ENG

ROTOTILT RT 80

Rototilt is designed for excavators with a machine weight of 23-30 tonnes

Rototilt RT 80 is constructed to handle the forces and extreme stresses typical in the everyday use of excavators.

Rototilt RT 80 is a thoroughly tested "Powerful" unit proven to stand up to tough and rigorous use.

Rototilt RT 80 comes equipped with a simple yet advanced control system which provides the versatility needed to satisfy demanding applications.

The modular design of Rototilt RT 80 provides the flexibility to adapt easily and quickly to excavator dipper arms and operational systems. The integral quick coupler adds unlimited attachment flexibility.

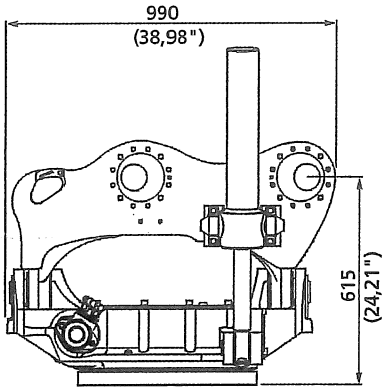
- Robust worm drive
- Substantial bearings
- Low overall height
- Compact
- Low weight
- Service-friendly

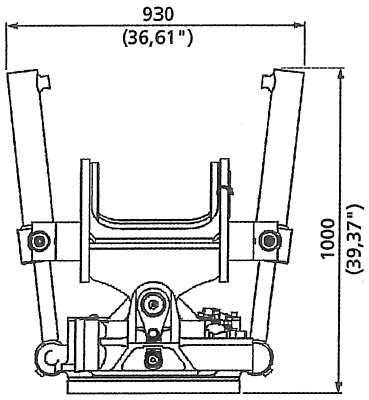
ROTOTILT®

Indexator

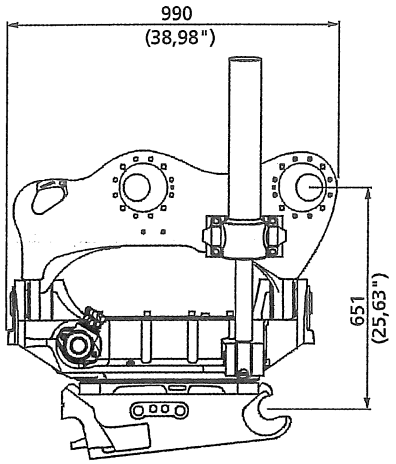
ROTOTILT | RT 80

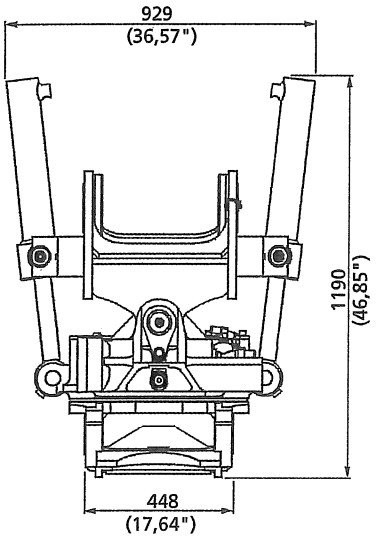
RT 80 - Multi





RT 80 - Multi S70





ROTOTILT®

Indexator

Technical data

Min / Max machine weight (tonne)	*23 - 30*
Maximum standard shovel volume (m^3)	*1,6*
Maximum levering torque	200
Weight, kg (lb)[1]	from 600 (1323)
Tilting angle	2 x 40°
Tilting torque at 25 MPa (3 625 psi), Nm (lb·ft) HD (double-acting cylinders) Nm (lb·ft)	51 000 (37 615) 65 000 (47 940)
Rotation	unlimited
Rate of rotation (50 l/min)	1 turn / 9 sec
Torque at 25 MPa (3 625 psi), Nm (lb·ft)	8 300 (6 122)
Min / Max conneting pressure MPa (psi)[2]	15 (2 175) / 35 (5 075)
Working pressure MPa (psi)	25 (3 625)
Max. return lead pressure (50 l/min), MPa (psi)	4 (580)
Min/Max. connected flow, l/min (GPM)	30 / 80 (7,9 / 21,1)

1) = The weight depends of the type of fastening, mount and control system. For the exact weight see the rating plate.

2) = Connection hydraulic motor - control system TE max. 20 MPa (2 900 psi).

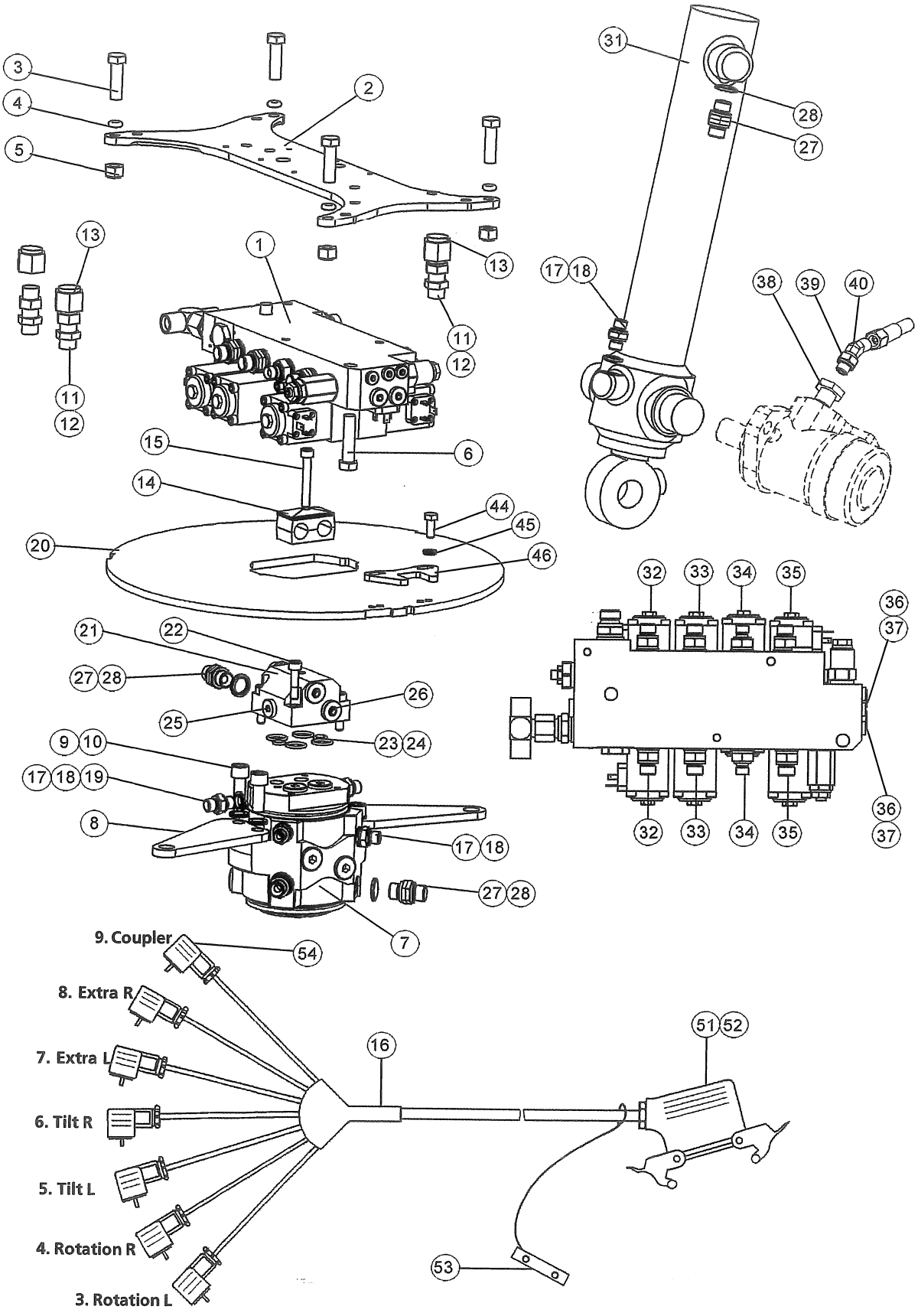
A combination of various stated limits of the machine like total weight, bucket volume, bending force etc. all together creates the conditions of what size of RT should be choosen. If a machine exceeds any of the stated limits, please consult your supplier in order to investigate the specific case. Environmental causes, or the type of job/use could sometimes be of decisive importance.

ROTOTILT®

Indexator

Styrsystem
Hydraulic circuit

P80 HD JIC

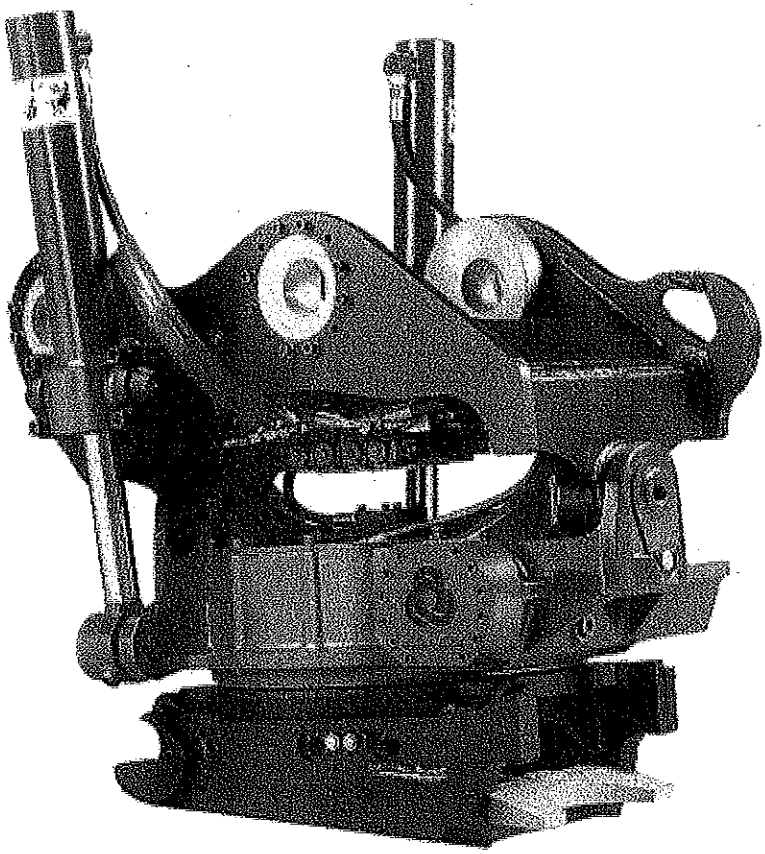


Styrsystem
Hydraulic circuit

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Anm Notes
	4300 327		**Styrsystem P80 HD JIC**	**Hydraulic circuit P80 HD JIC**	
1	4300 333	1	Ventilblock P80	Valve plate P80	25 MPa
2	4100 264	1	Hållare ventilblock	Valve plate bracket	
3	1002 096	4	Skruv	Screw	M6S 12x40 8.8
4	1026 210	4	O-ring	O-ring	12x5
5	1002 195	4	Låsmutter	Locking nut	Loc-ing M 16
6	1026 590	3	Skruv	Screw	M6S 12x50 8.8
7	4101 085	1	Svivel	Swivel	
8	4300 030	2	Svivelhållare	Swivel bracket	
9	1008 101	4	Skruv	Screw	MC6S 12x30 12.9
10	1015 304	4	Låsbricka	Locking seal	Nordlock 12
11	1009 992	3	Skottgenomgång	Adapter	7/8"-14
12	1010 024	4	Vinkel	Adapter	90°, G 3/8x9/16"-18
13	1010 008	3	Huv	Cup	7/8"-14
14	1011 097	1	Klammer dubbel	Clamp dual	3/8"
15	1009 158	1	Skruv	Screw	MC6S 8x55
16	4101 061	1	Elsystem Rototilt	Electric circuit Rototilt	Complete, Pos 51-54
17	5001 010	2	Nippel	Nipple	G 1/4x7/16"-20
18	1019 116	6	Gummistålbricka	Bonded seal	G 1/4
19	1010 016	4	Vinkel	Adapter	G 1/4x7/16"-20
20	4300 099	1	Medbringare	Carrier plate	
21	4300 070	1	Övre svivelblock	Swivel plate, upper	
22	1011 568	4	Skruv	Screw	MC6S 8x35H 12.9
23	1001 643	4	O-ring	O-ring	17,12x2,62
24	1001 635	2	O-ring	O-ring	9,19x2,62
25	5001 382	2	Propp	Plug	G 1/4
26	5001 383	2	Propp	Plug	G 3/8
27	5001 128	4	Nippel	Nipple	G 3/8x9/16"-18
28	1005 347	6	Gummistålbricka	Bonded seal	G 3/8
30	4101 119	1	Packningssats	Seal kit	Tilting cylinder
31	4300 024	2	Tiltcylinder	Tilting cylinder	
32	1010 909	2	Hydraulslang	Hydraulic hose	L=570, G 3/8x9/16", Extra
33	1010 891	2	Hydraulslang	Hydraulic hose	L=1000, G 3/8x9/16", Motor
34	1010 917	2	Hydraulslang	Hydraulic hose	L=700, G 1/4x7/16", Coupler
35	1010 842	2	Hydraulslang	Hydraulic hose	L=710, G 3/8x9/16", Tilt
37	1015 965	2	Hydraulslang	Hydraulic hose	L=1150, G 1/4"x7/16-20, Tilt H
38	5001 553	2	Rörbussning	Tube bushing	G 1/2xG3/8", Motor
39	5001 128	2	Nippel	Nippe	G 3/8x9/16"-18
40	1010 412	2	Vinkel	Adapter	90°, 9/16"-18
44	1014 281	2	Skruv	Screw	
45	1015 973	2	Bricka	Washer	Nordlock 8
46	4101 059	1	Låsning medbringare	Locking carrier plate	
51	1002 609	1	Kontakt, hane	Connector, male	Includ. in pos 16
52	1026 640	1	Förskruvning	Cable socket	Includ. in pos 16
53	1022 250	1	Lock	Cover	Includ. in pos 16
54	4100 387	1	Reparationssats	Repair kit	Lås/Coupler

USER'S MANUAL
ROTOTILT RT 80

Study the manual thoroughly and make certain that you understand the contents before attempting to use the Rototilt. Most accidents at work occur because of carelessness or negligence. Many accidents can be counteracted by preventive maintenance. However, no safety precautions or guards, no matter how well they are designed are better than the caution and attention shown by the operator.



Mounting

MULTIINFÄSTNING H

Attachment

S 70

Control system

P 80 HD D

Serial number

~~080~~ 1,735

Weight ~~(kg)~~ lbs

750

Delivery date

020924

Indexator

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www.indexator.se E-mail: service@indexator.se

Art No 1029 842

Declaration of Conformity

In Accordance with the Machinery Directive 98/37/EC, Appendix II A

The Manufacturer:

Indexator AB
Box 11
922 21 Vindeln
Sweden

Phone: +46 933 10945
Fax: +46 933 10857

declare that the following machinery:

Machinery: Rototilt

- ☐ RT 830
- ☐ RT 40
- ☐ RT 60B
- ☒ RT 80

Manufacturing No 080

a) is manufactured in comformity with the EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION of June 22 1998 on the approximation of the laws of the Member States relating to the Machinery Diretive 98/37/EC, with particular reference to Annex I concerning the essential health and safety requirements to the design of the machine.

is manufactured in accordance with other applicable Directives, besides those mentioned under a), such as:
89/336/EEC.

is manufactured in accordance with the following harmonised standards:
EN 292-1/2, EN 474-5, EN 954-1, EN 982

Place: Vindeln

Signed on behalf of:

Hans Johnsson
VD

Indexator AB
Box 11
SE-922 21 Vindeln
Sweden

Phone: +46 933 10945
Fax: +46 933 10857

Art nr 1030 378

Växeln i Rototilt är vid leverans fylld med
The worm gear of the RT is filled with .....when delivered from the factory.
Vaihteisto on valmistuksen yhteydessä täytetty.
Das Rototilt Schneckengetriebe ist bei der Lieferung mit ..... gefüllt.

- [x] Shell Omala 680
- [ ] Statoil Loadway 680
- [ ] Q8 Goya 680
- [ ] Statoil Molyway Li932

Rototilt är innan leverans provkörd med hydraulolja.
All Rototilts have been tested with hydraulic oil before delivery.
Koeajo on suoritettu hydrauliöljyllä.
Der Rototilt ist vor der Lieferung mit Hydrauliköl getestet.

- [x] Aspen Bioveg 32
- [ ] Statoil Hydraway HM32

För ytterligare information om dessa produkter kontakta respektive leverantör direkt.
For futher information concerning these products, please contact the supplier directly.
Lisätietoja voit kysyä laitteen toimittajalta.
Rufen Sie Ihr Lieferant an, wenn Sie weitere Produktinformation benötigen.

AB Svenska Shell
SE-167 80 Bromma
SWEDEN
Fax: +46 (0)8-5554 8308
Tel: +46 (0)8-5554 8000

Aspen.
Iberovägen 2,
SE-430 63 Hindås
SWEDEN
Tel:+46 (0)301-230000.

Svenska Statoil AB & Statoil Detaljhandel AB
SE-118 88 Stockholm
SWEDEN
Tel: +46 (0)8-429 60 00
Kundcenter
Tel: +46 (0)8-429 63 00

2000 09 20 Part no 1030 550

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Adapter	Flap 2
Quick coupler	Flap 3
Control system	Flap 4
Fitting kit	Flap 5
Grapple modul	Flap 6

2002 08 15 Art no 1029 784

Indexator

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1.0 Introduction

This instruction manual is intended as a guide as to how Rototilt is to be operated and maintained in a safe and proper manner

A User's Manual accompanies each Rototilt. Descriptions and illustrations in the manual should be followed carefully. The manual is part of Rototilt and should always be kept available in the operator's cab.

Following all instructions in this manual will ensure the best possible performance, operational economy and a long service life. The most common causes of accidents that can occur during work or maintenance will at the same time be counteracted.

Please note that we cannot accept claims with respect to faults that may arise through negligence, incorrect use or inadequate maintenance, use of unapproved lubricants, etc.

Instructions for repairing Rototilt are noted in a separate repair manual that can be ordered from your agent.

This symbol means **WARNING. TAKE CARE. YOUR SAFETY IS INVOLVED.**

Read and follow the safety instructions under the heading **WARNING.**

Safety decals on Rototilt are yellow with black text.

CE

Rototilt is CE marked, which means that it is designed, manufactured and described in conformance with EU directive and standards. This marking ceases to be valid if Rototilt is modified or complemented with other products that are not approved by the manufacturer of Rototilt.

IMPORTANT

This information applies at the time of publication. The manufacturer reserves the right without altering the basic function of the model that is described and illustrated here to introduce changes in the products in step with technical development, without necessarily updating this manual. Please consult your nearest agent for information concerning changes.

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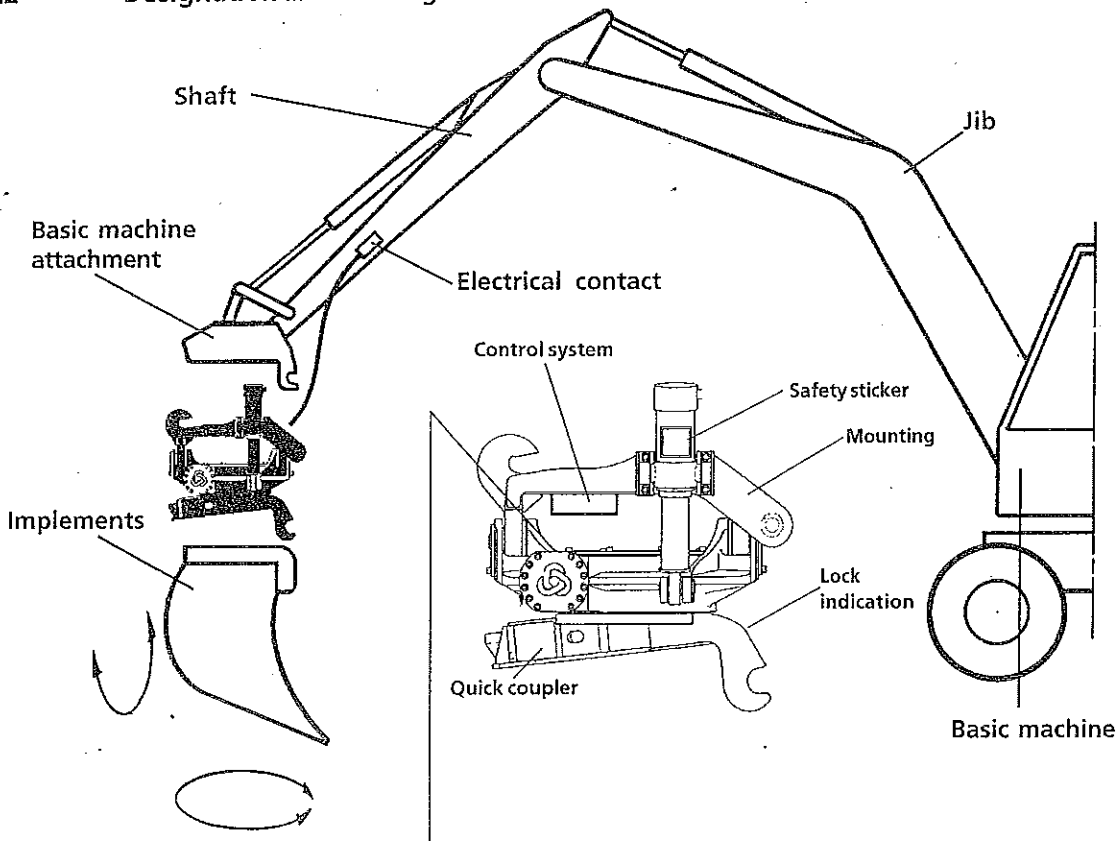
sales@indexator.se www.indexator.se

1.1 Description

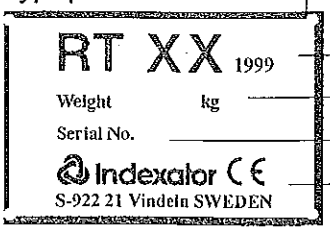
Rototilt is a hydraulically powered unit that is designed for fitting and use between the shaft and other equipment on excavators (below referred to as base machine). Approval by the manufacturer is specifically required for other types of application.

Equipment that will be connected under Rototilt is assumed to be of a type that is normally utilised for work with the base machine. To attain maximum length of service life heavy work should be avoided, ie, tearing up frozen ground and operation of hydraulic hammers, etc. When selecting a Rototilt model, consideration should primarily be taken to the capacity of the base machine with regard to excavating and levering forces and also to its service weight and tipping load. The operational situation and environmental concern should also be considered.Rototilt is designed for positioning the various tools of the base machine by tilting and unlimited rotation.

1.2 Designation and marking



Type plate



Type designation and year of manufacture
Weight
Serial number
Manufacturer and CE -marking

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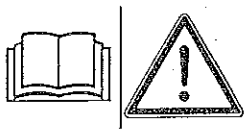
2.0 Safety instructions

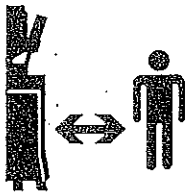


Study the manual thoroughly and make certain that you understand the contents before attempting to use Rototilt. Negligent or incorrect use or fitting could result in serious and even fatal injury.

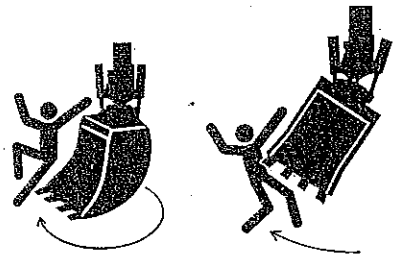
Follow the safety rules in this manual in order to avoid personal injury or damage to the Rototilt.

Observe and follow the warning decals that are affixed to Rototilt. Warning decals are yellow with black text.

Do not allow untrained persons to operate, repair or maintain Rototilt.



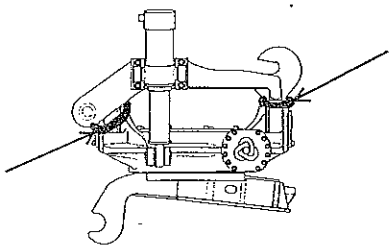
* Before starting work, ensure that nobody is inside the danger zone of the base machine.



* Note that with Rototilt mounted on the base machine it is possible to tilt and rotate tools.

* Keep well clear of raised equipment.

* Beware of being crushed between Rototilt and the mount.



* When lifting unsecured Rototilt, the lifting accessory must be securely fastened, for example to the mount. Ensure that the lifting accessory cannot become loose, give way or otherwise result in Rototilt falling or tipping.

When changing tools, ensure that the mount on Rototilt is securely locked against the tool before starting work. Se section: **Equipment mount.**
For service, maintenance or other work on Rototilt the electric power supply and all hydraulic hoses to the base machine must be disconnected.
Maintenance is to be done at the stated intervals. (See 4.0)

2002 08 15 Art no 1029 784

3.0 Instructions for fitting

Read through the safety instructions before fitting begins.
Ensure that the Rototilt that is intended for use corresponds to the specification on the cover of the User's Manual. Then read through the relevant sections of the manual and pay special attention to items dealing with safety.
Check that instructions for fitting accessories can be found in the user's manual for the base machine, or whether there is a special supplement dealing with Rototilt.

3.1 Fitting Rototilt on the base machine

Ensure that the fitting corresponds to the shaft or mount of the base machine.

Connect the base machine with great care to the fitting.

Ensure that the base machine mount locks Rototilt securely in place. See the base machine instructions concerning equipment mount. Shimming is to be done in applicable cases.

Check how fitting the Rototilt affects balance of the base machines with regard to tipping load and shovel volume.

3.2 Connecting the hydraulics

Connect the necessary hydraulics from the base machine to Rototilt.
For requirements for hydraulics and connecting points, see section: **Control system.**

Ensure that hoses and connections will not be damaged when movement of the base machine and Rototilt are utilised to their full extent.

Hydraulic circuit, see section: **Control system.**

3.3 Electrical fitting of Rototilt

Secure the electric connector to the shaft of the base machines.

Fit the cable along the shaft and boom of the base machines. Ensure that the cable has sufficient clearance and that it cannot be damaged when movement of the base machine and Rototilt are utilised to their full extent.

Install cables and controls in the cab. Connecting, see section: **Fitting kit.**

Mark the controls with their respective function.

Connect cables to earth (-) and 24 V supply (+) (or 12 V) see section: **Fitting kit.**

Test-run and ensure that Rototilt movements correspond to marking on the controls.

Electric circuit, see section: **Control system and Fitting kit.**

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4.0 Maintenance instructions

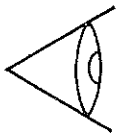
4.1 General

Read through the safety instructions before starting any maintenance.
Keep Rototilt clean and free from stones, gravel, etc, to avoid damage. (Avoid using a high-pressure jet against electrical components.)

For measures in addition to maintenance, ensure that the person carrying out the work has appropriate training, instructions and tools to perform the work involved.

4.2 Inspection

Every 8 hours of operation;



Ensure that play between rotor and equipment mount is not excessive (item32). It may be necessary to use a crowbar. Rototilt should be taken out of service immediately for maintenance if play is detected. Continued operation when excessive play exists could lead to expensive subsequent damage.

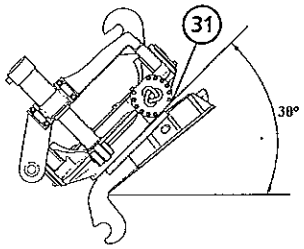
Inspect the bolt locking (item1 and 2)

Every 40 hours of operation;

Ensure that no cracks have occurred and that bolts are tight.

Ensure that there are no signs of damage or wear on hydraulic hoses, connections and cables.

Every 160 hours of operation;



Check oil level in the rotor housing. The level should be in line with the oil plug (item 31) at 30° tilting of the housing. (Take care, the rotor may be under pressure). When filling, use highly viscous (ISO no. >680) mineral oil or polyalfaolefin based gearing oil. Total quantity 3 litre (RT 80) 2 litre (RT 60B), 1,5 litre (RT 40).

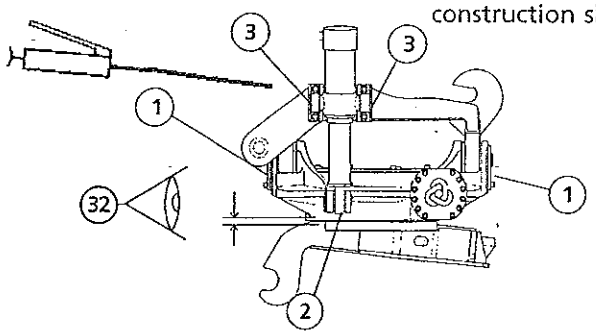
Consult yoursupplier if you have any questions.

Oil change every 1000 hours of operation or at least once a year.

4.3 Lubrication

Interval: Every 8 hours of operation

Type of lubricant: Normal lubricating grease intended for construction site machines may be used.



