FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
FOR
GARMIN GFC 700 AUTOMATIC FLIGHT CONTROL SYSTEM
IN A DIAMOND DA-40 / DA40F

Reg. No. __________ S/N __________

This Supplement must be attached to the FAA Approved Airplane Flight Manual when the GARMIN GFC 700 Automatic Flight Control System (AFCS) is installed in accordance with STC# SA01389W1. The information contained herein supplements the information of the basic Airplane Flight Manual. For Limitations, Procedures and Performance information not contained in this Supplement, consult the basic Airplane Flight Manual.

FAA APPROVED

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Federal Aviation Administration
Wichita, Kansas 67209

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SECTION I – GENERAL

1. The GFC 700 Automatic Flight Control System (AFCS) is a 2 axis autopilot and flight director system which provides the pilot with the following features: Altitude Preselect and Altitude Hold (ALT); Flight Level Change with Airspeed Hold (FLC); Vertical Speed Hold (VS); Navigation tracking for VOR (NAV) and GPS (GPS); Heading Hold (HDG); Approach mode coupling to VOR (VAPP) or localizer (LOC) and glideslope (GS); Back Course (BC) tracking; and Go Around (GA) pitch/roll guidance. The system consists of autopilot controls on the Multi-Function Display (MFD), servos with autopilot processing logic, Flight Director processing logic in the GIAs, a control stick-mounted elevator trim switch, a control stick-mounted trim interrupt and autopilot disconnect switch, a control stick-mounted CWS (Control Wheel Steering) switch, a throttle-mounted GA (Go-Around) switch, and PFD/MFD-mounted altitude preselect, heading, and course knobs.

2. The GFC 700 autopilot contains an electric pitch trim system which is used by the autopilot for automatic pitch trim during autopilot operation and by the pilot for manual electric pitch trim when the autopilot is not engaged. The manual electric pitch trim system is operated by a split switch on the pilot’s control stick.

3. The GFC 700 autopilot and manual electric trim (MET) will not operate until the system has satisfactorily completed a preflight test. The preflight test begins automatically with initial power application to the autopilot (AVIONIC MASTER Switch is set to the ON position).

4. The following conditions will cause the autopilot to automatically disconnect:
   - Electrical power failure
   - Internal autopilot system failure
   - AHRS malfunction
   - Loss of Air Data Computer information

5. The GFC 700 may be manually disconnected by any of the following means:
   - Depressing the red AP DISC button on the pilot’s control stick
   - Moving the left (outboard) side of the manual electric trim switch on the pilot’s control stick
   - Pushing the AP button on the autopilot mode controller when the autopilot is engaged
   - Depressing the GA button on the left side of the throttle
   - Pulling the AFCS circuit breaker
   - Turning off the AVIONICS MASTER switch
   - Turning off the airplane Master (ALT/BAT) switch

   In addition, the CWS (control wheel steering) switch on the pilot’s control stick will disconnect the autopilot servos from the airplane flight controls as long as the CWS switch is depressed.
6. Power to the GFC 700 autopilot and electric trim system is supplied through the AVIONIC MASTER switch and the AFCS circuit breaker. The AVIONIC MASTER switch can be used as an additional means to disable the autopilot and electric trim system.

7. The red AP DISC switch on the pilot’s control stick will interrupt power to the manual electric trim for as long as the switch is depressed.

8. Maximum altitude loss due to autopilot, Flight Director or AHRS malfunctions:

<table>
<thead>
<tr>
<th>MANEUVER</th>
<th>ALTITUDE LOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climb, Cruise, Descent</td>
<td>200 feet</td>
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<tr>
<td>Maneuvering</td>
<td>115 feet</td>
</tr>
<tr>
<td>Approach</td>
<td>130 feet</td>
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</table>

