STENHØJ

T73776

INSTALLATION INSTRUCTIONS

FOR

3-POST MULTIFLEX LIFT
(Flutec)

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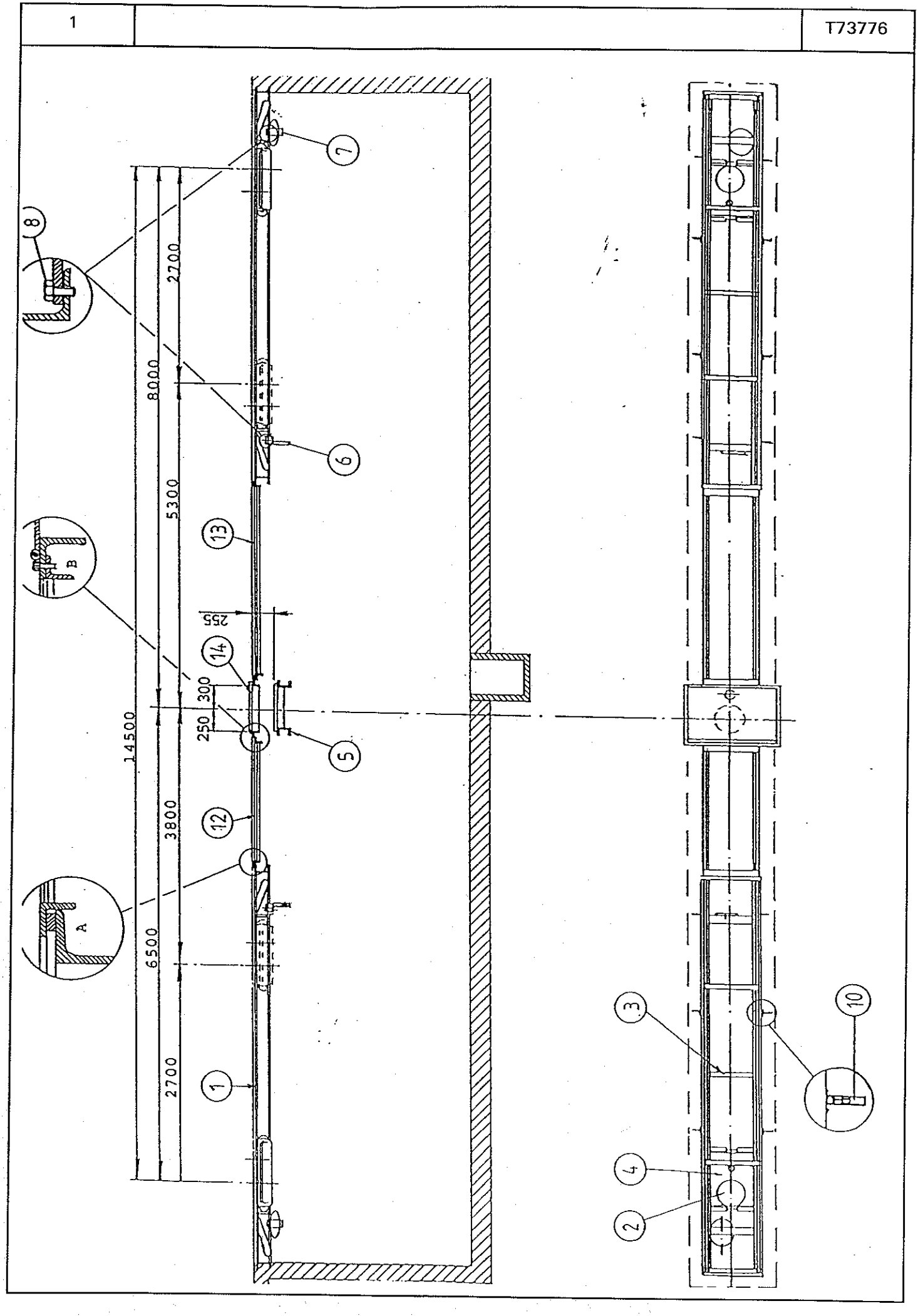
T73776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Instructions for excavation and casting of pit: see drawing T73713.

Place U-steel frames with carriage (item 1) over the pit. so that carriage hole for cylinder (item 2) isplaced as shown on drawing.

Shim up U-steel frames to make upper edge of guide rail completely flush with finished floor and to make it horizontal in the longitudinal direction as well as sidewise.

Remove spacers (item 3) from the U-steel frames. Check if carriage (item 4) and one roller pit cover plate (item 84, page 17) can move freely in their tracks throughout the length of the frame. If not, the frame(s) is (are) deformed and must be lined up. Refit spacers (item 3).

Place frame for fixed cylinder (item 5), observing recommended distances, to make its supporting plate completely horizontal, longitudinal edges of supporting plate to be strictly parallel with U-steel frame (item 1).

Fit support for electric winch (item 6) and suspension (item 7) by means of screws M16 x 45 (item 8).

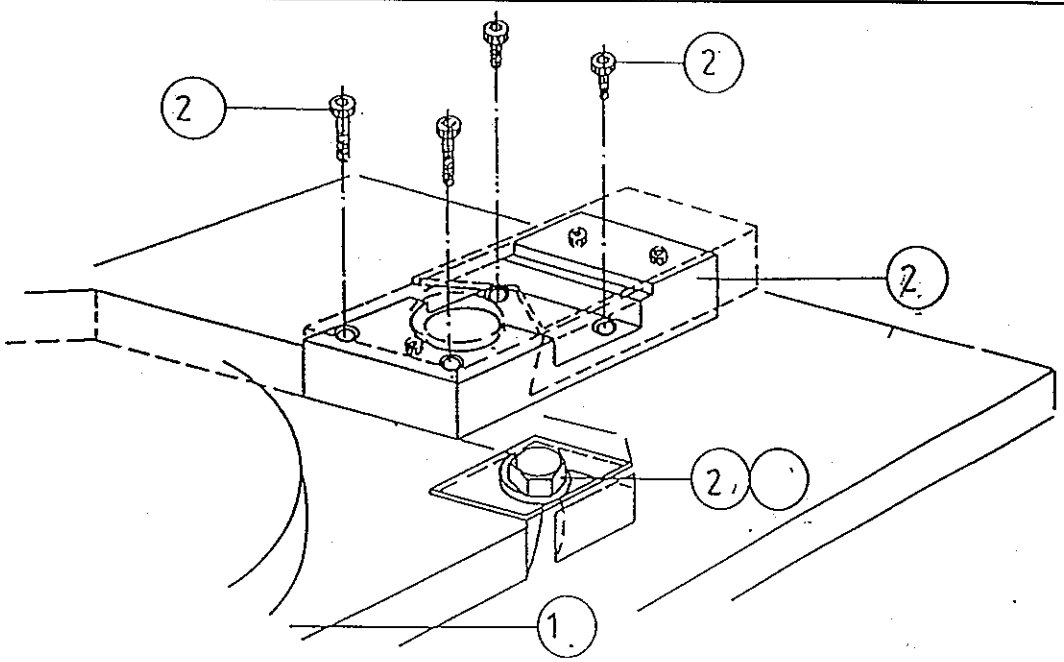
Protect support and suspension (items 6 and 7) against drops of concrete by means of plastic or the like.

