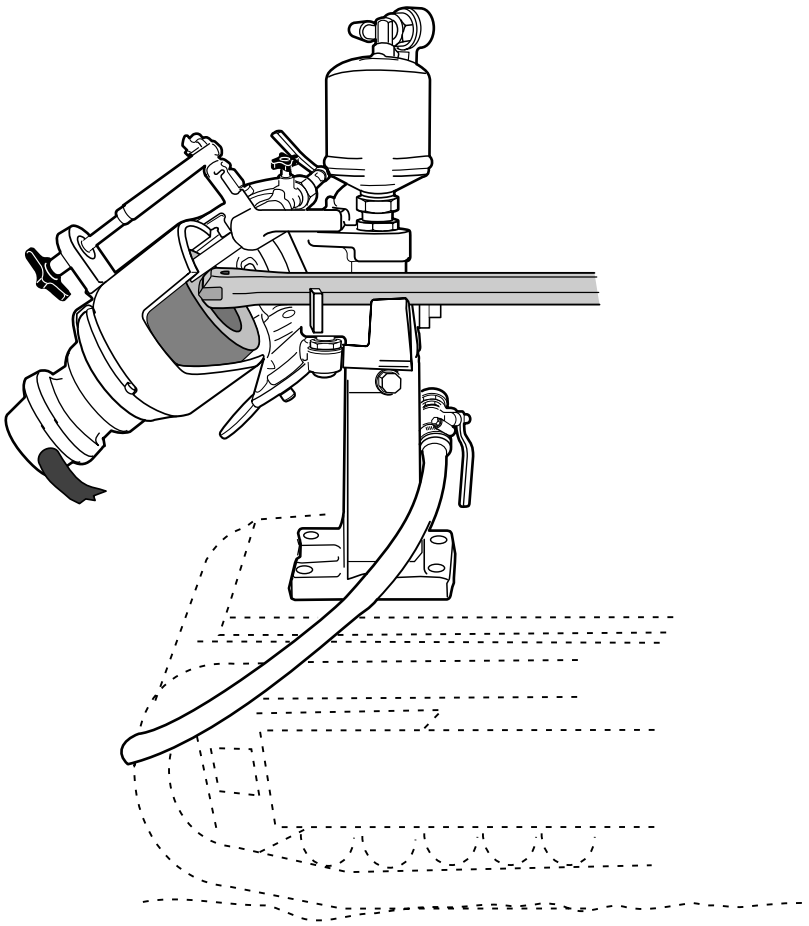
Sanroc ILH

General instructions and spare parts list



CE

Sandvik rock drilling tools

Hydraulically driven grinding machine for integral drill steels with chisel-type bit

SANDVIK

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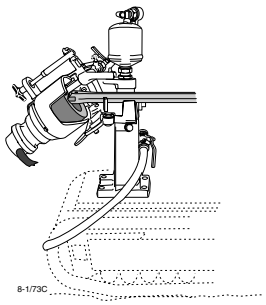
Description

The **Sanroc ILH** grinding machine is intended for the frontal and gauge grinding of integral steels with chisel inserts. It is driven by a hydraulic motor and is intended to be mounted on a drill rig (or on a bogie with suitable hydraulic power pack).
The machine consists of three main assemblies:

* the stand (1) with pneumatic cylinder (71) to clamp the integral steel into position for frontal grinding.
* the swing-arm (2) with wheel-guard (9) and feed screw (27).
* the hydraulic motor (46) with output shaft (39), hub (58) and grinding-wheel (60).



Sanroc ILH

Since the machine is normally equipped for air cooling of the bit during grinding, it is delivered with a dry grinding wheel as standard. If there is a water supply at the worksite, water cooling is recommended, the machine can be adapted easily by remove plastic tube (66) and fitting a suitable plastic cap (Part No.797-5769-08) to the connector (67) and replacing the elbow coupling (65) with a straight connector (Part No. 797-5777-23) for the water hose. If water cooling is used, a wet grinding wheel will be required (see page 3 for ordering number).
See exploded view on page 6.

