DINGO™ K9-3

OPERATION & MAINTENANCE MANUAL

IMPORTANT: Become familiar with the contents of this manual before operating the Dingo. This Manual contains Safety, Operation and Warranty Information. Also become familiar with the controls & their proper use before operating the Dingo.

DINGO AUSTRALIA

Modified 27-05-2004

Contents

Safety

General Operation

■ Read, understand, and follow the instructions in the operation manual before using the Dingo.

■ Keep hands, feet and clothing away from all moving parts and hydraulic cylinders.

■ Allow only responsible adults who are familiar with the Dingo and its operation to use the Dingo.

■ Do not allow any passengers on any part of the Dingo, including buckets and the operating platform.

■ Do not refuel with the engine running, or while you or someone near is smoking.

■ Do not operate any of the control levers (including auxiliary lever) unless you are standing with both feet on the platform and firmly holding the grip handles.

■ Always wear long pants and substantial shoes (no sandals, thongs, tennis shoes, sneakers, shorts or skirts.

■ Do not place feet under the platform.

■ Watch where you are driving. Always look down and behind, before and while reversing.

■ **WARNING** Engine exhaust contains **Carbon Monoxide**, which is an odorless, deadly poison. Carbon Monoxide can kill you. Do not run engine indoors or in a confined space.

■ Always lower Dingo arms and/or place attachment on the ground when parking or leaving the Dingo unattended. Always stop the engine if leaving the operators platform.

■ IMPORTANT Do not carry a load or heavy attachment with the Dingo arms in a raised position. Do not step off the platform with a load raised.

■ Never jerk the control levers. Use a steady motion. Slow down before turning. Sharp turns may cause loss of control.

■ Stop the engine before making any adjustments to the attachments or the machine.

■ **WARNING** Never weld on or near the fuel tank whether it is empty or full.

■ Do not operate on or near embankments. Look out for ditches, holes, etc. and beware of traffic when near roads.

■ Do not allow any person or animal close to the Dingo or its attachments whilst in operation. Stop the machine if any person or animal comes close.

■ Operate only in daylight or good artificial lighting.

■ Do not operate the machine whilst under the influence of alcohol or drugs.

■ Use extra care while loading or unloading the Dingo onto a trailer or truck.

■ Do not touch equipment or attachment parts that may be hot from operation. Allow to cool before attempting to maintain, adjust or service.

■ The Dingo is not a toy - Do not allow children to play on it.

Remember - Safety is your responsibility.

Operating on Slopes

All slopes require extra caution.

■ **Do not** operate on slopes exceeding 15 degrees. If a slope is greater than 5 degrees, only go up and down (not across).

■ **Always have the heavy end of the machine uphill**. Weight distribution will change. An empty bucket will make the rear of the machine heaviest, a loaded bucket will make the front of the machine heaviest. Various attachments will change which end is heaviest. If you are unsure, phone us and ask. These same rules apply when loading and unloading the Dingo onto a trailer or truck.

■ **Avoid turning on slopes.** If you must turn, turn slowly keeping the heavy end of the machine uphill.

■ Do not operate near ditches or embankments, the machine could turn over if a wheel goes over the edge of a cliff or ditch or the edge caves in.

■ Do not operate on wet grass, reduced traction could cause wheel slip.

■ Remove obstacles such as rocks, tree limbs, etc from the work area. Watch for ruts or bumps as uneven terrain could overturn the machine. Tall grass can hide obstacles.

■ Operate in slow speed. Put pump selector valve in slow (turtle) position so that you will not have to stop or shift while on the slope.

■ If parking on slopes or hillsides always lower the Dingo arms and attachment to the ground and chock the wheels.

■ If machine becomes unstable, jump clear. Never try to stabilise the machine by putting your foot on the ground.

Children

■ Be wary of the presence of children when operating a Dingo. Children are often attracted to the Dingo and the work activity.

■ Keep children out of the work site and under the watchful care of a responsible adult.

■ Be alert and turn the machine off if children enter the area.

■ Never carry children (or anyone) on the Dingo or any of its attachments.

■ Do not allow children to play on the Dingo or within the Dingo work site (aside from the danger of working machinery there may be holes into which a child could fall or various other dangers).

■ Do not allow children to use the machine.

■ Before reversing look behind and down for small children. Be aware of blind corners, shrubs, trees, or ends of fences that may obscure vision.

Service

■ Before performing any service, repairs, maintenance or adjustment, stop the engine and remove the key.

■ Never run the machine in an enclosed area.

■ Perform all maintenance with the Dingo arms fully lowered. If Dingo arms need to be raised to perform tasks, secure them in the raised position by using cylinder locks or a safety stand. (Contact a Dingo representative if you are unsure)

■ Look after the Dingo. Keep nuts and bolts tight.

■ Do not tamper with safety devices. Before each use check safety systems properly.

■ Keep the machine free of grass, leaves, or other debris build up. Clean up oil or fuel spillage. Allow the machine to cool before storing.

■ Use extra care when handling petroleum and other fuels. They are flammable and vapors are explosive
• Use only an approved container.
• Never remove the fuel cap or add fuel while the engine is running. Allow engine to cool before refueling. Do not smoke.
• Never refuel the machine indoors.
• Never store the machine or fuel container inside where there is an open flame, such as near a water heater or furnace.
• Never fill a container while it is inside a vehicle, car boot, utility tray or any surface other than the ground.
• Keep container nozzle in contact with the tank during filling.

■ Stop and inspect equipment if you strike anything or hear any strange noise coming from the machine. If necessary repair machine before starting again.

■ Use only genuine replacement parts to ensure that original standards are maintained.

■ Battery acid is poisonous and can cause burns. Avoid contact with skin, eyes, and clothing. Your face, eyes, and clothing should be protected when working with a battery.

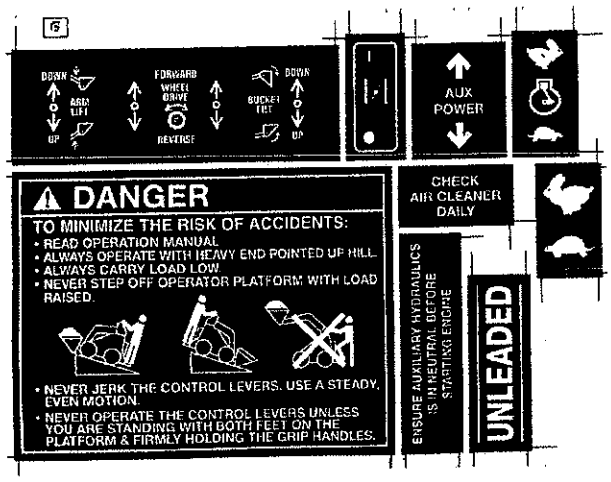
■ Battery gases can explode. Keep cigarettes, sparks and flames away from battery.

■ **WARNING** **Hydraulic pressure escaping under pressure can penetrate the skin and cause injury.**
Keep hands and body away from pin hole leaks or nozzles that eject high pressure hydraulic fluid. A small leak can be dangerous. To find hydraulic leaks use cardboard or paper.
If fluid is accidentally injected into the skin a doctor familiar with this type of injury must surgically remove it within a few hours.

Safety and Instruction Decals

It is important to replace any damaged or missing decals.

Part number: 021-000-032)



CAUTION
"Secure locking pins before operating Dingo."

Part Number 021-000-013

Operation - Pre Start-Up

Pre Start-Up (daily)

Read this manual and the engine manual and become familiar with the contents of both.

Always check the following before operation:

- Fuel level - fill if necessary
- Engine oil level (refer to engine manual)
- Remove all refuse from the machine
- Check air filter
- Check bushes
- Tyre pressure (22psi & water filled)
- Drive chain condition and tension
- Check radiator fluid (diesel only)
- Check for oil leaks
- Check for damage & loose components
- Be sure that the work area is free from other people and children
- Clean work area of any debris
- Know and mark the location of any utility lines
- For first 6 days of operation of new machine, and first 6 days of operation after changing wheels, tighten wheel nuts daily.

Adding Fuel

Labelling on the fuel tank tells whether a machine requires petroleum of diesel fuel. For fuel type and information on suitable additives refer to Engine Manual as supplied. (NB. If labelling becomes lost or damaged order replacements from your Dingo representative) & fit to machine.

1 Position Dingo on level surface, lower the Dingo arms and turn off the engine (turn ignition key to off). Remove the key.
2 Clean around the fuel tank cap and remove the cap. Use a funnel to add fuel as specified above to the fuel tank, filling until the fuel reaches 60 - 70 mm below the top of the tank. This space is needed to allow the fuel room to expand. **Do not fill the fuel tank completely full.**
3 Replace the fuel cap securely. Clean away any fuel that may have spilt.

DANGER - Petroleum can be extremely flammable and highly explosive.
To avoid a fire or explosion that may burn yourself, other, or cause property damage:-

- Use a funnel and fill the fuel tank out doors, in an open area, when the engine is cold
- Clean up any petrol spills.
- Do not completely fill the fuel tank. Follow guidelines above.
- Never smoke while handling fuels, and stay away from an open flame or any place that a spark may ignite petroleum fumes.
- Store fuels in an approved container, out of reach from children. Never buy more than a 30 day supply of fuel.

Checking the Engine Oil

Check the engine oil level using the dip stick. (Refer to your engine manual for details)

Remove Debris from the Machine

IMPORTANT: Overheating will result if the engine is operated with a blocked grass screen, dirty or plugged cooling fins, and/or cooling shrouds removed.

The hydraulic system will keep cooler if the machine is free from debris on the hydraulic tank and fittings.

Park the machine on a flat surface, lower the Dingo arms and turn off the engine.(turn ignition key to off). Remove the key.

Check air filter pre-cleaner for debris. If required, wipe away debris before and during each use.

Debris can build up in the engine area. Clean any debris buildup with a brush or blower before each use.

