

PANDROL



CD100 / CD100 B

USER AND MAINTENANCE MANUAL



ENG_OMM_CD100_P07

2022-10-19

Partners in excellence



Thank you for choosing CD100!

You are now the owner of a quality product from Pandrol.

The pictures in the manual are for illustration only, the appearance of the machine may vary

This manual aims to help you get to know your new CD100, to use it in the best way and to maintain it properly for a long lifetime. It also presents important safety regulations and warnings.

The manual is intended for people who handle and operate the machine. It is originally written in Swedish and then translated into the local language by Pandrol AB.

Pandrol AB reserves the right to change specifications, equipment, instructions and maintenance guidelines without prior notice.

The manual contains instructions about the following topics:

1. Installation
2. Operation
3. Safety features and warnings
4. Maintenance and troubleshooting

(1) refers to a component in a figure/illustration.

IMPORTANT!

This manual contains ordered actions, e.g.

1. **Do this**
2. **...and then this...**
- 3 **and finally this**

These actions must be done in the numerical order presented.

Revision	Datum	Kommentarer
P04	2021-03-18	New layout
P05	2021-04-13	Added Drive unit/battery Power pack
P06	2022-02-21	Updated manual
P07	2022-05-19	New solution for handlebar and buttons CD100B

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1. Safety Information

1.1. General

- Read and understand all safety regulations and warnings before installation, operating or performing maintenance on this machine.
- Make sure that no unauthorized personnel are in the operating area during installation, use or maintenance.
- Improper installation of this unit can be dangerous and may lead to mishaps or accidents and could result in personal injury.
- Improper operation of this unit can be dangerous and could result in personal injury or death.
- Improper maintenance of this unit can be dangerous and may lead to mishaps or accidents and could result in personal injury.
- Do not operate this unit until you have read and understood the safety instructions in this manual and the enclosed manual from Honda.
- Do not perform any maintenance on this unit until you have read and understood the instructions in this manual.
- The power unit is only permitted to be used as a power source for Pandrol manufactured original tools.

1.2. Safety Regulations

- Do not make any alterations to your CD100. Doing that, you could compromise your own safety and expose yourself to a serious accident or injury risk.
- Before each start, perform a general inspection of all parts and make sure that they are not worn, damaged or loose. Also make sure that the tool is dry everywhere and that there is no oil leakage.
- Regular maintenance is required to ensure a safe operation. Keep all nuts and bolts securely tightened.
- The engine must be switched off when performing cleaning, control, adjustments, reparations, refueling and when the unit is being left unattended.
- Attention! Risk for clamping. Be careful with bodily parts around the unit. Risk for injuries.
- Do not use the unit with damaged or worn parts. If parts must be replaced use original parts, please contact Pandrol AB for consultation.
- When the CD100 is used the operator must wear protecting clothes, i.e. long trousers, boots, gloves, ear defenders and goggles or a protective visor.
- Make sure to run the engine in ventilated areas and spaces, otherwise the exhaust fumes that contains poisoned carbon monoxide can be gathered and this can make you faint and even death.
- Petrol is extremely flammable and shall be treated with great care. Refueling shall be done outdoors with the engine switched off. Do not smoke during refueling or while handling fuel.
- If the fuel tank shall be drained, it should be performed outdoors and when the engine is cold.

- To protect the environment, do not dispose old oil or fuel by pouring it down the drain, in the gutter or on the ground.
- Let the engine cool down before putting the unit away in its storage.
- All handling of the battery must be done according to the manual for the battery and battery charger.

1.3. Warning Labels

The warning labels present on the machine are presented below. If any of these warning labels become damaged or lost, they are to be replaced with new original warning labels that are available from Pandrol AB.



Read manual before use
(art. 710016)



Wear safety goggles
(art. 710017)



Wear safety helmet
(art. 710018)



Wear hearing
protection
(art. 710019)



WARNING! Oil
pressure
(art. 710216)



WARNING! Risk
of crushing
(art. 710217)



High voltage
(art. 710018)
(only CD100 B)

1.4. Qualified Personnel

The CD100 with its working tools is only to be used by qualified personnel, thoroughly familiar with and trained in general railway workmanship and operated according to the conditions and standard regulations applying to the track they are working on.

The equipment must be serviced, maintained, or in any way repaired only by qualified personnel who are familiar with both this Operation & Maintenance Manual and the Honda manual and have received training and information from Pandrol AB.

In order to avoid personal injury or death and/or material damage, everyone involved with assembling, starting-up or overhaul must possess pertinent knowledge according to the Honda manual.



WARNING! All maintenance and service or other operations on the hydraulic system is to be carried out by qualified personnel.

2. General Description

CD100 is patented and delivered CE-certified. A machine identification plate is fastened on the Power Unit, refer to Fig. 1. In case the identification plate becomes damaged or lost, please contact Pandrol AB to obtain a new one

CD100 is available in two variants Petrol engine and Battery powered.

- CD100 consists of a motor unit, a handlebar, a fastening tool and a declipping tool according to (2), (4), (5) and (6) in the table below.
- CD100 B consists of a drive unit, a handlebar, a fastening tool and a declipping tool according to (1), (3), (5) och (6) in the table below.



Fig 1. Identification plate

Nr	Description	Item No
1	Handle bars CD100B	6000618
2	Handle bars CD100	1100058
3	Drive unit CD100 B	6000617 (incl. handlebar)
4	Motor unit CD100	5014188 (incl. handlebar)
5	Clipping tool FC / FCX	1100201
6	Declipping unit FC / FE&FCX	1100058 / 5012730



Fig 2. Handlebar CD100 B



Fig 3. Handlebar CD100



Fig 4. Drive unit



Fig 5. Motor unit

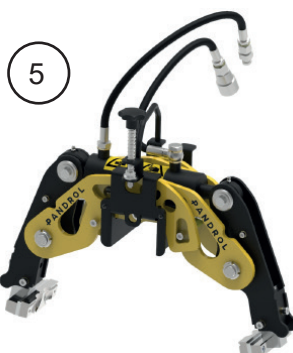


Fig 6. Clipping tool

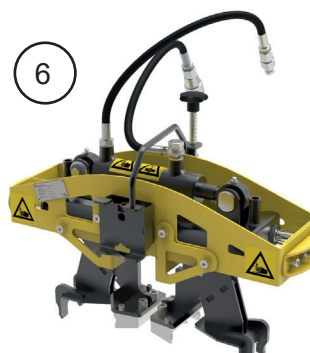


Fig 7. Declipping tool

3. Technical Information CD100/CD100B

3.1. Technical Information CD100

The Power Unit is designed as an easy moveable, ergonomically friendly hydraulic power source. It is designed with a quick connect interface which enables fast and easy connection to the working tools.

The engine of the Power Unit is based on Honda original parts and the working tools are based on well-known Pandrol technology. The Power Unit is supported by a steel wheel to the rail, which relieves the operator from the weight and thus prevents the operator from wearing injuries. The components of the Power Unit are presented in Fig 8. och and the components of the handle bar in Fig 9.

