

# HIROX

PRODUCT RANGE,  
OPERATION MANUAL  
& PARTS LIST

## Hydraulic Breaker



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# HIROX

**HIROX** – A Smarter Attachment Partner for Nationwide Plant Hire Fleets, **HIROX** is a specialist designer and supplier of high-performance excavator and plant attachments, built specifically around the operational and commercial needs of professional plant hire businesses operating at scale across the UK.

Backed by over 40 years of Entwistle family experience in plant hire and manufacturing - through businesses including Garic Ltd, Cross Plant Hire Ltd, and Asprey St John Ltd - **HIROX** combines real-world hire knowledge with premium global manufacturing to deliver exceptional value without compromise.

**HIROX** Supply a comprehensive attachment range covering all major excavator sizes, **Hydraulic breakers • Selector & sorting grabs • Concrete pulverisers • Scrap & demolition shears • Ground compaction plates • Tree shears • Tree & brush mulchers • Brush flails • Aggregate & soil screener buckets • Rock digging & GP buckets • Rock grapples • Log grabs**

All products are designed with durability, simplicity, uptime, and hire utilisation as the core priorities. **HIROX** are different, We design for Hire, Not Just an off the shelf product, Our products are engineered from the perspective of fleet owners and operators - focusing on reliability, ease of use, and reduced downtime on live sites. We achieve premium quality, Lower costs by working directly with best-in-class global manufacturers and controlling the design process, **HIROX** delivers attachments built to exceptional standards at significantly lower cost than traditional OEM brands.

Service & support you can rely on with strong UK stockholding, rapid parts availability, and knowledgeable technical support to ensure maximum fleet availability and minimal disruption. A smarter commercial model whereby **HIROX** offers an industry-leading alternative to capital purchase: Minimal or zero upfront capital outlay, Low weekly attachment hire charge attachments replaced every 12 months, No maintenance or refurbishment costs, Fully tax-efficient against profits This model removes depreciation risk, protects cashflow, and ensures your fleet always contains modern, reliable equipment.



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### SAFETY PRECAUTIONS

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HIROX

PRODUCT  
RANGE

## HIROX | HYDRAULIC BREAKERS



Hirox HRX 20-30 Ton

### Hydraulic Breakers: Power, Precision, Performance

Engineered for demanding demolition and excavation work, our hydraulic breakers deliver consistent impact energy and long service life.

Designed to pair seamlessly with excavators, skid steers, and backhoe loaders, they provide maximum productivity across construction, quarrying, and utility applications.

- **High Impact Energy** — Breaks reinforced concrete, rock, and asphalt with ease.
- **Heavy-Duty Construction** — Wear-resistant materials for extended lifespan.
- **Easy Maintenance** — Simplified service points and readily available parts.
- **Backed by Expert Support** and full parts availability
- **Reliable Operation** even in the harshest conditions

#### Ideal for:

Demolition contractors, civil engineering firms, quarry operators, and plant hire companies.

**Comes with hydraulic pipes, chisel, headstock to suit, pdi checked and ready for work.**

Model	HRX-0.8	HRX-1-3	HRX-2-4	HRX-4-8
Body Weight (kg)	36.5	53	89	156
Total Weight (kg)	72	66 / 68 / 98	158 / 158 / 155	263 / 343 / 361
Length (mm)	600	880 / 1001 / 1160	1178 / 1344 / 1331	1337 / 1684 / 1660
Operational Pressure (kg/cm <sup>2</sup> )	90–120	80–120	90–120	110–140
Hydraulic Flow Range (L/min)	12–22	15–25	25–50	40–70
Diameter of Hose (inch)	1/2	1/2	1/2	1/2
Diameter of Chisel (mm)	40	35	53	68
Impact Frequency (bpm)	900–1500	800–1400	600–1100	500–900
Suitable Carrier (ton)	0.5–1	0.5–1	2.5–4.5	4–7

Model	HRX-13-20	HRX-20-30	HRX-30-40	HRX-40-50
Body Weight (kg)	479	-	-	-
Total Weight (kg)	761 / 866 / 1007	2011	2916	3902
Length (mm)	1994 / 2387 / 2354	2793	3337	3902
Operational Pressure (kg/cm <sup>2</sup> )	150–170	160–185	160–185	180–210
Hydraulic Flow Range (L/min)	80–110	120–180	200–260	200–260
Diameter of Hose (inch)	3/4	1	1.2	1.2
Diameter of Chisel (mm)	100	140	165	175
Impact Frequency (bpm)	400–650	350–500	240–400	200–350
Suitable Carrier (ton)	10–15	20–30	30–40	40–50

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# HIROX | FULLY HYDRAULIC HAMMERS

## Power, Precision, and Performance for the Toughest Jobs

Fully hydraulic breakers are high-impact demolition tools engineered to deliver exceptional breaking force through a robust hydraulic system. Mounted on excavators, backhoes, or skid-steer loaders, they convert hydraulic energy into rapid, powerful blows that fracture even the hardest materials. This makes them indispensable across construction, demolition, quarrying, and mining operations.

## What Sets Fully Hydraulic Breakers Apart

- High-Impact Energy Delivery** - Hydraulic fluid drives a piston that strikes the chisel with tremendous force, enabling fast and efficient breaking of concrete, rock, and asphalt. This hydraulic power system offers significantly greater impact consistency than mechanical alternatives.
- Durable, Heavy-Duty Construction** - A reinforced steel housing protects internal components, absorbs vibration, and reduces noise, ensuring long service life even in demanding environments.
- Efficient, Low-Maintenance Operation** - With fewer moving parts than pneumatic or mechanical systems, hydraulic breakers offer reduced maintenance needs and improved reliability, helping operators minimize downtime.

## Key Benefits for Operators

- Superior Productivity** - High impact frequency and energy output accelerate material breakup, improving overall job efficiency.
- Enhanced Precision** - Controlled hydraulic power allows operators to work accurately in confined or sensitive areas.
- Adaptability Across Industries** - Ideal for demolition, roadwork, mining, tunnelling, and site preparation.



- Cost-Effective Performance** - Reduced fuel consumption and maintenance translate into lower operating costs over the machine's lifetime.

**Comes with hydraulic pipes, chisel, headstock to suit, pdi checked and ready for work.**

Specification	HI RAM 13-18	HI RAM 20-30	HI RAM 30-50	HI RAM 45-80
Body Weight	480	1030	1461	2690
Total Weight (Side/Top/Box)	985	2143	3201	5578
Length (Side/Top/Box)	2331	2997	3631	4067
Width (Side/Top/Box)	565	688	771	912
Height (Side/Top/Box)	640	717	928	938
Operating Pressure	120-140	160-180	160-180	160-180
Operating Pressure	1704-1988	2272-2556	2272-2556	2272-2556
Operating Pressure	118-138	157-177	157-177	157-177
Oil Flow Range	70-100	120-180	180-270	280-380
Impact Frequency	350-660	370-560	370-540	320-430
Diameter of Hose	3/4	1	1 1/4	1 1/4
Diameter of Tool	100	135	160	190
Suitable Carrier	10-15	20-30	30-50	45-80
Accumulator	-	Yes	Yes	Yes

## HIROX | SCRAP SHEARS



### High-Force Cutting for Efficient Metal Processing

- **Scrap shears** support a wide range of recycling and metal-processing tasks.
- **Improved Efficiency and Workflow** - By reducing large, unwieldy materials into uniform sizes, shears streamline downstream operations such as sorting, melting, and transport.
- **Durable, Industrial-Grade Construction** - Reinforced frames, wear-resistant blades, and robust cylinders ensure long service life in demanding environments.
- **Operator Safety and Control** - Enclosed cutting mechanisms and stable mounting options help maintain safe, controlled operation even with high-force cutting cycles.

### Key Features

- **High-strength blades** engineered for long wear life and clean, consistent cuts.
- **Hydraulic rotation (on many models)** for precise positioning during demolition or scrap handling.
- **Optimized jaw geometry** to maximize cutting power and reduce cycle times.
- **Compatibility with excavators and material handlers**, enabling flexible deployment across job sites.
- **Low maintenance requirements** thanks to simplified hydraulic systems and rugged component design.

WModel	Suit	Weight		Length -A		Force -D	Force -E	Force -F	Pressure		Oil Flow					
		kg	lb	mm	in	ton			bar	psi	lpm	gpm	mm			
HRX-SSX 8-14	8-14t	630	1389	1850	72.8	120	64	38	180-200	2611-2900	80-110	21-29	10	60	/	4
HRX-SSX 20-30	20-30t	1500	3307	2508	98.7	200	79	49	250-300	3600-4350	90-120	24-32	20	100	8	8
HRX-SSX 30-40	30-40t	2200	4850	3118	122.8	340	140	83	280-320	4060-4650	200-220	53-58	45	180	220	12
HRX-SSX 40-50	40-50t	3360	7408	3720	146.5	550	230	120	300-350	4350-5080	240-280	63-74	65	220	360	18

# HIROX | ROTATING SELECTOR GRABS

## Precision, Control, and Strength for Modern Material Handling

- Rotating selector grabs are engineered for fast, accurate sorting and handling of mixed materials on demanding job sites. Their fully hydraulic rotation allows operators to position loads with exceptional accuracy, improving workflow efficiency in demolition, recycling, waste handling, and construction environments. Built with abrasion-resistant steel and reinforced components, these grabs deliver long service life even under heavy, continuous use.



## Key Advantages

- 360° hydraulic rotation** - Enables precise positioning and controlled handling, a critical factor for productivity and safety on busy sites. Accurate rotation directly improves how materials are picked, placed, and released, reducing rework and wear.
- High-strength, wear-resistant construction** - Many models use Hardox® steel in tines or shells, offering significantly longer wear life and superior durability compared to standard mild steel.
- Versatile material handling** - Ideal for sorting demolition debris, separating recyclables, loading waste, handling timber, and managing irregular or bulky materials.
- Optimized jaw geometry** - Designed for strong gripping force and efficient cycle times, ensuring reliable performance across varied materials.

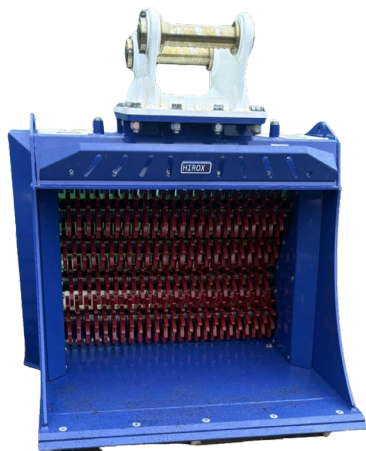
- Wide carrier compatibility** - Available in multiple sizes to suit excavators from compact units to large carriers, with options for direct mount or quick-hitch systems.

## Performance Features

- Robust hydraulic cylinders** for consistent gripping power.
- Twin ram and Motor options** – for increased power and control
- Smooth, continuous rotation** for controlled sorting and placement.

Specification	HRX-SGX 1-2	HRX-SGX 3-4	HRX-SGX 5-8	HRX-SGX 13-20	HRX-SGX 20
Suitable excavator (ton)	1-2	3-4	6-9	10-15	18-25
Max jaw opening (mm)			1290	1600	1900
Open Width (mm)	800	1200			
Height (mm)	200	325			
Weight (kg)	108	240	400	850	1200
Motor pressure for rotating (kg/cm <sup>2</sup> )	80-100	90-110			
Motor flow for rotating (lpm)	15-25	20-35			
Rotational flow (L/min)			25	40	40
Rotational pressure (Mpa)			17.5	18	18
Working pressure (Bar)			120-160	150-180	160-200
Oil Cylinder Pressure	110-140	110-140			
Oil Cylinder Force (ton)	2.5	4			

## HIROX | STAR SCREENER BUCKETS



### Precision Screening. Maximum Productivity.

The Star Screener Bucket is engineered for operators who need fast, reliable material separation directly on-site. Its high-torque rotary star system breaks down wet, compacted, or mixed material with ease, delivering a consistent, high-quality screened output.

### Key Advantages

- **High-Performance Screening** - Star rotors process soil, compost, aggregates, and waste materials with exceptional speed.
- **Reduced Handling Costs** - Screen, separate, and refine material without transporting it off-site.

- **Versatile Applications** - Ideal for landscaping, utilities, demolition, recycling, and topsoil production.
- **Built for Tough Conditions** - Heavy-duty construction, wear-resistant components, and low maintenance requirements.
- **Operator-Friendly** - Simple controls, quick attachment changeover, and smooth performance on excavators, loaders, and skid steers.

**Transform raw material into usable product-right where you need it.**

Boost efficiency. Cut costs. Work smarter with the Star Screener Bucket.

Parameter	HRX SCX 2-3	HRX SCX 5-8	HRX SCX 8-12	HRX SCX 16-22
Load capacity (m <sup>3</sup> )	0.13	0.23	0.38	0.52
Working pressure (Bar)	110–140	160–200	160–200	180–230
Working flow (L/min)	25–40	30–55	50–100	100–140
Used for (Ton)	1–3	5–8	8–12	16–22
Weight (kg)	220	370	570	1010
Size A (mm)	860	1360	1360	1760
Size B (mm)	756	1033	1033	1160
Size C (mm)	665	1075	1075	1140
Size D (mm)	510	1000	1000	1400
Work roller	2	4	4	5
Work motor	1	1	1	2

# HIROX | COMPACTOR PLATES



## Engineered for Maximum Ground Stability.

The Compactor for Diggers delivers powerful, consistent compaction for construction, utilities, landscaping, and roadwork.

Designed to mount directly to your excavator, it replaces manual labour and plate compactors with a faster, safer, and more efficient solution.

## Key Features

- **High-Impact Force** - Hydraulic vibration delivers deep, uniform compaction for soil, trenches, backfill, and embankments.
- **Operator Safety** - Eliminates the need for workers in the trench, reducing risk and improving site safety.
- **Fast Cycle Times** - Compact more material in fewer passes, cutting project me dramatically.
- **Built for Tough Sites** - Heavy-duty steel construction, reinforced bearings, and low-maintenance design.
- **Versatile Fit** - Compatible with a wide range of excavators and quick-hitch systems.

Parameter	HRX-CPX 2-4	HRX-CPX 5-8	HRX-CPX 13-18	HRX-CPX 18-26
Weight (kg)	120	300	500	900
Power of impulse (ton)	2	4	6.5	15
Maximum vibration rate (rpm)	2000	2000	2000	2000
Oil flow (l/min)	30–65	45–75	85–105	120–170
Pressure (kg/cm <sup>2</sup> )	90–120	100–130	100–130	150–200
Bottom measurement (L×W×T mm)	621×350×20	920×510×25	1040×700×28	1353×900×30
Height (mm)	555	678	854	1004
Width (mm)	350	510	700	900
Suitable excavator (ton)	1–4	4–9	11–16	17–23
Oil pipe diameter (inch)	1/2	1/2	3/4	1

## HIROX | ROTARY SCREENING BUCKETS

### Fast. Clean. Efficient Material Processing.

Unlock next-level productivity with the Rotary Screening Bucket - the ultimate attachment for excavators and loaders, it turns raw, mixed, or compacted material into clean, usable product in minutes.

### Engineered for Performance

#### High-Speed Rotary Action

Powerful rotating drums break down and separate material quickly and consistently.

#### Versatile Screening

Ideal for topsoil, compost, aggregates, demolition waste, recycling, and landscaping applications.

#### On-Site Efficiency

Reduce transport costs, eliminate tipping fees, and produce screened material exactly where you need it.

#### Built to Last

Heavy-duty construction, wear-resistant components, and low-maintenance design ensure long service life in demanding environments.



Specification	HRX-SSX 3-6	HRX-SSX 8-14
Suitable excavator (ton)	3-6	8-14
Weight (kg)	300	880
Oil flow (L/min)	50	120-170
Working pressure (Bar)	110-140	150-180

# HIROX | ROTATING PULVERISERS

## Precision Demolition. Maximum Power.

The Rotating Pulveriser is engineered for high-performance concrete processing and primary or secondary demolition. With 360° rotation and unmatched crushing force, it delivers clean, efficient material separation on every job.

## Built for Serious Demolition

### 360° Continuous Rotation

Position the jaws exactly where you need them for faster, safer, more controlled demolition.

### High Crushing & Cutting Power

Heavy-duty jaws and replaceable teeth make quick work of concrete, rebar, and structural elements.

## Optimised Material Separation

Designed to crush, pulverise, and separate steel from concrete with exceptional efficiency.

## Rugged Construction

Reinforced frames, high-strength steel, and protected hydraulics ensure long service life in the toughest environments.

## Smooth, Reliable Operation

Advanced hydraulic design delivers consistent performance with minimal maintenance.

## Crush Faster. Rotate Smarter. Demolish with Confidence.

The Rotating Pulveriser turns your excavator into a precision demolition machine - boosting productivity on every site.



Model	Suit	Weight		Jaw Opening		Cutter Length		C-Force	B-Force	A-Force	Pressure		Flow Rate		Cylinder (Dia * Rod Dia)	Motor Qty
		kg	lb	mm	inch	mm	inch				bar	psi	lpm	gpm		
HRX PVX 8-14	8-14t	650	1433	530	20.9	135	5.3	19	29	52	180-200	2611-2900	80-150	21-40	140 * 100	1
HRX PVX 11-18	11-18t	1600	3527	700	27.6	180	7.1	58	88	161	180-200	2611-2900	160-180	42-48	180 * 140	1
HRX PVX 20-30	20-30t	2400	5291	900	35.4	180	7.1	70	102	201	180-200	2611-2900	180-200	48-53	200 * 160	1
HRX PVX 40-50	40-50t	4250	9370	1000	39.4	180	7.1	115	186	394	280-320	4060-4650	250-360	66-95	280 * 200	2

## HIROX | HYDRAULIC AUGERS



### Powerful Drilling. Precision Performance.

The Hydraulic Auger transforms your excavator, skid steer, or backhoe into a high-torque drilling machine.

Engineered for strength and reliability, it delivers smooth, efficient hole-drilling in even the toughest ground conditions.

### Engineered for Maximum Productivity

#### High-Torque Drive System

Delivers exceptional drilling power for soil, clay, gravel, and mixed ground.

#### Smooth, Controlled Operation

Hydraulic flow ensures consistent performance with minimal vibration.

#### Versatile Drilling Options

Compatible with a wide range of auger bits for fencing, foundations, tree planting, piling, and utility work.

#### Built to Last

Heavy-duty gearbox, reinforced housing, and wear-resistant components designed for long service life.

#### Ideal For

- Fencing & posts
- Landscaping & tree planting
- Utility pole installation
- Foundation & piling work
- Agricultural and construction projects

### Drill Faster. Work Smarter. Built for Every Job.

Model	Unit	HRX AGX 0.8-1.5	HRX AGX 2-4	HRX AGX 4-8
Adaptive weight	ton	0.8–1.5	2-4	4-8
Maximum torque	n.m	1120	3180	4720
Operation pressure	bar	40–180	80–240	80–240
Operation flow	l/min	20–100	30–150	40–150
Rotating speed	rpm	76	65	55
Hose size	inch	G1/2	G1/2	G1/2
Output shaft	mm	35(F)	65(Y)/51(F)	65(Y)/51(F)
Unit weight	kg	38	74	95
Unit diameter	mm	190	232	250
Drill rod model	mm	S4	S4	S4
Drill pipe length	mm	800–1500	1200–1500	1200–1500
Drill diameter range	mm	50–250	100–500	100–600

## HIROX | CLEARANCE RAKES



13 ton land clearance rake

### Precision Sorting. Clean Finishing. Built for Tough Groundwork.

The Land Rake is the essential attachment for clearing, sorting, and shaping ground with speed and accuracy. Designed for excavators, it delivers exceptional control when handling roots, brush, stones, and debris - leaving behind a clean, level surface ready for the next stage of work.

#### High-Strength Tines

Robust, spaced tines effortlessly sift soil from unwanted material while maintaining structural rigidity under heavy loads.

#### Superior Ground Control

Perfect for raking, land clearing, soil preparation, and vegetation removal with smooth, predictable performance.

#### Versatile Applications

Ideal for landscaping, forestry, site preparation, agriculture, and general ground maintenance.

#### Built to Last

Manufactured from high-grade steel with reinforced welds for long service life in demanding environments.

#### Easy to Operate

Simple attachment, excellent visibility, and compatibility with a wide range of excavators.

#### Perfect For

- Land clearing & site preparation
- Removing roots, brush, and scrub
- Stone sorting & soil conditioning
- Landscaping & agricultural work

## HIROX | ROCK RAKES



### Heavy-Duty Raking. Clean, Productive Groundwork.

Rock Rakes are built to take on the toughest land-clearing challenges. Designed for excavators and loaders, they effortlessly separate stones, debris, and oversized material while leaving behind clean, workable soil. When you need fast, efficient ground preparation, a Rock Rake delivers every time.

### Engineered for Rugged Performance

#### High-Strength Tines

Robust, widely spaced tines capture rocks and debris while allowing soil to pass through smoothly.

#### Exceptional Durability

Constructed from high-grade steel with reinforced welds to withstand continuous use in harsh conditions.

