F6F-3 HELLCAT LAP JOINT, BUTT JOINT AND RIVET DETAILS.
This Hellcat is located at the Pensacola, Florida Naval Aviation Museum.

Aircraft skin is either butt jointed or lap jointed. On the F6F Hellcat the cowling engine access panels are butt jointed. The spacing between the access panels is approximately 1/16 of an inch or .0625 inches. In 1/24 scale , the 1/16 inch spacing would be approximately .0026 inches.

Butt joints on aircraft are represented as channels on scale model aircraft or what we commonly refer to as recessed panel lines.

Starting at the aft end of the canopy windscreen, the fuselage of the Hellcat is all lap jointed with standard rivets. The rivet heads are approximately 1/4 of an inch or .25 inches. In 1/24 scale the rivet heads would be approximately .01 inches in diameter.

Lap joints are typically characterized by a single row of rivets.

The raised shapes are reinforcing plates, which add structural strength to the aircraft’s framing.


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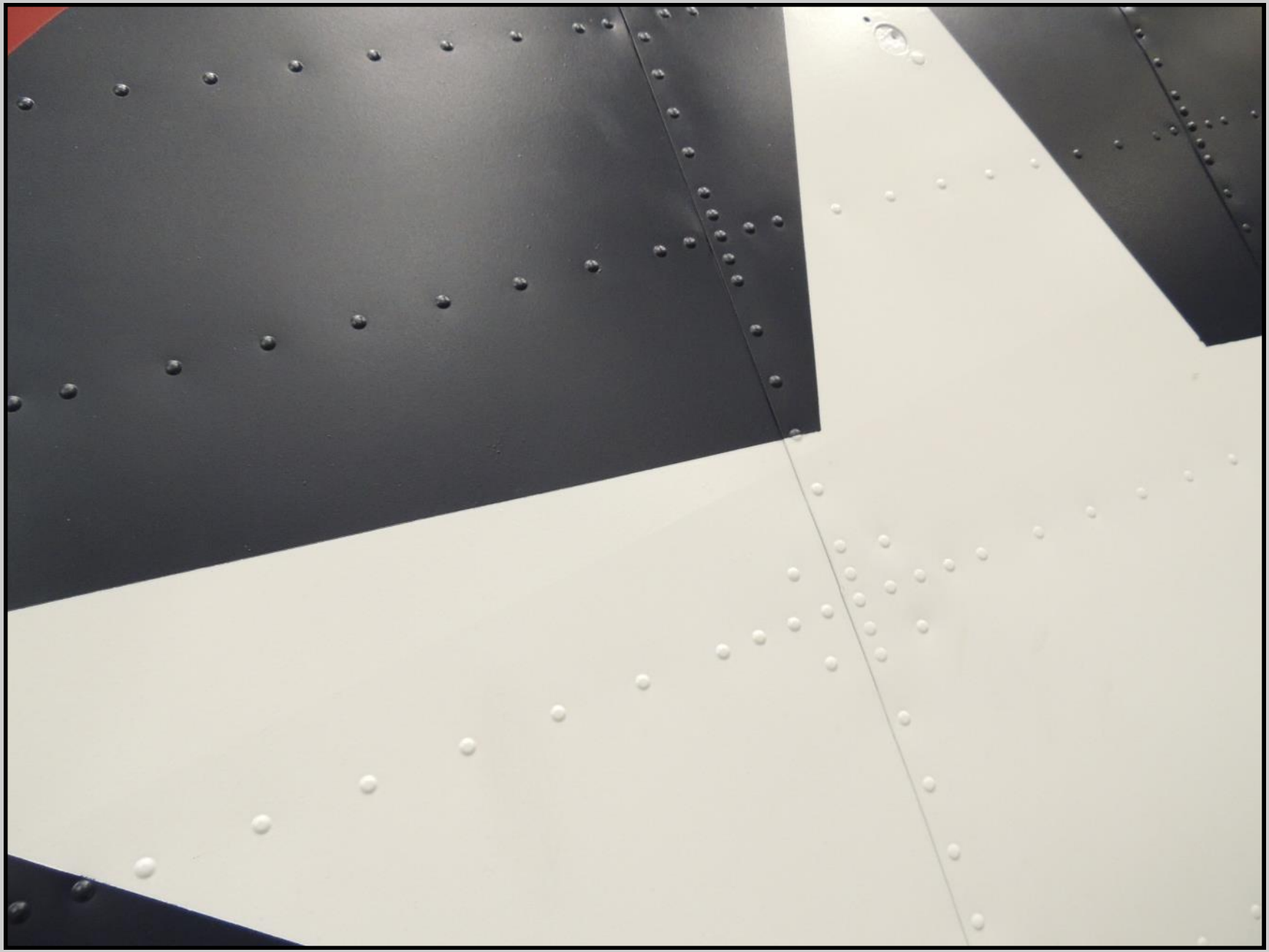
DO NOT STAND ON WALKWAY
WHEN WING IS BEING FOLDED

