

OPERATING INSTRUCTIONS & PARTS LISTS

FOR THE

13" FEEDER/MIXER EXTRUDER

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# 13" Feeder Packer/Mixer Extruder

## Contents

General notes on safety precautions, electrical equipment, cleaning, lubrication and maintenance.

### Introduction

Description and operation Notes on installation, start up and shut down procedure.

Lubrication Notes on the lubrication of the machine with the type of recommended lubricants.

Maintenance Replacing metal 'O' rings and carbon gland rings.

Parts Lists with procedure for ordering of spares

### Other Manufacturers' leaflets

Carter Gears Ltd.

Flexibox Ltd.(Metastream couplings)

Brook Motors Ltd.

Pollard Bearings.

Renold Ltd.(Chain drives)

Croft 'RITESPEED' gear units.

## GENERAL NOTES

### SAFETY PRECAUTIONS

EACH MACHINE IS FITTED WITH SUITABLE GUARDS AND/OR ELECTRICAL DEVICES WHICH ENSURE THE SAFETY OF THE OPERATOR. THE DEVICES HAVE BEEN DESIGNED WITH THE KNOWLEDGE OF H. M. INSPECTOR OF FACTORIES AND ARE TESTED IN OUR WORKS BEFORE THE MACHINE IS DESPATCHED.

AT ERECTION THE ENGINEER INSTALLING THE MACHINE MUST ENSURE THAT ALL GUARDS ARE IN POSITION AND THAT THE SAFETY DEVICES ARE SET CORRECTLY BEFORE THE MACHINE IS HANDED OVER FOR PRODUCTION.

DURING SERVICE UNLESS OTHERWISE INSTRUCTED IN THIS HANDBOOK, BEFORE ATTEMPTING TO CARRY OUT ANY MAINTENANCE OR CLEANING, ALWAYS ENSURE THAT THE MACHINE IS AT REST AND IS ISOLATED AT THE MAIN SWITCH.

THE PROPRIETORS MUST MAINTAIN THE SAFETY DEVICES IN CORRECT AND COMPLETE WORKING ORDER AT ALL TIMES.

DO NOT RUN THE MACHINE UNLESS ALL GUARDS ARE SECURELY FITTED IN THEIR CORRECT POSITION.

### ELECTRICAL EQUIPMENT

Starters having magnetic overloads are despatched with the fluid packed separately. Before using, ensure that these have been filled to the correct level with the grade of fluid recommended by the maker or as sent with the equipment.

Before equipment is put into service its insulation resistance must be tested, normally by Megger, to safeguard against any weakness which may be present due to dampness or damage caused by transportation or storage. A Megger must not be used on low voltage systems, electronic equipment or on thermistors where fitted to motors etc. as these can be damaged by the high voltages.

The normal mechanical life of electrical components, relays, contactors etc. is approximately five million operations. We therefore recommend that those components which are subjected to frequent switching be checked and, if necessary, replaced after approximately five million operations.

Electrical contacts however, should be inspected more frequently as also should control gear situated in dusty atmospheres - particular attention being paid to door seals. After a short period of service, pitting may appear on contacts. This is a normal bedding in process with the modern materials used and is not detrimental to the operation of the equipment. The contacts of modern equipment have a special finish and therefore must not be 'dressed'.

Relays not subjected to frequent operation e. g. those in alarm circuits should be inspected and tested regularly.

## 13" Feeder/Mixer Extruder

### Introduction

This operating and parts list manual is issued by Baker Perkins Chemical Machinery Ltd., for the use of personnel responsible for the efficient operation of the machine.

Details relating to associated equipment i.e. Gear units, couplings etc. are dealt with in the applicable manufacturers' literature supplied with this manual.

### SERVICE

The primary purpose of this manual is to provide the user with the necessary information to ensure the efficient and safe operation of the machine. It is intended to be used by personnel responsible for the maintenance and repair of the machine. The manual contains detailed instructions on the correct use of the machine, the identification of parts, and the procedures for carrying out routine maintenance and repairs. It is essential that the user reads this manual carefully before operating the machine.

