



BIDOYNG SAFETY CHECKS

OVERVIEW

Updated for clarification, Safety Bulletin B237 Issue 01 has been withdrawn.

Following an examination of a Bidoyng from a site in SPN, during a fault job, a faulty switch-drive assembly was discovered. The damage on the switch-drive was such that the secondary and primary fuses in the Bidoyng were both connected in parallel, hence not adequately protecting the feeder way it was installed on.

WHAT YOU NEED TO DO

- Prior to installing a Bidoyng, examine the unit to ensure that the switch-drive assembly is intact (as per the “Healthy switch-drive assembly” in figure 2a) and that it has no signs of rattling or loose connections.
- Prior to removing a Bidoyng from a live LV way, confirm that the **load on the LV way is less than 400A** (To check the load, staff can use the Bidoyng gateway in the same substation or call **Kelvatek’s support service, SAPIENT, on 02034 756 600**):
 - If the **load on the feeder way is less than 400A** the Bidoyng shall be disconnected following existing operational procedures.
 - If the **load on the feeder way is 400A or more**, the feeder way shall be made dead, **or the customers backfed from a different feeder if possible**, before removing the Bidoyng from the distribution board. This is to ensure that we are not breaking **significant** load current with a faulty Bidoyng.

DETAIL

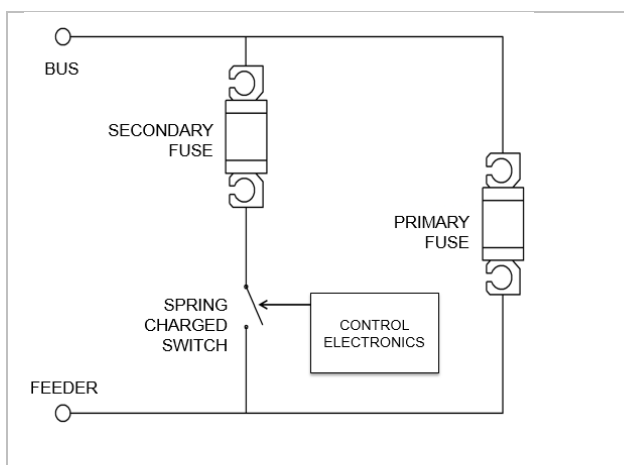


Figure 1a. Bidoyng circuit diagram in normal operation (at initial installation)

