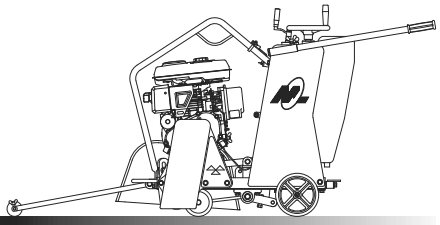
Mikasa

CONCRETE CUTTER

MCD-214V
MCD-218VDX
MCD-218CEH



INSTRUCTION MANUAL

en

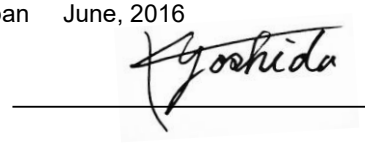
Contents of "Declaration of Conformity"
Please refer the EC DECLARATION OF CONFORMITY in this manual as well.

http://www.mikasas.com

602-00913

Mikasa

1) DECLARATION OF CONFORMITY

2) Manufacturer's name and address.			Mikasa Sangyo Co., Ltd. 4-3, Sarugaku-cho 1 chome, Chiyoda-ku, Tokyo101-0064, Japan			
3) Name and address of the person who keeps the technical documentation.			Takahiro Kishino, engineer R&D Division, Mikasa Sangyo Co., Ltd. Shiraoka-city, Saitama, Japan			
4) Type: Vibratory Rammers						
5) model	MCD-1UBLH	MCD-L14H	MCD-218CEH			
6) Equipment item number	654118	654179, 654180, 654181	654280, 654290, 654297, 654298, 654299, 654306, 654307			
7) Serial number	For serial number, please refer it on front page.					
8) power source cont. output <max.output>	Honda GX-200 3.7kW <4.1kW>	Honda GX-200 3.7kW <4.1kW>	Honda GX390UT 6.6kW <8.2kW>			
9) Measured sound power level(dB)	107	107	115			
10) Guaranteed sound power level(dB)	108	108	116			
11) Operator's sound pressure level(dB)	87	88	93			
12) Conformity assessment according to Annex:			VIII (Full Quality Assurance procedure)			
13) Name and address of the Notified Body			Société Nationale de Certification et d'Homologation (SNCH) 11, route de Luxembourg L-5230 Sandweiler LUXEMBOURG			
14) Related Directive			Directive **2000/14/EC** and, to be followed by Directive **2005/88/EC**, relating to the noise emission in the environment by equipment for use outdoors.			
15) Declaration			The equipment referred in this document, fulfills with all the requirements of Directive 2000/14/EC			
16) Other related Community Directives			**2006/42/EC, 2005/88/EC, 2004/108/EC, 2002/88/EC(2004/26/EC)** EN500-1, EN500-4			
17) EC Conformity Certificate No:			SNCH*2000/14*2005/88*0472*04			
18) Place and date of the declaration			Tokyo, Japan June, 2016 Signed by:  Keiichi YOSHIDA Director, R&D Division Mikasa Sangyo Co., Ltd.			

Hand-Arm Vibration Level

MODEL	Ahv (m/sec2)	Remarks
MCD-1UBLH	**8.2**	Vibration Level is in comply with EU Directive2002/44/EC and the value is shown as 3 axix min. vibration level. Test course (Crushed gravel) is in comply with EN500-4. The above values are subject to change in case that the machine is modified or/and the required regulations change.
MCD-L14H	**5.3**	
MCD-L14H SP Handle	**6.5**	
MCD-218CEH	**8.3**	

Italian

1. DICHIARAZIONE “CE” DI CONFORMITÁ
2. Nome e indirizzo Fabbricante
3. Nome e indirizzo della persona che conserva la documentazione tecnica
4. Tipo: **Piastre vibranti**
5. Modello
6. Codice macchina
7. Numeridi matricola
8. Potenza installata netta <resa massima>
9. Livello di potenza sonora misurato (dB)
10. Livello di potenza sonora garantito
11. Livello massimo di pressione sonora
12. Valutazione di conformità in accordo all'annesso VIII (procedura Garanzia di Qualità totale
13. Nome dell'organismo notificato
14. Rappresentante Autorizzato in Europa
15. Direttiva di riferimento
    Direttiva 2000/14/CE su l'emissione acustica ambientale delle macchine ed attrezzature destinate a funzionare all'aperto
16. Dichiarazione
    Le attrezzature riportate nel documento soddisfano i requisiti della Direttiva 2000/14/CE
17. Altre Direttive Comunitarie di riferimento
18. Certificato di Conformità CE No:
19. Luogo e data della dichiarazione

French

1. DECLARATION « CE » DE CONFORMITE
2. Non et adresse du Fabricant
3. Nom et adresse de la personne qui défient les documents techniques
4. Type du materiel: **Plaques vibrantes**
5. Modello
6. Numero equipement
7. Numéro de série
8. Puissance reseau <rendement maximal>
9. Niveau sonore mesure(dB)
10. Niveau sonore garanti(dB)
11. Niveau sonore maximum
12. Certification de conformite selon l'annexe VIII (procedura Garanzia di Qualità totale)
13. Nom et adresse de l'organisme notifié
14. Mandataire dans la Communaute Europeenne
15. Directive concernee
    Est egalement conforme aux dispositions de la directive <<emission sonores des equipements utilises a l'exterieur des batiments>> 2000/14/CE et aux legislations nationales la transposant.
16. Declaration
    L'équipement de référence satisfait aux exigences de la Directive 2000/14/EC
17. Autres directives communautaires concernees
18. Certificate deConformite CE numero:
19. Lieu et date de la declaratio

Spanish

1. DECLARACIÓN “CE” DE CONFORMIDAD
2. Nombre y dirección del fabricante
3. Nombre y dirección de la persona que guarda la documentación técnica.
4. Tipo: **Bandejas vibrantes**
5. Modelo
6. Número de referencia del equipo
7. Numeros de serie
8. Potencia neta instlada <rendimineto maximo>
9. Nivel sonoro medido del motor (dB)
10. Nivel sonoro garantizado del motor (dB)
11. Máximo nivel sonoro de presión (dB)
12. Evaluación de la Conformidad de acuerdo al Anexo VIII (Prcedimiento de total garantía asegurada)
13. Nombre y dirección de la Entidad Notificada
14. Representante autorizado
15. Directiva relacionada
    Directiva 2000/14/CE en relación a la emisión sonora en el ambiente por equipos que trabajan en espacios abiertos
16. Declaración
    El equipo referido en este documento , cumple con todos los requerimientos de la Directiva 2000/14/EC
17. Otras Directivas Comunitarias relacionadas
18. Certificado de Conformidad CE Nº
19. Lugar y fecha de la declaración

Table of contents

EC DECLARATION OF CONFORMITY

1. Preface

Thank you for purchasing Mikasa MCD-214V,218VDX,218CEH type CONCRETE CUTTER.

- This instruction manual describes the proper methods for using Mikasa CONCRETE CUTTER, as well as simple checks and maintenances. Be sure to read this instruction manual before operation, in order to get full use of the excellent performance of this machine, to improve your operation and to perform engineering work effectively.
- After reading this manual, store it in a handy location for easy reference.
- For details about the engine of this machine, see the separate instruction manual.
- For inquiries about parts repair, parts lists, service manuals, and repair of the machine, please contact the shop where you purchased, our sales office, or Mikasa Parts Service Center.
  In addition, parts lists are also available on the MIKASA website at:
  http://www.mikasas.com/english/

The illustrations and Figures in this manual may be different from the machine you actually purchased due to design changes and other reasons for improvement.

2. Machine Applications and Warning, Structure and Power Transfer

Application

Mikasa Concrete Cutter is used to cut the concrete or asphalt road surface by Diamond Blade that is attached on its Blade shaft. Please choose machine type by cutting depth, and then choose appropriate blade to match the spot situation, such as material age, presence or absence of reinforcement in the concrete.

Warning of a false use and misuse

Please use this machine to cut plain concrete, reinforced concrete and asphalt only.
Do not cut sediment, for that it flies into pieces and injuries man around the machine.
This cutter can be equipped with diamond blade only. Do not attach resinoid blade on this machine. Please pour water to blade at cutting except using dry-type blade, for that conglutination of the blade or Blade chip flies into pieces.
Do not use this machine in the state that you turned more than the number of turn in accord with the blade, for that conglutination of the blade or Blade chip flies into pieces.
Do not use this machine in instability, or in a rough ground, for that conglutination of the blade or Blade chip flies into pieces. Do not use this machine to cut a secondary product concrete.

Structure

Engine of Concrete Cutter is fixed on a main body base, and conveys power to Blade shaft with the V belt. The way of adjustment of V-belt tension is making Engine slide.
Belt cover, Handle guide, Handle for elevating the blade, and Blade cover which can be put on and off easily is attached on Engine Base. Cutting depth is adjusted by rotating Handle for elevating the blade through Blade Arm that is equipped with Front wheel The way to travel the machine is pushing the machine directly.

Power Transfer

Air-cooled petrol engine is amounted on Mikasa Concrete Cutter as power source.
V-pulley is attached on Engine shaft for driving Blade shaft, and Diamond Blade is attached on Blade shaft. The cutting depth can be adjusted to change the Front wheel position by Handle.
The way of driving the machine while cutting is pushing the handle.

3. Warning labels

The triangle shaped ⚠ marks used in this manual and on the decals stuck on the main body indicate common hazards. Be sure to read and observe the cautions described.

⚠ Warning labels indicating hazards to human and to equipment.

⚠ **DANGER:** Denotes an extreme hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, is likely to result in serious injury or death.

⚠ **WARNING:** Denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in serious injury or death.

⚠ **CAUTION:** Denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in injury to people and may damage or destroy the product.

