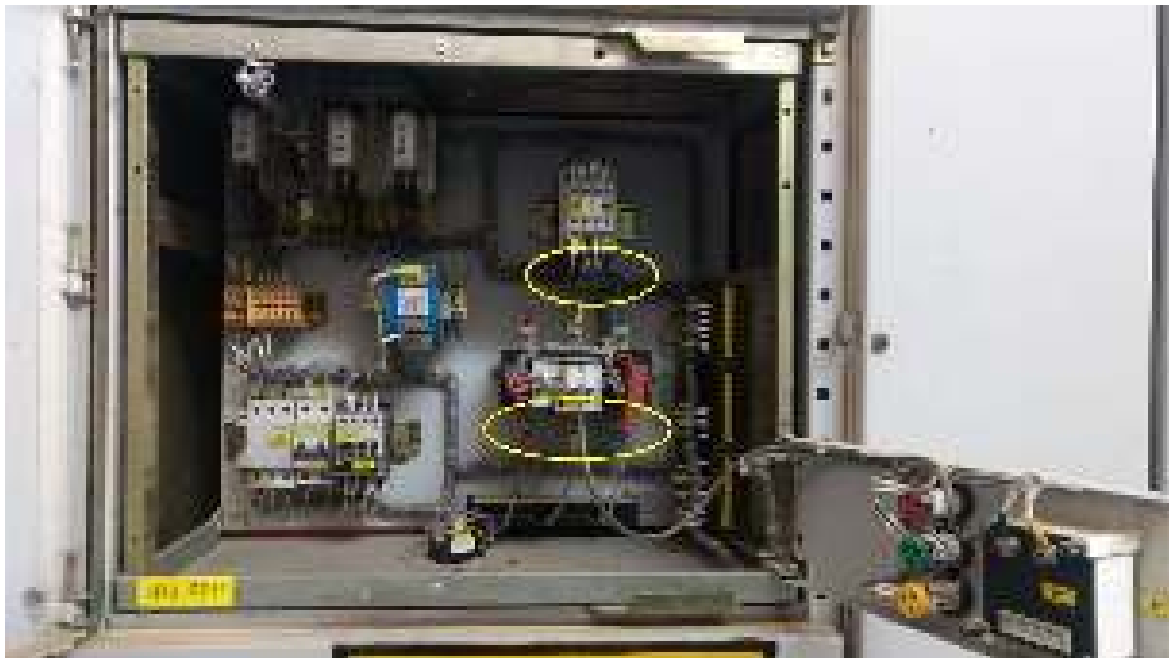


Case Study - From Where did you change the Direction of Motor?

Hello Friends / Sir,

A common operation & maintenance practice, which we have seen in various plants for changing direction of LT motors below 15 KWs, is by changing phase sequence inside the panel, either from below the power contactor or below thermal overload relay/ or other relay (for various reasons) (as marked in yellow circle in pic A.1).



Pic: A.1

One of the reasons for changing power cable from relay & Power contactor is that it will be saving more time (manhour) than changing cable on motor terminal side.

But, by doing this, we are inviting a **“Near Miss / Accident”** situation, which sometimes may not but sometimes may damage the equipment’s or can cause accident in your plant. How? We’ll let you know.

Normally in process or 24X7 running industries there are many identical motors with same rating, used for same application and their power coming from same MCC. Also, there can be similar rating motors for different applications in same MCC.

Now for example, in MCC there are 9 Nos 5.5 kW DOL starter feeder, 8 in used (4 for Fan, 2 for screw conveyor and 2 for belt conveyor with gear box and 1 is spare. Whenever the MCC is manufactured, the power cable wiring in all the feeders will be R, Y & B only (From Left to right).

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During O&M or shutdown, it happens various time, that due to plant requirement or due to any problem in the equipment maintenance guy need to change the direction of motors, so during that time engineer & technician change the direction of motor by changing power cable below relay or power contactor.

OR

When we are replacing the motor with new motor and while taking no load trial, we found that direction of new motor is reversed, so we interchange the R & Y power cable below Relay or Power contactor as it is less hectic and take less time. Now our motor is running in correct direction but inside feeder cable is Y, R and B.

Now in future if there is some problem in the same feeder and you are not able to diagnose the problem, and you must start that motor immediately, what maintenance personnel will do? They will replace the same feeder with spare feeder of same rating.

But, in the spare feeder direction of cable is R, Y and B. if the Maintenance Engg. or Tech. has noticed it, then they will change as per running feeder and then only give start clearance, but you will replace the running feeder with spare feeder only when there is urgency and during those time, we have seen that Engg. or Tech. misses to check the direction inside feeder which will result in rotation of motor in **wrong direction**.

Now that rotation in wrong direction can be hazardous or non-hazardous. It may increase the downtime, or it may damage few components of equipment, or it may cause near miss to the field personnel, or it may cause serious accident. Ultimately something will be lost.

Hence, we always Suggest while changing the direction of Motor (For below 15 kW) from feeder, we must do it from panel termination side as marked in Photo **(If Possible) or Outgoing Terminal in the cable chamber (depending on design of MCC)**. We know it will take more time but not more than 10-15 minutes than changing the direction of cable below relay or contactor.

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Pic: A.2

Yes, we would like to have your comments and suggestions on such cases.

And We request you to share with all your colleagues.

We, as an Electrical asset consultant and service provider always suggest what is best to run your industries smoothly and without hiccups of maloperation and breakdown.

And if you are looking for a dedicated agency that understands the direct link between your assets and your revenue, call/write to us, we will be happy to assist you.

SYSTEM PROTECTION

E-Mail : bdm@systemprotection.in

Web : www.systemprotection.in

Tele : +91-265-2225137

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