





A DAMON COMPANY

ESTES INDUSTRIES  
1295 H Street  
Penrose, CO 81240 USA

# LANCER™

FLYING MODEL ROCKET #1993



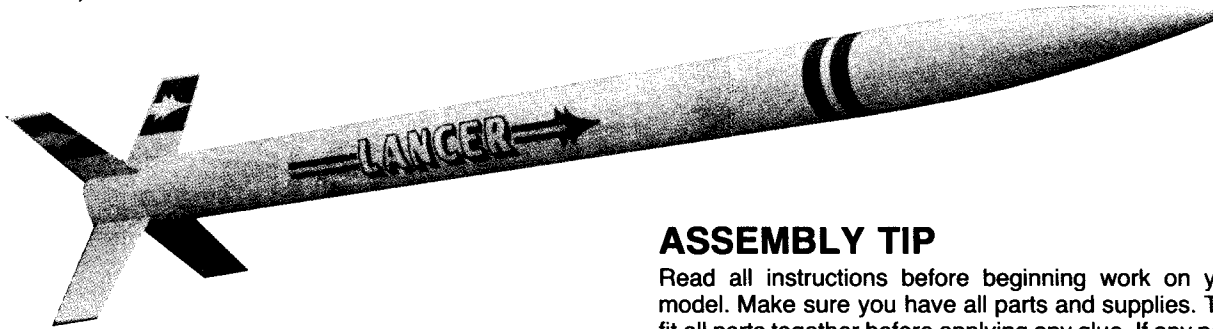
SHOCK CORD  
MOUNT

SEC. 3

SEC. 2

SEC. 1

SHOCK CORD  
MOUNT



## 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 glue. If any parts don't fit properly, sand as required for precision assembly.

## PARTS AND SUPPLIES

Locate the parts shown below and lay them out on the table in front of you. In addition to the parts included in the kit you will also need:



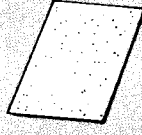
SCISSORS



PENCIL



RULER



SANDPAPER



WHITE GLUE



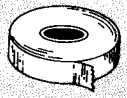
MODELING  
KNIFE



ENAMEL SPRAY  
PAINT (Gloss Yellow)



PLASTIC  
CEMENT

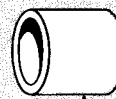


MASKING TAPE

## KIT PARTS



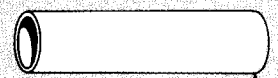
BODY TUBE ↑



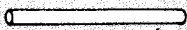
ADAPTER RING ↑



ENGINE HOLDER  
RING (Blue)



