

OPERATOR'S MANUAL



®

'W' Type Pokers Operator's Manual

FAIRPORT

CONSTRUCTION EQUIPMENT LTD

Blagden Street
Sheffield
S2 5QS
ENGLAND

Tel: +44 (0) 114 276 7921
Fax: +44 (0) 114 272 0965
Email: sales@fairport.uk.com

Unit 32,
The Bell Centre,
Newton Road,
Manor Royal,
Crawley,
West Sussex,
RH10 9FZ
Tell +44 (0) 1293 534742
Fax +44 (0) 1293 529056

'W' RANGE POKER MANUAL

CONTENTS

| | | |
|-------|---|----|
| 1. | INTRODUCTION..... | 1 |
| 2. | TECHNICAL DATA | 2 |
| 3. | SAFETY | 3 |
| 3.1 | FLEXIBLE CASING USED ON POKER VIBRATORS - COSHH REGULATIONS | 3 |
| 3.1.1 | Data Sheet On Flexible Casing | 3 |
| 3.1.2 | Fire | 3 |
| 3.1.3 | Storage | 4 |
| 3.1.4 | Waste Disposal | 4 |
| 3.2 | SAFETY PICTOGRAMS USED ON THIS EQUIPMENT | 4 |
| 4. | COMMISSIONING AND OPERATING INSTRUCTIONS | 4 |
| 4.1 | POKER DRIVE UNIT - PETROL OR DIESEL..... | 5 |
| 4.2 | POKER DRIVE UNIT - ELECTRIC..... | 6 |
| 4.3 | STARTING THE VIBRATING POKER | 6 |
| 4.4 | USER HINTS AND INSTRUCTIONS | 6 |
| 5. | ROUTINE ATTENTION | 7 |
| 5.1 | CLEANING THE POKER VIBRATOR UNIT | 7 |
| 5.2 | POKER DRIVE UNIT | 7 |
| 5.3 | FLEXIBLE POKER SHAFT | 7 |
| 6. | PLUG-IN-CONNECTOR (COUPLING)..... | 8 |
| 7. | WARRANTY CONDITIONS AND CLAIMS PROCEDURE | 8 |
| | CONDITIONS | 9 |
| | CLAIMS PROCEDURE | 9 |
| 8. | REPAIRS AND ESTIMATES..... | 10 |

1. INTRODUCTION

The 'W' range of internal concrete vibrators (pokers) is petrol, diesel or electric powered and drive is transmitted to the vibrating head using a flexible shaft. The 'W' system has four main components:

- a) A vibrating poker head
- b) A flexible drive shaft
- c) A quick action coupling
- d) A drive unit.

The quick action coupling is disconnected from the drive unit by hand. Spanners are required to remove the coupling from the flexible shaft and this may be carried out on site. Further dismantling should be carried out in a workshop.

Four models of poker are available, W525, W536, W545 and W566. The last two numbers of the model designation indicates the poker diameter in millimetres. The '5' indicates the nominal length of the flexible drive, which in this case, is the standard length of 5 metres. Special lengths are available to order.

Couplings are available that will screw on to the flexible drive and plug in to alternative makes of drive unit. The alternatives that are available are shown in section 6 of this manual.

This manual is concerned with the safe use and routine maintenance of this equipment. A more detailed manual is available for workshop use. However it is recommended that poker heads that require repair be returned to one of the Fairport depots at either Sheffield or Edenbridge.

2. TECHNICAL DATA

Drive Units - Petrol/Diesel

| Engine <u>Make/Type</u> | L <u>mm</u> | W <u>mm</u> | H <u>mm</u> | Wt <u>kg</u> | Net BHP <u>@2800rpm</u> | LwA <u>DB(A)</u> |
|----------------------------|----------------|----------------|----------------|-----------------|----------------------------|---------------------|
| Honda GX160 | 410 | 510 | 535 | 26 | 4.0 | 98 |
| Yanmar L40 | 410 | 510 | 535 | 42 | 3.4 | 96 |
| Petter AC1 | 520 | 480 | 550 | 70 | 5.2 | 102 |

LwA levels based on engine manufacturers' data.

