



## HISTORY

Lockheed and Northrop Corporation have been in serious competition for numerous government contracts in the past - their latest contest, was as electrically charged as any before. At stake was a contract for the new Advanced Tactical Fighter (ATF). Lockheed's YF-22 and Northrop's YF-23 (Testor #657) went head-to-head in a winner-take-all for more than \$75 billion worth of business. Both aerospace giants invested a total of \$2 billion to enter the ATF Competition in October 1986. These planes represent a complete revolution in aircraft design, providing impene-trable defense against current and future hostile weapons systems well into the next century.

The YF-22 was designed and built by Lockheed with the help of General Dynamics - Fort Worth Division and Boeing Defense and Space Group. When the \$818 million U.S. Air Force contract was awarded Lockheed in 1986, Lockheed began a 54-month demonstration phase covering construction and flight testing of two prototype aircraft. The first prototype was powered by two General Electric F120 engines the second by two Pratt & Whitney F119 powerplants.

On April 23, 1991 the U.S. Air Force made its choice, the F-22, based on the YF-22 prototype, would be the first new air-superiority plane since the F-15 became operational in 1974. The decision launches the ATF program into Full Scale Development (FSD). At the same time the Air Force selected the Pratt & Whitney F119 engine over the GE F120 to power the F-22.

The Lockheed/Boeing/General Dynamics team will build 13 FSD aircraft, of which, two will be non-flying test planes. Production begins late in 1997, and the first aircraft will be assembled in 2001!

## SPECIFICATIONS

Engines	2	Pratt & Whitney F119-PW-100 of 30,000+ lbs thrust ea. (2nd Proto)
	2	General Electric F120-GE-100 of 30,000+ lbs thrust ea. (1st Proto)

Wingspan	43 ft 0 in
Length	64 ft 2 in
Height	17 ft 8.9 in
Max. Speed	Mach 2+
Max. Ceiling	50,000 ft
Armament	AIM-120 air-to-air missiles AIM-9 Sidewinder missiles (carried internally)

## 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 Sanding Films 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.

Use the drawings of the complete parts trees as a part locating reference while building the model.

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

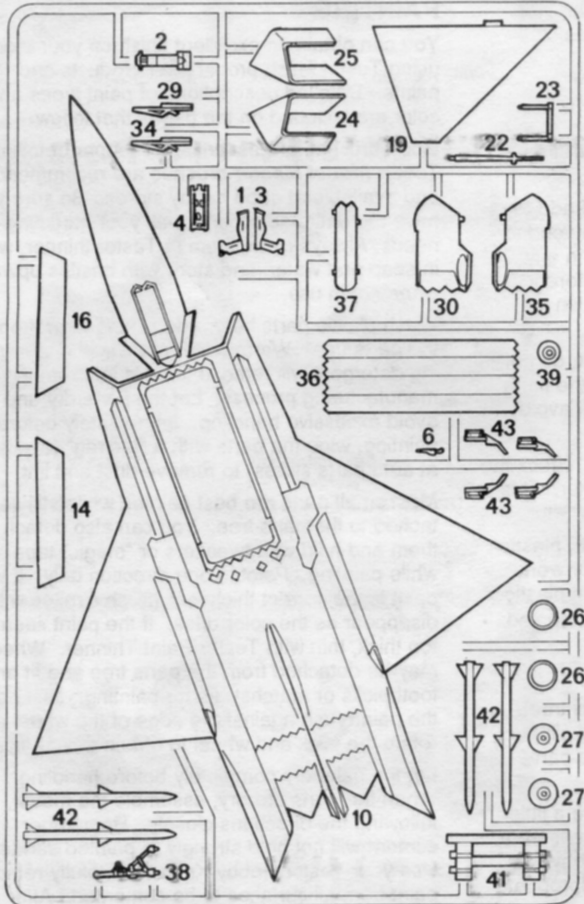
Liquid cement, Testor #3502, is recommended for construction since it can produce the neatest, quickest, and strongest glue joints. Apply small amounts of cement, using the tip of a Testor **Model Master** No. 2 brush, to the surfaces to be joined while holding the parts in place. **Do not** use large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

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**.