#### Superior Material Control

Perfect for raking, windrowing, and sorting rocks, leaving a clean, level surface ready for cultivation or construction.

#### Versatile Applications

Ideal for agriculture, landscaping, forestry, construction, and land reclamation.

#### Operator-Friendly Design

Excellent visibility and smooth handling ensure precise, consistent results on every pass.

#### Perfect For

- Rock and stone removal
- Land clearing & reclamation
- Soil preparation for agriculture
- Landscaping & site development
- Forestry and scrub clearance

**Rake Harder. Sort Faster. Prepare the Land with Confidence.**

MODEL	HRX-RRX 1-2	HRX-RRX 3-4	HRX-RRX 5-7	HRX-RRX 8-9	HRX-RRX 10-16	HRX-RRX 20
Height	473mm	571mm	850mm	848mm	1005mm	1218mm
Width	900mm	1000mm	1220mm	1500mm	2000mm	2100mm
Pin size	25mm	35mm	50mm	50mm	65mm	80mm
WT.	50kg	97kg	241kg	283kg	460-475kg	760kg
Suit	1-2T	3-4T	5-7T	8-9T	10-16T	20T

# HIROX | TREE SHEARS



## Fast Cutting. Clean Control. Built for Heavy Timber Work.

Tree Shears turn your excavator into a powerful, precision cutting machine. Designed for forestry, land clearing, and vegetation management, they deliver clean, controlled cuts while maximising safety and productivity. When you need to take down trees quickly and efficiently, nothing performs like a high-quality Tree Shear.

### Engineered for Power & Precision

**High-Strength Cutting Jaws**  
Robust, razor-sharp blades slice through timber with ease — ideal for trees, limbs, and thick vegetation.

### Exceptional Grip & Control

Powerful hydraulic clamps hold the tree securely, ensuring safe, accurate cutting and controlled felling.

### Heavy-Duty Construction

Built from high-grade steel with reinforced pivot points for long service life in demanding forestry environments.

### Efficient & Safe Operation

Reduces manual chainsaw work, minimises operator risk, and speeds up land-clearing operations.

### Versatile Applications

Perfect for forestry, site clearance, utility line maintenance, and agricultural land management.

### Perfect For

- Tree felling & thinning
- Land and site clearing
- Hedge and scrub removal
- Biomass harvesting
- Utility and roadside maintenance

## Cut Faster. Clear Safer. Take Control of Every Tree.

MODEL	HRX-TSX 1.5-5	HRX-TSX 2.5-10	HRX-TSX 6-21	HRX-TSX 12-36
WT.	173-195kg	291-296kg	631-641kg	1101-1165kg
Working oil flow	25-40lpm	30-55lpm	50-100lpm	80-110lpm
Working pressure	150-170bar	170-180bar	180-190bar	190-200bar
Cutting range	70-150mm	75-200mm	120-300mm	160-400mm
Suit	1.5-5T	2.5-10T	6-21T	12-36T

## HIROX | RIPPER TEETH



### Unmatched Penetration. Maximum Breakout Power.

Ripper Teeth are engineered for one purpose - **total ground penetration**. Built for excavators of all sizes, they deliver exceptional breakout force for ripping through compacted earth, shale, rock, roots, and frozen ground with ease. When the terrain gets tough, the Ripper Tooth turns your machine into a ground-breaking powerhouse.

### Engineered for Extreme Conditions

#### High-Strength, Single-Point Design

Concentrates force into one powerful tip for superior penetration in the hardest materials.

#### Heavy-Duty Construction

Manufactured from high-grade steel with reinforced shanks and wear-resistant teeth for long service life.

#### Maximum Breakout Force

Ideal for pre-breaking ground before digging, reducing stress on your bucket and improving overall productivity.

#### Versatile Applications

Perfect for rock ripping, root removal, trenching, quarry work, demolition prep, and frozen ground penetration.

#### Easy Attachment

Compatible with standard and quick-hitch systems for fast changeovers on site.

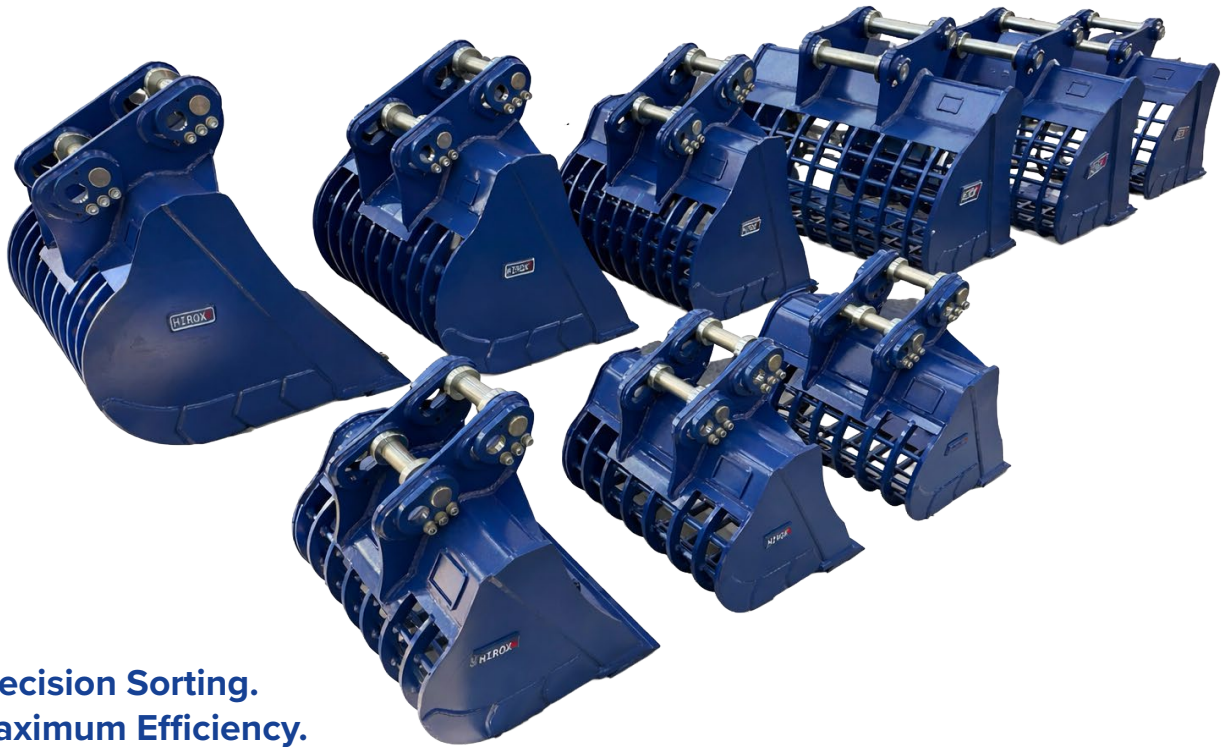
### Perfect For

- Breaking hard or compacted ground
- Tearing through rock, shale, and clay
- Removing roots, stumps, and embedded debris
- Frozen ground penetration
- Quarrying and demolition preparation

### Rip Deeper. Break Harder. Conquer Any Ground.

Ripper Teeth deliver the strength, durability, and precision your excavator needs to take on the toughest terrain.

## HIROX | RIDDLE BUCKETS



### Precision Sorting. Maximum Efficiency.

Riddle Buckets are designed for fast, accurate separation of rocks, debris, and oversized material from soil. Built for excavators of all sizes, they deliver exceptional durability and performance on construction, landscaping, and agricultural sites. When you need clean, workable material without slowing down your workflow, a Riddle Bucket is the perfect tool.

### Engineered for High-Performance Sorting

#### Heavy-Duty Construction

Manufactured from high-grade steel with reinforced ribs and wear-resistant edges for long service life.

#### Optimised Bar Spacing

Precisely spaced tines allow soil to fall through while retaining stones, rubble, and waste material.

#### Efficient Material Handling

Ideal for sorting, sifting, and separating on-site - reducing the need for additional screening equipment.

#### Versatile Applications

Perfect for demolition clean-up, topsoil preparation, land reclamation, and agricultural work.

#### Operator-Friendly Design

Excellent visibility and smooth handling make it easy to achieve clean, consistent results.

#### Perfect For

- Separating rocks from soil
- Demolition and site clean-up
- Landscaping and topsoil production
- Agricultural land preparation
- Waste sorting and recycling

### Sort Faster. Work Cleaner. Built for Tough Jobs.

Riddle Buckets deliver the strength, precision, and reliability you need for efficient on-site material separation.

## HIROX | MULCHER



Unleash serious land-clearing power with our **Hydraulic Mulcher**, engineered for operators who demand efficiency, durability, and precision. Designed to tackle dense brush, stubborn undergrowth, and small trees with ease, this attachment transforms your skid steer or excavator into a high-performance vegetation-management machine.

### Power Meets Control

A high-torque hydraulic motor delivers consistent cutting force, allowing the mulcher to maintain speed even in heavy material. The balanced rotor design reduces vibration and maximises cutting efficiency, giving you smoother operation and faster job completion.

### Built for Tough Environments

Constructed with reinforced steel housing and wear-resistant components, this mulcher thrives in demanding conditions. Heavy-duty bearings, rugged teeth options, and a robust drive system ensure long service life with minimal downtime.

### Versatile Performance

Whether you're clearing fence lines, maintaining trails, preparing construction sites, or managing overgrown fields, the hydraulic mulcher adapts to a wide range of applications. Multiple tooth configurations let you tailor performance for fine mulching, aggressive cutting, or mixed terrain.

### Operator-Focused Design

Easy maintenance access, smooth hydraulic integration, and intuitive controls make this attachment a favorite among professionals. The open-front design improves visibility and feeding efficiency, helping you work confidently and safely.

### Key Benefits

- High-torque hydraulic motor for consistent cutting
- Durable, reinforced construction for long-term reliability
- Multiple tooth options for different vegetation types
- Smooth, balanced rotor for reduced vibration
- Ideal for forestry, agriculture, construction, and land management

Specification	Unit	HRX MUX 2-5	HRX MUX 6-10	HRX MUX 13-18	HRX MUX 18-25
Working width	mm	600	1000	1200	1500
Working pressure	Bar	100–250	100–250	100–250	100–250
Working flow	L/min	55–110	55–110	90–185	90–185
Used for	Ton	2–4	6–10	12–16	18–25
Cutting tree diameter	mm	250	250	250	400
Weight	kg	270	520	935	1150

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# HIROX | FLAIL



Take control of demanding vegetation-management tasks with the **Hydraulic Flail**, a rugged and versatile attachment engineered for professionals who need reliable performance in the toughest environments. Designed for skid steers, excavators, and tractors, this flail delivers clean, consistent cutting across grass, brush, and light woody material.

### Precision Cutting, Even in Dense Growth

A high-efficiency hydraulic drive powers a fast-spinning rotor equipped with durable flail hammers or blades. The result is smooth, uniform shredding that leaves a tidy finish—ideal for roadside maintenance, field clearing, embankments, and overgrown terrain.

### Built to Withstand Real-World Workloads

Heavy-gauge steel construction, reinforced side plates, and high-quality bearings ensure long-term durability. The flail’s floating design allows it to follow ground contours naturally, reducing stress on the machine and improving cut quality.

### Versatile Across Terrains and Applications

From fine grass mulching to tackling thick brush, the hydraulic flail adapts effortlessly. Multiple rotor and hammer configurations let operators tailor performance to the job, whether maintaining municipal landscapes or managing agricultural land.

### Operator-Centric Engineering

Easy access to service points, smooth hydraulic integration, and a balanced rotor system reduce downtime and operator fatigue. The protective front chains help contain debris, enhancing safety without compromising productivity.

### Key Advantages

- High-speed hydraulic rotor for clean, consistent cutting
- Heavy-duty construction for long service life
- Interchangeable flail hammers or blades
- Floating design for superior ground-following performance
- Ideal for agriculture, landscaping, roadside maintenance, and land clearing

Specification	Unit	HRX FMX 3-5	HRX FMX 5-8	HRX FMX 12-16	HRX FMX 18-25
Working width	mm	800	1000	1200	1500
Working pressure	Bar	110–140	160–200	180–230	180–230
Working flow	L/min	25–40	30–55	90–110	100–140
Used for	Ton	3–5	5–8	12–16	16–22
Weight	kg	220	300	430	520

## HIROX | PIN GEOMETRY IDENTIFIER

### ENQUIRY DETAILS

Customer Name:

Company Name:

Email Address:

Phone Number:

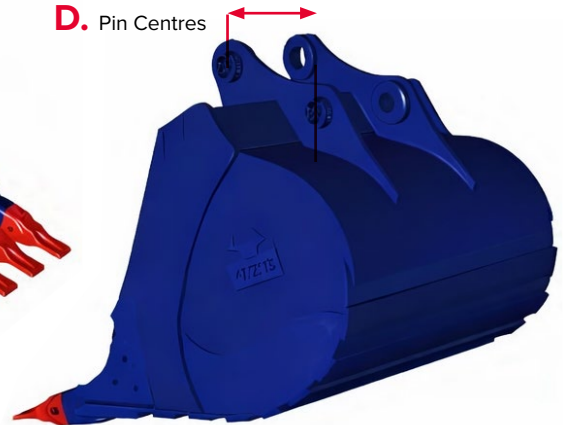
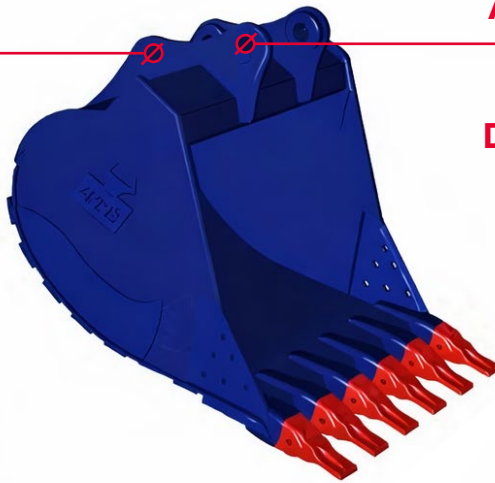
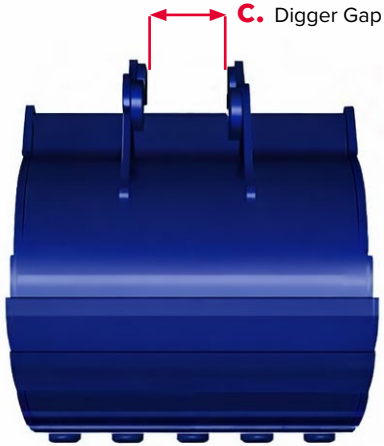
### PIN GEOMETRY

**B.** Back (link) pin diameter

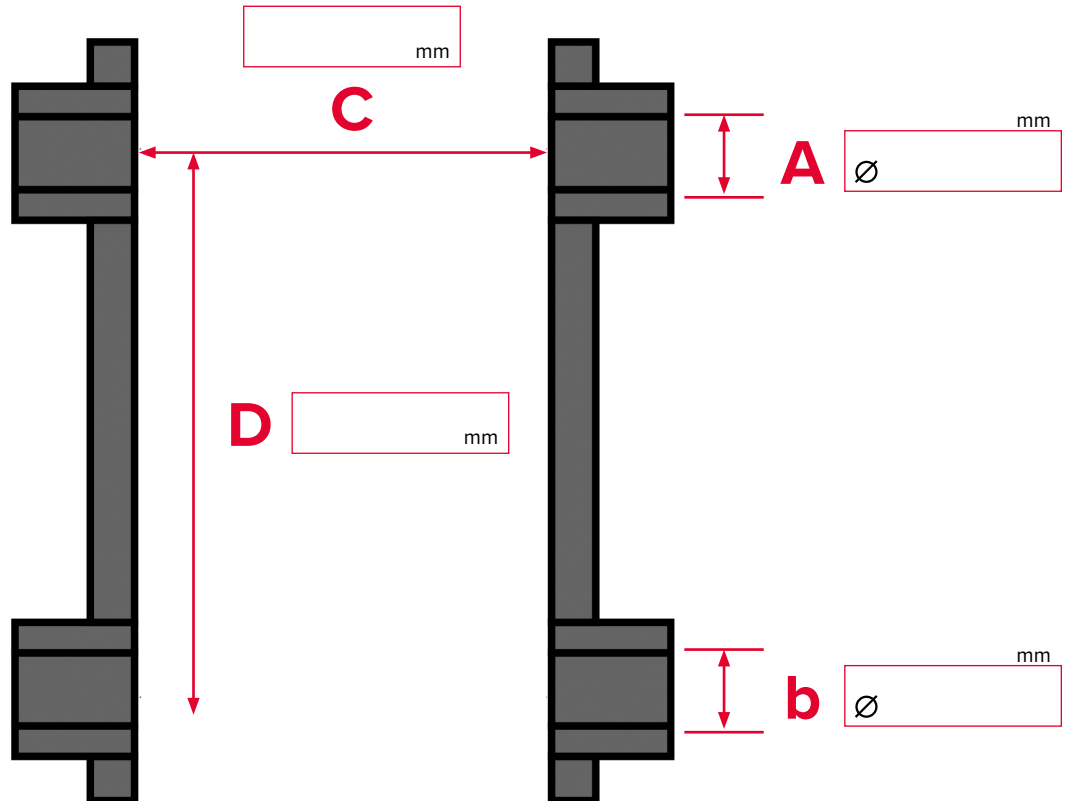
**A.** Front (arm) pin diameter

**C.** Digger Gap

**D.** Pin Centres



Please add dimensions:



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## HIROX | CHISEL IDENTIFIER

### ENQUIRY DETAILS

Customer Name:

Company Name:

Email Address:

Phone Number:

#### CHISEL TYPE

Please tick the appropriate chisel end:

#### MOIL TYPE



#### WEDGE TYPE

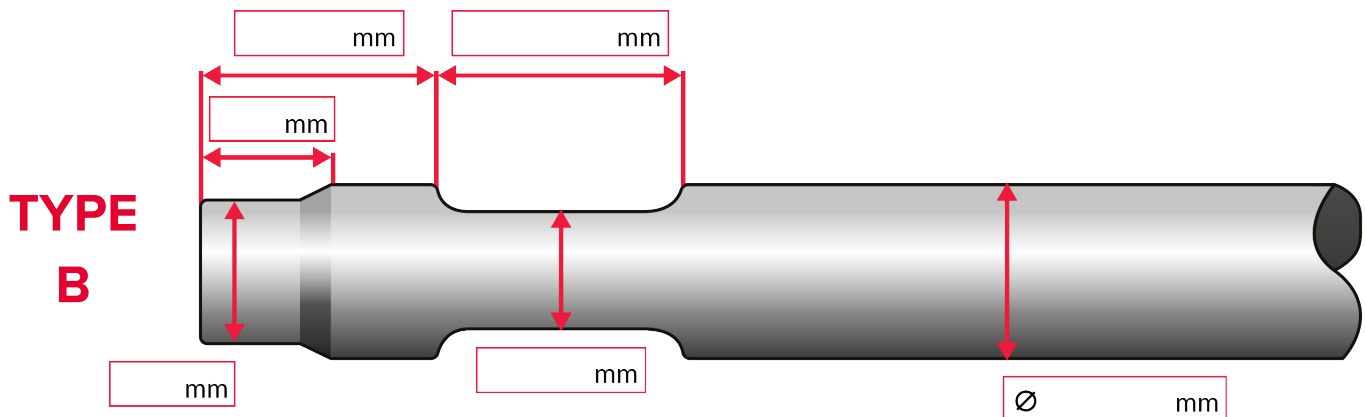
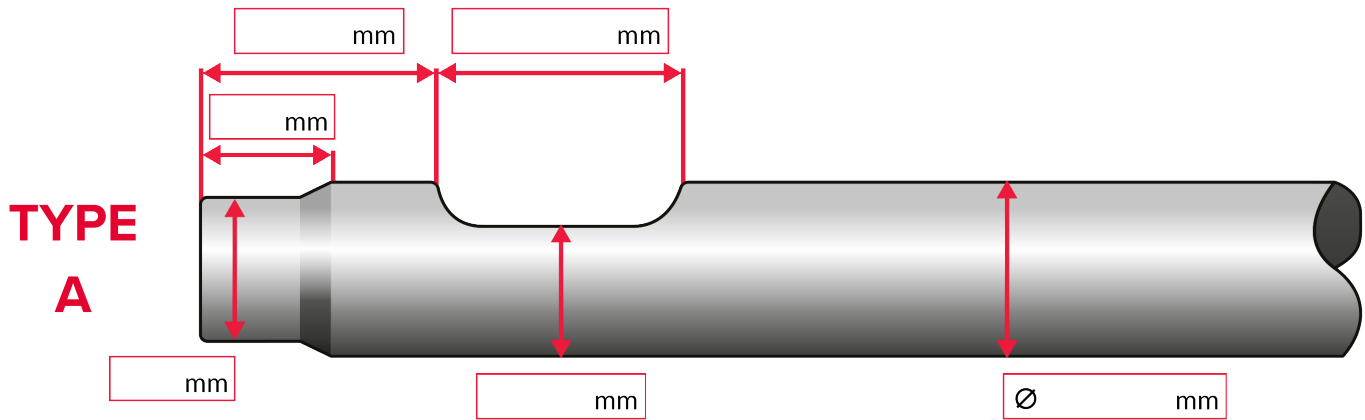


