



Maintenance and Use Manual

MOD. **TA**

MOD. **TD**

HYDRAULIC FLAIL HEDGER MOWERS

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Use and maintenance manual in conformity with Enclosure V Directive 89/392/CEE and following modifications and additions - Do not destroy - Do not change - Add additional only '97

Contents

1 GENERAL INFORMATION	3
1.1 Introduction - Aim of the present manual	3
1.2 Identifying the machine	3
1.3 Spare parts	3
1.4 Left and Right Side Cutting.	3
2 TECHNICAL FEATURES	4
2.1 General description of the machine	4
2.2 Technical Specifications	5
2.3 Noise	5
2.4 Width of Cut	6
2.5 Versions of the Machine	7
2.6 Optional Equipment	7
2.6.1 Flails	7
2.6.2 Oil cooler (only for TA32 - TA32R - TD37 - TD37R - TD42)	7
2.7 Description of the equipment	7
3 SAFETY RULES	8
3.1 General safety rules:	8
3.2 Safety Rules Concerning Road Traffic	9
3.3 Safety Rules During Use	9
3.4 Safety Rules concerning the Hydraulic System	9
3.5 Description and Location of Safety Decals	10
3.6 Driver Protection	11
3.7 Danger	11
4 INSTRUCTIONS FOR INSTALLATION - HANDLING – PARKING	12
4.1 Lifting and unloading	12
4.2 Unpacking	12
4.3 Attachment to and detachment from the Tractor	13
4.4 Fitting the PTO shaft	15
4.4.1 Fitting the pump on TA26	15
4.5 Tractor Stability	16
4.6 Fitting the Flail Head	16
4.7 Parking	17
4.8 Electrical connections	17
5 ADJUSTMENT AND SETTING UP	20
5.1 Regulatin the Height of Cut	20
5.2 Working Speed	20
6 USE AND OPERATING RULES	21
6.1 Controls	21
6.2 Starting	22
6.3 Working Mode	23
6.3.1 Direction of rotation of the rotor	23
6.3.2 Arms safety	23
6.4 Stopping	24
6.5 Transport Position	24
7 MACHINE MAINTENANCE	25
8 TROUBLE SHOOTING CHART	27
9 REPLACING PARTS	28
9.1 Flail replacement	28
9.2 Pipe replacement	28
9.3 Pin Replacement	28
9.4 Oil and filter replacement	28
10 DEMOLITION, DIFFERENTIATED DIVISION OF THE MATERIALS AND DISPOSAL	29

HYDRAULIC FLAIL HEDGE MOWER ARM

The machine that is the subject of this manual complies with:

European Directives		
2006/42/EC		Machine Directive
2004/108/EC		Electromagnetic compatibility – For models of machine equipped with electric/electronic devices
Harmonised standards		
UNI EN 4254-1	2009	Agricultural machinery - Safety - Part 1: General requirements
EN 60204-1	1997	Safety of machinery. Electrical equipment of machines
EN ISO 12100-1	2009	Safety of machinery – Basic concepts, general principles for design - Part 1: Basic terminology, methodology
EN ISO 12100-2	2009	Safety of machinery – Basic concepts, general principles for design - Part 2: Basic terminology, methodology
UNI EN 13524	2009	Highway maintenance machines. Safety requirements
UNI EN ISO 13857	2008	Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs
Technical specifications		
ISO 11684	1995	Tractors, machinery for agriculture and forestry, powered lawn and garden equipment - Safety signs and hazard pictorials - General principles
UNI EN ISO 3767-2	1998	Tractors, machinery for agriculture and forestry, powered lawn and garden equipment - Symbols for operator controls and other displays - Part 2: Symbols for agricultural tractors and machinery



1 GENERAL INFORMATION

1.1 Introduction - Aim of the present manual

This operation and maintenance manual is intended for the professional user.

It is mandatory to follow these instructions in order to prevent events which could endanger the operator's and other people's safety, apart from the correct functioning of the flail-hedger mower. In case of doubt, do not experiment, call "FERRI" after-sales service instead, or the specialized "FERRI" dealer.

1.2 Identifying the machine

Each frame and flail head is fitted with an identification plate; both the data necessary to identify the model and the serial number to order spare parts or after-sales service are stamped on the plate (see FIG. 1).

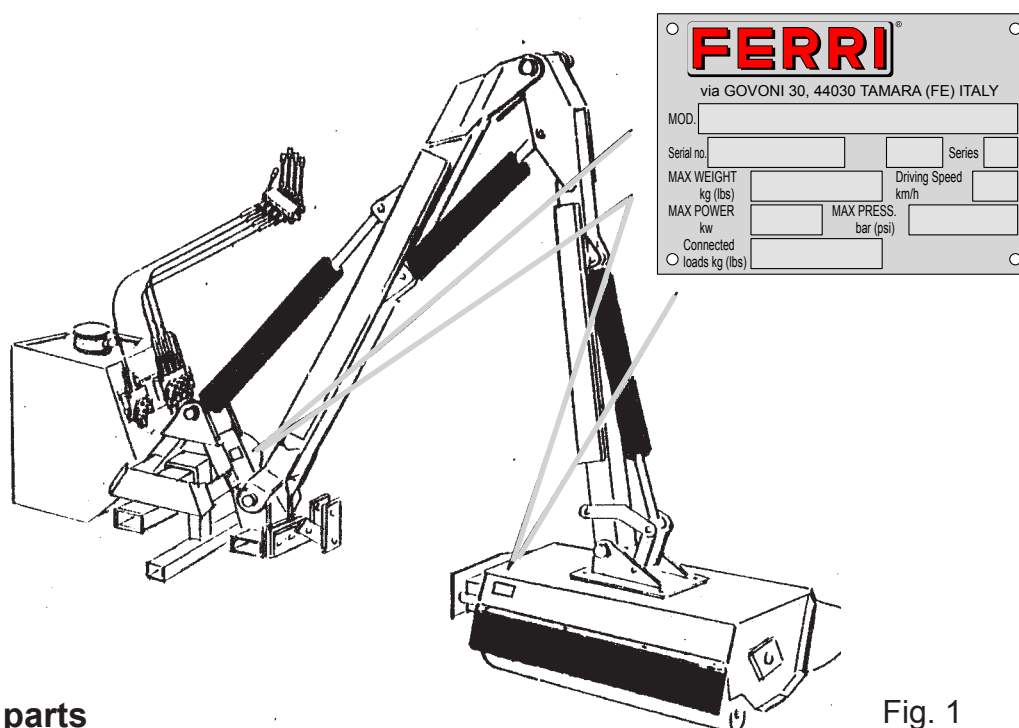


Fig. 1

1.3 Spare parts

It is strongly recommended to use genuine "FERRI" spare parts to avoid altering the technical features of the flail-hedger mower. "FERRI" is not responsible for any damage or injuries to people due to unauthorized modifications or to the use of non-genuine spare parts.

1.4 Left and Right Side Cutting.

In relating to the working direction, the machine is called "right side flailhedger mower" if the arm is on the right side, and "left side flail-hedger mower" if the arm is on the left side. (See also FIG. 2 for boom flail mower for reversible tractors FIG.3).

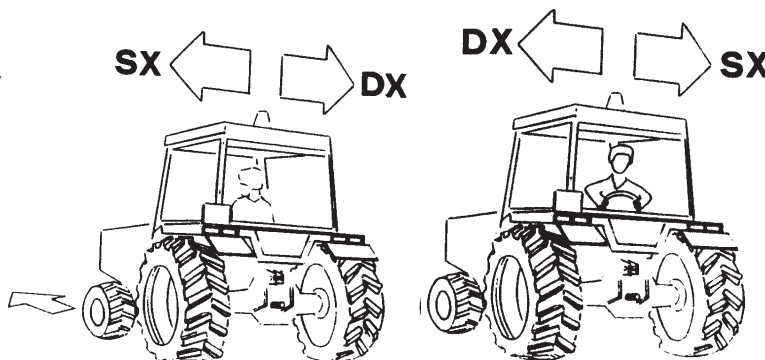


Fig. 2

Fig. 3

2 TECHNICAL FEATURES

2.1 General description of the machine

"FERRI" flail-hedger mower, from now on also called "machine", has been designed to shred materials growing or laying on the ground, e.g. grass, bushes, sticks and shrubs. Never operate with the flail head lifted off the ground (proper use).

Any other use is considered improper and the manufacturer disclaims all responsibility for any consequential injuries to people, or for damage to the machine.

"Proper use" also refers to the safety and maintenance rules provided for by the manufacturer.

Technical names (FIG. 4)

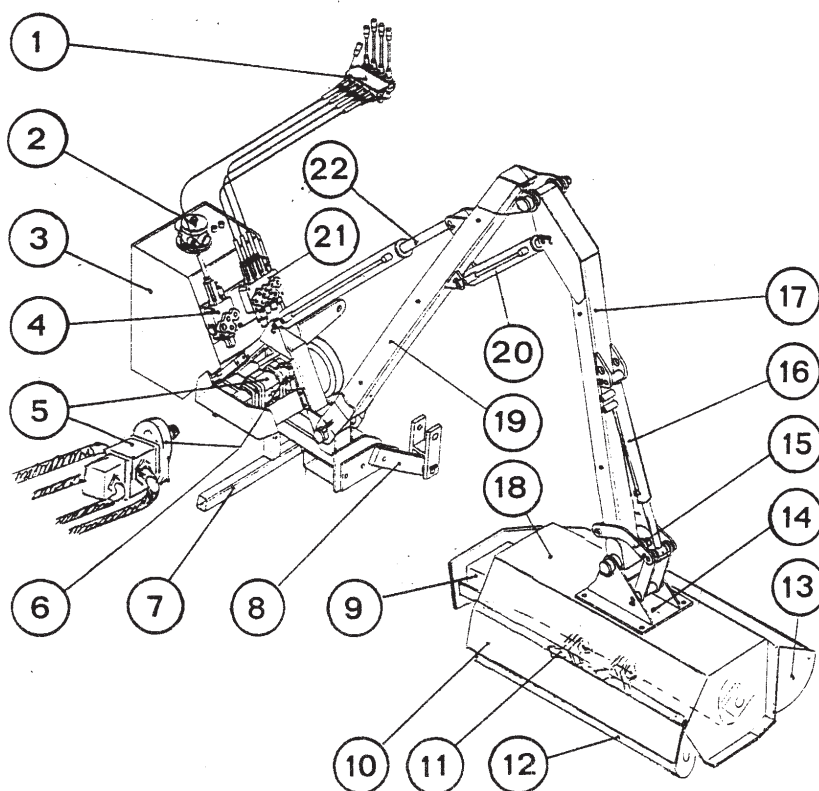


Fig. 4

- | | |
|-------------------------------|---|
| 1 - Controls | 12 - Roller |
| 2 - Oil filter | 13 - Front guard |
| 3 - Frame with tank | 14 - Attachment hydraulic ram- flail head |
| 4 - Flail head control valve | 15 - Levers to adjust flail head |
| 5 - Pumps | 16 - Hydraulic ram to adjust flail head |
| 6 - Gearbox | 17 - 2nd arm |
| 7 - Stand | 18 - Flail head |
| 8 - Attachment to the tractor | 19 - 1st arm |
| 9 - Hydraulic motor | 20 - 2nd arm hydraulic ram |
| 10 - Rear guard | 21 - Hydraulic ram control valve |
| 11 - Rotor | 22 - 1st arm hydraulic ram |

