

# **T-REX** Automatic Chain Sharpener

INSTRUCTION MANUAL Version 7.0



This manual should remain with the machine when resold or transferred to a new operator. The manual contains important safety procedures and instructions, which should be carefully and thoroughly read before operating the sharpener.

This machine is intended for use by professional operators who are familiar with the general requirements of chainsaw sharpening and the types of machinery used within this industry.



This machine uses a rotating grinding wheel to remove metal. As a consequence grinding dust and metal particles will be emitted and may be projected at high speed from the grinding contact area. Remove flammable substances from the vicinity of the machine.

## <u>Read manual before use</u>

- Do not stand behind machine
- □ Ensure guards and shield are in place
- □ Wear face and dust masks
- Use correct grinding wheel rated at 6500 rpm or more
- □ Check grinding wheel for cracks before use

The machine is designed for sharpening chainsaw teeth and grinding drag (depth gauge/rakers) links and is not to be used for offhand grinding, or with the grinding head in the raised position.

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#### SAFETY PROCEDURES

- Always wear a safety visor
- Always wear a dust mask
- Never stand or allow other people behind machine
- Do not operate machine without safety guards in place
- Always check grinding wheels for cracks before use
- Keep hands out of machine when connected to power
- Handle chains with care

#### **Specifications and safety measures**

<u>Requirements</u>	<b>Description</b>	Range
Temperature	Operating	5 to 35 degrees Celsius
Power	Current requirement	8 amps continuous (35 amps motor start inrush)
	Over current & Overload	10 Amp Fuse protection
	Voltage operating range	12 to 15 volts DC Stabilised & Regulated +/- 0.1%
Safety	AC input	It is recommended to fit a residual current protection device when using an AC/DC power source.
	AC Supply	Disconnect the power supply when not in use
	Guards	Do not use unless all safety guards are fitted.
	Maintenance	Disconnect from power before performing any maintenance.
	Grinding wheels	Check speed rating and condition before use
Environment	Operating	Use in a ventilated and well lit area.
Weight	Gross	22 kg
Installation	Positioning	Machine should be positioned in such a way as to prevent access to the rear when machine is operating.
Transportation	Lifting Transporting	Lift only from underneath the machine. Use the original packaging

## **LIMITED WARRANTY:**

Dinasaw warrants that its products will be free of defects in workmanship or material. Should any failure to conform to this warranty appear within the period of 6 months or 100 hours of operation, whichever comes first, from date of purchase, Dinasaw shall upon notification of and substantiation that the product has been stored, installed, operated and maintained in accordance with Dinasaw's specifications and instructions, repair or replace, at Dinasaw's sole option, any components or parts of the product determined by Dinasaw to be defective.

This warranty is exclusive and is in lieu of any warranty of merchantability, fitness for a particular purpose or other warranty of quality, whether express or implied.

### **LIMITATION OF LIABILITY:**

Dinasaw shall not under any circumstances be liable for special or consequential damages, such as, but not limited to, damage or loss or other property or equipment, loss of profits of revenue, cost of capital, cost of purchased or replaced goods, or claims of Purchaser for service interruption.

The remedies of the purchaser set forth herein are exclusive and the liability of Dinasaw with respect to any contract, or anything done in connection therewith such as the performance or breach thereof, or from the manufacture, sale delivery, resale, or use of any goods covered by or furnished by Dinasaw whether arising out of contract, negligence, strict tort, or under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the goods upon which such liability is based.

The warranty period for Dinasaw products is 100 hours or 6 months, whichever is sooner, from date of purchase. Grinding wheels are excluded from the warranty. Parts damaged through abuse or fair wear and tear are excluded from the warranty.

No transportation costs of any kind are covered under this warranty. Transportation charges to return products for repair shall be the responsibility of the customer. Returned goods shall be at the customers risk and expense.

#### Serial Number

The serial number is located on the back of the machine.

Record these numbers and keep in a safe place as they will be required in the event of warranty service.

Serial Number \_\_\_\_\_

Purchase Date \_\_\_\_\_

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#### **IMPORTANT**

**Grinding is dangerous.** You should become thoroughly familiar with the information supplied in this manual before operating this machine.

#### Unpack the machine and check that the following components are supplied.

**Check List** 

#### Standard T-Rex accessory bag.

1 x Instruction CD 1 x Dressing Stone 2 x 5mm Hex Nuts 1 x 10/13mm Spanner 1 x 3mm Hex Key 1 x 6mm Flat Washer 1 x Magnet 1 x 6mm Hex Key

1 x Instruction Manual 2 x 5mm Spring Washers 2 x M5 x 10 Pan Head Screws 1 x 2.5mm Hex Key 1 x 4mm Hex Key 1 x DC Lead 1 x Clear Shield

#### Wall / Bench mounting Bracket

1 x Bracket Body 1 x Brace 1 x Mounting Plate 1 x 10mm Flat Washer 1 x 8mm Spring Washer

#### **Optional Tri-Pod Stand**

1 x Support Stand 9 x M5 x 8 Pan Head Screws 2 x M6 x 12 Hex Head Bolts

3 x Sets of Legs 9 x M5 Locknuts 2 x 6mm Flat Washers

#### **Power Supply Stand Bracket (Optional)**

1 x M6 x 40 Pan Head Screws	1 x M6 Nut
1 x Bracket	1 x 6mm Spring Washer

#### **Power Supply**

1 x Power Supply with AC power cord.

