

SpaceX Falcon 9 v1.1 (opt. Heavy configuration) – 1:100 scale

- Where it is not obvious, red arrows mark the places to cut.

- Payload Fairing:

- Cut out the three parts for the upper fairing. Roll the smallest part into a shallow cone, overlapping to the dotted line, and secure with glue. Roll the remaining pieces into frustums and secure. Bend the “teeth” in slightly, apply glue to the inside of each upper piece, and assemble the stack to make the upper fairing (either align all seams and position to the back of the displayed model or alternate so the seams on adjacent parts are on opposite sides of the model).
- Cut out the lower fairing piece, roll and secure as with the upper fairing.
- Cut out the fairing body and the two toothed connectors. Roll the body into a cylinder and secure with the tab (alternately, the tab can be cut off and used as a connector strip to form a cylinder with a less obvious seam). Curl the two toothed connectors so they fit inside the cylinder, then glue them to the inside top & bottom with just the teeth exposed.
- Fairing assembly: bend the teeth on the fairing body connectors inward slightly, apply glue to the inside edge of the upper and lower fairing parts, and attach the upper and lower conics to the fairing body.
- Booster Nosecones/Dragon Capsule – assemble similarly if used instead of the payload fairing. Assemble trunk module like other rocket body cylinders, closing the bottom with a disk, recessed to allow room for the second stage connector to insert. Fold the solar array fairings into boxes and edge glue onto the trunk over the indicated outlines.

- Rocket Body:

- Cut out and roll the second stage, inter-stage, upper and lower main body of the rocket into cylinders and secure by gluing the tabs (or use a connector strip as described above). Cut out the connector strips, curl to fit inside the rocket body, and attach to the inside top of the second stage, interstage, upper and lower main body parts. Curl the remaining connector strip (mounting support ring) and glue it about 3/8” (10mm) up inside the bottom of the second stage to support the second stage motor structure.
- Cut out the rocket motor mounting and internal support disks – laminate to thick card for additional strength. Glue support disks inside the upper/lower ends of the second stage, one inside the upper end of the main body and one in the top end of the lower rocket body, using the connector strips to locate the disks. Glue remaining disks inside the main body evenly spaced.
- Roll the second stage motor support into a frustum and glue inside the bottom of the second stage using the inner support ring to locate the parts. Glue the small disk to the bottom to close the assembly.
- Roll the and glue the two motor section parts. Bend the tabs on the bottom of the upper motor section inward and glue to the lower section. Glue the toothed connector strip inside the bottom edge of the lower rocket body, teeth downward and connect to the upper motor section. Fold the tabs on the lower section inward and glue on the main rocket motor disk.
- Repeat construction of the first stage and motor section for the two outer core boosters.

- Rocket Motors: Cut out and roll the center rocket extension into a short cylinder and glue. Cut out and roll the nozzles into cones and glue. Use the large outer circle to make the second stage nozzle (make 9 short and 1 long nozzles). When dry, glue the short center cylinder to the small end of one short nozzle. Glue the short nozzles to the center of the black circles on the motor disk, motor with the extension in the center. Glue the long nozzle to the bottom of the second stage.

- Glue each motor assembly in place on the motor mounting disk using the dark circles to locate the motors.

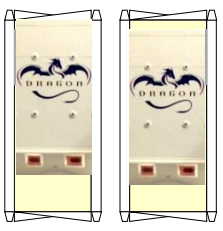
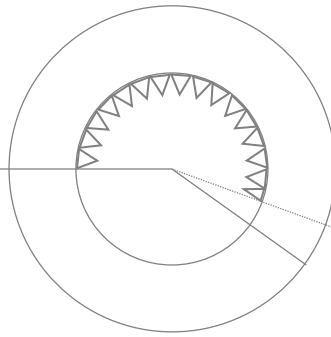
- Final Assembly:

- Review the graphic of the Falcon9 Heavy before applying any glue. Note the alignment of the rocket nozzles, engine sections, and core rocket boosters. Apply glue to the inside of the bottom end of the main body and insert the bottom engine section of the rocket. The SpaceX lettering will be to the front for display. The circles and lines that are part of the connections between core boosters will face sideways. The seams for the engine sections and main body **may not be aligned!**
- Slip the payload fairing over the top of the second stage. Line up the seams on the payload fairing so they are not obvious for display. Slip the second stage over the inter-stage. Slip the inter-stage over the top of the main body/first stage. The Falcon logo on the second stage should be to the front for display and the Falcon 9 logo and SpaceX lettering should be aligned.

DRAFT

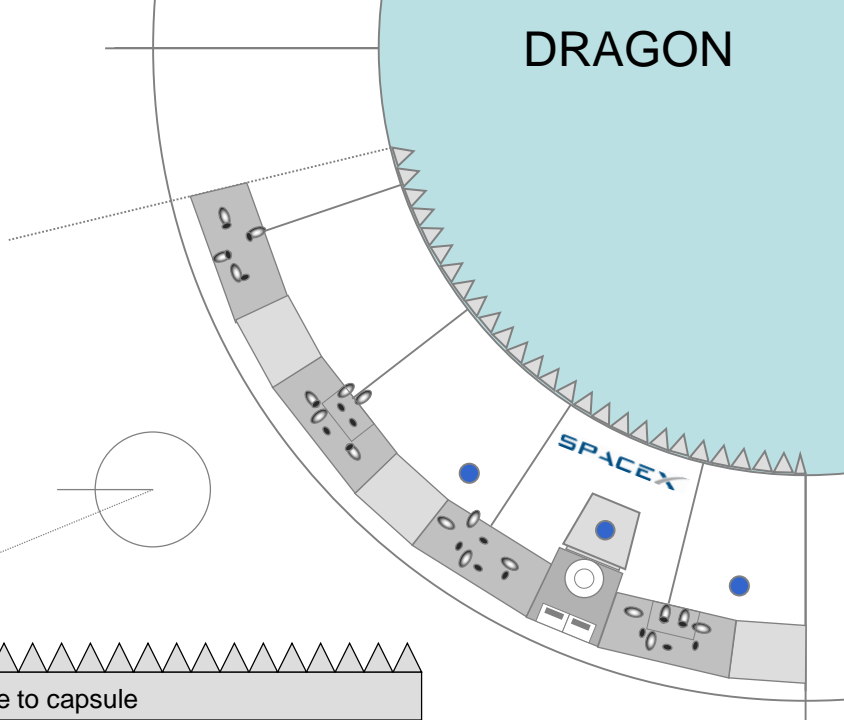
SpaceX Falcon 9 v1.1 1:100 scale

DRAGON

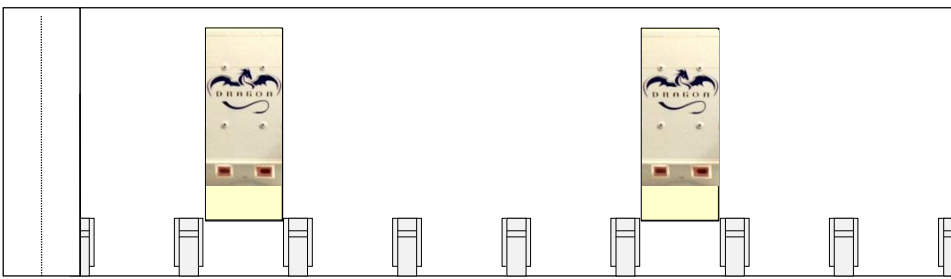
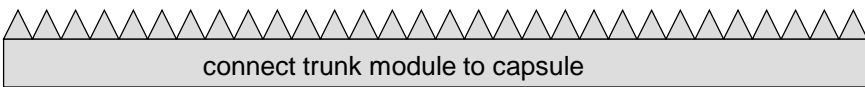


Trunk Solar Array Fairings

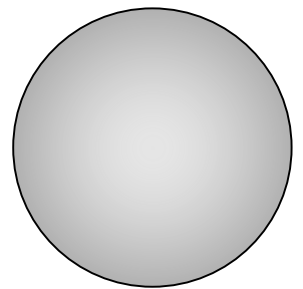
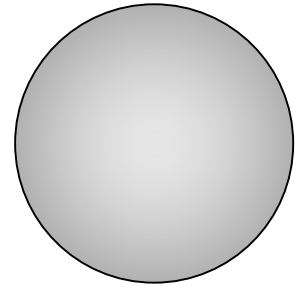
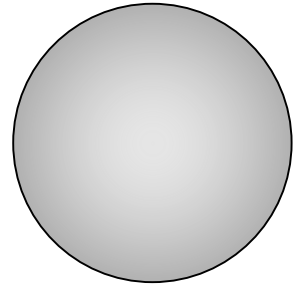
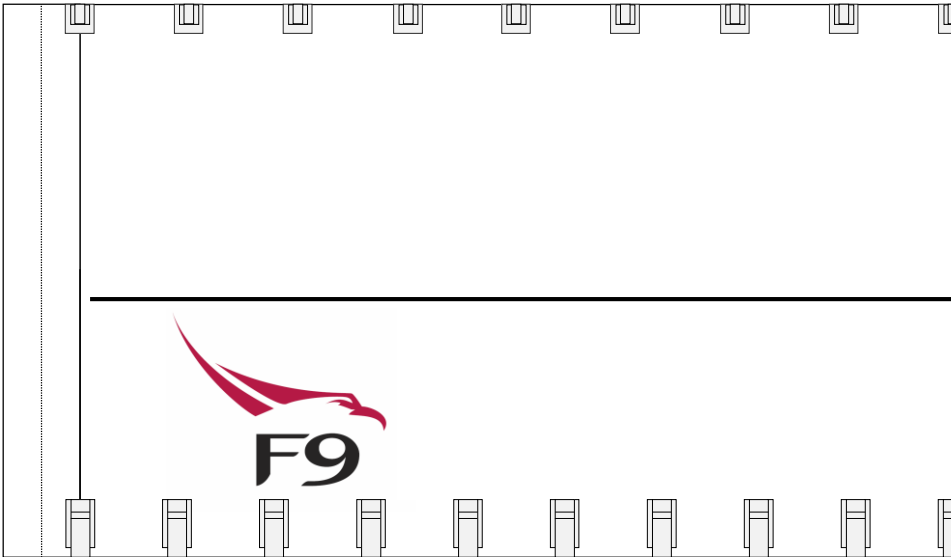
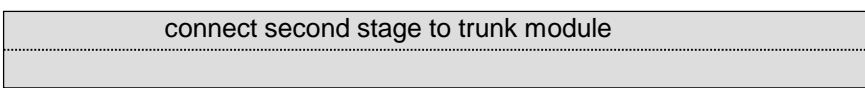
Capsule Nose Fairing