This machine is in conformity with the following provisions of law:

- Directive Machine 89/392/CEE and following additions: 91/368/CEE, 93/44/CEE and 93/68/CEE;
- Regulations UNI EN 292/1 and 292/2 (machinery safety);
- DPR 27th April 1955, N. 547 (Rules for the prevention of industrial accidents).

2.2 Technical Specifications

TAB. 1					
MACHINE	MOD.	TA26	TA32	TD37	TD42
Min. tractor required power	HP (KW)	20 (15)	30 (23)	40 (30)	45 (33)
Min: tractor required weight	Kg (lbs)	700(1540)	900(1980)	1700(3740)	2000(4400)
Min. tractor required width	cm (in)	120 (47,2)	150 (59)	150 (59)	170 (67)
PTO speed	rpm	540			
Tractor voltage rating	V	12			
Absorbed power	Hp (Kw)	18 (13)	24,5 (18)	24,5 (18)	24,5 (18)
Standard weight	Kg (lbs)	258 (568)	330 (725)	440 (968)	455 (1000)
Attachment to the tractor	cat.	0 - 1	1	1 - 2	1 - 2
HYDRAULIC SYSTEM					
Oil tank capacity	lt (gal.)	40 (11)	50 (14)	65 (18)	65 (18)
Total system reservoir	lt (gal.)	47 (13)	58 (16)	74 (20)	74 (20)
Filter micron	micron	30			
Type of oil		ISO - L - HM68			
Arm pressure	Bar (PSI)	190 (2755)			
Flail head pressure	Bar (PSI)	150 (2175)			
FLAIL HEAD	MOD.	TME 80		TIL 100	
Width of cut	cm (in)	80 (32)		100 (39)	
Head.movement		190°		190°	
Rotor speed	rpm	3000		3000	
Flail head weight	Kg (lbs)	80 (176)		120 (265)	

2.3 Noise

The sound level of these machines, as measured at the operator's ear, ranges from 74.3 dB to 75.2 dB when the cab is closed, and from 78 to 82.5 dB when the rear window is open. The acoustic power level is LWA 103.2.

When the sound level perceivable at the operator's ear ranges from 85 dB and 90 dB, the use of ear protectors is recommended.

2.4 Width of Cut

The figure shows the width of cut of the machines. Dimensions are shown in Table 2.

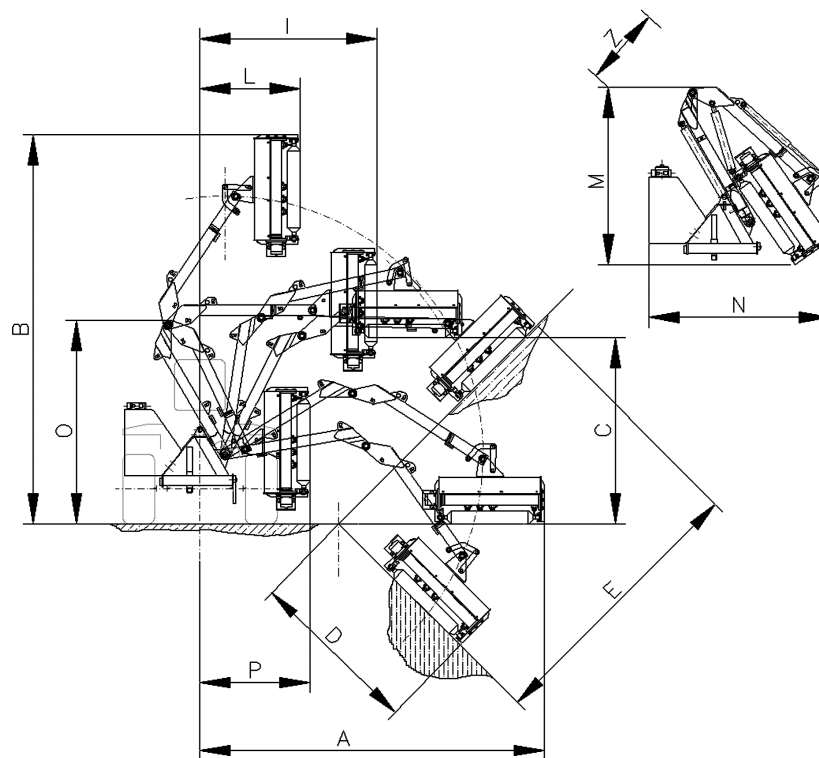
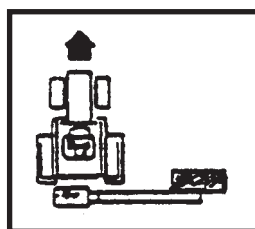


Fig. 5

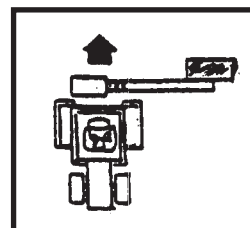
TAB.2					
		TA26	TA32 TD32	TD37	TD42
A	mt.	2,7	3,24	3,7	4,23
	ft.	8' 11"	10' 7"	12' 1"	13' 10"
B	mt.	3,1	3,63	3,96	4,53
	ft.	10' 1"	11' 11"	13'	14' 10"
C	mt.	1,5	2,1	2	2,41
	ft.	4' 10"	6' 10"	6' 8"	7' 11"
D	mt.	1,4	1,86	2,28	2,86
	ft.	4' 2"	6' 1"	7' 6"	9' 5"
E	mt.	2,2	2,78	3,19	3,77
	ft.	7' 3"	9' 2"	10' 6"	12' 4"
I	mt.	1,4	1,57	1,6	1,78
	ft.	4' 7"	5' 2"	5' 3"	5' 10"
L	mt.	0,80	0,86	0,88	0,90
	ft.	2' 7"	2' 10"	2' 11"	2' 11"
M	mt.	1,4	1,7	1,7	2
	ft.	4' 7"	5' 7"	5' 7"	6' 7"
N	mt.	1,4	1,38	1,55	1,54
	ft.	4' 7"	4' 6"	5' 1"	5'
O	mt.	1,6	1,95	2	2,33
	ft.	5' 3"	6' 5"	6' 8"	7' 8"
P	mt.	0,87	0,86	1,23	1,27
	ft.	2' 10"	2' 10"	4'	4' 2"
Z	mt.	0,65	0,65	0,72	0,72
	ft.	2' 2"	2' 2"	2' 4"	2' 4"

2.5 Versions of the Machine

Apart from the REAR RIGHT version (A) (standard), for model TA32-TD32 also the version for REVERSIBLE TRACTORS (B) is produced.



A



B

2.6 Optional Equipment

2.6.1 Flails

Articulated flails (cod.0901133) for grass, shrubs, sticks and bushes up to 2 cm. diameter (for TME80 flail head only)



Hedgetrimming flails (cod.0901149) for grass and small shrubs up to 2 cm. diameter (for TIP 100 flail head only).



2.6.2 Oil cooler (only for TA32 - TA32R - TD37 - TD37R - TD42)

The oil cooler is particularly useful when the machine has to carry out heavy work for a prolonged time or in hot weather conditions. It is activated when the temperature of the hydraulic oil reaches 50° C; in this case it activates the thermostat and the electric fan at 12 V 25 Ampere (fed by the tractor).

2.7 Description of the equipment

Cutter bar for hedges mod. CS 150 (FIG. 6) to trim hedges, for ditches, and sticks up to 1 cm. diameter (proper use).

Width of cut mt. 1.5

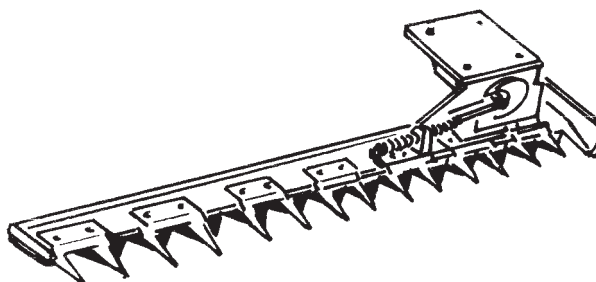


Fig. 6

NOTE: This equipment is described in the specific use and maintenance manuals.

3 SAFETY RULES

3.1 General safety rules:

It is mandatory to read and follow the instructions for the use and maintenance manual before carrying out any operation or move with the machine; reading it DURING THE OPERATION IS TOO LATE.