- 2 x M6 x 12 bolts 2 x 6mm flat washers
  - 1 x M8 x 12 Bolt
  - 1 x M10 Nyloc Nut

## **Installation**



#### **GRINDING SPARKS WILL BE EMMITTED IN THIS AREA!**



When positioning the machine it is recommended to have a wall or shield immediately behind the machine to prevent people from standing behind the machine.

#### **Power Requirements**

The Dinasaw Chainsaw Sharpener can operate from a well charged automotive battery as well as a suitable regulated switch mode power supply. It is important however that the lead from the battery / power supply to the machine is no longer than 2 meters (6 feet).

#### **CAUTION**

DO NOT USE AN UNREGULATED POWER SUPPLY AS DAMAGE TO THE ELECTRONIC COMPONENTS MAY OCCUR. USE OF AN UNREGULATED POWER SUPPLY WILL VOID THE WARRANTY ON THE CONTROL MODULE.

# Wall / Bench Mounting





Machine attached to wall bracket.



## Assembling the Tri-Pod Stand (optional)



Do not over tighten the screws in the legs as damage to the screws may occur.

Fig 1

Fit the legs to the support frame as shown in fig 2. Fit the 2 m6 x 12 hex head screws into the support frame as shown in fig 2.



Fig 2.

Fit the machine onto the support frame and tighten securely. See fig 2.

Adjust the legs so that the machine sits level on the support frame.

Large harvester chains may require the machine to be tilted back slightly to prevent the chain from catching on the rear plate of the machine. To do this, shorten the centre leg by approximately 25mm (1 inch).



Protection shield

Attach power supply onto leg as shown. Ensure power leads are not near moving parts and covers are fitted to prevent dust from entering the power supply.

## **Bench Mounting the Machine (Brackets not supplied)**



#### **Overview of Operation**

The T-Rex uses cams to operate the feed, clamp and grinding head. The "Grind Cam" raises and lowers the grinding head while the "Feed Cam" both indexes and clamps the cutters.



#### Excessive clamping pressure will damage the machine

The T-REX model has four modes of operation.

"OFF" -	Sharpens left and right hand cutters without detection
"AUTO" -	Uses cutter sensor to detect and grind two cutters in a row.
"MAGNET" -	Uses a magnet to detect and grind two cutters in a row.
"SCRATCHER" -	Allows the sharpening of scratcher chain. (Requires options).

The machine uses four sensors to operate automatically.

- 1. The cutter sensor "looks" at each cutter and determines what hand it is.
- 2. The proximity switch senses a magnet placed on a cutter to correct the grinding sequence for out of sequence cutters. It also serves as a counter to automatically shut off the machine.
- 3. Two other sensors are located inside the machine. One, located in the feed motor to count motor revolutions and the second, behind the idler gear which checks the bevel angle of the grinding head.

#### **Adjustments**

There are four main adjustments which need to be made when changing between different size chains. (see previous page)

- 1. Limiting the feed stroke.
- 2. Setting the feed pawl height.
- 3. Centring the grinding head.
- 4. Chain Clamp

#### **Limitations**

- 1. The T-Rex model cannot automatically sharpen chains with three or more cutters in a row on the same side of the chain. Two is the maximum.
- 2. Chains with three or more tie links in one section of the chain must be stopped at this point with the magnet, as the feed stroke will not cope with more than two tie links.
- 3. Chains with double tie links cannot be sharpened using "AUTO" mode as the sensor will not '*see*' the cutter after the double link. Only use "MAGNET" or "OFF" mode on these chains.

## **The Control Panel**

Power indicator Mode indicator Grinder on/off Detection mode Count



Counter display

Function indicator Stop / Reset Start Inch forward Inch reverse

#### **Power indicator light:**

• Indicates that power is on.

#### **Function indicator light:**

- When in "Run Mode" light is on.
- When magnet is detected light will go out momentarily.

#### **Detection mode indicator:**

- · Indicates which mode machine is in.
- "OFF" No detection. Machine grinds sequentially.
- · "AUTO" Automatically detects double cutters (left or right).
- · "MAGNET" Corrects only after chain magnet passes proximity switch.

#### Stop / Reset:

• Stops the machine.

#### <u>Start:</u>

Starts the feed mechanism.

#### **Grinder:**

Turns the grinder motor on - press again stops motor.

#### Inch Fwd:

"Inches" machine forward when not in run mode.

#### Inch Rev:

"Inches" machine in reverse when not in run mode.

#### **Detection Mode:**

Changes between the three detection modes and is shown by the Mode Indicator lights.

