ES-3A

The 'Electric' Viking

Text and Illustrations
by
Dave Gallagher

On September 20, 1989, the S-3 Viking began a new chapter in what is already a very successful career. Prior versions of the plane include the S-3A Viking ASW(Anti Submarine Warfare), the S-3B Viking ASW/Anti-shipping Update, and the US-3A COD (Carrier Onboard Delivery) aircraft. The newest version is the ES-3A, the electronic version, and it will be used as the replacement plane for the aging EA-3 Skywarrior, which was used to gather ELINT(Electronic Intelligence) for whatever carrier battle group is was assigned to.

Of course, knowing the military way, with any new program there will be one of those catchy acronyms that baffles any one not associated with the particular program. The ES-3A program is no different in this regard: the ES-3 mission will be known as BGPHES, which stands for Battle Group Horizon Extension System. Pretty simple, huh? You should have been able to guess that one!

This program will take 16 of the 187 S-3A Vikings and convert them to the electronic role; the program is due to be completed in 4 years. The 16 modified aircraft will be split into two eight-plane squadrons; these squadrons will be VQ-5 and VQ-6. The current plan is to deploy the planes in two-plane detachments on each carrier at sea. Current testing of the a/c is at N.A.T.C., and then in early 1991, VX-1 will begin final testing.

As to the aircraft itself: it is Bu. No. 157993, A/C No. 993, and is Lockheed's number two prototype plane. It will be used to test the aerodynamic effects of the addition of 63 new antennae to the plane. The antennae on this first-flying plane are dummy antennae; there're no black boxes hooked up to them yet. Many of the proposed electronics are almost identical to those used in the EP-3E Orion; this will save money on the project and it will offer some commonality amongst electronic a/c parts. Of note is the fact that the antennae located on the fuselage underside are quite close to the ground. Because of all the stress involved in carrier landings & launchings, the Navy REQUIRES that every underside antenna will be at least six inches off the ground at ALL aircraft attitudes, this includes a situation where the plane has flat tires and compressed struts.

The color scheme for ES-3A #1(993) is the standard glossy gull grey/glossy white combo. All stenciling, warning markings, etc., are also the standard ones found on other Vikings, except where noted otherwise in the upcoming illustrations. These illustrations are NOT in 1/72nd scale; they are larger. This was

done to provide better clarity of small details and their location. There is no mention as to what the nose marking will be to differentiate the ES-3 from the US/S-3 a/c for the LSO when the plane is in final approach to the carrier.

And lastly, I mentioned previously that the ES-3 will have 63 new antennae. I must admit that with the limited photograpghic reference I had, I could only come up with 50 of the guys. So, to those purists hoping for ALL the information, all I can say is 'sorry'. Until someone else comes along with better photos and/or drawings, these will have to tide you over.

LOCATION OF NEW ANTENNAE

The shaded areas of the drawing show the various new antennae that have been added to the plane.

Figs. 1-6 will show the location and details of the added-on array of antennae. The remaining Figs will show color & markings detail for the plane.

FIG. 1 Front view

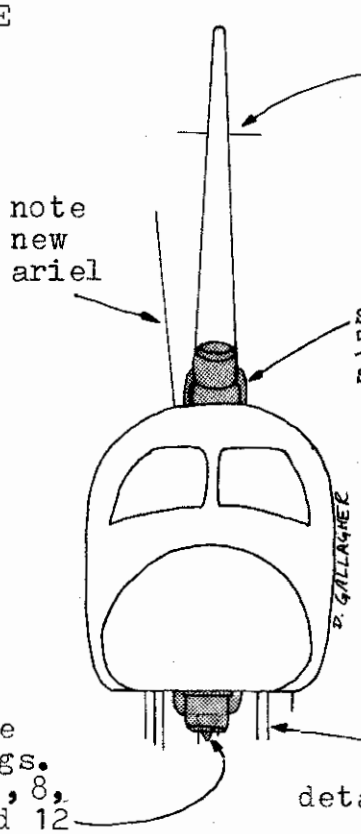
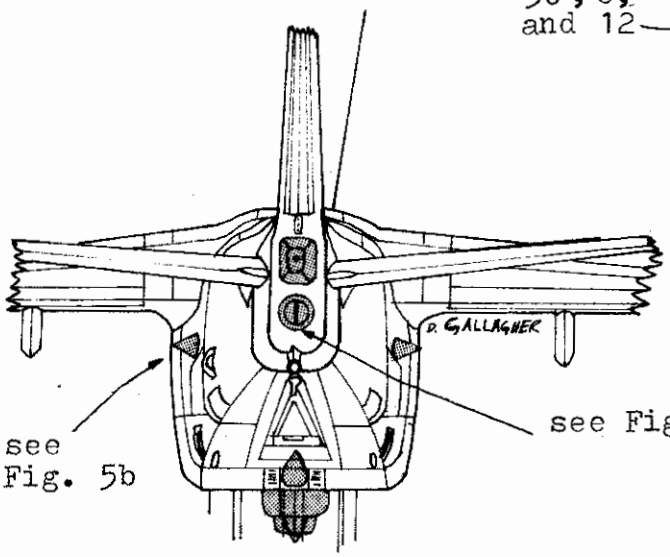


FIG. 2 Rear View



This tube is the aircraft's electronic heat outlet. Note that there is a black-colored vertical bar in the middle of the tube.