Precautions (without a triangular mark): Failure to follow the instructions may result in damage of property.

4. Precautions for safety

4.1 General precautions WARNING

⚠ **WARNING:**

- **Do not work in the following conditions.**
  - ○ If you do not feel well due to overwork or illness.
  - ○ If you are taking any medicine.
  - ○ If you are under the influence of alcohol.

⚠ **CAUTION:**

- Read this instruction manual carefully and handle the machine as described so that you can work safely.
- For details about the engine, refer the separate instruction manual for the engine.
- Make sure you thoroughly understand the construction and operation of the machine.
- Please check each part before work, and execute the scheduled check and alignment regularly.
- To work safely, always wear protective clothing (helmet, safety glasses, safety shoes, ear plugs etc.) and appropriate work clothes.
- Please wear Hearing protector (noise protective equipment of ear muff or ear stoppers) by all means.
- Always check the machine to make sure that it is normal before starting operation.
- The decals on the machine body (operating methods, warning decals, etc.) are very important to ensure safety. Keep the machine body clean so that they can be read at all times. If any decal cannot be read, replace it with a new one.
- It is very dangerous if children come into contact with the machine. Take the utmost care how and where the machine is stored.
- Before performing any maintenance, be sure to turn the engine off.
- Mikasa does not accept any liability for accidents or problems caused as a result of not using genuine Mikasa parts or if the machine has been modified.

4.2 Precautions when adding fuel

⚠ **DANGER:**

- **When adding fuel.**
  - ○ Be sure to work in a well ventilated location.
  - ○ Be sure to turn the engine off and wait until it has cooled down.
  - ○ Take the machine to a clear flat location without any combustibles nearby. Be careful not to spill any fuel. If you do spill some gasoline, wipe it all up.
  - ○ Do not allow any open flames nearby while adding fuel. (In particular, smoking while adding fuel is strictly prohibited.)
- Adding fuel until it comes too close to the top of the inlet may cause the fuel to overflow. That is dangerous. Follow the instructions in the engine manual about the specified fuel level.
- When through adding fuel, tighten the tank cap securely.

4.3 Precautions where to use the machine

⚠ DANGER:

- Do not run the engine in an unventilated location, such as indoors or in a tunnel. The exhaust gas from the engine is carbon monoxide and is deadly.
- Do not operate the machine near open fires.

4.4 Precautions before operation

⚠ CAUTION:

- Check the clamping condition of each part. Cause the big failure that does not think that a screw loosens by vibration. Tighten the screw well.
- Confirm that the diamond blade does not have anomaly such as deficit of the blade chip or the crack of the board.
- If the machine were not run more than 3 months, be sure to start at low speed in a few minutes to warm up thoroughly,
  for the reason to avoid engine seizure by oil film shortage.

4.5 Precautions when working

⚠ CAUTION:

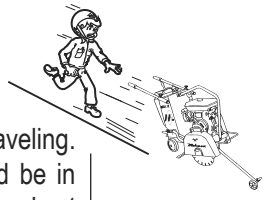
- When starting and working with the machine, confirm that neighboring people and obstruction are safe.
- Always pay attention to foothold and work in easy position that allow to keep your machine in good balance.
- Be careful not to touch muffler and engine body as it becomes hot in operation or just after operation.
- Discontinue operation promptly whenever your machine goes deficient or you notice any abnormality.
- Be sure not to make the cutter with blade stand-by for work.
  In the case to be without avoidance, be sure to run the engine at low speed possibly in a short time.
  (I*n case of running the engine at high speed at the above position for long time,it might occur the engine seizure by oil film shortage.)*
- Be sure to stop engine before leaving the machine. Also shutdown engine for transporting the machine, and close the fuel cock.
- Mount blade cover by all means, and use it.
- Because engine turns blade when start, be careful enough. Do not bring legs close especially.
- Be careful enough so that be not rolled up your hand or clothes in reel (inside of the belt cover).

⚠ DANGER:

Precautions in inclined area

When you use machine on inclined area, various risk is accompanied. Adhere rigidly to the following precautions to a minimum, and try for further safety retention. When you cannot get safety, never use it.

- Do not leave machine in the inclined area. There is danger to cause a serious accident when machine begins to move by any chance.
- In the inclined area, grasp a handle well, and never separate a hand from machine. Machine begins to move in tare weight at the moment when you separated a hand, and there is danger to cause a serious accident.

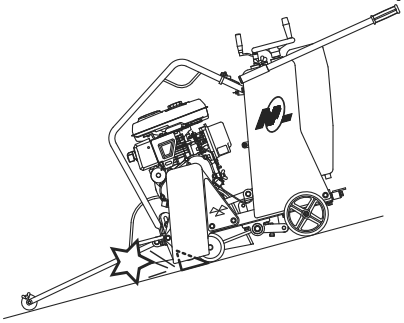


- In the inclined area, never take off the clutch for manual operation traveling. When took off a gear by any chance, the machine becomes free, and be in danger of running uncontrollably. Chew the traveling clutch by all means, and put resistance on machine.

4.5 Precautions when working

⚠ DANGER:

- Because there is the danger that machine runs uncontrollably when a grip falls out from the handle, warn you enough.
- When you work in inclined area, be located in the upper part of the slope for machine by all means, and let machine face straight it below for a slope, and work.
- Stop the machine at flat space. When you stop machine in inclined area out of necessity, lower straight machine after having stopped the engine by all means, do ring stopper to the front wheel for safe retention by all means. When be collided by an automobile and be shaken in right and left, even if you put on ring stopper down the front wheel, the machine climbs ring stopper and begins to move, and be careful this risk is very likely. Even if you put on ring stopper down the back wheel, there is not effect. In addition, **a parking brake of the rear wheel is not a thing to guarantee certain fixation of the machine.Use ring stopper for a front wheel on the occasion of a stop by all means.**



- When put ring stopper, never go in the front side of the machine. When machine has begun to move by any chance. There is the danger of serious injury or decease, by the physical truncation with blade and the conflict of machine.
- If hand touches the blade when put ring stopper, there is danger injured seriously. Put ring stopper from the non blade cover side of the machine by all means.
- In case of stop, when water is in the water tank, the center of gravity rises and the balance worsens . Even if you put ring stopper to the front wheel at the time, it is very dangerous that the front wheel climbs over ring stopper and begins to move. In this case pull water out of the water tank by all means.
- When a road surface gets wet in inclined area, ring stopper in itself slips depending on an angle, and effect is gone. Stop on the dry road surface by all means, when you stop it in inclined area out of necessity.
- Do not work on blade installation disassembly in inclined area, because it is dangerous.
- Do not work on to cross the slope. There is danger that tumble of the machine or the damage of the blade cause a serious accident.

4.6 Precautions in lifting

Loading and unloading by crane needs the lifting license. Be sure to work by crane licensing holder.

⚠ DANGER:

- Be sure to work with sling by crane license holder.
- Before work of lifting, check any damage of body parts (especially, Lifting hook, etc) or looseness / omission of screws, and be sure safe.
- Stop the engine at the time of the lifting, and close the fuel cock.
- Use enough strength of wire rope.
- The work of lifting uses only one-point lifting hook, and do not lift in other point (handles).
- Never put any person or animal under the lifted machine.
- For safety, do not lift up the machine more than required height.

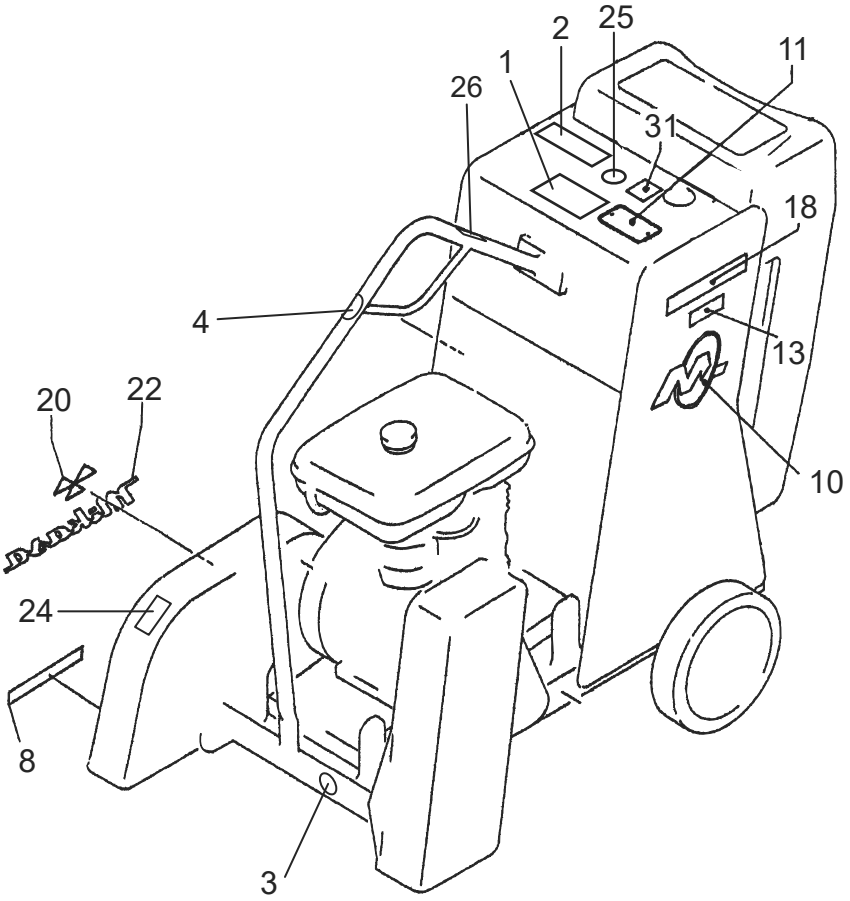
4.7 Precautions in transportation / safekeeping

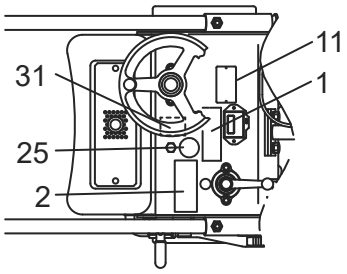
⚠ **WARNING:**	● Stop the engine at the time of transportation. ● Carry it after engine and body got cold well. ● By all means drain fuel before transporting the machine . ● Fix the machine well not to move and fall down.	

