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### 3.4.2 Frame R7, DC capacitor replacement


#### 1. Remove covers and cable gland box

- a. Remove the control panel
- b. Open two mounting **screws**.
- c. First lift off top cover and then release four clips to remove bottom cover.
- d. Remove the cable gland box by opening the mounting **screws**. (3pcs)M6x12



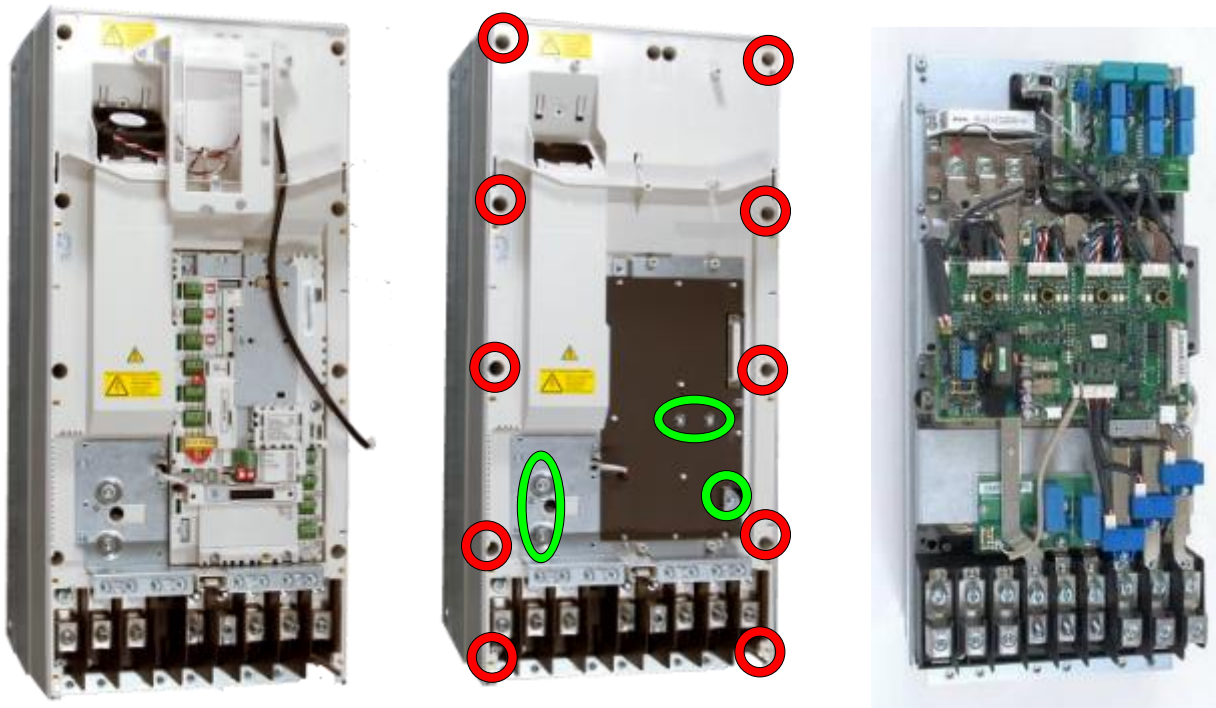
#### 2. Remove CCU

- a. Remove CCU (see instructions in section 3.3.3 *Control unit replacement (CCU)*, page 12).

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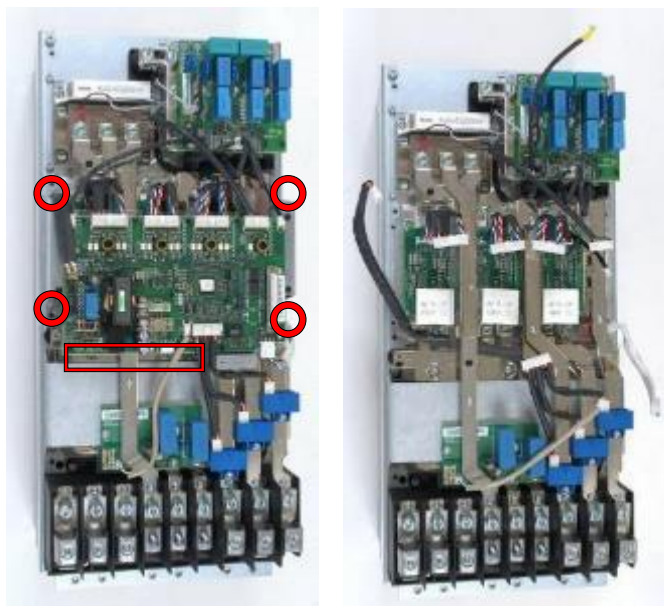
### 3. Remove middle frame (skeleton)


