U.S. AIR FORCE
31ST FIGHTER WING
31ST CIVIL ENGINEER SQUADRON
AVIANO AIR BASE, ITALY

1st GEN PAS DOOR REPAIR

ASHE 22-1041 PILOT PROJECT – LESSON LEARNED

1 PILOT PROJECT DESCRIPTION

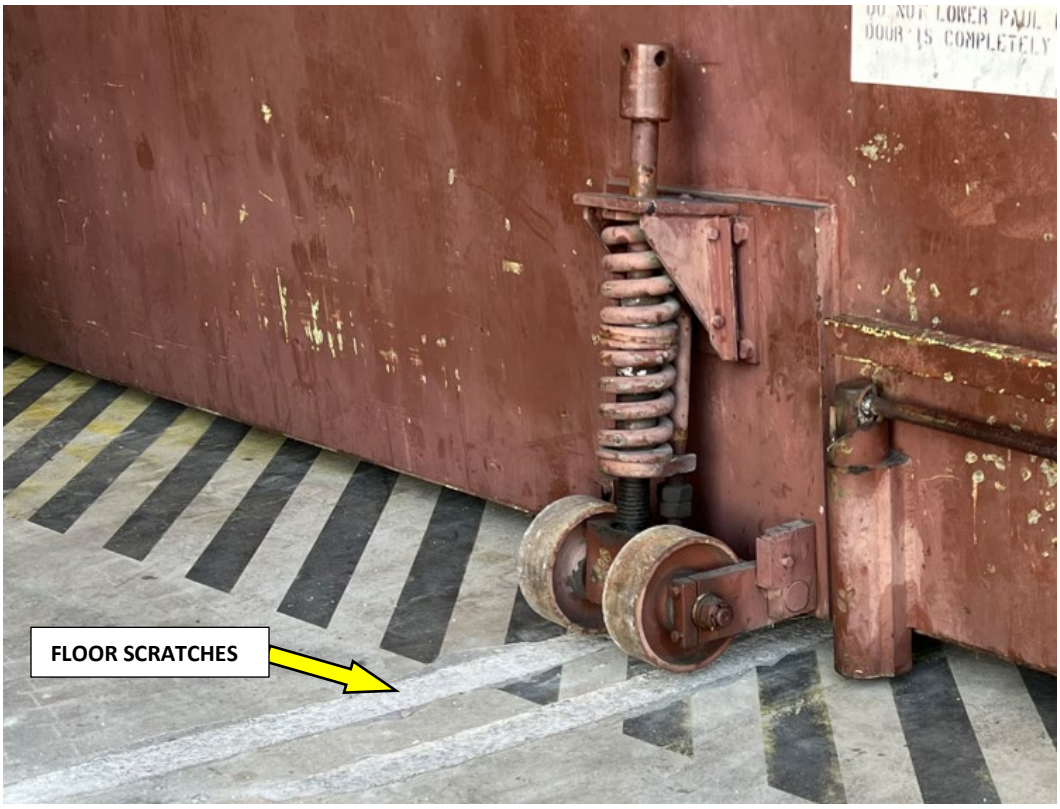
The scope of prj. ASHE 22-1041 was to:

- Restore the operability of Z-2 [Bldg. 8010] 1st GEN PAS doors in Zulu Loop;
- Acquire know-how for the maintenance sequence of operations;
- Test the SOW for any optimization to be included in next projects;

1.1 SOURCE OF ISSUE

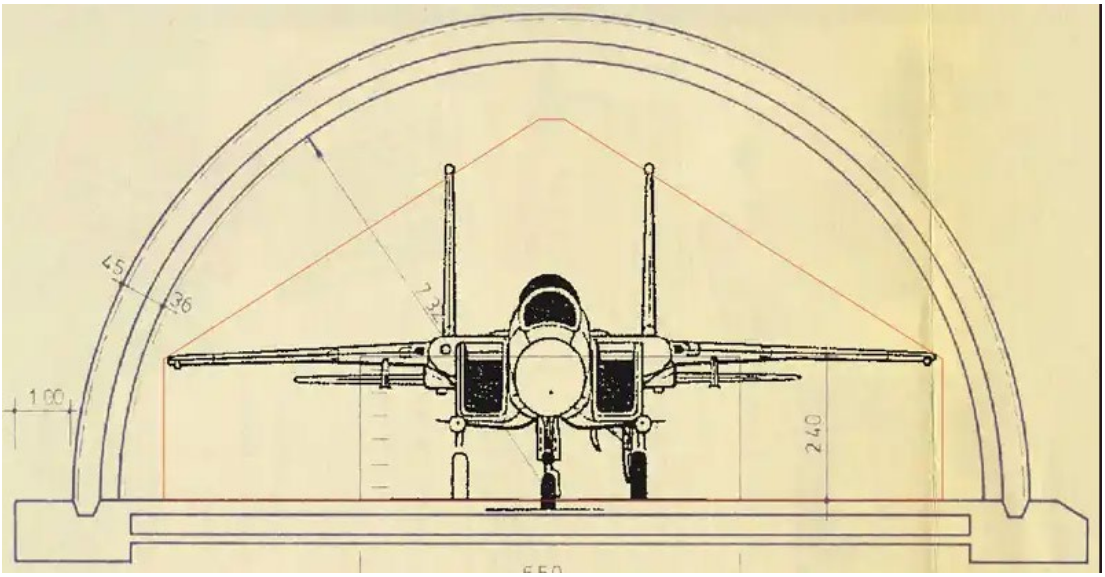
1st GEN PAS doors are manually operated. The doors are fully supported by 2 spherical roller bearings fitted on main hinges that are worn or broken due to poor lubrication, contamination, but mainly because they reached the expected end of life.