4.8 Precautions in maintenance

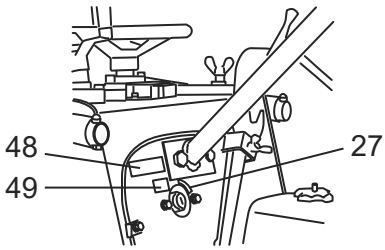
⚠ **CAUTION:**	● Appropriate maintenance is always required for safety operation and to maintain performance of the machine. Pay full attention in the condition of the machine, and maintain good condition. Especially improper maintenance of lifting-related part becomes cause of serious accident. ● Do work after lower temperature of machine. Especially muffler becomes high temperature, and there is danger that burn itself. In addition, be careful not to burn itself enough, because engine or engine oil become hot. ● Do the check alignment in situation that stopped engine by all means. There is badly injured danger when you are rolled up in a reel. After maintenance fulfillment, check the installation of safety protection parts and safety of the machine. Especially, check bolts and nuts thoroughly. When you do maintenance with dismantlement, refer to maintenance manual regularly, and work safely.	

4.9 Installed place of every Decal





With TP-22 TACHO/HOUR METER



With ENGINE STARTING SWITCH

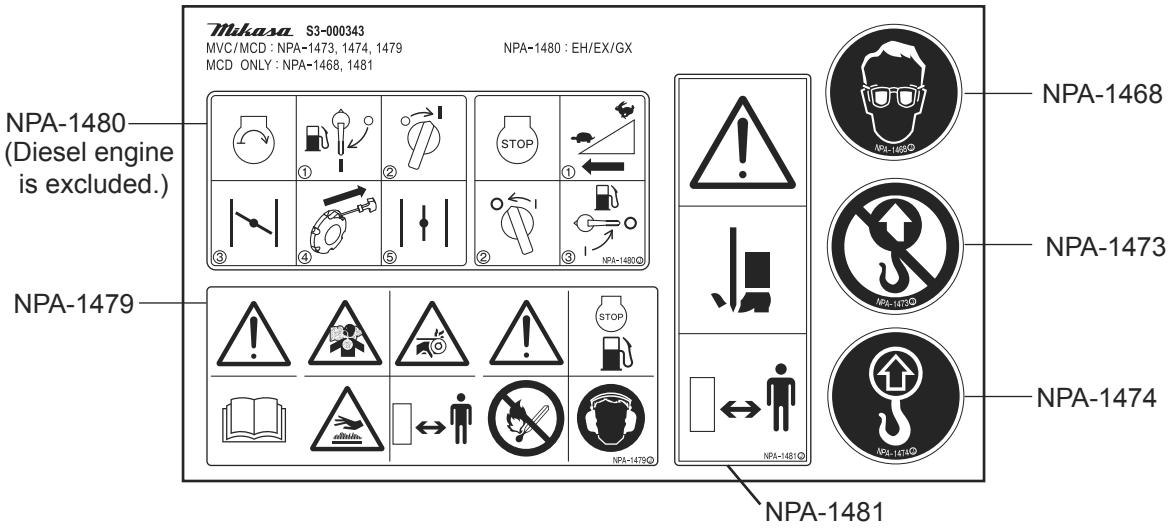
NO.	PART/NO.	Parts Name	0'TY	REMARKS
1	9202-14790	DEACL,CAUTION ICONS	1	
2	9202-14800	DECAL,ENGINE HANDLING /GS	1	
3	9202-14730	DECAL,DO NOT LIFTING	1	
4	9202-14740	DECAL,LIFTING POSITION	1	
8	9202-10120	DECAL,INDICATOR/MCD12-200	1	K1008-
10	9201-09690	DECAL, EMBLEM/ CUTTER	2	
11	————	PLATE, SERIAL NO.	1	
13	9201-08860	DECAL, MODEL LOGO. VDX	2	VDX
18	9201-08820	DECAL, MODEL LOGO. 214V	2	214V
18	9201-08840	DECAL, MODEL LOGO. 218V	2	218V
18	9201-13010	DECAL, MODEL LOGO. 218CEH	2	218CEH
20	9201-00920	DECAL, MIKASA MARK	2	214
20	9201-01410	DECAL, MIKASA MARK 120X60	2	218

NO.	PART/NO.	Parts Name	Q'TY	REMARKS
22	9201-01390	DECAL, MIKASA MARK 250MM	1	214
22	9201-01510	DECAL, MIKASA MARK 440MM	1	218
24	9202-14810	DEAL,CAUTION /FOR FOOT	1	
25	9202-14680	DECAL,USE EYE PROTECTION	1	
26	9202-11690	DECAL,LEVER OPERATION	1	
27	9201-08800	DECAL, KEY SWITCH	1	218CEH
31	9202-10670	DECAL, EC NOISE REQ. LWA109	1	218(EY40D)
31	9202-10700	DECAL, EC NOISE REQ. LWA116	1	218CEH
48	9202-14950	DECAL,REMOVE KEY	1	218CEH
49	9202-14960	DECAL, KEY OPERATION	1	218CEH

4-10. Descriptions of symbols used on warning labels

Decal for new European machine directives

PART/NO. 9209-00090 DECAL, SET /MVC, MCD /EXP,EU



① **① Fire hazard**
Stop the engine when refueling. Fire may occur if a flame is near the tank fuel port.

② **② Danger: poisonous exhaust gas**
Carbon monoxide poisoning may occur if the exhaust gas is inhaled. Do not operate the machine in a poorly ventilated area.

③ **③ Do not go under the lifted machine.**
Do not let people or animals go under the lifted machine.

④ **④ Lifting by the handle is prohibited.**
Due to a falling risk, do not lift the machine by the handle.

⑤ **⑤ Danger of hearing damage caused by noise**
Always use ear plugs while operating the machine.

⑥ **⑥ Be careful not to get burned.**
Accidental burn may occur if you touch the hot parts (engine, muffler, etc.) during operation or immediately after the machine stops.

⑦ **⑦ Be careful not to be caught in rotating parts.**
Make sure the engine is stopped when removing the belt cover during a belt change.

⑧ **⑧ Read the manual carefully.**
Always read the operation manual and have good understanding of operation before your work.

Label attached to the engine

P/N 073-20044-50 LABEL, CAUTION

① Read the owner's manual.

② Stay clear of the hot surface.

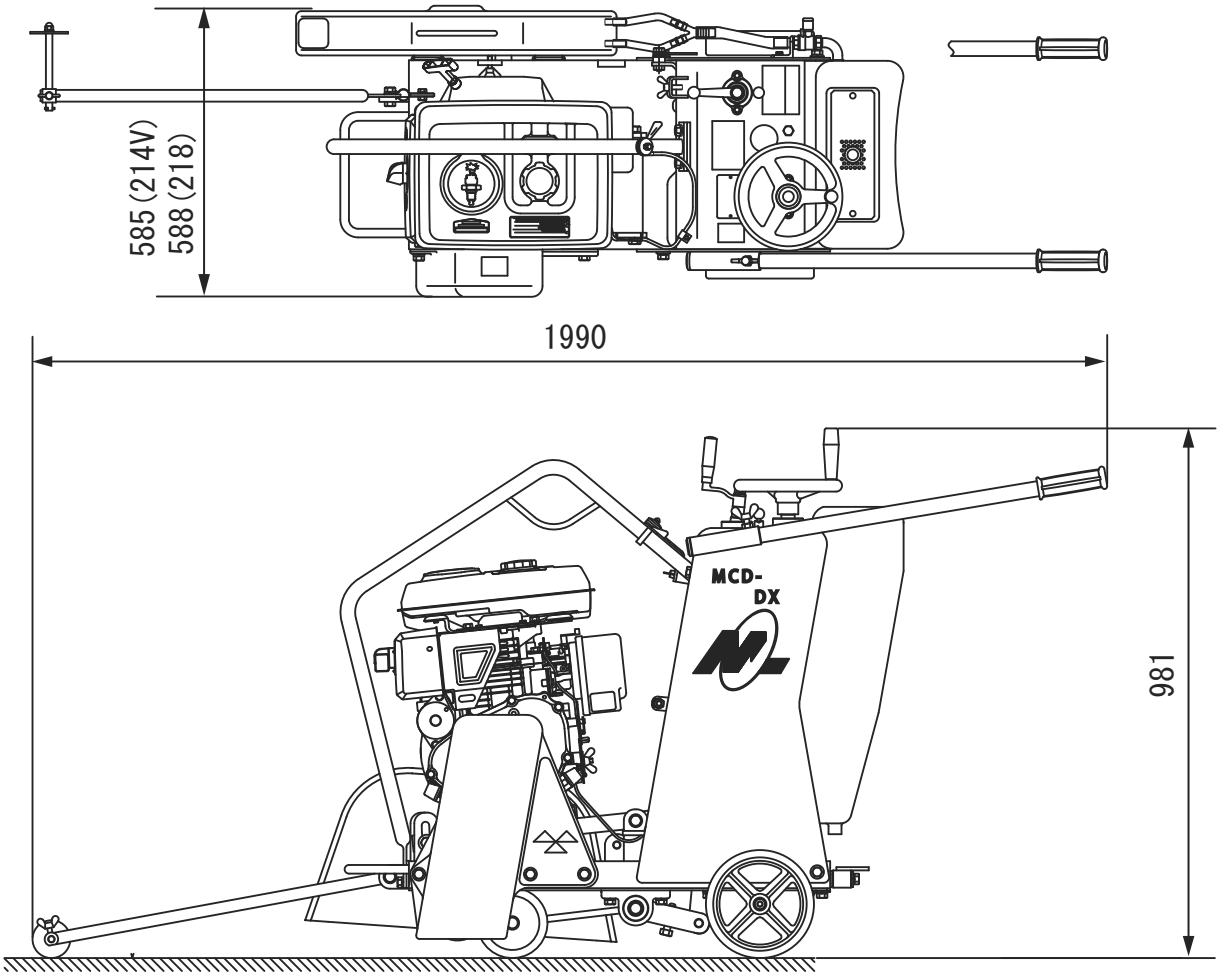
③ Exhaust gas is poisonous.
Do not operate in an unventilated area.

