

HILTI

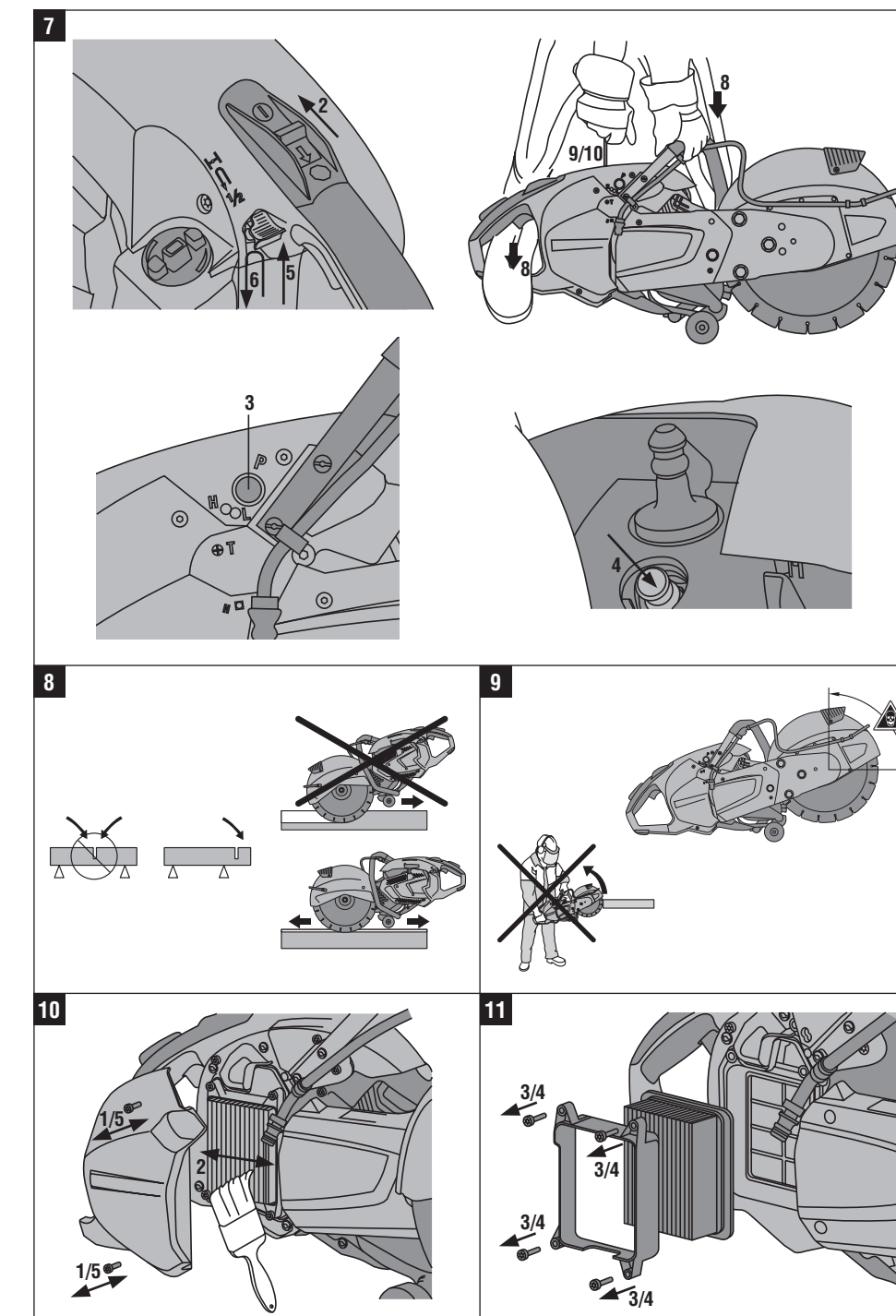
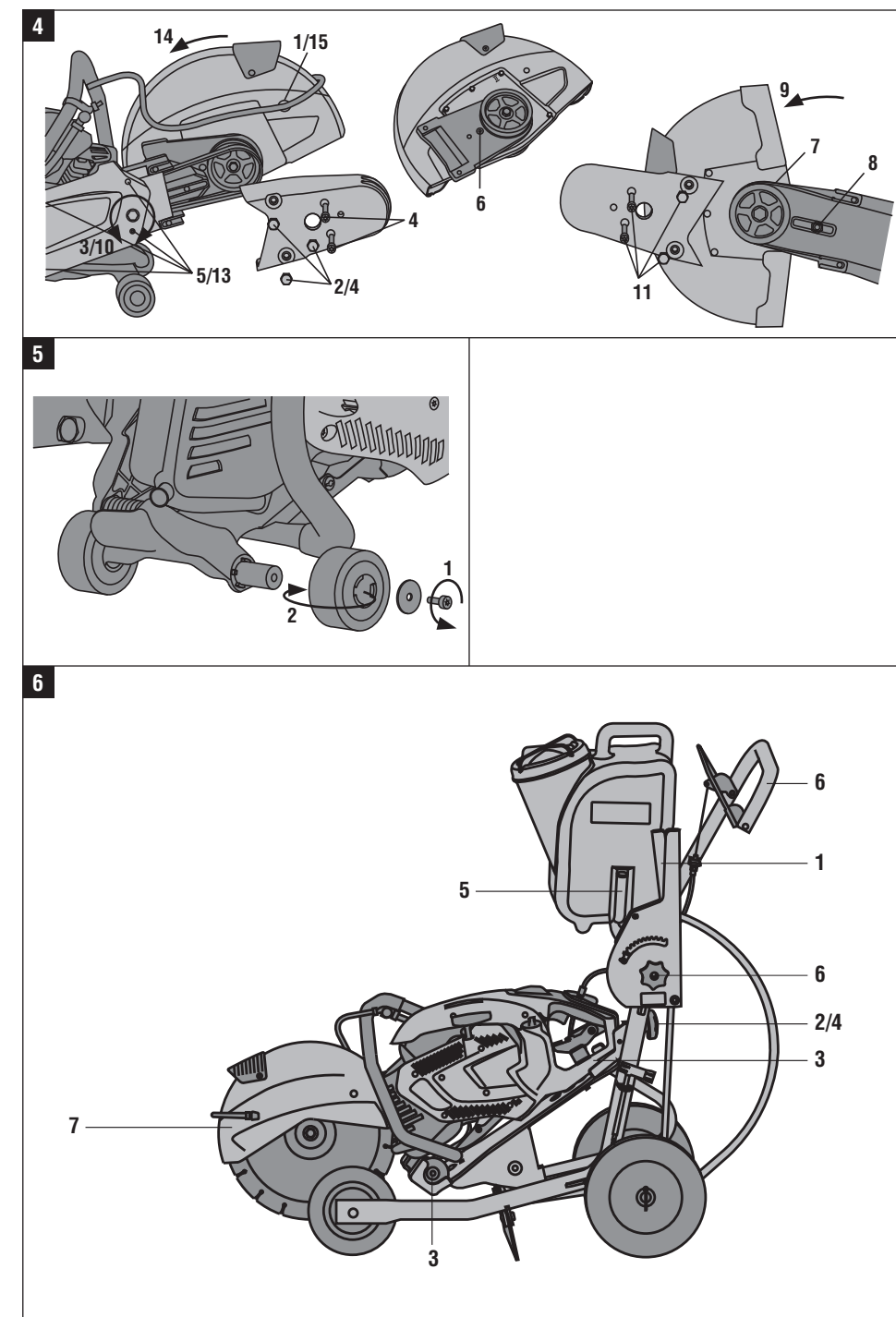
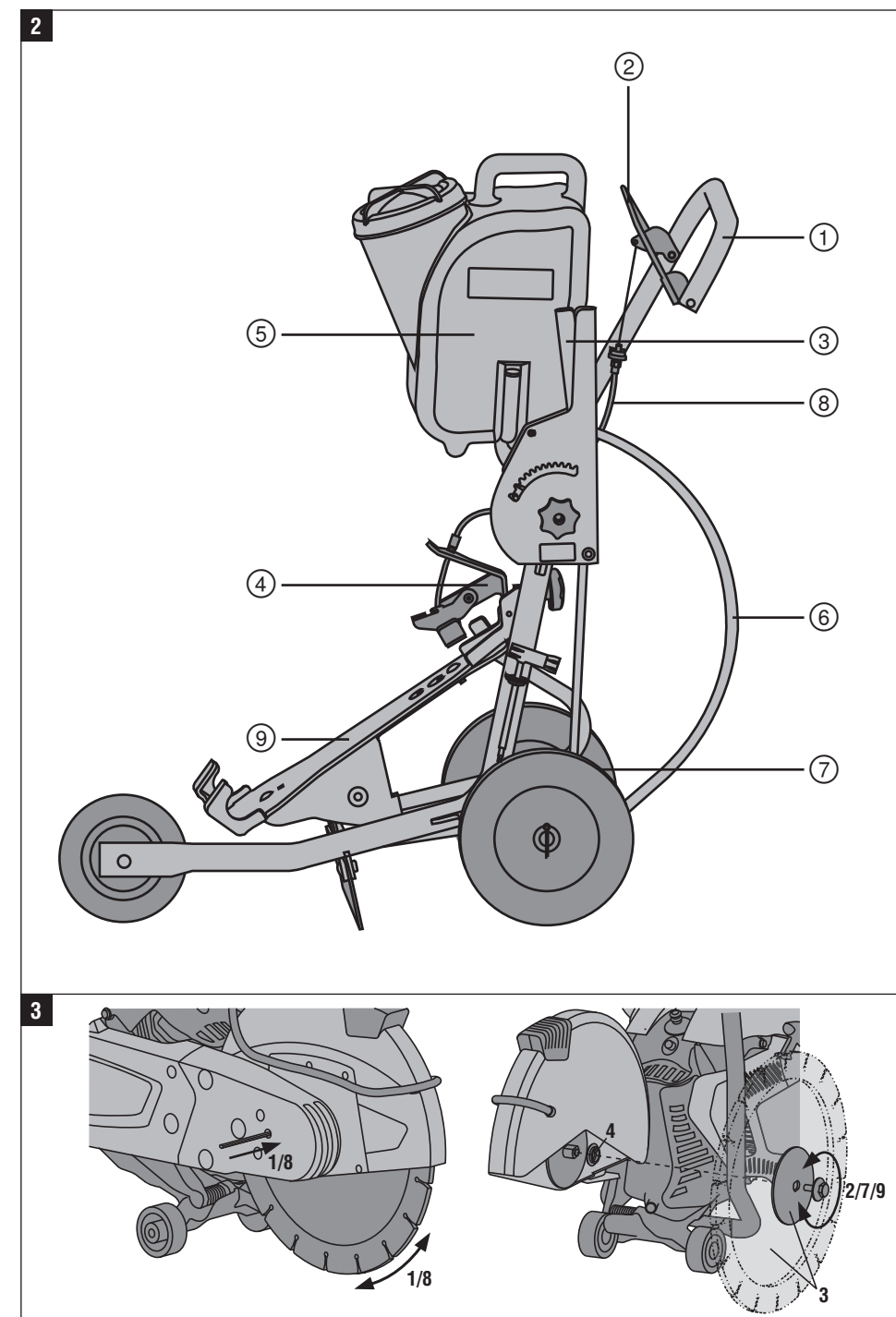
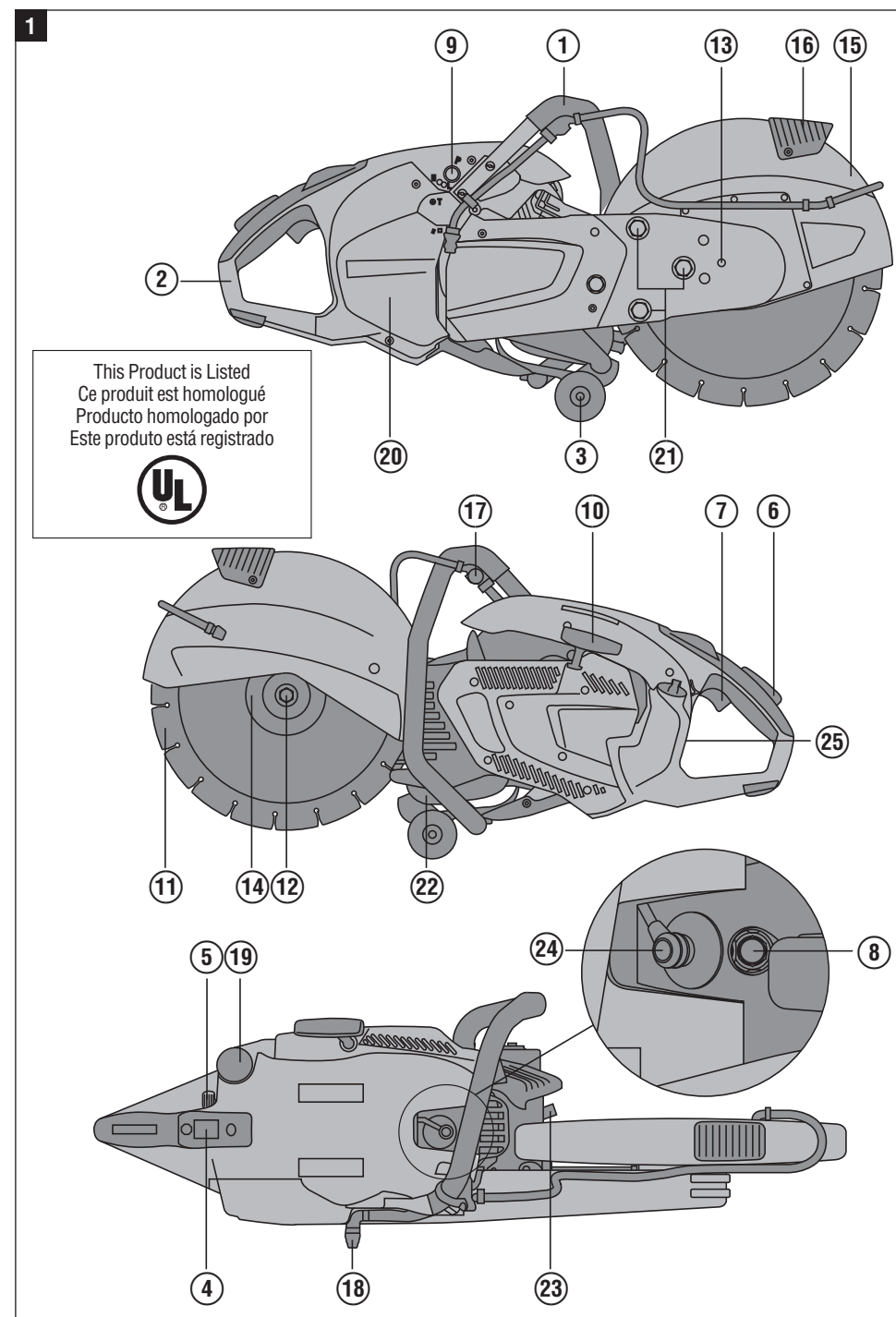
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HILTI

