

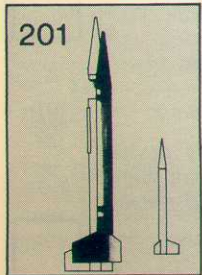
MRI

MODEL ROCKET INDUSTRIES

Model Rocketry Equipment

ROCKET KITS

Proven designs provide the hobbyist with off the shelf models that require a minimum of time for construction. All kits include precision machined balsa parts, special durable light-weight metric airframe and structural tubing, preprinted balsa fin stock, a recovery device, accessories and clear instructions. Hobby glue, a sharp hobby knife, sandpaper and model paints are required in addition.



201

WAC CORPORAL

\$1.50

A semi-scale model of the United States first high altitude research vehicle. Adds realism as it streaks from the launching pad. Parachute recovery. Twelve inches long, weight — one ounce.

STD.
PACK
48

8 LB.



202

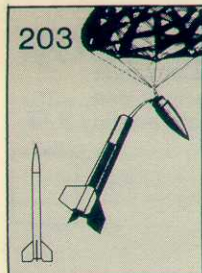
ZEUS

\$1.35

The Greek god Zeus ruled the heavens with thunder and lightning. This light-weight flashy model can fly high into those heavens. Streamer recovery. Nine inches long. Weighs 0.86 ounce.

STD.
PACK
48

8 LB.



203

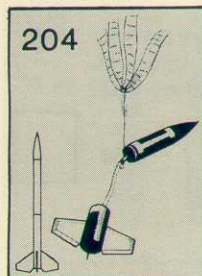
PHOBOS

\$1.60

Two satellites accompany Mars in its orbit around the Sun, Deimos and Phobos. This model is named for the larger and nearer body. Parachute recovery or streamer. Length 12.5 inches. Weight — 1.1 ounce.

STD.
PACK
48

8 LB.



204

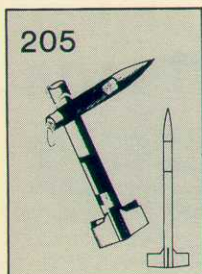
LAMBDA 8

\$1.75

The general shape of the fins on this model resembles the Greek alphabet letter Lambda. Recovery is by a multi-streamer system. Length — 15.5 inches, weight — 1.0 ounce. Six inch payload section.

STD.
PACK
48

7 LB.



205

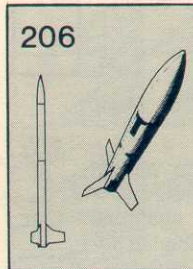
ICARUS

\$1.75

The asteroid Icarus makes the closest approach to the Sun of any of the major bodies of the Solar System. The model includes a 2.75 inch payload compartment. Length — 15 inches, weight — 1.2 ounces. Parachute recovery.

STD.
PACK
48

8 LB.



206

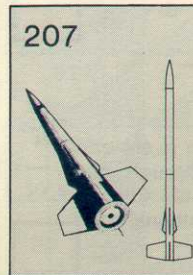
KAPPA ONE

\$2.10

The length and fin area of the Kappa One produces highly stable flights. The model has a six inch payload compartment and is recovered by a parachute. Length — 19 inches, weight — 1.2 ounces.

STD.
PACK
48

8 LB.



207

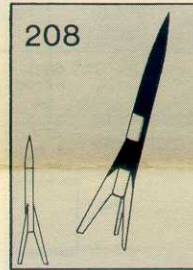
THETA 37

\$2.40

A nine inch long payload compartment and a spare parachute features this 21 inch long model. Its sporty appearance enhances every flight. Weight — 1.3 ounces.

STD.
PACK
48

9 LB.



208

LEPUS

\$1.25

Swept fins increase stability as this hot little rocket leaps into the sky. Streamer recovery brings your model safely back to Earth. The constellation Lepus, the Rabbit, is visible in the winter sky below Orion. Length — 12 inches, weight — 0.9 ounces.

STD.
PACK
48

7 LB.



211

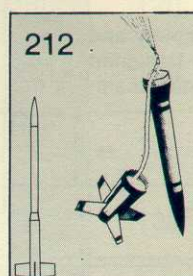
ZENITH TWO

\$2.95

A booster motor in the lower stage accelerates and ignites the upper stage which surges to high altitudes. Tumble recovery for booster, and parachute for upper. Length — 18 inches, weight — 1.5 ounces.

STD.
PACK
48

12 LB.



212

FLARE

\$1.95

High energy particles bursting from the solar surface are called a flare. Two sizes of body tubes are used in this design. The upper section may be used as a payload compartment. Length — 19 inches, weight — 1.2 ounces. Parachute recovery.

