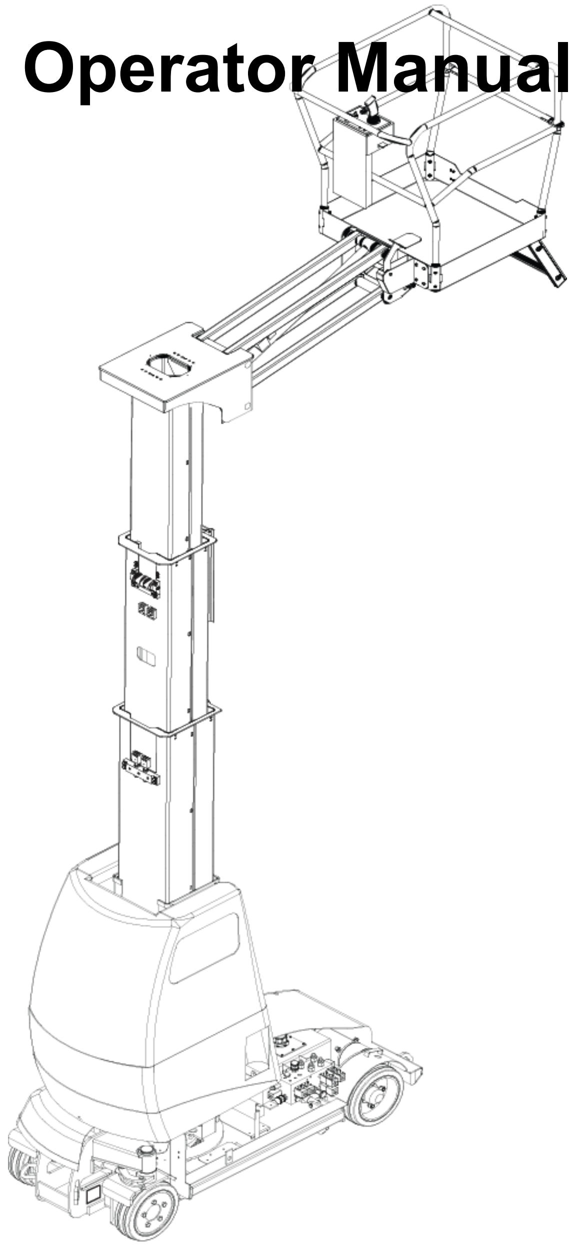
MB20N/26

Operator Manual



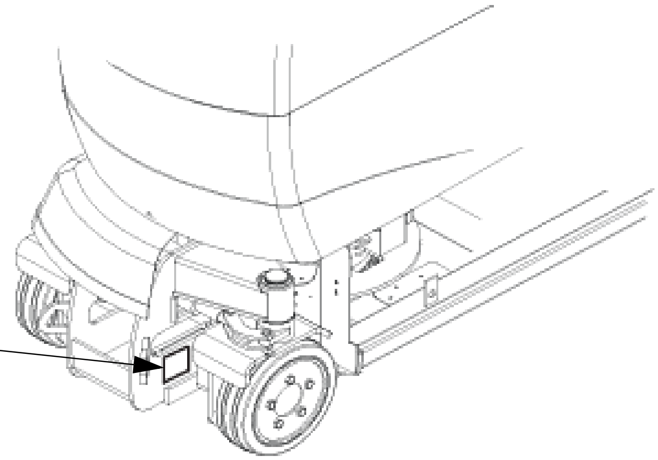
(EN) Manual part number 501375-004-EN for serial number : 1000 +

Nov 09

MB 20N/26

ENGLISH

When contacting UpRight Powered Access for service or parts information, be sure to include the MODEL and SERIAL NUMBERS from the equipment nameplate. Should the nameplate be missing, the SERIAL NUMBER is also stamped on top of the chassis above the front axle pivot.



Nameplate
The Work Platform Nameplate is located externally at the FRONT of the chassis

When contacting UpRight for service or parts information, sure to include the MODEL and SERIAL NUMBERS from the equipment nameplate.

The MB20N/26 work platform meets and exceeds the requirements of both:
En280:2001 and **ANSI A92.5 (1999)**

UpRight POWERED ACCESS

www.upright.com

⚠ WARNING ⚠

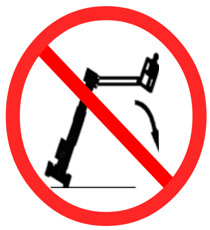
All personnel shall carefully read, understand and follow all safety rules and operating instructions before operating or performing maintenance on any UpRight Powered Access aerial work platform.

Safety Rules

Electrocution Hazard

THIS MACHINE IS NOT INSULATED!

Tip Over Hazard



NEVER elevate the platform or drive the machine while elevated unless the machine is on a firm, level surface.

Collision Hazard

NEVER position the platform without first checking for overhead obstructions or other hazards.

Fall Hazard

NEVER climb, stand, or sit on platform guardrails or midrail.

USE OF THE WORK PLATFORM: This aerial work platform is intended to lift persons and his tools as well as the material used for the job. It is designed for repair and assembly jobs and assignments at overhead workplaces (ceilings, cranes, roof structures, buildings etc.). All other uses of the aerial work platform are prohibited!

THIS WORK PLATFORM IS NOT INSULATED! For this reason it is imperative to keep a safe distance from live parts of electrical equipment! - **DO NOT** get closer than the minimum distance recommended by the "National Regulations".

Exceeding the specified permissible maximum load **is prohibited!** See "Specifications - Platform Capacity" for details.

The use and operation of the aerial work platform as a lifting tool or a crane **is prohibited!**

NEVER exceed the manual force allowed for this machine. See "Manual Force" on page 2 for details.

DISTRIBUTE all platform loads evenly on the platform.

NEVER operate the machine without first surveying the work area for surface hazards such as holes, drop-offs, bumps, curbs, or debris; and avoiding them.

OPERATE machine only on surfaces capable of supporting wheel loads.

NEVER operate the machine when wind speeds exceed this machine's wind rating. See "Beaufort Scale" on page 1 for details.

NEVER attach notice boards etc. to the platform, as this will increase wind loading.

IN CASE OF EMERGENCY push EMERGENCY STOP switch to deactivate all powered functions.

IF ALARM SOUNDS while platform is elevated, STOP, carefully lower platform. Move machine to a firm, level surface.

Climbing up the railing of the platform, standing on or stepping to or from the platform onto buildings, steel or prefabricated concrete structures, etc. **is prohibited!**

Dismantling the entry gate or other railing components **is prohibited!** Always make certain that the entry gate is closed and securely locked!

It is prohibited to keep the entry gate in an open position when the platform is raised!

To extend the height or the range by placing of ladders, scaffolds or similar devices on the platform **is prohibited!**

NEVER perform service on machine while platform is elevated without blocking elevating assembly.

INSPECT the machine thoroughly for cracked welds, loose or missing hardware, hydraulic leaks, loose wire connections, and damaged cables or hoses before using.

VERIFY that all labels are in place and legible before using.

