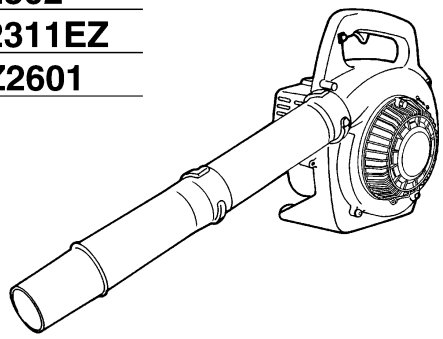
ZENOAH ENGINE BLOWER

WORKSHOP MANUAL

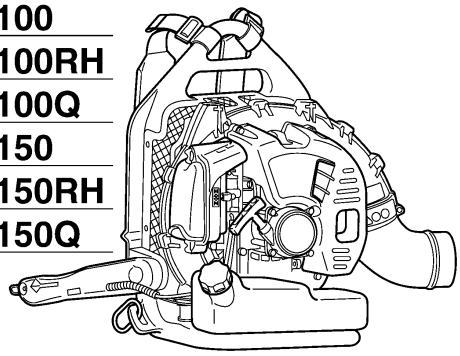
HANDHELD BLOWER

HB2302
HB2311EZ
HBZ2601



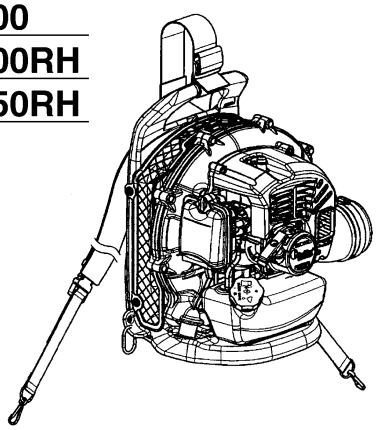
BACKPACK BLOWER

EBZ4800
EBZ5100
EBZ5100RH
EBZ5100Q
EBZ5150
EBZ5150RH
EBZ5150Q



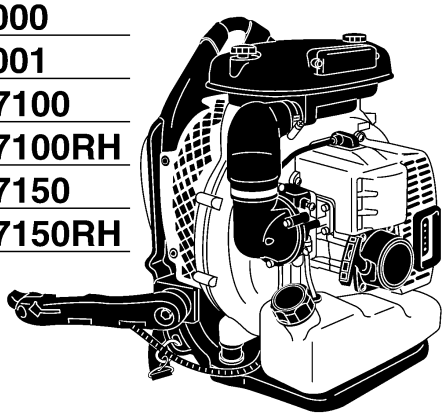
BACKPACK BLOWER

EBZ3000
EBZ3000RH
EBZ3050RH



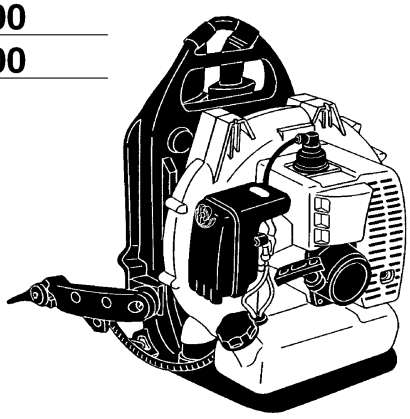
BACKPACK BLOWER

EB7000
EB7001
EBZ7100
EBZ7100RH
EBZ7150
EBZ7150RH



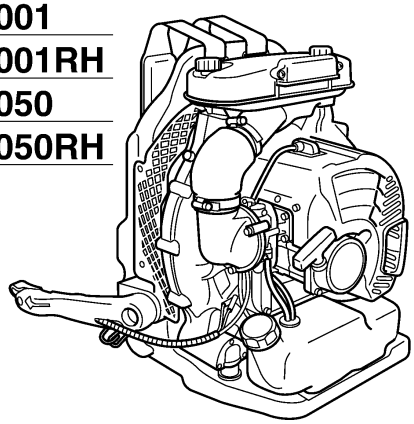
BACKPACK BLOWER

EB4300
EB6200



BACKPACK BLOWER

EBZ8001
EBZ8001RH
EBZ8050
EBZ8050RH



ZENOAH

Instruction

This workshop manual describes the main maintenance items and procedures and troubleshooting for the Husqvarna Zenoah engine blower.

This manual is classified into two categories; one includes important notices concerning disassembly and reassembly including "Cautions for disassembly" and "Cautions for reassembly", the other includes inspection and adjustment items such as "Muffler inspection and maintenance", "Air cleaner inspection" and "Carburetor adjustment". After each item is thoroughly understood, apply the understanding to the actual maintenance tasks.

Frequently asked questions are also included in this manual. However, many cases need rich maintenance experience and informed judgment. Please refer to this manual for maintenance support.

【NOTES】

1. The contents of this manual are based on specifications as of January 2009.
   The contents may be modified due to performance improvement or some other reason without notice.
2. Use Zenoah brand-name parts when replacing a part during maintenance, etc.
   The manufacturer does not bear any responsibility if trouble occurs during parts use of other than brand-name parts.
3. Read this manual thoroughly before beginning the maintenance work, understand it, apply the content to the actual maintenance tasks and guide the customer if directions, are needed.

Husqvarna Zenoah Co., Ltd.

Exported models according to country

This workshop manual applies to all exported engine blower models sold by Hasqvarna Zenoah. Some models are not exported to particular regions of the world. Please check your model by referring the following table.

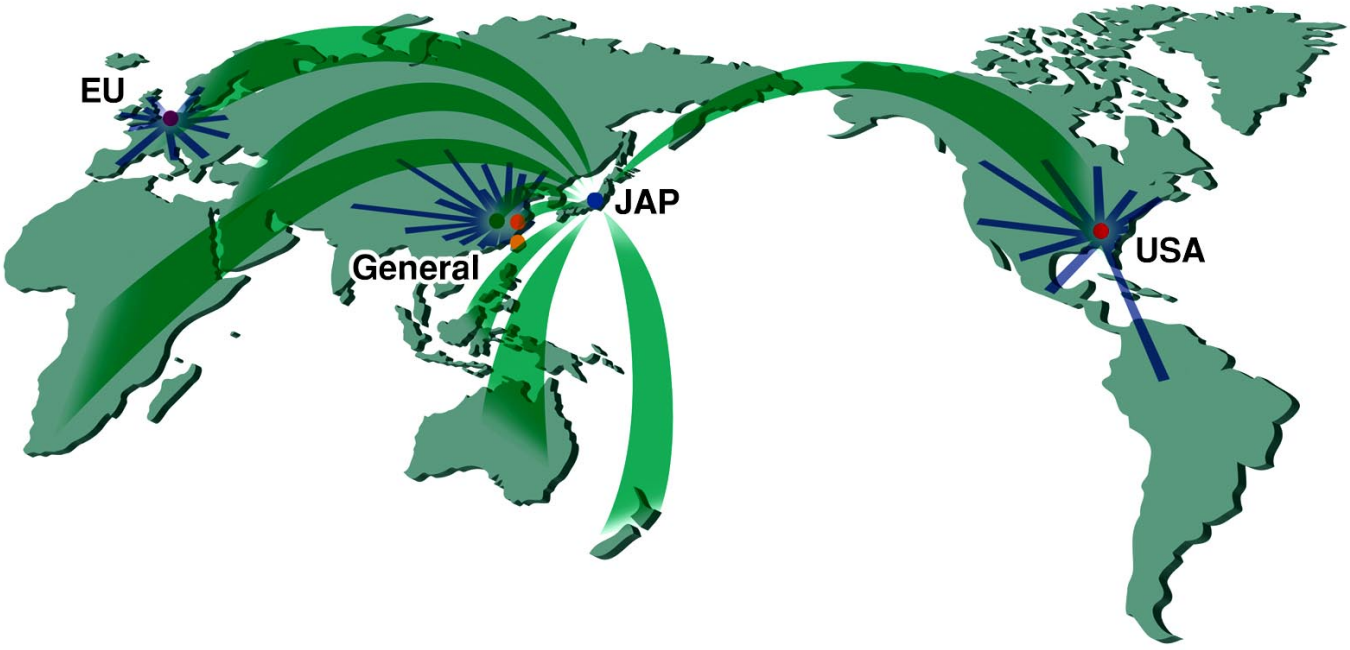
Table of exported models corresponding to country

Category		Handheld Blower		Backpack Blower						
Displacement		22.5 cm^3	25.4 cm^3	29.5 cm^3	41.5 cm^3	47.9 cm^3	50.2 cm^3	62.0 cm^3	64.9 cm^3	71.9 cm^3
Engine Type		G23L	GZ25N	GZ30N	G4K	GZ48N	GZ51N	G62L	GZ65N	GZ72N
Blower Model	JAP	HB2311EZ		EBZ3000	EB4300★	EBZ4800		EB7001★		
	General	HB2302	HBZ2601	EBZ3000	EB4300			EB6200 EB7000		EBZ8001*2
	EU	HB2302	HBZ2601	EBZ3000		EBZ4800		EB7000		EBZ8001*2
	USA		HBZ2601	EBZ3000RH EBZ3050RH			EBZ5100★ EBZ5100RH EBZ5100Q★*1 EBZ5150★ EBZ5150RH EBZ5150Q★*1		EBZ7100★ EBZ7100RH EBZ7150★ EBZ7150RH	EBZ8001★ EBZ8001RH EBZ8050★ EBZ8050RH

★: Left hand throttle lever specifications

＊1: EBZ5100Q has low noise specifications.

＊2: Equipped with frame for the mist kit installation.



Model Notation

The engine type and blower model nomenclature is as follows.
The applicable blower models and series names are indicated at right of the maintenance item title. Refer to this nomenclature to confirm engine type and blower model.

● **Engine Type**

G Z 25 N

- N → Engine series (L/ N/ K)
- 25 → Displacement (cm^3)
- Z → Strato charged engine (green engine)

● **Blower Model**

HB Z 26 01

- 01 → Minor changed code
- HB → Handheld Bower

EB Z 71 00

- EB → Backpack (shouldering type) Blower

EB Z 51 00 RH

- RH → Right hand throttle lever specification

EB Z 51 00 Q

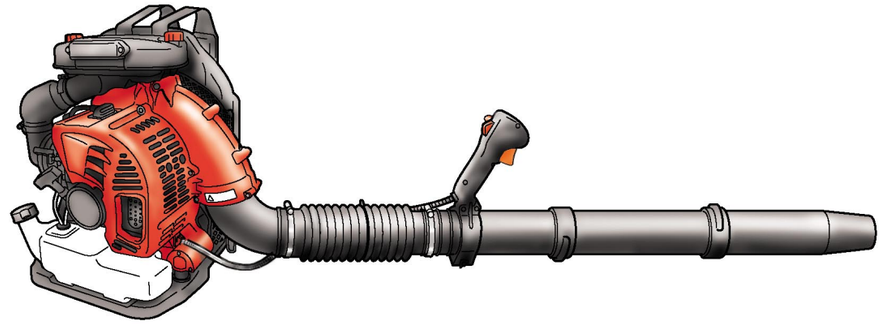
- Q → Low noise specifications

EB Z 51 50

- 50 → Evaporation tank (fluorine coated) specification (Since January, 2009.)

Contents

1. Special Features



Engine

The environmental friendly Strato Charge Engine is installed.

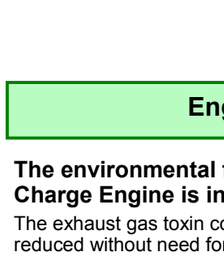
The exhaust gas toxin concentration is greatly reduced without need for a catalyst, to generate reactive heat. High engine cooling performance promotes stable output even during continuous operation in summer. Furthermore, low fuel consumption reduces running costs.

Strato Charged: It means prior air intake and layered scavenging system.

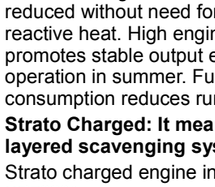
Strato charged engine installed models:

HBZ2601
EBZ3000
EBZ4800
EBZ5100
EBZ5100Q
EBZ7100
EBZ8001

Fuel/ air mixture and pure air are separately induced during piston



Firstly pure air is inhaled, then fuel/ air mixture is inhaled.



A pure air layer forms to push out the burnt gasses resulting in a reduced volume of unburnt exhaust gasses.

Centrifugal Fan

Open Vane Fan

The fan is designed to deliver air efficiently and silently.
Usually an open type fan is used, whose vanes are bare. Some fans have closed construction whose vane edges are joined to a plate.

Closed Vane Fan

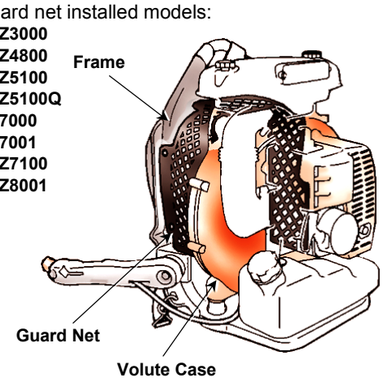
The closed vane fan will deliver a larger airflow compared to the same sized conventional open vane fan.

Closed vane fan installed model:
EBZ8001

Guard Net

To prevent leaves, dirt or foreign matter being drawn in, a net is set between the volute cover and the frame.
If leaves or dirt block at the net and the air intake, airflow and blower cooling efficiency will be reduced resulting in overheating.

Guard net installed models:
EBZ3000
EBZ4800
EBZ5100
EBZ5100Q
EB7000
EB7001
EBZ7100
EBZ8001



Backpack Pad Ventilation

The backpack blower has air ventilation system between the blower's pad and operator's back to reduce sweating and ensure comfortable operation.

Exhaust Type:

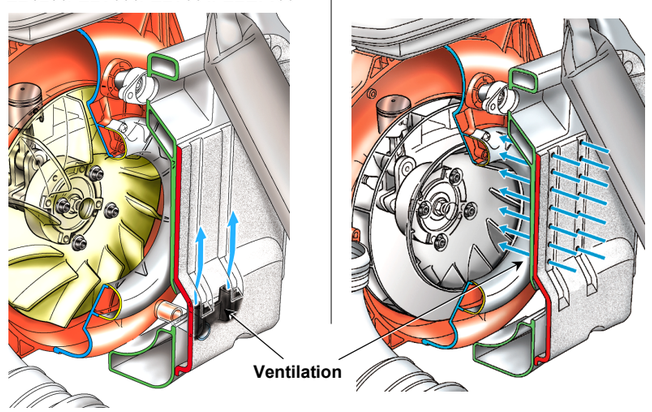
Cools the operator's back by exhausting air between the blower's pad and operator's back.

Exhaust models:
EB4300/ EBZ4800/ EBZ5100 Series
EB6200/ EB7000/ EB7001/ EBZ7100

Inhalation Type:

Cools the operator's back by sucking air between the blower's pad and operator's back.

Inhalation models:
EBZ3000 EBZ8001

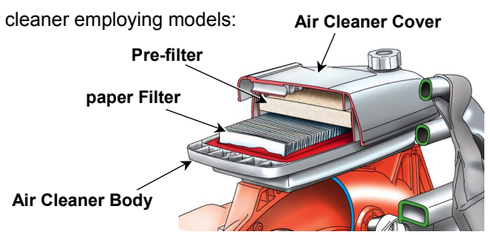


Large Air Cleaner

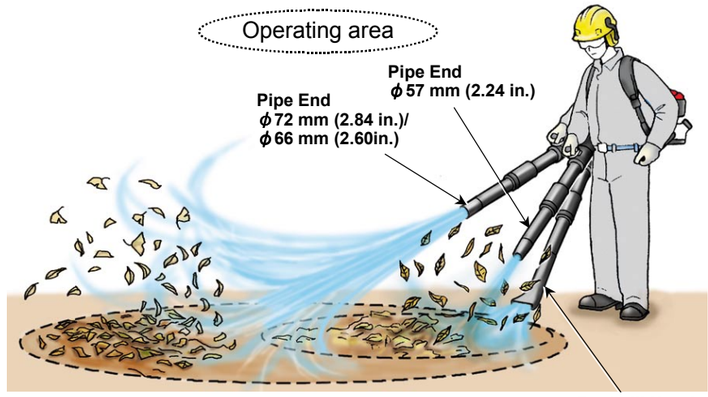
A large air cleaner, incomparable to other manufacturer's models, is installed. The large air cleaner consist of two stage filters (pre-filter and paper filter).
An extended cleaning interval compared to conventional models ensures easier maintenance and trouble-free operation.

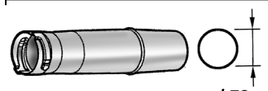
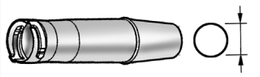
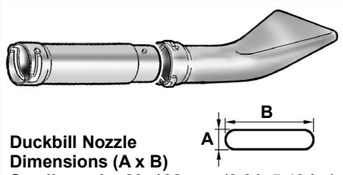
- Air cleaner performance: Twice that of conventional models.
- Cleaning interval: Three times longer than any other manufacturer's blower of the same class.

Large air cleaner employing models:
EB7000
EB7001
EBZ7100
EBZ8001

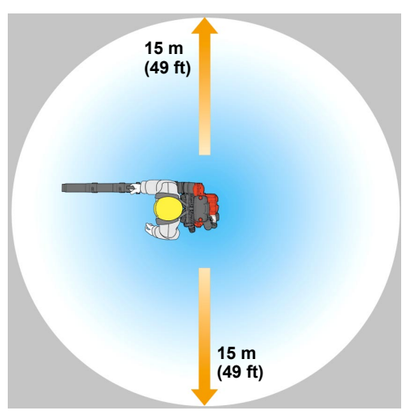


Pipe End Specifications and Characteristics



Nozzle Shapes of the Pipe End	Main Purpose
 ϕ72 mm (2.84 in.)/ ϕ66 mm (2.60in.)	A larger diameter promotes voluminous air blowing. It is suitable for blowing withering fallen leaves, paper trash and other light material.
 ϕ57 mm (2.24 in.)	A narrower nozzle generates higher air pressure. It is suitable for blowing trimmed turf, pine needles and other moist or weighty material.
 Duckbill Nozzle Dimensions (A x B) Small nozzle: 23x138 mm (0.91x5.43 in.) Large nozzle: 30x180 mm (1.18x7.09 in.)	A wide nozzle spreads the blown air. It is suitable for trimmed turf and fallen leaves that stick to the ground.

Noise Comparison between Models



Under ANSI B175.2-2000; (8 points measurement)

Model	Noise dB (A) 15 m (49 ft) from the blower	Noise level
EBZ4800	67	Low
EBZ5100Q	68	
HBZ2601	69	
EBZ3000	69	
HB2302/ 2311	70	
HBZ2601CA	72	
EBZ5100	71	
EB4300	74	
EB6200/ 7000/ 7001	75	
EBZ7100	77	
EBZ8001	77	High

2. Specifications and Technical Data

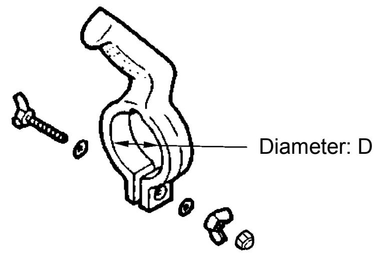
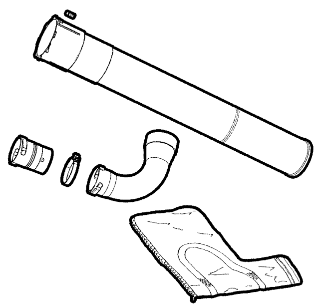
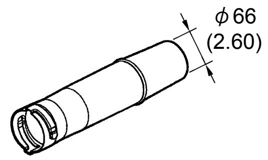
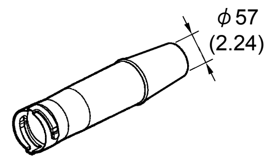
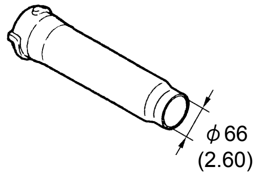
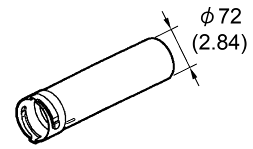
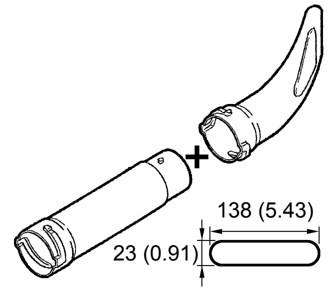
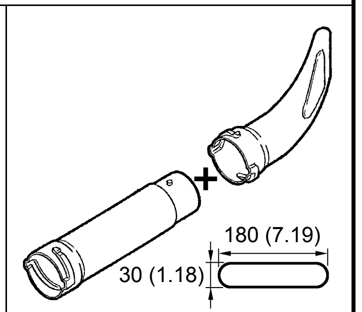
2-1 Blower

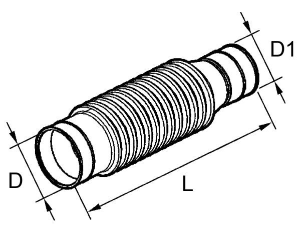
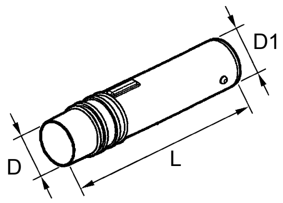
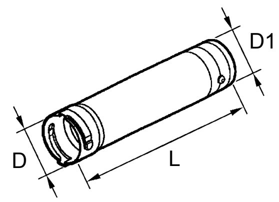
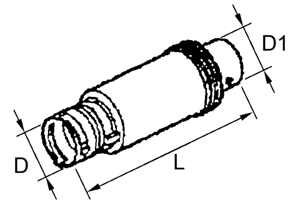
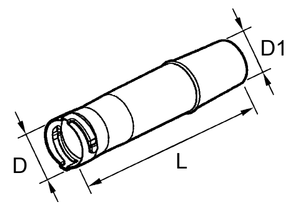
★: Left hand throttle lever specifications

Item		Unit	Specifications														
Category			Handheld Blower				Backpack Blower										
Engine Type			G23L		GZ25N		GZ30N	G4K	GZ48N	GZ51N		G62L			GZ65N	GZ72N	
Blower Model			HB23 Series		HBZ26 Series		EBZ30 Series	—	—	EBZ51 Series		—	EB70 Series		EBZ71 Series	EBZ80 Series	
			HB2302	HB2311EZ	HBZ2601	HBZ2601	EBZ3000 EBZ3000RH/ EBZ3050RH	EB4300	EBZ4800	EBZ5100/ EBZ5100RH/ EBZ5150/ EBZ5150RH	EBZ5100Q/ EBZ5150Q	EB6200	EB7000	EB7001	EBZ7100/ EBZ7100RH/ EBZ7150/ EBZ7150RH/	EBZ8001 EBZ8001/ EBZ8001RH/ EBZ8050/ EBZ8050RH	Remarks
Sales Region (Reference)			EU, General	JAP	EU, General	USA	JAP, EU, General USA	JAP, General	JAP, EU, General	USA	USA	General	EU, General	JAP	USA	EU, General USA	
Cycle		—	2	←	←	←	2	←	←	←	←	←	←	←	←	←	
Number of Cylinders		—	1	←	←	←	1	←	←	←	←	←	←	←	←	←	
Valve Type		—	Piston valve	←	←	←	←	←	←	←	←	←	←	←	←	←	
Cylinder Bore		mm (in.)	32 (1.260)	←	34 (1.339)	←	38 (1.496)	40 (1.575)	43 (1.693)	44 (1.732)	←	47.5 (1.870)	←	←	←	50 (1.969)	
Stroke		mm (in.)	28 (1.102)	←	←	←	26 (1.024)	33 (1.299)	←	←	←	35 (1.378)	←	←	36.6 (1.441)	←	
Displacement		cm^3	22.5	←	25.4	←	29.5	41.5	47.9	50.2	←	62	←	←	64.9	71.9	
Effective Compression Ratio		—	7.7	←	8	7.4	7.4	8.1	8	7.8	7.3	7.7	←	←	7.4	7.5	
Fuel		—	Gasoline/oil mixed fuel	←	←	←	←	←	←	←	←	←	←	←	←	←	
Engine lubrication		—	Fuel-oil mixture	←	←	←	←	←	←	←	←	←	←	←	←	←	
Engine lubrication Oil		—	2-cycle oil	←	←	←	←	←	←	←	←	←	←	←	←	←	
Mixing Ratio		—	Zenoah FC 40:1 Normal FB 25:1 RedMax FD 50:1	←	←	←	←	←	←	←	←	←	←	←	←	←	
Carburetor (Walbro)	Type	—	Diaphragm type rotary valve	←	←	←	←	←	←	←	←	←	←	←	←	←	
	Model	—	WYJ-110A	WYJ-374	WYA-26E	WYA-65	USA, EU: WYA-73B JAP: WYA-82	WYK-67A	EU: WYA-51B JAP: WYA-42B	WYA-79	WYA-83	WYK-73A	WYK-123A	←	WYA-81	WYA-44B	
Starting Method		—	Recoil starter	Recoil starter (Coil dumper type: EZ)	Recoil starter	←	Recoil starter (Coil dumper type: EZ)	Recoil starter	←	←	←	←	←	←	←	←	
Ignition System	Type	—	Analog controlled TCI Flywheel Magneto with advance-angle	←	Analog controlled CDI Flywheel Magneto with advance-angle	←	←	←	←	Digital controlled CDI Flywheel Magneto with advance-angle	Analog controlled CDI Flywheel Magneto with advance-angle	←	←	←	Digital controlled CDI Flywheel Magneto with advance-angle	←	Digital control Misfire for excessive speed Maximum speed: 85000 rpm
	Model	—	UK-08922-01	←	UK-08922-35	←	USA: UK-08958C-31 JAP, EU: UK-08958-31	ZMG-8	ZMG-10G	UK-08963-54	ZMG-10G	ZMG-8	←	←	ZMG-14CGD	ZMG-14GD	
Ignition Timing		° / rpm	24/ 6000	←	35/ 7000	←	37/ 7500	28/ 7000	35/ 7000	33/ 7000	35/ 7000	28/ 7000	←	←	34/ 7000	33/ 7000	
Spark Plug	Type	—	RCJ6Y	←	CMR7A	CMR7H	←	RJ6C	CMR7H	←	←	BPMR7A	←	←	CMR7H	←	
	Gap	mm (in.)	0.6～0.7 (0.024～0.028)	←	←	←	←	←	←	←	←	←	←	←	←	←	
Stopping Method	Type	—	Primary coil short-circuiting	←	←	←	←	←	←	←	←	←	←	←	←	←	
	Switch LH	—	Push type	←	←	←	No setting	Push type	No setting	Push type	Toggle type	No setting	←	Push type	←	←	
	Switch RH	—					Slide type	←	←	←	←	←	←	No setting	Slide type	←	
Cooling System		—	Forced air cooling	←	←	←	←	←	←	←	←	←	←	←	←	←	
Air Cleaner Element Type		—	Single layer dry element	←	←	←	←	Single layer half-wet element	Dual layer half-wet element	Single layer half-wet element	←	←	Primary: Dry puff Secondary: Dry paper	←	←	←	
Output Axle Rotation Direction		—	Counterclockwise	←	←	←	←	←	←	←	←	←	←	←	←	←	View from output axle
Overall Dimensions	Length	mm (in.)	325 (12.8)	←	327 (12.9)	←	313 (12.3)	335 (13.2)	352 (13.9)	401 (15.8)	←	336 (13.2)	←	365 (14.4)	371 (14.6)	380 (15.0)/ USA: 390 (15.4)	Throttle arm Vertical state
	Width	mm (in.)	225 (8.86)	233 (9.17)	268 (10.55)	269 (10.59)	394 (15.5)	★489 (19.3) / 454 (17.9)	452 (17.8)	★483 (19.0) / 441 (17.4)	★483 (19.0)	★489 (19.3) / 454 (17.9)	449 (17.7)	★485 (19.1)	★487 (19.2) / 467 (18.4)	★540 (21.3) / 490 (19.3)	
	Height	mm (in.)	360 (14.2)	←	←	←	420 (16.5)	495 (19.5)	476 (18.7)	495 (19.5)	←	←	←	←	←	496 (19.5)	
Dry Weight		kg (lbs.)	3.7 (8.16)	←	3.9 (8.6)	4 (8.82)	6.1	8.5	8.9	9.4	←	9.1	9.7	←	10.6	11.7/ USA: 11.5	Elbow included, Blower pipe excluded
Fuel Tank Capacity		L	0.75	←	0.65	←	1.08	1.8	1.9	2.1	←	2	2.1	←	←	2.3	
Idling Speed		rpm	2300	←	2800	3000	3000	2000	2300	2200	←	2000	←	←	←	←	
Operating Speed		rpm	7500	←	7890	7600	6700	6350	6250	6000	5700	7700	7300	←	7050	6700	
Blower Nozzle Diameter		mm (in.)	66 (2.60)	←	←	←	←	←	66 (2.60) Option: 55 (2.17)	66 (2.60)	←	←	←	←	←	72 (2.835)	
Average air volume at aimed blowing point		m^3/ min	10	←	10.4	←	10.6	12	13.2	13.8	12.8	14	15	16.5	16.6	19.4	
Maximum air speed at aimed blowing point (Calculated estimate)		m/ s	55.4	←	←	←	58.7	66.5	73.1	76.4	70.9	77.5	83.1	91.4	91.9	90.3	
Maximum Output		kW/ rpm (PS)	0.86/ 8000 (1.17)	← ←	0.88/ 7500 (1.2)	0.86/ 7500 (1.17)	0.95/ 7500 (1.29)	1.80/ 8000 (2.45)	1.88/ 8000 (2.56)	1.62/ 7500 (2.2)	1.53/ 7500 (2.08)	2.87/ 7500 (3.9)	3.1/ 7000 (4.1)	3.1/ 7000 (4.1)	2.98/ 8000 (4.05)	3.29/ 8000 (4.48)	
Fuel Consumption		L/ h	0.8	←	0.59	0.51	0.59	1.7	1.05	1.1	0.98	1.9	←	←	1.65	1.85	Under actual blower state
Ambient noise at 15 m from the blower		dB (A)	70	←	69	72	69	74	67	71	68	75	←	←	77	77	ANSI B175.2-2000
Noise at operator (Reference value)		dB (A)	91	←	95	92	91	99	92	94	92	97	99	←	100	100	
Sound Power Level		dB (A)	106	←	106	←	100	106	104	104	102	110	107	←	110	112	ISO 11094

2-2 Pipe

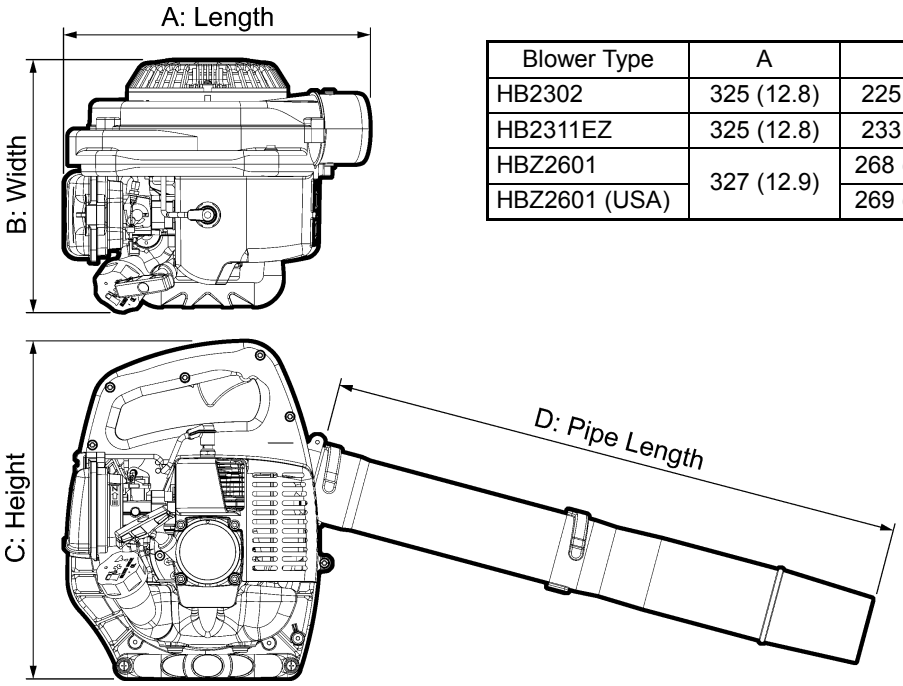
Unit: mm (in.)