#### BLUNT TYPE



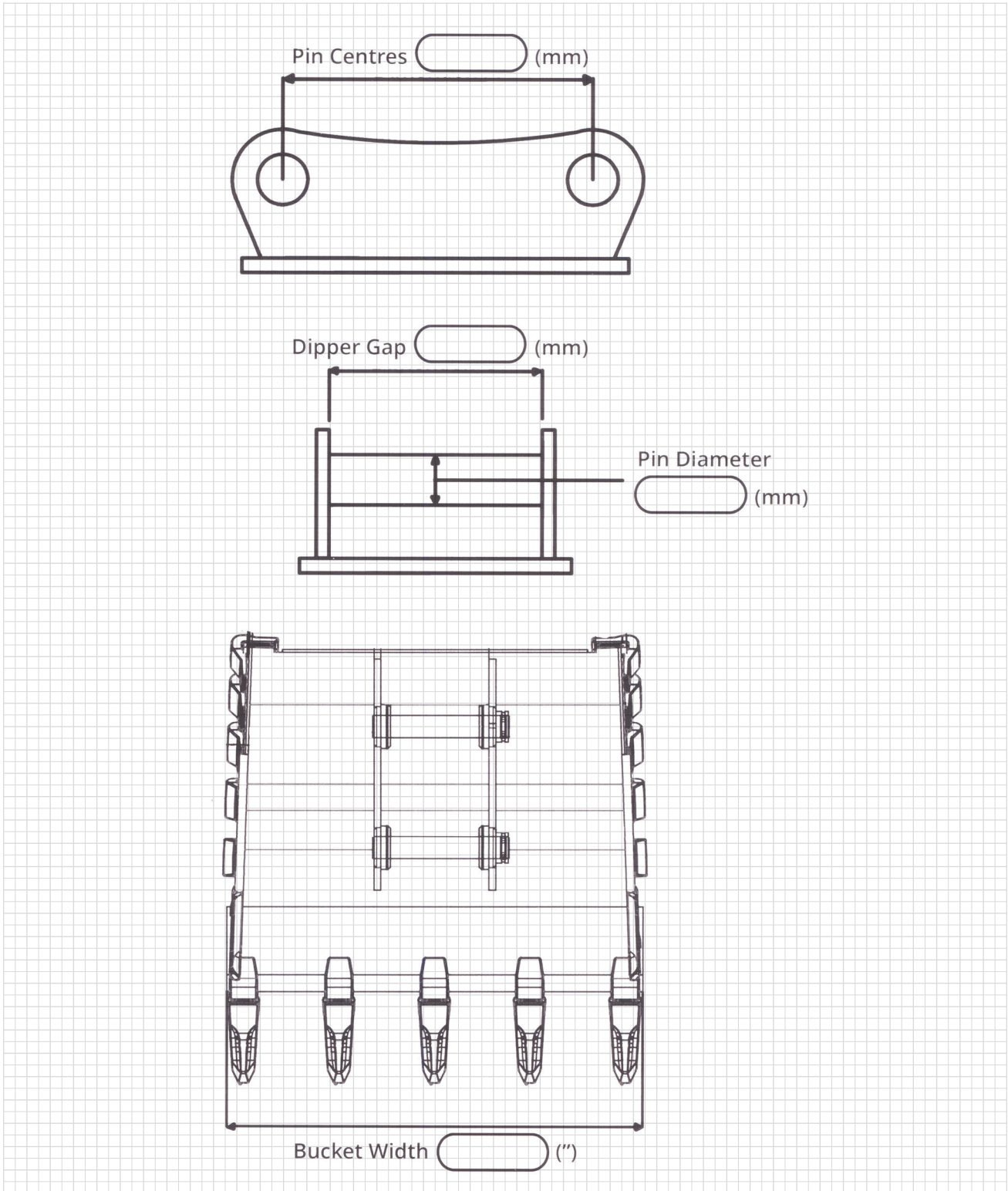
### CHISEL FITTING

Please add dimensions to the appropriate fitting:



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## HIROX | BUCKET MEASURING SHEET



## 01 | Safety Precautions

This manual contains safety, operation, and routine maintenance instructions. It doesn't contain service disassembly and service assembly instructions. If needed, complete service disassembly and service assembly instructions are contained in manual which can be ordered from your Hiroxxx Hydraulic Breaker authorized and certified dealer.

Please read the following warning.




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**Serious injury or death could result from the improper repair or service of this breaker. Repairs or service to this breaker must only be done by an authorized and certified dealer or competent personnel.**

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Most accidents are caused by disregarding the basic rules of operation inspection or repair, or by neglecting the inspection before operation. Many accidents can often be avoided by recognizing potentially hazardous situations before an accident occurs. Before operating, inspecting or repairing this machine, be sure to read and fully understand the preventive methods and warnings described on the machine or in this manual. If not, never operate, inspect or repair this machine.

Safety labels and messages are classified as follows so that the users can understand the warnings on the machine or in this manual.



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.



Indicates a potentially hazardous situation which, if not avoided, WARNING could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, CAUTION may result in minor or moderate injury, It may also be used to alert against unsafe practices.

### NOTICE

Signs used to indicate a statement of company policy directly or NOTICE indirectly related to the safety of personal or protection of property.

The safety messages including the preventive measures to avoid danger.

For safety, common items are described in "SAFETY PRECAUTIONS", and others are mentioned in the succeeding pages.

Hiroxxx cannot anticipate every possible circumstance that might involve a potential hazard on operation, inspection or repair. Therefore the warnings in this manual are not all inclusive. If an operation, inspection or repair not described in this manual is used, you must take measures for safety by yourself.



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**Observe the cautions and take a preventive measure for safety**

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The best Hydraulic Breaker will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand this manual, any decals and tags attached to the breaker before operation. Failure to do so could result in personal injury or equipment damage

- Operate the breaker in accordance with all laws and regulations which affect you, your equipment, and the worksite.
- Do not operate the breaker until you have read this manual and thoroughly understood all safety, operation and maintenance instructions.
- Do not operate the breaker until you have read the carrier equipment manual and thoroughly understood backhoe or excavator or similar equipment used to operate the breaker. The word “carrier”, as used in this manual, means a backhoe or excavator or similar equipment used to operate the breaker.
- Ensure that all maintenance procedures recommended in this manual are completed before using the equipment.
- The operator must not operate the breaker or carrier if any people are within the area where they may be injured by flying debris or movement of the equipment.
- Know the limits of your equipment.
- Before starting work, Check the prohibitions, cautions and working processes in a working site with the field supervisor, Observe all of them strictly.
- Wear such protective tools as a helmet, safety shoes, etc. to perform work. Make use of the protective glasses, earplugs, gloves and other personal protective equipment if necessary.
- Establish a training program for all operators to ensure safe operation. Do not operate the breaker unless thoroughly trained or under the supervision of an instructor. Become familiar with the carrier controls before operating carrier and breaker. While learning operate the breaker and carrier, do so at a slow pace. If necessary, set the carrier to the slow position.
- Make sure all controls (levers and pedals) are in the neutral position before starting the carrier.
- Before leaving the carrier, always lower the boom and insure the carrier is stable. Never leave the machine with the engine running. Always engage the parking brake.
- Stop the engine before attempting to make any repairs, adjustments or servicing to either the carrier or the breaker.

- Do not operate the breaker at oil temperature above 175./80.. Operation at higher temperature can damage the internal components of the breaker and carrier and will result in reduced breaker performance.
- Do not operate a damaged, leaking, improperly adjusted, or incompletely assembled breaker.
- Do not modify this breaker in any manner.
- Use only breaker parts manufactured by Hiroxxx. Usage of breaker chisel produced by another manufacturer may damage the breaker and will void the warranty.
- To avoid personal injury or equipment damage, all breaker repair, maintenance and service must only be performed by authorized and properly trained personnel.
- If you do not understand how to operate safely your breaker, contact an authorized Hiroxxx Dealer for assistance.
- Keep this manual with the breaker.
- Do not operate this equipment if you are taking medication which may affect your mental judgement or physical performance.
- Do not operate this equipment if you are under the influence of drug or alcohol.
- Remove breaker form carrier during transportation.

## 02 | Preparation for installation and operation

### 2.1 | Checking before installation instructions



CHECK THE “SPECIFICATIONS” SECTION OF THIS MANUAL TO DETERMINE CORRECT EXCAVATOR SIZES AND HYDRAULIC PRESSURE, HYDRAULIC FLOW IF HYDRAULIC PRESSURE, HYDRAULIC FLOW ARE EXCEEDED, THE HYDRAULIC BREAKER WARRANTY IS VOID



BE SURE THE FLUID IN THE HYDRAULIC SYSTEM IS CLEAN. CHECK THE HYDRAULIC FILTER, REPLACE THE FILTER IF DIRTY OR DETERIORATED. CHECK THE GAS PRESSURE ACCUMULATOR AND BACK HEAD. SEE INSPECTION AND CHARGING OF NITROGEN GAS AT BACK HEAD, ACCUMULATOR HOSE AND PIPING FLEXING.



THE CONTAMINATED PART MUST BE CLEANED WITH NO DELAY. HYDRAULIC OIL OR LIGHT OIL IS HIGHLY RECOMMENDABLE.



THE CIRCUIT RELIEF SETTING PRESSURE IS NOT FIXED. BUT, IT WILL BE ADJUSTED BY PUMP CAPACITY.

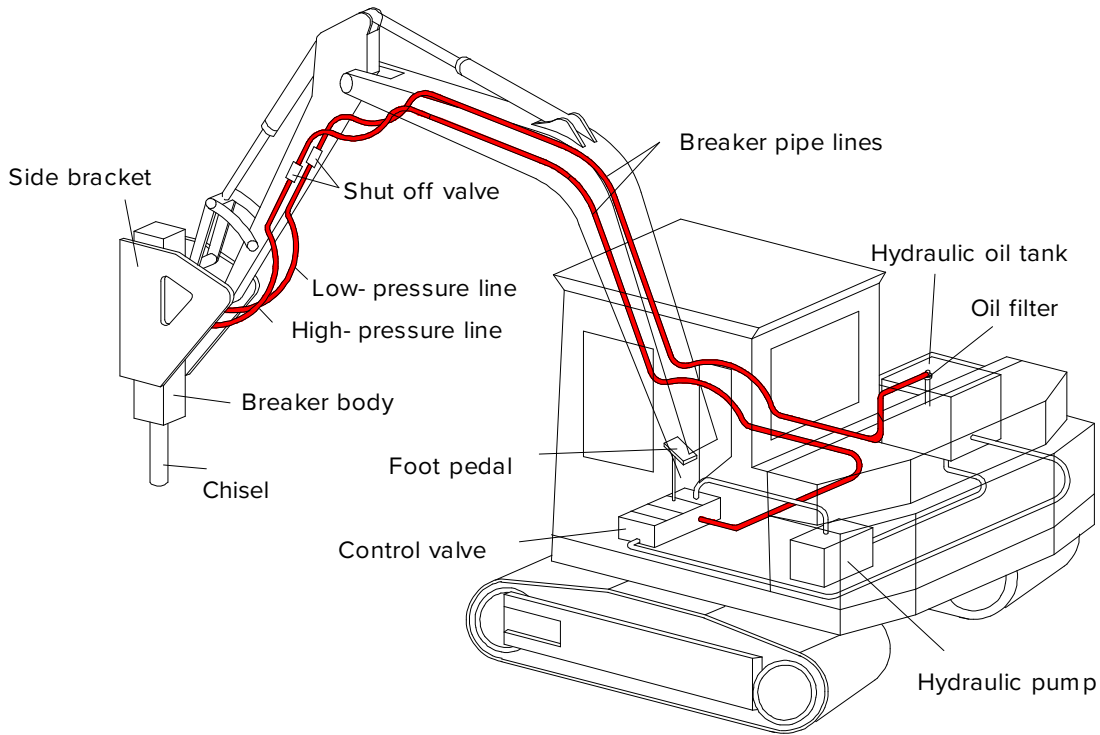
■ Recommended circuit relief setting pressure and back pressure

Model	HRX0.8	HRX1-3	HRX2-4	HRX4-8	HRX13-20
Relief Setting Pressure [kg/cm <sup>2</sup> ]	150	150	160	170	200
Back Pressure [kg/cm <sup>2</sup> ]	16	16	16	16	16

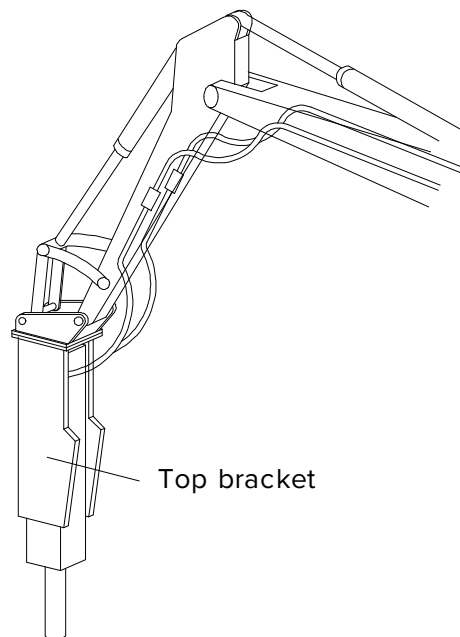
Model	HRX20-30	HRX30-40	HRX40-50
Relief Setting Pressure [kg/cm <sup>2</sup> ]	210	210	210
Back Pressure [kg/cm <sup>2</sup> ]	16	16	16

## 2.2 | Installation and Removal

### ■ Side Bracket Type

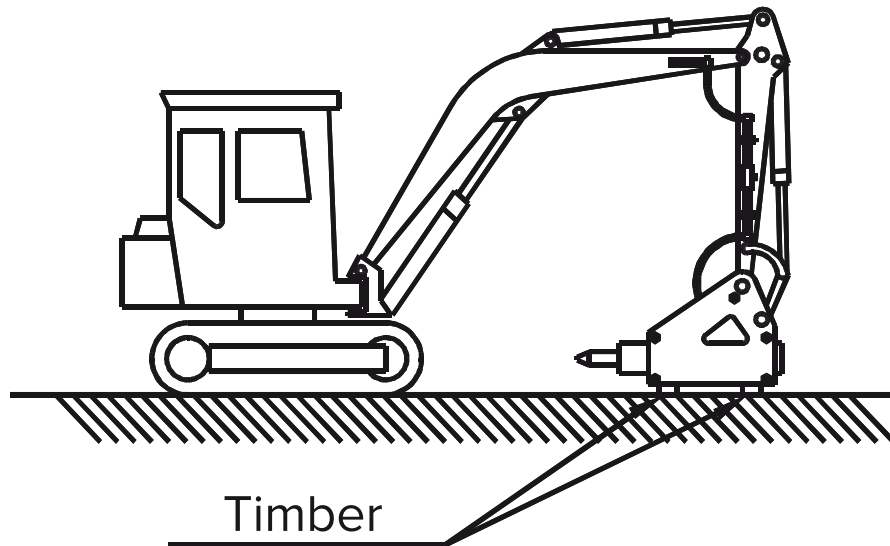


### ■ Top Bracket Type & Trench Type.

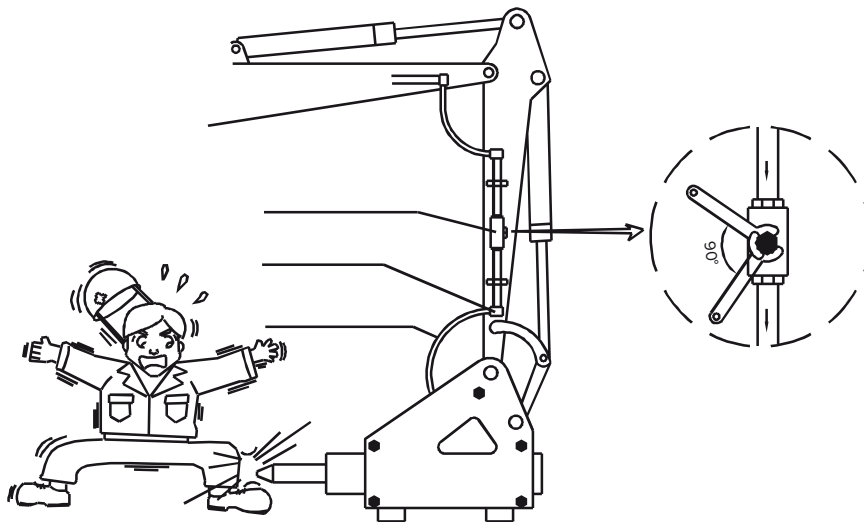


■ Removal of the Hydraulic Breaker

When bucket and breaker operation is required alternatively, the bucket and breaker can be easily exchanged by the hydraulic hoses and two mounting pins. However there is a risk of hydraulic contamination accordingly, do installation and removal as follows.



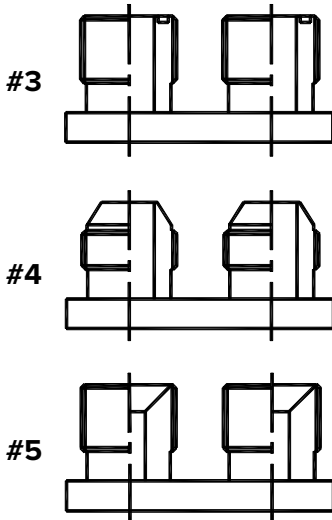
- (1) Move the carrier to stable ground free from mud, dust and dirt.
- (2) Place the hydraulic breaker on timber.
- (3) Stop the engine, turn off the main switch and deflate air from oil tank if it is
- (4) Turn 90° the shut off valve installed to the end of arm to prevent hydraulic from flowing out.



- (5) Loosen hose plug on the breaker arm. Collect small amount of oil flowing out at this time and put into a container.
- (6) Be careful to prevent mud or dust from entering oil hoses and pipe lines. Plug oil hoses with hose plug and pipe lines with union caps. Bind high and low-pressure hoses with a wire to prevent them from getting dirty.

■ Oil hose plug

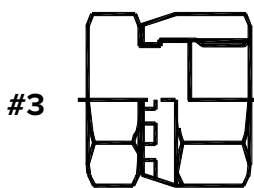
The oil hose plug is used to plug the hose attached to the hydraulic breaker. It prevents mud or dust from entering the hose when the hydraulic breaker is removed from the carrier for bucket operation.



MODEL	TYPE	P/ N	TYPE	P/ N	TYPE	P/ N	O-RING (#3)
HRX0.8	-	-	# 5	C04100	# 4	C04332	-
HRX1-3	-	-	# 5	C04100	# 4	C04332	-
HRX2-4	-	-	# 5	C04100	# 4	C04332	-
HRX4-8	-	-	# 5	C04100	# 4	C04332	-
HRX13-20	# 3	C14100	# 5	C14410	# 4	C14372	2856003
HRX20-30	# 3	C34100	# 5	C14411	# 4	C34050	2856004
HRX30-40	# 3	C64100	# 5	C14412	# 4	C34506	2856005
HRX40-50	# 3	C64100	# 5	C14412	# 4	C34506	2856005

■ Union cap

The union cap is used to cap the piping bracket attached to the carrier for prevention of the piping bracket from being smeared with mud during bucket operation.