ENGINE MOUNT TUBE ↑



LAUNCH LUG ↑

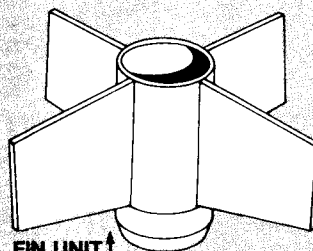


ENGINE HOOK ↑

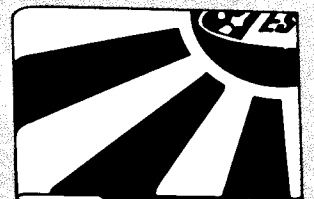


NOSE CONE ↑

NOSE CONE INSERT

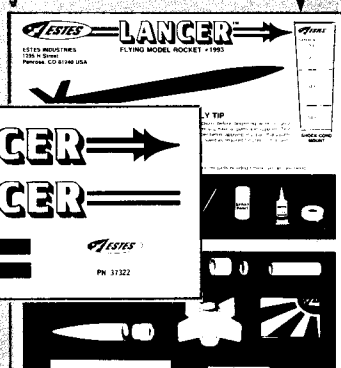


FIN UNIT ↑

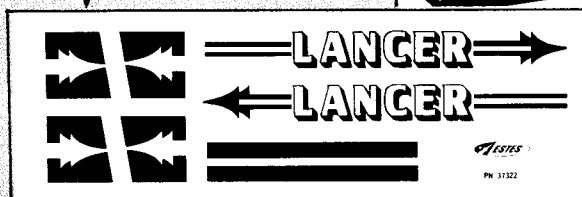


PARACHUTE ↑

INSTRUCTION ↓



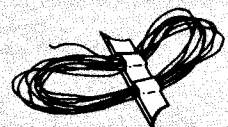
DECAL ↓



TAPE DISC SET ↑



SHOCK CORD ↑

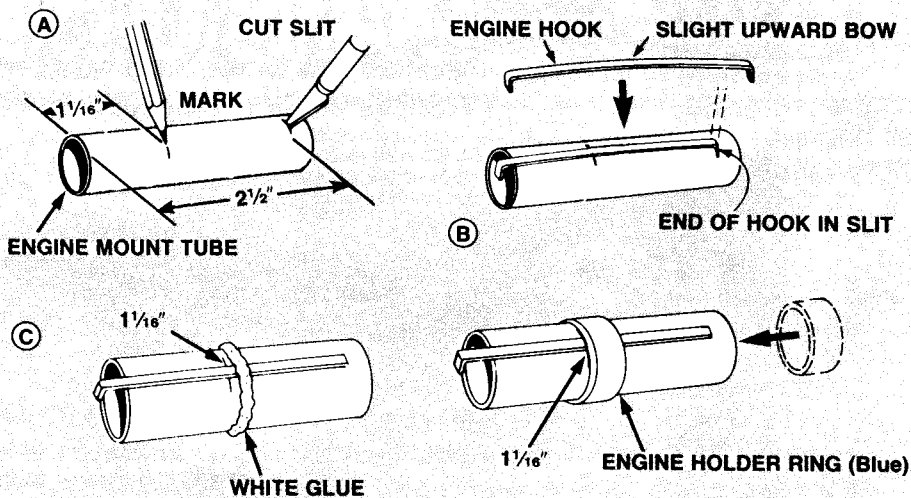


SHROUD LINE ↑

# ROCKET ASSEMBLY

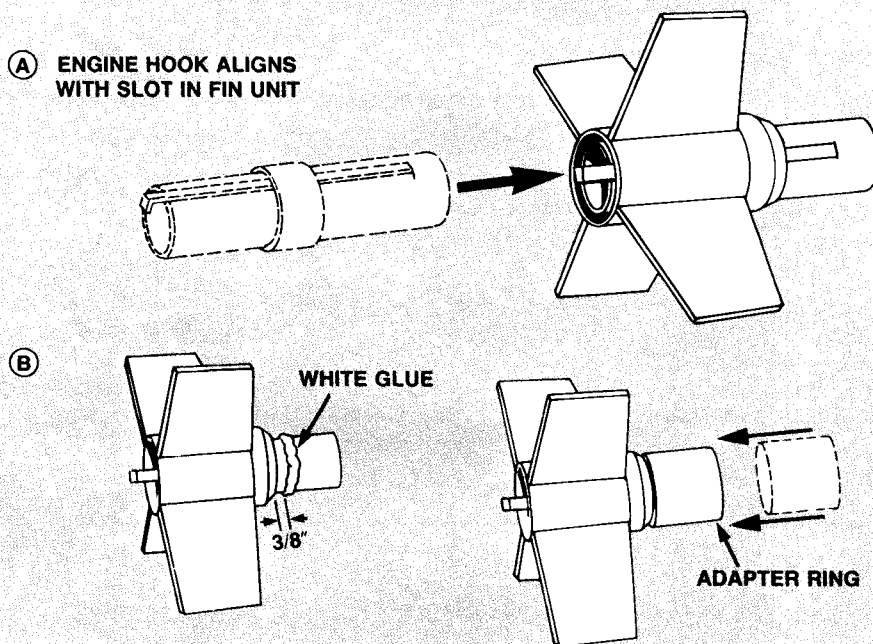
**1**

- A. Mark engine mount tube at  $1\frac{1}{16}$  inch and at  $2\frac{1}{2}$  inches from one end as shown. Now cut an  $\frac{1}{8}$  inch long slit at  $2\frac{1}{2}$  inch mark.
- B. Insert one end of engine hook into slit.
- C. Apply white glue around engine mount tube about  $\frac{1}{8}$  inch ahead of  $1\frac{1}{16}$  inch mark as shown. Now slide ENGINE HOLDER RING on engine mount tube back to the  $1\frac{1}{16}$  inch mark and no further. Do not stop while sliding ring into place, or the glue may grab at wrong point. Let assembly dry before proceeding.



