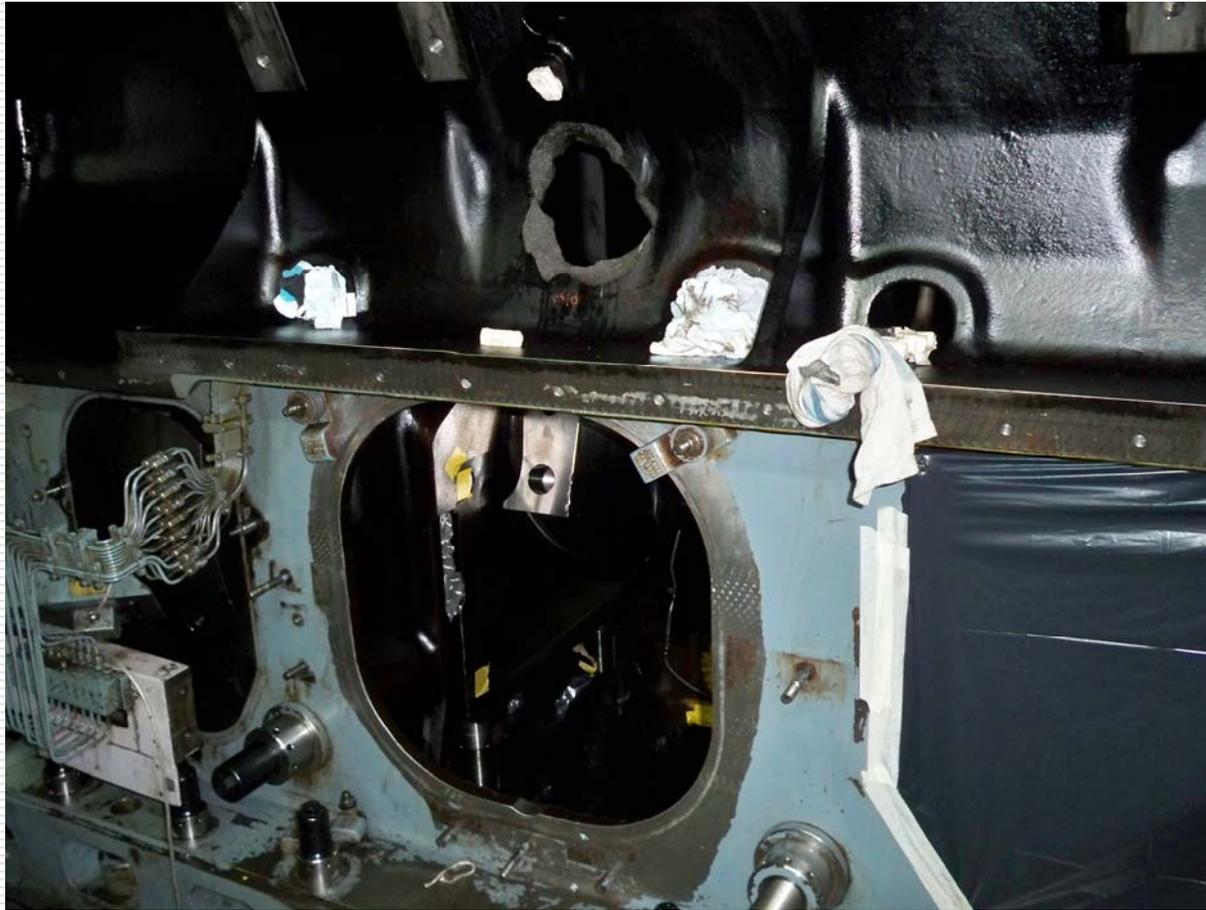


MAN V18 Crack repair



Repaired July 2010

Scope of Work

- 1. Cut out the damaged and broken edges around the blow-out into the Cam box to create perpendicular and straight edges.**
 - 2. Cut the class 40 gray iron patch to fit into the prepared hole with a very close fit.**
 - 3. Metal stitch the patch into cam box using our *Castmaster* stitching pins. This produced a continuous row of overlapping pins completely around the patch.**
 - 4. The cracks below the inspection door was stitched with *Castmaster* stitching pins in the same way as the patch with the pins extending all the way through the cracked walls of the block**
 - 5. Installed L40 Locks across the crack to add additional strength.**
 - 6. The stitching is complete the repairs are ground and machined flush to the surface making the stitching repair invisible.**
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Damaged Cam box

Grinding out the edges around the blow-out in the Cam box. This creates the straight edges for the patch.



Making patch for Cam Box

Tracing out the template to manufacture the patch for the blow-out hole.