Trunk module

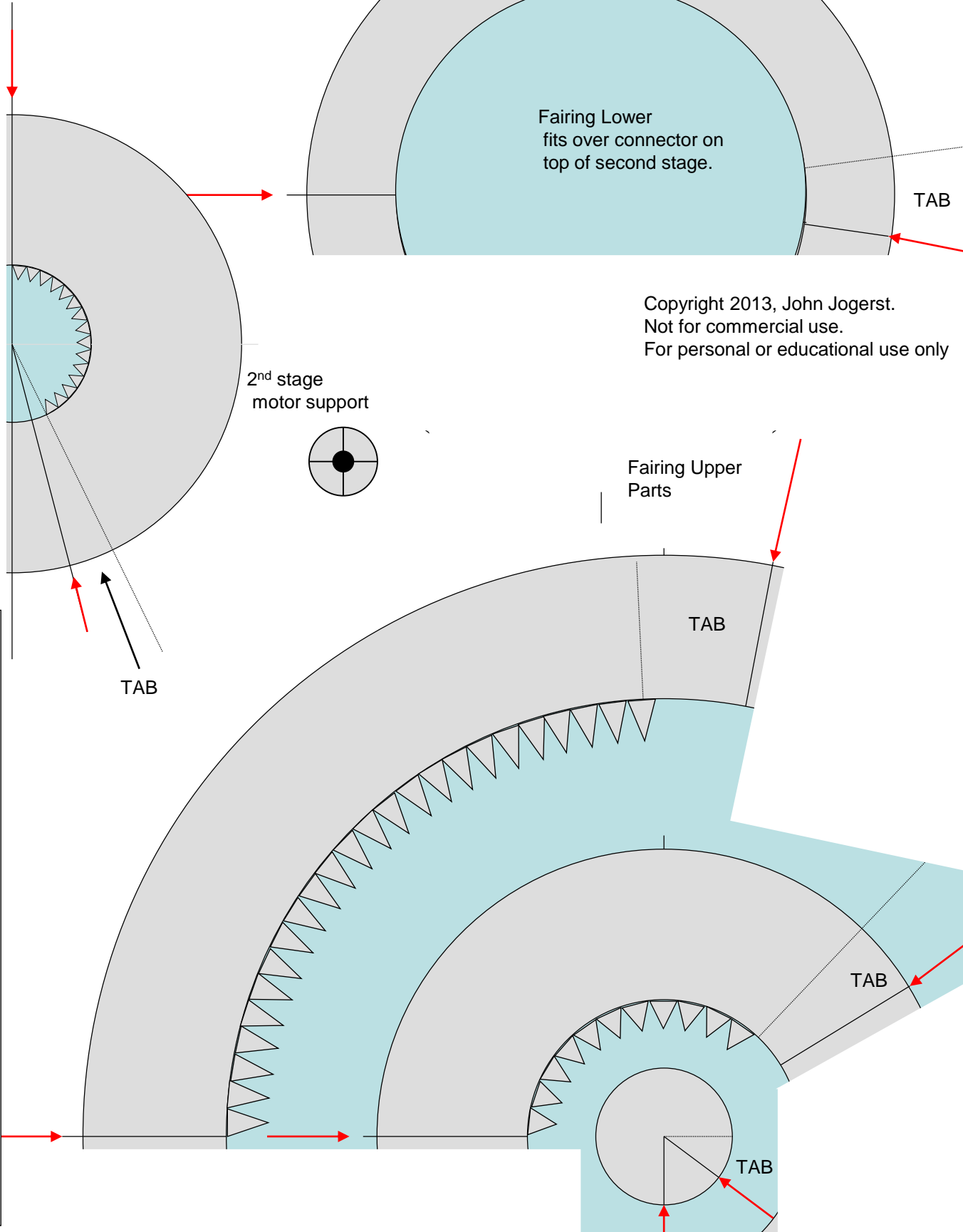


2nd stage



← Inner support ring goes inside here

SpaceX Falcon 9 v1.1 – 1:100 scale



Copyright 2013, John Jogerst.
Not for commercial use.
For personal or educational use only

SpaceX Falcon 9 v1.1 – 1:100 scale

Fairing Body



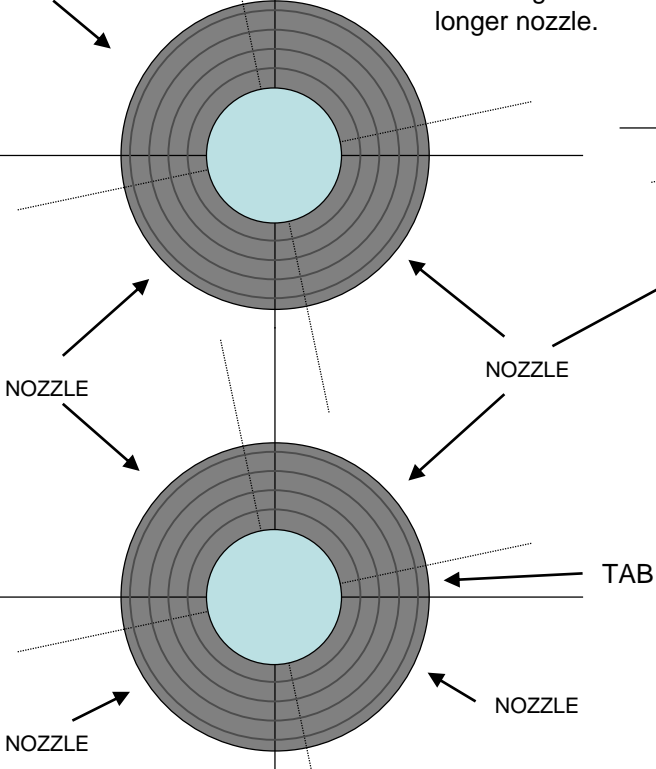
use as connector or tab

NOZZLE

NOZZLE

Rocket Nozzles
Use 9 for 1st stage
For second stage, use outer ring to form longer nozzle.

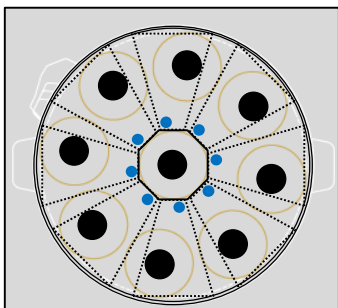
Use middle circle for the ninth first stage nozzle. Use outer circle to form one second stage nozzle.



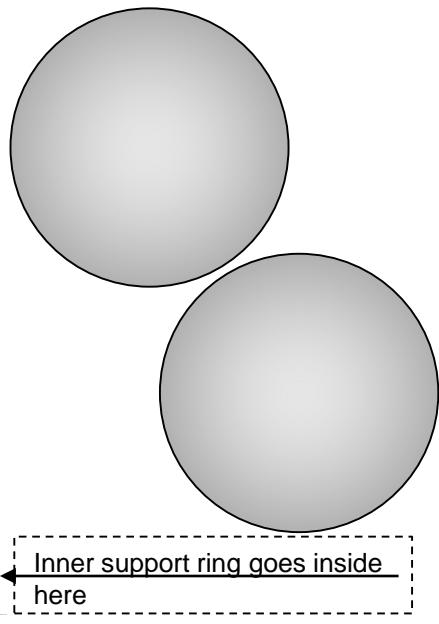
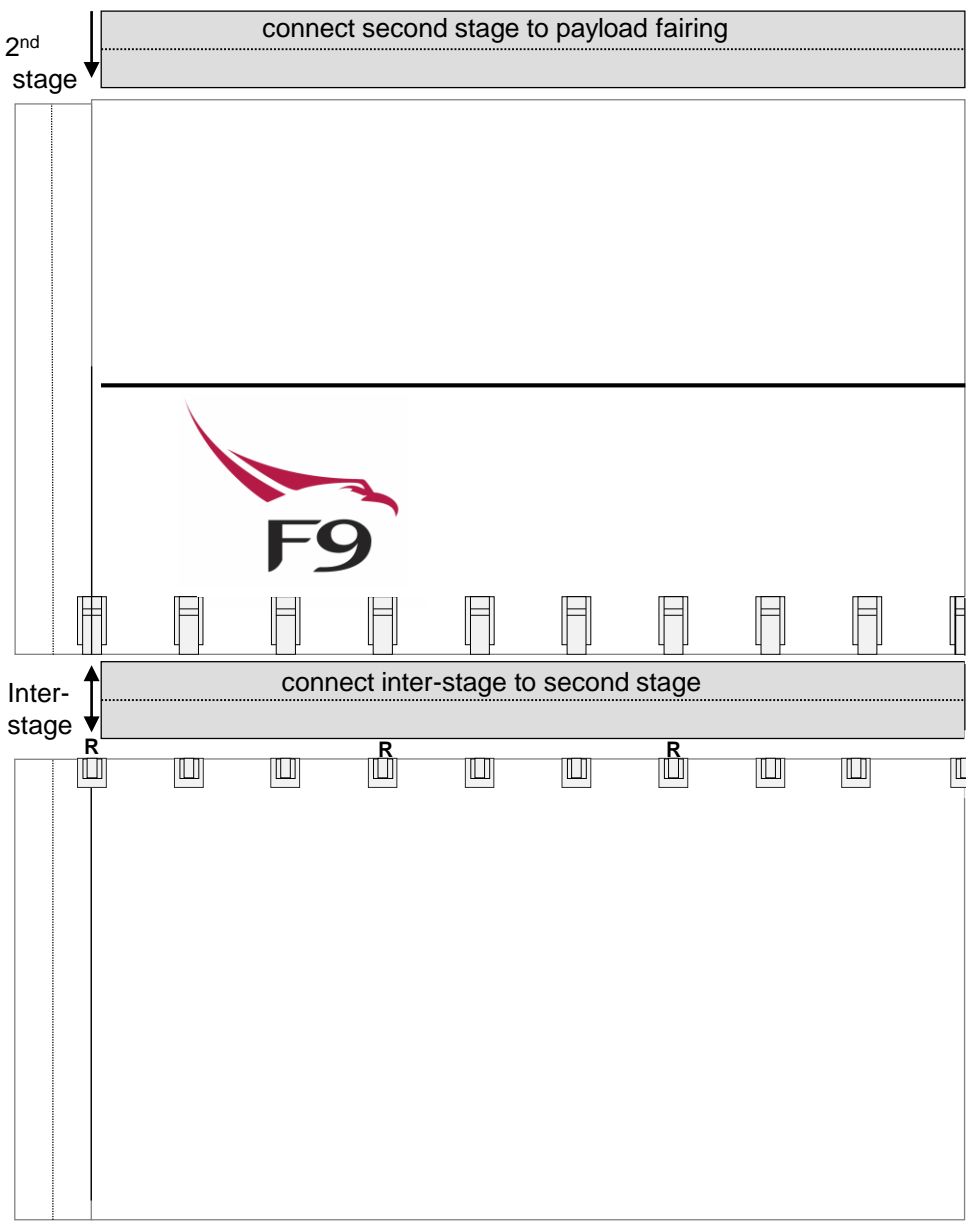
Extension for Center Rocket Nozzle.



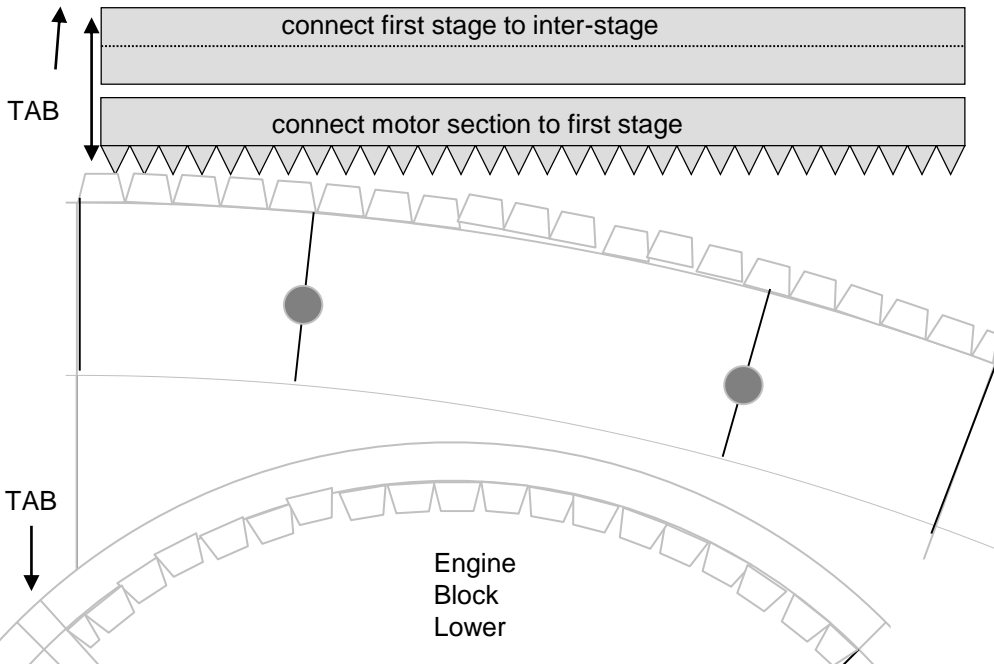
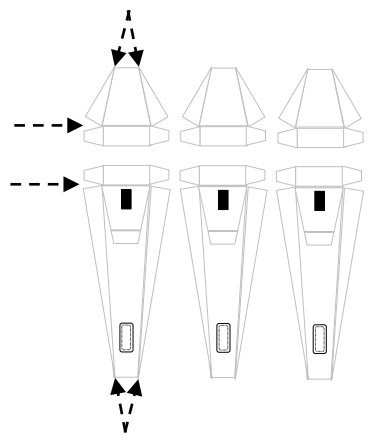
Main motor disk



Cut out black outline. Glue rocket nozzles to black disks.



RCS POD F9-R
Glue between Inter/2nd stages
position marked by R



Center core engine block

Dark circles (fuel crossfeed) go to the sides and locate the connectors between the cores for the Heavy Version.

