



# PMS 420 machine Replacement Repairs Guidance Instruction



**Schindler**

# PMS 420 machine Replacement

## Preface

In the event of either machine failure OR brake calliper adjustment / replacement, the PMS 420 machine has to be removed from the machine bed place.

The following instruction is a guide on how to remove and re fit the machine onto the bed plate on an MRL configured lift.

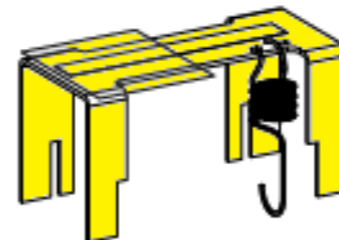
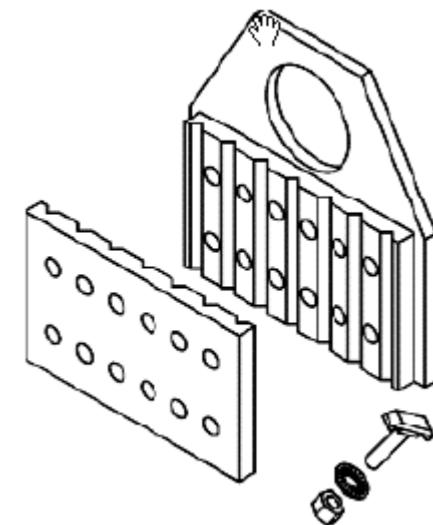
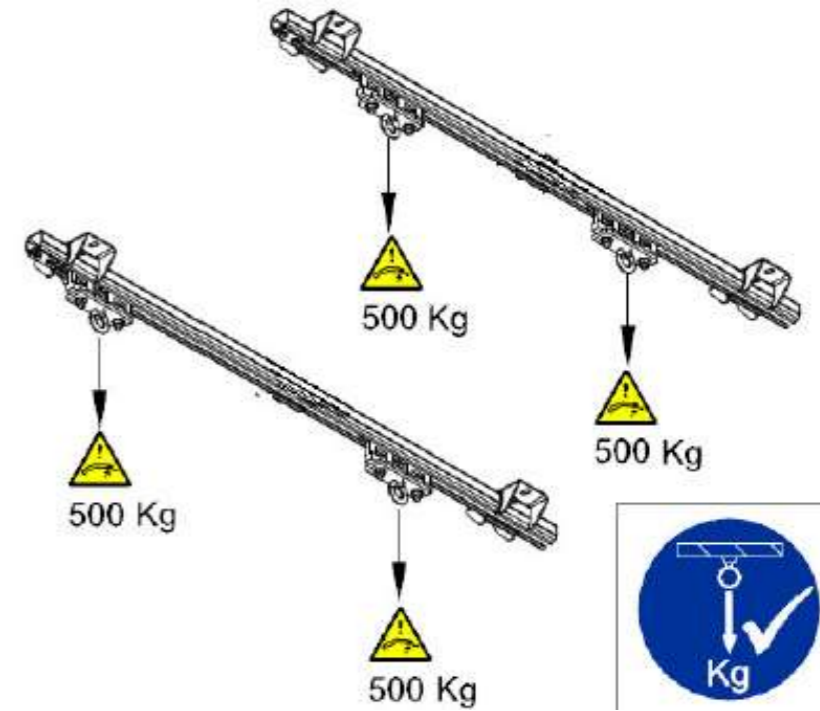
Each job needs to be assessed as to whether this exact process will apply, depending on elevator configuration or state of the machine and whether it can be driven will determine the final process.

Process outlined will be for worst case scenario. Machine failed, car level with top floor (sill to sill)

# PMS 420 machine Replacement

## Tooling

- MRL machine lift kit
- Trehwella Jack
- Props for CWT
- Chain block for car
- Slings
- Rope clamp
- Lock Out / Tag Out kit
- Hand tools
- Ladder for internal car access to elevator roof
- Temporary bridge between landing sill to car sling (needs to be made specifically for the job)
- 2 x trolley's rated to +800kg)
- Tripping Speed Reducer (for governor)
- Torque wrench (for 33Nm)
- Tie wire



# PMS 420 machine Replacement

## Checks before work to be carried out

Total Car Weight has to be assessed (is there any load in the cabin at time of failure) so correct sized chain block is selected

How is the replacement machine going to be positioned to the top floor? Will it have to be craned in? Will contractors such as Safe Removalists be required with stair climbers?

