KARADENİZ MAKİNA®
YEDEK PARÇA SAN.TİC.LTD.ŞTİ
İnşaat Makinaları & Jeneratör

POWER TROWEL

OPERATION MANUEL

KM-P60

For the service and maintenance of your machine, please use your authorized service or user manual. Before starting your machine, take adequate safety precautions in the working area.

1. INTRODUCTION

Application

This walk-behind trowel is design for the floating and finishing of concrete slabs.

Noise emission:

A-weight sound pressure level at work station: 5678987(dB)

The sound power level: 3333333333

Note: the measurement is according to EN12649:2008

Vibration emission:

Measured vibration emission value a: 888888

Uncertainty K: 789

Note: the measurement is according to EN ISO 20643:2005

Warnings for incorrect application and abuse

Take a walk around the trowel. Take notice of all of major components like the engine, blades, quick adjust control, air cleaner, centrifugal stop switch etc. Check that there is always oil in the engine.

Read all the safety instructions carefully. Safety instructions will be found throughout this manual and on the trowel. Keep all safety information in good, readable condition. Operators should be well trained on the operation and maintenance of the trowel.

Structure

The upper part is made up of Power source, Handle, Belt Cover and Guard hook which are fixed by Engine base.

The Engine base is fixed on Gearbox.

The lower part is made up of Gearbox, Spider and Blade.

Power Transfer

Air-cooled Single cylinder Petrol Engine is amounted as power source and Centrifugal Clutch is fixed on engine output shaft.

The power source is transmitted from the centrifugal clutch on engine output shaft to the Gearbox input shaft via V-belt or pulley drive system. The pulley engages using a centrifugal clutch.

The gearbox is located beneath the engine and transfers power to the rotor or spider assembly.

The ***gearbox*** controls the rotational speed of the trowel and is equipped with two shafts.

The vertical output shaft of the gearbox connects to a cast hub called the ***spider***. The spider has 4 arms that extend outward that are used for attachment of blades or other accessories. Remember as the gearbox output shaft rotates so does the spider assembly.

The blades of the trowel finish the concrete as they are rotated around the surface. Blades are classified as ***combination*** (8 inches wide) and ***finish*** (6 inches wide). This trowel comes equipped with four blades per rotor equally spaced in a radial pattern and attached to vertical rotating shaft by means of a ***spider assembly***.

2.SPECIFICATION

Model	P60	P70	P90	P120
Dimensions				
Overall Length mm	1200	1450	1610	2100
Overel Width mm	600	710	1010	1200
Overall Height mm	600	510	810	1000
Net Weight kg	55	65	80	110
Operation Weight kg	60	70	85	115
Performance				
Number of Blades	4	4	4	4
Blade Tip size m/s	6,5	6,5	6,5	6,5
Ring Width	610	710	910	1200
Power Source				
Manufacturer	HONDA	HONDA	HONDA	HONDA
Model	GX160	GX160	GX200	GX270
Maz .Output	5,5 PS	5,5 PS	6,5 PS	9 PS
Fuel Tank Capacity L	3,6	3,6	3,6	3,6
Starting System	Recoil Starting	Recoil Starting	Recoil Starting	Recoil Starting
Set R.P.M rpm	3600	3600	3600	3600

3. FOR SAFETY OPERATION

Foreword:

It is important to read this manual carefully so that you will fully understand the operational characteristics and performance of the plate compactor. Proper maintenance procedures will insure long life and top performance of the unit.

Safety:

This section outlines basic safety procedures that apply to the operation, maintenance and adjustment of the CIMAR power trowel. This unit is designed as a powerful, productive machine that should be operated with respect and caution.

Misuse or carelessness can result in serious injury or property damage, or both. Safety precautions must be observed at all times.

This safety alert symbol identifies important safety messages throughout this manual and on the machine.

When you see the symbol, carefully read the message that follows. Yours safety is at stake!

Operator Qualifications:

Before operating this equipment, an individual should read this manual. Whenever possible, he should be shown how to operate the unit by an experienced operator. Inexperience is hazardous in operating any machine or attachment. Trial and error is not the way to become familiar with a piece of equipment. This is expensive, cuts equipment life and can create machine downtime. Inexperience can cause injury or death. The machine should not be left unattended when operating.

