



OPERATION MANUAL

N-BUGGY



Hayes Spraying
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WARRANTY POLICY

Hayes Spraying Pty Ltd, warrants to the original purchaser, that each new Hayes Spraying Nbuggy, part or accessory will be free from defect in material or workmanship for twelve (12) months after the date of delivery.

During the warranty period, the Dealer or Hayes Spraying Pty Ltd shall repair or replace, at Hayes Spraying option, without charge for parts and labour any part of the Hayes Spraying Pty Ltd product which fails because of defects in parts or workmanship.

Engines, gearboxes, controllers & tyres are all warranted directly by the original manufacturer, pending that manufacturer's warranty approval.

This warranty does not cover damage resulting from misuse, neglect, alterations or normal wear and tear or outside of recommended operation procedures.

In no event shall the authorized dealer or Hayes Spraying Pty Ltd be liable for downtime expenses, loss of chemical/ fertilizer, loss of machine use or other incidental damages.

EXCLUSIONS

At the discretion of Hayes Spraying Pty Ltd, the defective part must be returned to Hayes Spraying Pty Ltd at the owners cost.

Time for wash down, transportation costs or insurance costs are not warranted. Travel and communication are not covered by warranty.

Warranty registration

NOTE: your details will not be passed on to a third party.
Please fill out warranty registration details and return to Hayes Spraying.

SERIAL NUMBER:

Owners Name /s	
Trading Name	
Postal Address	
State	
Postcode	
Landline	
Mobile	
Fax	
Email	
District where nbuggy is used?	
Would you like to receive newsletters or product information?	

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**PLEASE ENSURE YOU ABIDE BY MAINTENANCE
REQUIREMENTS LISTED IN MAINTENANCE SECTION.**

DIGITAL N BUGGY III CONTROLLER OPERATING PROCEDURE (2006 ONWARDS)



1. **PRESS ON/OFF BUTTON TO TURN ON.**

Nothing can be adjusted until the console has displayed all its current settings.
This takes 30 seconds. The screen will display the following:

Hayes Spraying PTY LTD
0746713092

N Buggy MK111
Version 1.01.4

Aust Reg Patent
No. 630670

Power Supply
--.- Volts

Current Settings as Follows

Motor On Time ----

Motor Off Time ----

Cycle Count ----

Press Mode to Clear Count

Press Set to Keep Settings

Entering Set Up

1. You can now use the up or down arrow to adjust the settings to your requirements, they appear as follows.

After 30 seconds from when controller was switched on the console will read:

Set Time On = -- Seconds

SET TIME ON = -- Seconds

Adjust as required, this setting goes to 1/10 of a second increments.

Press **SET**

SET TIME OFF = -- Seconds

Adjust as required, this setting goes to 15 second increments

Press **SET**

SET UP COMPLETE is displayed

Press **SET to START MOTOR** is displayed

Press **SET**

Motor Starting Stand Clear Is displayed

2. The controller is now working, the console scrolls through the following displays while working.

Time ON = -- Sec

Time OFF = -- Sec

Cycle Count

Press **MODE**

To **RESET** Counter

Power Supply

--Volts

Press **SET** to Change **SETTINGS**

To stop press **ON/OFF** button

The console will display "**MOTOR OFF**" "**SYSTEM POWERING DOWN**"

NOTE: Disconnect power connector from batteries when not in use to prevent draining batteries.

N – BUGGY CALIBRATION

- Ensure brush skirts of silo outlet are in contact with the belt and open silo side fully.
- Set timer on to 1 second and weigh the amount of urea delivered to establish what amount the belt delivers per second.
- Collect 2 to 4 samples together if there is any concern about scale accuracy.

Example: watering time is 45 hectares per 10 hours. This is equivalent to 4.5 Hectares per hour or 0.075 hectares per minute.

The urea application is 50kg / ha.

Rate per minute = Rate per ha x watering time ha per minute
 = 50 kg per ha x 0.075 ha per min
 = 3.75 kg per minute

If conveyor belt delivers 1.25kg per second

Setting for On timer = Rate per min / delivery per sec
 = 3.75 kg per min / 1.25 kg per sec
 = 3.0 sec per min
 = 1.5 sec per 30 sec

Therefore set on timer: 1.5 seconds

Set off timer: 30 seconds

CALIBRATION CHART

This chart shows the rate of urea delivery in kg per min for a range of urea application rates and watering rates.