- a. Remove grounding **screws**. (5pcs) M4x8
- b. Remove skeleton mounting **screws**. (10pcs)M5x12



### 4. Remove ZINT board

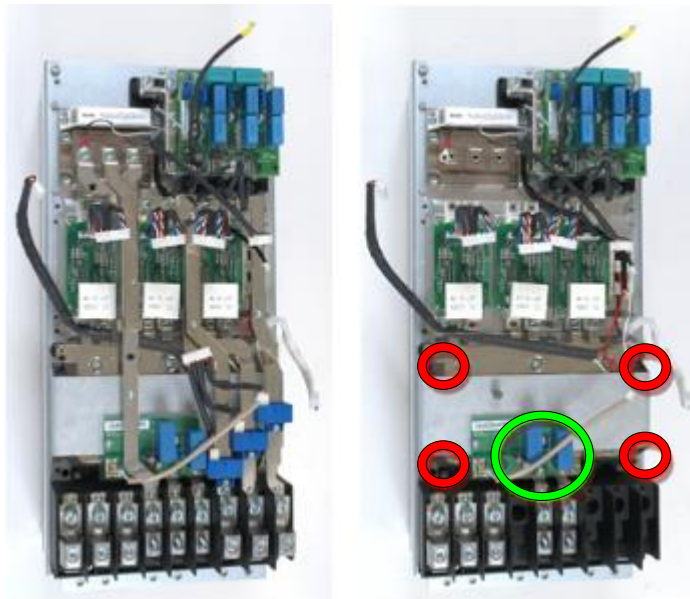
- a. Unplug ZINT wiring
- b. Remove ZINT frame fixing **screws** (4pcs) M5x12 and (4pcs) M4x12



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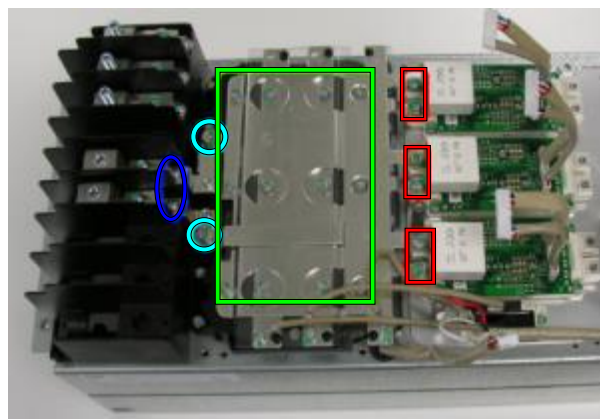
## 5. Remove ZFC board

- a. Remove output busbars and current transducers
- b. Remove **varistor board** (if used, 4 pcs M4x8) and frame by 4 **fixing screws** M5x12

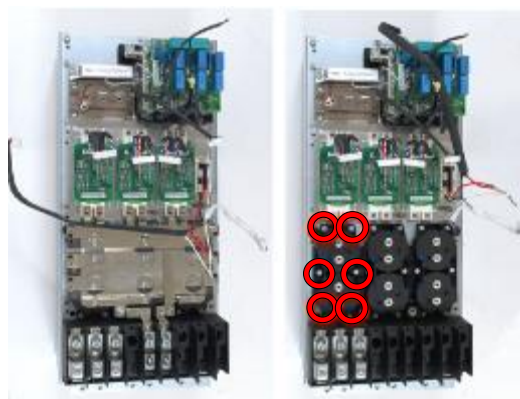


## 6. Remove DC capacitors

- a. Remove clamp capacitor **fixing screws**, 6pcs M6x16
- b. Remove DC capacitor **pole screws**, 12pcs M5x12
- c. Remove choke connection **screws** (M8x20 and M6x20)
- d. Remove DC busbar **fixing screws** (2pcs K50x16 PT) on the output terminals




- e. Remove DC capacitor **fixing screws** (6pcs) M5x20, lift capacitors



## 7. Install components in reverse order

Check the correct tightening torques from section 2 (page 6).

