

# HILTI

## R4X12 S

Operating instructions

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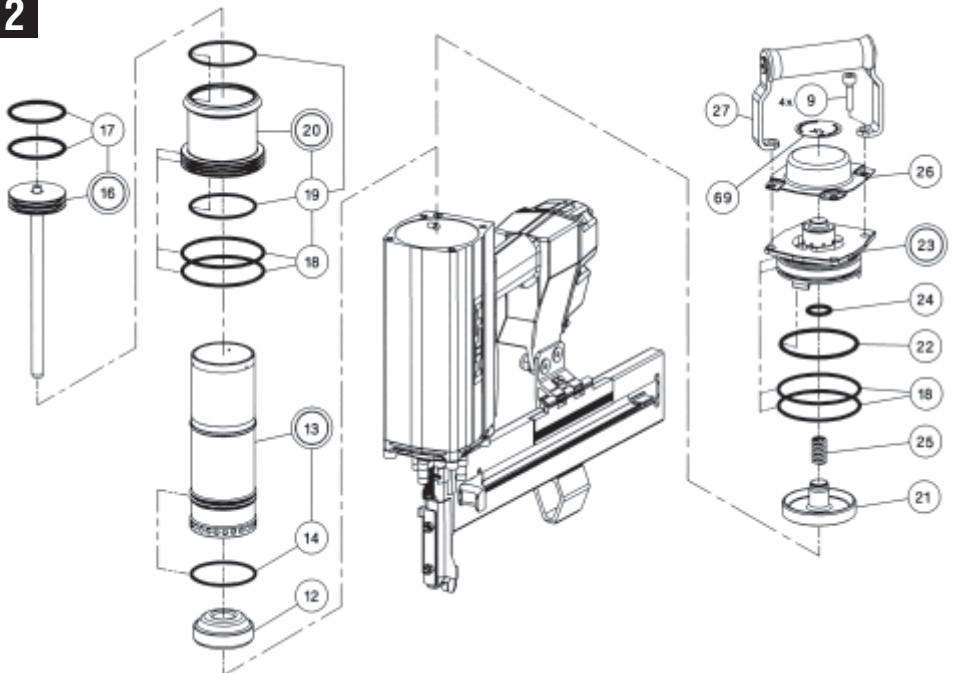
X-EDN19 THQ12MX HIGH SHEAR NAIL  
Base Material Thickness: 3/16" – 3/8"

