

Space Shuttle "Enterprise"

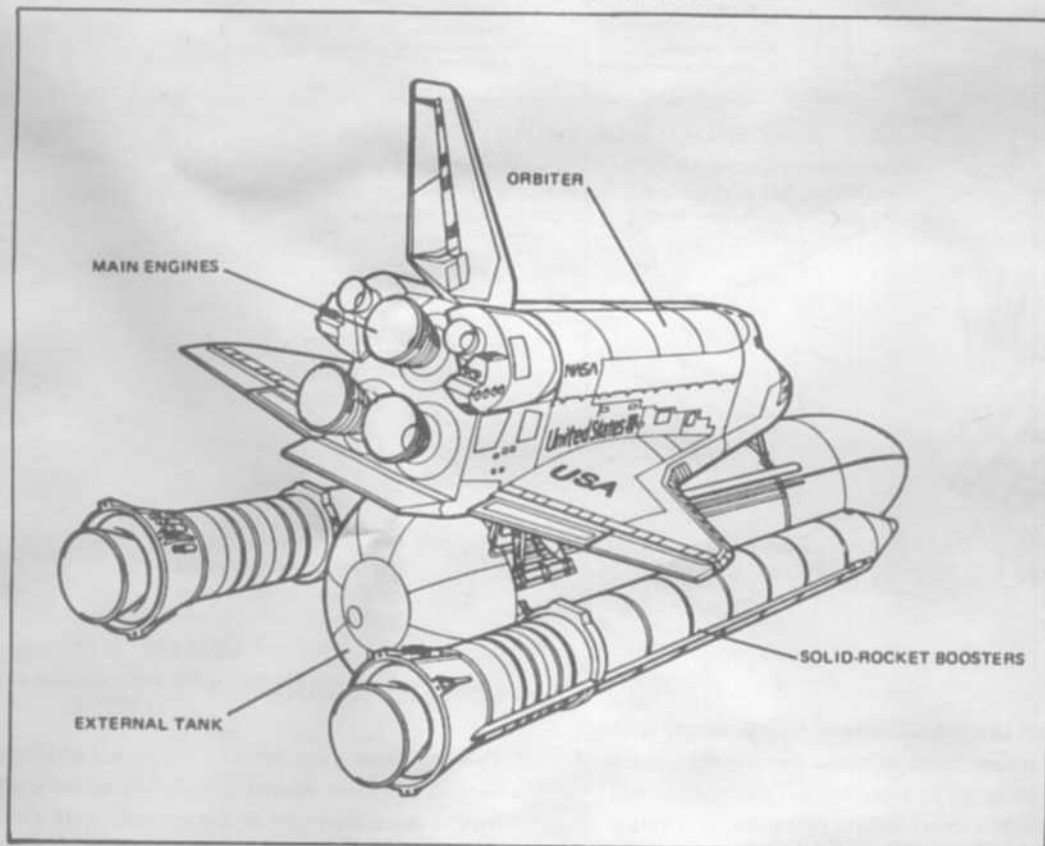


NASA



Rockwell International
Space Division

1/144 SCALE
No. 8529



THE SPACE SHUTTLE

The Space Shuttle is destined to be America's most advanced transportation system. It virtually is a commuter system into space, and provides a system where space projects can be performed on a routine basis without all the advanced procedures and preparations now required.

On July 26, 1972, Rockwell International's Space Division was selected by NASA as the prime contractor for the design development and construction of the payload carrying orbiter vehicle under a six-year contract.

Amenities will be provided for both sexes, as in addition to the crew of three astronauts it has the capacity to carry four passengers (payload specialists).

Unlike some previous space craft, space suits are not required in flight.

The system consists of four major elements:

- 1) the space craft (the orbiter)
- 2) two solid rocket boosters for launching
- 3) an external tank containing liquid propellants
- 4) the orbiter's three main engines.

The five shuttles are:

- 1) The OV-101 (Enterprise) was used as a test vehicle only. The Orbiter was so named as a result of the numerous Star Trek fans writing to the White House.
- 2) The OV-102 (Columbia) was successfully launched from the Kennedy Space Center in April, 1981. After a near-perfect mission, the Orbiter returned to Rogers Dry Lake near Edwards A.F.B. in California's Mojave Desert. It was dubbed the "Flying Brickyard" by the press because of the thousands of ceramic tiles used as a heat shield during re-entry.
- 3) The OV-099 (Challenger) will be the third orbiter. This vehicle is named after a U.S. Navy ship which explored the Atlantic and Pacific Oceans from 1872 to 1876. This name was also used for the Apollo 17 Lunar Module.
- 4) OV-103 (Discovery) will be the fourth orbiter. The Discovery is named for two ships which Henry Hudson used in 1610 to 1611 in his search for the northwest passage. The name was also used by Captain Cook in his exploration of Western Canada, Southern Alaska, and his discovery of the Hawaiian Islands.
- 5) OV-104 (Atlantis) will be the fifth orbiter. The Atlantis is named after a two-masted ketch operated for the Woods Hole Oceanographic Institute from 1930 to 1966, which traveled more than half a million miles in ocean research.

For more detailed information about the Space Shuttle, we recommend that you refer to James' "All the World's Aircraft".

SEPARATION OF EXTERNAL TANK



ORBIT INSERTION AND CIRCULARIZATION
HEIGHT: 185 km (115 miles—typical)



ORBITAL OPERATIONS
DURATION: 7-30 days



ATMOSPHERIC ENTRY
VELOCITY: 28,082 km/hr (17,450 mph)



LANDING
CROSSRANGE: ± 2037 km (± 1100 nautical miles) (from entry path)
VELOCITY: 341-384 km/hr (212-235 mph)

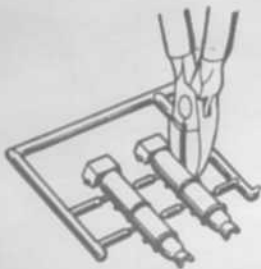
SEPARATION OF SOLID-ROCKET BOOSTERS
HEIGHT: 43 km (27 miles)



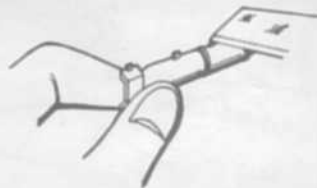
SHUTTLE CHARACTERISTICS (values are approximate)	
LENGTH	THRUST
SYSTEM: 56.34 m (184.2 feet)	SOLID-ROCKET BOOSTERS (2): 12,399,200 newtons (2.8 million pounds) of thrust each at sea level
ORBITER: 37.24 m (122.2 feet)	ORBITER MAIN ENGINES (3): 1,668,000 newtons (375 thousand pounds) of thrust each at sea level
HEIGHT	CARGO BAY
SYSTEM: 23.34 m (76.6 feet)	DIMENSIONS: 18.28 m (60 feet) long, 4.57 m (15 feet) in diameter
ORBITER: 17.27 m (56.67 feet)	ACCOMMODATIONS: Unmanned spacecraft to fully equipped scientific labs
WINGSPAN	
ORBITER: 23.79 m (78.06 feet)	
WEIGHT	
GROSS LIFT-OFF: 1,395,840 kg (3.4 million pounds)	
ORBITER LANDING: 84,778 kg (187 thousand pounds)	

PROFILE OF SHUTTLE MISSION

Each Shuttle orbiter can fly at least 100 missions and carry as much as 29,484 kg (65,000 pounds) of cargo and up to seven crew members and passengers/specialists into orbit. It can return 14,515 kg (32,000 pounds) of cargo to earth.



