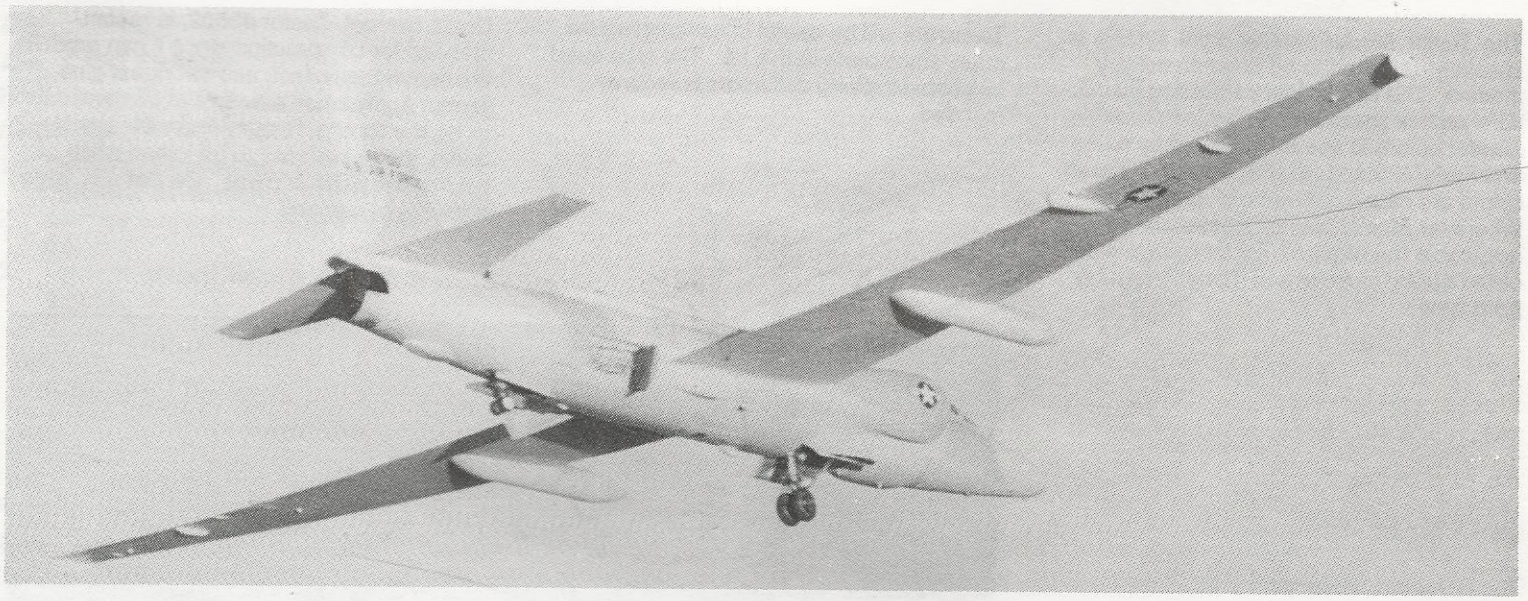
Lockheed U-2C Instructions

No. 516



HISTORY

The *Lockheed U-2* reconnaissance plane was built to a Central Intelligence Agency request issued in 1954. Designed and fabricated at Lockheed's famous Advanced Development Projects (ADP) division, or "Skunk Works", the *U-2* flew for the first time on 1 August of 1955. The initial test and training site was called "The Ranch" and was located at Groom Lake, Nevada. That day in August, with Tony LeVier at the controls of the Clarence L. Johnson design, was the beginning of the incredible career of the *U-2* aircraft.

The *U-2* began flying "spy missions" in 1956 and its CIA missions were relatively secret until 1 May of 1960 when a *U-2C* flown by Francis Gary Powers descended onto Soviet soil 1,400 miles inside the Russian borders. This created an international furor known as the "U-2 incident".

The *U-2* is a remarkable aircraft and to this day flies missions in many parts of the world. New versions have been produced; the latest planned being called the *TR-1* - a development of the enlarged *U-2R*.

The *U-2C* is the best known of the *U-2* variants having been flown by CIA, USAF, NASA and the Chinese Nationalist Air Force. The *U-2* in its many versions, is - and will continue to be - a proven and needed tool in the defense posture of the United States and its allies.

SPECIFICATIONS (NASA U-2C)

Wingspan	80' 2"
Length	49' 9"
Weight empty	13,397 lbs
Weight max.	22,542 lbs
Max. Fuel (internal)	1,320 gal
Takeoff distance	1,300 ft
Airspeed - cruise	400 kts. T.A.S
Altitude - max.	75,000 ft +
Range - cruise	2,600 nautical miles
Crew	1

REFERENCE SOURCES

Janes All The World's Aircraft 1961 - 1962,

Janes All The World's Aircraft 1962 - 1963,

Janes All The World's Aircraft 1973 - 1974,
(McGraw - Hill)

High Altitude Perspective NASA SP-427 Scientific and Technical Information Office, National Aeronautics & Space Administration, Washington, D.C.

"The Second Coming," **American Aircraft Modeler**. July, 1972, Patricia C. Groves

Operation Overflight, F.G. Powers (Holt, Rinehart & Winston)

BEFORE STARTING

1. Study the illustrations and sequence of assembly before beginning.
2. Decide how much detail you wish to add to your model and whether or not you intend to modify or "convert" the basic model in any way. Study carefully all available reference material before beginning to ensure an authentic model.
3. Due to the amount of parts in this kit, do not detach the parts from the runner of the parts tree until you need them. This helps avoid confusion and lost parts.
4. When cementing the parts together, check the way one part fits together with another. This assures a neat job with no surprises.
5. Always remember when working with plastic model cement and paint to keep your work area well ventilated. The fumes from plastic modeling products can be harmful if inhaled.

PREPARATION OF PARTS

1. Never tear parts off the runner (parts tree). Use a Testor Hobby Knife, fingernail clippers, or a small wire cutters to remove the parts from the tree.
2. It is possible some parts may require a little attention with a file or sandpaper to ensure a proper fit and neat appearance. Hobby files and Testor Hobby Sandpaper appropriate for model building are available in most good hobby shops.
3. If you desire you may fill any seams (where parts go together) or imperfections with Testor Contour Putty for Plastic Models which is also available at good hobby shops.

PAINTING

You can obtain an excellent finish on your model using Testor finish preparation products and paints. Detailed descriptions of paint types and color are included on the pages that follow.

Good brushes are essential for proper detailing. Testor ***Model Master*** brushes are recommended and available at good hobby stores. Be sure you have the entire selection for all your modeling needs. Always clean them in Testor thinner, wash in soap and water, and store with bristles upward when not in use.

Wash plastic parts before detaching them from the parts tree. Warm water and liquid dishwashing detergent will remove the oils left from the manufacturing process. Let the parts dry and avoid excessive handling. Immediately before painting, wipe the parts with a "tac rag" (available at auto parts stores) to remove dust and lint.

