



648988 EN-US-AU (12/02/2019)

PC 90
PC 18T
PC 25T

INSTRUCTIONS MANUAL
(ORIGINAL INSTRUCTIONS)

INTRODUCTION

THIS MANUAL PROVIDES SUPPLEMENTARY INSTRUCTIONS WHICH ARE IN ADDITION TO THOSE ALREADY PROVIDED IN THE MACHINE OPERATION AND MAINTENANCE MANUAL.

IMPORTANT

Carefully read and understand this instruction manual before using the lift truck.

It contains all information relating to operation, handling and lift truck equipment, as well as important recommendations to be followed.

This document also contains precautions for use, as well as information on the servicing and routine maintenance required to ensure the lift truck's continued safety of use and reliability.

WHENEVER YOU SEE THIS SYMBOL IT MEANS:



WARNING ! BE CAREFUL ! YOUR SAFETY OR THE SAFETY OF THE LIFT TRUCK IS AT RISK.

- This manual has been produced on the basis of the equipment list and the technical characteristics given at the time of its design.
- The level of equipment of the lift truck depends on the options chosen and the country of sale.
- According to the lift truck options and the date of sale, certain items of equipment/functions described herein may not be available.
- Descriptions and figures are non binding.
- MANITOU reserves the right to change its models and their equipment without being required to update this manual.
- The MANITOU network, consisting exclusively of qualified professionals, is at your disposal to answer all your questions.
- This manual is an integral part of the lift truck.
- It is to be kept in its storage space at all times for ease of reference.
- Hand this manual to the new owner if the lift truck is resold.

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1 - SAFETY

2 - USE





3 - MAINTENANCE

4 - DIMENSIONS AND LOAD CHARTS



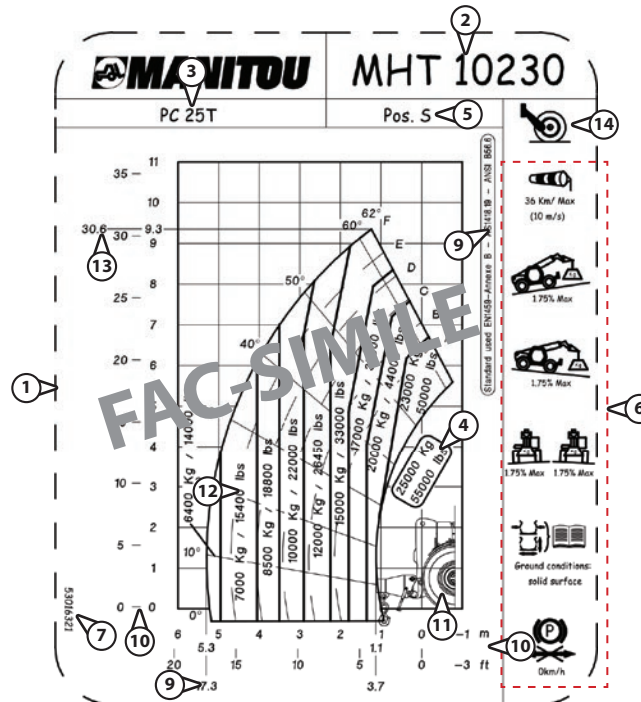
LEGEND OF SIGNS AND SYMBOLS

A) TECHNICAL DATA OF CRANE ATTACHMENT (Example)

kg (lb)	t (t)	mm (in)							kg (lb)
									
25000 (55115)	27 (27)	A 985 (2172)	B 890 (1962)	C 700 (107)	D 1543 (32)	G 284 (626)	H 398 (877)	L 850 (29)	460 (1874)

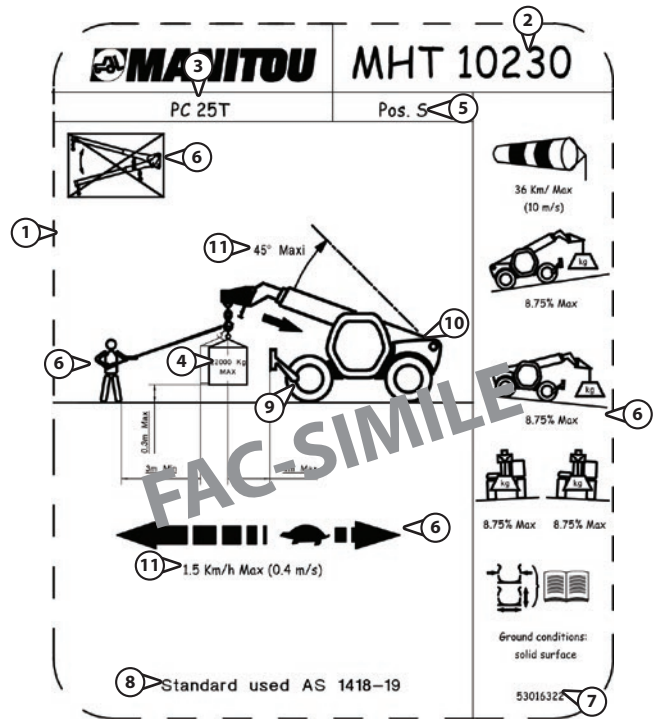
Reference	Indication	Example
1	maximum load of crane accessory	25000 (55115)
2	maximum capacity of crane attachment hook	27 (27)
3	dimensions of crane attachment [mm] (in) (referred to dimensional drawing)	A, B, C, D, G, H, L
4	weight of crane accessory	460 (1874)
5	metric system [unit of length (mm, m), unit of speed (m/min) unit of pressure (bar) and unit of weight (kg, t)] or imperial system [unit of length (in, ft), unit of speed (ft/min) unit of pressure (psi) and unit of weight (lb, t)]	

B) CRANE ATTACHMENT LOAD TABLE (Example)



Reference	Indication	Example
1	load table	
2	machine model	MHT 10230
3	type of crane accessory	PC 25T
4	maximum load capacity of crane attachment in use	25000 kg/55000 lbs
5	alphanumeric code which identifies the type of crane accessory in use (according to the safety system installed)	Pos. S
6	conditions of use	
7	capacity Table code	53016321
8	capacity Table according to standards in force in the destination country	Standard used EN1459 - Annexe B - AS 1418.19 - ANSI B56.6
9	maximum extension length of telescopic boom	5.3 m - 17.3 ft
10	metric system [unit of length (m) and unit of weight (kg)] or imperial system [unit of length (ft) and unit of weight (lb)]	
11	indicative drawing of the machine	
12	machine carrying capacity ranges	6400kg/14000lbs, 7000kg/15400lbs, 8500kg/18800lbs, 10000kg/22000lbs, 12000kg/26450lbs, 15000kg/33000lbs, 17000kg/37500lbs, 20000kg/44000lbs, 23000kg/50000lbs, 25000kg/55000lbs
13	maximum lifting height of the telescopic boom	9.3 m/30.6 ft
14	operating configuration of the machine: on front wheels, on wheels with turret rotated, on stabilizers (depending on vehicle model)	