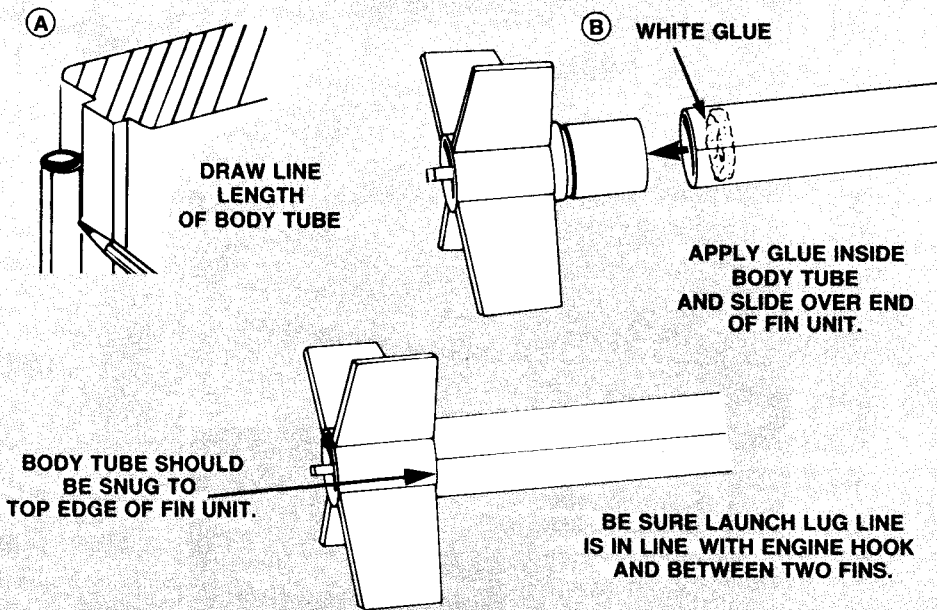
**2**

- A. Slide assembly from Step 1 fully into plastic fin unit from rear. The engine hook on engine mount tube will fit into slot in fin unit.
- B. Apply glue around engine tube  $\frac{3}{8}$  inch ahead of fin unit as shown. Next, in one continuous movement, slide adapter ring onto engine mount all the way down to fin unit. Hold engine mount tube in place with thumb while sliding adapter ring into place.



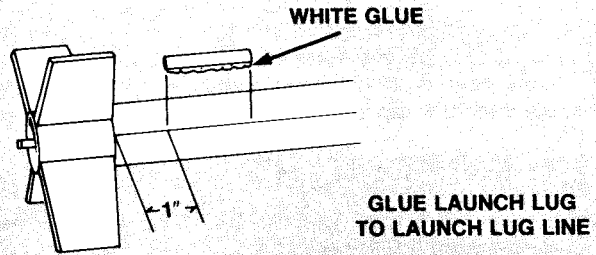
**3**

- A. Lightly draw a straight line along entire length of the body tube as shown.
- B. Apply glue to inside of one end of body tube about  $\frac{1}{2}$  inch from end. Align the line on body tube with the engine hook and in one continuous motion push the body tube over adapter ring and all the way down to the fins as shown.



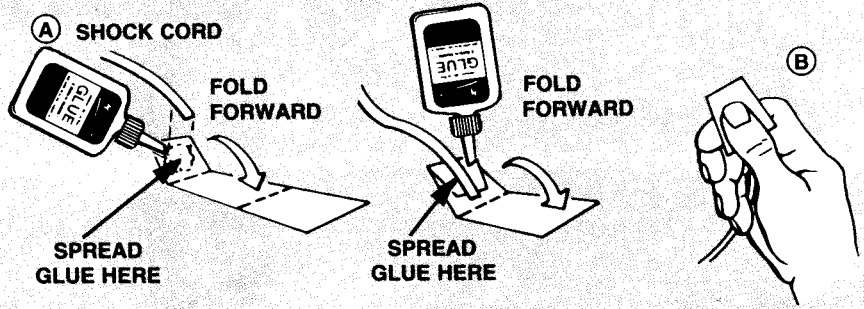
4

Glue launch lug to body tube 1 inch from front of fin unit. Sight along tube to be sure launch lug is straight with body. After glue is dry, erase pencil line still showing on tube.