Mounting the machine on a drill rig

The **SANROC ILH** can be mounted anywhere on a drill rig where it does not interfere with other functions. Consideration must, however, be given to working height in terms of operator comfort and to space requirements, which will depend on the length of the integral steels to be ground. The stand (1) of the machine is simply bolted to a suitable base. (A dimensional drawing for a suitable mounting plate with bolt holes can be found on page 4.)
A simple bracket (not supplied with the machine) will be needed to support the drill steel somewhere between its middle and the shank end. When locating the bracket, bear in mind that the shank end must be supported in line with and on the same plane as the profiled guide piece that forms part of the drill-steel clamping arrangement on the stand, so that the bit always approaches the grinding wheel squarely. Alternatively, a free-standing, height-adjustable trestle can be used to support the shank end of the drill steel.
See exploded view on page 6.

Connection to rig's hydraulic system

Owing to great variations in the hydraulic systems of different drill rigs, the Sanroc ILH grinder is not delivered with accessories for hydraulic connection. The hydraulic motor has R 3/8" female connections at the check valve (55) and constant-flow valve (56). It is recommended that the pressure line from the rig system should be hydraulic hose of 9.5 mm (3/8") bore, rated SAE 100 R2AT, and the return line of 13 mm (1/2") bore, rated SAE 100 R1AT.

N.B. The directional valve linking the grinder to the hydraulic system of the drill rig must be equipped with a so-called "motor spool", so that return flow from the grinder motor is never blocked when the valve is closed.

N.B. The constant-flow valve (56) serves to regulate the maximum speed of the motor and must not be removed or tampered with, since this would cause the grinding wheel to run at too high a speed, with the risk of wheel burst and serious injury to personnel. ⚠

If the hydraulic pump supplying oil to the motor delivers more than 12 l/min, the rig's hydraulic system should be equipped with a pressure relief to divert surplus flow back to tank. To avoid excessive heat generation, however, it is advisable to limit pump delivery to 12 l/min.
For further information on installation, please contact your nearest Sandvik Tamrock Tools workshop.
See exploded view on page 6.

Frontal grinding

The following instructions tell you how to use the Sanroc ILP grinding machine. For more detailed instructions on restoring the insert to the correct shape and angle, please see Sandvik Tamrock Tools printed matter "Grinding Instructions".
WARNING
Grinding operations can be dangerous if safety rules are not observed. A summary of safety precautions is given on page 5. The authorities in some countries produce regulations or guidelines on grinding safety. A good example is a publication entitled "Safety in the use of abrasive wheels HS(G)17" compiled by the British Health and Safety Executive and obtainable through HMSO London. It is recommended that grinding-machine operatives should study this or a similar local safety publication before using the machine.

1. Switch on the compressed air (or air and water if wet grinding).
2. Place the integral steel in the profiled guide piece on the stand, with the cutting edge of the insert horizontal. Support the shank end of the drill steel on the bracket or trestle. Move the swing-arm of the grinding machine to end position (swing-arm in transportation position) push the drill steel up to the stop lug on the swing-arm. Open the air cock (70) to the pneumatic cylinder and clamp the drill steel in place. **Mind your fingers!**
3. Open the hydraulic directional valve to start the motor, and open the cock for the cooling medium.
4. Grasp the handle (formed by the feed screw) on the swing-arm and sweep the grinding-wheel assembly back and forth over the insert, clearing the edge of the bit completely on each side. At the same time, advance the grinding wheel gradually by turning the handwheel for the feed screw clockwise. **Never apply too much feed.** After grinding one side of the bit, turn back the handwheel by half a turn to fully disengage the grinding wheel from the bit.
5. Release the clamp, turn the integral steel through 180° and repeat points 2-4 above to grind the other side of the bit.

See exploded view on page 6.

Gauge grinding

For instructions on removing anti-taper from the bit, please see Sandvik Rock Tools printed matter "Grinding instructions".

WARNING ⚠

When gauge grinding, the drill steel is held entirely by hand and is not secured in a clamp. Great care must therefore be taken to avoid jamming the bit between the grinding wheel and the wheel-guard, which could result in accident and serious injury. When grinding long integral steels, some means of supporting the shank end of the drill steel will be needed.