IMPORTANT: It is preferable to blow out dirt than to wash it out. If water is used, keep it away from electrical sytem.

IMPORTANT: Do not high pressure wash. High pressure washing can damage the electrical system.

Tyres and Traction

WARNING! Dingo tyres should be filled with water or solid fill. Failure to do so will result in poor weight distribution, which will drastically reduce the stability and carrying capacity of the machine.

Use of incorrect tyre pressure will also reduce the stability and carrying capacity of the Dingo. The correct tyre pressure is usually between 140 and 155 kpa (20-22psi). Various types of equipment are available for filling tyres with water. Filling equipment can also be purchased from Dingo Mini Diggers.

You should also be aware that the tyres fitted to your machine may not be the most suitable for all work environments and there is a range of traction equipment to suit every application. This range includes:

- **8" Dingo tyres** [machine width 970mm] Specially designed for Dingo these 18"x8" tyres feature a unique tred pattern for excelent performance in a range of conditions, 6 ply for strength & stability and a compund designed for durability.
- **8" turf tyres** [machine width 1040] general purpose - suitable for grassy areas, dry soil and paved surfaces - minimum ground disturbance.
- **8" lug tyres** [machine width - 1040] tractor type, for building sites, and muddy situations.
- **20 x 8" sand tyre** [machine width - 1100] better floatation & clearance for sandy & loose material conditions.
- **5" forklift type tyres** [machine width - 890mm] narrower tyres, suitable for heavy loads, restricted access, inside buildings, great on all hard surfaces.
- **3" narrow solid tyres** [machine width - 840mm] only for very restricted access - will fit through a standard doorway.
- **Tracks** [machine width - 1200mm] excellent floatation and traction - suitable for mud, sand and slush.
- Solid fill (all of the tyres mentioned above (excluding the 3"solids) can be supplied by Dingo Mini Diggers, filled with a puncture-proof, solid foam).
- For more information on our range of traction products, please speak to your nearest Dingo representative.

Operating Instructions

Read all the safety instructions and the pre start up section of this manual and the engine manual before operating the Dingo.

Caution - Do not operate any of the control levers (including auxiliary lever) unless you are standing with both feet on the platform and firmly holding the grip handles.

IMPORTANT! Ensure the auxiliary hydraulic lever is in the centre position before attempting to start engine. The most common cause of 'hard to start/engine, will not turn over fast enough, battery does not have enough power' type starting problems is that the auxiliary lever has been left on or knocked into gear and the engine is trying to start under load.

Control Levers / Control Panel

Key Switch

The key switch, used to start the engine, varies on petrol and diesel models. Check engine manufacturers manual for starting instructions. To shut engine off, rotate key to OFF position (counter clockwise direction).

Throttle

Move control forward to increase engine speed and rearward to decrease engine speed.

Choke

For instructions regarding use of the choke (petrol models) refer to the engine manufacturers manual.

Drive Control Levers

To go forward, slowly push the right and left drive control levers forward.

To go backward, slowly pull the right and left

drive control levers backward.
To go straight, apply equal pressure to both drive control levers.
To turn, decrease pressure on the drive control lever closest to the direction you want to turn.
The farther you move the drive control levers in either direction, the faster the machine will move in that direction.
To slow or stop, move or release the drive control levers into neutral. (If released the control levers will automatically return to neutral).
The Dingo is capable of turning on the spot by applying equal power to each drive lever in opposite directions.

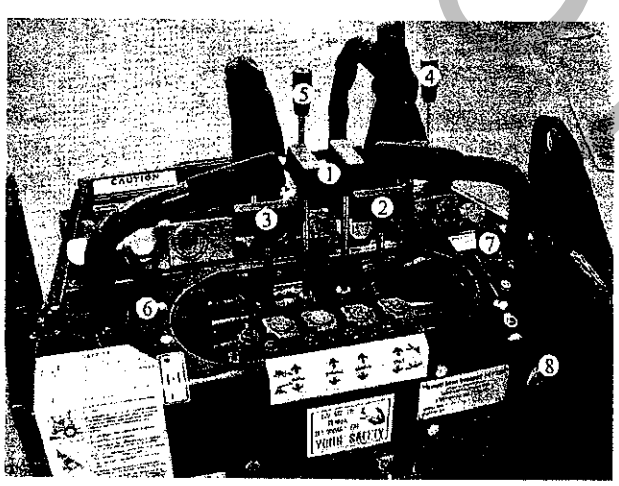
Attachment Tilt Lever

To tilt/crowd attachment forward, slowly push the tilt lever forward.
To tilt attachment backward, slowly pull the tilt lever backward.

Loader Arms Lever

To lower Dingo arms, slowly push arm lever forward.
To raise Dingo arms, slowly pull arms lever backward.

Control Panel Diagram



1 Drive control levers
2 Attachment tilt lever
3 Loader arms lever
4 Auxiliary hydraulic lever
5 Pump selector valve
6 Kohler engine Dingo's - Choke
Robin engine Dingo's - Throttle
7 Kohler engine Dingo's - Throttle
Robin engine Dingo's - position empty
8 Ignition

Auxiliary Hydraulic lever

The auxiliary hydraulics lever allows you to alter the direction of rotation of hydraulically driven attachments or stop them completely.

ATTENTION: Ensure auxiliary hydraulic lever is in neutral position before starting engine. Aside from starting difficulties the attachment may move during starting.

To operate attachment in forward direction, slowly pull auxiliary lever rearward. To operate attachment in reverse direction, slowly push auxiliary lever forward.

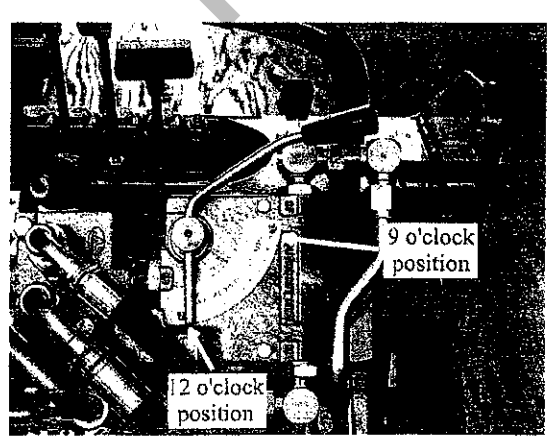
Pump Selector Lever

When faster ground speed and lifting speed is required (bucket work) more than attachment speed and power, push the pump selector lever to the forward position (Hare).

When faster attachment speed and power is required (trenching, post hole digging etc) more than ground speed and lifting power, pull the pump selector lever to the rearward position (Turtle).

Flow Divider Control

In its normal operating position (12 o'clock) no flow division is taking place. Moving the lever towards the nine o'clock position, diverts oil flow to the attachment and less is available to the Dingo wheels and arms. This allows for greater concentration of power where it is needed most.
The flow divider is mainly used for trenching, rotary hoeing and stump grinding where it is important for the attachment to have as much power as possible and ground speed is not important.



Starting the Engine

Stand on the platform. Move the auxiliary hydraulics lever to neutral. Follow instruction on starting engine as detailed in the engine manufacturers manual.

Stopping the Engine

Refer to the relevant engine manual.
Note: If the engine has been working hard or is hot, let it idle for a minute before turning the ignition key to OFF. This helps cool the engine before it is stopped. In an emergency, turning the ignition key to OFF will stop the engine.

Stopping the Dingo

To stop the machine, move the drive control levers to neutral, lower Dingo arms to the ground, and turn the ignition key to OFF to stop the engine. Remember to remove the key from the key switch.
CAUTION! If children or bystanders attempt to operate the machine, someone could be injured. To avoid attempted use by children or bystanders while machine is unattended, remove the key from the ignition, even if just for a few minutes.

Moving a Non Functioning Dingo

The best way to move a non functioning Dingo is by forklift or crane. It is also possible to push or tow a Dingo without the use of the engine. By adjusting the Over Centre Valve it is possible to free up the hydraulic circuit, allowing the wheel motors to turn freely. Please call your nearest Dingo service centre for more information.

Using Cylinder Locks

IMPORTANT: Normal maintenance should be completed with the Dingo arms lowered. If maintenance or repairs requires the Dingo arms raised, use cylinder lock provided with Dingo.

WARNING! Dingo arms may lower when in the raised position. Anyone under the Dingo arms could be injured or crushed. To avoid this hazard always install cylinder locks or a safety stand. (Contact a Dingo representative if you are unsure).

Attachments

Connecting

IMPORTANT: Use only Dingo approved attachments. Attachments can change stability and operating characteristics of the machine. The warranty of the machine may be voided if used with unapproved attachments.

IMPORTANT: Before connecting any attachments to the machine, make sure mount plates are free of any dirt and debris.

1 Move pump control lever to slow (turtle) position.
2 Slowly push the attachment tilt lever forward to tilt the attachment mount plate forward.
3 Position mount plate into the upper lip of the attachment's receiver plate.
4 Raise the Dingo arms while tilting back the mount plate at the same time.
5 IMPORTANT: The attachment should be raised enough to clear the ground and the mount plate tilted all the way back.
6 Turn the ignition key to OFF to stop the engine.
7 Engage the attachment lock pins (the lock pins should go down 15mm as they turn). **Note:** Lock pins are located on the outer edge of the mount plate and should be turned towards the inside to engage.
8 Note: Proceed to next step if auxiliary hydraulics are required with attachment.
9 IMPORTANT: Make sure all foreign matter is cleaned from hydraulic connections before making connections.
10 With the engine turned off move the auxiliary hydraulics lever to the forward, backward, and back to neutral position to relieve hydraulic pressure at the hydraulic couplers.

11 Remove protective plugs from the hydraulic couplers on the Dingo. Connect plugs together to prevent contamination during operation.
12 Slide collar back on hydraulic coupler and connect attachment couplers to machine couplers. There will be two connections to make.
13 Confirm that connection is secure by pulling on the hoses.

