



Service Bulletin

SB 81438-XX-34-14

3700 Interstate 35, Waco TX. 76706

PHONE: 254-662-0000

FAX: 254-662-9452

SUBJECT: 2000 Approach and 2000 Approach Plus GPS Approach Navigation System, Part Numbers 81438-XX-XXXX

I. PLANNING INFORMATION

A. Effectivity

This Service Bulletin applies to 2000 Approach and 2000 Approach Plus GPS Navigators, all Part Numbers. This update is required to continue IFR flight operation.

B. Reason

This Service Bulletin advises all users of 2000 Approach (P/N 81438-00-XXXX, 81438-01-XXXX, 81438-10-XXXX and 81438-11-XXXX) and 2000 Approach Plus units (P/N 81438-02-XXXX) of the updates required to use 4 meg database updates.

C. Description

To replace the existing Processor Board (A6) CCA with a modified CCA, so unit will be capable of addressing a 4 MB database.

- 2000 Approach uses Processor Board 16227-21 rev B
- 2000 Approach Plus Processor uses 82477-01-B

D. Approval

This Service Bulletin contains no modification information that revises the approved configuration and, therefore, does not require governmental or other regulatory agency approval.

E. Manpower

The following man-hour estimates are based on incorporation concurrent with an unscheduled repair or during a scheduled modification:

Units	Compliance	Man Hours
All RDUs	During Repair	2.0

F. Weight and Balance

None

G. Electrical Load Data

Not Affected



H. Reference

ECN F08012

I. Other Publications Affected

None

J. Interchangeability and Identification

Modified and unmodified units are not interchangeable.

Units modified according to this Service Bulletin have a strike over the number 14 on the Service Bulletin tag.

II. MATERIAL INFORMATION

A. Price and Availability

Incorporation of revision L, or later approved software, will be required to access the 4 MB database.

- 2000 Approach Plus – 240L
- 2000 Approach – 242L

The cost for this update is included in the purchase of above software.

B. Parts List

- For 2000 Approach Part Number 81438-00, 01, 10 and 11
Service Bulletin kit 81438-XX-34-14A
16227-21 Rev B Processor Board
- For 2000 Approach Plus Part Number 81440- 02
Service Bulletin Kit 81438-XX-34-14B
82477-01-B Processor Board

C. Ordering Information

Operators of the 2000 Approach and 2000 Approach Plus units, wishing to upgrade their system(s) may send the unit(s) to an approved Level II Service Center or the FreeFlight Factory Service Center.



To upgrade the operating system at a Level II Service Center, send a purchase order requesting Service Bulletin kit P/N 81438-XX-34-14(X) to:

FreeFlight Systems
3700 Interstate 35 S.
Waco, TX 76706 USA

Attn.: Sales Dept.
Telephone 1 (254) 662-0000
Fax 1 (254) 662-9451

For FreeFlight Factory Service Center modification, send the Navigator and a purchase order requesting incorporation of Service Bulletin 81438-XX-34-14(X) to:

FreeFlight Systems
3700 Interstate 35 S.
Waco, TX 76706 USA

Attn.: Repair Dept.
Telephone 1 (254) 662-0000
Fax 1 (254) 662-9452

D. Warranty

This Service Bulletin does not affect the standard warranty of the unit from date of purchase. For units out of warranty, this modification will be covered for ninety (90) days.



III. ACCOMPLISHMENT INSTRUCTIONS

These hardware modifications may be accomplished at the FreeFlight Systems Factory Service Center or approved level 2 service centers.

CAUTION

Do not remove the NavData card from the system while the power is on. The system will automatically reset if the card is removed while power is on.



CAUTION

THIS EQUIPMENT IS SENSITIVE TO DAMAGE BY ELECTROSTATIC DISCHARGE. USE PROTECTIVE PROCEDURES.

A. Record Configuration Settings

The configuration settings must be restored once the revised software has been installed and, therefore, the settings must be recorded prior to the modification.

Refer the 2000 Approach Installation and Checkout Manual (PN 81450) or 2000 Approach Plus Installation and Checkout Manual (PN 82877), Section III.

1. Following the instructions, access the Installation Set Up submenu.
2. Record the configuration settings on the Configuration Record Sheet that follows.