**DSH 700 /
DSH 900**

Operating instructions **en**
Mode d'emploi **fr**
Manual de instrucciones **es**





ORIGINAL OPERATING INSTRUCTIONS

DSH 700/ DSH 900 cut-off saw

en

It is essential that the operating instructions are read before the machine is operated for the first time.

Always keep these operating instructions together with the machine.

Ensure that the operating instructions are with the machine when it is given to other persons.

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1 These numbers refer to the corresponding illustrations. The illustrations can be found on the fold-out cover pages. Keep these pages open while studying the operating instructions.

In these operating instructions, the designation "the machine" always refers to the DSH 700 or DSH 900 gasoline-powered cut-off saw.

Parts, operating controls and indicators (DSH 700 / DSH 900) **1**

- ① Forward grip
- ② Rear grip
- ③ Guide wheels
- ④ Start/stop switch
- ⑤ Choke lever / half-throttle lock
- ⑥ Throttle safety grip
- ⑦ Throttle trigger
- ⑧ Decompression valve
- ⑨ Fuel pump
- ⑩ Starter handle
- ⑪ Cutting disc
- ⑫ Clamping screw
- ⑬ Hole for locking pin for changing cutting discs
- ⑭ Clamping flange
- ⑮ Guard (hood)
- ⑯ Disc guard adjustment grip
- ⑰ Water valve
- ⑱ Water connection
- ⑲ Fuel tank cap
- ⑳ Air filter cover
- ㉑ Belt tensioner
- ㉒ Exhaust / muffler
- ㉓ Spark filter
- ㉔ Spark plug connector
- ㉕ Type identification plate

DSH-FSC saw carriage **2**

- ① Grip
- ② Throttle trigger
- ③ Cutting depth adjustment
- ④ Hold-down device
- ⑤ Water tank
- ⑥ Water connection
- ⑦ Axial adjustment
- ⑧ Throttle cable
- ⑨ Machine cradle

1. General information

1.1 Safety notices and their meaning

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DANGER

Draws attention to imminent danger that could lead to serious bodily injury or fatality.