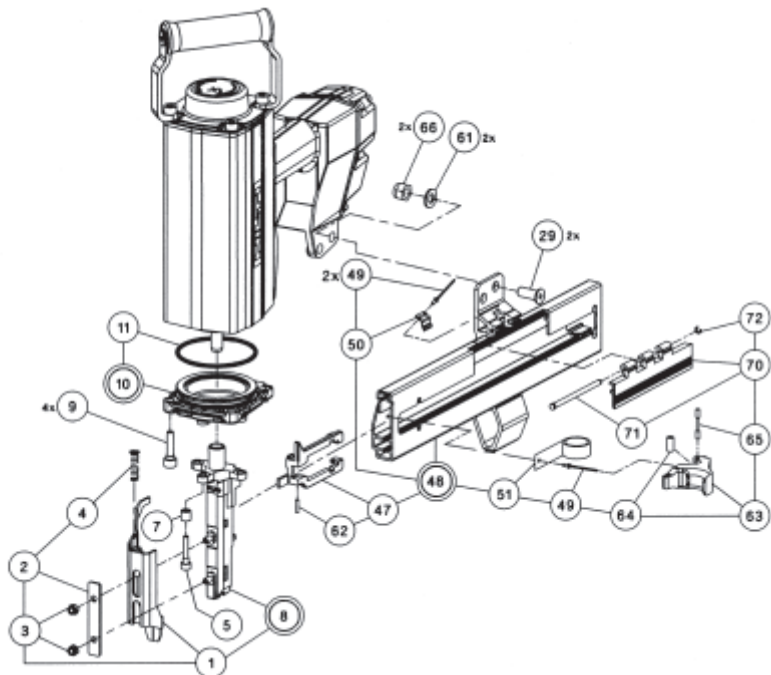
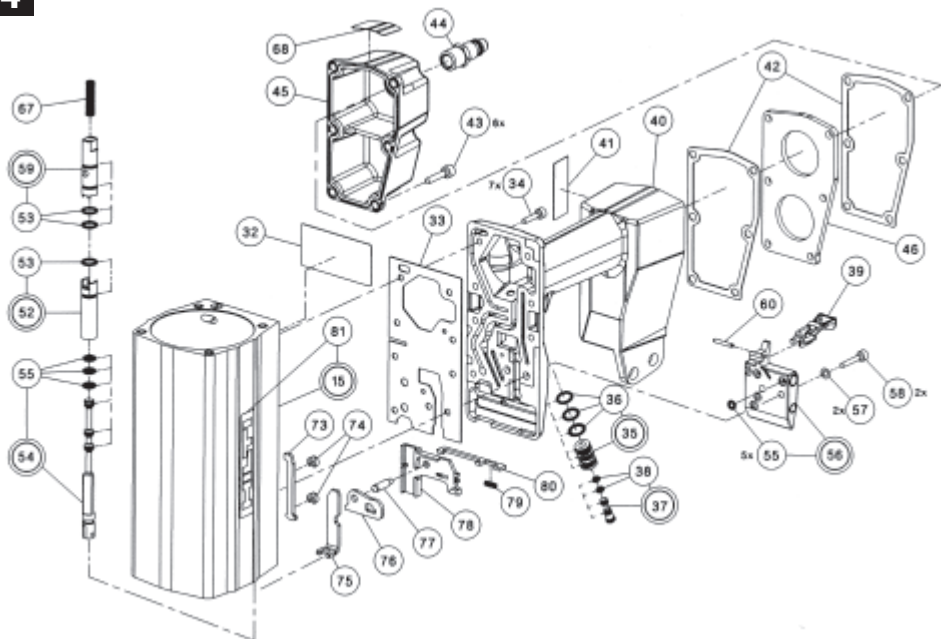


X-EDNK22 THQ12MX HIGH SHEAR NAIL  
Base Material Thickness: 1/8" – 1/4"



X-ZF 22THS12M (temporary fastenings)  
Base Material Thickness: 1/8" – 1/4"

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# R4X12 S

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

***Always keep these operating instructions together with the tool.***

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

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## 1. Safety Rules

ALWAYS follow maintenance and operation instructions contained in this manual.

NEVER exceed the maximum rated pressure (175 PSI or 12 bar) for your tool.

NEVER leave a loaded tool unattended while it is connected to air.

NEVER remove or tamper with the operation of the trigger or the safety return spring on your air tool. Check the safety yoke and trigger daily to ensure they operate freely and correctly. DO NOT use a tool that is not operating properly. Have the tool serviced periodically by a qualified technician to check for worn or damaged parts, and to keep the internal components clean.

NEVER load the tool until you are ready to use it. DO NOT depress the trigger during loading.

NEVER point the tool at yourself or anyone else.

AVOID unfavorable body positions. Work from a secure stance and stay in balance at all times.

NEVER carry the tool with the trigger depressed.

DO NOT use oxygen, combustible gases or high pressure compressed gas tanks as the air supply for the tool.

ALWAYS use authentic Hilti R4X12 S fasteners and parts in your tool.

SAFETY equipment such as safety glasses, hearing protection and hard hat should ALWAYS be worn by the operator and bystanders when the tool is in use.

ALWAYS disconnect the air supply and empty the magazine before:

- work breaks
- changing parts
- servicing or inspecting tools or clearing a jammed fastener
- storing tool at the end of the day
- when leaving the tool unattended

NEVER install female couplers on the tool since they may store air in the tool even after the air supply is disconnected.