Configuration Record Sheet

Plane Make and Model _____

Owner _____

Address _____

Unit Installed _____

Serial Number _____

Serial Port Configuration

PORT	FORMAT	BAUD	RATE
INPUT PORT 1			
OUTPUT PORT 1			
INPUT PORT 2			
OUTPUT PORT 2			



IVa. ACCOMPLISHMENT INSTRUCTIONS 2000 APPROACH P/N 81438-00, -01, -10, -11

This Service Bulletin shall be accomplished at the FreeFlight Systems Factory Service Center or approved level 2 service centers.

CAUTION

All work must be performed on a static free work area!

A. Disassembly of Chassis

NOTE: Save all hardware for reassembly.

1. Place the unit on an anti-static mat.
2. Remove the NavData card if in the unit and place the card in an anti-static bag.
Refer to Figure 1.
3. Remove 2 screws (Item 15) from top.
4. Slide the top cover (Item 3) towards the rear and lift off cover.
5. Unscrew mounting shaft (Item 6) and carefully remove from unit taking care not to bring shaft into contact with components inside unit.
6. Remove 2 screws (Item 15) from bottom (Item 5). Slide bottom towards rear of unit and lift off.
7. Remove 8 screws (Item 16), 4 from each side. Remove side rails (Item 2).
8. Remove Display Assembly (Item 1) by pulling straight forward.

Refer to Figure 2.

9. Remove nut (Item 11) and washer (Item 10) from antenna connector (Item 51).
10. To reduce the possibility of electric shock, discharge capacitors C9-C11.
11. Disconnect wires (Item 50) from connector on Power Interrupt CCA (Item 100).
12. Remove screw (Item 13) from the Power Interrupt CCA (Item 100).
13. Carefully lift Power Interrupt CCA, unsnapping standoff (Item 18) and unplugging 36-pin connector. Set aside.
14. Remove 1 screw (Item 19) from GPS sensor CCA (Item 103).
15. Lift front edge of GPS CCA (Item 103), unsnapping standoff (Item 20) and carefully unplugging pins from connector.



16. Remove the GPS CCA. Keep washer (Item 17) on antenna connector (Item 51).
17. Remove IOP/PWR SUPPLY CCA P/N 16227-21 (Item 107).

B. Reassembly

Refer to Figure 2.

1. Install the GPS CCA (Item 103) on the IOP/PWR SUPPLY CCA P/N 16227-21 Rev B (Item 107). Ensure that washer (Item 17) is in place on the antenna connector (Item 51). Plug in 36-pin connector and snap onto standoff (Item 20).
2. Replace screw (Item 19) on GPS CCA (Item 103).
3. Bring red and white wires (Item 50) up between GPS CCA and Power Interrupt CCA (Item 100). Install Power Interrupt CCA, inserting 36-pin connector into P501. Snap onto standoff (Item 18).
4. Connect red and white wires (Item 50) to P4 on Power Interrupt CCA. (Verify that wires are oriented correctly.)
5. Replace screw (Item 13) on Power Interrupt CCA.

Refer to Figure 1.

6. Install the side rails (Item 2). Attach the 2 screws (Item 16) to side rails at the rear.
7. Install the Display Assembly (Item 1), carefully inserting pins into connector.
8. Attach the 2 screws (Item 16) to side rails and Display Assembly (Item 1) at front.
9. Install the bottom cover (Item 5).
10. Attach 2 screws (Item 15) at rear of bottom cover.
11. Install the mounting shaft (Item 6), taking care not to bring it into contact with components inside the unit.
12. Install the top cover (Item 3) by sliding the front lip under the edge of the Display Assembly (Item 1).
13. Attach 2 screws (Item 15) at rear of top cover.

Refer to Figure 2.

14. Replace washer (Item 10) and nut (Item 11) on antenna connector.



C. Functional Test

1. Perform a 3-key reset:
 - a. Hold down the NAV, APT/VOR, and D-> keys.
 - b. Turn ON power to the unit while continuing to hold down the keys for 20 seconds.
 - c. Turn off the unit.
 - d. Release keys.
2. Turn ON power to the unit.
3. The FreeFlight Systems Factory Service Center shall perform the functional test as described in Acceptance Test Procedure (ATP) 81438-XXTP.
4. When the Checkout has been performed and the unit has passed satisfactorily, strike number 14 on the Service Bulletin label (Figure 3, Item 7) with a permanent marker.



