DO NOT USE ANY PARTS OF THE RMS™ SYSTEM THAT ARE DAMAGED IN ANY WAY. If in doubt, contact RCS at the number above for assistance.

DO NOT REUSE ANY OF THE DISPOSABLE PARTS OF THE RMS™ RELOAD KIT. Thoroughly clean the outside of the motor of fittings, o-rings and propellant residue from previous use. Failing to do so may result in motor failure during subsequent operation and will invalidate your motor warranty.

DO NOT INTERCHANGE PARTS! Do not use AeroTech/RCS RMS™ reload kits or motor components for any other purpose than to refurbish an AeroTech/RCS RMS™ motor. Use of imitation components may destroy your motor, rocket and payload and will invalidate your motor warranty. Only use AeroTech/RCS RMS™ reload kits intended for your specific AeroTech/RCS RMS™ motor. Use of imitation components may destroy your motor, rocket and payload and will invalidate your motor warranty.

SAVE THE RELOAD KIT PLASTIC BAG FOR THE USED RELOAD PARTS. DISPOSE OF BAG AND PARTS PROPERLY.

READ THE INSTRUCTIONS AND SAFETY CODE OF THE TRIPOLI ROCKETRY ASSOCIATION (TRA) AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS IN ALL ACTIVITIES INVOLVING HIGH POWER ROCKETS.

Chapter 1. Forward Closure Assembly

1-1. Apply a light coat of Synco™ Super Lube™ or other grease to all threads and all 3 o-rings. This will facilitate assembly and prevents the threads from seizing.

1-2. Chamfer both inner edges of the delay insulator with your fingernail. Assemble the RMS-Plus™ delay element, delay insulator, aft delay spacer and delay o-ring as shown. NOTE: It is not necessary to tape the delay element or delay insulator, the hot gas seal is provided by the delay o-ring alone.

1-3. Insert the forward delay spacer (13/16” O.D. neoprene washer) into the delay cavity until it is seated against the forward end of the delay cavity. Apply a light film of grease to the inner circumference of the delay cavity (but not the forward end of the cavity).

1-4. Insert the delay charge assembly shown in Fig. 1 into the delay cavity, o-ring end first, until it is seated against the forward end of the delay cavity. Fill the opening in the forward delay spacer with grease prior to installing the delay charge assembly.

1-5. Chamfer both inner edges of the delay insulator with your fingernail. Assemble the delay charge assembly, delay insulator, aft delay spacer and delay o-ring as shown. NOTE: It is not necessary to tape the delay element or delay insulator, the hot gas seal is provided by the delay o-ring alone.

1-6. Apply grease to the inner circumference of the delay cavity (but not the forward end of the cavity).

1-7. Insert the larger end of the nozzle into the aft (nozzle) end of the motor case, seated against the liner assembly.

Chapter 2. Case Assembly

2-1. Place the forward insulator (1” O.D. fiber washer) into one end of the case, seated against the forward insulator end. Note that for small motors the insert will fit snugly into the case but there will be some resistance. Insert the forward insulator (1” O.D. fiber washer) into the forward end of the motor case by hand until it is seated against the case.

2-2. Push the liner assembly into the motor case until it is approximately 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. Place the greased forward o-ring (1/16” thick X 1” O.D.) into the forward end of the motor case until it is seated against the forward insulator end. Note that for small motors the insert will fit snugly into the case but there will be some resistance. Insert the forward insulator (1” O.D. fiber washer) into the forward end of the motor case by hand until it is seated against the case.

2-4. Place the greased aft o-ring (3/32” thick X 13/16” O.D.) into the aft end of the motor case until it is seated against the aft insulator end.

2-5. 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.

2-6. Place the aft insulator (1” O.D. fiber washer) into the aft (nozzle) end of the motor case, seated against the liner assembly.

2-7. Insert the larger end of the nozzle into the aft (nozzle) end of the motor case, seated against the liner assembly.

2-8. Place the greased aft o-ring (1” O.D. fiber washer) into the aft (nozzle) end of the motor case, seated against the liner assembly.

2-9. Insert the larger end of the nozzle into the aft (nozzle) end of the motor case, seated against the liner assembly.

Chapter 3. Ejection Charge Installation

3-1. Thoroughly clean the outside of the motor of any grease or other residue. Insert the ejection charge container (5/8” O.D. red plastic cap) and dispense enough ejection charge into the ejection charge well of the forward closure to fill the well approximately 3/4 full. NOTE: For 4” and larger diameter rockets, fill the well completely.
Chapter 3. Ejection Charge Installation (Cont’d)

3-2. Fig.-13: Apply the ejection charge cap (adhesive paper disk) to the center of the forward closure. With the motor held in a NOZZLE DOWN position, gently shake the motor to settle the ejection charge into the cavity above the delay element.

Chapter 4. Preparation For Flight

4-1. Fig.-14: Using a hobby knife, cut a corner off the red nozzle cap (empty ejection charge container) to create a small (1/16”-1/8”) vent hole. Set the nozzle cap aside.

4-2. Fig.-14: Insert the coated end of the FirstFire™ or other igniter through the nozzle throat until it stops against the delay element or forward insulator.

4-3. Push the vented nozzle cap igniter holder over the igniter lead(s) and nozzle until it stops.

4-4. 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 ejection charge firing.

4-5. 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 5. Post-Recovery Cleanup

NOTE: Perform motor clean-up as soon as possible after motor firing. Propellant and delay 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 delay insulator, delay o-ring and forward delay 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 DELAY RESIDUE FROM THE INSIDE OF THE FORWARD CLOSURE CAN LEAD TO GAS LEAKAGE ON A SUBSEQUENT FLIGHT AND DAMAGE TO YOUR RMS MOTOR FORWARD CLOSURE AND ROCKET VEHICLE.

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

Chapter 6. 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 wet 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.

Chapter 7. Disposal

Damaged or defective reload kits should be returned to RCS.

Chapter 8. Safety

NOTE: 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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