

TEGA Low-Emission Atmosphere Run

Reconciled with block: tega_atmos_r33 s109

Objectives: The purpose of this block is to open the carrier valve, test regulating carrier using the inlet valve, and measure the composition of the carrier gas

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Configuration: Instrument is in its normal configuration.

Constraints: Mode table V123 must have been successfully loaded

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Gas(es) used: carrier

Filaments used: 1, Low Emission

SW Version (386): V513

SW Version (EGA): V321

Sweep and hop mode version(s): MODE TABLE V123.

Super modes and Sweep modes used: Supermodes 1, 2, 3, 6; sweeps 37, 38

Inputs:

Filament: 1

High_current: 0

Calibration_set: 3

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Channels: 0x9

Mult_volt: 3300

Four_volt: 2800

Pump_nudge: 0

Note: TEGA is checked to see if TEGA is safed. If so, abort self to end activity

1. Turn ON TEGA – Call TEGA_power_on

1.1.1. TEGA_MAIN1_PWR "ON"

1.1.2. TEGA_MAIN2_PWR "ON"

1.1.3. TEGA_MAIN3_PWR "ON"

1.1.4. Start the TEGA 386 FSW

Deleted: <#>Execute sequence 30A to turn down the data volume¶

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2. Preheat for as long as possible (30 seconds minimum)

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Execute sequence 37A to get engineering back to startup defaults

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Deleted: Pause 30 seconds¶

3. Turn on EGA

3.1.1. TEGA/FSW:EGA:Change EGA State

3.1.2. Restore the modes from EEPROM 0

3.1.3. EGA Commands:Restore Mode

3.1.4. Run mode 37

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4. OPEN GEC Vent Valve

5. Warm up EGA: CALL tega_ega_emission_warmup (filament 1, calibration_set, high_current, mult_volt, four_volt, channels) 6 inputs

5.1.1. Note: IF pass through was selected as HIGH, calibration set cannot equal 3

5.2. Calls tega_ega_prep, filament-1

- 5.2.1.1. Sets JPlate 0 to -107V
- 5.2.1.2. Sets Jplate 1 to -92V
- 5.2.1.3. Start SM 1 pause 1 sec
- 5.2.1.4. Set MV 3300V Pause 1 sec
- 5.2.1.5. Ion Pump ON
- 5.2.1.6. ause 1 second
- 5.2.1.7. Emission ON
- 5.2.1.8. Pause 2 Minutes
- 5.2.1.9. Stop SM 1

5.3. If high current = 1, emission current will change to HIGH

5.4. Change engineering transmit time to 10 seconds

5.5. Call ega_calibration_scans (Set =3, exit = 3300V) inputs calibration_set, high_emission, channels, scan_voltage, chan_four_voltage, exit_voltage

5.6. Start SM 3

5.7. Pause 20 minutes

5.8. Stop SM 3

5.9. Pause 1 minute

5.10. Calls tega_ega_gain

- 5.10.1.1.1. Start SM 2
- 5.10.1.1.2. Pause 1 minute
- 5.10.1.1.3. Set MV 2600 – 3400V (1 minute per voltage)
- 5.10.1.1.4. Remain at 3300V
- 5.10.1.1.5. Stop SM 2
- 5.10.1.1.6. Run Sweep 38

EGA is warmed up and ready to go (54 mins)

(no pump nudge)

Measure residuals and get set up

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¶
<#>Run Heater Init
(tega_init_heater_controls)¶
¶
Execute Sequence 24 B to increase
readings on temperature regulation.¶
<#>TA Manifold +65C¶
<#>Plumbing 1 +65C¶
<#>Plumbing 2 +35C¶
<#>Transfer Tube +75C¶
<#>EGA Plumbing +45C¶
<#>EGA manifold to +35 C¶
<#>Wedge Heater @ 10% duty cycle¶
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6. Change TA manifold and Outlet Pressure to timer1

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7. Change bus A and bus B current to timer 1

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8. Execute Sequence 24 B to increase readings on temperature regulation.

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9. Regulate TA manifold to +65C

10. Regulate EGA manifold to +35C

11. Calibrate EGA: CALL tega_ega_calibration_scans (set = 3, exit=3300 V)) inputs
calibration_set, high_emission, channels, scan_voltage, chan_four_voltage, exit_voltage

12. Start Supermode 6

13. Select oven for gas flow – TA0 (defaults to oven 0)

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Briefly measure atmosphere on TA inlet

14. Open TA Sample valve (to measure atmosphere)

15. Pause 15 minutes

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¶
<#>Change TA_manifold and Outlet
Pressure to timer1¶
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<#>¶

Regulate whatever is in the manifold through TA 0

16. Loop 15 times (should be 5 minutes total)

16.1. open inlet valve

16.2. pause 5 seconds

16.3. close inlet valve

16.4. pause 15 seconds

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17. Close TA sample valve

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18. Open Outlet valve

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Open the carrier valve

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19. Set valve pulse time to 4 mS

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20. Loop 200 times (should take 17 minutes)

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manifold and analyze it¶
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Deleted: <#>Close bypass valve¶