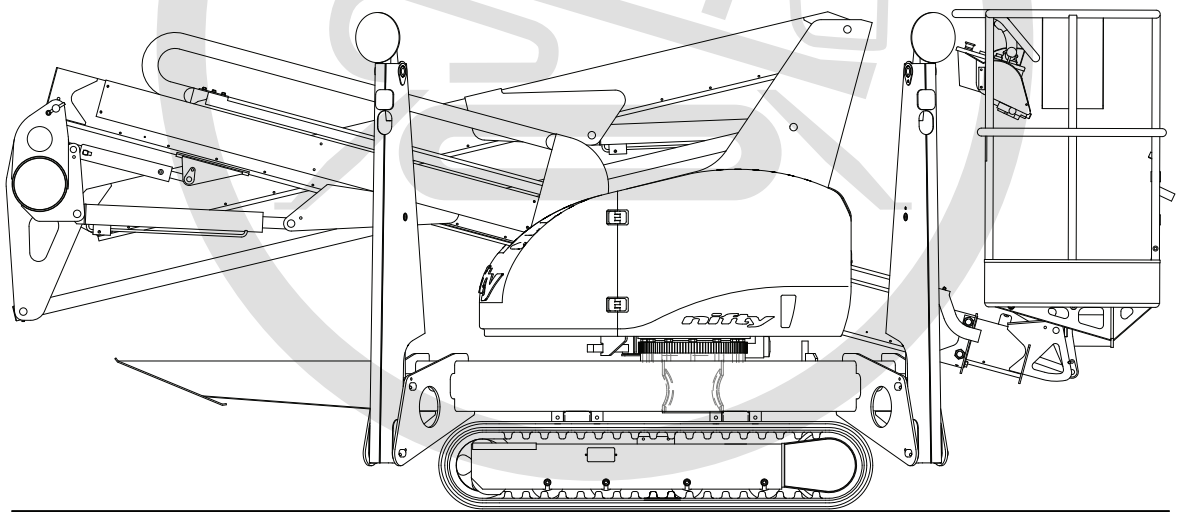


nifty

TrackDrive

Operating & Safety Instructions

MODEL TD42T SERIES



niftylift.com
info@niftylift.com

M50910/01



Niftylift Limited
1525 S. Buncombe Road
Greer
SC 29651
USA

www.niftylift.com
e-mail: niftyusa@niftylift.com
Tel: 864-968-8881
Fax: 864-968-8836

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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 the Niftylift TD42T, mains electric (AC), diesel (D), gasoline/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 TD42T.

1.3 INTRODUCING THE TD42T TRACK DRIVEN (TD) 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, 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.

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

Tel: **864 968 8881**

Fax: **864 968 8836**

Email: **niftyusa@niftylift.com**

The Niftylift TD42T (Track Drive) is an extremely versatile articulated boom platform of unique and simple design. It is capable of placing two men and his tools up to a height of 48ft 3 ins or an outreach of 24ft 9in.

The booms are mounted via a 400⁰ powered swing mechanism on to a compact base mounted on rubber tracks. The fourth boom is telescopic, and when combined with the use of the articulating booms gives an outstanding working envelope. The powered tracks enable the machine to reach areas previously thought unattainable.

The four outriggers make a simple and swift set up possible. A unique pressure sensitive micro switch 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.

Standard build is four fully hydraulically operated outrigger legs, with integral load holding valves mounted on each outrigger cylinder.

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

This product conforms to ANSI/SAIA A92.20-2018.

Models include the following:

DAC: - DIESEL & AC ELECTRIC

GAC: - GAS & AC ELECTRIC

D: - DIESEL ONLY

PG: - GAS & LPG (PROPANE)

G: - GAS ONLY


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1.4 GENERAL SPECIFICATION

FEATURE	TD42T	
MAXIMUM HEIGHT - WORKING	14.7m - 48ft 3 ins	
MAXIMUM HEIGHT - BASKET	12.7m - 41ft 9in	
MAXIMUM HEIGHT - STOWED	2.0m - 6ft 7in	
MAXIMUM OUTREACH	7.55m - 24ft 9in	
MAXIMUM WIDTH – TRANSIT	1.4m - 4ft 7in	
JACK SPREAD	3.8m - 12ft 6in	
MAXIMUM LENGTH - STOWED	4.69m - 15ft 5 ins	
MAXIMUM CAPACITY	225kg 500lbs	
TURRET ROTATION	400°	
TURRET TAIL SWING	Zero	
MAXIMUM TRAVEL SPEED	2.1 kph 1.3 mph (High)	1.05 kph 0.65 mph (Low)
BASKET SIZE - LENGTH X WIDTH	1.4m x 0.7m 55in x 27.5in	
CONTROLS	Full proportional hydraulic	
MAXIMUM HYDRAULIC PRESSURE	2900psi	
TRACKS	1745 x 250 Rubber	
GRADEABILITY	45% (24°)	
GROSS VEHICLE WEIGHT (MAXIMUM)	1960kg 4321lbs	
MAXIMUM GROUND PRESSURE	0.042kN/cm ² 8,358lb/ft ²	
MAXIMUM ALLOWABLE INCLINATION	0.5°	
POWER SOURCE	(G) (Gasoline) models - Honda Engine D (Diesel) models - Kubota 722E engine	

1.5 IDENTIFICATION (USA 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		
SERIAL No		
MODEL		
YEAR OF MANUFACTURE		
WEIGHT		kg (lbs)
RATED LOAD	PERSONS +	kg (lbs)
MAXIMUM SAFE WORKING LOAD		kg (lbs)
MAXIMUM PULL		N (lbf)
MAXIMUM WIND SPEED		m/s (mph)
MAXIMUM ALLOWABLE INCLINATION		deg
MAXIMUM HYDRAULIC PRESSURE		psi
MAXIMUM VOLTAGE		V
MAXIMUM AMPS		A
ELECTRICAL SCHEMATIC D	ISSUE	
HYDRAULIC SCHEMATIC D	ISSUE	
PLATFORM HEIGHT		feet
PLATFORM REACH		feet
TYPE	GROUP	
		P33792/1

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.

