Ingersoll Rand
Construction Technologies

Pneumatic Construction Tools

Maintenance and service operations

This document summarizes the maintenance and service operations for the range of Pneumatic Construction Tools.

Please use the links below to navigate to your product.

Chipping Hammers

IR2PS, IR3PS, IR5PS

Pickhammers standard

IR9PS, IR12PS

Pickhammers vibration dampened

IR10PV, IR12PV

Paving Breakers

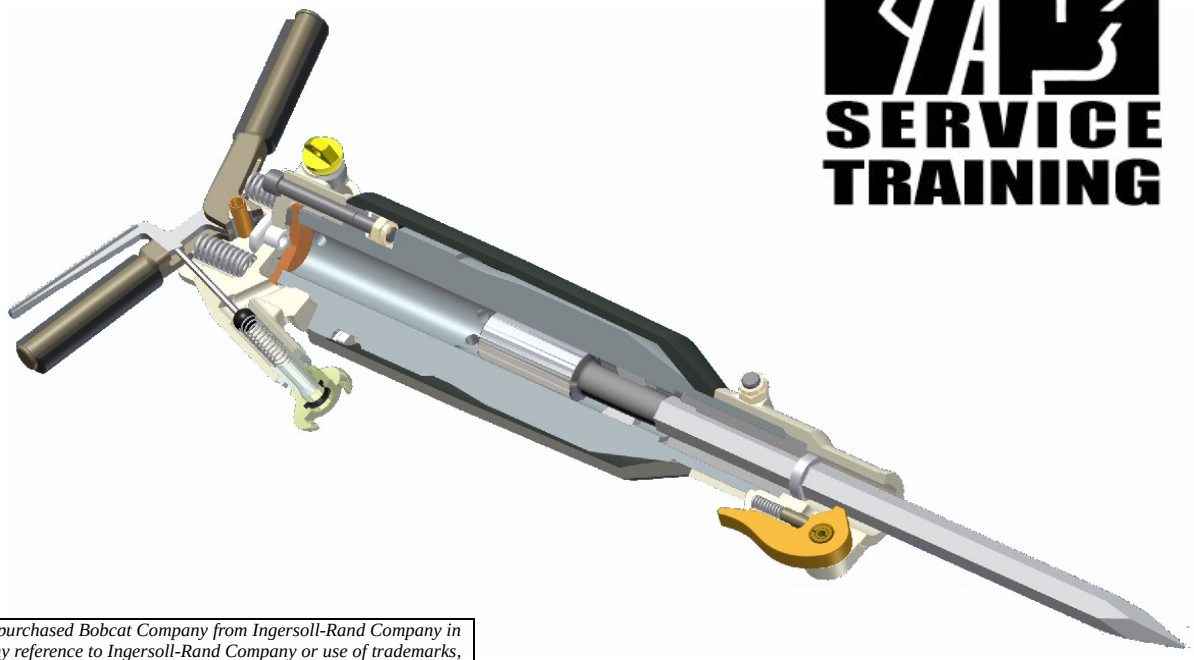
IR15, IR21, IR30, IR40 BV&BS

Jackhammers

IR17 JS&JV

IR23 JS&JV

SERVICE TRAINING



Revised (10-12)

Chipping Hammers

IR2PS, IR3PS, IR5PS

Model - Shank - Retainer	CPN
IR2PS - 15R/12H x 55 - Spring	93482990
IR3PS - 19H x 50 - Spring	01338060
IR5PS - 19H x 50 - Spring	01337674

MAINTENANCE SECTION

WARNING

Always wear eye protection when operating or performing maintenance on this tool.

Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool or before performing any maintenance on this tool.

DISASSEMBLY

General Instructions

1. Do not disassemble the tool any further than necessary to replace or repair damaged parts.
2. When grasping a tool or part in a vise, always use leather- covered or copper- covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.
3. Do not remove any part which is a press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.
4. Do not disassemble the tool unless you have a complete set of new gaskets and O- rings for replacement.
5. Clean the exterior of the Pickhammer before disassembly.
6. Provide a clean work area for disassembling the Pickhammer.
7. Handle all parts carefully. Hardened parts may chip or break if dropped on a hard surface.
8. Probe all porting to loosen and clean out all foreign matter. Place small parts in a clean box to prevent loss.

Disassembly of the Pickhammer

For IR3PS and IR5PS

1. Grasp the Handle (1) firmly in leather- covered or copper- covered vise jaws with the Cylinder (22) upward and remove handle locking screw (25)

CAUTION

Do not exert extreme pressure on the Handle. The Handle can be cracked if the vise is tightened excessively.

2. Using a large adjustable wrench on the flats of the Cylinder, loosen the Cylinder.

NOTICE

Do not loosen the Cylinder unless a new O- ring (11) is available. This O- ring is usually damaged during disassembly.

3. Remove the Pickhammer from the vise and unscrew the Cylinder from the Handle.
4. **For Model IR3PS,** remove the Cylinder Spacer (12), Washer Guide (13), Spring Washer Assembly (15), Piston Shield (17) and Piston (21) from the Cylinder. **For Model IR5PS,** remove the Cylinder Spacer (12), Upper Valve Seat (14), Valve (18), Lower Valve Seat (19), Piston Bumper (16), two Valve Pins (20) and Piston (21) from the Cylinder.
5. Remove the O- ring from the Cylinder.
6. **For Model IR5PS,** press the Nozzle (23) from the Cylinder if the Nozzle requires replacement.
7. Using a wrench, remove the Inlet Bushing Assembly (10) from the Handle.
8. Remove the Throttle Valve Spring (9), Throttle Valve Pin (8), Throttle Valve Face (7) and the Throttle Valve Stem (6).
9. If the Throttle Valve Stem Bushing (5) requires replacement, press the Throttle Lever Pin (3) from the Handle and remove the Throttle Lever (2). Using an arbor press and a rod that fits into the throttle lever slot, press the Bushing out of the Handle through the Inlet Bushing opening.
10. If the Throttle Valve Stem Bushing (5) requires replacement, press the Throttle Lever Pin (3) from the Handle, and remove the Safety Throttle Lever (1A). Using an arbor press and a rod that fits into the throttle lever slot, press the Bushing out of the Handle through the Inlet Bushing opening.
11. If the Safety Lever (1B) requires replacement, press the Safety Lever Pin (1C) from the Handle, and remove the Safety Lever and the Safety Lever Spring.

For IR2PS

1. Grasp the Handle (1) firmly in the leather- covered or copper- covered vise jaws with Cylinder (19) upward.

CAUTION

Do not exert extreme pressure on the Handle. The Handle can be cracked if the vise is tightened excessively.

2. Remove the Retainer (29).
3. Remove the Deflector (28) from the Cylinder.
4. Remove the Handle Pin (25).
5. Using a large adjustable wrench on the flats of the Cylinder, loosen the Cylinder.

6. Remove the Pickhammer from the vise and unscrew the Cylinder from the Handle.
7. Remove the Spacer Rings (30), Valve (12), Valve Box (13), Valve Pin (18) and Piston (20) from the Cylinder.
8. Press the Nozzle (21) from the Cylinder if the Nozzle requires replacement.
9. Using a wrench, remove the Valve Stopper (7) from the Handle.
10. Remove the Throttle Valve Spring (6), Throttle Valve Face (4) and Throttle Valve Stem (8) from the Handle.
11. If the Inlet Bushing (10) requires replacement, remove the Inlet Bushing from the Handle by using a wrench.

ASSEMBLY

General Instructions

1. When grasping a tool or part in a vise, always use leather- covered or copper- covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.
2. Always clean every part and wipe every part with a thin film of clean oil before installation.
3. Apply a film of O- ring lubricant to all O- rings before final assembly.
4. Except for press fits, parts should fit together easily. If force is required to assemble parts, the parts are out of alignment and must be correctly aligned to prevent binding and damage.

Assembly of the Pickhammer

For IR3PS and IR5PS

1. If the Throttle Valve Stem Bushing (5) was removed, press a new Bushing into the Handle (1).
2. Position the Throttle Lever (2) in the Handle and secure it by pressing the Throttle Lever Pin (3) into the Handle and through the Throttle Lever.
3. If the Safety Lever (1B) was removed, position the Safety Lever and the Safety Lever Spring (1D) in the Handle, with the "U"- shape of the Spring inside the angle made by the Safety Lever. Secure them by pressing the Safety Lever Pin (1C) into the Handle, and through the Safety Lever and Spring.

NOTICE

Safety system is to be fitted only with adapted Safety Throttle Lever (1A).

4. Position the Safety Throttle Lever in the Handle, adjusting the "L"- shape of the Safety Lever Spring against the edge of the Throttle Lever. Secure it by pressing the Throttle Lever Pin (3) into the Handle, and through the Safety Throttle Lever.
5. Insert the Throttle Valve Stem (6) into the Throttle Valve Stem Bushing.
6. Position the slotted end of the Throttle Valve Face (7) against the Throttle Valve Stem.
7. Install the smaller diameter end of the Throttle Valve Spring (9) on the short hub of the Throttle Valve Pin (8). Using the Spring to hold the Pin, install the long end of the Throttle Valve Pin into the Throttle Valve Face.
8. Install the Inlet Bushing Seal (10A) on the Inlet Bushing (10) and thread the Inlet Bushing Assembly into the Handle and tighten it to 9 ft- lb (12 Nm) torque.
9. **For Model IR5PS,** press the new Nozzle (23) into the front end of the Cylinder (22) if the Nozzle required replacement.
10. Install the O- ring (11) in the groove adjacent to the threads on the exterior of the Cylinder.
11. Insert the Piston (21) into the rear end of the Cylinder.
12. **For Model IR3PS,** proceed as follows:
    a. Install the Piston Shield (17) in the threaded end of the Cylinder with the shallow counterbored surface toward the Piston.
    b. Stack the three Spring Washers (15) together and position them, concave side first, against the Piston Shield.
    c. Insert the small diameter hub of the Washer Guide (13) into the central opening of the Spring Washers.
    d. Position the Cylinder Spacer (12) against the threaded end of the Cylinder and thread the Handle onto the Cylinder.

For Model IR5PS, proceed as follows:

    a. Insert the two Valve Pins (20) into the holes in the threaded end of the Cylinder.
    b. If the Piston Bumper (16) was separated from the Lower Valve Seat (19) during disassembly, work the large diameter of the Piston Bumper into the counterbore of the Lower Valve Seat until the Bumper is seated squarely against the Valve Seat.
    c. Slide the Lower Valve Seat, Piston Bumper first, onto the two Pins and against the Cylinder.
    d. Position the Valve (18) in the counterbore of the Upper Valve Seat (14) and slide the Upper Valve Seat, Valve first, onto the Pins against the Lower Valve Seat.
    e. One or two Cylinder Spacers (12) have been installed in these tools at the factory to locate the Handle in the correct position at the Cylinder. Install an identical number of Spacers of the same thickness (1 or 2 mm thick) in the rear of the Handle with the dished side of the Spacer facing the Valve.
    f. Thread the Handle onto the Cylinder.

13. Using a torque wrench, tighten the Cylinder between 46 and 54 Nm (34 and 40 lbs.ft) torque.
14. Replace the handle locking screw (25). And tighten.

For IR2PS

1. If the Throttle Lever (2) was removed, position the Throttle Lever into the Handle (1) and secure it by pressing the Throttle Lever Pin (3) into the Handle and through the Throttle lever.
2. Insert the Throttle Valve Stem (8) into the Throttle Valve Stem Bushing (9).
3. Position the cone end of the Throttle Valve Face (4) against the Throttle Valve Stem.
4. Install one end of the Throttle Valve Spring (6) into the Throttle Valve Face (4).
5. Install the Valve Stopper (7) on the other end of the Throttle Valve Spring, and thread it into the Handle and tighten it to 12 Nm (9 lbs.ft) torque. Also, thread the Inlet Bushing (10) into the Handle if it was removed.
6. Press the new Nozzle (21) into the front end of the Cylinder (19) if the Nozzle required replacement.
7. Insert the Piston (20) into the rear end of the Cylinder.
8. Install the Valve Pin (18) into the smallest of the four holes located into the rear of the Cylinder.
9. Slide the Valve Box (13) into the rear of the Cylinder, its larger surface first, and position it on the Valve Pin.
10. Then, slide the Valve (12) into the Valve Box (13), its smallest diameter first.
11. One of two Spacer Rings (30) have been installed in these tools at the factory to locate the Handle in the correct position at the Cylinder. Install an identical number of Spacer Rings of the same thickness (1 or 1.5 mm thick) in the rear of the Handle with the dished side of the Spacers facing the Valve.
12. Using a torque wrench, tighten the Cylinder between 46 and 54 Nm (34 and 40 lbs.ft) torque.
13. Position the Handle Pin (25) into the only hole of the Cylinder that faces exactly one slot of the Handle.
14. Slide the Deflector (28) on the Cylinder, and position it into the slots of the Handle.
15. Install the Retainer (29) into the two side holes of the nose of the Cylinder.

MAINTENANCE SECTION

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Pickhammer will not start	Plugged exhaust port or air passages caused by dirt or hose particles	Dismantle the Pickhammer and clean out all ports and air passages. Keep the air hose in top notch condition; never use a soft, deteriorated hose.
	Stuck valve due to gummy oil or incorrect assembly	Remove and clean the valve chest parts. Never use dirty oil or oil that does not conform to the recommended specifications. Check for correct valve assembly procedures.
	Frozen piston due to improper lubrication	Repair the piston by placing in a high speed lathe and dressing with fine emery cloth. Never run the Pickhammer without the proper lubricating oil in the lubricator.
Pickhammer loses power rapidly	Restriction in the air hose	Never allow the air hose to kink or make sharp bends.
	Air hose too long	As a general rule, keep the air hose length under 15 m (49 ft).
	Air Hose diameter too small	Use a 13 mm (1/2") inside diameter air supply hose.
	Clogged Inlet Bushing screen	Clean the screen in the Inlet Bushing Assembly
Pickhammer lacks power	Low air supply pressure	The maximum air supply pressure at the tool should be 6.2 bar (90 psig).
	Running on Fronthead cushion	Keep shank fed- up to the work. Always maintain a constant pressure when operating the Pickhammer.
	Plugged air passages	Disassemble the Pickhammer and clean out all ports and passages.
	Lack of lubricating oil	Maintain the proper oil level in the lubricator. Steel shank must show a film of oil.
	Clogged Inlet Bushing Screen	Clean the screen in the Inlet Bushing Assembly.
Cylinder overheating on new Pickhammer	Tool not properly broken in	Stop operating the tool and perform initial servicing. Never run a new Pickhammer at full throttle until a proper break- in period has been completed.
Tool overheating after break- in period	Running on Fronthead cushion	Keep shank fed- up to the work. Always maintain a constant pressure when operating the Pickhammer.
	Piston not hitting shank because shank is short	Remove the shank from the Pickhammer
	Pulling steel at full throttle	Use minimum throttle when pulling steels away from work.
	Lack of lubricant or improper lubricating oil	Before operating the Pickhammer, make sure the lubricating oil reservoir is full of proper lubricant.
Erratic or sluggish operating	Lubricating oil too heavy, slowing down valve action	Use only the recommended lubricating oil.
	Gummed oil or dirt in operating parts	Disassemble the tool and clean out dirt and gummy residue. Service the Pickhammer with clean oil. Protect the tool from dirt when idle.
	Clogged Inlet Bushing screen	Clean the screen in the Inlet Bushing Assembly.
Freezing at exhaust ports	Excessive moisture in the air supply line (Usually occurs in low ambient temperatures)	Install moisture traps in the air supply line or add anti- freeze lubricant directly through the air inlet. Use anti- freeze lubricant.
Fogging	Excessive moisture in the air supply line	Clean out the air lines. IF moisture traps are installed in the air supply line, drain the moisture.
	Over lubrication	Adjust the lubricator for the proper rate lubricant feed.

NOTICE

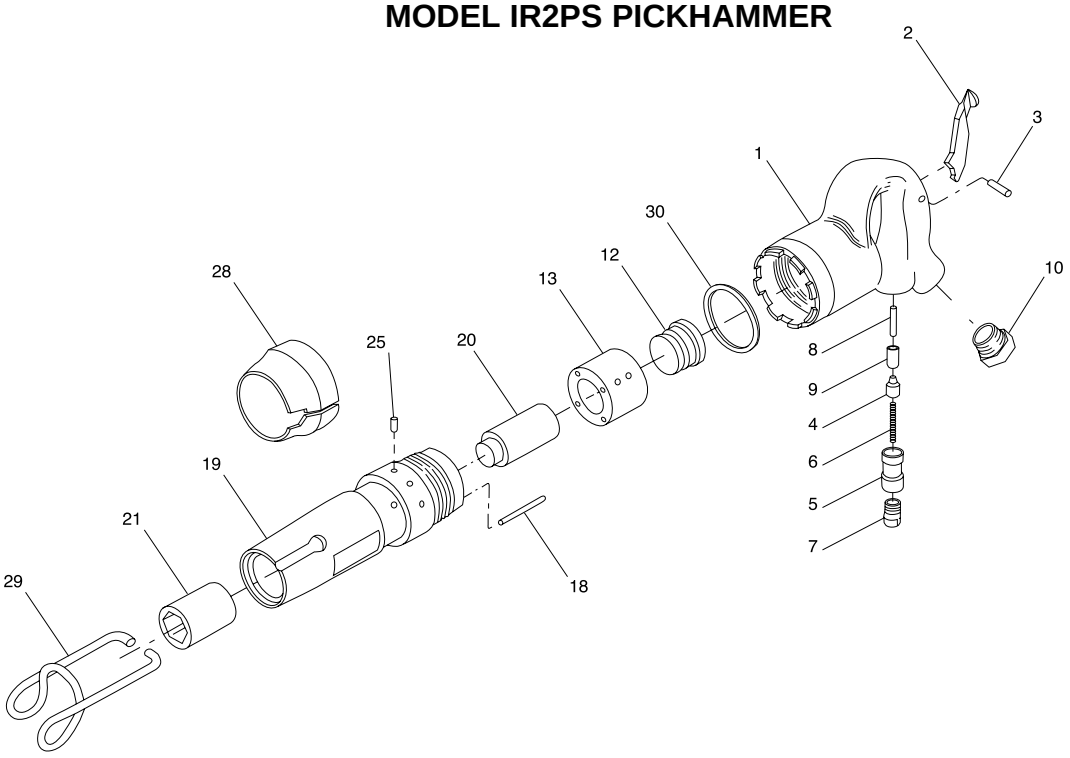
SAVE THESE INSTRUCTIONS. DO NOT DESTROY.

PLACING TOOL IN SERVICE

Models IR2PS, IR3PS and IR5PS Pickhammers are designed for breaking concrete and other demolition work in construction applications.

HOW TO ORDER A PICKHAMMER			
Model	**Impacts/min.**	**Piston Stroke**	
		in	**mm**
IR2PS	2850	2	50
IR3PS	3850	1- 1/2	37
IR5PS	2550	2- 3/8	60

MODEL IR2PS PICKHAMMER

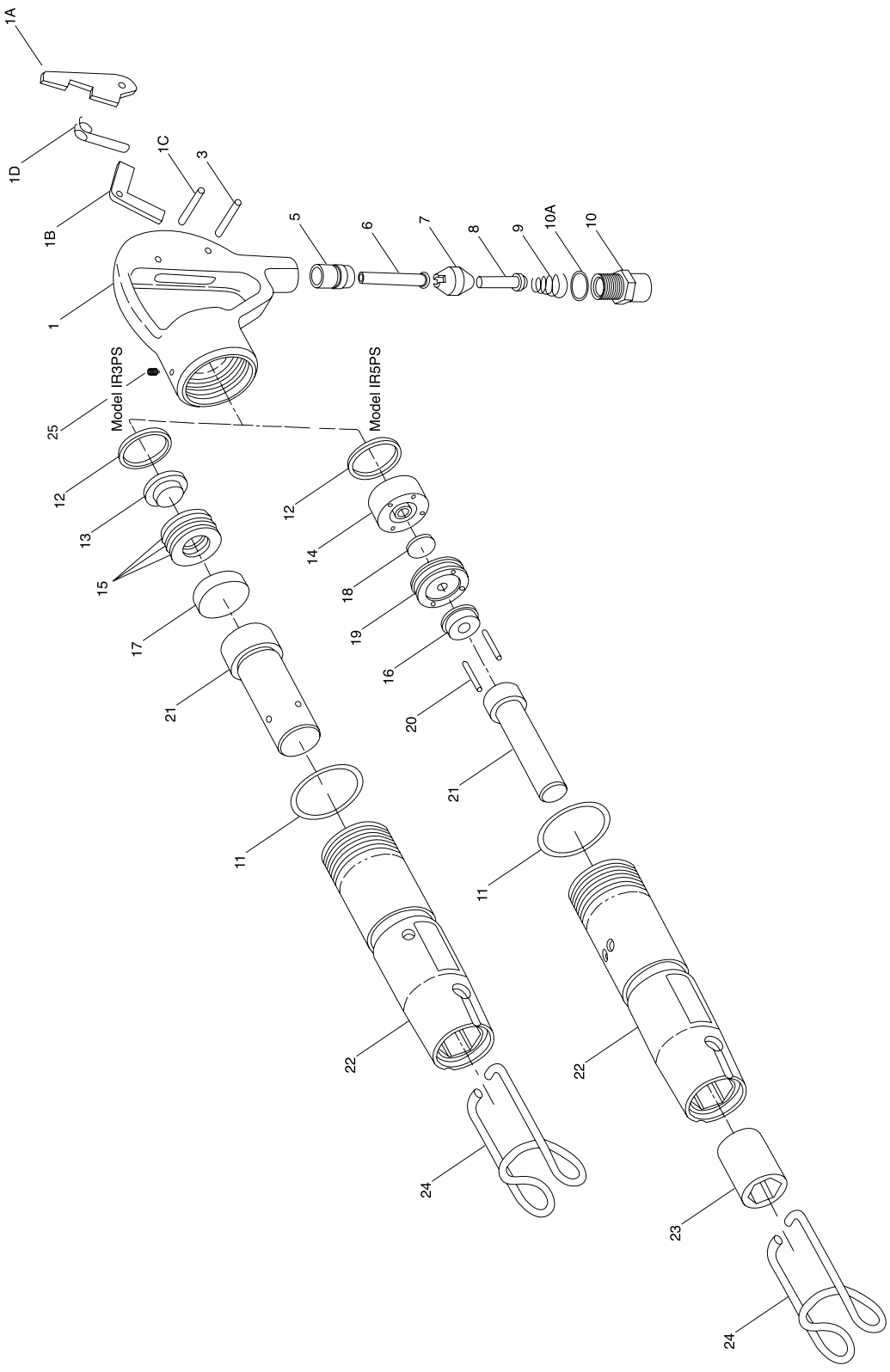


(Dwg. TPB996)

		CPN	PART NO. FOR ORDERING
1	Grip Handle	-	PH2- 50901
2	Throttle Lever	88100904	PH2- 50902
• 3	Throttle Lever Pin	88098249	PH2- 50903
• 4	Throttle Valve Face	88099171	PH2- 50904
5	Throttle Valve Seat	88099189	PH2- 50905
• 6	Throttle Valve Spring	88099197	PH2- 50906
7	Valve Stopper	88099205	PH2- 50907
• 8	Throttle Valve Stem	88099213	PH2- 50908
9	Throttle Valve Stem Bush	88099221	PH2- 50909
10	Inlet Bushing	88100912	PH2- 50910
• 12	Valve	88100938	PH2- 50912
13	Valve Box	25012543	PH2- 50913
• 18	Valve Pin	88099239	PH2- 50918
19	Cylinder	21867353	PH2- 50919
20	Piston	56752041	PH2- 50920
21	Nozzle	21867346	PH2- 50921
25	Handle Lock Pin	88099247	PH2- 50925
28	Deflector	88098652	PH2- 50928
29	Retainer	88102116	PH2- 50929
• 30	Spacer Ring		
	1 mm	88098702	PH2- 50930
	1.5 mm	56746910	PH2- 50931
*	Nameplate	22112981	-

• Indicates Tune-Up Kit Part
* Not Illustrated

MODELS IR3PS AND IR5PS PICKHAMMERS



(Dwg. TPB723-1)

		IR3PS (PART NO. FOR ORDERING)	CPN	IR5PS (PART NO. FOR ORDERING)	CPN
	Grip Handle Assembly	PH3-50111	03764206	PH5-50202	03764396
1	Grip Handle	PH3-50110	03764214	PH5-50201	03764404
1A	Safety Throttle Lever	PH3-50130	93483279	PH5-50130	56746654
1B	Safety Lever	PH3-50131	93483287	PH5-50131	56746662
1C	Safety Lever Pin	PH3-50132	93483295	PH5-50132	56750573
1D	Safety Lever Spring	PH3-50133	93483303	PH5-50133	56748080
2	Throttle Lever	PH3-50101	03764222	PH3-50101	03764222
• 3	Throttle Lever Pin	PH3-50102	03764230	PH3-50102	03764230
5	Throttle Valve Stem Bushing	PH3-50104	03764248	PH3-50104	03764248
• 6	Throttle Valve Stem	PH3-50105	03764263	PH3-50105	03764263
• 7	Throttle Valve Face	PH3-50106	03764271	PH3-50106	03764271
• 8	Throttle Valve Pin	PH3-50107	03764289	PH3-50107	03764289
• 9	Throttle Valve Spring	PH3-50108	03764297	PH3-50108	03764297
10	Inlet Bushing Assembly	PH3-50127	03768835	PH3-50127	03768835
• 10A	Inlet Bushing Seal	PH3-50128	03768843	PH3-50128	03768843
• 11	O-ring	PH3-50112	03764313	PH5-50203	03764503
• 12	Cylinder Spacer				
	1 mm thick	-	-	PH5-50204	03764511
	2 mm thick	-	-	PH5-50223	03768868
	3.6 mm thick	PH3-50126	03768850	-	-
13	Washer Guide	PH3-50115	03764347	-	-
14	Upper Valve Seat	-	-	PH5-50205	03764529
15	Spring Washer Assembly (set of 3 Washers)	PH3-50116	03764354	-	-
16	Piston Bumper	-	-	PH5-50209	03764560
17	Piston Shield	PH3-50117	-	-	-
• 18	Valve	-	-	PH5-50206	03764537
19	Lower Valve Seat	-	-	PH5-50207	03764545
• 20	Valve Pin (2)	-	-	PH5-50208	03764552
21	Piston	PH3-50118	03764370	PH5-50210	03764578
22	Cylinder	PH3-50113	03764321	PH5-50211	03764586
23	Nozzle	-	-	PH5-50212	03764594
24	Retainer	PH3-50114	03764339	PH3-50114	03764339
25	Handle locking screw	PH3-50537	85043065	PH3-50537	85043065
*	Nameplate	-	22112999	-	22113005
*	Tune-up Kit (includes illustrated parts 3, 6, 7, 8, 9, 10A and 11)	PH3-TK1	-	-	-
	(includes illustrated parts 3, 6, 7, 8, 9, 10A, 11, 12, 18 and 20 [2])	-	-	PH5-TK1	-

• Indicates Tune-up Kit part.
* Not illustrated.