General Safety:

WARMING

- Refrain from working in such cases as below:
- When not feeling well due to fatigue or disease.
- When taking medicine.
- Under the influence of alcohol.

CAUTION

- Read the instruction manual carefully and operate the machine properly to work safely.
- With respect to engine, read the separate engine manual.
- Understand the mechanism of the machine sufficiently.
- Wear protectors (hard hat, safety shoes, ear plugs, etc.) and proper clothing for working safety.
- Always check the machine for loosened threads or any other abnormality before starting your work.
- Whenever affixed name plate (such as operating directions and warnings) become difficult to read, replace it with new one.

- Machine is hazardous for children to tamper with. Pay enough caution for how and where to store it. Particularly in case of the machine equipped with starting motor, remove starting key to store at designated location.
- Be sure to shutdown engine for servicing. If equipped with starter motor, disconnect battery wiring.
- Manufacturer does not assume responsibility for any accident arising from modification.

Refueling Safety:

WARMING

- Before refueling, be sure to shutdown engine and wait for it to cool.
- Select location where there is no inflammable matter and be careful not to spill fuel. When spilled however, wipe it off thoroughly.
- Never use fire in the vicinity while refueling. (Definitely no smoking!)
- Topping up to filler port is dangerous as it tends to spill fuel.

Starting Safety:

CAUTION

- Before starting and operating your machine, check for safety of personnel or obstacle around.
- Always pay attention to ground so you can work in stable position.
- Whenever machine fails to work properly or any abnormality is noticed during work, suspend your work immediately.
- Do not touch engine body or muffler as they are hot in operation.
- Be sure to stop engine whenever you leave the machine. Also, do not forget to stop the engine when you move the machine as well.
- Poisonous fumes. Start and operate only in well ventilated area. Breathing exhaust gases can result in sickness or death.

Servicing Safety:

CAUTION

- Before lifting, make sure that machine parts (hook and vibration insulator in particular) are not damaged and screws are not loosened or lost.
- Stop the engine before lifting your machine. Contact with moving parts can cause serious injury.
- Allow machine and engine to cool before performing service or maintenance. Contact with hot components can cause serious burns.
- Use wire rope which has sufficient strength.
- Use one point suspension hook and lift strait upward without giving any shock.
- Be sure not to allow any person or animal to enter underneath the lifted machine.
- For safety, try not to lift to unnecessary height.

Engine:

See engine operations manual

SHUTDOWN:

EMERGENCY SHUTDOWN

Move throttle lever to “OFF” position and also turn stop switch to “OFF”.

NORMAL SHUTDOWN

Move throttle lever quickly form “ON” to “OFF” and run engine for 3 to 5 minutes at low speed. After engine cools, turn stop switch to “OFF” position. Close fuel shutoff valve.

4. PRIOR TO OPERATION

1. Make sure that all dirt, mud, etc., are thoroughly removed from the unit prior to operation. Special effort should be given to the bottom face of the gearbox and those areas adjacent to the cooling air inlet of engine, carburetor, and air cleaner.
2. Check all bolts and screws for tightness and make sure all bolts and screws are securely tightened. Loose bolts and screws may cause damage to the unit.
3. Check the V-belt for tightness. The normal slack should be approximately 10-15mm (1/2") when the belts are forcibly depressed in the middle position between the two sheaves. If there is excess belt play, there could be a decrease in the impact force or erratic vibration, causing machine damage.
4. Check the engine oil level and if the engine oil level is low, it should be refilled. Use the proper motor oil as suggested in the table below. (Fig-1)

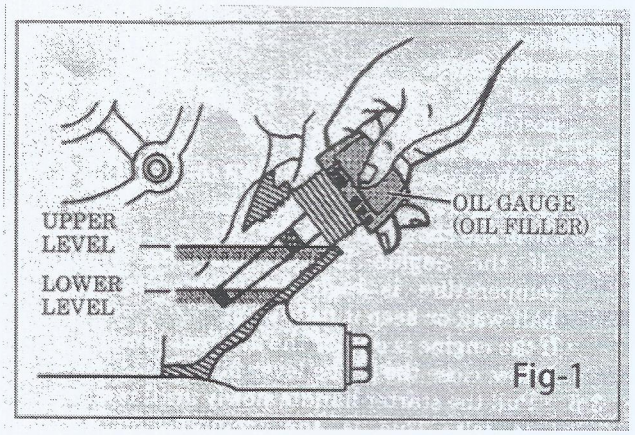


Fig-1

IMPORTANT:

Use the Motor oil SAE

When changing the oil, the old oil can be drained by tipping the unit.The oil will drain easily while it is hot

5. A regular grade gasoline should be used in the engine. When filling the fuel tank, make sure the fuel filter is used.

Season	Temperature	Oil to be used
Summer	25℃ or higher	SAE 10W-30
Spring/Fall	25℃～10℃	SAE 10W-30/20
Winter	0℃ or lower	SAE 10W-10

5. STARTING-UP

Gasoline Engine

1. Align fuel cock lever with FLOW position (Fig.3)
2. When cold or somehow starting is difficult, turn choke lever to START position. This is not necessary when engine is warm. (Fig.4)
3. Turn governor lever slightly to high speed side. (Fig.5)
4. Turn engine start switch to ON position. (Fig.6)
5. Hold recoil starter grip and pull it slightly until you feel light resistance. Pull it strongly there. Be careful not to pull it too hard however because it may come off. Do not release the grip from the pulled position but return it to starter case before releasing. (Fig.6)
6. If engine has started, while listening to explosion sound, slowly return the choke lever to OPERATION position. (Fig.7)

   After started, be sure to run the engine at low speed for a few minutes.

   It must be done in cold climate in particular.

   Check for abnormal noise of gas leak in the meantime.

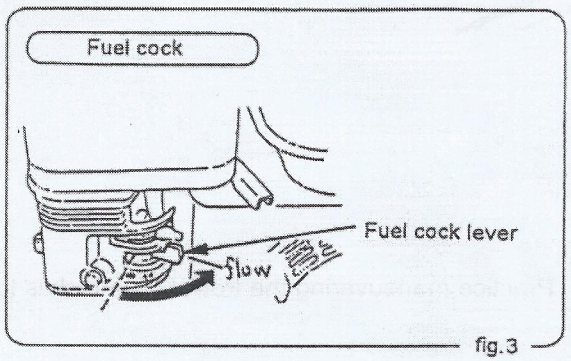


fig.3

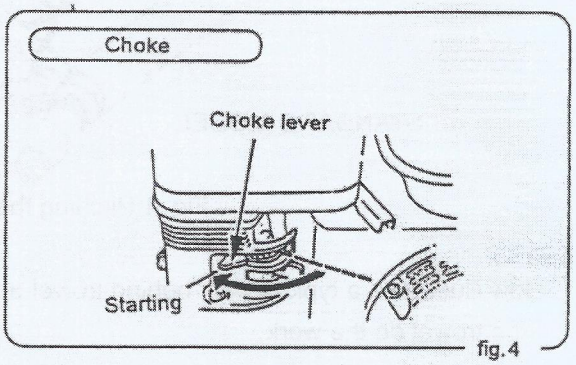


fig.4

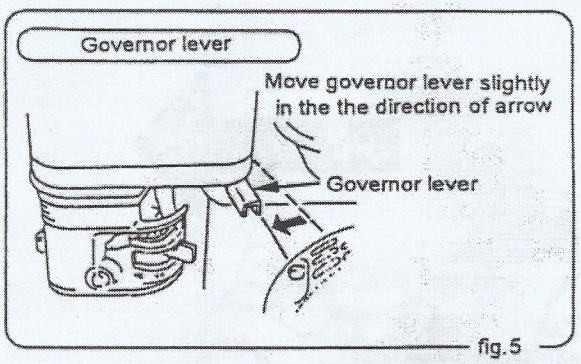


fig.5

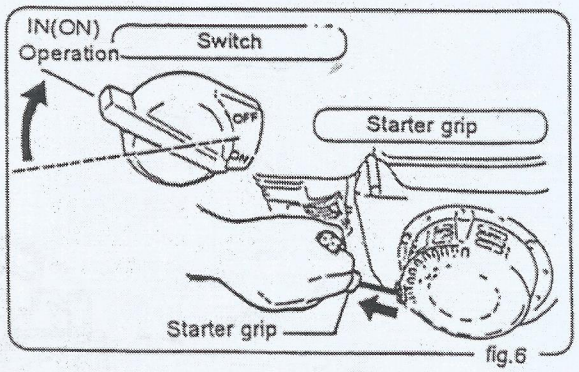


fig.6

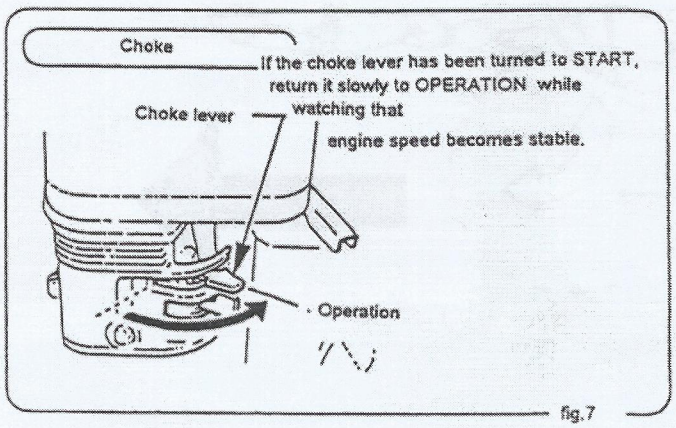


fig.7

Maneuvering the Trowel

1. With a secure foothold and a firm grasp on the handles slowly increase the engine speed until the desired blade speed is obtained.
2. To maneuver the trowel, gently lift up on or press down on the main trowel handle. To mover the machine to the operator's left, **lift up** on the handle, to move machine to the right, **push down** on the handle.
3. The best method for finishing concrete is to slowly walk backwards with the trowel, guiding the trowel from side to side. This will cover all footprints on wet concrete.
4. Remember that if you let go of the trowel, just step away and let the trowel come to a complete stop before trying to recover the trowel.
5. Continue to practice maneuvering the trowel. Try to practice as if you were finishing a slav of concrete. Practice edging and covering a large area.

