Replacing the X-ray Generator

WARNING: Before removing the covers, you MUST switch OFF the unit AND disconnect the unit from the main power supply by switching OFF the circuit breaker in the electrical cabinet.

ONLY an approved Carestream technician is qualified to inspect or maintain the unit while it is switched on and while the covers are removed. In this case, NO unqualified person must approach the unit.

WARNING: MAKE SURE that the X-ray generator that you want to replace has a serial number that is compatible with the serial number of your unit.

If you	Then ...
Have a generator with the serial number EDxxx onwards	Execute all the procedures in this chapter
Have a generator that is older than the serial number EDxxx	Replace with *new front motors* when you execute the procedures in this chapter.

1. Description

The X-ray generator:

- Supplies high-voltage circuit power to the X-ray tube.
- Enables the selection of kV, mA, and exposure time.

Tool Requirements

You must supply the following tools:

- Metric allen keys.
- Metric spanners.
- Flathead screwdriver.
- Cable tie cutter.
- Calibration tools.

Note: The tool references mentioned in this guide are ISO tool references.

Before Removing or Replacing the X-ray Generator and Secondary Collimator Assembly

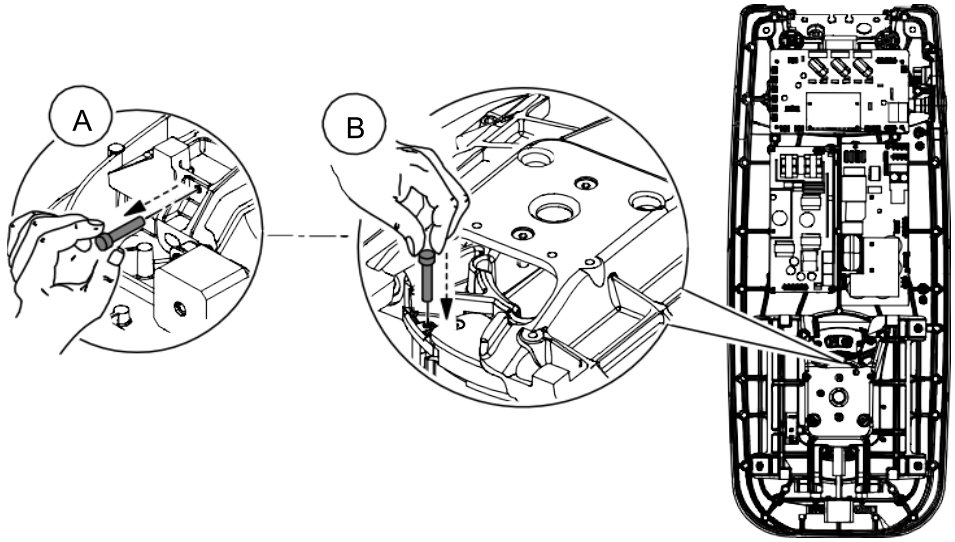
Before removing or replacing the X-ray generator and secondary collimator assembly, make sure that:

- The unit is disconnected from the main power supply by switching off the circuit breaker in the electrical cabinet.
- The unit is switched off.
- The rotative arm covers are removed.
- You have the required tools.
- You have the appropriate new X-ray generator.
- You have the secondary collimator that you removed.
- You have three new lock nuts.

2. Removing the X-ray Generator

To remove the X-ray generator, follow these steps:

1. Block the rotative movement by placing the pin (A) in the slot on the left of the metal access plate (B) that covers the CJ857 movement detector board.



