

GREASOMATIC

LUBRICATION
ENGINEERING

THE SELF CONTAINED AUTOMATIC LUBRICATOR
WITH THE UNIQUE ADJUSTABLE GALVANIC ELEMENT

INJECTS LUBRICANT CONTINUOUSLY
FOR A PRESELECTED PERIOD OF UP TO
12 MONTHS

7 DISCHARGE RATES AVAILABLE

EASY DURATION SETTING AND
ACTIVATION USING ONLY THE
BUILT IN CONTROLS - NO
SEPARATE COMPONENTS OR
TOOLS NEEDED



ROBUST TAMPER RESISTANT
CONSTRUCTION

MILDLY ACIDIC ORGANIC
ELECTROLYTE

MADE PREDOMINANTLY
FROM RECYCLABLE PLASTICS

PRESSURE RELIEF VALVE WARNS
OF BLOCKED GREASEWAYS

A GREASOMATIC . . .

SCREWS INTO A STANDARD GREASE NIPPLE SOCKET

ENSURES CONTROLLED INPUT OF LUBRICANT

ENABLES AWKWARDLY PLACED BEARINGS TO BE LUBRICATED
WITHOUT THE NEED TO STOP MACHINERY

CAN BE FITTED IN ANY CONVENIENTLY ACCESSIBLE POSITION
TO LUBRICATE THROUGH EXTENSION TUBING

DISPLAYS ITS DISCHARGE LEVEL CONTINUOUSLY THROUGH
TRANSLUCENT WINDOWS IN BODY

EXERTS CONSTANT LOW PRESSURE TO KEEP CONTAMINANTS
OUT OF BEARINGS

WORKS IN ANY POSITION - ON ITS SIDE - UPSIDE DOWN -
ON MOVING PARTS - EVEN UNDER WATER OR ENCASED IN ICE

IS AVAILABLE WITH FILLINGS FROM A RANGE OF HIGH PERFORMANCE
LUBRICANTS SELECTED FOR RESISTANCE TO OIL/SOAP SEPARATION

AND PREVENTS COSTLY BEARING FAILURES



THE GREASOMATIC IS MANUFACTURED IN ENGLAND BY WYMARK

THE NAME GREASOMATIC IS A REGISTERED TRADEMARK OF WYMARK

A GREASOMATIC

is a self-ejecting canister of lubricant designed to screw into a grease nipple socket or other lubrication point, and discharge its content of 120 ml of lubricant in a controlled continuous flow, for a preselected period of between one month and twelve months. It is completely self contained and needs no pumps, motors, electricity or compressed air. Once fitted and activated it will work without attention until its allotted lifespan is over.

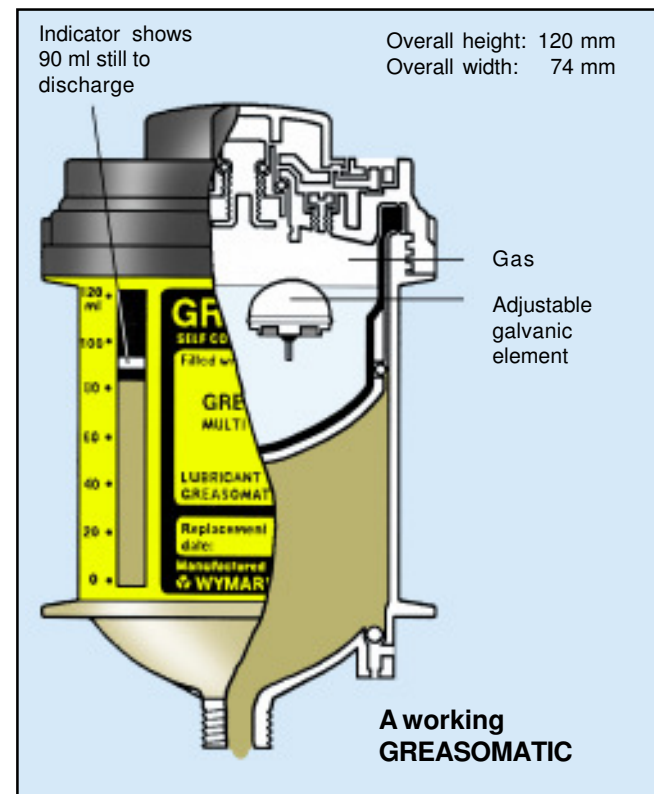
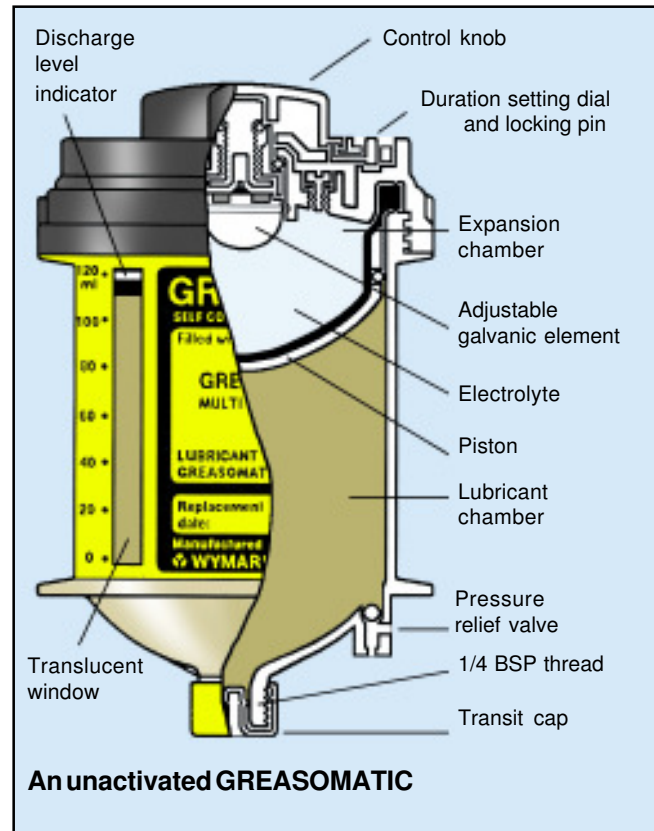
HOW IT WORKS