1. Tilt axle - Two grease nipples
2. Tilt cylinder - Two grease nipples
3. Cylinder yoke - Four grease nipples

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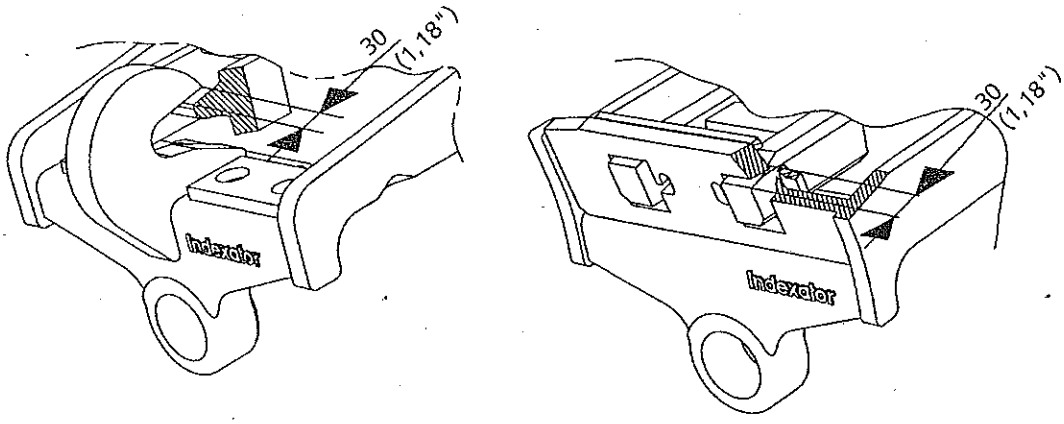
5.0 Rototilt

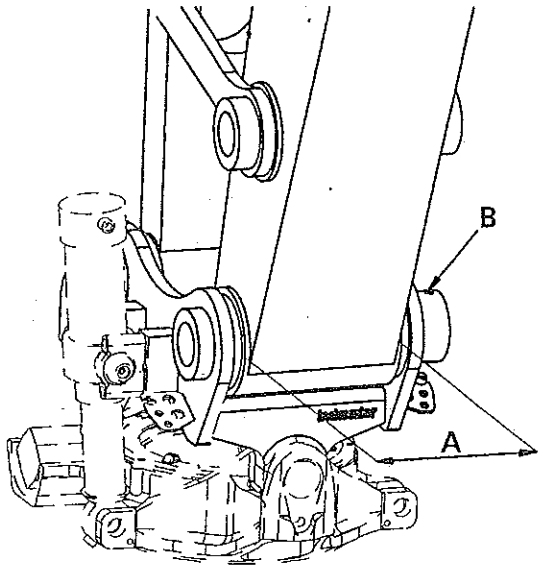
5.1 Fastening

Always ensure that Rototilt is securely locked against the base machine mount, see the base machine instructions for equipment mount. Ensure that the locking key enters its locking position at least about 30 mm.

Fastening should be without play against the machine mount and, where appropriate, adjusted with shims. Avoid too many shims, which could be detrimental to fastening.



When mounting Rototilt with a fixed adapter to the excavator make sure that there is no sideway play between the dipperstick and the adapter (A). If necessary, put in some shim. Make sure that the screws (B) are securely tightened. Please check that the adapter doesn't interfere with the dipperstick when moving the bucket forwards/ backwards to its end positions.



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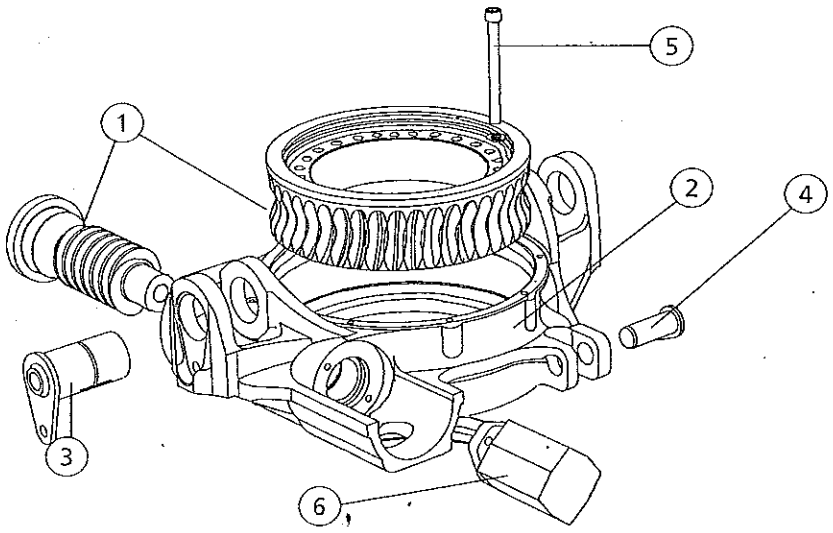
5.2 Rotor

The rotor consists in principle of a worm gear (1) and housing (2). The gear is self-braking and thus acts as a brake during digging action. The housing also contains two axles (3) for mounting and tilting function, and for mounting the tilt cylinders (4).
The bolted joint (5) connects the rotor and equipment mount, or other tool. Tightening torque 330 Nm. Other requirements, see section 5.3 Equipment mount.
The rotor is driven by a low speed hydraulic motor (6) controlled via the control system (section 5.4) and fitting kit (section 5.5).

Requirements on hydraulics;

Min. /Max. hydraulic pressure 10/20 MPa (1405 / 2900 psi)
Max. return pressure (50 l/min) 4 MPa (580 psi)
Min. / Max. hydraulic flow 30 / 50 l/min (7,9 / 13,2 GPM)



Check daily that no play has occurred in the rotor bearings, se **4.0 Maintenance instructions.** Rototilt should be taken out of service immediately for maintenance if play is detected.

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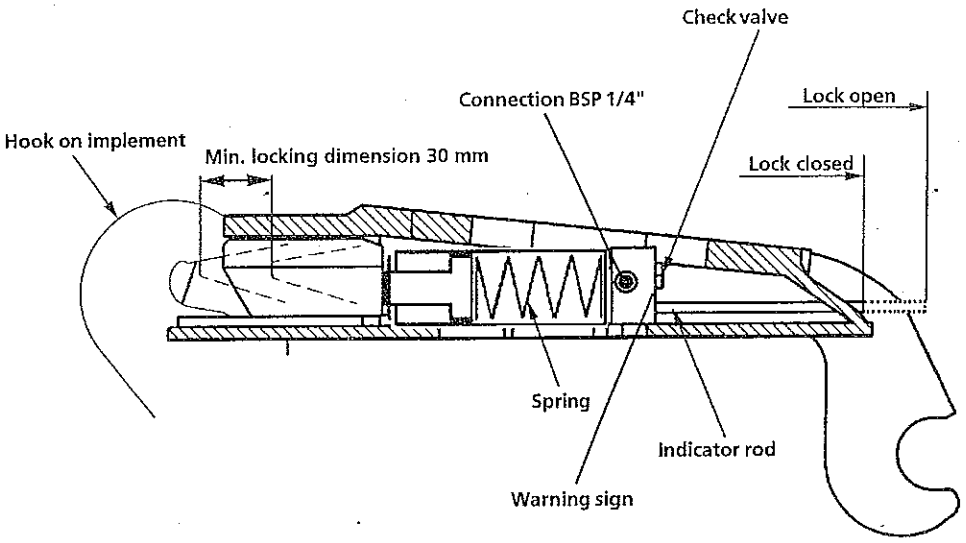
5.3 Equipment mount

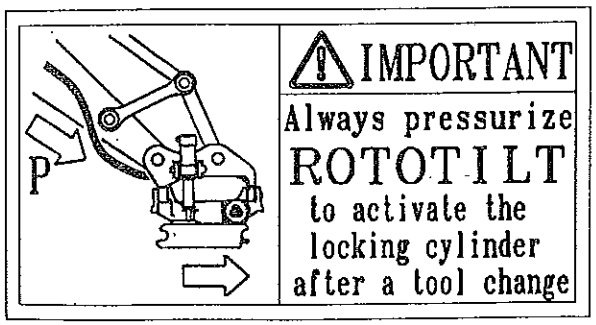
The equipment mount and its locking function are essential parts of Rototilt with regard to safety. Malfunctioning could cause expensive standstill and in the worst case serious personal injuries. Take care to follow the safety instructions and observe the warnings that are noted in this manual.

5.3.1 Indexator equipment mount

All of the Indexator equipment mounts, as well as the entire Rototilt, conform to EU machine directive 98/37/EC (AFS1994:48). In addition to the CE marking the manufacturer, Indexator, has chosen to allow SMP Svensk Maskinprovning AB (ie, Swedish machine testing) to check the technical documents for the hydraulic locking function.
The illustration below shows the principle for locking the equipment mount N20. The same principle is used for all mounts made by Indexator.



When changing the equipment, ensure that the equipment mount on Rototilt is securely locked against the equipment before starting work. Proper locking is indicated with an indicator rod as above. Always pressurise the mount after changing the equipment.



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Connections (BSP ¼") to the hydraulic locking cylinder are marked O (open) and L (locked), and when the equipment mount is fitted the corresponding marking will be found at the top of the swivel and on the connecting hoses, see section 5.4 Control system.

Rototilt with control system type P, TEL and TREI has integrated operation of the lock while the other control systems require connection to an approved hydraulic source.

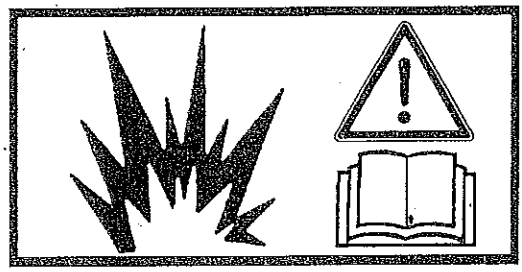
Approval requirement for hydraulics;

Draining of the non-pressurised side of the cylinder is required with the control valve in neutral mode.

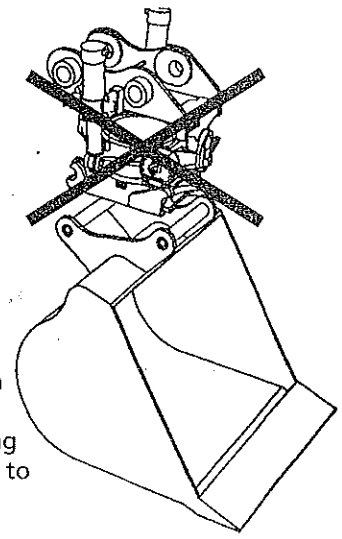
The pressure side of the locking cylinder is to be pressurised continuously or supplied with fluid during normal movement of the unit.

Indexator provides *Manifold block, hydraulic lock*, article number 4100277, for use in branching any approved hydraulic locking for operating the equipment mount both on the base machine and Rototilt. See section 5.5.4 Manifold block, hydraulic lock.

The cylinder may be pressurised at maximum 20 MPa and pressure should not be less than 3 MPa. The locking cylinder is fitted with an integrated hose fracture valve as protection against inadvertent opening of the mount. The hydraulic pressure is shut off in this way inside the cylinder and an opening pressure is required to activate this valve. This must be taken into consideration when dismantling the cylinder.
***Always** consult your agent in connection with problems concerning the locking cylinder.*



This warning sign urges caution when dismantling the locking cylinder.



Equipment mounts type N12, N14, N16 or N25 may on no account be connected rotated 180° even though this is possible. Such incorrect use will load the locking key in a disadvantageous way and may cause damage to the construction.

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5.3.2 Other makes of equipment mounts

In addition to standard Indexator quick-fasteners it is possible to adapt other makes for fitting on Rototilt. A condition is that Indexator as manufacturer has supplied or approved the product.

* Equipment mounts SMP2 and SMP25 are made by SMP Parts AB.

* Equipment mount S45 and S60 Oilquick is made by Soneruds Maskin AB and corresponds to their designation OQ45 and OQ60.

Note that the configuration and function of these hydraulic locking units differ from the corresponding ones made by Indexator. Study the user manuals that accompany these mounts and consult the relevant supplier in the event of uncertainty.

If an equipment mount or equipment of other makes than those noted above are considered for fitting and use they must be approved by Indexator as manufacturer. The relevant supplier or representative must be consulted to guarantee safe fitting with regard to mechanical and hydraulic aspects.

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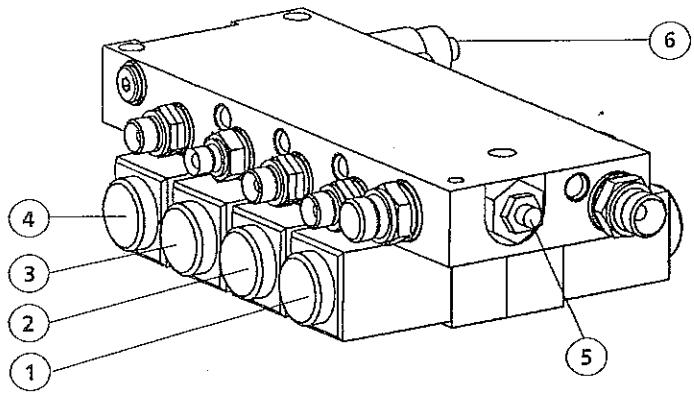
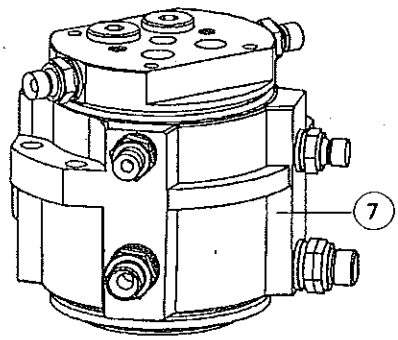
5.4 Control system

5.4.1 Parallel control (P, PX, PQ)

Control system type P can operate all of the Rototilt functions simultaneously. Valve (1) operates additional function, (2) rotation, (3) equipment lock and (4) tilt. The valves are mounted on a block that is also includes a main pressure reducing valve (5) and a safety valve (6) for the tilt function. The swivel (7) deals with the flow of fluid to the equipment mount.

Control system PQ is used in conjunction with Oilquick equipment mount and PX in conjunction with other equipment mounts made by others than Indexator. These systems differ from the P-system mainly with regard to operation of the equipment lock.
Note that these systems (PQ, PX) require a separate non-pressurised connection to the reservoir.





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Connecting hydraulics

A = Connection of hydraulics to drive functions on Rototilt (rotation, tilt, extra hydraulic function and hydraulic lock on mount).

Connection:	BSP 1/2"
Max. hydraulic pressure:	35 MPa (5075 psi)
Max. hydraulic flow:	80 l/min (21,1 GPM)

B = Connection for hydraulic fluid return from Rototilt

Connection:	BSP 1/2"
Max. hydraulic pressure:	4 MPa (580 psi)

Position T2 applies to control system PX and PQ only.

T2 = Connection for hydraulic fluid return from locking cylinder

Connection:	BSP 1/4"

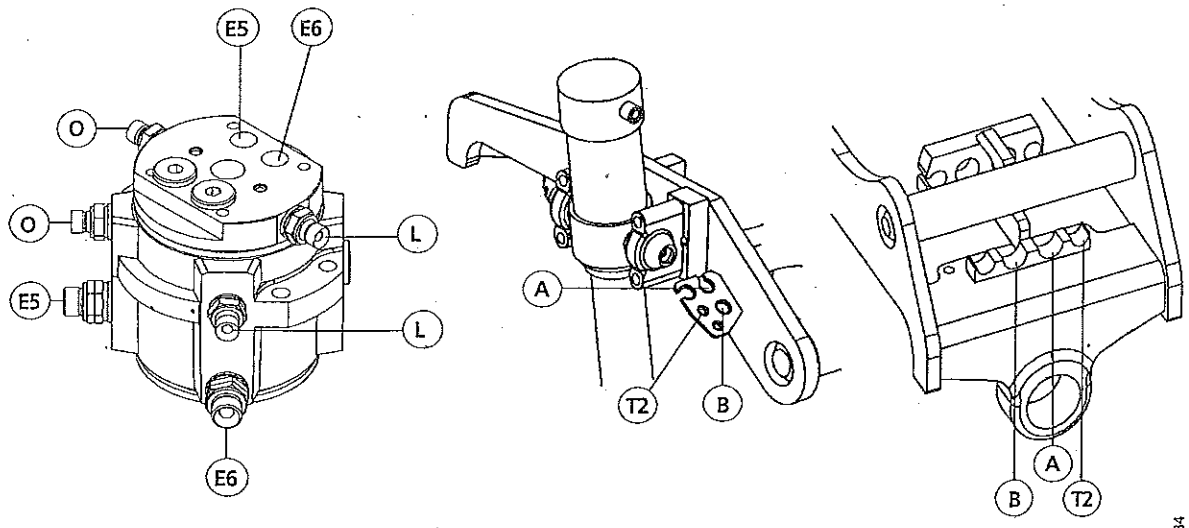
The function is to have direct connection to the reservoir, atmospheric pressure.

O = Connection to open side of locking cylinder

L = Connection to closed side of locking cylinder

E5 = Connection extra function

E6 = Connection extra function



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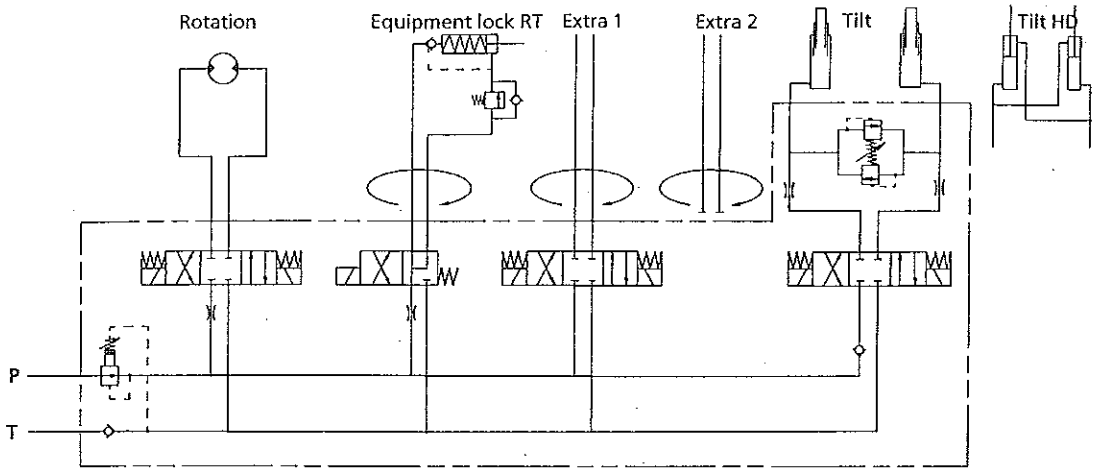
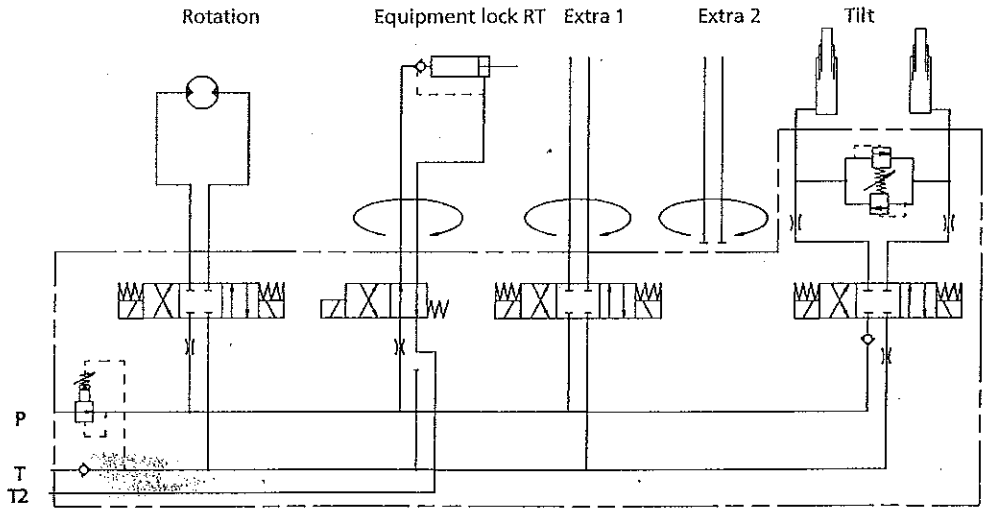
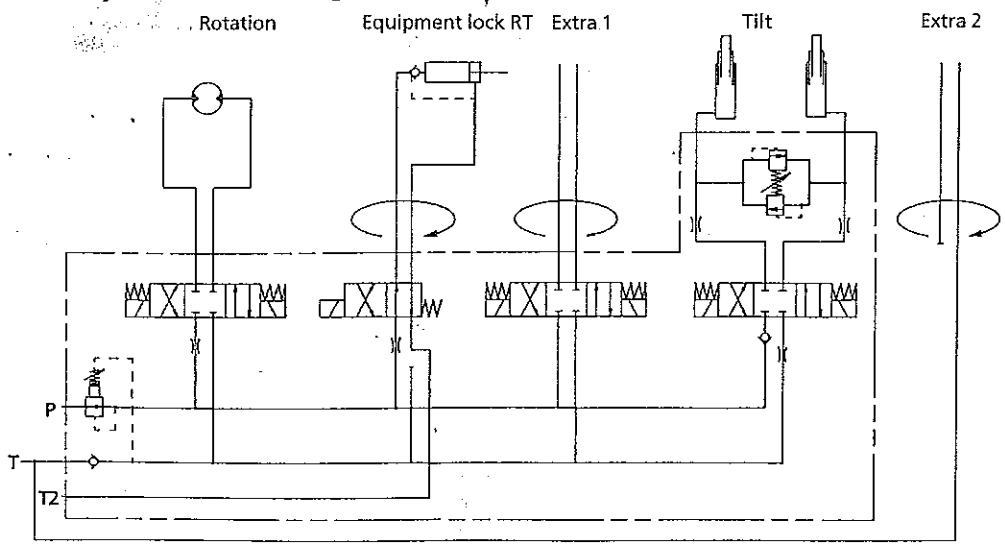
Hydraulic circuit diagram P



Hydraulic circuit diagram PX



Hydraulic circuit diagram PQ



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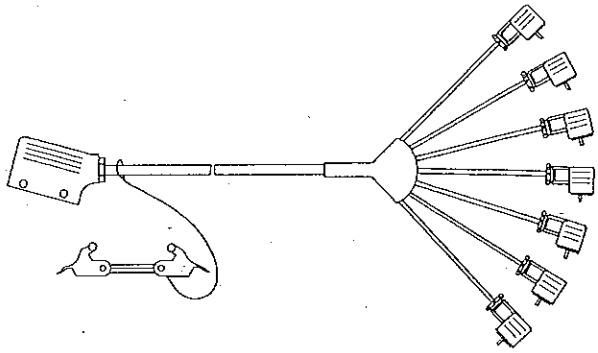
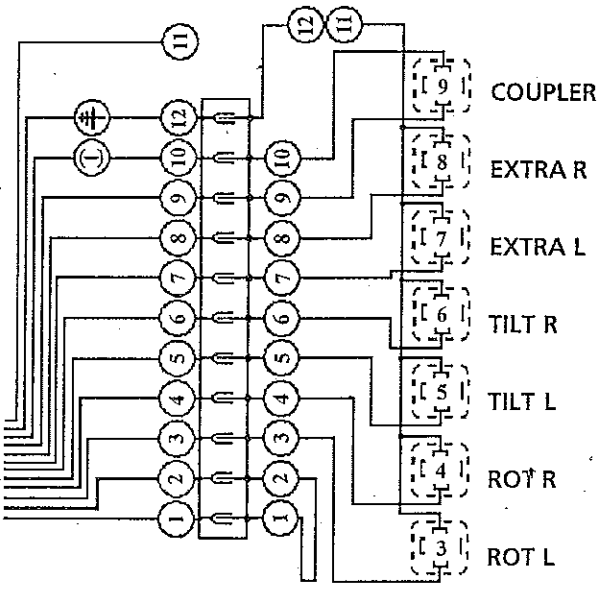
Electrical connection

Connection of leads in 10-pole connector on shaft.





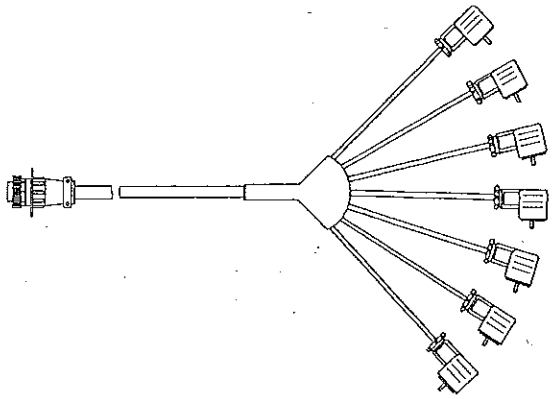
(1) (2) Signal with feedback to control unit with connector plugged in.

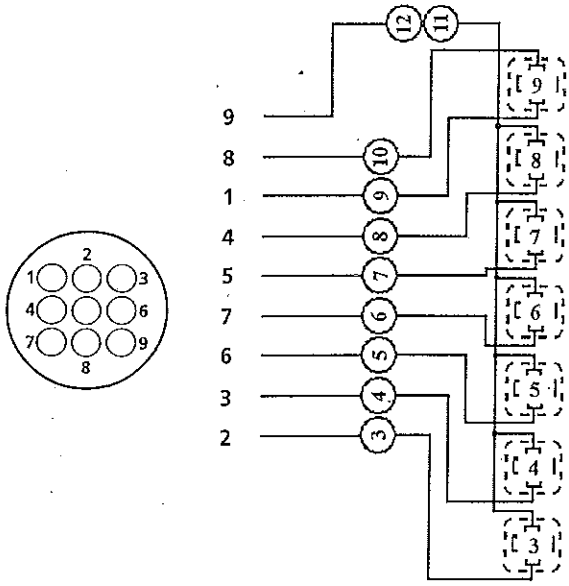
(3) (9) Functions.

(10) Separate earth cable from hydraulic lock on mount.

(11) (12) Common earth cable for tilt, rotation and extra function in electrical system 4100 262. Not connected in electrical system 4100 263.

Connection of leads in 9-pole connector.





(3) (9) Functions

(10) Separate earth cable from hydraulic lock on mount

(11) (12) Common earth cable for tilt, rotation and extra function.

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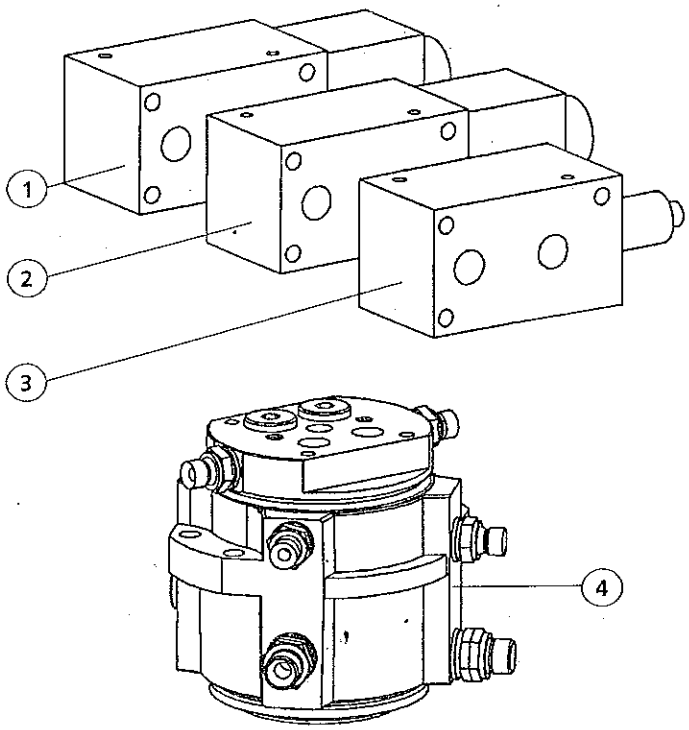
5.4.2 Single control (TR,TRE,TE)

Control system type TR and TRE have an open connection to the tilt function. Activation of valve (1) is connected to the rotor function and valve (2) to the extra function. Only one function can be operated at a time. The pressure limiting valve (3) limits the system pressure and protects the tilt cylinders against overloading.

Control system TE requires double hydraulic circuits on the base machine. One circuit is connected via valve with open connection to the tilt function and the other circuit is connected direct to the rotor function. Swivel (4) deals with transfer to the equipment mount.



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Connection hydraulics

A, B = Connection of hydraulics to drive Rototilt functions.
(Rotation, tilt and extra hydraulic socket if relevant.)

Connection:	BSP 1/2"

Possibility for shifting pressure and return in the respective connection.

Max. hydraulic pressure:	35 MPa
Max. hydraulic flow:	80 l/min
Max. pressure in return pipe at 50 l/min:	4 MPa

Position C and D applies for control system TE only.

C, D = Connection of hydraulics for rotor function.

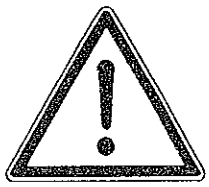
Connection:	BSP 3/8"

Possibility for shifting pressure and return in the respective connection.

Max. hydraulic pressure:	20 MPa
Max. hydraulic flow:	50 l/min
Max. pressure in return pipe at 50 l/min:	4 MPa

O = Connection of hydraulics for "open function" on hydraulic operated mount.

Connection:	BSP 1/4"
Max. hydraulic pressure:	20 MPa
Max. hydraulic flow:	40 l/min

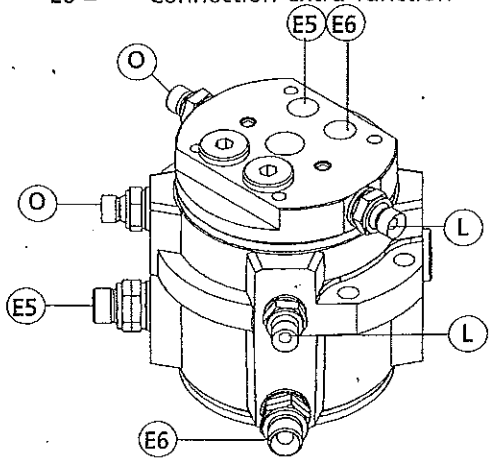


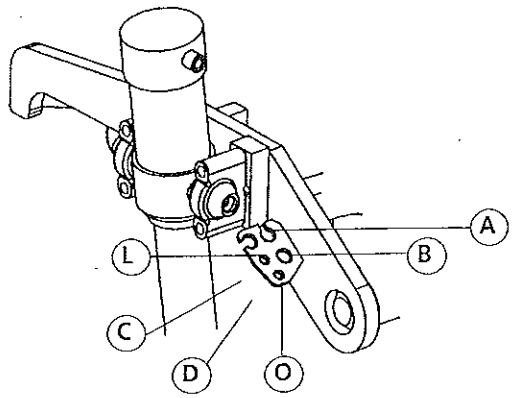
In inactivated mode the function is to be connected to the reservoir, atmospheric pressure, to prevent building up pressure.

