



OSO

KIT NO. MRK. V

FLIGHT SYSTEMS, INC.

~~P. O. BOX 145~~

~~LOUISVILLE, COLORADO 80627~~

Recommended F.S.I. Engines

D6-6

F7-6

D18-6

F100-8

D18-4

NATIONAL ASSOCIATION
OF
ROCKETRY APPROVED ENGINES



THE OSO ROCKET IS THE ANSWER FOR ALL MODEL ROCKETEERS WHO WISH TO FLY LARGE EXPERIMENTAL PAYLOADS TO HIGH ALTITUDES. THE LARGE FORWARD SECTION IS ALL PAYLOAD COMPARTMENT AND IS SEPARATED FROM THE PARACHUTE RECOVERY MECHANISM. PAYLOAD SECTION AND ROCKET ARE GENTLY RECOVERED BY A LARGE PARACHUTE AS ONE UNIT

a Real **HIGH** Flying
model **29"** Long



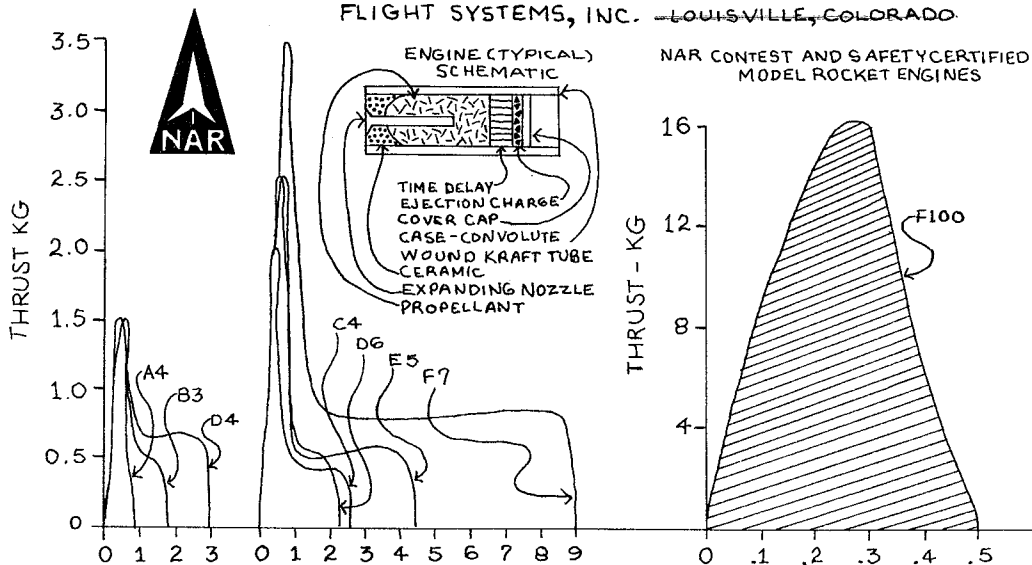
ADDITIONAL ASSEMBLY PROCEDURES

FOLLOW ORDER GIVEN:

- ① BODY TUBE—THE OSO BODY TUBE IS MADE UP OF 3 LENGTHS OF $1/8$ " DIAMETER TUBING. FIRST TAKE THAT BODY TUBE (9 " x $1/8$ " DIAMETER) WITH 3 BLACK LINES ON ONE END (FINS GO ON THIS END) AND USING THE OPPOSITE END, SPREAD A $3/4$ " LONG LAYER OF ELMER'S GLUE INSIDE OF BODY TUBE. NOW QUICKLY INSERT $1/2$ OF PAPER COUPLER. TAKE THE OTHER BODY TUBE (9 " x $1/8$ " DIAMETER) AND SPREAD A LAYER OF GLUE INSIDE EITHER END. QUICKLY PRESS ONTO COUPLER UNTIL BODY TUBES ARE TOUCHING. NEXT (QUICKLY) LAY GLUED BODY TUBE ON FLAT SURFACE AND ROLL JOINED TUBES WITH PALM OF YOUR HAND. THIS WILL INSURE THAT BODY TUBES ARE STRAIGHT AND PARALLEL. LET LIE ON FLAT SURFACE UNTIL GLUE DRIES.
- ②-A FOR F.S.I. F100-8 OR F7-6 MODEL ROCKET ENGINE, DO THE FOLLOWING. PLACE A HEAVY BAND OF ELMER'S GLUE ABOUT 4 " INSIDE OF JOINED BODY TUBES ON END WITH 3 FIN ALIGNMENT MARKS. INSERT LARGE THRUST RING BY USING A F.S.I. F100-F7 ENGINE. PUSH THRUST RING FORWARD UNTIL ENGINE PROJECTS $3/8$ " OUTSIDE BODY TUBE. NOW EXTRACT (TWISTING) ENGINE AND LET GLUE DRY. WIPE OFF WITH DAMP CLOTH ANY GLUE ADHERING TO INSIDE OR OUTSIDE OF ENGINE. DO NOT USE NOZZLE END OF ENGINE.
- ②-B YOUR OSO ROCKET IS PRIMARILY DESIGNED FOR FLIGHT SYSTEMS "F" SERIES MODEL ROCKET ENGINES. IF YOU DESIRE TO USE FLIGHT SYSTEMS D OR E ENGINES INSTEAD OF "F" SERIES ENGINES, PROCURE FROM YOUR DEALER F.S.I. CONVERSION KIT NO. C-20 WHICH INCLUDES DIRECTIONS FOR ASSEMBLY. NOW PROCEED WITH STEP 2-B INSTEAD OF STEP 2-A. AFTER CONVERSION KIT NO. C-20 IS COMPLETED AND GLUE IS DRIED, PLACE ASSEMBLY INTO JOINED BODY TUBE ON END WITH 3 FIN ALIGNMENT MARKS. MAKE END OF ENGINE COMPARTMENT EVEN WITH END OF BODY TUBE. NOW GLUE LOWER SPACER RING OF ENGINE COMPARTMENT ASSEMBLY, WITH A RING OF GLUE, TO BODY TUBE AT JUNCTION OF BODY TUBE AND SPACER RING. LET GLUE DRY BEFORE PROCEEDING.
- ③ SHOCK CORD AND MOUNT—TAKE THE RED FIBER BOARD MOUNT WITH THE THREE $1/8$ " DIAMETER HOLES IN IT AND THREAD THE SHOCK CORD THROUGH THE 3 HOLES AS SHOWN ON DETAIL B. NOW SPREAD A HEAVY LAYER OF ELMER'S GLUE ALL OVER THE SIDE OPPOSITE THE SHOCK CORD KNOT AFTER TAKING UP SLACK IN CORD. CURVE SHOCK CORD MOUNT AND INSERT INTO END OF JOINED BODY TUBES OPPOSITE THE FIN END OF BODY TUBE AND FIRMLY PRESS IN PLACE, USING FINGER OR $3/8$ " DOWEL ROD, UNTIL GLUE HOLDS FIRMLY. ASSEMBLY DETAIL SHEET SHOWS PROPER POSITION IN BODY TUBE. NOW LAY ASIDE UNTIL ALL GLUE IS DRIED ON SHOCK CORD MOUNT BEFORE PROCEEDING WITH THE NEXT ASSEMBLY STEP.
- ④ PAYLOAD CAPSULE—TAKE BODY TUBE ($6\frac{1}{4}$ " x $1\frac{1}{8}$ " DIAMETER) AND FOLLOW DETAIL E. GLUE SECURELY THE BROWN JOINT ATTACHMENT TUBE INTO THE PAYLOAD CAPSULE. WIPE OFF ANY EXCESS GLUE ON OUTSIDE OF BROWN ATTACHMENT TUBE. AFTER GLUE HAS DRIED ON CAPSULE, GLUE THE PAPER BOARD DISC INSIDE THE JOINT ATTACHMENT TUBE (DETAIL E). WHEN DRY, SCREW THE SCREW EYE INTO THE CENTER OF THE PAPER BOARD DISC. NEXT PUSH THE NOSE CONE INTO THE TOP OF PAYLOAD CAPSULE. DO NOT GLUE IN PLACE. THE NOSE CONE IS THE PROPER FIT FOR EASY REMOVAL SO SCIENTIFIC PAYLOADS MAY BE PLACED IN CAPSULE.
