

ELECTRIC REBAR CUTTER HANDING INSTRUCTIONS

RA-16 RA-20 RA-25

RC-16 RC-20

RC-18 NRC-20

RC-22 RC-25 RC-32

RC-16B RC-18B RC-20B



Read this instructions carefully before attempting to use cutters. Ignorance of proper operating procedure can lead to accidents. If in doubt about any procedure, contact your nearest authorized agent.

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General Safety Precautions

Usage

Use rebar cutters on concrete re-forcing bars only.

Restrict use to designated materials

There is always a chance that the cut end may shoot out, especially if less than 30cm in length. Exceeding designated material specifications greatly increases this risk and will also damage the tool. Do not attempt to cut rebars. Harder, thicker or thinner than those specified.

Use eye protection

Wear safety goggles , safety glassed with side shields or a face shield when using cutter.

Provide safety barriers

Erect safety screens to protect co-workers from possible flying ends. Place safety screen under the rebar when working in high places.

Exercise proper control

Hold cutter firmly and maintain proper footing and balance. Do not over-reach when working in high place , secure cutter to scaffolding with a safety rope. Check that power cord is not fouled and keep cord away from sharp edges and heat. Check that all adjusting wrenches have been removed before using cutter.

Guard Against electric shock

To avoid possible electric shock, do not handle cutter with wet hands or use cutter in the rain or damp places. Be aware of all power lines, electric circuits and other hazards that may be contacted , especially those that are below the surface or otherwise hidden from view .

Unplug tool

Disconnect cutter from outlet when not in use and before cleaning, adjusting or servicing. Do not disconnect plug from outlet by pulling the cord. Always check that the switch lock is OFF before plugging in.

Beware of environment

Do not use cutter in the presence of flammable materials (e.g. Paint, thinner, petroleum products, adhesives).

Do not use cutter in a possibly lighted and clear of obstructions. Operator should at all times have an unobstructed view of the cutter, rebar and surrounding area.

Wear proper apparel

Do not wear loose clothes, dangling objects or jewellery. Restrain long hair. The use of a safety-helmet and rubber soled boots is recommended . If safety gloves are worn, be especially careful that gloves does not get caught in moving parts.

Keep visitors away

Keep all visitors at a safe distance from the work area for their own protection and to prevent distraction of the operator.

Maintain cutter with care

Inspect cutter before each application. Faulty or loose cutter blocks could result in personal injury . Keep handle dry, clean and free from oil and/or grease. Keep housing and piston free of dirt and iron filings. Check that no screws or bolts are loose or missing. Following instruction for maintenance . Inspect switch, cord,plug and any extension cable at regular intervals.

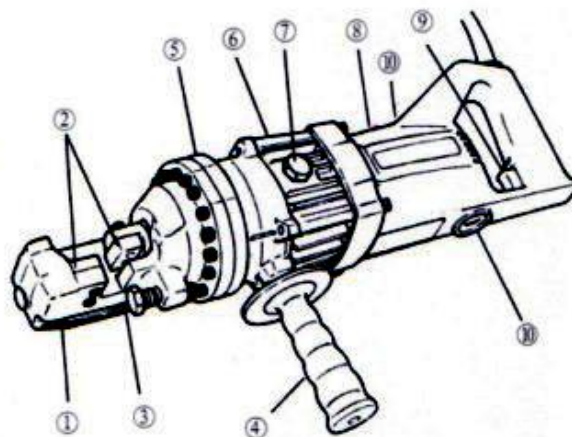
Store carefully

When not in use, store cutter and accessories in dry place where they can't be accessed by unauthorized person.

Parts and specifications

PARTS AND SPECIFICATIONS

- ①. Housing
- ②. Cutter blocks
- ③. Adjustable stopper
- ④. Side handle (detachable)
- ⑤. Cylinder
- ⑥. Pump case
- ⑦. Oil-plug
- ⑧. Motor
- ⑨. Switch
- ⑩. Carbon-brush caps



Main parameters.

Model	RC-16	RC-20	NRC-20	RC-22	RC-25	RC-32
Voltage \pm 5%	110V/230V AC only	110V/230V AC only	110V/230V AC only	110V/230V AC only	110V/230V AC only	110V/230V AC only
Wattage	850 W/900 W	1250 W/950W	1350W/950W	1350W/1000 W	1700W/1600 W	2400W/2200 W
Net weight	8 KGS	13 KGS	12.5 KGS	15 KGS	24.5 KGS	31 KGS
Gross weight	13 KGS	18.3 KGS	17 KGS	21.5 KGS	32 KGS	40 KGS
Cutting speed	2.5-3.0 s	3.0--3.5 s	3.0--3.5 s	3.5--4.5 s	5--5.5s	6--7s
Max rebar diameter	ϕ16mm	ϕ20mm	ϕ20mm	ϕ22mm	ϕ25mm	ϕ32mm
Min rebar diameter	ϕ4mm	ϕ4mm	ϕ4mm	ϕ4mm	ϕ4mm	ϕ6mm
Machine size	460*270*115 mm	410*115*220 mm	500*130*140 mm	420*120*230 mm	480*150*255 mm	520*170*270 mm
Packing size	510*230*150 mm	480*195*280 mm	575*280*165 mm	485*190*330 mm	565*230*345 mm	630*240*350 mm

Model	RA-16	RA-20	RA-25	RC-16B	RC-20B	RC-18B
Voltage \pm 5%	110V/230V AC only	110V/230V AC only	110V/230V AC only	100-240V DC	100-240V DC	100-240V DC
Wattage	900 W	1200W	1500W			
Net weight	6.8 KGS	9.5 KGS	16.5KGS	6 KGS	8.2 KGS	7.5 KGS
Gross weight	11 KGS	14 KGS	23 KGS	13 KGS	15KGS	15 KGS
Cutting speed	2.5-3.0 s	3.0--3.5 s	4.5-5.0 s	3.5--4.5 s	5--5.5s	5-6s
Max rebar diameter	ϕ16mm	ϕ20mm	ϕ25mm	ϕ16mm	ϕ20mm	ϕ18mm
Min rebar diameter	ϕ4mm	ϕ4mm	ϕ4mm	ϕ4mm	ϕ4mm	ϕ4mm
Machine size	450*130*180 mm	410*130*210 mm	490*145*250 mm	320*230*100 mm	380*290*115 mm	380*290*115 mm
Packing size	530*160*370 mm	530*160*370 mm	565*230*345 mm	545*405*185 mm	545*405*185 mm	545*405*185 mm

Operating Instructions

! Caution : Indicates hazard that could result in minor personal injury and/or product damage.

