Yale®

Endless winch – Transport of persons

Model YaleMtrac

Capacity 500 kg – 1000 kg

Translation of original operating and maintenance instructions

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Ident.-No.: 09901090/08.2011

COLUMBUS McKINNON

Contents

Information for manufacturers of suspended access equipment

Manufacturers incorporating Yale winches for passenger elevation and/ or Yale safety locks in attachments for the lifting of persons such as, for example, work platforms,work cages or work seats must integrate all information necessary for safe assembly and safe operation contained in these instructions in the appropriate parts of their own instructions for the suspended access equipment! For meeting the requirements of the EC machinery directive and further applicable standards, it is not sufficient to merely attach these instructions!

These operating instructions must be available to the user at any time.

Explanation of the pictograms used in these instructions

Pictogram	Meaning of the pictogram
	Important information for use
	Danger of material damage to the winch due to a dangerous situation
	Danger of injuries or material damage due to a dangerous situation
	Danger of injuries and/or danger to life caused by heavy current
	Danger of injuries and/or danger to life

1. Important safety information for assembly and operation

- Installation and maintenance of Yale winches for passenger elevation and Yale safety locks may only be carried out by persons who are familiar with this work and have been assigned to these tasks by the operating company.
- These persons must know the relevant accident prevention regulations, for example "Winches, lifting and towing devices" (BGV D8), "Cranes – Power driven winches and hoists" (EN14492-1), etc. and must have received appropriate relevant instructions; furthermore they must have read and understood the operating and assembly instructions of the manufacturer.
- If more than one person are entrusted with installation/maintenance, the manufacturer of the access equipment must appoint a supervisor who is authorised to give instructions.
- Yale winches for passenger elevation and Yale safety locks are only intended for integration into "suspended access equipment" according to DIN EN1808 and exclusively approved for this purpose. Any other applications must be agreed with the manufacturer and, if applicable, licensing authorities. Direct attachment of the rope to a person for the transportation of a person is prohibited.
- The load capacity indicated on the unit is the maximum working load limit (rated load) that must not be exceeded.
- The use of Yale winches for passenger elevation and Yale safety locks in areas with an explosion hazard is prohibited.
- Yale winches for passenger elevation and Yale safety locks may only be used at ambient temperatures between -40°C and +70°C.
- Do not lift or transport loads, as long as persons are in the danger zone of the load.
- Do not allow personnel to stay or pass under a suspended load.
- A lifted or clamped load must not be left unattended or remain lifted or clamped for a longer period of time.
- The operator may start moving the load only after he has checked that it has been attached correctly and all persons are clear of the danger zone.
- When attaching the unit, the operator must ensure that during operation of the hoist neither the hoist, the supporting equipment nor the load pose a danger to himself or other personnel.
- Fixed or obstructed loads must not be lifted.
- Loads must not be turned during operation. If it is necessary to turn loads during operation, anti-twist swivels must be provided and/or the manufacturer must be consulted.
- Avoid excessive inching operation by frequent, brief actuation of the control switch.
- For lifting the load from the ground, always use the lowest available lifting speed. The rope must first be tensioned at this speed; it must not be slack when the load is lifted from the ground. If the winch has two speeds, the low speed must only be used for short distances.
- Welding work on the hook and the rope is strictly forbidden. The rope must not be used as earth conductor for welding work.
- Before starting assembly, check all parts for completeness and faultless condition.
- Only use perfect Yale winches for passenger elevation or Yale safety locks, ropes, electrical cables and lifting tackle.
- Only use the original Yale wire rope in appropriate condition. Only use common multi-purpose oil or grease for lubricating the winch and wire rope. Do not use any lubricants which contain molybdenum disulphide (MoS_2) or PTFE! Using any other wire rope voids all warranty claims against Yale Industrial Products.
- Yale winches for passenger elevation and Yale safety lock systems must only be fastened at the fixing bore holes provided for this purpose.
- Yale winches for passenger elevation and Yale safety locks must be fastened in such a way that the loaded suspension rope enters vertically from all directions.
- In addition to the Yale winch, a safety device (e.g. a Yale safety lock system including the corresponding rope) must be fitted on the access equipment.
- Overloading Yale winches for passenger elevation and Yale safety locks is strictly forbidden.
- The manufacturer of the suspended access equipment is responsible for integrating the emergency-limit switch for UP and DOWN, as required.
- Inspections or repairs must only be carried out by Yale Industrial Products or by a hoist service company authorised by the manufacturer.
- The electrical connection of Yale winches for passenger elevation and of electrical accessories must be carried out by qualified electricians in accordance with EN60204-1 or -32. Inspections and repairs of the electrical equipment must only be carried out by qualified electricians or by a hoist service company authorised by the manufacturer.
- Yale Industrial Products does not accept any liability for damage resulting from the use of other than the original parts or caused by conversion and modification of units supplied by Yale Industrial Products.

2. Description of the winch

2.1 Correct operation

Yale winches for passenger elevation of the YMT-P series are electrical hoisting equipment for lifting and lowering “suspended access equipment” in accordance with DIN EN1808 up to the specified load capacity and by means of Yale wire ropes. The load capacity indicated on the unit is the maximum working load limit (rated load) that must not be exceeded.

For trouble-free and safe working with Yale winches for passenger elevation it is imperative that an original Yale rope be used.

In general, Yale winches for passenger elevation are directly fitted on access equipment and travel up and down wire ropes suspended in front of a facade.

Yale winches for passenger elevation with an operating speed of 9 m/min are classified in group of mechanisms M3/1Bm, and with 18 m/min in M2/1Cm in accordance with ISO4301-1 / DIN15020.

2.2 Winch operating mode

On the control system, there is a pushbutton for UP and one for DOWN travel.

The Yale winch for passenger elevation does not collect the wire rope but moves it through the winch at a constant speed. Therefore, the rope length, i.e. the lifting height, is virtually unlimited.

All Yale winches for the transport of persons feature an overload switch-off device in compliance with DIN EN1808 which is fitted on the winch.

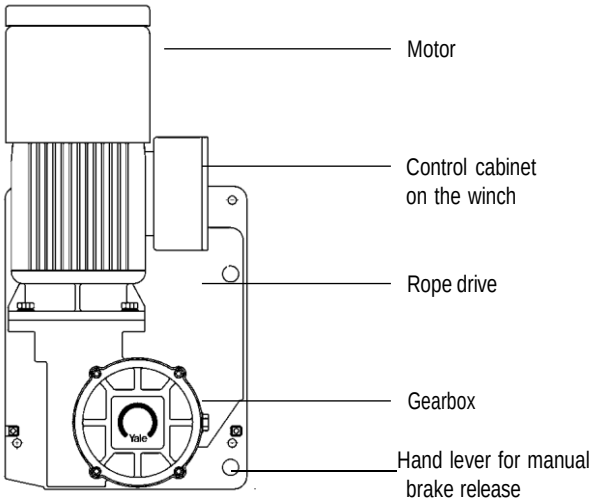
If the load capacity of the Yale winch for passenger elevation is not sufficient in direct pulling it can be increased based on the pulley principle.

2.3 Original Yale rope

Yale endless winches must only be operated with the original Yale rope: Marking on the tag as follows:

Front: CMCO + batch number

Rear: Nominal diameter + rope length (for the relevant nominal rope diameters, see the technical data in section 2.5).



2.4 Yale control systems

Yale winches for passenger elevation can be provided with different control systems. They are connected to the mains network by wiring in the control system or by means of a CEE plug.

The control elements comprise a pushbutton for ‘UP’, one for ‘DOWN’ and an emergency-stop pushbutton. A main switch is located on the switching cabinet of the control system.

A control system with a change-over switch for simultaneous or separate control of two endless winches is available as an option. Connections for the limit switch or emergency-limit switch are provided on the switching cabinet.

2.5 Technical data

Winch	Useful load	Nominal rope diameter	Nominal rope speed 1G/2G	Power supply	Motor output	Power consumption	Group of mechanisms to DIN15020	Noise at a distance of 1 m	Weight without ropes	Dimensions		
	kg	mm	m/min	50 Hz CEE 16 A	kW	A		dB/A	kg	Height mm	Width mm	Depth mm
YMT/F 5-9-P8	500	8,4	9/4,5	400 V, 3 ph	1,1	3,0	1 Bm/M3	≤75	72	599	301	261
YMT/F 5-18-P8	500	8,4	18/9	400 V, 3 ph	2,0	5,5	1 Cm/M2	≤75	72	599	301	261
YMT/F 6-9-P8	600	8,4	9/4,5	400 V, 3 ph	1,1	3,0	1 Bm/M3	≤75	73	599	301	261
YMT/F 6-18-P8	600	8,4	18/9	400 V, 3 ph	2,0	5,5	1 Cm/M2	≤75	73	599	301	261
YMT/F 8-9-P9	800	9,0	9/4,5	400 V, 3 ph	1,8	3,4	1 Bm/M3	≤75	73	599	301	261
YMT/F 8-18-P9	800	9,0	18/9	400 V, 3 ph	3,6	6,5	1 Cm/M2	≤75	74	599	301	261
YMT/F 10-9-P10	1.000	10,2	9/4,5	400 V, 3 ph	1,8	4,2	1 Bm/M3	≤75	73	599	301	261
YMT/F 10-18-P10	1.000	10,2	18/9	400 V, 3 ph	3,6	7,5	1 Cm/M2	≤75	74	599	301	261

Subject to technical alterations

2.6 Safety features

The following equipment is available to ensure the safety of Yale units:

A) Emergency stop

By pushing the emergency-stop button, the whole control system is switched off in event of an emergency. By turning and pulling the button in the direction indicated by the arrow, it is unlocked again.

