

CARBON CUBE*EX*

EXPERIMENTAL



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EXTENDED BAGGAGE **MANUAL**

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SECTION 1 FITTING BAGGAGE PANELS It would be a good idea to have the stringers and floorboard/seatbase installed before starting the Extended baggage. First we will need to fit all of the baggage panels. So lets get started. The first panel to fit is the rear floor panel as shown in Photo 001 , use Figure EX1 for panel part numbers. Photo 002 shows the down turned lip on the back edge of the rear floor panel pushed up tight to the cross tube.

**Photo 001****Photo 002**

Next you will fit the forward floor panel. I talk about fitting, but there should be little to no trimming involved in the Extended Baggage installation, but we do need to check the fit before you start drilling and riveting. The forward floor panel will need to be installed after the seatbase floorboard is installed, the forward edge of the floor panel will overlap the seatbase floorboard and gets match drilled. This will set the mounting location for the rear hole to be drilled. Just make sure the forward floor panel is straight during final installation.



Photo 003

Next fit the baggage back to the fuselage as shown in Photo 004 . This is all going to come together in the next few steps.



Photo 004

The next piece will be the left baggage side as shown in Photo 005 . This piece will be installed from the top and will need to be bowed slightly to get it into position. Be sure not to bend this piece during the installation. Also make sure it overlaps all the other pieces rests against the inside of all the tubing.



Photo 005

Make sure the corners all come together with minimal gap. You will need to adjust the placement to achieve a good fit.



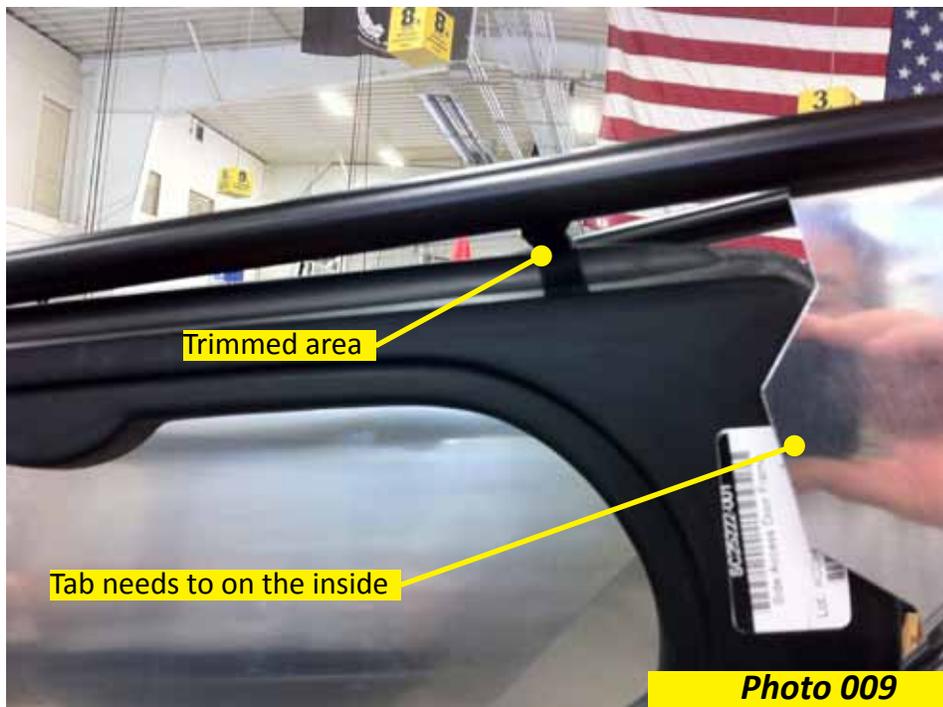
Photo 006

Install the right side panel and clamp it into position as shown in Photo 007 . Now you can see how the Extended Baggage is going to both fit and look.



Photo 007

The baggage door frame is the last piece that you will need to fit and then you can start match drilling and riveting. You will need to install the door frame from the inside, on the door frame you will notice that some trimming is required. Look at Photo 009 and verify where you will need to remove material. Use a cutoff wheel to remove the necessary material, then use some sand paper to clean up any place where material was removed. Reinstall the door frame and check the fit, the metal tab shown in Photo 009 needs to go on the inside of the door frame while the bottom and forward angled part of the right panel goes on the outside of the door frame. Also make sure it overlaps all the other pieces rests against the inside of all the tubing.