B.1) "PICK AND CARRY" CRANE ACCESSORY TABLE (Example)



Reference	Indication	Example
1	"PICK AND CARRY" load table	
2	machine model	MHT 10230
3	type of crane accessory	PC 25T
4	maximum load capacity of crane attachment in use	22000 kg (48501 lb)
5	alphanumeric code which identifies the type of crane accessory in use (depending on the safety system installed)	Pos. S
6	conditions of use	
7	capacity Table code	53016322
8	capacity Table according to standards in force in the destination country	Standard used AS 1418-19
9	operating configuration of the machine: on front wheels, on wheels with turret rotated, on stabilizers (depending on vehicle model)	
10	indicative drawing of the machine	
11	metric system [unit of length (m), unit of weight (kg), unit of speed (km/h - m/s) and degrees (g)] o imperial system [unit of length (ft), unit of weight (lb), unit of speed (mi/h - ft/s) and degrees (g)]	

MANUFACTURER'S IDENTIFICATION

Manufacturer: **MANITOU ITALIA S.r.l**

Via C. Colombo, 2

41013 Castelfranco Emilia (MO) Italia

☎ 0039 059 959811

Identification data, plates and pictograms

Each winch is identified by a CE plate which clearly shows the relative data in an indelible manner. For all communication with the Manufacturer and/or Dealer, always mention these references.

Accessory manufacturer plate (Fig. 1):



- 1 - Model*
- 2 - Code*
- 3 - Year of manufacture*
- 4 - Mass without load
- 5 - Centre of gravity
- 6 - Nominal capacity
- 7 - Operating pressure

*Must always be indicated while ordering spare parts.



Fig.1

JIB LIST

TYPE OF CRANE ATTACHMENT	LOADMAXIMUM CAPACITY kg (lb)	CODE	
	<p>JIB PC 90</p>	<p>9000 (18941)</p>	<p>939970</p>
	<p>JIB PC 18T</p>	<p>18000 (40000)</p>	<p>53011879</p>
	<p>JIB PC 25T</p>	<p>25000 (55000)</p>	<p>53008289</p>

1 - SAFETY

INTRODUCTION

The Manufacturer provides a large range of **interchangeable accessories** (with guarantee) perfectly suitable for use with your forklift truck.

The accessories are delivered together with a load chart relative to your forklift truck. The Instructions Manual and load chart must always be kept in the forklift truck. The use of possible accessories depends on the instructions given in this Manual.

When the interchangeable accessory mounted involves lifting of suspended loads (for example, jib with hook, winch, etc...), your forklift truck is automatically classified as a "mobile crane" according to standard ISO 4306-1:2007".



Only type-approved accessories certified by the manufacturer may be used on our forklift trucks. The Manufacturer shall not accept responsibility in case of modifications or use of attachments without authorization.



Use of interchangeable accessories not envisaged in the original machine supply is forbidden. In case of subsequent requests for performing machine functions with other accessories, before using the machinery for the first time, the user must request an authorised MANITOU technician to check the suitability for use, to check the correct working and update of the documentation necessary for using the new accessory. It is only after this inspection that a new "CE" certificate of conformity will be issued for the machine only indicating the new accessories installed.



All the accessories with crane jib must be used in the horizontal position (see load charts)



The machine equipped with accessory with hanging load conforms to the following standards:

- DIN 15018-1, lifting unit H1, stress unit B3,
- DIN 15019-2,
- EN 13000/2004, wind speed less than 50 km/h (14 m/s).

To identify this speed visually, consult the empirical wind evaluation scale given below:

BEAUFORT Scale (wind speed at a height of 10 m on level ground)						
Force	Wind type	Speed (nodes)	Speed (km/h)	Speed (m/s)	Ground effects	Condition of the sea
0	Calm	0 - 1	0 - 1	< 0,3	- Smoke rises vertically.	- Calm sea.
1	Light air	1 - 3	1 - 5	0,3 - 1,5	- Wind causes smoke to drift.	- Ripples on water surface resembling fish scales.
2	Light breeze	4 - 6	6 - 11	1,6 - 3,3	- Wind on the face, leaves rustle.	- Small wavelets.
3	Gentle breeze	7 - 10	12 - 19	3,4 - 5,4	- Leaves and twigs constantly moving.	- Large wavelets, crests beginning to break.
4	Moderate breeze	11 - 16	20 - 28	5,5 - 7,9	- The wind raises dust and loose paper. Small branches begin to move.	- Small waves with breaking crests. Fairly frequent whitecaps.
5	Fresh breeze	17 - 21	29 - 38	8 - 10,7	- Small trees in leaf begin to sway.	- Moderate waves of some length.
6	Strong breeze	22 - 27	39 - 49	10,8 - 13,8	- Large branches in motion, whistling heard in overhead wires. Using an umbrella becomes difficult.	- Billows formed with white foamy crests and spray.
7	Near gale	28 - 33	50 - 61	13,9 - 17,1	- Whole trees in motion. Effort needed to walk against the wind.	- Sea heaps up. Foam from breaking waves is blown into streaks in the wind direction.
8	Gale	34 - 40	62 - 74	17,2 - 20,7	- Twigs broken off trees. Walking against the wind becomes very difficult.	- High waves of greater length, edges of crests begin to break into spindrift.
9	Strong gale	41 - 47	75 - 88	20,8 - 24,4	- Wind causes damage to structures (shingles and tiles blown away, etc.).	- High waves with crests beginning to roll over, streaks of foam, low visibility.
10	Storm	48 - 55	89 - 102	24,5 - 28,4	- Seldom experienced on land. Trees uprooted. Considerable damage to dwellings.	- Very high waves, with long overhanging crests, streaks of foam tend to get compacted and visibility is reduced.
11	Violent storm	56 - 63	103 - 117	28,5 - 32,6	- Very rare, very severe devastation.	- Enormous high waves which can conceal medium-sized ships, visibility reduced.
12	Hurricane	64 +	118 +	32,7 +	- Huge waves.	- Sea completely white, air full of foam and spray, visibility reduced to a very great extent.

GENERAL SAFETY RULES

Whenever you see this symbol it means:



Attention! Be careful! Your safety or that of the crane is at stake.

Never attempt to lift loads greater than those permitted and indicated in the load charts attached to the machine.

