

# Insight

JAN 2009

## IN TIMES OF Uncertainty



### **Prevailing corporate strategy wherein the next earnings report mandates a short-run view dictates conservatism in times of economic downturn.**

This basic reality presents unique opportunities for the well managed and aggressive business to gain market share. Since taking IRD private in July of 2003 our management team has worked relentlessly to strengthen the fundamentals of our business. Lean manufacturing, new product development, structured engineering, inventory management, cash flow and profitability have all benefited from this focus. As a consequence of strong fundamentals, we are pleased to announce an aggressive growth strategy for the coming years. You, our valued customer, will be the beneficiary of this strategy.

What you will see is a better defined well trained and more accessible support structure that will proactively communicate in all areas of our business. From new products to additional staffing to local representation, IRD will in the coming years continue to improve our service and response levels so as to provide our customers improved operating efficiencies. We clearly recognize that today's uncertainties are tomorrow's opportunities and we fully intend to advance our business by considered yet aggressive growth.



#### *Our Mission Statement:*

**"IRD is the global leader in the development, manufacture, and distribution of testing and correction equipment for the service and repair of industrial rotating machinery. As a result of the superior performance and reliability of our products and our unmatched service, we are the fastest growing manufacturer in our industry."**

In crafting our mission statement we at IRD decided on a five year strategy that would advance the business in all areas. Our people, distributors, training, manufacturing, engineering and marketing must be the very best to enable this Mission. As you will see from this newsletter and other media, we have a plan. Now we will execute this plan and we boldly accept the challenge of an uncertain economic time.

*Richard Nalley, President*

## IRD CANADA

IRD is pleased to announce the establishment of IRD Canada. The new company will be managed by

Managing Director, Ayman Wasef and follows the opening of our Canadian service operation in 2006. This expansion supports our growing business in Canada and is part of IRD's global strategy to provide resources to support our customers worldwide.

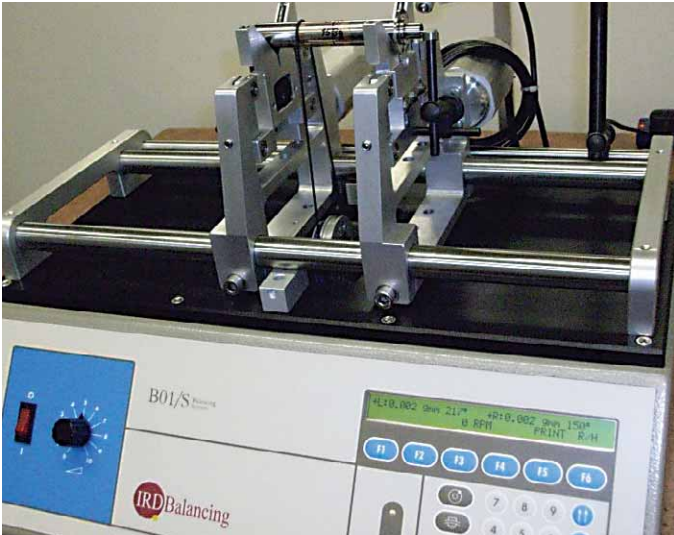
IRD Canada is committed to providing sales and service support to the local market and will reinforce its distributor network in all Canadian provinces and territories. IRD Canada will be based in Montreal, Quebec and will support both the IRD Balancing and Lexseco product lines.

Like all IRD business units, IRD Canada has a commitment to customer service and equipment users will benefit from our investment in, and deployment of, in-country resources and expertise.



# PRECISION BALANCING

## with the IRD Model B01/S Portable Balancing Machine System



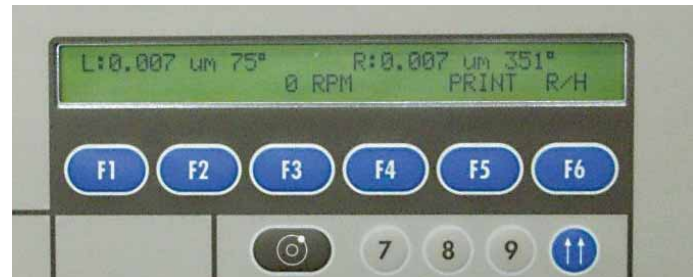
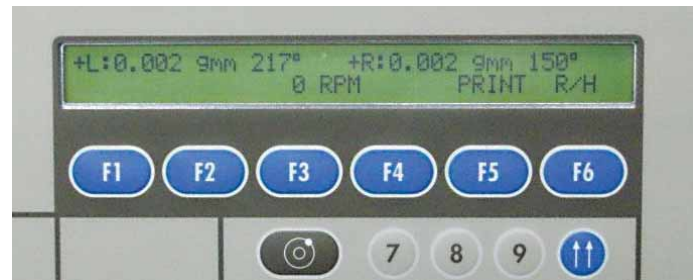
Keeping pace with the ever increasing demands from manufacturing industry for greater, more efficient and cost effective throughput has led to the on-going development of a wide range of precision machine tool spindles, which rotate at higher and higher speeds. Today, it is not unusual to find applications where spindle speeds are in excess of 300,000 rpm.