ALWAYS connect air supply to the tool before loading fasteners.

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## 2. Technical Data for the R4X12 S

Tool Height (with top handle)	approx. 20 1/4"	(515 mm)
Tool Length	approx. 17 3/4"	(450 mm)
Tool Width	approx. 4"	(100 mm)
Tool Weight	11.9 pounds	(5.4 kg)
Magazine Capacity	20 nails	
Max. Operating Pressure	175 PSI (12 bar)	
Air Consumption	approx. 0.23 cubic ft/fastener	(6.5 l)

## 3. Tool Set-Up and Operation

### 3.1 SET-UP

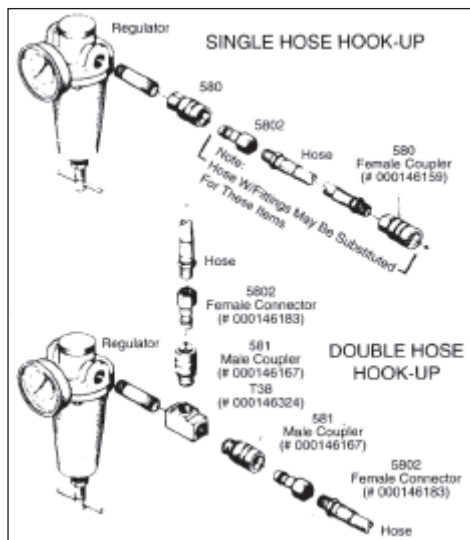
Connect the air line to the regulator (see diagram to the right). Wrap all male threaded connections with "Teflon" tape prior to assembly to prevent leakage.

**NOTE:** Make sure that couplers are attached only to the compressor side of the air supply system, and all components are rated for the tool operating pressure.

### 3.2 Lubricate the tool

Use Hilti ATL (Air Tool Lubricant) or an equivalent light-weight acid-free, non-detergent oil (viscosity 3–4 Engler/20°C; aniline point 60°C).

During normal use, squirt 2-3 drops of oil daily into the air connector fitting on the tool.



## 4. Loading the magazine

(Always connect air supply to the tool before loading fasteners into magazine)

1. Pull the pusher fully back wards until it is held in place by the pusher latch pin. Open the flap on the magazine all the way up.
2. Insert the strips of nails into the magazine and slide all the way forward. The nail strips should be inserted parallel to the magazine.

3. Close the flap fully. Holding the pusher firmly, release it from the magazine catch and guide the pusher forward until it rests against the fasteners. Do not allow the pusher to strike the nail strip with full spring force as it can break up the collation that holds the nails together and cause jamming. (There is a built-in firing detent on the pusher that will prevent the tool from operating when the magazine is empty.)

## 5. Normal operation

### 5.1 Adjust the air pressure

To the minimum required to drive the fastener, making sure never to exceed the maximum rated pressure for the tool (175 PSI).

### 5.2 Single fire operation

For precision fastenings, place the tool nose in the correct position and depress the safety yoke, then quickly pull and release the trigger. Repeat in a new location.

## 6. Cold weather (40°F for colder) operation

### 6.1 Warm up the tool

- If possible, store the tool overnight in a warm place.
- OR - set the tool in a warm spot such as in a warm vehicle. NEVER expose the tool to an open flame.
- OR - Free-fire the tool (shoot without fasteners) at a pressure of 25 PSI to gradually warm up moving parts. NEVER free-fire the tool at high pressure.

### 6.2 Use a suitable lubricant

- “Kilfrost”, a special lubricant that prevents moisture buildup and ice formation in cold weather, is available from your Hilti Representative.

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## 7. Preventive Maintenance

The maintenance schedule required for your tool will vary with such factors as amount of use, storage conditions, air quality, humidity, and outside temperature. It is important for each user to establish and maintain a schedule based upon his usage.