### Counter:

- Sets number of times chain circuits (maximum of 9)
- Counter is triggered by placing the magnet on chain (Low down on sideplate, on or between the rivets of a cutter).

#### **Counter Display:**

• Indicates number of circuits a chain will do, referenced by the chain magnet.

### Holding Count and pressing Inch Fwd.

- Positions the machine for adjusting the top plate angle of LEFT hand cutters.
- · Display will show a  $\vdash$  symbol.

### Holding Count and pressing Inch Rev.:

- Positions the machine for adjusting the top plate angle of RIGHT hand cutters.
- Display will show a  $\dashv$  symbol.

## Assembling the machine



Connect the AC lead to the power supply

Check the voltage selection switch. Failure to correctly set this switch will destroy the unit and void the warranty.



Connect the output of the power supply to the machine.



Switch the machine on and wait 15 seconds. Switch down to turn on.



Carefully tilt the motor arm fully back until the latch engages.



Press and hold the 'COUNT' button and press the 'Inch Fwd' button, then release both buttons.

This will force the machine to run to the position for setting the LEFT side angle.



Remove the nut from the bolt. **DO NOT WITHDRAW THE BOLT!** The stepped face of the spacer must be against the bearing (see picture left)



Attach the motor plate in the position shown.



Lower the arm.



Rotate the motor to the desired angle on the LEFT side and tighten the bolt with the 6mm hex key. Connect the wires.





Press and hold the 'COUNT' Button and press the "Inch Rev' Button, then release both Buttons.

This will force the machine to run to the position for setting the RIGHT side angle.



Insert the 4mm hex key into the end of the motor arm and turn until the indicator shows the exact same angle on the right side.



Turn Clockwise initially.



Attach the protection Shield

## **Adjustments**

The diagram below shows the main adjustment positions on the machine.

- 1. Grind Depth Adjuster:
- 2. Grind Head Centring Adj.
- 3. Feed Pawl Height Adjuster:
- 4. Feed Stroke Adjuster:
- 5. Chain Clamp
- 6. Cutter Position Screw:

Sets the grinding depth.

- j. Centres the grind head on the chain.
  - er: Sets the feed pawl height to suit the chain pitch
    - Limits the return stroke of the feed arm.
    - Adjusts the clamping pressure.
      - Sets the amount of material ground from the face of the cutter.



## **Fitting the Grinding Wheel**



Do not use tools to fit nut. Finger tight only. Fit the grinding wheel. Tighten the securing nut **finger tight only**. Fit the grinding wheel cover and protection shield.

Note: Retaining nut has left hand thread



Recessed face against grinding wheel

Attach wheel cover by pushing over locating screws and turning anti clockwise.



## **Dressing and Truing the Grinding wheel**



#### <u>Grinding dust has been associated with respiratory disease.</u> Preferably use ABN / CBN wheels and wear a suitable dust mask

#### **Resin bond Grinding Wheels**

Fit and secure the appropriate grinding wheel (note left hand thread)

Before starting the grinding wheel check that it is rated at 6500 RPM or more and is not cracked or damaged.

Raise the grinding head fully so that the catch holds the head back.

Do not lift the grinding head by the motor. Always lift the head by the handle on the depth adjusting screw.

When satisfied the wheel is okay, make sure there are no bystanders near the machine and, **standing behind the grinding wheel shroud** press the grinder button.



It is prudent not to trust the integrity of a newly fitted, bonded grinding wheel - run for at least one minute before dressing the wheel to the required shape.





<u>**Grinding is dangerous**</u>. Damaged or cracked grinding wheels can shatter causing injury to the operator. Do not operate the machine without guards in place and always wear face and breathing protection.

True and dress the grinding wheel using the dressing stone provided as shown above.

## **Fitting the Chain**

*Important.* The chain clamp must be adjusted so that pressure is only applied when the cutter is in the fully forward position. Before fitting, ensure the clamp is backed off sufficiently when changing from small to large chains.



Excessive clamping pressure will damage the machine

First -- determine the drive link thickness



Use two spacers for .404" Harvester chain - three spacers for 3/4" Transfer the outer spacer (washer) below the screw head to the inside to increase the gap for 3/4" harvester chain.



If the machine is to be used for general chain sharpening, (i.e. 0.043"up to 0.067"), the spacers provided can be fitted to the chain guide instead of the washers as shown.

## Adjusting the chain clamp opening width

When sharpening .043" chain it may be necessary to reduce the opening of the clamp to prevent the chain from falling into the clamp.

The same opening setting can be used for chain up to .067".

To adjust the clamp opening follow the procedure below.



Remove the top cover.



Adjust the clamp opening by turning the NUT. Turning the nut clockwise will reduce the opening amount and anticlockwise will increase the opening amount.



There should be no resistance on the chain when the clamp is in the open position.

With the motor arm still latched in the upright position, loosen the chain clamp one full turn.

Fit the chain into the chain guide as shown below.

Press the button combination "COUNT"+"INCH FWD". This will run the machine until the feed mechanism is in the fully forward position and the chain clamp is on.