SPECIFICATIONS FOR IR2PS, IR3PS AND IR5PS PICKHAMMERS

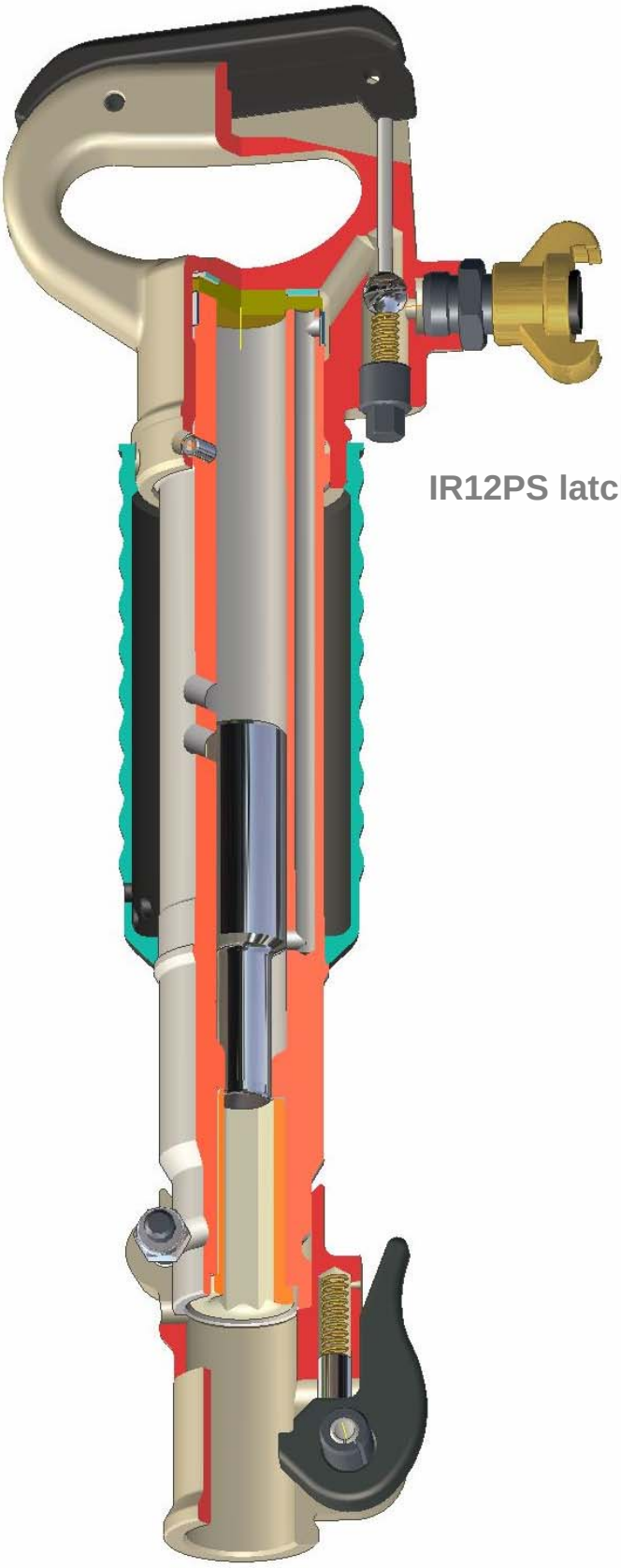
Model	Chuck Size	Cpn	Overall Length mm (in)	Overall Width mm (in)	Weight Kg (lbs)	Max Working Pressure Bar (psi)	Air Consumption M^3/min @ 6 Bar (CFM)
IR2PS	15R/12 hex x55	93482990	300 (12)	60 (2.4)	2.6 (5.7)	6.2 (90)	0.35 (12.5)
IR3PS	19 hex x50	01338060	335 (13.2)	60 (2.4)	3.5 (7.7)	6.2 (90)	0.35 (12.5)
IR5PS	19 hex x50	01337674	408 (16.6)	60 (2.4)	5.0 (11.0)	6.2 (90)	0.43 (15.0)

Model	Certified Vibration Level M/s^2 @ 6 bar	Certified Noise Level L_{WA}	Impact Frequency /min	Handle /Cylinder Torque Nm (lbs.ft)	Air inlet Connector Torque Nm (lbs.ft)	Air Connection
IR2PS	6.95	107	2850	50 (37)	12 (9)	3/8“ BSPP Female thread
IR3PS	2.93	107	3850	50 (37)	12 (9)	1/2“ BSPP Male thread
IR5PS	6.67	107	2650	50 (37)	12 (9)	1/2“ BSPP Male thread

Pickhammers standard

IR9PS, IR12PS

Model - Shank - Retainer	CPN
IR9PS - 22H x 82 - Latch	85041929
IR9PS - 25R x 75 - Screw	85041937
IR9PS - 23R x 70 - Screw	85041945
IR9PS - 22H x 82 - Screw	85041952
IR12PS - 22H x 82 - Latch	85041960
IR12PS - 22H x 82 - Screw	85042042
IR12PS - 25R x 75 - Screw	85041978



IR12PS latch

IR9PS screw

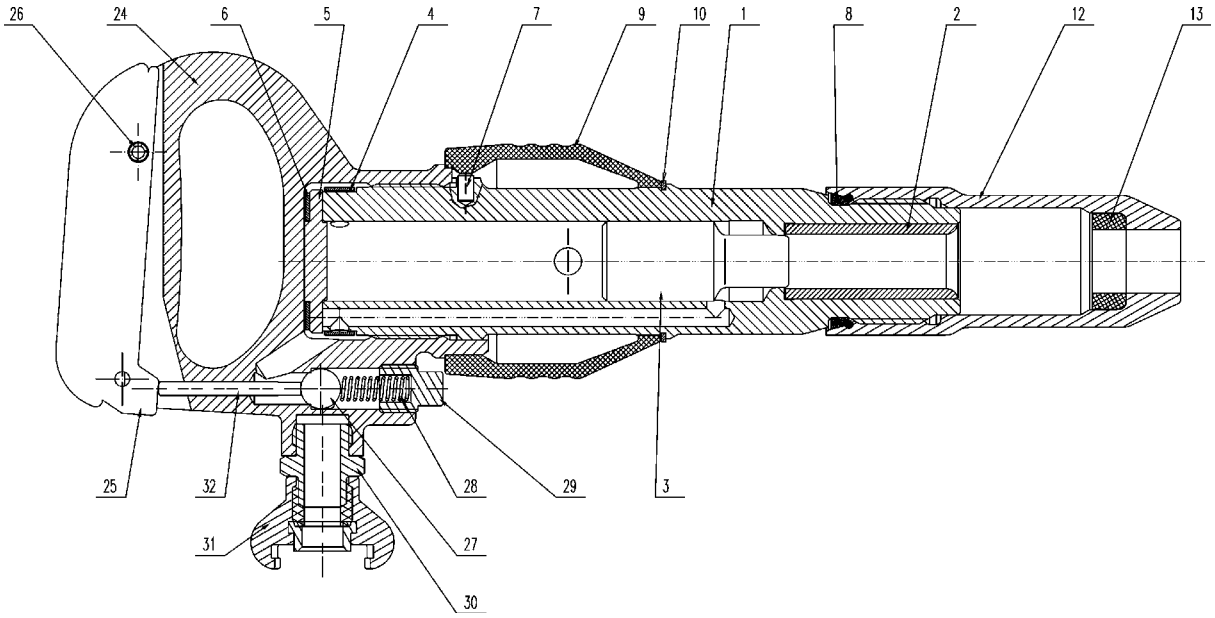


Figure 1 IR9PS screw

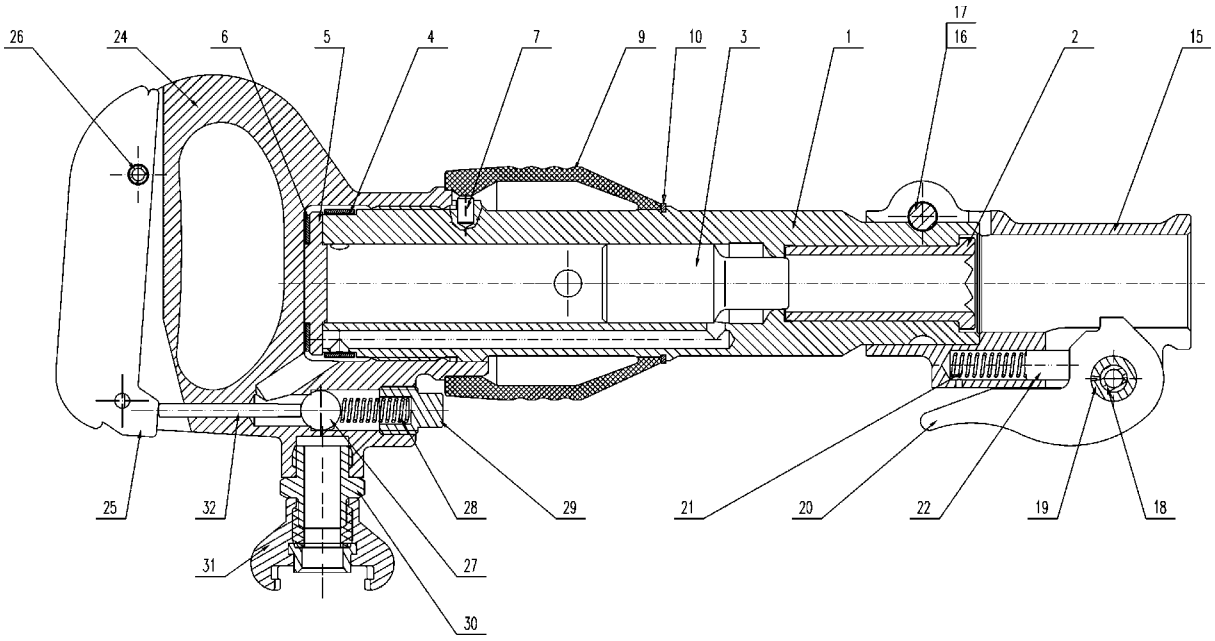


Figure 2 IR9PS latch

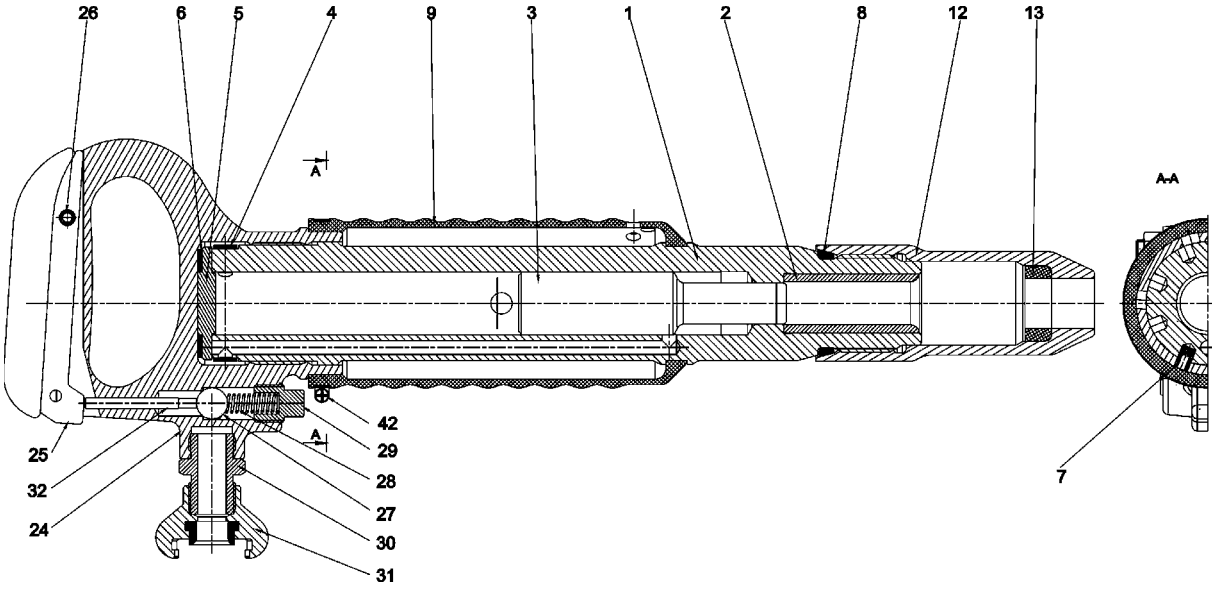


Figure 3 IR12PS screw

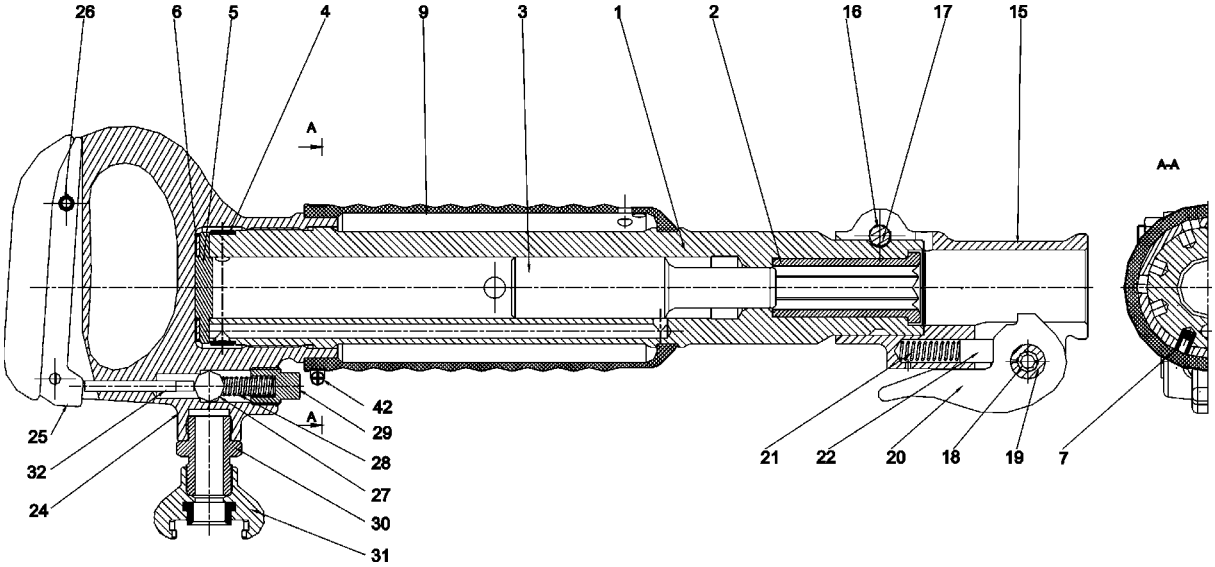


Figure 4 IR12PS latch

DISASSEMBLING THE IR9PS AND IR12PS PICKHAMMERS

GENERAL INSTRUCTIONS

- Clean the Pickhammer outer surface.
- Do not disassemble the pickhammer any further than necessary to replace or repair damaged or worn parts.
- Whenever grasping a pickhammer or a part in a vice, always use leather or copper-covered vice jaws to protect the surface of the part and help prevent distortion. Take extra care with threaded parts and housings.
- Do not remove any part that is a press fit in or on a sub-assembly unless the removal of the part is necessary for repairs or replacement.
- Do not disassemble the pickhammer unless a complete set of O-rings is available for replacement.

DISASSEMBLY OF THE FRONTHEAD

Screw retainer models

Unscrew retainer (12) off the cylinder (1) and remove chisel buffer (13) from inside retainer. Remove seal ring (8) from its groove in the cylinder.

Latch retainer models

Remove nut (17) and fronthead pinch bolt (16) from the fronthead (15). Lightly tap the fronthead (using a hide mallet if necessary) off the cylinder (1).

Press or drift out the two fronthead spring pins (18, 19) and remove the latch lever (20).

The plunger (22) and plunger spring (21) can be removed from the fronthead.

MAIN DISASSEMBLY

Grip handle body (24) firmly in a vice (use leather or copper covered vice jaws).

Remove muffler retaining clip (10) from its groove in the cylinder (IR9PS models only).

Insert three or four pieces of thin sheet steel approximately 8 mm wide, beneath the retaining lip of the muffler moulding (9) (small diameter end). These will allow the rubber retaining lip of the muffler to slide along over the groove in the cylinder and ease removal of the muffler.

Slide off muffler (9) over the cylinder exposing the cylinder flats.

Remove locking pin (7) from its hole in cylinder, the pin is provided with an M4 internal thread to assist removal.

Remove the handle from the vice, invert the pick-hammer and grip the flats of the cylinder in the vice. Use a pipe about 1.5 Meters long positioned through the loop of the handle to first loosen and then completely unscrew the handle assembly from the cylinder and remove. – ***Warning – once the handle is unscrewed from the cylinder the piston and valve parts will be free to fall and could cause injury.***

HANDLE DISASSEMBLY

Grip handle body (24) in leather or copper covered vice jaws and unscrew throttle valve plug (29) using a 13 mm spanner.

Withdraw throttle spring (28), throttle ball (27) and throttle pin (32).

Remove the trigger (25) by pressing or drifting out trigger pin (26).

Unscrew quick release coupling (31) from inlet bushing (30).

The inlet bushing (30) can be removed if required though it is assembled into the handle using a high strength retainer and disassembly is not normally necessary.

CYLINDER DISASSEMBLY

Remove the spacing washer (6) and valve plate (5).

Slide off valve ring (4) from cylinder (1).

Allow piston (3) to slide out of the cylinder bore and be caught.

The nozzle (2) is pressed into the cylinder and retained with Loctite 601 - do not disassemble unless replacement is necessary.

ASSEMBLY OF THE IR9PS AND IR12PS PICKHAMMERS

GENERAL INSTRUCTIONS

- Before assembly of the pickhammer, clean all parts thoroughly and lubricate surfaces with a thin film of recommended oil - (see lubrication).
- Apply a thin film of O-ring lubricant to all O-rings before final assembly.
- It is recommended that the assembly of the nozzle (2) be carried out by the manufacturer or authorised distributor.
- The existence of a piston air cushion should be determined. Hold the cylinder vertically and allow the piston to drop down the bore small diameter first. An air cushion is present if the piston "bounces", at the bottom of the cylinder and no metal to metal contact noise can be heard. If a cushion is not present contact your authorised Ingersoll - Rand repair centre for advise.

CYLINDER ASSEMBLY

Grip the cylinder (1) vertically in a vice protected with leather or copper covered vice jaws.
Lubricate and insert the piston (3) small end first into the bore. Check for air cushion.
Lubricate and slide the valve ring (4) onto the cylinder and replace the valve plate (5).
Replace the spacing washer (6) on top of the valve plate.

HANDLE ASSEMBLY

Position trigger (25) in its slot in the handle body and align the holes in each part.
Drift or press home the trigger pin (26). Check the throttle lever is free to move easily.
Grip the handle body (24) in a vice protected with leather or copper covered vice jaws.
Lubricate and insert throttle pin (32) into position reduced diameter out of the hole.
Replace the throttle ball (27) and throttle spring (28) and retain in place with throttle valve plug (29), apply Loctite 243 to the threads of the plug and screw home fully.
If the air inlet (30) has been removed, refit it into the handle body using Loctite 243 and screw home fully.
Replace the quick release coupling (31).

MAIN ASSEMBLY

Firmly grip the cylinder assembly vertically across the flats, in a vice protected with leather or copper covered vice jaws. Check for correct location of the valve ring (4) valve plate (5) and spacing washer (6).
Carefully lower the handle assembly (23) onto the cylinder and engage the threads. Tighten the handle down by hand.
Fully tighten the handle using the 1.5 meters long pipe until the lock pin (7) can be replaced in position - thread to the outside.
Slide the muffler (9) down the cylinder until the muffler retaining lip engages with the groove in the cylinder. Replace the retaining clip (10) in its groove in the cylinder (IR9PS only).

ASSEMBLY OF THE FRONTHEAD – SCREW RETAINER MODELS

Replace the sealing ring (8) in its groove in the cylinder.
Inspect the chisel buffer (13) for wear and replace if necessary, by sliding a new buffer into the retainer.
Screw the retainer onto the cylinder assembly.

ASSEMBLY OF THE FRONTHEAD – LATCH RETAINER MODELS

Grease the latch plunger (22) and plunger spring (21) and insert them into position in the fronthead (15).
Locate the latch lever (20) with the holes in the fronthead and press or drift into place the fronthead spring pins (18,19).
Check the operation of the latch.
Slide the fronthead (15) onto the end of the cylinder and align the bolt hole with the groove machined in the cylinder.
Fit fronthead screw (16) and secure with fronthead nut (17) tighten to 90 Nm (66.4 lbs.ft) torque.

ASSEMBLY CHECKS

Following service or repair the pickhammer should be checked for correct operation before being sent back to the job site.
Fit the correct size accessory into the pickhammer and connect to an airline. Using low pressure 2 bar (30psi) check to ensure the pickhammer is free of air leaks around the inlet connection and also that the pickhammer does not automatically start to operate without the trigger being depressed.
Increase the air pressure to 6 bar (90psi) and run the tool in short bursts to check the tools starts and stops cleanly and without hesitation.
Pickhammer operating frequency should be as given in the specification table at the end of this manual.

SPECIFICATIONS FOR IR9PS AND IR12PS PICK HAMMERS

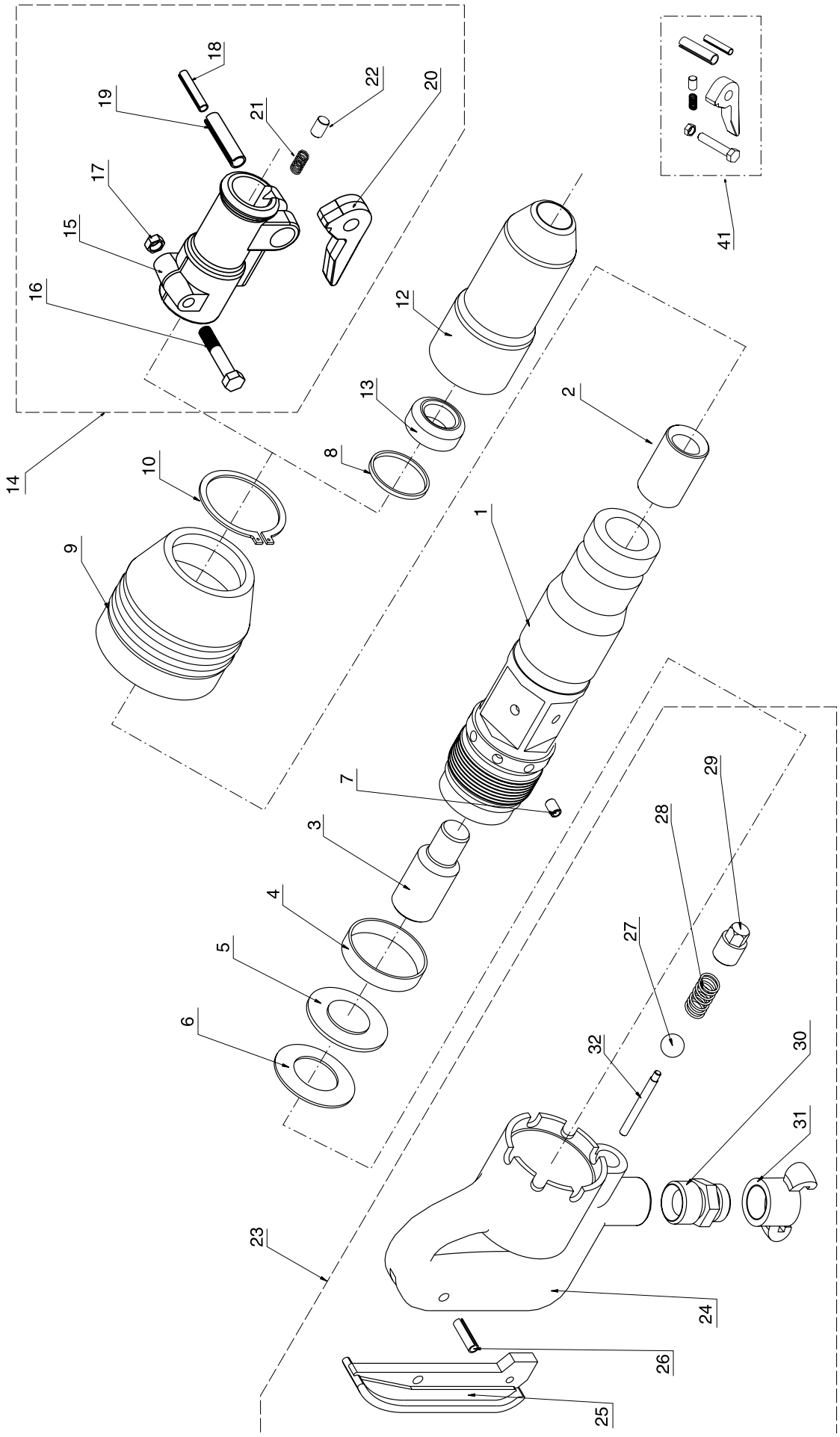
Model	Chuck Size	Retainer Type	Cpn	Overall Length mm (in)	Overall Width mm (in)	Weight kg (lbs)	Max Working Pressure bar (psi)	Air Consumption m^3/min @ 6 bar (CFM)	Certified Vibration Level m/s^2 @ 6 bar	Impact Frequency /min	Fronthead Nut Torque Nm (ft.lbs)
IR9PS	25 round × 75	Screw	85041937	470 (18.5)	236 (9.3)	9 (20)	7 (103)	0.9 (32)	13,32	1620	-
IR9PS	23 round × 70	Screw	85041945	470 (18.5)	236 (9.3)	9 (20)	7 (103)	0.9 (32)	13,32	1620	-
IR9PS	22 hex. × 82	Screw	85041952	470 (18.5)	236 (9.3)	9 (20)	7 (103)	0.9 (32)	13,32	1620	-
IR9PS	22 hex. × 82	Latch	85041929	470 (18.5)	236 (9.3)	9 (20)	7 (103)	0.9 (32)	13,32	1620	90 (66.4)
IR12PS	25 round × 75	Screw	85041978	612 (24.1)	236 (9.3)	12 (27)	7 (103)	0.9 (32)	9,10	1200	-
IR12PS	22 hex. × 82	Screw	85042042	612 (24.1)	236 (9.3)	12 (27)	7 (103)	0.9 (32)	9,10	1200	-
IR12PS	22 hex. × 82	Latch	85041960	617 (24.3)	236 (9.3)	12 (27)	7 (103)	0.9 (32)	9,10	1200	90 (66.4)

PARTS LIST

Ref.	Part Name	Quantity	Cpn	
			IR9PS	IR12PS
1	Cylinder Assembly (22 Hex x 82 nozzle) Latch model	1	85042059	85042356
1	Cylinder Assembly (22 Hex x 82 nozzle) Screw retainer model	1	85042067	85042364
1	Cylinder Assembly (25 Round x 75 nozzle)	1	85042075	85042372
1	Cylinder Assembly (23 Round x 70 nozzle)	1	85042083	-
2	Nozzle 22 hex x 82 (Latch retainer model only)	1	85042091	85042380
2	Nozzle 22 hex x 82 (Screw retainer model only)	1	85042505	85042380
2	Nozzle 25 round x 75	1	85042109	85042398
2	Nozzle 23 round x 70	1	85042117	-
3	Piston	1	85042125	85042406
4	Valve Ring	1	85042133	85042414
5	Valve Plate	1	85042141	85042141
6	Spacing Washer	1	85042158	85042158
7	Cylinder lock pin	1	85042166	85042166
8	Sealing ring (Not fitted to Latch retainer models)	1	85042174	85042174
9	Muffler	1	85042182	85042422
10	Muffler retaining clip	1	85042190	-
12	Screw fronthead	1	85042208	85042208
13	Chisel buffer	1	85042216	85042216
14	Latch Fronthead Assembly	1	85040624	85040624
15	Latch Fronthead	1	85040632	85040632
16	Fronthead Screw	1	85040996	85040996
17	Fronthead Nut	1	85041010	85041010
18	Fronthead Spring Pin Inner	1	85040954	85040954
19	Fronthead Spring Pin Outer	1	85040970	85040970
20	Latch	1	85040731	85040731
21	Plunger Spring	1	85040947	85040947
22	Plunger	1	85040921	85040921

Ref.	Part Name	Quantity	Cpn	
			IR9PS	IR12PS
23	Handle Assembly	1	85042224	85042224
24	Handle Body	1	85042232	85042232
25	Trigger	1	85042240	85042240
26	Trigger Pin	1	85042257	85042257
27	Throttle Ball	1	85042265	85042265
28	Throttle Spring	1	85042273	85042273
29	Throttle valve plug	1	85042281	85042281
30	Inlet Bushing	1	85040897	85040897
31	Quick Coupling EU	1	85040905	85040905
31	Quick Coupling USA	1	85040913	85040913
32	Throttle pin	1	85042430	85042430
41	Latch Kit	1	85041309	85041309
16	Fronthead Screw	1	85040996	85040996
17	Fronthead Nut	1	85041010	85041010
18	Fronthead Spring Pin Inner	1	85040954	85040954
19	Fronthead Spring Pin Outer	1	85040970	85040970
20	Latch	1	85040731	85040731
21	Plunger Spring	1	85040947	85040947
22	Plunger	1	85040921	85040921
	Items not illustrated			
52*	Noise Sticker 107	1	85040210	-
52*	Noise Sticker 105	1	-	85042562
53*	Warning Sticker	1	85040202	85040202
54*	Warranty card	1	85040285	85040285
55*	Box Label EU	1	85042299	85042299
56*	Box Label USA	1	85042307	85042307
57*	Box	1	85042315	85042315
58*	Box spacer insert	1	85042323	85042323
59*	Op & maintenance manual IR9PS & IR12PS	1	85042331	85042331
60*	Nameplate sticker	1	85042349	85042349
61*	Inline lubricator	1	35371111	35371111
62*	Protec Engine oil 5 l	1	85448405	85448405