FIG. 4 LOCATION ON NEW ANTENNAE

Underside of Fuselage & Wing

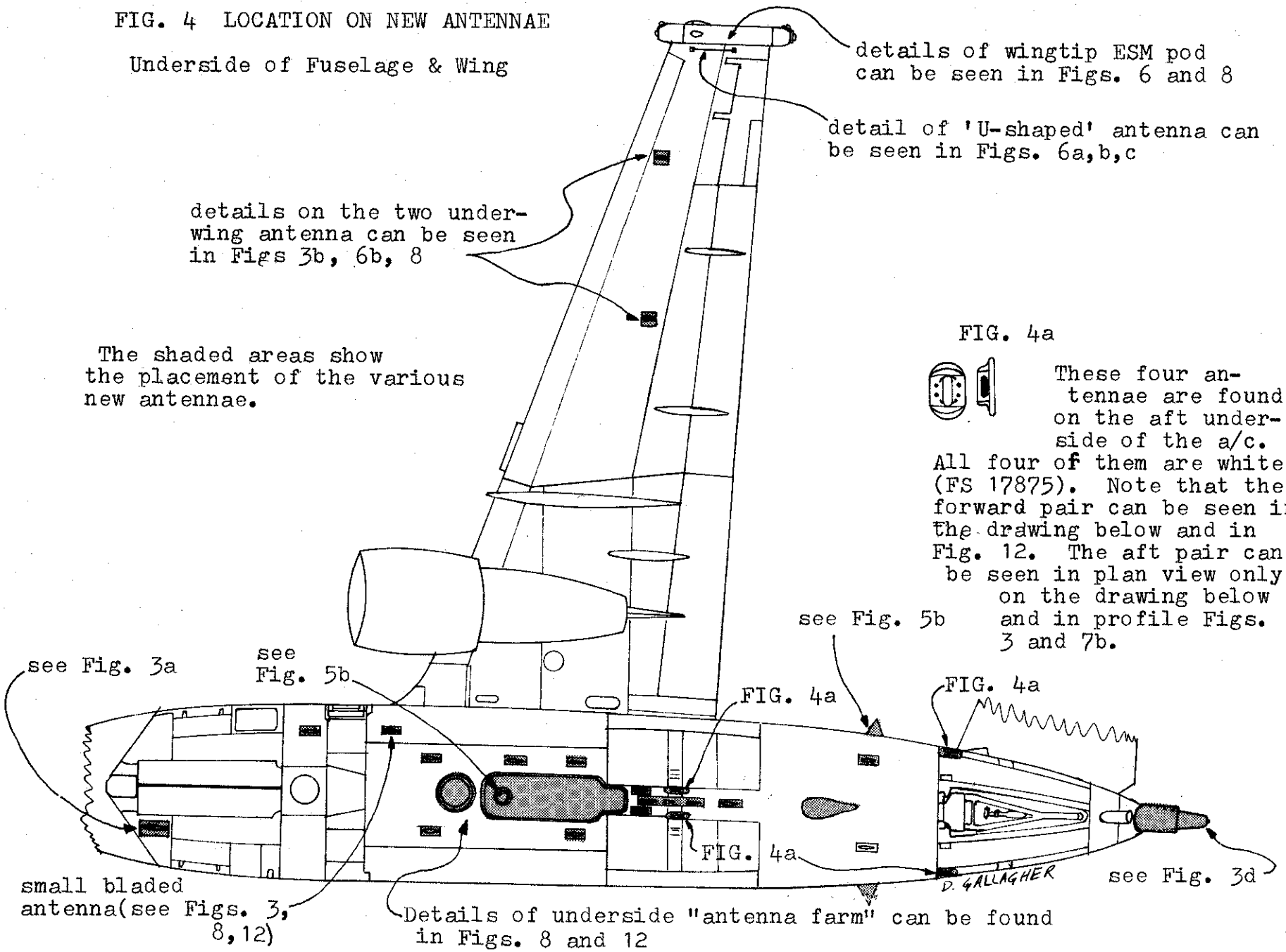


FIG. 4a

These four antennae are found on the aft underside of the a/c. All four of them are white (FS 17875). Note that the forward pair can be seen in the drawing below and in Fig. 12. The aft pair can be seen in plan view only on the drawing below and in profile Figs. 3 and 7b.

LOCATION OF NEW ANTENNAE

The shaded areas show the placement of the various new antennae.

FIG. 3 Side View

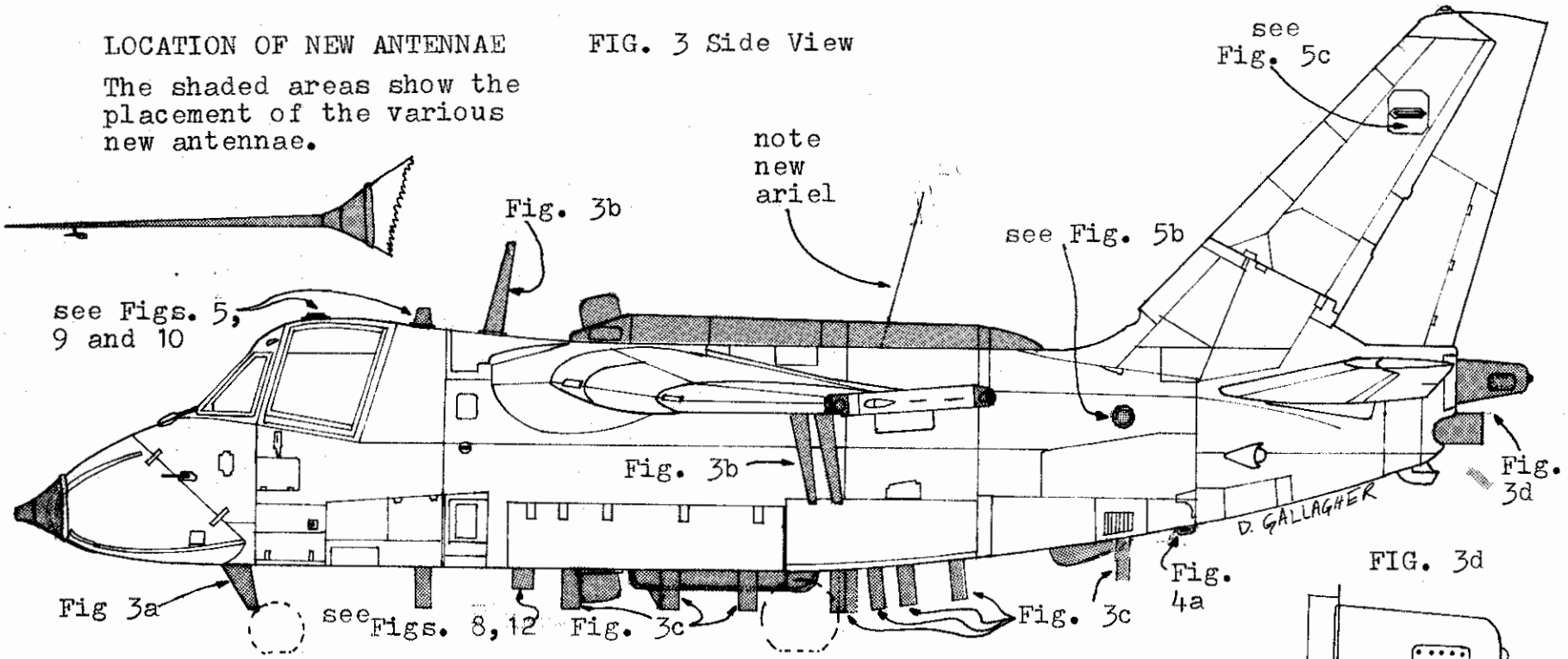
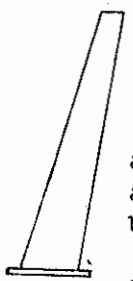


FIG. 3a

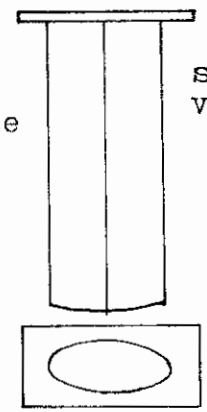
Close-up of the blade antenna on the underside of the nose (see Fig. 4 for location)

FIG. 3b



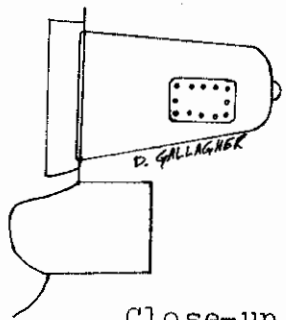
Close-up of the antenna; there are 5 of these antennae: two under each mainwing & one on the fuelage top forward of the dorsal electronic canoe (see Figs. 4, 6b, 8)

FIG. 3c



Close-up of underside antennae. There are 14 of them, all located on the underside (see Figs. 4, 8, 12)

