





OCT 14 1964



UNI-JET
ENGINE
HANDBOOK
AND
CATALOG

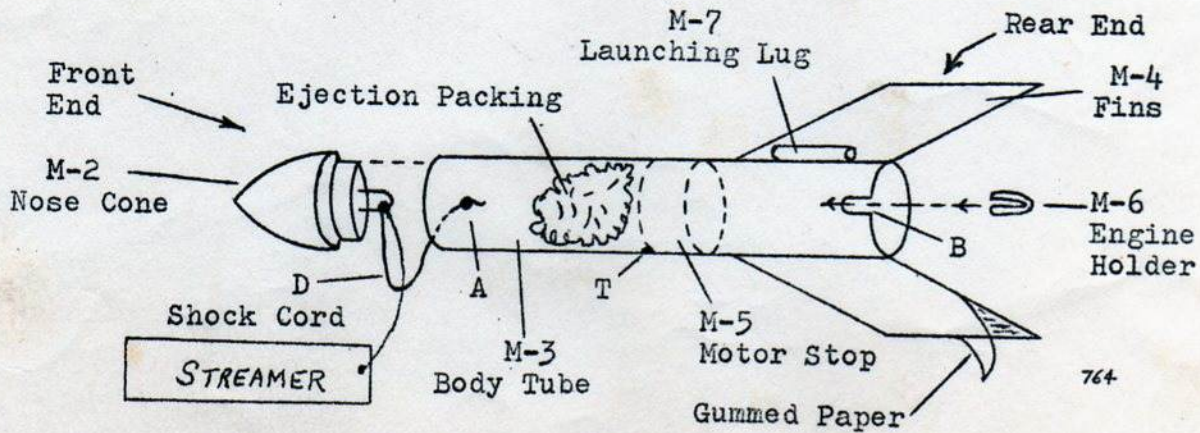
Price 25¢



1664-GM

©

THE UJ MASTER MIDGET MODEL ROCKET



We wish to advise that our Series A, B and C engines for use on cars, boats and planes, are no longer available.

It has been our decision, at this time, to manufacture only, Midget size model Rockets and Rocket type engines. In doing so, we can concentrate on providing new products in a wider selection and better service.

Meanwhile, our present Catalog & Handbook can serve you as a temporary guide to UJ Midget rocketry until our new catalog is made available. Ignore all details in the present booklet, which DO NOT concern rocketry.

If you are a model rocket fan, we suggest you try our rocket and engines. If you are not, we urge you to enter this safe, exciting and modern space-age hobby now, with Uni-Jet!

Uni-Jet Company
August 15, 1964

FOREWORD

Thank you for your interest in Uni-Jet products.

Uni-Jet engines are real jet engines in miniature form, using a solid type propellant fuel.

Years of research, prior to their release, revealed that they are safe and fun to use in powering model cars, aircraft, boats and UJ type missiles.

UJ engines are designed to provide the serious-minded modeler with a modern power-plant in a wide selection of power ranges, to do the job. We feel sure you will find, as we have, that they are an amazing power-plant for their size.

Remember always, that UJ engines are for use by sensible people in the manner indicated. To use them otherwise, could deprive them of some small pleasure.

Our engineering staff will welcome your problems and suggestions.

UJ engines are, contrary to some people's belief, no more dangerous than a kitchen safety match, but even a match should be handled with reasonable care.

Although UJ engines will not detonate under a fairly heavy blow (a kitchen safety match will) or burst into flames at over 100 degrees (F), they too must be handled with care. Store them in a cool, dry area out of reach of small children and undependable persons. We suggest a small metal cash box with a lock.

ENGINE TYPES

Rocket engines are designed to fly UJ type missiles only, however, they may be tried on your own or other missiles. They are constructed like the larger model rocket engines of today.

Marine engines come ready to fire with a built-in standard fuse igniter. Although they are waterproof treated, the fuse tip is not and must be kept dry until ignited.

Aircraft and Car engines are identical in construction and power rating.