 **WARNING**

NEVER place your ***feet*** or ***hands*** inside the guard rings while starting or operating this equipment.

ALWAYS keep clear of ***rotating*** or ***moving*** parts while operating this equipment.

7. STOPPING

For stopping the engine with your work discontinued, return the throttle lever to low position to be in idle state for 2-3 minutes. After cooling down engine, stop the engine completely.

Gasoline Engine

a. Turn the engine switch to off (O) position to stop.
b. After stopping the engine, align the fuel cock lever to off (O) position.

 CAUTION

If the engine is stopped while it is still hot, it may hasten wear such as burn out of oil slick in cylinder.

8. TRANSPORTATION AND INSTALLATION

Transportation Safety:

 CAUTION

- Shutdown the engine during transport.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Drain fuel before transporting over long distance or on poor road.
- Lock the machine securely so the machine does not move or topple over.
- Operators for movement and installation shall hold a qualification certificate.
- Please move the press with proper, safe and reliable tools.

Installation Safety:

 CAUTION

- The field installation after unpacking shall follow requirements in this manual.
- Installation conditions:
  Ambient temperature: 5℃～40℃; no rapid changes causing dew.
  Ambient humidity: 45%～65% (no dew)

9. TROUBLE SHOOTING

1. Engine

(1) Starting deficient

SYMPTOM	POSSIBLEM PROMBLEM	SOLUTION
Fuel is available but spark plug will not ignite. (Power available at high tension cable).	Ignition plug being bridge?	Check ignition system.
	Carbon deposit at ignition?	Clean or replace ignition.
	Short circuit due to defective insulators?	Replace insulators.
	Improper spark gap?	Set spark plug gap to the correct gap.
Fuel is available but spark plug will not ignite, (Power NOT available at high tension cable.)	Short circuit at stop switch?	Check stop switch circuit. Replace stop switch if defective.
	Ignition coil defective?	Replace ignition coil.
Fuel is available and spark plug ignites (compression normal).	Muffler clogged with carbon deposits?	Clean or replace muffler.
	Fuel in use inadequate (water, dust)?	Flush fuel system and replace with fresh fuel.
	Air Cleaner clogged?	Clean or replace air cleaner.
Fuel is available and spark plug ignites (compression low).	Defective cylinder head gasket?	Tighten cylinder head bolts or replace head gasket.
	Cylinder worn?	Replace cylinder.
	Spark plug loose?	Tighten spark plug.