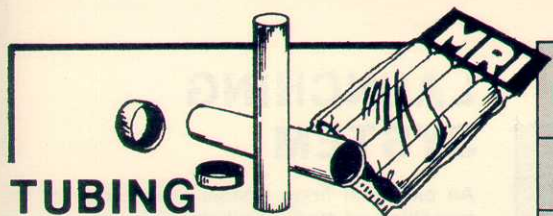
STD.
PACK
48

9 LB.



Exciting new models are continuously being added to the MRI line of superior products. Check at your hobby store for new releases. Coming soon . . . scale models of historic and current missiles, fantasy designs, boost gliders, multi-stage and multi-motor configurations.

The average one ounce model will reach altitudes of 300 to 500 feet using NAR class A motors. Class B motors will carry the model 500 to 700 feet aloft, while over a thousand feet may be attained with the use of class C motors. Multi-stage rockets can climb to proportionately higher altitudes.



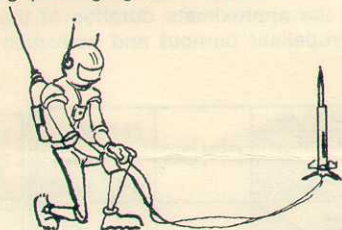
TUBING

Since its introduction MRI Metrix brand structural tubing has been widely acclaimed by serious modelers. The tubing has the advantages of being lightweight, durable and available in an ever increasing number of diameters and lengths. All tubing is spiral wound and is designed uniformly in even metric units. Wall thickness is 0.5 mm (0.02 in).

The primary series of tubing has a white exterior wrapping to aid in painting and to provide a smooth surface for gluing. A light sanding of the tubing surface should precede either of these operations for better bonding. This series is currently available in 15, 20, 25 and 30 mm diameters in a variety of lengths.

The secondary series of tubing is used for joining and as support members. The tubing have a kraft finish and fit snugly in the primary series. (Example — T19).

Polybag packaging with headers.

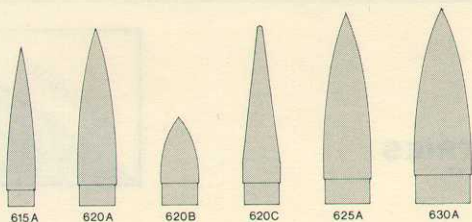


NUMBER	TYPE	DIAMETER		LENGTH		WEIGHT		PIECES PER PACK	PRICE	STD. CARTON		ORDER PACKS
		IN. MM.	IN. CM.	IN. CM.	IN. CM.	OZ. GM.	OZ. GM.			WT.		
31510	T15	0.591 15	4 10			.072 2		8 @ .10	.80	24 3 lb.		
31520	T15	0.591 15	8 20			.144 4		8 @ .15	1.20	24 4 lb.		
32007	T20	0.788 20	2.75 7			.072 2		6 @ .10	.60	24 3 lb.		
32015	T20	0.788 20	6 15			.144 4		6 @ .15	.90	24 4 lb.		
32022	T20	0.788 20	9 22			.216 6		6 @ .15	.90	24 5 lb.		
32045	T20	0.788 20	18 45			.432 12		6 @ .25	1.50	24 6 lb.		
32515	T25	0.985 25	6 15			.180 5		5 @ .20	1.00	24 5 lb.		
32530	T25	0.985 25	12 30			.360 10		5 @ .25	1.25	24 6 lb.		
33015	T30	1.182 30	6 15			.216 6		4 @ .25	1.00	24 5 lb.		
33030	T30	1.182 30	12 30			.432 12		4 @ .30	1.20	24 6 lb.		
31906	T19	0.748 19	2.60 6			.065 2		4	.30	24 3 lb.		

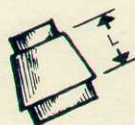
NOSE CONES



MRI's precision machining of ultra-lightweight balsa produces the finest nose cones and adapters available. Refer to the cross-sectional drawings below in making your choice. Any cone or adapter may be readily customized to meet your needs with a piece of fine sandpaper. All weights are averages. The density of even the highest quality balsa varies greatly. All nose cones are packed individually.



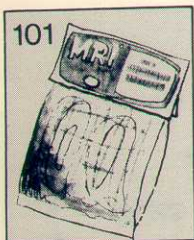
ADAPTERS



Tubing may be joined by these fittings in the creation of your own rocket designs. Number 62020 contains three joiners while all others are packed individually. Again, all weights are average.