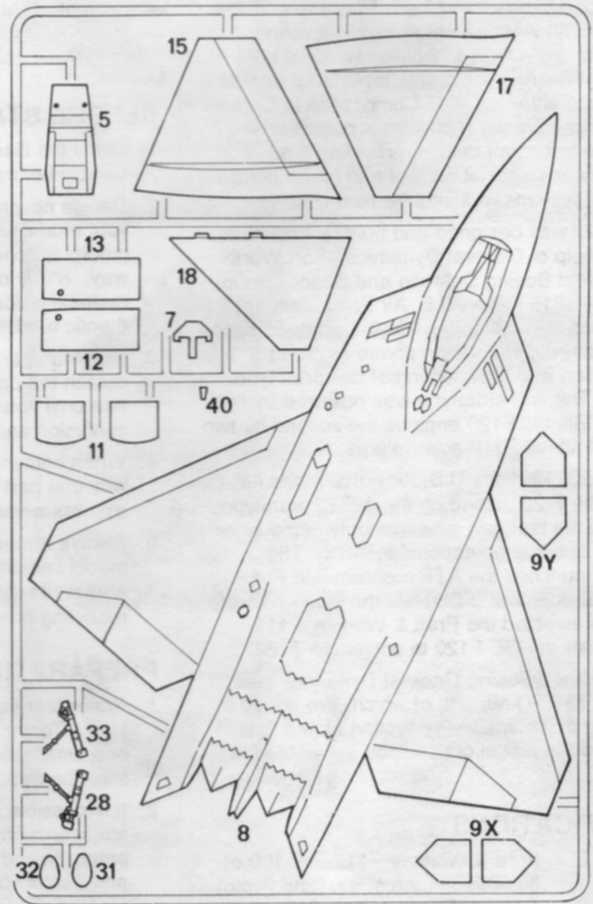
## APPLYING DECALS

1. After carefully masking clear areas, spray entire model with Testor **Model Master Gloss Clear Laquer No. 1961**. Decals adhere best to a smooth surface and the shinier the finish the smoother it is. Allow the **Gloss Clear Laquer** to dry thoroughly before going further.
2. Select the decals you plan to use and cut them from the decal sheet with scissors or a Testor Hobby Knife.
3. Working with only one decal at a time, dip the decal in clear water for no more than five seconds. Remove it from the water and place on a dry paper towel for about one minute.
4. When the decal slides easily on the backing paper, slide it to the edge of, and onto, the surface of the model with a soft Testor **Model Master** paint brush or tweezers. Remember: the decals are very thin and can be easily ripped if care is not taken. Work slowly and carefully.
5. Once the decal is in the desired position apply a small amount of Testor **Decal Set #8804**. This will help the decal conform to any irregularities in the surface of the model (rivets, curves, etc.). Allow the decal to dry undisturbed. Should you desire to purposely move it before it has dried, apply a little Decal Set to a soft brush and push the decal slowly into the desired position.
6. When the decals are completely dry (usually overnight), apply a coat of Testor **Model Master Flat Clear Laquer No. 1960**, to the entire model. This will give it an authentic, dull finish and protect the surface of the model. Now you can carefully remove the masking from the clear parts.

### A Parts



### B Parts



### C Parts





# 1 PARTS 1 - 8

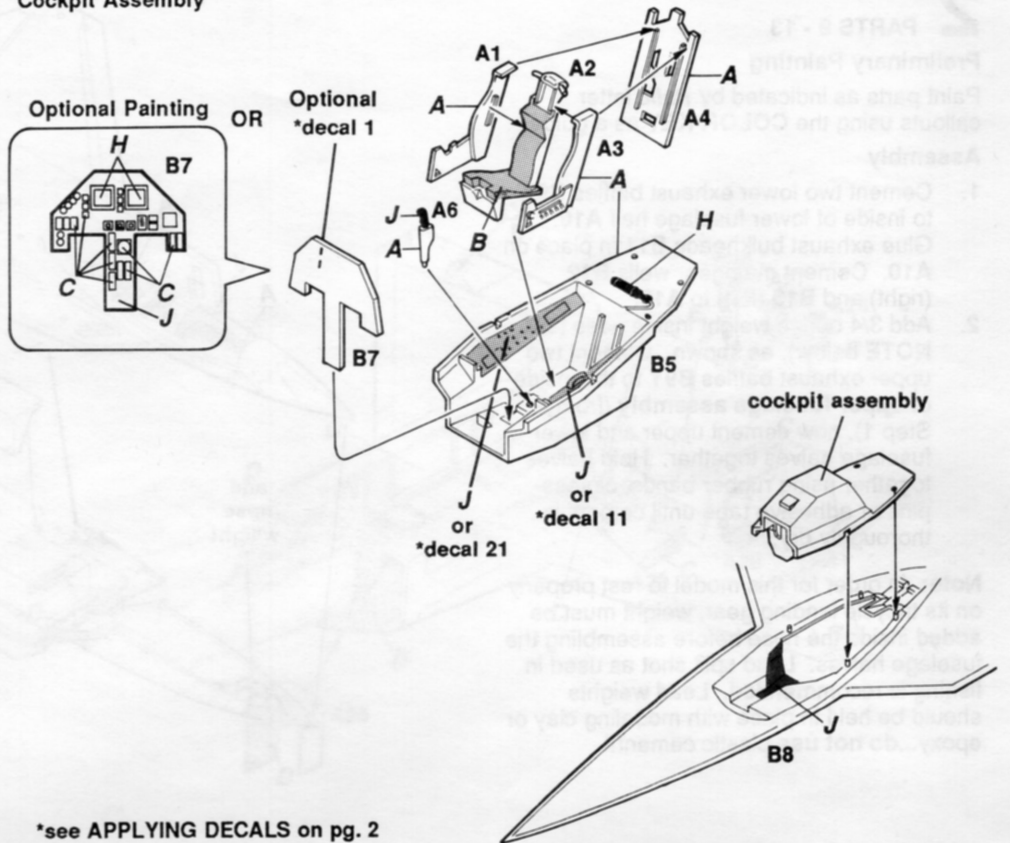
## Preliminary Painting

Paint parts as indicated by *italic* letter callouts using the **COLOR KEY** on this page.