B) Motor brake

All Yale winches are provided with an electro-magnetically released spring brake, which closes automatically when the pushbutton for UP/DOWN travel is released and in the case of a power failure.

C) Manual descent

In the event of a power failure, the brake can be released manually by means of the lever.

Pull the lever out of the handle of the winch, insert it in the bore hole of the motor brake and push it upwards.

D) Overload switch-off

The fitted overload switch-off switches off UP travel in the event of an overload. At the same time a warning signal (buzzer) is triggered which only stops, if the cause of overloading has been eliminated.

Possible causes for switch-off:

- a winch or the access equipment is overloaded, e.g. owing to unfavourable load distribution or
- the access equipment has been caught during upwards travel.

After a switch-off, reduce or redistribute the load until overload has been eliminated or travel downwards until the access equipment is freed from the obstacle; it is essential to remove the obstacle before restarting.

E) Phase sequence monitoring

Yale control systems for winches for passenger elevation have an integrated phase sequence monitoring feature which prevents operation in the case of an incorrect phase sequence, since an incorrect assignment of the UP/DOWN direction buttons may render limit switches or overload switch-off features inoperative.

Possible correction: change over two of the phases of the plug or turn the phase changer in the plug through 180°.

F) Yale safety lock

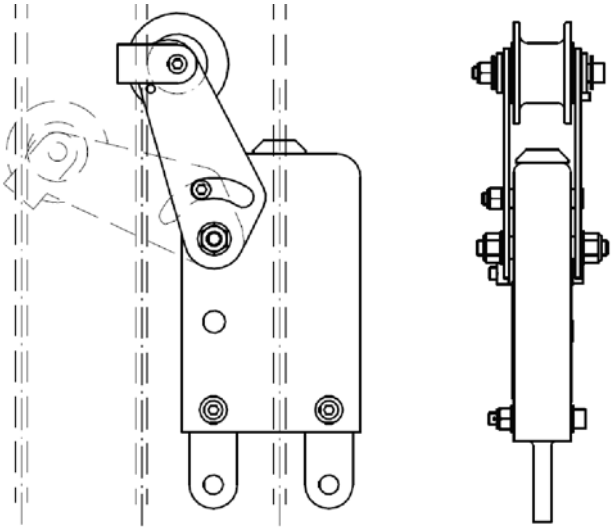
All attachments for the lifting of persons must always be fitted with a safety catching device in accordance with EN 1808 (e.g. Yale safety lock type YISL or YOSL) which secures the load against falling on a safety rope which is independent of the suspension rope.

F1) Yale safety lock type YISL (Yale inclination safety lock)

While the safety rope runs through the clamping mechanism inside the Yale safety lock type YISL, the scanning arm rests on the loaded suspension rope and it is thus kept open.

The YISL safety lock protects the access equipment against:

- Rupture of the suspension rope,
- Failure of the winch,
- Being caught/stopped during downward travel resulting in the suspension rope being no longer tightened,
- Inclined position of more than the max. permissible 14° (for work platforms with winches fitted at the ends).



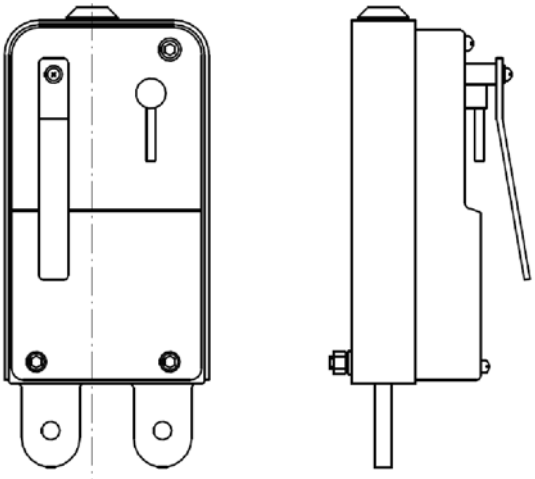
F2) Yale safety lock type YOSL
(Yale overspeed safety lock)

In the YOSL Yale safety lock, the speed of the safety rope running through it is constantly scanned.

In the event of overspeed, the clamping mechanism is automatically closed. After unloading, the system can be released again by hand using a lever.

The YOSL safety lock protects the access equipment against:

- Rupture of the suspension rope,
- Failure of the winch,
- Overspeed caused by being caught or stopped during downward travel resulting in the suspension rope being no longer tightened.



Separate operating and assembly instructions are available for Yale safety locks!

The safety lock type YISL **must not** be used for access equipment with only one suspension!

G) Emergency limit switch UP

For safety reasons, at least one limit or emergency-limit switch should be fitted at the top for each Yale winch for passenger elevation which, when triggered, immediately stops all movements of the load.

For this purpose, a stop plate must be fitted on the suspension rope under the rope swaging which triggers the limit switch.

Maintain a safety clearance of at least 1.0 m to the winch.

If there are any obstacles protruding into the path of the load, the stop plate must be lowered so that the winch always stops early enough.

When an emergency-limit switch has been approached, no further electrical movement is possible.
This means that the winch then must be lowered with the manual descent (see section 2.6 C) until the actuating lever of the emergency-limit switch is free again.

2.7 Information on remaining risks

Remaining risks exist which cannot be covered by the design of Yale winches for passenger elevation and Yale safety locks:

- Since the overload switch-off is normally set to the maximum load capacity of the winch in the factory, the operating company must check, if the useful load of the lifting tackle also corresponds to the value of the overload switch-off and/or to the useful load of the winch.
  If this check shows that a lower value is required, the overload switch-off must be adjusted accordingly, either ex-works or by a trained person or the specified useful load of the winch must be reduced.
- Yale safety locks can only perform their safety function, if the safety rope between safety lock and the upper rope suspension is constantly kept tightened, i.e. slack rope must always be prevented! For this reason, an appropriate tensioning weight of up to approx. 10 kg must always be fitted on the loose end of the safety ropes at a height of approx. 20 cm above the ground.

3. Putting the winch into service

3.1 Basic principles

The manufacturer is responsible for ensuring that the suspended access equipment and the corresponding the suspension structure comply with all relevant regulations.
In the sense of the EC machinery directive a manufacturer of access equipment is defined as a person who assemblies attachments for the lifting of persons (access equipment) from individual components such as winches, catching devices, platforms and suspension structures.

3.2 Necessary components

- Yale winch(es) for passenger elevation with appropriate useful load;
- Yale safety lock(s) with at least the same useful load as the Yale winch(es)
- Original Yale rope(s) with an appropriate length
- Connection cable with an appropriate length
- If necessary, rope sheave(s) with an appropriate useful load for returning/reeving the rope.

3.3 Fixing of the Yale winch

A) Mounting material

Yale winches for passenger elevation of the YMT-P series can either be fixed with two M10 bolts (for the double-shear connection use two of the four boreholes dia. D that are not diagonally arranged!), with four M10 bolts (for the single-shear connection use all four boreholes dia. D) or with one M16 bolt (use borehole dia. C!) and by applying self-locking nuts.

Bolts must be long enough so that they only carry by the barrel and never by the thread (use spacers if necessary).

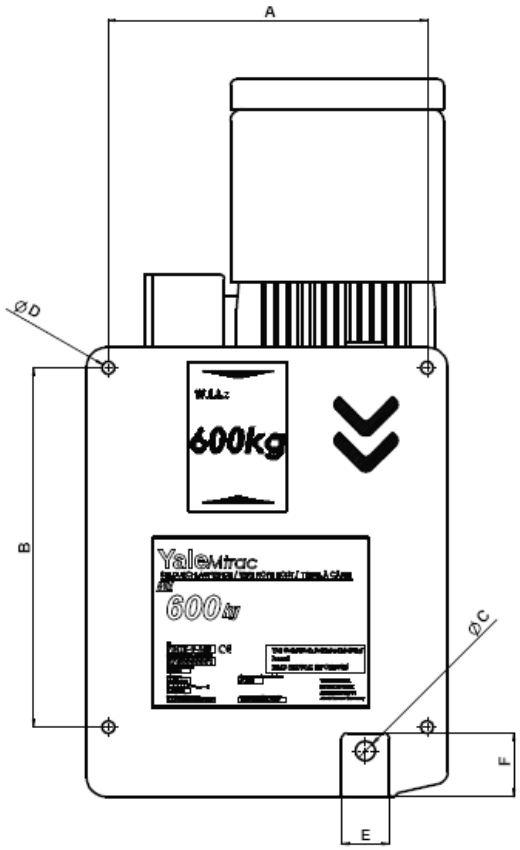
The strength class must be at least 8.8. Higher strength classes (10.9 and in particular 12.9) should not be used since these bolts, especially the galvanized version, tend to become brittle.