With increasing difficulties to move the doors by hand, the operators started to partially support the overall load with the use of the EMERGENCY spring rollers group. The high pressure of the rollers on the floor caused deep scratches that gradually reached 10 mm of depth or beyond.



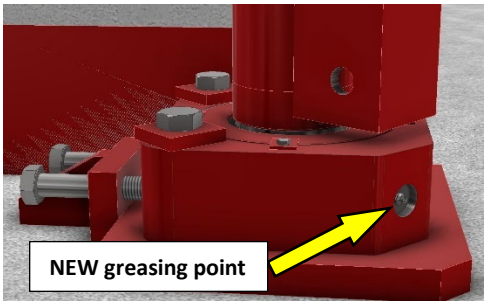
1.2 LACK OF DOCUMENTATION

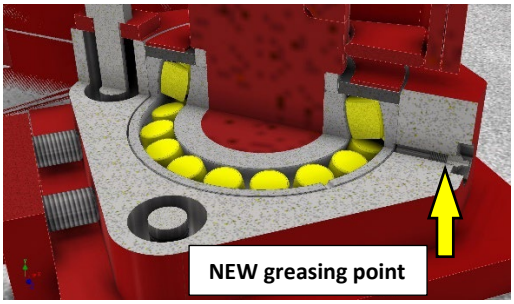
This TAB-VEE generation was designed and built around 1969-1972 in most of USAFE installations. Shop drawings of each mechanical part of the main doors were not found in Aviano AB archives.



1.3 ITEM INCLUDED IN THE PILOT S.O.W.

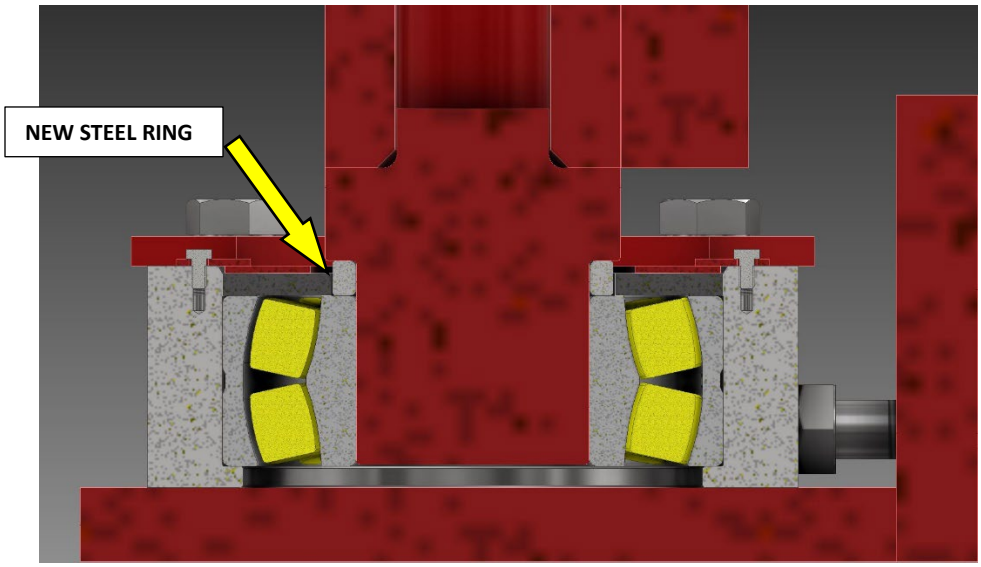
Due to the unknown status of the existing components, it was decided to include a complete set of new parts (left and right hinge, 2x top support, 2x lower support and related sealings and steel covers) and to proceed with the restoring of existing hinges. Part of the SOW was to add lubricating holes and greasing points in lower and upper bearing support, to improve efficiency of re-lubrications.