IVb ACCOMPLISHMENT INSTRUCTIONS P/N 81438-02

This Service Bulletin shall be accomplished at the FreeFlight Systems Factory Service Center.

CAUTION

All work must be performed on a static free work area!

A. Disassembly of Chassis

NOTE: Save all hardware for reassembly.

1. Place the unit on an anti-static mat.
2. Remove the NavData card if in the unit and place the card in an anti-static bag.
Refer to Figure 4.
5. Remove 6 screws (Item 13), 3 from each side.
6. Remove 3 screws (Item 13) from back.
7. Remove 4 screws (Item 15), 2 from each side near front. (Note for reassembly that Item 15 is longer than Item 13.)
8. Lift the rear edge of the top cover (Item 3) and carefully slide toward the rear of the unit. Lift off cover.
9. Unscrew mounting shaft (Item 6) and carefully remove from unit taking care not to bring shaft into contact with components inside unit.
10. Remove Display Assembly (Item 1) by pulling straight forward.
11. Disconnect antenna connector (Item 8) from J1 on GPS CCA (Item 100).
12. Remove 5 screws (Item 14) and washers (Items 16 and 20) from the GPS CCA (Item 100).
13. Carefully lift GPS CCA (Item 100) and remove.
14. Carefully unplug ribbon cable (Item 7) from J3.
15. Remove screw (Item 17) and washers (Items 16 and 20). (Note for reassembly that this screw is longer than the others are.)
16. Remove 5 standoffs (Item 9) from IOP CCA (Item 101).
17. Remove 3 screws (Item 14) and washers (Items 16 and 20) from IOP CCA (Item 101).
18. Remove IOP CCA P/N 82477-00-Rev B (Item 101).

D. Reassembly and Identification

Refer to Figure 4.