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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 basket 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 CONFORMATION 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 machine, 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 basket capacity, as indicated on the decals and machine serial plate.
- 2.1.9** Only operate the Niftylift on a firm level surface.
- 2.1.10** 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.**

If in doubt, contact the appropriate authorities.

- 2.1.11** On entering the basket, ensure that the drop down entry bar is closed afterwards.
- 2.1.12** Use of an approved safety belt and lanyard, hardhat and appropriate safety clothing is mandatory. Fasten harness to designated harness securing points within the basket and do not remove until leaving the basket whilst in the stowed position.
- 2.1.13**  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.
- 2.1.14** Do not use the basket levelling system to artificially increase the outreach of the machine. Never use boards or ladders in the basket to achieve the same result.
- 2.1.15** 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 basket. (e.g. Notice boards etc.)
- 2.1.16** 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.
- 2.1.17** Always check the area below and around the basket before lowering or rotating the booms to ensure that it 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.
- 2.1.18** Stunt driving and horseplay, on or around the Niftylift, shall not be permitted.
- 2.1.19** 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.
- 2.1.20** 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.)

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- 2.1.21** The operator shall immediately report to his supervisor any potentially hazardous location(s) (environment) which become evident during operation.
- 2.1.22** 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.
- 2.1.23** 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.
- 2.1.24** The boom and basket of the Niftylift shall not be used to jack the wheels off the ground.
- 2.1.25** The Niftylift shall not be used as a crane.
- 2.1.26** The aerial platform is not equipped for or intended for use on a public highway.
- 2.1.27** The Niftylift shall not be positioned against another object to steady the basket.
- 2.1.28** Care should be taken to prevent rope, electric cords and hoses from becoming entangled in the machine.
- 2.1.29** 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.
- 2.1.30** 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.

2.1.31



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.

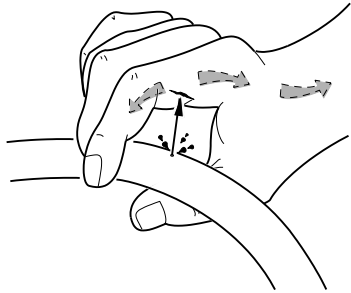
- 2.1.32** If the basket or elevating assembly becomes caught, snagged or otherwise prevented from normal motion by adjacent structure or other obstacles, such that control reversal does not free the machine, all personnel shall be removed from the basket safely before attempts are made to free the machine using ground controls.

- 2.1.33** 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.**

2.1.34



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

- 2.1.35** The operator shall implement means provided to protect against use by unauthorised persons.
- 2.1.36** Never remove anything that may affect the stability of the machine such as, but not limited to, batteries, covers, engines, tyres or ballast.
- 2.1.37** 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.
- 2.1.38** 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.
- 2.1.39** Hydraulic oil escaping under pressure can penetrate the skin and cause **serious injury**. Do not allow hydraulic oil to squirt or spray. **Seek immediate medical attention in the event of hydraulic oil penetrating the skin.** Wear chemical-resistant protective gloves and suitable eye protection when handling hydraulic oil. Relieve system pressure before removing any hydraulic connections, undo fittings slowly to make sure there is no residual pressure. If pressure is detected, allow it to be released slowly before completely removing hose. Fluid leaks may not be visible to the naked eye. Use a piece of cardboard to check for leaks, not your hand.
- 
- Never** install hydraulic lines or components that are damaged.
- 2.1.40** Only Niftylift original and supplied parts shall be used. Replacement of parts should only be carried out by appropriately trained and competent persons.

2.2 ENVIRONMENTAL LIMITATIONS

All Niftylift machines are limited to operation as previously described and any slopes must be adjusted by use of the outriggers and jacks. 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°C. 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 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 TD42T range of machines does not exceed 85dB(A), measured at a perpendicular distance of 30', 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 92.20 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 hirer 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 Niftylift is put into service.

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

*****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 Niftylift 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.

3.3 PRE-OPERATIONAL SAFETY CHECK SCHEDULES

Before use at the beginning of the work shift, the Niftylift 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 battery is 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 properly.
- 9) Check the operation of the manual hand pump.
- 10) Visually inspect all hydraulic hoses and fittings for damage or leaks.
- 11) Check operation of the outrigger alarm.
- 12) Check that outrigger footpads are secure.
- 13) Check that the basket pivot pins and their tag bolts are secure.
- 14) Check security and operation of the boom clamp (if applicable).
- 15) Check the operation of the basket weigh system **(If fitted)**. See section 4.5.3 for testing and verification procedure.

3.3.2 WEEKLY SAFETY CHECKS

- 1) Inspect tracks and wheels for damage and wear.
- 2) Check tracks for correct tension – see manufacturers' handbook.
- 3) Check battery fluid levels and specific gravity (after charging) and general condition.
- 4) Check hydraulic oil level, Grade 32.
- 5) Inspect the engine air filter and clean or replace if necessary.
- 6) Check operation and security of outrigger micro switches in conjunction with the alarm system.
- 7) Inspect hose track for damage or missing parts.

3.3.3 MONTHLY SAFETY CHECKS

- 1) Check the engine oil level (if applicable).
- 2) Check outriggers for condition, security and operation.
- 3) Check that the boom rotate gearbox is secured and correctly in mesh. Clean and re-grease.
- 4) Grease the boom rotate ring.
- 5) Inspect the engine fuel tank for damage or leaks.
- 6) Check telescopic boom wear pads and nylon studs (if applicable).
- 7) Check that the end cap on the main knuckle pin is secure and the roll pin is in place.
- 8) Lightly oil the jack pad ball joints and outrigger housings.
- 9) Check and adjust if necessary the Nylatron studs around the telescope boom.
- 10) Every **three** months check and verify the calibration of the basket weigh system **(If fitted)**. 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) Check that boom rotation ring bolts are secure (torque 155ft lbs. 210Nm).
- 5) Inspect hose track for damage or missing parts.