Never attempt to use a UJ engine without a copy of the latest UJ engine chart and when you do use them, follow the chart directly.

UJ ENGINE CONSTRUCTION

Basically, Uni-Jet engines are a miniature version of today's model rocket engine in construction, but with the added features of smaller size and lighter weight (120 grains average), making them highly flexible in application.

Under no conditions should you ever tamper with or alter the original state of any UJ engine.

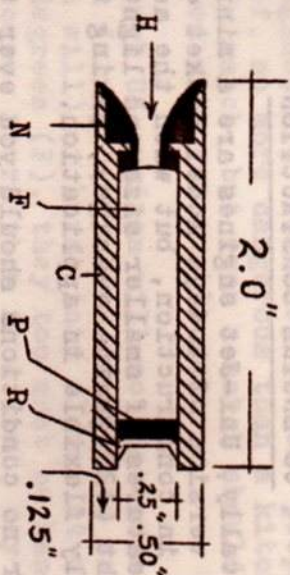
Never try to reload a burned-out UJ engine case with another fuel, combustible material or anything else, in an effort to make them function as a jet engine, or anything else again. UJ engines are made to be fired only one time!

In launching boats with fuse igniters, it is best to hold the craft just over the water, ignite the fuse making sure it is burning, then lower craft into the water gently.

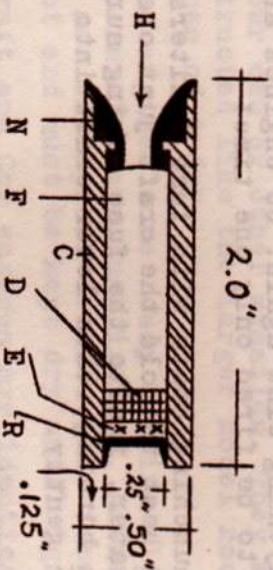
When mounting engines to water craft, it is important that the surface be dry if tape is used for mounting.

Use the K-1 motor mount for better results.

Uni-Jet Model Jet Engine
Series A, B, C



Uni-Jet Model Jet Engine
Series D only



N = Nozzle, ceramic
F = Fuel, solid propellant
C = Casing, paper
D = Delay charge, solid
E = Ejection charge, loose
P = Plug, wax
R = Retainer Cap, paper
H = Hole, nozzle

UNI-JET ENGINE CHART

TYPE NO. (series)	BURNING TIME (seconds)	MAXIMUM THRUST (ozs.)	MAXIMUM THRUST (secs)
A-1	40-42	-	-
A-2	18-22	.2	16.0
A-3	10-12	.3	8.0
B-1	18-22	.2	16.0
B-2	10-12	.3	8.0
B-3	3-3.5	.75	3.0
B-4	2-2.5	1.0	2.1
B-5	2-2.3	2.0	.3
C-1 *	.26	11.6	.1
C-2 *	.2	15.8	.1
D-1 *	.26	11.6	.1
D-2 *	.2	15.8	.1
D-3 * (booster)	.2	15.8	.1

* use electric ignition only! Order electric igniters seperately.

USES:

A - Series, boats only.
B,C Series, cars and aircraft.
D - Series, single stage rockets.

(1664)

READING THE ENGINE CHART

Burning Time is the total average time an engine will burn from ignition to a complete burn out of the fuel.

Maximum Thrust is the total highest average amount of power (push) an engine can produce, for a portion of the total burning time. This portion of time, listed in the right column, is regarded as the duration of useful power.

Unfortunately, it is impossible for us to determine just which UJ engine will serve your particular application. In many cases, you will have to experiment, which is most always fun.

To guide in your selection of an engine, we suggest you follow these few rules.

1. Generally, it requires less power to move an object in a horizontal direction, then it does to lift it.
2. Compare the maximum thrust in ounces with the time in seconds. Usually, the faster an engine burns, the more power is produced. Compare power with time to get "Impulse" or wallop.
3. Always begin with a low thrust engine, then move up to the next highest thrust, step by step.

