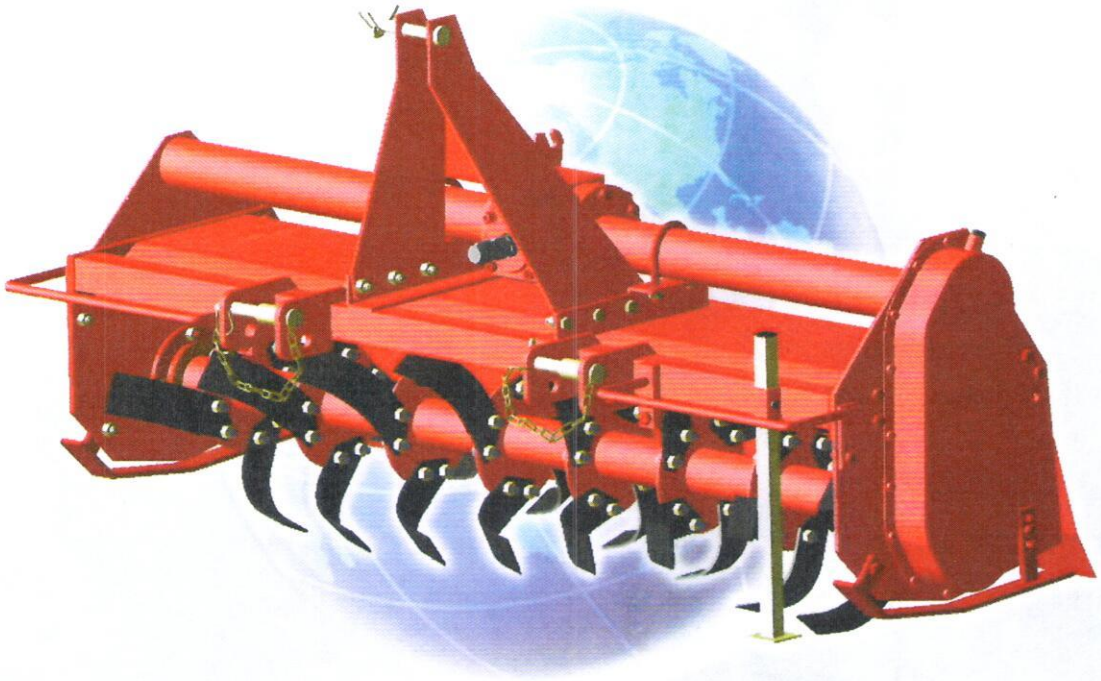
OPERATION MANUAL



TM SERIES ROTARY TILLERS
MODEL TM 120,130,140,150,160,170,180

MADE IN CHINA

Technical parameter

Model	TM120	TM130	TM140	TM150	TM160	TM170	TM180
Working Width(cm)	120	130	140	150	160	170	180
Blades shaft speed (rpm)	210	210	210	210	210	210	210
Number of blades	24	28	28	32	32	36	36
Tilling depth (cm)	8-12	8-12	8-12	8-12	8-12	8-12	8-12
Fitted power	25-30	30-35	30-35	35-40	40-45	45-50	50-55
Net weight (kg)	175	185	200	210	240	260	290
Gross weight (kg)	210	220	235	250	290	315	350

I. GUARANTEE

Materials made by us have guaranteed that no defects are on the materials themselves or that there is no blemish during manufacturing. This guarantee will have no effect after the expiry.

Exception conditions:

(1) It is unworkable due to damaging (lake of care or maintenance), abnormal operations, overused or abnormal abrasion.

(2) Material is changed, fitting or dismount, even if only perceivable part or surface.

(3) Our technical service is only available for defective parts. The parts with possible defects should be returned to our company with an attached Demand of Requirements. We are not responsible for the laboring fees of any dismount of installation of the fee and result for handling with the materials.

(4) To enjoy your guarantee rights, clients should let us know the material limitation and offer all evidences. Under such condition, if the material is not returned, or client appoints a third side to disassemble or repair in advance, the guarantee terms will not work.

(5) Work pieces always go wrong and after accepting our technical service guarantee the work pieces are not returned to us.