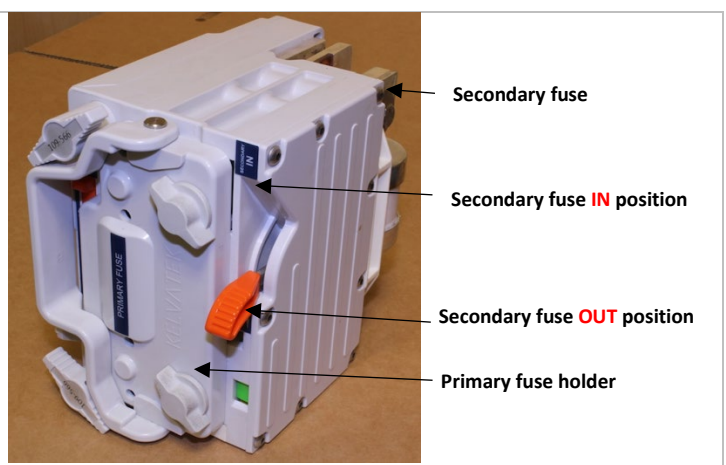
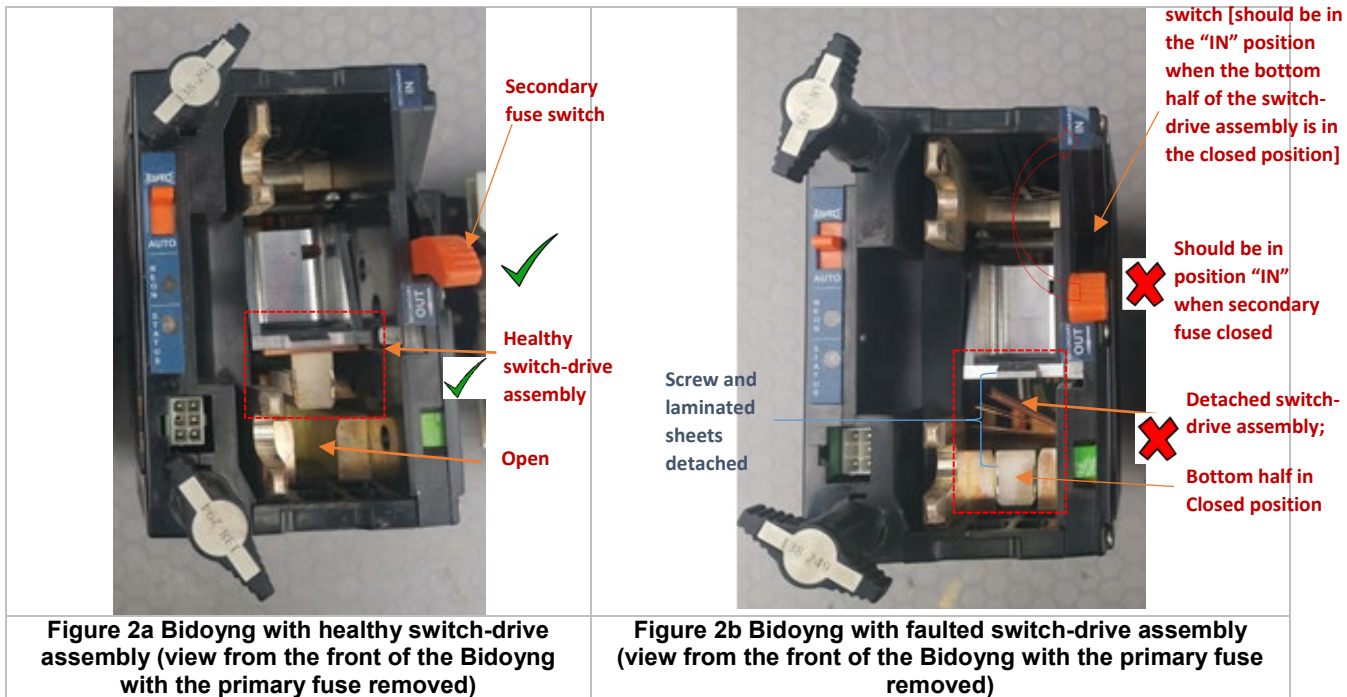


Figure 1b. Bidoyng unit (white)
Please note that the white Bidoyng shown above is for illustration purposes only. Only the black Bidoyngs, which have a higher thermal rating, are in use in UK Power Networks.

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The Bidoyng single shot LV recloser consists of two fuses: a primary fuse which is in line with the circuit being protected and a secondary fuse which is normally disconnected from the circuit, via an open switch, when the device is first installed (see Figure 1a). On the Bidoyng, the orange lever in the secondary fuse “OUT” position usually indicates the secondary fuse is not connected (see figure 1b). When the Bidoyng is subjected to sufficient fault current to cause the primary fuse to blow, the secondary fuse automatically switches in, via a spring charged switch and control electronics. The orange lever on the Bidoyng then moves to the secondary fuse “IN” position to indicate the secondary fuse is connected.



Following an examination of a Bidoyng from a site in SPN, during a fault job, a faulty switch-drive assembly was discovered (see Figure 2b). The damage was such that the upper half of the switch-drive assembly was detached from the bottom-half of the switch-drive assembly; the securing screws and laminated sheets had become loose (compare Figure 2a to Figure 2b).

The detached switch-drive assembly resulted in the secondary fuse switch erroneously indicating “OUT” (i.e. disconnected) even though the bottom half of the switch-drive assembly was in the closed position (the secondary fuse switch should have been in the “IN” position). The implication is that staff would have been unaware that both the primary and secondary fuses were both connected whilst the Bidoyng was still in service. Also, the feeder way would not have been adequately protected if both the primary and secondary fuses were connected.

A review of UKPN and Kelvatek records indicates that this failure is a rare occurrence. An investigation is being carried out and the Bidoyng unit will be subjected to tests to determine the cause and mechanism of failure. In the interim, to mitigate any associated risks for Bidoyngs that may have failed, the checks outlined in the “**What you need to do**” section, on page 1, shall be carried out.

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