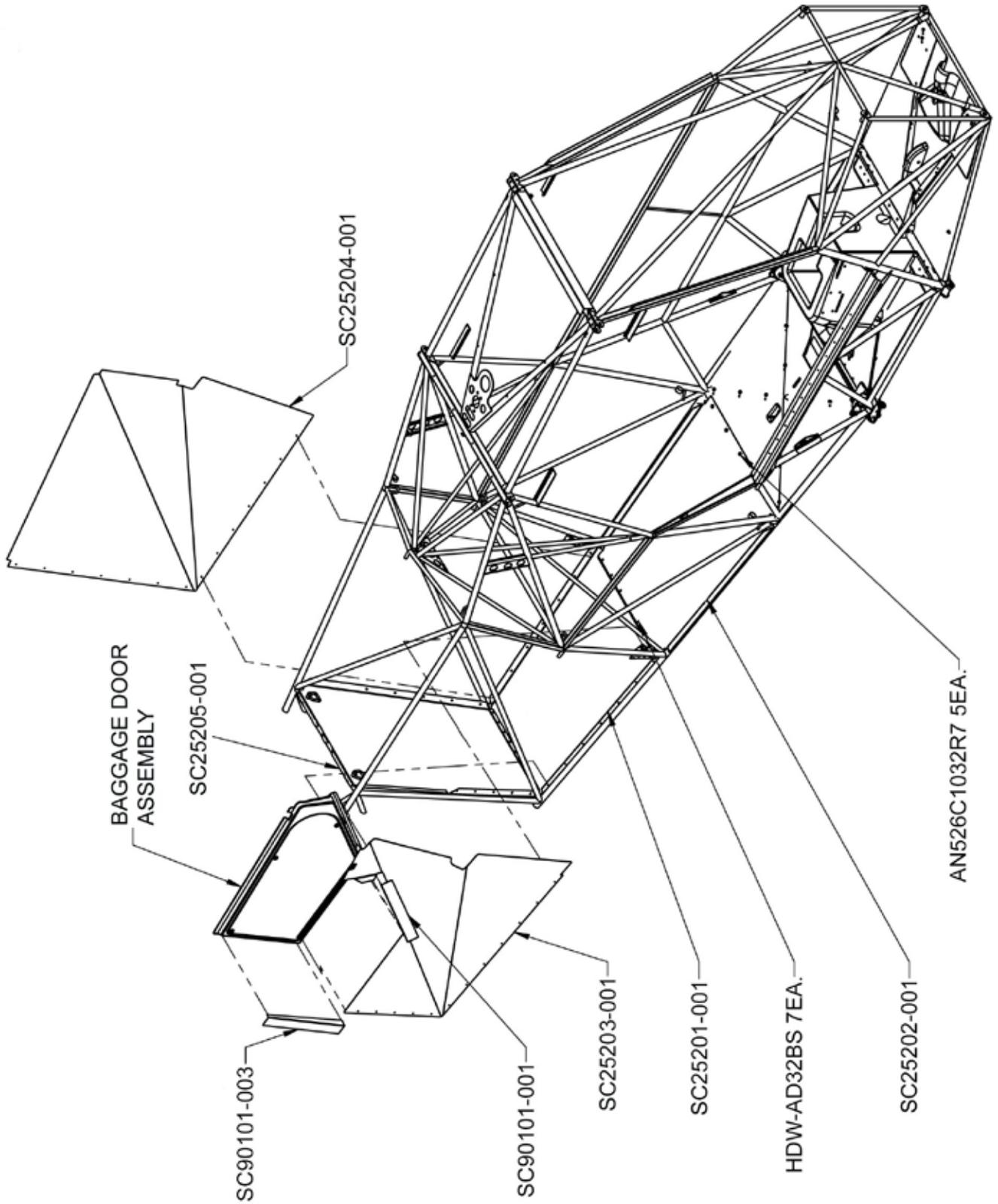
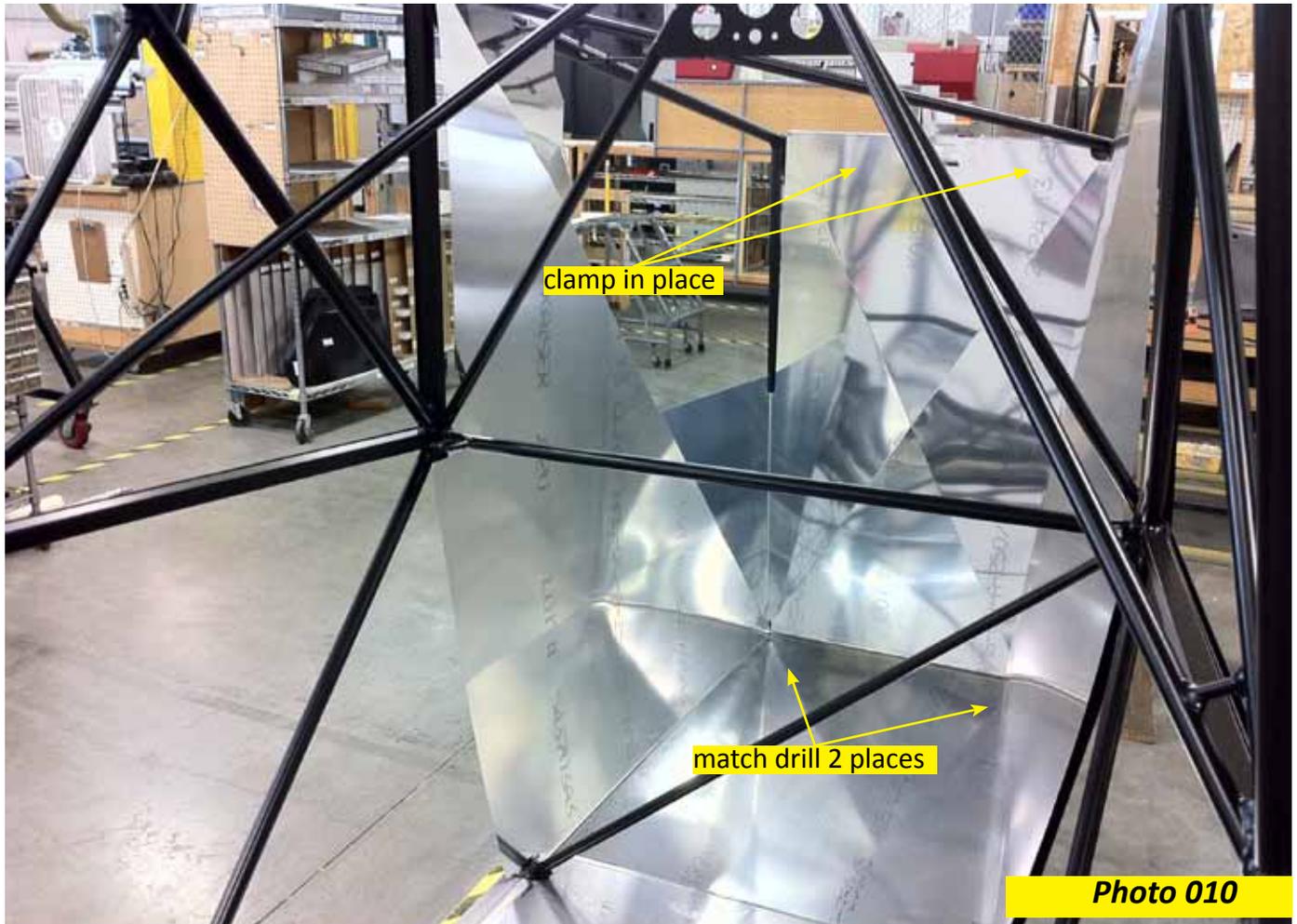


Figure EX1

SECTION 2 MATCH DRILLING

Now that you are happy with the fit of your Extended Baggage panels, it is time to clamp and match drill the panels, but first lets ensure the back is centered between the rudder cable fairlead tubes of the back side of the back panel. Lets start with a couple of the existing holes in the back at the bottom per Photo 010 using a #40 drill bit, after match drilling these two holes insert two clecos. Now mark the cable fairlead holes and remove the rear panel. Drill the cable fairlead holes in the rear panel to the same size as the fairlead tube. Reinstall the rear panel and test fit the fairleads, these fairleads will be permanently installed when the rudder cables are installed. **BE SURE WHEN YOU ARE MATCH DRILLING THAT YOU CHECK THE BOTTOM SIDE OF THE HOLE THAT YOU ARE GETTING READY TO DRILL, DO NOT DRILL INTO A TUBE!!**



Install the Cargo Hooks(D-rings) 105445-02 as shown in Photo 012 and Photo 013 . Use Figure EX2 for hardware call out. The D-ring holes should be located 3" in from the upper longeron tubes. Install the tubing clamps MS27405-4, locate the clamps and match drill with a 1/4" drill bit. Slide a large diameter washer (AN970-4) over the D-ring stud and install per Figure EX2 . Do not tighten the D-ring at this time.



Photo 012



Photo 013

AN365-428A
AN960-416
MS27405-4
AN970-4
105445-02

2EA.

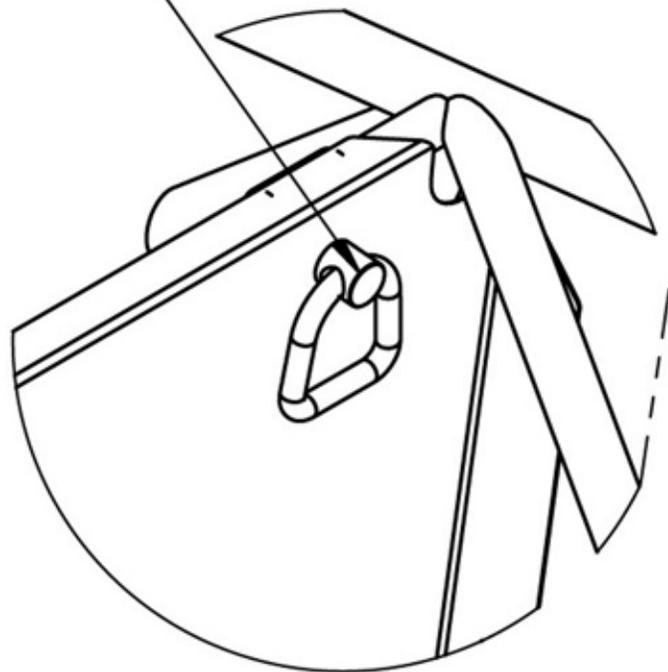


Figure EX2

Match drill four holes in the left side as shown in Photo 014 . You will notice that the right side panel has been removed for clarity. After this step has been completed, repeat the process on the right side panel. Now that you have a few holes drilled and clecoed, remove the right side panel. Match drill the remaining holes in the back and left side. Deburr the holes and start pulling the rivets HDW-AD32BS in the back/ bottom first and then do the left side. Repeat the process on the right side panel. Use Figure EX3 and Figure EX4 for guidance.

