

# Motor Service Hugo Stamp, Inc. Shughart #7 cylinder block

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Repaired October  
2011

USNS Shughart

Violet Docks, LA

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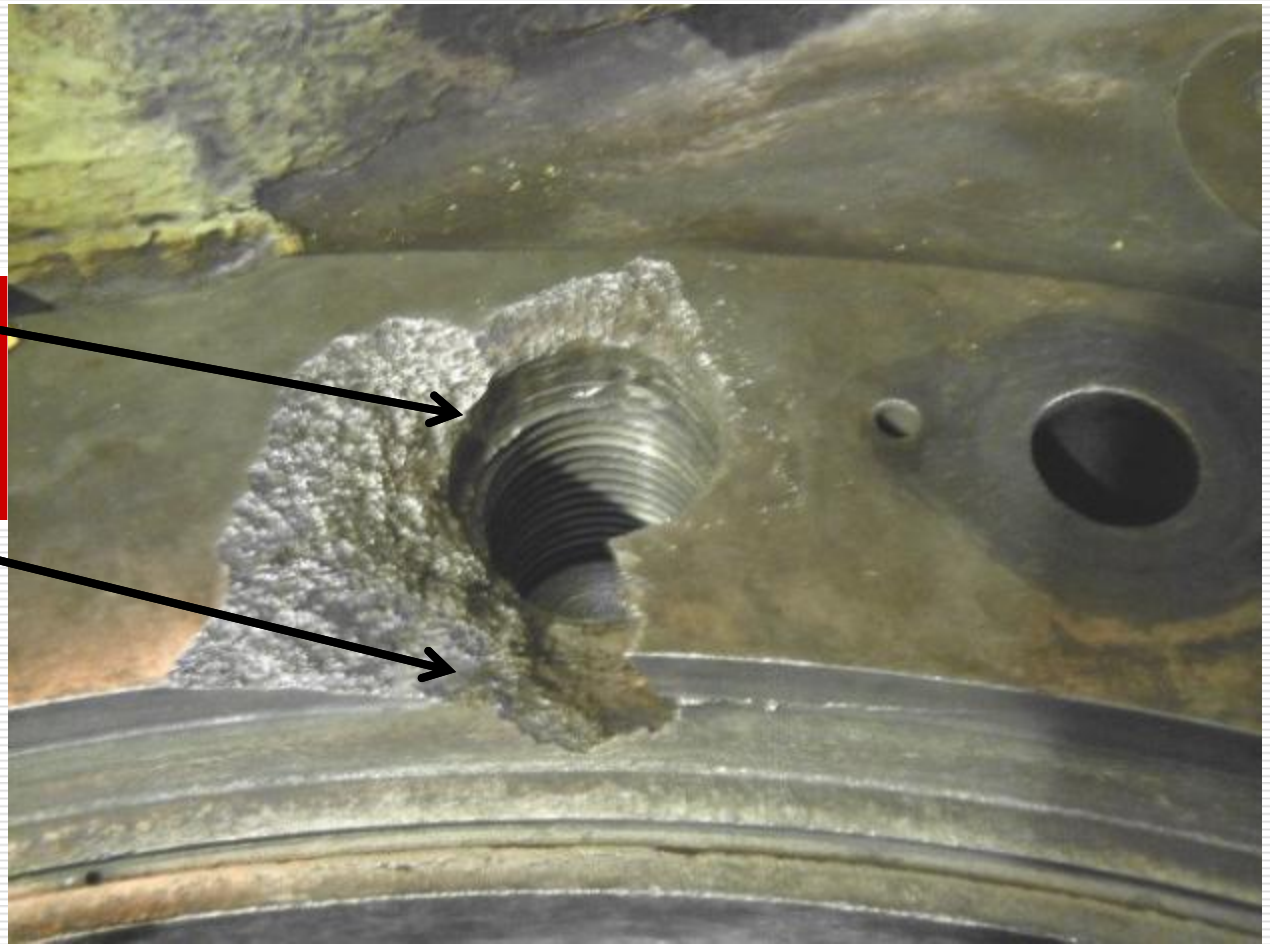
# Scope of Work

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- 1. Manufacture new head stud and thread repair insert with 68mm internal threads**
  - 2. Mill out the damaged area on the engine to receive a repair patch**
  - 3. Fabricate a steel patch to fill the milled out area and drill a hole to accept the thread repair insert**
  - 4. Metal stitch the plate in place**
  - 5. Drill and tap to accept the thread insert**
  - 6. Install the thread insert**
  - 7. Set up and mill the top surface where the insert is installed flush on the top of the block**
  - 8. Bore out liner landing on the block to accept a large repair ring**
  - 9. Manufacture the special repair ring.**
  - 10. Install the repair ring by freezing in liquid nitrogen**
  - 11. Perform final machining on the ring liner landing and inside bore**
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# Damaged area

Damaged 68mm  
bolt hole with  
damage into the  
liner landing.