(Items marked* not illustrated)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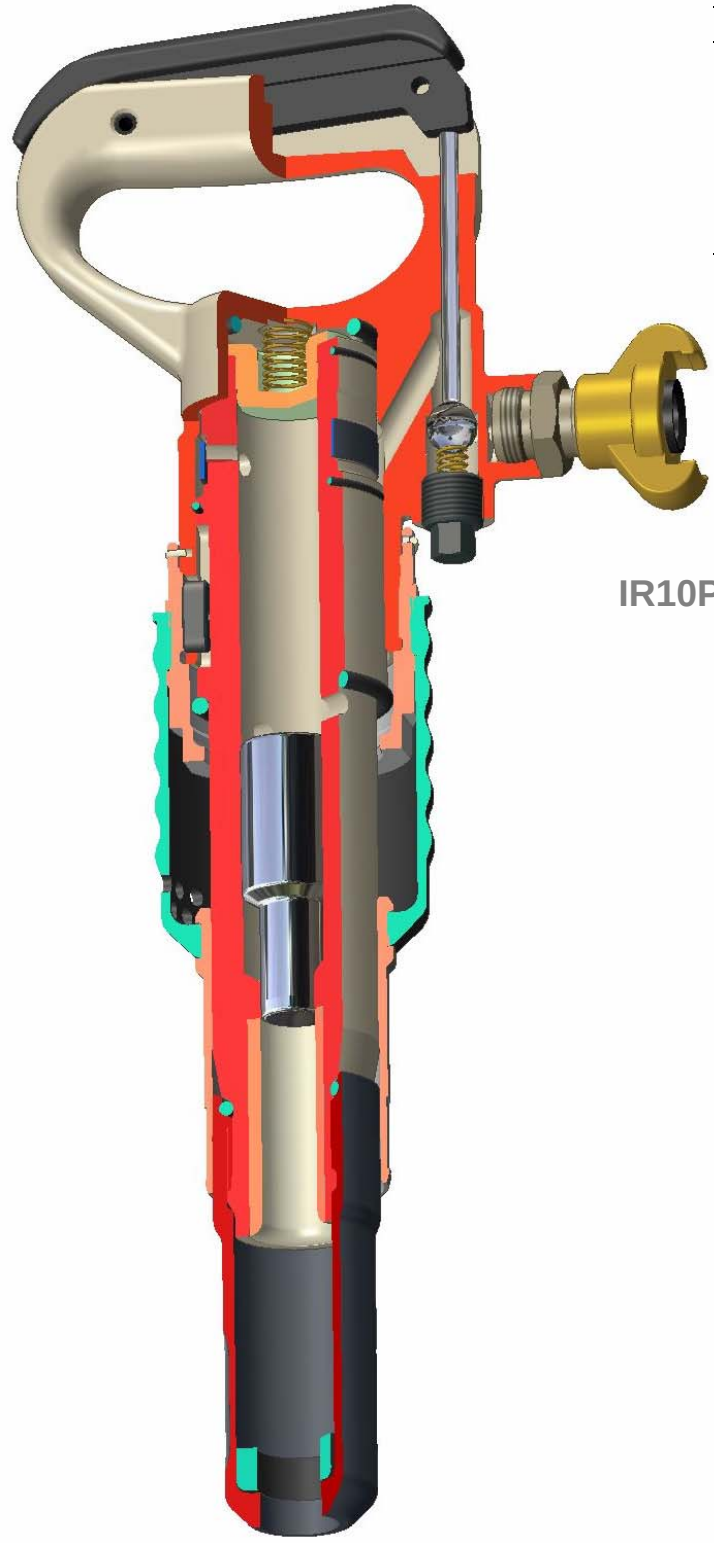
Pickhammers vibration dampened

IR10PV, IR12PV

Model - Shank - Retainer	CPN
IR10PV - 25R x 75 - Screw	85041986
IR10PV - 22H x 82 - Screw	85041994
IR10PV - 22H x 82 - Latch	85042000
IR12PV - 25R x 75 - Screw	85042018
IR12PV - 22H x 82 - Screw	85042026
IR12PV - 22H x 82 - Latch	85042034



IR10PV screw

IR12PV latch

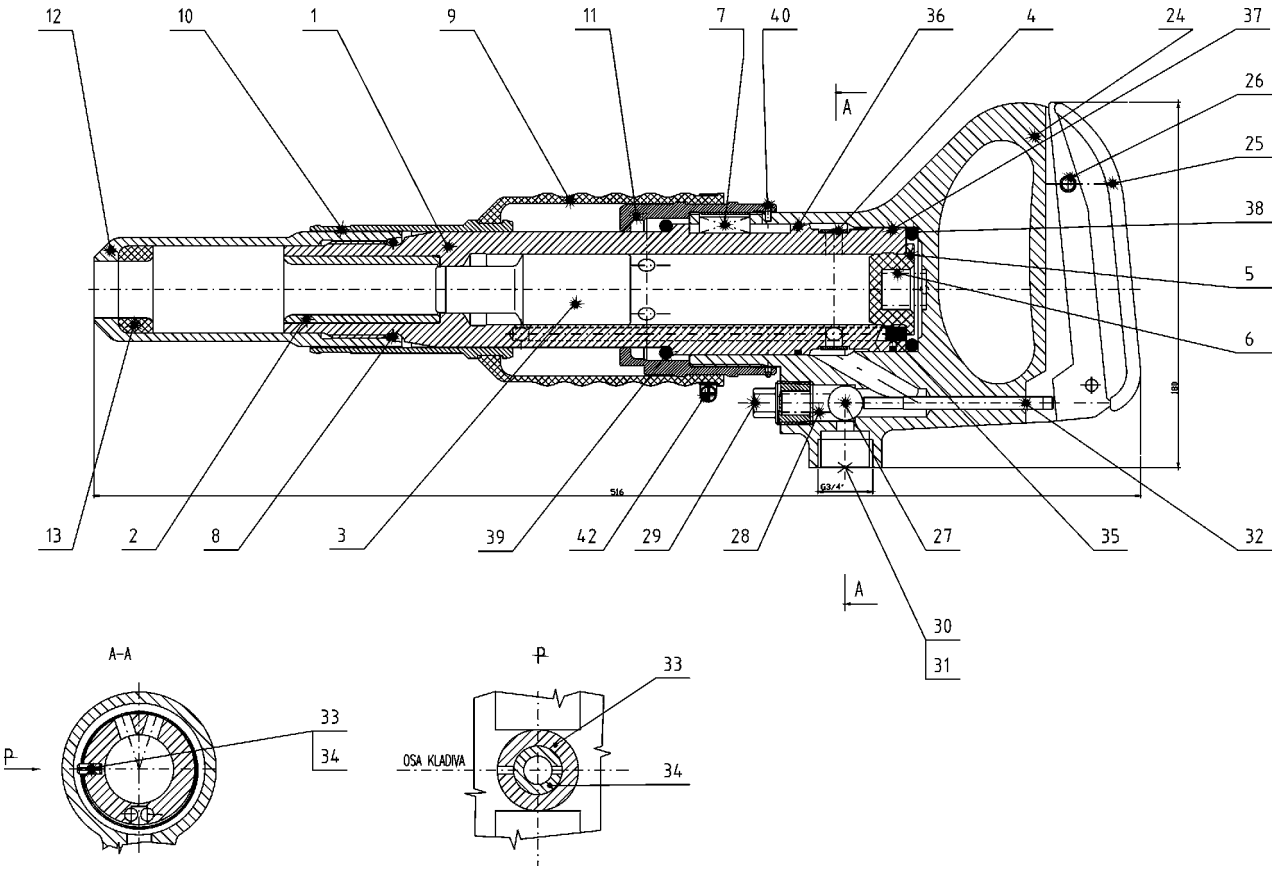


Figure 5 IR10&12PV screw

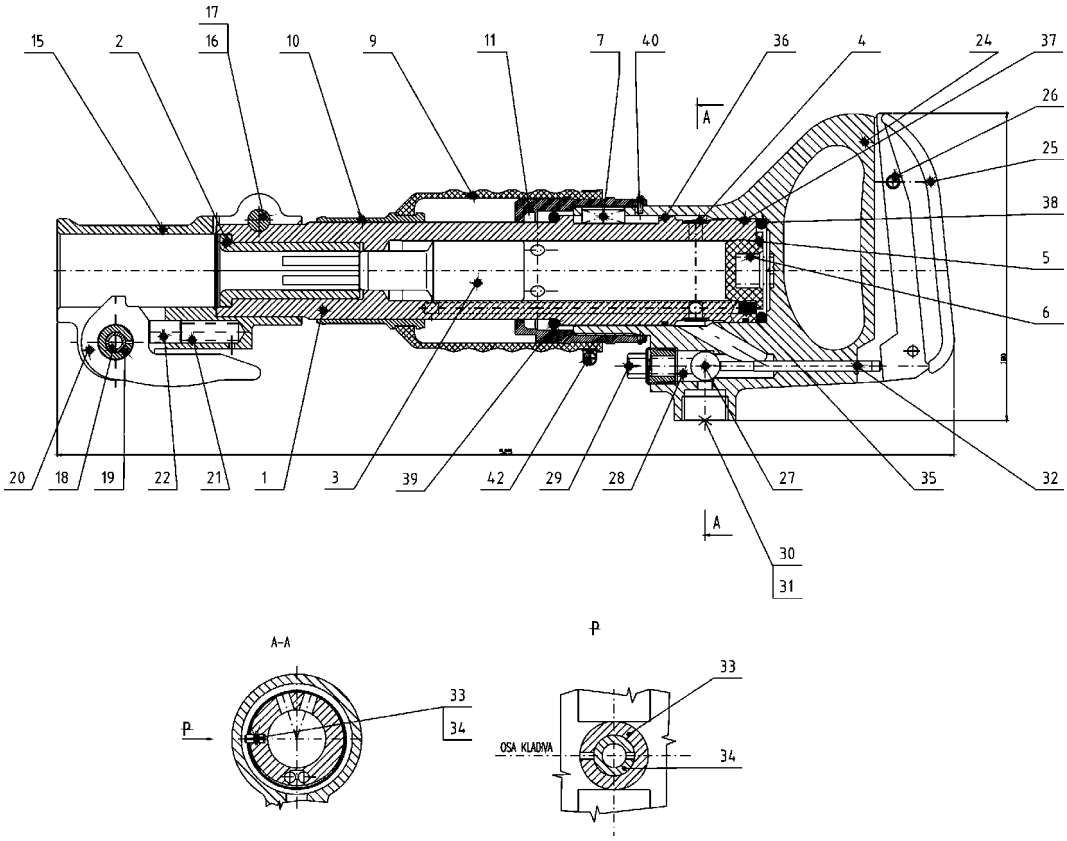


Figure 6 IR10&12PV latch

DISASSEMBLING THE IR10PV AND IR12PV PICKHAMMERS

GENERAL INSTRUCTIONS

- Clean the Pickhammer outer surface.
- Do not disassemble the pickhammer any further than necessary to replace or repair damaged or worn parts.
- Whenever grasping a pickhammer or a part in a vice, always use leather or copper-covered vice jaws to protect the surface of the part and help prevent distortion. Take extra care with threaded parts and housings.
- Do not remove any part that is a press fit in or on a sub-assembly unless the removal of the part is necessary for repairs or replacement.
- Do not disassemble the pickhammer unless a complete set of O-rings is available for replacement.

DISASSEMBLY OF THE FRONTHEAD

Screw retainer models

Unscrew retainer (12) off the cylinder (1) and remove chisel buffer (13) from inside retainer. Remove seal ring (8) from its groove in the cylinder.

Latch retainer models

Remove nut (17) and fronthead pinch bolt (16) from the fronthead (15). Lightly tap the fronthead (using a hide mallet if necessary) off the cylinder (1).

Press or drift out the two fronthead spring pins (18, 19) and remove the latch lever (20).

The plunger (22) and plunger spring (21) can be removed from the fronthead.

MAIN DISASSEMBLY

Grip handle body casting (24) firmly in a vice (use leather or copper covered vice jaws).

Insert three or four pieces of thin sheet steel approximately 8mm wide up into the muffler and beneath the retaining lip of the muffler moulding (9) from the handle end of the cylinder. This will allow the rubber retaining lip of the muffler to slide along past the groove in the cylinder nut (11) and make removal of the muffler easier. Note that the bearing sleeve and muffler are removed together. Slide muffler (9) and bearing sleeve (10) off over the cylinder assembly (1).

Use a small screwdriver to disengage the end of the locking ring (40) from the hole in the cylinder nut (11). Rotate the locking ring in its groove a little to prevent re-locking. (Removal of the locking ring is not necessary unless replacement is required.)

Use a large spanner (75 mm) across the flats of the cylinder nut (11) and unscrew the nut from the cylinder assembly.

Remove the anti-rotation key (7) from its slot in the handle body (24). The key is provided with an M5 tapped hole to aid removal by a jacking screw if nessesary.

The cylinder assembly (1) may now be slid from the handle assembly (23), take care to prevent loss of the cylinder spring (6) and o-ring (38).

HANDLE DISASSEMBLY

Grip handle body (24) in a vice (use leather or copper covered vice jaws).

Unscrew throttle valve plug (29) using a 13 mm spanner.

Withdraw throttle valve spring (28), throttle valve ball (27) and throttle valve plunger (26).

Remove the throttle lever (25) by pressing or drifting out spring pin (26).

Unscrew quick release coupling (31) from inlet bushing (30).

The inlet bushing (30) can be removed if required though it is assembled into the handle using a high strength retainer and disassembly is not normally necessary.

CYLINDER DISASSEMBLY

Note: The cylinder assembly should not be disassembled unless there is evidence of excessive wear of the piston striking face, or evidence of excessive wear of the cylinder (1) bore, cushion bore or piston (3) diameters. Physical inspection of the above parts will require a new cylinder plug (6) and all O-rings to be available for re-assembly.

Tests to estimate wear in cylinder assembly components.

First thoroughly clean and degrease the whole cylinder assembly inside and out and blow dry. – **Caution: wear suitable personal protection, barrier cream, gloves and eye protection. Read any instructions and warnings specific to the degreasing agent.**

- *Piston striking face.*
  If an indent caused by chisel contact, of approximately 0.5mm deep can be felt in the piston striking face – replace the piston.
- *Cushion wear.* (Test dry without oil)
  Hold the cylinder so the piston slides fully towards the valve end. Quickly invert and bring the cylinder vertical allowing the piston to fall towards the retainer end. If a metal to metal noise can be heard at the end of the piston stroke an air cushion is not present and a new cylinder assembly (1) and /or piston (3) may be required.
  Note: Continued use of the hammer with insufficient cushion will result in premature cylinder failure.
- *Cylinder bore or piston diameter wear.*
  Wear affecting these parts may have occurred if low hitting power is reported.
  First ensure all airways into, and out from exhaust ports including muffler of tool are clear. Disassembly and precise measurement of the diameters will be required to confirm wear.

Disassembly

Grip the cylinder (1) horizontally in a vice (use leather or copper covered vice jaws).

Insert a mild steel bar of approx 20mm diameter by 300mm long into the nozzle end of the cylinder and using a copper mallet drive out the cylinder plug (5) with the piston (3).

Note: The cylinder plug (6) is non metallic and is retained by a lip which will be destroyed when removed in this manner.

Caution:
Wear suitable eye protection, and be aware that the piston may be ejected or fall and cause injury.

The valve ring (4) may be removed by gently opening at the split and sliding the ring over the end of the cylinder.

Note: Take care not to stretch the ring.

Remove O-rings (38 may stick in handle body), (37), (36), and (39).

The nozzle (2) is pressed into the cylinder and retained with Loctite 601 – do not disassemble unless replacement is necessary.

The cylinder plugs (35) should not be removed, however check that they are present.

Inspect valve spring pins (33) and (34) for signs of wear and security.

ASSEMBLY OF THE IR10PV AND IR12PV PICKHAMMERS

GENERAL INSTRUCTIONS

- Before assembly of the breaker, clean all parts thoroughly and lubricate surfaces with a thin film of recommended oil – (see lubrication).
- Apply a thin film of O-ring lubricant to all O-rings before final assembly.
- It is recommended that the assembly of the nozzle (2) be carried out by the manufacturer or authorised distributor.
- The existence of a piston air cushion should be determined. Hold the cylinder vertically and allow the piston to drop down the bore small diameter first. An air cushion is present if the piston "bounces", at the bottom of the cylinder and no metal to metal contact noise can be heard. If a cushion is not present contact your authorised Ingersoll – Rand repair centre for advice.

CYLINDER ASSEMBLY

Grip the cylinder (1) vertically nozzle down, in a vice protected with leather or copper covered vice jaws.
If the cylinder has been disassembled completely rebuild in the following order.
Lubricate and insert the piston (3) small end first into the bore.
Locate the pilot diameter of cylinder plug (5) in cylinder bore and gently tap home using a hide mallet.
Gently spread apart the ends and slide valve ring (4) onto the cylinder. Locate the split around the valve spring pins (33) and (34).
Lubricate and replace the O-rings (37) & (36) in their grooves.

HANDLE ASSEMBLY

Position throttle lever (25) in its slot in the handle casting and align the holes in each part.
Drift or press home the spring pin (26). Check the throttle lever is free to move easily.
Grip the handle casting (24) in a vice protected with leather or copper covered vice jaws.
Lubricate and insert throttle valve plunger (26) into position reduced diameter out of the hole.
Replace the throttle valve ball (27) and spring (28) and retain in place with throttle valve plug (29), apply loctite 243 to the threads of the plug and screw home fully.
If the air inlet (30) has been removed, refit it into the handle casting using Loctite 243 and screw home fully.
Replace the quick release coupling (31).

MAIN ASSEMBLY

Firmly grip the handle assembly (23) vertically in a vice (protected with leather or copper covered vice jaws).
Position the O-ring (38) and stand the cylinder spring (6) centrally at the bottom of the handle bore
Carefully slide the cylinder assembly (1) into the cylinder until the key slot in the handle body (24) aligns with the mating slot in the cylinder assembly (1). **Note:** Take care not to dislodge the cylinder spring off its face in the handle.
Lubricate the slot in the cylinder and replace the anti-rotation key.
Note: Check the handle is free to slide on the cylinder.
Remove the pickhammer from the vice.
Ensure that O-ring (39) is in place on the cylinder (nozzle end).
Lower the cylinder nut (11) onto the handle and cylinder assembly, engage the handle threads of the nut and tighten by hand. Fully tighten the Cylinder nut using a (75mm) spanner until the lock hole in cylinder nut (11) aligns with a hole in the handle body.
Note: Sight or feel for correct alignment with a suitably sized wire. Snap the locking ring pin in place. Slide the muffler (9) together with bearing sleeve (10) down the cylinder until the muffler retaining lip engages with the groove in the cylinder nut (11).

ASSEMBLY OF THE FRONTHEAD – SCREW RETAINER MODELS

Replace the sealing ring (8) in its groove in the cylinder.
Inspect the chisel buffer (13) for wear and replace if necessary, by sliding a new buffer into the retainer.
Note: Premature failure of the cylinder may occur if a worn chisel buffer (13) is not replaced. Ingersoll – Rand recommend that the buffer (13) is checked frequently during use and replaced if nesseary.
Screw the retainer onto the cylinder assembly.

ASSEMBLY OF THE FRONTHEAD – LATCH RETAINER MODELS

Grease the latch plunger (22) and plunger spring (21) and insert them into position in the fronthead (15).
Locate the latch lever (20) with the holes in the fronthead and press or drift into place the fronthead spring pins (18,19).
Check the operation of the latch.
Slide the fronthead (15) onto the end of the cylinder and align the bolt hole with the groove machined in the cylinder.
Fit fronthead pinch bolt (16) and secure with nut (17) tighten to 90 Nm (66.4 lbs.ft) torque.

ASSEMBLY CHECKS

Following service or repair the pickhammer should be checked for correct operation before being sent back to the job site.
Fit the correct size accessory into the pickhammer and connect to an airline. Using low pressure 2 bar (30psi) check to ensure the pickhammer is free of air leaks around the inlet connection and also that the pickhammer does not automatically start to operate without the trigger being depressed.
Increase the air pressure to 6 bar (90psi) and run the tool in short bursts to check the tools starts and stops cleanly and without hesitation.
Pickhammer operating frequency should be as given in the specification table at the end of this manual.

SPECIFICATIONS FOR IR10PV AND IR12PV PICK HAMMERS

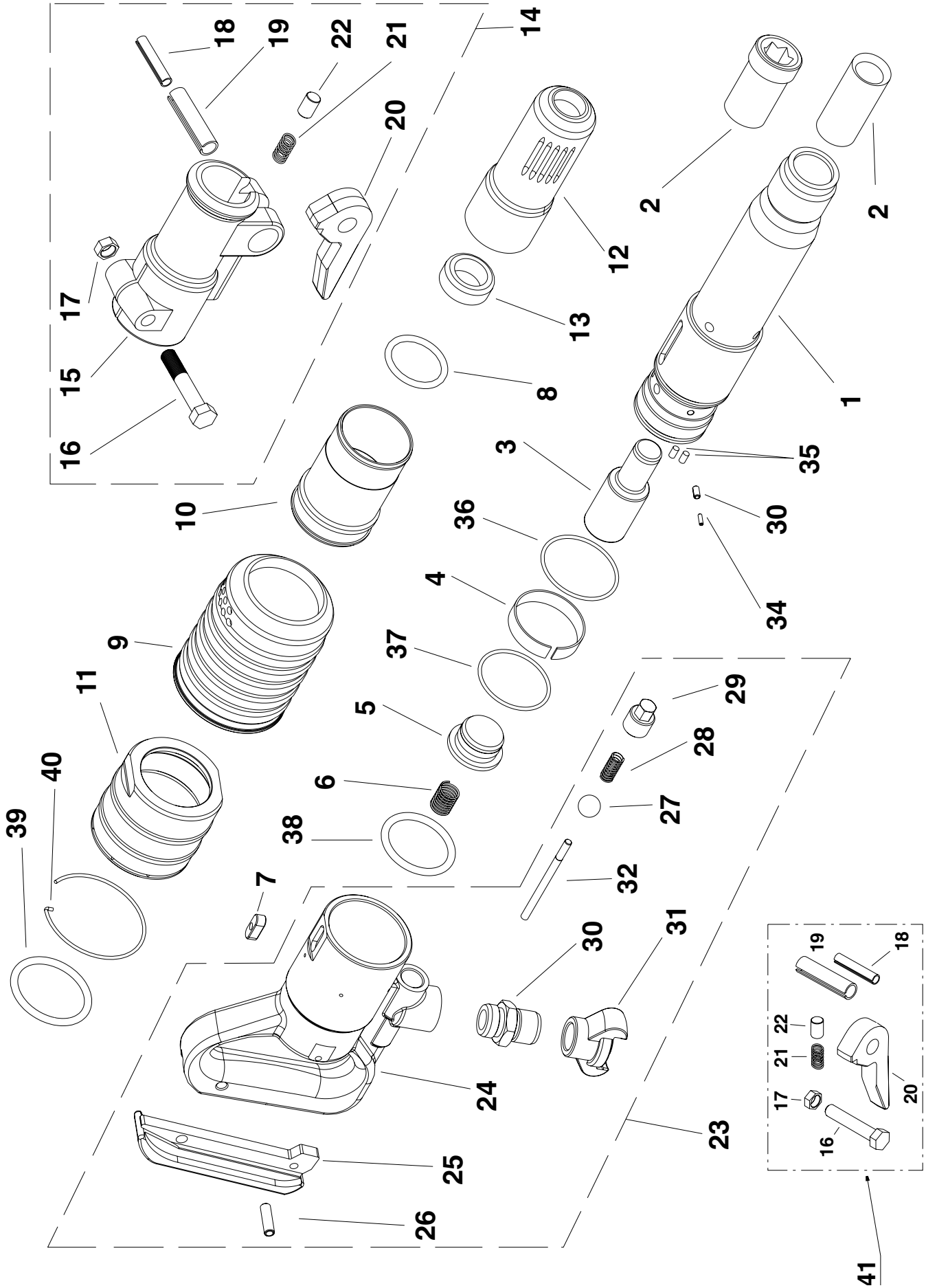
Model	Chuck Size	Retainer Type	Cpn	Overall Length mm (in)	Overall Width mm (in)	Weight kg (lbs)	Max Working Pressure bar (psi)	Air Consumption m^3/min @ 6 bar (CFM)	Certified Vibration Level m/s^2 @ 6 bar	Impact Frequency /min	Fronthead Nut Torque Nm (ft.lbs)
IR10PV	25 round × 75	Screw	85041986	516 (20.3)	190 (7.5)	10 (22)	7 (103)	1.0 (35)	5.1	2040	–
IR10PV	22 hex. × 82	Screw	85041994	516 (20.3)	190 (7.5)	10 (22)	7 (103)	1.0 (35)	5.1	2040	–
IR10PV	22 hex. × 82	Latch	85042000	525 (20.6)	190 (7.5)	10 (22)	7 (103)	1.0 (35)	5.1	2040	90 (66.4)
IR12PV	25 round × 75	Screw	85042018	635 (25.0)	190 (7.5)	12 (26.5)	7 (103)	0.9 (32)	3.8	1260	–
IR12PV	22 hex. × 82	Screw	85042026	635 (25.0)	190 (7.5)	12 (26.5)	7 (103)	0.9 (32)	3.8	1260	–
IR12PV	22 hex. × 82	Latch	85042034	644 (25.3)	190 (7.5)	12 (26.5)	7 (103)	0.9 (32)	3.8	1260	90 (66.4)

PARTS LIST

Ref.	Part Name	Quantity	Cpn	
			IR10PV	IR12PV
1	Cylinder Assembly (22 Hex x 82 nozzle) Latch model	1	85042470	85042588
1	Cylinder Assembly (22 Hex x 82 nozzle) Screw model	1	85042596	85042604
1	Cylinder Assembly (25 Round x 75 nozzle) Screw mode	1	85042612	85042620
2	Nozzle 22 hex x 82	1	85042638	85042638
2	Nozzle 25 round x 75	1	85042646	85042646
3	Piston	1	85042653	85042661
4	Valve Ring	1	85042679	85042679
5	Cylinder plug	1	85042687	85042695
6	Cylinder spring	1	85042703	85042703
7	Anti-rotation key	1	85042711	85042711
8	Sealing ring (Not fitted to Latch retainer models)	1	85042729	85042729
9	Muffler	1	85042737	85042745
10	Bearing sleeve	1	85042752	85042760
11	Cylinder nut	1	85042778	85042778
12	Screw fronthead	1	85042786	85042786
13	Chisel buffer	1	85042216	85042216
14	Latch Fronthead Assembly	1	85040624	85040624
15	Latch Fronthead	1	85040632	85040632
16	Fronthead Screw	1	85040996	85040996
17	Fronthead Nut	1	85041010	85041010
18	Fronthead Spring Pin Inner	1	85040954	85040954
19	Fronthead Spring Pin Outer	1	85040970	85040970
20	Latch	1	85040731	85040731
21	Plunger Spring	1	85040947	85040947
22	Plunger	1	85040921	85040921
23	Handle Assembly	1	85042794	85042794
24	Handle Body	1	85042802	85042802
25	Trigger	1	85042240	85042240
26	Trigger Pin	1	85042257	85042257
27	Trigger Ball	1	85042265	85042265
28	Trigger Spring	1	85042273	85042273
29	Throttle valve plug	1	85042810	85042810
30	Inlet Bushing	1	85040897	85040897
31	Quick Coupling EU	1	85040905	85040905
31	Quick Coupling USA	1	85040913	85040913
32	Throttle pin	1	85042828	85042828