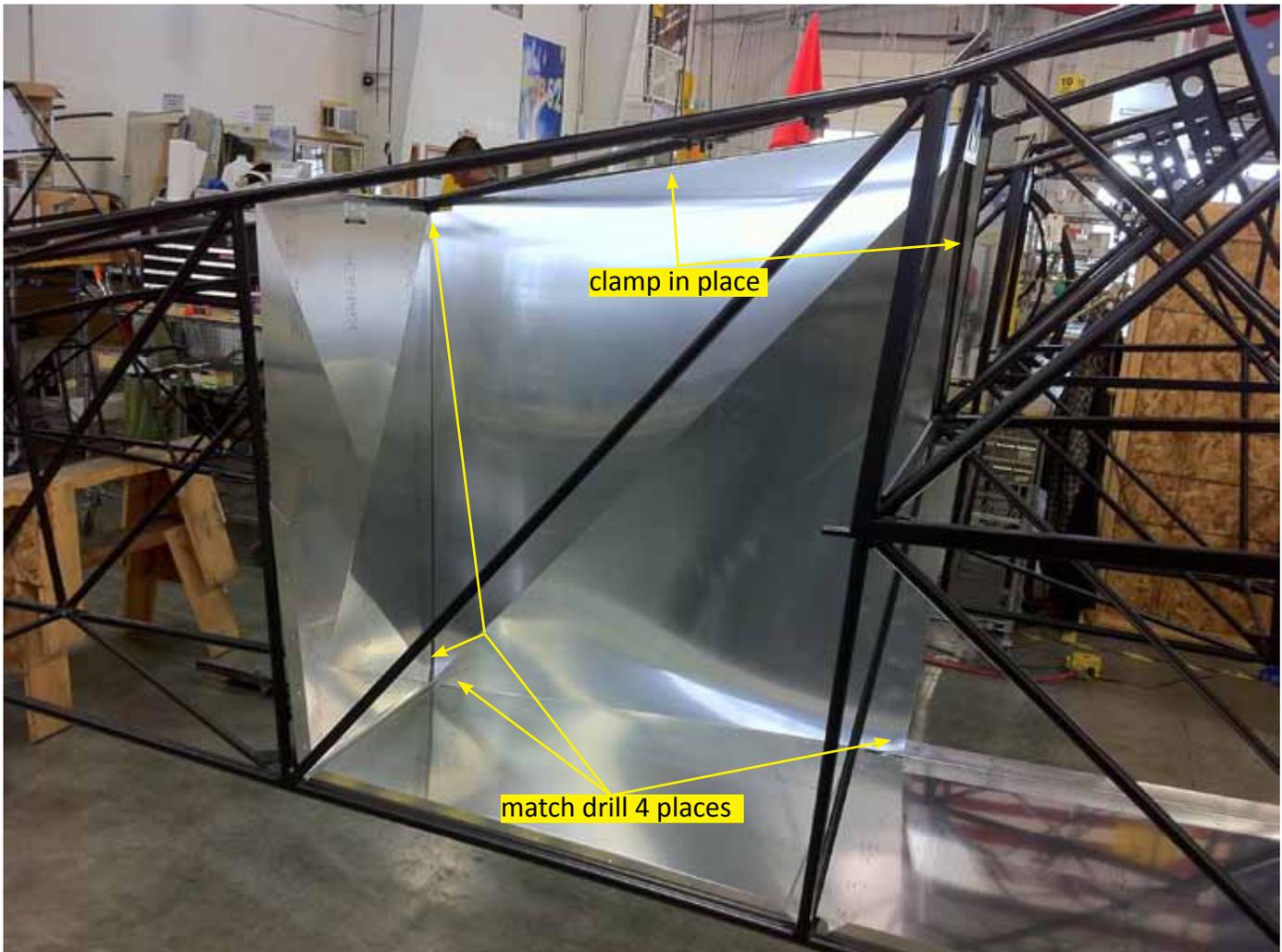


Photo 014

Right side removed for clarity

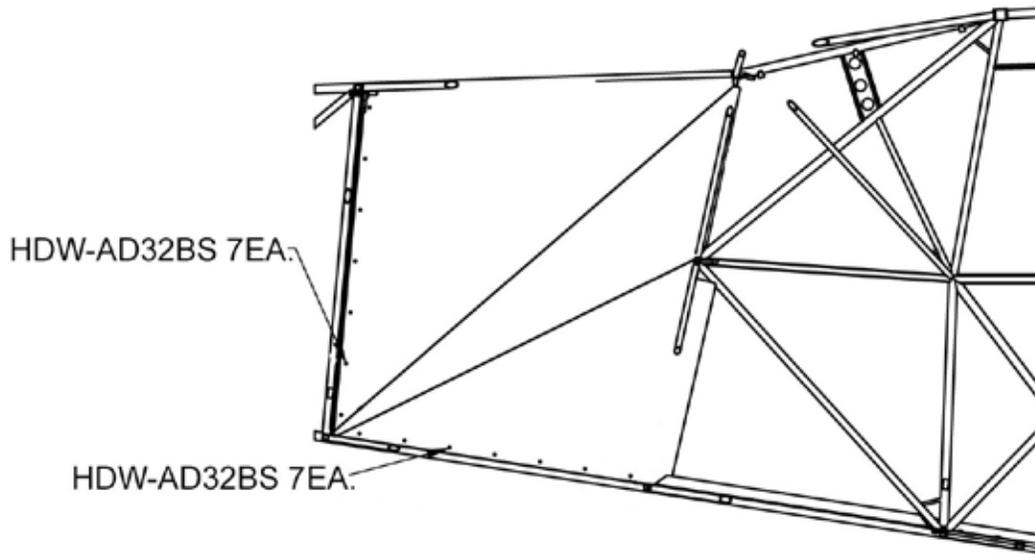


Figure EX3

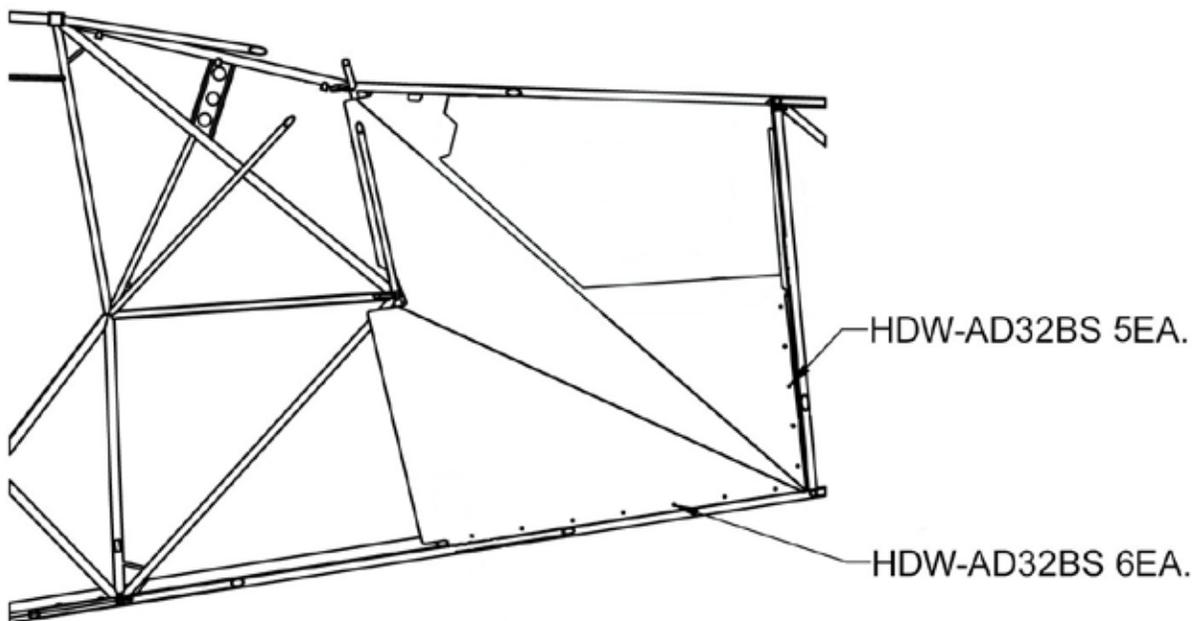


Figure EX4

SECTION 3 REINFORCEMENT INSTALLATION

The next part that will be installed is the extended baggage compartment reinforcement angle shown in Photo 015 . You will need to position the reinforcement angle in such a way that you get it as close to the tube as possible while maintaining 1/8" edge distance on the baggage rear panel. At a later step you will bond the reinforcement angle to the fuselage tube.