Tack-weld iron reinforcement (item 12) from floor and pit to U-steel for every 1 m.

Place frames (items 12 and 13) and frame with door (item 14) insuch a way that they are at the same level as the finished floor. The frames must be held tightly together as shown on drawing, sections A and B.

Cast in frames (items 1, 5, 12, 13 and 14). The concrete must not be tamped so much that the U-steel frames are pressed.

The concrete should harden for at least 24 hours.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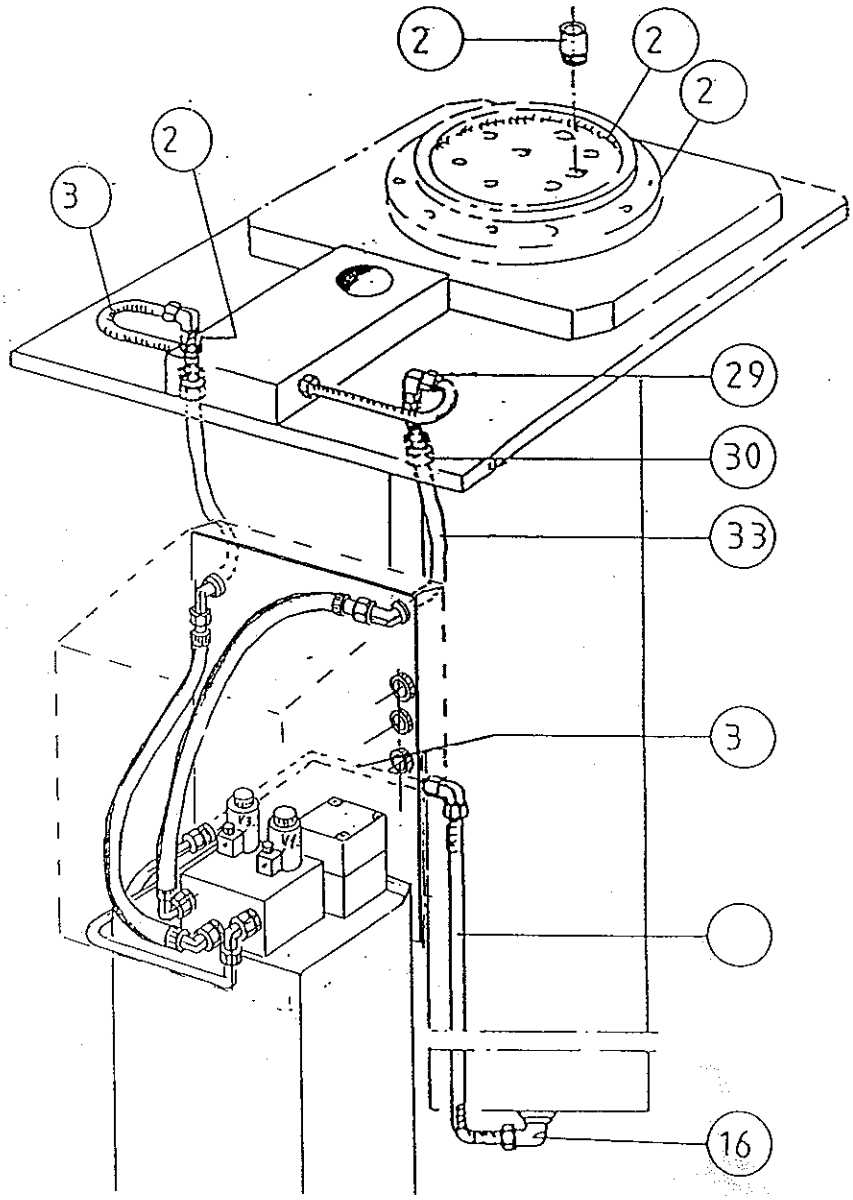
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Remove plug and fit angle connection (item 16) and thereafter oil pipe (item 18).

When fitting cylinders, take care that the unprotected oil piping is not damaged.

Fit cylinders (item 17) on carriage (item 4) and frame (item 5) respectively. Cylinder oil piping (item 18) should face the ø75 hole (item 19) for safety leg in the supporting plate for cylinder. Cylinders can be placed in position by means of e.g. a crane.

Attach cylinders by means of M16 x 60 screws (item 20) and ø16 and square washers (item 21) and fasten them by 22 kpm.

Clean piston heads and stuffing boxes (items 22 and 23) in mineral terpentine or the like to remove corrosion inhibitor.

Fit ½" bushing (item 24) in postion head and pack it.

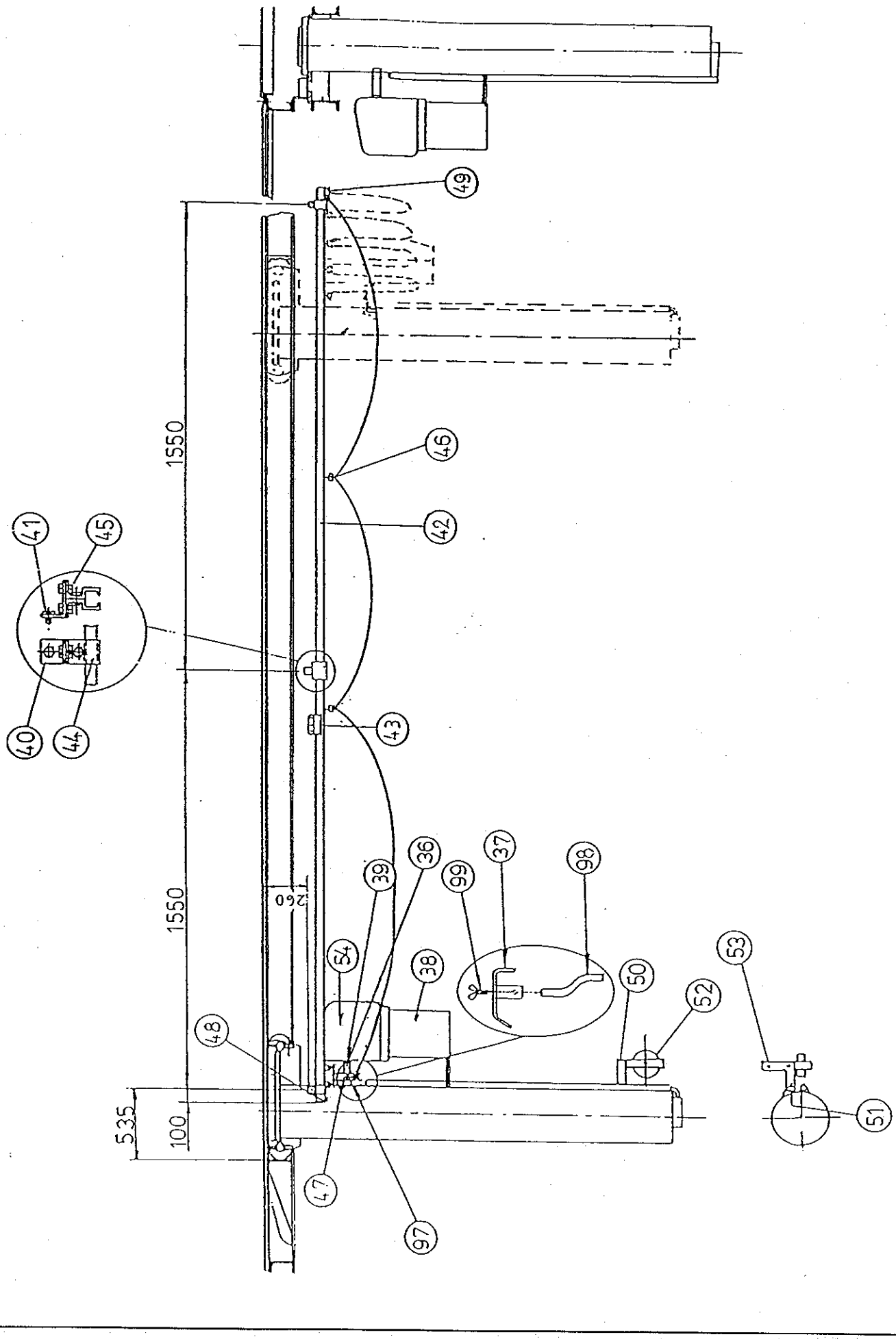
Fill each cylinder with 40 l lubricating oil through hole (item 24). Oil type according to specifications in operation and maintenance instructions provided.

