Federal State Educational Institution of Higher Education
«Gubkin Russian State University of Oil and Gas (National Research University)

The chief of the Department APS

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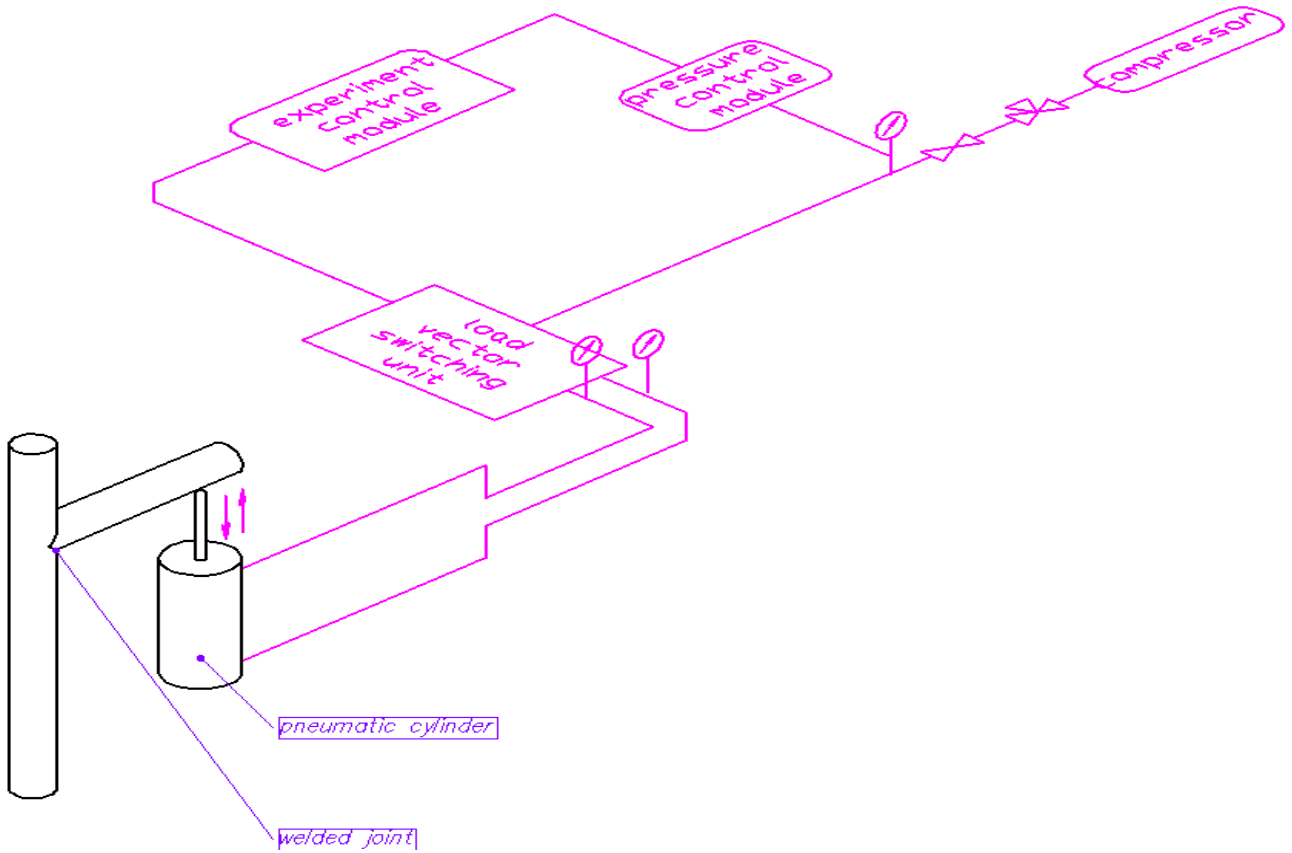
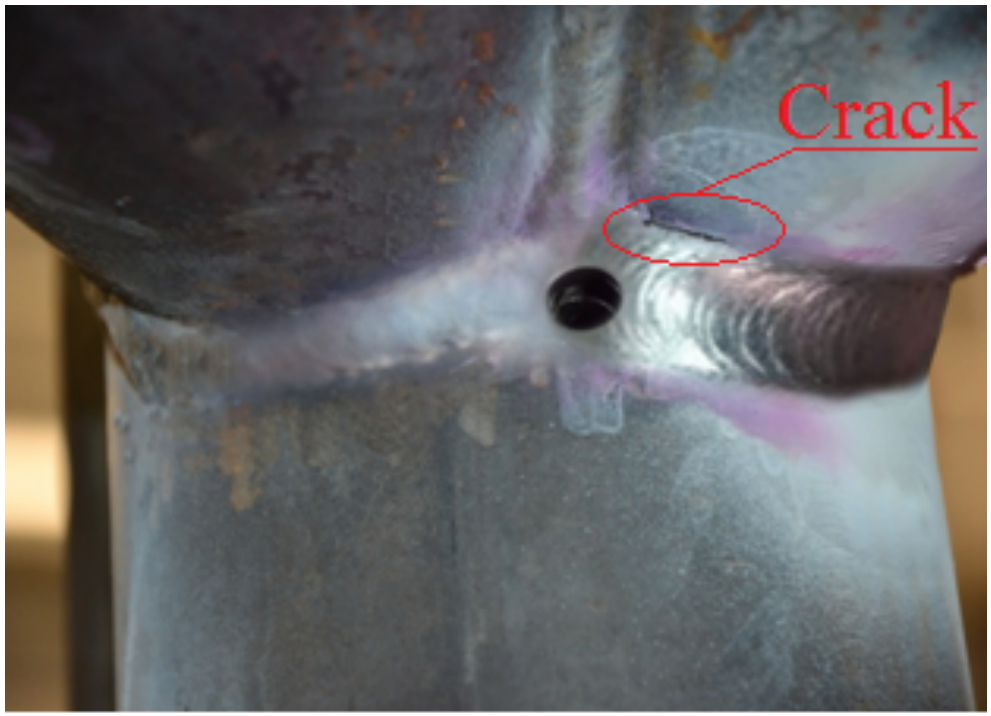
The offshore oil and gas construction