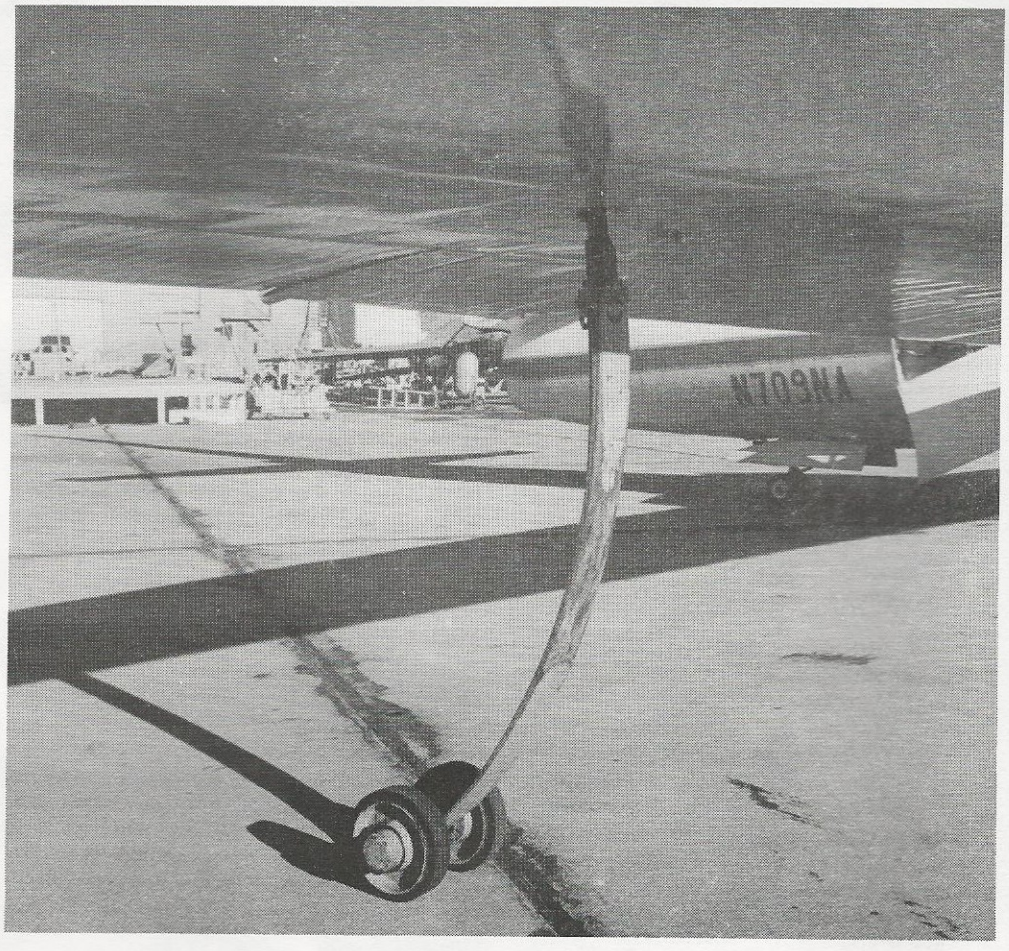
Most small parts are best painted while still attached to the parts tree. You can also detach them and hold with tweezers or "magic" tape while painting. Paint in one direction only. If your paint is the correct thickness brush strokes will disappear as the color dries. If the paint seems too thick, thin with Testor Paint Thinner. Wheels may be detached from the parts tree and fit onto toothpicks or matchsticks for painting. Just hold the paintbrush against the edge of the wheel and rotate the stick and wheel to obtain a neat finish.

Let the paint dry completely before handling. When the parts are dry, assemble the model, following the directions closely. Remember cement will not hold strongly to painted surfaces. Use your Testor Hobby Knife to carefully remove paint from all surfaces to be cemented. After you have assembled the model you can touchup areas where cement might have marred the finish.

The Testor ***Model Master*** paint system is specially designed to be used on military models. The **Preliminary Painting** instructions on this sheet indicate which ***Model Master*** colors to use as indicated by name and Federal Standard (**FS**) number. These colors are called out by ***bold italic type***. Wherever ***Model Master*** colors are not applicable the required Testor color will be called out by number and name in **regular bold type.**

Tweezers will be useful in assembling the many small parts in this kit. The type used by postage stamp collectors is recommended.

Liquid cement, Testor #3502, is recommended for construction since it can produce the neatest, quickest, and strongest glue joints. Apply small amounts of cement, using the tip of a Testor ***Model Master*** No. 2 brush, to the surfaces to be joined while holding the parts in place. **Do not** use large amounts of cement.



NOTE: Before beginning assembly decide which version of the *U-2* you are going to build. The simplest one is the CIA *U2-C* and we will guide you through construction. The all-black USAF version is the same but with additional decals. The 2-tone USAF version is different from the all-black version only in color and decals. The NASA version is never flown with the slipper fuel tanks, parts **40, 41, 42, 43** or the ventral antenna, part **38.** See the paint scheme layouts on pages **8 & 9** before beginning. The NASA version is the most difficult to build.

1 POGO STRUTS AND WING SUPPORTS

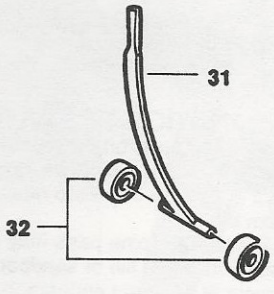
Preliminary Painting

31 Pogo strut, 32 Pogo wheel hub:
No. 1127 Orange
32 Pogo wheel tire:
No. 1749 Flat Black FS 37038
47 Wing support upright, 46 support base:
No. 1707 Chrome Yellow FS 13538

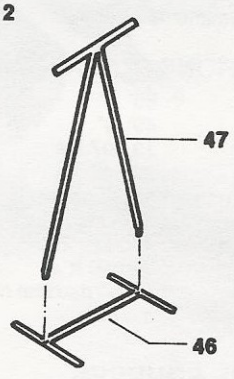
Assembly

1. **Cement two 32 to 31. Make two assemblies.**
2. **Cement 47 to 46. Make two assemblies.**
3. **Set assemblies aside to dry. Check 46/47 to be sure part 47 is perpendicular to 46.**

Pogo struts
make 2



Wing Supports
make 2



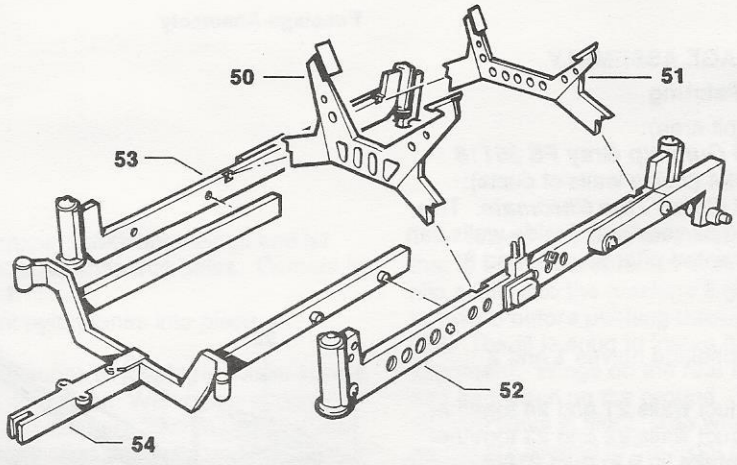
2 CART FRAME

Preliminary Painting - None

Assembly

1. Cement cart sideframes **52** and **53** to cart yoke **54** as shown.
2. Cement rear support arms **51** to **52** and **53.**
3. Cement forward support arms **50** to **52** and **53.**

Cart Frame



3 CART FINAL ASSEMBLY

Preliminary Painting

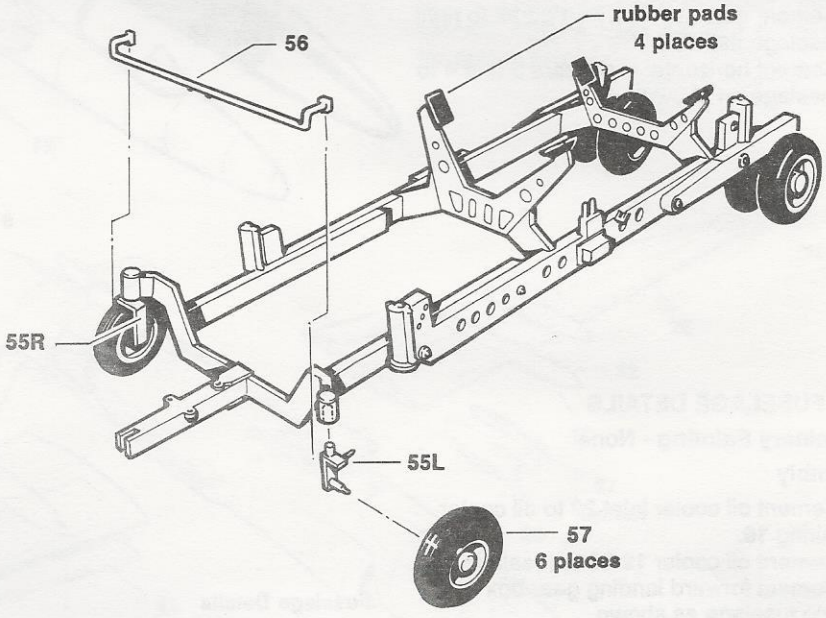
57 Wheel hubs:
No. 1707 Chrome Yellow FS 13538