Nr	Description
1	Engine
2	Hydraulic connectors
3	Wheel adjustment screw
4	Hydraulic tank
5	Accelerator
6	Handle
7	Steering bar
8	Change of direction control

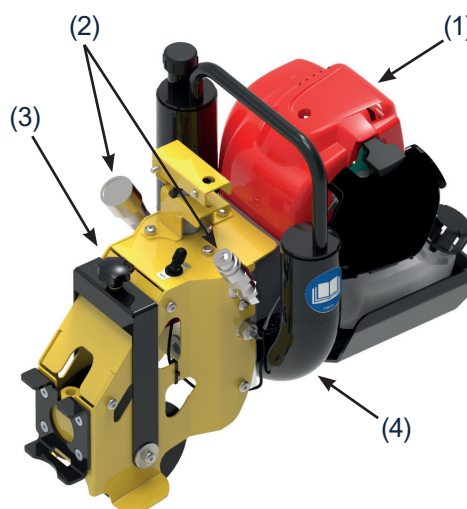


Fig 8. motor unit

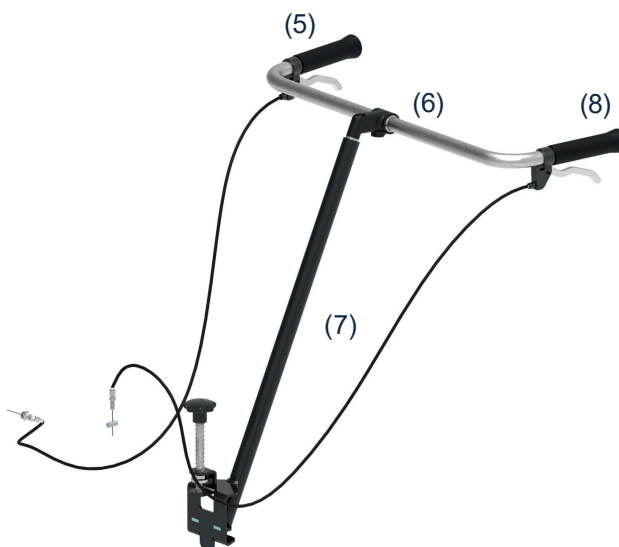


Fig 9. Handlebar

3.2. Technical Data - Engine Power Unit 5014188

Technical data for the Power Unit (part no. 5014188)		
Description	Specification	
Engine	Refer to the enclosed manual from Honda	
Noise level	Measuring point : Operating condition: Measured vibration emission value:	In operating position Full operation 98 dB (A)
	Measuring point : Operating condition: Measured vibration emission value:	In operating position Idle running 74 dB (A)
Vibration emission	Measuring point : Operating condition: Measured vibration emission value:	Handle bar Idle running 0,53 m/s ²
	Measuring point : Operating condition: Measured vibration emission value:	Handle bar Full operation 1,28 m/s ²
Measurement		
Length	480 mm	
Width	260 mm	
Height	400 mm	
Weight	16 kg	
Packaging measurements		
Length	371 mm	
Width	671 mm	
Height	450 mm	
Weight	26 kg	
Hydraulics		
Pump	Vivolo XV-OP/0.45	
Max. oil pressure	190 bar	
Displacement	0,45 cm ³ /rev	
Max. engine speed	6000 rpm	
Hydraulic tank volume	1,1 L (1,16 Quarts)	
Hydraulic oil quality	ISO VG 46 or similar	
Hydraulic connectors	Quick coupling (adaptable)	

Above specifications may be changed without notice according to Pandrol AB's requirements.

3.3. Technical Information CD100B

The Drive Unit is designed as an easy moveable, ergonomically battery driven hydraulic power source. It is designed with a quick connect interface which enables fast and easy connection to the working tools.

The Drive Unit is supported by a steel wheel to the rail, which relieves the operator from the weight and thus prevents the operator from wearing injuries. The components of the Drive Unit are presented in Fig 43 and the components of the Handle Bar Unit are presented in Fig 10.

Nr	Dercription
1	Battery
2	Hydraulic connections
3	Wheel adjustment screw
4	Hydraulic tank
5	Direction control
6	Handlebar
7	Handle rod
8	Throttle and locking controls

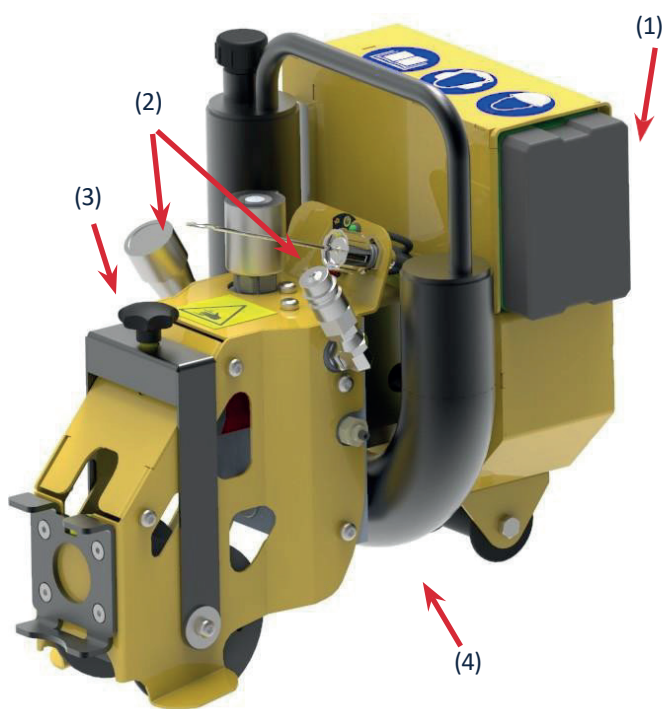


Fig 10.



Fig 11.

3.4. Technical Data - Battery Power Unit 6000617

Technical data for the Drive Unit (part no. 6000617)		
Description	Specification	
Noise level	Measuring point : Operating condition: Measured vibration emission value:	In operating position Normal operation 79.2 dB (A)
Vibration emission	Measuring point : Operating condition: Measured vibration emission value:	Handle bar Normal operation 1,28 m/s ²
Measurement		
Length	480 mm	
Width	260 mm	
Height	400 mm	
Weight	19 kg	
Packaging dimensions		
Length	390 mm	
Width	580 mm	
Height	450 mm	
Weight	29 kg	
Battery		
Battery capacity	432 Wh - 6 Ah - 72 V	
Work capacity	300 clips / charge cycle	
Charge time	45 min (use 82C2/82C1G charger)	
Hydraulics		
Pump	Vivolo XV-OP/0.45	
Max. oil pressure	190 bar	
Displacement	0,45 cm ³ /rev	
Max. engine speed	6000 rpm	
Hydraulic tank volume	1,1 L (1,16 Quarts)	
Hydraulic oil quality	ISO VG 46 or similar	
Hydraulic connectors	Quick coupling (adjustable)	

Above specifications may be changed without notice according to Pandrol AB's requirements.

4. Tools

4.1. Clipping Tool 1100201

The Clipping Tool is an attachment to the Power Unit, ergonomically friendly designed and easy to lift manually. It is based on well-known Pandrol technology and has a quick connect interface which enables fast and easy connection to the Power Unit.

The components of the Clipping Tool are presented in Fig 12.

Nr	Description
1	Locking mechanism
2	Arm
3	Hydraulic connectors
4	Bracket
5	Claws

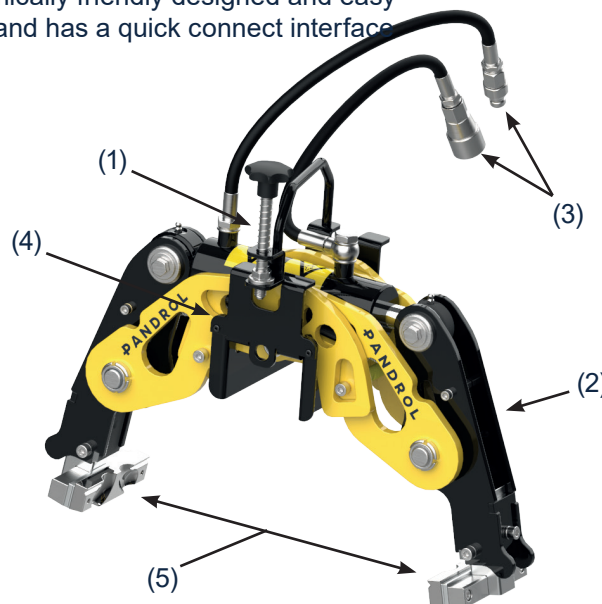


Fig 12. Clipping tool

Technical data for the Clipping Tool (part no. 1100201).	
Decription	Specification
Attachment to	Power Unit, part no. 5014188, or Battery Drive Unit, art nr 6000617
Capacity	Approx. 10 installations/min
Clips	Pandrol Fastclip
Measurements	
Length	580 mm
Width	210 mm
Height	390 mm
Weight	24 kg
Packaging measurements	
Length	590 mm
Width	240 mm
Height	450 mm
Weight	32 kg
Hydraulics	
Max. working force	33,8 kN
Max. oil pressure	190 bar
Hydraulic cylinder	Double-acting, with spring return
Hydraulic connectors	Quick coupling
Cycle time	6,5 sek

Above specifications may be changed without notice according Pandrol AB's requirements.