9. Loss of instruments or components of the G1000 system will affect the GFC 700 AFCS as follows:

- Loss of the AHRS will cause the autopilot to disconnect. The autopilot and flight director will be inoperative. Manual electric trim will be available.
- Loss of the heading function of the AHRS will result in loss of the HDG mode. If in HDG mode at the time heading is lost, the autopilot will revert to basic roll mode (ROL).
- Loss of the MFD will not cause the autopilot to disconnect, and will remain engaged with limited functionality, but the autopilot cannot be re-engaged after disconnect by the pilot.
- Loss of the PFD will cause the autopilot to disconnect. The autopilot and flight director will be inoperative. Manual electric trim will be available.
- Loss of air data computer information will cause the autopilot to disconnect. The autopilot will be inoperative. The flight director will be available except for air data modes (ALT, VS, FLC). Manual electric trim is available.
- Loss of GIA #1 will cause the autopilot to disconnect. The autopilot, flight director and manual electric trim will be inoperative. Loss of GIA #2 will also prevent autopilot and manual electric trim operation, but flight director will be available.
- Loss of the standby airspeed indicator, standby attitude indicator, standby altimeter, or compass will have no effect on the autopilot.
- Loss of both GPS systems will cause the autopilot and flight director to operate in NAV modes (LOC, BC, VOR, VAPP) with reduced accuracy. Course intercept and station crossing performance may be improved by executing intercepts and station crossings in HDG mode, then reselecting NAV mode.

**WARNING**

FOLLOWING AN AUTOPILOT OR ELECTRIC TRIM MALFUNCTION, DO NOT RE-ENGAGE THE AUTOPILOT OR MANUAL ELECTRIC TRIM, OR RESET THE AFCS CIRCUIT BREAKER, UNTIL THE CAUSE OF THE MALFUNCTION HAS BEEN DETERMINED AND CORRECTED.
SECTION II – LIMITATIONS

General Limitations:

1. The Garmin G1000 Cockpit Reference Guide for Diamond DA-40, P/N 190-00324-05, Rev A or later appropriate revision must be immediately available to the flight crew.

2. The GFC 700 must utilize the following or later FAA approved software versions:

<table>
<thead>
<tr>
<th>Sub-System</th>
<th>Software Version</th>
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<tbody>
<tr>
<td>PFD</td>
<td>6.10</td>
</tr>
<tr>
<td>MFD</td>
<td>6.10</td>
</tr>
<tr>
<td>GMA 1347</td>
<td>2.08</td>
</tr>
<tr>
<td>AHRS</td>
<td>2.03</td>
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<tr>
<td>GDC</td>
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<tr>
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<td>3.01</td>
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<tr>
<td>GSA</td>
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</table>

   The system software versions can be verified on the AUX group sub-page 5, “AUX - SYSTEM STATUS”.

3. The GFC 700 AFCS preflight test must be successfully completed prior to use of the autopilot, flight director or manual electric trim. Use of the autopilot or manual electric trim system is prohibited if the preflight test is not satisfactorily completed.

4. A pilot with the seat belt fastened must occupy the left pilot’s seat during all autopilot operations.

5. The autopilot must be off during takeoff and landing.

6. Autopilot maximum engagement speed – 165 KIAS
   Autopilot minimum engagement speed – 70 KIAS
   Electric Trim maximum operating speed – 178 KIAS

7. Maximum fuel imbalance with autopilot engaged – 8 US gallons (Long range tank configuration)
   10 US gallons (Standard tank configuration)

8. The autopilot must be disengaged below 200 feet AGL during approach operations and below 800 feet AGL during all other operations.

9. ILS approaches using the GFC 700 autopilot/flight director are limited to Category I approaches only.

10. CDI mode sequencing (GPS-to-ILS) must be set to manual for instrument approaches conducted with the autopilot coupled.
SECTION III – EMERGENCY PROCEDURES

Some emergency situations require immediate memorized corrective action. These numbered steps are printed in boxes within the emergency procedures and should be accomplished without the aid of the checklist.

AUTOPilot OR ELECTRIC TRIM MALFUNCTION/Failure

NOTE

An autopilot or electric trim malfunction may be recognized by an unexpected deviation from the desired flight path, abnormal flight control or trim wheel movement, or flight director commands which cause unexpected or contradictory information on the other cockpit displays. It may be accompanied by the aural autopilot disconnect tone, a red AFCS, red AP or yellow AP indication on the PFD, or a yellow CHECK ATTITUDE on the PFD. The autopilot and AHRS monitors normally detect failures and automatically disconnect the autopilot.