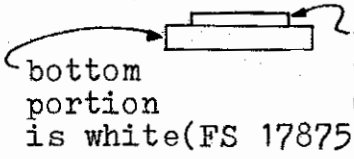
FIG. 3d



Close-up of rear antenna and electronic heat outlet (see Figs. 2, 4, 5, 7b)

FIG. 5 LOCATION OF NEW ANTENNAE

FIG. 5a



This is a close-up of the small, square-cornered antenna located on the center frame of the canopy

Top View of Fuselage & Tail

The shaded areas show the placement of the various new antennae

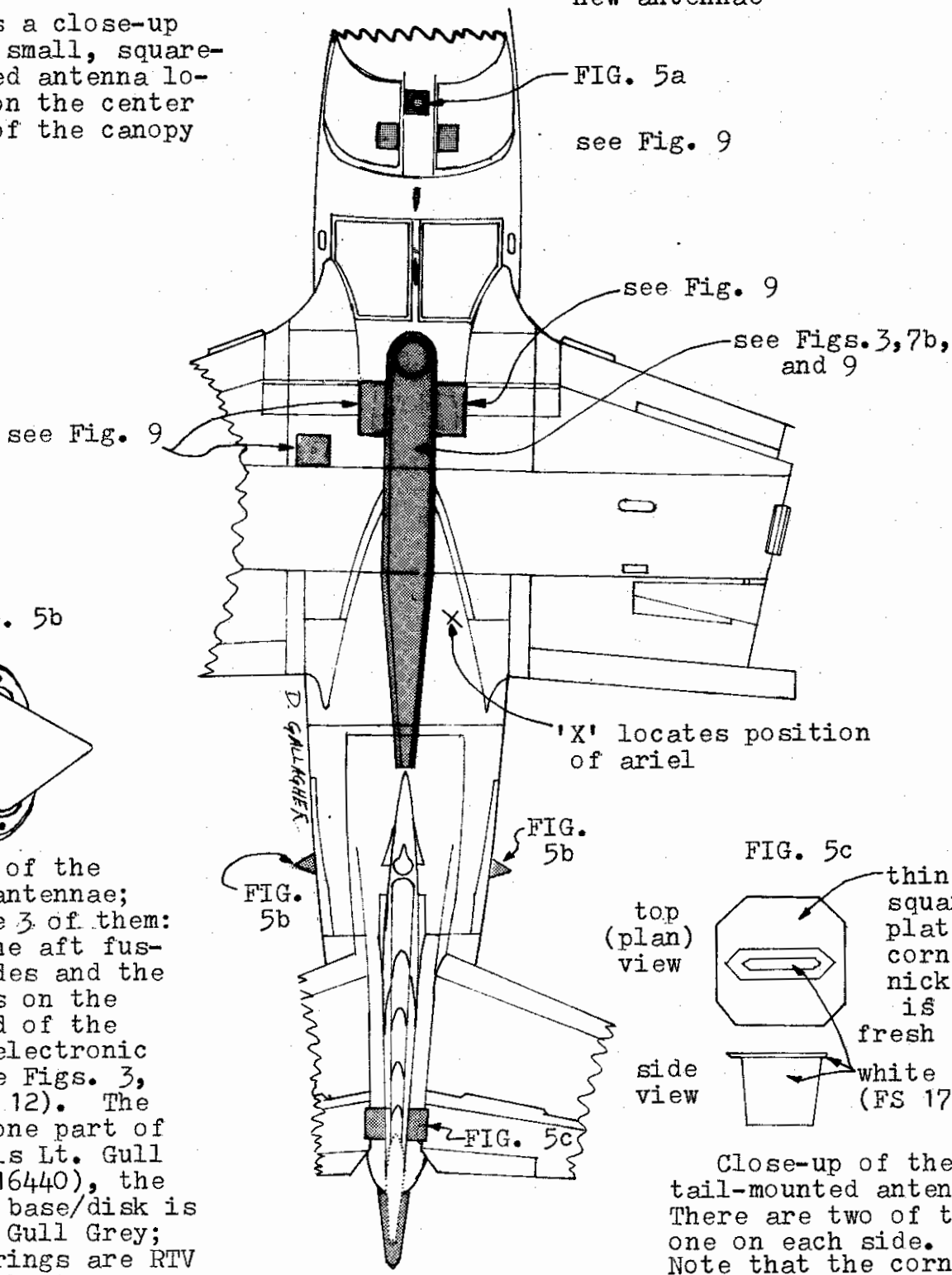
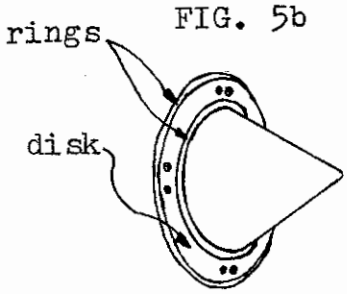


FIG. 5b



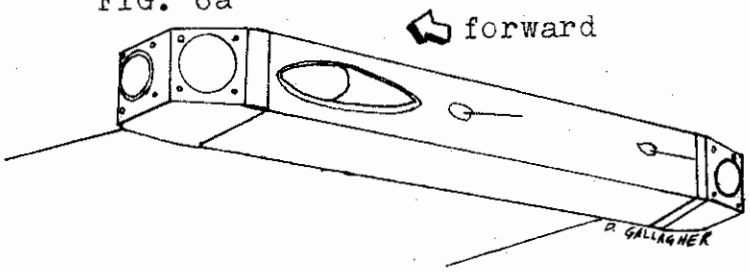
Close-up of the conical antennae; there are 3 of them: two on the aft fuselage sides and the other is on the front end of the ventral electronic canoe(see Figs. 3, 4, 8, and 12). The pointy cone part of antenna is Lt. Gull Grey(FS 16440), the circular base/disk is also Lt. Gull Grey; the two rings are RTV black sealant. The one on the ventral canoe is white(FS 17875) and has NO RTV sealant rings.

FIG. 5c

Close-up of the tail-mounted antenna. There are two of them, one on each side. Note that the corners on the larger base plate are bevelled at 45° angle

FIG. 6 LOCATION OF NEW ANTENNAE

FIG. 6a



(left) Figure 6a is a drawing showing the old ESM pod attached to the wingtips of the 'non-electric' Vikings. Note the flat, smooth shape to the sensors on each end.

(Right) Figure 6b shows the new ESM pods for the ES-3(the ALR-76 ESM). The major difference of the new pod is the block-like sensors now attached to the pod ends. There are 8 of these sensors(4 on each pod) The sensors are black(FS 17083). The color of the pod is a bit complicated:the bottom of the pod is Or.(FS 12197)which extends from the leading edge of the wing to the trailing edge; then the underside ends are white(FS 17875). the outside(vertical) edge is Lt. Yellow(FS 13655) with white(FS 17875) end bands. The top of the pod is color-split down its length:the inside half is In't'l Or. (FS 12197) and the outside edge is Lt. Yellow(FS 13655). See Figs. 8,17, and 18 for the visuals to this written description.

