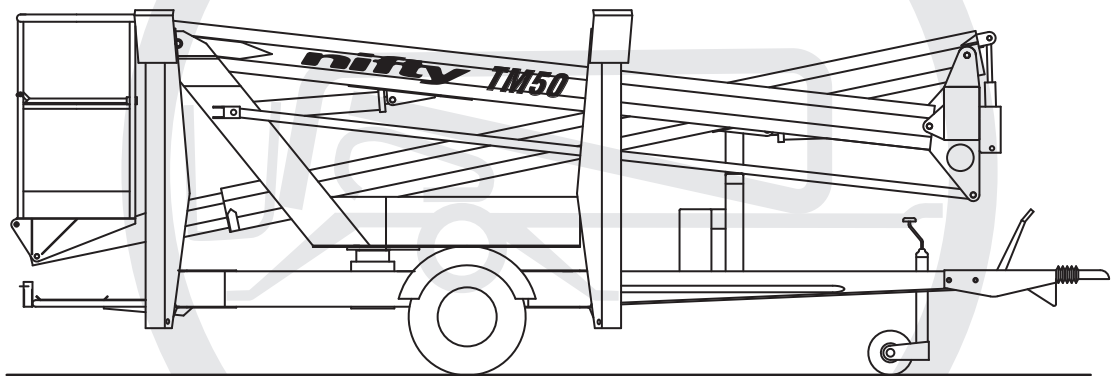


nifty

TM50

Operating and Safety Instructions

MODEL TM50 SERIES



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M50903/02



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Table of Contents

1	INTRODUCTION AND GENERAL INFORMATION	PAGE
1.1	Foreword	2
1.2	Scope	3
1.3	Introducing the TM50 Trailer Mount (TM) Series	3
1.4	General Specification	4
1.5	Identification	5
2	SAFETY	
2.1	Mandatory Precautions	6-9
2.2	Environmental Limitations	9
2.3	Noise & Vibration	9
2.4	Test Report	10
3	PREPARATION AND INSPECTION	
3.1	Unpacking	11
3.2	Preparation for Use	11
3.3	Pre-Operational Safety Check Schedules	12-14
3.4	Placard, Decals and Installation	15-17
3.5	Torque Requirements	18
4	OPERATION	
4.1	Control Circuit Components	19
4.2	Setting-up Procedures	20-21
4.3	Ground Control Operation	21-22
4.4	Basket Control Operation	23-24
4.5	Batteries and Charging	25-27
4.6	Transporting, Towing, Craneage, Storage and Setting to Work	28-31
4.7	Traction Drive	32-33
5	EMERGENCY CONTROLS	
5.1	General	34
5.2	Emergency Procedures - Incapacitated Operator	34
5.3	Emergency Procedures - Machine Failure	34
5.4	Incident Notification	34
6	RESPONSIBILITIES	
6.1	Changes in Ownership	35
6.2	Manual of Responsibilities	35
6.3	Inspection/ Service Check List	36-37

1 Introduction and General Information

1.1 FOREWORD

The purpose of these manuals is to provide the customer with appropriate safety operating and maintenance instructions essential for proper machine operation.

All information in these manuals should be **READ** and fully **UNDERSTOOD** before any attempt is made to operate the machine. **THESE MANUALS ARE VERY IMPORTANT TOOLS** - Keep them with the machine at all times.

The manufacturer has no direct control over machine application and use, therefore conformance with good safety practices is the responsibility of the user and his operating personnel.

All information in these manuals is based on the use of the machine under proper operating conditions. Alteration and/or modification of the machine are strictly forbidden.

One of the most important facts to remember is that any equipment is only as safe as those who operate it.

DANGER, WARNING, CAUTION, IMPORTANT, INSTRUCTIONS AND NOTICE

Any place these topics may appear, either in this manual or on the machine, they are defined as follows:

DANGER: If not correctly followed there is a high probability of serious injury or death to personnel.

WARNING OR CAUTION: If not correctly followed there is some possibility of serious injury or death to personnel.



THE '**SAFETY ALERT**' SYMBOL IS USED TO CALL ATTENTION TO POTENTIAL HAZARDS THAT MAY LEAD TO SERIOUS INJURY OR DEATH, IF IGNORED.

IMPORTANT AND INSTRUCTIONS: Denotes procedures essential to safe operation and prevention of damage to or destruction of the machine.

NOTICE: Indicates general safety rules and/or procedures relating to the machine.

It is the owner's/user's responsibility to know and comply with all applicable rules, regulations, laws, codes and any other requirements applicable to the safe use of this equipment.

1.2 SCOPE

These operating instructions contain all the necessary information required to allow the safe operation of any Niftylift TM50, powered by electric (DC), diesel (D), gasoline (P) engine, or a combination of these.

For further technical information, circuit diagrams and specific instructions for all maintenance which may need to be carried out by specialist trained personnel, see the associated Workshop and Parts manual for your model of Niftylift TM50.

1.3 INTRODUCING THE TM50 TRAILER MOUNT (TM) SERIES

Please note at the time of going to press all information, illustrations, details and descriptions contained herein are valid. Niftylift reserves the right to change, alter, modify or improve its products without any obligations to install them on previously manufactured machines.

If you require further information after reading this manual please do not hesitate to contact us at your nearest office.

Niftylift Inc, 1525 S. Buncombe Road, Greer, SC 29651 USA

Tel: **864 968 8881** Fax: **864 968 8836** Email: **niftyusa@niftylift.com**

The Niftylift TM50 trailer mount is an extremely versatile articulated boom platform of unique and simple design. It is capable of placing two men and their tools up to a height of 56ft or an outreach of 28ft 5in.

The booms are mounted via a 360⁰ powered swing mechanism on to a compact base balanced on a single axle. The fully articulating booms give an outstanding working envelope. The large pneumatic wheels and minimal weight make the unit light and simple to manoeuvre.

A simple, all-hydraulic proportional control system gives smooth, reliable movement of the platform and maximum reliability in the harshest environments.

The hydraulic powered outriggers make setting up both swift and simple. A unique pressure sensitive microswitch system fitted to each outrigger prevents operation of the machine until all outriggers have been correctly deployed and also provides a loud audible alarm warning of a possibly hazardous situation.


Models include the following:

E: - DC ELECTRIC	DE: - BI-ENERGY (DIESEL & BATTERY)
AC: - AC ELECTRIC	GE: - GASOLINE & BATTERY
D: - DIESEL	G: - GASOLINE
ACE: - AC & DC ELECTRIC	GAC: - GASOLINE & AC ELECTRIC
DAC: - DIESEL & AC ELECTRIC	

1.4 GENERAL SPECIFICATION

FEATURE	TM50	
MAXIMUM HEIGHT - WORKING	56ft	
MAXIMUM HEIGHT - BASKET	50ft	
MAXIMUM HEIGHT - STOWED	7ft 5in	
MAXIMUM OUTREACH	28ft 5in	
MAXIMUM WIDTH - TOWING	5ft 8in	
OUTRIGGER SPREAD	14ft 4in	
MAXIMUM LENGTH - STOWED	21ft 1in	
MAXIMUM CAPACITY -	440lb	
TURRET ROTATION	360°	
TURRET TAILSWING	Zero	
MAXIMUM TRAVEL SPEED	50 mph	
BASKET SIZE - LENGTH X WIDTH	25in x 44in	
CONTROLS	Full proportional hydraulic	
MAXIMUM HYDRAULIC PRESSURE	2900 PSI (220 bar)	
CONTROL SYSTEM VOLTAGE	12V	
TYRES	Bi-Energy 205 R14C 8PR 4.5 bar (65 psi)	Traction Drive 205/75 R16C8PR 4.5Bar (65 PSI)
GROUND CLEARANCE	10¼in	
GROSS VEHICLE WEIGHT (MAXIMUM)	5070lb	
MAXIMUM GROUND PRESSURE	10670lb/ft ²	
MAXIMUM ALLOWABLE INCLINATION	0.5 °	
POWER SOURCE	E (Electric) models - 4 x 6v 250 AH batteries P(G) (Petrol/Gasoline) models - Honda GX200 Engine D (Diesel) models - Kubota OC60 engine	

1.5 IDENTIFICATION PLATE

			
NIFTYLIFT LTD., CHALKDELL DRIVE, SHENLEY WOOD MILTON KEYNES MK5 6GF GREAT BRITAIN TEL (01144) 1908 223456 : FAX (01144) 1908 312733 e-mail: info@niftylift.com			
THIS NON-INSULATING WORK PLATFORM COMPLIES WITH ANSI STANDARD A92.2-2015 / CSA STANDARD C225-10			
SERIAL No			
MODEL			
YEAR OF MANUFACTURE			
CAPACITY RATING			lbs
PLATFORM REACH			ft
PLATFORM HEIGHT			ft
GROSS WEIGHT			lbs
MAXIMUM HYDRAULIC PRESSURE			psi
MAXIMUM VOLTAGE			V
MAXIMUM AMPS			A
ELECTRICAL SCHEMATIC	D	ISSUE	
HYDRAULIC SCHEMATIC	D	ISSUE	
No. OF PLATFORMS		ONE (1)	
AMBIENT TEMPERATURE			°F
QUALIFICATION VOLTAGE		NOT APPLICABLE	
MATERIAL HANDLING ATTACHMENTS		NONE	
			P33777/4

This manufacturer's plate is attached to Boom 1 on each machine at the time of manufacture on every Niftylift. Please ensure all sections have been stamped and are legible.