2. Disconnect the four cables from the CJ889 collimator driver board. (A)

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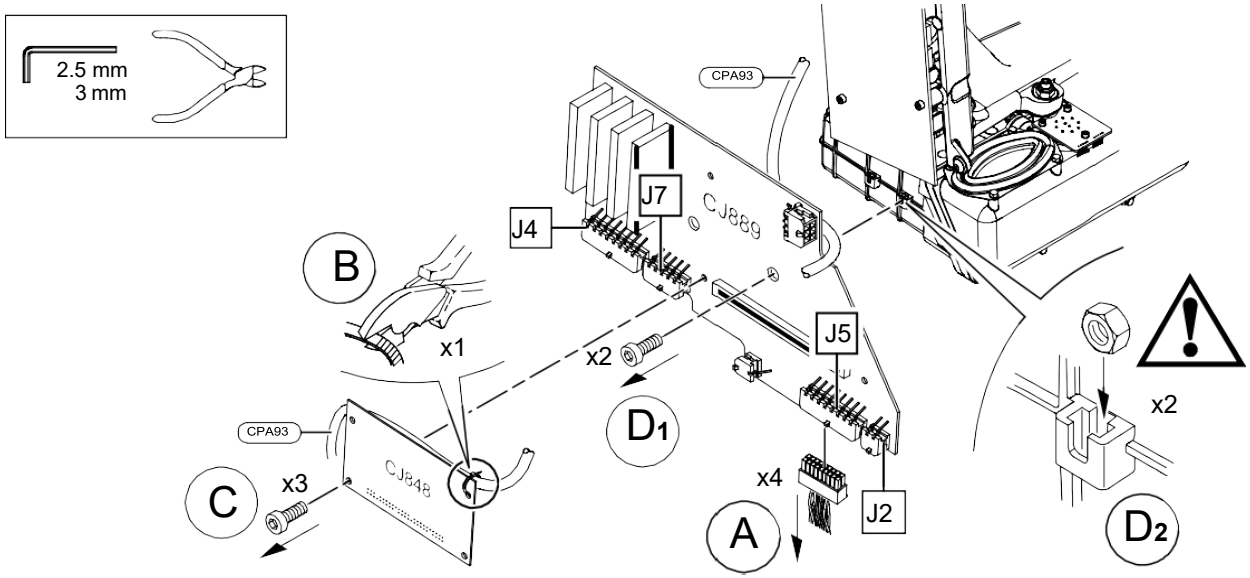
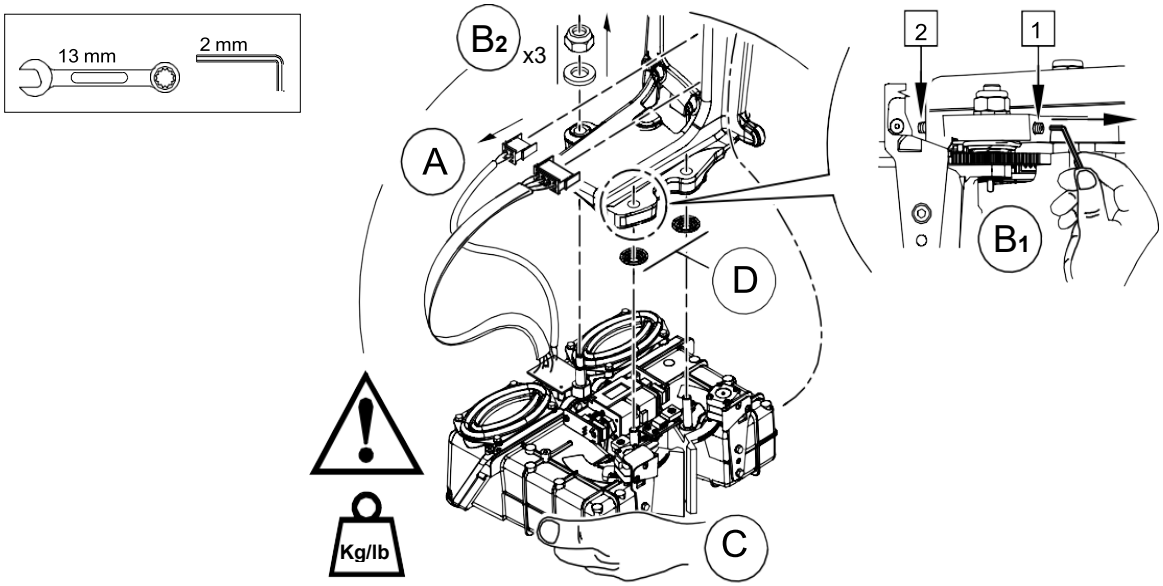