Each GREASOMATIC contains its own unique chemical expulsion unit. This has no springs or mechanisms but relies on an unvarying law of nature. Built into the top of each GREASOMATIC is a flexible rubber expansion chamber containing a liquid electrolyte and a galvanic element. The unit is activated by injecting the galvanic element into the electrolyte. The resultant electro-chemical reaction generates a steadily increasing amount of gas which gradually expands against a piston, to extrude the lubricant slowly but surely into the bearing to which the GREASOMATIC is fitted. The chemicals and gas remain hermetically sealed within the expansion chamber so that no contamination of the lubricant can occur, even after the unit itself is spent. During the working life of the GREASOMATIC, an indicating ring on the ejection piston shows through translucent windows in the body to enable the discharge state to be monitored.

THE PRESSURE RELIEF VALVE

This is provided to guard against the possibility of the GREASOMATIC being fitted unwittingly to a bearing with blocked greaseways. Should the pressure built up by the GREASOMATIC prove insufficient to clear the blockage, the valve will open to allow the lubricant to escape and prevent excessive pressurisation of the GREASOMATIC. The exudation of lubricant around the GREASOMATIC will serve as a warning that the greaseways are blocked and that no lubrication is taking place.

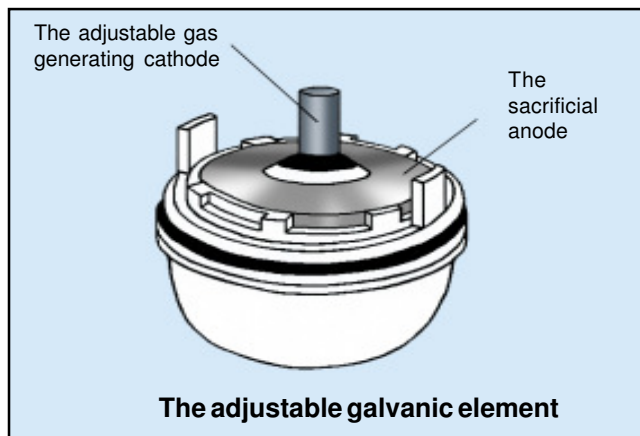
The use of the pressure relief valve in gas powered lubricators is protected by patents.



HOW THE DISCHARGE RATE IS CONTROLLED

The discharge duration of a lubricator of this type is dependant on the rate at which it generates gas. This in turn is governed by the degree of exposure of the galvanic element's gas generating cathode to the electrolyte in the presence of the sacrificial anode. The GREASOMATIC has a unique adjustable galvanic element. Before activation this is held in the underside of the cap and is connected to the the control knob on the exterior of the unit. Turning the control knob causes the element's inner casing to rotate against its stationary outer casing. This in turn causes the rod shaped cathode to protrude from its seating to the extent necessary to provide the appropriate rate of gas generation for the discharge duration set on the dial.