- ⑤ FINS—ALL 3 FINS IN YOUR OSO KIT ARE MARKED WITH ONE RED EDGE. THIS RED EDGE IS TO BE PLACED ALONG AND PARALLEL TO THREE BLACK FIN ALIGNMENT MARKS ON THE JOINED BODY TUBE AT POSITION SHOWN ON ASSEMBLY DETAILS. BEFORE GLUING FIN INTO PROPER POSITION, YOU MAY WANT TO SAND AND ROUND OFF ALL FIN EDGES, EXCEPT DO NOT SAND RED EDGE. AFTER SANDING EDGES, PLACE A SMALL AMOUNT OF ELMER'S GLUE ALONG THE RED EDGE AND IMMEDIATELY PRESS AGAINST BODY TUBE ALONG FIN ALIGNMENT MARK. HOLD SECURELY UNTIL GLUE SETS STRONG ENOUGH TO SUPPORT FIN. BE SURE FIN IS PARALLEL TO BODY TUBE AND RADIAL THROUGH CENTER OF BODY TUBE. REPEAT FOR THE OTHER 2 FINS. AFTER TACK COAT OF GLUE DRIES HARD, PLACE 2 MORE LINES OF GLUE ALONG FIN AND BODY TUBE OF EACH FIN (LET DRY BETWEEN COATS) TO BUILD UP A STRONG FILLET.
- ⑥ FLAMEPROOF WADDING—BE SURE THAT FLAMEPROOF WADDING IS USED EACH TIME ROCKET IS FIRED. PUSH WADDING ALL THE WAY DOWN TO TOP OF THRUST RING AND PACK IN FIRMLY WITH A $5/8$ " DOWEL OR SIMILAR TOOL. USE ENOUGH WADDING TO MAKE APPROXIMATELY A $3/8$ " LONG PLUG. SEE ASSEMBLY DETAIL SHEET.
- ⑦ PARACHUTE—THE PARACHUTE IS MARKED IN INCHES. CUT WITH SCISSORS ALONG THE INCH LINES THAT GIVE YOU THE SIZE PARACHUTE YOU DESIRE (FOR OSO ROCKET— 16 "). LAY PARACHUTE ON FLAT SURFACE AND ATTACH SHROUD LINES TO PARACHUTE USING PARACHUTE GLUE TABS (SEE DETAIL C.). CAUTION: LET NO PORTION OF TAB PROJECT BEYOND PARACHUTE AS GLUE ON TAB WILL STICK PARACHUTE TOGETHER AND INTERFERE WITH ITS OPENING. TRY NOT TO TOUCH THE GLUED SIDE OF TAB WITH FINGERS. PRESS TABS DOWN FIRMLY.
- ⑧ SHOCK CORD AND PARACHUTE—AFTER TYING SHOCK CORD TO SCREW EYE, COIL SHOCK CORD AROUND YOUR FINGER AND STUFF INTO BODY TUBE. NEXT FOLD PARACHUTE AS SHOWN ON ASSEMBLY DRAWING, GATHER THE PARACHUTE TOGETHER LIGHTLY, THEN WRAP SHROUD LINES GENTLY AROUND FOLDED PARACHUTE AND INSERT INTO BODY TUBE. AFTER SNAPPING PARACHUTE SWIVEL TO SCREW EYE, NOW PLACE PAYLOAD CAPSULE INTO BODY TUBE.
- ⑨ LAUNCH LUGS—CUT AND GLUE IN PLACE ON BODY TUBE AS SHOWN ON ASSEMBLY DETAIL SHEET.
- ⑩ ROCKET ENGINE—WRAP A SMALL AMOUNT OF $1/2$ " WIDE MASKING TAPE AROUND THE ROCKET ENGINE AT THE POSITIONS SHOWN ON DETAIL SHEET. USE ENOUGH TAPE TO SECURE A SNUG FIT INTO BODY TUBE AS TO REQUIRE A FIRM PUSH ON ENGINE TO PLACE IN CONTACT WITH THRUST RING. IF ENGINE DOES NOT FIT SNUGLY, IT WILL BE EJECTED INSTEAD OF PARACHUTE AND YOUR ROCKET WILL FREE FALL. INCLUDED WITH ALL F.S.I. MODEL ROCKET ENGINES ARE DETAILS FOR LAUNCHING AND FIRING. ASK YOUR DEALER FOR THESE INSTRUCTIONS.