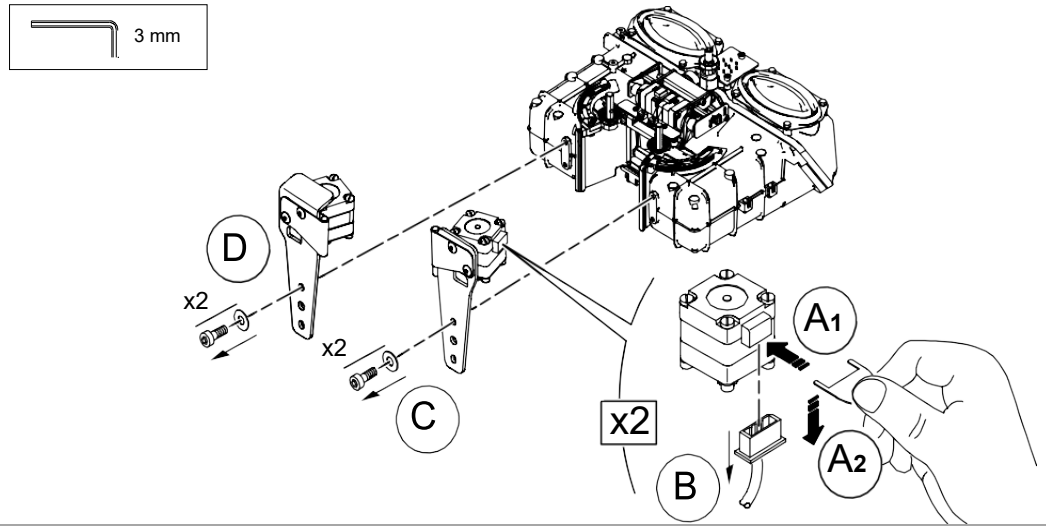
3. Cut and remove the cable tie. .
4. Remove the three screws and carefully unplug the CJ848 microprocessor board (C) from the CJ889 collimator driver board.
5. Remove the two bolts and the CJ889 collimator driver board. (D_1)

Important: After you remove the two bolts, the two nuts will remain in the nut cages (D2).

6. Disconnect the two X-ray generator cables from the CJ855 generator power board. (A)



7. Loosen the two adjustment screws. (B1)
8. Undo the three lock nuts. (B2)
9. Support the X-ray generator with one hand. (C)
10. Remove the three lock nuts and washers with your other hand. (B2)
11. Carefully lower the X-ray generator and be careful not to lose the two springs. (D)
12. Press the cable extractor tool against the cable connector of the right motor. (A1)



13. Move the cable extractor tool downwards (A2) to disconnect the cable (B) from the right motor.
14. Repeat steps 12 and 13 for the left motor.
15. Unscrew and remove the two screws and washers of the mounting brackets and remove both the front motors ((C) and (D)).
16. Disconnect the six cable connectors from the secondary collimator. (A)

Important: You must use a cable extractor tool to remove the cables.

