

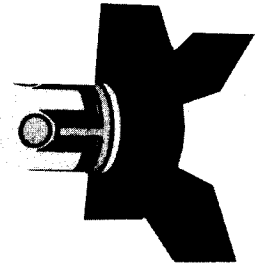
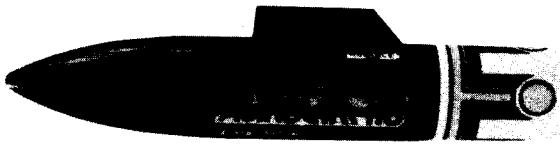
ESTES™ ASTROCAM 110™ AERIAL CAMERA #1327

COMPLETE THESE INSTRUCTIONS FIRST

(pages 1-4)



A DAMON COMPANY
ESTES INDUSTRIES
1295 H STREET
PENROSE, CO 81240 USA



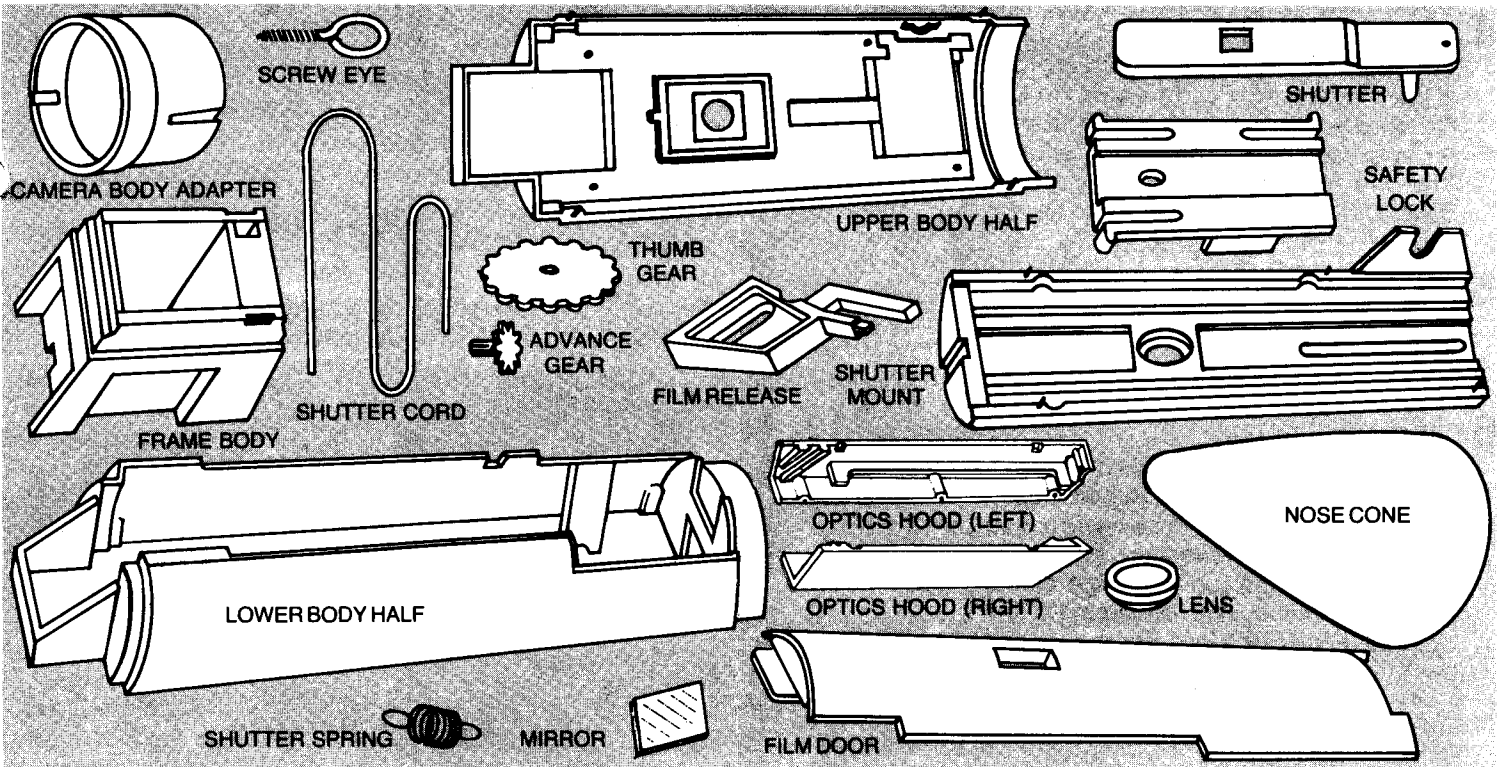
ASSEMBLY TIP

Read all instructions before beginning work on your model. Make sure you have all parts and supplies. Test-fit all parts together before applying any cement. If any parts don't fit properly, sand as required for precision assembly.

The Astro Cam™ 110 aerial camera has been carefully designed to make assembly and checkout quite easy. It is extremely important, however, that each construction step be followed exactly without modification or alteration. It is also essential that only the type of cement noted in each assembly step be used. Failure to do so may result in a totally inoperative camera.

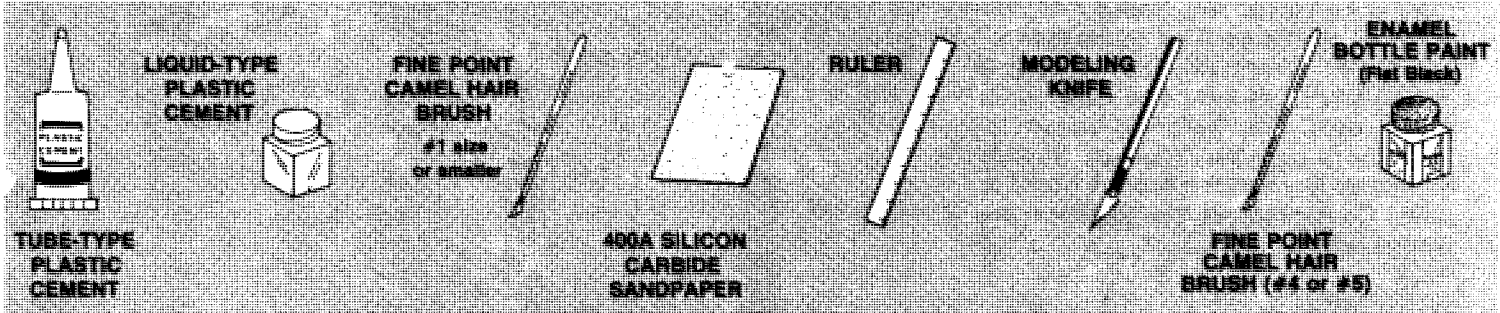
ASTROCAM™ 110 PARTS IDENTIFICATION

Locate the parts shown below and lay them out on the table in front of you.



PARTS AND SUPPLIES

In addition to the parts included in the kit you will also need:

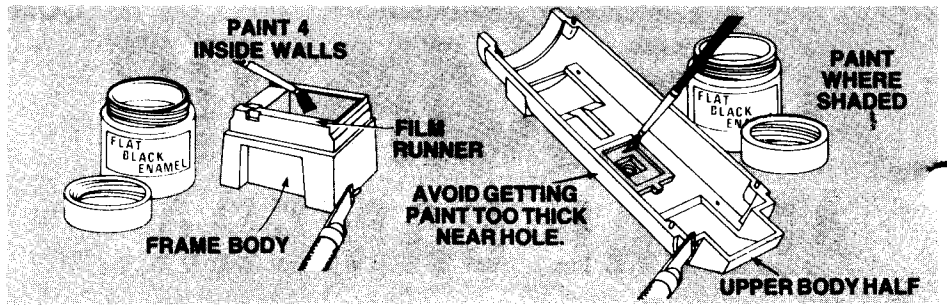


ASTROCAM™ 110 CAMERA ASSEMBLY

STEP 1 IS OPTIONAL.
It is meant to improve the quality of
ASTROCAM™ 110 photographs.

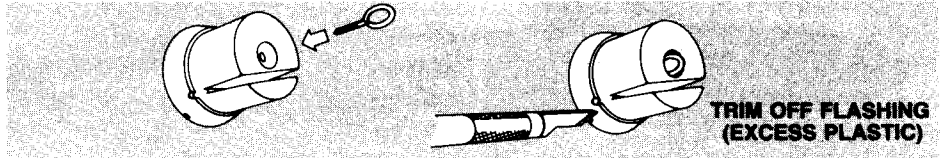
1

Remove any molding flash or burrs from the frame body and upper body half. Apply at least 2 coats of flat black enamel to the inside of the frame body and to the upper body half in the areas shown. Avoid getting paint on the two film runners. Allow the paint to dry thoroughly.



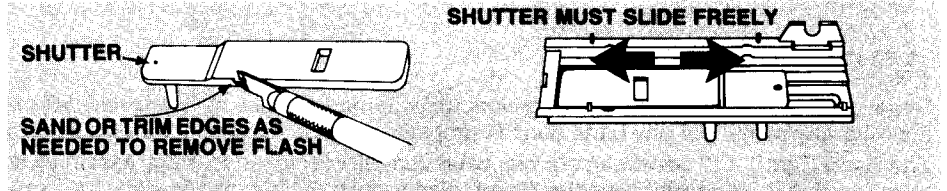
2

Rotate the screw eye into the base of the camera body adapter. Do not over-tighten. Set the assembly aside.



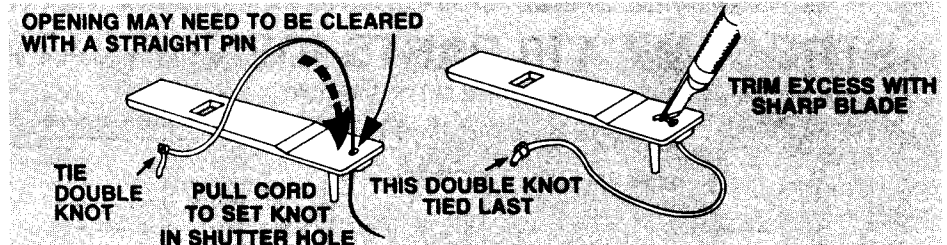
3

Test fit the shutter in the shutter mount. The shutter should move freely when one end of the shutter mount is tipped up. Sand the edges of the shutter if required. Be sure to remove any sanding residue from both parts.



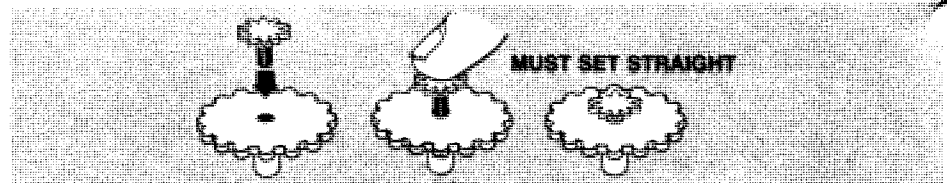
4

Tie a tight double knot 1/2" from one end of the shutter cord. Pass the cord through the small hole in the shutter. Pull the shutter cord to set the knot in the shutter. Trim the excess cord as shown. Tie a double knot in the other end of the shutter cord.