(2) Operation deficient

SYMPTOM	POSSIBLEM PROMBLEM	SOLUTION
Not enough power available (compression normal, no misfiring).	Air cleaner clogged?	
	Air in fuel line?	Bleed (remove air) from fuel line.
	Fuel level in carburetor float chamber improper?	Adjust carburetor float
	Carbon deposits in cylinder?	Clean or replace cylinder
Not enough power available (compression normal, misfiring).	Ignition coil defective?	Flush fuel system and replace with fresh fuel.
	Ignition plug often shorts?	Replace ignition wires, clean ignition.
	Fuel in use inadequate (water, dust)?	Flush fuel system and replace with fresh fuel.
Engine overheats.	Excessive carbon deposition in combustion chamber?	Clean or replace crankcase.
	Exhaust or muffler clogged with carbon.	Clean or replace muffler.
	Spark plug heat value incorrect?	Replace spark plug with correct type spark plug.

(3) Operation not satisfactory

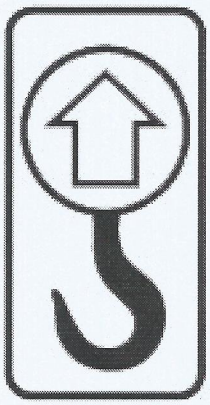
SYMPTOM	POSSIBLEM PROMBLEM	SOLUTION
Rotational speed fluctuates.	Governor adjustment improper?	Adjust governor to correct lever.
	governor spring defective?	Clean or replace ignition.
	Fuel flow erratic?	Check fuel line.
	Air taken in through suction line?	Check suction line.
Recoil starter not working properly.	Dust in rotating part?	Clean recoil starter assembly.
	Spiral spring failure?	Replace spiral spring