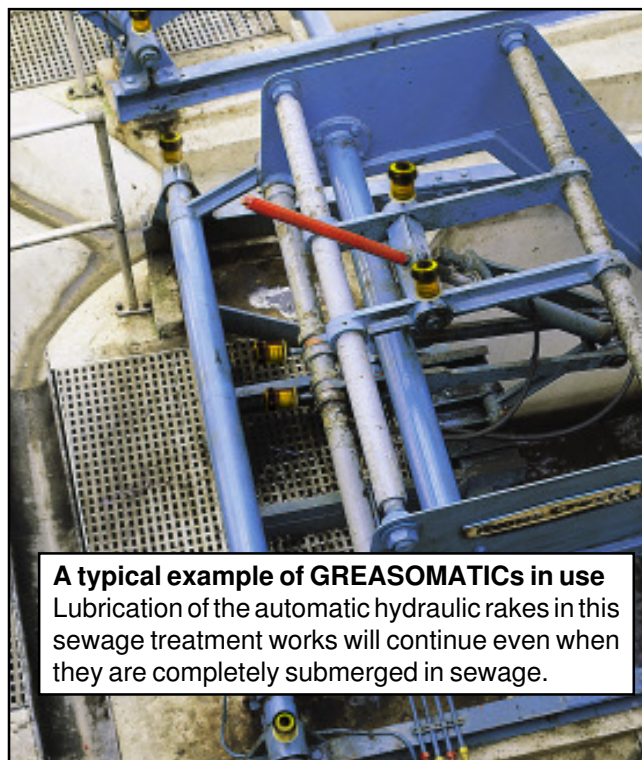
The adjustable galvanic element is protected by international patents.



SETTING THE DISCHARGE DURATION AND ACTIVATING THE UNIT

By rotating the control knob and its linked dial, the desired discharge duration can be set against the arrow on the casing. A choice of 1, 2, 3, 4, 6, 8 or 12 months duration is available. (These apply at an ambient temperature of about +20°C and will vary if the unit operates at abnormally high or low temperatures. Detailed guidance on the durations to be expected at various temperatures is given in the separate publication: **GREASOMATIC Technical Information**).

After the discharge duration has been set, the red locking pin is depressed to secure the setting and release the control knob from the dial. The knob is then rotated in a clockwise direction to inject the galvanic element into the electrolyte and actuate the unit.



Many other applications are illustrated in the publication: **GREASOMATICS At Work**.

HOW A GREASOMATIC IS FITTED

The lubricant outlet in the base of a GREASOMATIC has a 1/4 B.S.P. male thread so that it may be screwed by hand to fit tightly into a standard grease nipple socket. Adaptors are available to enable a GREASOMATIC to be fitted into sockets of other sizes. With the aid of extension tubes it can easily be installed at a distance from the lubrication point. This is particularly useful when it is desired to group a number of GREASOMATICS together on a panel for ease of access, or when it is necessary to isolate them from extremes of temperature or from excessive vibration. Other accessories enable two or more units to be coupled together in order to increase the supply of lubricant to a bearing. A GREASOMATIC will work in any position and need not be mounted upright - it can be mounted on its side or upside down. It can be fitted to rotating or moving machine parts and will work indoors or out of doors. **A GREASOMATIC will even work under water or encased in ice!**

ACCESSORIES & FITTINGS

Full details of the range of fittings currently available may be found in the publication entitled **GREASOMATIC Accessories and Fittings** in which some typical mounting assemblies are also illustrated.

OTHER PUBLICATIONS

GREASOMATICS At Work,
GREASOMATIC Technical Information.
GREASOMATIC Lubricant Fillings,
GREASOMATIC Accessories and Fittings,
GREASOMATIC Installation Instructions,
GREASOMATIC Safety Data Sheet,
GREASOMATIC Price List.

Wymark's quality management systems have been assessed by BSI as fulfilling the requirements of **BSI EN ISO 9002** and the GREASOMATIC has the Cerberus approval for use in underground mining based on the criteria of the former British Coal Acceptance scheme.



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LUBRICANT FILLINGS

In principal, the GREASOMATIC may be filled with almost any type of lubricant required. However, many widely used greases of otherwise high quality are susceptible to oil-soap separation when subjected to sustained light pressure in a GREASOMATIC. This can lead to a serious curtailment of the GREASOMATIC's working life.