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3.4 PLACARD, DECALS & INSTALLATION

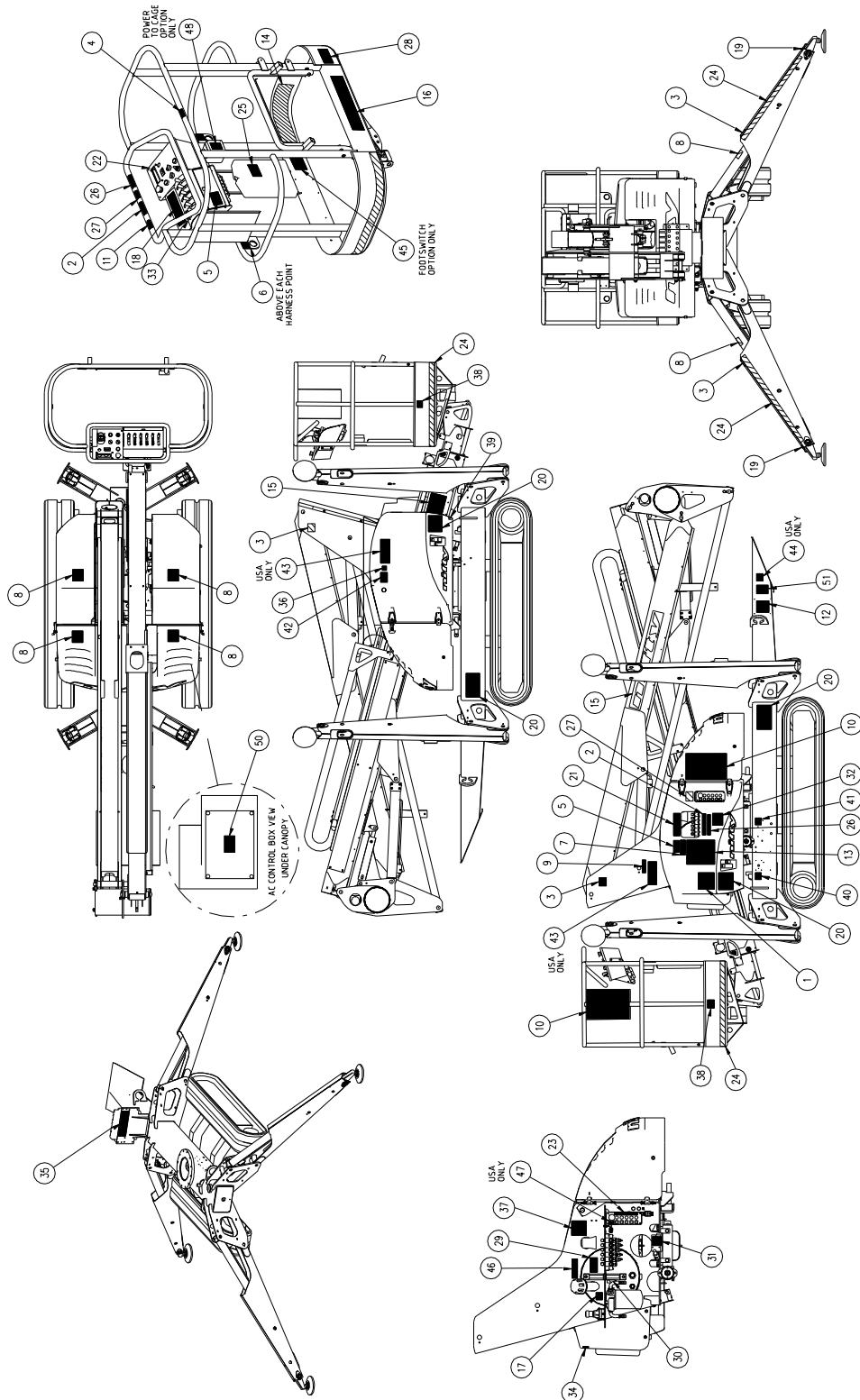
ITEM	DESCRIPTION	NUMBER	QTY	
1	Daily Safety Checks	P14908	1	
2	If Tilt Alarm Sounds	P18842	2	
3	General Crash	P14782	6	
4	Cage Gate Warning	P18335	1	
6	Harness Points	P32302	2	
8	No Step	P14785	8	
9	Manual Hand pump	P17854	1	
10	General Warning	P24900	2	
11	Head Protection	P14921	1	
12	Serial Plate	P32187	1	
13	General Notice	P21941	1	
14	SWL 225 Kg	P17328	1	
15	Nifty TD42T - Grey	P25045	2	
16	Niftylift.Com	P14390	1	
17	Hydraulic oil - ISO22	P14415	1	
18	Hydraulic Controls – 5 Levers	P34313	1	
19	Point Load – 13 kN	P14965	4	
20	Outriggers Warning	P14841	4	
21	Hydraulic Controls – 4 Levers	P14928	1	
22	Lid, Cage Console	P19926	1	
23	Base Controls	4 hole 3 hole	P32926 P15881	1 1
24	Hazard Tape		A/R	
25	Read Manual	P14892	1	
26	Overload Warning	P18848	2	
27	E-Stop Warning	P14864	2	
28	Cage Entry 400 mm	P18192	2	
29	Oil Fill Warning	P18206	1	
30	Oil Fill Level	P18252	1	
31	Emergency controls location	P31869	1	
32	Emergency controls location	P33133	1	
33	Basket levelling	P10853	1	
34	Diesel	P14414	1	
35	Drive recovery – TD42T	P26435	1	
36	Noise Warning 85dB	P17124	1	
37	Booms/Jacks changeover	P17571	1	
38	Cage Tie-down Warning	P21404	2	
39	Remote Charge	P16367	1	
40	Mains Power socket	P25891	1	
41	Power to Cage socket	110V	P26426	1
42	Warning Hot Surfaces	P22314	1	
43	Rotating Machinery (USA only)	P15010	2	
44	A92 Compliant (USA only)	P25250	1	
45	Footswitch	P14884	1	

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46	Pressurised Tank	P16365	1
47	E-Stop	P24893	1
48	Power to cage	110V	P33012
50	Disconnect mains	P32248	1
51	Annual Inspection	P33474	1

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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	N/A					
ROTATION 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 OVERVIEW

4.1.1 CONTROL CIRCUIT COMPONENTS

CONTROL BOARD: - Situated under the canopy, the control board comprises a PCB (printed circuit board) design which 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.