④ Stop the engine before refueling.

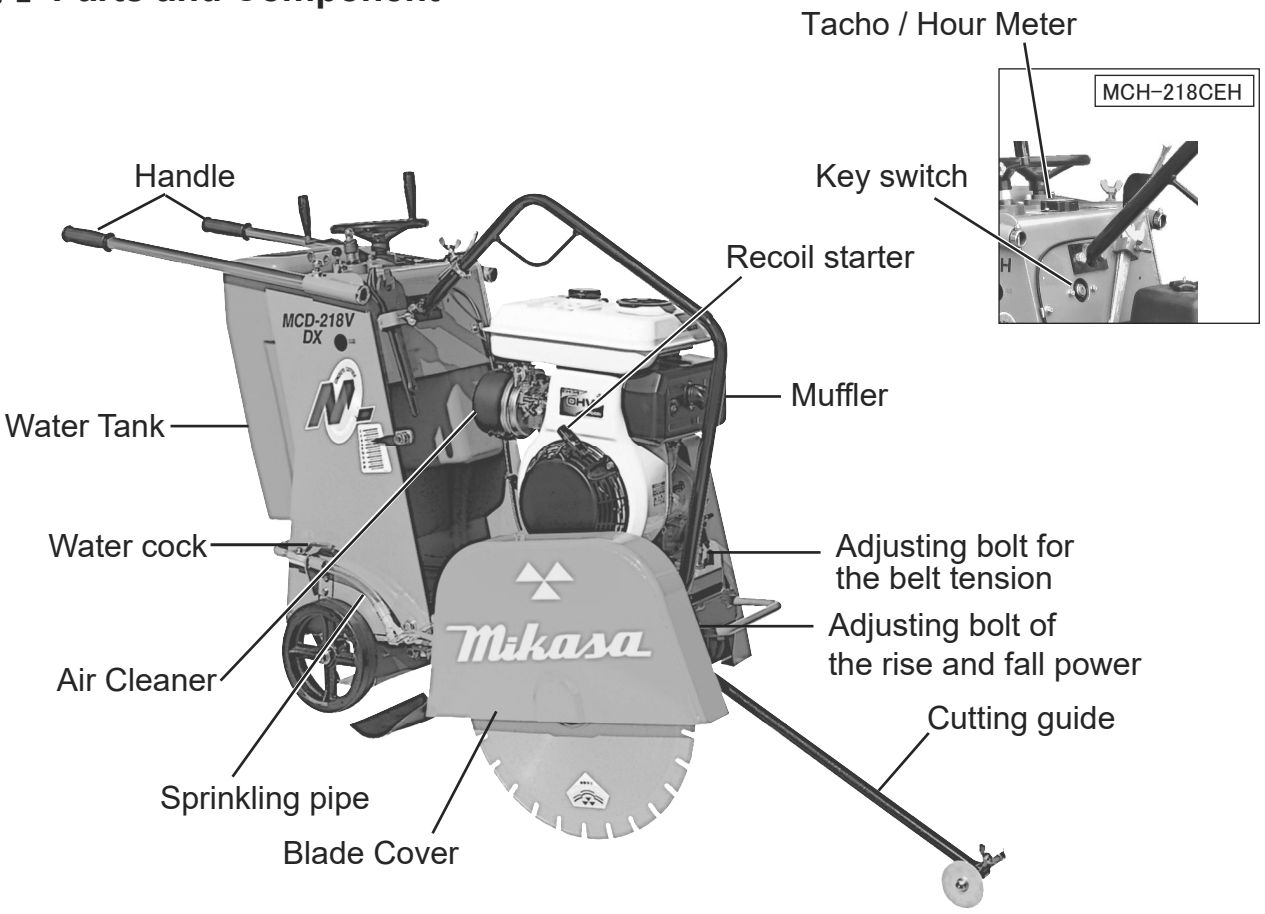
⑤ Fire, open flame and smoking prohibited.

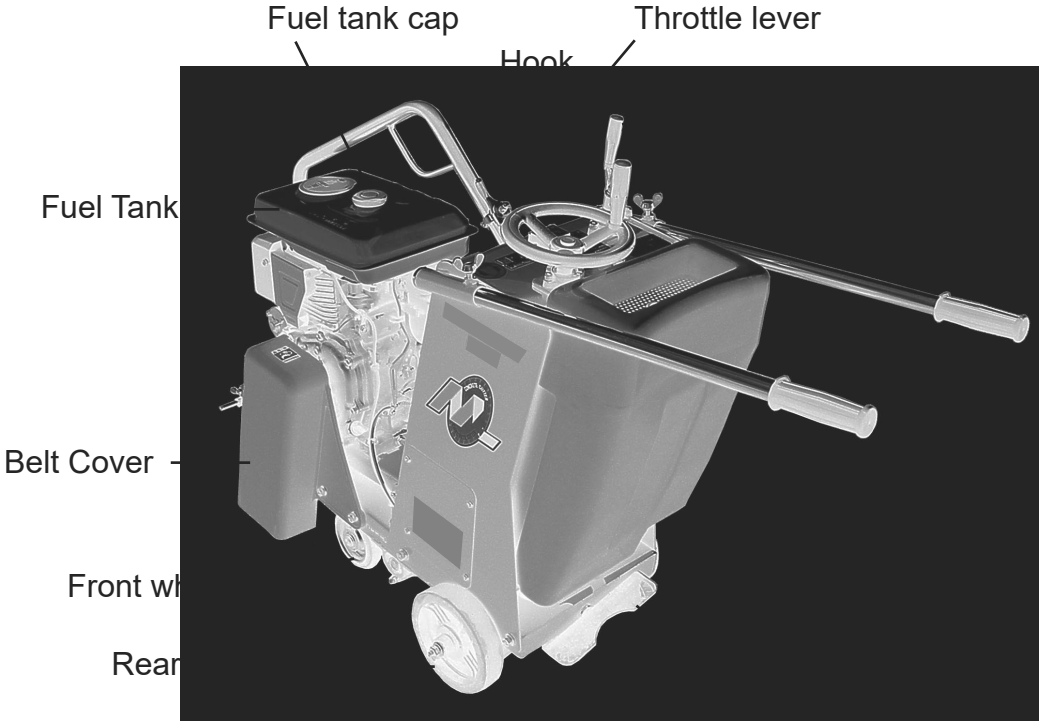
5. General view

5.1 Dimensions (mm)



5. 2 Parts and Component





6.Specifications

6.1 Main Body

M o d e l	MCD-214V	MCD-218VDX	MCD-218CEH
Power source (Engine model)	EH25-2D	EH34D	GX390
Dimensions			
Overall Length (on operating)	1990mm	←	←
Overall Width	585mm	588mm	←
Overall Height (in body horizontality)	981mm	←	←
Outfit mass (With Water half quantity)	149kg	169kg	184kg
Traveling system	Handle turning system	←	←
Adjusting for cutting depth	Manual lifting screw system	←	←
Cooling System of blade	Centrifugal injection type	←	←
Water tank capacity	45L	←	←
Blade size and maximum cutting depth (Axis hole dimension of blade ϕ 27)			
Blade size (Outer diameter) / Maximum cutting depth (10in.) 254mm / 70mm (12in.) 305mm / 95mm (14in.) 356mm / 120mm (16in.) 407mm / 145mm (18in.) 457mm / 170mm			
Limitation of Blade size	under 14in.	under 18in.	under 18in.

6.2 Engine (motor)

Maker and Engine Model	Robin EH25-2D	Robin EH34D	Honda GX390
Type	Air-cooled 4cycle gasoline		
Max. Output	5.9kW/3600min^{-1}	8.1kW/3600min^{-1}	8.7kW/3600min^{-1}
	(8.0PS/3600rpm)	(11PS/3600rpm)	(11.8PS/3600rpm)
Fuel tank capacity	6.0L	6.0L	6.1L

7. Before starting your operation

⚠DANGER

Do the check alignment in situation that stopped engine by all means. There is badly injured danger when you are rolled up in a reel.
Level the machine, and check it after the machine confirmed that it does not move.

★ The check point before the work see "each part check schedule list" mentioned in 17 pages.

7.1. Engine oil (Fig.1, 2)

With the engine positioned horizontally, check oil-with oil gauge.
Replenish through filler port as necessary.

Use following oil
(10W-30 is in use when shipped).
SAE#30 (for normal temperature)
SAE#20 (for 10 or lower)
SAE#10W-30

SAE#10W-30 oil can be used throughout the year regardless of ambient temperature (up to ambient temperature -20 ℃).

