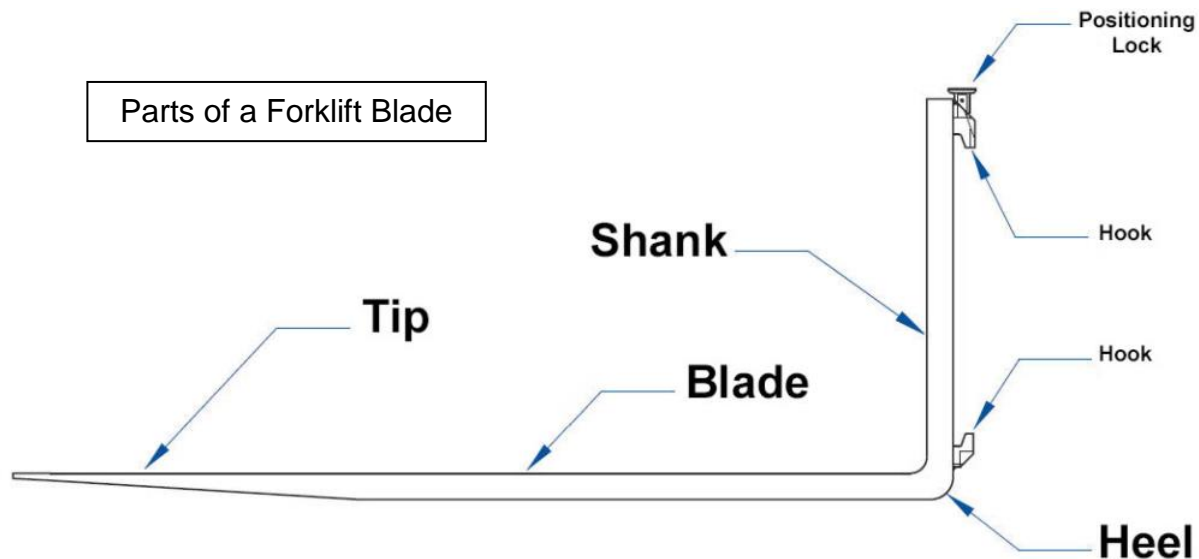


Inspection of Forklift Blades

Forklift blades last a long time but like everything, they wear out from rubbing along the floor or friction with the load or pallet. Inspection of blades is often forgotten or the inspection is too cursory to find existing issues. Data from an independent safety inspection audit company found that 29% of all forks inspected failed to meet the safety standards. The blades should be inspected at least once per year for single shift operations. A forklift that is used on three shifts a day should be inspected three times a year. The reason for this is to check for not only damage but normal wear and tear. Inspections should also be performed whenever a defect, bend or deformation is detected.

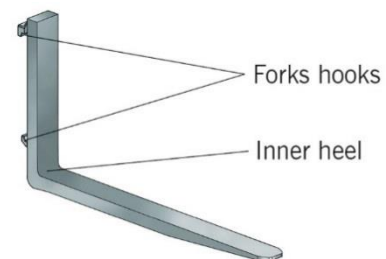


What to Look For

ASME/ANSI B56.1-2000 provides information regarding how to inspect a forklift blade

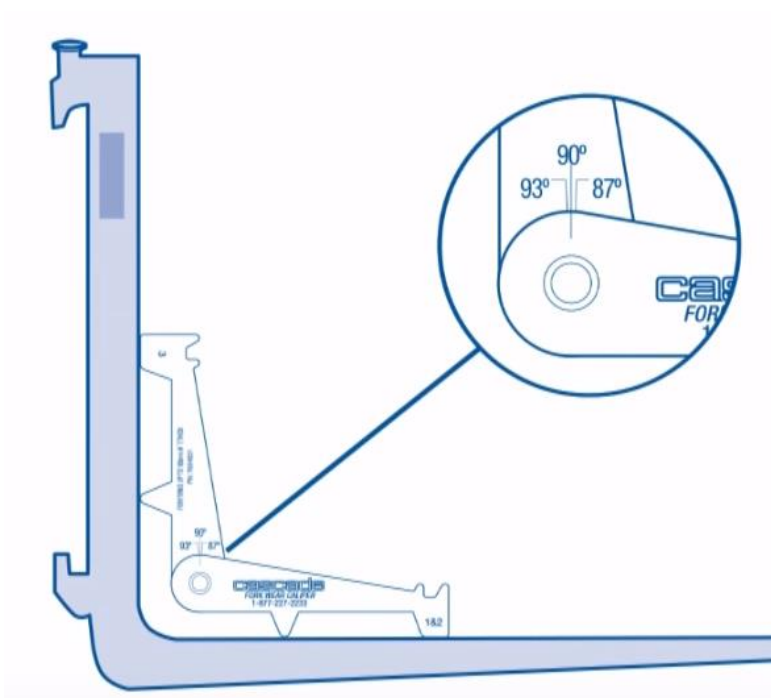
1. Surface Cracks
2. Fork Angle
3. Difference of Height of Fork Tips
4. Straightness of Blade
5. Damage or bending of hooks
6. Lateral bending of fork hook