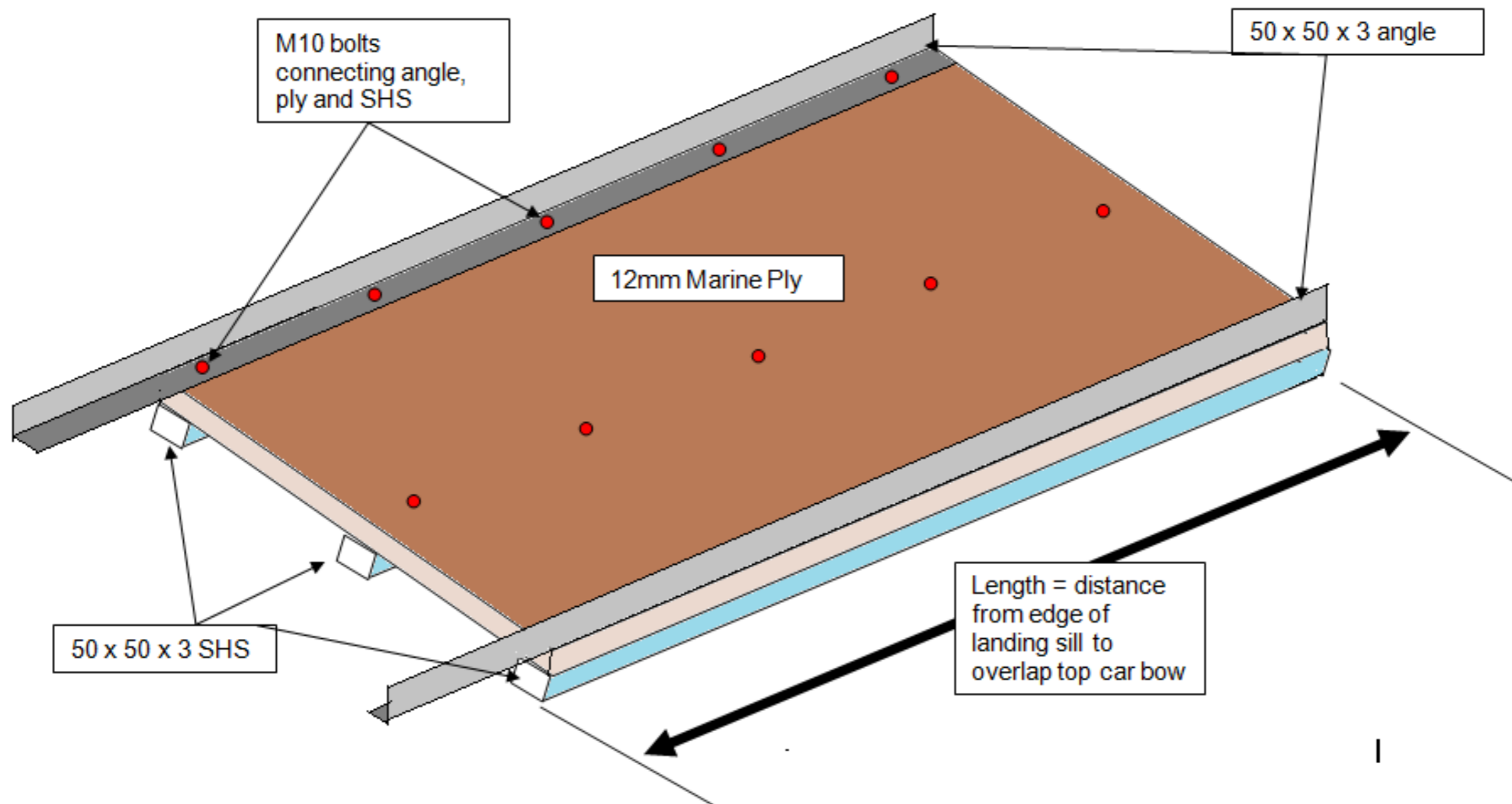
Measure the size of the bridge required between the landing sill and car sling to wheel the trolley's for machine removal and replacement to have made for the correct dimensions and strength.

Rated speed of the lift needs to be assessed so the correct Tripping Speed Reducer can be selected for the governor. (TSR will trip the governor at 0.63m/s)

# PMS 420 machine Replacement

## Bridge for trolley access into the shaft

A temporary bridge is required to allow the old and new machine to be rolled out on top of the lift car roof with a trolley.



# PMS 420 machine Replacement

## Bridge for trolley access into the shaft

Temporary bridge used when PML machine was replaced on a 5500.



# PMS 420 machine Replacement

## Setting up

1. Lock Out and Tag Out the JH main switch on the controller supply module
2. Gain access to the elevator car roof through the cabin (drop down DECO ceiling and fit ladder for access to the trap door.
3. Fit Tripping Speed Reducer to the governor (TSR must be selected depending on rated speed of elevator)
4. Hang main chain block from machine bed plate (wrap sling over the top)
5. Install Millsom beams for machine lift kit and fit required number of 500kg chain blocks and trolleys OR if I beams are provided in the shaft fit girder trolley's and 500kg chain blocks
6. Fit 1t chain block to centre lifting points in the shaft for transferring the machines too and from the machine lift kit
7. Hang an adjustable chain sling long enough to reach the car sling when positioned below top floor level (this is the safety sling for when the Safety gear is engaged for rope clamp adjustment)
8. Remove counterweight screen
9. Fit Trehwella jack underneath the counterweight