2 Safety

2.1 MANDATORY PRECAUTIONS

When operating your Niftylift, your safety is of utmost concern. In order to fully appreciate all aspects of the machines operation it should be ensured that each operator has **READ** and fully **UNDERSTOOD** the relevant manual covering machine use, maintenance and servicing. If any doubts exist concerning any points covered in your manual, contact your local dealer or Niftylift Ltd.

Before using any Niftylift, thoroughly inspect the machine for damage or deformation to all major components. Likewise, check the control systems for hydraulic leaks, damaged hoses, cable faults or loose covers to electrical components. At no time should damaged or faulty equipment be used - Correct all defects before putting the platform to work. If in doubt, contact your local dealer or Niftylift Ltd (see front cover for address).



THE MANUFACTURER HAS NO DIRECT CONTROL OVER THE MACHINE APPLICATION AND USE. THEREFORE CONFORMANCE WITH GOOD SAFETY PRACTICES IS THE RESPONSIBILITY OF THE USER AND HIS OPERATING PERSONNEL. FAILURE TO UNDERSTAND AND FOLLOW ALL SAFETY RULES COULD RESULT IN SERIOUS INJURY OR DEATH.

- 2.1.1** Only authorised persons trained on the same or a similar model will be permitted to operate the aerial Niftylift.
- 2.1.2** Always operate the Niftylift in full accordance with the manufacturers Operating & Safety Instructions for that model.
- 2.1.3** Before use each day and at the beginning of each shift the Niftylift shall be given a visual inspection and functional test including, but not limited to, operating and emergency controls, safety devices, personal protective clothing, including fall protection, air, hydraulic and fuel system leaks, cables and wiring harness, loose or missing parts, tyres and wheels, placards, warnings, control markings and Operating and Safety Manuals, guards and guard rail systems and all other items specified by the manufacturer.
- 2.1.4** Any problems or malfunctions that affect operational safety must be repaired prior to use of the platform, with specific regard to any safety components refer to the Parts Manual for part numbers and details. If in doubt, contact Niftylift Ltd (Details on page 3).
- 2.1.5** Always ensure that all warning labels, instructions, placards, control markings and Safety Manuals are intact and clearly legible. If replacements are required contact your local dealer or Niftylift. Always observe and obey safety and operating instructions on such labels.
- 2.1.6** Do not alter, modify or disable in any way the controls, safety devices, interlocks or any other part of the machine.
- 2.1.7** Before the Niftylift is used and during use the user shall check the area in which it is to be used for possible hazards such as, but not limited to, uneven ground drop-offs, holes, bumps, obstructions, debris, floor and overhead obstructions, high voltage conductors, wind and weather, unauthorised persons and any other possibly hazardous conditions.
- 2.1.8** Never exceed the maximum platform capacity, as indicated on the decals and machine serial plate.

2.1.9 Never position any part of the Niftylift within the Minimum Approach Distances of any electrical power line, conductor, or similar stated in Occupational Safety and Health Administration Regulations for CFR 1910.333(c) for Minimum Approach Distance for electrical wires.

1910.333(c)(3)(i)(A)(1): For voltages to ground **50kV or below** - 10 feet (305 cm);

1910.333(c)(3)(i)(A)(2): For voltages to ground **over 50kV** - 10 feet (305 cm) plus 4 inches (10 cm) for every 10kV over 50kV.



THIS MACHINE IS NOT INSULATED. This machine is NOT intended for gloving work methods, and should NOT be exposed to conductor contact or the risk of phase to ground or phase to phase current flow.

If in doubt, contact the appropriate authorities.

2.1.10 On entering the basket ensure that the drop down entry bar is closed afterwards.

2.1.11 Use of an approved safety belt and lanyard, hardhat and appropriate safety clothing is mandatory. Fasten harness to designated harness securing points within the platform and do not remove until leaving the platform whilst in the stowed position.

2.1.12



Always remain standing within the basket. Do not attempt to increase your height or reach by standing and/or climbing on the basket guardrails or any other object. **KEEP YOUR FEET ON THE BASKET FLOOR.** Do not sit, stand or climb on the guardrail, mid rail or boom linkage. Use of planks, ladders or any other devices on the Niftylift for achieving additional height or reach shall be prohibited.

2.1.13 Do not use the basket levelling system to artificially increase the outreach of the platform. Never use boards or ladders in the basket to achieve the same result.

2.1.14 Do not use the basket to lift overhanging or bulky items that may exceed the maximum capacity or carry objects that may increase the wind loading on the platform. (E.g. Notice boards etc.)

2.1.15 The Niftylift shall not be operated from a position on trucks, trailers, railway cars, floating vessels, scaffolds or similar equipment unless Niftylift Ltd in Great Britain approves the application in writing.

2.1.16 Always check below and around the platform before lowering or rotating the booms to ensure that the area is clear of personnel and obstructions. Care should be taken when rotating the booms out into areas where there may be passing traffic. Use barriers to control traffic flow or prevent access to the machine.



2.1.17 Stunt driving and horseplay, on or around the Niftylift, shall not be permitted.

2.1.18 When other moving equipment and vehicles are present, special precautions shall be taken to comply with local ordinances or safety standards established for the work place. Warnings such as, but not limited to, flags, roped off areas, flashing lights and barricades shall be used.

2.1.19 It shall be the responsibility of the user to determine the hazard classification of any particular atmosphere or location. Aerial platforms operated in hazardous locations shall be approved and of the type required. (For the USA refer to ANSI/NFPA 505.)

2.1.20 The operator shall immediately report to his supervisor any potentially hazardous location(s) (environment) which become evident during operation.

Operating & Safety Instructions

- 2.1.21** If an operator encounters any suspected malfunction of the Niftylift or any hazard or potentially unsafe condition relating to capacity, intended use or safe operation he shall cease operation of the Niftylift and request further information as to safe operation from his management, or owner, dealer or manufacturer before further operation of the Niftylift.
- 2.1.22** The operator shall immediately report to his superior any problems or malfunctions of the Niftylift, which becomes evident during operation. Any problems or malfunctions that affect the safety of operation shall be repaired prior to continued use.
- 2.1.23** The boom and platform of the Niftylift shall not be used to jack the wheels off the ground.
- 2.1.24** The Niftylift shall not be used as a crane.
- 2.1.25** The Niftylift shall not be positioned against another object to steady the platform.
- 2.1.26** Care should be taken to prevent rope, electric cords and hoses from becoming entangled in the aerial platform.
- 2.1.27** Batteries shall be recharged in a well-ventilated area free of flame, sparks or other hazards (e.g. do not smoke near the machine) that may cause explosion. Highly explosive hydrogen gas is produced during the charging process.
- 2.1.28** When checking electrolyte levels great care should be taken to protect eyes, skin and clothing. Battery acid is highly corrosive and protective glasses and clothing is recommended.
- 2.1.29**  When the machine is not in use always stow the booms correctly. **NEVER LEAVE THE KEYS IN THE MACHINE**, if it is to be left for any period of time. Use wheel chocks if leaving on an incline.
- 2.1.30** If the basket or elevating assembly becomes caught, snagged or otherwise prevented from normal motion by adjacent structure or other obstacles, such that control reversal does not free the platform, all personnel shall be removed from the platform safely before attempts are made to free the platform using ground controls.
- 2.1.31** The engine must be shut down while fuel tanks are being filled. Fuelling must be done in a well-ventilated area free of flame, sparks or any other hazard that may cause fire or explosion. **GASOLINE, LIQUID PROPANE AND DIESEL FUELS ARE FLAMMABLE.**
- 2.1.32**  **NEVER START THE NIFTYLIFT IF YOU SMELL GASOLINE, LIQUID PROPANE OR DIESEL FUEL. THESE FUELS ARE HIGHLY FLAMMABLE**
- 2.1.33** The operator must ensure that engine powered machines are used in a well-ventilated area to minimise the risk of carbon monoxide poisoning.
- 2.1.34** The operator shall implement means provided to protect against use by unauthorised persons.
- 2.1.35** Never remove anything that may affect the stability of the machine such as, but not limited to, batteries, covers, engines, tyres or ballast.
- 2.1.36** The operator must ensure that the controls are not obstructed (e.g. by tools or equipment) and **clear access to the Emergency Stop** is available at all times.

- 2.1.37** All persons in the cage must take suitable precautions to prevent items falling or being ejected from the cage. E.g. Tethering tools to the machine or operator if practical and an assessment of any resulting risks is acceptable.

2.2 ENVIRONMENTAL LIMITATIONS

All Niftylift Trailer Mounts are limited to operation as previously described and any slopes must be adjusted by use of the outriggers. Unless specifically configured otherwise, the machine will have short time rating for operation in extreme temperatures, i.e. reduced battery cycle times for low temperatures such as freezers, food storage etc. and cooling limitations for high temperatures as oil temperature must remain between -23° and 93° Celsius.