Failure of the electric pitch trim, indicated by a red boxed PTRM flashing on the PFD, may not cause the autopilot to disconnect. Be alert to possible autopilot out of trim conditions (see AUTOPILOT OUT OF TRIM procedure below), and expect residual control forces upon disconnect. The autopilot will not re-engage after disconnect with failed pitch trim. If AUTOPILOT OUT OF TRIM ELE indication is present, expect substantial elevator forces on autopilot disconnect.

1. AP DISC Switch.................................................................DEPRESS AND HOLD
   while grasping control stick firmly
2. Aircraft Attitude.................................MAINTAIN/REGAIN AIRCRAFT CONTROL,
   use standby attitude indicator if necessary
3. Pitch Trim ............................................................RETRIM if necessary, using the trim wheel
4. AP Circuit Breaker............................................................PULL
5. AP DISC Switch .................................................................RELEASE

WARNING

FOLLOWING AN AUTOPILOT, AUTOTRIM OR MANUAL ELECTRIC TRIM SYSTEM MALFUNCTION, DO NOT ENGAGE THE AUTOPILOT OR OPERATE THE MANUAL ELECTRIC TRIM UNTIL THE CAUSE OF THE MALFUNCTION HAS BEEN CORRECTED.
AUTOPILOT DISCONNECT (Yellow AP flashing on PFD)

1. AP DISC Switch ........................................................ DEPRESS AND RELEASE
   (to cancel disconnect tone)
2. Pitch Trim.......................................... RETRIM if necessary, using the trim wheel

NOTE

The autopilot disconnect may be accompanied by a red boxed PTCH (pitch) or ROLL on the PFD, indicating the axis which has failed. The autopilot cannot be re-engaged with either of these annunciations present.

AUTOPILOT OVERSPEED RECOVERY (Yellow MAXSPD on PFD)

1. Throttle.................................................................................................... REDUCE

When overspeed condition is corrected:

2. Autopilot ..................................RESELECT VERTICAL MODE (if necessary)

NOTE

Overspeed recovery mode provides a pitch up command to decelerate the airplane at or below the maximum autopilot operating speed (165 KIAS). Overspeed recovery is not active in altitude hold (ALT) or glideslope (GS) modes.

LOSS OF NAVIGATION INFORMATION (Yellow VOR, VAPP, GPS or LOC flashing on PFD)

NOTE

If a navigation signal is lost while the autopilot is tracking it, the autopilot will roll the aircraft wings level and default to roll mode (ROL).

1. Autopilot ..........................................................SELECT HDG on mode controller
2. Nav Source ..........................................................SELECT A VALID NAV SOURCE
3. Autopilot ..........................................................SELECT NAV on mode controller

If on an instrument approach at the time the navigation signal is lost:

4. Missed Approach Procedure .................................................EXECUTE (as applicable)
**AUTOPILOT OUT OF TRIM (Yellow ←AIL, →AIL, ↑ELE, or ↓ELE on PFD)**

For ↑ELE, or ↓ELE Indication:

**WARNING**

DO NOT ATTEMPT TO OVERPOWER THE AUTOPILOT IN THE EVENT OF A PITCH MISTRIM. THE AUTOPILOT SERVOS WILL OPPOSE PILOT INPUT AND WILL CAUSE PITCH TRIM TO RUN OPPOSITE THE DIRECTION OF PILOT INPUT. THIS WILL LEAD TO A SIGNIFICANT OUT-OF-TRIM CONDITION RESULTING IN LARGE CONTROL STICK FORCE WHEN DISENGAGING THE AUTOPILOT.

**CAUTION**

Be prepared for significant sustained control forces in the direction of the annunciation arrow. For example, an arrow pointing down indicates nose down control stick force will be required upon autopilot disconnect.

**NOTE**

Momentary illumination (5 sec or less) of the ↑ELE or ↓ELE indication during configuration or large airspeed changes is normal.