When it is used in normal temperature, its consumption tends to increase . Pay additional attention at the time of daily check. As for quality of oil, be sure to use SE grade or better. Degraded quality or decreased quantity may induce damage by seizure.

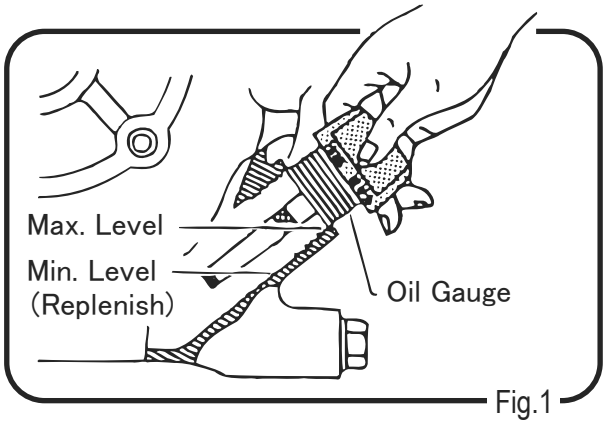


Fig.1

7.2. Fuel (Fig. 2)

Use lead-free automobile gasoline. For replenishment, be sure to shutdown engine and use strainer provided at filler port.
Wipe off any spilled fuel clean.

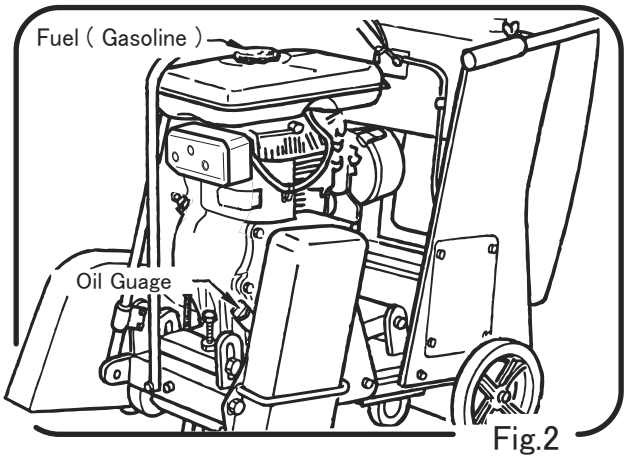


Fig.2

7.3. Worm gear of Drive shaft (Fig. 3)

Grease the grease fittings and gears.

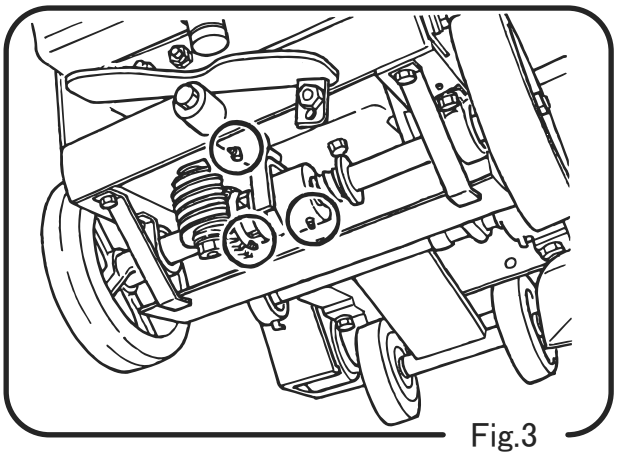


Fig.3

7.4. Water tank (Fig. 4)

Fill up the water tank (45 liters). Open the water cock and make sure that water coming out from delivery pipe in the blade cover.

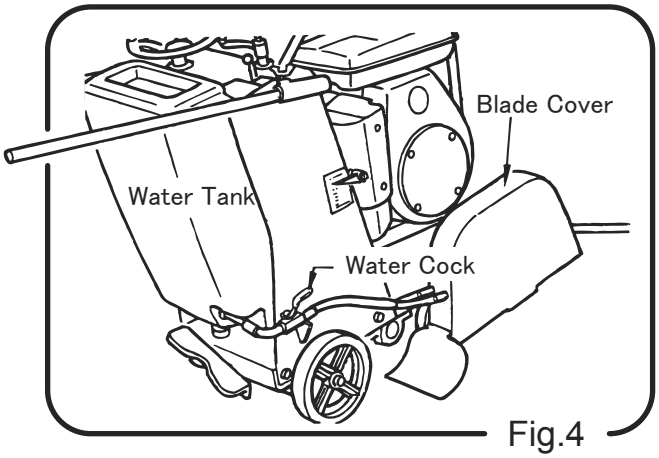


Fig.4

7.5. V-belt

Check the V-belt between engine and blade shaft for sag or defect. Tension is normal if the deflection is 10 -15 mm when depressed at midway between the two shafts. Adjust tension as necessary.

When replacing, all four belts (A-33 for 214, A-34 for 218) should be replaced. Use the replaced yet usable parts as supplement. For adjustment of tension, move the engine base to upper or downward. (Fig.5)

How to adjust the V-belt

① Loosen the 4 (four) bolt.
② Loosen the Nut of Adjust bolt.
③ Turn the adjust bolt to the clockwise for tighten the V-belt.
④ Tighten the Nut of adjust bolt.
⑤ Tighten the 4 (four) bolts.

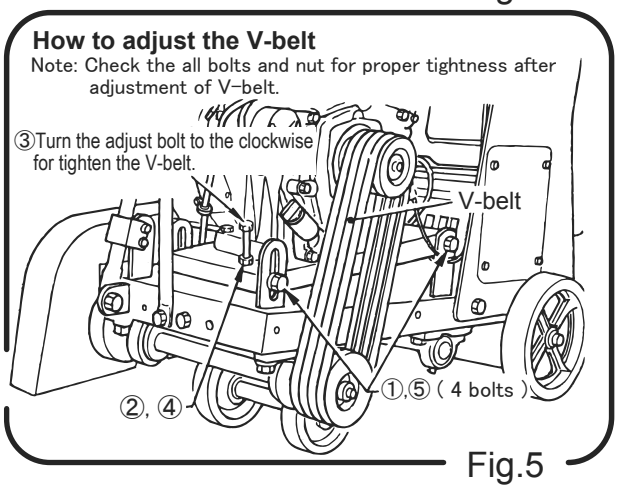


Fig.5

7.6.

Check each bolt and nut for proper tightness.

7.7. Installing the blade:

Install Flange (IN), Diamond Blade and Flange (OUT) in such order to the blade shaft and tighten sufficiently with Nut (left hand thread). (Fig. 6)

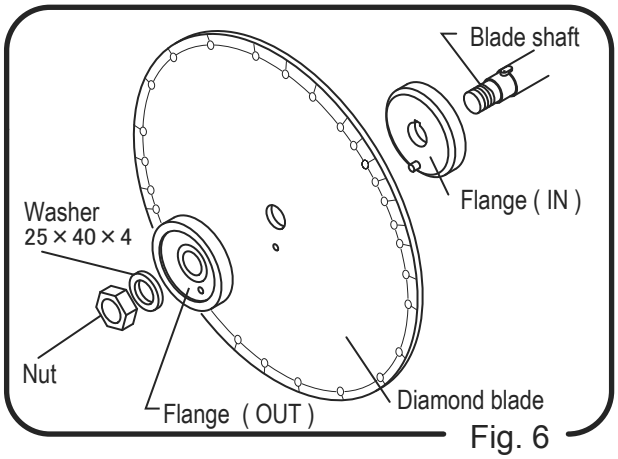


Fig. 6

7.8.

After blade has been tightened, check the cooling water and install blade cover.

7.9.

Set the cutter guide, aligning it with the blade. (Fig. 7)

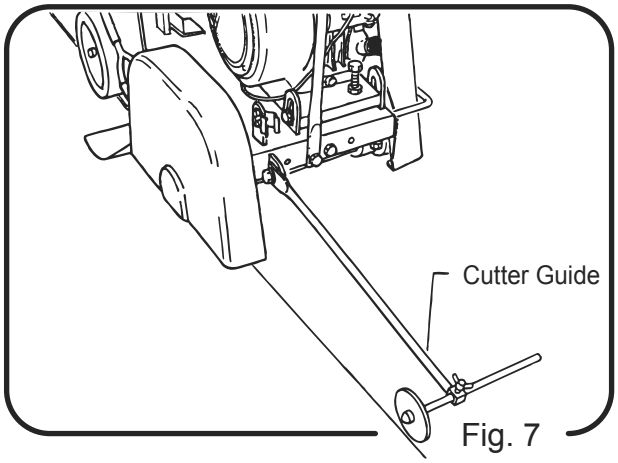


Fig. 7

7.10. How to lift or lower the machine: (Fig. 8)

For lifting or lowering the machine, set the knob unlock position which located beside of Crank handle for lifting and lowering. Turn the handle guide to the clockwise for cutting concrete and to the counter clockwise for lifting machine.
When decided the cutting depth, set the knob at lock position for lock the position of machine.

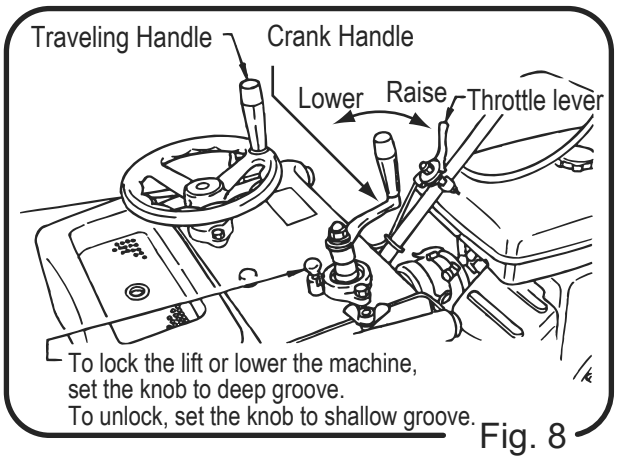


Fig. 8

7.11. Adjustment of the force for lifting system

Adjusting the force for lifting or lowering the machine. Adjusting can be made by turning the adjust bolt at front of the machine.
(Fig. 9)

a) Turning the Adjust - bolt clockwise, causes the descending force to reduced. Machine can be lifted with small force.
b) Turning the Adjust-bolt counter - clockwise, causes the descending force to increase.

