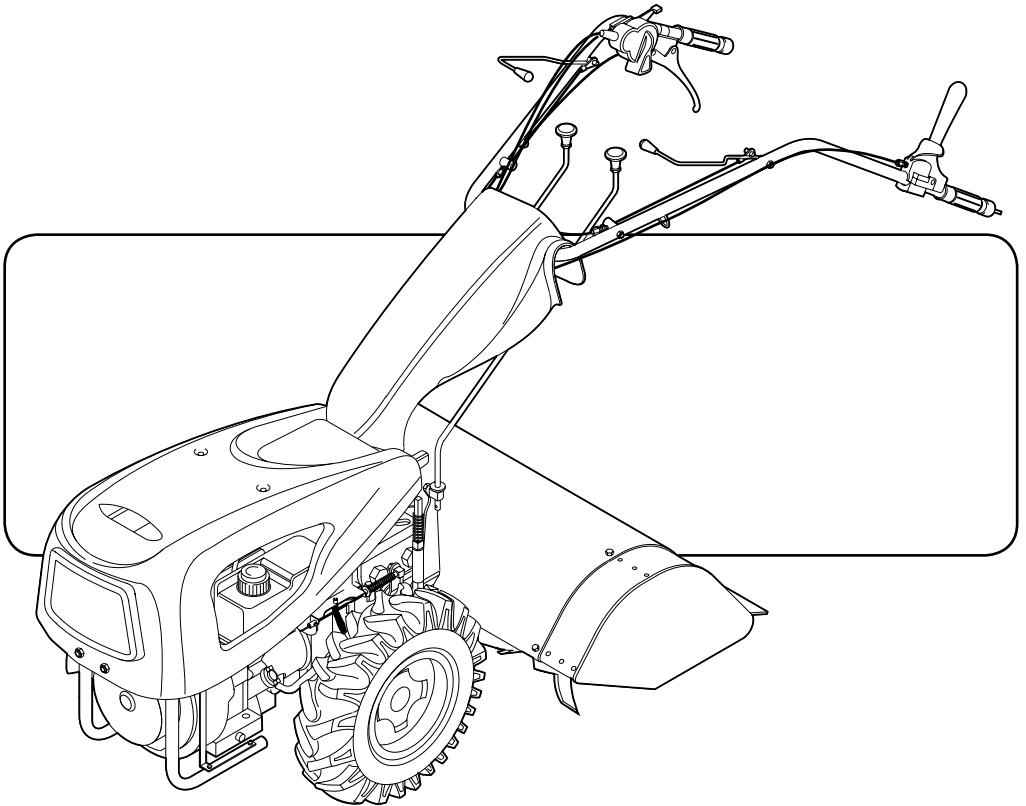


# FORT®

## MOTOCOLTIVATORE 180 - EXPLORER



CE

**IT** USO E MANUTENZIONE

**EN** INSTRUCTION AND MAINTENANCE



Prima di iniziare ad operare con la macchina, leggere attentamente le istruzioni per l'uso.

Before starting to work with the machine, operation read the instructions for use.

**ISTRUZIONI ORIGINALI**  
con traduzioni delle istruzioni originali  
COD. 18711404 - Edizione Gennaio 2015



**MODELLO - MODEL  
MOTOZAPPA - MOTOCOLTIVATORE  
FALCIATRICE TRINCIATERBA**

**FORT S.r.l. Unipersonale**  
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Cod. Fisc. /P.I.: 02565660244

#### **Dichiarazione CE di conformità**

La ditta FORT S.r.l. Unipersonale dichiara sotto la propria responsabilità che la macchina sottoindicata è conforme alle seguenti disposizioni legislative:

- Direttiva 2006/42/CE & smi
- Direttiva 2004/108/CE

Riferimenti normativi utilizzati: UNI EN 12100, EN 13857, EN 1033, EN 709+ A4.

#### **Declaración CE de conformidad**

La empresa FORT S.r.l. Unipersonale declara bajo su exclusiva responsabilidad que la máquina abajo indicada es conforme a las siguientes disposiciones legislativas:

- Directiva 2006/42/CE & smi
- Directiva 2004/108/CE

Se han utilizado los siguientes documentos normativos: UNI EN 12100, EN 13857, EN 1033, EN 709+ A4

#### **EC Declaration of conformity**

The company FORT S.r.l. Unipersonale declares on its own responsibility that the machine below listed complies with following regulations:

- Regulation 2006/42/CE & smi
- Regulation 2004/108/CE

The following standards were complied with: UNI EN 12100, EN 13857, EN 1033, EN 709+ A4.

#### **Declaração CE de conformidade**

A firma FORT S.r.l. Unipersonale declara sob a sua própria responsabilidade que a máquina abaixo indicada está conforme as seguintes disposições legislativas:

- Directiva 2006/42/CE & smi
- Directiva 2004/108/CE

Referências normativas utilizadas: UNI EN 12100, EN 13857, EN 1033, EN 709+ A4.

#### **Déclaration CE de conformité**

La société FORT S.r.l. Unipersonale déclare sous sa propre responsabilité que la machine sous indiquée est conforme aux dispositions législatives:

- Directive 2006/42/CE & smi
- Directive 2004/108/CE

Les suivants documents normatives ont été utilisés: UNI EN 12100, EN 13857, EN 1033, EN 709+ A4.

#### **EF - overensstemmelseerklæring**

Firmaet FORT S.r.l. Unipersonale deklarerer under eget ansvar at nedenstaaende maskine er i overensstemmelse med flg. bestemmelser:

- Direktiv 2006/42/CE & smi
- Direktiv 2004/108/CE

Anvendt referat: UNI EN 12100, EN 13857, EN 1033, EN 709+ A4.

#### **EG - Konformitätserklärung**

Die Firma Fort S.r.l. Unipersonale erklärt aus eigener und alleinige Verantwortung dass die unten genannte Maschine mit der Bezeichnung mit den folgenden gesetzlichen Bestimmungen übereinstimmt:

- Richtlinie 2006/42/CE & smi
- Richtlinie 2004/108/CE

Es wurden die folgenden normativen Unterlagen verwendet: UNI EN 12100, EN 13857, EN 1033, EN 709+ A4.

#### **ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ ΕΚ**

Η εταιρεία FORT S.r.l. Unipersonale Δηλώνει υπ' ευθύνη της, ότι το μηχάνημα που βρίσκεται παρακάτω, συμμορφώνεται με τους ακόλουθους κανονισμούς:

- Κανονισμός 2006/42/CE & smi
- Κανονισμός 2004/108/CE

Τα ακόλουθα πρότυπα συμμορφώθηκαν με: UNI EN 12100, EN 13857, EN 1033, EN 709+ A4.

