GARMIN GTS 825 TRAFFIC ADVISORY SYSTEM - ADJUSTMENT/TEST

1. **General**

   A. This section gives the GTS 825 configuration, adjustment and test procedures for the Garmin GTS 825 Traffic Advisory System. For a general overview of the Garmin GTS 825 Traffic Advisory System refer to Garmin GTS 825 Traffic Advisory System - Description and Operation.

      (1) If a new GTS 825 was installed you must do the GTS 825 configuration. Refer to GTS 825 TAS Configuration.

      (2) If the configuration procedures that follow are not done after loading the GTS 825 installation option, reloading the G1000 baseline software or after options, prepare for the configuration load. Refer to Prepare for the TAS 825 configuration load.

2. **GTS 825 TAS Configuration**

   A. Prepare for the G1000 option software/configuration load.

   NOTE: **For FMS knob operation: Turn the outer knob to select fields and move between page groups. Use the inner knob to change characters and move between pages. Push the knob to activate cursor.**

      (1) Put the EXTERNAL POWER switch to the OFF position.

      (2) Put the BATTERY switch to the OFF position.

      (3) Put the AVIONICS switches to the OFF position.

      (4) Remove the SD database cards from the lower slots from each of the two primary flight displays (PFD)'s and the multifunction display (MFD).

         (a) For each SD card, record the GDU position from which it was removed.

      (5) Disengage the PFD1 and MFD circuit breakers on the Avionics circuit breaker panel.

      (6) Connect external electrical power to the airplane.

      (7) Put the EXTERNAL POWER switch to the BUS position.

      (8) Put the BATTERY switch to the ON position.

      (9) Put the AVIONICS switches to the ON position.

      (10) Push and hold the ENT button down on the PFD 2 while the G1000 powering on.

         (a) Release the ENT button when initializing system shows on the PFD.

      (11) Push and hold the number ENT button down on the MFD while you engage the MFD circuit breaker.

         (a) Release when INITIALIZING SYSTEM shows on the MFD.

      (12) Insert the SD loader card in the top slot of the PFD 1.

      (13) Push and hold the ENT button down on the PFD 1 while you engage the PFD1 circuit breaker.

         (a) Release the button when INITIALIZING SYSTEM shows on the PFD.

         (b) Select NO to update system files.

   B. Do the GTS 825 TAS Configuration (Refer to Figure 501).

   NOTE: **For FMS knob operation: Turn the outer knob to select fields and move between page groups. Use the inner knob to change characters and move between pages. Push the knob to activate cursor.**

      (1) If the configuration procedures that follow are not done after loading baseline software or other options, do the prepare for the configuration load. Refer to Prepare for the TAS 825 configuration load.

      (1) Use the FMS knobs on the PFD1 to navigate to the SYSTEM GROUP pages then to the AIRCRAFT CONFIGURATION page.

      (2) Push the SET GTS softkey and then select OK.

         (a) Make sure that the box next to GTS now has a check (green).

      (3) Use the FMS knobs on the PFD1 to navigate to the SYSTEM UPLOAD page.

         (a) Push the UPDT CFG softkey.

         (b) Push the ENT button.

      (4) Put the EXTERNAL POWER switch to the OFF position.

      (5) Put the BATTERY switch to the OFF position.

(6)   Put the AVIONICS switches to the OFF position.

(7)   If there are more options to load return to the applicable page and select the options to load.

(8)   If no more options are to be loaded, remove the G1000 SD loader card from PFD1.

  NOTE: Keep the G1000 SD loader card with the Pilot's Operating Handbook.

(9)   Insert each database card in the GDU it was removed from.

(10) Put the EXTERNAL POWER switch to the BUS position.

(11) Put the BATTERY switch to the ON position.

(12) Put the AVIONICS switches to the ON position.

(13) Option load is complete.

3.   **Garmin GTS 825 Traffic Advisory System Operational Check**

   A.   Tools and Equipment

      (1)   Tools and Equipment

         • Pitot-Static Test Set
         • IFR 6000 Test Set.

      (2)   Special Consumables

      (3)   Reference Material

         • Supplier Publication List
         • Garmin GTS 825 Traffic Advisory System - Adjustment/Test
         • Garmin G1000 Integrated Avionics System - Adjustment/Test

   B.   Prepare the Airplane

      (1)   Connect external electrical power from the airplane.