Engines with a very high thrust or impulse may require electric igniters only. The UJ Engine Chart will give full details.

The nozzle end of all UJ engines expel a very hot gas that can quickly burn you or your model. For this reason, keep this end clear of yourself, your model and all other flammable surfaces once the engine has been ignited. Some engines may become quite warm after burn-out and the nozzle end is then, always hot. In removing the used-up engine, do not grasp with bare fingers if the engine case is still hot and never grasp the nozzle end.

Never attempt to remove a mis-fired engine until after you have counted slowly to 20 or 30 seconds! Then proceed to remove the engine with caution to determine the cause. If the cause is located and you feel that it can be properly corrected, you may fire the engine again. If you are unable to determine the cause, do not attempt to fire the engine again! Set it safely aside and return it to your supplier for a full re-
placement.

Never use UJ engines indoors unless you have adequate ventilation.

For drag racing, use Electric Igniters.

Do Not attempt to fire any UJ engine that has been crushed, making its shape out of round!

IGNITING ENGINES

Presently, there are two ways to ignite an engine; with a Fuse or Electric Igniter. A Fuse is commonly known to almost everyone, with no explanation needed here.

An Electric Igniter is a piece of very fine wire that is inserted up into the engine's nozzle hole so that it touches the fuel.

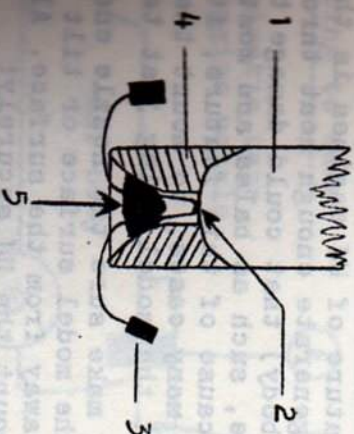
A source of power, usually a dry cell type battery, is connected to the igniter wire by means of clips on the end of two long extension leads, having a button switch. On pressing the button switch, the current of the battery causes the fine igniter wire to become very hot, thereby igniting the engine fuel.

All UJ engines have as standard, a 2-inch Fuse igniter that burns for about 5 seconds. This fuse material is waterproof and of the finest quality available for use on Uni-Jet engines. In using fuse, use only the type packed with each engine! Install fuse into engine nozzle with a back and forth twisting motion as you push fuse all the way in. Bend the end of fuse to a "L" or "U" shape away from the model surface.

Always move quickly away to a good distance when igniting fuse, just to be safe.

In some cases, the use of fuse igniters is not permitted. Use electric igniters when ever possible for best results.

Installing Electric Igniters



Bend igniter at the center into a "U" shape small enough to fit into nozzle hole (4), making sure not to crease the wire too much in a "V" shaped manner.

Push igniter (3) into the nozzle hole making sure to push it all the way in against the fuel (1) indicated by (2). Keep igniter leads spread apart and place a small piece of tissue, ejection material into nozzle (5), just tight enough to hold igniter in place. You may use tape also.

Do not pack all the way inside nozzle. Many mis-fires are caused by igniter not resting against fuel at (2).

Any UJ engine, except Marine types, can be ordered with a ready to fire igniter built into the engine. See catalog section.

HOW TO MOUNT UJ ENGINES

A special feature of UJ engines is that they do not generate enough heat through the casing (body) that could damage the model surface, such as balsa and most all plastics. Because of this feature, it is possible, in many cases, to mount the UJ right against the model using just tape.

In mounting, make sure the nozzle end extends past the model surface or tilt it at an angle away from the surface. Always be sure to mount the UJ securely!

You can use the UJ Motor Mount K-1 which is specially made to hold the engine nozzle at a good angle away from the surface, with the angle adjustable.

