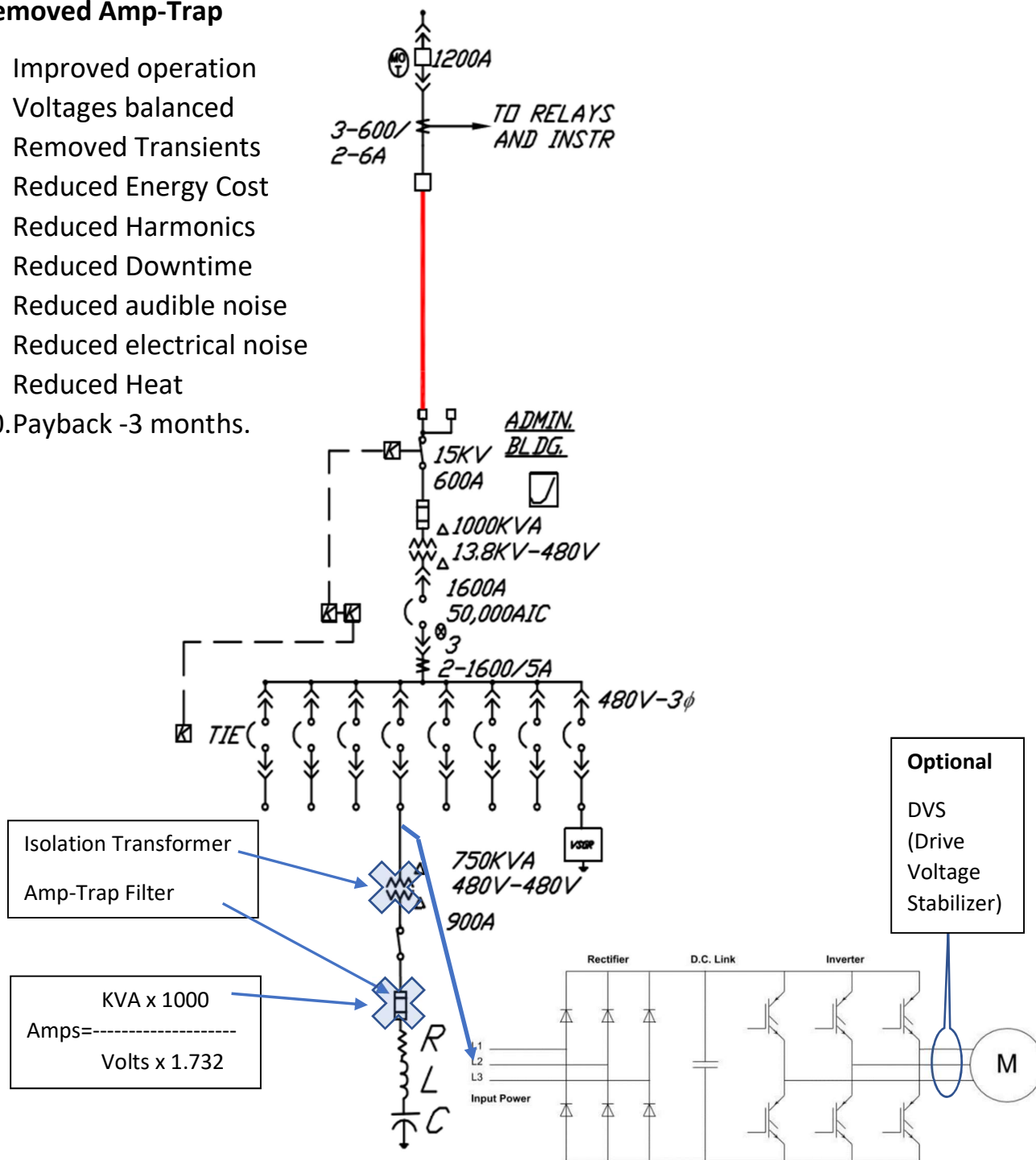


Electrical System with large 480V VFD, Amp-Trap Filter, and Isolation Transformer.  
 Installed VSGR. The results are:

