

## TIPS & TRICKS

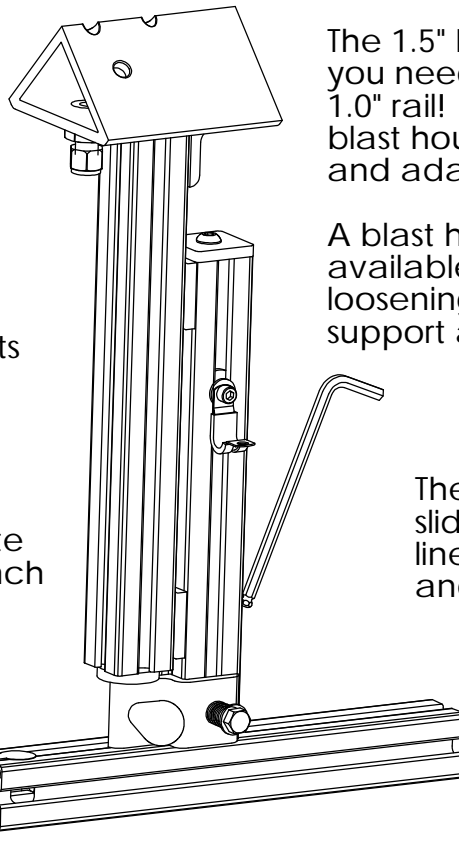
The X-Rockets 1.5" Drop-down Launcher is truly a revolution in ground support equipment. A mechanical slide built into the assembly allows the fill stem to effortlessly "drop down" out of the motor nozzle during ignition making for FAST lift-offs.

The launcher assembly is built to launch rockets all day long without damage to the fill stem tubes, or the launch rail system. The launcher is easy to set-up and adjust for rockets from minimum diameter, up to 12" dia.

To adjust the fill stem for I-K or L motor configurations, the modified stem fitting under the blast house is simply loosened to allow the fill stem to slide up to the proper height. When tightened with a wrench, the fitting acts like a taper lock clamp to grip the stem without ever permanently seating on the stem.

Once the fill stem is fully seated in the motor assembly, the "rocket stop" is set on the launch rail to hold up the rocket. The blast house slide is held up by a retractable bracket making the tie strap set-up A ONE-HANDED JOB! Simply insert the tie strap through the side holes in the triangular blast house.

Once the tie strap is cinched tight, the retractable set-up bracket is swung out of the way, and the launcher is ready for the fueling and fire sequence.



The 1.5" Basic Kit 1 comes with everything you need to mount to either a 1.5" or 1.0" rail! Included is the slide assembly, blast house for I,J,K,L motors, base rail, and adapter brackets as shown.

A blast house for "M" motor stems is available, and is field-changable by loosening the retainer cap on the slide support and swaping out the I-L blast house.

Adapter brackets allow mounting of the 1.5" base rail to any 1.0" launch rail.

This gives ultimate flexibility in launch configurations!