5

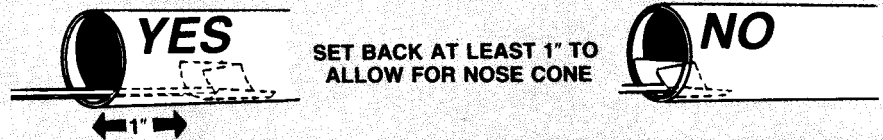
- Cut shock cord mount from front page of instructions. Crease on dotted lines by folding. Spread glue on section 1 and lay end of shock cord into glue. Fold over and apply glue to back of first section and exposed part of section 2. Lay shock cord as shown and fold mount over again.
- Clamp unit together with fingers until glue sets.



6

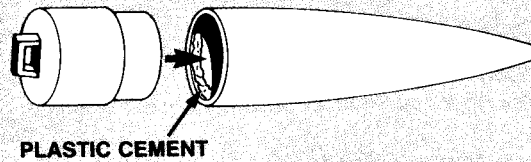
Apply white glue to inside front of body tube 1 inch to 2 inches from end. The glue area should be same size as shock cord mount. Press shock cord mount into glue and hold until glue sets.

SPREAD WHITE GLUE INSIDE BODY TUBE



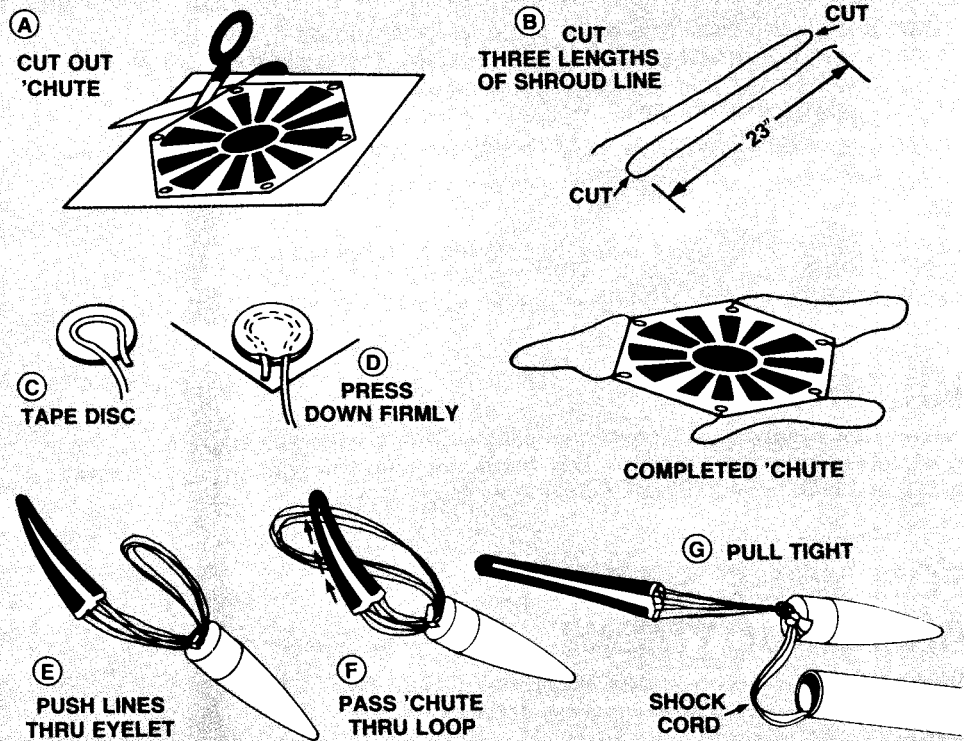
7

Apply plastic cement to inside edge of nose cone, and then install nose cone insert as shown.



8

- Cut out parachute on edge lines.
- Cut three 23 inch lengths of shroud line.
- Form small loop with shroud line ends and press onto sticky side of tape discs.
- Press tape discs firmly into place until both tape discs and parachute material are molded around shroud line loops.
- Pass shroud line loops through eyelet on nose cone.
- Pass parachute through loop ends and pull lines tight against the nose cone.
- Tie free end of shock cord to nose cone eyelet.

