



OFFICIAL ROCKET MANUAL



foremost in
ready to fly
rockets



APOLLO SATURN V

1/125 SCALE

The Saturn V was a three-stage liquid fuel launch vehicle used in NASA's manned lunar landing program. The 33 foot diameter Saturn V rocket stands 363 feet high, had a launch weight of 6,262,500 pounds and could place 100,000 pounds of payload into lunar orbit.

The SIC first stage of the Saturn V launch vehicle was manufactured by the Boeing Company. It is composed of a cluster of five Rocketdyne F-1 engines, which burn liquid oxygen and kerosene at a rate of 15 tons per second to produce a combined total thrust of 7,570,000 pounds.

The SII second stage, which burns liquid oxygen and liquid hydrogen, was built by North American Rockwell Company. Its cluster of five Rocketdyne J-2 engines produce a total thrust of 1,125,000 pounds.

The SIVB third stage, manufactured by McDonnell Douglas, used a single Rocketdyne restartable J-2 liquid hydrogen/liquid oxygen engine capable of producing 230,000 pounds of thrust. The SIVB initially provides two minutes of power to insert the Apollo spacecraft and its astronaut crew into earth orbit. After coasting for one orbit for a final systems checkout, the astronauts relight the engine. A five minute burn further boosts the spacecraft from its parking orbit onto a lunar trajectory.

The first launch of an unmanned Saturn V rocket occurred on November 9, 1967. This was the Apollo 4 systems and structural test mission. Several intermediate Saturn V missions, including two manned circumlunar flights, were then carried out.

On July 16, 1969 a Saturn V launch vehicle sent three explorers on their way to the moon for a first attempt at a complete mission. Four days later on July 20, 1969 Neil Armstrong and Buzz Aldrin safely landed on the bleak lunar surface and walked on its soil. The earthwide celebration that followed signified that humanity as a group had finally achieved the elementary technology needed to commence exploring the universe.

Your 1/125th actual size Saturn V by COX precisely duplicates this large and powerful rocket. Prior to launching your Saturn V, you should study the remaining pages of this Rocket Manual. Follow these instructions and suggestions carefully and you will achieve maximum performance and reliability.

ADULT SUPERVISION IS RECOMMENDED WHEN FLYING MODEL ROCKETS

Some states require a minimum area of 5,000 square yards of clear area as a rocket launch site. If in doubt about your State's requirements, contact your local Fire Marshal.

YOUR SATURN V

INTRODUCTION

Before any attempt is made to launch your new Saturn V, you and your adult supervisor should understand the rocket is launched with twin engines. Igniting two engines simultaneously requires more electrical current capacity compared to single engine ignition. A booster battery is needed.

When launching with two engines, if one engine fails to ignite an erratic and dangerous flight may result. Make certain your ignition batteries are fresh, all wiring connections are good and you have correctly inserted the igniters into the engines.

Past experience with smaller model rockets using single Alpha, Bravo and Charlie engines will be beneficial in preparing for reliable Saturn V launches.

ELASTIC SHOCK CORDS

Once the parachutes fully open they slow down the rocket's speed very rapidly. The large pulling forces that occur between the parachutes and the rocket body during this interval of high deceleration are absorbed by the elastic shock cords. SECURELY TIE THE ELASTIC SHOCK CORDS TO THE INTERNAL BODY LUGS AS SHOWN. BE SURE TO USE DOUBLE KNOTS.

