

Mini Monkey Tower Maintenance Manual

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May 2, 2013

Chapter 1

Technical Publications

Monkey Tower Ltd endeavours to deliver the highest degree of accuracy possible. Continuous improvement of our products is a policy, and therefore, product specifications are subject to change without notice. Readers are encouraged to notify Monkey Tower Ltd of any errors and send in suggestions for improvement. All communications will be carefully considered.

Chapter 2

Contact

Monkey Tower Ltd
North Wing Offices
Ingatestone Hall
Ingatestone, Essex
CM4 9NS, UK
+44 (0)1277 356172
www.monkeytower.co.uk
sales@monkeytower.co.uk

Chapter 3

Safety Rules

3.1 Warning

Failure to obey the instructions and safety rules in this manual and the Monkey Tower Operator's Manual could result in death or serious injury. Many of the hazards identified in the operating instruction manual are also safety hazards for maintenance and repair procedures.

3.2 Requirements to Perform Maintenance

Maintenance should only be performed by trained and qualified persons. Maintainers should read, understand and obey:

- Manufacturer's instructions and safety rules.
- Employer's safety rules and workplace regulations.
- Applicable governmental regulations.

Maintainers should have the appropriate tools, lifting equipment and a suitable workplace.

3.3 Personal Safety

- Any person working on or around a machine must be aware of all known safety hazards.
- Personal safety and the continued safe operation of the machine should be your top priority.

- Read each procedure thoroughly.



Be sure to wear Personal Protective Equipment (Gloves, eye protection, foot protection etc.).



Be aware of potential crushing hazards such as moving parts, free swinging or unsecured components when lifting or placing loads.

3.4 Workplace Safety



Be sure to keep sparks, flames and heat from flammable and combustible materials like battery gases and engine fuels.

Always have an approved fire extinguisher within easy reach.



Be sure that all tools and working areas are properly maintained and ready for use. Keep work surfaces clean and free of debris that could get into machine components and cause damage.



Be sure that your workshop or work area is properly ventilated and well lit.



Be sure any forklift, overhead crane or other lifting or supporting device is fully capable of supporting and stabilizing the weight to

be lifted. Use only chains or straps that are in good condition and of ample capacity.



Be sure that fasteners intended for one time use (i.e., cotter pins and self-locking nuts) are not reused. These components may fail if they are used a second time.



Be sure to properly dispose of old oil or other fluids. Use an approved container. Please be environmentally safe.

3.5 Safety Warning System

This manual and the decals on the machine use signal words to identify the following:



Warning triangle. Alerts personnel to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

▲ DANGER

Red DANGER sign with warning triangle. Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

▲ WARNING

Orange WARNING sign with warning triangle. Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

▲ CAUTION

Yellow CAUTION sign with warning triangle. Indicates a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.

NOTICE

Green NOTICE sign. Indicates operation or maintenance information.

Chapter 4

Spare Parts

4.1 How To Order Parts

Spare parts can be ordered from Monkey Tower Ltd (see Chapter 2 for contact details) or your local distributor (See Section 4.2).

Please be prepared with the following information when ordering replacement parts for your Monkey Tower:

- Machine model number.
- Machine serial number.
- Part number (See Chapter 7).
- Description.
- Quantity.
- Purchase order number.
- Ship-to address.
- Desired method of shipment.

4.2 Monkey Tower Distributors

An up-to-date list of distributors can be found by contacting Monkey Tower (Section 2).

Chapter 5

Specifications

Dimensions		
Maximum Platform Height	1.92	m
Maximum Working Height	2.92	m
Minimum Working Width	1.64	m
Minimum Width	0.7	m
Minimum Length	1.2	m
Working Length	1.32	m

Dimensions		
Working Weight	300	kg
Minimum Weight		kg
Safe Working Load	150	kg
Lifting Capacity	0	kg

Fastener Torque Specifications 8.8 Specification Bolts		
Size	lbs	Nm
M4	2.4	41
M6	4.07	69
M8	9.88	14
M10	19.6	27.9
M12	34.1	48.6

Chapter 6

Scheduled Maintenance Procedures

6.1 Maintenance Rules

- Maintenance procedures shall be completed by a person competent in the maintenance of this machine.
- Scheduled maintenance procedures shall be completed daily, quarterly and annually as specified on the maintenance inspection report.
- Failure to properly complete each inspection when required could result in death, serious injury or substantial machine damage.
- Immediately tag and remove from service a damaged or malfunctioning machine.
- Repair any machine damage or malfunction before operating machine.
- Keep records of all inspections for three years.
- Be sure supports can withstand machine weight. (See Specifications section for the machine weight).
- Be sure overhead cranes or other lifting devices can handle machine weight. (See Specifications section for machine weight).
- Unless otherwise specified, the machine should be maintained in the following configuration:
 - Machine on a firm, level surface.
 - Platform fully lowered.

