Nova-doc-4132-v1

The Lifting Lug used in FHEP Pivoting Table Assembly

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Aug 6, 2009

The lifting lugs will be added in the FHEP pivoting table assembly, as proposed by Dave Pushka in Fig 1.

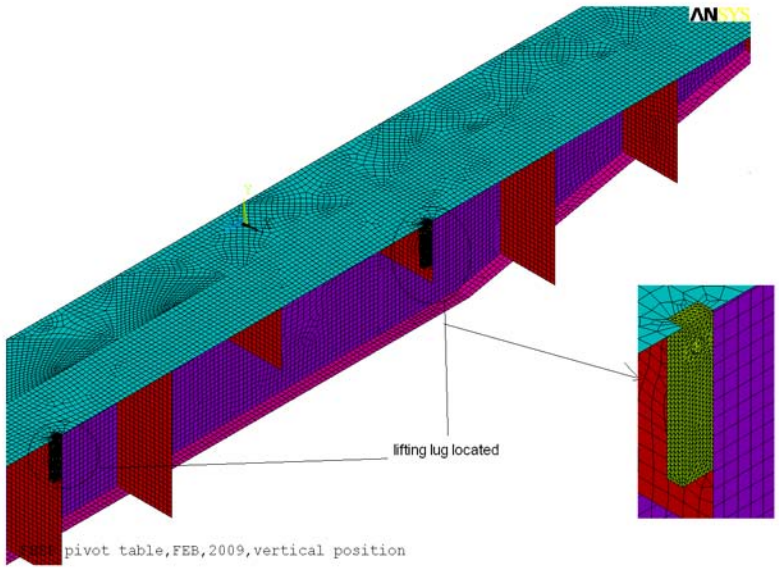

Fig 1 The lifting lug addition

The total load (dead weight) for the 4 lugs is ~80776 lbf, vertically. To estimate the assembly deflection, the stiffness of PVC block needs to be counted for. This block is modeled with a solid element with a reduced modulus due to its hollow structure [(1)]. The gap element is placed in the interface between the table and PVC block to simulate the contact behavior. The calculation has been iterated several times to find a proper size of the lug as shown in Fig 2

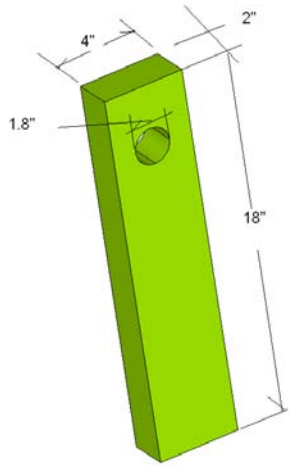

Fig 2 Lifting lug size

The result indicates that the deflection of the table assembly < 0.16” as shown in Fig 3. The overall stress in the table assembly is below 22 ksi with an exception of the lug whose bearing stress is about 28 ksi. The allowable stress for A36 is 22 ksi and 33 ksi for the bearing stress, respectively. Therefore, the proposed addition seems adequate. Stress results are shown from Fig 4 through Fig 7.