The recommended operational range for these machines is - 5°C to +30° Celsius. Please contact Niftylift Ltd for special considerations if the machine is required to operate outside these temperatures.

Extended operation in dusty environments is not recommended and frequent cleaning will be necessary. All dust, dirt, salt encrustation, excess oil or grease should be removed. Deposits of paint or bitumen, particularly on legends or labels should also be removed.

All standard Niftylift machines are rated for a wind speed of 12.5 m/s, which equates to 45kph/28mph or force 6 on the Beaufort scale. No attempt should be made to operate a Niftylift in wind strengths above this limit and if the operator has any doubts over the wind speed he / she should cease operation immediately until it can be established that the wind speed has fallen to a safe level.



DO NOT USE THE NIFTYLIFT IN ELECTRICAL STORMS

2.3 NOISE AND VIBRATION

The airborne noise emission on the TM50 range of machines does not exceed a sound power level of 109dB(A), measured within a hemisphere of 16m, under equivalent continuous A-weighted sound pressure test conditions. This was based on a Diesel powered machine, working under load. All other models will exhibit significantly lower emissions than this figure, dependant on power option.

In normal operation the Vibration level to which the operator is subjected will not exceed a weighted root mean square acceleration value of 2.5 m/s².

2.4 TEST REPORT

All Niftylift machine models are subjected to a comprehensive 'type test' which duplicates all combinations of safe working load (SWL), overload, windage, inertia and pull force to assess the various safe stability criteria. Self propelled machines are also subjected to kerb and braking tests at the SWL to satisfy additional 'worse case' stability requirements.

Each individual machine is then subjected to static overload tests on flat level ground with 150% of the SWL, exceeding the requirements of ANSI 92.2 for power operated MEWPs. Self propelled machines are also tested at the maximum working angle **plus** 0.5° with a test load of 125% of the SWL. Finally, on all machines, a functional test is performed with 110% of SWL.

All safety devices are checked for correct operation, operating speeds are checked against benchmark figures and the dynamic functions ensure that all acceleration and deceleration forces are within acceptable limits. All noted defects are rectified and recorded before the machine is permitted to enter into service.

3 Preparation and Inspection

3.1 UNPACKING

Since the manufacturer has no direct control over the shipping or carriage of any Niftylift it is the responsibility of the dealer and/or owner and/or leaser to ensure the Niftylift has not been damaged in transit and a Pre-operational Report has been carried out by a qualified engineer before the aerial platform is put into service.

- A) Remove all ropes, straps and or chains used to secure the aerial platform during transit.
- B) Ensure any ramp, loading dock or forklift used is capable of supporting or lifting the aerial platform.

*****Carry out the Pre-operational Report before placing machine in service.**

3.2 PREPARATION FOR USE

Whilst every effort has been made at the Niftylift factory to ensure your machine arrives in a safe and operable condition it is necessary to carry out a systematic inspection prior to putting the aerial platform into service.



THIS IS NOT A REQUEST IT IS MANDATORY

To assist the user in this task you will find enclosed an Inspection Check List (see section 6.3), which must be filled out upon delivery/receipt of the machine.

Before the user carries out the Inspection Check List he must have read and fully understood all the contents of the Operating, Safety and Maintenance Manual.



WARNING - DO NOT OPERATE A POTENTIALLY DEFECTIVE OR MALFUNCTIONING MACHINE. CORRECT AND REPAIR ANY DEFECTS BEFORE OPERATING YOUR NIFTYLIFT.

Operating & Safety Instructions

3.3 PRE-OPERATIONAL SAFETY CHECK SCHEDULES

Before use at the beginning of the work shift, the aerial platform shall be given a visual inspection and functional tests including, but not limited to the following. It is recommended that these be performed at regular intervals as indicated on each checklist.

3.3.1 DAILY SAFETY CHECKS

- 1) Check that all labels (decals) are in place and legible.
- 2) Visually inspect the machine for damaged or loose components.
- 3) Check that batteries are charged
- 4) Check the fuel level (if applicable).
- 5) Check that canopies/covers and guards are in place and secure.
- 6) Check that the boom rest switch is operable (if applicable).
- 7) Check that control levers are secure and operate freely.
- 8) Check that operating buttons and emergency stop buttons function correctly.
- 9) Check the operation of the manual hand pump.
- 10) Check that warning lights, beacons and sounders function correctly.
- 11) Visually inspect all hydraulic hoses and fittings for damage or leaks.
- 12) Check operation of the outrigger alarm.
- 13) Check that outrigger footpads are secure.
- 14) Check that the basket pivot pins and their tag bolts are secure.
- 15) Check security and operation of the boom clamp.
- 16) Check the operation of the cage weigh system (If fitted).

3.3.2 WEEKLY SAFETY CHECKS

The weekly, monthly and annual safety checks should be carried out by a qualified person and shall include checks carried out in Section 3.3.1 with the following additions;

- 1) Inspect tyres and wheels for damage and wear.
- 2) Check tyres for correct pressure. 65psi (4.5 bar)
- 3) Check fenders for security and damage.
- 4) Check battery fluid levels and specific gravity (after charging) and general condition.
- 5) Check hydraulic oil level, ISO Grade 32.
- 6) Inspect the engine air filter and clean or replace if necessary.
- 7) Check that the tow hitch ball lock, breakaway cable/chain and jacking wheel are secure.
- 8) Check operation and security of outrigger micro switches in conjunction with the alarm system.
- 9) Check operation of the tilt sensor.
- 10) Inspect hose track for damage or missing parts.

3.3.3 MONTHLY SAFETY CHECKS

- 1) Check the engine oil level (if applicable).
- 2) Inspect the engine fuel tank for damage or leaks.
- 3) Check the condition of the fuel filter and hydraulic oil filter.
- 4) Check hydraulic hoses for cracks, leaks, blistering and excessive abrasion.
- 5) Check the wheel nuts (torque 110ft lbs/150Nm or 117ft lbs/160Nm Traction Drive Option).
- 6) Check outriggers for condition, security and operation.
- 7) Check that the rotation gear worm is secure and correctly in mesh. Clean and re-grease.
- 8) Inspect brakes for operation and wear.
- 9) Grease the knuckle and centre post.
- 10) Check telescopic boom wear pads and nylon studs (if applicable).
- 11) Grease the tow hitch assembly.
- 12) Lightly oil the outrigger feet ball joints and housings.
- 13) Check and adjust if necessary the Nylatron studs around the telescope boom.
- 14) Every **three** months check and verify the calibration of the cage weigh system. See section 4.5.4 for the calibration procedure.

3.3.4 ANNUAL SAFETY CHECKS

- 1) Check that all pivot pins and their tag bolts are secure.
- 2) Inspect for any cracks or badly rusted areas on booms and chassis.
- 3) Change the hydraulic oil and the oil filters.
- 4) Inspect the suspension on each axle unit.
- 5) Check that rotation gear ring bolts are secure (torque 155ft lbs. 210Nm).
- 6) Check hydraulic pumps and motors for cracks and leaks, loss of operating speed, excessive heating of fluid and pressure loss.
- 7) Check hydraulic cylinders for drifting caused by fluid leak across the holding valve or piston, rod seal leakage, scored or nicked cylinder rods, dented barrel and unusual noises or vibration.

Operating & Safety Instructions

3.3.5 STRUCTURAL INSPECTION

A structural inspection is required to verify the structural integrity of critical components of the aerial platform and for its stability as originally manufactured in accordance with the Standard in effect at the time of manufacture.

It shall be performed **10** years after the date of manufacture and every **5** years thereafter or after any actual, suspected, or potential damage is sustained during an incident that could potentially affect the structural integrity or stability of the aerial platform. Such incidents can include electrical contact, shock loads, fall arrest, collision, or cases of overstressing or stability failure; and after a change of ownership, unless a complete service history is provided, including maintenance and inspection records.

The structural inspection shall be carried out under the direction of a professional engineer and must;

- a) consider the service history of the aerial platform in terms of hours of service, severity and number and variability of users;
- b) review the inspection and maintenance record of the aerial platform;
- c) verify the effectiveness of all operating controls;
- d) perform a visual inspection of the aerial platform; and
- e) consider recommendations of the manufacturer relevant to the aerial platform, including manufacturer's safety bulletins.

The structural inspection should use some or all of the following methods;

- a) visual inspection of structural welds;
- b) non-destructive testing of critical components; and
- c) stability tests where modification, alteration, or damage is suspected.

Visual weld inspection shall be performed and documented by a person qualified to the requirements of CSA W178.2 or by other persons qualified to the satisfaction of the authority having jurisdiction.

Critical, suspect areas and other inconsistencies identified shall be further examined by an appropriate non-destructive test method by a person(s) qualified to the requirements of CAN/CGSB-48.9712.