WARNING

Draws attention to a potentially dangerous situation that could lead to serious personal injury or fatality.

CAUTION

Draws attention to a potentially dangerous situation that could lead to slight personal injury or damage to the equipment or other property.

NOTE

Draws attention to an instruction or other useful information.

1.2 Explanation of the pictograms and other information

Prohibition signs



Transport by crane is not permissible.

Warning signs



General warning



Warning: hot surface



Warning: Flying sparks present a fire risk.



Warning: Risk of kickback.



Warning: Don't inhale toxic vapors or exhaust fumes.



Minimum permissible speed rating of the cutting discs used

Obligation signs



Wear protective gloves.



Wear safety shoes.



Wear ear protection, eye protection, respiratory protection and a hard hat. Eye protective devices must comply with ANSI Z87.1.



Don't use toothed cutting discs.



Don't use damaged cutting discs.



Smoking and naked flames prohibited.

Symbols



WARNING! Read and follow all safety precautions in the operator's manual. Failure to follow these instructions could result in serious or fatal injury.



Motor stop system

P

Fuel pump

Location of identification data on the machine

The type designation and serial number can be found on the type identification plate on the machine. Make a note of this data in your operating instructions and always refer to it when making an enquiry to your Hilti representative or service department.

Type: _____

Generation: 01 _____

Serial no.: _____

2. Description

2.1 Use of the product as directed

The machine is intended for hand-held or walk-behind use for dry or wet cutting of asphalt and mineral or metallic construction materials using abrasive or diamond cutting discs.

To reduce the amount of dust produced when cutting, we recommend use of the wet cutting method.

The working environment may be as follows: construction site, workshop, renovation, conversion or new construction.

To avoid the risk of injury, use only genuine Hilti accessories and cutting tools.

Observe the safety rules and operating instructions for the accessories used.

Working on materials hazardous to the health (e.g. asbestos) is not permissible.

Observe the information printed in the operating instructions concerning operation, care and maintenance.

Nationally applicable industrial safety regulations must be observed.

The machine is designed for professional use and may be operated, serviced and maintained only by trained, authorized personnel. This personnel must be informed of any special hazards that may be encountered. The machine and its ancillary equipment may present hazards when used incorrectly by untrained personnel or when used not as directed.

Take the influences of the surrounding area into account. Do not use the power tool or appliance where there is a risk of fire or explosion.

Modification of the machine or tampering with its parts is not permissible.

Don't work in closed, poorly ventilated rooms.

2.2 Items supplied as standard

- 1 Machine
- 1 DSH tool set
- 1 Operating instructions
- 1 DSH consumables kit

2.3 Abrasive cutting discs for hand-guided gasoline-powered cut-off saws

Abrasive cutting discs for gasoline-powered cut-off saws are composed of synthetic-resin-bonded abra-

sive granulate. These cutting discs feature fabric or fiber reinforcement which improves their strength, toughness and breakage resistance.

NOTE

Abrasive cutting discs for gasoline-powered cut-off saws are used mainly for cutting ferrous and non-ferrous metals.

NOTE

Various grit types such as aluminum oxide, silicon carbide, zirconium, etc., with a different bonding material (matrix) or matrix hardness, are available depending on the construction material to be cut.

2.4 Diamond cutting discs for hand-guided gasoline-powered cut-off saws

Diamond cutting discs for gasoline-powered cut-off saws consist of a steel core (disc) with diamond segments (metallically bonded industrial diamonds).

NOTE

Segmented diamond cutting discs or those with a continuous cutting face are mainly used for cutting asphalt and mineral construction materials.

2.5 Cutting disc specifications

With the DSH 700-12" use only diamond discs or synthetic-resin-bonded fiber-reinforced cutting discs with a diameter of 12" and a permissible peripheral speed of at least 80m/sec. With the DSH 700-14", DSH 900-14" and DSH 900-16" use only diamond discs or synthetic-resin-bonded fiber-reinforced cutting discs with a diameter of 14" or, respectively, 16" (DSH 900-16") and a permissible peripheral speed of at least 100m/sec. The cutting disc manufacturer's instructions on fitting and using the discs must also be observed.

2.6 Recommendations for use

We recommend that the workpiece is not cut through in a single operation. Advance to the required depth of cut by making several to-and-fro movements.

To avoid damaging the diamond cutting disc when dry cutting, lift the blade out of the cut for approx. 10

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seconds every 30 to 60 seconds while the machine is still running.

To reduce the amount of dust produced when cutting, we recommend use of the wet cutting method.

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3. Accessories

Accessories for the DSH 700 and DSH 900

Diamond cutting disc		000000, See main catalog.
Abrasive cutting disc		000000, See main catalog.
Two-stroke oil	DSH (1 L)	365826
Water supply unit	DWP 10	365595
Saw carriage	DSH-FSC	431364
Hard hat		267736
Protective glasses	I-VO B05 PS clear	285780
Container	DSH	365828
Consumables kit	DSH	365602

Consumables and wearing parts for the DSH 700

Air filter	DSH	261990
Cord (5 pcs)	DSH	412230
Starter	DSH 700	359425
Drive belt	DSH 12/14"	359476
Filter element	DSH	412228
Spark plug	DSH	412237
Tool set	DSH	359648
Cylinder set	DSH 700	412245
Fastening screw assy.	DSH	412261
Flange (2)	DSH	412257
Centering ring 20 mm / 1"	DSH	412264

Consumables and wearing parts for the DSH 900

Air filter	DSH	261990
Cord (5 pcs)	DSH	412230
Starter	DSH 900	359427
Drive belt	DSH 12/14"	359476
Drive belt	DSH 16"	359477
Filter element	DSH	412228
Spark plug	DSH	412237
Tool set	DSH	359648
Cylinder set	DSH 900	412384
Fastening screw assy.	DSH	412261
Flange (2)	DSH	412257
Centering ring 20 mm / 1"	DSH	412264

4. Technical data

Right of technical changes reserved.

Machine	DSH 700 30 cm / 12"	DSH 700 35 cm / 14"	DSH 900 35 cm / 14"	DSH 900 40 cm / 16"
Motor type	Two-stroke / single-cylinder / air-cooled	Two-stroke / single-cylinder / air-cooled	Two-stroke / single-cylinder / air-cooled	Two-stroke / single-cylinder / air-cooled
Cubic capacity	68.7 cm ³ (4.19 in ³)	68.7 cm ³ (4.19 in ³)	87 cm ³ (5.31 in ³)	87 cm ³ (5.31 in ³)
Weight without cutting disc, tank empty	11.3 kg (24.91 lb)	11.5 kg (25.35 lb)	11.7 kg (25.79 lb)	11.9 kg (26.23 lb)
Weight with saw carriage, without cutting disc, tank empty	42.3 kg (93.25 lb)	42.5 kg (93.7 lb)	42.7 kg (94.14 lb)	42.9 kg (94.58 lb)
Power rating	3.5 kW	3.5 kW	4.3 kW	4.3 kW
Maximum arbor speed	5,100/min	5,100/min	5,100/min	4,700/min
Motor speed	10,000±200/min	10,000±200/min	10,000±200/min	10,000±200/min
Idling speed	2,500...3,000/min	2,500...3,000/min	2,500...3,000/min	2,500...3,000/min
Dimensions with cutting disc (L x W x H) in mm	783 x 261 x 434	808 x 261 x 434	808 x 261 x 434	856 x 261 x 466
Ignition (type)	Electronically-controlled ignition timing	Electronically-controlled ignition timing	Electronically-controlled ignition timing	Electronically-controlled ignition timing
Electrode gap	0.5 mm (0.02")	0.5 mm (0.02")	0.5 mm (0.02")	0.5 mm (0.02")
Spark plug	Manufacturer: NGK Type: CMR7A-5	Manufacturer: NGK Type: CMR7A-5	Manufacturer: NGK Type: CMR7A-5	Manufacturer: NGK Type: CMR7A-5
Carburetor	Manufacturer: Walbro Model: WT Type: 895	Manufacturer: Walbro Model: WT Type: 895	Manufacturer: Walbro Model: WT Type: 895	Manufacturer: Walbro Model: WT Type: 895
Fuel mixture	Hilti oil 2% (50:1) or TC oil 4% (25:1)	Hilti oil 2% (50:1) or TC oil 4% (25:1)	Hilti oil 2% (50:1) or TC oil 4% (25:1)	Hilti oil 2% (50:1) or TC oil 4% (25:1)
Tank capacity	900 cm ³ (54.9 in ³)	900 cm ³ (54.9 in ³)	900 cm ³ (54.9 in ³)	900 cm ³ (54.9 in ³)
Cutting disc mount	Reversible	Reversible	Reversible	Reversible
Disc arbour size	20 mm (0.79") or 25.4 mm (1")	20 mm (0.79") or 25.4 mm (1")	20 mm (0.79") or 25.4 mm (1")	20 mm (0.79") or 25.4 mm (1")
Max. disc outside diameter	308 mm (12.13")	359 mm (14.13")	359 mm (14.13")	410 mm (16.14")
Min. flange outside diameter	102 mm (4.02")	102 mm (4.02")	102 mm (4.02")	102 mm (4.02")

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Machine	DSH 700 30 cm / 12"	DSH 700 35 cm / 14"	DSH 900 35 cm / 14"	DSH 900 40 cm / 16"
Max. disc thickness (steel disc thickness)	5.5 mm (0.22")	5.5 mm (0.22")	5.5 mm (0.22")	5.5 mm (0.22")
Maximum cutting depth	100 mm (3.94")	125 mm (4.92")	125 mm (4.92")	150 mm (5.91")

5. Safety instructions

In addition to the information relevant to safety given in each of the sections of these operating instructions, the following points must be strictly observed at all times.