SpaceX Falcon 9
v1.1 1:100 scale

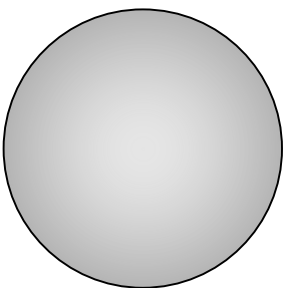
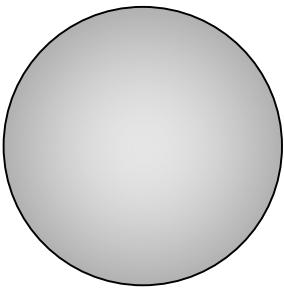
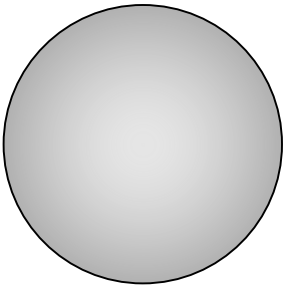
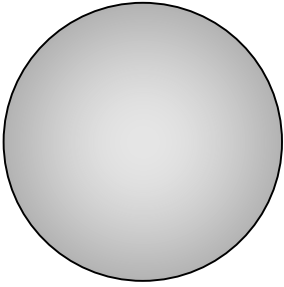
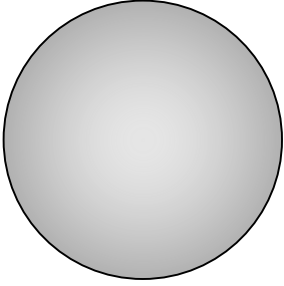
SpaceX Falcon 9 v1.1

1:100 scale

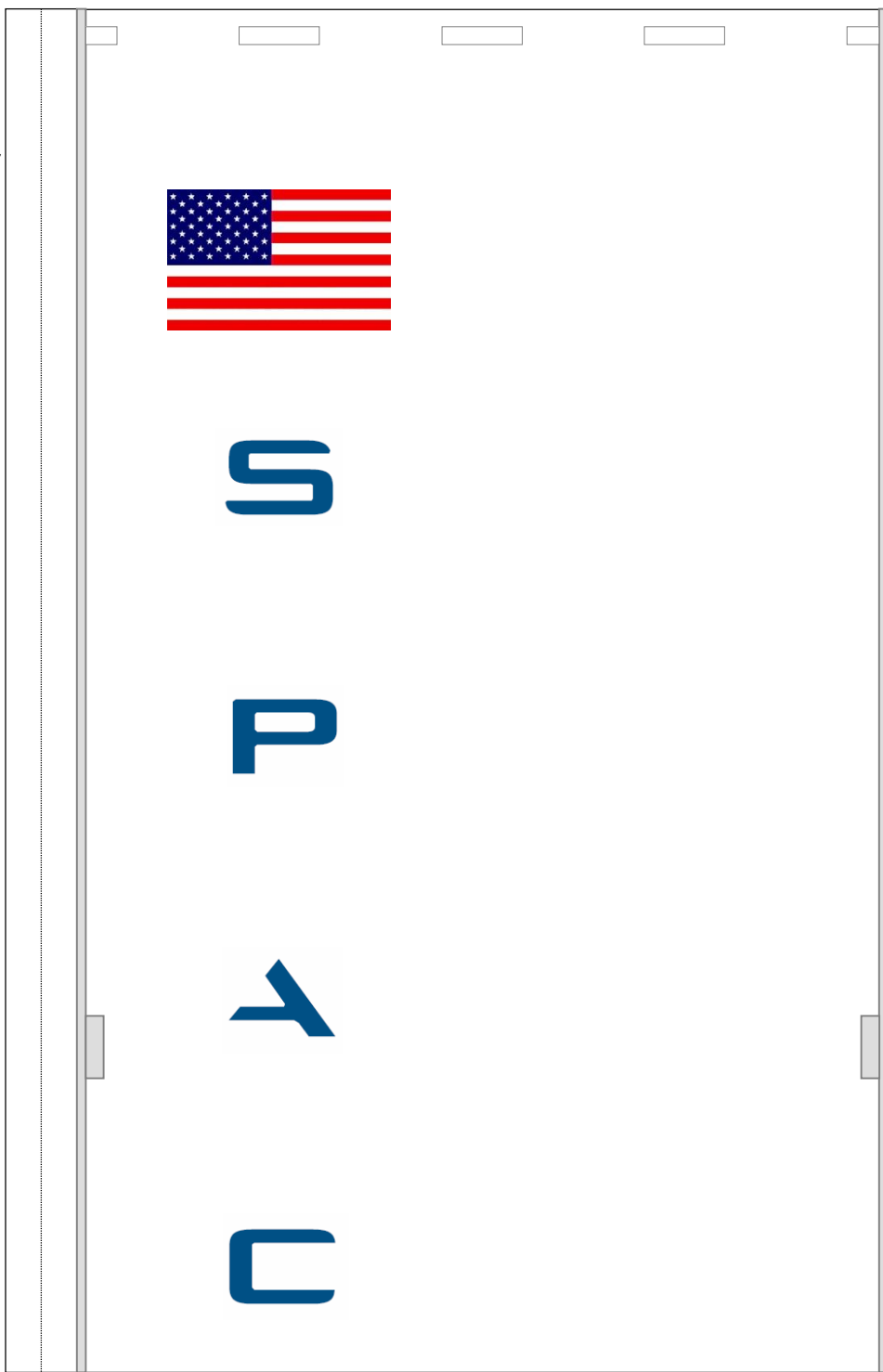
First stage upper

use as connector
or tab →

Internal support disks, position
as needed.

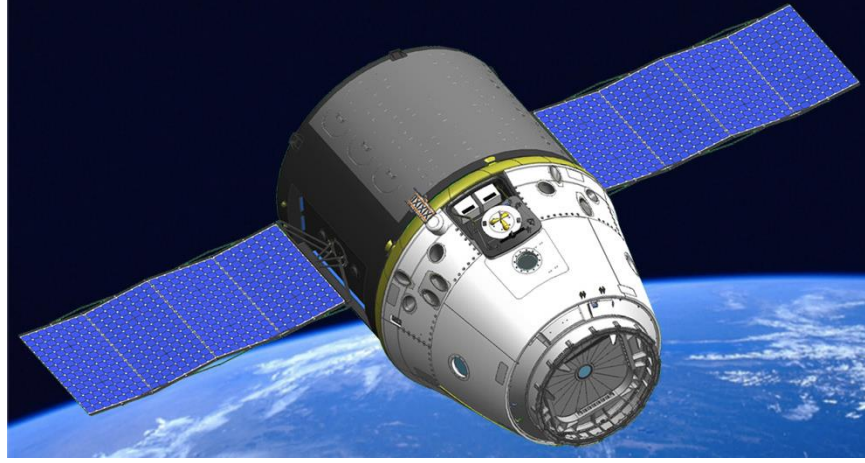


Copyright 2013, John Jogerst. Not for commercial use. For personal or educational use only

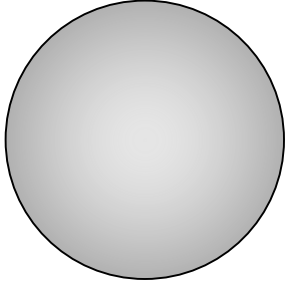


SpaceX Falcon 9 v1.1

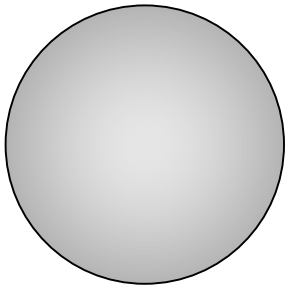
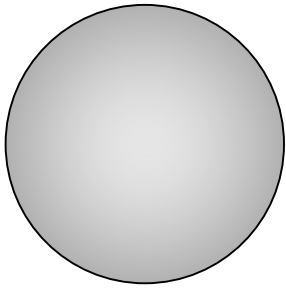
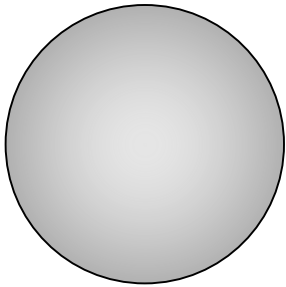
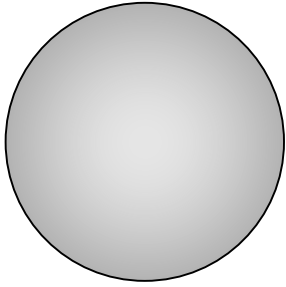
1:100 scale



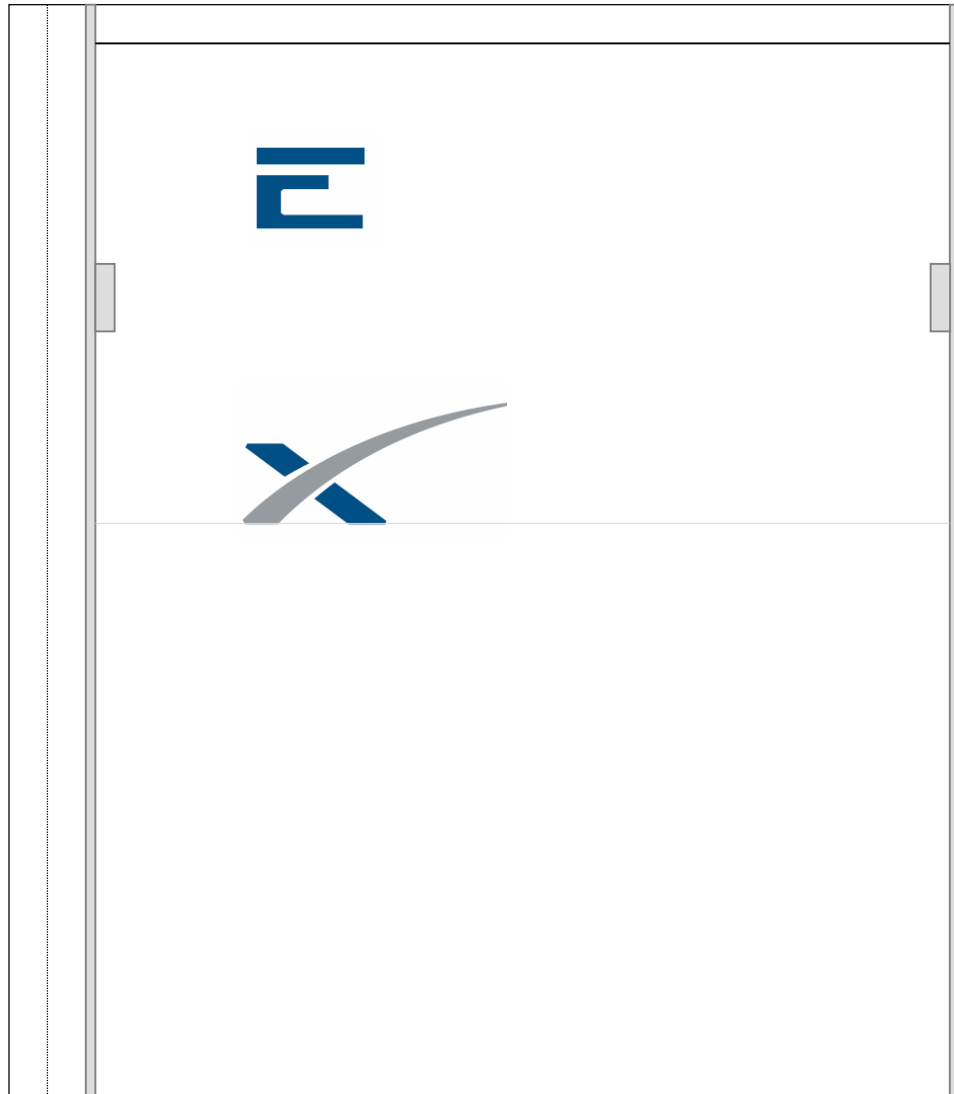
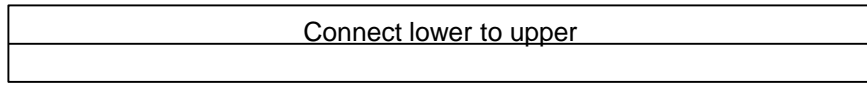
Internal support disks, position as needed.