Photo 015

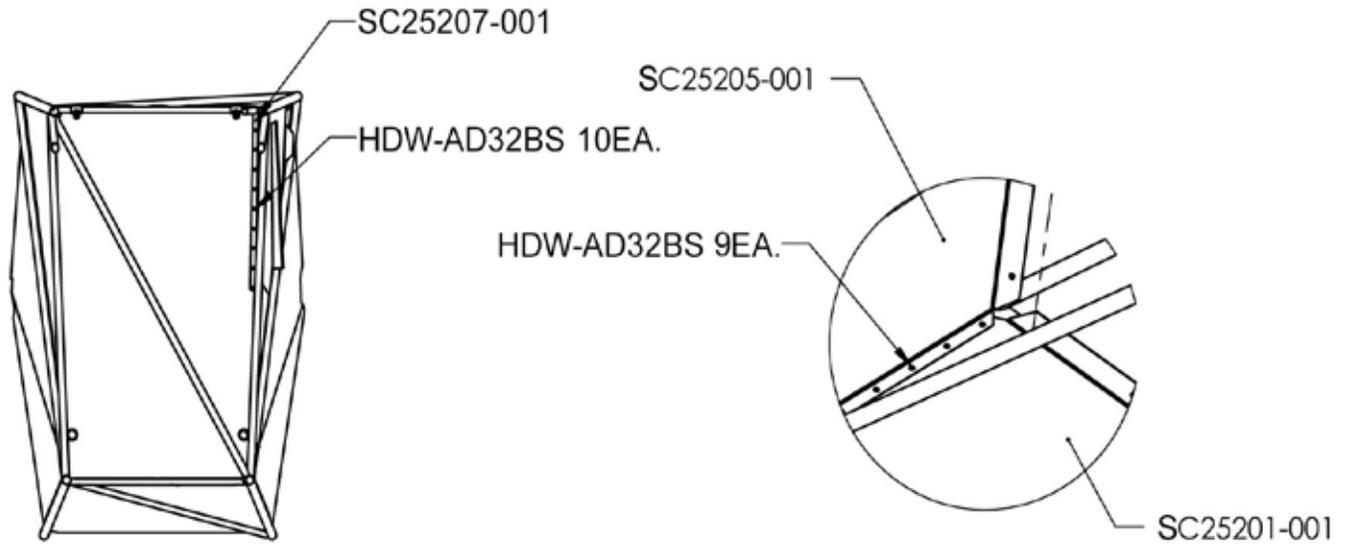


Figure EX5

SECTION 4 DOOR ASSEMBLY

It's now time to partially assemble the door and frame. First you will check the fit of the door into the frame and sand to fit if necessary. You should have the same edge distance on the top and both sides. Once you are satisfied with the door fit, set the frame aside and lets concentrate on the door hinge. Take a look at your hinge and Photo 016 . Make sure the orientation is the same. If it isn't, push the hinge pin out and change the orientation.



Photo 016



Photo 017

Notice the recess in the bottom of the door, that is where the long side of the hinge will be positioned. Once you have positioned the hinge in the opening, using a #40 drill bit drill one hole and insert a cleco and then move to the other end and drill/cleco another hole. match drill the remaining holes and rivet the hinge to the door using MS20426A3-5 rivets and AN960-C6L washers as shown in Figure EX6 .



Photo 018

OK now that the door has the hinge on it, lets set it aside and start on the door frame. You are now ready to install the 1/4 turn receptacles. Apply masking tape on the three wide spots on the backside of the door frame as shown in Photo 019 and Photo 020 .

**Photo 019****Photo 020**

Line up the 1/4 turn receptacle HDW-85-35-295-20 on the door frame as shown in Photo 021 . Make sure it is centered in the opening and pushed up against the door frame flange. **DO NOT GET THE RECEPTACLE INTO THE EDGE RADIUS.** Mark the center and the two outside rivet holes. Drill the center hole and one rivet holes with a #30 drill bit. Cleco the rivet hole and match drill the other rivet hole. Cleco both rivet holes and verify that the center hole is truly in the center. After you have finished drilling the three 1/4 turn fasteners, you will need to countersink the door side of the rivet holes. Next you will need to increase the size of the center hole to 3/8" diameter. Go ahead and rivet the 1/4 turn receptacles to the door frame using MS20426-6 rivets

