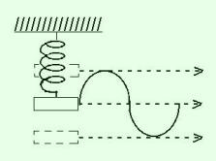

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14th April 2011

Att: XXXXXXXX

Interim Report
Compressor Motors # 6KM-2A & 6KM-2B

The following work scope is now complete:

- ✓ Remove covers on primary and secondary terminal boxes.
- ✓ Split primary connections at capacitor and neutral point in secondary terminal box.
- ✓ Lift cover over slip ring compartment.
- ✓ Vacuum stator windings, rotor and slip ring compartment.
- ✓ Turn rotor, If necessary, to do the bottom half.
- ✓ Repair any damage per the original manufacturer's approved procedure.
- ✓ Test stator winding including winding resistance, Hi-pot (phase to phase and phase to ground), polarization index, Megger check 100 ohms (Platinum) RTDs.
- ✓ Test rotor winding including megger and voltage drop test.
- ✓ Measure air gap between rotor and stator.
- ✓ Check wear on brushes, check spring tension and wear pattern on slip ring. Replace brushes if the length is 50% less than new one.
- ✓ Check torque on bolts holding rotor pole piece (500 ft-lbs), on bolts holding slip rings and brush holders. (Washers for pole piece bolts: *41/4"* x 2 1/4" x 1/16", 44- each with 1 *1/8"* hole.)
- ✓ Swap the polarity of slip ring leads,
- ✓ Inspect and check torque on bolts holding blowers to rotor.
- ✓ Disconnect 4160V cables at motor. Megger/DC Hi-pot cables.
- ✓ Measure surge capacitor values (3 phase)

Comments:

One rotor pole winding on compressor motor 6KM-2B had shorted turns, the motor is still operational; however we estimate that you will lose approximately 5% torque. It is impossible to estimate when this pole will fail completely, we suggest that arrangements are made in advance to either rewind or replace the motor in 2010.

Continental Electric have located and can purchase the winding data, if coils are pre-manufactured before 2010, 2 to 3 weeks can be shaved off of the turnaround time, the cost of the data is approx. $3000.00. Another option would be to supply a new motor; this is a custom manufactured motor, we have taken dimensional data and could give Suncor price and delivery to supply a new motor, this would also necessitate purchasing the coil data.

The stator windings on 6KM-2B were damaged (by others) when a shroud was dropped on them. The guard damaged three coils:
One coil had superficial damage to the outer insulation; this has been re-taped and coated with varnish.

The shroud cut into the second coil cutting approx. 25% through the copper in the top turn, and caused a short with the turn below; the top turn was lifted varnished and re-insulated, the damaged area of the coil was then re-insulated and varnished.
The third damaged coil received a glancing blow; this pushed the nose of the coil to one side and tore the insulation off of the side of the coil. The coil was carefully levered back in position, re-insulated and varnished.

The winding has been successfully tested with a megger @ 5000V phase to phase and phase to ground after repair, in my opinion testing for turn to turn problems with a ducter (low resistance) meter) would not be determine the integrity of the turn to turn insulation. A surge tester could be used, but again this would not guarantee that the repair will hold up when the motor is energized; also, when using a surge comparison meter the rotor should be removed.

We cannot offer any guarantee with these in-situ repairs but we are fairly confident that they will hold up.

The next photographs are of 6KM-2A, this has been damaged and covered in oil because of lack of care and protection when chain falls were used to remove the shrouds. The oil has been removed with dry ice and scuffed insulation will be repaired and re-varnished with red Glyptol before the shrouds are replaced.

Brush Wear

We were told that the slip ring brushes are only lasting approximately 9 months, the rings are manufactured out of phosphor bronze therefore; the carbon brush grade being used is very soft. We recommend that the rings are re-manufactured out of steel so that a harder brush can be installed. It should be possible to increase the brush life to at least two years. To do this modification, the flux density amongst other data will have to be calculated. We will include a full recommendation in the final report.

Insulation Tests.

With the exception of the one rotor pole, both motors were found to be in fair condition. Full test data will be included in the final report. Hi-pot test not carried out as per Suncor request.

If you have any questions please do not hesitate to contact us.

Regards: Rob Brentnall