Instead of the M10 bolts, studs or similar with at least the same strength may also be used.

A load bolt with a dia. of 16 mm is included in the scope of supply of every winch.

B) Fixing of the Yale winch

Fix Yale winches in such a way that the loaded suspension rope always enters the winch vertically from all directions!



We recommend that Yale Industrial Products be contacted for planning the fastening arrangement of the winch, as required.

In any case the structure for suspending the suspension rope and safety rope as well as the component on which the winch and the safety lock are fixed must have **at least 4 times the load capacity** (plastic deformation permissible) compared with the useful load of the winch and/or the safety lock in order to meet the requirements of standard EN 1808.

3.4 Yale control systems

A) Control system for one winch for passenger elevation with control pendant

A CEE-16A plug is provided on the control system for one winch for power supply to the winch for passenger elevation. The control cable is connected by means of a cable union. Always make sure that the control cable is provided with a strain relief arrangement.

Motor and, if required, emergency-stop limit switch can be connected to the control system by means of plug connectors.

For this type of control system, the mains voltage supply must be protected by means of an overcurrent protective device and a 30 mA current-operated earth-leakage circuit-breaker.

B) Control system for one winch for passenger elevation

A CEE-16A plug is provided on the control system for one winch for power supply to the winch for passenger elevation. The control elements for operating the winch for passenger elevation and the emergency-stop pushbutton are arranged on the door of the switching cabinet of the control system. The main switch of the winch for passenger elevation is also located on the control system.

Motor and, if required, emergency-stop limit switch can be connected to the control system by means of plug connectors.

C) Control system for two winches for passenger elevation

A CEE-16A plug is provided on the control system for two winches for power supply to the winches for passenger elevation. The control elements for operating the winch for passenger elevation and the emergency-stop pushbutton are arranged on the door of the switching cabinet of the control system. The main switch of the winch for passenger elevation is also located on the control system.

The two motors and, if required, emergency-stop limit switches can be connected to the control system by means of plug connectors.

3.5 Power supply

The manufacturer of the access equipment is responsible for the connection of the Yale winches for passenger elevation. It is essential that the circuit diagrams included in the supply be taken into account.

Complete the electrical connection of the winches in accordance with EN 60204-1or EN 60204-32. Always pull the power plug before opening any control system.

1) Always check whether mains voltage and motor voltage match
   Three-phase current: 400 V (3P+N+PE), 50 Hz with 16 A CEE plug
2) For min. cross sections of the supply cables, comply with the following table!

Type of winch	Required cable cross section in mm² for cable lengths up to			
	25m	50m	100m	200m
1x YMT/F 5-9-P8	1,5	1,5	1,5	1,5
2x YMT/F 5-9-P8	1,5	1,5	1,5	2,5
1x YMT/F 5-18-P8	1,5	1,5	1,5	2,5
2x YMT/F 5-18-P8	1,5	2,5	4,0	6,0
1x YMT/F 6-9-P8	1,5	1,5	1,5	1,5
2x YMT/F 6-9-P8	1,5	1,5	1,5	2,5
1x YMT/F 6-18-P8	1,5	1,5	1,5	2,5
2x YMT/F 6-18-P8	1,5	2,5	4,0	6,0
1x YMT/F 8-9-P9	1,5	1,5	1,5	1,5
2x YMT/F 8-9-P9	1,5	2,5	4,0	6,0
1x YMT/F 8-18-P9	1,5	1,5	1,5	2,5
2x YMT/F 8-18-P9	1,5	2,5	4,0	10,0
1x YMT/F 10-9-P10	1,5	1,5	1,5	1,5
2x YMT/F 10-9-P10	1,5	2,5	4,0	6,0
1x YMT/F 10-18-P10	1,5	2,5	4,0	10,0
2x YMT/F 10-18-P10	1,5	4,0	10,0	16,0

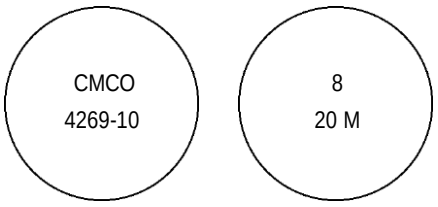
4) Always use heavy rubber cables with strain relief!
5) Always use a cable sleeve or similar, if the drooping cable is longer than 30 m!
6) If a generator is to be used for power supply, it must have at least 3 times the rated output of the winch motor.

3.6 Fitting the wire ropes

A) Preparation

Caution when handling wire ropes:
Always wear protective gloves.

1) Only use original Yale wire ropes.
Example for the marking of the Yale 8.4 mm rope (tag on the thimble):



Front Rear

2) Make sure that the wire rope has the correct diameter and an appropriate length.
3) Always unwind the wire rope orderly and without twisting (by also turning the winder). Otherwise the wire rope may be rendered unusable as a consequence of rope slings.
4) Examine the condition of the wire rope:

- Thimble/swaging undamaged?
- For ropes with hook: undamaged safety cover, hooks not bent open?
- Proper rope head, without any obvious damage along the entire length?

Never use the towing rope as an attachment rope and never wind it around the load! Ensure unrestricted rope lead-off from the winch! Never pull the rope over edges! The rope must always be slightly lubricated!

Use common multi-purpose oil or grease for lubricating. Do not use any lubricants which contain molybdenum disulphide (MoS_2) or PTFE.

Always attach the ropes at the top of the suspension before letting them run into the winch!

B) Fitting the suspension rope and the safety rope

If a Yale safety lock type YISL is used, first lead in the suspension rope from above between roller and lift-off protection of the scanning arm!

- Insert the head of the wire rope from above as far as possible into the inlet sleeve of the Yale winch for passenger elevation.
- While pushing the UP button, push the rope until it winds on by itself and exits again at the bottom.

Running in the rope with the DOWN button takes the overload switch-off out of operation.

- If the rope does not run in, check whether the rope head is in order and whether the UP button has been pushed.
- Suspend the safety rope freely and at the correct distance next to the suspension rope.
- Open the Yale safety lock:
  Type YISL
  – Push scanning arm up by hand, if it has not yet been raised by the tensioned suspension rope;
  Type YOSL
  – Push down lever until it locks;
- Lead safety rope into the Yale safety lock from above.
- Tighten rope and attach a tensioning weight of approx. 10 kg to the safety rope at a height of approx. 20 cm above the ground!

C) Loose end of the rope

- The rope must always be able to run out unhindered! The loose end of the rope must hang freely to be able to untwist or it must be collected appropriately and must not form any loops.
- In order to prevent the unloaded wire rope from being damaged, fit a return sheave or another suitable rope guide, if required!

4. Operation of the winch

4.1 Safety checks before initial operation (by a competent person)

Prior to initial operation, a competent person must:

- carry out the checks described in sections 4.2 and 4.3,
- perform a trial run of the access equipment with max. useful load and
- actuate the emergency-stop button

=> The access equipment must stop immediately. Turn the emergency-stop button clockwise for restarting. Travel on and

- check the emergency-limit switch:

During upward travel, press down the actuating levers separately by hand:

=> The access equipment must stop immediately.

Document and file the results of the safety checks before initial operation.

4.2 Daily checks by the supervisor

- Check the correct fastening of the Yale winch and Yale safety lock on the access equipment.
- Check functioning of UP and DOWN buttons as well as emergency-stop button.
- Check functioning of the upper emergency-limit switch: During upward travel, press down the actuators separately by hand:

  => The access equipment must stop immediately.
- Make sure that no person stays under the access equipment or may be able to stay there.
- Check the Yale safety lock.

When the Yale safety lock is closed, it must not be possible to pull the safety rope upwards

A) Type YISL...

- The catching device closes automatically, when the suspension rope is not loaded, e.g. when the access equipment has been set down. If it is still possible to pull up the safety rope, replace the Yale safety lock and send it to Yale for checking.

B) Type YOSL...

- Close the catching device by turning the emergency-stop lever to the right (counter-clockwise), if it is still possible to pull up the safety rope, replace the Yale safety lock and send it to Yale for checking.
- Open the catching device again by turning the release lever to the left (clockwise) and abruptly pull the safety rope up, the safety lock must close automatically, if this is not the case replace it and send it to Yale for checking.

4.3 Weekly checks

Since defective ropes are a hazard to safe operation, check suspension ropes and safety ropes for damage at weekly intervals in accordance with section 6.2 A and replace them, as required.

In order to increase the service life of the wire ropes, make sure that they are clean and slightly lubricated. Check supply cables and control cables at regular intervals and replace them, as required.

4.4 UP/DOWN operation

A) Stop and emergency stop

a) For stopping the access equipment, release the UP or DOWN push-button.

If the winch does not stop:

b) Press the emergency-stop button => the access equipment must stop immediately.

If the winch still does not stop:

c) Pull the CEE plug!