## Assembly

1. Cement seat components **A1**, **A2** and **A3** together, then onto seat back **A4**. Glue seat assembly into cockpit tub **B5**.
2. Cement control stick **A6** to cockpit floor.
3. **Option:** Either paint the raised details on instrument panel **B7** or apply **decal 1** to **B7** as shown. The decal will conform best to the panel's surface if you first remove the raised instrument details by *gently* sanding the surface using Testor Hobby Sanding Films or a hobby file.
4. Glue finished control panel **B7** into cockpit tub. When dry, cement **cockpit assembly** to the inside of upper fuselage half **B8** as shown.

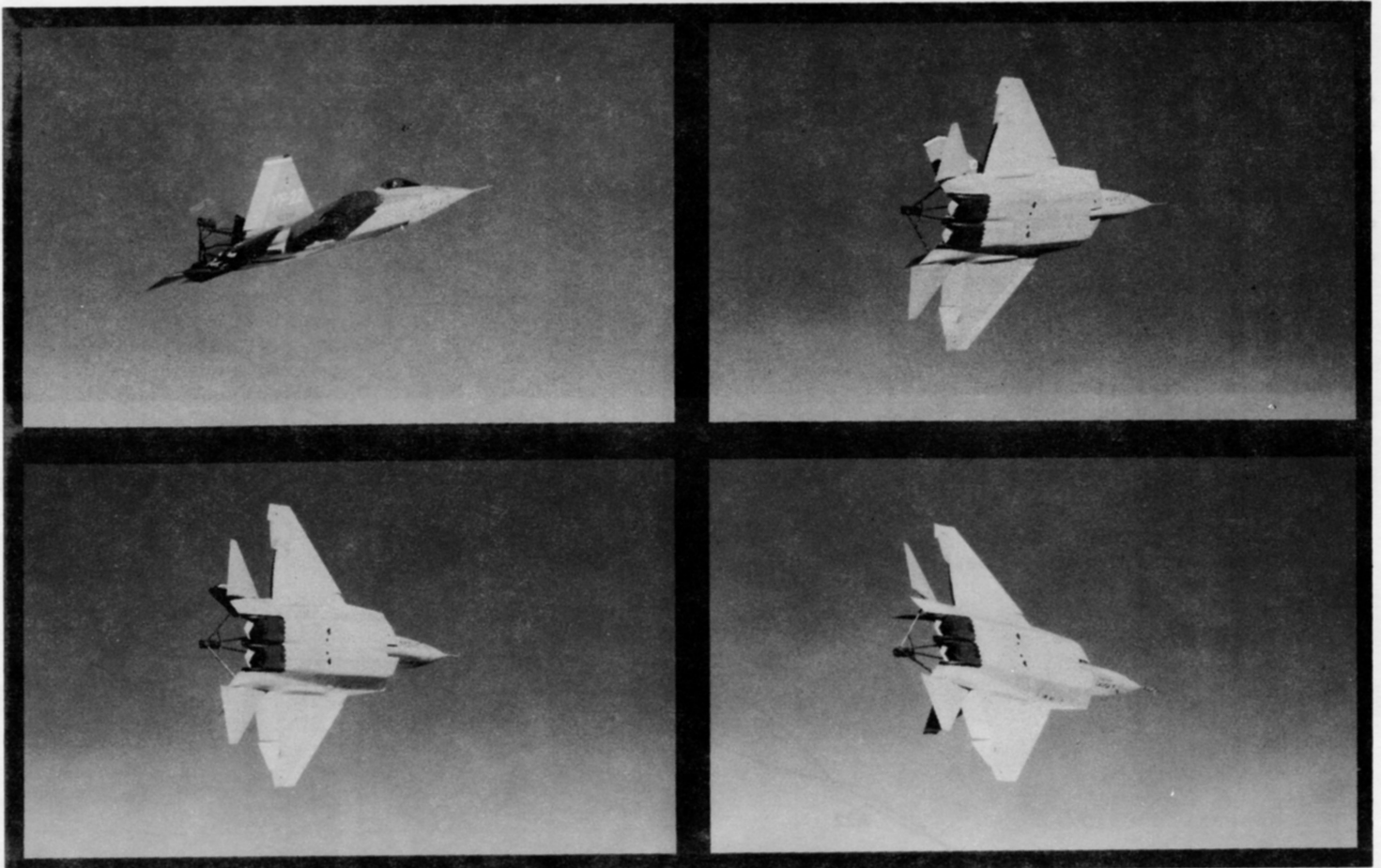
### Cockpit Assembly



## COLOR KEY

- A** No. 1730 Flat Gull Gray FS 36440
- B** No. 1723 Gunship Gray FS 36118
- C** No. 1745 Insignia White FS 17875
- D** No. 1728 Light Ghost Gray FS 36320
- E** No. 1403 Magnesium (Metalizer)
- F** No. 1415 Burnt Metal (Metalizer)
- G** No. 1103 Red
- H** No. 1124 Green
- J** No. 1149 Flat Black