Care :Indicates hazard that will result in product damage.

Pre-use checks

1. Check oil level.

2. Check condition of cutter blocks and tightness of cutter block bolts.

! Caution : Using loose or cracked cutter blocks may result in injury to operators as well as damage to unit.

3. Check that the power source is appropriate for the cutter.

Care : If voltage is too high , the motor will burn out. If the voltage is too low, insufficient power will be generated. Never use DC current.

4. Check that power supply is properly earthed.

! Caution : Failure to earth power supply may result in electric shock to operator.

5. Check that cord is undamaged and that plug is not loose.

! Caution : Cut or abraded covering could result in a short and electric shock to operator.

If an extension cable is to be used, make sure that it is undamaged and that it is the proper thickness for the length.

Cable size Cable length	110V	230V
	AWG	Normalization size
Up to 10 m	16	1.0 mm ²
Up to 15 m	14	1.25 mm ²
Up to 30 m	10	1.5 mm ²

Warm-up

In cold weather , warm up unit for 30-60 seconds so that the hydraulic oil reaches the proper viscosity. Pull trigger -switch to extend piston and release when it has reached its full stroke, Repeat 15-20 times.

Stopper adjustment

The adjustable stopper function to maintain the rebar in the correct position during

cutting and must be properly set for each size of rebar before making a cut.

1. Screw in stopper to provide sufficient clearance for rebar.
2. Insert rebar fully into U-shaped support. Make sure that rebar is resting on the base of the stopper.
3. Keeping rebar at right angles (90°) to front cutter block, screw out stopper until it is just touching the rebar. Once set, the stopper needs no further adjustment while cutting rebar of the same diameter, but must be re-set for a different size rebar.

! Caution: Failure to correctly set the stopper will result in excessive wear of cutter block and may cause cut end to fly out.

Cutting

1. Insert rebar between stopper and front cutter block, making sure that it is properly seated in U-shaped support.
2. Pull trigger -switch and keep depressed while piston advances and rebar is cut. (If switch is released at an intermediate point, piston will stop.)
3. When cut is completed, release switch. Piston retracts automatically. (Note that switch can't be re-activated until piston has fully retracted.)

Points of attention

1. Be especially careful when cutting off short lengths (30cm or less) as the cut end tends to fly out.

! Caution : Flying ends are a hazard to all personnel in the vicinity. Erect safety screens.

2. Do not cover air vents.

Care : If events are covered , motor will overheat and may burn out.

3. If hydraulic oil exceeds 70 ° (158 F) in temperature, power will drop.

Allow until to cool before resuming operation. (Be particularly careful in summer, when the aluminum pump case heats up quicker.)

4. If a drop in power is observed and motor is unusually hot, check carbon brush .

5. If piston should ever fail to retract completely, push rear cutter block backwards to manually retract piston.

! Caution: Use a rebar or flat metal bar for this purpose. Never push cutter block with any part of the hand, even if gloved.

Once piston has been retracted, pull trigger-switch long enough to partially advance piston. Unplug unit. And check piston and housing for accumulated dust iron filings that may be jamming the piston. After cleaning, piston still does not automatically retract when fully extended, the piston itself may be damaged. Return the unit to an authorized agent for repair.

Maintenance

Cutter blocks

Before using, always check that the two bolts on each cutter block are properly tightened. Using a loose block will result in damage to block and housing. Also check condition of cutter blocks. If either cutting edge is dull or chipped, remove retaining bolts and rotate both blocks so that two new edges come into use. Replace and tighten bolts (each block has four cutting edges)

When all four cutting edges have been used or if either block is cracked or otherwise damaged, replace both block.

! Caution : A loose or cracked block may result in injury to operator .

Cleaning

Cleaning cutter after use.

! Caution : Wear gloves to protect hands from metal splinters. Do not use an air-gun, blasting with air can cause metal filing and/or dust to get into eyes and respiratory system.

1. Disconnect unit.
2. Wipe or brush away all dirt and metal filings. Pay particular attention to the lower half of the piston, where dirt is more easily accumulated.

Oil-level check

As the cutters are hydraulically operated, the oil level must be checked at frequent intervals, preferably every day. Failure to maintain the oil at the proper level results in a drop in pressure and loss of cutting power.

! Caution : Hydraulic oil is highly flammable. Keep away from sparks and naked flame. Do not smoke.

! Caution : Hydraulic oil may cause inflammation of the eyes and skin. If ingested, it will cause diarrhoea and vomiting.

In case of eye contact, rinse in clean water for at least 15 minutes and consult a physician. In case of skin contact, wash thoroughly with soap and water.

In case of ingestion, consult a physician immediately. Do not deliberately induce vomiting.

1. Oil should be warm but not hot. Warm up unit if cold.
2. Adjust stopper and make three or four cuts, noting exactly at what point the rebar is actually breaking.
3. Pinch a short piece of rebar, stopping just before it breaks off. Unplug unit from power source.
4. With partially severed rebar in place, turn unit over so that oil-plug is uppermost. (If unit is hot, allow to cool down.)
5. Remove oil-plug and seal-washer (packing)

! Caution : Never remove oil-plug when unit is hot or oil will spurt out.