Part Name		Grip Assembly			Vacuum Kit	Pipe End				Straight Pipe+Duckbill Nozzle	
Form											
Standard		D=ϕ60 (2.36)	D=ϕ74 (2.91)	D=ϕ80 (3.15)		ϕ73 (2.87)×ϕ66 (2.60)	ϕ73 (2.87)×ϕ57 (2.24)	ϕ79 (3.11)×ϕ66 (2.60)	ϕ79 (3.11)×ϕ72 (2.84)	Forϕ73 (2.87)	Forϕ79 (3.11)
Part Number	RedMax Lodo	3495-51400 (Option)	2750-51501 (Standard)	848-L58-6521 (Standard)	— (Option)	6811-51220 (Standard)	2756-51220 (Option)	848-L5C-65E1 (Standard)	848-L58-65E1 (Standard)	6811-51211+6811-51230 (Option)	848-L58-65D0+848-L58-65L0 (Option)
	Solid Color					848-L0L-65E0 (Standard)	848-L38-65E0 (Option)	848-L5K-65E1 (Standard)	848-L5Z-65E0 (Standard)		
Model	EB430/ EBE440	●								● +(2750-51200 Swivel Joint)	
	HB2302/ HB2311EZ/ HBZ2601	—	—	—	●	●	● (Option)			●	
	EBZ3000	—	—	—		●	● (Option)			●	
	EB4300/ EB6200/ EB7000		●			●	● (Option)			●	
	EBZ4800		●			●	● (Standard)			●	
	EBZ5100Q		●			●	● (Option)			●	
	EBZ5100/ EB7001		●			●	● (Option)			●	
	EBZ7100			●				● (Standard)	● (Option)		●
	EBZ8001			●				● (Option)	● (Standard)		●

Part Name		Flexible Pipe				Swivel Joint			Straight Pipe			Silencer	Pipe End				
Form																	
Standard	Diameter: D	ϕ87 (3.43)	ϕ87 (3.43)	ϕ94 (3.70)	ϕ99.5 (3.92)	ϕ70 (2.76)	ϕ70 (2.76)	ϕ80 (3.15)	ϕ61 (2.40)	ϕ74 (2.91)	ϕ80 (3.15)	ϕ74 (2.91)	ϕ61 (2.40)	ϕ73 (2.84)	ϕ73 (2.87)	ϕ79 (3.11)	ϕ79 (3.11)
	Diameter: D1	ϕ70 (2.76)	ϕ70 (2.76)	ϕ70 (2.76)	ϕ80.5 (3.17)	ϕ60 (2.36)	ϕ74 (2.91)	ϕ79 (3.11)	ϕ60 (2.36)	ϕ73 (2.87)	ϕ79 (3.11)	ϕ73 (2.87)	ϕ57 (2.24)	ϕ66 (2.60)	ϕ57 (2.24)	ϕ66 (2.60)	ϕ72 (2.84)
	Length: L	420 (16.54)	372 (14.65)	345 (13.58)	345 (13.58)	370 (14.57)	340 (13.39)	365 (14.37)	370 (14.54)	320 (12.60)	365 (14.37)	346 (13.62)	355 (13.98)	340 (13.39)	340 (13.39)	340 (13.39)	340 (13.39)
Part Number	RedMax Lodo	3495-51110	T4017-51110	T4030-51110	848-L65-65A0	3495-51202	2750-51201	848-L58-6511	3495-51321	6811-51211	848-L58-65D0	T4030-51110	—	6811-51220	2756-51220	848-L5C-65E1	848-L58-65E1
	Solid Color												3495-51300	848-L0L-65E0	848-L38-65E0	848-L5K-65E1	848-L5Z-65E0
Model	EB430/ EBE440	●				●			●			—	●				
	HB2302/ HB2311EZ/ HBZ2601	—	—	—	—	—	—	—		●		—		●			
	EBZ3000		●				●			●		—		●			
	EB4300/ EB6200/ EB7000		●				●			●		—		●			
	EBZ4800		●				●		—	—	—	●		●	●		
	EBZ5100Q			●			●		—	—	—	●		●			
	EBZ5100/ EB7001			●			●			●		—		●			
	EBZ7100				●			●			●	—				●	
	EBZ8001				●			●			●	—					●

2-3 Overall dimensions

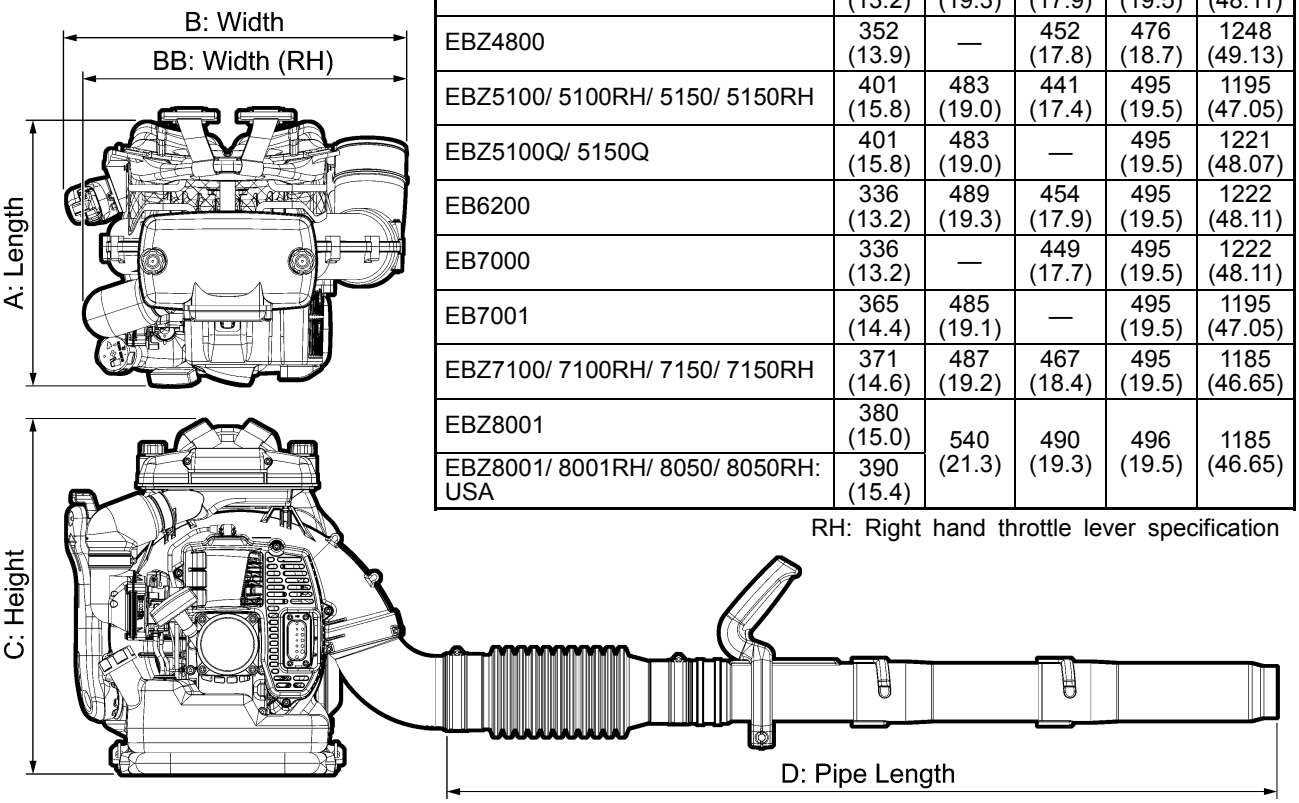
Handheld Blower



Unit: mm (in.)

Blower Type	A	B	C	D
HB2302	325 (12.8)	225 (8.86)	360 (14.2)	610 (24.0)
HB2311EZ	325 (12.8)	233 (9.17)	360 (14.2)	610 (24.0)
HBZ2601	327 (12.9)	268 (10.55)	360 (14.2)	610 (24.0)
HBZ2601 (USA)		269 (10.59)		

Backpack Blower



Unit: mm (in.)

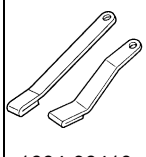
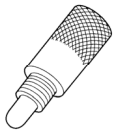
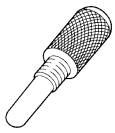
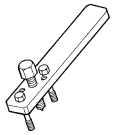
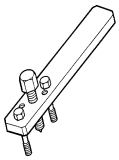
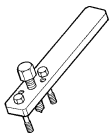
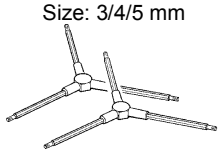
Blower Type	A	B	BB	C	D
EBZ3000/ 3000RH/ 3050/ 3050RH	313 (12.3)	—	394 (15.5)	420 (16.5)	1222 (48.11)
EB4300	335 (13.2)	489 (19.3)	454 (17.9)	495 (19.5)	1222 (48.11)
EBZ4800	352 (13.9)	—	452 (17.8)	476 (18.7)	1248 (49.13)
EBZ5100/ 5100RH/ 5150/ 5150RH	401 (15.8)	483 (19.0)	441 (17.4)	495 (19.5)	1195 (47.05)
EBZ5100Q/ 5150Q	401 (15.8)	483 (19.0)	—	495 (19.5)	1221 (48.07)
EB6200	336 (13.2)	489 (19.3)	454 (17.9)	495 (19.5)	1222 (48.11)
EB7000	336 (13.2)	—	449 (17.7)	495 (19.5)	1222 (48.11)
EB7001	365 (14.4)	485 (19.1)	—	495 (19.5)	1195 (47.05)
EBZ7100/ 7100RH/ 7150/ 7150RH	371 (14.6)	487 (19.2)	467 (18.4)	495 (19.5)	1185 (46.65)
EBZ8001	380 (15.0)	540 (21.3)	490 (19.3)	496 (19.5)	1185 (46.65)
EBZ8001/ 8001RH/ 8050/ 8050RH: USA	390 (15.4)				

RH: Right hand throttle lever specification

3. Special Tools

3-1 Rotor Removal

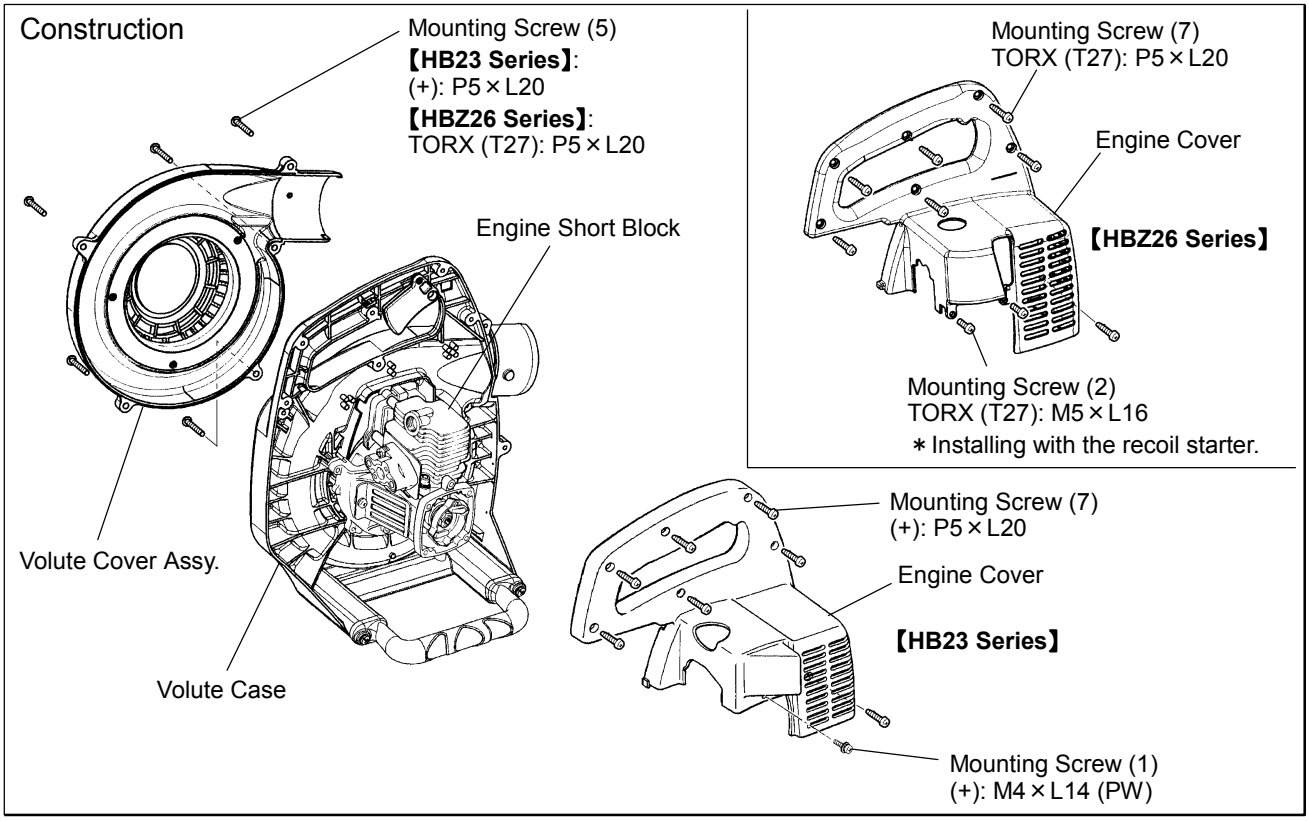
Description

Part Name / Part Number / Model	Stopper 2670-96220  1664-96410	Stopper 3350-96220 	Stopper 4810-96220 	Puller Assy 2890-96100 	Puller Assy 1490-96101 	Puller Assy 2750-96100 	Wrench (HEX) 3304-97611 Size: 3/4/5 mm  Wrench (TORX) 2850-96410 Size: T20/ T25/ T27
HB23 Series	●			●			●
HBZ26 Series			●				●
EBZ30 Series			●		●		●
EB4300/ 6200 EB70 Series		●				●	●
EBZ4800 EB51/ 71/ 80 Series			●			●	●

Remove the rotor using the puller assy (special tool) while preventing piston movement by setting the stopper (special tool).

Examples of special tool usage and maintenance procedures categorized by type and series are explained below. Each drawing includes information on parts such as mount screws and disassembly cautions.

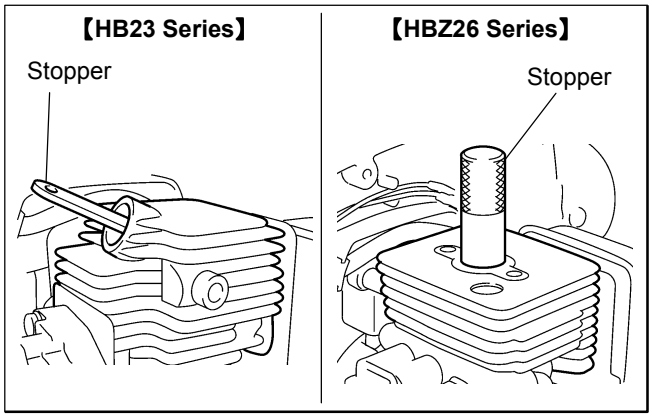
How to use (Procedure) **Handheld Blower: HB23 Series, HBZ26 Series**



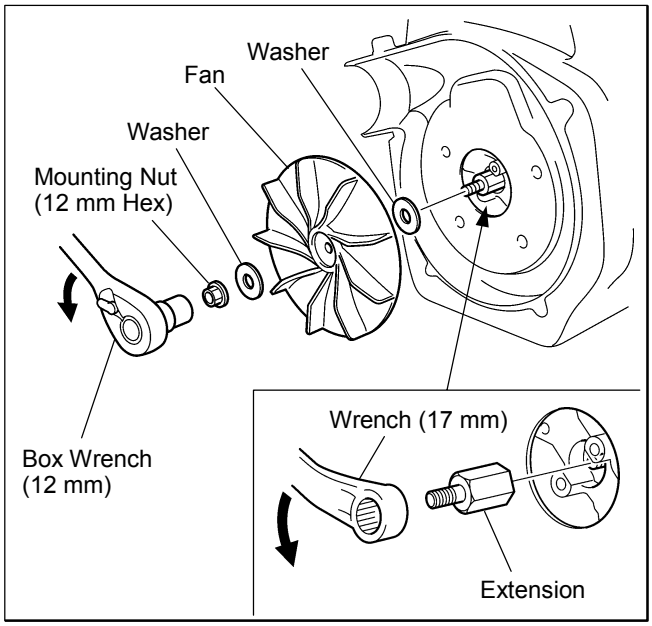
【Disassembly Flowchart】

Volute Cover Assy.
↓
Engine Cover
↓
Below the procedure

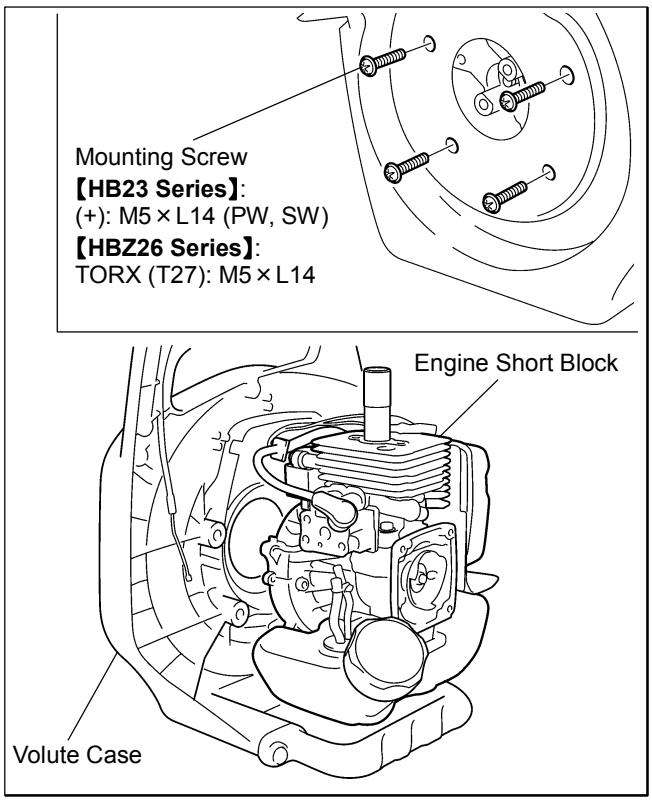
1. Remove the plug, and detach the main complete parts. Remove the carburetor, recoil starter and fuel tank if necessary.



2. Set the stopper (special tool) into the plug hole.



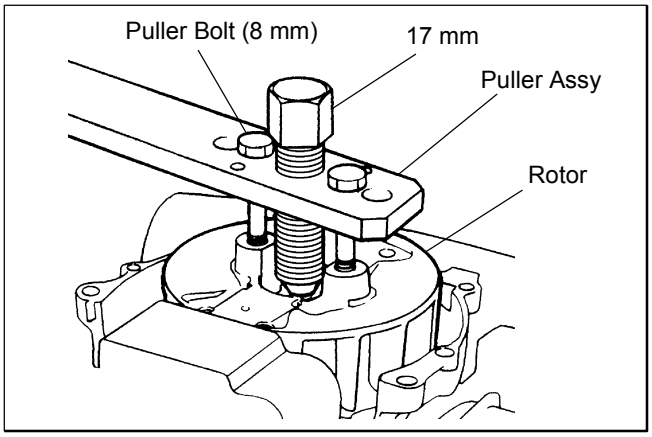
3. Remove the mounting nut using the box wrench then remove the fan.
4. Remove the extension using the wrench.



5. Remove the four mounting screws, separate the volute case and the engine short block.

3. Special Tools

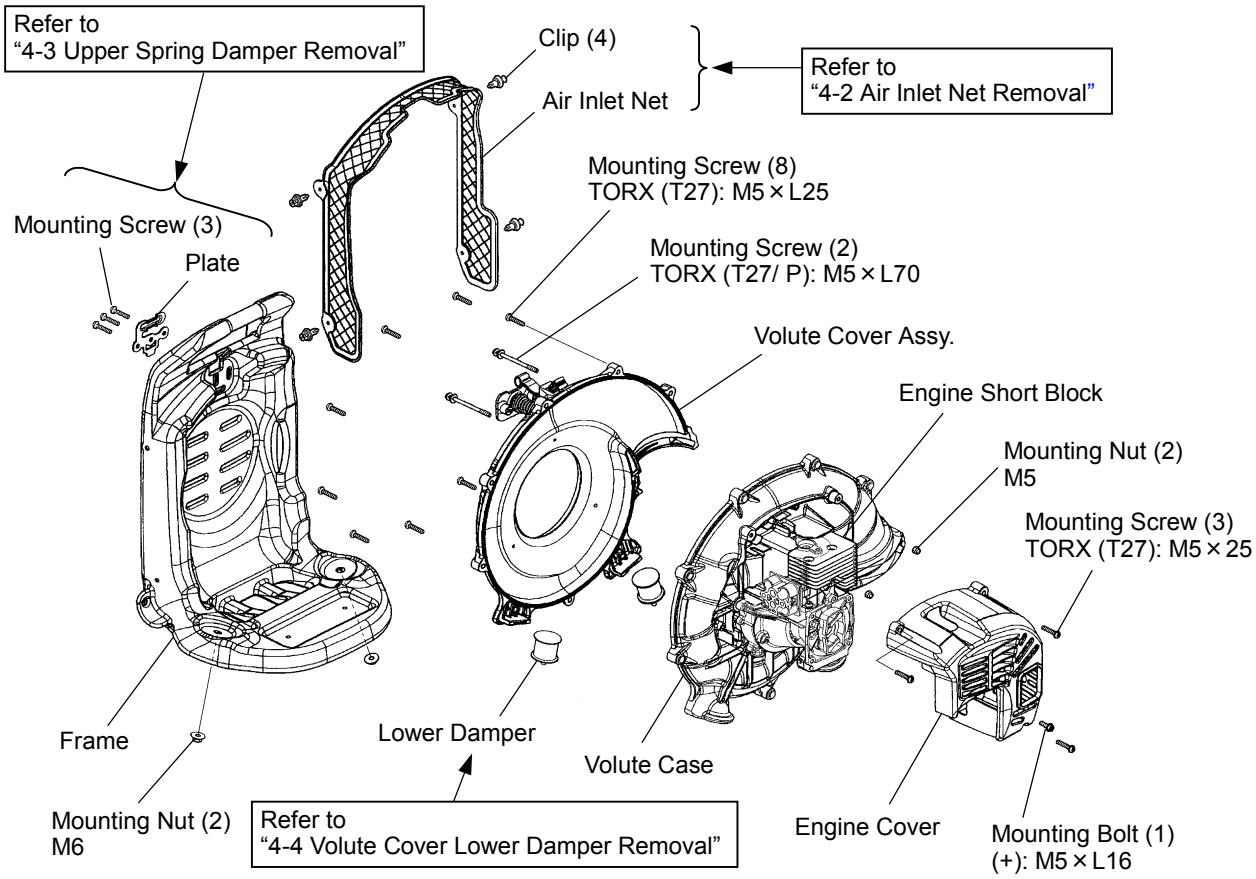
Handheld Blower: HB23 Series, HBZ26 Series



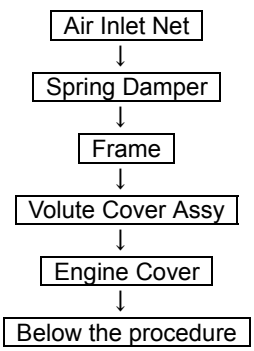
6. Remove the rotor using the puller assy.
   Apply 8 mm puller bolts.

How to use (Procedure) **Backpack Blower: EBZ30 Series**

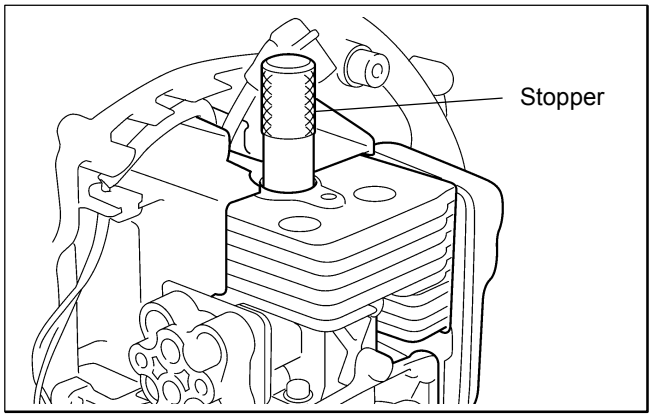
Construction



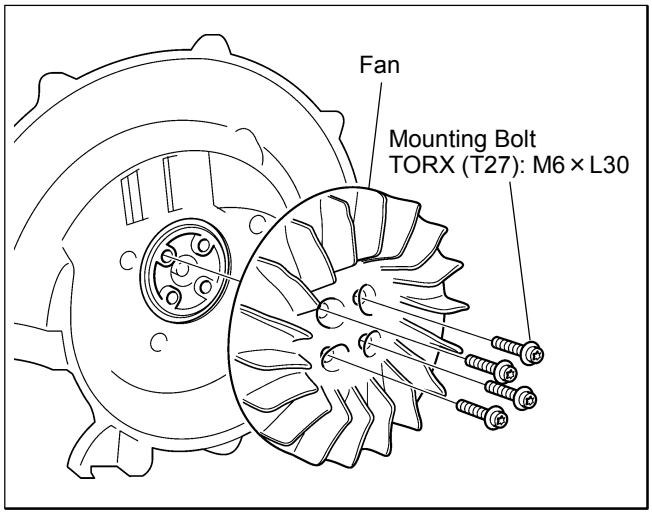
【Disassembly Flowchart】



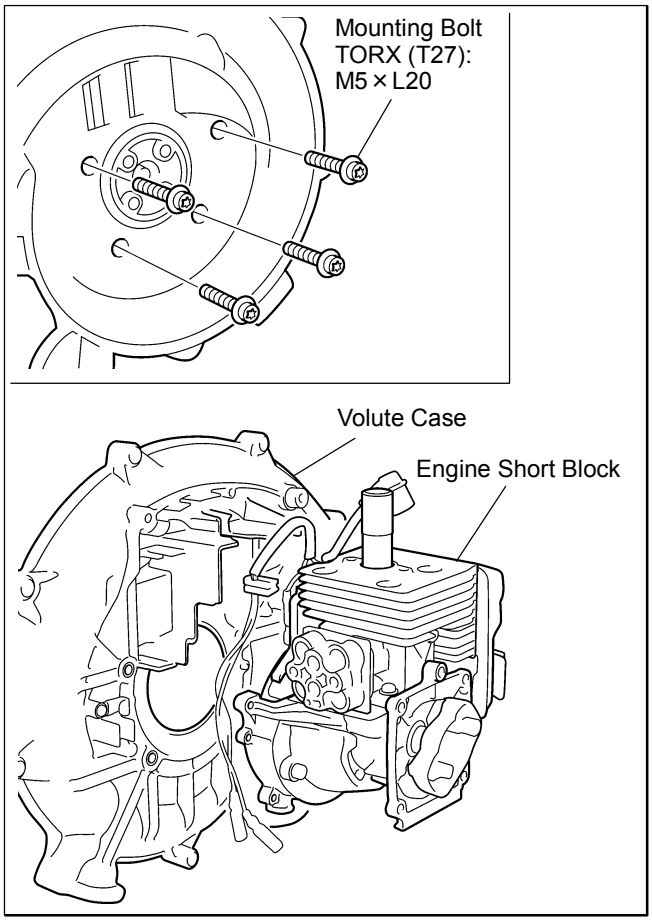
1. Remove the plug, and detach the main complete parts. Remove the carburetor, recoil starter and fuel tank if necessary.



2. Set the stopper (special tool) into the plug hole.

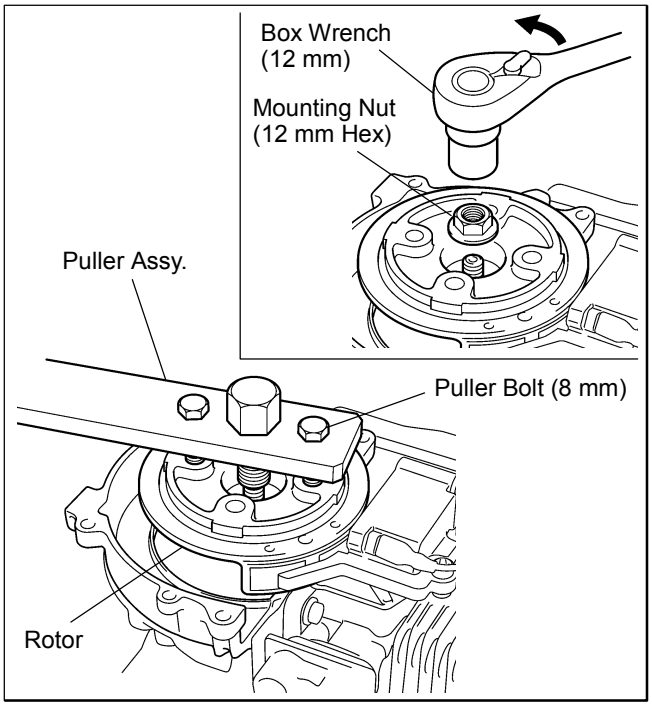


3. Remove the four mounting screws, then remove the fan.



4. Remove the four mounting screws, separate the volute case and the engine short block.

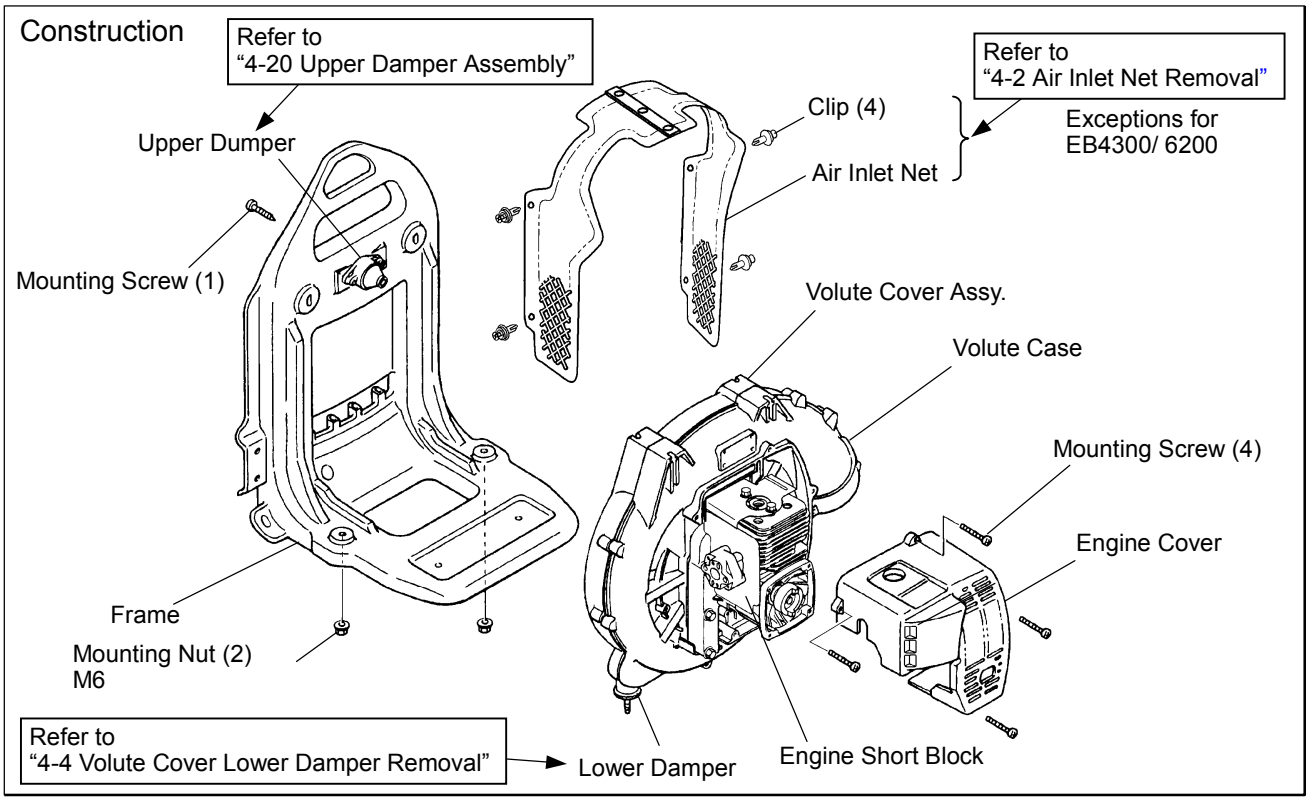
Backpack Blower: EBZ30 Series



5. Remove the mounting nut using the box wrench.
6. Remove the rotor using the puller assy.
   Apply 8 mm puller bolts.

How to use (Procedure)

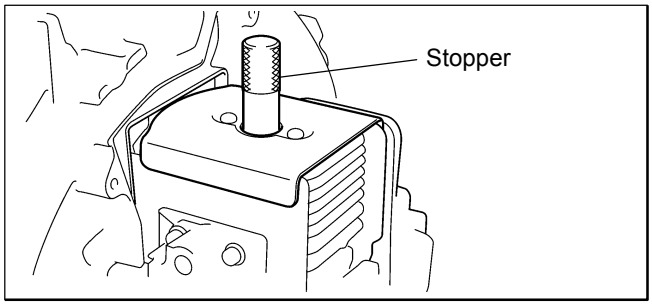
Backpack Blower: EB4300/ 6200, EB70 Series, EBZ4800, EBZ51/ 71/ 80 Series



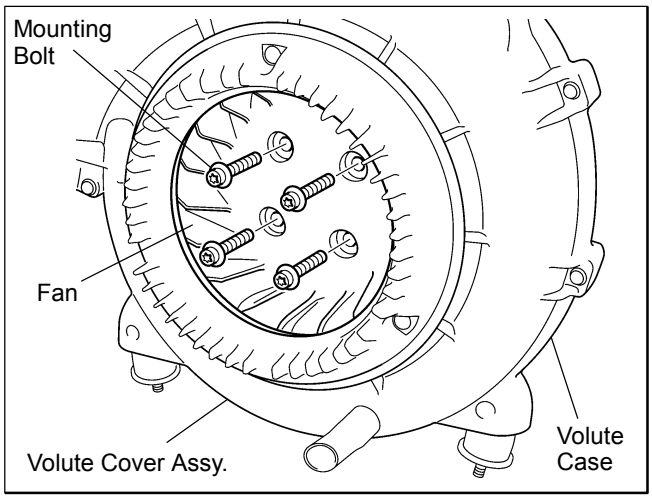
【Disassembly Flowchart】

Air Inlet Net
↓
Frame
↓
Engine Cover
↓
Below the procedure

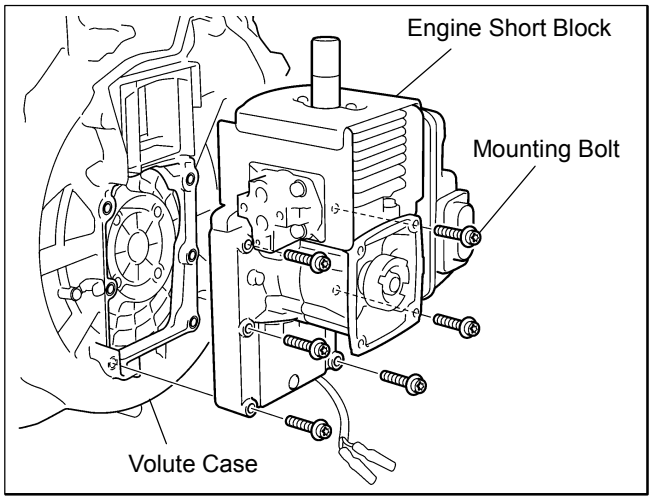
1. Remove the plug, and detach the main complete parts. Remove the carburetor, recoil starter and fuel tank if necessary.