Stop working immediately if the platform does not stop as described in a)! Arrange for a qualified electrician to carry out inspection and repair.

d) When Yale safety locks type YOSL are used, turn the emergency-stop lever for catching the access equipment on the safety rope in the direction of the arrow.

B) UP/DOWN operation

a) For switching the control system on, turn the red emergency-stop button clockwise until it pops out.

b) Press the UP button for travelling upwards and the DOWN button for travelling downwards. Release the button to stop the winch.

For lifting the access equipment from the ground, always use the lowest available lifting speed. The rope must first be tensioned at this speed; it must not be slack when the load is lifted from the ground. If the winch has two speeds, the low speed must only be used for short distances.

If operation is not possible check whether the integrated phase sequence monitoring feature blocks control because two phases in the supply line have been changed over. Turn the phase changer in the plug through 180°, as required.

c) The motor brake of the winch stops the load safely in every position.

d) In the case of an inclined position, switch-over to separate control of the lower Yale winch and travel it upwards with the UP button until the platform is suspended horizontally again.

Never travel upwards with a closed Yale safety lock, since the safety rope is then not tensioned between suspension and safety lock; this may impair or prevent operation of the safety lock.

In the case of safety locks type YOSL, the emergency-stop lever must not be used for stopping the access equipment in normal travel operation.

4.5 Manual descent

In the event of a power failure, the brake of the winch motor can be released by hand.
To do this, pull the lowering lever out of the handle on the rear side of the winch and insert it through the opening of the cover of the motor into the bracket of the brake.
Pull the lever upwards to start lowering the winch in a controlled manner. A built-in centrifugal brake ensures that the lowering speed is limited.

On work platforms with more than one winch, release the brakes on all units at the same time, as far as possible.
If there is only one operator on the platform, release the brakes on the winches alternately in order to avoid an impermissible inclined position.

Release the lowering lever to slow down.
Put the lever back into the handle after use.

Using the manual descent in the case of an overload is prohibited!

Using the manual descent as a replacement for electrical lowering is prohibited!

4.6 Conduct when the safety lock has tripped

A) Organise evacuation of the persons on the access equipment, if a safety lock has tripped as a consequence of a rupture of the suspension rope or a failure of the winch. Always replace the safety lock before restarting operation and then carry out the safety checks described in section 4.1, since the suspension of the safety rope and the connection between safety lock and access equipment are subjected to high dynamic loads in the case of a catching operation.
B) In the case of being caught/stopped during downward travel (suspension rope is no longer tightened) (only for safety lock type YISL…), in the case of an inclined position of more than 10° (only for safety lock type YISL…) on platforms with two winches fitted to the ends, with safety lock closed manually by pressing the emergency-stop button (only for safety lock type YOSL…):

- Unload safety rope by travelling the access equipment upwards;
- In the case of an inclined position, only travel the lower end upwards;
- The safety lock type YISL… is automatically opened again by the tensioned suspension rope;
- The safety lock type YOSL… must be opened by hand by pressing the lever down.

4.7 Taking the platform out of service

a) Secure the work platform against displacement:

- Set down work platform on the ground with tensioned wire ropes and then
- tie the work platform to the building.

b) Interrupt the energy supply so that unauthorised use is prevented:

- Disconnect supply cable from the network or set main switch to “0” and lock it, as required.

Always pull the power plug before opening the electric box on the winch or the control system!

2) Repairs of Yale endless winches and safety locks must only be carried out by Yale Industrial Products or by an authorised hoist service company!

5. Eliminating malfunctions

In the case of malfunctions, act calmly and carefully in order to avoid serious injuries!

1) Inspections and repairs of the electrical equipment must only be carried out by qualified electricians or by an authorised hoist service company. Circuit diagrams can be found in the control system of the Yale winch for passenger elevation.

Carry out checks according to section 4.2 to check operation of the catching device, when the access equipment is on the ground again!

Always replace the safety locks after a catching operation and send it to the manufacturer for checking!

Problem	Possible cause	Fault elimination
Platform neither travels up nor down but the motor turns when the UP/DOWN button is pushed	 Never continue to operate!	
	A Rope jam inside the winch Damaged/incorrect wire rope or rope lead-off not possible	Stop working immediately and require assistance (manufacturer or supplier of the winch)
	B Safety lock has triggered and holds the platform on the safety rope as a consequence of a broken suspension rope or damage to the winch	Stop working immediately and require assistance (manufacturer or supplier of the winch) Note section 4.6
	C Platform is caught e.g. on an obstacle	Move platform free. Check system for safety.
Problem	Possible cause	Fault elimination
Platform only travels down but not up, motor does not turn when the UP button is pushed	 Only continue travelling, if there no longer is a safety risk!	
	D Platform is caught e.g. on an obstacle	Remove obstacle Check platform for safety
	E Winch is overloaded, lifting force limitation has switched off the winch	Reduce the load on the platform or distribute it more evenly
	F Fault in UP circuit of the control system	Check contactors and wiring, repair, if required
	G One phase has failed	Check supply line and fuse links
	H No motor output a) Start-up capacitor defective b) Centrifugal force switch defective (only for single-phase motors)	a) Check start-up capacitor and replace if necessary b) Measure current on auxiliary winding, repair only possible by Yale Industrial Products
	I Brake rectifier defective	Replace brake rectifier

Platform only travels up but not down, motor turns when the DOWN button is pushed	 Only continue travelling, if there no longer is a safety risk!	
	J Platform has been stopped on an obstacle or caught by an obstacle.	Remove obstacle. Check system for safety
	K Safety lock holds the load on the safety rope a) Platform caught/stopped with safety lock YISL b) Inclined position of the platform with safety lock type YISL c) Winch speed too high with safety lock YOSL d) Triggering speed too low with safety lock YOSL	 a) Travel up until the loaded suspension rope opens the safety lock b) Travel up lower end of the platform until the loaded suspension rope opens the safety lock c) Replace the affected winch and have it checked d) Replace the safety lock and have it checked
	 Defective safety locks are a safety risk and must therefore be replaced immediately!	
..., but the motor does not turn when the DOWN button is pushed	L Fault in DOWN circuit of the control system	If required, actuate the manual descent (see section 4.5) Check contactors and wiring, repair, if required

Problem	Possible cause	Fault elimination
Motor does not run at all	M No power supply a) Control system switched off	a) Turn the emergency-stop button clockwise until it pops out
	b) No power supply in the network	b) Determine the cause and wait until power is available again
	c) For three-phase motors: the phase sequence relay blocks control	c) Turn the phase changer in the plug through 180°
	d) Supply line between mains connection and control system interrupted	d) Check supply and control cables, fuse links and connections or wiring of the control system and repair, as required.
	N Incorrect connection, e.g. missing neutral conductor	Compare connection and circuit diagram, if necessary conversion by Yale Industrial Products
	O Safety cut-off due to overheating a) One of the phases is missing	a) Check/repair fuse links, supply line and connections
	b) Motor cooling insufficient	b) Clean motor cover
	c) Overvoltage or undervoltage	c) Measure voltage and power consumption on motor with load, increase cable cross sections, if required
	P Brake does not release (no click when switching on/off) a) Power cable, coil or brake rectifier defective	a) Have the supply line, brake coil and rectifier checked and repaired/replaced by an electrician
	b) Brake rotor worn	b) Have the winch repaired
Motor hums strongly or rope drive scrunches, although up and down travel is possible	Q Overheating	See item O for individual causes and their elimination
	R Dirt in the rope drive  Travelling on may cause damage to rope and rope drive.	If possible replace winch immediately and have it checked/repaired by Yale Industrial Products or by an authorised hoist service company.

Platform runs on for more than 20 cm after the DOWN button has been released	S Brake defective/worn a) Brake rotor worn b) Air gap incorrectly adjusted	a) Have the winch repaired b) Adjust air gap correctly
	T Brake wet/aquaplaning	Make sure that the brake is dry (e.g. by means of protective cover), only continue travelling if the brake works

Contact Yale Industrial Products or an authorised hoist service company, if the steps mentioned above do not result in clarifying and eliminating the cause.

6. Maintenance

Date/performed by	Regulations	Item to be checked	Description
Each working day by the supervisor	DIN EN 1808 Safety requirements on Suspended Access Equipment	Fastening parts	In section 4.2
		Yale winch	In section 4.2
		Yale safety lock	In section 4.2
Each week by the supervisor	DIN15020 sh. 2/ISO 4309	Wire ropes	In section 6.2 A
	DIN EN 1808	Electrical cables	In section 6.2 A
Annually by a competent person	DIN EN 1808, BGV D8 (Winches, lifting and towing devices)	Entire installation	
		Yale endless winch	In section 6.2 B
After 200 h (M2/1Cm) or 400 h (M3/1Bm), at the latest, by Yale Industrial Products	EN14492-1, BGV D8 (Winches, lifting and towing devices)	General overhaul of the Yale endless winch and Yale safety lock	In section 6.2 B

6.1 Maintenance and servicing

A) Rope drive and gearbox

Rope drive and gearbox are almost maintenance-free.
Lubricating the ropes on a regular basis provides the rope drive with sufficient lubrication.