- Improper use or an incorrect move may seriously damage things and people.
- Both the operator and the maintenance fitter must know the machine well, especially regarding dangers resulting from improper use or incorrect repairs.
- Before starting, checks on tractor and mower must be carried out as regards: functionality; road safety; accident prevention rules.
- Even when using the machine correctly, stones or other objects may be thrown a long distance. Therefore nobody must stand within the danger area. Special attention must be paid when working near roads or buildings.
- Use tractors with cabs.
- The condition of flails and of all guards must be checked before beginning the daily work; they must be replaced if damaged or missing.
- During checks or repairs, make sure nobody could start the machine by mistake.
- Never wear loose or fluttering clothes.
- Never carry passengers on the tractor.
- Never work, walk or stand under the lifted arm.
- Never use the arm to raise people or objects.
- Never carry people on the mower.
- Never connect the power takeoff with the engine stopped.
- Never approach the machine until the rotor has completely stopped.
- Do not enter the working zone of the PTO shaft. It is dangerous to approach the rotating parts of the machine.
- Keep the PTO shaft guard in good order.
- Before starting, check the surrounding area for the likely presence of children and/or animals.
- Do not stand in the range of operation of the machine.
- The PTO shaft must be assembled and disassembled only with the engine stopped and the starting key removed.
- Before connecting the power takeoff, check that the speed and the rotational direction correspond to those of the mower.
- Before leaving the tractor with the machine fitted, proceed as follows:
 - 1) Inhibit all functions through the machine controls.
 - 2) Disconnect the power takeoff.
 - 3) Apply the hand brake and, if the ground is steeply sloping, block the tractor wheels.
 - 4) Take out the starting key.

Immediately replace any safety sign or missing or damaged decal.
Never underrate or ignore the safety rules.

3.2 Safety Rules Concerning Road Traffic

Disconnect the power takeoff.

In transport, reduce speed, especially on bumpy roads. The very weight of the machine alters the stability and may render driving difficult and damage the machine itself.

When driving on public roads, observe all road regulations.

Never transport the mower with the rotor moving, even for short distances.

Protect the control levers of the mower against accidental blows.

Lock the arm and the flail head with the appropriate chain.

3.3 Safety Rules During Use

Pay special attention, when working with the machine, not to touch fixed objects, such as road drain wells, shafts, kerbs, guard rails, tracks, etc. This could cause the breakage of the flails, which would be thrown at very high speed.

If wires, ropes or chains should get entangled in the rotor, stop immediately, to prevent damage or dangerous situations; stop the rotor and the tractor, take out the starting key.

Put working gloves on, clear the rotor with the aid of pliers or shears. Do not try to disentangle by inverting the rotational direction of the rotor.

Do not use the machine when there is vibration in the flail head, as this would cause breakage and serious damage. Find the cause of the vibration and eliminate it.

Do not operate with the arm in extension if the tractor is on a sloping ground.

3.4 Safety Rules concerning the Hydraulic System

Stop immediately in case of oil leaks.

IMPORTANT: Do not look for oil leaks with bare hands, but always with the aid of a cloth. Oil under strong pressure may seep into the skin causing serious infections. In this case contact a doctor immediately.

Periodically check the flexible pipes; if they are worn or damaged they must be replaced with others of the same specification.

Before working on the hydraulic system, lower the machine, stop the tractor, exhaust all pressure (hydraulic system and auto return system) using all controls in both directions.

Used oils and greases must be stored and disposed of according to antipollution rules.

3.5 Description and Location of Safety Decals

Carefully follow the instructions given on the decals.

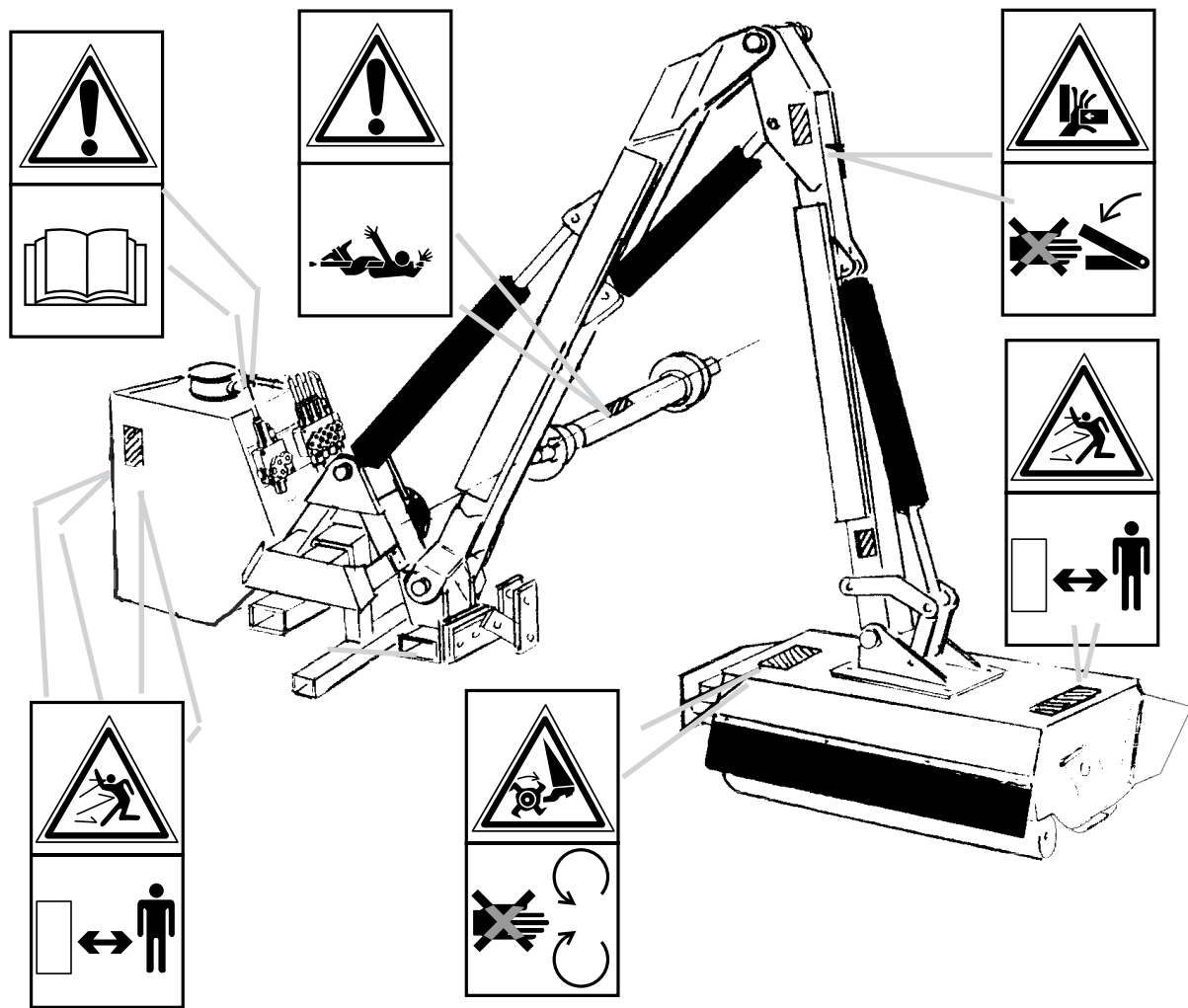


Fig. 7

Description of the Decals

- 1) Warning of danger through lack of knowledge of all the functions of the machine and the resulting risks. Read the use and maintenance manual before operating the machine.
- 2) Danger sign of crushing or shearing: do not put limbs in the moving parts of the machine with this decal.
- 3) Danger sign; it shows the risk of flying stones or other objects and makes it mandatory to keep out of the danger zone.
- 4) Danger sign of rotating flails; do not enter their area of operation with hands or feet.
- 5) Danger of getting entangled. Do not approach the rotating PTO shaft. Pay special attention to clothes, which must not be loose or fluttering.

3.6 Driver Protection

In order to protect the operator from possible flying debris, it is mandatory to fit two protection grills (1) to the operator's cab, so that the debris thrown by the machine cannot reach the glass of the cab and break it causing injuries to the operator. (FIG. 8).

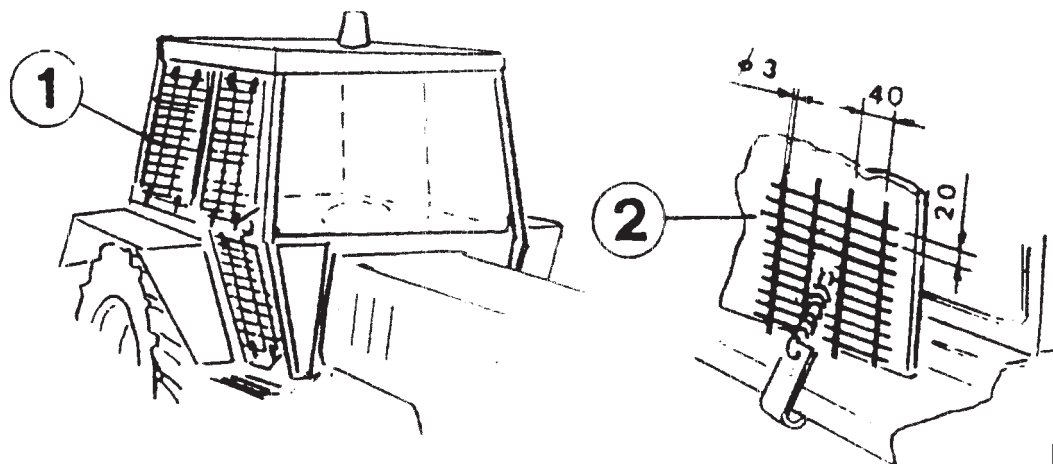


Fig. 8

It is recommended to fit 5 mm sheets of polycarbonate (2) between the grills (1) and the glass. They will prevent small stones and fragments from hitting the glass of the cab. (FIG. 8).

Attach the flail-hedger mower only to tractors with type approved anti-roll over driving cab (ROPS).

The operator and all personnel must wear a safety helmet and eye protectors as protection against possible flying material.

3.7 Danger

Pay special attention when working under or near electric or telephone lines (FIG. 9).