5.1 General safety rules

- a) **Use the right tool or machine for the job. Do not use the tool or machine for purposes for which it was not intended. Use it only as directed and when in faultless condition.**
- b) **Avoid touching rotating parts. Switch the power tool on only after bringing it into position at the workpiece.** Touching rotating parts, especially rotating drill bits, discs or blades, etc. may lead to injury.
- c) **Use only the genuine Hilti accessories or ancillary equipment listed in the operating instructions.** Use of accessories or ancillary equipment not listed in the operating instructions may present a risk of personal injury.
- d) **Always hold the saw and the saw carriage securely with both hands on the grips provided. Keep the grips dry, clean and free from oil and grease.**
- e) Slits cut in loadbearing walls of buildings or other structures may influence the statics of the structure, especially when steel reinforcing bars or load-bearing components are cut through. **Consult the structural engineer, architect, or person in charge of the building project before beginning the work.**
- f) **Do not overload the machine. It will work more efficiently and more safely within its intended performance range.**
- g) **Never use the power tool without the guard (hood).**
- h) **Take steps to ensure that flying sparks from the power tool do not present a hazard, i.e. by striking yourself or other persons. Adjust the position of the disc guard accordingly.**
- i) **Adjust the position of the disc guard on the machine correctly. The guard must be securely attached to the machine and positioned for maximum safety, so the least amount of cutting disc is exposed towards the operator.** The guard helps to protect the operator from broken disc fragments and accidental contact with the disc.
- j) **Store machines in a secure place when not in use. When not in use, machines must be stored in a dry, high place or locked away out of reach of children.**
- k) **Switch the machine off before transporting it.**
- l) **When laying the machine down, make sure that it stands securely.**
- m) **Switch the machine off after use.**
- n) **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.
- o) **Maintain the machine carefully. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the machine's operation. If damaged, have the machine repaired before use.** Poor maintenance is the cause of many accidents.
- p) **Set the switch to the "stop" position before changing the cutting disc or adjusting the guard.**
- q) **Don't leave the machine unattended while the motor is running.**
- r) **Always apply full throttle when cutting.**
- s) **Hold the machine by insulated gripping surfaces when performing an operation where the cutting disc may contact hidden wiring.** Contact with a "live" wire will make exposed metal parts of the machine "live" and shock the operator.

- t) **Children must be instructed not to play with the machine.**
- u) **The appliance is not intended for use by children or debilitated persons.**
- v) **Lifting the saw and saw carriage by crane is not permissible.**
- w) **Do not stand the saw and saw carriage on an inclined surface. Always check to ensure that the saw and saw carriage are standing securely.**

5.2 Proper organization of the work area



- a) **Ensure that the workplace is well lit.**
- b) **Ensure that the workplace is well ventilated.** Exposure to dust at a poorly ventilated workplace may result in damage to the health.
- c) **Don't work in closed rooms.** Carbon monoxide, unburned hydrocarbons and benzene in the exhaust gas may cause asphyxiation.
- d) **Keep the workplace tidy. Objects which could cause injury should be removed from the working area.** Untidiness at the workplace can lead to accidents.
- e) **Secure the workpiece. When necessary, use clamps or a vice to secure the workpiece. Don't hold the workpiece by hand.**
- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- g) **It is recommended that non-slip shoes or boots are worn when working outdoors.**
- h) **Keep children away. Keep other persons away from the working area.**
- i) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- j) **Fit the filled water tank to the saw carriage only after fitting the saw to the saw carriage.** This will prevent the saw carriage falling over.
- k) **Concealed electric cables or gas and water pipes present a serious hazard if damaged while you are working. Accordingly, check the area in which you are working beforehand (e.g. using a metal detector).** External metal parts of the machine may become live, for example, when an electric cable is damaged accidentally.

- l) **Don't work from a ladder.**
- m) **Don't work above shoulder height.**
- n) **If the work involves breaking right through, take the appropriate safety measures at the opposite side.** Parts breaking away could fall out and / or fall down and injure other persons.
- o) **When using the wet cutting technique, take care to ensure that the water drains away in controlled fashion and check that the water or water spray presents no hazard and causes no damage to the surrounding area.**
- p) **Secure the area below the working area.**

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5.3 Thermal



- a) **Wear protective gloves when changing cutting tools as they get hot during use.**
- b) **The exhaust system and motor get very hot. Always hold the machine securely with both hands on the grips provided.**

5.4 Liquids (gasoline and oil)

- a) **Store gasoline and oil in a well-ventilated room in fuel containers in compliance with regulations.**
- b) **Allow the machine to cool before refueling.**
- c) **Use a suitable funnel when refueling.**
- d) **Don't use the gasoline or other flammable liquids for cleaning.**
- e) **Don't refuel the machine at the workplace.**
- f) **When refueling, take care to avoid spillage of gasoline.**

5.5 Sawing slurry

Avoid skin contact with sawing slurry.

5.6 Vapors



- a) **Don't smoke when filling the tank with fuel!**
- b) **Avoid inhaling gasoline vapors and exhaust fumes.**
- c) **Hot exhaust gases containing sparks or sparks generated by the cutting operation may cause fire**

or explosion. **Take care to ensure that the sparks generated do not ignite flammable (gasoline, dry grass, etc.) or explosive (gas, etc.) substances.**

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5.7 Dusts



- a) Large quantities of dust hazardous to the health are generated when cutting (especially when dry cutting). **The operator and bystanders must wear suitable dust masks while the machine is in use.**
- b) Dust or vapors containing chemical substances may be generated when working on unknown materials. These substances could cause serious damage to the health. **Obtain information about hazards presented by the materials from the client or the authorities responsible. The operator of the machine and any bystanders must wear respiratory protection that is approved for use in conjunction with the applicable substance.**
- c) **To reduce the amount of dust generated when cutting mineral materials and asphalt, we recommend use of the wet cutting technique.**
- d) **WARNING: Some dust created by grinding, sanding, cutting and drilling contains chemicals known to cause cancer, birth defects, infertility or other reproductive harm; or serious and permanent respiratory or other injury.** Some examples of these chemicals are: lead from lead-based paints, crystalline silica from bricks, concrete and other masonry products and natural stone, arsenic and chromium from chemically-treated lumber. Your risk from these exposures varies, depending on how often you do this type of work. **To reduce exposure to these chemicals, the operator and bystanders should work in a well-ventilated area, work with approved safety equipment, such as respiratory protection appropriate for the type of dust generated, and designed to filter out microscopic particles and direct dust away from the face and body. Avoid prolonged contact with dust. Wear protective clothing and wash exposed areas with soap and water.** Allowing dust to get into your mouth, nose, eyes, or to remain on your skin may promote absorption of harmful chemicals.

5.8 Requirements to be met by users

- a) **Improve the blood circulation in your fingers by relaxing your hands and exercising your fingers during breaks between working.**
- b) **Stay alert, watch what you are doing and use common sense when operating the machine. Don't use the machine when you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating machines may result in serious personal injury.