KLAXON: - Also mounted on the base is a klaxon, which performs several functions: - Firstly, it can be used as a manual alert, by pushing the “Horn” button at the basket control position. Secondly, it is this device which sounds continuously is a jack goes light during operation, with the booms raised, warning the operator of this condition. It will also sound if the Ground Control Key switch is turned to “Basket” before the jacks are deployed properly.

BOOM-SWITCH: - Mounted on the side of Boom 2 near the knuckle and operated by contact with a cam on boom 3, this switch controls the changeover function between jacks and basket. The jack 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 basket 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 loose 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.

DIESEL ENGINE: - Generally a Kubota 722E engine, described in the maintenance section of the Workshop Manual, driving a single bodied pump with direct mounted pump dump valve.

CONTROL BOX: - Located adjacent to the Diesel engine, the control box combines all of the functions for Dual power operation (Bi-energy machines), as well as controlling the Diesel engine. The relays in this box control Starting, High Throttle, Pump Dump, Duty Selector and Diesel stop timer. There is also an integral Thermal trip, which protects the Throttle solenoid and other functions.

GASOLINE ENGINE: - Generally a Honda engine, described in the maintenance section of the Workshop Manual, driving a triple body pump with direct mounted pump dump valve.

GASOLINE BOX: - Located adjacent to the gasoline engine, the gasoline Box combines all of the functions for dual power operation, as well as controlling the gasoline engine itself. The relays in this box control Starting, High Throttle, Pump Dump, Duty Selector and Engine Stop. There is also an integral Thermal Trip, which protects the Throttle solenoid and other functions.

LPG OPERATION: - On machines equipped for LPG operation (propane), the Honda engine will also have an LPG vaporiser, valve lock and micro-vac switch. The vapour take-off system requires a vaporiser to convert the liquid gas into an airborne mixture. This is then held by the micro-vac switch and valve lock until the engine turns over, creating a vacuum on the inlet to the engine carburettor. The micro-vac switch then tells the valve lock to open, admitting the gas to the engine. If the engine is halted, the system returns to normal, holding the gas until a re-start is attempted. When running on gasoline, the main tap to the gas bottle should be securely closed to prevent the engine from trying to run on a mixture of the two fuels. If starting to run on LPG, it should be ensured that all gasoline is discharged from the carburettor bowl before changing to LPG, since the engine will not run satisfactorily if any gasoline is in the carburettor bowl.

4.1.2 POWER SELECTION

The Kubota engine, AC power pack, hydraulic reservoir and starter battery are all packaged beneath a two-piece fibreglass canopy, sandwiched between the two front outriggers. Cold-starting the engine (See section 4.3.1) is permissible from the side of the canopy, and once running, all controls are situated in the basket.

If the machine is to be used in an enclosed area, or within a domestic setting, the diesel engine can be switched off and AC power selected. The auxiliary motor is a 1.5 kW single-phase motor (refer to motor plate for voltage) driving a direct coupled 1,5cc gear pump. This can be manually selected to provide hydraulic flow to the Booms only.

Once plugged in, the electric motor will run whenever the basket Key switch is turned to the 'I' position. If the diesel engine is running, this will stop it. This interlock is there to prevent both power sources providing hydraulic flow at the same time. When the electric motor is running, hydraulic flow is available for switching to the Booms. This is achieved by using the same control system described previously. When directed to the Boom function, speeds are roughly the same as the diesel engine.

NB: If the diesel engine is needed for movement between work locations, it will be necessary to remove the mains plug from the socket, to allow the diesel engine to be started.

ALWAYS ALLOW THE ENGINE TO WARM UP BEFORE OPERATING.



4.1.3 MANOEUVRING

Once the engine is running, the operator can manoeuvre the machine from the basket. On entering the basket, the operator can now turn the selector to the right to enable the drive function. Pressing the green power button will energise the drive dump solenoids, at the same time bringing the diesel engine to full revs, if selected. If the drive paddles (or joystick, if fitted) are moved up or down, the twin tracks will drive the machine in the desired direction. If the paddles are moved in opposition, the machine will turn. The control function of each control is fully proportional, in as much as the final speed will be dependant on how far the lever is moved. Two drive speeds are available, one being a 'fast' tick over and the other high throttle. This function is selectable from within the basket, but is also limited by the tilt transducer, such that high travel speeds become unavailable when excessive working angles are encountered. It is recommended that all ramp angles are approached at minimum revs, allowing the machine to climb at the best speed for controllability.

To halt the drive function, release either the Drive handles or the footswitch. The drive motors feature automatic braking for load holding on un-level ground, as well as flow control devices to prevent over-speed when driving down gradients.

If difficult terrain is to be tackled, the operator can walk alongside the machine in 'Pedestrian' mode (**if fitted**) and manoeuvre the machine whilst adjacent to the machine, simply by de-mounting the control panel. Two-travel speeds are available, the 'fast' mode being controlled by the on-board tilt transducer, which denies the use of high throttle when on an excessive slope. The Operator also has control of when high throttle is used, permitting the creep speed to remain under control. The drive system works from the panel mounted green button, controlling both the engine speed and the drive pump dump valve, for increased safety.