L = Connection of hydraulics for "close function" on hydraulic operated mount. The function is to be frequently pressurised, eg, by servo hydraulics of the base machine.

E5 = Connection extra function

E6 = Connection extra function





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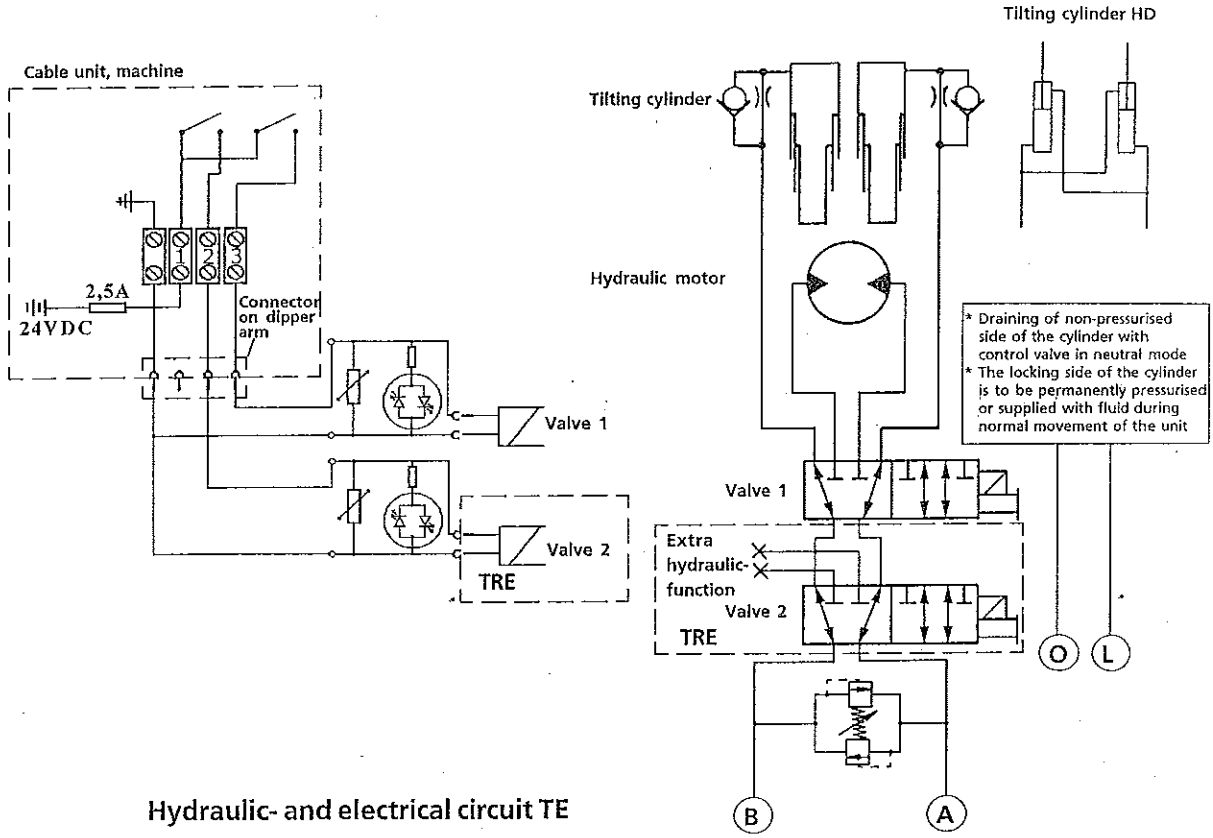
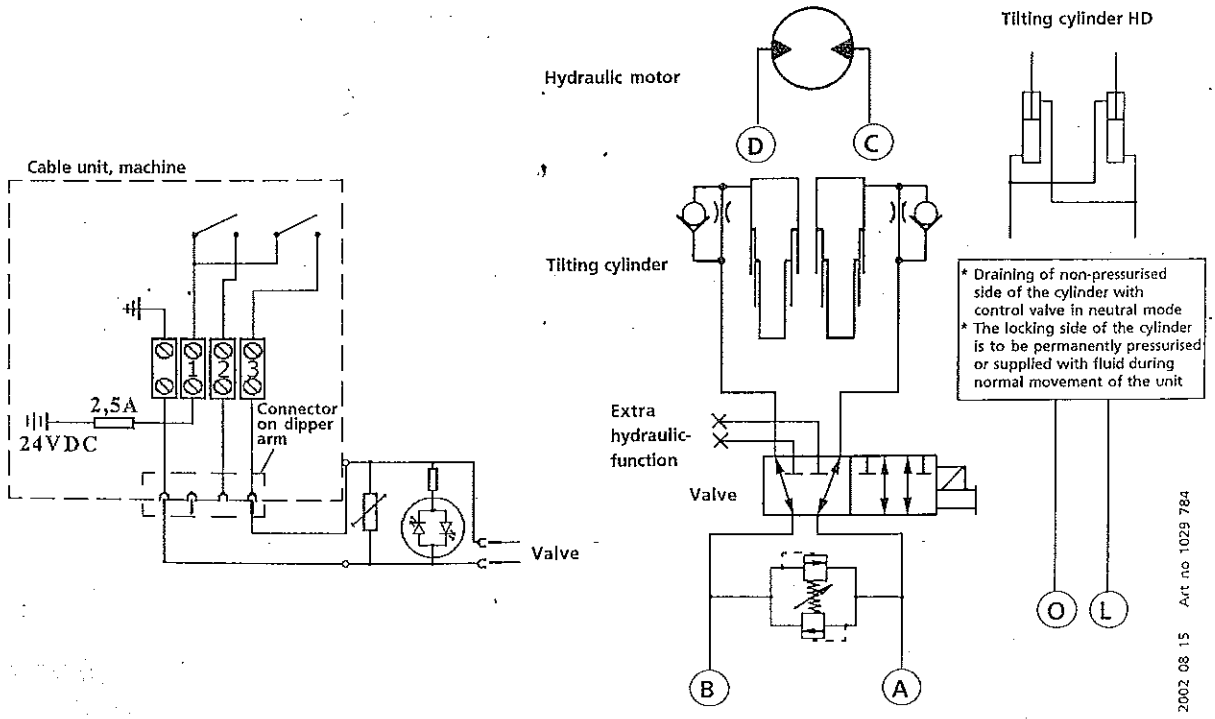
Hydraulic- and electrical circuit TRE, TR



Hydraulic- and electrical circuit TE



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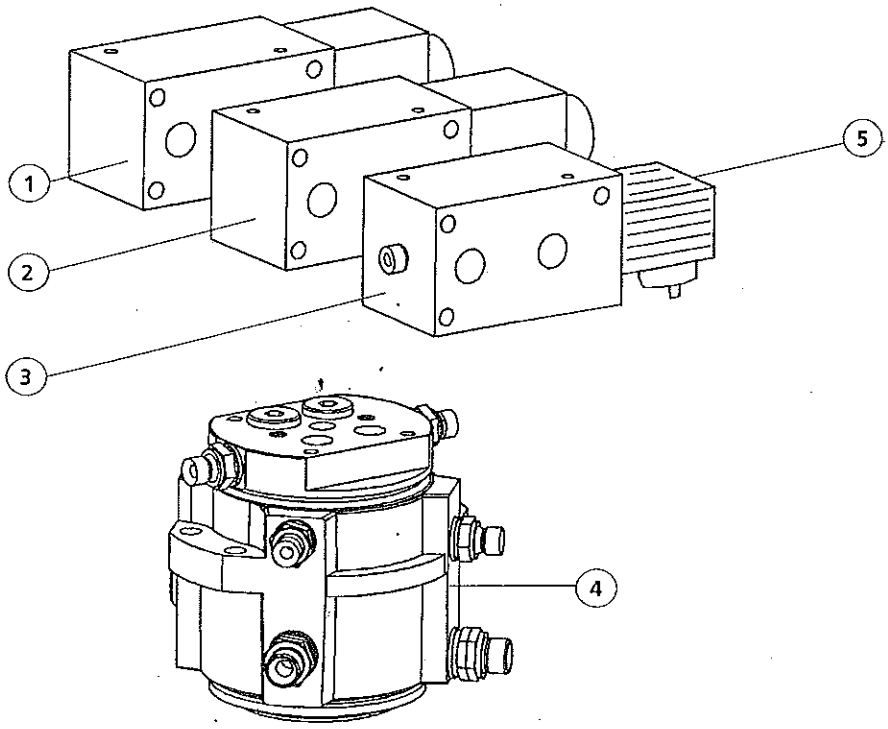
5.4.2 Single control with integrated locking function (TEL,TREL*)

Control system type TREL have an open connection to the tilt function.
Activation of valve (1) is connected to the rotor function and valve (2) to the extra function. Only one function can be operated at a time. The pressure limiting valve (3) limits the system pressure and protects the tilt cylinders against overloading.

Control system TE requires double hydraulic circuits on the base machine. One circuit is connected via valve with open connection to the tilt function and the other circuit is connected direct to the rotor function. Swivel (4) deals with transfer to the equipment mount.



*RT 60B and RT 80

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Connection hydraulics

A, B = Connection of hydraulics to drive Rototilt functions.
(Rotation, tilt, coupler lock and extra hydraulic socket if relevant.)

Connection:	BSP 1/2"

Possibility for shifting pressure and return in the respective connection.

Max. hydraulic pressure:	35 MPa
Max. hydraulic flow:	80 l/min
Max. pressure in return pipe at 50 l/min:	4 MPa

Position C and D applies for control system TEL.

C, D = Connection of hydraulics for rotor function.

Connection:	BSP 3/8"

Possibility for shifting pressure and return in the respective connection.

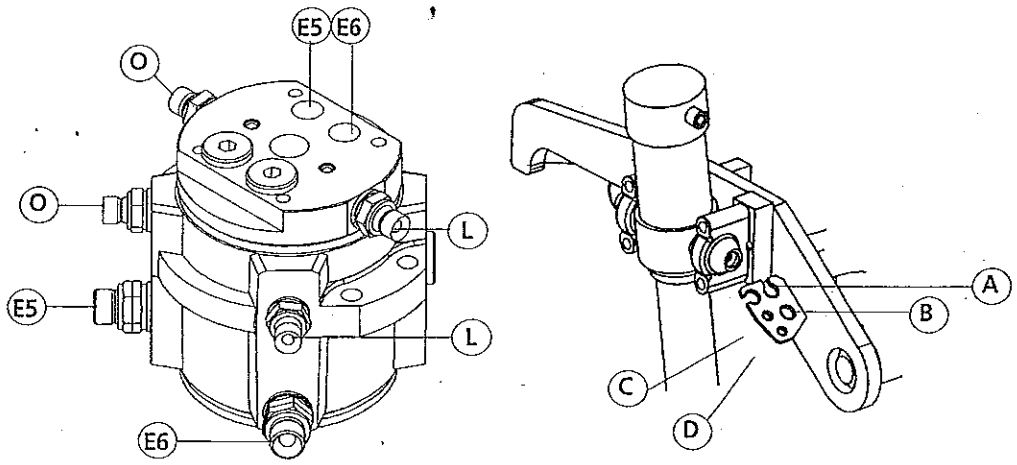
Max. hydraulic pressure:	20 MPa
Max. hydraulic flow:	50 l/min
Max. pressure in return pipe at 50 l/min:	4 MPa

E5 = Connection extra function

E6 = Connection extra function

O = Connection to "open side" on locking cylinder

L = Connection to "close side" on locking cylinder



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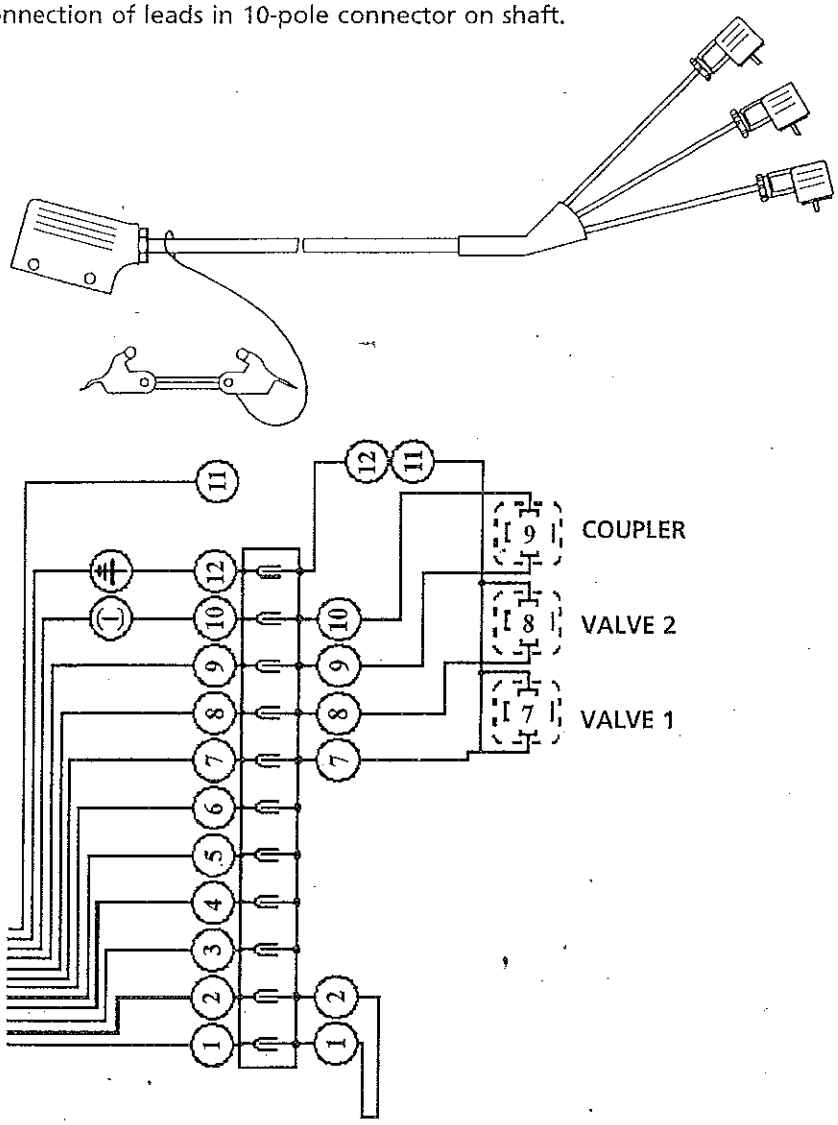
Electrical connection

Connection of leads in 10-pole connector on shaft.



(1) (2) Signal with feedback to control unit with connector plugged in.

(7) (9) Functions.

(10) Separate earth cable from hydraulic lock on mount.

(11) (12) Earth cable

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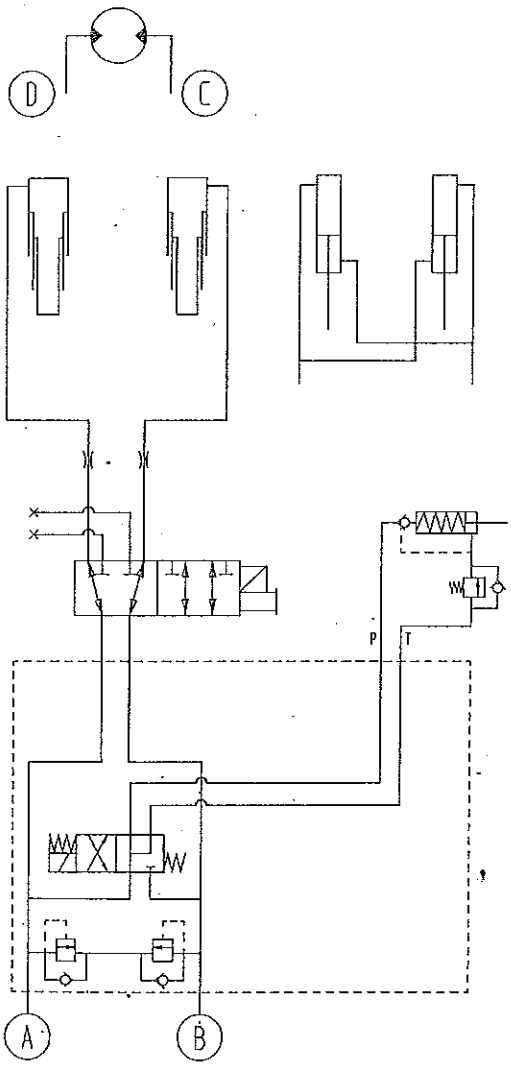

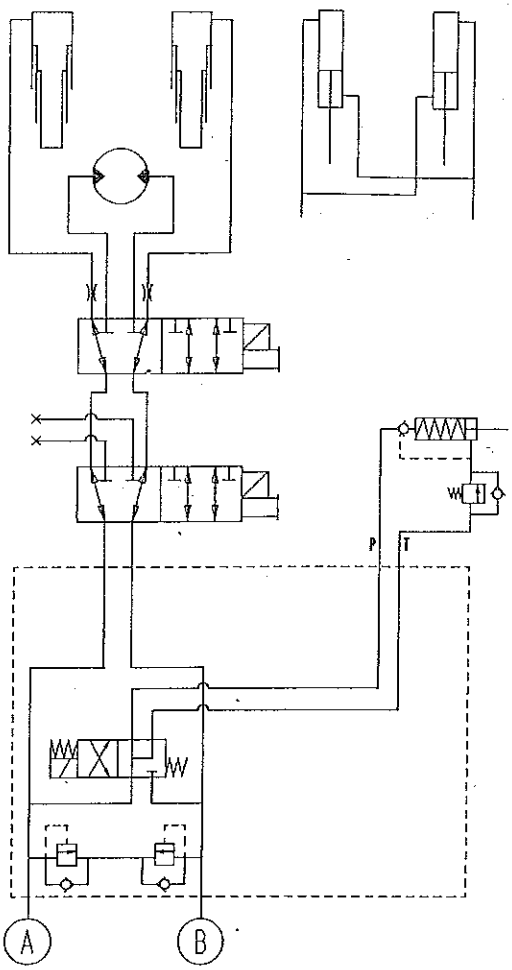

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5.5 Fitting kit

5.5.1 Fitting kit, parallel control

The fitting kit includes everything necessary for fitting and operating Rototilt on the base machine.

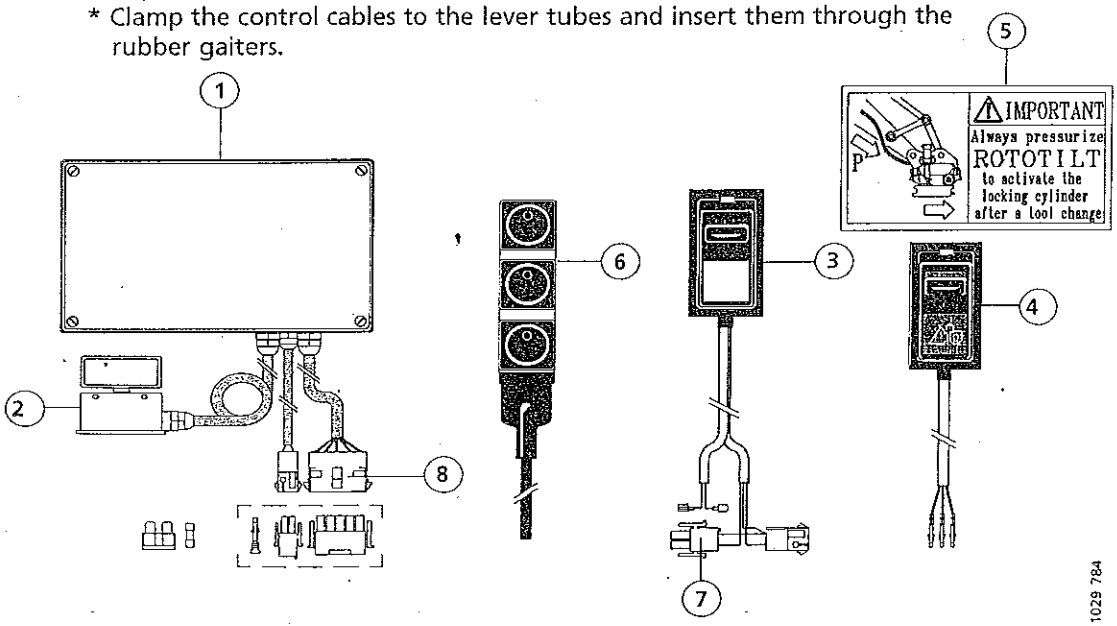
The fitting kit is an essential part of Rototilt with regard to safety. Malfunctioning could cause expensive standstill and in the worst case serious personal injuries. Take care to follow the safety instructions and observe the warnings that are noted in this user's manual.

Fit the control unit (1) easily accessible in the cab of the base machine, protected from dirt and moisture. Weld the connector fitting in a suitable position and screw the connector in place. Clamp the cable that has a 10-pole connector (2) along the boom and shaft and through the wall of the cab. Take consideration to movements of the machine and observe the danger of the cable being pinched. Fit the main power switch (3) and the operating switch for controlling the hydraulic lock (4) on the control panel of the base machine.

Position the lock switch (4) where it cannot be activated inadvertently, and fix the warning decal (5) to its connection.

Fit the buttori units (6) with controls for operating rotation, tilt and extra function on the control levers of the machine.

* Try out a suitable position
* Level off the surface of the lever and clean, eg, with alcohol.
* Peel the protective foil off the double-adhesive tape and firmly press the button unit in place.
* Clamp the control cables to the lever tubes and insert them through the rubber gaiters.



Connect the main power switch (3) to the control unit with one of the two 2-pole connectors (7) and the other to +24 V (or +12 V) and earth (-). In standard connections the other two leads are not used, see 5.5.2 Special functions.

Controls for the operating functions (4) (6) are to be connected to the 15-pole connector (8) as illustrated overleaf. Note the marking on the connector.

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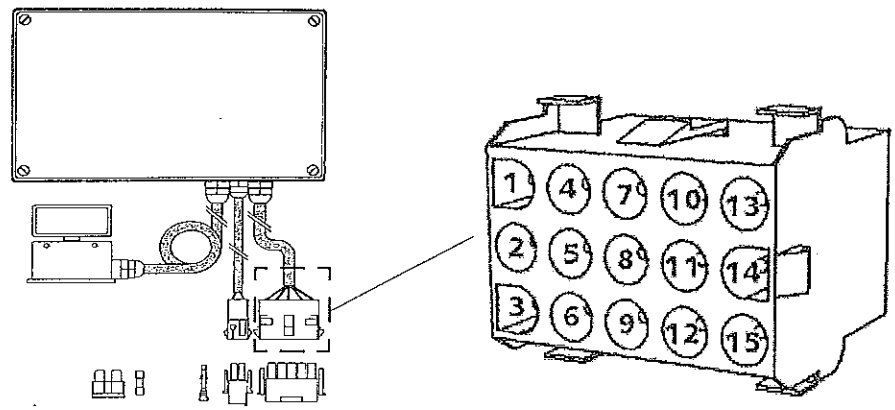

Pin no.	Function	
1	**Coupler**	Operating the equipment mount. Leader marked "1" from push button (4).
4, 9, 12, 15		(No connection)
7	**Extra R**	Operation of extra function right. Green lead from lowest position on button unit (6).
10	**Extra L**	Operation of extra function left. Green lead from lowermost position on button unit (6).
13	**Tilt R**	Operation of tilt right. Yellow lead from middlemost position on button unit (6).
2	**Tilt L**	Operation of tilt left. Yellow lead from middlemost position on button unit (6).
5	**Rot R**	Operation of rotation right. Brown lead from uppermost position on button unit (6).
8	**Rot L**	Operation of rotation left. Brown lead from uppermost position on button unit (6).
11, 14	**(+)**	Supply to all functions. White leads from button units (6) and lead marked "9" from pressure switch (4).
3	**Vent -**	Earthing of extra signal, see section 5.5.2. Earthing of lighting for switch (4).
6	**Vent +**	Extra signal, see section 5.5.2.

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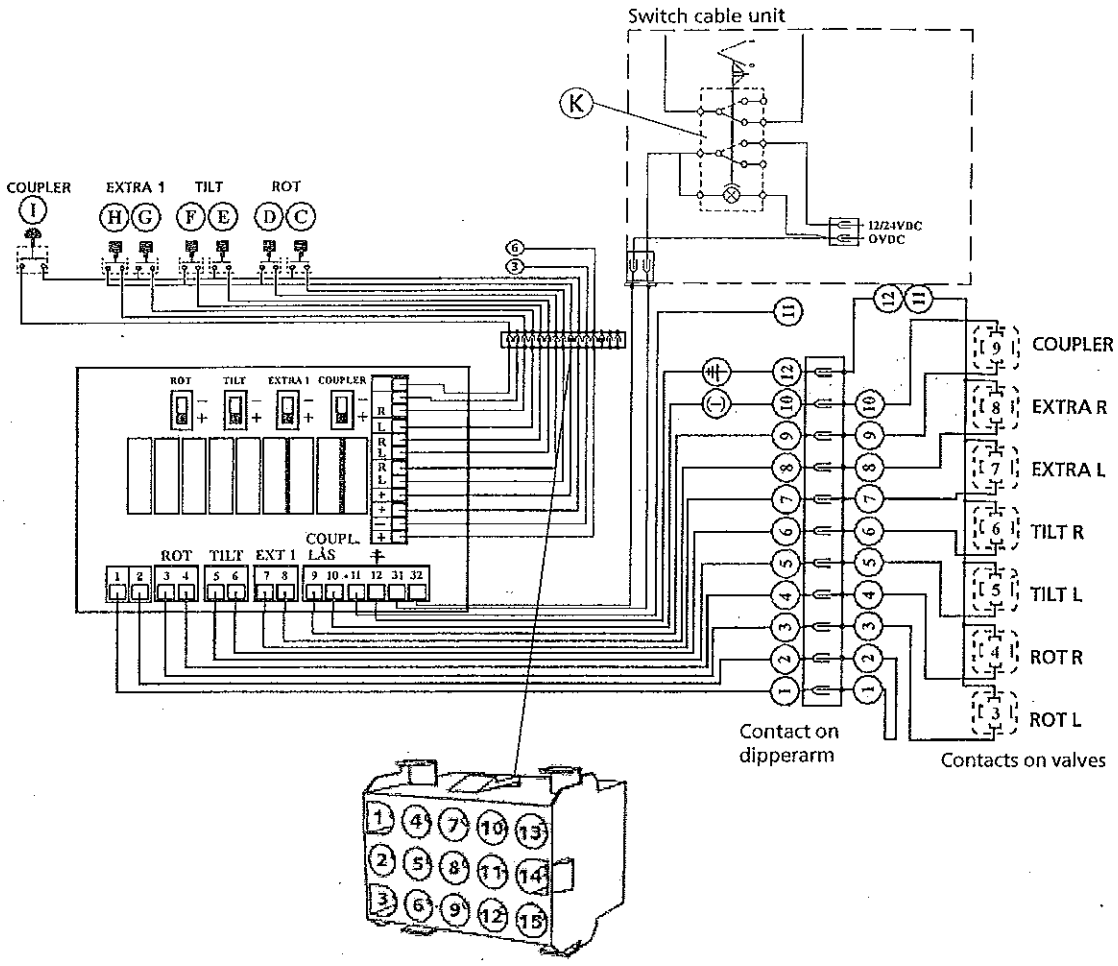
Electric circuit diagram and functional description



The control unit for Rototilt is powered via push-button switch (K). The push-button switch shows a green light when the control unit is powered.
Functions on Rototilt are activated with the aid of push-button switches as follows:

Press	(C)		Rotation left
Press	(D)		Rotation right
Press	(E)		Tilt left
Press	(F)		Tilt right
Press	(G)	or (H)	Extra hydraulic connection (eg, grapple function)
Press	(I)		Open equipment lock on mount

The equipment lock closes when hydraulic pressure is applied.

Several push buttons can be activated at the same time, eg, to achieve simultaneous operation of rotation and tilting.

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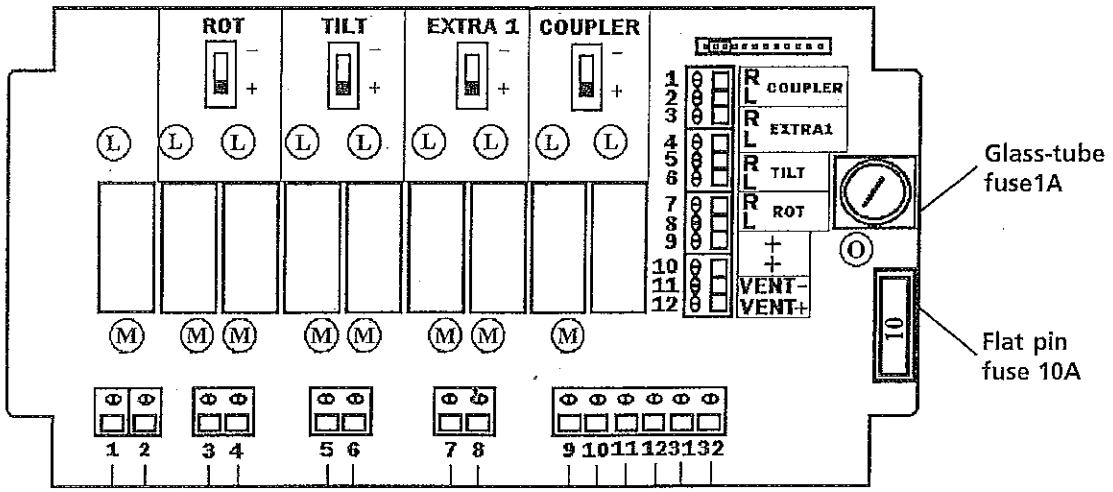
Trouble shooting

The control unit facilitates functional checking and trouble shooting via LEDs on the circuit board, LEDs in contacts on solenoid valves and beeper for indicating of signal with feedback in connector on the shaft.