1. Replace IOP CCA, PN 82477-01-Rev B (Item 101), in unit.

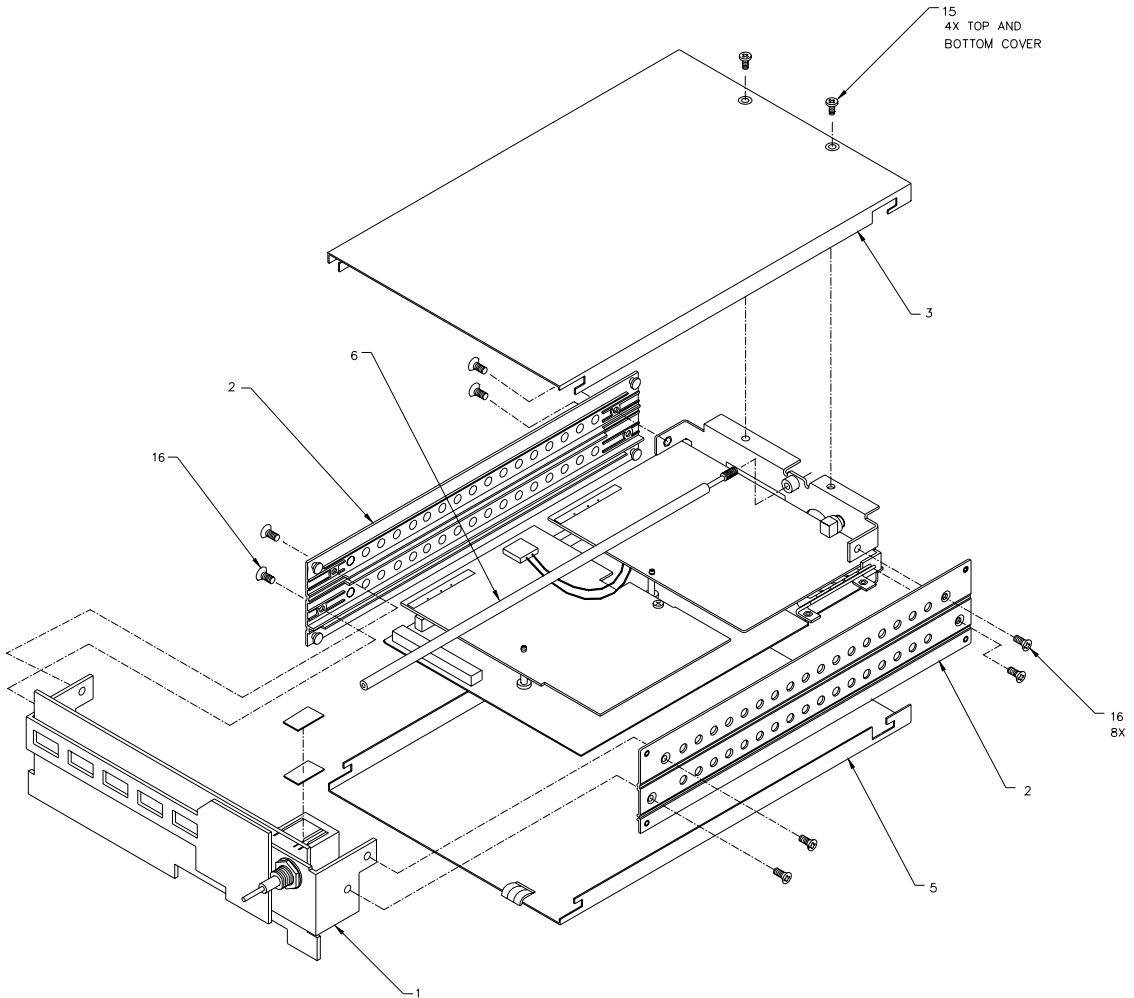


2. Replace 3 screws (Item 14) and washers (Items 16 and 20) on the IOP CCA (Item 101).
3. Replace 5 standoffs (Item 9) on IOP CCA (Item 101).
4. Replace screw (Item 17) and washers (Item 16 and 20).
5. Plug ribbon cable (Item 7) into connector J3.
6. Replace GPS CCA (Item 100), carefully inserting 36-pin connector into P502.
7. Replace 5 screws (Item 14) and washers (Items 16 and 20) on the GPS CCA (Item 100).
8. Attach antenna connector (Item 8) to J1.
9. Replace Display Assembly (Item 1), carefully inserting 48-pin connector into J601.
10. Replace 4 screws (Item 15), 2 on each side near front.
11. Replace mounting shaft (Item 6), taking care not to bring it into contact with components inside the unit.
12. Replace top cover (Item 3).
13. Replace 3 screws (Item 13) on back.
14. Replace 6 screws (Item 13), 3 on each side.