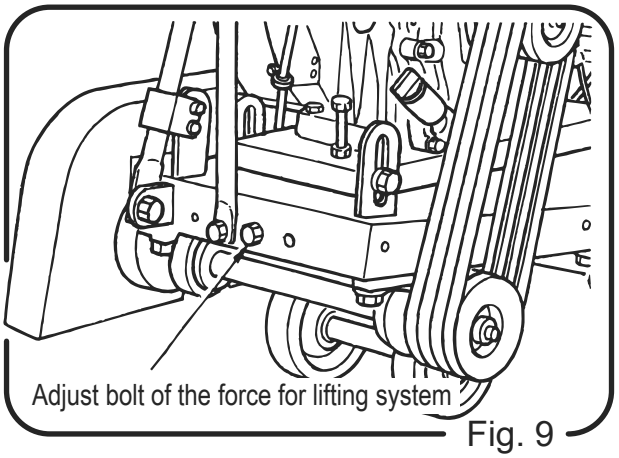


Fig. 9

7.12. Cut depth reading method

Cut depth is distance from the reading point of Fig. 8-1 to blade tip.
There is blade tip in circumference of blade.
When you cut asphalt or concrete road with diamond blade, the line trace (trace of line) of turn happens on the side surface of blade.
Search the line trace of reading point, and read distance from circumference to it with the scale of blade cover. (Fig.10)

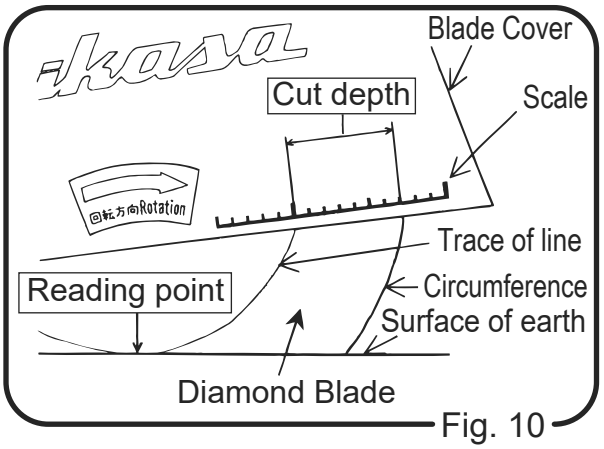


Fig. 10

8. Operation

8. 1 Starting up

8.1.1.

Move fuel cock. Turning the lever straight down causes the fuel to flow. (Fig.11, 12)

Electric starter type:
Insert the key into the key switch.Turn the key to "RUN" position. (Fig.14)

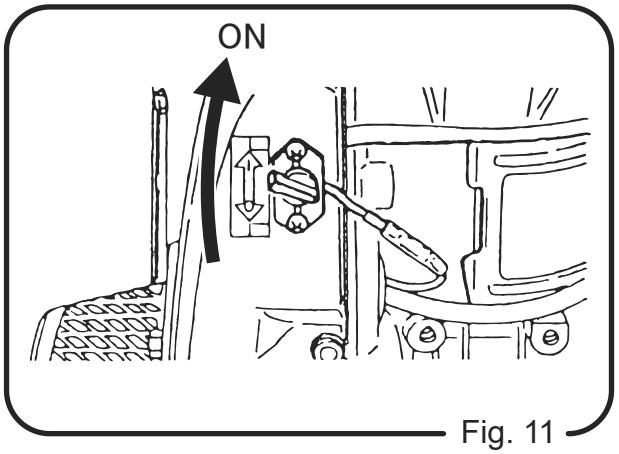


Fig. 11

8.1.2.

Close the choke lever of the carburetor and the throttle lever to the half opened position. Choke should be pulled all the way in cold weather or for starting the cold engine.
If it was difficult to start, the choke lever should be in the half opened position to prevent flooding the carburetor with fuel. (Fig.12)

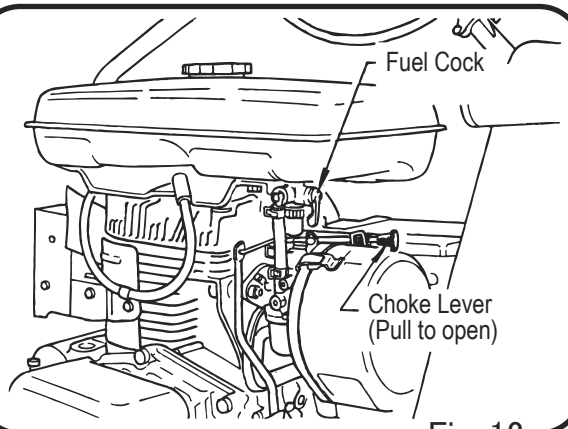


Fig. 12

8.1.3. With recoil starter: (Fig. 13)

- Pull the starter knob slowly until you come to a point where resistance increase (compression point). Pulling it continuously causes the resistance to reduce, where you should return the knob to original position before pulling it hard again.
- Do not pull the rope to its full length and return it slowly rather than releasing suddenly.

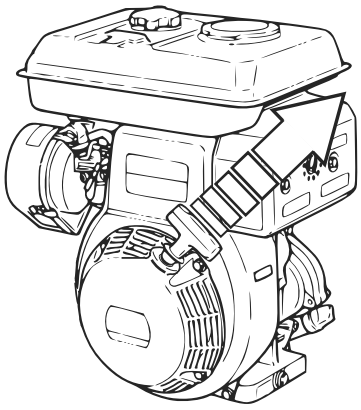
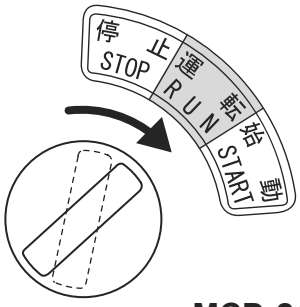


Fig. 13

8.1.4. With electric starter: (Fig. 14)

MCD-218CEH

- Turning it further in clockwise causes engine to start (START position).
- If it fails to starter motor for more than 5 seconds, return the key to RUN position and wait for 10 seconds before trying again.
- While engine is running, do not to turn the key switch to START position. (Please refer to the Engine Operation Manual for additional instructions.)



MCD-218CEH
Fig. 14

⚠ DANGER

BE CAREFUL when the engine started, Cutting blade also starts to rotate.

8.1.5. Warm-up

After starting engine, return the choke lever gradually to the full opened position.
Allow the engine to warm up at idle speed for 3-5 minutes. The warm-up procedure should particularly be followed in cold weather. While the engine is warming up. check the engine for fuel leaks or possible problem.

8. 2 Operation

8.2.1. Align the cutting guide with pre-determined cutting line. Aligning is easier if it is done with the machine lifted. (Fig. 7)

8.2.2. Move the speed control lever slowly to the normal operation and set the engine speed at high speed. (Fig. 8)

8.2.3. With water cock opened, spray cooling water to the blade. At least 5-6 liters per minute of cooling water is required.
As the standard, if water mist is being sprayed to the extent that water does not flow, the cooling will be sufficient. Adjust the amount of water with cock. (Spray on a little heavier side when there is sufficient water.)
(Fig. 4)

8.2.4. To cut-in with the blade at the bottom, turn Crank handle to the counter clockwise, and cut down while adjustment the lowering speed so that engine speed is not reduced excessively. After cutting down, set the knob to the lock position which located beside of Crank handle to lock the machine.
(Fig. 8)

8.2.5. To travel, switch the drive shaft by means of switching pedal and use traveling lever to proceed with cutting. (218). (Fig. 15)

8.2.6. Upon completion of cutting, set the knob to unlock position and turn the Crank handle to the clockwise for lifting the machine. After lifting - up, set the knob to lock position.

8.2.7. Close the water cock.

8.2.8. Return the speed control lever and lower the engine speed.

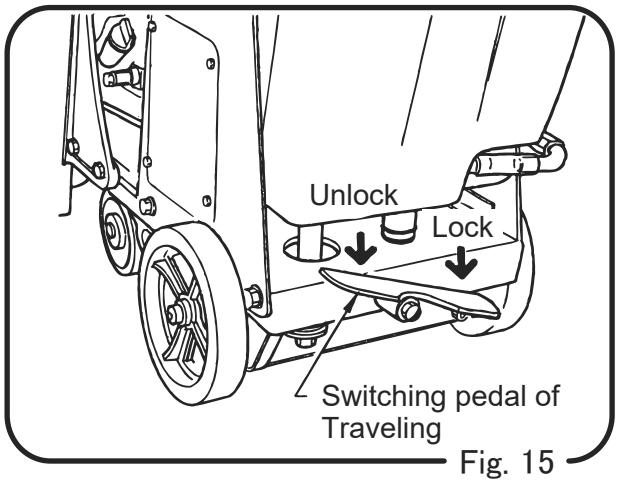


Fig. 15

** For deep cutting operation, rather than cutting deeply in one pass, use the way of 2-3 time cutting passes.

9. STOPPING THE OPERATION

9.1. Before shutting off the engine, allow the engine to idle for 2-3 minutes and then press the stop button until the engine is completely stopped. Electric starter type: turn the key to STOP position.) (Fig. 16)

9.2. Close the fuel cock.

⚠ CAUTION

Just after cut, be careful to burns in each machine part becoming the high temperature.