# Mill out damaged area

Milling out  
damaged area  
with a portable  
Milling machine

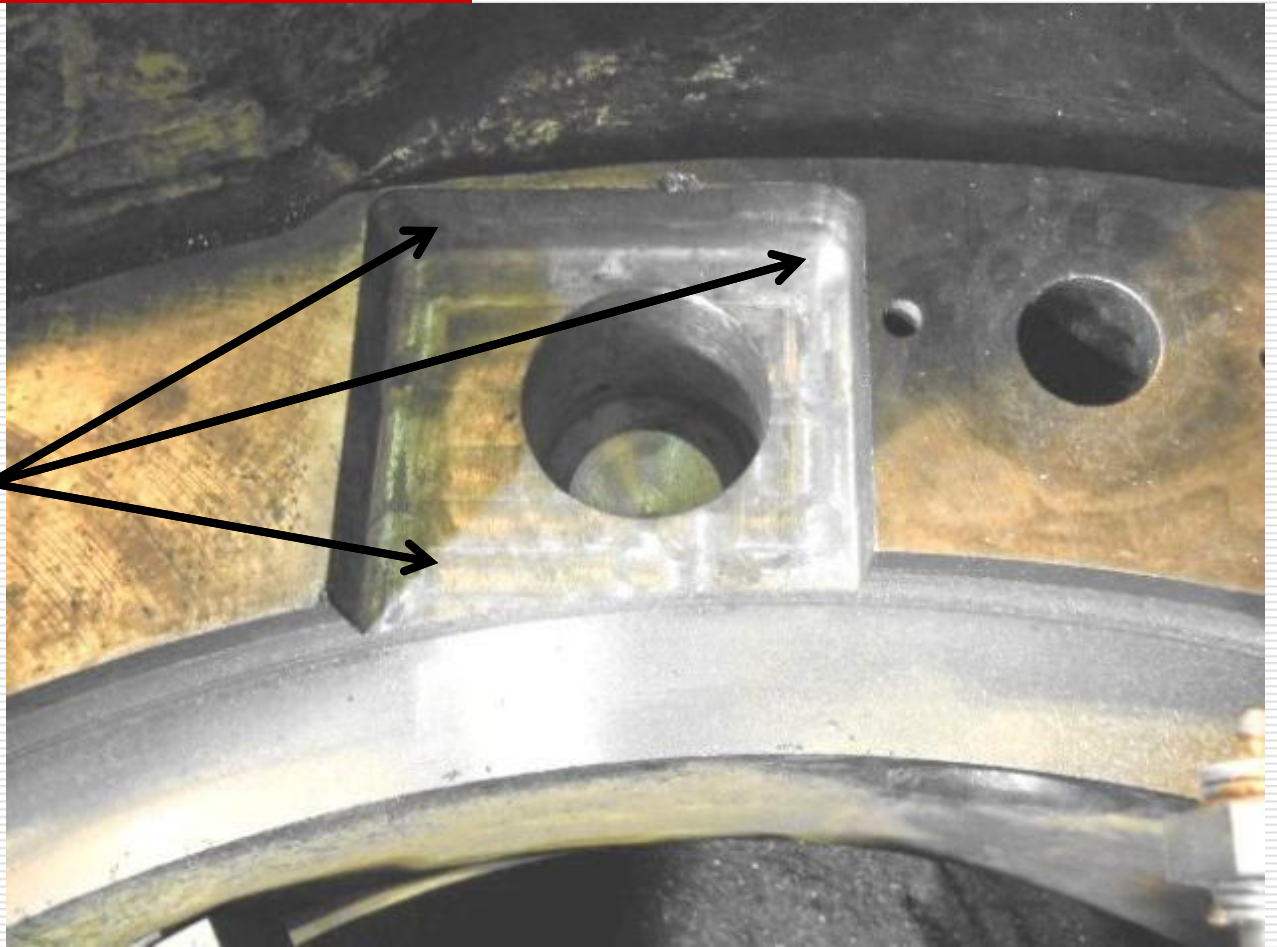




# Damage completely milled out

