

WCH Hybrid Motor Assembly/Firing Checklist

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Step 0: Parts Selection and Inspection

- Select Correct Nozzle, Injector, Casing, and Grain for Impulse
- Check Parts for Damage

Step 1: Case Assembly

- Install Snap Ring into Case
Tool: Snap-ring Pliers

Step 2: Remote Vent Assembly

- Install Remote Vent into Enclosure
Tool: Wrench (Size)
Material; Lubricant
- Install O-rings onto Forward Enclosure
Material; Lubricant
- Install Forward Enclosure Into Case
Tool: Enclosure/Piston Ram

Step 3 Piston Assembly

- Install O-rings onto Piston
Material; Lubricant
- Select correct Injector for Impulse
- Install Injector and supply tube into Piston
Tool: Wrench (7/16)
Material; Lubricant
- Apply Lubricant to Initiator Charge Pocket
Material; Lubricant

Step 3a: Initiator Charge

- Prepare Initiator Charge
 - o Tools: Micro Centrifuge
 - o Material: FFG Black Powder
Inhibitor Fluid,
Inhibitor Cap,
Disposable paper, (Coffee Filter??)
Water to neutralize leftover FFG.
Two Cups, one with water, one empty to hold the coffee filter.

Step 4 Nozzle Assembly

- Install O-rings onto Nozzle
 - o Material; Lubricant

Step 5: Final Assembly

- Apply Lubricant to 1" of interior aft casing
 - o Material: Lubricant
- Insert Piston Assembly into casing
- Insert Grain into casing (tapered end first)
- Insert Nozzle into casing (Diverging end out)
- Install nozzle Retainer

Step 6 RSO Inspection

- Failsafe Electronics

- Deliver Missile for Inspection

Step 7 Igniter Installation and GSE hookup

- Relocate to Launch pad
- Shunt Igniter
- Install Igniter
- Verify Launch controller is disarmed (Click contacts)
- Attach Igniter to Launch controller
- Attach Fill tube to GSE
- Arm recovery Electronics

Step 7a GSE Inspection

- Verify NOX pressure below 950 psi.
- Place NOX in ICE if above 950 psi, Do not continue until NOX pressure is below 950 psi
 - o Tools:
 - Ice Chest in very Hot Weather

Step 7b Launch Sequence

- Verify Igniter continuity
- Indicate readiness to LCO
- Obtain LCO Clearance to Fill NOX
- Verify Launch Area Clear
- Activate NOX Solenoid and fill tank 5-15 seconds
- Verify NOX Venting (Use Binoculars; if negative proceed to step 8)
- Signal LCO for countdown
- Launch Missile according to countdown
- If successful, proceed to Step 9
- If Misfired, Proceed to Step 8
 - o Tools: Binoculars

Step 8: Misfire Recycle:

- Disarm launch control
- Vent all NOX
- Allow parts to resume ambient temperature
- Safe Recovery Electronics
- Disconnect all GSE and Launch control
- Remove Igniter, If only igniter is spent or damaged, recycle by returning to step 7
- If initiator charge is damaged or burned, return to step 0

Step 9 Post Launch Routine

- Allow all parts to resume ambient temperature
- Remove Snap Ring (C-Clip)
 - o Tools: Snap Ring Pliers
- Remove Nozzle Retainer
- Push out internal components
 - o Tools: Enclosure/Piston Ram
- Remove and discard O-Rings
- Clean Components
 - o Tools: Bottle Brush
 - o Supplies:
 - Baby Wipes
 - Simple Green

Complete

