

BOEING VERTOL CH-46D SEA KNIGHT

No. 361



HISTORY

The first design for Vertol Aircraft Corporation was the twin engine, twin rotor helicopter which became the *CH-46*. Vertol created the design with military applications in mind from the beginning. After the prototype's first flight in April 1958, the U.S. Army took an immediate interest in the type, but no production was undertaken. It wasn't until 1961 that the U.S. Marine Corps ordered the helicopter into production as the HRB-1 (later changed to *CH-46A*), and given the name *Sea Knight*.

The *CH-46* features twin turbine engines mounted in the tail pylon. The forward rotor is driven via an extension shaft. This allows unrestricted space within the fuselage and lessens noise in the cockpit. A door in the rear folds down to provide a loading ramp and a winch is mounted to the front bulkhead in the cargo bay to ease loading of heavy cargo. A sealed and compartmented fuselage allow the helicopter to alight on water when necessary.

The first *CH-46* helicopters entered squadron service with the U.S. Marine Corps in early 1965. The Marines primarily use the *Sea Knight* for troop transport. The U.S. Navy uses the helicopter in the vertical replenishment (VERTREP) role, carrying stores, ammunition and personnel to ships at sea. Slightly different versions of the *Sea Knight* were delivered to Canada: the CH-113 Labrador for the Royal Canadian Air Force and the CH-113A Voyager for the Canadian Army. Both of these versions are used primarily for search and rescue operations (SAR). Sweden ordered the HKP-4 version for the Swedish Air Force and Navy and uses them for SAR, anti-submarine warfare (ASW) and minesweeping duties. Kawasaki in Japan obtained a license to produce their own version of the *Sea Knight* for the Japanese Ground Self Defense Force and also produced helicopters for Burma, Thailand and Saudi Arabia.

SPECIFICATIONS

Engines $\frac{1}{2}$
two General Electric
T58-GE-10 turboshafts
of 1,400 shp

Rotor Diameter	51 ft 0 in (each)
Fuselage Length	44 ft 10 in
Height	16 ft 8½ in
Weights	13,067 lbs 23,000 lbs (max. loaded)
Max. Speed	166 mph

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 runners (sprue) until you need them. This helps avoid confusion and lost parts.
4. When cementing the parts together, check the way in which one part fits together with another. This ensures a neat job.
5. Always remember, when working with plastic model cement and paint, make sure your work is well-ventilated. The fumes from plastic modeling products can be harmful if inhaled.

PREPARATION OF PARTS

1. Never tear parts off the runners (sprue). Use a Testor Hobby Knife, nail clippers, or small wire cutters.
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 enamels. Detailed descriptions of type of paint and color are included throughout 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 keep your brushes clean and soft by cleaning in Testor thinner, washing in soap and water, and storing flat or with bristles up when not in use.

Wash plastic parts before detaching them from the sprue. Warm water and liquid detergent 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 automotive centers) to remove dust and lint.

