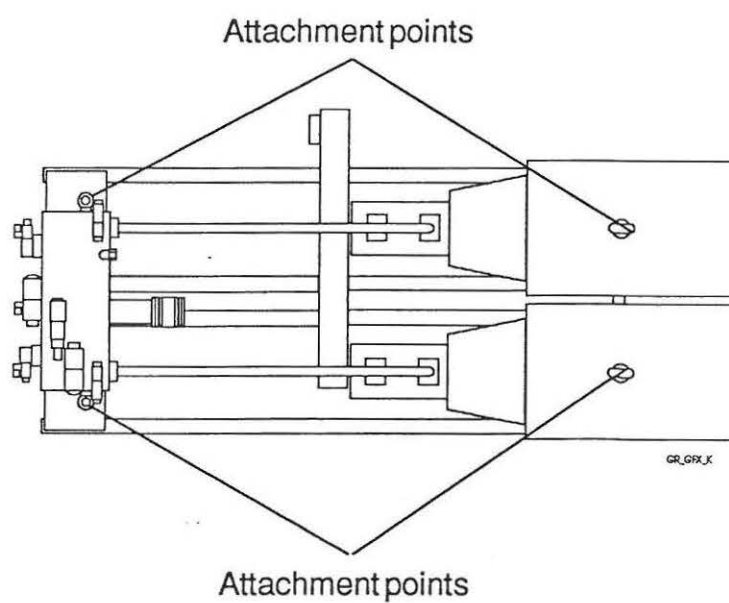
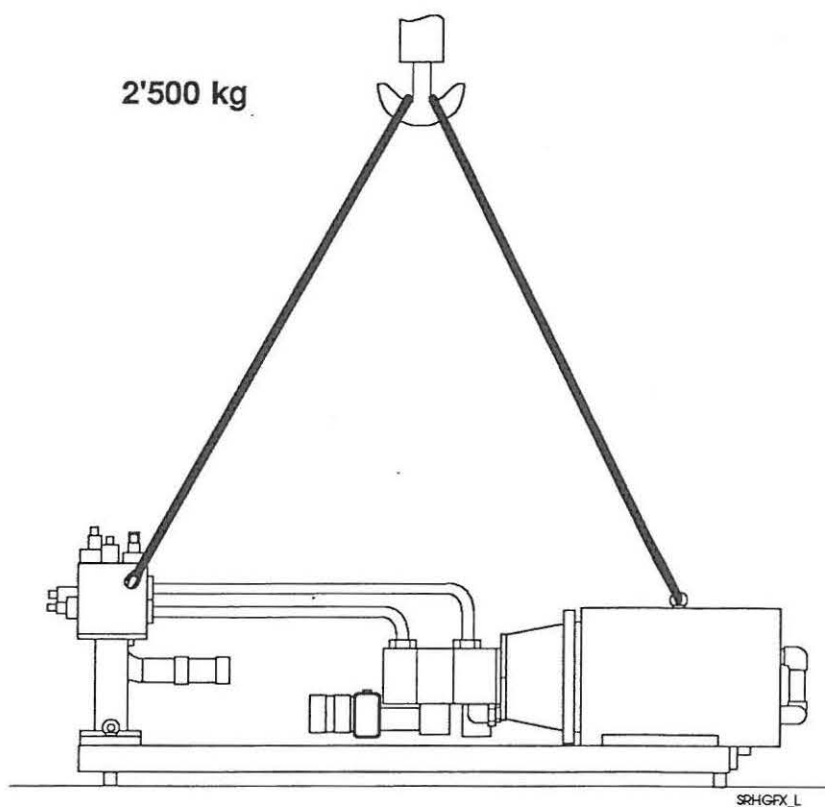
