

IMPORTANT :
READ BEFORE USE

SERVICE MANUAL

Build by:

USF EBE BV

Utrechthaven 12

3433 PN Nieuwegein

Tel: +31 30 601 8866

Fax: +31 30 601 8333

1. Productinformation

1.1 Product

This product consist of:

- Hydraulic powerpack with hydraulic valves etc.
- Electronic controlbox
- Hydraulic driven winch with all necessary brakevalves etc.
- Steel skit frame

1.2 Function

- The hydraulic powerpack has one fixit displacement pump of 11.3 cc/rev. It is attached to an electric controlled hydraulic 4/3 valve. This valve is a proportional valve with a 3 - way flow compensatory. The oil flow trough the valve is adjustable between 0 - 16 l/min, this is resulting in a winch speed between 0 - 20 m/min. An oil-air cooler, build in the return line, keeps the temperature at useable hydraulic oil temperature.
- The winch has fixed displacement motor with a displacement of 6 cc/rev. It is equipped with a hydraulic brake valve with external signal to the static brake. The hydraulic and static brake or on if there is no hydraulic signal to one of these functions. The winch is also equipped with an electric limited switch. Maximum pull in or maximum pay out is limited by this switch. Mounted are also two limited switches which indicated the last few meters cable, at pull in or pay out, when these switches are operated (which is done automatically) the winch can only be operated at low speed
- The electronic controlbox is equipped with all the necessary switches to operate the electromotor of hydraulic powerpack as well as the electromotor of the air-oil cooler. The controlbox has a digital amplifier to operate the electric 4/3 valve. The controlbox has all the electric safeties for each user attached. At the main controlbox, which has build on the skit frame, a remote controlbox has to be attached to operate the winch. On this remotecontrolbox is build an emergency switch which, if operated, stops the hydraulic powerpack and therefore the operation of the winch.
- The skit frame is build of steel 37, however the hoistclamps are made of steel 53-3. The frame is protected against rust by powder coating.

1.3 Safety of components

- A hydraulic relief valve build in the separated 4/3 valve protects the hydraulic pump. It is adjusted at 160 bar.
- The returnfilter have a by-pass, which opens at two bar.
- The tank has a temperature/level indicator, which indicates the level and temperature of the hydraulic oil.
- The electric remote control box has an emergency switch.
- The 5.5 kW electromotor is protected by a fuse of 10-14 A.
- The 0.35 kW coolermotor is protected by a fuse of 0.6-1 A.
- The operation of the winch is protected by a "start" button, which has to be operated before using the potentiometer for selecting up – down, or any other buttons.

1.4 Technical date :

- Powersupply main motor : 5,5 kW 400 - 440 V, 50 / 60 Hz
- Power coolermotor : 0.35 kW 400 - 440 V, 50 / 60 Hz
- Hydraulic pump : 11,3 cc/rev P max : 250 bar
- Hydraulic motor : 6 cc/rev P max : 420 bar
- Winch : pulling force $F = 7160$ N
 - Speed : 0 -20 m /min
 - Cable : 30 M \varnothing 8 mm
 - i : 130

2. Installation

2.1 Transport

- The skit frame can be transported by a forklift or crane. DWG +/- 300 kg:
- Use cranes or forklift which is build to lift these weight.
- The pre-mounted hoisting points are only to lift the hydraulic winch.

2.2 Mounting / Installation device

- The hydraulic system can and may be **only** connected according the delivered hydraulic schedule. Changes can only be accepted after written permission by an engineer from USF EBE BV.
- The hydraulic system has to be connected by an USF EBE engineer, or somebody who is authorized by USF EBE BV.
- An authorized electrician according to the delivered electric diagram may only connect the electric system.

2.3 Connections

- The connections of the hydraulic system must be connected according to the hydraulic schedule.

2.4 Hydraulic oil

- The hydraulic oil of standard type, according to DIN 51524 (HLP) can be used. The ideal operating range is 15 – 30 cSt. At start up the viscosity may not exceed 1000 cSt. Because the viscosity depends off the temperature, we give you the following table :

Temperature	Viscosity Class
30 – 40 Celsius	22 cSt. to 40 degrees Celsius
60 – 70 Celsius	68 cSt. to 40 degrees Celsius
80 – 90 Celsius	100 cSt. to 40 degrees Celsius

From factory it is filled with T-46.

3 Use

3.1 Starting up

- The hydraulic and electrical part has to be connected at this time.
- When the installation is totally clean it can be filled up with hydraulic oil till the maximum on the level indicator.
- The housing of the hydraulic motor has to be totally filled up.
- The hydraulic multiple disc brake has to be filled up with hydraulic oil
- If the three phases are connected, the led on the RM3 phasescontrol will light. If not, changes two phases.