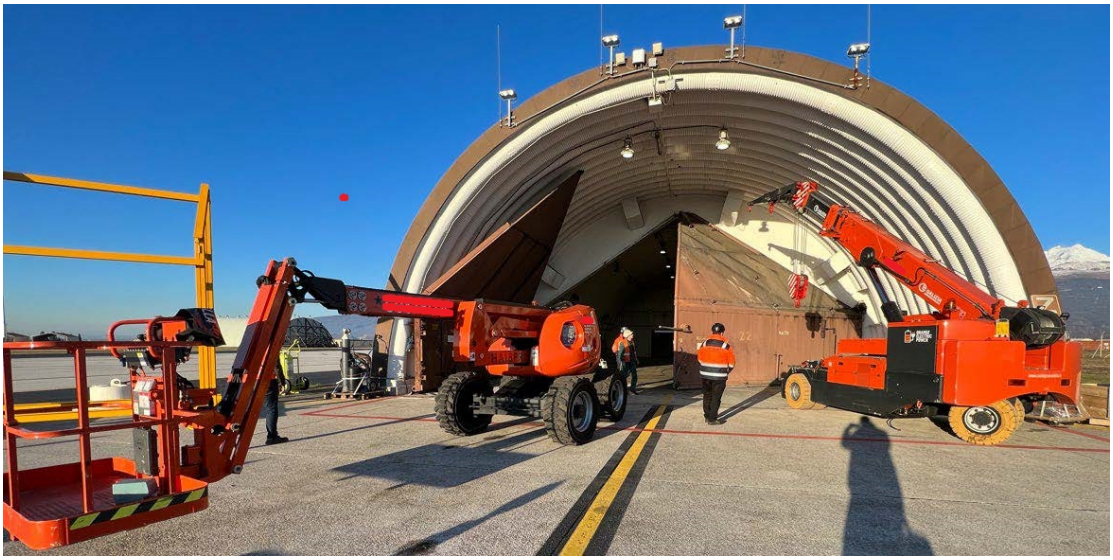


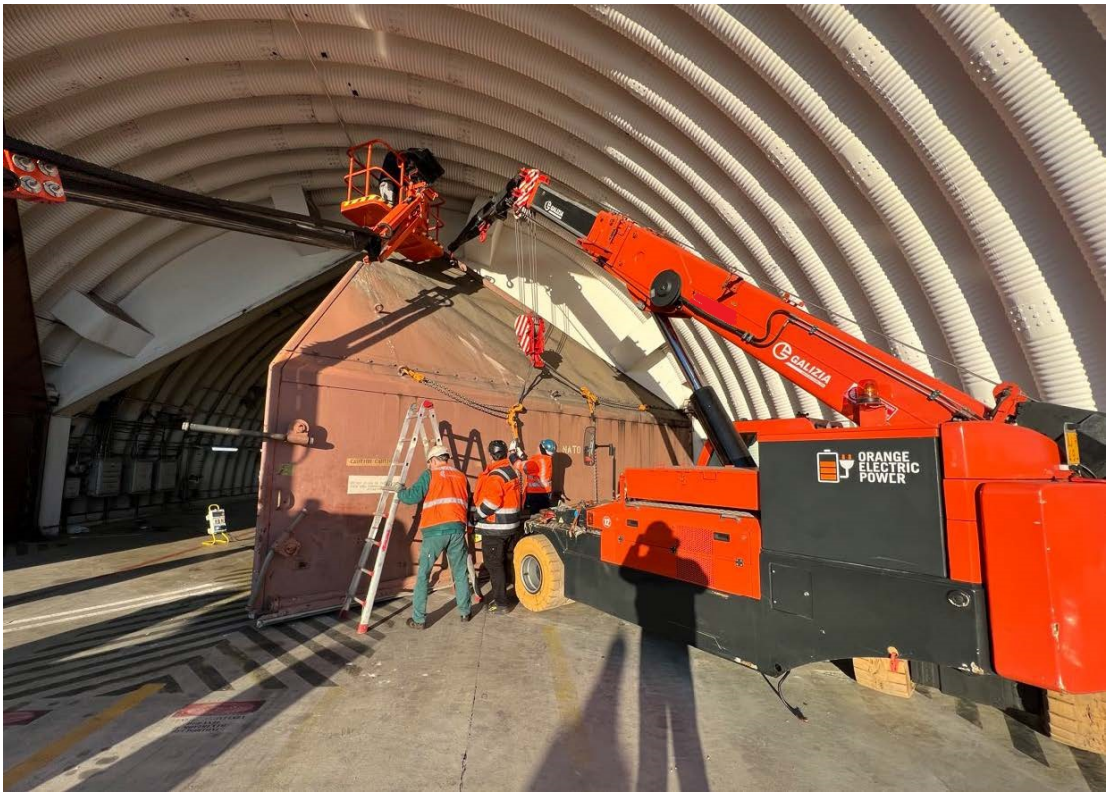
New spherical roller bearings were supplied. All the connecting screws, washers, nuts that connect the lower and upper support to the casted frame and the screws that are connecting the hinges to the doors were supplied brand new.