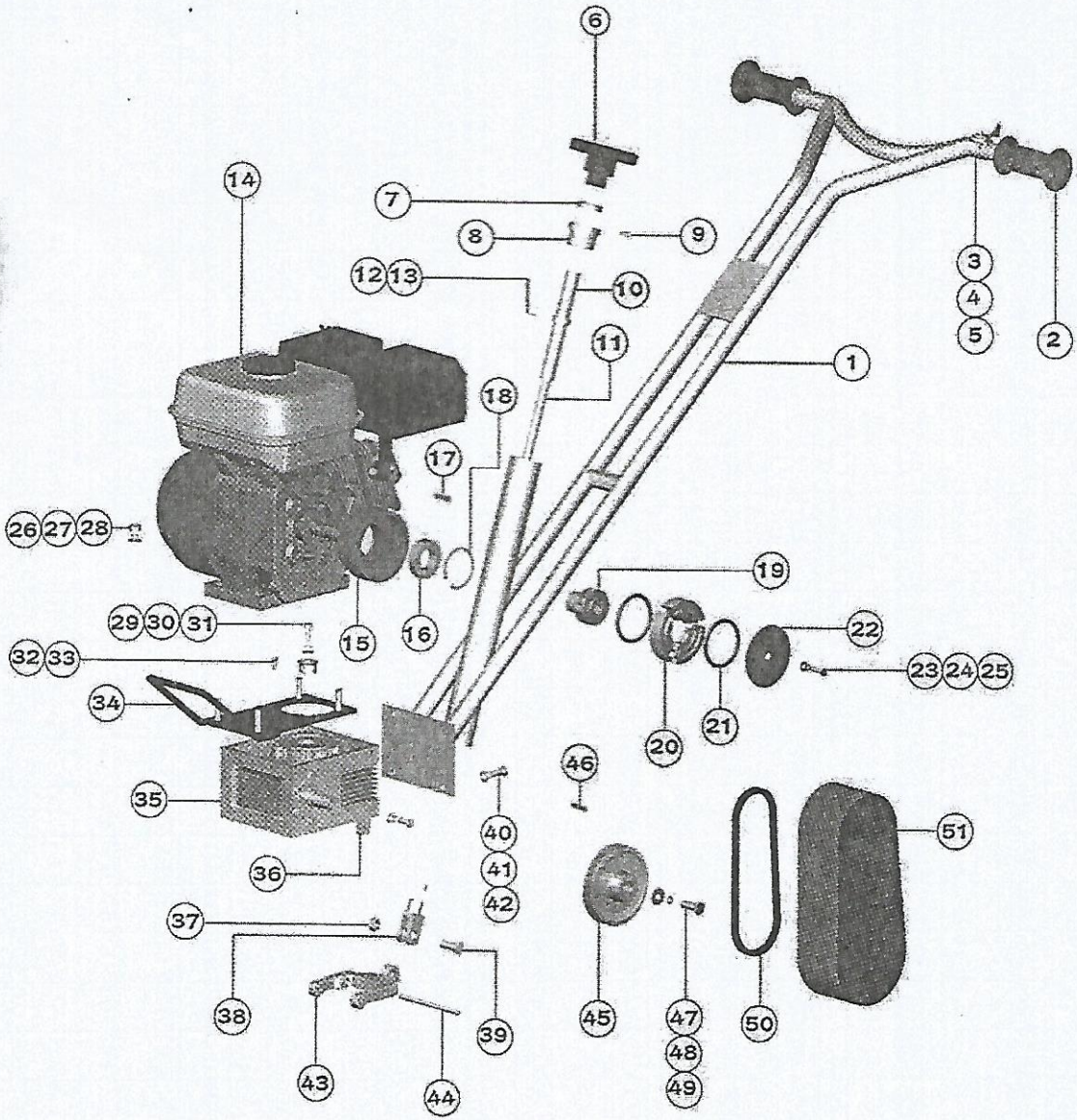
2. Machine

SYMPTOM	POSSIBLEM PROMBLEM	SOLUTION
Engine running rough or not at all.	Safety stop switch malfunction?	Make sure that the Safety Stop Switch is ON or replace switch if necessary.
	Fuel?	Look at the fuel system. Make sure there is fuel being supplied to the engine. Check to ensure that the fuel filter is not clogged.
	Ignition?	Check to ensure that the ignition switch has power and is functioning correctly.
Safety stop switch not functioning.	Other problems?	Consult engine manufacturer's manual.
	Loose wire connections?	Check wiring. Replace as necessary.
	Bad contacts?	Replace switch.
If trowel "bounces, rolls concrete, or makes uneven swirls in concrete".	Blades?	Make certain blades are in good condition, not excessively worn, Finish blades should measure no less than 2" (50mm) from the blade bar to the trailing edge, combo blades should measure no less than 3.5 (89mm). Trailing edge of blade should be straight and parallel to the blade bar.
	Spider?	Check that all blades are set at the same pitch angle as measured at the spider. A field adjustment tool is available for height adjustment of the trowel arms.
	Bent trowel arms?	Check the spider assembly for bent trowel arms. If one of the arms is even slightly bent, replace it immediately.
	Trowel arm bushings?	Check the trowel arm bushings for tightness. This can be done by moving the trowel arms up and down. If there is more than 1/8" (3.2mm) of travel at the tip of the arm, the bushings should be replaced. All bushings should be replaced at the same time.
	Thrust collar?	check the flatness of th thrust collar by rotating it one the spider. If it varies by more than 0.02" (0.5mm) replace the thrust collar.
	Thrust collar bushing?	Check the thrust collar by rocking it on the spider. If it can tilt more than 3/32" (2.4mm) [as measured at the thrust collar O.D.] replace the bushing in the thrust collar.
	Thrust bearing worn?	Check the thrust bearing to see that it is spinning free. Note: Thrust cap, replace if necessary.

Machine has a perceptible rolling motion while running.	Main shaft?	The main output shaft of the gearbox assembly should be checked for straightness. The main shaft must run straight and cannot be more than 0.003" (0.08mm) out of round at the spider attachment point.
	Yoke?	Check to make sure that both fingers of the yoke press evenly on the wear cap. Replace yoke as necessary.
	Blade Pitch?	Check to ensure that each blade is adjusted ot have the same pitch as all other blades. Adjust per maintenance section in manual.
Sluggish response to engine speed change.	Worn V-belts?	Replace V-belt.
	Dirty centrifugal clutch?	Disassemble and clean clutch.
	Defective or worn out centrifugal clutch?	Replace entire clutch.
	Worn bearings in gearbox?	Rotate input shaft by hand. If shaft rotates with difficulty, check the input and output shaft bearing. Replace as necessary.
	Worn or broken gears in gearbox?	Verify that the gearbox shaft rotated when the input shaft is rotated. Replace both the worm and worm gear as a set.