Remove parts with nippers or a hobby knife.



Trim off any excess material (flash).



Apply cement with care and hold parts together for a few seconds until dry.

Use a good model kit cement, Testors or Revell. Apply with care to surfaces. Remove paint or metal coating on cement surfaces. If you wish to paint your model, use enamel not lacquer. For best results paint before assembly, and touch up on completion. Before painting remove grease spots with a mixture of 50% water and 50% vinegar. Remove parts with a hobby knife or nippers. Remove surplus plastic with a sharp knife or emery board. Place small parts in location with tweezers.

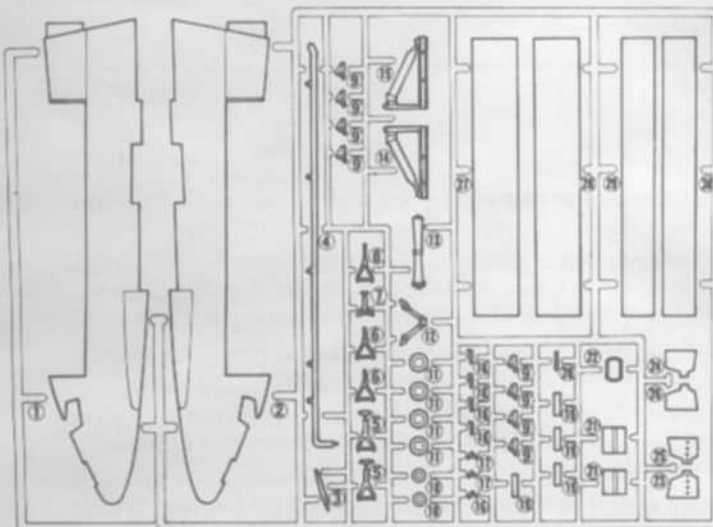
See page 8 and pack for painting guide.

LIMITED WARRANTY

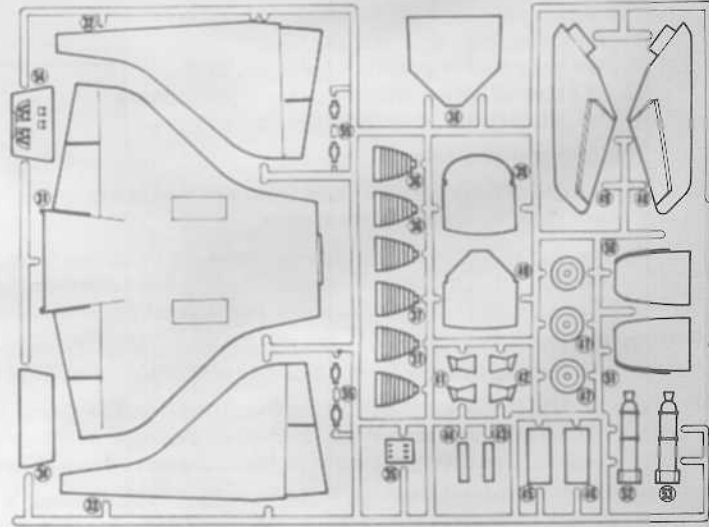
This products is warranted for a period of 90 days from the date of purchase against any defect or deficiency resulting from a manufacturing or design defect. If such a defect or deficiency is found, return the product, defective part, or a description of the deficiency, to the address shown. Be sure to explain the problem and include your name and address. We will repair or replace the product or part and send it to you at no charge.

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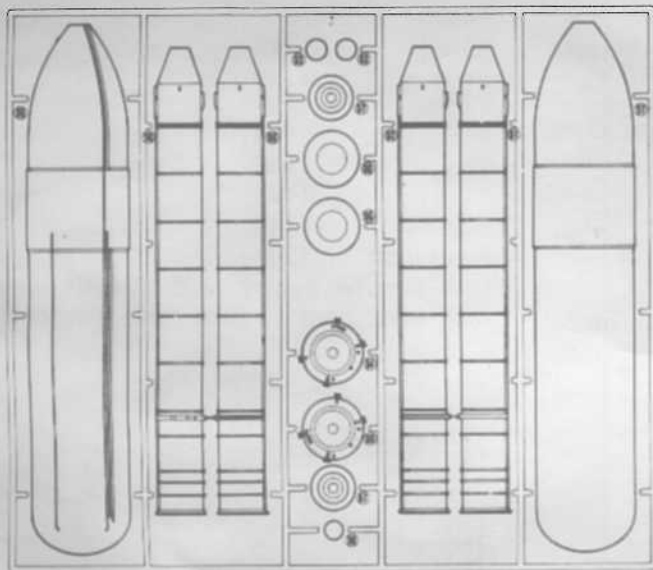
PARTS LIST