6. check that oil is level with bottom of plug hole. (i.e. That pump case is full to the brim). If oil level is too low, top up with 20-weight hydraulic oil with anti-foam and anti-abrasion properties. (ISO viscosity grade VG46. E.g. Shell oil tellus 46, mobil oil DTE-25 OR Esso uni power SQ46.)

7. After topping up, extract air from system. Gently tilt cutter lengthwise and return it to a level position. Top up again and tilt in the opposite direction . Repeat this process until all air has been extracted.

Care: Cutter can't function properly if oil contains air bubbles.

8. Replace seal washer (packing) and plug. Connect cutter to power source and completely serve rebar.

Oil change

The hydraulic oil should be changed at least once a year. Sooner if it appears dirty.

1. Unplug unit from power source. Remove oil plug and packing. Turn cutter over and drain oil into a suitable receptacle. When oil ceases to drain out, tilt unit to rear so that oil trapped in the piston housing can run out. When housing is empty, tilt unit in the opposite direction to empty the residue in the pump case.
2. With drain-hole uppermost, slowly fill the unit with fresh oil. Replace plug and lightly tighten. Connect unit to power source and advance piston two or three times. Unplug unit and remove oil-plug . Top up oil level and replace plug.
3. Finally follow procedure for oil level check.

Note: Dispose of hydraulic oil in accordance with local regulations. Do not pour into the sea, river, lake or drains.

Bolt tightness

Once a week or after every 500 cuts, check the tightness of all bolts, especially those securing the housing to the cylinder. Loose bolts will result in a loss of power.

Carbon brushes

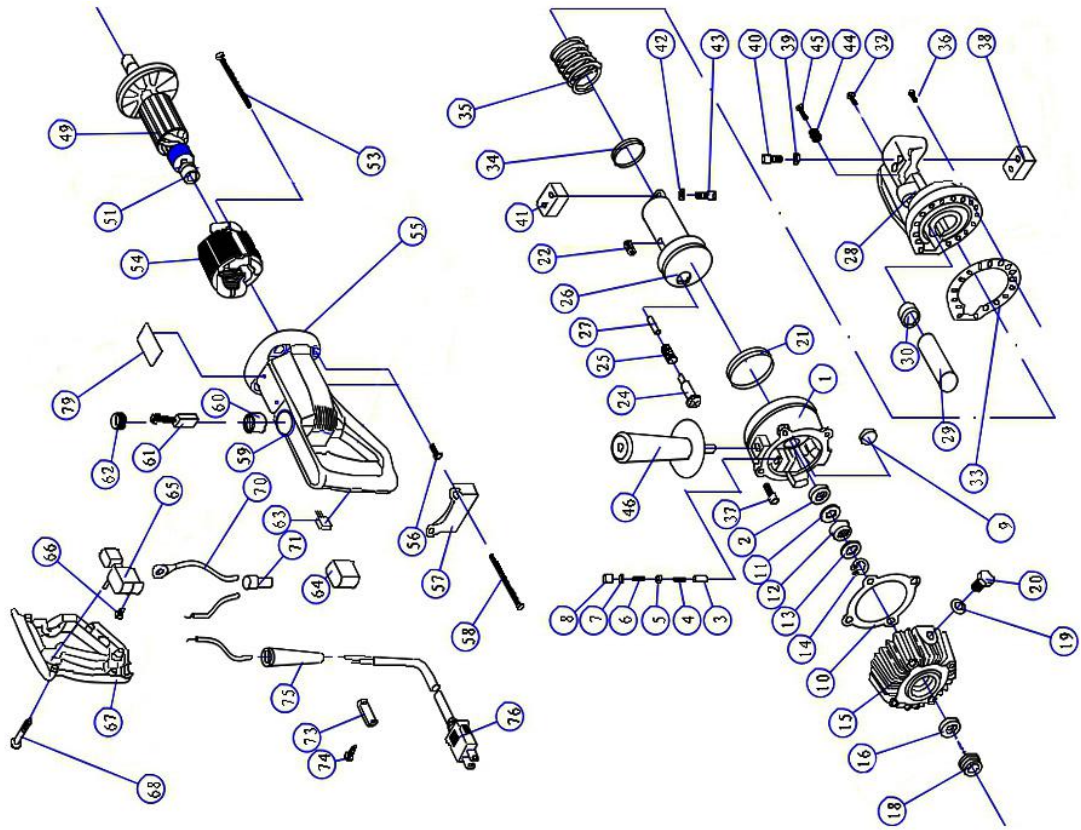
Inspect the two carbon brushes at least once every two months. (normal brush life is 200 hours.)

Care: Worn brushes will result in power loss, cause the motor to run hot and irreparably damage the armature's commutator.

4. Disconnect unit
5. Unscrew both brush caps and pull out carbon brushes.
6. Replace brushes if less than 6 cm in length.