## 2.3 | Hydraulic pipe lines for exclusive use

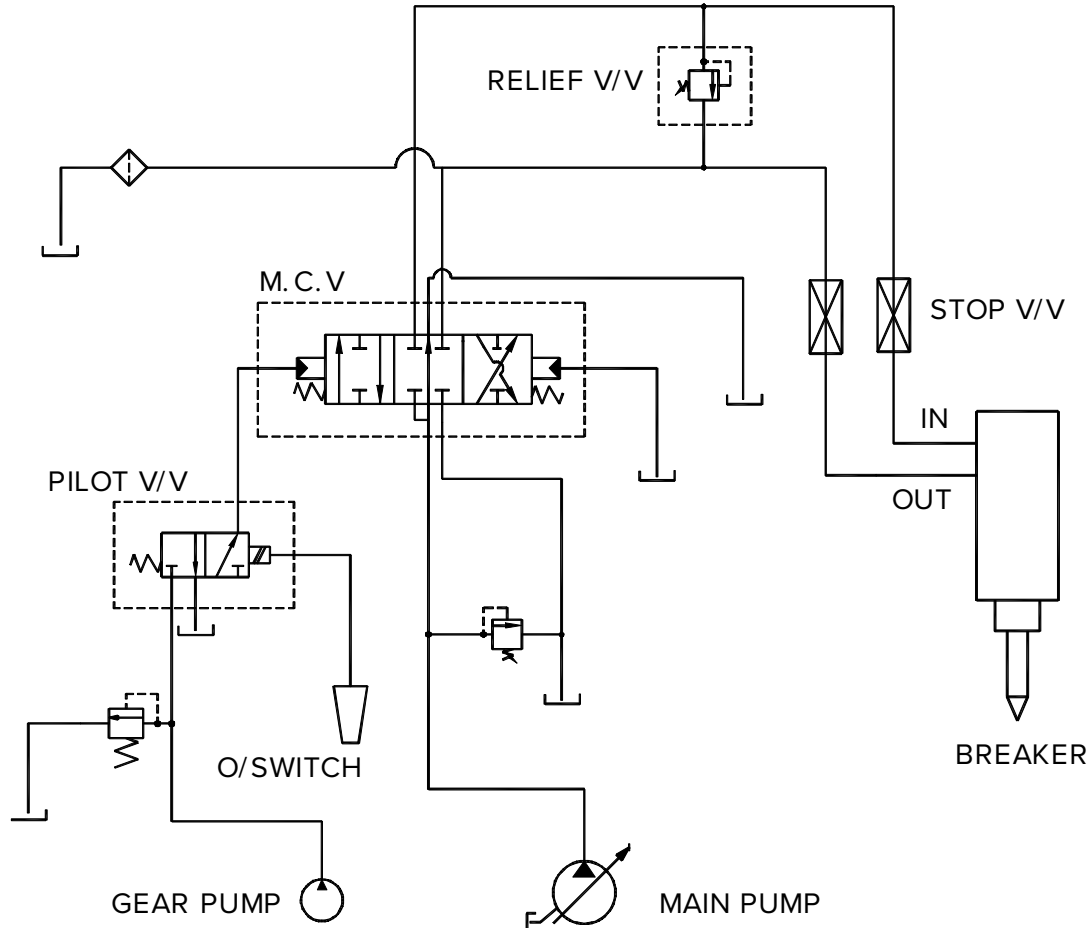
Operation of the hydraulic breaker requires installation of hydraulic pipe lines for exclusive use of the hydraulic breaker. As hydraulic pipe lines vary depending on base machines, our service engineer must first check hydraulic pressure, oil capacity, pressure loss and other conditions of the base machine before installing hydraulic pipe lines. Use only genuine parts in case of replacement because hydraulic pipe lines(hoses, pipes and fittings) are made of materials carefully selected in consideration of durability.

**! WARNING**

**THE HYDRAULIC SYSTEM TO THE BASE MACHINE MUST BE CHECKED BY AN AUTHORIZED HIROXXX SERVICE ENGINEER BEFORE FIRST USE AND AFTER ANY MODIFICATIONS.**

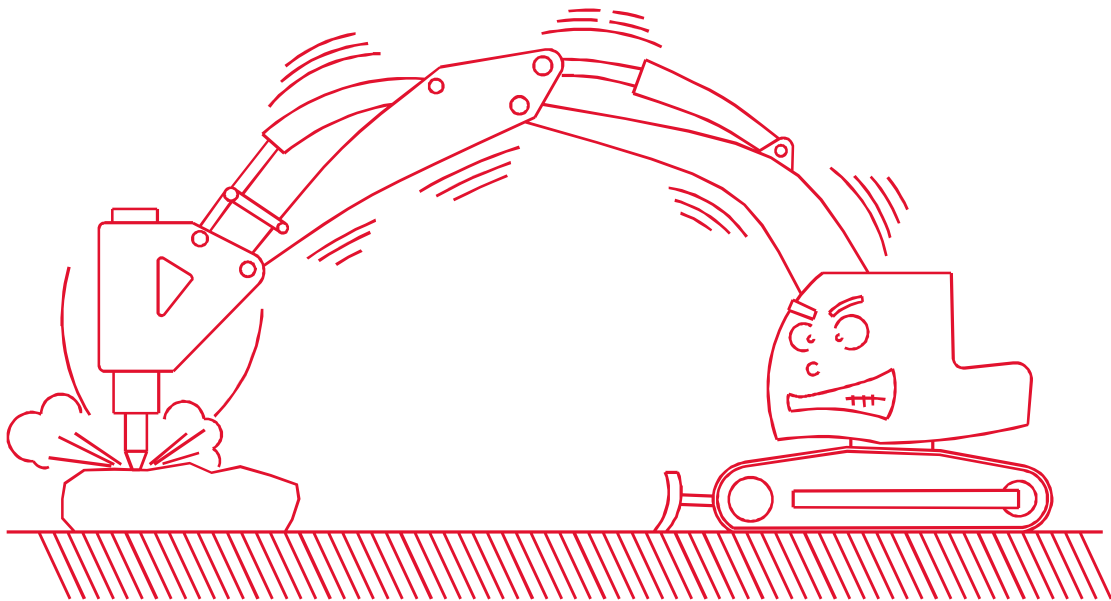
**! WARNING**

**MAKE SURE THAT THE HYDRAULIC BREAKER VALVE OF HYDRAULIC SYSTEM IS PROPERLY SET.**

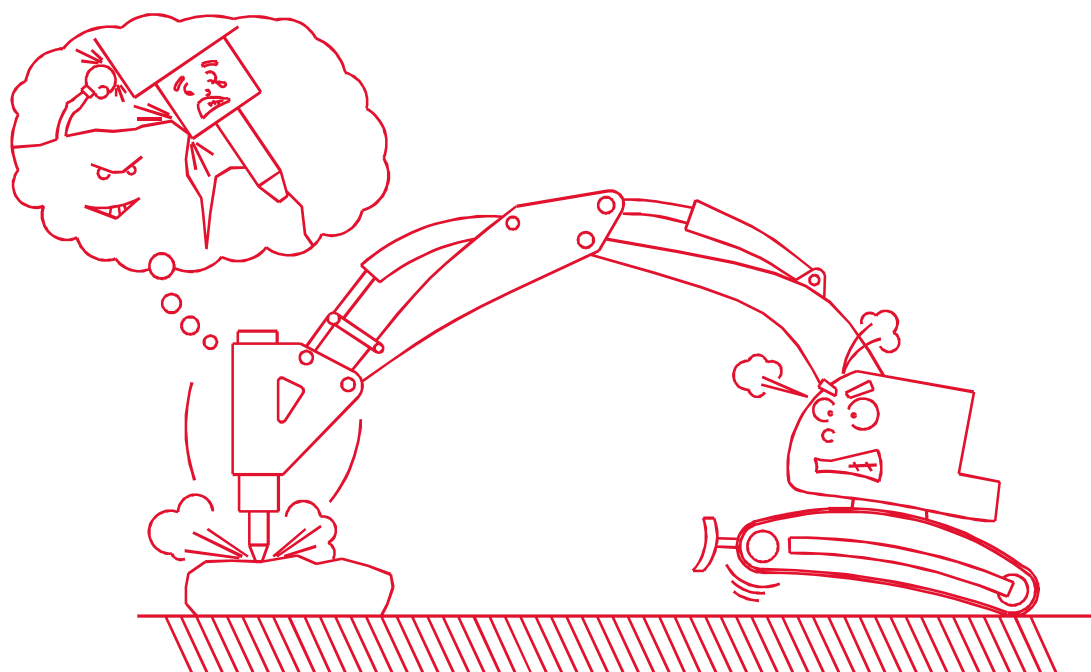


### 03 | Precautions for safe operation.

- [1] Proper position must be applied for an effective usage of breaking force. When position is incorrect, hammering energy of the piston is too weak to break rocks, Instead, hammering force applies shocks to the breaker body, breaker arm and boom of the base machine, thereby resulting in damage to those parts.



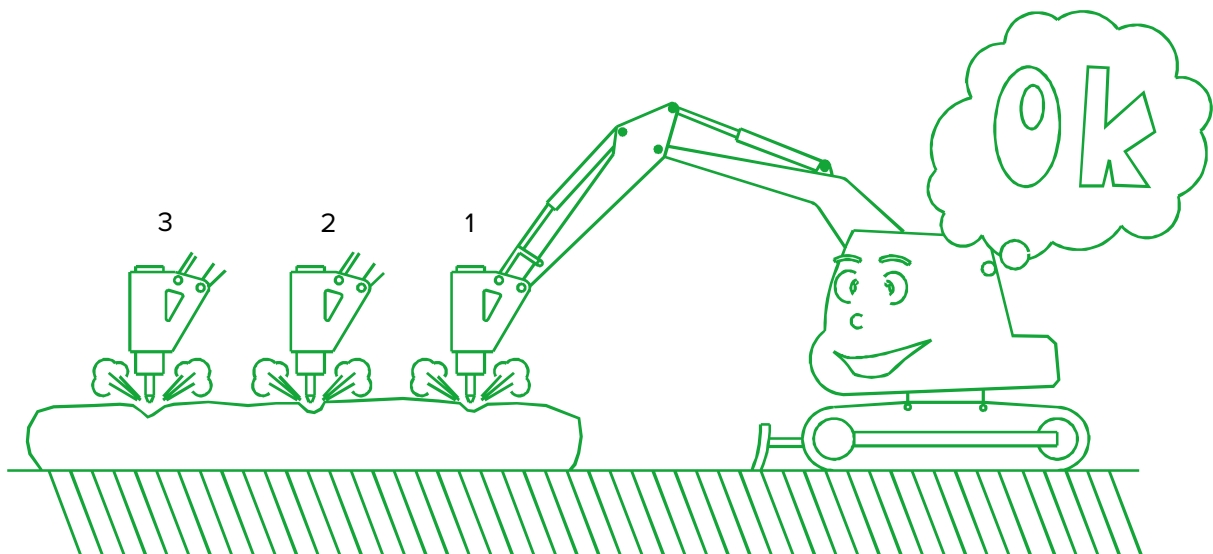
- [2] On the contrary, when position is excessive enough to break rocks with front of the base machine raised, the machine may suddenly tilt forward the moment rocks are broken. Then, the breaker body or the end of bracket may violently hit against rocks and result in damage.



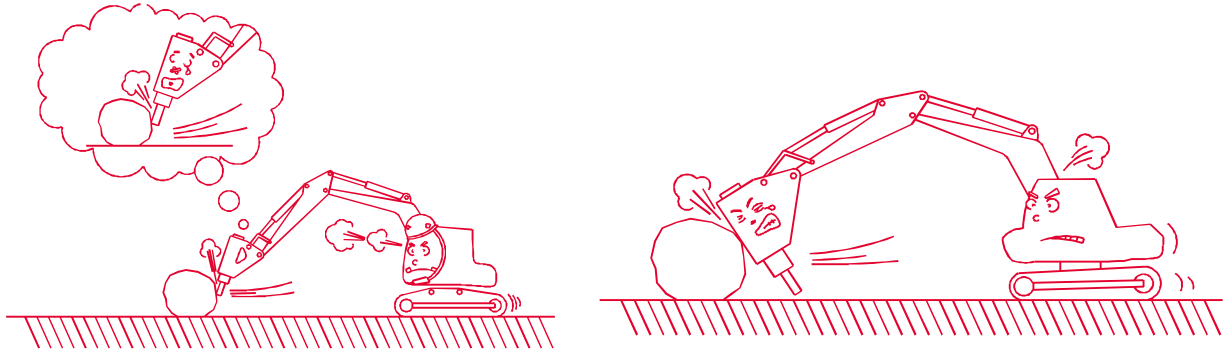
- [3] It is undesirable to carry out hammering under the below condition, because vibrations during hammering may be transmitted to tracks of the base machine. During hammering, however, proper position must be always applied to the breaker. Special care must be taken not to hammer under abnormal condition.



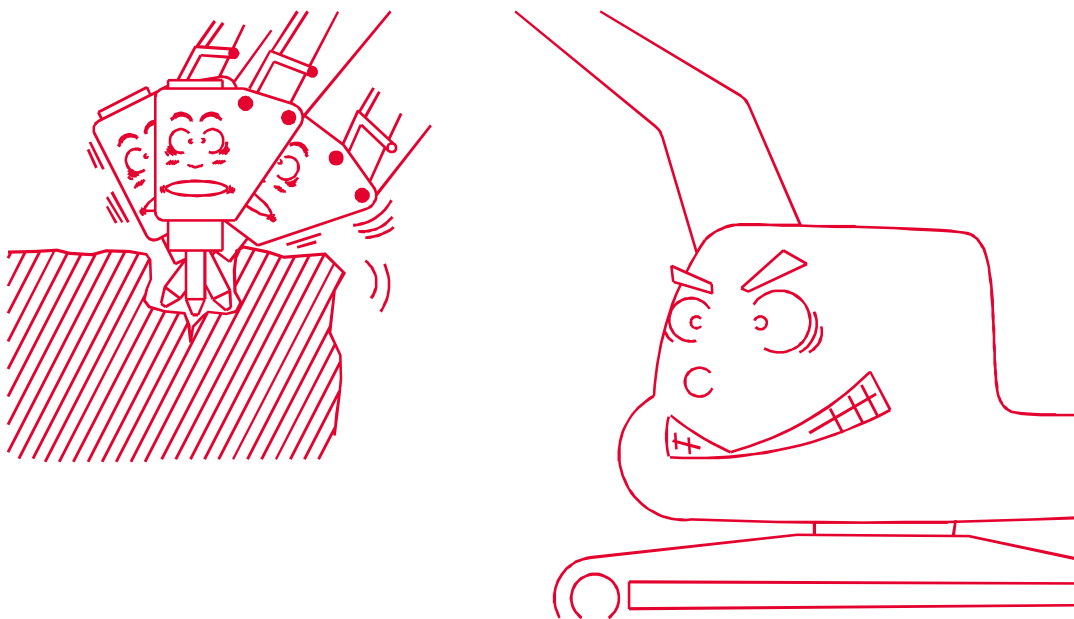
- [4] Apply same direction of boom force in line with the chisel and place the chisel in the rock with hammering surface as vertical as possible. If hammering surface is oblique, the chisel may slip during hammering. This causes the chisel to seize and to be broken and piston to be damaged. When breaking, fully stabilize the chisel first and then select the point of a rock on which hammering can be performed in a stable condition.



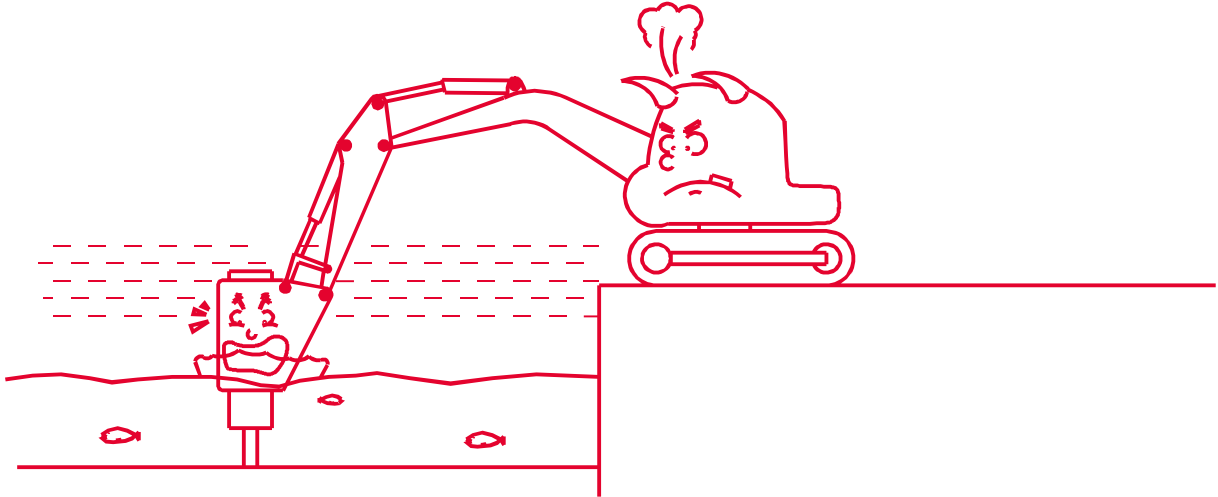
- [5] Rolling or pushing a rock with the chisel end or bracket side by using the boom or arm of the carrier as shown in the figure will result in breakage of the breaker mounting bolt or bracket, breakage and galling of chisel, and damage to the arm and boom. Do not move rock. It is strictly prohibited to travel when the breaker is in the contact with rock.



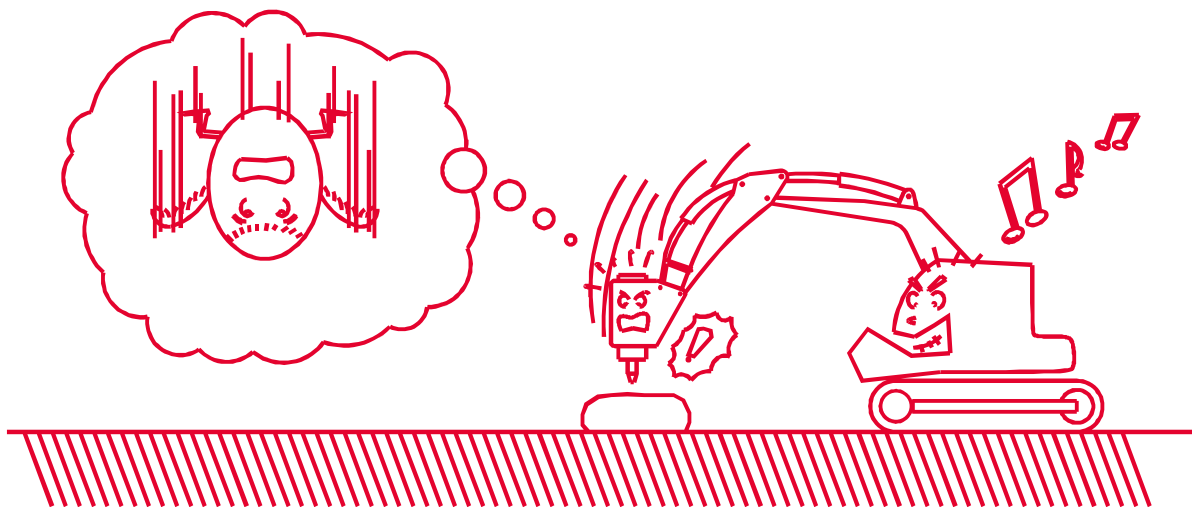
- [6] Do not use chisel as a lever. Do not put the chisel into a crack in rock and move the chisel to and fro to breaker the rock, otherwise the chisel will be broken or the bracket will be damaged.



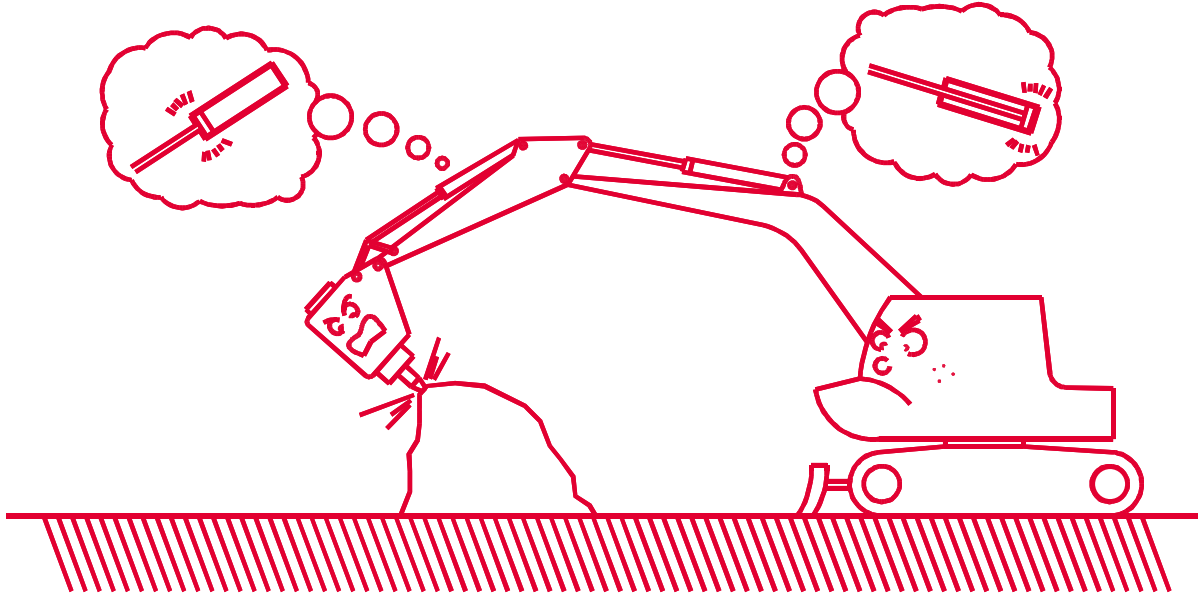
- [7] Do not operate breaker when all components except chisel are immersed in water and mud. Underwater usage of the breaker will cause internal damage to the breaker. Consult Hiroxxx for modifications if you have an underwater requirement.



