Before You Begin

• Do not modify the motor in any way.
• If any parts are missing or damaged, call AeroTech at 435-865-7100.
• Use only AeroTech RMS reload kits to refurbish an RMS motor.
• Do not interchange parts from different reload kits.
• Do not reuse any parts of the RMS reload kit.
• Save the reload kit plastic bag for the used reload kit parts. Dispose of bag and parts properly.

Hardware and Supplies Required

RMS 29/40-120 motor
Synco™ Super Lube™ or other grease
1/4" drill bit or AeroTech RMS-Plus Delay Drill Tool
Wet wipes or damp paper towels

Preparation for Flight

1. Insert the coated end of a FirstFire™ initiator through the nozzle throat until it stops against the delay charge grain.

2. Secure the initiator to the nozzle with a piece of masking tape.

3. 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 during recovery system deployment.

4. 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.

Post-Recovery Cleanup

NOTE: Perform motor clean-up as soon as possible after motor firing. Propellant and delay charge 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.

1. After the motor has cooled down, unthread and remove the forward and aft closures.

2. Remove the delay charge assembly components from the forward closure and discard. Using wet wipes or damp paper towels, remove all delay charge and propellant residue from the closures.

3. Remove and discard the forward and aft o-rings from the motor case. Remove the liner, forward insulator and nozzle from the casing by pushing on the nozzle end and discard. Using wet wipes or damp paper towels, wipe the inside of the casing to remove all propellant residue.

4. Apply a light coat of grease to all threads and the inside of the motor case. Reassemble metal parts and store motor in a dry place.

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. Metalstorm composite propellant consists primarily of Ammonium Perchlorate and a rubber-like plastic elastomer.

Disposal

Damaged or defective reload kits should be returned to RCS.

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 RMS™ reload kit pyrotechnic components may become involved: Direct the water at the AeroTech RMS™ reload kit pyrotechnic 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 RMS™ 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 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.

AeroTech Division
RCS Rocket Motor Components, Inc.
Cedar City, UT 84721
www.aerotech-rocketry.com

P/N 20036 Rev. 8/11/10
Made in U.S.A.

HIGH-POWER RMS™
Reloadable Motor System™

HP-G138T-14A Rocket Motor Reload Kit
For RMS-29/40-120 Motor Hardware
Blue Thunder™ Composite Propellant

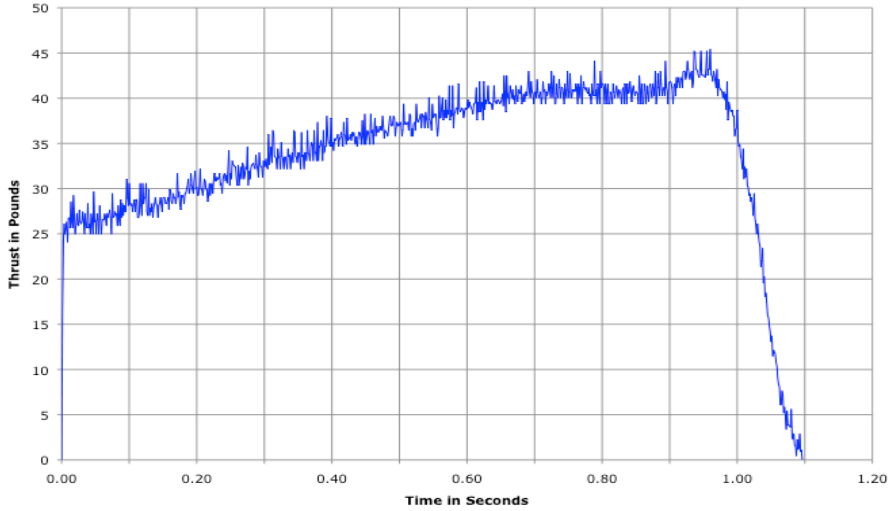
To adjust time delay, drill delay 0.032" per second of adjustment using 1/4" diameter twist drill or optional AeroTech RMS-Plus Delay Drill Tool. Drilled end faces propellant.

Do not open reload kit until ready to use.

WARNING-FLAMMABLE: Read Instructions Before Use. Use RMS reload kits only in accordance with instructions. Sale to persons under 18 years of age prohibited by federal law. For use only by certified users 18 years of age or older. Ignite by electrical means only. Do not smoke when loading RMS motors or use in the vicinity of open flames. **CAUTION:** Keep out of reach of children. Follow NAR & TRA safety codes at all times. Motor hot after firing.

