Husqvarna

EN **Operator´s manual p. 3**
Please read the operator's manual carefully and make sure you understand the instructions before using the machine.

ES **Manual de instrucciones p. 25**
Lea detenidamente el manual de instrucciones y asegúrese de entender su contenido antes de utilizar la máquina.

FR **Manuel d'utilisation p. 47**
Lire attentivement et bien assimiler le manuel d'utilisation avant d'utiliser la machine.

PT **Instruções para o uso p. 69**
Leia as instruções para o uso com toda a atenção e compreenda o seu conteúdo antes de fazer uso da máquina.

RC 455

EN ES FR PT

English

Content

Key to symbols

The symbols below are used on the machine and in this Operator's Manual. It is important that the user understands the significance of these in order to work with the machine safely.

Manual

Please read the Operator's Manual carefully and understand the contents before the machine is started.

Protective equipment

Always wear:

- Approved protective helmet.
- Approved hearing protection.
- Approved protective glasses or a visor, and other essential safety equipment.

Warning

A large warning triangle with the text “Warning” signifies that there is a risk of serious personal injury or even death.

Caution

A smaller warning triangle with the text “Note” signifies that there is a risk of minor personal injury or damage to the machine.

Remark

A hand with a raised index finger with the text “Attention” signifies that a described element demands extra attention.

CE

This symbol indicates that the machine conforms to applicable EU directives.

Electrical Warning

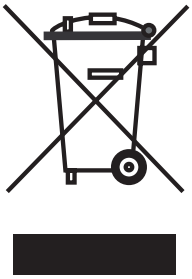
This symbol warns that there is high voltage present.

Environmental marking

Symbols on the product or its packaging indicate that this product can not be handled as domestic waste. It must instead be submitted to an appropriate recycling station for the recovery of electrical and electronic equipment.

By ensuring that this product is taken care of correctly, you can help to counteract the potential negative impact on the environment and people that can otherwise result through the incorrect waste management of this product.

For more detailed information about recycling this product, contact your municipality, your domestic waste service or the shop from where you purchased the product.



Safety Instructions

During the design and production of Husqvarna products, great importance is placed on safety, as well as effectiveness and ease of use. To ensure that the machine remains safe you must pay attention to the following points:

WARNING!

This machine is only intended to be used together with Husqvarna WS 355, 463, 462, 460 or DIMAS CS2512. All other use is forbidden.

CAUTION

Under no circumstances may the machine be started without observing the safety instructions. Should the user fail to comply with these, Husqvarna Construction Products Sweden AB or its representatives are free from all liability both directly and indirectly. Read through these operating instructions and make sure that you understand the contents before starting to use the machine. Should you, after reading these safety instructions, still feel uncertain about the safety risks involved you must not use the machine Please contact your dealer for more information.

- Check that all couplings, connections and hydraulic hoses are in full working order.
- All operators shall be trained in the use of the machine. The owner is responsible for ensuring that the operators receive training.
- Make sure that all hoses and electrical cables are connected to the machine correctly before you start the machine.
- People and animals can distract you, causing you to lose control of the machines. For this reason, you should concentrate and focus on the task at hand.
- Never leave the machine unsupervised with the motor running.
- Make sure no clothing, hair or jewellery can fasten in moving machine parts.
- Onlookers can be injured. You should never, therefore, start the machine without being certain that no people or animals are within the work area. Secure the work are by cordoning off if necessary.
- Never disconnect any of the hydraulic hoses without first shutting off the unit and ensuring the motors have stopped completely.
- If despite all precautions an emergency situation should arise, press the red emergency stop button on the side of the remote control or press the green start/stop button on the remote control.
- Wear suitable personal protective equipment, such as a helmet, protective shoes, eye and hearing protection. Hearing protection must always be worn as sound levels exceed 85 dB(A).
- Working close to power lines:

  When using hydraulic tools close to power lines, the hydraulic hoses must be marked and approved as “non-conducting dielectric”. The use of any other type of hoses can result in serious physical injury or even death.

  When replacing hoses, hoses marked “non-conducting dielectric” must be used. The hoses must be regularly checked for their electrical conductive insulation in accordance with special instructions.
- Working close to gas conduits:

  Always check and mark out where gas pipes are routed. Working close to gas pipes always entails danger. Make sure that sparks are not caused in view of the risk of explosion. Remain concentrated and focused on the task. Carelessness can result in serious personal injury or death.
- Mark out all hidden pipes such as water pipes and gas pipes.
- Check that power cables and the Canbus cable are not damaged or can be damaged while working.
- Check tools, hoses, and connections daily for leakage. A crack or leak can cause “hydraulic fluid injection” in the body or result in other serious personal injury.
- Do not exceed the rated working pressure for the specific tool or hydraulic hose. Increased pressure can cause leakage or bursting.
- Do not check for leakage with your hands, contact with the leak can result in serious personal injury caused by the high pressure in the hydraulic system.
- The tool must not be carried or lifted by the hoses.
- Do not misuse hoses.
- Do not use hoses that are twisted, worn, or damaged.
- Check that the hoses are connected correctly to the tool and that the hydraulic couplings lock as intended before pressurising the hydraulic system. The couplings are locked by turning the outer sleeve on the female coupling so that the slot moves away from the ball.

The pressure hoses in the system must always be connected to the tool's intake. The return hoses in the system must always go to the tool's outlet. Confusing the connections can cause the tool to work in reverse, which can result in personal injury.

- Keep the hydraulic couplings clean and free of dirt.
- Always switch on the remote control's emergency stop switch before transporting the equipment.
- Check that the hydraulic hoses are not damaged and cannot become damaged during cutting. Leakage can lead to the risk of slipping.
- Make sure that there is always another person close at hand when you use the machines, so that you can call for help if an accident should occur.
- Do not use machines if they do not function as they should.
- Do not modify safety equipment. Check regularly that they function as they should. The machine must not be run with defective or disassembled safety equipment.
- Regulations for the prevention of accidents, and other general safety and occupational health regulations, must always be followed.
- Make sure that you always have a first-aid kit close at hand when using the machines.
- Keep all parts in good working order and ensure that all fixtures are properly tightened. Replace all worn or damaged decals.
- Store the machines in a locked area, where they are inaccessible to children and adults who have not been trained to operate the machines.
- Pay attention to the risk of fire from sparks and heat. If there are no local fire protection regulations for cutting or grinding machines, follow the regulations for welding.

