<table>
<thead>
<tr>
<th>Motor</th>
<th>Propellant</th>
<th>Total Impulse</th>
<th>Average Thrust</th>
<th>Loaded Motor Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>D13W</td>
<td>oz</td>
<td>gms</td>
<td>lb/sec</td>
<td>N/sec</td>
</tr>
<tr>
<td>D24T</td>
<td>oz</td>
<td>gms</td>
<td>lb/sec</td>
<td>N/sec</td>
</tr>
</tbody>
</table>

**WARNING**: FLAMMABLE: Read Instructions Before Use. KEEP OUT OF REACH OF CHILDREN. DO NOT SMOKE when loading these motors or use in the vicinity of open flames. FOR SAFE DISPOSAL READ INSTRUCTIONS.

REQUIRES 12 VOLT LAUNCH SYSTEM

**NOTICE**: As we can not 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.
RMS™ 18/20 Assembly and Operation Instructions

BEFORE YOU BEGIN:

- Study the illustrations and sequence of assembly. THE SEQUENCE OF ASSEMBLY IS EXTREMELY IMPORTANT. USE RMS™ MOTORS AND RELOAD KITS ONLY IN ACCORDANCE WITH ALL INSTRUCTIONS. Review the parts list and become familiar with all parts before assembly. IF ANY PARTS ARE MISSING OR DAMAGED, CONTACT RCS AT 1 (435) 865-7100 or email at: warranty@aerotech-rocketry.com.

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

- DO NOT MODIFY THE MOTOR IN ANY WAY. Modification of the motor or the reload kit parts could result in motor failure, lead to the destruction of both your rocket and motor and may cause personal injury, death and/or property damage. Modification of the motor or reload kit in any way will invalidate your motor warranty.

- USE ONLY AeroTech/RCS RMS™ RELOAD KITS AND MOTOR PARTS TO REFURBISH YOUR RMS™ MOTOR. The AeroTech/RCS reload kits have been designed specifically for use in your particular 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. 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 motor.

- DO NOT REUSE ANY OF THE DISPOSABLE PARTS OF THE RMS™ RELOAD KIT. This includes the liner, nozzle, o-rings. These components have been designed for one use only and must be discarded after firing. Reuse can result in motor failure during subsequent operation and invalidate your motor warranty.

Motors are hot after firing. Although the RMS™ operates at a lower temperature than most disposable motors, the higher thermal conductivity of the aluminum motor parts may make it seem otherwise. If necessary to handle a motor before it has cooled down, use a rag or similar article.

Read and follow the safety codes of the National Association of Rocketry (NAR) and the Tripoli Rocketry Association and comply with all federal, state and local laws in all activities with hobby rockets.

PARTS:

RMS-18/20 MOTOR

- 18mm Aft closure
- 18mm Case
- 18mm Forward closure
- Grease

RELOAD KIT (3-Pak)

- Liner (5/8” O.D. tube)
- 3
- Propellant grain (long slotted part)
- 3
- Delay Grain (short solid part)
- 3
- Delay spacer (9/16” O.D. washer, o-ring or tube)
- 0 or 3
- Aft O-ring (1/16” x 5/8” O.D.)
- 3
- Forward O-ring (3/32” x 5/8” O.D.)
- 3
- Nozzle (Black plastic part)
- 3
- COPPERHEAD™ igniter
- 3
- Ejection charge container/nozzle cap
- 3

ITEMS NEEDED FOR USE:

- Wet wipes or damp paper towels
- Hobby knife or scissors
- Propellant Grain (Protrudes About 1/32”)
- Liner Assembly
- 3/32” Greased Forward O-Ring
- Motor Case
- Delay Element (Flush to End)
- Liner Tube (Deburred)
- Delay Spacer (if provided)

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

2. Apply a light coat of grease to the forward O-ring and all threaded surfaces. This will facilitate assembly and prevent the threads from seizing. NOTE: When all the grease that comes with the motor has been consumed, use petroleum jelly or similar grease.

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

4. Fig-1: If supplied with the reload kit, press the delay spacer into one end of the liner tube until it is recessed into the liner tube at least 1/8”.

5. Fig-1: Press the delay element into the same end of the liner tube as the delay spacer until it is flush with the liner.

6. Fig-1: Insert the propellant grain into the other end of the liner tube until it stops. The propellant grain should protrude above the liner about 1/32”. WARNING: FAILURE TO INSTALL THE DELAY ELEMENT, DELAY SPACER AND PROPELLANT GRAIN CORRECTLY MAY RESULT IN THE EJECTION CHARGE FUNCTIONING AT THE TIME OF IGNITION OF THE MOTOR, POSSIBLY DAMAGING YOUR MOTOR AND ROCKET.

7. Fig-2: 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 finger.

8. Fig-2: Place the greaseed forward O-ring (3/32” thick) against the AFT END OF THE LINER ASSEMBLY.

9. Fig-3: Thread the forward (black) closure into the delay end of the motor case by hand until it stops against the end of the case.

10. Fig-4: Insert the black coated end of the COPPERHEAD igniter into the slot in the propellant grain until it stops against the delay element. NOTE: It is necessary to install the igniter at this time due to the small throat size of the nozzle.

11. Fig-5: Using the point of a pencil, remove any plastic “flashing” that may remain in the nozzle throat. Insert the nozzle into the open end of the case, with the igniter lead threaded through the nozzle throat, until the nozzle is seated against the liner.

12. Fig-6: Place the greaseed aft O-ring (1/16” thick) into the groove between the nozzle and case.

13. Fig-7: Thread the aft (gold) closure into the motor by hand until it stops against the end of the case. A rag or paper towel may be used to get a better grip on the closure.

14. Fig-8: Hold the ejection charge container/nozzle cap assembly with the nozzle cap (the long plastic cap) pointing up. CAREFULLY remove the nozzle cap from the ejection charge container. Holding the motor in a vertical position with the FORWARD (black) 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 will cause ejection charge to leak under the forward o-ring and may lead to seal failure.

15. 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 (gold) closure to replace the igniter due to a misfire, hold the motor in a nozzle-up position and avoid moving the liner assembly in the case during the operation.