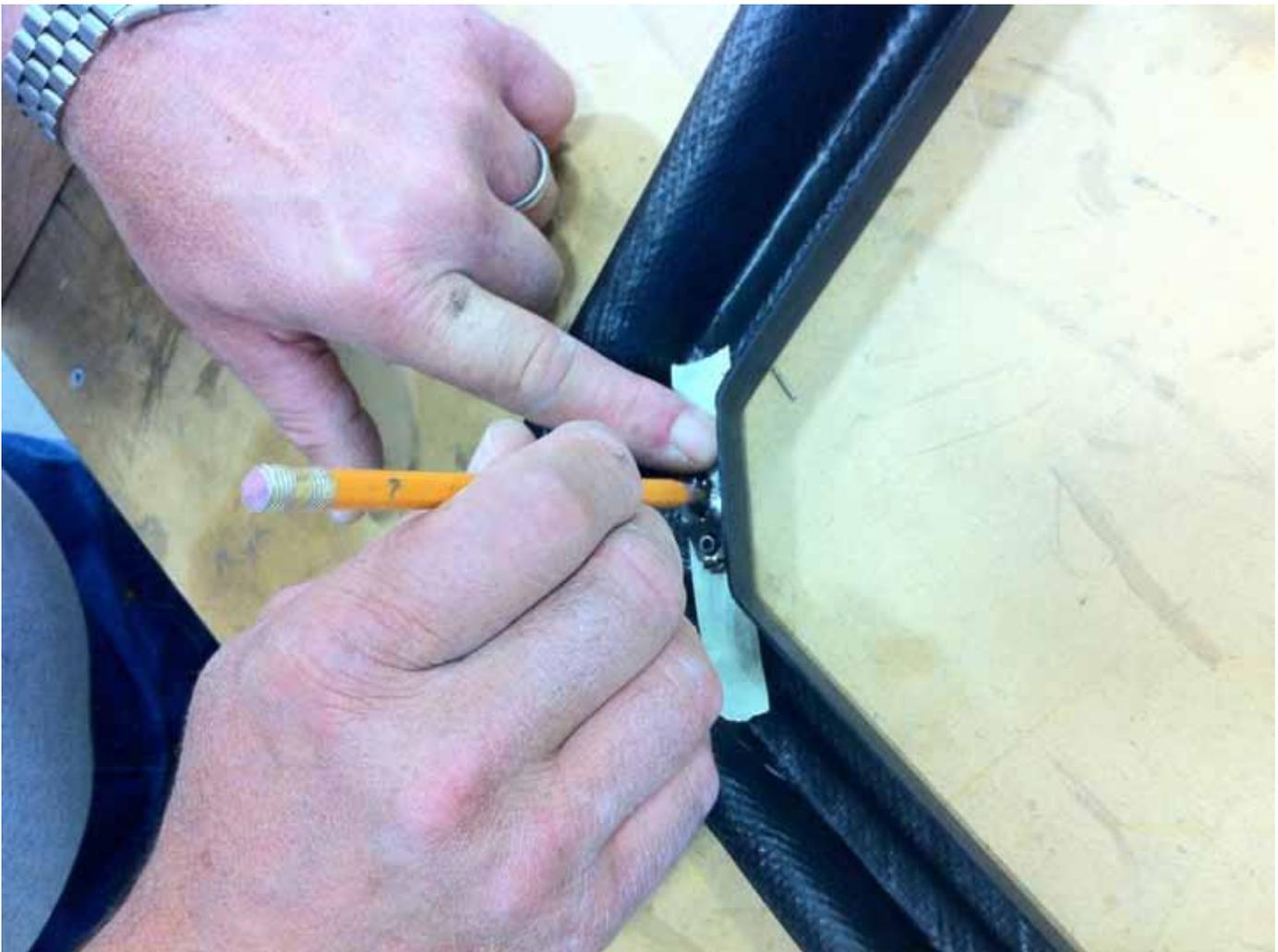


Photo 021

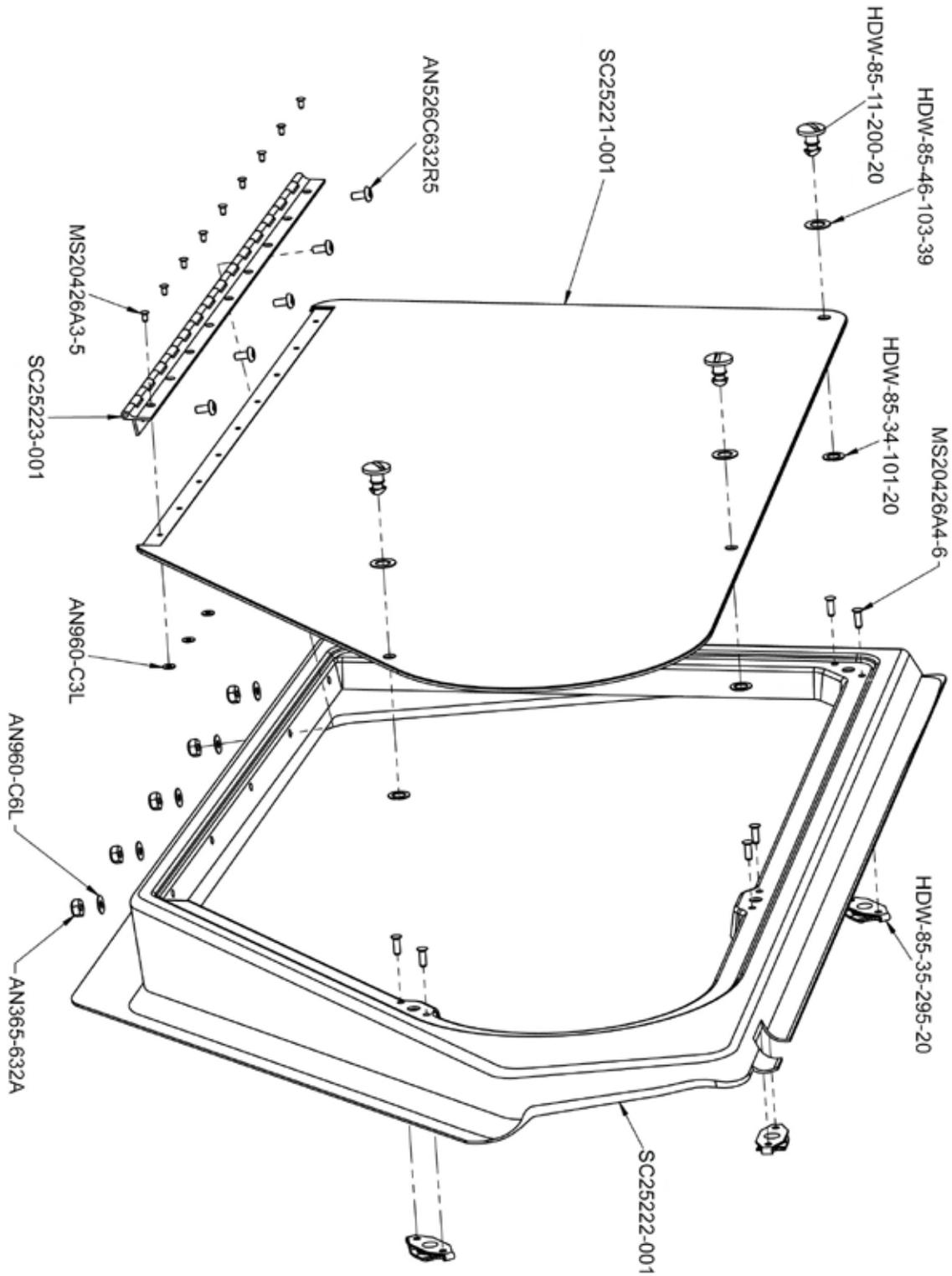


Figure EX6

SECTION 5 DOOR MOUNTING

This step is a tough one because the hinge is on the inside.

Tape the door into the frame, make sure the door is centered in the door frame, the hinge is tucked into the door frame, and tape into position as shown in Photo 022 (hinge not installed in Photo). Take a #27 drill bit and match drill the hinge to the door frame, start at one end and then install a screw per Figure EX6 or use a cleco. Check the door and frame fit and if you are satisfied, match drill the opposite end. Install a screw or cleco and recheck the fit. If all went well, match drill the remaining three holes and install screws in the ends and one in the center hole per Figure EX6. **DO NOT DRILL THE HOLES FOR THE 1/4 TURN FASTENERS IN THE DOOR AT THIS TIME.**



Photo 022



Photo 023

SECTION 6 DOOR ASSEMBLY INSTALLATION

OK, lets recap. You now have the door frame trimmed and fitted, 1/4 turn fasteners in the door frame, the hinge riveted to the door, and the hinge screwed to the door frame. Now go ahead and mount the door assembly. Ensure the right side panel is installed correctly, the main panel goes underneath the door frame while the tab on the front top edge goes on the inside of the door frame as shown in Photo 024 . You will need to make sure that the top of the baggage frame is flush with the upper longeron and the bottom is flush with the stringer as shown in Photo 025 .

**Photo 024****Photo 025**

SECTION 7 FUEL SYSTEM CONSIDERATIONS

You will need to install the extended baggage compartment fuel line cover as shown in Figure EX7. This cover will allow the transition of your fuel line through the front side of your baggage compartment. **BEFORE YOU START BONDING YOUR BAGGAGE SIDES TO THE FUSELAGE TUBES IN SECTION 8, YOU WILL NEED TO THINK ABOUT ATTACHING THE FUEL LINES TO THE STRINGERS AND FUSELAGE TUBES.**

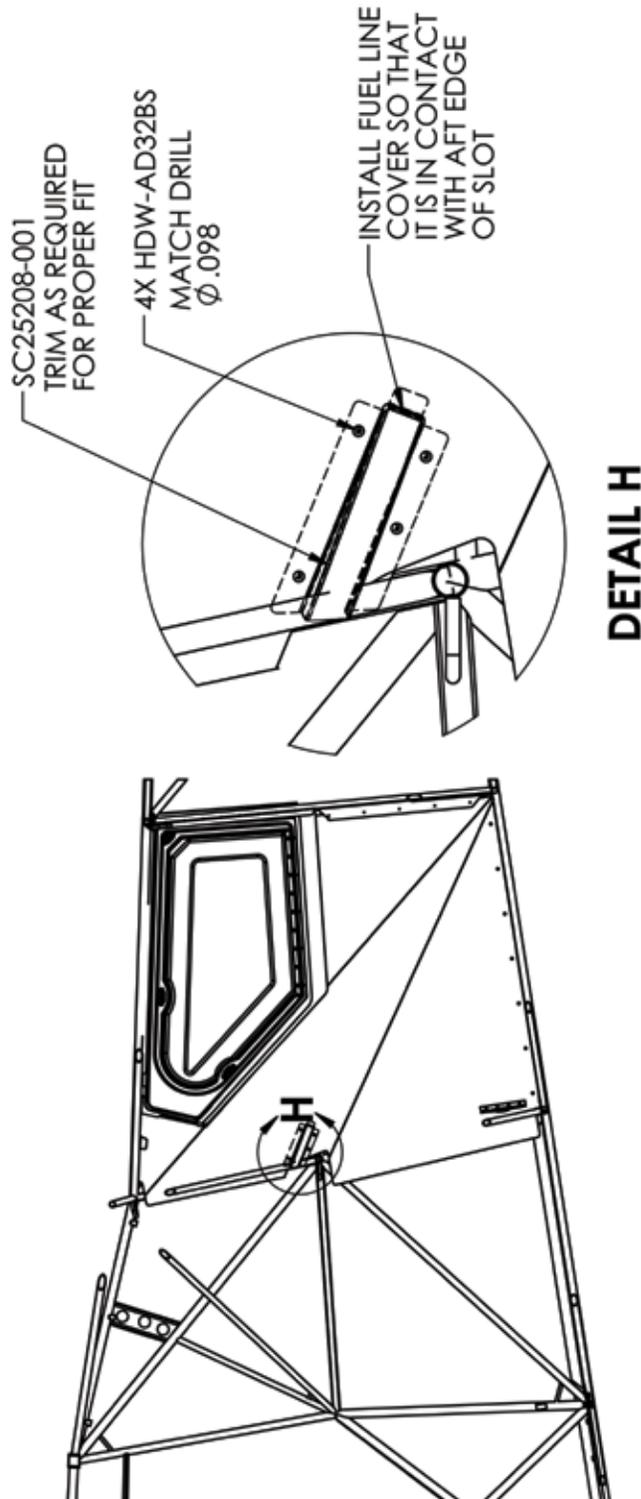


Figure EX7

SECTION 8 BONDING THE EXTENDED BAGGAGE

You should have all of the rivets in the baggage bottom, sides and reinforcement, the fairleads installed, and the D-Rings installed. If you haven't already tightened the D-Rings yet, go ahead and do that now. Photo 026 through Photo 030 shows the bonding process that should be used, but first clean the fuselage and outside of the baggage walls with denatured alcohol. Now use the following Photos as a guide for Methacrylate adhesive installation. **KEEP IT CLEAN.**