1 Fix the swing-arm in one end position (the transport position) by means of the locking lever (19).
2 Switch on the compressed air (or air and water if wet grinding), open the hydraulic directional valve to start the motor and open the valve (64) for the cooling medium.
3 Grasp the integral steel with both hands and, holding it horizontal, carefully rotate the periphery of the bit against the spinning grinding wheel.
4 When gauge grinding is complete, release the locking lever (19) and pull the swing-arm out of the end position.

See exploded view on page 6.

Dressing the grinding wheel

1 The contact surface of the grinding wheel must always be perfectly flat and right-angled at the edges if it is to restore the bit to the desired shape. When the contact surface becomes deformed or clogg with particles of steel, it must be replaced with a new grinding wheel.

Changing the grinding wheel

- Make sure that the machine is switched OFF and that there is no risk of the motor being started accidentally.
- By hooking off the feed-screw from swing-arm (2), wheel guard (9) can swing free from the swing-arm and expose the grinding wheel.
- Using the T-spanner supplied with the machine, remove the screw (62) and flange washer (61).
- Remove the old grinding wheel and remove any traces of the old labels that might have stuck to the hub (58) or flange (61).
- Carefully inspect and ring-test the new grinding wheel, and make sure that the paper labels are completely intact. (To maintain optimum grinding results, only use grinding wheels especially selected by Sandvik Tamrock Tools.)
- Fit the new wheel and fit back the flange washer (61) and screw (62). Using the T-spanner, tighten the screw firmly but do not overtighten.
- When starting up a new grinding wheel for the first time, always stand in a protected place during the first 30 seconds of operation.

See exploded view on page 6.

Transportation (tracking the drill rig)

Move the swing-arm of the grinding machine to the end position and fix into place by means of the locking lever (19). When not in use keep it all time locked.

Accessories

Grinding wheel: Dry (1 off supplied with machine)	Part No. 797-1227-15
Grinding wheel: Wet	Part No. 797-1227-10
Goggles (supplied with machine)	Part No. 797 -5771
T-spanner (supplied with machine)	Part No. 797-5766-06
Sandvik grinding template for chisel bit	Part No. 795-1343
Sandvik grinding template for plug-hole drill steels	Part No. 795-1336
Kit for grinding plug-hole drill steels	Part No. 797-5489-50

Technical data

Working pressure (hydraulic system)	150 bar
Maximum permissible flow	12 l/min
Working pressure (air)	7 bar
Air consumption	5-10 l/s
Motor output	3 kW
Idling speed	4000 r.p.m.
Hose connections:	
Hydraulic motor port connections	R 3/8" female
Air hose	9.5 mm (3/8") ID
Grinding wheel dimensions	127x63x32 mm
Weight inclusive of grinding wheel	13,5 kg

Grinding machine complete ..... Ordering No. 796-5330

Recommended Lubricants

Grease

SWE STATOIL AB MOLYWAY Li 712, **SHELL** Retinax HDX2, **MOBIL** Mobilgrease Special, **BP** Energrease L21M.

Service and maintenance

Daily:

- Clean the machine at the end of every shift. Do not allow grinding residue to accumulate on the machine.
- Check all hoses and fittings. Tighten any loose connections. Replace any defective parts.

Weekly:

- Check all threaded connections.
- Grease the shaft bearings via the grease nipple (38).
- Check the swing-arm bearings (screws 4, 7, 11 and 14) and adjust as necessary to eliminate any play. Replace any worn bushings (3, 6, 10 and 13).
- Check the profiled support washers (35) set adjust or change as necessary. (If they lose their shape or setting, it will not be possible to restore the insert to the correct geometry). No play is allowed in this washer joint.
- Check the peripheral speed of the grinding wheel. It must not exceed the value stated on the paper label of the wheel (usually max. 35 m/s or 5400 r.p.m.).