Disconnecting

1 Lower attachment to the ground or onto a trailer.
2 Turn the ignition key OFF to stop the engine.
3 Move the auxiliary hydraulics lever forward, backward and back to neutral position to relieve hydraulic pressure at the hydraulic couplers.
4 Slide collar back on the hydraulic coupler and disconnect attachment couplers from machine couplers. (Note: if this is difficult return to step 3 and repeat).
5 IMPORTANT: Connect attachment hoses together to prevent contamination during storage.
6 Install protective covers onto Dingoes hydraulic couplers.
7 Disengage the attachment lock pins by turning them to the outside.
8 Start engine, tilt the mount plate forward and back machine away from the attachment.

Transporting and Securing

IMPORTANT: Do no operate or drive Dingo on roadways.
IMPORTANT: When transporting Dingo on trailer, always use the following procedure.

1. Never load or unload the Dingo on the trailer unless the trailer is attached to the vehicle.
2. Always climb the ramps with the heavy end of the machine up hill. E.g. With heavy attachments like the trencher or backhoe attached to the Dingo, climb the ramps inthe forward direction. With no attachment on the Dingo, climb the ramps in the reverse direction.
3. The bucket, post hole digger and leveler attachment should always be positioned in their designated positions on the trailer. This will help ensure that the weight is distributed correctly on the trailer.
4. Ensure the load is positioned so that there is more weight forward of the trailer axle than behind the axle. Too much weight behind the axle may cause the rear of the vehicle to become too light.
5. Once in position on the trailer lower the Dingo arms
6. Turn the key to Off to stop the engine.
7. Secure the machine to the trailer with chains or straps using the tie down points on the Dingo arms.
8. When towed by a vehicle not fitted with an electric trailer brake controller, engage the manual breaking system by lifting the manual override stopper on the tow coupling (single axle trailer only).

Maintenance

It is essential to maintain the engine as detailed in the engine manual. Service recommendations will vary depending on your engine type, refer to your engine manual for this information.
Any information relating to the engine in the following table is intended as a guide only.

Refer to the Pre Start Up section for maintenance that should be completed before starting the Dingo (each and every time).

Troubleshooting

Problem	Possible Causes	Corrective Action
Starter does not crank	1. Battery is dead	1. Charge battery
	2. Electrical connections are corroded or loose	2. Check electrical connections for good contact
	3. Relay switch is defective	3. Contact authorised service dealer
Engine will not start,hard to start or fails to keep running	1. Auxiliary hydraulics lever is not in neutral position	1. Move the lever to neutral position
	2. Fuel tank is empty	2. Fill fuel tank with appropriate fuel
	3. Choke is not on (petrol models)	3. Move choke to ON
	4. Spark plug wires are loose or disconnected. (petrol models)	4. Install wire on spark plug
	5. Air cleaner is dirty	5. Clean or replace air cleaner element
	6. Spark plugs are pitted, fouled, or gap is incorrect (petrol Models)	6. Install new, correctly gapped spark plugs
	7. Dirt in fuel filter	7. Replace fuel filter
	8. Dirt, water or stale fuel in the fuel tank	8. Drain fuel tank and filter and replace fuel
	9. Dirt, water or stale fuel in the fuel system	9. Contact authorised dealer
Engine looses power	1. Engine load is excessive	1. Reduce ground speed
	2. Air cleaner is dirty	2. Clean or replace air cleaner element
	3. Oil level in crankcase is low	3. Add oil to crankcase
	4. Cooling fins and air passages under engine blower housing are blocked	4. Remove obstruction from cooling fins and air passages
	5. Spark plugs are pitted, fowled, or gap is incorrect (petrol Models)	5. Install new, correctly gapped spark plugs
	6. Dirt in fuel filter	6. Replace fuel filter
	7. Dirt, water or stale fuel in the fuel tank	7. Drain fuel tank and filter and replace fuel
	8. Dirt, water or stale fuel in the fuel system	8. Contact authorised dealer
Engine overheats	1. Engine load is excessive	1. Reduce ground speed
	2. Oil level in crankcase is low	2. Add oil to crankcase
	3. Cooling fins and air passages under engine blower housing are blocked	3. Remove obstruction from cooling fins and air passages
Abnormal vibration	1. Engine mounting bolts are loose	1. Tighten engine mounting bolts
	2. Engine mounts are broken	2. Replace engine mounts
Machine does not drive	1. Flow divider valve is in 9 O'clock position	1. Move the lever to 12 o'clock position
	2. Hydraulic fluid level low	2. Add hydraulic fluid to reservoir
	3. Traction pump drive coupler is loose or broken	3. Contact authorised service dealer
	4. Pump and/or wheel motor is defective or damaged	4. Contact authorised service dealer
	5. Control valve is defective or damaged	5. Contact authorised service dealer
	6. Relief valve is defective or damaged	6. Contact authorised service dealer

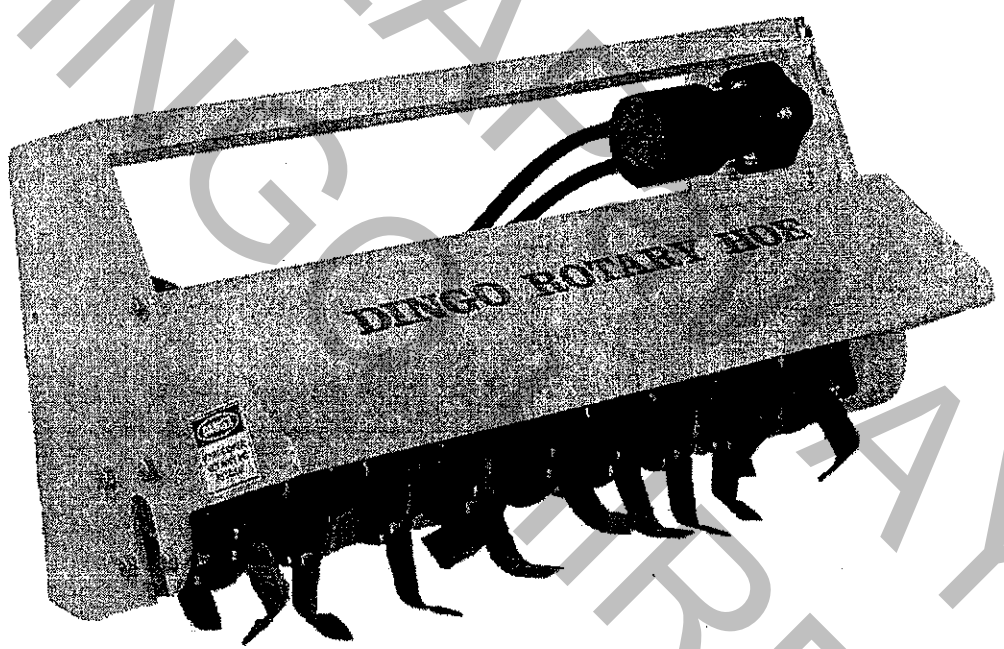
Product Name: K9-3				
Summary of Product Application	The K9-3 is the power plant for the attachments. Designed to be operated by a single operator, from the operators standing platform at the rear of the machine using the hydraulic lever system.			
Hazards	**Risk Assessment**			
	Probability	Exposure	Consequence	**Risk Level**
Moving parts	Unusual	Occasional	Serious	Mod/Substantial
Pinch points	Unusual	Occasional	First aid	Acceptable
Movement of load carried by unit.	Unusual	Occasional	Serious	Mod/Substantial
Tip over	Unusual	Occasional	Serious	Mod/Substantial
Hot parts	Unusual	Occasional	First aid	Acceptable
Fire and explosion	Possible	Occasional	Casualty	Mod/Acceptable
Electricity	Unusual	Occasional	First aid	Acceptable
Noise	Very likely	Occasional	Serious	High
Spurting hydraulic fluid from hose leak.	Possible	Occasional	Casualty	Mod/Acceptable

Control measures	• Two-circuit hydraulic system allowing high and low range and better control over the vehicle and attachments. • Quick hitch system eliminates any manual handling involved with installing attachments. • Visibility and mobility of operator. • Operators standing platform reduces ergonomic sprain and strain by upright operation position. • Rubber inserts in operator's platform cushions the operator from vibration. • Spark resistant plastic and fibreglass fuel tank. • Security system disables the hydraulic system to prevent unauthorised use. • Low centre of gravity to prevent tip over. • Hydraulic tank located away from operator and the radiator in the diesel models blows hot air away from the operator. • Safety decals in appropriate positions. • Weight of the Dingo increases the stability and lifting ability. • Electrical cables enclosed and sealed. • Cylinder lock to prevent accidental release of arms and possible attachment. • Operation safety video and training are provided with purchase or hire. • Operator's manual details safe operation of K9-3 • The greatest risk is to people working around the Dingo, rather than the operator. To eliminate risk, ensure that an effective barrier is created around the operating machinery. • Ensure that the operating area is free from hazards before work commences. • Appropriate hearing protection should be used if the operator is using the Dingo for prolonged periods in one day. If the Dingo is to be used in an enclosed area for prolonged periods in a day, both the operator and others working around the Dingo should wear appropriate hearing protection.
Residual Risk of Plant with Control Measures	• Moderate/Acceptable
Additional Safety Comments	• The risk assessment has been carried out using the NSCA Risk Score Calculator. For more information contact Dingo.

DINGO™

Rotary Hoe

OPERATION & MAINTENANCE MANUAL



IMPORTANT: Become familiar with the contents of this manual and the Dingo Operation and Maintenance manual before operating the Rotary Hoe attachment. Information about the Dingo is contained in the Dingo Operation and Maintenance Manual.

DINGO AUSTRALIA

Introduction

This Rotary Hoe has been carefully designed and manufactured to give you years of reliable service. Please read this operation and safety manual to keep your Rotary Hoe running efficiently.