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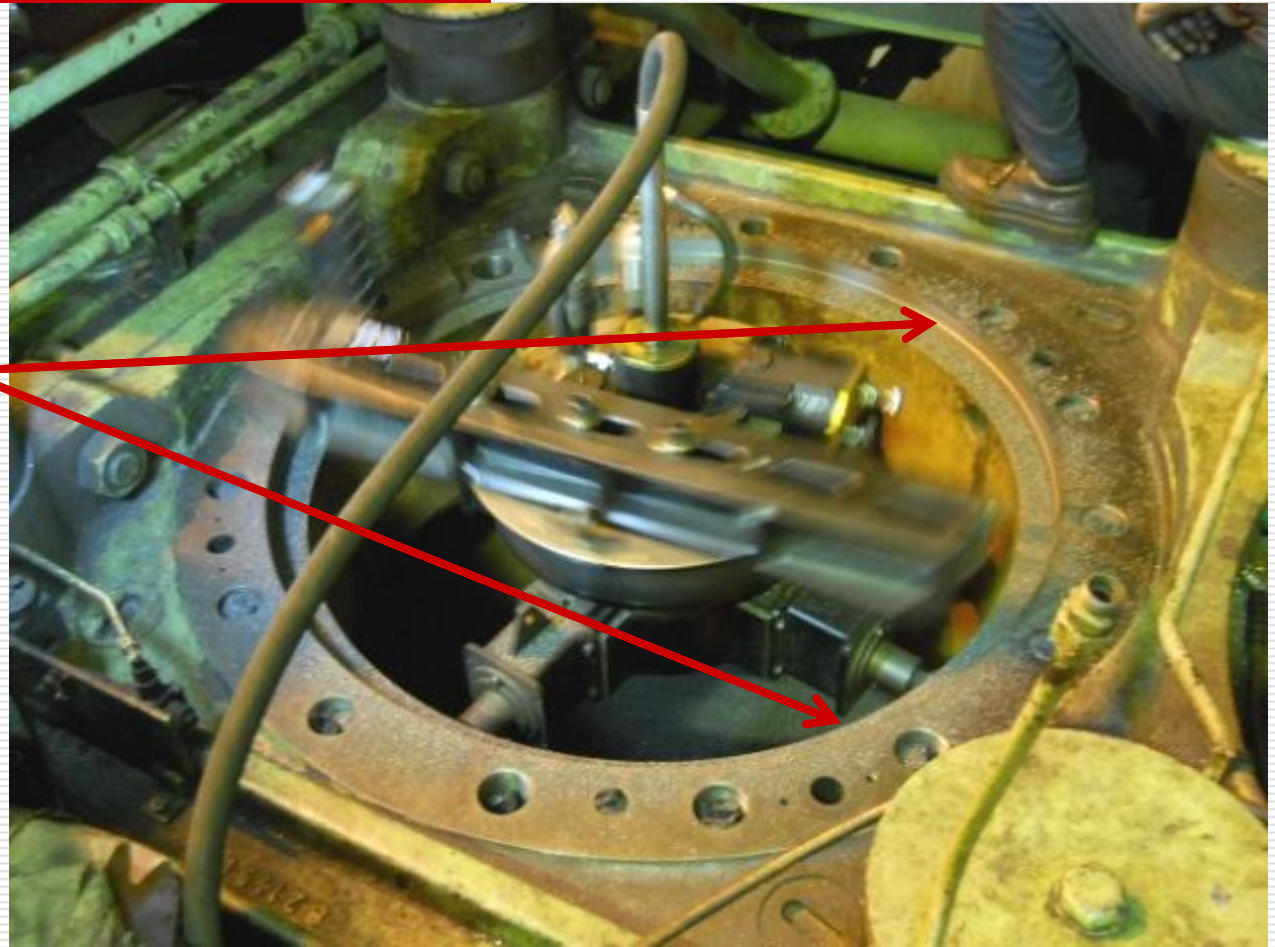
Damaged area completely milled and ready to accept the patch to fill the void.