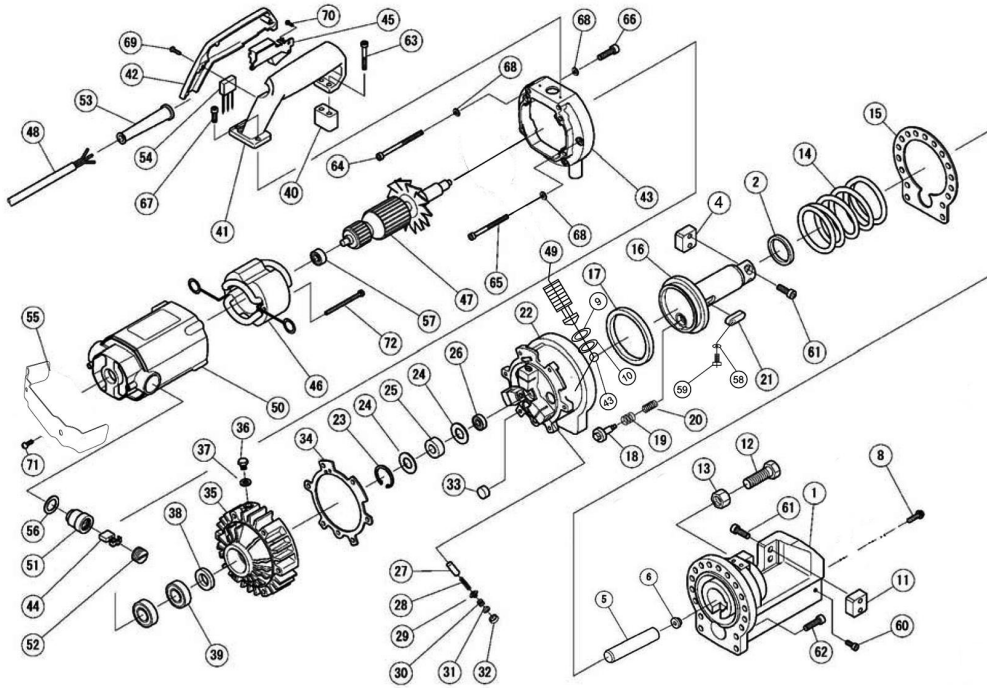
RC-16 NRC-20

Portable Rebar Cutter Parts List

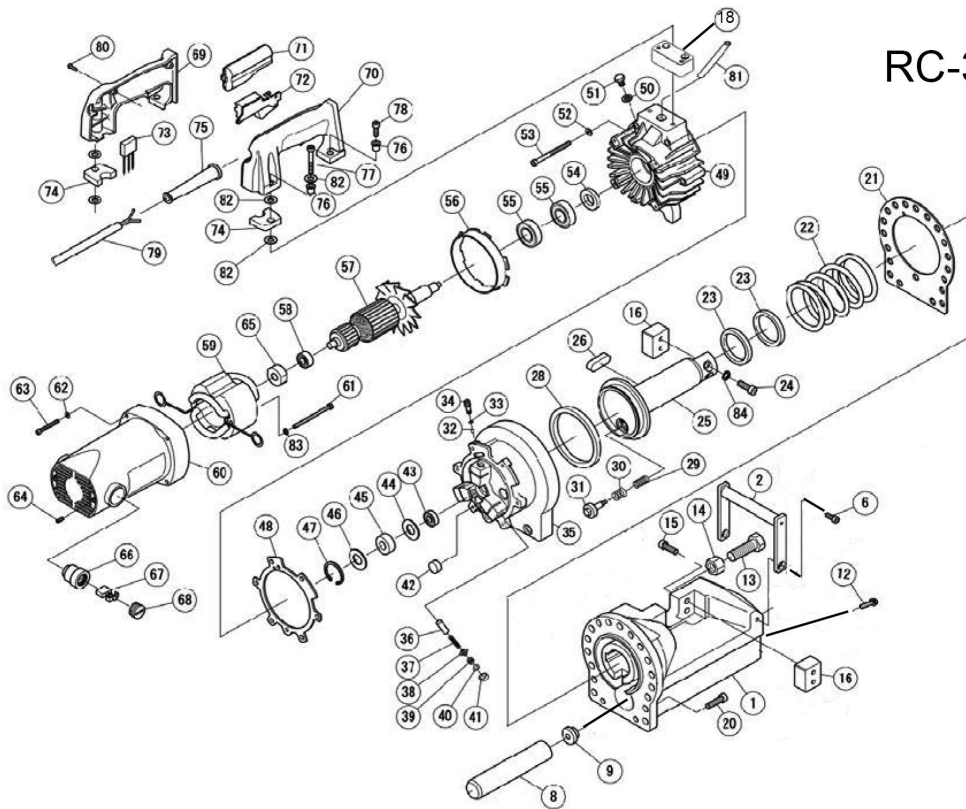


NO.	PARTS NAME	NO.	PARTS NAME	NO.	PARTS NAME
1	CYLINDER	27	SPRING	53	TAPPING SCREW M4
2	BALL BEARING 698	28	CUTTER HEAD	54	STATOR COIL
3	PISTON	29	AIR BAG	55	MOTOR HOUSING
4	RETURN SPRING	30	NUT	56	LOCATING SLEEVE
5	OIL VALVE	31	**	57	FOOT STAND
6	VALVE SPRING	32	SCREW	58	hexagon socket screw
7	SPRING GUIDE	33	GASKET	59	hexagon socket set
8	PUMP SEAL	34	SEAL 40*30*6	60	BRUSH HOLDER
9	MAGNET FILTER	35	BIG SPRING	61	CARBON BRUSH
10	GASKET	36	hexagon socket screw	62	BRUSH CAP
11	MANGANESE STEEL	37	hexagon socket screw	63	CONDENSER
12	NEEDLE BEARING	38	CUTTER BLOCK /	64	CONDENSER COVER
13	MANGANESE STEEL	39	PRING WASHER M5	65	SWITCH
14	SNAP RING	40	hexagon socket screw	66	RUBBER PUSH
15	SNAP RING	41	CUTTER BLOCK /	67	HOUSING COVER
16	PUMP CASE OIL	42	SPRING WASHER	68	TAPPING SCREW
17	**	43	hexagon socket screw	69	**
18	BEARING 6002	44	SPRING	70	**
19	COMPOUND	45	hex socket screw	71	SAFETY CAP
20	HEXAGONAL BOLT	46	HANDLE	72	**
21	GASKET RING 70×	47	**	73	CORD HOLDER
22	PIN 8×25	48	**	74	TAPING SCREW
23	**	49	ARMATURE	75	CORD ARMOR
24	RETURN ROD	50	**	76	ELECTRICAL CORD
25	SPRING	51	BEARING 608	77	**
26	CUTTER ROD	52	**	78	**
				79	NAME PLATE