Surface Cracks: the most common places for cracks to form are in the fork hooks and the inner heel of the fork. You should clean the blade of dirt, etc. and use a good lighting to take a close look. Any cracks will likely be hair line cracks so you need to look close.





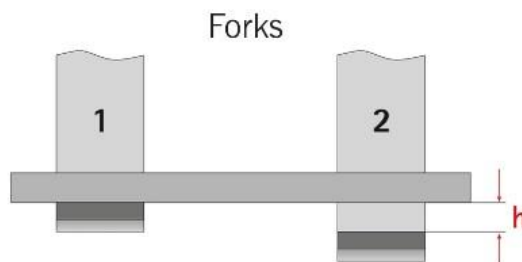
Blades with surface cracks should not be used until they are approved or repaired by a competent person.



Fork Angle: Forks are made with a 90 degree angle. Forks with a different angle may need to be corrected or replaced. A special caliper to measure the angle of the forks is used. The caliper is simply aligned to that it touches both the shank and the blade by the heel. The caliper is marked to show the allowable deviation of 3 degrees either way of a perfect 90 degrees.

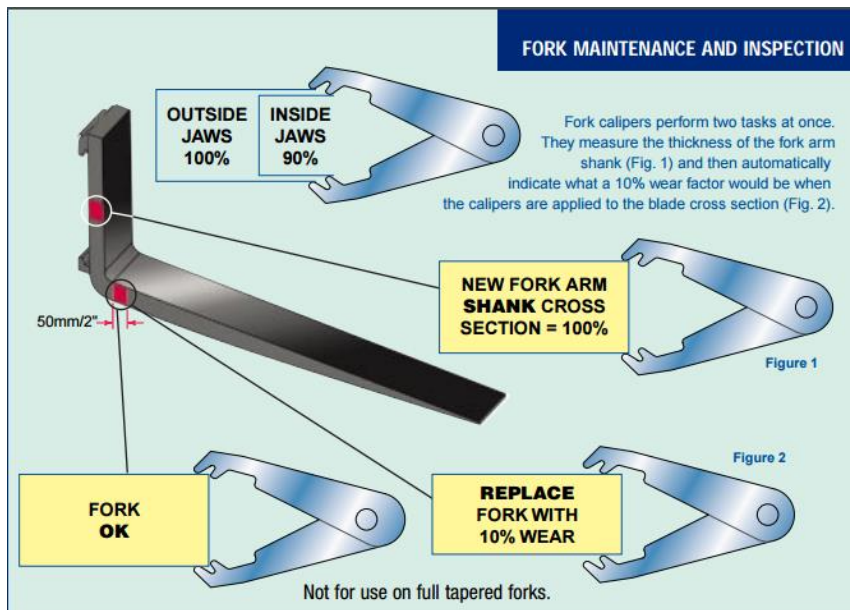
The allowable variation is very small and would not be noticed without a close examination.

Difference in Height of Fork Tips: if the difference in tip heights exceed 3% of the length of the blade, the set of forks should be taken out of service.



Straightness of Blade and Shank: The straightness of the upper face of the blade and the front face of the shank should be checked. If the deviation from straightness exceeds 0.5% of the length of the blade and/or the height of the shank, respectively, the fork should be taken out of service and not returned to service until it has been properly repaired.

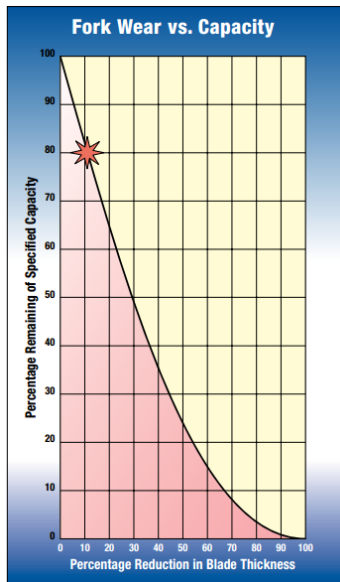
Wear: Forklift blades can wear down over time reducing their load capacity. A 10% reduction in thickness equates to a 20% reduction in load capacity. Wear of the blade is usually measured by first measuring the thickness of the shank (the vertical part of the L shaped forklift). The shank does not normally wear down so is a good measurement of the original thickness of the blade. The thickness of the horizontal blade is measured near the shank. See the diagram below.



