READ THIS BEFORE YOU BEGIN:

1. Study the illustrations and sequence of assembly. The sequence of assembly is extremely important. Read all instructions carefully.

2. BEFORE USE, READ THE INSTRUCTIONS CAREFULLY AND IN ACCORDANCE WITH ALL INSTRUCTIONS. THIS INSTRUCTION MANUAL (RELOAD KIT) WILL COMBINE AND BECOME FAMILIAR WITH ALL PARTS BEFORE ASSEMBLY. IF ANY PARTS ARE MISSING OR DAMAGED, CONTACT AEROTECH™ AT THE NUMBER ABOVE FOR ASSISTANCE.

3. DO NOT MODIFY THE MOTOR IN ANY WAY. Modification of the motor, flight cylinder, or reload kit in any way will invalidate your warranty.

4. DO NOT USE ANY PARTS OF THE RMS/HYBRID™ SYSTEM THAT ARE DAMAGED IN ANY WAY, ESPECIALLY THE FLIGHT CYLINDER PIN. Contact AEROTECH™ if doubt, contact AEROTECH™ at the number above for assistance.

5. DO NOT CONVERT THE RMS/HYBRID™ SYSTEM INTO ANY OTHER USE—DO NOT USE ANY PARTS OF THE SYSTEM FOR ANY OTHER PURPOSE EXCEPT TO REFURBISH AN AEROTECH™ RMS/HYBRID™ MOTOR.

6. USE ONLY PETROLEUM-BASED OILS OR SOLVENTS IN THE FLIGHT CYLINDER, CYLINDER VALVE ASSEMBLY, CYLINDER FILLING ADAPTER, AND PITTENGLES OR OTHER DEVICES SURFACES OF THE RMS/HYBRID™ PYROVALVE™ FORWARD CLOSURE ASSEMBLY. Use only Krytox™ or other fully-flushed grease specifically designed for use in oxygen systems in these areas. Ordinary greases are susceptible to spontaneous ignition and/or explosion due to contact with pressurized nitrous oxide (N₂O). The only exception to this is that petroleum-based greases are acceptable for use in the N₂O preheater charge well of the RMS/Hybrid™ forward closure.

7. DO NOT ATTEMPT TO REMOVE THE PIN VALVE ASSEMBLY FROM THE PYROVALVE™/FORWARD CLOSURE ASSEMBLY, OR REMOVE THE PRESSURE RELIEF VALVE ON THE CYLINDER VALVE ASSEMBLY. Tampering with or removal of these parts is a serious condition, possibly resulting in serious injury or death.

8. DO NOT FILL THE CYLINDER BEYOND THE RATED CAPACITY OF THE N₂O SUPPLY BOTTLE. Overfilling the cylinder with N₂O gas can result in the cylinder or a leak and/or spontaneous ignition of the element when the forward closure is unscrewed. Cylinder failures can result in serious injury and/or property damage.

9. USE ONLY AEROTECH™ RMS/HYBRID™ RELOAD KIT WITH ANY OTHER RELOAD KIT AND ANY PARTS TO REPAIR OR REBUILD YOUR RMS/HYBRID™/HYBRID SYSTEM. The AeroTech™ parts list and become familiar with all parts before assembly. If any parts are missing or damaged, contact AEROTECH™ at the number above for assistance.

10. DO NOT REUSE ANY OF THE DISPOSABLE PARTS OF THE RMS/HYBRID™ RELOAD KIT. This includes the fuel grains, liner, nozzle and 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 will invalidate your warranty.

11. Motors are hot after firing. Although the reliable RMS/Hybrid™ motor operates at lower temperatures than its predecessors, the high thermal conductivity of the aluminum motor parts may make it seem “oxygen clean” to prevent ignition of contaminants. “Paintball” cylinder valves were not designed to be used as pressure-relieving components which have been shown to ignite in the presence of flowing liquid N₂O, and are not able to deliver sufficient quantities of N₂O into the combustion chamber to produce designed motor thrust levels.

SAVE THE RELOAD KIT PLASTIC BAG FOR THE USED O-RING AND ANY OTHER PARTS EXTRACTED FROM THE CHARGE WELL. Do not throw away the parts.
motor diameter
reload used
performance

NOTE:

5-1.

Chapter 5. Misfires

3-18.

Continue holding the motor vertically with the nozzle pointing up. Place the vented nose cone over the nozzle to secure the electric match to the motor.

3-16.

Carefully raise the motor to a nozzle-up orientation and slowly thread the forward closure assembly and propellant base into the motor case by hand until it is seated against the case. NOTE: Ensure that the electric match ignition assembly remains positioned against the Pyrovalve™ charge during this operation.

3-17.

Continue holding the motor vertically with the nozzle pointing up. Install the RMS/Hybrid™ motor in the rocket’s motor mount tube.

3-15.

With the motor case and the previously-completed RMS/Hybrid™ motor assembly attached to the motor and the propellant base, remove the igniter leads of the electric match ignition assembly and launch the rocket in the normal manner.

4-1.

CAUTION: Permanently attach the electric match to the motor. DO NOT OPEN the Pyrovalve™ back-up ring and Pyrovalve™ o-ring from the forward closure with the propellant base. Kneel filled nitrous oxide cylinders away from flames, sources of heat and flammable materials. RMS/Hybrid™ reload kit pyrotechnic components may become involved: direct flame and then will burn slowly. Use water to fight fires in which AeroTech™ RMS/Hybrid™ reload kit peroxyl 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 AeroTech™ RMS/Hybrid™ motors. The Pyrovalve™ pellet consists of chlorate and a rubber like plastic elastomer. The Pyrovalve™ pellet consists of black powder.

Chapter 7. First Aid

NOTE: AeroTech™ certifies that it has exercised reasonable care in the design and manufacture of its products. As we cannot control the storage and use of our products, once sold we cannot assume any responsibility for product storage, transportation or usage. AeroTech™ 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 use of our product. The buyer assumes all risks and liabilities therefrom and AeroTech™ accepts and uses AeroTech™ products on these conditions. No warranty either expressed or implied is made regarding AeroTech™ products, except for replacement or repair, at AeroTech™ discretion, 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 AeroTech™. Proof of purchase will be required. Note: Your state may provide additional rights not covered by this warranty.

Chapter 8. Disposal

Damaged or defective reload kits should be returned to AeroTech™. RMS/Hybrid™ motors do not include a delay or ejection charge. RMS/Hybrid™ motors must be used in conjunction with a timer, altimeter or radio actuated recovery system.

NOTE: AeroTech™ motors do not include a delay or ejection charge. AeroTech™ motors must be used in conjunction with a timer, altimeter or radio actuated recovery system. Notes: Total impulse shown is optimal maximum permissible nitrous oxide weight. Motor total impulse (in feet) may be obtained proportionally by adding mass minus oxidizer to the flight cylinder and using smaller N20 cylinders. Fuel grain weight includes N20 oxidizer and excess used as inoculation.