E. Functional Test

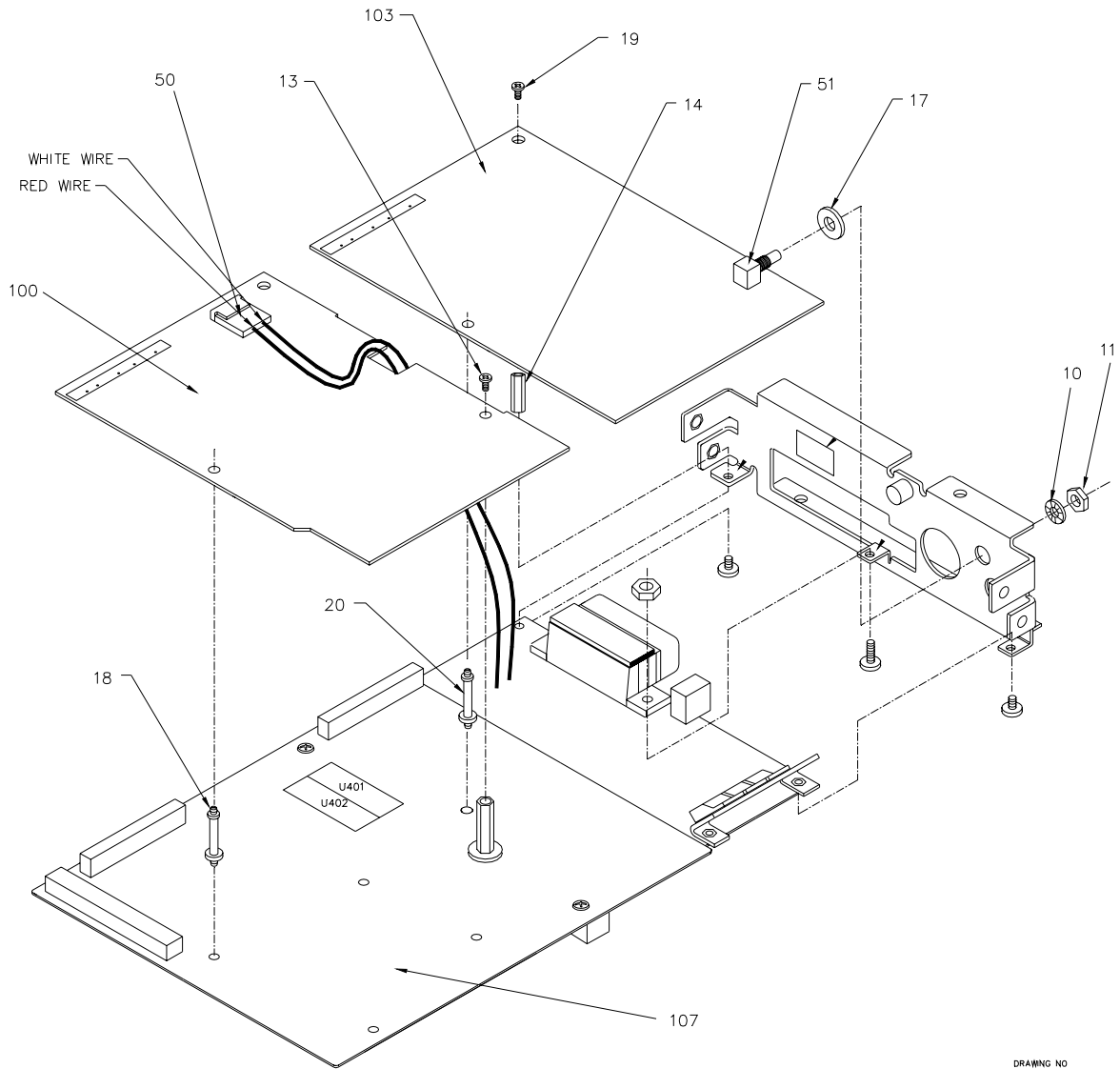
The FreeFlight Systems Factory Service Centers shall perform the functional test as described in Acceptance Test Procedure (ATP) 81438-XXTP.

When the Acceptance Test Procedure has been satisfactorily completed, strike number 14 on the Service Bulletin label (Item 11) with a permanent marker.