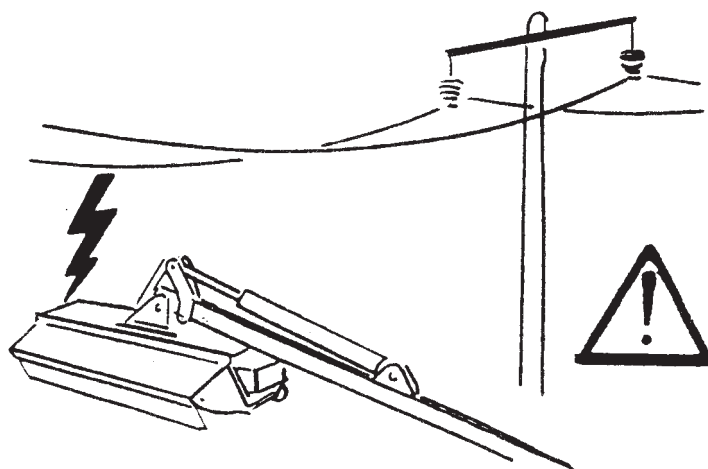


Fig. 9

4 INSTRUCTIONS FOR INSTALLATION - HANDLING – PARKING

4.1 Lifting and unloading

To handle the flail-hedger mower use a hoist or a crane with lifting capability suitable to the weight of the machine (see TAB. 1) and with proper chains and type approved hooks to be fixed in the marked points, as shown in FIG.10. In some models, lifting is also possible using a lift truck, after closing and blocking the arms to the frame with a chain.

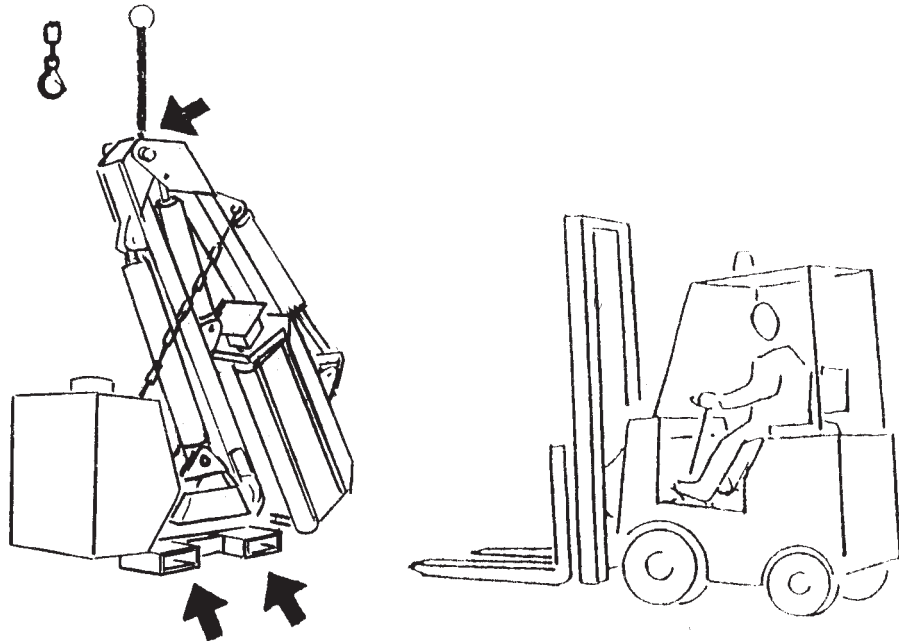


Fig. 10

4.2 Unpacking

To make transport easier, the mower can be supplied in a special pack (disassembled and on pallets).

In this case, a card showing the reassembling procedure will be attached to the Use and Maintenance Manual.

For packing reasons the safety bracket is assembled in non-operative position. FIG.11 shows the chart for a correct assembly.

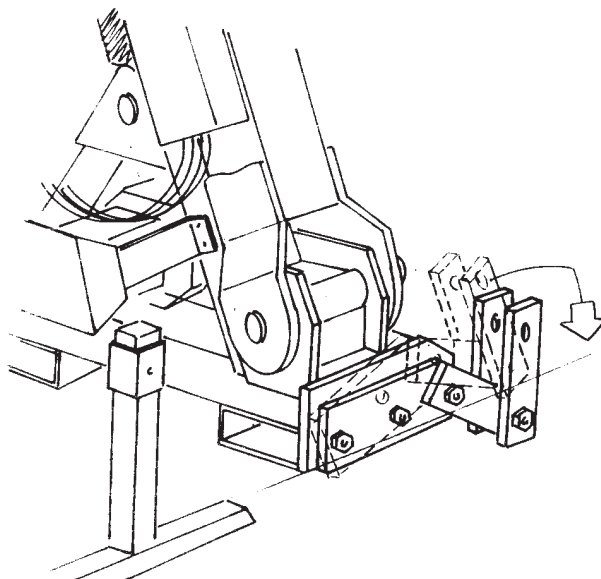


Fig. 11

4.3 Attachment to and detachment from the Tractor

Before carrying out this operation and whenever the machine is used, it is mandatory to:

- Visually check the machine in general
- Check that all guards are fitted and in good condition
- Confirm that all flails are fitted and in good condition
- Grease the bearings and any other part as indicated by a decal (FIG. 32)
- Check the oil level of tank and gearbox
- Check that all hydraulic pipes are in good condition, look for signs of leakage beneath the machine
- Check that the number of revolutions and the rotational direction of the power take off correspond to those required by the flail-hedger mower (FIG. 12).

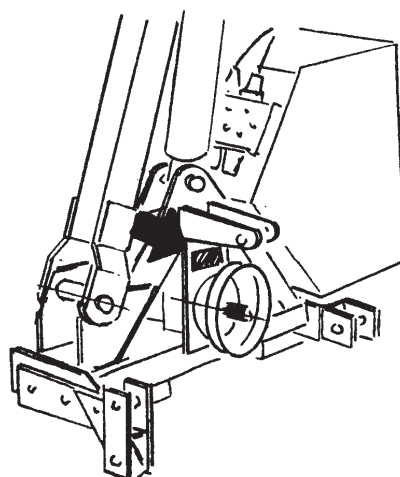


Fig. 12

Before fixing the flail-hedger mower to the tractor check that the the arm turnover is suitable for the tractor. FIG.13 shows weight and position of the barycentre at the maximum extension, as compared with the tractor centre line. The data are shown in TAB. 3.

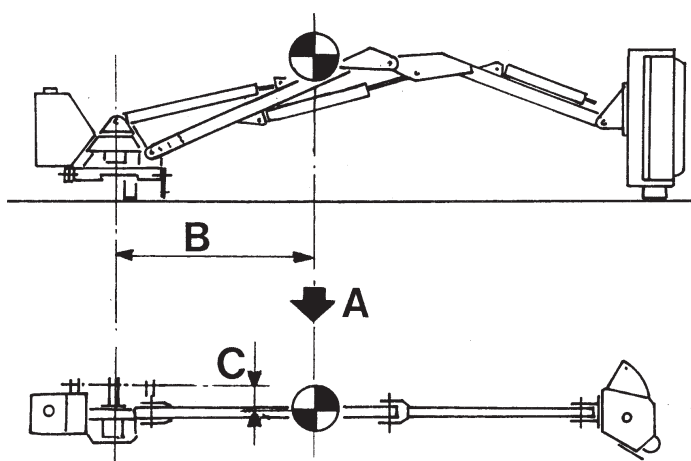


Fig. 13

TAB.3						
		TA26	TA32	TD32	TD37	TD42
A	Kg	245	330	355	440	455
	(lbs)	(540)	(725)	(780)	(968)	(1000)
B	cm	95	120	125	136	167
	(in)	(37)	(47)	(49)	(53)	(66)
C	cm	14	16	18	35	35
	(in)	(5)	(6)	(7)	(14)	(14)

To attach the machine to the tractor (FIG.15), bring the tractor lower lines (1) near the flail-hedger mower, to the points corresponding to the pins.

Insert the pins (2) and secure them with the spring clips (3).

Fit the top link (4), raise the flail-hedger mower to a horizontal position. Adjust the two tractor lower linkage stabilizers (5) thus fixing the machine to the tractor in a central position.

For model TD37 - 42 (which are heavier) it is advisable to use two additional stabilizers (6) (supplied with a kit on request), that make the tractor stabler. FIG. 14.

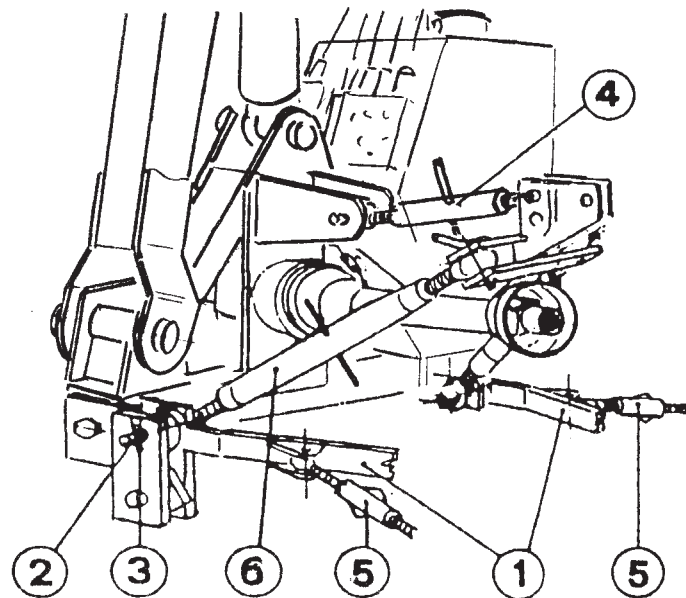


Fig. 14

IMPORTANT: never operate the tractor hydraulic lift when additional stabilizers are fitted (6). Proceed in reverse order to detach the flail-hedger mower from the tractor.

4.4 Fitting the PTO shaft

Using the hydraulic lift of the tractor, place the machine at the closest point between the corresponding power takeoffs and check the minimum length of the PTO shaft (FIG. 15).

Check that the overlap is not less than 2/3 of PTO elongation. If it needs shortening, proceed as in (FIG. 16).

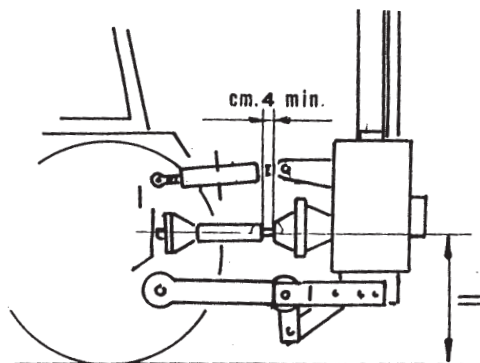


Fig. 15

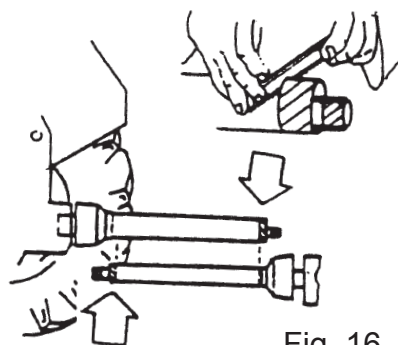


Fig. 16

The guards of the PTO shaft must be fixed to the flail-hedger mower and to the tractor with chains, to prevent rotation.