5.9 Safety warnings for abrasive cutting-off operations



- a) **Check that the cutting disc is fitted in accordance with the manufacturer's instructions.**
- b) **Cutting discs must be stored and handled carefully in accordance with the manufacturer's instructions.**
- c) **Use only cutting discs with a rated maximum permissible speed which is at least as high as the machine's highest running speed.**
- d) **Cutting discs which are damaged or out of round (causing vibration) must not be used.**
- e) **The outside diameter and the thickness of the cutting disc must be within the capacity rating of the machine.** Incorrectly sized accessories cannot be adequately guarded or controlled.
- f) **Don't use toothed cutting discs (saw blades or similar).** Blades or discs of this kind frequently cause kickback or loss of control of the machine.
- g) **Guide the machine evenly and do not apply lateral pressure to the cutting disc. Always bring the machine into contact with the workpiece at right angles. Don't attempt to alter the line of cut by applying lateral pressure or by bending the cutting disc while cutting is in progress.** This presents a risk of damaging or breaking the cutting disc.
- h) **Don't attempt to brake the cutting disc with the hand.**
- i) **The cutting disc and flange or any other accessory must fit the arbor of the machine exactly.** Cutting discs or accessories with arbor holes that do not match the mounting hardware of the ma-

chine will run out of balance, vibrate excessively and may cause loss of control.

- j) **Always use undamaged disc mounting flanges of the correct diameter for the cutting discs used.** Correctly sized flanges support the cutting disc and thus reduce the possibility of disc breakage.
- k) **When fitting the cutting disc, always take care to ensure that the disc's specified direction of rotation corresponds to the direction of rotation of the machine.**
- l) **Store the cutting disc in accordance with the manufacturer's recommendations.** Incorrect or careless storage may damage the cutting disc.
- m) **Don't use cutting discs with a thickness greater than 5.5 mm (0.22").**
- n) **Remove the cutting disc from the machine after use.** The cutting disc may suffer damage if the machine is transported with the disc fitted.
- o) **Abrasive cutting discs for gasoline-powered cut-off saws which are used for wet cutting must be used up the same day as long periods of**

exposure to moisture have a negative effect on the strength of the disc.

- p) **Observe the expiry date for resin-bonded cutting discs and don't use the discs after this date.**
- q) **Resharpen polished diamond segments (no diamonds project from the segment matrix) by cutting with the disc in a very abrasive material such as sandstone.**
- r) **Don't use damaged diamond cutting discs (cracks in the steel disc, broken or polished segments, damaged arbor hole, bent or distorted steel disc, heavy discoloration due to overheating, steel disc worn away beneath the segments, diamond segments with no lateral overhang, etc.)**

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5.10 Personal protective equipment



The user and any other persons in the vicinity must wear suitable eye protection, a hard hat, ear protection, protective gloves and safety footwear while the machine is in use.

6. Before use



6.1 Fuel

NOTE

The two-stroke motor runs on a mixture of gasoline and oil. The quality of the fuel mixture decisively influences the running and life expectancy of the motor.

CAUTION

Avoid direct skin contact with gasoline.

CAUTION

Ensure that the workplace is well ventilated in order to avoid breathing in gasoline fumes.

CAUTION

Use a fuel container that complies with the applicable regulations.

CAUTION

Alkylate gasoline does not have the same density (specific weight) as conventional gasoline. To avoid damage when alkylate gasoline is used, the machine must be readjusted by Hilti Service. Alternatively, the oil content can be increased to 4% (1:25).

6.1.1 Two-stroke oil

Use Hilti two-stroke oil for air-cooled motors or a good quality two-stroke oil with the TC classification.

6.1.2 Gasoline

Use regular or super gasoline with an octane rating of at least 90 ROZ.

The alcohol content (e.g. ethanol, methanol...) of the fuel used must not exceed 10%, otherwise the life expectancy of the motor will be greatly reduced.

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6.1.3 Mixing fuel

CAUTION

The motor will suffer damage if run with fuel mixed in the wrong ratio or with unsuitable oil. **Use the following mix ratio with Hilti two-stroke oil: 1 part oil + 50 parts gasoline. Use the following mix ratio with quality two-stroke oil with the TC classification: 1 part oil + 25 parts gasoline.**

1. Pour the required quantity of two-stroke oil into the fuel container.
2. Add the gasoline to the fuel container.
3. Close the cap on the fuel container.
4. Mix the fuel by shaking the fuel container.

6.1.4 Storing the fuel mixture

CAUTION

Pressure may build up in the fuel tank. **Accordingly, take care when opening the fuel tank cap.**

CAUTION

Store the fuel in a dry, well-ventilated room.

Mix only enough fuel for a few days' use.
Clean the fuel container occasionally.

6.1.5 Filling the machine with fuel



CAUTION

Don't refuel the machine right at the place where you are working (move at least 3 meters (10 feet) away from the object you have been cutting).

DANGER

Don't smoke when filling the tank with fuel!

CAUTION

Don't refuel the machine in a room where a naked flame or sparks could ignite the gasoline vapors.

CAUTION

Don't refuel the machine while the motor is running.

CAUTION

Don't refuel the machine while the motor is hot.

CAUTION

Wear suitable protective gloves when refueling.

CAUTION

Take care to avoid spilling fuel.

CAUTION

If your clothing becomes soiled with gasoline while refueling, you must change your clothing.

CAUTION

After refueling, clean the machine and accessories to remove any spilt fuel.

DANGER

Check to ensure there is no leakage from the machine. Don't start the machine if fuel is found to be leaking from it.

1. Mix the fuel (two-stroke oil / gasoline mixture) by shaking the fuel container.
2. Place the machine in a steady upright position.
3. Open the fuel tank cap by turning it counterclockwise.
4. Fill the tank slowly using a funnel.
5. Close the fuel tank cap by turning it clockwise.
6. Close the cap on the fuel container.

6.2 Fitting and changing the cutting disc 3



CAUTION

Cutting discs which are damaged or out of round (causing vibration) must not be used.

CAUTION

The maximum permissible speed of the disc or blade must be at least as high as the maximum speed printed on the machine. Accessories driven at a speed above their maximum permissible speed may break and fly apart.

CAUTION

Use only cutting discs with a 20 mm or 25.4 mm (1") arbor hole.

CAUTION

The cutting discs, flanges or other accessories must properly match the arbor size of the machine. Cutting discs or accessories with arbor holes that do not match the mounting hardware of the machine will

run out of balance, vibrate excessively and may cause loss of control.

CAUTION

Don't use synthetic resin-bonded fiber-reinforced cutting discs that have exceeded their use-by date.

CAUTION

Don't use damaged diamond cutting discs (cracks in the steel disc, broken or polished segments, damaged arbor hole, bent or distorted steel disc, heavy discoloration due to overheating, steel disc worn away beneath the segments, diamond segments with no lateral overhang, etc.)

1. Insert the locking pin in the hole in the drive belt cover and turn the cutting disc until the locking pin engages.
2. Use the wrench to release the clamping screw by turning it counterclockwise.
3. Remove the clamping flange and the cutting disc.
4. Check that the mounting bore of the cutting disc to be fitted corresponds with the centering collar of the cutting disc mounting flange. The mounting flange is provided with a 20 mm diameter centering collar on one side and a 25.4 mm (1") diameter centering collar on the opposite side.
5. Clean the clamping and centering surfaces on the machine and on the cutting disc.
6. **CAUTION** Take care to ensure that the direction of rotation of the cutting disc (indicated by an arrow) matches the direction of rotation shown on the machine.
Place the cutting disc on the centering collar of the clamping flange.
7. Place the clamping flange on the drive arbor and tighten the cutting disc clamping screw by turning it clockwise.
8. Insert the locking pin in the hole in the drive belt cover and turn the cutting disc until the locking pin engages.
9. Tighten the cutting disc clamping screw to a torque of 25 Nm.

6.3 Adjusting the guard



DANGER

Don't operate the machine without the protective devices that belong to it.

DANGER

Adjust the guard to the correct position. Direct the particles of material removed away from the operator and the machine.

WARNING

The motor and the cutting disc must have come to a complete stop before making adjustments or changing parts etc.

Hold the guard by the grip provided and rotate it to the desired position.

6.4 Converting the saw from normal cutting mode to flush cutting mode



DANGER

Adjust the guard to the correct position. Direct the particles of material removed away from the operator and the machine.

NOTE

After completion of flush cutting it is recommended that the saw is converted back to normal cutting mode due to the more favorable balance in this position.

NOTE

After doing this, check that the cutting disc can be turned easily by hand and that all screws have been tightened securely.

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DANGER

Don't operate the machine without the protective devices that belong to it.

In order to facilitate cutting as closely as possible to edges and walls etc., the forward section of the saw arm can be turned and fitted in the reversed position so that the cutting disc, when seen from behind, is positioned to the right of the saw arm.

