DO NOT OPEN RELOAD KIT UNTIL READY TO USE.

**PARTS:**

- **RMS™ HARDWARE**
  - 38mm enlarged aft closure
  - 38/720 case
  - 38mm std. or plugged forward closure
  - 38mm forward seal ring
  - O-ring grease

- **RELOAD KIT**
  - Nozzle (black plastic part)
  - Liner (1/3-8” O.D. black plastic tube)
  - Propellant grains
  - Alt o-ring (3/16” thick X 1-3/8” O.D.)
  - Forward o-ring (1/8” thick X 1-3/8” O.D.)
  - Fed seal ring o-ring (1/16” thick X 1-5/16” O.D.)
  - Alt insulator (1-3/8” O.D. fiber washer)
  - Ejection cap (adhesive paper disk)
  - FirstFire™ igniter
  - Ejection charge holder (clear plastic).
  - Nozzle cap (13/16” O.D. red plastic cap)
  - RMS-Plus™ delay element (short solid part)
  - Delay insulator (13/16” O.D. tube)
  - Delay o-ring (3/32” thick X 13/16” O.D.)
  - Alt delay spacer (short colored paper ring)
  - Forward delay spacer (13/16” O.D. neoprene washer)

**ITEMS NEEDED FOR USE:**

- Synco™ Super Lube™ or other grease
- Hobby knife
- Wet wipes or damp paper towels
- Disposable rubber gloves

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

### Chapter 2. Case Assembly

1. **Fig.-4:** Place the ejection charge container (FFFFG Black Powder) into the delay cavity, o-ring end first, until it is seated against the forward delay spacer. **NOTE:** If using a plunger, it must only be inserted into the delay cavity for a short distance to allow the ejection charge to fill the cavity. When using a plunger forward closure, open the forward delay spacer with grease prior to installing the delay charge assembly.

2. **Fig.-5:** Using a hobby knife or similar tool, gently remove the burr (rough, raised edge) from both inside ends of the forward delay spacer. Insert the smaller (o-ring) end of the forward delay spacer into one end of the liner tube until the seal ring flange is seated against the end of the liner.

3. **Fig.-6:** Install the propellant grains into the liner. **NOTE:** The use of disposable rubber gloves when handling Mojave Green propellant grains is strongly recommended. Only three grains are shown in all illustrations for clarity. RMS-38/720 motors use six (6) grains.

4. **Fig.-7:** 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.

5. **Fig.-8:** Place the forward forward (1/8” thick X 1-3/8” O.D.) o-ring into the forward (bulkhead) end of the case. **NOTE:** If using a plunger, it must only be inserted into the delay cavity for a short distance to allow the ejection charge to fill the cavity. When using a plunger forward closure, open the forward delay spacer with grease prior to installing the delay charge assembly.

6. **Fig.-9:** 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.

7. **Fig.-10:** Place the alt insulator (1-3/8” O.D. fiber washer) into the aft (nozzle) end of the motor case, seated against the liner assembly.

8. **Fig.-11:** 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.

9. **Fig.-12:** Push the larger end of the nozzle into the aft o-ring and against the alt insulator. **NOTE:** Your nozzle may look slightly different than that shown in illustrations. The nozzle will be a snug fit in the o-ring.

10. **Fig.-13:** 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. It is normal if the grain rattle slightly inside the liner after tightening.

### Chapter 3. Ejection Charge Installation

1. **Fig.-14:** Thoroughly clean the outside of the motor of any grease or other residue. Open the ejection charge container and dispense enough ejection charge (FFFFG Black Powder) into the ejection charge well of the forward closure to fill the well approximately 1/4 full. **NOTE:** For 4” and larger diameter rockets, fill the well completely.
Chapter 3. Ejection Charge Installation (Cont'd)

3-2. Fig.-15: Apply the ejection charge cap (adhesive paper disk) to the center of the end 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.-16: Using a hobby knife, cut a corner off the red nozzle cap (5/8" or 13/16" red plastic cap) to create a small (1/16"-1/8") vent hole. Set the nozzle cap igniter holder aside.

4-2. Fig.-16: Insert the coated end of the FirstFire™ or other igniter through the nozzle throat until it stops against the delay element or forward seal ring.

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 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, wipe the inside of the casing and the forward seal ring to remove all propellant residue. DO NOT discard the forward seal ring!

Chapter 6. First Aid

DANGER: DO NOT INGEST PROPELLANT OR BREATHE EXHAUST FUMES! WASH HANDS AFTER HANDLING MOJAVE GREEN PROPELLANT AND BEFORE EATING. For a minor burn, apply a burn ointment. For a severe burn, immerse the burned area in ice water all 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. Mojave Green composite propellant consists primarily of Ammonium Perchlorate, Barium Nitrate and a rubber-like plastic elastomer.

Chapter 7. Disposal

Damaged or defective 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 aerospace component from the side to prevent it from igniting. Do not use dry powder extinguishers.

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 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.