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### 3.4.3 Frame R8, DC capacitor replacement

#### 1. Remove covers and cable gland box


- a. Remove the control panel
- b. Open two mounting **screws**.
- c. First lift off top cover and then release four clips to remove bottom cover.
- d. Remove the cable gland box by opening the mounting **screws**. (3pcs)M6x12



#### 2. Remove CCU

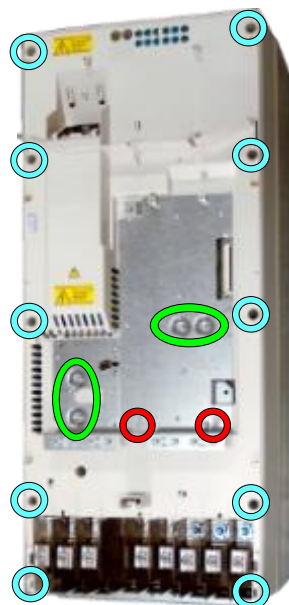
- a. Remove CCU (see instructions in section 3.3.3 *Control unit replacement (CCU)*, page 12).



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### 3. Remove middle frame (skeleton)

- a. Isolating plexiglas fixing **screws** (2pcs) K40x16 PT
- b. Grounding **screws** (2-4pcs) M4x12
- c. Skeleton fixing **screws** (8pcs) M5x12 and (2pcs) M5x20

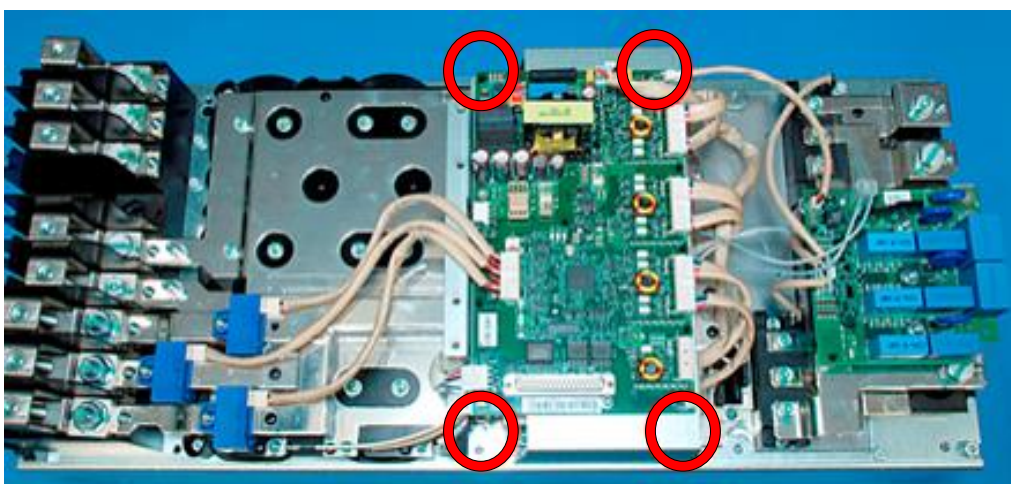



### 4. Remove ZFC-board (if used)

Remove two ZFC-board fixing screws (M4x8) and four assembly plate fixing screws (M4x12 and M5x12)