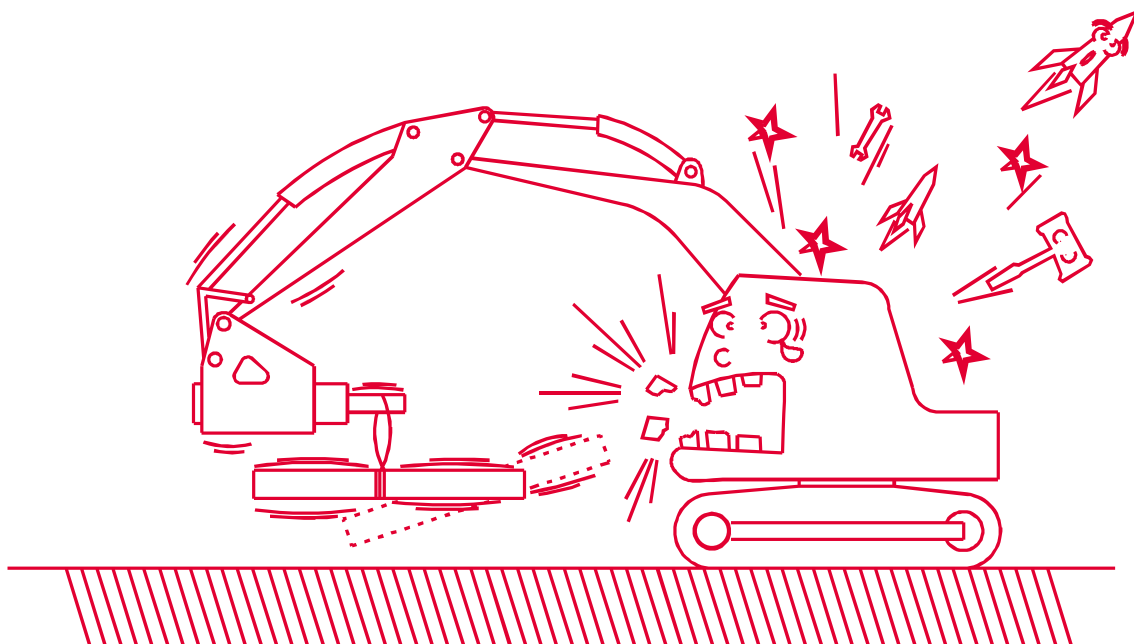
- [8] Do not allow the breaker to strike a rock. Striking the breaker down will apply excessive force to the breaker or the carrier, causing damage to the parts of the breaker and carrier.



- [9] Breaking operation conducted at the stroke end (when the cylinder is extended or retracted to a maximum extent) of respective hydraulic cylinders of the carrier will lead to damage to the cylinders and other parts of the carrier.



- [10] Lifting things by a hanging wire on the bracket or chisel not only causes damage to the breaker but also is very dangerous.



- [11] Warm-up of machine prior to operation
- Do not operate the machine right after starting the engine. Idle the machine for warm-up. Warm the hydraulic oil sufficiently especially in winter or in the cold place.
  - Especially in winter, the carrier's engine should be warmed up for 5 to 10 minutes 30-40°C (86-105°F) before breaker operation.
  - When operating the hydraulic breaker, idle the engine and operate the hydraulic breaker with a light load.
- [12] Stop operation when hoses are vibrating abnormally. Check the hoses on the high pressure and low pressure sides of the breaker for abnormal vibration. If they are vibrating abnormally, contact the nearest Hiroxxx dealer.
- [13] Avoid blank hammering. Blank hammering accelerates wear and tear on breaker and carrier components and may result in failure of one or more components. Excessive blank hammering may be considered equipment abuse and may result in voiding warranties. In case of blank hammering, hammering sound changes.
- [14] Operate the breaker at proper engine speed. Break rocks at the specified engine speed. Raising engine speed more than necessary does not strengthen hammering force but increase oil temperature to the detriment of piston and valve.

# 04 | Maintenance

■ Regular Hydraulic breaker Inspection and Maintenance



**Regular inspection is essential for keeping hydraulic breaker operating in the best condition consult with the Hiroxxx service station for regular inspection and maintenance. Customers are recommended to contact the service station for inspection within six months after delivery.**

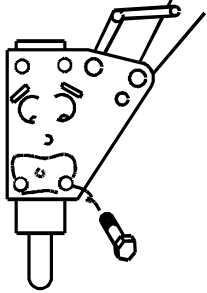
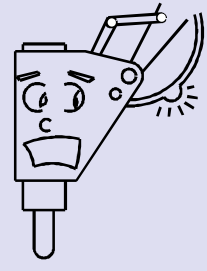
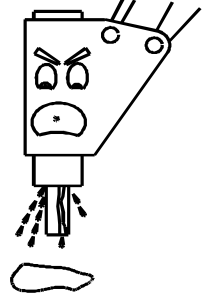

■ Maintenance of Hydraulic breaker

Check cycle	Check Item	Location
Ordinary check items before and after operating breaker	<ul style="list-style-type: none"> <li>● Confirm the state of breaker and carrier</li> <li>* Damage and assembled state of bracket pin</li> <li>* Fastened state of pin assembled bolts</li> <li>* State of quick-clamp setting and bolts/pins assembled</li> <li>* State of cap mounting bolt (TOP Type)</li> </ul>	
	<ul style="list-style-type: none"> <li>● Assembling state of breaker and bracket</li> <li>* State of side-bolt and all kinds of bolt</li> <li>* Whether all kinds fixing part and anti-shock parts (cushion &amp; wear plate)are damaged</li> <li>* State of bracket-crack, breakage, welded area</li> </ul>	E
	<ul style="list-style-type: none"> <li>● Fastening state of breaker main-body parts</li> <li>- Fastening and breakage state of pins, blocks, bolts</li> <li>* Fastened through bolt state</li> <li>* Front head pin and Rubber plugs</li> <li>* Stop pin and Rubber plugs</li> <li>* Air check valve</li> <li>* Back head charging valve</li> <li>* Valve adjuster</li> <li>* Accumulator mounting bolt</li> <li>* Accumulator cover fastening bolt</li> <li>* Accumulator charging valve</li> <li>* Hose adapter</li> <li>* Hex Head Plug</li> </ul>	A  G F H B C D I J
	<ul style="list-style-type: none"> <li>● Damage of safety/warning sticker</li> </ul>	
	<ul style="list-style-type: none"> <li>● Loss or fastening state of bracket assembled parts</li> <li>* Sound plug(Silenced type)</li> <li>* Window cover(Silenced type)</li> <li>* Hose cover(Silenced type)</li> </ul>	
	<ul style="list-style-type: none"> <li>● Leakage, interference and assembling state of carrier hoses and pipes</li> <li>* Interference and assembling state of hoses and pipes</li> <li>* Fixing state of control valve</li> <li>* Welding state of clamps</li> <li>* Leakage and fastening state of pipes/hoses connected</li> <li>* Whether hose are twisted/damaged/aged</li> </ul>	
	<ul style="list-style-type: none"> <li>● Oil tank and working fluid quality</li> <li>* Quantity of working fluid</li> <li>* Contamination of working fluid</li> </ul>	
	<ul style="list-style-type: none"> <li>● Breaker on/off switch and electric wire</li> </ul>	
	<ul style="list-style-type: none"> <li>● Examine worn state of consumable parts</li> <li>* Inside diameter of front cover</li> <li>* Worsen state of chisel</li> </ul>	

Check cycle	Check Item	Location
Any time check items during operating breaker	<ul style="list-style-type: none"> <li>● Temperature of working fluid(below 80°C/176°F)</li> <li>● Loss and damage of parts</li> </ul>	
	<ul style="list-style-type: none"> <li>● Leakage of breaker hoses</li> <li>- A little leakage could be run on the chisel (as much as it does not affect operating, performance and efficiency)</li> </ul>	
	<ul style="list-style-type: none"> <li>● Efficiency and abnormal working of breaker</li> <li>* Irregular blowing is occurred</li> <li>* Abnormal blowing sound is occurred</li> <li>* Pipes and hoses are shaken extremely</li> </ul>	
After 1Hr operating	<ul style="list-style-type: none"> <li>● Grease pumping(about 20cc after 1hr operating)</li> <li>- About 5~10 times pumping with grease gun</li> <li>* Chisel friction area : Ring bush, Front cover, Chisel pin</li> </ul>	
Every week (Every 50 Hr operating)	<ul style="list-style-type: none"> <li>● Quantity and contamination degree of working fluid (Refill or replace)</li> <li>* Contamination limit : 20~40cst</li> </ul>	
	<ul style="list-style-type: none"> <li>● Examining wear of consumable parts (Grind the area deformed if necessary)</li> <li>* Chisel pin</li> <li>* Ring bush</li> <li>* Front cover</li> </ul>	
	<ul style="list-style-type: none"> <li>● Remove strange material inside of front head</li> </ul>	
	<ul style="list-style-type: none"> <li>● Check the gas pressure and refill</li> <li>* Back head</li> <li>* Accumulator</li> </ul>	
	<ul style="list-style-type: none"> <li>● Whether all kinds of bolts are fastened by regulated torque</li> </ul>	
Every month (Every 200 Hr operating)	<ul style="list-style-type: none"> <li>● Operating pressure of breaker</li> </ul>	
	<ul style="list-style-type: none"> <li>● Relief setting pressure of hydraulic circuit</li> </ul>	
	<ul style="list-style-type: none"> <li>● Supply flow</li> </ul>	
Every 3 month (Every 500 ~ 1000 operating)	<ul style="list-style-type: none"> <li>● Replace oil filter of carrier Every 3month</li> </ul>	
	<ul style="list-style-type: none"> <li>● Replace seal kit</li> </ul>	
	<ul style="list-style-type: none"> <li>● Replace diaphragm of accumulator</li> </ul>	
	<ul style="list-style-type: none"> <li>● Examine if piston is pressed or deformed</li> <li>● Examine if hydraulic parts are scratched if necessary grind and repair them</li> </ul>	
Hold breaker over 1 month	<ul style="list-style-type: none"> <li>● Sufficient greasing</li> <li>* Chisel, Chisel pin, Front cover, Ring bush</li> </ul>	
	<ul style="list-style-type: none"> <li>● Lubricate piston surface</li> </ul>	
	<ul style="list-style-type: none"> <li>● Remove N<sub>2</sub> Gas</li> </ul>	
	<ul style="list-style-type: none"> <li>* Back head</li> <li>* Accumulator</li> </ul>	
	<ul style="list-style-type: none"> <li>● Paint area fallen off</li> </ul>	
	After under water operating	<ul style="list-style-type: none"> <li>● Clean and grease after dissemble all parts of main body</li> </ul>

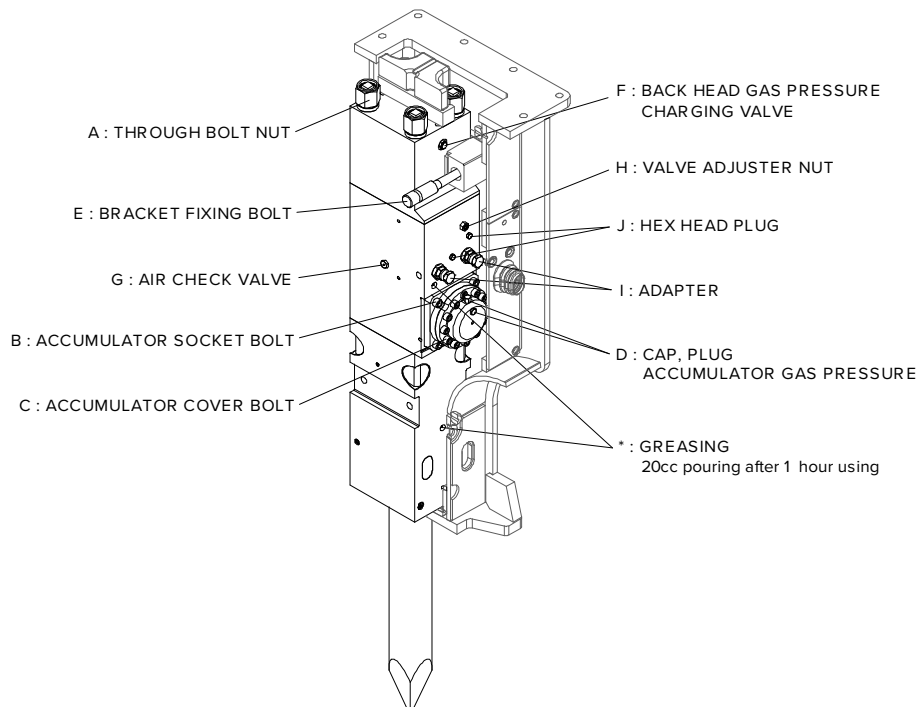
\* The maintenance related with carrier follows carrier manufacturer rule

- Daily Inspection before operating Before starting operation, be sure to inspect the breaker referring to the following table.

Inspection Item	Inspection Point	Remedy
<ul style="list-style-type: none"> <li>- Looseness, missing and damage to bolts and nuts</li> </ul> 	<ul style="list-style-type: none"> <li>- Through bolt</li> <li>- Bracket mounting bolt</li> </ul>	<ul style="list-style-type: none"> <li>- Check looseness.</li> <li>- Retighten to correct Tightening torque.</li> </ul>
<ul style="list-style-type: none"> <li>- Looseness of hose fittings, visible damage to hoses &amp; oil leakage</li> </ul> 	<ul style="list-style-type: none"> <li>- Hydraulic piping for breaker</li> <li>- Oil hose</li> </ul>	<ul style="list-style-type: none"> <li>- Retighten sufficiently.</li> <li>- Replace when damaged.</li> </ul>
<ul style="list-style-type: none"> <li>- Abnormal oil leakage</li> </ul> 	<ul style="list-style-type: none"> <li>- Connection of back head and cylinder inspection.</li> <li>- Gap between front head and chisel. * But small leakage is normal.</li> </ul>	<ul style="list-style-type: none"> <li>- Consult with Hiroxxx for further advice.</li> </ul>
<ul style="list-style-type: none"> <li>- Abnormal wear and cracks chisel.</li> </ul> 	<ul style="list-style-type: none"> <li>- Chisel</li> </ul>	<ul style="list-style-type: none"> <li>- If the chisel is deformed, burred and worn out, be repaired.</li> <li>- If the chisel is excessively worn out, be replaced.</li> <li>- If the chisel is cracked, be replaced.</li> </ul>

## ■ Tightening Torque & Gas Pressure

ITEM	MODE	Position	UNIT	HRX0.8	HRX1-3	HRX2-4	HRX4-8	HRX13-20	HRX20-30	HRX30-40	HRX40-50
Through Bolt Nut		A	kg-m	25~30		25~30	38~42	140~150	290~300	440~450	470~480
Accumulator Socket Bolt		B	kg-m	-		-	-	-	60~65	65~70	90~95
Accumulator Cover Socket Bolt		C	kg-m	-		-	-	-	45	35	65
Cap & Plug		D	kg-m	-		-	-	-	15	15	15
Bracket Fixing Bolt		E	kg-m	60		80	100	145	250	350	350
Back Head Gas Pressure		F	kg-cm <sup>2</sup> (psi)	16 (235)		16 (235)	16 (235)	16 (235)	16 (235)	16 (235)	16 (235)
Accumulator Gas Pressure		D	kg-cm <sup>2</sup> (psi)	-		-	-	-	55 (782)	55 (782)	55 (782)
Air Check Valve		G	kg-m	16~18		16~18	16~18	16~18	16~18	16~18	16~18
Valve Adjust Nut		H	kg-m	-		-	-	-	30~35	50~55	60~65
Adapter		I	kg-m	16~18		16~18	16~18	24~26	32~35	35~40	35~40
Charging Valve		F	kg-m	35~40		35~40	35~40	35~40	35~40	35~40	35~40
Hex Head Plug		J	kg-m	-		-	-	-	3~4	3~4	3~4
Greasing every 1 Hr Using (Manual)		*	cc	7		7	10	15	20	25	25

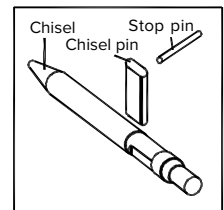
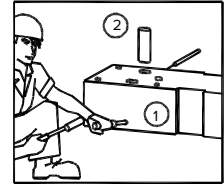


■ Replacement & Breakage of Chisel

- Chisel is deformed or burrs produced in a long term use.
- If the chisel tip is worn out, chisel is liable to slip. Grind the chisel tip to sharpen the edge.
- If the chisel tip is sharpened many times, the hardened surface layer will disappear and the chisel will be worn out rapidly. In this case, replace with a new chisel. -If the gap between chisel and front cover is large, the piston fail to fit in chisel to cause damage to the piston or the chisel.

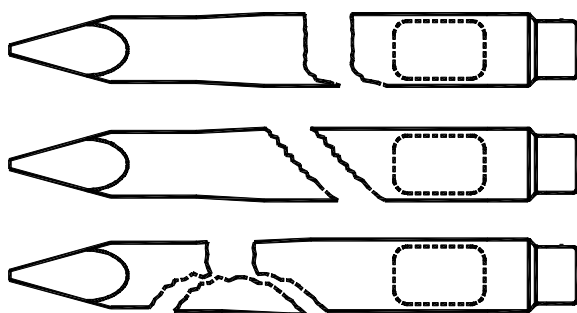
■ Replacement

- 1) Put the breaker horizontally on the timber.
- 2) Remove the spring pin or rubber plug using a pin bar.
- 3) Set round bar on the opposite side, and push the stop pin with a hammer.
- 4) Remove the chisel pin. In removing the chisel pin, be careful falling of chisel and chisel pin.
- 5) Wind rope or nylon sling around the chisel and remove from the main body.
- 6) Before installing a new chisel, check wear, breakage and score. Remove burrs and swelling from the disassembled chisel pin with a grinder. Excessively deformed chisel pin will make replacement of chisel difficult. Chisel pin is required to be checked every 100 to 150 hours of operation.
- 7) Grease sufficiently to inserting part of front head.

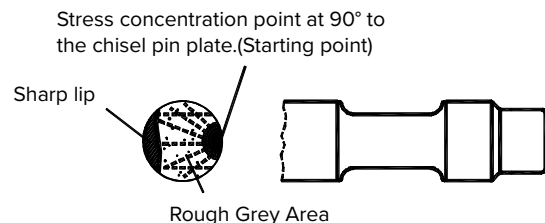


■ Breakage of Chisel

The service life of the chisels depends on the manner of handling them. The chisel can sufficiently withstand the vertically acting load, but is weak to the perpendicularly acting load. Especially, the chisel is affected by the negative conditions such as force by craning operation, tilted blowing, wrenching and idle strokes etc. There are several ways of breakage of the chisel. Each cause of the breakage can be inferred by observing the breakage section. Further, the breakage case which is not caused by low quality materials or insufficient heat-treatment but by wrong way of handling which the manufacturer is not responsible for the breakage. The breakage section has the origin on the outer surface, the narrow area of fatigue breakage and the wide area of rough grey area, and final breakage part has the share-lip form. Such as undulation on the breakage section and its inclination to the right and left witness that the breakage is caused by excessive force which exceeds the toughness of the chisel. Such the breakage is supposed to occur owing to careless handling of the chisel. To avoid such the breakage more carefulness and attention is required in handling the breaker.



Typical fractures caused by excessive bending of the chisel. Warranty claims rejected.



Typical fractures caused by levering tool while buried in the burden. Warranty claims rejected.



Flat type chisel worn more than 45mm or moil type and wedge, universal type chisels worn back more than 75mm of working end classed as reasonable life. Warranty claims rejected.

## 05 | Inspection and Charging of N<sub>2</sub> Gas at Back Head



**Charging gas pressure changes according to the chisel condition. Lay down the hammer and let the chisel extend fully to charge gas. Stay clear of the chisel while charging the breaker with gas. The chisel may be impacted by the piston and forced out abruptly, when the through bolts are changed or the breaker body is disassembled. Discharge N<sub>2</sub> gas before work. Take special care to handle and store the N<sub>2</sub> gas cylinder as it is high pressurized container. Use nitrogen gas only. Back head gas pressure 6kg/cm<sup>2</sup> (85.5psi) on the back head surface temperature at 20°C(68°F) See “CONVERSION TABLE FOR CHARGING N<sub>2</sub> GAS PRESSURE TO BACK HEAD”**

### ■ Inspection of N<sub>2</sub> Gas Back Head

- 1) Make sure if the cap and valve of the 3-way valve assembly(5) are fully tightened. Screw the 3-way valve assembly(5) into the charging valve of the back head after removing the plug.
- 2) At this time the handle must stand up to prevent the gas from coming out.
- 3) Push the handle into the charging valve fully, so the gas pressure inside the back head is indicated on the pressure gauge.
- 4) When the gas pressure is normal, unscrew the 3-way valve assembly after discharging gas inside the 3-way valve assembly.
- 5) When the gas pressure is higher or lower, charge it as described below.