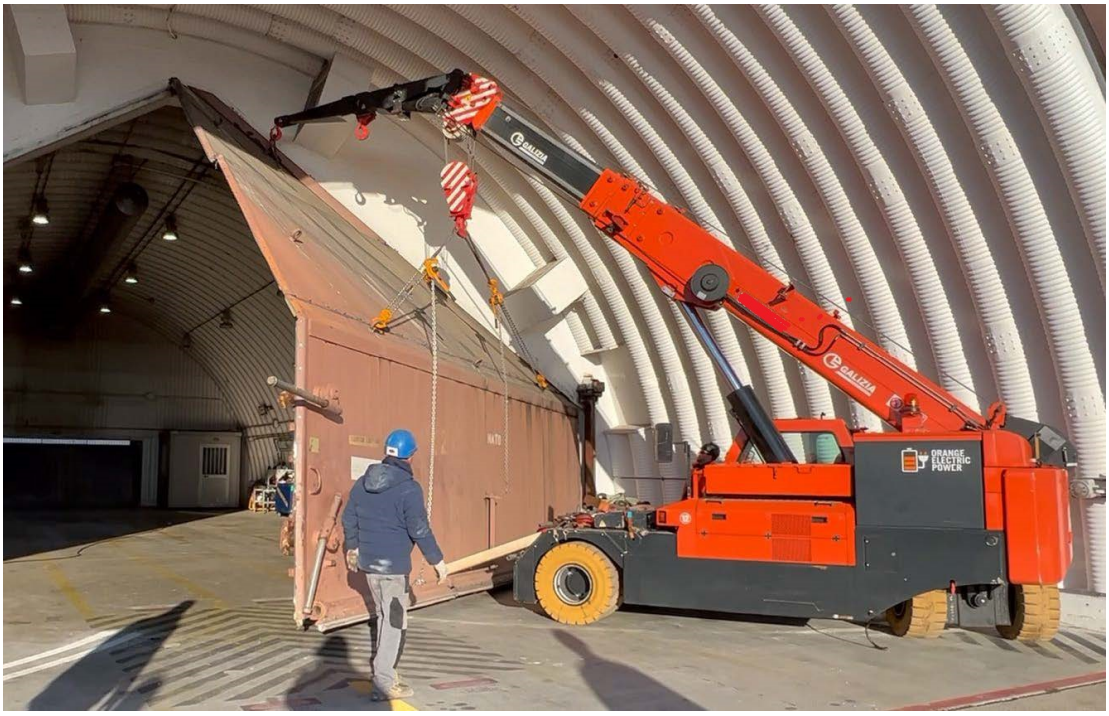
It was discovered that the existing configuration could be improved. The shape of the lower machined pin of the hinges were updated and a new steel ring foreseen and supplied.