use as connector or tab



First stage lower



DRAGON

TRUNK

SECOND STAGE

INTERSTAGE



FIRST STAGE UPPER

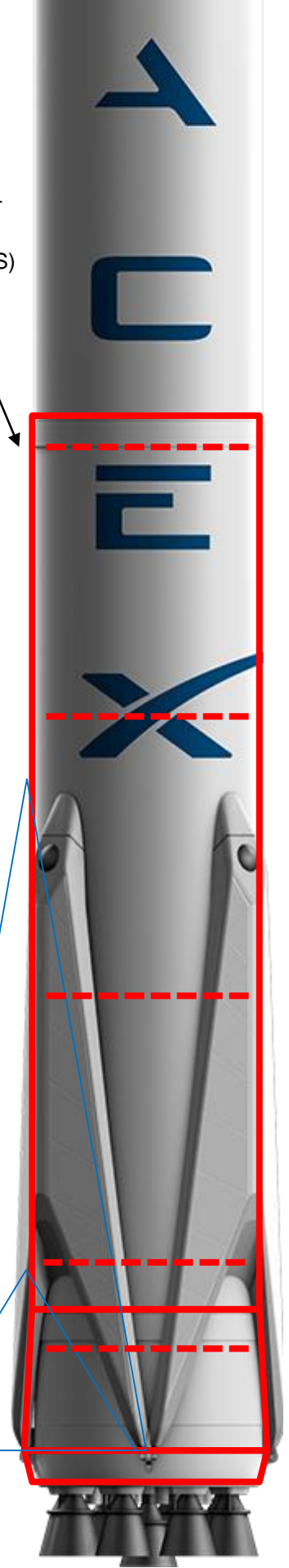


SUPPORT DISKS (EXAMPLES)

FIRST STAGE LOWER

ENGINE BLOCK UPPER

ENGINE BLOCK LOWER



SpaceX Falcon 9R 1:100 scale

CHANNEL

INNER SKIN
PRE-CURVED

FORMER

LAMINATIONS
EDGE BEAMS

UPPER
BAND

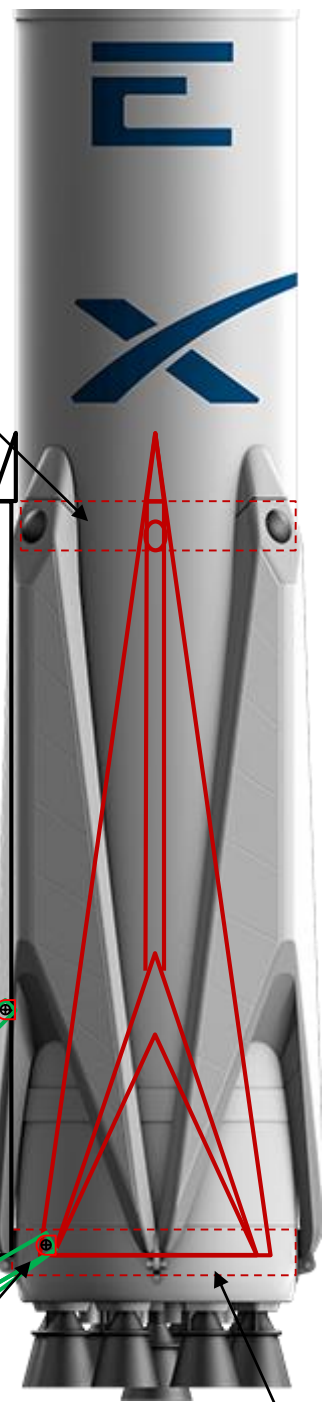


OUTER SKIN

1" PVC pipe
MANDREL
OUTER DIA ABOUT 1.3"

**MOUNTING EXTENDED LEGS
BEST DONE BEFORE GLUING
ON ROCKET NOZZLES**

1. Glue hinges to lower band.
2. Trim inner corners at bottom of legs to clear fuselage curve (about 45 deg).
3. Glue brackets in line with top tip of leg (half way between hinges) to fuselage 1.5" (3.8cm) higher than hinges.
4. Fix leg ram total length at 4.5" (11.5cm).
5. Test fit leg to hinges with ram in place and support rocket at that height. Glue legs to hinges, glue ram to bracket and tip of leg. Repeat for remaining legs.
6. Glue top fairing above upper band aligned with tip of legs.



BRACKET

RAM

HINGES

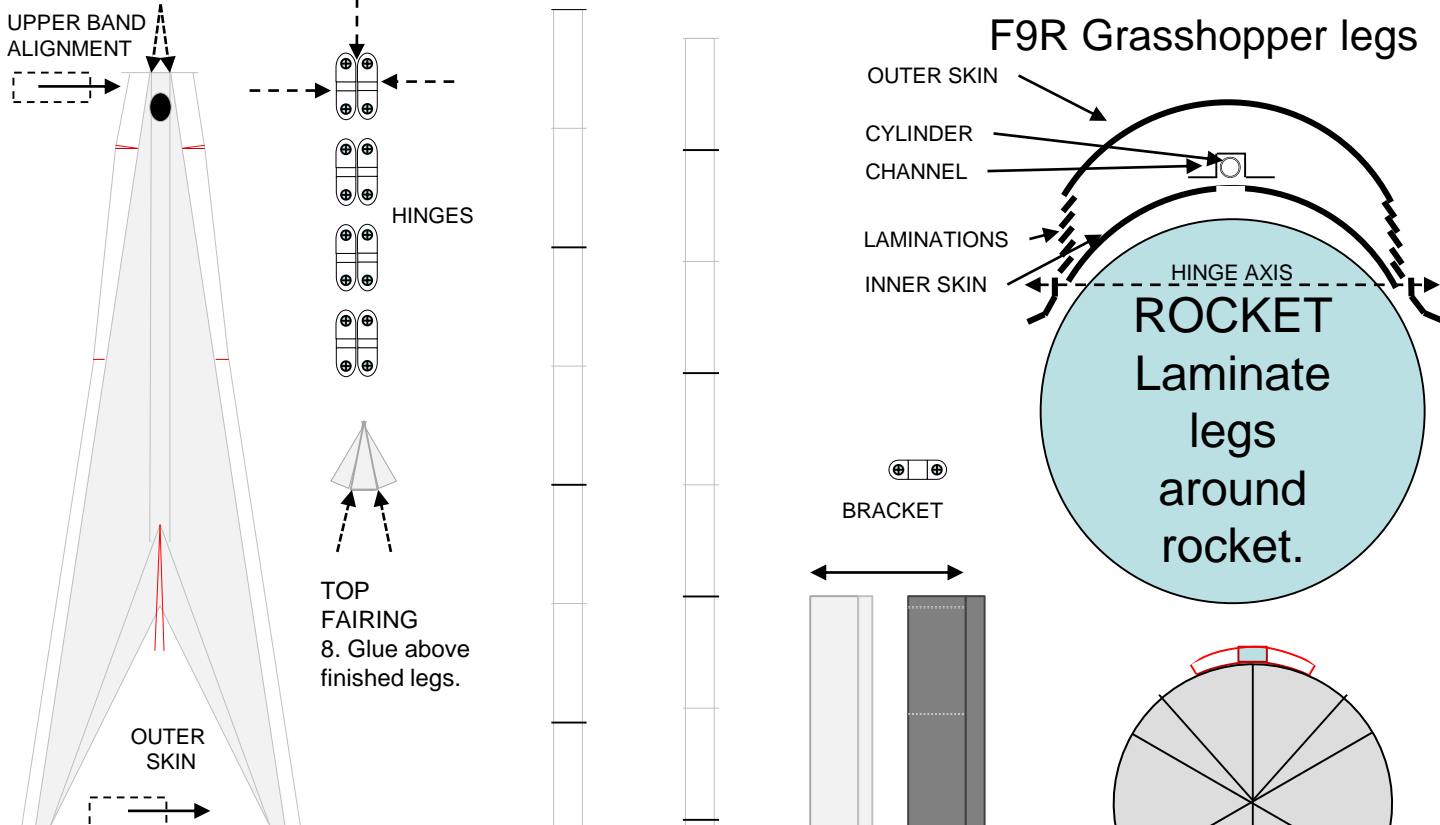
LOWER
BAND



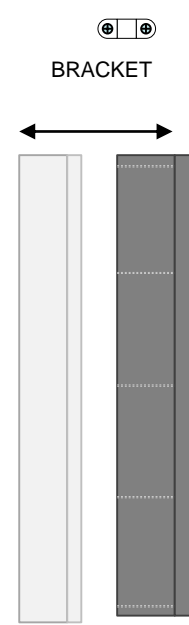
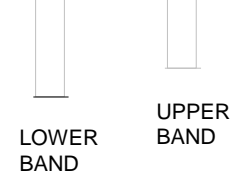
MOUNTING FOLDED LEGS

1. Glue hinges to lower band.
2. Glue legs to lower band between hinges, upper tip aligned with marks on upper band and glued.
3. Glue top fairing above and aligned with upper tip of leg.
4. Repeat for remaining legs.

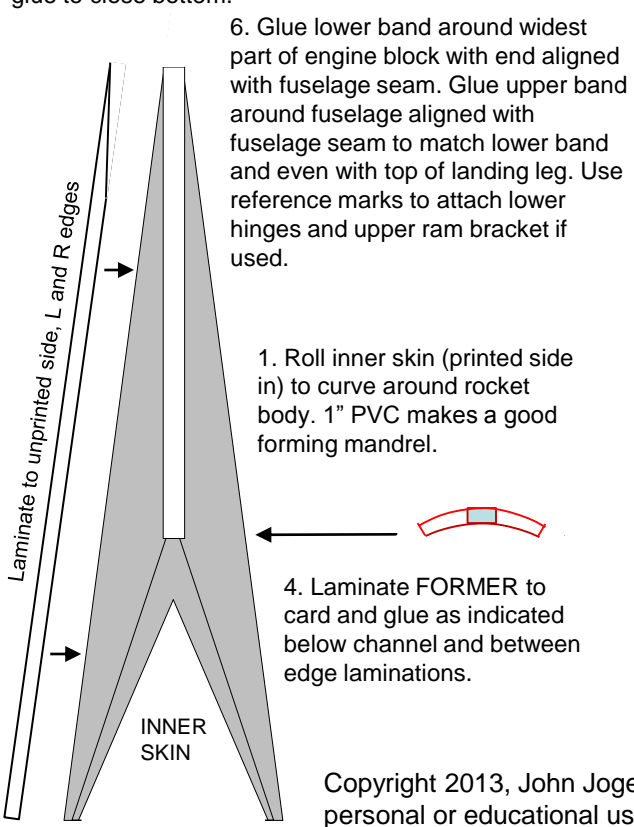
EXTENDED LEG



5. Roll outer skin (printed side out) and glue to leg assembly-apply glue to bottom tips only. Score/fold white edges down to cover laminations and glue, then glue top tip. Red lines are relief cuts. Make cut at base, bend edges to meet inner skin and glue to close bottom.



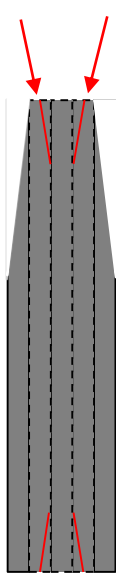
7. Roll inner tube, then roll outer tube (dark gray) around inner to make leg ram. Use only if displaying with legs deployed. Bracket mounts to rocket body to match bottom of channel in leg when folded.



6. Glue lower band around widest part of engine block with end aligned with fuselage seam. Glue upper band around fuselage aligned with fuselage seam to match lower band and even with top of landing leg. Use reference marks to attach lower hinges and upper ram bracket if used.