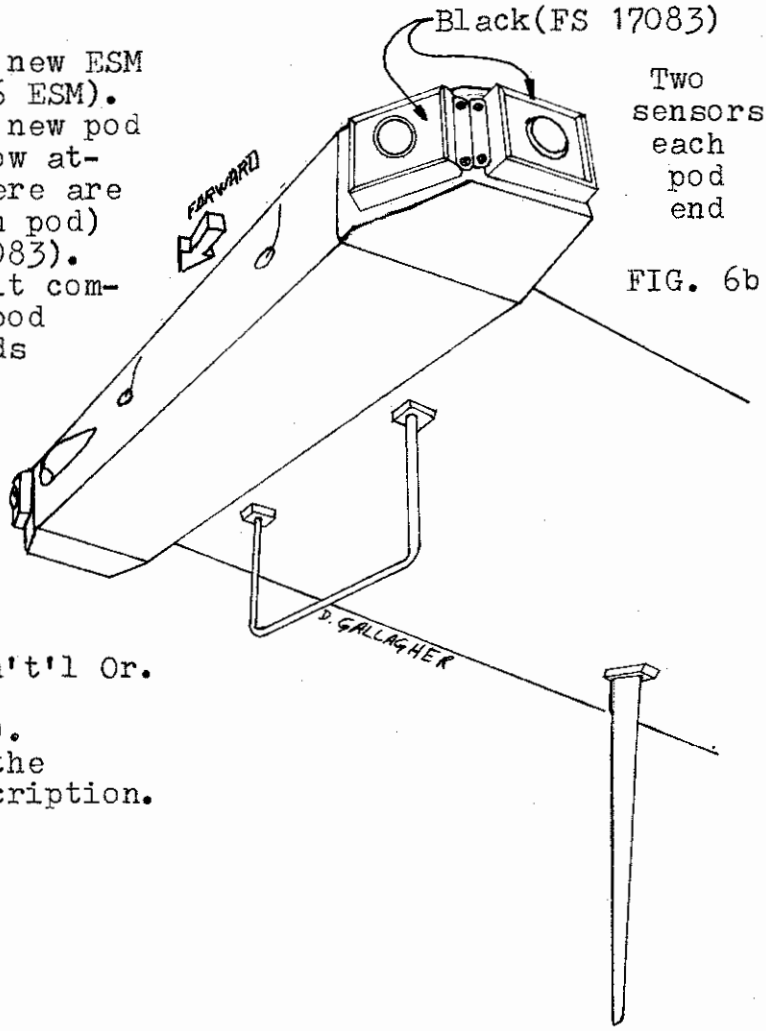
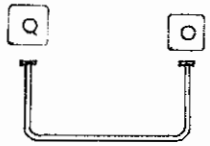


FIG. 6b

FIG. 6c



(left) Figure 6c is a close-up of the 'U-shaped' underwing antenna. There are two of them; one under each wingtip near the ESM pods(see Figs. 4, 6b, and 8 for further details)

COLOR NOTES

FIG. 8 Close-up area as depicted in Fig. 7b.

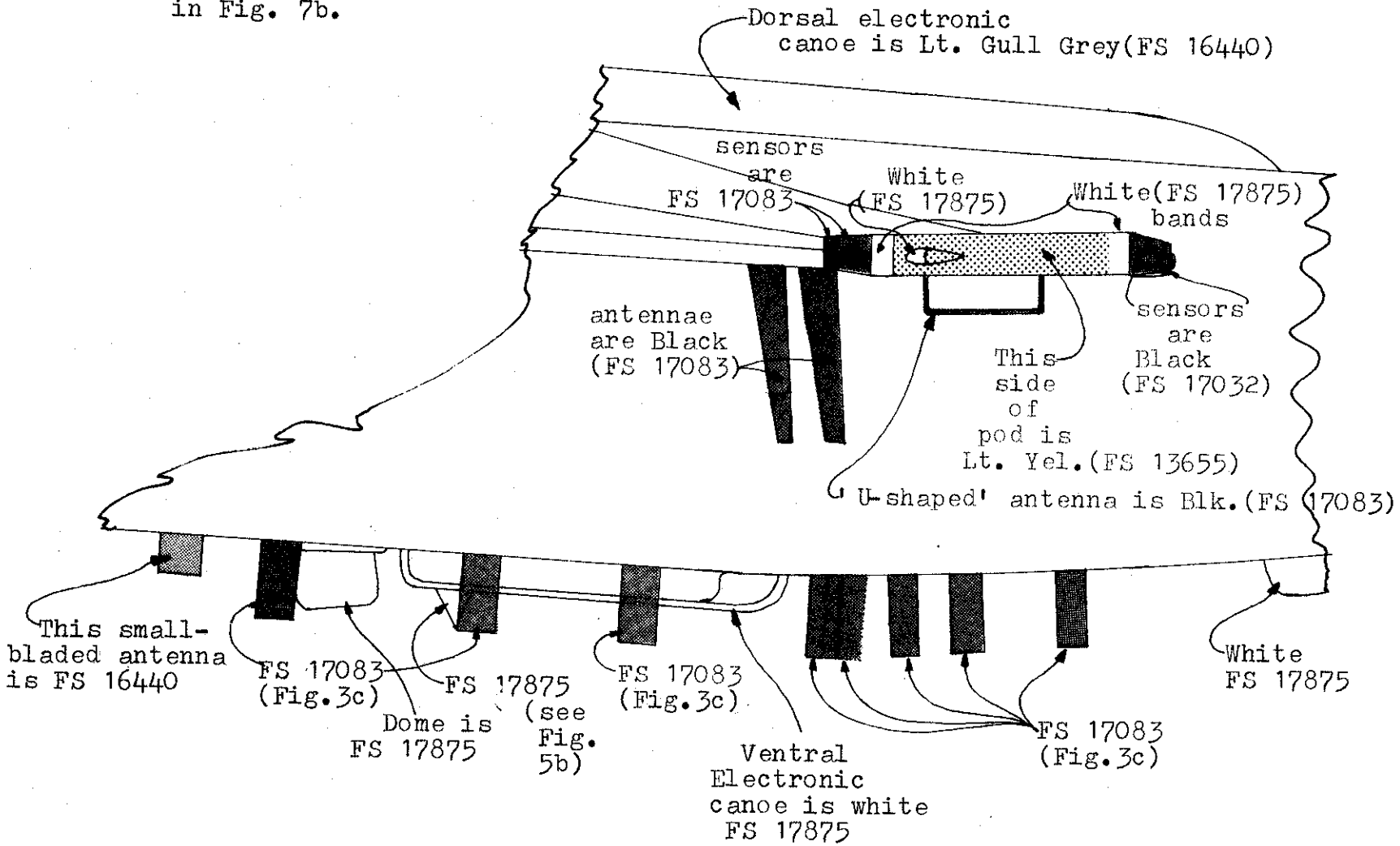
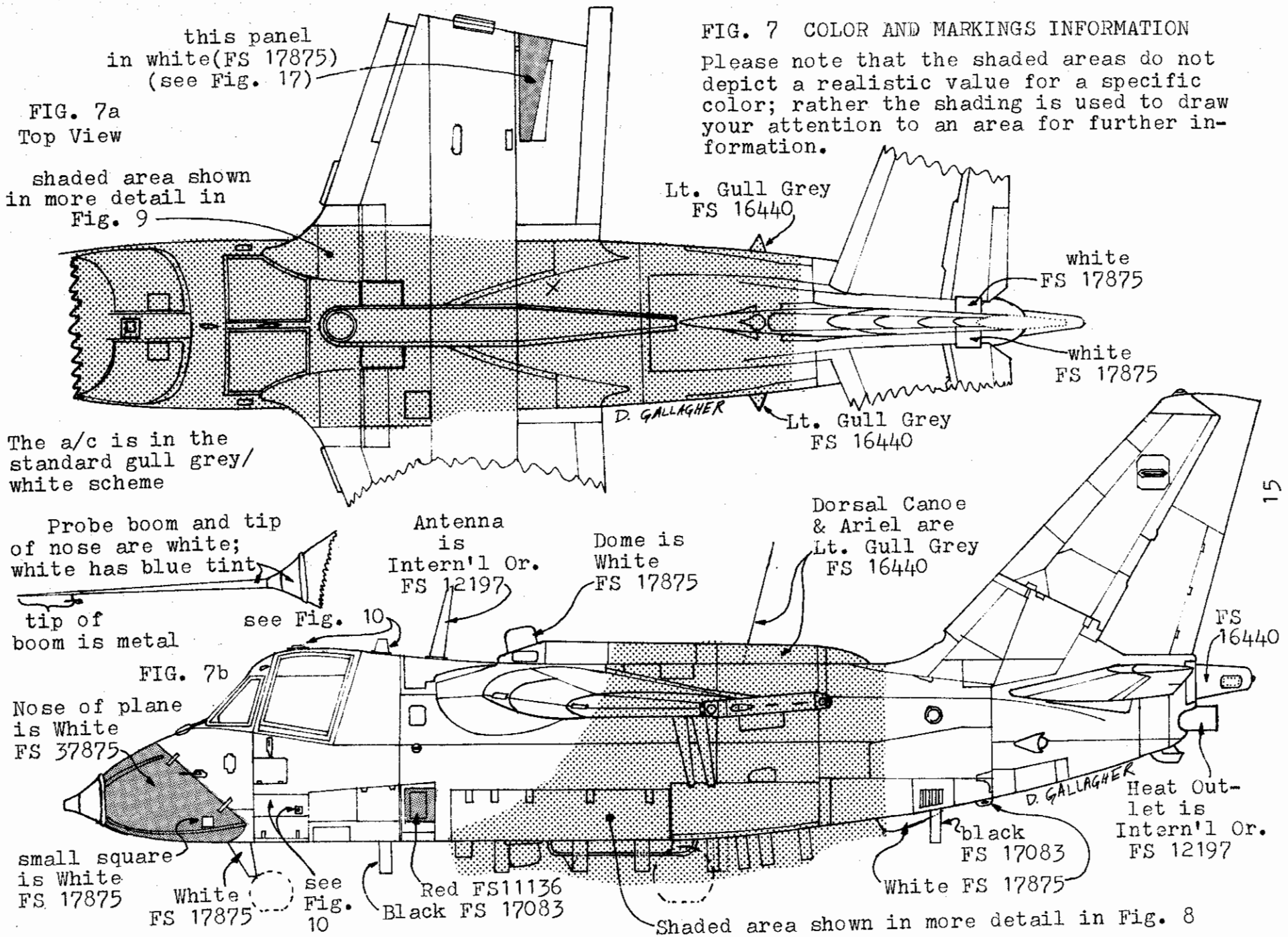