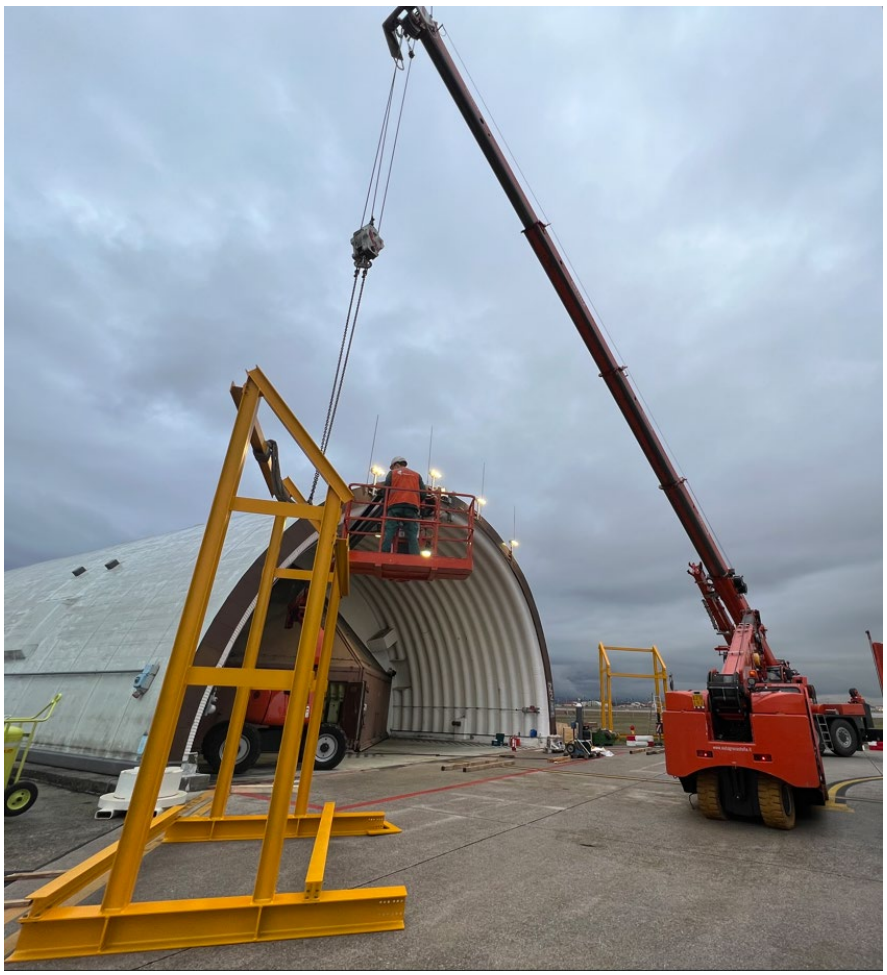
Another critical phase of the project is represented by the handling and lifting operations and related cranes and operators. To move the doors the suitable crane should operate inside the shelter's structure, with less than 1m of clearance from the door upper edge and the internal surface of the roof.