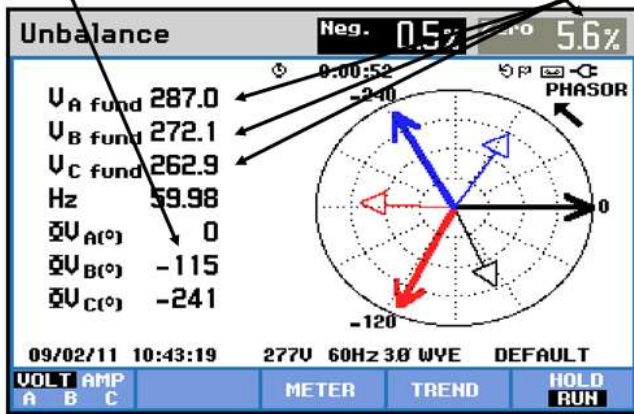
**Removed Isolation Transformer.**

**Removed Amp-Trap**

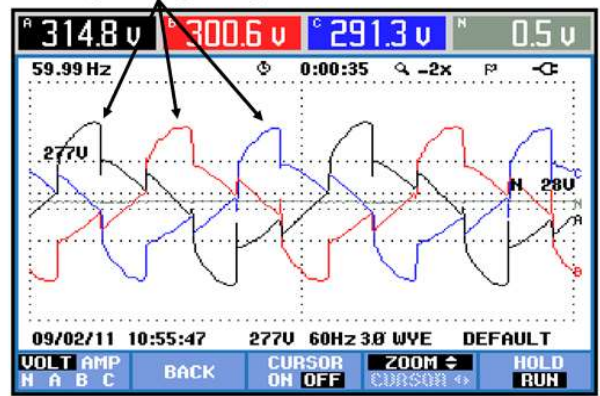
1. Improved operation
2. Voltages balanced
3. Removed Transients
4. Reduced Energy Cost
5. Reduced Harmonics
6. Reduced Downtime
7. Reduced audible noise
8. Reduced electrical noise
9. Reduced Heat
10. Payback -3 months.



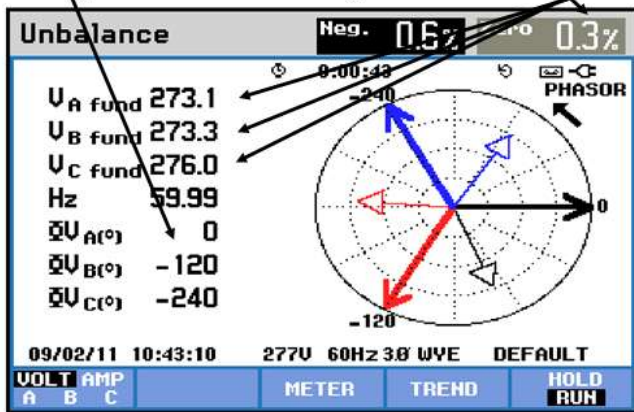
Power Quality Testing on the Line 15 Extruder Machine Power Feed  
Phase Angle Shift of 6° from nominal and a Phase Voltage Imbalance over 5%



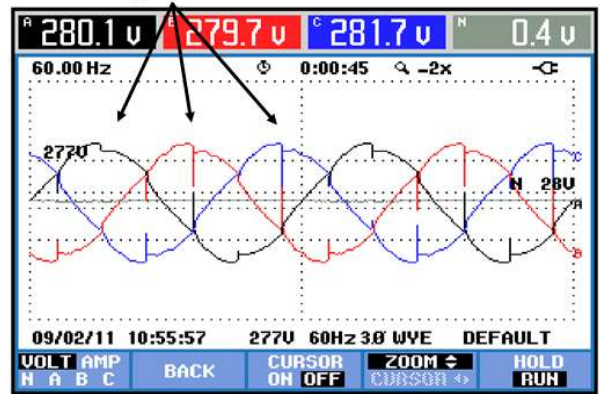
Phase Voltage Notching Causing Waveform Distortion with Phaseback OFF