57 Tires:
No. 1749 Flat Black FS 37038

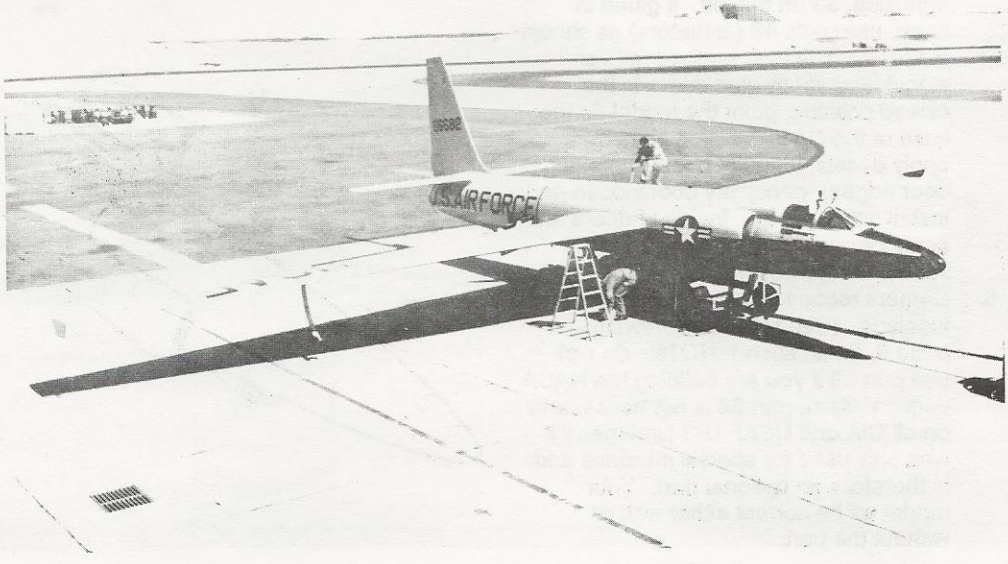
Assembly

1. Cement axle frames **55R** and **55L** to **54.**
2. Cement tiebar **56** to fronts of **55R** and **55L** and top of **54.**
3. Paint entire cart using ***No. 1707 Chrome Yellow FS 13538.***
4. When cart is dry cement tires **57** to cart.
5. Paint pads of support arms using ***No. 1749 Flat Black FS 37038.***
6. Set cart aside to dry thoroughly.

Cart Final Assembly



This kit is dedicated to the personnel - past, present and future - of the 99th squadron, 100th Strategic Reconnaissance Wing, United States Air Force. And to their high-altitude aircraft - the *Lockheed U-2.*



4 FUSELAGE ASSEMBLY

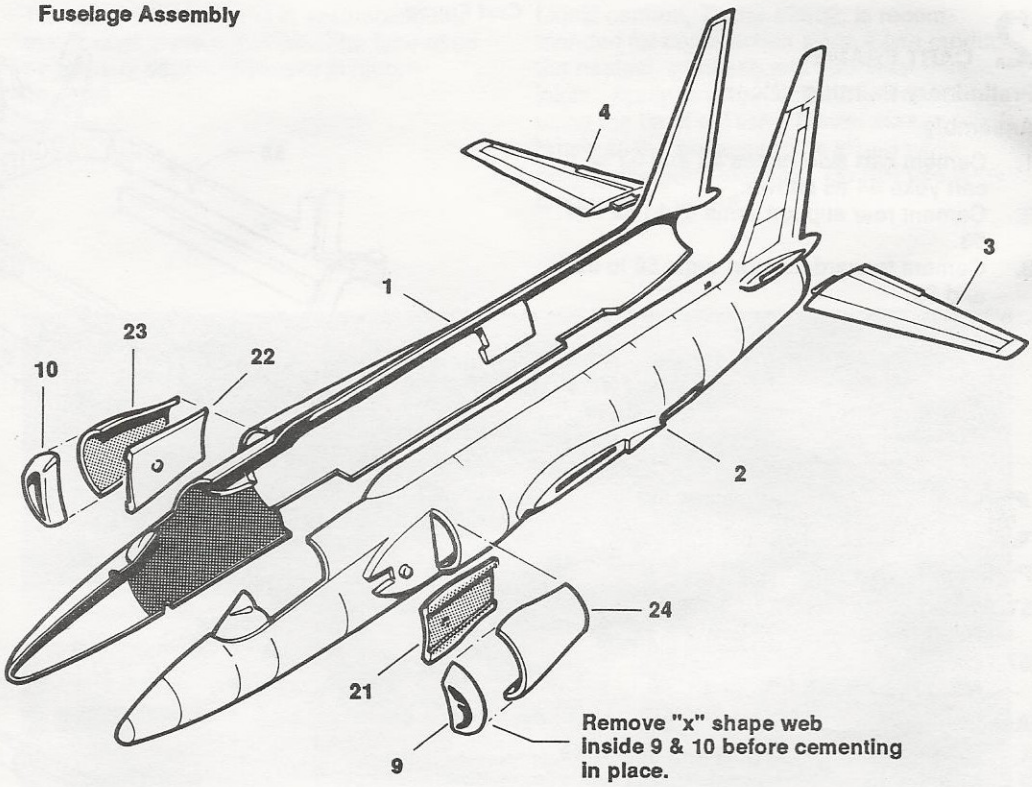
Preliminary Painting

1 and **2** (cockpit area):
No. 1723 Gunship Gray FS 36118
22/23 and **21/24** (inside walls of ducts):
No. 1734 Green Zinc Chromate. This is used on all versions. Inside walls can also be painted after steps 2 and 3 below.

Assembly

1. Cement fuselage halves **1** and **2** together.
2. Cement duct walls **21** and **24** together.
3. Cement duct walls **22** and **23** together.
4. Cement intake lip **9** to duct **21/24**.
5. Cement intake lip **10** to duct **22/23**.
6. Cement duct assembly **9/21/24** to left fuselage half **2**.
7. Cement duct assembly **10/22/23** to right fuselage half **1**.
8. Cement horizontal stabilizers **3** and **4** to fuselage as shown.

Fuselage Assembly



No. 1723 Gunship Gray FS 36118

No. 1734 Green Zinc Chromate

5 FUSELAGE DETAILS

Preliminary Painting - None

Assembly

1. Cement oil cooler inlet **20** to oil cooler fairing **19**.
2. Cement oil cooler **19/20** to fuselage.
3. Cement forward landing gear box **11** into fuselage as shown.
4. Glue rear landing gear box **15** into the fuselage as shown.
5. Dive brake doors can be cemented into place open or closed. **34** is used on the right side, **33** on the left. If glued in open, use parts **58** (actuators) as shown in **Fig. A.** The best method (all versions) is to *lightly* glue doors in the closed position, paint the model (in the case of the NASA version paint and apply decals, then cut decal film along door edges), *gently* pry doors loose and install actuators **58.** Inside of doors and actuator may be painted ***No. 1418 Aluminum (Non Buffing)*** after **Step 8.**
6. Cement reconnaissance antenna **38** to fuselage. (See side view drawings, page 8, for location.) **NOTE: do not use part 38 if you are building the NASA version. Also, part 38 is not necessarily on all CIA and USAF U-2 airplanes - it was only used for special missions and is therefore an optional part. Your model wil be correct either with or without the part.**