- Legs extended outwards, locked into position and supporting Monkey Tower Mini.
- Castors locked.

6.2 Maintenance Symbols Legend

The following symbols have been used in this manual to help communicate the intent of the instructions. When one or more of the symbols appear at the beginning of a maintenance procedure, it conveys the meaning below:



Tools required.



New parts required.



Dealer service recommended.

6.3 Maintenance Schedule

There are three types of maintenance inspections that must be performed according to a schedule-daily, quarterly and annual. The Scheduled Maintenance

6.4. MAINTENANCE INSPECTION REPORT

Procedures Section and the Maintenance Inspection Report have been divided into three subsections — A, B and C.

The procedures required to perform a scheduled inspection are determined by the following chart.

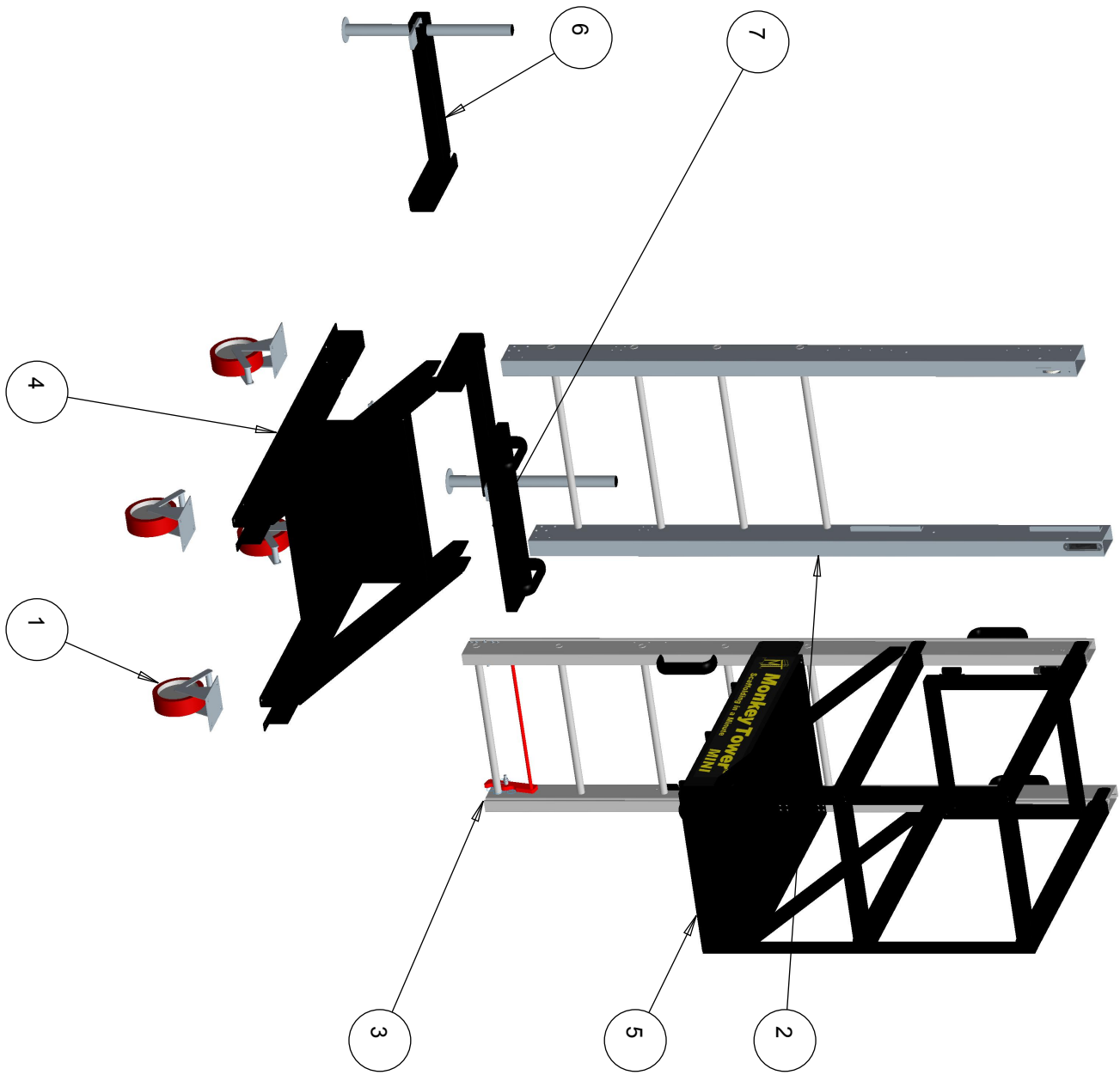
Inspection Checklist	
Daily or every 8 hours	A
Monthly or every 100 hours	A + B
Annual or every 1000 hours	A + B + C