Keep the load low while transporting it, with the telescopic boom retracted as far as possible.

Drive the crane at a speed suitable for the conditions and state of the ground.

Without load, travel with the telescopic boom lowered and retracted to the maximum possible extent.

Never travel too fast or brake suddenly when travelling with load.

When the load is being lifted, make sure no one can obstruct the operation or make incorrect manoeuvres.

Do not try to carry out operations which exceed the crane capacity.

Pay attention to the accessories used for lifting the load: specifically, check in relation to the maximum carrying capacity of the crane.

Pay attention to the electric cables.

Do not use the crane during heavy thunderstorms and when there is risk of lightning.

Never leave the forklift truck parked with a load raised.

Never approach or enter the range of action of the crane.

Always bear safety in mind and only transport loads that are balanced properly.

Do not leave the crane loaded with the parking brake engaged on a slope exceeding 15%.

The following operating inclinations are allowed for the crane:

• Machine on wheels:

+/- 2 ° longitudinally

+/- 1 ° transversely.



Before working with the crane on wheels, always check the ground (check the data regarding supports in the forklift truck Use and Maintenance Manual); if the ground is unsuitable for the weight of the crane, consult your agent or dealer to adopt appropriate precautionary measures.



The following attachments are not meant for systems used for lifting or transporting persons.



Before starting work with the crane, ensure the compatibility of the machine and the calibration of its safety system to the type of accessory fitted.



Non conforming calibration of the safety system can be very hazardous for your safety; contact your dealer immediately in case of doubt.



Given their dimensions, certain attachments, with the boom lowered and retracted, risk interfering with the front tyres and causing their deterioration if the equipment is inclined downwards. To eliminate this risk, extend the telescopic boom to a sufficient length depending on the function of the accessory, in such a way as to avoid interference.



The maximum loads are defined by the capacity of the crane, taking into account the weight and centre of gravity of the accessory. Never exceed this limit if the capacity of the accessory is less than that of the crane.



Considering that in most cases the loads to be lifted cannot be connected directly to the machine hook, for your safety we recommend the use of harnessing systems such as steel ropes, chains, straps made of synthetic or natural fibres conforming to the regulatory standards in force.

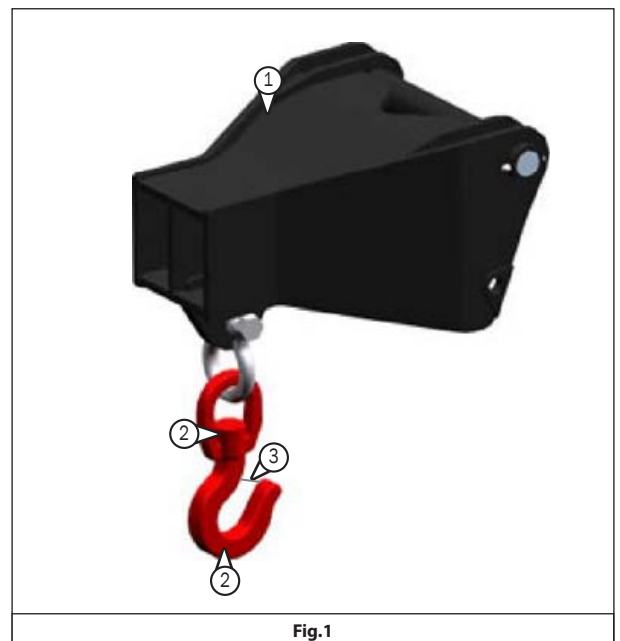
With the attachment with load hanging from the hook:

- Before hooking the jib to the machine, ensure that it is compatible.
- After hooking the jib to the machine and before starting a work cycle, always check:
 - a) check the outer frame of the jib (Fig.1, point 1),
 - b) that the lifting hook (Fig.1, point 2) rotates freely, that the safety tab (Fig.1, point 3) is intact and is positioned correctly.



The maximum permitted load for the jib is that indicated in the «TECHNICAL SPECIFICATIONS»; never exceed this value.

-Before starting operation with the equipment on which the load is hung by a hook, notify the relevant authorities in your area (e.g. INAIL in Italy). Remember to request inspection every following year by a qualified body (e.g. ASL/ARPA in Italy).



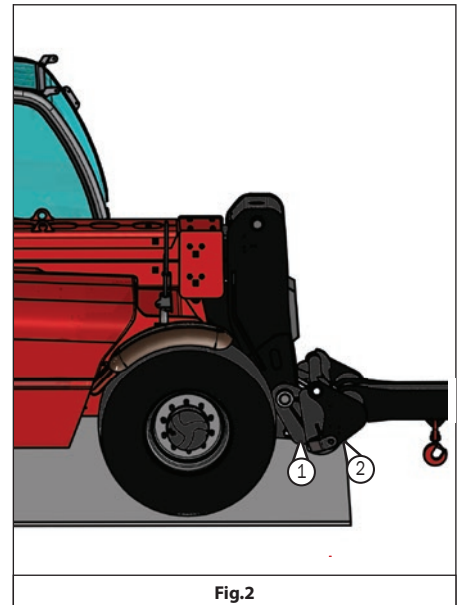
RESIDUES AND ENVIRONMENTAL CONTAMINATION – SCRAPPING

The jib described in this manual is constructed using materials that are non contaminating and are recyclable. These products must be disposed of differentially in accordance with the legislation applicable in the country of use.

TRANSPORT AND CONNECTION TO THE MACHINE

The jib must be positioned on a solid flat surface, in a clear area easily accessible to the tool-holder of the machine to which it will be connected.

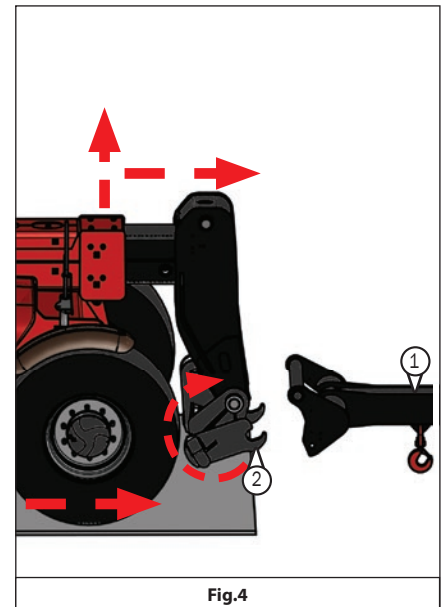
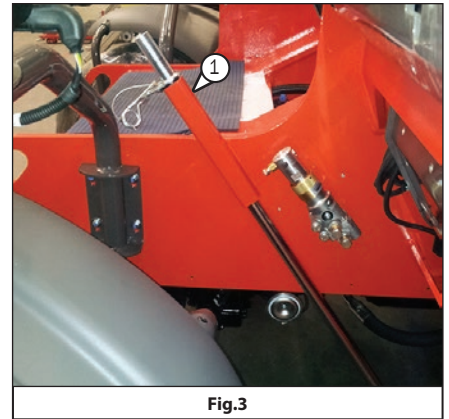
The connection is made between the quick-release coupling of the machine (Fig.2, point 1) and the coupling of the jib (Fig.2, point 2).