This picture shows the vertically lap joints and the horizontal lap joint along the upper spine of the framing. The surface sheeting was applied to the aft area first and then sections were applied along the fuselage over lapping one another. Note that the exposed sheeting edges face aft so as not to disrupt the airflow over the fuselage. On any scale model of a Hellcat these raised edges should be represented with raised panel lines.



The raised edge of this lap joint is a little less than 1/16 of an inch or .0625 inches. In 1/24 scale this edge would be approximately .0026 inches, which is the diameter of a human hair. Hence raised panel lines representing lap joints on the fuselage should be approximately .0026 inches high and wide.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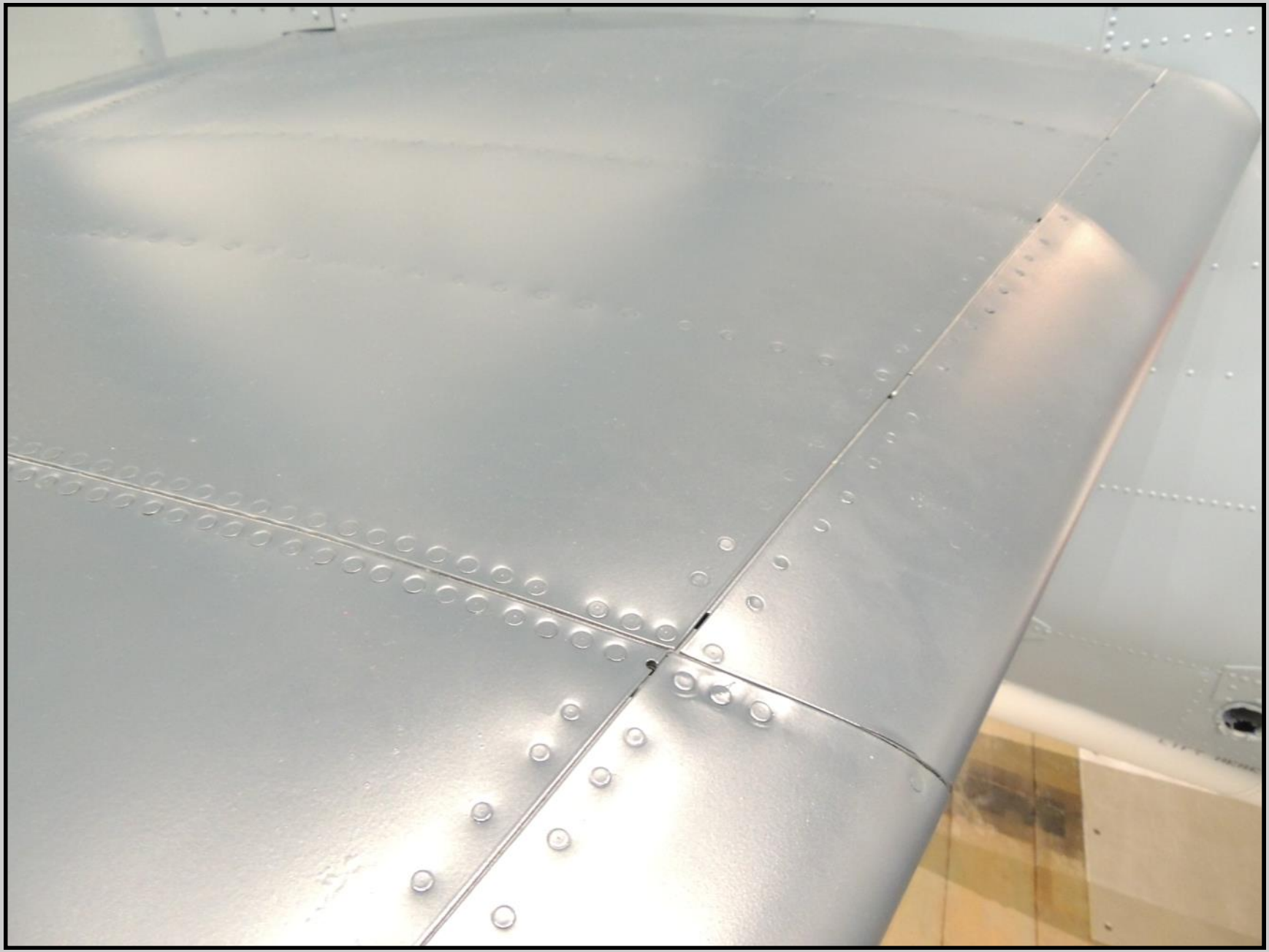
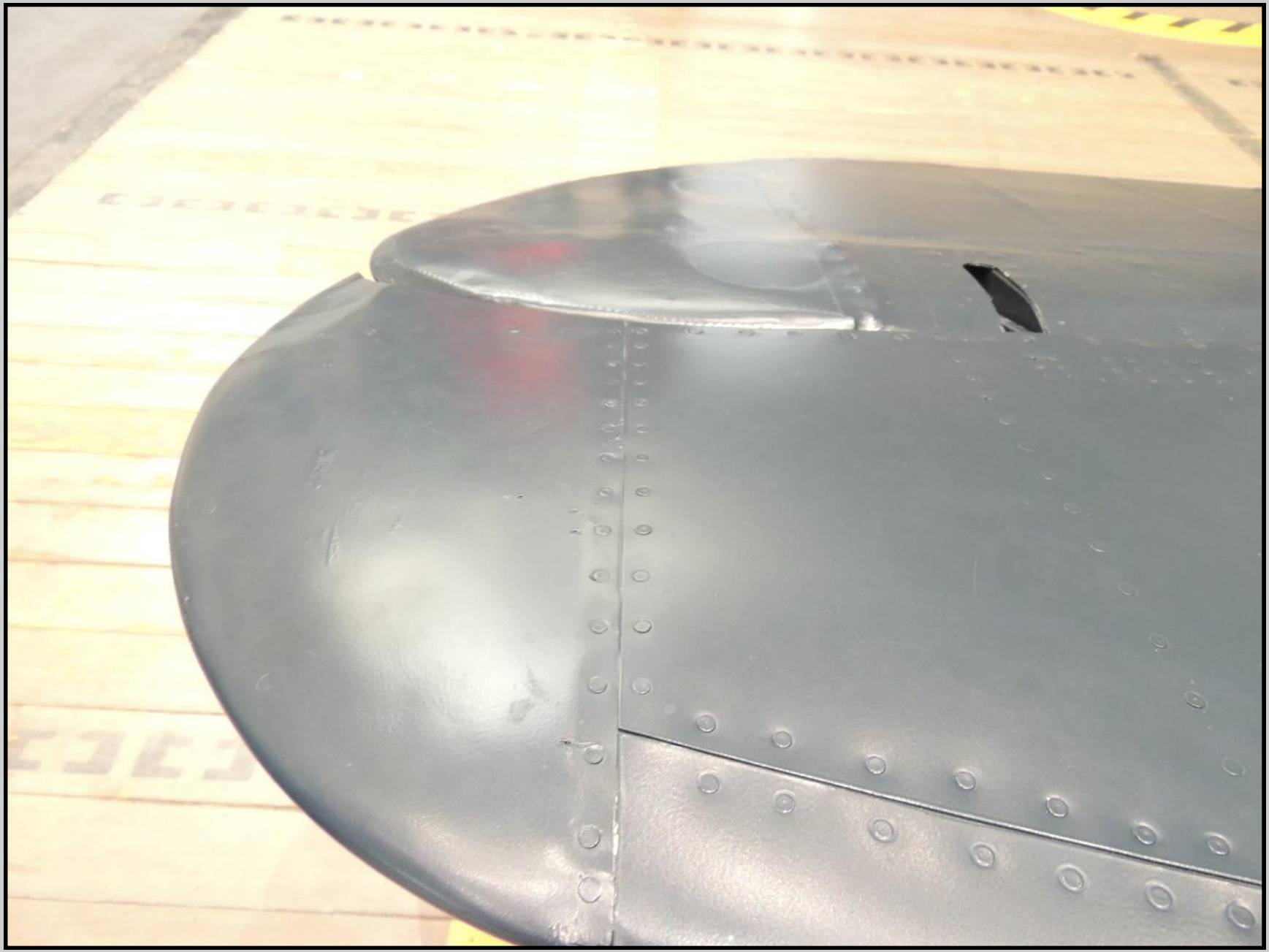
The elevator and rudder surfaces are butt jointed with flush rivets and the channels are approximately 1/16 of an inch or .0625 inches. The rivet heads are slightly larger than 1/4 inch or .25 inches. Note the two rows of rivets at the butt joints.