FIG. 7 COLOR AND MARKINGS INFORMATION

Please note that the shaded areas do not depict a realistic value for a specific color; rather the shading is used to draw your attention to an area for further information.



COLOR NOTES

FIG.9

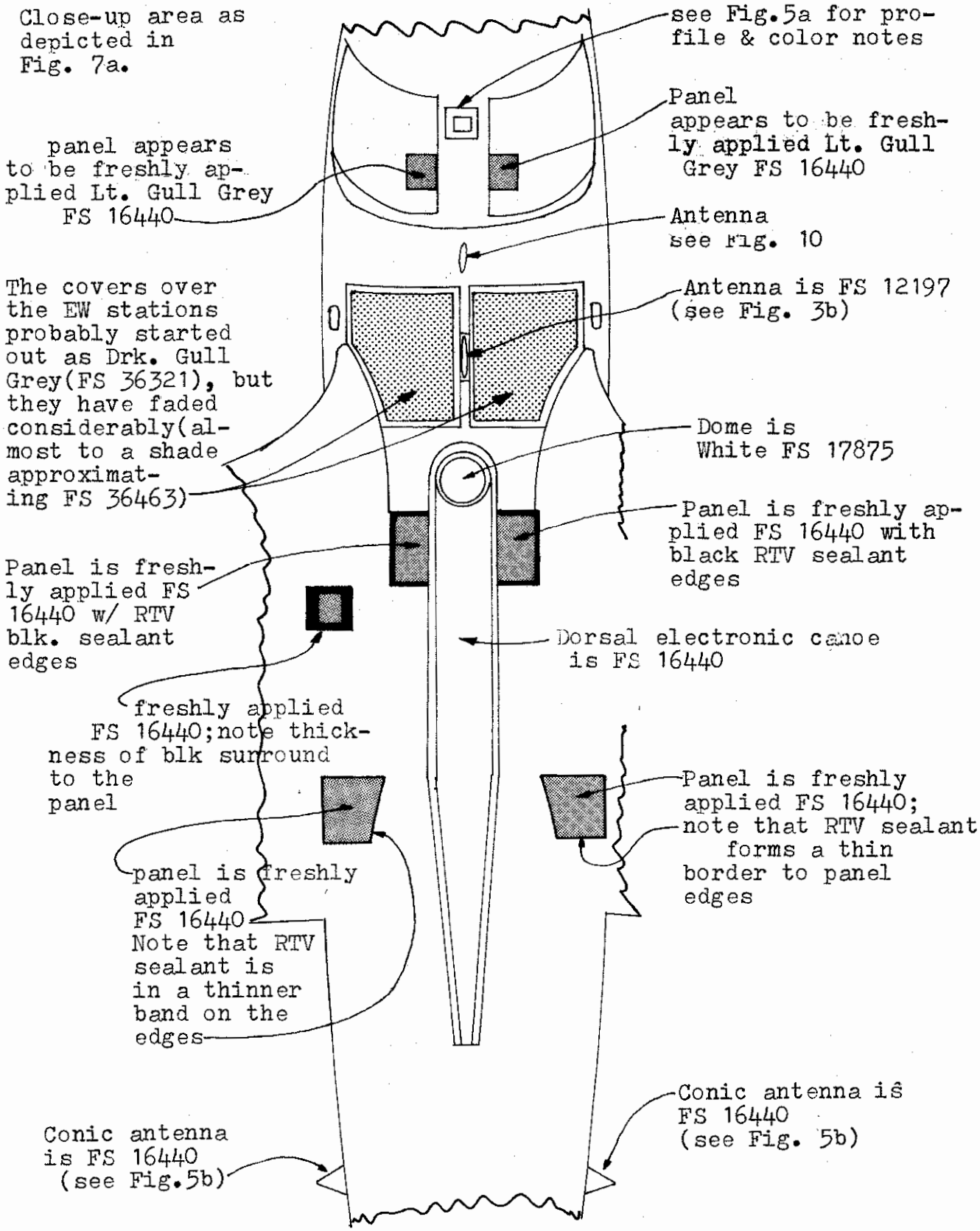
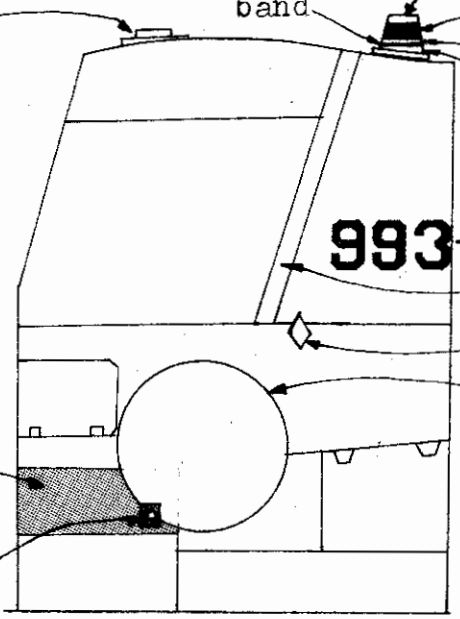