PARACHUTES

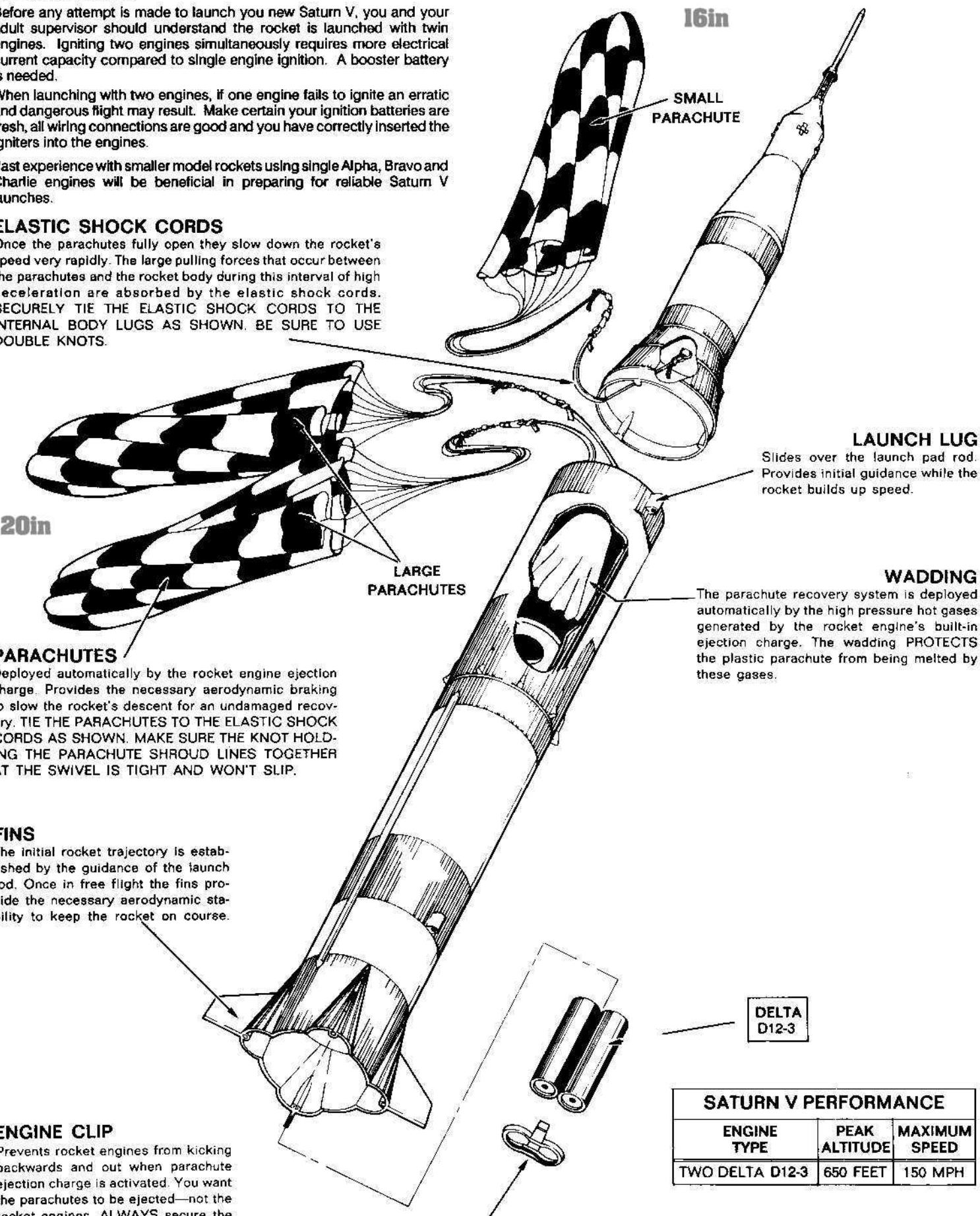
Deployed automatically by the rocket engine ejection charge. Provides the necessary aerodynamic braking to slow the rocket's descent for an undamaged recovery. TIE THE PARACHUTES TO THE ELASTIC SHOCK CORDS AS SHOWN. MAKE SURE THE KNOT HOLDING THE PARACHUTE SHROUD LINES TOGETHER AT THE SWIVEL IS TIGHT AND WON'T SLIP.

FINS

The initial rocket trajectory is established by the guidance of the launch rod. Once in free flight the fins provide the necessary aerodynamic stability to keep the rocket on course.