(6) Our obligation is limited in the range of the above written guarantee terms. In no case a concurrent affair caused by anyone or things can be guaranteed. So do the sold products.

(7) Property Retaining: According to the term 20.335 of the rules of May 12.1980, we will retain the property ownership of the sold products until all charge is paid.

(8) Disagreement: If disagreement appears, a court with a certain lever has right for judgment.

(9) Treaty or statute can't be changed. Adjudication cannot be violated.

II HAND-OPERATING MILLING CUTTERS

Seeing this symbol means possible danger to you, so please pay enough attention to this symbol.

III AFTY & PREVENTIVE STEPS FOR ACCIDENT

During operation, you should always remind yourself to be careful to maintain and replace parts and to obey rules to avoid accident.

To operate the machine in a better way, please follow safety rules including these:

(1) Stop tractor, waiting all moving parts to stop. Stop the machine vertically on ground. Lift universal shaft and then begin adjusting, washing or maintenance.

(2) Before using, adjust the elasticity of nuts and bolts, especially adjust blade well.

(3) After operation is finished, cardan shaft should still get

care and kept in good condition. Replace the old one if necessary.

(4) Before and during operation, all people must leave the field, because some small clod can be cashed out.

(5) Choose the tractors with protective booth if you can.

(6) Don't let machine operate without human control.

(7) When you maintain, repair or keep the key of tractor, keep the machine from moving forward.

(8) Don't wear tights to avoid being rolled. Wear glove when cutting parts.

(9) Don't let anybody seat on implements and tractor.

(10) Cardan shaft should always be kept in good condition. Fit a small chain to make it easy for stopping rotation. Once default or abrasion is found, the part should be replaced.

To get part under guarantee, use original parts and follow the instructions well.

IV OPERATION & TRAVEL

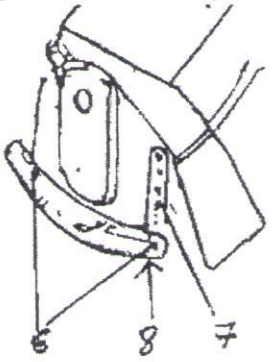
1. Before using, looks though Operation Manual. Keep center bonnet and side cover level and fill with EP80W90 engine oil.
2. After 30 work hours, screw out plug and bread out bonnets and engine cases before a second operation. Control oil level with meter and break out again after 200 work hours.
3. Before operation, tractor should have the right output power of 540rpm

to avoid damaging machine.

4. Operation speed is better to be 1.2-1.5 km/h.

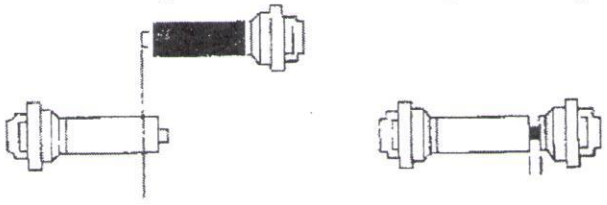
V TENSILITY OF CHAIN

1. Tensility of chain is caused by elasticity inside bonnet. If the machine has noise or works for successive 200 hours, adjust elasticity and chain. Adjust parts and components in special workshop. Install bonnet with new fastening. This maintenance can keep chain and machine bolts in good condition.
2. Adjust operation depth. Stop engine of tractor. After the parts and components stop working, loose bolt(6), screw down bolt(7), adjust left and right braking blocks of adjuster(8), and tighten loosen bolts for a proper height.



VI TRANSMISSION

1. When milling cutter is fixed on tractor, adjust length of cardan shaft. If it is so long that it cuts the outside protective device, file the bushing short. In a working positing, bushing should be inset into the other bushing at least 150mmm (see the picture).



When cutting tool is fixed on tractor, it should get some adjustment.

2. Adjust and install transmission gear (cardan shaft) in special workshop. If there is damage on protective gear, replace it completely. Generally, a chain should be fitted on protective device not only under working condition.