4.2. De-clipping Tool 1100058 - FE/FCX 5012730

The De-clipping Tool is an attachment to the Power Unit, ergonomically friendly designed and easy to lift manually. It is based on well-known Pandrol technology and has a quick connect interface which enables fast and easy connection to the Power Unit. The components of the De-clipping Tool are presented in Fig 13.

Nr	Dercription
1	Hydraulic connectors
2	Clip catcher
3	Arm
4	Locking mechanism
5	Bracket
6	Claw

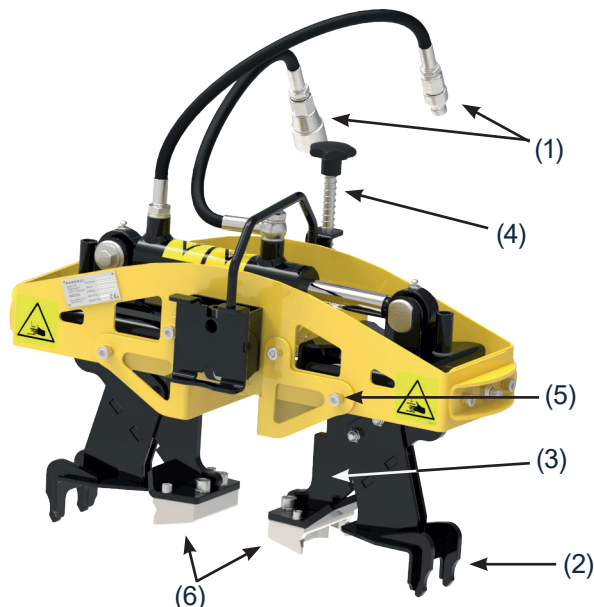


Fig 13. Declipping tool

Technical data for the De-clipping Tool (part no. FC 1100058 - FE/FCX 5012730).

Decription	Specifikation
Attachment to	Power Unit, part no. 5014188, or Battery Drive Unit, art nr 6000617
Capacity	Approx. 10 installations/min
Clips	Pandrol Fastclip
Measurements	
Length	560 mm
Width	270 mm
Height	400 mm
Weight	24 kg (29 kg for 5012730)
Packaging measurement	
Length	580 mm
Width	330 mm
Height	450 mm
Weight	35 kg (40 kg for 5012730)
Hydraulics	
Max. working force	23,9 kN
Max. oil pressure	190 bar
Hydraulic cylinder	Double-acting
Hydraulic connectors	Quick coupling
Cycle time	6,5 sek

Above specifications may be changed without notice according to Pandrol AB's requirements.

5. Transport And Packaging

CD100 and CD100B are delivered in a suitable, environmentally friendly wooden boxes. When the machine is not being used or transported, the components shall be stored in their suitable boxes. The boxes are designed as a system easy and safe to transport, store and carry. Follow the instructions in the reversed order when storing the components.

The pictures are for illustration only, the appearance of the machine may vary

5.1. Unpacking The Power Unit

1. Lift the power unit and the handle out of the box and place it on the ground.
2. Mount and attach the Handle Bar Unit to the Power Unit using the locking mechanism.
3. Attach the Handle to the Handle Bar.
4. Adjust the handles
5. Attach the required tools according to section "6. Setup/Installation".



Fig 14.



Fig 15.



Fig 16.



Fig 17.



Fig 18.



Fig 19.

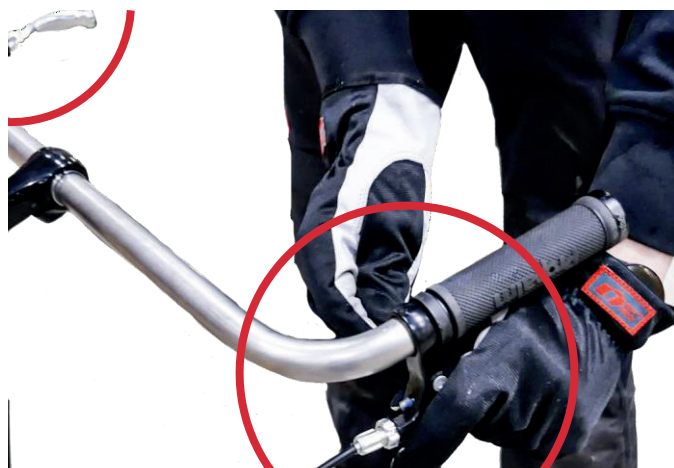


Fig 20.

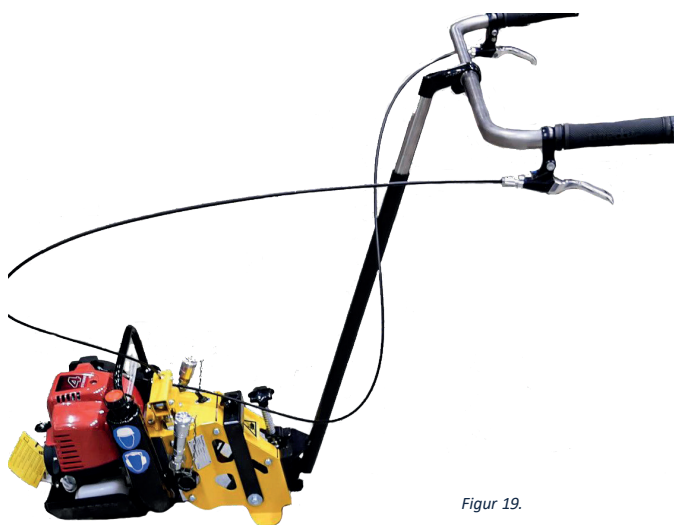


Fig 21.

Figur 19.

5.2. Unpacking The Clipping Tool



Fig 22. Clipping Tool in its suitable box

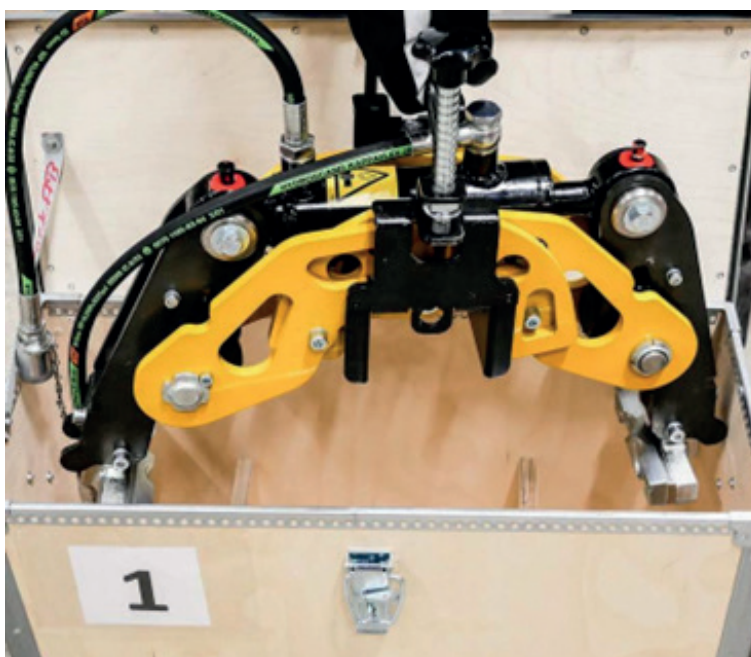


Fig 23. Easy to lift up and to store when not being used.

5.3. Transportation And Storage Of CD100B

The Power Unit contain a Lithium Ion battery and shall be handled according to local legislations of handling and transporting batteries.

The battery is classified according to UN 3481 standard, meaning that the capacity is greater than 100 Wh. Find detailed battery information in section "9.2. Battery Technical Specification" on page 17.

On-ground transport for private use or transport carried out by an employee or an inhouse company transport service from company site to working site does not require lithium battery mark and ADR.