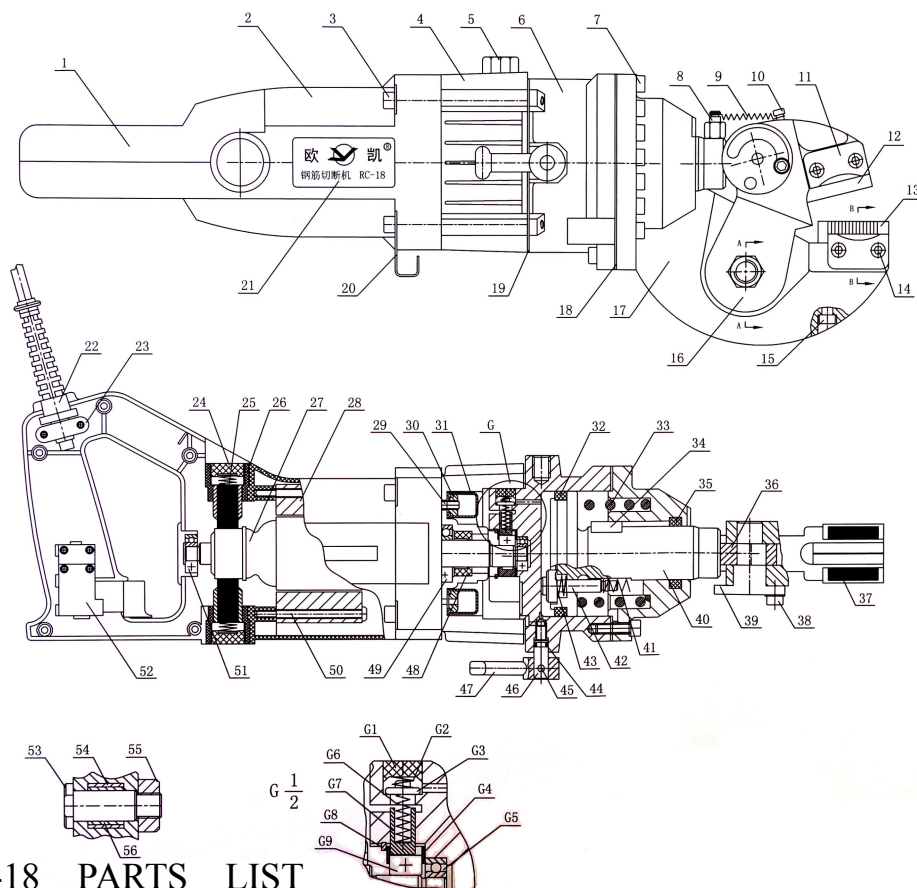
RC-20, RC-22, RC-25 Portable Rebar Cutter Parts List



NO.	PARTS NAME	NO.	PARTS NAME	NO.	PARTS NAME
1	CUTTER HEAD	27	PISTON	53	CABLE ARMOR
2	GASKET RING 40 ×	28	SPRING	54	**
3	**	29	OIL VALVE	55	**
4	CUTTER BLOCK /	30	SPRING	56	GUM WASHER
5	AIR BAG	31	SPRING GUIDE	57	BEARING 6200
6	NUT	32	OIL SEAL	58	WAVE WASHER
7	**	33	FILTER MAGNET	59	BOLT M4*8
8	SCREW	34	GASKET	60	BOLT M8*25
9	O RING	35	PUMP CASE	61	BOLT M8*30
10	O RING	36	HEXAGONAL	62	BOLT M8*30
11	CUTTER BLOCK /	37	COMPOUND	63	BOLT M6*20
12	HEXAGONAL	38	OIL SEAL 20×35×8	64	BOLT M6*20
13	NUT	39	BEARING 104	65	BOLT M6*25
14	BIG SPRING	40	CONNECTING	66	BOLT M6*50
15	GASKET	41	HANDLE	67	BOLT M6*20
16	CUTTER ROD	42	HANDLE COVER	68	WASHER
17	GASKET RING 80 ×	43	PHOTOSPHERE Φ	69	BOLT M4*12
18	RETURN SHAFT	44	CARBON BRUSH	70	BOLT M4*8
19	SPRING	45	SWITCH	71	**
20	SPRING	46	STATOR COIL	72	BOLT M5*75
21	PIN 12×40	47	ARMATURE	73	CONNECTING PLATE
22	CYLINDER	48	ELECTRICAL CORD		
23	SNAP RING	49	BOLT		
24	MANGANESE STEEL	50	MOTOR HOUSING		
25	NEEDLE BEARING	51	CARBON BRUSH		
26	BEARING 609	52	CARBON BRUSH		