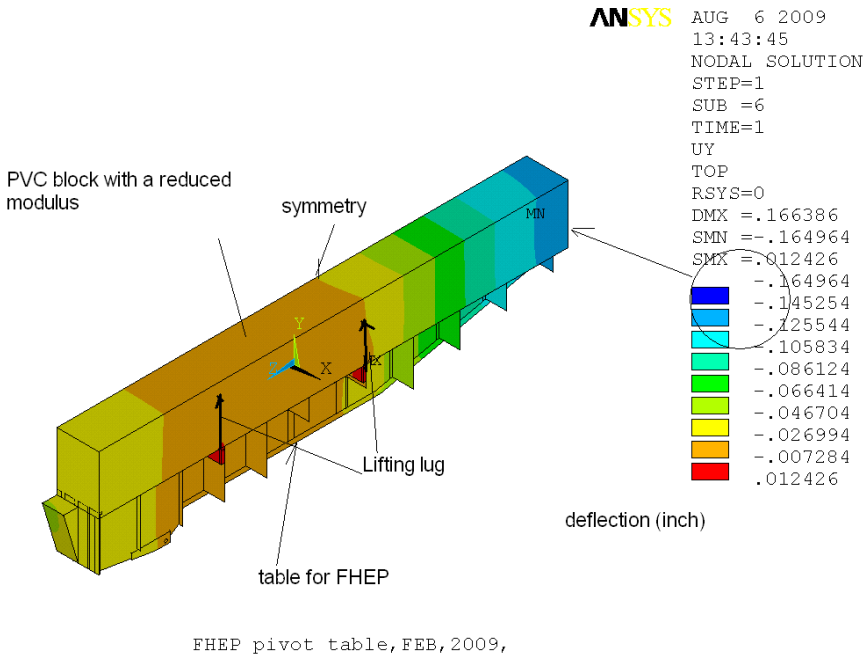

Fig 3 The Deflection of the structure

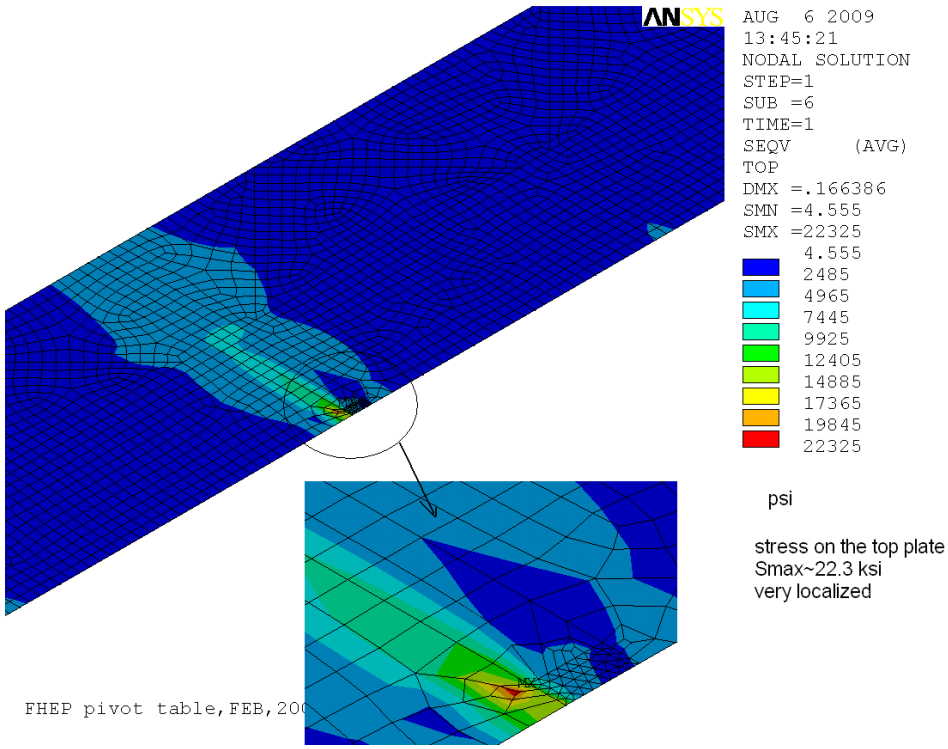

Fig 4 Stress in the top plate

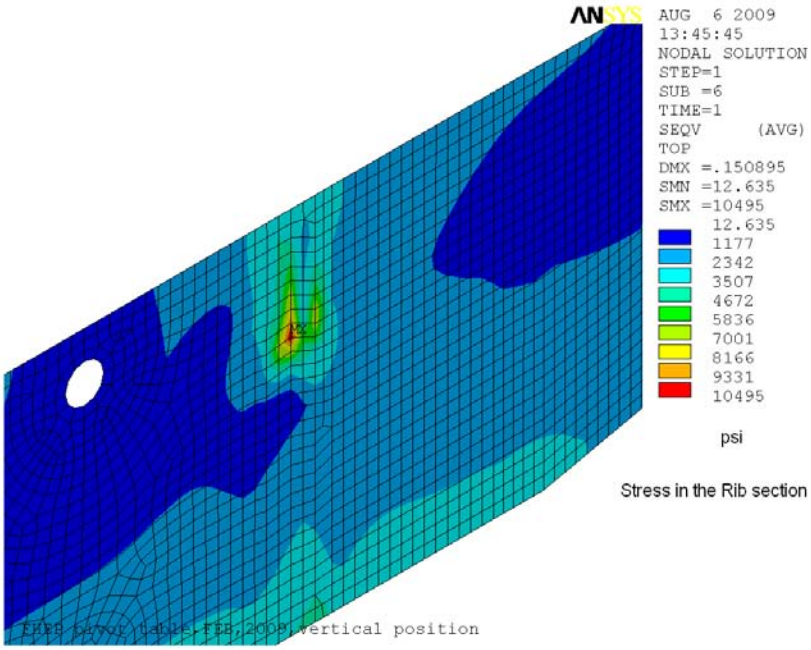

Fig 5 Stress in the rib

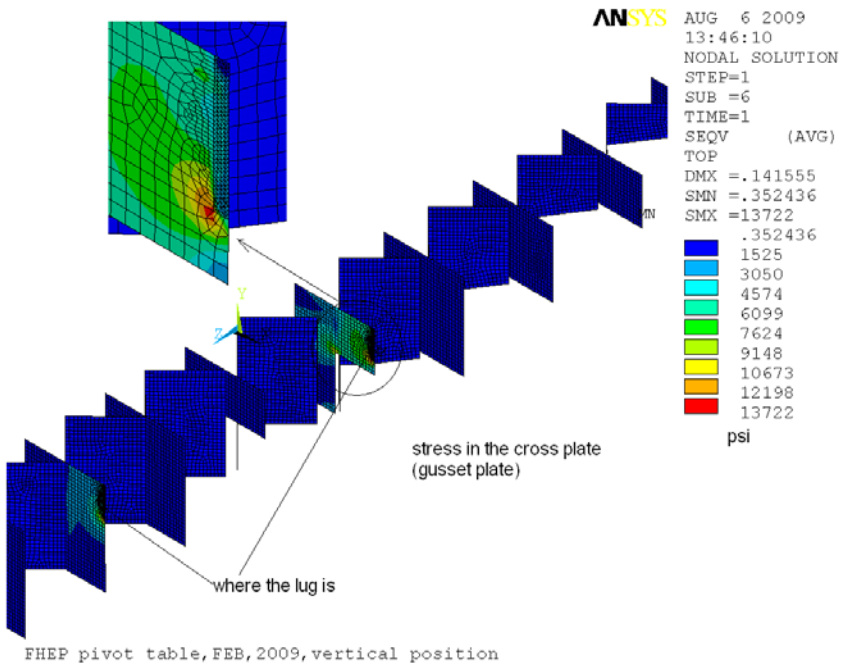