3.4 PLACARD, DECALS & INSTALLATION

ITEM	DESCRIPTION	NUMBER	QTY
1	Cage Gate Warning	P18432	1
2	Tilt alarm	P18842	2
3	General Notice	P18863	1
4	General Crush	P24914	9
5	Daily Safety Checks	P14908	1
6	Boom Clamp	P19740	1
7	Coupling instructions	P14896	1
8	Harness Point	P32302	2
9	Are you trained?	P22055	1
10	Tyre Pressure 65 psi	P14876	2
11	No Step	P14785	7
12	Manual Hand Pump	P19090	1
13	If E-Stop disabled...	P14864	2
14	General Warning - Icons	P29379	2
15	Head Protection	P14921	1
16	Serial Plate	P32187	1
17	Clunk Click	P19961	1
18	SWL 440lbs	P14801	1
19	Nifty TM50	P14614	2
20	Niftylift.com	P14390	1
22	Cage levelling	P10853	1
23	Hydraulic Controls – 4 lever	P14928	1
24	Hydraulic Controls – 5 lever	P14927	1
25	Base Control	<i>Cage weigh</i> P21055	1
		<i>Non cage weigh</i> P21131	1
26	Point Load - 13.0kN	P14965	4
27	Outriggers - Hydraulic	P14841	4
28	Outrigger Controls	P29379	1
29	Warning Stripes		A/R
30	Battery Isolator	P18600	1
31	Name Plate	P19846	1
32	Battery Charger	P21951	1
33	Cage Control (E/AC)	<i>Cage weigh</i> P32374	1
		<i>Non cage weigh</i> P32369	1
34	Handbrake ON/OFF	P22245	1
35	Petrol Off	P19055	1
36	Diesel ONLY	P14414	1

nifty™ Series

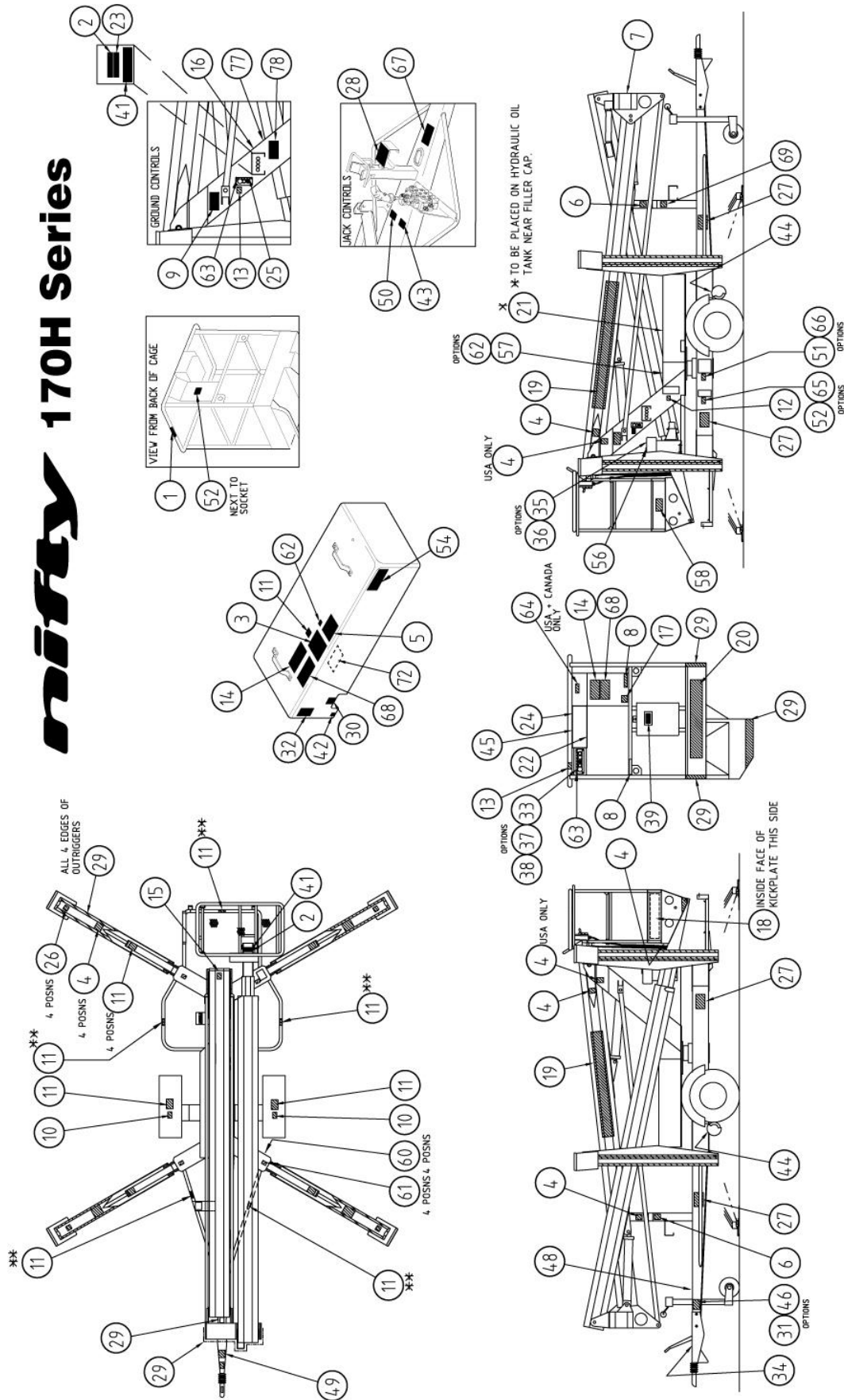
Operating & Safety Instructions

ITEM	DESCRIPTION		NUMBER	QTY
37	Cage Control (P/PE)	<i>Cage weigh</i>	P32381	1
		<i>Non cage weigh</i>	P32371	1
38	Cage Control (D/DE)	<i>Cage weigh</i>	P32373	1
		<i>Non cage weigh</i>	P32372	1
39	Operating Instructions		P14892	1
42	Noise Warning - 109dB		P29974	1
43	Traction Drive – Engage		P18890	1
44	Hand Crush		P14782	2
45	Cage Rotate		P15634	1
46	Blank Axle Plate		P16190	1
49	Traction Drive – Release		P18975	1
50	Traction Drive – On slope		P18976	1
51	Charger Socket	110v	P26424	1
		230v	P26863	1
52	Power to Cage Socket	110v	P26426	1
		230v	P26862	1
54	Rotating Machinery (USA)		P15010	2
56	Carb Regulations (USA)		P15334	1
60	Tie Down Point		P14958	4
61	Lifting Point		P14786	4
64	Safe Entry (USA)		P18192	1
65	AC Motor Socket (AC/PAC/DAC)		P25891	1
67	Decouple before use		P29590	1
68	General Warning - Text		P29380	1
72	Disconnect Mains		P32248	1
73	Hot surfaces		P22314	1
74	Power to cage (Tool)	110v	P33012	1
		230v	P33011	1
77	Annual Inspection		P33474	1
78	Emergency controls		P31869	1

nifty™ Series

Operating & Safety Instructions

nifty 170H Series



Operating & Safety Instructions

3.5 TORQUE REQUIREMENTS

BOLT QUALITY/SIZE	Tightening torque in lbs ft (Nm)					
	Plated			Unplated		
Grade	8.8	10.9	12.9	8.8	10.9	12.9
M 6	5 (7)	8 (10)	9 (12)	6 (8)	8 (11)	10 (13)
M 8	13 (17)	18 (25)	22 (29)	14 (19)	20 (27)	23 (32)
M 10	25 (34)	36 (49)	43 (58)	27 (37)	40 (54)	46 (63)
M 12	43 (58)	63 (85)	73 (99)	47 (63)	69 (93)	80 (108)
M 14	68 (93)	100 (135)	117 (158)	74 (101)	109 (148)	127 (172)
M 16	106 (143)	154 (209)	180 (245)	115 (156)	168 (228)	197 (267)
M 20	212 (288)	301 (408)	352 (477)	224 (304)	328 (445)	384 (521)
M24	362 (491)	515 (698)	602 (806)	383 (519)	561 (760)	656 (889)
WHEEL NUTS	Standard	110 ft lbs (150 Nm)				
	Traction Drive	117 ft lbs (160 Nm)				
SLEW RING BOLTS	155 ft lbs (210 Nm)					

This torque chart is based on the following assumptions:

- 1) Bolts to ISO 898-1 "Mechanical properties of fasteners made of carbon steel and alloy steel"
- 2) For "unplated" bolts, all grades:
 - Hex head bolts
 - Black oxide steel bolt with a rolled & oiled thread, no finish on steel nut
 - Prevailing torque includes Nylock (minimum prevailing torque figure assumed)
 - Medium Clearance holes to ISO 273
 - Bolt tightening condition = Yield factor of 75%
- 3) For "plated" bolts, all grades:
 - Hex head bolts
 - Zinc plated oiled (rolled or cut) steel external thread with no finish on steel internal thread
 - Prevailing torque includes Nylock (minimum prevailing torque figure assumed)
 - Medium Clearance holes to ISO 273
 - Bolt tightening condition = Yield factor of 75%

Figures quoted in **Nm** have been calculated in Nm and then rounded to the nearest whole number. Figures quoted in **lb-ft** have been calculated in Nm, converted using a factor of 0.737561 and then rounded.

