## Thank You

Thank you once again for the positive response we received from the first five issues of this newsletter.
We would appreciate any comments and ideas to make this newsletter more informative and interesting.
Please contact me at rsaxton@lloydelectric.net

**OUR STRENGTH IS OUR PEOPLE**

**Ali Platt**

Ali, is the "girl friday" of Lloyd Electric. For the last fourteen years she has very efficiently handled most of the office duties including inside sales, purchasing and invoicing. Ali's friendly voice will often be heard whenever you telephone into our office

***"Now for the lineman's stress test. Climb up that pole in a 100 mile an hour gale"***

*Lloyd Electric's Newsletter for the industrial Community*

# MAINTENANCE "MATTERS"

**Vol 6 August 2007**

## How to check that an Electric Motor is not oversized for its assigned task.

Chuck Yung of EASA, explains that contrary to popular opinion, bigger is not always better. This is true for electric motors. There is a natural tendency to want a little extra power " just in case" . That is why auto makers still make 300hp engines, even though the speed limit may be under 70miles per hour. but, like those gas-guzzlers, operating an oversized electric motor will cost additional money ; sometimes, a lot of money.

Here is a simple procedure for determining the the actual HP required by load, without expensive equipment or engineering . Bear in mind that loads should be determined and recorded when the motor is operating at its *Maximum* Load. A motor with a load that varies widely is a good candidate for a variable frequency drive (VFD)

With good input data the actual load of a motor can be approximated by the following formula.

*HP req= HP nameplate[1- (FLA-actual amps/FLA-no load amps)*

*Where FLA is Full load amps*

An easy mistake is to assume that zero load=zero current. That assumption results in errors in determining the actual HP. An uncoupled motor will run with "no load amps"

Operate the motor uncoupled and record the current at no-load. Don't take any shortcuts here; if the motor is coupled the "no-load" current will be higher than the current uncoupled. To avoid errors the uncoupled current **must** be used. Document the nameplate current and the current at the motors ***actual*** load.

Example: A 125 hp motor is driving a a fan to provide make-up air to a plant . The nameplate current was 148 amps. uncoupled the motor drew 44amps. When subjected to its normal load the motor drew 63amps. Using the formula above :

125[ 1-(148-63/148-44)] = 23.8hp

Substituting a 25hp replacement motor reduced the FLA from 63amps to 29 amps There are other advantages to *rightsizing* motors such as reduced in-rush current and correcting the power factor that we have no space to discuss here.

For a copy of the complete article contact Roy Saxton at the above e-mail address

## An Overview of one of the Predictive & Preventative on-site Maintenance Technologies available today

### Ultrasonic Acoustic Detection

Although the ultrasonic acoustic detection technology is used in many maintenance functions today, such as locating mechanical defects, lubrication problems, electrical problems, isolate steam traps and valve problems, compressed air leak detection is probably where the greatest cost savings can be obtained.

Leaks are a significant source of wasted energy in compressed air systems, often wasting as much as 20-30% of the compressors output. Leaks can also contribute to production problems, including:

- Fluctuating system pressure, which can cause air operated equipment to function less efficiently
- Decreased service life and increased maintenance of the supply equipment, (including the compressor package) due to unnecessary cycling and increased run time.

A ultrasonic acoustic detector can recognize high frequency hissing sounds associated with air leaks. These portable units are very easy to use. Cost and sensitivity vary, so test before you buy.

Although leaks can occur in any part of the system, the most common problem areas are :

- Couplings, hoses, fittings, pipe joints
- Quick disconnects, Condensation traps
- FRLs( filters, regulator and lubricator)
- Valves,flanges, packings, thread seals
- Portable tool points of attachment.

Leakage rates are a function of the supply pressure in a controlled system and increase with higher system pressures. leakage rates are also proportional to the square of the orifice diameter.