      (2)   Put the BATTERY switch to the BATT position.

      (3)   Put the the AVIONICS switches to the ON position.

      (4)   Make sure that the circuit breaker given in Table 501 is engaged.

Table 501. Circuit Breakers

Circuit Breaker Name	Circuit Breaker Location
TAS	Avionics Circuit Breaker Panel

   C.   Preliminary Checks

      (1)   Make sure that the airplane G1000 integrated avionics system has version 767.23 or later software loaded.

      (2)   Make sure the G1000 is configured for the GTS 825 TAS.

      (3)   Do a check of the Garmin G1000 integrated avionics system architecture. Refer to Garmin G1000 Integrated Avionics System - Adjustment/Test, G1000 Architecture Verification Check.

   D.   Calibration/Self Test (Refer to Figure 502).

   NOTE: The self-test feature tests the (aural) alarm, attempts self calibration, and displays a test pattern to allow visual verification that display outputs issued by the digital processor can be correctly interpreted by the pilot.

   NOTE: You can do the self tests indoors, but signal multi-path from building walls can be a factor. If problems are experienced, self tests should be done outside away from buildings, and where local traffic is not a factor.

      (1)   Connect the air data test set to the left pitot/static probe in accordance with the manufacturer's instructions.

      (2)   Use the pitot-static test set to set an altitude value of 2500 Feet and airspeed of 100 knots.

      (3)   Use the primary flight display (PFD) FMS knob to navigate to the Map Page group and then the Traffic Map Page,

      (4)   Make sure that the STANDBY (cyan) is shown on the multifunction display (MFD) that indicates the GTS 825 TAS is powered on.

      (5)   ON the MFD push the TEST softkey to cycle the GTS 825 TAS to Self Test and make sure that:

(a) TEST MODE (white) and a test pattern is shown on the MFD Traffic Map Page.

(b) The successful completion of the self test is annunciated aurally "TAS system passed test".

    1   The aural annunciation is heard on the pilot's, copilot's and overhead speaker.

(6) Use the pitot-static test set to set the airspeed to less than 50 knots to return the aircraft to ground mode.

(7) Remove the pitot-static test set from the airplane.

E. Traffic Advisory and Bearing Accuracy Test (Refer to Figure 503).

(1) If the radar altimeter is installed do the steps that follow:

    NOTE: **If the radar altimeter is not installed skip this step.**

(a) Put the G100 in configuration mode:

    1   Disengage the PFD1, PFD2 and MFD circuit breakers.

    2   While you engage the PFD1 circuit breaker, push the ENT key.

    3   While you engage the PFD2 circuit breaker, push the ENT key.

    4   While you engage the MFD circuit breaker, push the the number 12 softkey.

(b) On the PFD1, use the FMS knob to navigate to the GIA>GIA SERIAL CONFIGURATION page.

(c) Under the ARINC 429 window, configure the RAD ALT option to OFF.

(d) Set the AVIONICS switches to OFF then to ON to cycle G1000 electrical power.

    1   Start the displays in normal mode.

(2) Use the FMS knob to navigate to the Map Page Group>Traffic Map Page.

(3) On the MFD push the softkeys in this sequence: 3,4,4,3.

(a) Make sure that the GND TEST key shows on the MFD.

(4) Push the GND TEST key to select ground test mode.

    NOTE: **The ground test simulates the GTS to be airborne at 50,000 feet with a magnetic heading of 0 degrees.**

(5) Push the OPERATE sofkey on the MFD.

(6) As necessary, turn the Range knob clockwise or counter clockwise to set the inner and outer Traffic Display Range Rings to 6NM and 12Nm, respectively.

(7) Set the IFR 6000 to the settings shown in Figure 503.

(8) Position the IFR 6000 antenna on the airplane�s 090 radial, and with clear line of sight to the GTS 825 top antenna.

(9) On the IFR 6000 push the RUN TEST button.

(10) Make sure that ion the MFD and PFD insert map:

(a) Make sure that on the PFD inset and MFD that traffic is acquired at approximately 10 nautical miles at a 90� bearing and co-altitude.

    1   If traffic is not acquired at approximately 10 nautical miles, increase the ANT RANGE setting on the IFR 6000 test set (maximum of 250 feet).