NUMBER	FIT	LENGTH		WEIGHT	PRICE	STD. CARTON		ORDER
		IN. CM.	IN. CM.			WT.		
615A	T15	3.0 7.5		.072 2	.35	12 3 oz.		
620A	T20	3.25 8.0		.108 3	.40	12 3 oz.		
620B	T20	1.4 3.5		.072 2	.25	12 3 oz.		
620C	T20	3.25 8.0		.108 3	.40	12 3 oz.		
625A	T25	3.5 8.5		.144 4	.50	12 5 oz.		
630A	T30	3.5 8.5		.216 6	.65	12 7 oz.		
61520	T15 to T20	.75 2		.072 2	.30	12 3 oz.		
62020	T20 to T20	.00 0		.036 1	3 @ .50	12 3 oz.		
62025	T20 to T25	.75 2		.108 3	.40	12 4 oz.		
62530	T25 to T30	.75 2		.144 4	.45	12 5 oz.		

ACCESSORIES



101

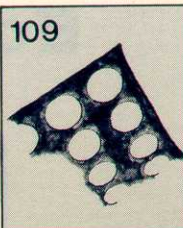
RECOVERY WADDING

A fiber glass material placed between the motor and recovery device. Prevents the hot ejection gases from damaging the parachute or streamer. Package contains enough material for 30 or more launchings of average size rockets.

72 SQUARE INCHES

STD.
PACK
48
—
4 LB.

.35



109

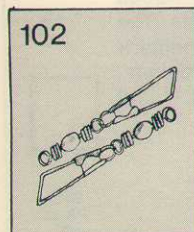
TAPE DISCS

Permanent pressure sensitive discs used for fastening shroud lines to plastic parachute. Also used for quick in the field repair of parachute systems.

STD.
PACK
24
—
8 OZ.

48

.25



102

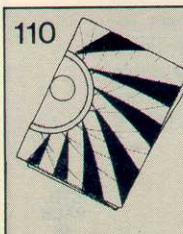
SNAP SWIVELS

Quick change connectors used for attaching recovery devices to the rocket. Especially useful in the field when changing from one recovery device to another or for replacing damaged parts.

FOUR

STD.
PACK
24
—
5 OZ.

.35



110

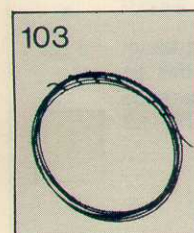
PARACHUTE

The most popular mode of recovery for model rockets. Each 12 inch multi-colored chute is less than a thousandth of an inch thick and comes packed with tape discs, shroud lines, snap swivel and complete instructions.

STD.
PACK
24
—
1 LB.

ONE

.35



103

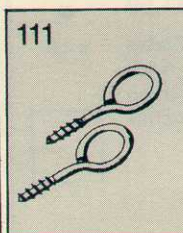
NICHROME WIRE

Glowes red hot when current from a six or twelve volt battery is passed through it. Use a two inch section for each firing. Enough wire provided for 90 ignitions.

15 FEET

STD.
PACK
24
—
3 OZ.

.50



111

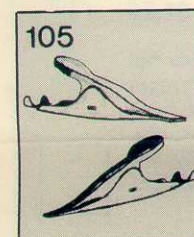
SCREW EYES

Used for attaching your recovery devices to the nose cone or balsa bulkhead. Large eye simplifies attachment of snap swivels, shock cord, etc.

STD.
PACK
24
—
8 OZ.

SIX

.25



105

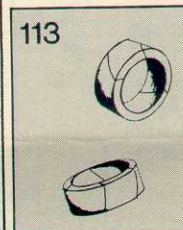
MICRO CLIPS

Micro clips provide a low resistance connection from ignition system to nichrome igniter leads.

ONE PAIR

STD.
PACK
24
—
4 OZ.

.25



113

ENGINE BLOCKS

Durable fiber rings designed to fit in T-20 tubing. When glued in position they act as a surface for the motor to apply its force to the model.

STD.
PACK
24
—
5 OZ.

SIX

.35



106

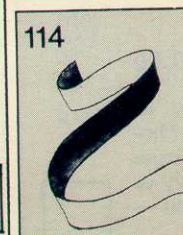
SHOCK CORD

Absorbs the shock of rocket separating when the ejection charge deploys recovery device. Each strand is 18 inches long and one-eighth inch wide.

FIVE

STD.
PACK
24
—
8 OZ.

.40



114

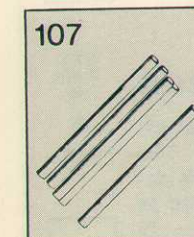
STREAMERS

Used in place of parachute for a streamer recovery. For large models more than one streamer may be required. Each plastic streamer is 17 inches long.

STD.
PACK
24
—
8 OZ.