**Modello / Model**

**Matricola / Serial nr.**

**Motore / Engine**

Anno di fabbricazione: Sossano (VI)

Detentore documentazione tecnica  
Luigi MOLINARO c/o Fort S.r.l. Unipersonale  
Responsabile Tecnico

Rappresentante Legale  
Fort S.r.l. Unipersonale  
Amministratore Delegato

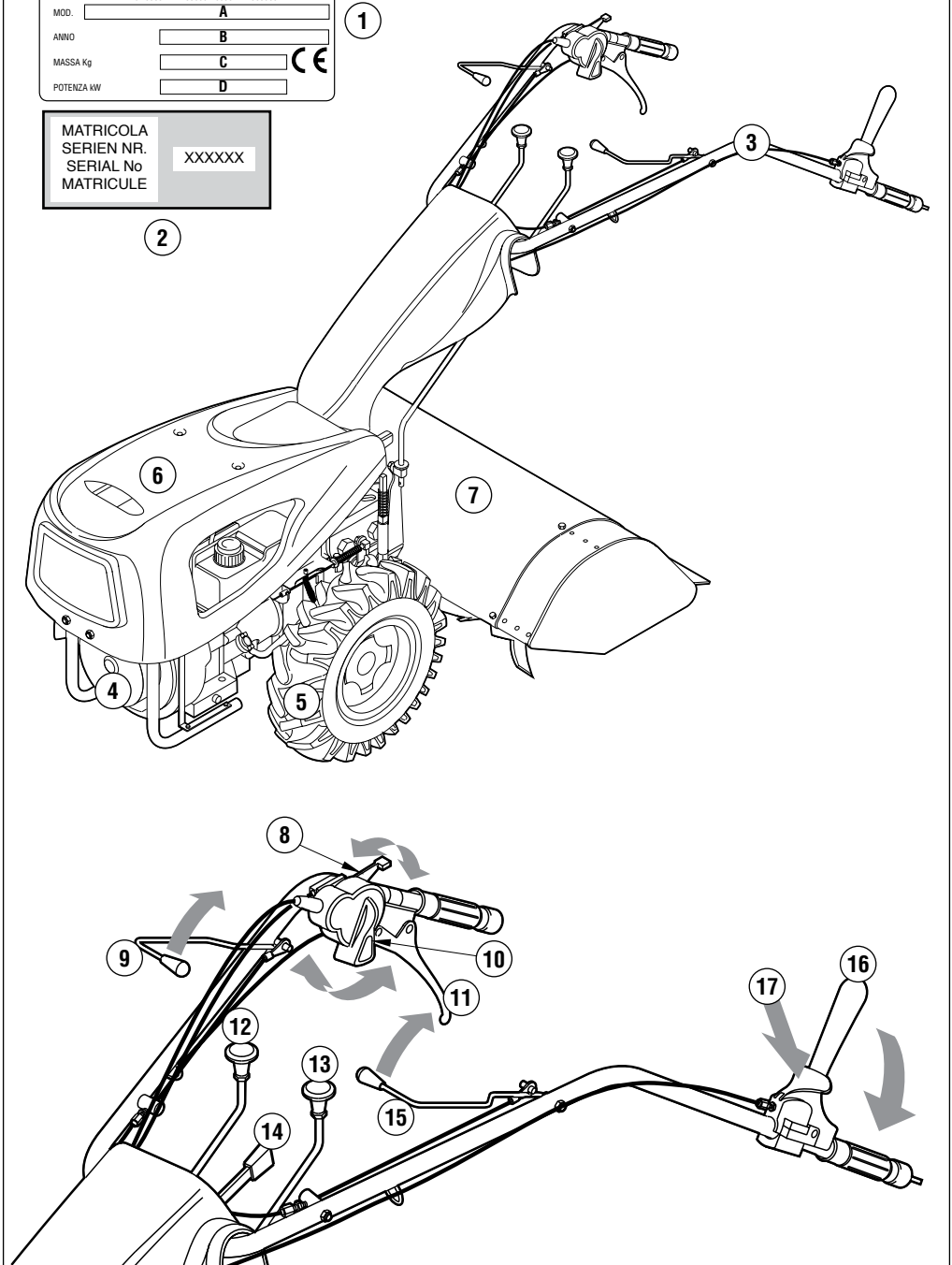
**FORT**FORT Srl Unipersonale  
SOSSANO (Vicenza) ITALIA - 36040 Via Seccatigno, 29  
Tel. 0039 444 788000 - 0039 444 885085MOD.   
ANNO   
MASSA Kg  **CE**  
POTENZA kW MATRICOLA  
SERIEN NR.  
SERIAL No  
MATICULE 

Fig. 1

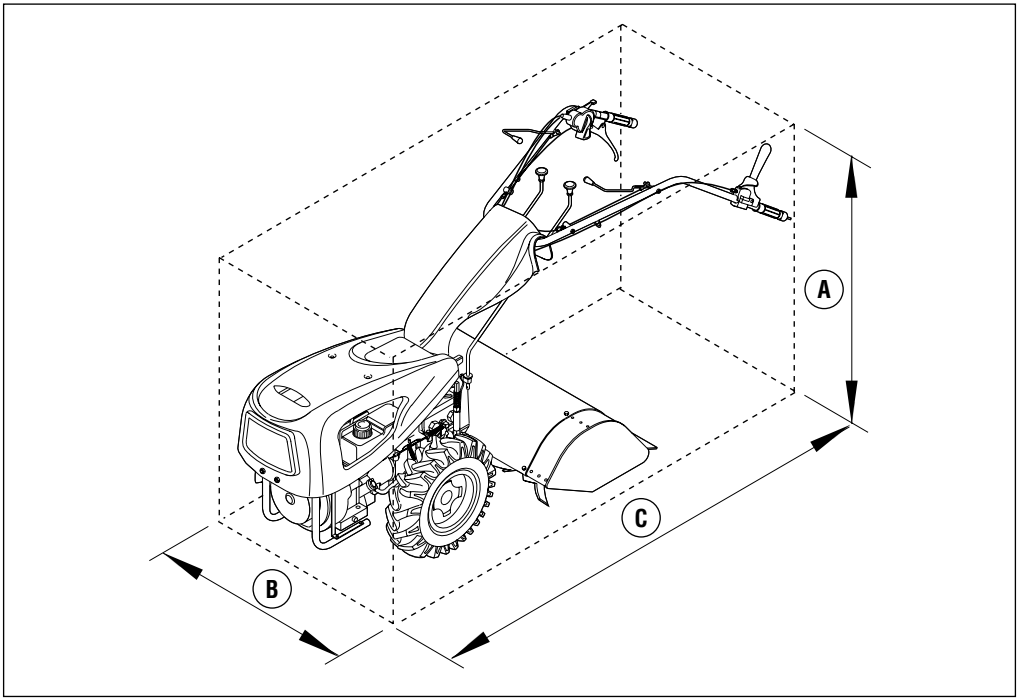


Fig. 2

	Versione fresa <i>Version rotary hoe</i>	Versione barra falciante <i>Version cutter bar</i>
<b>A</b>	1000-1340	1100-1440
<b>B</b>	570	570
<b>C</b>	1850	1950