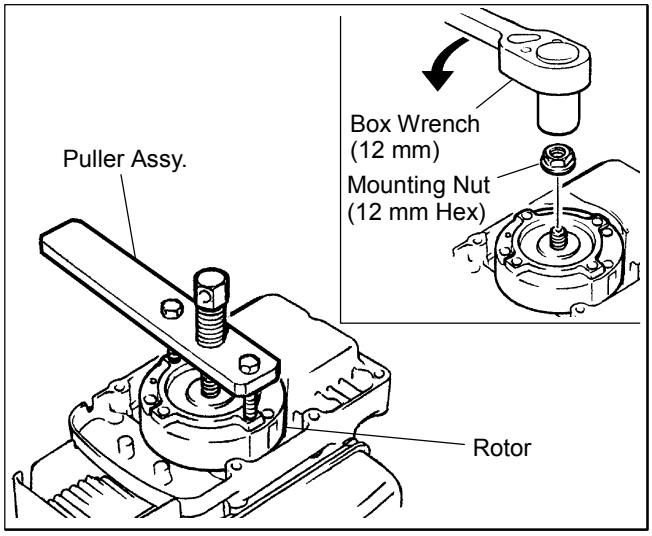
2. Set the stopper (special tool) into the plug hole.



3. Remove the four mount screws, then remove the fan. The fan is detached but stays inside the volute cover assembly and the volute case.



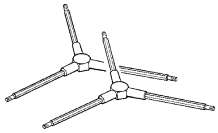
4. Remove the six mounting screws then remove the engine short block from the volute case.

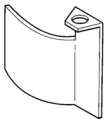


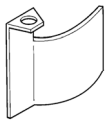
5. Remove the mounting nut using the box wrench.
6. Remove the rotor using the puller assy.

3-2 Module Assembly

Description

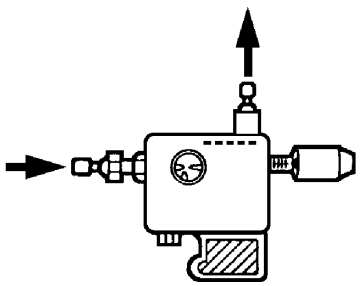
Part Name / Part Number / Model	Gauge 3350-96240 T=0.4 mm	Gauge 2750-96240 t=0.3 mm	Gauge 848-8W4-0050 t=0.4 mm	Wrench (HEX) 3304-97611 Size: 3/ 4/ 5 mm  Wrench (TORX) 2850-96410 Size: T20/ T25/ T27
HB23 Series HBZ26 Series EBZ30 Series	●			●
EB4300/ 6200 EB70 Series EBZ4800/ 5100Q		●		●
EBZ5100 EBZ71/ 80 Series			●	●





Adjust the air gap between the rotor's magnetic steel and the module using the gauge (special tool).

Model	Engine Type	Module Resistance		Air Gap mm (in.)
		Primary Side (Iron Core ⇒Primary Lead)	Secondary Side (Iron Core ⇒High Tension Lead)	
HB2302/ 2311EZ	G23L	0.8 kΩ	4.23 kΩ	0.3～0.4 (0.012～0.016)
HBZ2601	GZ25N	＋Side 8.45 kΩ －Side 2.70 kΩ	2.92 kΩ	0.3～0.4 (0.012～0.016)
EBZ3000	GZ30N	＋Side 30.3 kΩ －Side 37.2 kΩ	2.04 kΩ	0.3～0.4 (0.012～0.016)
EBZ3000RH/ 3050RH	GZ30N（USA）	＋Side 31.6 kΩ －Side 37.4 kΩ	2.05 kΩ	0.3～0.4 (0.012～0.016)
EB4300	G4K	0.17 kΩ	1.4 kΩ	0.3～0.4 (0.012～0.016)
EBZ4800	GZ48N	0.33 kΩ	2.77 kΩ	0.3～0.4 (0.012～0.016)
EBZ5100Q/ 5150Q	GZ51N			
EBZ5100/ 5100RH EBZ5150/ 5150RH	GZ51N	＋Side 71.2 kΩ －Side: cannot be measured	11.0 kΩ	0.35～0.45 (0.014～0.018)
EB6200/ 7000/ 7001	G62L	0.17 kΩ	1.4 kΩ	0.3～0.4 (0.012～0.016)
EBZ7100/ 7100RH EBZ7150/ 7150RH	GZ65N	Several MΩ or higher	2.74 kΩ	0.35～0.45 (0.014～0.018)
EBZ8001/ 8001RH EBZ8050/ 8050RH	GZ72N	Several MΩ or higher	2.72 kΩ	0.35～0.45 (0.014～0.018)



3699-90247
Three-point gap tester
* Connect Negative Side (black) to Iron Core.

REFERENCE

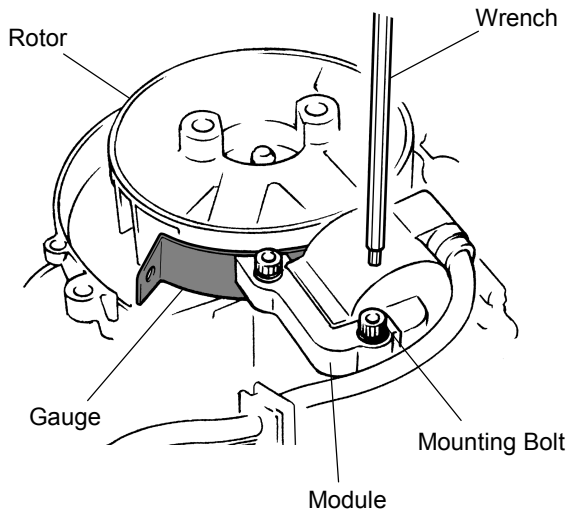
The resistance values shown above are the reference values for resistance tester measurement. The resistance value is within the normal range shows no internal leakage or any other defect.
We supply the measurement equipment (gap tester) that can measure spark energy while the engine is running.

3. SPECIAL TOOLS

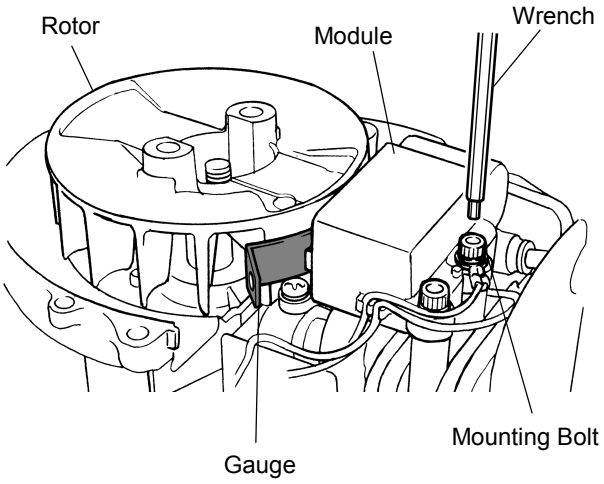
Examples of the gauge (special tool) usages are shown according to the type of the gauge.

Gauge: 3350-96240 (T=0.4 mm) **HB23 Series, HBZ26 Series, EBZ30 Series**

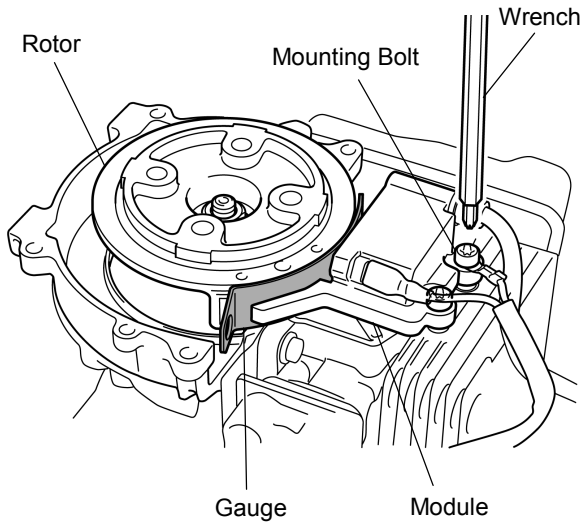
【HB23 Series】



【HBZ26 Series】



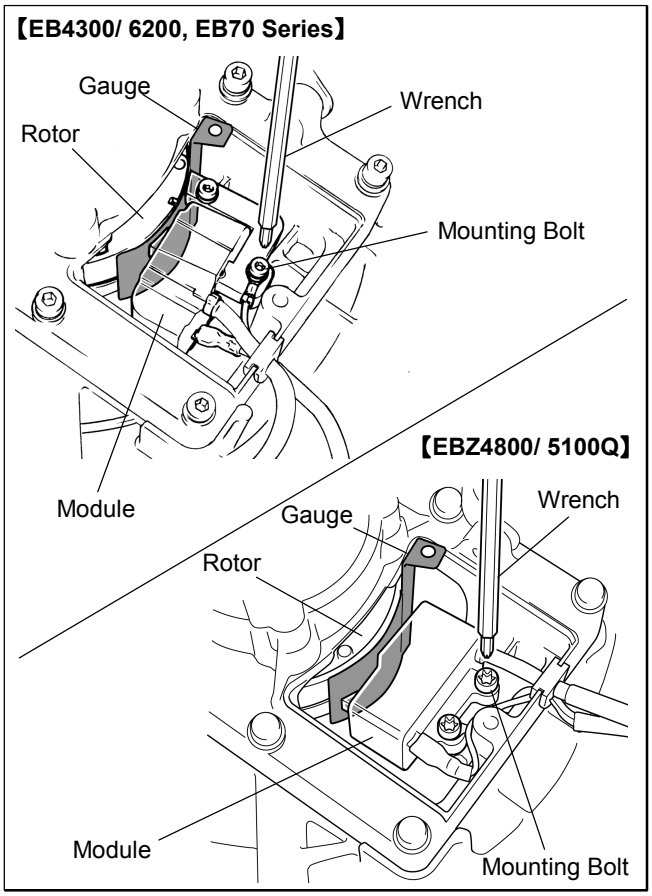
【EBZ30 Series】



1. Remove the obstructive parts in order to see the rotor and the module.
   (Refer to “3-1 Rotor Removal”.)
2. Insert a gauge (special tool) between the rotor magnet metal and module. Tighten the mounting bolts while pushing the module against the rotor.

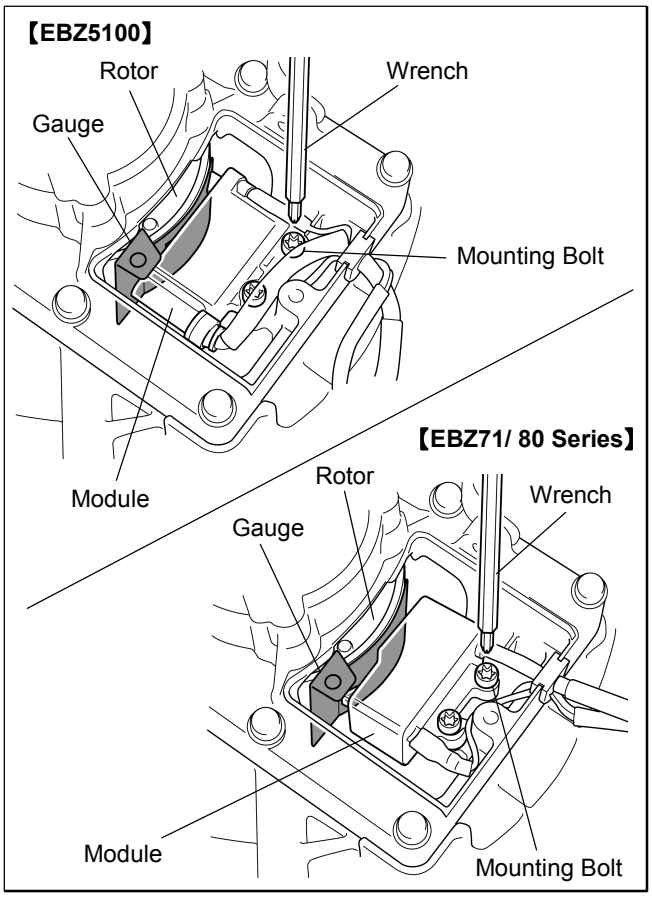
3. Special Tools

Gauge: 2750-96240 (T=0.3 mm) **EB4300/ 6200, EB70 Series, EBZ4800/ 5100Q**



1. Remove the module cover.
2. Insert a gauge (special tool) between the rotor magnet metal and module. Tighten the mounting bolts while pushing the module against the rotor.

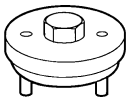
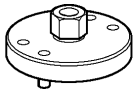
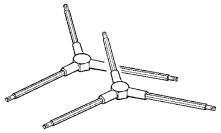
Gauge: 848-8W4-0050 (T=0.4 mm) **EBZ5100, EBZ71/ 80 Series**



1. Remove the module cover.
2. Insert a gauge (special tool) between the rotor magnet metal and module. Tighten the mounting bolts while pushing the module against the rotor.

3-3 Recoil Pulley Removal

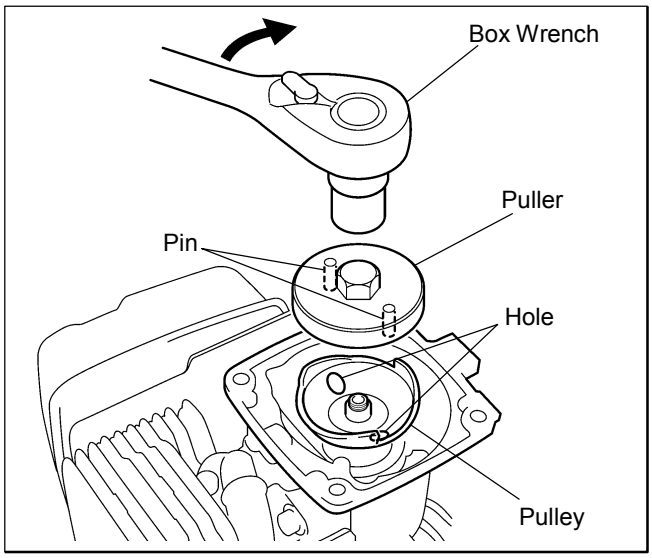
Description

Part Name / Part Number / Model	Stopper 4810-96220	Puller 4500-96100	Puller 848-8W0-0020	Wrench (HEX) 3304-97611 Size: 3/ 4/ 5 mm Wrench (TORX) 2850-96410 Size: T20/ T25/ T27
				
HBZ26 Series	●	●		●
EBZ71/ 80 Series	●		●	●

Remove the recoil pulley using the puller (special tool) while preventing piston movement by setting the stopper (special tool).

Examples of the puller (special tool) usages are shown according to the type of the puller.

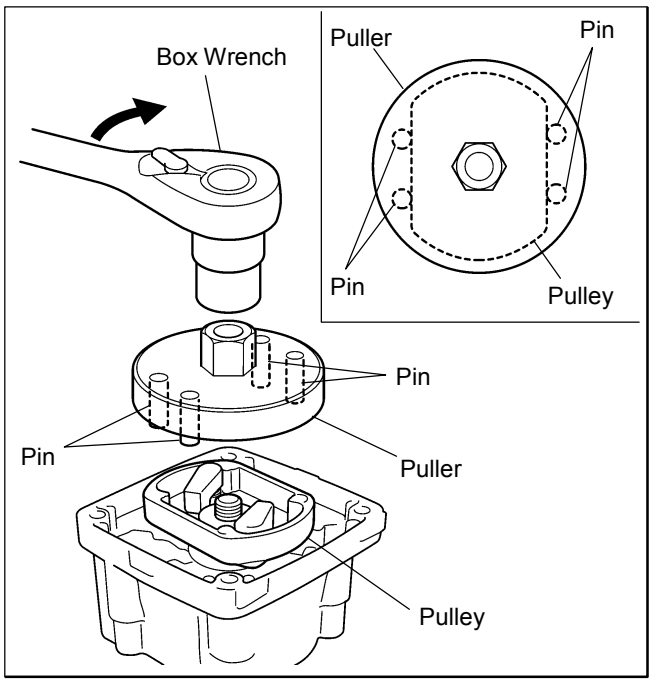
Puller: 4500-96100 **HBZ26 Series**



1. Remove the recoil starter and the spark plug.
2. Insert the stopper (special tool) to the plug hole (Refer to “3-1 Rotor Removal”).
3. Engage the puller (special tool) to 2 holes on the pulley and pull out the pulley.

   Note: Pulley screw is right turn screw.

Puller: 848-8W0-0020 **EBZ71/ 80 Series**

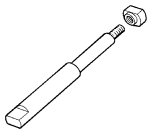
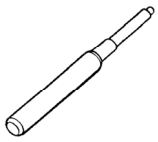
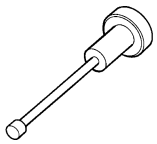
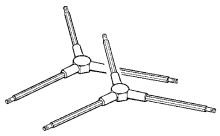


1. Remove the recoil starter and the spark plug.
2. Insert the stopper (special tool) to the plug hole (Refer to “3-1 Rotor Removal”).
3. Extract the pulley while holding the pulley by the puller's pins (special tool).

   Note: Pulley screw is right turn screw.

3-4 Piston Pin Removal

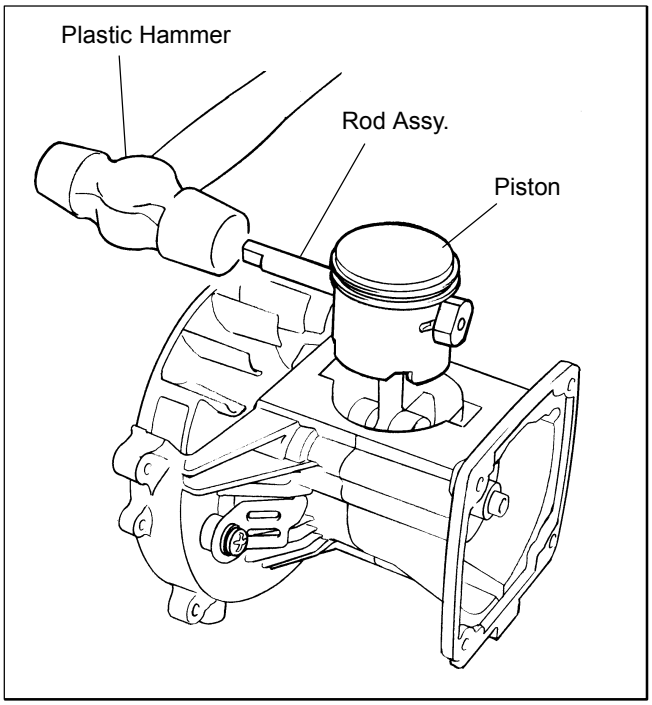
Description

Part Name / Part Number / Model	Rod Assy 1101-96220 ϕ7.5 × ϕ4.7 	Rod Assy 3350-96230 ϕ11 × ϕ8 	Rod Assy 2750-96230 ϕ11 × 35 mm 	Wrench (HEX) 3304-97611 Size: 3/ 4/ 5 mm  Wrench (TORX) 2850-96410 Size: T20/ T25/ T27
HB23 Series HBZ26 Series	●			●
EBZ30 Series EB4300		●		●
EB6200 EB70 Series			●	●
EBZ4800 EBZ51 Series		●		●
EBZ71/ 80 Series	●(Only a rod is used.)			●

Remove the cylinder, and then the piston pin using the rod assy (special tool).

Examples of the rod assy (special tool) usages are shown according to the type of the rod assy.

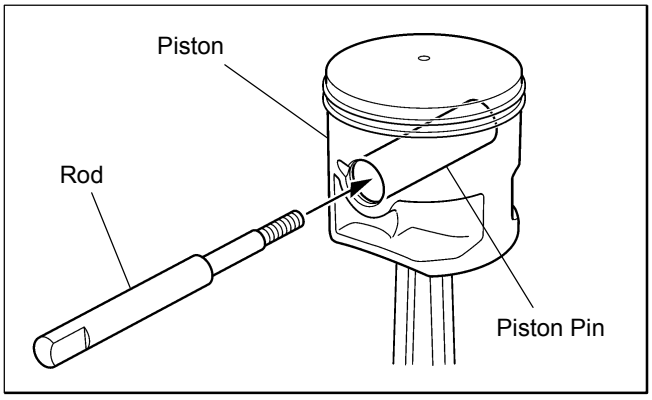
Rod Assy: 1101-96220 **HB23 Series, HBZ26 Series**



1. Remove the engine short block (refer to “3-1 Rotor Removal”) and then remove the cylinder.
2. Remove the snap rings from both sides of the piston pin.
3. Engage the rod assy (special tool) against the piston pin and gently tap with a plastic hammer to push out the pin.

CAUTION

Hard hammering may damage the big end of the connecting rod.

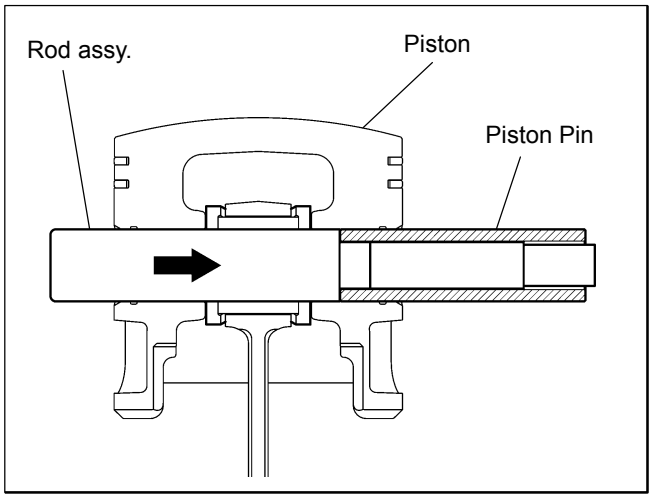


REFERENCE

EBZ71/ 80 Series are designed so that the piston assembly can be disassembled without any tool. However, if it is difficult to pull out the piston pin, use the special tool (Rod Assy: 1101-96220) to push out the piston pin.

3. SPECIAL TOOLS

Rod Assy: 3350-96230 **EBZ30 Series, EB4300, EBZ4800, EBZ51 Series**

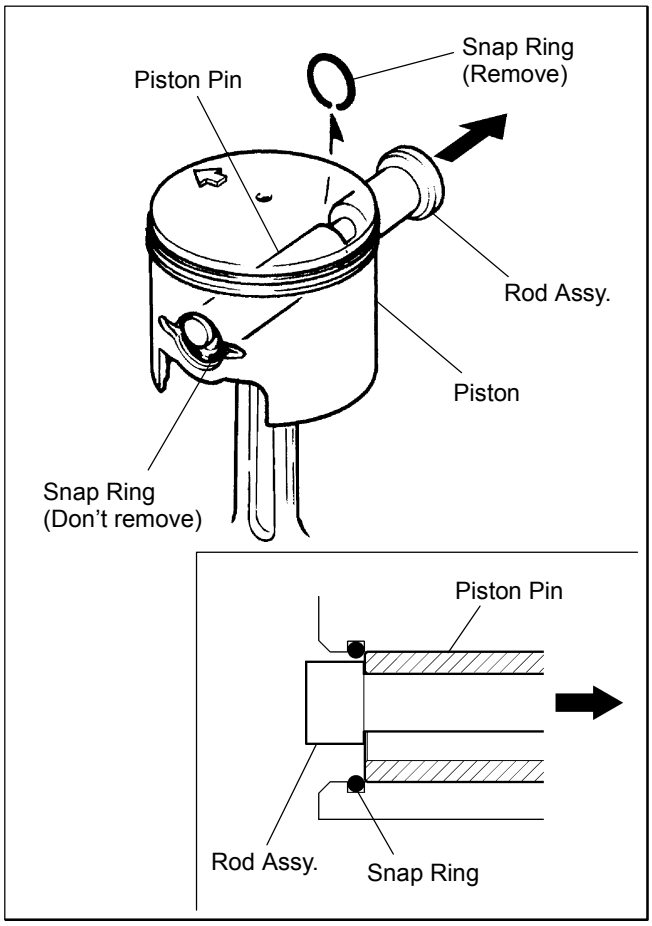


1. Remove the engine short block (refer to “3-1 Rotor Removal”) and then remove the cylinder.
2. Remove the snap rings from both sides of the piston pin.
3. Insertion the rod assy (special tool) against the piston pin and gently tap with a plastic hammer to push out the pin.

CAUTION

Hard hammering may damage the big end of the connecting rod.

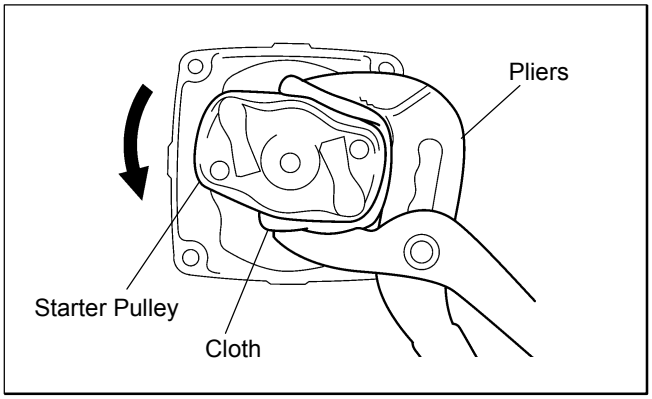
Rod Assy: 2750-96230 **EB6200, EB70 Series**



1. Remove the engine short block (refer to “3-1 Rotor Removal”) and then remove the cylinder.
2. Remove the snap ring from starter side of the piston pin.
3. Rest the rod assembly against the end of the piston pin and pull the piston pin out from the piston.

4-1 Starter Pulley Removal

HB23 Series, EBZ30 Series

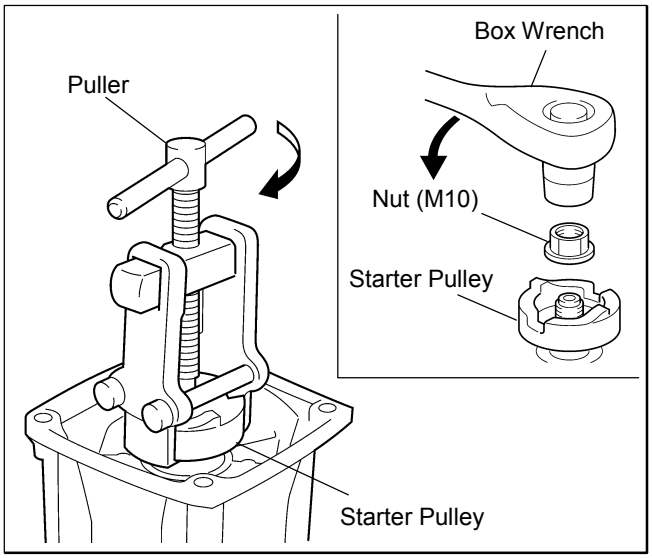


- Insert the stopper (special tool) into the plug hole (refer to “3 Special Tool”) to secure the piston.
- Remove the starter pulley using commercially available pliers. The pulley must be covered with cloth to prevent from damage.

CAUTION

Never remove the starter pulley by hitting with a hammer.
Doing so may damage the pulley.

EB4300/ 6200, EB70 Series, EBZ4800, EBZ51 Series



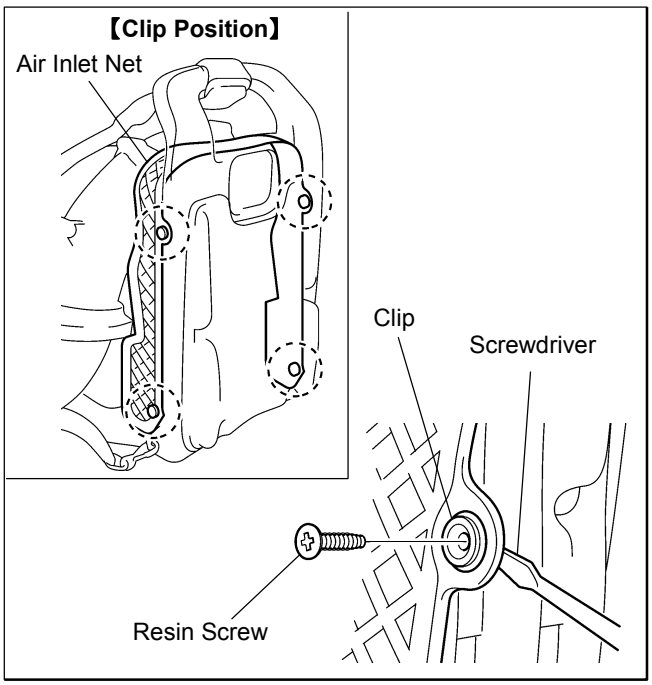
- Insert the stopper (special tool) into the plug hole (refer to “3 Special Tool”) to secure the piston.
- Remove nut (M10), set a commercially available puller, then remove the starter pulley.

CAUTION

Never remove the starter pulley by hitting with a hammer.
Doing so may damage the pulley.

4-2 Air Inlet Net Removal

EB6200, EB70 Series, EBZ4800, EBZ30/ 51/ 71/ 80 Series



The air inlet net is mounted by four clips.
The removal procedure is shown below.

1. Loosen each clip’s resin screw and remove the whole.

CAUTION

Set the Philips screwdriver against the resin screw securely. Insufficient or excessive contact may cause the resin head to break.

2. Insert a screwdriver between free flow net and frame, then wrench the clip open by twisting the screwdriver.

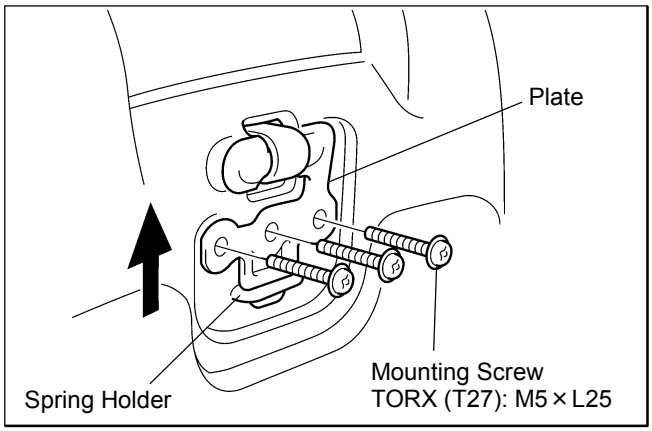
CAUTION

Pay attention not to damage the air inlet net or frame with the screwdriver.