		Watering Rate ha / hr									
		1	2	3	4	5	6	7	8	9	10
Urea Rate Kg/ Ha	10	0.17	0.33	0.50	0.67	0.83	1.00	1.17	1.33	1.50	1.67
	20	0.33	0.66	1.00	1.34	1.66	2.00	2.33	2.66	3.00	3.34
	30	0.50	0.99	1.50	2.01	2.49	3.00	3.50	3.99	4.50	5.01
	40	0.67	1.32	2.00	2.68	3.32	4.00	4.67	5.32	6.00	6.68
	50	0.84	1.65	2.50	3.35	4.15	5.00	5.84	6.65	7.50	8.35
	60	1.00	1.98	3.00	4.02	4.98	6.00	7.00	7.98	9.00	10.02
	70	1.17	2.31	3.50	4.69	5.81	7.00	8.17	9.31	10.50	11.69
	80	1.34	2.64	4.00	5.36	6.64	8.00	9.34	10.64	12.00	13.36
	90	1.50	2.97	4.50	6.03	7.47	9.00	10.50	11.97	13.50	15.03
	100	1.67	3.30	5.00	6.70	8.30	10.00	11.67	13.30	15.00	16.70

Urea delivery required (kg / min) = urea rate (kg / ha) x watering rate (ha / hr) /60

OPERATING INSTRUCTIONS FOR THE N- BUGGY

- 1) Assembly: Chock wheels of machine securely. Tie to steel posts to avoid moving in storms.

Connect red eyelets to the positive terminals and black eyelets to the negative terminals: a parallel 12 volt connection.

Ensure solar panel is facing due north. Partial shading of the panel will reduce efficiency. Keep clean.

- 2) Volt meter will read 13 – 14 volts with solar panel connected when fully charged. 11.5 volts will indicate batteries need recharging. Rate may vary according to run cycle. Machine will run approximately 72 hours on a 5% cycle without sunlight.
- 3) Do not leave batteries connected when not in use.
- 4) Do not leave solar panel exposed to sunlight when not in use.
- 5) Ensure brush skirts of silo outlet are in contact with conveyor belt and open silo slide fully.
- 6) Always close and run urea off belt when not in use. Urea may bridge in the silo if left for extended periods. Wash off with water if solid.
- 7) Do not tow the machine around with a full load of urea or with the conveyor in working position.
- 8) Cycle counter can be used for checking output over a period of hours.
- 9) Conveyor is run by reduction gearbox. Do not attempt to turn pulleys or move belt while connected.
- 10) Tension conveyor belt so that it sags approximately 10mm.

