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Estes® Industries
1295 H Street
Penrose, CO 81240
Printed In China

U.S. ARMY patriot

M-104

FLYING MODEL ROCKET KIT EST 2056/1248 INSTRUCTIONS

KEEP FOR FUTURE REFERENCE

ASSEMBLY TIP

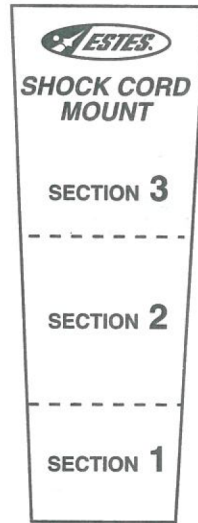
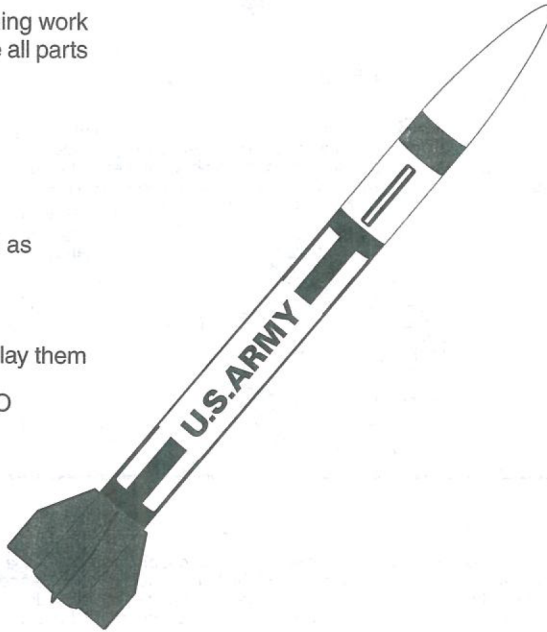
Read all instructions before beginning work on your model. Make sure you have all parts and supplies.

TEST-FIT ALL PARTS TOGETHER BEFORE APPLYING ANY GLUE.

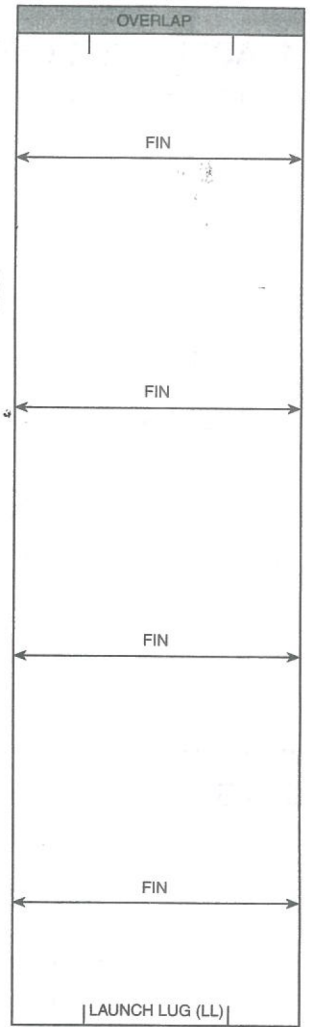
If any parts don't fit properly, sand as required for precision assembly.

PARTS

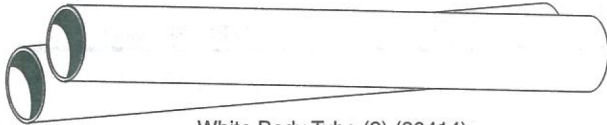
Locate the parts shown below and lay them out on the table in front of you. DO NOT USE THIS DRAWING TO ASSEMBLE YOUR ROCKET.



Shock Cord Mount



Tube Marking Guide



White Body Tube (2) (30414)



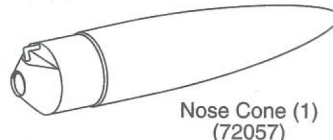
Yellow Body Tube (1) (30426)



Decal Sheet (2) 37500



Blue Engine Mount Tube (1) (30326-1)



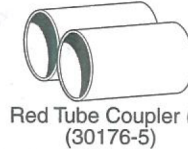
Nose Cone (1) (72057)



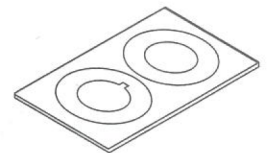
Mylar Retainer Ring (1) (30168)



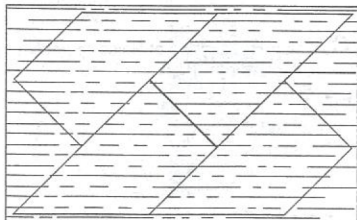
Engine Hook (1) (35021)



Red Tube Coupler (2) (30176-5)



Centering Ring Card (1) (30128)



Die-Cut Balsa Sheet (1) (32220)



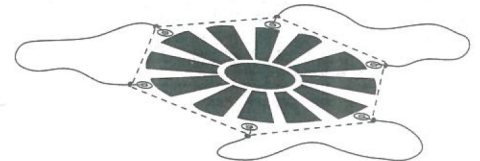
Operation Enduring Freedom Sticker (1) (60586)



Green Engine Block (1) (30162-2)



Shock Cord (1) 1/8" x 18" (38374)



Assembled Parachute 12" (30 cm) (1) (35801)



Launch Lug (1) (38178)

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



SCISSORS



PENCIL



RULER



FINE SAND PAPER (#400-800 GRIT)



CARPENTER'S GLUE



MODELING KNIFE



MASKING TAPE



SPRAY PRIMER (WHITE)



SPRAY PAINT: (RED)

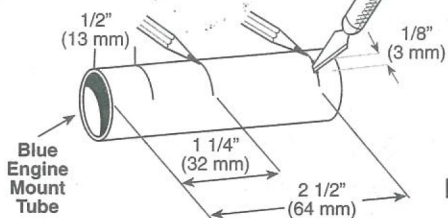


SPRAY CLEAR COAT (OPTIONAL)

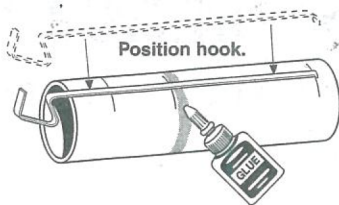
1. ASSEMBLE ENGINE MOUNT

A. Mark Engine Tube.

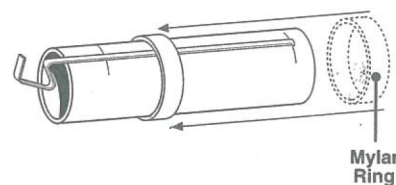
B. Cut 1/8" (3 mm) slit at 2 1/2" (64 mm) mark.



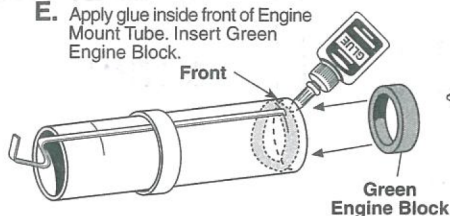
C. Apply glue around tube just ahead of the 1 1/4" (32 mm) mark. Insert engine hook end into slit.