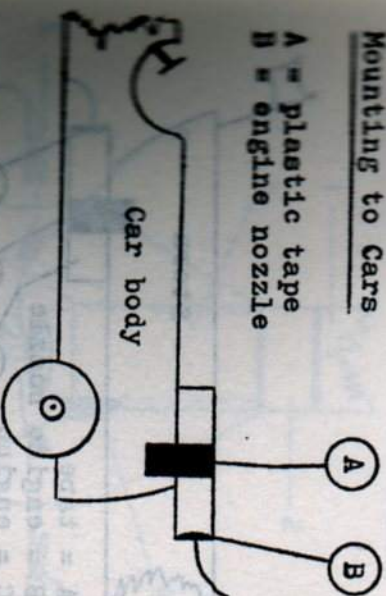
APPLICATION OF UJ ENGINES

Launching Aircraft from a dead start so they will become airborne and fly to a reasonable distance on UJ engines alone, is quite tricky, due to the many factors involved. In launching from the ground, the tail of the craft must be suspended high enough above the ground so that the hot UJ gases will not burn away the tail.

You can hold a craft in one hand and ignite the engine with the other hand. Then give the craft a starting push. However, to do so, you can become burned and we can not recommend this method.

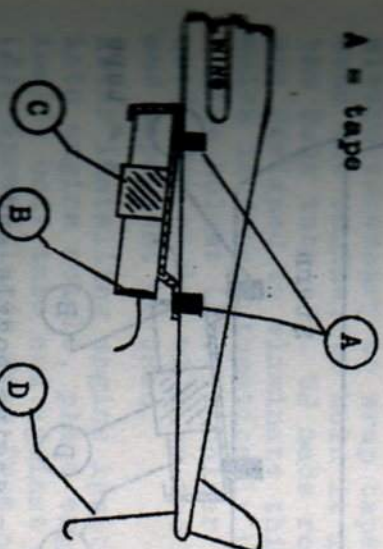
Mounting to Cars

- A = plastic tape
- B = engine nozzle



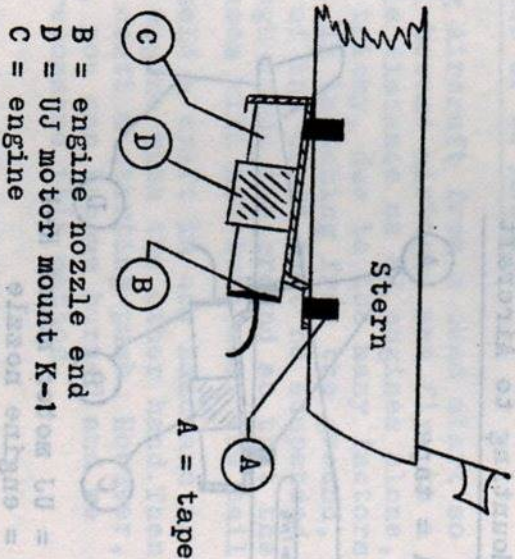
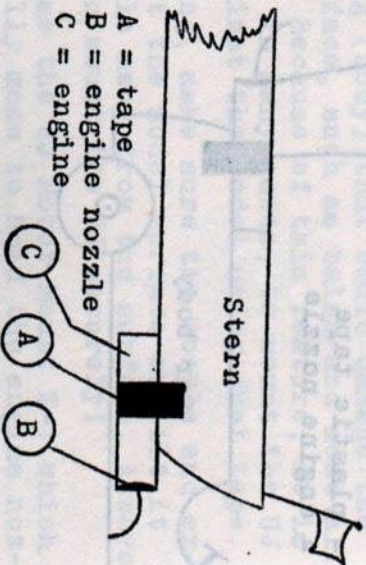
Mounting to Aircraft

