

DYNACOM

ALL-FIBERGLASS HIGH PERFORMANCE HIGH POWER ROCKET KITS

BLACK WIDOW

ASSEMBLY INSTRUCTIONS

DYNAMIC COMPOSITES INCORPORATED
PITTSBURGH, PA 15131

RECOMMENDED MATERIALS AND TOOLS REQUIRED TO COMPLETE ASSEMBLY

80 GRIT SANDCLOTH

320 WET/DRY SANDPAPER

DENATURED ALCOHOL

15 MINUTE MID-CURE EPOXY

HALF ROUND AND SMOOTH FILES (OPTIONAL)

PC-7 EPOXY PASTE OR EQUIVALENT (OPTIONAL)

LOCTITE 495 INSTANT ADHESIVE OR EQUIVALENT CA

LOCTITE 242 SERVICE REMOVABLE THREAD LOCKING COMPOUND

CAUTION

Exposed edges of fiberglass are extremely sharp and will cut through sandpaper and skin. With the exception of the mating sections of airframe, break all sharp corners lightly with sandcloth or smooth file prior to dry-fitting kit components if necessary.

Wipe down all fiberglass kit components with denatured alcohol and lint free cloth prior to final assembly.

The nosecone should remain in its packaging until the entire kit is finished and ready for paint.

Read this procedure carefully.

In some cases it will become impossible to mechanically recover from a missed step. It is recommended that all components be *dry-fit* and *dry-run* per this procedure prior to final assembly and finishing.

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ASSEMBLY PROCEDURE - BLACK WIDOW

1.0 KIT COMPONENTS

AIRFRAME TUBE
STABILIZER FIN SET
54mm MOTOR MOUNT TUBE
1 RETAINING RING
3 CENTERING RINGS
1/4" DIAMETER LANYARD RETAINING PIN
LANYARD AND QUICK LINK
PAYLOAD SECTION
PAYLOAD BULKHEAD DISC
INTERMEDIATE AIRFRAME SECTION
NOSECONE
1/2" LAUNCH LUG SET
12 EACH #6-32 X 1/4" SET SCREWS
1/16" ALLEN WRENCH

2.0 MOTOR MOUNT ASSEMBLY

- 2.1 CIRCUMFERENTIALLY MARK THE MOTOR MOUNT TUBE 13 1/2" UP FROM THE OPEN END OF THE RETAINER.
- 2.2 INSTALL TWO (2) OF THE CENTERING RINGS ON TO THE MOTOR MOUNT TUBE.
- 2.3 POSITION THE REAR C-RING SQUARELY AGAINST THE SHOULDER OF THE MOTOR RETAINER ASSEMBLY AND TACK IN PLACE WITH CA.
- 2.4 LOCATE THE INTERMEDIATE CENTERING RING EITHER SIDE OF THE 13 1/2" MARK AND TACK IN PLACE WITH CA.

- 2.5 EPOXY THE FORWARD SIDE OF THE REAR C'RING AND BOTH SIDES OF THE INTERMEDIATE C'RING. LET THE EPOXY CURE.
- 2.6 INSERT THE LOOP END OF THE LANYARD INTO THE SLEEVED END OF THE MOTOR MOUNT TUBE AND CAPTURE THE LOOP BY INSERTING THE 1/4" PIN THROUGH THE HOLE IN THE TUBE AND SLEEVE.
- 2.7 INSERT THE LANYARD THROUGH THE THIRD C'RING AND POSITION THE RING AGAINST THE RETAINING PIN. SQUARE THE RING WITH THE TUBE AND POSITION THE PIN WITHIN THE OUTSIDE DIAMETER OF THE C'RING.
 - 2.7.1 TACK THE PIN, TUBE, AND CENTERING RING WITH A FEW DROPS OF CA INSTANT ADHESIVE.
- 2.8 FORM A FILLET OF EPOXY ON BOTH SIDES OF THE C' RING TO TUBE JOINT AND LET THE EPOXY CURE.

3.0 MOTOR MOUNT/ AIRFRAME ASSEMBLY

NOTE: STEPS 3.1 THROUGH 3.5 MUST BE PERFORMED SIMULTANEOUSLY

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| <ul style="list-style-type: none"> 3.1 FORM A THICK RING OF EPOXY ON THE TOP SIDE PERIMETER OF EACH CENTERING RING. MIX APPROXIMATELY 1/2 OZ. FOR EACH RING. 3.2 INSERT THE MOTOR MOUNT ASSEMBLY WITH LANYARD ATTACHED INTO THE SLOTTED (FIN) END OF THE AIRFRAME UNTIL THE REAR C'RING IS RECESSED APPROXIMATELY 1/4" INTO THE AIRFRAME. FOR <i>XLHV MODELS</i> ALIGN THE 1/4" DIAMETER HOLE IN THE MOTOR MOUNT TUBE WITH THE 1/4" DIAMETER HOLE IN THE AIRFRAME. MAINTAIN THIS ALIGNMENT THROUGHOUT THE REMAINDER OF THE FOLLOWING STEPS BY PINNING THESE HOLES TOGETHER. 3.3 LAY THE AIRFRAME ASSEMBLY ON A CLEAN FLAT SURFACE AND CONTINUALLY ROLL THE AIRFRAME TO DISTRIBUTE THE EPOXY FROM THE CENTERING RINGS TO THE INSIDE DIAMETER OF THE AIRFRAME. CONTINUE ROLLING THE AIRFRAME UNTIL THE EPOXY SETS. 3.4 CHECK THE FORMATION OF THE FORWARD FILLET ON THE THRUST RING AND GAGE THE DEPTH OF THE RECESS OFTEN. 3.5 ALLOW THE EPOXY TO FULLY CURE. |
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- 3.6 FILL THE 1/4" ANNULUS BETWEEN THE RETAINER OD AND THE AIRFRAME ID (3.2) WITH EPOXY.