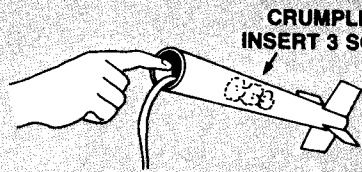


# FINISHING YOUR ROCKET

When all glue is completely dry, paint your model with gloss yellow enamel. Avoid using lacquer paints. Follow instructions on paint can for best results. Allow paint to dry overnight before applying decals. To apply decals, cut each out, dip in lukewarm water for 20 seconds,

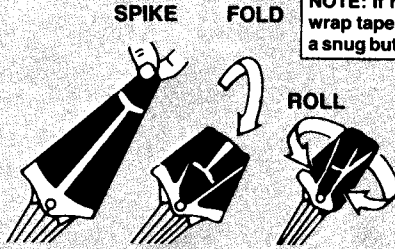
and hold until it uncurls. Slip decal off backing sheet and onto model. Refer to front page of instructions or front of panel for decal placement. Blot away excess water. For best results, let decals dry overnight and apply a light coat of clear gloss spray paint to protect decals.

## ROCKET PREFLIGHT



INSERT RECOVERY WADDING

CRUMPLE AND INSERT 3 SQUARES

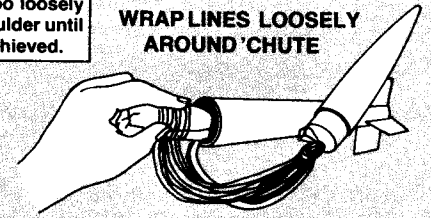


FOLD PARACHUTE

SPIKE FOLD

ROLL

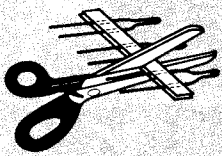
NOTE: If nose cone fits too loosely wrap tape around the shoulder until a snug but not tight fit is achieved.



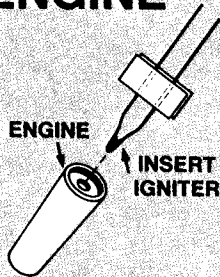
WRAP LINES LOOSELY AROUND 'CHUTE

INSERT PARACHUTE, SHOCK CORD, AND NOSE CONE IN ROCKET

## PREPARE ENGINE

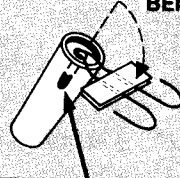


SEPARATE THE IGNITERS

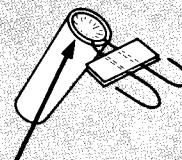


ENGINE INSERT IGNITER

FOLD OVER AND BEND LEADS

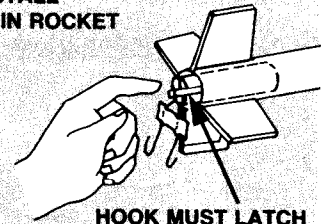


IGNITER TIP MUST TOUCH PROPELLANT DEEP INSIDE NOZZLE OPENING



APPLY AND PRESS MASKING TAPE OR TAPE DISC FIRMLY IN PLACE

INSTALL ENGINE IN ROCKET



HOOK MUST LATCH OVER END OF ENGINE

## LAUNCH SUPPLIES

To launch your rocket you will need the following items:

- An Estes Launch System
- Estes Recovery Wadding (No. 2274)
- Recommended Engines: 1/2A6-2, A8-3, A8-5, B4-4, B4-6, B6-4, B6-6, B8-5, C6-5, or C6-7

Use 1/2A6-2 engine for your first flight to become familiar with your rocket's flight pattern.

*Use only Estes products to launch this rocket.*

## 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.

Launch area must be free of dry weeds and brown grass.

Launch only during calm weather with little or no wind and good visibility.

Don't leave parachute packed more than a minute or so before launch during cold weather [colder than 40° Fahrenheit (4° Celsius)]. Parachute may be dusted with talcum powder to avoid sticking.