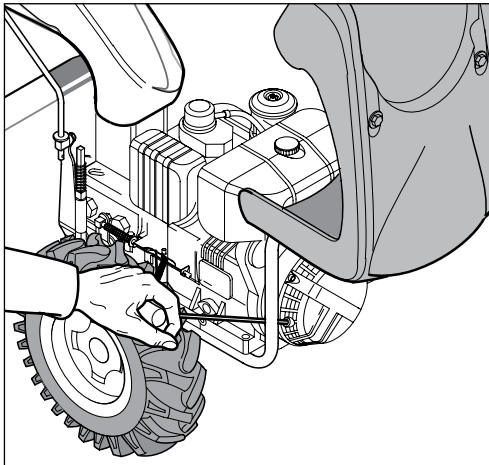


Fig. 3

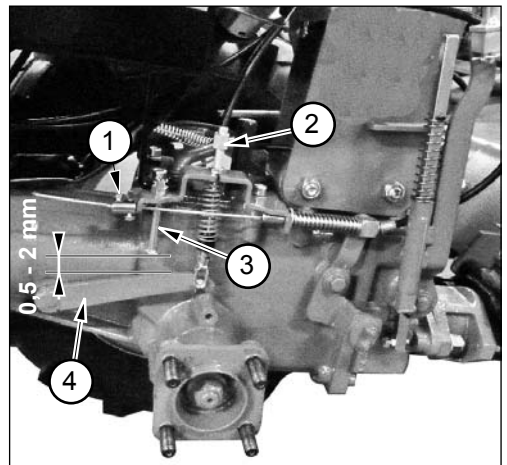


Fig. 4

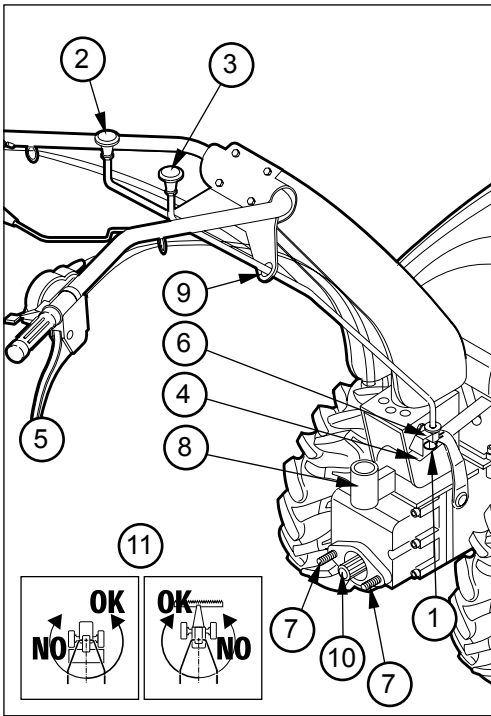


Fig. 5

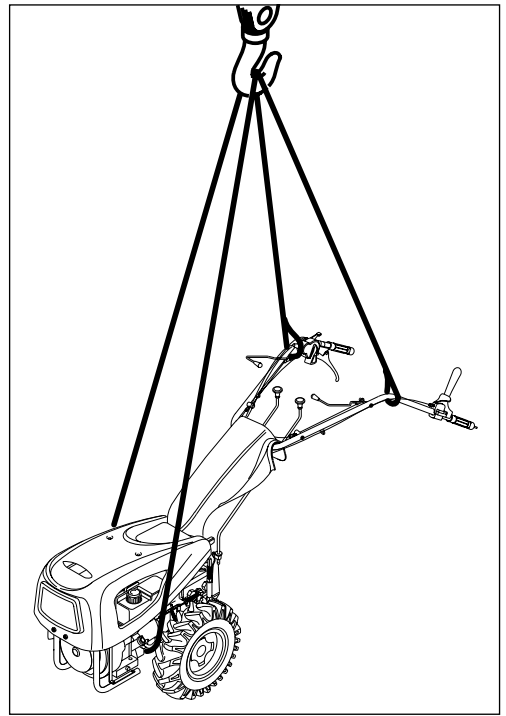


Fig. 6

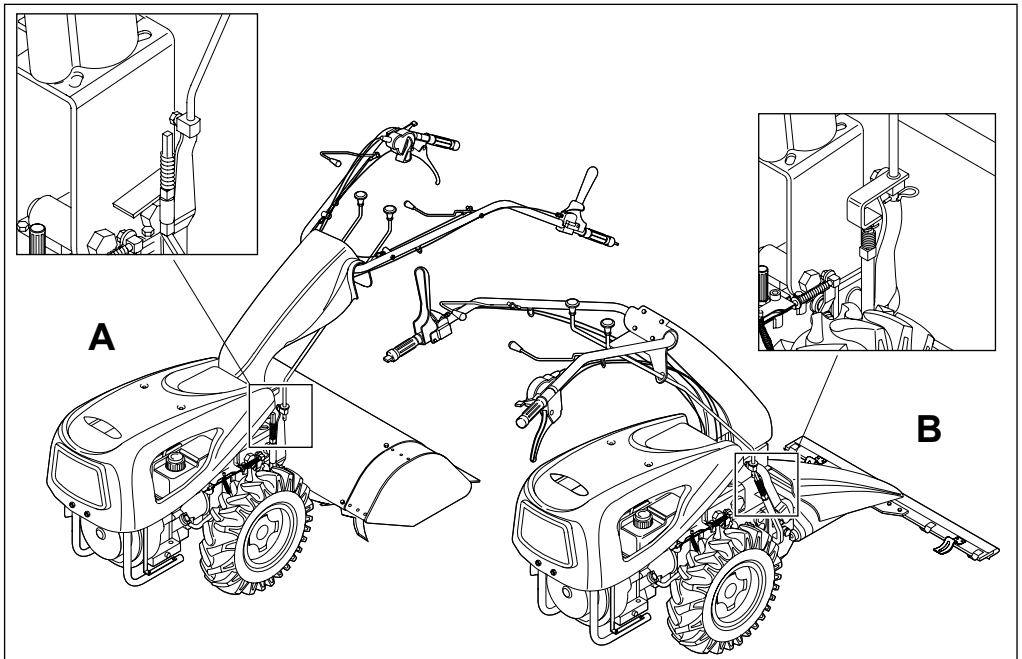


Fig. 7

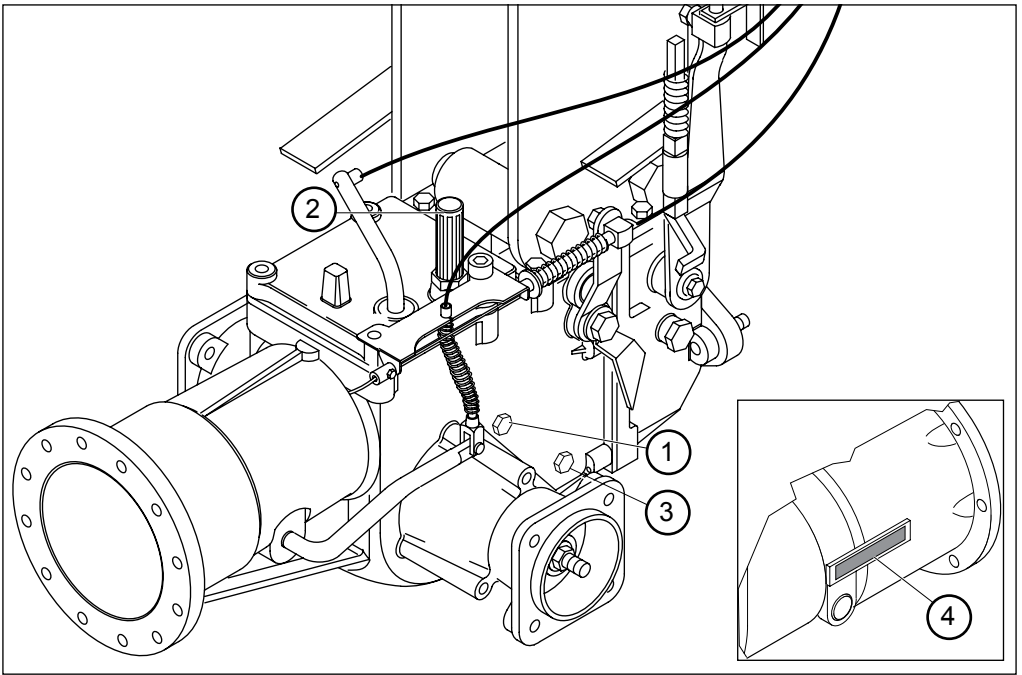


Fig. 8

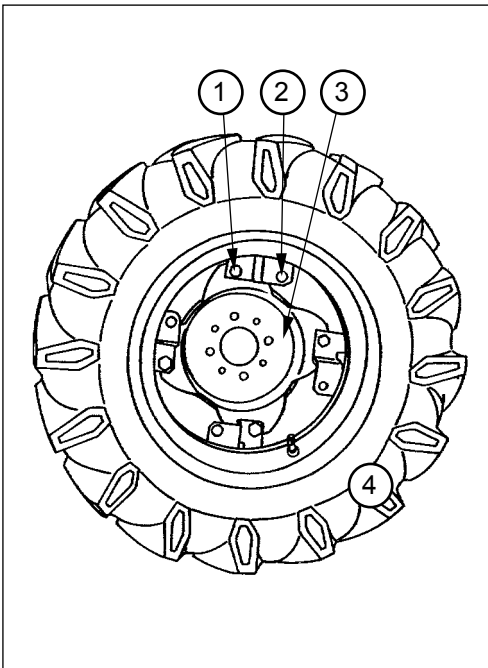


Fig. 9

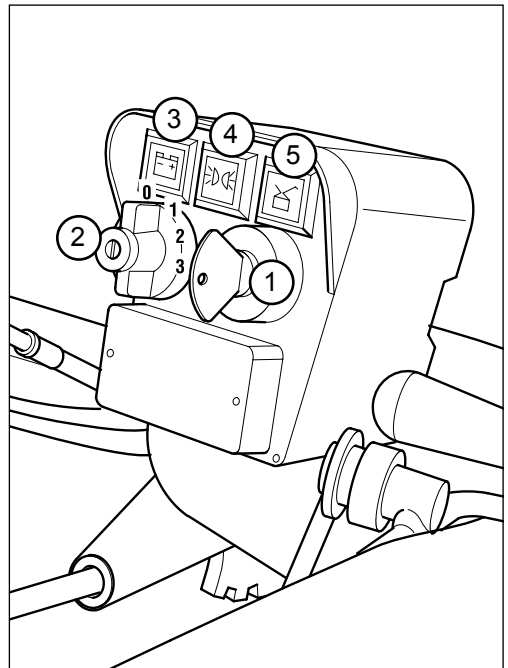


Fig. 10

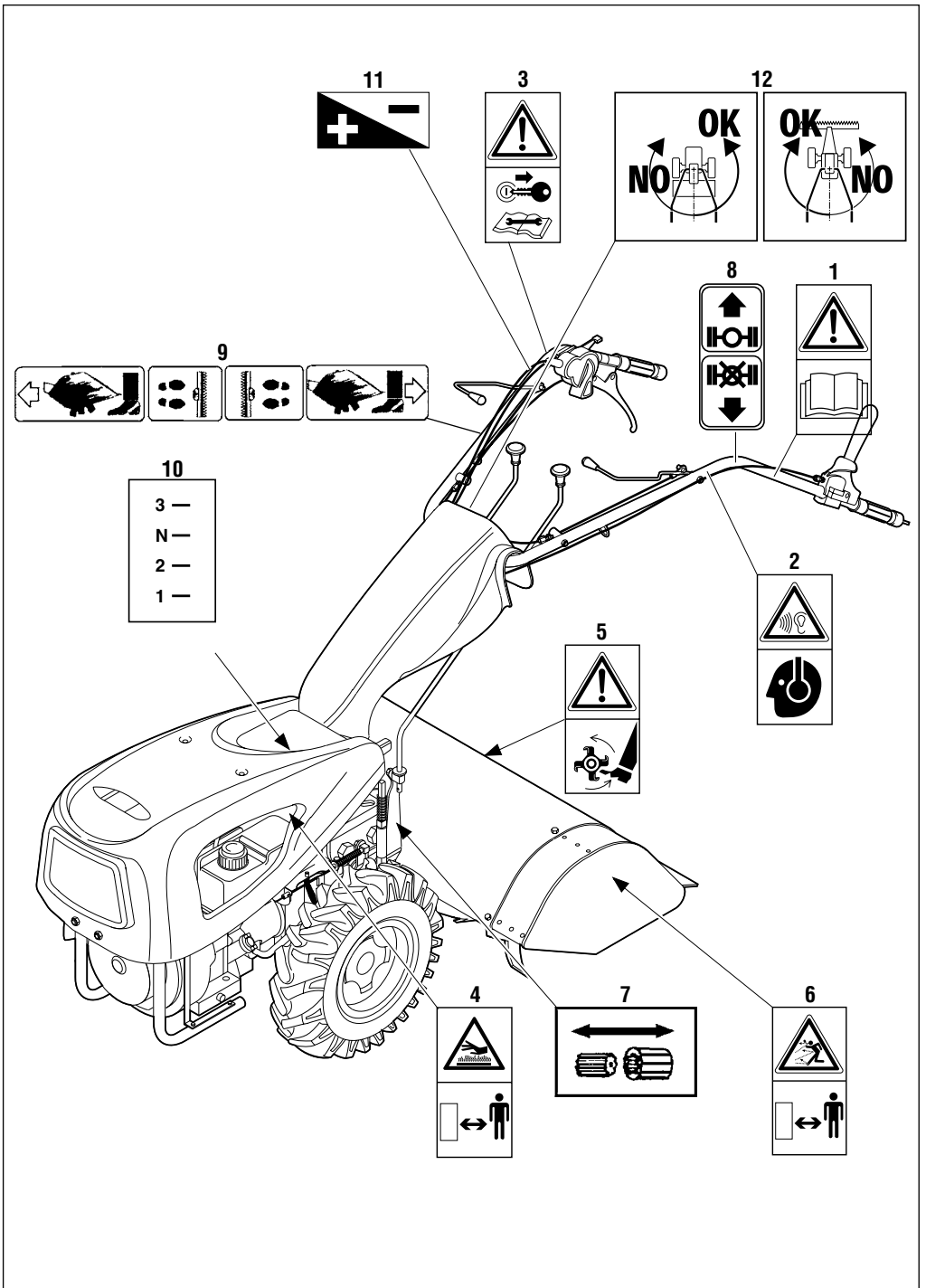


Fig. 11

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**DESCRIPTION OF FIGURES**

**Figure 1 - Overview of the tiller.** - 1) Nameplate. - 2) Serial number. - 3) Steering handles. - 4) Engine. - 5) Drive wheels. - 6) Bonnet. - 7) Milling unit. - 8) Lever throttle. - 9) Reverser lever. Lets reverse the direction of rotation and the rotation of the PTO. - 10) Device engine off. Turn off the engine from the command post of the machine. - 11) Lever for locking and lateral regulation handlebars. - 12) Rod gearchange. - 13) Auction engaging/disengaging the PTO. - 14) Handlebar height adjustment lever. - 15) Differential lock lever. - 16) Clutch lever. Pressed, after having disengaged the locking device 17 permits the engaging and disengaging the clutch. - 17) Device locking / unlocking clutch lever (only when pressed allows you to pull the clutch lever and activate the functions of the machine to release the clutch lever (ref. 16) blocks the same upright and clutch lever).

