1 Scope

This supplement is an addition to manuals HB 602 en and describes the technical deviations with regard to installation and operation of ZX2 switchgear with parallel busbars in comparison with conventional ZX2 switchgear in single busbar design.

2 Outgoing feeder panels with feeder currents up to 3150 A

2.1 Technical description

The feeder current coming from the two parallel busbars is fed via the two disconnectors and the circuit-breaker to the cable sockets.

Operation and control of the switching devices is effected exclusively by the protection and control unit in the relevant panel.

With electrical control, both disconnectors in the outgoing feeder panel are operated in parallel.

On earthing, the earthing switch is operated while the pure disconnector remains in the OFF position.

2.2 Emergency manual operation of the circuit-breaker

On failure of the supply voltage, the two circuit-breakers can be switched off at any time using the mechanical OFF button.

Closing the circuit-breaker on failure of the supply voltage requires work inside the circuit-breaker operating mechanism, and may only be performed by qualified personnel. Please contact the ABB Service Department if required.

2.3 Emergency manual operation of the three position disconnector and the disconnector

Manual operation of the three position disconnector and disconnector on failure of supply voltage or failure of a mechanism motor can only be carried out by trained and qualified personnel working on the relevant operating mechanism as follows.

On manual operation of the mechanisms there is no protection against maloperation!

Before emergency manual operation switch the mcbs for the motor-operated mechanisms of the three position disconnector, the disconnector and for the circuit-breaker operating mechanism (release circuit and charging motor) off.

Fig. 2: Access interlock flap with retaining screw

Retaining screw
3. Panels with operating currents over 3150 A and up to 5000 A

3.1 Technical description

Fig. 3: Circuit diagram of an incoming feeder panel (operating current 3150 A to 5000 A)

- Switch the circuit-breaker in the relevant panel off.
- Remove the screw shown in figure 2.
- Swing the access interlock flap to the right to expose the emergency manual operation shaft.
- Operate the relevant mechanism as described in instruction manual HB 602 en. Remember that both disconnectors have to be operated for the required current carrying capacity to be reached.
- On completion of the switching operations, refit the screw shown in figure 2.

On electrical operation, the two disconnectors in each panel and the two panels are operated in parallel.

On earthing, the two earthing switches are operated while the pure disconnectors remain in the OFF position.

3.2 Assembly of the mechanical link for the circuit-breaker OFF button (figures 4 to 6)

Position the two cubicles and screw them together as described in manual HB 602.
Loosen the two screws of the sleeve (fig. 4) in the right panel and push the sleeve to the right.
Loosen the screws of the right-hand panel marked in fig. 5 and align the two shafts for mechanical coupling of the adjacent circuit breaker drives so that they align with each other.

Fig. 4: Circuit-breaker drive (right hand panel)

Two panels of 800 mm width each are connected in parallel. The operating current coming from the cable sockets is fed via the two circuit-breakers and the four disconnectors in the two panels to the two parallel busbars.

Control of the switching devices is effected by the protection and control unit in the relevant panel. Operation is performed on the master unit for both panels.

The display on the human-machine interface of the protection and control unit shows the function of the two panels as if they were single busbar panels.
3.3 Emergency manual operation of the circuit-breaker

On failure of the supply voltage, the two circuit-breakers can be switched off at any time using the mechanical OFF button. The two circuit-breakers are mechanically linked, with the result that operation of the mechanical OFF button for one circuit-breaker automatically switches both circuit-breakers off.

Closing the circuit-breaker on failure of the supply voltage requires work inside the circuit-breaker operating mechanism, and may only be performed by qualified personnel. Please contact the ABB Service Department if required.

3.4 Emergency manual operation of the three position disconnectors and the disconnectors

Manual operation of the devices can only be carried out by trained and qualified personnel working as specified in section 2.2.

Slide the sleeve onto the adjacent shaft in the left-hand panel and connect the two shafts together by screwing the sleeve to both shafts (fig. 6). Tighten the screws marked in fig. 5 again.