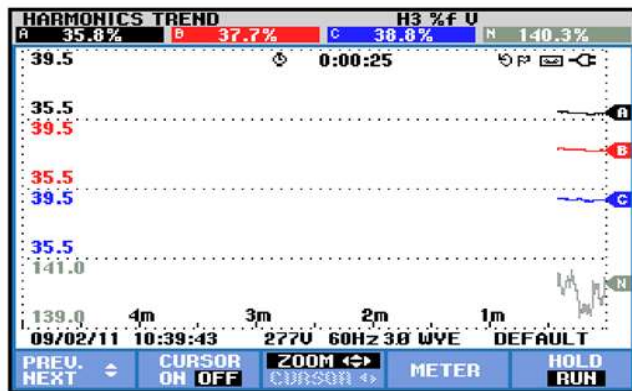
Phase Angle Corrected and Phase Voltages Balanced With Phaseback ON



Phase Voltage Waveform Distortion Reduced with Phaseback ON



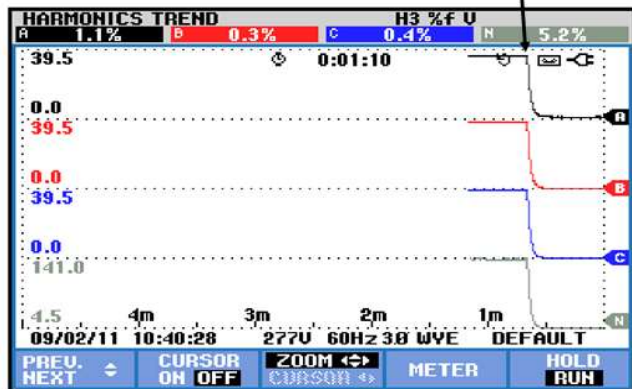
Third Harmonic 38% with Phaseback OFF



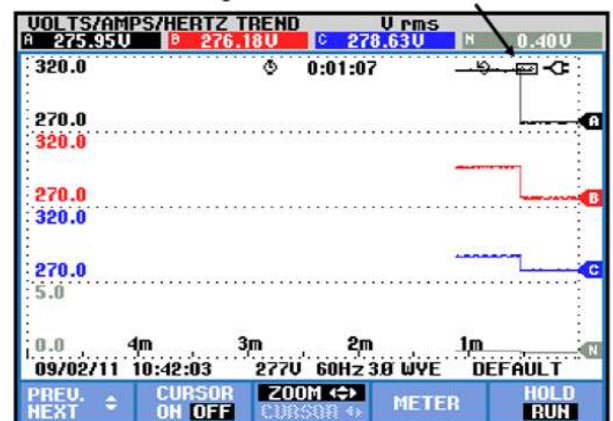
Phase Voltage Imbalance with Phaseback OFF



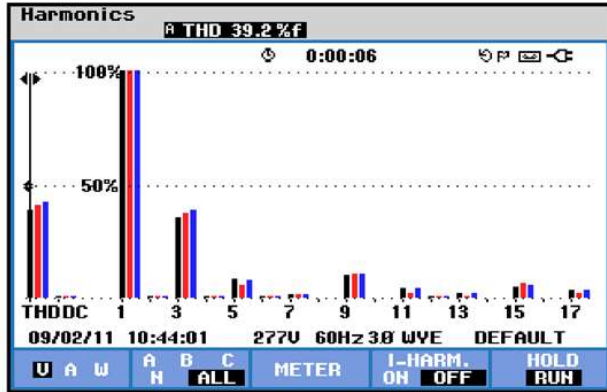
Third Harmonic Reduced 98% with Phaseback ON