The minimum overlap of the guard and the PTO shaft must not be less than 5 cm. (FIG.17).

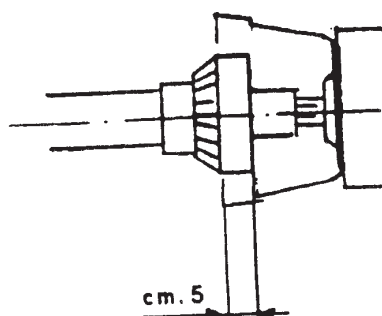


Fig. 17

4.4.1 Fitting the pump on TA26

After following the steps described in 4.3 FIG.15, the pumps 1 can be fitted to the tractor as follows:

Insert the keyed hydraulic ram 2 in the power takeoff 3 of the tractor till the safety lock is activated and check that the pipes 4 do not touch any part and are not crashed.

IMPORTANT: It is advisable to make a supporting flask to avoid charging the power takeoff of the tractor and to support the pumps more correctly.

NOTE: According to the assembly position of the gearbox 6 use the oil quantity indicated in the table on page 26.

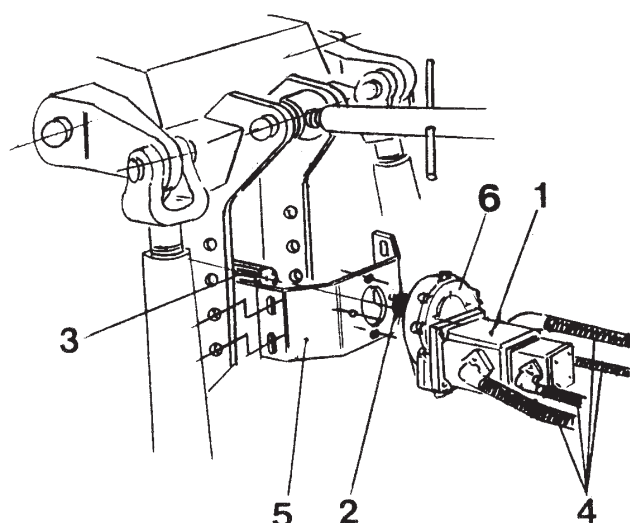


Fig. 18

4.5 Tractor Stability

Due to the design of the flail-hedger mowers and to the work they do, it is essential to ensure stability, in order to eliminate any risk of imbalance or overturning.

- Adjust the wheels of the tractor to maximum track (FIG. 19).
- Ballast the front of the tractor and the rear wheel opposite to the operating arm (FIG. 20).
- Only in extreme cases, and only when working, lock the front axle articulation by fitting a spacer between the chassis and the front axle (FIG. 21). We recommend you to contact “FERRI” or our dealer.

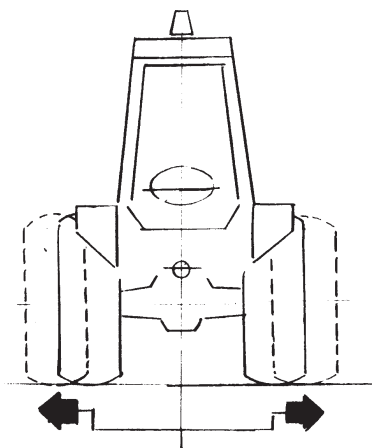


Fig. 19

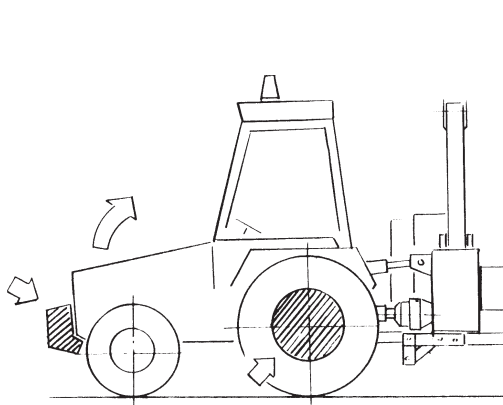


Fig. 20

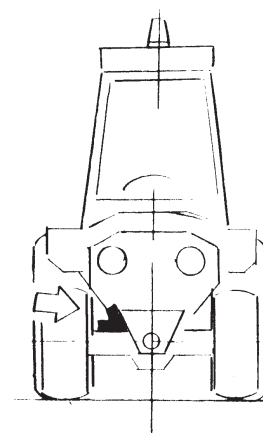


Fig. 21

4.6 Fitting the Flail Head

The flail head is normally supplied already fitted to the arm.

However it may happen that, for packing reasons or because it is interchangeable with other equipment, the flail head has to be assembled afterwards. In this case, proceed as follows:

- Raise the flail head with the aid of a lift and place it near the end of the arm.
- Lower the arm so that the tie plate corresponds to the flail head (FIG. 22).
- Secure the flail head with the four screws (1).
- Stop the tractor and take out the starting key.
- Connect the hydraulic feed of delivery and return pipes to the hydraulic motor, after exhausting system pressure.
- Connect the leak-off pipe to the hydraulic motor.
- On this occasion, check that all guards are fitted and in good conditions.

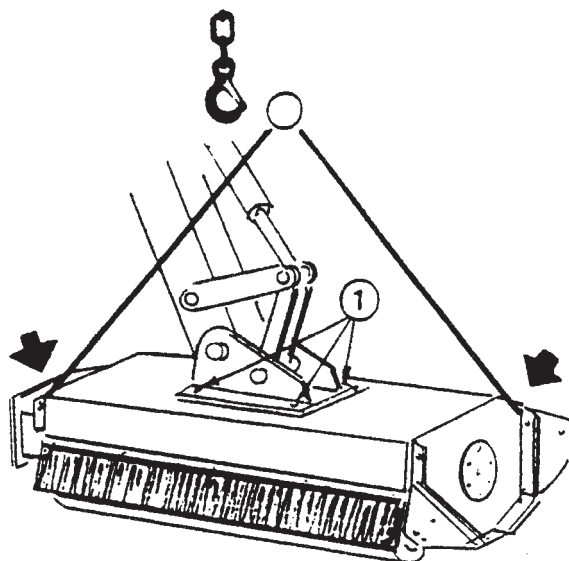


Fig. 22

4.7 Parking

Park the machine in a safe and quiet place, on flat and firm ground, in order to prevent the risk of rolling over.

Remove stabilizers (6) (FIG.14) (only on machines equipped with them).

Lower the flail-hedger mower to the ground with the aid of the hydraulic lift of the tractor, after lowering and blocking the stand, closing the arms and lowering the flail head to the ground (FIG. 23).

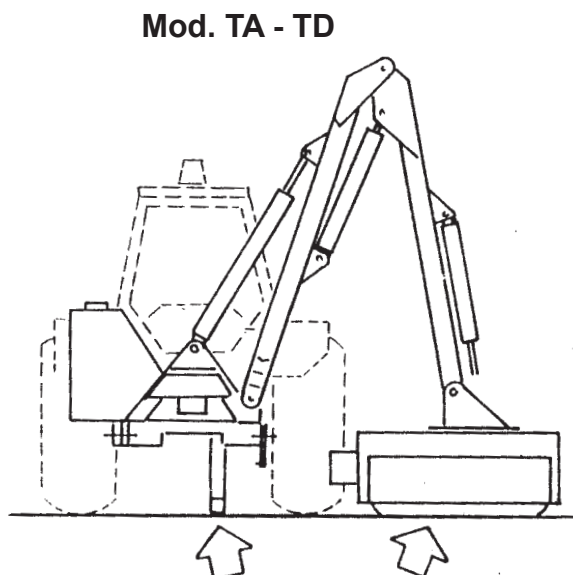


Fig. 23

4.8 Electrical connections

IMPORTANT NOTICE

All flail hedge mowers with electrically/electro-hydraulically controlled distributors (low pressure) and/or heat exchanger, are equipped with electric cables whose wires are coloured as per current laws in force (see FIG. 24) (blue: positive pole (+) fixed to connector no. 58; brown: negative pole (-) fixed to connector no. 31) and of suitable thickness (heat exchanger wire thickness: 2x6 mm²; control box wire thickness: 2x2.5 mm²). Also, to prevent the inversion of polarity near the terminals, the wires are tagged with plastic rings bearing the symbols (+) and (-).

When making the connections it is vitally important:

1	NOT TO INVERT THE POLARITY
2	NOT TO ALTER THE WIRE THICKNESS
3	THE VOLTAGE MUST BE 12V

Assembly instructions:

To make the electrical connections proceed as follows: (see FIG. 24)

1st case: flail hedge mower with electric controls + heat exchanger

fix sockets **A** and **B** in the rear part of the tractor frame

Cable (D) (supplies the exchanger **(3)** and is supplied by FERRI)

- take **cable (D)** to the tractor battery
- connect the **blue wire** of cable **(D)** to the positive pole **(+)** of the battery
- connect the **brown wire** of cable **(D)** to the negative pole **(-)** of the battery

Cable (C) (supplies the electrical control box **(4)** and is not supplied by FERRI)

- connect the socket **(B)** to the battery, (already fixed to the rear part of the tractor) using cable **(C)**, (to be installed by the customer) of thickness 2.5 mm², taking care to make the connections as shown in Figure 24, i.e.:
- connect **connector no. 58 (positive +) (blue wire)** of the socket **(B)**, to the **positive pole of the battery**
- connect **connector no. 31 (negative -) (brown wire)** of the socket **(B)**, to the **negative pole of the battery**.

2nd case: flail hedge mower with electrical controls only (no heat exchanger)

CAUTION: cable (C) which supplies the electrical control box is not supplied by FERRI, but must in any case be installed by the customer

Cable (C)

- fix the socket **(B)** to the rear part of the tractor frame
- connect the socket **(B)** to the battery using a cable **(C)** of thickness 2.5 mm², taking care to carry out the connections as shown in Figure 24, i.e.:
- connect **connector no. 58 (positive +) (blue wire)** of the socket **(B)**, to the **positive pole of the battery**
- connect **connector no. 31 (negative -) (brown wire)** of the socket **(B)**, to the **negative pole of the battery**.