As part of the design, manufacture and on-going servicing of these high speed spindles, being able to keep pace with the corresponding demands for balancing machine systems that can consistently achieve a more and more precise quality of balance of the rotating shaft assemblies is paramount. This is where the unique design features in the IRD Models B01 and B02 ranges of precision balancing machine systems really prove their worth and well earned reputation as being the most versatile and exact systems available to the industry.



Most high speed spindle shafts are "Flexible" which means they have a tendency to bend or deflect through their operating speed ranges due to unbalance forces caused by bending moments having been introduced inadvertently during the "Low Speed Balancing" processes. In most cases, if accepted techniques are

For example: IRD UK Limited was recently asked to supply a balancing machine system for balancing a newly designed range of small, high speed spindle shaft assemblies that weigh only 158 grams. These assemblies operate at 100,000 rpm and require balancing to within an extremely precise residual unbalance quality standard of 0.003 g mm per plane, to achieve a rotating mass concentricity of 0.000038 mm.



It can be seen from the readings shown, that after balancing a typical 158 gram spindle shaft in a standard IRD Model B01/S Balancing Machine System, with special purpose "V" journal supports, we were easily able to surpass the customer's requirements by achieving a repeatable residual unbalance quality standard of 0.002 g mm per plane, which is the equivalent of a mass concentricity of 0.000025 mm, 30% less than the specified standard.

applied when balancing at low speed, the shafts will be within the required balance tolerances throughout the operating speed range. However, there are exceptions to this rule and, in some cases unbalance can also be introduced during the final assembly processes. As a means of overcoming these problems, the specially designed "Dynamic Table" was developed for use with the IRD Model B01/S for "On Speed" trim balancing and proof performance testing of final spindle assemblies. The dynamic table application also serves as a testing and development tool, whereby critical data, such as the vibration, noise and temperature characteristics can be monitored throughout the operating speed ranges without the undue addition of any externally induced system stiffness and damping, and transmitted vibrations, temperature changes, etc. For this application additional test and analysis equipment may also be required, such as the portable IRD Model 258 Vibration Analyser/Dynamic Balancer.

# IRD BALANCING MEXICO

## provides balancing machines for GRUPO MODELO



**Model B20 Production in IRD's Louisville plant**

IRD Balancing Mexico has an ongoing project for the supply of Model B20 Balancing Machines destined for four of the nine plants owned by Grupo Modelo, the maker of Corona beer. Corona is the most popular imported beer into the United States, and it is also exported to 152 other countries

In 2007 the Grupo Modelo acquired their first balancing machine which was installed in their Mexico City plant. This next phase of the project sees installations in plants in the Mexican states of Oaxaca, Jalisco, Mazatlan and Zacatecas.

The purchase of these balancing machines will allow the maintenance departments of the various Modelo plants to balance their rotors on site which will facilitate the achievement of more satisfactory vibration levels, giving smoother

performance and extended life of their rotating machinery.

This major step in predictive and proactive maintenance follows on from the success achieved through the years by the maintenance departments at the different plants, using vibration analysis as one of the main tools to monitor and detect root problems of their plant machinery. Dynamic unbalance is one of the main causes of high vibration in rotating machinery and the various maintenance departments at Grupo Modelo are also using complementary techniques, such as thermography and laser alignment to maintain the good operation of their plants.

Corona beer, made by Grupo Modelo, founded in 1925 by Don Pablo Diez, has been a massive success around the world. It commenced sales into the USA at the end of Prohibition in 1933 with one million litres exported in the first month. It is now the leading imported beer brand in the USA and is the fifth most widely sold beer globally.