### ■ Charging of N<sub>2</sub> gas into Back Head

- 1) Connect the charging hose(4) to N<sub>2</sub> gas cylinder(1) after screwing the bombe adapter(3) onto adapter nut(2) and installing them to the N<sub>2</sub> gas cylinder.
- 2) Connect the 3-way valve assembly(5) to the charging hose(4) after unscrewing the cap on the 3-way valve.
- 3) Install the 3-way valve assembly(5) to the charging valve of the Back Head. At this time the handle of the 3-way valve assembly must be up position to prevent the gas from coming out.
- 4) Push the handle of the 3-way valve assembly fully and turn the handle of the N<sub>2</sub> gas cylinder counter clockwise gradually to charge gas.
- 5) When the gas pressure exceeds 10% higher than the specified pressure, close the N<sub>2</sub> gas cylinder by turning the handle clockwise.
- 6) Leave the handle of 3-way valve assembly up. Generated pressure makes it return back to original position naturally.
- 7) In order to discharge N<sub>2</sub> gas in the charging hose(4) and the 3-way valve assembly turn the relief valve counter clockwise.
- 8) Remove the charging hose(4) from the N<sub>2</sub> gas cylinder(1) and the 3-way valve assembly(5), and screw the cap into the 3-way valve assembly.
- 9) Push the handle of the 3-way valve assembly fully, and the gas pressure inside the Back Head is indicated on the pressure gauge. When the pressure is higher, discharge a small amount of gas from the Back Head by repeatedly opening and closing the valve and then gas pressure falls to the specified pressure.
- 10) When the gas pressure reaches to the specified pressure, close the valve and release the handle.
- 11) Open the valve completely and discharge gas inside the 3-way valve assembly. Remove the 3-way valve assembly from the charging valve of Back Head and install the plug to the charging valve. At this time prevent contamination from entering the breaker.

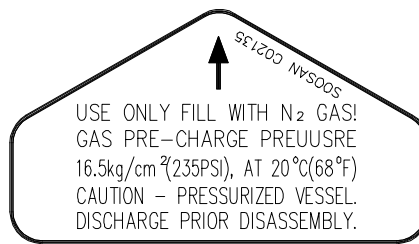
■ Conversion Table for charging nitrogen gas pressure to Back Head

(Depends on the temperature of Back Head surface)

Back Head Surface Temperature (°C /°F)	0 / 32	10 / 50	20 / 68	30 / 86	40 / 104
Back Head Gas Pressure (kg/cm <sup>2</sup> / psi)	15.5 / 220	16 / 228	16.5 / 235	17 / 242	17.5 / 249

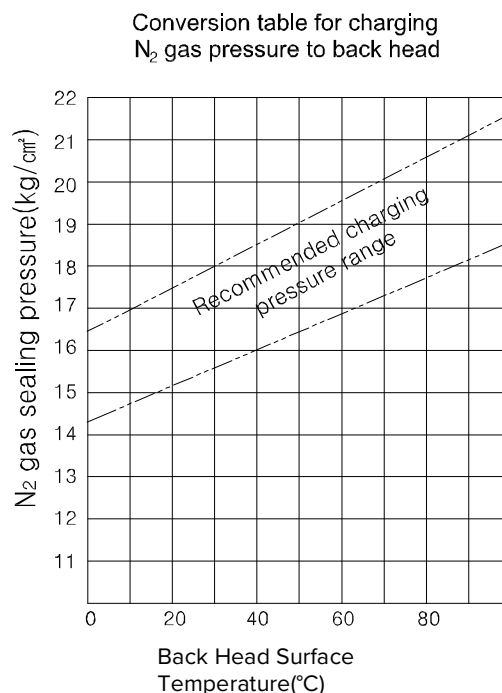
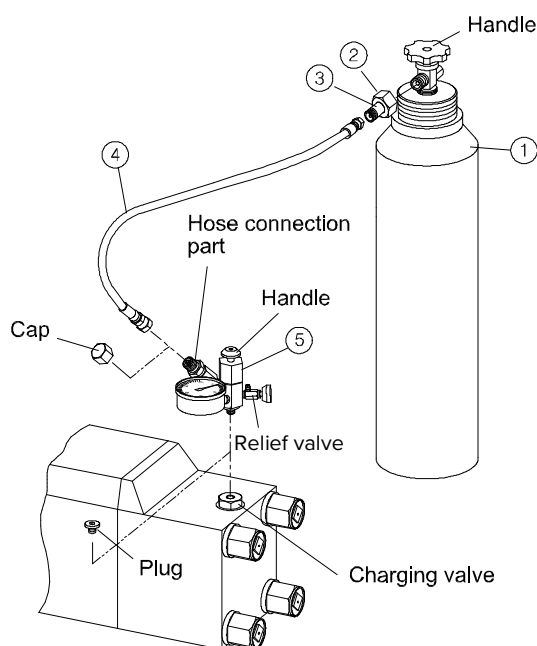
■ Back Head Sticker (C02135)

(Appears on the Back Head charging valve)



■ N<sub>2</sub> (Nitrogen) Gas charging tools to Back Head

ITEM	PART No.	Qty	PART NAME
1	C61204	1 SET	N <sub>2</sub> (Nitrogen) Gas Charging
	2900003	1	N <sub>2</sub> (Nitrogen) Gas Cylinder
2	C91121 1	1	Bombe Adapter Nut
3	C91122 1	1	Bombe Adapter
4	2651001	1	Synflex Hose
5	C01244	1	B-3way Valve Assembly



## 06 | Inspection and Charging of N<sub>2</sub> Gas in Accumulator



**WARNING**

Only applies to HRX20-30 and above

Take special care to handle and store the N<sub>2</sub> gas cylinder as it is high pressurized Use nitrogen gas only. When disassemble the accumulator, must discharge N<sub>2</sub> gas before working. Do not touch on the accumulator surface when working. Be sure to use the 3 way valve assembly for charging the N<sub>2</sub> gas if charging gas leaks directly from the cylinder, diaphragm may be broken off. If charging for handling N<sub>2</sub> gas to only the accumulator, make sure that the accumulator body and cover are tightened fully. Standard accumulator gas pressure 55kg /cm<sup>2</sup> (783psi) on the accumulator surface temperature at 20°C (68°F) See “CONVERSION TABLE FOR CHARGING N<sub>2</sub> GAS PRESSURE TO BACK HEAD”

■ Inspection of N<sub>2</sub> gas Accumulator.

- 1) Make sure if the cap and valve of the 3-way valve assembly(5) are fully tightened.
- 2) Remove the cap(11) from the accumulator and tighten the charging valve (12) fully.
- 3) Check if O-rings(6)(8) are installed to the bushing(7). Remove the plug(9) and screw the bushing.
- 4) Install the bushing(7) to the 3-way valve assembly(5).
- 5) Loosen the charging valve(12) gradually. The charging pressure is indicated on the pressure gauge.
- 6) Close the valve clockwise when the gas pressure is normal. If the gas pressure is higher, repeat loosening and tightening the relief valve of 3-way valve assembly. The pressure is lowered gradually.
- 7) Loosen the relief valve of the 3-way valve assembly to discharge the N<sub>2</sub> gas in the 3-way valve assembly(5).
- 8) Remove the 3-way valve assembly(5) and tighten the plug(9) and cap(11).

■ Charging of N<sub>2</sub> gas into Accumulator

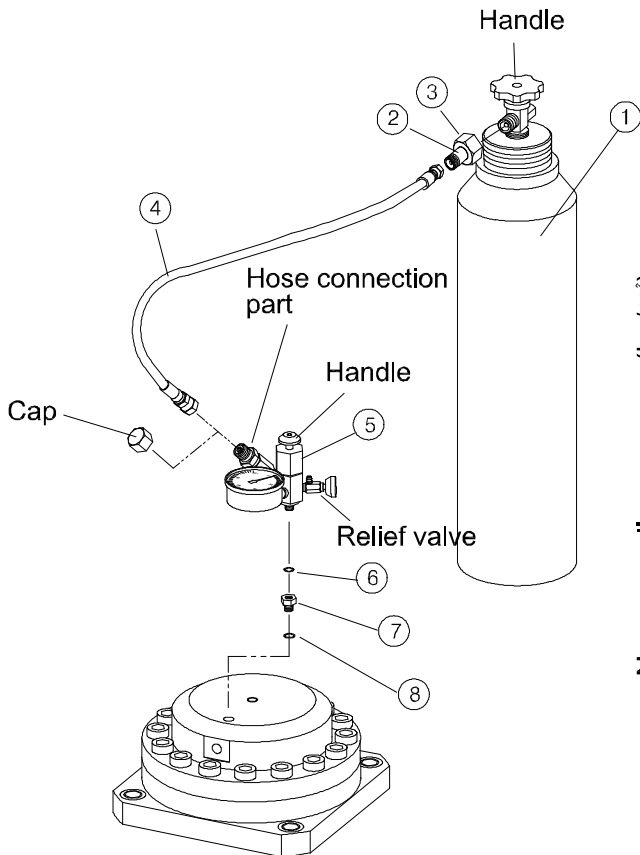
- 1) Connect the charging hose(4) to N<sub>2</sub> gas cylinder(1) after screwing the bombe adapter(3) onto adapter, nut(2) and installing to the N<sub>2</sub> gas cylinder.
- 2) Connect the 3-way valve assembly(5) to the charging hose(4) after unscrewing the cap on the 3-way valve assembly.
- 3) Remove the cap(11) form the accumulator and tighten the charging valve(12) fully.
- 4) Check if O-rings (6)(8) are installed to the bushing(7). Remove the plug(9) and screw the bushing.
- 5) Loosen the accumulator charging valve(12) after checking if bushing(7) is installed to the 3-way valve assembly.
- 6) Turn the handle of the N<sub>2</sub> gas cylinder counter clockwise slowly to charge gas.
- 7) Charge gas in accordance with the conversion table for charging N<sub>2</sub> gas pressure to accumulator.
- 8) Turn the handle of the N<sub>2</sub> gas cylinder clockwise to close the cock.
- 9) Close the accumulator charging valve(12).
- 10) Loosen the relief valve of the 3-way valve assembly to discharge the N<sub>2</sub> gas remaining in the charging hose.
- 11) Remove the charging hose, 3-way valve assembly and bushing and tighten the plug(9) and cap(11).

■ Conversion Table for charging nitrogen gas pressure to Accumulator

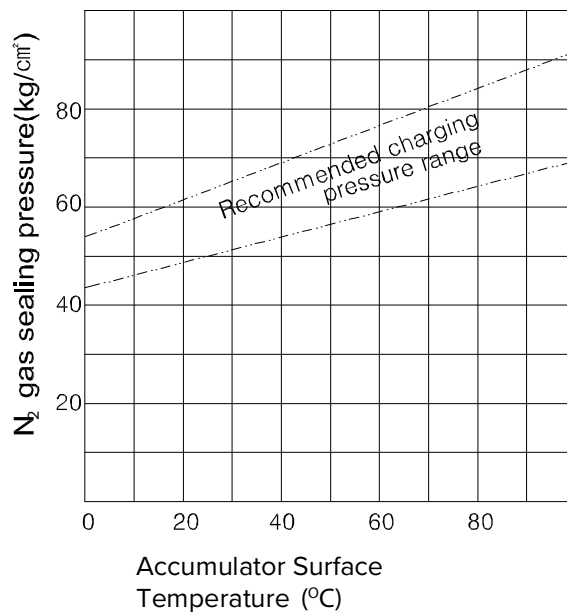
Accumulator Surface Temperature (°C/ °Fμ )	0 / 32	10 / 50	20 / 68	30 / 86	40 / 104
Accumulator Gas Pressure (kg/cm <sup>2</sup> psi)	51 / 730	53 / 755	55 / 780	57 / 815	59 / 830

■ N<sub>2</sub> (Nitrogen) gas Charging Tools to Accumulator

ITEM	PART No.	Q'ty	Part Name
1	2900003	1	N <sub>2</sub> Gas Cylinder
2	C91122	1	Bombe Adapter
3	C91121	1	Bombe Adapter Nut
4	2651001	1	Synflex Hose
5	C01244	1	B-3 Way Valve Assembly
6	2850010	1	O-Ring
7	U81414	1	O-Ring Hex Bushing
8	2850014	1	O-Ring



Conversion table for charging N<sub>2</sub> gas pressure to accumulator



## 07 | Trouble Shooting

The trouble-shooting chart is prepared to help operators find out causes and remedies instantly when troubles occur. When a trouble is found, have a good grip of the problem and contact our service station. When diagnosing faults in operation of the breaker, always check that hydraulic power source is supplying the correct hydraulic flow and pressure to the breaker as listed in the table. Check the flow with the hydraulic oil temperature at least 176°F/80°C. An approved test procedure is available from Hiroxxx.

TROUBLE	CAUSE	REMEDY
<b>1. Breaker fails to hammer</b>		
* Sufficient high pressure oil does not flow to breaker inlet.	* Defective hose or pipes- * Clogged or damaged piping	* Check, clean and repair piping or replace with new one.
* Sufficient high pressure oil flows to breaker inlet.	* Defective control valve and related parts	* Check and repair valve and its related parts or replace with new one.
	* Insufficient hydraulic oil * Internal breaker defects	* Refill oil tank. * Consult with our service station.
<b>2. Breaker hammers with hammering force reduced.</b>		
* Sufficient high pressure oil does not flow to breaker inlet.	* Defective hose or pipes Clogged piping, Oil leakage	* Check, clean and repair piping or replace with new one.
	* Defective control valve and related	* Check control valve and related parts or parts replace with new one.
	* Deformed pedal	
	* Deformed control valve	
	* Stuck control valve	
	* Insufficient control valve stroke due to loose screws	
	* Clogged filter in return line of base machine tank	* Clean or replace.
	* Insufficient hydraulic oil	* Refill.
	* Contaminated or deteriorated hydraulic oil	* After flushing tank, change oil entirely.
* Sufficient high pressure oil flows to breaker inlet.	* Defective pump	* Ask service station for base machine service.
	* Internal breaker defects	* Consult with our service station.
	* low N <sub>2</sub> -gas pressure of back head	* Adjust the gas pressure referring to Chapter 10.
<b>3. Hammering force weakens suddenly and high pressure hose vibrates excessively during operation.</b>	* Defective Back Head Gas leakage	* Ask our service station for repair.
<b>4. Excessive oil leakage from Front Head or Chisel.</b>	* Worn cylinder seals	* Ask our service station for repair.
<b>5. Piston works but does not hammer.</b>	* Stuck in chisel	* Remove front parts and pull out chisel. * Repair with a grindstone.

※ Ask base machine service station to repair defective base machine.

## 08 | Hydraulic Oil

Selection of hydraulic oil determines the efficiency of the hydraulic breaker performance. Please consult with our service station under following conditions.

- (1) When used in special regions where climate is severe (extremely cold or hot weather)
- (2) When recommended brands of hydraulic oil are not available
- (3) When hydraulic oil supplied for the base machine differ from the recommended one.

■ Hydraulic Oil and Grease

Recommended for Hydraulic Breaker by Hiroxxx

LUBE & SPEC	HYDRAULIC OIL			GREASE (MOS2)
	SUMMER	WINTER	ALL SEASON	
Manufacture	ISO VG 46	ISO VG 32	ISO VG 46	NLGI No2
MOBIL	MOBIL DTE 25	MOBIL DTE 24	MOBIL DTE 15M	MOBIL GREASE SPECIAL
	MOBIL SHC 525 *			MOBILITH SHC 220 *
	MOBIL EAL SYNDRAULIC 46 **			
LG-CALTEX	RANDOHD 46	RANDO HD 32	NEW RANDO HDCZ	MOLYTEX EP2
BP	ENERGOL HP46	ENERGOL HP32	ENERGOL HP46	-
SHELL	TELLUS 46	TELLUS 32	TELLUS T 46	RETINAX HDX-2

★ : Synthetic Lubricant

★★ : Environmentally Friendly Synthetic Lubricant

■ Oil Contamination

Contaminated oil results in malfunctions of the breaker as well as the base machine and causes damage to parts. Pay special attention to oil contamination. Contaminated oil should be changed without delay. When changing oil, thoroughly wash oil tank, cylinder and pipes. Cleaning or replacing oil filter also requires check for oil contamination.

- ※ Replacement of filter : after first 50 hours and every 100 hours thereafter
- ※ Replacement of hydraulic oil : every 500 hours



**WARNING**

**Hydraulic oil Temperature and viscosity Do operate the hydraulic breaker at oil temperatures from 20°C/68°F. to 80°C/176°F. Operation at higher temperatures can damage the internal components of the breaker and carrier there will result in reduced breaker performance.**

■ Criterion of Oil Contamination and Malfunction

(General Analysis)

Analysis Item	Criterion	Causes and Effects when exceed the criterion
Adhesiveness	Within $\pm 10\%$ (40°C cst)	Adhesiveness rarely decreases because of hydraulic oil. Entry of different kind of oil may reduce the adhesiveness which contributes to rising oil temperature, wear and scratch of bearing and gear and malfunction of hydraulic oil.
Oxidizing Level	Less than 0.3 (mg KOH/g)	Use of lubricating oil in a long period or in a high temperature (above 60.) will oxidize it. Oxidizing level rises as oxidization proceeds. Sludge will be produced during the process and it leads to malfunction, corrosion and ageing.
Moisture	Less than 0.1 (%)	Moisture causes rust, wear and scratch. Moisture of 0.3% goes considerably rusty and moisture of 0.5% occurs the damage of machine.

■ Criterion of Oil Malfunction by Hydraulic Oil Colour

(Simple discrimination by ASTM colour) Hydraulic oil turns black as the breaker fails to display best performance. The old oil is assumed to be contaminated when there is a visual difference between the old/new oil colour and functions begin to deteriorate when hydraulic oil turns darker than the new oil colour (ASTM number) by more than two.

## 09 | The Auto Lubrication Kit (Option)

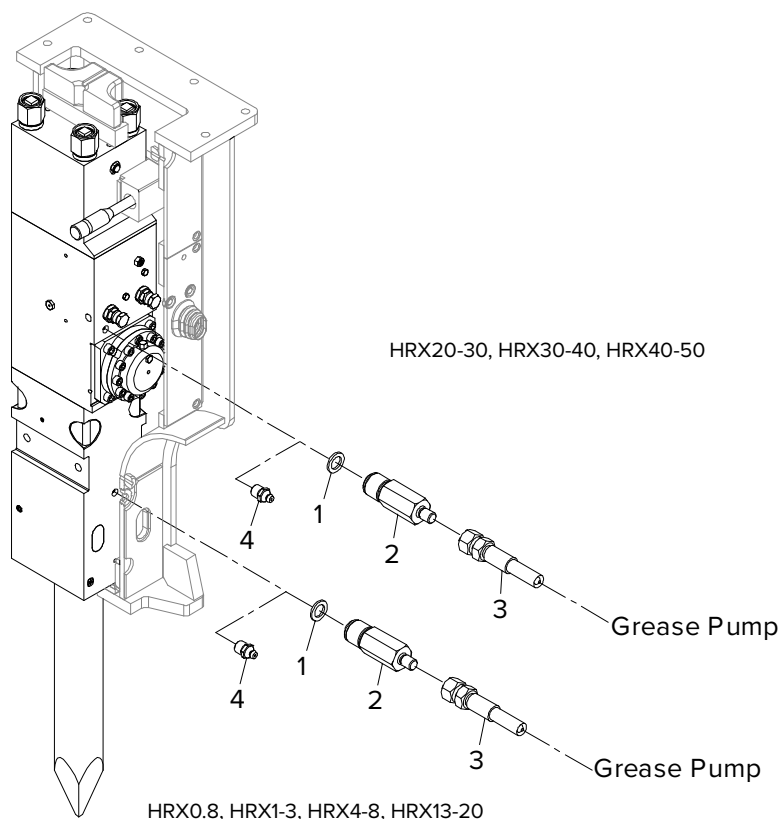
- Install the auto lubrication kit before using it.
- Use only recommended lubricant, if not the lubricant useless.
- For the sake of the auto lubrication, the grease adapter is supplied as standard parts.
- Don't lubricate excessively, the lubricant will be leaked through the air check valve.
- Don't use fluid grease, but use only recommended lubricant.

■ Installing the Auto lubrication kit

- 1) Clean surface area of the grease nipple hole on the Cylinder(or Front head).
- 2) Remove the Grease nipple form the Cylinder(or Front head).
- 3) Apply the O-ring to the G adapter and install it on the Cylinder(or Front head).
- 4) Connect the 1/4" Hose to the G adapter.