Once the connections have been made, before tensioning the electrical system make sure that:

- the connections have been made as shown in FIG. 24
- the battery terminal boards are securely tightened
- there are no bare wires

When cleaning the machine, take care not to direct the jet of water straight onto the electric boxes.

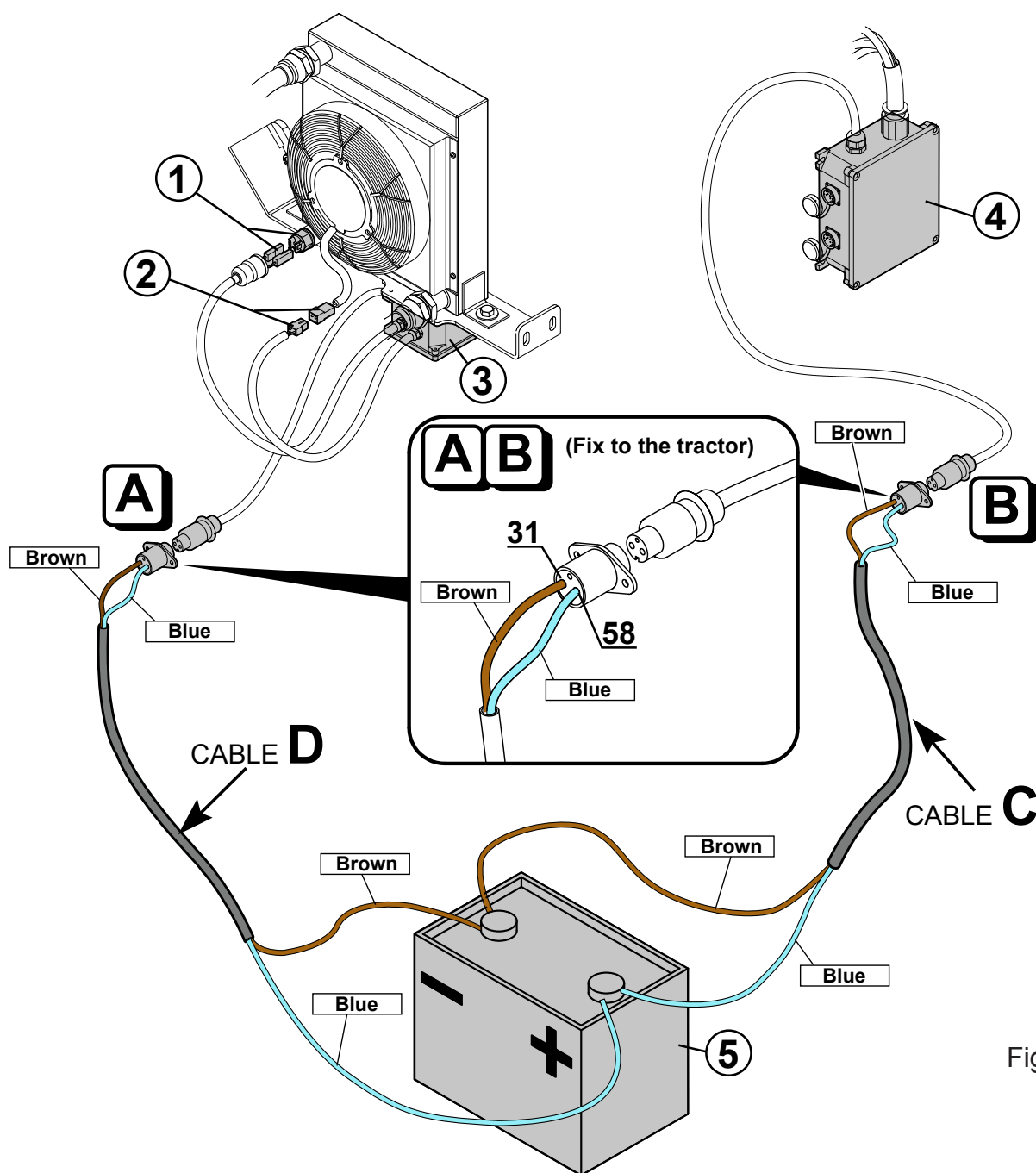


Fig. 24

1	Thermostat
2	Electric fan
3	Heat exchanger control unit
4	Distributor control unit
5	Battery of the tractor

5 ADJUSTMENT AND SETTING UP

5.1 Regulatin the Height of Cut

Adjustment of the height of cut is obtained by shifting the flail head roller in order to suit the material to be cut and the required degree of chopping (FIG. 25).

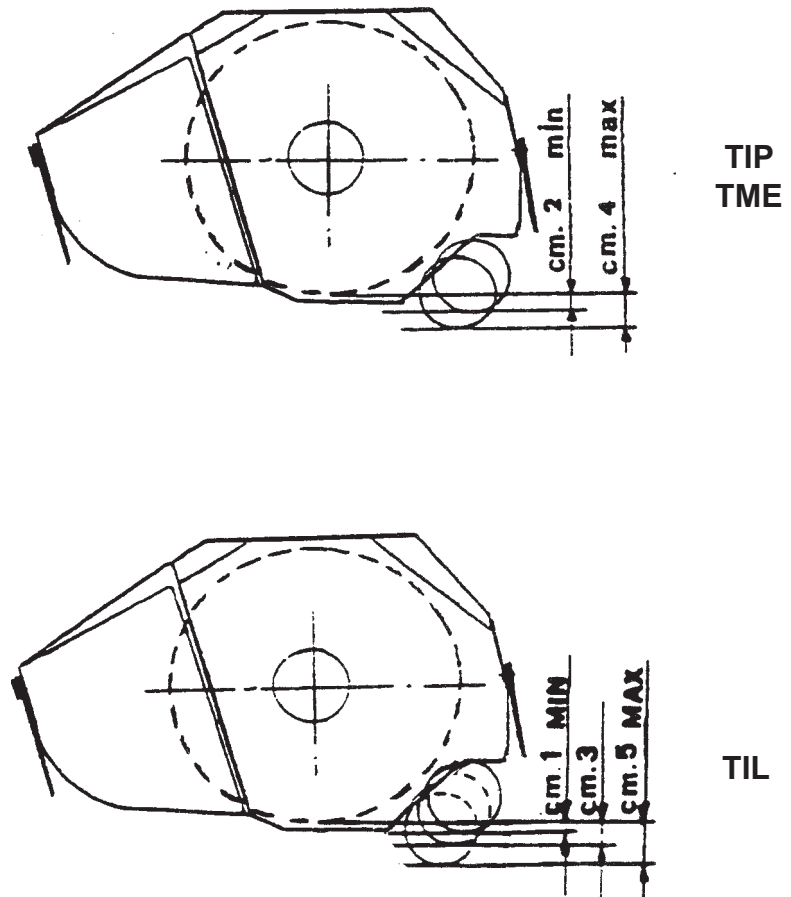


Fig. 25

For safety reasons, never operate without roller.

5.2 Working Speed

Working speed is chosen to suit the material to be cut and the degree of chopping required. **The optimum speed ranges from 1 to 2.5 km per hour.**

6 USE AND OPERATING RULES

6.1 Controls

The flail-hedger mower control levers must be fitted in the cab, in a comfortable position for the driver to use. They must be firmly attached.

FIG 26 shows all controls of the machine.

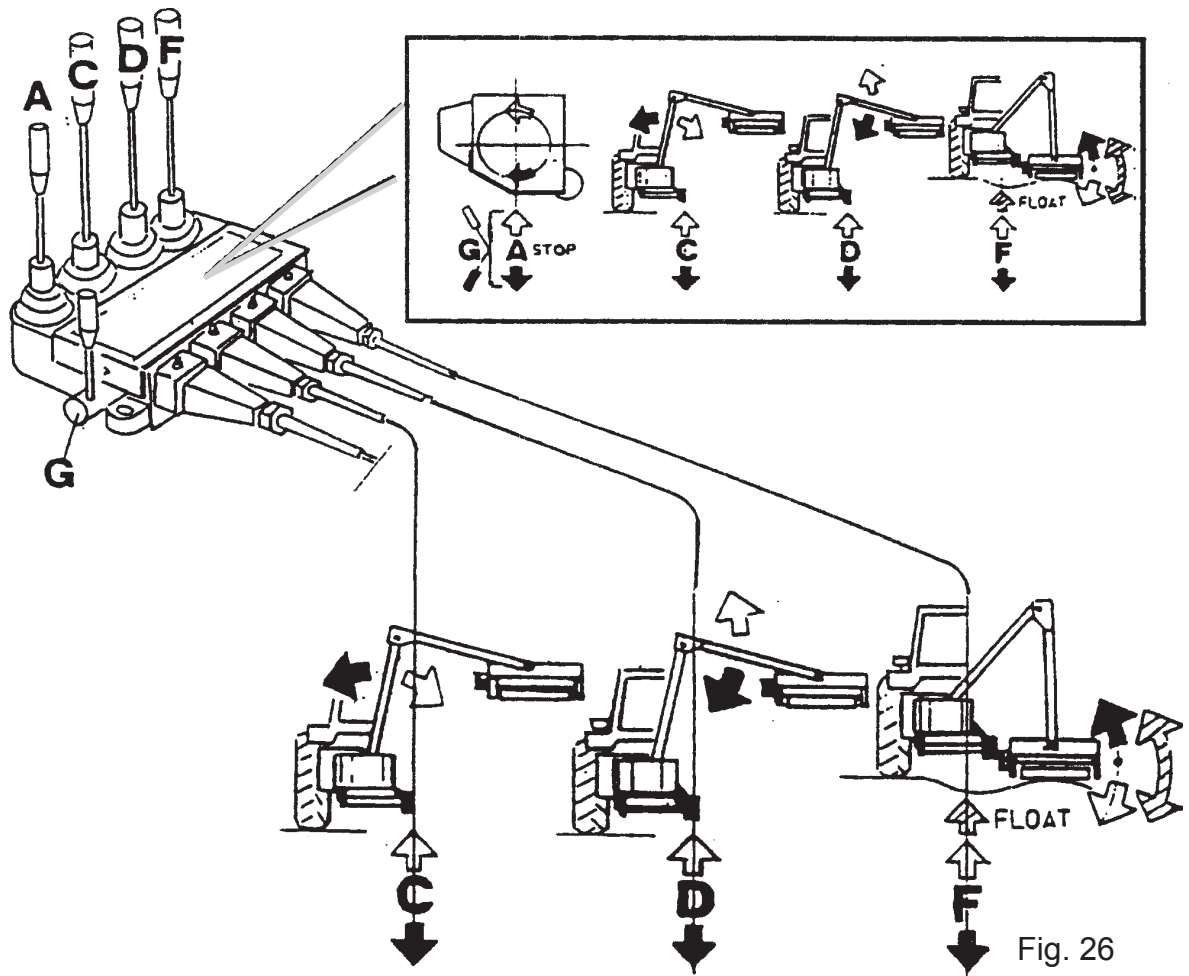


Fig. 26

Lever F - It controls the flail head movement. To select the float system, move the lever beyond the standard control, until locked in detent position.

