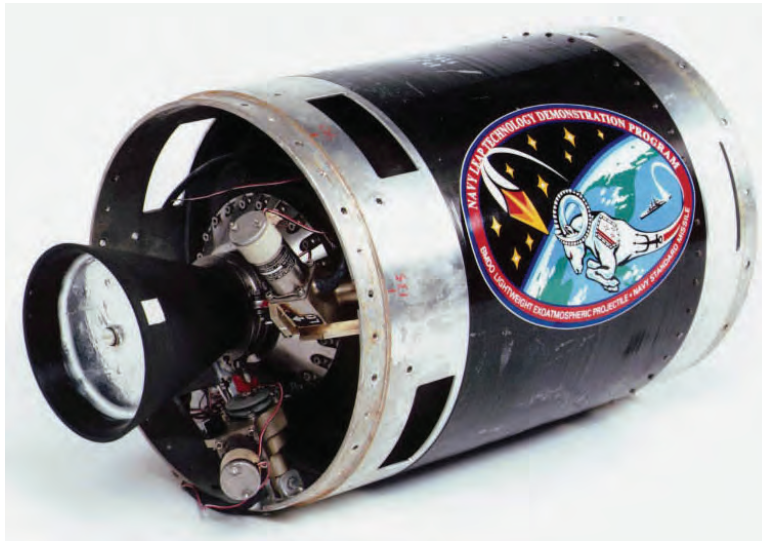
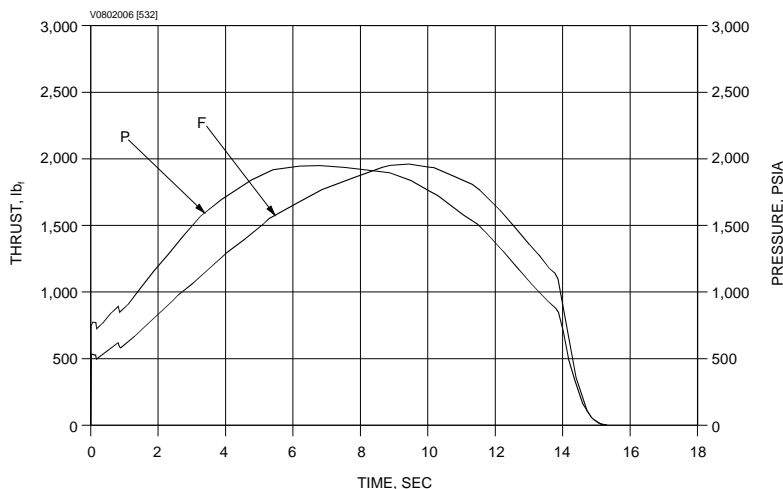


# STAR 12GV

# TE-M-951



The STAR 12GV rocket motor served as the third stage of the U.S. Navy/MDA Terrier Lightweight Exoatmospheric Projectile (LEAP) experiments. The motor first flew in March 1995. The stage has TVC capability, head-end flight destruct ordnance, and utilizes a graphite-epoxy composite case. It is compatible with an aft-end attitude control system (ACS) module. Orbital ATK developed the motor design and component technology between 1992 and 1995 under the Advanced Solid Axial Stage (ASAS) program.



## MOTOR DIMENSIONS

|                         |       |
|-------------------------|-------|
| Motor diameter, in..... | 12.24 |
| Motor length, in.....   | 22.5  |

## MOTOR PERFORMANCE (70°F VACUUM)

|   |           |
|---|-----------|
| Burn time/action time, sec.....               | 13.9/14.8 |
| Ignition delay time, sec.....                 | 0.02      |
| Burn time average chamber pressure, psia..... | 1,550     |
| Maximum chamber pressure, psia.....           | 1,950     |
| Total impulse, lbf-sec.....                   | 20,669    |
| Propellant specific impulse, lbf-sec/lbm..... | 284.7     |
| Effective specific impulse, lbf-sec/lbm.....  | 282.4     |
| Burn time average thrust, lbf.....            | 1,455     |
| Maximum thrust, lbf.....                      | 1,980     |

## NOZZLE

|                                  |         |
|----------------------------------|---------|
| Initial throat diameter, in..... | 0.691   |
| Exit diameter, in.....           | 5.26    |
| Expansion ratio, initial.....    | 58:1    |
| TVC angle, deg.....              | ± 5 deg |

## WEIGHTS\*, LBM

|                               |      |
|-------------------------------|------|
| Total loaded.....             | 92.5 |
| Propellant.....               | 72.6 |
| Case assembly.....            | 14.3 |
| Nozzle assembly.....          | 4.5  |
| Total inert.....              | 19.8 |
| Burnout.....                  | 19.2 |
| Propellant mass fraction..... | 0.79 |

## TEMPERATURE LIMITS

|                |          |
|----------------|----------|
| Operation..... | 40°-95°F |
| Storage.....   | 0°-130°F |

## PROPELLANT DESIGNATION

.....TP-H-3340A

## CASE MATERIAL

.....GRAPHITE-EPOXY COMPOSITE

## PRODUCTION STATUS

.....FLIGHT-PROVEN

\*Includes actuators and cables only. Battery and controller weights and ACS are not included

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