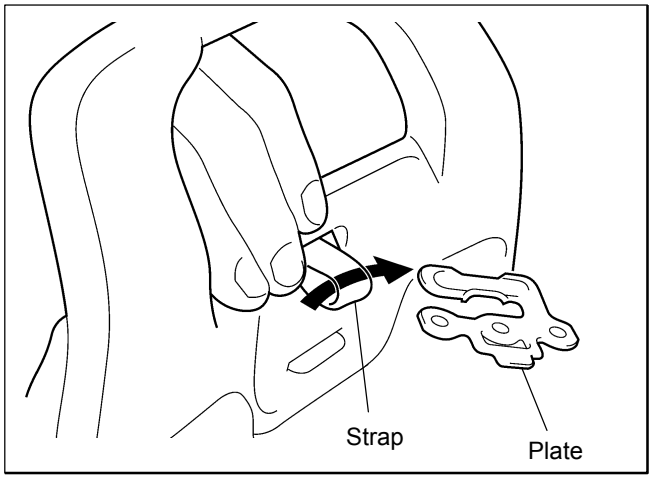
4-3 Upper Spring Damper Removal

EBZ30 Series

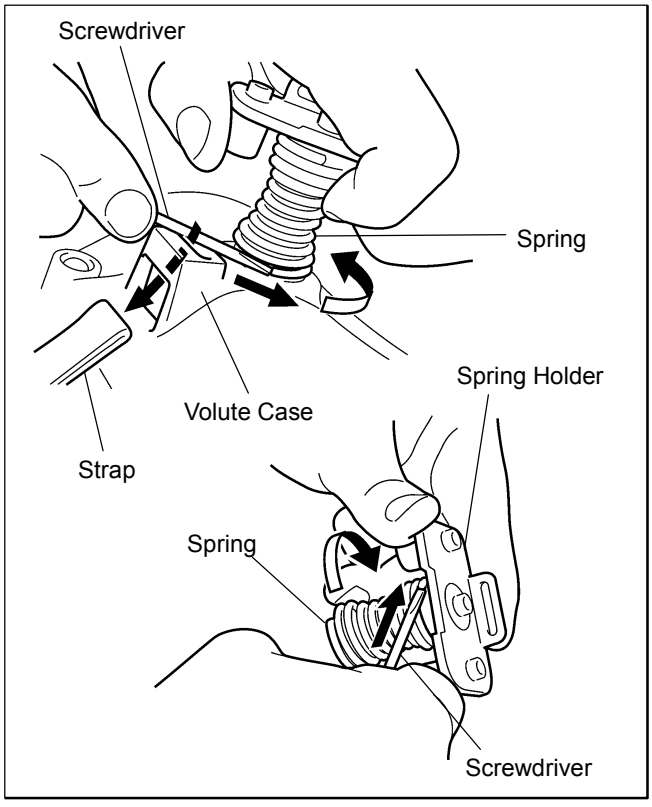
To remove the upper spring damper, follow the procedure below.



1. Remove the three mounting screws.
2. Pull the plate upward from the spring holder's groove.



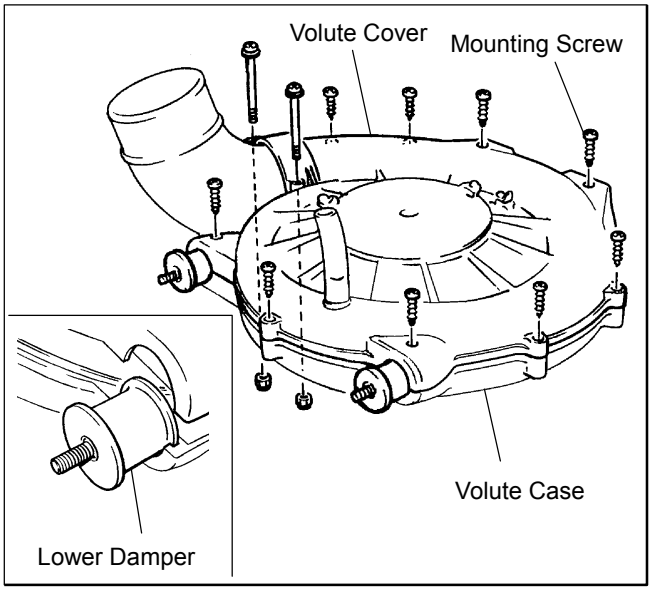
3. Press the upper part of the volute to the frame to slacken the strap, and then pull out the plate.



4. Pull the strap out from the volute case.
5. Remove the spring from the volute case, then the spring holder. The spring is easily removed by pressing and turning the tip of the spring along the spring groove with a screwdriver.

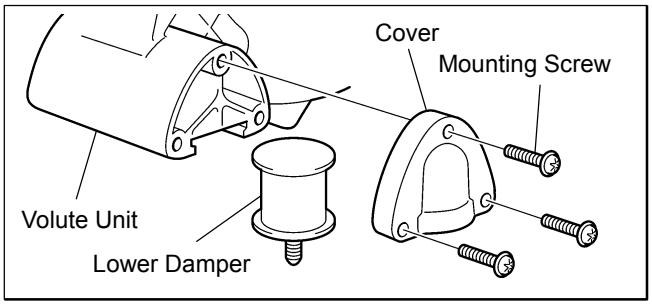
4-4 Volute Cover Lower Damper Removal

EB6200, EB70 Series, EBZ4800, EBZ30/ 51/ 71 Series



- Remove the volute unit from the frame.
- Remove the all mount mounting screws, separate volute cover from its case, then remove the lower damper unit.

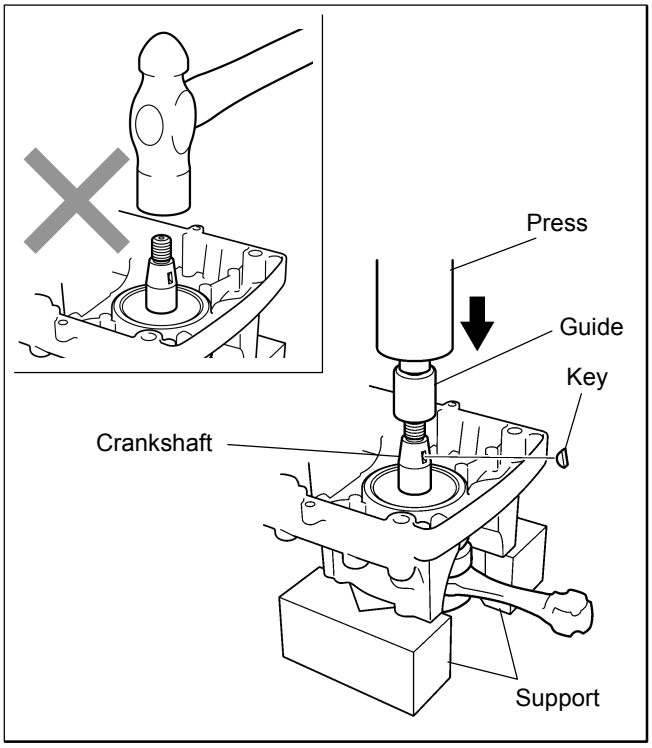
EBZ80 Series



- Remove the volute unit from the frame.
- Remove the cover by removing the three mounting screws then remove the lower damper from the volute case's groove.

4-5 Flywheel Side Crankshaft Removal

EBZ4800, EBZ30/ 51/ 71/ 80 Series



- Be sure to extract the key beforehand.
- The precision fit between crankshaft and main bearings is very tight. Be sure to use the press to remove the crankshaft.

CAUTION

Never hit the crankshaft to remove it.
The crankshaft's threading may be lost or the shaft axis may deform.

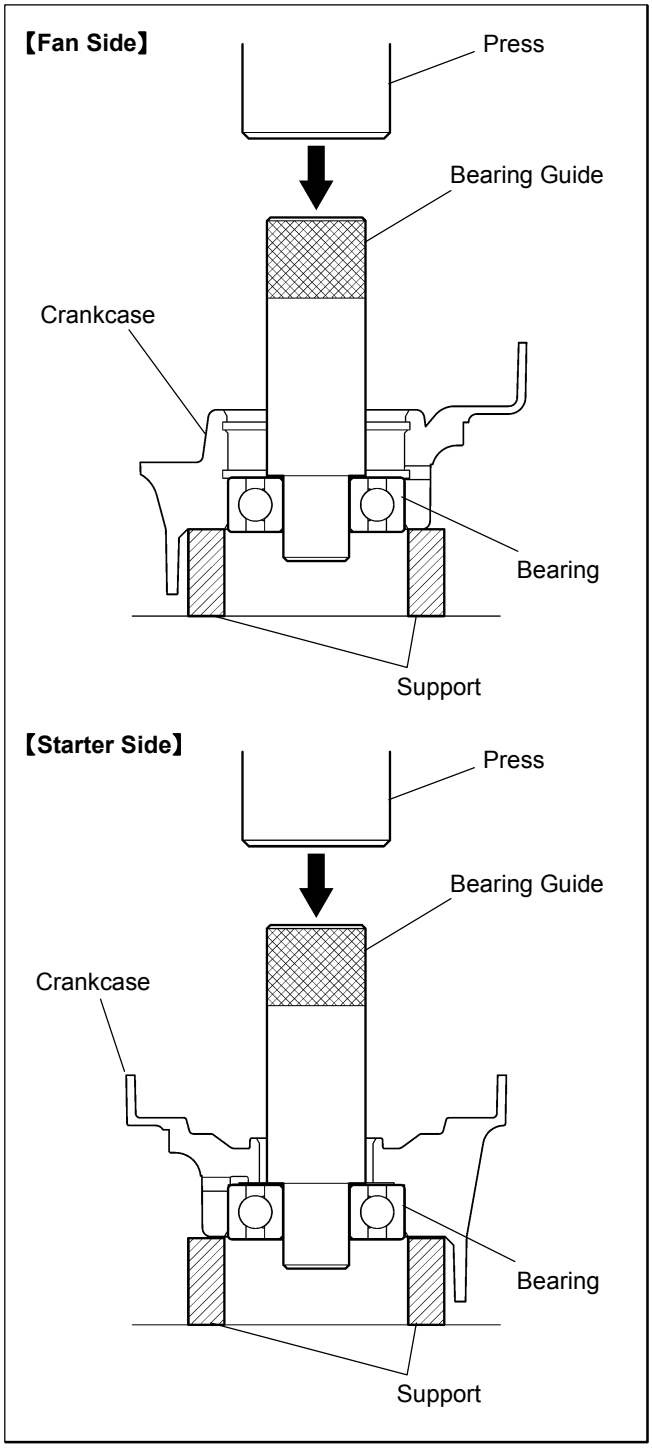
- Secure the crankcase on support and then press the crankshaft with the press via the guide.

CAUTION

Never press the crankshaft directly with the press.
Doing so may damage the shaft's threading.

4-6 Crankcase Oil Seal and Bearings Removal

All Models



- Disassembly is usually unnecessary. However, if the oil seal's main lip or dust lip is worn, the shaft will become loose due to bearing wear or if the they have seized, replace the oil seal and bearings with new ones.
- Be sure to use the press to remove the bearings.

CAUTION

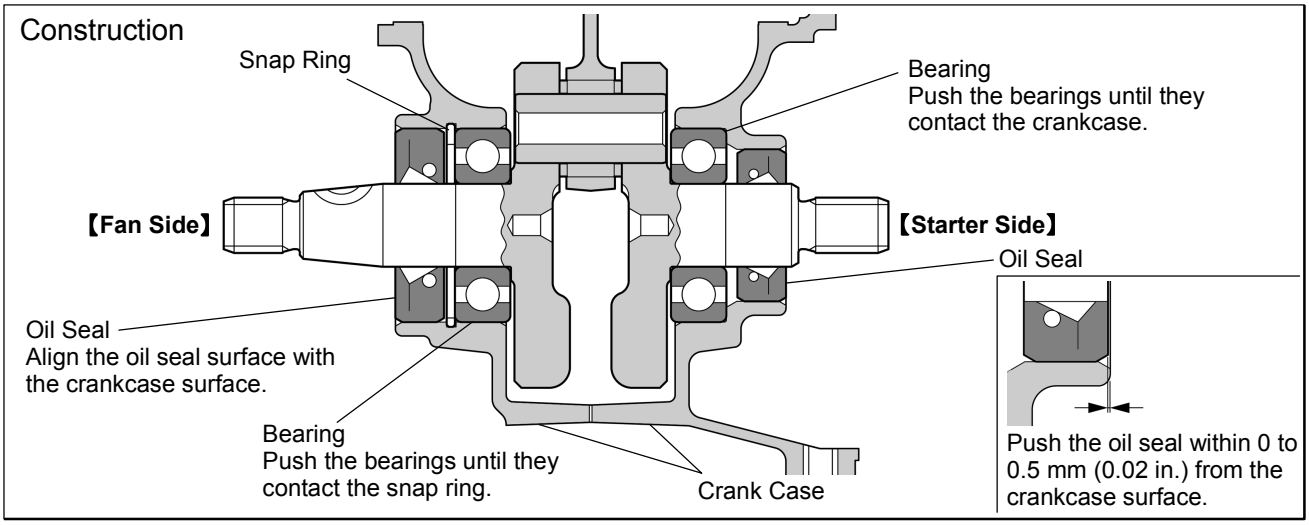
Be sure to use the press to press the bearings out during bearing removal. Without jig use to the crankcase may be damaged.

- If the crankcase's bearings are worn, replace them with new ones.

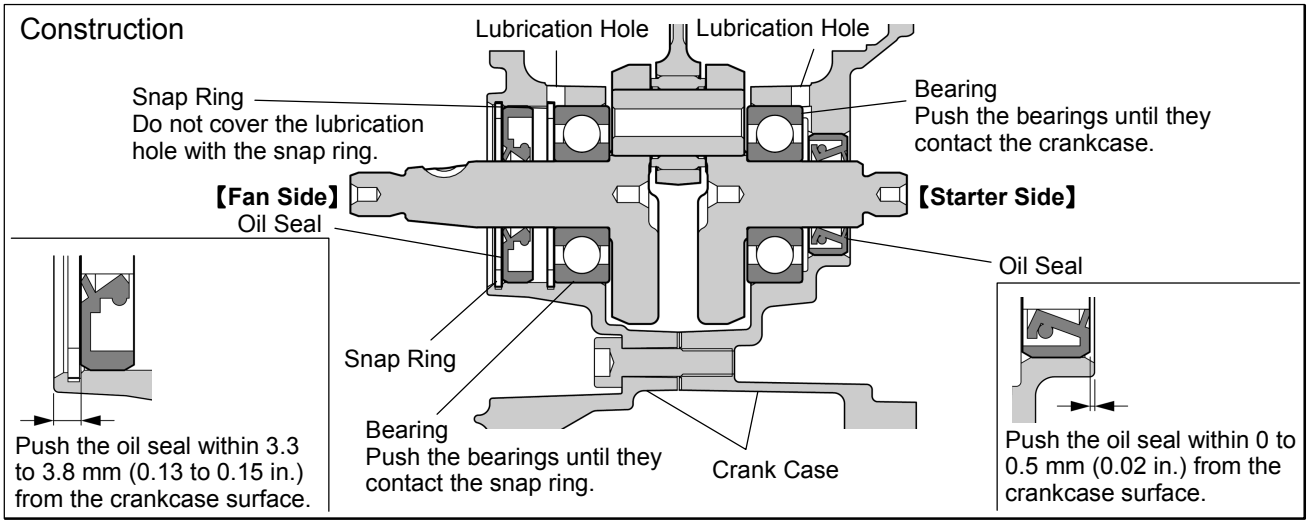
4-7 Crankcase Assembling

Bearings, snap ring, oil seal configuration and installation position differ depending on type.
Properly install each part and reassemble the crankcase referring to the corresponding type's drawing.
For bearing and oil seal installation, refer to the explanation on page 23.

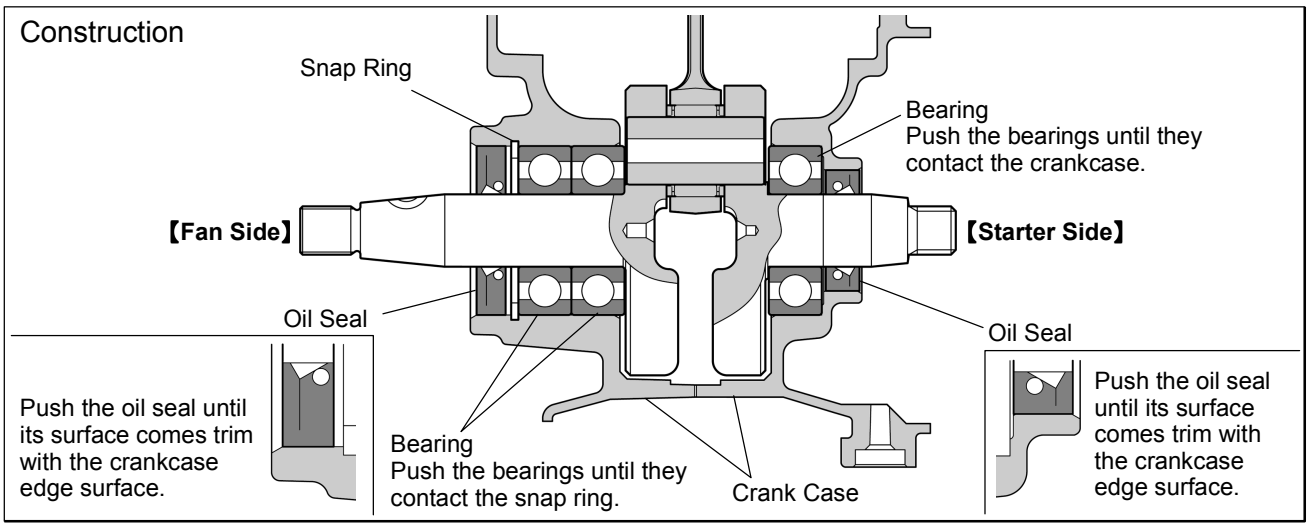
HB23 Series, HBZ26 Series



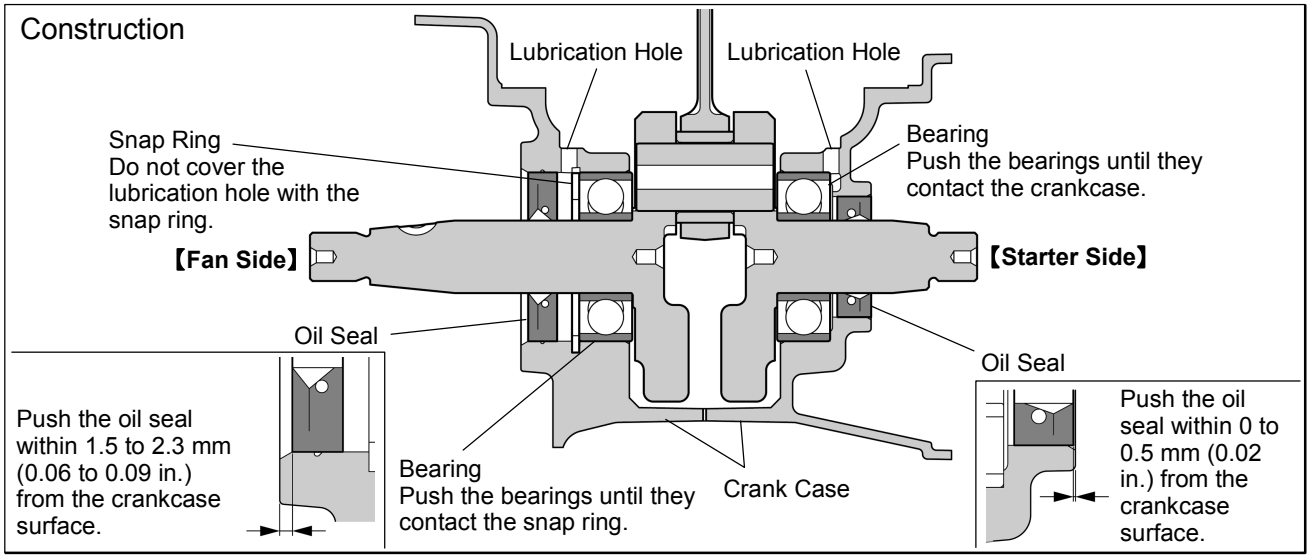
EBZ30 Series



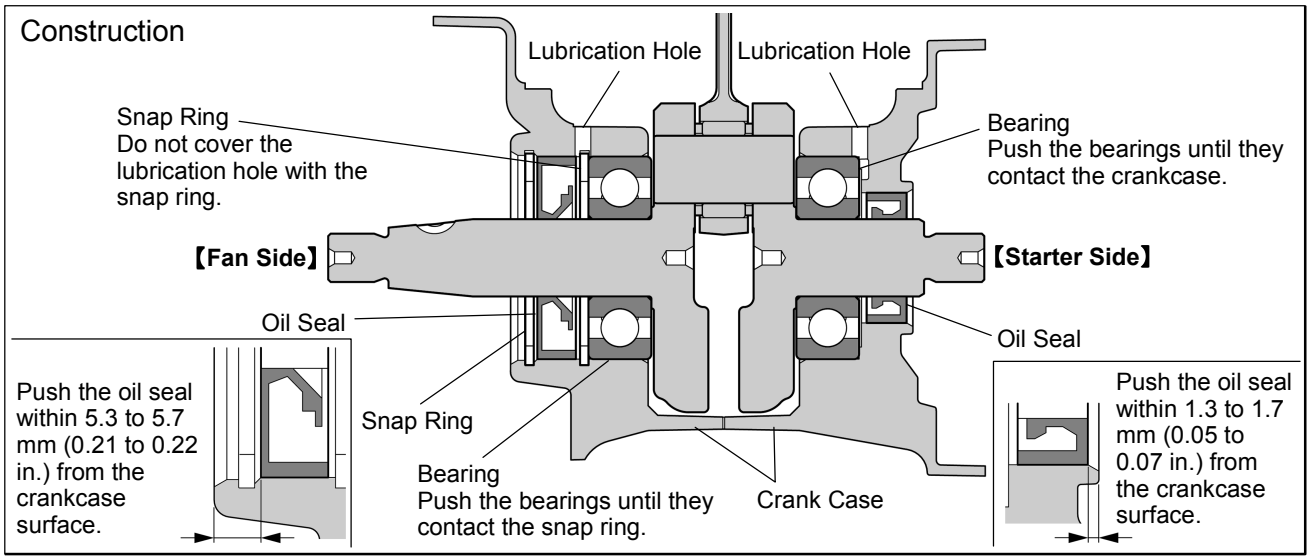
EB4300



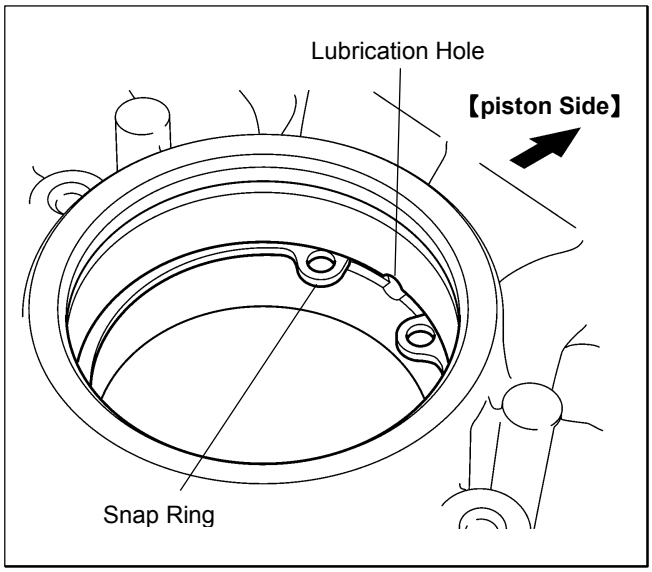
EBZ4800, EBZ51 Series



EB6200, EB70 Series, EBZ71/ 80 Series



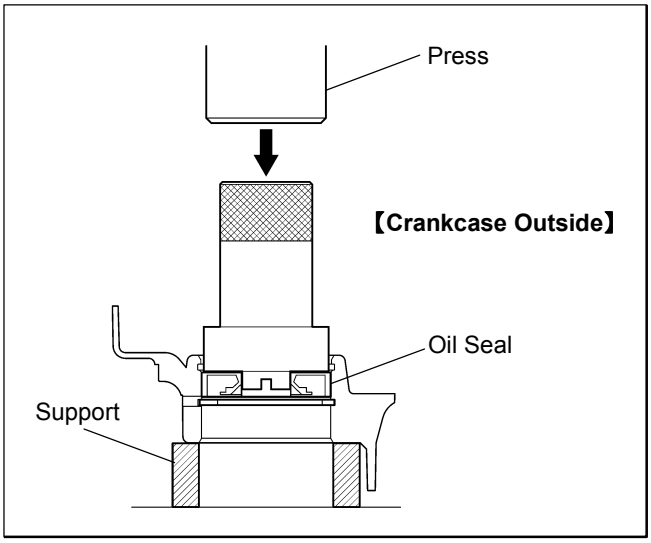
Snap Ring Assembly **EB6200, EB70 Series, EBZ4800, EBZ30/ 51/ 71/ 80 Series**



A lubrication hole exists to increase lubrication to the main bearing. Do not cover the hole with the snap ring. Set the snap ring's gap to the piston side.

Oil Seal Assembly

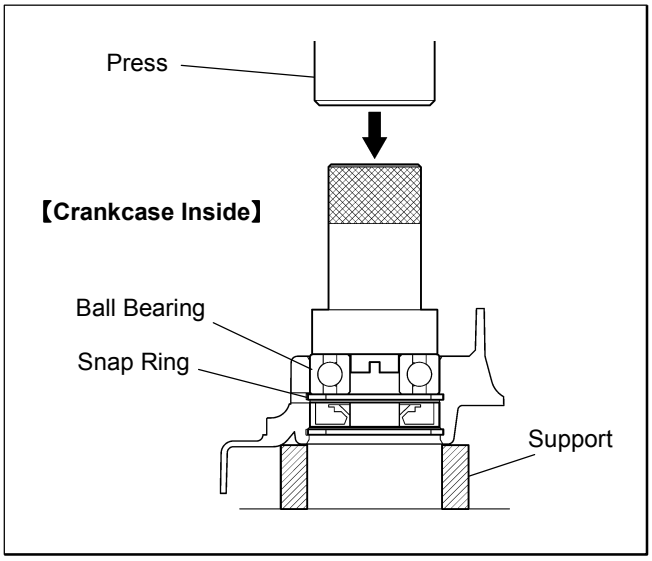
All Models



- Never insert the oil seal obliquely. The oil seal may be fall out.
- Before the oil seal is pressure-inserted, apply grease to the oil seal.
- Press the oil seal from the outside of the crankcase using combined special tools (holder and guide).
- Pay attention because oil seal pressure-insertion position differs according to rotor, starter and engine type.
  For the insertion position of particular models, refer to “4-7 Crankcase Assembly”.

Bearing Assembly

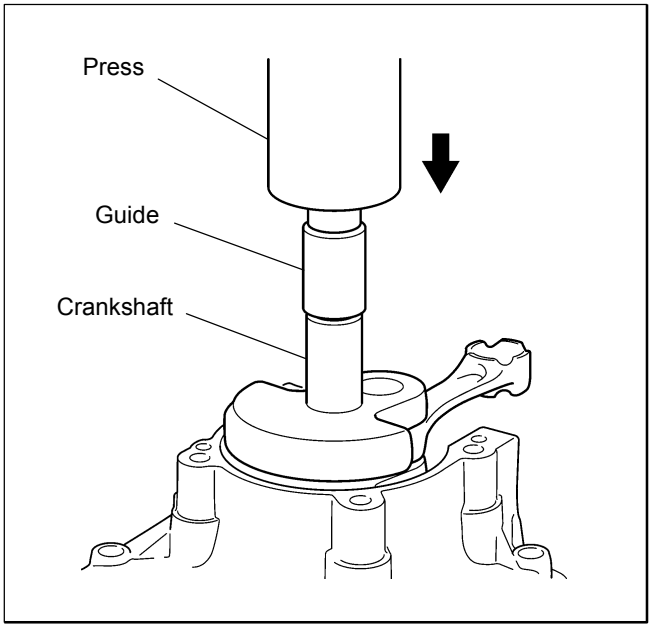
All Models



- Never insert the oil seal obliquely. Press it securely until it contacts the snap ring.
- Before the bearing is pressure-inserted, apply grease to the bearing.
- Face the bearing identification mark (mark is recessed) toward the inside of the crankcase and then insert it.
- Press the bearings from the outside of the crankcase using combined special tools (holder and guide).

Crankcase Assembly

EB6200, EB70 Series, EBZ4800, EBZ30/ 51/ 71/ 80 Series



- The precision fit between crankshaft and main bearing is very tight. Be sure to use an insertion jig to remove the crankshaft.

CAUTION

Never hit the crankshaft by hammer or equivalent. The shaft’s threading may be lost or the shaft axis may deform.

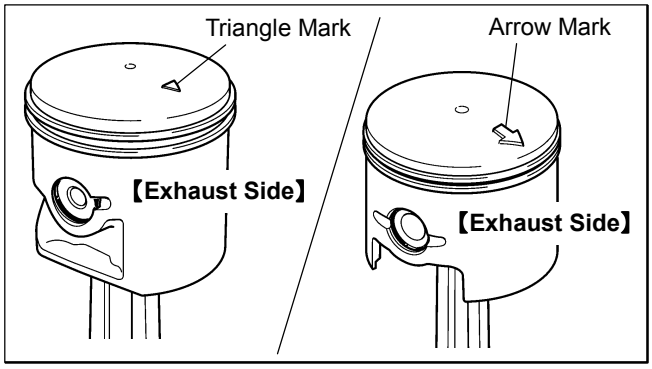
- Secure the crankcase on support and then press the crankshaft with the press via the guide.

CAUTION

Never press the crankshaft directly with the press.
Doing so may damage the shaft’s threading.

4-8 Piston Inserting Direction

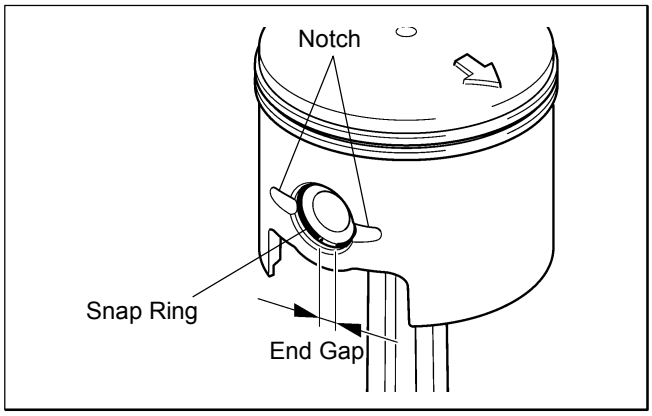
All Models



Make sure to point the recessed mark (arrow or triangle) on the piston head to the exhaust (muffler) side.

4-9 Piston Pin Snap Ring Assembly

End Gap Position **HB23 Series, HBZ26 Series, EB4300/ 6200, EB70 Series**

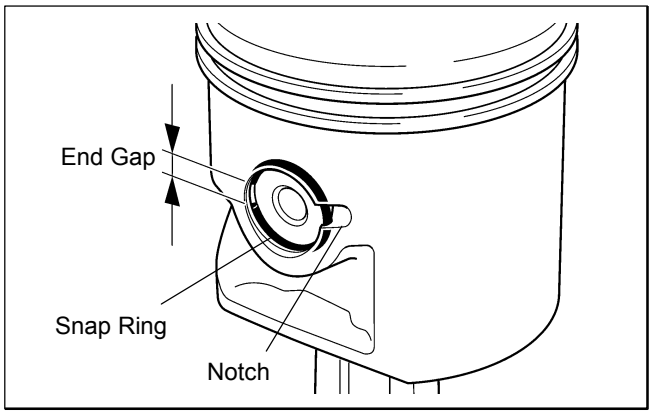


Fit the snap ring in the piston's groove firmly and position the end gap of the snap ring below the piston.

CAUTION

- **If the snap ring is poorly inserted or the end gap of the snap ring is incorrectly positioned, the snap ring may comes off during engine operation resulting in damage to the engine.**
- **Never reuse a snap ring. Always insert a new one.**

End Gap Position **EBZ4800, EBZ30/ 51/ 71/ 80 Series**

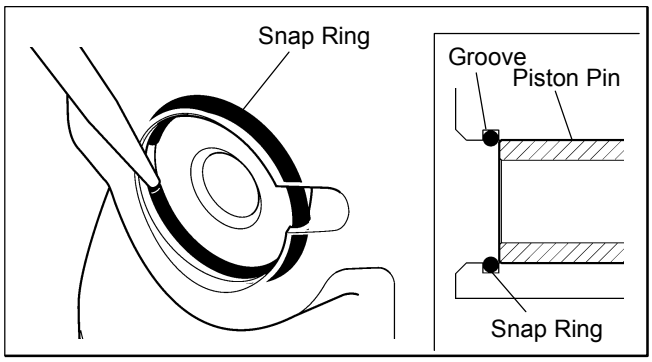


Fit the snap ring in the groove firmly and position the end gap of the snap ring opposite the notch.