6.4 Maintenance Inspection Report

The maintenance inspection report is given in Appendix D and contains checklists for each type of scheduled inspection. Make copies of the Maintenance Inspection Report to use for each inspection. Store completed forms for three years.

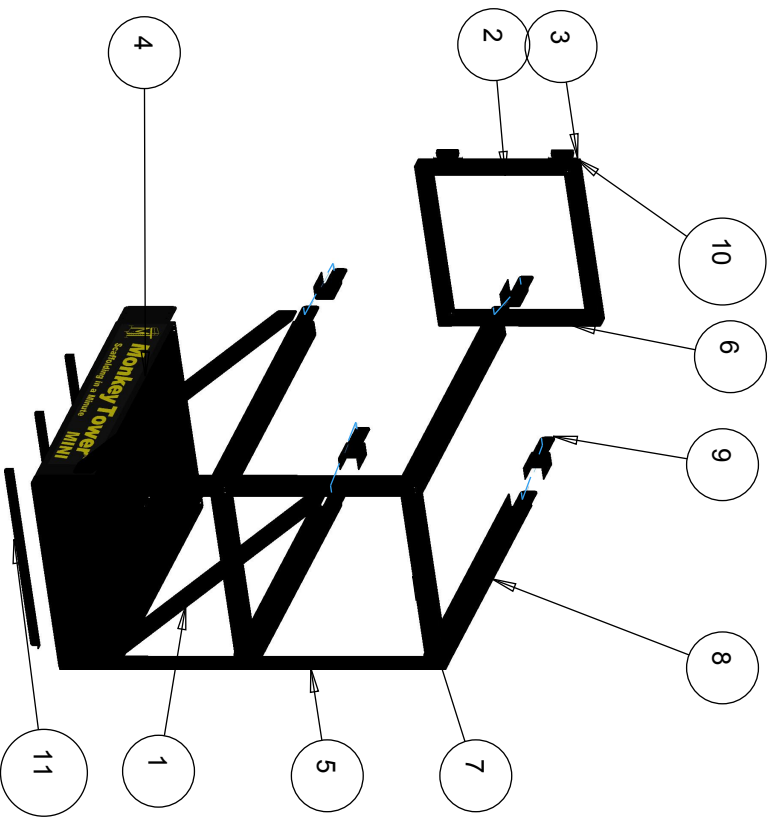
Chapter 7

Parts List & Assembly Diagrams



Index	Part #	Part Name	Quantt
1	Caster	Locking Castor	4
2	NassLad1	Ladder 1 Assembly	1
3	NassLad2	Ladder 2 Assembly	1
4	NBaseAss	Base Assembly	1
5	NPlatAss	Platform Assembly	1
6	NLegAss	Stabiliser Leg	2
7	NWghtAss	Stabiliser Weight	1