Over time air frames and the surface skin can expand and distort. This is especially true of aircraft that have been restored and those exposed to the outside elements. The channel widths between these butt joint panels vary along their lengths.



The channel behind the leading edge sheeting (front to back) is tight, but not along the forward area or along the left to right channel.

Note how the flush rivets create slight indentations on the surface skin.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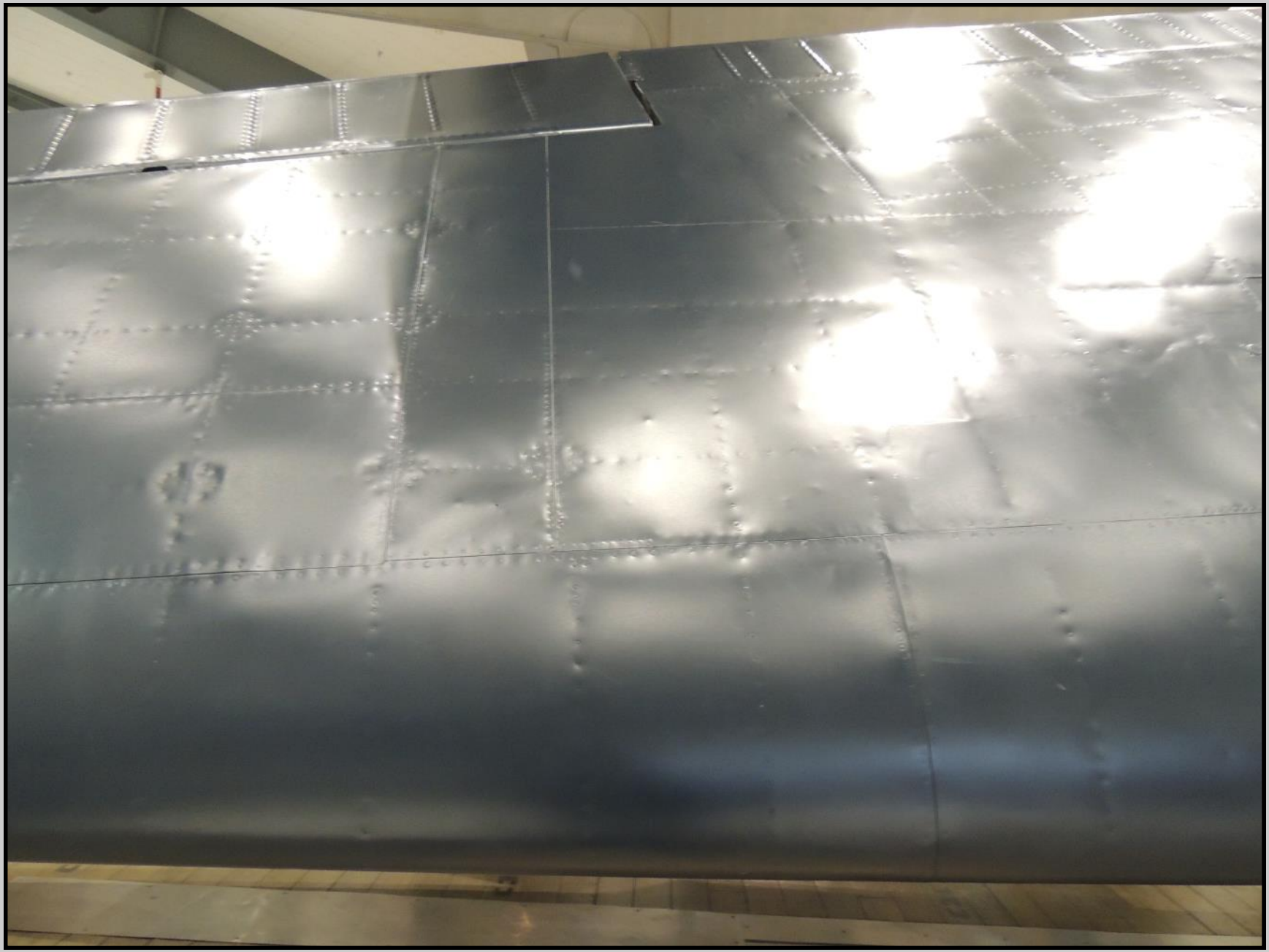
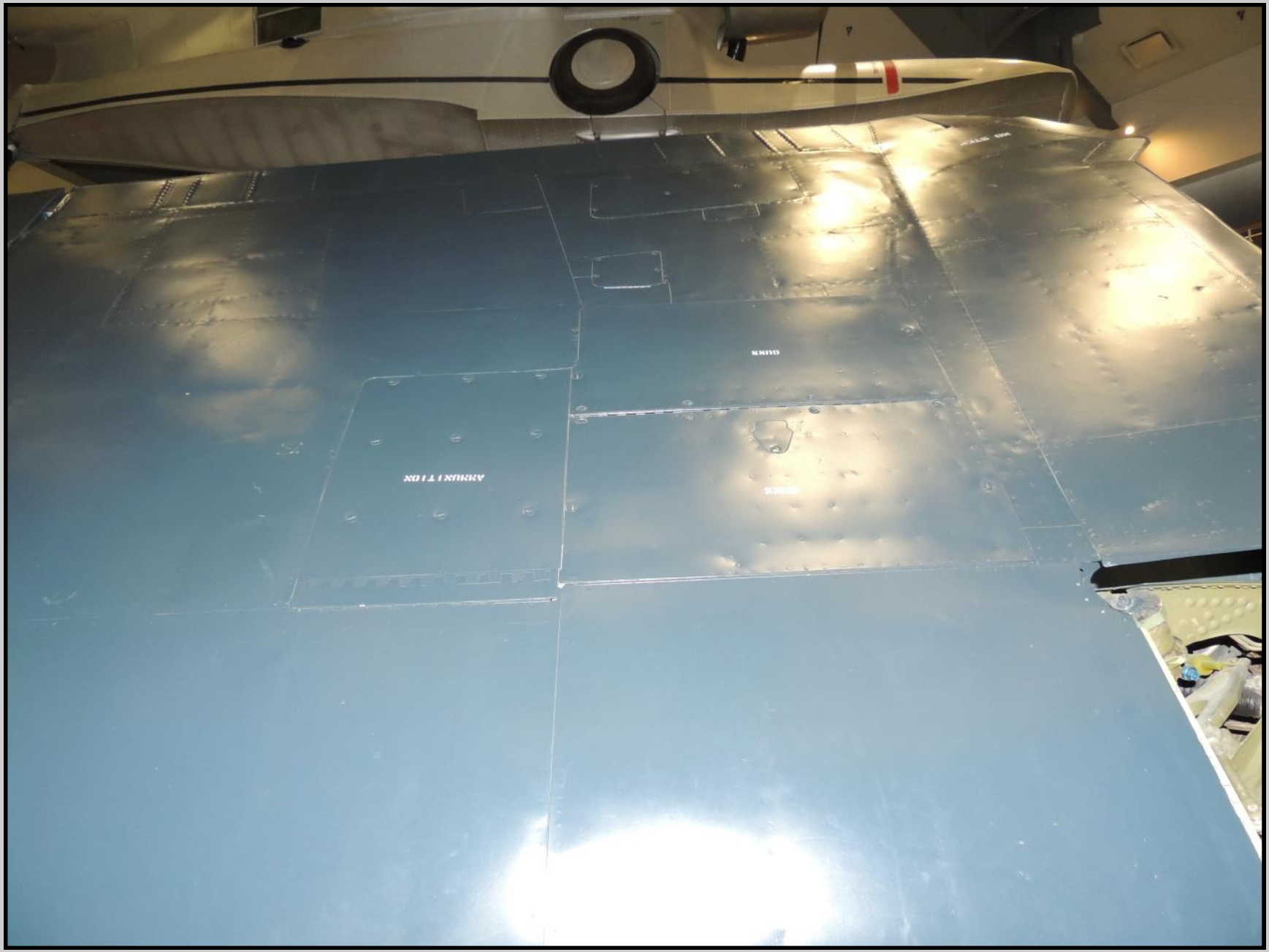
The main wing sheeting is also butt jointed with flush rivets. The channels between the butt joints are very tight and slightly less than 1/16 of an inch. Note the depressions in the surface skin due to the flush rivets. Here again the scale model recessed panel lines should be approximately .0026 inches in width and depth.





On the F6F Hellcat the aircraft's skin is both butt and lap jointed with both flush and raised rivets. On a 1/24 scale Hellcat model, the butt joints should be represented by tiny recessed panel lines approximately .0026 inches in depth and width and tiny depressions approximately .01 inches in diameter for the flush rivets. Lap joints should be represented by tiny raised panel lines approximately .0026 inches in height and width and tiny raised rivet heads approximately .01 inches in diameter.