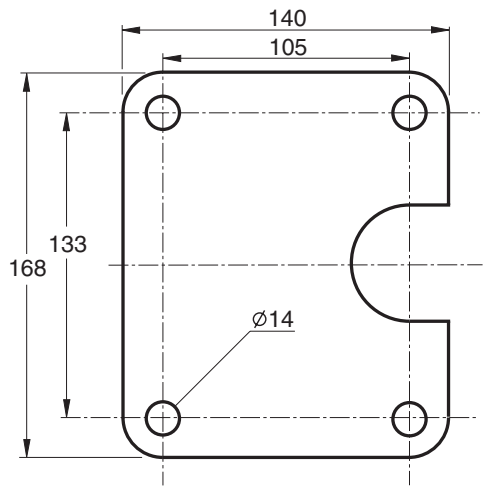
Every 6 months (or every 3 months if machine used intensively):

- Strip the machine.
- Clean and inspect all parts.
- Replace any worn or damaged parts.
- Grease the bearings via the nipple (38) after assembly.
- Check the peripheral speed of the grinding wheel.

N.B. Overhauling should be carried out by suitably trained personnel only. If the skills needed to overhaul the hydraulic motor are not available on site, please contact Sandvik Tamrock Tools for advice.

- Use genuine parts only.
- If removed from the rig and not used, the machine should be stored in a clean and dry place with all connections plugged.

Dimensional drawing for mounting holes (mm):



SAFETY - avoiding grinding accidents and protecting your health:

⚠ VARNING

- Before grinding, always check the flushing holes in the integral steel for traces of explosives. To clean out the holes, use flushing water or a length of copper wire or wooden rod.
- Do not grind near flammable liquids or materials.
- Do not use the machine for any purpose other than to grind integral steels.
- Keep other personnel well clear of the grinding area.
- Always wear goggles while operating the machine.
- Always wear properly fitting protective clothing with no loose-hanging parts that might get caught up in the grinding wheel.
- If you have long hair, wear it under a cap.
- Wear an approved dust mask when using air as the cooling medium.
- When dry grinding indoors, make sure that ventilation is adequate and if possible arrange a suitable dust extraction system.
- Wear ear protectors during grinding.
- Keep your hands away from the grinding wheel and drill-steel clamp when the machine is operational.
- Only use grinding wheels approved by Sandvik Tamrock Tools.
- Always check before fitting that the grinding wheel is not chipped or cracked.
- Always ring test a new grinding wheel before fitting.
- Always make sure the paper blotters on both sides of the grinding wheel are intact. They must cover the entire contact surfaces between the flange/hub and the grinding wheel.
- Make sure the hole in the grinding wheel is suited to the size of the hub (58).
- Never use a grinding wheel that is saturated with water.
- After fitting a new grinding wheel, always stand in a protected place during the first 30 seconds of start-up.
- Always change worn grinding wheels in good time.
- Always cover the grinding wheel when it rains. Do not let it get wet.
- In case of wet grinding, always let the motor run for a few minutes after grinding so that all water can be spun out of the wheel before the machine is stopped.
- In sub-zero temperatures, make absolutely sure that the grinding wheel is left dry, since freezing will result in imbalance and incur the risk of wheel burst and serious injury.
- Always make sure the wheel-guard is intact.
- Check the idling speed of the machine once a week and after any repairs.
- Use only hoses and fittings approved for the working pressures and working media of the machine.
- Make sure the constant-flow valve (56) is kept in good working order. It must never be removed or there will be a risk of overspeed, with wheel burst and injury to personnel as a result.
- Only use genuine spare parts when repairing the machine.

Working pressure

⚠ WARNING

Air pressure ..... max. 8 bar.
Hydraulic system pressure ..... max. 200 bar.