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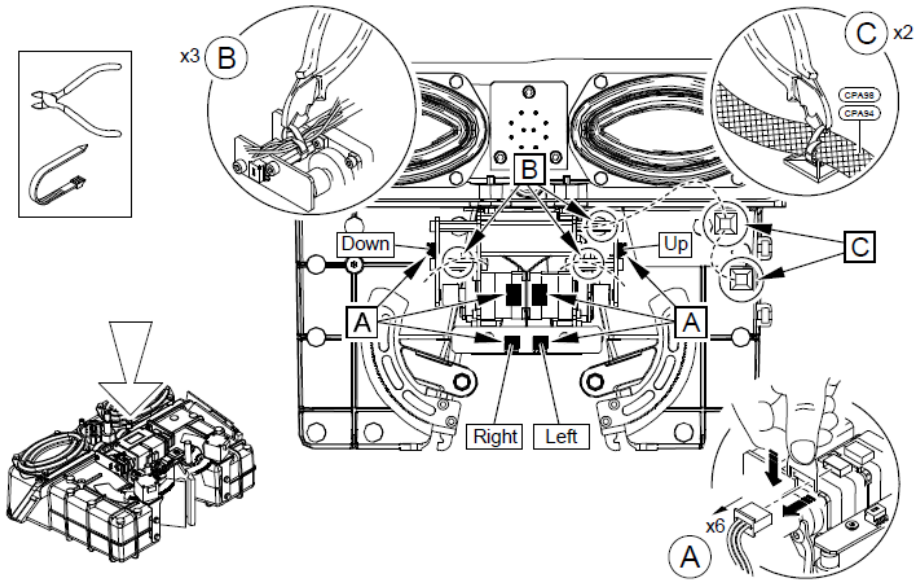
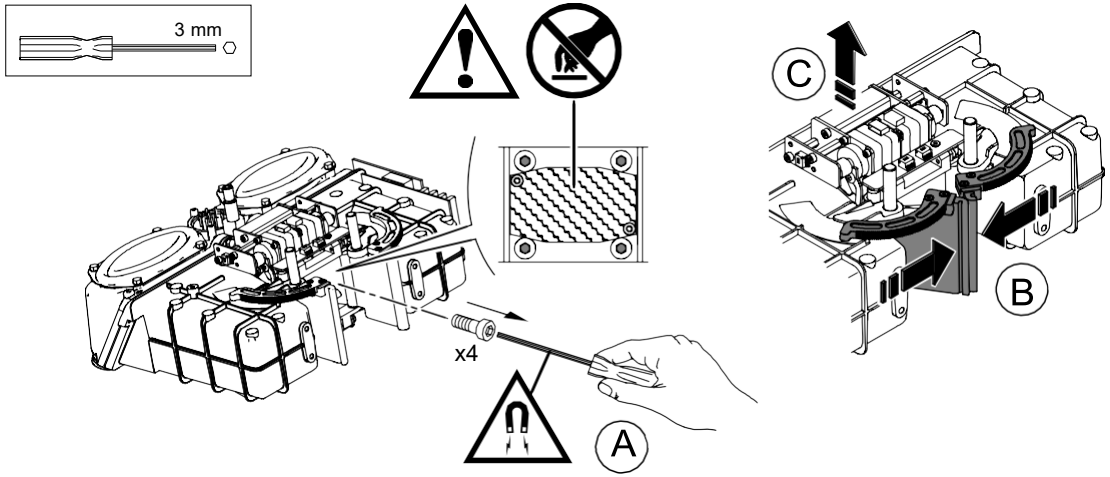


17. Cut and remove the three cable ties. (B)
18. Cut and remove the two cable ties. (C)
19. Using a magnetic allen key, carefully remove the four screws inside the secondary collimator. (A)

Important: You MUST wear the gloves that are provided before you remove the secondary collimator.

WARNING: Do NOT touch the surface of the secondary collimator filter.