ENGINE CLIP

Prevents rocket engines from kicking backwards and out when parachute ejection charge is activated. You want the parachutes to be ejected—not the rocket engines. ALWAYS secure the rocket engines with the Engine Clip!



16in

SMALL
PARACHUTE

LAUNCH LUG

Slides over the launch pad rod. Provides initial guidance while the rocket builds up speed.

WADDING

The parachute recovery system is deployed automatically by the high pressure hot gases generated by the rocket engine's built-in ejection charge. The wadding PROTECTS the plastic parachute from being melted by these gases.

20in

LARGE
PARACHUTES

DELTA
D12-3

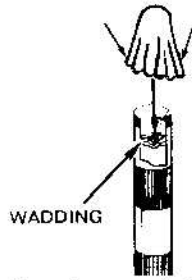
SATURN V PERFORMANCE

ENGINE TYPE	PEAK ALTITUDE	MAXIMUM SPEED
TWO DELTA D12-3	650 FEET	150 MPH

PREPARING THE SATURN V FOR FLIGHT

1 INSERT WADDING

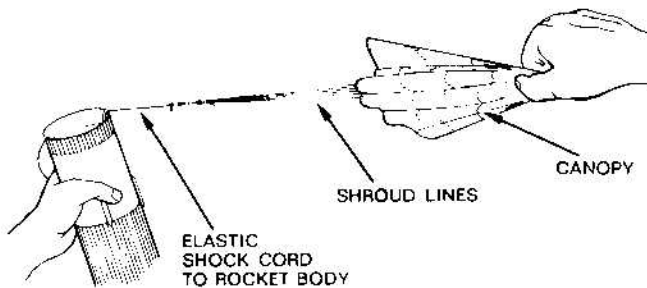
Loosely stuff a 5" square of the flame proof wadding down into the rocket body. Insert the edges of the wadding first as shown. This is very important and is required to achieve a proper gas seal around the edges adjacent to the body.



Thus, instead of leaking past and melting the parachutes, the hot ejection charge gases push against the wadding making it work as a piston. This piston-like action separates the upper body section from the main body to deploy the recovery system.

2 PACK MAIN PARACHUTES

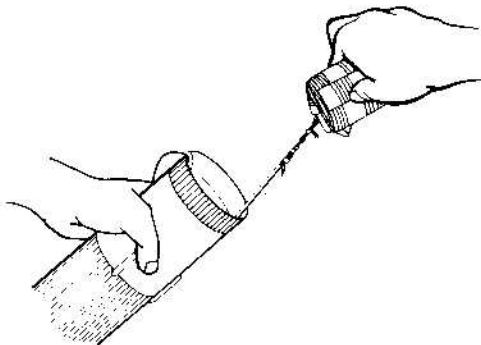
Grasp the center of one of the large parachute canopies as shown and untangle the shroud lines.



Then, fold the parachute and shroud lines as shown to form a flat package about 3" by 3" square.



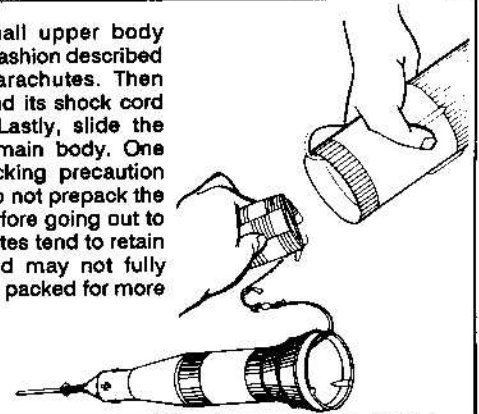
Next, insert the parachute into the rocket body.



Pack the other large parachute and insert it on top of the first parachute.