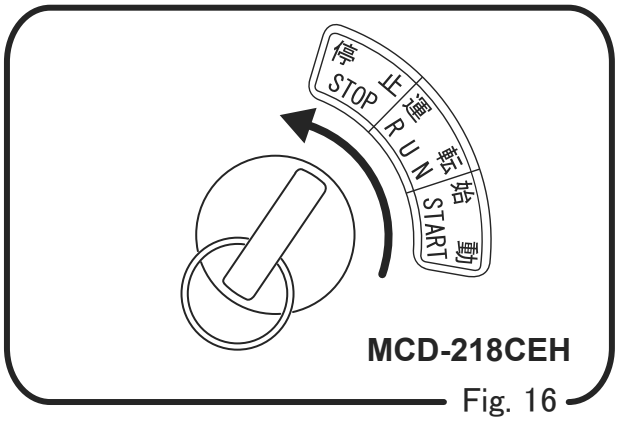


Fig. 16

9.3. With tightening nut (left hand thread) removed, take off the blade.

9.4. Erect the cutter guide.

10. TRANSPORT

⚠WARNING	• Before work of lifting, check any damage of body parts (especially, Lifting hook, etc) or looseness / omission of screws, and be sure safe. • Stop the engine at the time of the lifting, and close the fuel cock. • The work of lifting uses only one-point lifting hook, and do not the work of lifting in other point (handles). • Use enough wire rope of the strength. • Never put any person or animal under the lifted machine. • For safety, do not lift the machine up than required height.	

10.1. Loading and unloading

Be sure to work the license holder of crane operation and slings.

10.1.1. Lifting work

Do loading and unloading by cranes.

10.1.2.

In loading and unloading select a leader, and work by instructions of a leader by all means.

10.1.3.

Lift the machine with the guard hook by all means, to hook fittings. Never lift the machine with handle, to hook fittings.

10.1.4.

Movement in a lifting motion does not do sudden unloading. Take down a machine from a rear wheel by all means.

When suddenly unloaded a machine from a front wheel, FRAME (FRONT WHEEL) may protect other machine part.

When FRAME (FRONT WHEEL) warped and transformed it, A V- pulley touches the ground, and the back of a V- belt may be worn.

In that case, coordinate setting with bolt (14X40) and nut (M14) for lowest position setting of lifting device. (Fig.17)

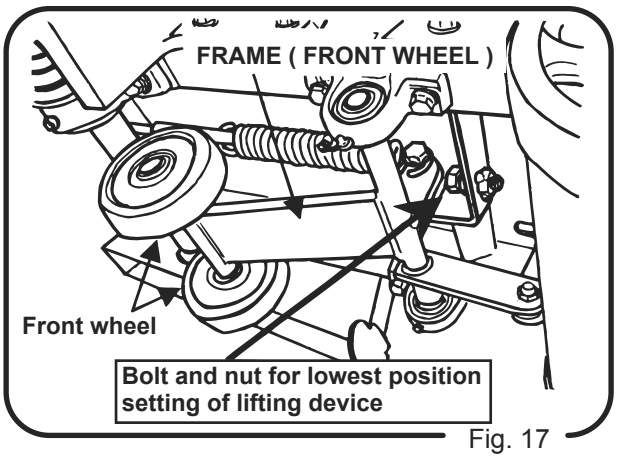


Fig. 17

⚠CAUTION **Do not do loading and unloading that use a gangboard, because it is very dangerous.**

10.2. Precautions in transportation

⚠WARNING	• **Stop the engine at the time of the transportation, and close a fuel cock.** • **Remove a blade at the time of transportation by all means.** • **By all means drain fuel before transporting the machine .** • **Fix the machine well not to move and fall down.**	

11. Storage

11.1.

Clean the machine by removing residual mortar and water.

11.2.

Drain water of the water tank and the pipe.

11.3.

Supply grease to the pillow block and grease nipple of each part .

Particularly, pillow block of the blade shaft should be well greased a few times by means of grease gun after work.

11.4.

Put cover so that garbage and dust do not appear.

Store it in the space which no hit rays of the sun with a little moisture. (Fig.18)

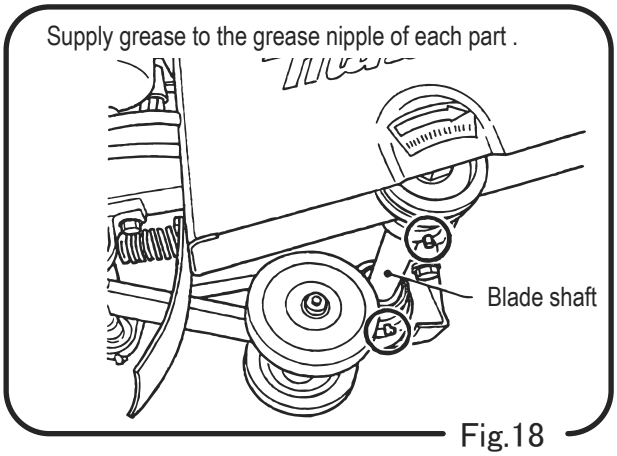


Fig.18

11.5. Proper storage:

For long term storage after work;

1. Drain fuel from fuel tank, piping and carburetor.
2. With spark plug removed, drip a few drops of engine oil into cylinder and rotate engine manually to let the oil reach everywhere inside the cylinder.
3. Pull the recoil starter and leave it where compression is felt.
4. Store the machine away, covered and in such place as it is free from direct sun, moisture and dust.
5. Keep the machine indoors without leaving it outdoors.
6. Do not overthrew the machine sideways, and do not keep it.

About engine

For daily and periodical inspection or simple maintenance services, see engine manual separated provided.

12. Periodic check and coordination

1. Each part check schedule list

Check schedule	Check point	Check item	Type of oils and fats
Daily (before work)	Visual inspection	Crack、Skewness	
	Fuel tank	Leak、Quantity of Fuel、Dirt	Gasoline
	One-point lifting hook	Falling off、Breakage、Crack Looseness & falling off of bolt & nuts	
	Fuel system	Leak	
	Fuel filter	Dirt	
	Engine oil	Leak、Quantity of oil、 Dirt	Engine oil
	Air cleaner	Dust of sponge	
	Blade	Crack、Damage	
	Lifting device	Function validation、 Oils and fats	Grease
	Bolt, nuts	Looseness、Falling off	
20 hours	Engine oil	First time	Engine oil
Every 6 months or 100 hours.	Engine oil	Change	Engine oil
	Lifting device (Fig.17) Lifting screw		
		Crack、Curve、Greasing	Grease
	Pillow block (Fig.18)	Greasing	Grease
	Spark plug	Check-Clean	
	Spark arrester (optional part)	Clean	
	Fuel tank & filter	Clean	
Every year or 200 hours	V-belt	Crack、Tension	
	Air-cleaner element	Replace	
	Spark plug	Replace	
	Engine idle speed	Check-Adjust	
	Engine valve clearance	Check-Adjust	
300 hours	Engine combustion chamber	Clean	
Every 2 years	Fuel line	Change	
Irregular time	Air-cleaner element	Change of necessary	
	Pillow block	Wear, Abnormal noise, Creak Wobble	

・Check schedule (time to check) is for normal condition. It depends on use conditions.

Refer the attached engine instruction manual for the details of check & maintenance for engine.

In order to avoid deficient reassembly, watch carefully normal status of installation before removing or disassembling any part.

Follow the Table of Tightening Torque to tighten the bolts and nuts.

Table of Tightening Torque (kgf-cm)

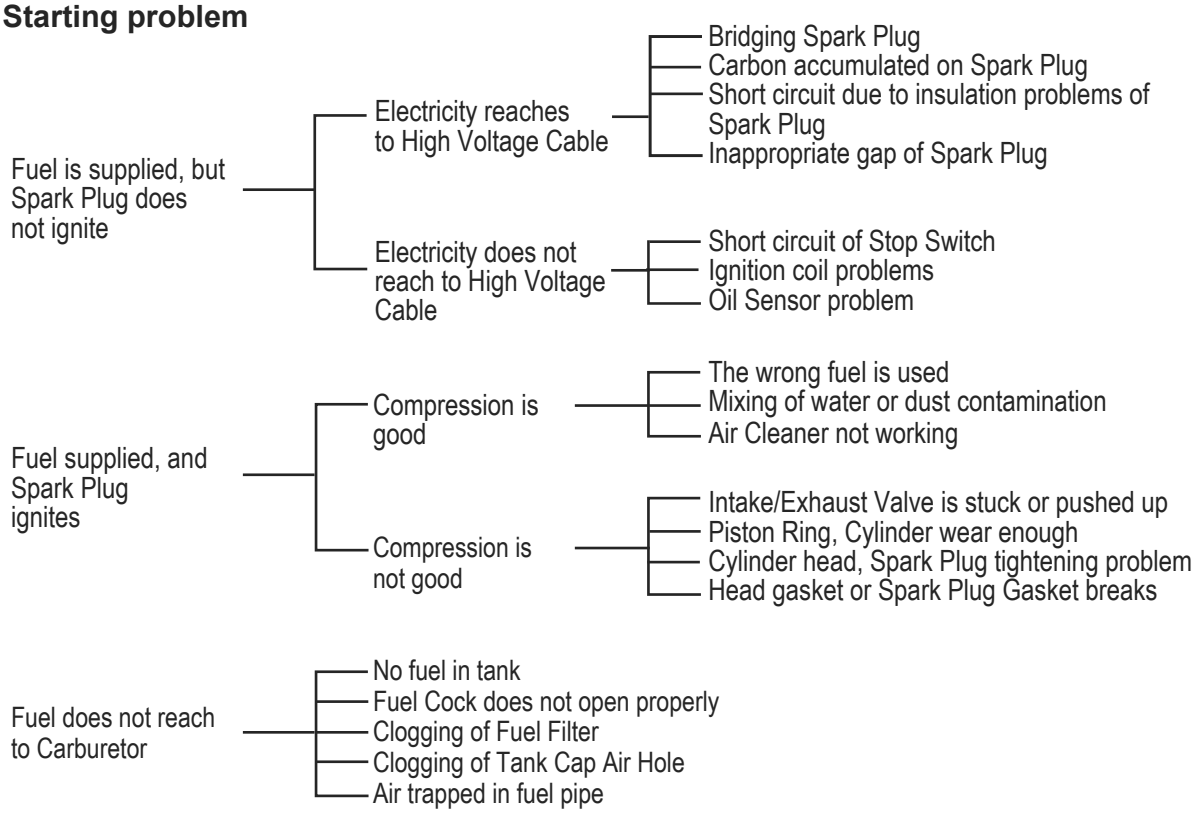
Material	Screw diameter							
	6mm	8mm	10mm	12mm	14mm	16mm	18mm	20mm
4T(SS41)	70	150	300	500	750	1,100	1,400	2,000
6-8T(S45C)	100	250	500	800	1,300	2,000	2,700	3,800
11T(SCM3)	150	400	800	1,200	2,000	2,900	4,200	5,600
In case counter part is made from aluminum	100	300～350	650～700					