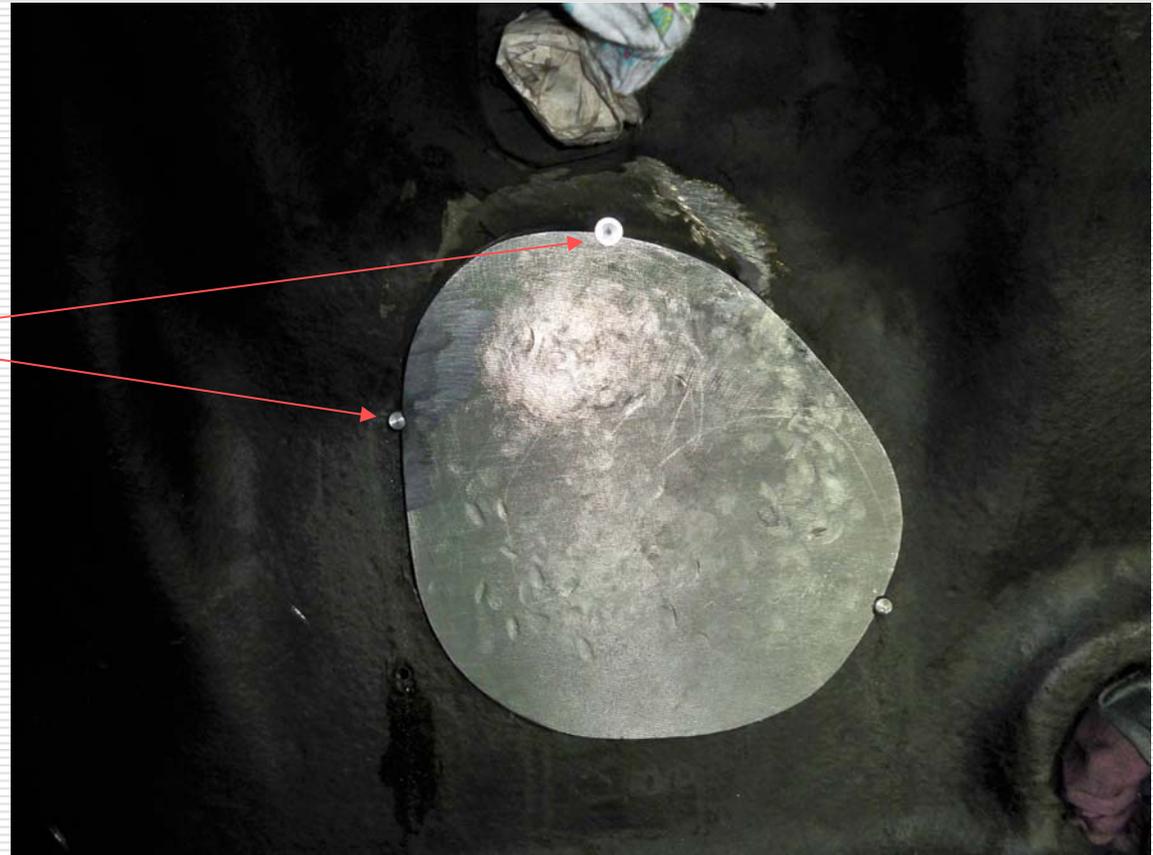
Manufacturing the patch

Once the template is traced on the new section of cast iron the piece is cut to size with a portable cut off wheel.



Fitting the patch

Patch was fitted
in blow-out hole
in Cam box using
three Castmaster
pins to hold in
place.