4.1.4 RAMPS AND INCLINES

The ability of the Track Drive machine to ascend and descend slopes of up to 45% (24 degrees) introduces a new level of complexity to the use and operation of the machine. The operator must now be additionally responsible for assessing the suitability of the terrain to be tackled. Although within the capabilities of the machine, some areas would be undesirable for access, and present a real danger to the operators themselves or other people around at the time. In order to ascend a slope safely, it is best if the incline is approached 'square-on' to the angle, in order to maximise the grip and ensure an even drive effort by both tracks. The operator can quickly judge the maximum permitted angle by comparing the maximum angle of the slope to the front angled plate on the machine. If the slope is steeper than the approach plate, then the angle is outside the capability of the machine. Under no circumstances should an excessive slope be attempted.

When driving up a slope, it is recommended that the machine drive forwards, when driving down a slope, again drive forwards down it. The operator should be aware of the response of the machine when reaching or departing the top of a slope. The machine will climb, or descend until the balance of the tracks places more of the weight beyond the point of contact with the ramp and the tracks. The machine will then topple forwards or backwards to meet the next level. If the operator is in the basket, this sudden change of level will cause a fast angular movement, which they will have to counteract. Ensure a firm grip is taken of the basket handrail, keep the legs loose and do not lock the knees, and release the drive joystick as the machine changes level. If the drive speed becomes erratic at any time, this can be due to operator-induced oscillations on the drive levers. In this case, release the levers, stabilise the machine and start driving again. Avoid sudden changes of drive lever position; a smooth driving action is much preferred.

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When climbing steps, a further judgement will be needed as to whether the weight of the machine, or the traction required to climb or descend would cause damage. Many domestic installations feature soft edge strips or boards to provide the front edge of the step. These edging strips are unlikely to tolerate the action of climbing and might detach causing degradation of the steps themselves. More importantly, the edge reliability is critical to the tractive effort and if less than adequate might cause the machine to 'BOOM ROTATE' sideways on a step rather than climb. The risks to the operator are obvious, whether in the basket or driving from the side. A stair built from flagstones or loose blocks is not likely to support the weight or accept the track movement over it. Loose ramps or ply sheets to spread the track forces can be used, but again must be securely anchored to prevent the tracks from 'gripping' the surface and shooting the boards out from under the machine.



The single greatest factor affecting the ability of the Track Drive TD42T to attack any slope, incline or stair is **traction**.

If there is inadequate adhesion between the tracks and the surface to which the machine is presented **it will not climb**.

Driving across a slope is not recommended, but if this unavoidable then the outriggers legs can be used, if space permits. Deploying the downhill legs gives the operator a further protection against toppling, but with the additional risk of damage to the machine. Better safe than sorry.

4.1.5 VARIABLE WIDTH TRACK OPTION (if fitted)

It is recommended that whenever the machine is driven across a slope, or for added safety when climbing or descending, the tracks should be extended to their maximum width. To achieve this, the basket selector switch is left in the 'Track Drive' position, (i.e. to the right). Then using the variable width toggle switch with the green button, the tracks will extend to their maximum width and stay in this position. To change back to minimum travelling width, the toggle switch can be used in the reverse direction, again in conjunction with the green button. When minimum width is achieved, the tracks will again stay at this width. The Operator should make any adjacent personnel aware of the machine operation, particularly in respect of the extending tracks, and ensure that no one is close enough to the machine when the tracks are moving in or out. If a track 'digs in' whilst changing width the machine can slide slightly along its length and could cause injury.



Minimum width – Track in.



Maximum width – Track extended.

4.1.6 OUTRIGGERS

The four outriggers are deployed using the individual switches on the basket control box. Each lever controls the movement of one outrigger, their relative positions being indicated by their position on the control box. To allow the outrigger circuit to generate flow to the individual outriggers, the selector switch is moved to the left position. This diverts flow to the outrigger circuit and at the same time energises the boom/jack dump valve. If high throttle is selected, the engine will go to high revs, allowing the four outriggers to be deployed in the best possible time. As the feet reach the end of travel, the high throttle control can be turned 'off' allowing fine positioning of each outrigger and assisting in the levelling process. The machine should be levelled using the indicator mounted on the machine base, clearly visible between the outrigger controls and the basket edge. If necessary, each jack foot should have a spreader plate inserted beneath it to spread the foot load and prevent sinking. The machine must be set up level before the booms are elevated, on firm ground or with the working area adequately consolidated.

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



4.1.7 BOOM CONTROLS

As soon as all four outriggers are making contact with the ground, the four sensing switches will activate allowing the Booms to be elevated. If the Ground Station Key Switch is turned to the 'On' position, the adjacent green button will allow the Booms to be moved, using the Ground control levers. At the same time, the controls in the basket would be inoperable. Turning the Ground control Key Switch to the 'Off' position allows the Basket controls to be used to elevate the Boom using the basket controls. As soon as the Booms are raised sufficiently to clear the 'booms-down' switch, the outrigger controls are isolated, preventing any ground personnel from taking control of the outriggers, when elevated. At the same time, the drive control levers also become isolated.

The machine can now be manoeuvred through its entire working envelope, allowing the operator to ascend to a working height of 48' 3" and an outreach of 24' 9". The boom rotate control gives an effective boom rotation angle of 400 degrees (200 each way from rest.) allowing the machine to project further over the nose of the machine. It is necessary to return back the opposite way to stow the machine before raising the outriggers.



When the machine is fully stowed, with the booms in-line with the major axis of the machine, the four outriggers can be raised, reversing the controls used previously. If the machine is being moved a short distance over a level surface, or for fine positioning of the outriggers themselves, the legs can be left down and the Drive function used at the same time. This imposes a greater level of responsibility on the operator to ensure that all areas are clear and particularly that any ground personnel are aware of the movement of the machine. Ideally the operating area should be coned off whilst this is achieved.

4.1.8 EMERGENCY CONTROLS

Emergency descent and/or machine recovery is achieved by the use of the standby hand pump, mounted on the base of Boom 1. This can accommodate all functions, although the drive system would require more flow than would be apparent.