NEVER use a machine that is damaged, not functioning properly, or has damaged or missing labels.

To bypass any safety equipment **is prohibited** and presents a danger for the persons on the aerial work platform and in its working range.

NEVER charge batteries near sparks or open flame. Charging batteries emit explosive hydrogen gas.

Modifications to the aerial work platform **are prohibited** or permissible only at the approval by **UpRight Powered Access**.

AFTER USE, secure the work platform from unauthorized use by turning the keyswitch off and removing key.

The driving of MEWP's on the public highway is subject to Regulations made under the Road Traffic Acts.

ENVIRONMENTAL TEMPERTURE LIMITATION, The machine is primarily for use in normal ambient tempertures and conditions ranging between 50c to -20c.

NOTES:

Contents

1. Introduction

1.1 Introduction

Purpose & Limitations

This Service & Parts Manual is designed to provide instructions and illustrations for the safe operation and maintenance of the MB20N & MB26 Work Platform manufactured by Upright Powered Access Ltd. The purpose of this machine is to provide fast and safe access to difficult to reach areas. The machine may only safely operated on firm level ground. Refer to the Specification section for the machines access limitations.

DO NOT use on soft ground or on slopes greater than 2 degrees.

DO NOT use the lifting mechanism to raise or lower goods or persons except within the cage and subject to the weight limitations.

DO NOT enter the platform from a structure, rack or other platform.

ENVIRONMENTAL TEMPERTURE LIMITATION, The machine is primarily for use in normal ambient tempertures and conditions ranging between 50c to -20c.

Scope

This manual includes the procedures and responsibilities for the inspection, transportation, safe operation, maintenance, and repair of this product. The Maintenance Section within the Parts & Service Manual also covers preventative maintenance and troubleshooting.

Special Information

Throughout this manual the users attention is drawn to these special warning boxes:

! DANGER !

Indicates an imminently hazardous situation which, if not avoided, will result in severe injury or death.

! WARNING !

Indicates a potentially hazardous situation which, if not avoided, could result in severe injury or death.

! CAUTION !

Indicates a potentially hazardous sit uation which, if not avoided, may result in minor or moderate injury.

1.2 General Description

The MB20N/26 are self propelled, fast acting aerial work platforms, designed to raise two operators with hand tools to a platform floor height of 6.00 m and 7.76 m respectively. The accessible height is approximately 2.00 m above these figures. It is designed to travel with safe working load and work tools up to an upper limit, See table on page 2-18 / 2-19 .

The unit offers the ability to reach over obstacles but must be used on firm and level ground at all times.

Platform

The MB20N/26 platform is large enough for two operators indoors, one outdoors and has a free-draining perforated floor with 150 mm toeboards. Hand-rails are constructed from Steel tubing and a safety drop-bar is provided at the entrance. Safety restraint harness anchor points are also fitted in the floor of the platform. These must be used at all times. The main controls are fitted to this platform.

WARNING

DO NOT use the work platform without guardrails properly assembled and in place.

Platform Controller

The primary (Upper) control box is permanently fitted to the front of the platform. It features a joystick which provides proportional control for raising or lowering the mast, raising or lowering the jib or rotating the complete mast assembly. The same joystick is also used to drive and steer the machine.

A safety Interlock Switch or 'deadman button' is incorporated into the Joystick. It must be activated at all times in order to operate any function. This feature allows for one-handed operation. A comprehensive explanation of control functions is given in the Operators Manual - a copy of which shall be located in the platform document wallet located just beneath the upper control station in the platform.

The secondary (Lower) control box is fitted to the mast cover at arm level. It features a 'deadman' enable button and selector buttons to provide pre-programmed speeds for all functions except drive and steering. This control station is used primarily for service-type operations including pre-operation inspection. It should never be used to position a manned or unmanned platform. It may be used in the event of emergency, however, to lower the manned platform.

WARNING

NEVER operate the machine from the upper controls until the platform entrance drop-bar is in the fully lowered position and the safety harness is fitted.

Elevating Assembly

The platform is raised and lowered by a combination of a steel jib and a series of telescoping mast sections. The main hydraulic cylinder, mounted within the masts, lifts the 2nd mast directly. The other masts are connected by a system of heavy duty plate chains and pulleys to ensure sequential lifting.

A parallel system of heavy duty straps ensures that the masts descend in the proper sequence and also ensure that a mast cannot be held in suspension by an obstacle during descent.

The jib cylinder provides a lifting arc to the jib and cage assembly. All hydraulic functions are carried out using solenoid operated control valves. Each cylinder features an integral holding valve to prevent uncontrolled descent in the case of a hose bursting.

Rotation Gear

The complete mast, jib and cage assembly can be rotated to provide a maximum outreach of 2.6m in the case of the MB20N and 2.96m in the case of the MB26 machine. This dimension is measured from the centreline of rotation and is carried out by means of an integral hydraulic motor driving a Worm Drive Unit, around a Slew Gear.

Drive & Steer System

An electronic controller, mounted in the chassis, is pre-programmed to adjust the upper speed limit of each individual function. The controller limits the rotational speed of the electronic motor and oil pump, thereby limiting the maximum oil flow rate.
The following functions are controlled and driven by the electro-hydraulic system:

- Traction Drives (Fwd & Rev) mast stowed/mast raised.
- Steering and Jib elevation.
- Mast elevation, descent and rotation.
- The Jib descent function is gravity operated and is determined by built in flow regulators.

Power System

The Power System (Prime Mover) incorporates four 6V batteries driving a 4KW electro-hydraulic pump. The pump drives all hydraulic cylinders and the traction drive motors. A single multi-valve control block diverts the oil pressure to the individual actuators. The oil flow rate is limited by the pre-programmed speed setting on the motor but is determined by the position of the joystick in the Upper Control Box.

1.3 Workshop Procedures

All information contained in this manual is based on the latest product information available at the time of printing. We reserve the right to make changes at any time without notice.

CAUTION

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. Note that this manual does contain warnings and cautions against some specific service methods that could cause personal injury, or could damage a machine or make it unsafe.

Please understand that these warnings cannot cover all conceivable ways in which service, whether or not recommended by UpRight, might be done, or of the possible hazardous consequences of each conceivable way, nor could UpRight investigate all such ways.

Anyone using service procedures or tools, whether or not recommended by UpRight must satisfy themselves thoroughly that neither personal safety nor machine safety will be jeopardized. When in doubt, contact your local distributor or UpRight.

2. Operation & Specifications

2.1 Introduction

Special Limitations

The purpose of this machine is to provide fast and safe access to difficult to reach areas.
Refer to the Specification section for the machines access limitations.
Travel with the platform raised is limited to creep speed range.

Manual Force

Manual force is the force applied by the occupants to objects such as walls or other structures outside the work platform.The maximum allowable manual force is limited to 200 N (45 lbs.) of force per occupant.

DANGER

DO NOT exceed the maximum manual force.

NEVER exceed the platform capacity.