LEDs (O) at input for supply voltage indicates whether there is voltage to the control unit.
LEDs (L) above the relays indicate function of the controls for respective RT-function.
LEDs (M) below the relays show yellow light for energised relay.
LEDs on the solenoid valve contacts show red light for activated function.

The beeper sounds, eg, if the connector on the shaft becomes disconnected, in the event of poor contact in the connector, in the event of failure in the 12-core cable from the control unit, or failure of the circuit board.



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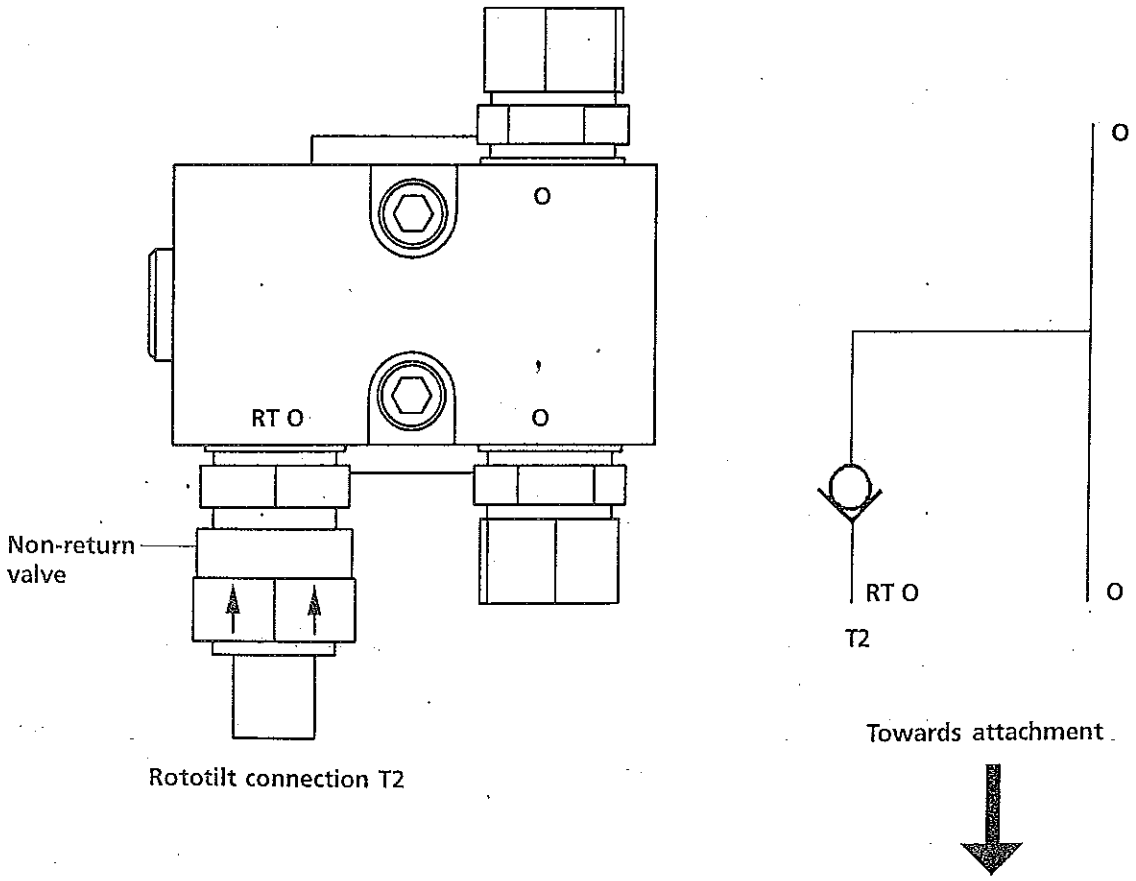
Return kit, hydraulic lock, control system PX

Control system PX60 requires a connection for return of hydraulic fluid from the locking cylinder in the hydraulic equipment mount on Rototilt, connection T2, see control system PX60. The condition for the lead is that it is in direct connection with the reservoir, atmospheric pressure.

Return kit 4100 296 can be used to branch the separate return lead T2 to an existing return lead on the base machine. Such a lead can be "open" in the hydraulic circuit for the equipment mount of the machine.

T2 is connected to the input "RT O" and the existing return lead (in some cases "open" on the equipment mount of the machine) is connected to "O".

With the equipment mount of the machine in the locked mode it will share this return lead with the mount on Rototilt. When the operator tries to open the machine mount the flow to lead T2 of the nonreturn valve will be blocked.



Rototilt connection T2

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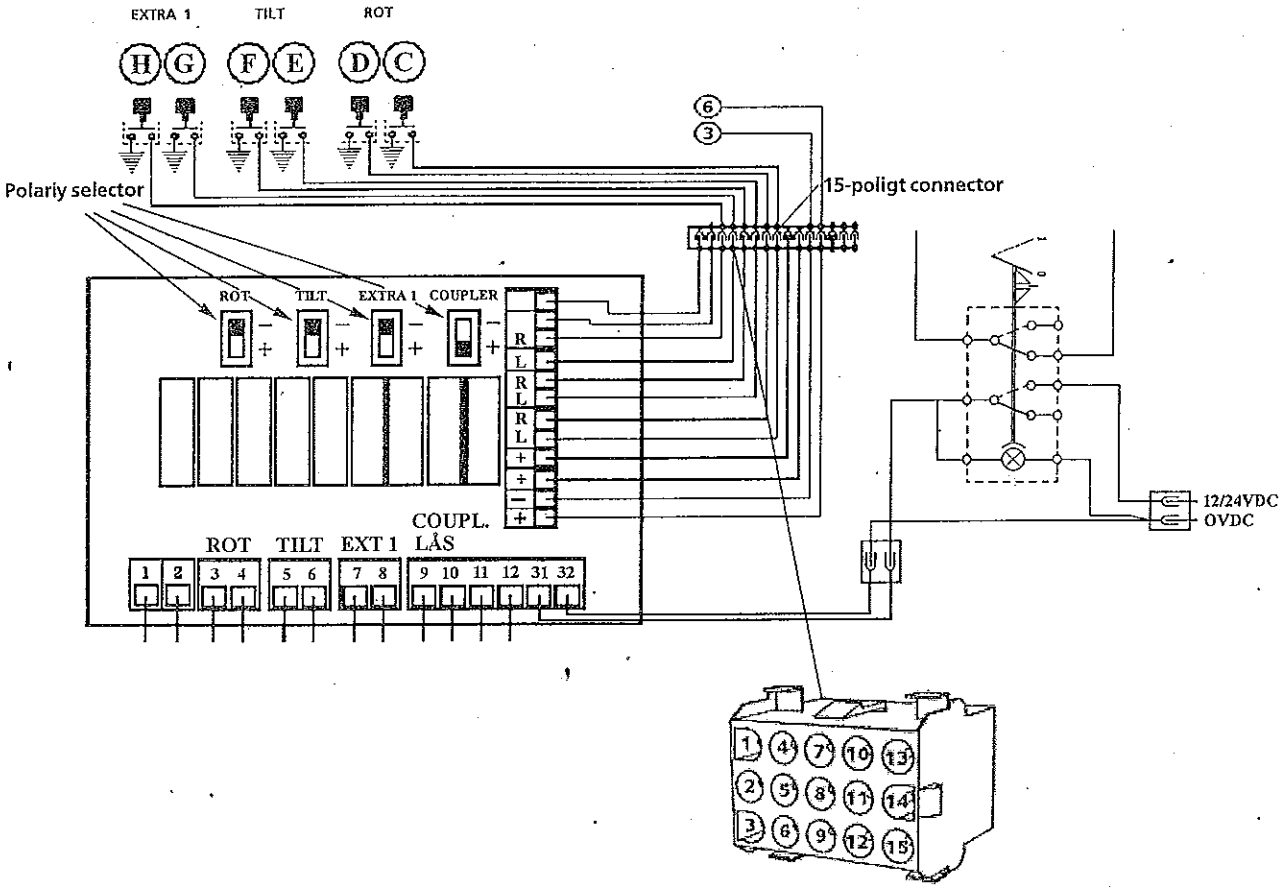
5.5.2 Special functions

(-) operated controls for operating the functions on Rototilt

If existing (-) controls in the CONTROL lever of the base machine are to be used for controlling the functions on Rototilt then the polarity selectors in the control unit must be reset, se illustration below. note that this does not apply to the polarity selector for the equipment mount "Coupler".



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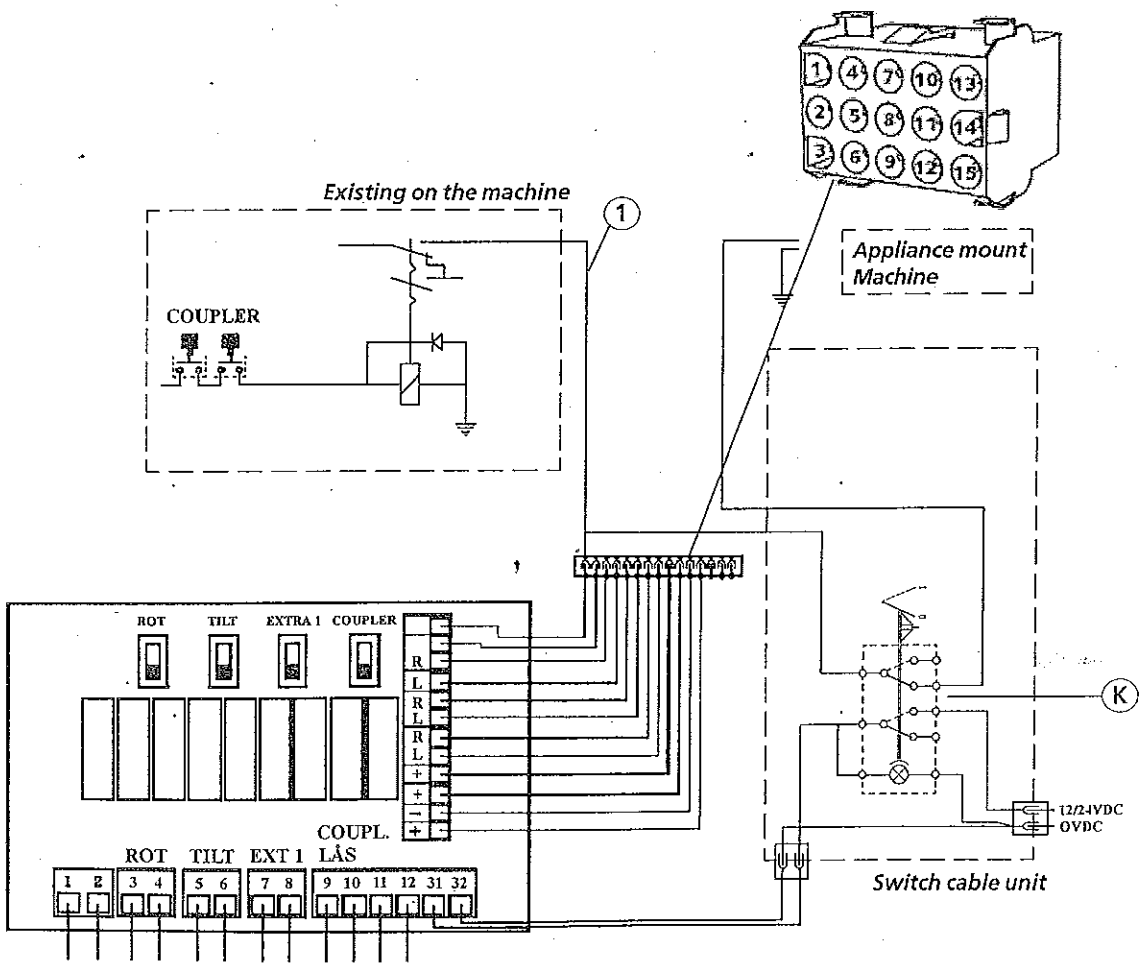
Controlling equipment lock Rototilt using the normal controls on the base machine

This special function can be used if one wishes to operate Rototilt with the existing controls on the base machine. Connecting is made in a practical manner by breaking the circuit, in the base machine, for operation of the equipment lock, and connect it to the control unit of Rototilt. On powering the control unit the circuit to the equipment mount of the machine will be broken and the signal will affect the Rototilt lock instead. To operate the mount on the machine the supply voltage to the control unit must be disconnected.

Connection:
The lead after any step relay in the machine is to be connected to pin (1) in the 15-pole connector and to one of the black leads from switch (K). Connect the other black lead to the valve that operates the equipment mount on the machine.



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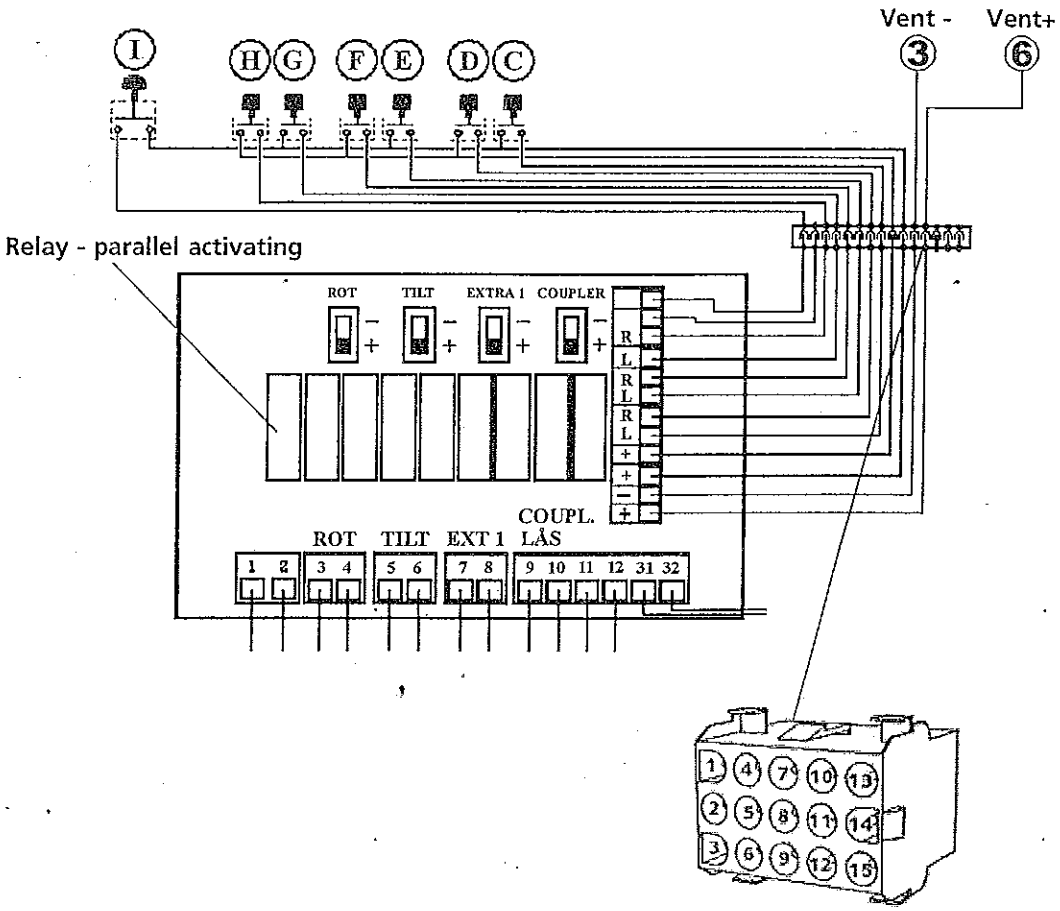
Parallel activating of valve in base machine when function on Rototilt is activated

In cases where the hydraulic circuit of the base machine to Rototilt is controlled by a solenoid valve it can be activated parallel with the functions of Rototilt by connecting it to "Vent-", pin (3) and "Vent+", pin (6), in the 15-pole connector, see 5.5.1. A relay activated signal, 12/24 V, 20/10A, is transmitted when any of the functions on Rototilt are activated.



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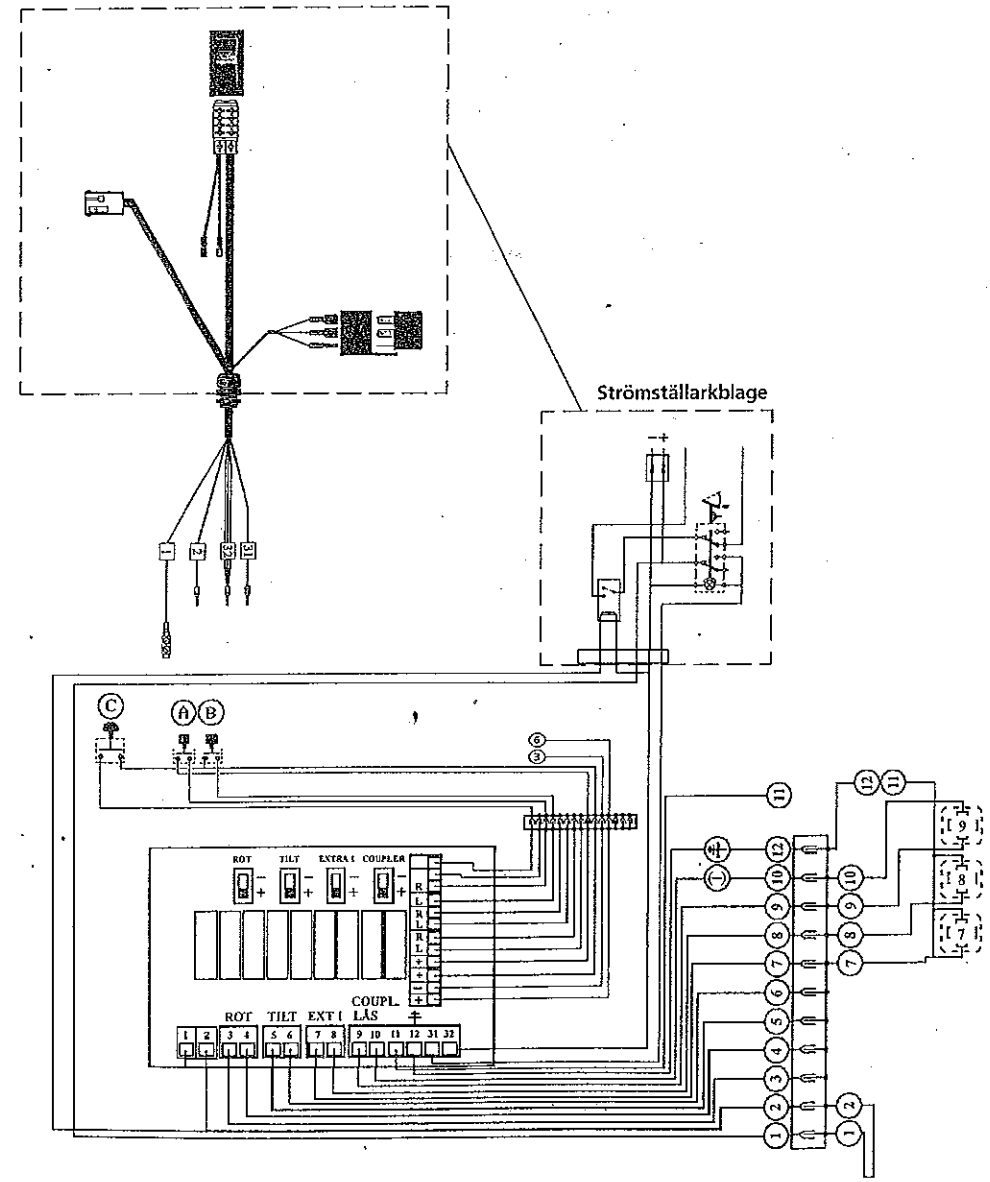

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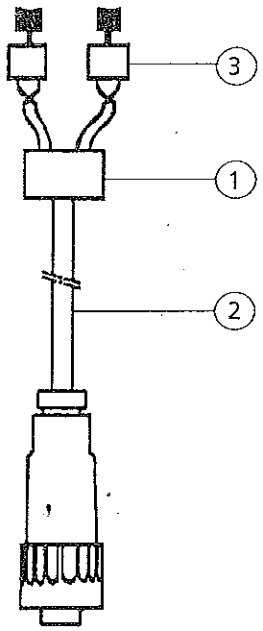
5.5.3 Fitting kit for single control

The fitting kit includes everything necessary for fitting and operating Rototilt on the base machine.

The fitting kit is an essential part of Rototilt with regard to safety. Malfunctioning could cause expensive standstill and in the worst case serious personal injuries. Take care to follow the safety instructions and observe the warnings that are noted in this user's manual.

Fit the terminal block (1) easily accessible in the cab of the base machine, protected from dirt and moisture. Fit the cable with 4-pole connector (2) through the cab wall and clamp it along the boom and shaft. Take consideration to movements of the machine and observe the danger of the cable being pinched.
Clamp the connector in a suitable position. mount the switches (3) for selection between the functions tilt, rotation and extra function on the control levers of the machine.



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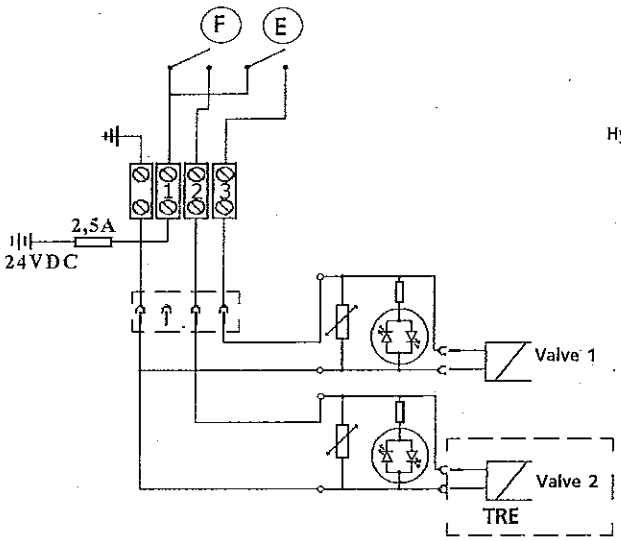
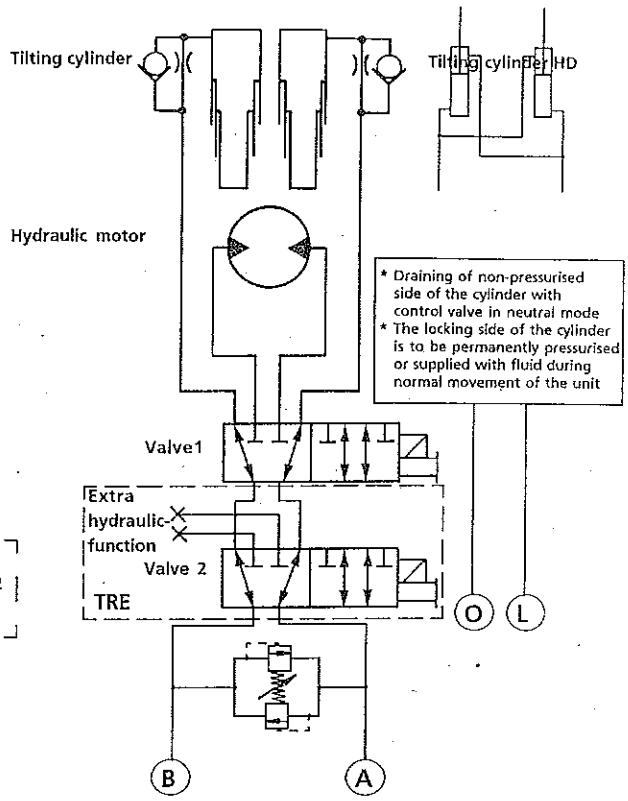
Funktional description TRE, TR





On pressurising (A) Rototilt tilts left.
Controls that operate this function are to be marked: **"Tilt left"**.

On pressurising (B) Rototilt tilts right.
Controls that operate this function are to be marked: **"Tilt right"**.

On pressurising (O) the hydraulically operated mount opens.
Controls that operate this function are to be marked: **"Lock open"**.
In the inactivated mode this function is to be connected to the reservoir, atmospheric pressure, to prevent building up pressure.

(L) To be frequently pressurised, eg, by the servo hydraulics of the base machine.

When push button (E) is kept pressed in while pressurisation is on at (A) then Rototilt will rotate left.

Pressurisation at (B) with push button (E) pressed then Rototilt rotates right.
Push button to be marked: **"Rotation"**.

Applies for control system TRE only
When push button (F) is kept pressed in while pressurisation is on at (A) or (B) the extra hydraulic power point will be activated.
Push button to be marked: **"Extra hydraulic power point"**.

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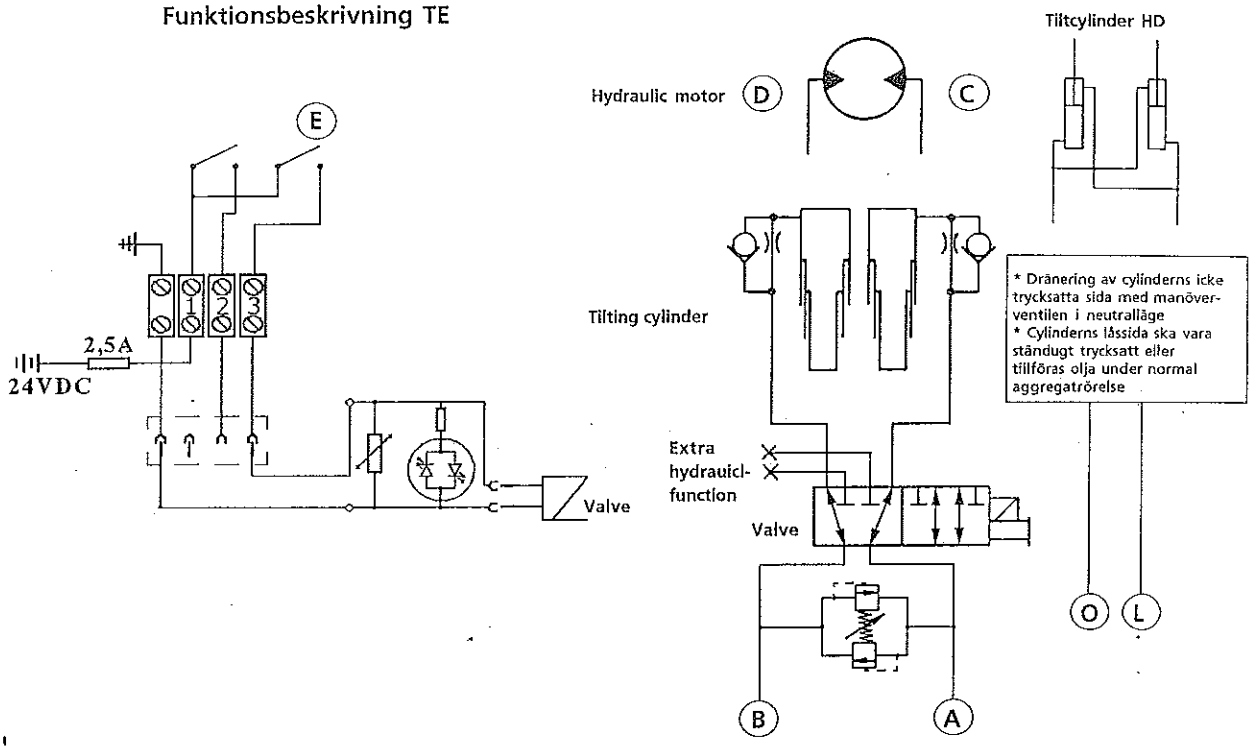
Funktionsbeskrivning TE



Pressurisation at (A) Rototilt tilts left.
Controls that operate this function are to be marked: **"Tilt left".**

Pressurisation at (B) Rototilt tilts right.
Controls that operate this function are to be marked: **"Tilt right".**

Pressurisation at (O) opens hydraulically operated mount.

Controls that operate this function are to be marked: **"Lock open".**
In inactivated mode the function is to be connected to the reservoir, atmospheric pressure, to prevent building up pressure.

(L) Is to be frequently pressurised, eg, by servo hydraulics of the base machine.

Pressurisation at (C) rotates Rototilt left.

Pressurisation at (D) rotates Rototilt right.

When push button E is kept pressed in while pressurisation is on at (A) or (B) then extra hydraulic power point will be activated.