■ Grease Filling Quantity (when Auto Lubrication kit installed)

Model	No.	Part No.	Part Name
ALL MODEL	1	2851018	O-Ring
	2	C01157	G-Adapter
	3	2551042	Hose
	4	2700403	Grease Nipple



## 10 | Underwater Operation of the Breaker (Option)

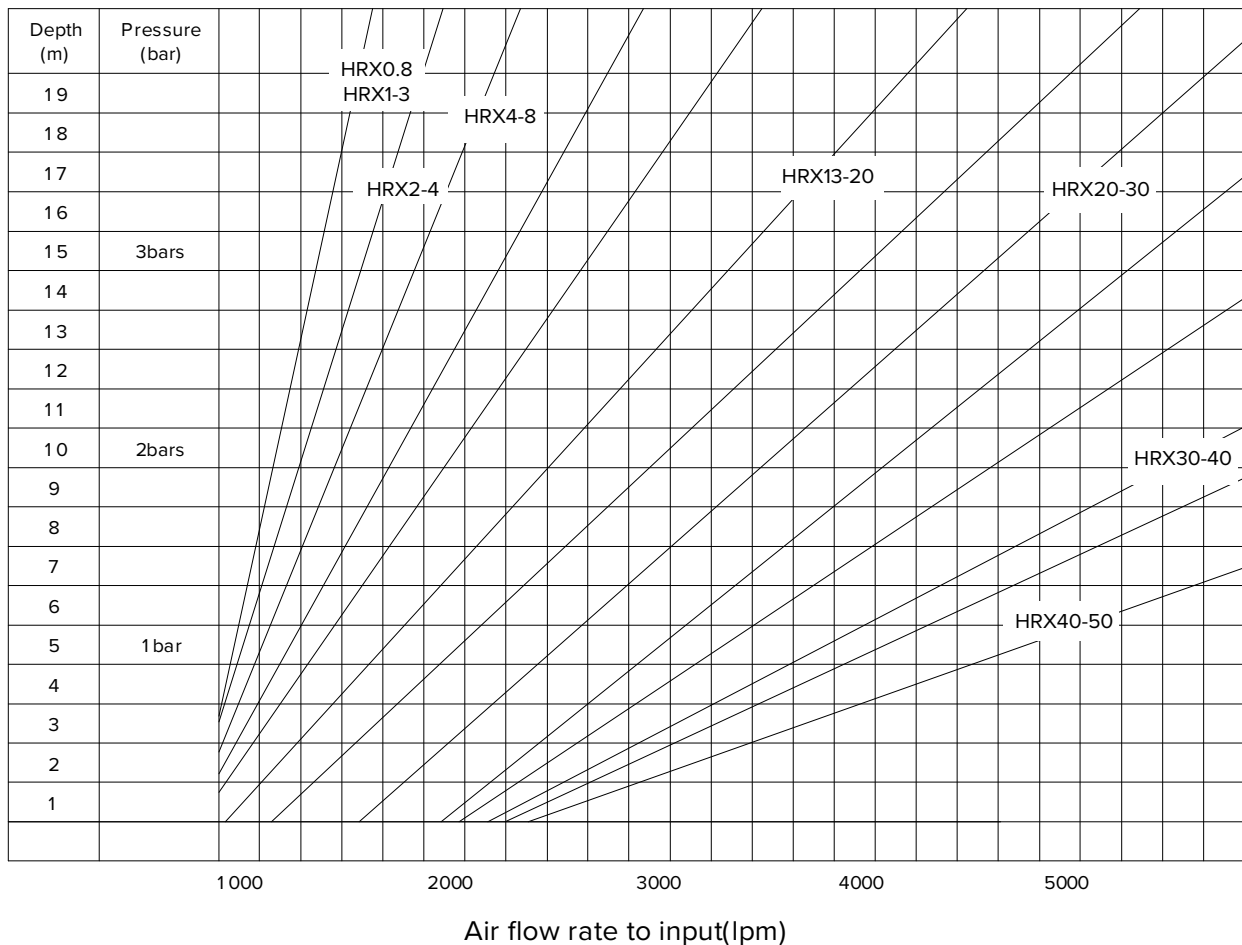
- Underwater operation of the breaker is possible to pour air into the striking area between the piston and the chisel.
- For the sake of underwater operation the adapter is supplied as a standard part.
- For the sake of underwater operation the breaker is installed the air supply kit separately.
- Underwater usage of the breaker without the underwater kit and air compressor will cause serious damage to the hydraulic breaker.

### ■ Installing the Air supply kit

- 1) Clean the air check valve hole on the left-side of the cylinder. (Except HRX20-30, the air check valve hole is located on the right-side)
- 2) Remove the air check valve with the standard tool.
- 3) Apply the O-ring to the cylinder's air check valve hole and install it.
- 4) Connect the hose to the air check valve hole and install it.
- 5) Before underwater operation 02, the breaker getting into water, put air into air check valve.

### ■ Air flow rate for underwater operation

The air capacity levels are in the following chart. Supply appropriate air flow rate in accordance with the breaker model and operating depth.



# HIROX

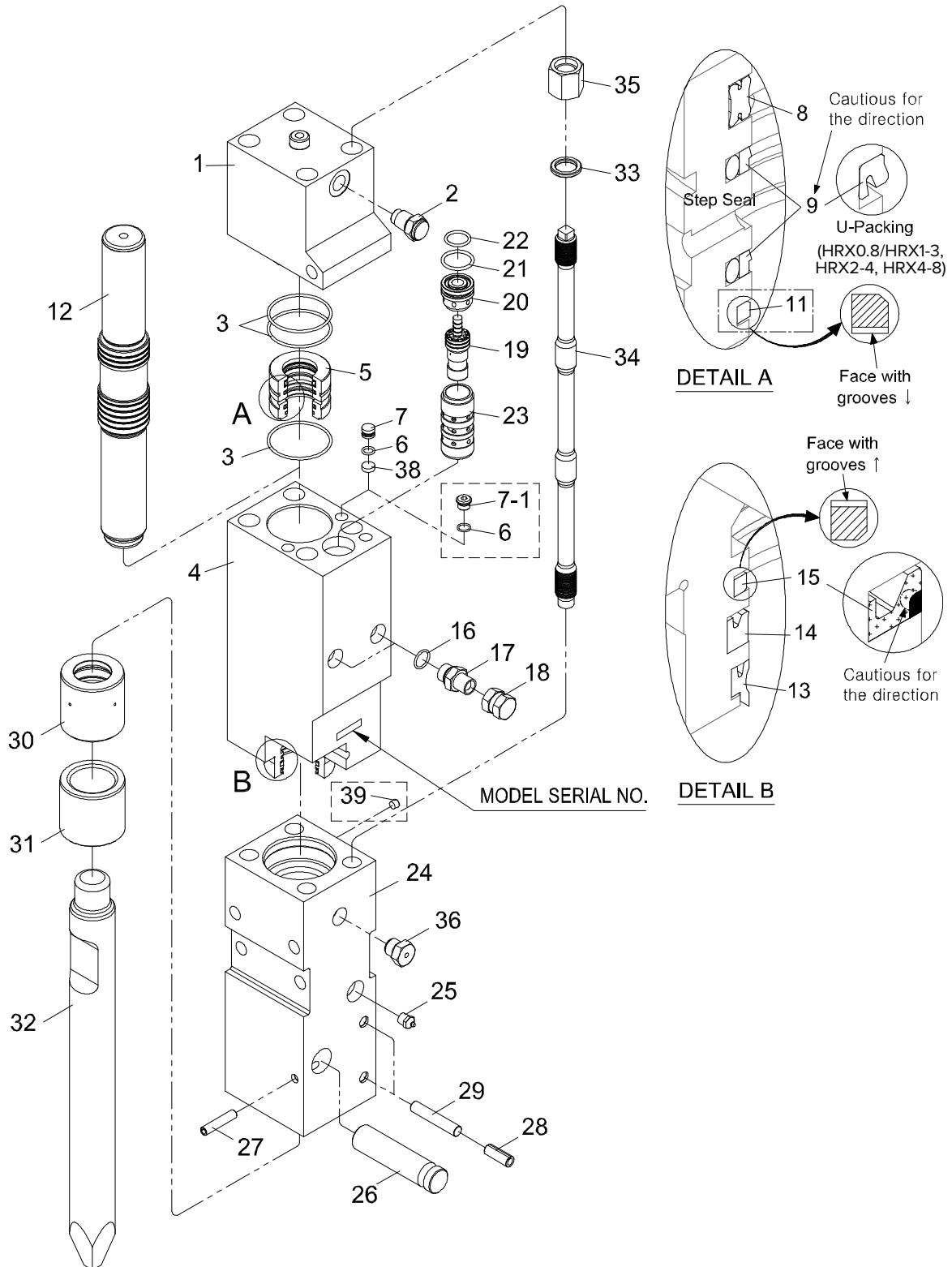
## PARTS LIST

### Hydraulic Breaker



## Main Body

■ HRX0.8/HRX1-3, HRX2-4, HRX4-8

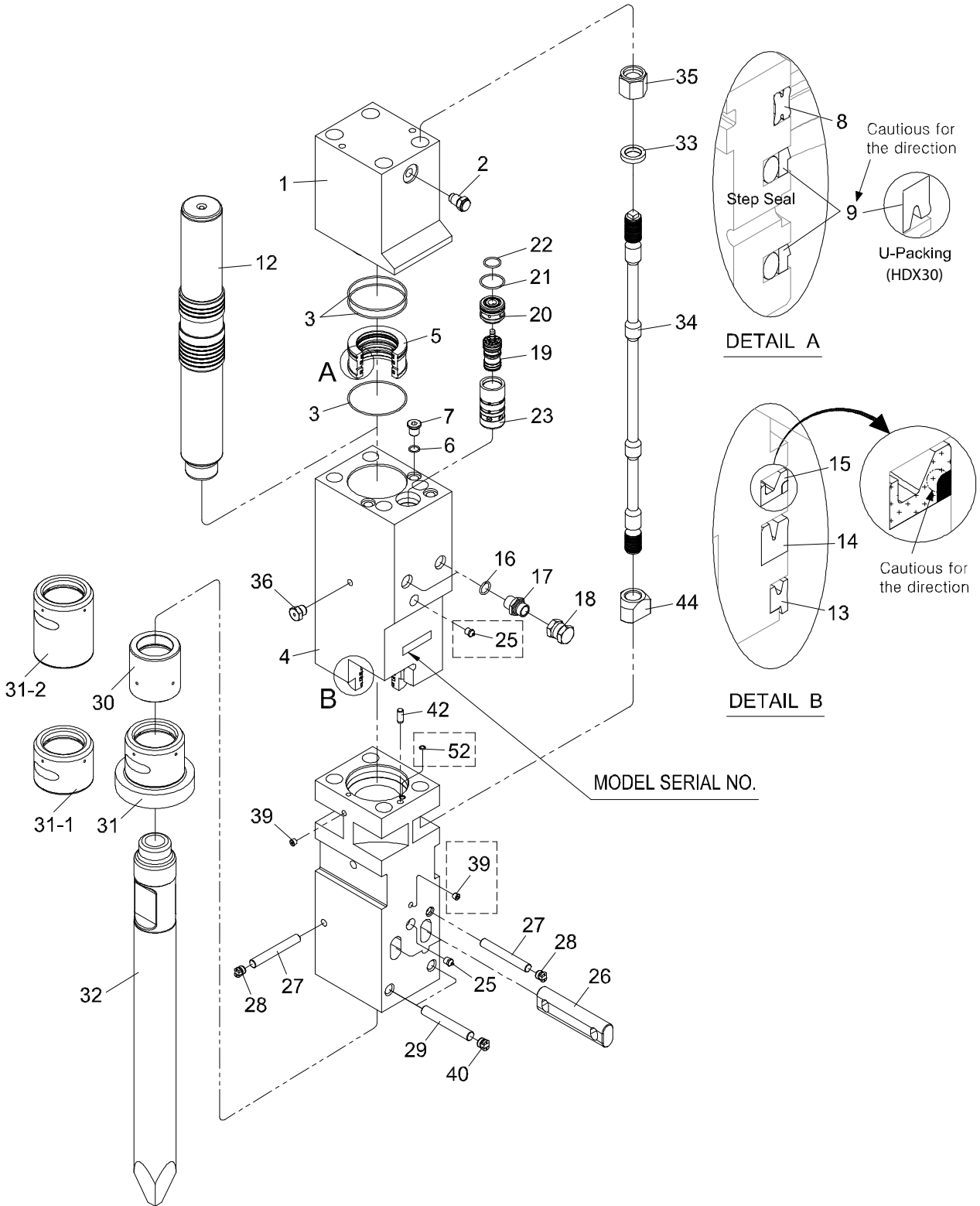


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■ MAIN BODY (HRX0.8,05,10,20) -----(#^~) is applied Serial Number)

NO	HRX0.8 / HRX1-3 (#116^~)		HRX2-4 (#425^~)		HRX4-8 (#7116^~)		PARTS NAME	REMARK	
	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty			
1	E81 002	1Set	E71 002	1Set	C01 005	1Set	Main Body Ass'y		
2	E81 104	1	E71 134	1	C01 102	1	Back Head		
3	C51 191	1	←	1	←	1	Charging Valve		
4	2851208	3	2851210	3	2856012	3	O-Ring		
5	E81 101	1	E71 132	1	C01 198	1	Cylinder		
6	E81 109	1	E71 138	1	C91 125	1	Seal Retainer		
7	2850010	3	←	3	2850016	3	O-Ring	U-Packing	
8	F01 129	3	←	3	-	-	Plug		
9	-	-	-	-	C91 124	3	Socket Plug		
10	2835035	1	2835037	1	2835039	1	Gas Seal		
11	2811044	2	2811018	2	2811046	2	Step Seal		
12	-	-	-	-	-	-	O-Ring		Not Use
13	2819063	1	2819059	1	-	-	Buffer Seal		
14	E81 105	1	E71 102	1	C01 114	1	Piston		
15	2831057	1	2831013	1	2831022	1	Dust Seal		
16	2811055	1	2811010	1	2811031	1	U-Packing		
17	2819062	1	2819058	1	2819056	1	Buffer Seal	U-Packing	
18	2851018	2	←	2	←	2	O-Ring		
19	C91 120	2	←	2	←	2	Adapter		
20	2715002	2	←	2	←	2	Union Cap		
21	F01 104	1	E71 105	1	C01 127	1	Valve		
22	F01 106	1	E71 140	1	C01 188	1	Valve Plug		
23	2851030	1	2851033	1	2851204	1	O-Ring		
24	2851201	1	←	1	←	1	O-Ring		
25	F01 105	1	E71 139	1	C01 193	1	Valve Sleeve		
26	E81 136	1	E71 156	1	C01 216	1	Front Head		
27	2700411	1	←	1	←	1	Grease Nipple	U-Packing	
28	E81 139	1	E71 158	1	C01 219	1	Chisel Pin		
29	4300132	1	←	1	C91 151	1	Spring Pin		
30	4300141	2	←	2	C91 110	2	Spring Pin		
31	E81 140	2	←	2	C01 131	2	Stop Pin		
32	E81 138	1	E71 157	1	C01 217	1	Ring Bush		
33	E81 137	1	E71 159	1	C01 218	1	Thrust Bush		
34	E81 141	1	E71 160	1	C01 220	1	Chisel (Moil Point)		
35	E81 120	4	E71 116	4	C01 144	4	Washer		
36	E81 118	4	E71 114	4	C01 145	4	Through Bolt		
37	E81 119	4	E71 115	4	C01 143	4	Hex Nut	Not Use	
38	C01 162	1	←	1	←	1	Air Check Valve		
39	-	-	-	-	-	-	O-Ring		
40	F01 128	3	←	3	-	-	Cover Plate		
41	-	-	-	-	2702221	1	Hollow Hex Plug		
42	-	-	-	-	-	-	-	Not Use	
43	-	-	-	-	-	-	Heli Sert Coil	Not Use	
44	-	-	-	-	-	-	Hex Head Plug	Not Use	

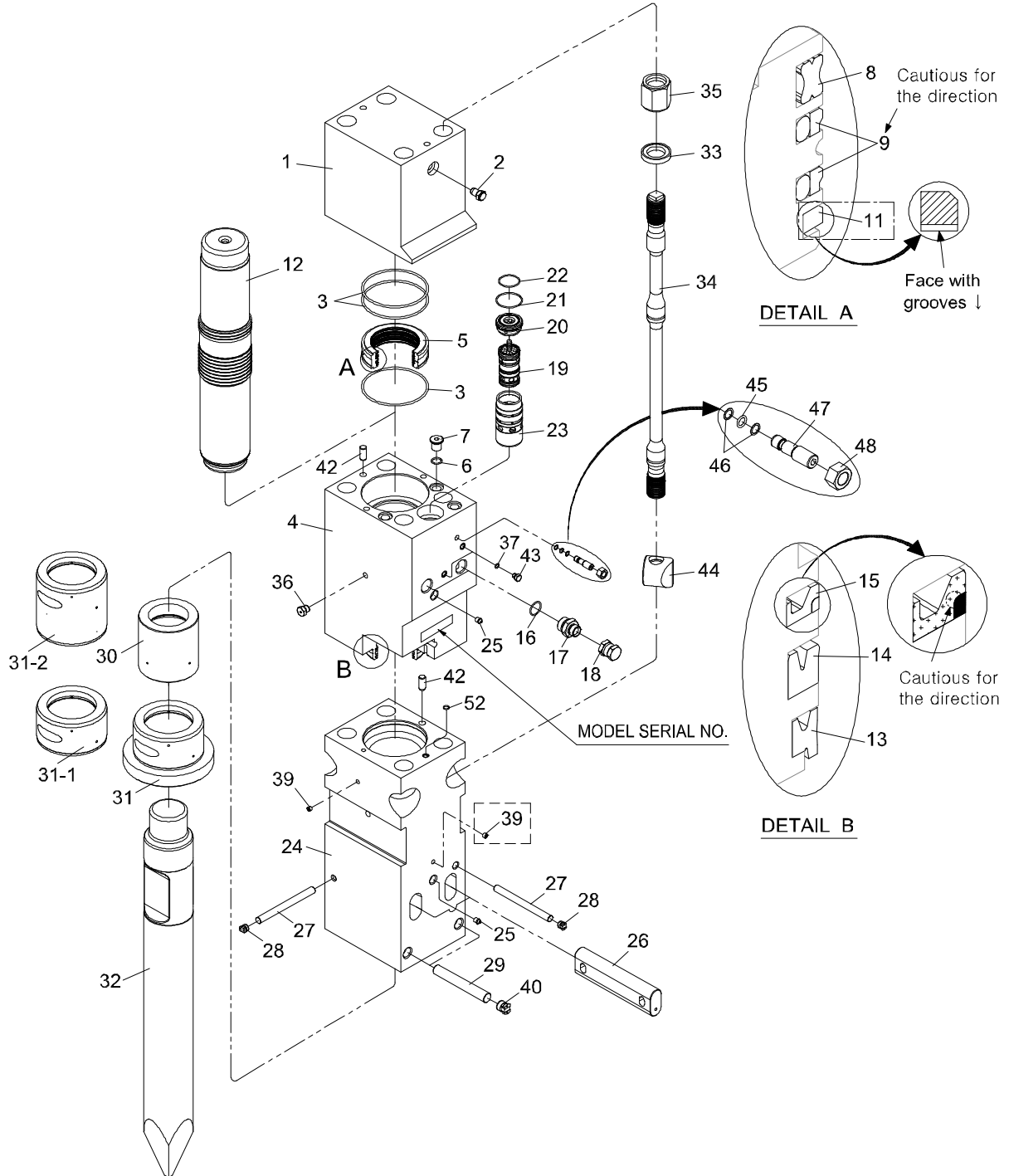
## ■ HRX13-20



■ MAIN BODY (HRX13-20) -----(#~) is applied Serial Number)

NO	HRX13-20		PARTS NAME	REMARK
	P/N	Q'ty		
	C11 003	1Set	Main Body Ass'y	
1	C11 112	1	Back Head	
2	←	1	Charging Valve	
3	2851223	3	O-Ring	
4	C11 192	1	Cylinder	
5	C11 119	1	Seal Retainer	
6	2850020	3	O-Ring	
7	120	3	Socket Plug	
8	2835042	1	Gas Seal	
9	2811067	2	Step Seal	U-Packing
10	2850017	2	O-Ring	Charging Valve
11	-	-	Buffer Seal	Not Use
12	C11 194	1	Piston	
13	2831023	1	Dust Seal	
14	2811032	1	U-Packing	
15	2833015	1	Buffer Seal	
16	←	2	O-Ring	
17	←	2	Adapter	
18	←	2	Union Cap	
19	C11 123	1	Valve	
20	C11 184	1	Valve Plug	
21	2851051	1	O-Ring	
22	2851203	1	O-Ring	
23	C11 183	1	Valve Sleeve	
24	C11 193	1	Front Head	
25	2700403	1	Grease Nipple	
26	C11 186	2	Chisel Pin	
27	C11 131	2	Stop Pin	
28	←	2	Rubber Plug / Scroll Pin	
29	C11 128	2	Front Head Pin	
30	C11 182	1	Ring Bush	
31	C11 127	1	Front Cover	
31-1	C11 181	1	Front Cover	Side Silence
31-2	C11 266	1	Front Cover	TR-F
32	C11 195	1	Chisel(Moil Point)	
33	C11 141	4	Washer	
34	C11 220	4	Through Bolt	
35	C11 221	4	Hex Nut	
36	←	1	Air Check Valve	
37	-	-	O-Ring	Not Use
38	-	-	O-Ring	Not Use
39	←	1	Hollow Hex Plug	
40	D81 150	2	Rubber Plug / Scroll Pin	
41	-	-	Snap Ring	Not Use
42	←	1	Knock Pin	
43	-	-	Hex Head Plug	Not Use
44	C11 222	4	Round Nut	
45	-	-	O-Ring	Not Use
46	-	-	Back-Up Ring	Not Use
47	-	-	Valve Adjuster	Not Use
48	-	-	Nut	Not Use
49	-	-	Socket Plug	Not Use
50	-	-	Square Ring	Not Use
51	-	-	Socket Plug	Not Use
52	-	-	Pin Locating Tool	