CAUTION

- **If the snap ring is poorly inserted or the end gap of the snap ring is incorrectly positioned, the snap ring may comes off during engine operation resulting in damage to the engine.**
- **Never reuse a snap ring. Always insert a new one.**

Check After Installation **All Models**



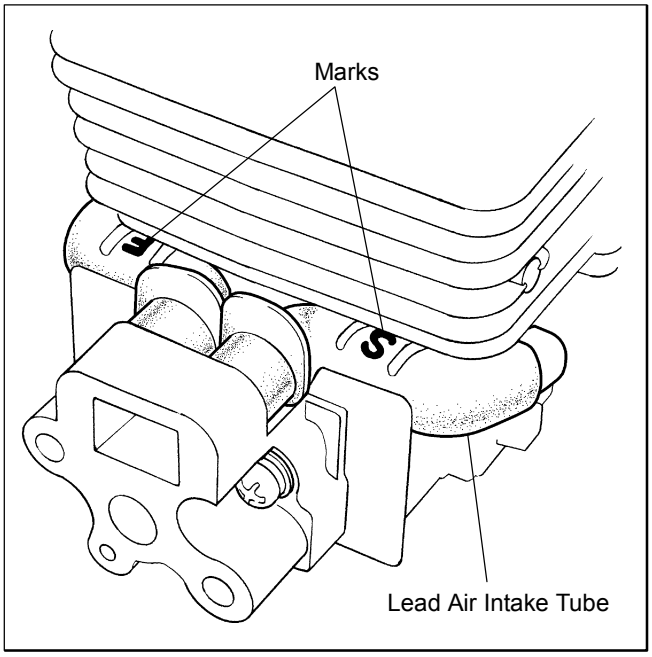
After the snap ring is installed, check that it fits firmly in the correct direction.

REFERENCE

Turn the snap ring using thin tipped tool and check that it moves smoothly in its groove. If the snap ring is improperly installed, it will not move smoothly in its groove.

4-10 Positioning of Lead Air Intake Tube

HBZ26 Series



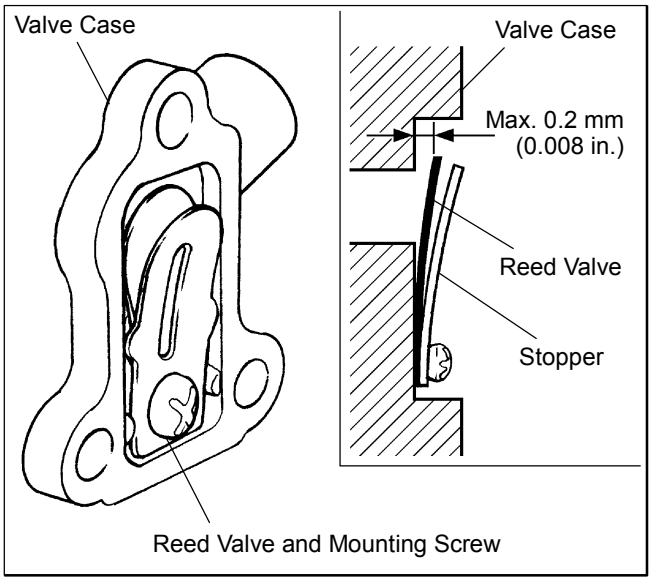
The lead air intake tube has cast marking of either “F” or “S”.
“S” is for the starter end, and “F” for the fan end.
Assembling position shall not be mixed up.

CAUTION

Caution: Oppositely assembled tubes will cause a sealing failure. Before assembling the tubes, check for deterioration or cracks and change will new ones if necessary.

4-11 Reed Valve Assembly

HBZ26 Series

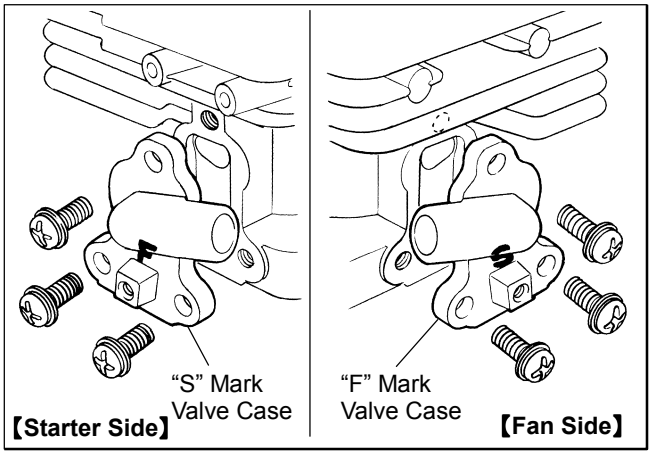


● Check that there is no foreign matter inside the valve case.

IMPORTANT

Check the gap between the valve case and the reed valve.
Replace with new valve if the gap is larger than 0.2 mm (0.008 in.), or the valve is distorted.

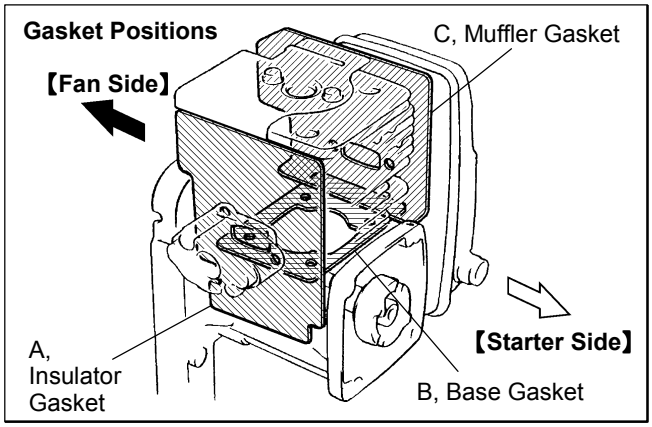
● Screw lock agent shall be applied to the reed valve and the stopper fixing screw.



● The reed valve case has a marking either “S” or “F”.
“S” is for the starter side, and “F” for the fan side.
Assembling position shall not be mixed up.

4-12 Gasket Assembly

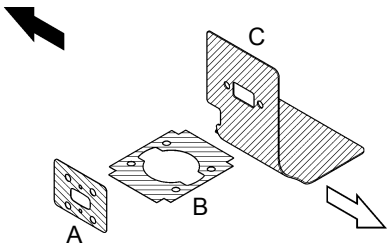
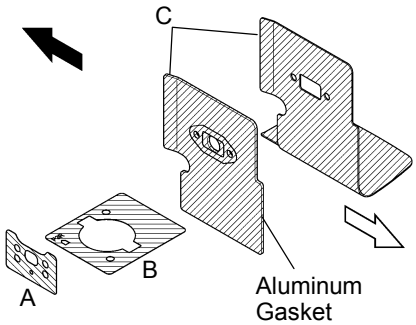
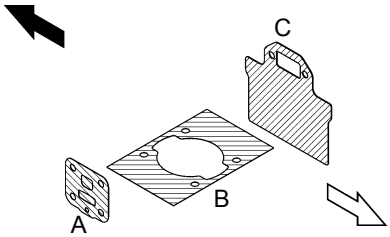
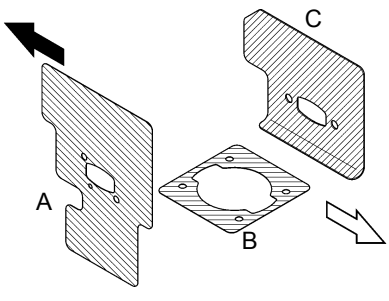
All Models

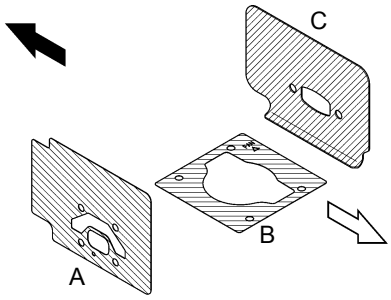
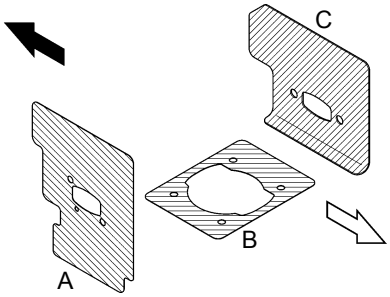
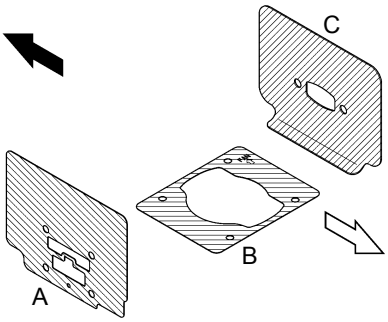


Each gasket has its installing direction. Pay attention to the direction when the gasket is being installed.

CAUTION

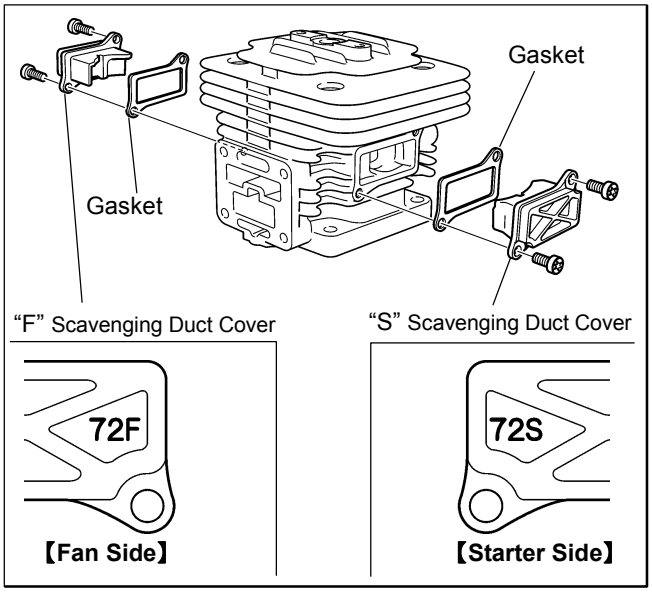
When the engine is overhauled, replace the gaskets with new ones.

Model	Gasket Positions
HB23 Series	
HBZ26 Series	
EBZ30 Series	
EB4300	

Model	Gasket Positions
EBZ4800 EBZ51 Series	
EB6200 EB70 Series	
EBZ71 Series EBZ80 Series	

4-13 Scavenging Duct Cover Assembly

EBZ30/ 71/ 80 Series



The scavenging duct covers have marking either "S" for starter side or and "F" for fan side.
They must not be oppositely assembled.

CAUTION

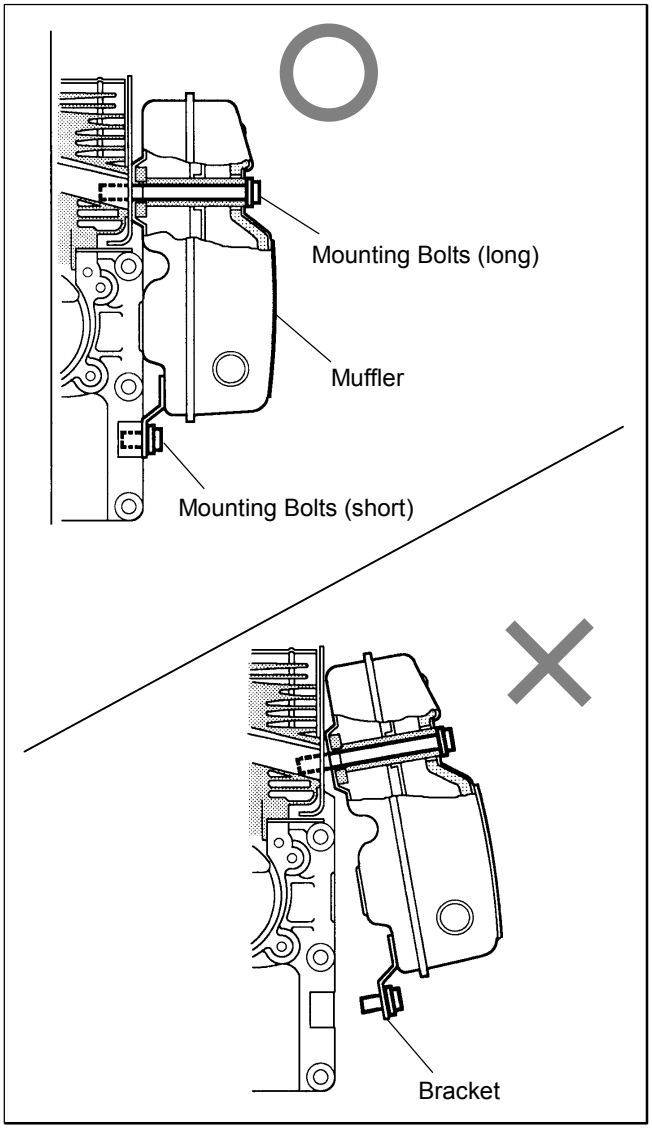
When the engine is overhauled, be sure to replace the gaskets with new ones.

REFERENCE

EBZ4800, EBZ51 Series Strato Charged engines have no scavenging duct covers.

4-14 Muffler Assembly

EB4300/ 6200, EB70 Series, EBZ4800, EBZ51/ 71/ 80 Series



Tighten the three muffler mounting bolts to the same pressure.

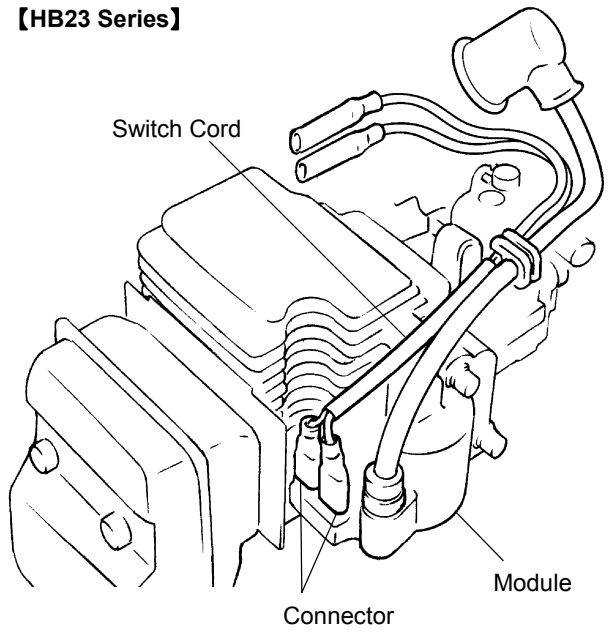
CAUTION

- **The bracket may be damaged if the two muffler mounting bolts (long) on the upper side are securely tightened before the mounting bolt (short) on the lower side, is tightened.**
- **After the engine is reassembled, run it at full throttle for more than one minute, then tighten the muffler mount bolts again.**
  Torque: 8～12N･m (80～120kgf･cm)

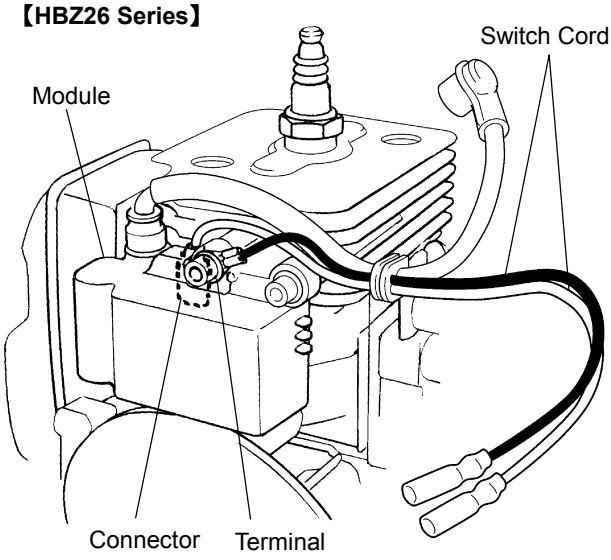
4-15 Switch Cord Assembly

Switch Cord Assembly — HB23 Series, HBZ26 Series

【HB23 Series】

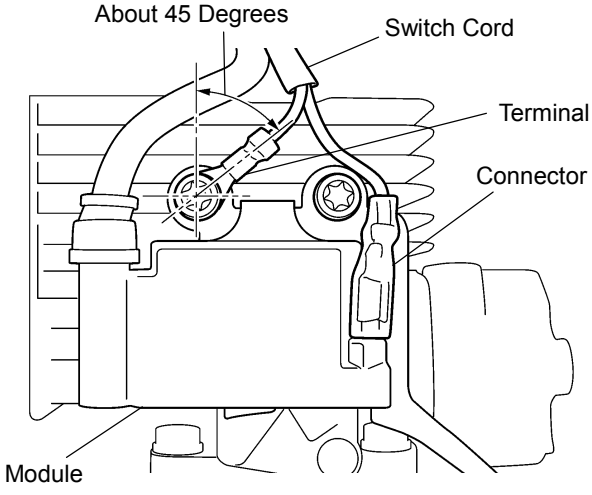


【HBZ26 Series】



- Fit the switch cord connector firmly to the module's terminal.
- Secure the switch cord terminal with the module mounting bolt.

Switch Cord Assembly — EBZ30 Series



- Secure the switch cord terminal (black) with the module mount bolt. Tilt the terminal about 45 degrees rightward.

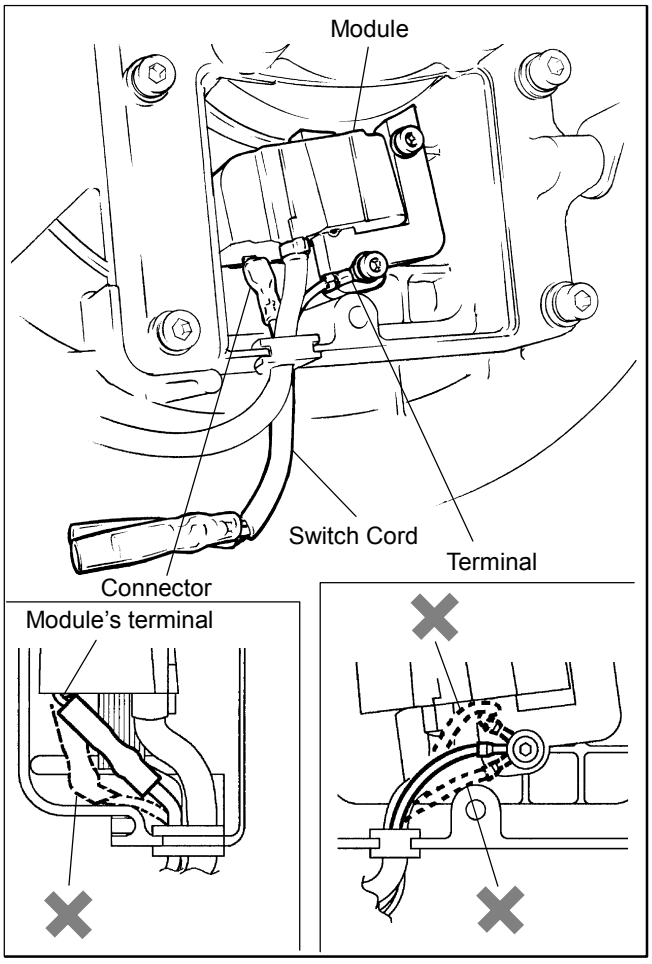
CAUTION

Ensure the cord is not bent nor interfering with the crankcase.

- Fit the switch cord connector (red) firmly to the module's terminal.

Switch Cord Assembly

EB4300/ 6200, EB70 Series



● Secure the switch cord terminal with the module mounting bolt.

CAUTION

Ensure the cord is not bent nor interfering with the crankcase when the module mount bolt is tightened.

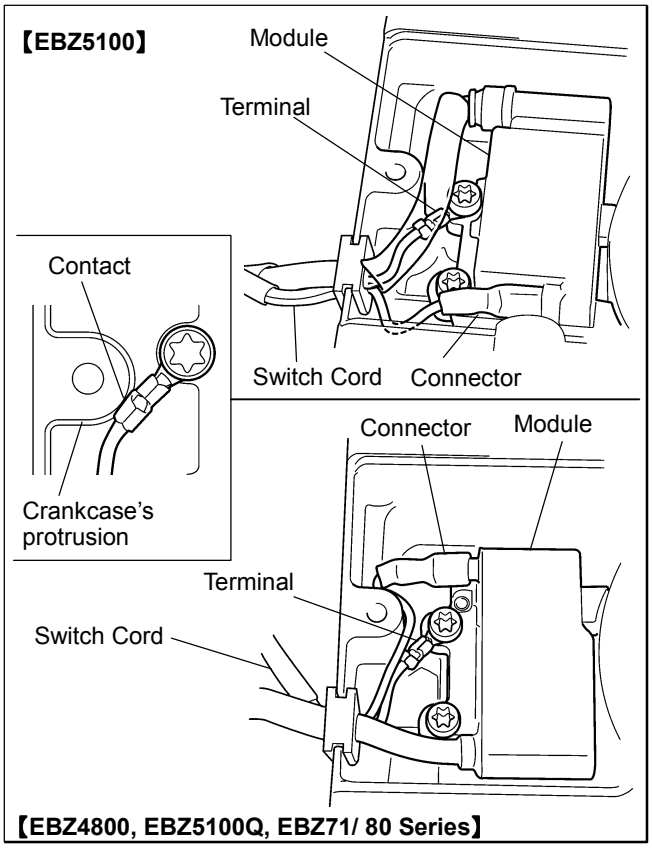
● Bends the terminal of the module, fit the switch cord connector firmly to the module's terminal.

CAUTION

Bend the module's terminal until the cord is clear of the crankcase.

Switch Cord Assembly

EBZ4800, EBZ51/ 71/ 80 Series



● Secure the switch cord terminal with the module mounting bolt.

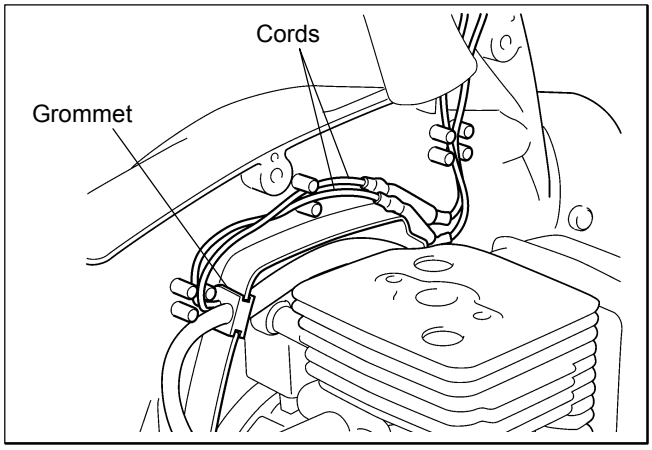
CAUTION

Bring the terminal into contact with the crankcase's protrusion then tighten it.

● Fit the switch cord connector firmly to the module's terminal.

4-16 Cable Wiring

Switch Cord Wiring — HB23 Series, HBZ26 Series



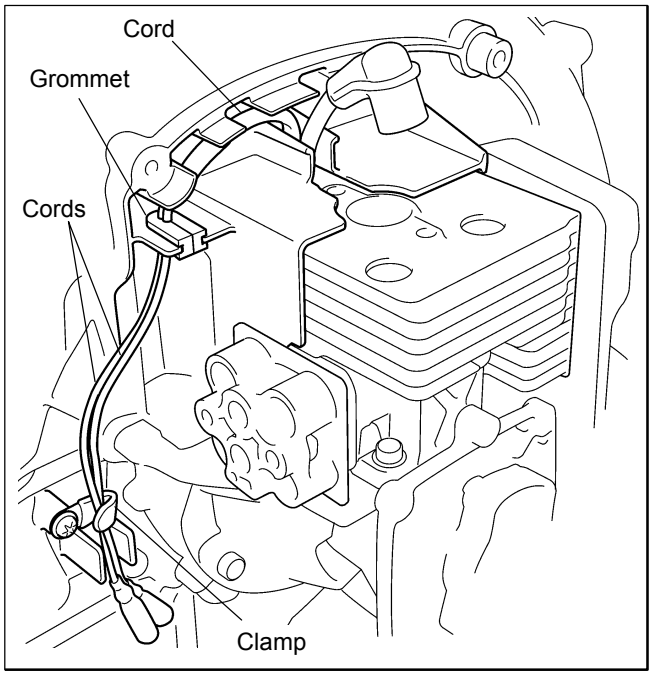
- Insert the grommet to align with the volute case notch and clamp the cord between the protrusions as shown in the figure at left.

CAUTION

Check that the cord on the module side is not caught between volute case and crankcase.

- Pay attention that the cord is not caught against the engine cover when it is installed.

Switch Cord Wiring — EBZ30 Series



- Align the cord along the guide, and insert the grommet to align with the volute case notch.

CAUTION

Check that the cord on the module side is not caught between volute case and crankcase.

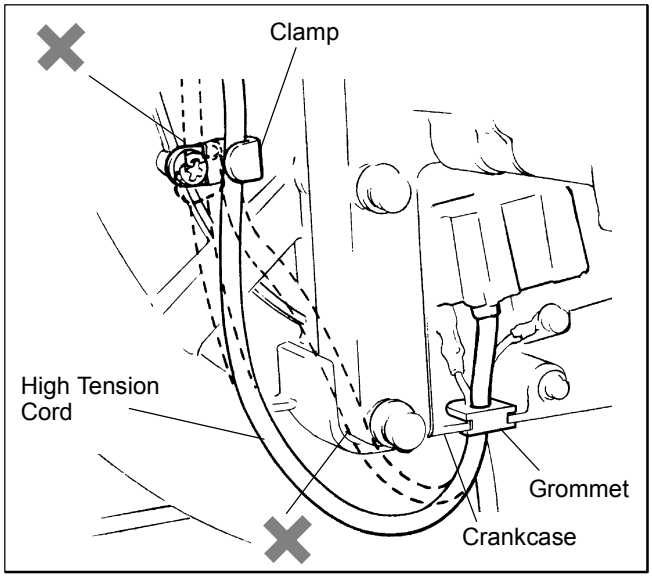
- Set the lead cords and clamp them as shown in the figure at left.

CAUTION

Align the cord not to interfere with the clamp mounting screw.

- Pay attention that the cord is not caught against the engine cover when it is installed.

High Tension Cord Wiring — EB4300/ 6200, EB70 Series, EBZ4800, EBZ51/ 71/ 80 Series



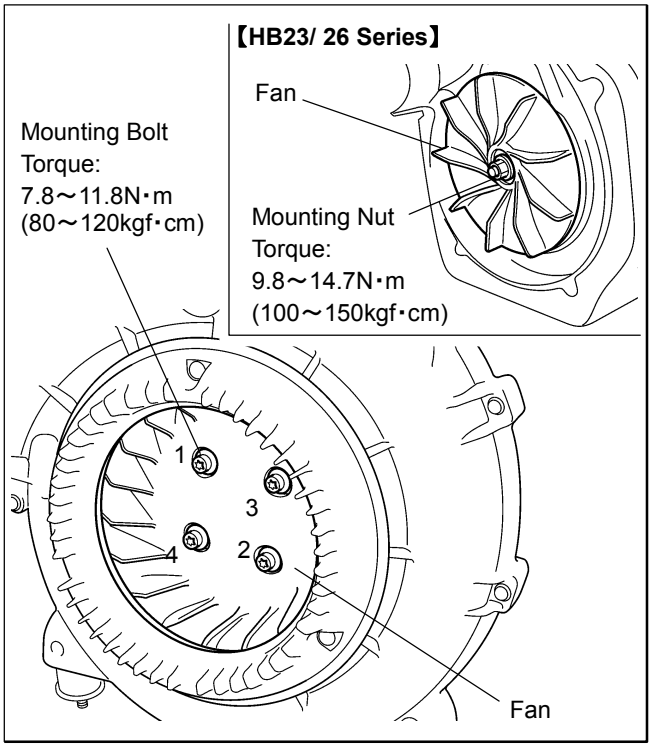
Insert the grommet to align with the crankcase's notch and align the high tension cord and secure it with the clamp as shown in the figure at left.

CAUTION

Align the high tension cord not to interfere with the crankcase or the clamp mounting screw.

4-17 Fan Assembly

All Models



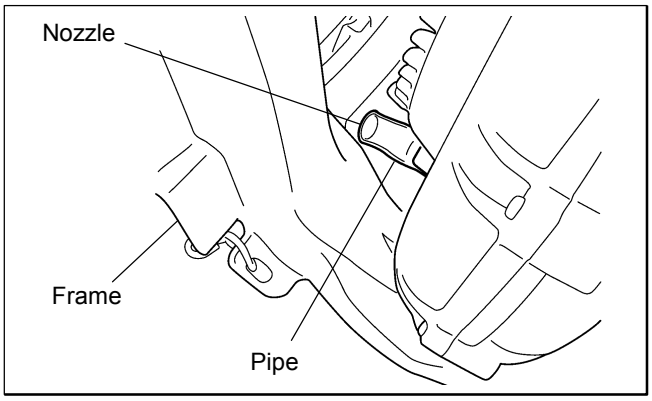
- Insert the stopper (special tool) into the plug hole (refer to “3 Special Tool”).
- Tighten the mounting nut so that the fan securely meets the rotor without looseness.

CAUTION

If the fan is installed with four mounting bolts, secure them with equal pressure in diagonal order.

4-18 Backpack Pad Air Supply Pipe Assembly

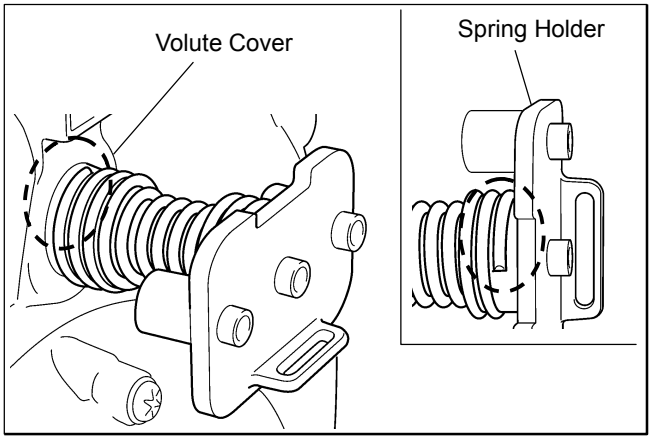
EB4300/ 6200, EB70 Series, EBZ4800, EBZ51/ 71 Series



Firmly insert the tip of the air supply nozzle into the frame air inlet pipe.

4-19 Upper Spring Damper Assembly

EBZ30 Series



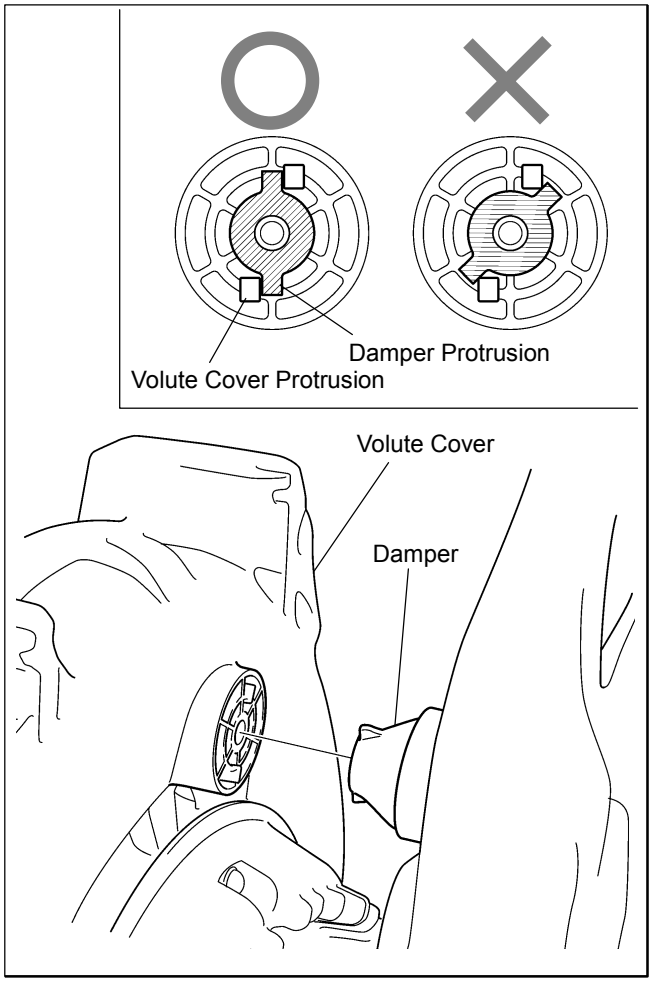
Reassembly of the upper spring damper is the reverse procedure of disassembly.
Refer to "4-3 Upper Spring Damper Removal".

CAUTION

Check that the each spring edge is firmly mated with the volute cover and spring holder's groove.

4-20 Upper Damper Assembly

EB4300/6200, EB70 Series, EBZ4800, EBZ51/ 71/ 80 Series



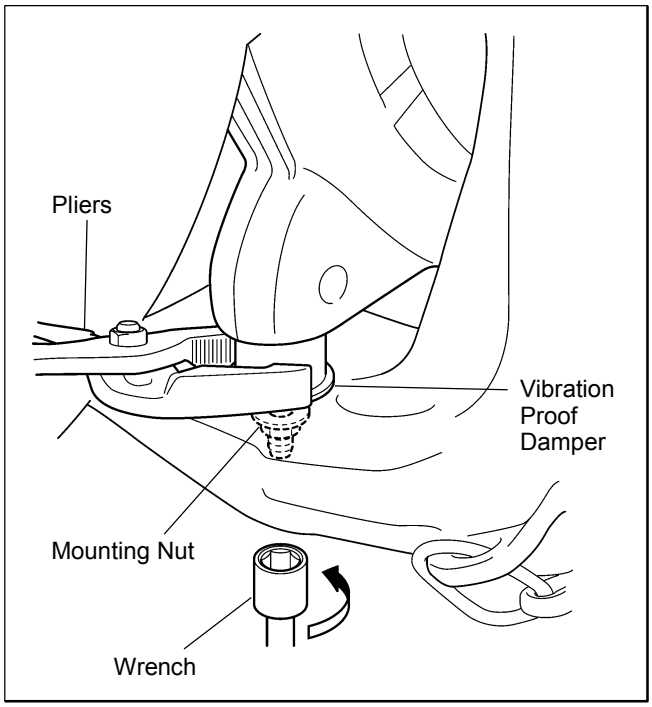
Assemble the damper and volute cover by mating their protrusions.