Platform Capacity

The Platform is designed to travel with safe working load **(SWL)** including work tools to an upper limit of **215 kg (425 lbs for ANSI MB20N)**

Beaufort Scale

Never operate the machine when wind speeds exceed 12.5m/s (28 m.p.h.) [Beaufort scale 6].

Beaufort Rating	Wind Speed				Ground Conditions
	M/S	KM/H	FT./S	M.P.H.	
3	3,4~5,4	12,25~19,4	11.5~17.75	7.5~12.0	Papers and thin branches move. Flags wave.
4	5,4~8,0	19,4~28,8	17.75~26.25	12.0~18	Dust is raised, paper whirls up, and small branches sway.
5	8,0~10,8	28,8~38,9	26.25~35.5	18~24.25	Shrubs with leaves start swaying. Wave crests are apparent in ponds or swamps.
6	10,8~13,9	38,9~50,0	35.5~45.5	24.5~31	Tree branches move. Power lines whistle. It is difficult to open an umbrella.
7	13,9~17,2	50,0~61,9	45.5~56.5	31.~38.5	Whole trees sway. It is difficult to walk against the wind.

DANGER

DO NOT use on soft ground or on slopes greater than 2 degrees.

The work platform is **NOT** intended for use on uneven or rough terrain.

ONLY operate this machine on **FIRM** and **LEVEL** ground.

2.2 General Description

The MB20N/26 are self propelled, fast acting aerial work platforms, designed to raise two operators with hand tools to a platform floor height of 6.00m and 7.76m respectively. The accessible height is approximately 2.00m above these figures.

The unit offers the ability to reach over obstacles but **must** be used on firm and level ground at all times.

⚠ DANGER ⚠

DO NOT use the lifting mechanism to raise or lower goods or persons except within the cage and subject to the specified weight limitations.

⚠ DANGER ⚠

DO NOT enter the platform from any structure, rack or other platform.

Figure 3: Work Platform

⚠ WARNING ⚠

DO NOT use the work platform without safety drop-bar in place and with the safety harness fitted.

2.3 Safety Inspection

This Safety Inspection shall be carried out by the owner immediately prior to transporting this machine.

This Safety Inspection shall also be carried out by the user **prior to use each day**.

The procedure is to carry out the following 14 checks in order as follows.

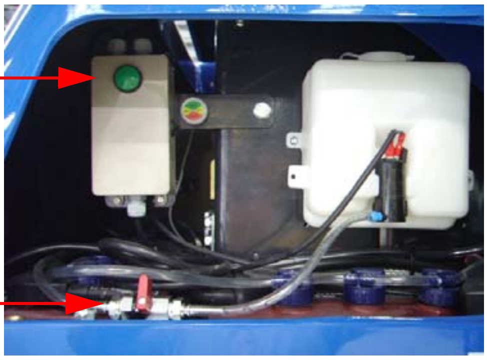
1. Remove the rear chassis covers by means of the two top twist-locks and the two lift-and-turn catches at the sides. The cover is removed by sliding it backwards and upwards. Use the central handle provided.
2. Ensure that the mast and jib are fully lowered. Remove the hydraulic oil filler cap and check that the hydraulic oil level is correct. Oil should be visible on the dip stick. Top up as necessary using hydraulic oil Viscosity Grade ISO 46.
3. Inspect the chassis area for oil leaks, loose parts, frayed cables and hoses and structural damage etc. Check that all cable connections to the solenoid valves are intact.
4. Open the Inspection hatches on both sides of the upper mast cover. Check that the AC mains cable is disconnected from the battery charger. Check the electrolyte level in each battery cell. Top up as necessary with distilled water only.
5. Use the automated battery top-up system fill the batteries to the correct electrolyte level. This is done by opening the shut off valve and pressing the green fill button for approximately 10 seconds, then re-closing the shut-off valve.

   Batteries should be examined for cracks, acid leakage and terminal corrosion. Take corrective action immediately if either check fails.

Figure 3: Battery Fill Button & Valve

Battery fill Button

Shut off Valve
In CLOSED Position



CAUTION

Vehicles fitted with the automated battery top-up system **with** shut off valve, top up the battery cells with distilled water using the electrolyte fill button, ensuring that the shut-off valve is open during the fill and closed after use.

This is the **only** time this valve should be opened.

Figure 4: Lower Control Panel

1. Emergency Stop

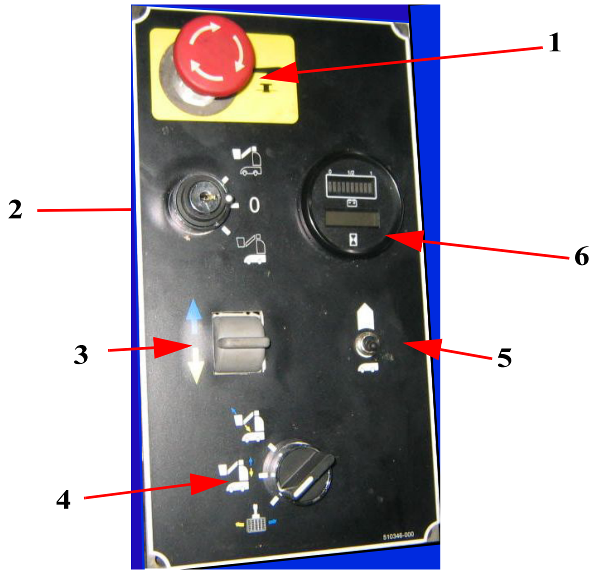
2. KeySwitch - Platform Controls
 - OFF
 - Lower Controls

3. Analogue Rocker

4. Selector Switch - Jib
 - Mast
 - Mast Rotate

5. Enable Switch

6. Hour Meter/Battery Capacity Indicator



6. Prior to operating the functions, check that the upper and lower emergency stop buttons on each control station are retracted; turn clockwise if necessary. Carry out the following function from the Lower Control Station.

NOTE: DO NOT enter the platform at this stage.

7. Check jib operation by extending the jib to its fully elevated position. Check for correct routing of the hoses and cables. Check the Emergency Lowering feature of the jib. Ensure that when the Emergency Lowering lever/button is disengaged, the jib no longer descends. Return the jib to its rest position using the normal Lower Control Station.
8. Check mast chains by elevating the masts approximately 30cm above the rest position. Check for correct routing of the energy chain. Raise the masts to full height and check for correct adjustment of each lifting chain as follows. Each chain in the pair should bear load. Use a hand held spring balance or tensiometer apply a nominal load (approximately 10kgf.) to either chain in the pair. Apply the load about half way up the chain. Record the approximate deflection i.e. the offset distance from the mast. Repeat the measurement on the adjacent chain at the same location. Chains bearing equal load will deflect equal amounts. Carefully adjust the slack chain until the deflections are approximately equal. Torque up the locknuts to 70 Nm.

NOTE: Apply a thin layer of grease to the lifting chains with a small paintbrush.

CAUTION

Over-tensioning of either lifting chain will result in unnecessary lifting of the mast.