### CONTENTS

The manual is divided into several sections. Section 1, 'Introduction', provides an overview of the machine and its operation. Section 2, 'Safety', contains important safety instructions that must be read and understood before operating the machine. Section 3, 'Identification of Parts', provides a list of the main components of the machine and their functions. Section 4, 'Operation', contains detailed instructions on how to start, stop, and adjust the machine. Section 5, 'Maintenance', provides instructions on how to carry out routine maintenance and repairs. Section 6, 'Troubleshooting', provides a guide to common problems and their solutions. Section 7, 'Appendices', contains additional information, including a parts list and technical drawings.

### MAINTENANCE

The machine has been designed for long life and reliability. To ensure that the machine operates efficiently and safely, it is essential that it is properly maintained. The maintenance instructions in this manual should be read and followed carefully. Routine maintenance should be carried out at regular intervals, and any repairs should be carried out by qualified personnel. The machine should be kept clean and free from dust and debris. The oil should be checked and changed regularly. The belts should be checked and adjusted as necessary. The machine should be stored in a dry, well-ventilated area. The manual should be kept in a safe place for reference.

## 13" Feeder/Mixer Extruder

### Installation Instructions

1. Line the machine level using machine pads provided on base, and secure with foundation bolts.
2. Connect the cooling water piping to the machine jackets (Clients supply)
3. Remove guards and disconnect chain drive to Carter F12 unit, and from Carter unit to powder feed.
4. Disconnect mixer extruder coupling and rotate the screw freely by hand if tight (a) re-check alignment or (b) remove top halves or jacketed sections and check clearances.
5. Check powder feed screw as 4.
6. Check operation of emergency clutch if tight grease lubricate nipple on chainwheel.
7. Fill the Carter Units with the recommended lubricants to the correct levels (See manufacturers Booklets)
8. Reconnect the couplings.
9. Replace all guards.

## 13" Feeder/Mixer Extruder

### Start up procedure

1. Ensure that the jacket cooling water is turned on.
2. Run the mixer extruder screw at top speed.
3. Ensure that the correct discharge valves are open.
4. Start the solvent feed.
5. Start the screw feeder.
6. Start the weigh feeder and feed powder.  
(Note: The solvent and powder feeds should be automatically proportioned regardless of throughput).
7. Start  $T_1O_2$  slurry feed at the required rate.

### Process shut down procedure

1. Stop  $T_1O_2$  slurry feed.
2. Stop the weigh feeder.
3. Stop the screw feeder.
4. Stop the solvent feed.
5. Stop the mixer extruder.

## 13" Feeder/Mixer Extruder

### Lubrication

Note:- The Carter V.S. units are supplied without oil and must be filled to the oil level with the correct grade of oil before use.

#### Weekly

Check the oil level every week, this check should be made when the units are stationary. Top up with new clean oil if necessary.

#### Every three months.

Grease lubricate nipple on emergency clutch chainwheel.

#### Every six months.

Change the oil every three to six months depending upon the operating conditions.

Drain whilst the gears are still warm.

The correct grade of oil will be found on the data plates affixed to the gearboxes.

For further recommended grades of oil see the manufacturer's booklet or leaflets.

#### Extruder blade screw bearings and screw feeder

These ball or roller bearings are packed with grease on assembly and should require very little further attention.

Every six months remove the bearing caps (where accessible), and if necessary, clean out and repack using a good quality ball bearing grease. Where the bearing caps are inaccessible use the grease gun on the nipples taking care not to pack the bearings too tightly, the ideal is to maintain a little grease always in contact with the races. Use one of the following recommendations:-

Shell Alvania R3; Castrol Spheerol AP3; Mobil Mobilplex 47 or 48;  
Duckham Admax L3 or Regent/Texaco Regal Starfak Premium 3.