The information in this manual is current as at October 2001. In the effort to continually improve our products, Dingo reserves the right to change specifications without notice. Please, for critical information, contact you nearest Dingo branch.

We want you to be completely satisfied with your new product, so feel free to contact your local Dingo branch for help with service, replacement parts and any other information about the Dingo and its attachments.

Whenever you contact your local Dingo branch always know the model and serial numbers of your product. These numbers will help us to provide exact information about your specific product. You will find the model and serial number on a plate located on the product.

For your convenience, write the product model and serial numbers in the space below.

Model No: _____

Serial No: _____

DISCLAIMER:
Specifications, design & service procedures are subject to change without notice.
Specifications may vary & may be approximate.

Contents

Safety

■ Do not operate the rotary hoe or Dingo while people are standing near by.

■ Apply extra caution when operating on hills, slopes or uneven ground.

■ Do not place yourself, any person or part of yourself, or any person under the Dingo arms.

■ Do not operate close to excavations, etc.

■ Check the condition of the equipment daily and report any damage & defects. Do not use or continue to use faulty or damaged equipment.

■ When traveling keep the Rotary Hoe close to the ground. Reduce speed while moving with the Rotary Hoe attached.

■ Do not have the Rotary Hoe operating whilst traveling.

■ Keep away from rotating tines. Rotating tines may cause injury.

Operation

1 Ensure the auxiliary hydraulics lever is in the neutral position before connecting Rotary Hoe.

2 Connect Rotary Hoe as per instructions in the Dingo Operation & Maintenance manual. Follow all steps for connecting an attachment that requires auxiliary hydraulics lever.

3 After the Rotary Hoe has been mounted and connected hydraulically, inspect thoroughly to be certain it is in good working order before use. The following checklist is a reminder of points to check.

•Mount Rotary Hoe to Dingo and check all latching points for correct fit.

•Check hose routing at pivot points to be sure proper clearance or slack is available during all operations.

•Check all hose connections for leakage.

•Check all teeth are tight & in good condition.

4 Move the pump selector lever to the turtle position.

5 With the Rotary Hoe positioned just above the ground, set the Hoe in motion by moving the auxiliary lever to the forward position. The blades should rotate counter-clockwise when viewed from the right side of the machine.

6 For Rotary Hoeing work the engine at 3/4 - full speed.

7 Slowly lower the Rotary Hoe into the ground until the desired depth is achieved. With the arms fully lowered use the tilt lever to adjust the depth.

8 Rotary Hoeing is done in the reverse direction in a similar way to trenching.

9 Once the correct depth is achieved bring the flow divider lever all the way around to the 9 o'clock position. (This gives more power to the Hoe and less to the wheels)

10 While holding the 2 drive levers back slowly move the flow divider lever back towards the 10 o'clock position until a satisfactory ground speed is reached.

11 A slower ground speed is required in harder ground conditions.

Maintenance

The maintenance requirements on your Rotary Hoe are low but it is wise to check for oil leaks on a regular basis.

Lubrication

Lubricate spindle bearings every 25 hours of operation using molybdenum base grease.
See Figure 1 for lubrication points

Adjusting Drive Chain Tension

Remove side cover & check chain adjustment every 25 hours of operation. Chain should be adjusted so that there is 5mm - 10mm deflection.
See Figure 2 for chain adjustment

Should the chain need adjustment use the following steps to adjust.

1 Lower the Dingo arms and turn the ignition key to OFF to stop the engine. Remove the key.

2 Remove the chain drive cover.

3 Loosen the 2 hydraulic motor mount plate bolts.

4 Using the adjuster bolt, move the hydraulic motor upwards to tension chain.

5 After proper chain tension is attained, tighten adjuster bolt and hydraulic motor mount plate bolts.

Note: When proper adjustment can no longer be attained from the adjuster bolt or repeated chain failures occur, replace chain.

6 Re-install the chain drive cover.

Tine Replacement

Check and replace tines when they become worn or dull. Worn or dull tines will degrade the performance of the Rotary Hoe.

Tines should be installed in an alternating pattern (LH, RH, LH, RH), 2 left hand tines and 2 right hand tines on each hub.

The cutting edges of the tines should face towards the front of the Rotary Hoe.

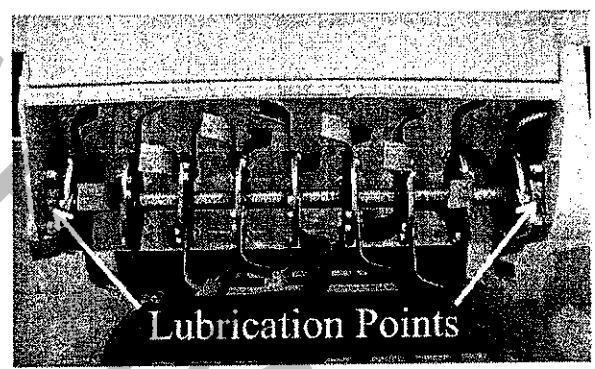


Figure 1

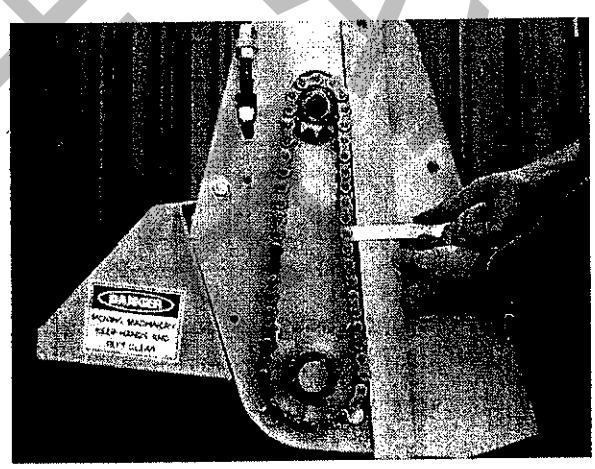


Figure 2 - Chain Adjustment

Troubleshooting

PROBLEM	POSSIBLE CAUSE AND REMEDY
Tines do not turn	1. Quick coupler not completely engaged - *Check and complete engagement* 2. Quick coupler failure - *Replace faulty coupler* 3. An obstruction in one of the hoses - *Remove obstruction* 4. Auxiliary valve on Dingo not properly opening - *Check and repair* 5. Hydraulic motor failure - *Repair or replace. Contact dealer.* 6. Chain drive failure - *Check and repair. Contact dealer* 7. Spindle bearing failed - *Replace bearing*
Does not dig fast enough	1. Worn tines - *Replace if necessary.* 2. Tines rotating incorrect direction. - *Ensure tines are rotating anti-clockwise when viewed from the right side of the machine.* 3. Relief valve set below specifications - *Test and reset if necessary* 4. Quick coupler or hose restriction - *Inspect and repair if necessary.* 5. Hydraulic system too hot - *Shut down and cool & refer to below*
Hydraulic oil overheating	1. Relief valve set too low on Dingo. - *Test and set as needed* 2. Restriction in Quick coupler or hose - *Inspect and repair as needed* - *Stop and allow to cool naturally when it gets hot.* 3. Hydraulic oil damaged or incorrect type - *Replace Dingo oil with recommended oil* 4. Pumps on Dingo worn or damaged - *Replace pumps.*

Product Name: Rotary Hoe

Summary of Product Application	Digging garden beds, loosening soil for removal.			
Hazards	**Risk Assessment**			
	Probability	Exposure	Consequence	**Risk Level**
Moving parts	Unusual	Occasional	Serious	Mod/Substantial
Sharp edges	Unusual	Infrequent	Serious	Moderate
Pinch points	Unusual	Infrequent	Causality	Mod/Acceptable
Entanglement	Unusual	Infrequent	Serious	Moderate
Flying debris	Unusual	Occasional	Serious	Mod/Substantial
Control measures	• Do not try to remove blockages from the hood while the blades are in motion. • Do not remove the hood. • The greatest risk is to people working around the Dingo, rather than the operator. To eliminate risk, ensure that an effective barrier is created around the operating machinery. • Ensure the safety instructions in the operation manual are always followed.			
Residual Risk of Plant with Control Measures	• Moderate/Acceptable			
Additional Safety Comments	• The risk assessment has been carried out using the NSCA Risk Score Calculator. For more information contact Dingo.			

Product Name: Trencher

Summary of Product Application	Digging of trenches to 900mm.

Hazards	Risk Assessment			
	Probability	Exposure	Consequence	Risk Level
Normal position				
Moving parts	Unusual	Occasional	Serious	Mod/Substantial
Sharp parts	Likely	Occasional	Serious	Substantial
Entanglement	Unusual	Occasional	Fatality	High
Side Shift Position				
Moving parts	Unusual	Occasional	Serious	Mod/Substantial
Sharp parts	Likely	Occasional	Serious	Substantial
Entanglement	Likely	Occasional	Fatality	High

Control measures	• Do not attempt to touch the blades or remove any blockages while the trencher is in motion. • The safety bar should always be used, however this control should not be relied up on as the primary means of control. • The greatest risk is to people working around the Dingo, rather than the operator. To eliminate risk, ensure that an appropriate physical barrier is installed around the operating trencher. • Ensure that anyone who comes onto the work site is made aware of the operation of the trencher and instructed to keep well clear. • It is recommended that a spotter or safety observer be used to ensure the user and those working around the trencher are safeguarded from harm. • Ensure that the safety instructions in the operation manual are always followed.
Residual Risk of Plant with Control Measures	• Moderate
Additional Safety Comments	• The risk assessment has been carried out using the NSCA Risk Score Calculator. For more information contact Dingo.