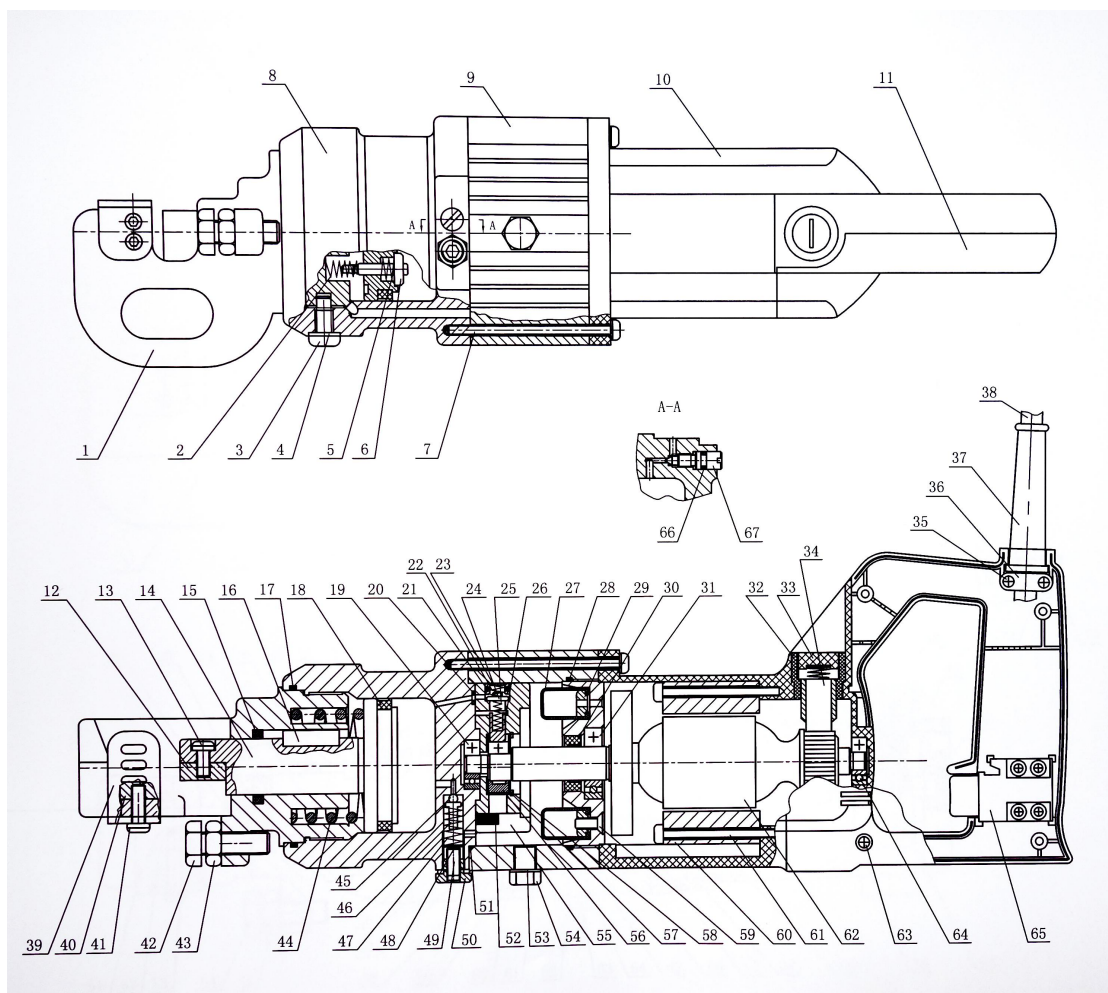


NO.	PARTS NAME	NO.	PARTS NAME	NO.	PARTS NAME
1	HOUSING	28	SEAL 85X100X9	55	BEARING 6004
2	SUB HANDLE	29	RETURN SPRING	56	FAN COVER
3	**	30	RETURN SPRING	57	ARMATURE
4	**	31	RETURN VALVE	58	BEARING 6200
5	**	32	STEEL BALL	59	STATOR COIL
6	CAP BOLT	33	O RING	60	MOTOR HOUSING
7	**	34	RELEASE	61	TAPPING SCREW
8	AIG BAG	35	CYLINDER	62	P.WASHER M6
9	TIGHT NUT	36	PISTON	63	CAP BOLT M6X25
10	**	37	SPRING	64	CAP BOLT M5X16
11	**	38	DELIVERY	65	**
12	NUT	39	SPRING	66	BRUSH HOLDER
13	BOLT M16X40	40	SPRING GUIDE	67	CARBON BRUSH
14	NUT M16	41	PUMP HEAD	68	BRUSH CAP
15	CAP BOLT	42	MAGNET FILTER	69	HANDLE COVER
16	CUTTER BLOCK	43	BEARING 609	70	HANDLE
17	**	44	BEARING GUIDE	71	SWITCH SUPPORT
18	**	45	NEEDLE	72	SWITCH
19	**	46	BEARING GUIDE	73	**
20	CAP BOLT	47	SNAP RING	74	HANDLE STAY
21	CYLINDER	48	PUMP CASE	75	CORD ARMOR
22	RETURN	49	PUMP CASE	76	P.WASHER M6
23	SEAL 45X55X6	50	SEAL WASHER	77	CAP BOLT M6X35
24	CAP BOLT	51	CAP BOLT	78	CAP BOLT M6X35
25	CUTTER ROD	52	SEAL WASHER	79	CORD
26	PIN 12X40	53	CAP BOLTM6X50	80	TAPPING SCREW
27	**	54	OIL SEAL	81	TAPPING SCREW
				82	P.WASHER M6