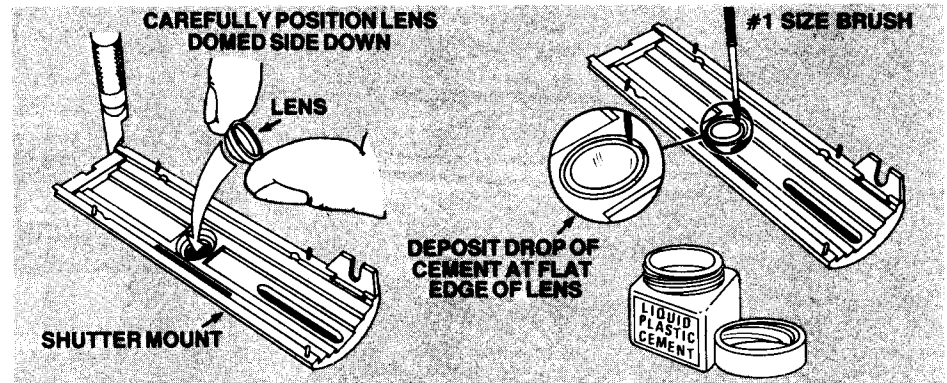
5

Press the advance gear into the thumb gear until it stops. Set the completed part aside.



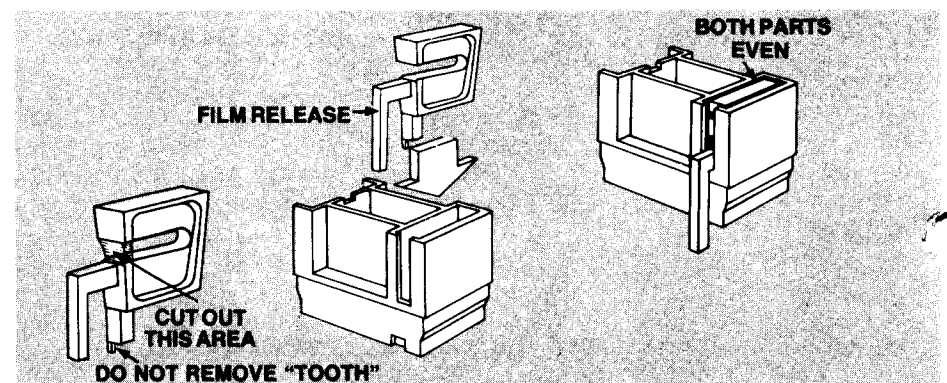
6

Handle the lens with care. Place the lens, domed side down, into the shutter mount. Use a fine point brush to place one drop of liquid plastic cement in the cavity formed by the flat on the edge of the lens. Add another drop of cement to the opposite edge of the lens. Set the assembly aside.



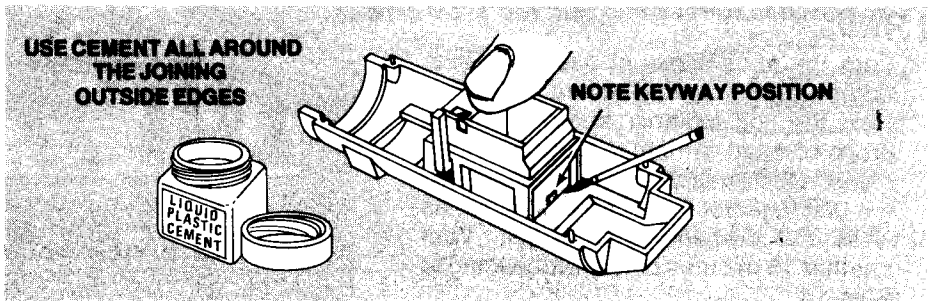
7

Cut out the plastic area from the film release as illustrated. Test fit the film release in the frame body. The film release should fall out of the frame body when turned over. This indicates proper fit. Sand the film release if required. Be sure to remove any sanding residue from the parts. Do not remove the "tooth" on the film release.



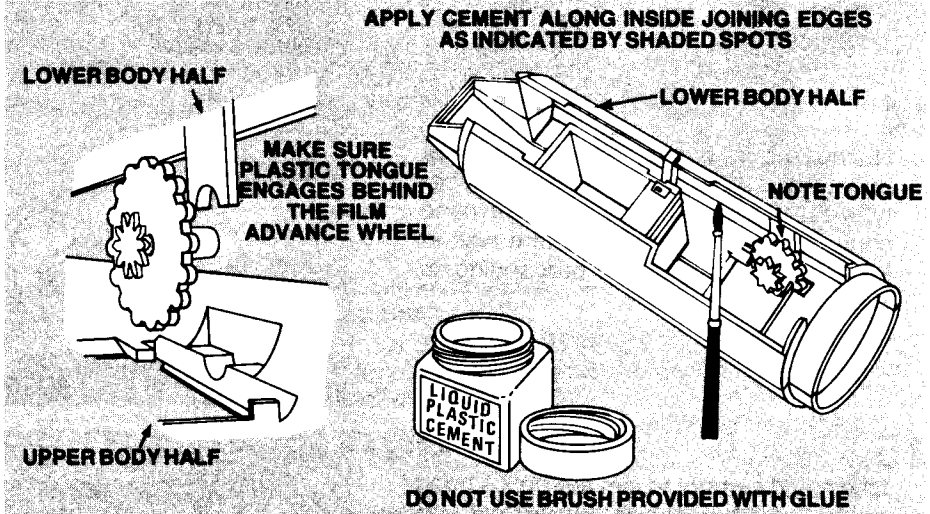
8

Place the film release in the frame body and place the unit into position in the upper body half. Note the matching keyways on the frame body and upper body half. Use your fingers to hold the parts together while applying 8 to 10 drops of liquid cement where the frame body and upper body half join together. Do not apply cement to the film release.



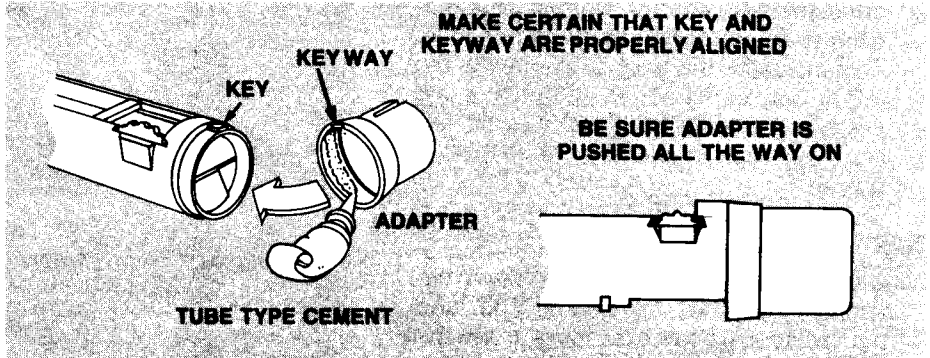
9

Install the film advance assembly into the upper body half as shown. Fit the lower body half onto the upper body half making sure the plastic tongue engages behind the thumb gear. Use a fine brush to apply 8 to 12 drops of liquid cement to bond the parts together where they join. Apply the cement to the inside of the parts to avoid disturbing the outside finish. Hold the parts together for at least 30 seconds.



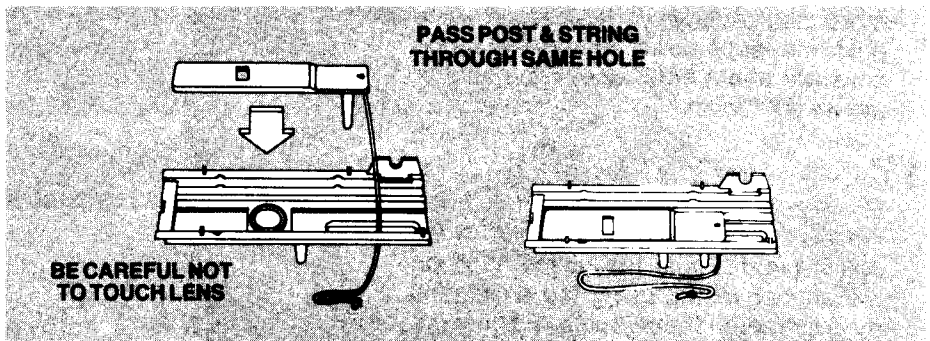
10

When the assembly from Step 9 is completely dry, cement the camera body adapter in place as shown. Use tube-type plastic cement for this operation. Note the keyways for alignment and be sure the adapter is pushed on all the way.



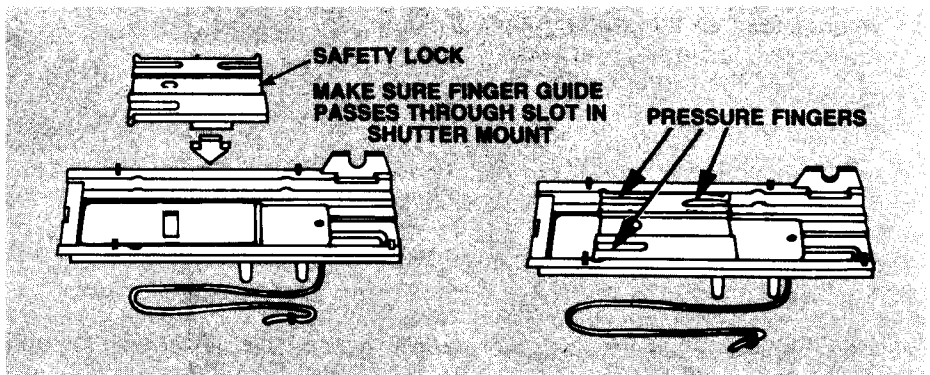
11

Place the shutter in the shutter mount. Note that both the post on the shutter and the cord pass through the rectangular opening in the shutter mount.

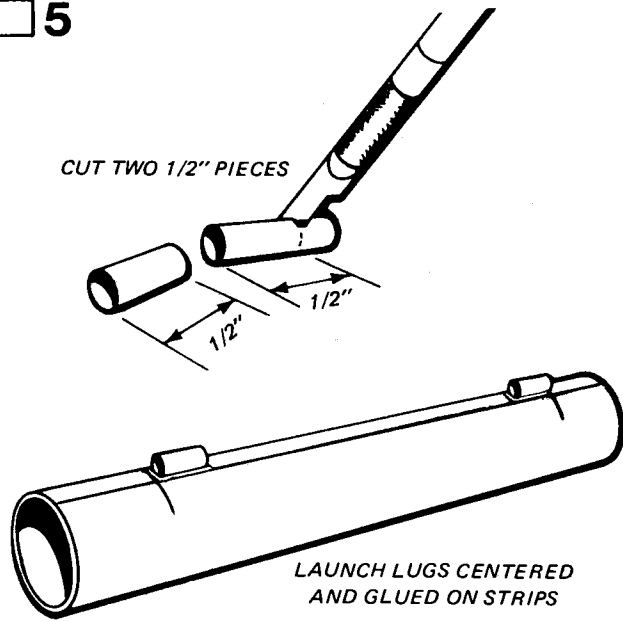


12

Install the safety lock in the shutter mount over the shutter as shown. Depress the small pressure fingers on the safety lock to fit it into place. Hold the assembly together and proceed to Step 13.