Risk Assessment Trencher 8/10/2004

Troubleshooting

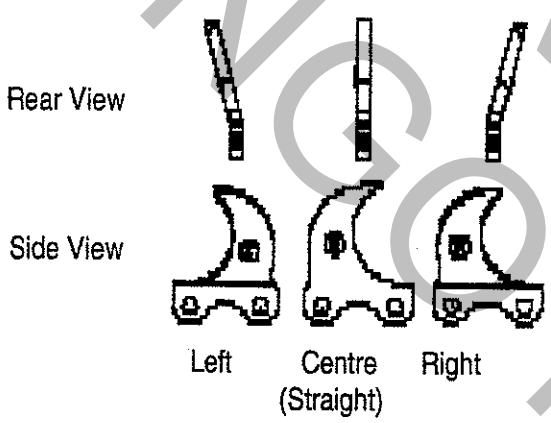
PROBLEM	POSSIBLE CAUSE AND REMEDY
Chain does not turn	1. Sand build up or other obstruction in tooth root of sprocket A. Raise out of ditch, reverse chain & run to clear build up. B. Loosen chain tension. 2. Quick coupler not completely engaged - Check and complete engagement 3. Quick coupler failure - Replace faulty coupler 4. An obstruction in one of the hoses - Remove obstruction 5. Auxiliary valve on Dingo not properly opening - Check and repair 6. Hydraulic motor failure - Repair or replace. Contact dealer. 7. Chain drive failure - Check and repair. Contact dealer 8. Boom end bearing failed - Replace bearing 9. Digging chain to tight - Loosen chain tension. 10. Gear train failure - Check and repair. Contact dealer. 11. Drive shaft bearing - Check and repair. Contact dealer.
Does not dig fast enough	1. Worn teeth - See section of this manual on tooth wear & replace if necessary. 2. Relief valve set below specifications - Test and reset if necessary 3. Quick coupler or hose restriction - Inspect and repair if necessary. 4. Hydraulic system too hot - Shut down and cool & refer to below 5. Cutting a trench size beyond the machine capabilities
Hydraulic oil overheating	1. Relief valve set too low on Dingo. - Test and set as needed 2. Restriction in Quick coupler or hose - Inspect and repair as needed - Stop and allow to cool naturally when it gets hot. 3. Hydraulic oil damaged or incorrect type - Replace Dingo oil with recommended oil 4. Pumps on Dingo worn or damaged - Replace pumps.
Trenching boom or crumber bent	1. Abuse - Replace

Diggatac Chain

Diggatac is a unique bolt on hard digging and rock tooth that gives incredible tooth life and high performance in those difficult trenching conditions. Mining grade tungsten carbide tools are used to provide longer life.

Diggatac Tooth Identification

There are three types of Diggatac teeth. Teeth are either left, right or straight as viewed from the standing position on the Dingo.



Diggatac Chain Tooth Configuration

Position	4" Cut	6" Cut
1	SP	SP
2	C	C
3	ILS	ILS
4	IRS	IRS
5	OLS	OLS
6	ORS	ORS
7	L4"	L4"
8	R4"	R4"
9	SP	L5"
10	C	R5"
11	ILS	L6"
12	IRS	R6"
13	OLS	C
14	ORS	ILS
15	L4"	IRS
16	R4"	OLS
17	SP	ORS
18	C	L4"
19	ILS	R4"
20	IRS	L5"
21	OLS	R5"
22	ORS	L6"
23	L4"	R6"
24	R4"	ILS
25	SP	IRS
26	C	OLS
27	ILS	ORS
28	IRS	L4"
29	OLS	R4"
30	ORS	L5"
31	L4"	R5"
32	R4"	L&R6"

Abbreviations:

C	Centre - straight tooth
SP	Space
ILS	Inside left - straight tooth
IRS	Inside right - straight tooth
OLS	Outside left - straight tooth
ORS	Outside right - straight tooth
L4"	Left tooth
R4"	Right tooth
L5"	Left tooth with 5"spacer
R5"	Right tooth with 5" spacer
L6"	Left tooth with 6" spacer
R6"	Right Tooth with 6" spacer

Tooth Configuration

Position	Cut Width				
	4"	6"	8"	10"	12"
1	CR	CR	CR	CR	CR
2	L	L	L	L	L
3	R	R	R	R	R
4	SP	6L	6L	6L	6L
5	CR	6R	6R	6R	6R
6	L	L	8"	8"	8"
7	R	R	R	SP	SP
8	SP	SP	SP	10"	12"
9	CL	CL	CL	CL	CL
10	L	L	L	L	L
11	R	R	R	R	R
12	SP	6L	6L	6L	6L
13	CL	6R	6R	6R	6R
14	L	L	8"	8"	10"
15	R	R	L	SP	SP
16	SP	SP	SP	10"	12"
17	CR	CR	CR	CR	CR
18	L	L	L	L	L
19	R	R	R	R	R
20	SP	6L	6L	6L	6L
21	CR	6R	6R	6R	6R
22	L	L	8"	8"	8"
23	R	R	R	SP	SP
24	SP	SP	SP	10"	12"
25	CL	CL	CL	CL	CL
26	L	L	L	L	L
27	R	R	R	R	R
28	SP	6L	6L	6L	6L
29	CL	6R	6R	6R	6R
30	L	L	8"	8"	10"
31	R	R	L	SP	SP
32	SP	SP	SP	10"	12"

Abbreviations used:

L = Left Hand Tooth
R = Right hand tooth
CL = Centre Left
CR = Centre Right
6L = tooth spaced 6" to the left
6R = Tooth spaced 6" to the right
8" = teeth on both sides of 8" spacer
10" = Teeth on both sides of 10" spacer
12" = Teeth on both sides of 12" spacer
SP = space or blank

Nose Roller Assembly

The nose roller assembly (item 14, page 11) is also a wear part. A worn nose roller assembly will increase chain wear. Do not lubricate the bearing in the assembly as this will attract dirt to the bearing and reduce its life-span. It is a sealed bearing.

Drive Sprocket

The drive sprocket (item 7, page 11) is a wear part. A worn sprocket will reduce the life of your chain. It is recommended to replace the sprocket and chain at the same time.

Boom

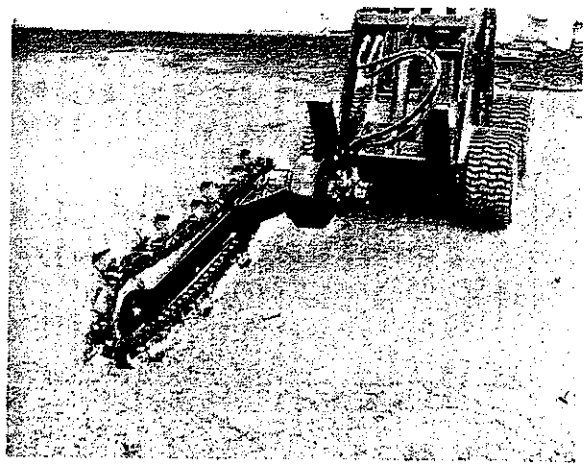
The boom (item 10, page 11) is a wear part. By the time the skid plate on the underside is worn out, so is the adjuster thread and the area where the boom enters its socket. Replacement of the complete boom is recommended.

Off-setting the Trencher

The Dingo trencher has the ability to be off-set so that it is possible to trench up against wall, fences etc.

1 Undo the 6 bolts holding the planetary drive mount to the mount assembly.
2 Replace the planetary mount on the right hand side of the mount assembly in the six holes provided.
3 Remove the auger flight.
4 Remove the safey rail assembly.

In the off-set position the trencher chain is now in line with the outside of the wheels.



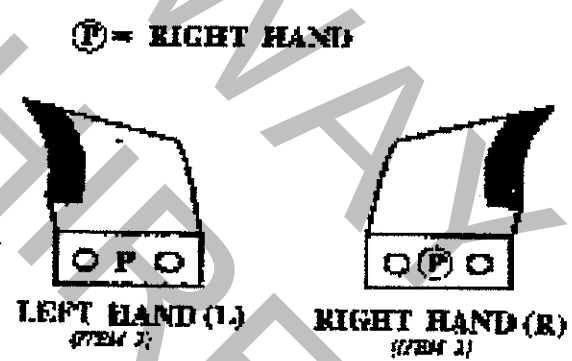
Trencher in Off-set position

Cup Tooth Chain

Tooth Identification

Teeth are left or right hand as viewed from standing position on machine.

Generally teeth are marked as follows:-



Maintenance

The Dingo trencher has no real service schedule that need to be adhered to but has several wear parts that you should keep an eye on.

Teeth

Sharp teeth are important to good performance. When teeth wear out, Production will drop sharply, increasing wear and tear on other components.

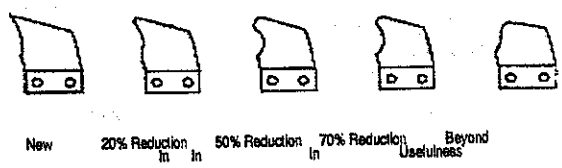
Cup teeth wear on the tip and side bulge in varying amounts. Wear patterns change with different digging conditions. Rocks will take the points off faster than sides. Sandstone or highly abrasive material will wear out the side bulges faster. Rock will be the most severe type of digging conditions.

The following patterns and captions are approximate and should be used as a guide to help you determine your own
best cost/benefit tooth replacement time.

In soft soil, tooth wear does not reduce performance as rapidly as hard soils.

Normal replacement should be made between 30% and 60% reduction in performance.

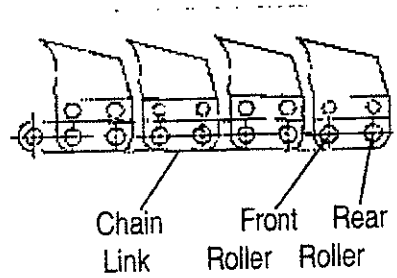
Rock teeth and chains (Diggatac) will greatly improve cost/benefits in severe materials.



Rock chains do not work well in dirt, as they do not have good soil removal capabilities.