**-CAUTION-** when cleaning:

Never use grease for the maintenance/lubrication of parts of the tool. This may lead to malfunctions. Use only Hilti lubricant spray or a product of comparable quality.

The residues deposited inside tools contain substances that may be injurious to your health:

- Do not inhale any dust or dirt while cleaning.
- Keep the dust or dirt away from foodstuffs.
- Wash your hands after cleaning the tool.

### 7.1 Cleaning

Disassemble the tool monthly and wash away sludge and dirt with kerosene to keep the tool operating efficiently; be certain to re-lubricate the O-rings with special O-ring lubricant (Hilti item no 12423) and re-oil the tool after each clean ing. NEVER use Diesel fuel or flammable cleaning solvents to clean the tool.

### 7.2 Daily lubrication

Follow the “Lubricate The Tool” instructions under Tool Set-up and Operation.

### 7.3 Bumper

Check for surface deterioration monthly. Discoloration is first sign of wear.

### 7.4 Inspection

Daily inspect screws and nuts on tool. Tighten any which may have loosened during operation.

### 7.5 O-ring

Check monthly for deterioration. If an O-ring appears worn, replace it, along with the others in that assembly. Lubricate the replacement O-rings with special O-ring grease (Hilti item no 12423) before reassembling the tool.

### 7.6 Safety yoke

Inspect daily to ensure that the safety mechanism is operating properly and that it is not binding from wood particles, sawdust and other debris.

### 7.7 Compressor

Maintain in accordance with manufacturer’s recommendations. NEVER operate a compressor at pressures or speeds in excess of those recommended by the manufacturer.

### 7.8 Compressor air filters

Clean or replace compressor air filter cartridge regularly.

### 7.9 Eliminate air line moisture

By draining the compressor storage tank daily in those areas with high relative humidity.

By using an air line moisture filter and emptying it frequently.

By avoiding the use of an excessive number of connections in long air lines.

## 8. Replacement Parts and Repair Service

Your Hilti air tool is precision engineered for safety and durability. NEVER attempt to modify parts, since this can compromise the built-in safety and shorten the life of the tool.

When servicing, use only identical Hilti replacement parts. Replacement parts shown on the parts list are available through your local Hilti representative or by calling Customer Service at 1-800-879-8000.

Hilti operates a nationwide network of Repair Centers, and rapid service is a hallmark of the Hilti system. If your tool requires service or warranty repairs, contact your local Hilti Representative or Customer Service at 1-800-879-8000.

### 8.1 Tools needed for R4X12 S service

- 4 mm Allen Wrench
- 5 mm Allen Wrench

- 6 mm Allen Wrench
- 10 mm Open End Wrench
- 17 mm Open End Wrench
- 2 mm Pin Punch
- Hammer
- Flat blade screw driver
- Hilti 0-ring grease (Item no 12423)
- 0-ring Pick or Scribe

## 8.2 Troubleshooting

(Check part numbers against exploded parts drawings)

If a problem arises, follow these steps before servicing the tool:

1. Make sure the compressor is operating at the correct pressure and all valves to the supply line are open.
2. Make sure moisture is not interfering with the free flow of air. To do this, drain the compressor storage

tank and moisture filter daily. (Storage tank drains are usually located on the bottom of the tank(s). The moisture filter is generally located next to the regulator.)

3. Check the regulator(s) for the correct air pressure and that all valves to the supply line are open.
4. Check the fittings and hoses for kinks, leaks, or blockages and ensure they are  $\frac{3}{8}$ " diameter in size for best operation.
5. If a tool known to be in working condition is available, connect it in place of the malfunctioning tool and test it to see if the problem disappears. If the problem continues, then the problem is probably not in the tool.

**IMPORTANT NOTE:** If servicing a tool is required, ALWAYS disconnect the tool from the air supply and empty the magazine before attempting to service the tool.