Push button to be marked: **"Extra hydraulic power point".**

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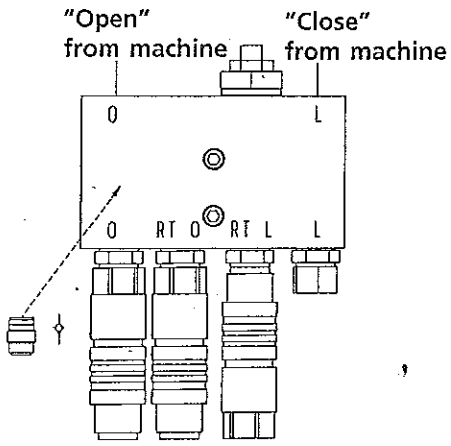
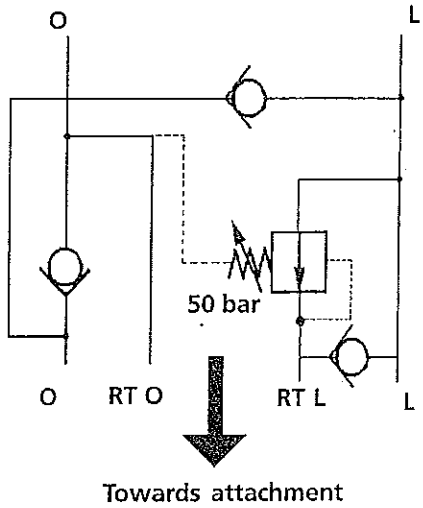
5.5.4 Manifold block, hydraulic lock

Using manifold block 4100277, the hydraulic equipment mount on Rototilt can be operated via the equipment mount circuit of the base machine. A condition is that this circuit is configured so that;

* The non-pressurised side of the cylinder is drained to the reservoir with the control valve in the neutral mode.
* The locking side of the cylinder is constantly pressurised or is supplied with fluid during normal operation of the unit.

The block is to be fitted in a suitable place along the hydraulic circuit of the machine for the equipment mount and positioned so that the side with four outlets faces down towards the equipment mount.
Connect the lead "open" from the machine to the upper port of the block marked "O".
Lower port marked "O" to the open side on the equipment mount on the machine.
Connect the port marked "RT O" to the open side on the Rototilt equipment mount.
Lead "close" from the machine is to be connected to the upper port on the block marked "L".
Connect the lower port marked "L" to the close side on the equipment mount on the machine.
Connect the port marked "RT L" to the close side on the Rototilt equipment mount.





During operation both the mounts are pressurised, ie, on the base machine and on Rototilt, via (L). A valve reduces pressure to the cylinder on Rototilt. The return side is also a common function (O). When the operator intends to open the equipment mount with Rototilt connected the lock on Rototilt will be activated but a nonreturn valve will block the lead to the base machine mount. To be able to disconnect Rototilt the connections "O" and "RT O" are to change place.

For safety reasons the equipment lock on Rototilt is always to be activated and left closed even if there is no equipment connected.

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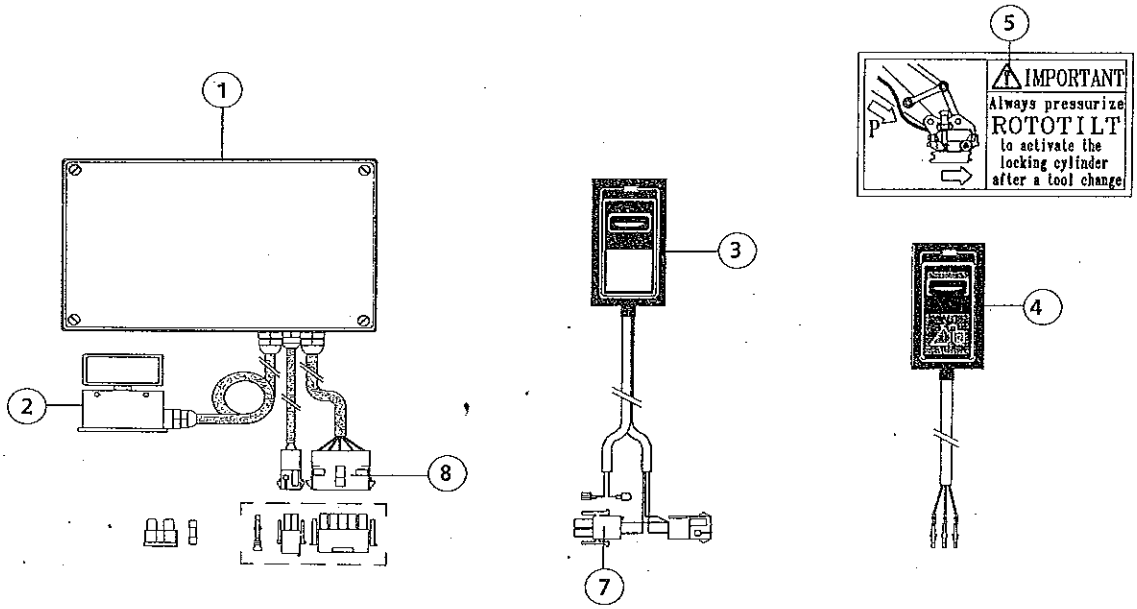
5.5.5 Fitting kit, parallel control

The fitting kit includes everything necessary for fitting and operating Rototilt on the base machine.

The fitting kit is an essential part of Rototilt with regard to safety. Malfunctioning could cause expensive standstill and in the worst case serious personal injuries. Take care to follow the safety instructions and observe the warnings that are noted in this user's manual.

Fit the control unit (1) easily accessible in the cab of the base machine, protected from dirt and moisture. Weld the connector fitting in a suitable position and screw the connector in place. Clamp the cable that has a 10-pole connector (2) along the boom and shaft and through the wall of the cab. Take consideration to movements of the machine and observe the danger of the cable being pinched. Fit the main power switch (3) and the operating switch for controlling the hydraulic lock (4) on the control panel of the base machine.
Position the lock switch (4) where it cannot be activated inadvertently, and fix the warning decal (5) to its connection.



Connect the main power switch (3) to the control unit with one of the two 2-pole connectors (7) and the other to +24 V (or +12 V) and earth (-). In standard connections the other two leads are not used, see 5.5.2 Special functions.
Controls for the operating functions are to be connected to the 15-pole connector (8) as illustrated overleaf. Note the marking on the connector.

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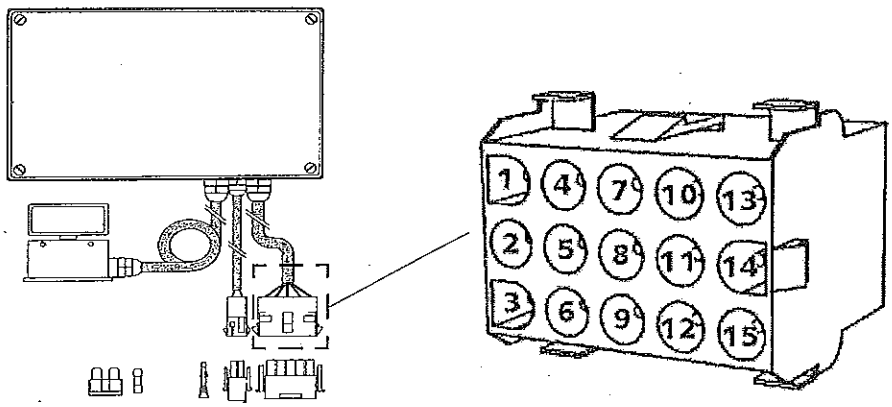

Pin no.	Function	
1	Coupler	Operating the equipment mount. Leader marked "1" from push button (4).
4, 9, 12, 15		(No connection)
7	Valve 2	Operation of extra function.
10	Valve 1	Operation of rotation.
11, 14	(+)	Supply to all functions. Lead marked "9" from pressure switch (4).
3	Vent -	Earthing of extra signal, see section 5.5.2. Earthing of lighting for switch (4).
6	Vent +	Extra signal, see section 5.5.2.

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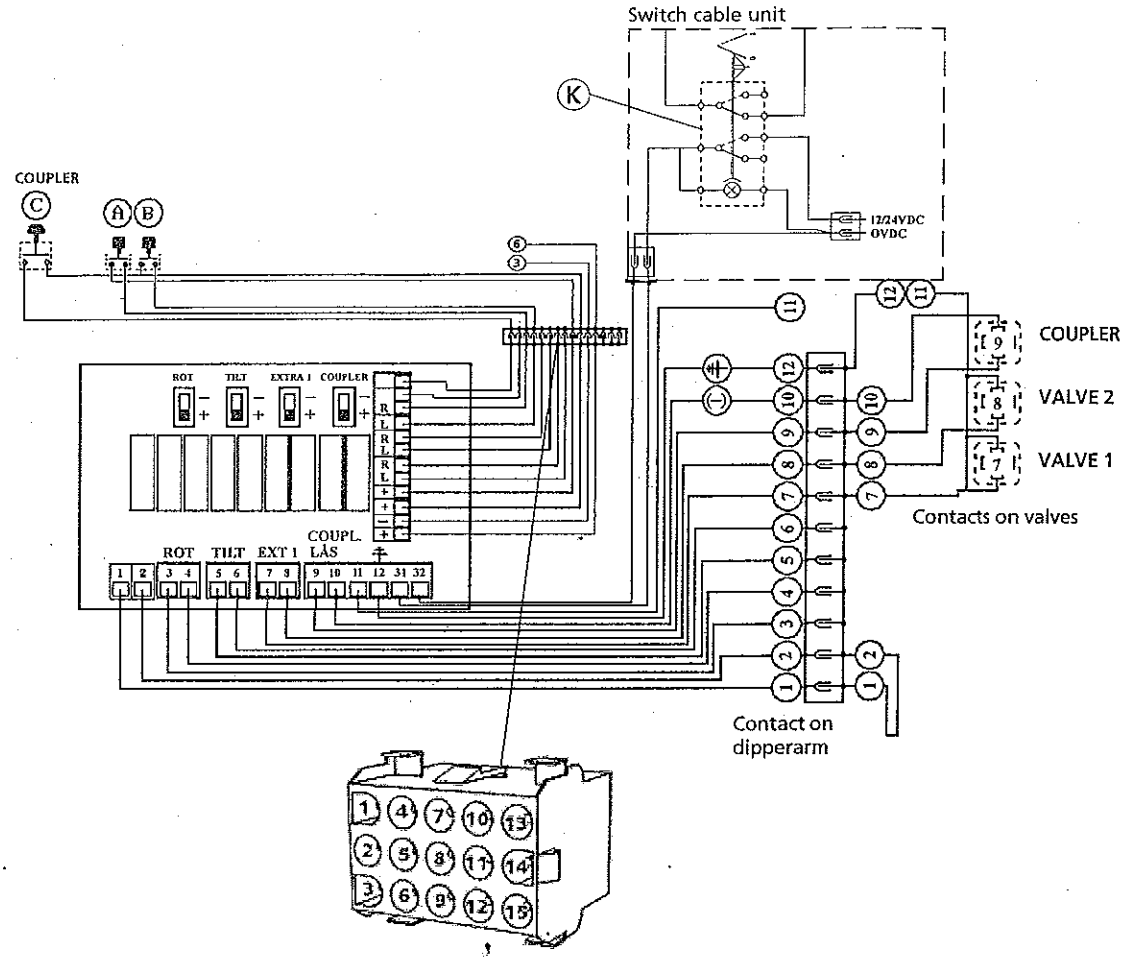
Electric circuit diagram and functional description



The control unit for Rototilt is powered via push-button switch (K). The push-button switch shows a green light when the control unit is powered.
Functions on Rototilt are activated with the aid of push-button switches as follows:

(A) Activating of valve 1
(B) Activating of valve 2
(C) Open equipment lock on mount

The equipment lock closes when hydraulic pressure is applied.

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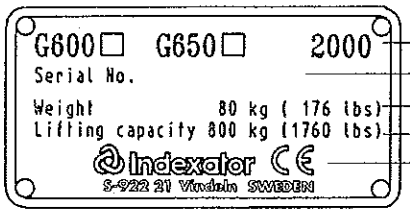
6.0 Accessories

6.1 Grapple module

Description

The grapple module is an accessory for Rototilt and is intended for uncomplicated, occasional gripping, and handling jobs such as raising poles, stone paving, lifting scrap, etc.The module is mounted on the equipment mount and it does not affect the overall build-in height. The grapple arms are connected hydraulically parallel and connected to the swivel configured extra function. Operation is made using the corresponding controls. The cylinders are fitted with pilot-controlled nonreturn valves to maintain hydraulic pressure during the gripping operation and also for safety in the event of hose fracture or similar malfunction.

Marking / Type plate

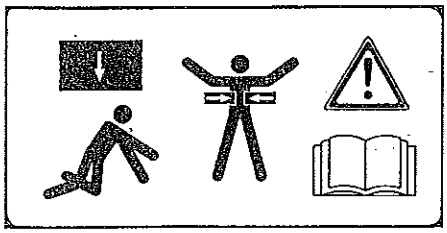


Type designation and year of manufacture
Serial number
Weight
Lifting capacity
Manufacturer and CE-marking

Safety instructions

- *The danger of dropping objects from the grapple arms while lifting must always be considered. Respect the environment.*
- *Keep well clear of hanging loads.*
- *Never fix a chain or strap round the grapple arms for lifting, always use the lifting hook on the machine.*
- *The grapple arms may never be used for any other purpose than gripping around objects that are to be lifted.*
- *It is prohibited to use Rototilt and the grapple module to lift objects heavier than that stated in the machine specification for lifting capacity.*
- *The grapple arms should be kept in the closed position when not in use.*
- *Note that due to being connected in parallel the grapple arms may move differently. The grapple with the smallest load will move first.*
- *Never exceed the maximum permitted lifting capacity. See Technical data.*

Warning decal



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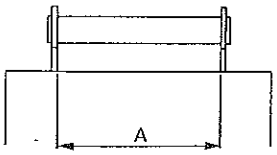
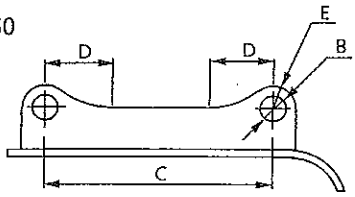
Mounting and operation

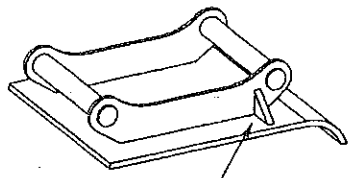
Ensure that the grapple module does not collide with shovels or other appliances intended for use under Rototilt.Certain demands required on some of the attachments are stated below.

Quick coupler S45, S50, S60



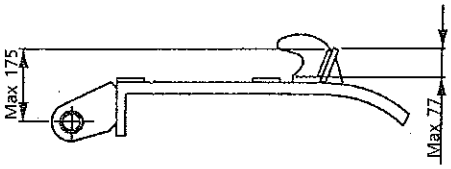


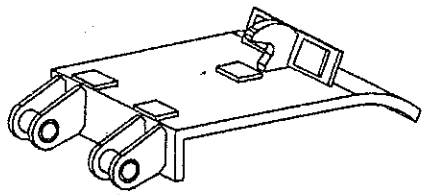
	A	B	C	D (max)	E (max)
N12	292	45	430	125	45
N14	272	50	430	125	45
N16	342	60	480	150	55



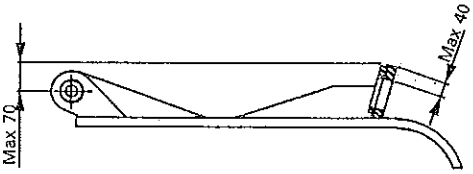
Please make sure that any supporting bar on the outside doesn't collide with the grapple unit.

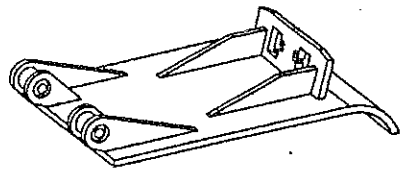
Quick Coupler LE





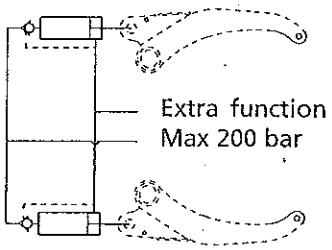
Quick coupler B18





The two hydraulic cylinders on the grapple module are connected in parallel hydraulically and are controlled via the extra power points on equipment mount Rototilt. Note which controls that operate the respective functions "open grapple arms" and "close grapple arms". Depending on which control system Rototilt is equipped with can operation of extra function differ for different units. See Control system and Fitting kit.

Grapple cylinder with
integrated load-holding valve



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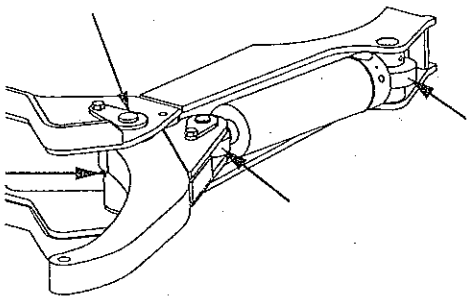
Maintenance

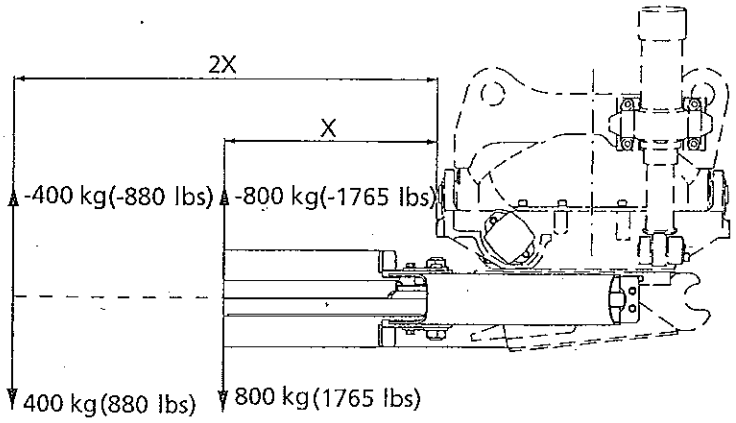
Read through the safety instructions before starting any maintenance.
Keep the grapple module clean from stones, gravel, etc, to avoid damage, especially round the hydraulic cylinders inside the safety covers.
Lubricate the six bearings in the grapple arms and hydraulic cylinders every 8 hours of operation. See illustration above. Normal lubricating grease intended for construction site machines may be used. See drawing scetch below.



Technical data

	GM 60	G600/G650
Max. hydraulic pressure, MPa (psi)	20 (2900)	20 (2900)
Max. hydraulic flow, l/min (US GPM)	50 (13,2)	50 (13,2)
Gripping force/grapple arms fully open, kN (lbf)	16 (3495)	11 (2475)
Gripping force/grapple arms tip to tip, kN (lbf)	24 (3480)	15 (3370)
Max. lifting capacity, kg (lbs)	1000 (2205)	800[1)](1145)
Weight, kg (lbs)	115 (254)	80 (175)

1) Maximum lifting capacity refers to positive or negative loads at the tips of the grapple jaws, fully opened. At increased distance between jaw tip and center of the RT the lifting capacity decreases proportionally.



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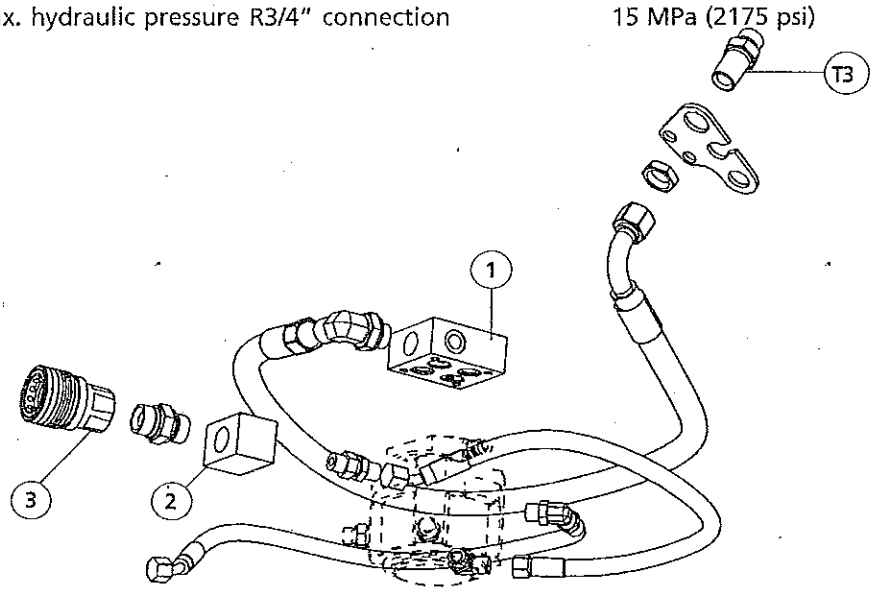
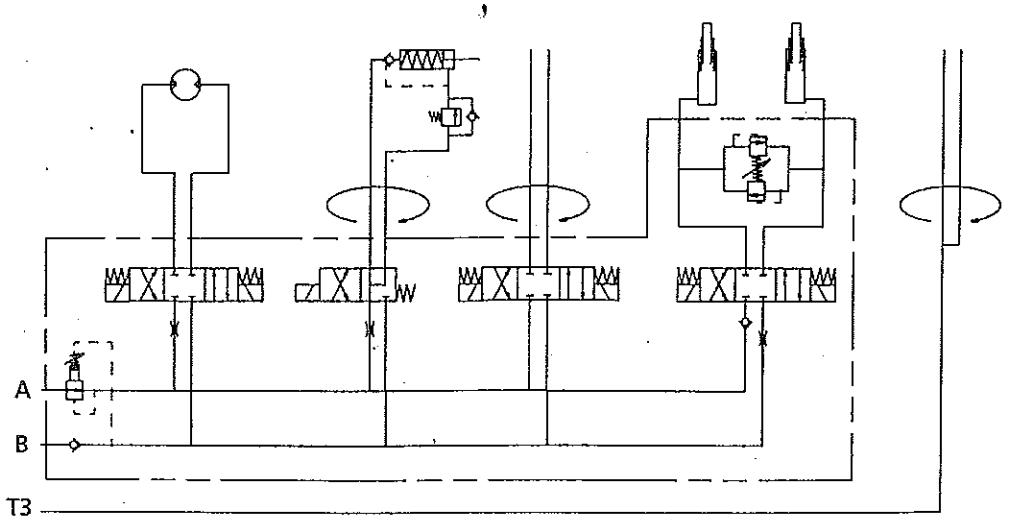
6.2 Return kit R3/4"

The return kit utilises the two extra through-fittings in the swivel, duct 7 and 8. One block (1) is to be screwed onto the swivel and thus parallel connects duct 4 and 6 to a R3/4" lead. The two lower outlets from the swivel are to be connected together with T-fitting (2) on the equipment mount and terminated with a quick-connector (3). The two leads for extra function, swivel duct 3 and 5, are to be placed on the opposite side and used in a normal way.

This function can be utilised, eg, if there is a requirement for a lead that has low return pressure.

Max. hydraulic pressure R3/4" connection 15 MPa (2175 psi)





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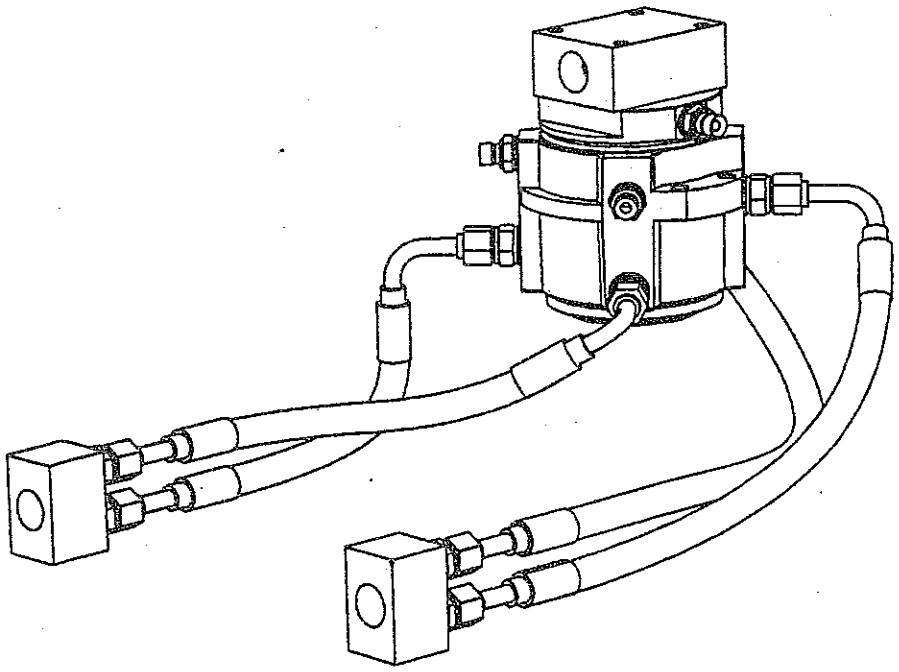
6.3 Adapter block R3/4"

The adapter block utilises, in the same manner as the return kit, the two extra through-fittings in the swivel.
One block is to be screwed onto the swivel and parallel connect the ducts pair-wise in parallel to two R3/4" connections. The two lower extra outlets on the swivel are to be connected to the equipment mount in the same way as the normal ones.

This function can be utilised, eg, if there is a requirement for high rates of flow.

Max. hydraulic pressure R3/4" connection 25 MPa (3625 psi)



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7.0 Technical data

	RT 40	RT 60B	RT 80
Min / Max machine weight (tonne)	*10 - 15*	*15 - 24*	*23 - 30*
Maximum standard shovel volume (m^3)	*0,7*	*1,1*	*1,6*
Maximum levering torque	*105*	*170*	*200*
Weight, kg (lb)[1]	250-390 (551-860)	420 - 520 (926-1146)	650 - 750 (1 435-1 655)
Tilting angle		2 x 40°	2 x 40°
Tilting torque at 20 MPa, Nm (lb·ft) HD (double-acting cylinders) Nm (lb·ft)	21 200 (15 635) 23 900 (17 630)	35 600 (26 255) 45 300 (33 410)	51 000 (37 615) [3] 65 000 (47 940) [3]
Rotation	unlimited	unlimited	unlimited
Rate of rotation (50 l/min)	1 turn / 9 sec	1 turn / 9 sec	1 turn / 8 sec
Torque at 20 MPa, Nm (lb·ft)	5 700 (4 200)	6 000 (4 425)	6 800 (5 015) [3]
Min/Max conneting pressure MPa (psi)[2]	15 (2 175) / 35 (5 075)	15 (2 175) / 35 (5 075)	15 (2 175) / 35 (5 075)
Working pressure MPa (psi)	20 (2 900)	20 (2 900)	20 (2 900)
Max return lead pressure (50 l/min), MPa (psi)	4 (580)	4 (580)	4 (580)
Min/Max. connected flow, l/min (GPM)	30 / 80 (7,9 / 21,1)	30 / 80 (7,9 / 21,1)	30 / 80 (7,9 / 21,1)

1) = The weight depends of the type of fastening, mount and control system. For the exact weight see the rating plate

2) = Connection hydraulic motor - control system TE max. 20 MPa (2900 psi).

3) = At 25 MPa

A combination of various stated limits of the machine like total weight, bucket volume, bending force etc. all together creates the conditions of what size of RT should be choosen. If a machine exceeds any of the stated limits, please consult your supplier in order to investigate the specific case. Environmental causes, or the type of job/use could sometimes be of decisive importance.