WARNING!

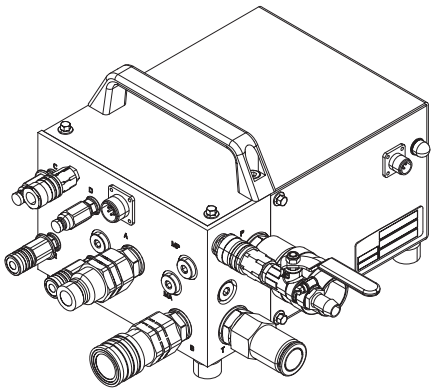
Always use approved protective clothing and approved protective equipment when using the machine. Protective clothing and protective equipment cannot eliminate accident risks, but by using the right clothes and equipment you can reduce the seriousness if an accident should occur. Ask your dealer about approved and recommended protective clothing and protective equipment.

Introduction

Husqvarna RC 455 “Smartbox” is a small and compact control unit developed for use as an link between the hydraulic unit without control valves such as a diesel-driven generating set and Husqvarna WS 355, WS 462, WS 463 and CS 2512.

As RC 455 is equipped with a priority valve, the diesel-driven generating set, which can supply a flow, can be used to control machines that are driven by several different flows, for example, to drive the blade and motion.

By connecting the above units to RC 455, they can be controlled in the same way as if they were connected to a PP 455 E hydraulic unit.



RC 455 is supplied with the following equipment:

1 x RC 455

1 x remote control

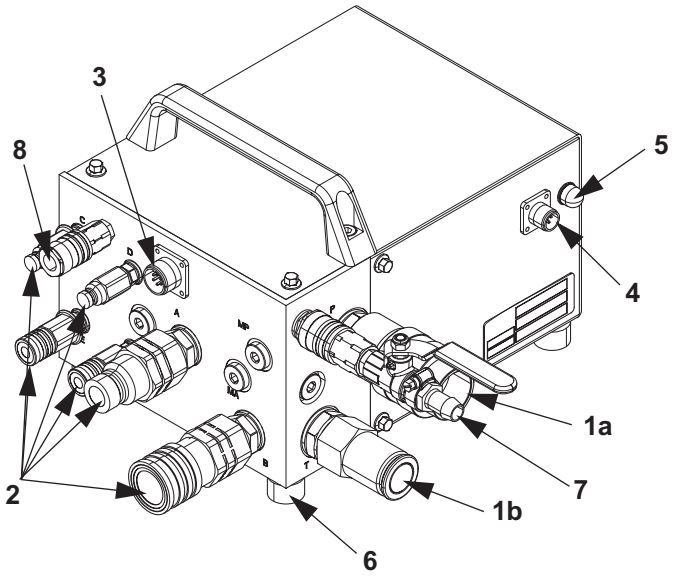
1 x hose assembly, 8 m

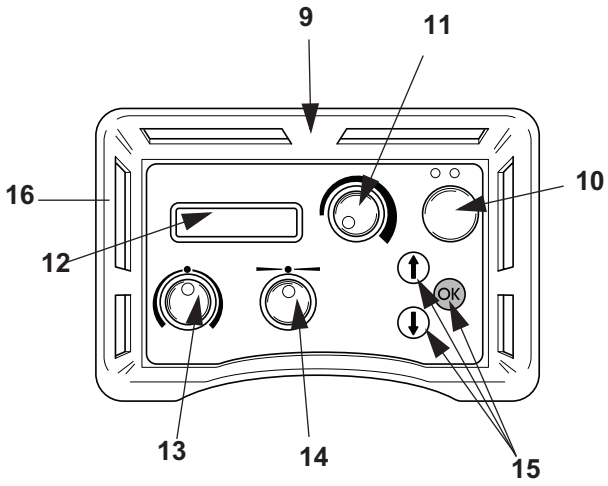
1 x Canbus cable, 8 m

1 x 12 V DC connection cable

.

What is what





1. **Incoming hydraulic connections**

   The hoses from the hydraulic unit are connected to these 3/4-inch couplings. This is the machine's input flow. The flow in the hose connected to the female coupling (1a.) drives the tool, while the flow through the male coupling (1b) is the return flow to the hydraulic unit.

2. **Outgoing hydraulic connections**

   The supplied hydraulic hoses are connected to these. These are then connected to suitable hydraulic tools.

   The large couplings control the drive of the attached tool while the smaller control the blade and trolley motion. The flow in the hoses with female couplings control the trolley motion while the male couplings control the blade motion.

3. **Canbus cable connection**

   The Canbus cable that sends the control signals between RC 455 and the remote control is connected here. The Can bus cable is equipped with a locking mechanism so the cable is not loosened unintentionally.

4. **12 volt DC connection**

   The power that drive RC 455 is connected here. The power is appropriately taken from the hydraulic unit used together with RC 455. The connection is equipped with a locking mechanism so that the cable is not loosened unintentionally.

   The 12 volt cable is supplied from the factory with a “Pig tail”. This is connected by the operator to the available Hydraulic unit. See also under “Assembling/ Installing equipment”

5. **Automatic fuse**

   Trips when the incoming 12 volt DC current is too high. Press in to reset.

6. **Feet**

   Protect the machine against vibrations and dirt.

7. **Incoming water connector**

8. **Outgoing water connector**

9. **Remote control**

   The remote control is used to control RC 455. In order for the remote control to work the hydraulic unit's ignition must be switched on.

10. **Flow off/on**

    This is the only control from which the hydraulic unit can start the hydraulic flow.

    Pressing the control once brings the hydraulic unit up to working speed and it starts to produce a flow. Stop the flow by pressing the start button once again or press in the emergency stop button on the left-hand side of the remote control.

11. Blade rotation

Control to start blade rotation/wire drive. In order for the blade to reach full power, the control must be turned to the right-hand end position.

12. Display

Information is given on the display about essential settings, service requirements and any faults.

When working, the display shows the current main pressure for blade rotation (not the motion pressure).