Photo 026



Photo 027



Photo 028



Photo 029



Photo 030

SECTION 9 BAGGAGE DOOR FRAME EXTENSIONS

Install the forward and aft frame extensions per Figure EX8 and Photo 031 through Photo 033 . You will use methacrylate to install these extensions. Be sure to keep them flush with the stringer and baggage door frame. Find the best places to apply the methacrylate, you can always add more after the initial bonding has cured. **KEEP IT CLEAN.**



Photo 031



Photo 032



Photo 033

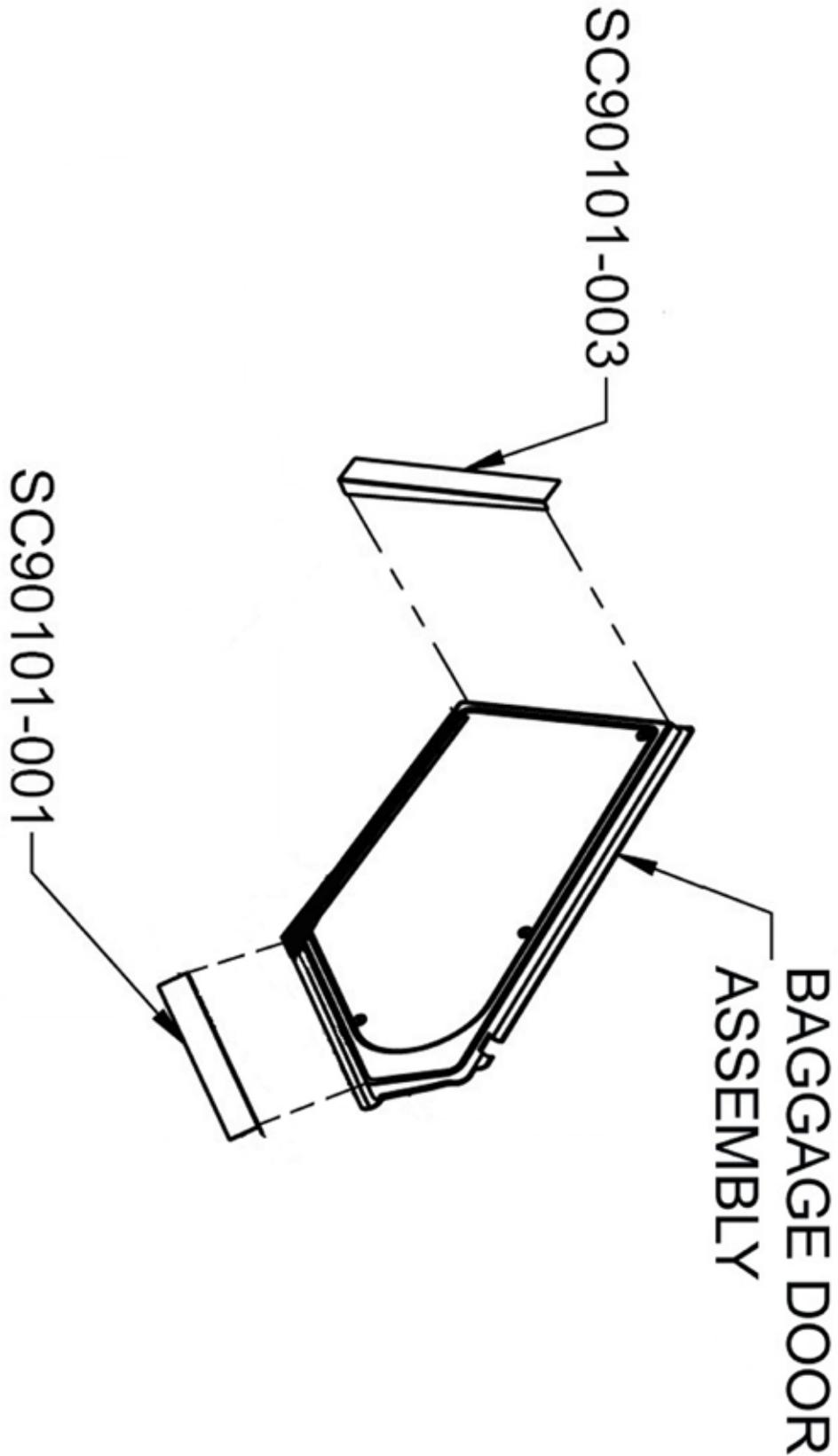
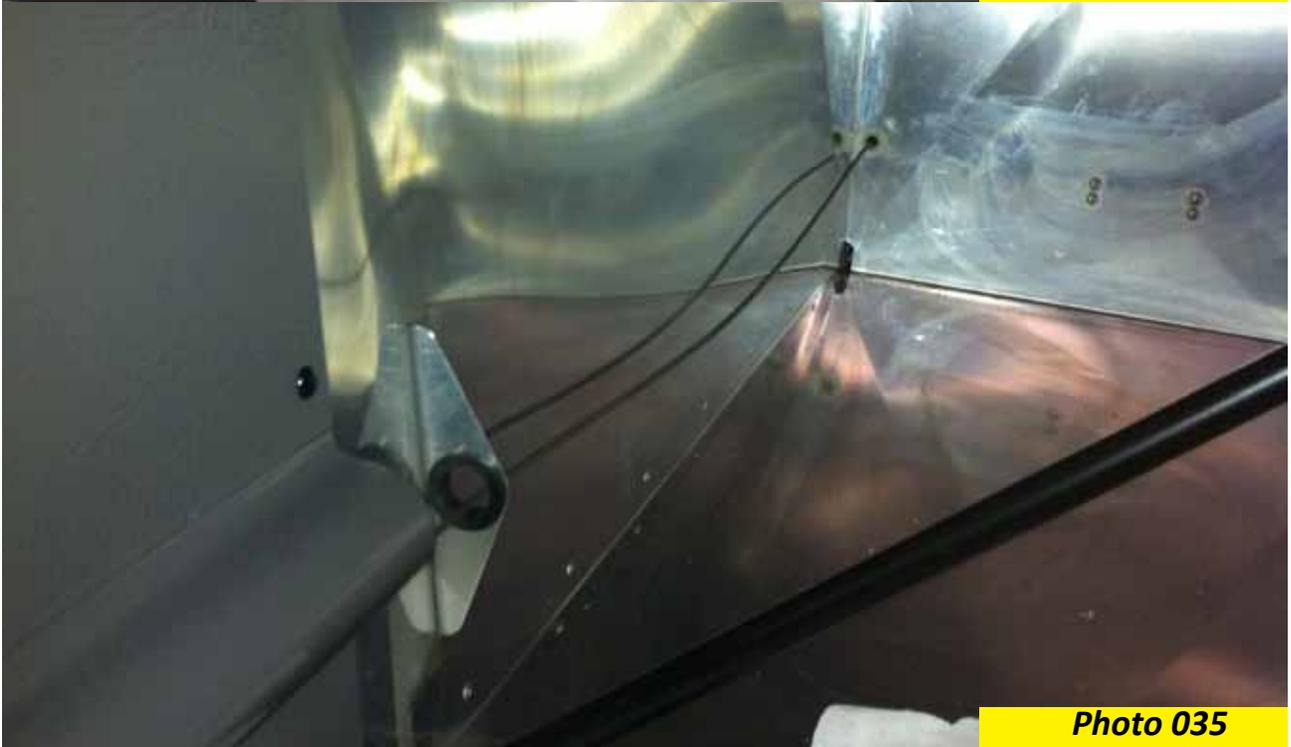