When this is done:

- Start electromotor shortly (max. 1 second) and check rotation off electromotor see arrow mounted on electromotor (CW).
- If rotation is right, start again for two seconds.
- Start again for 5 seconds
- Start up and check for leakage.
- Press " start" button on remotecontrol
- It is now possible to operate the either by up – down, or after operating the “auto” mode by the potentiometer. The potentiometer is only used for to adjust the blastspeed down. Anyway, the ‘down’button has to be operated.
- Check movement winch.
- Operated to full speed
- If no movements the winchcable can be at maximum pull out or maximum pull in and is now limited by the limited switch.

-
- Just before maximum pull out or in, the winch gives a signal so that it will operate at slow speed.

3.2 Normal use

- Select main switch to "on", control voltage will light.
- Press "start" on the remote control, hydraulic and cooler motor will run.
- On "mode" press up or down, attention two speeds is available.
- On "auto" mode, press down and select down (=blast) speed with potentiometer (min ⇔ max)

3.3 Who may operate the machine

- Regulations according to personal protection etc. will be given by **USF - EBE** and
- Knowledge, instruction, education etc. will be given by **USF - EBE**.

3.4 Working off the machine

- De electric motor will be started and the hydraulic pump will be driven. If the valves are not operated the flow will be, by means of the 3 - way compensator, go through the cooler and the returnfilter to the tank. If the valve is operated the valve delivers exactly the flow of oil which is selected, depending of the position of the valve. This oil goes through the brake valve, the hydraulic motor, cooler, returnfilter back to the tank.

3.5 Stop the machine

- The electromotor will stop if
 - The emergency switch is operated
 - The main switch on the controlbox is operated to " off "
 - The oil level is too low
 - The maximum oil temperature is reached (about 80 ° C)
- The hydraulic powerpack has to be serviced if
 - The oil level is too low.
 - The maximum temperature is reached (80 ° C)
 - The leakage of the components is more than 5 drops/hour

4.Maintenance

4.1 Machine maintenance

- Check powerpack daily to :
 - Oil level
 - Leakage's to hoses, pipe work etc
 - Dirt
 - Gauges
 - If necessary take oil sample and sent to USF EBE BV.
- Check hydraulic powerpack every hour at oil temperature and level
- Check winch daily to:
 - Hoist cable
 - Bolds etc.
 - Hoisting hook
 - General inspection, see chapter 6/7/8

Maximum oil temperature: 80 ° C

- For further maintenance see control and service intervals

4.2 Who may maintenance the machine?

- Persons who have written permission from USF EBE BV or engineers from USF EBE BV.

4.3 Extreme danger during maintenance

- **Temperature of components can be above 37 degrees Celsius.**
- **Hoses or pipe work can be under hydraulic pressure.**
- **By dismounting off brakevalves the winch has to be blocked mechanically.**
- **Before any maintenance: main electric switch to zero and disconnect main supply.**

4.4 Special regulations

- If the machine is start up, please check if all the moving components can move freely
- Always be sure that the hydraulic oil level is at least $\frac{3}{4}$ to maximum.
- The leakage oil of the hydraulic motor may never exceed 90 degrees Celsius

4.5 Safety

- **Be sure that the winch can rotate freely**
- **Sent away people who are not necessary**
- **Don't point to anything which is moving**
- **Use tools etc. for which they are made for**
- **Replace broken or damaged hoses**
- **Wear safety boots and helmet**
- **Take notice of this complete manual**
- **Never walk under the skid frame when it is hoisted by secondary crane**
- **Use skidframe with all parts built on it only where it is used for.**
- **Lift only USF - EBE blastmachines, which are designed for this skid frame.**
- **NEVER walk under a load which is lifted**
- **Check hoistcabels daily.**

5. Glossary

5.1 Oil

- USF EBE BV advise to take an oil sample at least every year or every 1000 hours.
- The sample can be sent up to:

**USF EBE BV
ATT. Service
Utrechthaven 12
3433 PN Nieuwegein
The Netherlands**

- The hydraulic oil has to be replaced every year, or every 1000 – 2000 hours.

5.2 Filters

- There is one hydraulic filter:
- - For TEF 70 : 300.089

Use only INTERNORMEN filters. These filters are very special and clean up to less than 10 micron.

Change filters at least every 500 hours or when indicator turns red.

5.3 Hoses

Change hoses if they are damaged or broken. See for right hose schedule and spare part list.