PICKING UP THE JIB WITH MANUAL BLOCKING OF THE ACCESSORY

Picking up the jib

- Check to make sure the jib (Fig.4, point 1) is in a position that makes connecting the quick-release coupling easier (Fig.4, point 2). If it is not oriented properly, take the necessary precautions to shift it to the conditions of maximum safety.
- Check to make sure the shear pin is inserted in the support provided on the machine frame (Fig.3, point 1).
- Position the forklift truck with the boom lowered completely in front and parallel to the attachment and tilt the quick-release coupling forwards (Fig.4, point 2).
- Bring the quick-release coupling under the connecting tube of the jib, lifting and extending (if necessary) the boom slightly (Fig.4).
- Tilt the coupling backwards to connect to the jib (Fig.5, point 1, 2).

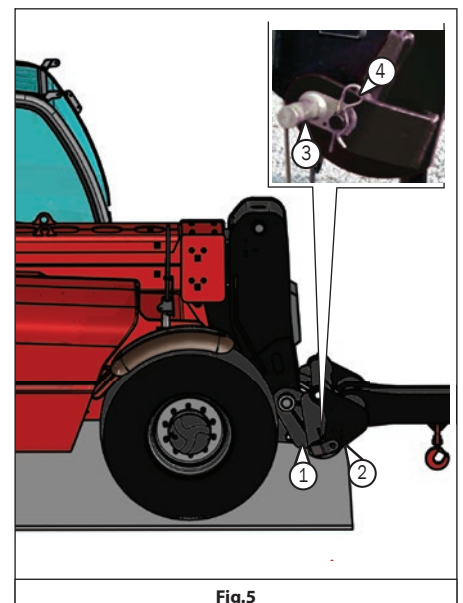


Manual blocking of jib

- Take the shear pin in the support provided on the machine chassis and insert it in the hole of the quick-release coupling to block the jib (Fig.5, point 3). Remember to fit the split pin (Fig.5, point 4).
- Press the knob of encoder to confirm the type of accessory (See INSTRUCTIONS MANUAL Ref.649040: chapter 2-USE, paragraph AUTOMATIC RECOGNITION OF THE ACCESSORY "E-RECO").
- Release the jib.

Manual release

- Repeat the "Manual blocking of jib" procedure in reverse order taking care to refit the shear pin in the support on the machine chassis.



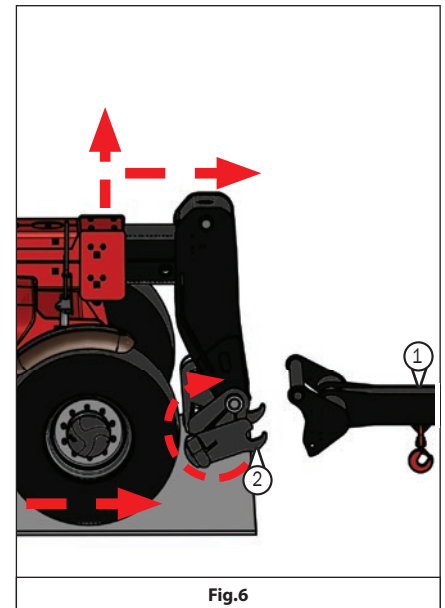
Removing (and positioning) the jib

- Repeat the "Manual release" procedure in reverse order, taking care to place it in a safe position on compact, level ground.

PICKING UP THE WINCH WITH HYDRAULIC BLOCKING OF THE ACCESSORY (OPTIONAL)

Picking up the jib

- Check to make sure the jib (Fig.6, point 1) is in a position that makes connecting the quick-release coupling easier (Fig.6, point 2). If it is not oriented properly, take the necessary precautions to shift it to the conditions of maximum safety.
- Check to make sure the shear pins of the blocking cylinder are retracted.
- Position the forklift truck with the boom lowered completely in front and parallel to the jib and tilt the quick-release coupling forwards (Fig.6, point 2).
- Bring the quick-release coupling under the connecting tube of the jib, lifting and extending the boom slightly.
- Tilt the coupling backwards to connect to the jib (Fig.7, point 1).

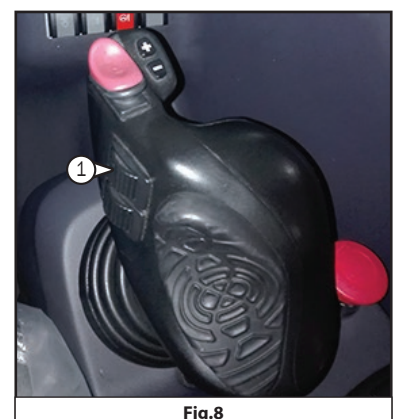
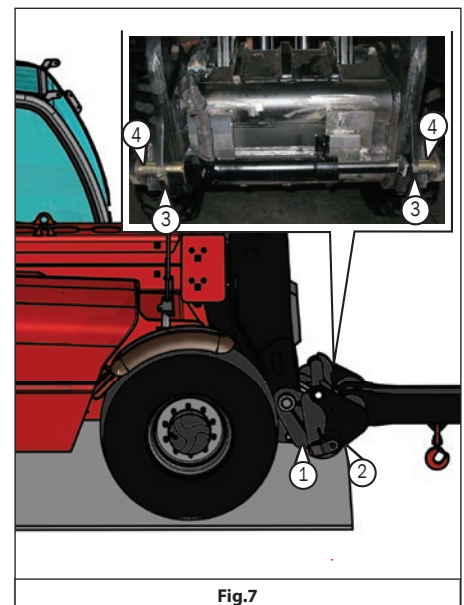


Hydraulic block and release

- Blocking and releasing the jib is done by acting on the shear pins (Fig.7, point 3) which must project out through the holes of the quick-release coupling (Fig.7, point 4).
- Operate the shear pins with the optional command (Fig.8, point 1) on the manipulator in the cab.
- Press the knob of encoder to confirm the type of accessory (See INSTRUCTIONS MANUAL Ref.649040: chapter 2-USE, paragraph AUTOMATIC RECOGNITION OF THE ACCESSORY "E-RECO").
- Release the jib.

