

TEGA Landed Checkout I

Objectives:

This procedure checks that the instrument is still in good operational condition post landing. It will also get a background measurement at the end. Use to check if TA has developed any shorts.

Sol 96 – Running to check EGA Channel 3 health and see if we can get a TA manifold pressure post Carrier valve leaking. Changed the last Sweep 38 to run at 3500V and modified the TA manifold heater to 65C from 20C.

Block Name: tega_checkout.vml

Version #: R31

Configuration: Landed Operations:

Assumptions: TEGA can not be turned on below -50C

Gas(es) used: Calibration and Carrier Gas Tanks still sealed. Manifold will be pressurized with Mars ATM during valve checkout.

Filaments used: 1

SW Version (386): V513

SW Version (EGA): V321

Sweep and hop mode version(s): V123

Super modes and Sweep modes used: SM 1 & SM 2, Sweep Modes 37 & 38

Sequences used: 1B (& 2B), 3B (& 4B), 1A, 32A(&33A), 34A(&35A)

DECLARE INPUTS:

MV 3500 – During the Sweep 38

- 1) Turn TEGA ON (tega_power_on)
 - a) Add preheat pause as pass in duration determined by thermal environment
- 2) Turn EGA ON, restoring modes from EEPROM 0 (calls tega_ega_on, Restore modes Side 0)
 - a) EGA Transmit time 5 sec. (done within tega_ega_on)
 - b) Run Sweep Mode 37 dark. (done within tega_ega_on)
- 3) Change model power to Ramp1 for Cal Tank and Manifold Heater

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- 4) Start Calibration Heater regulation at 20C
- 5) Start TA Manifold Heater regulation at 65C
- 6) Call tega_ega_prep (Filament 1)
 - a) Jplate 0 = -107V, Jplate 1= -92V
 - b) Filament current low current, low energy (1,0,3)
 - c) MV ON @ 3300 MV (This is now an input variable that is defined with each run)
 - d) Start SM 1
 - e) Ion Pump ON
 - f) Pause 2 minutes
 - g) Stop SM 1
- 7) ~~Stop Manifold Heater regulation (~ 3 seconds has elapsed)~~ Move to step 12 – see note. Try to get close to 20 minutes of data at the correct calibrated temperature.
- 8) Call tega_ega_calibration_scans, Calibration Set MV 3300 (input variable)
 - a) MV @ TBDV (input variable)
- 9) Turn Calibration Heater regulation OFF (~ 4 minutes have elapsed)
- 10) Call tega_ega_gain
 - a) Start SM 2
 - b) Pause 1 minute
 - c) Set MV 2600 – 3400V (1 minute per voltage)
 - d) Remain at TBD – 3300V (input variable)
 - e) Stop SM 2
 - f) Run Sweep 38

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11) Start SM 2

12) Move Turn OFF TA Manifold heater to HERE

13) HEATER TEST

- a) Plumbing 1 – ON Wait 5 secs
- b) Plumbing 1 – OFF
- c) Plumbing 2 – ON Wait 5 secs
- d) Plumbing 2 – OFF
- e) EGA Manifold – ON Wait 5 secs
- f) EGA Manifold – OFF
- g) EGA Plumbing – ON Wait 5 secs
- h) EGA Plumbing – OFF
- i) EGA Warmup – ON Wait 5 secs
- j) EGA Warmup - OFF
- k) Transfer Tube – ON Wait 5 secs
- l) Transfer Tube – OFF
- m) Wedge Heater – ON Wait 5 secs
- n) Wedge Heater – OFF

14) Call tega_select_oven

15) Setup for TA test

- a) Turn on engineering readings for TA test
- b) open door time to 10 sec
- c) close oven time to 10 sec
- d) LED min diff to -1

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- e) Poke registers to setup oven, shield, and t-heater
- f) Change power model to Ramp2

16) Select Oven 0

- a) Open Door – 10 secs (This has a 30 sec timeout for GV_TEGA_TA_DONE)
- b) Open inlet – wait 5 sec
- c) Close inlet –
- d) Open Outlet – wait 5 sec
- e) Close Outlet –
- f) Start Oven fill – Shake for 15 secs (verifies LED operational)
 - i) Will not shake/LED Diff Parameters set to prevent
- g) Close Oven – 10 secs (This has a 30 sec timeout for GV_TEGA_TA_DONE)
- h) Poke registers for oven, shield, t-heater (allow enough time to get a linear temperature rise)
- i) Turn off power to oven, shield, t-heater for one minute.

17) Repeat 23a-23i through Oven 7 (skip TA4 due to short)

18) Bypass OPEN – Wait 5 secs

19) Bypass CLOSED –

- a) Issue FPGA Register Dump

20) Multiplier Voltage to 3500V (input variable)

21) Pause 1 minute

22) Stop SM 2

23) Run Sweep 38 and wait for it to finish

24) EGA OFF

25) TEGA OFF

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