CAUTION

Check that the damper is not tilted. Improper installation will result in rapid damage.

4-21 Lower Damper Assembly

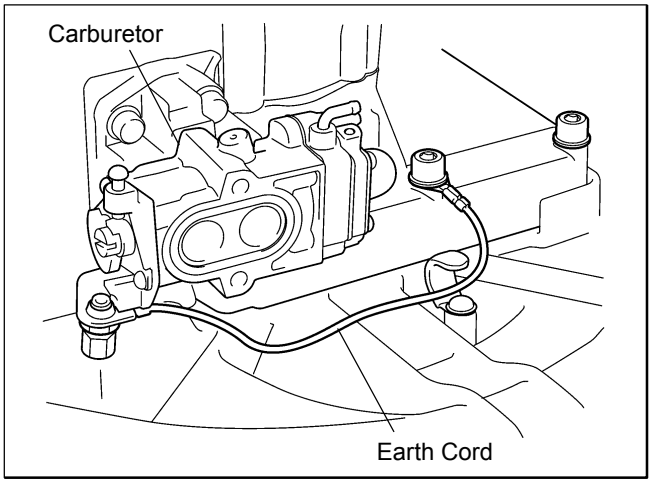
EB4300/6200, EB70 Series, EBZ4800, EBZ51/ 71/ 80 Series



Grip the damper's metal flange with the pliers in order not to twist the rubber unit and tighten the mounting nut with a wrench.

4-22 Carburetor Assembly

EBZ71/ 80 Series



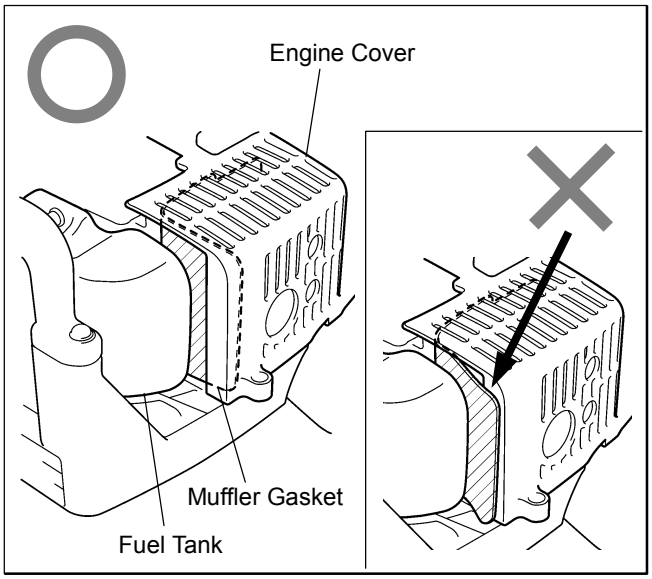
Tighten the screws of the earth cord between the carburetor's adjuster unit and the crankcase.

CAUTION

This cord prevents electrostatic sparks.
Do not fail to connect it.

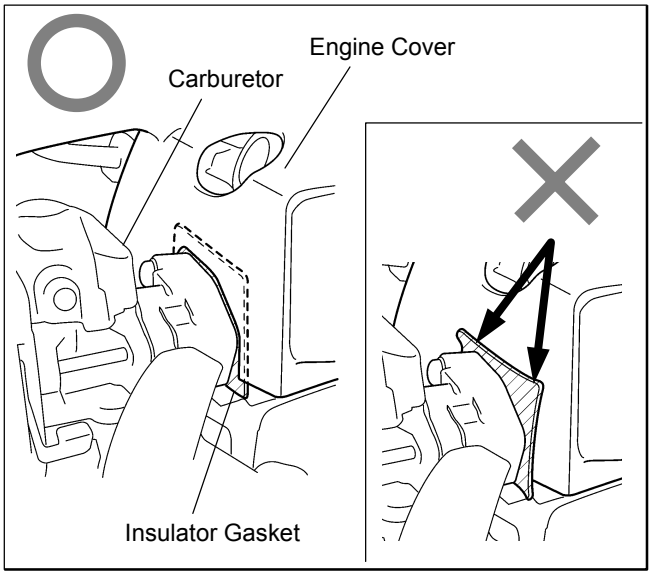
4-23 Engine Cover Assembly

Check of the Gasket Assembly **HB23 Series**



When the engine cover is installed, pay attention to installing the muffler's gasket to the inside the cover to protect the fuel tank from heat.

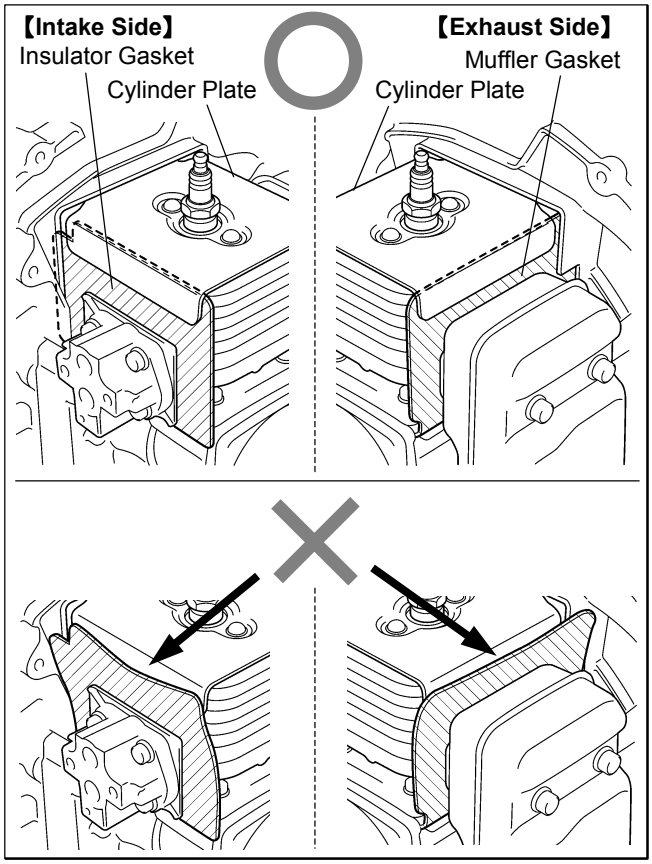
Check of the Gasket Assembly **HBZ26 Series**



When the engine cover is installed, pay attention to installing the insulator gasket to the inside of the cover to protect the carburetor from heat.

4-24 Check of the Gasket Assembly

EBZ4800, EBZ51/ 71/ 80 Series

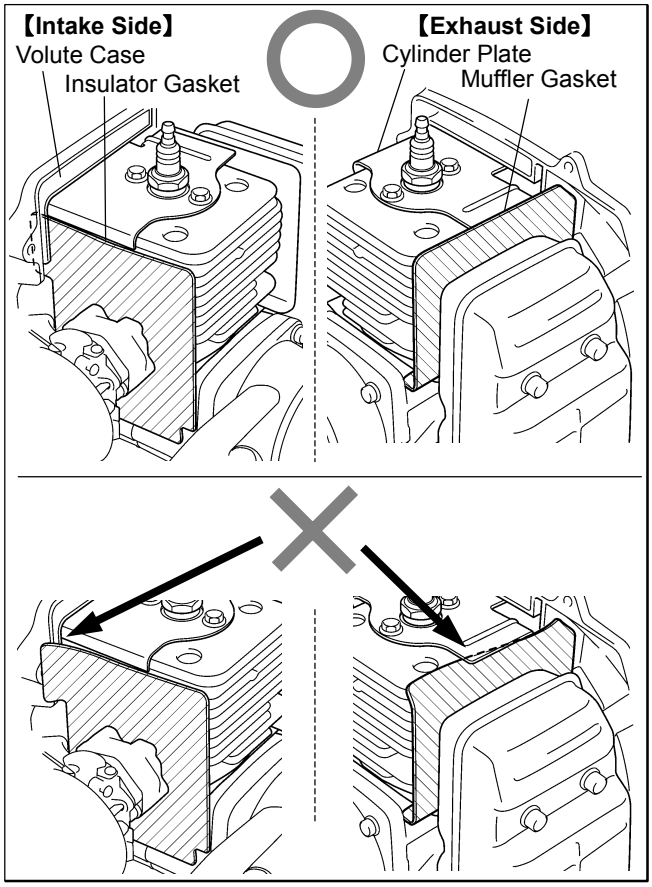


Check that the master and insulator gaskets are set inside the cylinder plate before the engine cover is installed.

CAUTION

If the gasket is improperly set, engine cooling performance will be reduced.

EB4300/ 6200, EB70 Series



Check that the master gasket is set outside of the cylinder plate and the insulator gasket is set inside the volute case before the engine cover is installed.

CAUTION

If the gasket is improperly set, engine cooling performance will be reduced.

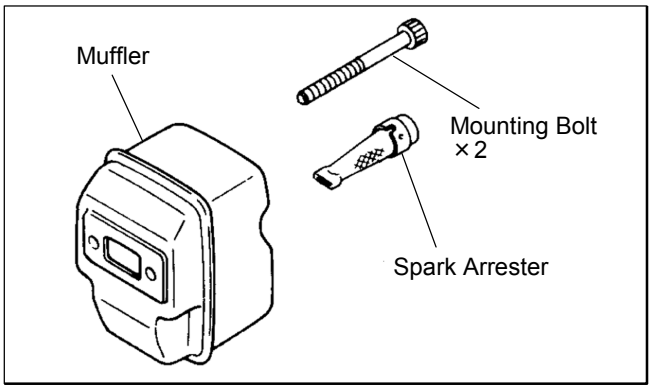
Husqvarna Zenoah engine blowers are equipped with spark arresters to prevent spark dispersion.

CAUTION

- **The Spark arrester prevents burnt carbon discharging from the muffler. Even though the spark arrester can easily clog with carbon, never operate the blower with the spark arrester detached.**
- **The EB4300 and EBZ4800 (Japanese specifications) are not equipped with spark arresters.**

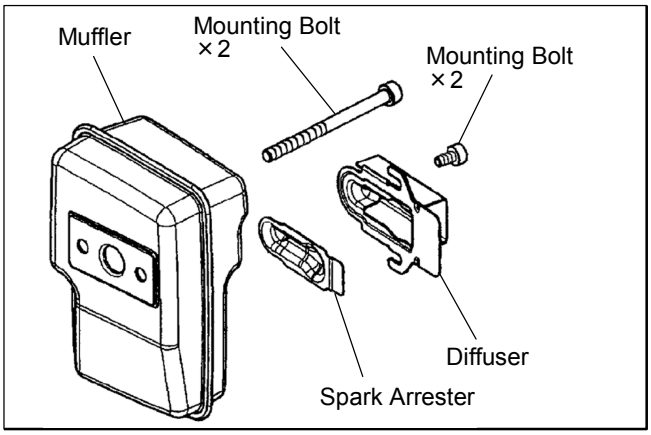
4-25 Spark Arrester Removal

HB23 Series, HBZ26 Series



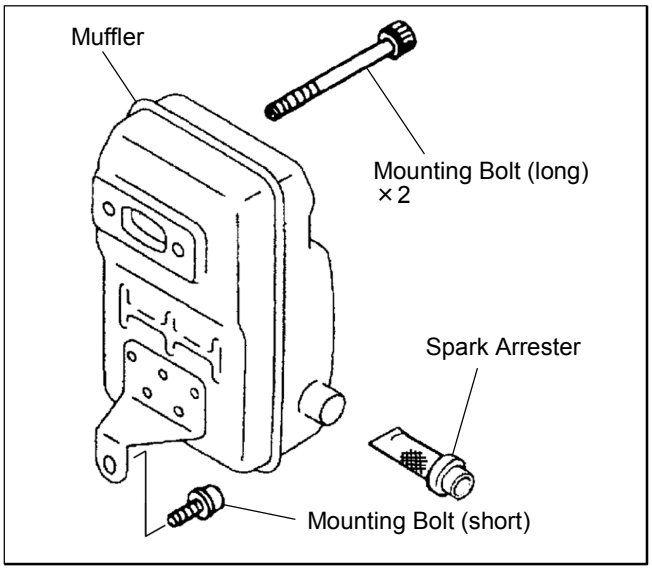
1. Remove the engine cover. (Refer to “3. Special Tools”)
2. Remove the two mounting bolts and then remove the muffler.
   Torque:
   HB23 Series: 6.9～9.8N･m (70～100kgf･cm)
   HBZ26 Series: 6.9～10.8N･m (70～110kgf･cm)
3. Remove the spark arrester.

EBZ30 Series



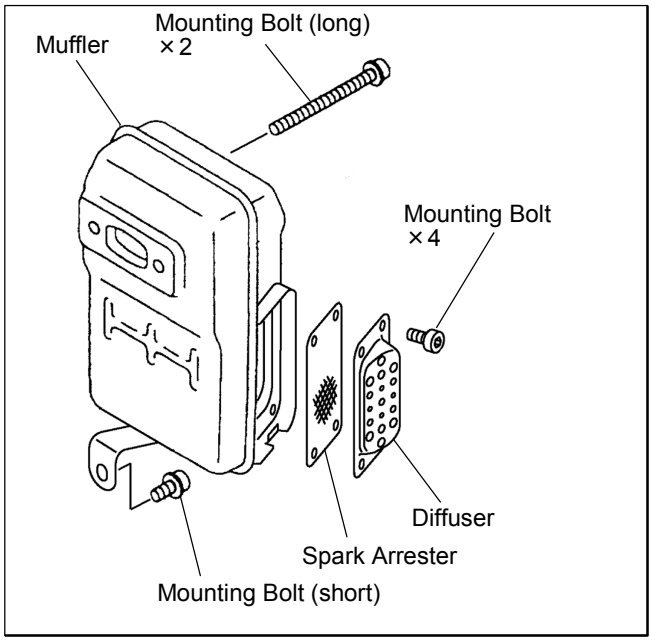
1. Remove the engine cover. (Refer to “3. Special Tools”)
2. Remove the two mounting bolts and then remove the muffler.
   Torque: 6.9～10.8N･m (70～110kgf･cm)
3. Remove the two mounting bolts (torx) and then attach the diffuser (diffusing cover).
   Torque: 2～3N･m (20～30kgf･cm)
4. Remove the spark arrester.

EB4300/ 6200, EB70 Series



1. Remove the engine cover. (Refer to “3. Special Tools”)
2. Remove the three mounting bolts and then remove the muffler.
   Torque: 7.8～11.8N･m (80～120kgf･cm)
3. Remove the spark arrester.

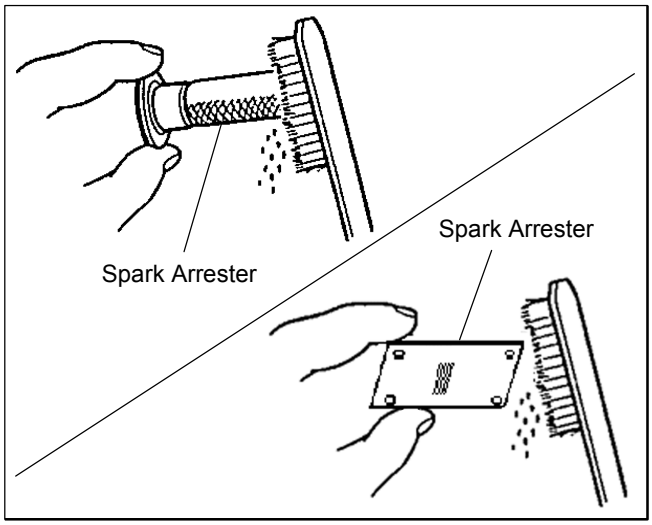
EBZ51/ 71/ 80 Series



1. Remove the engine cover.
   (Refer to “3. Special Tools”)
2. Remove the three mounting bolts and then remove the muffler.
   Torque: 7.8～11.8N･m (80～120kgf･cm)
3. Remove the four mounting bolts (torx) and then attach the diffuser (diffusing cover) and the spark arrester.
   Torque: 2～3N･m (20～30kgf･cm)

4-26 Spark Arrester Cleaning

Exceptions for EB4300, EBZ4800 (Japanese specifications)



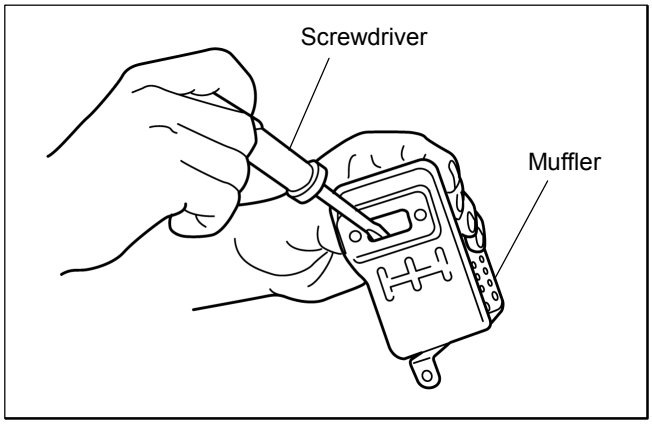
Remove any carbon slag adhering to the spark arrester (screen) with a brush, preferably wire-type or equivalent.

CAUTION

Never overheat the spark arrester with a gas torch or other flame. The spark arrester may deform with heat.

4-27 Muffler Cleaning

All Models



Insert a screwdriver into the vent, and wipe away any carbon buildup. Wipe away any carbon buildup on the muffler exhaust vent and cylinder exhaust port at the same time.

4-28 Air Cleaner Inspection

This device blows fallen leaves to a collection point but at the same time small particles (dust and sand) become airborne. If such dust invades the engine, the engine mechanism will wear quickly.
So periodically check and clean the element according to the following table.

CAUTION

- **The power blower operating environment is very dusty so the air cleaner will clog more quickly than that of other power tools. Neglecting air cleaner check and maintenance will cause rapid engine wear and poor engine performance.**
- **The urethane element may deteriorate and crumble if the ambient temperature fluctuates greatly. If temperature related engine trouble is observed, resolve the trouble cause then replace the filter with a new one.**

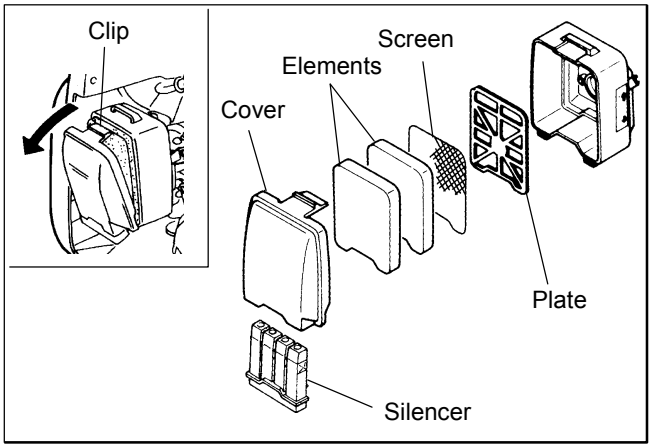
Inspection Period

Inspection Item	Operating Hours				Remarks
	Daily	25 hours	50 hours	100 hours	
Element	○△			☆	If this material is damaged, deformed, or aged and crumbling, replace it with a new one. (Annual replacement is recommended.)
Pre-filter	○△			☆	
Paper Filter		○△	○△☆		If this filter is cleaned six times or more before the replacement interval arrives, the paper part darkens or water or oil adheres, replace it with a new one. (Annual replacement is recommended)

○: Inspection △: Clean ☆: Replace

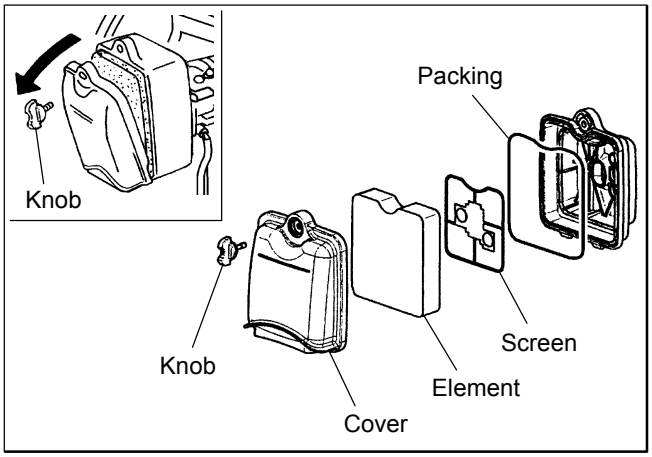
4-29 Element Removal

Single layer dry urethane foam **HB23 Series**



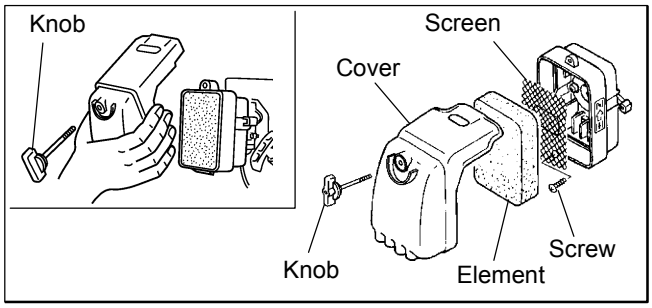
Remove the cover while pressing the clip. Remove the two elements.

Single layer dry urethane foam **HBZ26 Series, EBZ30 Series**



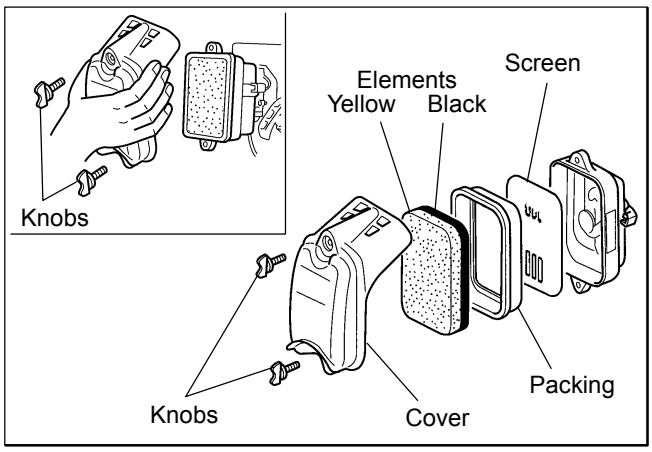
Loosen the knob then remove the element.

Single layer half-wet urethane foam **EB4300/ 6200**



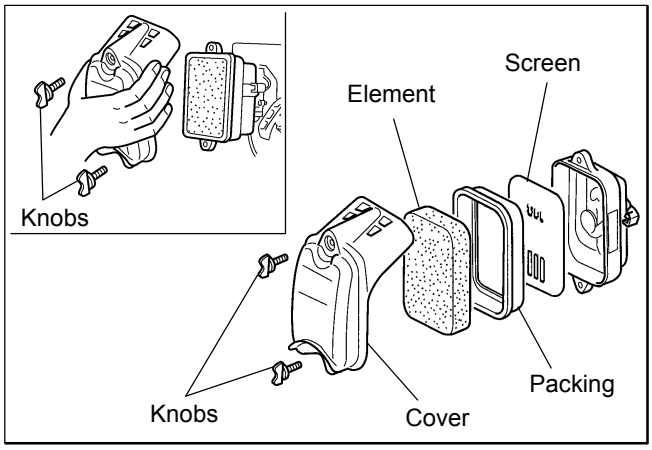
Loosen the knob then remove the element.

Dual layer half-wet urethane foam **EBZ4800**



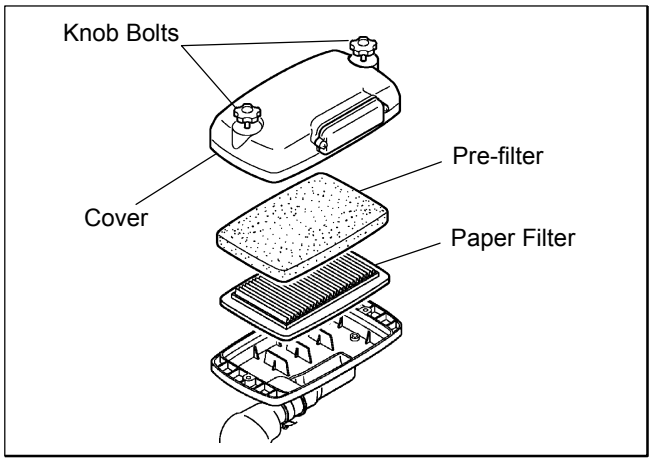
Loosen the knobs then remove the elements.

Single layer half-wet urethane foam **EBZ51 Series**



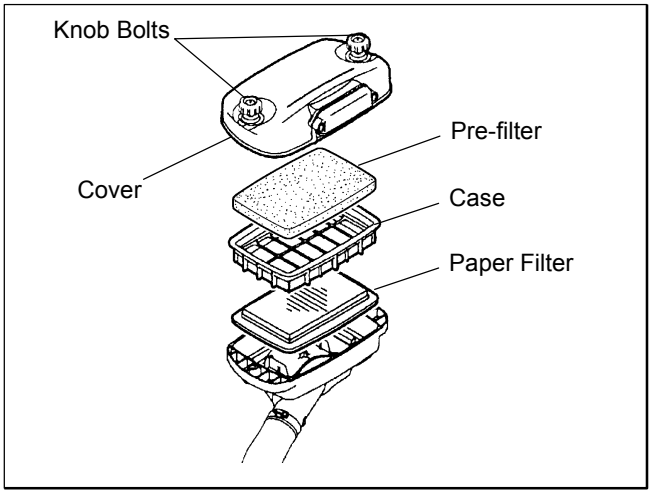
Loosen the knobs then remove the element.

Two stage dry element (Pre-filter + Paper filter) **EB70 Series, EBZ71 Series**



Loosen the knob bolts then remove the element (pre-filter + paper filter).

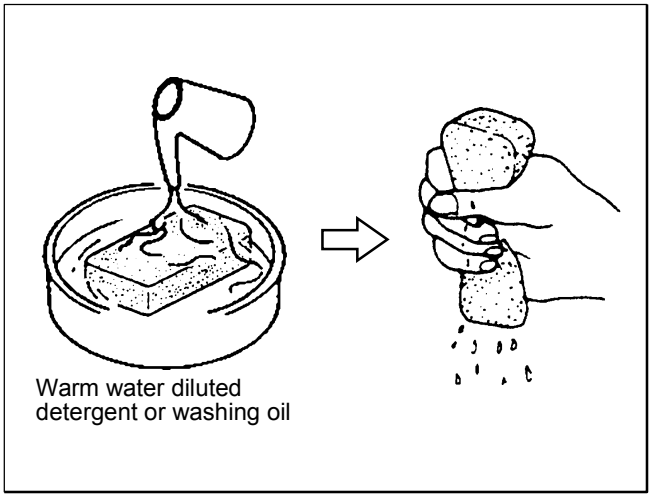
Two stage dry element (Pre-filter + Paper filter) **EBZ80 Series**



Loosen the knob bolts then remove the element (pre-filter + paper filter).

4-30 Element Cleaning

Element and pre-filter rinsing **All Models**



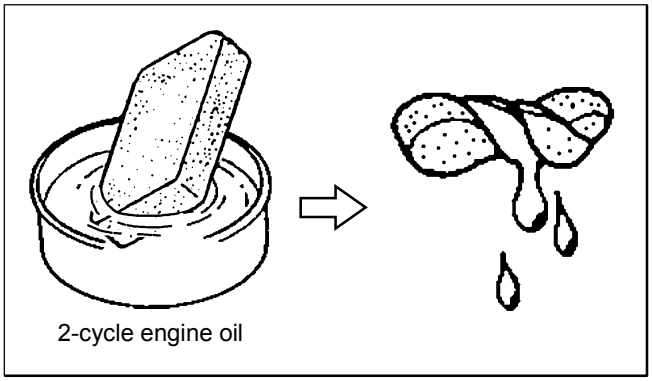
- Rinse the element carefully with warm water diluted detergent or washing oil.

CAUTION

Confirm that no deformity, damage or deterioration (if touched, element will crumble) exists.
If necessary replace it with a new one.

- After rinsing it, tighten squeeze the element to remove moisture.
- For a HB23 series and HBZ26 series element or a EB70 series and EBZ71/ 80 series pre-filter, dry it after rinsing and then install it.

Caution for element installation **EB4300/ 6200, EBZ4800, EBZ51 Series**

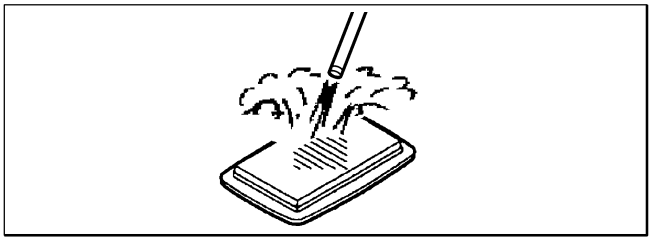


The half-wet urethane element should be moistened with 2-cycle engine oil, softly squeezed, then installed.

CAUTION

- **Excessive oil adhesion will cause filter clogging.**
- **Never moisten pre-filter (EB70 series and EBZ71/80 series) with engine oil. If engine oil adheres to the filter, the paper layer will not function.**

Two stage dry paper filter cleaning **EB70 Series, EBZ71/ 80 Series**



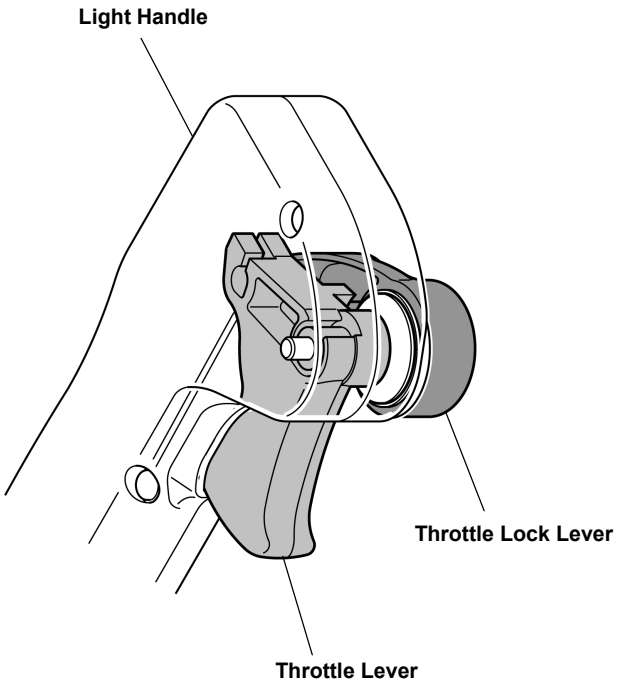
Blow compressed air from inside/outside of the filter along the filter element's pleats.

CAUTION

Never beat or hit the filter.

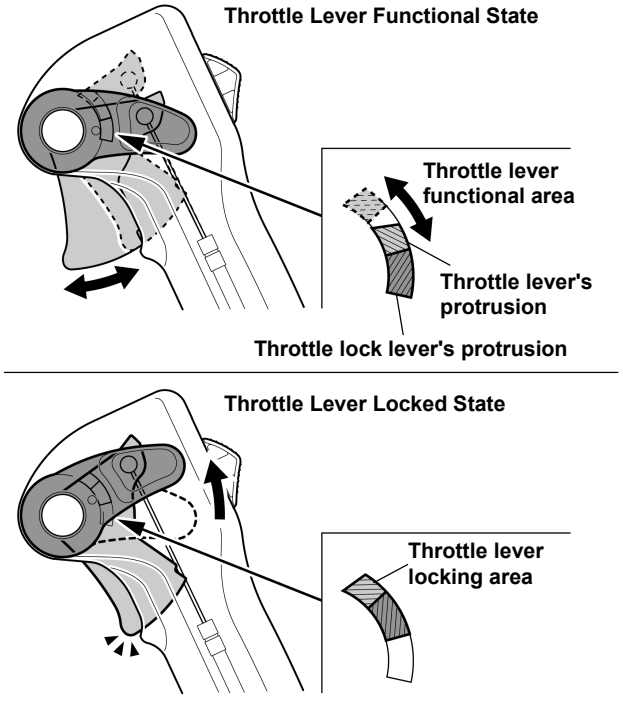
5. Structure of Right Hand Throttle Lever

● The right hand throttle lever specifications (RH) employs a governor mechanism for easy blower operation with constant wind pressure.