Fit ratchet housing (item 25) on carriage (item 4) with movable cylinder and on supporting plate (item 5) for fixed cylinder by means of screws M8 x 20 (item 26) and screws M8 x 45 (item 27).

Grease movable parts of ratchet housing.

Fit socket (item 28), adjustable elbow (item 29) and socket (item 30) in supporting plate.

Fit piping (item 31) to ratchet housing.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Fit suspension for oil pump (items 36 and 37) unit by means of M10 x 20 screws and ø10.5/28 washers (item 97). Place suspension (item 37) on movable cylinder in left side of pit seen from fixed towards movable cylinder.

Fit high pressure hoses (item 33) and piping (item 32 on page 3) on pump unit.

Place pump unit (item 38) on suspension (items 36 and 37) by means of the screws welded on pump unit and tighten by means of ø10.5/28 washers and M10 nuts (item 39).

Connect piping (item 32) and high pressure hoses (item 33) to cylinder and threaded bushing in supporting plate (see page 3).

Place suspension (item 40) in left side of pit seen from the fixed towards the movable cylinder as shown (one rail on each side of the pit) and attach it to pit wall by means of M8 x 75 expansion bolts(item 41).
Join cable rail (item 42), supplied as 2 rails each 1.65 m, by means of clamp (item 43). Suspend it by means of fittings (item 44) which are to be attached to suspension (item 40) by means of M8 x 16 screw and M8 nut (item 45). Place carriages (items 46), driver carriage (item 47) and end stops (items 48 and 49) on cable rail. Fasten end stops.

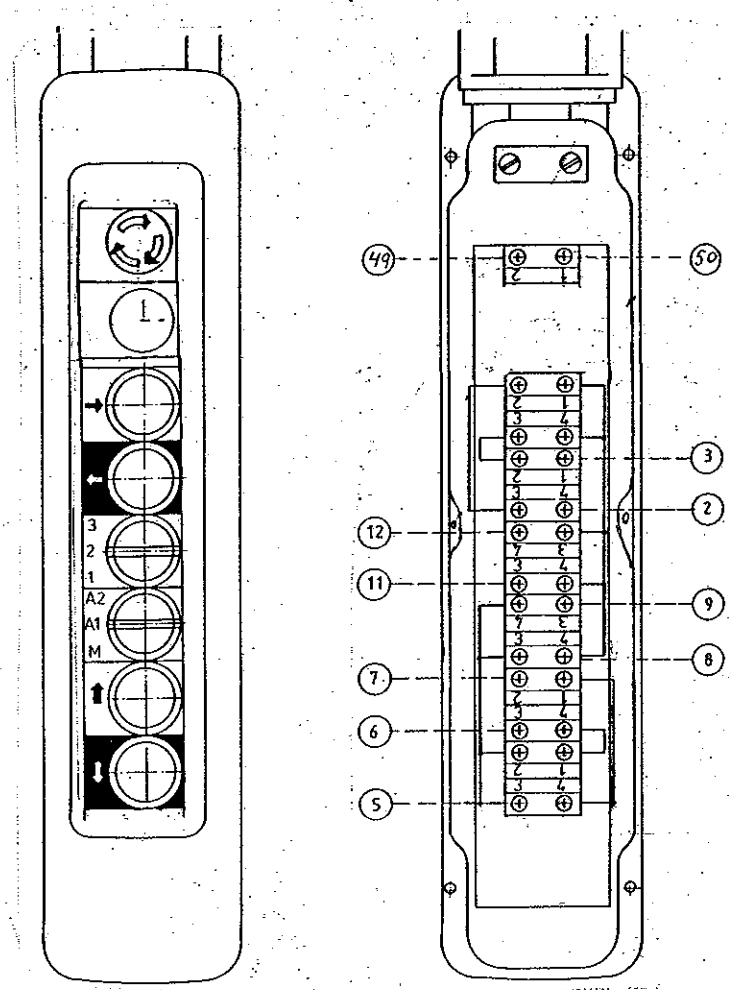
Place driver (item 98) in suspension (item 37) and through bow on carriage (item 47) and tighten by means of M8 wing screw (item 99). Adjust driver (item 98) and possibly cable rail (item 42) to avoid cable carriages jamming when cylinder reaches stops at both ends of the pit.

Fill each pump unit with 20-25 l oil. Oil type according to operation and maintenance instructions provided.