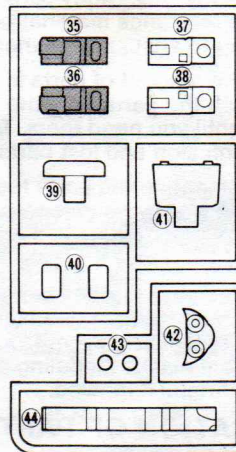
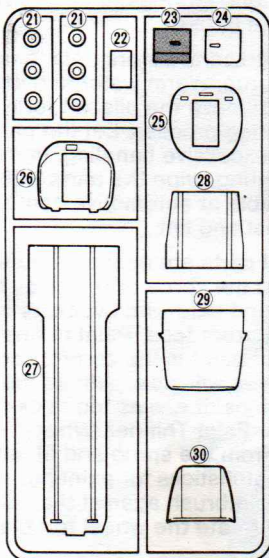
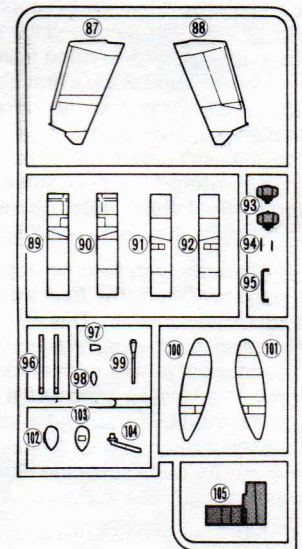
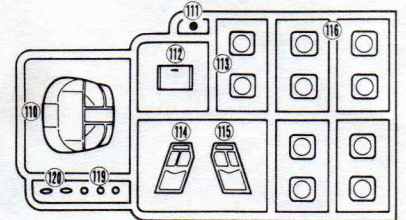
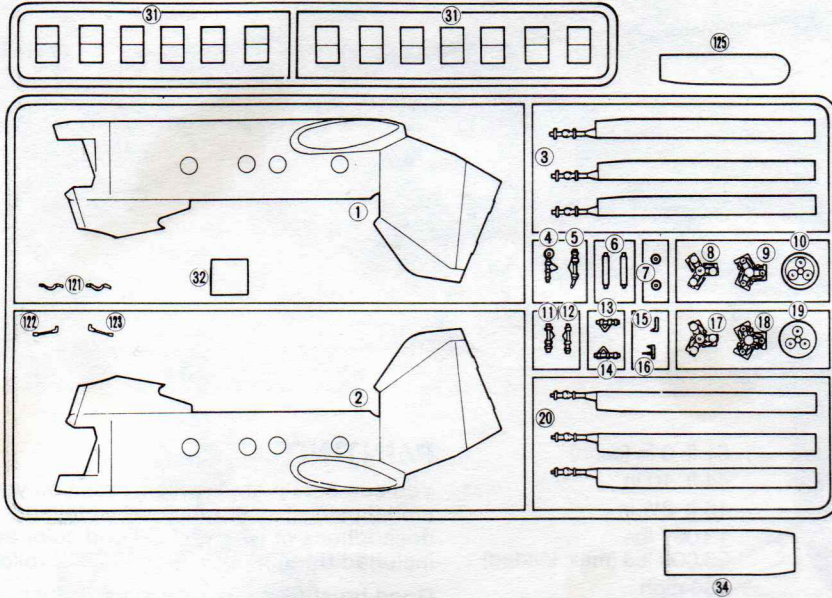
Most small parts are best painted while still attached to the sprue or they may be detached and held with tweezers or "magic" type transparent tape. Paint in one direction only. If your paint is the correct consistency, brush strokes will disappear as the color dries. If the paint seems too thick, thin it with Testor Paint Thinner. Wheels may be detached from the sprue and fit onto toothpicks or matchsticks for painting. Then just hold the paintbrush against the edge of the wheel and rotate the wheel to obtain a neat clean finish.

Let the paint dry completely before handling. When the parts are dry, assemble the model, following the directions closely. Remember cement will not stick to painted surfaces. Using your Testor Hobby Knife, carefully remove paint from all surfaces to be cemented. After you have assembled your model you may touch up areas where cement has marred the finish.

Remove this page from the instruction sheet by cutting along indicated line. Use the drawings of the complete sprue as a part-locating reference when 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 00 brush, to the surfaces to be joined while holding the parts in place. Do **not** use large amounts of cement.



Any parts not called out in **Preliminary Painting** should be painted overall color which is: "**Gloss Sea Gray**" (mix 4 parts **FS 17038 Gloss Black** and 3 parts **FS 16473 Aircraft Gray**).

1 COCKPIT

Preliminary Painting

25, 39, 40, 41, 121:

FS 36231 Dark Gull Gray

39 upper fairing and instruments only; 121 control handle only; 122:

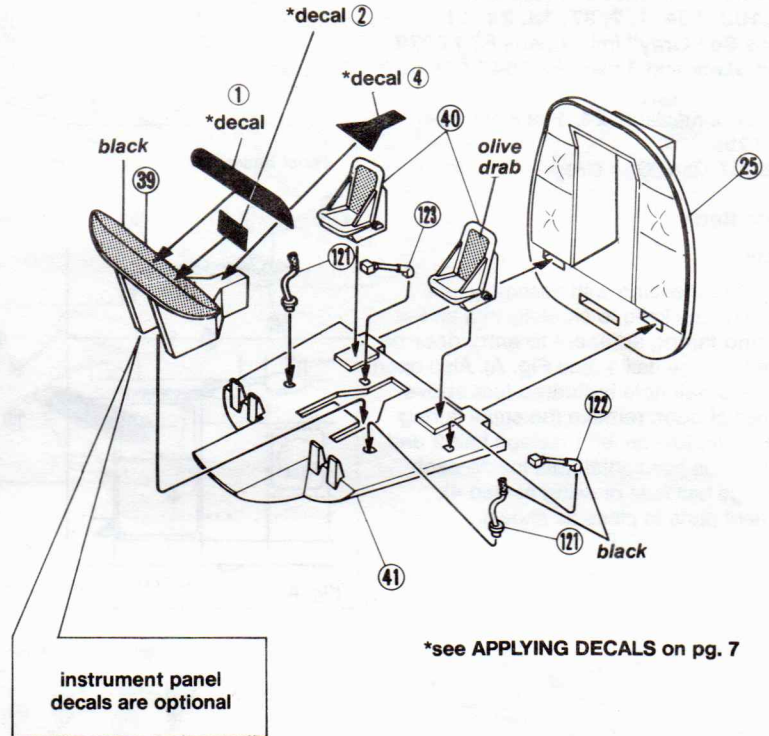
FS 37038 Flat Black

40 seat back cushions only:

FS 34087 Olive Drab

Assembly

- 1. Cement parts together as shown. Note that you may use the optional instrument panel decals if you prefer not to paint these details in. Decals should be applied to the parts *before* assembly.



2 CARGO BAY

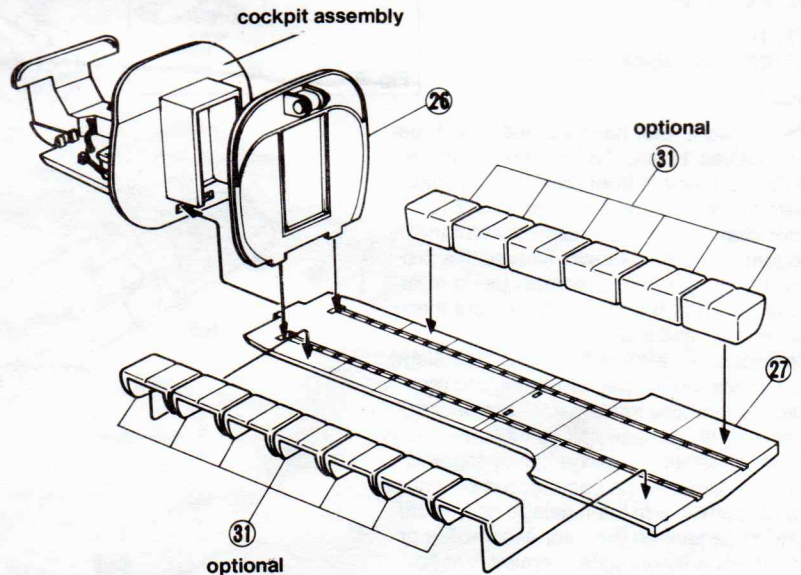
Preliminary Painting

26, 27, 31:

FS 36231 Dark Gull Gray

Assembly

- 1. Cement parts together as shown. Note that the seats 31 are optional and may be left off if you desire.



3 WINDOWS

Preliminary Painting

114, 115 window frames only (see box photos);
 102, 103, 104, 1, 2, 37, 38, 24, 112:
 "Gloss Sea Gray" (mix 4 parts FS 17038
 Gloss Black and 3 parts FS 16473 Aircraft
 Gray).