10. SAFETY LABELS

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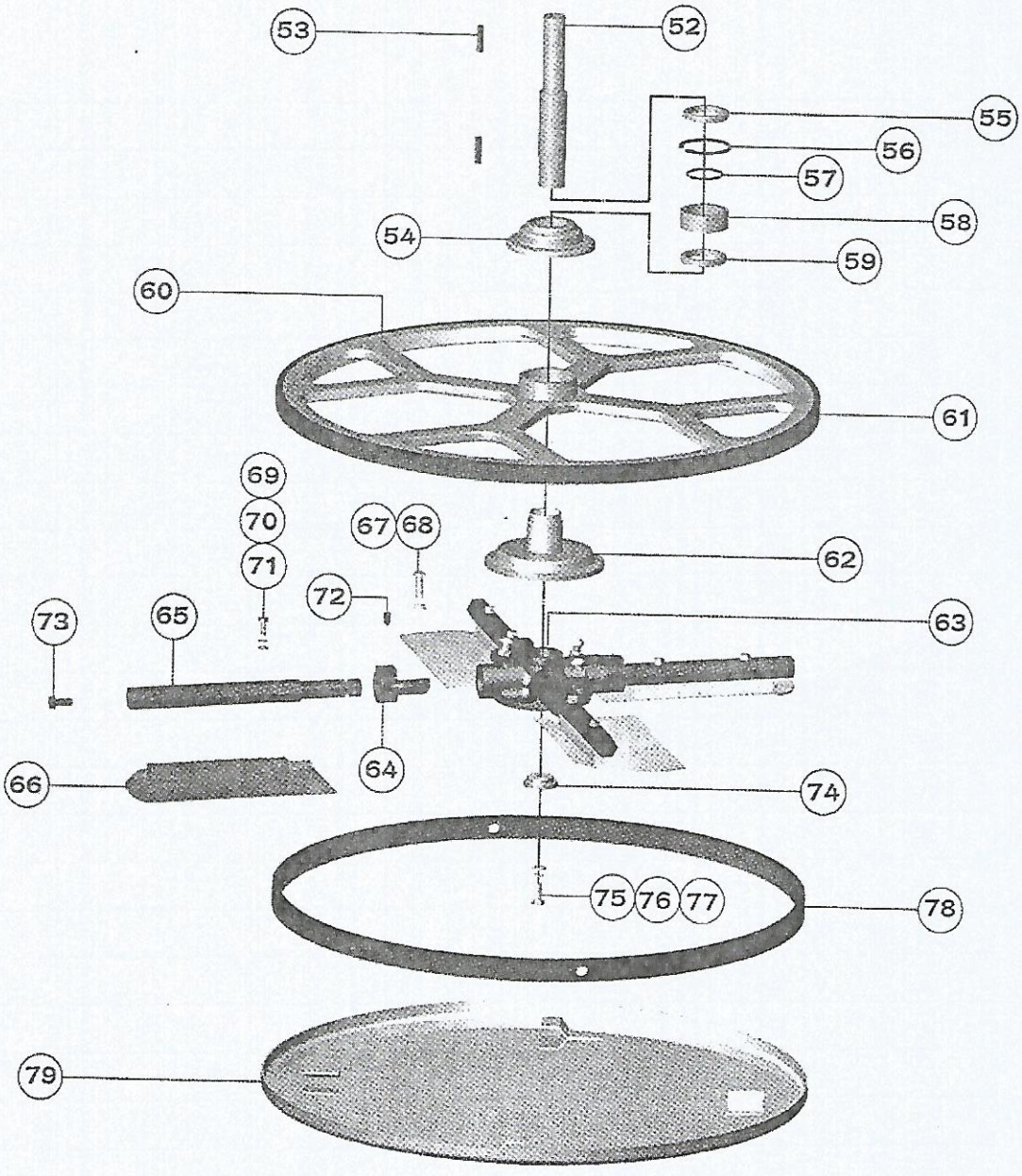
Part List (A)