All transports with a forwarder requires Lithium battery mark and ADR. Always consult your forwarder before the transport is to be carried out. Special terms for air transport of the Power Unit applies. Always contact your forwarder for information.

Remove the battery pack from the tool before storing.

Store and charge your batteries in a cool area. Temperatures above or below normal room temperature will shorten battery pack life.



Fig 24.



Fig 25.

6. Setup/Installation

6.1. Power Unit

Be aware that the Power Unit is delivered without:

- Engine oil (CD100)
- Hydraulic oil (CD100/CD100B)
- Fuel (CD100)



WARNING! Fill up the Power Unit with engine oil, hydraulic oil and fuel, according to the manual, before starting the engine.

6.1.1 Engine oil and fuel (CD100)

Read the Honda manual for further information, enclosed with the Power Unit.

6.1.2 Hydraulic oil (CD100/CD100B)

Fill with new hydraulic oil, quality ISO VG 46 or similar, approximately. 1,1 litres until the oil level is 10 mm up on the oil dipstick. Check the oil level with the oil dipstick

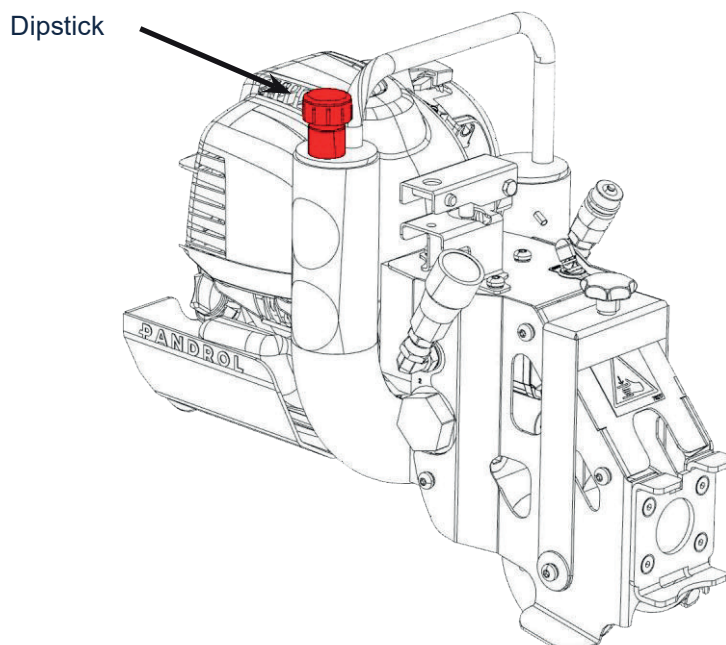


Fig 26.



WARNING!
Check that the hydraulic hoses are clean each time prior to connection.

6.2. Clipping Tool

- Place the Clipping Tool with the arms on each side of the rail.
- Disconnect the Handle Bar Unit from the Power Unit).
- Fasten steering bar to the Clipping Tool using the locking mechanism.
- Fasten the Power Unit to the Clipping Tool. Connect the hydraulic hoses, making sure they are clean before connecting.

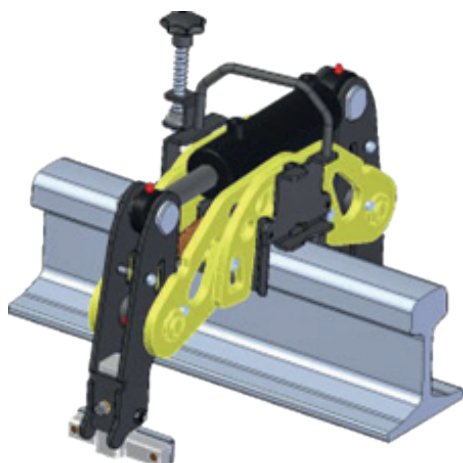


Fig 27.

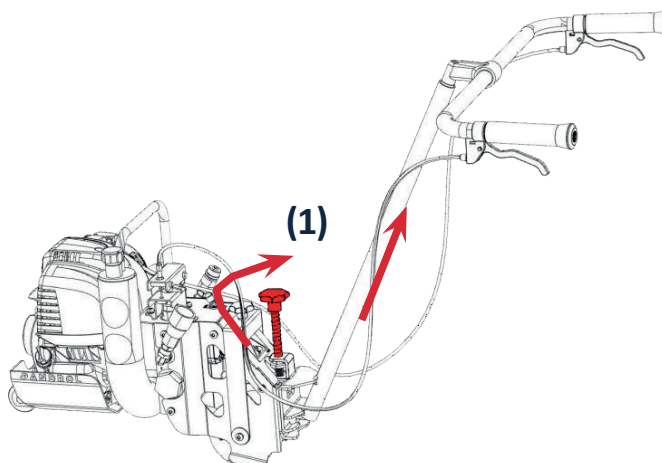


Fig 28.

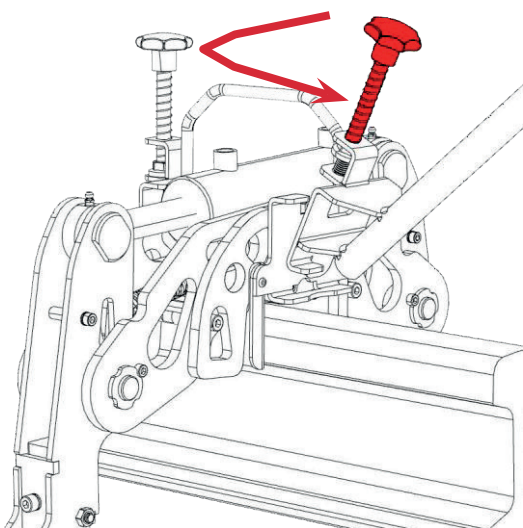


Fig 29.

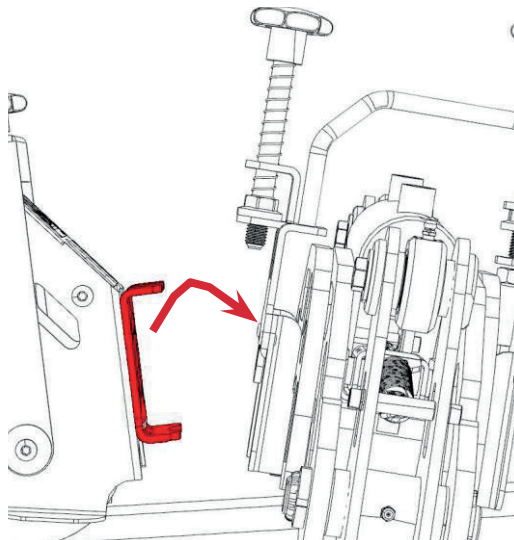


Fig 30.

6.3. De-clipping Tool

- Place the De-clipping Tool with the arms on each side of the rails.
- Disconnect the Handle Bar Unit from the Power Unit (1).
- Fasten the Handle Bar Unit to the De-clipping Tool.
- Fasten the Power Unit to the De-clipping Tool. Connect the hydraulic hoses, making sure they are clean before connecting



Fig 31.

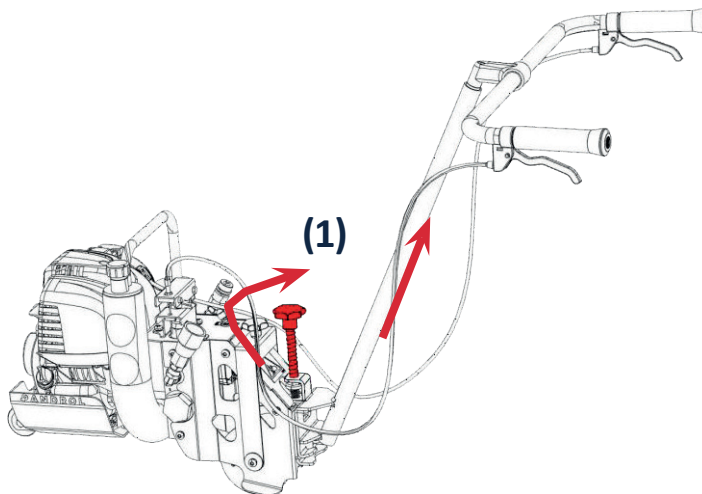


Fig 32.