Certified by the National Association of Rocketry • Made in U.S.A. • www.aerotech-rocketry.com
AeroTech Division, RCS Rocket Motor Components, Inc., 2113 W. 850 N. St., Cedar City, UT 84721

HP-G138T-14A Typical Time-Thrust Curve



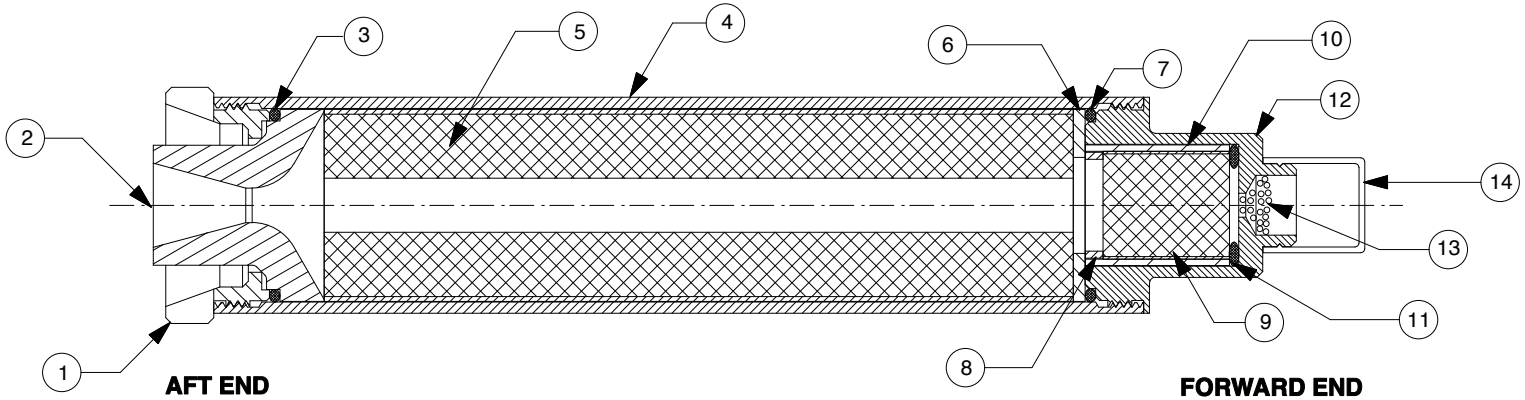
Motor Specifications

Total Impulse:	157 N-sec	Burn Time:	1.1 seconds
Propellant Wt.:	70.4 grams	Peak Thrust:	43 pounds
Loaded Wt.:	152 grams	Delay Time:	14 seconds
Motor Diameter:	29mm	Motor Length:	4.875"

HP-G138T-14A Assembly Drawing and Instructions

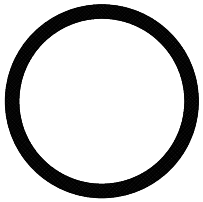
QTY	PART NUMBER	DESCRIPTION	ITEM
1	00020	FORWARD O-RING (1" O.D. X 1/16") 020	7
1	05402	FWD INSULATOR (1" O.D. X .5" I.D. X 1/16")	6
1	03545-2	PROP. (1.000" O.D. X .950" I.D X 3.902", NEW BLUE)	5
1	910813A	CASE	4
1	00020	AFT O-RING (1" O.D. X 1/16") 020	3
1	01500	NOZZLE (THROAT .180" UNDRILLED)	2
1	910811C	AFT CLOSURE	1

QTY	PART NUMBER	DESCRIPTION	ITEM
1	04716	EJECTION CHARGE CAP (7/16" I.D.)	14
1	03700	EJECTION CHARGE (.7 GRAMS)	13
1	91292	FORWARD CLOSURE	12
1	00111	DELAY O-RING (5/8" O.D. X 3/32") 111	11
1	03072	DELAY INSULATOR (.629" O.D. X .75")	10
1	03214	DELAY GRAIN (.562" O.D. X .657")	9
1	03050	DELAY SPACER (.553" O.D. X .093") BLACK	8

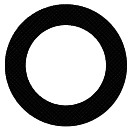


Assembly Instructions (numbers refer to item numbers on drawing)**:**

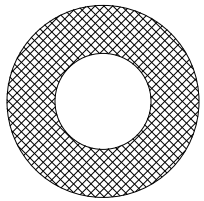
1. Lightly grease o-rings (3, 7, & 11) and apply a liberal amount of grease to case threads (4) and forward (12) and aft (1) closure threads.
2. Insert delay o-ring (11) into delay cavity of forward closure (12).
3. If desired, drill delay (9) with 1/4" drill bit, 1/32" deep for each second removed from time delay. The AeroTech Delay Drilling Adapter (DDA) can be used for this step.
4. Assemble delay grain (9), delay spacer (8), and delay insulator (10) as shown.
5. Install step 4 delay grain assembly into forward closure (12) until seated against delay o-ring (11). Delay spacer (8) and drilled end of delay (9), if applicable, **MUST** face **away** from delay o-ring and **toward** propellant grain.
6. Apply a liberal amount of grease to the outside surface of the propellant grain (5) and insert grain into case (4) until equally spaced from both ends of case.
7. Install forward insulator (6) into forward end of case (4) until seated against propellant grain (5).
8. Install forward o-ring (7) into forward end of case (4) against the forward insulator (6).
9. Thread forward closure (12) into the forward end of the case (4) with the forward o-ring (7) until seated.
10. Assemble nozzle (2), aft o-ring (3), and aft closure (1) into nozzle (aft) end of case (4) until seated. Ensure that o-ring is completely seated into nozzle groove.
11. Carefully open red ejection charge container and snap smaller cap (14) with ejection charge over the ejection charge receptacle on the end of the forward closure (12).



Forward & Aft O-rings
1" x 1/16" 020



Delay O-ring
5/8" x 3/32" 111



Forward Insulator