Fig 6 Stress in the cross plate (gusset plate)

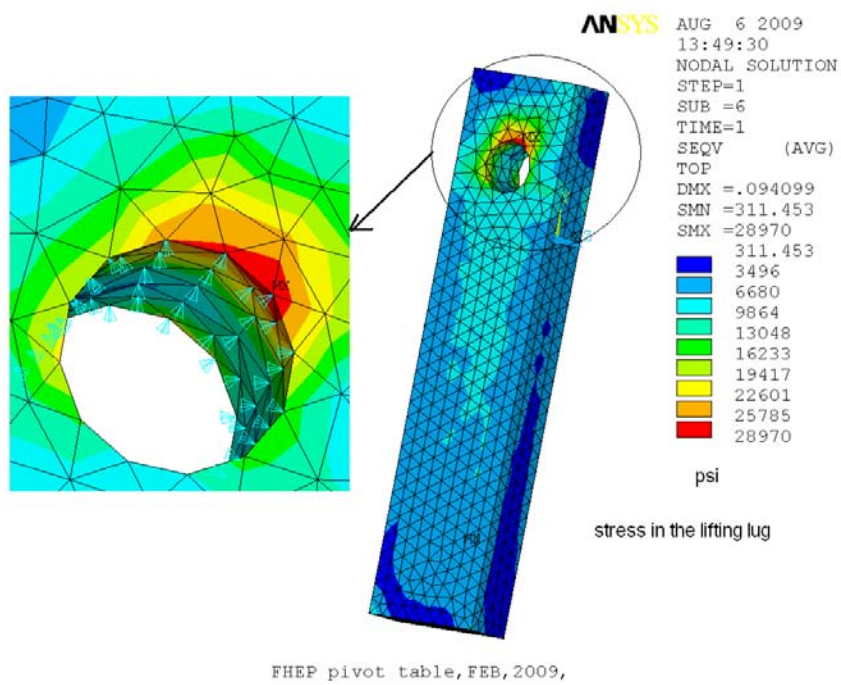

Fig 7 Stress in the lifting lug

Reference

1. Ang Lee," A Stress Analysis for a Pivot tble Used in FHEP",March6, 2009, Nova-doc-3647-v1