# Liner landing repair

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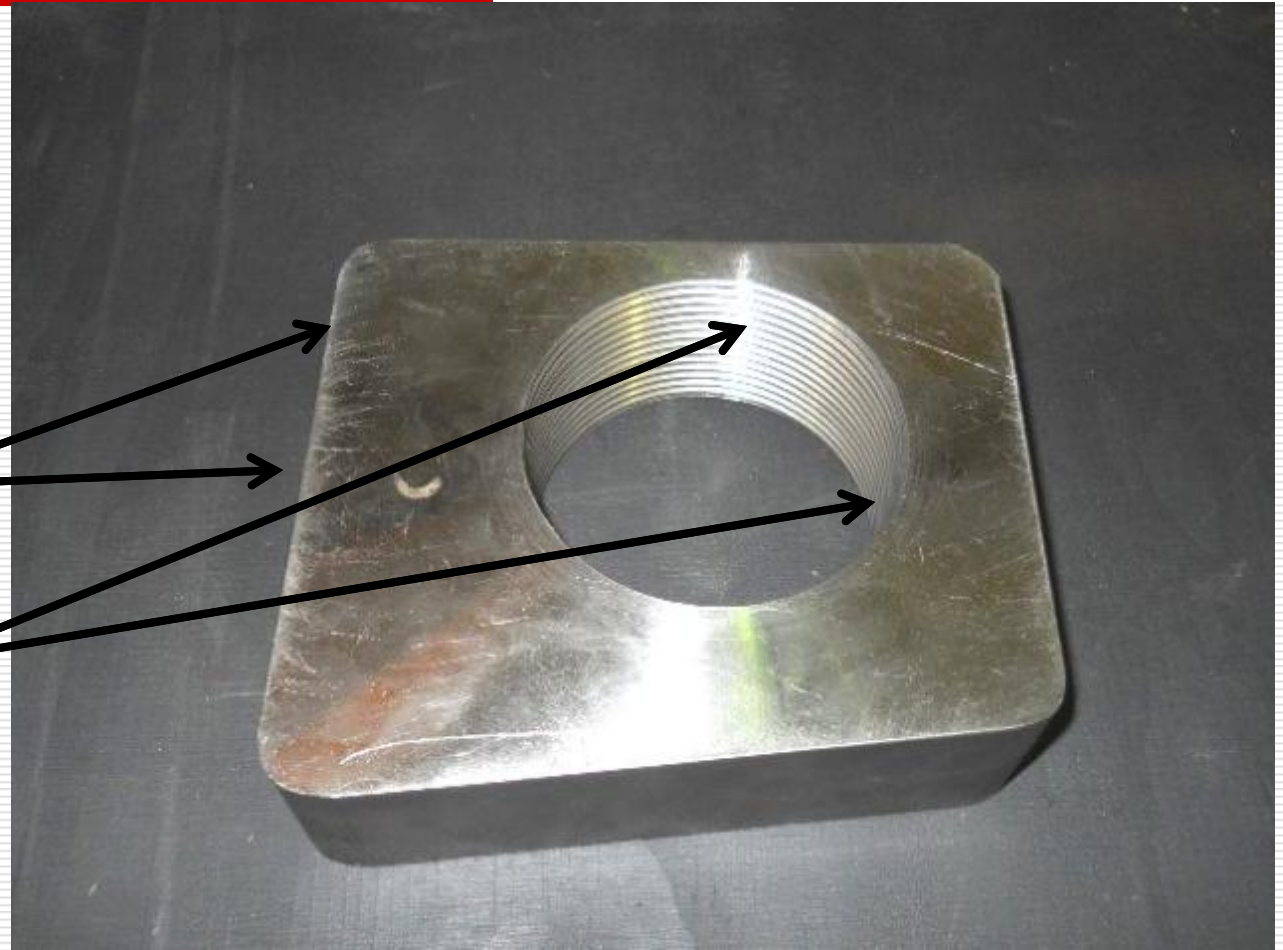
Using a flange facing machine  
LNS bored the  
liner landing  
bigger and deeper  
to accept repair  
the repair ring



# Fabricated steel patch

Once the damaged area is milled out LNS fabricated a steel patch to fit the milled out area.

Full-Torque O.D. threads are threaded into the patch to accept the repair insert.