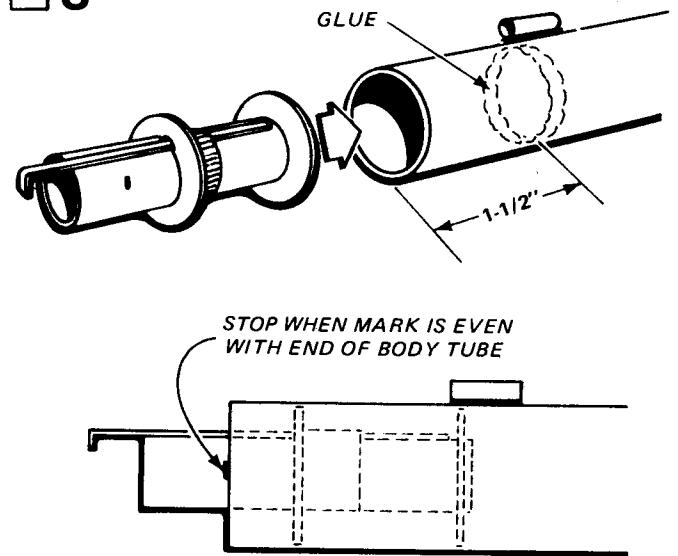


5



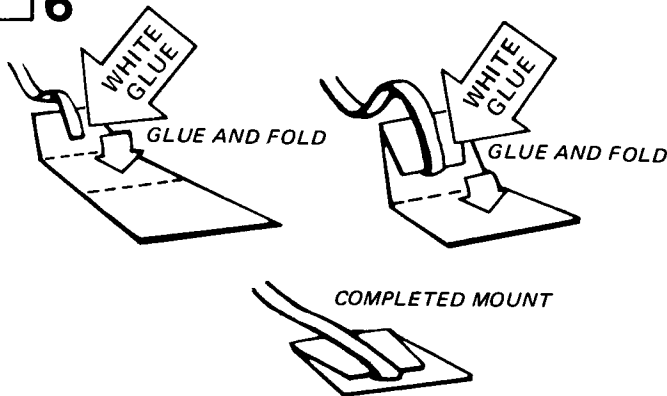
Cut two 1/2" long pieces from the launch lug (part E). Glue these to the strips mounted on the body tube in step 4. Sight along the tube to be sure the lugs are aligned straight before the glue sets. Set the tube on one end and allow the glue to dry thoroughly.

8



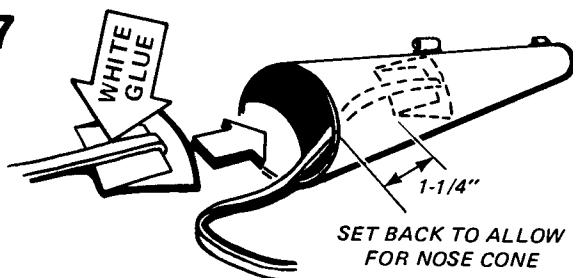
Apply a liberal amount of glue around the inside of the body tube end opposite the shock cord mount. The glue should be applied about 1-1/2" from the rear of the tube. Slide the engine mount unit into the body tube as shown until the mark is even with the body end. Do not pause when pushing the mount in or the glue may "grab" at the wrong place!

6



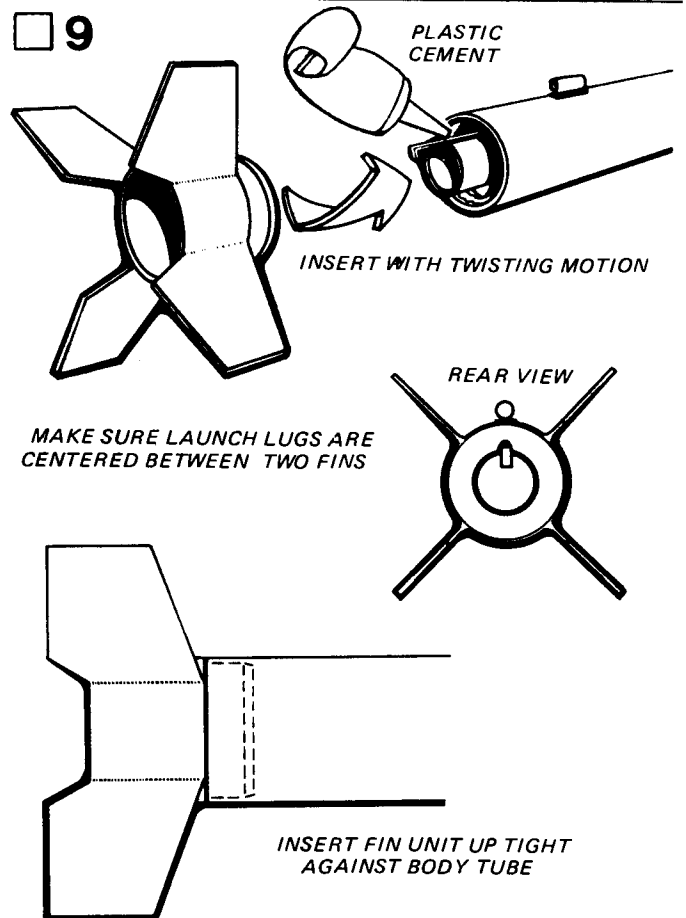
Cut out the shock cord mount (part F). Crease it on the dotted lines by folding. Spread glue on the first section (1) and lay the one end of the 18" shock cord (part G) into the glue. Fold over and apply glue to the back of the first section and the exposed part of section 2. Lay the shock cord as shown and fold over again. Clamp the unit together with your fingers until the glue sets.

7



Apply glue to the back side of section 2 and the exposed part of section 3 of the shock cord mount. Hold the mount (wide end toward tube) as shown, and press it into place in one end of the body tube. Make sure the front of the mount is at least 1-1/4" from the end of the tube. Hold the mount in place until the glue sets.

9



Apply a heavy line of tube-type plastic cement around the inside of the body tube behind the engine mount as shown. Insert the fin unit (part H) into the end of the tube and twist it as it is pushed into place. Be sure it is inserted all the way. Before the glue sets, sight along the tube to be sure the launch lugs are positioned between two of the fins. Stand the rocket on its fins while all the glue dries.

ESTES ASTROCAM 110TM

DELTA II LAUNCH VEHICLE

COMPLETE THESE INSTRUCTIONS AND
(Page 5-8)

2

Read all instructions before beginning work on your model. Make sure you have all parts and materials. When you are thoroughly familiar with the assembly procedure, begin construction. Work off each step as you complete it. In each step, fit the parts together before applying any glue. If some part doesn't fit properly, sand lightly with fine sandpaper for precision assembly.

SKILL LEVEL 2 — Recommended for Intermediate Rocketeers

PARTS LIST KIT NO. 1327

| | | | |
|---|---|----------------------------|-------|
| A | 1 | Engine Mount Tube (BT-20J) | 30326 |
| B | 1 | Engine Hook (EH-2) | 35025 |
| C | 1 | Centering Rings (TA-1327) | 30090 |
| D | 1 | Body Tube (WBT-1312) | 31606 |
| E | 1 | Launch Lug (LL-2A) | 38175 |
| F | 1 | Shock Cord Mount (SCM-50) | 84444 |
| G | 1 | Shock Cord (SC-1) 18" | 85730 |
| H | 1 | Fin Unit (PF-1327) | 43043 |
| I | 1 | Parachute (PK-12A) | 85564 |
| J | 1 | Shroud Line (SLT-72) | 38237 |
| K | 6 | Tape Discs (TD-3F) | 38406 |
| L | 1 | Decal | 37137 |
| M | 1 | Chrome Mylar Camera Decal | 37139 |
| N | 1 | Shock Cord (SC-1B) 12" | 85734 |



TOOLS AND MATERIALS

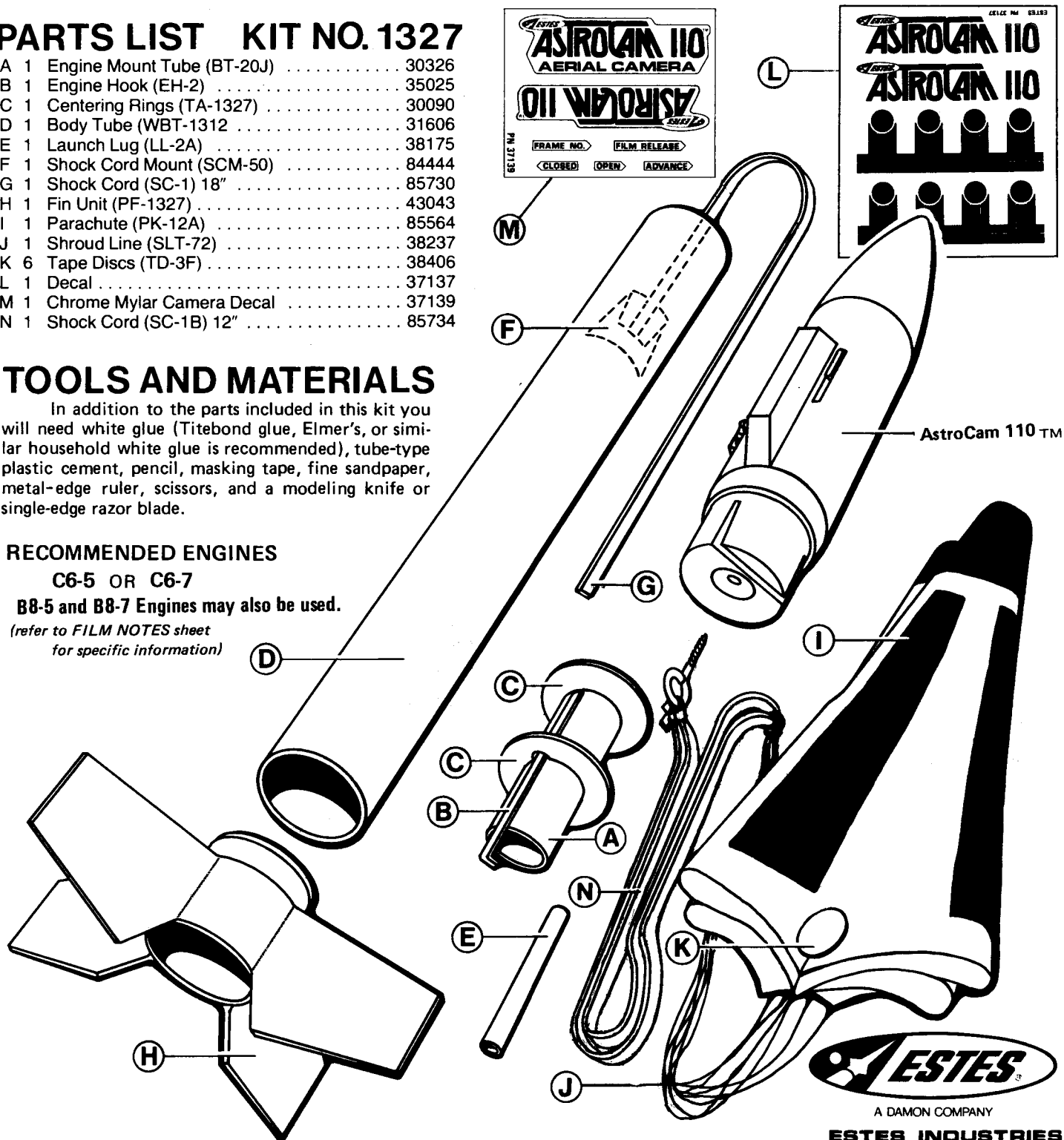
In addition to the parts included in this kit you will need white glue (Titebond glue, Elmer's, or similar household white glue is recommended), tube-type plastic cement, pencil, masking tape, fine sandpaper, metal-edge ruler, scissors, and a modeling knife or single-edge razor blade.

RECOMMENDED ENGINES

C6-5 OR C6-7

B8-5 and B8-7 Engines may also be used.