Fuselage Details

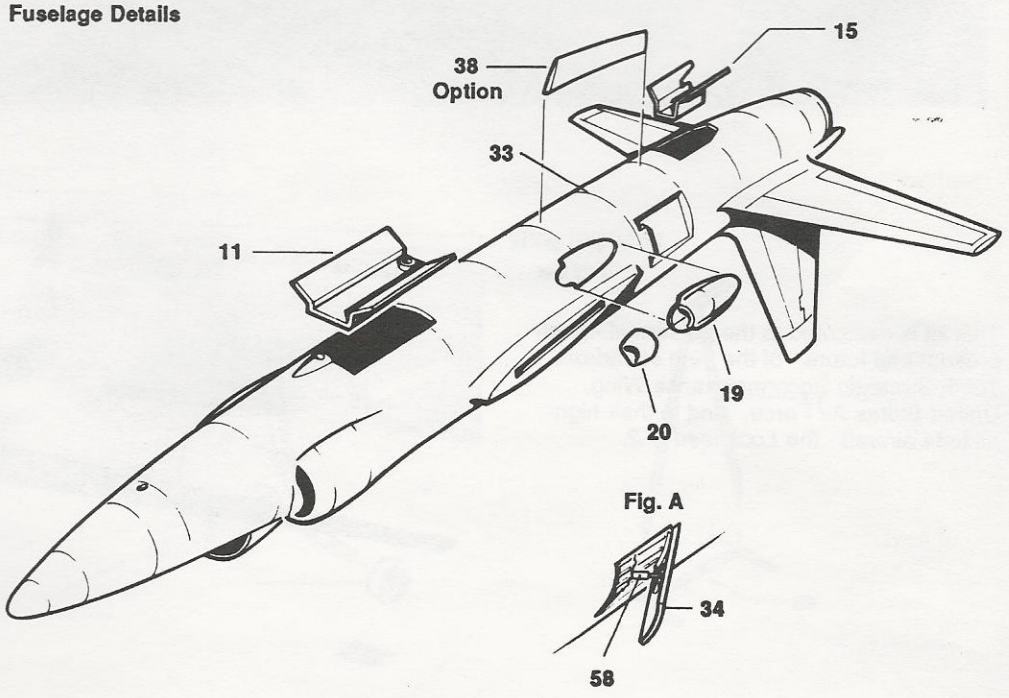


Fig. A

6 WINGS

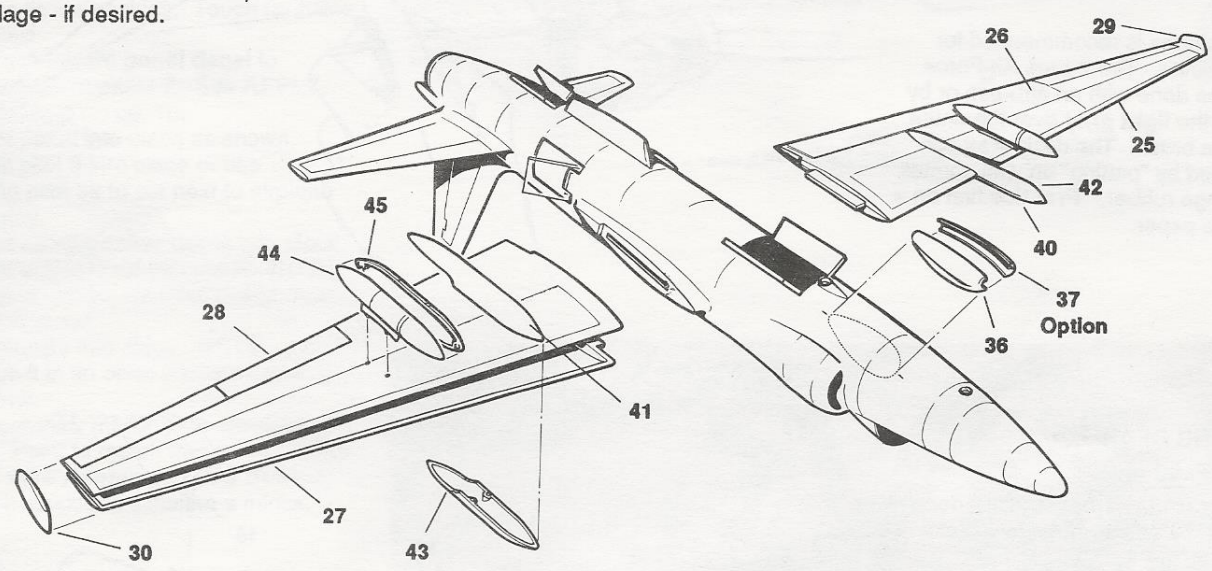
Preliminary Painting

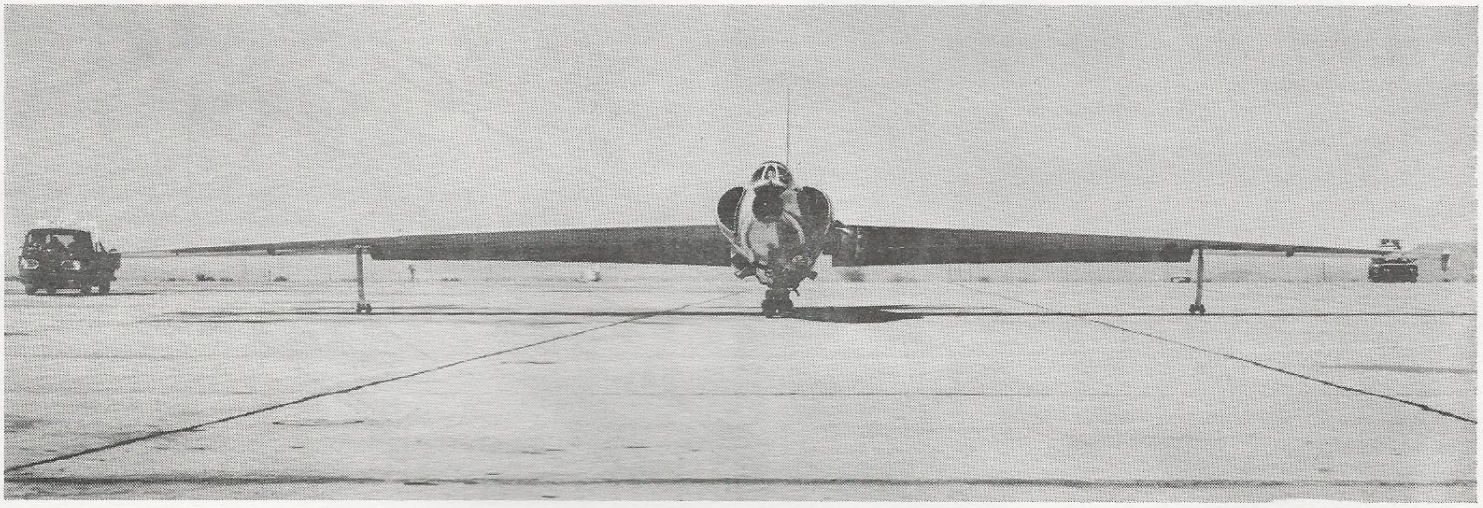
CIA, both USAF versions - None
NASA version, parts **44** and **45**:
No. 1745 Insignia White FS 17875

Assembly

1. Cement pylon tank halves **44** and **45** together. Make 2.
2. Cement slipper tank halves **41** and **43** together.
3. Cement slipper tank halves **40** and **42** together.
4. Cement left wing halves **27** and **28** together.
5. Cement left tip endplate **30** to **27/28**.
6. Cement right wing halves **25** and **26** together.
7. Cement right tip endplate **29** to **25/26**.
8. If you are building the NASA version, paint wing panels ***No. 1732 Light Gray FS 36495*** top and bottom.
9. Cement air sampler **36** and **37** together. This is an option on all versions. Cameras are *never* carried when the sampler is used. Cement sampler **36/37** to fuselage - if desired.
10. Slide slipper tanks onto wings and let pins in tanks snap into holes. Cement in place.
11. Cement pylon tanks into place as shown.
12. Cement wings to fuselage. Make sure they are straight. With pylon tanks in place and antenna **38**, not in place, the model will align perfectly resting on its belly and the pylon tanks. Allow to dry thoroughly!