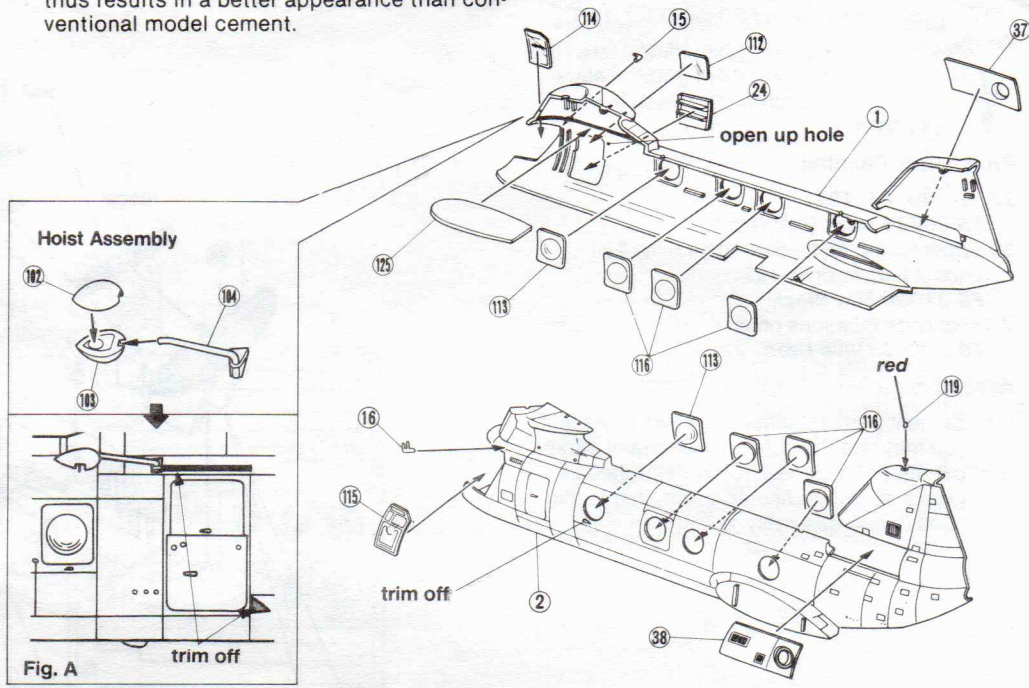
1, 2 interior of fuselage; 24, 112 inner side
 only; 125:
 FS 36231 Dark Gull Gray

119:
 #1104 Red

Assembly

- 1. Before proceeding with assembly, use a sharp hobby knife to carefully trim off the rail and fairing adjacent to entry door on right fuselage half 1 (see Fig. A). Also open up the small hole indicated just above corner of door, remove the small fairing below window on left fuselage half 2 and trim off the horizontal rails inside each fuselage half (see drawing at step 4).
- 2. Cement parts in place as shown.

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



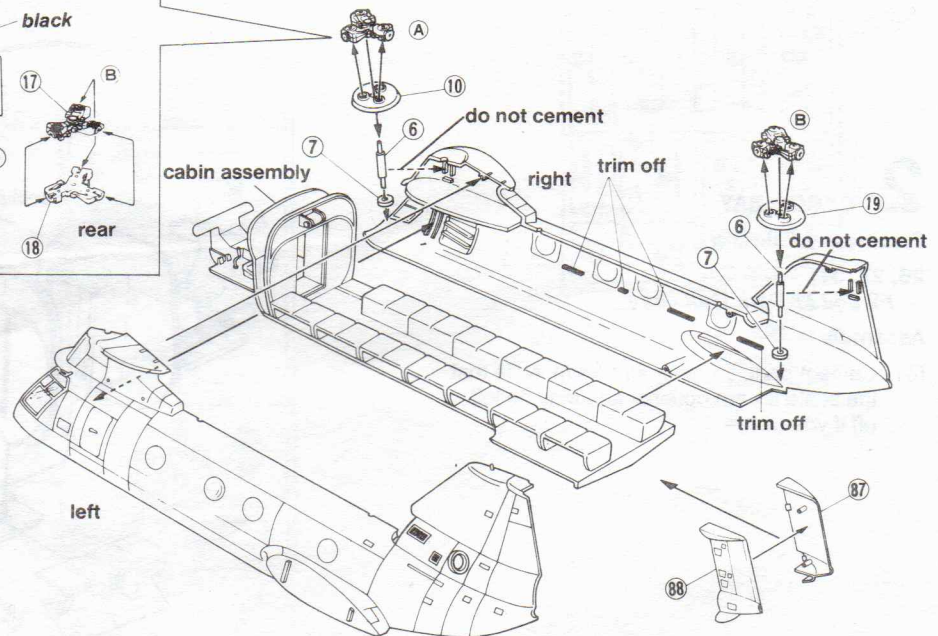
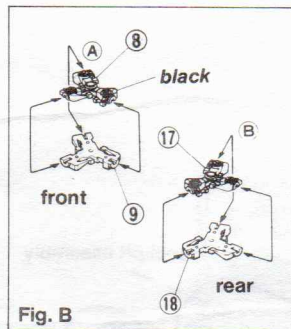
4 FUSELAGE ASSEMBLY