Service

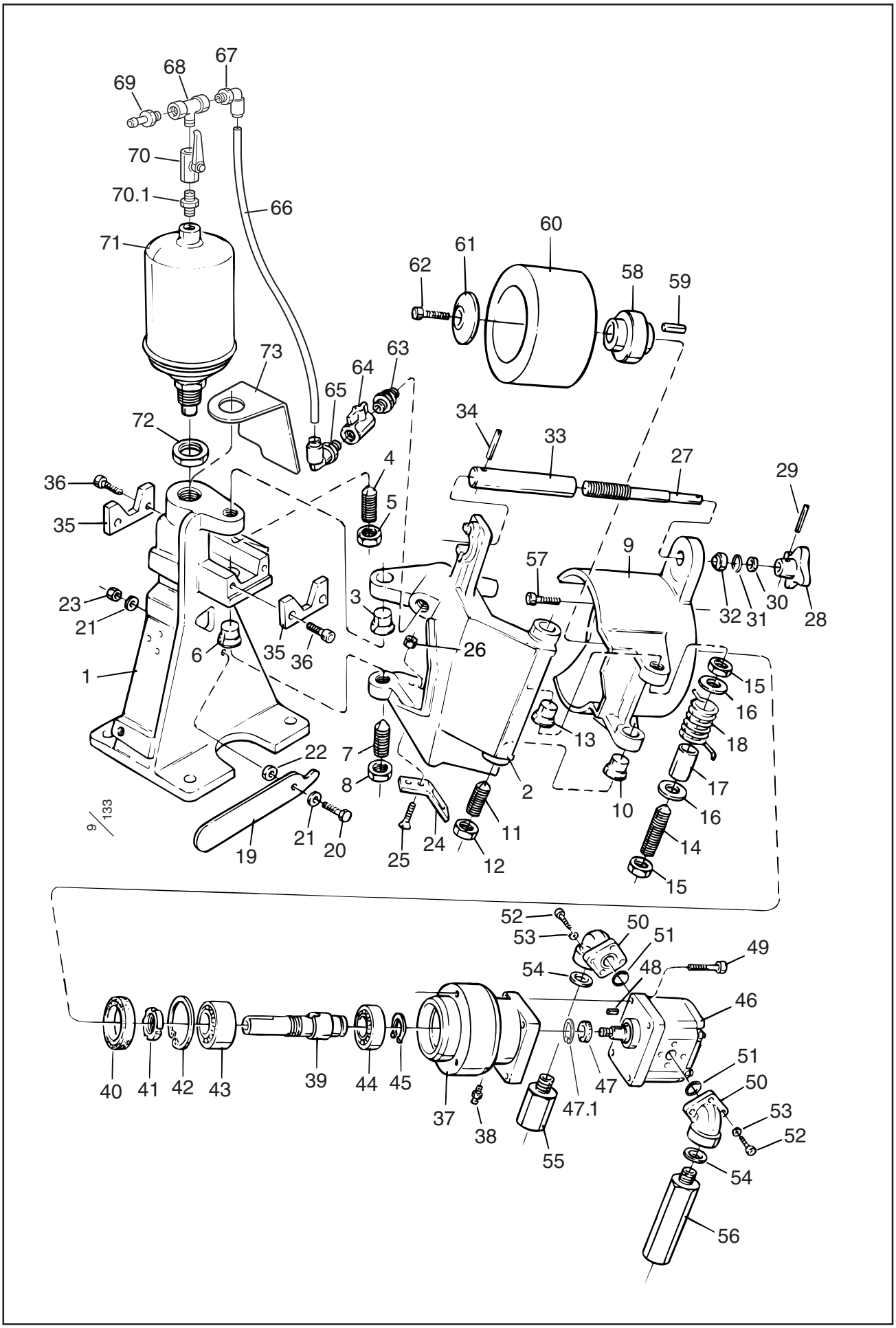
⚠ VARNING

To ensure safe and correct function of the machine, servicing and repairs must be carried out regularly by **trained personel only**. When servicing or repairing the machine, always check that the treads, screws and hoses are not damaged, check also the peripheral speed of the grinding wheel, there will be a risk of overspeed, with wheel burst and injury to personnel as a result. Only use genuine spare parts when repairing the machine

Noise and vibration levels

Sanroc ILH at 4000 rev/min:

- noise level ..... 78 dBA (ISO 3744)
- vibration level ..... < 2,5 m/s^2 (ISO 8662-1)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Spare parts list
Grinding machine