When the machine has stopped, tighten the chain clamp on the chain. Finger tight only. The clamp need only be tight enough to stop movement of the chain.



Chain should be fitted to the machine as shown above (Note the direction of chain).



#### <u>Do not over-tighten</u>

Ensure the clamp knob is only tightened (by finger pressure only) while the feed is in the fully forward position to avoid inadvertent over-tightening.

## **Changing the Feed Motor Fuse**

The machine is fitted with a fuse to protect the mechanism from damage if excessive pressure is applied to the chain clamp.

If excessive pressure is applied and the machine will no longer feed the chain, follow the procedure below.



Remove the two screws from the top cover and remove top cover.



Replace with 7.5 amp fuse. Do not use a higher rated fuse as damage to the machine may occur voiding your warranty.

## Adjusting the Feed Stroke and Pawl Height

Using the Inch Fwd button, Inch machine until feed pawl is all the way back and adjust the feed stroke adjuster until the feed pusher plate is positioned just in front of the depth gauge.

Set the feed pawl height adjuster so that the feed pusher plate is just above the tie links. See below.



The feed pawl must be adjusted:

- 1. To provide sufficient stroke length for the chain pitch.
- 2. At a height to prevent possible catching on the top of the tie links.

Press 'INCH FWD' and take note of the 'Feed Pusher Plate' as it approaches the cutter. It must not contact the tie links of the chain as it may push from this point instead of the back of the cutter. Adjust the height of the Feed Pawl as shown below.



Lower the motor arm and wind the 'Depth Adjusting Screw' on the motor arm so that the grinding wheel is above and not contacting the chain.

Press the button combination "COUNT"+"INCH FWD".

Ensure the cutter being pushed is the same orientation as the grinding head. If not press 'INCH REV' until the Feed Pawl travels back over the following cutter then press 'INCH FWD' to get the correct cutter.

The feed is set to over-stroke the next cutter to provide sufficient stroke length should there be an additional tie link at the join. Set the stroke so the Feed Pawl returns and sits just in front of the following depth gauge. See below.



#### Note:

Sharpening chains with the extra tie link requires the stroke to be set acurately to prevent the feed finger jumping behind and engaging the depth gauge.

# The "Auto Detect" cutter sensor will not detect the following cutter if an additional tie link is present.

## DO NOT USE AUTO MODE IN THIS CIRCUMSTANCE.



## **'OFF' Mode Setup**

This mode assumes the chain has no double cutters and no extra tie links.

- 1. Press 'INCH FWD' and ensure the cutter and the grinding head are angled the same way. If not, press 'INCH REV' until the Feed Pawl travels back over the following cutter then press 'INCH FWD' to get the correct cutter
- 2. Select 'OFF' mode
- 3. Attach magnet to first rivet on any cutter
- 4. Select number of chain rotations by pressing 'COUNT'
- 5. Press 'START' then 'GRINDER'

## 'AUTO' Mode Setup

## This mode uses sensors to determine if there are two cutters in a row on the same side of the chain.

This mode uses a sensor to "*look*" at the cutter and determine what hand it is. If there are two cutters on the same side of the chain, the grinding head will automatically orientate itself and grind both cutters.

\*\* This mode requires careful and accurate adjustment of the "Cutter Sensor". See following page.

## **<u>Caution:</u>** Check chain for bent or broken cutters before using AUTO mode.

## DO NOT USE 'AUTO' MODE ON CHAINS WITH DOUBLE TIE LINKS.

Fit the chain into the chain guide making sure that the hand of the cutter is the same as the grinding head orientation. If it is not, press 'INCH REV' then 'INCH FWD' to synchronise the grinding head and the cutter.

Press and hold the "COUNT" then press "INCH REV" then release both buttons. The display will show a figure symbol and the machine will position itself with the head angled away from the operator (right).

The following series of pictures shows the correct setting of the tooth sensor.

1. Loosen the sensor clamp screw (1) and slide the sensor so that it's "TARGET" is beside the preceding left hand cutter.



Loosen the Sensor Clamp Bracket Screw and slide the sensor toward the cutter. Position the sensor approximately 1mm from the cutter. Both LED's (end of sensor & top of feed arm) should be on.





Sensor less than 1.5mm from cutter

**<u>Caution</u>**: Positioning sensor too low will cause false sensing. Make sure sensor only senses the cutter and not the body of the chain.

Figure below shows right hand cutter beside sensor. Note that lights are OFF indicating that the sensor is NOT sensing.

Light OFF



Press and hold the 'COUNT' Button and press the "Inch Fwd' Button, then release both Buttons.

Check that the Grinding head and the cutter are angled the same way. If they are not, press 'INCH REV' until the feed pawl travels back over the following cutter then press "INCH FWD' to bring the correct cutter into place. Then repeat step 1.

Ensure the grinding wheel is clear of the cutter by winding the 'Depth Adjusting Screw' on the motor arm clockwise.

Press 'START'. Allow to run and verify that grinding wheel is clear of chain.