Preliminary Painting

8, 9, 17, 18:
 FS 37038 Flat Black

Assembly

- 1. Cement front rotor halves 8 and 9 and rear rotor halves 17 and 18 together as shown at Fig. B. Cement front rotor to front rotor plate 10, then cement retainer hub 7 to rotor shaft 6 and finally cement shaft into bottom of rotor as shown. Repeat this procedure for rear rotor assembly using rotor plate 19, shaft 6 and hub 7, then set these assemblies aside to dry.
- 2. Cement cabin assembly into right fuselage half. Place (*do not cement*) front and rear rotor assemblies into locators at front and rear of right fuselage half as indicated, then carefully cement fuselage halves together making sure that the cabin assembly lines up properly inside left fuselage half. Avoid getting cement on the rotor assemblies or the rotors will not rotate. Cement rear fin halves 87 and 88 together, then cement to rear of fuselage.



5 FUSELAGE DETAILS

Preliminary Painting

119, 120:

#1104 Red

34:

FS 36231 Dark Gull Gray

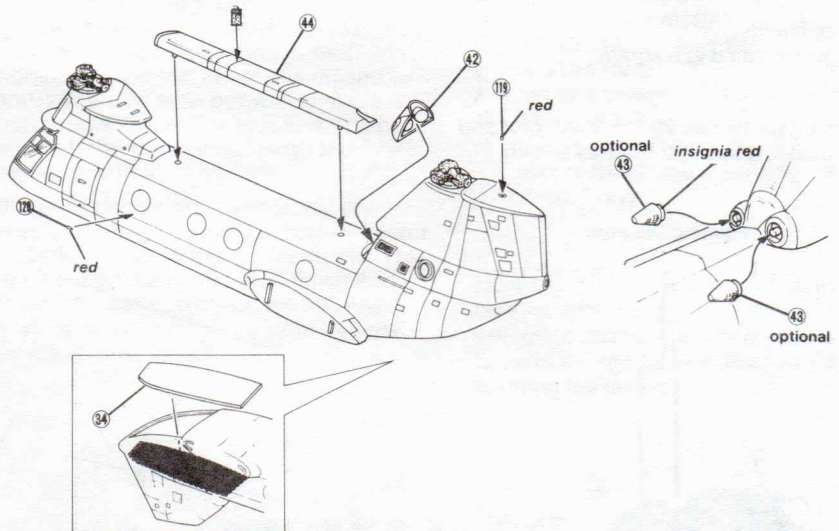
43:

FS 31136 Insignia Red

Assembly

- 1. Cement engine intake panel 42 into opening at front of rear fin. Cement extension shaft fairing 44 to spine of fuselage as shown. If you would like to display your model with the UHF antenna, cut it out from a section of the unused part 105 with a sharp hobby knife. The antenna should measure 1/32 inch wide by 3/32 inch long; position as shown in drawing.
- 2. Cement ceiling section 34 into underside of rear pylon. Cement navigation lights 119 and 120 to tail fin and fuselage at positions indicated. If you would like to display your model with the foreign object screens 43, these may be cemented into the engine intakes (optional).

UHF antenna (optional)
cut from part 105
1/32" wide, 3/32" tall



6 BELLY DETAILS

Preliminary Painting

21 tires only; 22:

FS 37038 Flat Black

4,5,11,12,13,14 landing gear struts; 110 canopy frames and nose only:

"Gloss Sea Gray" (mix 4 parts FS 17038 Gloss Black and 3 parts FS 16473 Aircraft Gray).