The Ground controls are located primarily to permit the machine to be recovered if the operator is unable to manoeuvre the machine himself. The second key turns the ground station 'On' and the Basket controls 'Off' allowing the machine to be moved using the ground controls.

The Emergency hand pump can be used to move the machine in all directions permitting recovery of the elevated booms and personnel. Attention should be given to the direction of recovery of the work basket, since the hand pump gives the ground operator the ability to manoeuvre the machine in all planes, including rotating the booms towards or lowering into a potentially unstable area. It is always recommended to evaluate the nature of the emergency before recovery is attempted, and if appropriate, the machine can be moved to limit the projection of the booms in the prohibited direction.

Once stowed, the outriggers can be fully raised to enable the machine to be recovered for attention, although it might be desirable to leave the front outriggers deployed to permit the canopies to be removed. The over-ride levers, situated on the proportional control block are used in conjunction with the hand pump to operate the outriggers manually. The Emergency hand pump does allow the drive controls to be operated, although minimal flow would be available in any event.

If the diesel engine requires 'jump' starting, external connection points are provided adjacent to the starter battery on the vehicle nearside. Connecting a separate 12V battery of adequate size to the terminals provided, positive-to-positive, negative-to-negative, will allow the Diesel Key switch to turn the engine over, even in the event of a dead on-board battery. Once started, the jump leads can be removed, the engine giving sufficient feed to the starter battery to recover and also power the control circuit. The diesel engine should not be allowed to stop until sufficient charge has been restored to the battery, otherwise another 'jump' start would be needed.

Shutting down all functions is possible by depressing the Emergency stops, positioned at both basket and ground control stations. The diesel engine can be stopped in a similar fashion, or by turning off the selector key in the basket or the diesel Key switch. Selection of the power source is only possible from the basket, effectively interlocking the two available options.

4.2 SETTING UP PROCEDURES

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



TRACK DRIVE MODELS ONLY

- 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) If the load bearing capacity of the ground is in any doubt the machine must **NOT** be used.
- 4) Levelling the machine using the hydraulic outriggers can accommodate a slope of up to 12 degrees, if necessary using suitable load bearing pads to support the downhill jacks. Do not elevate the platform unless the base can be corrected to within 0.5 degrees of level.
- 5) Cordon off area using appropriate cones, barriers and flags, (if applicable).
- 6) Check all red emergency stops are not engaged (i.e. fully out).
- 7) Ensure that the key switch at the ground control station is turned to the “Basket” position.
- 8) From the basket control station, turn the three position selector to the left ‘Outrigger’ position, press and hold the Green Button to give hydraulic power to the outriggers and select the appropriate control switches. Note: No power will be available if the booms are not fully stowed.
- 9) Using the four outrigger control switches, lower each outrigger onto a firm, level surface and level the machine base ensuring each outrigger foot is taking equal weight with the tracks clear of the ground.
- 10) Check that the base is level using the spirit level on the machine base.
- 11) Turn the three position selector to the centre ‘Booms’ position. The booms can now be operated from the basket or ground control station by use of the green button, or by depressing and holding the base green power button. Note: If no power is available, check that each outrigger is lowered and each footpad is taking equal weight.
- 12) Always lower booms fully before adjusting, raising, retracting or moving the outriggers in any way.
- 13) 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 Niftylift 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 the “ON” position (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 TD42T will automatically default to the primary power source (usually mains AC)

GASOLINE ENGINE OR GASOLINE (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 gasoline engine is running, the TD42T will automatically default to the primary power source (usually mains AC).

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) and remove key.

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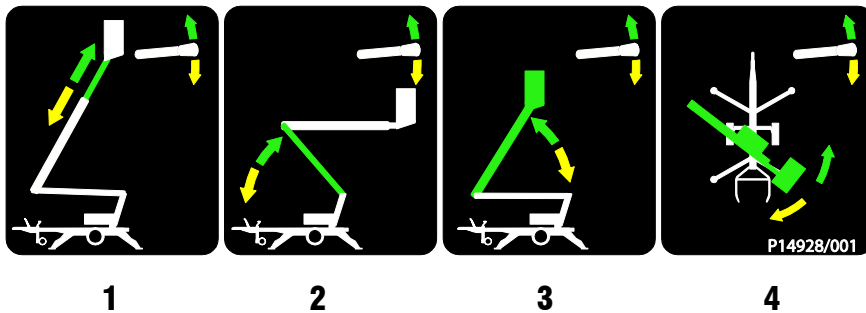
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EMERGENCY PROCEDURES

- 1) Push in red emergency stop to shut down all functions.
- 2) Use emergency 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 Boom Rotate	UP for right	DOWN for left

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



ALWAYS ENSURE THE NIFTYLIFT 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 basket for any obstruction or hazards before operating any function.
- 3) Ensure all red emergency stops are out.
- 4) Remove the key from the ground control station (turn to “OFF” position) and turn the selector in the basket to “ON”.
- 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 basket control box clockwise and the engine will fire.
- 7) Go to step 11). Note – Unless the diesel engine is running, the TD42T will automatically default to the primary power source (usually mains AC).

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 basket control box clockwise and the engine will fire.
- 9) Go to step 11). Note – Unless the gasoline engine is running, the TD42T will automatically default to the primary power source (usually mains AC)
- 10) If the engine is too cold to start from the basket, try starting from the ground controls as described in step 8) of the ground control operation section (4.3.1).