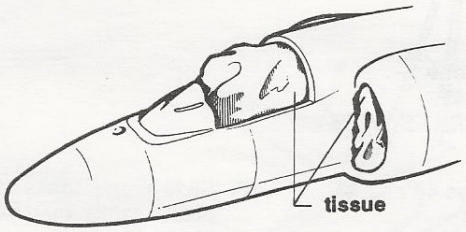
The wings have a rib on the top of the tabs that fit inside the fuselage slot. This rib will slip easily into the fuselage if glue is applied to the rib before pushing through fuselage slot. The fit is snug to insure good wing alignment. Wings on the real *U-2* are flexible and sag when on the ground - yet flex upward while in flight. The wings on the model are formed in the flight position - a slight upward flex. To make the wings sag for ground position, sand - lightly - the top of the ribs. Slide the wings into the fuselage until you have the angle you want - then cement in place. See the photograph below for proper angle.





7 PAINTING PREPARATION

Pack tissue paper into cockpit and intake ducts as shown. This will keep paint from covering the gray of the cockpit and green zinc chromate inside the ducts. Don't pack tissue too tightly - you might pop the glue joints.

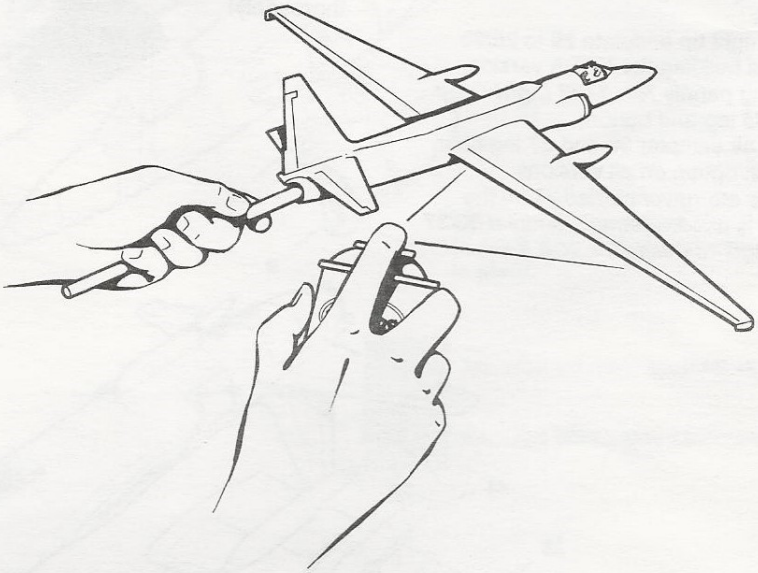


8 PAINTING

We are about to paint the all-black CIA and USAF version.

Mount model on a stick or dowel as shown. The easiest way to paint is with Testor ***Model Master*** Spray ***No. 1949 Flat Black FS 37038***. Follow the instructions on the can. Work carefully and allow paint to dry thoroughly.

The NASA scheme is recommended for advanced builders. The 2-tone Air Force version can be done with an airbrush or by first applying the **light gray** over the entire model using a brush. The **dark gray** can then be applied by "patting" on with a small piece of sponge rubber. **Practice** first on a piece of white paper.



9 LANDING GEAR

Preliminary Painting

12, main gear strut, **15** rear strut, **18** door actuating link, **13** and **14** hubs and brake pads, **17** hubs:

No. 1420 Steel (Non Buffing)

14, **13** and **17** tires:

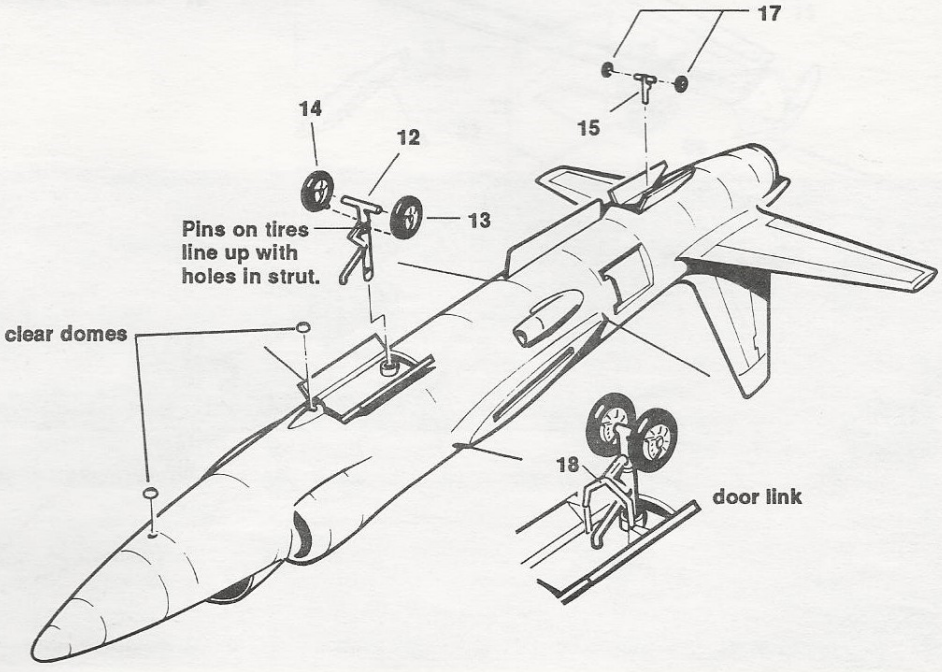
No. 1749 Flat Black FS 37038

Inside of gear doors:

No. 1734 Green Zinc Chromate

Assembly

1. *Carefully* glue two **clear domes** into place. You can use white glue for this.
2. Cement main wheels **13** and **14** to main strut **12** as shown. Then cement strut into hole as shown.
3. Cement rear wheels **17** to rear strut **15**. Then cement strut into place as shown.
4. Cement door link **18** into place.



10 COCKPIT / PILOT

Preliminary Painting

5 seat:
No. 1749 Flat Black FS 37038 except NASA version which is ***No. 1723 Gunship Gray FS 36118*** with ***No. 1705 Insignia Red FS 31136*** head rest.

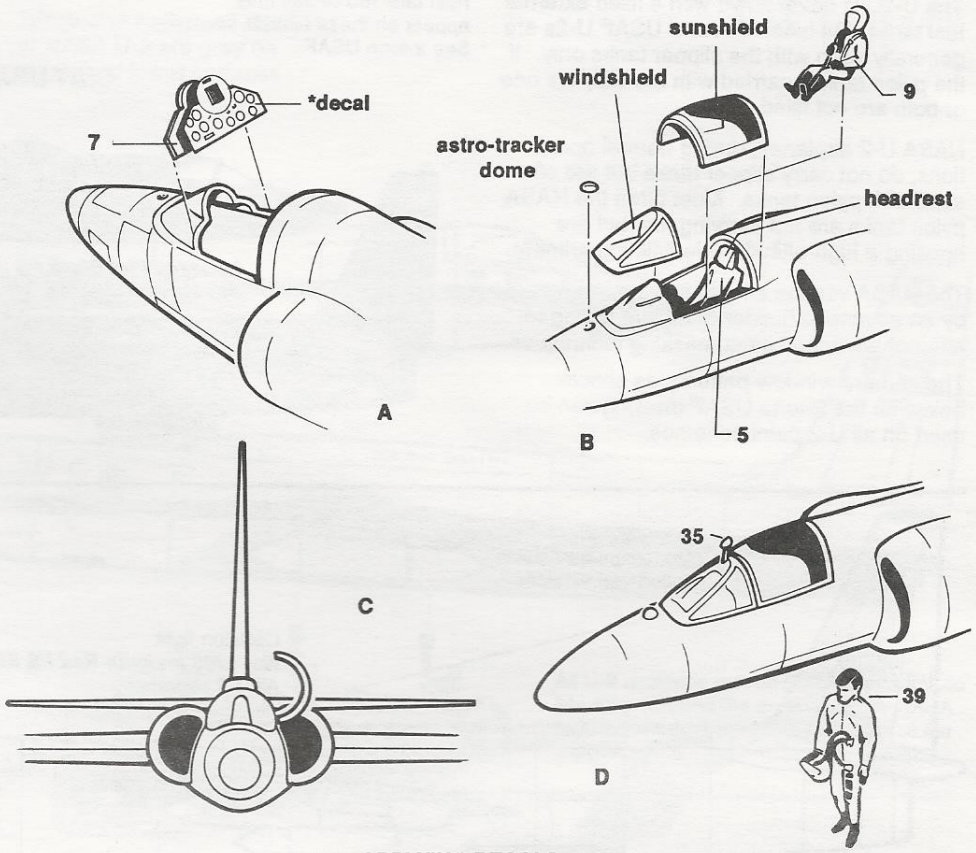
Canopy Sunshield - paint (on inside of canopy) to match color of airplane or ***No. 1745 Insignia White FS 17875.***

Canopy, windshield frames - paint to match color of airplane.

