



**LONGO INDUSTRIES**  
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August 1997

# THE LONGO LETTER



## Diversity . . . We're More Than Meets the Eye

We're all keenly aware of the dynamics of technology. For our part we feel a sense of purpose to keep up with it so that you feel most comfortable in calling Longo.

Think with me about the diverse equipment which today comprises our electrical systems. Many devices in present use did not exist just a few years ago. In order to be able to keep abreast, we have formed training programs to "stay with it". Entrusted as we are by many of you compels us to be ever diligent in this regard.

The photos here show a very small motor being rewound and a large rewind synchronous rotor in our balancer (capacity - 20,000 lbs). Small or large, we attend to your job with equal purpose. The rigor of specifications and work plans are custom designed to suit the respective jobs' needs.

So, too, with power and control apparatus, electric motor and VFD, energy retrofits, removals, installations, fan/pump service — we do them with preciseness. Earning and maintaining the first ISO 9001 certification in North America for our Wharton repair/rewind business flowed directly from the documentation supporting operations and processes.

Diversity in jobs keeps us turned on.



More inside on an assignment to temporarily fit-up an airplane hangar for a gala ... exciting!! ... more inside!

A vibration case study (Longo VIM) speaks for itself.

The Energy Project Group (EPG) continues as our fastest growing segment. There are now four engineers in the group headed by an experienced building systems manager. *This is not a sideline!!*

Our scholarship program at my alma mater now has four scholars participating. We are glad to be able to do our small part in this worthwhile work.

**LONGO**  
 . . . THE LEADER!  
 . . . THE SOURCE!



## ISO 9001

### What it means for you

- **Feature:** *ISO 9001 is a complete Quality System, not just a program, i.e., it applies to all work, not just "special" jobs.*
- **Benefit:** *The LONGO focus is on total customer satisfaction, for every customer every time, on every job.*
- **Feature:** *LONGO senior management is committed to the ISO Quality System. Appropriately, this is the first of the 20 system requirements in the ISO 9001 standard.*
- **Benefit:** *The certified ISO 9001 Quality System validates that we design and supply world class quality repairs that meet or exceed customer requirements.*

*(Features & benefits continued next issue)*

# ACM Mill and Separator

This case history illustrates the need to fully understand and examine equipment that is being monitored. A food process industry engaged us to provide its predictive maintenance program (VIM). Vibration readings are collected on a monthly basis on critical rotating units used in process and plant support equipment. One of the units, a processing mill and separator, exhibited extremely high vibration levels at the onset of the program. Corrective actions reduced the vibration levels by 233%.

Overall levels for the separator initially ranged from 0.47 IPS to 1.31 IPS (Figure 1). Because high vibration levels are expected for a mill, and no baseline data were available, no corrections were made. Overall vibration levels continued to be high the next month, some increasing from 0.47 IPS to 0.55 IPS (see Figure 1).

The limited quantity of mill and separator vibration data was analyzed. The conclusions were drive belt and pulley wear, misalignment, and loose hardware. Recommendations were made to inspect the mill and separator. Adjustments and corrections were made by the customer's maintenance department.

Readings taken the next month fell to the range from 0.25 IPS to 0.35 IPS. The readings were still somewhat high but were classified as acceptable and used as baseline data to begin a history. For the next four months, readings did not exceed 0.56 IPS.

Then levels increased to the range from 0.45 IPS to 1.07 IPS, similar to the levels recorded initially. And extremely high vibration level (0.9 IPS) was found at the operating speed of the mill, with multiples of operating speed (Figure 2). The recommendation was to inspect the mill and separator for looseness, missing hardware, misalignment, and uneven product buildup on rotating elements. The maintenance department again inspected the separator. Loose bearing housings were causing the shaft to cock, thereby creating misalignment, un-

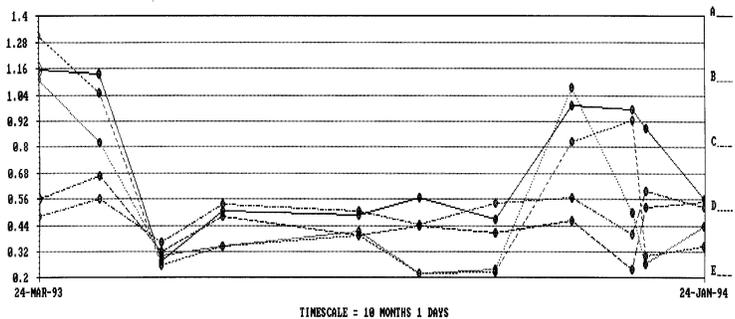
balance, and looseness. The bearing fits were corrected, a new shaft and new bearings were installed, the unit was descaled and cleaned, and proper belt alignment and belt tension were set. The unit was then returned to service.

Readings the next month ranged from 0.26 IPS to 0.88 IPS; the frequency plots resembled those of prior months. The customer was told that the vibration levels were still too high. We were given a work order to analyze the cause of the persistently high vibration levels.