- A = tape

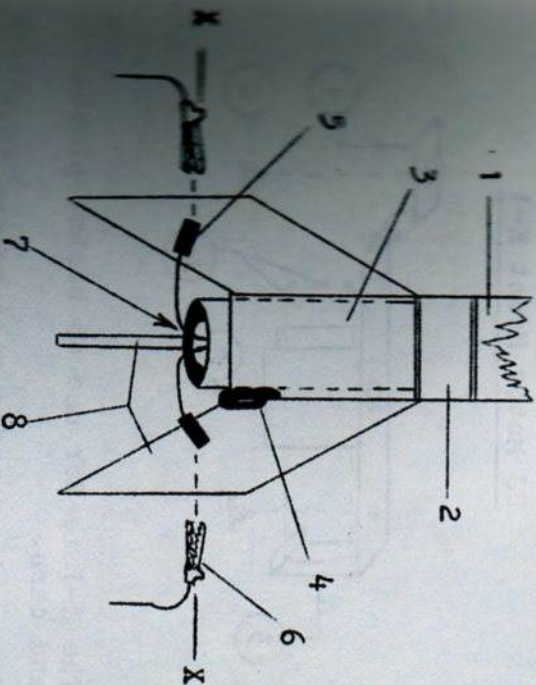


- C = UJ motor mount K-1
- B = engine nozzle
- D = long tail skid

Engine Mounting to Boats



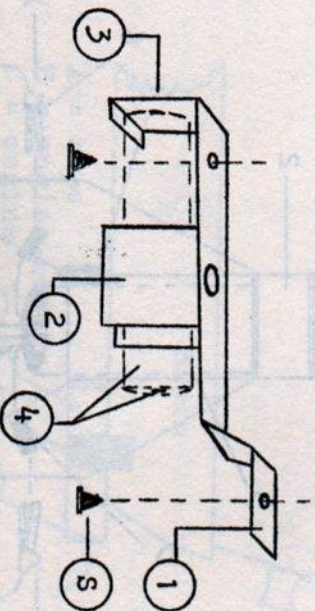
Installing Rocket Engines



In other make rockets, it is most always necessary to wrap tape around the engine, to hold it inside the body tube (1). UJ made rockets are designed to eliminate this job which is done automatically by the engine holder (4). If holder is not used, the engine will be too loose and tape must be used.

After installing engine igniter, into engine nozzle, place engine 3 inside body tube and against stop (2). Spread leads away from nozzle 7 and between fins (8). Attach igniter clips to igniter lead tips (5) with (6) indicating the clips. The clips should be supported at a level with the engine nozzle shown by (X). The engine nozzle must extend out of the body tube by at least 1/4".

UJ Motor Mount K-1



The K-1 is for use on boats, planes and cars.

It can be mounted with screws that are supplied (S) or you may use a contact cement or tape.

1. is the rear deck which can be bent at any desired angle.
2. side grippers can be bent to hold engine from falling out.
3. the front stop plate keeps engine from going forward and out of 2.
4. shows engine in place with nozzle end pointing to rear deck.

CATALOG

Uni-Jet engines and products are manufactured under rigid standards, with actual tests made of every run of engines to ensure they will perform as closely as possible in the manner listed on the engine chart. However, Uni-Jet Company and its agents will not assume responsibility for any accident or injury occasioned during the use, storage, sale, transportation, handling of Uni-Jet products and no warranty is made or implied as to the reliability or performance of Uni-Jet products. Uni-Jet Company and its agents, assume no liability beyond the cost of replacing a product, declared by Uni-Jet Company or its agents, as defective due to manufacturing. When the item is returned prepaid, in its original condition, to the user's place of supply.

Uni-Jet Company specializes in miniature model Rockets, keeping them as small and real as is practical, so they may fly in as little space as possible, using miniature UJ engines.

In addition, a line of model rocket supplies, intended for use with UJ rockets, but may be used on other rockets, is offered.

Prices ~~Do Not~~ include shipping charges!

All shipments will be made by regular mail whenever possible in U.S.A. or unless you indicate another carrier and include payment for same.

When ordering, send full payment in cash (wrapped well), money order or check. No postage stamps or C.O.D. orders accepted.

To cover handling and postage, include 20¢ on orders up to \$1.00; 40¢ on orders up to \$5.00; 60¢ on orders up to \$10.00. Over payments promptly refunded.