**Figure 2 - Dimensions.**

**Figure 3 - Position hand lever starter motors with manual set in motion.**

**Figure 4 - Adjusting the clutch.** - 1) Lock the clutch cable. - 2) Register clutch cable. - 3) Screw the end of the race the clutch lever. - 4) External clutch lever.

**Figure 5 - Reversing handlebars.** - 1) Spring pin locking rods. - 2) Auction engaging / disengaging the PTO. - 3) Rod gearchange. - 4) Position rod ends. - 5) Locking lever and handlebars side adjustment. - 6) Point coupling rod lever. - 7) Fixing screws interchangeable equipment. - 8) Connections for trailers. - 9) Through holes of support rods. - 10) PTO shaft. - 11) Adhesive signaling the direction of rotation for the reversal of the handlebars.

**Figure 6 - Attachment points for the lifting machine.**

**Figure 7 - A) Machine with milling unit. B) Machine with handlebars reversed and cutterbar.** The levers gearbox and PTO are different and should be mounted as shown in this figure.

**Figure 8 - Replacement gearbox oil.** - 1) oil level plug. - 2) Vent plug and fill; removing the fill plug from its mounting hole to the change, you can top up or replace the gearbox oil. - 3) Gearbox oil drain plug (is positioned on the opposite side to the one represented on figure). - 4) Machine serial number.

**Figure 9 - Track wheeled adjustable**

**Figure 10 - Electrical panel for machines equipped with electric start engine and working light front.**

**Figure 11 - Safety signs and their location on the machine** (for their description see 2 Safety).



## SECTION 1

### Description and specifications of the machine

#### 1.1 FOREWORD

This manual lists the information, the instructions, and what it is thought necessary for the knowledge, the correct use, and the ordinary maintenance of the Motor hoe, model «**180 and EXPLORER**», hereinafter also called machine or vehicle, manufactured by «**FORT**» from Sossano (Vicenza), Italy, hereinafter also referred to as Manufacturer.

What is herewith written is neither a complete description of the several members nor a detailed explanation of their operation, but the user may find what is normally useful to know for a safe use and a correct storage of the machine. The ordinary operation, the life and the operational economics of the machine itself depend on the compliance with what is written in this manual.



#### WARNING

**Failure to comply with what is described in this manual, the operational carelessness, the improper use of the machine and the performing of unauthorized modifications, cause the voidance of the machine warranty by the Manufacturer.**

**The Manufacturer also declines and shall not be held responsible for direct and indirect damages caused by the above-mentioned reasons and by the non-fulfillment of what is written in this manual.**

In case of repairs or overhauls involving particularly difficult operations, you must contact the authorized Service Centers that employ skilled personnel or directly the Manufacturer who is, anyway, at your complete disposal in order to grant an immediate and careful technical service and everything necessary for restoring the machine full efficiency.



#### DANGER

**This manual is an integral part of the machine and must always be attached to it in case of transfer or sale. It shall be kept in a safe place known by the**

**authorized personnel.**

**The personnel shall keep it integrally so to be able to consult it during the whole life of the machine itself. In case it is damaged or lost, you must require a copy of it to the Manufacturer immediately.**

#### 1.2 WARRANTY

The Manufacturer warrants his new manufactured products for a period of twelve (12) months from the date of purchase.

The engine is warranted in compliance with the terms and conditions established by the Manufacturer himself.

We suggest checking the integrity of the machine when you receive it.

Any claim shall be made in writing within 8 (eight) days after receiving the machine itself.

The warranty includes only the repair or the replacement free of charge of those parts which, after a careful examination by the Manufacturer, are found faulty (the electrical parts and tools are not included).

**Any return shall be previously agreed about with the Manufacturer and shall be shipped ex works.**

The replacements or the repairs of the parts under warranty shall not, however, extend the terms of the warranty itself.

The transport costs, the lubricants, the VAT and the customs duties, if any, shall be to the charge of the purchaser.

The purchaser shall, anyhow, enforce his claims only if he has complied with the additional terms concerning the validity of the warranty listed also in the supply contract.

In case both parties do not intend to submit the disputes arising out of the supply contract to the arbitrators' judgment, or in any other case, when the judgment of a body of the ordinary Court is required, only the Court of Vicenza shall be the competent court.

##### 1.2.1 NO WARRANTY

**The warranty shall not be valid** (besides what is mentioned in the supply contract):

- in case a handling mistake and/or crash attributable to the operator takes place;
- in case the max. permissible power limit it is exceeded;
- in case the damage is attributable to a poor maintenance;
- if accessories or applications not delivered or

- tested by the Manufacturer were assembled on the machine;
- in case, further to repairs carried out by the user without the Manufacturer's permission or in case, due to the assembly of non-genuine spare parts, the machine undergoes changes and the damage is attributable to such changes;
- in case the instructions listed in this manual are not complied with;
- if some exceptional events should happen.

Moreover, the warranty does not include the damages resulting from negligence, carelessness, bad use and misuse of the machine.



**WARNING**

**The tampering of the safety devices on the machine shall automatically void the warranty and the Manufacturer's responsibility.**

**1.3 IDENTIFICATION OF THE MACHINE**

**ENGINE.** To identify the engine it is necessary to consult the instructions manual of the specific engine, by comparing the data on the nameplate of the engine Manufacturer.

**MACHINE.** Each single machine has a serial number (4 Fig. 8) and a nameplate (1 Fig. 1), listing:

- Name and address of the **Manufacturer**;
- «**EC**» marking;
- **A)** Model;
- **B)** Year of manufacture;
- **C)** Mass in Kg;
- **D)** Power in kW/HP.

The data written on the nameplate and above all the serial number identifying the machine, shall be reported on the back of this manual and they shall always be mentioned in case spare parts and/or service are required.

**The machine in the standard version is equipped with:**

- Instructions manual for operating and maintaining the machine
- Instructions manual for operating and maintaining the engine;
- «**EC**» declaration of conformity;

Kit including:

- 19 mm spanner
- 13-17 Allen wrench;
- 17-19 Allen wrench;

- 22-24 Allen wrench;
- Spanner for sparking plug (only for fuel engines).
- PVC cap, PTO protection.

Both above mentioned manuals are to be considered an integral part of the machine and they must be carefully read before carrying out any intervention or before using it (even before unpacking it).

**1.4 DESCRIPTION OF THE MACHINE AND AUTHORIZED USE**

The Motor hoe model «180 and EXPLORER» is a machine «**EC**» marked in compliance with the regulations of the European Union listed in the Directive 2006/42/EC, 2004/108/EC, as described in the declaration of conformity attached to each machine.

**1.4.1 AUTHORIZED USE OF THE MACHINE**

It's an agricultural self-moving machine, equipped with accessory (cutter unit, sickle unit, etc...) designed to be controlled by a standing operator and to be used for different purposes in the field of agriculture and gardening (milling, ploughing, lawn-mowing,...). The machine can only work under the supervision and presence of a person.