Drive Units - Electric

| | <u>EMD</u> | <u>ESD</u> |
|-------------------|-------------------------------------|---|
| Electrical data | 0.75kw, 115/230v, 12.6/6.3A, 1ph | 1.5kW, various voltages, see motor plate |
| Length: | 365mm | 360mm |
| Width: | 245mm | 360mm |
| Height: | 315mm | 350mm |
| Weight: | 17.0 | 23kg |
| LwA: | less than 85dB(A) | less than 85dB(A) |
| Switch insulation | IP66 | IP65 |
| Motor insulation | IP55 | IP55 |

| <u>Poker Sound Levels dB(A)</u> | <u>W525</u> | <u>W536</u> | <u>W545</u> | <u>W560</u> |
|---------------------------------|-------------|-------------|-------------|-------------|
| In concrete: | | | | |
| Operator position LpA: | 67.8 | 75.0 | 75.6 | 79.4 |
| Power level LwA: | 80.0 | 87.5 | 88.4 | 94.4 |
| In air: | | | | |
| Operator position LpA: | 74.0 | 79.0 | 85.0 | 87.2 |
| Power Level LwA: | 86.6 | 90.8 | 98.0 | 99.2 |

Hand/arm vibration levels, m/sec² maximum axis:

| | | | | |
|--------------|-----|-----|-----|-----|
| In concrete: | 4.0 | 5.0 | 7.0 | 5.5 |
| In air: | 4.0 | 5.0 | 7.0 | 5.5 |

Sound levels tested according to ISO 5349

Vibration levels tested according to ISO 3746

3. SAFETY

Never run petrol or diesel engines in trenches or confined spaces.

Never attempt to carry out maintenance with engine or motor running.

Never top up fuel tank whilst engine is running; don't smoke; wipe up spilt fuel.

Dispose of fuel contaminated wipes safely.

Always turn off fuel after use.

Always isolate electric motors after use.

Always use residual current devices with electric motors.

Always wear suitable protective clothing, i.e. safety helmet, footwear, ear defenders and gloves.

Ensure guards are always fixed in position when engines/motors are running.

Always comply with site safety regulations.

Do not attempt to carry out repairs to electric drive units unless you are a competent electrician.

3.1 FLEXIBLE CASING USED ON POKER VIBRATORS - COSHH REGULATIONS

This data sheet provides the information required on Section 6 of the Health and Safety at Works Act 1974 as amended by Schedule 3 of the consumer Protection Act 1987.

3.1.1 Data Sheet On Flexible Casing

The Polymeric compounds used on hose may contain materials that can migrate to the surface from whence they could be transferred to the skin during handling. This may cause skin irritation to persons who frequently handle hose. Persons who have to handle the hose frequently are advised to follow good hygienic practices e.g. wear gloves whenever practicable. Use barriers cream and wash hands after work before eating, drinking or smoking.

3.1.2 Fire

With a few exceptions the polymeric materials used by Dunlop Hose Limited are not easy to ignite in bulk. However when exposed to flame or to serious overheating they will decompose liberating noxious or toxic smoke or fumes. Fire precautions should recognise the hazards that may arise from indirect involvement in a fire as well as the inherent fire risk of the individual products.

Specialised advice on fire precautions is available from local Fire Authorities and from Health & Safety Executive.

3.1.3 Storage

Hose may deteriorate in appearance and physical properties during storage particularly if adverse storage conditions apply. BS3574 details the most suitable conditions for storage. In summary, hose should be stored in an unstressed darkened condition below 25° C and protected from moisture and air circulation. Exposure to atmosphere containing high concentration of ozone (eg. near discharge from electric motors) is to be particularly avoided. Hose should be stored away from direct heat and contact with strong oxidising agents should be avoided.

3.1.4 Waste Disposal

Hose should be disposed of by normal waste disposal procedures. Where incineration is used the incinerator must be specifically designed to give complete combustion of the gases and fumes produced.

3.2 SAFETY PICTOGRAMS USED ON THIS EQUIPMENT



Wear Gloves



Wear ear protectors



Read the manual before using this equipment

4. COMMISSIONING AND OPERATING INSTRUCTIONS

The machine as delivered will generally be in two main assemblies:

a) The drive unit

b) The poker head complete with flexible shaft drive and coupling.

To assemble the flexible poker drive to the power unit, raise the latch knob on the coupling housing on the engine and insert the coupling attached to the end of the flexible drive. On releasing the knob the plunger should locate itself in the groove in the plug-in connector. When connecting to a petrol or diesel engine it may be necessary to rotate the engine crankshaft by means of the rope or handle starter at the same time applying pressure to the coupling in order to obtain engagement. Check the engagement by pulling on the coupling after releasing the latch knob. The coupling must never be inserted into or removed from the housing with the engine or electric motor running.

If the coupling is disconnected from the flexible shaft at any time, be sure to protect all exposed ends from possible damage or entry of foreign matter.