The service life of the rope drive is considerably increased by lubrication. The traction of the rope is not affected by proper lubrication.

B) Wire ropes

- Wire ropes must always be slightly lubricated. Ensure that they are clean, i.e. do not deposit them on dusty ground or in dirty surroundings.
- Never use wire ropes to fix a load.
- Always wind and unwind the wire ropes properly on/from the reels.
- Never pull wire ropes over edges.

Use common multi-purpose oil or grease for lubricating. Do not use any lubricants which contain molybdenum disulphide (MoS_2) or PTFE!

C) Motor and motor brake

The electro-motor of the winch is maintenance-free.
Clean the motor cover if it is extremely dirty to make sure that the motor is supplied with enough air.

The motor brake is maintenance-free; it must, however, be kept free of oil and grease!
Only clean in the case of exceptional operation conditions and in the case of strong dirt accumulation.

6.2 Regular checks

A) Ongoing checks

Before and during operation always make sure that all components used, i.e.

- Yale endless winches
- Yale safety locks
- Yale wire ropes
- Rope return sheaves
- Sling gear, etc.

are correctly fitted and are free of detectable defects.

Stop working immediately if defects occur during operation.

All type and instruction plates must be fitted and legible. Any missing or no longer legible type and instruction plates must be replaced immediately!

Wire ropes must be replaced immediately if a defect according to DIN15020 sheet 2 or ISO4309 has been detected during the weekly check:

– more than 11 broken wires over a length of 24 cm (dia. 8) / 27 cm (dia. 9) / 30 cm (dia. 10)

– Strong formation of rust on the surface or inside
– Heat damage, indicated by burning discoloration
– Reduction of the outer diameter to less than 7.6 mm (dia. 8 mm) / 8.5 mm (dia. 9 mm) / 9.4 mm (dia. 10 mm)

If damage is detected on the insulation or on the cable connections during the weekly check of the electrical cables, replace or repair supply and control cables immediately!
Excerpt from DIN15020: Illustration of the most common types of outer damage of wire ropes:

Figure 1: Wire rope with corkscrew-like deformation

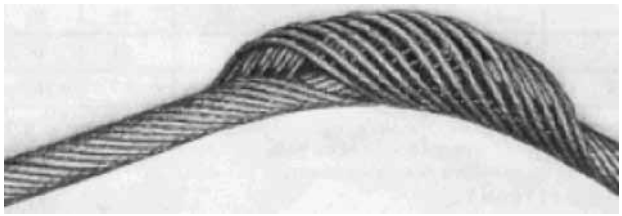


Figure 2: Wire rope with bird-caging

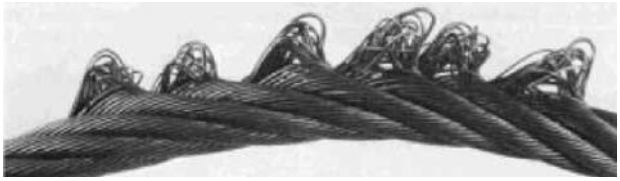


Figure 3: Wire rope with wire loops

Figure 4: Wire rope with flattening caused by being run over

Figure 5: Wire rope with kink

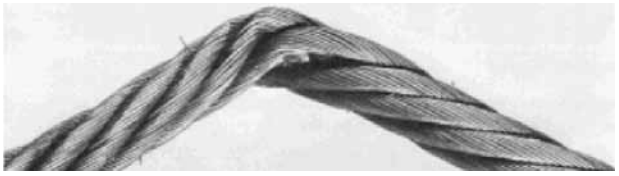


Figure 6: Wire rope with bend

B) Safety check by a competent person

A **competent person** has been enabled to carry out **safety checks** on Yale winches for passenger elevation and Yale safety locks by adequate training at the manufacturer's.
Safety checks of Yale winches for passenger elevation and Yale safety locks must be carried out at least once a year by a competent person.
Exceptional ambient conditions or conditions of operation may require additional safety checks according to the relevant accident prevention regulations for "Hoists, lifting and towing devices" (BGV D8) and the standard "Safety requirements on Suspended Access Equipment" (DIN EN1808).
Yale winches for passenger elevation with $M2/1C_m$ group of mechanisms must be subjected to a general overhaul after **200 hours of operation** at the latest and Yale winches with $M3/1B_m$ group of mechanisms after **400 hours of operation** at the latest by the manufacturer.

If a **catching operation** has occurred with a Yale safety lock, the Yale safety lock, fastening and safety rope must be checked by a **competent person** within the framework of an extraordinary safety inspection.

All results of the annual and extraordinary inspections must be entered into a log booklet.
This is the responsibility of the operating company.

6.3 Repairs of the winch

Any repairs on Yale winches and Yale safety locks must only be carried out by Yale Industrial Products or a hoist service company authorised by Yale; only original spare parts must be used for repairs. Only use gear oil type Mobil SHC 632 for refilling or for changing the gear oil!