D. Slide Mylar Retainer Ring onto Engine Mount Tube up to 1 1/4" (32 mm) mark.



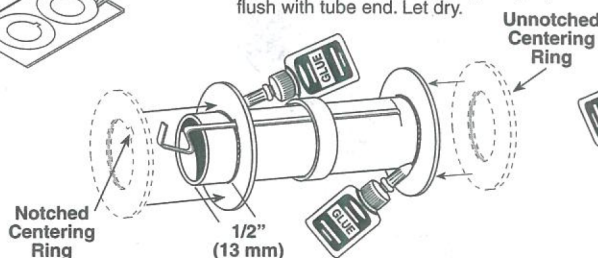
E. Apply glue inside front of Engine Mount Tube. Insert Green Engine Block.



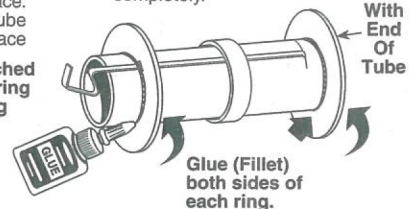
F. Carefully remove Die Cut Rings with a hobby knife.



G. Apply glue around tube at 1/2" (13 mm) mark and slide notched Centering Ring into place. Let glue set. Apply glue around end of tube and slide unnotched Centering Ring in place flush with tube end. Let dry.

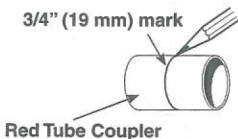


H. Apply glue fillets to both sides of Centering Rings. Let glue dry completely.

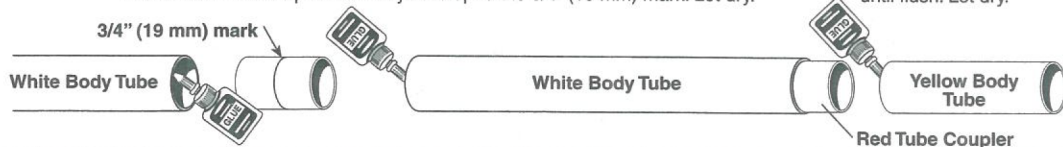


2. ASSEMBLE BODY TUBES

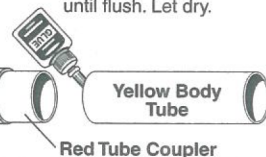
A. Mark red coupler (2) tubes at the 3/4" (19 mm) mark from end.



B. Apply glue inside White Body Tube as shown. Insert red coupler into body tube up to the mark. Let dry. Apply glue inside second White Body Tube as shown and push together until flush. Let dry. Apply glue inside other end of White Body Tube. Insert Red Coupler into body tube up to the 3/4" (19 mm) mark. Let dry.



C. Apply glue inside one end of Yellow Tube. Push the tube coupler into the Yellow Tube until flush. Let dry.

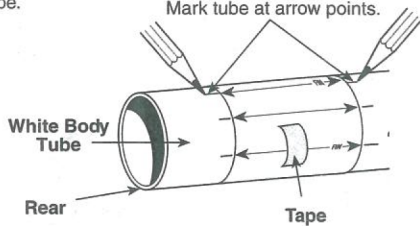


3. MARK FIN AND LAUNCH LUG LINES

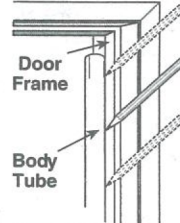
A. Cut out Tube Marking Guide. Wrap and tape around the rear section of the White Body Tube.



B. Mark at arrows, mark Launch Lug Line "LL". Mark tube at arrow points.

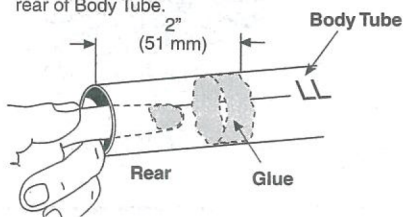


B. Using a door frame as a guide, extend Fin Lines 4" (102 mm) from rear of body. Extend Launch Lug Line 8" (203 mm).

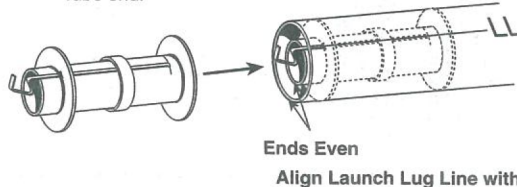


4. INSERTING ENGINE MOUNT

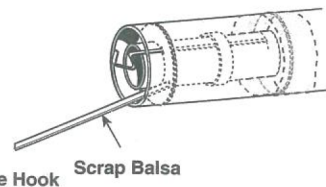
A. Use finger to smear glue 2" (51 mm) inside rear of Body Tube.



B. Align Engine Hook with Launch Lug line and insert Engine Mount until Engine Tube is even with Body Tube end.

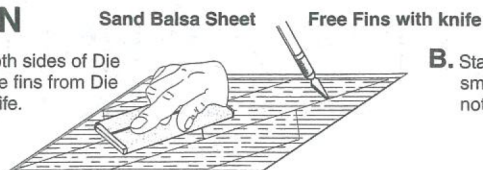


C. Use a scrap piece of Balsa to apply a glue fillet to Centering Ring/Body Tube joint. Let dry.

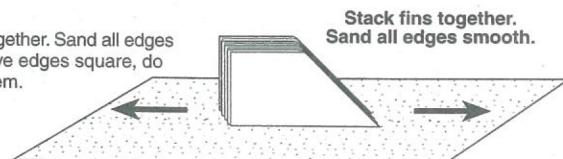


5. FIN PREPARATION

A. Using fine sand paper, sand both sides of Die Cut Fin Sheet. Carefully remove fins from Die Cut Sheet using a modeling knife.

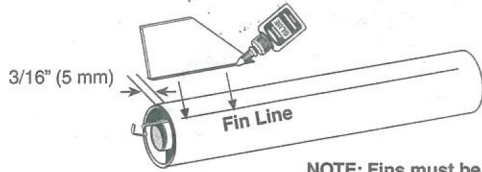


B. Stack Fins together. Sand all edges smooth. Leave edges square, do not round them.

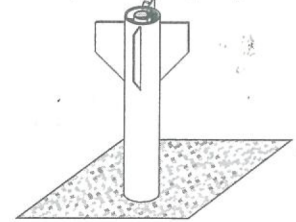
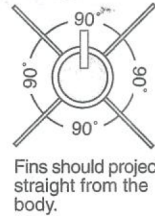


6. ATTACH FINS

- A.** Mark fin lines 3/16" (5 mm) from rear of Body Tube. **B.** Apply thin layer of glue to edge of Fin, wait one minute. Apply second layer and attach Fin to Body Tube along one of the Fin Lines. Repeat for remaining Fins. **C.** Check alignment of fins as shown. Allow glue to set. **D.** Stand rocket on flat table until glue dries completely.