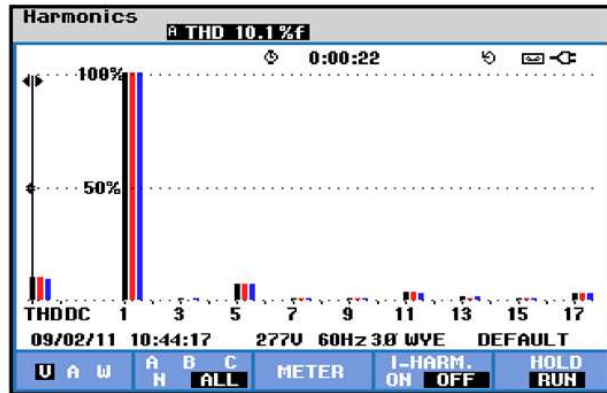
Phase Voltages Balanced with Phaseback ON



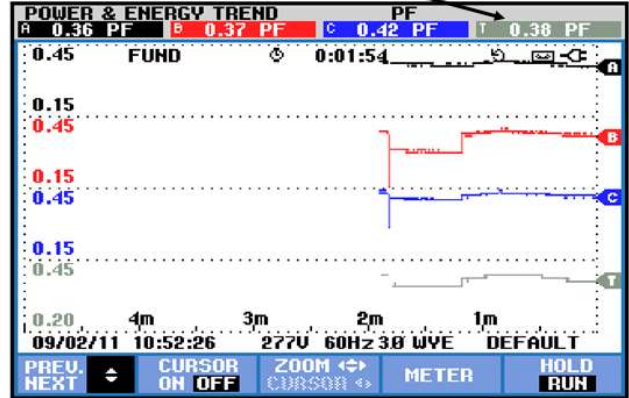
Total Harmonic Distortion with Phaseback OFF



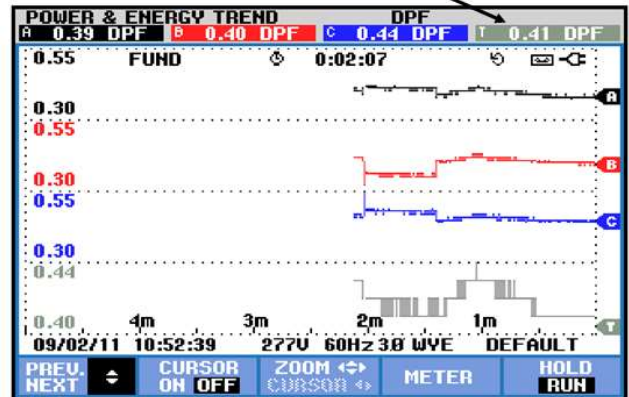
Total Harmonic Distortion Reduced 75% with Phaseback ON



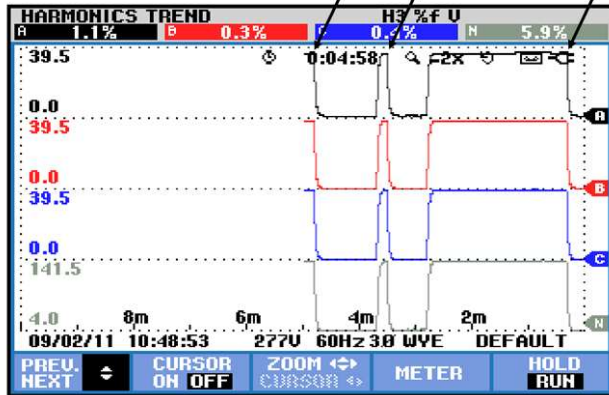
Power Factor with Phaseback OFF



Power Factor Improved 7.3% with Phaseback ON



Voltage Harmonics reduced with Phaseback -ON- -ON- -ON-



The harmonics Solution can be switched ON or OFF as Phaseback is in the circuit.