4,5,11,12,13,14 oleo portion only (see drawings)

FS 17178 Chrome Silver

119:

#1104 Red

21 wheel hubs:

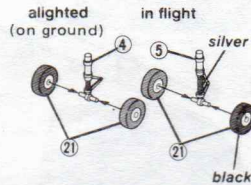
Color differs depending on which version you select (see drawings on pgs. 7 and 8).

Assembly

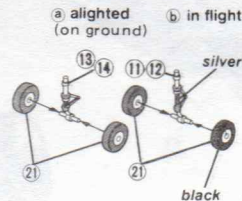
NOTE: This model may be assembled with the landing gear as it would appear **in flight** or **alighted** (as it appears when sitting on the ground). In addition, the ramp and cargo doors may be assembled in the **open** or **closed** positions. Study the drawings and select which options you prefer before proceeding.

- 1. For an **alighted** model, cement wheels 21 to nose strut 4 and main struts 13 & 14. For **in flight** model, cement wheels 21 to nose strut 5 and main struts 11 & 12.
- 2. For a model with **closed ramp**, cement ramp 28, 29 and cargo door 30 flush into bottom of fuselage. For a model with **open ramp**, cement ramp 28, 29 and cargo door 30 into fuselage as shown at Fig. C. Note that cargo door 30 must be scored along indicated lines and the outer portions bent downward as shown before cementing into open position.
- 3. Cement parts together as shown. If you would like to use the supplied decal on electrical panel 22, apply it to part before cementing panel into ceiling of cabin. Electrical panel 22 must be cemented in place before gluing nose/windscreen 110 to fuselage.

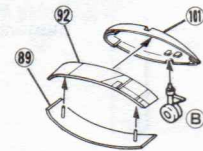
A Nose Gear



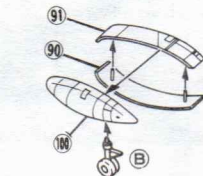
B Main Gear



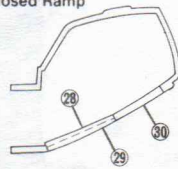
C Right Sponson



D Left Sponson



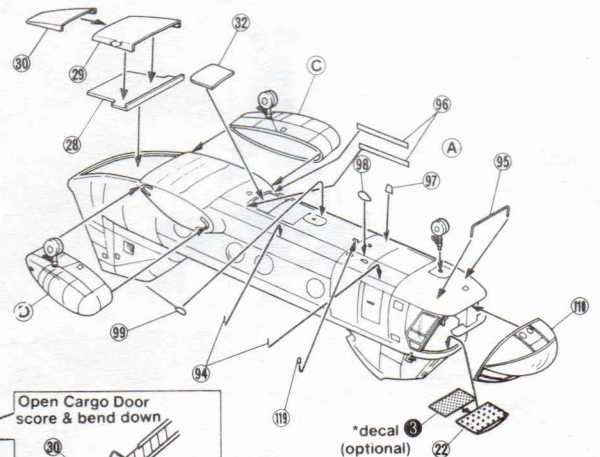
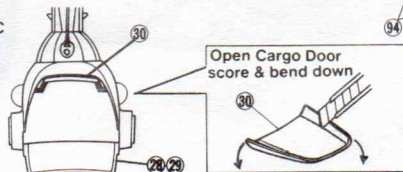
Closed Ramp