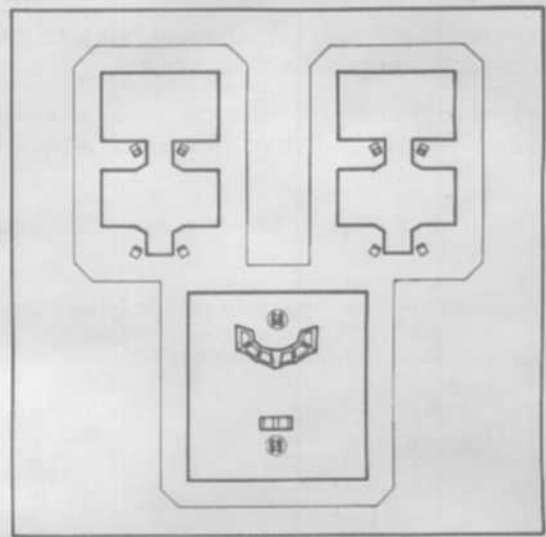
PARTS ①~③①



PARTS ③①~⑤⑤



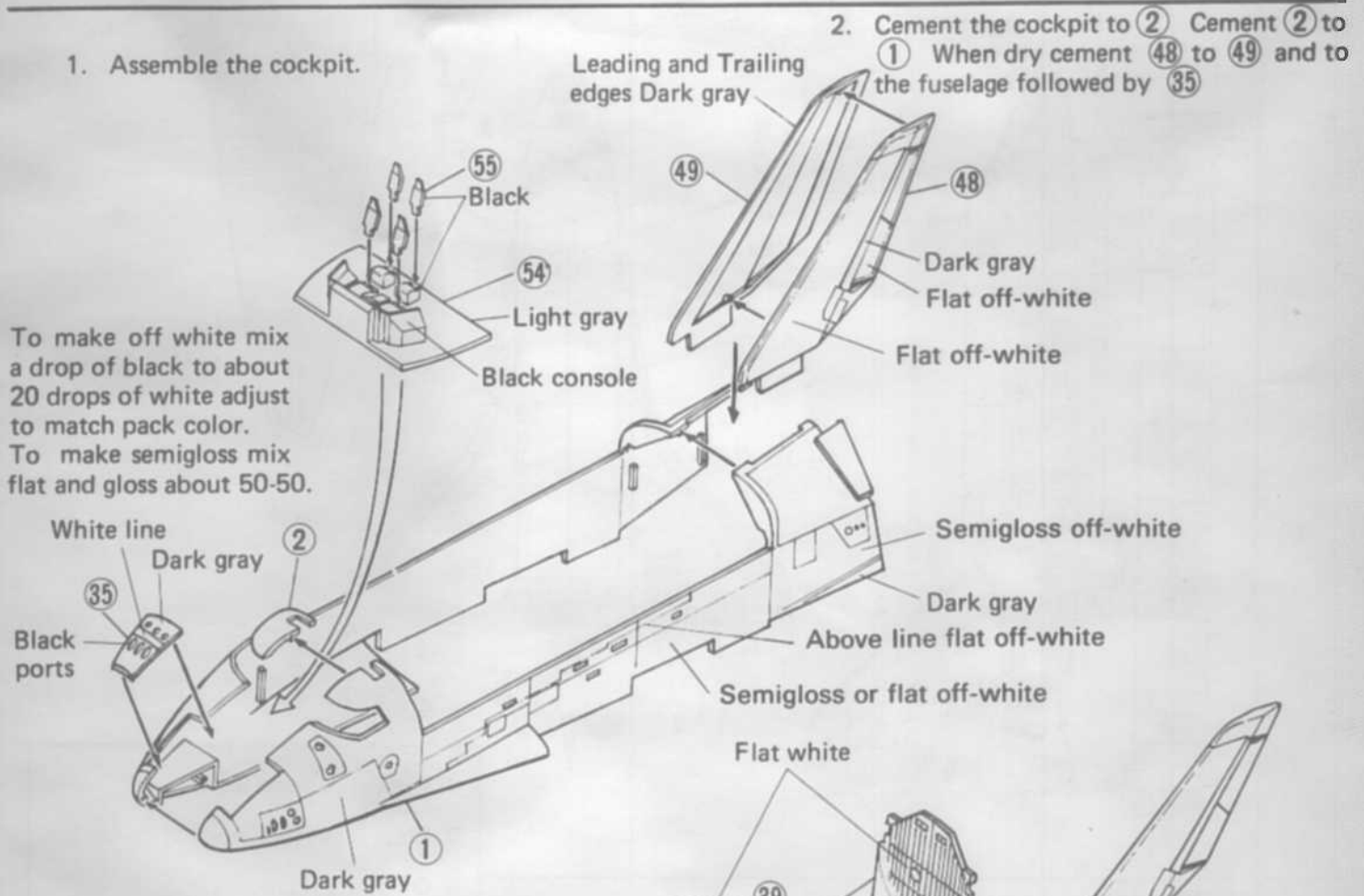
PARTS 53-57



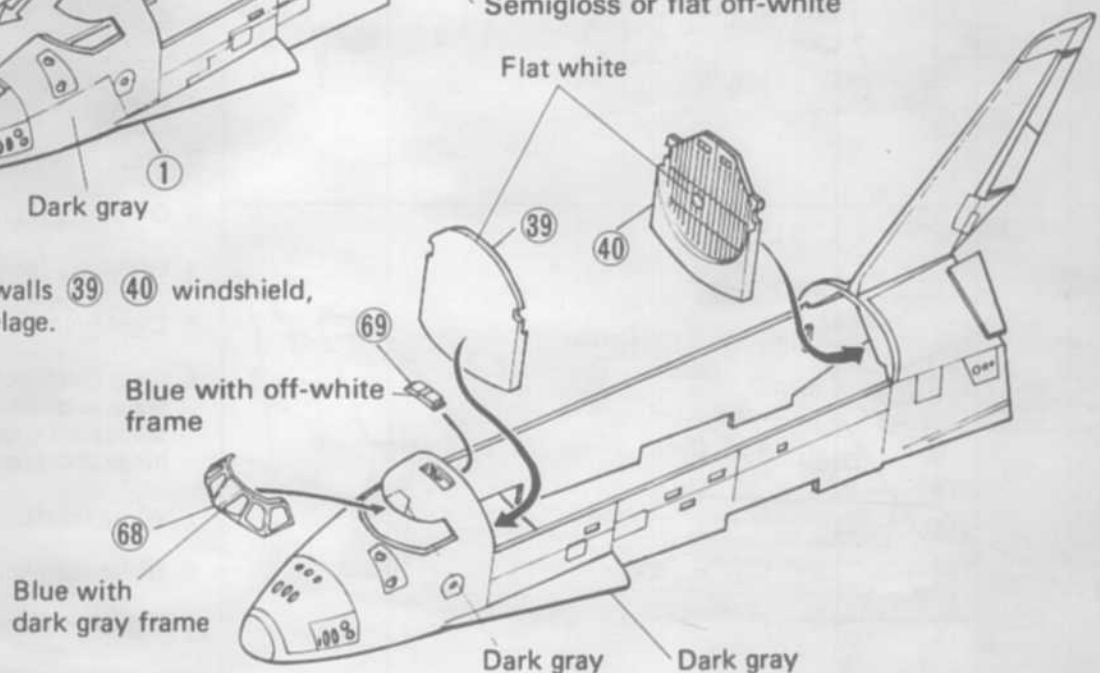
PARTS 58 AND DISPLAY STAND

1. Assemble the cockpit.

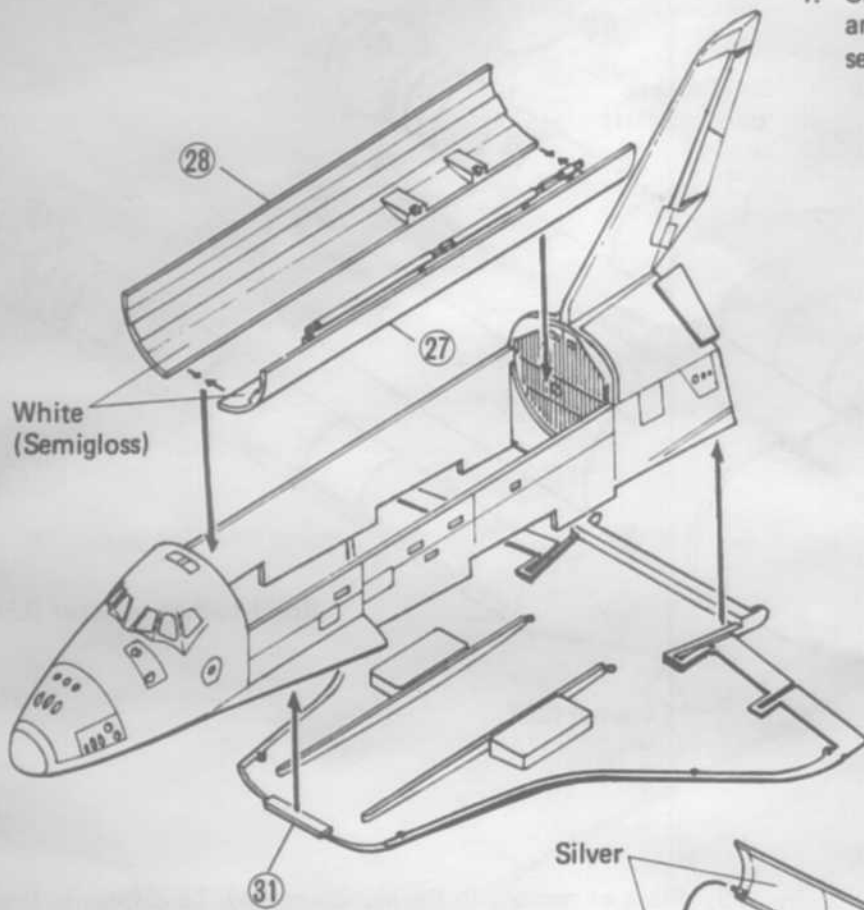