The investigation of the mill and separator revealed a previously unknown shaft

in the mill that rotated at the same speed as the separator shaft. The bearing fits of the unknown shaft were loose. When the looseness was corrected, vibration levels did not exceed 0.55 IPS.

It can be concluded that a vibration monitoring and analysis program should not be set up until at least an exploded view of unfamiliar machines is available. All bearing points and rotating elements should be identified, and it would be advantageous to identify all belt, bearing, and gear-mesh frequencies. In this instance money, time, and resources could have been saved when recommendations and repairs were made.



(A) #4 ACM Mill Sep AA Motor  
 (B) #4 ACM Mill Sep AV Motor  
 (C) #4 ACM Mill Sep AH Motor  
 (D) #4 ACM Mill Sep BV Motor  
 (E) #4 ACM Mill Sep BH Motor

Figure 1. Multiple Trend Plot

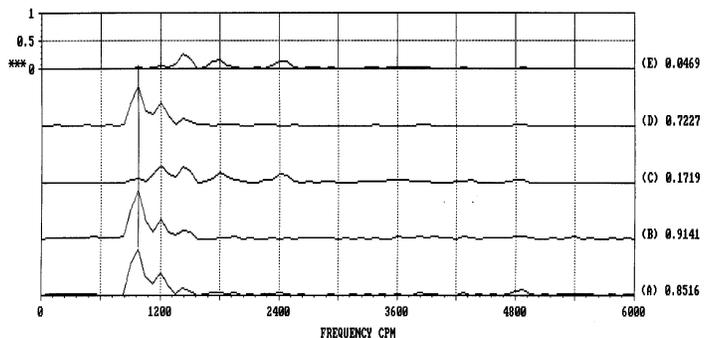
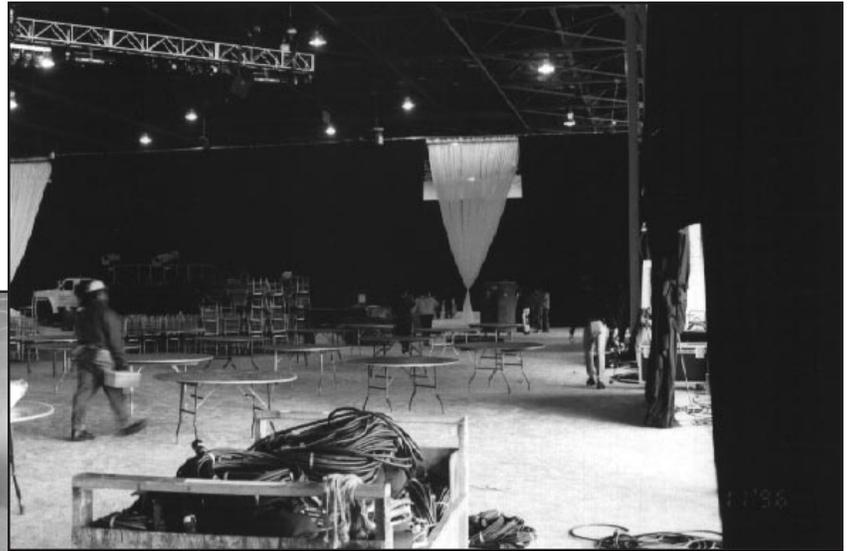


Figure 2. Waterfall Spectral Plot



# Longo Engineered Systems Co. ... LESCO IS DIVERSITY!

Your complex systems and varied needs have been a great match for our diverse capabilities. One challenging assignment after another are welcomed by our team of engineers and technicians.



## A Gala in an Airplane Hanger

*The Assignment:* To provide engineering, equipment and installation for a gala in an empty hanger. All logistics to be attended to. Redundant temporary power generators were supplied to insure service. Lesco engineers and staff were on-site during the entire event.

We were pleased to be an integral part of this significant event.



# LONGO'S Energy Projects Group (EPG)



We have rapidly grown to be the area's leader in energy retrofits. This business segment provides total responsibility (turnkey) and has developed a reputation of excellence, performance and attention to detail

Here, our manager conducts a training session for the customer's people on operation, maintenance and harmonic issues of variable frequency drives (more in next issue). Motors are an integral part of their work.

## Our 1997 NJIT Scholars



Pictured here are our four scholarship recipients, from left to right: Mike Jung, John Allen, Michelle Raff, and Richard Kulesa II. We are delighted to be able to participate.

## SPORTS QUIZ

1. What major leaguer was the last of the legal spitball pitchers?
2. What other professional sport did Peter Zezel play besides hockey?
3. Who was the last player to hit a home run for the Milwaukee Braves?
4. Who shares the major league record of five home runs in a double-header?

ANSWERS:

1. Burtleigh Grimes, in 1934. Soccer. He played for the Toronto Blizzard of the North American Soccer League
2. Gene Oliver, on Oct. 2, 1965.
3. Stan Musial of the Cardinals (1954) and Nate Colbert of the Padres (1972)
4. Stan Musial of the Cardinals (1954) and Nate Colbert of the Padres (1972)

*Over 50 Years of  
"Service Through Knowledge"®*

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