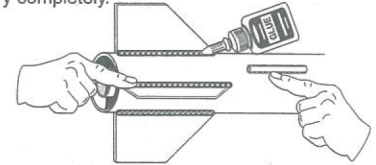
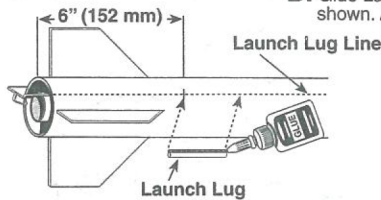


NOTE: Fins must be attached correctly for stable flight.



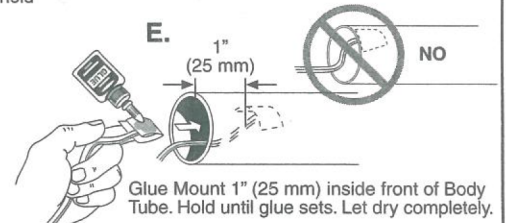
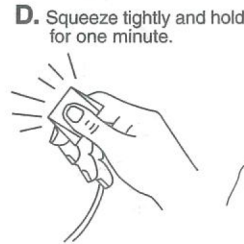
7. ATTACH LAUNCH LUG

- A.** Place a mark on the Launch Lug line 6" (152 mm) from rear of body. **B.** Glue Launch Lug onto "LL" line where shown. Align straight with tube. Let dry. **C.** Apply glue fillets to all Launch Lug and Fin/Body Tube joints, smooth each fillet with your finger. Let glue dry completely.



8. INSTALL SHOCK CORD MOUNT

- A.** Cut out Shock Cord Mount. **B.** Apply glue. Fold forward. **C.** Apply glue. Fold forward. **D.** Squeeze tightly and hold for one minute. **E.** Glue Mount 1" (25 mm) inside front of Body Tube. Hold until glue sets. Let dry completely.

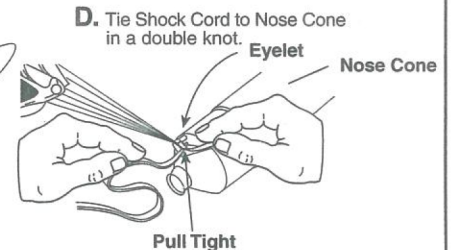
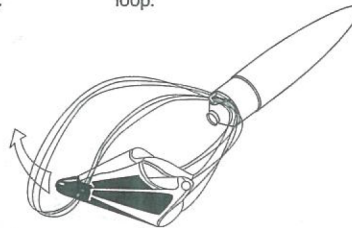
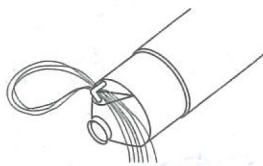


9. ATTACHING PARACHUTE AND SHOCK CORD

- A.** Remove excess flash and clean the eyelet of nose cone using a hobby knife. **B.** Push shroud lines of parachute through eyelet. **C.** Pass 'Chute through loop. **D.** Tie Shock Cord to Nose Cone in a double knot. **E.** Pull Tight.

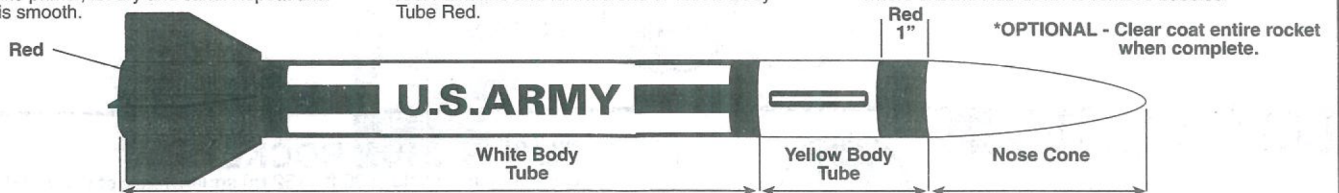


CAUTION:
DO NOT CUT OFF
EYELET.



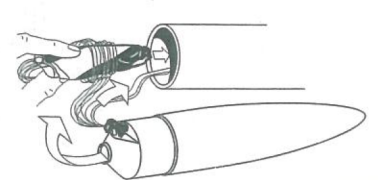
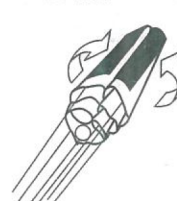
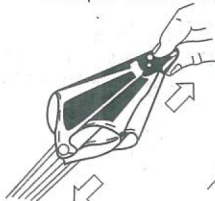
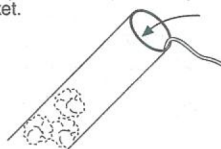
PAINT SCHEME

- A.** Mask off yellow section of rocket and spray rocket with white primer, let dry and sand. Repeat until rocket is smooth. **B.** Remove masking and remask off area not painted red. Paint fins and forward end of Yellow Body Tube Red. **C.** Peel decals one at a time from backing sheet and apply where shown. Rub down to remove bubbles.



PREPARE PARACHUTE FOR FLIGHT

- A.** Insert 6-8 squares of loosely crumpled recovery wadding into rocket. **B.** Spike Parachute. **C.** Fold. **D.** Roll. **E.** Wrap lines loosely. Insert 'Chute, Shock Cord and Nose Cone into Body Tube.



NOTE: Use Estes Wadding (EST 302274) Only.

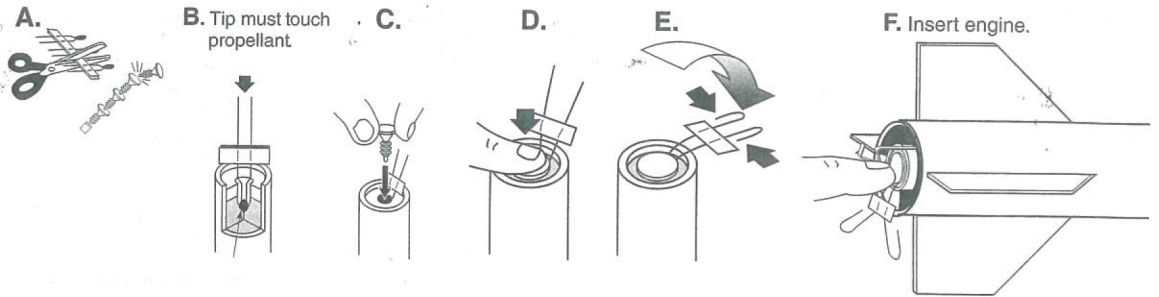
PREPARE ENGINE

WARNING: FLAMMABLE

To avoid serious injury, read instructions & NAR Safety Code included with engines.

PREPARE YOUR ENGINE ONLY WHEN YOU ARE OUTSIDE AT THE LAUNCH SITE PREPARING TO LAUNCH!

If you do not use your prepared engine, remove the igniter before storing your engine.