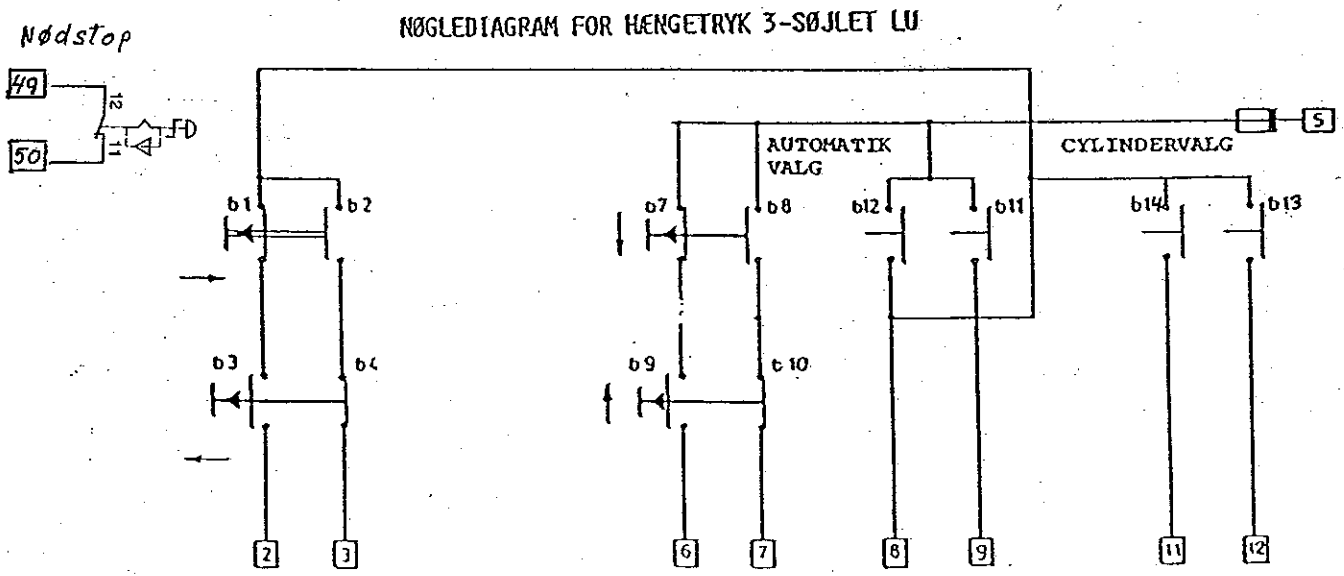
Fit supports for potentiometers (item 50) on cylinders by means of M8 x 16 screws and ø8 washers (item 51).

Fasten potentiometers (item 52) to supports by means of M8 x 16 screws, ø8 washers and M8 nuts (item 53).

HÆNGETRYK 3-SØJLET MULTIFLEX
REMOTE CONTROL PANEL 3-POST MULTIFLEX LIFT
FERNBEDIENUNGSGERÄT 3-STEMPEL MULTIFLEX
TÉLÉCOMMANDE PONTS MULTIFLEX À 3 VÉRINS

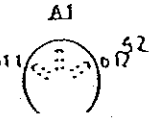


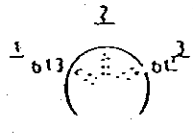
NØGLEDIAGRAM FOR HÆNGETRYK 3-SØJLET LU



Automatikvalg

Manuel M
Auto 3cyl: A1
Auto 2cyl: A2





Cylindervalg

Electrical connection

NOTE: Check that valve function is correct before connecting wires from the motors on the 3 pump units.

Press pushbutton on remote control panel and ensure that valves are activated (feel with a screwdriver on top of valves).

Check installation as follows:

1. Button for automatic movement in position M: check successively cylinders 1, 2 and 3 for UP, DOWN functions.
2. Button for automatic movement in position A2: check UP, DOWN functions.
3. Button for automatic movement in position A1: check UP, DOWN functions.
4. Button for automatic movement in position A1: raise the 3 pistons approx. 0.5 m above floor level. Press thermal relay of cylinder 1 (C7), activating at the same time UP-button on remote control panel. If the control for synchronization movement is correctly connected, pistons 2 and 3 should stop within 100 mm's travel.
5. Button for automatic movement in position A1: all pistons are in bottom position. Disconnect wires of potentiometers for cylinder 1 from the terminal. If the supervising system is correctly connected, pistons on cylinder 2 and 3 should stop within 100 mm's travel when UP-button is activated.

Use three-core cable + earth with cross section of at least 1.5 mm² between relay station and electric winch.

Use two-core cable with cross section of at least 1.5 mm² between relay station and solenoid valves near pump unit.

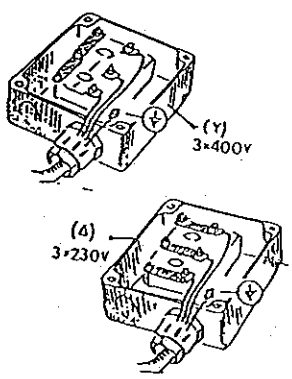
Use three-core cable + earth with cross section of a least 1.5 mm² between relay station and pump unit motor.

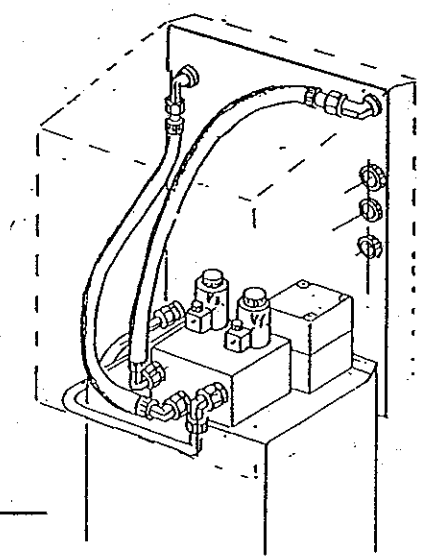
Use twelve-core cable with cross section of at least 1 mm² between relay station and remote control panel.