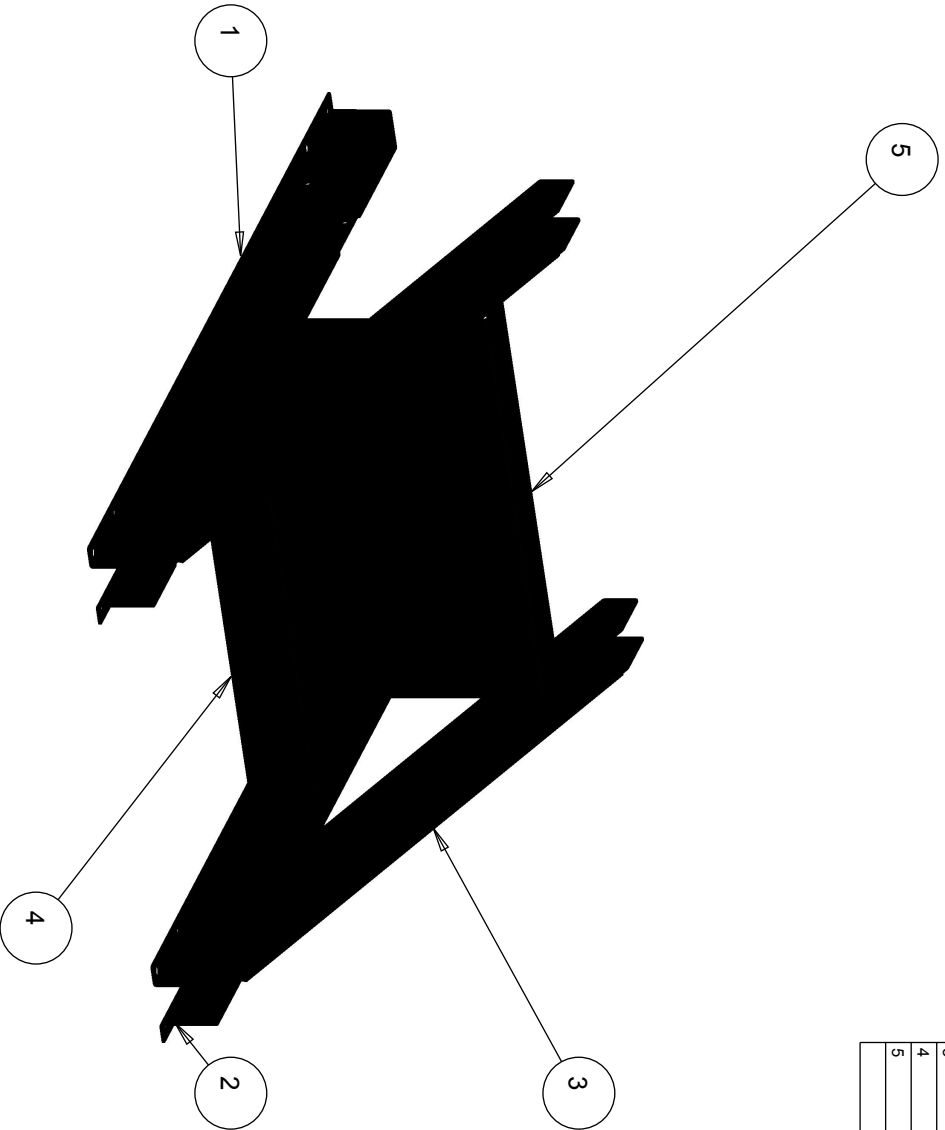
DESIGNER	AMW	22-Nov-11	Monkey Tower Ltd
ISSUE			North Wing, Ingatestone Hall, Ingatestone Essex CM14 9NS (44) 1277 356172, (44) 7866 687618 alan.ward@monkeytower.co.uk
TOLERANCES			Quantity
	±	MM UNLESS SHOWN	per tower
MATERIAL			
DO NOT SCALE			Project Drawing File
			L_LA_X_009 MINI_PARTS
			For Manufacture
		SCALE 0.020	SHEET 1 OF 1
			ALL DIMENSIONS IN MM UNLESS SPECIFIED OTHERWISE