FIG. 10

Close-up of left side of fuselage by the canopy

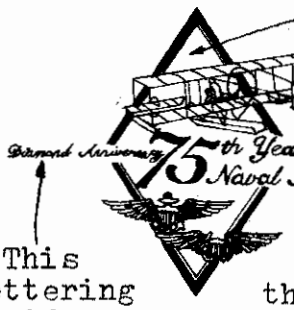


Note: there is a small white light in the box.

Lockheed

Even though I couldn't find the Lockheed logo on the plane in my reference, there's a good chance that it's somewhers on the plane

FIG. 10a

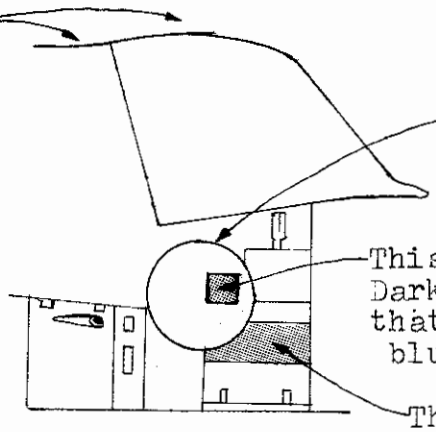


Interior of diamond is Insignia Blue (FS 15044)

This lettering is white

Wright flyer, the rest of the lettering, the diamond edging, and wings are in Gold (FS 17043)

Fig. 11 Close-up of right side of fuselage by the canopy



Small, square antenna & blade antenna not shown in this drwng; see Fig. 10

Circle represents the disk of the national insignia

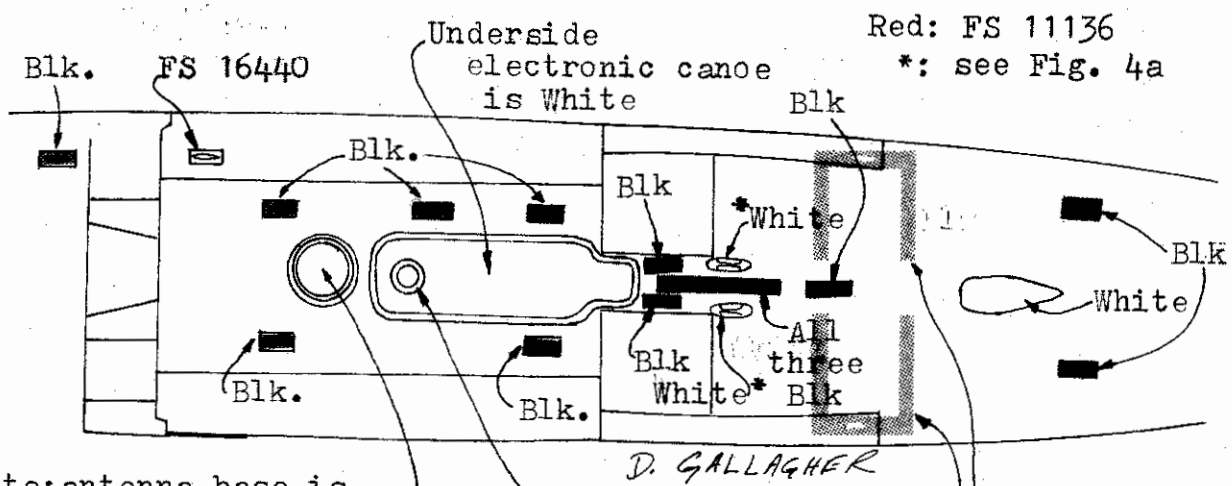
This panel inside nat. insig. disk is Dark Gull Grey(FS 36321). It covers that portion of the white star and the blue background that it lies upon

This panel is Drk. Gull Grey(FS 36321)

COLOR NOTES

FIG. 12 Close-up of fuselage underside showing "antenna farm"

Blk:FS 17083
White: Fs 17875
Red: FS 11136
*: see Fig. 4a



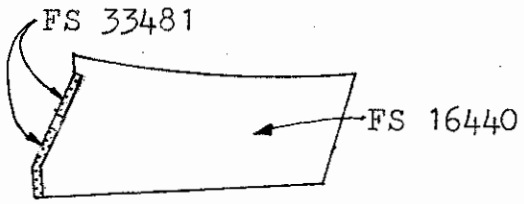
Note: antenna base is SAME color as blade

Dome is white

Conical antenna is white (see Fig. 5b)

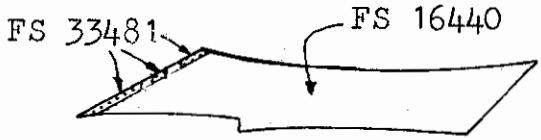
Warning stripes in Red

FIG. 13 Outer Wing Pylon



Outer plyon in Lt. Gull Grey; De-icing boots in Tan; though not depicted in drawing, the pylon panel lines are heavily weathered.