Installing the stitching pins

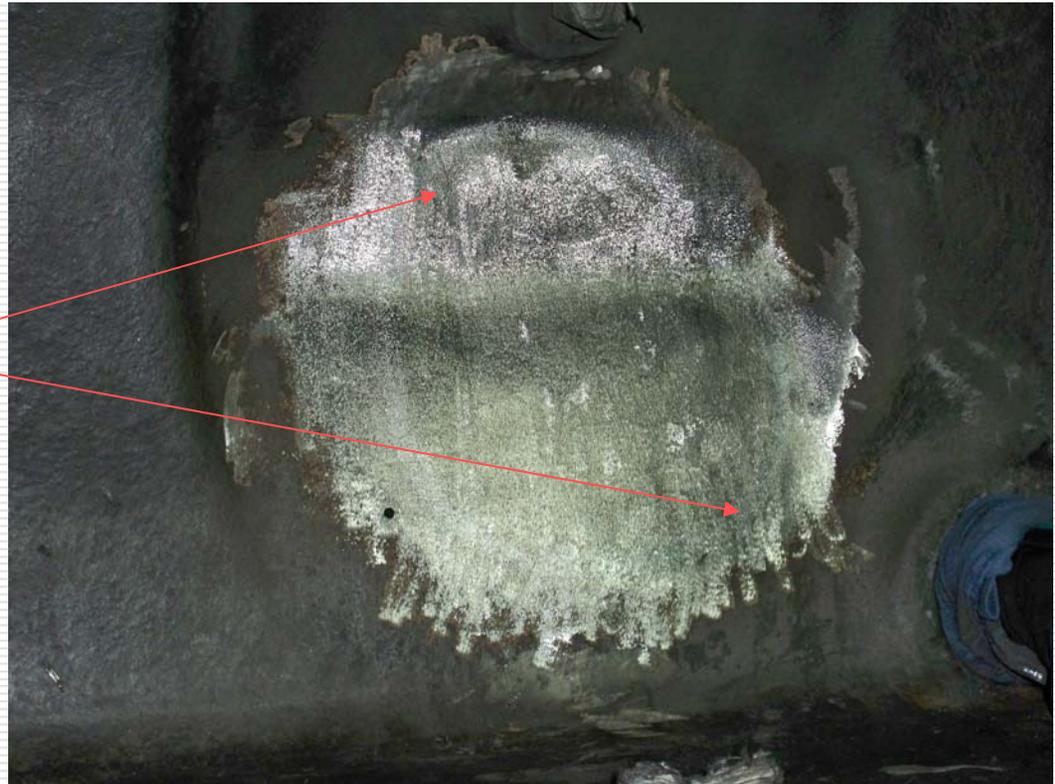
C3 CASTMASTER stitching pins were installed along the crack.

These special stitching pins have our patented Spiral hook threads that add strength and high pressure seal.

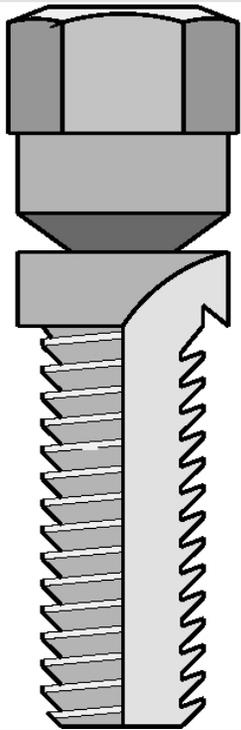


Finished repair on blow-out hole

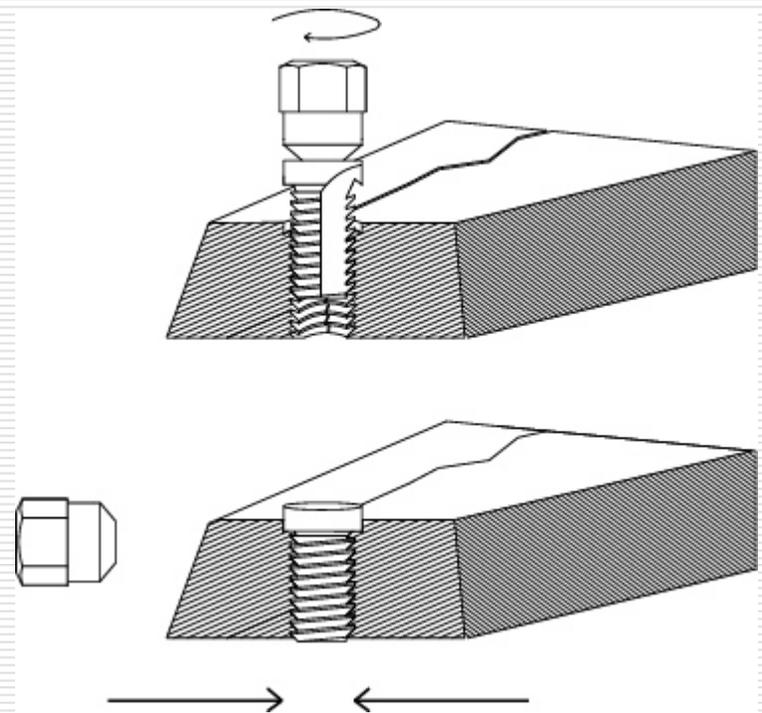
Once the repair was completed there is no sign of the crack or the patch.