4 Operation

4.1 CONTROL CIRCUIT COMPONENTS

- 4.1.1 CONTROL BOARD:** - Situated under the canopy, the control board comprises a PCB (printed circuit board) design that incorporates all of the relays to control the machine operation. The control board is common between models with the same power source, and will contain, where appropriate, discrete fuses for the circuits concerned.
- 4.1.2 KLAXON:** - Also mounted under the canopy is a klaxon, which is interlocked into the stabiliser control circuit. It is this device that sounds continuously if an outrigger goes light in operation, with the booms raised, warning the operator of this condition. It will also sound if the Ground Control Key switch is turned to Platform position before the outriggers are deployed.
- 4.1.3 BOOM-SWITCH:** - Mounted on the underside of the boom rest and operated by contact with boom 3, this switch controls the changeover function between outriggers and basket. The outrigger control function is not available unless this switch is engaged with the boom, ensuring that the machine must be stowed to operate the hydraulic jacks. It is also similarly linked into the platform control circuit, such that if the switch is not engaged with the booms, (i.e. machine is in operation) then the outrigger sensors are active and would warn the operator of an unsafe condition, should one of them lose contact with the ground. These control functions are of primary importance to safety of the machine and operator. Under no circumstances should this control function be isolated or by-passed.
- 4.1.4 BATTERY ISOLATOR:** - A battery isolator handle is located beneath the canopy which allows the machine control and power circuits to be isolated from the batteries themselves. Under normal operation, the machine Key switch should be used to isolate the machine with the Battery Isolator only being required to disconnect the batteries for maintenance or in the event of a short circuit. The battery charging circuit is connected directly to the battery side, so charging is un-affected by use of this switch.
- 4.1.5 POWER SOURCE SELECTION:-** On multiple power option machines, the machine is fitted with an 'instinctive' circuit for power source selection. Pressing the green button will automatically select battery operation. The engine can be started using the two position START/STOP selector in the basket and the machine will 'default' to engine operation via a flow switch in the hydraulic circuit. Stopping the engine by selecting STOP on the two position selector in the basket and pressing the green button will return the machine to battery mode.
- 4.1.6 DIESEL ENGINE:** - Generally a Yanmar L40 or Kubota OC60 engine, described in the maintenance section of the Workshop Manual, driving a single bodied pump with direct mounted pump dump valve.
- 4.1.7 GASOLINE ENGINE:** - Generally a Honda GX 160 engine, described in the maintenance section of the Workshop Manual, driving a single body pump with direct mounted pump dump valve.

4.2 SETTING UP PROCEDURES

FAILURE TO DEPLOY THE OUTRIGGERS CORRECTLY COULD RESULT IN DEATH OR SERIOUS INJURY.



ALL MODELS

- 1) Read and fully comply with all safety precautions and operating instructions in the Operating and Safety manual and the warning decals on the machine.
- 2) Position Niftylift on firm ground, bearing in mind range of boom movement so that any overhead obstructions or possible hazards such as, but not limited to, power cables, telephone lines, drains, manhole covers, etc. can be safely avoided
- 3) **APPLY HANDBRAKE:** Chock wheels and cordon off the area using appropriate cones, barriers and flags.
- 4) Levelling the machine using the outriggers can accommodate a slope of up to 12 degrees, if necessary using suitable load bearing pads to support the downhill outriggers. Do not elevate the basket unless the base can be corrected to within 0.5 degrees of level.
- 5) If the load bearing capacity of the ground is in any doubt the machine must **NOT** be used.
- 6) Release boom travelling clamp.
- 7) Check all red emergency stops are not engaged (i.e. fully out).
- 9) Ensure that the key switch at the ground control station is turned to the “Ground” position (i.e. clockwise).
- 10) At the outrigger control station press down and hold the power lever on the right hand side. This activates the power and diverts hydraulic flow to the outriggers for setting up. Then select the appropriate control lever to begin set up. Note: No power will be available if the booms are not stowed onto the boom rest.
- 11) Using the four outrigger control levers, lower each outrigger onto a firm, surface and level the machine base ensuring each outrigger foot is taking equal weight with the wheels clear of the ground. **Note: Deploy the front two outriggers first to minimise the risk of damaging the jacking wheel.**
- 12) Check that the base is level using the spirit level adjacent to outrigger control station.
- 13) The booms can now be operated from the ground control station by pressing and holding the green power button. Note: If no power is available check that each outrigger is lowered and each footpad is taking equal weight.
- 14) To operate the booms from the basket, turn key switch at the ground control station to ‘Basket’ (turn key anti-clockwise) Enter basket and turn Basket control selector to the ‘ON’ position (clockwise). Note: If the klaxon alarm sounds, check that each outrigger is lowered and each footpad is taking equal weight.
- 15) Always lower booms fully before adjusting, raising, retracting or moving the outriggers in any way.
- 16) Never alter, modify or block any of the safety circuits on the Niftylift.

THIS MACHINE IS NOT ELECTRICALLY INSULATED. DO NOT WORK WITHIN 10FT OF OVERHEAD CABLES EXCEEDING 415 VOLTS



4.3 GROUND CONTROL OPERATION

ALWAYS ALLOW THE ENGINE TO WARM UP BEFORE OPERATING.



4.3.1 GROUND CONTROL INSTRUCTIONS

ALL MODELS

- 1) Check below, above and around the platform for any obstructions or hazards before operating any function.
- 2) Ensure all red emergency stops are out.
- 3) Turn the key switch at the ground control station to “Ground” (i.e. clockwise)
- 4) Battery/Electric models go to step 11).

DIESEL ENGINE OR BI-ENERGY MODELS

- 5) Turn the main engine ignition switch, located on the side of the canopy through “ON” to the “ST” (start) position and the engine will fire.
- 6) Go to step 11). Note – Unless the diesel engine is running, the TM50 will automatically default to the primary power source (usually battery).

GASOLINE ENGINE OR GASOLINE/ELECTRIC MODELS

- 7) For a cold engine start go to step 8) or for a warm engine start go to step 9).
- 8) **COLD ENGINE:** - turn the engine fuel tap “ON” and engage the choke lever. Turn the main engine ignition through “ON” to “ST” (Start) and the engine will fire. Return the choke lever to its normal running position after the engine is started.
- 9) **WARM ENGINE:** - turn the engine fuel tap on and turn the main engine ignition through “ON” to “ST” (start) position and the engine will fire.
- 10) Go to step 11). Note – Unless the petrol engine is running, the TM50 will automatically default to the primary power source (usually battery).

ALL MODELS

- 11) Push and hold green power button.
- 12) Select the boom function required and operate hand levers in full accordance with manufacturers Operating and Safety manual.
- 13) When not in use return machine to stowed position, fully raise and stow all outriggers, turn the key to the “OFF” position (i.e. anti-clockwise), remove key and chock wheels.

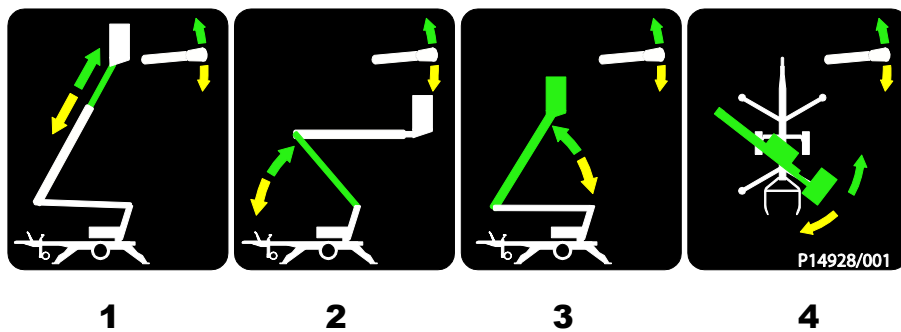
Operating & Safety Instructions

EMERGENCY PROCEDURES

- 1) Push in red emergency stop to shut down all functions.
- 2) Use manual hand pump to provide motive power and manoeuvre the machine as normal using the hand levers (Basket or Base).

4.3.2 BOOM FUNCTIONS

- A) Push and hold green power button.



- B) Select lever 1, 2, 3 or 4 for desired boom function.

1 Operates Telescope	UP for out	DOWN for in. **
2 Operates Lower Boom	UP for up	DOWN for down
3 Operates Upper Boom	UP for up	DOWN for down
4 Operates Swing	UP for right	DOWN for left

** (If applicable, Ground control of telescoping is optional)



ALWAYS ENSURE THE AERIAL PLATFORM IS ON A FIRM SURFACE AND THE AREA IS FREE OF ANY OVERHEAD OBSTRUCTIONS.

ENGAGING THE RED EMERGENCY STOP BUTTON WILL SHUT DOWN THE ENGINE AND THE ELECTRIC CIRCUIT PREVENTING OPERATION OF ANY FUNCTION.

4.4 BASKET CONTROL OPERATION



NEVER START THE NIFTYLIFT IF YOU SMELL GASOLINE, LIQUID PROPANE OR DIESEL. THESE FUELS ARE FLAMMABLE.

BEFORE OPERATING THE NIFTYLIFT ENSURE THAT EACH OPERATOR HAS READ AND FULLY UNDERSTOOD THE OPERATING MANUAL. FAILURE TO DO SO MAY RESULT IN DEATH OR SERIOUS INJURY.