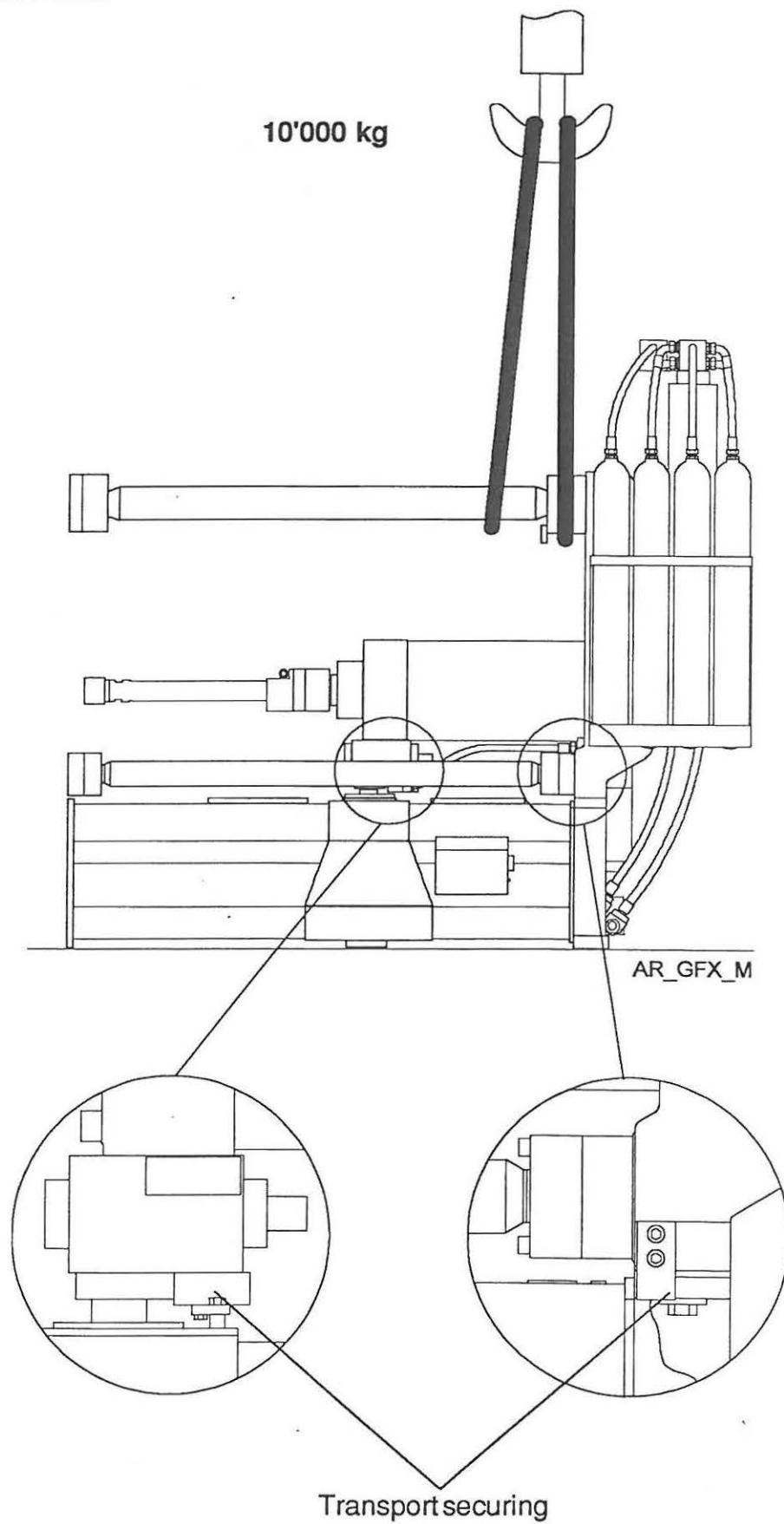