Figure EX8

SECTION 10 RUDDER CABLE FAIRLEADS

You will need to reference Section 19 in the Fuselage Manual for rudder cable installation. Now it's time to install the rudder cable fairleads per Figure EX9 and Figure EX10 . The cable fairleads should be approximately 28" from the cable fairlead in the rear baggage panel. You will need to use the rudder cable for the distance up and down, it is ideal when the cable is centered in the fairlead hole. **DO NOT CENTER THE FAIRLEAD BRACKET RIVET HOLES OVER THE FUSELAGE SIDE TUBES.**

**Photo 034****Photo 035**

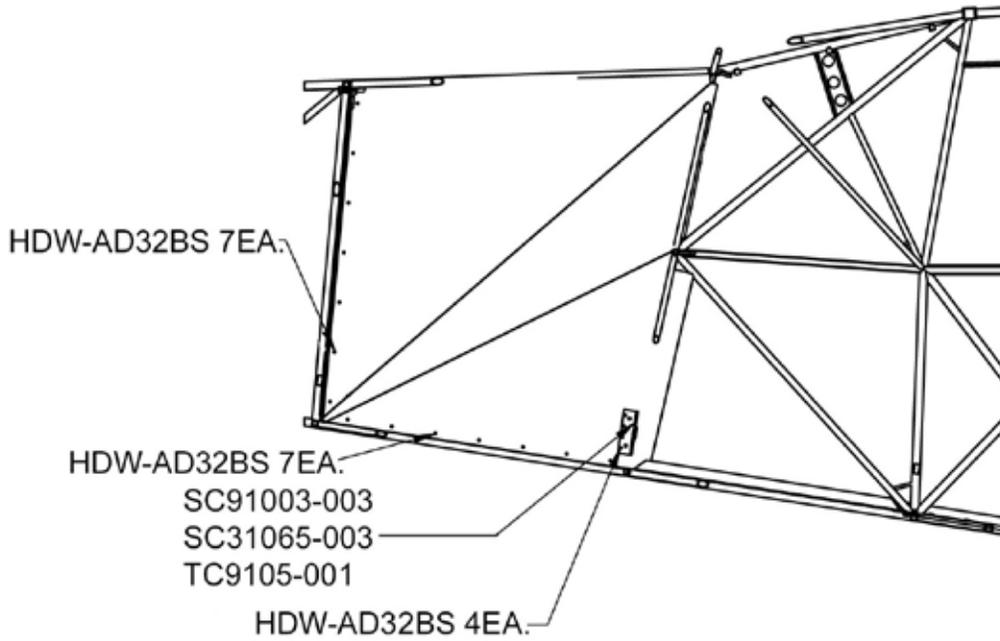


Figure EX9

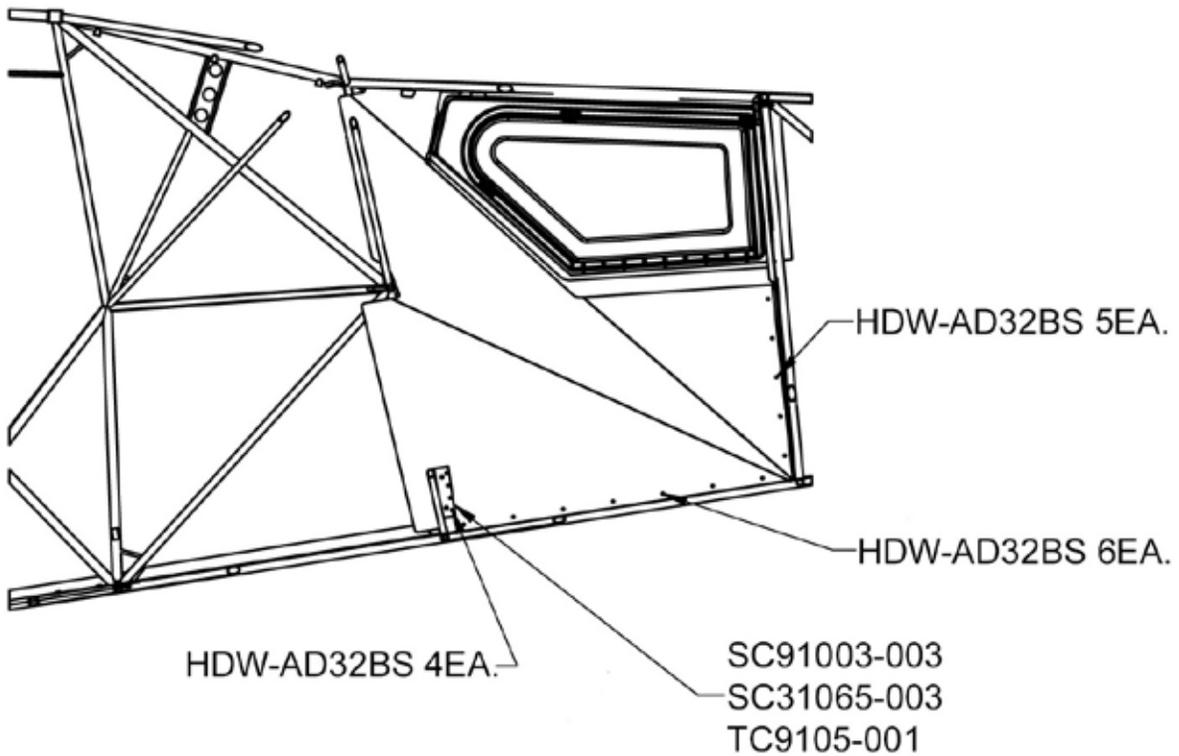


Figure EX10

SECTION 11 FORWARD BAGGAGE FLOOR

You should have already installed the front floorboard/seatbase per the fuselage manual section 13. Use Figure EX11 for hardware callout. Line up the front side of the forward floor with the aft edge of the front floorboard/seatbase Photo 036 . Using a #10 hole finder, match drill the five #10 screw holes in the fuselage to the front floorboard. Next using a 1/4" hole finder, match drill the two seat belt attach holes in the fuselage to the front floorboard. Enlarge the #10 holes to a #5 hole and the 1/4" holes to a 5/16" hole. **DO NOT DRILL INTO THE FUSELAGE THREADED HOLES.** Install the five #10 screws as shown in Photo 037 , making sure the forward baggage floor is straight and aligns correctly in the fuselage. Match drill the seven rivet holes in the rear of the forward baggage floor using a #40 drill bit and install the rivets **DO NOT CENTER THE RIVET HOLES OVER THE FUSELAGE BOTTOM TUBES.**