1. Roll inner skin (printed side in) to curve around rocket body. 1" PVC makes a good forming mandrel.

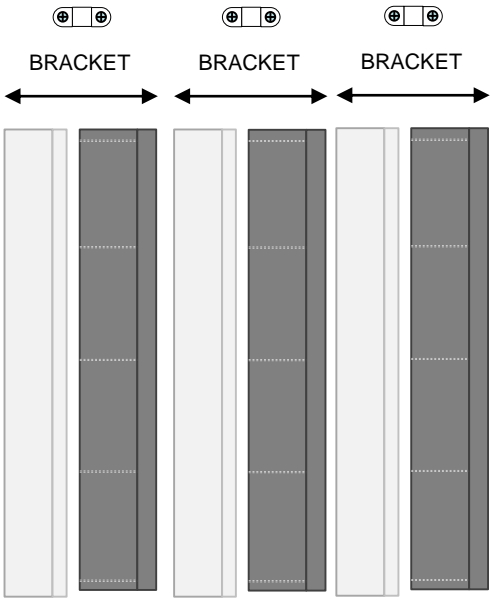
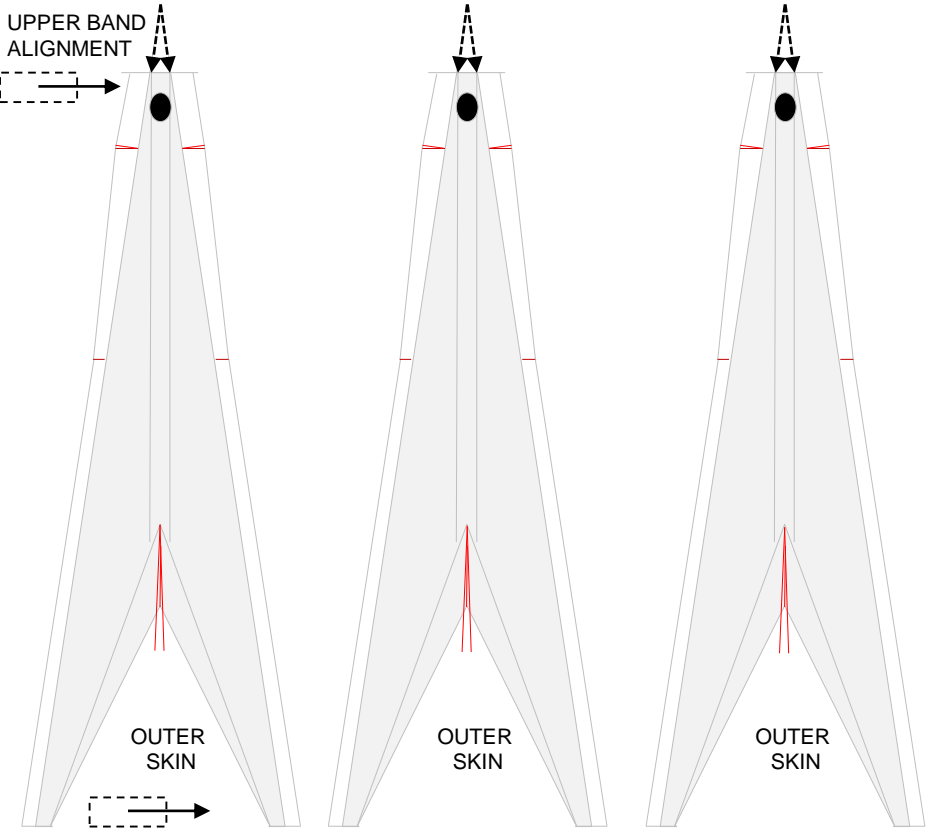
4. Laminate FORMER to card and glue as indicated below channel and between edge laminations.



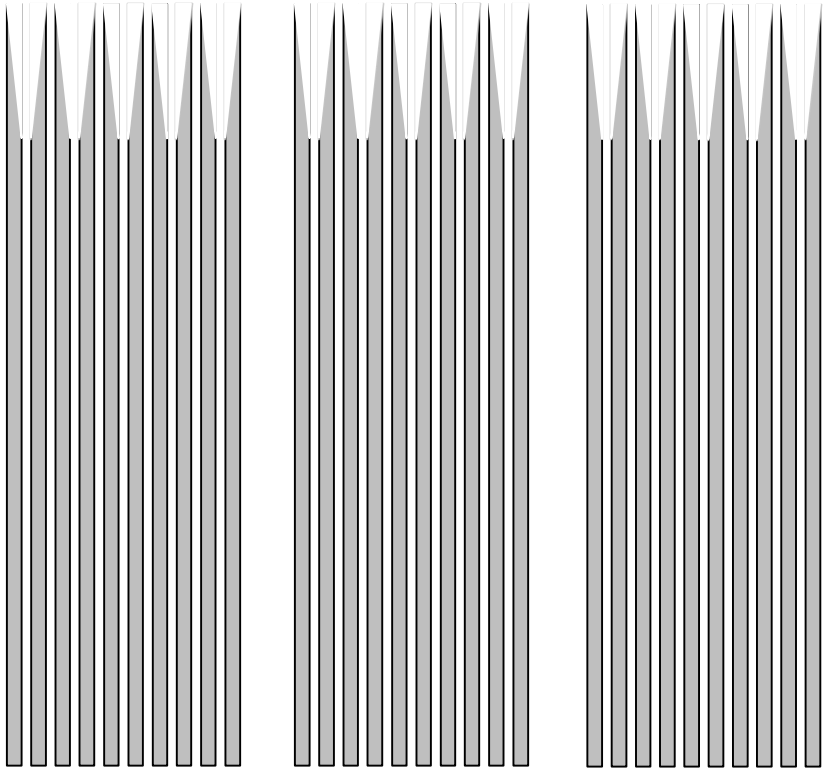
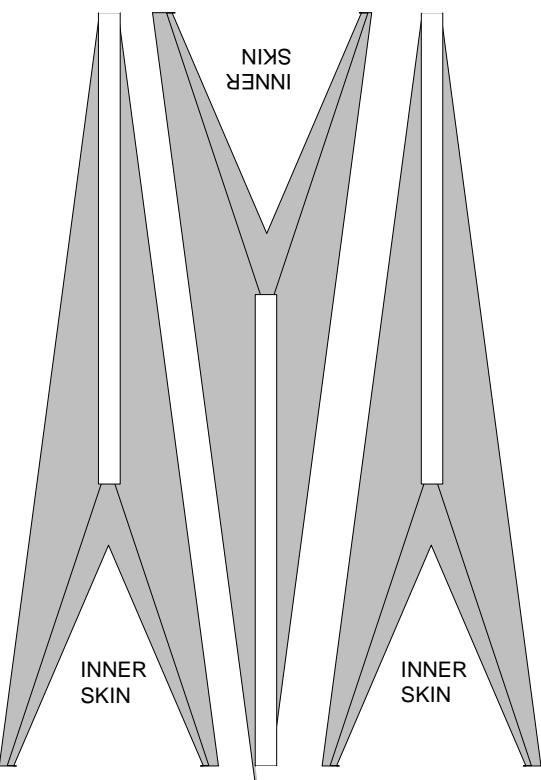
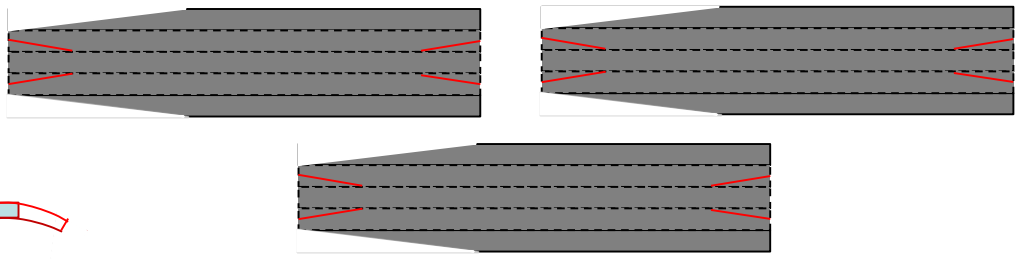
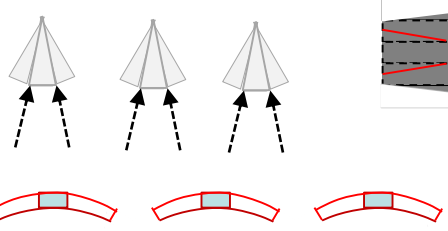
2. Fold channel (printed side in), fold down ends (see side profile) and glue, then glue to inner skin.

3. Cut strips and glue/laminate to edges (unprinted side) of inner skin. Use mandrel while laminating to hold curvature of parts.

F9R Grasshopper legs



Copyright 2013, John Jogerst. Not for commercial use. For personal or educational use only

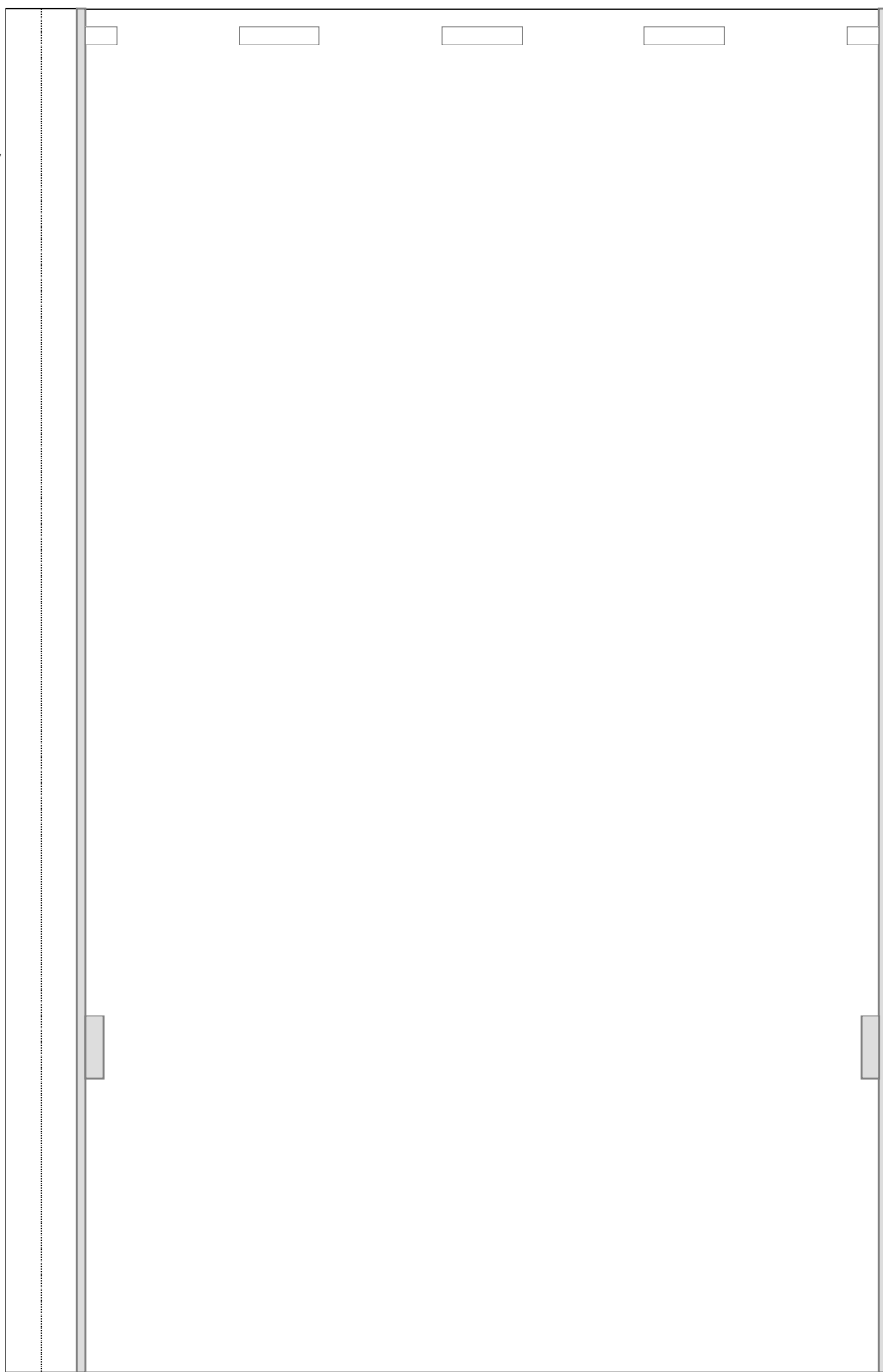
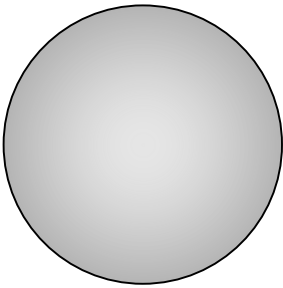
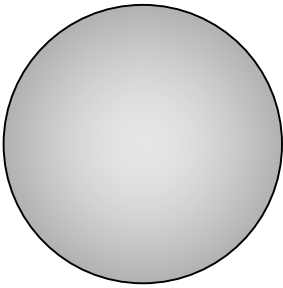
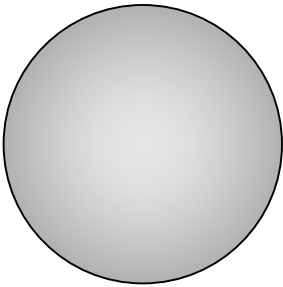
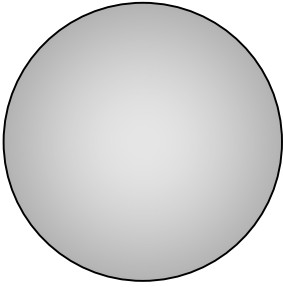
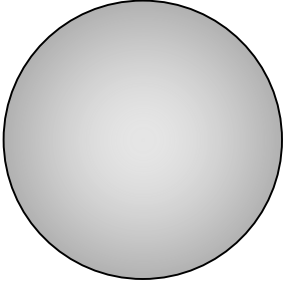


SpaceX Falcon 9 v1.1 1:100 scale

First stage upper

use as connector
or tab →

Internal support disks, position
as needed.