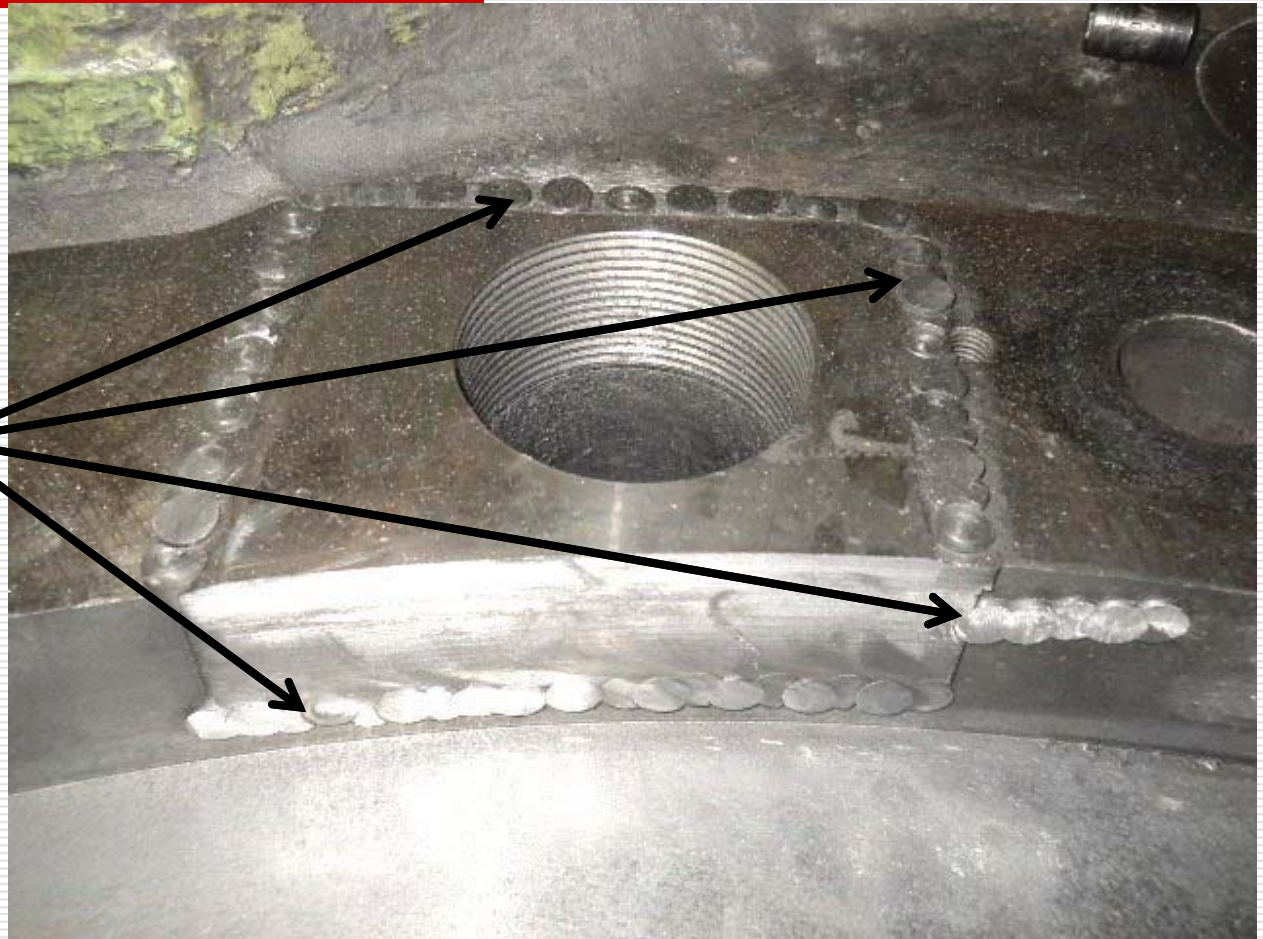
# Metal stitching the patch



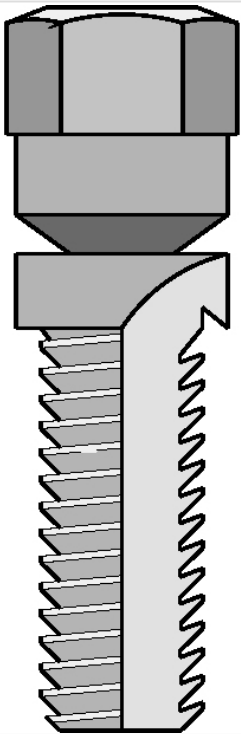


# Final metal stitching

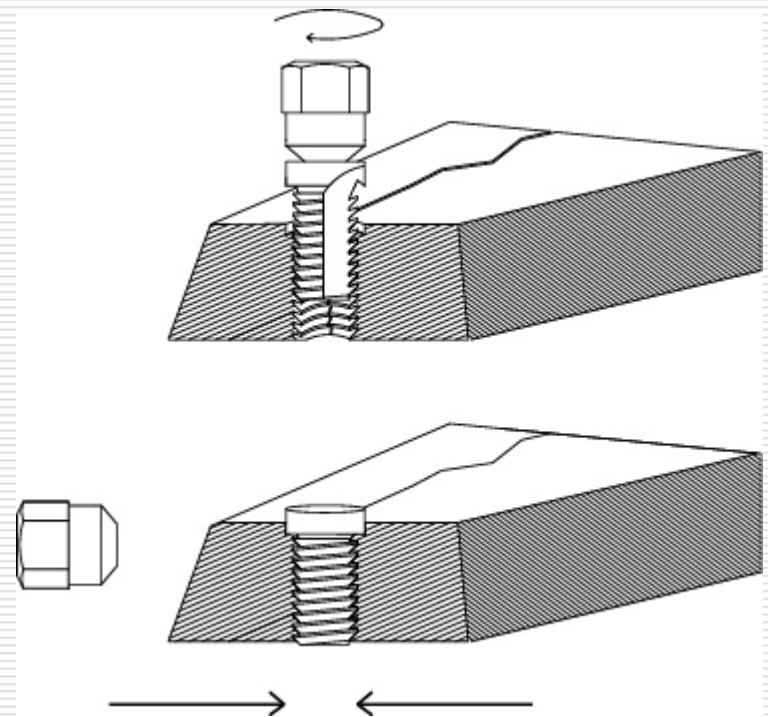
Patch is metal stitched and ready to accept the Full-Torque thread insert.