3 PACK UPPER BODY PARACHUTE

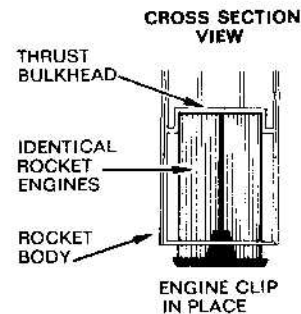
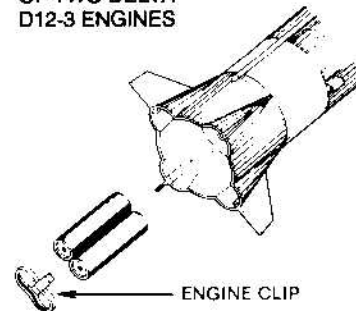
Next, fold up the small upper body parachute in the same fashion described for the main body parachutes. Then insert the parachute and its shock cord into the main body. Lastly, slide the upper body into the main body. One special parachute packing precaution should be observed. Do not prepack the parachutes at home before going out to launch. Plastic parachutes tend to retain their folded shape and may not fully deploy if they sit tightly packed for more than half an hour.



4 INSTALL ENGINES

Cox does not supply engines. There are several brands of standard size engines which fit Cox rockets. Visit your local hobby shop to purchase engines. Select engine size recommended in your Saturn V PERFORMANCE CHART.

INSTALLATION OF TWO DELTA D12-3 ENGINES



There is one engine clip included with your Saturn V for the D12 engines. Align the engine clip tabs with the notches in the rocket body and push the clip up into the body. Once inside, these tabs spring apart, lock against the lip of the rocket body, and hold the engines in place. To remove the engines after flight, simply squeeze the tabs together to release the engine clip. **DO NOT INSTALL IGNITERS UNTIL LAUNCH TIME! DO NOT LAUNCH THE SATURN V WHEN WINDS ARE GREATER THAN 10 MILES PER HOUR!**

LAUNCHING THE SATURN V

1 PREPARE LAUNCHER

Read the instructions enclosed with the LAUNCHER and Rocket Engine you purchased separately.

IMPORTANT: You must use the Heavy Duty larger diameter Launch Rod supplied with your Cox Saturn V.

Upon reaching your flying site set up the LAUNCHER on level ground, or adjust the legs so the LAUNCH ROD is vertical.

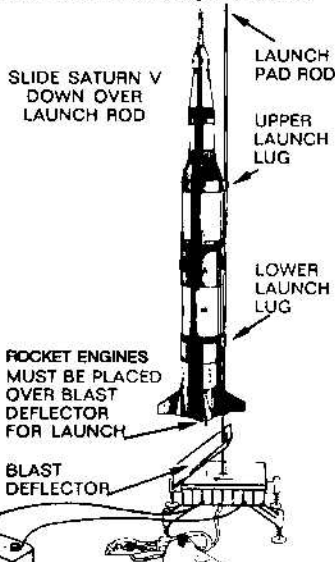
Unroll the ignition leads to position the LAUNCH CONTROLLER as far from the LAUNCHER as possible. Before doing anything else REMOVE the SAFETY KEY from your LAUNCH CONTROLLER and keep it in your pocket until you are ready to ignite the rocket engine.

Now you can install the batteries in the LAUNCH CONTROLLER according to the instructions provided with the LAUNCHER you purchased.

The SAFETY KEY is the system's master switch. When the key is with you it is perfectly safe to approach an armed rocket and you can be confident that no inadvertent ignition will occur while you're handling the rocket.

With the SAFETY KEY in your hand (or in the hands of your adult supervisor) you can now approach the launcher to mount your COX SATURN V. Part of your normal countdown procedure at this time should include a recovery system check. If the parachutes have been sitting packed in the rocket body for over half an hour or if temperatures are near freezing, repack the parachutes at this time for maximum recovery reliability.