Press 'GRINDER'. Note that the machine will stop feeding until the grinder motor reaches full speed.

Carefully adjust the 'Grind Depth Adjusting Screw' and 'Cutter Position Screw', while machine is running, to grind the desired amount off the cutters.

Note: Only adjust the 'Cutter Position Screw' when the feed arm is fully to the right. See page 33.



## **'MAGNET' Mode Setup**

#### Use this mode if the chain is damaged and 'AUTO' mode cannot be used.

This mode uses a magnet placed on the first rivet of a cutter on the chain to force the machine to reposition itself for grinding two cutters on the same side of the chain.

The magnet still provides the reference for counting the chain rotations.

- 1. Press the 'INCH' button to index the cutter into the grinding position.
- 2. Make sure the cutter is in the same orientation as the grinding head.
- 3. Place the magnet on the first rivet on the first of the two cutters which are on the same side.
- 4. Select 'MAGNET MODE'.
- 5. Press the count button so that the display reads at least 2 (if the counter is left at '1' the machine will simply stop when the magnet passes the switch).
- 6. Press 'START', then 'GRINDER'

Note: the machine will stop feeding until the grinder motor reaches full speed.



## **Magnet Positioning for Counting**

Place the magnet supplied onto the chain as shown in fig. below.

# Do not place the magnet on a tie link (link between cutters) as the machine will not function correctly.



Place the magnet on the first rivet of the first cutter in a double sequence on the chain.

Both Cutters on the same side of chain.

The magnet placed on the side of the chain references the number of chain rotations in *all modes*.

Press the "COUNT" button to indicate how many times the chain will circuit the machine. A maximum of nine (9) times may be entered.

If the count is set to one (1), the machine will stop when the magnet passes the proximity switch.

## Grinding the Cutters the same length



For a chain to perform at its optimum, it is crucial the cutters are the same length.

After grinding the cutters, measure the length of one cutter on each side.



If the cutters are different lengths, adjust the grinding head to compensate.



Winding the head clockwise will bring the grinding head towards the operator and winding the adjuster anticlockwise will move the grinding head away from the operator.

This adjustment can be made while the machine is operating.

## Adjusting the amount of material to remove

It is only possible to adjust the cutter while the chain is not clamped. IE: When the feed arm is in the return position. See picture below.

Feed Arm in the return position and the chain clamp is OFF.





DO NOT ADJUST THE TOOTH POSITION SCREW WHEN THE CHAIN IS CLAMPED. Damage to the machine may occur if the Tooth Position Screw is

adjusted while the chain is clamped.

Feed Arm in the Forward position and the chain clamp is ON.



# <u>The following section deals with altering the settings</u> <u>from standard</u>

## **Changing the Side Plate Angle**

- 1. Loosen the 8mm retaining nut.
- 2. Rotate the chain guide to the desired position.
- 3. Retighten the 8mm retaining nut.





Minimum side plate angle Approximately  $18^{\circ}$ 

Note: Reset the stroke length and feed pawl height after altering the side plate angle.

## **Changing the Top Plate Angles**



Press and hold the 'COUNT' Button and press the "Inch Fwd' Button, then release both Buttons.

Loosen the bolt and set the LEFT angle to the desired angle  $(35^{\circ} \text{ shown})$ .

Press and hold the 'COUNT' Button and press the "Inch Rev' Button, then release both Buttons.

Insert the 4mm hex key into the end of the motor arm and turn until the indicator shows the exact same angle on the right side

## <u>"0" Degree Top Plate Angle</u>



Press and hold the 'COUNT' Button and press the "Inch Fwd' Button, then release both Buttons.

Loosen the head clamp bolt and rotate head to the triangular mark as shown. Retighten head clamp bolt.



Press and hold the 'COUNT' Button and press the "Inch Rev' Button, then release both Buttons.



Insert the 4mm hex key into the end of the motor arm and turn until the indicator points to  $0^{\circ}$ .

To reset the grinding head angle after it has been set to "0" degrees refer to previous page.

#### **GRINDING the DEPTH GAUGES**

- 1. Set the grinding head angle for "0" degrees as described earlier.
- 2. Replace or redress the grinding wheel so that the edge of the wheel suits the shape of the depth gauge.
- 3. Wind the depth adjusting screw in so that the grinding wheel is clear of the chain.
- 4. "INCH" the machine, adjusting the cutter position screw and the depth adjusting screw until the depth gauge is directly under, but not touching, the grinding wheel.
- 5. Select "OFF" mode
- 6. Press "START" then "GRINDER".
- 7. Adjust the depth adjusting screw for the amount of material to be removed.



## Chains with Double Tie Links

Chains with both two tie links <u>and</u> an out of sequence cutter require the machine to be operated in **magnet mode**. Adjust the feed limiting screw so that the feed pawl returns far enough to push the cutter after the double join and place the magnet on the chain as described earlier.



Chains with two tie links and the cutters in the correct sequence require the machine to operate in the "OFF" mode as no change is required through the join.