(refer to FILM NOTES sheet for specific information)



AstroCam 110TM

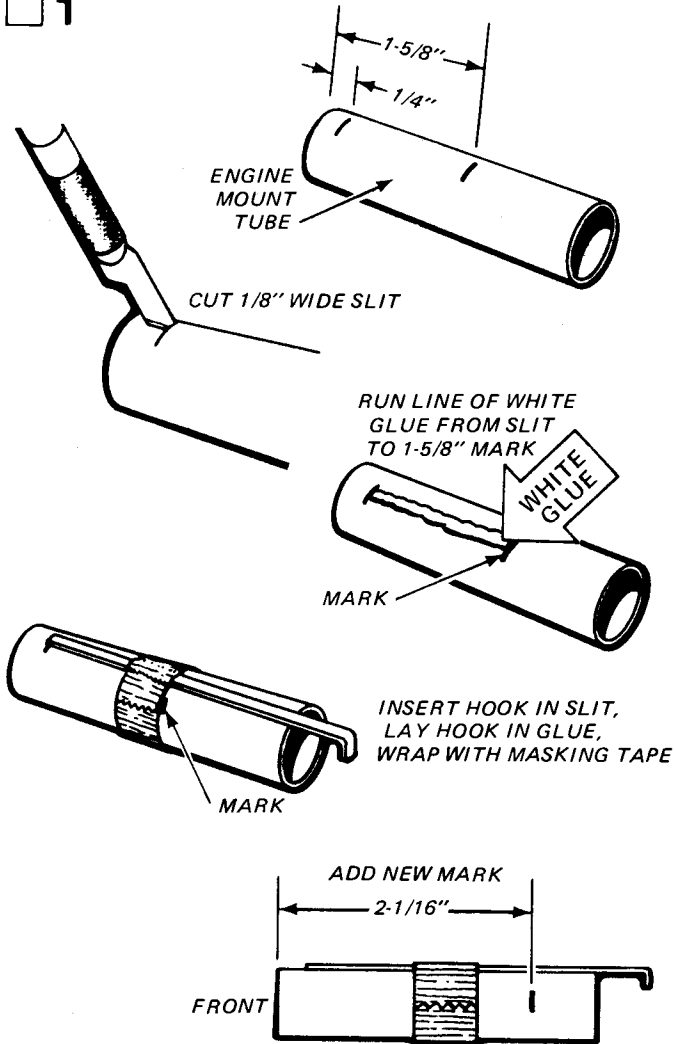


A DAMON COMPANY

ESTES INDUSTRIES
PENROSE, CO 81240 USA

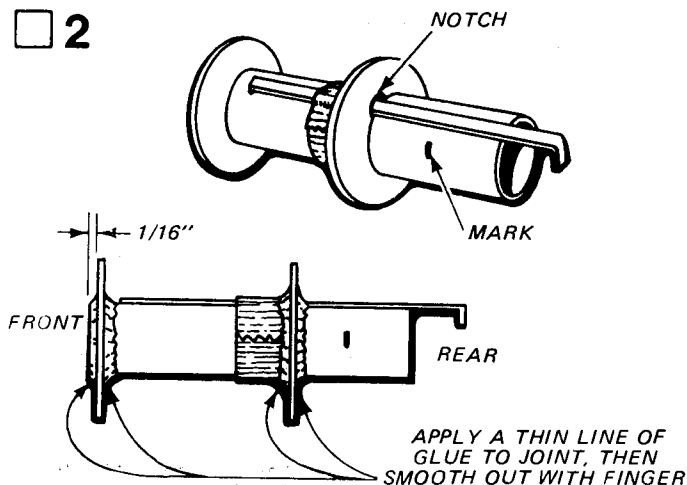
ASSEMBLY INSTRUCTIONS

1



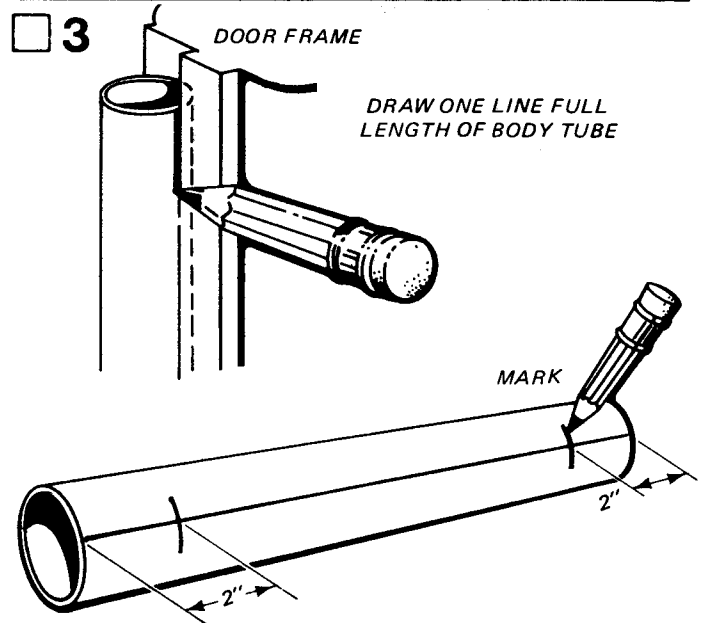
Mark the engine mount tube (part A) 1/4" and 1-5/8" from one end. Use a sharp modeling knife to cut a 1/8" wide slit at the 1/4" mark. Run a line of white glue from the slit to the 1-5/8" mark. Insert one end of the engine hook (part B) into the slit and lay the hook into the glue straight along the tube. Wrap two layers of masking tape around the hook and tube with one edge of the tape next to the mark as shown. Now make another mark 2-1/16" from the front end of the tube.

2



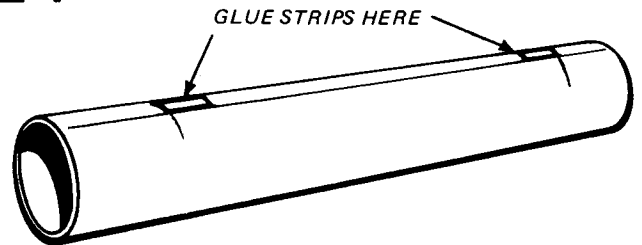
Locate the adapter rings (part C) and separate them from the die-cut card. Slide the notched ring onto the tube from the rear and position it so it touches the masking tape as shown. Apply a line of white glue around both sides of the ring where it touches the tube. Slide the remaining ring onto the forward end of the tube and position it about 1/16" from the end. Apply a thin line of white glue around both sides of the ring where it touches the tube. Smooth out with finger. Set the assembly aside to dry.

3

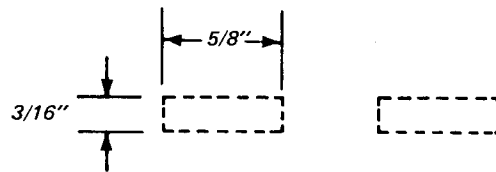


Using a pencil and the "V" formed by the side of the stop on a door frame, lightly draw one continuous straight line end to end on the body tube (part D). Again using the pencil, lightly mark the line 2" from each end of the tube as shown.

4

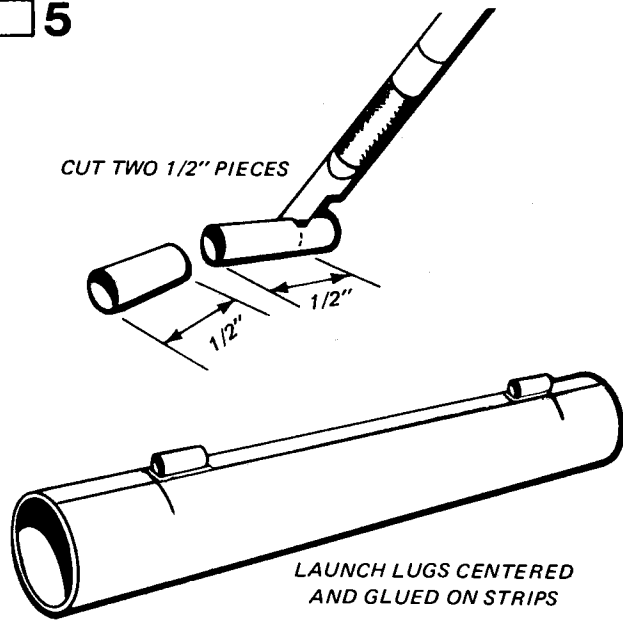


Cut out the two strips marked below. Cut on the inside of the dotted lines so the ink won't show along launch lug. Glue these strips to the body tube with one side even with the line and the ends next to the 2" marks as shown.



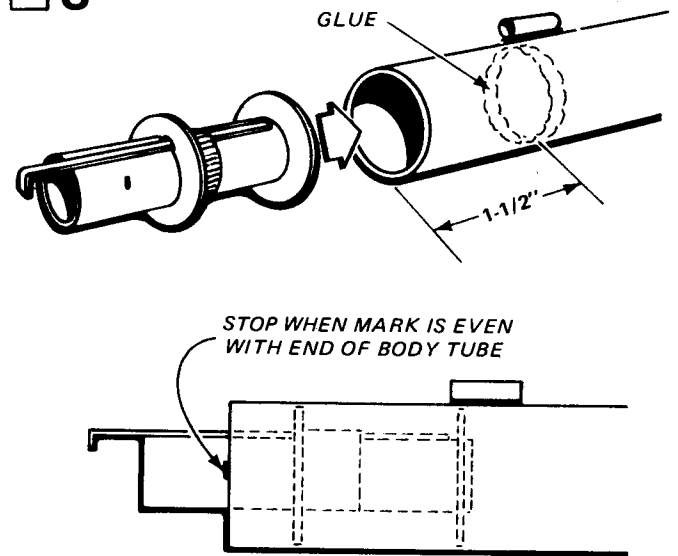
CUT OUT ON THE INSIDE OF DOTTED LINES

5



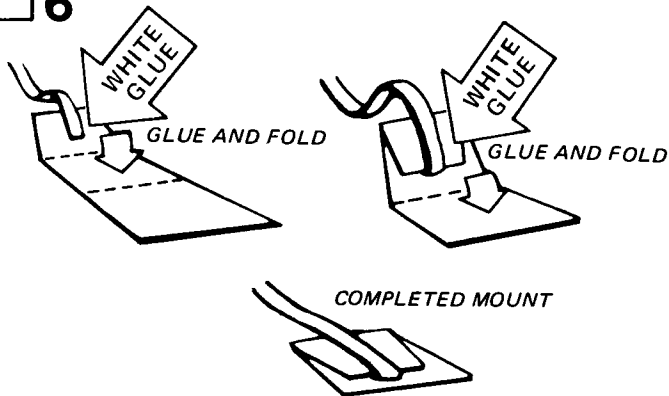
Cut two 1/2" long pieces from the launch lug (part E). Glue these to the strips mounted on the body tube in step 4. Sight along the tube to be sure the lugs are aligned straight before the glue sets. Set the tube on one end and allow the glue to dry thoroughly.

8



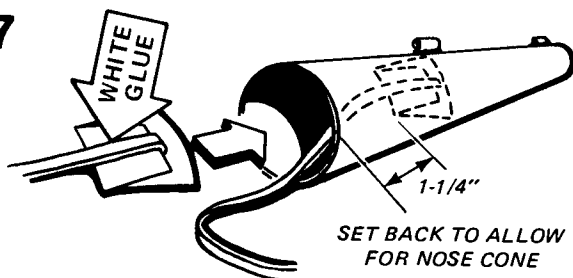
Apply a liberal amount of glue around the inside of the body tube end opposite the shock cord mount. The glue should be applied about 1-1/2" from the rear of the tube. Slide the engine mount unit into the body tube as shown until the mark is even with the body end. Do not pause when pushing the mount in or the glue may "grab" at the wrong place!