### 5. Remove ZINT board

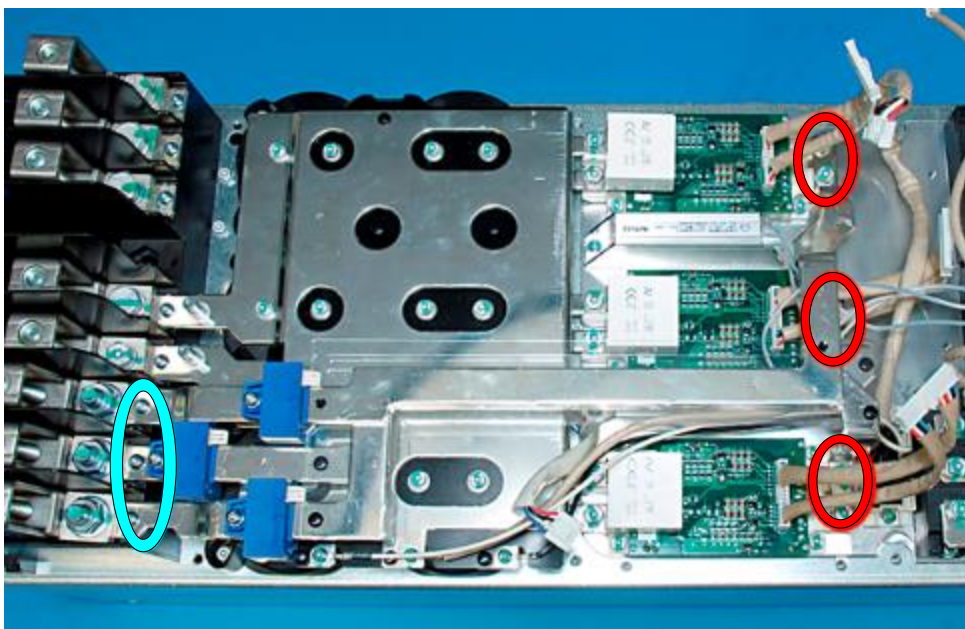
- a. Unplug ZINT wiring
- b. Remove ZINT frame fixing **screws** (4pcs) M5x12



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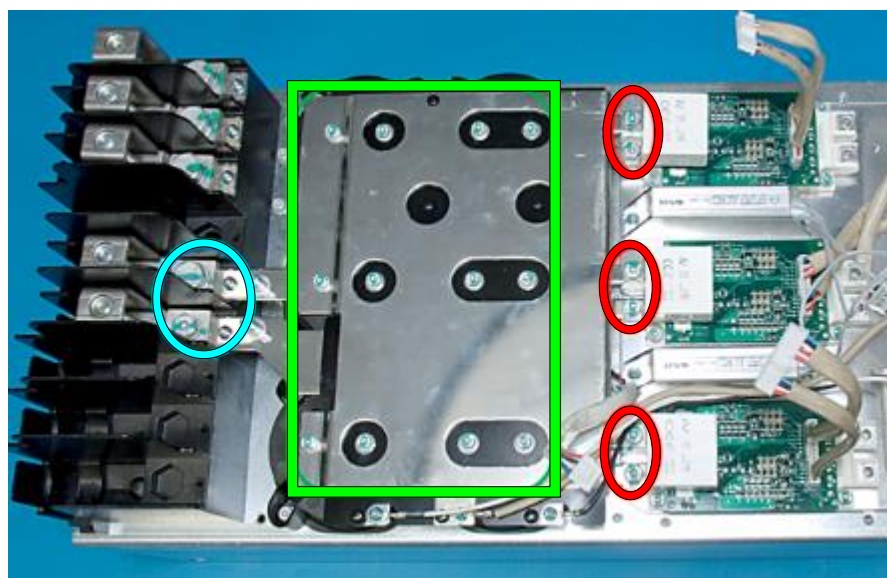
## 6. Remove output busbars


- Remove 3 fixing screws (K50x16 PT) on the output terminals
- Remove 6 fixing screws (M6x16) on the IGBT modules