Chain with irregular joins can be easily identified by:

- 1. Place on a table.
- 2. Extend them out so the drive links lie immediately beside each other and check the cutters are paired in sequence.

## **Repaired Chains**

Chains which have had a cutter replaced require special attention. Because all of the chain cutters except the replaced cutter are worn or ground shorter than a new cutter, this replaced cutter must first be ground back to the same length as all other cutters.

Set up the chain as described earlier. Inch the machine over a section of chain that has worn cutters with the grinding wheel running so that the grinding wheel is just touching the cutters. Inch the machine up to the replaced cutter and *very slowly* inch the machine into the replaced cutter. This will bring all cutters back to the same length and allow the chain to be sharpened in the normal manner.

## **Safety Chains**



Chains with this type of safety link require the feed pawl stroke to be limited so that it does not push the ridges on top of the safety link.







## 3/4" Harvester Chain

Changing the machine to grind 3/4" harvester chain requires the following adjustments.

- 1. Remove the chain guide plate and place 3 washers on each stud.
- 2. Add one washer to the centre stud.
- 3. Remove the plate from the feed Pawl.
- 4. Remove the feed Stop Arm.
- 5. Change the position of the cutter sensor.



Make sure the chain clamp has been loosened before fitting the chain. Excessive clamping pressure will damage the machine.



Extra washer on stud

3 washers on each stud



Remove plate from Feed Pawl



Remove Feed Stop Arm



Attach Cutter Sensor as shown



Place magnet below pin on chain. Magnet must be no more than 5mm (3/16") away from proximity switch.

## **Checking the Cam Timing**

This will only be required after disassembly.

Inch the machine forward until the feed pawl has reached its furthermost forward point. View the timing marks through the cut-outs in the rear plate and ensure all three gears are timed correctly as shown below.



To alter the timing, remove the retaining bolt from the bevel idler gear, rotate the gears so that the timing marks line up and replace the bolt in the bevel idler gear. Do not force the bevel idler gear into mating gears as coarse operation will result.

## **Leaving the Machine for Extended Periods**

When the machine is not in use (i.e.: overnight, vacations etc.), always leave the machine with the bevel cam follower on the lowest section of the bevel cam. This ensures that the contact surface of the bevel cam is not damaged. To achieve this press 'COUNT + INCH REV' on the automatic machine, or wind the handle until the machine is orientated as shown below for the manual model.



Failure to follow this procedure may result in damage to the contact surface of the bevel cam.

# **Trouble Shooting**

<u>Problem</u>	<u>Cause</u>	<u>Remedy</u>
Not Auto Detecting Cutters	*Not in AUTO mode *Sensor incorrectly adjusted *Sensor wires broken	*Select Auto Mode *Readjust cutter sensor *Replace sensor wire
Unreliable Auto Detection	* Sensor incorrectly set	*Readjust sensor closer
Not Feeding Chain	*Blown Feed Motor Fuse	*Replace Feed Motor Fuse (Page 26)
Grinder motor vibrating	*Unbalanced grinding wheel	*Dress & true grinding wheel
Cutter lifting while being pushed	*Incorrect feed pawl adjustment	*Readjust feed pawl
Cutters burning and burring	*Excessive grinding *Loaded grinding wheel	*Reduce amount of material being ground *Dress grinding wheel
Cutters different angles	*Incorrect angle setting *Loose grub screw (#150)	*Reset grinding head angle *Retighten grub screw (#150)
Cutters different depths	*Incorrect angle setting *Loose grub screw (#150)	*Reset grinding head angle *Retighten grub screw (#150)
Cutters different lengths	*Incorrect angle setting *Cutter lifting during grind *Grinding arm not on centre *Loose grub screw (#150)	*Reset grinding head angle *Readjust feed pawl *Centre grinding arm *Retighten grub screw (#150)
Incorrect hook angle	*Worn grinding wheel	*Redress grinding wheel
Grinding head not changing angles	*Excessive preload on worm wheel	*Adjust worm wheel preload
Chain sticking/bunching in chain guide	*Damaged drive links *Chain guide too tight	*Remove burrs on drive links *Fit correct chain guide spacer

## Things to watch out for

- Check the grinding head for square and centre to the chain.
- Do not over tighten the chain clamp. Over tightening can damage the machine.
- Use the correct mode to suit the chain.
- Be careful to adjust the cutter sensor accurately. It should not be possible to make the LED on the end of the cutter sensor go out by moving the chain in the guide when the chain clamp is on. The sensor should not touch the cutter.
- Inspect chains for bent or broken cutters before sharpening. Do not use Auto mode on chains with bent or broken cutters.
- Damaged or burred drive links will cause inconsistent grinding and wear the machine. Repair drive links before sharpening.
- Regularly clean the machine. Grinding dust will rapidly build up on components causing premature wear and malfunction. When possible, use CBN grinding wheels as they do not emit dust.
- In magnet mode, make sure the magnet is placed near to the proximity switch. It is necessary to place it on the side of a cutter as it dwells next to the proximity switch while the tooth is being ground and provides a longer signal.
- Ensure the grinding wheel runs true and is not damaged before switching on the grinder motor.
- Do not touch or pull the chain when operating the machine.