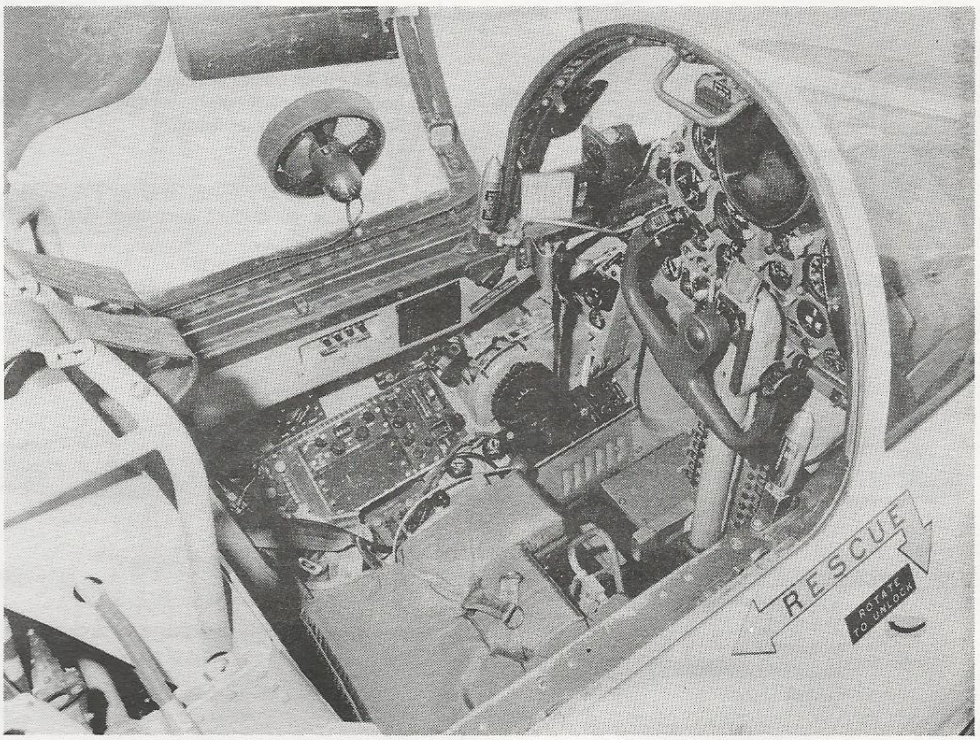
9, 39 pilots:
Suit - ***No. 1793 SAC Bomber Green FS 34159***
Helmet - ***No. 1745 Insignia White FS 17875***
Shoes, gloves, hoses - ***No. 1749 Flat Black FS 37038***
Face, hands - ***No. 1742 Dark Tan FS 30219***
Helmet faceplate - ***No. 1418 Aluminum (Non Buffing)***

Assembly

1. Remove tissue packing. Touch up paint if required.
2. Apply **instrument panel decal** to **smooth** side of panel **7**. See **APPLYING DECALS** on pg. 10.
3. Cement panel into place as shown.
4. Cement pilot **9** into place or use standing pilot **39** to set next to airplane for display.
5. Cement **astro-tracker dome** into place.
6. Cement **windshield** into place. **NOTE:** white glue can be used for gluing clear parts into place.
7. Glue **canopy** into place. **NOTE:** you can glue it in an open position - see front view.
8. Glue rear-view mirror **35** to **windshield** frame. Paint to match frame. Put a dab of ***No. 1418 Aluminum (Non Buffing)*** on the backside to simulate a mirror.



*see APPLYING DECALS on pg. 10



TECHNICAL NOTE
While often viewed as a spy plane, the *U-2* has also performed search and rescue missions, weather studies, upper air samplings, mapping, and numerous scientific studies.

The U-2C is never flown with 4 filled external fuel tanks. All-black CIA and USAF U-2s are generally seen with the slipper tanks only. If the pylon tank is carried with the slippers one or both are not filled.

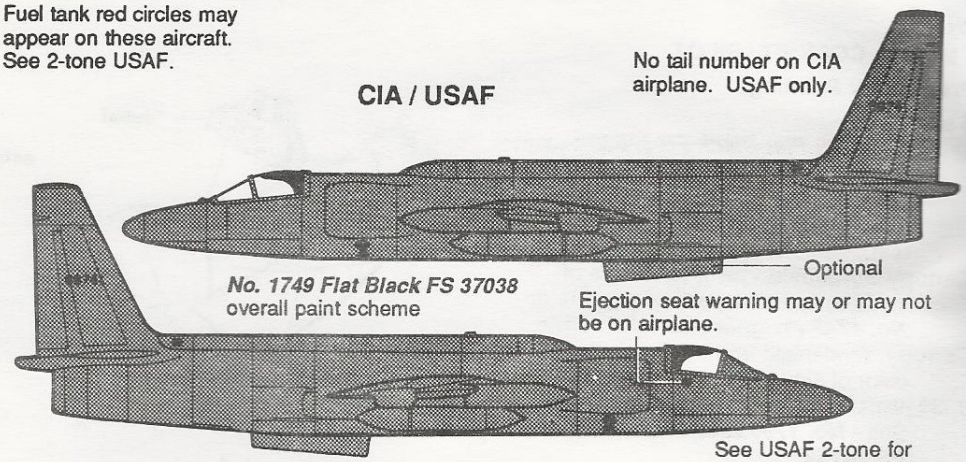
NASA U-2 airplanes, during normal operations, do not carry slipper tanks but are often seen with pylon tanks. Most often the NASA pylon tanks are not carrying fuel but are housing a high-altitude scientific experiment.

The NASA version should only be attempted by an advanced builder or builder willing to attempt advanced paint masking techniques.

The camera window patterns as shown below on the 2-tone USAF drawing can be used on all U-2 paint schemes.

Fuel tank red circles may appear on these aircraft. See 2-tone USAF.