3. When an implement is fitted on tractor, always use pins to lock the crankshaft. If pins go wrong, replace them.

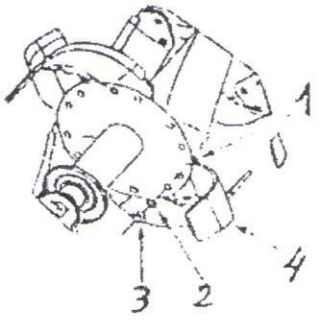
4. When implements are locked on tractor, cardan shaft should be fixed and lock on both ends through pins. The protective device of cardan should be in good condition and kept still during machine running. When safety device is damaged. For safety, use a small chain that is ready to replace it.

5. When machine stops work, let tractor come away from hook. To avoid stopping on the ground, an extra chain of cardan shaft can be used. When fix cardan shaft, make sure it is locked up.

VII CUTTING TOOL REPLACING

1. Before changing operation of the implement, stop engine of tractor, and after all moving parts and components stops, disconnect cardan shaft with force.

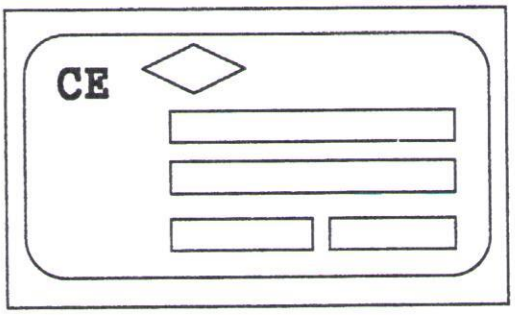
2. Stop the implement on a plain ground and do as the following: screw down all the bolts(1), replace used or damaged cutting tools, install left and right(4) carefully, tighten bolts(1) with shim(2) and nut (3), and



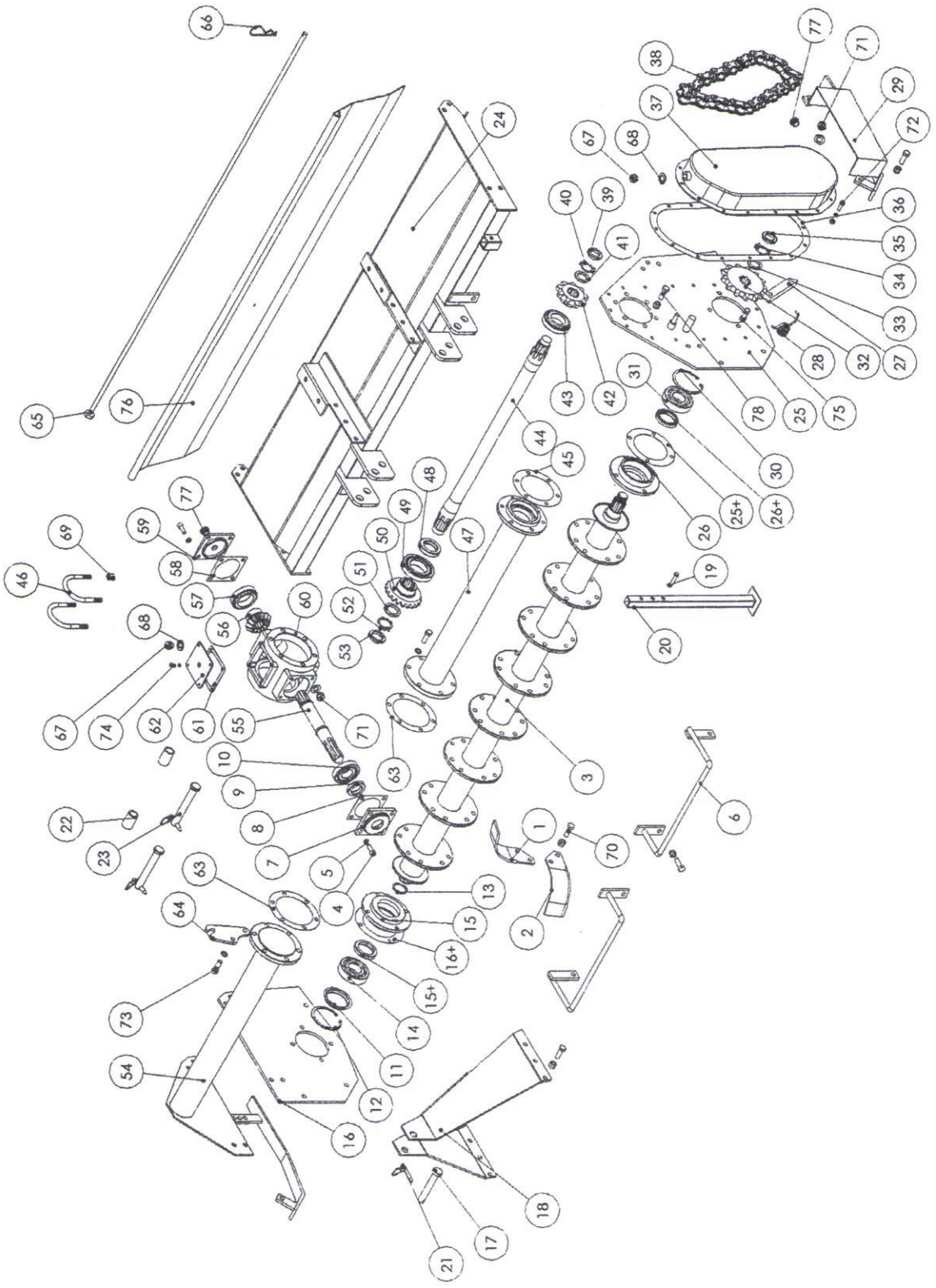
tighten bolt(1).