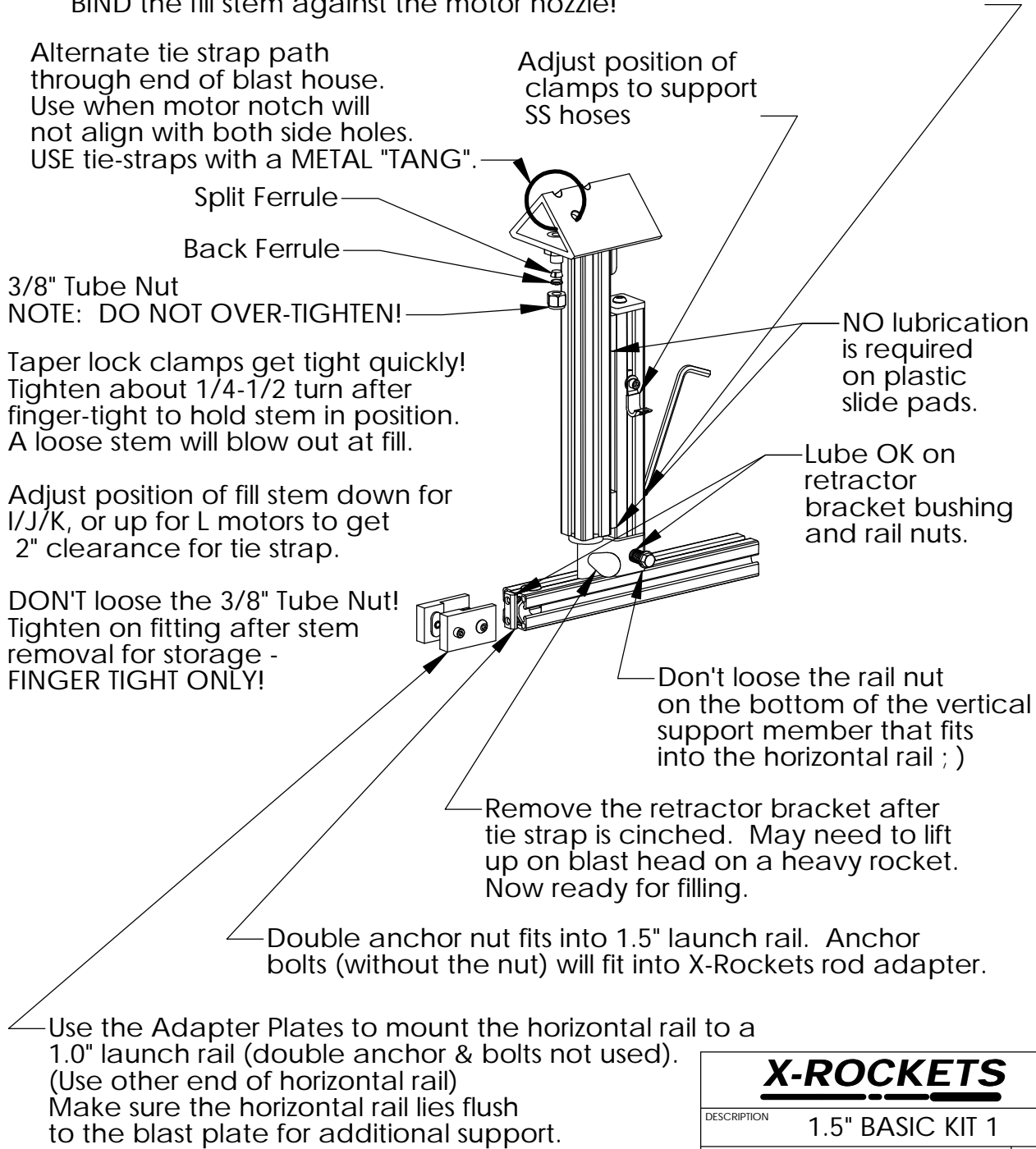
The hose clamps on each side of the slide support hold the GOX & NOS lines to prevent pulling on the fill stem and allow proper drop-down action.

**LNCH-15-02 1.5" BASIC KIT 1 DROP-DOWN LAUNCHER**

<b><u>X-ROCKETS</u></b>		
DESCRIPTION	1.5" BASIC KIT 1	
STOCK NO.	LNCH-15-02	REV.
SCALE: 1:4	DRW.: 1.5 LNCH SPEC 02	SHEET 1 OF 5

STEP ONE: Tape the 24 Ga. ignition wire to the fill stem. Use your method, or try the X-Rockets "Split-Wire" technique. With retractor bracket in place, load the rocket down the rail until the stem fully inserts up into the bell valve. Bring up the rocket stop to support the rocket at its base.

**WARNING!** Anchor bolt **MUST BE TIGHTENED** after adjusting the assembly for launch. Keep is loose to fit the stem up the motor, and adjust position to center stem in motor nozzle. **DO NOT BIND** the fill stem against the motor nozzle!



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NOTE! After connecting all GOX and N2O equipment, connect up a sample ignition wire to the x-former leads, and check the following:

1. Ignition wire burn in free air. (Turn off GOX supply for this test)
2. Short blast of GOX to verify 80-90 PSI, and to clear out dirt in stem.
3. Short blast of N2O to clear out dirt in stem.

NOTE: DO NOT direct stem at face or body. Use eye protection!  
 During a fill, if a leak is found at a fitting, tighten and try again.  
 Don't forget to trim a clean end of ignition wire, and tape to stem.

A rocket stop must be used on rail with the drop-down launcher. Otherwise the rocket will fall once the retractor bracket is pulled. DO NOT use a rod with the drop-down launcher unless you can put a rocket support clamp on the rod.

WARNING! A loose motor in the motor mount tube will turn when you cinch the tie strap! The vent fitting will not be lined up with the rocket's vent port, and you will not be able to see the vent plume!!! Always check after cinching. USE the alternate tie-strap hold-down path through one hole, and then through the front of the blast house.

It is recommended to require all rockets to have an actual vent tube (1/4" launch lug) glued between the motor mount tube, and the body tube. Otherwise THE VENT PLUME WILL NOT EXIT AND WILL NOT BE VISABLE!

