PROTECTED BY PM LUBRICANTS A Fraction of the Friction

PM Lubricants Australia Pty Ltd

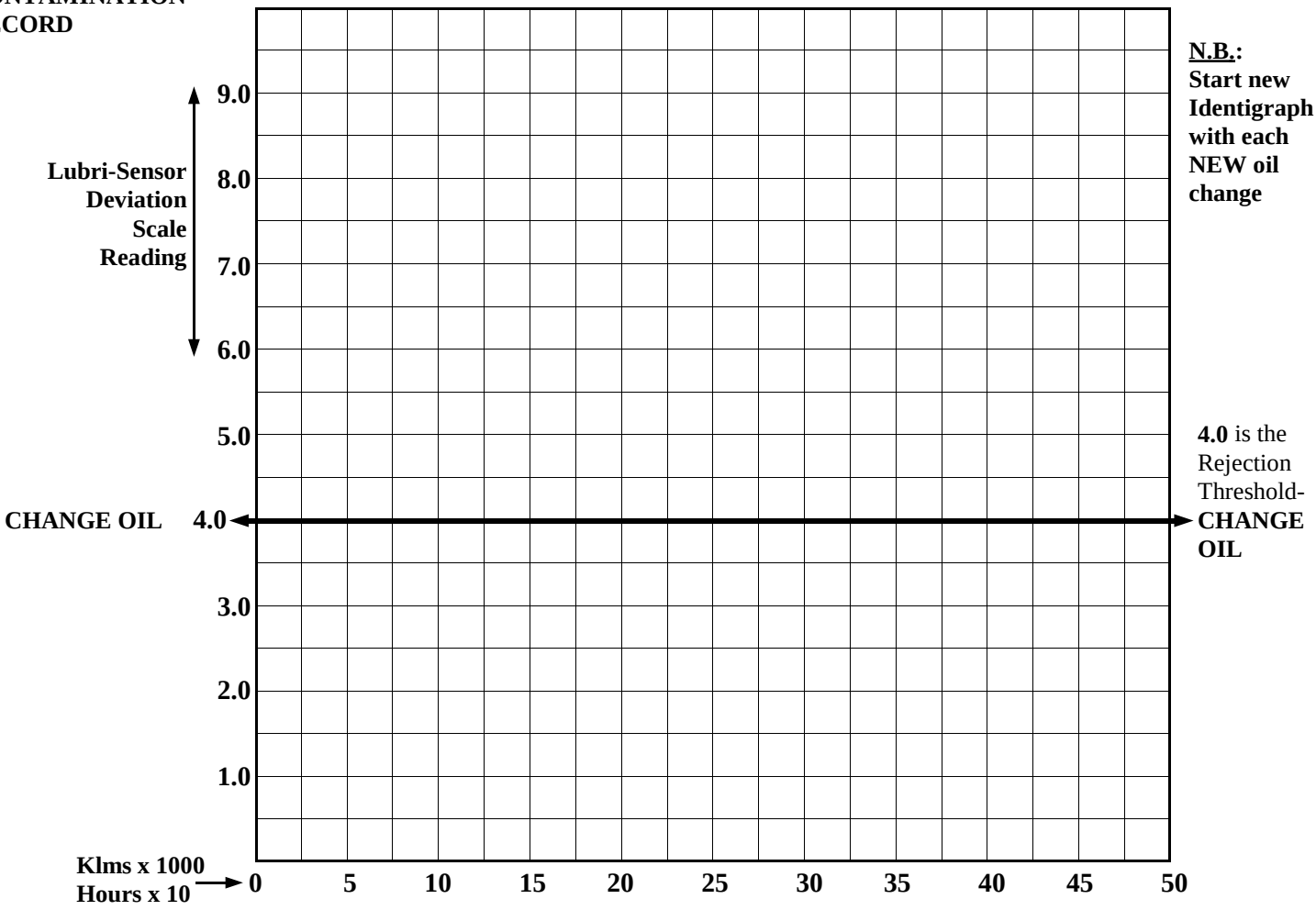
Postal Address: PO Box 313, Sumner Park, Q 4074, Australia.
Head Office: 1701 Ipswich Rd, Rocklea, Brisbane, Qld.
Tel: 07 3274 3788 Fax: 07 3274 3645 **Int'l:** +61.7.3274 3788
E-mail: info@pmlubricants.com.au **Web Site:** www.pmlubricants.com.au