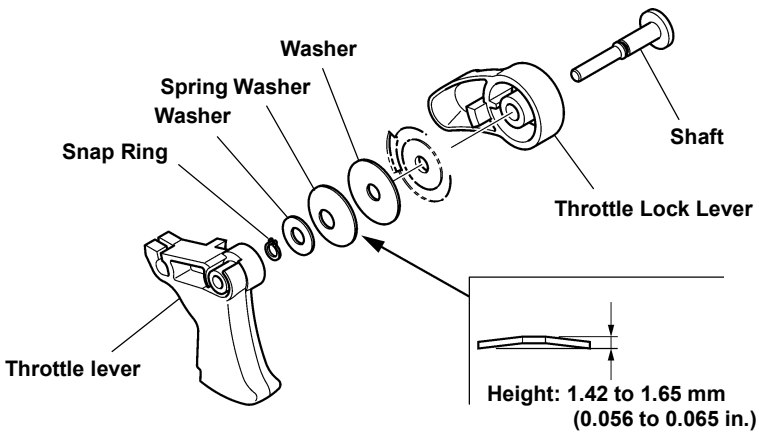
<Governor Mechanism>

It is a mechanism where the throttle lever can be fixed by a throttle lever lock at a chosen position.
The suitable engine speed can be set for operating load.



<Configuration>

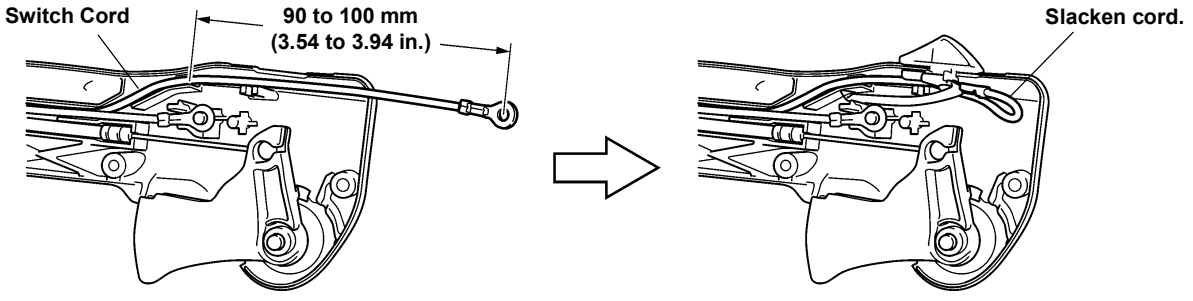
The throttle lock lever is fixed by plate spring pressure.
If the plate spring pressure decreases over its operational life, the throttle lever will lose its locking function.
If plate spring pressure decreases, replace it with a new one.



<Caution in switch cord installation>

Thread the switch cord into the handle case slit and set its terminal 90 to 100 mm (3.54 to 3.94 in.) from the end of the slit.

∗ Confirm that the switch cord remains slack when the switch is moved.



6. Carburetor

6-1 Specifications

Model			Carburetor (Walbro)		Carburetor Specifications										
Sales Region	Blower Model	Engine Type	Type Name	Part Number	Seal (L-needle)		Adjustment angle (L-needle return angle)	Adjustment angle (H-needle return angle)	Main Jet	Venturi Bore (Lead Air) mm (in.)	Venturi Bore (Mixture Air) mm (in.)	Choke Bore mm (in.)	Metering Lever Height mm (in.)	Valve Opening Pressure kg/ cm^2 (kpa)	Valve Closing Pressure kg/ cm^2 (kpa)
					Part Name	Part Number									
EU/ General	HB2302	G23L	WYJ-110A	5516-81000	Limiter Cap	848-F40-80D0	Adjustment	FIXED	# 38	——	9 (0.354)	17 (0.669)	1.5±0.16 (0.059±0.006)	1.3～2.3	0.6～1.6
EU/ General	HBZ2601	GZ25N	WYA-26E	848-F3C-8102	↑	↑	↑	↑	# 37.5	8 (0.315)	9 (0.354)	13.2 (0.520)	↑	↑	↑
USA	HBZ2601	↑	WYA-65	848-F3U-8100	↑	↑	↑	1 3/4±1/2	——	9 (0.354)	7 (0.276)	13.2 (0.520)	↑	↑	↑
USA/ EU/ General	EBZ3000/ RH	GZ30N	WYA-73B	848-F6B-8101	↑	↑	↑	FIXED	# 34	9 (0.354)	7 (0.276)	13.2 (0.520)	↑	↑	↑
General	EB4300	G4K	WYK-67A	3407-81000	↑	↑	↑	↑	# 60	——	13.5	17 (0.669)	↑	↑	↑
EU/ General	EBZ4800	GZ48N	WYA-51B	848-L38-8100	↑	↑	↑	↑	# 45	10.5 (0.413)	10.5 (0.413)	14.5 (0.571)	↑	↑	↑
USA	EBZ5100/ RH	GZ51N3.5	WYA-74A	848-HE0-8100	↑	↑	↑	↑	# 44	10.5 (0.413)	10.5 (0.413)	14.5 (0.571)	↑	↑	↑
		GZ51N6	WYA-79	848-HE2-8100											
USA	EBZ5100Q	GZ51N7	WYA-83	848-HE6-8100	↑	↑	↑	↑	# 41.5	10.5 (0.413)	10.5 (0.413)	14.5 (0.571)	↑	↑	↑
General	EB6200	G62L	WYK-73A	2750-81000	↑	↑	↑	↑	# 59	——	15 (0.591)	17 (0.669)	↑	↑	↑
EU/ General	EB7000	↑	WYK-123A	T4012-81000	↑	↑	↑	↑	# 53	——	15 (0.591)	17 (0.669)	↑	↑	↑
USA	EBZ7100/ RH	GZ65N	WYA-81	848-H18-8100	↑	↑	↑	↑	# 57	13.5 (0.532)	12.2 (0.480)	14.5 (0.571)	↑	↑	↑
USA/ EU/ General	EBZ8001/ RH	GZ72N	WYA-44B	848-H00-8100	↑	↑	↑	↑	# 59	13. 5 (0.532)	12.2 (0.480)	14.5 (0.571)	↑	↑	↑

Model			Adjustment Angle for Engine Start (Loosen then tighten)			Engine Speed (rpm)					Standard Engine Speed (rpm)		Remarks	Recommended Tools
Sales Region	Blower Model	Engine Type	Throttle Valve Adjust Screw	L-needle Adjustment Angle	H-needle Adjustment Angle	ID Peak Engine Speed	ID Rich Down	Set ID Engine Speed	H Rich Down	Set H Engine Speed	Idling	Full Throttle (Standard Pipe)		
EU/ General	HB2302	G23L	9	13	FIXED	3400±10	1000～1200	2300±100	FIX JET	FIX JET	2300±200	7300～7600		① 3699-90345 Carburetor Conditioner
EU/ General	HBZ2601	GZ25N	8 1/2	12 1/2	↑	3700±10	800～1000	2800±100	↑	↑	2800±200	7700～7990		
USA	HBZ2601	↑	8 1/2	13 1/2	1 7/8	3900±10	1000～1200	2800±100	50～100	7300	2800±200	7300～7800		
USA/ EU/ General	EBZ3000/ RH	GZ30N	8 1/2	12	FIXED	3500±10	400～100	3000±100	FIX JET	FIX JET	3000±200	6300～6800		② 3699-90211 Leak Tester
General	EB4300	G4K	4 1/2	10 1/2	↑	2700±10	600～800	2000±100	↑	↑	2000±200	6150～6550		
EU/ General	EBZ4800	GZ48N	11 1/2	9	↑	3400±10	1000～1200	↑	↑	↑	↑	↑		
USA	EBZ5100/ RH	GZ51N3.5	9	11 1/2	↑	3000±10	700～900	2200±100	↑	↑	2200±200	5820～6100	Digital magneto controlled misfire for excessive speed Maximum speed: 8500 rpm	
		GZ51N6	6	10		2900±10	600～800							③ 3699-90537 Tachometer PET-1000
USA	EBZ5100Q	GZ51N7	3 1/2	10	↑	2900±10	600～800	2200±100	↑	↑	2200±200	5520～5800		
General	EB6200	G62L	4	10 1/2	↑	2500±10	400～600	2000±100	↑	↑	2000±200	7500～7800		
EU/ General	EB7000	↑	7	10 1/2	↑	2700±10	600～800	↑	↑	↑	↑	7100～7500		
USA	EBZ7100/ RH	GZ65N	7	12	↑	2700±10	600～800	2000±100	↑	↑	2000±200	6850～7150	Digital magneto controlled misfire for excessive speed Maximum speed: 8500 rpm	④ 848-8W9-0080 Limiter Cap Tool
USA/ EU/ General	EBZ8001/ RH	GZ72N	6 1/2	12	↑	2700±10	600～800	2000±100	↑	↑	2000±200	6500～6800	Digital magneto controlled misfire for excessive speed Maximum speed: 8500 rpm	

6-2 Carburetor Configuration

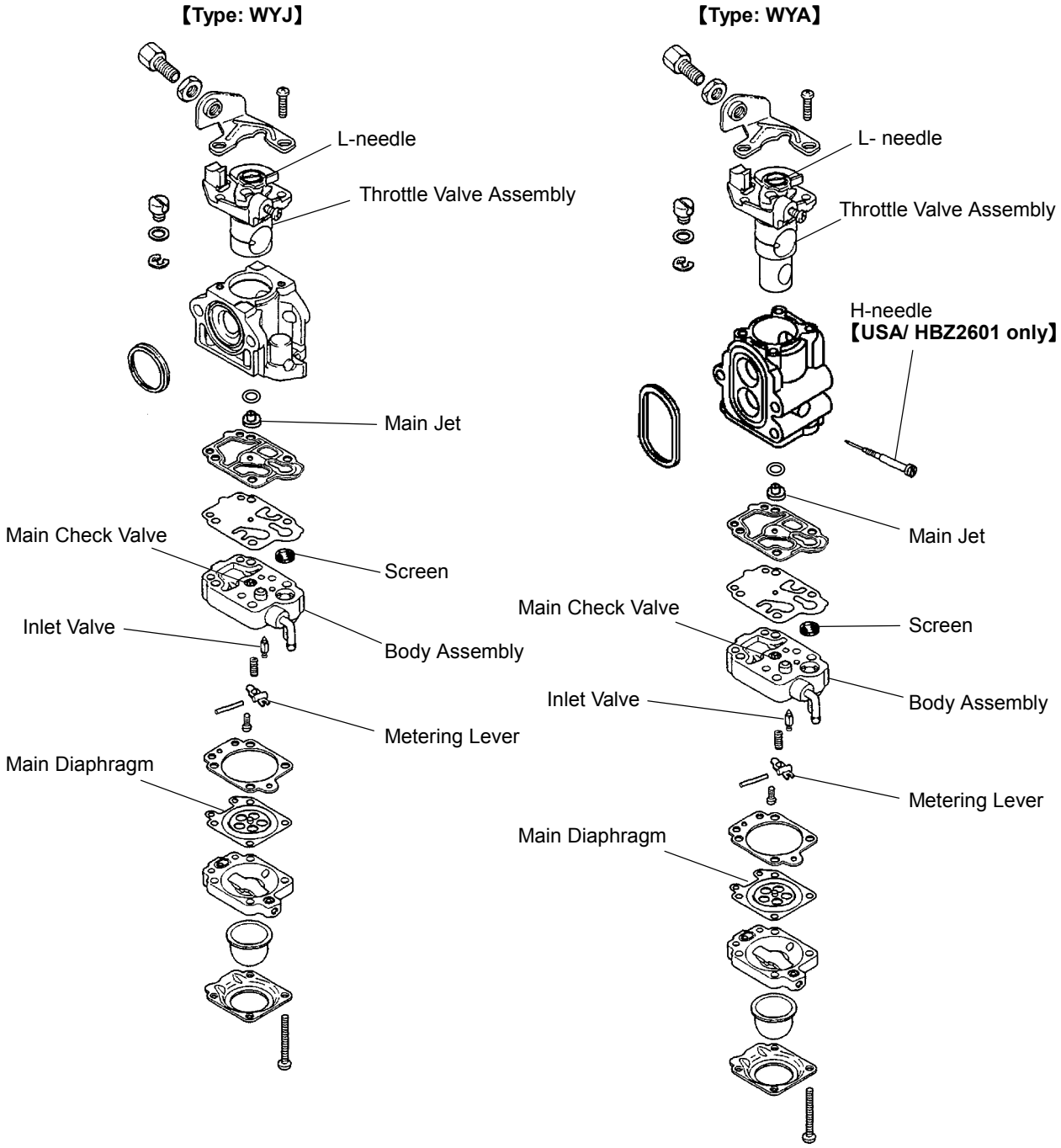
Inspection and adjustment items

Execute the following check and adjustment if the carburetor does not function normally.
(Refer to "6-5 Idling Speed Adjustment " and "6-6 Carburetor Inspection".)

- Fuel adjustment when idling
- Check of the body assembly
- Check of the main check valve
- Check of throttle valve

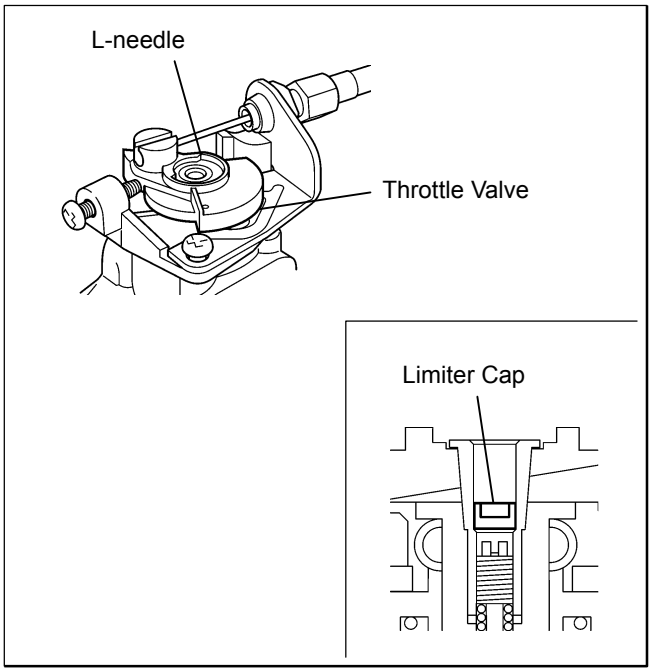
Readjust the engine rotational speed referring to "6-7 Carburetor Adjustment"
if the engine speed is not steady after the above-mentioned adjustment and the checks are executed.

Construction



6-3 Carburetor Conforms to Exhaust Emissions Regulations

The carburetor flow rates of all Hasqvarna Zenoah engine blowers are individually pre-adjusted to pass exhaust emissions regulations.
A limiter cap is installed in the idling limiter to prevent an operator carelessly changing the idle setting resulting in non-conformance with exhaust emission regulations.
Execute a correct adjustment according to "6-7 Carburetor Adjustment".



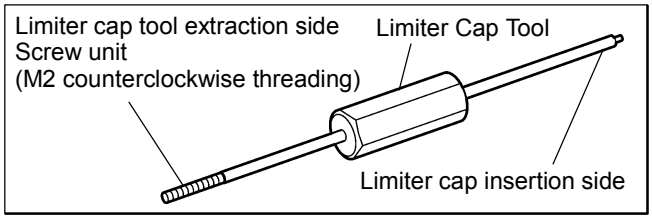
A limiter cap closes the L-needle adjustment hole of the throttle valve.

⚠ ATTENTION!!! IMPORTANT!!!

Carburetor adjustments with caps removed must be conducted by Emission Certified Servicing Dealers ONLY.
The dealer must supply the unit to the customer in original configuration, using the manufacturer's carburetor adjustment procedure, which includes having the limiter caps in place before the unit is put into service.
Knowingly removing or rendering inoperative any device, element, or design installed on or in a non-road engine which is in compliance with E. P. A. or C. A. R. B. (USA), STAGEⅢ(EU) regulations is classified as TAMPERING.
TAMPERING is a violation of FEDERAL LOW, resulting in significant civil penalties (fines) of up to $25,000 for each violation.

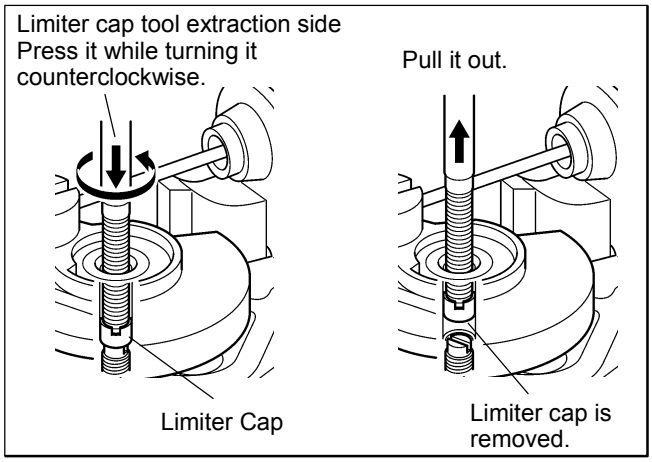
6-4 Limiter Cap Removal/ Installation

Tool



The limiter cap tool (carburetor maintenance tool: 848-8W9-0080) is used for limiter cap installation/removal.

Removal

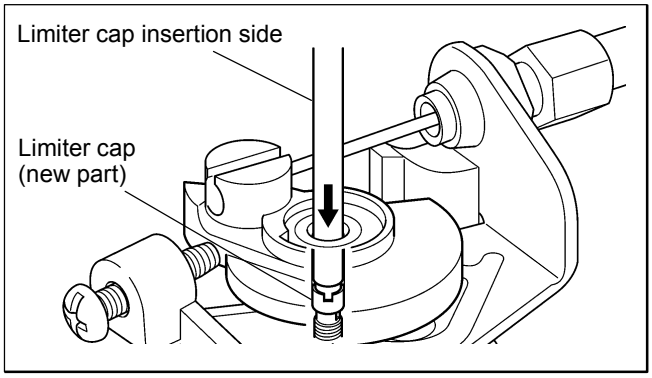


Insert the limiter cap tool extraction tool's threading (M2 counterclockwise threading) into the idling limiter's hole and screw it counterclockwise while giving pressure.
When it is firmly threaded, pull the limiter cap.

CAUTION

If it is difficult to screw in the limiter cap tool, firmly press the tool while screwing. When threads are completely meshed, pull it out in one stroke. If cap is damaged and stays in the hole, use a pick type tool to remove it.

Installation



Insert a new limiter cap in the low speed mixture needle hole. Press the cap deeply into low speed mixture needle hole to prevent tampering.

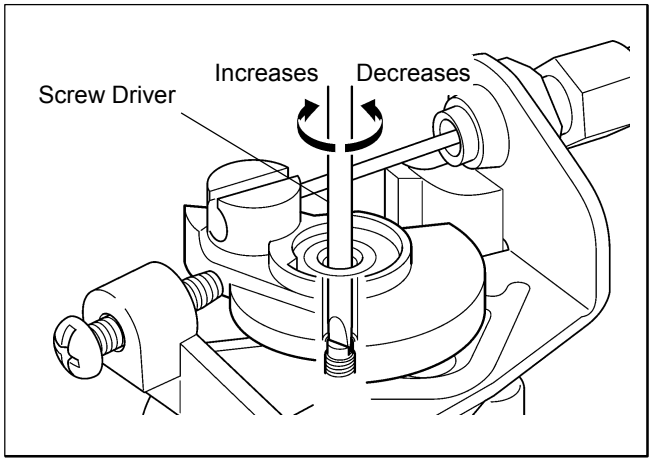
CAUTION

Be sure to install only a new limiter cap. The limiter cap is a very small part. Pay attention not to lose it.

6-5 Idling Speed Adjustment

Slow and Middle Speeds — All Models

Adjust the fuel supply under idling conditions by turning the idling limiter.



1. Remove the limiter cap.
   (Refer to "6-4 Limiter Cap Removal/ Installation".)

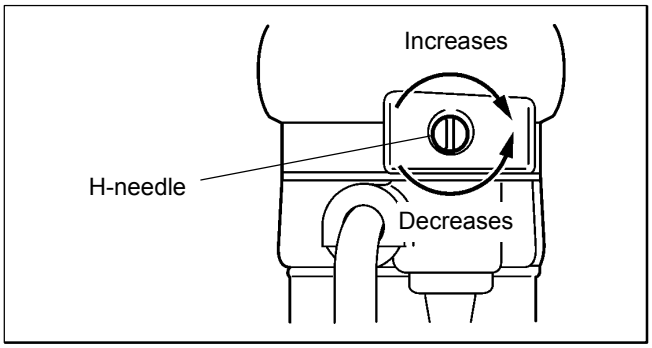
CAUTION

After completion of the adjustment, be sure to install the limiter cap.

2. Turn the screw with a commercially available screw driver (tip width: 2.5mm).

   Clockwise (CW):
   Fuel mixture becomes lean. (Speed increases.)
   Counterclockwise (CCW):
   Fuel mixture becomes rich. (Speed decreases.)

High Speed Adjustment **【USA/ HBZ2601 only】**



High speed revolutions are adjusted by a H-needle.

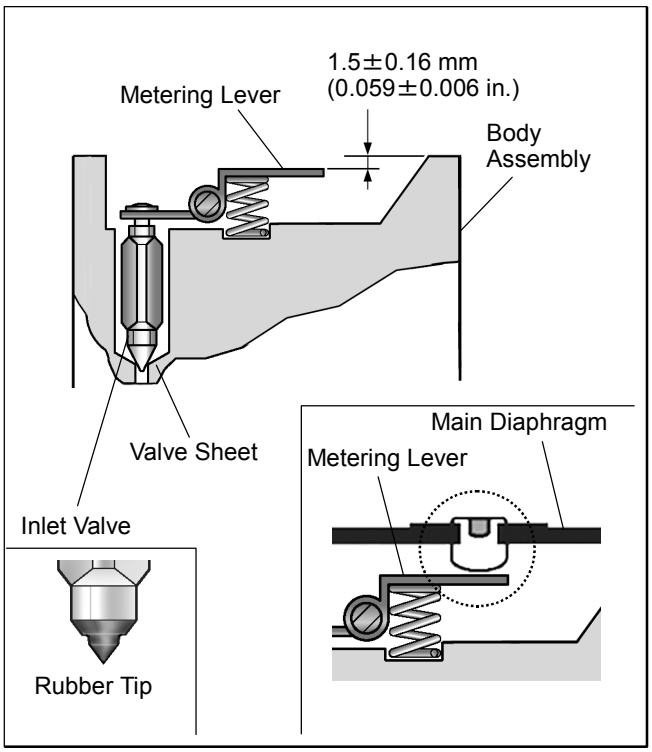
Clockwise (CW):
Fuel mixture becomes lean. (Speed increases.)
Counterclockwise (CCW):
Fuel mixture becomes rich. (Speed decreases.)

6-6 Carburetor Inspection

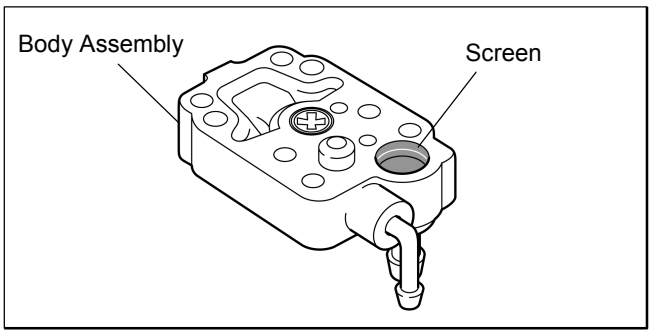
Inlet Valve Leaking Test

Connect a leak tester to the fuel inlet port of the carburetor.
After filling the metering chamber with fuel, apply pressure to the inlet valve and read the opening pressure and the reseating pressure.

a. Body assembly normality check

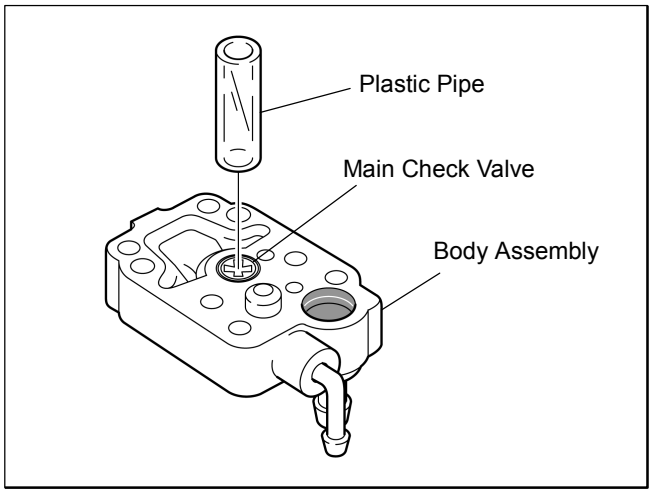


- Measure the metering lever height using a depth gauge or scale.
  The appropriate value is 1.5±0.16 mm (0.059± 0.006 in.)
- Check that no wear exists on the metering lever or diaphragm contacting areas.
  If wear exists, replace it with a new one.
- Remove the inlet valve and check for dirt, sludge, rusting and/or step-wear.
  Replace the inlet valve if a step is found on the rubber tip.
- Check that no alien matter adheres to the valve sheet part. If any alien matter exists, dip the valve sheet in gasoline for about 10 minutes and remove it, or use the carburetor conditioner (Carburetor Conditioner: 699-90345) to clean it.



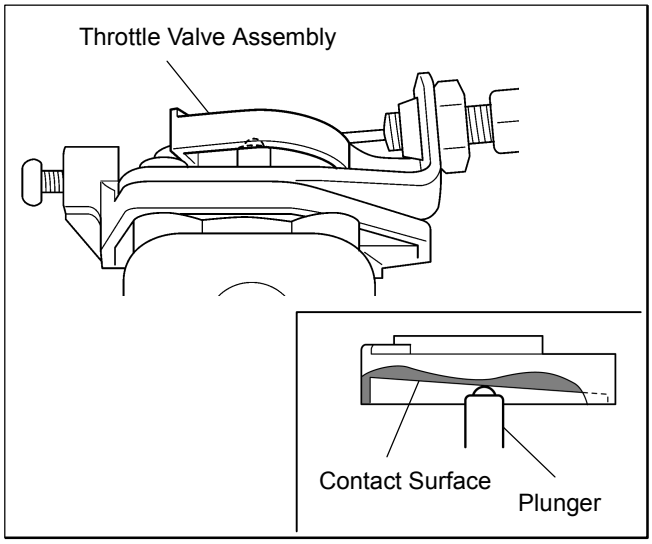
- Check that no alien matter has accumulated on the screen.
  If screen is clogged with alien matter, remove the screen and clean it.

b. Judgments of the main check valve

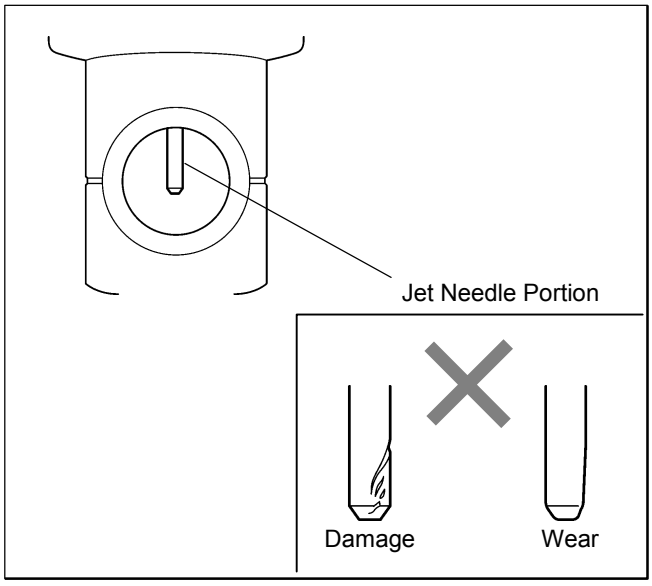


- As illustrated, hold a plastic pipe on the check valve and blow and suck air by your mouth. If the air is stopped by blowing, and open by sucking, the valve has no failure.
- In case of failure, soak the valve into gasoline for about 10 minutes and repeat blowing and sucking several times.
  If this is not successful, replace the body assembly.
- Make sure to check the valve in case fuel is not supplied though the priming pump is operated.

c. Throttle valve normality check



- Check that no wear exists in the throttle valve slide. Carefully slide a screw driver tip along the plunger's contact surface.
  If the screw driver tip catches in a groove, replace the carburetor assembly with a new one.



- Check that no wear exists on the jet needle.
  If there are signs of vertical linear flaws or wear, replace the carburetor assembly with a new one.

CAUTION

Even small damage will increase fuel consumption.

6-7 Carburetor Adjustment

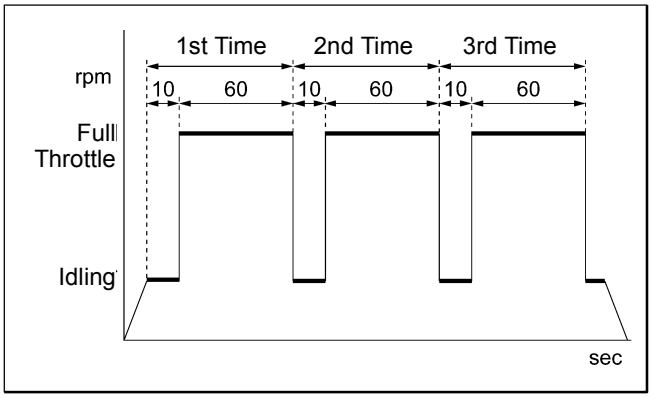
Before performing carburetor adjustment, the following areas must be inspected for good working order.

- Correct spark plug set to specified gap must be installed.
- The air filter and paper filter must be clean and properly installed.
- The muffler spark arrestor screen and exhaust port must be clear of carbon.
- The fuel filter must be clean and properly installed.
- The carburetor and carburetor insulator block screw must be tight.
- The fuel must be fresh (properly mixed at 40:1 ratio with Zenoah or 50:1 ratio with RedMax)
- All standard air tubes (Air Pipes) must be installed.
- No fallen leaf or other matter must be adhered to the air intake.

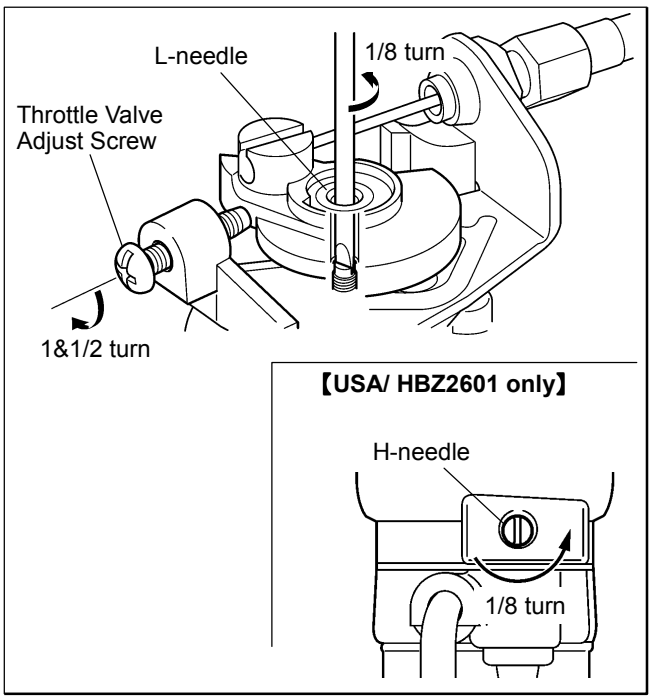
Required Tools and Parts

- Carburetor adjustment screw driver 2.5mm flat tip
- Electronic digital tachometer
- Limiter cap removal tool
- New Limiter cap

Adjustment when engine activated

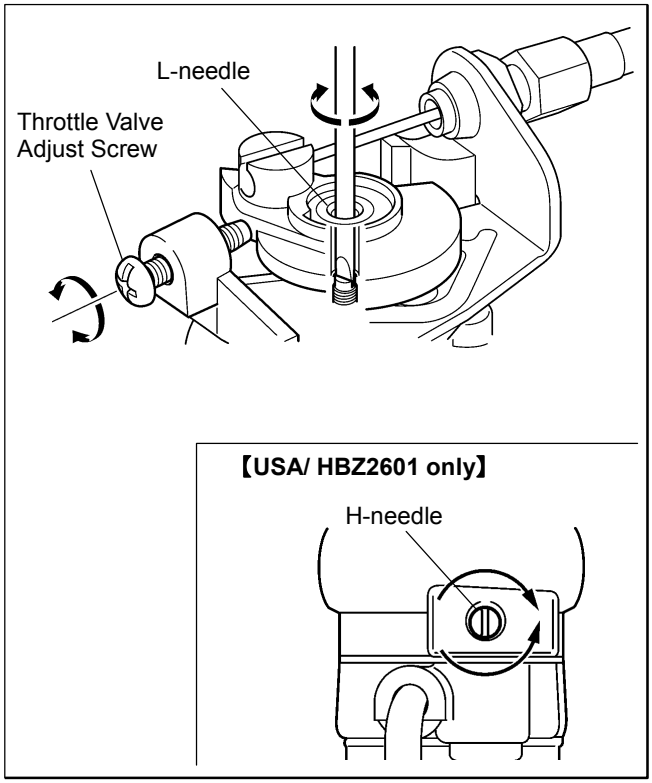


1. Start the engine and alternate three times between the idling state (10 seconds) and full throttle state (60 seconds). Then check the engine's condition.