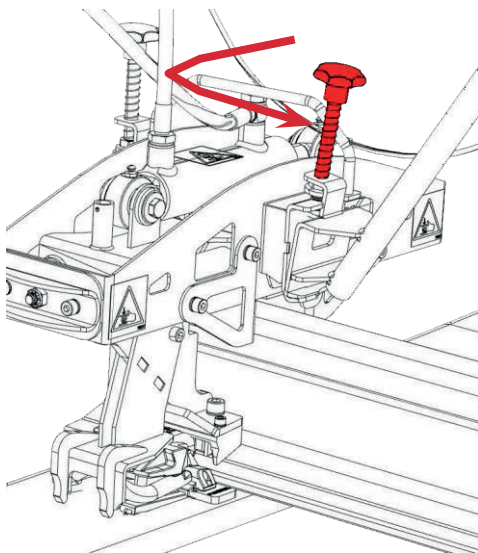


Fig 33.

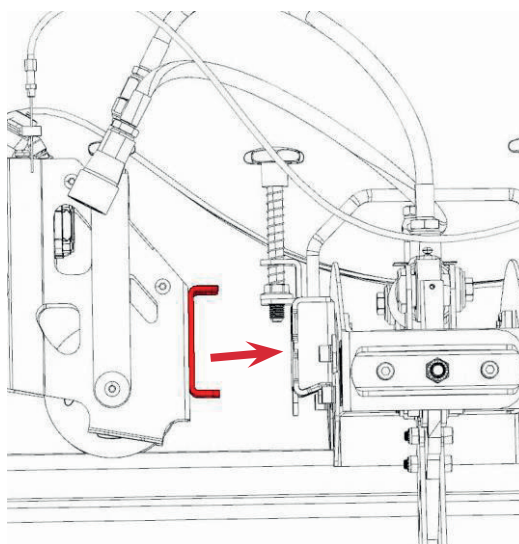


Fig 34.

7. Adjustments

7.1. Adjustments for different rail heights

CD100 can be adjusted to clip and de-clip rail of different heights. Below are instructions for making the necessary adjustments to the machine.

- Setup the machine, placing it on the rail (according to the SETUP/INSTALLATION section).
- Start the engine/drive unit.
- Accelerate slowly to prepare for clipping/de-clipping.
- When the claws are in the proper position against the clips: adjust the wheel with the wheel adjustment screw on the top of the Power Unit.
 - Turning the screw clockwise will lower the wheel/raise the machine.
 - Turning the screw counterclockwise will raise the wheel/lower the machine.

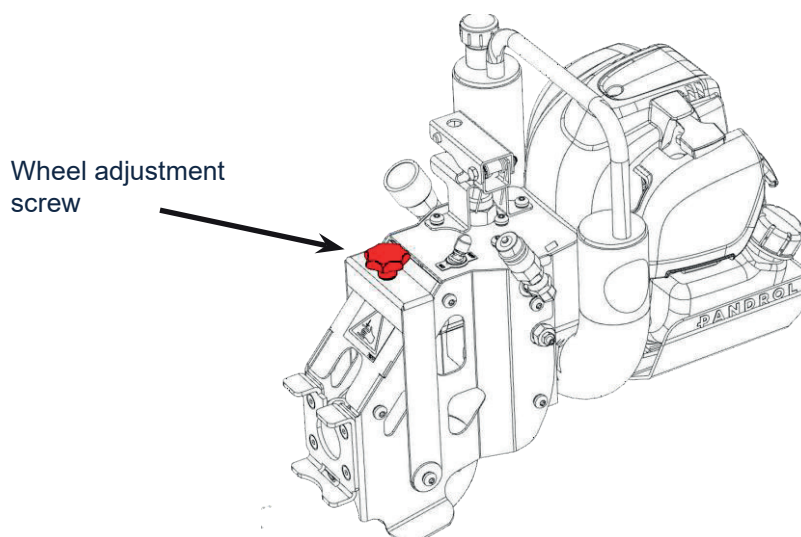


Fig 35.

7.2. Adjustments of the Handle Bar Unit

The Handle Bar Unit is adjustable to fit the individual operator.

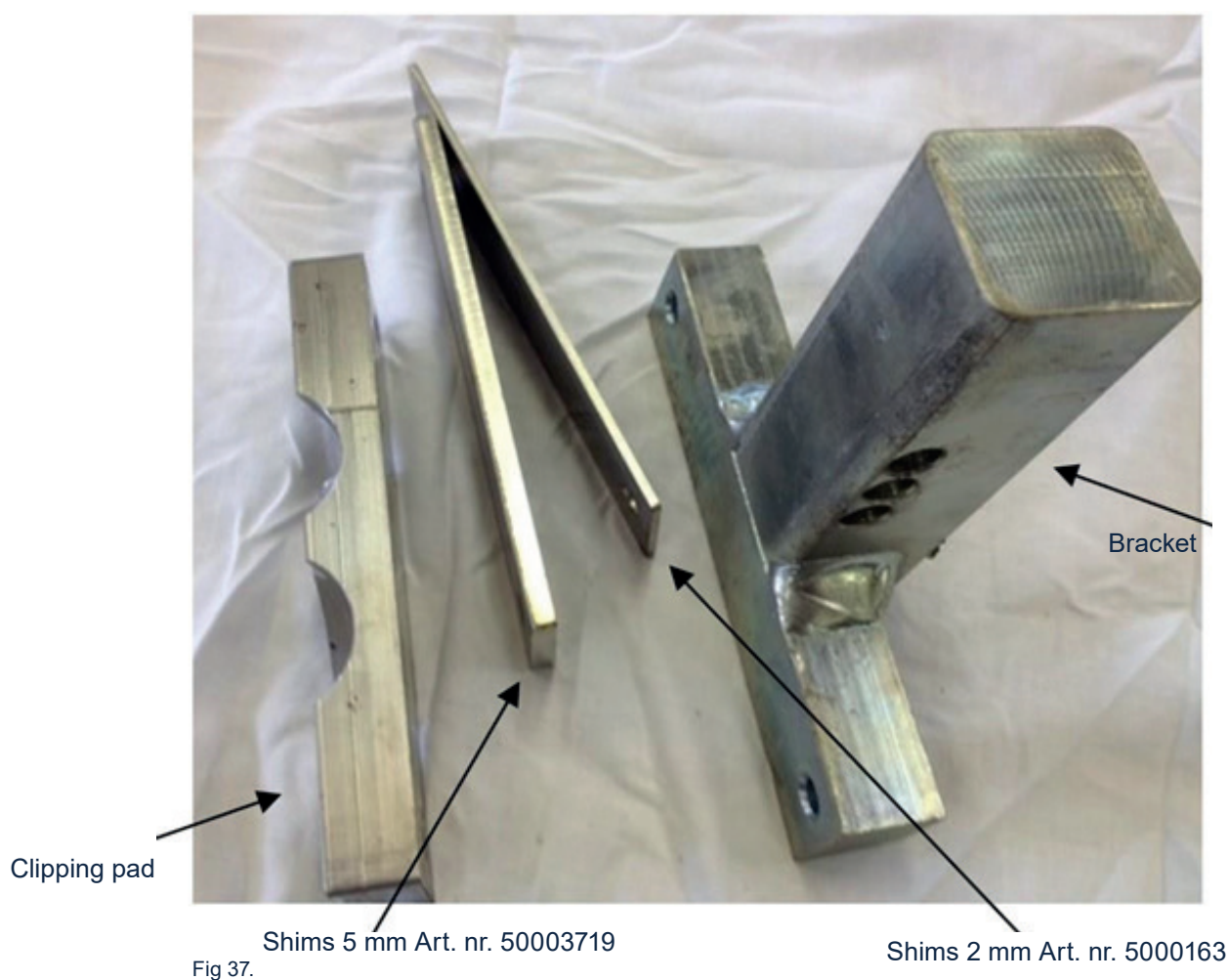


Fig 36.