When transporting flexible poker shaft assemblies, it is essential that they are never coiled too tightly, likewise acute bends should be avoided when operating on site. The recommended method of storing these flexible shafts is on timber racks so that the shaft is kept straight and supported throughout its full length.

4.1 POKER DRIVE UNIT - PETROL OR DIESEL

Carefully read the engine manufacturer's instruction book before starting.

Check oil level.

Turn fuel tap on.

Put speed control lever to tick-over.

If engine is cold, close the choke (petrol engines only).

Turn engine switch to ON(1) position.

Pull the starter rope toggle lightly until resistance is felt, then pull briskly using quick short pull. Do not pull rope to its full extent or allow toggle to snap back against engine. Return it gently to avoid damage.

When engine is warm open choke.

Position engine speed control lever to give required engine speed (usually full speed, but see note below).

To stop engine, position the engine speed control to slow and turn the engine switch to off(0).

Turn the fuel valve to off.

NOTE: The governors of petrol and diesel engine drive units have been set at 2,750/2,850 rpm maximum. It is essential that the engine speed is not increased over 3,000 rpm as this will induce stress which may result in the failure of the poker head or flexible shaft and therefore invalidate any warranty. CHECK ENGINE SPEED.

4.2 POKER DRIVE UNIT - ELECTRIC

The electric motor supplied is a totally enclosed, fan-cooled type, operating at a continuous rated speed of 2,850 rpm. Check that the voltage, number of phases and frequency requirements of the motor being used are compatible with the supply.

When making electric connections, it is essential that the output shaft runs in an anti-clockwise direction when viewing the drive claw through the open end of the housing.

Always use a cable of sufficient cross section to avoid excessive voltage drop. This is the major cause of electrical problems and motor overloading with 110v supplies. If in doubt consult a qualified electrician.

4.3 STARTING THE VIBRATING POKER

With the coupling correctly inserted into the housing start the engine or switch on the electric motor. During cold weather it is advisable to run petrol or diesel engines for a few minutes before connecting the flexible drive.

If the poker head does not start vibrating when the drive unit is at full speed tap the nose cap on a hard surface. Avoid tapping the body of the poker head, as this has not been hardened.

4.4 USER HINTS AND INSTRUCTIONS

Use the largest poker that the job and reinforcement will allow.

Move the poker frequently. A little and often over an area is better than holding it in one place for a long time.

Make sure the whole area is covered.

Withdraw the poker slowly to ensure the hole is closed with adequately vibrated concrete.

When using a poker with timber formwork make sure the poker does not damage the formwork. Consider using a poker with a polyurethane nose cap – contact Fairport or your dealer.

When vibrating a layer of concrete, which has been poured onto a previously vibrated layer, ensure the poker penetrates the previous layer by about 100mm.

Do not try to vibrate concrete in layers greater than 300mm to 400mm.

Try to immerse the whole of the poker head in the concrete to provide some cooling.

Do not leave the poker running when it is not in concrete. This will prevent overheating of the bearings.

Avoid tight bends in the flexible drive shaft. Tight bends cause rapid wear of the flexible core.

Check on a regular basis (weekly) that all joints on the flexible drive are tight.

Do not allow the coupling end of the flexible drive to lie in wet conditions on the ground, as the entry of water to the bearings will cause rusting.

Do not stop the vibration whilst the poker is still in the concrete. It may prove difficult to remove and it will leave a void.

5. ROUTINE ATTENTION

5.1 CLEANING THE POKER VIBRATOR UNIT

Time on regular maintenance is well spent, as it prolongs the life of the machine between regular overhauls. Therefore, a few minutes each day removing excessive cement deposits from the poker head, flexible drive and power unit will ensure satisfactory operation.

5.2 POKER DRIVE UNIT

When using a petrol or diesel engine as the prime mover, it is essential that the oil level in the crankcase is checked daily and replenished if necessary with the correct grade.

Cleanliness of both the lubricating oil and fuel cannot be over stressed. Therefore, use clean measures and containers and always observe recommended safety procedure.

5.3 FLEXIBLE POKER SHAFT

In order to minimise damage to the flexible shaft drive, avoid acute bends, especially where the flexible drive passes over the edge of trenches, shuttering etc.

The flexible drive shaft should be dismantled and re-charged with grease every 500

working hours. Do not attempt to carry out the lubrication of the flexible shaft drive under site conditions; this should always be carried out in a maintenance workshop.