It is therefore **essential to use only greases or gels that have been tested and approved** for use in the GREASOMATIC if the correct discharge rates and working lives are to be realised in practice.

Such considerations do not apply to **oils** or **liquid lubricants** and a GREASOMATIC filled with virtually any type of these will function satisfactorily.

Full details of the range of approved lubricant fillings currently available are given in the separate data sheet entitled **GREASOMATIC Lubricant Fillings**.

Quality • Reliability • Knowledge

THE GREASOMATIC®96 SELF CONTAINED AUTOMATIC LUBRICATOR

A GREASOMATIC

is a self-ejecting canister of lubricant designed to screw into a grease nipple socket or other lubrication point, and discharge its content of 120 ml of lubricant in a controlled continuous flow, for a preselected period of between one month and twelve months. It is driven by gas that is generated by slow galvanic chemical reaction. It is completely self contained and needs no fallible pumps, motors, springs, batteries or electronic circuitry.

HOW IT WORKS

Built into the top of each GREASOMATIC are a zinc/molybdenum galvanic element and a flexible rubber expansion chamber containing a mildly acidic liquid electrolyte. The unit is activated by injecting the galvanic element into the electrolyte. The gas generated gradually expands against a piston, to extrude the lubricant slowly but surely into the bearing to which the GREASOMATIC is fitted. The electrolyte and gas remain hermetically sealed within the expansion chamber to prevent contamination of the lubricant.

HOW THE DISCHARGE RATE IS CONTROLLED

The discharge duration of a GREASOMATIC is dependant on the rate of gas generation. This is governed by the configuration of the galvanic element. The GREASOMATIC has a unique adjustable galvanic element. Before activation, this is held in the underside of the cap and is connected to the control knob on the exterior of the unit. Rotating the control knob adjusts the protrusion of a rod shaped electrode to provide the appropriate rate of gas generation for the discharge duration set on the dial. Settings of 1, 2, 3, 4, 6, 8 or 12 months duration are available. (These periods apply at an ambient temperature of about +20°C and will be varied by abnormally high or low temperatures - see overleaf).

ACTIVATING A GREASOMATIC

After the discharge duration has been set, the red locking button is depressed to secure the setting and disconnect the control knob from the dial. Five further clockwise rotations of the control knob then cause the element to be injected into the electrolyte to start the GREASOMATIC working.

MONITORING THE LUBRICANT DISCHARGE LEVEL

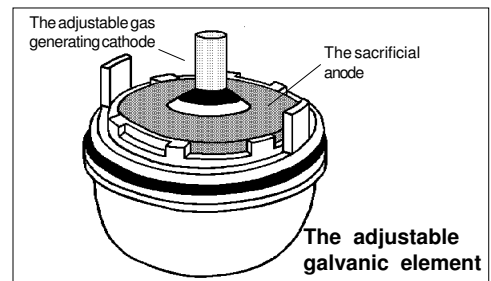
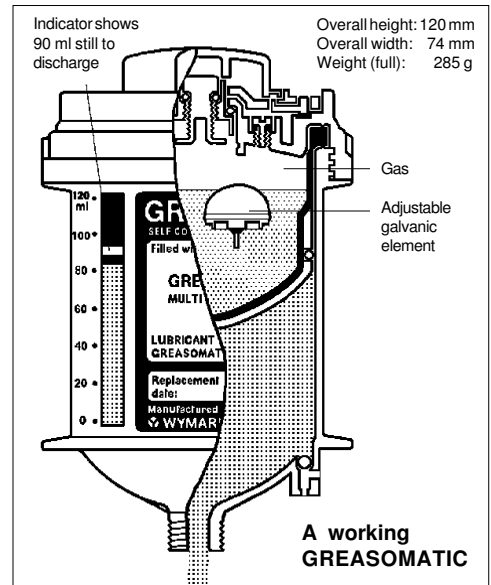
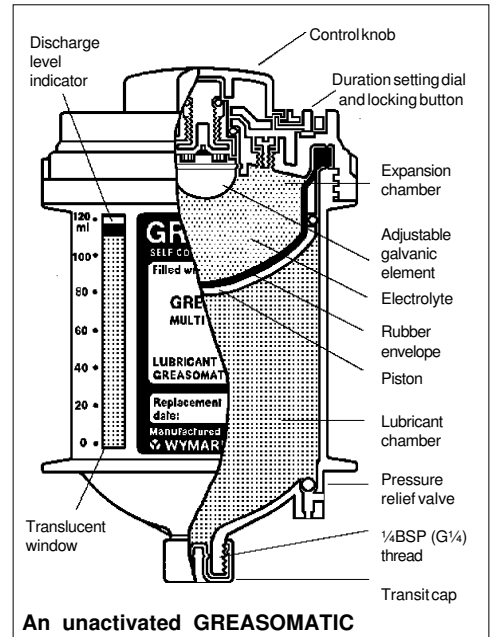
Throughout the working life of a GREASOMATIC an indicating ring on the ejection piston shows through translucent windows in the body to enable its lubricant level to be monitored.