1. Remove the spray jets from the guard.
2. Slacken the three clamping nuts on the forward section of the saw arm approx. one complete turn.
3. Release the tension on the drive belt by turning the belt tensioning cam counterclockwise carefully as far as it will go (until resistance is felt, i.e. approx. ¼ of a turn).
4. Remove the three clamping nuts and the two securing screws from the forward section of the saw arm, then remove the drive belt cover and the forward section of the saw arm.
5. Release the four securing screws on the rear drive belt cover and remove the cover.
6. Remove the stop screw that limits rotation of the forward section of the saw arm.
7. Place the drive belt carefully over the drive pulley.
8. Fit the forward section of the saw arm onto the rear section of the saw arm. Fit only the middle clamping nut. Tighten the nut only finger-tight.
9. Rotate the disc guard until the opening is at the rear.
10. Tension the drive belt by turning the belt tensioning cam clockwise carefully as far as it will go (until resistance is felt, i.e. approx. ¼ of a turn).
11. Secure the forward drive belt cover with the two clamping nuts and two securing screws.
12. Tighten the three clamping nuts securely (18 Nm).
13. Fit the rear drive belt cover and secure it with the four screws.
14. Rotate the disc guard until the opening is at the front.
15. Fit the spray jets in the openings at the front of the blade guard.

6.5 Locking rotary movement of the guide wheels

WARNING

When working on roofs, scaffolds and/or slight slopes, always lock the guide wheels to prevent the saw rolling away inadvertently and possibly falling. Use the built-in safety feature which allows you to lock the wheels by fitting them in the reversed position (turned through 180°).

1. Release the guide wheel mounting screws and remove the guide wheels.
2. Reverse the guide wheels (turn through 180°) and refit the mounting screws.
3. Check that the guide wheels are mounted securely.

6.6 Saw carriage

NOTE

We recommend use of the saw carriage when the machine is used extensively for floor sawing.

NOTE

Especially when using the machine in this configuration for the first time, check to ensure that the throttle cable is correctly adjusted. When the throttle control is pressed fully, the machine must run up to maximum speed. If this is not the case, the throttle cable can be readjusted by way of the cable tensioner.

CAUTION

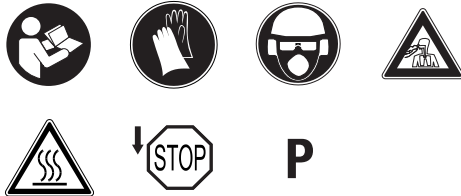
Switch off the saw at the stop switch immediately if the throttle cable on the saw carriage gets stuck.

DANGER

Before starting the engine, check that the saw is correctly secured to the saw carriage.

1. Move the cutting depth adjustment lever into the upper position.
2. Open the hold-down device by releasing the screw knob.
3. Fit the saw into the forward mount with the wheels as shown and swing the grip of the saw under the hold-down device.
4. Secure the saw by tightening the screw knob.
5. Fit the water tank after filling it.
6. Adjust the grip to a convenient working height.
7. Adjust the guard to the correct position.

7. Operation



7.1 Starting the motor 7

CAUTION

Working on the material may cause it to splinter. **Wear eye protection and protective gloves. Wear breathing protection if no dust removal system is used.** Splintering material presents a risk of injury to the eyes and body.

CAUTION

The power tool and the cutting operation generate noise. **Wear ear protectors.** Exposure to noise can cause hearing loss.

CAUTION

The cutting disc and parts of the machine get hot during use. **Wear protective gloves when changing the cutting disc. Touch the power tool only at the grips provided.** You may otherwise burn your hands. **Take care to ensure that the machine, when hot, does not come into contact with flammable materials during transport or storage.**

WARNING

Keep other persons approx. 15 m away from your workplace. Pay special attention to the working area behind you.

DANGER

Don't work in closed rooms. Carbon monoxide, unburned hydrocarbons and benzene in the exhaust gas may cause asphyxiation.

WARNING

When the motor is idling, the cutting disc must come to a complete stop. If this is not the case, the idling speed must be reduced accordingly. If this is not possible or does not achieve the desired result, the machine must be returned for repair.

WARNING

If you notice that the throttle trigger has jammed, stop the motor immediately by operating the on / off switch.

WARNING

After fitting a new cutting disc, the machine must be allowed to run at full speed under no load for approx. 1 minute.

WARNING

Before using the machine, check to ensure that the start / stop switch functions correctly. The motor must stop running when the switch is moved to the "stop" position.

1. Stand the machine on a solid surface on the floor.
2. Move the start / stop switch to the "start" position.
3. Press the fuel pump button (P) 2 to 3 times (until the pump button is seen to be completely filled with fuel).
4. Press the decompression valve.
5. If the motor is cold, pull the choke lever upwards. This activates the choke and engages half throttle.
6. If the motor is hot, pull the choke lever up and then push it back down. This engages half throttle (with no choke).
7. Check that the cutting disc is free to rotate.
8. Hold the forward grip securely with the left hand and place your right foot in the lower section of the rear grip.
9. Pull the starter handle slowly with your right hand until resistance is felt.
10. Pull the starter handle vigorously.
11. When the motor fires for the first time (after 2 to 5 pulls of the starter), move the choke lever back to its original position.
12. Repeat this procedure, with the choke disengaged, until the motor starts.

NOTE The motor will flood if the starting procedure is repeated too many times with the choke engaged.

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13. Press the throttle as soon as the motor starts. This disengages the half-throttle position and the choke (if previously engaged), and the motor then runs at idling speed when the throttle is released.

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7.2 Cutting techniques

DANGER

Always hold the saw and the saw carriage securely with both hands on the grips provided. Keep the grips dry, clean and free from oil and grease.

DANGER

Check that no persons are present within the working area and, in particular, in the area ahead of the saw (in the cutting direction).

DANGER

Guide the machine evenly and do not apply lateral pressure to the cutting disc. Always bring the machine into contact with the workpiece at right angles. Don't attempt to alter the line of cut by applying lateral pressure or by bending the cutting disc while cutting is in progress. This presents a risk of damaging or breaking the cutting disc.

CAUTION

Secure the workpiece and the part to be cut off in order to prevent uncontrolled movement.

NOTE

Always apply full throttle when cutting.

NOTE

Avoid making excessively deep cuts. Cutting through thick workpieces should be accomplished, as far as possible, by making a several cuts.

7.2.1 Avoiding stalling 8

CAUTION

Avoid applying excessive pressure when cutting and don't allow the cutting disc to stick and stall. Don't attempt to cut to great depth immediately. Application of excessive pressure increases the risk of cutting disc distortion. Allowing the cutting disc to stick or stall increases the probability of kickback or disc breakage.

CAUTION

Support slabs or large workpieces so that the kerf remains open during the cutting operation.

7.2.2 Avoiding kickback 9

CAUTION

Always bring the machine into contact with the workpiece from above. Allow the cutting disc to contact the workpiece only at a point below its rotational axis.

CAUTION

Take special care when inserting the cutting disc in an existing kerf.

7.3 Stopping the motor

WARNING

If the motor cannot be stopped by operating the on / off switch, the motor must be stopped, if need be, by pulling the choke lever.

WARNING

Do not lay the machine down until the cutting disc has stopped rotating. The machine must always be stored and transported in an upright position.

1. Release the throttle trigger.
2. Move the start / stop switch to the "stop" position.

8. Care and maintenance



WARNING

Set the switch to "stop" before carrying out any maintenance or repairs and before cleaning the machine.

8.1 Maintenance

8.1.1 Each day before use

Check that the machine is complete and in faultless condition. Have it repaired if necessary. Check the machine for leakage. Have it repaired if necessary.

Check the machine for dirt and dust and clean it if necessary.
Check that all operating controls function correctly. Have them repaired if necessary.
Check that the cutting disc is in faultless condition. Replace it if necessary.

8.1.2 Every 6 months

Check the tightness of all screws and nuts accessible from the outside.
Check that the fuel filter is clean (no dirt or deposits) and replace it if necessary.
Retension the drive belt if it slips when the cutting disc is under load.

8.1.3 When necessary

Check the tightness of all screws and nuts accessible from the outside.
Replace the air filter if the machine doesn't start or motor performance drops noticeably.
Check that the fuel filter is clean (no dirt or deposits) and replace it if necessary.
Clean or replace the spark plug if the machine doesn't start or is difficult to start.
Retension the drive belt if it slips when the cutting disc is under load.
Readjust the motor idling speed if the cutting disc doesn't stop rotating when the machine is idling.

8.2 Replacing the air filter 10 11



DANGER

The operator and bystanders must wear breathing protection if the work causes dust.

CAUTION

Dust entering the machine may cause irreparable damage. Never operate the machine if the air filter is damaged or missing. When changing the air filter, the machine should stand upright and should not be laid on its side. Take care to ensure that no dust finds its way onto the underlying filter screen.

NOTE

Change the air filter if motor performance drops noticeably or if the machine becomes difficult to start.