7.9.5 Drive unit



7.9.6 Injection unit



8 Preparations for setting into operation

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8.1 Objectives

- On-schedule completion of all preparation work
- Technically correct completion of all preparation work
- Cost-saving start-up
- Early production start

8.2 Organisational measures

While the DCM or the DC plant is being erected Buhler specialists should be assisted by following skilled personnel of the customer.

- | | |
|------------------------|-------------|
| • Pipe fitters | as required |
| • Welders | as required |
| • Electricians | as required |
| • Fitters or mechanics | as required |

Further, unskilled labour should be available for following jobs.

- unpacking the deliveries
- transporting the deliveries
- cleaning the deliveries

Note

If you have commissioned peripheral units directly it is to your own interest to have these units set into operation while a Buhler specialist is present.

- Please coordinate the appointed date with all suppliers !

At the time of setting into operation:

- have your own personnel available
- relieve your personnel from other tasks

Instructed on site will be:

- operators
- machine setters
- maintenance staff

The time required for instruction depends on various factors:

- complexness of the DCM or DC plant
- how well the customer's personnel is informed
- will an interpreter have to be engaged, etc.

Instruction will take between one and several days.

8.3 Training

We recommend to have your personnel trained in Uzwil.

The courses which are offered can be taken from the enclosed brochure.

8.4 Production planning

For a fully automatic DC plant an extended optimization phase will have to be taken into account.

The scheduled production output will not be achieved during the optimization phase.

8.5 Quality assurance

If quality demands are set for the casting you must provide the necessary infrastructure for quality control.

8.6 Calling for a delegation

For any questions concerning preparation work please consult the competent customer service.

When the preparatory work as described in Manual 1, is completed please notify us accordingly with the enclosed fax / letter.

A delegation for setting into operation of the DCM or DC plant does not take place before we have received:

- checklist : Technical data/working materials
- checklist : Preparation of site of erection
- checklist : Preparation of electrical system
- checklist : Preparation of energy connections
- fax / letter : Request for delegation

Note

Costs and expenses ensuing from preparatory work not being completed on schedule will be charged to the customers !

8.7 Enclosures

Fax / letter Request for delegation

Brochure Program of training courses

Sender:

Date:

Bühler AG

att. DV 83 Service department

CH - 9240 Uzwil

FAX No.: Switzerland / 73 50 39 63

Delegation request

The preparations have been completed according to Manual 1.

Please would Buhler company inform us on the date of machine start-up.

We opt for machine start-up on:

With kind regards

Enclosures: 4 check lists

9 Errection / Start-up

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9.1 Important notes

We urgently recommend to have the erection work and start-up of the DCM or DC plant done by Buhler specialists.

Note

Buhler company does accept any liability for damage caused by inexperienced erection or start-up by the customer or third parties.

9.2 Mechanical installation

The mechanical installation of the DCM or DC plant is carried out by Buhler specialists according to a special check list.

9.3 Electrical installation

The electrical installation of the DCM or DC plant is carried out by Buhler specialists according to a special check list.

The connections and connected loads of the control system and motors are given in Chapter "Preparation of the electrical system".

9.4 Energy connections

The connections and connected loads of the power supply (air, water) for the DCM or DC plant are given in Chapter "Preparation of energy connections"

9.5 Peripheral units

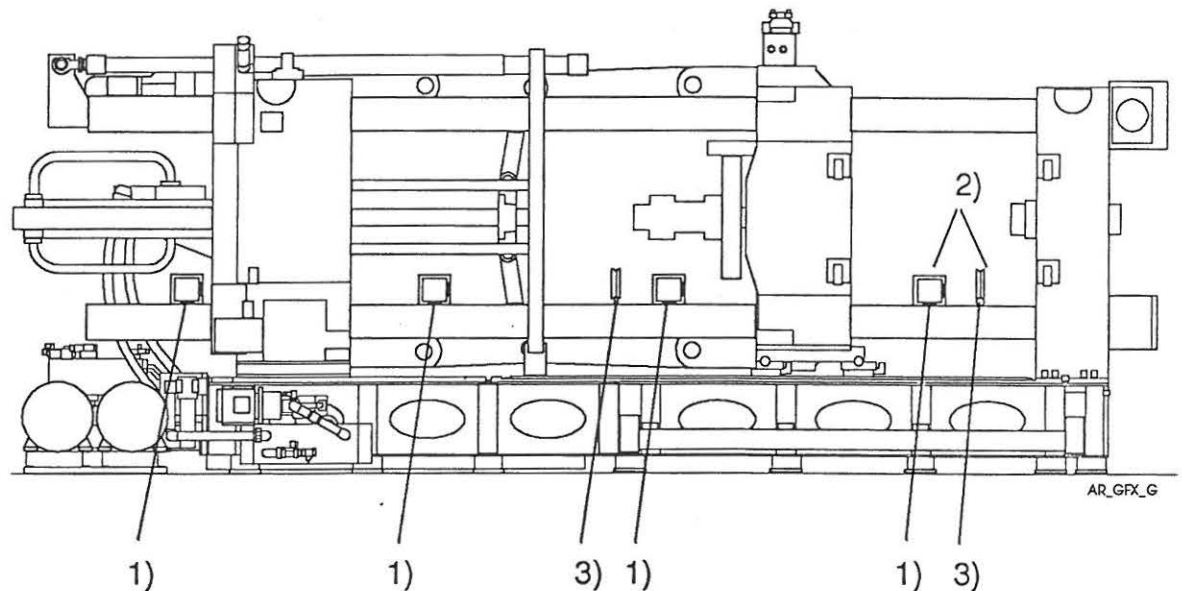
Follow the instructions for installation of peripheral units in the relevant instruction manuals.