※For indication in SI Unit (International Unit System), use the conversion of 1kgf-cm=9.80665N-cm

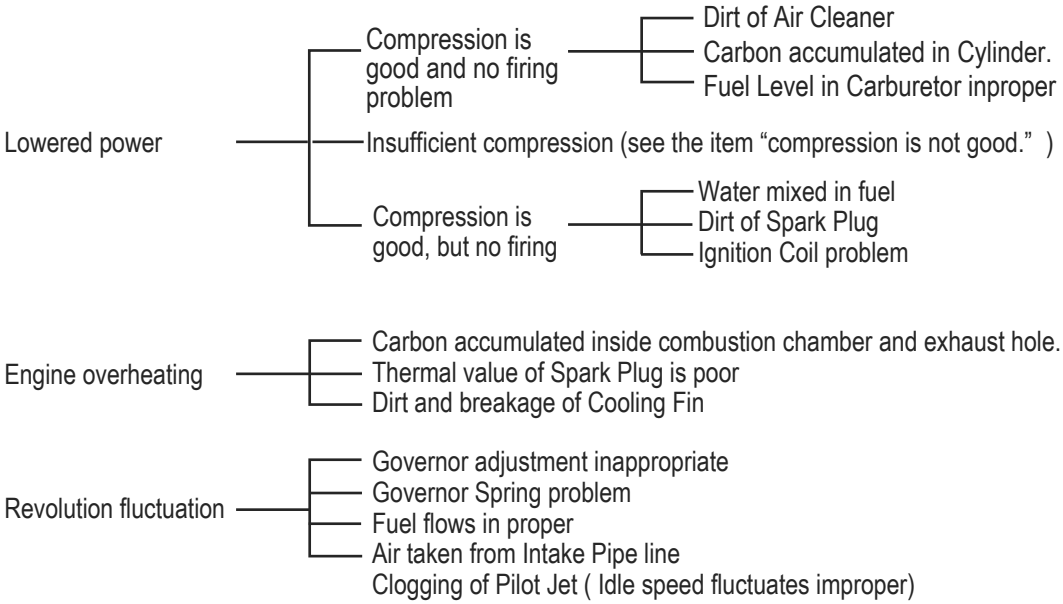
13. Troubleshooting

1. Gasoline engine

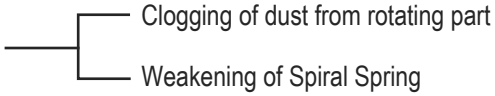
(1) Starting problem



(2) Operation problem



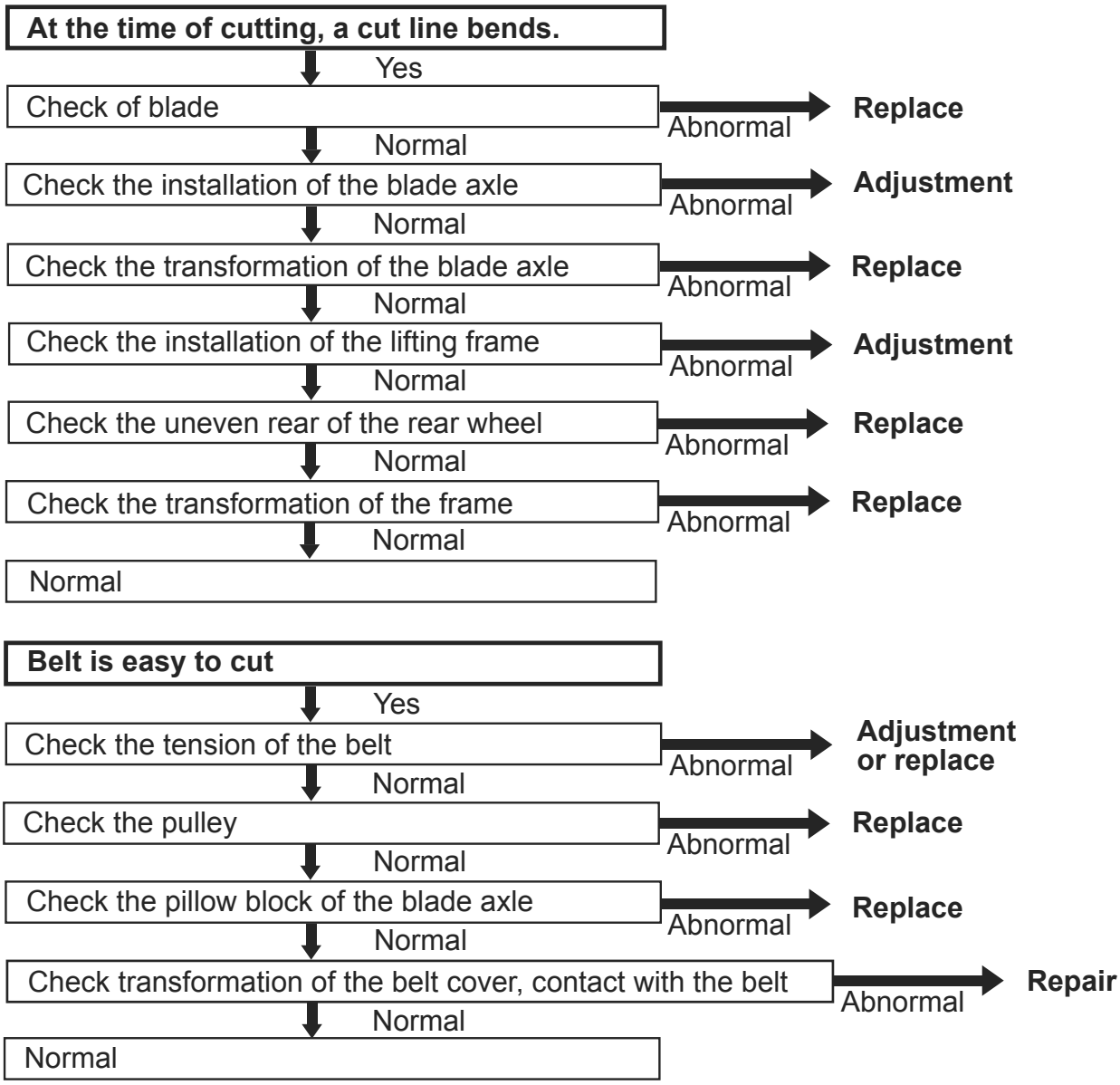
(3) Recoil Starter does not work well



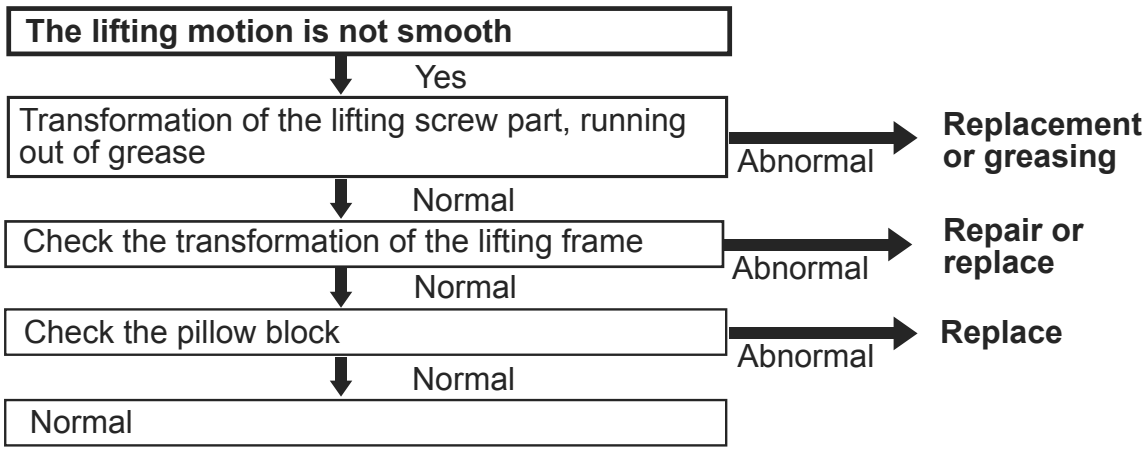
13. Troubleshooting

2. Machine

(1) Blade system



(2) Height Adjusting System



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