Chain

The chain is also a wear part. Throughout the chains life you will notice the bottoms of each link and the rollers within each link will start to wear.



As a result of the digging action the rear roller in each link will wear faster than the front roller. To prolong the life of your chain it is a good idea to remove the teeth and replace them in the reverse direction. This can be done at the midpoint of the chain's life and when replacing a worn set of teeth. By doing this the rear roller becomes the front roller and the chain has a chance of wearing evenly.

Chain Adjustment

To check the chain tension on the trencher, leave it attached to the Dingo and raise it in the air parallel to the ground.

There should be 50-100mm of slack in the chain, measured between the chain and the bottom of the boom (usually about 3 fingers distance)

IMPORTANT: Do not over tighten the chain. Excess chain tension may damage drive components and increase the chances of the chain stalling in loose material.

Should the chain need adjustment,
use the following four steps.

1. Lower the trencher and stop the engine.
2. Remove the spanner from the side of the trencher. **Note:** The butt of the spanner locks the adjustment nut.
3. Using the spanner, rotate the adjustment nut counterclockwise to extend the trencher boom to tighten the chain.
4. Replace the spanner in the storage position to lock the adjustment nut in place.

Safety

■ Keep away from the moving teeth and au ger while operating the trencher.

■ Keep your hands, feet, and any other part of your body or clothing away from mov ing parts.

■ Before adjusting, cleaning, repairing and inspecting the trencher, shut off the engine and wait for all moving parts to stop. Lower the trencher and Dingo arms to the ground and rotate the ignition key to "OFF."

Operation

1. Ensure Auxiliary hydraulics lever is in neutral position before connecting Trencher.

2. Disconnect Bucket or other attachment and connect Trencher as per instructions in the Dingo 950 Operation and Maintenance Manual. Follow all steps for connecting an attachment that requires auxiliary hydraulics. The Dingo 950 Operation and Maintenance Manual explains the use of the auxiliary hydraulics lever.

3. After the trencher has been mounted and hooked up hydraulically, inspect thoroughly to be certain it is in good working order before use. The following check list is a reminder of points inspect.

- Mount trencher to Dingo and check all latching points for correct fit.
- Check hose routing at pivot points to be sure proper clearance or slack is available dur ing all operations.
- Check digging chain adjustment. If in doubt, err on the side of too loose. It is better to be too loose than too tight.
- Check all hose connections for leaks.

4. Manoeuvre machine so that the end of the trencher is positioned at the start of the desired trench with rear of machine facing the direction of the trench. Trenching will be done whilst pulling back and operating in a reverse direction.

5. Move the pump selector to the turtle position. In this position the big pump is powering the trencher and the small pump is powering the wheels and arms.

6. With the trencher a little off the ground and parallel to the ground start trencher teeth moving by using auxiliary lever. Trencher teeth on top side of trencher should be moving away from the machine.

7. Tilt the trencher down into the ground using the crowd lever. As the trencher enters the ground it will be necessary to lift the rear of the trencher using the lift lever. This will ensure the rear of the trencher and the auger flight remain just above the ground.

8. Once the correct depth is achieved move the flow divider lever to the 9 o'clock position. Pull both drive levers fully back. Then gradually move the flow divider lever towards the 10 o'clock position until a satisfactory ground speed is achieved for the trenching conditions. This may have to be varied from time to time. If the wheels are starting to spin you are trying to travel too fast.

9. When finished digging, tilt the trencher out of the trench and back away from the trench before driving away. Be careful not to drive near the trench or any other obstacle. Remove the trencher as per instructions in the Dingo Operation and Maintenance Manual.

10. It is best to trench with the angle of the trencher determining the depth of the trench. I.E. Keep the back of the trencher and the side auger just clearing the original ground surface.

Contents

Introduction

This trencher has been carefully designed and manufactured to give you years of reliable service. Please read this operation and safety manual to keep your trencher running efficiently.

The information in this manual is current as at February 2002. In the effort to continually improve our products, Dingo reserves the right to change specifications without notice. Please, for critical information, contact you nearest Dingo branch.

We want you to be completely satisfied with your new product, so feel free to contact your local Dingo branch for help with service, replacement parts and any other information about the Dingo and its attachments.

Whenever you contact your local Dingo branch always know the model and serial numbers of your product. These numbers will help us to provide exact information about your specific product. You will find the model and serial number on a plate located on the product.

For your convenience, write the product model and serial numbers in the space below.

Model No: _____

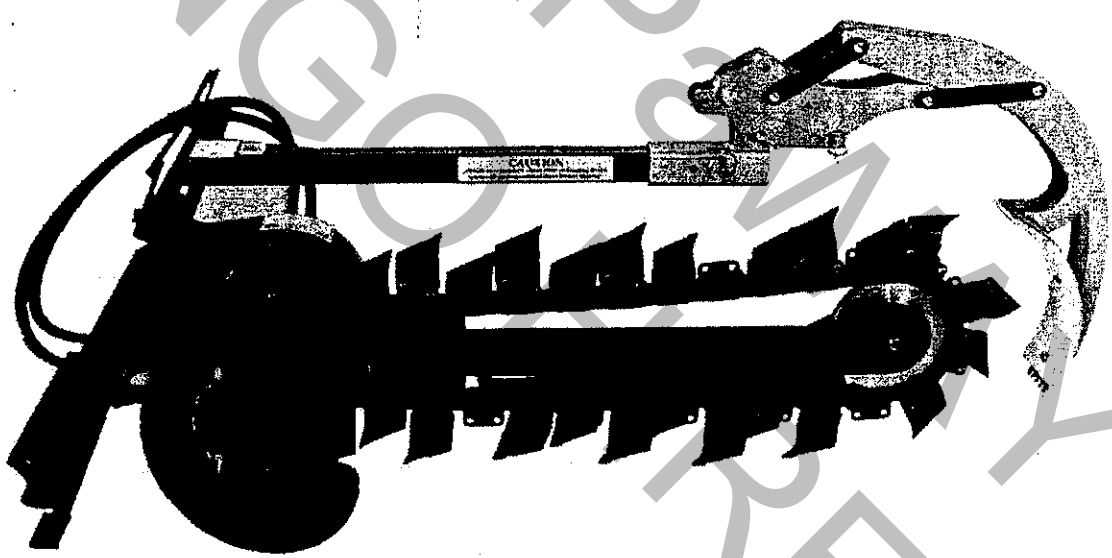
Serial No: _____

DISCLAIMER:
Specifications, design & service procedures are subject to change without notice.
Specifications may vary & may be approximate.

DINGO™

TRENCHER

OPERATION & MAINTENANCE MANUAL



IMPORTANT: Become familiar with the contents of this manual and the Dingo Operation and Maintenance manual before operating the Trencher attachment. Information about the Dingo is contained in the Dingo Operation and Maintenance Manual.

DINGO AUSTRALIA

Modified 07-04-2004

Proudly manufactured by

Dingo Mini Diggers Pty Ltd
9 Owen Street East
Dalby Qld, 4405
Australia

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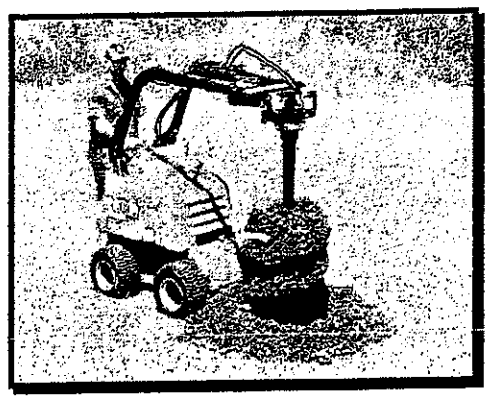


Product Name: Post Hole Digger & Augers				
Summary of Product Application	Digging of holes up to 750mm by 1500mm in soil, clay, sand, rock and shale. Deeper holes can be achieved with the use of auger extensions. Can be used with post hole mate for extra pressure.			
Hazards	**Risk Assessment**			
	Probability	Exposure	Consequence	**Risk Level**
Moving parts Swinging auger Entanglement	Unusual Likely Unusual	Occasional Occasional Occasional	Serious Casualty Fatality	Mod/Substantial Moderate High
Control measures	• Do not attempt to touch the auger while it is in motion. • Keep hands, feet and clothes or anything else that may get caught in the auger well clear. • Do not operate auger unless on the operators platform. • The greatest risk is to people working around the Dingo, rather than the operator. To eliminate risk, ensure that an effective barrier is created around the operating machinery. • It is recommended that a spotter or safety observer be used to ensure the user and those working around the auger are safeguarded from harm. • Ensure that the safety instructions in the operation manual are always followed.			
Residual Risk of Plant with Control Measures	• Moderate			
Additional Safety Comments	• The risk assessment has been carried out using the NSCA Risk Score Calculator. For more information contact Dingo.			

NB: Swing Auger Hazard Reduced by Fitting Saftey Swing Cylinder.

Troubleshooting

Problem	Possible Cause & Remedy
Auger does not rotate	1. Auxiliary hydraulics not engaged properly - *Check quick couplers* 2. Quick coupler faulty - *Replace faulty coupler* 3. Auxiliary valve on Dingo not operating correctly - *Refer to Dingo manual, call DINGO service* 4. Hydraulic Motor Failure - *Replace motor. Contact DINGO* 5. Gear train failure - *Check and repair. Contact DINGO* 6. Drive shaft bearing - *Check and repair. Contact DINGO*
Oil leakage from inside housing	1. Hoses or fittings leaking - *Tighten or replace* 2. 'O' ring failure - *Call DINGO service*
Oil Leaking from output shaft	1. Oil shaft seal failure - *Call DINGO service*
Does not dig will thing but	1. Worn teeth or pilot - *Replace* **Note:** It does not take a lot of wear to reduce digging effi--ciency substantially. When teeth & pilots appear half worn out, they are often actually worn out. Digging efficiency be lost and time and money will be wasted in every- extremely soft conditions. **Note:** The Post Hole Digger does have limits. 4. Incorrect teeth or pilot - *Replace* 5. Relief valve on Dingo set too low - Test and reset if necessary 6. Hydraulic system hot - *Turn off and wait to cool.* - *Hydraulic oil may be damaged or incorrect type. Replace Dingo oil with recommended hydraulic oil*
Auger Bent	1. Abuse - *Replace or repair auger*

Digging Tips

- In dry conditions pour water into the hole to help clean the last of the material from the bottom.