## 9. R4X12 S Troubleshooting Guide

Symptom	Possible Cause	Remedy
<b>Fastener Skipping</b>	Air Pressure too low	Increase air pressure to the minimum required to eliminate skipping – Max 175 PSI
	Incorrect lubrication	Refer to setup instructions for proper cleaning and lubrication
	Obstruction in nosepiece (#8)	Clear obstruction using nylon brush or compressed air Contact your Hilti Representative
	Pusher (#47) not moving freely or nails jamming in magazine (#48)	Check for easy movement. Clean or replace magazine and/or pusher as necessary
	Scroll spring (#51) damaged	Replace scroll spring. Contact your Hilti Representative
	Driver/Blade Assy (#16) bent or damaged	Replace Driver/Blade Assy (#16)
	Piston Driver 0-ring (#17) worn	Replace 0-ring (#17) Kit #12657
<b>Fastener Standoff</b>	Bumper (#12) worn or damaged	Replace bumper as necessary
	Air pressure too low	Increase pressure to minimum necessary to drive the fastener — Max. 175 PSI
<b>Fastener Standoff</b>	Compressor too small	Consult your local Hilti Representative
	Defective regulator or gauge	Repair or replace as necessary
	Incorrect lubrication	Refer to set-up instructions for proper cleaning and lubrication
	Incorrect nail	Consult your local Hilti Representative
	Driver blade broken	Replace Driver/Blade Assy (#16)
	Piston Driver 0-ring (#17) worn or damaged	Replace 0-ring (#17) Kit #12657
<b>Fastener Overdrive</b>	Air pressure too high	Decrease to minimum pressure required to just sink the fastener
	Incorrect nail	Consult your local Hilti Representative
	Bumper (#12) worn	Check and replace as necessary

**Air Leaks**

— at Valve Cap Assy (#23)	Valve ring O-ring (#24) damaged or worn	Fit O/H Kit #12552
	Valve Cap O-ring (#22) and/or (#18) damaged or worn	Fit O/H Kit #12553
— from trigger valve bushing assy (#35)	O-ring (#36) and/or (#38) worn or damaged	Fit O/H Kit #12557
— at Trigger Valve Piston (#37)	O-rings (#38) damaged or worn	Replace O-rings. Fit O/H Kit #12557
— between grip (#40) and grip cover (#45)	Gaskets damaged	Replace gaskets (#42)
	Screws (#58) loose	Tighten screws
— at Safety Valve (#54) Piston Assy	O-rings (#55) damaged or worn	Fit O/H Kit #12652
	Trigger valve body O-rings damaged	Fit O/H Kit #12554
	Trigger valve body defective (#56)	Replace trigger valve body assy.
— at nosepiece (#8) nail exit	Damaged bumper (#12)	Replace bumper (#12) as necessary
	O-ring (#14) damaged or worn	Replace O-ring. Fit O/H Kit #12552
	O-rings (#18, #19) damaged or worn	Replace O-ring. Fit O/H Kit #12552
	Air pressure too low	Check air source, regulator setting gauges, hoses, fittings, etc.
<b>Tool will not fire</b>	Safety yoke (#1) stuck in down position	Check for dirt or obstructions Replace safety if deformed
	— Driver Blade Assy (#16) stuck down	Nails jammed in nosepiece (#8)
	Bent Driver Blade	Replace Driver Blade Assy (#16)
	O-rings (#17) damaged or worn	Fit OH Kit #12657
	Bumper (#12) severely damaged	Replace bumper
	Defective trigger valve body (#56)	Replace trigger valve body assy

**10. Instructions for disassembly of R4X12 S**

(Use with Exploded View Drawings (2-4) and Parts list)

**NOTE:** Before starting on the disassembly of the tool, disconnect the tool from the air supply and remove all fasteners from the magazine assembly. If handle grip (40), plate (46), flange (10), and valve bushings (52, 59) require service, contact your Hilti Representative.