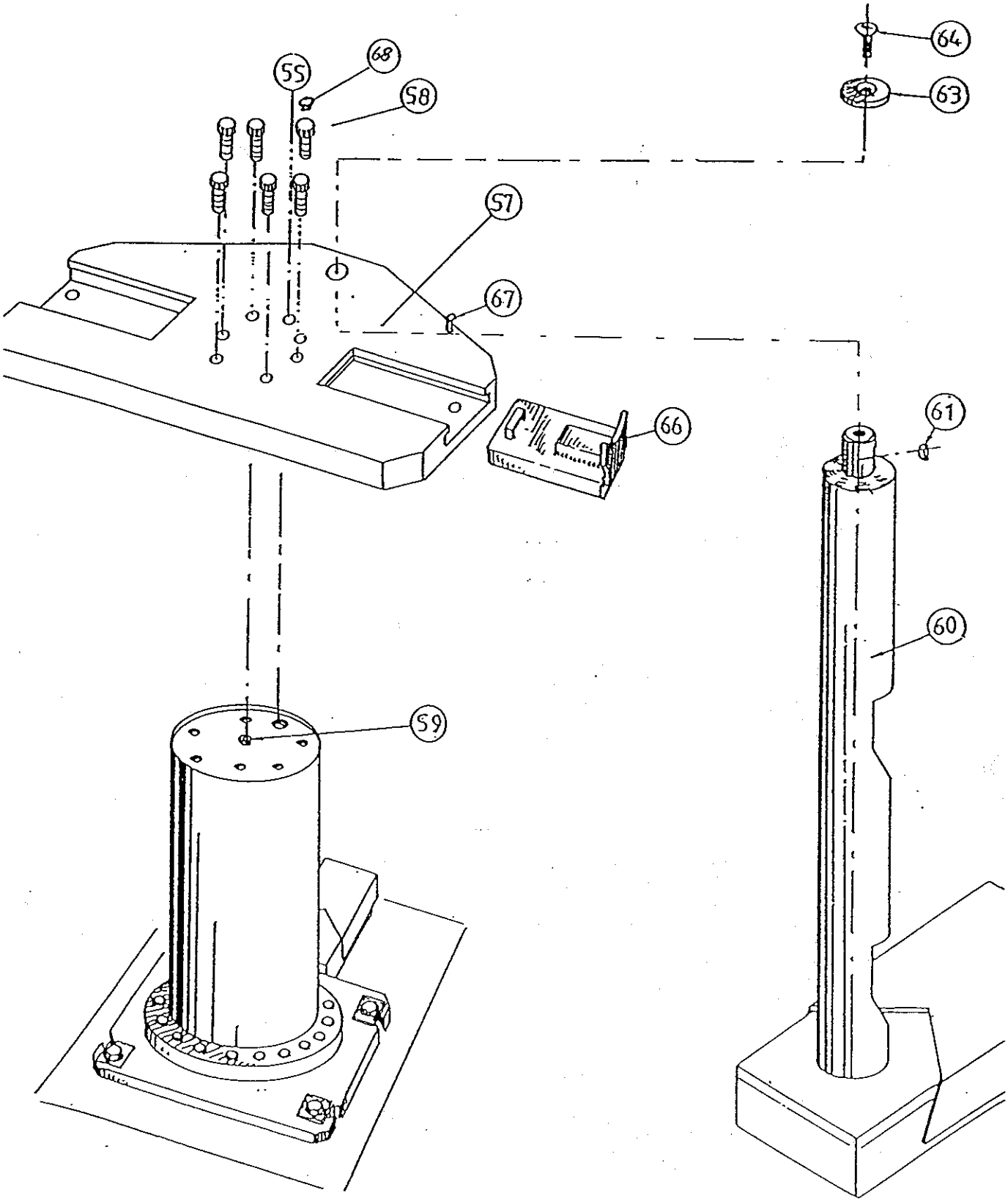
Use three-core cable with cross section of af least 1.5 mm² between relay station and potentiometers

IMPORTANT ! Connect to correct voltage.

Activate main switch and push UP-button; if pump does not deliver oil (lift does not raise) inter-change the two phase cables in the control unit (see above).



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Fit supports (item 57) by means of 6 M20 x 60 screws (item 58) placing ø35 hole (item 55) over hole for oil dipstick. Torque moment 39 kpm. Fit plastic plugs (item 68).

Raise lift pistons about 1 m. Loosen venting screws (item 59) until oil free of air bubbles flows out. Retighten venting screws. Raise lift pistons to top position.

Pull ratchet in ratchet housing back to stop and lower safety leg (item 60) through ratchet housing hole. Check that lowering is possible without obstruction and that ratchet does not stop or catch the leg. In case of insufficient clearance between ratchet and leg, adjust ratchet by tightening adjusting screw at back of ratchet housing enough to make leg descend through ratchet housing without touching the ratchet. Fit key (item 61) in safety leg groove. Fit safety leg in support (item 57) by means of ø45/12 x 6 washers (item 63) and M12 x 35 countersunk screws (item 64).

Raise pistons to top position and measure exact distance between each lift piston and safety leg at the superstructure and at floor level. In case of difference between these measurements, move cylinder and/or ratchet housing for safety leg in mounting holes sufficiently to make measurements identical.

Retighten cylinder/ratchet housing. Torque moment: 22 kpm for cylinder.

Lower pistons (one at a time) ensuring that safety legs pass ratchet housing holes without binding in bushings of ratchet housings and without vibrations. If safety legs bind or vibrate, adjust ratchet housings/cylinders until safety legs pass freely through ratchet housings. Torque moment for cylinder: 22 kpm.

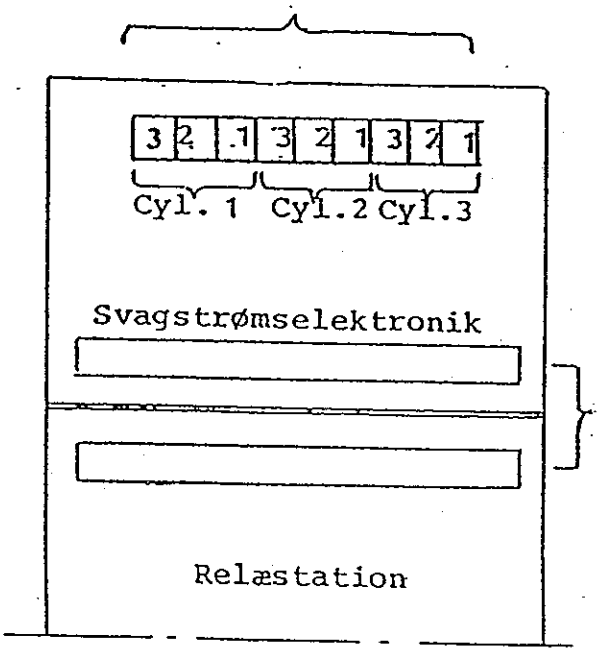
Place adjustable supports (low, medium or high) (item 66) on superstructure and safety rivets (item 67) in holes.

Raise and lower pistons a couple or times and stop them at about 1 m's height. Check that the "clicking" is audible when ratchets in housings for safety legs engage during rising of pistons. Loosen venting screws (item 49) until oil free of air bubbles flows out. Lower pistons to bottom position. Refill pump unit with oil up to mark on dipstick.

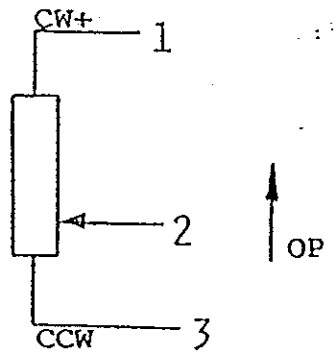
FITTING OF SYNCHRONIZATION SYSTEM

Fit lead (item 80) for potentiometer, see page 17.

Terminals for fitting of leads to potentiometers:



When connecting low current circuit to relay station, connect the corresponding components to each other (marking codes below).



CW + and CCW: Marking on terminals of potentiometers

1, 2 and 3: Corresponding marking of terminals on low current circuit.