#### CAMS AND CHAIN GUIDE ASSEMBLY



#### FEED and CLAMP ASSEMBLY



#### FRONT PLATE ASSEMBLY



#### HEAD ASSEMBLY





## <u>Handi-Rex</u>



No.	Description	Order No.	No.	Description	Order No.
1	Clamp bolt	FM675HEX	43	Bush, feed arm	CPPRFAB
2	Clamp bolt spacer	CCBS	44	Spacer, feed arm	CTRFCS
3	Clamp plate	CPCGCP	45	Conrod, feed	CCFS
4	Prox. Switch	ESWITCHREED	46	Bush, clamp	CTRCPB
5	Nut, M3	FM3NUT	47	Screw, feed stop	CTRFSC
6	Guide, outer	CPCGOP	48	M3 x 10 capscrew	FM310socap
7	Spacer, chain guide	FM6WFZP	49	Bracket, sensor	CSBIO
8	4mm flat washer	FM4WEZP	50	Tooth sensor, omro	ESENSE
9	Guide, inner	CPCGR	51	Bracket, sens. pl.	CSBIPO
10	4g self-tapper	F4G38PH	52	M5 x 16 socket	FM516SOCAP
11	5mm spr. washer	FM5WSZP	53	3/16" x 5/8" washer	F31658W
12	5mm flat washer	FM5WZP	54	Cover, plastic	CTPDC
13	Nut, feed conrod	CNFS	55	Clamp, long	CTRLC
14	Screw, tooth pos.	CSFA	56	Clamp, short	CTRSC
15	6 x 6 grub	FM66GRUB	57	Screw, tooth pos.	PFC
16	Bearing, 6001	B6001	58	M4 x 12 pan	FM412PAN
17	M4 x 12 pan	FM412PAN	59	Plate, crank	CCCAP
18	4mm spring washer	FM4WSZP	60	M4 x 12 pin	FM412SELPIN
19	Bolt, centring	CSHCB			
20	M5 x 10 pan	FM510PAN	61	Spring, feed	OCSFDSPRING
			62	Conrod, clamp	CCC
21	Plate, piv. universal	RPFPPU	63	O'ring 8 x 1	B-ORING81
22	M6 x 10 C/S	FM610CS	64	Spring, clamp	CTRSCS
23	$M6 \ge 10$ bolt	FM610HEX	65	Spacer, bearing	CFCFS
24	Rear plate	CRPA	66	M5 x 16 socket	FM516SOCAP
25	Bracket, rear	C3BBMA	67	Cam follower, grind	CHAA
26	M6 x 12 pan	FM612PAN	68	M8 x 12 bolt	FM612HEX
27	Gear, 32t idler	C3ABIG	69	Gear, 16t bevel	P16TG
28	4 x 5 magnet	ENEOMAG45	70	Cam, feed	CFCAM
29	Centring adjuster	R8AHCA	71	Cam, grind	CGCAM
30	Screw, feed stop	FM650HH	72	3 x 20 pin	FM320PIN
31	M5 x 12 socket	FM512SOCAP	73	Gear, 32t drive	P32TG
32	M6 x 55 capscrew	FM655CAP	74	Spacer, 16mm	PSPS16
33	Plate, pusher	CTRPP	75	Camshaft, auto	CCA
34	M6 nut	FM6NUT	76	Shaft, pivot	CTPS
35	Feed pawl	CTRFP	77	Gear, 16t drive	P16TGCHAIN
36	Cover, end	CECP	78	1/4" bsw c/s	F1412CS
37	Hall effect, bevel	CHALLB	79	Bolt, M6 x 25	FM625HEX
38	Bolt, idler gear	CIGBLT	80	Circlip, 16mm	F16CCLIP
39	Bearing, 608	B-608	0.1		ODD HOLES
40	Arm, teed	CAFA	81	Plate, clamp poly	C3POLYCLAMP
41	Feed screw pivot	CPFAP	82	Sleeve, drive motor	CDMSF
42	M5 x 5 grub	FM55GRUB	83	Plate, front	CFPA

