Chapter 1. Forward Closure Assembly

1-1. Apply a light coat of Synco™ Super Lube™ or other grease to all threads and all o-rings except the grain o-ring. This will facilitate assembly and prevent the threads from seizing.

1-2. Fig.-1: Chamfer both inner edges of the smoke charge insulator with your fingernail. Assemble the RMS-Plus smoke charge element, smoke charge insulator and smoke charge o-ring as shown. Apply a coat of grease to the end of the smoke charge opposite the o-ring.

1-3. Fig.-2: Insert the forward smoke charge spacer (13/16" O.D. neoprene washer) into the smoke charge cavity and until it is seated against the forward end of the cavity. Apply a light film of grease to the inner circumference of the smoke charge cavity.

1-4. Fig.-2: Insert the smoke charge assembly shown in Fig. -1 into the smoke charge cavity, o-ring end first, until it is seated against the forward smoke charge spacer. NOTE: When using a plugged forward closure, fill the opening in the forward smoke charge spacer with grease prior to installing the smoke charge assembly, and install the smoke charge components in this order: Forward smoke charge spacer, smoke charge o-ring, smoke charge insulator and smoke charge element.

2-1. Fig.-3: Apply a coat of grease to one end of the propellant grain, and install the propellant grain into the liner.

2-2. Fig.-3: Push the liner assembly into the motor case until it is equally recessed from both ends of the case. NOTE: A light coat of grease on the outside surface of the liner will facilitate installation and casing cleanup after motor firing.

2-3. Fig.-4: Place the forward insulator (1/8" thick X 1-3/8" O.D.) o-ring into the forward insulator end of the case until it is seated against the forward insulator.

2-4. Fig.-4: Place the forward insulator (1/8" thick X 1-3/8" O.D.) o-ring into the forward insulator end of the case until it is seated against the forward insulator.

2-5. Fig.-4: Fill the space in the forward insulator with grease.

2-6. Fig.-5: With the motor case held in a horizontal position, thread the previously assembled forward closure assembly into the forward end of the motor case by hand until it is seated against the case.

2-7. Fig.-6: Place the grain o-ring (1/16" thick X 1-5/16" O.D.) into the aft (nozzle) end of the motor case, seated against the propellant grain.

2-8. Fig.-7: Place the aft insulator (1-3/8" O.D. fiber washer) into the aft (nozzle) end of the motor case, seated against the liner assembly.

2-9. Fig.-7: Place the greased aft (3/16" thick X 1-3/8" O.D.) o-ring into the aft end of the motor case, seated against the aft insulator.

2-10. Fig.-8: Insert the coated end of the supplied Copperhead™ igniter into the gap between the aft insulator and the propellant grain.

2-11. Fig.-9: Thread the larger end of the nozzle over the exposed lead of the Copperhead igniter and push the nozzle into the aft o-ring and against the aft insulator. The nozzle will be a snug fit in the o-ring.

2-12. Fig.-9: Thread the aft (gold) closure into the aft end of the motor case by hand until it is seated against the case. NOTE: There will be some resistance to threading in the closure during the last 1/32" to 1/16" of travel.
Chapter 3. Preparation for Flight

3-1. Fig.-10: Gently bend the exposed end of the Copper-head igniter into an ‘S’ shape as shown.

3-2. Fig.-11: Using a hobby knife, cut a corner off the red nozzle cap (5/8” O.D. red plastic cap) to create a small (1/16”-1/8”) vent hole.

3-3. Fig.-11: Push the vented nozzle cap igniter holder over the igniter lead and nozzle until the igniter is held securely.

3-4. Install the motor into the rocket’s motor mount tube. Ensure that the motor is securely retained in the rocket by using positive mechanical means to prevent it from being ejected at the time of recovery system deployment.

3-5. Prepare the rocket’s recovery system and then launch the rocket in accordance with the Tripoli Rocketry Association (TRA) Safety Code and National Fire Protection Association (NFPA) Code 1127.

Chapter 4. Post-Recovery Cleanup

NOTE: Perform motor clean-up as soon as possible after motor firing. Propellant and smoke charge residues become difficult to remove after 24 hours and can lead to corrosion of the metal parts. Place the spent motor components in the reload kit plastic bag and dispose of properly.

5-1. After the motor has cooled down, remove the forward and aft closures.

5-2. Remove the smoke charge insulator, smoke charge o-ring and forward smoke charge spacer (neoprene washer) from the forward closure and discard. Remove and discard the nozzle and the forward and aft o-rings. Using wet wipes or damp paper towels, remove all delay and propellant residue from the closures. WARNING: FAILURE TO COMPLETELY REMOVE SMOKE CHARGE RESIDUE FROM THE INSIDE OF THE FORWARD CLOSURE CAN LEAD TO GAS LEAKAGE ON A SUBSEQUENT Forward Flight and DAMAGE TO YOUR RMS MOTOR FORWARD CLOSURE AND ROCKET VEHICLE.

5-3. Remove the liner from the casing by pushing on either end. Discard the liner and the forward and aft insulators. Using wet wipes or damp paper towels, wipe the inside of the casing to remove all propellant residue.

5-4. Apply a light coat of grease to all threads and the inside of the motor case. Reassemble metal parts and store motor in a dry place.

Chapter 5. First Aid

For a minor burn, apply a burn ointment. For a severe burn, immerse the burned area in ice water at once and see a physician as quickly as possible. In the unlikely event of oral ingestion of the propellant, induce vomiting and see a physician as quickly as possible. The AeroTech/RCS composite propellant consists primarily of ammonium perchlorate and a rubber-like plastic elastomer.

Chapter 6. Disposal

Damaged or defective reload kits should be returned to RCS.

Chapter 7. Fire Safety

Tests show that the pyrotechnic components of RMS™ reload kits will not explode in fires and normally will not ignite unless subjected to direct flame and then will burn slowly. Use water to fight any fires in which AeroTech/RCS RMS™ reload kit pyrotechnic components may become involved: Direct the water at the AeroTech/RCS RMS™ reload kit pyrotechnic components to keep them below their 550 deg. F autoignition temperature. Foam and carbon dioxide fire extinguishers will NOT extinguish burning propellants of the type used in RMS™ reload kit pyrotechnic components. Keep reload kit pyrotechnic components away from flames, sources of heat and flammable materials.

Disclaimer and Warranty

NOTICE: As we cannot control the storage and use of our products, once sold we cannot assume any responsibility for product storage, transportation or usage. RCS shall not be held responsible for any personal injury or property damage resulting from the handling, storage or use of our product. The buyer assumes all risks and liabilities therefrom and accepts and uses AeroTech/RCS products on these conditions. No warranty either expressed or implied is made regarding AeroTech/RCS products, except for replacement or repair, at RCS’s option, of those products which are proven to be defective in manufacture within one year from the date of original purchase. For repair or replacement under this warranty, please contact RCS. Proof of purchase will be required. Note: Your state may provide additional rights not covered by this warranty.

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