13. Blade motion

Control for moving the blade. From here you control the blade motion or the wire tension when wire cutting.

14. Trolley motion

Control for horizontal motion of the saw unit. The direction and speed are controlled from here. When the horizontal motion is increased, the blade rotation pressure also increases. This can be read on the display.

15. Option keys

The arrow keys are used to:

- Scroll through the menus.
- Increase/decrease numerical values.

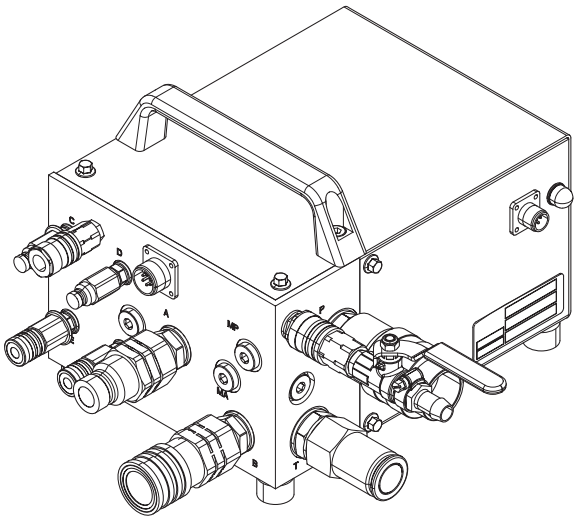
The “OK” confirmation key is used to:

- Open sub-menus.
- Confirm values that have been adjusted with the keys.
- Switch on/switch off sensors.

16. Emergency stop

There is an emergency stop switch located on the side of the remote control. When the emergency stop switch is pressed in the attached tool stops working and the hydraulic unit starts to idle.

Technical data



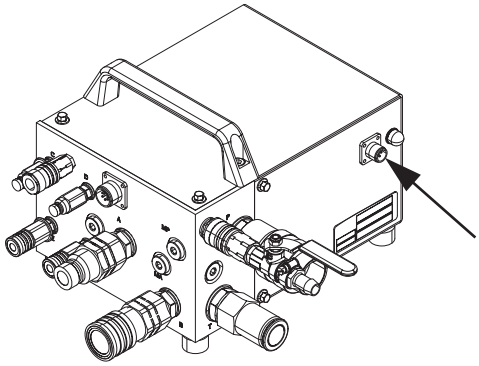
Max. flow	115 l/min (30 GPM)
Max pressure	230 bar (3340 psi)
Rec. hydraulic oil flow from the hydraulic unit:	
WS 463	80 l/min (21 GPM)
WS 462	70 l/min (18.5 GPM
CS2512	80 l/min (21 GPM)
Weight	19.6 kg (43.3 lbs)
Power supply	12 V DC
Hose assembly	8 m

Assembling/Installing equipment

When the RC 455 is delivered there is only one 12 V DC connector on the power cable. In order for the machine to work, the end of the cable not fitted with a connector is connected to the hydraulic unit's outgoing power cable.

When the machine has been transported to an appropriate site and the hydraulic tool to be used is correctly attached, the machine should be connected:

1. Turn on the ignition on the diesel-driven generating set without starting the diesel engine.
2. Connect the incoming power cable from the diesel-driven generating set to RC 455.

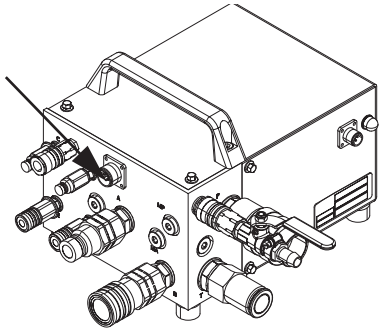


WARNING!

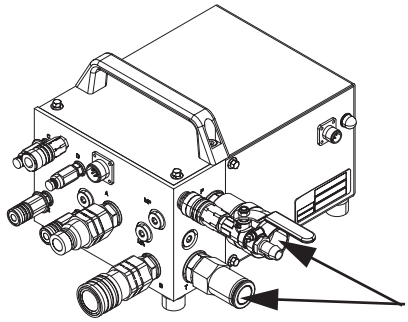
The RC 455 may only be connected to 12 V DC voltage. If the machine is connected to a higher voltage, the equipment can be damaged and the operator can be seriously injured.

3. Connect the remote control using the supplied Canbus cable. Tighten the cable connector by hand.

   When the machine is equipped with a radio, a radio antenna can be connected instead of a Canbus cable. This is screwed into the same socket as where the Canbus cable should have been fitted.



4. Check that the emergency stop on the remote control is not activated. The display on the remote control now shows “SMARTBOX CONNECT HOSE ASSEMBLY”
5. Connect the incoming hydraulic hoses from the diesel-driven generating set to RC 455.

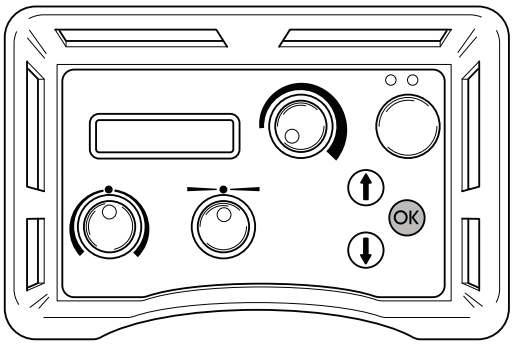


6. If CS2512 is to be used, connect the pressure reduction block's female couplings to the male couplings on RC 455.
7. Connect the hydraulic hoses from RC 455. There are two types of hydraulic hoses between RC 455 and the selected tool (WS 462, 463 or CS 2512):

   On a wall saw in the WS 400 series, the four thin hoses control the saw's motion motors, i.e. the saw's blade motion and trolley motion. The two thick hoses drive the blade.

   When a wire saw CS 2512 is connected to the unit, the two thin hoses control the tension on the magazine arm while the two thick hoses drive the wire.

   The hoses in the hose assembly marked with red discs by the coupling are to be connected to the couplings marked with similar discs.
8. When all hydraulic hoses are connected, confirm on the remote control with “OK”



9. Start the diesel-driven generating set's engine and let it idle.
10. The display now shows “SMARTBOX START MOTOR”. If the display does not show this, follow the instructions shown on the display.
11. Check that all the equipment is ready for use.