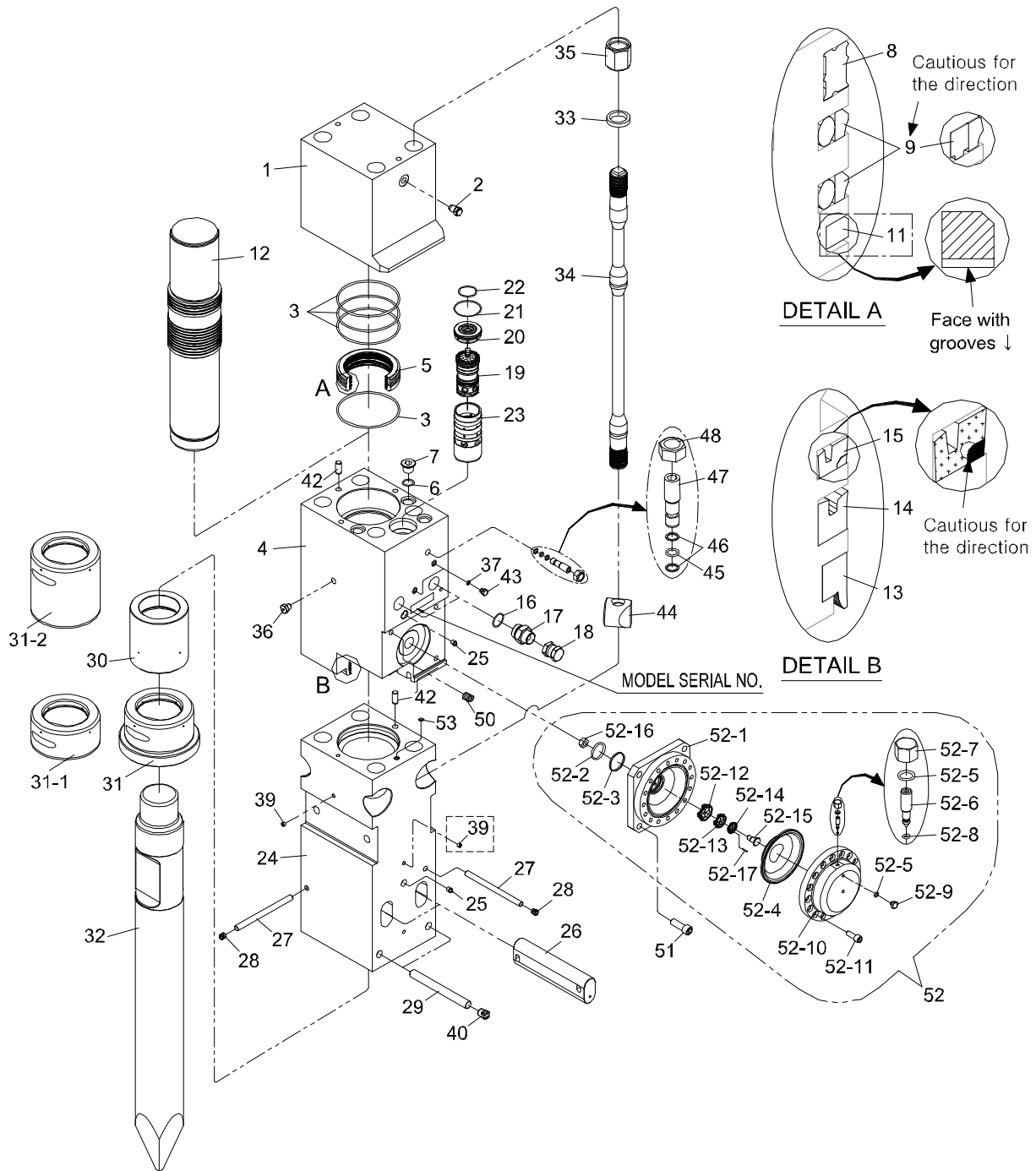
## ■ HRX20-30



■ MAIN BODY (HRX20-30) -----(#~) is applied Serial Number)

NO	HRX20-30 (#666~)		PARTS NAME	REMARK
	P/N	Q'ty		
	L01 004	1Set	Main Body Ass'y	
1	L01104	1	Back Head	
2	←	1	Charging Valve	
3	2851229	3	O-Ring	
4	L01 141	1	Cylinder	
5	L01 109	1	Seal Retainer	
6	←	3	O-Ring	
7	←	3	Socket Plug	
8	2835034	1	Gas Seal	
9	2811066	2	Step Seal	
10	-	-	O-Ring	Not Use
11	-	-	Buffer Seal	
12	L01 146	1	Piston	
13	2831040	1	Dust Seal	
14	2811089	1	U-Packing	
15	2833013	1	Buffer Seal	
16	←	2	O-Ring	
17	←	2	Adapter	
18	←	2	Union Cap	
19	L01 106	1	Valve	
20	L01 108	1	Valve Plug	
21	2851209	1	O-Ring	
22	2851206	1	O-Ring	
23	L01 107	1	Valve Sleeve	
24	L01 147	1	Front Head	
25	←	2	Grease Nipple	
26	L01 116	2	Chisel Pin	
27	←	2	Stop Pin	
28	←	2	Rubber Plug / Scroll Pin	
29	E91 120	2	Front Head Pin	
30	L01 110	1	Ring Bush	
31	L01 111	1	Front Cover	
31-1	L01 123	1	Front Cover	Side Silence
31-2	L01 198	1	Front Cover	TR-F,TS-P
32	L01 118	1	Chisel(Moil Point)	
33	L01 115	4	Washer	
34	L01 168	4	Through Bolt	
35	L01 169	4	Hex Nut	
36	←	1	Air Check Valve	
37	←	3	O-Ring	
38	-	-	O-Ring	Not Use
39	←	1	Hollow Hex Plug	
40	←	2	Rubber Plug / Scroll Pin	
41	-	-	Snap Ring	Not Use
42	←	2	Knock Pin	
43	←	2	Hex Head Plug	
44	L01 148	4	Round Nut	
45	(=NO. 37)	(1)	O-Ring	
46	2841217	2	Back-Up Ring	
47	C31 210	1	Valve Adjuster	
48	4101306	1	Nut	
49	-	-	Socket Plug	Not Use
50	-	-	Square Ring	Not Use
51	-	-	Socket Plug	Not Use
52	-	1	O-Ring	
53	-	-	Pin Locating Tool	

■ HRX30-40



■ MAIN BODY (HRX30-40) -----(#^\*) is applied Serial Number)

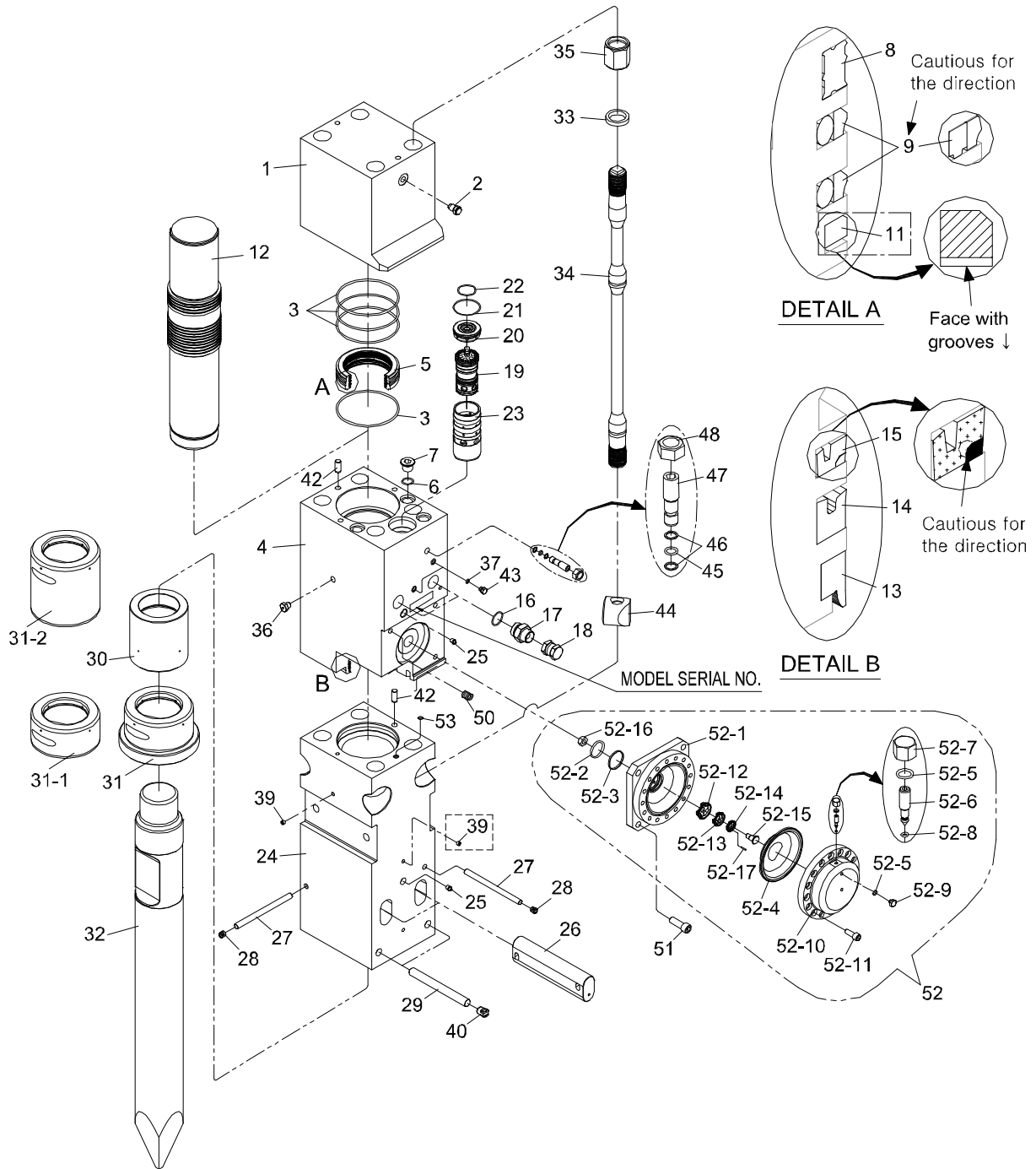
NO	HRX30-40 (#2321^*)		PARTS NAME	REMARK
	P/N	Q'ty		
	C61 006	1Set	Main Body Ass'y	
1	C61 121	1	Back Head	
2	←	1	Charging Valve	
3	2851235	4	O-Ring	
4	C61 225	1	Cylinder	
5	C61 131	1	Seal Retainer	
6	2850033	3	O-Ring	
7	C61 146	3	Socket Plug	
8	2835046	1	Gas Seal	
9	2811078	2	Step Seal	
10 -	-	-	O-Ring	Not Use
11	2819053	1	Buffer Seal	
12	C61 277	1	Piston	
13	2831074	1	Dust Seal	
14	2811072	1	U-Packing	
15	2833004	1	Buffer Seal	
16	2851043	2	O-Ring	
17	2710319	2	Adapter	
18	2715005	2	Union Cap	
19	C61 112	1	Valve	
20	C61 110	1	Valve Plug	
21	2851213	1	O-Ring	
22	←	1	O-Ring	
23	C61 111	1	Valve Sleeve	
24	C61 278	1	Front Head	
25	←	2	Grease Nipple	
26	C61 252	2	Chisel Pin	
27	←	2	Stop Pin	
28	←	2	Rubber Plug / Scroll Pin	
29	C61 168	2	Front Head Pin	
30	C61 241	1	Ring Bush	
31	C61 167	1	Front Cover	
31 -1	C61 213	1	Front Cover	Side Silence
31 -2	C61 267	1	Front Cover	TR-F,TS-P
32	C61 227	1	Chisel(Moil Point)	
33	←	4	Washer	
34	C61 294	4	Through Bolt	
35	C61 295	4	Hex Nut	
36	←	1	Air Check Valve	
37		←	2	O-Ring
38	-	-	O-Ring	Not Use
39	←	2	Hollow Hex Plug	
40	←	2	Rubber Plug / Scroll Pin	
41	-	-	Snap Ring	Not Use
42	←	2	Knock Pin	
43	←	2	Hex Head Plug	
44	←	4	Round Nut	
45	★ 2851014	2	O-Ring	



■ MAIN BODY (HRX30-40) -----(#+) is applied Serial Number)

NO	HRX30-40 (#2321*)		PARTS NAME	REMARK
	P/N	Q'ty		
	C61 006	1Set	Main Body Ass'y	
46	2841202	2	Back-Up Ring	
47	C61 233	1	Valve Adjuster	
48	4101308	1	Nut	
49	-	-	Socket Plug	Not Use
50	4133025	4	Heli Sert Coil	
51	4011149	4	Socket Bolt	
52	C61 137	1	Accumulator	
-1	C61 138	1	Accumulator Body	
-2	←	1	O-Ring	
-3	←	1	Back-Up Ring	
-4	C61 139	1	Diaphragm	
-5	←	2	O-Ring	
-6	←	1	Charging V/V	
-7	←	1	O-Ring Cap	
-8	←	1	O-Ring	
-9	←	1	O-Ring Plug	
-10	C61 140	1	Accumulator Cover	
-11	4011108	16	Socket Bolt	
-12	←	1	Holder (A)	
-13	←	1	Holder (B)	
-14	←	1	Holder (C)	
-15	←	1	Holder Pin	
-16	←	1	Holder Nut	
-17	←	1	Center Pin	
53	★ (+)	(1)	O-Ring	
54			Pin Locating Tool	

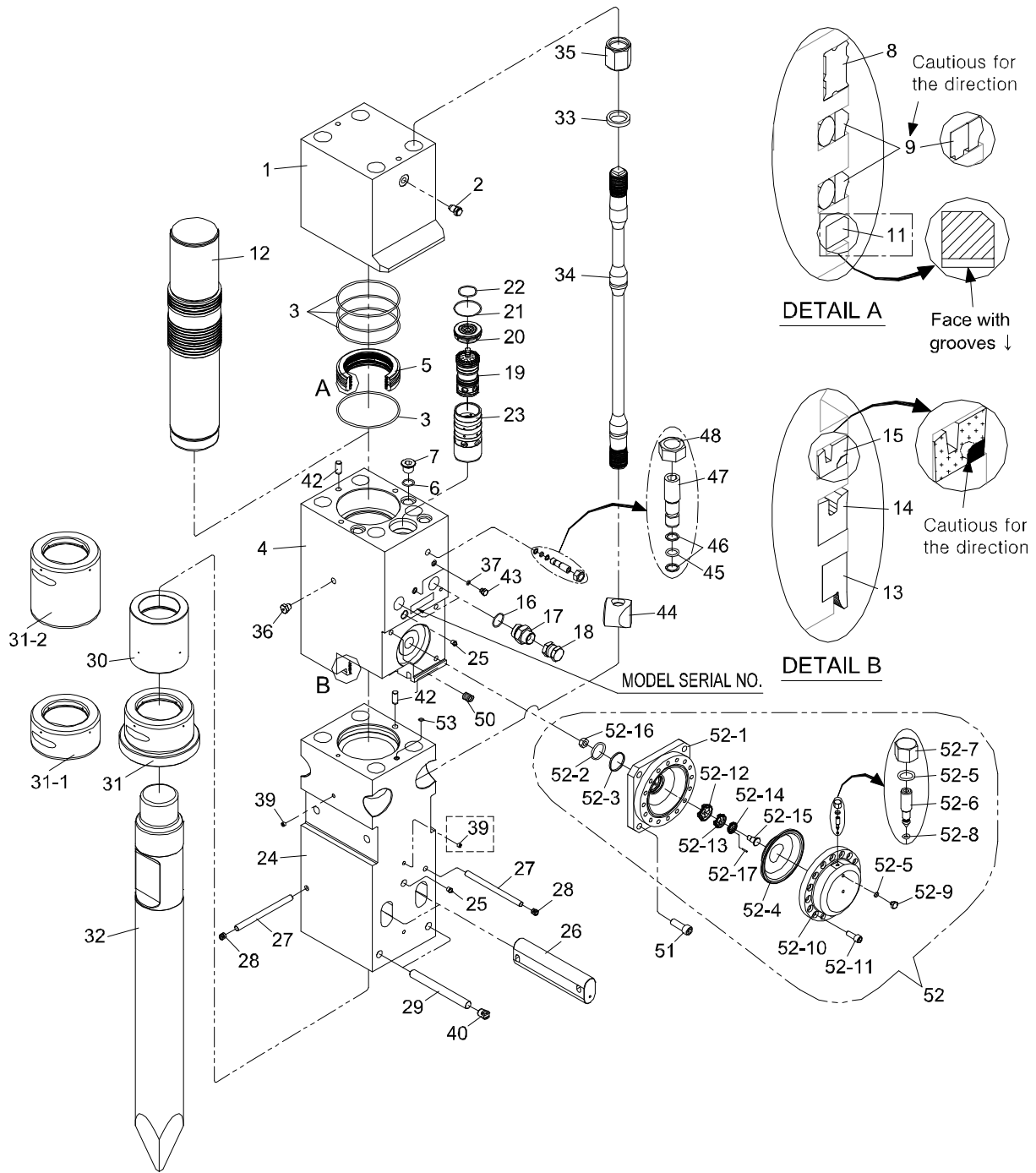
■ HRX40-50



■ MAIN BODY (HRX40-50) -----(#~) is applied Serial Number)

NO	HRX40-50 (#236~)		PARTS NAME	REMARK	
	P/N	Q'ty			
	C71 002	1Set	Main Body Ass'y		
1	C71 104	1	Back Head		
2	←	1	Charging Valve		
3	←	4	O-Ring		
4	C71 153	1	Cylinder		
5	C71 109	1	Seal Retainer		
6	2850035	3	O-Ring		
7	C71 121	3	Socket Plug		
8	2835048	1	Gas Seal		
9	2811080	2	Step Seal		
10	-	-	O-Ring	Not Use	
11	2819055	1	Buffer Seal		
12	C71 199	1	Piston		
13	2831025	1	Dust Seal		
14	2811033	1	U-Packing		
15	2833017	1	Buffer Seal		
16	←	2	O-Ring		
17	←	2	Adapter		
18	←	2	Union Cap		
19	C71 202	1	Valve		
20	C71 204	1	Valve Plug		
21	2851216	1	O-Ring		
22	2851212	1	O-Ring		
23	C71 203	1	Valve Sleeve		
24	C71 200	1	Front Head		
25	←	2	Grease Nipple		
26	C71 177	2	Chisel Pin		
27	C71 140	2	Stop Pin		
28	D81 150	2	Rubber Plug / Scroll Pin		
29	C71 120	2	Front Head Pin		
30	C71 167	1	Ring Bush		
31	C71 108	1	Front Cover		
31	-1	C71 169	1	Front Cover	Side Silence
31	-2	C71 188	1	Front Cover	TR-F,TS-P
32	C71 157	1	Chisel(Moil Point)		
33	←	4	Washer		
34	C71 220	4	Through Bolt		
35	←	4	Hex Nut		
36	←	1	Air Check Valve		
37	←	2	O-Ring		
38	-	-	O-Ring	Not Use	
39	←	2	Hollow Hex Plug		
40	C71 194	2	Rubber Plug / Scroll Pin		
41	-	-	Snap Ring	Not Use	
42	←	2	Knock Pin		
43	←	2	Hex Head Plug		
44	←	4	Round Nut		
45	★ ←	1	O-Ring		

■ HRX40-50



■ MAIN BODY (HRX40-50) -----(#~) is applied Serial Number)

NO	HRX40-50 (#236~)		PARTS NAME	REMARK
	P/N	Q'ty		
	C71 002	1Set	Main Body Ass'y	
46	←	2	Back-Up Ring	
47	←	1	Valve Adjuster	
48	←	1	Nut	
49	←	-	Socket Plug	Not Use
50	430041	4	Heli Sert Coil	
51	4011186	4	Socket Bolt	
52	C71 110	1	Accumulator	
-1	C71 111	1	Accumulator Body	
-2	2851212	1	O-Ring	
-3	2844003	1	Back-Up Ring	
-4	C71 113	1	Diaphragm	
-5	←	2	O-Ring	
-6	←	1	Charging V/V	
-7	←	1	O-Ring Cap	
-8	←	1	O-Ring	
-9	←	1	O-Ring Plug	
-10	C71 112	1	Accumulator Cover	
-11	4011147	16	Socket Bolt	
-12	C71 115	1	Holder (A)	
-13	C71 116	1	Holder (B)	
-14	C71 117	1	Holder (C)	
-15	C71 118	1	Holder Pin	
-16	←	1	Holder Nut	
-17	C71 114	1	Centre Pin	
53	★ ←	1	O-Ring	
54			Pin Locating Tool	

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	12L Tub



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Code	Description
	Single Cartridge



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