To make off white mix a drop of black to about 20 drops of white adjust to match pack color.
To make semigloss mix flat and gloss about 50-50.



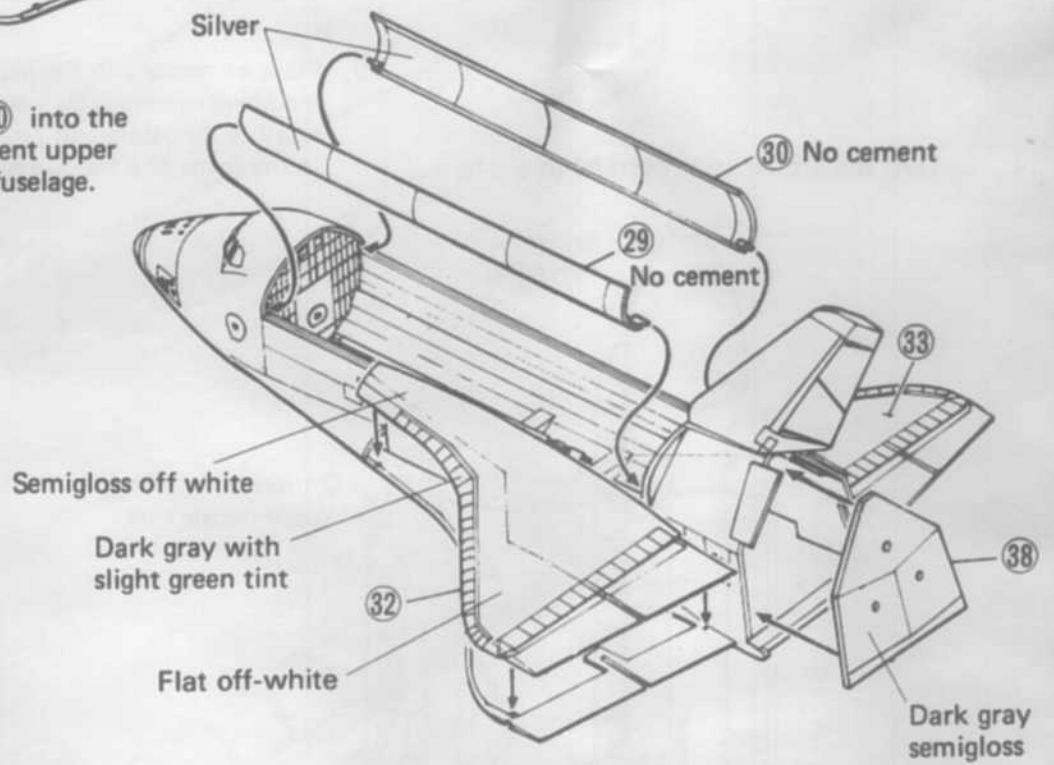
3. Cement cargo bay walls ③⑨ ④⑩ windshield, and ⑥⑨ to the fuselage.