Uni-Jet Company reserves the right to refuse any order; to ship only a part of an order, lacking in sufficient payment or if directed under law.

No orders for UJ engines will be accepted without the signature of the buyer!

When ordering, be sure to give the catalog item number.

If we are unable to fill your order in 10 days from the date it is received, you will be notified.

Foreign orders must write for shipping charges to their area. Send the order, without payment and we will advise as to the cost of shipment.

No UJ engines may be shipped, at this time, into Canada.

MAR Sections and other model clubs can write for special prices on their property letterhead.

All merchandise is sold and shipped on representation of the buyer, that same will be used strictly, in accordance with the laws of the state of destination.

Uni-Jet Company shall not be held liable in any civil action, for any accident or injury occasioned during the transportation, handling, storage, use or sale of the merchandise.

All prices, specifications and details are subject to change or cancellation without notice.

WORLDS SMALLEST* REAL MODEL ROCKET

Only 5 3/4" long!

Returns to fly again

Zooms up to 325 feet

Fun to Build



Average weight 180 grains or less than 1/2 ounce

Uses new UJ engines

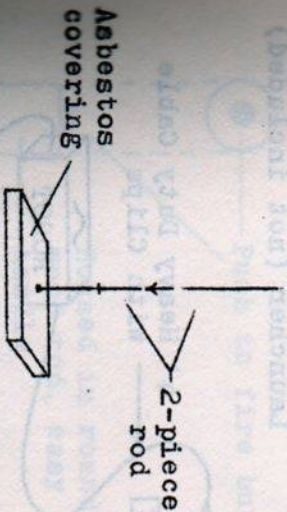
Fun to FLY!

Use UJ engine D-1 to 125 feet.
Use UJ engine D-2 to 325 feet.

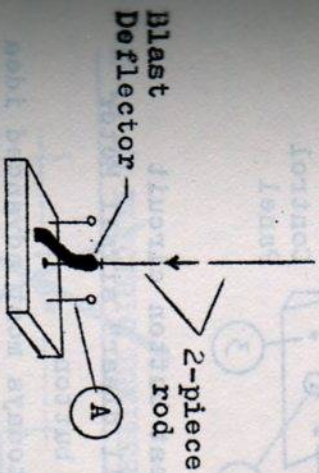
*smallest known in calibre to fly using a solid propellant type jet engine.

Calibre .5625" (inside diameter)

K-2 Rocket Launching Pad

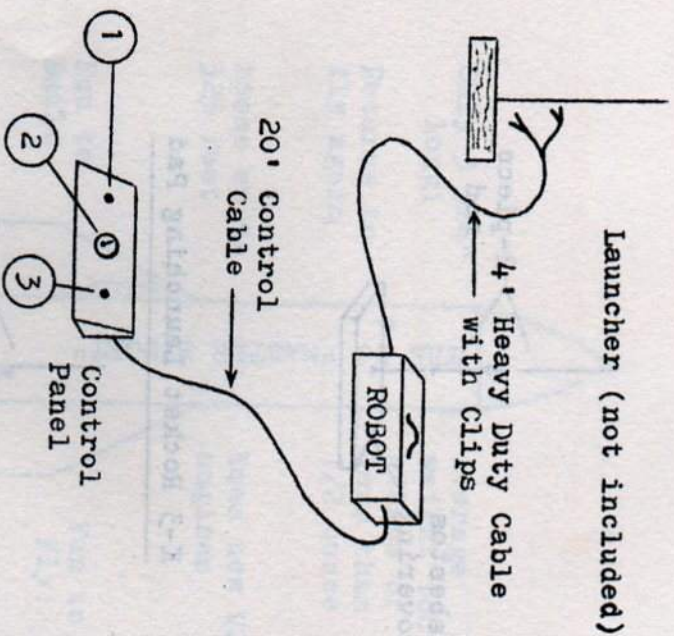


K-3 Rocket Launching Pad



A = igniter lead stand-offs keep wires up and away from hot engine gases.

