



Building a 1/48th Scale Endo-Exo Transatmospheric Interstellar Space Cargo Vehicle (ISSCV)

The ISSCV was one of the spacecraft featured in the TV show *Space: Above and Beyond*. It was used for Cargo, troop movement, and on rescue/recovery missions. The center modules are removable depending on the type of mission it was tasked for.

This model is designed for beginning and intermediate modelers using cardstock. More experienced modelers might want to use other media. It can be built in different configurations with optional parts supplied where needed. Each piece is a model in its own, so it is up to the modeler which configuration they prefer.

Patterns should be printed on either white or grey cardstock. This can be purchased at office supply stores or at craft centers. I found printing on an inkjet printer produced the best results. For further effect, a camouflage pattern using colored pencils can be added. I left that off because it would take a considerable amount of ink.

Tools needed for construction: White glue or similar glue (I use Elmer's), Scissors, Straight edge for scoring seams, broad head tweezers, hole punch, sharp knife or single-edge razor blade, black magic marker, and a scribing tool for scoring seams. If you don't have a scribing tool, one can be made by inserting a large sewing needle into a dowel point first about halfway, then gluing it in place.

General Hints

The biggest thing is don't rush, take your time. Paper is an unforgiving media. Study the sheet patterns and instructions and be patient. Dry fit the parts before gluing.

Score the seams before cutting any patterns from the sheet. You'll find it will be much easier to work with the smaller parts by doing this. Use the tweezers to bend the smaller parts and scribing tool to apply glue to small tabs. Fingers will get in the way when gluing up the detail pieces. If you have glue marks (finger smudges, don't worry it only adds to the overall appearance).

Let parts either setup or dry before proceeding with the different assemblies. My experience with Elmer's glue is it sets fairly quickly with a thin layer, so take your time gluing the parts.

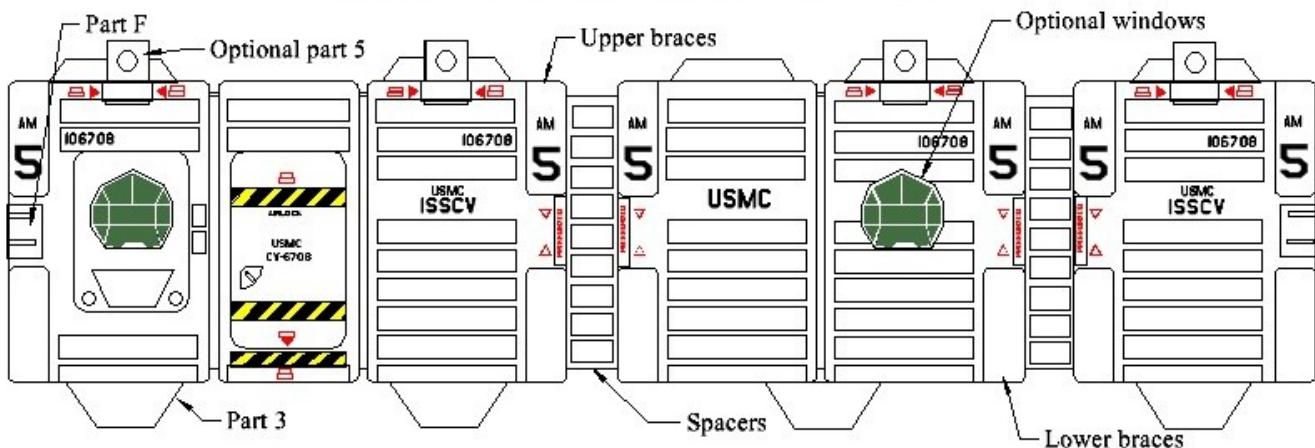
Construction

MAIN MODULE

Modules can be constructed in three different versions; Cargo, Rescue, or Troop. All three modules are the same basic configuration, only the window detail parts change from each version.

- Score all sheets at seams before cutting patterns, cut out parts. **Do not glue yet.**
- Form Part 3 into the landing skids, then glue to locations on section 1, 3, and 6. Set remaining part 3's aside for later. (If using optional part 4, form and glue to sections at this time).
- Score, cut, bend, and glue upper and lower corner braces, set aside.
- Bend and glue each section. When gluing sections, carefully align the edges. Set aside to setup or dry.
- Glue upper and lower braces to appropriate sections. Refer to drawing below for location
- Glue sections 4 and 5 together. I use books to compress parts together. Attach remaining part 3 to rectangles on bottom.
- Score, cut, and glue 2 spacers. Spacers go at rear of sections 3 and 5. Align with red rectangle, then compress together until set.
- Assemble sections 1, 2 and 3. Place on landing skids, then press together. Turn vertical, again using books to compress until they dry. Repeat with assembly 4/5 to 6.
- Glue two assemblies together.