SIX

.35



107

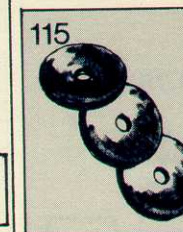
LAUNCHING LUGS

Used to give the model rocket stability and direction during initial blast off. Designed to slide freely over one-eighth inch diameter launch rod.

EIGHT

STD.
PACK
24
—
3 OZ.

.25



115

TRIM WEIGHTS

These one-eighth ounce lead weights give additional stability to models when attached to the nose cone by threading them on the screw eye.

STD.
PACK
24
—
24 OZ.

THREE

.35

SYSTEMS OF MEASURE

The Metric System is used by all countries throughout the world except for Canada and the United States. Our familiar pounds, feet, gallons, etc., are known as the English System, but even the English have abandoned it in favor of the Metric. Our country is certain to adopt it in the near future.

The advantage of the Metric System is that it was "scientifically" developed and is based on decimal units. Ten millimeters equal one centimeter, ten centimeters equal one decimeter, ten decimeters equal one meter, etc. The English System is cumbersome. The inch is divided into quarters, eighths or what have you. Twelve inches make a foot, then 3 feet to a yard, etc.

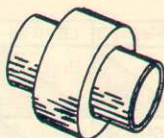
1 inch equals 25.4 mm.

1 lb. (force) equals 4.45 newtons

1 lb. (mass) equals 454 gm.

MOTOR MOUNTS

A motor may be mounted in a section of T20 tubing with a T19 compartment and a motor block. The centering of motors in T25 and T30 tubing is accomplished with items 425 and 430 respectively.



NUMBER	TYPE	WEIGHT	PRICE	STD. CARTON	ORDER PIECES
		OZ. GM.		WT.	
425	T25	.08 2	.35	12 8 OZ.	
430	T30	.12 3	.35	12 8 OZ.	

LAUNCHING SYSTEM



An electrical firing system is required for the launching of model rockets. This set includes a tripod launch platform, collapsible launching rod with safety ball, exhaust deflector, connectors and 15 feet of 18-2 wire, push button launch control handle with safety cap and assorted launching accessories. Six volt battery required.

NUMBER	PRICE	CARTON	UNITS
901	7.95	6 20 LB.	

ROCKET MOTORS

MRI model rocket motors are ICC class C toy propellant devices. Thrust is produced by a modified end burning solid propellant grain.

Sustainer motors are used in single stage and upper stage applications. Each motor contains a propellant charge that imparts its energy to the rocket, a delay train that allows the rocket to coast upwards to peak altitude, and an ejection charge that activates the recovery system.

Booster motors are used only in lower stages of multistage vehicles and contain only the propulsive charge, no delay, no ejection. When the propellant burns through, it ignites the motor in the stage above it, and the lower stage falls away.

MRI class B motors have approximately one and one-half times the energy of the A motors, and will carry a given model to proportionately higher altitudes.

Three factors are indicated in the motor designation or code.
1) The energy class is indicated by a letter.
2) The average thrust is given in metric units, (newtons).
3) Following a dash is the delay time in seconds.

A class covers a range of energies. Classes have been standardized by the International Aeronautical Federation (FAI) for use throughout the world. Due to its international nature, all definitions are in metric units.

Class A	1.26 to 2.50 newton-seconds
Class B	2.51 to 5.00 newton-seconds
Class C	5.01 to 10.00 newton-seconds



The time averaged thrust over the duration of thrusting which is given in newtons may be converted to pounds by multiplying by 0.225. This quantity gives us an indication of the lifting power of the motor. A motor with an average thrust of 0.7 lbs. can accelerate a 0.1 lb. rocket to high velocities in a few tenths of a second while the same motor would not budge a rocket weighing 0.8 lb. A good rule of thumb is to never attempt to fly a rocket weighing more than two-tenths of the average thrust of the motor you are using.

The time delay gives the approximate duration of the coasting phase between propellant burnout and activation of the ejection charge.

NUMBER	TYPE	USE	IMPULSE	PRICE	PER BOX	ORDER BOXES
			NTN.-SEC. LB.-SEC.		WT.	
510	A3-2	Single or Upper Stage	2.32 0.52	.30	24 18 oz.	
515	B3-3	Single or Upper Stage	3.50 0.76	.35	24 20 oz.	
530	A3-0	Booster	2.32 0.52	.30	24 18 oz.	
535	B3-0	Booster	3.50 0.76	.35	24 20 oz.	

Ship To:

ORDER NO.

SHIP WHEN

SHIP VIA

SIGNED

NOTE:

A01-50

MRI

MODEL ROCKET INDUSTRIES

309 STATE STREET, MADISON, WISCONSIN 537 03

6¢ SURFACE
10¢ AIRMAIL

MAIL
TO



Distributor