6



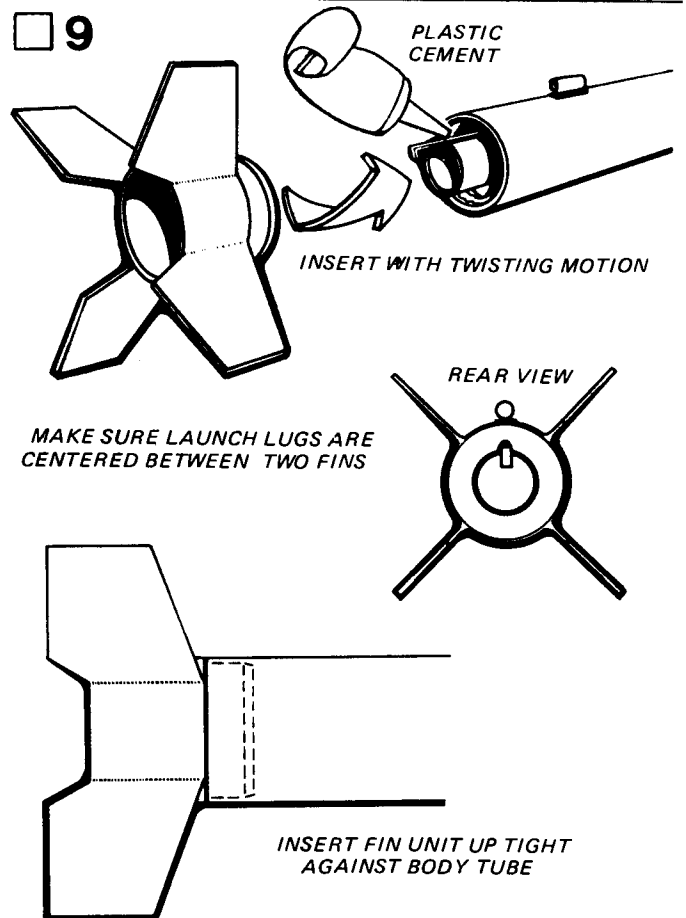
Cut out the shock cord mount (part F). Crease it on the dotted lines by folding. Spread glue on the first section (1) and lay the one end of the 18" shock cord (part G) into the glue. Fold over and apply glue to the back of the first section and the exposed part of section 2. Lay the shock cord as shown and fold over again. Clamp the unit together with your fingers until the glue sets.

7



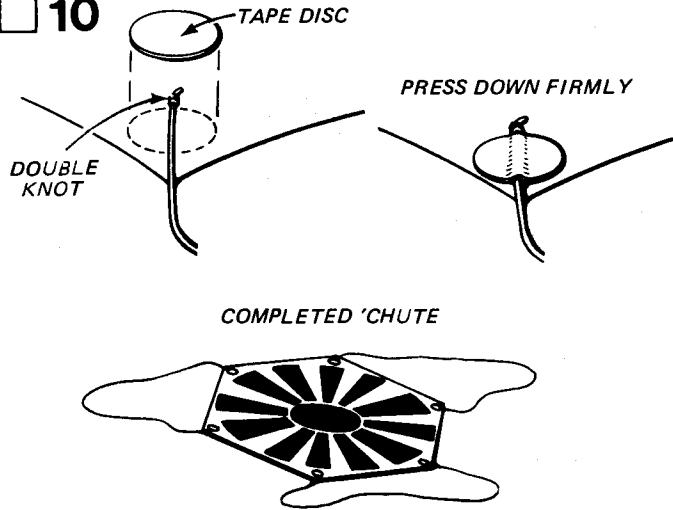
Apply glue to the back side of section 2 and the exposed part of section 3 of the shock cord mount. Hold the mount (wide end toward tube) as shown, and press it into place in one end of the body tube. Make sure the front of the mount is at least 1-1/4" from the end of the tube. Hold the mount in place until the glue sets.

9

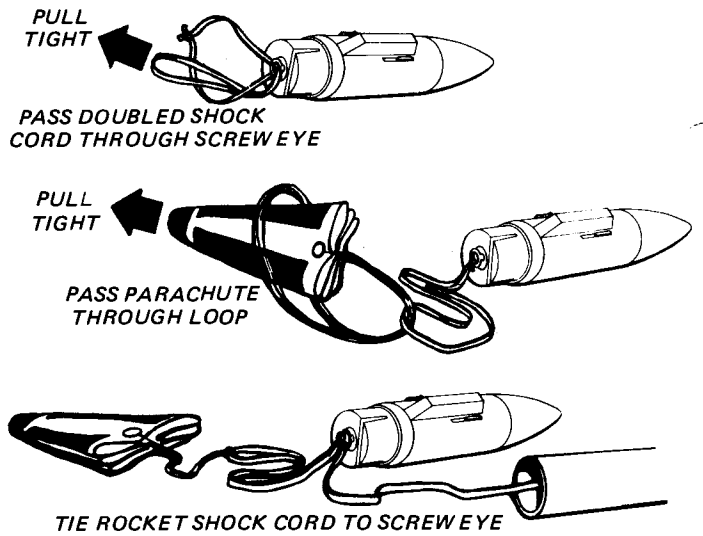


Apply a heavy line of tube-type plastic cement around the inside of the body tube behind the engine mount as shown. Insert the fin unit (part H) into the end of the tube and twist it as it is pushed into place. Be sure it is inserted all the way. Before the glue sets, sight along the tube to be sure the launch lugs are positioned between two of the fins. Stand the rocket on its fins while all the glue dries.

10



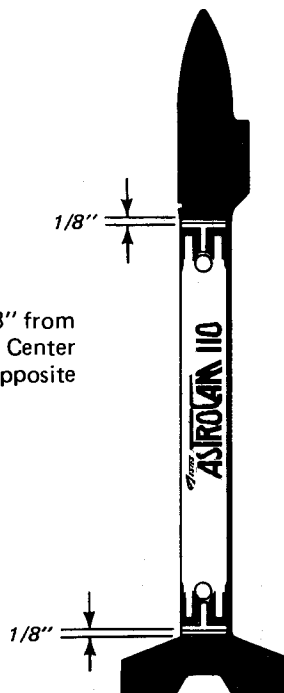
Cut out the parachute (part I) on its edge lines. Cut three 24" lengths of shroud line (part J). Tie a double knot at the line ends and attach to the top of the parachute with tape discs (part K) as shown. Take the 12" shock cord (part N) and tie the loose ends together. Pass the doubled shock cord through the screw eye in the camera adapter and pull tight with the



knotted end up against the screw eye. Pass the parachute shroud lines through the doubled shock cord, then pass the parachute through the shroud line loop and pull tight. Make sure the shroud lines are secured with the doubled shock cord being even from 'chute to screw eye. Tie the 18" rocket shock cord to the screw eye also, and make sure it is secure.

DECAL PLACEMENT

11



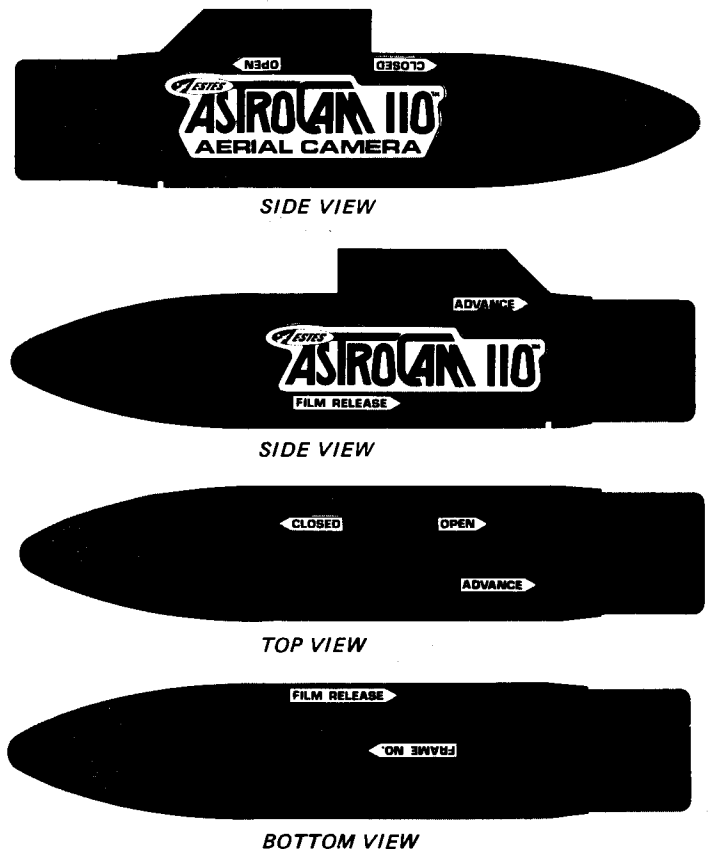
Place wrap-around decals 1/8" from each end of body tube. Center AstroCam 110 decals on opposite sides of body tube.

Erase all of the pencil lines on the tube and apply the decals as shown. To apply decals, cut out a decal section, dip in luke-warm water for 10 seconds, and hold it until it starts to uncurl. Slip the decal off the backing sheet and onto your model. Blot away excess water. When all the decals are in place, let the model dry overnight. After drying, apply a coat of clear spray enamel to protect the rocket's decals.

DO NOT apply any kind of paint to your AstroCam 110.

12

NOTE: Camera decals are not water-transfer-type decals as used on body tube. Camera decals are pressure sensitive stick-ons.



After camera construction is completed study the decal placement illustrations above and apply stick-on decals in the correct positions.

ESTES ASTROCAM™ 110

OPERATION AND MAINTENANCE

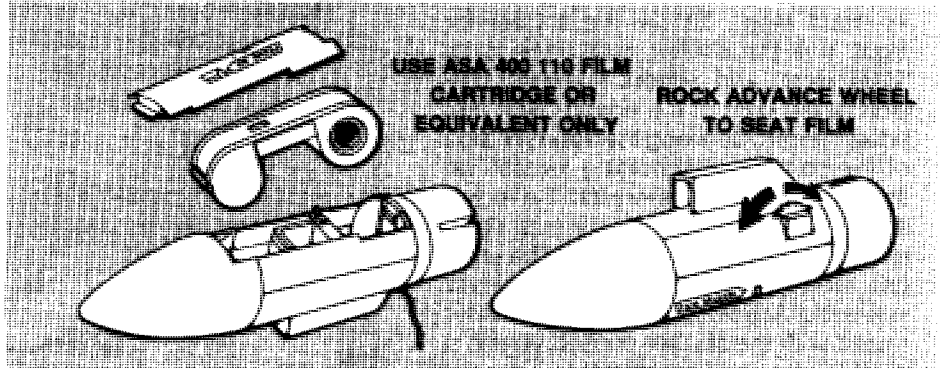
COMPLETE THESE INSTRUCTIONS THIRD

(Pages 9-12)

Read and familiarize yourself with these instructions before operating your AstroCam™ 110. The AstroCam™ 110 decals that belong on each side of the camera have been deleted from the illustrations to aid in clarity.

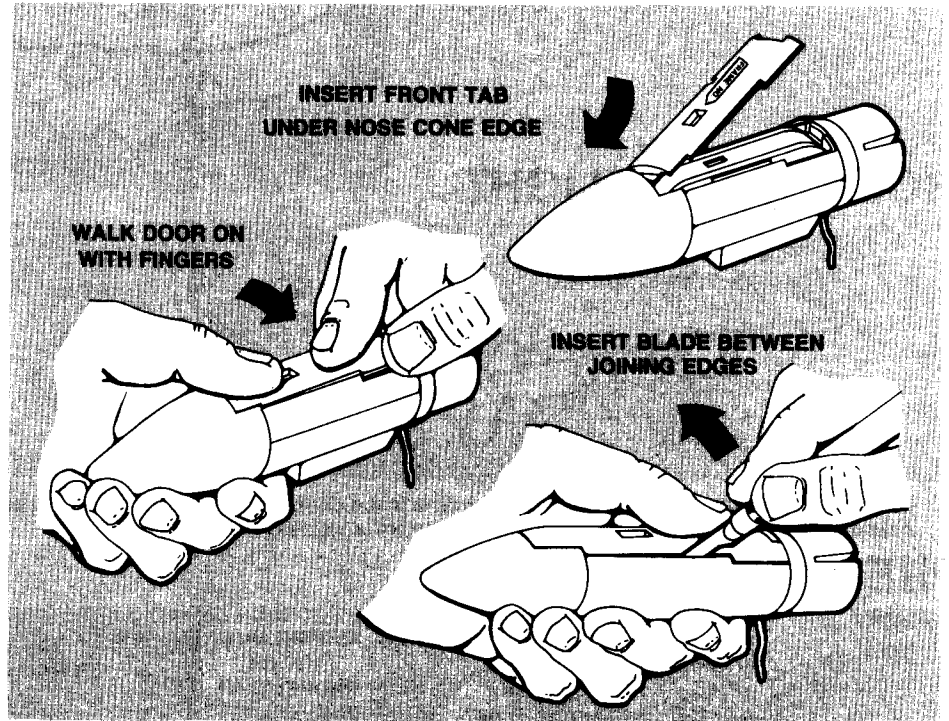
1

Insert a 110 film cartridge in the rear of the camera. Rock the film advance wheel slightly to be sure the film is seated in the camera all the way.