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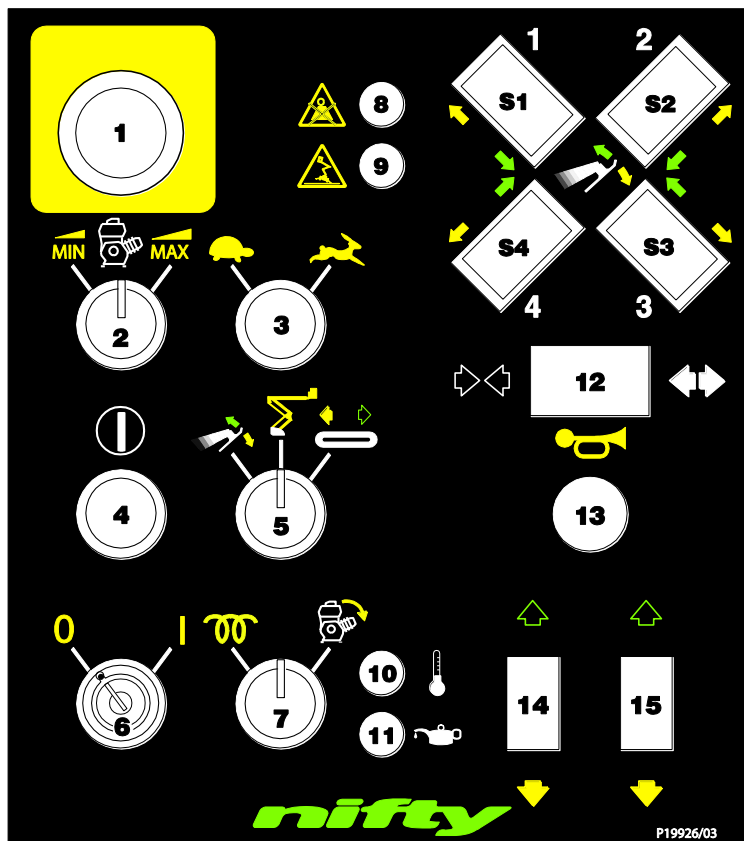
ALL MODELS

- 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 (anti-clockwise) and remove key.

EMERGENCY PROCEDURES

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

BASKET CONTROL STATION

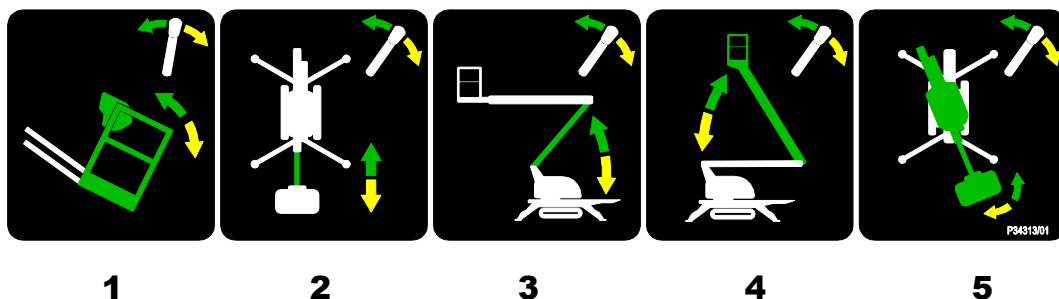


- 1) **Emergency Stop Button** – Push to operate, twist knob to re-set to the 'Out' position.
- 2) **Max RPM Selector** – Switches between the High and Low Rev setting on the engine. High speed is not available if booms are in operation or machine is driven on an excessive slope ($>10^\circ$).

- 3) **Hi/Low Drive**
- 4) **Power Control Button** – Press and hold Green button to enable machine.
- 5) **Duty Selector** – Three position control allows operator to select between:-
 - Left:** Jacks/ Outrigger operation
 - Centre:** Booms only
 - Right:** Track Drive and variable width control.
- 6) **Selector switch** – Turn to 'On' position to enable machine controls.
- 7) **Glow/Start Selector** – Turn to the left and hold for 3 – 4 seconds to energise the glow function before starting. Turn to the right to fire the engine, release when engine fires.
- 8) **Basket Weigh (if fitted)** – Illuminates if Safe Working Load (SWL) has been exceeded.
- 9) **Tilt Alert** – Illuminates when excess drive angle is detected. High speed drive is lost until machine returns to level.
- 10) **Water Temperature** – Illuminates if coolant temperature is too high.
- 11) **Engine Oil Pressure** – Illuminates and buzzer sounds if pressure drops. Check oil level. Note; Will also activate when Selector (6) is turned 'ON', until engine has been started and run to achieve correct pressure.
- 12) **Track Width** – Increases or decreases width of tracks when used with Power Control Button.
- 13) **Horn** – Operates audible alarm.
- 14) **LH Track Direction** – Switches between Forward and Reverse.
- 15) **RH Track Direction** – Switches between Forward and Reverse.

4.4.2 BOOM FUNCTIONS

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



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

1 Operates Basket Lev.	FWD for forward	BACK for back
2 Operates Telescope	UP for in	DOWN for out
3 Operates Lower Boom	UP for up	DOWN for down
4 Operates Upper Boom	UP for up	DOWN for down
5 Operates Boom Rotate	UP for right	DOWN for left



IF ALARM SOUNDS, DESCEND IMMEDIATELY AND RE-LEVEL THE MACHINE BASE USING THE FOUR OUTRIGGER CONTROL LEVERS

4.4.3 PROPORTIONAL BLOCK

The proportional block and adjacent green button, serve to provide a manual override for the outrigger and variable width controls. This function permits a machine to be stowed for transport if the basket controls become inoperative for any reason. The Green button, situated inside the canopy, becomes operative only when the base control key switch is switched to the “ON” position and the basket selector is in the tracks position. If the canopy green button is depressed, the Base control green button is switched out, and vice-versa. Pushing and holding the green button energises the hydraulic circuit providing flow for the proportional block. Moving the selected lever forward or backwards allows individual control of each outrigger leg. Great care should be taken when using these controls to ensure that adjacent personnel and particularly the operator themselves are not in the vicinity of the leg being raised. Similarly, when using the variable width control, care should be taken when standing adjacent to the machine. Control of the drive function is not recommended, nor is it possible with the ground controls, due to the risk of entrapment.

When the control key switch is in the “OFF” position, the canopy green button is rendered inoperative, and the proportional control block is available only from the basket controls.