If there is no vent tube built into the rocket, require the flyer to cut a piece of 1/8" tube, straw, etc. and place in vent hole, over vent fitting. Place a piece of tape over the end of the tubing sticking out of the rocket (cut a slit in center of tape) to hold makeshift tube in place.

Make sure the O-ring is happy at all times. DO NOT use a sharp tool to pry the O-Ring out from the O.D. It is better to pierce it "in the fat" from the I.D. so as not to scratch the O-ring groove in any way. Check groove for radial scratches and repair or replace the bell. This will prevent CATO's!

DO check for O-Ring leak at the beginning of filling. After a NOS dump due to a discovered problem, wait a while to allow the motor to warm up to prevent frozen grain fracture on the next attempt. (O-Ring leaks cause grain freezing & CATO's)

N2O must be in liquid state to be usefull to us!

WARNING! An extra long fill time could be either:

1. O-ring leak (Or no O-Ring installed).
2. Motor has turned in rocket to mis-align vent. (Can't see plume)
3. Out of liquid N2O. - Keep tank in reflective bubble wrap or under an umbrella when in sun.

NOTE: Keep track of all fills and dumps. Bottles run short of stated weight.

WARNING! If after 3 seconds of ignition and the rocket does not go, LET UP on the FIRE switch before you melt out the GOX tube. DUMP, investigate problem, put on another wire and try again. Adjust launcher in or out to verify that fill stem is vertical and aligned in the motor.

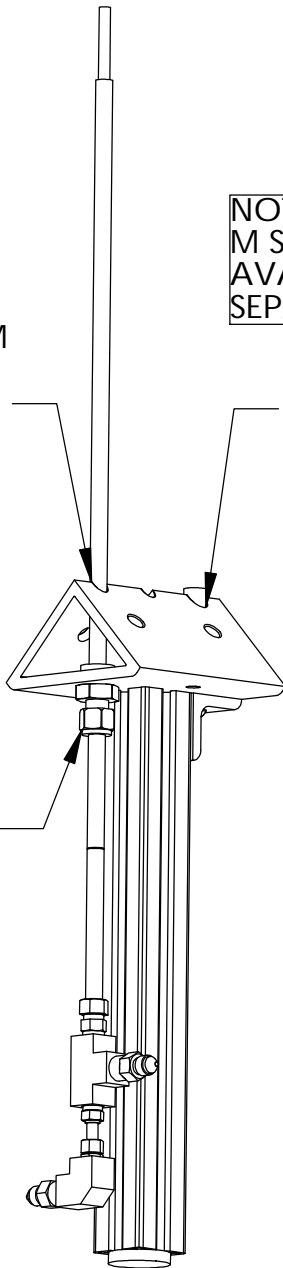
<b><u>X-ROCKETS</u></b>		
DESCRIPTION	1.5" BASIC KIT 1	
STOCK NO.	LNCH-15-02	REV.
SCALE: 1:4	DRW: 1.5 LNCH SPEC 02	SHEET 3 OF 5

I/J/K/L STEM BORE (3/8" DIA.)

NOTE:  
M STEM FITTING AVAILABLE SEPARATELY

M STEM BORE (1/2" DIA.)

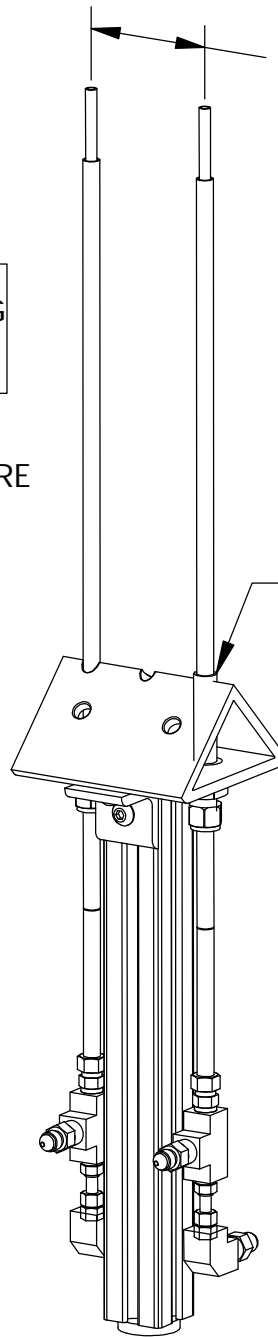
MODIFIED CLAMP FITTING (SS)