Removing (and positioning) the jib

- Repeat the "- Blocking and releasing the jib is done by acting on the shear pins (Fig.7, point 3) which must project out through the holes of the quick-release coupling (Fig.7, point 4)." procedure in reverse order, taking care to place it in a safe position on compact, level ground



2 - USE

FEATURE OF JIB

TYPE OF JIB

PC 90	2-4
PC 18T	2-4
PC 25T	2-4

CONTROL FUNCTIONS IN CAB	2-5
---------------------------------	------------

PC 90

Description:

0.4 m long jib with carrying capacity: 9000 kg/ 19841 lb (Fig.1).

PC 18T

Description:

0.7 m long jib with carrying capacity: 18000 kg/ 40000 lb (Fig.1).

PC 25T

Description:

0.7 m long jib with carrying capacity: 23000 kg / 55000 lb (Fig.1)

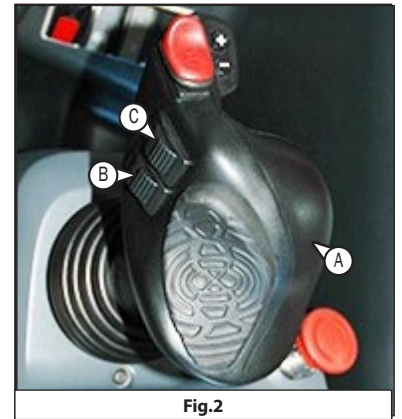


Fig.1

CONTROL FUNCTIONS IN CAB

TELESCOPIC BOOM HYDRAULIC MOVEMENTS CONTROLS (Fig.2)

- A - Control lever for lifting and tilting.
- B - Telescopic movements control button.
- C - Accessory control button.



A - LIFTING THE LOAD (Fig.3)

- Lever A back for lifting.
- Lever A forwards for lowering.

A - TILTING THE LOAD (Fig.3)

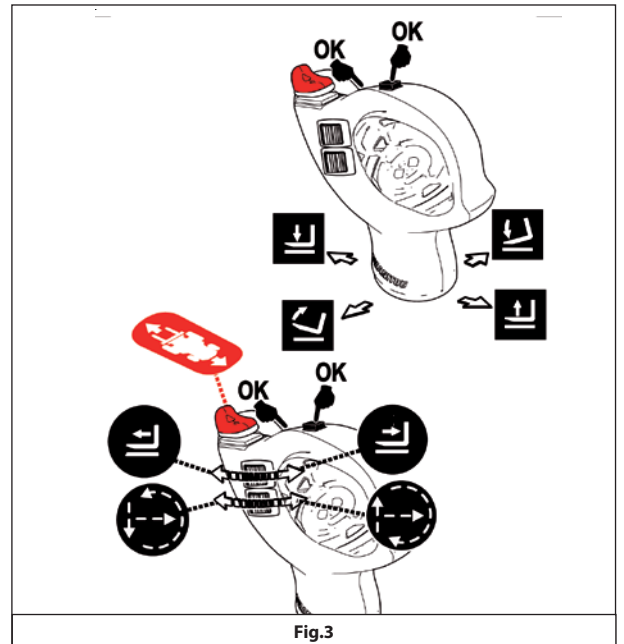
- Lever A to the LH to tilt the board upwards.
- Lever A to the RH to tilt the board downwards.

B - TELESCOPIC MOVEMENTS (Fig.3)

- Pushbutton B forwards for extension.
- Pushbutton B backwards for retraction.

C - OPTIONAL COMMAND (Fig.3)

- To control the optional accessory movements, turn the roller on top of the lever.



O - ACCESSORY CONTROL DISCONNECT KEY

The key controls the activation and exclusion of the Accessory control button "C" (Fig.2).

Press key "O" (Fig.4) to activate or deactivate the accessory rocker button on the joystick in the cab.

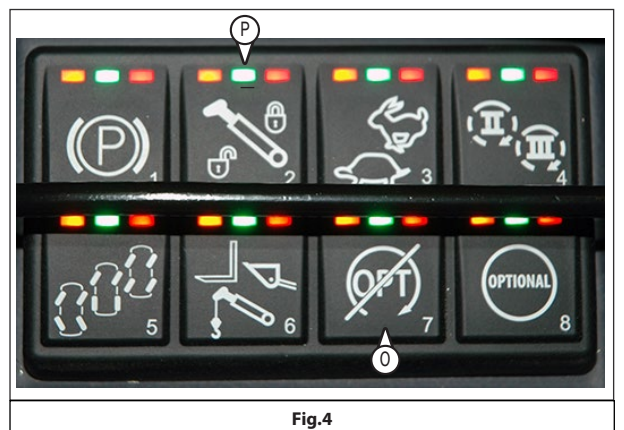
On the control panel, the indicator lights indicates that the accessory control is disconnected or activated

P - STOPPING HYDRAULIC MOVEMENTS

While travelling on roads, it is advisable (compulsory in Italy and Germany) to stop all hydraulic movements.

Press the key "P" (Fig.4) to stop or enable the hydraulic movements.

On the display, the indicator lights up, indicating that the movements are stopped or are available for use



3 - MAINTENANCE

MAINTENANCE PROGRAM

Cleaning

Clean the jib periodically to remove dust. Do not use solvents or other products not compatible with the materials used for its construction.

Checking and general maintenance of the jib (examples) :

PC90 / PC18T / PC 25T (Fig.1, page 5).

The checks and general maintenance for the jib is shown on the Figure concerned. The letters correspond to the operations to be carried out in the paragraphs that follow (see: VISUAL INSPECTIONS).

DAILY OR EVERY 10 HOURS OF OPERATION

- a - Check the hook:
 - a1 - make sure it is not deformed,
 - a2 - make sure that it turns freely,
 - a3 - make sure that the safety tab is efficient.
- b - Check to make sure the shackle connecting the hook is screwed on properly.
- c - Check to make sure the external structure of the jib is intact.



***Never attempt to make replacements or repairs unless a qualified Manitou technician is present.
Tampering not authorised by Manitou will cause the warranty to lapse.***

EVERY 50 HOURS OF OPERATION

- Lubricate the hook stem.



Before lubricating the hook stem, remove all traces of dust and sand.

Periodic lubrication is necessary to be able to use the complete potential of the jib and protect it from wear and rusting.