# PMS 420 machine Replacement

## Creating a movable working platform

1. Raise the CWT up with the jack. Reset jack as required to raise the CWT high enough so that the car roof will be below the top floor served landing sill
2. Place prop underneath the CWT and land the CWT onto the prop (use brake lifting handle in controller to lower tank onto prop)
3. Attach the rope clamp to the hoisting ropes that divert from the machine sheave to the under car sheave and ensure it is secure.
4. Attach the main chain block to the rope clamp and start to hoist the elevator upwards. There will be slack rope created by this process.
5. This process requires several takes where the rope clamp has to be re positioned to get the elevator car up to a comfortable working height. The car safety gear has to be engaged each time this change over is performed and a safety sling attached to the top of the car sling
6. Raise the car up to a comfortable working height to attach the machine lift kit to the PMS 420 machine for removal



# PMS 420 machine Replacement

## Removal of faulty machine from Bed Plate

1. Engage car safety gear and attach safety sling
2. Electrically disconnect the machine wiring (test before disconnection)
3. Remove end cover and rope keepers from machine, remove hoisting ropes from machine sheave (ensure ropes are marked and secured in a way that they will be replaced in the same order without twists)
4. Attach interfaces from machine lift kit as required to machine (elevator configuration determines components)
5. Attach 500kg chain blocks to machine, lift till just under tension and remove the machine fixation bolts from underneath the bed plate
6. Slide machine off the bed plate using Millsom beams OR I beams
7. Lower machine down close to car roof and attach the 1t chain block from the centre lifting point in the shaft to the eyebolt on the top of the machine

# PMS 420 machine Replacement

## Removing faulty machine from shaft

1. Raise car up with main chain block to release the car safety gear, release safety sling.
2. Lower car and machine in stages, ensure car safety gear is engaged and safety sling adjusted and connected for each transfer.
3. Lower car below top floor so bridge can be placed between landing sill and car sling
4. Engage car safety gear and fit safety sling
5. Fit bridge between landing sill and car sling

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## Swapping old for new machine

1. Lower machine down to the bridge and place a trolley underneath to transfer out of the shaft
2. Land machine onto the trolley, disconnect machine from chain block(s) and wheel out of the shaft
3. Remove machine lift kit interfaces from old machine and transfer to the new machine
4. Wheel in the new machine to the shaft and connect chain block(s)
5. Raise up the machine off the trolley and remove trolley from shaft
6. Remove temporary bridge

# PMS 420 machine Replacement

## Installing new machine

1. Raise car and machine back up into the headroom in stages as before engaging the safety gear and safety sling during transfers
2. Raise the car up to a comfortable working height to reinstall the PMS 420 machine
3. Engage the car safety gear and fit the safety sling
4. Slide machine on to the bed plate using Millsom beams OR I beams
5. Fit the machine fixation bolts. The tightening torque required is 33Nm.
6. Re tie the safety wire through the machine fixation bolts
7. Remove the chain blocks and machine lift kit interfaces from the machine

# PMS 420 machine Replacement

## Re connecting and commissioning new machine

1. Re install the electrical cables to the machine and terminate
2. Perform commissioning checks to ensure the brakes are wired correctly (coils and KB contacts)
3. Remove Lock Out and tag Out from JH – reinstate power to the VF drive
4. Perform VF tests to get Zero Position. Write new TR number on controller door.
5. With successful re commissioning of drive and machine, switch off JH main switch in the controller and re fit LOTO.

# PMS 420 machine Replacement

## Reinstating elevator for normal service

1. Re fit hoisting ropes to machine sheave in correct order.
2. Re fit end guard and anti rope jump bars on machine
3. Release car safety gear and safety sling
4. Lower lift car down so it is suspended on hoisting ropes following the stepped procedure with the chain block and rope clamp.
5. Remove rope clamp from hoisting ropes
6. From the pit raise the CWT slightly to remove the props using the Trehwella jack.
7. Remove props out of the way and lower CWT back into ropes so they are under tension
8. Remove props and jack from pit, re fit CWT screen

# PMS 420 machine Replacement

## Final checks

1. Remove LOTO kit from JH and reinstate power to the VF drive
2. Use RECAL control from the lift controller to drive lift a short distance in both directions to prove the machine is OK
3. Access the car roof and in INSPECTION control drive up and remove all rigging equipment from the shaft.
4. Once equipment is removed and car roof is clear, return elevator to Automatic control and test operation.

# PMS 420 machine Replacement

## De-establish from site

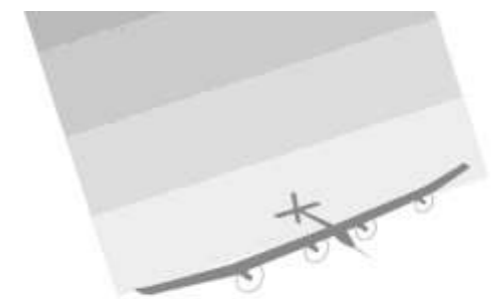
1. De establish from site, return elevator to normal service



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