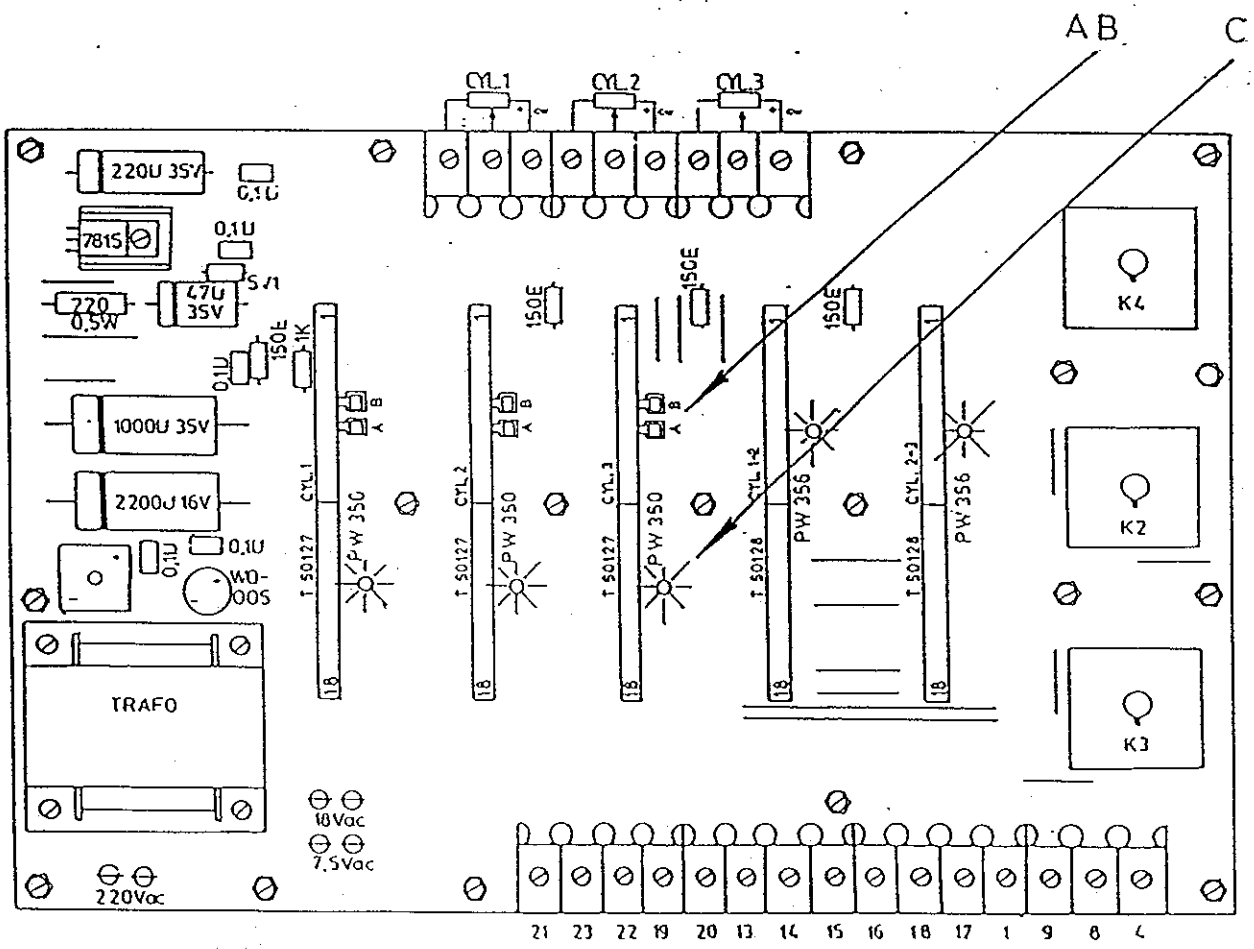
Control of adjustment of potentiometers

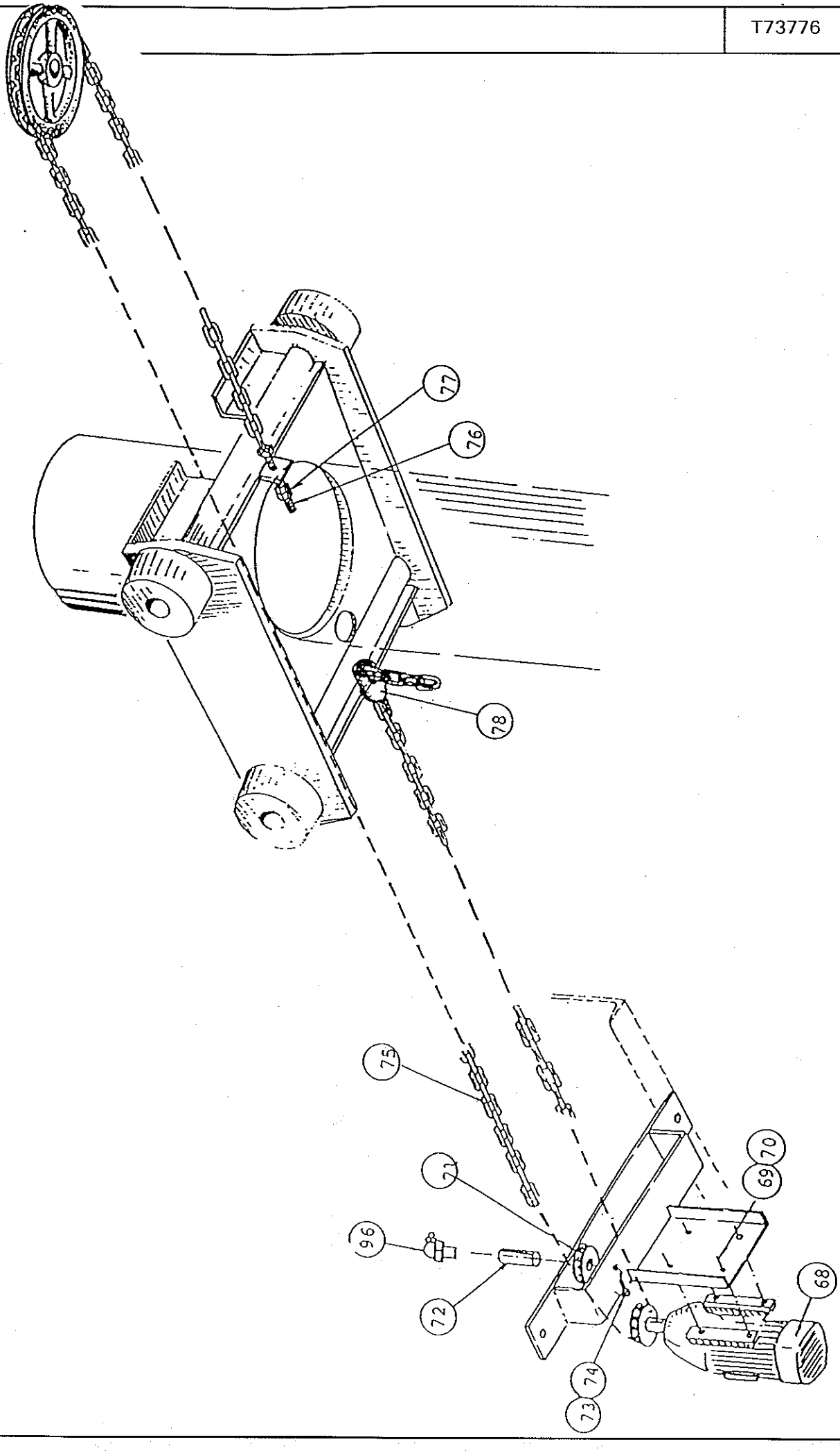
With all pistons in lowest position and prior to connecting the potentiometers to the low current circuit, measure the ohm value between terminals 2 and 3, which should be between 100 and 150 ohm.