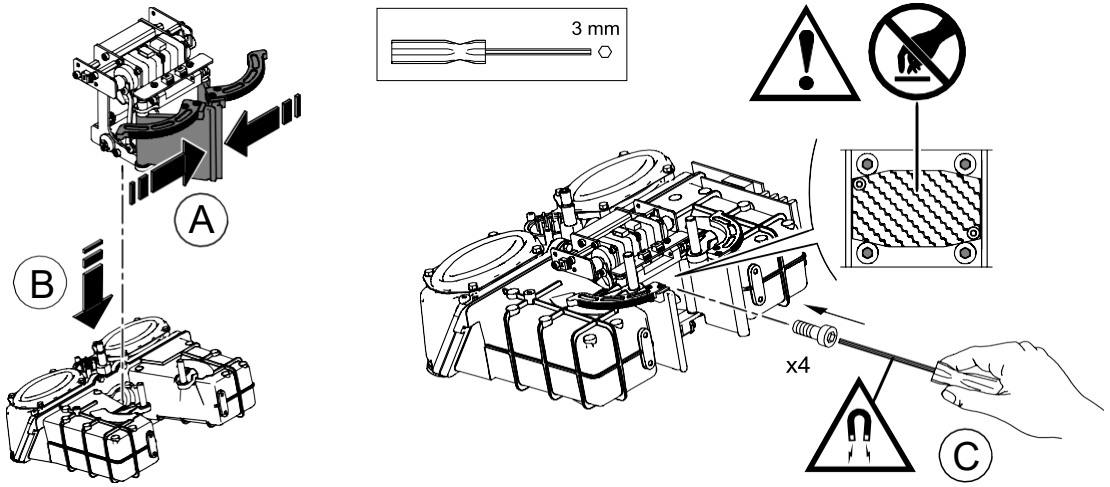


20. Close the secondary collimator blades. (B)
21. Lift the secondary collimator forward and up from the X-ray generator. (C)

3. Replacing the X-ray Generator

To replace the X-ray generator, follow these steps:

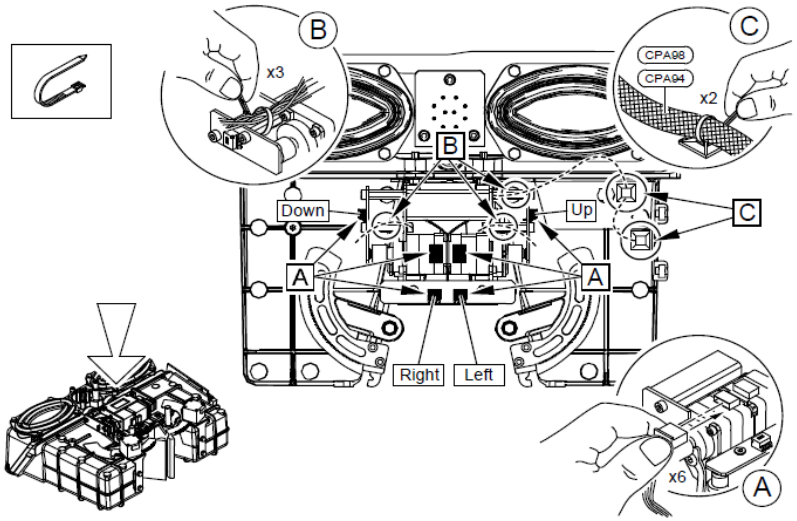
1. Make sure that the secondary collimator blades are closed. (A)
2. Hold the secondary collimator that you removed in the forward tilt position and lower it into thenew X-ray generator. (B)