This will lead to a subsequent increase in machine stowed height.

The function of the mast straps is to ensure that masts descend in the correct order and more importantly, that masts cannot continue to descend if the jib or platform meets an external obstacle. Raise the masts about 30cm. Check the external mast clamp screws for tightness. Pull on the short length of each strap and check that they are secure. Refer to the maintenance manual for instructions on more stringent periodic checks on these straps.

Check the Emergency Lowering feature of the mast. The lever is located in the upper mast over. Open the left hand battery inspection hatch and locate the 'Emergency Lowering' decal label. Check the wear pads for damage or heavy scoring. Replace as necessary.

9. Elevate the jib fully. Using the Lower Control Station, turn the mast assembly through about 90 degrees. Check the correct routing of the hoses and cables and the correct smooth operation of the energy chain in its chassis base slide. Continue rotating through 180 degrees in both directions. Confirm that the rotation stops are intact.
10. STANDARD PLATFORM CONTROLS Repeat the mast, jib and rotate functions from the Upper Control Station in the platform. Check that pressing the emergency stop button prevents subsequent operation of the joystick.
11. TILT SENSOR FUNCTION CHECK. The tilt sensor is incorporated in the EZ230 control module. To check it's operation while in platrom drive the machine onto a suitable ramp to raise it's tilt angle above 2 degrees, lift the Jib until the jib limit switch just separates, a continuous audible alarm should sound and all functions on the machine become disabled. Lower the jib using the emergency manual release valve located between the jib structure, the alarm should silence and normal operation becomes enabled.

CAUTION

During manual lowering extreme care must be taken to ensure hands are not trapped in the jib structure.

Figure 5: Joystick

12. MACHINE TRAVEL - UNELEVATED Travel functions are possible only from the platform Upper Control Station. As with all such controls, the deadman handgrip switch must be depressed before any function can operate.

    Select Drive on the upper control panel. Pushing back and forward on the joystick moves the machine backwards and forwards respectively.

    The pothole protection will begin to retract immediately. However, full demand speed will not be realised until the bars are fully raised. This takes about 3 seconds. Check that the motion alarm DOES sound during travel. Check that the thumb operated switches on the top of the joystick operates the front wheel steering.
13. MACHINE TRAVEL-ELEVATED While the masts are raised, it is possible to drive and steer the machine at a much reduced speed. Also note that while the masts are raised, the pothole protection bars should be fully extended and should remain extended during slow speed motion of the machine.

⚠ WARNING ⚠

The issue of reduced speed while elevated and deployment of the pothole protection bars is crucial to the safe operation of this machine.

The machine may not be released or operated unless these functions operate properly.

14. FINAL PREPARATION Configure the masts and jib to the stowed position. Replace all machine covers and secure.

NOTE: The machine is now ready for Operation or Transportation.

2.4 Operation of the Platform Controls

The primary (Upper) control box is permanently fitted to the front of the platform. It features a multi-use joystick which provides proportional control for all the machines functions. That includes, raising or lowering the mast, raising or lowering the jib, rotating the mast assembly, and also to drive and steer the machine.

A safety Interlock Switch or 'deadman button' is incorporated into the Joystick. It must be activated at all times in order to operate any function. This feature allows for one-handed operation.

The secondary (Lower) control box is fitted to the mast cover at arm level. It features an enable button and selector buttons to provide pre-programmed speeds for all functions except drive and steering. This control station is used primarily for service-type operations including pre-operation inspection. It should **never** be used to position a manned or un-maned platform.

NOTE: It may be used in the event of emergency to lower the manned platform.

⚠ WARNING ⚠

NEVER operate the machine from the upper controls until the platform entrance drop-bar is in the fully lowered position and the safety harness is fitted.

To Turn The Machine On

Turn the key switch on the lower controls panel to platform controls or lower controls as required, the overload warning lamp on the platform control box will flash for 2 seconds and the buzzer will sound twice confirming that the overload sensor has booted up.

Controls and Indicators

The pre-operation safety checks should be carried out prior to operation. These checks are detailed in the previous section. Operators who follow these guidelines will become familiar with the controls and indicators on the machine.

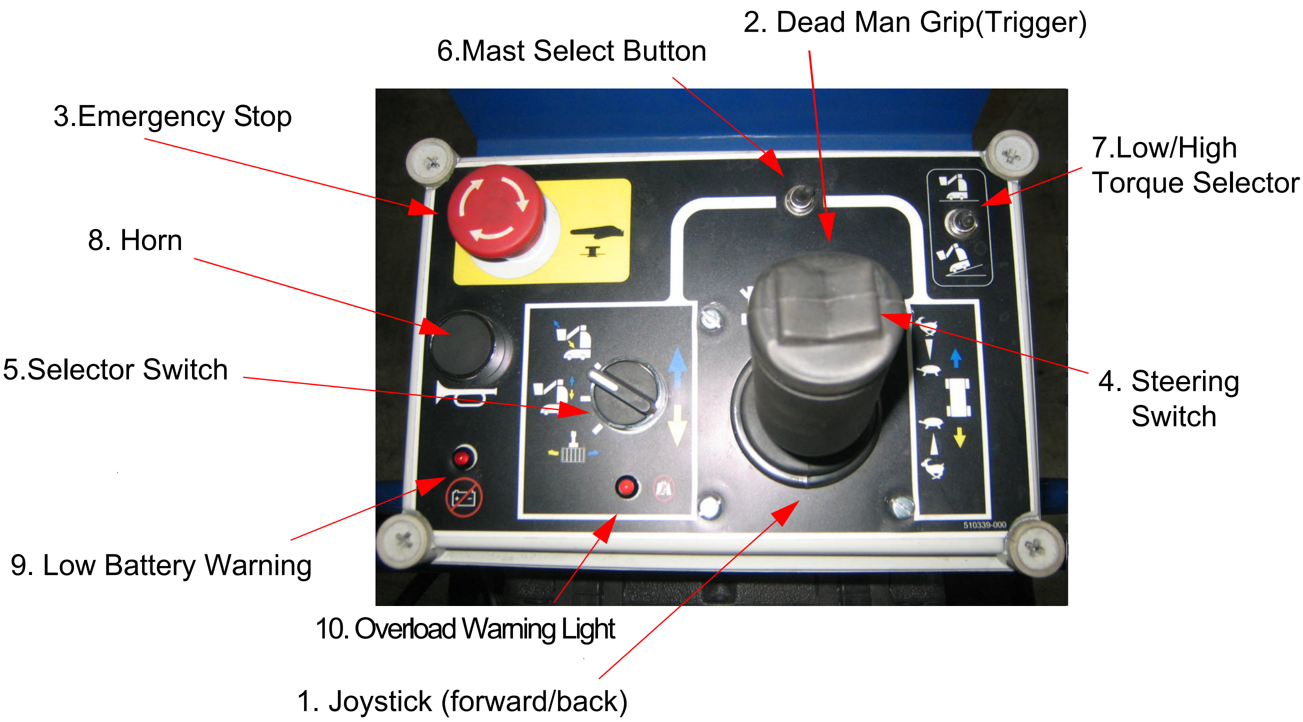
This section summarises the controls and indicators in tabular form and provides more detailed information.