S/NO	PART NO	Description	QTY
1	KM- P90- 001	Handle	I
2	KM- P90- 002	Hanclle Grib	2
3	KM- P90- 003	Throttle Lever	1
4	KM- P90- 004	Throttle Cable	1
5	KM- P90- 005	Throttle Cable Guard Pipe	1
6	KM- P90- 006	Hand Wheel	l
7	KM- P90- 007	Thrust Bearing	1
8	KM- P90- 008	Bush	1
9	KM- P90- 009	Slide Bolt	1
10	KM- P90- 010	Blade Angle Adjustment Bar	1
11	KM- P90- 011	Adjustment Bar Connector	1
12	KM- P90- 012	Collar	1
13	KM- P90- 013	Cotter Pin	1
14	KM- P90- 014	Engine	1
15	KM- P90- 015	Clutch Drum	1
16	KM- P90- 016	Bearing	1
17	KM- P90- 017	Key	l
18	KM- P90- 018	Circlip	1
19	KM- P90- 019	Clutch Boss	1
20	KM- P90- 020	Clutch Shoe	3
21	KM- P90- 021	Clutch Spring	2
22	KM- P90- 022	Cltuclı Guide	1
23	KM- P90- 023	Flat Washer	l
24	KM- P90- 024	Lock Washer	1
25	KM- P90- 025	Bolt	1
26	KM- P90- 026	Nut	4

Part List (A)

S/NO	Part No.	Description	QTY
27	KM-P60-027	Lock Washer	4
28	KM-P60-028	Flat Washer	4
29	KM-P60-029	Bolt	1
30	KM-P60-030	Lock Washer	1
31	KM-P60-031	Flat Washer	1
32	KM-P60-032	Bolt	4
33	KM-P60-033	Cap For Speed Reducer	1
34	KM-P60-034	Base Plate For Engine	1
35	KM-P60-035	Reducer Gear Box	1
36	KM-P60-036	Lever Support	2
37	KM-P60-037	Ntıt	1
38	KM-P60-038	Fork Head	1
39	KM-P60-039	Bolt	1
40	KM-P60-040	Bolt	4
41	KM-P60-041	Lock Washer	4
42	KM-P60-042	Flat Washer	4
43	KM-P60-043	Fork Lever	1
44	KM-P60-044	Fıxation Pin	1
45	KM-P60-045	Pulley	1
46	KM-P60-046	Key	1
47	KM-P60-047	Bolt	l
48	KM-P60-048	Lock Washer	1
49	KM-P60-049	Flat Washer	l
50	KM-P60-050	V-Belt	1
51	KM-P60-051	Belt Cover	1

Part (B)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Part List B

S/NO	Part No.	Description	QTY
52	KM-P60-52	Speed Reducer	1
53	KM-P60-53	Key	2
54	KM-P60-54	Pressure Cap For Tlınıst Bearing	1
55	KM-P60-55	Thrust Bearing	1
56	KM-P60-56	Circlip	1
57	KM-P60-57	Circllp	1
58	KM-P60-58	Bearing	1
59	KM-P60-59	Beaıing	1
60	KM-P60-60	SaJety Ring Belt	1
61	KM-P60-61	Safety Ring	l
62	KM-P60-62	Pressıire Cap	1
63	KM-P60-63	Blade Base	1
64	KM-P60-64	Elbow Blade	4
65	KM-P60-65	Arın Blade	4
66	KM-P60-66	Trowel Blade	4
67	KM-P60-67	Bolt	4_
68	KM-P60-68	Nut	4
69	KM-P60-69	Bolt	4
70	KM-P60-70	Lock Wasner	4,
71	KM-P60-71	Flat Wa&her	4
72	KM-P60-72	Slide Bolt	4
73	KM-P60-73	Bolt	4
74	KM-P60-74	Bottorrı Blade Bas Cap	l
75	KM-P60-75	Bolt	l
76	KM-P60-76	Lock Washer	1
77	KM-P60-77	Flat Washer	1
78	KM-P60-78	Cover Ring	1
79	KM-P60-79	Blade Base Cover	1