COMBINATION BLAST HOUSE  
I/J/K/L STEM INSTALLED

3.00

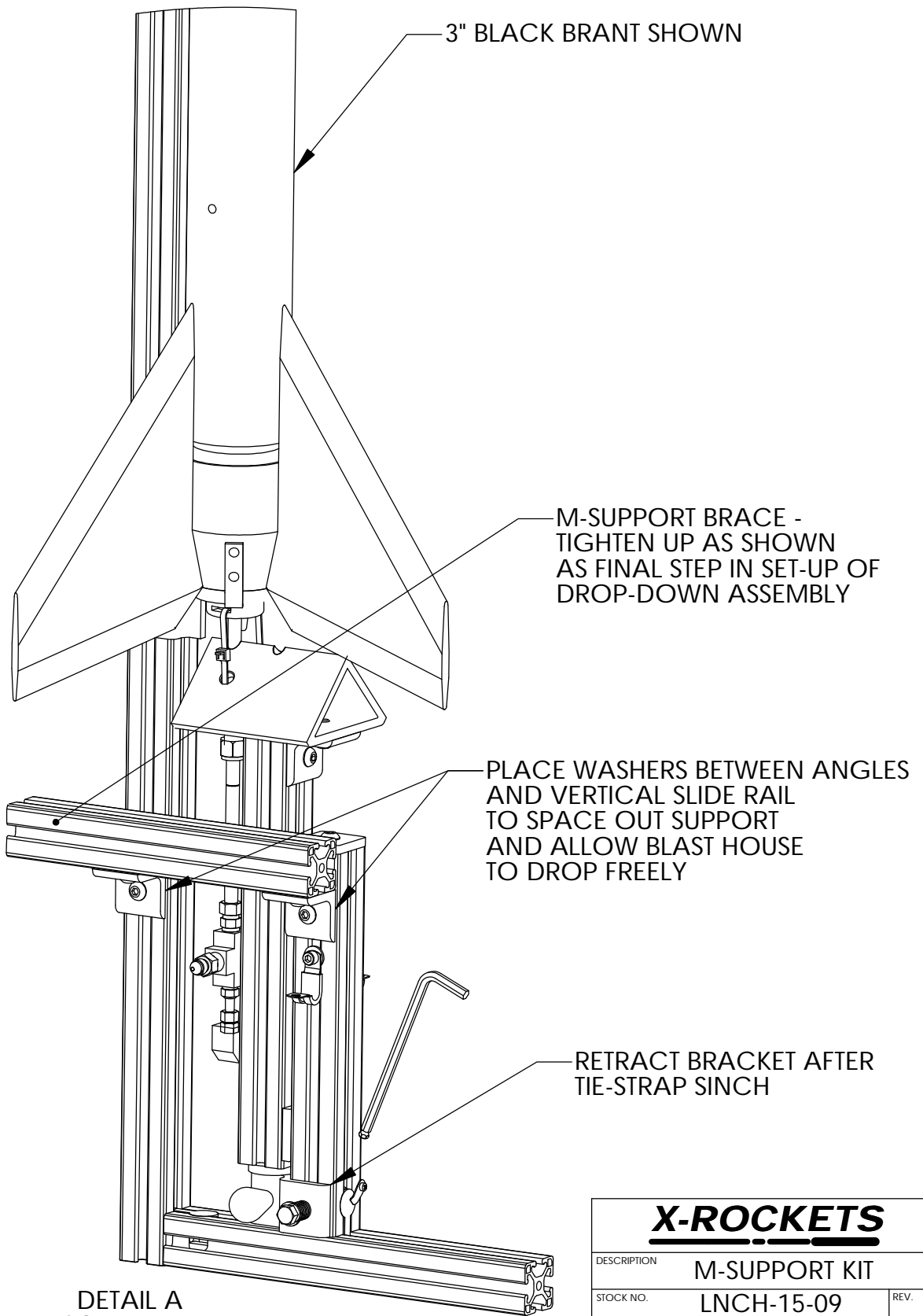
REDUCER TUBE FOR I-L STEM (INCLUDED)



COMBINATION BLAST HOUSE  
CLUSTER CONFIGURATION

ONE COMBO BLAST HOUSE  
DROP-DOWN LAUNCHER =  
\* I/J/K MOTORS  
\* I/J/K MOTOR CLUSTER (2)  
\* L MOTORS  
\* M MOTORS

<b><u>X-ROCKETS</u></b>		
DESCRIPTION COMBO BLAST HOUSE		
STOCK NO.	LNCH-15-08	REV.
SCALE: 1:4	DRW: 1.5 LNCH SPEC 02	SHEET 4 OF 5



DETAIL A  
SCALE 1 : 4

<b><u>X-ROCKETS</u></b>		
DESCRIPTION	M-SUPPORT KIT	
STOCK NO.	LNCH-15-09	REV.
SCALE: 1:32	DRW: 1.5 LNCH SPEC 02	SHEET 5 OF 5