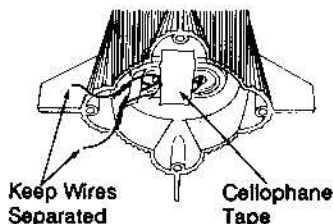
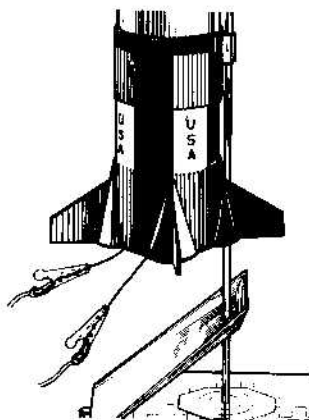
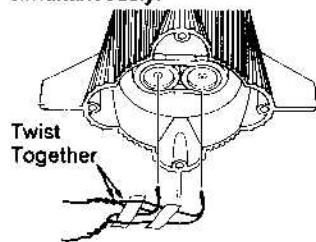
Mount the rocket by sliding the upper and lower launch lugs over the launch rod. BE SURE to rotate the Saturn V around on the launch rod so that the hot rocket engine gases at liftoff will impinge on the metal blast deflector rather than on the plastic base.



2 INSTALL IGNITERS

Remove the rocket from the launch rod. Now you can proceed to arm the rocket for launch. First the igniters (supplied with the rocket engines you purchased) should be bent and joined together as shown. Then insert up into the engine nozzles. Follow the directions supplied with the engines you purchased. Good electrical contact is required to insure both engines ignite simultaneously.

Mount the rocket by sliding the upper and lower launch lugs over the launch rod. Make certain the SAFETY KEY is out of the LAUNCH CONTROLLER, then gently connect the miniature alligator clips to the igniter wires.



This completes the arming of the rocket and you can return to the LAUNCH CONTROLLER. At this time request any spectators to move back behind you and your adult supervisor.

3 GO FOR LAUNCH

The SAFETY KEY can now be reinserted into the LAUNCH CONTROLLER switch. The SYSTEM GO light should appear, meaning electrical power is ready and the ignition circuit is armed. Once you have verified that no low flying aircraft are overhead start a LOUD countdown from TEN to alert the spectators. Press the firing button just as you reach ZERO in your countdown and hold it firmly until the rocket engines ignite.



The tense moments are over once you spot the white puff of smoke near the peak altitude. This signifies that separation has occurred and the recovery system has been deployed. The parachutes then blossom open to bring your Saturn V back safely for another flight.

REPLACEMENT PARTS

Dear Customer:

We have listed those items which are most likely to require replacement during the life of this product. We have also included an exploded assembly drawing which identifies all replacement items available.

Ordering Instructions: You may order parts from Cox by telephone or mail. Orders may be charged to your Visa or MasterCard. For a credit card order please give the following information: Name, card number and expiration date. For other orders please send check or money order made payable to Cox Hobbies for the full amount including the following postage and handling charges:

The following postage and handling charges must be added to order:

ORDER SIZE	POSTAGE & HANDLING CHARGES
\$.00 to \$ 5.00	\$ 1.00
5.01 to 10.00	2.00
10.01 to 20.00	3.00
20.01 to 30.00	4.00
30.01 and over	5.00

Insured packages—Add \$1.00

International Orders— Please pay with International Money Order only. Add \$5.00 additional for postage.

California residents add state sales tax. Allow 2-3 weeks for delivery.

TELEPHONE ORDERS

Call the COX COURTESY LINE Toll Free 800/451-0339
8:00 AM until 4:30 PM Pacific Time. Monday to Friday.
VISA or MasterCard only.

MAIL ORDERS

Send check, money order, VISA or MasterCard number to COX Customer Service Department, 350 West Rincon Street, Corona CA 91720

CAT. NO.	DESCRIPTION	LIST PRICE
50751000	Main Body	\$25.00
50752000	Nose Cone	15.00
50750400	Sticker Sheet	1.50
5000020	Parachute	5.00
5051040B	Engine Retainer (Dual D)	4.00
5000100	Wadding	1.00
5000200	Shock Cord	.50

COX COURTESY LINE



COX HOBBIES, INC.

Customer Service Department
350 W. Rincon St.
Corona, CA 91720
Open 8:00 AM until 4:30 PM Pacific
(800)451-0339