**10.1 Magazine assembly (48)**

Release 2 nuts (66) using a 17 mm open end wrench and 5mm Allen wrench. Remove hex socket screws (29) and washers (61). Position pusher (47) in forward position and remove magazine assembly (48) from nosepiece (8).

**10.2 Pusher (47) and grip (63)**

Using a 2 mm pin punch, drive out spring pin (62). Remove pusher (47) from magazine (48) by sliding for-

ward and away from magazine. Pull back grip (63) slightly, align grip pin (65) with detents in magazine and tilt back portion of grip up. Once grip pin (65) is clear of magazine, tilt the grip (63) up and forward to clear the scroll spring. If necessary, tap grip pin (65) out of bushing (64) and grip (63). If the scroll spring (51) requires replacement, contact your local Hilti Representative.

**10.3 Safety yoke (1)**

Remove 2 hex locknuts (3) using a 10mm open end wrench and take off guide plate (2). Remove the safety return spring (4). Remove the hex socket screw (5) closest to Valve Piston Assembly (54) using a 5 mm Allen wrench. It is not necessary to remove the nosepiece (8). Slide out safety yoke (1) from Safety Valve Piston Assembly (54).



#### 10.4 Safety valve piston assembly

(54): (Safety yoke already removed, see 10.3) Remove this together with spring (67). Remove O-rings (55) using a scribe or O-ring pick.

#### 10.5 Nosepiece (8)

Magazine removed, see 10.1) Use a 5 mm Allen wrench to remove 3 hex head screws (5) and spacing sleeves(7). Remove nosepiece (8).

#### 10.6 Trigger valve plunger (37) and valve bushing assembly (35)

Remove 2 hex head socket screws (58) washers (57) using 3 mm Allen wrench. Remove Valve Body Assembly (56). Withdraw Trigger Valve Plunger Assembly (37) together with Trigger Valve Bushing Assembly (35). Take off O-rings (36) and (38) using an O-ring pick. Remove O-rings (55) from Valve Body Assembly (56). (It may be necessary to use small needle nose pliers to remove the trigger plunger (37) from the trigger valve bushing (35). The plunger can then be used to remove the Valve Bushing Assembly.)

#### 10.7 Valve cap assembly (23) and poppet valve (21)

Remove 4 hex socket screws (9) using 6mm Allen wrench. Take off Grip Assembly (27), Exhaust Deflector (26), and Valve Cap Assembly (23). Remove poppet (21) and spring (25). If necessary, remove O-rings (18), (22) and (24).

#### 10.8 Piston driver blade assembly (16)

(Valve cap and poppet valve already disassembled, see 10.7) Using a replacement driver blade or an 8 mm diam-

eter x 200 mm aluminum rod, push the Piston Driver Blade Assembly (16) carefully upwards and out of tool. Remove O-rings (17) using a scribe or an O-ring pick.

#### 10.9 Cylinder (13) and ring assembly (20)

(Valve cap, poppet valve and driver blade already removed, See 10.7 and 10.8) Remove the cylinder (13) and cylinder ring (20) by inverting the tool and rapping the grip handle (46) on the edge of a 2x4 to release cylinder and ring assemblies. These assemblies can then be removed by hand once ring assembly is accessible.

#### 10.10 Bumper (12)

(Valve cap, poppet valve, driver blade, cylinder and cylinder ring already removed, see 10.7, 10.8 and 10.9) Remove bumper (12).

#### O-ring removal and replacement instructions

Before removing an O-ring, wipe all oil and grease from the O-ring area. Hold the part in one hand and with the other hand, squeeze the O-ring, across its outside diameter, between your thumb and index finger.

Now, push outward on the O-ring with your thumb and index finger until the O-ring forms a loop. Once the loop is formed, hold onto the O-ring and part with one hand and then roll the O-ring out of the groove with the other hand. When working with small diameter O-rings, using a pencil point or an O-ring "pick" to get hold of the loop works quite well.