NOTE

In this machine, most of the dust is removed from the air flow by a maintenance-free cyclone-type pre-screening system. This preliminary air cleaning process greatly reduces the amount of maintenance required compared to conventional systems.

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1. Release the securing screw on the air filter cover and remove the cover.
2. Carefully remove the dust adhering to the air filter and the filter chamber (use a vacuum cleaner).
3. Release the screws retaining the filter holder and remove the air filter.
4. Fit the new filter and secure it with the filter holder.
5. Fit the air filter cover and tighten the retaining screws.

8.3 Replacing a broken starter cord 12

CAUTION

The housing may suffer damage if the starter cord is too short. Never shorten the starter cord.

1. Unscrew the three securing screws and remove the starter assembly.
2. Remove the remaining pieces of the starter cord from the spool and the starter handle.
3. Make a secure knot in the end of the replacement starter cord and then pass the free end of the cord through the hole in the spool from above.
4. Pass the end of the cord through the opening in the starter housing from below, also through the starter handle from below, and then make a secure knot in the end of the cord.
5. Pull a length of the starter cord out of the housing as shown in the illustration and pass it through the slot in the spool.
6. Hold the cord securely close to the slot in the spool and then rotate the spool in a clockwise direction as far as it will go.
7. Rotate the spool back from its end point at least a ½ revolution, max. 1 ½ revolutions, until the slot in the spool is in alignment with the opening in the starter housing.
8. Hold the spool securely and pull the free end of the cord at the starter handle out of the housing.
9. Hold the cord under tension, release the spool and allow the starter cord to be pulled in.

10. Pull the starter cord out as far as it will go and check to ensure that the spool can be turned by hand at least a further $\frac{1}{2}$ turn in a clockwise direction. If this is not possible, spring tension must be reduced by one revolution in a counterclockwise direction.
11. Fit the starter assembly to the machine and press it down gently.
Pull the starter cord slightly until the coupling engages and the starter assembly is fully seated.
12. Secure the starter assembly with the three retaining screws.

8.4 Checking and replacing the fuel filter 13

NOTE

Check the condition of the fuel filter regularly.

NOTE

When refueling the machine, take care to ensure that no dirt or foreign matter finds its way into the fuel tank.

1. Remove the cap from the fuel tank.
2. Pull the fuel filter out of the fuel tank.
3. Check the condition of the fuel filter.
The filter must be replaced if badly soiled.
4. Push the fuel filter back into the fuel tank.
5. Close the cap on the fuel tank.

8.5 Cleaning the spark plug / setting the spark plug gap / replacing the spark plug 14

CAUTION

The spark plug and parts of the motor may be hot immediately after the machine has been running. To avoid burning your hands, wear suitable protective gloves or allow the machine to cool down before touching its parts.

Use only spark plugs of the type NGK-CMR7A-5.

1. Use a gentle twisting motion to pull the cable connector off the spark plug.
2. Use the spark plug wrench to unscrew and remove the spark plug from the cylinder.
3. If necessary, clean the spark plug electrode with a soft wire brush.
4. Check the spark plug gap (0.5 mm) with the aid of a feeler gauge and reset it to the correct gap if necessary.
5. Fit the ignition cable connector to the spark plug and hold the threaded section of the spark plug against the cylinder.

6. Move the start / stop switch to the "start" position.
7. **CAUTION Avoid touching the spark plug electrode.**
Pull the starter cord (press the decompression valve first).
An ignition spark must now be clearly visible.
8. Use the spark plug wrench to screw the spark plug into the cylinder (12 Nm).
9. Fit the ignition cable connector to the spark plug.

8.6 Retensioning the drive belt 15

CAUTION

A slack drive belt can damage the machine. Retension the drive belt if it slips when a load is applied to the cutting disc.

NOTE

The drive belt must be replaced as soon as the wear mark on the saw arm becomes visible after retensioning.

This machine is equipped with a semi-automatic, spring-assisted drive belt tensioning system.

1. Slacken the three clamping nuts on the forward section of the saw arm approx. one complete turn.
2. After releasing the nuts, the drive belt is tensioned automatically by spring pressure.
3. Retighten the three clamping nuts securely (18 Nm).

8.7 Changing the drive belt 16

NOTE

After doing this, check that the cutting disc can be turned easily by hand and that all screws have been tightened securely.

1. Slacken the three clamping nuts on the forward section of the saw arm approx. one complete turn.
2. Release the tension on the drive belt by turning the belt tensioning cam counterclockwise carefully as far as it will go (until resistance is felt, i.e. approx. $\frac{1}{4}$ of a turn).
3. Remove the upper and lower clamping nuts and the two securing screws from the forward section of the saw arm and remove the drive belt cover.
4. Release the four securing screws on the rear drive belt cover and remove the cover.

5. Remove the defective drive belt. Place the new drive belt carefully over the two drive pulleys.
6. Tension the drive belt by turning the belt tensioning cam clockwise carefully as far as it will go (until resistance is felt, i.e. approx. ¼ of a turn).
7. Fit the rear drive belt cover and secure it with the four screws.
8. Secure the forward drive belt cover with the two clamping nuts and two securing screws.
9. Tighten the three clamping nuts securely (18 Nm).

8.8 Adjusting the carburetor

CAUTION

Tampering with the carburetor settings may cause damage to the motor.

The carburetor of this machine (jets H and L) has been factory set for optimum performance and sealed to prevent tampering. The idling speed of the machine (jet T) may be adjusted by the user. All other adjustments must be carried out at a Hilti service center.

NOTE

Use a suitable flat screwdriver (tip width 4 mm/ ⁵/₃₂ ") and do not force the adjusting screw beyond its intended adjustment range.

1. Clean the air filter.
2. Allow the machine to run until it reaches its normal operating temperature.
3. Adjust the idling speed jet (T) so that the motor runs smoothly when idling but the cutting disc does not begin to rotate.

8.9 Cleaning

Careful cleaning of the machine is one of the main prerequisites for trouble-free, reliable operation. Heavy dirt and dust deposits on the motor and in the cooling openings may lead to overheating.

Don't permit foreign objects to enter the interior of the machine.

Don't use a high pressure jet system or running water for cleaning.

Don't use cleaning agents which contain silicone.

Clean the exterior of the machine at regular intervals with a slightly damp cloth or a dry brush.

Check that all grips are clean, dry and free from oil and grease.

8.10 Maintenance

Check all external parts of the machine and the accessories for damage at regular intervals and check that all controls operate faultlessly. Don't operate the machine if parts are damaged or when the controls do not function faultlessly. If necessary, the machine should be repaired by Hilti Service.

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8.11 Checking the power tool after care and maintenance

After carrying out care and maintenance, check that all protective and safety devices are fitted and that they function faultlessly.

8.12 Transporting the machine in a vehicle



CAUTION

To avoid a fire hazard, allow the machine to cool down completely before transporting it.

CAUTION

The fuel tank must be completely empty before the machine is shipped by a parcels service. We recommend that the original packaging is kept for use in the event of a need to transport the machine in this way.

1. Remove the cutting disc.
2. Secure the machine to prevent it falling over, causing damage or fuel spillage.
3. Transport the saw carriage only when the water tank is empty.

8.13 Storing the machine for a long period of time

DANGER

Store machines in a secure place when not in use. When not in use, machines must be stored in a dry, high place or locked away out of reach of children.

1. Empty the fuel tank and then start the motor and allow it to idle until all remaining fuel is used up.
2. Remove the cutting disc.

3. Clean the machine thoroughly and grease the metal parts.
4. Remove the spark plug.
5. Pour a little two-stroke oil into the cylinder (1 to 2 teaspoons).
6. Pull the starter handle a few times. This will distribute the oil in the cylinder.
7. Replace the spark plug.
8. Wrap the machine in plastic foil.
9. Put the machine into storage.