If the annunciation remains:

1. AP DISC Switch................................................................. DEPRESS AND HOLD while grasping control stick firmly
2. Aircraft Attitude .............................................. MAINTAIN/REGAIN AIRCRAFT CONTROL, use standby attitude indicator if necessary
3. Pitch Trim ........................................................... RETRIM if necessary, using the trim wheel
4. AFCS Circuit Breaker................................................................. PULL
5. AP DISC switch................................................................. RELEASE

**WARNING**

FOLLOWING AN AUTOPILOT, AUTOTRIM OR MANUAL ELECTRIC TRIM SYSTEM MALFUNCTION, DO NOT ENGAGE THE AUTOPILOT OR OPERATE THE MANUAL ELECTRIC TRIM UNTIL THE CAUSE OF THE MALFUNCTION HAS BEEN CORRECTED.

For ←AIL, →AIL Indication:

1. Rudder Trim................................................................. VERIFY slip/skid indicator is centered

**NOTE**

Observe the maximum fuel imbalance limitation.
If annunciation remains:
2. Control Stick ...............................................................GRASP FIRMLY with both hands

**CAUTION**

Be prepared for sustained control forces in the direction of the annunciation arrow. For example, an arrow pointing to the right indicates that sustained right wing down control stick force will be required upon autopilot disconnect.

3. AP DISC Switch ...............................................................DEPRESS
4. Autopilot ...............................................................RE-ENGAGE if lateral trim re-established

**FLASHING YELLOW MODE ANNUNCIATION**

**NOTE**

Abnormal mode transitions (those not initiated by the pilot or by normal sequencing of the autopilot) will be annunciated by flashing the disengaged mode in yellow on the PFD. Upon loss of a selected mode, the system will revert to the default mode for the affected axis, either ROL or PIT. After 10 seconds, the new mode (PIT or ROL) will be annunciated in green.

Loss of selected vertical mode (FLC, VS, ALT, GS)
1. Autopilot mode controls..................SELECT ANOTHER VERTICAL MODE
   If on an instrument approach:
   2. Autopilot ..................................................DISCONNECT and continue manually,
      or execute missed approach

Loss of selected lateral mode (HDG, NAV, GPS, LOC, VAPP, BC):
1. Autopilot mode controls..................SELECT ANOTHER LATERAL MODE
   If on an instrument approach:
   2. Autopilot ..................................................DISCONNECT and continue manually,
      or execute missed approach

**FAILURE OF THE PREFLIGHT TEST** (Red boxed PFT on PFD)

1. AFCS Circuit Breaker.........................................................PULL

**WARNING**

DO NOT ATTEMPT TO ENGAGE THE AUTOPILOT OR OPERATE THE MANUAL ELECTRIC TRIM UNTIL THE CAUSE OF THE MALFUNCTION HAS BEEN CORRECTED.

**NOTE**

When the AFCS circuit breaker is pulled, the PFT FAIL annunciation will be removed and the autopilot and manual electric trim will be unavailable. Do not reset the circuit breaker unless the airplane is on the ground.
SECTION IV – NORMAL PROCEDURES

NOTE

Normal operating procedures for the GFC 700 are described in the Garmin G1000 Cockpit Reference Guide and the Garmin G1000 Pilot's Guide.

BEFORE STARTING ENGINE

NOTE

The AFCS system automatically conducts a preflight self-test upon initial power application. The preflight test is indicated by a white boxed PFT on the PFD. Upon successful completion of the preflight test, the PFT is removed, the red AFCS annunciation is removed, and the autopilot disconnect tone sounds.

1. Aircraft Master Switch (ALT/BAT) ............................................................. ON
2. AVIONIC MASTER switch ................................................................. ON
3. Primary Flight Display (PFD) .......... NO AUTOPILOT ANNUNCIATIONS
4. Autopilot Disconnect Tone ................................................................. NOTE
AFTER TAKEOFF

WARNING

IT IS THE RESPONSIBILITY OF THE PILOT IN COMMAND TO MONITOR THE AUTOPILOT WHEN IT IS ENGAGED. THE PILOT SHOULD BE PREPARED TO IMMEDIATELY DISCONNECT THE AUTOPILOT AND TO TAKE PRACTICAL CORRECTIVE ACTION IN THE EVENT OF UNEXPECTED OR UNUSUAL AUTOPILOT BEHAVIOR.