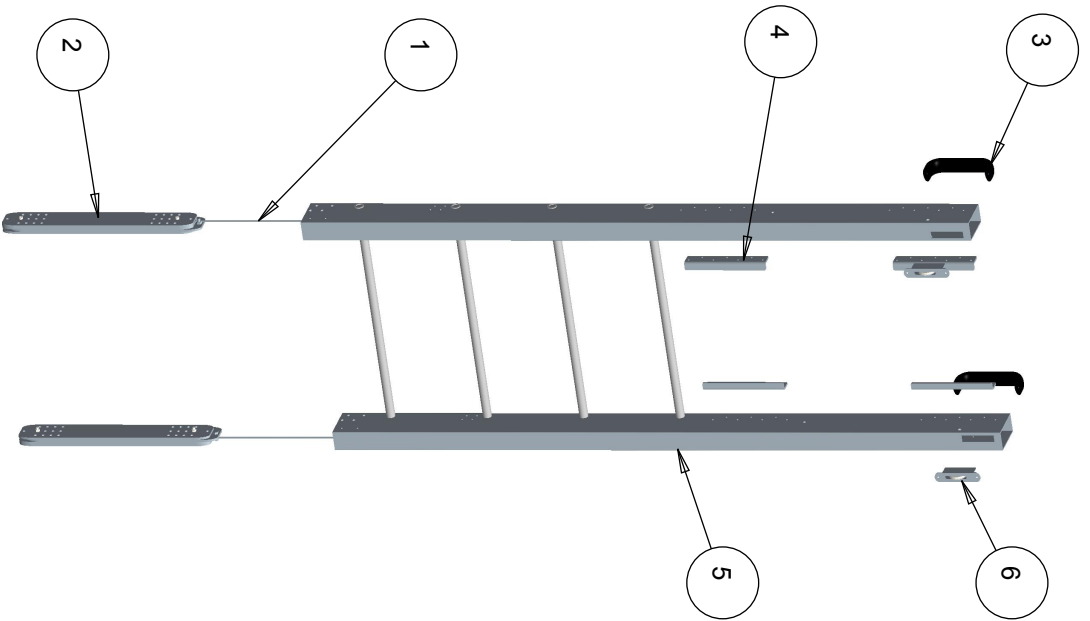
Index	Part #	Part Name	Quant
1		ANGLE	2
2		DOOR	1
3		P2_DOORA_AP	2
4		P2_PLATFORM	1
5		P2_UP_ANGLE	2
6		P2DOORB_APX	2
7		P2RAIL_1	2
8		P2RAIL_B_FOLDED	4
9		P2RAIL_C_FOLDED	4
10		SPRING_HINGEA	2
11		TRAPDOOR_STIFFENER	3

DESIGNER	AMW	22-Nov-11	Monkey Tower Ltd
ISSUE			North Wing, Ingatestone Hall, Ingatestone Essex CM14 9NS (44) 1277 356172. (44) 7865 687618 alan.walt@monkeytower.co.uk
TOLERANCES	±	MM UNLESS SHOWN	Quantity
MATERIAL			per tower
DO NOT SCALE			Proj/E Drawing File
			L_LA_X_009 MINI_PLATFORM
			For Manufacture
			SCALE 0.020
			SHEET 1 OF 1

Index	Part #	Part Name	Quant
1		NANO_BASE1	1
2		NANO_BASE1_MIRROR	1
3		NANO_BASE2	2
4		NANO_BASE3	1
5		NANO_STIFFENER	1

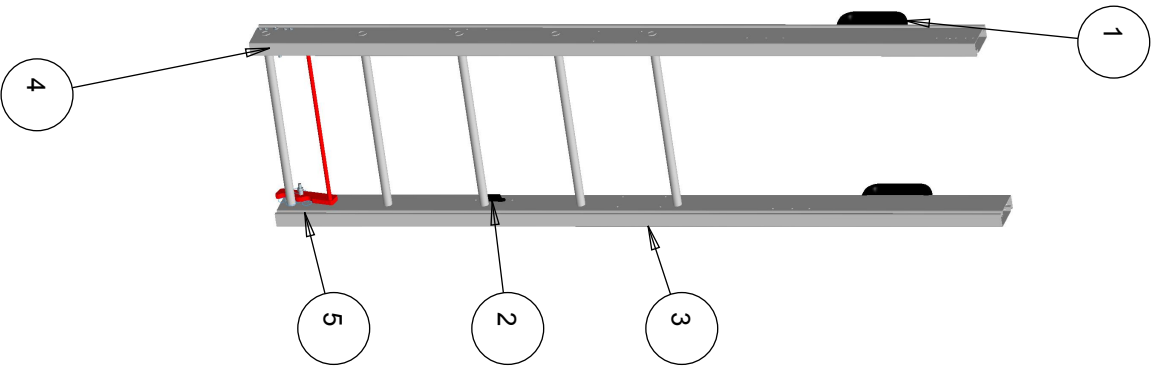


DESIGNER	AMW	22-Nov-11	Monkey Tower Ltd
ISSUE			North Wing, Ingatestone Hall, Ingatestone Essex CM14 9NS (44) 1277 356172, (44) 7866 687618 alan.walt@monkeytower.co.uk
TOLERANCES			Quantity
±	MM UNLESS SHOWN		per tower
MATERIAL			
DO NOT SCALE			Proj/E Drawing File
			L_LA_X_009 MINI_BASE
			For Manufacture
		SCALE 0.020	SHEET 1 OF 1
			ALL DIMENSIONS IN MM UNLESS SPECIFIED OTHERWISE