No.	Description	Order No.	No.	Description	Order No.
84	Brace, motor shroud	C3BRACE	124	8mm C clip	FM8CCLIP
85	Sensor, motor	CHALLM	125	Bearing, 688	<b>B-</b> 688
86	Motor, feed	ESWF55	126	Cam, bevel	CBCAG
87	Plate, piv. universal	RPFPPU	127	Anti-kick plate	CPFA
88	Bracket, front	C3BBMBC	128	Camfollower, bevel	CBCF
89	M4 x 16 grub	FM416GRUB	129	M8 x 20 grub	FM820DP
90	M4 nut	FM4NUT	130	Pin, bevel camfol.	CBCFPP
91	Plate, plastic cover	CECCP	131	Conrod, bevel	C3CRODC
92	Stud, chain guide	CCGS6	132	Stop, spring	CMAAP
93	Nut, M6 nylock	FM6NYLOCK	133	Latch, motor arm	CMAL
94	Shroud, grinder	CGMS	134	M6 bias plug	FM6BIASPLUG
95	Shaft, grind camf.	CTRGCFC	135	M5 x 8 C/S	FM58CS
96	Indicator, protractor	CAIP2	136	Cover, bottom	CBC
97	Stop, feed conrod	CSFFC	137	M5 nut	FM5NUT
98	Motor, grinder	ENS63	138	Shield	P3PFSLD
99	Sleeve, offset	CWOS2	139	Cover, top	CTC
100	Screw, bevel limit	C3BLMB	140	Switch, body	ESWITCHPP75
101	Warma	CWCC	1.4.1	Madula control	ECONTROLLED
101	Worm	DDDMCD	141	Moquie, control	ECONTROLLER
102	Plate, motor	RPPMSP	142	Switch, nut nex	ESWITCHPP75
103	Spindle Wheel arrived	C105[2 4 5 9]	145	Cover, from	CEFC EFFLICETH DDDM
104	Wheel, grind	G125[5,4,5,6] DEN	144	Fuse holder	ECDOMET9
105	Nut, hange	PFN DSC	143	Grommet	EGRUME I Z
100	Guard, shroud	rəg Odeveddinc	140	Switch, hut md.	ESWITCHPP75
107	Spring, bever	CAIDAQ	14/	Switch, Dutton	ESWITCHPP75
108	Indicator, angle $\mathbf{D}_{\text{resolution}} = \mathbf{C} \mathbf{O} \mathbf{S}$	CAIPAZ D 609	148	Self tapper	F0G34FH CUCD
109	Bearing, 608	B-008	149	Bolt, head clamp	
110	Wasner, 8mm	FMOWZP	150	M8 X 10 Dp grub	FM810DP CDCDD
111	Cover, arm bottom	CMABI	151	Pin, motor shroud	CEPPP
112	feed camfollower	CIKSFCF	152	Plate, shroud block	CSPBP
112	Dia anatan ama ninat	CMADD	153	-	
113	Fill, motor arm pivot	CMAPP E9AD90	154	- C16	CCCA
114	Screw, oADoo	roadoo Cucod	155	Camshait manual	CLSA
115	Fin, nead clamp	CHCOP	150	Ann reverse plate	CAKP
110	Cap, nead clamp	EMPELY	15/	Cover, top manual	CTCPRM EM910CS
11/		FM3FIA C9WW000	158	Screw, M3 x 12 C/S	FM312CS
110	Worm segment	Cowws22	159	Pawl, anti reverse	CARPA
119	M3 x 8 pan	FM38PAN	160	Pivot, anti reverse	CARPP
120	Cover	UMACC	171	Dalt M9 - 55	EMOSSCAD
101	Buch colf align	B158SA	101	DOIL, MIO X 33	FM000UAP
121	Sorow dopth ad:	CSCDAP	162	Spacer bead ter	CHCLSDT
122	Motor arr	CIGDAD	103	Spacer, nead top	CEECM
123	MOIOF arm	COUGU	104	Cover, front manual	ULFUM

No.	Description	Order No.	No.	Description	Order No.
165	M12 nut	FM12NUT	178	Spacer, 16mm & H	СТЅРН
166	Handle	СН	179	3/8 star wheel	CKNOB38
167	M8 x 16 CP grub	FM825Cone	180	Magnets, guide	ENEOMAG125
168	M3 gutter washer	F1812WZP			
169	M3 x 8 C/S screw	FM38CS	181	Guide, feed stop	CSFSGT
170	Pawl, scratcher	CTRFPSC	182	Block, feed stop	CFSABT
171	Spring, feed pawl	C3FPS	183	Arm, feed stop	CSAFSTP
172	M6 x 16 grub	FM616GRUBCP	184	Pivot, feed stop	CSFPFST
173	3 x 16 roll pin	FM316SELPIN	185	Spacer, head bolt	CHCLSPB
174	Spring, feed conrod	CSFC	186	Nut, M8	FM8NUT
175	M3 x 6 socket cap	FM36SOCAP	187	Sleeve, feed sensor	CFMMH
176	Spacer, feed camfol.	CSFCF	188	Light, tooth sensor	CFALED
177	Spacer, 10mm	CTPSPS		-	
	1 ·				

Magnet, Correction & Counting – Part # CMAGSEN



#### NOTES

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# Warranty Registration

## Please fill out and return to place of purchase.

# **Dinasaw** ®

Email: <a href="mailto:sales@dinasaw.com.au">sales@dinasaw.com.au</a>

First Name:		
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Place of purchase:		
Date of purchase:		
Machine Type:	Automatic	Semi-Automatic
Serial Number:		



DinaSaw Pty Ltd Unit 3, 11 Hinkler Court, Brendale QLD, 4500

P: +61 (0)7 5491 4999 E: sales@dinasaw.com.au W: dinasaw.com.au