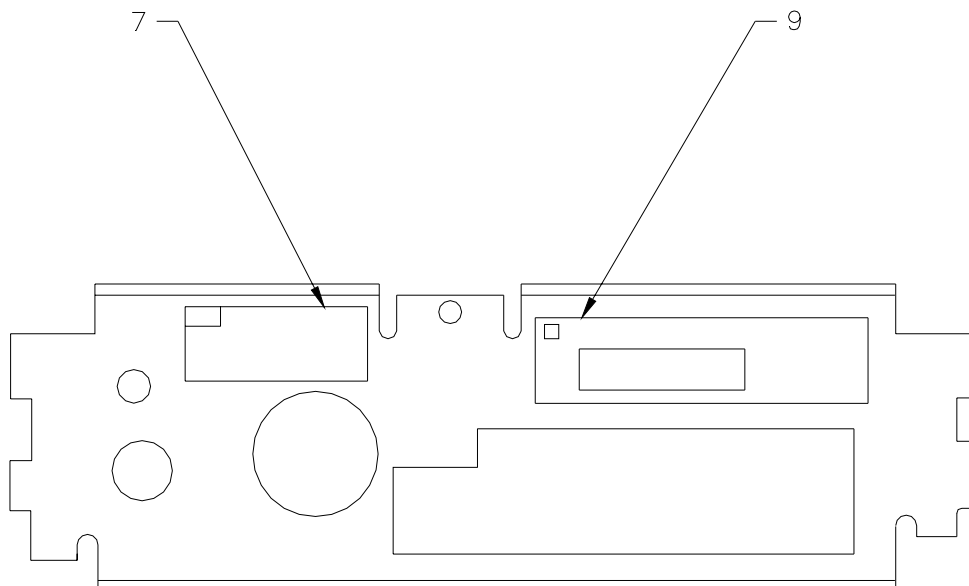
DRAWING NO
81438K2

Figure 1
Disassembly of 2000 Approach Chassis



DRAWING NO
81438XX3

Figure 2
2000 Approach CCA Stack



DRAWING NO
81438XX4

Figure 3
2000 Approach labels

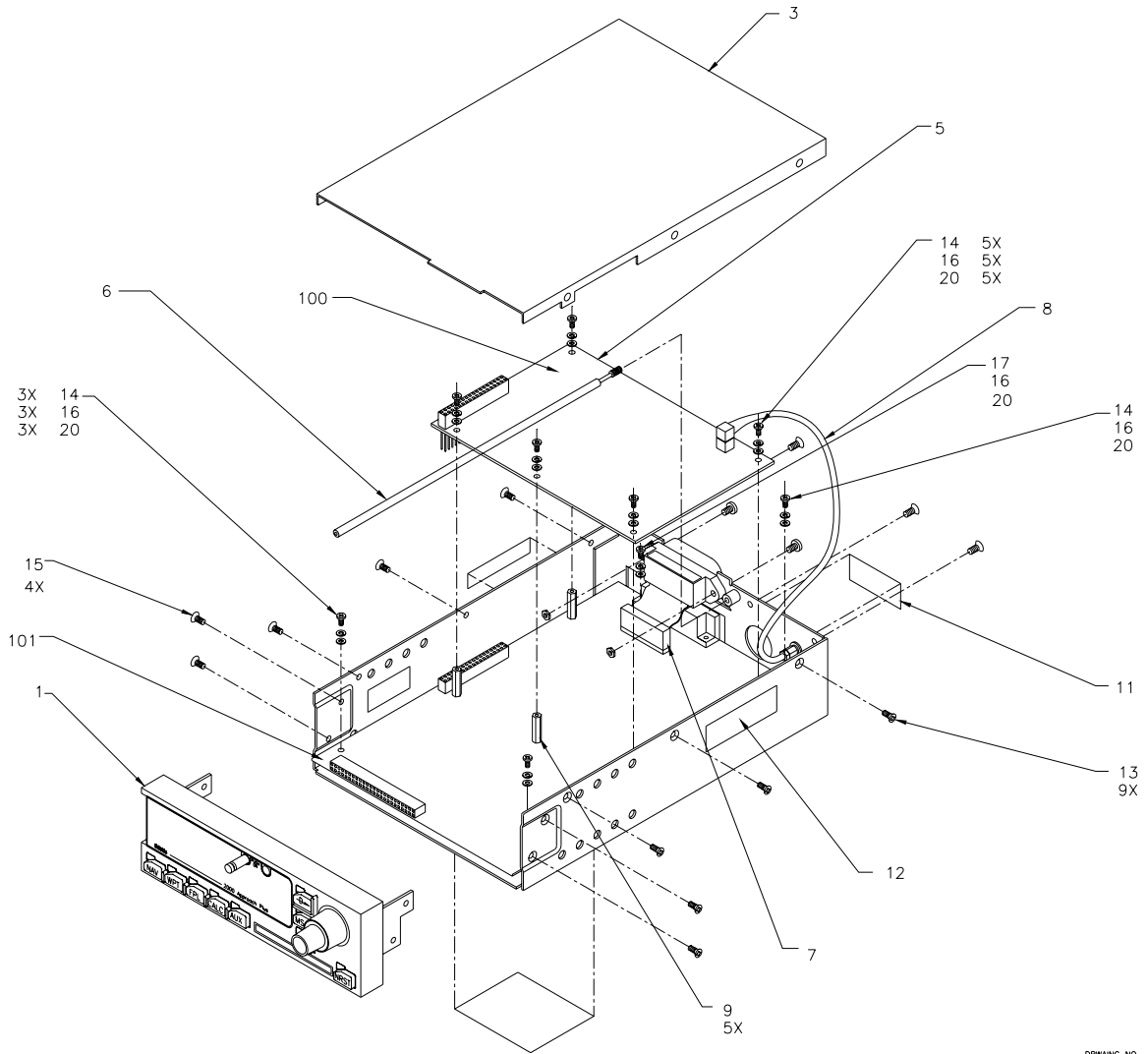


Figure 4
2000 Approach Plus Chassis