Ref.	Part Name	Quantity	Cpn	
			IR10PV	IR12PV
33	Valve spring pin outer	1	85042836	85042836
34	Valve spring pin inner	1	85042844	85042844
35	Plug	2	85042851	85042851
36	O-ring	1	85042869	85042869
37	O-ring	1	85042877	85042877
38	O-ring	1	85042885	85042885
39	O-ring	1	85042893	85042893
40	Lock ring	1	85042901	85042901
41	Latch Kit	1	85041309	85041309
16	Fronthead Screw	1	85040996	85040996
17	Fronthead Nut	1	85041010	85041010
18	Fronthead Spring Pin Inner	1	85040954	85040954
19	Fronthead Spring Pin Outer	1	85040970	85040970
20	Latch	1	85040731	85040731
21	Plunger Spring	1	85040947	85040947
22	Plunger	1	85040921	85040921
	Items not illustrated			
52*	Noise Sticker 107	1	85040210	–
52*	Noise Sticker 105	1	–	85042562
53*	Warming Sticker	1	85040202	85040202
54*	Warranty card	1	85040285	85040285
55*	Box Label EU	1	85042299	85042299
56*	Box Label USA	1	85042307	85042307
57*	Box	1	85042315	85042315
58*	Box insert (fronthead)	1	85042323	85042323
59*	Box insert (handle)	1	85042919	85042919
60*	Op & maint. manual IR10PV & IR12PV	1	85042927	85042927
61*	Name plate sticker	1	85042935	85042935
69*	Inline lubricator	1	35371111	35371111
70*	Protec Engine oil 5 l	1	85448405	85448405

(Items marked* not illustrated)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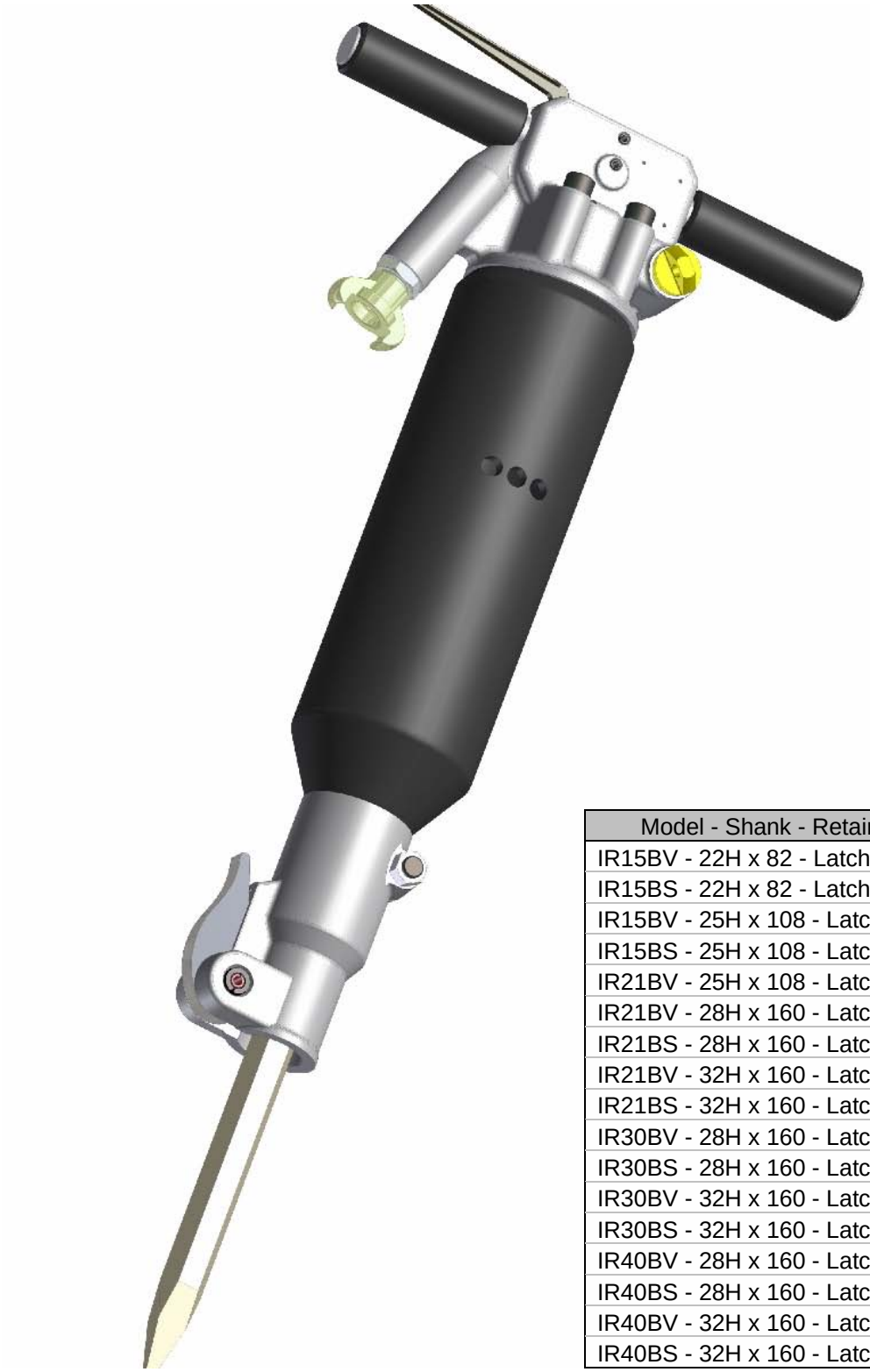
Paving Breakers

IR15, IR21, IR30, IR40 BV&BS



Model - Shank - Retainer	CPN
IR15BV - 22H x 82 - Latch	85040160
IR15BS - 22H x 82 - Latch	85040152
IR15BV - 25H x 108 - Latch	85040145
IR15BS - 25H x 108 - Latch	85040137
IR21BV - 25H x 108 - Latch	85040129
IR21BV - 28H x 160 - Latch	85040111
IR21BS - 28H x 160 - Latch	85040103
IR21BV - 32H x 160 - Latch	85040095
IR21BS - 32H x 160 - Latch	85040087
IR30BV - 28H x 160 - Latch	85040079
IR30BS - 28H x 160 - Latch	85040061
IR30BV - 32H x 160 - Latch	85040053
IR30BS - 32H x 160 - Latch	85040046
IR40BV - 28H x 160 - Latch	85040038
IR40BS - 28H x 160 - Latch	85040020
IR40BV - 32H x 160 - Latch	85040012
IR40BS - 32H x 160 - Latch	85040004

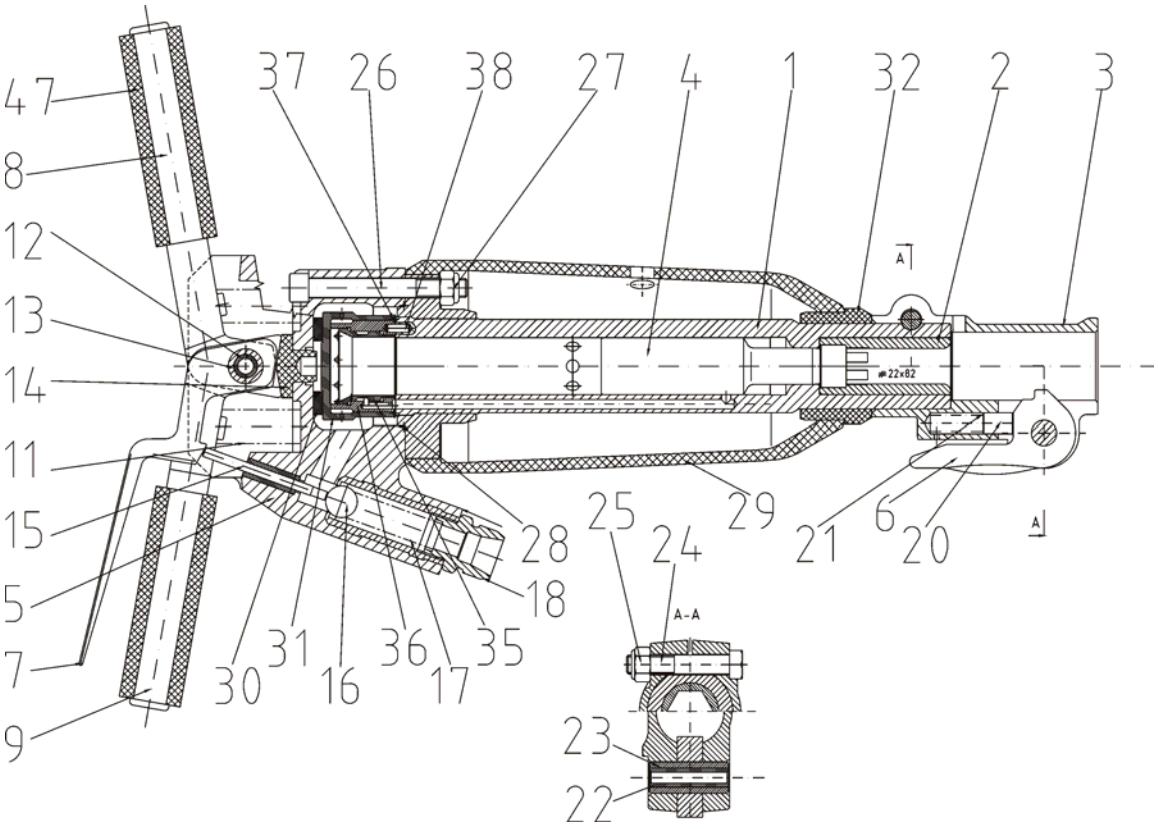


Figure 7 IR15BV

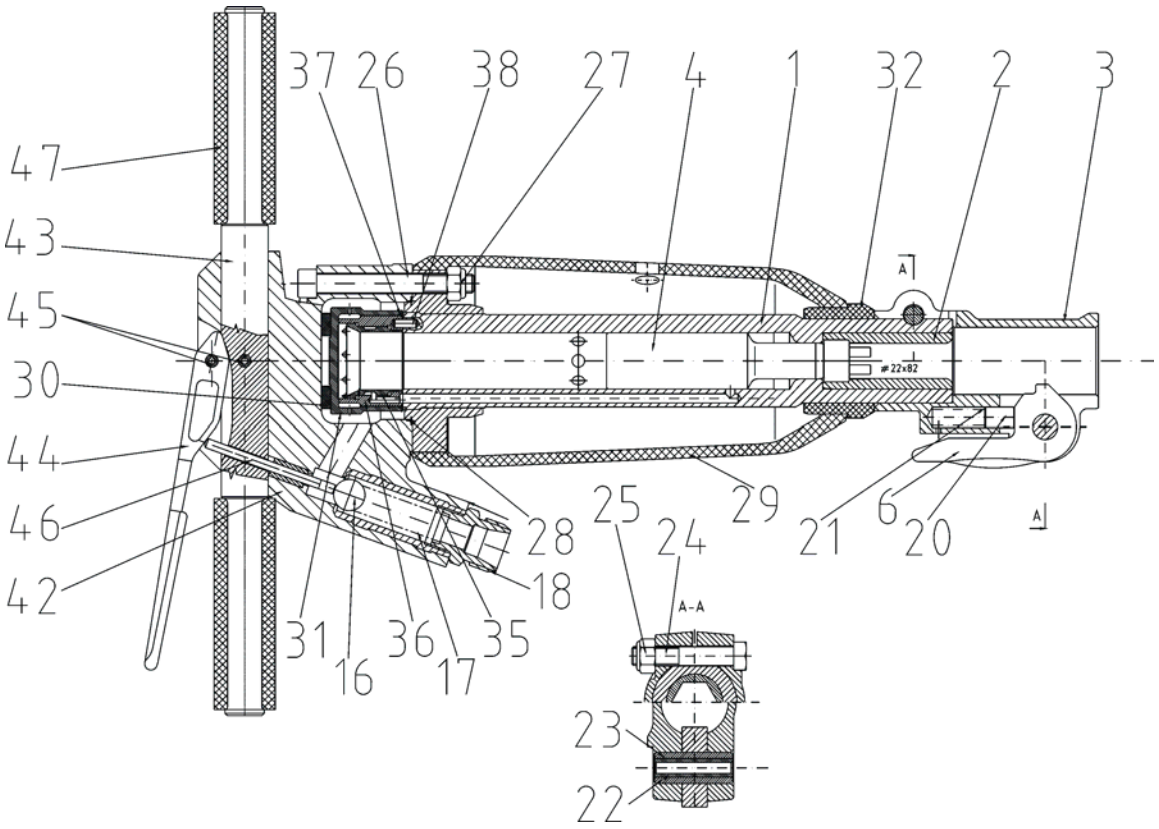


Figure 8 IR15BS

DISASSEMBLING THE IR15BV AND IR15BS PAVING BREAKER

GENERAL INSTRUCTIONS

- Clean the breaker outer surface.
- Do not disassemble the breaker any further than necessary to replace or repair damaged or worn parts.
- Whenever grasping a breaker or a part in a vice, always use leather or copper-covered vice jaws to protect the surface of the part and help prevent distortion. Take extra care with threaded parts and housings.
- Do not remove any part that is a press fit in or on a subassembly unless the removal of the part is necessary for repairs or replacement.
- Do not disassemble the breaker unless a complete set of and O-rings is available for replacement.

DISASSEMBLY OF THE FRONTHEAD

Remove nut (25) and fronthead pinch bolt (24) from the fronthead (3). Lightly tap the fronthead (using a hide mallet if necessary) from the cylinder (1).
Press or drift out the two fronthead spring pins (22, 23) and remove the latch (6).
The plunger (20) and the plunger spring (21) can be removed from the fronthead.

Handle Disassembly (BV and BS models)
Using a hide mallet tap loose and remove the muffler (29) and the muffler ring (32) from the cylinder.
Firmly grip the cylinder upright in a vice with leather or copper covered jaws.
Loosen the four-handle nuts (27), unscrew and remove the four-handle screw's (26).
Lift the handle assembly (5) or (42) from the cylinder (1) (tap with a hide mallet if necessary).

For BV models only: Press or tap out the handle pivot pin (12), remove both handle levers (8 and 9) from the handle body (5) together with the trigger (7). Tap out the sleeve (13) to detach the handle levers from each other. Remove the handle springs (11) from the handle body (5). If it is necessary to remove the handle lever stop (14), use a punch of a suitable size (∅15 – 19 mm) and drift the stop out from the cylinder side.
It is possible to remove the trigger pin (15) at this stage if required.
Unscrew the inlet bushing (18), and remove trigger spring (17) the trigger ball (16) and throttle pin (15). Remove the handle screws (40) and washers (39) (if fitted) and remove the handle grips (10). It may prove easier to cut off the old handle grips if they are to be replaced.
For BS models only: Drift or press out the spring pin (45) and remove the trigger lever (44)
The trigger pin (46) may be removed at this stage if required.
Removal of the handle bar (43) from the casting should not normally be necessary. If this is required first cut off the rubber hand-grips (10) and drift or press out the lock spring pin (45). Securely support the handle body (42) beneath a press and using a suitably sized pressing bar press the handle bar out of the handle body.
Unscrew the inlet bushing (18), and remove trigger spring (17) the trigger ball (16) and trigger pin (46).
Remove the handle screws (40) and washers (39) and remove the handle grips (47). It may prove easier to cut off the old handle grips if they are to be replaced.

Cylinder Disassembly
Remove the spacing washer (30) from the valve cover. Lift off valve plate (31), and slide valve (35), out from the valve body (36), valve ring (37).
Remove the two valve pins (38) from the cylinder.
Release the cylinder from the vice, invert and allow the piston (4) to slide out and be caught.

The nozzle (2) is pressed in the cylinder and retained with Loctite 601 – do not disassemble unless replacement is necessary.

ASSEMBLY OF THE IR15BV AND IR15BS PAVING BREAKERS

GENERAL INSTRUCTIONS

- Before assembly of the breaker, clean all parts thoroughly and lubricate surfaces with a thin film of recommended oil (see Lubrication).
- Apply a film of O-ring lubricant to all O-rings before final assembly.
- It is recommended that the assembling of the nozzle (2) and the liner (33) should be carried out by the manufacturer or authorised distributor.
- The existence of a piston air cushion should be determined. Hold the cylinder vertically and allow the piston to drop down the bore small diameter first. An air cushion is present if the piston "bounces" at the bottom of the cylinder and no metal to metal contact noise can be heard. If a cushion is not present contact your authorised Ingersoll –Rand repair centre for advice.

CYLINDER ASSEMBLY

Grip the cylinder (1) vertically in a vice protected with leather or copper covered vice jaws.
Lubricate and insert the piston (4) small end first into the bore. - Check for cushion.
Position valve location pins (38) into the holes in the end of the cylinder.
Lubricate and slide the valve (35) into the valve body (36) renew valve ring (37) and replace valve cover (31) over valve body.
Grip the assembly and shake to check that the valve can be heard to move freely.
Locate the valve assembly onto the location pins (38) and position the valve spacer (30) on top.
Replace the sealing ring (28).

HANDLE ASSEMBLY

BV models only:
If the handle stop (14) was removed during disassembly it should be replaced with a new part as the retaining feature is severed on removal. Locate the stop in the hole in the handle and tap sharply into place using a soft drift and hammer.
If the hand grip rubbers (10) have been removed these should now be replaced. Lubricate the inside of the rubber with soapy water and slide the new rubber into position, retain each rubber with washer (39) and screw (40) (if fitted).
Assemble left and right hand, hand grips (8 and 9), trigger (7) together with sleeve (13), lubricate around the pivot area and position the sub assembly along the slot in handle body (5).
Note it is usual to position the trigger lever on the same side as the air inlet of the handle body.
Locate the handle springs (11) between hand grips and handle body and fix the assembly in place by drifting or pressing in handle pivot pin (12).
Lubricate the trigger pin (15) , trigger ball (16) and replace in the air inlet connection of the handle body.
Note the trigger pin has a reduced diameter which is placed next to the trigger ball.
Locate the trigger spring (17) on top of the trigger ball. Apply thread retainer (loctite 243, or similar) on the thread of the inlet bushing (18) and tighten to 200 Nm (147 lb.ft) torque.
Check that the handles and trigger move freely.

BS models only:
If the handle bar has been disassembled from the handle body.
Securely support the handle body (42) beneath a press and position the handle bar (43) in the mating body hole.
Note: Ensure that the handle bar has the correct orientation and alignment to accept the trigger pin (45) when pressed home.
Press home the handle bar to depth until the lock pin-hole is aligned.
Press or drift in the lock spring pin.
Lubricate and replace the trigger pin (46). *Note the trigger pin has a reduced diameter which is placed next to the trigger ball.*
Check that the trigger pin can move freely.
Position the trigger lever (44) and secure in place with spring pin (45)
Lubricate the trigger pin (46), trigger ball (16) and replace in the air inlet connection of the handle body.
Note the trigger pin has a reduced diameter which is placed next to the trigger ball.
Locate the trigger spring (17) on top of the trigger ball. Apply thread retainer (loctite 243, or similar) on the thread of the inlet bushing (18) and tighten to 200 Nm (147 lb.ft) torque.
Check that the trigger moves freely.
Lubricate the inside of the handle grip rubber (47) with soapy water and slide the new rubber into position.

MAIN ASSEMBLY

Lightly grip the cylinder assembly vertically in a vice and position the handle assembly in place.
Note that it is usual to orientate the trigger lever and air inlet 180 degrees from the fronthead bolt groove in the cylinder.
Replace the four handle screws (26) use new handle nuts (27) and tighten down evenly to a torque of 90 Nm (66.4 lb.ft) torque.
Remove the cylinder and handle assembly from the vice.
Assemble muffler ring (32) in muffler (29) and replace the assembly by tapping the muffler fully home using a hide mallet.

FRONT HEAD ASSEMBLY

Apply a coating of grease then replace spring (21) and plunger (20) in position in fronthead (3).
Position the latch (6) in its slot and secure in place by drifting or pressing in outer spring pin (23). Position then press or drift home inner spring pin (22).
Replace fronthead assembly onto cylinder and aligning pinch bolt hole with the cylinder groove.
Replace pinch bolt (24) and nut (25) and tighten a torque of 90 Nm (66.4 lb.ft) torque.

ASSEMBLY CHECKS

Following service the breaker should be checked for correct operation prior to being released back to the job site.
Fit the correct size accessory into the breaker and connect to an airline. Using air at low pressure 2 bar (30psi), check that the breaker is free from air leaks around the inlet connection and that the breaker does not automatically start to operate without the trigger being depressed.
Increase the air pressure to 6 bar (90psi) and run the tool in short bursts to check the tool operates correctly and stops and starts cleanly without hesitation.
Breaker operating frequency should be 1200 blows per minute and air consumption 0.7m^3/min (26CFM) at 6 bar (90psi) air pressure.

SPECIFICATIONS FOR IR15BV AND IR15BS PAVING BREAKERS

Model	Chuck Size	Cpn	Overall Length mm (in)	Overall Width mm (in)	Weight kg (lbs)	Max Working Pressure bar (psi)	Air Consumption m^3/min @ 6 bar (CFM)	Certified Vibration Level m/s^2 @ 6 bar	Certified Noise Level L_{WA}	Impact Frequency /min	Handle Nut Torque Nm (ft.lbs)	Fronthead Nut Torque Nm (ft.lbs)
IR15BV	22 hex x 82	85040160	644 (25.4)	441 (17.4)	15 (33)	7 (103)	0.75 (26.5)	2.76	107	1200	90 (66.4)	90 (66.4)
IR15BV	25 hex x 108	85040145	670 (26.4)	441 (17.4)	15 (33)	7 (103)	0.75 (26.5)	2.76	107	1200	90 (66.4)	90 (66.4)
IR15BS	22 hex x 82	85040152	609 (23.9)	453 (17.8)	15 (33)	7 (103)	0.75 (26.5)	11.14	107	1200	90 (66.4)	90 (66.4)
IR15BS	25 hex x 108	85040137	635 (25.0)	453 (17.8)	15 (33)	7 (103)	0.75 (26.5)	11.14	107	1200	90 (66.4)	90 (66.4)

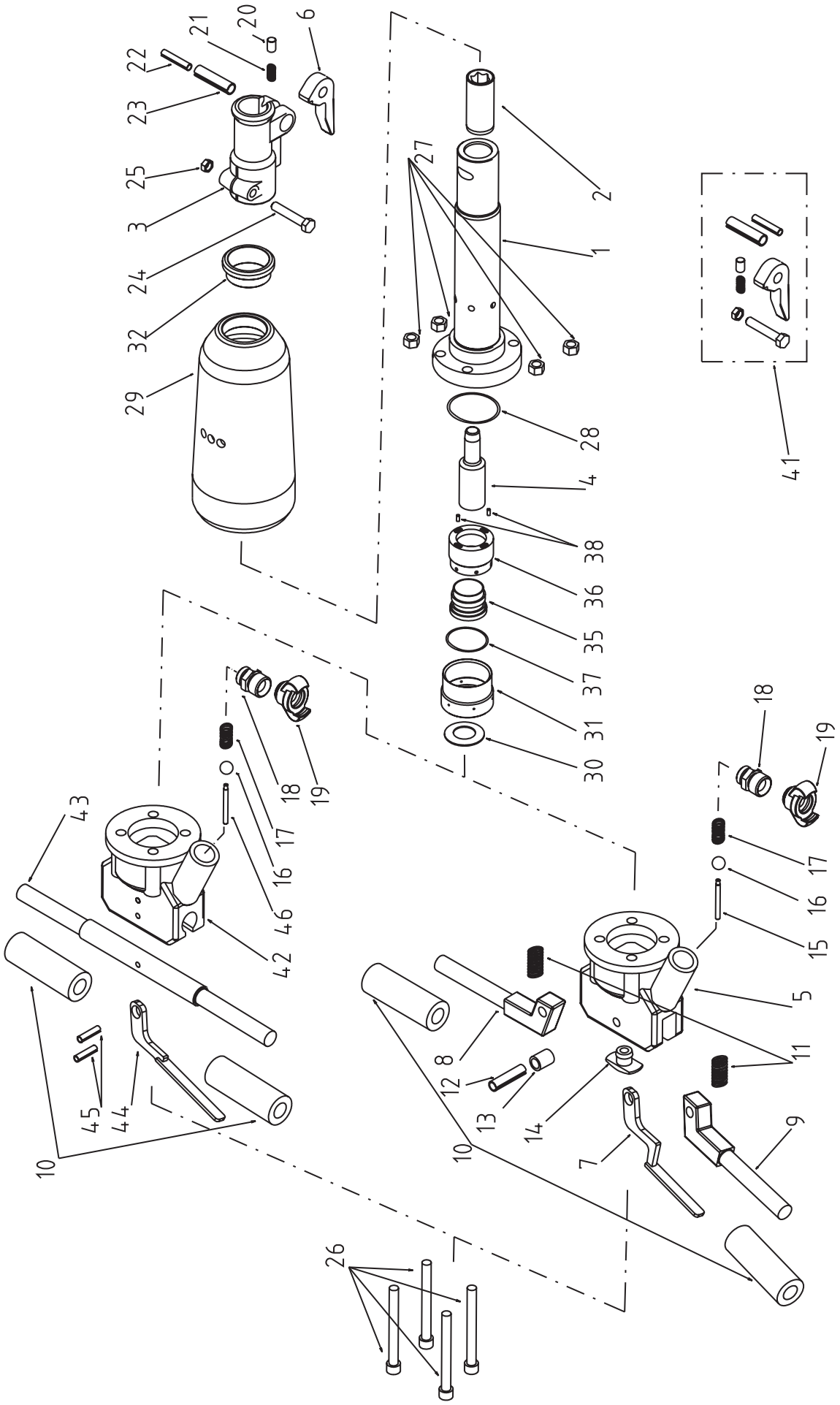
PARTS LIST

Ref.	Part Name	Quantity	Cpn
1	Cylinder Assembly (22 x82 Nozzle)	1	85043255
1	Cylinder Assembly (25x108 Nozzle)	1	85043248
2	Nozzle 22 hex x 82	1	85040517
2	Nozzle 25 hex x 108	1	85040533
3	Fronthead Assembly	1	85040624
3	Fronthead	1	85040632
6	Latch	1	85040731
20	Plunger	1	85040921
21	Plunger Spring	1	85040947
22	Fronthead Spring Pin Inner	1	85040954
23	Fronthead Spring Pin Outer	1	85040970
24	Fronthead Screw	1	85040996
25	Fronthead Nut	1	85041010
4	Piston	1	85040681
5	Handle Assembly (BV Models – Vibration Damped)	1	85043164
5	Handle Body (BV Models – Vibration Damped)	1	85043156
7	Trigger	1	85040756
8	Handle Lever Left	1	85040764
9	Handle Lever Right	1	85040780
10	Handle Grip	2	85040806
11	Handle Spring	2	85040822
12	Handle Pivot Pin	1	85040830
13	Sleeve	1	85040848
14	Handle Lever Stop	1	85040855
15	Trigger Pin	1	85040863
16	Trigger Ball	1	85040871
17	Trigger Spring	1	85040889
18	Inlet Bushing	1	85040897
19	Quick Coupling EU	1	85040905
19	Quick Coupling USA	1	85040913
42	Handle Assembly (BS Models – Fixed Handle)	1	85043180
10	Bar Grip	2	85040806
16	Trigger Ball	1	85040871
17	Trigger Spring	1	85040889
18	Inlet Bushing	1	85040897
19	Quick Coupling EU	1	85040905
19	Quick Coupling USA	1	85040913
42	Handle Body (BS Models – Fixed Handle)	1	85043172
43	Handle Bar	1	85041267
44	Trigger	1	85041275
45	Spring Pin	2	85041283
46	Trigger Pin	1	85041291
26	Handle Body Screw	4	85043131
27	Handle Body Nut	4	85043149
28	Sealing Ring	1	85041044
29	Muffler	1	85041051
30	Spacing Washer	1	85041069
31	Valve Plate	1	85041077
32	Muffler Ring (22 x 82 Nozzle)	1	85041101
32	Muffler Ring (25 x 108 Nozzle)	1	85041119
35	Slide Valve	1	85041184
36	Slide Valve Body	1	85041192
37	Valve Ring	1	85041200
38	Slide Valve Pin	2	85041218

41	Latch Kit	1	85041309
6	Latch	1	85040731
20	Plunger	1	85040921
21	Plunger Spring	1	85040947
22	Fronthead Spring Pin Inner	1	85040954
23	Fronthead Spring Pin Outer	1	85040970
24	Fronthead Screw	1	85040996
25	Fronthead Nut	1	85041010

Items not illustrated:

50	Handle Plate	1	85040244
51	Handle Plate Screw	4	85041325
52	Noise Sticker 107	1	85040210
55	Warning Sticker	1	85040202
56	Box	1	85040178
57	Warranty Card	1	85040285
58	Box Label EU	1	85040186
59	Box Label USA	1	85040194
60	Box Insert (Handle)	2	85041333
61	Box Insert (Fronthead)	2	85041341
62	Box Space Insert	2	85041358
65	Operation & Maintenance Manual	1	85040251
69	In Line Lubricator	1	35371111
70	Protec Engine Oil 5l	1	85448405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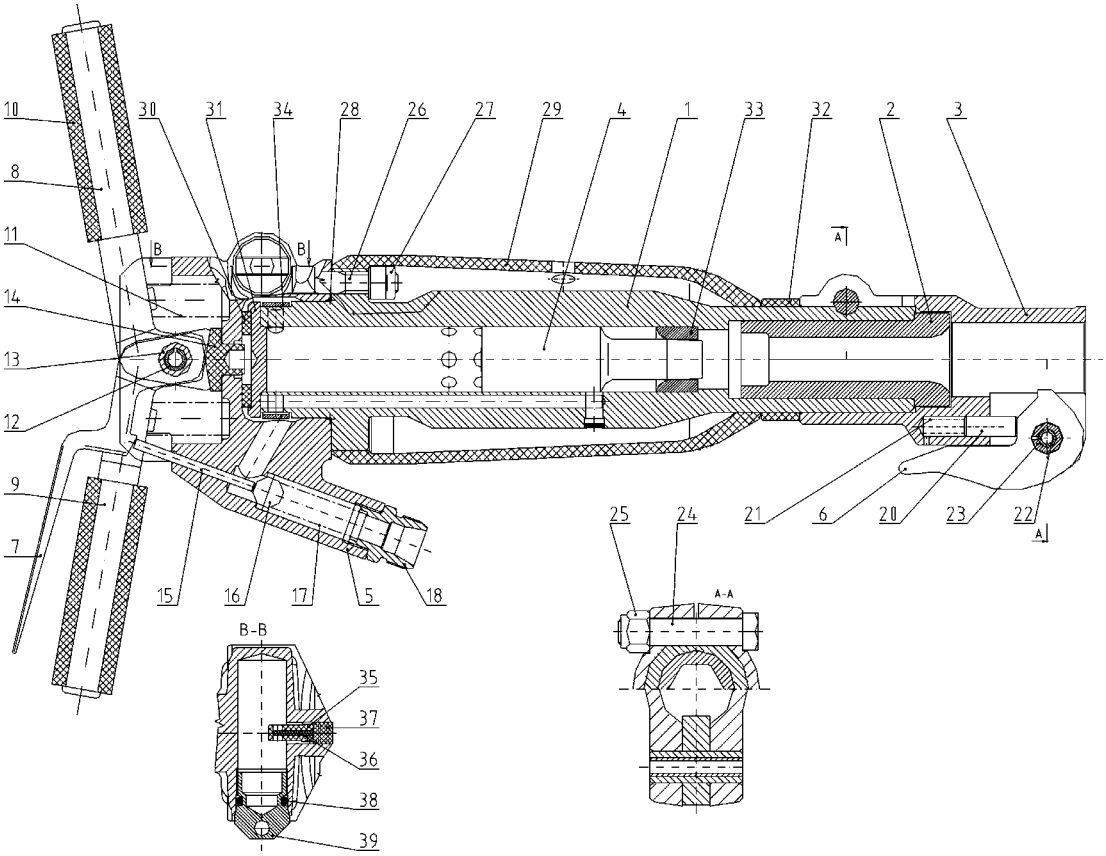


Figure 9 IR21BV

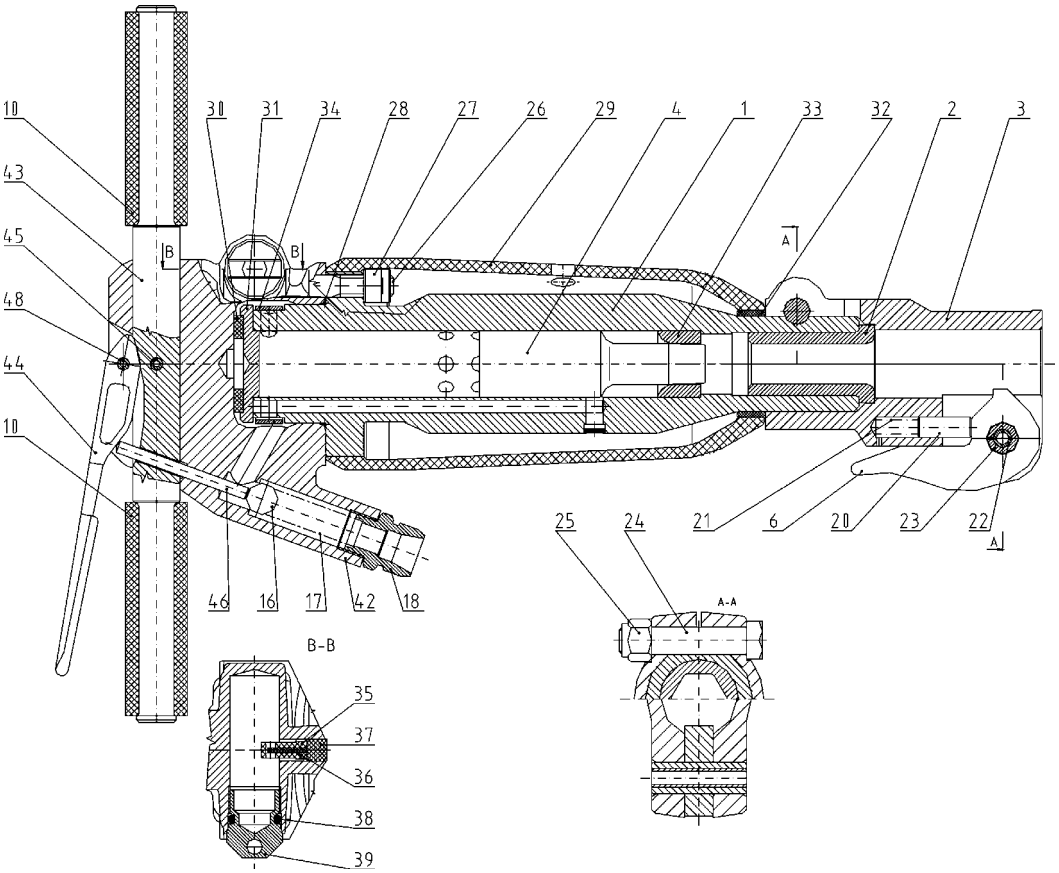


Figure 10 IR21BS

DISASSEMBLING THE IR21BV AND IR21BS PAVING BREAKER

GENERAL INSTRUCTIONS

- Clean the breaker outer surface.
- Do not disassemble the breaker any further than necessary to replace or repair damaged or worn parts.
- Whenever grasping a breaker or a part in a vice, always use leather or copper-covered vice jaws to protect the surface of the part and help prevent distortion. Take extra care with threaded parts and housings.
- Do not remove any part that is a press fit in or on a subassembly unless the removal of the part is necessary for repairs or replacement.
- Do not disassemble the breaker unless a complete set of and O-rings is available for replacement.

DISASSEMBLY OF THE FRONTHEAD

Remove nut (25) and fronthead pinch bolt (24) from the fronthead (3). Lightly tap the fronthead (using a hide mallet if necessary) from the cylinder (1).
Press or drift out the two fronthead spring pins (22, 23) and remove the latch (6).
The plunger (20) and the plunger spring (21) can be removed from the fronthead.

Handle Disassembly (BV and BS models)
Using a hide mallet tap loose and remove the muffler (29) from the cylinder.
Firmly grip the cylinder upright in a vice with leather or copper cover jaws. Loosen the four handle screws (26) and remove nuts (27).
Lift the handle assembly (5) or (42) from the cylinder assembly tap with a hide mallet to loosen if necessary.

For BV models only: Press or tap out the handle pivot pin (12) remove both handle lever (8 and 9) from the handle body (5) together with the trigger (7).
Remove the handle springs (11) from their pockets.
Tap out the sleeve (13) to detach the handle levers from each other. Remove the handle springs (11) from the handle body (5).
If it is necessary to remove the handle stop (14), use a punch of suitable size (15-19 mm dia.) and drift out the stop (14) from the handle casting from the cylinder side.
It is possible at this stage to remove the trigger pin (15) if reqiured.
Unscrew the inlet bushing (18), and remove trigger spring (17), trigger ball (16) and throttle pin (15).
Unscrew and remove the oiler plug (39) and sealing washer (38) and drain the oil in the reservoir into a suitable receptacle for safe disposal.
Pry out the wick plug (37) from the base of the handle casting. Inspect the wick (36) and wick holder (35) if clean and remove if necessary.
Remove the handle grips (10) if they are to be replaced it may prove easier to cut the grips off.

For BS models only: Drift or press out the spring pin (45) and remove the trigger lever (44) The trigger pin (46) may be removed at this stage if required.
Removal of the handle bar (43) from the casting (5) should not normally be necessary. If it is necessary cut off the handle grips (10) and drift or press out spring pin (48). Securely support the handle body (42) beneath a press and using a suitably sized pressing bar press out the handle bar (43) from the handle body (5).
Unscrew the inlet bushing (18), and remove trigger spring (17), trigger ball (16) and trigger pin (46).
Unscrew and remove the oiler plug (39) and sealing washer (38) and drain the oil in the reservoir into a suitable receptacle for safe disposal.
Pry out the wick plug (37) from the base of the handle casting. Inspect the wick (36) and wick holder (35) if clean and remove if necessary.
Remove the handle grips (10) if they are to be replaced it may prove easier to cut the grips off.

CYLINDER DISASSEMBLY

Remove the spacing washer (30) and valve plate (31). Slide valve ring (34) from cylinder (1).
Remove sealing ring (28).
Release the cylinder from the vice, invert and allow the piston (4) to slide out and be caught.
The nozzle (2) is pressed in the cylinder and retained with Loctite 601 – do not disassemble unless replacement is necessary.
The cushion bushing (33) is pressed in the cylinder – do not disassemble unless replacement is necessary.

ASSEMBLY OF THE IR21BV AND IR21BS PAVING BREAKERS

GENERAL INSTRUCTIONS

- Before assembly of the breaker, clean all parts thoroughly and lubricate surfaces with a thin film of recommended oil (see Lubrication).
- Apply a film of O-ring lubricant to all O-rings before final assembly.
- It is recommended that the assembling of the nozzle (2) and the cushion bushing (33) should be carried out by the manufacturer or authorised distributor.
- The existence of a piston air cushion should be determined. Hold the cylinder vertically and allow the piston to drop down the bore small diameter first. An air cushion is present if the piston "bounces" at the bottom of the cylinder and no metal to metal contact noise can be heard. If a cushion is not present contact your authorised Ingersoll –Rand repair centre for advice.

CYLINDER ASSEMBLY

Grip the cylinder (1) vertically in a vice protected with leather or copper covered vice jaws.
Lubricate and insert the piston (4) small end first into the bore. - Check for cushion.
Lubricate and slide the valve ring (34) onto the cylinder (1) and replace valve cover (31).
Position the valve spacer (30) on top of the valve cover (31).
Replace the sealing ring (28).

HANDLE ASSEMBLY

BV models only:
If the handle stop (14) was removed during disassembly it should be replaced with a new part as the retaining feature is destroyed upon removal. Locate the stop in the hole in the handle casting and tap the stop sharply into place using a soft drift and hammer.
If the hand grip rubbers (10) were removed these may now be replaced. Lubricate the inside of the rubber with soapy water and slide the new rubbers into position.
Assemble left and right hand grips (8 and 9), trigger (7) together with sleeve (13) , lubricate around the pivot area with oil, and position the sub-assembly in the slot in the handle body (5).
Locate the handle springs (11) in place beneath the hand grip assembly, compress the springs slightly and fix the whole assembly in place by drifting or pressing the handle pivot pin (12).
Lubricate and slide trigger pin (15) into position in the handle casting, replace trigger ball (16) trigger spring (17) and replace air inlet bushing (18) apply thread retainer (Loctite 243, or similar) to the threads.
Tighten the inlet bushing to a torque of 200Nm (147ft.lbs) torque.
Note. The trigger pin has a reduced diameter, which is placed next to the trigger ball.
Check that the handles and trigger move freely.
Assemble wick (36) in wick holder (35) and slide the assembly into position in the handle body casting. Retain the assembly in position by pressing in the wick plug (37).
Refill the oil reservoir with clean air tool lubricant and replace the seal (38) and oil fill plug (39) hand tighten only.

BS models only:
If the handle bar (43) was disassembled from the handle body (42) it should now be replaced. Securely support the handle body (42) beneath a press and position the handle bar (43) in the mating hole.
Note: Ensure that the handle bar has the correct orientation and is aligned to accept the trigger pin (45) when pressed home.
Press the handle bar home to depth until the lock pin hole is aligned.
Press or drift in the lock spring pin (48).
Lubricate and slide the trigger pin (46) into position in the handle casting, replace trigger ball (16), trigger spring (17) and replace inlet bushing (18) apply thread retainer (Loctite 243, or similar) to the threads.
Tighten the inlet bushing to a torque of 200Nm (147ft.lbs) torque.
Note. The trigger pin has a reduced diameter, which is placed next to the trigger ball.
Position trigger lever (44) and secure in place with spring pin (45) Check the trigger moves freely.
Assemble wick (36) in wick holder (35) and slide the assembly into position in the handle body casting. Retain the assembly in position by pressing in the wick plug (37).
Refill the oil reservoir with clean air tool lubricant and replace the seal (38) and oil fill plug (39) hand tighten only.
If the hand grip rubbers (10) were removed these may now be replaced. Lubricate the inside of the rubber with soapy water and slide the new rubbers into position.

MAIN ASSEMBLY

Lightly grip the cylinder assembly vertically in a vice and position the handle assembly in place.
Note that it is usual to orientate the air inlet and trigger lever 180 degrees from the fronthead bolt groove in the cylinder.
Replace the four handle screws (26) and using new handle nuts (27) tighten the screws down evenly to a torque of 90Nm (66.4 ft.lbs).
Remove the cylinder and handle assembly from the vice.
Assemble muffler ring (32) in muffler (29)and replace the assembly by tapping the muffler fully home using a hide mallet.

FRONTHEAD ASSEMBLY

Apply a coating of grease then replace spring (21) and plunger (20) in position in fronthead (3).
Position the latch (6) in its slot and secure in place by drifting or pressing in outer spring pin 23. Position then press or drift home inner spring pin (22).
Replace fronthead assembly onto cylinder and aligning pinch bolt hole with the cylinder groove.
Replace pinch bolt (24) and nut (25) and tighten a torque of 200 Nm (147 lb.ft) torque.

ASSEMBLY CHECKS

Following service the breaker should be checked for correct operation prior to being released back to the job site.
Fit the correct size accessory into the breaker and connect to an airline. Using air at low pressure 2 bar (30psi), check that the breaker is free from air leaks around the inlet connection and that the breaker does not automatically start to operate without the trigger being depressed.
Increase the air pressure to 6 bar (90psi) and run the tool in short bursts to check the tool operates correctly and stops and starts cleanly without hesitation.
Breaker operating frequency should be 1320 blows per minute and air consumption 1.3m3/min (46CFM) at 6 bar (90psi) air pressure.

SPECIFICATIONS FOR IR21BV AND IR21BS PAVING BREAKERS

Model	Chuck Size	Cpn	Overall Length mm (in)	Overall Width mm (in)	Weight kg (lbs)	Max Working Pressure bar (psi)	Air Consumption m^3/min @ 6 bar (CFM)	Certified Vibration Level m/s^2 @ 6 bar	Certified Noise Level L_{WA}	Impact Frequency /min	Handle Nut Torque Nm (ft.lbs)	Fronthead Nut Torque Nm (ft.lbs)
IR21BV	25 hex x 108	85040129	659 (25.9)	441 (17.4)	21 (46)	7 (103)	1.3 (46)	4.09	109	1320	90 (66.4)	200 (147)
IR21BV	28 hex x 160	85040111	694 (27.3)	441 (17.4)	21 (46)	7 (103)	1.3 (46)	4.09	109	1320	90 (66.4)	200 (147)
IR21BS	28 hex x 160	85040103	659 (25.9)	453 (17.8)	15 (33)	7 (103)	1.3 (46)	15.9	109	1320	90 (66.4)	200 (147)
IR21BV	32 hex x 160	85040095	694 (27.3)	453 (17.8)	15 (33)	7 (103)	1.3 (46)	4.09	109	1320	90 (66.4)	200 (147)
IR21BS	32 hex x 160	85040087	659 (25.9)	453 (17.8)	15 (33)	7 (103)	1.3 (46)	15.9	109	1320	90 (66.4)	200 (147)

PARTS LIST

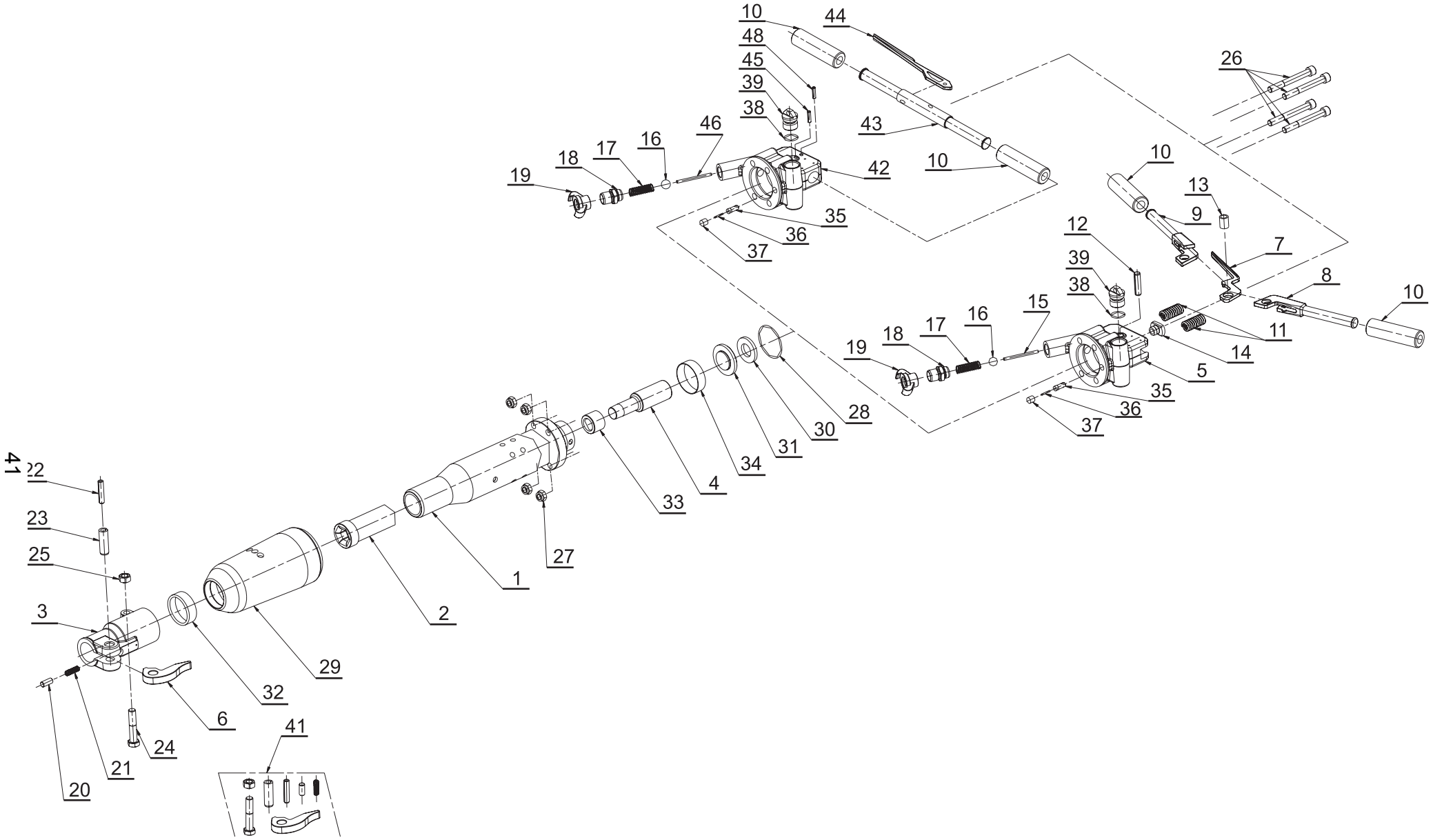
Ref.	Part Name	Quantity	Cpn
1	Cylinder Assembly (25x108 Nozzle)	1	85043230
1	Cylinder Assembly (28x160 Nozzle)	1	85043222
1	Cylinder Assembly (32x160 Nozzle)	1	85043214
2	Nozzle 25 hex x 108	1	85040558
2	Nozzle 28 hex x 160	1	85040574
2	Nozzle 32 hex x 160	1	85040590
3	Fronthead Assembly (25 x 108 Nozzle)	1	85040640
3	Fronthead Assembly (28 x 160 & 32 x 160 Nozzles)	1	85040665
3	Fronthead (25 x 108 Nozzle)	1	85040657
3	Fronthead (28 x 160 & 32 x 160 Nozzles)	1	85040673
6	Latch	1	85040749
20	Plunger	1	85040939
21	Plunger Spring	1	85040947
22	Fronthead Spring Pin Inner	1	85040962
23	Fronthead Spring Pin Outer	1	85040988
24	Fronthead Screw	1	85041002
25	Fronthead Nut	1	85041028
4	Piston	1	85040699
5	Handle Assembly (BV Models - Vibration Damped)	1	85043487
5	Handle Body (BV Models - Vibration Damped)	1	85043503
7	Trigger	1	85040756
8	Handle Lever Left	1	85040772
9	Handle Lever Right	1	85040798
10	Handle Grip	2	85040806
11	Handle Spring	2	85040822
12	Handle Pivot Pin	1	85040830
13	Sleeve	1	85040848
14	Handle Lever Stop	1	85040855
15	Trigger Pin	1	85043529
16	Trigger Ball	1	85040871
17	Trigger Spring	1	85040889
18	Inlet Bushing	1	85040897
19	Quick Coupling EU	1	85040905
19	Quick Coupling USA	1	85040913
35	Wick Body	1	85043537
36	Wick	1	85043545
37	Wick Plug	1	85043552
38	Seal	1	15099278
39	Oil Fill Plug	1	85043560
42	Handle Assembly (BS Models - Fixed Handle)	1	85043578
10	Bar Grip	2	85040806
16	Trigger Ball	1	85040871
17	Trigger Spring	1	85040889
18	Inlet Bushing	1	85040897
19	Quick Coupling EU	1	85040905
19	Quick Coupling USA	1	85040913

Ref.	Part Name	Quantity	Cpn
35	Wick Body	1	85043537
36	Wick	1	85043545
37	Wick Plug	1	85043552
38	Seal	1	15099278
39	Oil Fill Plug	1	85043560
42	Handle Body (BS Models - Fixed Handle)	1	85043594
43	Handle Bar	1	85041267
44	Trigger	1	85041275
45	Spring Pin	1	85041283
46	Trigger Pin	1	85043628
48	Trigger Spring Pin	1	85043610
26	Handle Body Screw	4	85043131
27	Handle Body Nut	4	85043149
28	Sealing Ring	1	85041044
29	Muffler	1	85041051
30	Spacing Washer	1	85041069
31	Valve Plate	1	85041085
32	Muffler Ring (25 x 108 Nozzle)	1	85041127
32	Muffler Ring (28 x 160 & 32 x 160 Nozzles)	1	85041135
33	Cushion Bushing	1	85041143
34	Valve Ring	1	85041168

41	Latch Kit	1	85041317
6	Latch	1	85040749
20	Plunger	1	85040939
21	Plunger Spring	1	85040947
22	Fronthead Spring Pin Inner	1	85040962
23	Fronthead Spring Pin Outer	1	85040988
24	Fronthead Screw	1	85041002
25	Fronthead Nut	1	85041028

Items not illustrated:

50	Handle Plate	1	85040244
51	Handle Plate Screw	4	85041325
52	Noise Sticker 109	1	85040228
55	Warning Sticker	1	85040202
56	Box	1	85040178
57	Warranty Card	1	85040285
58	Box Label EU	1	85040186
59	Box Label USA	1	85040194
60	Box Insert Handle	2	85041333
61	Box Insert Fronthead	2	85041341
62	Box Space Insert (25x108 Nozzle)	2	85041358
63	Box Space Insert (28 x 160 & 32 x 160 Nozzles)	1	85041382
66	Operation & Maintenance Manual	1	85040269
69	In Line Lubricator	1	35371111
70	Protec Engine Oil 5l	1	85448405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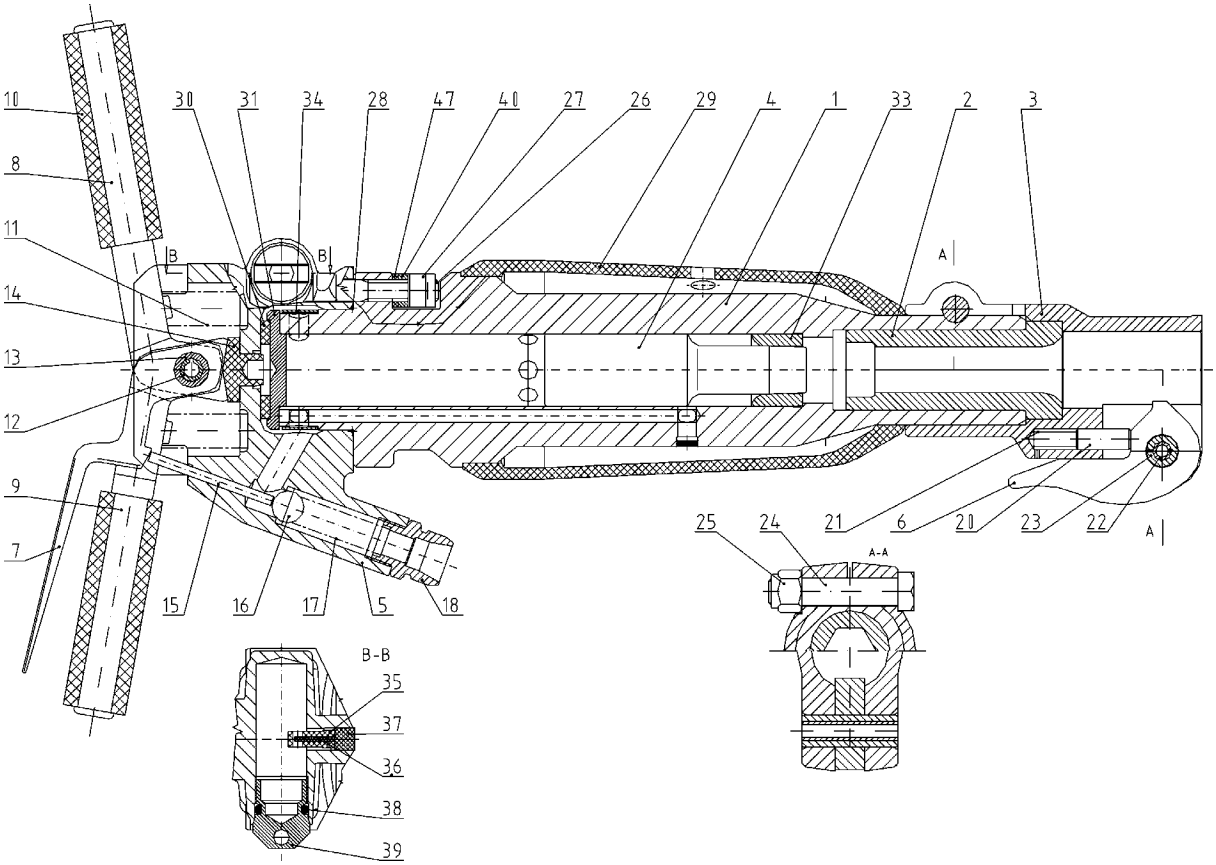

Figure 11 IR30BV

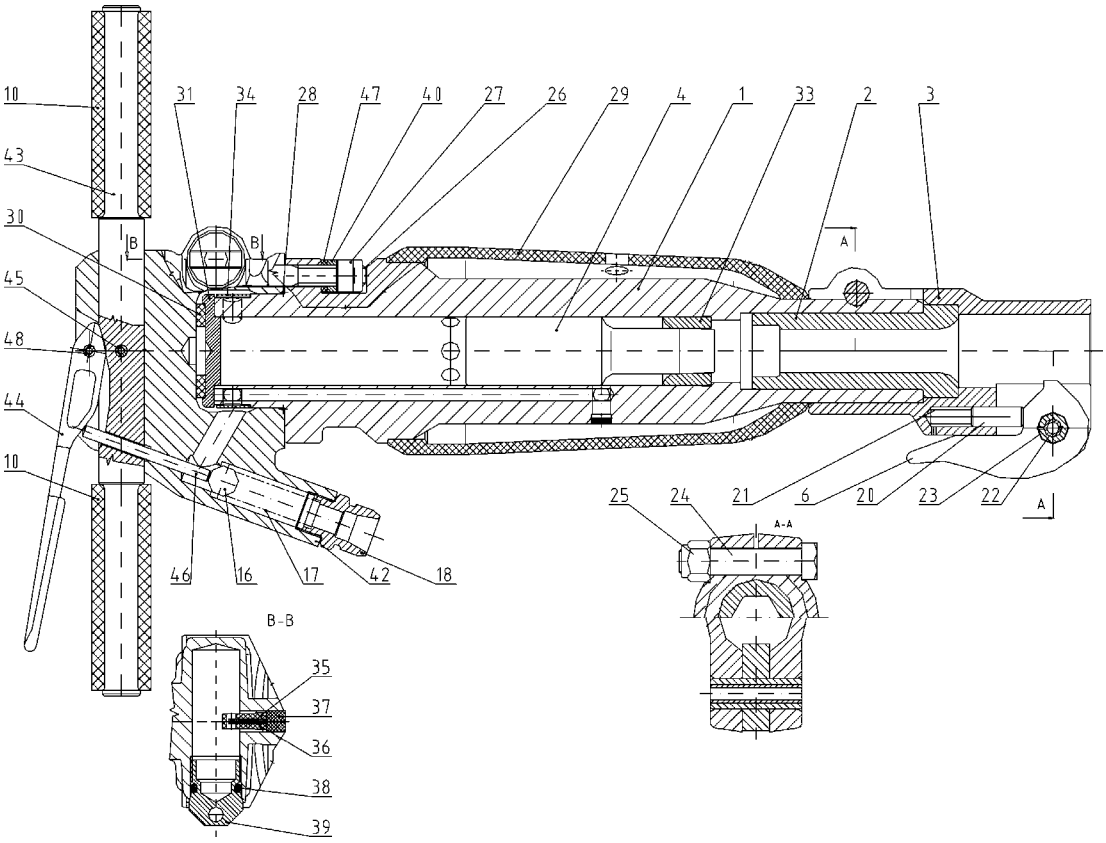

Figure 12 IR30BS

DISASSEMBLING THE IR30BV AND IR30BS PAVING BREAKER

GENERAL INSTRUCTIONS

- Clean the breaker outer surface.
- Do not disassemble the breaker any further than necessary to replace or repair damaged or worn parts.
- Whenever grasping a breaker or a part in a vice, always use leather or copper-covered vice jaws to protect the surface of the part and help prevent distortion. Take extra care with threaded parts and housings.
- Do not remove any part that is a press fit in or on a subassembly unless the removal of the part is necessary for repairs or replacement.
- Do not disassemble the breaker unless a complete set of and O-rings is available for replacement.