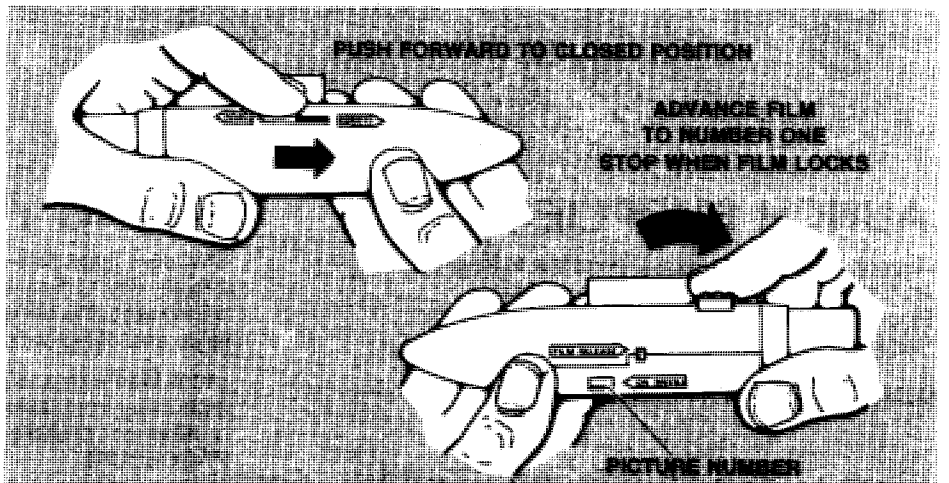
2

Install the back door of the camera. The door has been designed to fit very tightly and proper fit is achieved when all the door edges match the contour of the camera body. Slight finger pressure at various points along the door edges may be required to insure a proper fit. Begin door installation by inserting the tab under the nose cone edge and "walk" the door into position along its length. Use your thumb to press on the rear of the door until it snaps into position. To insure a proper fit, a modeling knife can be inserted and gently rocked between the joining edges after the ends have been positioned to assure the back door is fully seated, as shown in the preceding illustration.



3

Move the safety lock to its "closed" position. Hold the AstroCam™ 110 with the nose to your left. Begin advancing the film by turning the advance wheel toward the adapter end of the camera. Advance the film with moderate speed until the first number 1 comes into view. Now continue to advance the film slowly until the film stops and locks. Do not be concerned that the frame number(s) are not centered. Do not apply any more force on the advance wheel after the film has locked into position as the film locking mechanism could be damaged.

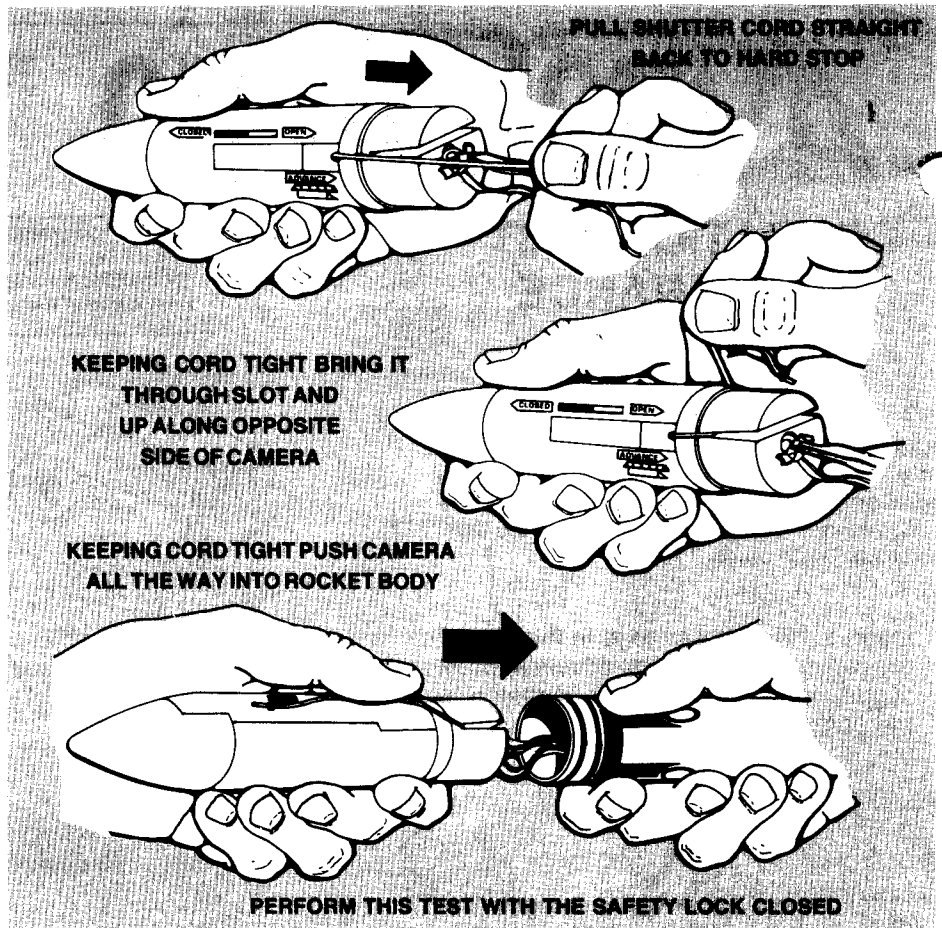


NOTE: As a precautionary measure during the operation, a piece of tape can be placed over the back door to secure it to the main body of the AstroCam™ 110. This can prevent the back door from dislodging in the event of an impact during recovery.

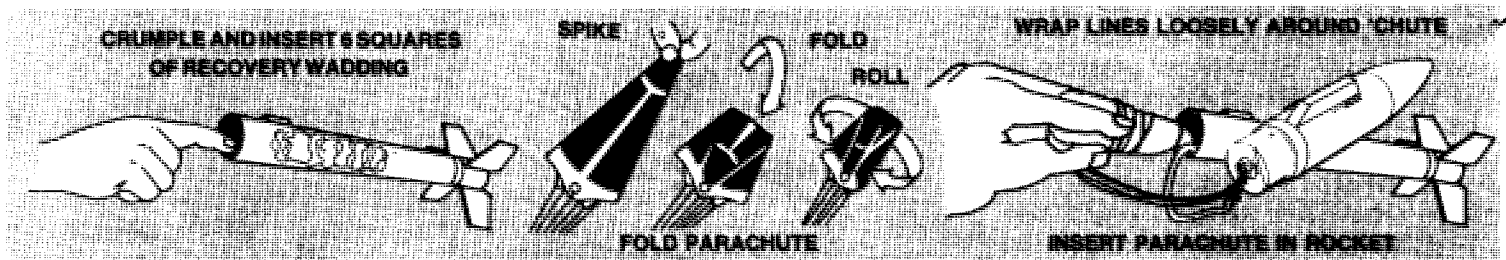
PRELAUNCH TEST

4

Familiarize yourself with the shutter tension. Hold the AstroCam™ 110 in one hand and pull the shutter cord straight back several times with the other hand. Note that the shutter has a "hard stop" at its set position (all the way back). When setting the AstroCam™ 110 shutter, always be absolutely sure the shutter has been pulled all the way back to its "hard stop". To set the shutter for flight, pull the shutter cord back to its "hard stop", and without releasing tension fit the cord in the adapter slot and bring the cord up along the opposite side of the camera. Still holding tension on the cord, push the camera into the rocket body until shoulder of camera rests snugly against rocket body. The cord can now be released. (Note: Never leave the AstroCam™ 110 in its carrier rocket with the shutter cocked unless a flight is planned immediately.)

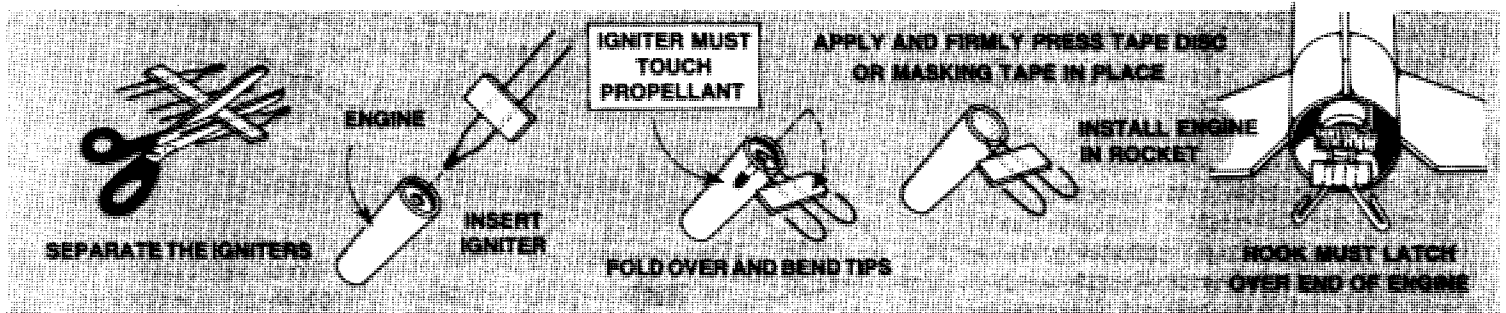


ROCKET PREFLIGHT



Check to be sure the AstroCam™ 110 safety lock is in the closed position. Cock the shutter as described in the Prelaunch Test above, and install the AstroCam™ 110 in the rocket body. Be sure the camera is installed all the way.

PREPARE ENGINE



LAUNCH SUPPLIES

- To launch your rocket you will need the following items:
- An Estes model rocket launching system
 - Estes Recovery Wadding (No. 2274)
 - Recommended Engine: C6-5 or C6-7

LAUNCH ONLY WITH ESTES PRODUCTS.

FLYING YOUR ROCKET

Choose a large field away from power lines, tall trees, and low flying aircraft. Try to find a field at least 250 feet square. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great.

Unroll lead wire and place controller the length of the wire (at least 15 feet) away from launcher. Make sure launcher is away from dry grass or other combustible material. Follow COUNTDOWN AND LAUNCH PROCEDURE.

