snorkel

TB120



CE

ANSI/CSA/CE/AS/NZS
Manufactured 7-05 and after
Replaces ANSI 0192518 March 2015
CE 0192520 May 2022

OPERATOR'S MANUAL

Part Number 0192518
May 2024

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Appendix A – Glossary

Appendix B – Inspection Checklists

Limited Warranty

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Engine Specifications

Engine	Displacement	Fuel Grade	Coolant	Operating Temperature	Oil Capacity	Oil Grade
Kubota V2403-T V2403-CR-TIE4B	148.5 cu. in. (2.43 liter)	**Diesel** Diesel Fuel No. 2-D ASTM D975[1]	50% water 50% Antifreeze[5]	Below 212°F 100°C	2.5 gal (9.5 liter)	API: CF or higher[3]
Dual Fuel Kubota WG2503-GL-ET	93.79 cu. in. (1.537 liter)	Gas – Unleaded gasoline LPG – Commercial LPG	50% water 50% Antifreeze[5]		1.59 gal (6 liter)	API: SL or higher[3]
Cummins B3.3	199 cu. in. (3.26 liter)	**Diesel** ASTM No. 20 fuel with a minimum Cetane number of 40.[1] For operating temperatures below 32°F (0°C) use winterized No. 2D.	50% Water 50% Antifreeze[2]	140°F to 212°F 60°C to 100°C	2 gal (7.5 liter) total 1.6 qt (1.5 liter) Low to High	SAE 15W-40[3] API: CH4/SG
Continental TM27	79.3 cu. in. (1.3 liter)	**Gasoline** Unleaded gasoline 85 octane (motor method) [1] **LPG** Gas Processors Association Standard 2140 [1] Category: special duty propane	50% Water 50% Antifreeze	180°F to 202°F 81°C to 94°C	6 US qt. (5.7 liter)	API: SE, SF, SE/CD, SF/CD[3]
GM 2.4L	150 cu. in. (2.4 liter)	**Gasoline** Unleaded 87 octane **LPG** HD-5	50% Water 50% Antifreeze	176°F to 183°F 80°C to 84°C	With filter: 1.12 US gal (4.5 liter) Without filter: 1.18 US gal (4.25 liter)	ILSAC GF-4[4]

Note 1: Refer to the engine manufacturers manual for specific fuel recommendations and specifications.

Note 2: Ethylene glycol or Propylene glycol may be used. Refer to the Cummins® Operation and Maintenance Manual B3.3 Series Engines for specific coolant recommendations and specifications.

Note 3: Refer to the engine manufacturers manual for specific lubricating oil recommendations and specifications.

Note 4: API Starburst symbol on GF-4 oils reads "API Service SM."

Note 5: Refer to the engine manufacturers manual for specific coolant recommendations and specifications.

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- Engine/Emergency power switch
- Engine speed switch
- Fuel switch (dual fuel machines)
- Hydraulic warm-up switch (option)

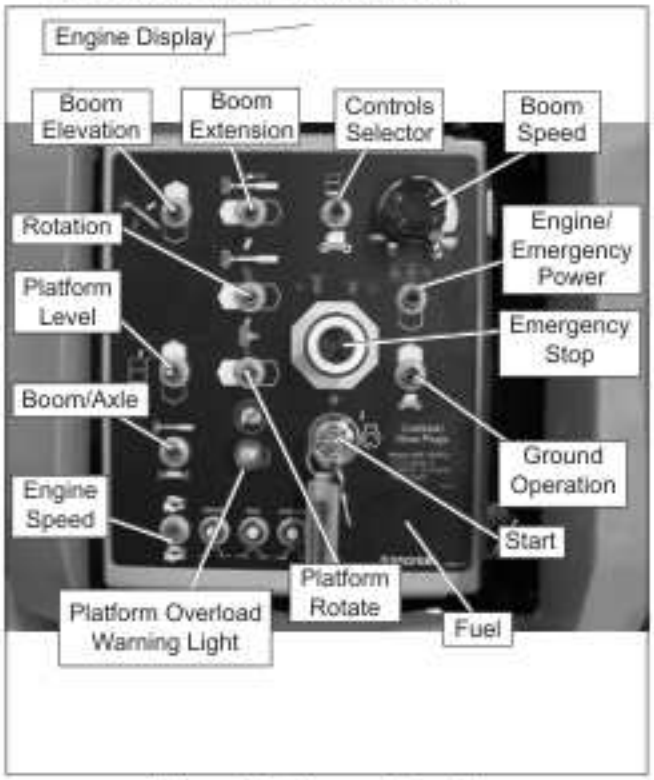


Figure 6.4 – Lower Controls

Start Switch
The start switch works like an automobile ignition switch. Turn the start switch until the engine starts, then release it to on. If the engine dies, the controls selector switch must be turned to off before the engine can be restarted.