Open Ramp



Fig. C



*see APPLYING DECALS on pg. 7

7 ROTOR BLADES

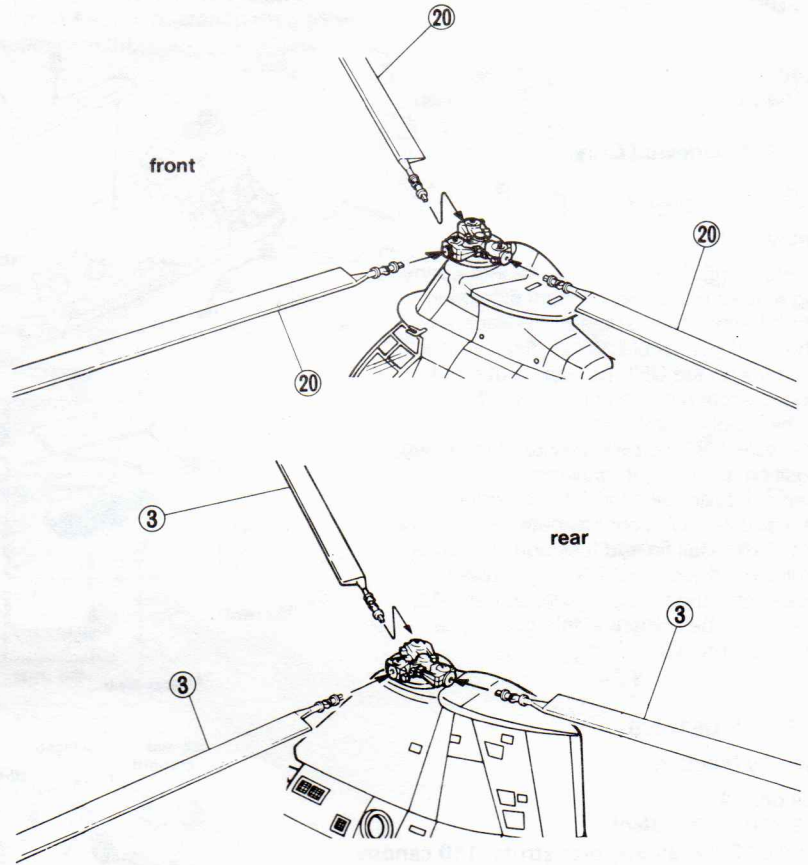
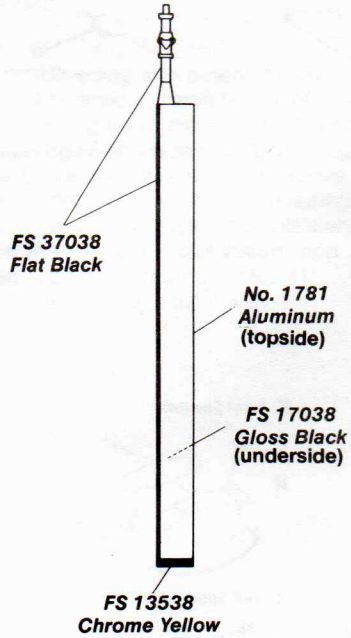
Preliminary Painting

3, 2 all rotor blades:
paint as indicated in diagram

Assembly

- 1. Cement rotor blades 20 into front rotor and rotor blades 3 into rear rotor as shown

