Abstract

The analysis of an abnormal failure of forklift forks is presented in this work. The investigation results suggested that failure occurred due to fatigue mechanism followed by sudden overload fracture. The orientation of fatigue fracture indicates abnormal lifting operation, favouring crack initiation from outer fork area which is the compression designed zone. Moreover, various surface flaws and weakness areas (such as surface marks, decarburized microstructures and weld zones) identified on the outer fork zone, compromise fatigue strength inducing premature crack nucleation and fast growth towards final failure.