3. Using a magnetic allen key, carefully insert and tighten the four screws. (C)

> **WARNING: Do NOT touch the surface of the secondary collimator filter.**

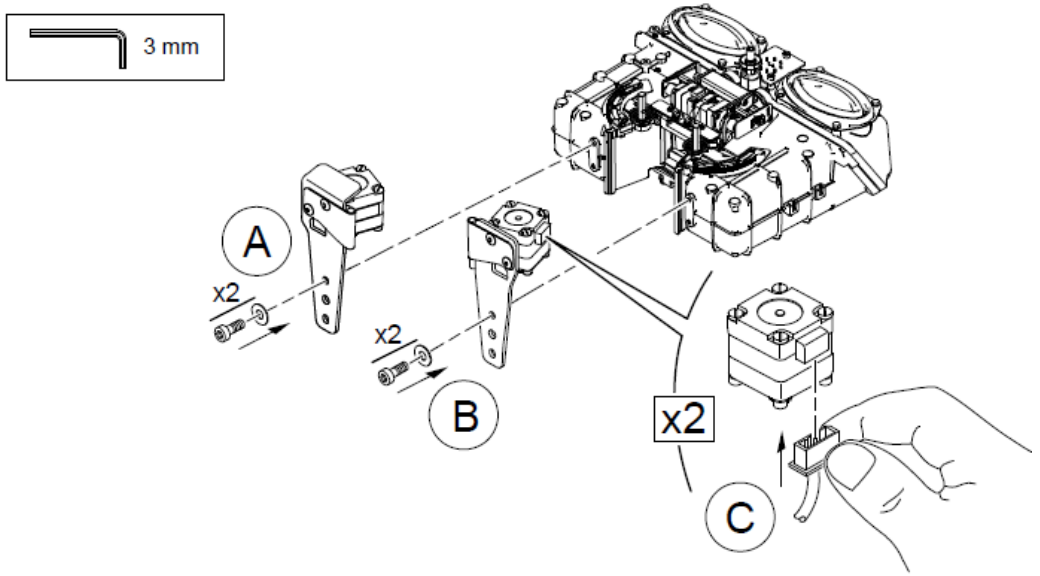
4. Reconnect the six cable connectors to the secondary collimator. (A)



5. Replace the three cable ties, then cut off the cable tie ends (B). Make sure that you leave enough cable length to connect to the CJ889 collimator driver board.

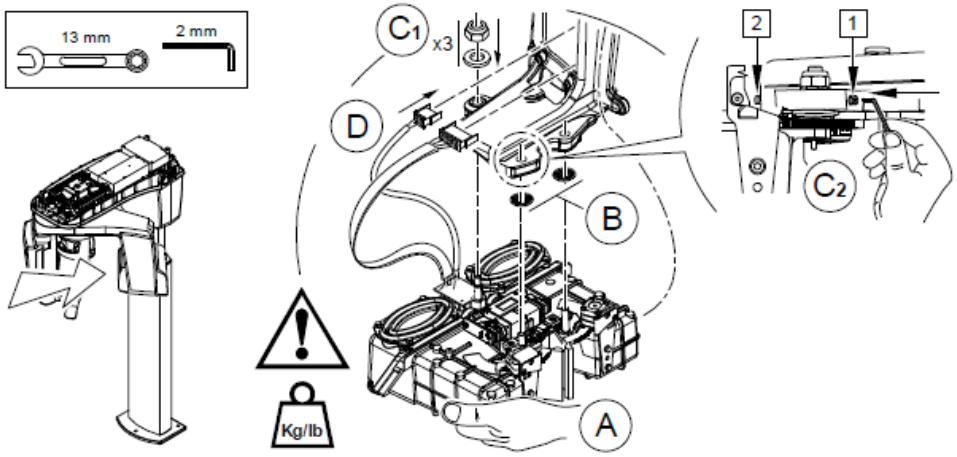
6. Replace the two cable ties, then cut off the cable tie ends (C). Make sure that you leave enough cable length to connect to the CJ889 collimator driver board.

7. Place the front motors on the X-ray generator and replace the two screws and washers of the mounting brackets ((A) and (B)).



8. Reconnect the cables to both the front motors. (C)
9. Support the X-ray generator with one hand (A) and position it in the three holes on the rotative arm.

WARNING: The X-ray generator is HEAVY.