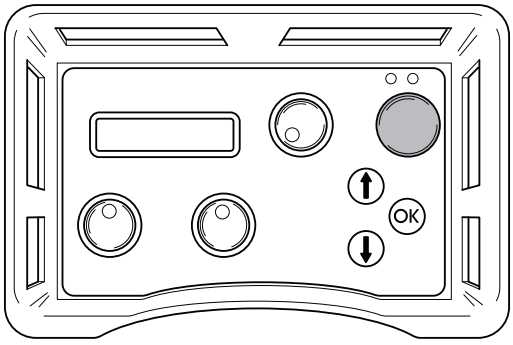
Work process for wall sawing

Start blade rotation

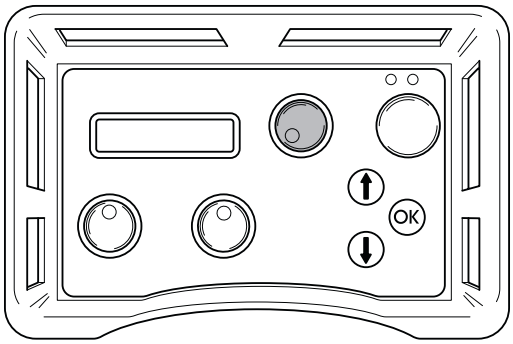
1. Start the motor on the hydraulic unit by pressing the remote control's green button once.

   When the motor starts, the diesel-driven generating set goes from idling to working speed and starts to produce a flow.

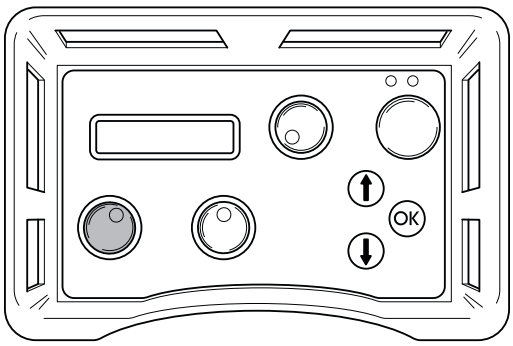
   Press the green button on the remote control once more to stop the motor.



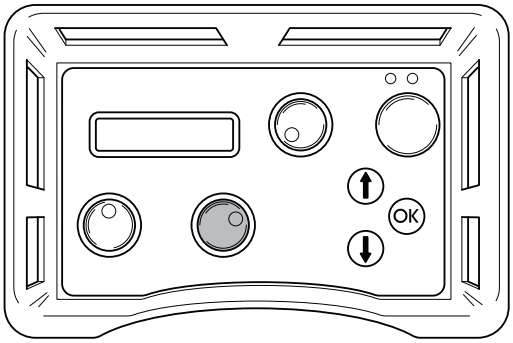
1. Turn the control for blade rotation to its maximum position to start blade rotation and the water coolant.



2. Start the blade motion by turning the blade motion knob on the remote control.

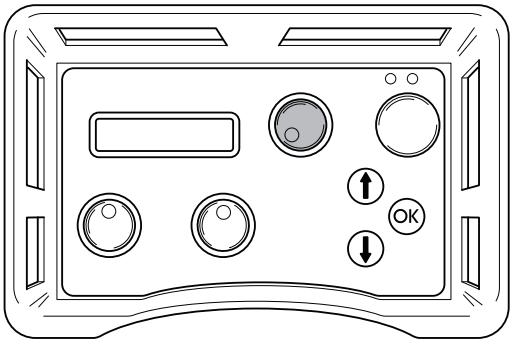


3. Start the horizontal motion by turning the horizontal motion knob in the desired direction.

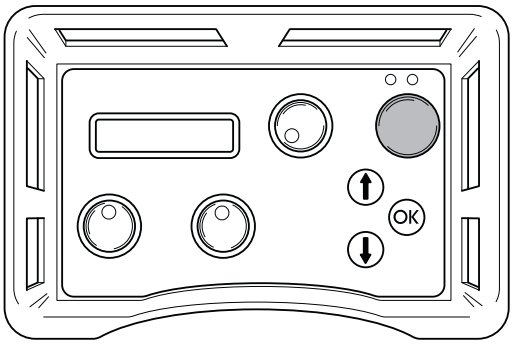


After work is completed

1. After the work is completed, shut down the blade rotation by turning the knob on the remote control back to “0”



2. Run down the engine to idling by pressing the remote control’s green button.



CAUTION

Always clean all the equipment at the end of the working day

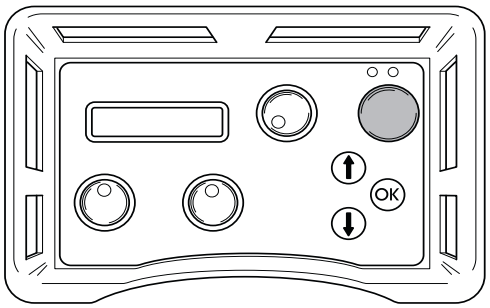
Work procedure for wire cutting

When all the equipment has been assembled cutting can start. In order for the saw to cut as efficiently as possible it should be started as follows:

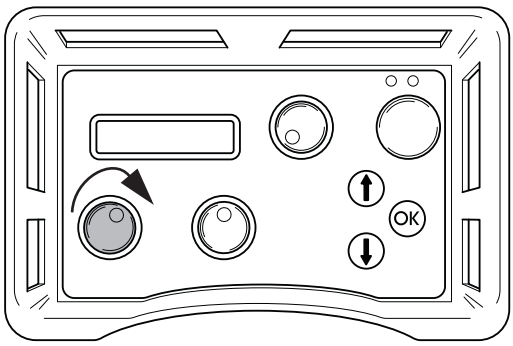
1. Assemble the pressure reduction block supplied with the wire saw on the hydraulic unit according to the instructions on the block.
2. Connect the two smaller hydraulic hoses to the pressure reduction block. The hoses in the hose assembly marked with a red disc by the coupling shall be connected to the hose on the pressure reduction block that is also fitted with a disc.
3. Close the valve on the pressure reduction block by turning the knob anti-clockwise until it stops and then two turns back.
4. Start the engine's working speed by pressing the green button on the remote control once.