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9. Troubleshooting

Fault	Possible cause	Remedy
Cutting disc slows down or stops completely while cutting	Excessive cutting pressure applied (cutting disc sticks and stalls in the kerf).	Reduce cutting pressure and guide the machine in a straight line.
	Drive belt tension too low or the drive belt is broken.	Re-tension the drive belt or fit a new belt.
	Cutting disc incorrectly fitted or not tightened properly.	Check that the disc is fitted and tightened correctly.
	Cutting disc direction of rotation is incorrect.	Check the direction of rotation and correct if necessary.
High vibration, disc wanders off the cutting line	The forward section of the saw arm is loose.	Tighten the clamping nuts.
	Cutting disc incorrectly fitted or not tightened properly.	Check that the disc is fitted and tightened correctly.
	Cutting disc is damaged (or unsuitable specification, cracked, segments missing, bent, overheated, deformed, etc.).	Fit a new cutting disc.
Saw doesn't start or is difficult to start	The centering bushing is fitted incorrectly.	Check that the mounting bore of the cutting disc to be fitted corresponds with the centering collar of the cutting disc mounting flange.
	The fuel tank is empty (no fuel in the carburetor).	Fill the fuel tank.
	Air filter clogged with dirt or dust.	Replace the air filter.
	The motor is flooded (spark plug wet).	Dry the spark plug and cylinder (remove the spark plug). Disengage the choke lever and repeat the starting procedure several times.
	Wrong fuel mixture.	Empty the fuel tank and flush out the tank and fuel lines. Fill the tank with the correct fuel.
	Air in the fuel line (no fuel reaching the carburetor).	Remove the air from the fuel line by operating the fuel pump several times.
The fuel filter is dirty or blocked (no fuel or too little fuel reaching the carburetor).	Clean the tank and fit a new fuel filter.	

Fault	Possible cause	Remedy
Saw doesn't start or is difficult to start	No ignition spark visible or spark is too weak (when spark plug is removed).	Clean the spark plug to remove carbon deposits. Check the spark plug gap and adjust it if necessary. Fit a new spark plug. Check the ignition coil, cable, connectors and switch and replace the parts if necessary.
	Motor compression is too low.	Check the motor compression and, if necessary, replace worn parts (piston rings, cylinder, etc.
	Very low temperatures.	Allow the machine to warm up slowly to room temperature and repeat the starting procedure.
	Dirt or dust in the spark guard / exhaust exit.	Clean the parts.
	The decompression valve is stiff to operate.	Release the valve.
Low motor power / poor cutting performance	Air filter clogged with dirt or dust.	Replace the air filter.
	No ignition spark visible or spark is too weak (when spark plug is removed).	Clean the spark plug to remove carbon deposits. Check the spark plug gap and adjust it if necessary. Fit a new spark plug. Check the ignition coil, cable, connectors and switch and replace the parts if necessary.
	The wrong fuel or dirt and water in the fuel tank.	Flush out the fuel system, replace the fuel filter and refill with fuel.
	The disc specification is unsuitable for the material to be cut.	Change the specification or request advice from Hilti.
	Drive belt or cutting disc slips.	Check the drive belt tension and disc clamping parts and eliminate the fault.
	Motor compression is too low.	Check the motor compression and, if necessary, replace worn parts (piston rings, cylinder, etc.
	The machine is operated or handled incorrectly (excessive cutting pressure applied, cutting disc overheats, disc sticks in the kerf, unsuitable disc type, etc.).	Observe the information provided in the operating instructions.
	Working at an altitude of more than 1500 m (4900 ft) above sea level.	Have the carburetor adjusted by Hilti Service.
Incorrect carburetor setting (fuel / air mixture).	Have the carburetor adjusted by Hilti Service.	

Fault	Possible cause	Remedy
Cutting disc rotates while the motor is idling	Idling speed is too high.	Check the idling speed and adjust if necessary.
	The half-throttle position is engaged.	Disengage the half-throttle setting.
	Faulty centrifugal clutch.	Replace the centrifugal clutch.
Starter unit doesn't work	The clutch claws are not engaging.	Clean the parts so that they can move freely.

10. Disposal



Most of the materials from which Hilti machines or appliances are manufactured can be recycled. The materials must be correctly separated before they can be recycled. In many countries, Hilti has already made arrangements for taking back old machines and appliances for recycling. Ask Hilti customer service or your Hilti representative for further information.

NOTE

Disposing of slurry directly into rivers, lakes or the sewerage system without suitable pretreatment presents environmental problems. Ask the local public authorities for information about current regulations.

1. Collect the slurry (e.g. using a wet-type industrial vacuum cleaner)
2. Allow the slurry to settle and dispose of the solid material at a construction waste disposal site (the addition of a flocculent may accelerate the separation process).
3. The remaining water (alkaline, pH value > 7) must be neutralized by the addition of an acidic neutralizing agent or diluted with a large volume of water before it is allowed to flow into the sewerage system.

11. Federal emission control warranty statement

Your warranty rights and obligations

The U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and Hilti are pleased to explain the Emission Control System Warranty applicable to your small non-road engine. In U.S. and Canada, small non-road engines must be designed, built and equipped to meet the stringent federal antismog standards. The equipment engine must be free from defects in materials and workmanship which cause it to fail to conform with U.S. EPA standards for the first two years of engine use from the date of sale to the ultimate purchaser. Hilti must warrant the emission control system on your small non-road engine for the periods of time listed above, provided there has been no abuse, neglect or improper maintenance of your unit. Your emission

control system includes parts such as the carburetor and the ignition system. Where a warrantable condition exists, Hilti will repair your small non-road engine at no cost to you. Expenses covered under warranty include diagnosis, parts and labor.

Manufacturer's warranty coverage

All 2001 and later small non-road engines are warranted to meet the applicable EPA and CARB requirements for two years. If any emission related part on your engine (as listed above) is defective, the part will be repaired or replaced by Hilti.

Owner's warranty responsibilities

As a small non-road engine owner, you are responsible for performance of the required maintenance as

defined by Hilti in the owner's manual. Hilti recommends that you retain all receipts covering maintenance on your small non-road engine, but Hilti cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance. Any replacement part or service that is equivalent in performance and durability may be used in non-warranty maintenance or repairs, and shall not reduce the warranty obligations of the engine manufacturer. As the small non-road equipment engine owner, you should be aware, however, that Hilti may deny you warranty coverage if your small non-road engine or a part on it has failed due to abuse, neglect, improper maintenance, unapproved modifications or the use of parts not made or approved by the original equipment manufacturer. You are responsible for presenting your small non-road engine to Hilti as soon as the problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

Coverage

Hilti warrants to the ultimate purchaser and each subsequent purchaser that your small non-road equipment engine will be designed, built equipped, at the time of sale, to meet all applicable regulations. Hilti also warrants to the initial purchaser and each subsequent purchaser that the emission-related warranted parts are free from defects in material and workmanship which cause the engine to fail to conform with applicable regulations for a period of two years. These warranty periods will begin on the date small non-road equipment engine is purchased by the initial purchaser. If any emission-related part on your engine is defective, the part will be replaced by Hilti

at no cost to the owner. Hilti shall remedy warranty defects at authorized Hilti service and repair centers. Any authorized work done at an authorized Hilti service and repair center shall be free of charge to the owner if it is determined that a warranted part is defective. Any manufacturer-approved or equivalent replacement part may be used for any warranty maintenance or repairs on emission-related parts, and must be provided free of charge to the owner if the part is still under warranty. Hilti is liable for damages to other engine components caused by the failure of a warranted part still under warranty. The California Air Resources Board's Emission Warranty Part List specifically defines the emission related, warranted parts. These warranted parts are: the carburetor assembly, coil assembly, rotor, spark plug, air filter, fuel filter, breather manifold and the gaskets.

Maintenance requirements

The owner is responsible for performing the required maintenance as defined by Hilti in the owner's manual.

Limitations

The Emission Control Systems Warranty shall not cover any of the following: a) repair or replacement required because of misuse, neglect or lack of required maintenance, b) repairs improperly performed or replacements not conforming to Hilti specifications that adversely affect performance and/or durability, and alterations or modifications not recommended or approved in writing by Hilti, and c) replacement of parts and other services and adjustments necessary for required maintenance at and after this first scheduled replacement point. Except as set forth above, the warranty terms set forth in section 12 below, apply.

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12. Manufacturer's warranty

Hilti warrants that the tool supplied is free of defects in material and workmanship. This warranty is valid so long as the tool is operated and handled correctly, cleaned and serviced properly and in accordance with the Hilti Operating Instructions, and the technical system is maintained. This means that only original Hilti consumables, components and spare parts may be used in the tool.

This warranty provides the free-of-charge repair or replacement of defective parts only over the entire lifespan of the tool. Parts requiring repair or replace-

ment as a result of normal wear and tear are not covered by this warranty.

Additional claims are excluded, unless stringent national rules prohibit such exclusion. In particular, Hilti is not obligated for direct, indirect, incidental or consequential damages, losses or expenses in connection with, or by reason of, the use of, or inability to use the tool for any purpose. Implied warranties of merchantability or fitness for a particular purpose are specifically excluded.

For repair or replacement, send the tool or related parts immediately upon discovery of the defect to the address of the local Hilti marketing organization provided.

This constitutes Hilti's entire obligation with regard to warranty and supersedes all prior or contemporaneous comments and oral or written agreements concerning warranties.

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