The float system allows the flail head to autonomously follow the depressions of the ground, without being adjusted by the operator.

To shift to the normal working position, put the lever back to the neutral position.

Lever D - It opens and closes the 2nd arm.

Lever C - It raises and lowers the 1st arm. The plunger jack guarantees the correct lowering to the ground, thus preventing possible breakage.

Lever A - It controls the rotational direction of the rotor, upon shifting the lever G, which must absolutely be inserted to allow the control of lever A (see FIG. 27).

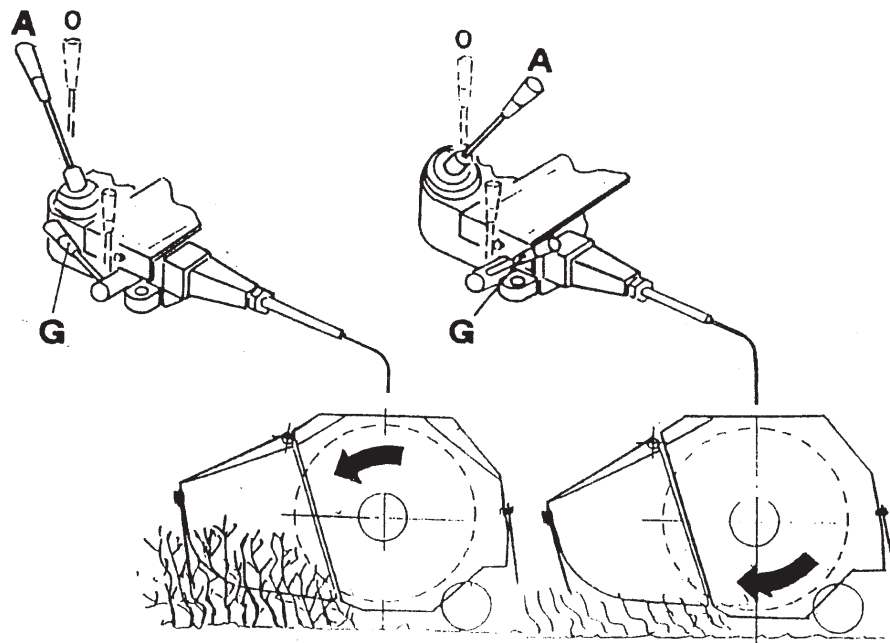


Fig. 27

IMPORTANT: Lever G prevents the involuntary inversion of the rotational direction by operating a single lever.

Before reversing the direction of rotation of the rotor, first wait for it to stop (about 30 seconds), or damage to the hydraulic motor may result.

6.2 Starting

Before starting:

- Check that the number of revolutions and the rotational direction of the power takeoff of the tractor correspond to those required by the flail-hedger mower.
- Check that the flexible cable controls are not entangled, dented or too tight so that the sensitivity and control response are not compromised.
- Check oil tank and gearbox lubricating levels.
- Check that all guards are in good conditions.
- Verify that the control of the rotor is in neutral position - 0 - (see FIG. 27).
- Start the tractor, engage the power takeoff and let the oil circulate for some minutes before operating any control lever.
- Operate the control of the arms, to verify their correct functioning and to get to know them.
- Place the flail head in a safe position, increase the rpm of the tractor and slowly shift the control of the rotor in the rotational direction required. After a few seconds the rotor will have fixed its speed and will therefore be ready to work.

6.3 Working Mode

6.3.1 Direction of rotation of the rotor

Adjust the machine to suit the type of work to be done and the material to be cut:

- Adjust the height of cut, as shown in FIG. 25
- To cut grass, the rotational direction is as shown in FIG. 28.
- To cut bushes, sticks and branches, the rotational direction is as shown in FIG. 29.

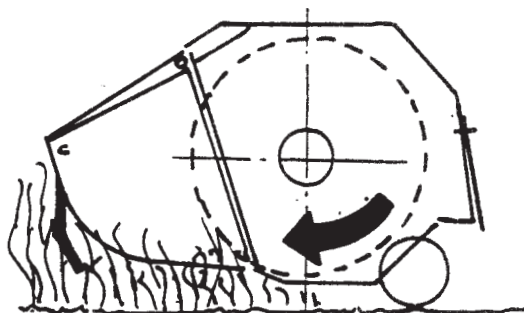


Fig. 28

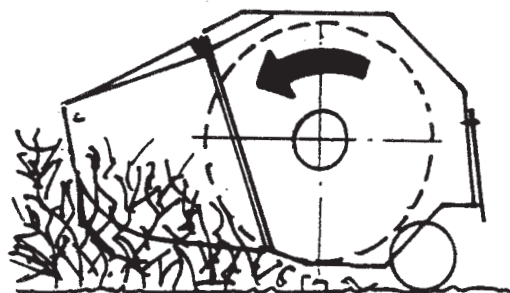


Fig. 29

IMPORTANT: In this case safety against the throwing of stones or other objects (even just on the rebound) is not totally granted, therefore this operation must be carried out only when working far from houses, people or animals, within a radius of 50 m., and using the additional personnel and under the responsibility of the operator.

Observe the safety rules laid out in sections 3.1. - 3.2 - 3.3 of this manual.

6.3.2 Arms safety

Arms safety: the machine is equipped with an automatic safety system that comes into operation when the flail head touches an obstacle and the tractor keeps moving. This safety system allows to withdraw the arm to avoid the blow. In this way the operator will have enough time to steer and drive past the obstacle. After this, the auto-return system shifts the arm back to the working position.

IMPORTANT: When the arms are bending, do not form an angle superior to 30°, not to stimulate the frame and the arms in an anomalous way. (FIG.30)

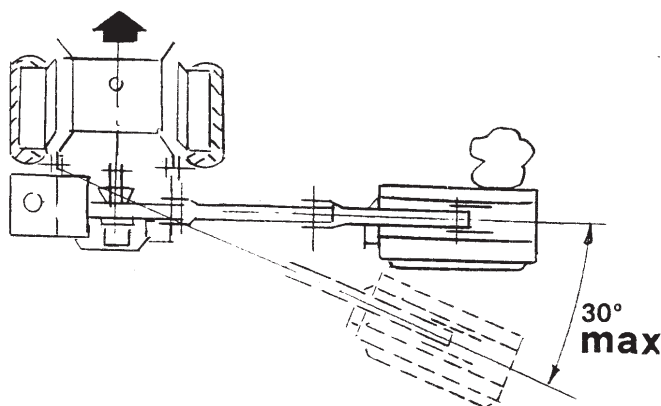


Fig. 30

6.4 Stopping

Before stopping the tractor:

Disengage the rotor drive by operating the levers G and A (FIG. 27) and shifting them to position 0 and wait till the rotor has completely stopped (about 30 seconds).

Close the arms and lower the flail head to the ground.

Disconnect the power takeoff.

Stop the tractor, take out the starting key and apply the hand brake.

If the ground is sloping, block the tractor wheels.

6.5 Transport Position

For transport it is mandatory to:

Observe all road transport requirements and fit the necessary warning signs (FIG. 31).

Secure the arm and the flail head with the appropriate chain, to prevent movement.

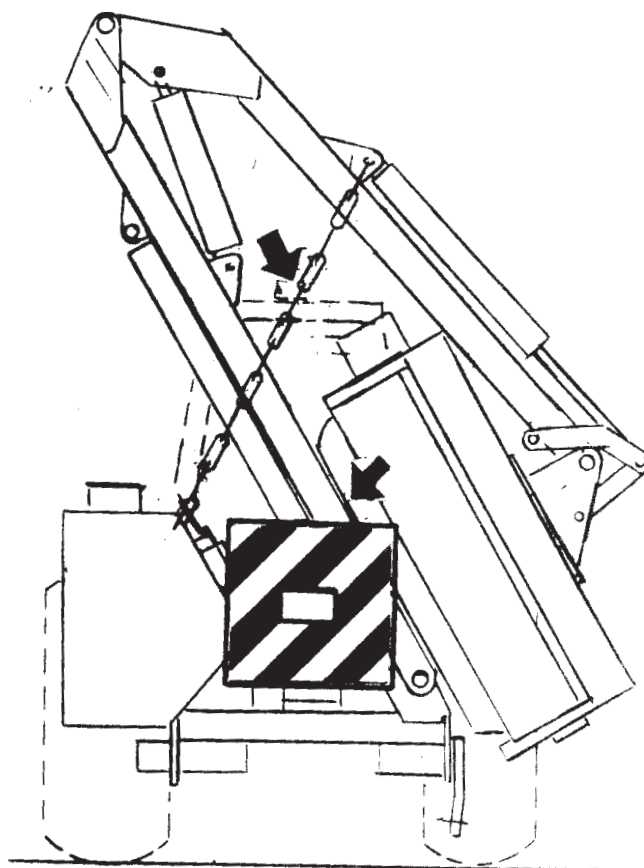


Fig.31

During transport reduce speed especially on bumpy roads. The weight of the flail-hedger mower may render driving difficult and damage the machine itself.

Check that the levers for the machine hydraulic lifting are blocked, to avoid the lowering of the machine during transport.