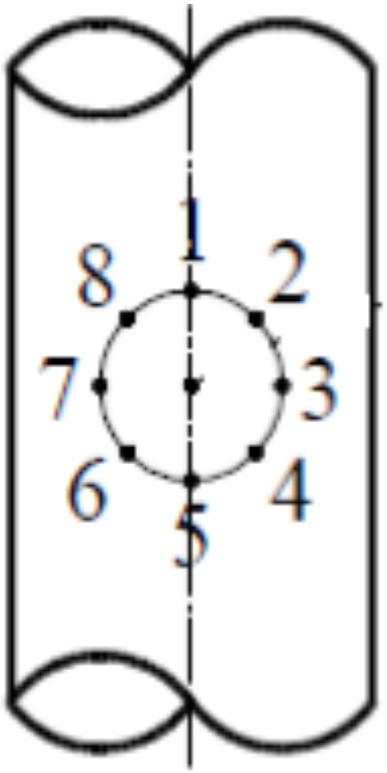
The diagram of the experimental installation



Crack of the restored welded joint



Conclusion



The layout of the points

In the author's opinion, it is a combination of these three unfavorable factors, namely, the presence of a stress concentration zone that multiply increases the nominal stress values, the presence of a heat affected zone with reduced ductility characteristics and the effect of high residual stresses under the actual operating conditions of the offshore platform, taking into account the shape of the applied load, create conditions for development of fatigue cracks in the direction of points No. 3 and No. 7 and in the region of the heat-affected zone mainly along the alloy line of fusion. We emphasize once again that in all the experiments performed by the author, cracks originated at the junctions of the weld to the base metal in the zone of stress concentration along the edges (in rarer cases in the middle) of the weld, where the tensile residual stresses are maximum.