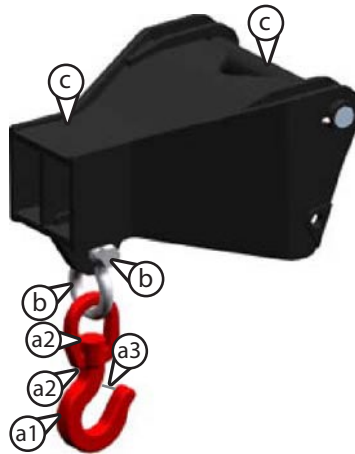
Point to be lubricated	Type of lubricant
Hook rotation	MANITOU Multi-purpose Special spray grease

The lubrication frequency must be intensified if the working environment is salty or corrosive.

PREVENTIVE MAINTENANCE FOR LONG SHUTDOWN PERIODS

If the jib is to remain unused for long periods, store it in a protected place, taking the following precautions:

- clean all the parts carefully and touch up scratches in the paint, if any.
- Lubricate the hook rotation pin.
- Place the jib on a solid flat surface and cover it.



SHACLE

It is important to check the condition and locking of the shackle bolt once a week.





HOOK

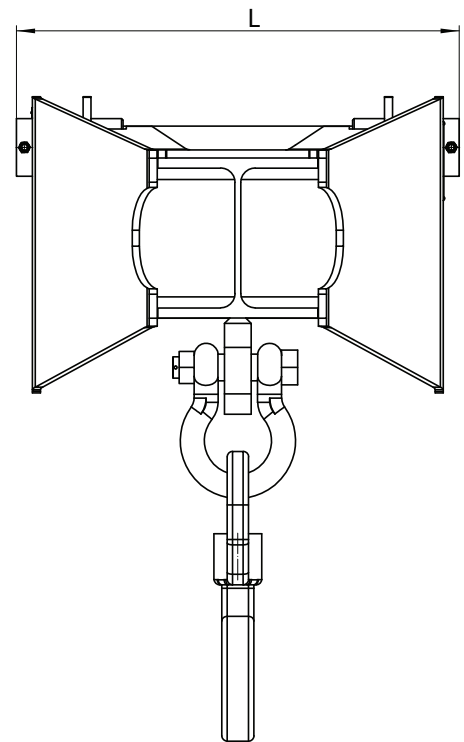
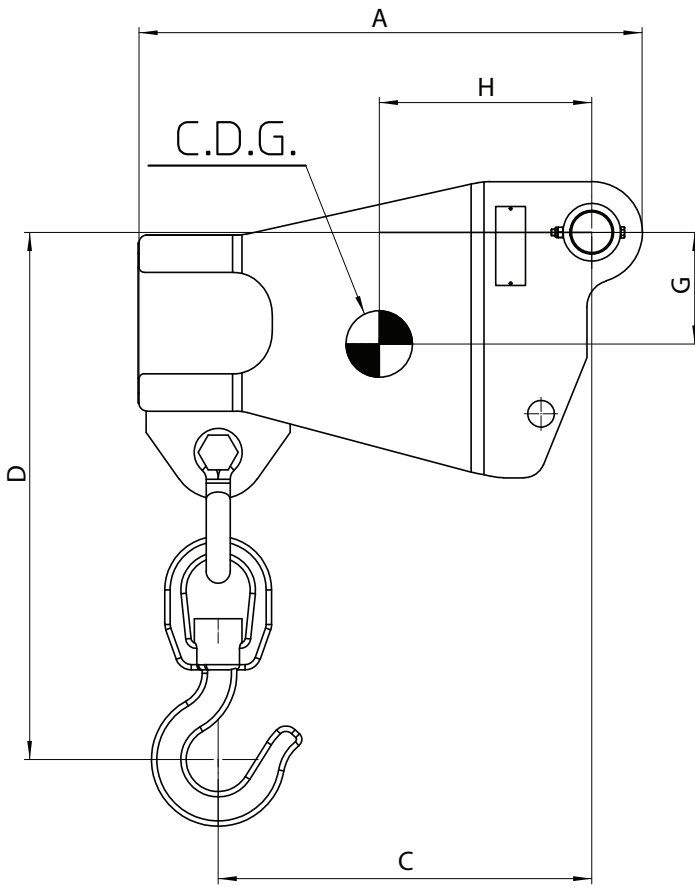
For maximum efficiency, keep the hook rotation screw lubricated.

Without load suspended, the hook must rotate freely, merely by pressing with the hand.

Check the condition and working of safety tab.

4 - DIMENSIONS AND LOAD CHARTS

kg (lb)	t (t)	mm (in)							kg (lb)
									
9000 (19841)	10 (10)	A	B	C	D	G	H	L	129 (284)
		425 (17)		260 (10)	823 (32)	238 (9)	186 (7)	815 (32.6)	

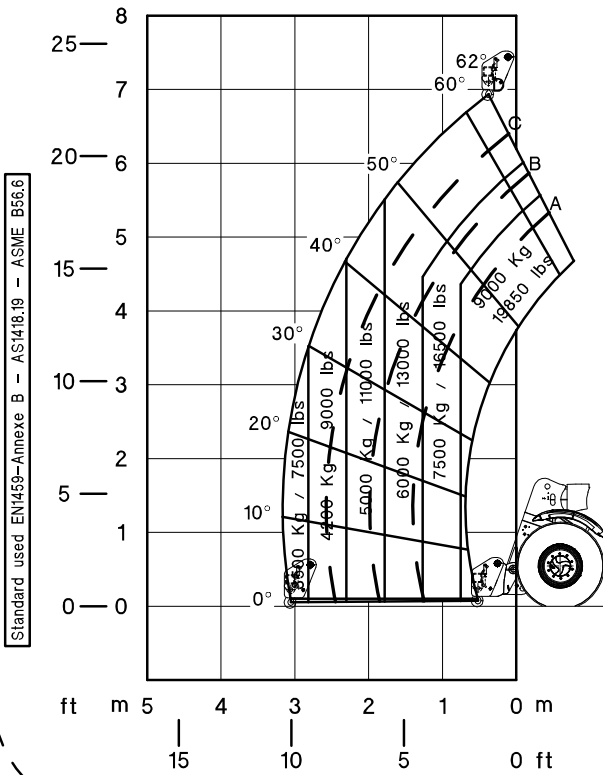




MHT 790

PC 90

Pos. S



36 km/h Max (10 m/s)



1.75% max



1.75% max



1.75% max



1.75% max



0 km/h

Ground conditions:
Solid surfaces

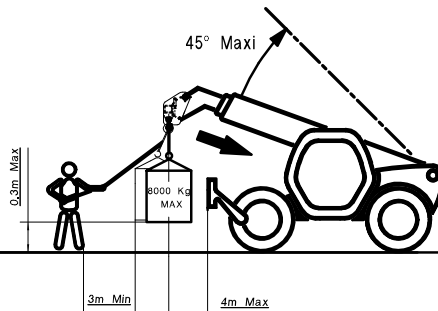
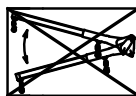
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MHT 790