## 7. Remove DC busbars

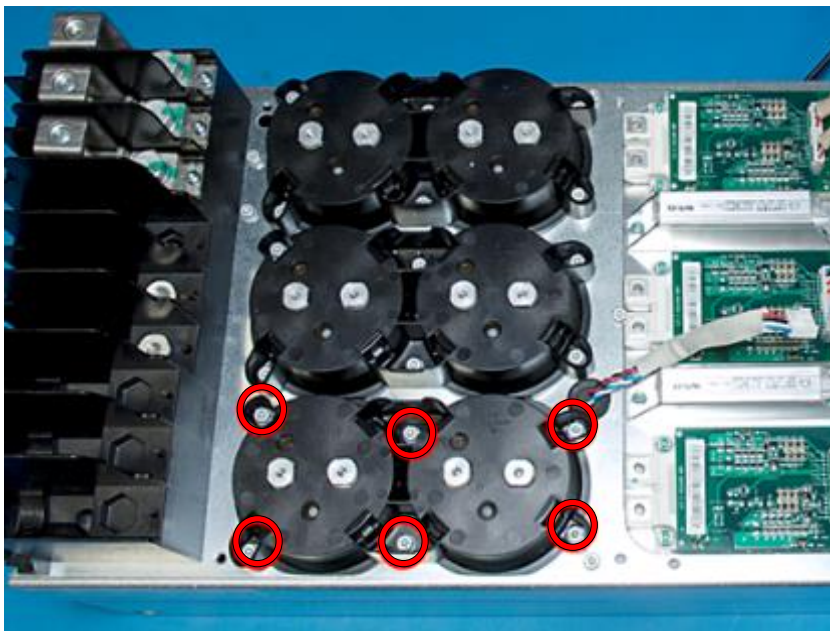
- Remove clamp capacitor fixing screws, 6pcs M6x16
- Remove DC capacitor pole screws, 12pcs M5x12
- Remove 2pcs DC busbar fixing screws (K50x16 PT) and 2pcs choke connection screws (M10x25 and M8x25) on the output terminals



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## 8. Replace DC capacitors

- Remove capacitor fixing **screws**, 6pcs M5x20
- Replace capacitors by lifting



## 9. Install components in reverse order

Check the correct tightening torques from section 2 (page 6).

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### 3.4.4 Frame R9, DC capacitor replacement

#### 1. Remove covers and cable gland box

- a. Remove the control panel
- b. Open two mounting **screws**.
- c. First lift off top cover and then release four clips to remove bottom cover.
- d. Remove the cable gland box by opening the mounting **screws**. (3pcs)M6x12




#### 2. Remove CCU

- a. Remove CCU (see instructions in section 3.3.3 *Control unit replacement (CCU)*, page 12).

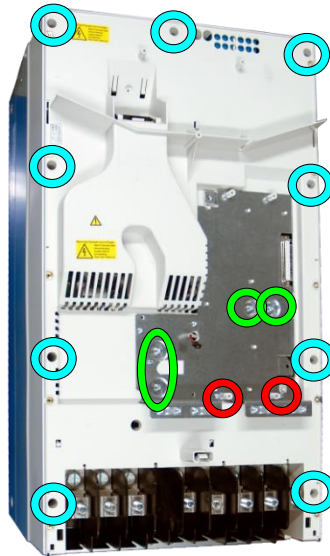




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### 3. Remove middle frame (skeleton)

- a. Isolating plexiglas fixing **screws** (2pcs) M4x16 PT
- b. Grounding **screws** (4pcs) M4x12
- c. Skeleton fixing **screws** (9pcs) M5x12