This successful Mexican corporation has more than 40,000 employees and has built a school near their factory for their workers' children as well as the neighborhood children.

IRD Balancing Mexico is proud to support Grupo Modelo, and to play its part in the success of such an important and well-established company.

## LEXSECO CLT Field Upgrade

A Canadian customer recently requested a software upgrade for a Lexseco Core Loss Tester in order to take advantage of the modern metering technology and the improved functionality afforded by the latest MP 6.0 software. However due to the age of the Core Loss Tester this was not just a straightforward software upgrade.

A Core Loss Tester of this age has more than paid for itself through years of operation and could justifiably be replaced completely. The other option was to provide a comprehensive upgrade with installation of a new metering and control system. IRD's unit upgrade can be undertaken at the factory or completed on site as part of our Field Upgrade Programme.

The field upgrade option was chosen and the work was completed in two days together with the provision of a package of on-site application training

Replacing the electronics and re-using the existing VRT allowed

an expedient and cost effective end result for the customer who is now able to perform motor core tests with the equivalent of a brand new CLT for approximately half the cost of a new unit.

This is just one example of the longevity and backwards compatibility provided by the Lexseco Core Loss tester product line. Lexseco Core Loss Testers in a range of capacities are available for use with a variety of input voltages in both 50 and 60 Hz. Lexseco Core Loss Testers have been successfully installed in electric motor repair facilities in many diverse locations in the Americas, Europe, the Middle East, Asia and Africa.



# WREN TURBINES use IRD Model B01/S



Wren engined model Rafale fighter



Wren helicopter engine

Wren Turbines, a company based near Rotherham UK was formed in 1999 by Mike Murphy, John Wright, Roger Parish

and Terry Lee who shared a common interest in miniature turbines.

The first Wren engine was the MW 54, which was the first miniature engine to use a compressor size of less than 66mm, making it much smaller and lighter than all the previous engines. It was introduced initially as a set of plans and castings for homebuilders and then offered as a complete kit or a ready-built engine.

Performance of the MW54 has been progressively updated and the latest Mk 3 model, launched in June 2004 produces 6.4 kg of thrust. The kits are very popular and are frequently bought by first-time jet fliers. The kit is fully balanced, easy to assemble, and there are over a thousand of the engines being flown all over the world.

Other products developed include the Wren Turboprop, the first miniature two-stage engine and Wren Helicopter engine

complete with its own reduction gearbox. Wren's most recent engine, the SuperSport, launched in March 2005 is a development of the MW54 and is the same size but produces 8kg of thrust. It uses a new cast diffuser system and other innovations from the Wren team, giving it an exceptional power-to-weight ratio.

Wren is a company dedicated to the design and manufacture of miniature jet engines. All the design and tooling for the turbine castings is done in-house and the turbine wheels are cast in specialist foundries to full aerospace certification.

Wren Turbines use an IRD Model B01/S in order to achieve the fine balance tolerance required by lightweight high speed turbines. IRD UK Ltd worked with Wren to assist in the development of a custom designed 'dynamic table' and applicable balancing procedures.

## Industrias Frigidaire LTDA in Colombia

Industrias Frigidaire LTDA, the only ISO-9001 certified balancing service shop in Colombia, performs balancing services for both the regional industry and Industrias Frigidaire's manufactured fans. In 2008, Eduardo Jesurun, decided that his company required additional capacity and decided to purchase a 25,000 lb (11 Tonne) capacity IRD Balancing Machine with Model 246 Balancing Instrument to complement his existing, smaller capacity IRD Balancing machines.

Installation of the B200 Balancing Machine went well and Industrias Frigidaire was soon providing balancing services for a variety of rotors including a 5,000 kg, 4,000 HP, 550 RPM rotor and a 7,000 kg, 2,800 HP, DC 1,000 RPM rotor. Eduardo

commented that "We are very happy with this investment and the amazing performance of the machine, that will allow us to serve our customers better now and in the years to come."

Of course, even the most talented professionals sometimes need help from time to time and this is where the value of IRD's expertise and application support is most valued. Industrias Frigidaire was recently presented with a challenge when attempting to balance an 11 tonne, 50,000 HP, 3,600 RPM Hitachi electric generator rotor. IRD Product Support Manager, Bruce Boerger was on hand to lend advice and support and Industrias Frigidaire was able to successfully balance this generator rotor for its customer.



INDUSTRIAL RESEARCH AND DEVELOPMENT

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