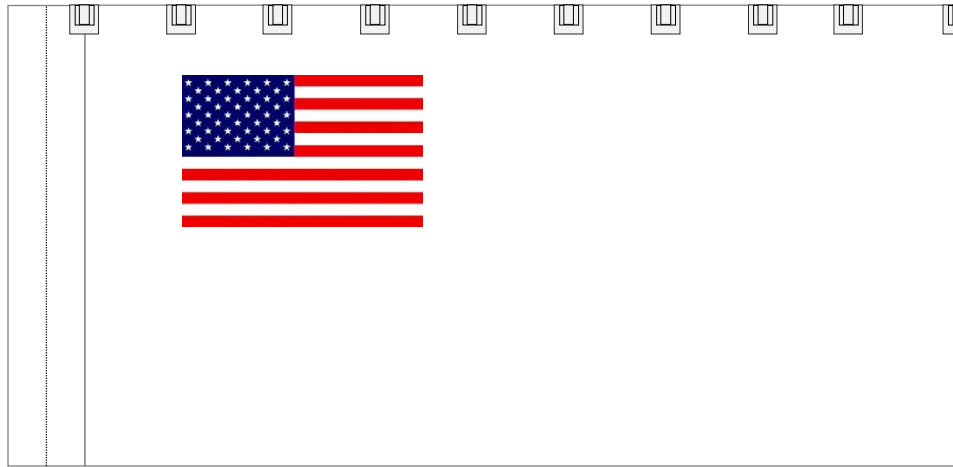


FIRST FLIGHT GRAPHICS

SpaceX Falcon 9 v1.1

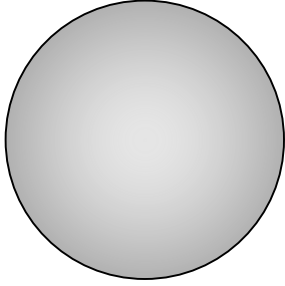
1:100 scale

Interstage

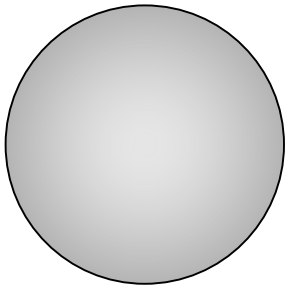
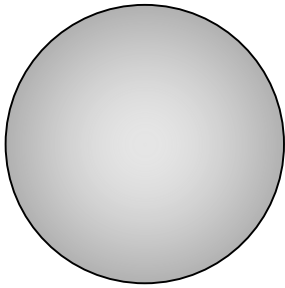
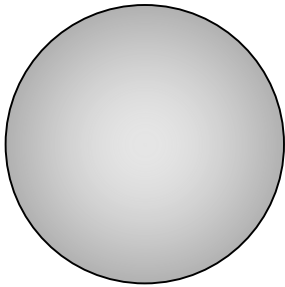
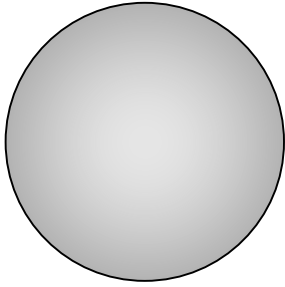


FIRST FLIGHT GRAPHICS

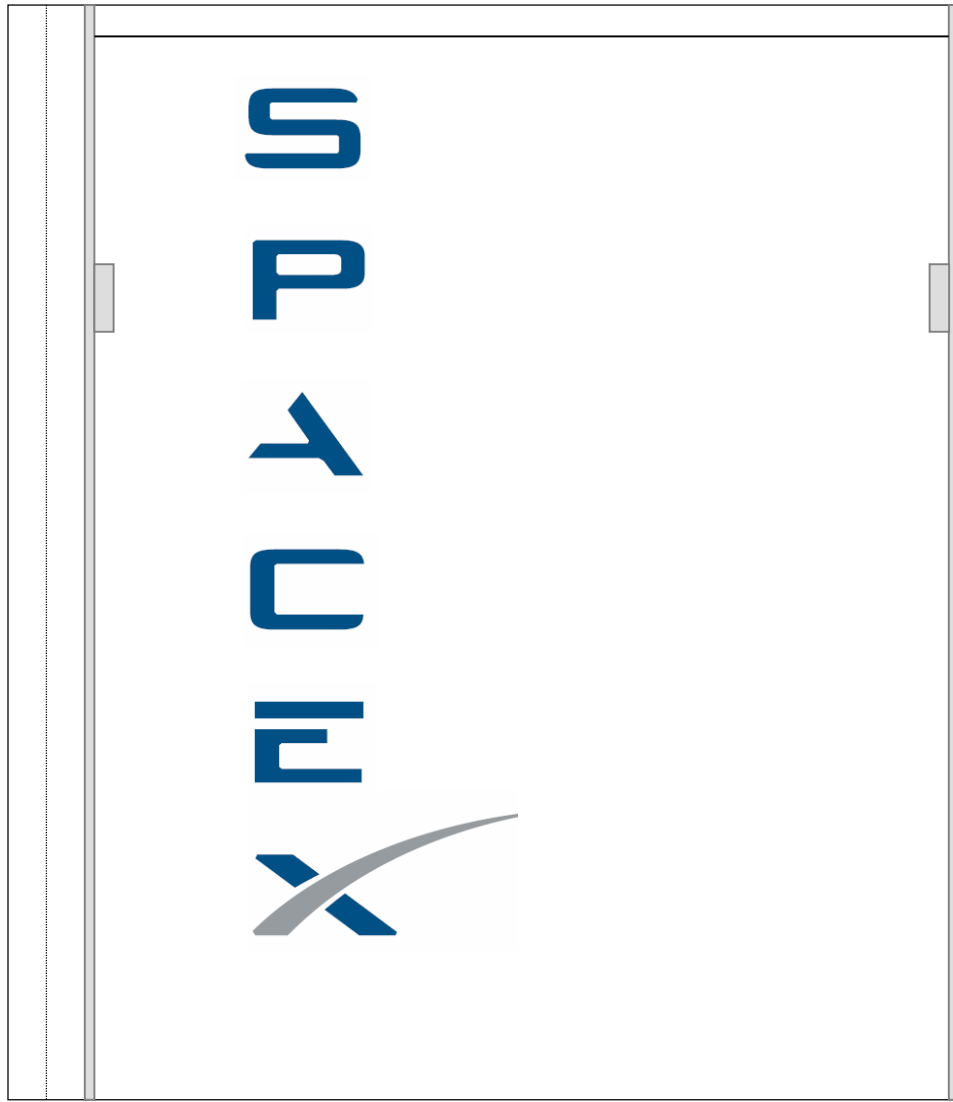
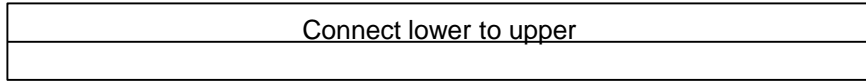
Internal support disks, position as needed.