\*see APPLYING DECALS on pg. 2



## 2 PARTS 9 - 13

### Preliminary Painting

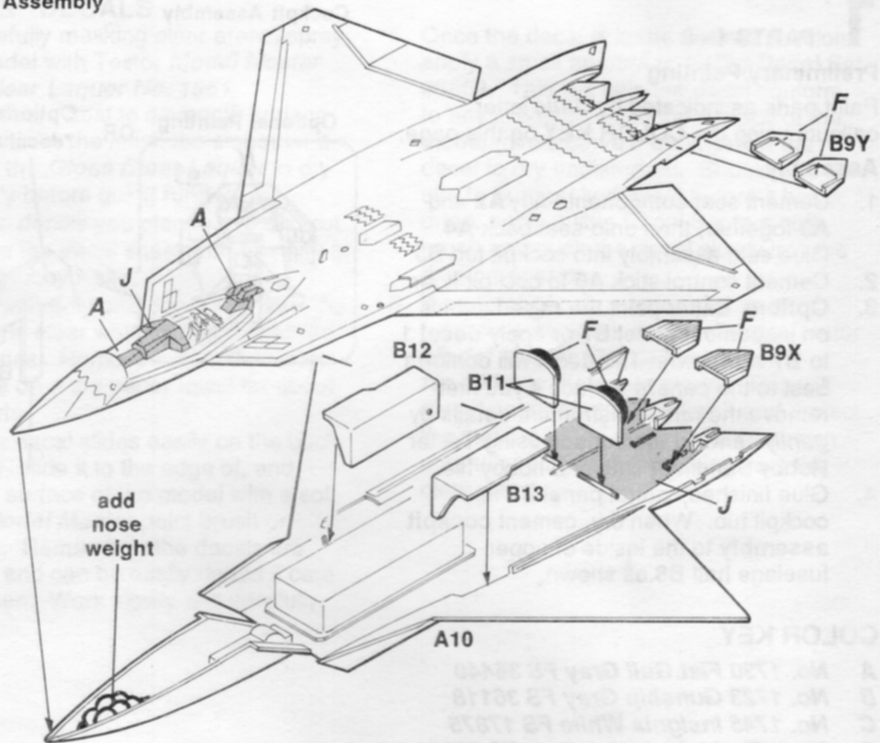
Paint parts as indicated by *italic* letter callouts using the **COLOR KEY** as a guide.

### Assembly

1. Cement two lower exhaust baffles **B9X** to inside of lower fuselage half **A10**. Glue exhaust bulkheads **B11** in place on **A10**. Cement maingear wells **B12** (right) and **B13** (left) to **A10**.
2. Add 3/4 ounce weight inside nose (see **NOTE** below), as shown. Cement two upper exhaust baffles **B9Y** to the inside of **upper fuselage assembly** (from Step 1), now cement upper and lower fuselage halves together. Hold halves together using rubber bands, clothespins or adhesive tape until cement is thoroughly dry.

**Note:** In order for this model to rest properly on its tricycle landing gear, weight must be added inside the nose before assembling the fuselage halves. Lead split shot as used in fishing is recommended. Lead weights should be held in place with modeling clay or epoxy...**do not use plastic cement!!**

### Fuselage Assembly



## 3 PARTS 14 - 23

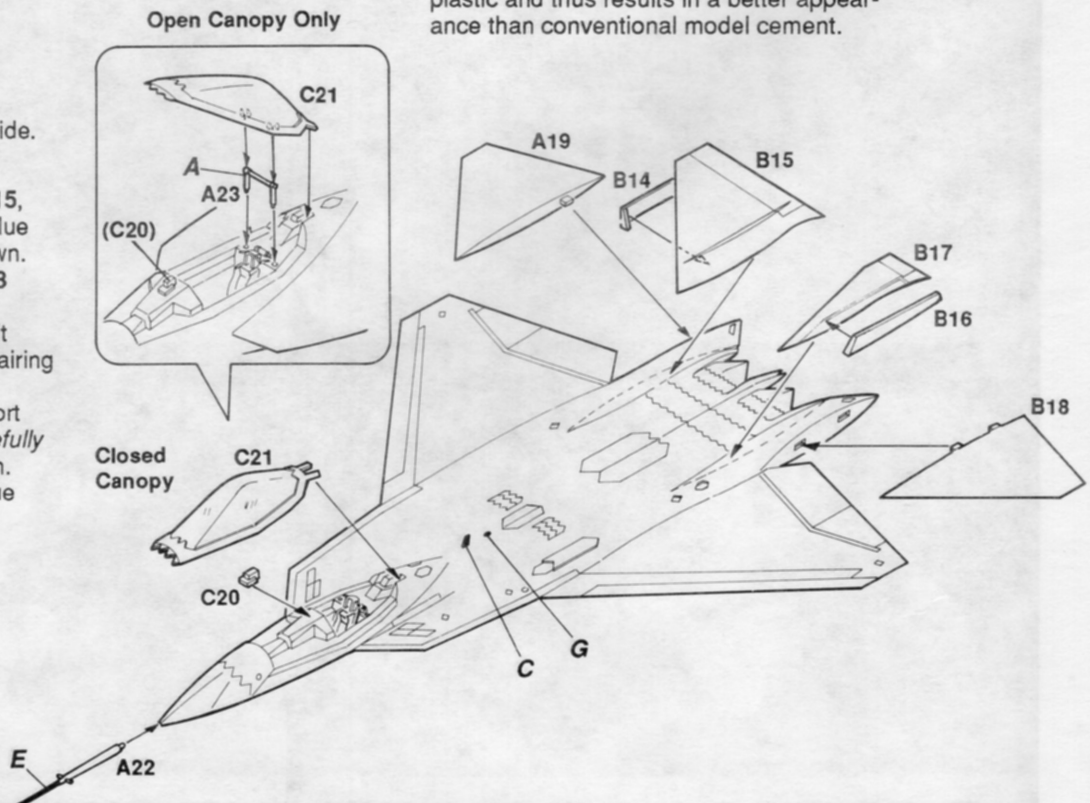
### Preliminary Painting

Paint parts as indicated by *italic* letter callouts using the **COLOR KEY** as a guide.