If the value is below 150 ohm the wire drive should be tightened.
If it is above 150 ohm thewire drive should be slackened.

In order that the synchronization system may function, start motor potentiometers as follows:

1. All 3 cylinders must be in bottom position.
2. Turn switch for automatic/manual operation on manual operation.
3. Turn switch for cylinder choice on cyl. 1.
4. Short-circuit teminals A and B in relay station (terminals A and B are shown on drawing below)
5. Servo motors start running and must continue till red alarm lamp starts emitting light.
6. Motor potentiometer is now in same position as cylinder potentiometer.
7. Repeat items 4 and 5 for each cylinder.
8. The lift now runs automatically (A1 or A2).

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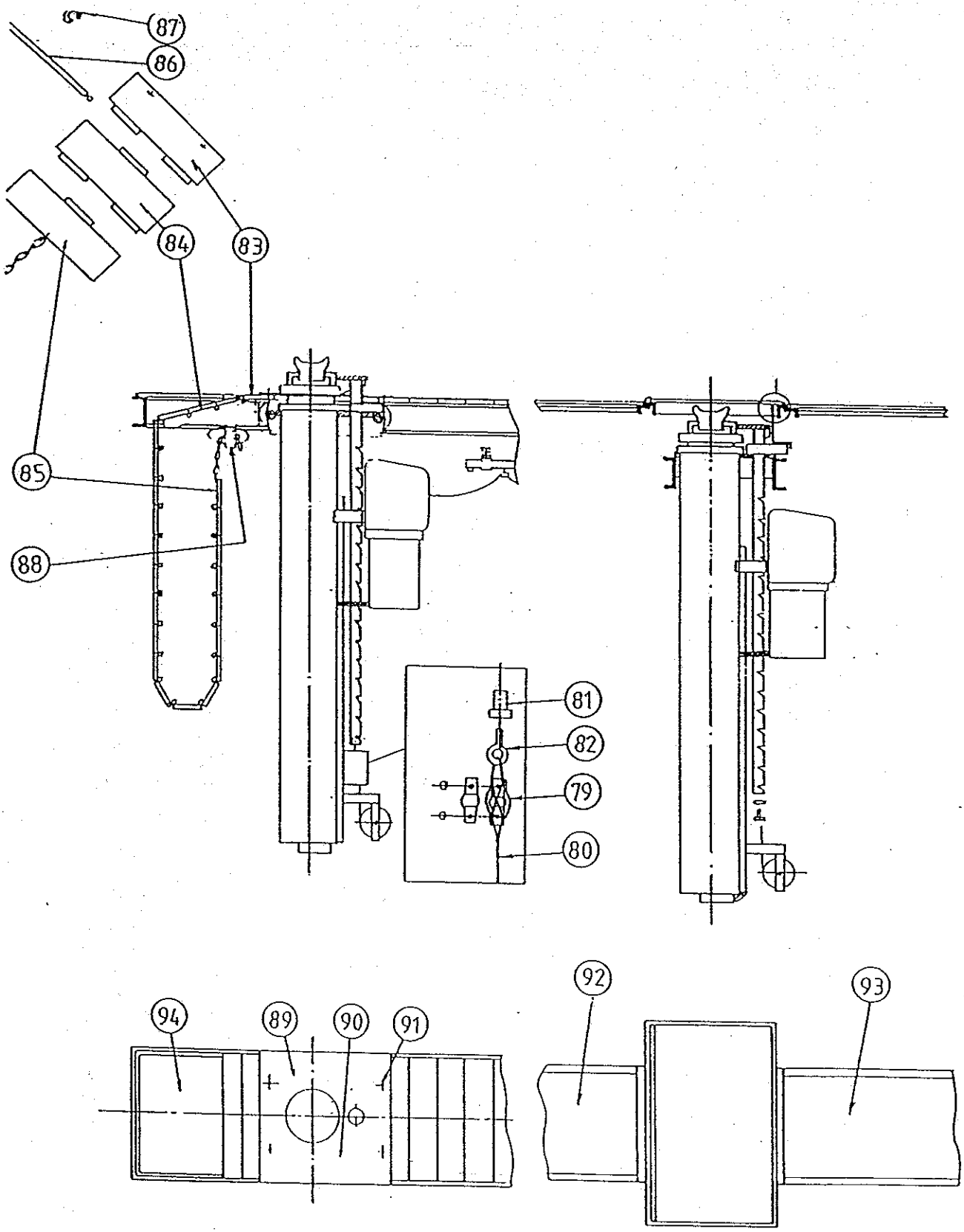
Attach geared motor (item 68) by means of M10 x 30 screw and ø10 washer (items 69 and 70). Place chain wheel (item 71) and axle (item 72) on support. Attach axle by means of M8 x 15 screw and ø8 washer (item 73 and 74).
Screw grease nipple (item 96) into axle.

Fit winch chain (item 75) between carriage and winch by placing end of chain with tightening screw (item 76) in the respective fittings on side of carriage and fit 2 M10 nuts (item 77).

Pull opposite end of chain round chain wheel of suspension and both chain wheels of geared motor and fit through chain lock (item 78) to carriage. Tighten and lock chain. Re-tighten chain (not too much) by turning the tightening screw (item 76) and grease chain.

Test geared motor by operating the movable cylinder forwards and backwards through its entire travel checking at the same time that pump unit on cylinder passes cable rail freely and that cable on cable rail does not drag agains pit wall, as this could damage cable insulation.

Place cover (item 54, page 5) on pump unit.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Fasten wire of potentiometer (item 80) to safety leg by means of M12 x 16 screw with M5 hole (item 81), eye screw (item 82) and wire lock (item 79). Tighten wire until ohm value measured at terminals 2 and 3 in potentiometer housing is approximately 150 ohm.

Adjustment of potentiometers - see page 11.

Pull wire out approx. 1 m (by hand) and let it retract slowly to its previous position, holding the end of the wire in your hand all the time. Measure ohm value again and adjust wire drive if necessary.