DISASSEMBLY OF THE FRONTHEAD

Remove nut (25) and fronthead pinch bolt (24) from the fronthead (3). Lightly tap the fronthead (using a hide mallet if necessary) from the cylinder (1).
Press or drift out the two fronthead spring pins (22, 23) and remove the latch (6).
The plunger (20) and the plunger spring (21) can be removed from the fronthead.

Handle Disassembly (BV and BS models)
Using a hide mallet tap loose and remove the muffler (29) from the cylinder.
Firmly grip the cylinder upright in a vice with leather or copper cover jaws.
Loosen the four handle screws (26) and remove nuts (27) and washers (40 and 47).
Lift the handle assembly (5) or (42) from the cylinder assembly tap with a hide mallet to loosen if necessary.

For BV models only: Press or tap out the handle pivot pin (12) remove both handle lever (8 and 9) from the handle body (5) together with the trigger (7).
Remove the handle springs (11) from their pockets.
Tap out the sleeve (13) to detach the handle levers from each other. Remove the handle springs (11) from the handle body (5).
If it is necessary to remove the handle stop (14), use a punch of suitable size (15-19 mm dia.) and drift out the stop (14) from the handle casting from the cylinder side.
It is possible at this stage to remove the trigger pin (15) if reqiured.
Unscrew the inlet bushing (18), and remove trigger spring (17), trigger ball (16) and throttle pin (15).
Unscrew and remove the oiler plug (39) and sealing washer (38) and drain the oil in the reservoir into a suitable receptacle for safe disposal.
Pry out the wick plug (37) from the base of the handle casting. Inspect the wick (36) and wick holder (35) if clean and remove if necessary.
Remove the handle grips (10) if they are to be replaced it may prove easier to cut the grips off.

For BS models only: Drift or press out the spring pin (45) and remove the trigger lever (44) The trigger pin (46) may be removed at this stage if required.
Removal of the handle bar (43) from the casting (5) should not normally be necessary. If it is necessary cut off the handle grips (10) and drift or press out spring pin (48). Securely support the handle body (42) beneath a press and using a suitably sized pressing bar press out the handle bar (43) from the handle body (5).
Unscrew the inlet bushing (18), and remove trigger spring (17), trigger ball (16) and trigger pin (46).
Unscrew and remove the oiler plug (39) and sealing washer (38) and drain the oil in the reservoir into a suitable receptacle for safe disposal.
Pry out the wick plug (37) from the base of the handle casting. Inspect the wick (36) and wick holder (35) if clean and remove if necessary.
Remove the handle grips (10) if they are to be replaced it may prove easier to cut the grips off.

CYLINDER DISASSEMBLY

Remove the spacing washer (30) and valve plate (31). Slide valve ring (34) from cylinder (1).
Remove sealing ring (28).
Release the cylinder from the vice, invert and allow the piston (4) to slide out and be caught.
The nozzle (2) is pressed in the cylinder and retained with Loctite 601 – do not disassemble unless replacement is necessary.
The cushion bushing (33) is pressed in the cylinder – do not disassemble unless replacement is necessary.

ASSEMBLY OF THE IR30BV AND IR30BS PAVING BREAKERS

GENERAL INSTRUCTIONS

- Before assembly of the breaker, clean all parts thoroughly and lubricate surfaces with a thin film of recommended oil (see Lubrication).
- Apply a film of O-ring lubricant to all O-rings before final assembly.
- It is recommended that the assembling of the nozzle (2) and the cushion bushing (33) should be carried out by the manufacturer or authorised distributor.
- The existence of a piston air cushion should be determined. Hold the cylinder vertically and allow the piston to drop down the bore small diameter first. An air cushion is present if the piston "bounces" at the bottom of the cylinder and no metal to metal contact noise can be heard. If a cushion is not present contact your authorised Ingersoll –Rand repair centre for advice.

CYLINDER ASSEMBLY

Grip the cylinder (1) vertically in a vice protected with leather or copper covered vice jaws.
Lubricate and insert the piston (4) small end first into the bore. - Check for cushion.
Lubricate and slide the valve ring (34) onto the cylinder (1) and replace valve cover (31).
Position the valve spacer (30) on top of the valve cover (31).
Replace the sealing ring (28).

HANDLE ASSEMBLY

BV models only:
If the handle stop (14) was removed during disassembly it should be replaced with a new part as the retaining feature is destroyed upon removal. Locate the stop in the hole in the handle casting and tap the stop sharply into place using a soft drift and hammer.
If the hand grip rubbers (10) were removed these may now be replaced. Lubricate the inside of the rubber with soapy water and slide the new rubbers into position.
Assemble left and right hand grips (8 and 9), trigger (7) together with sleeve (13) , lubricate around the pivot area with oil, and position the sub-assembly in the slot in the handle body (5).
Locate the handle springs (11) in place beneath the hand grip assembly, compress the springs slightly and fix the whole assembly in place by drifting or pressing the handle pivot pin (12).
Lubricate and slide trigger pin (15) into position in the handle casting, replace trigger ball (16) trigger spring (17) and replace air inlet bushing (18) apply thread retainer (Loctite 243, or similar) to the threads.
Tighten the inlet bushing to a torque of 200Nm (147ft.lbs) torque.
Note. The trigger pin has a reduced diameter, which is placed next to the trigger ball.
Check that the handles and trigger move freely.
Assemble wick (36) in wick holder (35) and slide the assembly into position in the handle body casting. Retain the assembly in position by pressing in the wick plug (37).
Refill the oil reservoir with clean air tool lubricant and replace the seal (38) and oil fill plug (39) hand tighten only.

BS models only:
If the handle bar (43) was disassembled from the handle body (42) it should now be replaced. Securely support the handle body (42) beneath a press and position the handle bar (43) in the mating hole.
Note: Ensure that the handle bar has the correct orientation and is aligned to accept the trigger pin (45) when pressed home.
Press the handle bar home to depth until the lock pin hole is aligned.
Press or drift in the lock spring pin (48).
Lubricate and slide the trigger pin (46) into position in the handle casting, replace trigger ball (16), trigger spring (17) and replace inlet bushing (18) apply thread retainer (Loctite 243, or similar) to the threads.
Tighten the inlet bushing to a torque of 200Nm (147ft.lbs) torque.
Note. The trigger pin has a reduced diameter, which is placed next to the trigger ball.
Position trigger lever (44) and secure in place with spring pin (45) Check the trigger moves freely.
Assemble wick (36) in wick holder (35) and slide the assembly into position in the handle body casting. Retain the assembly in position by pressing in the wick plug (37).
Refill the oil reservoir with clean air tool lubricant and replace the seal (38) and oil fill plug (39) hand tighten only.
If the hand grip rubbers (10) were removed these may now be replaced. Lubricate the inside of the rubber with soapy water and slide the new rubbers into position.

MAIN ASSEMBLY

Lightly grip the cylinder assembly vertically in a vice and position the handle assembly in place.
Note that it is usual to orientate the air inlet and trigger lever 180 degrees from the fronthead bolt groove in the cylinder.
Replace the four handle screws (26) and handle washers (40) and (47) using new handle nuts (27) tighten the screws down evenly to a torque of 90Nm (66.4 ft.lbs).
Remove the cylinder and handle assembly from the vice.
Replace muffler (29) on the assembly by tapping the muffler fully home using a hide mallet.

FRONTHEAD ASSEMBLY

Apply a coating of grease then replace spring (21) and plunger (20) in position in fronthead (3).
Position the latch (6) in its slot and secure in place by drifting or pressing in outer spring pin 23. Position then press or drift home inner spring pin (22).
Replace fronthead assembly onto cylinder and aligning pinch bolt hole with the cylinder groove.
Replace pinch bolt (24) and nut (25) and tighten a torque of 200 Nm (147 lb.ft) torque.

ASSEMBLY CHECKS

Following service the breaker should be checked for correct operation prior to being released back to the job site.
Fit the correct size accessory into the breaker and connect to an airline. Using air at low pressure 2 bar (30psi), check that the breaker is free from air leaks around the inlet connection and that the breaker does not automatically start to operate without the trigger being depressed.
Increase the air pressure to 6 bar (90psi) and run the tool in short bursts to check the tool operates correctly and stops and starts cleanly without hesitation.
Breaker operating frequency should be 1200 blows per minute and air consumption 1.7m^3/min (60 CFM) at 6 bar (90psi) air pressure.

SPECIFICATIONS FOR IR30BV AND IR30BS PAVING BREAKERS

Model	Chuck Size	Cpn	Overall Length mm (in)	Overall Width mm (in)	Weight kg (lbs)	Max Working Pressure bar (psi)	Air Consumption m^3/min @ 6 bar (CFM)	Certified Vibration Level m/s^2 @ 6 bar	Certified Noise Level L_{WA}	Impact Frequency /min	Handle Nut Torque Nm (ft.lbs)	Fronthead Nut Torque Nm (ft.lbs)
IR30BV	28 hex x 160	85040079	735 (28.9)	441 (17.4)	30.5 (66)	7 (103)	1.7 (60)	4.28	112	1200	90 (66.4)	200 (147)
IR30BV	32 hex x 160	85040053	735 (28.9)	441 (17.4)	30.5 (66)	7 (103)	1.7 (60)	4.28	112	1200	90 (66.4)	200 (147)
IR30BS	28 hex x 160	85040061	700 (27.5)	453 (17.8)	30.5 (66)	7 (103)	1.7 (60)	10.70	112	1200	90 (66.4)	200 (147)
IR30BS	32 hex x 160	85040087	659 (25.9)	453 (17.8)	30.5 (66)	7 (103)	1.7 (60)	10.70	112	1200	90 (66.4)	200 (147)

PARTS LIST

Ref.	Part Name	Quantity	Cpn
1	Cylinder Assembly (28x160 Nozzle)	1	85040608
1	Cylinder Assembly (32x160 Nozzle)	1	85040616
2	Nozzle 28 hex x 160	1	85040574
2	Nozzle 32 hex x 160	1	85040590
3	Fronthead Assembly	1	85040665
3	Fronthead	1	85040673
6	Latch	1	85040749
20	Plunger	1	85040939
21	Plunger Spring	1	85040947
22	Fronthead Spring Pin Inner	1	85040962
23	Fronthead Spring Pin Outer	1	85040988
24	Fronthead Screw	1	85041002
25	Fronthead Nut	1	85041028
4	Piston	1	85040707
5	Handle Assembly (BV Models - Vibration Damped)	1	85043487
5	Handle Body (BV Models - Vibration Damped)	1	85043503
7	Trigger	1	85040756
8	Handle Lever Left	1	85040772
9	Handle Lever Right	1	85040798
10	Handle Grip	2	85040806
11	Handle Spring	2	85040822
12	Handle Pivot Pin	1	85040830
13	Sleeve	1	85040848
14	Handle Lever Stop	1	85040855
15	Trigger Pin	1	85043529
16	Trigger Ball	1	85040871
17	Trigger Spring	1	85040889
18	Inlet Bushing	1	85040897
19	Quick Coupling EU	1	85040905
19	Quick Coupling USA	1	85040913
35	Wick Body	1	85043537
36	Wick	1	85043545
37	Wick Plug	1	85043552
38	Seal	1	15099278
39	Oil Fill Plug	1	85043560
42	Handle Assembly (BS Models - Fixed Handle)	1	85043578
10	Bar Grip	2	85040806
16	Trigger Ball	1	85040871
17	Trigger Spring	1	85040889
18	Inlet Bushing	1	85040897
19	Quick Coupling EU	1	85040905
19	Quick Coupling USA	1	85040913
35	Wick Body	1	85043537
36	Wick	1	85043545

Ref.	Part Name	Quantity	Cpn
37	Wick Plug	1	85043552
38	Seal	1	15099278
39	Oil Fill Plug	1	85043560
42	Handle Body (BS Models - Fixed Handle)	1	85043594
43	Handle Bar	1	85041267
44	Trigger	1	85041275
45	Spring Pin	1	85041283
46	Trigger Pin	1	85043628
48	Trigger Spring Pin	1	85043610
26	Handle Body Screw	4	85043636
27	Handle Body Nut	4	85041010
28	Sealing Ring	1	85041044
29	Muffler	1	85041051
30	Spacing Washer	1	85041069
31	Valve Plate	1	85041093
33	Cushion Bushing	1	85041150
34	Valve Ring	1	85041176
40	Steel Washer	2	85043644
47	Plastic Washer	2	85043651

41	Latch Kit	1	85041317
6	Latch	1	85040749
20	Plunger	1	85040939
21	Plunger Spring	1	85040947
22	Fronthead Spring Pin Inner	1	85040962
23	Fronthead Spring Pin Outer	1	85040988
24	Fronthead Screw	1	85041002
25	Fronthead Nut	1	85041028

Items not illustrated:

50	Handle Plate	1	85040244
51	Handle Plate Screw	4	85041325
54	Noise Sticker 112	1	85040236
55	Warning Sticker	1	85040202
56	Box	1	85040178
57	Warranty Card	1	85040285
58	Box Label EU	1	85040186
59	Box Label USA	1	85040194
60	Box Insert Handle	2	85041333
61	Box Insert Fronthead	2	85041341
64	Box Space Insert	1	85041366
67	Operation & Maintenance Manual	1	85040277
69	In Line Lubricator	1	35371111
70	Protec Engine Oil 5l	1	85448405


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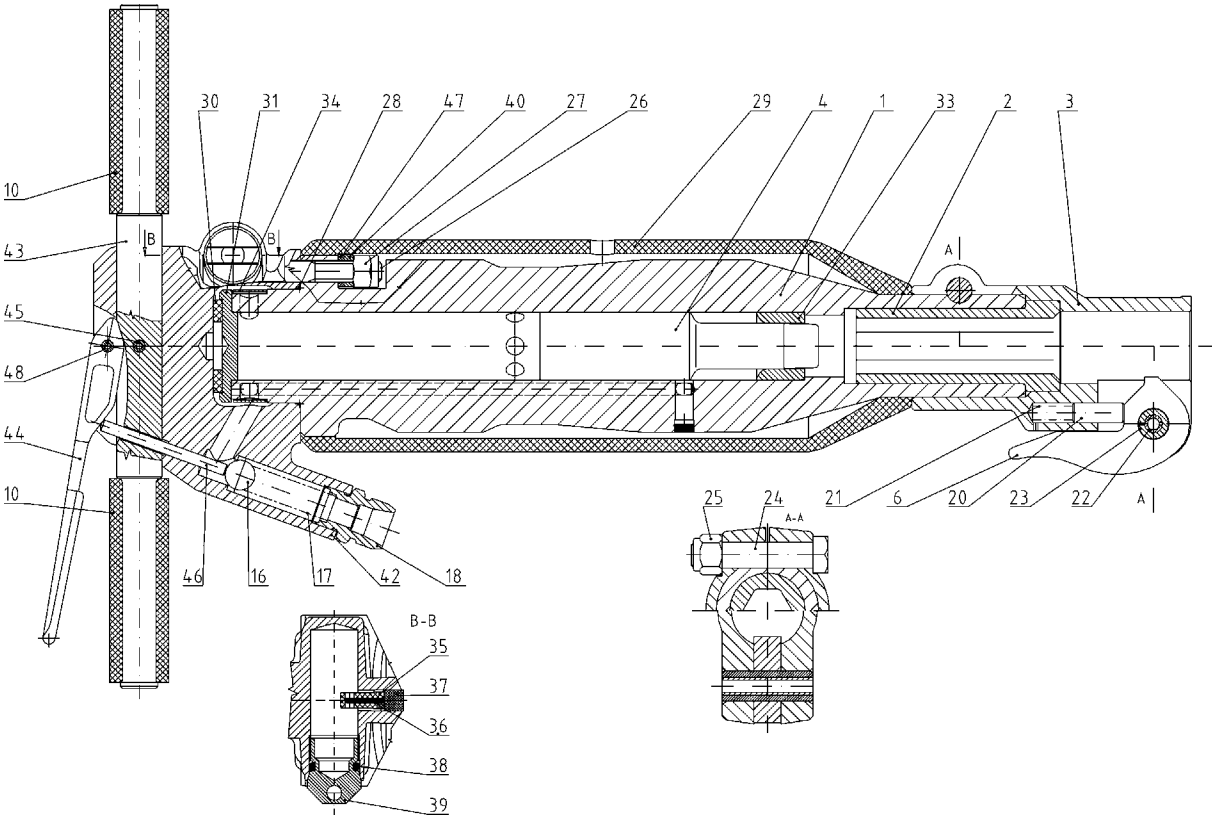


Figure 13 IR40BS

DISASSEMBLING THE IR40BV AND IR40BS PAVING BREAKER

GENERAL INSTRUCTIONS

- Clean the breaker outer surface.
- Do not disassemble the breaker any further than necessary to replace or repair damaged or worn parts.
- Whenever grasping a breaker or a part in a vice, always use leather or copper-covered vice jaws to protect the surface of the part and help prevent distortion. Take extra care with threaded parts and housings.
- Do not remove any part that is a press fit in or on a subassembly unless the removal of the part is necessary for repairs or replacement.
- Do not disassemble the breaker unless a complete set of and O-rings is available for replacement.

DISASSEMBLY OF THE FRONTHEAD

Remove nut (25) and fronthead pinch bolt (24) from the fronthead (3). Lightly tap the fronthead (using a hide mallet if necessary) from the cylinder (1).
Press or drift out the two fronthead spring pins (22, 23) and remove the latch (6).
The plunger (20) and the plunger spring (21) can be removed from the fronthead.

Handle Disassembly (BV and BS models)
Using a hide mallet tap loose and remove the muffler (29) from the cylinder.
Firmly grip the cylinder upright in a vice with leather or copper cover jaws.
Loosen the four handle screws (26) and remove nuts (27) and washers (40 and 47).
Lift the handle assembly (5) or (42) from the cylinder assembly tap with a hide mallet to loosen if necessary.

For BV models only: Press or tap out the handle pivot pin (12) remove both handle lever (8 and 9) from the handle body (5) together with the trigger (7).
Remove the handle springs (11) from their pockets.
Tap out the sleeve (13) to detach the handle levers from each other. Remove the handle springs (11) from the handle body (5).
If it is necessary to remove the handle stop (14), use a punch of suitable size (15-19 mm dia.) and drift out the stop (14) from the handle casting from the cylinder side.
It is possible at this stage to remove the trigger pin (15) if reqiured.
Unscrew the inlet bushing (18), and remove trigger spring (17), trigger ball (16) and throttle pin (15).
Unscrew and remove the oiler plug (39) and sealing washer (38) and drain the oil in the reservoir into a suitable receptacle for safe disposal.
Pry out the wick plug (37) from the base of the handle casting. Inspect the wick (36) and wick holder (35) if clean and remove if necessary.
Remove the handle grips (10) if they are to be replaced it may prove easier to cut the grips off.

For BS models only: Drift or press out the spring pin (45) and remove the trigger lever (44) The trigger pin (46) may be removed at this stage if required.
Removal of the handle bar (43) from the casting (5) should not normally be necessary. If it is necessary cut off the handle grips (10) and drift or press out spring pin (48). Securely support the handle body (42) beneath a press and using a suitably sized pressing bar press out the handle bar (43) from the handle body (5).
Unscrew the inlet bushing (18), and remove trigger spring (17), trigger ball (16) and trigger pin (46).
Unscrew and remove the oiler plug (39) and sealing washer (38) and drain the oil in the reservoir into a suitable receptacle for safe disposal.
Pry out the wick plug (37) from the base of the handle casting. Inspect the wick (36) and wick holder (35) if clean and remove if necessary.
Remove the handle grips (10) if they are to be replaced it may prove easier to cut the grips off.

CYLINDER DISASSEMBLY

Remove the spacing washer (30) and valve plate (31). Slide valve ring (34) from cylinder (1).
Remove sealing ring (28).
Release the cylinder from the vice, invert and allow the piston (4) to slide out and be caught.
The nozzle (2) is pressed in the cylinder and retained with Loctite 601 – do not disassemble unless replacement is necessary.
The cushion bushing (33) is pressed in the cylinder – do not disassemble unless replacement is necessary.

ASSEMBLY OF THE IR40BV AND IR40BS PAVING BREAKERS

GENERAL INSTRUCTIONS

- Before assembly of the breaker, clean all parts thoroughly and lubricate surfaces with a thin film of recommended oil (see Lubrication).
- Apply a film of O-ring lubricant to all O-rings before final assembly.
- It is recommended that the assembling of the nozzle (2) and the cushion bushing (33) should be carried out by the manufacturer or authorised distributor.
- The existence of a piston air cushion should be determined. Hold the cylinder vertically and allow the piston to drop down the bore small diameter first. An air cushion is present if the piston "bounces" at the bottom of the cylinder and no metal to metal contact noise can be heard. If a cushion is not present contact your authorised Ingersoll –Rand repair centre for advice.

CYLINDER ASSEMBLY

Grip the cylinder (1) vertically in a vice protected with leather or copper covered vice jaws.
Lubricate and insert the piston (4) small end first into the bore. - Check for cushion.
Lubricate and slide the valve ring (34) onto the cylinder (1) and replace valve cover (31).
Position the valve spacer (30) on top of the valve cover (31).
Replace the sealing ring (28).

HANDLE ASSEMBLY

BV models only:
If the handle stop (14) was removed during disassembly it should be replaced with a new part as the retaining feature is destroyed upon removal. Locate the stop in the hole in the handle casting and tap the stop sharply into place using a soft drift and hammer.
If the hand grip rubbers (10) were removed these may now be replaced. Lubricate the inside of the rubber with soapy water and slide the new rubbers into position.
Assemble left and right hand grips (8 and 9), trigger (7) together with sleeve (13) , lubricate around the pivot area with oil, and position the sub-assembly in the slot in the handle body (5).
Locate the handle springs (11) in place beneath the hand grip assembly, compress the springs slightly and fix the whole assembly in place by drifting or pressing the handle pivot pin (12).
Lubricate and slide trigger pin (15) into position in the handle casting, replace trigger ball (16) trigger spring (17) and replace air inlet bushing (18) apply thread retainer (Loctite 243, or similar) to the threads.
Tighten the inlet bushing to a torque of 200Nm (147ft.lbs) torque.
Note. The trigger pin has a reduced diameter, which is placed next to the trigger ball.
Check that the handles and trigger move freely.
Assemble wick (36) in wick holder (35) and slide the assembly into position in the handle body casting. Retain the assembly in position by pressing in the wick plug (37).
Refill the oil reservoir with clean air tool lubricant and replace the seal (38) and oil fill plug (39) hand tighten only.
BS models only:
If the handle bar (43) was disassembled from the handle body (42) it should now be replaced. Securely support the handle body (42) beneath a press and position the handle bar (43) in the mating hole.
Note: Ensure that the handle bar has the correct orientation and is aligned to accept the trigger pin (45) when pressed home.
Press the handle bar home to depth until the lock pin hole is aligned.
Press or drift in the lock spring pin (48).
Lubricate and slide the trigger pin (46) into position in the handle casting, replace trigger ball (16), trigger spring (17) and replace inlet bushing (18) apply thread retainer (Loctite 243, or similar) to the threads.
Tighten the inlet bushing to a torque of 200Nm (147ft.lbs) torque.
Note. The trigger pin has a reduced diameter, which is placed next to the trigger ball.
Position trigger lever (44) and secure in place with spring pin (45) Check the trigger moves freely.
Assemble wick (36) in wick holder (35) and slide the assembly into position in the handle body casting. Retain the assembly in position by pressing in the wick plug (37).
Refill the oil reservoir with clean air tool lubricant and replace the seal (38) and oil fill plug (39) hand tighten only.
If the hand grip rubbers (10) were removed these may now be replaced. Lubricate the inside of the rubber with soapy water and slide the new rubbers into position.

MAIN ASSEMBLY

Lightly grip the cylinder assembly vertically in a vice and position the handle assembly in place.
Note that it is usual to orientate the air inlet and trigger lever 180 degrees from the fronthead bolt groove in the cylinder.
Replace the four handle screws (26) and handle washers (40) and (47) using new handle nuts (27) tighten the screws down evenly to a torque of 90Nm (66.4 ft.lbs).
Remove the cylinder and handle assembly from the vice.
Replace muffler (29) on the assembly by tapping the muffler fully home using a hide mallet.

FRONT HEAD ASSEMBLY

Apply a coating of grease then replace spring (21) and plunger (20) in position in fronthead (3).
Position the latch (6) in its slot and secure in place by drifting or pressing in outer spring pin 23. Position then press or drift home inner spring pin (22).
Replace fronthead assembly onto cylinder and aligning pinch bolt hole with the cylinder groove.
Replace pinch bolt (24) and nut (25) and tighten a torque of 200 Nm (147 lb.ft) torque.

ASSEMBLY CHECKS

Following service the breaker should be checked for correct operation prior to being released back to the job site.
Fit the correct size accessory into the breaker and connect to an airline. Using air at low pressure 2 bar (30psi), check that the breaker is free from air leaks around the inlet connection and that the breaker does not automatically start to operate without the trigger being depressed.
Increase the air pressure to 6 bar (90psi) and run the tool in short bursts to check the tool operates correctly and stops and starts cleanly without hesitation.
Breaker operating frequency should be 960 blows per minute and air consumption 1.85m3/min (60 CFM) at 6 bar (90psi) air pressure.