- Use a "Diggers Mate" on the foot plate of the Dingo to give extra down pressure on the auger in hard digging.

- Maneuver the Dingo back and forward in stony conditions to help lever the stones from the ground.

- Water can also help in stony conditions to loosen the stones from their position.

- Using water when boring into rock will keep your teeth cooler and lasting longer.

- Rock teeth are only good for boring into solid rock. Use earth teeth for stony ground.

- When using larger augers, only dig into the ground up to the top of the auger flight. Then remove the auger and clean it. Continue this process until the desired depth is reached. Going in deeper than the top of the auger flights may make the auger too heavy to lift from the ground.

- In grassy conditions reverse the auger whilst in the ground to remove any grass that has become tangled amongst the teeth.

- Use auger extensions to go deeper. The Dingo can dig to 1.5m normally, and to 2.3m with an auger extension.

Changing Teeth

1 Tap the worn tooth from the tooth pocket using a hammer and a punch or old screw driver etc.

2 Remove the old rubber from within the tooth pocket.

3 Replace with a new rubber. It is a good idea to lubricate the new rubber with water to prevent it breaking when the new tooth is inserted. The rubber should measure just short of the width of the tooth.

4 Insert the new tooth by tapping it with a copper or plastic hammer (Your normal hammer may chip the cutting edge of the new tooth).

Auger Pilots

The condition of your pilot is most important to ensure good ground penetration. Whilst it seems such a small part of your overall drill, **it is the most important part of the auger.**

Note: Rock teeth and pilots will not dig earth, soil, etc. They are designed to grind away rock, not chisel into it.
Earth teeth and pilots are designed to chisel into earth - not rock.

It is simple to change teeth and pilots and it is much more cost efficient to do this than to use the incorrect or worn teeth and pilots.

Dingo augers are configured with tungsten earth teeth in the outside pockets (the outside teeth travel the greatest distance & wear fastest), earth spear teeth in the inside pockets (for better ground penetration) and an earth pilot. This configuration has been found to be a good cost vs wear combination in most soil conditions. Ask your Dingo representative about the tooth combination that most suits your soil conditions.

Standard
Earth Pilot

Tungsten
Earth Pilot

Tungsten
Rock Pilot
(Hard Digging)

information.

14 When travelling with the auger attached, tilt the drive head back so the auger points out the front and does not swing freely. This prevents the auger swinging back and damaging the front of the Dingo.

15 If more down pressure is required, use the "Diggers Mate" on the back of the machine.

16 **If drilling on uneven ground,** it may be necessary to loosen the two grub screws (Item 16 on page 8) to allow the auger to swing from left to right as well as back and forward. To do this, loosen the lock nuts and turn grub screws anti-clockwise until planetary drive is able to swing from left to right. Then retighten lock nuts. This will free up the auger to hang vertically even if drilling holes across a slope.

Maintenance

Post Hole Digger

One of the features of your Dingo Post Hole Digger is its low maintenance. While this is true, it is wise to check for oil leaks on a regular basis to ensure your Post Hole Digger remains in working order.

Augers

As the auger is engaging the ground wear must occur to dig holes. Therefore, the auger teeth and pilot must be checked regularly and replaced as necessary (see wear parts section). Failure to replace missing and worn teeth will damage the auger pockets and flighting resulting in costly repairs.

Wear Parts

Auger Teeth

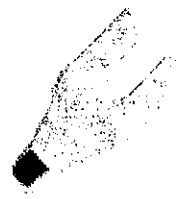
Make sure that your auger teeth are in good condition so that your drilling performance is satisfactory and wear on your auger is minimised.

Standard
Earth Tooth

Tungsten
Earth Tooth

Tungsten Rock Tooth
(Hard Digging)

Earth Spear
Tooth



Tungsten
Earth Spear
Tooth

Safety

- Be a responsible operator and become familiar with this manual, the Dingo Operation and Maintenance Manual, the machine and the attachment.
- Use extra caution when operating on hill, slopes or uneven ground (Refer to the Dingo Operation and Maintenance Manual).
- Do no side shift while auger is turning.
- Do not place any part of yourself, or any person under the Dingo arms.
- Do not operate auger or machine while people are standing near.
- Do not operate close to edges or excavations etc.
- Reduce speed while moving with Post hole digger attached.
- Do not rotate auger whilst travelling.

Operation

1 Ensure the Auxiliary hydraulics lever is in the neutral position before connecting the Post Hole Digger.

2 Disconnect other attachment and connect Post Hole Digger as per instructions in the Dingo Operation and Maintenance Manual. Follow all steps for connecting an attachment that requires auxiliary hydraulics. The Dingo Operation and Maintenance Manual explains the use of the auxiliary hydraulics lever. **Note:** Auger digs in a clockwise direction. If the auger is attached to Post Hole Digger go to step 6.

3 Have the auger lying on the ground surface pointing away from the front of the machine.

4 Lower the Post Hole Digger drive head (mounted on the machine) to the ground near the sleeve end of the auger.

5 Slide the auger sleeve onto the drive head shaft, align the holes in both and secure with the drive and lynch pin, which hold the auger in place.

6 Manoeuvre the Dingo to the required spot for drilling. Lower the auger till the pilot is touching the ground. Move the pump selector to the turtle postion. The turtle position allows the big pump to power the Post Hole Digger and the small pump to power the Dingo wheels and arms. (i.e. more power is delivered to the Post Hole Digger, where it is needed most)

7 Start the auger rotating with the Auxiliary lever and lower the arms to push auger into the ground. The harder the ground the more pressure you will need to apply to the auger.

8 The front wheels may lift off the ground. Do not operate the machine in an unsafe manner (refer to the Dingo Operation & Maintenance Manual).

9 As the auger digs into the ground the arms will travel through an arc, therefore adjustment will need to be made to the position of the Dingo to keep the auger at the desired angle.

10 Do not drill the auger deep into the ground in one operation. Continually clearing the hole during digging will facilitate an easier operation. It may be necessary to clear dirt from the auger flights by spinning the auger quickly forward or by changing from forward to reverse quickly and repeatedly. This is best done off to the side of the hole.

11 The Post Hole Digger is designed to dig in most digging conditions. With the selection of Dingo Tungsten Carbide Rock teeth, some rock structures can be dug. It is impossible to dig all types of rock.

12 Disconnect the Post Hole Digger as per instructions in the Dingo Operation and Maintenance Manual.

13 Remember, as with any type of drilling, you need a sharp drill point. Auger teeth and pilot must be in good condition if the auger is to work correctly. See wear parts section for more

Contents

DINGO™

Stump Grinder

OPERATION & MAINTENANCE MANUAL

IMPORTANT: Become familiar with the contents of this manual and the Dingo Operation and maintenance manual before operating the Stump Grinder attachment. Information about the Dingo is contained in the Dingo Operation and Maintenance Manual.

DINGO AUSTRALIA

Last Modified September 2004

Introduction

This Stump Grinder has been carefully designed and manufactured to give you years of reliable service. Please read this operation and safety manual to keep your Stump Grinder running efficiently and safely.

The information in this manual is current as at September 2004. In the effort to continually improve our products, Dingo reserves the right to change specifications without notice. Please, for critical information, contact your nearest Dingo branch.

We want you to be completely satisfied with your new product, so feel free to contact your local Dingo branch for help with service, replacement parts and any other information about the Dingo and its attachments.

Whenever you contact your local Dingo branch always know the model and serial numbers of your product. These numbers will help us to provide exact information about your specific product. You will find the model and serial number on a plate located on the product.

For your convenience, write the product model and serial numbers in the space below.

Model No: _____

Serial No: _____

DISCLAIMER:
Specifications, design & service procedures are subject to change without notice.
Specifications may vary & may be approximate.

Contents

Safety

- Be a responsible operator and become familiar with this manual, the Dingo Operation and Maintenance Manual, the machine and the attachment.
- The following **protective equipment must be worn** when using this equipment:
  - ✚Close fitting clothing
  - ✚Ear muffs or ear plugs
  - ✚Leather boots with steel capped toes
  - ✚Face shield
- Do not operate the Stump Grinder or Dingo while people are standing near.
- Apply extra caution when operating on hills, slopes or uneven ground. Guidelines for operating on hills and slopes are given in the Dingo Operation and Maintenance Manual.
- Do not place yourself, any person, or any part of yourself or any person under the Dingo arms.
- Do not operate close to excavations, etc.
- When travelling keep the Stump Grinder low to the ground. Reduce speed while moving with the Stump Grinder attached.
- Do not have the Stump Grinder operating whilst travelling.
- Keep hands and feet away from spinning teeth.
- Do not leave the operators platform with Stump Grinder engaged.

Operation

Set-up

1 Ensure Auxiliary hydraulics lever is in neutral position before connecting Stump Grinder.

2 Disconnect Bucket or other attachment and connect Stump Grinder as per instruction in the Dingo Operation and Maintenance Manual. Follow all steps for connecting an attachment that requires auxiliary hydraulics. The Dingo Operation and Maintenance Manual explains the use of the auxiliary hydraulics lever.

3 After the Stump Grinder has been mounted and hooked up hydraulically, inspect thoroughly to be certain it is in good working order before use. The following check list is a reminder of points to inspect.