When replacing O-rings "roll" them onto the part and always be sure to lubricate them with the special O-ring grease (Hilti #12423) prior to insertion.

## 11. Instructions for reassembly of the R4X12 S

(Use with Exploded View Drawings (2-4) and Parts list

**NOTE:** Clean all parts and check them for wear; if necessary replace them before reassembly. Check all O-rings and lubricate them with Hilti O-ring grease.

#### 11.1 Bumper (12)

Insert bumper (12) into the tool and set firmly into flange (10). Round side of bumper should be in an upwards position as shown in diagram.

#### 11.2 Cylinder (13) and ring assembly (20)

(Bumper already inserted, see 11.1). Install O-rings (14), (18) and (19) onto Cylinder and Ring Assemblies. Lubricate all O-rings and slide the Cylinder (13) and Ring Assembly (20) together according to the drawing and carefully press them, by hand, into the tool housing (15) as far as they will go (approximately one inch below top of housing).

#### 11.3 Piston driver blade assembly (16)

(Bumper, cylinder and ring assembly already installed, see 11.1 and 11.2). Replace 2 O-rings (17). Set Piston Driver Blade Assembly (16) into the cylinder (13) and slide it forward into the cylinder.

#### 11.4 Valve cap assembly (23) and poppet valve assembly (21)

(Bumper, cylinder, ring assembly, and piston driver blade already mounted, see 11.1, 11.2 and 11.3). Replace O-rings (18), (22) and (24), if necessary. Important: Before installing O-ring (22), expand it slightly by hand. Lubricate all O-rings with Hilti O-ring grease (#12423) before installing cap assembly. Set poppet (21) and poppet spring (25) into cap assembly (23). Compress poppet to ensure freedom of movement. Set cap and poppet assemblies into top of housing. Place exhaust deflector (26) on cap (23) and secure with two hex head screws (9). Install grip assembly (27) with two remaining hex

head screws (9) and tighten all screws with 6 mm Allen wrench.

### 11.5 Trigger valve plunger (37) and trigger valve bushing assembly (35)

Install O-rings (36) and (38). Set the trigger valve plunger (37) into the trigger valve bushing (35) and insert them into the grip assembly (40). Insert 5 O-rings (55) in trigger valve body assembly (56), mount this in housing (15) and push upwards towards trigger valve plunger (37). Insert 2 each hex socket screws (58) with washers (57) and secure with 3mm Allen Wrench. (torque wrench (to 4,4 ft-lbf / 6Nm).

### 11.6 Nosepiece (8)

Insert nosepiece (8) over driver blade assembly (16) and mount on the flange assembly (10). Slightly tighten 3 hex socket screws (5) with spacing sleeve (7) by hand. Then tighten down with torque wrench (to 8,8 ft-lbf / 12Nm).

### 11.7 Safety valve piston assembly (54)

(Safety yoke disassembled, see 10.3) Mount 3 O-rings (55). Place spring (67) in housing bore. Slide safety valve piston assembly (54) into housing (15).

### 11.8 Safety yoke (1)

(Valve piston and nosepiece already assembled, see 11.6 and 11.7) Mount spring (4) with safety yoke (1) onto nosepiece (8) and insert safety yoke arm in safety valve piston (54). Mount guide plate (2) and secure hex locknuts (3) with 10 mm fork wrench.

**NOTE:** Check for free movement of the safety yoke. It will be necessary to remove one hex head screw (5) in order to install safety yoke arm into safety valve piston (54).

### 11.9 Pusher (47) and grip (63)

Slide pusher (47) into magazine assembly (48) from the front. Pull back scroll spring (51) slightly. Slide grip (63) into pusher (47) and press down over scroll spring (51), aligning grip pin (65) with detents in magazine. Align holes in grip and pusher. Secure both pieces with spring pin (62) using a 2 mm pin punch. Make sure pin (62) is flush with top and bottom of pusher.