7.3. Adjustments For Different Types Of Rail Using Shims

The Clipping Tool is preset for rail UIC 60 and U 50. It can be used with other types of rail as well, however shims may be needed to adapt the machine to the new rail type. Please follow the instructions below and refer to Fig. 24 to install the appropriate shims.

1. Ensure that the engine is OFF.
2. Unscrew the clipping pads and remove them on both sides.
3. Place the shim(s) between the clipping pad and the bracket.
4. Screw the clipping pad back with screws that are adapted to the purpose.
5. Install the first two FASTCLIP.
6. Check that the FASTCLIP is correctly installed. The FASTCLIP must be in the position recommended by Pandrol. Measure its position and compare with documentation from Pandrol Rail Fastenings Ltd.
7. If the clip is not pressed in far enough, place more shim(s) behind the pads on both sides in order to press the clip into the correct position.
8. Check that the installed FASTCLIP has not sustained any damage, either to the clip or the insulator.



WARNING! All adjustments work, overhaul and service must take place with engine switched off, cooled down and with working tools disengaged.

Above specifications may be changed without notice according to Pandrol AB's requirements.

7.4. Change Of Arms On The De-Clipping Tool

For some applications, different types of arms are used. Before start of operation, check that the the arms are correctly adjusted The arm length can be adjusted in three steps to accomodate correct for different rail heights.

7.5. Adjustments Of Claws

The claws are adjustable in three different positions.

1. Loosen the screws on the lower part of the claws. Those screws are indicated by yellow washers.
2. Set the claws in desired position.
3. Tighten the screws.

PLEASE NOTE: This must be done on both sides of the tool.

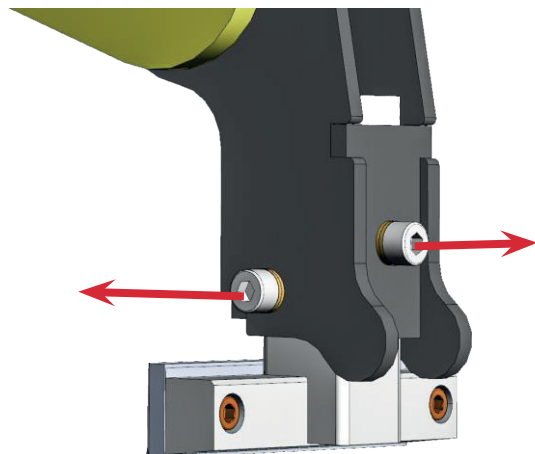


Fig 38.

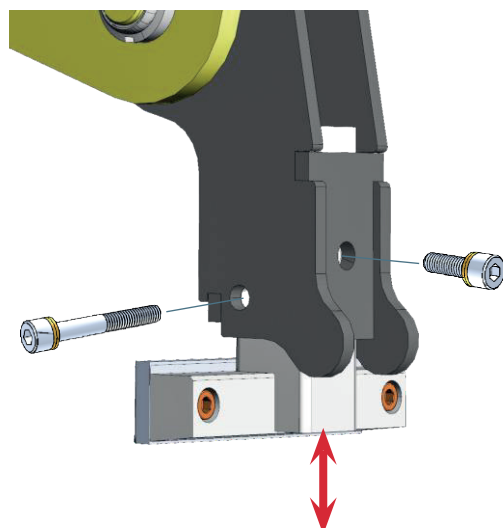


Fig 39.

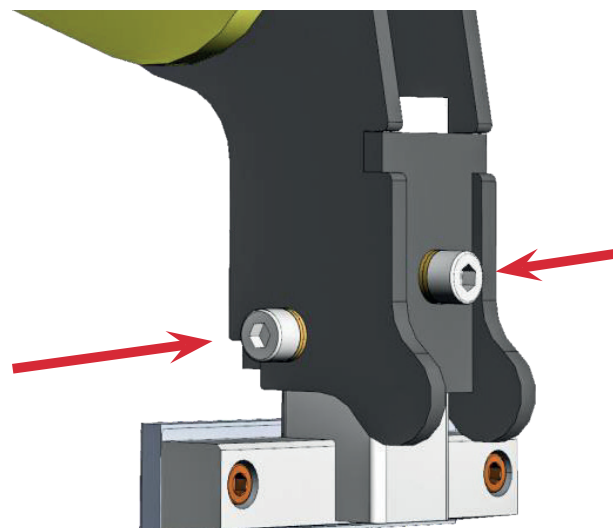


Fig 40.



WARNING!

Risk for clamping. All adjustments work, overhaul and service must take place with the engine switched off, cooled and with working tools disengaged.

8. Operation CD100

CD100 is a walk-behind machine to be pushed by hand.

To operate the Power Unit you always need to have a working tool connected. The working tool is also the parking support on the rail. When not operating the Power Unit and its working tools they are to be stored into their suitable boxes.



WARNING! When the equipment is being used the operator must use protecting clothes i.e. long trousers, boots, gloves, ear defenders and goggles or a protective visor.

8.1. Clipping – Connect Rail To Sleeper

1. Setup the machine on the rail with the arms placed on either side of the rail. Connect the engine power unit according to assembly instructions. Connect the hydraulic hoses (make sure that they are clean prior to connection). Ensure that you are using correct claws and arms. Switch the ON/OFF button on the motor unit to ON and pull the recoil starter to start the engine.
2. Push the machine forward until the claws are correctly placed along the clips. Make sure that the claws are placed in a proper position relative to the clip.
3. Accelerate the tool using the accelerator on the right handle. The arms will contract and insert the clips.
4. When the clips fastened: activate the left handle for reversed movement of the arms until the arms are in their origin position. Lift the machine slightly and repeat according to 2-4.



Fig 42.

Above specifications may be changed without notice according to Pandrol AB's requirements.

8.2. De-Clipping - Disconnect Rail From Sleeper



WARNING! Each time the unit is being used make sure that the hydraulic hoses are clean before connecting them.

1. Setup the machine
2. Switch the ON/OFF-button on the Power Unit to the ON-position and pull the recoil starter to start the engine.
3. Push the machine forward until the claws are correctly placed along the clips ("Fig 43."). Make sure that the claws are placed in a proper position relative to the clip.
4. Make sure there is a space of 1-2 mm between the clips and the claw when positioning the de-clipping pads for an optimal function ("Fig 44.").
5. Accelerate the tool with the right handle on the handle bar. The arms now moves outwards and release the clips.
6. When the clips are fully extracted: press the left handle on the handle bars to run the arms back to its initial position. Raise the machine slightly and push it forward to the next clips and repeat instructions 4-6.

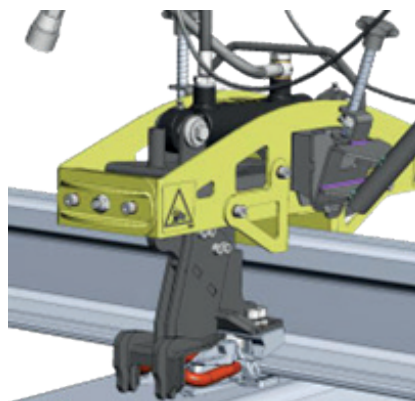


Fig 43.

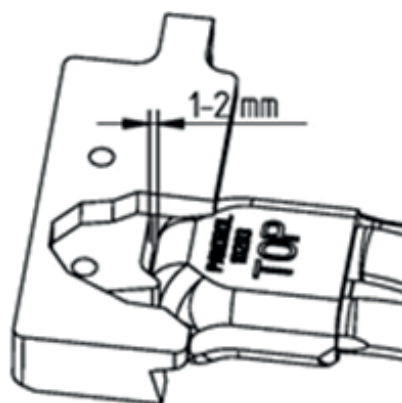


Fig 44.

8.3. After Operation

1. Switch off the engine and disconnect the hydraulic hoses.
2. Let the motor cool down.
3. Disengage the working tool from the Power Unit.
4. Place the components back in their suitable boxes.



WARNING! Engine must be switched off and cooled before disengaging the working tool.