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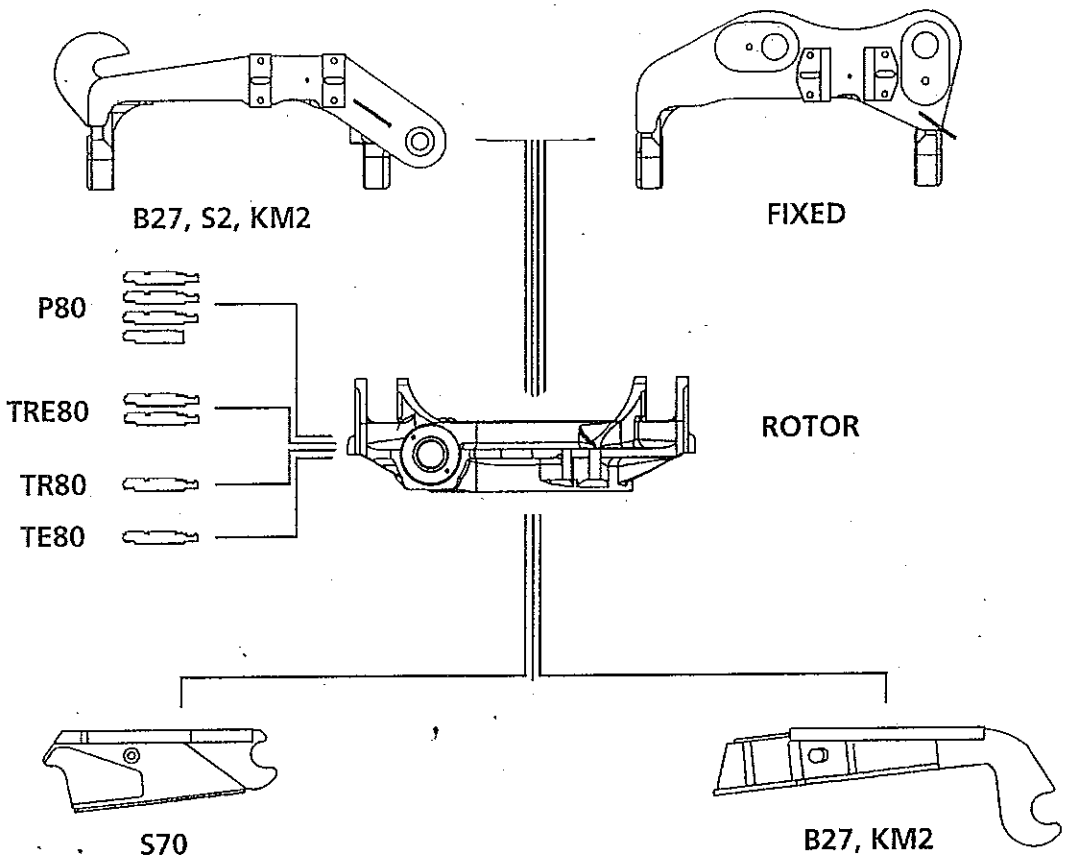
ROTOTILT RT 80



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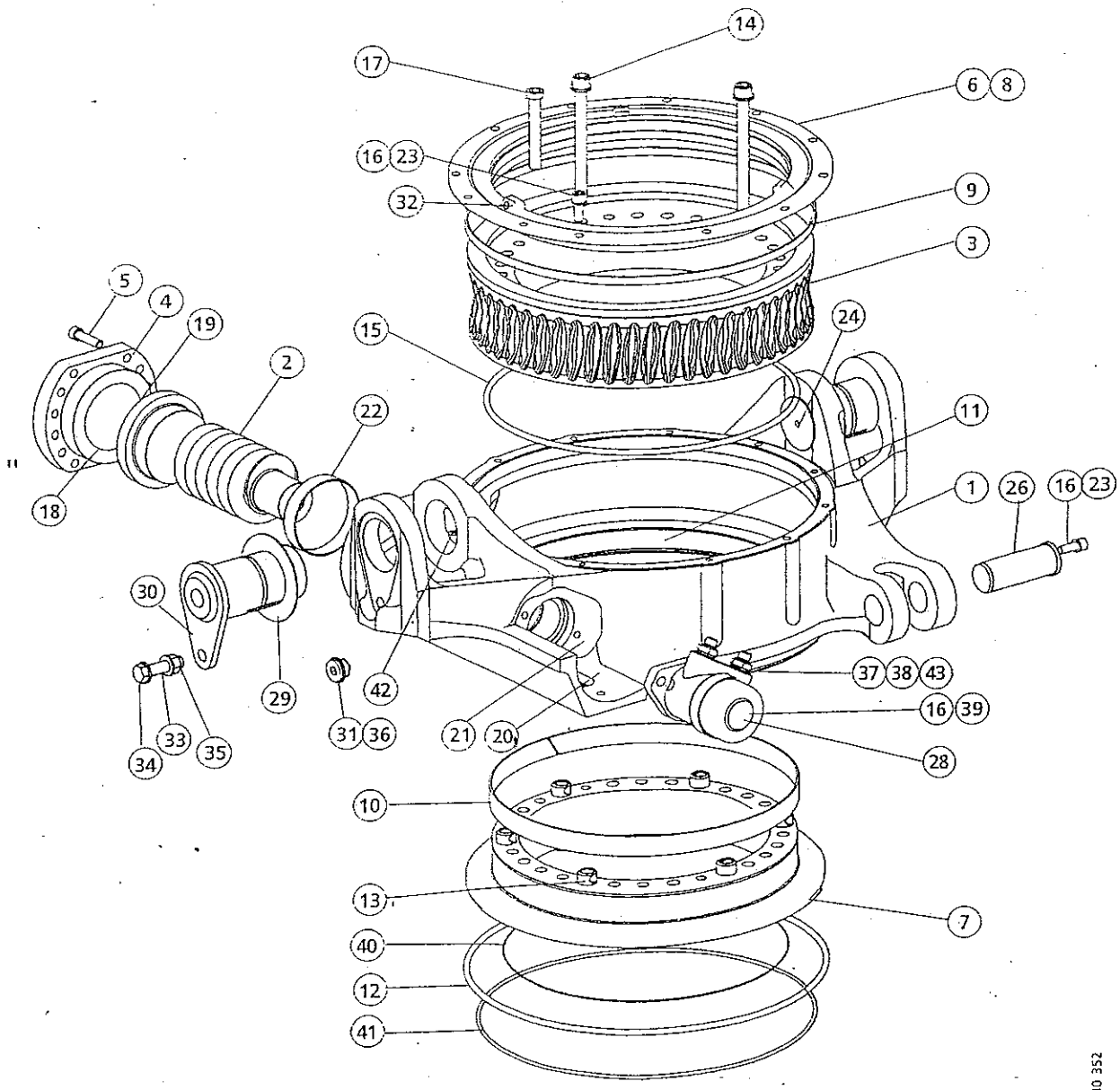
ROTOR RT 80



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ROTOR RT 80

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4300000		Rototilt RT 80	Rototilt RT 80		
1	4300002	1	Hus	Housing		
2	4100505	1	Snäckskruv	Worm		
3	4300007	1	Snäckhjul	Worm gear		
4	4300027	1	Gavel	Cover		
5	1016203	12	Skruv	Screw		M12x50 12.9
6	4300009	1	Lock	Top cover		
7	4300011	1	Adapter platta	Adapter		
8	1008978	1	O-ring	O-ring		480 x 2
9	4300021	1	Styrring	Glide ring		12x3
10	4300020	1	Styrring	Glide ring		30x3
11	4300022	2	Stödlager	Support bearing		
12	1008986	1	O-ring	O-ring		507 x 8,4
13	1009364	6	Spännstift	Pin		
14	1027184	28	Skruv	Screw		M16x180 12.9
15	1008994	1	O-ring	O-ring		434,5 x 8,4
16	1015304	16	Bricka	Washer		
17	1024348	2	Skruv	Screw		M16x110 8.8
18	4100023	2	Glidskiva	Glide plate		
19	1024025	1	O-ring	O-ring		135 x 2,5
20	1024306	1	Radialtätning	Seal		
21	1024256	1	Glidlager	Glide bearing		60x65x40
22	4100022	1	Glidlager	Glide bearing		110x115x25
23	1008101	14	Skruv	Screw		M12x30 12.9
24	1001825	2	Smörjnippel	Grease nipple		
26	4300014	2	Tiltcylindertapp	Tilting cylinder pin		
27	1026079	3	Smörjmedel	Grease		
28	1009406	1	Hydraulmotor	Hydraulic engine		
29	4300025	2	Lagerbricka	Washer		
30	4300017	2	Tiltaxel	Pin		
31	1024298	1	Magnetplugg	Magnetic plug		3/4"
32	1018720	1	Stoppskruv	Screw		M12x25
33	1003136	32	Bricka	Washer		17x30x3
34	1009356	2	Skruv	Screw		M16x65
35	1002203	2	Låsmutter	Locking nut		M16
36	1005354	1	Gummistålbricka R3/4"	Bonded seal R3/4"		
37	5001021	2	Adapter R1/2"xR3/8"	Adapter R1/2"xR3/8"		
38	1010974	2	Plasthuv	Cup		
39	1015478	2	Skruv	Screw		M12x40 12.9
40	1024355	1	O-ring	O-ring		400x2
41	1009273	1	O-ring	O-ring		475x5
42	5001381	1	Rörpropp	Plug		
43	1001957	2	Gummistålbricka R1/2"	Bonded seal R1/2"		

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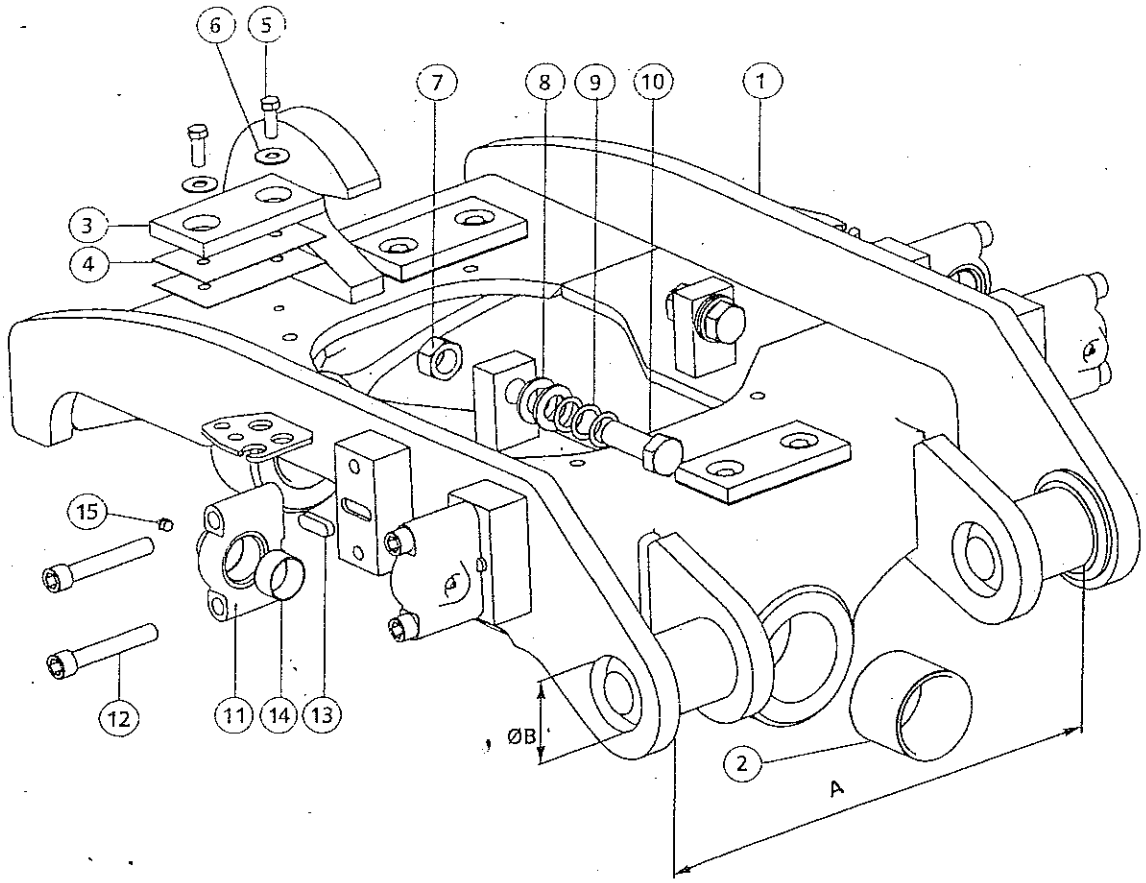
INFÄSTNING
ADAPTER B27, S2, KM2



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INFÄSTNING
ADAPTER B27, S2, KM2

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4300 130		**Infästning B27**	**Adapter B27**		**A=460, ØB=80 Wedge angle 10°**
1	4300 131	1	Infästning N27	Adapter N27		
2	4300 023	2	Bussning	Bushing		
3	4000 698	5	Shims	Shim		15 mm Stål/Steel
4	4000 399	10	Shims	Shim		1 mm Stål/Steel
5	1022 698	10	Skruv	Screw		M12x30 8.8
6	1022 755	10	Bricka	Washer		14x30x2
11	4100 503	4	Cylinderinfästning kompl	Cylinder bracket complete		
12	1022 128	8	Skruv	Screw		M16x100 12.9
13	1022 938	4	Kil	Wedge		
14	1003 706	4	Bussning	Bushing		Included in pos 11
15	1001 825	4	Smörjnippel	Grease nipple		KR 1/8" included in pos 1
	4300 100		**Infästning S2**	**Adapter S2**		**A=510, ØB=80 Wedge angle 10°**
1	4300 101	1	Infästning N27-S2	Adapter N27-S2		
2	4300 023	2	Bussning	Bushing		
3	4000 698	3	Shims	Shim		15 mm Stål/Steel
4	4000 399	6	Shims	Shim		1 mm Stål/Steel
5	1022 698	6	Skruv	Screw		M12x30 8.8
6	1022 755	6	Bricka	Washer		14x30x2
7	1022 730	2	Mutter	Nut		M24
8	1009 349	4	Bricka	Washer		26x45x4
9	1008 135	6	Distansbricka	Washer		25x35x1
10	1022 714	2	Skruv	Screw		M24x70
11	4100 503	4	Cylinderinfästning kompl	Cylinder bracket complete		
12	1022 128	8	Skruv	Screw		M16x100 12.9
13	1022 938	4	Kil	Wedge		
14	1003 706	4	Bussning	Bushing		Included in pos 11
15	1001 825	4	Smörjnippel	Grease nipple		KR 1/8" included in pos 1
	4300 140		**Infästning KM2**	**Adapter KM2**		**A=510, ØB=80 Wedge angle 19°**
1	4300 141	1	Infästning KM2	Adapter KM2		
2	4300 023	2	Bussning	Bushing		
3	4000 698	3	Shims	Shim		15 mm Stål/Steel
4	4000 399	6	Shims	Shim		1 mm Stål/Steel
5	1022 698	6	Skruv	Screw		M12x30 8.8
6	1022 755	6	Bricka	Washer		14x30x2
7	1022 730	2	Mutter	Nut		M24
8	1009 349	4	Bricka	Washer		26x45x4
9	1008 135	6	Distansbricka	Washer		25x35x1
10	1022 714	2	Skruv	Screw		M24x70
11	4100 503	4	Cylinderinfästning kompl	Cylinder bracket complete		
12	1022 128	8	Skruv	Screw		M16x100 12.9
13	1022 938	4	Kil	Wedge		
14	1003 706	4	Bussning	Bushing		Included in pos 11
15	1001 825	4	Smörjnippel	Grease nipple		KR 1/8" included in pos 1

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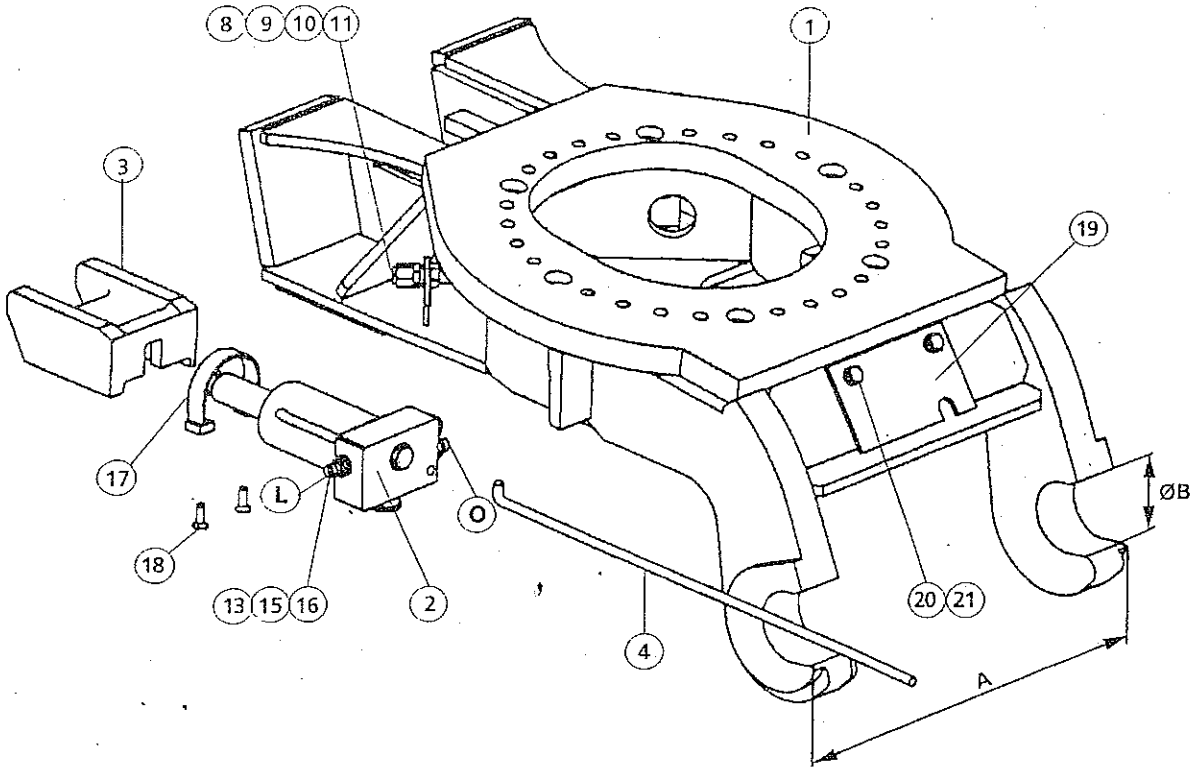
FÄSTE
QUICK COUPLER B27, KM2



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FÄSTE
QUICK COUPLER B27, KM2

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4300 150		**Redskapsfäste B27**	**Quick coupler B27**		
1	4300 151	1	Redskapsfäste	Quick coupler		A=455, ØB=80
2	4200 039	1	Låscylinder	Cylinder		
3	4100 236	1	Låskil	Locking wedge		
4	4100 326	1	Indikeringsstång	Indicator pin		
8	1021 831	2	Skottgenomgång R3/8"	Adapter R3/8"		
9	1004 464	2	Mutter skottgenomgång	Nut adapter		
10	1022 136	2	Plugg R3/8"	Plug R3/8"		
11	1026 723	2	Hydraulslang, R3/8"	Hydraulic hose, R3/8"		
13	1026 103	1	Hydraulslang, R1/4" V	Hydraulic hose, R1/4" L		
14	1026 178	1	Hydraulslang, R1/4" H	Hydraulic hose, R1/4" R		
15	1019 116	2	Gummistålbricka	Bonded seal		
16	5001 010	2	Adapter R1/4"	Adapter R1/4"		
17	4100 647	1	Cylinder hållare	Cylinder bracket		
18	1007 806	6	Skruv	Screw		M8x25
19	4300 173	1	Lucka	Aperture		
20	1026 582	2	Skruv	Screw		M12x25
21	1015 304	2	Bricka	Washer		
	4300 175		**Redskapsfäste KM2**	**Quick coupler KM2**		
1	4300 151	1	Redskapsfäste	Quick coupler		A=455, ØB=80
2	4200 039	1	Låscylinder	Cylinder		
3	4100 337	1	Låskil	Locking wedge		
4	4100 326	1	Indikeringsstång	Indicator rod		
8	1021 831	2	Skottgenomgång	Adapter		
9	1004 464	2	Mutter skottgenomgång	Nut adapter		
10	1022 136	2	Plugg R3/8"	Plug R3/8"		
11	1026 723	2	Hydraulslang, R3/8"	Hydraulic hose, R3/8"		
13	1026 103	1	Hydraulslang, R1/4" V	Hydraulic hose, R1/4" L		
14	1026 178	1	Hydraulslang, R1/4" H	Hydraulic hose, R1/4" R		
15	1019 116	2	Gummistålbricka	Bonded seal		
16	5001 010	2	Adapter R1/4"	Adapter R1/4"		
17	4100 647	1	Cylinder hållare	Cylinder bracket		
18	1007 806	6	Skruv	Screw		M8x25
19	4300 173	1	Lucka	Aperture		
20	1026 582	2	Skruv	Screw		M12x25
21	1015 304	2	Bricka	Washer		

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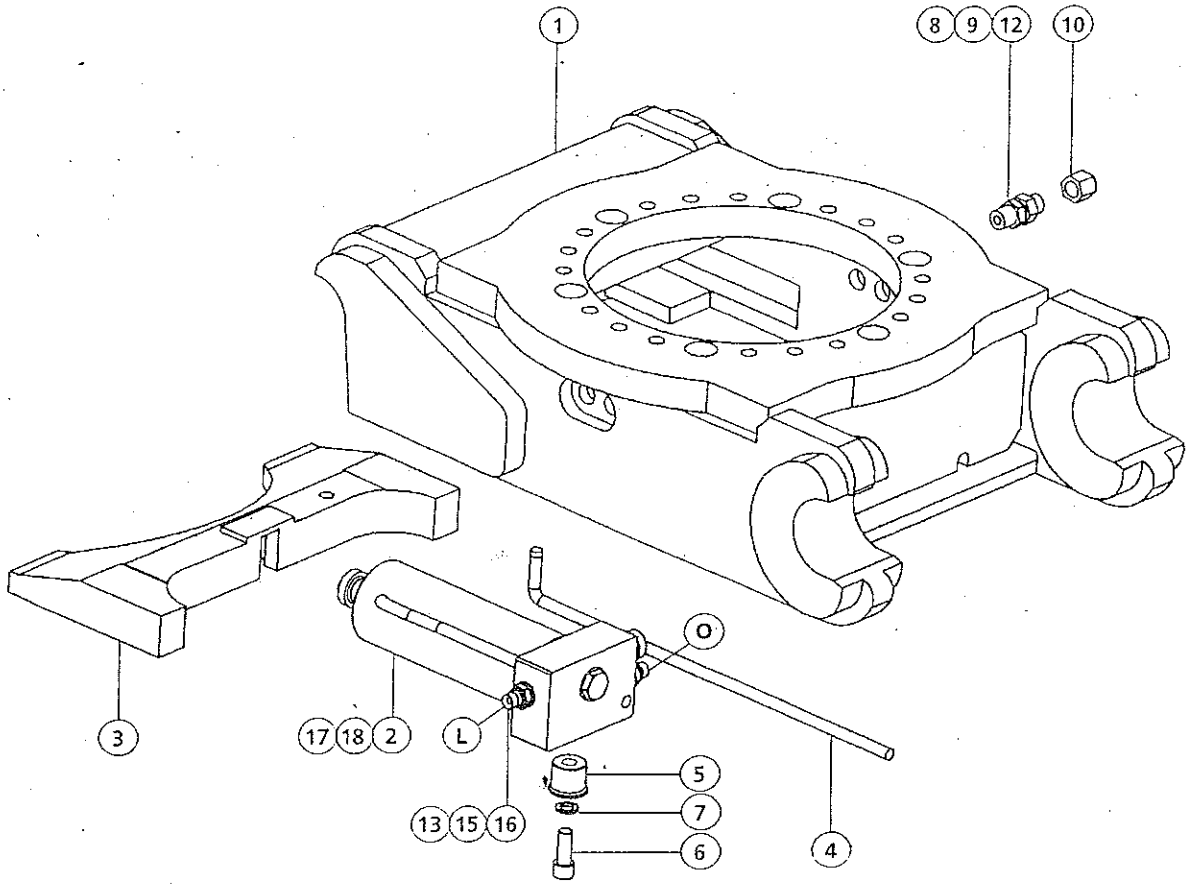
FÄSTE
QUICK COUPLER S70



Art nr 1030 238
2002 01 23

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FÄSTE
QUICK COUPLER S70

Pos Fig	Detalj nr Part no.	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4300220		Fäste S25	Quick coupler S25		
1	4300221	1	Redskapsfäste	Quick coupler		
2	4200039	1	Låscylinder	Locking cylinder		
3	4100463	1	Låskil	Locking wedge		
4	4100 462	1	Indikeringsstång	Indicator rod		
5	1003011	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		
6	1004464	2	Mutter skottgenomgång	Nut adapter		
7	1021831	2	Skottgenomgång R3/8"	Adapter R3/8"		
8	1022136	2	Huv	Cup		
9	1019116	2	Gummistålbricka	Bonded seal		
10	5001010	2	Adapter R1/4"	Adapter R1/4"		
11	1002542	1	Hydraulslang R1/4" V	Hydraulic hose R1/4" L		
12	1002559	1	Hydraulslang R1/4" H	Hydraulic hose R1/4"R		
13	1007806	2	Skruv	Screw		
14	4100647	1	Cylinderhållare	Cylinder bracket		

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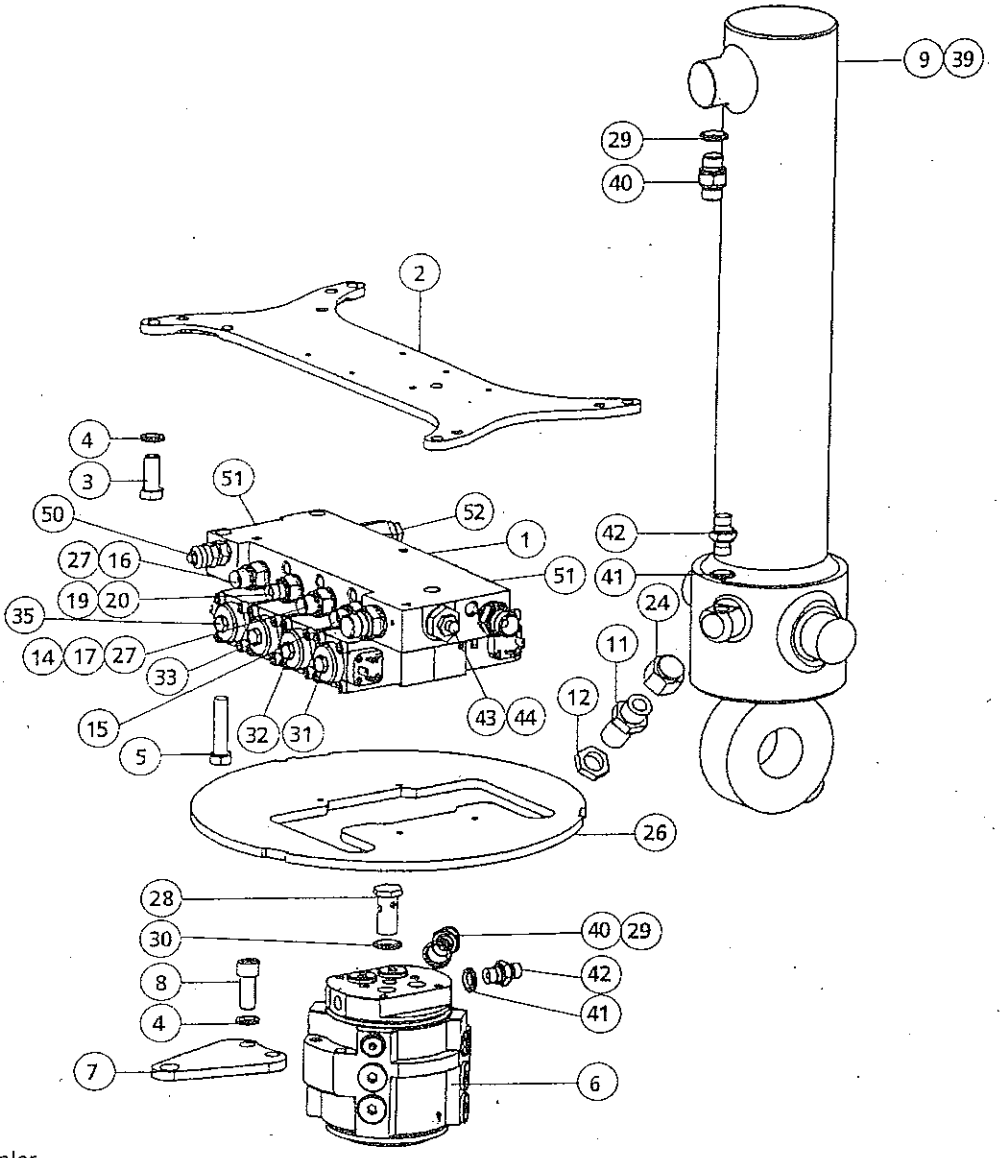
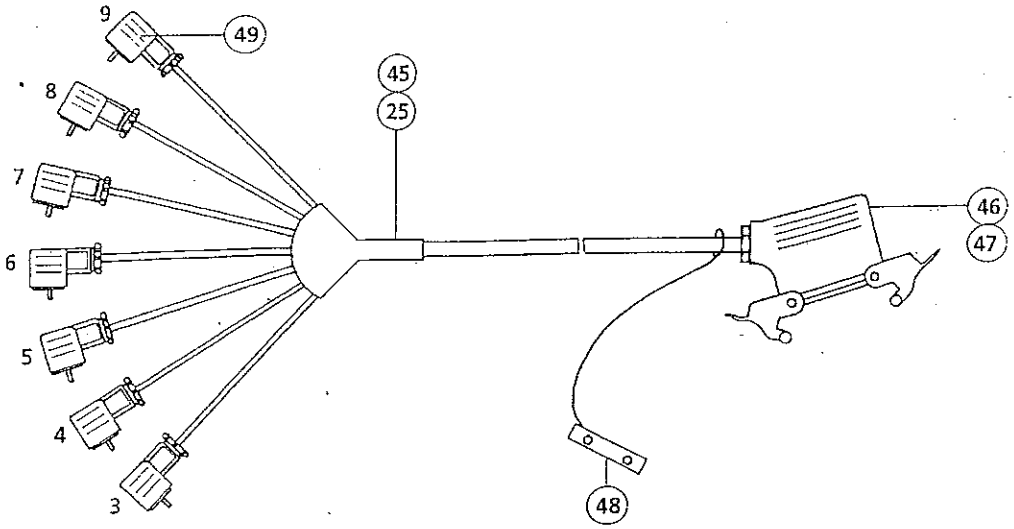
STYRSYSTEM
HYDRAULIC CIRCUIT P80



9. Coupler
8. Extra R
7. Extra L
6. Tilt R
5. Tilt L
4. Rot R
3. Rot L



2001 12 13 Art nr 1030 295

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STYRSYSTEM
HYDRAULIC CIRCUIT P80