4.0 FIN ASSEMBLY

- 4.1 USING 80 GRIT SANDCLOTH, DEGLAZE 1/2" OF BOTH SIDES OF THE FINS AT THE ROOT EDGES.
- 4.2 APPLY A STRINGER OF EPOXY ON THE 1/8" THICKNESS OF THE ROOTEDGE OF A FIN AND INSTALL THE LEADING EDGE FIRST INTO THE SLOT IN THE AIRFRAME UNTIL IT CONTACTS THE MOTOR MOUNT TUBE.
- 4.3 PULL THE FIN BACK FIRMLY UNTIL THE TRAILING EDGE IS FLUSH WITH THE TAILCONE SHOULDER JOINT.
- 4.4 CHECK FIN ALIGNMENT FOR PERPENDICULARITY WITH THE AIRFRAME.
 - 4.1 REPEAT THIS STEP FOR EACH FIN AFTER THE EPOXY HAS CURED.
- 4.5 APPLY SUFFICIENT EPOXY OR PC-7 EPOXY PASTE TO FORM THE ROOT EDGE FILLETS WITH A MINIMUM 3/8" RADIUS.

5.0 PAYLOAD SECTION

- 5.1 FORM A SMALL RING OF EPOXY AROUND EACH OF THE THREADED INSERTS INSIDE THE PAYLOAD COMPARTMENT. DO NOT ALLOW EPOXY TO FLOW INTO THE THREADS.
- 5.2 USING 80 GRIT SANDCLOTH, DEGLAZE BOTH SIDES OF THE BULKHEAD DISC.
- 5.3 ASSEMBLE THE EYEBOLT AND LOCKNUT TO THE BULKHEAD AND TIGHTEN THE NUT, THEN BACK-OFF THE LOCKNUT 1/2 TURN TO ALLOW THE EYEBOLT TO SWIVEL.
- 5.4 APPLY A RING OF EPOXY TO THE INSIDE EDGE OF THE SLEEVE END OF THE PAYLOAD COMPARTMENT.
- 5.5 INSERT AND RECESS THE BULKHEAD DISC 1/4" INTO THE EPOXY RING. ROTATE THE ASSEMBLY TO ACHIEVE A UNIFORM FILLET AND ALLOW THE EPOXY TO CURE.
- 5.6 FORM A UNIFORM EPOXY FILLET IN THE RECESS JOINT BETWEEN THE BULKHEAD DISC AND THE PAYLOAD SLEEVE.

6.0 NOSECONE/PAYLOAD ASSEMBLY

- 6.1 FORM A SMALL RING OF EPOXY AROUND EACH OF THE THREADED INSERTS INSIDE THE NOSECONE. DO NOT ALLOW EPOXY TO FLOW INTO THE THREADS. ALLOW EPOXY TO CURE.

- 6.2 APPLY A DROP OF "LOCTITE 242" TO EACH SET SCREW.
- 6.3 INSTALL THE #6-32 SET SCREWS INTO THE THREADED INSERTS IN BOTH NOSECONE AND PAYLOAD COMPARTMENT SLEEVES UNTIL SLIGHTLY RECESSED FROM THE SLEEVE OUTSIDE DIAMETERS.
- 6.4 ASSEMBLE THE INTERMEDIATE AIRFRAME SECTION BY ALIGNING THE THROUGH HOLES WITH THE SET SCREWS AND BACK THE SET SCREWS OUT FLUSH WITH THE AIRFRAME.

7.0 LAUNCH LUG ATTACHMENT

- 7.1 FLOAT EPOXY IN THE LUG SLOTS MILLED INTO THE AIRFRAME AND INSERT THE LAUNCH LUGS, LONG SIDE DOWN, IN THE SLOT. ALLOW THE EPOXY TO SET.
- 7.2 APPLY SUFFICIENT EPOXY TO FILL THE GROOVE BETWEEN THE LUG AND THE AIRFRAME.
- 7.3 AFTER THE EPOXY SETS, APPLY SUFFICIENT EPOXY OR PC-7 EPOXY PASTE TO FORM ROOT EDGE FILLETS WITH A MINIMUM 3/8" RADIUS.

NOTE: If slots have not been milled in the airframe, locate the lugs approximately 6" and 30" from the back of the retainer between the fins.

8.0 FINISHING

AIRFRAME

- 8.1 WET-SAND THE ENTIRE AIRFRAME, INCLUDING ALL FILLETS AND FIN SURFACES WITH 320 WET/DRY PAPER.

WARM AIR DRY AND PRIME THE AIRFRAME WITH LACQUER BASE PRIMER.

DRY-SAND WITH 320.

REPAIR SCRATCHES WITH GLAZING PUTTY ("NITROSTAN" OR "RED-CAP") FOLLOWED BY WET-SANDING AND RE-PRIMER.

NOSECONE

- 8.2 THE NOSECONE IS PRIMERED AND READY FOR PAINT. WIPE THE NOSECONE WITH DENATURED ALCOHOL ONLY AND APPLY COLOR.
- 8.3 DO NOT USE LACQUER THINNER ON THE PRIMERED SURFACES AND NEVER USE CA'S TO FILL OR REPAIR SCRATCHES.
- 8.4 LACQUER BASE PAINT IS RECOMMENDED FOR THE ENTIRE AIRFRAME.