- Mount Stump Grinder to Dingo and check all latching points for correct fit.
- Check hose routing at pivot points to be sure proper clearance or slack is available during all operations.
- Check all hose connections for leaks.
- Check all teeth are tight in their holders and are in good condition.
- Ensure the chip catcher is positioned to the side for grinding. The chip catcher is temporarily positioned over the front of the grinder when being transported. It must be relocated to the side of the grinder where it will deflect the wood chips when working. There are three positions depending on the height of the stump.

Operating Safely

1 Start from the right side of the stump.

2 With the grinder placed over the stump, set the disc in motion by pulling the auxiliary lever backward. Have pump selector valve set in the turtle position and the flow divider set so that most of the oil is going to the grinder. Work with the engine at full speed.

3 With the tilt lever, wave the grinder back and forth over the stump, lowering it at the end of each stroke with the lift lever.

4 Operate in full sweeps, taking full bites, 10-15mm is ideal. Do not change height halfway through a cut.

5 Do not try to cut more than 1/3 of the diameter of the disc at a time. It is better to shift the Dingo and start again.

6 It is possible to grind down to levels well below the ground. Just make big swings through the dirt. Be sure the hole is large enough to accommodate the grinder motor.

7 Hard timber is easier to chip. Work to the ability of the machine in the type of timber. Don't rush.

8 Check the condition of the equipment daily and report any damage and defects. Do not use or continue to use faulty or damaged equipment. Check the condition of the cutting teeth; badly worn teeth create danger through ineffectiveness.

9 **IMPORTANT** To stop stump grinder return the auxiliary lever to the neutral position only. **Do not** push the lever past neutral to the reverse position, this can cause a hydraulic pressure spike and cause damage to drive pump seals.

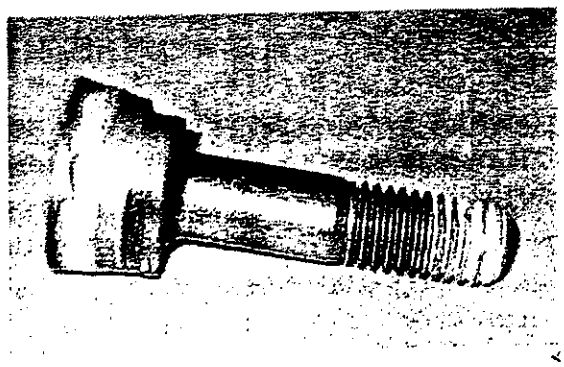


Figure 2, GREENTHOOTH

Figure 3, Disc Rotor

Maintenance

Maintenance to the Dingo Stump Grinder is low, but it is wise to check for oil leaks on a regular basis.

Lubricate the spindle bearings every four hours of operation using molybdenum based grease. (*Refer to figure 1 for lubrication points.*)

Check grinding teeth are sharp for good performance. Read following pages on care & maintanence of Greenteeth.

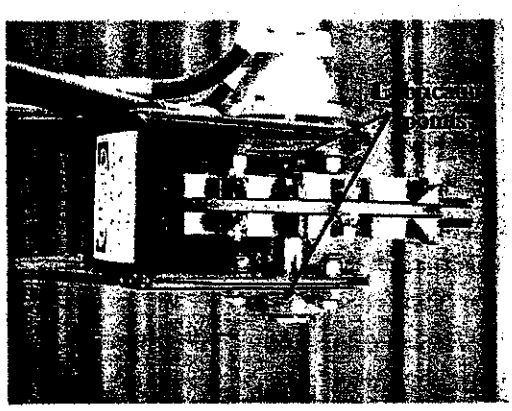


Figure 1, There are 2 points to be lubricated.

GREENTEETH®

Perhaps the most obvious and practical feature of GREENTEETH® is the ability to easily rotate the tooth itself, to provide a fresh, sharp cutting edge within a matter of seconds. This can be done using only a standard 3/4" wrench. Since each tooth can be rotated to a new edge three times, it's like having three teeth in one. In the same way, any tooth can be easily moved to any position on the cutting wheel, thus allowing even more cutting life from each tooth.

Engineered and designed to be durable well beyond one season, the GREENTEETH® pocket is made of alloy steel which is hot forged and thru hardened. Comparably, the tooth also is designed for exceptional durability, consisting of alloy steel, which has been cold formed and thru hardened. Measuring 1 1/4" diameter by 1/4" thick, the tungsten carbide tip is over 400% larger than the tip found on a standard cutting tooth. The concave "dish" shape of the carbide further amplifies cutting performance. We have tested and selected carbide specifically for hardness (holding an edge) as well as toughness (resistance to breakage).

Review the advantages:

- Time spent struggling to change conventional teeth versus the seconds it takes to rotate or completely replace GREENTEETH®
- Elimination of wheel wear
- Exceptional durability

We think that you will find that GREENTEETH® are not only the overall least expensive stump cutter system, they are the best!

GETTING THE MOST OUT OF YOUR GREENTEETH®

- Because of the dirty environment stump cutter teeth work in, it may be necessary to tap tooth down with a hammer to dislodge the tooth from the seat. Proper procedure is as follow: Loosen nut 4 turns. Tap down on the nut, tooth will drop. Rotate to new cutting edge. If the locking flats are clogged with dirt, you may need to remove the tooth and brush away debris. This extra step only adds seconds to the rotating process, but ensures the tooth is in the proper position to be drawn back up tight for use.
- Locknuts should be torqued at 50-70 foot pounds. (Tight!) It is wise to monitor locknut tightness after tooth replacement.

A quick visual check is recommended with an occasional re-torquing (after 6 to 8 hours of use). New locknuts are provided with each tooth sold; use them!

- Although GREENTEETH® are designed to handle the harshest work conditions, keep this fact in mind: For every (1) second your teeth are in concrete or stone compares equally to holding your tooth on a green wheel for 10 seconds. Carbide, regardless of manufacturer, wears down faster in rocky soil. Use good sense and remove hazards when possible.
- When grinding in known rocky soil, the GREENTEETH® system offers a good alternative to exposing your sharp cutter teeth to inevitable damage. Simply replace your cutters with used dull teeth. As your carbide tip becomes rounded (dull) its impact resistance actually increases greatly, making "dull" teeth the perfect tool for rocky conditions.
- Sharpening (grinding) of this product will produce Carbide dust. Green Manufacturing, Inc. **does not** promote sharpening carbide, as it is genuinely dangerous to your health.
- However, if you do prefer to sharpen your teeth, sharpening is actually quite easy. You will notice when you get a new tooth that the cutting edge (the circumference of the face of the tooth) is actually flat. The objective when sharpening is to just flatten out this cutting edge. The easiest way to achieve this is by inserting the tool shank into a 1/2" drill chuck and tightening the chuck. Start your bench grinder so that the grinding wheel is spinning at full RPM's. Holding the drill in both hands spin the drill chuck slowly in reverse. Slowly move the cutting edge of the tooth into the rotating diamond or green wheel. Rotate the drill in reverse for 3-5 minutes or as long as required to flatten out this cutting edge. Remember it is easier to dress an edge than to resurrect an edge.

INSTALLING THE TEETH

Install the nut and torque to 50-70 foot pounds with a torque wrench. Once you have the feel for the proper tightness of the nut, you can use an open-end or a box wrench in the field to remove or rotate your teeth.

Troubleshooting

PROBLEM		POSSIBLE CAUSE AND REMEDY
Disc does not turn	1.	Quick coupler not completely engaged
	-	*Check and complete engagement*
	2.	Quick coupler failure
	-	*Replace faulty coupler*
	3.	An obstruction in one of the hoses
	-	*Remove obstruction*
	4.	Auxiliary valve on Dingo not properly opening
	-	*Check and repair*
	5.	Hydraulic motor failure
	-	*Repair or replace. Contact Dingo*
	6.	Drive shaft bearing
	-	*Check and repair. Contact Dingo*
Does not cut fast enough	1.	Worn teeth
	-	*See section on tooth wear (Maintenance section)*
	-	*Replace if necessary.*
	2.	Relief valve set below specifications
	-	*Test and reset if necessary*
	3.	Quick coupler or hose restriction
	-	*Inspect and repair if necessary*
	4	Hydraulic system too hot
	-	*Shut down and cool*
	5.	Cutting a depth beyond the machines capabilities.
	-	*Aim to cut around 10-15mm each pass*
	6	Flow Divider not set correctly
	-	Move flow divider to 9 o'clock position & then back slightly until, with tilt lever fully open, the tilt function works slowly
Hydraulic oil overheating	1.	Relief valve set too low on Dingo
	-	*Test and set as needed*
	2.	Restriction in quick coupler or hose
	-	*Inspect and repair as needed*
	-	*Stop and allow to cool naturally when it gets hot.*
	3.	Hydraulic oil damaged or incorrect type
	-	*Replace Dingo oil with recommended oil*
	4.	Pumps on Dingo worn or damaged
	-	*Replace pumps.*

Product Name: Stump Grinder				
Summary of Product Application	Grinding tree stumps.			
Hazards	**Risk Assessment**			
	Probability	Exposure	Consequence	**Risk Level**
Moving parts	Unusual	Occasional	Serious	Mod/Substantial
Sharp edges	Likely	Rare	Serious	Moderate
Entanglement	Unusual	Infrequent	Serious	Moderate
Flying debris	Likely	Frequent	Serious	High
Control measures	• Grinder enclosed with metal and rubber guarding. • Never put any part of your body under the guarding while the blades are in motion. • Never operate the grinder without the guarding in place. • Handles provided to carry guarding. • Always use hearing protection, wear close fitting clothing, use safety boots and a full face shield Ensure that the safety instructions in the operation manual are always followed. • The greatest risk is to people working around the Dingo, rather than the operator. To eliminate risk, ensure that an effective barrier is created around the operating machinery.			
Residual Risk of Plant with Control Measures	• Moderate			
Additional Safety Comments	• The risk assessment has been carried out using the NSCA Risk Score Calculator. For more information contact Dingo.			