6. PLUG-IN-CONNECTOR (COUPLING)

Alternative plug-in-connectors are available for screwing on to the 'W' type drive to enable 'W' type pokers to be driven from different makes of drive units. The Fairport part number for these alternatives are shown below:

| Drive Unit | P-I-C Part No. | Body Dia. Mm |
|------------|----------------|--------------|
| Warsop | W60803 | 65 |
| Errut | W60802 | 60 |
| Dynapac | W60801 | 60 |
| Wacker | W60813 | 60 |
| Fyne | 92961 | 47.5 |
| Metrix | 92844 | 48.5 |
| CEL | 93036 | 60 |

It should be noted that the threads of the above couplings are left hand. Once unscrewed from the outer case end piece they are simply pulled away from the inner core.

7. WARRANTY CONDITIONS AND CLAIMS PROCEDURE

All products supplied by Fairport Construction Equipment Ltd (hereafter referred to as FCE) are warranted to be free of defects due to faulty materials or workmanship for a period of 12 months from the date of original despatch from FCE or as specified below:

Hydraulic hoses and hydraulic couplings – 3 months.

Hydraulic accumulators – 6 months.

Flexible drives – 6 months.

All spare parts used in repairs carried out by FCE or an authorised dealer or repairer – 3 months.

If the goods have been purchased through a stockist the above warranty periods also apply from receipt of the goods by the user of the equipment up to a total of a further 6 months from date of despatch from FCE whichever is earlier.

Filter elements, gauges and oils are specifically excluded from this warranty.

FCE shall at their option repair or replace during normal working hours goods accepted as faulty free of charge to the user.

For proprietary items such as engines, the original manufacturer's warranty and conditions shall apply.

CONDITIONS

The goods shall be returned at the purchaser's expense to FCE or to a destination FCE may reasonably direct. Carriage costs will be refunded if warranty is accepted.

Warranty claims will not be considered where there is evidence that failure has been caused by carelessness, improper use, negligence, inadequate servicing, incorrect engine speeds, fair wear and tear or non-compliance with instructions issued by the manufacturer.

To the extent permitted by law, the liability of FCE under this section is confined only to providing a remedy for defective goods and does not extend to any consequential loss, loss of profit, injury or damage suffered.

Warranty will not be accepted on dismantled goods unless dismantling was carried out with the written permission of FCE.

No claim shall be considered if other than genuine parts supplied by FCE have been used.

Products are only covered by this warranty in the country to where they were supplied by FCE.

Warranty on products applies only to the original user of the equipment.

This warranty shall not apply if the serial number or other identifying numbers or marks applied by FCE have been removed, defaced or are otherwise illegible.

CLAIMS PROCEDURE

Check that the goods are still under warranty before returning them to FCE (see above for warranty periods).

Return the goods to FCE with an order number for the work to proceed. If warranty is accepted no charge will be made. If warranty is not accepted a quotation will be given for the repair and the conditions under the section headed REPAIRS AND ESTIMATES will apply.

In the customer's interest, goods must be accompanied by documentation detailing the nature of the fault or its symptoms. Phrases such as 'Faulty' are unacceptable and will result in delays and possible charges to defray costs incurred in identifying the fault.

In the case of hydraulic breakers and power packs, both the breaker and the pack should be returned

8. REPAIRS AND ESTIMATES

When returning a machine, or an assembly for repair, always include an Advice Note quoting model and serial number of the machine.

An official order must also be forwarded to FCE giving detailed instructions. No repair work can be carried out unless covered by an official order.

An estimate will be submitted before proceeding with any repair. To partly cover the cost in dismantling, cleaning and inspection, a small charge will be made, this however will be waived upon receipt of your official instructions to proceed with the repair.

In the event of the estimate not being accepted, a further charge will be made to defray the rebuilding of the machine.

Estimates must be treated as approximate only as it may be found necessary to use additional parts on further examination.

EC Declaration of Conformity

We Fairport Construction Equipment Limited

Blagden Street
Sheffield
S2 5QS

Declare that the product

“W” Type Poker & Drive Units
Manufactured from 1 Sept 2004

conforms to the following Directives:

89/336/EEC, 89/392/EEC, 91/368/EEC, 2000/14/EC

uses the following standards:

BS EN 292-1, BS EN 292-2, BS EN 294

conforms to the following Statutory Instruments

The Supply of Machinery (Safety) Regulations 1992 & amendments

Complies with the relevant essential health and safety
requirements of the Machinery Directive

Technical Construction File no **P.D.U.**



Technical Manager

| Signature | Position |
|------------------------------|----------------|
| R.J.Castle I.Eng M.I.Mech.E. | 12/12/2005 |
| Signed by | Date Technical |