**DANGER**

**The operator shall be skilled and able to read and understand what is written in this manual. The operator, moreover, shall use the machine by keeping in mind the regulations in force for the accident prevention, the conditions of use and the specifications of the machine itself.**

**1.4.2 UNAUTHORIZED USE OF THE MACHINE**



**DANGER**

- **THE MACHINE SHALL NOT BE USED IN ENVIRONMENTS WHERE VAPORS OR EXPLOSIVE FLAMMABLE GAS MIXTURES MAY DEVELOP.**
  - **IT SHALL NOT BE USED IN CLOSED OR POORLY VENTILATED ROOMS.**
- IT IS ABSOLUTELY FORBIDDEN TO USE THE MACHINE INFLAMMABLE OR EXPLOSIVE ATMOSPHERE AND/OR WITHIN CLOSED ENVIRONMENTS.**

**The machine is not approved to travel on public road.**

**Moreover, the machine is not equipped with**

night-lights and for this reason it must not be used at night-time.



**DANGER**

**IT IS ABSOLUTELY FORBIDDEN TO TRANSPORT PEOPLE ON THE MACHINE. THE MANUFACTURER SHALL NOT BE HELD RESPONSIBLE FOR DAMAGES TO PERSONS, ANIMALS OR THINGS DERIVING FROM A USE OF THE MACHINE DIFFERENT FROM THE ONE MENTIONED IN THIS MANUAL.**

**Front interchangeable attachments:**

- Mowing bar unit;
- Grass and brushwood chopper;
- Trimmer;
- Two and one disc rotary mower;
- Front rotary brush;
- Front scraper;
- Single-stage snowblower;
- Two-stage snowblower;

**Rear interchangeable attachments:**

- Adjustable rotary hoe;
- Adjustable furrow opener to be assembled on the rotary hoe back;
- Adjustable furrow opener;
- Single-bottom plow;
- Rotary plow;
- Distance between centers;
- Swivel plow;
- Rotary harrow;
- Trailer with brakes;
- Trailer with driving wheels, handlebars and lights;
- Two-wheel seat with brakes;
- Flanged spraying pump;
- Tanker;
- Furrow or spray irrigation pump;

**Multipurpose accessories:**

- Wheels available on demand:
- 4.00x10 with adjustable disc;
- 5.0x10 with adjustable disc;
- 5.00x12 with adjustable disc;
- 6,5/80x12 with adjustable disc (extension for cutter unit is required):
- 18.00x9.50x8 with fixe disc;
- Cage wheels;
- «Margherita» wheels;
- Wheels enlargements;
- Wheels snow-chains;
- Dual wheels;

- Extension for cutter unit;
- Ballast for wheels;
- Front ballast;
- Synchronized PTO for trailer with driving wheels;
- Drum brakes unit;

**1.4.3 CONTROL AND DRIVING POSITION**

The control position of the motor cultivator, which is described in this manual, is with both hands put on the handlebars.

**1.5 PROTECTIONS AND SAFETY DEVICES**



**DANGER**

**The machine was designed in order to be safely used by protecting the movable parts with fixed guards, with movable guards and with safety devices.**

**The Manufacturer, therefore, declines any responsibility in case of damages resulting from the tampering of the protections and safety devices.**

**1.5.1 NOISE HAZARD**

The machine can be equipped with one of the following engines:

- HONDA GX 270;
- LOMBARDINI LGA 340;
- LOMBARDINI 15LD 350; 15LD350 AE
- LOMBARDINI 6LD 400; 6LD 400 AE
- F 70 D; F 70 AE
- F 120 D F 120 AE
- F 130 B; F130 B AE

The noise level (airborne noise) was recorded with the engine running at full rpm and idling by a skilled laboratory in compliance with the EN ISO 3744/1996 Standard and the recorded levels were the following:

ENGINES	Sound pressure level at the driver's seat LpA (dB)	Guaranteed sound pressure level in LwA (dB)Directive 2000/14/CE
HONDA GX 270	86	101
F 130 B / AE	88	103
LOMBARDINI LGA 340	88	104
LOMBARDINI 15LD 350	91	104
LOMBARDINI 6LD 400	92,3	106
F 70 D / AE	92	105,5
F 120 D / AE	103	107

## 1.5.2 VIBRATIONS LEVEL

The vibrations level was recorded with the engine running at the max rpm. and is equal to:

VIBRATIONS	m/s <sup>2</sup>
HONDA GX 270	4,2
F 130 B /AE	4,6
LOMBARDINI LGA 340	4,4
LOMBARDINI 15LD 350	8,7
LOMBARDINI 6LD 400	9,5
F 70 B /AE	8,8
F120 D /AE	9,3

## 1.6 TECHNICAL SPECIFICATIONS

**Engine:**

**Starter:** recoil starter or electric starter on request at the moment of order.

**Accelerator:** lever control on the handlebars.

**Clutch:** dry multi-disc with control on the handlebars.

**Drive:** oil-bath gear drive.

**Change gear:** 4 forward gears + 3 reverse gears  
(with rotary hoe)  
3 forward gears + 3 reverse gears  
(with cutter bar)

**PTO:** independent (965 rpm).

**Direction of rotation of PTO:** clockwise (with rotary hoe), counterclockwise (with cutter bar).

### Safety devices:

- Special safety clutch that allows the movements of the machine and the drive of the work tools only with a “dead man”-type lever placed on the handlebars (16, Fig. 1). The release of this lever stops all machine functions without turning off the engine.
- The clutch control lever has a particular automatic locking system that prevents accidental insertion of the clutch (to engage the clutch, two actions are required: disengagement of the system locking the lever (17, Fig. 1) and actuation of the lever (16 Fig. 1).

**Handlebars:** adjustable vertically and horizontally. 180° reversible.

**Dimensions of wheels:** 4.00x10 - 5.0x10 - 5.00x12 - 6.5/80x12.

**Wheel inflation pressure:** 2,2 bar.

**Rotary hoe unit:** cm. 60, or cm. 70 (possibility to reduce it).

**Overall dimensions:** Please make reference to fig.2.

**Speed:** Speed values were calculated with the engine working at 3600 r.p.m.

**Refuelling:** For the type of fuel to be used, please make reference to the engine handbook and check the identification data on the name plate of the engine. The fuel tank is under the engine casing.

WHEELS	ROTARY HOE Forward gear km/h				ROTARY HOE Reverse gear km/h		
	1 <sup>a</sup>	2 <sup>a</sup>	3 <sup>a</sup>	4 <sup>a</sup>	1 <sup>a</sup>	2 <sup>a</sup>	3 <sup>a</sup>
4,00 x 10	1,14	2,66	4,43	11,6	1,14	2,66	4,43
5,0 x 10	1,32	3,08	5,13	13,4	1,32	3,08	5,13
5,00 x 12	1,42	3,31	5,62	14,43	1,42	3,31	5,62
6,50/80 x 12	1,47	3,43	5,72	17,95	1,47	3,43	5,72

**NOTE:** In the mower model, the speeds are reversed while keeping the same values.

## SECTION 2

### Safety and prevention

#### 2.1 SAFETY

The personnel shall be instructed on the risks resulting from accidents on the devices arranged for the operator's safety and on the general accident prevention regulations provided for by the legislation of the Country where the machine is being used.

While designing the machine, all the potential dangerous situations were foreseen and consequently the proper protections were adopted. Anyhow, the level of accidents caused by the careless and improper use of the machine is still high.