Index	Part #	Part Name	Quant
1		CABLE_COUNTERBALANCE	2
2		COUNTERBALANCE_HALF	8
3	brdg_handle	GRAB_HANDLE	2
4		LADDER_ANGLE	4
5	N_LAD1_ASS1	LADDER1	1
6		SASH_PULLEY	2

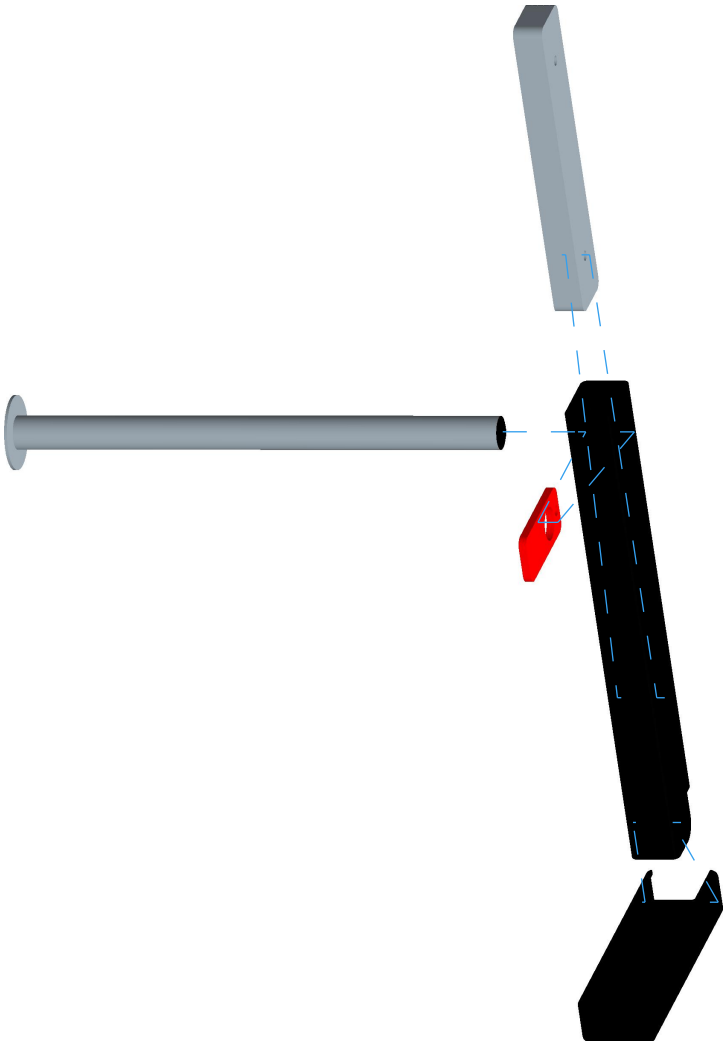
DESIGNER	AMW	Monkey Tower Ltd
ISSUE	22-Nov-11	
TOLERANCES		North Wing, Ingatestone Hall, Ingatestone Essex CM14 9NS (44) 1277 356172. (44) 7866 687618 alan.walt@monkeytower.co.uk
MATERIAL	± MM UNLESS SHOWN	Quantity
DO NOT SCALE		per tower
		Project Drawing File
		L_LA_X_009 MINI_LADDER1
	ALL DIMENSIONS IN MM UNLESS SPECIFIED OTHERWISE	For Manufacture
		SCALE 0.020
		SHEET 1 OF 1



Index	Part #	Part Name	Quant
1	bridg_handle	GRAB_HANDLE	2
2	L_HJ_N_009	HOLT_JAMB_CLEAT	1
3	N_LAD2_ASS	LADDER2	1
4	n_runglock	RUNGLOCK	1
5	12860_roller	RUNGLOCK_SLIDER_B	2