COUNTDOWN AND LAUNCH



KEY ALWAYS OUT UNTIL FINAL COUNTDOWN!

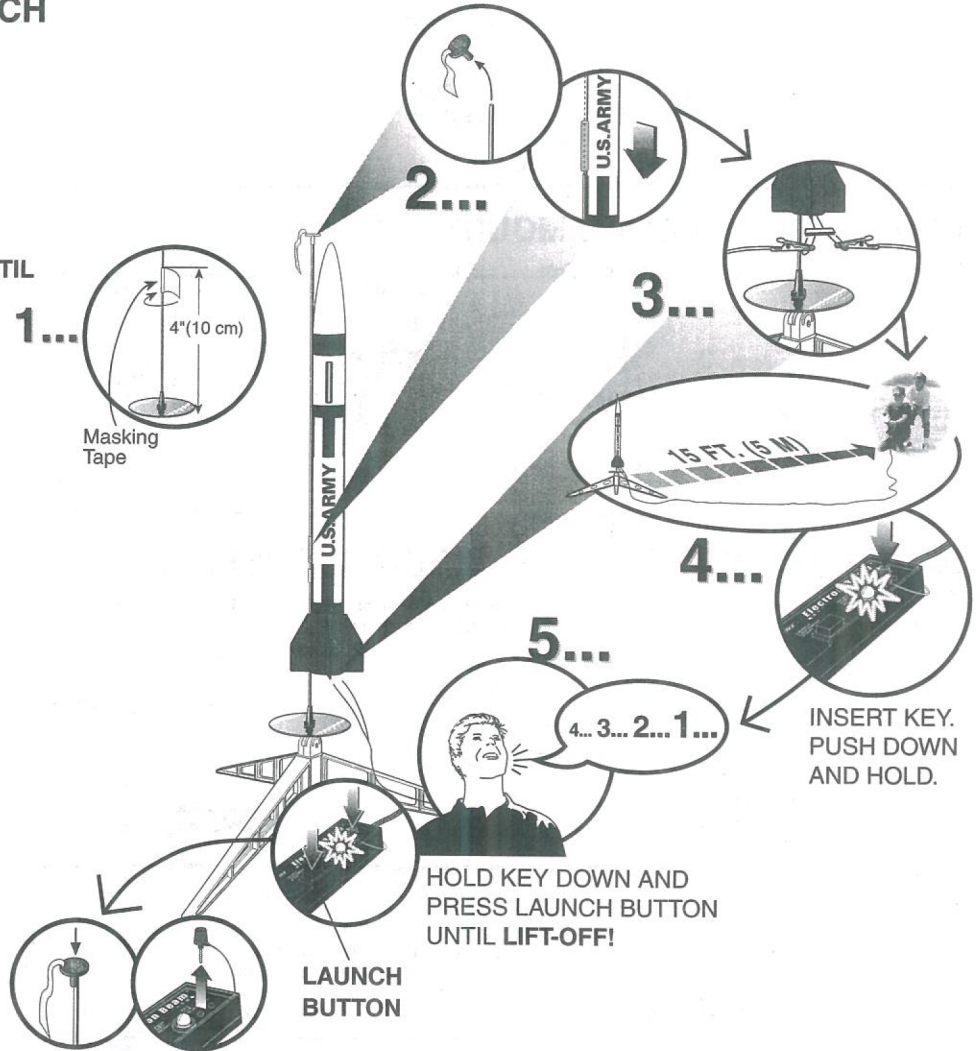


Masking Tape

LAUNCH SUPPLIES

(Sold Separately)

- Porta Pad® II Launch Pad
- Electron Beam® Launch Controller
- Recovery Wadding
- Igniters (with Engines)
- Igniter Plugs (with Engines)
- Recommended Estes® Engines: A8-3, B4-4, B6-4, C6-5



PRECAUTIONS

NAR Safety Code



NO DRY GRASS OR WEEDS

FLYING YOUR ROCKET

Choose a large field (500 ft. [152 m] square) free of dry weeds and brown grass. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great. Launch only with little or no wind and good visibility.

Always follow the National Association of Rocketry (NAR) Safety Code.

MISFIRES

TAKE THE KEY OUT OF THE CONTROLLER. WAIT ONE MINUTE BEFORE GOING NEAR THE ROCKET! Disconnect the igniter clips and remove the engine. Take the plug and igniter out of the engine. If the igniter has burned, it worked but did not ignite the engine because it was not touching the propellant inside the engine. Put a new igniter all the way inside the engine without bending it. Push the plug in place. Repeat the steps under Countdown and Launch.



Estes-Cox Corp.
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Penrose, CO 81240-0227
Made in Guangdong, China
Hecho en Guangdong, China
Fabriqué à Guangdong, Chine

U.S.ARMY patriot M-104

2056

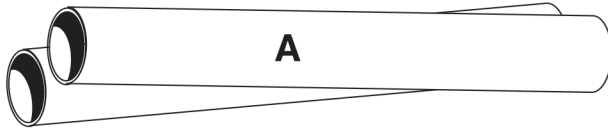


MODEL ROCKET INSTRUCTIONS / INSTRUCCIONES PARA EL MODELO DE COHETE / INSTRUCTIONS POUR LES FUSÉES MINIATURES

KEEP FOR FUTURE REFERENCE • GUÁRDALAS PARA FUTURA REFERENCIA • À CONSERVER POUR RÉFÉRENCE ULTÉRIEURE

IMPORTANT: Please record date found on decal and keep for future reference. _____
IMPORTANT: Favor de escribir la fecha que aparece en la calcomanía y guardarla para futura referencia. _____
IMPORTANT: Noter le code du lot trouvé sur la décalcomanie et le conserver pour toute référence ultérieure. _____

Assembly Tip: Read all instructions. Make sure you have all parts and supplies. Test fit all parts before applying glue. Sand as necessary for precision assembly. Product color and shape may vary. / Consejo para el ensamblaje: Leer todas las instrucciones. Asegurarse de tener todas las partes y los materiales. Probar el ajuste de las piezas antes de poner el pegamento. Lijar lo que sea necesario para obtener un ensamblaje preciso. El color y la forma pueden variar. / Conseil d'assemblage: Lire toutes les instructions. S'assurer de posséder toutes les pièces et accessoires. Vérifier si les pièces s'assemblent bien avant de mettre de la colle. Poncer autant que nécessaire pour assurer un assemblage précis. La couleur et la forme du produit peuvent varier.