Photo 036



Photo 037



Photo 038

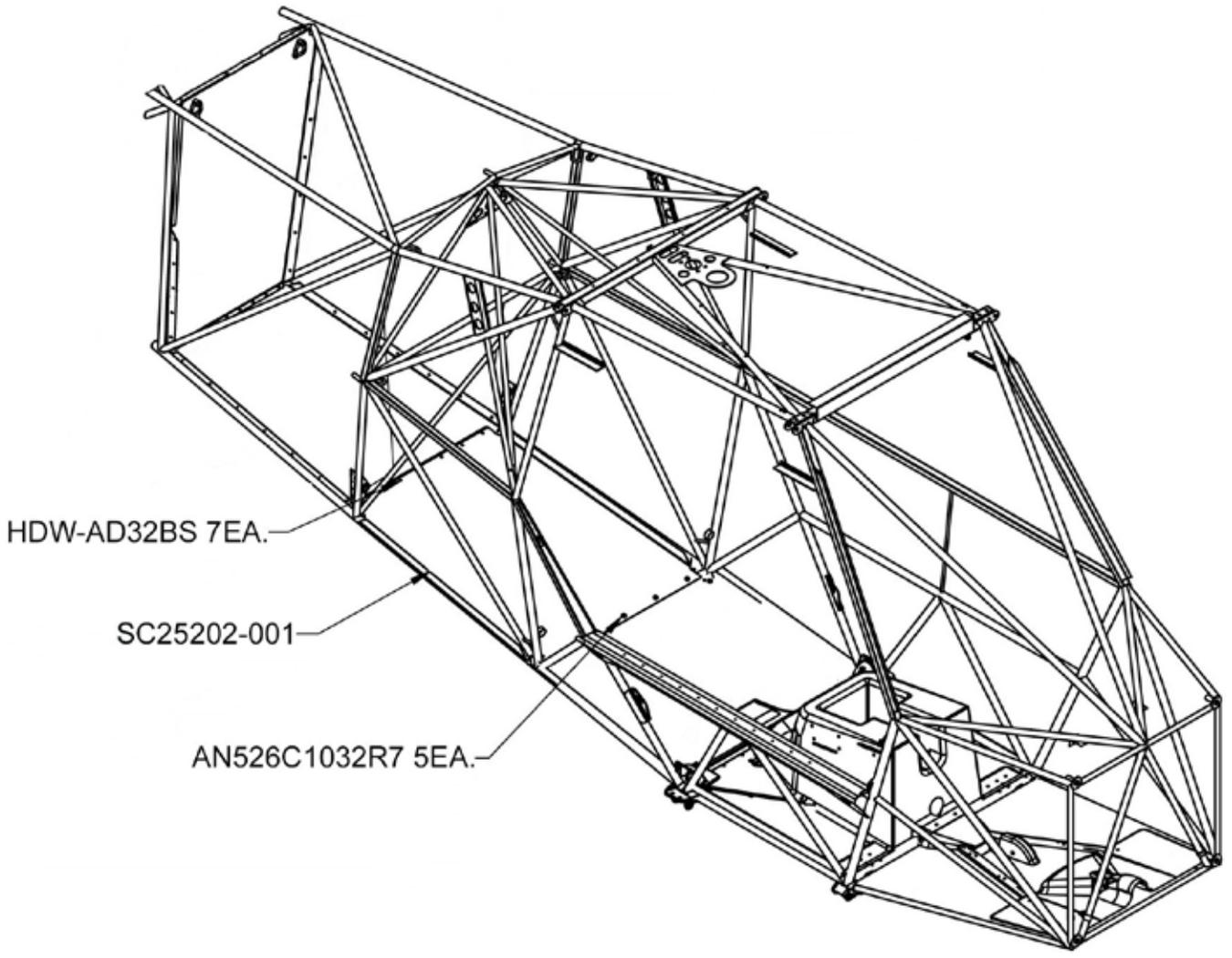


Figure EX11

SECTION 12 BAGGAGE DOOR FASTENERS

Now it's time to install the 1/4 turn fasteners in the door. You will not actually complete this section until the baggage door is painted, but we will go over it now. The baggage door should still be attached to the frame with three screws. We would have matchdrilled the door on the bench, but there is some concern that during the installation and bonding process that the pre drilled holes might not line up. It is more precise this way. So lets make it happen, take a #30 drill bit and from the back side of the door with the door taped in the closed position drill through the center of the center hole in the 1/4 turn receptacle. After you have three holes pilot drilled, go ahead and increase the hole size to 5/16" and deburr the holes. Now lets test the 1/4 turn fasteners, install the plastic washer HDW-85-46-103-39 onto the 1/4 turn fastener and check the fit and pressure it takes to lock the 1/4 turn fasteners. After this is done and you are satisfied with the results, remove the fasteners and the door. Set the door aside for paint. After the door is painted, assemble the fasteners per Figure EX12 .



Photo 039

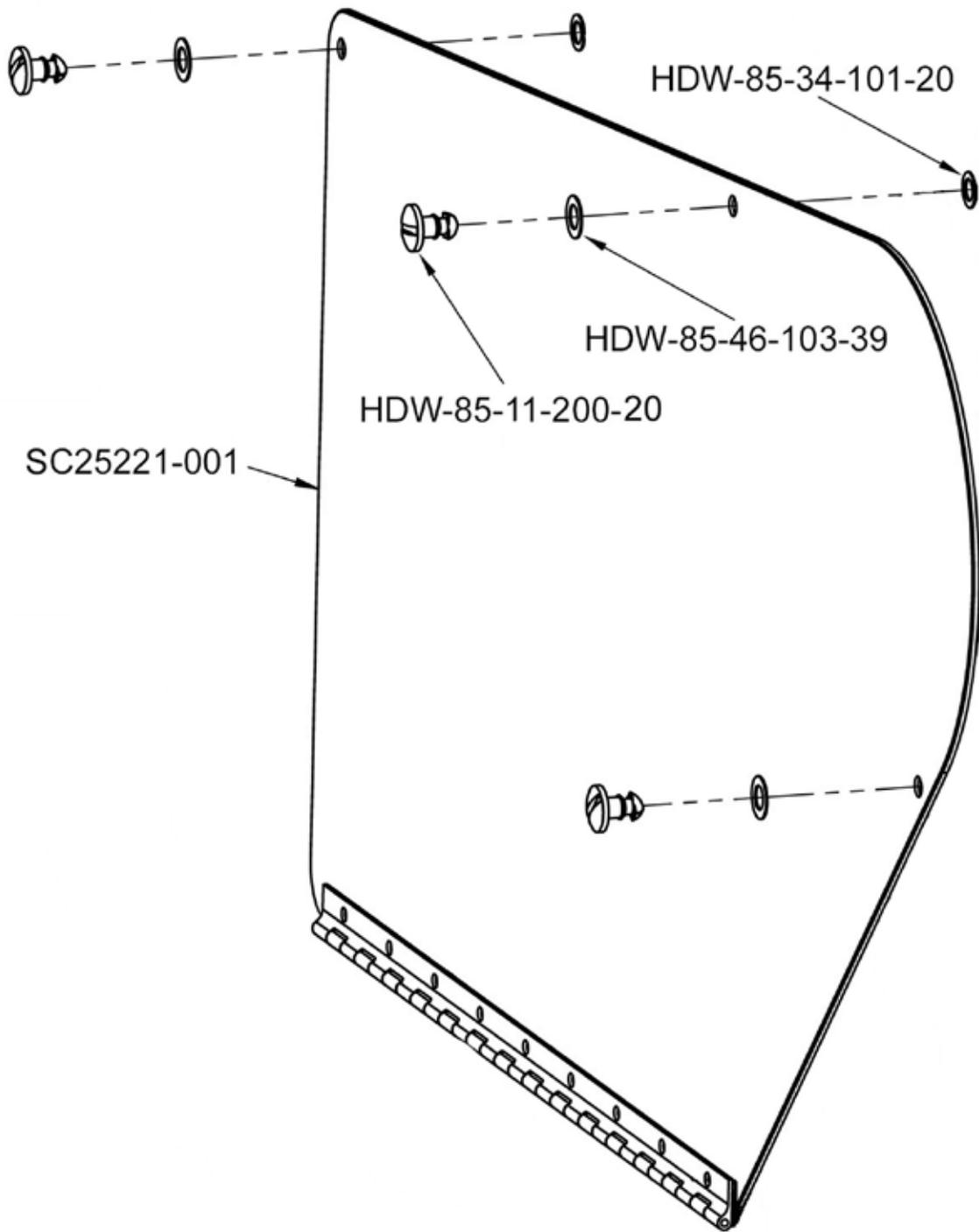


Figure EX12

SECTION 13 BAGGAGE FRAME BLENDING

You are almost done with the Extended Baggage installation. At the factory we use a product called feather-rite Photo 041 to blend the stringer, longeron, and extensions. Put this product on to achieve the desired look, the fabric glued to this area will show all defects and deformities. So, make it look smooth before you cover it. **NOW THAT THE EXTENDED BAGGAGE IS COMPLETED, RETURN TO THE FUSELAGE MANUAL AND RESUME WHERE YOU LEFT IT.**



Photo 040



Photo 041



Photo 042