The carelessness, the irresponsibility and the too much familiarity are too often the cause of accidents as well as tiredness and sleepiness.

You shall read this manual very carefully and in particular the section concerning the safety regulations.



**DANGER**

**The Manufacturer shall not be held responsible for the non-compliance with the safety and accident prevention regulations provided for by the laws and for the non-compliance with what is provided for in this manual.**



**DANGER**

**Pay attention to this symbol in the instructions manual. It shows a possible hazard.**

#### 2.1.1 WORDS USED

Words of people and of specific situations that may involve directly the machine an/or the persons in contact with the machine itself are here below listed.

- **USER:** The user is the person, the body or the company who has purchased or rented the machine and who intends to use it for the designed purposes. He shall be responsible for the machine and for the training of all those working with it.
- **DANGEROUS AREA:** Any area within and/or near the machine where the presence of an exposed person implies a hazard for the safety and the health of the same.
- **EXPOSED PERSON:** Any person who is completely or in part near a dangerous area.
- **OPERATOR:** A person who is able to operate, to

carry out the maintenance, to clean and to transport the machine.

- **AUTHORIZED SERVICE CENTER:** The authorized service center is the structure legally authorized by the Manufacturer that has skilled personnel able to perform all the service, maintenance and repair operations, also the most difficult ones, which are necessary for perfectly maintaining the machine

#### 2.1.2 GENERAL SAFETY REGULATIONS



**WARNING**

**The non-compliance with what is written in «Section 2 - Safety and accident prevention» and the tampering of the safety devices, if any, relieve the Manufacturer from any responsibility in case of accidents or malfunctions of the machine.**

**General warning:**

- The user commits himself to leave the machine only with personnel that have been trained and qualified to this purpose.
- The user shall take all the precautionary measures so that unauthorized personnel do not use the machine.
- The user commits himself to properly instruct his own personnel on the application and the compliance with the safety requirements
- The user shall inform the Manufacturer in case he finds defects or malfunctions of the accident prevention systems, as well as of any situation of alleged hazard.
- The operator shall always use the personal protection devices provided for by the laws and he shall perform what is mentioned in this manual.
- The operator shall comply with the instructions as regards danger and warning pointed out on the machine.
- The operator shall not perform on his own initiative operations or interventions that are not up to him.
- The machine has been tested only with the supplied accessories. The assembly of equipment of other brands or any repair may alter the specifications of the machine and therefore compromises the operative safety
- The machine shall not be operated with the guards that are disassembled or partly damaged.

## 2.2 SAFETY SIGNALS

The machine was designed by adopting all possible solutions for the safeguard and safety of the operator. Notwithstanding this, the machine may show some residual hazards; that is those hazards that were not possible to eliminate completely under certain conditions of use.

These potential hazards are indicated on the machined with adhesives (pictograms) that briefly point out the several unsafe and dangerous situations.



### WARNING

**Keep the adhesive signs clean and replace them immediately when they are detached or damaged.**

By referring to fig. 11, carefully read what is here below described and memorize their meaning

- 1) **Before starting to operate the machine** carefully read the instructions for use.
- 2) **Noise hazard:** while working, we suggest to use sound proofing devices for the machine with fuel engine; **for the machines with a diesel engine, the sound proofing devices are compulsory.**
- 3) **Before performing any maintenance operation,** stop the machine and read the instructions manual.
- 4) **Burns hazard.** Do not touch and get near the engine hot parts.
- 5) **Hazard due to the possible flinging of blunt instruments.** Make sure that there are no people or pets around the working area which could be hit by the blunt instruments.
- 6) **Danger caused by the possible launching of blunt objects.** Make sure that all around the working area there are not people or pets that might be hit by blunt instruments launched by the working machine.
- 7) **Nameplate indicating on/off PTO status.**
- 8) **Nameplate indicating locking or unlocking of the differential.**
- 9) **Nameplate indicating forward or reverse speeds.**
- 10) **Nameplate indicating speeds selection.**
- 11) **Nameplate indicating accelerator modulation.**
- 12) **Risk of damaging the control cables.** Follow the direction of rotation indicated during the handle-bars reversal.

## 2.3 SAFETY WHILE OPERATING AND MAINTAINING THE MACHINE



### WARNING

- Use suitable clothes. Do not wear large or loose clothes: they may get entangled in the rotating parts. Long hair must be tied. Moreover, the operator shall not carry out sharp tools in his pockets.
- During the maintenance and repair operations, the operator shall wear protective clothes, cut proof gloves, non slip and anti-crash shoes.
- Comply with the laws of the Country where the machine is being used, concerning the use and the disposal of the products employed for cleaning and maintenance. Dispose all waste, if any, through the special companies authorized to this purpose with the issuing of the receipt for the goods disposal.
- It is absolutely forbidden to operate or have the machine operated by someone who has not read and understood what is written in this manual, or by unskilled personnel or by personnel in poor psychophysical conditions and, anyhow, by persons less than 18 years old.
- Before starting the machine, check that the safety devices are perfectly intact.
- Before starting to work for the first time, know and be familiar with the control devices and their functions.
- The area where the machine is used is to be considered «dangerous area», above all for the people that are not trained to use the machine itself. Before starting the machine, make sure that all around the working area there are not persons or animals or impediments of any kind.
- When a person is exposed, that is within the «dangerous area», the operator shall immediately intervene and stop the machine to send away the above person.
- Never leave the machine while it is running.
- Periodically check the integrity of the machine on the whole and the protection devices.
- Before carrying out any repair or maintenance operation on the machine, stop the machine and shut the engine off.
- In case the guards were removed, make sure to fix them in place before using the machine again.
- Comply with the suggested oils. Keep the lubricants away from children. Carefully read the warnings and the precautions listed in the lubricant containers.

## SECTION 3

### Transport

After using them, wash your hands thoroughly. Dispose of the used lubricants according to the antipollution regulations.

- At the end of the maintenance and repair operations, make sure that all operations are completed, that the safety devices and the guards are back in place before starting the machine again.
- The spare parts must correspond to the needs established by the Manufacturer. Use only genuine spare parts
- When working on yielding grounds, near slopes, ditches or steep grounds, operate with the utmost care at low speed to prevent the machine from over-turning; it is moreover suggested, in these cases, to arrange the load as further down as possible to give the machine more balance
- In case the machine is meant to work on raised grounds or near precipices, before starting to work, it is compulsory to suitably put barriers around all tracts that may involve the fall of the machine from above due to a possible wrong maneuver by the operator.
- It is forbidden to transport loads weighing higher than the machine max. carrying capacity.
- It is absolutely forbidden to touch the running parts or to come between them. (in particular the crawlers) by keeping at a safety distance.
- It is absolutely forbidden to have foreign persons stand within the machine working area.
- Avoid parking the machine on a slope. If necessary, block the machine with logs or suitable stones to be placed between the ground and the crawlers.
- During the maintenance operations, do not operate the machine in poorly ventilated rooms: the exhaust gases are harmful to the health.
- Periodically check the tightening of the screws, nuts and couplings, if any.
- It is absolutely forbidden to remove or tamper the safety devices.
- The maintenance of the machine shall be performed by skilled personnel only after shutting the engine off, by following the instructions of this manual and of the engine manual
- Before refueling or topping up with oil, stop the engine and to let it cool down.  
While refueling, do not smoke and do not get near free flames. Be sure to thoroughly wipe the spilled gasoline before starting the engine.
- If any part clogs or stops, stop the engine and then remove the foreign body.
- Before turning, disengage the differential lock.