Inspection comments

Inspection before initial operation on: _____

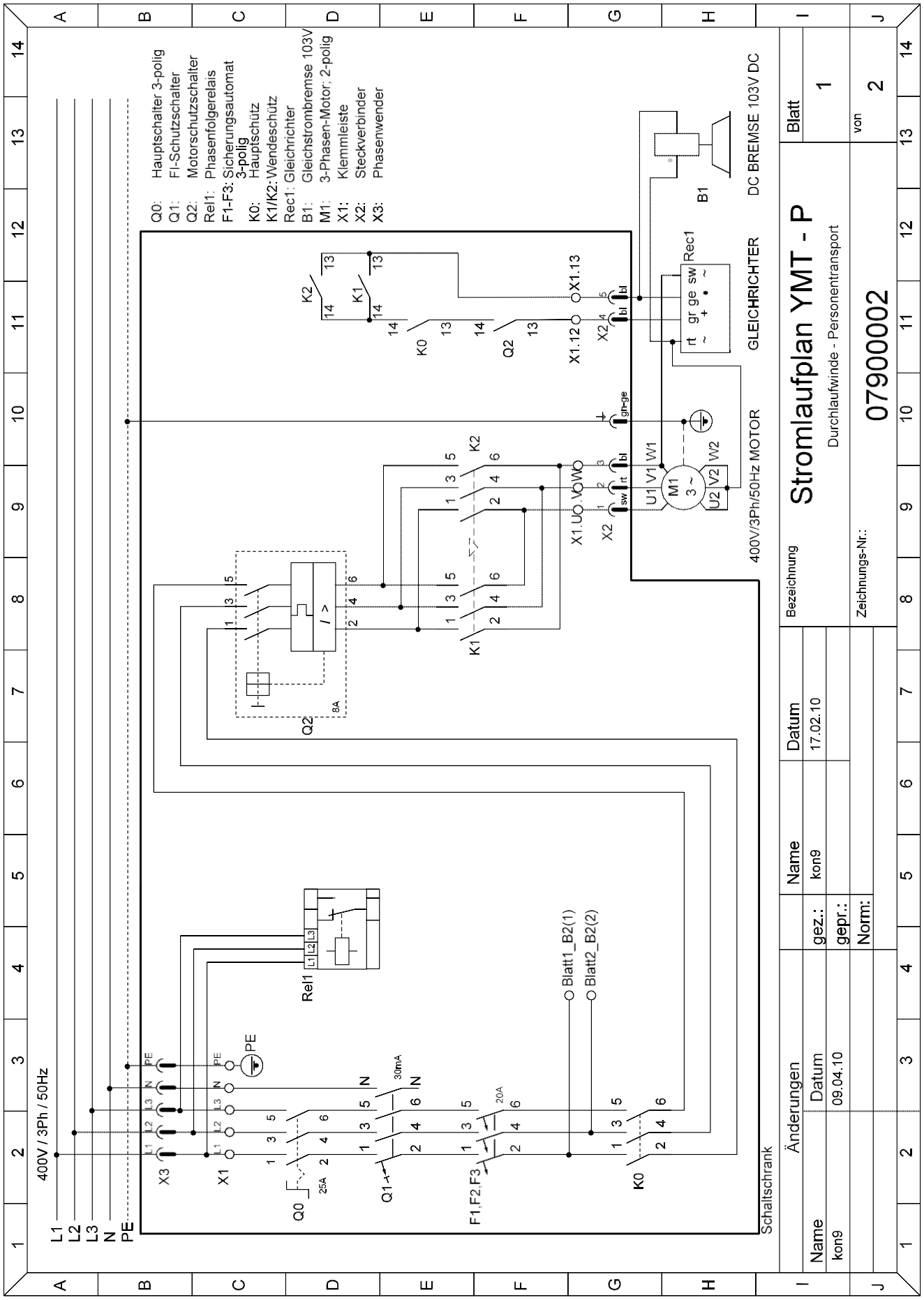
by: _____

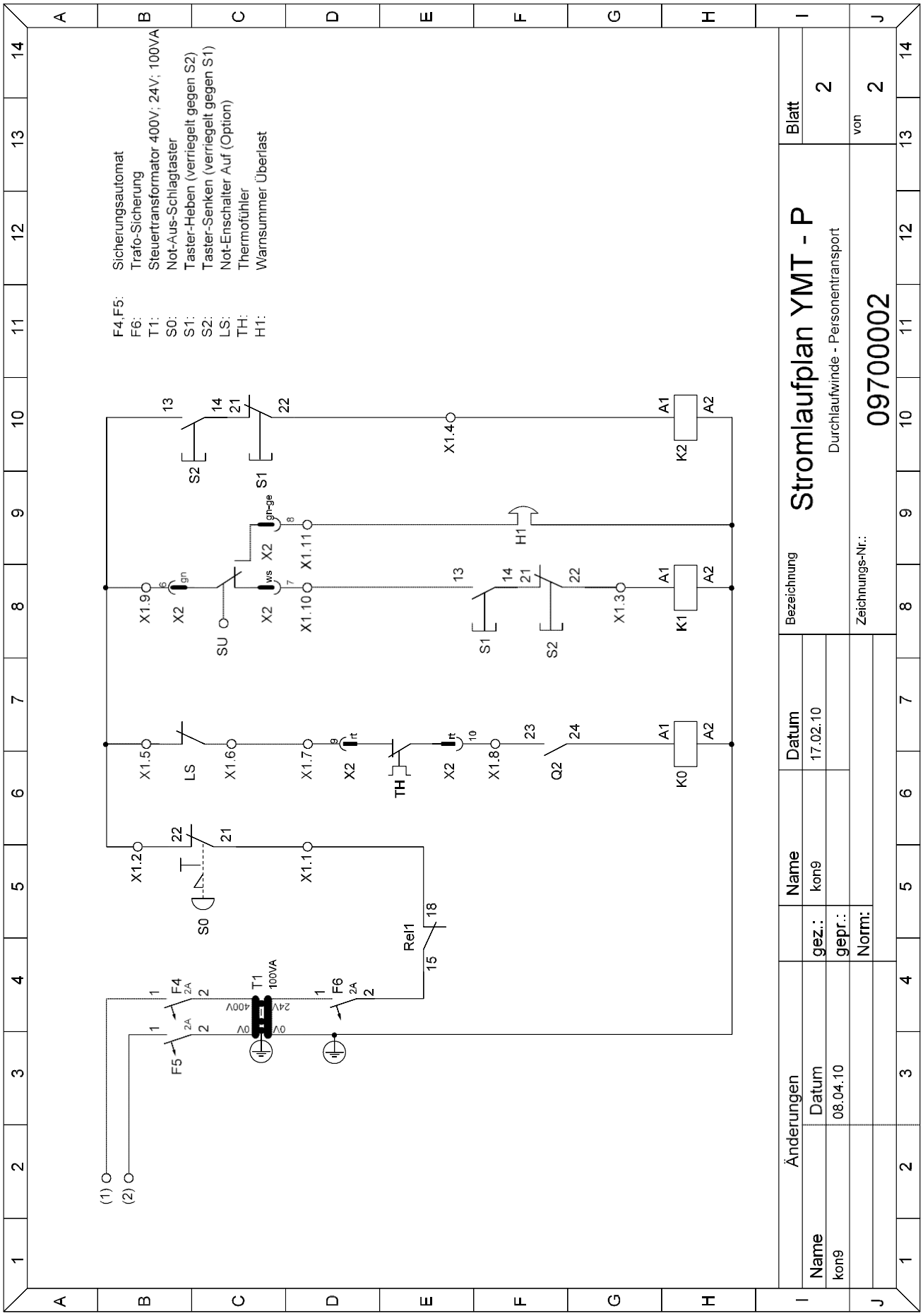
Date of initial operation: _____

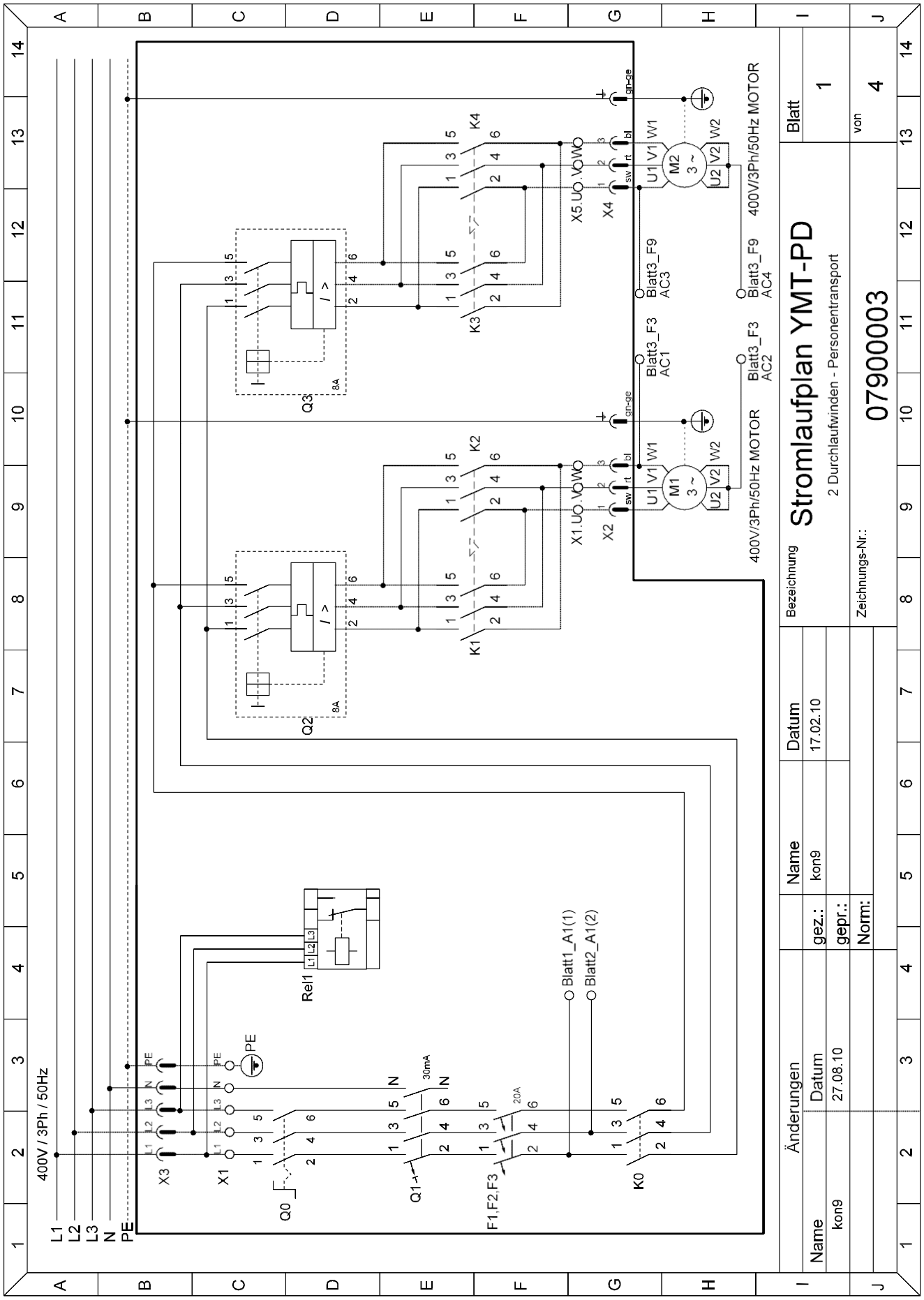
Recurring inspections

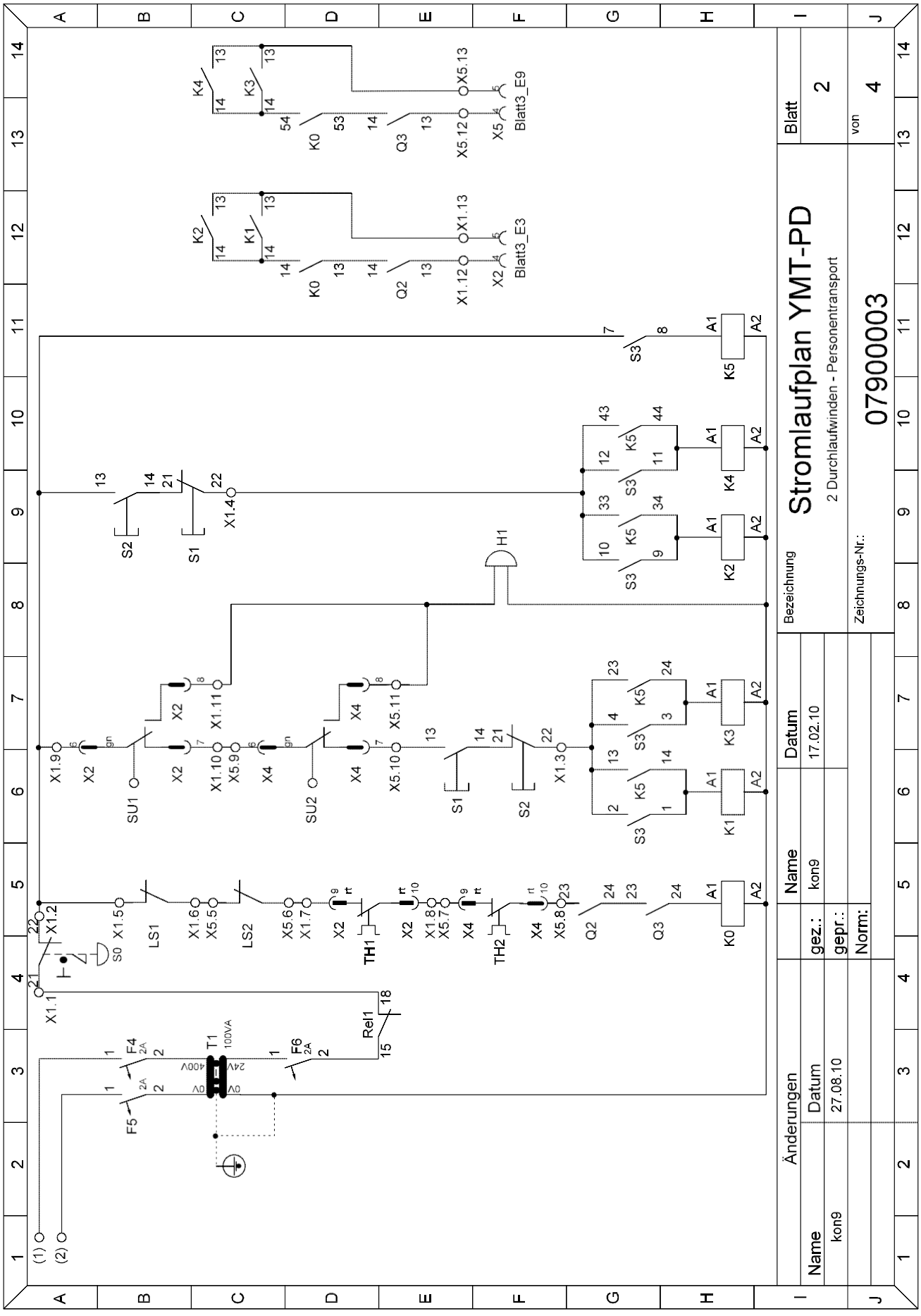
Date	Findings	Repairs	Test	
			on	by *

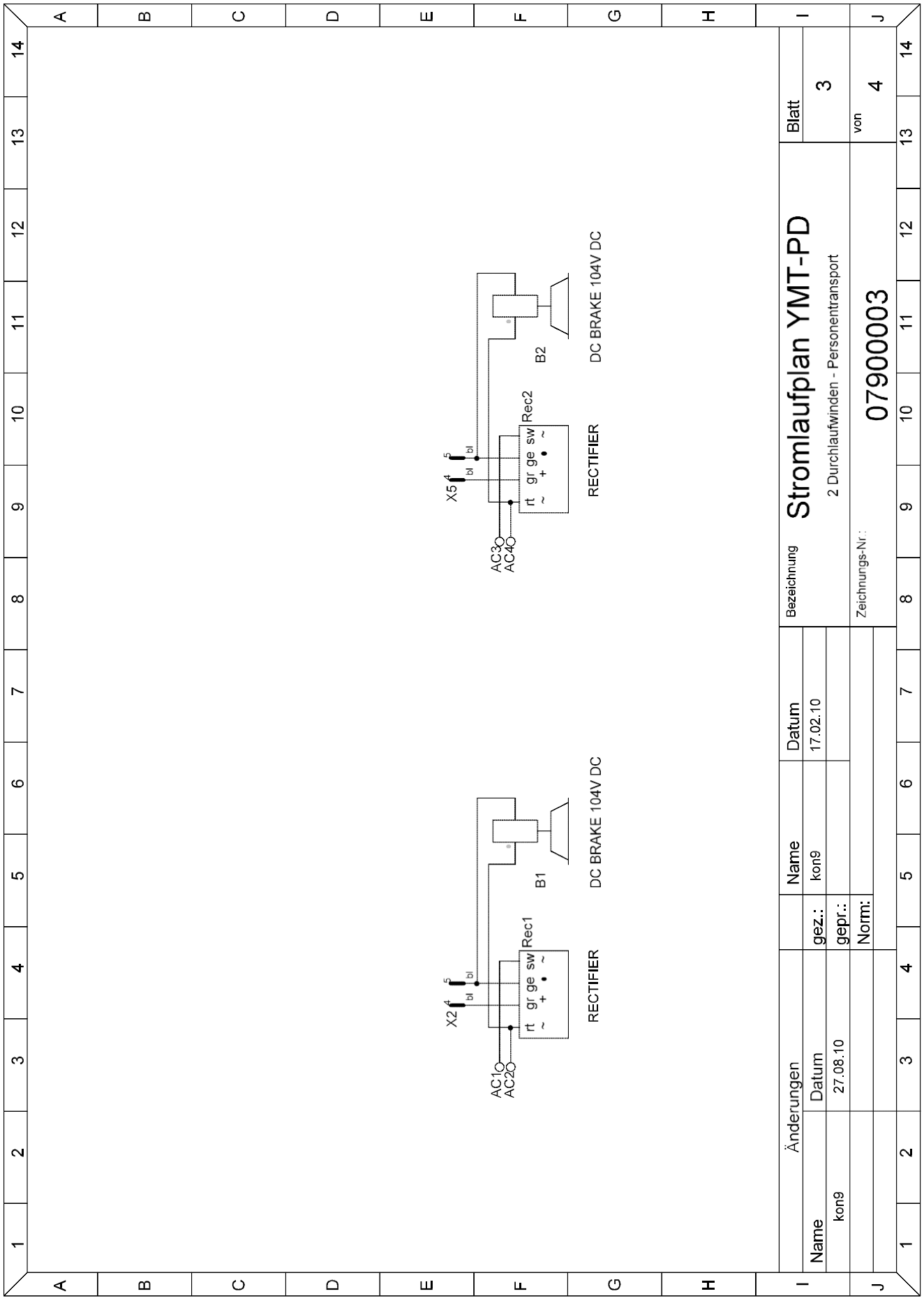
* competent person


Q0: Hauptschalter 3-polig
Q1: FI-Schutzschalter
Q2: Motorschutzschalter
Rel1: Phasenfolgerelais
F1-F3: Sicherungsautomat 3-polig
K0: Hauptschütz
K1/K2: Wendeschütz
Rec1: Gleichrichter
B1: Gleichstrombremse 103V
M1: 3-Phasen-Motor; 2-polig
X1: Klemmleiste
X2: Steckverbinder
X3: Phasenwender
400V / 3Ph / 50Hz
L1
L2
L3
N
PE
Schaltschrank
Rel1
Q0
Q1
Q2
F1,F2,F3
K0
K1
K2
X1
X2
X3
Blatt1_B2(1)
Blatt2_B2(2)
400V/3Ph/50Hz MOTOR
GLEICHRICHTER
DC BREMSE 103V DC
B1
M1
Rec1
Änderungen
Name
Datum
09.04.10
kon9
gez.:
gepr.:
Norm:
Datum
17.02.10
Bezeichnung
Stromlaufplan YMT - P
Durchlaufwinde - Personentransport
Zeichnungs-Nr.:
07900002
Blatt
1
von
2


F4,F5: Sicherungsautomat
F6: Trafo-Sicherung