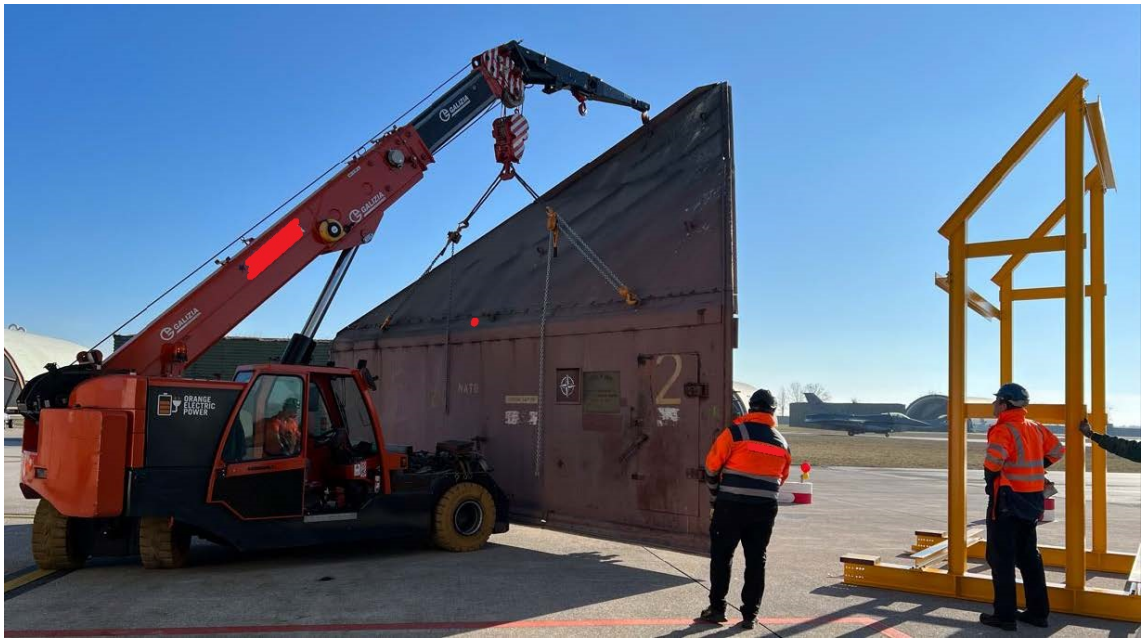



GALIZIA
ORANGE ELECTRIC POWER

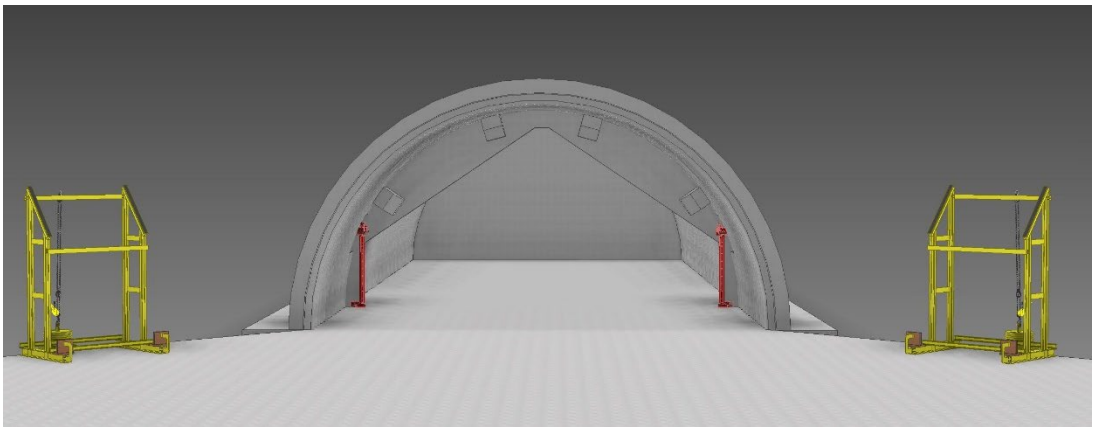

GALIZIA
ORANGE ELECTRIC POWER

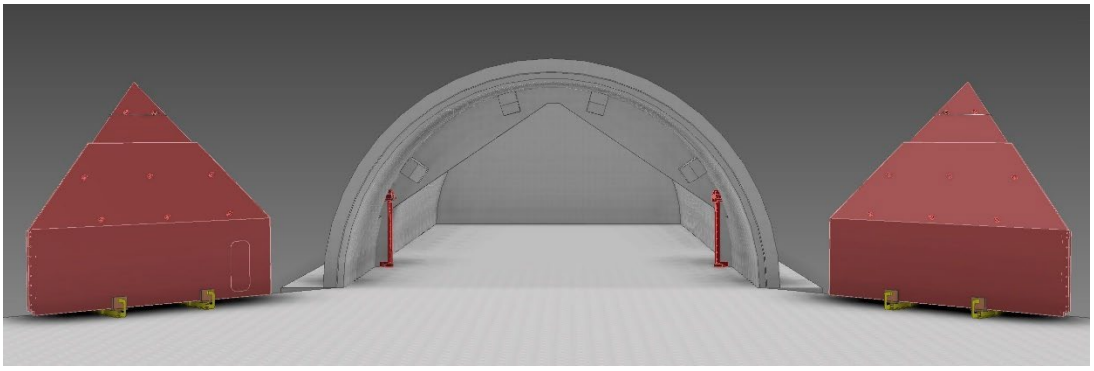
Two temporary carpentry structures were raised to support the doors during the reverse engineering and production of new parts. Now we can apply the same concept to support the doors during hinge replacements. We developed new drawings that we can share to external companies to have the same temporary structures.