TYPICAL THRUST/TIME CURVES for MODEL ROCKET ENGINES

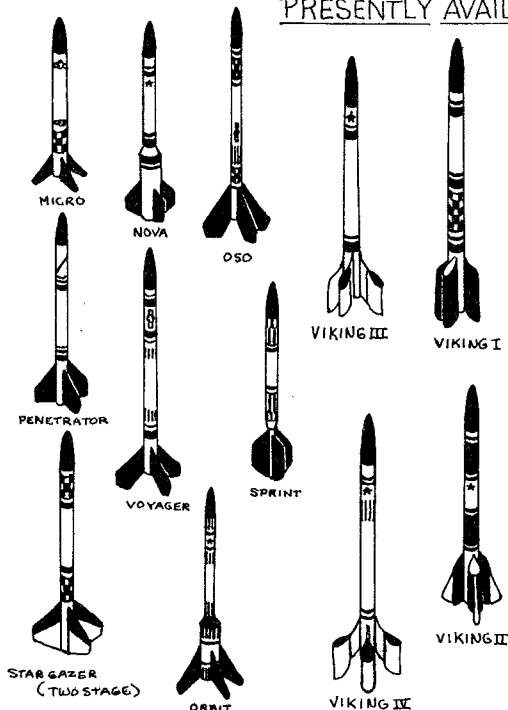
FLIGHT SYSTEMS, INC. — LOUISVILLE, COLORADO



ALL OF THE ABOVE ROCKET ENGINES ARE AVAILABLE AT MOST OF THE BETTER HOBBY SHOPS THROUGHOUT THE UNITED STATES. IF YOUR FAVORITE HOBBY STORE DOES NOT STOCK THE F.S.I. LINE, HAVE HIM WRITE US FOR OUR LATEST CATALOG AND PRICES. IF YOU DESIRE YOUR OWN CATALOG, SEND 25¢ TO FLIGHT SYSTEMS, INC. — Box 145, LOUISVILLE, COLO. 80027.

YOU HAVE JUST PURCHASED ONE OF FSI'S SUPERIOR QUALITY MODEL ROCKETS. OTHER FINE FSI KITS ARE ALSO AVAILABLE. THE FSI ROCKET FLEET IS CONSTANTLY BEING ADDED TO. SEE ALL OF THESE MODELS AT YOUR HOBBY DEALER.

PRESENTLY AVAILABLE FSI MODEL ROCKET KITS



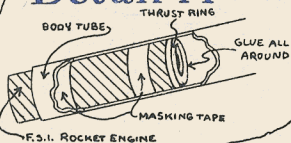
RECOMMENDED FSI ENGINES

- MICRO: A4-4, B3-4, C4-4, D4-6
- PENETRATOR: A4-4, B3-4, C4-4, D4-6, D6-6, E5-6
- STAR 1st stage: B3-0, C4-0, D6-0, E5-0
- GAZER 2nd stage: B3-6, C4-6, D6-8, D4-8, E5-6
- NOVA: B3-4, C4-4, D4-6, D6-6, E5-6, F7-6
- VOYAGER: D6-6, F7-6, F100-B
- ORBIT: B3-4, C4-4, D4-6, D6-6, E5-6, F7-6
- OSO: D6-6, F7-6, F100-B
- SPRINT: C4-4, D4-6, D6-6
- VIKING I: A4-4, B3-4, C4-4, D4-6, D6-6, E5-6
- VIKING II: A4-4, B3-4, C4-4, D4-6, D6-6, E5-6
- VIKING III: A4-4, B3-4, C4-4, D4-6, D6-6, E5-6
- VIKING III: F7-6, F100-B

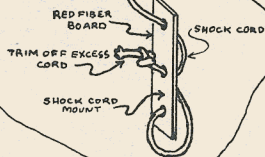
A COMPLETE LINE OF QUALITY FIRING CIRCUITS, LAUNCH GEAR, MODEL ROCKET ACCESSORIES AND INSTRUMENTS ARE ALSO AVAILABLE FROM FSI. SEE YOUR DEALER FOR DETAILS.

ASSEMBLY DETAILS for OSO ROCKET

Detail A

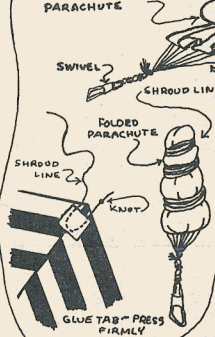


Detail B



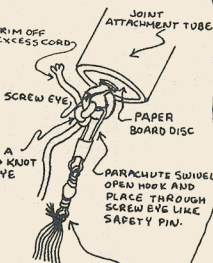
Detail C

METHOD OF FOLDING PARACHUTE



LAUNCH LUGS - GLUE IN PLACE PARALLEL TO BODY TUBE AND BETWEEN ANY 2 FINS, PLACE TOP LAUNCH LUG AT POSITION SHOWN AND IN LINE WITH LOWER LUG