   The engine on the diesel-driven generating set changes from idling to working speed and starts to produce a flow.

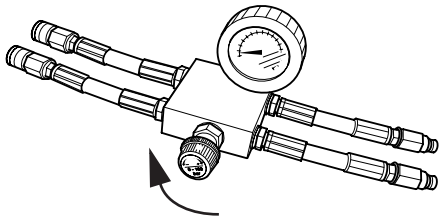
   To stop the flow and to get the hydraulic unit's motor to idle, press the green button on the remote control once again.



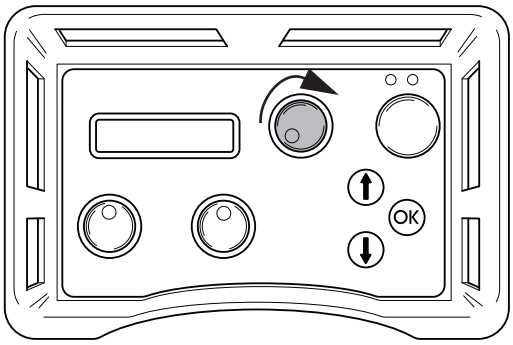
5. Set the feeding flow on the unit to max by turning the control on the remote control clockwise.



6. Tension the wire by carefully turning the knob on the pressure reduction block clockwise until the wire is tensioned sufficiently. Make sure to always check that the wire is seated correctly in all the wheels on the saw.

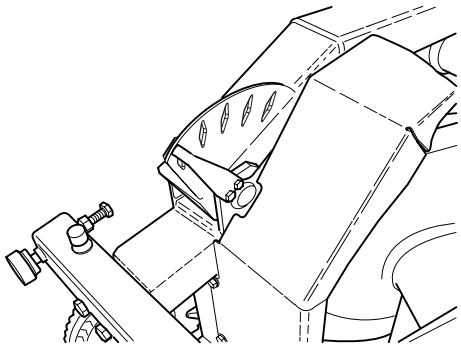


7. Start the motor's rotation by turning the control for motor rotation on the remote control clockwise.



8. Carefully increase the motor speed by turning the control for motor rotation. A suitable working pressure when cutting usually lies between 100 and 130 bar, but varies depending on how many wheel sets are used in the magazine, how much wire is in use and the hardness of the material to be cut.
9. When material is cut away the working pressure can drop, which is shown on the display, and the magazine must be tensioned. Do this by turning the knob on the pressure reduction block clockwise.

10. The output tension on the magazine is shown by an indicator on the machine (shown in the min position). When the magazine cylinder is fully tensioned, the machine must be stopped and the wire must be wound around a new wheel set. Then continue to cut as above.



CAUTION

Always clean all the equipment at the end of the working day

Menu functions

The menus, shown on the display, are grouped in menus, sub-menus (“Settings”) and part menus. The menus are divided into two sections:

- Start menu: Here you can select under which conditions the hydraulic unit shall work.
- Operations menu: Information concerning the operating status is shown here.

Start menu

The start menu is shown each time the power to the hydraulic unit is switched on. The display shows:

SMARTBOX Connect hose assembly

- Press OK when all hoses are connected. Step 2 is then displayed.

Operations menu

The operations menu starts after the hoses have been connected and the operator confirms with “OK”. All information about operations and all setting options are accessed from this menu.

The operations menu consists of seven menus:

1. 1a. Husqvarna PP-455, 1b Status
2. Settings
3. Time
4. Total machine time
5. Battery status (only machines equipped with a radio)
6. Radio channel (only machines equipped with a radio)

1.a. Husqvarna SMARTBOX, Start motor

Press the green button on the remote control to start the motor.

1b. Status

Status is the main information that is always shown on the display when hydraulic unit with connected machine is operational:

- STATUS OK, signifies that the unit is operational and no warning messages have been issued.
- yyy BAR, where yyy represents the instantaneous operating pressure.
- When time is switched on:

  mm:ss, is also shown, i.e. the time in minutes and seconds.

CAUTION

Long electrical cables with a small core cross section can result in a voltage drop. Even long hydraulic hoses can be affected by a pressure drop.

4. Settings

Via this sub-menu a number of values can be changed to affect the hydraulic unit's characteristics.

To access the sub-menu: State the four digit PIN-code 0012 with the help of the arrow keys and the OK button.

To save the settings; select “Save” in sub-menu 3 “OUT SETTINGS”.

Refer to the “SETTINGS” section for complete information about the setting options,

5. Time

The function is used to measure the amount of time a job takes. The time is counted from when the saw starts working. Select:

- ON, to enable.
- OFF, to disable.
- RESET TIME, to reset.

Quit by pressing OK. The main information “Status” is then shown on the display.

When you select time ON (and when the hydraulic unit is operational, see 1.b) 00:00 is also shown in the lower right corner of the display. Press arrow down to continue in the operations menu.

The total time that the hydraulic unit has been operational is shown here. The time is stated in hours and minutes (hhhh:mm).

7. Battery status (only machines equipped with a radio)

This function checks the remote control’s battery. Different messages are shown on the display, depending what is currently happening with the battery:

• 0% BATTERY 100%

When the remote control is connected and the battery is being charged a horizontal column is shown below the 0 % - 100 % scale. The column length against the scale shows how much of the charge remains in the battery.

• CHARGING THE BATTERY

Show when the remote control is connected and the battery is charging. The charging time from 0 % to 100 % is approximately 9 hours.

• BATTERY FULLY CHARGED

Shown when the battery is charged to 100 %.

• BATTERY DISENGAGED

shown when the battery is disengaged from the remote control. The message is also shown when the charging unit in the remote control has been damaged.

Charge the battery

NOTE!

This chapter only concerns machines equipped with a radio.

The remote control is equipped with a 7.2 volts battery. The emergency stop on the remote control should always be in the extended position when charging.