Painting Diagram



APPLYING DECALS

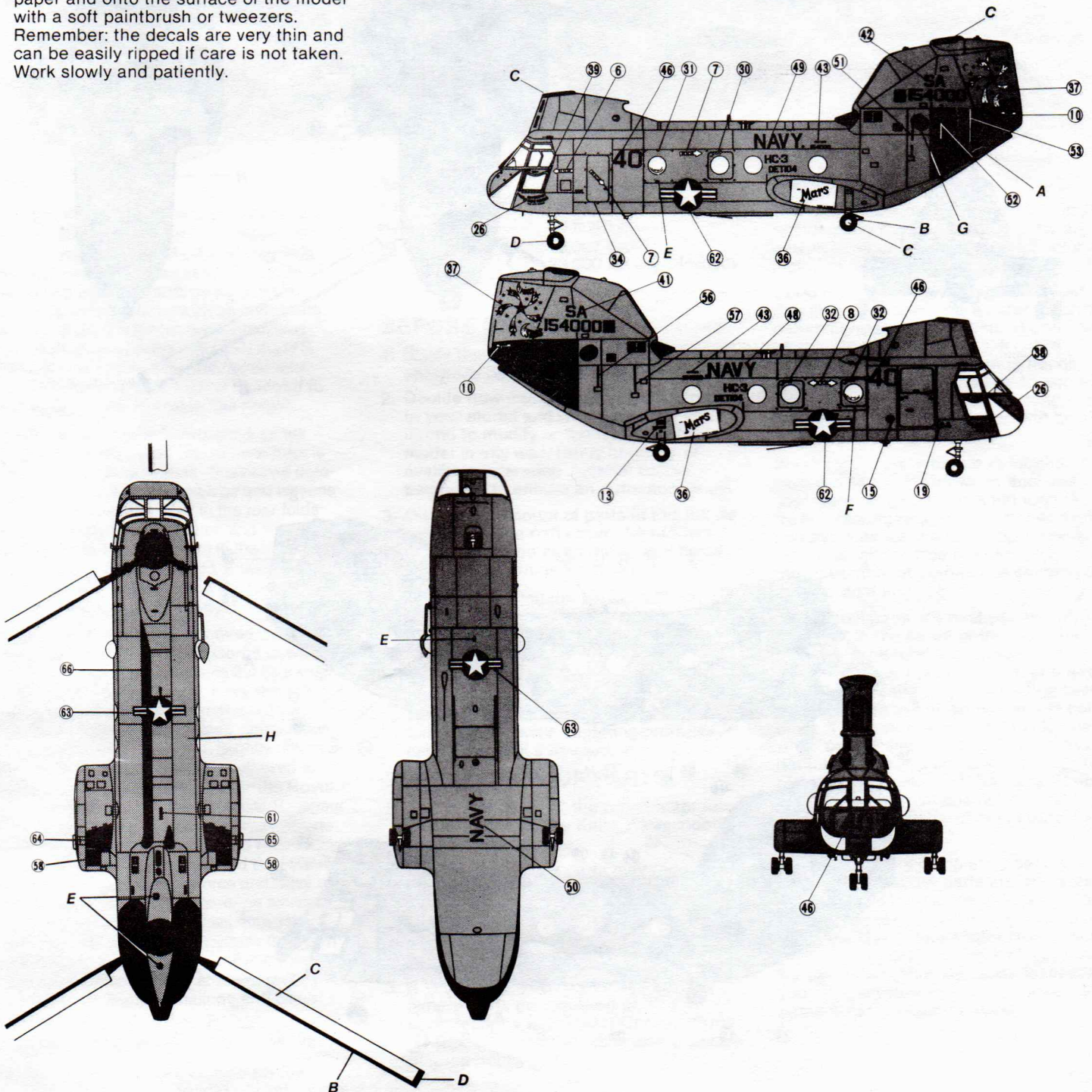
1. After carefully masking canopy and other clear areas, spray entire model with Testor Glosscote #1261. Decals adhere best to a smooth surface and the shinier the finish, the smoother it is. Allow the Glosscote to dry thoroughly before going further.
2. Select the decals you plan to use, and cut each of them out from the decal sheet with small scissors or Testor Hobby Knife.
3. Working with only one decal at a time, dip the decal in clear water for no more than five seconds, then 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 the paper and onto the surface of the model with a soft paintbrush or tweezers. Remember: the decals are very thin and can be easily ripped if care is not taken. Work slowly and patiently.

5. Once the decal is in the desired position, apply a small amount of Testor Decal Set #8804. This will help the decal to conform to any irregularities in the surface of the model (rivets, curves, etc.). Allow the decal to dry undisturbed. Should you find the decal has moved or should you desire to purposely move it, 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 Dullcote #1260 to the entire model. This will give it an authentic, dull finish and protect the surface of the model. Then carefully remove masking from canopy and other clear areas.

COLOR KEY

- A - FS 17038 Gloss Black
- B - FS 37038 Flat Black
- C - No. 1781 Aluminum
- D - FS 13538 Chrome Yellow
- E - #1104 Red
- F - #1124 Green
- G - No. 1780 Steel
- H - "Gloss Sea Gray" (mix 4 parts FS 17038 Gloss Black and 3 parts FS 16473 Aircraft Gray)

Numbers in circles correspond to the item numbers on decal sheet. Since this model is painted with gloss paints, it is not absolutely necessary to paint the model with **Glosscote** before applying the decals.



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