9. Operation CD100B

CD100B is a walk-behind machine to be pushed by hand.

To operate the Power Unit you always need to have a working tool connected. The working tool is also the parking support on the rail. When not operating the Power Unit and its working tools they are to be stored into their suitable boxes.



WARNING! When the equipment is being used the operator must use protecting clothes i.e. long trousers, boots, gloves, ear defenders and goggles or a protective visor.

8.4. Mounting Drive Unit/Battery

For instructions on the battery or battery charger, see the respective manuals for the battery and battery charger included with the product.

If you have lost the manuals, please contact Pandrol AB.

Read the complete manuals referred to above prior to use.

The battery is mounted by pushing the battery (2) straight in, until a clicked sound is heard. The battery is then locked in position.

To release the battery, press the red button (1).



Fig 45.



WARNING!

Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

9.1. Clipping And Declipping - Connect Rail To Sleeper

1. Setup the machine on the rail with the arms placed on either side of the rail. Connect the power unit according to assembly instructions. Connect the hydraulic hoses (make sure that they are clean prior to connection). Ensure that you are using correct claws and arms.
2. Press the button (1) once to power up the drive unit.
3. Press the activation button (3) once to activate the tool.
4. Lift the machine slightly and move the tool along the rail so that the arms are positioned correctly next to the clips.
5. Press and hold the run button (2) to drive the clipping tool motion.
6. Simultaneously press hold the activation button (3) and the run button (2) to return the arms to their original position.
7. Repeat steps 3-5 for the next clip.

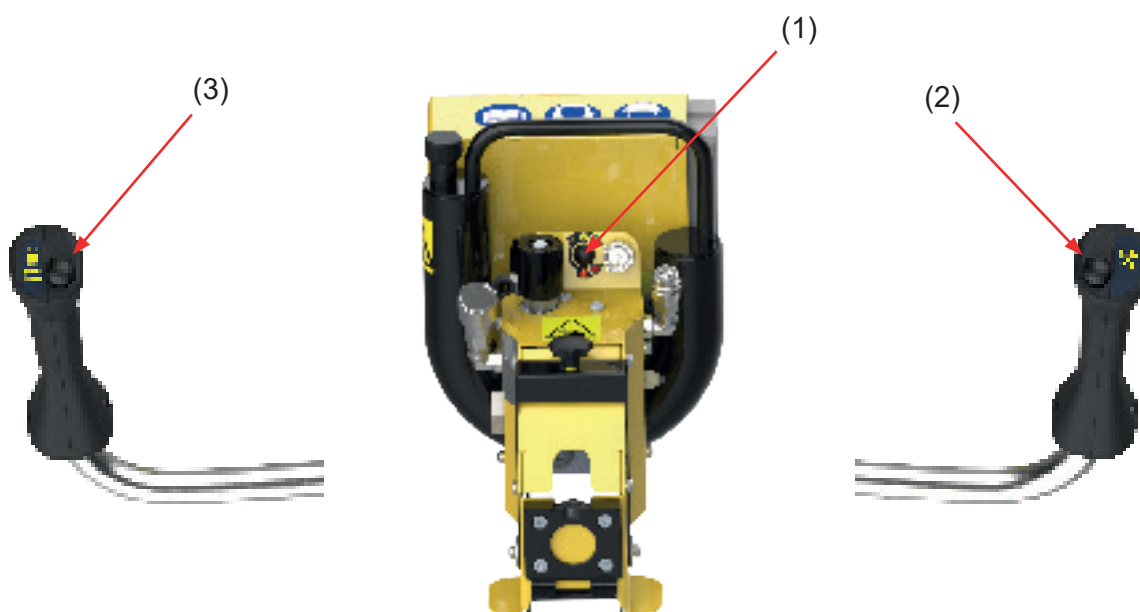


Fig 49.

9.2. De-Clipping - Disconnect Rail From Sleeper



WARNING! Each time the unit is being used make sure that the hydraulic hoses are clean before connecting them.

1. Setup the machine on the rail with the arms placed on either side of the rail. Connect the power unit according to assembly instructions. Connect the hydraulic hoses (make sure that they are clean prior to connection). Ensure that you are using correct claws and arms.
2. Press the button (1) once to power up the drive unit.
3. Press the activation button (3) once to activate the tool.
4. Lift the machine slightly and move the tool along the rail so that the arms are positioned correctly next to the clips ("Fig 50.").
5. Make sure there is a space of 1-2 mm between the clips and the claw when positioning the de-clipping pads for an optimal function ("Fig 51.").
6. Press and hold the run button (2) to drive the declipping tool motion.
7. Simultaneously press hold the activation button (3) and the run button (2) to return the arms to their original position.
8. Repeat steps 3-5 for the next clip.
- 9.



Fig 50.

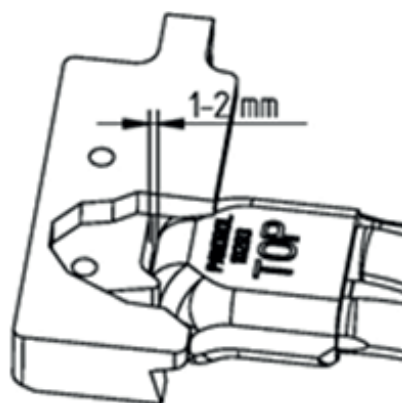


Fig 51.

9.3. After Operation

1. Turn off the power unit by pressing the power button (1). and disconnect the hydraulic hoses.
2. Disengage the working tool from the Power Unit.
3. Place the components back in their suitable boxes.



WARNING! The power unit must be switched off before disengaging the working tool.

10. Maintenance



WARNING! All maintenance and service are to be carried out by qualified personnel only.

CD100 is designed for the absolute minimum of maintenance. All its components have been chosen for a long working-life and high quality.

The machine requires:

- A minor maintenance before and after every working shift
- A more comprehensive overhaul after 100 hours

Warranty is based on parts and spares delivered by Pandrol AB.



WARNING! All adjustments work, overhaul and service must take place with the engine turned off, cooled down and with working tools disengaged. Failure to do so could lead to fatal injury.

10.1. Power Unit

Item	Service	Frequency	
		Daily Inspection	Once per year or every 100 hour
Hydraulic oil	Check level (10 mm up on the dipstick)		
Hydraulic oil	Oil change	X	
Entire unit	Check for oil leakage		X
Screws and nuts	Check/tighten if needed	X	
Bolts	Lubricate with oil spray*		
Motor Honda	See the Honda manual	X	
Drive Unit, battery	Make sure that the unit is free from damage See Battery manual		X
Battery	See Battery manual		X

*) CRC 5-56 or similar

10.2. Clipping And De-clipping Tools

Item	Service	Frequency	
		Daily Inspection	Once per year or every 100 hour
Screws and nuts	Check/tighten if needed	X	
Entire unit	Check for oil leakage	X	
Locking mechanism	Lubricate with oil spray*		X
Hydraulic cylinder	Lubricate with grease**		X
Bolts	Lubricate with oil spray*		X
Sliding bearings	Lubricate with grease**		X

*) CRC 5-56 or similar

**) SKF LGEP2 or similar

10.3. Lubrication points

10.3.1 Clipping tool

(Also on the other side)

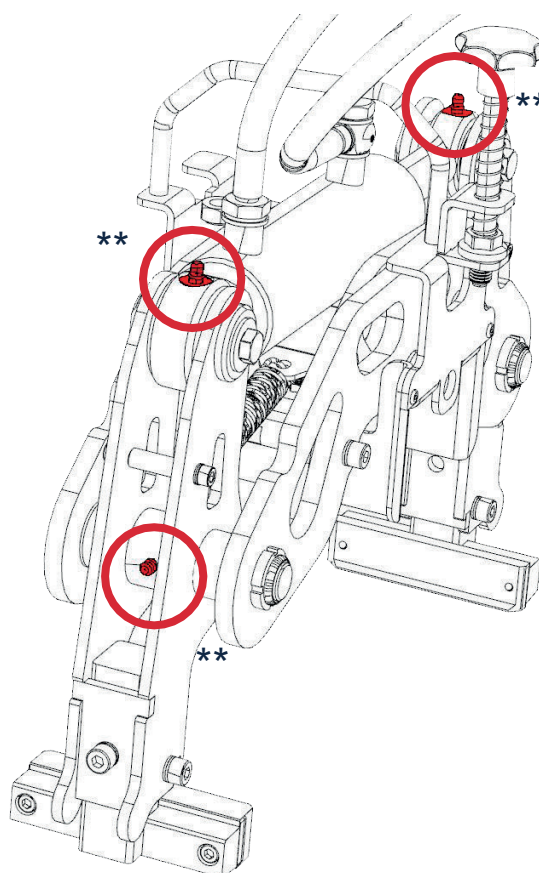


Fig 52.

