DO NOT OPEN RELOAD KIT UNTIL READY TO USE.

PARTS:

RMS-24/60 MOTOR HARDWARE

<table>
<thead>
<tr>
<th>PARTS</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>24/60 aft closure</td>
<td>1</td>
</tr>
<tr>
<td>24/60 case</td>
<td>1</td>
</tr>
<tr>
<td>24/60 forward closure</td>
<td>1</td>
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RELOAD KIT (2-PACK)

<table>
<thead>
<tr>
<th>PARTS</th>
<th>QUANTITY</th>
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</thead>
<tbody>
<tr>
<td>Liner (13/16&quot; O.D. tube)</td>
<td>2</td>
</tr>
<tr>
<td>Propellant grain (long slotted part)</td>
<td>2</td>
</tr>
<tr>
<td>Delay grain (short solid part)</td>
<td>2</td>
</tr>
<tr>
<td>Delay spacer (9/16&quot; O.D. tube)</td>
<td>2</td>
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<tr>
<td>Delay spacer (5/8&quot; O.D. tube)</td>
<td>2</td>
</tr>
<tr>
<td>Delay o-ring (5/8&quot; O.D. X 3/32&quot; thick)</td>
<td>2</td>
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<tr>
<td>Forward insulator (black fiber washer)</td>
<td>2</td>
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<tr>
<td>Forward &amp; aft o-rings (13/16&quot; O.D. X 1/16&quot; thick)</td>
<td>4</td>
</tr>
<tr>
<td>Nozzle (black plastic part)</td>
<td>2</td>
</tr>
<tr>
<td>Copperhead™ igniter</td>
<td>2</td>
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<tr>
<td>Ejection charge container/nozzle cap</td>
<td>2</td>
</tr>
</tbody>
</table>

ITEMS NEEDED FOR USE:

- Super Lube™ or other grease
- Wet wipes or damp paper towels

Chapter 1. Forward Closure Assembly

1-1. Select one each of the reload parts and reclose the reload kit package securely to prevent loss of parts.

1-2. Apply a light coat of Super-Lube or other grease to the 3 o-rings and all threaded surfaces. This will facilitate assembly and prevents the threads from seizing.

1-3. Using your fingernail or a blunt object, remove the burr (rough raised edge) from both inside and outside ends of the delay insulator tube by pressing or scraping and rotating the tube at the same time.

1-4. Fig.-1: If supplied with the reload kit, press the delay spacer into one end of the delay insulator tube until FLUSH with one end of the tube.

1-5. Fig.-2: Press the delay element into the other end of the delay insulator tube until FLUSH with the other end of the tube.

1-6. Fig.-3: Place the greased 5/8" O.D. X 3/32" thick delay o-ring in the forward closure, seated against the forward end of the delay cavity.

1-7. Fig.-4: Insert the delay charge assembly into the delay cavity until it is seated against the delay o-ring. WARNING: FAILURE TO INSTALL THE DELAY ASSEMBLY EXACTLY AS SHOWN MAY RESULT IN FORWARD CLOSURE FAILURE, POSSIBLY DAMAGING YOUR MOTOR AND ROCKET!

Chapter 2. Case Assembly

2-1. Fig.-4: Insert the propellant grain into the liner.

2-2. Fig.-5: Insert the liner assembly into the motor case until it is recessed equally from both ends of the case. Hold the liner assembly in place with your fingers.

2-3. Fig.-6: Place the forward insulator (black fiber washer) into the motor case, seated against the liner assembly.

2-4. Fig.-7: Place the greased 13/16" O.D. X 1/16" thick forward o-ring against the forward insulator.

2-5. Fig.-8: Thread the forward closure into the same end of the motor case by hand until it stops against the case.

2-6. Fig.-9: Insert the nozzle into the open end of the motor case until the large diameter end is seated against the liner tube.

2-7. Fig.-10: Place the greased 13/16" O.D. X 1/16" thick aft o-ring into the groove between the nozzle and the case.

2-8. Fig.-11: Thread the aft closure into the motor by hand until it stops against the end of the case. The AeroTech RMS aft closure wrench, a rag or a paper towel may be used to get a better grip on the closure.

Chapter 3. Ejection Charge Installation

3-1. Fig.-11: Hold the ejection charge container/nozzle cap assembly with the nozzle cap (the wider plastic cap) pointing up. CAREFULLY remove the nozzle cap from the ejection charge container. Holding the motor in a vertical position with the FORWARD closure pointing down, snap the ejection charge container over the matching end of the FORWARD closure. WARNING: DO NOT LOOSEN THE FORWARD CLOSURE ONCE THE EJECTION CHARGE CONTAINER HAS BEEN SNAPED INTO POSITION. Loosening the forward closure may cause ejection charge material to leak under the delay o-ring and can lead to seal failure.

3-1. With the motor held in a NOZZLE DOWN position, gently shake the motor several times to settle the ejection charge into the cavity above the delay element. NOTE: If it becomes necessary to remove the AFT closure to replace the igniter due to misfire, hold the motor in a nozzle-up position and avoid moving the liner assembly in the case during the operation.
Chapter 4. Preparation for Flight

- **Fig.-12**: Insert the black coated end of the Copperhead igniter through the nozzle throat and into the slot in the propellant grain until it stops against the delay element.

- **Fig.-12**: Using scissors of a hobby knife, cut a corner off the closed end of the nozzle cap to create a vent hole about 1/16" wide. Push the nozzle cap over the nozzle to hold the igniter in place.

- **Fig.-12**: Install the RMS 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. If using a motor hook, be sure to hold the hook away from the motor during insertion into the motor tube to prevent the hook from scraping the motor casing. Position the hook tab into the slotted recess in the aft closure.

Chapter 5. Post-Recovery Cleanup

**NOTE**: Perform RMS motor cleanup as soon as possible after motor firing. Propellant and delay residues become difficult to remove 24 hours after motor firing. These residues can lead to corrosion of metal parts, DISPOSE OF SPENT MOTOR COMPONENTS PROPERLY.

- **5-1**: After the motor has cooled down, remove the forward and aft closures. Remove and discard the delay insulator and delay o-ring from the forward closure. Using wet wipes or damp paper towels, wipe the inside of the case to remove all propellant residue.

Chapter 6. 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 7. Disposal

Damaged or defective RMS reload kits should be returned to RCS.

Chapter 8. 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. Fahrenheit ignition 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**

**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 thereon 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.

**Chapter 3**

**NOTE**: Failure to review instructions and heed warnings prior to use of AeroTech/RCS RMS-24/60 reload kit may result in serious injury to the user and/or others. DO NOT OPEN RELOAD KIT UNTIL READY TO USE.