# CASTMASTER® Stitching Pins



**CASTMASTER stitching pins have the unique ability to draw the sides of a crack together when tightened into the drilled, Spotfaced and tapped hole.**



# Full-Torque thread insert

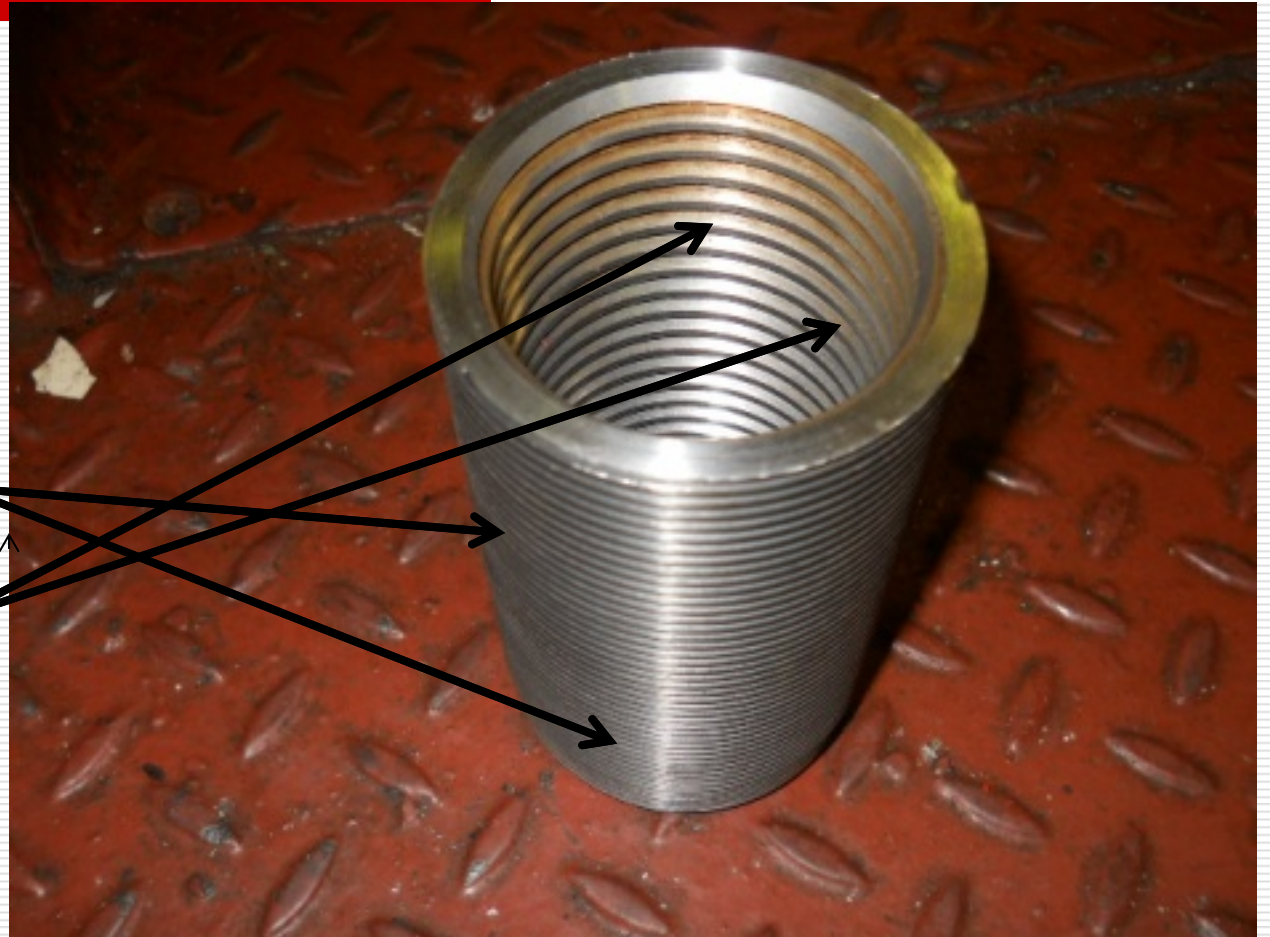
Full-Torque thread  
Insert tap





# Full-Torque thread insert

Our Full-Torque thread insert with our patented spiral hook design threads on the O.D. and the m68 threads on the I.D.