*****FOR COLD START PROCEDURES SEE SECTION 4.3.1*****

ALWAYS ALLOW THE ENGINE TO WARM UP BEFORE OPERATING.

4.4.1 BASKET CONTROL INSTRUCTIONS

ALL MODELS

- 1) **NEVER** exceed the maximum basket capacity.
- 2) Check below, above and around the platform for any obstruction or hazards before operating any function.
- 3) Ensure all red emergency stops are out.
- 4) Turn key switch at the ground control station to '**Basket**' (turn key anti-clockwise). Enter basket and turn Basket control selector to the '**ON**' position (clockwise).
- 5) Battery electric models go to step 11).

DIESEL ENGINE OR BI ENERGY MODELS ONLY

- 6) Ensure that the main engine ignition switch is "ON". Turn the "Engine Start" switch on the platform control box clockwise and the engine will fire.
- 7) Go to step 11). Note – Unless the diesel engine is running, the TM50 will automatically default to the primary power source (usually battery).

GASOLINE ENGINE OR GASOLINE/ELECTRIC MODELS ONLY

- 8) Ensure that the fuel tap is turned to the "ON" position and that the main engine ignition switch is "ON". Turn the "Engine Start" switch on the platform control box clockwise and the engine will fire.
- 9) Go to step 11). Note – Unless the gasoline engine is running, the TM50 will automatically default to the primary power source (usually battery)
- 10) If the engine is too cold to start from the platform, try starting from the ground controls as described in step 8) of the ground control operation section (4.3.1).

Operating & Safety Instructions

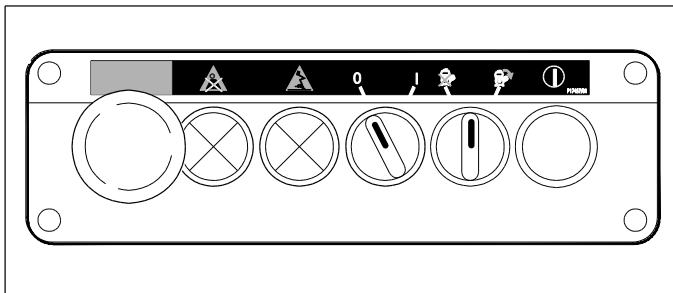
ALL MODELS

- 11) Push and hold green power button.
- 12) Select the boom function required and operate hand levers in full accordance with manufacturers Operating and Safety manual.
- 13) When not in use return machine to stowed position, fully raise and stow all outriggers, turn the ground controls key to the "OFF" position (anti-clockwise), remove key and chock wheels.

EMERGENCY PROCEDURES

- 1) Push in red emergency stop to shut down all functions.
- 2) Use manual hand pump to provide motive power and manoeuvre the machine as normal using the hand levers (Basket or Base).

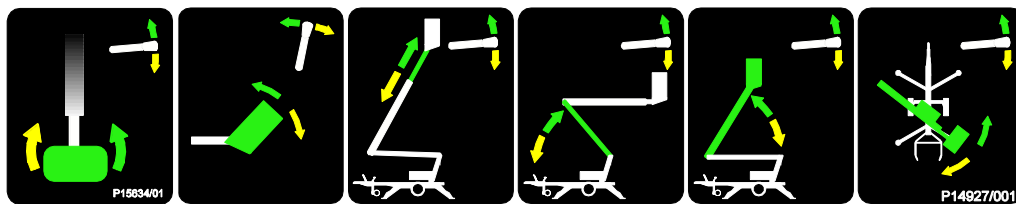
BASKET CONTROL STATION



(BI-ENERGY MODEL)

4.4.2 BOOM FUNCTIONS

- 1) Push and hold green "Power Control" button



- 1
- 2
- 3
- 4
- 5
- 6

- 2) Select lever 1, 2, 3, 4, 5 or 6 for desired function

1 Operates Basket Swivel (optional)	UP for right	DOWN for left
2 Operates Platform Levelling	FWD for forward	BACK for back
3 Operates Telescope	UP for out	DOWN for in.
4 Operates Lower Boom	UP for up	DOWN for down
5 Operates Upper Boom	UP for up	DOWN for down
6 Operates Swing	UP for right	DOWN for left

4.5 BATTERIES AND CHARGING



BATTERIES MUST BE RECHARGED IN A WELL-VENTILATED AREA FREE OF FLAME, SPARKS OR OTHER HAZARDS THAT MAY CAUSE EXPLOSION. HIGHLY EXPLOSIVE HYDROGEN GAS IS PRODUCED DURING THE CHARGING PROCESS.

- 1) Recharge batteries at the end of every working day or shift.
(**Note:** To recharge batteries fully from flat takes approx. 12 Hours, this consists of 8 hours bulk charging plus 4 hours equalisation).
- 2) Plug charger into suitable power 110 volt supply (see **Charging Limitations**).
- 3) Take note of the indicators provided:
Amber AC lamp - Batteries are charging.
Amber CHARGE lamp - Batteries are charging and between 80% & 100% capacity.
Green FINISH lamp - the batteries are fully charged.
Red lamp flashing – Fault (see ‘Charging Limitations’).
- 4) The charger will automatically switch off once the batteries are fully charged. It is recommended to reconnect the charger to a suitable power supply when the machine is not in use to maintain good battery condition. Charger will monitor and maintain correct battery charge level.



UNDER NO CIRCUMSTANCES SHOULD A MACHINE BE LEFT FULLY DISCHARGED AS SEVERE BATTERY DAMAGE CAN OCCUR IN A RELATIVELY SHORT TIME.

- 5) The machine boom functions can be used whilst on charge. **Do not drive** machine to avoid damage to cables etc. To disconnect charger, firstly switch off the power supply. Ensure LED's are **off** before disconnecting the charger from the power supply.

Notes:

- 1) If the charger is reconnected to the power supply shortly after it has gone through its full charging cycle, the charger will show the Amber AC lamp, immediately followed by the Amber Charge lamp. The charger would then go through its complete cycle again at an accelerated rate, depending on the time difference between connection, reconnection, and level of battery charge.
- 2) Some machines are fitted with a Battery Management System, which permanently monitors the condition of the batteries. When the batteries become discharged to 20% of their capacity the management system will begin to "shut down" the hydraulic power packs. This causes the drive/boom operating system to alternately stop and start, signalling to the operator that re-charging is necessary. However, there is sufficient power remaining to enable the operator to drive slowly to the nearest charging point.

Operating & Safety Instructions

Should the operator ignore the onset of the battery discharge warning the "shut down" of the motors will continue, until the machine is rendered in-operative. **Immediate charging will then be required.**

CHARGING LIMITATIONS

The capacity of the 110V supply must be capable of 3.5kVA (32A current); hence a small hand-tool transformer must **not** be used with the battery charger.

Note; charger output will fall if air temperature is below 0°C or above 50°C.

Fault Conditions

If a fault occurs, count number of flashes between pauses and refer to table:

Red LED status	Cause	Solution
One flash	Battery High Voltage	Check battery size and condition. This fault will automatically clear once the condition has been corrected.
Two flashes	Battery Low Voltage	Check battery size and condition. This fault will automatically clear once the condition has been corrected.
Three flashes	Charger Timeout. Caused by battery pack not reaching required voltage. Charger output reduced due to high ambient temperature.	Check connections. Operate charger at a lower ambient temperature. Reset charger (interrupt AC power for 15 seconds)
Four flashes	Check Battery(ies); battery could not be trickle charged up to minimum voltage.	Check for shorted or damaged cells Reset charger (interrupt AC power for 15 seconds)
Five flashes	High temperature. Charger shut down due to high internal temperature.	Ensure sufficient cooling airflow and reset charger (interrupt AC power for 15 seconds)
Six flashes	Charger Internal Fault	Reset charger (interrupt AC power for 15 seconds). Return to service department if fault persists.

Attention should also be given to the use of extension cables as power leads. Excessive cable lengths from the supply point to the battery charger will result in significant voltage drop, leading to a reduction in the chargers efficiency. In addition, inadequate sized cable cores will have a limiting effect on its current carrying capacity, which will again lead to a reduction in the chargers efficiency. Both of these can result in over-heating of the cable with an increased risk of fire, short circuits, or damage to the components themselves.

The charger requires a minimum battery voltage of 1.5 volts per battery (overall for two batteries 3 volts, for 4 batteries 6 volts for 8 batteries 12 volts and 18V for 72V). If the voltage is below these values then the charger will not function (Charger will not detect batteries to begin charge.) If the batteries have fallen to such a poor state they will have to be removed from the machine and charged individually with an independent charger until the optimum voltage has been reached. This is best performed at very low currents to 'recover' the batteries if sulphation has already started i.e. a 'trickle' charger. This can take several hours, possibly days. Careful monitoring of the rise of battery voltage will indicate when recovery has been achieved.