SPECIFICATIONS FOR IR40BV AND IR40BS PAVING BREAKERS

Model	Chuck Size	Cpn	Overall Length mm (in)	Overall Width mm (in)	Weight kg (lbs)	Max Working Pressure bar (psi)	Air Consumption m^3/min @ 6 bar (CFM)	Certified Vibration Level m/s^2 @ 6 bar	Certified Noise Level L_{WA}	Impact Frequency /min	Handle Nut Torque Nm (ft.lbs)	Fronthead Nut Torque Nm (ft.lbs)
IR40BV	28 hex x 160	85040038	800 (31.5)	441 (17.4)	40 (88)	7 (103)	1.85 (64)	7.94	112	960	90 (66.4)	200 (147)
IR40BV	32 hex x 160	85040012	800 (31.5)	441 (17.4)	40 (88)	7 (103)	1.85 (64)	7.94	112	960	90 (66.4)	200 (147)
IR40BS	28 hex x 160	85040020	765 (30.0)	453 (17.8)	40 (88)	7 (103)	1.85 (64)	13.34	112	960	90 (66.4)	200 (147)
IR40BS	32 hex x 160	85040004	765 (30.0)	453 (17.8)	40 (88)	7 (103)	1.85 (64)	13.34	112	960	90 (66.4)	200 (147)

PARTS LIST

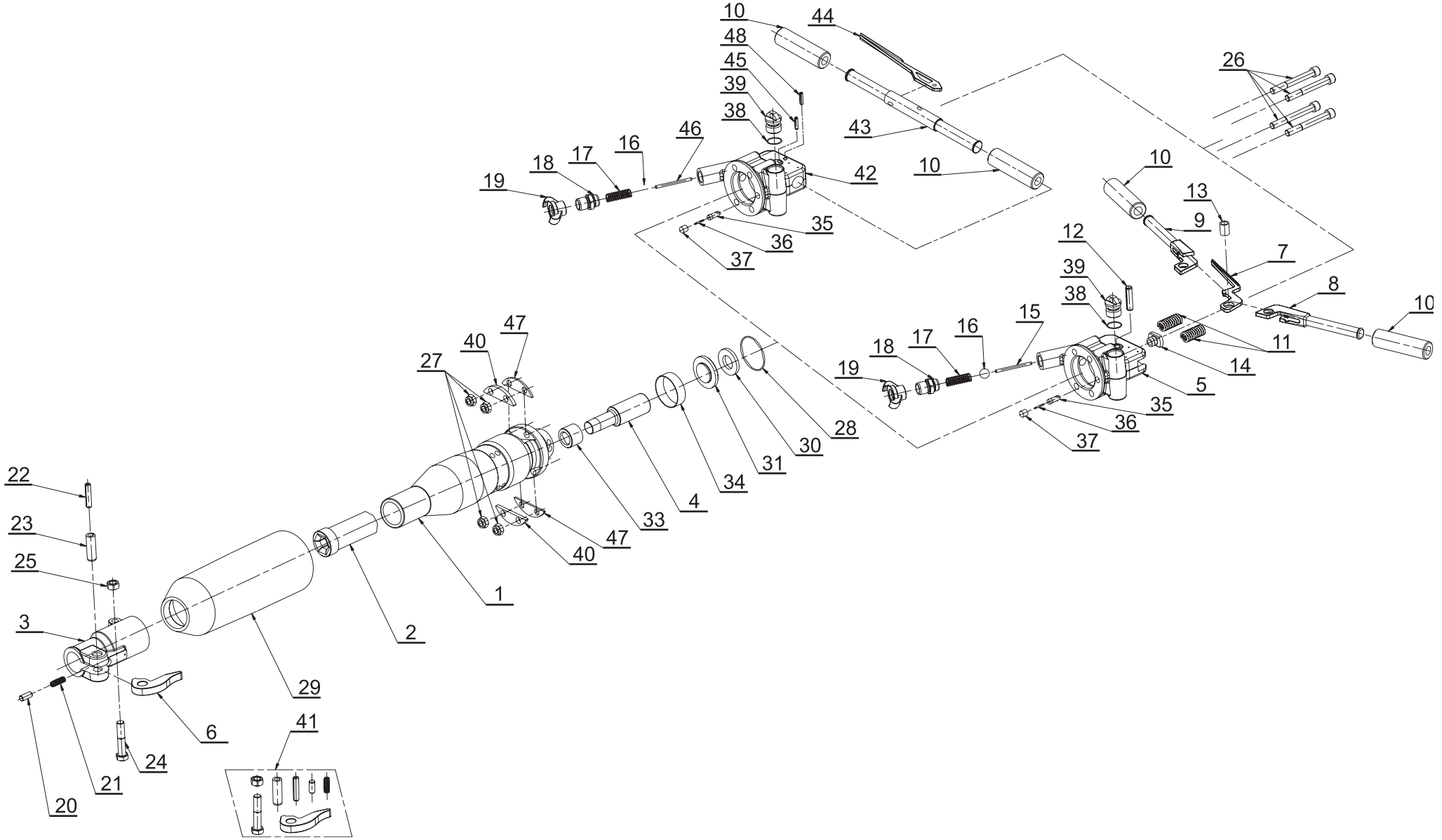
Ref.	Part Name	Quantity	Cpn
1	Cylinder Assembly (28x160 Nozzle)	1	
1	Cylinder Assembly (32x160 Nozzle)	1	85042471
2	Nozzle 28 hex x 160	1	85040574
2	Nozzle 32 hex x 160	1	85040590
3	Fronthead Assembly	1	85040665
3	Fronthead	1	85040673
6	Latch	1	85040749
20	Plunger	1	85040939
21	Plunger Spring	1	85040947
22	Fronthead Spring Pin Inner	1	85040962
23	Fronthead Spring Pin Outer	1	85040988
24	Fronthead Screw	1	85041002
25	Fronthead Nut	1	85041028
4	Piston	1	85042489
5	Handle Assembly (BV Models - Vibration Damped)	1	85043487
5	Handle Body (BV Models - Vibration Damped)	1	85043503
7	Trigger	1	85040756
8	Handle Lever Left	1	85040772
9	Handle Lever Right	1	85040798
10	Handle Grip	2	85040806
11	Handle Spring	2	85040822
12	Handle Pivot Pin	1	85040830
13	Sleeve	1	85040848
14	Handle Lever Stop	1	85040855
15	Trigger Pin	1	85043529
16	Trigger Ball	1	85040871
17	Trigger Spring	1	85040889
18	Inlet Bushing	1	85040897
19	Quick Coupling EU	1	85040905
19	Quick Coupling USA	1	85040913
35	Wick Body	1	85043537
36	Wick	1	85043545
37	Wick Plug	1	85043552
38	Seal	1	15099278
39	Oil Fill Plug	1	85043560
42	Handle Assembly (BS Models - Fixed Handle)	1	85043578
10	Bar Grip	2	85040806
16	Trigger Ball	1	85040871
17	Trigger Spring	1	85040889
18	Inlet Bushing	1	85040897
19	Quick Coupling EU	1	85040905
19	Quick Coupling USA	1	85040913
35	Wick Body	1	85043537
36	Wick	1	85043545

Ref.	Part Name	Quantity	Cpn
37	Wick Plug	1	85043552
38	Seal	1	15099278
39	Oil Fill Plug	1	85043560
42	Handle Body (BS Models - Fixed Handle)	1	85043594
43	Handle Bar	1	85041267
44	Trigger	1	85041275
45	Spring Pin	1	85041283
46	Trigger Pin	1	85043628
48	Trigger Spring Pin	1	85043610
26	Handle Body Screw	4	85041036
27	Handle Body Nut	4	85041010
28	Sealing Ring	1	85041044
29	Muffler	1	85042497
30	Spacing Washer	1	85041069
31	Valve Plate	1	85041093
33	Cushion Bushing	1	85041150
34	Valve Ring	1	85041176
40	Steel Washer	2	85043644
47	Plastic Washer	2	85043651

41	Latch Kit	1	85041317
6	Latch	1	85040749
20	Plunger	1	85040939
21	Plunger Spring	1	85040947
22	Fronthead Spring Pin Inner	1	85040962
23	Fronthead Spring Pin Outer	1	85040988
24	Fronthead Screw	1	85041002
25	Fronthead Nut	1	85041028

Items not illustrated:

50	Handle Plate	1	85040244
51	Handle Plate Screw	4	85041325
54	Noise Sticker 112	1	85040236
55	Warning Sticker	1	85040202
56	Box	1	85040178
57	Warranty Card	1	85040285
58	Box Label EU	1	85040186
59	Box Label USA	1	85040194
60	Box Insert Handle	2	85041333
61	Box Insert Fronthead	2	85041341
64	Box Space Insert	1	85041366
67	Operation & Maintenance Manual	1	85042463
69	In Line Lubricator	1	35371111
70	Protec Engine Oil 5l	1	85448405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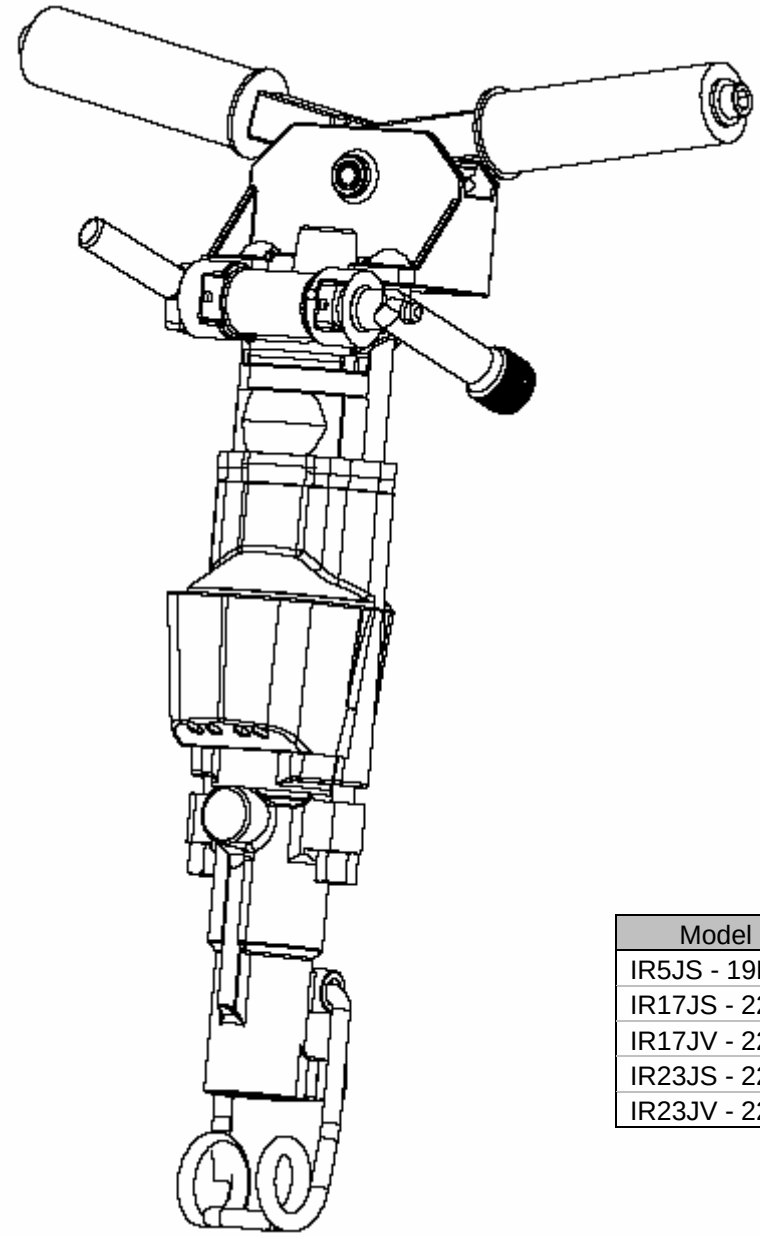
Jackhammers

IR17 JS&JV



Model - Shank - Retainer	CPN
IR5JS - 19H x 50 - Spring	01338524
IR17JS - 22H x 108 - Spring	85043370
IR17JV - 22H x 108 - Spring	85043388
IR23JS - 22H x 108 - Spring	85043396
IR23JV - 22H x 108 - Spring	85043404

DISASSEMBLING THE IR17JV AND IR17JS JACKHAMMER

GENERAL INSTRUCTIONS

- Clean the outer surface of the jackhammer.
- Do not disassemble the jackhammer any further than is necessary to replace or repair damaged or worn parts.
- Whenever grasping the jackhammer in a vice, always use leather or copper covered vice jaws to protect the surface of the part and help to prevent distortion. Take extra care with threaded parts and housings.
- Do not remove any part that is a press fit in or on a sub-assembly unless the removal of the part is necessary for repairs or replacement.
- Do not disassemble the jackhammer unless a complete set of seals and o-rings is available for replacement.

DISASSEMBLY OF THE FRONTHEAD

Support the jackhammer on a suitable bench and remove side rod nuts (2).
NOTE: do not grip the jackhammer by its muffler in a vice as the muffler is aluminium and may be crushed.
Carefully slide off fronthead (3) complete with spring retainer (1).
CAUTION: Take care when removing the fronthead as other parts may be released from their location and could fall.
The fronthead requires no maintenance apart from lubrication provided by use of a suitable airline lubricator during operation of the jackhammer. Check the retainer spring (1) for signs of obvious wear and replace if necessary.
Should replacement of retainer spring (1) be required, grip the jackhammer firmly in a vice equipped with leather or copper covered vice jaws and use a suitable flat metal bar as a lever to disengage the spring tang from its location in the side of the fronthead casting (3).
CAUTION: There is considerable energy stored in the spring take care to wear eye protection and gloves. Guard against sudden energy release during spring removal.

DISASSEMBLY OF DRILLING COMPONENTS

Leave the side rod bolts (43) in position through the assembly at this stage. Remove chuck (4) slide from location, note that the chuck may lie contained within the fronthead (3).
Inspect the chuck nut (5) for signs of wear and replace if necessary. If worn the nut can be removed using tool no 1 included in maintenance kit cpn 15909492, alternatively an old piston with a bar welded across may be used as a wrench.
NOTE: the chuck nut has a left hand thread.
Remove impact sleeve (6) which may be retained on the end of the piston (11) or within the muffler.
Pull on muffler (7) to release from O-ring (8) and cylinder (9).
NOTE: Hold cylinder (9) and cylinder head (27) together, to prevent unexpected disassembly of other parts.

DISASSEMBLY OF MOTOR COMPONENTS

Withdraw side rod bolts (43)
Remove handle body assembly (33) or (44) as an assembly from cylinder head.
Carefully split cylinder head (27) from ratchet plate (17) and set cylinder head aside.
Withdraw rifle bar (20), ratchet plate (17), seal (18) and blow tube (19) from valve cap (16) and set aside. Take care to prevent loss of pawls (21) plungers (22) and plunger springs (23) which are spring loaded and retained in position by the ratchet plate.
Split apart valve cap (16), valve housing (15) and valve body (13) and remove slide valve (14).
NOTE: Remember orientation of valve housing (15) to aid re-assembly.
Remove piston (11) and inspect or replace sealing washer's (10) from cylinder (9).
Inspect rifle nut (12) for wear. If worn the nut can be removed using tool no. 2 included in maintenance kit cpn 15909492, alternatively an old rifle bar with a suitable bar welded across may be used as a wrench.
Unscrew the rifle nut (12) from the piston (11).
NOTE: The nut (12) has a left hand thread.

DISASSEMBLY OF RATCHET MECHANISM

Carefully slide rifle bar (20) complete with blow tube (19) from ratchet plate (17). Take care to retain the pawls (21), plungers (22) and springs (23).

DISASSEMBLY OF CYLINDER HEAD

Grip the cylinder head (27) in a vice and using a suitably sized drift remove the plastic closing pins (31).
Remove the cylinder head (27) from the vice and invert the part upside down above a wiper or other suitable receptacle to catch the small ball bearings (30) that retain the throttle valve lever (24) in place.
Encourage the 14 ball bearings on each side to drop out of their groove by operation of the throttle valve lever (24) or air inlet tube (29) depending on which is to be removed.
Once all balls have been removed, the throttle lever or the air inlet tube may be slid out of the cylinder head (27).
Take care to retain the throttle detent plunger (26) and its spring (25). Remove the air inlet sealing ring (28).

DISASSEMBLY OF HANDLE ASSEMBLY JV MODELS

Grip the handle body (33) in leather or copper protected vice jaws. Press or drift out handle pivot pin (34) using a suitably sized drift.
Remove both handle levers (37) from the slot in the handle body.
Tap out sleeve (42) to split the handle levers apart from each other Remove the handle springs (36).
If it is necessary to remove the handle lever stop (35) use a punch of suitable size (15 - 19mm) and drift out the stop from the cylinder side of the handle body (33).
NOTE: Removal of handle stop (35) will destroy the retaining lip of the stop and a new one should be fitted on re-assembly.
Remove the handle grips (39). It may prove easier to cut off the old grips with a sharp knife.

DISASSEMBLY OF HANDLE ASSEMBLY JS MODELS

Grip the handle body (44) in leather or copper protected vice jaws. Remove nut (49) and washer (48) from handle bar end. Press or drift out handle bar (47) using a suitably sized drift.
Spacer tubes (45) will be retained inside the handle grips (46). If it is necessary to replace handgrip (46) it may prove easier to cut off the old grips with a sharp knife.

ASSEMBLY OF THE IR17JV AND IR17JS JACKHAMMER

GENERAL INSTRUCTIONS

- Before assembly of the jackhammer, clean all parts thoroughly dry off and inspect carefully for signs of wear.
- Lubricate all moving parts with recommended oil (see Lubrication).
- Apply a thin film of O-ring lubricant to all O-rings before final assembly.

ASSEMBLY OF THE HANDLE ASSEMBLY JV MODELS

If the handle stop (35) was removed during disassembly it should now be replaced. Use a new part, as the retaining feature of the handle stop is severed on removal.
Locate the handle stop in position and tap sharply home using a soft drift and hammer.
If the hand grip rubbers (39) were removed these should now be replaced.
Lubricate the inside of the hand grip rubber (39) with soapy water and slide the new grips into position on the handle levers.
Grip handle body (33) in leather or copper covered vice jaws.
Position the handle levers (37) together. Lubricate and replace the sleeve (42) to loosely retain handles together.
Locate both handle springs (36) in position inside the handle body slot.
Slide the handle levers and sleeve assembly into position in the slot of the handle body (33) fix the assembly in place by drifting or pressing in handle trigger pin (34).

ASSEMBLY OF HANDLE ASSEMBLY JS MODELS

Grip handle body (44) in leather or copper covered vice jaws.
If the hand grip rubbers (46) were removed these should now be replaced. Lubricate the inside of the rubber grip with soapy water and slide the new grips into position on the spacer tubes (45).
Thread a spacer tube (45) complete with handgrip rubber (46) over handle bar (47).
Thread handle bar into handle body (44).
Assemble remaining spacer tube (45) complete with handgrip rubber (46) over handle bar and secure with washer (48) and nut (49).

ASSEMBLY OF CYLINDER HEAD

Grip cylinder head (27) in leather or copper covered vice jaws.
Lubricate and replace the throttle detent plunger spring (25) and throttle detent plunger (26) in position in the throttle lever (24).
Locate the throttle lever (24) in position in the cylinder head (27). Should the throttle lever (24) be replaced, the new part should be lapped in using grinding paste, to its mating tapered hole in the cylinder head (27).
Lapping is complete when a continuous band is visible around the taper sides of the throttle lever and the cylinder head hole.
Clean the assembly of all traces of grinding paste thoroughly before further assembly.
Clean, lubricate and replace the 14 ball bearings (30) and using a suitable size drift, tap home the plastic closing pin (31) to secure the assembly.
Check the throttle valve (24) is free to rotate.
Renew and lubricate the inlet O-ring seal (28) in the groove on the air inlet (29). Locate the air inlet (29) in position in the cylinder head (27). Clean, lubricate and replace the 14 ball bearings (30) and using a suitable size drift, tap home the plastic closing pin (31) to secure the assembly.
Check the air inlet (29) is free to rotate.
Replace the quick coupling (32) using “Loctite 2701” thread sealing liquid, if the quick coupling was removed.

ASSEMBLY OF MOTOR COMPONENTS

Clean the rifle bar (20) and rotation pawls (21) thoroughly and inspect the ends of the pawls for wear. If wear is evident the pawls can be removed and turned around in their slots to provide a second period of life. If the both edges of the pawls (21) are worn they should be replaced as a set along with new springs (23) and plungers (22).
Inspect the rifle bar (20) for signs of excessive wear of the splines. Lubricate and reassemble the pawl springs (23) pawl plungers (22) and pawls (21) with the rifle bar (20).
Replace the blow tube (19) and seal (18). Use tool no.3 in the maintenance kit cpn 15909492 or manufacture a blow tube tool as per the drawing on page 53 of this manual, to prevent bending of the blow tube upon assembly.
Thread the rifle bar assembly (20) through ratchet plate (17) and engage the pawls.
NOTE: only one pawl is engaged with the ratchet plate at any time.
Thread valve cap (16) over rifle bar (20) until it butts up to ratchet plate (17). Slide valve housing (15) into position and locate on valve cap (16). Replace slide valve (14) and valve body (13). Check for free rotation of rifle bar and listen for valve movement when the assembly is shaken.
Replace the rifle nut (12) in the piston (11) and tighten fully by hand using the rifle bar. Note the rifle nut has a left hand thread.
Lubricate the splines of the rifle bar (20) and engage with the mating splines of the rifle bar nut (12) contained in the piston (11).
Lubricate and assemble the cylinder (9) by sliding over the piston then replace impact sleeve (6).
Renew O-ring (8) and slide muffler (7) into position. Thread side bolts (43) through the assembly to retain the components in position.

ASSEMBLY OF THE FRONTHEAD

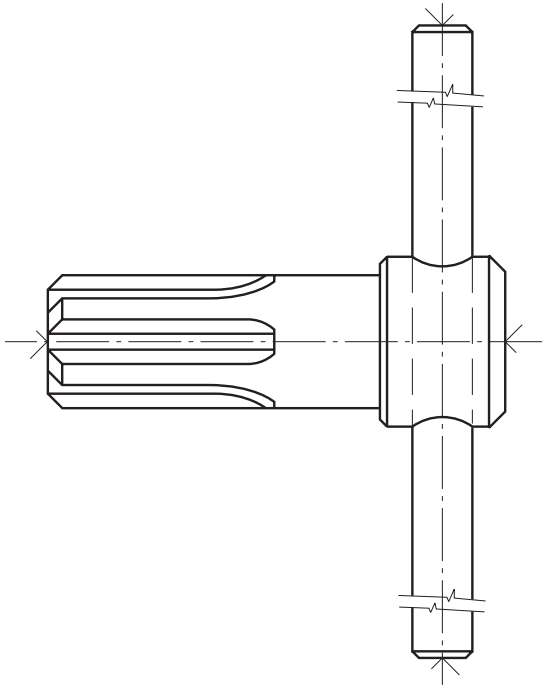
Grip the front head (3) in leather or copper covered vice jaws and locate one end of the retaining spring (1) in position. Use a flat bar as a lever to stretch the spring until the other end can be located in position.
CAUTION: There is considerable energy stored in the spring take care to wear eye protection and gloves. Guard against sudden energy release
Replace chuck-nut (5) in the chuck (4) Note the left-hand thread.
Lubricate chuck (4) and slide into fronthead (3) check the chuck is free to rotate.
Locate the splines of the chuck nut (5) with those of the piston (11) and slide the fronthead complete with chuck into position. Locate the two-side bolts (43) through the flange of the fronthead. Replace the two side rod nuts (2) and tighten evenly to a torque of 40 Nm (30 -ft.lbs).
Following service the jackhammer should be checked for correct operation prior to being released back to the job site.
Fit the correct accessory into the jackhammer and connect to an airline. Caution: The throttle should be moved to the off position (90 degrees to axis of the hammer).
Use low-pressure air initially to verify the jackhammer is free from leaks around the inlet connection and the tool runs and rotates.
Increase the air pressure to 6 bar and operate the tool in short burst to check the tool starts and stops cleanly without hesitation
Operating frequency should be 2040 blows per minute (34 Hz) with 170 revs per minute of chisel rotation.
The air consumption should be 2.8 M^3/min @ 6 bar

SPECIFICATIONS FOR IR17JS AND IR17JV JACKHAMMERS

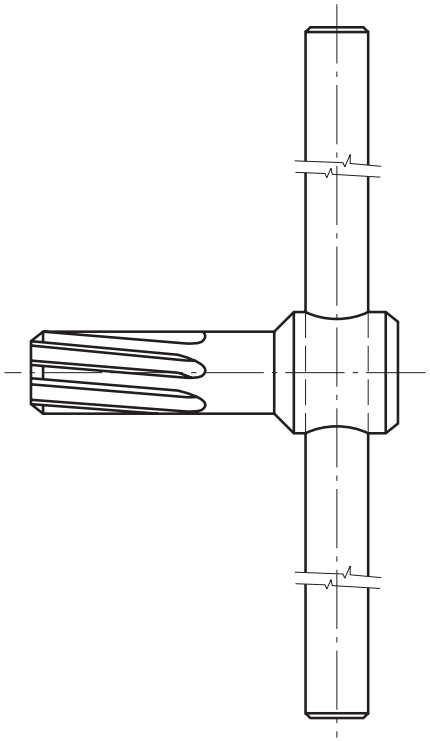
Model	Chuck Size	Cpn	Overall Length mm (in)	Overall Width mm (in)	Weight kg (lbs)	Max working pressure bar (psi)	Air Consumption m^3/min @ 6 bar (CFM)	Vibration level m/s^2 @ 6 bar	Noise level L_{wa}	Impact frequency blows / min @ 6 bar	Rotation R.P.M.
IR17JV	22 × 108	85043388	643 (25.3)	455 (17.9)	17.8 (39.2)	7 (103)	2.8 (99)	6.1	116	2040	170
IR17JS	22 × 108	85043370	643 (25.3)	455 (17.9)	17.8 (39.2)	7 (103)	2.8 (99)	15.8	116	2040	170