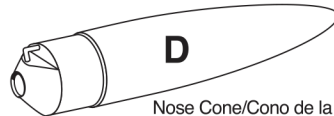
Body Tubes / Tubos del Cuerpo / Tubes du corps (2) (30414)



Yellow Body Tube / Tubo del cuerpo amarillo / Tube de corps jaune (1) (30426)



Engine Mount Tube/Tubo del Soporte del Motor/Tube de bâti moteur (1) (30408)



Nose Cone/Cono de la Nariz/Nez conique (1) (72057)



Mylar Ring / Aro Mylar / Bague Mylar (1) (30168)

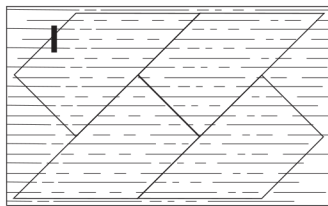


Red Tube Coupler / Acoplador del tubo rojo / Pièce d'accouplement tubulaire rouge (2) (30176-5)



Engine Hook/Gancho del Motor/Crochet de moteur (1) (35021)

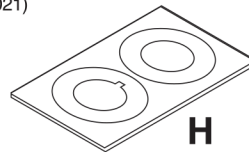
Decal/Calcomanía/Décalcomanie (2) (37500)



Laser Cut Fin Pieces / Piezas de la Aleta Cortadas con Láser / Pièces d'aileron coupées au laser (1) (32220)



Green Engine Block / Bloqueador Verde para el Motor / Bloc-moteur vert (1) (30162-2)



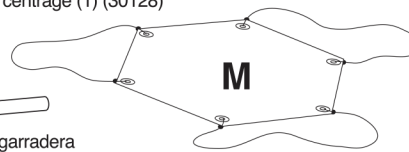
Centering Rings / Aros Centrales / Anneaux de centrage (1) (30128)



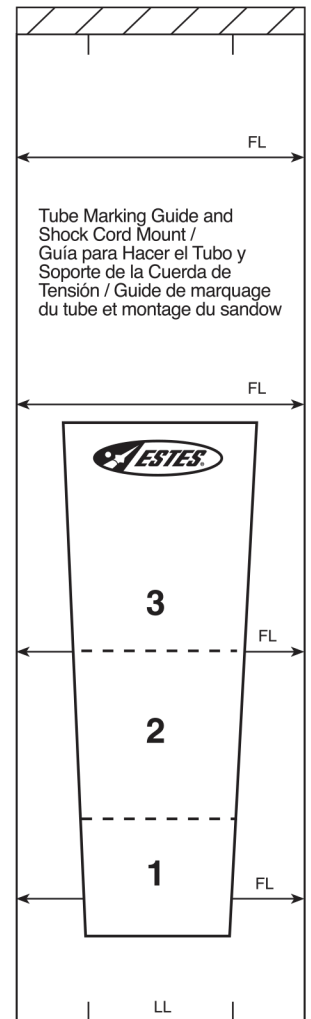
Shock Cord/Cuerda de Tensión/Sandow (1) (38374)



Launch Lug / Agarradera de Lanzamiento / Cosse de lancement (1) (38178)



Parachute/Paracaídas/Parachute (1) (35801)



SUPPLIES / MATERIALES / FOURNITURES



SCISSORS / TIJERAS / CISEAUX



PENCIL / LAPIZ / CRAYON



RULER / REGLA / REGLE



FINE SANDPAPER / LIA FINA / PAPIER ABRASIF FIN



CARPENTER'S GLUE / PEGAMENTO DE CARPINTERO / COLLE À BOIS



MODELING KNIFE / NAVAJA DE PRECISION / COUPEAU DE MODELAGE



MASKING TAPE / CINTA ADHESIVA PROTECTORA / RUBAN-CACHE



PRIMER (WHITE) / BASE DE PINTURA (BLANCA) / APPRÊT (BLANC)

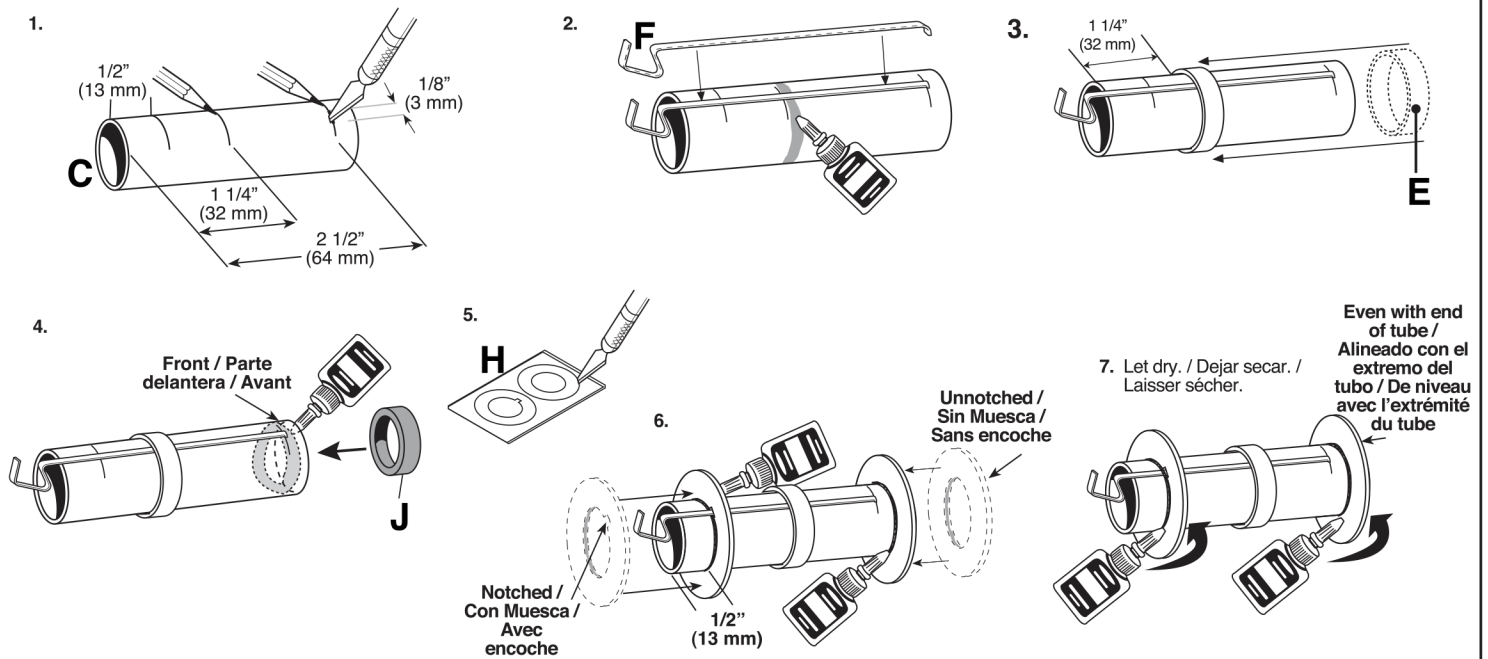


PAINT (GLOSS RED) / PINTURA (ROJA BRILLANTE) / PEINTURE (ROUGE BRILLANT)