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4300381		**Styrsystem P80 (dämpat)**	**Hydraulic circuit P80**		**pos. 2-44**
1	4300562	1	Ventilblock dämpat	Valve plate		
	4300380		**Styrsystem P80**	**Hydraulic circuit P80**		
1	4300261	1	Ventilblock	Valve plate		
2	4100264	1	Hållare ventilblock	Valve plate bracket		
3	1022698	4	Skruv	Screw		M12 x 30 8.8
4	1015304	8	Låsbricka	Locking seal		
5	1026590	3	Skruv	Screw		M12 x 50 8.8
6	4100032	1	Svivel RT 60	Swivel RT 60		
7	4300030	2	Svivelhållare	Swivel bracket		
8	1008101	4	Skruv	Screw		M12 x 30 12.9
9	4300005	2	Tiltcylinder	Tilting cylinder		
11	1026426	2	Skottgenomgång R1/2"	Adapter R1/2"		
12	1026574	2	Mutterskottg. R1/2"	Nut adapter R1/2"		
13	1026319	4	Slanghållare	Hose frame		
14	1009075	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		Rotation
15	1009059	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		Extra
16	1002534	2	Hydraulslang R1/4"	Hydraulic hose R1/4"		Tilt
17	1008713	4	Vinkel R3/8"	Adapter R3/8"		
19	1009083	2	Hydraulslang R1/4"	Hydraulic hose R1/4"		Lås/Coupler
20	1002807	2	Vinkel R1/4""	Adapter R1/4""		
23	1014877	6	Skruv	Screw		M6 x 16 8.8
24	5001360	2	Stålhuv R1/2"	Cup R1/2"		
25	4100262	1	Elsystem RT-del P60	Electric circuit RT-part P60		
26	4100029	1	Medbringare	Carrier plate		
27	1001692	28	Slangskydd	Hose cover		
28	4300070	1	Övre svivelblock	Swivel plate, upper		
29	1005347	8	Gummistålbricka R3/8"	Bonded seal R3/8"		
30	1001643	4	O-ring	O-ring		
31	1023894	1	NG-6 ventil 24V	NG-6 valve 24V		Extra
31	1007012	1	NG-6 ventil 12V	NG-6 valve 12V		Extra
32	1025196	1	NG-6 ventil 24V	NG-6 valve 24V		Rotation
32	1007020	1	NG-6 ventil 12V	NG-6 valve 12V		Rotation
33	1025204	1	NG-6 ventil 24V	NG-6 valve 24V		Lås/Couplet
33	1007038	1	NG-6 ventil 12V	NG-6 valve 12V		Lås/Couplet
34	1009067	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		Tilt
35	1001049	1	NG-6 ventil 24V	NG-6 valve 24V		Tilt
35	1007004	1	NG-6 ventil 12V	NG-6 valve 12V		Tilt
36	1003540	2	Adapter	Adapter		R3/8"x3/8"
37	1003557	2	Adapter R1/4"x3/8"	Adapter		R1/4"x3/8"
38	1002963	2	T-rör	T-tube		R3/8"
39	4000540	2	Säkerhetsdekal	Saftey decal		
40	5001011	6	Adapter	Adapter		R3/8"
41	1019116	6	Gummistålbricka	Bonded seal		R1/4"
42	5001010	6	Adapter	Adapter		R1/4"
43	1023944	1	Tryckreduceringsventil	Pressure reducing valve		Included in pos 1
44	1026137	1	Packningssats tryckred ventil	Seal kitpressure red. valve		
45	4100266	1	Kablage RT	Cable RT		
46	1002609	1	Kontakt, hane	Connector, male		
47	1026640	1	Förskruvning	Cable socket		
48	1022250	1	Lock	Cover		
49	4100387	1	Reparationssats, kablage RT	Repair kit, cable RT		
50	1008309	1	Mätuttag	Gauge adapter		R1/4"
51	1025212	2	Backventil	Valve		
52	1003623	1	Tryckreduserings ventil	Pressure reducing valve		

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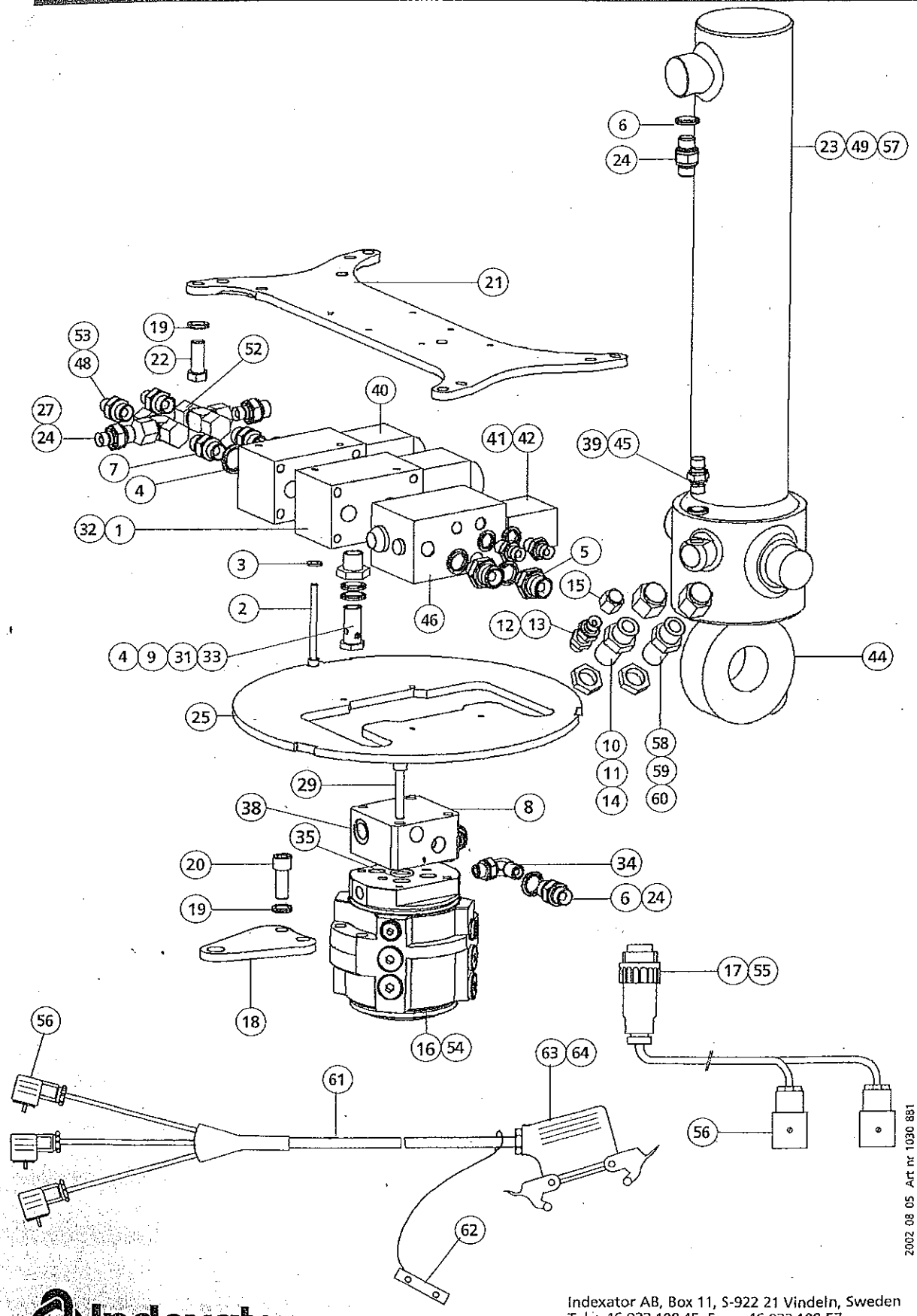
STYRSYSTEM TRE80HD, TE80HD, TEL80HD
HYDRAULIC CIRCUIT



2002 08 05 Art nr 1030 881

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STYRSYSTEM TRE80HD, TE80HD, TEL80HD
HYDRAULIC CIRCUIT

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4300274		Styrsystem TRE80 HD	Hydraulic circuit TRE80 HD		
1	1021377	2	Ventil	Valve		
2	1002443	4	Skruv	Screw		M6x75 12.9
3	1001759	4	Bricka	Washer		
4	1001957	4	Gummistålbricka	Bonded seal		
5	5005020	2	Strypnippel	Restrictor		
6	1005347	16	Gummistålbricka	Bonded seal		
7	5001012	2	Adapter	Adapter		
8	4300070	1	Block	Block		
9	1019280	4	Banjoskruv	Banjo fitting		
10	1026426	2	Skottgenomgång R1/2"	Adapter R1/2"		
11	1026574	2	Mutter skottgenomgång R1/2"	Nut adapter R1/2"		
12	1002179	2	Skottgenomgång R1/4"	Adapter R1/4"		
13	1004357	2	Mutter skottgenomgång R1/4"	Adapter R1/4"		
14	5001360	2	Stålhuv R1/2"	Cup R1/2"		
15	1026814	2	Plugg R1/4"	Plug R1/4"		
16	4100032	1	Svivel komplett	Swivel complete		
17	4000536	1	Kabelenhet RT	Cable RT		
18	4300030	2	Svivelhållare	Swivel bracket		
19	1015304	8	Låsbricka	Locking seal		
20	1009158	4	Skruv	Screw		M12x30 12.9
21	4100264	1	Hållare ventilblock	Valve plate bracket		
22	1026582	4	Skruv	Screw		M12x25 8.8
23	4300005	2	Tiltcylinder	Tilting cylinder		
24	5001011	6	Adapter	Adapter		
25	4300029	1	Medbringare	Carrier plate		
27	1023290	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		Tilt
28	1009836	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		Motor
29	1008101	4	Skruv	Screw		M8x55 12.9
30	4100395	4	Slangskydd	Hose cover		
31	5001553	4	Rörbussning	Tube bushing		
32	1003243	1	Montagesats	Mounting kit		
33	1009810	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		Extra
34	1024199	2	Vinkel 90° R1/4"	Adapter 90° R1/4"		
35	1001643	4	O-ring	O-ring		
38	5001383	2	Plugg	Plug		
39	1019116	2	Gummistålbricka	Bonded seal		
40	1002526	1	Magnet 24V	Solenoid 24V		
41	1003250	1	Tryckbegränsningsventil	Pressure reducing valve		
42	1008572	1	Packningssats, tryckbegr ventil	Seal kit, pressure reducing valve		
43	1007467	4	Slanghållare	Hose bracket		
44	1022995	2	Ledlager	Bearing		
45	5001010	2	Adapter 1/4"	Adapter 1/4"		
46	1003235	1	Tryckbegränsningsblock	Pressure reducing block		
48	1002534	2	Hydraulslang 1/4"	Hydraulic hose		Tilt
49	4000540	2	Säkerhetsdekal	Saftey stick		
50	4100396	3	Slangskydd	Hose cover		
52	1008739	2	T-rör liksidigt 3/8"	Tee female x male x male R3/8"		
53	5001020	2	Adapter R3/8"-1/4"	Adapter R3/8"-1/4"		
54	4100039	1	Packningsats, svivel	Seal kit, swivel		
55	1023746	1	Stiftpropp	Pin		
56	4100387	1	Reparationsats, kablage	Repair kit , cable		
57	4300006	1	Packningssats, cylinder 80/50	Seal kit, tilting cylinder 80/50		

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STYRSYSTEM TRE80HD, TE80HD, TEL80HD
HYDRAULIC CIRCUIT

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4300275		Styrsystem TE80 HD	Hydraulic circuit TE80 HD		
1	1021377	2	Ventil	Valve		
2	1002443	4	Skruv	Screw		M6x75 12.9
3	1001759	4	Bricka	Washer		
4	1001957	4	Gummistålbricka	Bonded seal		
5	5005020	2	Strypnippel	Restrictor		
6	1005347	16	Gummistålbricka	Bonded seal		
7	5001021	2	Adapter	Adapter		
8	4300070	1	Block	Block		
9	1019280	4	Banjoskruv	Banjo fitting		
10	1026426	2	Skottgenomgång R1/2"	Adapter R1/2"		
11	1026574	2	Mutter skottgenomgång R1/2"	Nut adapter R1/2"		
12	1002179	2	Skottgenomgång R1/4"	Adapter R1/4"		
13	1004357	2	Mutter skottgenomgång R1/4"	Adapter R1/4"		
14	5001360	2	Stålhuv R1/2"	Cup R1/2"		
15	1026814	2	Plugg R1/4"	Plug R1/4"		
16	4100032	1	Svivel komplett	Swivel complete		
17	4000536	1	Kabelenhet RT	Cable RT		
18	4300030	2	Svivelhållare	Swivel bracket		
19	1015304	8	Låsbricka	Locking seal		
20	1008101	4	Skruv	Screw		M12x30 12.9
21	4100264	1	Hållare ventilblock	Valve plate bracket		
22	1026582	4	Skruv	Screw		M12x25 8.8
23	4300005	2	Tiltcylinder	Tilting cylinder		
24	5001011	6	Adapter	Adapter		
25	4300029	1	Medbringare	Carrier plate		
27	1023290	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		Tilt
29	1009158	4	Skruv	Screw		M8x55 12.9
30	4100395	4	Slangskydd	Hose cover		
31	5001553	4	Rörbussning	Tube bushing		
32	1021666	1	Montagesats	Mounting kit		
33	1009810	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		Extra
34	1024199	2	Vinkel 90° R1/4"	Adapter 90° R1/4"		
35	1001643	4	O-ring	O-ring		
38	5001383	2	Plugg	Plug		
39	1019116	2	Gummistålbricka	Bonded seal		
40	1002526	1	Magnet 24V	Solenoid 24V		
41	1003250	1	Tryckbegränsningsventil	Pressure reducing valve		
42	1008572	1	Packningssats, tryckbegr ventil	Seal kit, pressure reducing valve		
43	1007467	4	Slanghållare	Hose bracket		
44	1022995	2	Ledlager	Bearing		
45	5001010	2	Adapter 1/4"	Adapter 1/4"		
46	1003235	1	Tryckbegränsningsblock	Pressure reducing block		
48	1002534	2	Hydraulslang 1/4"	Hydraulic hose		Tilt
49	4000540	2	Säkerhetsdekal	Saftey stick		
50	4100396	3	Slangskydd	Hose cover		
52	1008739	2	T-rör liksidigt 3/8"	Tee female x male x male R3/8"		
53	5001020	2	Adapter R3/8"-1/4"	Adapter R3/8"-1/4"		
54	4100039	1	Packningsats, svivel	Seal kit, swivel		
55	1023746	1	Stiftpropp	Pin		
56	4100387	1	Reparationsats, kablage	Repair kit , cable		
57	4300006	1	Packningssats, cylinder 80/50	Seal kit, tilting cylinder 80/50		
58	1021831	2	Skottgenomgång R3/8"	Adapter R3/8"		
59	1004464	2	Mutter skottgenomgång R/3"	Nut adapter R3/8"		
60	1022136	2	Stålhuv	Cup		

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STYRSYSTEM TRE80HD, TE80HD, TEL80HD
HYDRAULIC CIRCUIT

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4300276		Styrsystem TEL80 HD	Hydraulic circuit TEL80 HD		
1	1021377	2	Ventil	Valve		
2	1002443	4	Skruv	Screw		M6x75 12.9
3	1001759	4	Bricka	Washer		
4	1001957	4	Gummistålbricka	Bonded seal		
5	1010511	2	Strypnippel	Restrictor		
6	1005347	16	Gummistålbricka	Bonded seal		
7	5001021	2	Adapter	Adapter		
8	4300070	1	Block	Block		
9	1019280	4	Banjoskruv	Banjo fitting		
10	1026426	2	Skottgenomgång R1/2"	Adapter R1/2"		
11	1026574	2	Mutter skottgenomgång R1/2"	Nut adapter R1/2"		
12	1021831	2	Skottgenomgång R3/8"	Adapter R3/8"		
13	1004464	4	Mutter skottgenomgång R3/8"	Adapter R3/8"		
14	5001360	2	Stålhuv R1/2"	Cup R1/2"		
15	1026814	2	Stålhuv R3/8"	Cup R3/8"		
16	4100032	1	Svivel komplett	Swivel complete		
17	4100940	1	Elsystem RT TREL	Electric circuit RT TREL		
18	4300030	2	Svivelhållare	Swivel bracket		
19	1015304	8	Låsbricka	Locking seal		
20	1008101	4	Skruv	Screw		M12x30 12.9
21	4100264	1	Hållare ventilblock	Valve plate bracket		
22	1026582	4	Skruv	Screw		M12x25 8.8
23	4300005	2	Tiltcylinder	Tilting cylinder		
24	5001011	6	Adapter	Adapter		
25	4300029	1	Medbringare	Carrier plate		
27	1023290	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		Tilt
29	1009158	4	Skruv	Screw		M8x55 12.9
30	4100395	4	Slangskydd	Hose cover		
31	5001553	4	Rörbussning	Tube bushing		
32	1021666	1	Montagesats	Mounting kit		
33	1009810	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		Extra
34	1024199	2	Vinkel 90° R1/4"	Adapter 90° R1/4"		
35	1001643	4	O-ring	O-ring		
38	5001383	2	Plugg	Plug		
39	1019116	2	Gummistålbricka	Bonded seal		
40	1002526	1	Magnet 24V	Solenoid 24V		
43	1007467	4	Slanghållare	Hose bracket		
44	1022995	2	Ledlager	Bearing		
45	5001010	2	Adapter 1/4"	Adapter 1/4"		
46	1010727	1	Ingångsblock	Block		
48	1002534	2	Hydraulslang 1/4"	Hydraulic hose		Tilt
49	4000540	2	Säkerhetsdekal	Saftey stick		
50	4100396	3	Slangskydd	Hose cover		
52	1008739	2	T-rör liksidigt 3/8"	Tee female x male x male R3/8"		
53	5001020	2	Adapter R3/8"-1/4"	Adapter R3/8"-1/4"		
54	4100039	1	Packningsats, svivel	Seal kit, swivel		
55	1023746	1	Stiftpropp	Pin		
56	4100387	1	Reparationsats, kablage	Repair kit , cable		
57	4300006	1	Packningssats, cylinder 80/50	Seal kit, tilting cylinder 80/50		
61	4100940	1	Elsystem RT - TREL	Electric circuit RT-TREL		
62	1022250	1	Lock kontakt	Cover		
63	1002609	1	Kontakthon hane	Connector, male		
64	1026640	1	Förskruvning	Cable socket		

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Slangsats anslutning Rototilt / Hose kit connection Rototilt

Innehåller slangar mellan anslutningspunkt på infästning och ventilblock
samt slangar till svivel för låsfunktion.
Containes hoses for attachment between adapter and valve plate togheter with swivel hoses for lock function.

	TEL80HD 4300276 *Slangsats hose kit*				
Infästning/Adapter *Art nr/Art No*	*Vänster* *Left*	*Höger* *Right*	*Vänster, Lås H* *Left, Lock R*	*Höger, Lås H/V alt V* *Right, Lock L/R alt L*	*V/H, Lås V* *L/R, Lock Left*
B27 4300150	4300362				

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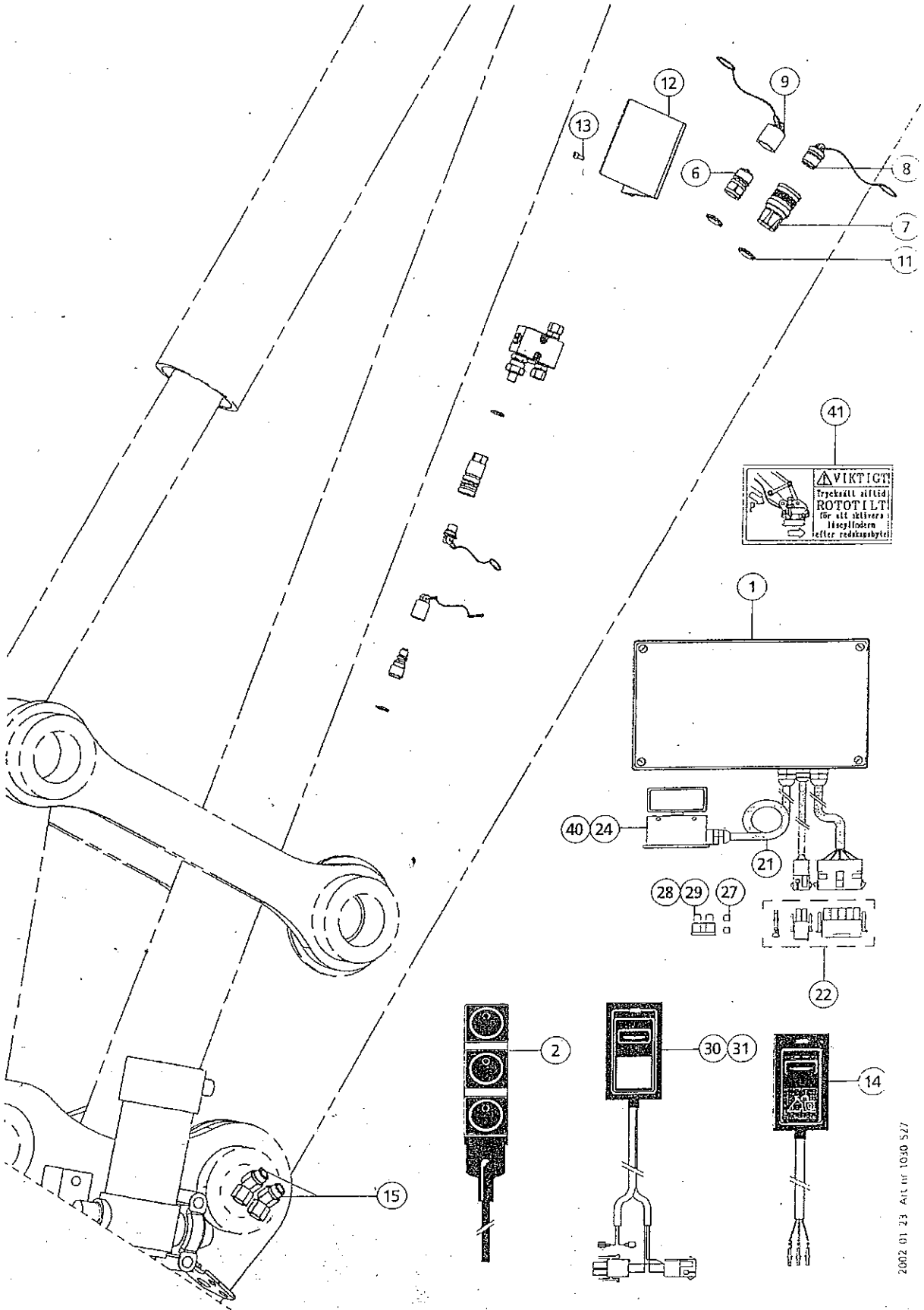
MONTAGESATS MANÖVRERING - P80
MOUNTING KIT OPERATION - P80



2002 01 23 Art nr 1030 527

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MONTAGESATSMANÖVRERING - P80
MOUNTING KIT OPERATION - P80

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4300 280		Montagesats P80	Mounting kit P80		
1	4100 263	1	Elsystem maskindel P60	Electric circuit machine P60		
2	1001 726	2	Manöverreglage	Operating control		
3	1009 794	2	Hydraulslang 1/2"	Hydraulic hose 1/2"		
6	1023 852	1	Snabbkoppling	Quick connection		
7	1023 845	1	Snabbkoppling	Quick connection		
8	1023 837	1	Dammskydd	Cover		
9	1023 829	1	Dammskydd	Cover		
10	1023 704	1	Slangskydd	Hose cover		
11	1001 957	2	Gummistålbricka	Bonded seal		
12	4100 234	1	Fäste hartingkontakt	Bracket connector		
13	1026 731	4	Skruv	Screw		M5x12 12.9
14	1003 698	1	Tryckströmställare	Pressure switch		
15	1002 344	2	Vinkeladapter	Angle adapter		
21	1002 567	1	Kablage elsystem	Cable electric circuit		15 m
22	1002 575	1	Kontaktdon sats	Connector kit		15-pol + 2-pol
23	4100 269	1	Elsystem maskindel P60	Electric circuit machine P60		12V
24	1002 591	1	Kontaktdon hona	Connector female		ILME
25	1023 253	9	Relä 12V	Relay 12V		
26	1022 375	9	Relä 24V	Relay 24V		
27	1001 460	1	Glasrörssäkring 1A	Glass tube fuse 1A		
28	1001 510	1	Flatstiftssäkring 10A	Flat pin fuse 10A		24V
29	1002 773	1	Flatstiftssäkring 20A	Flat pin fuse 20A		12V
30	1002 666	1	Strömställarekablage	Switch cable unit		
31	1002 682	1	Strömställare förreglad	Switch (blocked)		
40	1022 219	1	Lock	Cover		
41	4100 510	1	Varningsdekal	Warning decal		

	4100 287		Montagesats, el	Mounting kit, elektric		
1	4100 263	1	Elsystem maskindel P60	Electric circuit machine P60		
2	1001 726	2	Manöverreglage	Operating control		
12	4100 234	1	Fäste hartingkontakt	Bracket connector		
13	1026 731	4	Skruv	Screw		
14	1003 698	1	Tryckströmställare	Pressure switch		
17	1002 666	1	Strömställarekablage	Switch cable unit		
40	1022 219	1	Lock	Cover		
41	4100 510	1	Varningsdekal	Warning decal		

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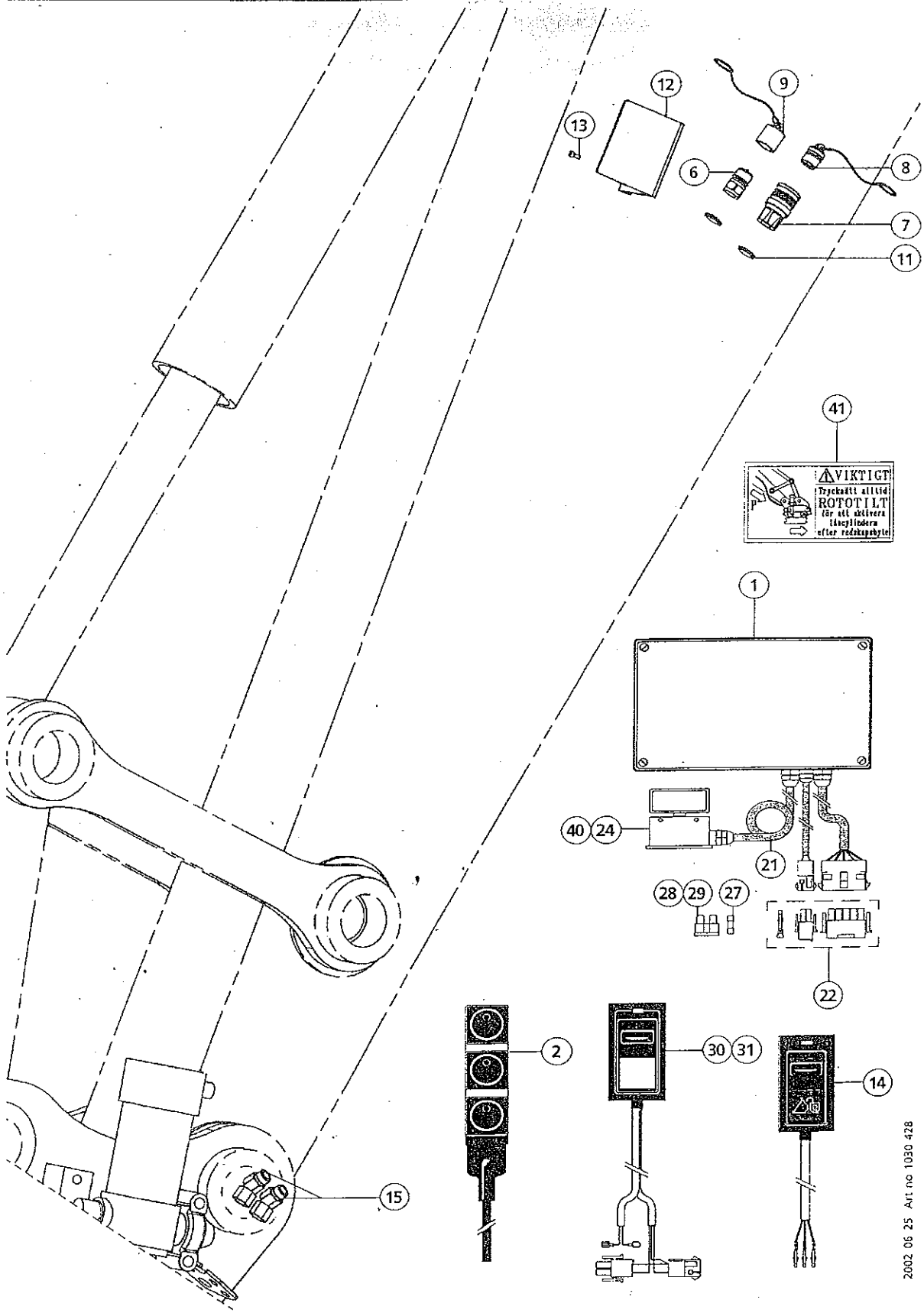
MONTAGESATS MANÖVRERING - TEL
MOUNTING KIT OPERATION - TEL



2002 06 25 Art no 1030 428

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MONTAGESATSMANÖVRERING - TEL
MOUNTING KIT OPERATION - TEL

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4100942		**Montagesats TEL**	**Mounting kit TEL**		
1	4100263	1	Elsystem maskindel P60	Electric circuit machine P60		
2	1001726	2	Manöverreglage	Operating control		
3	1026863	2	Hydraulslang 1/2"	Hydraulic hose 1/2"		P/T
6	1023852	2	Snabbkoppling	Quick connection		
7	1023845	2	Snabbkoppling	Quick connection		
8	1023837	2	Dammskydd	Cover		
9	1023829	2	Dammskydd	Cover		
10	1023704	1	Slangskydd	Hose cover		
11	1001957	4	Gummistålbricka	Bonded seal		
12	4100234	1	Fäste hartingkontakt	Bracket connector		
13	1026731	4	Skruv	Screw		M5x12 12.9
14	1003698	1	Tryckströmställare	Pressure switch		
15	1002344	2	Vinkeladapter	Angle adapter		
16	1009174	2	Hydraulslang 3/8"	Hydraulic hose 3/8"		Rotation
21	1002567	1	Kablage elsystem	Cable electric circuit		15 m
22	1002575	1	Kontaktdon sats	Connector kit		15-pol + 2-pol
23	4100269	1	Elsystem maskindel P60	Electric circuit machine P60		12V
24	1002591	1	Kontaktdon hona	Connector female		ILME
25	1023253	7	Relä 12V	Relay 12V		
26	1022375	7	Relä 24V	Relay 24V		
27	1001460	1	Glasrörssäkring 1A	Glass tube fuse 1A		
28	1001510	1	Flatstiftssäkring 10A	Flat pin fuse 10A		24V
29	1002773	1	Flatstiftssäkring 20A	Flat pin fuse 20A		12V
30	1002666	1	Strömställarekablage	Switch cable unit		
31	1002682	1	Strömställare förreglad	Switch (blocked)		
40	1022219	1	Lock	Cover		
41	4100510	1	Varningsdekal	Warning decal		
	4100287		**Montagesats, el**	**Mounting kit, elektric**		
1	4100263	1	Elsystem maskindel P60	Electric circuit machine P60		
2	1001726	2	Manöverreglage	Operating control		
12	4100234	1	Fäste hartingkontakt	Bracket connector		
13	1026731	4	Skruv	Screw		
14	1003698	1	Tryckströmställare	Pressure switch		
17	1002666	1	Strömställarekablage	Switch cable unit		
41	4100510	1	Varningsdekal	Warning decal		
	1030253	1	Monteringanvisning	Mounting instruction		