HOW A GREASOMATIC IS INSTALLED

The lubricant outlet in the base of a GREASOMATIC has a ¼ BSP (G¼) male thread to enable it to be screwed by hand to fit tightly into a standard grease nipple socket. Adaptors are available to enable GREASOMATICS to be fitted into sockets of other sizes. With the aid of extension tubes (of at least 5 mm internal bore and up to 2 metres in length), they can easily be installed at a distance from the lubrication point. This is particularly useful when it is desired to group a number of GREASOMATICS together on a panel for ease of access, or when it is necessary to isolate them from extremes of temperature or from excessive vibration. Two or more units may be coupled together in order to increase the supply of lubricant to a bearing. A GREASOMATIC will work in any position and need not be mounted upright. It can be mounted on its side or upside down. It can be fitted to rotating or moving machine parts, providing the movement is not violent enough to cause the plastic base to break. A GREASOMATIC will work indoors or out of doors - it will even work under water or even, for brief periods, when it is encased in ice !

USE IN PRESSURISED SYSTEMS

If a GREASOMATIC is to discharge into a pressurised system (such as a high pressure pump bearing or a compressed air line), it is essential to isolate the GREASOMATIC from the back-pressure by fitting a non-return valve (Accessory GMA 21), and the pressure in the system must be relieved periodically to permit the GREASOMATIC to inject lubricant. This can normally be done at the end of the days work. In such circumstances a GREASOMATIC injects lubricant intermittently rather than continuously.




ACCESSORIES & FITTINGS

A wide range of fittings is available to facilitate the installation of GREASOMATICS. These are normally semi-permanent fixtures that are left in situ when spent GREASOMATICS are replaced. Full details of the current range may be found in the separate information sheet entitled **GREASOMATIC Accessories and Fittings** in which some typical mounting assemblies are also illustrated

**CONTINUED
OVERLEAF**

DAILY LUBRICANT INPUTS AND DISCHARGE DURATIONS AT VARIOUS TEMPERATURES

The nominal discharge durations of 1, 2, 3, 4, 6, 8 or 12 months apply at an ambient temperature of +20°C and will vary if the unit operates at higher or lower temperatures. Guidance on the approximate discharge durations (and the interrelated daily lubricant inputs) applicable at various temperatures is given in the chart below. Average values for fluctuating temperatures may be obtained by interpolation between the highest and lowest temperatures during the period. Variations in the daily lubricant input rate rarely affect the effectiveness of lubrication.

Dial setting	Average ambient temperature at the location of the GREASOMATIC (not that of the bearing)					
	-5°C	0°C	+10°C	+20°C	+30°C	+40°C
1	0 ml daily for 6 months	1 ml daily for 4 months	2 ml daily for 2 months	4 ml daily for 1 month	8 ml daily for 0.5 months	
2	0 ml daily for 12 months	0.5 ml daily for 8 months	1 ml daily for 4 months	2 ml daily for 2 months	4 ml daily for 1 month	6 ml daily for 0.7 months
3	0 ml daily for 18 months	0.3 ml daily for 12 months	0.7 ml daily for 6 months	1.3 ml daily for 3 months	2.7 ml daily for 1.5 months	4 ml daily for 1 month
4	 The figures above in this column are for use only when interpolating average values for fluctuating temperatures. See note below	0.25 ml daily for 16 months	0.5 ml daily for 8 months	1 ml daily for 4 months	2 ml daily for 2 months	3 ml daily for 1.3 months
6		0.2 ml daily for 24 months	0.3 ml daily for 12 months	0.7 ml daily for 6 months	1.3 ml daily for 3 months	2 ml daily for 2 months
8			0.25 ml daily for 16 months	0.5 ml daily for 8 months	1 ml daily for 4 months	1.5 ml daily for 2.7 months
12			0.2 ml daily for 24 months	0.3 ml daily for 12 months	0.7 ml daily for 6 months	1 ml daily for 4 months
	+23°F	+32°F	+50°F	+68°F	+86°F	+104°F