T1: Steuertransformator 400V; 24V; 100VA
S0: Not-Aus-Schlagtaster
S1: Taster-Heben (verriegelt gegen S2)
S2: Taster-Senken (verriegelt gegen S1)
LS: Not-Enschalter Auf (Option)
TH: Thermofühler
H1: Warnsummer Überlast
Stromlaufplan YMT - P
Durchlaufwinde - Personentransport
09700002
Blatt 2
von 2
Änderungen
Name kon9
Datum 08.04.10
Name kon9
Datum 17.02.10
gez.:
gepr.:
Norm:
Bezeichnung
Zeichnungs-Nr.:


Stromlaufplan YMT-PD
2 Durchlaufwinden - Personentransport
07900003
400V / 3Ph / 50Hz
L1
L2
L3
N
PE
X3
X1
Q0
Q1
F1,F2,F3
K0
Rel1
Q2
Q3
K1
K2
K3
K4
M1
M2
X1.U
X2
X4
X5.U
Blatt1_A1(1)
Blatt2_A1(2)
Blatt3_F3 AC1
Blatt3_F3 AC2
Blatt3_F9 AC3
Blatt3_F9 AC4
400V/3Ph/50Hz MOTOR
30mA
20A
8A
Änderungen
Name
Datum
kon9
27.08.10
gez.:
gepr.:
Norm:
Name
kon9
Datum
17.02.10
Bezeichnung
Blatt
1
von
4
Zeichnungs-Nr.:


Stromlaufplan YMT-PD
2 Durchlaufwinden - Personentransport
07900003
Blatt 2
von 4
Bezeichnung
Zeichnungs-Nr.:
Änderungen
Name
Datum
gez.: kon9 17.02.10
gepr.: 27.08.10 kon9
Norm:
K0 K1 K2 K3 K4 K5
Q2 Q3
S0 S1 S2 S3
LS1 LS2
TH1 TH2
H1
SU1 SU2
T1 100VA
F4 2A
F5 2A
F6 2A
Rel1
Blatt3_E3
Blatt3_E9


