Assembly and Operation Instructions

READ THIS BEFORE YOU BEGIN:

• Study the illustrations and sequence of assembly. THE SEQUENCE OF ASSEMBLY IS EXTREMELY IMPORTANT. READ ALL INSTRUCTIONS BEFORE USE. USE KBA LOADED 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.

• DO NOT USE ANY PARTS OF THE KBA 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 KBA RELOAD KITS AND MOTOR PARTS TO REFURBISH YOUR KOSDON OR ANIMAL MOTOR. The KBA reload kits have been designed specifically for use in your particular Kosdon or Animal motor. Use of imitation components may destroy your motor, rocket and payload and will invalidate your motor warranty. Only use KBA reload kits intended for your specific Kosdon or Animal motor. DO NOT INTERCHANGE PARTS! Do not use KBA reload kits or motor components for any other purpose than to refurbish an Kosdon or Animal motor.

• DO NOT REUSE ANY OF THE DISPOSABLE PARTS OF THE KBA RELOAD KIT. This includes the liner 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 motor warranty.

• Motors are hot after firing. Although the KBA motor 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.

Chapter 1. Forward Bulkhead Assembly

1-1. Apply a light coat of Syncro™ Super Lube™ or other grease to all five (5) o-rings. This will facilitate assembly and promotes proper sealing of the o-rings.

1-2. Fig.-1 & 2: Chamfer both inner edges of the forward delay adapter with your fingernail. Assemble the delay element, forward delay adapter and three (3) delay o-rings as shown.

1-3. Fig.-3: Apply a light film of grease to the inner circumference of the delay cavity (but not the forward end of the cavity).

1-4. Fig.-4: Insert the completed delay assembly shown in Fig.-2 into the forward bulkhead delay cavity, forward delay adapter end first, until it is seated against the forward end of the cavity.

1-5. Fig.-5: Install a greased 1-1/4” O.D. X 3/32” o-ring in the outside groove in the forward bulkhead.

Chapter 2. Case Assembly

2-1. Fig.-4: Place the greased nozzle o-ring (1-1/4” O.D. X 3/32”) into the groove in the graphite nozzle.

2-2. Fig.-4: Put grease on your index finger and wipe a film of grease on the I.D. of both ends of the case. Using a twisting motion, install the nozzle into the end of the case that has the external snap ring groove (if applicable). Note from the drawing the proper orientation of the nozzle.

2-3. Fig.-5: Install the steel nozzle washer in the case, seated against the graphite nozzle.

2-4. Fig.-6: Using the snap ring pliers, install a 38mm snap ring into the internal groove on the nozzle end of the case. To prevent eye injury if a snap ring slips out of the pliers, wear eye protection and hold the motor casing at a right angle to yourself.

2-5. Fig.-6: Install the propellant grains into the liner until they are equally spaced from both ends of the liner. NOTE: The use of disposable rubber gloves when handling Mojave Green propellant grains is strongly recommended.

2-6. Fig.-7: Install the liner assembly into the open end of the case until the aft end of the liner is seated in the nozzle step and the propellant grains are seated against the nozzle. NOTE: A liberal coat of grease on the outside of the liner will facilitate installation and casing cleanup after firing.

2-7. Fig.-8: Using a twisting motion, install the previously assembled forward bulkhead assembly into the forward end of the motor case until it is seated against the liner. Note from the drawing the proper orientation of the forward bulkhead.

2-8. Fig.-9: Using the snap ring pliers, install a 38mm snap ring into the internal groove on the bulkhead end of the case. To prevent eye injury if a snap ring slips out of the pliers, wear eye protection and hold the motor casing at a right angle to yourself. NOTE: It is normal if the grains rattle slightly inside the liner.

Chapter 3. Ejection Charge Installation (I301W and I550R Reloads Only)

3-1. Fig.-9: NOTE: The following steps apply to I301W and I550R reloads only. The J740G reload is sold in a plugged version only and may not be used with an ejection charge. Dispense enough FFFFG black powder into the ejection well of the forward bulkhead to reliably activate the recovery system in the rocket that the motor is going to be installed in. Seal the open end of the cavity with paper wadding or masking tape.

3-2. Fig.-9: 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.

SAVE THE RELOAD KIT PLASTIC BAG FOR THE USED RELOAD PARTS. DISPOSE OF BAG AND PARTS PROPERLY.
4-1. 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.

4-2. Fig. 10: Insert the coated end of a FirstFire™ or other igniter through the nozzle throat until it stops against the delay element.

4-3. Prepare the rocket's recovery system and then launch the rocket in accordance with the kit manufacturer's instructions, the TriPod Rocketry Association (TPRA) Safety Code and National Fire Protection Association (NFPA) Code 1127.

Chapter 5: Mistfires
If a misfire occurs and a loaded KBA motor does not ignite for any reason within five seconds of pressing the launch button, release the launch button and remove the safety key from the electrical launch controller. WAIT ONE MINUTE before approaching or allowing anyone else to approach the rocket. Keep your fingers and hands out from underneath the rocket and away from the possible path of the exhaust jet. Do not place any part of your body over the launch pad. Disconnect the igniter clips from the electrical igniter. Carefully remove the igniter from the motor, and install a new igniter and repeat the launching process.

Chapter 6: 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.

6-1. After the motor has cooled down, remove the snap rings and the aft steel washer from the case.

6-2. Grasp the exposed end of the forward bulkhead and remove the bulkhead using a twisting and pulling motion.

6-3. Using a wooden dowel or similar instrument inserted into the forward bulkhead end of the case, gently push the nozzle and liner out of the casing. Discard the liner.

6-4. Remove the delay o-rings and forward delay adapter from the forward bulkhead and discard. Remove and discard the nozzle o-ring and the forward bulkhead o-ring. Using wet wipes or damp paper towels, wipe the inside of the casing, nozzle and forward bulkhead to remove all propellant, delay and ejection charge residue. WARNING: FAILURE TO COMPLETELY REMOVE DELAY RESIDUE FROM THE INSIDE OF THE FORWARD CLOSURE CAN LEAD TO GAS LEAKAGE.

Chapter 7: First Aid

DANGERS: DO NOT INGEST PROPPELLANT OR BREATHE EXHAUST FUMES! WASH HANDS AFTER HANDLING MOJAVE GREEN PROPPELLANT AND BEFORE EATING. 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 soon as possible.

Chapter 8: Disposal
Damaged or defective reload kits should be returned to RCS.

Chapter 9: Fire Safety

NOTE: This reload kit is sold in the above delay configuration only for use in Kosdon/Animal 38mm High-Power motors.

Tests show that the pyrotechnic components of KBA reload kits will not explode in fires and normally will not ignite unless subjected to direct flame and then will burn slowly. Water to fight any fires in which KBA reload kit pyrotechnic components may become involved: Direct the water at the KBA reload kit pyrotechnic components to keep them below their autoignition temperature. Foam and carbon dioxide fire extinguishers will not extinguish burning propellants of the type used in KBA reload kit pyrotechnic components. Keep reload kit pyrotechnic components away from flames, sources of heat and flammable materials.

Disclaimer and Warranty

NOTICE: 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 and/or Kosdon Enterprises shall not be held responsible for any personal injury or property damage resulting from the handling, storage or usage of our product. The buyer assumes all risks and liabilities therefrom and accepts and uses KBA/RCS products on these conditions. No warranty either expressed or implied is made regarding KBA/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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