USE AT EXTREME TEMPERATURES OR IN FLUCTUATING TEMPERATURES

A GREASOMATIC can be installed safely at ambient temperatures between -20°C and +60°C. However it will not discharge lubricant at ambient temperatures below 0°C because the electrolyte will freeze at between 0°C and -5°C and gas generation will cease until the temperature rises above 0°C again. This will not affect the efficiency of lubrication if freezing occurs only briefly (eg overnight or for a few days), as gas generation and lubrication will resume as soon as the temperature rises above 0°C. In such circumstances, the average discharge duration and lubricant input rates may be calculated by interpolation. Should lubrication be required for extended periods down to -10°C, a GREASOMATIC Type LT should be used. At temperatures over +40°C, gas generation becomes too fast for discharge durations and input rates to be predicted accurately. Should a bearing require continuous lubrication at a temperature outside the table range, or if it is desired to adjust the discharge rate and lubricant dosage for a bearing operating within it, the GREASOMATIC may be installed away from the bearing in a more moderate temperature and may be connected to the bearing by extension tubing (see overleaf). Of course, the lubricant selected must always be suitable for use at the temperature of the bearing.

WORKING PRESSURES

Under normal conditions a GREASOMATIC operates at a low pressure of less than 1 bar. The exact pressure is determined by the resistance to flow of the lubrication channels and the bearing. If old lubricant has stiffened in a neglected bearing, the GREASOMATIC's pressure will build up until the obstruction is cleared and lubrication can begin.

THE PRESSURE RELIEF VALVE

In the event of a complete blockage of the lubrication channels, the GREASOMATIC's internal pressure will build up to about 5 bars at which level the pressure relief valve will operate as a safety measure and release lubricant from the base. This prevents overpressurisation and serves as a warning that no lubrication is taking place.

LUBRICANT FILLINGS

A GREASOMATIC can be filled with almost any type of lubricant. However many widely used greases are prone to oil-soap separation when subjected to sustained light pressure in a GREASOMATIC. This can lead to a serious curtailment of the GREASOMATIC's working life. It is therefore essential to use only greases or gels that have been tested and approved for use in GREASOMATICS if the discharge rates and working lives quoted above are to be realised in practice. Such considerations do not apply to oils, and GREASOMATICS filled with virtually any type of oil or fluid lubricant will function satisfactorily. For details of approved high performance lubricant fillings, see the separate publications entitled **GREASOMATIC Standard Grease Fillings** and **GREASOMATIC Standard Oil Fillings**.

SPECIAL FACTORS WHEN USING OIL FILLINGS

The handling of GREASOMATICS with oil fillings is not quite as straightforward as in the case of those with grease fillings because liquid will run out of the GREASOMATIC during installation unless simple precautions are taken. One method is to install the GREASOMATIC upside down with the discharge outlet uppermost, using if necessary an **inverted mounting assembly**. Alternatively, an oil filled GREASOMATIC can be installed with its discharge outlet downwards if a **non-return valve** (Accessory GMA 21) is fitted. This will only permit the oil to discharge drop by drop as the internal pressure rises above 0.3 bars. If the oil is to be injected into a long rising lubrication channel, the fitting of a non-return valve is essential or the oil will run out of the system whenever a spent GREASOMATIC is replaced. It should be borne in mind when handling an oil filled GREASOMATIC that once the transit cap has been removed, the GREASOMATIC must be held upside down. If it is to be installed with the discharge outlet downwards, the non-return valve must be fitted to it (rather than to the bearing) before inverting the combined GREASOMATIC and valve assembly and fitting it to the bearing. Full details of the non-return valve and an inverted mounting assembly are given in the publication: **GREASOMATIC Accessories & Fittings**.

CAUTIONARY NOTE

GREASOMATICS are made to the highest standards of accuracy and consistency, and the information in this and other GREASOMATIC publications is provided in good faith. However the conditions in which GREASOMATICS are used and the lubrication needs of different bearings can vary so widely, that no responsibility can be accepted for any loss or damage to machinery or equipment as a result of inadequate lubrication provided by a GREASOMATIC. Where continuous lubrication of a bearing is a critical requirement, it is essential for the user to inspect and ensure that lubrication is adequate. This is made easy by the discharge level indicator that shows through the translucent windows in the GREASOMATIC.