Troop module: parts location same on all versions

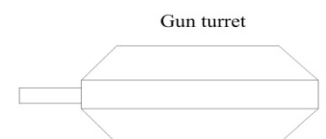


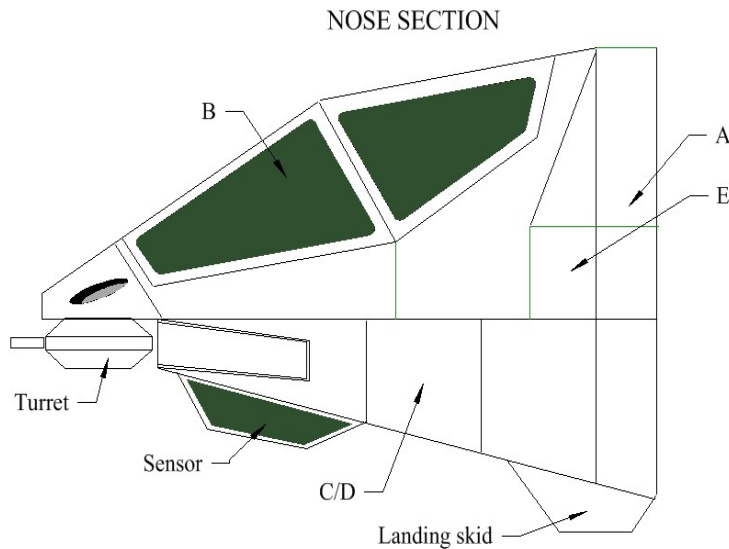
Module: Optional parts

- Optional parts are provided for the windows to give a 3d effect to the model. If choose to use them, attach when attaching part 3
- Optional parts 4 and 5 are supplied if displaying module separately from the main frame assembly. Part 4 will be attached with part 3. Part 5 will be attached at end of assembly.
- Part 5 consists of 4 layers of cardstock. Using scrap cardstock, glue pattern and scrap pieces together. Punch a hole as you add layers. Punch hole in pattern, add layer, punch hole, and continue until you have 4 layers. Glue in squares at top of Sections 1, 2, 4, and 6.

FRONT/NOSE PIECE

- Score all seams, cut out parts
- Glue Landing pad and Sensor pod into shape, then glue to Part C
- Glue parts A, B, C, and D into shape.
- Once glue has set, attach part A to part B.
- Carefully cut "X'd" portion from Part D, then glue to part C and set aside to dry.





- Assemble the gun turret. This is a delicate assembly, so take your time.
- Glue assembled part A/B to top of part C aligning rear of A/B and C.
- Dry fit part E into corner of part A and B. first so you can see out it aligns. Glue
- Glue on Gun Turret under nose.

Note: Front/ Nose Section and Rear Section:
 If **not** attaching pod to mainframe, set aside for later. If attaching module to main frame, glue Front/Nose assembly to front of Section 1 and rear assembly to section 6 Place each on landing skids, then press together. **Hold until set.** Attach part F as shown in module illustration on each side.

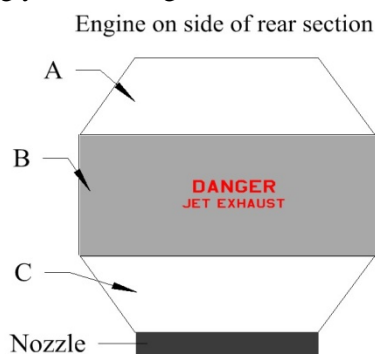
Rear Section and Engines

Rear Section

- Score all seams before cutting patterns, then cut out parts
- Glue section 7a and 7b together at tab, let setup.
- Glue part 1 and 3 into shape. Extra pieces are supplied for part 1. As you see, no tabs are on part 1, I found by holding in shape with your hand and placing a drop of glue in the corner and holding it until it sets up seals the joint.
- After part 1 and 3 sets up, glue to section 7b in marked spots.
- Glue combined sections 7a and 7b into shape. Let dry.