9.6 Transportation securings

The transportation securings marked in yellow on the casting unit and on the die-closing unit are to be removed (see "Instructions for lifting", Chapter "Transport").

9.7 Levelling the die-closing unit

Level the closing unit in longitudinal and lateral direction at several points as shown in the figure below.



- Legend:
- 1) Checking point
 - 2) Spirit level
 - 3) Shaft or ruler

9.8 Switching on the control system

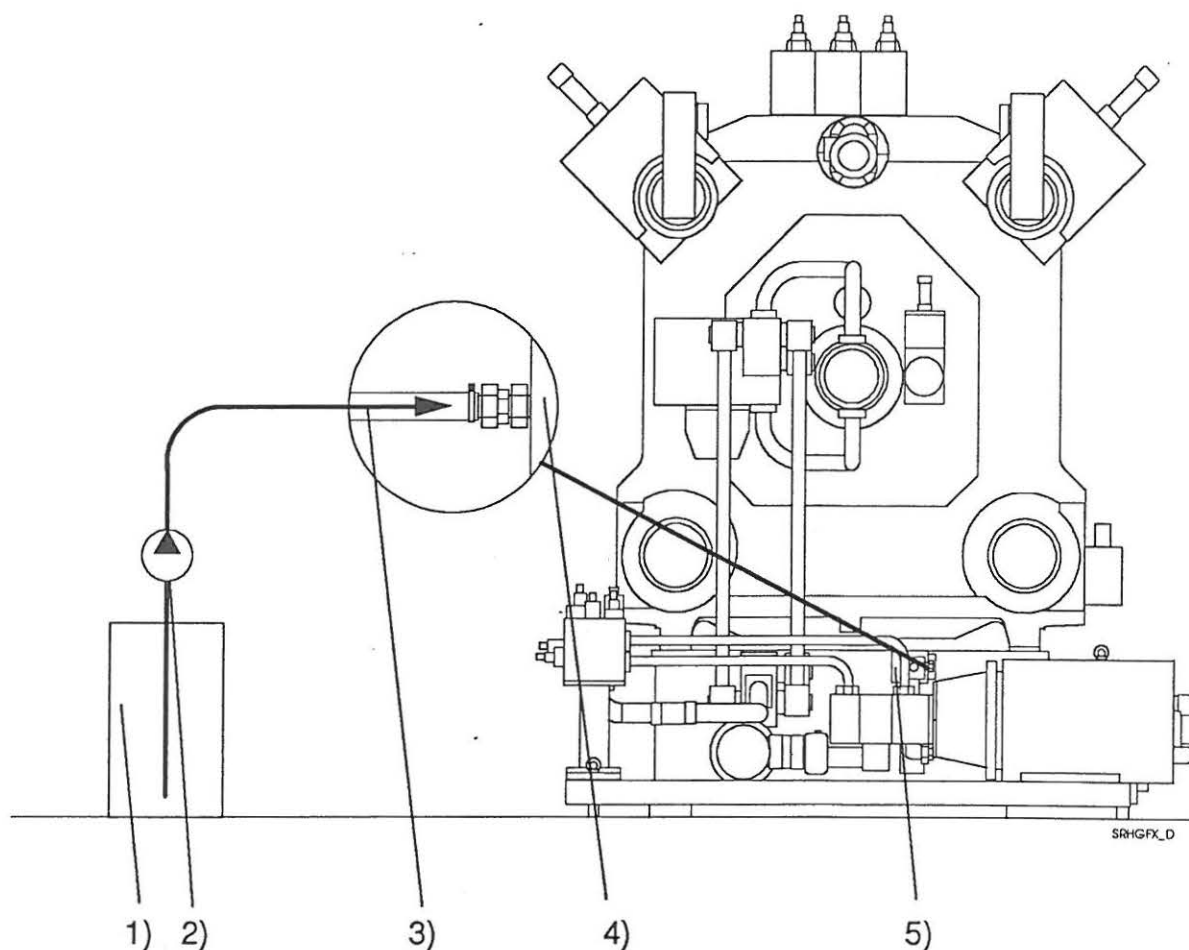
- Check the voltage of the external power supply
- Switch on all fuses and automatic cutouts.
- Close the cabinet doors.
- Switch on the main switch.
- Eliminate the indicated errors or faults as much as possible.