COUNTDOWN AND LAUNCH

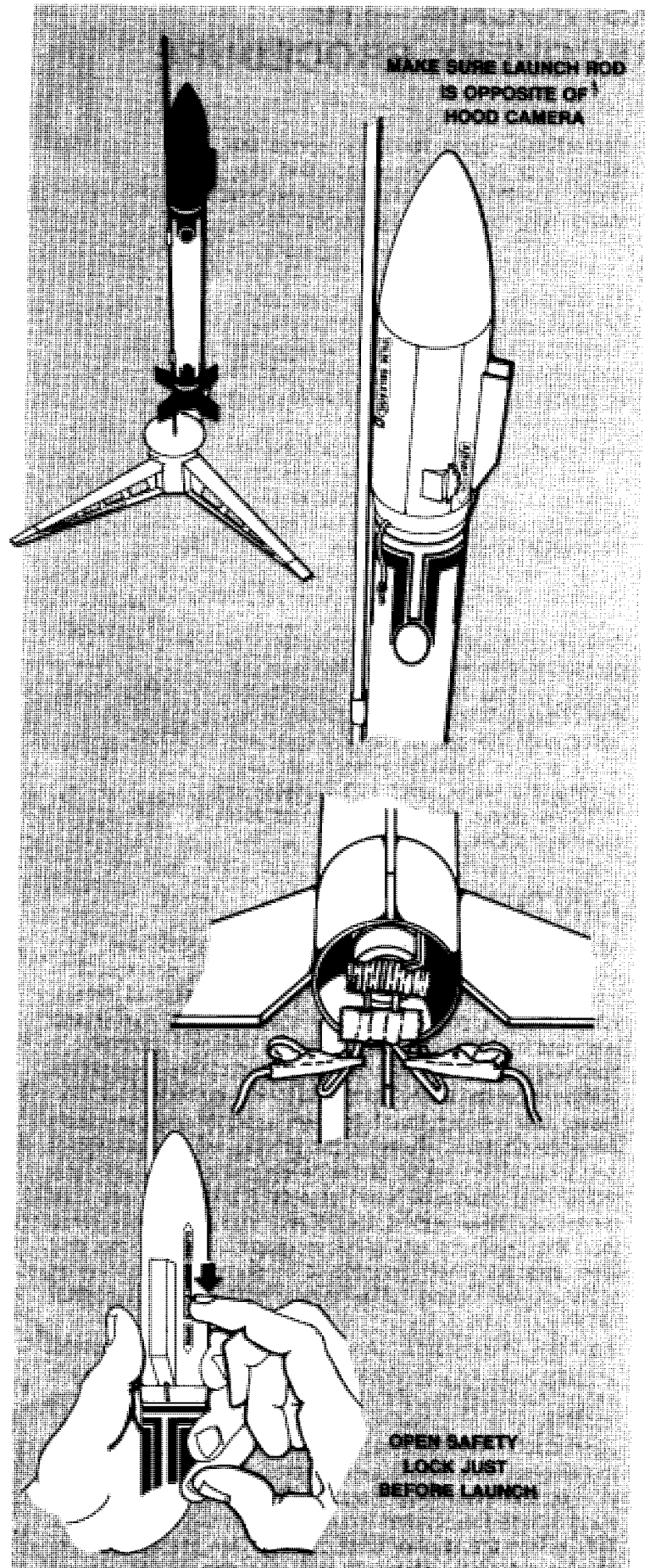
- 10 REMOVE SAFETY KEY to disarm the launch controller.
- 9 Remove launch rod safety cap.
- 8 Slide the rocket down the launch rod onto the rocket stand-off. Make a visual check of the camera adapter fit. If the camera has moved more than 1/32" out of the rocket body, remove the rocket from the launch pad and reset the shutter. There is absolutely no danger of exposing the film at this point. Be sure the shutter is set properly and the camera adapter is pushed all the way into the rocket body. The camera hood should be opposite the launch rod as shown in the illustration.
- 7 Attach micro-clips to igniter leads. (For maximum ignition reliability, attach clips as close to engine nozzle or igniter tape as possible.) CLIPS MUST NOT TOUCH EACH OTHER OR METAL BLAST DEFLECTOR. Be sure micro-clip wires will not snag on rocket fins.
- 6 Alert all personnel that rocket is ready for launch. Check for low flying aircraft and make sure there is no dry grass or other burnable material near the launch pad. Hold the rocket and AstroCam™ 110 as shown and move the safety lock to its "open" position (all the way rearward).

Arm the launch controller - INSERT SAFETY KEY.

Give audible countdown...5...4...3...2...1

LAUNCH!!! PUSH AND HOLD LAUNCH BUTTON UNTIL ENGINE IGNITES

Remove safety key—Replace cap on rod.



MISFIRES

Failure of the rocket engine to function properly is nearly always caused by a failure to install the igniter correctly. This failure permits the igniter to heat and burn into two pieces without igniting the engine.

FOR YOUR SAFETY AND ENJOYMENT

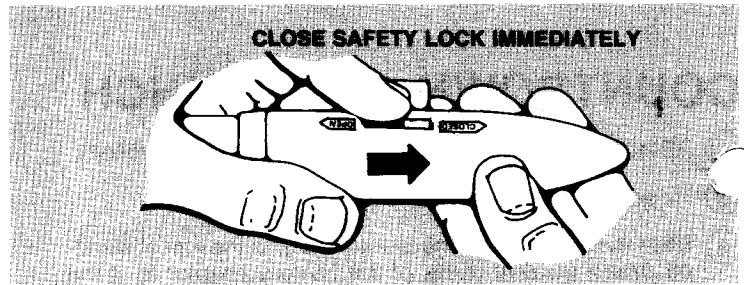
Always follow the NAR-HIA* MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities.

*National Association of Rocketry-The Hobby Industry of America

ASTROCAM™ 110 RECOVERY PROCEDURE

1

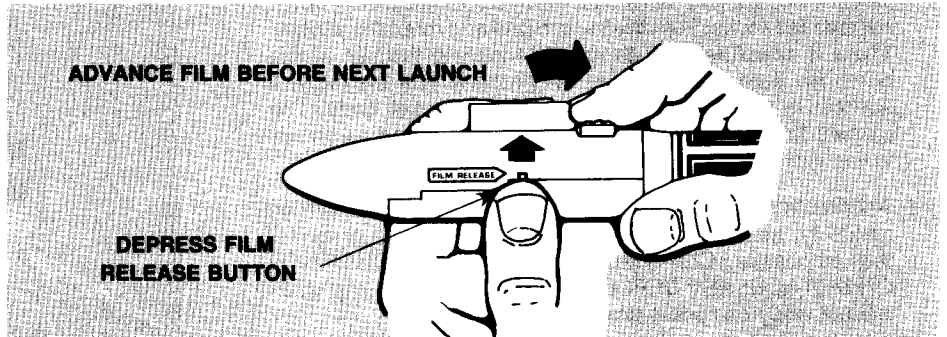
Immediately upon recovery, move the safety lock to its closed position (forward). This protects the exposure just made from further shutter movements.



2

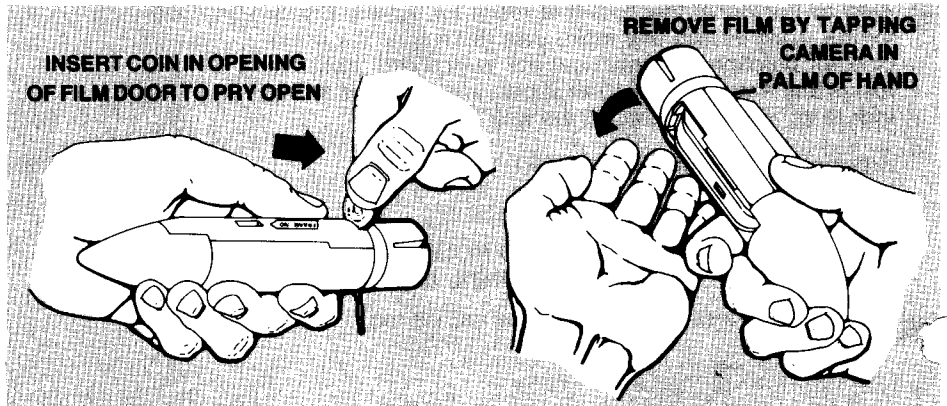
To advance the film to the next frame, depress the film release button and begin film advancement. Release the button as soon as the film begins to move. Continue to advance slowly until the film locks at the next frame.

Depress the button and advance the film in this manner immediately after each picture to insure against double exposure. Remembering to do this will prevent the loss of a valuable picture.



3

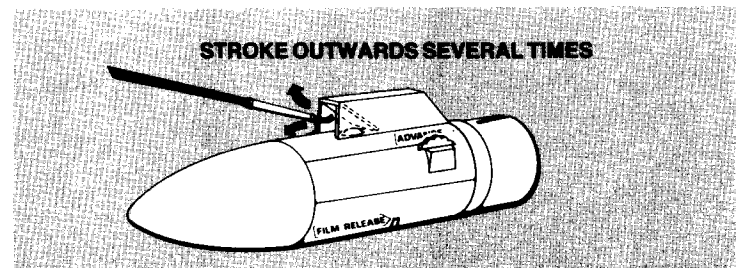
After the last picture has been taken, depress the film release button and advance the film until it stops again at the end of the roll. Insert a small coin in the opening at the end of the film door and press back until the door catch releases. Holding the AstroCam™ 110 with the film cartridge down, tap in the palm of your hand to remove the film.



MAINTENANCE

Although it is strongly recommended the AstroCam™ 110 be flown away from areas with loose and dry soil, it is inevitable that the camera may land on this type of terrain. When this happens, dust may collect on the mirror and lens and must be carefully removed before the camera is flown again. To do this, use a new and clean small camel hair brush of the same type used to assemble the camera. Never use a brush that has been used for any other purpose, as contamination left in the bristles will mar the mirror and lens. Insert the tip of the brush in the mirror and lens cavity and stroke outward several times with very light pressure. Never insert any object into this cavity other than the brush for any purpose. Examine the mirror and lens carefully when cleaning to be sure all contaminants are removed. Clean the remainder of the camera exterior with a soft cloth.

If for any reason the shutter cord should break or unravel during use, it can be replaced even though the camera is assembled. Use two 6 inch lengths of ordinary shroud line cord found in all Estes rocket kits and a pair of tweezers. Tie a double knot in one end of the new cord and trim off the excess about 1/16 inch from the knot. Pull back the shutter and insert your finger in the cavity near the nose cone where the shutter would normally be when closed. This keeps the shutter from closing. Use the tweezers to pluck out the knot of the old cord. In doing so, the remainder of the old cord will also come out.



Still holding the shutter open, insert the new cord through the shutter and push a small length up into the optics hood cavity. Now remove your finger and use the tweezers to reach in the small slot behind the shutter and pull the entire length of the cord back through the camera. Now insert another 6 inch length of cord through the opening at the rear of the optics hood and down through the slot behind the shutter. Tie the two ends of cord protruding from the rear of the optics hood together. Then pull the cord protruding from the rear of the optics hood until all cord is out the rear of the camera. Cut 5½ inches off the end of the long cord leaving the new shutter cord and knot.

If necessary, AstroCam™ 110 replacement parts can be ordered directly from Estes.

NOTES

About film, flight, and finished photos from your

ESTES ASTROCAM™ 110

Flying the AstroCam™ 100 is fun and the photographic results exciting. The subjects which can be photographed are endless. City streets, schools, rural farmland, etc. To achieve good pictures flight after flight, follow these simple guidelines.

1

Be patient! Wait for a calm, clear day and use only the recommended high speed ASA 400 color film or equivalent.

2

For greatest ground detail, launch from 8 a.m. to 11 a.m. in the morning 1 p.m. to 4 p.m. in the afternoon. Flying earlier or later than this will affect the light level being reflected from the ground. This may cause some under-exposure. Also, long shadows on the ground may hide some detail in the finished photograph.

3

Late Spring, Summer, and early Fall are the best times during the year to fly the AstroCam™ 110 because of sun angles. Again, light reflected from the ground plays an important part in photo quality.