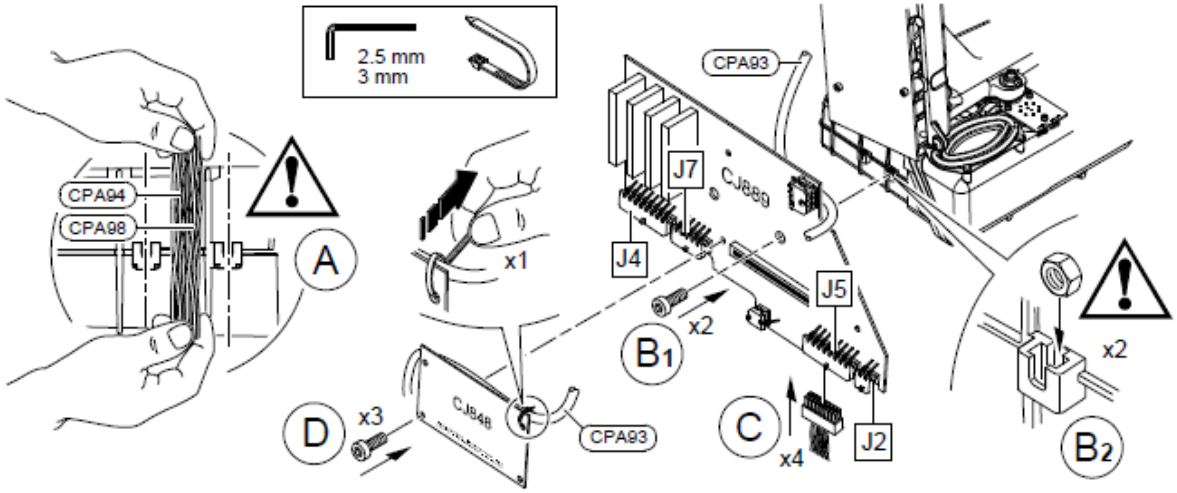


10. Place the two springs in position on the X-ray generator with your other hand. (B)
11. Place the three washers and new lock nuts in position and tighten them. (C_1)

> **Important: You must use three NEW lock nuts when replacing the X-ray generator.**

12. Tighten the two adjustment screws. (C_2)
13. Reconnect the two X-ray generator cables to the CJ855 generator power board. (D)
14. Position the CJ889 collimator driver board and tighten the two (B_1) bolts to the two nuts in the nut cages. (B_2)

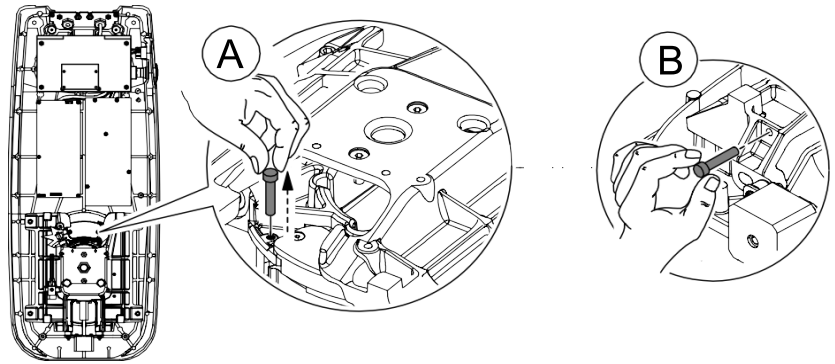
> **WARNING: To avoid damaging the CPA94 and CPA98, ensure that you DO NOT trap them when you tighten the bolts to the nuts (A).**



15. Replace the four connectors (J2, J4, J5, and J7) to the CJ889 collimator driver board. (C)

    Each cable is labelled with the reference number of the connector on the CJ889 collimator driverboard.

16. Carefully plug the CJ848 microprocessor board to the CJ889 collimator driver board. (D)
17. Insert and tighten the three screws and replace the cable tie (D). Cut off the cable tie end.
18. Remove the pin blocking the rotative movement (A) and put it back in its storage position. (B)



19. Switch on the circuit breaker in the electrical cabinet.
20. Switch on the unit.
21. Using the Service Tools:
    - Calibrate the X-ray generator:
        - kV calibration.
        - mA calibration.
        - Heating calibration.
    - Calibrate the secondary collimator by running Full calibration procedure under Sensor collimation. Follow the on-screen instructions.
    - Save the system and calibration parameters.

4. Testing the X-ray Generator

To test the X-ray generator, follow these steps using the Service Tools:

1. Run the post installation procedure.
2. Register the intervention.

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