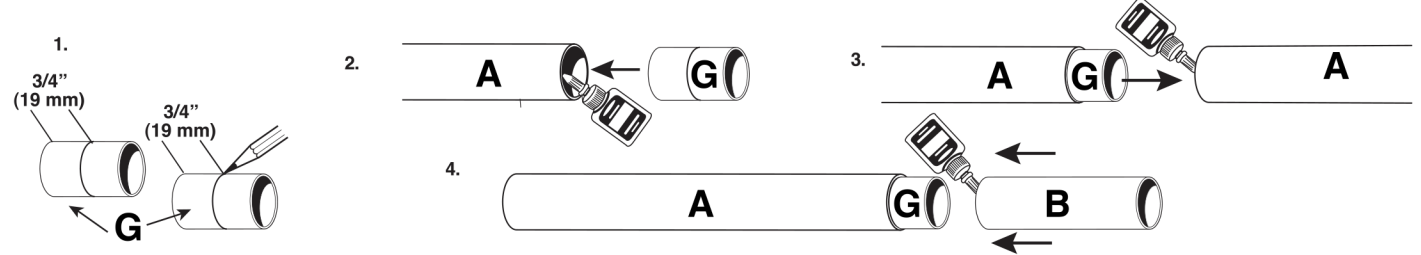


CLEAR COAT (OPTIONAL) / CAPA DE PINTURA TRANSPARENTE (OPCIONAL) / COUCHE DE PEINTURE INCOLORE (OPTIONNEL)

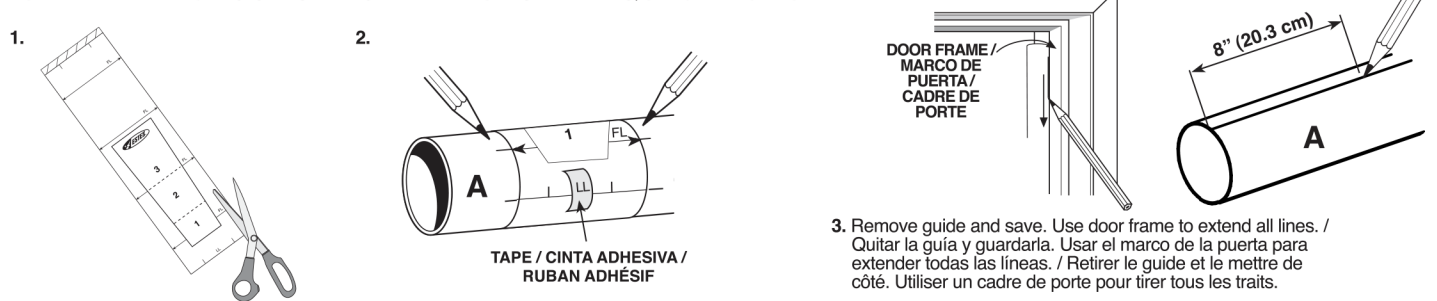
ASSEMBLE ENGINE MOUNT / ENSAMBLAJE DEL SOPORTE DEL MOTOR / ASSEMBLER LE BÂTI MOTEUR



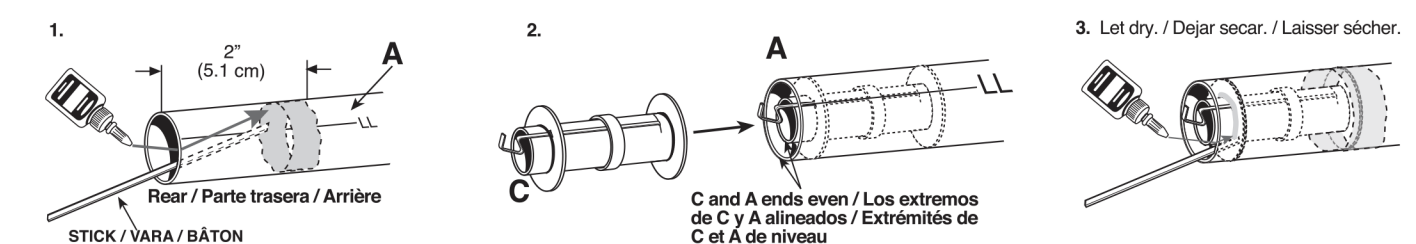
ASSEMBLE BODY TUBES / ENSAMBLAR LOS TUBOS DEL CUERPO / ASSEMBLER LES TUBES DU CORPS



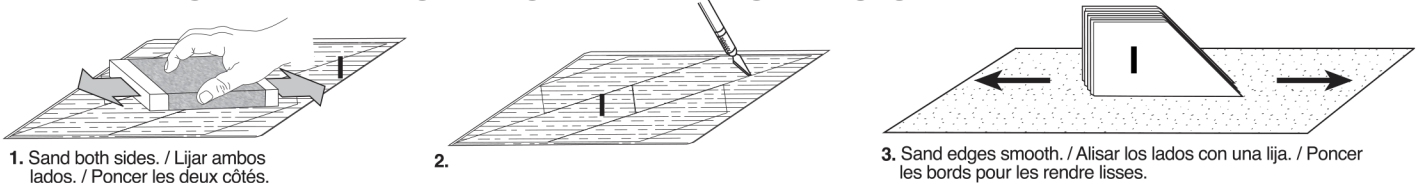
TUBE MARKING / COMO HACER EL TUBO / MARQUAGE DU TUBE



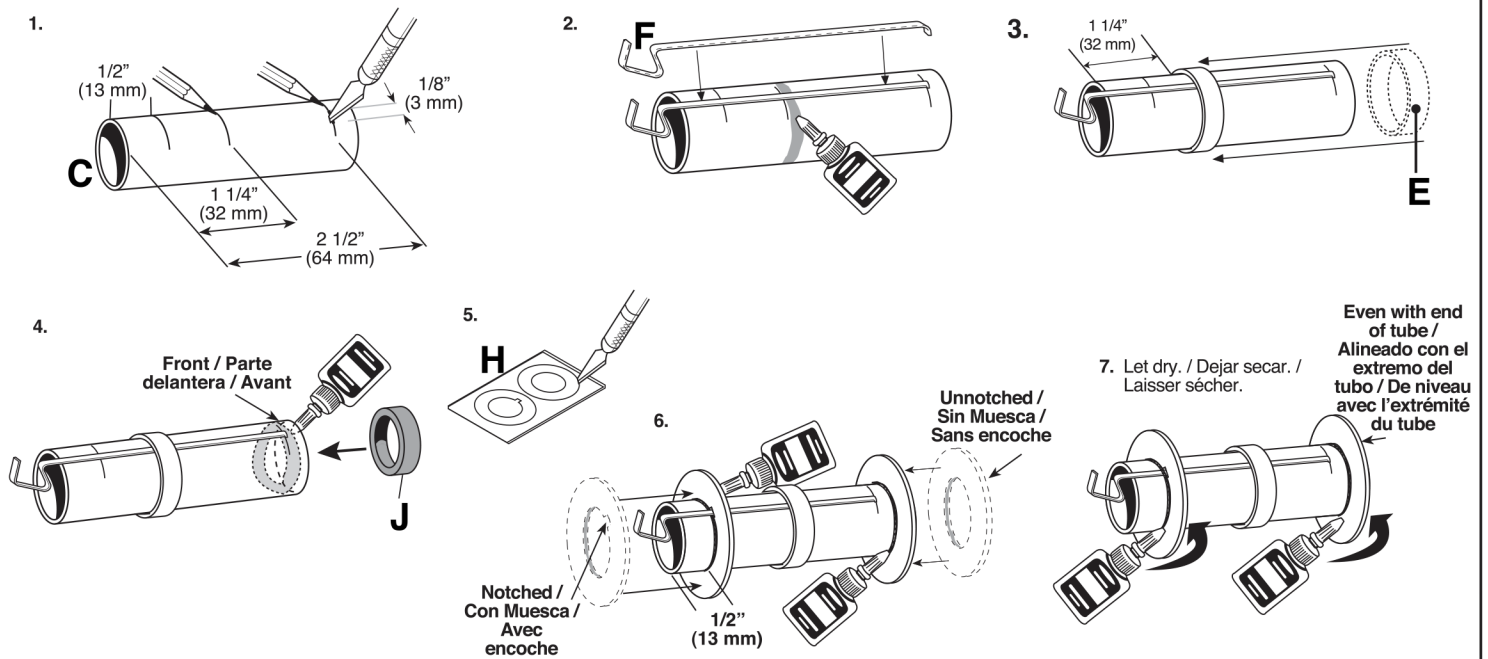
INSTALL ENGINE MOUNT / INSTALAR EL SOPORTE PARA EL MOTOR / INSTALLER LE BÂTI MOTEUR