4. Cement bay floor sections 27 28 together and inside the fuselage. Cement lower wing section to the fuselage.



5. Gently press bay doors 29 30 into the fuselage. Do not cement. Cement upper wing sections and 38 to the fuselage.

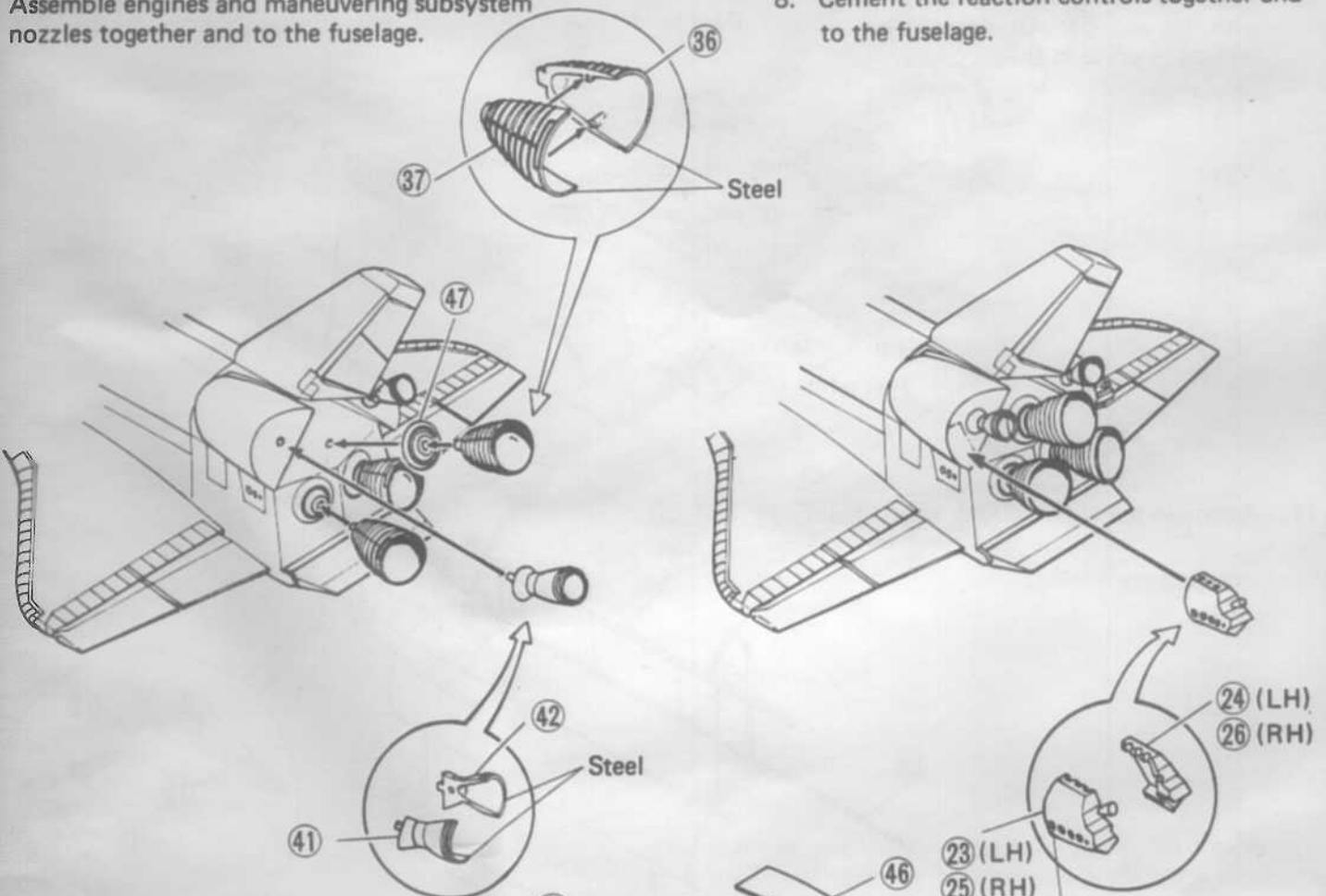


6. Complete fuselage and cement speed brake 34 in place.



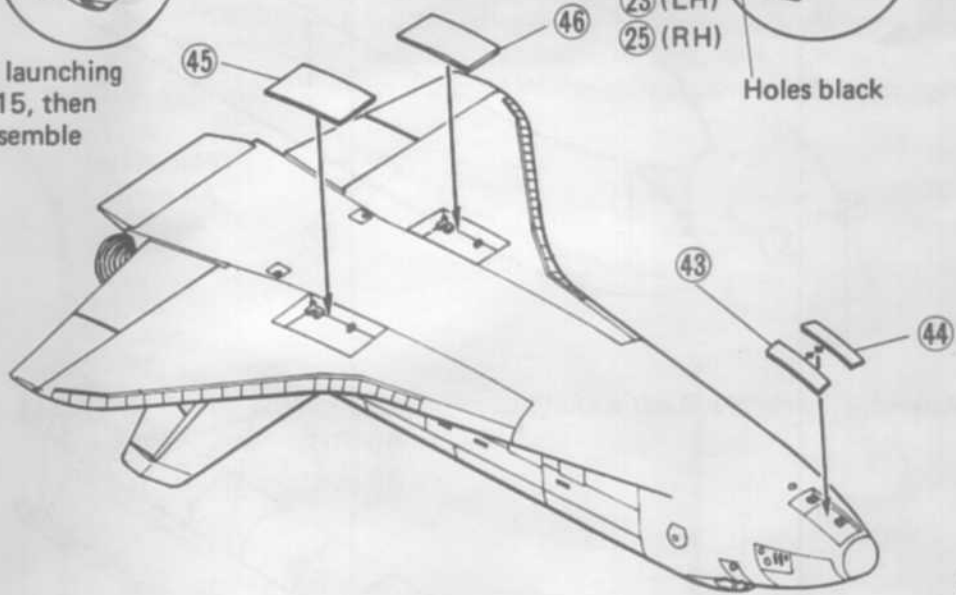
Assemble engines and maneuvering subsystem nozzles together and to the fuselage.

8. Cement the reaction controls together and to the fuselage.

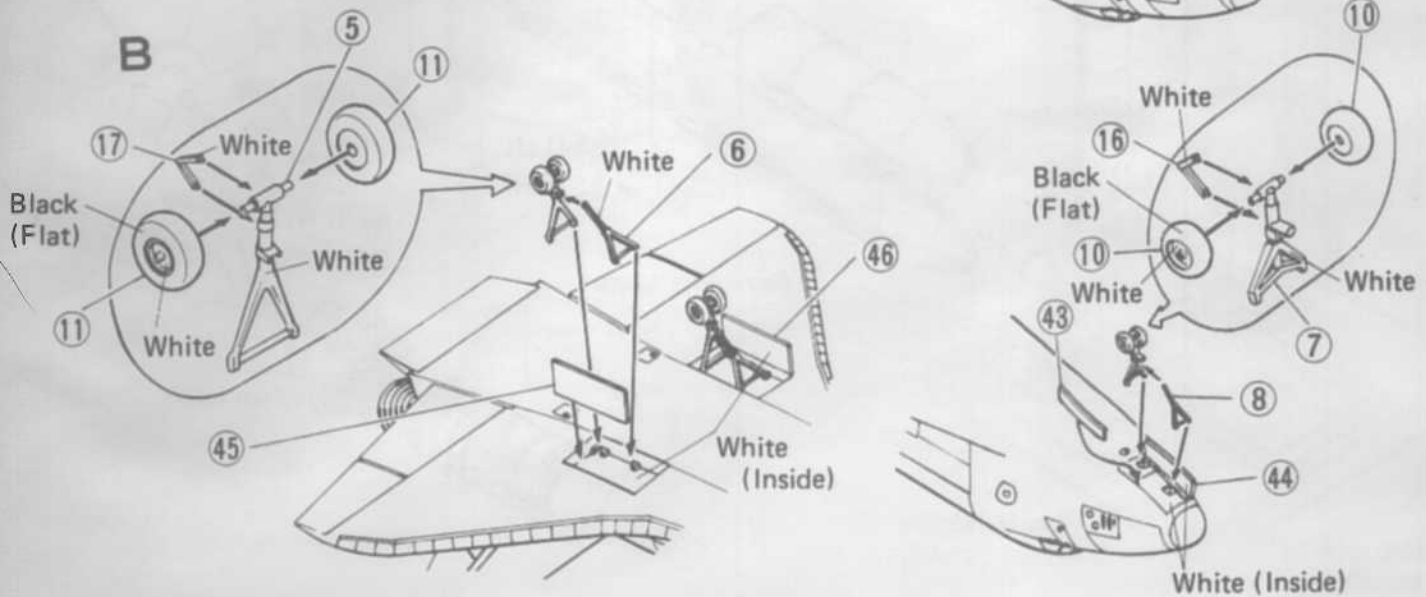


The shuttlecraft can be built in launching mode A or landing B. See step 15, then decide which you prefer and assemble as shown.