CASTMASTER® Stitching Pins

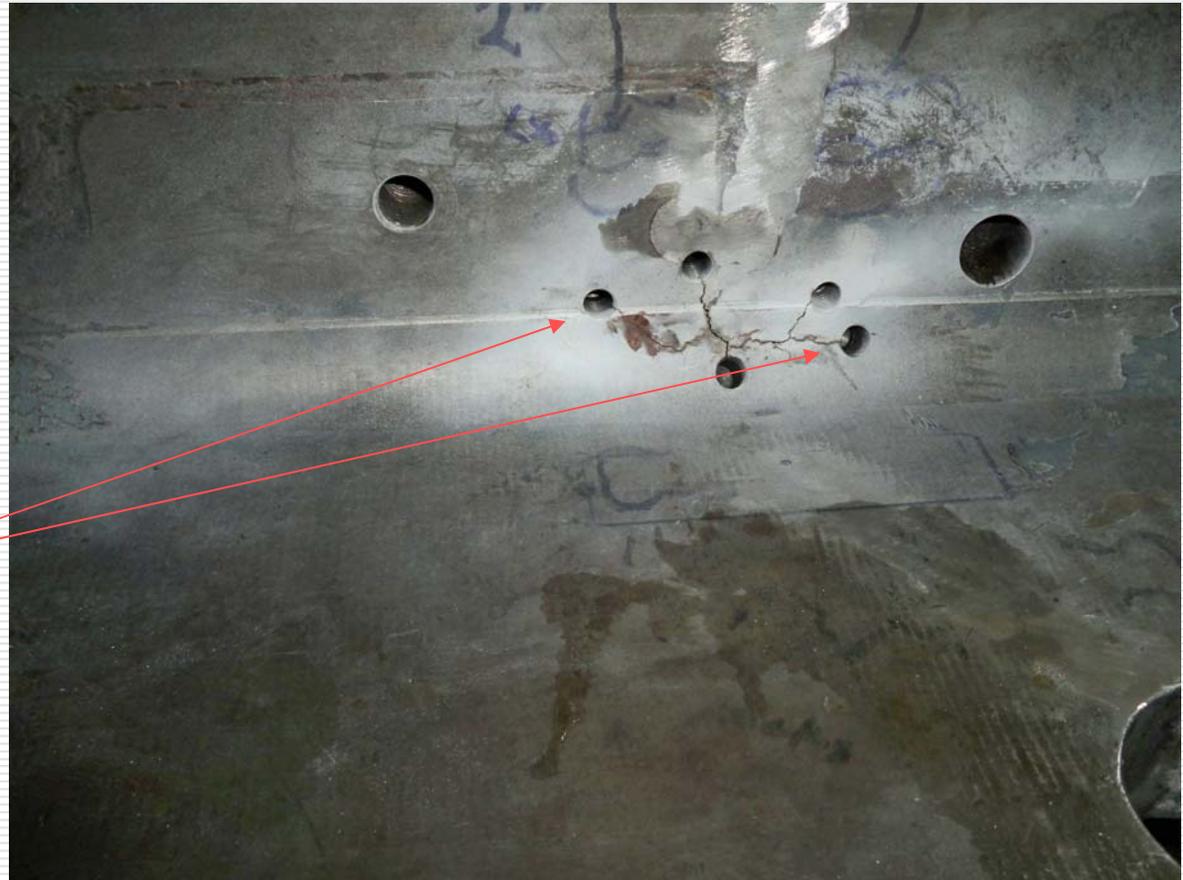


CASTMASTER stitching pins have the unique ability to draw the sides of a crack together when tightened into the drilled, Spotfaced and tapped hole.