PM 1005

EDITION 7/98 SECTION 3

Lubri-Sensor ENGINE Identigraph

CONTAMINATION RECORD



N.B.: Start new Identigraph with each NEW oil change

4.0 is the Rejection Threshold- **CHANGE OIL**

SERVICE DATA

DATE	Distance or Time Reading	Top Up Oil Added	Filter Changed Yes/No	OTHER Lab Sample/ Oil Change
/ /		ltrs		
/ /		ltrs		
/ /		ltrs		
/ /		ltrs		
/ /		ltrs		
/ /		ltrs		
/ /		ltrs		
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/ /		ltrs		
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/ /		ltrs		
/ /		ltrs		
/ /		ltrs		
/ /		ltrs		
/ /		ltrs		
/ /		ltrs		

UNIT DATA

Make/Model: _____
Unit No.: _____
Original: ❒YES ❒NO
Recond'ned: ❒YES ❒NO **Date:** _____/_____/_____
Total Oil Capacity Litres: _____
Oil Grade/Brand: _____

Company: _____
Address: _____
_____
Plant Engineer: _____
Phone: _____

PM LUBRICANTS LUBRI-SENSOR INDENTIGRAPH REPORTING PROCEDURES

WHY MONITOR THE CONDITION OF YOUR OIL?

The difference between a new engine and a worn engine is a fraction of a millimetre - but in all the critical areas. The lubricating properties of all lubricants are seriously affected by contaminants, which, being abrasive and/or corrosive, attack and damage the critical moving parts. **These contaminants include:**

- **In crankcase oils:** Fuel dilutant (bi-products of combustion), water, dirt, wear metals, oxides, soot, acid, sludge, carbon, gums.
- **In gear oils, diffs and final drives, hydraulic oils:** water, dirt, wear metals, oxides, sludge, carbon, gums.

In other words, **any contaminant which changes the dielectric value of the oil (as new) is dangerous and causes damage to your equipment.**

PM Lubricants' **On-Site, Diagnostic, Electronic Oil Quality Monitoring© program** accurately assesses the total contaminant level of your oil, regardless of what compartment the oil comes from. It takes the **guesswork** out of oil changes, condition and quality, ensuring safe contamination limits are maintained within recommended or extended oil drain cycles.

You will never be in doubt again as to the condition of your oil.

PM Lubricants' **Identigraph Reporting Procedures** allows you to systematically log and record the progressive condition of both your oil and equipment as shown by the Monitoring program, giving you a safe and accurate visual reference as to whether or not they are in a safe operating condition.

The plotted line on an Identigraph will indicate any **unusual increases** in the total contaminant level of the oil, alerting you to the need to draw an oil sample for laboratory analysis, which will accurately determine the nature of the problem.

Remedial, Preventative Maintenance action can then be taken before the problem becomes worse, costing you unexpected and unnecessary downtime and lost time.

(N.B. - We recommend you ALWAYS change your oil filters at the equipment manufacturers recommended intervals.)

WHEN TO MONITOR YOUR OIL.

In normal operating conditions, monitor oil in use just prior to the manufacturer's recommended oil and oil filter change intervals. (Oil and filter change intervals usually occur together.)

When operating in conditions regarded as abnormal, (eg. adverse climatic, dusty and/or extreme load conditions), monitor the oil at half or even one third distance between recommended change intervals. (Very hot and/or dusty conditions can hasten oil deterioration resulting in damage and wear.)

If you suspect a problem, or you just want to reassure yourself that everything is OK, monitor the oil **anytime.** Remember, it costs nothing to spend five minutes checking the condition of your oil, and should you discover a potential problem, the subsequent Preventative Maintenance action can save you thousands of dollars in unnecessary downtime and lost business.

As oil is the life blood of your machinery, regular monitoring removes the guesswork and shows you exactly what is happening inside your engine, gearboxes, hydraulics etc.