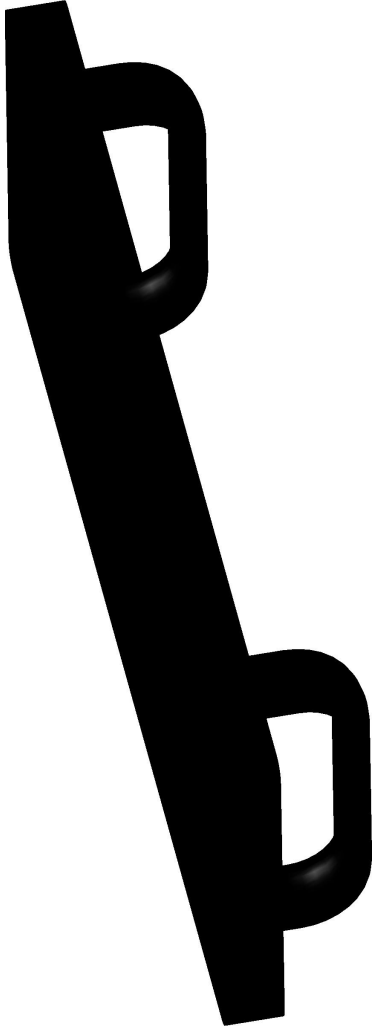
DESIGNER	AMW	22-Nov-11	Monkey Tower Ltd North Wing, Ingatesstone Hall, Ingatesstone Essex CM14 9NS (44) 1277 356172, (44) 7866 687618 alan.wall@monkeytower.co.uk
ISSUE			
TOLERANCES	MM UNLESS SHOWN		
MATERIAL	per tower		
DO NOT SCALE			
ALL DIMENSIONS IN MM UNLESS SPECIFIED OTHERWISE		Proj/E Drawing File L_LA_X_009 MINI_LADDER2	For Manufacture SCALE 0.020 SHEET 1 OF 1

Index	Part #	Part Name	Quant
1		COUNTERBALANCE_LEG	5
2		JACK HOLDER	2
3		PROPSTAND	1
4		STABILISER_LEG_NEW	1
5		STABILISER_LEG1_NEW	1
6		STABILISER_LEG2_NEW	1

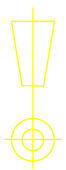


DESIGNER	AMW	22-Nov-11	Monkey Tower Ltd
ISSUE			North Wing, Ingatestone Hall, Ingatestone
TOLERANCES			Essex CM14 9NS (44) 1277 356172.
	±	MM UNLESS SHOWN	(44) 7866 687618 alan.walt@monkeytower.co.uk
MATERIAL			Quantity
DO NOT SCALE			per tower
			Project Drawing File
			L_LA_X_009 MINI_STABLEG
			For Manufacture
			SCALE 0.020
			SHEET 1 OF 1

Index	Part #	Part Name	Quant
1	brdg_handle	GRAB_HANDLE	2
2		WEIGHT	5



DESIGNER	AMW	30-Apr-13	Monkey Tower Ltd
ISSUE			North Wing, Ingatestone Hall, Ingatestone Essex CM14 9NS (44) 1277 356172, (44) 7866 687618 alan.wall@monkeytower.co.uk
TOLERANCES			Quantity
±	MM UNLESS SHOWN		per tower
MATERIAL			
DO NOT SCALE			Proj/E Drawing File
			MINI_WEIGHTS
			For Manufacture
			SCALE 0.167
			SHEET 1 OF 1



ALL DIMENSIONS IN MM
UNLESS SPECIFIED OTHERWISE

Appendix A

Checklist A Procedures - Daily Pre-operation Inspection

Completing a Daily Pre-operation Inspection is essential to safe machine operation. The Pre-operation Inspection is a visual inspection performed by the operator prior to each work shift. The inspection is designed to discover if anything is apparently wrong with a machine before the operator performs the function tests. The Pre-operation Inspection also serves to determine if routine maintenance procedures are required. Complete information to perform this procedure is available in the appropriate operator's manual. Refer to the Operator's Manual on your machine.

A.1 Operators Manual Present

Be sure that the operator's manual is complete, legible and readily accessible by users.

A.2 Decals Present

Be sure that all decals are legible and in place. The decals and their location can be seen in Figure ??.

A.3 Damage, Dirt, Missing Parts, Corrosion & Unauthorised Changes

Check the following components or areas for damage, excessive dirt or contamination, improperly installed or missing parts and unauthorised modifications:

- Base components.
- Platform Components
- Ladders
- Levelling jacks.
- Wheels.
- Castors.
- Griptape on platform.
- Nuts, bolts and other fasteners.