### 11.10 Magazine assembly (48)

(Safety valve piston, safety yoke, pusher and grip assembled, see 11.7, 11.8 and 11.9) Insert magazine assembly (48) as far as it will go in nosepiece (8). Secure 2 hex socket screws (29), washers (61) and locknuts (66) with 17 mm fork wrench and 5 mm Allen wrench. Tighten (to 14,8 ft-lbf / 20Nm) with torque wrench.

### 11.11 Check tool for proper operation

### 11.12 Connect the tool to a 175 PSI (12 BAR) air supply.

Insert a nail strip. The tool must not fire by depressing the trigger alone or by depressing the safety yoke alone. Never point the tool at a person.

## 12. R4X12 S Spare Parts

Ref #	Hilti #	Description	Ref #	Hilti #	Description
1	14907	Safety yoke X12	44	12056	Plug coupling 3/8"
2	11912	Guide plate	45	12534	Grip cover
3	51117	Prevail torque hex nut M6	46	14948	Plate
4	12547	Compression spring 1,4X10,6X38	47	14909	Pusher X12
5	72477	Hex skt hd cap screw M6X30	48	14906	Nail magazine X12 assy
7	11913	Spacing sleeve	49	12539	Blind rivet
8	380653	Nose X12 assy	50	14934	Spring clip
9	12585	Hex skt hd cap screw M8X30	51	12452	Scroll spring 14X0,3X600
10	380478	Flange X12 assy	52	380647	Valve bushing lwr. assy
11	12503	O-ring 78,97X3,53	53	12495	O-ring 9,25X1,78
12	12440	Buffer	54	380648	Valve piston assy
13	380645	Cylinder assy	55	12088	O-ring 4,47X1,78
14	12497	O-ring 63,17X2,62	56	380649	Valve body assy
15	380466	Housing assy	57	8610	Retaining washer SCHNORR 5
16	380644	Driver blade X12 assy	58	9648	Hex skt hd cap screw M5X25
17	12501	O-ring 53,57X3,53	59	380646	Valve bushing upr. assy
18	12499	O-ring 80X3	60	380499	Dowel pin 3M6X18
19	12498	O-ring 64,77X2,62	61	66299	Washer 10,5

20	380655	Ring assy	62	14945	Spring pin 3X26
21	12406	Poppet valve assy	63	12446	Grip
22	12502	O-ring 75,79X3,53	64	12467	Bushing
23	12214	Valve cap assy	65	14941	Pin
24	12500	O-ring 20,22X3,53	66	12487	Prevail torque hex nut M10
25	12471	Compression spring 2,25X15X35,3	67	12996	Compression spring 0,8X6,3X33
26	12669	Cap	68	11917	Adhesive label OIL
27	12997	Grip assy	69	11931	Adhesive label check
29	12483	Cap screw M10X25	70	14914	Flap X12
32	380581	Adhesive label CAUTION neutral	71	14977	Axle
33	380301	Seal R4-S	72	14978	Circlip Gr.5MM
34	9645	Hex skt hd cap screw M5X20	73	380409	Bar
35	380650	Valve bushing assy	74	380296	Bearing bushing
36	12496	O-ring 10,82X1,78	75	380410	Slider
37	380651	Valve plunger assy	76	380404	Release lever
38	12491	O-ring 2,9X1,78	77	380408	Clevis pin
39	380297	Trigger	78	380407	Support strip
40	380467	Grip assy	79	380473	Compression spring 0,3x2,2x13
41	380584	Nameplate R4X12 S neutral	80	380464	Catch
42	12465	Gasket	81	12109	Adhesive label Hilti
43	70470	Hex skt hd cap screw M6X25	903	59296	Adhesive LOCTITE 270 50CCM

### 13. Manufacturer's warranty – tools

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 replacement 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 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.

# HILTI

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