TOPPING UP

During the course of normal operation, the batteries should be inspected at least once a fortnight to check the level of electrolyte. During the end of charge, gassing takes place, which will cause a slight reduction in the volume of acid in the battery. This can be topped up with de-ionised water as required. During this inspection, it is useful to note any imbalance in the fluid levels. One indication of a faulty cell would be an increase in the loss of battery acid, which would then require more frequent topping up on that cell, or cells. Faulty cells can liberate excess hydrogen, even during normal operation, with the resulting risk of explosion if ignited. **Any faulty batteries should be replaced as soon as possible with an equivalent sized and rated unit.**

Note: BATTERIES CONTAIN ACID, therefore: - protective safety glasses and gloves (Appropriate PPE) MUST be worn whilst performing these checks.

Operating & Safety Instructions

4.6 TRANSPORTING, TOWING, STORAGE AND SETTING TO WORK

4.6.1 TRANSPORTING

If a work platform is to be moved over a longer distance, whether the machine is trailer mounted, vehicle mounted, self propelled or tracked, the following procedure should be read before restraints are attached to the machine. Cross loading is most frequently the cause of problems, as the method of loading is no longer in sight of our own personnel. The recommendations made herein should be passed on to subsequent carriers, such that the entire journey is carried out without incident.

- Always ensure the truck or trailer you are loading or towing the Niftylift with can carry it legally.
- If loading by crane the use of shackles and an adequately rated spreader beam, with four leg slings, is **MANDATORY**.
- When loading or un-loading from the side of the vehicle, the use of the forklift pockets to retain one of the forks is recommended. (If fitted). Spread the forks to their widest capacity, with due regard to the components fitted to the machine. Never forklift or crane an entire machine under the booms, always lift beneath the spine or under the ends of the axle mountings in the case of a self-propelled unit. Ensure forklift is adequately rated for the load to be carried.
- Once positioned on the transport carrier ratchet straps should be used to secure the machine. The machine should be positioned to allow easy access around the machine in transit, and to ensure that 'creepage' during transport does not permit the machine to come into contact with other goods being shipped, or the container itself. Some movement of the machine structure might occur during transit, which could lead to fretting or other damage.
- If the machine is equipped with a transit device such as a boom clamp etc, this should be securely applied.
- Strap booms carefully to constrain them from sideways movement. When using straps or chains, adequate packing should be applied to stop any damage to the structure and paintwork. Due regard of the movement of the straps or chains must be considered.
- Where a machine has designated points for strapping, lifting or forking, these can be used for tie-down duty. When they are absent, the major structure of the platform can be used, giving due consideration to the design and function of the area chosen. Where possible, use the spine of the machine or axle mounts over which to apply the holding down forces. Using a single plate, such as an outrigger or stabiliser support plate might be unsuitable. If the component was clearly not designed to accommodate a side load, one should not be applied.
- Under no circumstances should straps or chains be applied over booms or through the cage support structure or the cage itself. The relative strength of the carrying structure is not conducive to the massive forces capable of being applied through ratchet chains or slings. Severe damage to the steelwork can be caused, as well as deformation to sensitive mechanisms such as cage weigh assemblies, which would render them useless. Such catastrophic damage to say, an electronic load cell would require the component to be replaced before the machine would function.

4.6.2 TOWING

THE MAXIMUM RECOMMENDED TOWING SPEED OF A NIFTYLIFT IS 50 MPH WITH A VEHICLE THAT COMPLIES WITH ALL ROAD TRAFFIC REGULATIONS. SPEEDING MAY RESULT IN DEATH OR SERIOUS INJURY.

It is recommended that the maximum towing speed of 50mph be adhered to for the greatest safety. In other than perfect conditions it is sensible to further reduce your speed in order to ensure full control over your vehicle and trailer. The importance of the suitability of your towing vehicle must be stressed. The manufacturers' details concerning each model will give you recommended Gross Vehicle Weights (GVW) or Gross Train Weights (GTW) neither of which should be exceeded.

Wheel Nut Check

If being towed for the first time after initial build, please ensure the wheel nuts are secured to the correct torque (Refer to Section 3.5) after **two days or 100 miles**. Also, if wheels have been removed, recheck torque after travelling a **maximum** distance of **100 miles**.

Brake Adjustment

Trailer brakes are adjusted for gradual over-run braking on initial build. After being towed for the **first week or 150 miles**, the brake shoes will 'bed-in' and **require adjustment** for this wear. Adjust the brake shoe clearance and check the hand brake lever travel in accordance with the manufacturer's instructions. Please contact Niftylift Service Department for the correct adjustment procedure for your specific brake/tow hitch combination.

POSITION TOWING VEHICLE AND TRAILER ON LEVEL GROUND BEFORE ATTEMPTING TO COUPLE/DE-COUPLE.**Coupling Instructions**

- 1) Depress the trigger on the lever mechanism and lift the handle upwards and forward.
- 2) Place the unlocked coupling head onto the towing ball and apply slight downward pressure. The head will automatically lock onto the ball.
- 3) Ensure that the trigger has returned to its free position before attempting to tow, and that the coupling head is securely on the towing ball.
- 4) Connect the breakaway cable to the towing ball.
- 5) Connect the tow hitch chains to the towing vehicle chassis.
- 6) Connect the lighting plug to the vehicle and check the light functions.
- 7) Raise the jacking wheel to its stowed position and secure for transit.

De-coupling Instructions

- 1) Apply trailer handbrake and chock wheels.
- 2) Lower the jacking wheel to the ground. Disconnect the breakaway cable, chains and lighting plug.
- 3) Operate the handle by depressing the trigger and manually lift the coupling head clear of the towing ball or screw down the telescopic jockey wheel to achieve the same effect.

Operating & Safety Instructions

Handbrake Operation

- 1) To operate the trailer parking brakes pull the handbrake lever upwards and backwards. The spring loaded mechanism will engage and stay in the operated position until re-set.
- 2) To disengage the parking brakes, firmly grasp the handbrake lever and pull upwards. Depress the ratchet release button in the end of the handbrake lever and return the lever to the horizontal position. Care should be taken when operating the handbrake lever due to the forces involved in engaging the ratchet mechanism.

4.6.3 CRANEAGE

- 1) Observe all of the limitations relating to straps and chains stated above under 'Transporting'. (Section 4.7.1)
- 2) When utilising the designated lifting points never apply a 'snatch' load, i.e. lift slowly to take up the load before raising. Similarly, do not drop machine when positioning after lifting.
- 3) If the machine is to be lifted by crane, use the designated lifting points and observe the recommendations regarding spreader beams. Individual drawings are available for each machine type, on request. (See list below.)

D80906

TM50H

4.6.4 STORAGE

If being stored for any length of time without use, then the machine should be thoroughly inspected for the following: -

- 1) Grease all bearings /slides, worm drives, etc.
- 2) Check batteries for electrolyte levels, state of charge, damage, dirt, etc. Never leave in a state of discharge for any length of time. If no use of the platform is intended, an occasional "top-up" charge of the batteries will serve to equalise their charge level.
- 3) Leave battery disconnect switch in OFF position to prevent discharge of batteries through leakage.
- 4) If machine is to be left on an incline, chock wheels to prevent creep.
- 5) If machine is to be left out-of-doors or in a hostile environment, cover with suitable weatherproof media to prevent deterioration.

4.6.5 SETTING TO WORK

Before use each day and at the beginning of each shift the machine shall be given a visual and functional test including, but not limited to, the following

- 1) Check all lubrication points for adequate application of grease, oil etc.
- 2) Inspect all threads for ease of operation.
- 3) Check level and quantity of oil. Remove any contaminants - water, etc.
- 4) Check batteries for electrolyte and state of charge.

- 5) Check electrics for damage and insulation.
- 6) Using base controls, cycle machine over complete envelope in accordance with the Operating Instructions. Cure any defects.
- 7) Ensure that all safety devices and controls operate in accordance with the instructions.
- 8) If necessary, perform a load test to establish the machine stability before putting the machine to work.
- 9) On completion of an extended period of road transport, the machine might need additional inspection to identify any transit degradation, which could render the machine unsafe. Perform a P.D.I. inspection on the unit before it enters service. Record any faults found and rectify them immediately.
- 10) If left un-attended for an extended period, it is likely that the hydraulic basket levelling will become un-pressurised. Normal operation is then lost, with a noticeable delay in the forwards or backwards motion as the booms move. To restore normal function, the basket needs to be fully levelled forwards and backwards, using the basket-levelling lever whilst not standing in the basket (i.e. with the operator standing adjacent to the basket side whilst simultaneously operating the lever and green button to move the basket). Take care not to become trapped between the moving basket and a fixed object, and ensure those around you are clear of the moving basket. When the system has been charged in both directions, the basket levelling function should be restored. If the system operates but is 'jerky' in either direction, this indicates air in the system. Repeat the procedure as described above until the movements are smooth and un-interrupted. If in doubt, contact our Service Department for further advice.

Niftylift Limited is not liable for any third party damage caused during transport. Careful attention to correct procedures will prevent many of the small snags that can happen in transit. Re-work is both expensive and time consuming. A defective machine arriving at the place of work is a poor advertisement for our product, the company's reputation and those of our dealers and clients. The responsibility for safe and damage-free transport rests with the haulier or his representatives.

4.7 TRACTION DRIVE

On those trailer machines equipped primarily with fixed width axles, a traction drive system is an available option. This function allows the machine to be manoeuvred by one man, and provides the machine with the capability of ascending or descending a slope of 10% (5.7 degrees). Slopes in excess of this angle should not be attempted and a towing vehicle used instead.