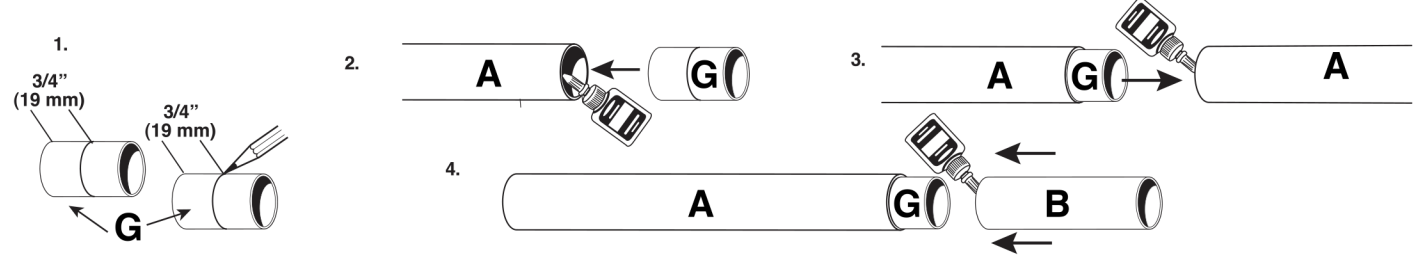
PREPARE FINS / PREPARAR LAS ALETAS / PRÉPARER LES AILERONS



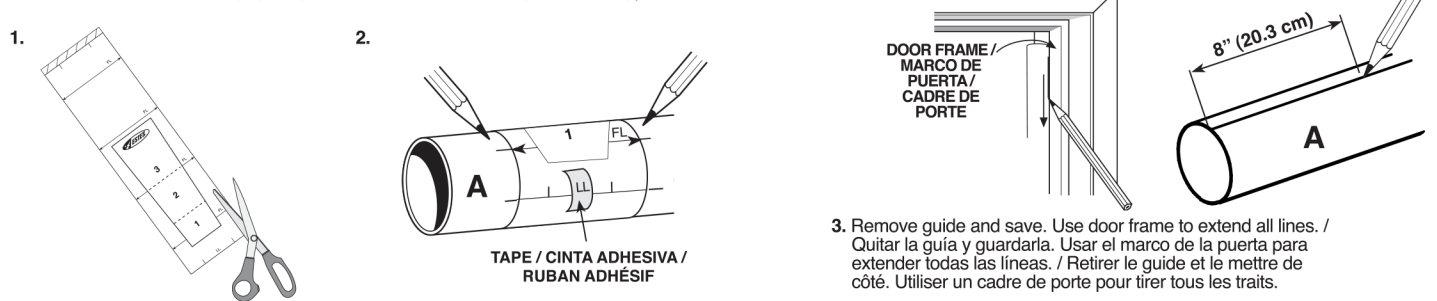
ASSEMBLE ENGINE MOUNT / ENSAMBLAJE DEL SOPORTE DEL MOTOR / ASSEMBLER LE BÂTI MOTEUR



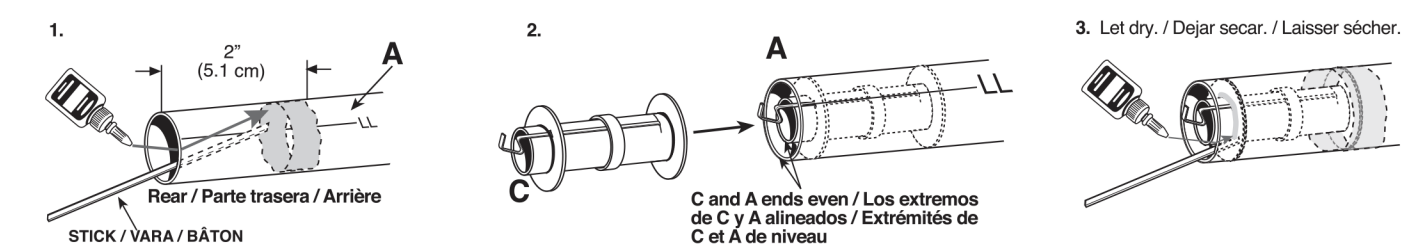
ASSEMBLE BODY TUBES / ENSAMBLAR LOS TUBOS DEL CUERPO / ASSEMBLER LES TUBES DU CORPS



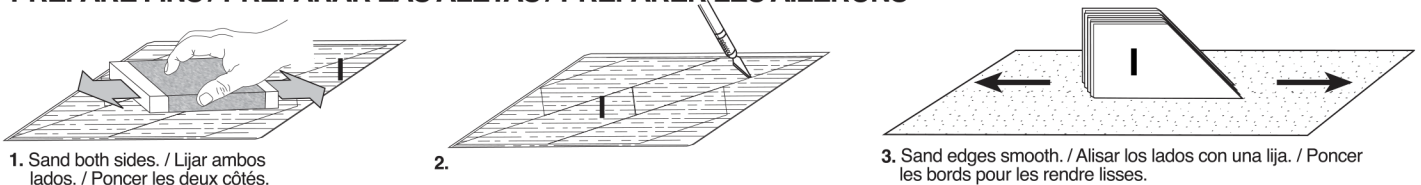
TUBE MARKING / COMO HACER EL TUBO / MARQUAGE DU TUBE



INSTALL ENGINE MOUNT / INSTALAR EL SOPORTE PARA EL MOTOR / INSTALLER LE BÂTI MOTEUR



PREPARE FINS / PREPARAR LAS ALETAS / PRÉPARER LES AILERONS





.05"