A.4 Bolted Riveted Connections

Check tightness of bolted connections and tightness and condition of riveted connections.

A.5 Cable Condition

Check the visible portion of the counterbalance cable is in good condition with no frays, worn or flat spots.

A.6 Stabiliser Leg Function

Extend each leg horizontally and lock into position with the leg pins. Check pins in good condition and locating correctly. *Legs should slide out easily and the leg pins should fit into place without significant force.*

Lower the stabiliser legs until they are firmly resting on the ground, check that stabiliser legs move easily without binding. *Stabiliser levers should move easily with spring function working.*

Check that when stabiliser legs are in place they do not move upwards without depressing stabilise lever. *stabiliser legs should support minimum load of 100 kg each*

Lock the castors by pushing castor-lock down with foot. *Castors must lock into place*

A.7 Castor Function

Lock the castors by pushing castor-lock down with foot. *Castors must lock into place with wheel prevented from spinning and verticle axis locked*

A.8 Platform lifting / locking

- Check platform lifts easily in to position.
- Check ladder locks engage automatically and secure ladder in position.
- Check ladder locks disengage easily.
- Check runglock elastic cables are in good condition without excessive wear.
- Check runglocks flip down on releasing runglock elastic cable.
- Check runglocks flip up on applying tension to runglock elastic cable.

- Check condition of runglock connection to ladder *ensure mounting undamaged and secure.*

A.9 Platform Door Inspection

- Check door opens easily and springs back to closed position.
- Check condition of door hinges.

Appendix B

Checklist B Procedures - Monthly

The following procedures should be followed once monthly (more often if conditions require). These procedures should be followed in addition to the Checklist A procedures.

B.1 Inspect and Clean the Sliders

Clean sliders are essential to good machine performance and safe operation. Extremely dirty conditions may require that the sliders be cleaned more often.

1. Raise platform and lock at a suitable height for inspecting the sliders (following operating instructions in Operators Manual).
2. Visually inspect the channels of the sliders for debris or foreign material.
3. If necessary, use a mild cleaning solvent to clean the sliders.

B.2 Lubricate Machine

- Apply automotive grease to ladder sliders.
- Apply light coating of grease to castor mechanism.

Appendix C

Checklist C Procedures - Annual Inspection & Maintenance

C.1 Inspect Ladders



1. Inspect ladders for wear.
 2. Check all rivet connections for tightness and damage.
 3. Check runglock elastic bungee latches for wear.
 4. Check runglocks for wear and correct function.
 5. Check sise to side freeplay between ladder sections, the freeplay should be checked at the lowest platform height, intermediate height and maximum height. Freeplay should be less than 4 mm. *Freeplay is important to ensure ladder sliders do not separate.*
 6. Check ladder sliders are firmly riveted to ladder.
3. Check brake operation by applying and releasing brakes.
 4. Check brakes prevent movement and rotation of castors.
 5. Pump Lithium based grease into the caster until it can be seen coming out of the bearing gap.

Extremely dirty conditions may require that the casters be inspected and lubricated more often.

C.2 Castor Inspection

1. Visually inspect each castor for cuts, cracks or unusual wear.
2. Move the machine on a flat smooth surface and check that the casters and wheels roll smoothly, free of hesitation and binding.

Appendix D

Maintenance Inspection Report

1. Select the appropriate checklist(s) for the type of inspection to be performed.
2. Place a check in the appropriate box after each inspection procedure is completed.
3. Use the step-by-step procedures in the Maintenance Inspection section to learn how to perform these inspections.
4. If any inspection receives an "N", tag and remove the machine from service, repair and re-inspect it.
5. After repair and retest, place a check in the "R" box.

Monkey Tower Inspection Record	Date	
	Inspection Type (A, B or C)	
	a1 Operators Manual Present	
	a2 Decals Present	
	a3 Damage, Dirt, Missing Parts, Corrosion, Unauthorised Changes	
	a4 Bolted / Riveted connections	
	a5 Cable Condition	
	a6 Stabiliser Leg Function	
	a7 Castor Function	
	a8 Platform lifting / locking	
	a8 Runglock Function	
	a9 Platform Door Inspection	
	b1 Inspect & Clean the Sliders	
	b2 Lubricate Machine	
	c1 Inspect Winch	
c2 Inspect Ladders		
c5 Inspect Castors		
Serial Number	Name	
	Signed	