⚠ WARNING ⚠

DO NOT operate the machine from the upper controls until the platform entrance drop-bar is in the fully lowered position and your safety harness has been fitted and attached.

Upper Control Panel

Figure 3: Upper Control Panel



Control Functions

Table 1: Platform Controls and Indicators

Items	Names	Function
1	Joystick	Refer to the decal logic diagrams for correct direction of motion. e.g. If Drive is preselected - pushing forward moves machine forward.
2	Deadman Grip	The 'Deadman' grip switch on the joystick must be grasped for any function to operate.
3	Emergency Stop	Push this red button at any time to isolate power. Turn clockwise to reset.

ITEMS	NAMES	FUNCTION
4	Steering Switch	Turns the wheels left or right.
5	Selector Switch	Pre selects Jib, Mast or Mast Rotate function.
6	Drive / Lift Selector	Pre selects either drive or lift function.
7	Low / High Torque Selector	In drive function pre-selects low torque high speed drive or high torque low speed drive, only functions when mast and jib are down.
8	Horn Button	Use to warn bystanders or to attract attention.
9	Low battery warning lamp	Illuminates when battery charge is low and machine automatically switches into limp mode.
10	Overload warning lamp	Illuminates when load in basket exceeds SWL

Table 2: Lower controls and Indicators

LOWER CONTROL PANEL

ITEMS	NAMES	FUNCTION
1	Emergency Stop	Push this red button at any time to isolate power. Turn clockwise to reset.
2	Key Switch	Selects Platform controls, OFF, or lower controls.
3	Rocker Switch	Activates the Pre-Selected operation, in either direction.
4	Selector Switch	Pre-selects Jib, Mast or Mast Rotate function.
5	Enable Switch	This Switch Enables the rocker switch and must be held up during operation.
6	Hour Meter / BCI	Displays total run time of the machine and an indication of remaining battery capacity.

Figure 4: Lower Control Panel

1. Emergency Stop

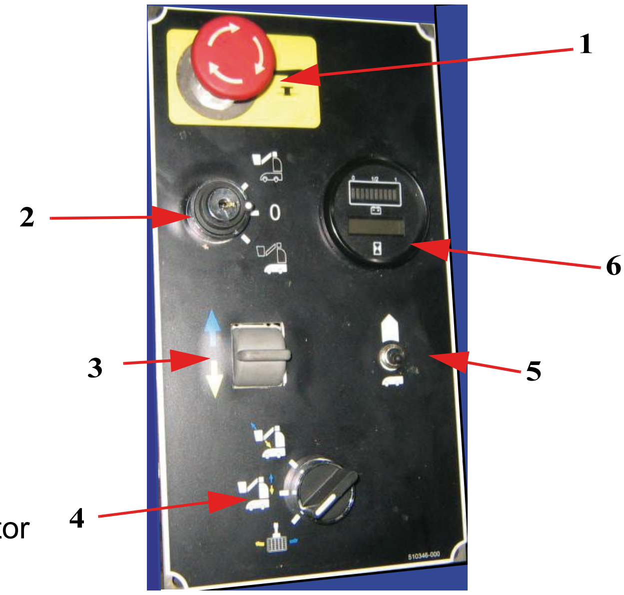
2. KeySwitch - Platform Controls
   - OFF
   - Lower Controls

3. Analogue Rocker

4. Selector Switch - Jib
   - Mast
   - Mast Rotate

5. Enable Switch

6. Hour Meter/Battery Capacity Indicator



Typical Operation

Raising the mast.

- The Keyswitch must be turned to lower controls (2).
- Select Mast using the selector switch (4)
- Press up and hold the switch (5),
- Activate the Rocker Switch (2) in the direction required.

Elevating & Lowering the Work Platform

Before operating the MB20N Work Platform it is imperative that the pre-operation Safety Inspection has been completed and any deficiencies have been corrected. The operator must also be fully trained in the use of this machine.

Before beginning any operation, the following checks should be carried out.

⚠ W A R N I N G ⚠

ENSURE that no other persons are within 1 metre of the machine. Be aware of the pothole protection bar hazard on both sides of the machine.

LOOK up and around for obstructions before performing the lift or drive functions.

DO NOT overload the platform.

DO NOT operate near electrical power cables, keep within national safety limits.

THIS WORK PLATFORM IS NOT ELECTRICALLY INSULATED.

NOTE: Chassis controls are for service use only.

1. Ensure that the Key Switch on the Lower Control Box is turned to the Platform Controls position and both emergency stop buttons are off (twist clockwise if necessary).
2. Check the Display B.C.I. is illuminated. If not, the battery may need recharging.
3. Enter the Platform through the entrance at the rear of the MB20N/26 and ensure that the drop bar is in position. Raise and lock the entry step.
4. Before using the machine all local Safety Regulations involving helmets and restraining devices should be observed. Safety harness lanyards, not exceeding 1 metre in length, should be attached to anchor points in cage floor.
5. Check if the audible alarm sounds due to un-level ground. None of the functions can work if the machine is not level.

Travel with Work Platform Lowered

Refer to Tables 1 & 2 for controls and indicators.

1. Verify that both Lower and Upper Control Console Emergency Stop Button is in the 'ON' position (turn clockwise to reset).
2. Turn the key switch on the lower control panel to the platform controls position.
3. Climb into the Platform and select drive using the drive / lift selector toggle switch. Ensure that the drop bar is in position.
4. Check that the route is clear of persons, obstructions, pot holes or ledges and is capable of supporting the wheel loads. Also, check that the clearances above, below, and to the side of the Work Platform are sufficient.
5. To steer the MB20N/26, activate the Deadman Switch while pushing the Steering Thumb-switch, on top of the Joystick, LEFT or RIGHT to turn the wheels. Observe the tyres while manoeuvring to ensure correct direction.

NOTE: Steering is not self-centring. The wheels must be returned to the straight ahead position by operating the Steering Switch.

Travel with Work Platform Elevated

CAUTION

If the machine stops driving and the Tilt Alarm sounds, lower the Platform **immediately**.

Using the Emergency Override functions, move the machine to a level location before re-elevating the platform.

Travel with platform elevated **ONLY** on firm and level surfaces.

Refer to Tables 1 & 2 for controls and indicators.

NOTE: The Work Platform will travel at reduced speed when in the elevated position.

1. Check that the route is clear of persons, obstructions, pot holes or ledges and is capable of supporting the wheel loads. Also, check that the clearances above, below and to the side of the Work Platform are sufficient.
2. Ensure that the pothole guards remain in the extended (down) position during elevated travel.

Emergency Situations

In any emergency situation, the immediate action is to push the red "Emergency Stop" button. This will instantly cut of all electrical power to the controls. The button must be twisted in a clockwise direction in order to recommence control.
However, the switch should be reset only when it is safe to do so.