PC 90

Pos. S



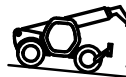
1.5 Km/h Max (0.4 m/s)



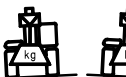
36 Km/ Max (10 m/s)



8.75% Max



8.75% Max



5% Max





5% Max

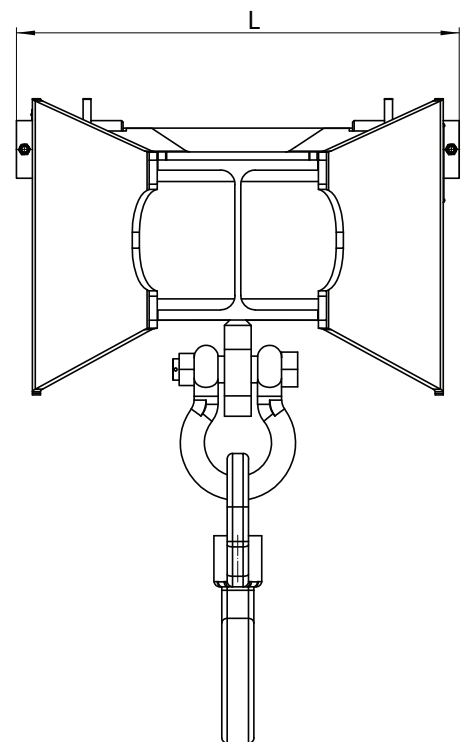
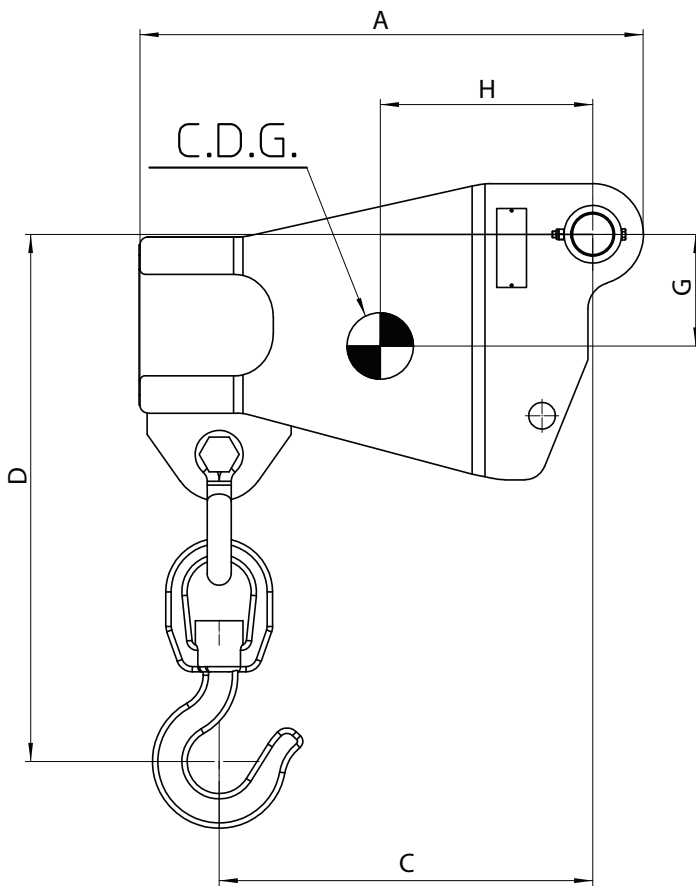


Ground conditions:
solid surface

Standard used AS 1418-19

53008366

kg (lb)	t (t)	mm (in)							kg (lb)
									
18000 (40000)	22 (22)	A	B	C	D	G	H	L	340 (750)
		943 (37)	890 (35)	700 (27.5)	988 (39)	209 (626)	398 (15.6)	830 (32.6)	

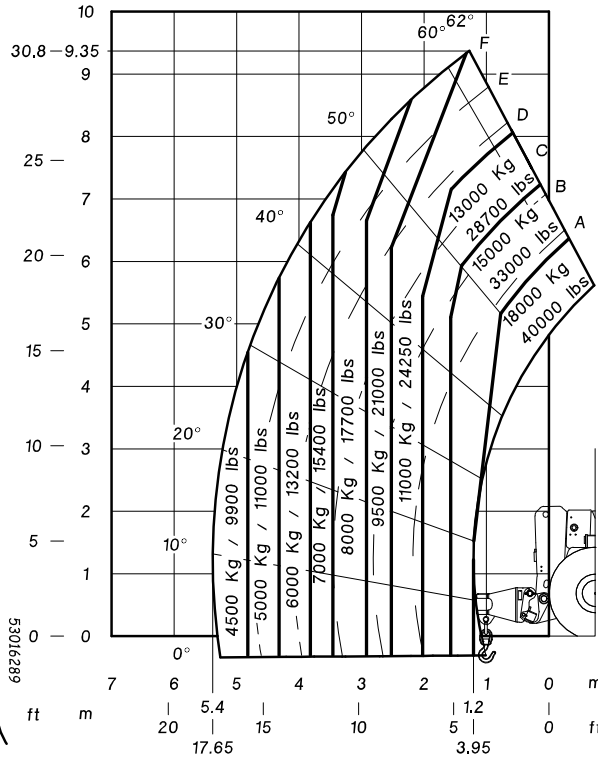




MHT 10180

PC 18T

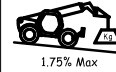
Pos. Q



36 Km/ Max
(10 m/s)



1.75% Max



1.75% Max



1.75% Max 1.75% Max



Ground conditions:
solid surface



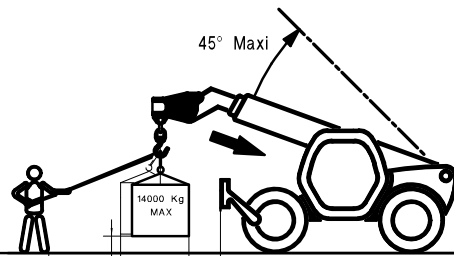
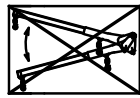
0km/h



MHT 10180

PC 18T

Pos. Q



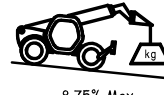
1.5 Km/h Max (0.4 m/s)



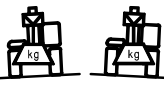
36 Km/ Max
(10 m/s)