The battery can be charged as follows:

With the Canbus Cable (Part No. 531 11 50-12)

With the charging cable to the 12 volts outlet in the car (Part No. 531 14 20-92)

With the charging cable to the battery charger (Part No. 531 11 72-54)

With the Canbus cable

Connect the Canbus cable between the remote control and the unit. Make sure that none of the emergency stops are pushed in and that the power unit is voltage fed.

Display “CHARGING THE BATTERY”.

The power unit can be used during charging.

Charging takes approximately 10 hours.

With the charging cable

Connect the charging cable between the remote control and the 12 volt outlet in the car. Check that the emergency stop on the remote control is not pushed in. The display shows CHARGING THE BATTERY when charging is in progress.

The charging time is approximately 6 hours.

NOTE! ONLY 12 V

To charge with the battery charger

Connect the charging cable between the remote control and the battery charger. Now connect the battery charger to a mains socket. Check that the emergency stop on the remote control is not pushed in. The display shows CHARGING THE BATTERY when charging is in progress.

The charging time is approximately 6 hours.

8. Radio channel

When the remote control is only used in battery mode, a radio antenna must first be connected to the smartbox:

Remove any cable connection.

Push in the antenna's connector in the socket on the smartbox. Make sure that the slot in the antenna connector aligns in the socket.

Screw on the connector's ring on the socket.

A radio channel must be selected when the antenna is connected. Select:

0, 1 or 2

Confirm the selection by pressing OK and then arrow down. The main information “Status” is then shown on the display. Press arrow down again to continue in the operations menu.

Settings

All Setting options for the hydraulic unit and the remote control are accessed via this sub-menu.

A four digit code must be entered to access the settings sub-menu. This code is 0012.

The code is stated one digit at a time, from left to the right. The arrow keys scroll from 0-9 and the OK button confirms.

The “SETTINGS” menu consists of seven sub-menus, which in turn consist of a number of part menus:

1. Select language
2. Adjust the hydraulic valve for the blade
3. Adjust the hydraulic valve for the feed
4. Sensor on/off calibrate
5. Hydraulic unit settings
6. Basic setting
7. Out settings

The numbers refer to the following headings.

1. Select language

Using this sub-menu you can set the language you wish to use on the display.

The sub-menu always has the heading in English. The selected language is stated under heading.

To select the language:

- Scroll using the arrow keys until the required language is shown.
- Press OK.
- Press the down arrow to continue to the next sub-menu.

2. Adjust the hydraulic valve for the blade

This sub-menu contains setting options for the rotation of the blade and consists of three part menus:

Change the start point for the blade

Change the end point for the blade

Change the ramp time for the blade

2.1. Change the start point for the blade

The start point value should be adjusted so that the blade rotation is as low as possible when the blade rotation knob is turned from its left-hand position.

A too low value results in the need to turn the knob before the blade starts to rotate.

A too high value results in the blade rotating too quickly when the knob is turned.

2.2 Change the end point for the blade

The end point value should be adjusted so that the blade rotation is as high as possible when the blade rotation knob is turned to the right.

A too low value results in full power from the hydraulic unit never being reached.

State the end point value:

- Press OK when the part menu is shown.

  The display shows: CHANGE END POINT and a percentage value.

  Scroll using the arrow keys to state the required end point. Hold the arrow key held down to increase the scrolling speed. The scale is graduated from 1-100 %.
- Press OK.
- Press the down arrow to continue to the next part menu.

2.3 Change the ramp time for the blade

The ramp time value states how fast the blade's speed of rotation shall change when the blade rotation knob is turned.

A too low value means the blade motor's hydraulic system will start to self-oscillation.

State the ramp time value:

- Press OK when the part menu is shown.

  The display shows: CHANGE RAMP TIME and the time in seconds.
- Scroll using the arrow keys to state the required ramp time. Hold the arrow key held down to increase the scrolling speed. The scale is graduated from 0.0 to 9.9 seconds.
- Press OK.
- Press the down arrow to continue to “Back to the menu”.

This sub-menu contains setting options for blade feed, both horizontally and depth.

The sub-menu consists of five part menus:

3.1 Change the start point for the trolley motion

3.2 Change the end point for the trolley motion

3.3 Change the start point for blade motion

3.4 Change the end point for blade motion

3.5 Change the ramp time for the feed

3.1 Change the start point for the trolley motion

The start point value should be adjusted so that the trolley motion is as low as possible when the trolley motion knob is in the zero position, i.e. in the middle of the left and right end positions.

A too low value results in the need to turn the knob further from the zero position before the trolley motion starts.

A too high value results in the trolley motion being too high when the knob is turned from the zero position.

NOTE!

Wear to the proportional valve and hydraulic motor can result in the need to adjust the start point value.

State the start point value:

- Press OK when the part menu is shown.

  The display shows: CHANGE START POINT and a percentage value.
- Scroll using the arrow keys to state the required start point. Hold the arrow keys held down to increase the scrolling speed. The scale is graduated from 1-100 %.
- Press OK.
- Press the down arrow to continue to the next part menu.

3.2 Change the end point for the trolley motion

The end point value should be adjusted so that the trolley motion speed is as high as possible when the trolley motion knob is turned to the right.

A too low end point value results in the full trolley motion speed never being reached.

State the end point value:

- Press OK when the part menu is shown.

  The display shows: CHANGE END POINT and a percentage value.
- Scroll using the arrow keys to state the required end point. Hold the arrow key held down to increase the scrolling speed. The scale is graduated from 1-100 %.
- Press OK.
- Press the down arrow to continue to the next part menu.

3.3 Change the start point for blade motion

The start point value should be adjusted so that the blade motion is as low as possible when the blade motion knob is in the zero position, i.e. in the middle of the left and right end positions.

A too low value results in the need to turn the knob further from the zero position before the blade motion starts.

A too high value results in the blade motion being too high when the knob is turned from the zero position.

State the start point value:

- Press OK when the part menu is shown.
- Press OK.

  The display shows: CHANGE START POINT and a percentage value.
- Scroll using the arrow keys to state the required start point. Hold the arrow key held down to increase the scrolling speed. The scale is graduated from 1-100 %.
- Press OK.
- Press the down arrow to continue to the next part menu.

3.4 Change the end point for blade motion

The end point value should be adjusted so that the blade motion speed is as high as possible when the blade motion knob is turned to the right.