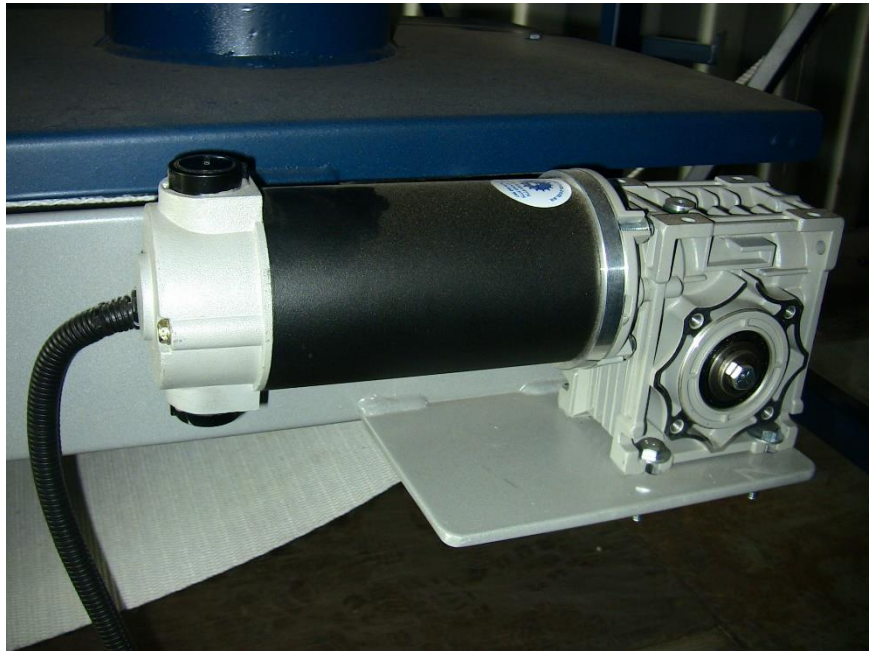
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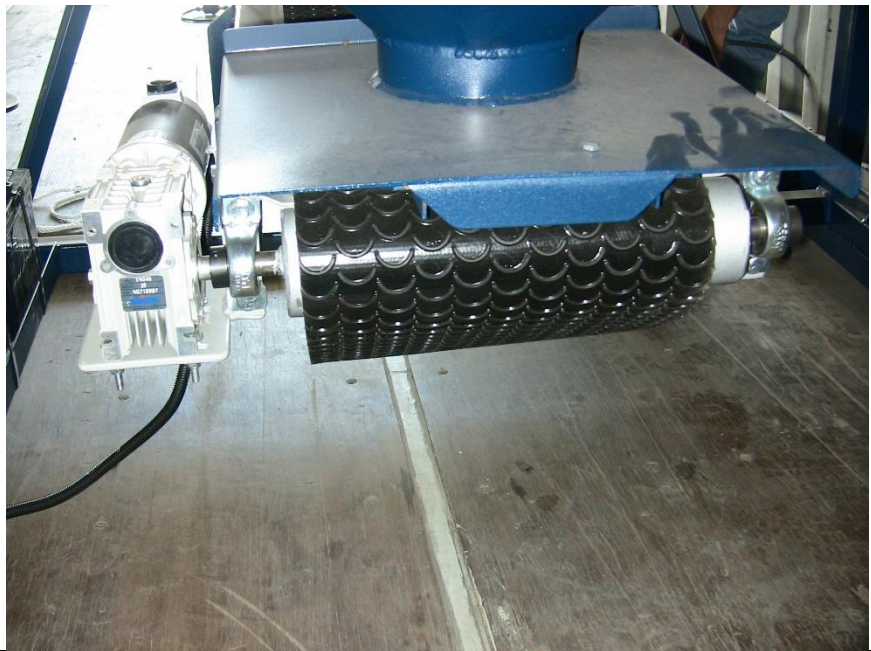
SPARES LISTING

Please note that these are the associated parts for the NEW N-Buggy Gearbox & Motor.

NEW electric motor, gearbox & mounting plate on the N-Buggy conveyor.



The NEW motor, gearbox, drive roller, bearing assembly and conveyor belt.



Part Number	Description
NB-CM40-1-25	Gearbox
NB-EC180.250	Electric Motor
NB-EN204-125DDR	Bearing for drive roller
NB-LPBFLA	Bearing housing flange type
NB-007	Belt 5300 x 320mm
NB-014-A	NB Drive Roller – Parallel Shaft / Keyway
NB-016	NB Driven Roller (not shown in photos)

TROUBLESHOOT NBUGGY, SOLAR PANEL & DIGITAL CONTROLLER

ISSUE	POSSIBLE CAUSES	SOLUTION
Motor will not cycle	Conveyor belt obstructed or hindered	Lift conveyor into transport position and check driven pulley
	Time on increments are set too low	Increase TIME ON increments (1/10 second increments)
	Run multimeter on power loom plug	PWR should display according to increments
	Insufficient power	Check the batteries: 12-14 volts (fully charged) 11.5v indicates batteries need charging
	Solar panel not charging	Partial shade of the solar panel will reduce efficiency, face panel facing northern aspect where possible. Disconnect solar panel, connect jumper leads to another 12VDC power source i.e. Ute battery. Check voltage output being distributed is between 12-14 volts (fully charged)
	Electric overload circuit tripped (not fused)	Check motor/ conveyor for obstruction
	Faulty or loose plug connectors	Check plug connections & wiring on both nbuggy and solar panel
No product dispensing	Blocked or bridged silo outlet	Reinstate strainer supplied. Use rubber mallet to loosen product in cone of silo
Controller not working	Wrong amps	Check circuit breaker is upgraded to 30amp not 15amp