DO NOT ATTEMPT TO MANUALLY FLY THE AIRPLANE WITH THE AUTOPILOT ENGAGED. THE AUTOPILOT SERVOS WILL OPPOSE PILOT INPUT AND WILL TRIM OPPOSITE THE DIRECTION OF PILOT INPUT (PITCH AXIS ONLY). THIS COULD LEAD TO A SIGNIFICANT OUT-OF-TRIM CONDITION. DISCONNECT THE AUTOPILOT IF MANUAL CONTROL IS DESIRED.

THE PILOT IN COMMAND MUST USE PROPER AUTOPILOT MODES AND PROPER ENGINE POWER SETTINGS TO ENSURE THAT AIRCRAFT SPEED IS MAINTAINED BETWEEN 70 KIAS AND 165 KIAS. IT WILL BE NECESSARY TO CHANGE ENGINE POWER TO MAINTAIN THE DESIRED RATE OF DESCENT WHEN OPERATING AT 165 KIAS.

OBSERVE THE MINIMUM AUTOPILOT OPERATING SPEED OF 70 KIAS. OPERATION IN PITCH (PIT) OR VERTICAL SPEED (VS) MODES BELOW THIS SPEED CAN RESULT IN AN AIRPLANE STALL. IF INDICATIONS OF AN AIRPLANE STALL ARE PRESENT, INCLUDING STALL WARNING HORN, LOSS OF CONTROL EFFECTIVENESS OR AIRFRAME BUFFET, DISCONNECT THE AUTOPILOT AND MANUALLY RETURN THE AIRPLANE TO STABILIZED FLIGHT PRIOR TO RE-ENGAGING THE AUTOPILOT.

NOTE

The NOSE UP and NOSE DN buttons on the mode controller on the MFD are referenced to aircraft movement. The NOSE UP button will increase the reference pitch attitude, increase the reference vertical speed and decrease the reference airspeed. Likewise, the NOSE DN button will decrease the reference pitch attitude, decrease the reference vertical speed, and increase the reference airspeed.

CLIMB, CRUISE and DESCENT:

Vertical Speed (VS):
1. Altitude Preselect .................................................. SET to desired altitude
2. Mode Controller .................................................. SELECT VS on mode controller
3. Vertical Speed Reference... ADJUST using NOSE UP and NOSE DN buttons
4. White ALT (altitude preselect armed)................................. NOTE on PFD
5. Green ALT ........................................... VERIFY UPON ALTITUDE CAPTURE
NOTE

If the altitude preselect is not changed before selecting VS, the autopilot may re-capture the current altitude immediately after entering VS mode. Always ensure that the altitude preselect is adjusted prior to selecting VS.

The vertical speed mode is limited to 1,500 ft/min climb and 3,000 ft/minute descent. Use engine power to maintain appropriate aircraft speed. If the CWS switch is used while in VS mode, the VS reference will change to the vertical speed when the CWS switch is released.

Flight Level Change (FLC):
1. Altitude Preselect .......................................................... SET to desired altitude
2. Mode Controller .................................................. SELECT FLC on mode controller
3. Airspeed Reference.......................... ADJUST using NOSE UP and NOSE DN buttons
4. White ALT (altitude preselect armed) .............................................NOTE on PFD
5. Green ALT....................................... VERIFY UPON ALTITUDE CAPTURE

NOTE

If the altitude preselect is not changed before selecting FLC, the autopilot may re-capture the current altitude immediately after entering FLC mode. Always ensure that the altitude preselect is adjusted prior to selecting FLC.

If the airspeed reference cannot be maintained without deviating away from the selected altitude, the system will maintain level flight until the power or reference is changed to allow climbing or descending towards the selected altitude.

The FLC mode is limited to airspeeds between 70 KIAS and 165 KIAS. Use engine power to maintain appropriate vertical speed. If the CWS switch is used while in FLC mode, the airspeed reference will change to the airspeed when the CWS switch is released.