Emergency Stop Button
The emergency stop (refer to Figure 6.4) is a two-position, red push button.

- Push the button inward to disconnect power to all control circuits.
- Pull the button outward to restore power.

Controls Selector Switch
Use the controls switch (refer to Figure 6.4) to select between lower control and upper control operation.

- Place the switch in the upward position to operate the aerial platform from the upper controls.
- Place the switch in the downward position for lower control operation. An alarm sounds, when the button is pressed, to warn others that the machine engine is being started.

Ground Operation Switch
Hold the ground operation switch (refer to Figure 6.4) upward continually to operate the machine from the lower controls. The engine speed increases when the switch is held upward. This switch is spring returned to the off position.

Boom/Axle Switch
The boom/axle switch (refer to Figure 6.4) is used to select either boom or axle operation.

- Place the switch upward in the boom position to operate the boom functions.
- Place the switch downward in the axle position to operate the controls for the jack and axles.

Rotation Switch
The rotation switch (refer to Figure 6.4) is used to rotate the turntable in a clockwise or counterclockwise direction. The switch is spring returned to the center off position.

- Hold the switch to the right to rotate the turntable counterclockwise.
- Hold the switch to the left to rotate the turntable clockwise.

Boom Elevation Switch
The boom elevation switch (refer to Figure 6.4) is used to raise or lower the main boom. The switch is spring returned to the center off position.

- Hold the switch upward to raise the main boom.
- Hold the switch downward to lower the main boom.

Boom Extension Switch
The boom extension switch (refer to Figure 6.4) is used to extend or retract the booms. The switch is spring returned to the center off position.

- Hold the switch to the left to extend the booms.
- Hold the switch to the right to retract the booms.

Boom Speed Knob
Use the boom speed control knob (refer to Figure 6.4) to control the speed of the following boom functions.

- Main boom raise/lower
- Boom extend/retract
- Turntable rotation clockwise/counterclockwise

Set the knob to slow when beginning a boom movement. The speed may be increased by slowly rotating the knob toward fast. For smooth operation, rotate the knob to slow when ending boom movement.

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Annual Maintenance – Every 500 Hours

Item	Procedure	Information	P/F/R
90 day or 150 hour maintenance	Perform maintenance per schedule	Retain copy of checklist	
Hydraulic oil reservoir	Clean and replace fluid	Above 10°F (-13°C) ISO VG32 Below 10°F (-13°C) ISO VG15	
Hydraulic return filter	Replace	After first 50 hours, then at recommended interval	
Hydraulic reservoir suction filter	Clean and reinstall		
Hydraulic pressures	Pump setting	Standby pressure: 375 - 400 psi Maximum system relief pressure: 2,700 - 2,800 psi	
	Function pressures	Boom up: 2,400 - 2,500 psi	
		Boom down: 1,400 - 1,500 psi	
		Steer: 1,900 - 2,000 psi	
		Level: 2,700 - 2,800 psi	
		Extend: 2,000 - 2,100 psi	
		Retract: 2,400 - 2,500 psi	
Gear hubs	Replace fluid	Gear Lubricant SAE Grade 80W-90	
Swing drive	Replace fluid	Gear Lubricant SAE Grade 80W-90	
Engine coolant	Check condition	See engine owner's manual	
Front wheel bearings	Clean and repack	Extreme Pressure Grease Above 10° F NLGI Grade 2 Below 10° F NLGI Grade 1	

Maintenance Table Key: P = Pass, F = Fail, R = Repaired

Performed by:_____ Date:_____

Model Number:_____ Serial Number:_____

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SAFETY RULES

⚠Warning

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

Electrocution Hazard	Tip Over Hazard	Collision Hazard	Fall Hazard
			
THIS MACHINE IS NOT INSULATED!	**NEVER** elevate the platform or drive the machine while elevated unless the machine is on a firm, level surface	**NEVER** position the platform without first checking for overhead obstructions or other hazards.	**NEVER** climb, stand, or sit on platform guardrails or midrail.

USE OF THE AERIAL WORK PLATFORM: This aerial work platform is intended to lift persons and his tools as well as the material used for the job. It is designed for repair and assembly jobs and assignments at overhead workplaces (ceilings, cranes, roof structures, buildings etc.). Uses or alterations to the aerial work platform must be approved by **Snorkel**.

THIS AERIAL WORK PLATFORM IS NOT INSULATED! For this reason it is imperative to keep a safe distance from live parts of electrical equipment!

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

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

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

DISTRIBUTE all platform loads evenly on the platform.