Contents of maintenance tool kit cpn 15909492

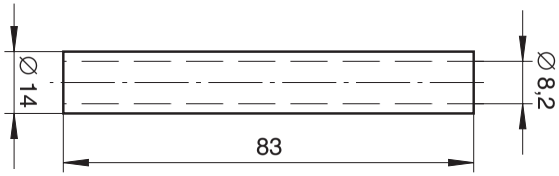
Tool 1: Chuck nut wrench, cpn 15909520



Tool 2: Rifle nut wrench, cpn 15909518



Blow tube assembly tool, cpn 15909526

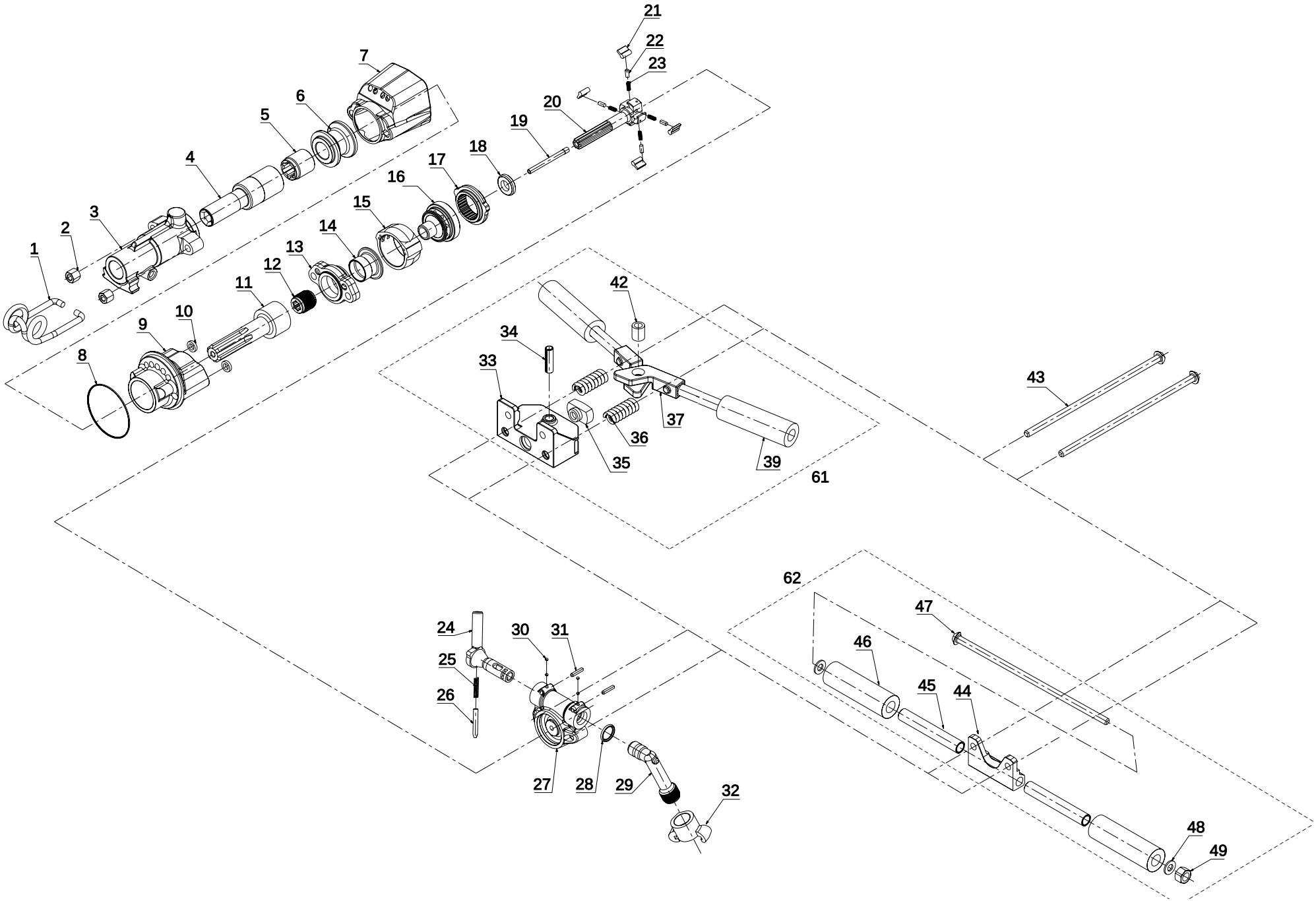


PARTS LIST

Ref .	Part Name	Quantity/tool	Cpn
1	Retainer spring	1	15909005
2	Side rod nut	2	15909013
3	Fronthead	1	15909021
4	Chuck	1	15909039
5	Chuck nut	1	15909047
6	Impact sleeve	1	15909054
7	Muffler	1	15909062
8	O-Ring	1	15909070
9	Cylinder	1	15909088
10	Seal	2	15909096
11	Piston	1	15909104
12	Rifle bar nut	1	15909112
13	Valve body	1	15909120
14	Slide valve	1	15909138
15	Valve housing	1	15909146
16	Valve cap	1	15909153
17	Ratchet plate	1	15909161
18	Seal	1	15909179
19	Blow tube	1	15909187
20	Rifle bar	1	15909195
21	Pawl	4	15909203
22	Pawl plunger	4	15909211
23	Pawl spring	4	15909229
25	Throttle detent spring	1	15909237
26	Throttle detent plunger	1	15909245
27	Cylinder head	1	15909252
24	Throttle lever	1	15909260
28	Seal	1	15909278
29	Air inlet	1	15909286
30	Ball bearing	28 total	15909294
31	Retention pin	2	15909302
32	Air connector	1	85040905

Ref .	Part Name	Quantity/tool	Cpn
61	Handle body assembly JV models	1	15909310
33	Handle body JV Models	1	15909328
34	Handle pivot pin	1	85040830
35	Handle stop	1	15909336
36	Handle spring	2	15909344
37	Handle lever	2	15909351
39	Handle grip rubber	2	15909369
42	Sleeve	1	85040848
43	Side rod bolt	2	15909377
62	Handle body assembly JS models	1	15909385
44	Handle body JS models	1	15909393
45	Hand grip spacer	2	15909401
46	Handle grip rubber	2	85040814
47	Handle bar	1	15909419
48	Handle bar washer	1	15909427
49	Handle bar nut	1	15909435
50*	Tool label JV model	1	15909443
50*	Tool label JS model	1	15909450
51*	Noise sticker	1	15909468
52*	Warning sticker	1	85040202
53*	Box	1	85042315
54*	Box label	1	15909476
55*	Warranty card	1	85040285
56*	Operation & Maintenance manual	1	15909484
57*	Maintenance tool kit comprises 58, 59 and 60	1	15909492
58*	tool no 1 Chuck nut wrench	1	15909500
59*	tool no 2 Rifle nut wrench	1	15909518
60*	Blow tube assy tool	1	15909526

Note: Items marked * are not illustrated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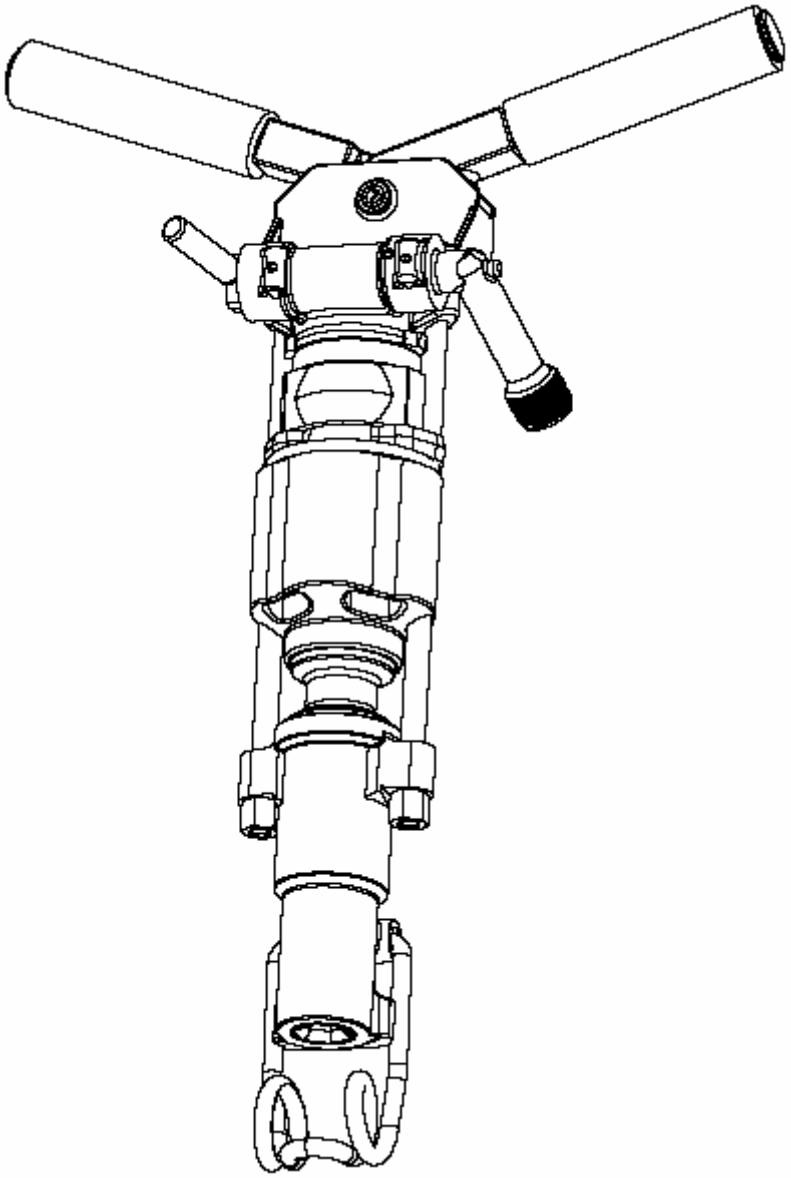
Jackhammers

IR23 JS&JV



DISASSEMBLING THE IR23JV AND IR23JS JACKHAMMER

GENERAL INSTRUCTIONS

- Clean the outer surface of the jackhammer.
- Do not disassemble the jackhammer any further than is necessary to replace or repair damaged or worn parts.
- Whenever grasping the jackhammer in a vice, always use leather or copper covered vice jaws to protect the surface of the part and help to prevent distortion. Take extra care with threaded parts and housings.
- Do not remove any part that is a press fit in or on a sub-assembly unless the removal of the part is necessary for repairs or replacement.
- Do not disassemble the jackhammer unless a complete set of seals and o-rings is available for replacement.

DISASSEMBLY OF THE FRONTHEAD

Support the jackhammer on a suitable bench and remove side rod nuts (2).
NOTE: do not grip the jackhammer by its muffler in a vice as the muffler is aluminium and may be crushed.
Carefully slide off fronthead (3) complete with spring retainer (1).
CAUTION: Take care when removing the fronthead as other parts may be released from their location and could fall.
The fronthead requires no maintenance apart from lubrication provided by use of a suitable airline lubricator during operation of the jackhammer. Check the retainer spring (1) for signs of obvious wear and replace if necessary.
Should replacement of retainer spring (1) be required, grip the jackhammer firmly in a vice equipped with leather or copper covered vice jaws and use a suitable flat metal bar as a lever to disengage the spring tang from its location in the side of the fronthead casting (3).
CAUTION: There is considerable energy stored in the spring take care to wear eye protection and gloves. Guard against sudden energy release during spring removal.

DISASSEMBLY OF DRILLING COMPONENTS

Leave the side rod bolts (42) in position through the assembly at this stage. Remove chuck (4) slide from location, note that the chuck may lie contained within the fronthead (3).
Inspect the chuck nut (5) for signs of wear and replace if necessary. If worn the nut can be removed using tool no 1 included in maintenance kit cpn 15909880, alternatively an old piston with a bar welded across may be used as a wrench.
NOTE: the chuck nut has a left hand thread.
Remove impact sleeve (6) which may be retained on the end of the piston (10).
Remove piston (10) from cylinder (8). Remove O-ring (7) and slide off muffler (9) together with cylinder (8), which is a press fit into muffler (9).
NOTE: Take care not to loose pin (49), which locates muffler (9) and valve body (13).

DISASSEMBLY OF MOTOR COMPONENTS

Withdraw side rod bolts (42).
Remove handle body assembly (61) or (62) as an assembly from cylinder head.
Carefully split cylinder head (26) from ratchet plate (17) and set cylinder head aside.
Withdraw rifle bar (19) with blow tube (18) and ratchet plate (17) from valve cap (16) and set aside. Take care to prevent loss of pawls (20) plungers (21) and plunger springs (22) which are spring loaded.
NOTE: Blow tube (18) is press fit in rifle bar (19).
Split apart valve cap (16), valve housing (15) and valve body (13) and remove slide valve (14).
NOTE: Remember orientation of valve housing (15) to aid re-assembly.
Inspect rifle nut (11) for wear. If worn the nut can be removed using tool no. 2 included in maintenance kit cpn 15909880, alternatively an old rifle bar with a suitable bar welded across may be used as a wrench.
Unscrew the rifle nut (11) from the piston (10).
NOTE: The nut (11) has a left hand thread.

DISASSEMBLY OF RATCHET MECHANISM

Carefully slide rifle bar (19) complete with blow tube (18) from ratchet plate (17). Take care to retain the pawls (20), plungers (21) and springs (22).

DISASSEMBLY OF CYLINDER HEAD

Grip the cylinder head (26) in a vice and using a suitably sized drift remove the plastic closing pins (30).
Remove the cylinder head (26) from the vice and invert the part upside down above a wiper or other suitable receptacle to catch the small ball bearings (29) that retain the throttle valve lever (23) in place.
Encourage the 14 ball bearings on each side to drop out of their groove by operation of the throttle valve lever (23) or air inlet tube (28) depending on which is to be removed.
Once all balls have been removed, the throttle lever or the air inlet tube may be slid out of the cylinder head (26).
Take care to retain the throttle detent plunger (25) and its spring (24). Remove the air inlet sealing ring (27).

DISASSEMBLY OF HANDLE ASSEMBLY JV MODELS

Grip the handle body (32) in leather or copper protected vice jaws. Press or drift out handle pivot pin (33) using a suitably sized drift.
Remove both handle levers (36) from the slot in the handle body.
Tap out sleeve (41) to split the handle levers apart from each other Remove the handle springs (35).
If it is necessary to remove the handle lever stop (34) use a punch of suitable size (15 – 19 mm) and drift out the stop from the cylinder side of the handle body (32).
NOTE: Removal of handle stop (34) will destroy the retaining lip of the stop and a new one should be fitted on re-assembly.
Remove the handle grips (38). It may prove easier to cut off the old grips with a sharp knife.

JS MODELS

Grip the handle body (43) in leather or copper protected vice jaws. Remove nut (47) and washer (48) from handle bar end. Press or drift out handle bar (46) using a suitably sized drift.
Spacer tubes (44) will be retained inside the handle grips (45). If it is necessary to replace handgrip (45) it may prove easier to cut off the old grips with a sharp knife.

ASSEMBLY OF THE IR23JV AND IR23JS JACKHAMMER

GENERAL INSTRUCTIONS

- Before assembly of the jackhammer, clean all parts thoroughly dry off and inspect carefully for signs of wear.
- Lubricate all moving parts with recommended oil (see Lubrication).
- Apply a thin film of O-ring lubricant to all O-rings before final assembly.

ASSEMBLY OF THE HANDLE ASSEMBLY JV MODELS

If the handle stop (34) was removed during disassembly it should now be replaced. Use a new part, as the retaining feature of the handle stop is severed on removal.
Locate the handle stop in position and tap sharply home using a soft drift and hammer.
If the hand grip rubbers (38) were removed these should now be replaced.
Lubricate the inside of the hand grip rubber (38) with soapy water and slide the new grips into position on the handle levers.
Grip handle body (32) in leather or copper covered vice jaws.
Position the handle levers (36) together. Lubricate and replace the sleeve (41) to loosely retain the handles together.
Locate both handle springs (35) in position inside the handle body slot.
Slide the handle levers and sleeve assembly into position in the slot of the handle body (32) fix the assembly in place by drifting or pressing in handle pivot pin (33).

JS MODELS

Grip handle body (43) in leather or copper covered vice jaws.
If the hand grip rubbers (45) were removed these should now be replaced. Lubricate the inside of the rubber grip with soapy water and slide the new grips into position on the spacer tubes (44).
Thread a spacer tube (44) complete with handgrip rubber (45) over handle bar (46).
Thread handle bar into handle body (43).
Assemble remaining spacer tube (44) complete with handgrip rubber (45) over handle bar and secure with washer (48) and nut (47).

ASSEMBLY OF CYLINDER HEAD

Grip cylinder head (26) in leather or copper covered vice jaws.
Lubricate and replace the throttle detent plunger spring (24) and throttle detent plunger (25) in position in the throttle lever (23).
Locate the throttle lever (23) in position in the cylinder head (26). Should the throttle lever (23) be replaced, the new part should be lapped in using grinding paste, to its mating tapered hole in the cylinder head (26).
Lapping is complete when a continuous band is visible around the taper sides of the throttle lever and the cylinder head hole.
Clean the assembly of all traces of grinding paste thoroughly before further assembly.
Clean, lubricate and replace the 14 ball bearings (29) and using a suitable size drift, tap home the plastic closing pin (30) to secure the assembly.
Check the throttle valve (23) is free to rotate.
Renew and lubricate the inlet O-ring seal (27) in the groove on the air inlet (28). Locate the air inlet (28) in position in the cylinder head (26). Clean, lubricate and replace the 14 ball bearings (29) and using a suitable size drift, tap home the plastic closing pin (30) to secure the assembly.
Check the air inlet (28) is free to rotate.
Replace the quick coupling (31) using “Loctite 2701” thread sealing liquid, if the quick coupling was removed.

ASSEMBLY OF MOTOR COMPONENTS

Clean the rifle bar (19) and rotation pawls (20) thoroughly and inspect the ends of the pawls for wear. If wear is evident the pawls can be removed and turned around in their slots to provide a second period of life. If the both edges of the pawls (20) are worn they should be replaced as a set along with new springs (22) and plungers (21).
Inspect the rifle bar (19) for signs of excessive wear of the splines. Lubricate and reassemble the pawl springs (22) pawl plungers (21) and pawls (20) with the rifle bar (19).
Replace the blow tube (18) if necessary. Use tool no.3 in the maintenance kit cpn 15909880 or manufacture a blow tube tool as per the drawing on page 53 of this manual, to prevent bending of the blow tube upon assembly.
Thread the rifle bar assembly (19) through ratchet plate (17) and engage the pawls.
NOTE: only one pawl is engaged with the ratchet plate at any time.
Thread valve cap (16) over rifle bar (19) until it butts up to ratchet plate (17). Slide valve housing (15) into position and locate on valve cap (16). Replace slide valve (14) and valve body (13). Check for free rotation of rifle bar and listen for valve movement when the assembly is shaken.
Replace the rifle nut (11) in the piston (10) and tighten fully by hand using the rifle bar. Note the rifle nut has a left hand thread.
Lubricate the splines of the rifle bar (19) and engage with the mating splines of the rifle bar nut (11) contained in the piston (10).
Locate pin (49) in valve body (13). Lubricate and assemble the cylinder (8), contained in muffler (9), by sliding over the piston (10). Renew O-ring (7) and replace impact sleeve (6).
Thread side bolts (42) through the assembly to retain the components in position.

ASSEMBLY OF THE FRONTHEAD

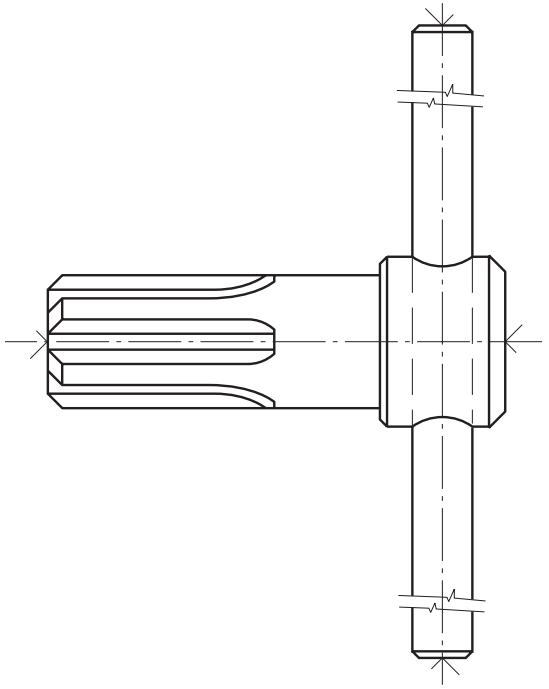
Grip the front head (3) in leather or copper covered vice jaws and locate one end of the retaining spring (1) in position. Use a flat bar as a lever to stretch the spring until the other end can be located in position.
CAUTION: There is considerable energy stored in the spring take care to wear eye protection and gloves. Guard against sudden energy release
Replace chuck-nut (5) in the chuck (4) Note the left-hand thread.
Lubricate chuck (4) and slide into fronthead (3) check the chuck is free to rotate.
Locate the splines of the chuck nut (5) with those of the piston (10) and slide the fronthead complete with chuck into position. Locate the two-side bolts (42) through the flange of the fronthead. Replace the two side rod nuts (2) and tighten evenly to a torque of 40 Nm (30 -ft.lbs).
Check again the chuck (4) is free to rotate after tightening nuts (2) to torque.
Following service the jackhammer should be checked for correct operation prior to being released back to the job site.
Fit the correct accessory into the jackhammer and connect to an airline. Caution: The throttle should be moved to the off position (90 degrees to axis of the hammer).
Use low-pressure air initially to verify the jackhammer is free from leaks around the inlet connection and the tool runs and rotates.
Increase the air pressure to 6 bar and operate the tool in short burst to check the tool starts and stops cleanly without hesitation
Operating frequency should be 2100 blows per minute (35 Hz) with 130 revs per minute of chisel rotation.
The air consumption should be 4.8 M^3/min @ 6 bar

SPECIFICATIONS FOR IR23JS AND IR23JV JACKHAMMERS

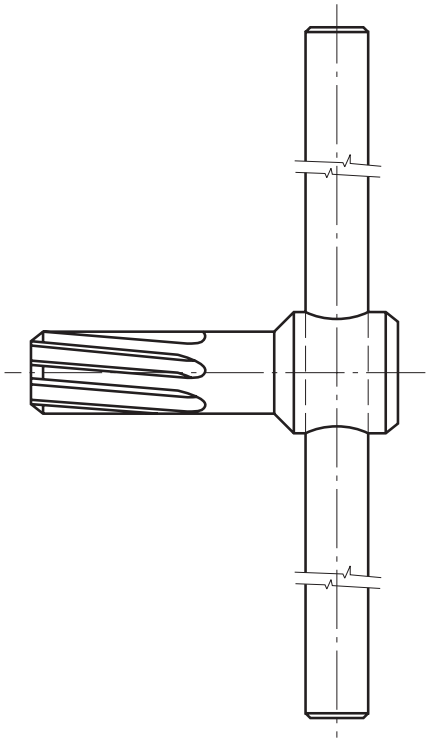
Model	Chuck Size	Cpn	Overall Length mm (in)	Overall Width mm (in)	Weight kg (lbs)	Max working pressure bar (psi)	Air Consumption m^3/min @ 6 bar (CFM)	Vibration level m/s^2 @ 6 bar	Noise level L_{wa}	Impact frequency blows / min @ 6 bar	Rotation R.P.M.
IR23JV	22 × 108	85043404	720 (28.2)	455 (17.9)	23.5 (51.7)	7 (103)	4.8 (170)	6.7	116	2100	130
IR23JS	22 × 108	85043396	720 (28.2)	455 (17.9)	23.5 (51.7)	7 (103)	4.8 (170)	19	116	2100	130

Contents of maintenance tool kit cpn 1590988O

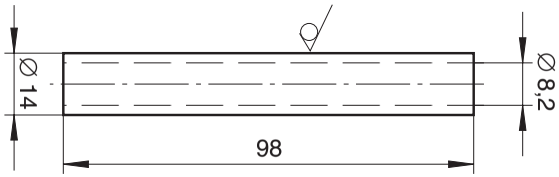
Tool 1: Chuck nut wrench, cpn 1590989B



Tool 2: Rifle nut wrench, cpn 1590990G



Blow tube assembly tool, cpn 1590991A



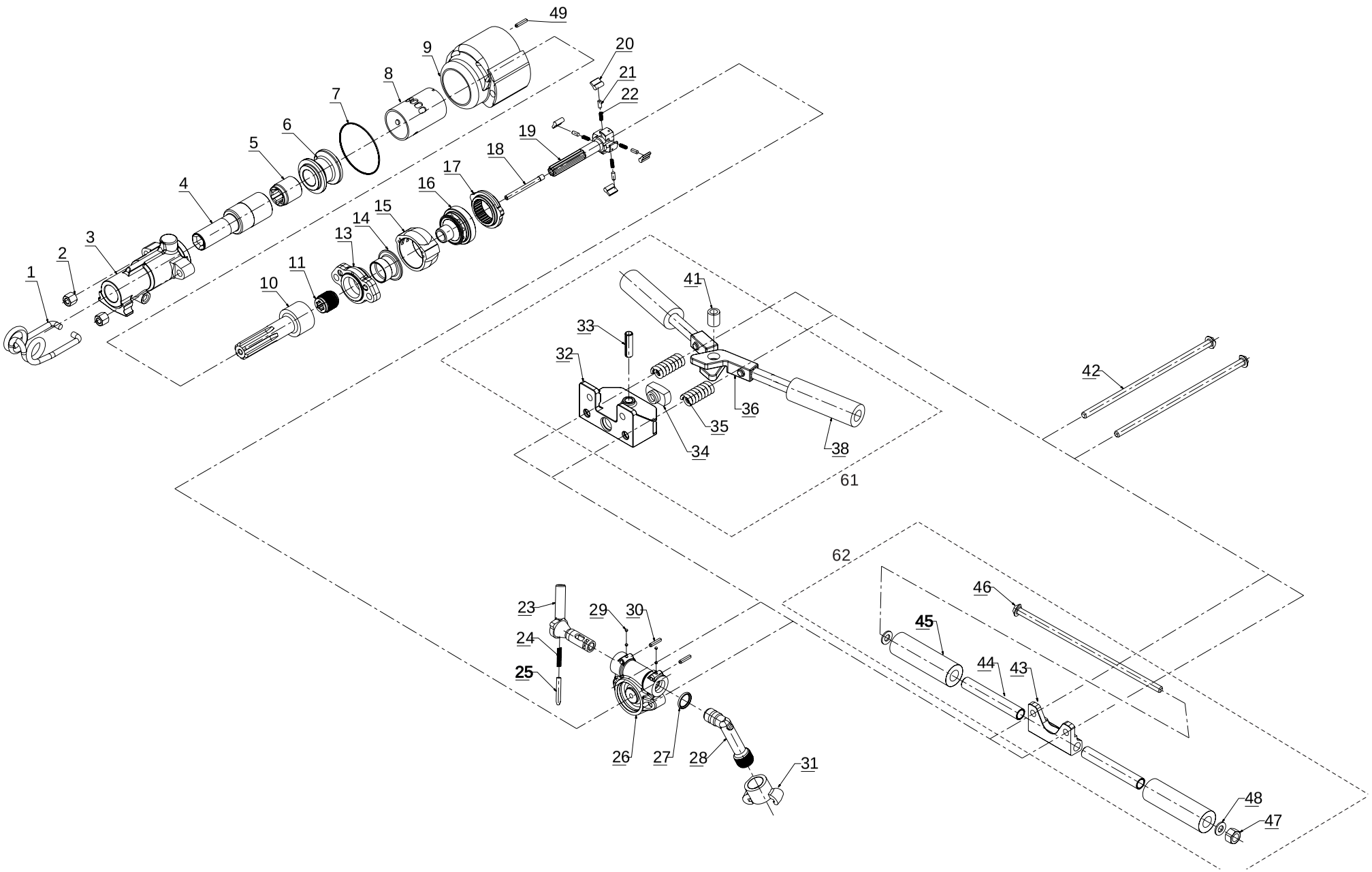
PARTS LIST

Ref.	Part Name	Quantity/ tool	cpn
1	Retainer spring	1	15909534
2	Side rod nut	2	15909542
3	Fronthead	1	15909559
4	Chuck	1	15909567
5	Chuck nut	1	15909575
6	Impact sleeve	1	15909583
7	O-Ring	1	15909591
9	Cylinder assy	1	15909609
8	Cylinder	1	15909617
9	Muffler	1	15909625
10	Piston	1	15909633
11	Rifle bar nut	1	15909641
13	Valve body	1	15909658
14	Slide valve	1	15909666
15	Valve housing	1	15909674
16	Valve cap	1	15909682
17	Ratchet plate	1	15909690
18	Blow tube	1	15909708
19	Rifle bar	1	15909716
20	Pawl	4	15909203
21	Pawl plunger	4	15909211
22	Pawl spring	4	15909229
24	Throttle detent spring	1	15909724
25	Throttle detent plunger	1	15909732
26	Cylinder head	1	15909740
23	Throttle lever	1	15909757
27	Seal	1	15909765
28	Air inlet	1	15909773
29	Ball bearing	41	15909294
30	Retention pin	2	15909781
31	Air connector	1	85040905
42	Side rod bolt	2	15909799
49	Pin	1	85040830

Ref.	Part Name	Quantity/ tool	cpn
61	Handle body assembly JV models	1	15909807
32	Handle body JV Models	1	15909815
33	Handle pivot pin	1	85040830
34	Handle stop	1	15909336
35	Handle spring	2	15909344
36	Handle lever	2	15909351
38	Handle grip rubber	2	15909369
41	Sleeve	1	85040848
62	Handle body assembly JS models	1	15909823
43	Handle body JS models	1	15909831
44	Hand grip spacer	2	15909849
45	Handle grip rubber	2	15909369
46	Handle bar	1	15909856
47	Handle bar nut	1	15909435
48	Handle bar washer	2	15909427

	Tool label JV Model	1	15909922
	Tool label JS Model	1	15909864
	Noise sticker	1	15909468
	Warning sticker	1	85040202
	Box	1	85042315
	Box label	1	15909476
	Warranty card	1	85040285
	Operation & Maintenance manual	1	15909872

	Maintenance tool kit comprises 58,59 and 60	1	15909880
	tool no 1 Chuck nut wrench	1	15909898
	tool no 2 Rifle nut wrench	1	15909906
	Blow tube assy tool	1	15909914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