If the Continuous Audible warning alarm sounds, normal control functions will cease to operate. This will be due to the following problem;

- The Tilt Sensor has been activated

Emergency Lowering (by hand)

CAUTION

During manual emergency lowering, **extreme care** must be taken to ensure that the person carrying out the task is not struck by the jib or platform structure.

Should the machine become inoperable when elevated request a person on the ground to lower the platform using the emergency lowering valves. Lower the mast structure before lowering the jib/platform structure.

NOTE:**Lower the masts fully before lowering the jib structure.**

Figure 8: Emergency Lowering - Mast Valve

Locate the red lever behind the mast cover inspection door on the left hand side of the machine. By pushing the lever up, the mast will descend fully under gravity. Releasing the spring-loaded lever will cease this operation immediately if required.

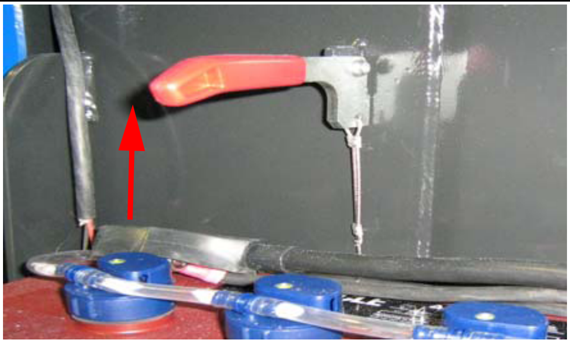


Figure 9: Emergency Lowering - Jib Valve

The Jib may be manually lowered by operating the manual release valve located between the Jib Structure.

Manual Rotation

1. Lower the masts and jib fully before manually slewing the assembly. Press the Emergency Stop Button to prevent inadvertent powered motion.
2. Locate the opening behind the front right drive wheel. Apply a 23 mm socket wrench with extension bar to the shaft and turn to rotate the elevating assembly. (Turning the front wheel fully to one side will facilitate this operation).

2.5 Transportation

Machine Weights

Before transporting or lifting the MB20N/26 machine be aware of its weight. It is very important to realise that the centre of gravity of the stowed machine is approximately 80 cm above ground and in the plane of the energy chain which is located on the back of the mast.

MB20N CE Version=	2590 kg	
MB20N US Version=	3012 kg	(6640 lbs)
MB26 CE Version =	2660 kg	
MB26 US Version =	3175 kg	(7000 lbs)

In cases of particular difficulties with lifting or shipping it is possible to remove the single block ballast from the machine. Remove the 13 screws connecting the ballast cover to the mast. Undo the 4 bolts connecting the ballast to the mast and use a forklift to remove the ballast block. The ballast block weighs 600 kg on MB20N, 460 kg on MB26 (CE version) and 1300kg on the US (ANSI) version.

⚠ WARNING ⚠

This work must not be carried out without the prior written permission of UpRight Powered Access.

Lifting by Fork-Lift

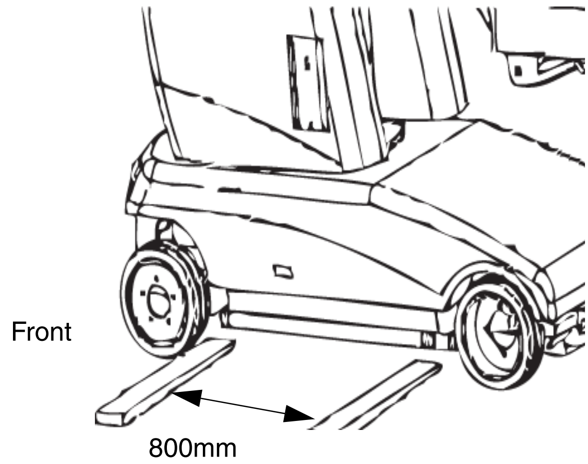
⚠ DANGER ⚠

Forklifting is for transport only. **See machine weights** and ensure that the forklift is of adequate capacity.

Figure 3: Lifting by Forklift

Adjust the forks so that the minimum clearance between them is 800mm as shown.

Approach the machine from either side but place the fork as close as possible to the front wheel as shown.



1. Never approach the MB20N from the front or rear while fork lifting.
2. Use maximum forklift tilt as soon as possible when raising the MB20N/26.
3. If travelling over sloped or uneven ground it is strongly recommended to temporarily tie the MB20N jib mount structure to the forklift mast as a safety precaution.
4. The MB20N/26 may be lifted by forklift subject to the following strict procedure.
5. Ensure that the mast and jib are fully stowed and that the pothole bars are fully retracted (raised).

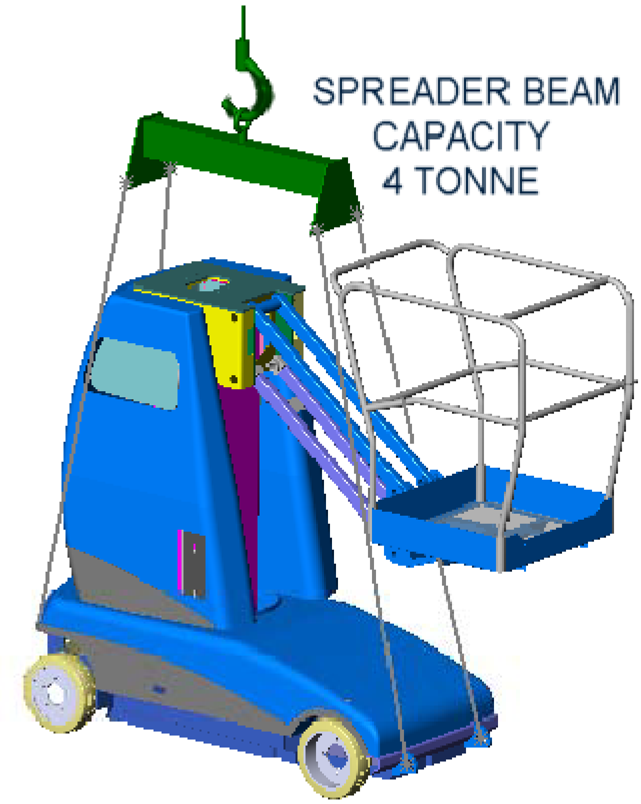
Lifting By Crane

The MB20N/26 may be lifted by an overhead hoist/crane subject to the following strict procedure.
Raise the jib to clear the lifting straps as shown.

Use 4 separate lifting straps connected to a spreader beam. DO NOT use a lesser number of threaded straps as these could slip and lead to instability. The recommended minimum capacity of EACH of the 4 straps is 2 tonne and the minimum length of each strap is 2 metres. Damage to the covers and/or cage rails can occur if a spreader beam is not deployed during a crane lift.

Figure 4: Lifting by Crane

Apply the straps via 2 tonne shackles to each of the 4 lifting lugs on the chassis.



CAUTION

DO NOT apply lifting straps to any other part of the machine.