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

OPERATE machine only on surfaces capable of supporting wheel loads.

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

Do not operate the aerial platform in windy or gusty conditions. Do not add anything to or take anything into the aerial platform that will increase the wind loading such as billboards, banners, flags, etc.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The driving of MEWP's on the public highway is subject to national traffic regulations.

Certain inherent risks remain in the operation of this machine despite utilizing proper design practices and safeguarding.

Harness attachment points are provided in the platform and the manufacturer recommends the usage of a fall restraint harness, especially where required by national safety regulations.

Care must be taken to ensure that the machines meets the requirements of stability during use, transportation, assembly, dismantling when out of service, testing, or foreseeable breakdowns.

In the event of an accident or breakdown see "Emergency Operation." Do not operate the aerial platform if it is damaged or not functioning properly. Qualified maintenance personnel must correct the problem before putting the aerial platform back into service.

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Minimum Safe Approach Distance – AS/NZS

Minimum safe approach distances to energized power lines and their associated parts must be observed while operating the aerial platform.

⚠Danger

The aerial platform is not electrically insulated. Death or serious injury will result from contact with, or inadequate clearance from, an energized conductor. Do not go closer than the minimum safe approach distance as defined by national safety regulations.

AS/NZS 2550.10:2006 define minimum distances that must be observed when working near overhead power lines on poles and overhead power lines on towers. Refer to the clearance requirements decals on the machine to determine safe approach distances (refer to Figure 1).

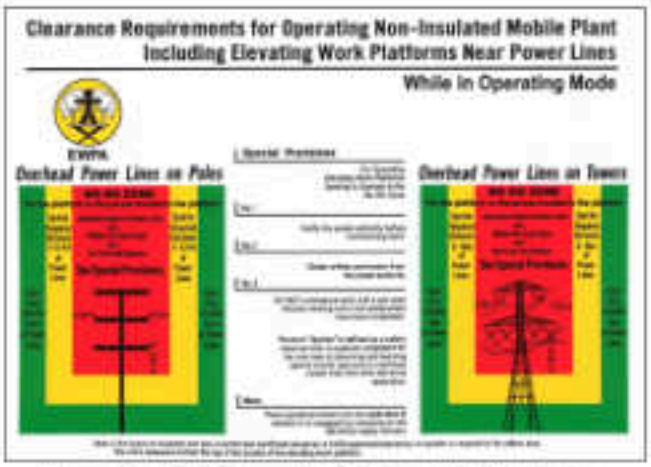


Figure 1 – Minimum Safe Approach Distance

Platform Capacity

Two people and their work materials may occupy the platform.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not exceed the capacity values indicated on the machine decals, placards, and in the machine specifications in this manual.

The maximum unrestricted rated load capacity and the maximum number of occupants for the aerial platform are stated on machine decals, placards, and in the machine specifications in this manual.

Manual Force

Manual force is the force applied by the occupants to objects such as walls or other structures outside the work platform.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not exceed the maximum allowable manual force indicated on the machine decals, placards, and in the machine specifications in this manual.

The maximum allowable manual force is limited to 150 lb (667 N) of force.

Wind Speeds

Do not add anything to the aerial platform that will increase the wind loading such as billboards, banners, flags, etc.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not operate the machine in wind speeds of 28 mph (12.5 m/s) or greater.

Do not operate the aerial platform in windy conditions with wind gusts or steady wind speeds of 28 mph (12.5 m/s) or greater. Refer to Figure 2.

Prestart Inspection

Perform a prestart inspection before each shift as described in Chapter 7. Do not use the aerial platform on the job unless you are trained and authorized to do so.

Work Place Inspection and Practices

Do not use the aerial platform as a ground connection when welding.

- The welding ground clamp must be attached to the same structure that is being welded.

BEAUFORT RATING	WIND SPEED				GROUND CONDITIONS
	m/s	km/h	ft/s	mph	
3	3,4~5,4	12,25~19,4	11.5~17.75	7.5~12.0	Papers and thin branches move, flags wave.
4	5,4~8,0	19,4~28,8	17.75~26.25	12.0~18	Dust is raised, paper whirls up, and small branches sway.
5	8,0~10,8	28,8~38,9	26.25~35.5	18~24.25	Shrubs with leaves start swaying. Wave crests are apparent in ponds or swamps.
6	10,8~13,9	38,9~50,0	35.5~45.5	24.5~31	Tree branches move. Power lines whistle. It is difficult to open an umbrella.
7	13,9~17,2	50,0~61,9	45.5~56.5	31.~38.5	Whole trees sway. It is difficult to walk against the wind.

Figure 2 – Beaufort Scale

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