inventory of dedicated on-site machining systems in the country, In-Place Machining Company is ready to serve you In-Place... Any Place In The World.*



## IPM Performs Challenging On-Site Field Machining Repair to Canada's Largest Icebreaker

**L**évis, Quebec — Canadian Coast Guard Vessel Louis St. Laurent is back in service thanks in part to In-Place Machining Company's on-site field machining and [on-site measurement & alignment](#) of multiple steering system components. IPM was tasked with refurbishing the (3) rudder tapered pintle pin bores, (3) gudgeon bores, rudder stock bearing journal, and the doubling deck flange face.



*Field Machining on Canada's Largest Ice Breaker*

**The Challenge** — While the 47 year old icebreaker was in drydock for refit, the rudder and pintle pins were removed. However, the rudder stock was fixtured to the ram type steering gear in such a manner that it was impractical to disassemble.



*Accomplishing The Most Difficult On-Site Alignment*

**Pre-docking & Drydocking Inspections** — With all parts remaining at the drydock, (and some remaining installed on the vessel), IPM measured each component



*Inspect Pintle Bores, Rudder Stock & Rudder Bores*



*Field Machine Pintle Bores, Rudder Stock & Rudder Bores*

separately. Using a combination of optical bore scopes, laser measurement devices, inclinometers, and a host of mechanical instrumentation, IPM correlated all parts and devised a repair plan.

**Precision Field Machining** — Based on the stock inspections the support journal was machined oversize with IPM's planetary method to the correct centerline of the upper portion of the stock while the stock remained installed in the ship. Using specialty machining equipment designed and manufactured by IPM, we successfully machined all precision features to within specification. During assembly, all rudder components installed correctly on first trial.



*Cement Mill Grinding Table Field Machining*

**Marine Industry Experts** — Marine customers all over the world trust In-Place Machining Company for their most difficult projects. Visit our [Marine & Offshore page](#) to learn more about IPM's wide range of services for Marine customers, or **Call IPM Today at 414.562.2000** to discover the advantage of working with an industry pioneer with over 35 years of [on-site machining](#) experience.

QUALITY MACHINING  
IN-PLACE... ANY PLACE  
IN THE WORLD