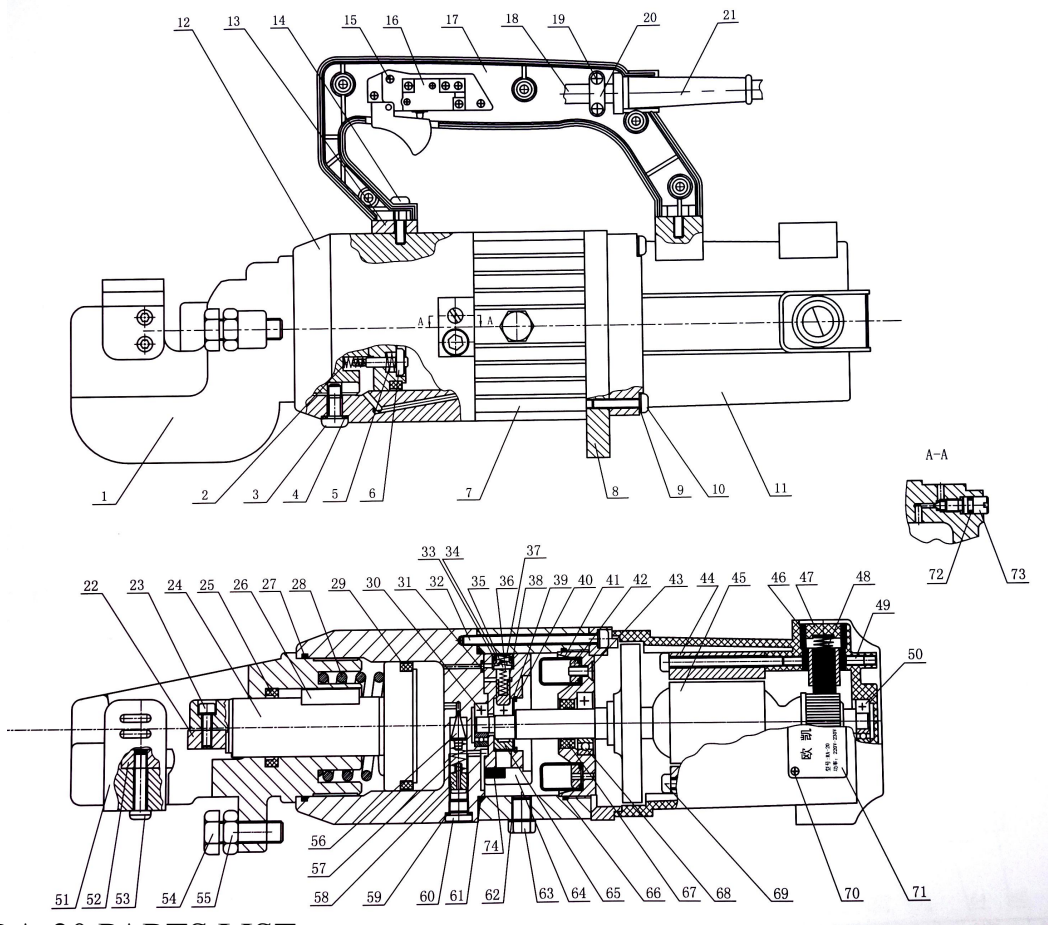
RC-18 PARTS LIST

NO.	PARTS NAME	NO.	PARTS NAME	NO.	PARTS NAME
1	HOUSING	23	WIRE RACK	45	COTTER PIN
2	MOTOR	24	BRUSH CAP	46	SCREW
3	FIX SCREW	25	CARBON BRUSH	47	SCREW HANDLE
4	PUMP CASE	26	BRUSH HOLDER	48	SEAL 15*25*7
5	SCREW M10*12	27	ARMATURE	49	BEARING 6202
6	CYLINDER	28	STATOR COIL	50	TAPPING SCREW
7	SCREW M6*20	29	SCREW M5*8	51	BEARING 608
8	CONNECTION	30	TIGHT WASHER	52	SWITCH
9	TENSION	31	AIR BAG	53	PIN
10	SCREW M4*10	32	SEAL 70*60*6	54	BEARING COVER
11	BUFFER PLATE	33	BIG SPRING	55	NUT
12	BLADE UP	34	PIN	56	BEARING SLEEVE
13	BLADE DOWN	35	SEAL40*30*6	57	SEAL HOLDER
14	SCREW M4*8	36	TOP BLOCK	58	SPRING
15	SCREW M5*40	37	BUFFER	59	OIL VALVE
16	BLADE	38	SCREW M6*12	60	GASKET
17	HEAD STOCK	39	ECCENTRIC	61	BEARING
18	HEAD STOCK	40	PUSHING SHAFT	62	SPRING
19	CYLINDER	41	SPRING UP	63	PISTON
20	FOOT STAND	42	RETURN SHAFT	64	RING $\phi 27$
21	NAMEPLATE	43	SRPING DOWN	65	NEEDLE BEARING
22	WIRE CORD	44	O RING		