Regular On-Site Oil Monitoring gives you Peace of Mind.

HOW TO USE THIS PM LUBRICANTS IDENTIGRAPH.

1. Use a Sampuller to draw an oil sample from the compartment being analysed. To get a truly representative sample of oil for analysing, **ALWAYS** take an oil sample **within two minutes** maximum of shutdown, while the oil is at **FULL** operating temperature and before contaminants settle out. *(Before placing this oil on the Lubri-Sensor Sensor-well, allow the oil in the Sampuller* ***to cool to ambient temperature*** *while doing* ***Step 2****.)*

2. Next, calibrate the Lubri-Sensor Deviation Meter pointer to "zero", using a clean, unused oil sample of the same brand and grade as the oil being analysed to establish the Dielectric Constant of the oil as new. (*Read the Lubri-Sensor Operating Manual for full operating and calibrating procedures*.)

N.B. If the oil being analysed has had any "after market" oil additives added to it, an accurate contamination reading won't be possible because the dielectric constant of the oil has been changed by the addition of the "after market" additives.

3. After calibrating, thoroughly clean the fresh oil sample from the Sensor-well with clean, soft tissue paper or cloth, then apply the **cooled** oil sample in the Sampuller to the Sensor-well.

4. Press the Lubri-Sensor "Operate" switch and rotate the **Deviation Control** clockwise to adjust the pointer of the **Deviation Meter** back to zero (centre) to establish a contamination reading for the used oil.

The point where the **Deviation Control pointer** stops on the **Deviation Scale** after zeroing the **Deviation Meter pointer,** is the contamination reading.

Compare this reading with the numbers listed on the Identigraph chart appropriate to the oil being analysed, to gauge the contamination level and condition of the oil.

(N.B. The rejection thresholds are: **"4" for Engine oils, and "2" for Transmission and Hydraulic oils.** We recommend that you use the same rejection threshold levels for analysing **both** Mineral/Petroleum based oils **and** Synthetic lubricants.**)**

For contamination readings safely below the rejection threshold indicated on the appropriate Indentigraph (ie. readings of 75-80% or less below), and subsequent pointer movement doesn't indicate the presence of excess moisture or fuel contamination, simply change the oil filter as per manufacturer's instructions, top-up the oil level back to normal, and continue operating.

(Until you are confidant in interpreting the Lubri-Sensor readings, we recommend another reading after the top-up oil is well mixed in and the oil is back to operating temperature, so that a comparison reading can be made.)

A reading very close to, on or above the indicated rejection threshold for the type of oil being analysed means the oil is due for a change. **(Be sure to change the oil filter as well)**

5. Check the sample again after 30 seconds to observe any further movement of the pointer before cleaning the oil off the Sensor-well. Any **negative** (anti-clockwise) **or positive** (clockwise) **deviation** of the pointer should be noted. **Negative** = Fuel contamination, **Positive** = Water, Anti-Freeze or Metal particle contamination. *Refer Manual for more details.*

(In the case of some Gear Oils, negative readings below "0" (zero) may be observed within the initial 50 - 100 hours or 2,000 - 5,000 klms due to the plating out of anti-wear additives which form a protective film on the components. The Transmission Identigraph provides for these negative readings.)

6. Record the reading shown on the **Deviation Scale** with a dot or small "x"on the appropriate Identigraph "**Contamination Record"** Chart above the appropriate Klms/Time reading.

As successive contamination readings are added to the chart, join the dots on the chart with straight lines to establish a graph. This graph then becomes an historical record of what is occurring inside your equipment.

If everything is functioning correctly in the equipment, the graph will rise gradually across the page as distance/time in use increases. If something occurs to cause unusual contamination, the graph will change gradient steeply, indicating a potential problem. When this occurs and the problem is not obvious, draw a larger sample of oil for laboratory analysis. *Refer to your local PM Distributor for more information re laboratory analysis.*

7. Record any other relevant details about the equipment such as oil top up, filter and oil changes etc, in the spaces provided for Service Data and Unit Data.

Read the LUBRI-SENSOR OPERATING MANUAL thoroughly before using. If in doubt about anything, please contact our Brisbane office for assistance.