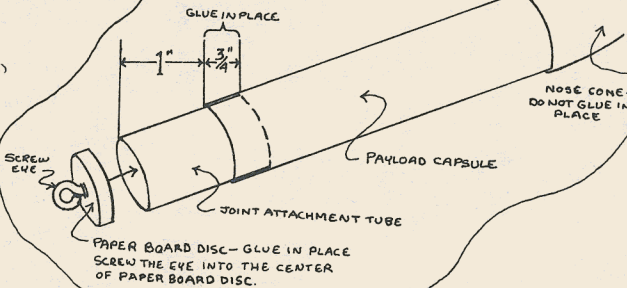
Detail D



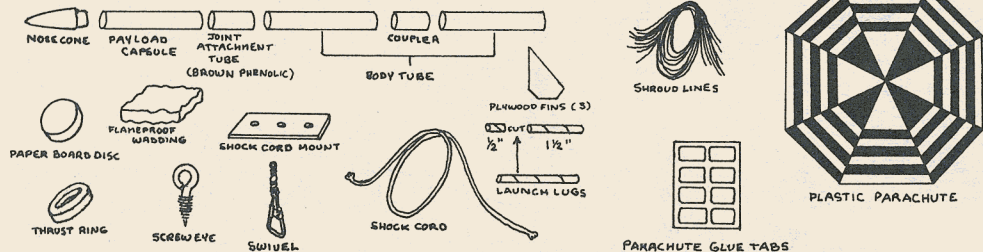
SHOCK CORD - TIE A DOUBLE OVERHAND KNOT THROUGH SCREW EYE

PARACHUTE SHROUD LINES - THREAD ALL 8 LINES THROUGH SWIVEL EYE AND TIE IN DOUBLE KNOT.

Detail E

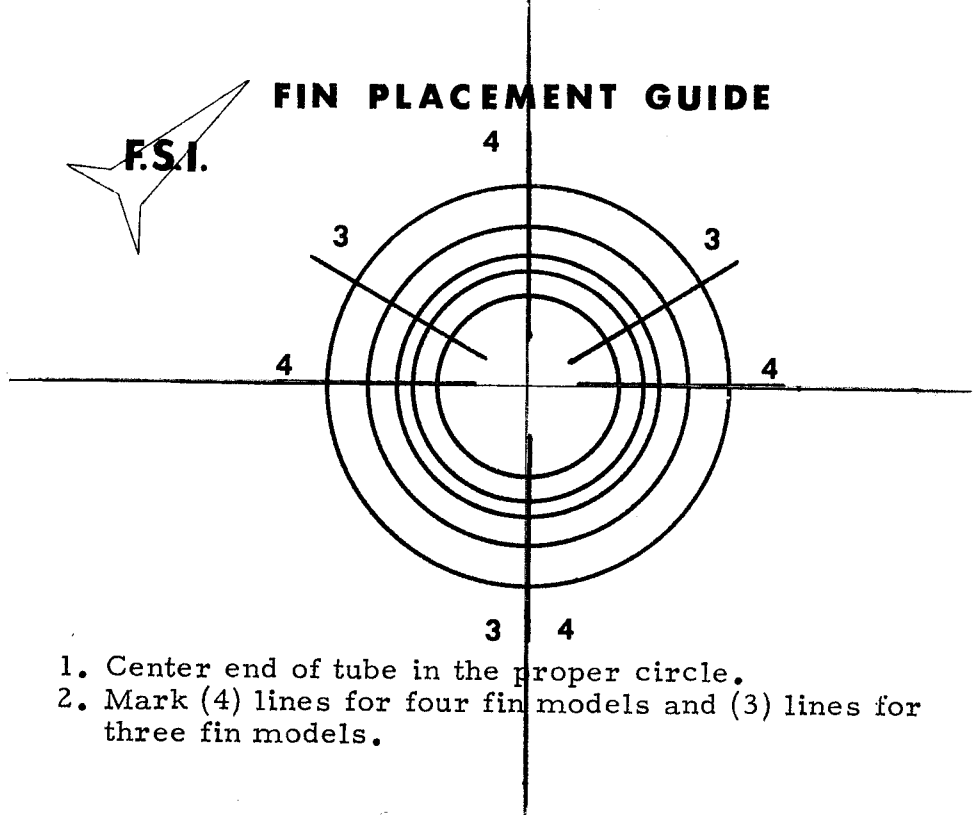


Parts List





FIN PLACEMENT GUIDE



1. Center end of tube in the proper circle.
2. Mark (4) lines for four fin models and (3) lines for three fin models.

FSI MRK-5 OSO Fin Patterns