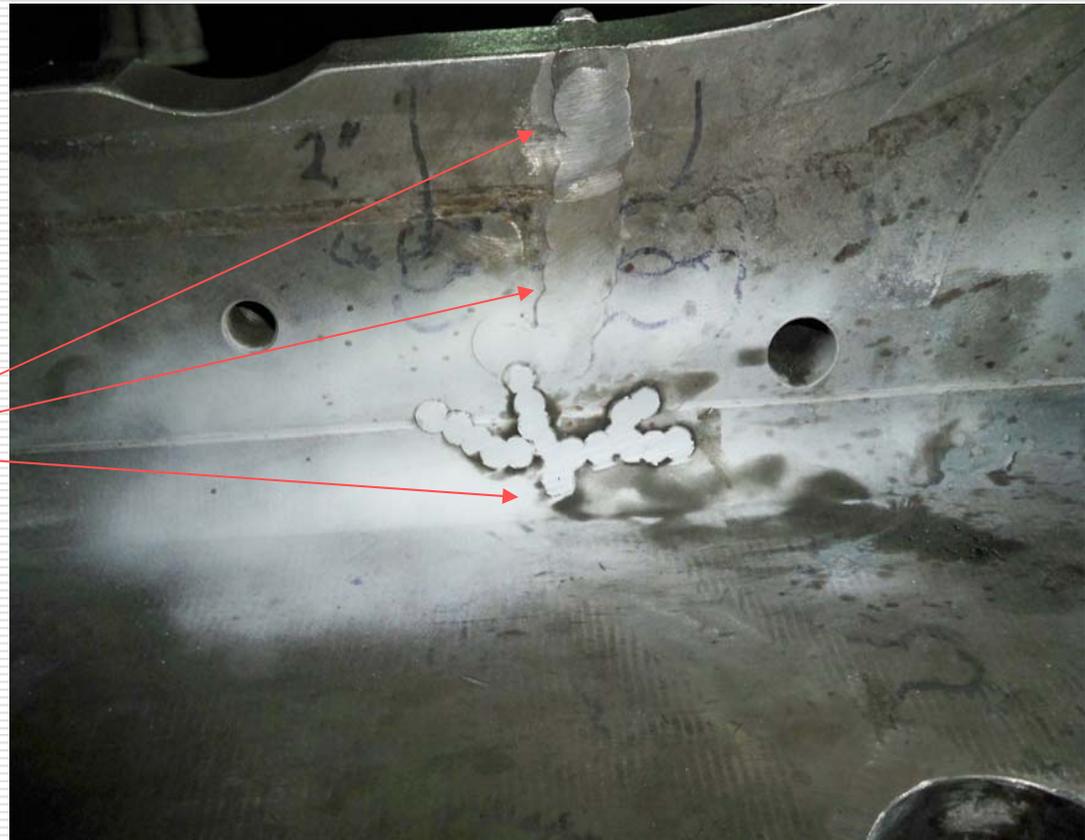
Damaged area around Inspection Door.

Here you will see the crack damage below the inspection door during the stitching process.



Stitching completed on Inspection door

Castmaster stitching pins are installed along the cracks.



Installing L40 Locks

Using a precision drill jig to drill the pattern for a L40 lock to add additional strength across the repair.



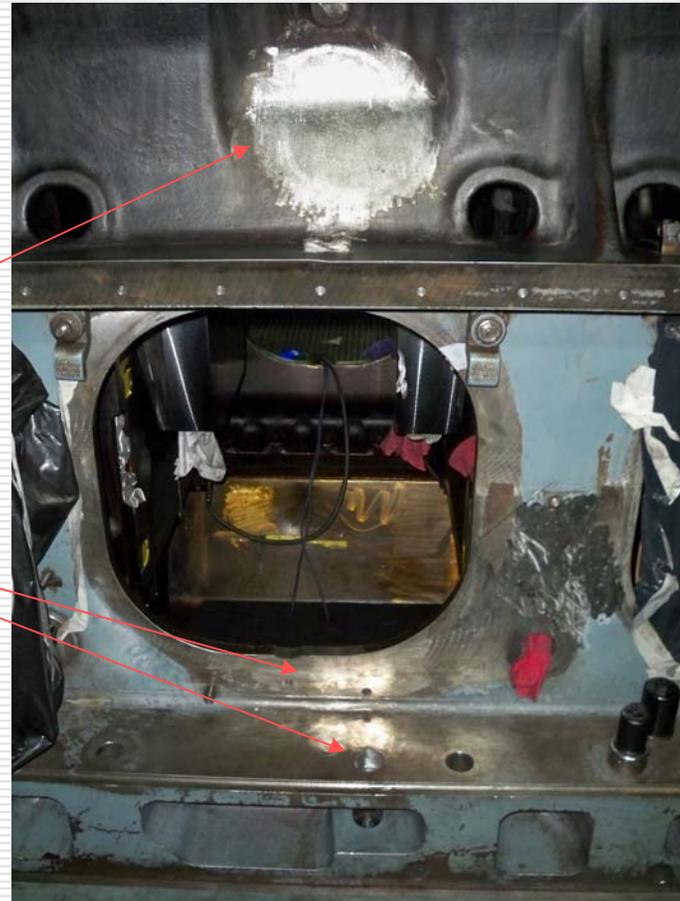
L40 lock installed

The L40 lock is now installed and ready to be machined and ground flush.



Completed repair of Cam box and Inspection door

- Here you see the repair of the Cam box blow-out and the lower wall of the Inspection door and landing area repairs.



Finished pictures of the repair

- Finished repair inside Cam box.



Lower wall and floor

- Lower inspection wall and landing.





- ❑ Repair is completed on July 17, 2010
 - ❑ #9 crank pin grinding was completed on July 23, 2010 by Goltens Miami after LNS finished their work.
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