(b) Reset range rings to 2NM and 6NM.

(c) Make sure that the intruder closes on test aircraft at a rate of 0.1 nautical miles per second as follows:

    1   Measure the time it took for the intruder to complete the distance between the 6NM and 2NM Traffic Display Range Rings.

    2   It should be approximately 40 seconds.

(d) Make sure that only a single target is displayed at the expected location.

(e) Make sure that the intruder transitions from Non-Threat Traffic (a white open diamond) to Proximity Advisory (white filled diamond) to Traffic Advisory (yellow filled circle) when the intruder crosses the 2NM Traffic Display Range Ring.

(f) Make sure that there is no traffic annunciation.

(11) On the IFR 6000 push the STOP TEST softkey.

(12) Repeat the test at every 90� increment.

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(a)   Initial acquisition of the target is sufficient for these repeat conditions; it is not necessary to wait for the traffic advisory to occur.

(13) If the RAD ALT is installed and was previously disabled at the start of the test, start the displays in the configuration mode.

    (a)   On the PFD1, use the FMS knob to navigate to the GIA>GIA SERIAL CONFIGURATION page.

    (b)   Under the ARINC 429 window, configure the RAD ALT option to ON.

    (c)   Set the AVIONICS switches to OFF then to ON to cycle G1000 electrical power.

        1   Start the displays in normal mode.

F.   Put the Airplane Back to its Initial Condition.

  (1)   Put the BATTERY switch to the OFF position.

  (2)   Put the AVIONICS switches to the OFF position.

  (3)   Put the EXTERNAL POWER switch to the OFF position.

  (4)   Remove external electrical power from the airplane.

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Figure 501 : Sheet 1 : GTS 825 TAS Installation Option Page

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Aircraft Configuration Page (Typical)

```
              A I R C R A F T   C O N F I G U R A T I O N
   ┌ LRU  CONFIGURATION  STATUS ┐
   GTX  1      ☑       GTX  2      ☑       GTS       ☑

   ┌ AIRCRAFT  CONFIGURATION ┐
   AIRCRAFT  REGISTRATION         XXXXXX
   ICAO  ADDRESS                  XXXXXX
   IATA  AIRLINE  DESIGNATOR
   COUNTRY  CODE
   VFR  CODE                      XXXXXX
```