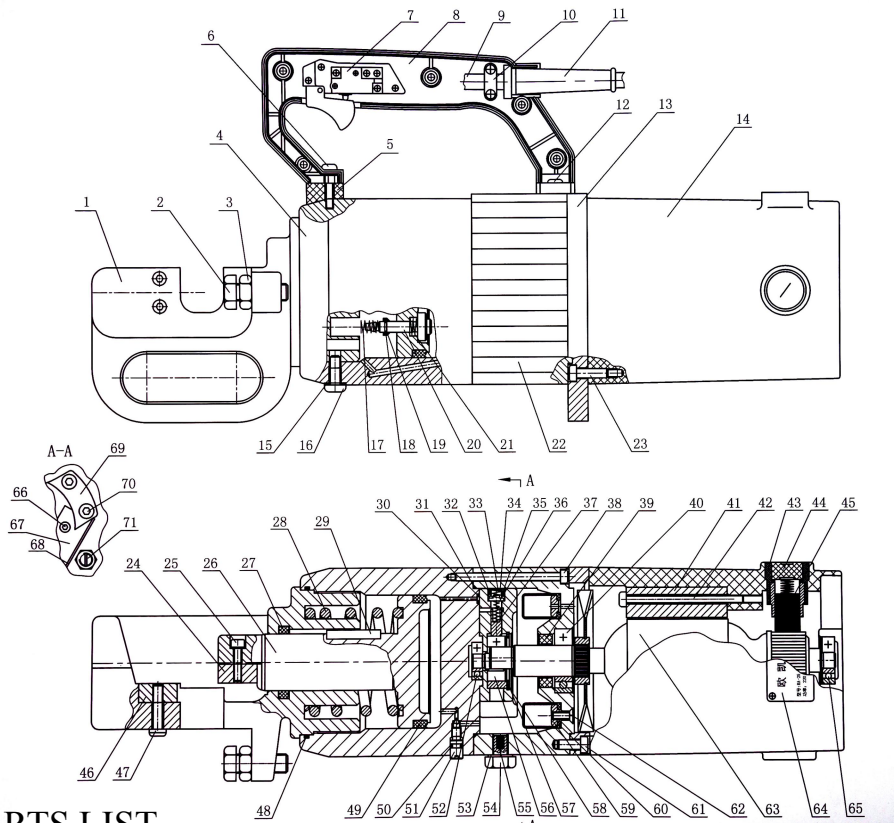
RA-16 PARTS LIST

NO.	PARTS NAME	NO.	PARTS NAME	NO.	PARTS NAME
1	CUTTER HEAD	23	Hydraulic seal oil seat	45	Ø4 steel ball
2	SPRING	24	Oil pressure switch	46	Insurance spring seat
3	SCREW	25	Piston spring	47	Insurance spring
4	Copper gasket	26	piston	48	Insurance spring washer
5	SPRING	27	Air bag	49	Safety adjustment screw
6	RETURN ROD	28	O-ring	50	Safety screw
7	SCREW M5×80	29	Compression gasket	51	O-ring
8	PUMP CASE	30	Oil seal 15*25*7	52	10*6*5 magnet
9	pump tank	31	Bearing 6202	53	Combination gasket 16*10*2
10	Motor housing	32	Brush holder	54	Hexagon socket bolt M10*12
11	Motor cover	33	Brush cap	55	Cylinder
12	CUTTER BLADE	34	Carbon brush	56	Needle bearing
13	screws M5*15	35	Crimping screw	57	Gasket
14	CUTTER ROD	36	Crimping frame	58	Inner ring ø27
15	Sealing ring	37	Guard sleeve	59	Countersunk bolt
16	pin	38	Power cord	60	STATOR COIL
17	O-ring	39	Safety barrier	61	M5*55 tapping screw
18	Sealing ring	40	CUTTER BLADE	62	ARMATURE
19	Bearing 608	41	Hexagon socket head	63	Case cover screw M4*12
20	O-ring	42	Hexagon socket head	64	Bearing 608
21	O-ring	43	Adjustment nut M10	65	switch
22	Spring	44	Big spring	66	O-ring
				67	Oil return screw



RA-20 PARTS LIST

NO.	PARTS NAME	NO.	PARTS NAME	NO.	PARTS NAME
1	Headstock	26	pin	51	Safety barrier
2	Return rod upper	27	O-ring	52	Upper blade
3	Head frame	28	Big spring	53	Hexagon socket head cap
4	Copper gasket	29	Sealing ring 66*56*6	54	Hexagon bolt M10*40
5	Return rod lower	30	Bearing 608	55	Adjustment nut M10
6	RETURN ROD	31	O-ring	56	Insurance
7	pump tank	32	Hexagon socket head	57	Insurance spring
8	Foot	33	O-ring	58	Safety adjustment screw
9		34	Hydraulic seal oil seat	59	Copper gasket
10	Hexagon socket	35	Oil pressure switch	60	Insurance cover screw
11	Motor cover	36	Piston spring	61	O-ring
12	Cylinder	37	Hydraulic piston	62	Combination gasket 16*10*2
13	Handle block	38	Piston	63	Hexagon bolt M10*40
14	Hexagon socket	39	Gasket	64	CYLINDER
15	Switch screw	40	Inner ring ø27	65	Needle bearing
16	Switch	41	Cylinder rebound	66	O-ring
17	Handle	42	Compression gasket	67	Oil seal 15*25*7
18	Power cord	43	Countersunk bolt	68	Bearing 6202
19	Crimping screw	44	STATOR COIL	69	Hexagon socket head cap
20	Crimping frame	45	pin	70	Screw M4*8
21	Guard sleeve	46	O-ring	71	Trademark position
22	Down blade	47	Big spring	72	O-ring
23	Hexagon socket	48	Sealing ring 66*56*6	73	Oil return screw
24	CUTTER ROD	49	M5*10 tight top screw	74	10*6*5 magnet
25	Sealing ring	50	Bearing 608		



RA-25 PARTS LIST

NO.	PARTS NAME	NO.	PARTS NAME	NO.	PARTS NAME
1	CUTTER HEAD	26	CUTTER ROD	51	Oil return screw
2	bolt M10*40	27	Sealing ring 46*36*6	52	Bearing 609
3	Adjustment nut	28	Big spring	53	Combination gasket
4	Cylinder	29	pin	54	oil bolt
5	Handle block	30	O-ring $\phi 9.5*2$	55	Magnet $\phi 6.8$
6	Semicircular head	31	O-ring 100*2	56	Needle bearing
7	Switch	32	O-ring $\phi 10*2$	57	Gasket
8	Handle	33	Hydraulic seal oil seat	58	Inner ring $\phi 37$
9	Power cord	34	Oil pressure switch	59	Rebound sleeve
10	Crimping frame	35	Oil pressure switch	60	Rebound sleeve
11	Guard sleeve	36	Piston spring	61	Semicircular head screw
12	Semi-circular head	37	Piston	62	Countersunk head screw
13	Motor housing	38	Hexagon socket head	63	ARMATURE
14	cabinet	39	Oil seal 35*20*8	64	brand
15	Copper gasket	40	Bearing 6004	65	Bearing 6200
16	Head frame	41	STATOR COIL	66	Semicircular head hexagonal
17	Return rod upper	42	Stator screw M5*75	67	Oil filter net pressure plate
18	Insurance spring	43	Brush house	68	Oil filter net
19	Return rod	44	Carbon brush cover	69	Pump body
20	Return rod	45	Carbon brush	70	Hexagon socket head cap
21	Return rod lower	46	Upper blade	71	Insurance
22	pump tank	47	Hexagon socket head		
23	Case screw M6*20	48	O-ring $\phi 100*2$		
24	Lower blade	49	Sealing ring 85*75*8		
25	Hexagon socket	50	O-ring $\phi 8*1.9$		