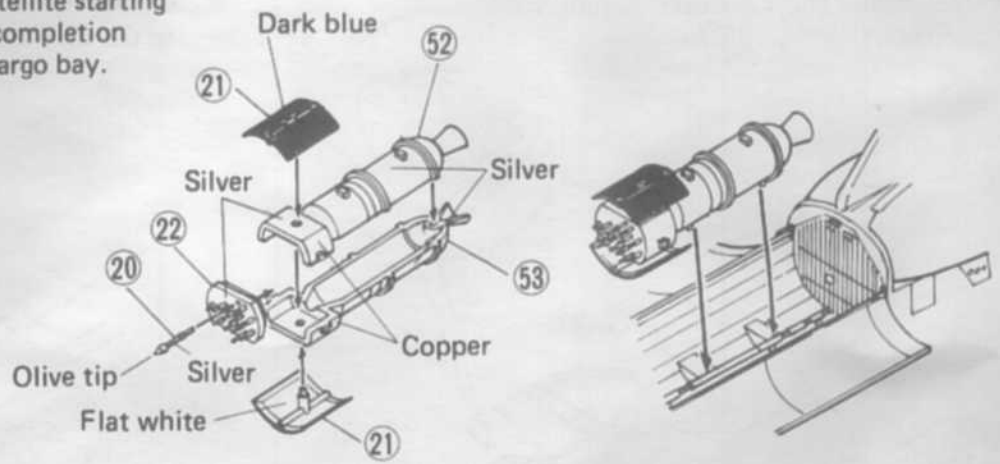
A



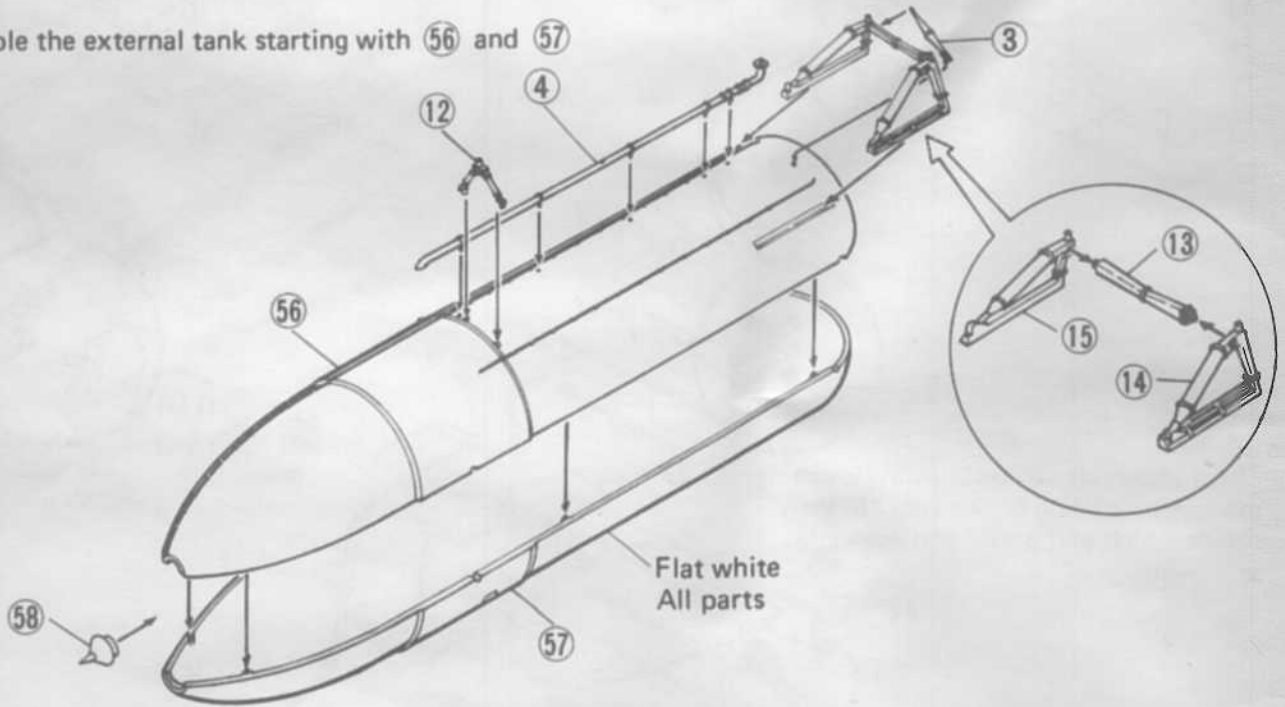
B



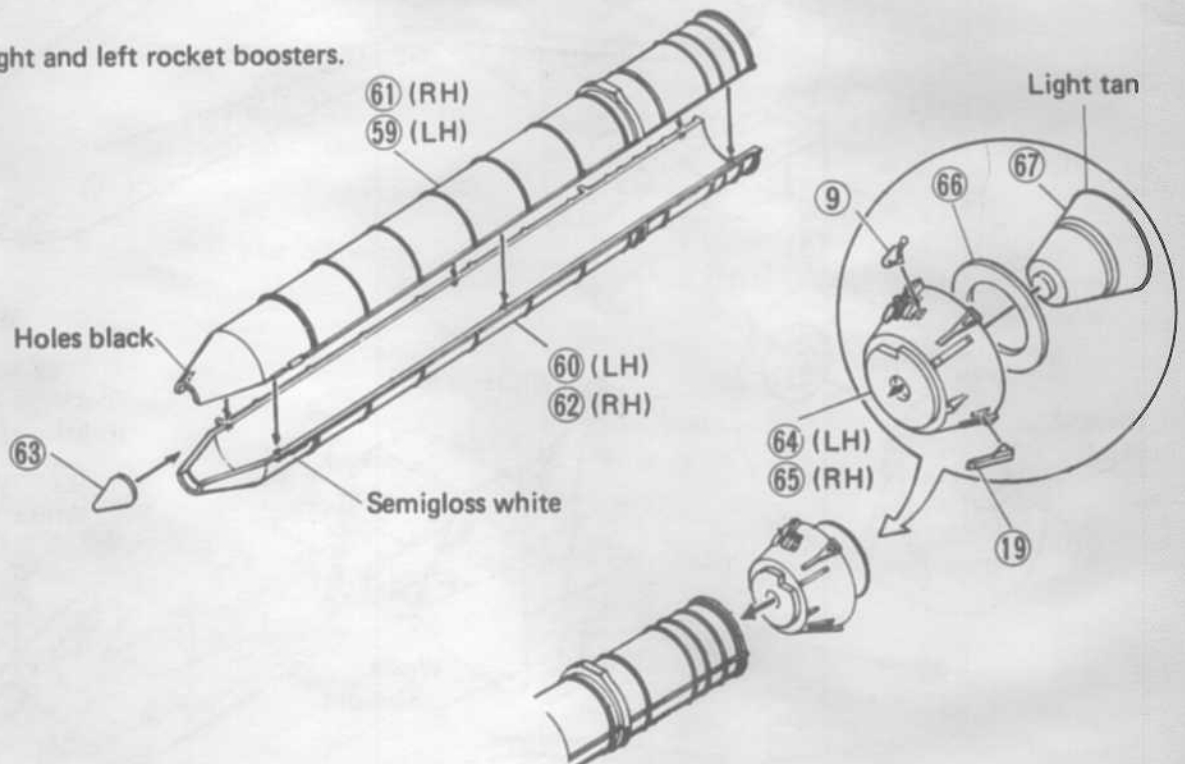
10. Assemble the Navstar satellite starting with 52 and 53. On completion cement or place in the cargo bay.