FIG. 14 Engine Pylon



Engine pylon in Lt. Gull Grey; De-icing boots in Tan; as w/ outer pylon, panel lines are heavily weathered (though not shown on drawing)

FIG. 15 Top view of Horizontal Stabilizer

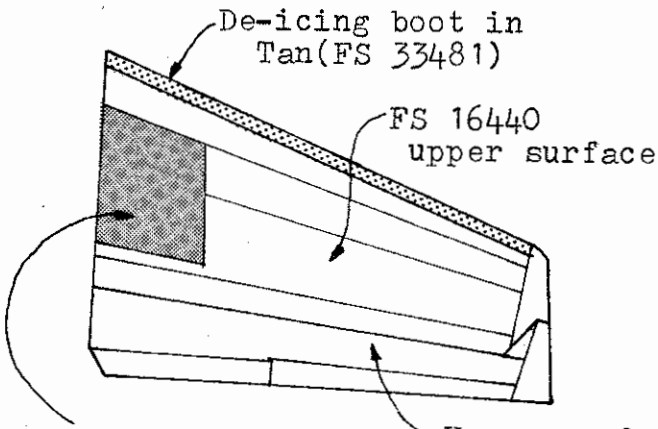


FIG. 16 Underside of Horizontal Stabilizer

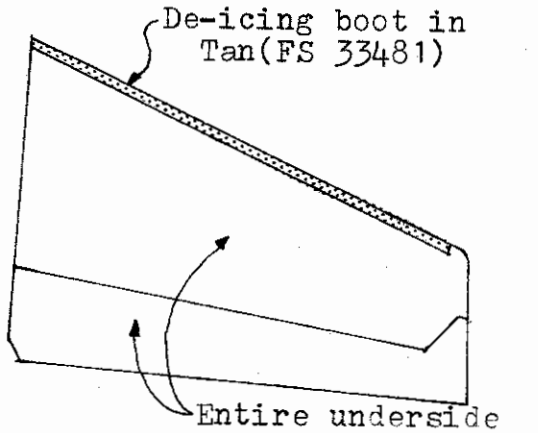
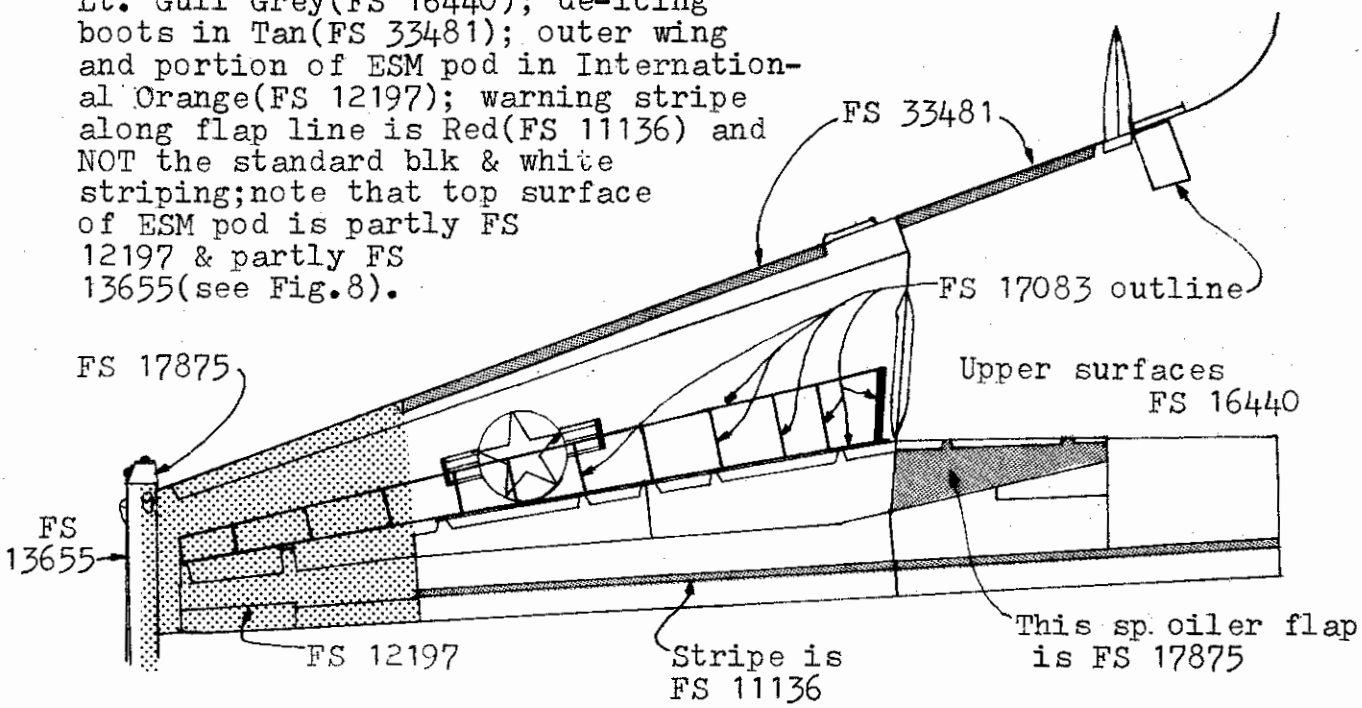


FIG. 17 Top View of Main Wing

The wing's upper surfaces are in Lt. Gull Grey(FS 16440); de-icing boots in Tan(FS 33481); outer wing and portion of ESM pod in International Orange(FS 12197); warning stripe along flap line is Red(FS 11136) and NOT the standard blk & white striping;note that top surface of ESM pod is partly FS 12197 & partly FS 13655(see Fig.8).



NOTE: long panels on outer wing are ALL outlined in FS 17083; this blk outline covers the national insignia. There are 11 panels outlined

COLORS ARE THE SAME FOR BOTH WINGS

FIG. 18 Underside of Main Wing(from wingfold outward)