Altitude Hold (ALT):
To capture a selected altitude:
1. Altimeter Setting.................................................. ADJUST TO APPROPRIATE VALUE
2. Altitude Preselect .................................................. SET TO DESIRED ALTITUDE
3. Vertical Mode and Reference ............................ SELECT on mode controller
4. White ALT (altitude preselect armed) .............................. NOTE on PFD
5. Green ALT....................................... VERIFY UPON ALTITUDE CAPTURE

NOTE

In ALT mode, the autopilot will maintain the reference altitude shown in the autopilot window of the PFD regardless of the altitude in the altitude preselect window or the altimeter’s barometric pressure setting. If the altimeter setting is changed, the autopilot will climb or descend to maintain the reference altitude.

Altitude Hold (ALT):
To maintain a desired altitude:
1. Altimeter Setting.................................................. ADJUST TO APPROPRIATE VALUE
2. Reaching desired altitude.......................... SELECT ALT on mode controller
3. Green ALT....................................... VERIFY on PFD
Navigation Capture and Track:

1. Navigation Source .............. SELECT VOR or GPS using CDI button on PFD
2. Course Bearing Pointer ................. SET using course knob (VOR only)
3. Intercept Heading ..................... ESTABLISH in HDG or ROL mode (if required)
4. Mode Controller ......................... SELECT NAV on mode controller
5. Green or White VOR or GPS annunciation .......................... NOTE on PFD
6. Vertical Mode and Reference .................. SELECT on mode controller

NOTE

If the Course Deviation Indicator (CDI) is greater than one dot from center, the autopilot will arm
the NAV mode and indicate VOR or GPS in white on the PFD. The pilot must ensure that the
current heading will result in a capture of the selected course. If the CDI is one dot or less from
center, the autopilot will enter the capture mode when the NAV button is pressed and annunciate
VOR or GPS in green on the PFD.

APPROACH:

VOR

1. Navigation Source ....................... SELECT VOR using CDI button on PFD
2. Course Bearing Pointer ...................... SET using course knob
3. Intercept Heading ..................... ESTABLISH in HDG or ROL mode (if required)
4. Mode Controller ......................... SELECT APR on mode controller
5. Green or White VAPP annunciation ....................... NOTE on PFD
6. Vertical Mode and Reference .................. SELECT on mode controller
7. Airspeed .......................... MAINTAIN 80 KIAS OR GREATER (Recommended)

NOTE

If the Course Deviation Indicator (CDI) is greater than one dot from center, the autopilot will arm
the VAPP mode and indicate VAPP in white on the PFD. The pilot must ensure that the current
heading will result in a capture of the selected course. If the CDI is one dot or less from center,
the autopilot will enter the capture mode when the VAPP button is pressed and annunciate VAPP
in green on the PFD.

ILS

1. Navigation Source ................ SELECT LOC using CDI button on PFD
2. Course Bearing Pointer ...................... SET using course knob
3. Intercept Heading ..................... ESTABLISH in HDG or ROL mode (if required)
4. Mode Controller ......................... SELECT APR on mode controller
5. Green or White LOC and GS annunciations ....................... NOTE on PFD
6. Airspeed .......................... MAINTAIN 80 KIAS OR GREATER (Recommended)
NOTE

When the selected navigation source is a valid ILS, glideslope coupling is automatically armed when tracking the localizer. The glideslope cannot be captured until the localizer is captured. The autopilot can capture the glideslope from above or below the glideslope.

GPS

1. Navigation Source......................... SELECT GPS using CDI button on PFD
2. Approach................................................ LOAD in FMS and ACTIVATE
3. Intercept Heading.....................ESTABLISH in HDG or ROL mode (if required)
4. Mode Controller...............................SELECT APR on mode controller
5. Green or White GPS annunciation.............................. NOTE on PFD
6. Vertical Mode and Reference ................. SELECT on mode controller
7. Airspeed...................................... MAINTAIN 80 KIAS OR GREATER (Recommended)

Back Course (BC)

1. Navigation Source......................... SELECT LOC using CDI button on PFD
2. Course Bearing Pointer..................SET to ILS front course using course knob
3. Intercept Heading.....................ESTABLISH in HDG or ROL mode (if required)
4. Mode Controller...............................SELECT NAV on mode controller
5. Green or White BC annunciation.............................. NOTE on PFD
6. Vertical Mode and Reference ................. SELECT on mode controller
7. Airspeed...................................... MAINTAIN 80 KIAS OR GREATER (Recommended)

NOTE

The course pointer must be at least 115° from the current magnetic heading before BC will be annunciated in the lateral mode field. Until that point, LOC will be annunciated.