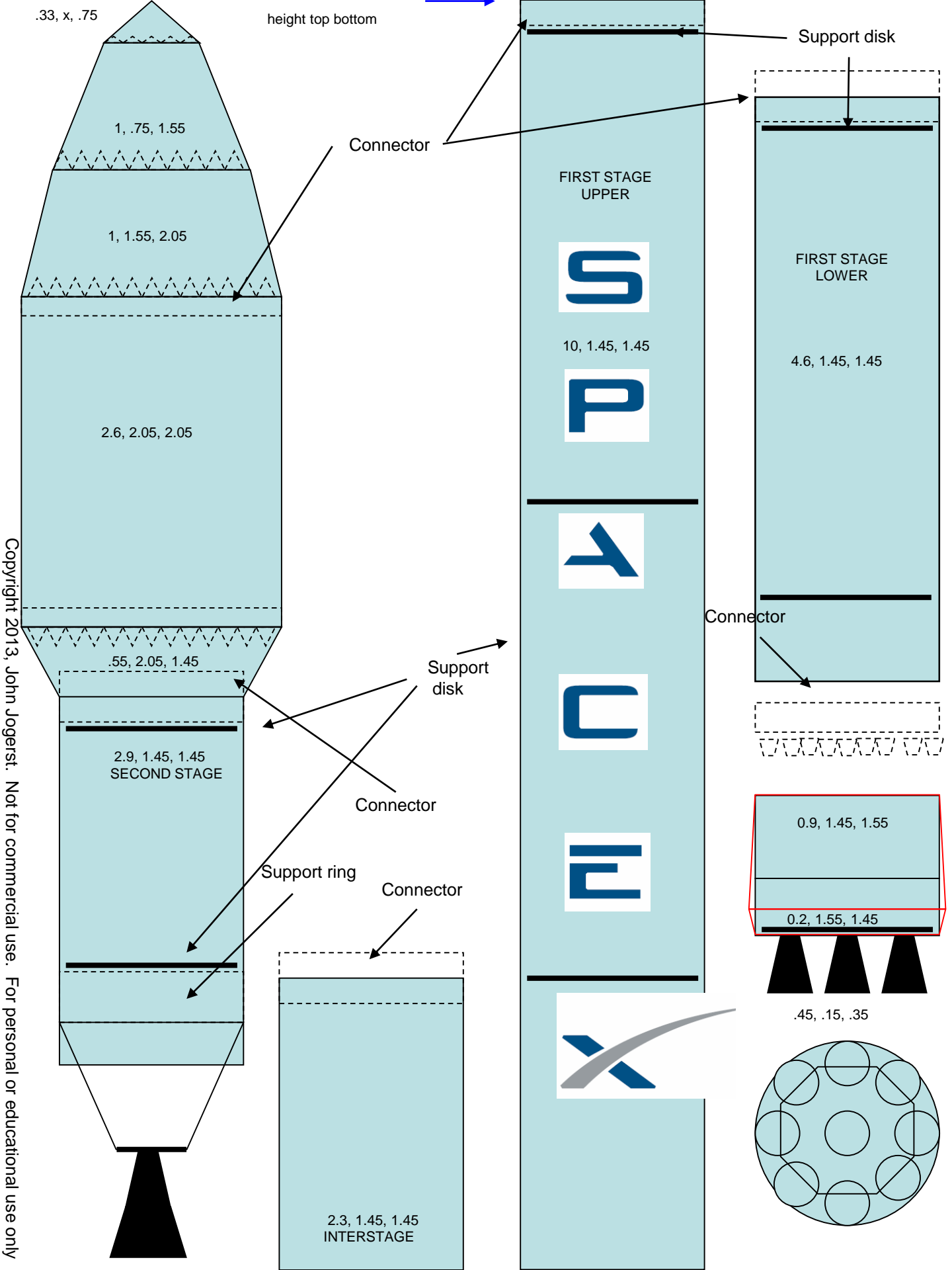


use as connector or tab



First stage lower





Falcon 9 v1.1

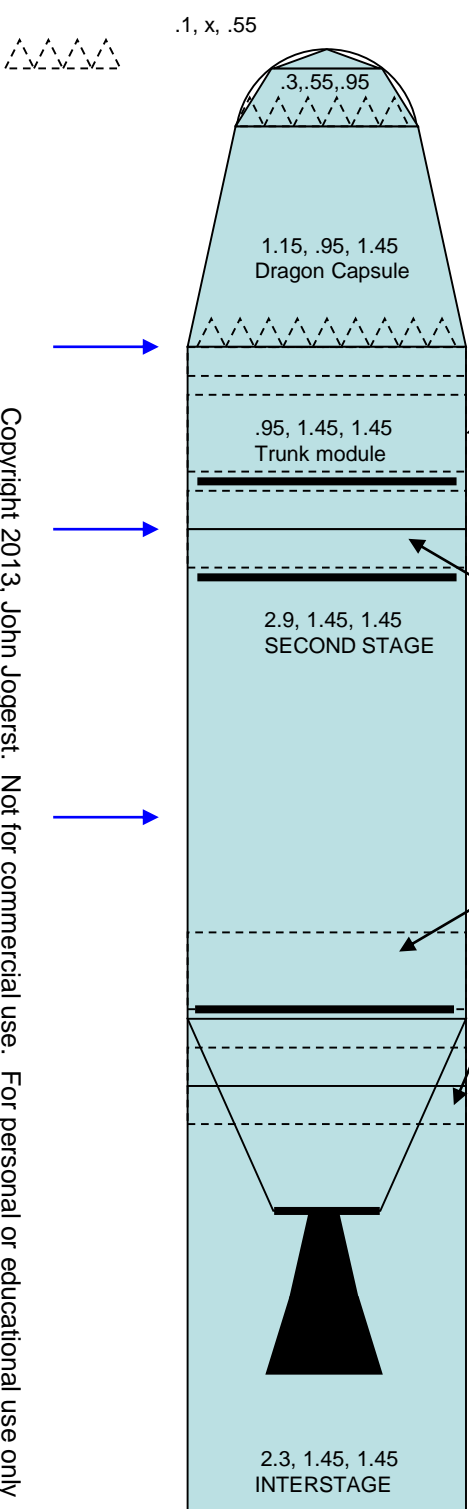
Stage 1 = 3.66m x 42.6m – 146% long

Stage 2 = 3.66m x 12.6m (includes interstage) – 125% long

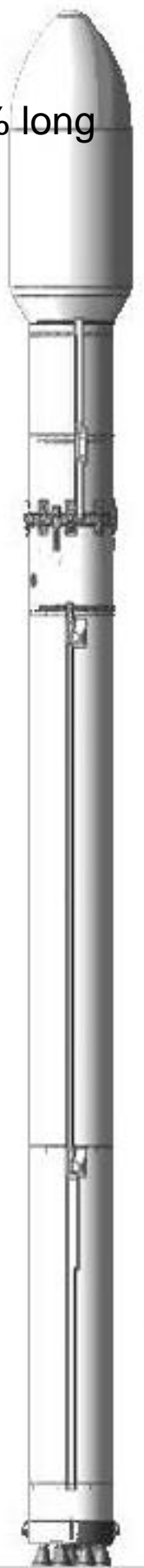
Falcon 9 original

Stage 1 = 3.66m x 29m

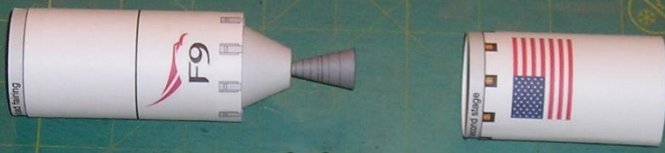
Stage 2 = 3.66m x 10.1m (includes interstage)



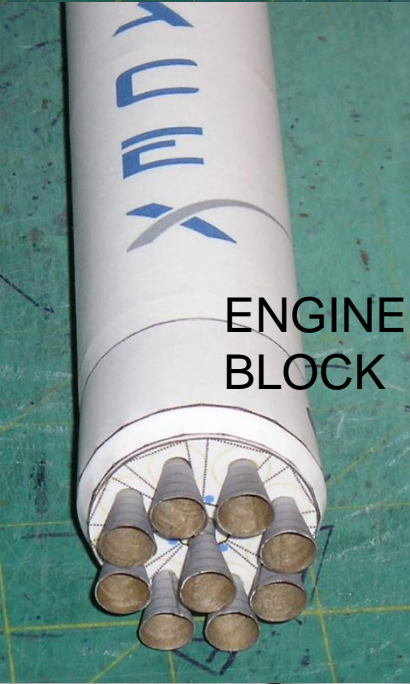
Falcon 9 (Block 1)



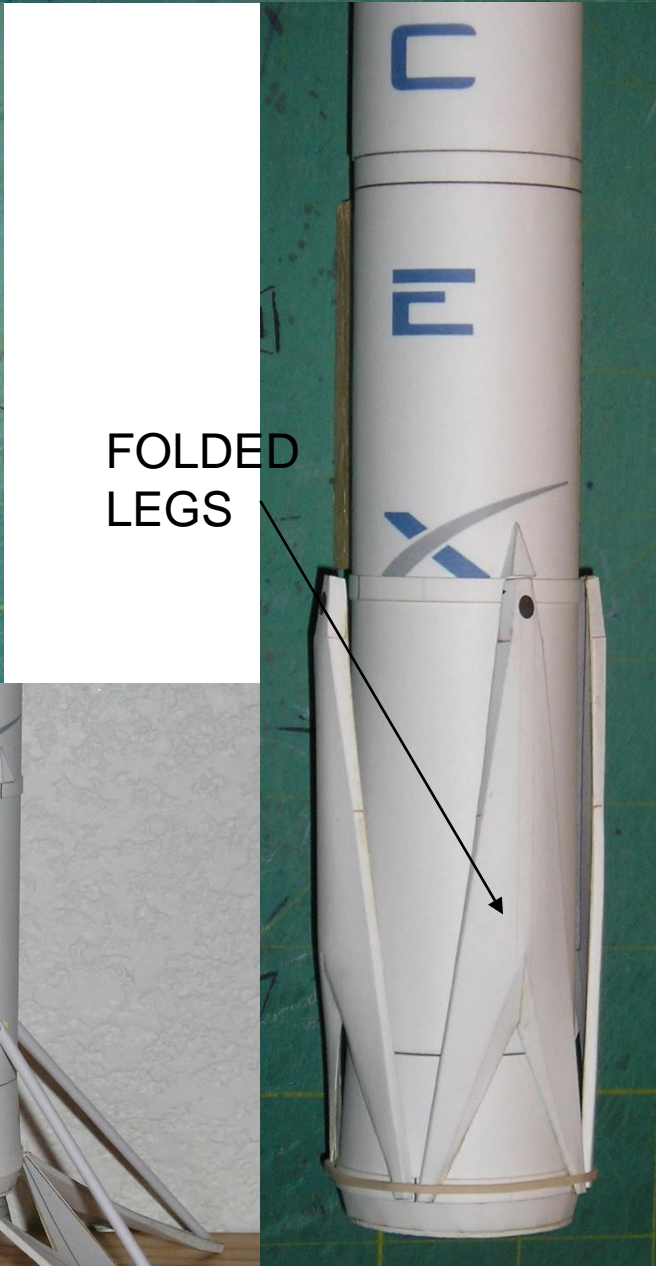
Falcon 9 (v1.1)



FALCON 9 v1.1



ENGINE
BLOCK

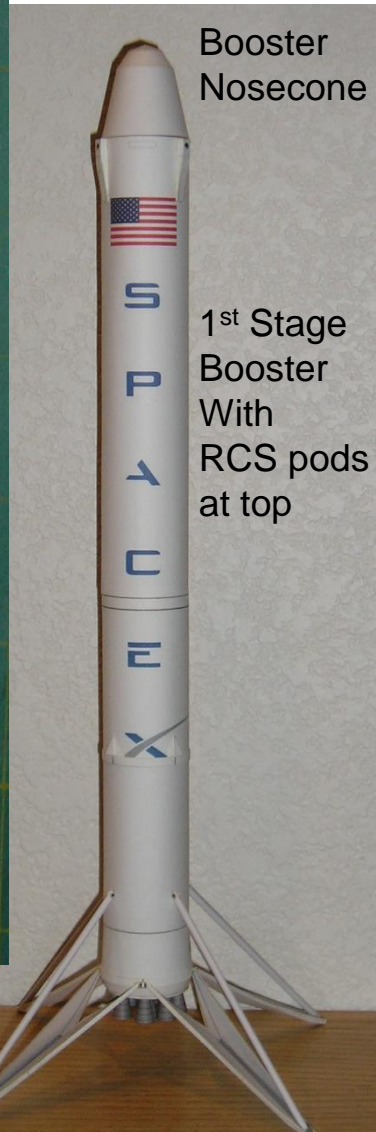


FOLDED
LEGS

FALCON 9R
HEAVY FLYBACK
BOOSTER



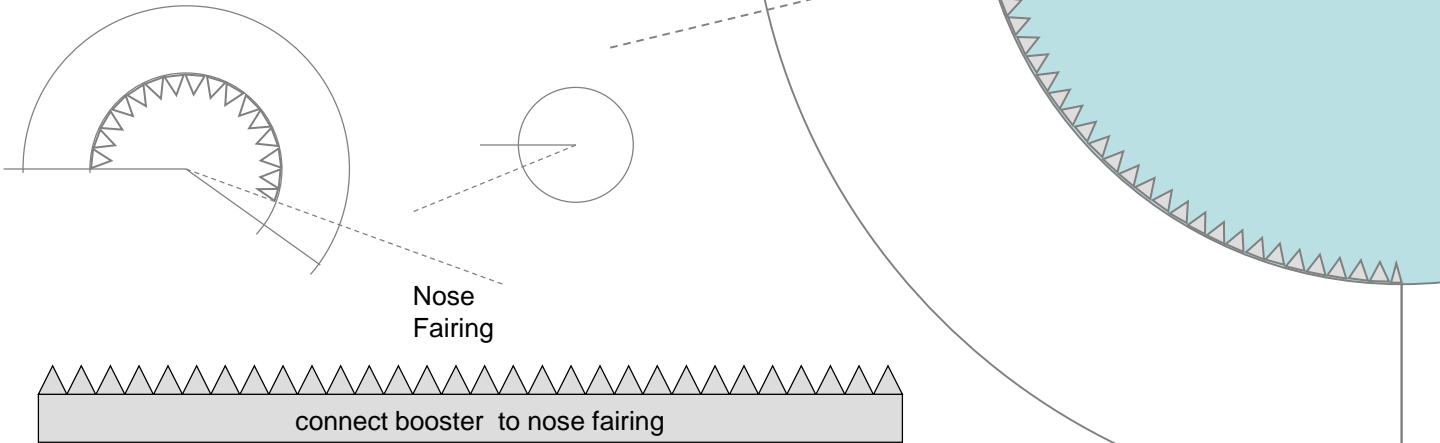
EXTENDED
LEGS



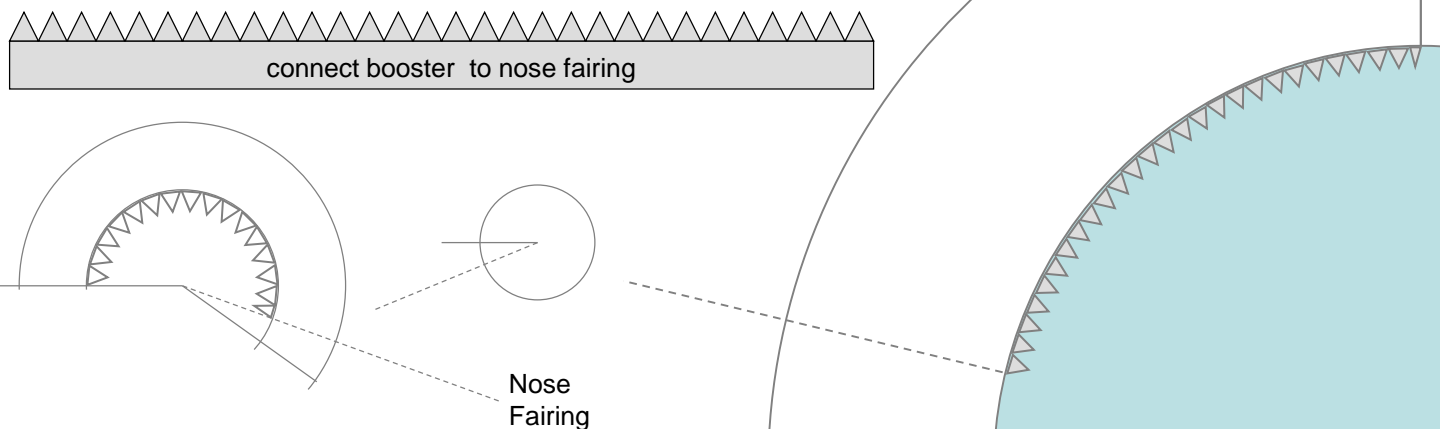
Booster
Nosecone

1st Stage
Booster
With
RCS pods
at top

SpaceX Falcon 9 – 1:100 scale Parts for F9-Heavy



Print parts to make two more first stage boosters.
First stage, engine section motors, & booster connections.
Cap outer boosters with these nose fairings and glue to core
first stage using the connections. Line up all seams facing the
back of the model.