### Assembly

1. Cement fillet **B14** to right rudder **B15**, and fillet **B16** to left rudder **B17**. Glue both rudders onto fuselage as shown. Cement horizontal tail surfaces **B18** (left) and **A19** into place.
2. *Carefully* glue heads-up display unit (HUD) **C20** onto instrument panel fairing as shown.
3. **For Open Canopy:** Cement support **A23** into holes in cockpit, then *carefully* glue canopy **C21** in place as shown.
4. **For Closed Canopy:** *Carefully* glue canopy **C21** in place and discard support **A23**.
5. Glue pitot tube **A22** in place.

**Note:** Clear parts are best glued in place with white glue. White glue will not mar the plastic and thus results in a better appearance than conventional model cement.





# 4 PARTS 24 - 35

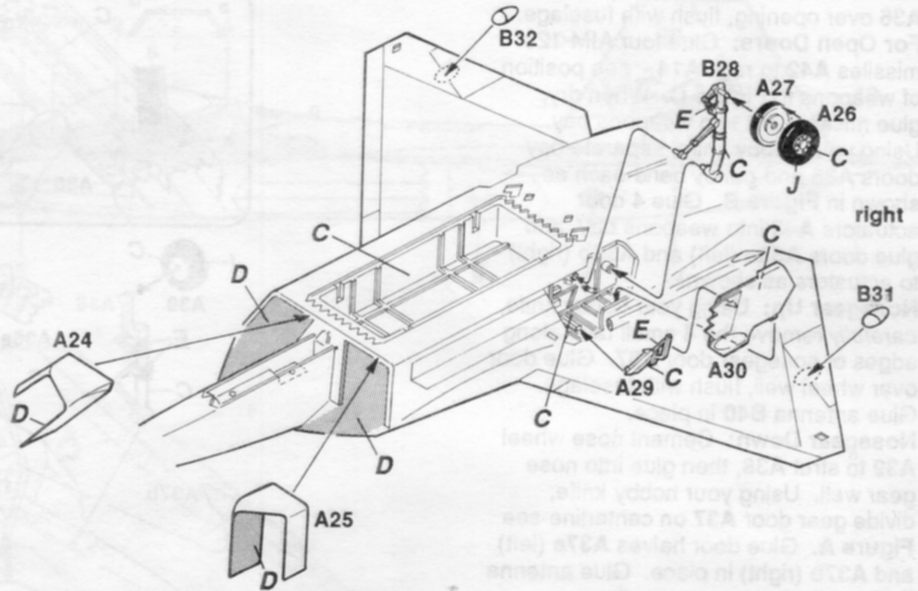
## Preliminary Painting

Paint parts as indicated by *italic* letter callouts using the **COLOR KEY** as a guide.

## Assembly

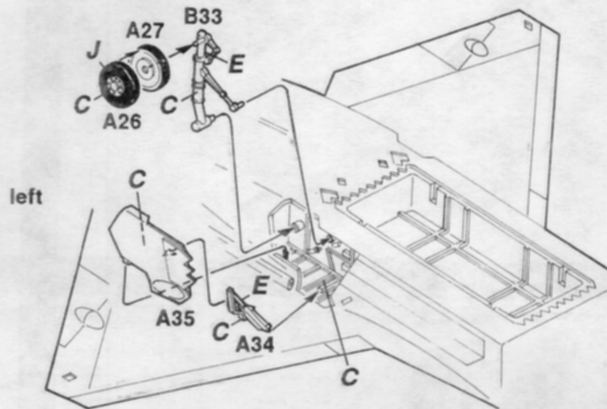
1. Cement engine inlets **A24** (left) and **A25** (right) to fuselage. Glue control surface actuator fairings **B31** (right) and **B32** (left) to lower surfaces of wings as shown.
2. **For Retracted Landing Gear:** Using a sharp hobby knife, trim the small square tab from the edge of each maingear door **A30** (right) and **A35** (left). Now cement doors flush against fuselage over wheel wells.
3. **For Extended Landing Gear:** Glue maingear struts **B28** (right) and **B33** (left) into wheel wells as shown. Cement wheel halves **A26** and **A27** together, making 2 wheels. Glue these to maingear struts as shown. Cement door actuators **A29** (right) and **A34** (left) into wheel wells, then cement doors **A30** (right) and **A35** (left) to edge of wheel wells and to actuators as shown. Let cement dry.