8.75% Max



8.75% Max







8.75% Max 8.75% Max

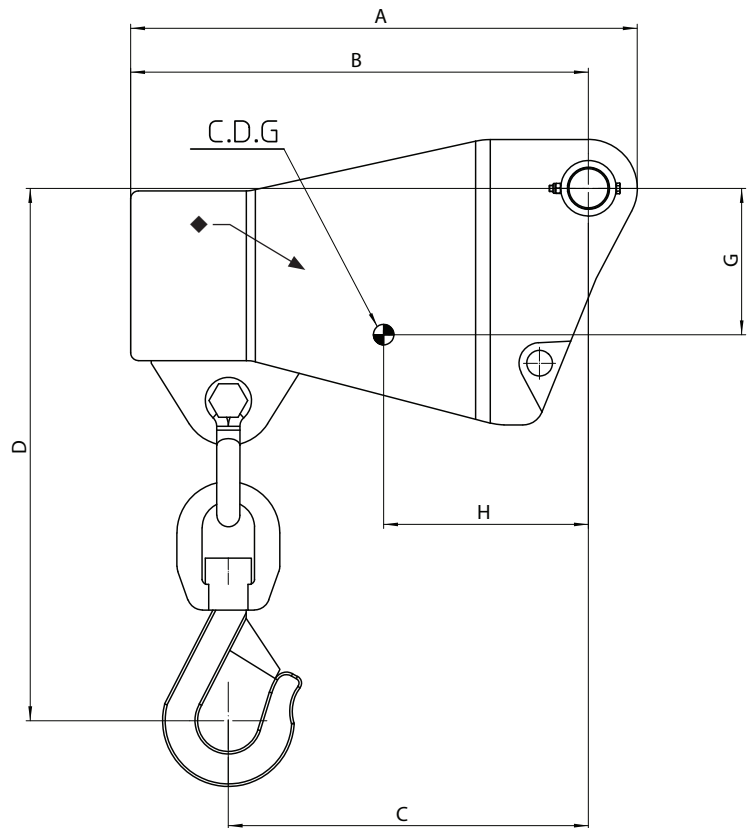
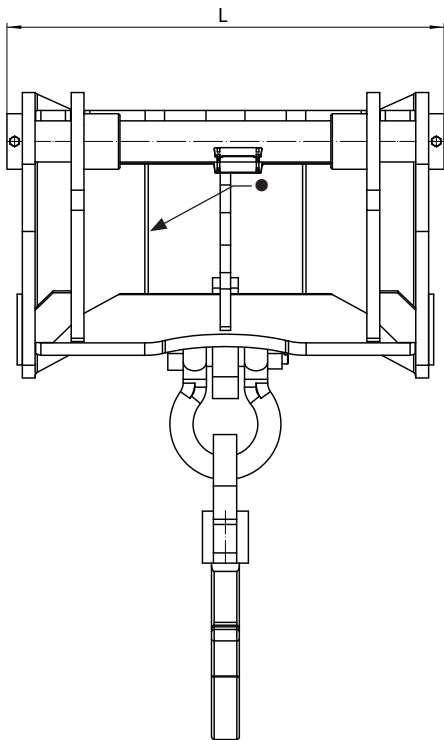


Ground conditions:
solid surface

Standard used AS 1418-19

53016290

kg (lb)	t (t)	mm (in)							kg (lb)
									
25000 (55000)	27 (27)	A	B	C	D	G	H	L	460 (1014)
		985 (38.7)	890 (35)	700 (27.5)	1543 (61)	284 (11)	398 (15.6)	850 (33.4)	

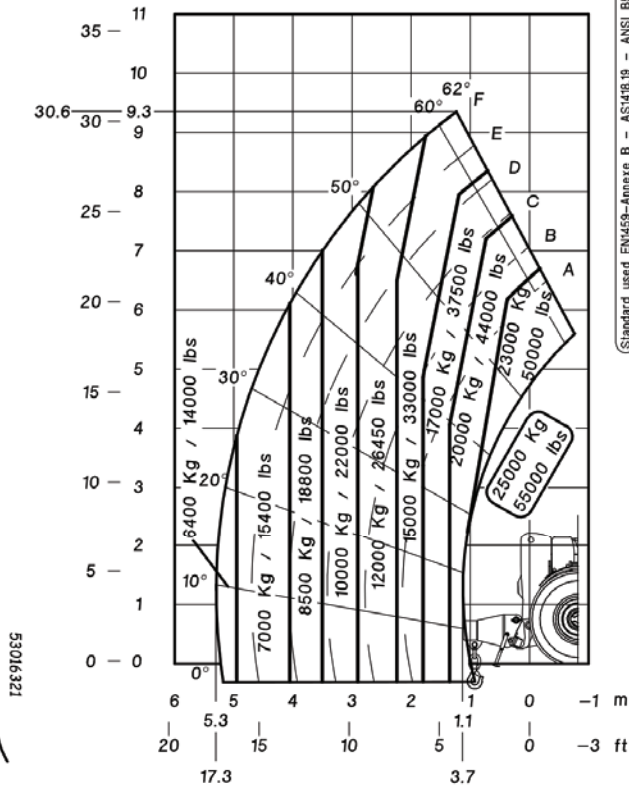




MHT 10230

PC 25T

Pos. S



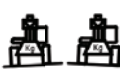
36 Km/ Max (10 m/s)



175% Max



175% Max



1.75% Max 1.75% Max



Ground conditions: solid surface



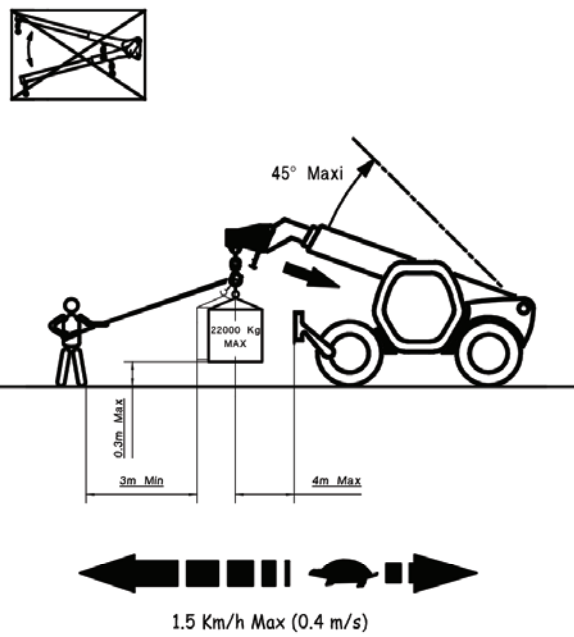
0km/h



MHT 10230

PC 25T

Pos. S



36 Km/ Max (10 m/s)



8.75% Max



8.75% Max



8.75% Max 8.75% Max



Ground conditions: solid surface

Standard used AS 1418-19

53016322