

## Section 4

# Recommended Spares

### 4.01 RECOMMENDED SPARES GENERAL INFORMATION

Spares are an in-house insurance stocked for specific equipment to ensure a minimum plant shut-down time. Spares 'held' should reflect one of the following:

- Regular use on monthly maintenance programme, for example nuts and bolts, cleaning equipment, fuses and cable.
- Long delivery items essential to plant running, for example spare electric motors and essential control equipment.
- Items of equipment that are now 'out-of-date'.

Other items stored would be various light fittings, switches, sockets and fuse carriers.

An up-to-date spare parts inventory is essential so that you can guarantee the part required is in-house or at least that information is available as to where the part can be located quickly. If the required spare parts are either bulky or too expensive to hold in-house, a regular monthly check by administration on the availability of particular parts and delivery price is necessary to save time. This information must be readily available to the maintenance engineers. If you consider using an outside maintenance contractor, obtain from them a full parts list of parts available and parts to order. They should update this information regularly. Maintenance, whether it is essential, routine or preventive, can only be carried out if the correct spares and lubricants are readily available. A supply of spares and lubricants should be sufficient for 12 months' operation of all the systems and plant. Delayed deliveries of needed spares/lubricants could be detrimental to your operations. When ordering spare parts and lubricants, always provide a proper and full description of the part with the serial number of the item of plant/equipment from the maker's nameplate.

Identify all equipment manufactured abroad and note that there may be a delay in getting spare parts. Check with suppliers availability of spare parts.

## 4.02 LUBRICATION

NOTE: Over-lubrication can be detrimental to equipment.

NOTE: Do not lose the lubricator cap or plug and see that these are firmly attached - the entry of a little grit can ruin a bearing.

NOTE: In the event of an emergency, Essolube SAE 20, Mobiloil SAE 20 or Castrolite SAE 10/30 may be used.

Schedule and programme lubrication delivery to suit the equipment and to avoid any possibility of starvation of lubricant. All equipment requiring lubrication will have manufacturer's advice on timing. This must be co-ordinated with the maintenance engineers' experience of the requirements of the equipment.

When flushing out old/stale lubricant ensure that oiling/lubrication channels, valves, pads, chains and pumps are overhauled or replaced to ensure their proper operation. Apply grease via a pressure gun through a grease nipple and under pressure up to the bearing. If you leave this operation for a long period of time, air may be trapped. Eventually the air will get to the bearings where it will cause considerable damage.

Re-lubricate motors equipped with grease fittings and relief plugs by the following procedure using a low-pressure gun:

1. Wipe clean the pressure-gun fitting and the regions around the motor grease fittings.
2. Remove the relief plug and free the relief hole of any hardened grease.
3. Add grease with the motor at standstill until new grease is expelled through the relief hole. In most cases it is not necessary to stop the motor during re-lubrication, but re-greasing at standstill will minimise the possibility of grease along the shaft seals.
4. Run the motor for about ten minutes with the relief plug removed to expel excess grease.
5. Clean and replace the relief plug.

## RECOMMENDED OILS

Shell Group of Companies	Turbo 27
Mobil Oil Co. Ltd.	Mobiloil DTE Heavy Medium
Castrol Companies Ltd.	Perfecto T68
BP Group of Companies	Energol TH 100 HB
Esso Petroleum Co. Ltd.	Tereso 56

## RECOMMENDED GREASES FOR BALL AND ROLLER BEARINGS

Shell Group of companies	Alvania RA
Esso Petroleum Co. Ltd.	Beacon 3
BP Group of Companies	BP Energrease LS3
Mobil Oil Co. Ltd.	Mobilux Grease 3

## INTERVALS FOR GREASING/OILING (general guide only)

MOTOR OUTPUTS - KW				
	1.5 - 5.5	7.5 - 30	37 - 100	Over 100
Standard Operation	5 years	3 years	18 months	1 year
24 hours per day	2 years	18 months	9 months	6 months

## LUBRICANTS FOR ELECTRICAL SWITCHGEAR

All devices, mechanisms and contact faces are oiled or greased during manufacture as necessary. During normal life these lubricants may evaporate or wipe off and lubrication should take place during routine maintenance as indicated. Excessive use of lubricants, particularly on light mechanisms, is not advised and surplus grease or oil should be wiped up.

The following table gives general guidance as to the type of lubricant used.

LUBRICANT	APPLICATION
Marcol Evolube	Contact faces, ACB Isolating clusters, auxiliary plugs and sockets, stab contacts and riser bus-bar contact faces, fuse unit, fuse switch and isolator contacts.
Duckhams General Purpose Grease	ACB drawout mechanism, switch carriage guides.
Hypoid 90 Gear Oil	ACB moving portion slides and roller bearings, fixed housing guides, device operating mechanisms.
Light Machine Oil (eg 3-IN-1)	ACB tripping mechanism, fuse switch and switch fuse mechanism.

## LUBRICATION SCHEDULE

ITEM	WEEKLY	MONTHLY	6 MONTHS	12 MONTHS
Motors *				A
Panel Hinges				C
Drive/Valve Shafts				A
Areafol Fans *			A	
Electrical Components			B	B

\* Items without grease nipples are pre-packed shield bearing and require no attention.

The lubricants recommended for the equipment installed are based on SHELL products in an attempt to standardise on one supplier. The products selected are as follows.

- A. ALVANIA GREASES : Selected for all motor, fan, pump bearings requiring application by a grease gun. The grease is a lithium-based product incorporating anti-oxidant, anti-rust and anti-wear additives.
- B. DIALA OIL BG : Selected for all electrical equipment requiring insulation lubrication. The oil possesses good dielectric properties and is highly resistant to oxidative degradation.
- C. ENSIS FLUID : Selected for all internal open gear, screw thread and slide bars. The fluid incorporates a rust prevention additive. The fluid also displaces water.

## 4.03 RECOMMENDED SPARES LISTS

Fuses: For fuse sizes refer to distribution board schedules. We recommend that a stock of 10% spares be held.

Light/Luminaires: It should only be necessary to stock spares of light bulbs/tubes. Refer to manufacturers' leaflets/catalogues for details.

ACTSPEED LTD : NO INFORMATION RECEIVED TO DATE

ELECTRAK LTD : NONE RECOMMENDED

HEATRAE-SADIA HEATING LTD : PLEASE REFER TO PAGE 7 OF THE USERS INSTRUCTION LEAFLET. WITHIN THE MANUFACTURERS' LITERATURE

KINSTRUT LTD : NONE RECOMMENDED

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KLIMA-THERM (EDPAC) LTD :	NO RECOMMENDATIONS RECEIVED
LIGHT YEARS :	NONE RECOMMENDED
MEM LTD :	NONE RECOMMENDED
MERLIN GERIN :	NONE RECOMMENDED
MK ELECTRIC LTD :	NONE RECOMMENDED
POWERPLAN SYSTEMS LTD :	NONE RECOMMENDED
SOLA-BANNER (EUROPE) LTD :	NO RECOMMENDATIONS RECEIVED
STAFFORD AUTOMATIC SYSTEMS :	NO RECOMMENDATIONS RECEIVED
WANDSWORTH ELECTRICAL LTD :	NONE RECOMMENDED