### Maingear Assembly



### COLOR KEY

- A No. 1730 Flat Gull Gray FS 36440
- B No. 1723 Gunship Gray FS 36118
- C No. 1745 Insignia White FS 17875
- D No. 1728 Light Ghost Gray FS 36320
- E No. 1403 Magnesium (Metalizer)
- F No. 1415 Burnt Metal (Metalizer)
- G No. 1103 Red
- H No. 1124 Green
- J No. 1149 Flat Black



# 5 PARTS 36 - 43

## Preliminary Painting

Paint parts using the **COLOR KEY** provided.

## Assembly

1. Decide whether you wish to display your model with the weapons bay doors open or closed.
2. **For Closed Doors:** Glue bay door unit **A36** over opening, flush with fuselage.
3. **For Open Doors:** Glue four AIM-120 missiles **A42** to rack **A14** - see position of weapons in **Figure C**. When dry, glue missile rack into weapons bay. Using your hobby knife, separate bay doors **A36** and *gently* bend each as shown in **Figure B**. Glue 4 door actuators **A43** into weapons bay, and glue doors **A36a** (left) and **A36b** (right) to actuators as shown.
4. **Nosegear Up:** Using your hobby knife, *carefully* remove the 4 small tabs along edges of nosegear door **A37**. Glue door over wheel well, flush with fuselage. Glue antenna **B40** in place.
5. **Nosegear Down:** Cement nose wheel **A39** to strut **A38**, then glue into nose gear well. Using your hobby knife, divide gear door **A37** on centerline-see **Figure A**. Glue door halves **A37a** (left) and **A37b** (right) in place. Glue antenna **B40** in place.
6. Assembly of your model is now complete. It is now ready for application of decals and final finishing.

## Final Assembly

Figure A

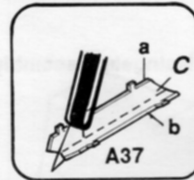


Figure C

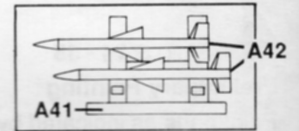
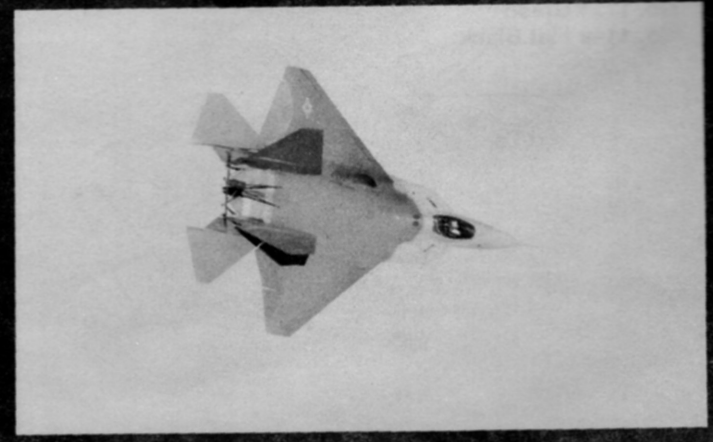
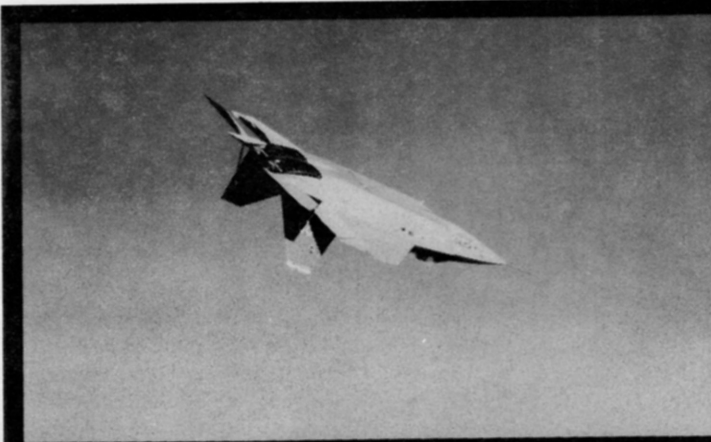
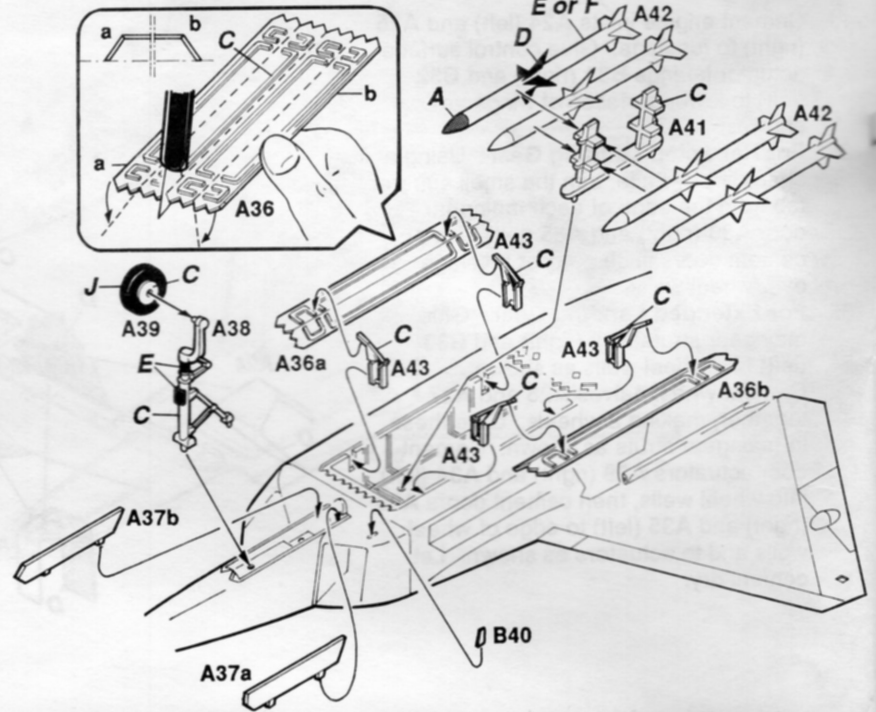
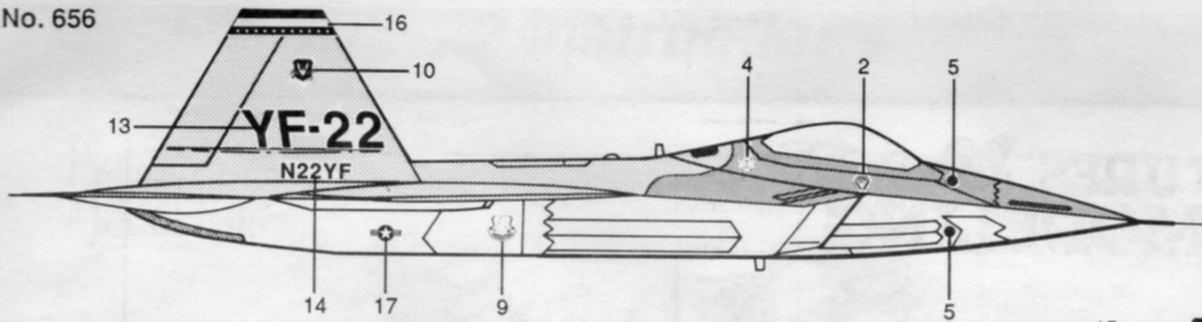