9.9 Filling hydraulic fluid

Fill the hydraulic fluid with the aid of an external pump directly from the barrel into the tank. While filling observe the indications for the fluid level on the screen and check the sight glass (5) on the hydraulic tank.

**CAUTION!**

Fill hydraulic fluid only via the return filter!



- Legend:
- 1) Barrel with hydraulic fluid
 - 2) Pump
 - 3) Filling hose, included in the tool set
 - 4) Return filter
 - 5) Sight glass for checking the level of the hydraulic fluid

9.10 Direction of rotation of the motors

**CAUTION!**

The direction of rotation of the motors must be as indicated by the arrow on the pump flange or motor housing.

Note

When correctly wired according to diagrams all motors have the same direction of rotation. If motor M1 has the wrong direction of rotation two phases of the external supply have to be changed.

Motor M1 (Hydraulics)

- Press key S1 "Driving motors on" and after approx. 1s press the "Emergency Off" button. Repeat this procedure if necessary.

Motor M2 (Hydraulics)

- De-select motor M1 on screen page "Setup / Machine" (F2).
- Press key S1 "Driving motors on" and after approx. 1s press the "Emergency Off" button. Repeat this procedure if necessary.

Motor M6 (circulation pump)

- Press key S1 "Driving motors on" and after approx. 1s press the "Emergency Off" button. Repeat this procedure if necessary.

Motor M8 (central lubricating system)

- Start the lubricating cycle by pressing the key "Start L cycle" screen page "Machine / Central lubrication" (F2>F2>F3).

Motor M9 (die height adjustment)

- Switch on the driving motors and move the die to the middle position
- Select die height adjustment on screen page "Preselect movements / Tie bars Die" (F3>F8>F3).
- Activate the movement with the hand switch and check the reactions of the machine.

9.11 Central lubricating system

Note

Use a central-lubricating oil which is listed under Chapter "Operating materials".

- Fill central-lubricating oil via a strainer up to the upper marking of the sight glass. Attention, do not overfill!



CAUTION!

In order to ensure sufficient lubrication bring down the number of intervals for the toggle system to 10 during the first 500 operating hours. (F2>F2>F3)

9.12 Plunger lubrication

Note

Use a lubricant which is listed under Chapter "Operating materials".

- Fill the lubricant via a strainer.
- Activate the plunger lubricator until the lubricant emerges.

9.13 Air control unit

Note

Use a lubricant which is listed under Chapter "Operating materials".



CAUTION!

Before filling lubricating oil relieve the pressure from the air control unit.

- Top up lubricating oil to the upper marking.
- Set the operating pressure (5 bar).

9.14 Hydraulic system

- Switch on the die-casting machine and switch it off again after a short time running. Repeat this procedure several times until the pumps are running regularly.
- Switch on the die-casting machine and carefully deaerate the hydraulic cylinders by means of the venting plugs marked in yellow.
- Repeat deaeration of the plunger actuating cylinder several times after a number of plunger movements.

**CAUTION!**

Open the vent plugs carefully until all the air has escaped and hydraulic fluid emerges. Never remove the venting plugs!

9.15 Die closing unit

All functions of the die closing unit are to be set into operation at reduced speed.

9.16 Nitrogen

Filling nitrogen (see Manual 2, Chapter "Die changing").

9.17 Injection unit

All functions of the injection unit are to be set into operation at reduced speed.

9.18 Switching off the DCM or DC installation

If possible, always switch off the DCM or DCI at its initial position. This considerably facilitates restarting production.

In case of emergency immediately switch off the DCM or DCI by means of the "Emergency Off" keys or the "Hydraulics Off" key S2 on the control cabinet!