SANDVIK

Item No.	Part No.	Quantity	Description	Remarks
–	796-5330	1	Grinding machine, complete	
1	797-5421	1	. Stand	
2	797-5420	1	. Swing-arm	
3	797-5431	1	. Plastic bushing	
4	797-5320-16	1	. Screw	
5	797-5924-16	1	. Nut	M6ML 16
6	797-5431	1	. Plastic bushing	
7	797-5320-17	1	. Screw	
8	797-5924-16	1	. Nut	M6ML 16
9	797-5419	1	. Wheel-guard	
10	797-5431	1	. Plastic bushing	
11	797-5320-18	1	. Screw	
12	797-5924-16	1	. Nut	M6ML 16
13	797-5431	1	. Plastic bushing	
14	797-5320-90	1	. Screw	
15	797-5924-16	2	. Nut	M6ML 16
16	797-5995-16	2	. Washer	17x30x3
17	797-5432	1	. Sleeve	
18	797-5435	1	. Spring	
19	797-5487-02	1	. Locking lever	
20	797-5976-25	1	. Screw	MC6S 6x25
21	797-5995-06	2	. Washer	6.4x12x1.5
22	797-5790-06	1	. Washer	6.4x22x4.1
23	797-5994-06	1	. Nut	M6
24	797-5487-01	1	. Locking plate	
25	797-5950-25	2	. Screw	MFS 6x25
26	797-5993-06	2	. Nut	M6 Locking
27	797-5427	1	. Feed screw	
28	797-5991-10	1	. Handwheel	
29	797-5836-24	1	. Tubular pin	3x24
30	797-5427-05	1	. Spacer ring	
31	797-5986-19	1	. Circlip	SW19
32	797-5927-10	1	. Bearing	
33	797-5428	1	. Sleeve nut	
34	797-5807-40	1	. Tubular pin	8x40
35	797-5303	2	. Support washer	
36	797-5968-25	4	. Screw	MC6S 8x25
37	797-5495-01	1	. Bearing housing	
38	797-5750-06	1	. Grease nipple	M6
39	797-5495-02	1	. Shaft (spindle)	
40	797-5822-50	1	. Seal ring	
41	797-5884-04	1	. Lock nut	
42	797-5891-47	1	. Circlip	SGH47
43	797-5856	1	. Ball bearing	
44	797-5935-42	1	. Ball bearing	
45	797-5997-20	1	. Circlip	SGA20
46	797-5775-31	1	. Hydraulic motor	
47	797-5890-12	1	. Seal ring	Lambourgini, motor
47	797-5822-14	1	. Seal ring	Marzocchi, motor
47.1	797-5891-22	1	. Circlip	Lambourgini, motor
47.1	797-5891-24	1	. Circlip	Marzocchi, motor
48	797-5879-10	1	. Cotter, 3x3x10	Lambourgini, motor
48	797-5717-03	1	. Cotter, WK 3x10	Marzocchi, motor
49	797-5976-30	4	. Screw	
50	797-5774	2	. Port connection flange	Lambourgini
50	797-5774-01	2	. Port connection flange	Marzocchi
51	797-5761	2	. O-ring	
52	797-5825-20	4	. Screw	MC6S 5x20
53	797-5995-05	4	. Washer	
54	797-5949-06	2	. Seal washer	
55	797-5768-02	1	. Check valve	R 3/8" female thread
56	797-5768-01	1	. Constant-flow valve	R 3/8" female thread
57	797-5976-25	3	. Screw	MC6S 6x25
58	797-5433	1	. Hub	
59	797-5833-30	1	. Cotter	6x6x30
60	797-1227-15	1	. Grinding wheel (dry grinding)	
60	797-1227-10	1	. Grinding wheel (wet grinding)	
61	797-5430	1	. Flange washer	
62	797-5968-25	1	. Screw	MC6S 8x25
63	797-5772-13	1	. Union	
64	797-5962-23	1	. Cock	
65	797-5812-13	1	. Elbow coupling	
66	797-5957-08	X	. Plastic tubing	Ø 8 mm, L = 300 mm
67	797-5812-13	1	. Elbow coupling	
68	797-5752-15	1	. T-connector	
69	797-5777-23	1	. Hose coupling	
70	797-5815-13	1	. Elbow ball-valve	
70.1	797-5772-13	1	. Union	
71	797-5816	1	. Air cylinder	
72	797-5924-24	1	. Nut	M6M 24x3
73	797.5353-20	1	. Protection	
–	797-5495-50	1	. Repair kit (shaft bearings)	Items 40, 43, 44, and 47

X = metre goods. State number of metres when ordering, e.g. Part No. 797-5957-08, Qty. X 1 = 1 metre of plastic tubing.
When ordering spare parts, please state machine type and serial number.

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