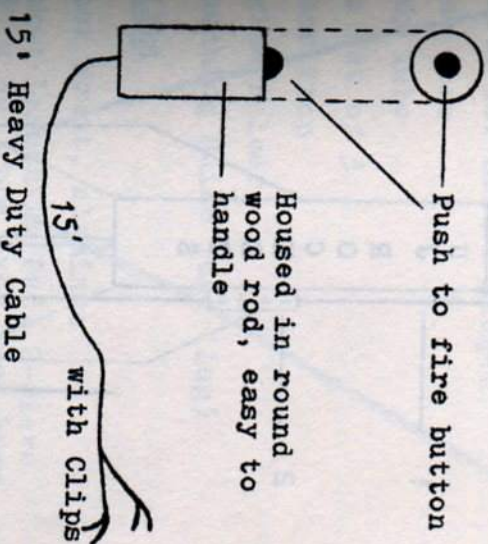
K-7 Deluxe Electric Engine Igniter



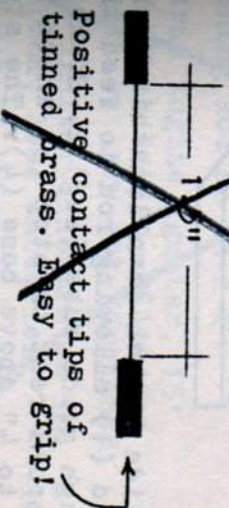
1. "GO" test button circuit
2. New "all clear" signal Meter
3. Firing button

The K-7 is today's most advanced idea for igniting all type rocket engines. The exclusive "all clear" Meter lets you see if igniter connections are OK, Poor, Loose or Bad. The Robot section makes batteries last twice as long and insures instant firing. Compact, portable = everything fits in Robot box!

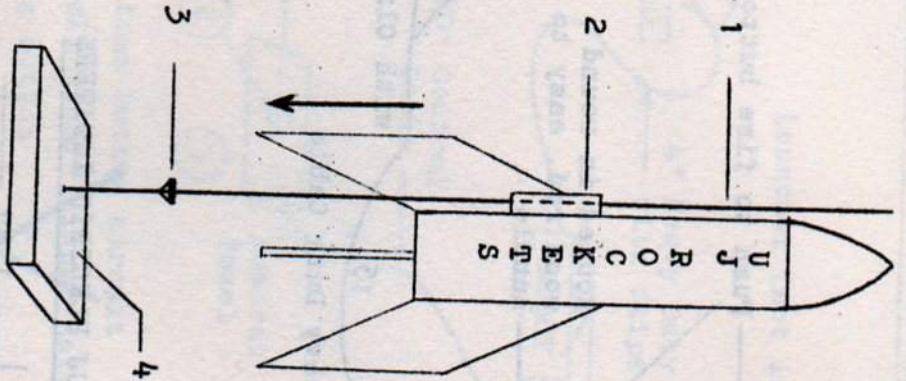
K-6 ELECTRIC ENGINE IGNITER



K-13 UJ ELECTRIC IGNITERS



Placing Rocket on Launching Pad



Slide rocket down launching guide rod (1) allowing rod to feed through guide tube (lug) 2. Rocket should rest on stop (3) which is 3 to 4" above base (4). The stop (3) is designed to hold fin section up and away from hot engine gases, reducing damage.

Item No. & Description	Price
1 Master Midget Rocket Kit	\$.98
Extra parts for Master Midget:	
2 Nose Cone	.50
3 Body Tube	.30
4 Fin Set of 3	.20
5 Motor Stop	.15
6 Engine Holder	.05
7 Launching Guide Tube (lug)	.10
SUPPLIES	
1 Motor Mount, aluminum	.35
2 Rocket Launching Pad, 2-piece 1/8" x 36" rod, 6x6" wood base	1.50
3 Deluxe Launching Pad, same as K-2, but with blast deflector and electric igniter lead stand off protectors	1.98
4 Deflector plate for 1/8" rod, aluminum, 3x5"	.55
5 Launching Rod as in K-2	.40
6 Electric Engine Igniter, 15' leads, push button, clips for dry cell battery not furnished	3.95
7 Deluxe Igniter illustrated in this book, less batteries	12.75
8 11-in Electric Igniters, add 5¢ for engine and mark "E" after engine number.	