Selecting NAV mode for back course approaches inhibits the glideslope from coupling.

GO AROUND

1. Control Stick................................................................ GRASP FIRMLY
2. GA button .................................................PUSH – Verify GA/GA on PFD
   in lateral and vertical mode fields
3. Balked Landing........................................ EXECUTE
4. Missed Approach Procedure....................EXECUTE (as applicable)
5. Altitude Preselect.................................... SET to appropriate altitude

At an appropriate safe altitude:
6. Autopilot Mode Controller .................. SELECT appropriate lateral and vertical
   modes on mode controller
7. Autopilot.................................................. RE-ENGAGE if desired

NOTE

If the missed approach procedure requires tracking the localizer outbound from the airport, use NAV mode to prevent inadvertent coupling to glideslope.
SECTION V – PERFORMANCE

No change.

SECTION VI – WEIGHT AND BALANCE

No change. See current weight and balance data for aircraft weight and balance information.

SECTION VII – SYSTEM DESCRIPTIONS

The GFC 700 Automatic Flight Control system (AFCS), as installed in the Diamond DA-40, consists of the following components:

- One GDU which contains the following mode control buttons: AP (autopilot engage/disengage); FD (Flight Director On/Off); HDG (Heading mode On/Off); NAV (Nav mode On/Off); APR (Approach mode On/Off); ALT (Altitude Hold mode On/Off); VS (Vertical Speed mode On/Off); FLC (Flight Level Change mode On/Off); NOSE UP and NOSE DN (vertical mode reference change). This GDU is installed as the MFD.

- Servos with autopilot processing logic in the pitch, roll and pitch trim control systems
- Servo mounts and brackets
- Flight Director processing logic in the GIAs
- Control stick-mounted manual electric trim (MET) switch (split switch) for pitch trim
- Control stick-mounted trim interrupt and autopilot disconnect switch
- Control stick-mounted CWS (Control Wheel Steering) switch
- Remote-mounted go-around switch (on the left side of the throttle lever knob)
- PFD/MFD mounted altitude preselect knob (ALT)
- PFD/MFD mounted heading select knob (HDG)

Flight Director commands and autopilot modes are displayed on the PFD. Full AFCS functionality is only available with the both displays operating, and will disconnect under certain reversionary conditions.

Upon initial system power-up, the system undergoes a preflight test. At the end of the test, the autopilot disconnect tone sounds and the PFT and AFCS annunciations are removed. Successful completion of the preflight test is required for the autopilot and manual electric trim to engage.

Annunciation of the flight director and autopilot modes is shown in the lower status field of the PFD. In general, green indicates active modes and white indicates armed modes. When a mode is directly selected by the pilot, no flashing of the mode will occur. When automatic mode changes occur, they will be annunciated with a flashing annunciation of the new mode for ten seconds in green. If a mode becomes unavailable for whatever reason, the mode will flash for ten seconds in yellow and be replaced by the new mode in green.

Normal autopilot disconnects are annunciated with a yellow flashing AP on the PFD accompanied by a two second autopilot disconnect tone. Normal disconnects are those initiated by the pilot with the AP DISC switch, the MET switch, the AP button on the MFD mode controller, or the GA button. Abnormal disconnects will be accompanied by a red flashing AP on the PFD accompanied by a continuous
autopilot disconnect tone. The disconnect tone and flashing alert may be cancelled by pressing the AP DISC switch or the left side of the MET switch.

Refer to the Garmin G1000 Pilot's Guide for the Diamond DA-40, Garmin P/N 190-00592-01 Rev. A, or later revision, for a complete description of the GFC 700 system and operating procedures.

SECTION VIII – HANDLING AND SERVICE

No change.