STEPS TO CHANGE VECTOR ROTATION - TRANSFORMER PHASE-SHIFT AT A SUBSTATION

START

Vector rotation at source A - B - C ?

- Yes → It's A-B-C
- No → It's C-B-A

New transformer vectors - 30deg (Dyn1)?

- No → It's 330deg

Want A -B - C rotation from 330deg transformer ?

- No
- Yes

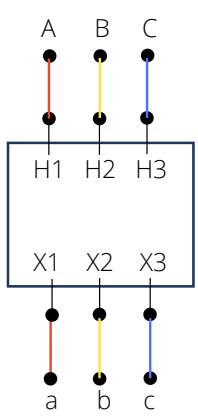
Want C- B - A rotation from 30deg transformer ?

- No
- Yes

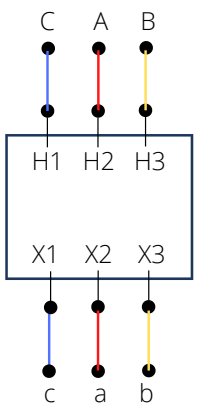
New transformer vectors - 330deg (Dyn11)?

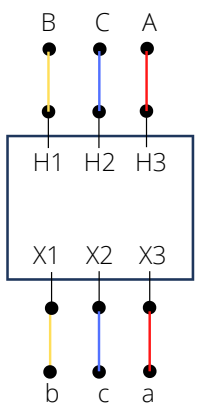
- No → It's 30deg
- Yes

CONNECT PHASES STRAIGHT

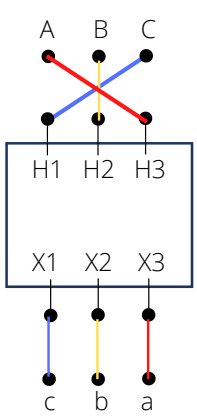


OR, ROLL FOR 2 OTHER COMBINATIONS

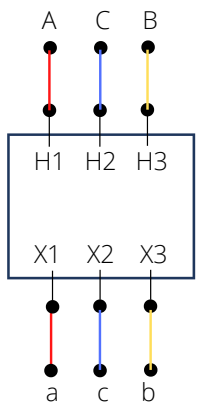


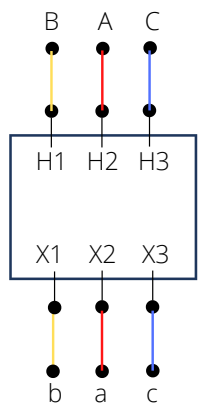


FLOP PHASES

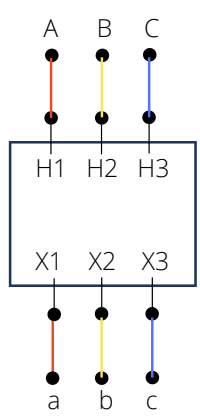


<u>AFTER FLOPPING</u>, ROLL FOR OTHER COMBINATIONS

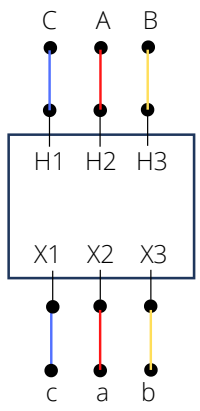


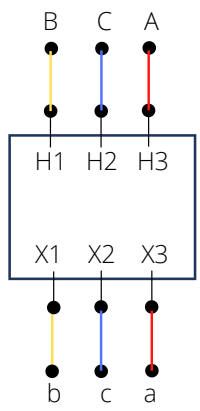


CONNECT PHASES STRAIGHT



OR, ROLL FOR 2 OTHER COMBINATIONS

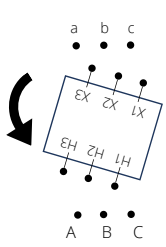




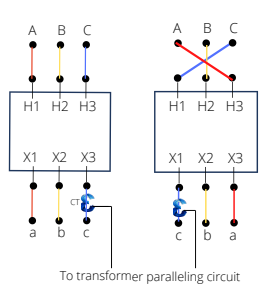
END

Error - Traps

Are you re-positioning transformer?



Have phases flopped on the bushing? Fix this. Keep source vector rotation intact, going into and out of the substation.



Are you paralleling transformers?

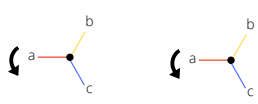
When paralleling transformers with different phase-shifts, check the CT used for paralleling. Pick ones from the same phase (and not the same bushing.)

This check is necessary for a paralleling-scheme like the circulating-current method.

Consider rolling phases if one of the combinations makes it easy to land a bus or conductor on the transformer bushing.

Transformer phase-shifts 30deg & 330deg covered here. Apply the same concept to other complementary shifts like 90-270deg and 150-210deg.

Obtain correct phasing for source synchronization or transformer paralleling when the vectors rotate in the same direction, and the phase-shifts in the transformers match.



Created by **Aleen Mohammed**

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