Divide roller shutter in 4 sets of plates each comprising
- 1 off plate item 83
- 22 off plates item 84
- 1 off plate with chain item 85.

Connect plates by pushing axle (item 86) through hinges and lock by means of a locking washer (item 87) at both ends.

Ensure that plates do not fall into pit.

Lower end plate with chain (item 85) approx. ½ m into pit and pull chain through chain lock (item 88). Push the last link but one of chain into the groove in chain lock, thus locking chain completely.

Raise pistons until supports clear floor.

Pull opposite end of roller shutter plates towards carriage and place end plate with holes over M12 threaded holes in carriage.

Place cover plates (items 89 and 90) over carriage. Ensure that piston and safery leg are not damaged.

Fasten cover plates (items 83, 89 and 90) by means of M12 x 40 screws (item 91).

Place cover plates (items 92, 93 and 94) over pit.

Item 92 consists of 2 plates 545 x 1203 mm
Item 93 consists of 3 plates 545 x 1263 mm
Item 94 consists of 4 plates 435 x 624 mm

Test electric winch by operating movable cylinder forwards and backwards through its entire travel. If no irregularity is observed during the trial run, installation of lift is completed.

When contrete round the imbedded parts has hardened sufficiently, operate lift with the maximum permissible load raising and lowering it several times. If no irregularity is observed during this trial run either, the lift is ready for use.

Check that both lifting and lowering movements ofall cylinders are synchronized.

FUNCTION OF ELECTRIC CONTROL SYSTEM OF 3-POST MULTIFLEX

Electric winch (1)
Choice of cylinder(s) in position 1, button for automatic movement in position M (manual).
C5, K2 and C7 draw.
Push button for electric winch (b1 moves to b2), C2 draws, and electric winch for cylinder 1 runs.
Push button for electric winch (b3 moves to b4), C1 draws, and electric winch for cylinder 1 runs reversely.

Electric winch (3)
Choice of cylinder(s) in position 3, button for automatic movement in position M (manual).
C6, K2 and C9 draw.
Push button for electric winch (b1 moves to b2), C2 draws, and electric winch for cylinder 3 runs.
Push button for electric winch (b3 moves to b4), C1 draws, and electric winch for cylinder 3 runs reversely.

Cylinder 1 UP
Choice of cylinder(s) in position 1, button for automatic movement in position M (manual).
C5, K2 and C7 draw.
Push UP-button (b9 moves to b10), C3 draws, and cylinder 1 runs UP.

Cylinder 2 UP
Choice of cylinder(s) in position 2, button for automatic movement in position M (manual).
K2 and C8 draw.
Push UP-button (b9 moves to b10), C3 draws, and cylinder 2 runs UP.

Cylinder 3 UP
Choice of cylinder(s) in position 3, button for automatic movement in position M (manual).
C6, K2 and C9 draw.
Push UP-button (b9 moves to b10), C3 draws, and cylinder 3 runs UP.

Cylinders 1 + 2 UP
Choice of cylinder(s), button for automatic movement in position A2.
C7, K3 and C8 draw (R4 and R3 alternate).
Push UP-button (b9 moves to b10), C3 draws, and cylinders 1 + 2 run UP.

Cylinders 1 + 2 + 3 UP
Choice of cylinder(s), button for automatic movement in position A1.
C7, C8 and C9 draw (R3, R4, R5 and R6 alternate).
Push UP-button (b9 mves to b10), C3 draws, and cylinders 1 + 2 + 3 run UP.

Cylinder 1 DOWN
Choice of cylinder(s) in position 1, button for automatic movement in position M (manual).
C5, K2 and C7 draw.
Push DOWN-button (b7 moves to b8), C4 draws. Valves V1 and V3 on cylinder 1 are activated.
Cylinder 1 runs DOWN.

Cylinder 2 DOWN
Choice of cylinder(s) in position 2, button for automatic movement in position M (manual).
K2 and C8 draw.
Push DOWN-button (b7 moves to b8), C4 draws. Valves V1 and V3 on cylinder 2 are activated.
Cylinder 2 runs DOWN.

Cylinder 3 DOWN
Choice of cylinder(s) in position 3, button for automatic movement in position M (manual).
C6, K2 and C9 draw.
Push DOWN-button (b7 moves to b8), C4 draws. Valves V1 and V3 on cylinders 3 are activated.
Cylinder 3 runs DOWN.

Cylinders 1 + 2 DOWN
Choice of cylinder(s), button for automatic movement in position A2.
C7, K3 and C8 draw (R4 and R3 alternate).
Push DOWN-button (b7 moves to b8), C4 draws. Valves V1 and V3 on cylinders 1 and 2 are activated. Cylinders 1 + 2 run DOWN.

Cylinders 1 + 2 + 3 DOWN
Choice of cylinder(s), button for automatic movement in position A1.
C7, C8 and C9 draw (R3, R4, R5 and R6 alternate).
Push DOWN-button (b7 moves to b8), C4 draws. Valves V1 and V3 on cylinders 1, 2 and 3 are activated. Cylinders 1 + 2 + 3 run DOWN.

Do not forget to adjust thermal releasers for pump units and gear motors. The ampere consumption can be read on the name plates on pump unit and motor.

LIST OF COMPONENTS FOR WIRING DIAGRAM FOR 3-POST MULTIFLEX

ITEM NO.	DESIGNATION	MAKE
b1 b2 b3 b4	Disconnecting switch for b2 Connecting switch for C2 Connecting swich for C1 Disconnecting switch for b2	Telemekanik Type XES-S1181 Double push-button
C1	Contactor for electric winch "ADVANCE"	
C2	Contactor for electric winch "RETURN"	
b6	Connecting switch for C4	
b7 b8 b9 b10	Disconnecting switch for b9 Connecting switch for C4 Connecting switch for C3 Disconnecting switch for b8	Telemekanik Type XES-D1181 Double push-button
C3	Contactor for post motor “UP”	
C4	Contactor for post motor "DOWN"	
b11 b12	Connecting switch for "MAN, relay K2 Connecting switch for "AUT1-2", relay K3	XBF-S413 3-way rotary switch
b13 b14	Connecting switch for C5 and C7 Connecting switch for C6 and C9	XBF-S413 3-way rotary switch
C5	Contactor for electric winch, post 1	
C6	Contactor for electric winch, post 3	
C7	Contactor for post motor 1	
C8	Contactor for post motor 2	
C9	Contactor for post motor 3	
f1-f2	Thermal relay - electric winch motor	
f3-f4-f5	Thermal relay - post motor	
b15	Main switch	
V1-V3	Solenoid valve	
K2 K3	Auxiliary relay - MANUAL 3 PDT Auxiliary relay - inhibit post 3, 2 PDT	JE JE
R1-R2 R3-R4 R5-R6	Supervisionrelay Relay for synchronized movement, posts 1 and 2 Relay for synchronized movement, posts 2 and 3	JE JE JE