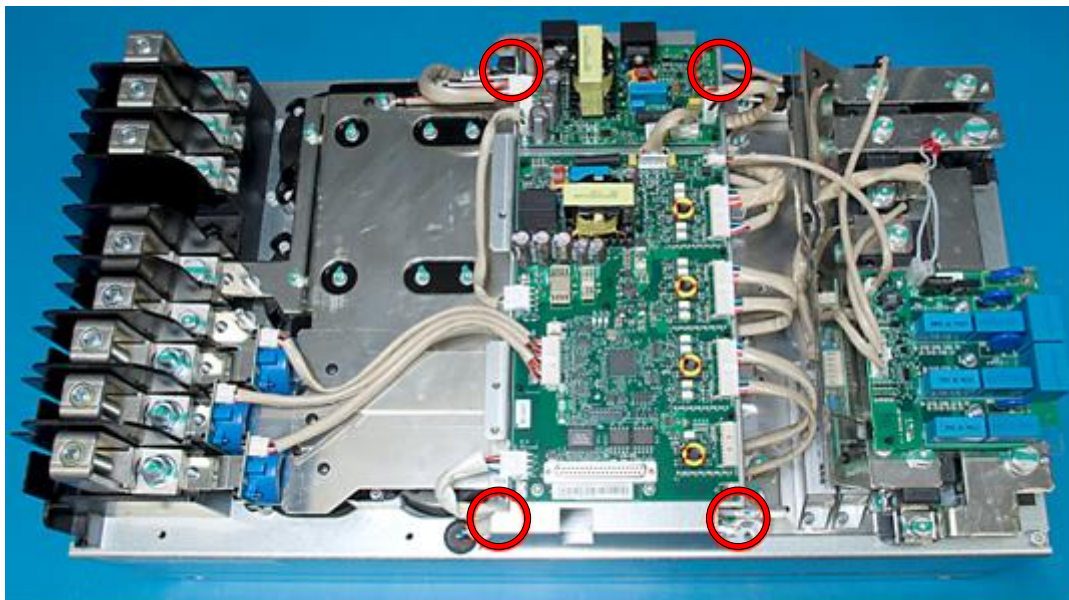



### 4. Remove ZFC-board (if used)

Remove two ZFC-board fixing screws (M4x8) and four assembly plate fixing screws (M4x12 and M5x12)

### 5. Remove ZINT and ZPOW boards

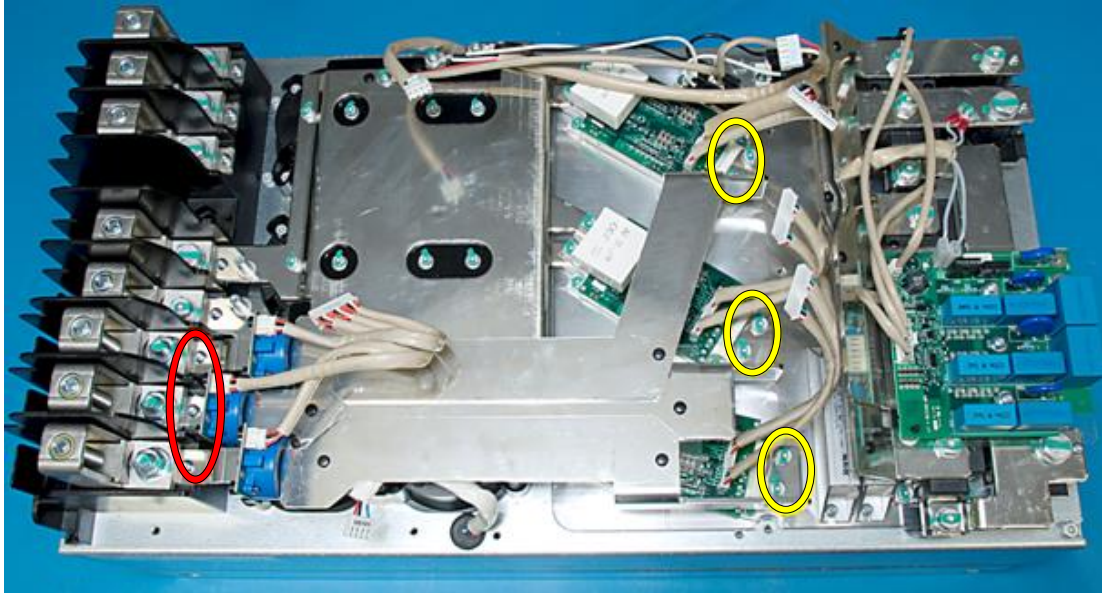
- a. Unplug ZINT and ZPOW wirings
- b. Remove ZINT frame fixing **screws** (4pcs) M5x12