A too low value results in the full blade motion speed never being reached.

State the end point value:

- Press OK when the part menu is shown.

  The display shows: CHANGE END POINT and a percentage value.
- Scroll using the arrow keys to state the required end point. Hold the arrow key held down to increase the scrolling speed. The scale is graduated from 1-100 %.
- Press OK.
- Press the down arrow to continue to the next part menu.

3.5 Change the ramp time for the feed

The ramp time value states how quickly the feeding speed shall change when the blade motion knob or the trolley motion knob is turned.

The defined ramp time value for feeding applies to both for the blade motion and the trolley motion speeds.

State the ramp time value:

- Press OK when the part menu is shown.
- The display shows: CHANGE RAMP TIME and the time in seconds.
- Scroll using the arrow keys to state the required ramp time. Hold the arrow key held down to increase the scrolling speed. The scale is graduated from 0.0 to 9.9 seconds.
- Press OK.
- Press the down arrow to continue to “Back to the menu”.

4 Sensor on/off calibrate

This sub-menu contains the setting options for the hydraulic unit's different pressure sensors.

The sub-menu consists of seven part menus:

4.1 Temperature sensor for hydraulic oil

4.2 Pressure sensor for the filter

4.3 Voltage sensor

4.4 Pressure sensor for hydraulic pressure

4.5 Calibrate pressure sensor for hydraulics

4.6 Calibrate voltage sensor

4.7 Calibrate potentiometer

4.1 Temperature sensor for hydraulic oil

A temperature sensor is fitted by the electronic card. The sensor ensures that the electronics do not overheat.

When the temperature sensor is on, the control system continuously reads the temperature.

NOTE!

The hydraulic unit can be damaged, if the temperature sensor is switched off.

Turn on/ turn off the temperature sensor:

- Press OK when the part menu is shown.

  The display shows: TEMP. SENSOR FOR HYDR. OIL and ON or OFF.
- Press OK to switch between ON and OFF.
- Press the down arrow to continue to the next part menu.

4.4 Pressure sensor for the hydraulic pressure

The pressure sensor measures the hydraulic pressure to the blade

NOTE!

The hydraulic unit's control system switches off, if the pressure sensor is switched off. The hydraulic system may then be difficult to control with a high load.

Turn on/ turn off the pressure sensor:

- Press OK when the part menu is shown.

The display shows: PRESSURE SENSOR FOR HYDRAULIC PRESSURE and ON or OFF.

- Press OK to switch between ON and OFF.
- Press the down arrow to continue to the next part menu.

4.5 Calibrate pressure sensor for hydraulics

The pressure sensor that measures the oil pressure for blade rotation is possible to calibrate.

The pressure sensor must be calibrated according to the order zero point and maximum point.

To calibrate the zero point:

1. Connect the incoming power cable to 63 A.
2. Connect an oil pressure reducing valve with a pressure gauge to the blade rotation's hydraulic couplings.
3. Select the sub-menu “Sensor on/off calibrate” from the “Settings” menu.
4. Scroll using the arrow keys and press OK when “Calibrate pressure sensor for hydraulics” is shown.
5. Press OK again when the display shows CALIBRATE ZERO POINT.
6. Start the hydraulic unit.
7. Adjust the oil pressure reduction valve to 0 bar.
8. Press arrow up/down until the value for the oil pressure is shown as 0 bar, i.e. the same value as on the pressure gauge on the oil pressure reduction valve.

9. Press OK to execute calibration

To calibrate the maximum point:

NOTE!

Calibrate the zero point (see previous page) before the maximum point. This is so you do not miss to start the hydraulic unit

1. Select the sub-menu “Sensor on/off calibrate” from the “Settings” menu.
2. Scroll using the arrow keys and press OK when “Calibrate pressure sensor for hydraulics” is shown.
3. Press OK again when the display shows CALIBRATE MAX POINT.
4. Adjust the oil pressure reduction valve to 215 bar.
5. Press arrow up/down until the value for the oil pressure is shown as 215 bar, i.e. the same value as on the pressure gauge on the oil pressure reduction valve.
6. Press OK to execute calibration.
7. Press the down arrow to continue to the next part menu.

4.7 Calibrate potentiometer

This function is used when calibrating the zero positions on the knobs for blade motion and trolley motion .

To calibrate the zero positions:

1. Scroll using the arrow keys and press OK when “Calibrate potentiometers” is shown.

The display shows: CALIBRATE 0 0. The left-hand digit refers to the blade motion and the right digit refers to the trolley motion.

When the knobs are turned from the zero position the zeros are shown and a number of >>>. The number of arrows depends on how far the knobs are from the zero positions.

1. Remove the knobs by unscrewing the screws located on the side of each knob. Use an allen key.
2. Turn the shafts until only two zeros are shown on the display.
3. Fit the knobs again.
4. Adjust the plastic washer.
5. Press OK.
6. Press the down arrow to continue to “Back to the menu”.

5 Settings Smartbox

This sub-menu contains information about the hydraulic unit and functions for setting of units and the PIN code. The sub-menu consists of six part menus:

1. Husqvarna Smartbox version
2. AM (American) units
3. Radio ID
4. ID Hydraulic unit
5. PIN code
6. Change the PIN code

1. Husqvarna Smartbox version. The display shows the version number, for example 2.0, for the software.

- Press the down arrow to continue to the next part menu.

2. AM units. The display shows: AM units and ON or OFF. When the function is ON American units are used in the menu system.

- Press the down arrow to continue to the next part menu.

3. Radio ID

In order to make radio contact with the remote control and the hydraulic unit an ID number must be stated. The CAN cable must be connected between the remote control and the hydraulic unit to change the ID number.

- Press OK when the display shows RADIOID 0 0.

  The left-hand digit refers to the high byte and the right digit refers to the low byte.
- State, with the arrow keys, the high byte and press OK.
- State, with the arrow keys, the low byte and press OK.
- Press the down arrow to continue to the next part menu.

From the factory the ID number is the same as the machine number. If the remote control or the hydraulic unit are replaced or reprogrammed, an ID number must be stated. As a suggestion, change to the hydraulic unit's ID number.

4. ID Hydraulic unit

The display shows the identity number for the hydraulic unit. The identity number must be greater than 0.