*) CRC 5-56 or similar

**) SKF LGEP2 or similar

10.3.2 De-clipping tool

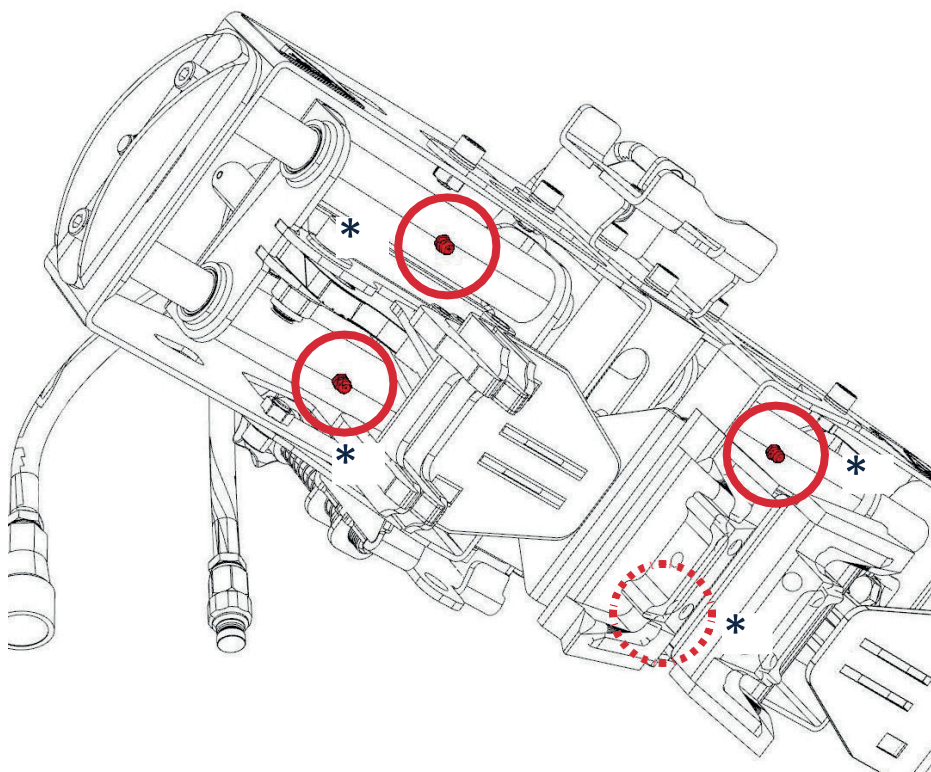


Fig 53.

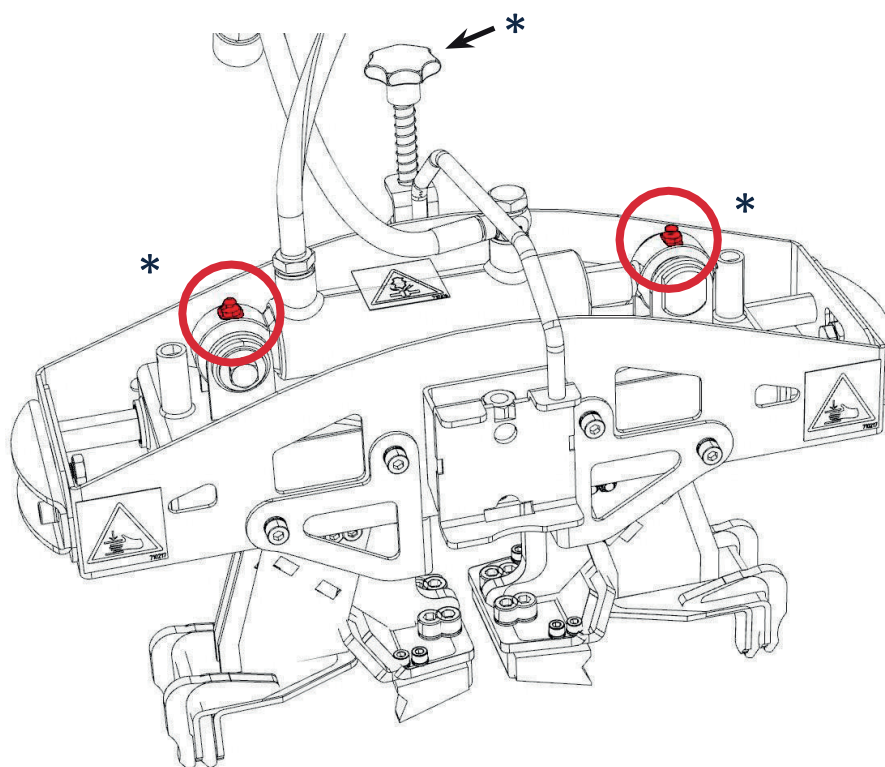


Fig 54.

11. Mounting Torque For Screws And Nuts

The preload force must be maintained at a level where the tensile stress and the intensity of the torsional stress do not exceed the screws yield stress for the specific material. Its main function is to clamp together the assembled parts and produce friction force between the assembled parts.

At Pandrol AB we mainly use steel screws and nuts. The table below shows the nominal tightening torque in Nm for the screws and nuts that are used

These torques do not apply to wheel bearings!

Thread diameter	Tightening Tourque (per bolt grade) [Nm]		
[mm]	8.8	10.9	12.9
5	5,7	8,1	9,7
6	9,8	14	17
8	24	33	40
10	47	65	79
12	81	114	136
14	128	181	217
16	197	277	333
18	275	386	463
20	385	541	649
22	518	728	874
24	665	935	1120
27	961	1350	1620
30	1310	1840	2210
33	1770	2480	2980
36	2280	3210	3850



IMPORTANT Check that all bolts and nuts are tightened at least every 8 hours until 80 hours have been reached. If necessary, use spanner to tighten.

12. Warranty And Service

12.1. Warranty

All products from Pandrol AB are supplied with a 12 month Warranty.

The Warranty is not valid if the indicated defect or fault in the product does not exist or if the fault is the result of a handling error, tampering or non-permitted modification, or if the machine has been exposed to fire, lightning or excess voltage.

12.2. Service

Aftersales support and technical service are available from Pandrol AB, Sweden, during and after the Warranty period. Please contact Pandrol AB.

12.3. Disclaimer

Pandrol AB exempts itself from liability in the event of usage that deviates from that recommended in this manual.

12.4. Contact

Address	Phone	Internet and E-mail
Pandrol AB Hyggesvägen 4 824 35 Hudiksvall SWEDEN	+46 650 165 05	www.pandrol.com info.rosenqvisttrail@pandrol.com

12.5. Declaration Of Conformity

A declaration of conformity is attached (CE certification).The declaration is a proof that the tool is CE approved.

12.6. Recycling and Environment

Sustainable environment is a great part of Pandrol. All components of the Power unit can either be:

- Recycled
- Taken care of
- Be re-used



We recommend you to follow your local region regulations of environmental and recycling policies

12.7. Disposal Of Battery

At the end of their useful life, discard batteries with due care for our environment. The battery contains material which is hazardous to you and the environment. It must be removed and disposed of separately at a facility that accepts lithium-ion batteries.This product must not be disposed of with normal household waste. Should you find one day that your product needs replacement, or if it is no further use to you, do not dispose of it with household waste. Make this product available for separate collection.



PANDROL

Find out more at
pandrol.com

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