			SYSTEM	GDU	GIA	GEA	GTX	GRS	ADC	GFC	GMA	GDL	RMT	GWX	OTHER	CAL
SET GTX1	SET GTX2	SET GTS														

Figure 502 : Sheet 1 : GTS 825 Test Mode Screen

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OPERATING MODE

TEST MODE ANNUNCIATON

NON-THREAT TRAFFIC AT 11 O' CLOCK, DISTANCE 3.6 nm,1000' ABOVE, LEVEL

PROXIMITY TRAFFIC AT 1 O' CLOCK, DISTANCE 3.6 nm, 1000' BELOW, DESCENDING

TA AT 9 O' CLOCK, DISTANCE 2.0 nm, 200' BELOW, CLIMBING

GTS 825 TEST MODE DISPLAY
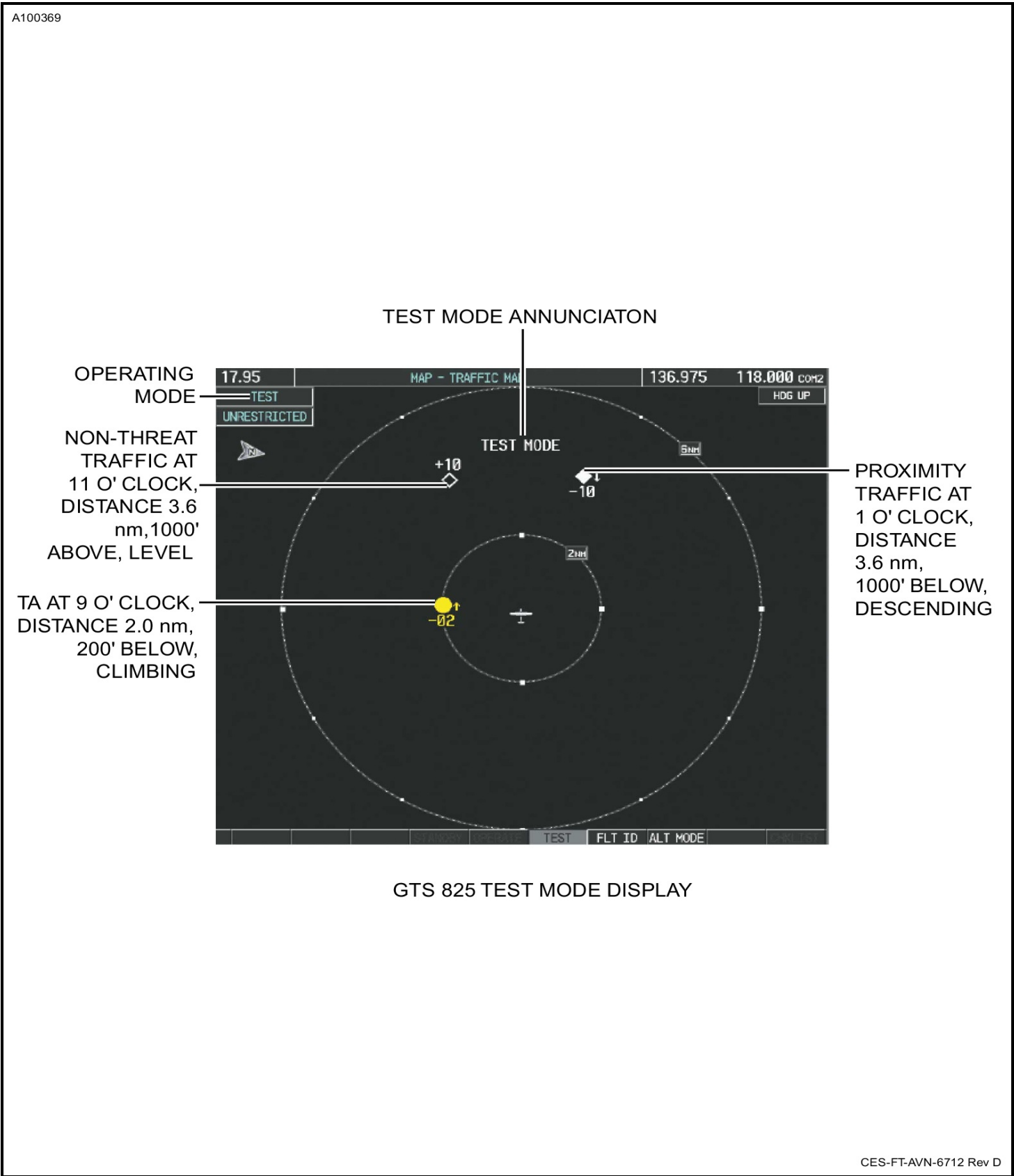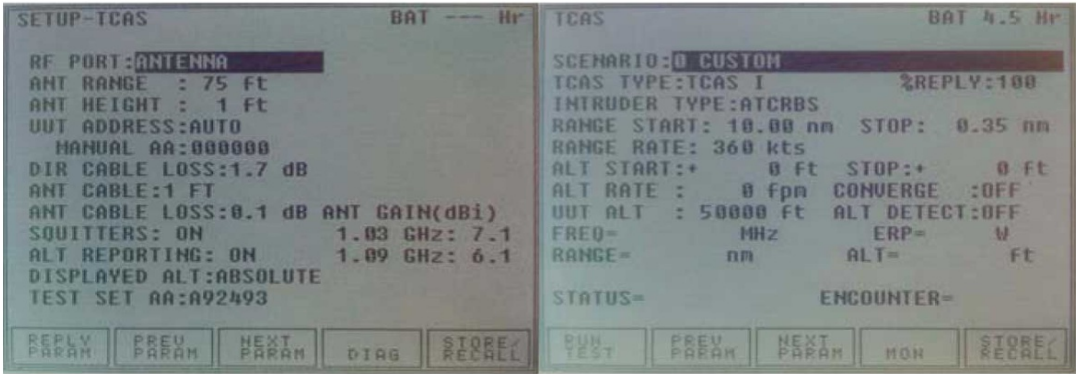
CES-FT-AVN-6712 Rev D

Figure 503 : Sheet 1 : IFR 6000 GTS 825 Test Mode Screen

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