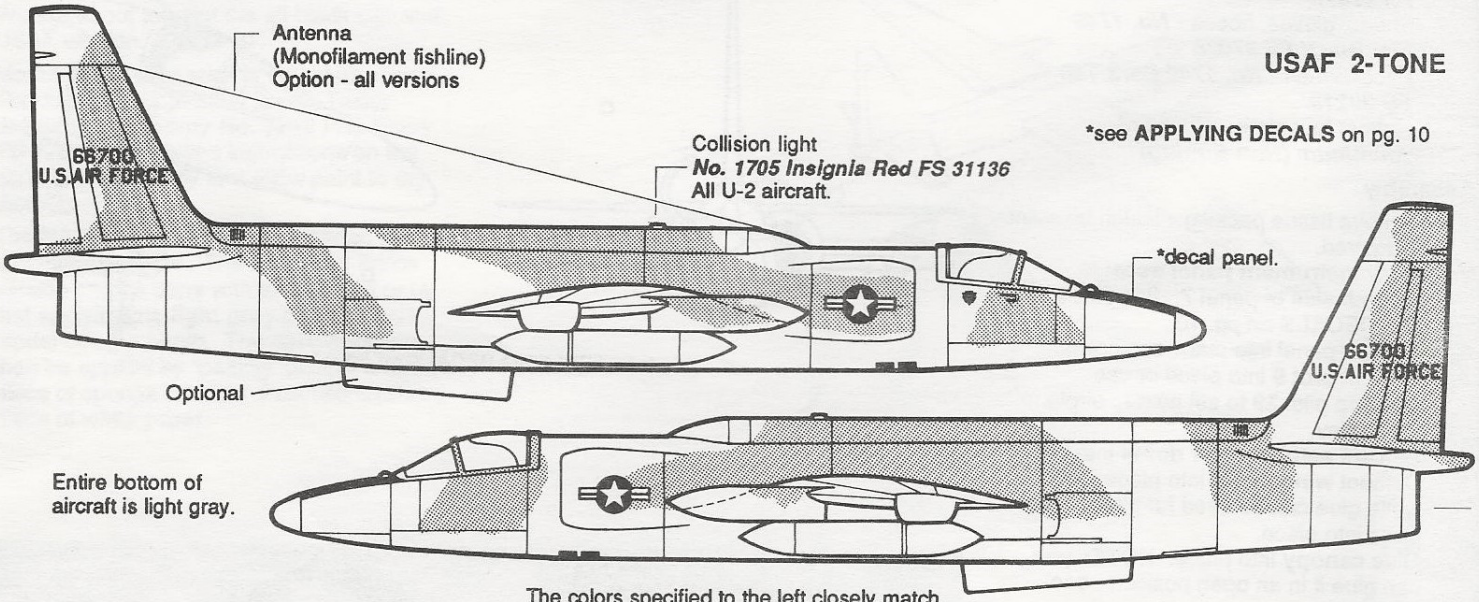
CIA / USAF



See USAF 2-tone for placement of seat triangle.

USAF 2-TONE

*see **APPLYING DECALS** on pg. 10



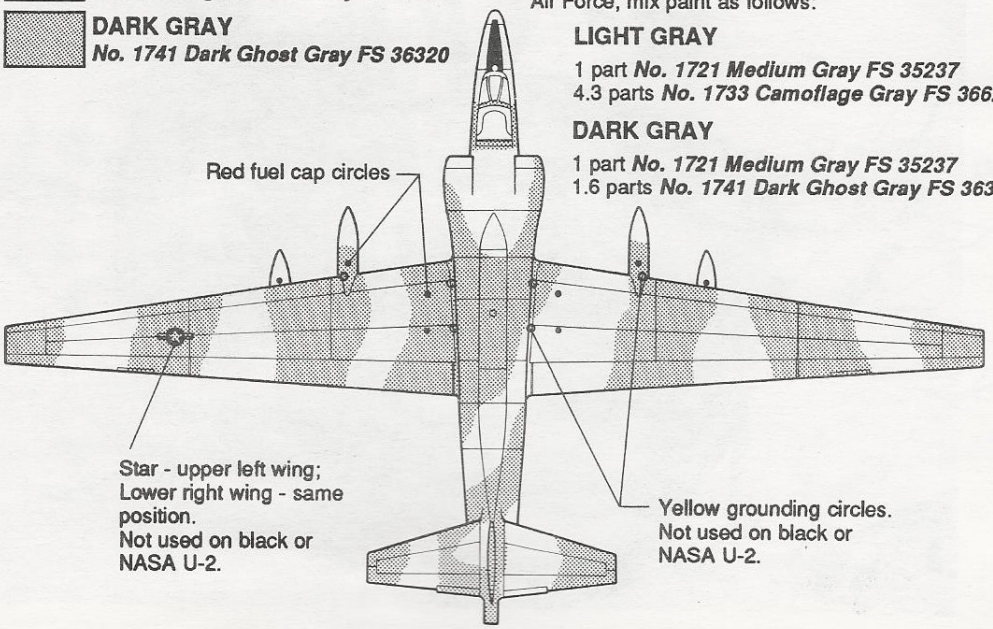
LIGHT GRAY
No. 1728 Light Ghost Gray FS 36375

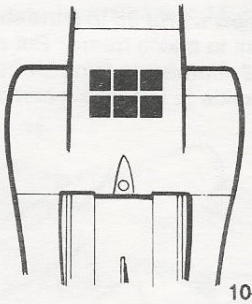
DARK GRAY
No. 1741 Dark Ghost Gray FS 36320

The colors specified to the left closely match actual Air Force colors and are used straight from the bottle. For **exact** colors, as specified by the Air Force, mix paint as follows:

LIGHT GRAY
1 part ***No. 1721 Medium Gray FS 35237***
4.3 parts ***No. 1733 Camoflage Gray FS 36622***

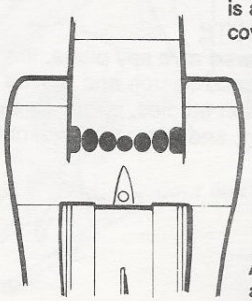
DARK GRAY
1 part ***No. 1721 Medium Gray FS 35237***
1.6 parts ***No. 1741 Dark Ghost Gray FS 36320***





Optional Camera Window Layouts

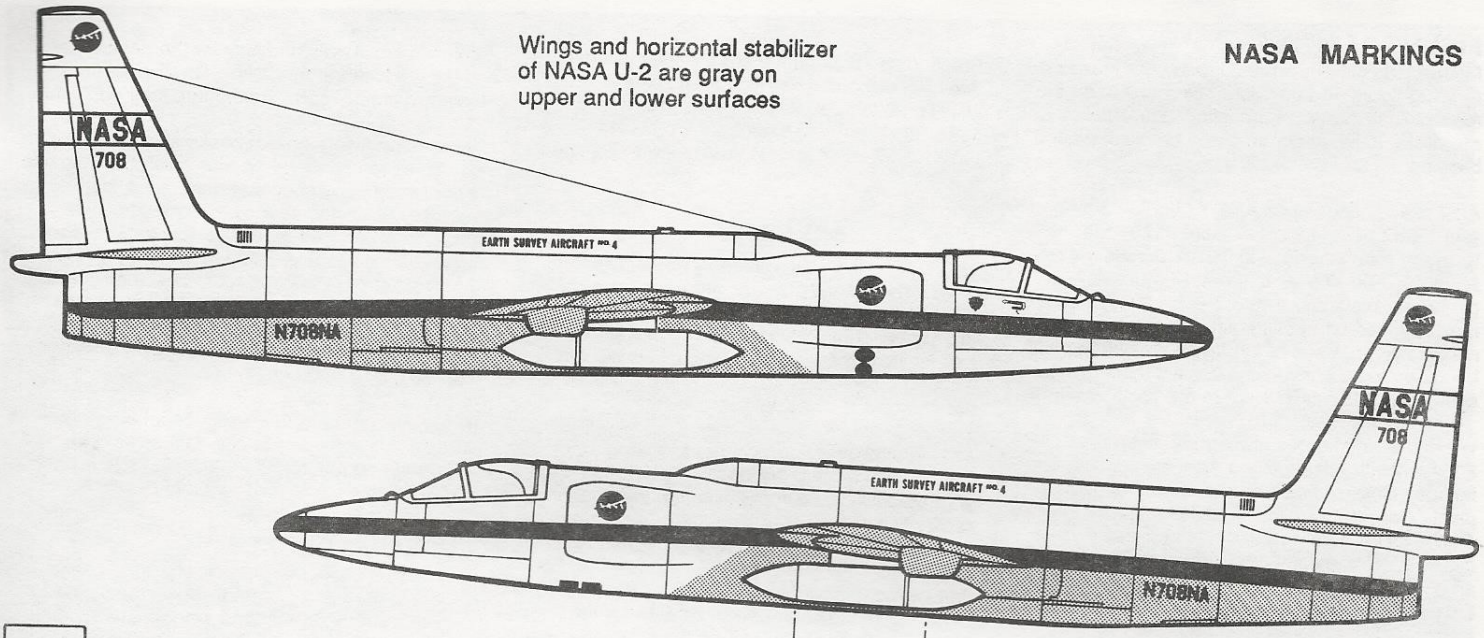
10-square blue grid is a camera window cover option.



Airplane can also be shown without camera windows.