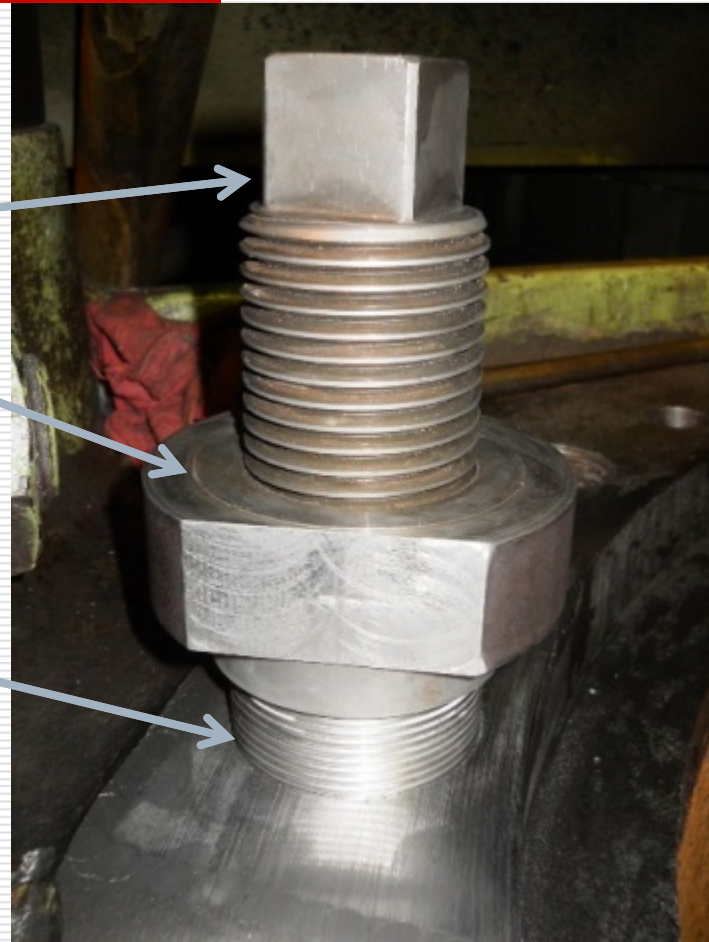
# Tapping the hole for the Full-Toque insert

Using a magnetic base drill with a torque multiplier we tap the hole through the repair patch and into the base material