Engines on side of rear section

- Score tabs on parts A, A1,B, B1, and C. **DO NOT** score the end tab on the nozzle
- Score tabs on parts A1 and C1
- Using your scribing handle or other round object (pen) roll parts A, B, C, and nozzle into rounded shapes.
 - Starting on one edge glue the tab seam on A1 so it aligns with the tab seam on part A and let dry. Once dry, put glue on tabs and align opposite seams together. Align edges. Repeat this procedure for parts C and C1.
 - Glue nozzle interior dark side out to the inside of nozzle aligning edge with the tab seam. **Do Not** glue the last 1/4" of the nozzle pieces, this will become apparent later. Set aside to dry. Once dry blacken edge with magic marker. Put glue on both sides of tab and insert between nozzle ends. Let dry.
 - Cut inside round piece and blacken edges. Place nozzle on table with tabs turned in against table, put black circle piece inside



with black face showing. Press into tabs to seal, Set aside to dry.

- Take part B and as before align tab seam with tab seam on A and working slowly glue around bottom of part A. Repeat this procedure with part C around bottom. Set aside to dry. Once dry glue the two ends together on part B. This will give the general shape.
- Glue to part C the exhaust nozzle. Align edge of nozzle with edge of part C. Hold tight until glue sets.
- Bend tabs to inside of engine, then glue completed engines to section 7b in aligning nozzles within the half round circles on bottom of section 7b. Do one engine at a time and check for alignment. If it is lopsided either direction adjust as necessary, then hold until glue sets
- Attach part A1b to top of engine
- Glue this assembly to rear of section 6.

Spine

- Score and cut front and rear spine, optional inside piece is available to add support
- Glue together at tab
- Once set glue into shape
- Glue to front module assembly with slanted section over top of front/nose piece. Align end with rear module. Refer to photo for position.

Spine Outriggers: attach to sections 1, 3, 5, and 6

- Score, cut, and glue into shape.
- Align with squares on modules sections and glue. Hold down until set
- Glue part F into position both sides at front section 1 and rear section 6.

Congratulations, you have completed the main body assembly

Wing and Engine Structure

Wings Structure: two layers of cardstock are needed, glue back to back.

- Cut out all pieces.
- Place formers and rib 2 into position on pattern sheets.
- Align center former and rib 2 at right angles and tape into position
- Place remaining ribs through 10 into slots and glue, once set, glue on rib 11.
- Glue front and rear pieces into position and set aside
- Using scrap cut several pieces 1/2" wide the length of the wings
- Use one piece to place atop inside edge of rib 1, one down the middle, and one across rear rib 5. Let dry. Once dry, draw a center line on center piece and piece covering rib 5
- Remove from paper pattern and repeat for other side.
- On side of rib 1 write left and right for appropriate wing

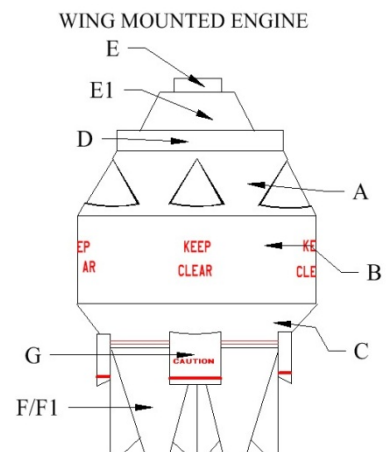


Covering:

- Cut and score the rear sections for each wing.
- Start with the large rear interior piece. Align exterior seam with center line on rib 5, glue, repeat for exterior rear section butting seam to first part. Set aside. Repeat for other wing.
- Once glue has setup, fold and glue.
- Roll front covering around center to get bend in paper. Glue front, aligning 2nd line with seam on rib 5. **Only do one side at a time.** Let dry
- Once dry, carefully glue o bottom. Hold until set.
- Attach bottom seam strip to bottom center seam.
- Set wings aside to dry. Once dry, trim covering at rib 1 and 11.

Wing Mounted Engines: try to keep all seams aligned

- Score and cut out all parts. **DO NOT** Score the end tabs on parts A, B, C, D, E, and F.
- Glue A, B, and C together. A1, C1 goes to inside. Carefully align A and C with part B.
- Assembly part D with dark side D1 facing up. Carefully wrap and glue D2 around inside.