Transport by Truck

The MB20N/26 can be carried on a suitably rated transportation vehicle or trailer. Because of its high gradeability, the machine can be driven under its own power on to a standard loading ramp (Up to 14 degrees).

It is recommended to reverse the machine up on to the truck thus forward travelling down the ramp at the delivery point. Winch-assisted loading is allowable for larger slopes, however, operate the trucks assist winch at minimum speed to avoid over-pressurising the hydraulic system in the machine.

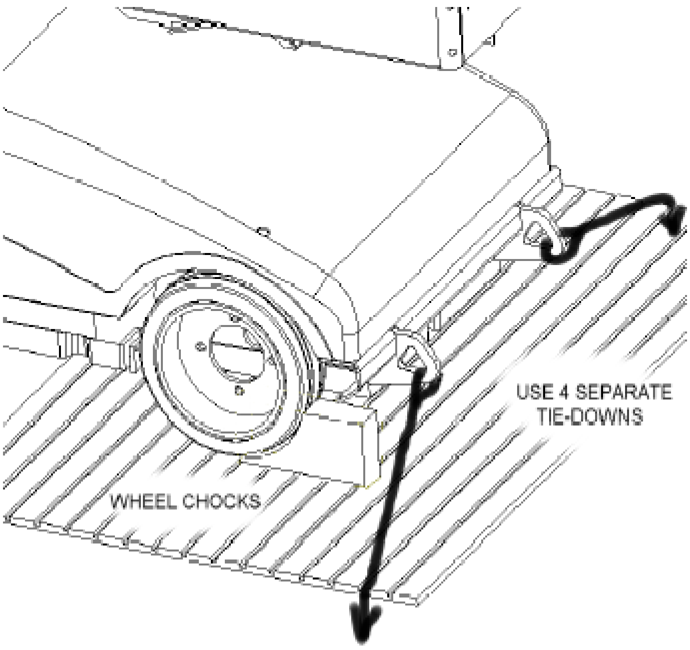
When the MB20N/26 is on the truck or trailer it should then be made secure by:-

1. Chocking the wheels.
2. Securing with adequate chains or straps to the lifting lugs on the chassis.

CAUTION

DO NOT loop straps through the cage, ladder or jib as this could cause permanent structural damage during transportation.

Figure 5: Securing the Platform



Towing & Winching Valves

The fail-safe brakes are automatically applied when the machine comes to a stop or in the event of total power loss due to low battery or malfunction of the hydraulic drive system.

To tow the vehicle or to winch it on to a truck it is necessary to hydraulically bypass the control valves and release these brakes.

Make sure the Jib is tied down securely during transport, DO NOT over tighten straps. Straps should have adequate slack so no downward force is applied to the Jib.

Proceed as follows:- (Refer to the valve block drawing Figure 6.)

1. Fully lower the jib boom and the mast sections. Rotate the mast into the stowed position.
2. Turn the Upper Control Box Keyswitch to the OFF position and remove the key.
3. Remove the rear GRP cover from the chassis and locate the hydraulic control valve block.
4. The hand valve marked ‘A’ should be turned fully clockwise to close. The hand valve marked ‘B’ should be turned fully anti-clockwise to open.
5. Operate the red handpump a number of times to develop sufficient pressure to ‘separate’ the internal brake disks. These brakes are integral with the hydraulic drive motors.

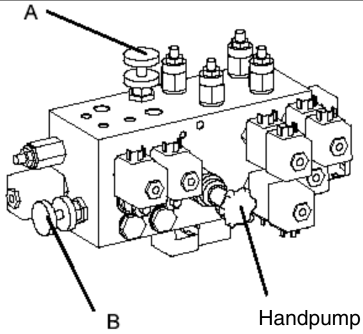
NOTE: The machine can now be safely towed or winched.

6. On completion of towing/winching, reverse the position of the rotary hand valves ‘A’ and ‘B’. The handpump becomes inoperative when the valves are returned to their normal position.

Figure 6: Valve Block-Towing Valves

WARNING

RISK OF SERIOUS INJURY. Releasing the brakes will cause the machine to move uncontrollably on a slope. Damaging momentum can be developed due to the large mass of a slow moving machine



2.6 After Use & Storage

After Use Each Day

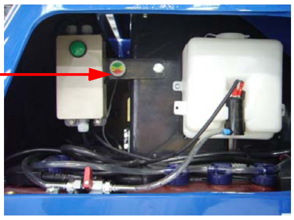
1. Ensure that the platform (masts and jib) are fully lowered.
2. Park the machine on firm and level ground, never on a grass surface.
3. Turn the key switch to the OFF position and remove.
4. Put the batteries on charge.

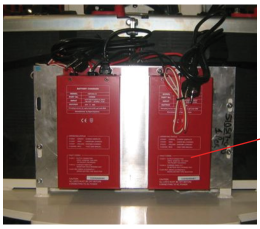
BATTERY CHARGING

Before charging check that:-

1. The correct mains voltage and current is available to the charger.
   The MB machine is fitted with a high output charging assembly. this consists of two 24V 30A 900W Chargers. The chargers can be linked together if the supply voltage and current are high enough to meet the power demand. If the power supply is not good enough, a single charger can be used. If this option is taken, it is important that charger ‘A’ is used, as it is the one linked to the remote display for battery charge level.

LED Remote Charge indicator.





‘A’

2. Check that the extension cord(s) is in good condition and is no longer than 8M (26fT). 1.5mm Sq (12 AWG) or larger cable is required. Ensure that the plug(s) is of the correct rating and is compatible with the electrical installation into which it will be plugged.
3. The charger(s) will turn on automatically after going through a self test sequence. the remote LED on the control Panel will indicate the status of charging.

Long-Term Storage

Preservation

1. Clean and touch up damaged paint surfaces.
2. Fill the hydraulic tank to operating level with the platform fully lowered. Fluid should be visible on the tank dip stick.
3. Coat exposed portions of cylinder rods with a preservative such as multipurpose grease and wrap with barrier material.
4. Coat all exposed un-painted metal surfaces with a light oil or other preservative.
5. Cover the machine with tarpaulin if possible. If this is not available it is advisable to cover the mast and jib mount area as a minimum. This will prevent moisture from entering the mast, battery and chassis areas.

Figure 3: Battery Disconnect

Batteries

1. Disconnect the batteries at the quick connect plug and socket. This is located in the chassis between the controller and the hydraulic tank.
2. Disconnect the battery leads and tape up the lead terminals to ensure insulation.

Better battery life and efficiency is achieved if the batteries are used consistently. It is therefore recommended that the batteries are used elsewhere if the machine is to be unused for an extended period (2 weeks or more).

WARNING

RISK OF SERIOUS INJURY. Take particular care when handling batteries. Acid spills can cause severe burns or blindness.

DO NOT store batteries close to naked flames or close to steel fabrication areas.

Daily Preventative Maintenance Checklist

Daily preventative maintenance will prevent abnormal wear and prolong the life of all systems. The inspection & maintenance schedule should be performed at the specified intervals.
Inspection and maintenance shall be performed by personnel who are trained and familiar with mechanical and electrical procedures.