A useful rule of thumb is:

10% wear of a fork blade = 20% reduction in capacity

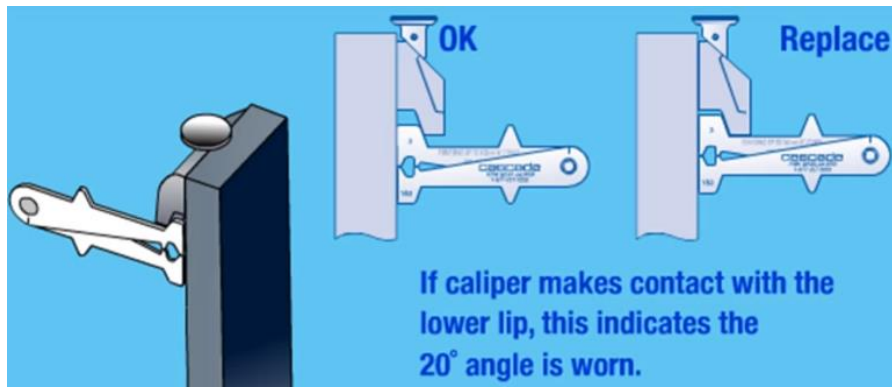
The best way to inspect a forklift fork caliper but any caliper or similar device will do.



The graph on the left shows how the specified capacity of a forklift blade decreases as the blade thickness decreases. Blade thickness decreases as the blades are worn down by rubbing on the floor and on pallets. The wear happens slowly and the blade may be fine for years but the blade will eventually start to wear down and get thinner.

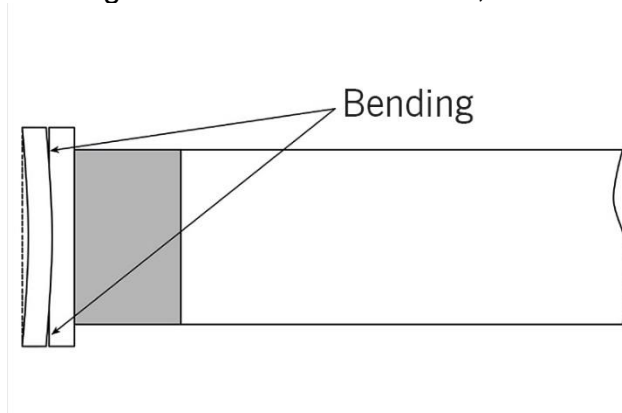
It is interesting to note that the reduction in the capacity of the blade happens faster with decreasing thickness than one may think. A 10% reduction in thickness equals a 20% reduction in the capacity of the blade.

Damage or Bending of Hooks



Calipers can be used to inspect the fork hooks for signs of wear or bending

Lateral Bending of Fork Hooks: Lateral forces and long-term use may cause lateral bending of fork hook. In this case, fork hooks need to be replaced.



Check the Mast Rails as Well

From the forks, continue your forklift inspection by looking at the mast rails, again checking for any cracks or welds that could affect the mast structural integrity. Look for signs of excessive wear on mast rollers -“ such as a compressed oval shape rather than a round shape. After inspecting the rollers, follow the length of the lift chains, noting any damaged/missing links or anchor pins. Inspect the hoses running parallel to the chains for any indication of leaking hydraulic fluid. Check both hoses and lift chains for equal tension distribution as well. Follow the length of chains and hoses to the tilt cylinders attached to the forklift carriage, again looking for any signs of damage or leaks and for missing or insecure bolts.

Frame, cowling and canopy

Walk around the forklift and check the body for any signs of damage, pausing on both sides of the forklift to inspect the cowling as well. Check the canopy main supports for any bends or damage that could affect the canopy's ability to protect an operator in the event of a dropped load or rollover. Remember to check the integrity of side screens. If the forklift features an enclosed cab, make sure there are no missing or damaged windows. Look at the chassis, paying close attention to any welds, cracks or signs of repair or modifications. Finish the body/frame inspection by checking the tires for chunking (missing rubber) and the wheels for missing lug nuts.