The power takeoff must be disconnected during transport.

7 MACHINE MAINTENANCE

All maintenance, cleaning and repair operations must be carried out with disconnected PTO, engine off and starting key out.

Every 8 hours' operation grease the parts shown in FIG. 32 and check regularly.

- Tighten bolts and nuts.
- Check wear and condition of flails
- Check the safety guards
- Visually check the frame and arms to detect possible damage caused by earlier work
- Check oil, reservoir and gearbox lubricating levels.

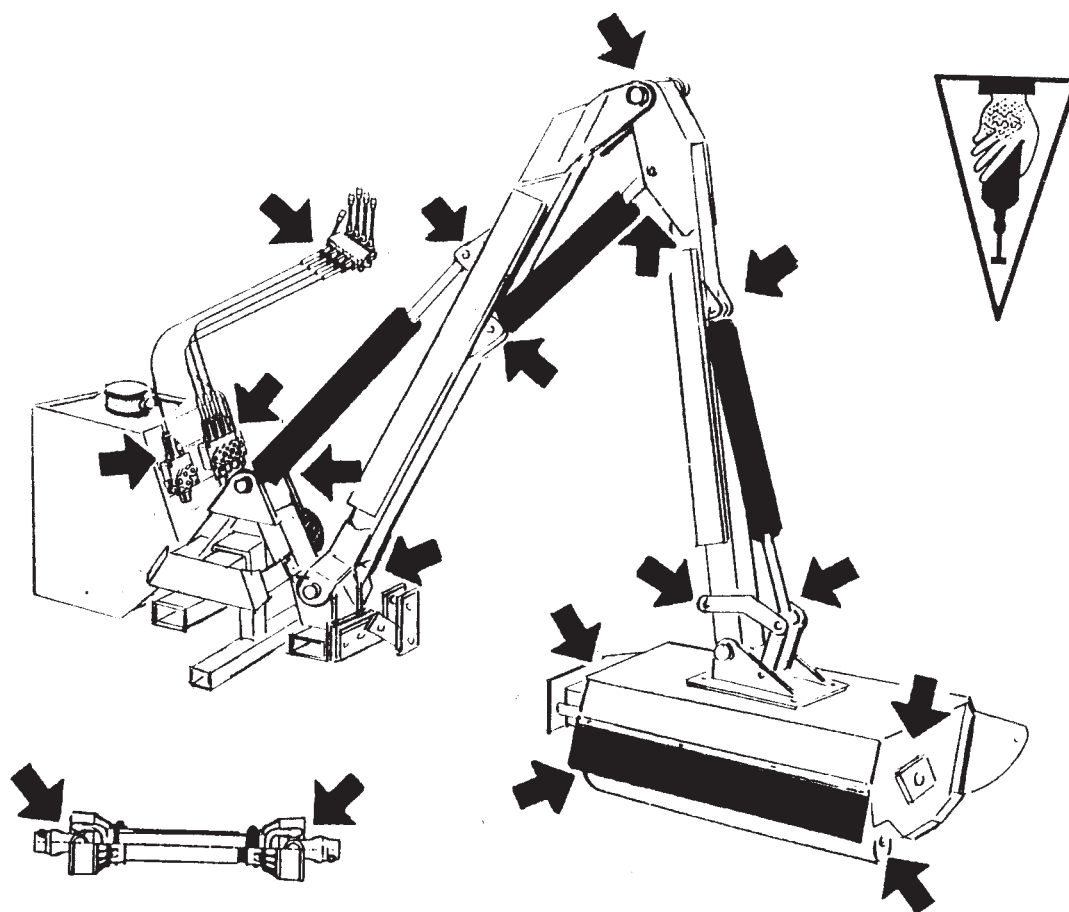


Fig. 32

At the end of each working day, grease pins and bearings operating near the ground, to facilitate the removal of mud or other material and to avoid rust and possible seizure.

Every 100 hours' operation, grease the moving parts of the PTO shaft, extracting the two parts of the shaft.

Use grease such as AGIP GR MU EP/2 (classification DIN 51825 (KP 2 K))

To fill oil to level, use:

For hydraulic oil tank - AGIP LH 68 or compatible oils (classification ISO - L - HM 68). For the amount of oil, see Table 1.

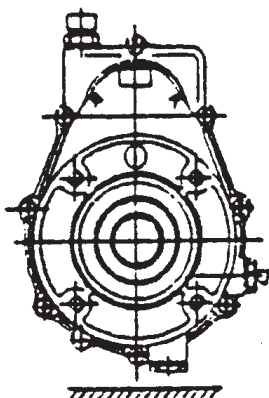
- For gearbox - AGIP BLASIA 220 or compatible oils (classification ISO VG 220)). For the amount of oil see Table 4.

TAB 4	
Type of machine	Amount of oil in the gearbox Litres (gallons)
TA26	● 0,15 (0,04) ▲ 0,41 (0,11)
TA31 -TD32 TD37 - TD42	0,15 (0,04)

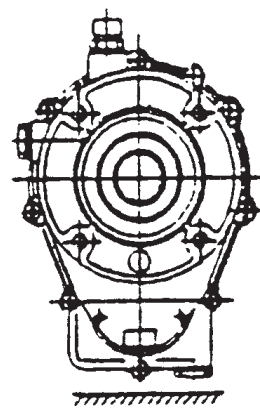
● If the gearbox is in the position 1

▲ If the gearbox is in the position 2

IMPORTANT: The gearbox on TA26 is supplied with 0,41 lt. of oil (position 2); if the customer positions it on 2, it will be necessary to take out the oil as shown in Tab. 4, and to change the position of the cap, the level and the bleed on the gearbox.



1



2

8 TROUBLE SHOOTING CHART

TROUBLES	CAUSES	REMEDIES
Irregular cut	Worn, bent or broken flails	Replace
	Machine is not levelled with the ground	Level it, adjusting the flail head hydraulic ram
	Clogged material due to excessive working speed	Reduce working speed
Machine noise	Loose bolts	Tighten bolts
	Flail head with cracks or initiation of damage	Have it repaired in specialized workshops
Gearbox noise	Lack of oil	Fill to level
	Worn gears	Replace
	Worn bearings	Replace
Vibration	Broken or worn flails	Replace
	Unbalanced flail holder shaft	Have it replaced in authorized workshops
	Worn flail holder shaft bearings	Have it replaced in authorized workshops
Premature flail wear	Flails touching the ground	Adjust height of cut
Excessive backlash in the arms and joints	Worn pins or bushes	Replace
Arm lower involuntarily	Worn glands in the hydraulic rams	Replace jacks in authorized shops
Breakage of roller bearings	Violent impact on the ground when the arm is lowered.	Lower it gently
	Dirty or little greased bearings	Clean and grease
Flail holder shaft speed slows down	Hydraulic system loses pressure	Have pump and hydraulic motor checked in authorized workshop
Hydraulic oil overheating (over 80°C)	Hydraulic system needs to be checked	Have it checked in authorized workshop

9 REPLACING PARTS

Before carrying out any work, it is mandatory to:

- Lower the flail head to the ground.
- Disconnect the power takeoff, stop the tractor and take out the starting key.
- Wear working gloves.

9.1 Flail replacement

When the flails are worn, they must all be replaced. In case of a partially broken flail, it is advisable to replace the broken one and the one diametrically opposite, in order to maintain the balance (See FIG. 33).

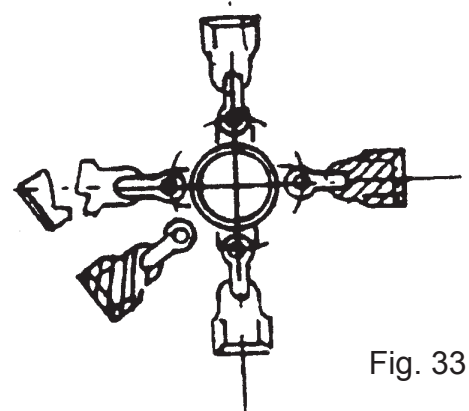


Fig. 33

9.2 Pipe replacement

Before working on the hydraulic system, exhaust all pressure, working with the engine stopped and using all control levers.

Unscrew the cap to fill the oil tank, to avoid the siphon effect, that could empty the tank.

Pay particular attention to cleanliness as dirt and dust can cause considerable damage to the hydraulic system

Replace any damaged pipes with genuine spare parts, or with others of the same specification; ensure that they are not kinked or twisted, remembering to check this throughout the entire cycle of arm movement.

9.3 Pin Replacement

Carry out this operation with the aid of a lift or hoist, to prevent detached component from falling, and also to avoid upsetting the balance of the machine.

When replacing parts, clean and grease their housings.

9.4 Oil and filter replacement

After the first 40 hours and then every 300 hours' operation, replace the oil filter (A) fitted to the tank (FIG. 34).

After 1000 hours' operation, and every year, all the hydraulic oil must be replaced and let out from filter C. When doing this, carefully clean the oil tank.

Used oils and greases must be stored and disposed of according to antipollution rules.

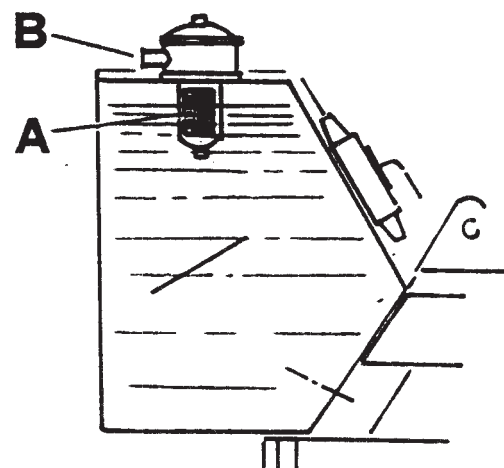


Fig. 34

IMPORTANT: More complex operations must be done in authorized workshops.

10 DEMOLITION, DIFFERENTIATED DIVISION OF THE MATERIALS AND DISPOSAL

If the machine is out of order, all its parts that might cause dangers have to be made inoffensive. The materials forming the machine that have to undergo a differentiated division are:

- steel
- mineral oil
- rubber
- plastic
- electric system conductors.

All the above mentioned operations, and the final disposal, have to be carried out in total respect of the present provisions of law on the subject.