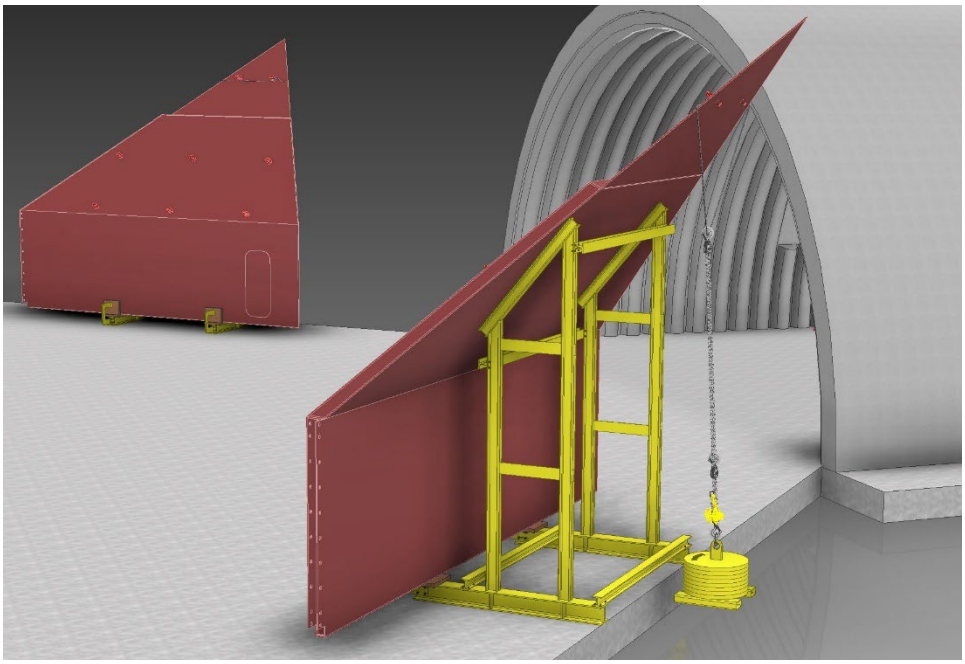


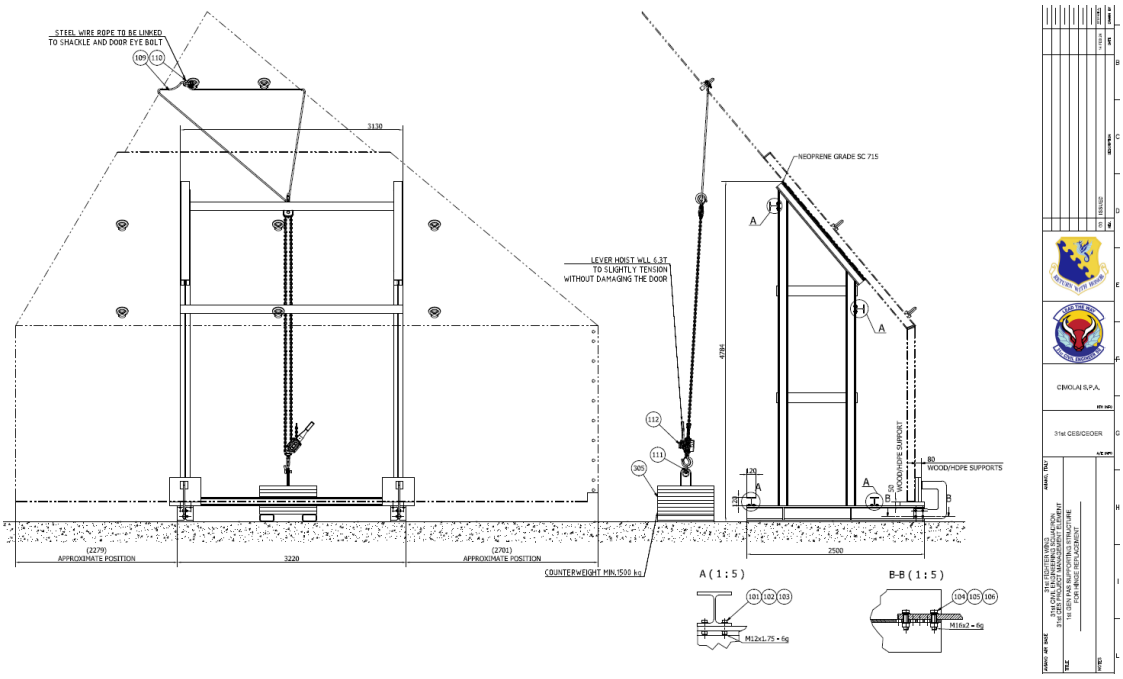

ORANGE ELECTRIC POWER
2

1580 KG







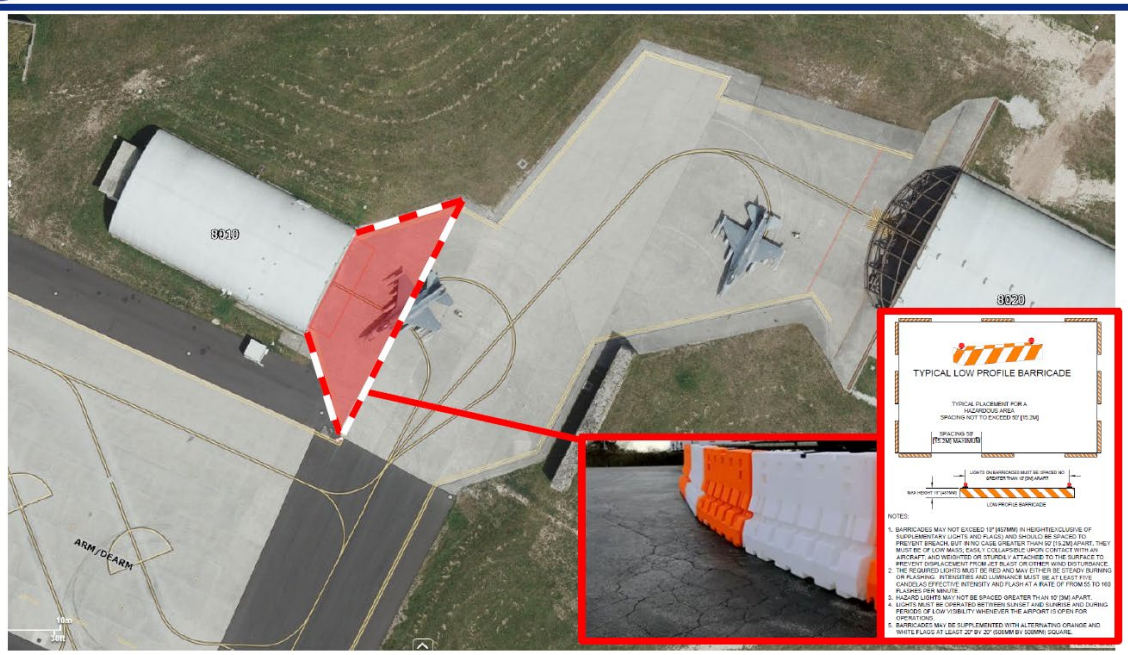

STEEL WIRE ROPE TO BE LINKED TO SHACKLE AND DOOR EYE BOLT
109
110
3130
NEOPRENE GRADE SC 715
LEVER HOIST WLL 6.3T TO SLIGHTLY TENSION WITHOUT DAMAGING THE DOOR
4786
112
111
305
120
80
WOOD/HDPE SUPPORTS
WOOD/HDPE SUPPORT
55
2500
(2279)
APPROXIMATE POSITION
3220
(2701)
APPROXIMATE POSITION
COUNTERWEIGHT MIN.1500 kg
A (1 : 5)
101
102
103
M12x1.75 - 6g
B-B (1 : 5)
104
105
106
M16x2 - 6g
CIMOLAI S.P.A.
31st CES/CEOER

1.4 WORKING INSIDE AIRFIELD CHALLENGES

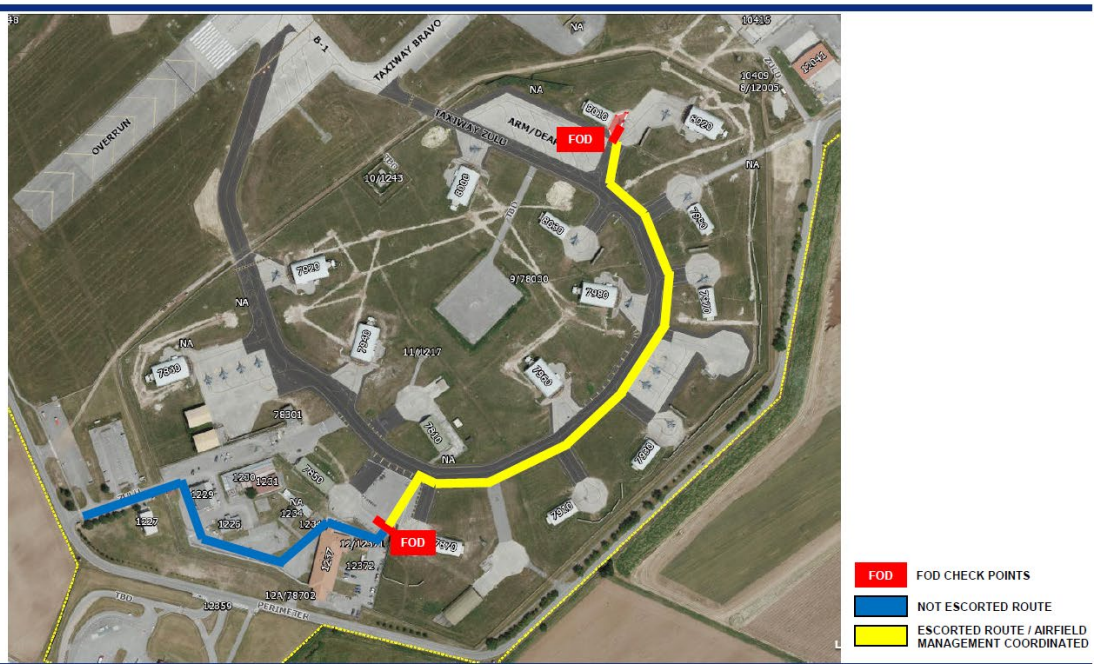
To have the possibility to start the job on time, it's necessary to consider:

- To have a couple of stable military escorts of the User to be available during all the period of performance
- Required time to obtain base passes for all the external personnel;
- Required time to have the external personnel trained to guide vehicles inside the taxiway and obtain the Airfield Driving License;
- Required time to have the TERPS - TACW signed (2 months);
- That the site shall be fenced with short jerseys and lights according the airfield design guidelines, see UFC 3-260-04 chapter 8.6
  SEE FOLLOWING SITE PLAN (coordinate with Airfield Management the eventual temporary shutdown of nearest shelters involved by the works)

ASHE 22-1041 SITE PLAN



ASHE 22-1041 HAUL ROUTE



2 LIST AND LOCATIONS OF 1ST GEN PAS IN ZULU

Here below the overview and list of 1st GEN PAS in Zulu Loop. [Bldg. 7810 (Z-14) and 7850 (Z-15) are 1st GEN too but converted for other uses]