Item No. & Description	Price
K-8 Launching Guide Tube (1ug) stock, rigid paper glues very easily. Made especially to UJ standards. I.D. 3/16" x 2" in red, green, yellow	6/45¢
K-9 Fin Stock, rigid cardboard, smooth finish paints easily, 3x5" each 20¢	3/50¢
K-10 Glue, powdered, tough, mix to desired thickness with water 1 ounce package	.35
K-11 Plastic coated paper cups in small size, handy for mixing glue, paint, etc.	12/45¢
K-12 Ejection Packing material, fireproof	.30
K-13 UJ Electric Igniters, ready to insert into engine, #32 wire, 1.5" long with positive contact tips	12/50¢
<u>UJ ENGINE PRICES:</u>	
A and B Series	2/39¢ 6/1.15
C and D Series	2/45¢ 6/1.25

Note: Engines are sold 2 per package of a single type number only. Only 6 engines may be sent by mail in a single package, at one time. On orders for more than this we will ship 6 at different times, or we can ship the entire order by truck or express with shipping charges collect.

IT'S AGAINST THE LAW!

In some areas, there are laws that forbid the sale and use of solid propellant type model jet engines of a commercial manufacture, to be used in the powering of model planes, cars, boats and rockets in particular. Unfortunately, these laws seem to have invited trouble, rather than prevent it and here is sensible reasoning why.

Today, everyone is in a rush because we are living in an era of advanced speed and the speed increases as time goes on. We have jet and rocket power so vital to our nations safety, that will one day become a part of our daily lives just like the automobile. The modeler of today, desires to keep pace with the life that grows about him and thank goodness, this is a natural reaction!

When a modeler is unable to obtain a commercial jet engine, he may set out to make his own, with the entire project ending in serious injury or even death when his home made engine (bomb) explodes, as is most all ways the case. The newspapers will flash a headline "Home-Made Rocket explodes, killing Boy 13" and immediately, everyone is against Rockets, not jet engines! Why, all of a sudden, does a home-made bomb have to be called a Rocket when it is not? It is these false definitions that impressed on the minds of all, the untrue fact that all rockets and jet engines are killers. Not all, but usually the home-made ones.

If a modeler could purchase a jet engine of a commercial manufacture, there would be no sensible reason for him to chance on blowing himself to bits. It should be seen that, the laws which forbid, must be revised to a controlling medium. There is a time and place for everything and you do need restrictions on flying rocket models.

The Uni-Jet Company is trying to solve a major portion of the model rocketry problem, by offering model rockets and engines of low power in miniature form. They are designed to provide the modeler with a real operating model, having less power than the other types available, resulting in a very low altitude range of less than 500 feet! This will enable a modeler to safely fly in a smaller area with all the realism necessary. The National Association of Rocketry (NAR) reports over 1.5 million model rocket flights to date, without a single injury of a nature worth recording. Something to consider before condemning model rockets!

We must concede the fact that today's modeler wants "in" on the modern idea of jet and rocket power. We must try to help with all reasonable consideration, otherwise, he will continue, in disaster.

Uni-Jet Company invites people and officials everywhere, to open the door to safe, sensible model rocketry and jet engines offered by Uni-Jet.

The key to opening this door lies in trying Uni-Jet products yourself!

UNI-JET COMPANY

28 WEYMOUTH STREET

ALBANY 5, N. Y. 12205

FREE UJ MERCHANDISE!

If you like UJ products and have a new idea for their use or improvement, let us know about it. If selected, you will receive free merchandise of your selection.

1964