3. For good performance of implement, use original cutting tools only.

IX INFORMATION SYMBOLS



1. Label No. 1 means the model.
2. To transport easily, machine can be delivered without engine oil.
3. Read Operation Instruction carefully before using.
4. Output power is 540rpm.
5. Pay attention to the small clods casted out. Frequent inspection for the working parts and components is necessary.
6. Don't interfere the working machine by compelling and keep yourself away from it.

TM spare parts list

Ser. No.	Name	Qty	Ser. No	Name	Qty
1	Left-bent blade	16	38	Chain	1
2	Right-bent blade	16	39	Circular nut	1
3	Blade shaft	1	40	Stop washer	1
4	Bolts	8	41	Washer	1
5	Spring washer	8	42	Small sprocket wheel	1
6	Protective guard	2	43	Bearing	1
7	Cap	1	44	Second shaft	1
8	Oil seal ring	2	45	Oil seal ring	1
9	Oil seal	1	46	U-bolts	2
10	Bearing	1	47	Main frame pipe	1
11	cover	1	48	Oil seal	1
12	Eyelet washer	1	49	Bearing	1
13	Shaft washer	1	50	Big bevel gear	1
14	Bearing	2	51	Washer	1
15	Bearing seat	1	52	Stop washer	1
15+	Oil seal of bearing seat	1	53	Circular nut	1
16	Side board	1	54	Auxiliary frame pipe	1
16+	Oil seal ring of bearing seat	1	55	First shaft	1
17	Pin	1	56	Small bevel gear	1
18	Shield protective cover	1	57	Bearing	1
19	Pin	1	58	Oil seal ring	1
20	Stay bar	1	59	Cap	1
21	Pin	3	60	Intermediate gearbox	1
22	Sheath	2	61	Oil seal ring	1
23	Pin	2	62	Cap	1
24	Cover	1	63	Oil seal ring	2
25	Side board	1	64	Suspension Slice	1
25+	Oil seal ring of bearing seat	1	65	Rod	1
26	Bearing seat	1	66	B type pin	1
26+	Oil seal of bearing seat	1	67	Venting oil plug	2
27	Tension plate	1	68	Copper gasket	2
28	Spring	1	69	M12 locknut	1
29	Anti-friction plate	2	70	M12*30 bolt+locknut	
30	Eyelet washer	1	71	Oil drain plug	2
31	Bearing	1	72	M8*25 bolt + nut + spring washer	16
32	Big sprocket wheel	1	73	M12*35 bolt + spring washer	12
33	Washer	1	74	M6*10 bolt + spring washer	4
34	Stop washer	1	75	M10*35 bolt + nut + bonded washer	8
35	Circular nut	1	76	Tail plate	1
36	Oil seal ring	1	77	Oil check plug	2
37	Side chain box	1	78	Bolt	6