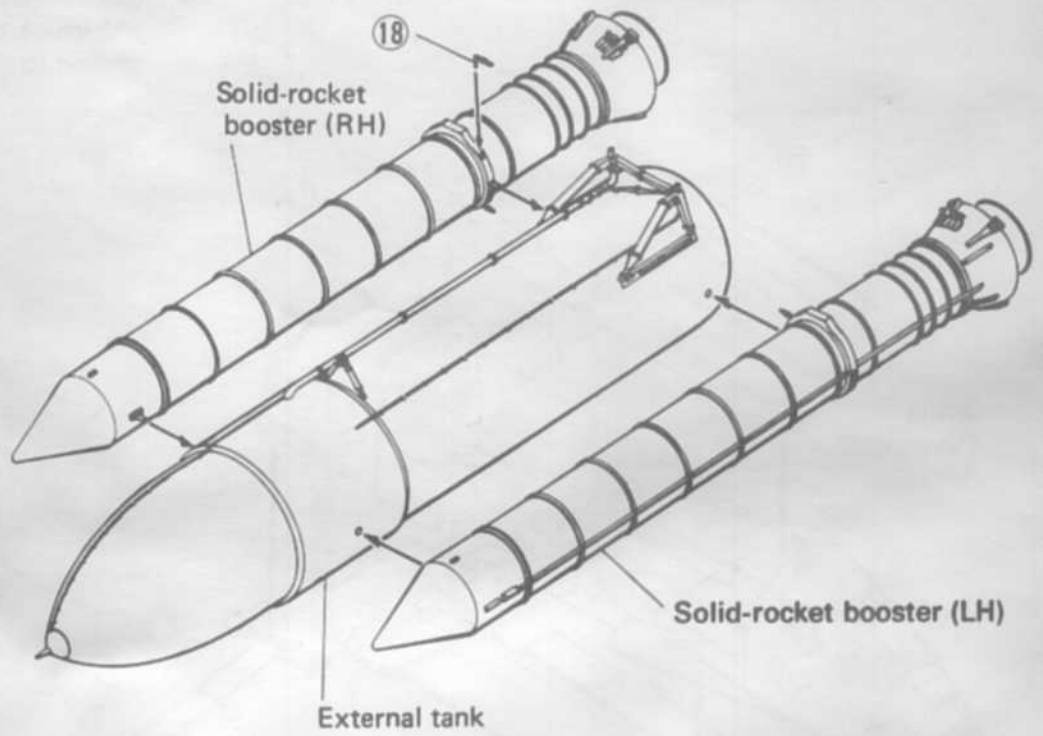
11. Assemble the external tank starting with 56 and 57.



12. Assemble the right and left rocket boosters.

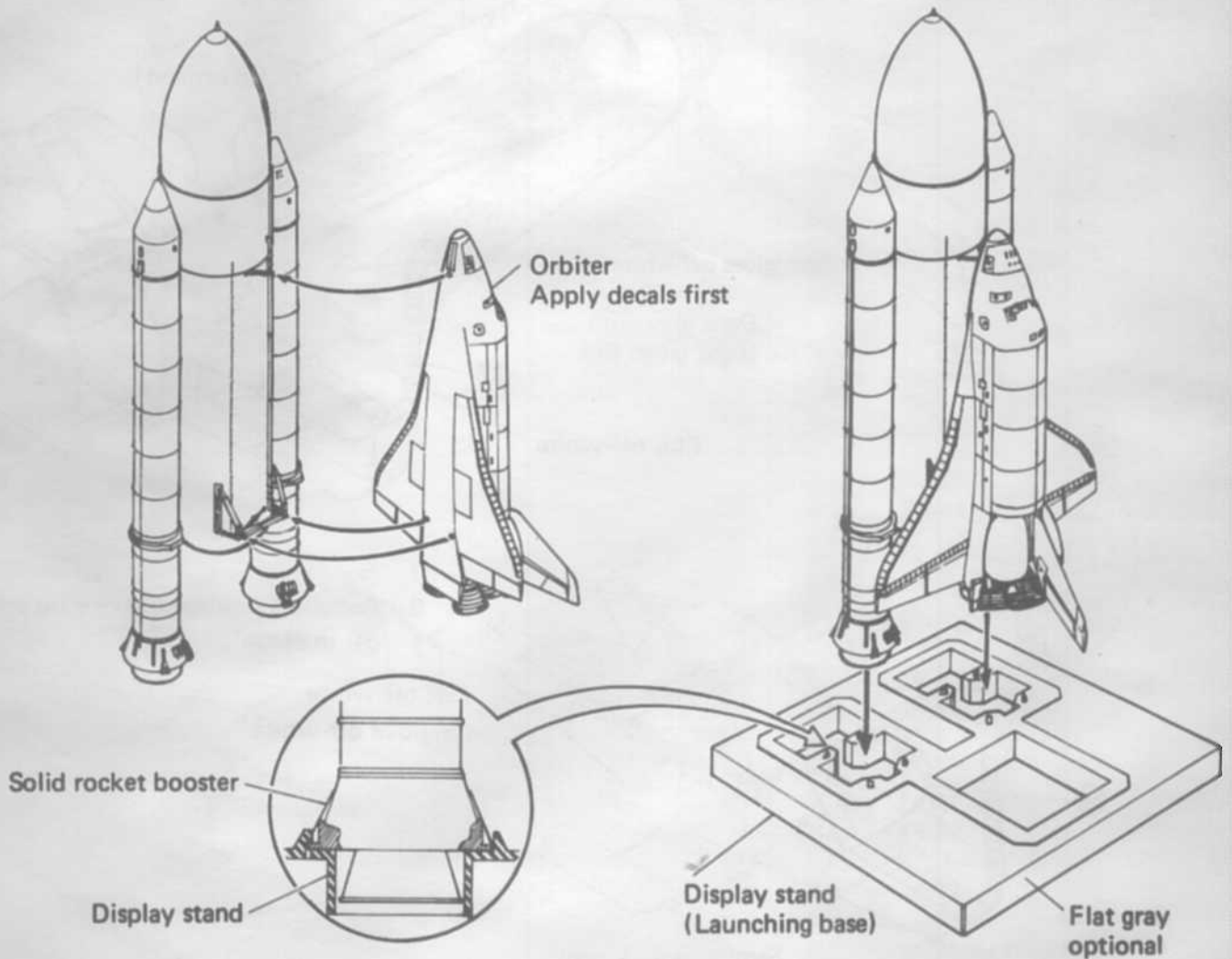


13. Cement the rocket boosters to the tank.



14. Cement the orbiter (shuttlecraft) to the tank.

15. Place or cement to the launching pad. To display in landing mode we recommend you suspend all units, orbiter, navstar satellite, boosters and tank, with threads from the ceiling or in the form of a mobile separately. By-pass steps after 12.