4

Always prep the AstroCam™ 110 carefully for each flight. Remember, you cannot expose the film as long as the safety lock is in the closed position. If you are unsure about shutter setting, release it and set it again. If you are unsure about whether the number appearing in the window has been exposed, advance to the next frame.

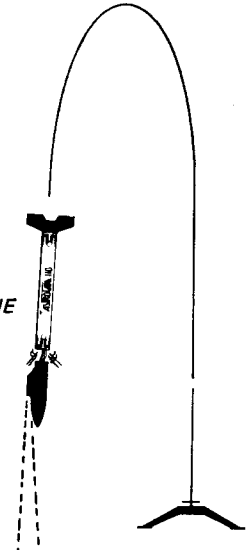
5

Recommended Engine: C6-7 Only. The AstroCam™ 110 has been designed so that the engine type used will regulate the angle of the camera at the time of exposure. Use C6-7 engines for direct downward ground photos. However, use of the C6-7 engines may increase your chances of experiencing an occasional parachute or recovery problem due to the velocity of the Delta II™ Launch Vehicle at parachute ejection.

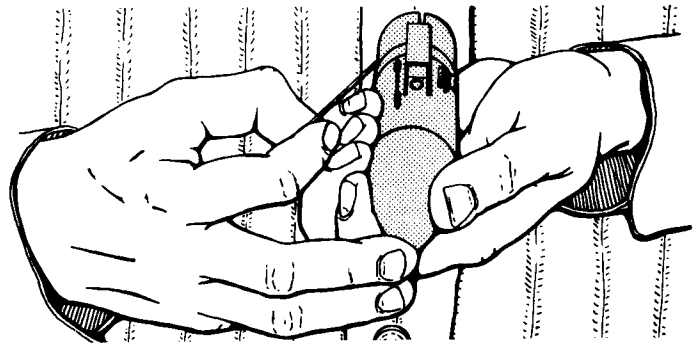
(6)

C6-7
ENGINE

MAKE SURE LAUNCH ROD IS
IN A VERTICAL POSITION



(10)



(10)

| | | |
|--|-------------------------------------|---------------------------------------|
| NAME <u>Your Name</u> | | STORE NO. |
| ADDRESS <u>Anytown, U.S.A. 8777</u> | | DATE |
| PHONE <u>123-4567</u> | | |
| CHECK FILM | BLACK AND WHITE | KODACHROME Film |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| EXTRACHROME Film | | OTHER |
| <input type="checkbox"/> | | <input type="checkbox"/> |
| COLOR PRINT FROM SLIDE | | |
| FILM SIZE <u>110</u> | | NO. OF NEGATIVES OR SLIDES |
| NO. OF ROLLS <u>1</u> | | NO. OF PRINTS FROM EACH SLIDE OR NEG. |
| NO. OF PRINTS FROM EACH NEG. <u>1</u> | | ENLARGEMENT SIZE |
| | | DUPLICATE COLOR SLIDES |
| INSTRUCTIONS <u>These photos taken using a mirror. Please reverse negatives to make prints.</u> | | PRINTS MADE |
| | | DEV. |
| | | PRINT |
| | | TOTAL |
| | | TAX |
| | | TOTAL |
| YOUR CAMERA SHOP | | |
| MAIN STREET | | |
| ANYTOWN, U.S.A. | | |

SAMPLE OF FILLED OUT FILM MAILING ENVELOPE

6

For best photo results and maximum altitude, launch on calm or nearly calm days with LAUNCH ROD IN VERTICAL POSITION.

7

Never move the safety lock to the open position until you are actually ready to launch.

8

Always move the safety lock to its closed position immediately upon recovery.

9

If a misfire occurs (igniter fails to ignite the engine) close the camera safety lock and remove the rocket from the launch rod. Once the igniter has been replaced, re-set the shutter and continue normal launch procedure.

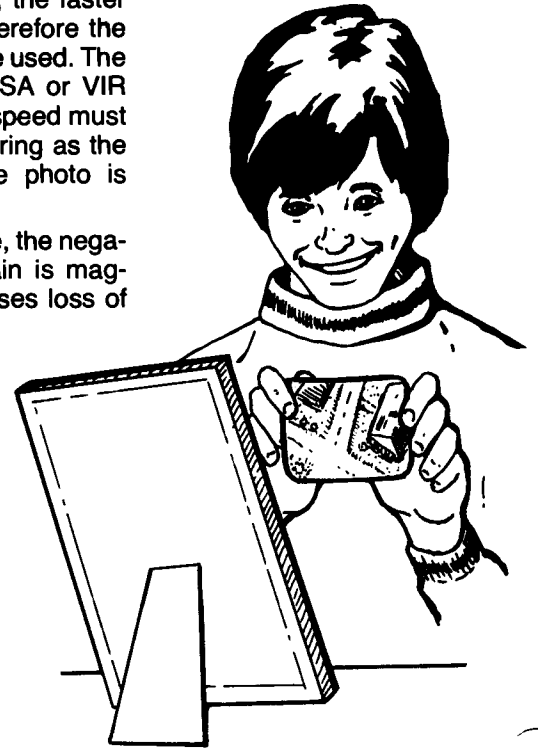
10

If you choose not to take all pictures on the roll, depress the film release and hold while advancing the film to the end. Or finish the roll using the AstroCam™ 110 as an ordinary camera. Although this takes some practice, the AstroCam™ 110 can be held with the adapter tight against the chest, mirror hood up and nose pointed slightly down at the subject. Hold the camera as shown with the shutter cocked. Reach over with the other hand and open the safety lock. Release the shutter cord quickly while holding your breath. Practice this several times with the safety lock closed or without film before attempting actual picture taking. When returning exposed film for processing request a note to be placed in the "special instructions" box to read; "These photos taken using a mirror. Please reverse negatives to make prints." If these instructions are not followed, stand in front of a mirror and hold the picture about chin high. When viewed in this manner, (image reflected off the mirror) the picture will appear correct. AstroCam™ 110 pictures when not corrected in this fashion will always be reversed from proper orientation.

If you choose to have enlargements made from any prints you especially like, it's wise to remember an important fact concerning how exposures are captured on the film. Color negative film (as all films) contain layers of light sensitive materials called emulsions. These emulsions are actually millions of little beads or grains. The grit or fineness of the grain in conjunction with the sharpness of lens focus determines the over-all crispness of the photograph. As a rule, the ASA or VIR rating of a film determines the size of the grain and therefore the sharpness capability of the film. The higher the ASA or VIR rating, the faster the film reacts to light and therefore the faster the shutter speed can be used. The AstroCam™ 110 must use ASA or VIR 400 film because the shutter speed must be high to avoid possible blurring as the camera is moving when the photo is taken.

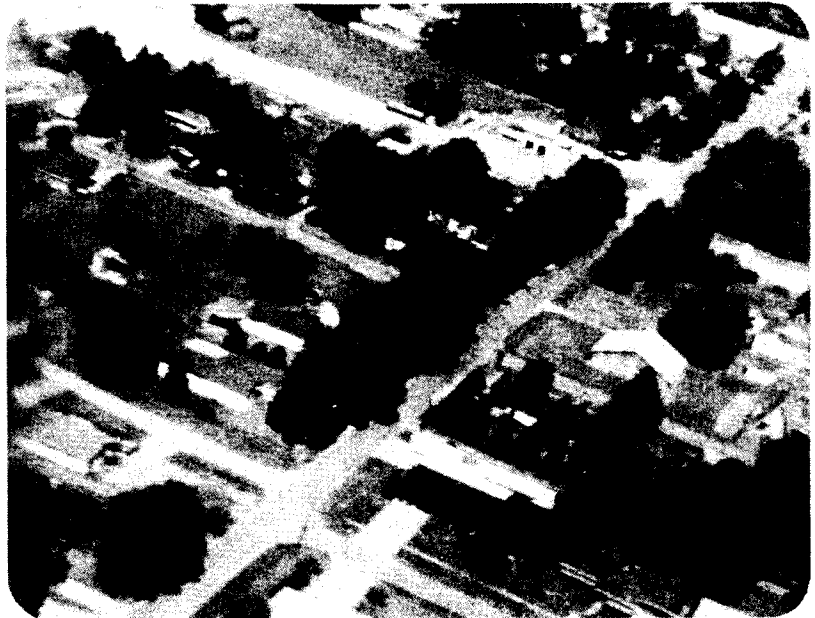
When enlargements are made, the negative is projected and the grain is magnified. This magnification causes loss of picture quality with any negative size but is more noticeable with 110 size film due to its very small negative size.

It is recommended that enlargements from AstroCam™ 110 negatives not exceed 5" x 7" size unless the quality and sharpness of the negative are exceptional. A photo shop in your area can best help you with this determination and give you exactly what you want.



USE MIRROR WHEN
PHOTOS ARE NOT
PRINTED REVERSED

Actual AstroCam™ 110 Photo taken by David Moosa, Eunice, LA



The photo shown above is typical of the quality to be expected from the AstroCam™ 110 - Delta II™ Launch Vehicle. It was taken in a residential section of Eunice, LA. The photo was taken during mid-afternoon in 1979 using a completely stock AstroCam™ 110 - Delta II™ rocket combination. When flying your AstroCam™ 110 in residential areas, always launch from large vacant lots or fields.

In some instances a slim hazy crescent may appear at one end of the photo. This crescent is actually the nose portion of the camera and will appear in some AstroCam™ 110 photos due to the angle of the first surface mirror.

ESTES IND. PN 036655

ASTROCAM ASTROCAM

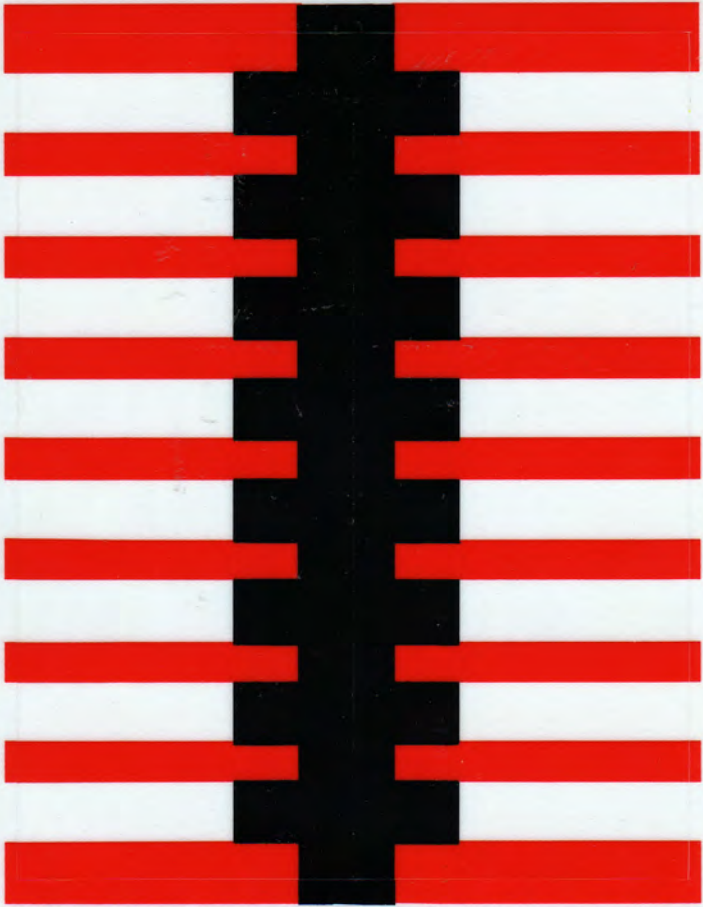
NO FRAME ↓

FILM RELEASE ↓

ADVANCE ↓

↓ CLOSE

↑ OPEN



ESTES ASTROCAM™

ESTES ASTROCAM™