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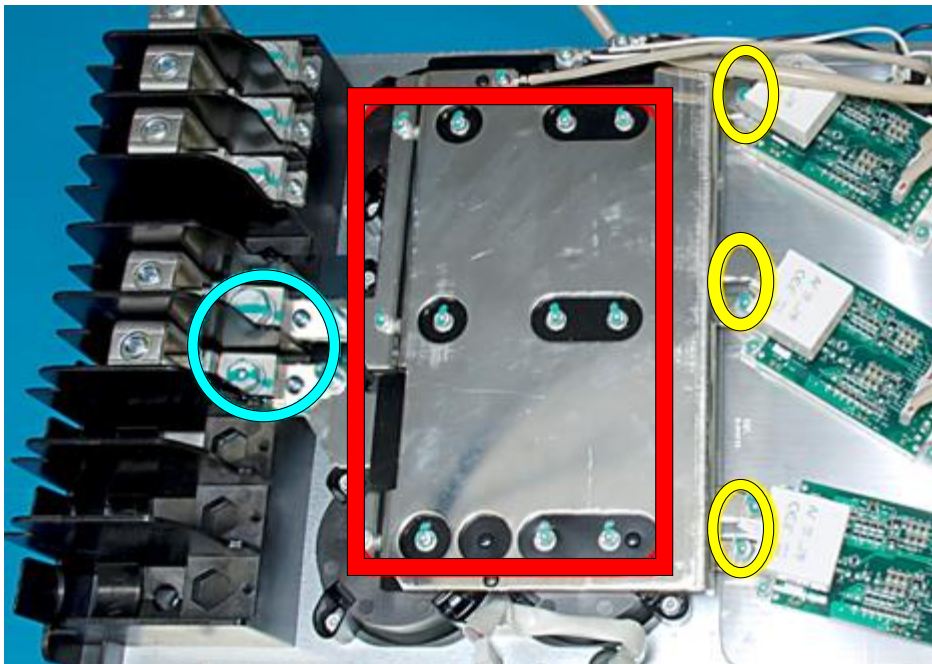
## 6. Remove output busbars


- a. Remove **3 fixing screws** (K50x16 PT) on the output terminals
- b. Remove **6 fixing screws** (M6x16) on the IGBT modules



## 7. Remove DC busbars

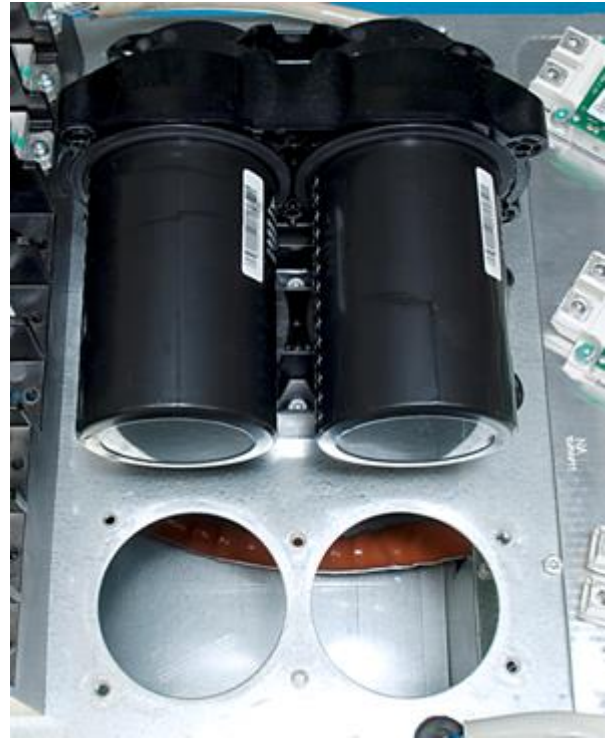
- a. Remove clamp capacitor **fixing screws**, 6pcs M6x16
- b. Remove DC capacitor **pole screws**, 12pcs M5x12
- c. Remove DC busbar **fixing screws** (2pcs K50x16 PT) and 2pcs **screws** (M8x25 and M10x25) on the output terminals



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### Replace DC capacitors

- a. Remove capacitor **fixing screws**, 6pcs M5x20
- b. Replace capacitors by lifting



### 8. Install components in reverse order

Check the correct tightening torques from section 2 (page 6).