## MISFIRES

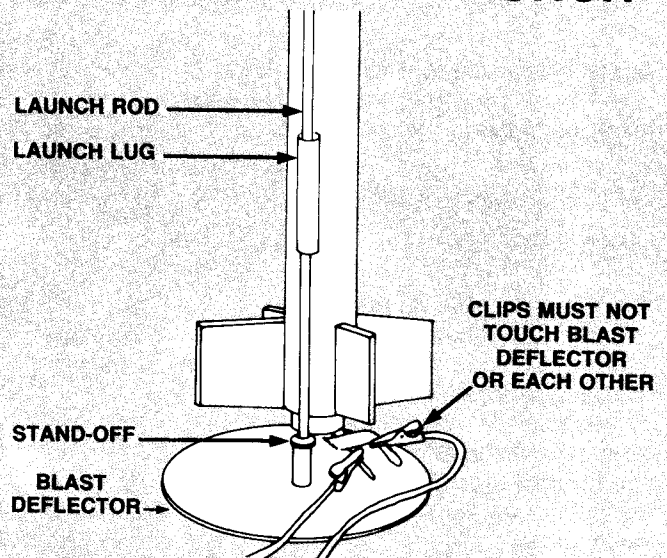
Failure of the rocket engine to function properly is nearly always caused by a failure to install the igniter correctly. This failure permits the igniter to heat and burn into two pieces without igniting the engine.

## 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  
page 4

## COUNTDOWN AND LAUNCH



- 10 REMOVE SAFETY KEY to disarm the launch controller.
- 9 Remove safety cap and slide launch lug over launch rod to place rocket on launch pad. Make sure the rocket slides freely on the launch rod.
- 8 Attach micro-clips to the igniter wires. Arrange the clips so they do not touch each other or the metal blast deflector.
- 7 Move back from your rocket as far as launch wire will permit, (at least 15 feet).
- 6 INSERT SAFETY KEY to arm the launch controller. Give audible countdown 5...4...3...2...1

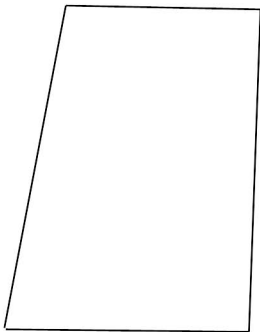
### LAUNCH!!!

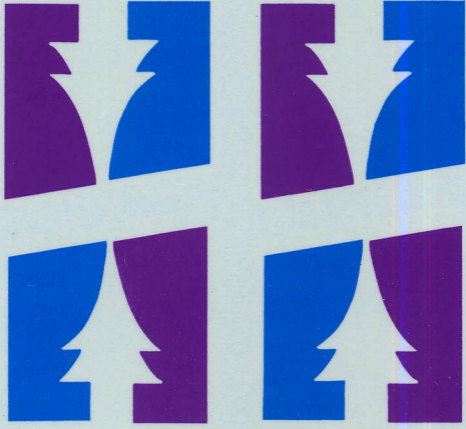
PUSH AND HOLD LAUNCH BUTTON UNTIL ENGINE IGNITES  
Remove safety key—Replace cap on rod.

## **Building Tips:**

The Main body tube length is 12.75"

Since the fin unit is hard to find, you may want to use the fin template to make balsa fins  
If you choose to make balsa fins, add 1.25" to the body tube length to account for the length of the fin unit.





**LANCER**



**LANCER**



A DAKOH COMPANY

PN. 37322



# LANCER™

## FLYING MODEL ROCKET

**SKILL LEVEL 1**

Recommended for the Beginning Rocketeer

### ■ ONE PIECE FIN UNIT EASES ASSEMBLY

- 12" Parachute
- Plastic Nose Cone
- Quick-Release Engine Mount

#### Recommended Engines:

12A6-2 (First Flight), AA-3, AA-6,  
BA-4, BA-6, BA-4, BA-6, BA-6, CB-5,  
or CB-7

Length: 18 in. (45.7 cm)

Dia.: 3/16 in. (24.8 mm)

Weight: 1.21 oz. (37 g)

#### Made in U.S.A.

This is a model kit requiring assembly, glue and finishing supplies. Launch system and engine for flight are not included.

**FLIGHTS  
TO 800  
FEET!**



#1993

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