32
300
DPI
1

2
1
4 8 12 16 20 24 28
9 1

3
4 8 12 16 20 24 28
5 1

4
4 8 12 16 20 24 28
4 1

95 87 04 26 42 91 8
93 87 04 26 42 91 8
95 87 04 26 42 91 8
95 87 04 26 42 91 8

3/32"



300
DPI

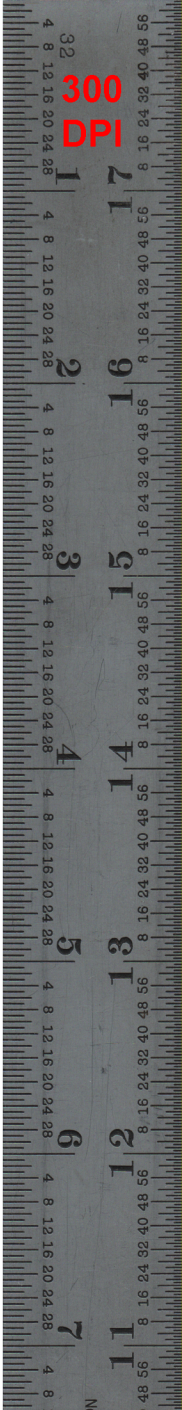


THE

U.S. ARMY

PN 37500(3-03)
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PARTS LIST KIT NO. 2056 - Army Patriot M104

Quantity	Description	Type	Number	Detail1	Detail2	Detail3	Detail4	Comment
2	PAPER BODY TUBE	BT-60?	30414*	6.625" long	1.595" ID	1.637" OD	0.021" wall	White
1	PAPER BODY TUBE	BT-60?	30426	3.25" long	1.595" ID	1.637" OD	0.021" wall	Yellow
1	PAPER BODY TUBE	BT-20J	30326-1	2.75" long	0.710" ID	0.736" OD	0.013" wall	Blue
1	PLASTIC NOSE CONE	PNC-60NA	72057	4.75" long	1.627" dia.	.75" shoulder	Without TA-5560 attached	Blow molded
1	MYLAR RETAINER RING	HR-20	30168	0.3" long	0.74" ID	0.76" OD	0.01" wall	BT-20
1	ENGINE HOLDER	EH-2	35021	2.8" long	.100" wide	.025" thick	18/24mm	Thumb Saver
2	STAGE COUPLER	JT-60C	30176-5	1.55" ID	1.59" OD	1.5" long	fits BT-60	Red
2	PAPER ADAPTER	RA-2060	30128	.737" ID	1.594" OD	.05" thick	BT-20 in BT-60	One ring notched.
1	BALSA FIN STOCK	BFS-30?	65880	4" wide	6" long	3/32" thick	Die-Cut #32220	Scan
1	ENGINE BLOCK	EB-20-2	30162-2	.69" OD	.542" ID	0.19" long	BT-5 in BT-20	Green
1	Shock Cord	SC-1	38374	18" long	1/8" wide			Rubber
1	LAUNCH LUG	LL-2B	38178	5/32" ID	1/8" rod	2-3/8" long		Mylar
1	Parachute	PK-12	35801	12" dia.	12" x 6 Shrouds		Red/Wht	Preassembled
2	Decal Sheet	KD-2056	37500	4" wide	7" long	Blk	Self Stick	Scan

* Number 30414 designated as BT-60K which is 7" long. Actual tubes in kit are 6.625" long.





ESTES
flying model rocket

Made in USA

Ages 8 & up.
 Adult supervision
 recommended for
 those under 12.

Flies Over and Over
 To **600 feet (183 meters)**

SKILL LEVEL **2**
 FOR THE EXPERIENCED MODELER

U.S. ARMY
patriot
 Anti-Missile Missile (M-104)



Length: 21.25 in. (54 cm)
 Dia.: 1.637 in. (41.6 mm) Weight: 1.94 oz. (55 g)

Recommended Engines: A6-3 (First Flight), B4-4, B6-4, B8-5, or C6-5

1/10 SEMI-SCALE MODEL

KIT INCLUDES FREE
 TECHNICAL DATA
 SHEET ABOUT THE
 U.S. ARMY MISSILE



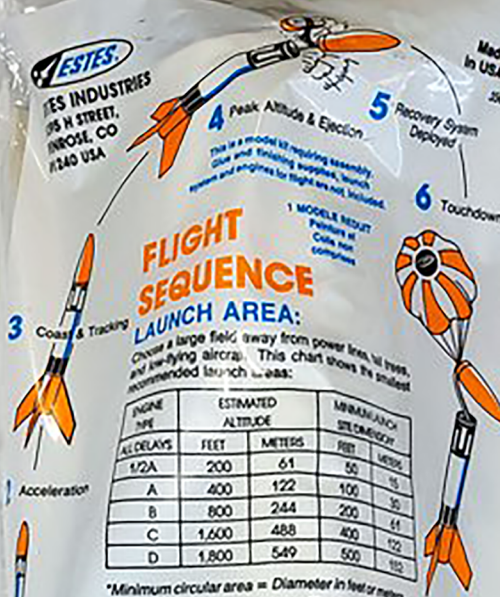
#2056



ESTES
flying model rocket

SAFE, FUN,
 EDUCATIONAL

Made in USA
 5811A



FLIGHT SEQUENCE LAUNCH AREA:

Choose a large field, away from power lines, tall trees, and low-flying aircraft. This chart shows the smallest recommended launch areas:

ENGINE TYPE	ESTIMATED ALTITUDE		MINIMUM LAUNCH AREA	
	FEET	METERS	FEET	METERS
A6-3	200	61	50	15
A	400	122	100	30
B	800	244	200	61
C	1,600	488	400	122
D	1,800	549	500	152

*Minimum circular area = Diameter in feet or meters.
 Minimum rectangular area = Shortest side in feet or meters.

Launch site must be free of obstructions and highly flammable materials.

Skill Level number recommends the modeling skill and experience necessary for a rocketeer to successfully construct the kit. Skill Level 1 kits are suggested for beginners, Skill Level 2 kits for experienced rocketeers, Skill Level 3 kits for advanced modelers, and Skill Level 4 kits are recommended for the master modeler.

- Kit Decals
 - Plastic Nose Cone
 - Balsa Nose Cone
 - Plastic Fin-Unit
 - Quick-Release Engine Mount
- Plastic bags can be dangerous. To avoid danger of suffocation, keep this bag away from babies and children.
 Les sacs de plastique peuvent être dangereux. Pour éviter le danger de suffocation, ne laissez pas ce sac à la portée des bébés ni des enfants.
- Complete Instructions, NAB Safety Code & Full One Year Warranty enclosed.**
- USE ONLY WITH ESTES PRODUCTS**

Estes Industries offers you more than 80 rockets to choose from including sport, scale, multi-stage, glider, payload, and science modelers from as small as 4 inches (10 cm) high to over 6 feet (1.83 meters) tall.