DECORATION

The enamels you will need for this model kit are listed below. However, with a little care you can mix to save cost.

Black mixed with silver will make steel. A small amount of black mixed with white will make dark gray. Mix green, white with a little black to make olive.

A small amount of black or brown mixed with white will give you off-white.

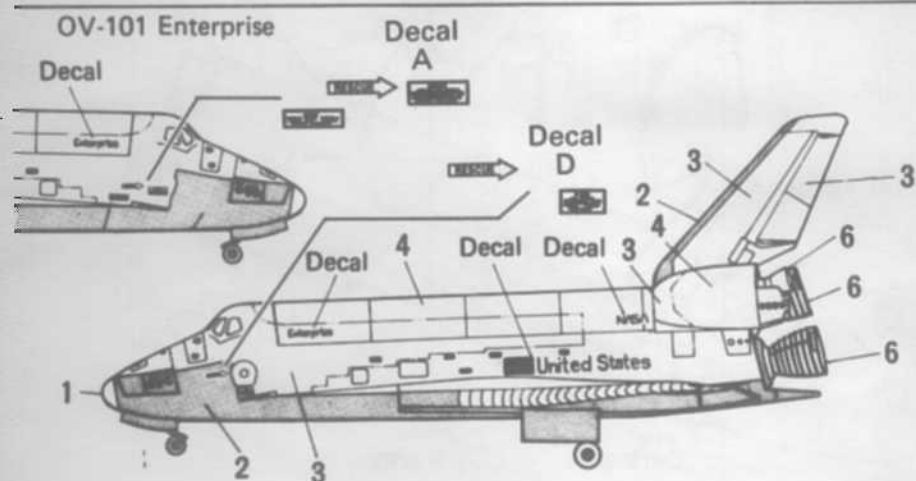
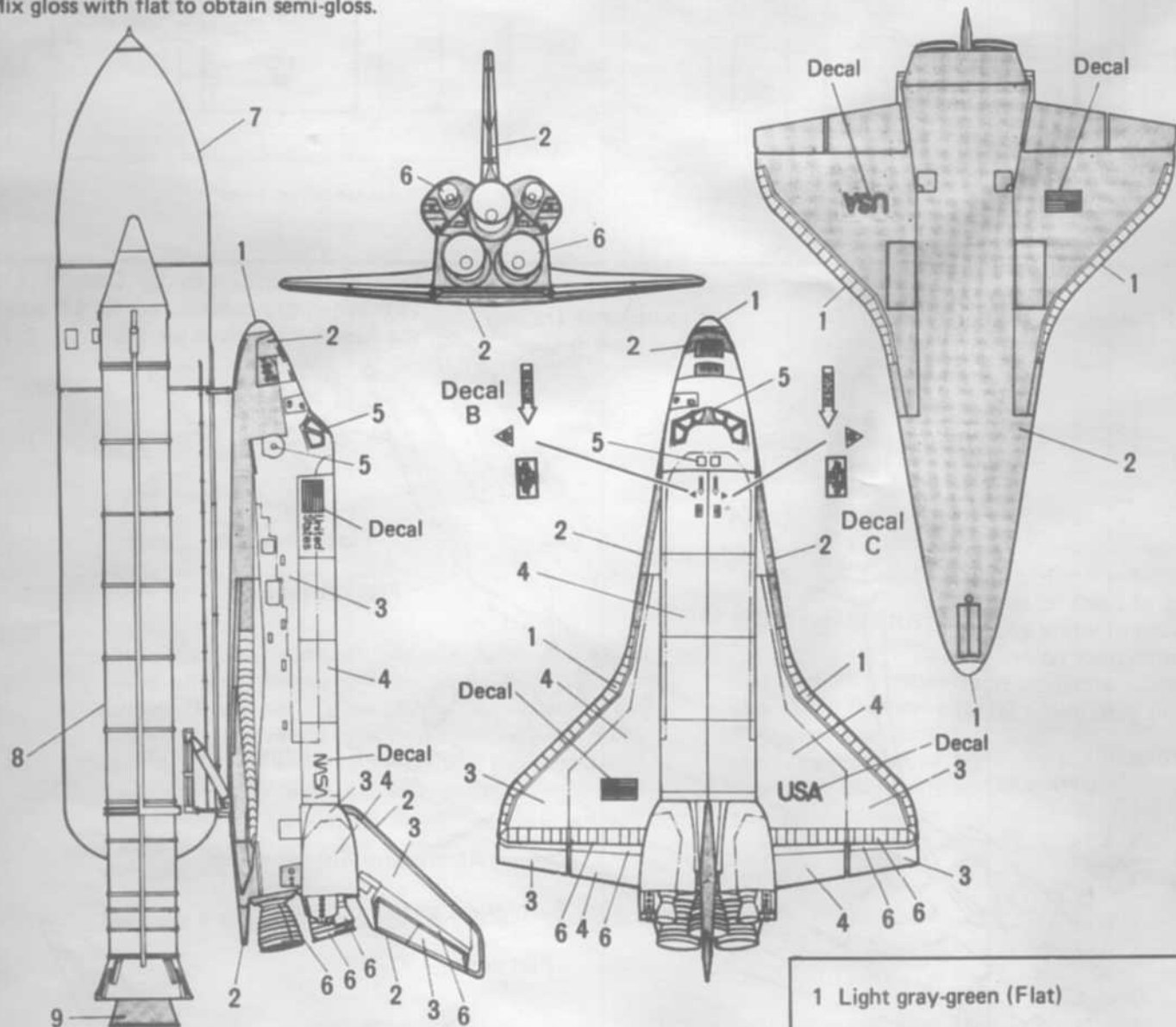
Test the colors you mix on waste plastic before applying to the model.

Mix gloss with flat to obtain semi-gloss.

Testors numbers:

Silver	1146
Steel	1180
Copper	1151
Flat White	1168
White	1145
Green	1121
Flat Black	1149
Gloss Coat	1261

(this may be used to add gloss on surfaces that have been sprayed with flat enamel)



- 1 Light gray-green (Flat)
- 2 Black-gray (Semigloss)
- 3 Off-white (Flat)
- 4 Off-white (Semigloss)
- 5 Light blue (Glossy)
- 6 Steel (Semigloss)
Main engines, Orbital maneuvering subsystem (nozzles only), Elevon hinge doors, and Rudder hinge seal
- 7 White (Flat)
- 8 White (Semigloss)
- 9 Light-tan (Flat)