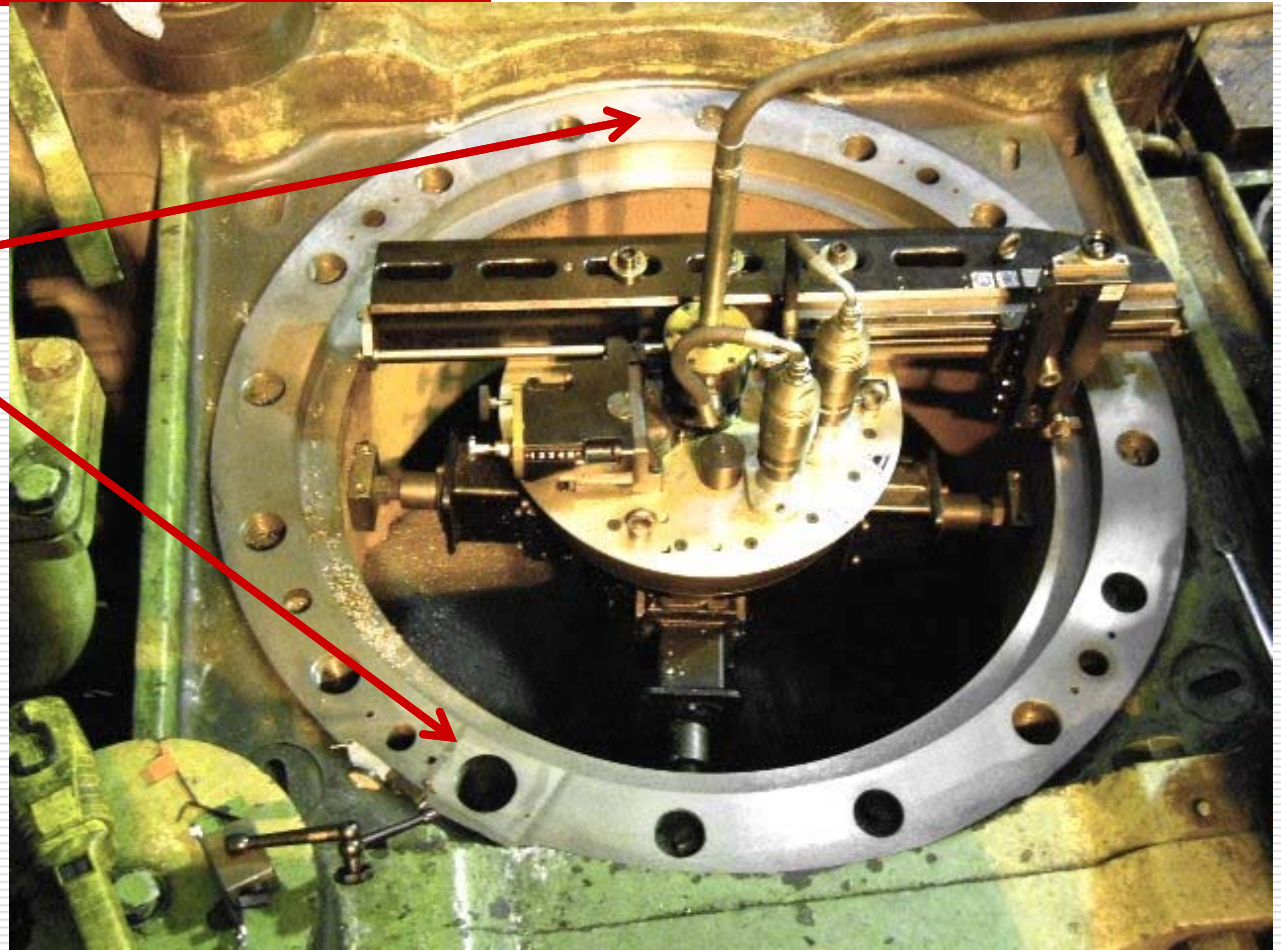
# Installing insert

Using an installation tool the insert is screwed onto the install tool and until snug against hardened washer. The hardened washer is larger than the insert so it will tighten down flush to the machine surface.



# Milling top surface

Using the flange  
facer to machine  
deck surface





## Repair ring in liquid nitrogen

Using liquid nitrogen to shrink repair ring to fit in bored out liner landing

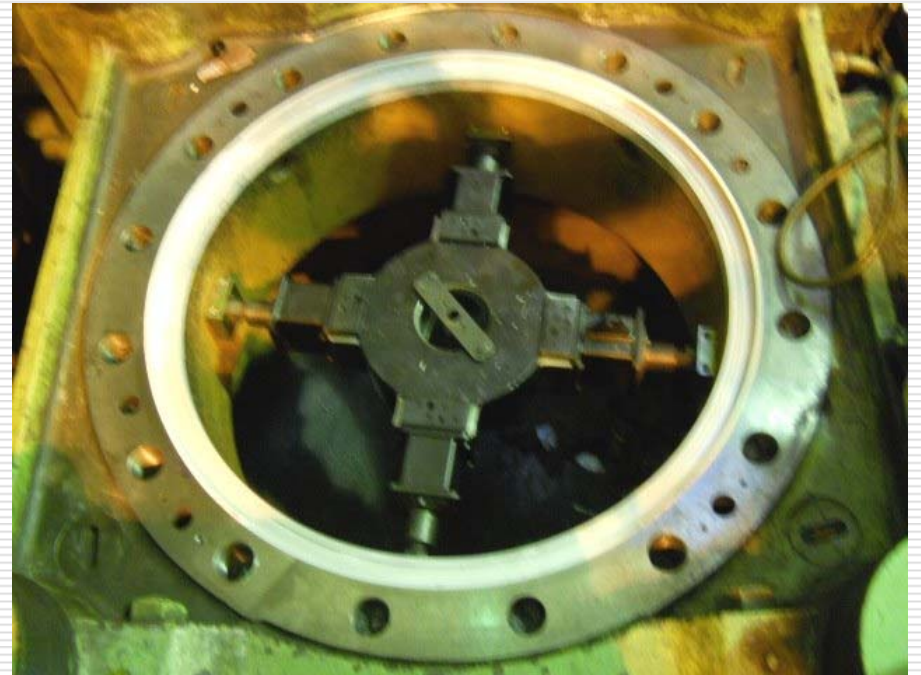




# Final machining

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FT thread insert installed



Locking pins to prevent rotation

# Final repair

Completed repair by  
LOCK-N-STITCH Inc.  
1015 S Soderquist Rd  
Turlock, CA 95380  
(209) 632-2345