WARNING

Before performing preventative maintenance, familiarize yourself with the operation of the machine.

Always block the elevating assembly whenever it is necessary to perform maintenance while the platform is elevated.

This Daily checklist has been designed for machine service and maintenance. Please photocopy this page and use the checklist when inspecting the machine.

Maintenance Table Key

Y = Yes/Acceptable

N = No/Not Acceptable

R = Repaired/Acceptable

Preventative Maintenance Report

Date: ______________________________

Owner: ______________________________

Model No: ______________________________

Serial No: ______________________________

Serviced By: ______________________________

Component	Inspection or Service	Y	N	R
Battery	Check electrolyte level.			
	Check battery cable condition.			
Chassis	Check hoses for pinch or rubbing points.			
	Check welds for cracks.			
Control Cable	Check the exterior of the cable for pinching, binding or wear.			
Controller	Check switch operation.			
Drive Motors	Check for operation and leaks.			
Elevating Assembly	Inspect for structural cracks.			
Emergency Lowering System	Operate the emergency lowering valve & check for serviceability.			
Entire Unit	Check for and repair collision damage.			
Hydraulic Fluid	Check fluid level.			
Hydraulic Pump	Check for hose fitting leaks.			
Hydraulic System	Check for leaks.			
Labels	Check for peeling, missing, or unreadable labels & replace.			
Platform Deck and Rails	Check welds for cracks.			
Tyres and Wheels	Check for damage.			

Table 1: Daily Maintenance Checklist

Specifications

MB20N

Parameter	MB20N EU Version	MB20N US Version
Duty Cycle	45%over 8 hour cycle	35%over 8 hour cycle
Platform Size	770mm x 730mm	30.5in. x 28.5in.
Maximum Platform Capacity	215kg.	425lbs.
Indoors	2 People	2 People
Outdoors	1 Person	2 People
Max Wind Speed	12 m/s	26.8 mph
Max Manual Force Per Person	200N	45lbs
Maximum Chassis Inclination	2°	2°
Heights:		
Maximum Platform Height	6.10m	20.00ft.
Maximum Working Height	8.10m	26.50ft.
Platform Height at Maximum Outreach	5.04m	16.54ft.
Maximum Working Outreach	2.64m	8.66ft
Stowed Dimensions:		
Length	2.430m	7.97ft.
Width	0.810m	32in.
Height	2.013m	6.60ft
Chassis Ground Clearance	90mm	3.54in.
Wheelbase x Wheel Gauge	1465mm x 708mm	4.81ft. x 2.32ft.
Rotation	360deg non-continuous	360 deg non-continuous
Gross Vehicle Weight	2590kg.	6640lbs.
Maximum Drive Speed - Stowed	3.30 km/h	2.05mph.
Maximum Drive Speed - Elevated	0.60km/h	0.37mph
Maximum Gradeability	25%	25%
Outside Turning Radius	1.90m	6.23ft.
Electrical:		
Power Source	4 x 6V @ 375Ah Battery	4 x 6V @ 375Ah Battery
System Voltage	24 Volt DC	24 Volt DC
Battery Charger (2 Per Machine)	24V x 30A, Output Auto Select AC input 100-240v -50/60Hz 12-6A	24V x 30A, Output Auto Select AC input 100-240v -50/60Hz 12-6A
Control System	Single Joystick, Function Selector, DC Motor Controller	Single Joystick, Function Selector, DC Motor Controller
Hydraulic System:		
System Relief Setting	220bar	3190psi
Hydraulic Oil Type	ISO VG46	ISO VG46
Hydraulic Tank Capacity	20 litres	5.3 gallons (U.S.)
Brakes	Spring applied hydraulically released	Spring applied hydraulically released
Wheel & Tyres	13.5in. x 4.0 solid, Non-Marking	13.5in. x 4.0 solid, Non-Marking
Wheel loading	1300kg per wheel	3466lbs per wheel
Vibration of this machine does not exceed	2.5m/sec x^2	2.5m/sec x^2
Noise Pressure Level	68dB (A) at Control Station	68dB (A) at Control Station

Specifications

MB26

Parameter	MB26 EU Version	MB26 US Version
Duty Cycle Platform Size Maximum Platform Capacity	45%over 8 hour cycle 770mm x 730mm 215kg.	35%over 8 hour cycle 30.5in. x 28.5in. 475lbs.
Indoors	2 People	2 People
Outdoors	1 Person	2 People
Max Wind Speed	12 m/s	26.8 mph
Max Manual Force Per Person	200N	45lbs
Maximum Chassis Inclination	2°	2°
Heights: Maximum Platform Height Maximum Working Height Platform Height at Maximum Outreach	 7.75m 9.75m 6.51m	 25.45ft. 32.00ft. 21.36ft.
Maximum Working Outreach	3m	10ft.
Stowed Dimensions: Length Width Height	 2.800m 1.010m 2.010m	 9.2ft. 40in. 6.59ft.
Chassis Ground Clearance Wheelbase x Wheel Gauge Rotation Gross Vehicle Weight Maximum Drive Speed - Stowed Maximum Drive Speed - Elevated Maximum Gradeability Outside Turning Radius	90mm 1465mm x 890mm 360deg non-continuous 2660kg. 3.13 km/h 0.60km/h 25% 1.93m	3.54in. 4.81ft. x 2.93ft. 360 deg non-continuous 7000lbs. 1.94mph. 0.37mph 25% 6.33ft.
Electrical: Power Source System Voltage Battery Charger (2 Per Machine)	 4 x 6V @ 375Ah Battery 24 Volt DC 24V x 30A, Output Auto Select AC input 100-240v -50/60Hz 12-6A	 4 x 6V @ 375Ah Battery 24 Volt DC 24V x 30A, Output Auto Select AC input 100-240v -50/60Hz 12-6A
Control System	Single Joystick, Function Selector, DC Motor Controller	Single Joystick, Function Selector, DC Motor Controller
Hydraulic System: System Relief Setting Hydraulic Oil Type Hydraulic Tank Capacity	 220bar ISO VG46 18 litres	 3190psi ISO VG46 4.7 gallons (U.S.)
Brakes	Spring applied hydraulically released	Spring applied hydraulically released
Wheels & Tyres	13.5in x 4.0 solid, Non-Marking	13.5in x 4.0 solid, Non-Marking
Wheel loading	1300kg per wheel	3566lbs per wheel
Vibration of this machine does not exceed	2.5m/sec x²	2.5m/sec x²
Noise Pressure Level	68dB (A) at Control Station	68dB (A) at Control Station

NOTES:

Local Distributor:

Lokaler Vertiebshändler:

Distributeur local:

El Distribuidor local:

Il Distributore locale:

USA

TEL: +1 (559) 443 6600
FAX: +1 (559) 268 2433

UpRight
POWERED ACCESS

Europe

TEL: +44 (0) 845 1550 058
FAX: +44 (0) 195 2299 948

www.upright.com