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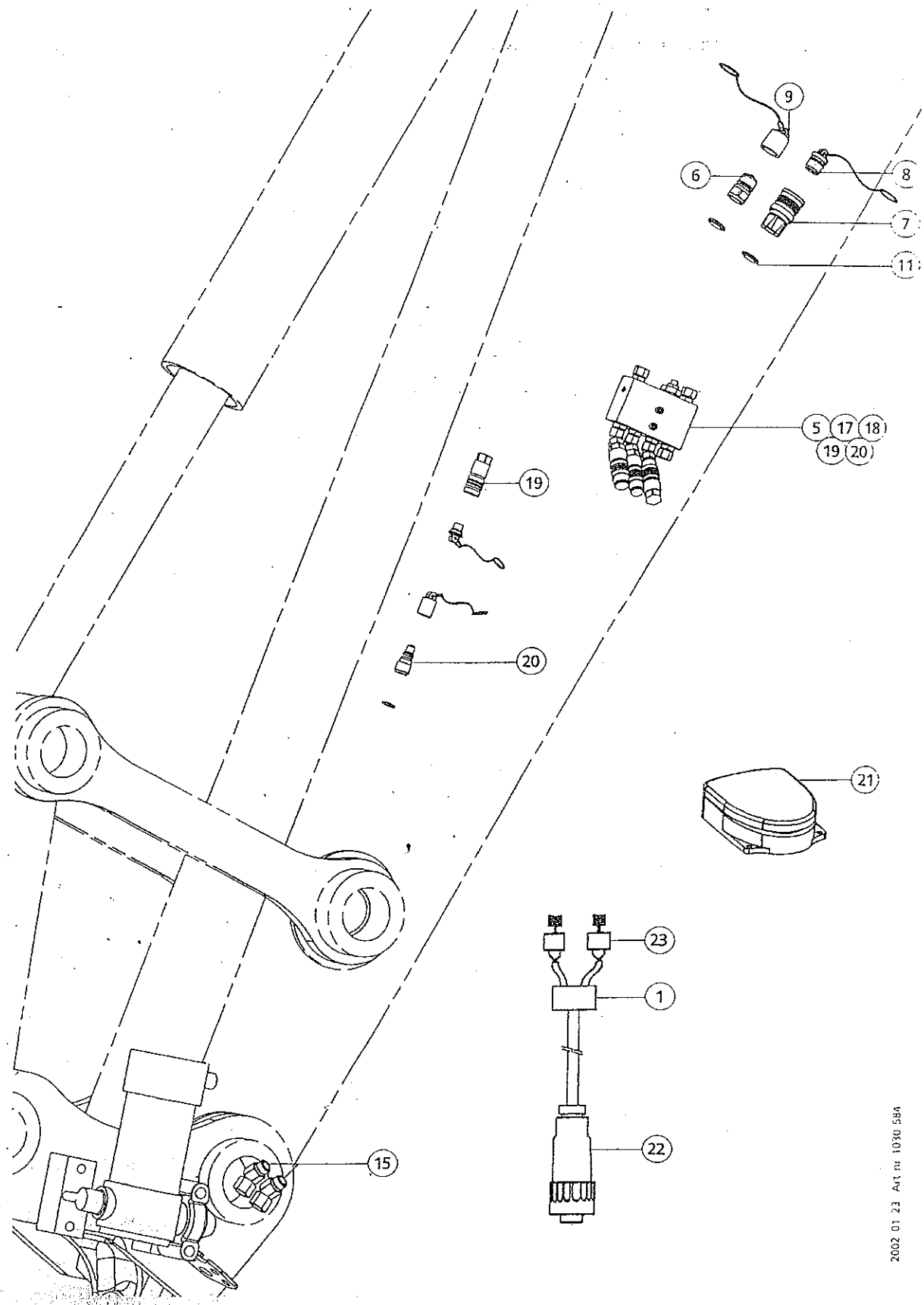
MONTAGESATS MANÖVRERING
MOUNTING KIT OPERATION TRE/TR80, TE80



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MONTAGESATS MANÖVRERING
MOUNTING KIT OPERATION TRE/TR80, TE80

Pos Fig	Detalj nr Part no	Ant Qty	Benämning	Description	Sats Kit	Anm Notes
	4300281		Montagesats TRE/TR80	Mounting kit TRE/TR80		
1	4000535	1	Kabelenhet, maskin	Cable unit, machine		
3	1009794	2	Hydraulslang R1/2"	Hydraulic hose R1/2"		
4	1023 316	2	Hydraulslang R1/4"	Hydraulic hose R1/4"		
5	4100 277	1	Förgreningsblock lås	Branching valve plate		
6	1023 852	1	Snabbkoppling R1/2" Hane	Quick connection R1/2" Male		TEMA 5021
7	1023 845	1	Snabbkoppling R1/2" Hona	Quick connection R1/2" Female		TEMA 5011
8	1023 837	1	Dammskydd Hane	Cover Male		
9	1023 829	1	Dammskydd Hona	Cover Female		
10	1023 704	1	Slangskydd	Hose cover		
11	1001 957	2	Gummistålbricka R1/2"	Bonded seal R1/2"		
15	1002 344	2	Vinkeladapter	Angel adapter		
17	1023 944	1	Tryckreduceringsventil	Pressure reducing valve		50 bar
18	1026 137	1	Packningssats tryckred. ventil	Seal kit, pressure red. valve		
19	1023 357	3	Snabbkoppling R1/4" Hona	Quick connection R1/4" Female		TEMA 2510
20	1023 373	3	Snabbkoppling R1/4" Hane	Quick connection R1/4" Male		TEMA 2520
	4300282		Montagesats TE80	Mounting kit TE80		
1	4000535	1	Kabelenhet maskin	Cable machine		
3	1009794	2	Hydraulslang R1/2"	Hydraulic hose R1/2"		
4	1023 316	2	Hydraulslang R1/4"	Hydraulic hose R1/4"		
5	4100 277	1	Förgreningsblock lås			
6	1023 852	2	Snabbkoppling R1/2" Hane	Quick connection R1/2" Male		TEMA 5021
7	1023 845	2	Snabbkoppling R1/2" Hone	Quick connection R1/2" Female		TEMA 5011
8	1023 837	2	Dammskydd Hane	Cover Male		
9	1023 829	2	Dammskydd Hona	Cover Female		
10	1023 704	1	Slangskydd	Hose cover		
11	1001 957	4	Gummistålbricka R1/2"	Bonded seal R1/2"		
15	1002 344	2	Vinkeladapter	Angel adapter		
16	1004 068	2	Hydraulslang R3/8"	Hydraulic hose R3/8"		
17	1023 944	1	Tryckreduceringsventil	Pressure reducing valve		
18	1026 137	1	Packningssats tryckred. ventil	Seal kit, pressure red. valve		
19	1023 357	3	Snabbkoppling R1/4" Hona	Quick connection R1/4" Female		TEMA 2510
20	1023 373	3	Snabbkoppling R1/4" Hane	Quick connection R1/4" Male		TEMA 2520
21	1004 159	1	Fotströmställare	Foot switch		
22	1023 738	1	Hylspropp	Socker		
23	4000 534	1	Tryckströmställare	Pressure switch		

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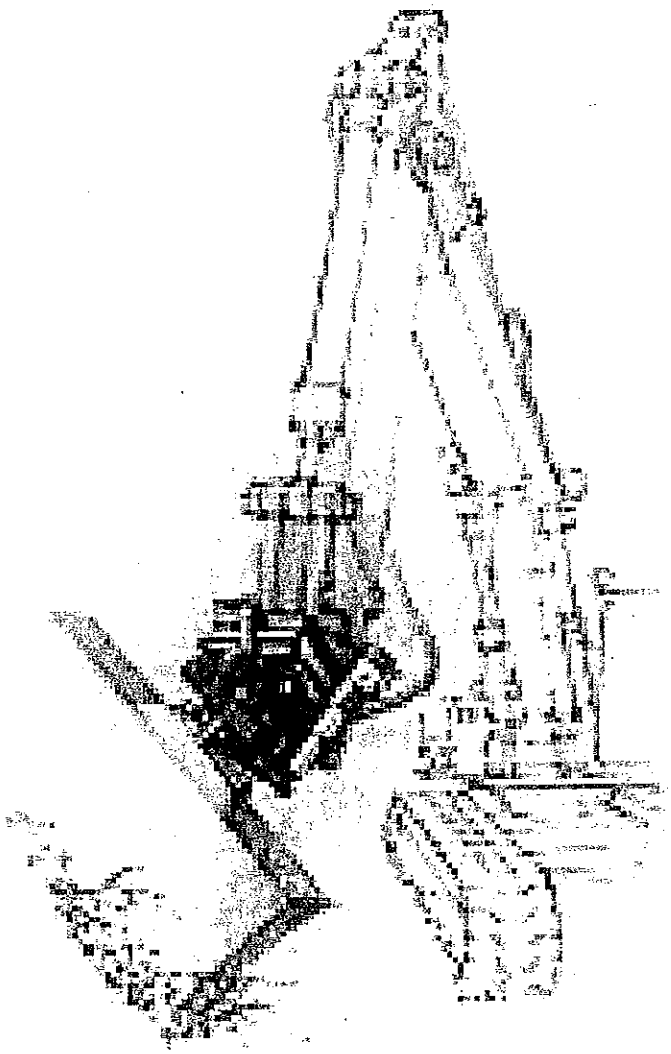
2

Mounting kit - Electrical



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1 Fitting kit

Fitting kit, parallel control

The fitting kit includes everything necessary for fitting and operating Rototilt on the base machine.

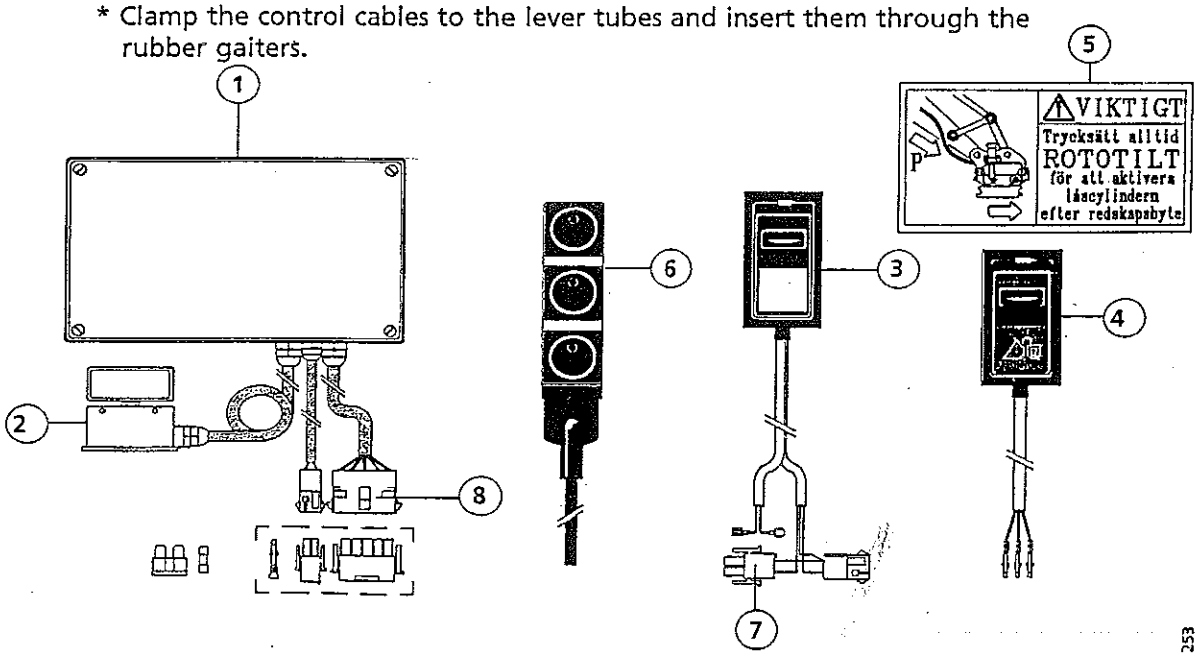
The fitting kit is an essential part of Rototilt with regard to safety. Malfunctioning could cause expensive standstill and in the worst case serious personal injuries. Take care to follow the safety instructions and observe the warnings that are noted in this user's manual.

Fit the control unit (1) easily accessible in the cab of the base machine, protected from dirt and moisture. Weld the connector fitting in a suitable position and screw the connector in place. Clamp the cable that has a 10-pole connector (2) along the boom and shaft and through the wall of the cab. Take consideration to movements of the machine and observe the danger of the cable being pinched. Fit the main power switch (3) and the operating switch for controlling the hydraulic lock (4) on the control panel of the base machine.

Position the lock switch (4) where it cannot be activated inadvertently, and fix the warning decal (5) to its connection.

Fit the button units (6) with controls for operating rotation, tilt and extra function on the control levers of the machine.

* Try out a suitable position
* Level off the surface of the lever and clean, eg, with alcohol.
* Peel the protective foil off the double-adhesive tape and firmly press the button unit in place.
* Clamp the control cables to the lever tubes and insert them through the rubber gaiters.



Connect the main power switch (3) to the control unit with one of the two 2-pole connectors (7) and the other to +24 V (or +12 V) and earth (-). In standard connections the other two leads are not used, see 5.5.2 Special functions.

Controls for the operating functions (4) (6) are to be connected to the 15-pole connector (8) as illustrated overleaf. Note the marking on the connector.

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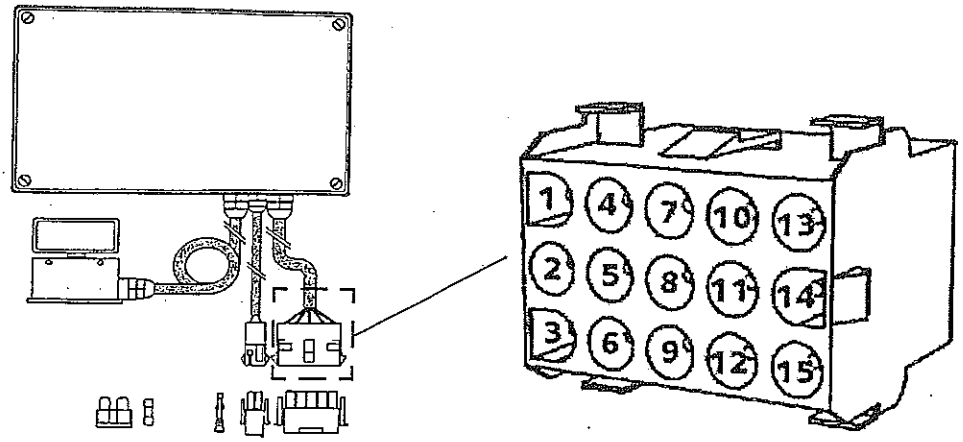
MOUNTING KIT - ELECTRICAL



Pin no.	Function	
1	**Coupler**	Operating the equipment mount. Leader marked "1" from push button (4).
4, 9, 12, 15		(No connection)
7	**Extra R**	Operation of extra function right. Green lead from lowest position on button unit (6).
10	**Extra L**	Operation of extra function left. Green lead from lowermost position on button unit (6).
13	**Tilt R**	Operation of tilt right. Yellow lead from middlemost position on button unit (6).
2	**Tilt L**	Operation of tilt left. Yellow lead from middlemost position on button unit (6).
5	**Rot R**	Operation of rotation right. Brown lead from uppermost position on button unit (6).
8	**Rot L**	Operation of rotation left. Brown lead from uppermost position on button unit (6).
11, 14	**(+)**	Supply to all functions. White leads from button units (6) and lead marked "9" from pressure switch (4).
3	**Vent -**	Earthing of extra signal, see section 5.5.2. Earthing of lighting for switch (4).
6	**Vent +**	Extra signal, see section 5.5.2.

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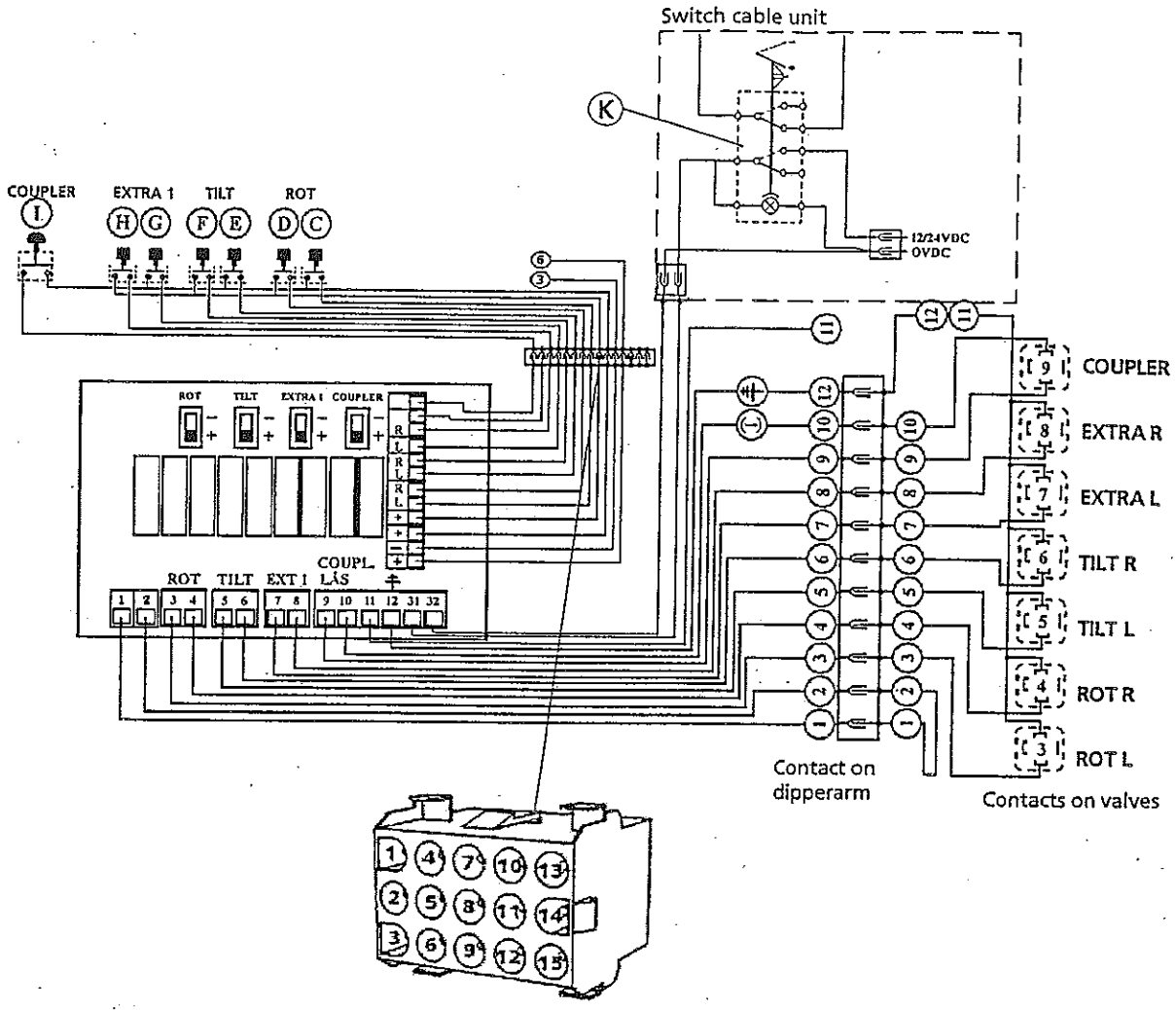
Electric circuit diagram and functional description



The control unit for Rototilt is powered via push-button switch (K). The push-button switch shows a green light when the control unit is powered.
Functions on Rototilt are activated with the aid of push-button switches as follows:

Press	(C)		Rotation left
Press	(D)		Rotation right
Press	(E)		Tilt left
Press	(F)		Tilt right
Press	(G)	or (H)	Extra hydraulic connection (eg, grapple function)
Press	(I)		Open equipment lock on mount

The equipment lock closes when hydraulic pressure is applied.

Several push buttons can be activated at the same time, eg, to achieve simultaneous operation of rotation and tilting.

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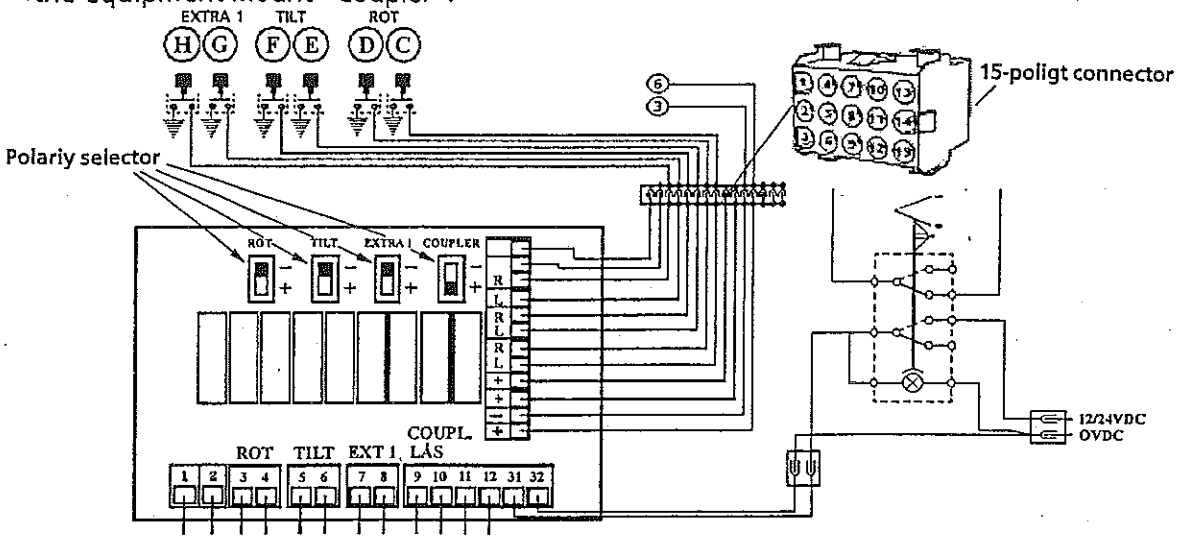
2 Special functions

(-) operated controls for operating the functions on Rototilt

If existing (-) controls in the CONTROL lever of the base machine are to be used for controlling the functions on Rototilt then the polarity selectors in the control unit must be reset, se illustration below. note that this does not apply to the polarity selector for the equipment mount "Coupler".

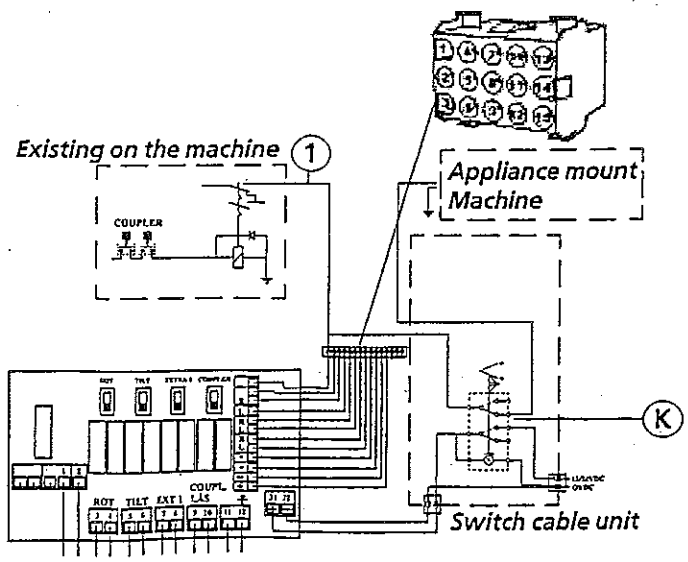


Controlling equipment lock Rototilt using the normal controls on the base machine

This special function can be used if one wishes to operate Rototilt with the existing controls on the base machine. Connecting is made in a practical manner by breaking the circuit, in the base machine, for operation of the equipment lock, and connect it to the control unit of Rototilt. On powering the control unit the circuit to the equipment mount of the machine will be broken and the signal will affect the Rototilt lock instead. To operate the mount on the machine the supply voltage to the control unit must be disconnected.

Connection:

The lead after any step relay in the machine is to be connected to pin (1) in the 15-pole connector and to one of the black leads from switch (K). Connect the other black lead to the valve that operates the equipment mount on the machine.



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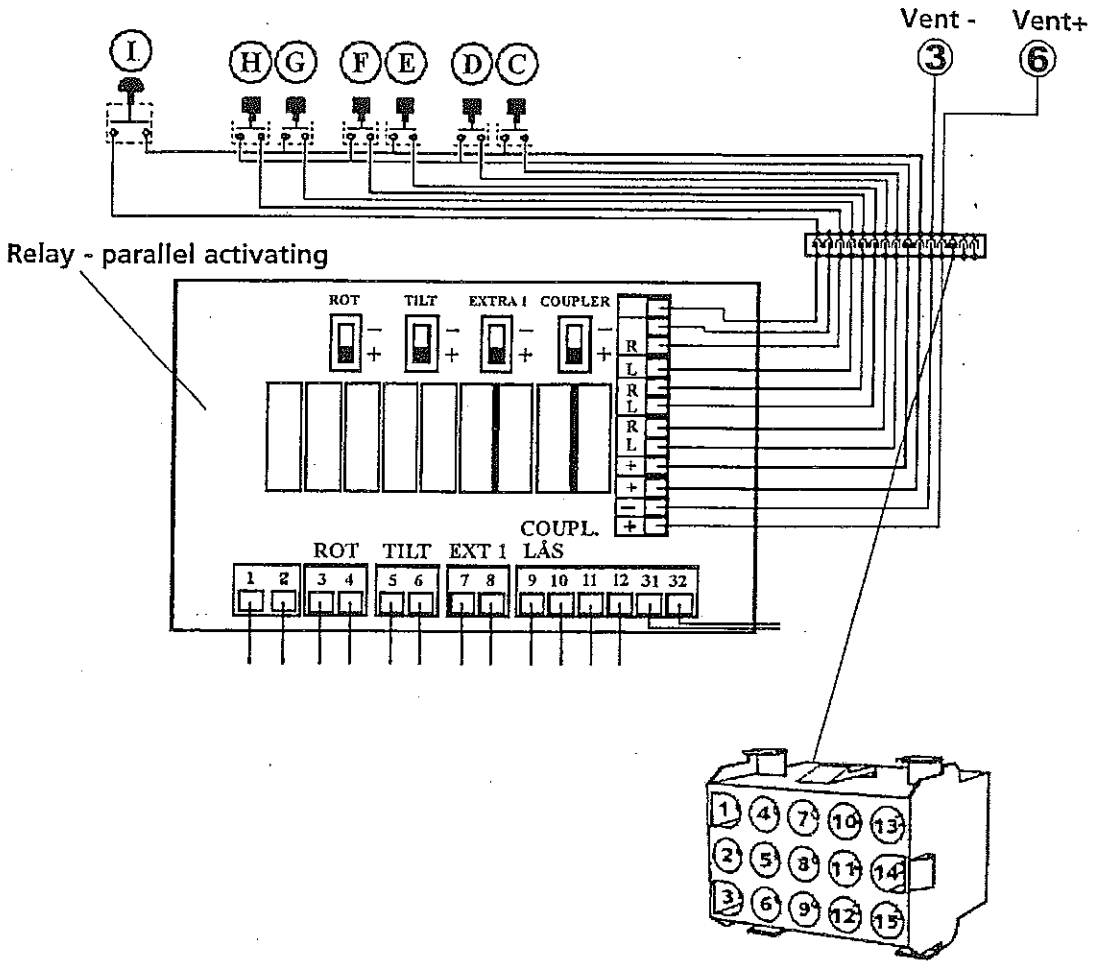
Parallel activating of valve in base machine when function on Rototilt is activated

In cases where the hydraulic circuit of the base machine to Rototilt is controlled by a solenoid valve it can be activated parallel with the functions of Rototilt by connecting it to "Vent-", pin (3) and "Vent+", pin (6), in the 15-pole connector, see 5.5.1. A relay activated signal, 12/24 V, 20/10A, is transmitted when any of the functions on Rototilt are activated.



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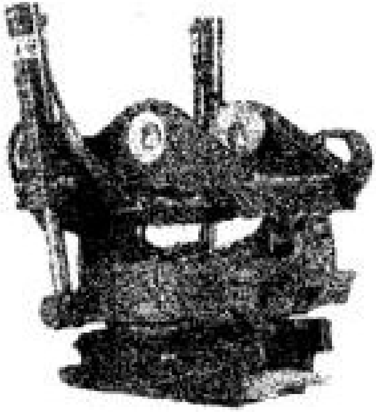
ORIGINAL

USER'S MANUAL
ROTOTILT

Study the manual thoroughly and make certain that you understand the contents before attempting to use the Rototilt. Most accidents at work occur because of carelessness or negligence. Many accidents can be counteracted by preventive maintenance. However, no safety precautions or guards, no matter how well they are designed are better than the caution and attention shown by the operator.



Mounting

Multi... H

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