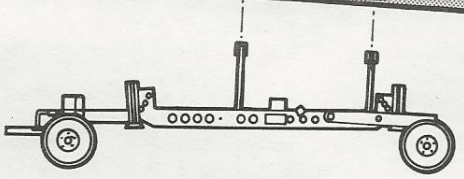
NASA MARKINGS

Wings and horizontal stabilizer of NASA U-2 are gray on upper and lower surfaces



No. 1745 Insignia White FS 17875

No. 1732 Light Gray FS 36495



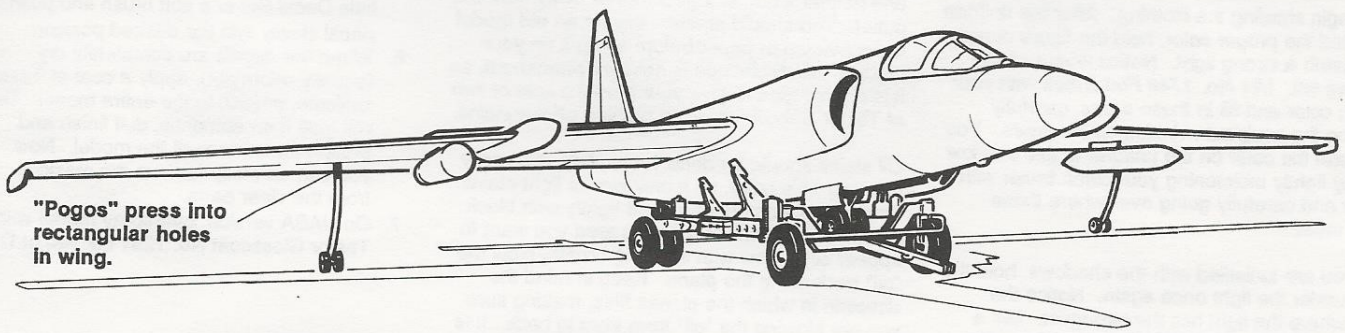
All U-2 airplanes can be lifted on the ground handling cart and the drawing of the NASA airplane shows the precise locations of the support arms.

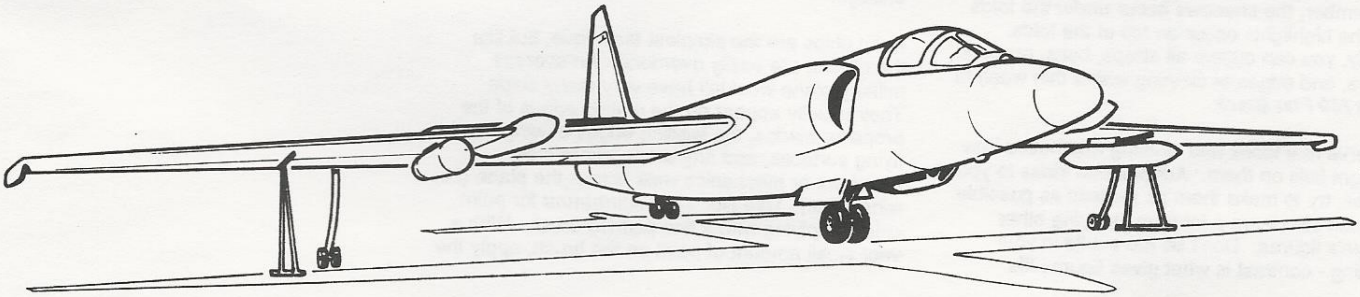
11 ALL VERSIONS

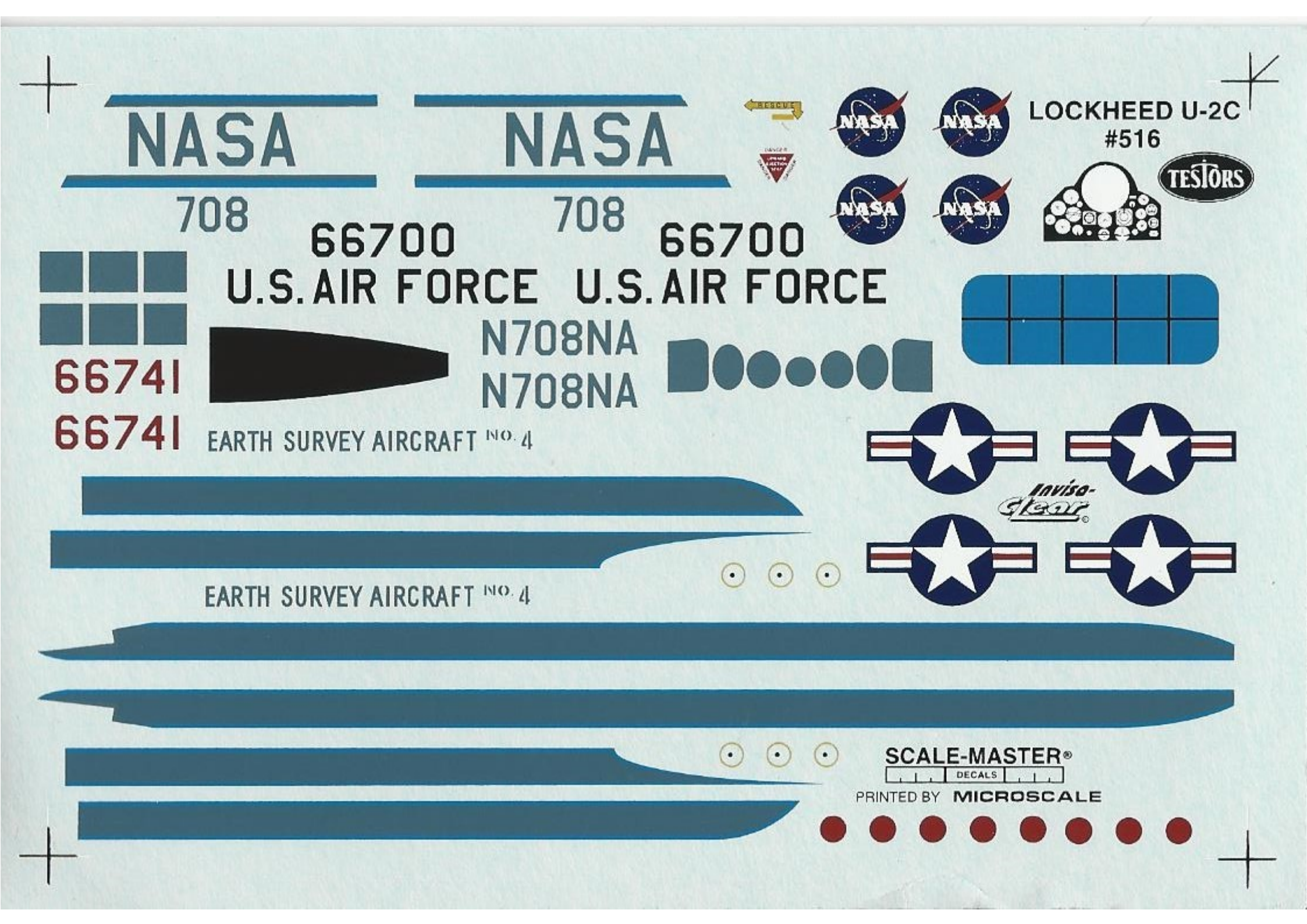
Your model can be displayed either on its wheels or on the cart. The "pogo" struts and wheels always remain in place. (They are pinned in place except for takeoff when they drop off onto the runway.) The yellow wing supports are placed beneath the wing - generally close to the pogos - often not actually touching the wing.

These are safety devices. Rarely will you have a flight-suited pilot near the airplane when it is on its cart. A good diorama display is the U-2 on its own gear, "pogos" in place, support stands beneath the wings and the standing pilot nearby.

The cart is used for maintenance and is used for precise leveling to align delicate equipment.






NASA
NASA
708
708
66700
66700
U.S. AIR FORCE
U.S. AIR FORCE
N708NA
N708NA
66741
66741
EARTH SURVEY AIRCRAFT NO. 4
EARTH SURVEY AIRCRAFT NO. 4
LOCKHEED U-2C
#516
TESTORS
Invisa-Gloss
SCALE-MASTER®
DECALS
PRINTED BY MICROSCALE