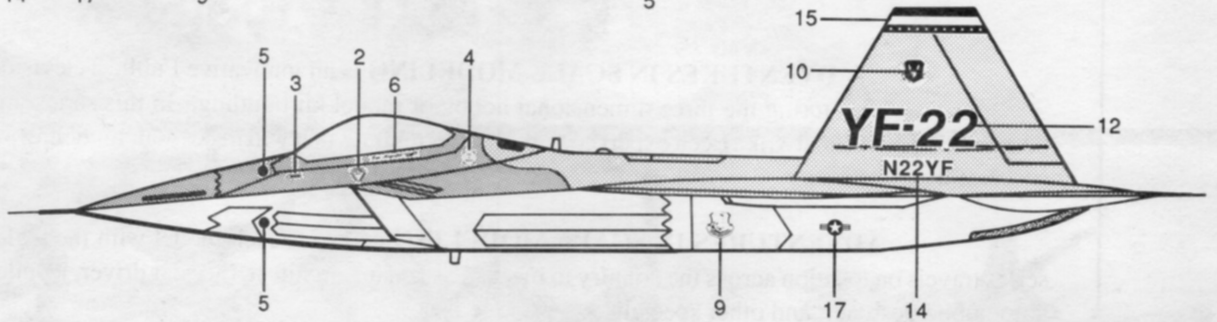
Figure B



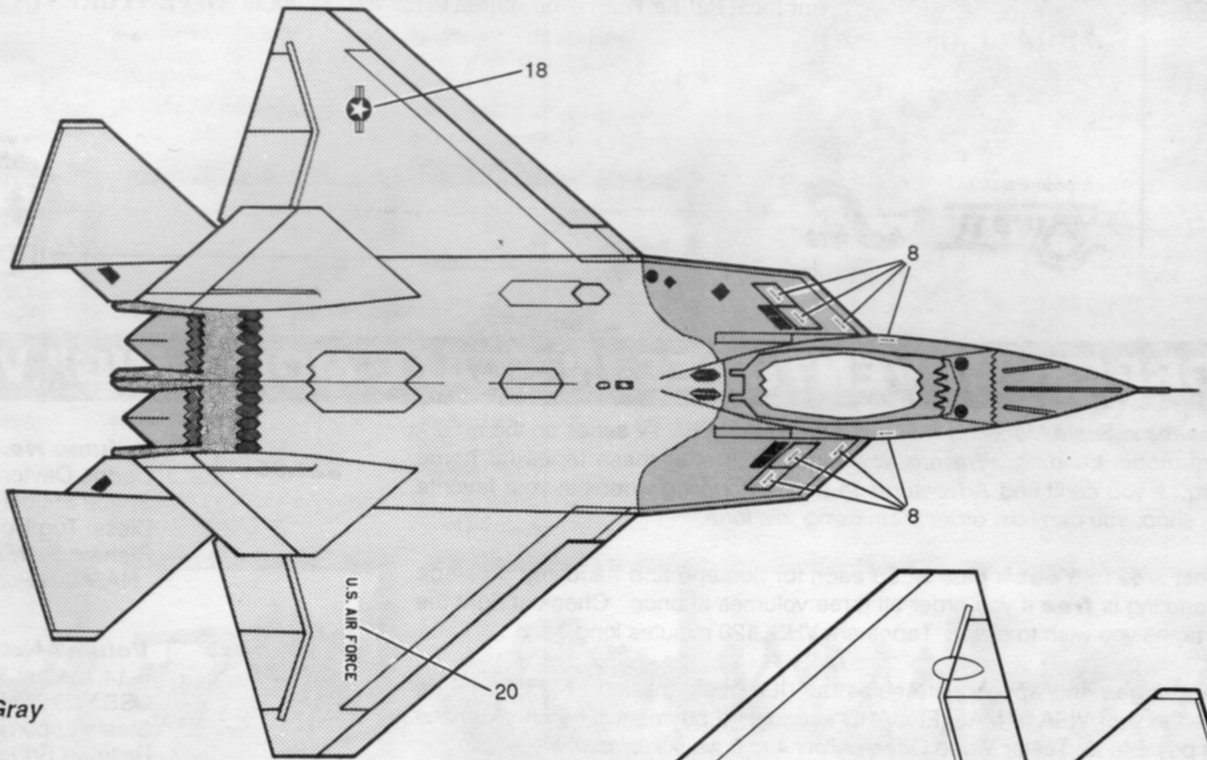




YF-22  
First Prototype



Numbers indicate decals - see **APPLYING DECALS** on page 2.



**PAINTING**

FS 36320  
Dark Ghost Gray

FS 36118  
Gunship Gray

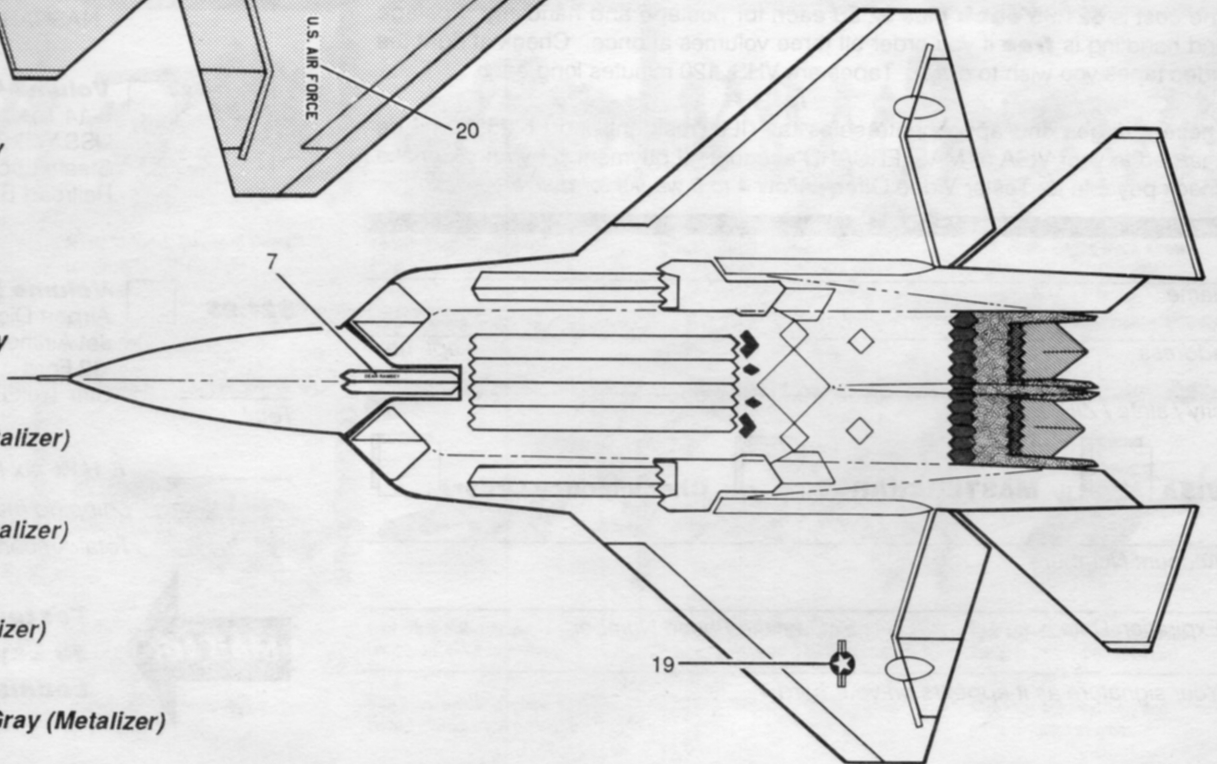
FS 36375  
Light Ghost Gray

No. 1415  
Burnt Metal (Metalizer)

No. 1403  
Magnesium (Metalizer)

No. 1423  
Gunmetal (Metalizer)

No. 1412  
Dark Anodonic Gray (Metalizer)

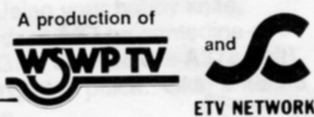


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