The traction system is hydraulically driven, the supply being taken from the same power source as the base machine. The drive speeds and gradeability are therefore linked into the available power from the vehicle prime mover. The engagement of the traction system is also hydraulic, using a single hand lever to bring the drive cradles into contact with the road wheels. The control of the traction function is then possible from a single joystick permitting the machine to be moved forwards, backwards and steered on either side.

4.7.1 ENGAGING DRIVE

- 1) Before engaging the traction drive system, ensure that the machine is de-coupled from the towing vehicle, the jockey wheel deployed and securely fixed, and the parking handbrake is fully engaged.
- 2) Check that all of the emergency stops are released, i.e. 'Out', and that the Base Key switch is in the 'Ground' position, thereby directing the electrical feed to the drive joystick and outrigger station.
- 3) The Drive joystick has a single pushbutton located on the handle. Pushing and holding this button allows the power unit to produce hydraulic flow, which is directed to the drive manifold. It is not necessary to operate the jack selector lever, as this would deviate the hydraulic flow to the outrigger manifold and render the drive inoperative.
- 4) Whilst holding the joystick button and keeping the drive lever in the upright position, it is possible to use the third horizontal control lever to engage the traction drive. By pulling the lever upwards, the engagement cylinder will rotate the twin drive motors until the cradles come into contact with the road wheels. This function is pressure protected, and the lever should be held to allow the cradles to 'push' into the pneumatic tyres for best grip when driving. This pressure is set to 80 bar in the factory, and should not need adjustment.
- 5) When the engagement cylinder achieves full travel and the cradles are in adequate contact with the road wheels, the lever and drive button can be released, locking the engagement cylinder in this position. Only then should the parking handbrake be released, holding the machine on the traction drive assembly.
- 6) The machine can now be manoeuvred using the drive joystick, holding the button whilst moving the joystick in the direction of travel. It should be noted that the machine drives in the direction the handle is moved, such that if the joystick is released, the machine will not drive towards the direction the lever was being pulled. This decreases the risk of entrapment of the operator. To halt the drive function, release either the joystick, which will return to the centralised 'Off' position, or release the button to stop the hydraulic flow. The Emergency Stops can be similarly used to halt the machine drive at any time.

4.7.2 DISENGAGING DRIVE

- 1) Unless the machine has been manoeuvred to allow it to be coupled to a towing vehicle (as described in the appropriate section of this handbook), before disengaging the traction drive system the parking handbrake must be fully engaged. On no account disengage the traction drive system unless the handbrake is engaged, the wheels are securely chocked or the machine is connected to a towing vehicle. It is also recommended that the machine be positioned on flat, level ground before the drive system is disengaged.
- 2) Push and hold the drive joystick button to develop hydraulic flow, and using the third horizontal lever push downwards to retract the engagement cylinder. The traction drive cradles will swing clear of the road wheels, which should be allowed to travel outwards to their fullest extent. Releasing the third lever will then lock them in the retracted position, ready for towing.

On no account should the machine be towed with the traction drive system still engaged – serious damage may result.

Do not use the traction drive as a brake – the parking handbrake must be utilised for this purpose.

Never disengage the traction drive unless the handbrake is engaged, OR the wheels chocked, OR the machine directly and securely connected to a suitable towing vehicle.

Always position the machine on flat, level ground before disengaging the traction drive system.

Do not engage or disengage the traction system whilst on the move. Stop the machine first and engage the handbrake.

It is recommended that any slopes be approached in the direction that allows the tow hitch to be lower than the rest of the machine, ensuring that the jacking wheel keeps adequate weight throughout. Descending a slope with the tow hitch highest might allow the machine to tip backwards, particularly if a sudden stop is made. To maximize the residual load on the jockey wheel, allow the tow hitch to run as low as possible to the ground whilst supporting the nose weight on the retracted jacking wheel.

Do not ride on the machine whilst using the traction drive, nor stand inside the machine structure as serious injury might occur.

5 Emergency Controls

5.1 GENERAL

CHECKING THE OPERATION OF THE EMERGENCY CONTROLS EVERY DAY AND/OR BEFORE EACH SHIFT IS AN ESSENTIAL PART OF THE OPERATOR'S DUTIES



The operator and all ground personnel must be thoroughly familiar with the location and operation of the EMERGENCY CONTROLS.

5.2 IN THE EVENT OF AN INCAPACITATED OPERATOR

Turn the key switch selector at ground control station to “Ground” (anti-clockwise). Then lower on the ground controls as detailed under section 4.3 Ground Control Operation.

5.3 IN THE EVENT OF MACHINE FAILURE

Operate manual hand pump (located adjacent to the base controls) and lower basket to the ground using either basket or base controls. If initial movement of the machine allows the master alarm to reset, normal controls will be available. This is then the fastest method of lowering the platform to the ground.

Note If the machine is fitted with a cage overload system, and the cage comes into contact with a fixed object whilst operating at height, this would be detected as an overload condition. All power to the machine controls would be lost, requiring the machine to be recovered using the **Manual Hand Pump**. It is sufficient for the cage to be manoeuvred away from the collision point to release the cage weigh system, thereby restoring normal machine operation. The cage could then be brought down using the controls as described previously.

FOLLOWING AN EMERGENCY DESCENT RECOVERY OF THE PLATFORM, FULLY EXTEND AND RETRACT ALL CYLINDERS FROM GROUND CONTROL STATION BEFORE USING THE MACHINE.



5.4 INCIDENT NOTIFICATION

It is a mandatory requirement that any accident or incident involving a Niftylift, regardless of whether any party received injury or property was damaged is reported by telephone directly to Niftylift. Failure to do so may render any warranty on the machine void.

6 Responsibilities

6.1 CHANGES IN OWNERSHIP

When a change of ownership of a Niftylift occurs, it shall be the responsibility of the seller to notify Niftylift direct of the unit, model and serial number and the name and address of the new owner within 60 days. This important step is required so that all future Technical Bulletins are able to reach the registered owner of each machine without delay. Please note warranties are not transferable.

6.2 MANUAL OF RESPONSIBILITIES

You are required by ANSI/SAIA 92.2 2015, to read and understand your responsibilities before you use or operate this aerial platform.

Please read the enclosed document, as failure to do so could result in death or serious injury.

Wherever any contradiction may appear, the Manual of Responsibilities shall take precedence over all other documents.

Operating & Safety Instructions

6.3 Inspection/Service/Pre-Hire Check list

MACHINE SERIAL NO _____

TOWING	PASS	FAIL	N/A
Operation of tow coupling			
Operation of handbrake			
Operation of jacking wheel			
OUTRIGGERS			
Micro-switches secure			
Locating pins operating freely and oiled			
Outriggers operate smoothly			
Operation of each micro-switch and klaxon (if fitted)			
Operation of outrigger control valve and buttons			
Operation of each hydraulic outrigger			
Operation of each micro-switch including siren			
Operation of boom rest micro-switch			
AXLES, WHEELS AND BRAKES			
Axles slide freely (90/120), or are secure (170/180)			
Wheels are secure, tyre condition acceptable			
Wheel bearings OK			
Fenders are secure			
Locating pins operate freely and oiled			
Lock bolts are tight			
Wheels spin freely when handbrake is released			
Brakes come on equally when handbrake is applied			
Brake linkages and cables secure			
Brake shoe wear not excessive			
Breakaway cable fitted and operable			
Tail lights fitted, lights function			
Tyre pressure correct			
Wheel nut torque correct			
BASE			
Operation of base control valve and buttons			
Operation of all booms over full range			
Cylinders are silent			
Platform is level over full range			
Booms, levelling rods not damaged or distorted			
Booms, levelling rods, cylinders not fouling			
Hoses not tight, kinked or fouled			
Operation of manual hand pump			

BOOM ROTATION	PASS	FAIL	N/A
Boom rotation assembly and motor are secure			
Worm/wheel mesh correct, no excessive wear			
No end float of worm in housing			
Rotation gear wheel bolts secured			
Rotation gear guards secure			
BASKET			
Operation of control valve and buttons			
Operation of all booms over full range			
Cylinders are silent			
Basket levelling over full range			
Boom Rotation is smooth over full range			
Operation of boom 4 over full range (if fitted)			
INTERNAL (POWER PACK)			
Power pack and all components secure			
All cables and terminals secure			
All hose connections secure			
Hoses not kinked or fouled			
Charger/control box secure			
Battery secure			
Electrolyte level and specific gravity			
Charger operation			
Hydraulic oil level			
FINISH			
Operation of boom clamp			
Pivot pin tag bolts			
Correct decals, all visible			
Canopy/bonnets			
Grease nipples (Feet, Knuckle, Centre Post)			
(Tow coupling, Boom rotation Gear, Boom 4-170)			
LEAK CHECK			
Cylinders (Lift, outriggers, Telescope, Levelling)			
Control valves			
Check valves			
Power pack/pump			
Boom rotation motor			
Hose connections			

Comments, remedial work required etc;

INSPECTED BY: _____

DATE: / /

niftylift