SpaceX Falcon 9 v1.1

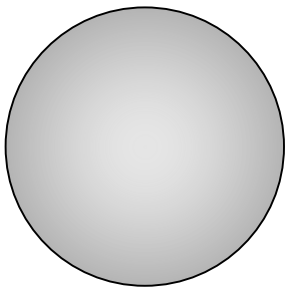
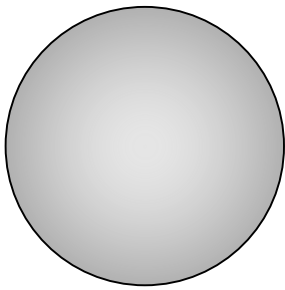
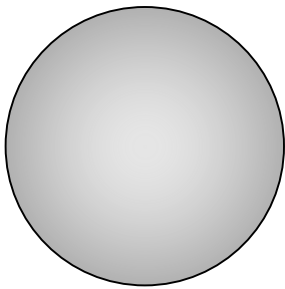
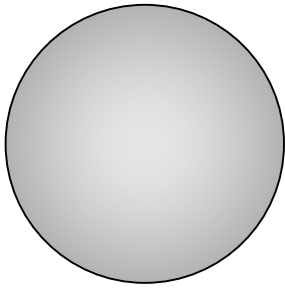
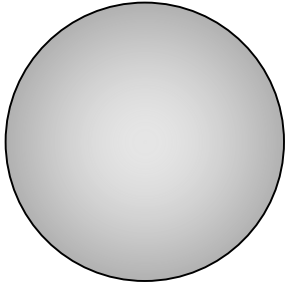
1:100 scale

PRINT 2x

First stage upper

use as connector
or tab →

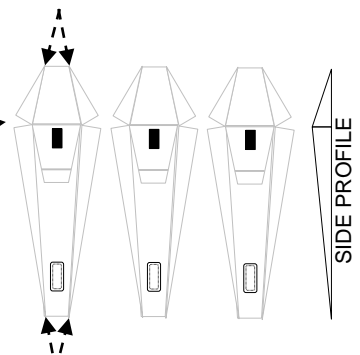
Internal support disks, position
as needed.



Copyright 2013, John Jogerst. Not for commercial use. For personal or educational use only



RCS POD F9-R
Glue to top of stage at
positions marked by R. Sides
will overlap slightly to provide
gluing surface.



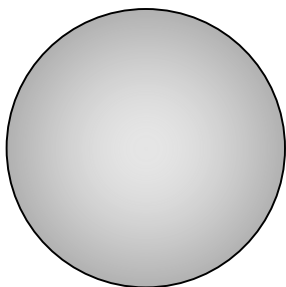
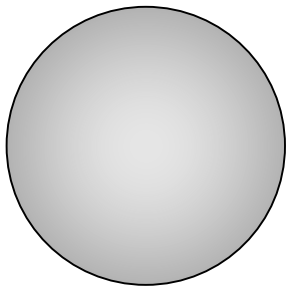
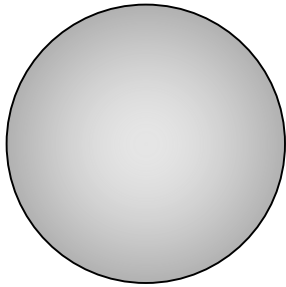
SpaceX Falcon 9 v1.1

1:100 scale

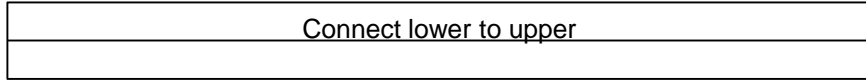
PRINT 2x

use as connector
or tab

Internal support disks, position
as needed.



First stage lower



Copyright 2013, John Jogerst. Not for commercial use. For personal or educational use only

Core engine block

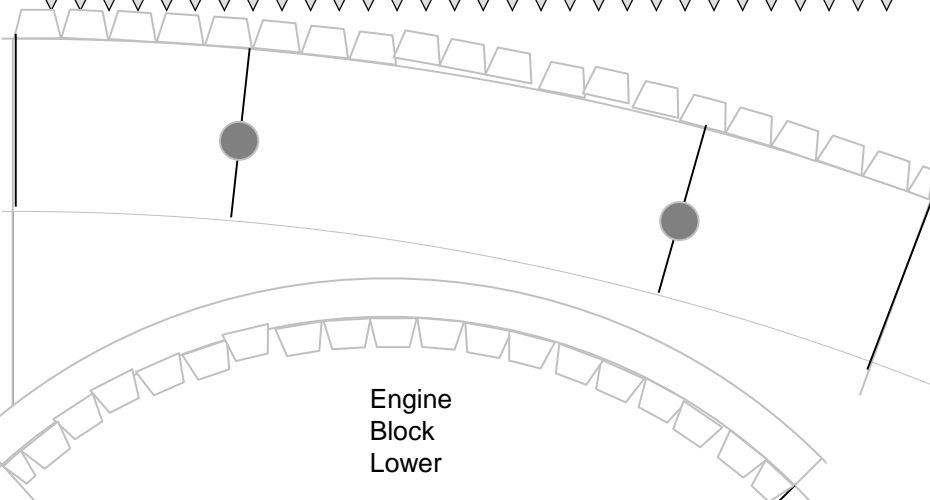
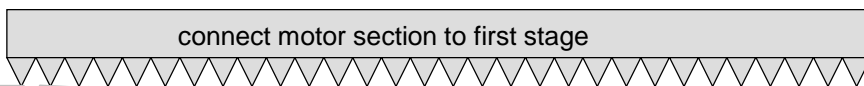
Dark circles (fuel crossfeed) go
to the sides and locate the
connectors between the cores
for the Heavy Version.

TAB

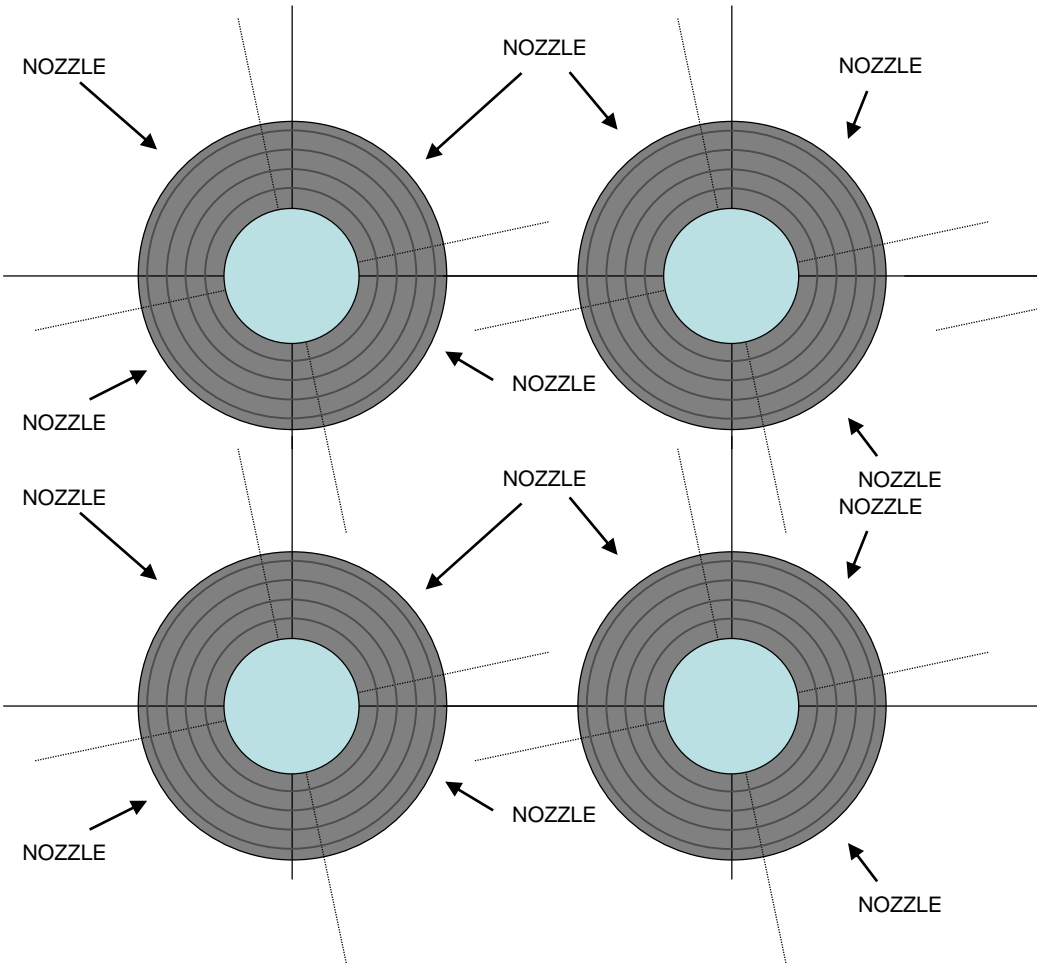
Engine
Block
Upper



SpaceX Falcon 9
v1.1 1:100 scale



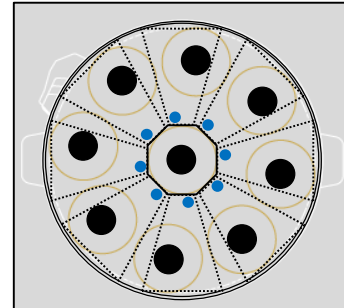
SpaceX Falcon 9 – 1:100 scale



Extension for Center Rocket Nozzle.



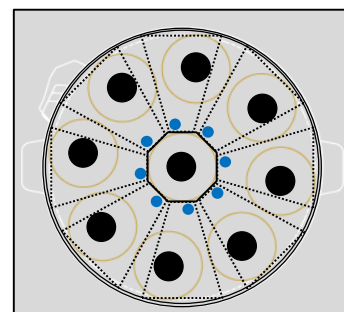
Main motor disk



Extension for Center Rocket Nozzle.

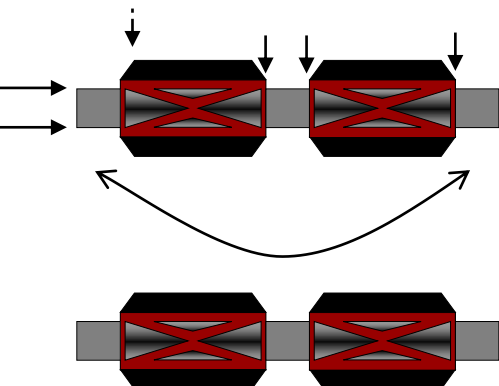


Main motor disk

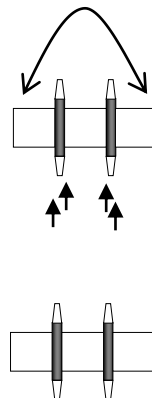


Cut out black outline.
Glue rocket nozzles to black disks.

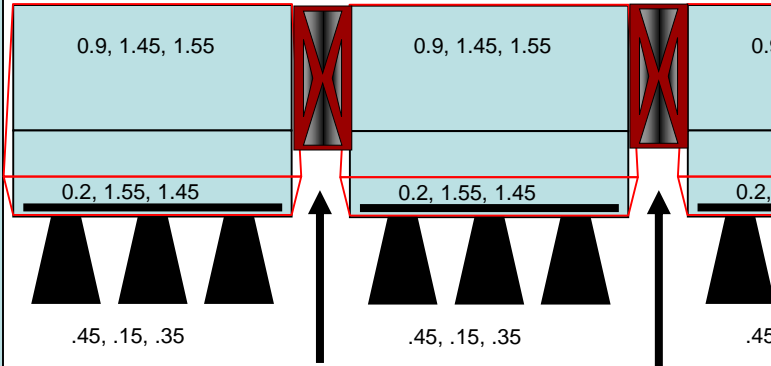
Lower booster connection, fold, glue tabs to engine sections



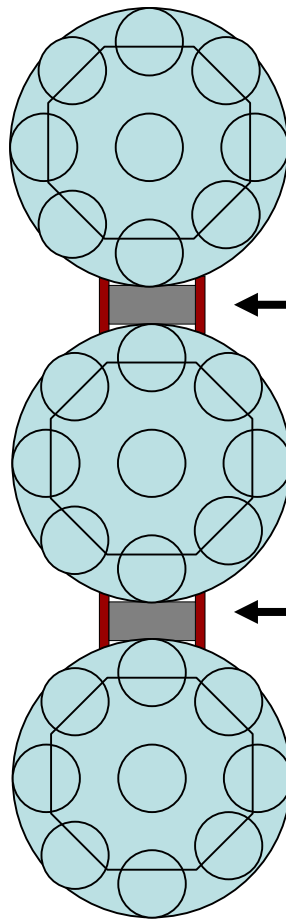
Upper booster connection



UPPER BOOSTER CONNECTIONS



LOWER BOOSTER CONNECTIONS



10, 1.45, 1.45



10, 1.45, 1.45