- Assemble part E. Wrap E1 around Bic pen tube and carefully push through part E. Remove pen tube and glue part E to part D inside.
- Glue this assembly to top part A.
- Glue F1 dark side out to the inside of F aligning edge of part F1 with the tab seam on part F. **Do Not** glue the last 1/4" of part F1 to part F, this will become apparent later. Set aside to dry. Once dry, blacken edge with magic marker. Insert tab, put glue on both sides of tab and insert between part F and F1. Let dry.
- Insert F2 dark side facing out into large end, put glue on tabs on part F, then bend tabs inward, press F2 into tabs.
- Glue to bottom Part C
- Carefully assemble 4 parts G.
- Attach to part F centering it under the "Keep Clear" logo on part B pressing it up against part C. Hold until set.

Engine Mounts and Wing Details: Score, then cut, and glue

Engine Mounts and attaching to wing:

- Starting at center, glue engine mount pieces toward the end. Let Dry
- Attach to engine by aligning center of mount over seam on engine part B. Hold until set.
- Center engine on wing rib 11 either in the horizontal position for flight or vertical for landing. Test fit before gluing, then glue. Set assembly aside to dry.

Wing details

- Start with part 1, then part 2. Center part 1 against engine mount. Part 2 butted against end of part 1 and centered over seam on wing. (See picture below for placement of parts)
- Set part 3 aside until wing is attached to Wing Spine

Attaching Wing

- Score and cut wing spine part 1 and 2 from sheet. Glue together at tab.
- Glue wings to part 1-2 and let dry completely, once dry glue tabs at front and rear of spine.
- .Glue wing spine part 3 on module assembly spine to section 6 centered above the outrigger.
- Glue wing spine part 4 butting against part 3 rear
- Glue wing assembly to front of part 3

Adding Wing spine details

- Score, cut and glue the pieces.
- Align front of part 1 with first panel line from front of wing.
- Glue in order moving to the rear parts 2, 3, 4 and gun turret.
- Glue in order moving forward 1a, and 1b
- Take wing detail part 3 from above and center on upper wing seam and glue.

Congratulations, you have completed the wing assembly.

Rear Engines

- Score, cut, and assemble Engine mount and front and rear sections.
- Glue engine mount to front section in large rectangle ensuring triangular area on engine mount faces forward, pieces are interchangeable so it doesn't matter which side it is attached.
- Glue rear portion to front portion.
- Test fit part 2, then glue.
- Carefully fold and glue 8 parts 3 and 3a, set aside to dry.
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Nozzles

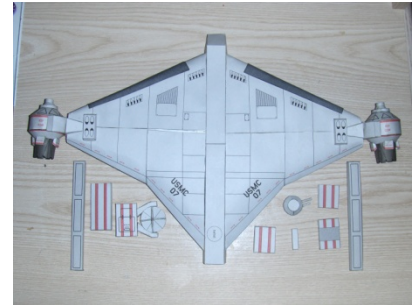
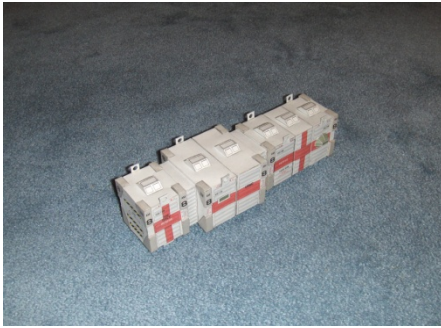
- Glue A1 dark side out to the inside of A aligning edge of part A1 with the tab seam on part A. **Do Not** glue the last 1/4" of part A1 to part F, this will become apparent later. Set aside to dry. Once dry, blacken edge with magic marker. Insert tab, put glue on both sides of tab and insert between part A and A1. Let dry.

- Glue part A2 so black side is inside nozzle.
- Attach to rear section.

Attaching part 3 and Engines to module spine

- Glue 3a to back of part 3 to rectangle at rear of part 3. Opening on 3a goes toward 3.
- Glue part 3 assembly, so rear of 3a aligns with back edge of rear section.
- Center and glue engine mount against rear of wing spine part

Congratulations, You have completed the ISSCV



Wing parts laid out for assembly

Wing Details

- Engine mount attached to part B on engine
- Part 1
- Part 2
- Part 3

Wing Spine Details

- Part 1b
- Part 1c
- Part 1
- Part 2
- Part 3
- Part 4
- turret