2. If idling is not stable, remove the limiter cap (refer to "6-4 Limiter Cap Removal/ Installation") and adjust the engine according to the following procedure.
   - Throttle valve adjust screw
     Clockwise (CW) 1&1/2 turn:
     Increases engine speed.
   - L-needle
     Counterclockwise (CCW) 1/8 turn:
     Enriches the fuel mixture.
     (Reduces engine speed.)
   - H-needle **【USA/ HBZ2601 only】**
     Counterclockwise (CCW) 1/8 turn:
     Reduces engine speed.
3. Run the warm-up operation (see the above table) and execute the rich down adjustment.
   (Refer to "Rich Down Adjustment".)

Adjustment if engine does not activate



Set the adjustable parts as specified according to the following procedure.

1. Loosen the throttle valve adjust screw until the throttle valve becomes completely free, then turn the screw clockwise until the regulated angle is attained.
   (Refer to "6-1 Specifications- Adjustment Angle for Engine Start".)
2. Turn the idling limiter (L-needle) counterclockwise until it becomes free. (When the needle screw completely loosens, a click tone can be heard.) Turn the idling limiter clockwise from this position until the regulated angle is attained.
   (Refer to "6-1 Specifications- Adjustment Angle for Engine Start- L-needle Adjustment Angle".)

CAUTION

When tightening the L-needle clockwise, never excessively tighten it.
Doing so may cause damage to the needle surface resulting in excessive or inconsistent fuel supply.

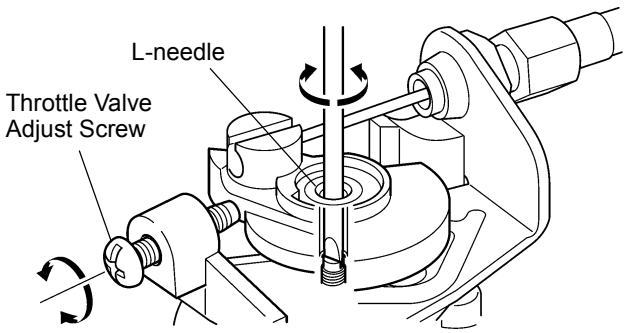
3. H-needle **【USA/ HBZ2601 only】**
   Clockwise (CW) completely, then back it off 1&7/8 turns counterclockwise (CCW).

4. Start the engine and execute the rich down adjustment. (Refer to "Rich Down Adjustment".)

CAUTION

If the engine still does not start, problems may exist elsewhere than the carburetor. Check those other causes.

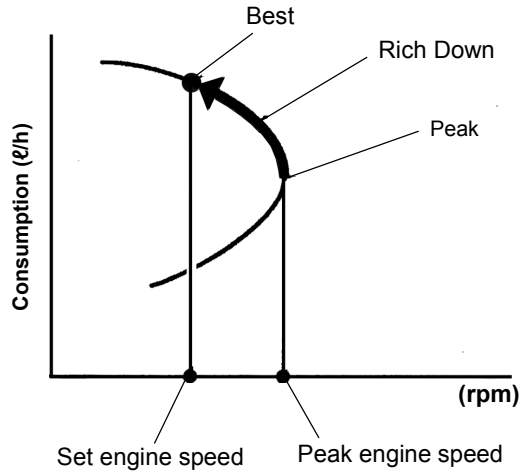
Rich Down Adjustment

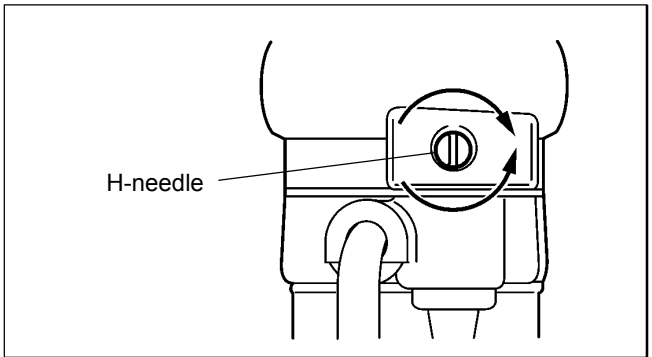


1. Turn the idling limiter (L-needle) clockwise to the position of maximum engine speed.
2. Turn the throttle valve adjust screw in either direction to match to the regulated ID peak speed. (Refer to "6-1 Specifications- ID Peak Engine Speed".)
3. Turn the L-needle counterclockwise and execute the rich down adjustment. (Refer to "6-1 Specifications- ID Rich Down".)
4. Turn the throttle valve adjust screw in either direction and set the ID speed. (Refer to "6-1 Specifications- Set ID Engine Speed".)
5. Check that rotational speed accelerates normally between idling state and full throttle within the regulated number of revolutions. (Refer to "6-1 Specifications- Standard Engine Speed".)

Rich Down:

Adjust the idle needle to a slightly richer mixture in order to maintain a stable idling speed and get a good acceleration.





【USA/ HBZ2601 only】

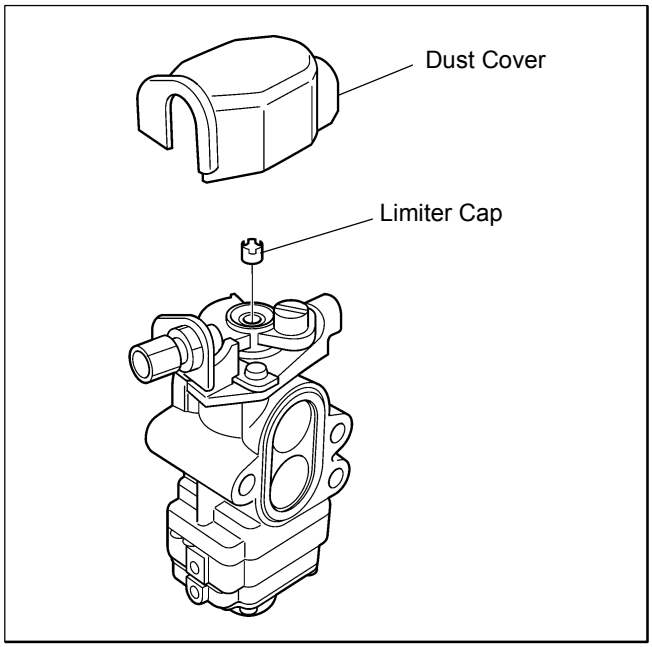
After the above adjustment is completed, adjust the H-needle.

1. Turn the H-needle clockwise so that the speed reaches its peak (7300 to 7800 rpm).
2. When the speed reaches its peak, turn the H-needle counterclockwise until the speed falls 50 to 100 rpm. (Set H Engine Speed: 7300 rpm)

REFERENCE

The HBZ2601 rich down procedure might not optimize the L-needle and H-needle relationship at first try.
If so repeat this procedure twice.

Confirmation after adjustment



- After adjustment is completed, be sure to install the new limiter cap.
  (Refer to "6-4 Limiter Cap Removal/ Installation".)
- Be sure to reattach the dust cover.

CAUTION

If the engine is run while the throttle valve's dust cover is removed, dust or alien matter may adhere to the throttle valve's rear contoured or the plunger contacting surfaces.
If they become worn, the L-needle will fall causing engine start failure.

7. Maintenance Standards

7-1 Engine

Maintenance Item			Unit	Specifications																		Measuring Instrument	Service Procedure
Category			—	Handheld Blower				Backpack Blower															
Model	Engine Type		—	G23L		GZ25N		GZ30N		G4K		GZ48N		GZ51N		G62L		GZ65N		GZ72N			
	Blower Model		—	HB2302 HB2311EZ		HBZ2601		EBZ3000/ 3000RH EBZ3050RH		EB4300		EBZ4800		EBZ5100/ 5100RH/ 5100Q EBZ5150/ 5150RH/ 5150Q		EB6200 EB7000 EB7001		EBZ7100/ 7100RH EBZ7150/ 7150RH		EBZ8001/ 8001RH EBZ8050/ 8050RH			
				Standard	Limit	Standard	Limit	Standard	Limit	Standard	Limit	Standard	Limit	Standard	Limit	Standard	Limit	Standard	Limit	Standard	Limit		
Cylinder	Bore		mm (in.)	ϕ32.00 (1.2598)	ϕ32.06 (1.2622)	ϕ34.00 (1.3386)	ϕ34.06 (1.3409)	ϕ38.00 (1.4961)	ϕ38.06 (1.4984)	ϕ40.00 (1.5748)	ϕ40.06 (1.5772)	ϕ43.00 (1.6929)	ϕ43.06 (1.6953)	ϕ44.00 (1.7323)	ϕ44.06 (1.7346)	ϕ47.50 (1.8701)	ϕ47.56 (1.8724)	ϕ47.53 (1.8713)	ϕ47.59 (1.8736)	ϕ50.03 (1.9697)	ϕ50.09 (1.9720)	Cylinder Gauge	Replacement (Plating Damaged Replacement)
Piston	Piston Diameter (Skirt)		mm (in.)	ϕ31.945 (1.2577) ~ ϕ31.960 (1.2583)	ϕ31.86 (1.2543)	ϕ33.960 (1.3370) ~ ϕ33.975 (1.3376)	ϕ33.86 (1.3331)	ϕ37.950 (1.4941) ~ ϕ37.970 (1.4949)	ϕ37.86 (1.4906)	ϕ39.960 (1.5732) ~ ϕ39.975 (1.5738)	ϕ39.87 (1.5697)	ϕ42.955 (1.6911) ~ ϕ42.970 (1.6917)	ϕ42.87 (1.6878)	ϕ43.965 (1.7309) ~ ϕ43.985 (1.7317)	ϕ43.88 (1.7276)	ϕ47.455 (1.8683) ~ ϕ47.470 (1.8689)	ϕ47.37 (1.8650)	ϕ47.458 (1.8684) ~ ϕ47.478 (1.8692)	ϕ47.37 (1.8650)	ϕ49.958 (1.9669) ~ ϕ49.978 (1.9676)	ϕ49.87 (1.9634)	Micrometer	Replacement
	Piston Ring Groove Width	Top	mm (in.)	1.51 (0.0594)	1.60 (0.0630)	1.03 (0.0406)	1.30 (0.0512)	1.23 (0.0484)	1.30 (0.0512)	1.57 (0.0618)	1.60 (0.0630)	1.25 (0.0492)	1.30 (0.0512)	1.25 (0.0492)	1.30 (0.0512)	1.55 (0.0610)	1.60 (0.0630)	1.25 (0.0492)	1.30 (0.0512)	1.25 (0.0492)	1.30 (0.0512)	Thickness Gauge	Replacement
		2nd	mm (in.)	1.51 (0.0594)	1.60 (0.0630)	1.01 (0.0398)	1.30 (0.0512)	1.21 (0.0476)	1.30 (0.0512)	1.57 (0.0618)	1.60 (0.0630)	1.22 (0.0480)	1.30 (0.0512)	1.22 (0.0480)	1.30 (0.0512)	1.53 (0.0602)	1.60 (0.0630)	1.23 (0.0484)	1.30 (0.0512)	1.23 (0.0484)	1.30 (0.0512)		
	Piston Pin Hole		mm (in.)	ϕ7.990 (0.3146)	ϕ8.04 (0.3165)	ϕ7.995 (0.3148)	ϕ8.04 (0.3165)	ϕ8.995 (0.3541)	ϕ9.04 (0.3559)	ϕ10.995 (0.4329)	ϕ11.04 (0.4346)	ϕ10.995 (0.4329)	ϕ11.04 (0.4346)	ϕ10.995 (0.4329)	ϕ11.04 (0.4346)	ϕ10.995 (0.4329)	ϕ11.04 (0.4346)	ϕ11.995 (0.4722)	ϕ12.05 (0.4744)	ϕ11.995 (0.4722)	ϕ12.05 (0.4744)	Cylinder Gauge	Replacement
	Clearance Between Piston and Cylinder		mm (in.)	0.040 (0.0016) ~0.080 (0.0031)	0.20 (0.0079)	0.025 (0.0010) ~0.065 (0.0026)	0.20 (0.0079)	0.030 (0.0012) ~0.075 (0.0030)	0.20 (0.0079)	0.025 (0.0010) ~0.065 (0.0026)	0.19 (0.0074)	0.030 (0.0012) ~0.070 (0.0028)	0.19 (0.0075)	0.015 (0.0006) ~0.060 (0.0024)	0.18 (0.0071)	0.030 (0.0012) ~0.065 (0.0026)	0.19 (0.0075)	0.052 (0.0020) ~0.092 (0.0036)	0.22 (0.0087)	0.052 (0.0020) ~0.092 (0.0036)	0.22 (0.0087)	Micrometer, Cylinder Gauge	Piston Replacement
	Clearance Between Piston Groove and Piston Ring	Top	mm (in.)	0.02 (0.0008) ~0.06 (0.0024)	0.10 (0.0039)	0.04 (0.0016) ~0.08 (0.0031)	0.10 (0.0039)	0.04 (0.0016) ~0.08 (0.0031)	0.10 (0.0039)	0.08 (0.0031) ~0.12 (0.0047)	0.15 (0.0059)	0.06 (0.0024) ~0.10 (0.0039)	0.15 (0.0059)	0.06 (0.0024) ~0.10 (0.0039)	0.15 (0.0059)	0.06 (0.0024) ~0.10 (0.0039)	0.15 (0.0059)	0.06 (0.0024) ~0.10 (0.0039)	0.15 (0.0059)	0.06 (0.0024) ~0.10 (0.0039)	0.15 (0.0059)	Thickness Gauge	Replacement
		2nd	mm (in.)	0.02 (0.0008) ~0.06 (0.0024)	0.10 (0.0039)	0.02 (0.0008) ~0.06 (0.0024)	0.10 (0.0039)	0.02 (0.0008) ~0.06 (0.0024)	0.10 (0.0039)	0.08 (0.0031) ~0.12 (0.0047)	0.15 (0.0059)	0.03 (0.0012) ~0.07 (0.0028)	0.15 (0.0059)	0.03 (0.0012) ~0.07 (0.0028)	0.15 (0.0059)	0.04 (0.0016) ~0.08 (0.0031)	0.15 (0.0059)	0.04 (0.0016) ~0.08 (0.0031)	0.15 (0.0059)	0.04 (0.0016) ~0.08 (0.0031)	0.15 (0.0059)		
	Fitting Between Piston Pin and Piston Pin Hole		mm (in.)	0.010T (0.00039T) ~0.006L (0.00024L)	0.06L (0.00024L)	0.005T (0.00020T) ~0.011L (0.00043L)	0.06L (0.00024L)	0.005T (0.00020T) ~0.011L (0.00043L)	0.06L (0.00024L)	0.005T (0.00020T) ~0.011L (0.00043L)	0.06L (0.00024L)	0.005L (0.00020T) ~0.021L (0.00083L)	0.06L (0.00024L)	0.005L (0.00020T) ~0.021L (0.00083L)	0.06L (0.00024L)	0.005L (0.00020T) ~0.021L (0.00083L)	0.06L (0.00024L)	0.005L (0.00020T) ~0.021L (0.00083L)	0.07L (0.0028L)	0.005L (0.00020T) ~0.021L (0.00083L)	0.07L (0.0028L)	Micrometer, Cylinder Gauge	Replacement
Piston Ring	End Gap at Cylinder Skirt		mm (in.)	0.10 (0.0039) ~0.30 (0.0118)	0.50 (0.0197)	0.10 (0.0039) ~0.30 (0.0118)	0.50 (0.0197)	0.10 (0.0039) ~0.30 (0.0118)	0.50 (0.0197)	0.10 (0.0039) ~0.30 (0.0118)	0.50 (0.0197)	0.10 (0.0039) ~0.30 (0.0118)	0.50 (0.0197)	0.10 (0.0039) ~0.30 (0.0118)	0.50 (0.0197)	0.15 (0.0059) ~0.35 (0.0138)	0.6 (0.0236)	0.15 (0.0059) ~0.35 (0.0138)	0.6 (0.0236)	0.15 (0.0059) ~0.35 (0.0138)	0.6 (0.0236)	Thickness Gauge	Replacement
	Width		mm (in.)	1.5 (0.0591)	1.4 (0.0551)	1.0 (0.0394)	0.9 (0.0354)	1.2 (0.0472)	1.1 (0.0433)	1.5 (0.0591)	1.4 (0.0551)	1.2 (0.0472)	1.1 (0.0433)	1.2 (0.0472)	1.1 (0.0433)	1.5 (0.0591)	1.4 (0.0551)	1.2 (0.0472)	1.1 (0.0433)	1.2 (0.0472)	1.1 (0.0433)	Micrometer	Replacement
Piston Pin Diameter			mm (in.)	ϕ8.00 (0.3150)	ϕ7.98 (0.3142)	ϕ8.00 (0.3150)	ϕ7.98 (0.3142)	ϕ9.00 (0.3543)	ϕ8.98 (0.3535)	ϕ11.00 (0.4331)	ϕ10.98 (0.4323)	ϕ11.00 (0.4331)	ϕ10.98 (0.4323)	ϕ11.00 (0.4331)	ϕ10.98 (0.4323)	ϕ11.00 (0.4331)	ϕ10.98 (0.4323)	ϕ12.00 (0.4724)	ϕ11.98 (0.4717)	ϕ12.00 (0.4724)	ϕ11.98 (0.4717)	Micrometer	Replacement
Connecting Rod	Small End Bore		mm (in.)	ϕ11.00 (0.4331)	ϕ11.03 (0.4343)	ϕ11.00 (0.4331)	ϕ11.03 (0.4343)	ϕ12.00 (0.4724)	ϕ12.03 (0.4736)	ϕ15.00 (0.5906)	ϕ15.03 (0.5917)	ϕ15.00 (0.5906)	ϕ15.03 (0.5917)	ϕ15.00 (0.5906)	ϕ15.03 (0.5917)	ϕ15.00 (0.5906)	ϕ15.03 (0.5917)	ϕ16.00 (0.6299)	ϕ16.03 (0.6311)	ϕ16.00 (0.6299)	ϕ16.03 (0.6311)	Cylinder Gauge	Replacement
	Parallelism of Large/ Small End Bores			–	0.15/ 100	–	0.15/ 100	–	0.15/ 100	–	0.15/ 100	–	0.15/ 100	–	0.15/ 100	–	0.15/ 100	–	0.15/ 100	–	0.15/ 100	Mandrel Dial Gauge	Replacement
Crankshaft (Starter Side)	Diameter at Main Bearing		mm (in.)	ϕ12.00 (0.4724)	ϕ11.97 (0.4713)	ϕ12.00 (0.4724)	ϕ11.97 (0.4713)	ϕ12.00 (0.4724)	ϕ11.97 (0.4713)	ϕ15.00 (0.5906)	ϕ14.95 (0.5886)	ϕ15.00 (0.5906)	ϕ14.95 (0.5886)	ϕ15.00 (0.5906)	ϕ14.95 (0.5886)	ϕ15.00 (0.5906)	ϕ14.95 (0.5886)	ϕ16.00 (0.6299)	ϕ15.95 (0.6280)	ϕ16.00 (0.6299)	ϕ15.95 (0.6280)	Micrometer	Replacement
	Diameter at Oil Seal		mm (in.)	ϕ12.00 (0.4724)	ϕ11.90 (0.4685)	ϕ12.00 (0.4724)	ϕ11.90 (0.4685)	ϕ12.00 (0.4724)	ϕ11.90 (0.4685)	ϕ15.00 (0.5906)	ϕ14.90 (0.5866)	ϕ15.00 (0.5906)	ϕ14.90 (0.5866)	ϕ15.00 (0.5906)	ϕ14.90 (0.5866)	ϕ15.00 (0.5906)	ϕ14.90 (0.5866)	ϕ16.00 (0.6299)	ϕ15.90 (0.6260)	ϕ16.00 (0.6299)	ϕ15.90 (0.6260)	Micrometer	Replacement
Crankshaft (Fan Side)	Diameter at Main Bearing		mm (in.)	ϕ12.00 (0.4724)	ϕ11.97 (0.4713)	ϕ12.00 (0.4724)	ϕ11.97 (0.4713)	ϕ12.00 (0.4724)	ϕ11.97 (0.4713)	ϕ15.00 (0.5906)	ϕ14.95 (0.5886)	ϕ15.00 (0.5906)	ϕ14.95 (0.5886)	ϕ15.00 (0.5906)	ϕ14.95 (0.5886)	ϕ15.00 (0.5906)	ϕ14.95 (0.5886)	ϕ16.00 (0.6299)	ϕ15.95 (0.6280)	ϕ16.00 (0.6299)	ϕ15.95 (0.6280)	Micrometer	Replacement
	Diameter at Oil Seal		mm (in.)	ϕ12.00 (0.4724)	ϕ11.90 (0.4685)	ϕ12.00 (0.4724)	ϕ11.90 (0.4685)	ϕ12.00 (0.4724)	ϕ11.90 (0.4685)	ϕ15.00 (0.5906)	ϕ14.90 (0.5866)	ϕ15.00 (0.5906)	ϕ14.90 (0.5866)	ϕ15.00 (0.5906)	ϕ14.90 (0.5866)	ϕ15.00 (0.5906)	ϕ14.90 (0.5866)	ϕ16.00 (0.6299)	ϕ15.90 (0.6260)	ϕ16.00 (0.6299)	ϕ15.90 (0.6260)	Micrometer	Replacement
Crankshaft Complete	Eccentricity		mm (in.)	–	0.07 (0.0028)	–	0.07 (0.0028)	–	0.07 (0.0028)	–	0.07 (0.0028)	–	0.07 (0.0028)	–	0.07 (0.0028)	–	0.07 (0.0028)	–	0.07 (0.0028)	–	0.07 (0.0028)	Dial Gauge, Center Support	Repair or Replacement
	Width Between Crank Webs		mm (in.)	22.0 (0.8661)	21.9 (0.8622) ~22.1 (0.8701)	22.0 (0.8661)	21.9 (0.8622) ~22.1 (0.8701)	24.0 (0.9449)	23.9 (0.9409) ~24.1 (0.9488)	29.0 (1.1417)	28.9 (1.1378) ~29.1 (1.1457)	29.0 (1.1417)	28.9 (1.1378) ~29.1 (1.1457)	29.0 (1.1417)	28.9 (1.1378) ~29.1 (1.1457)	29.0 (1.1417)	28.9 (1.1378) ~29.1 (1.1457)	29.0 (1.1417)	28.9 (1.1378) ~29.1 (1.1457)	29.0 (1.1417)	28.9 (1.1378) ~29.1 (1.1457)	Micrometer	Repair or Replacement
	Axial Play		mm (in.)	–	0.5 (0.0197)	–	0.5 (0.0197)	–	0.5 (0.0197)	–	0.5 (0.0197)	–	0.5 (0.0197)	–	0.5 (0.0197)	–	0.5 (0.0197)	–	0.5 (0.0197)	–	0.5 (0.0197)	Thickness Gauge	Repair (Shim)
Main Bearing (Ball Bearing)			—	–	Flutter, irregular noise generated	–	Flutter, irregular noise generated	–	Flutter, irregular noise generated	–	Flutter, irregular noise generated	–	Flutter, irregular noise generated	–	Flutter, irregular noise generated	–	Flutter, irregular noise generated	–	Flutter, irregular noise generated	–	Flutter, irregular noise generated	–	Replacement

7. Maintenance Standards

7-2 Tightening Torques

Tightening Item			Unit	Specifications								
Category			—	Handheld Blower		Backpack Blower						
Model	Engine Type		—	G23L	GZ25N	GZ30N	G4K	GZ48N	GZ51N	G62L	GZ65N	GZ72N
	Blower Model		—	HB2302 HB2311EZ	HBZ2601	EBZ3000/ 3000RH EBZ3050RH	EB4300	EBZ4800	EBZ5100/ 5100RH/ 5100Q EBZ5150/ 5150RH/ 5150Q	EB6200 EB7000 EB7001	EBZ7100/ 7100RH EBZ7150/ 7150RH	EBZ8001/ 8001RH EBZ8050/ 8050RH
Engine	Spark Plug	Thread size	mm	M14x1.25	M10x1.0	←	M14x1.25	M10x1.0	←	M14x1.25	M10x1.0	←
		Torque	kgf·cm (N·m)	150～220 (14.7～21.6)	100～140 (9.8～13.7)	←	150～220 (14.7～21.6)	90～130 (8.8～12.7)	←	150～220 (14.7～21.6)	90～130 (8.8～12.7)	←
	Muffler	Thread size	mm	M5x0.8	←	←	M6x1.0	←	←	←	←	←
		Torque	kgf·cm (N·m)	70～100 (6.9～9.8)	70～110 (6.9～10.8)	←	80～120 (7.8～11.8)	←	←	←	←	←
	Cylinder	Thread size	mm	M5x0.8	←	←	←	←	←	←	←	←
		Torque	kgf·cm (N·m)	60～80 (5.9～7.8)	60～90 (5.9～8.8)	60～80 (5.9～7.8)	50～80 (4.9～7.8)	60～90 (5.9～8.8)	←	50～80 (4.9～7.8)	60～90 (5.9～8.8)	←
	Crank Case	Thread size	mm	M5x0.8	←	←	←	←	←	←	←	←
		Torque	kgf·cm (N·m)	35～45 (3.4～4.4)	50～80 (4.9～7.8)	←	←	←	←	←	←	←
	Insulator	Thread size	mm	M5x0.8	←	←	←	←	←	←	←	←
		Torque	kgf·cm (N·m)	30～40 (2.9～3.9)	30～50 (2.9～4.9)	50～70 (4.9～6.9)	50～80 (4.9～7.8)	30～50 (2.9～4.9)	40～60 (3.9～5.9)	50～80 (4.9～7.8)	40～60 (3.9～5.9)	←
	Air Cleaner and Carburetor	Thread size	mm	M5x0.8	←	←	←	←	←	←		
		Torque	kgf·cm (N·m)	30～40 (2.9～3.9)	30～60 (2.9～5.9)	←	30～45 (2.9～4.4)	←	←	30～45 (2.9～4.4)		
	Chalk Cup and Carburetor (Large Air Cleaner)	Thread size	mm							M5xL50	M5xL60	←
		Torque	kgf·cm (N·m)							30～45 (2.9～4.4)	←	←
	Recoil Starter	Thread size	mm	M4x0.7	M5x0.8	←	←	←	←	←	←	←
		Torque	kgf·cm (N·m)	15～20 (1.5～2.0)	30～60 (2.9～5.9)	←	30～45 (2.9～4.4)	←	←	30～45 (2.9～4.4)	←	←
	Starter Pulley	Thread size	mm	M8x1.0	M8x1.25	←	M10x1.0	←	←	←	M10x1.25	←
		Torque	kgf·cm (N·m)	120～180 (11.8～17.6)	70～110 (6.9～10.8)	←	180～230 (17.6～22.5)	←	←	←	←	←
	Rotor	Thread size	mm	M8x1.0	←	←	M10x1.0	←	←	←	←	←
		Torque	kgf·cm (N·m)	100～150 (9.8～14.7)	←	←	200～300 (19.6～29.4)	←	←	←	250～350 (24.5～34.3)	←
	Coil	Thread size	mm	M4x0.7	←	←	←	←	←	←	←	←
		Torque	kgf·cm (N·m)	25～40 (2.5～3.9)	25～50 (2.5～4.9)	25～40 (2.5～3.9)	←	←	←	←	←	←
Engine Mount		Thread size	mm	M5x0.8	←	←	M6x1.0	←	←	←	←	←
		Torque	kgf·cm (N·m)	30～40 (2.9～3.9)	←	40～60 (3.9～5.9)	60～80 (5.9～7.8)	←	←	←	←	←
Volute Case, Volute Cover, Engine Cover		Thread size	mm	P5	←	←	←	←	←	←	←	←
		Torque	kgf·cm (N·m)	20～25 (2.0～2.5)	←	30～40 (2.9～3.9)	20～30 (2.0～2.9)	25～30 (2.5～2.9)	45～55 (4.4～5.4)	25～35 (2.5～3.4)	30～40 (2.9～3.9)	←
Fan		Thread size	mm	M8x1.0	←	M6x1.0	←	←	←	←	←	←
		Torque	kgf·cm (N·m)	100～150 (9.8～14.7)	←	80～120 (7.8～11.8)	←	←	←	←	←	←
Large Air Cleaner		Thread size	mm							M5x0.8	←	←
		Torque	kgf·cm (N·m)							25～35 (2.5～3.4)	←	←
Common Tightening Torque		Thread size	mm	M4x0.7	←	←	←	←	←	←	←	←
		Torque	kgf·cm (N·m)	10～15 (1.0～1.5)	←	←	←	←	←	←	←	←
		Thread size	mm	M5x0.8	←	←	←	←	←	←	←	←
		Torque	kgf·cm (N·m)	20～35 (2.0～3.4)	←	←	←	←	←	←	←	←
		Thread size	mm	M6x1.0	←	←	←	←	←	←	←	←
		Torque	kgf·cm (N·m)	40～60 (3.9～5.9)	←	←	←	←	←	←	←	←

8. Troubleshooting

8-1 Engine does not start

Remove the spark plug from the cylinder. Put the spark plug on the outside of the cylinder.
Pull the recoil starter knob, and check whether sparks arise in the spark gap or not.

Trouble	Probable Cause	Countermeasure
No spark in the spark plug.		
Spark plug	1. Wet spark plug electrodes	Make them dry.
	2. Carbon deposited on the electrodes	Clean.
	3. Insulation failure by insulator damage	Replace.
	4. Improper spark gap	Adjust to 0.6～0.7 mm (0.023～0.028 in.).
	5. Burn out of electrodes	Replace.
Magneto	1. Ignition coil inside failure	Replace.
	2. Damaged cable sheath	Replace or repair.
Switch	1. Switch is OFF	ON the switch.
	2. Switch is failure	Replace.
	3. Primary wiring ground	Repair.
Sparks appear in the spark plug.		
Compression and fueling is normal	1. Over sucking of fuel	Drain excess fuel.
	2. Too rich fuel	Adjust carburetor.
	3. Overflow	Adjust or replace carburetor.
	4. Clogging air cleaner	Wash with mixed gasoline.
	5. Incorrect fuel	Change with proper fuel.
Fueling normal but poor compression	1. Worn out cylinder, piston, or piston ring	Replace.
	2. Gas leakage from cylinder and crank case gasket	Apply liquid gasket and reassemble.
No fuel supply	1. Choked breather air hole	Clean.
	2. Clogged carburetor	Clean.
	3. Clogged fuel filter	Replace fuel filter.

8-2 Engine stop during operation

Trouble	Probable Cause	Countermeasure
Suddenly stopped.	1. Switch is OFF	ON the switch.
	2. Plug cap disconnect	Connect properly.
	3. Short circuit by carbon deposited on the plug electrodes	Clean.
	4. Switch cord or high tension cord sheath worn out	Replace.
	5. Ignition coil inside failure	Replace.
	6. Engine seizure	Overhaul and replace damaged parts.
Gradual speed reduction and stopped.	1. Lack of fuel	Refill.
	2. Clogged carburetor	Clean.
	3. Water mixed to fuel	Drain and apply new fuel.

8-3 Engine cannot be stopped

Trouble	Probable Cause	Countermeasure
Overheating	1. Lean fuel	Adjust carburetor.
	2. Cylinder fin clogged with dusts	Clean.
	3. Improper fuel	Change with proper fuel.
	4. Carbon deposited inside of combustion chamber	Clean.
	5. Spark plug electrode red hot	Clean thoroughly and adjust spark gap to 0.6～0.7mm (0.023～0.028in.).
Switch	1. Faulty switch	Replace.
	2. Cord failure	Repair.

8. Troubleshooting

8-4 Lack of output power or unstable revolution

Trouble	Probable Cause	Countermeasure
Compression is normal and no misfire.	1. Air is entering at fuel pipe joints, etc	Secure connections.
	2. Air is entering at intake tube joint or carburetor joint	Replace gasket or tighten screws.
	3. Water in fuel	Replace with clean fuel.
	4. Piston is starting to seize	Filing of seized surface with fine files.
	5. Muffler choked with carbon	Clean.
Overheating	1. Fuel too lean	Adjust carburetor.
	2. Clogging of cylinder fins with dust	Clean.
	3. Poor fuel quality	Replace with clean fuel.
	4. Carbon deposited in the combustion chamber	Clean.
	5.Spark plug electrode red hot	Clean thoroughly and adjust spark gap to 0.6～0.7 mm (0.023～0.028 in.).
Others	1. Dirty air cleaner	Wash with mixed gasoline.
	2. Over loading	Reduce load.

8-5 The amount of the wind is weak

Trouble	Probable Cause	Countermeasure
Good compression but cannot reach the required revolutions at full throttle	1. The air cleaner element is clogged.	Clean the element.
	2. Carbon adheres to the spark arrester.	Clean the spark arrestor.
	3. Carburetor is damaged.	Maintenance or replace.

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