AC1
AC2
X2
4
5
bl
bl
rt gr ge sw
~ + • ~
Rec1
B1
RECTIFIER
DC BRAKE 104V DC
AC3
AC4
X5
4
5
bl
bl
rt gr ge sw
~ + • ~
Rec2
B2
RECTIFIER
DC BRAKE 104V DC
Änderungen
Name
Datum
kon9
27.08.10
gez.:
gepr.:
Norm:
Name
Datum
kon9
17.02.10
Bezeichnung
Stromlaufplan YMT-PD
2 Durchlaufwinden - Personentransport
Zeichnungs-Nr.:
07900003
Blatt
3
von
4

Stückliste

Klemmleisten / Stecker

X1	Klemmleiste Winde 1
X2	Steckverbinder Winde 1
X3	Phasenwender
X4	Steckverbinder Winde 2
X5	Klemmleiste Winde 2

Schalter / Sicherungen

Q0	Hauptschalter
F1,F2,F3	Hauptsicherung
Q1	Fehlerstrom-Schutzschalter
Q2	Motorschutzschalter Winde 1 + Hilfskontakt "2S"
Q3	Motorschutzschalter Winde 2 + Hilfskontakt "2S"
F4,F5	Sicherungen
	Primärseite Steuertransformator

Schütze / Relais

Rel1	Phasenfolgerelais
K0	Hauptschütz + Hilfskontakt "1S+1Ö"
K1 / K2	Wendeschützkombination Winde 1
K3 / K4	Wendeschützkombination Winde 2
K5	Hilfsschütz Wahlschalter

Endschalter

LS1	Not-Endschalter-Auf Winde 1
LS2	Not-Endschalter-Auf Winde 2
SU1	Überlastendschalter Winde 1
SU2	Überlastendschalter Winde 2

Thermofühler

TH1	Thermofühler Motor Winde 1
TH2	Thermofühler Motor Winde 2

Signalgeber

H1	Warnsummer Überlast
	24V AC

Steuertransformator

T1	Prim.: 230V / 400V
	Sek.: 24V
	100VA

Motore

M1	3-Phasen-Motor Winde 1
M2	3-Phasen-Motor Winde 2

Bremsen

B1	Gleichstrombremse Winde 1
B2	Gleichstrombremse Winde 2

Bremsengleichrichter

Rec1	Einweggleichrichter Bremse Winde 1
Rec2	Einweggleichrichter Bremse Winde 2

Taster

S0	Not-Aus
S1	Heben
S2	Senken
S3	Wahlschalter

Änderungen			Name	Datum	Bezeichnung	Blatt
Name	Datum	gez.:	kon9	17.02.10	Stromlaufplan YMT-PD	
kon9	27.08.10	gepr.:			2 Durchlaufwinden - Personentransport	4
		Norm:				
		Yale Industrial Products GmbH Velbert / Germany			Zeichnungs-Nr. 07900003	von 4

Original Einbauerklärung
gemäß EG-Richtlinie Maschinen 2006/42/EG (Anhang II B)

Hiermit erklären wir,

COLUMBUS McKINNON Industrial Products GmbH
D-42549 Velbert, Am Lindenkamp 31

dass die nachstehend bezeichnete unvollständige Maschine in ihrer Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie Maschinen entspricht. Bei einer nicht mit uns abgestimmten Änderung/Ergänzung der unvollständigen Maschine verliert diese Einbauerklärung ihre Gültigkeit. Weiterhin verliert diese Einbauerklärung ihre Gültigkeit, wenn die unvollständige Maschine nicht entsprechend den in der Betriebsanleitung aufgezeigten bestimmungsgemäßen Einsatzfällen eingesetzt und die regelmäßig durchzuführenden Überprüfungen nicht ausgeführt werden. Die unvollständige Maschine darf erst in Betrieb genommen werden, wenn die Maschine, in die die unvollständige Maschine eingebaut worden ist, einer Koformitätsbewertung nach EG-Richtlinie Maschinen 2006/42/EG unterzogen worden ist und die Anforderungen erfüllt.

Bezeichnung der Maschine:	Personenwinde YaleMtrac Mod. YMT 5-9-P8; Mod. YMT 5-18-P8; Mod. YMT 6-9-P8; Mod. YMT 6-18-P8; Mod. YMT 8-9-P9; Mod. YMT 8-18-P9; Mod. YMT 10-9-P10; YMT 10-18-P10; Mod. YMTF 5-9-P8; Mod. YMTF 5-18-P8; Mod. YMTF 6-9-P8; Mod. YMTF 6-18-P8; Mod. YMTF 8-9-P9; Mod. YMTF 8-18-P9; Mod. YMTF 10-9-P10; Mod. YMTF 10-18-P10 Tragfähigkeit: 500 - 1.000 kg
Maschinentyp:	Personenwinde
Seriennummer:	Seriennummern für die einzelnen Geräte werden archiviert
Einschlägige EG-Richtlinien:	EG-Richtlinie Maschinen 2006/42/EG
Angewandte harmonisierte Normen insbesondere:	ISO 4309:2004+AMD1:2008 ISO 12100: 2010 EN 349:1993+A1:2008 EN 1808:1999 EN 12385-1:2009 EN 14492-1:2006+A1:2009 EN 60204-32:1999
Vollständig bzw. auszugsweise angewendete nationale Normen und technische Spezifikationen insbesondere:	DIN 15020-1:1974, BGVD8
Qualitätssicherung:	EN ISO 9001:2008
Dokumentationsbevollmächtigter:	COLUMBUS McKINNON Industrial Products GmbH Am Lindenkamp 31, 42549 Velbert, Germany
Datum/Hersteller-Unterschrift:	23.08.2011 
Angaben zum Unterzeichner:	Dipl.-Ing. Andreas Oelmann Leiter Qualitätssicherung

Translation of original declaration of incorporation
in accordance with EC Machinery Directive 2006/42/EC (Appendix II B)

Hereby we,

COLUMBUS McKINNON Industrial Products GmbH
42549 Velbert, Am Lindenkamp 31, Germany

declare that the design, construction and commercialised execution of the partly completed machinery designated below comply with the essential health and safety requirements of the EC Machinery Directive. The validity of this declaration of incorporation will cease in case of any modification of or supplement to the partly completed machinery without our prior consent. Furthermore, validity of this declaration of incorporation will cease in case that the partly completed machinery is not operated correctly and in accordance with the operating instructions and/or not inspected regularly. The partly completed machinery may only be put into service, when the machinery into which the partly completed machinery has been incorporated, has been subjected to a conformity evaluation in accordance with EC Machinery Directive 2006/42/EC and fulfils all requirements.

Designation of machinery:	YaleMtrac winch for passenger elevation Mod. YMT 5-9-P8; Mod. YMT 5-18-P8; Mod. YMT 6-9-P8; Mod. YMT 6-18-P8; Mod. YMT 8-9-P9; Mod. YMT 8-18-P9; Mod. YMT 10-9-P10; YMT 10-18-P10; Mod. YMTF 5-9-P8; Mod. YMTF 5-18-P8; Mod. YMTF 6-9-P8; Mod. YMTF 6-18-P8; Mod. YMTF 8-9-P9; Mod. YMTF 8-18-P9; Mod. YMTF 10-9-P10; Mod. YMTF 10-18-P10 Capacity: 500 – 1000 kg
Type of machine:	Winch for passenger elevation
Serial number:	Serial numbers for the individual units are registered
Relevant EC Directives:	EC Machinery Directive 2006/42/EC
Applied harmonised standards, in particular:	ISO 4309:2004+AMD1:2008 ISO 12100: 2010 EN 349:1993+A1:2008 EN 1808:1999 EN 12385-1:2009 EN 14492-1:2006+A1:2009 EN 60204-32:1999
Completely or partly applied national standards and technical specifications, in particular:	DIN 15020-1:1974, BGVD8
Quality assurance:	EN ISO 9001:2008
Authorised representative for technical data:	COLUMBUS McKINNON Industrial Products GmbH Am Lindenkamp 31, 42549 Velbert, Germany

Germany

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Web Site: www.pfaff-silberblau.com

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Web Site: www.cmco-france.com

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Yale Industrial Products
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Columbus McKinnon Corporation Ltd.*
Knutsford Way, Sealand Industrial Estate
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Phone: +44 (0) 1244 375375
Web Site: www.yaleproducts.com

Yale Industrial Products (Northern Ireland)
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Web Site: www.yaleproducts.com

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Phone: +34 954 29 89 40
Web Site: www.yaleiberica.com

Columbus McKinnon Ibérica S.L.U.
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Phone: +34 981 63 95 91
Web Site: www.yaleiberica.com

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Web Site: www.yaleiberica.com

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Web Site: www.yale.at

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Phone: +41 (0) 44 8 51 55 77
Web Site: www.cmco.ch

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Phone: +48 (0) 61 6 56 66 22
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