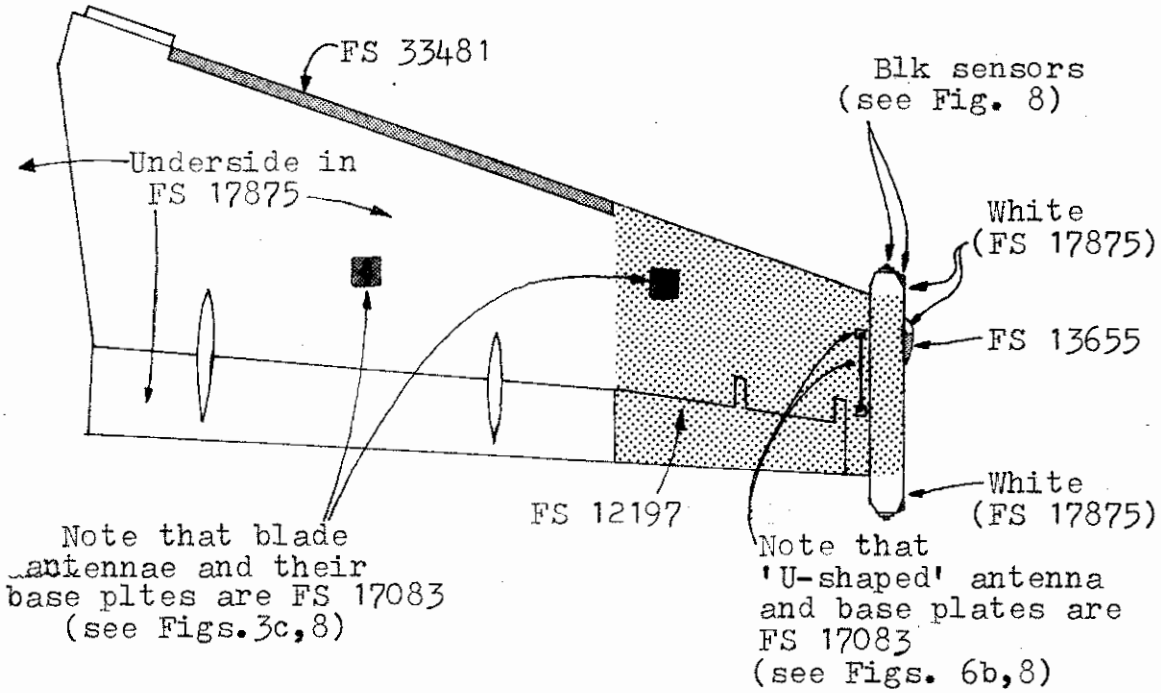
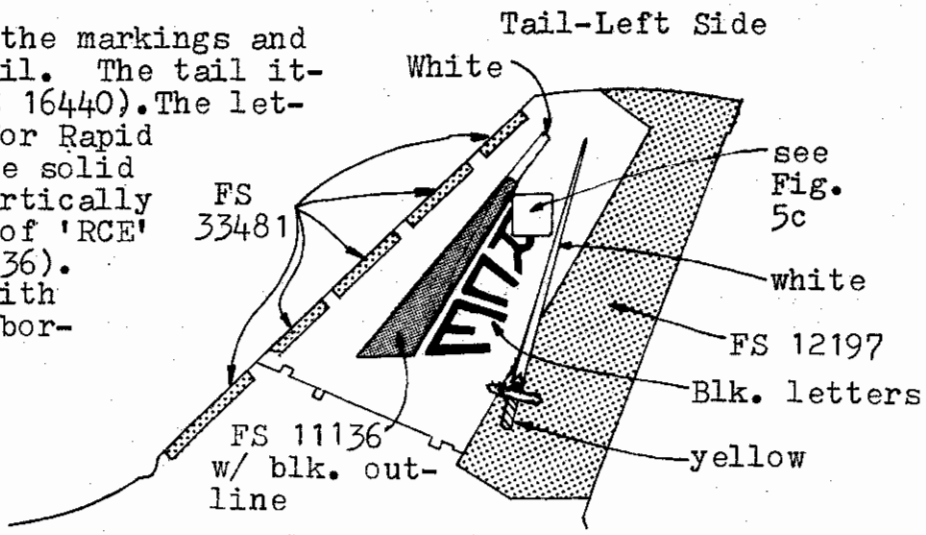


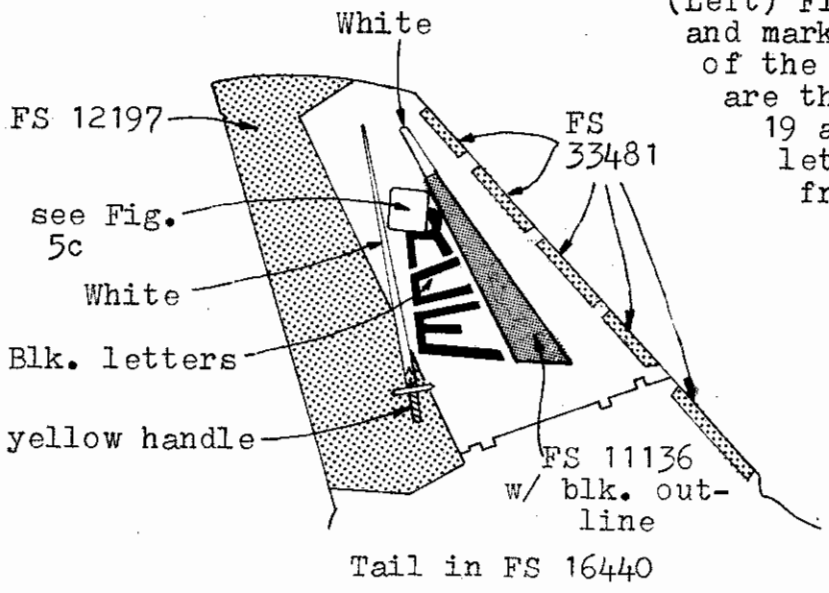
FIG. 19



(Right) Fig. 19 shows the markings and colors for the ES-3's tail. The tail itself is Lt. Gull Grey(FS 16440).The letters 'RCE'(which stand for Rapid Changing Environment) are solid Black(FS 17083). The vertically tapering panel in front of 'RCE' appears to be Red(FS 11136). This panel is outlined with a 2" wide Blk(FS 17083) border. Atop the tapering panel is a solid white (FS 17875) rectangle that appears to be a styilized antenna blade. The de-icing boots are in Tan(FS 33481).

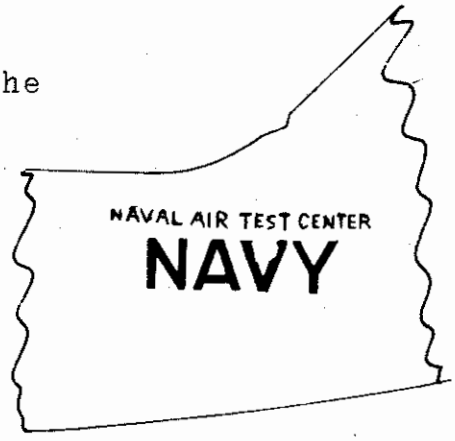
Details of the sword are as follows:the blade is white, the handle is yellow(FS 13655);both parts are outlined in black. Also note the square panel covering part of the letter 'R'; this is the antenna base depicted in Fig. 5c

FIG. 20



(Left) Fig. 20 shows the colors and markings for the right side of the tail. All colors here are the same as those in Fig. 19 above. Note that the letters 'RCE' are DIFFERENT from those in Fig. 20.

FIG. 21



(Right) Fig. 21 shows the aft side view of the fuselage and the lettering that is there. 'NAVAL AIR TEST CENTER' and the larger 'NAVY' are in black(FS 17083). Note on the 'NAVY' the notch in the 'V'; this is where the conical antenna(from Fig. 5b) has been installed. On the right side of the plane, the 'A' will partially covered over.

FIG. 22

(Right) Fig. 22 is the last drawing in this article and has been included just because I thought some of you might be interested in the logo of the Test Center. The outer band and inner & outer piping are in a light blue color; the lettering is white. The interior background is gold with black caliphers, light blue scales & slide rule; gold Navy wings, and red pedistal.

While all of the drawings in this article have been concerned with the exterior of the plane, I do have a word or two about some of the interior changes. The biggest change will be in the cockpit. The stick is gone from the right-hand seat, along with most of the flight instruments(except for certain essential ones). The new right-hand seat will be designed around the EW(Electronic Warefare) Combat Co-ordinator(a.k.a. Mission Commander). He'll have larger tactical displays and a more comfortable work area. The left-hand seat will still be for the pilot and the two rear seats will be for the EW operators.

Listing of colors mentioned in article:

FS 11136 Red

FS 12197 Intern'l Orange(a.k.a. Coast Guard Red)

FS 13655 Light Yellow

FS 15044 Insignia Blue

FS 16440 Light Gull Grey

FS 17038 Black

FS 17043 Gold

FS 17875 White

FS 33481 Tan

FS 33538 Insignia Yellow

FS 36231 Dark Gull Grey

FS 37875 Insignia White