4.5 BASKET WEIGH SYSTEM (IF FITTED)

4.5.1 LOAD CELL VERSION

The Niftylift TD42T is fitted with an electronic load cell. This load cell is a moment-independent, redundant design. This means that independent of the load position inside the basket of the machine, the actual load is measured and if pre-configured limit values are exceeded, warnings will be activated. "Redundant design" means that the load cell design incorporates dual channels that monitor each other. The design of the unit meets the requirements of both EN280 and EN954-1 class III.

4.5.2 CALIBRATION & INSPECTION

Calibration, maintenance and repair of the Niftylift TD42T basket load cell requires specialist knowledge and equipment. For this reason, no part of the Niftylift TD42T basket-weigh system can be adjusted, repaired or inspected by the operator. All enquiries relating to calibration, inspection or maintenance should be directed to Niftylift or one of their approved dealers.

4.5.3 TESTING

At the simplest level, before working on the basket, the function of the BASKET overload can be checked by the following method: - Place two men into the BASKET and a larger quantity of tools than is permitted to be carried. (Typically 40 kg). The alarm should sound and all functions should be lost. Reducing the basket contents to the safe working load should silence the alarm and restore the machine operation.

4.5.6 MAINTENANCE

If the assembly is subjected to any external impact force, typically whilst manoeuvring the machine under power, or in the case of trailer units, whilst being reversed into position, the basket assembly will require close inspection. If there is evidence of any deformation in any part of the structure, then the advice of a Niftylift Service technician should be sought. Physical damage to the assembly is liable to render the basket weigh system inactive, or to affect the accuracy of the result. Under no circumstance permit a damaged machine to enter service without performing a thorough inspection and calibration of the weigh assembly.

For this reason it is not recommended to restrain the machine in transit using strap or chains passed through or over the basket itself. This is particularly true of the electronic load cell system, which could be permanently damaged by the application of such excessive external forces. Whilst the mechanical system could be considered to be more robust in operation, the same restraint forces that could be generated through ratchet straps and the like, is likely to cause some severe deformation in the lightweight basket structure. Use only the designated tie-down points on your Niftylift when strapping the machine down for transport. Failure to observe this instruction could render the machine unusable, and a considerable repair bill for the damaged components.

4.5.7 REPLACEMENT

If components are replaced, they must be genuine Niftylift parts. The accuracy and function of the basket weigh system relies on the like-for-like application of the component parts. **Under no circumstances should you permit a machine with a defective basket weigh assembly to enter service.**

If in doubt about the operation or function of your machine, always request the circuit diagram that goes with the machine serial number. Look at the bottom of the machine serial plate; one of the final two numbers stamped there will give the electrical circuit for the machine. ('D80000' number, plus the issue status immediately afterwards: - /01;/02;/03; etc, see Section 1.5 & 1.5a, pages 5/6)

If in doubt, contact the Niftylift Service Department on (44) 01908 223456, Fax: 01908 227460.

4.6 TRANSPORTING, CRANEAGE, STORAGE AND SETTING TO WORK

4.6.1 TRANSPORTING

If a Niftylift 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 taken into account.
- 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 machine 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 outrigger 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 basket support structure or the basket 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 basket 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.

Operating & Safety Instructions

4.6.2 CRANEAGE

- 1) Observe all of the limitations relating to straps and chains stated above under 'Transporting'. (Section 4.6.1)
- 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.

D80932
D81767

TD120T
TD150T

4.6.3 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 Niftylift is intended, an occasional "top-up" charge of the batteries will serve to equalise their charge level.
- 3) Leave diesel engine switch in the OFF position to prevent discharge of batteries through leakage.
- 4) If machine is to be left on an incline, chock the track 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.

4.6.4 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.

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 (i.e. fully down). Lower on 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 basket to the ground.

Note; if the machine is fitted with a basket overload system, and the basket 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 basket to be manoeuvred away from the collision point to release the basket weigh system, thereby restoring normal machine operation. The basket could then be brought down using the controls as described previously.

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, be 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 A92.20 2018, to read and understand your responsibilities before you use or operate this machine.

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.

6.3 Inspection/Service/Pre-Hire Check list

MACHINE SERIAL NO _____

TOWING	PASS	FAIL	N/A
Machine secured on trailer			
Straps correctly positioned and tightened			
Machine chocked if necessary			
TRACK ASSEMBLY			
Tracks are complete and engaged with drive sprockets			
Track tension correct – grease in tensioner			
Machine climbs slope			
Brakes hold machine on slope			
BASE			
Operation of base control valve and buttons			
Operation of all booms over full range			
Wheel bearings OK			
Cylinders are silent			
Basket 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 emergency hand pump			
BOOM ROTATION			
Rotation assembly and motor are secure			
Gearbox mesh correct, no excessive wear			
No excessive back-lash			
Rotation wheel bolts secure			
Rotation gear guards secure			
BASKET			
Operation of control valve and buttons			
Levelling lock valve holds in both directions, lines vented			
Operation of all booms over full range			
Cylinders are silent			
Basket levelling over full range			
Boom rotation smooth over full range			
Operation of boom 4 over full range (if fitted)			
No excessive movement of boom 4 and boom 3			

nifty TrackDrive (TD) Series

Operating & Safety Instructions

TILT ALARM	PASS	FAIL	N/A
Machine driven on to excessive slope - drive disabled, siren tone constant			
Hi drive operation affected			
Return to level ground – Hi drive restored			
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			
Hydraulic oil level			
Engine/Gear box oil			
FINISH			
Pivot pin tag bolts			
Correct decals, all visible			
Canopy/bonnets			
Grease nipples (Feet, Knuckle, Centre Post)			
LEAK CHECK			
Cylinders (Lift, Jacks, Telescope, Levelling)			
Control valves			
Check valves			
Power pack/pump			
BOOM ROTATE motor			
Hose connections			
Filter			
Track Motors			

Comments, remedial work required etc:

INSPECTED BY: _____

DATE: / /

niftylift