- Press the down arrow to continue to the next part menu.

5.5 PIN code

When the function is actuated a four digit PIN code is requested each time the remote control is switched on. The first time the code is 0000. When the wrong PIN code is stated 4 times in succession the hydraulic unit is locked. A PUK code (provided by husqvarna) must then be stated to unlock the unit.

The display shows: PIN code and ON or OFF.

To activate or deactivate:

- Press OK to switch between ON and OFF.
- Press the down arrow to continue to the next part menu.

5.6 Change the PIN code

- Press OK when the display shows CHANGE PIN CODE.
- State the current PIN code and press OK
- When changing for the first time the code is 0000.)
- State the new PIN code and press OK.
- State the new PIN code again to confirm and press OK.
- Press the down arrow to go to “Back to the menu”.

6. Basic setting

This function restores all the menu settings to the factory settings. The PIN code is also restored.

The display shows: DEFAULT SETTING and ON or OFF. OFF is shown when a change has been made that differs from the default settings.

7 Out settings

This function confirms or rejects all settings made before the operations menu is shown again.

- Press OK when the display shows OUT SETTINGS.
- The display shows: SAVE? NO. To not implement the made settings:
- Press OK.
- To implement the made settings:
- Press arrow up/down to select YES.
- Press OK.

Error messages

Ten different error messages can be shown on the display:

- NOTE! LOW VOLTAGE (1A) CHECK THE VOLTAGE SUPPLY AND THE CABLE TO THE HYDRAULIC UNIT
- LOW VOLTAGE PHASE X (1B) LOW POWER 32A
- MOTOR PROTECTION TRIPPED (2)
- MOTOR OVERHEATED (3) COOLING IN PROGRESS. DO NOT SWITCH OFF THE ELECTRIC MOTOR
- OIL TEMP. HIGH (4) CHECK THE WATER TO THE HYDRAULIC UNIT
- PRESSURE SENSOR OUT OF (5) ORDER
- HIGH HYDR PRESSURE (6) CHECK UNIT
- NO CONTACT CHECK THE CAN CABLE (7)
- NO RADIO CONTACT (8)

Error message (1A)

NOTE!

Low voltage Check the voltage supply and the cable to the hydraulic unit

Too low voltage, caused by:

- Long mains cable.
- Too small core size (cross-section) on the mains cable.

One or more phases down, caused by:

- A fuse has blown in the distribution box.
- Cable breakage.
- No voltage to one or more phases in the distribution box.

Action (1A)

Press OK to acknowledge the error message. The hydraulic unit will match the maximum power output to 32 A.

Error message (1B)

“Low voltage Phase x low output. 32 A”, where x represents phase 1, 2 or 3.

Action (1B)

Press OK to acknowledge the message. It states on the display that the maximum power output is set to 32 A. If the voltage is still low, the electric motor is turned off and the low voltage error message is shown.

By pressing OK, the unit returns to the maximum power you selected at start up. To switch between 63 A and 32 A, the unit must be turned off and then on again.

Read the supply voltage on the operations menu “Phase 1, Phase 2, Phase 3”. If the voltage, before the motor is started, is:

Below 340 V, check that none of the cores in the cable are broken and that there is voltage up to distribution box.

Above 340 V, check the cable's core dimensions and length.

Error message (2)

“Motor protection tripped”.

Cause (2):

The electric motor has been overload or a phase is down. This is why the motor cut-out, which is there to protect the electric motor, has tripped.

Action (2):

Press OK to acknowledge the error message. Check that there is voltage to the hydraulic unit on all three phases.

Read the supply voltage on the operations menu “Phase 1, Phase 2, Phase 3”.

If the voltage to one phase is down: Check the mains cable and the voltage to the distribution box. Motor protection is reset automatically within three minutes.

If the voltage to all phases is higher than 340 V: Wait for the motor cut-out to reset. Now restart the hydraulic unit.

If the motor cut-out trips frequently you should call the service personnel.

Error message (3)

“Motor overheated cooling in progress. Do not turn off the electric motor!”

NOTE!

Do not turn off the motor, as this can damaged it. When the motor has cooled it is turned off automatically.

Cause (3)

The motor temperature sensor is too high.

Action (3)

Press OK to acknowledge the error message.

If after all it is necessary to turn off the engine, the error message must still be acknowledged by first pressing OK.

The display shows: COOLING. The hydraulic valves for blade and trolley motion are turned off. The blade motion can also be restarted.

When the motor temperature sensor drops below the limit level the display shows: MOTOR COOLED PRESS OK.

If the motor frequently overheats you should call the service personnel.

Error message (4)

“Oil temp. high Check water to the hydraulic unit”

Cause (4)

Failure to cool the hydraulic oil.

Action (4)

When the error message is shown, the electric motor is turned off. Press OK to acknowledge the error message. Check that the water coolant is connected to the hydraulic unit and that the water runs to the blade when you turn the knob for blade rotation.

Error message (5)

“Pressure sensor not working”

Cause (5)

The pressure sensor for measuring the hydraulic pressure to the blade rotation is not working.

Action (5)

Press OK to acknowledge the error message. If the error message is shown repeatedly, replace the pressure sensor.

Error message (6)

“High hydr pressure check unit”

Cause (6)

The blade has jammed, which causes a high hydraulic pressure

Action (6)

Press OK to acknowledge the error message. If the error message is shown frequently, you should call the service personnel.

Error message (7)

“No contact Check the CAN cable”

Cause (7)

The CAN cable, or its connector is damaged, which results in the hydraulic unit not being possible to control via the remote control.

Action (7)

Press OK to acknowledge the error message. Check the cable and connector and replace if damaged. Contact the service personnel if the fault remains.

Error message (8) - applies to units equipped with a radio system

“No radio contact”

Cause (8)

The radio contact between the hydraulic unit and remote control is not working.

Action (8)

Several actions may be necessary to rectify the fault:

- Ensure (via the operations menu - settings - radio id) that the identity number is greater than 0.
- Make sure that the hydraulic unit has been started.
- Move closer to the hydraulic unit to prevent long distances or reinforced walls.

Restart the remote control. Contact the service personnel if the fault remains.

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