### 3.1 TRANSPORT

The machine is packed in cartons. In case of storing, do not place more than two packages of the same type one over the other (1+1).

Do not put a load of more than 200 kg (having the base with dimensions bigger than the dimensions of the carton) on one single carton.

For transporting needs, the machine is delivered with the handlebars placed on the engine bonnet, the PTO engaging lever, the speed selection lever (12 and 13 Fig. 1) partially assembled and the wheels under separate package.

In order to assemble them, please make reference to the specific paragraphs listed further on.

We remind you that the packing materials are recyclable and therefore, after using them, they shall be delivered to special centres in compliance with the law in force in the country where the machine will be used. If the machine needs to be lifted, this must only be done using the right kind of belt (Fig. 6), sudden movements must be avoided and balance has to be kept through the handlebars as shown in Fig. 6.

In case it is necessary to transport the machine on a long route, this may be loaded onto trucks or other suitable means of transport.

In order to load the machine onto the means of transport, it is necessary to have two special loading ramps. These ramps shall have a capacity of at least Kg. 250 each, a width of at least cm 20, the edges about cm 5 high and such a length so that the inclination does not exceed the 15°/20° with respect to the horizon line; they must be also equipped with a hooking system to the means of transport.



**DANGER**

**The loading operations may be very dangerous if they are not performed with the utmost care.**

**Before loading, therefore, send away the unauthorized personnel; clear and limit the transfer area and check the integrity and the suitability of the means of transport.**

Check also the correct distance between the ramps. You must make sure that this area is clear and that there is a sufficient «escape area», that is a free and

safe area where it is possible to move quickly in case the load falls.

Before loading, make sure that the body of the means of transport is large enough to transport the machine



### DANGER

**The area where you intend to load the machine shall be a firm level surface to avoid load shift, if any.**

- **The means of transport shall have the engine shut off, the gear and the parking brake on.**
- **The loading and the unloading shall be always performed with an empty machine (with no load).**
- **Load the machine by walking at a low travel speed (1st speed or reverse speed and engine at the minimum rpm), by being careful to correctly enter the ramps and to walk on the ramps safely. Once the machine is loaded onto the means of transport, make sure it is well locked in its position.**

Tighten securely the machine onto the platform with ropes or well-tightened chains to prevent it from moving.

After transporting it and before untying the machine, check that the shape and the position of the machine are not a hazard.

Then remove all ropes and chains and unload it with the same means and procedures used for loading.

## SECTION 4

### Use

#### 4.1 BEFORE USING THE MACHINE



### WARNING

**Before setting the machine at work, the operator shall read and understand all parts of this manual (as well as the engine manual) and in particular what is written in «Section 2» (Safety).**

**Moreover, before starting the machine, check that the machine is in good working conditions and that all parts subject to wear are fully efficient.**

The machine is partially disassembled before packing it. Therefore, it is necessary to assemble it according to the following instructions:

##### 4.1.1 ADJUSTMENT OF THE HANDLEBARS

If the machine is packed, the handlebars are on the engine casing. Otherwise they are positioned as shown in Fig. 1.

Before using the machine, adjust the height of the handlebars and position them according to the type of attachment.

##### Adjustment of height:

Push down the lever (14 Fig. 1) and keep it in unlocked position, adjust the handlebars to the desired height, then release the lever (14 Fig. 1) and insert the handlebars clip pin in the nearest hole to the chosen position (4 options).

##### Horizontal adjustment:

The lateral movement of the handlebars is possible both with version machine rotary hoe (configuration A Fig. 7) in that version cutter (configuration B Fig. 7). Do as follows: deeply pull the lever (11 Fig. 1); move the handlebars to the right or left until the clip pin coincides with the prearranged hole.

Then release the lever (11 Fig. 1), (a right position, a left position, and a central one are available).

##### 180° Handlebars rotation

In order to assemble front interchangeable equipment (mowing bar, snow-plough,...), it is necessary to put the handlebars on the engine bonnet, operating as follows:

- 1) Remove the elastic pins (1 Fig. 5) securing the



gear lever and the power takeoff lever.

- 2) Remove the control rods (2 and 3 Fig. 5) and put them aside.
- 3) Deeply pull the lever (5 Fig. 5) and rotate the handlebars 180° until you reach the right groove. Then release the lever (5 Fig. 5).

**IMPORTANT: To avoid damaging the control cables, the rotation must be made following the direction of the pictograms applied on the machine (11 Fig. 5).**

**By rotating the handlebars 180°, the levers (PTO control and speeds) and the rods (2-3 Fig. 5) are reversed.**



#### WARNING

**The rods (2 and 3 Fig. 5) must not be taken out of the supporting hole (9 Fig. 5) and are inserted in the seats that are located in their direction.**

- 4) Reassemble the control rods (2 and 3 Fig. 5) that are located in their direction and secure them with the elastic pins.
- 5) Make sure that the wheels are assembled properly and that the arrow on the tyre sides corresponds to the forward movement of the machine, otherwise exchange them; otherwise, wheels must be reversed.
- 6) Arrange the cables so that they do not perform sharp or anomalous turns: make them to perform the most logic route.

### 4.1.2 TYRES AND WHEEL THREAD ADJUSTMENT

The machine in the standard model is usually equipped with width adjustable wheels:

To increase or decrease the motor cultivator's wheel tread (Fig. 9):

- Lift the machine (See ch. «3.1 Transport»).
- Remove the fixing bolts (1).
- Change the position of the internal disc (3).
- Insert the bolts and fix them.

The variations in the roadway are 3 possible:

- 1) As shown in Fig. 9
- 2) By moving the disk (3) from the mounting holes ref. 1 to the fixing holes ref. 2.
- 3) By turning the wheel external member (4) upside down in relation to the internal disk (3).  
Check that the wheels are assembled in the correct direction. Otherwise exchange them.

### 4.1.3 ASSEMBLY OF THE BAR AND SELECTION OF THE SPEED RATES AND THE INSERTIO PTO BAR

For reasons of packing, the rods (2 and 3, Fig. 5) above, are removed from the machine and, therefore, after placing the handlebars, fit the rods into the holes of the support 9 in Fig. 5, paying attention to the fact that they must be arranged as shown in Fig. 7 ref. A and B.

Then insert the ends of rods in their seats (6, Fig. 5) and secure it with the special spring pins (1, Fig. 5).

### 4.1.4 REPLACEMENT OF THE INTERCHANGEABLE EQUIPMENT

To replace the interchangeable equipment, you must:

- securely lock the machine;
- unscrew the two nuts applied on the two studs (7, Fig. 5) that connect the accessory to the PTO gear (10, Fig. 5);
- remove the two washers and the accessory being careful not to damage the thread of the studs;
- then take the accessory to connect and insert it into the PTO;
- let match the grooved section of the accessory with the PTO and complete the insertion;
- insert the two washers and two nuts and lock well by screwing them progressively alternately to allow the tool to be centered in the gear seat.

**When you true up the attachment on the union sleeve of the power takoff, pay attention not to damage it.**



#### DANGER

**Before installing the equipment on the PTO (10 Fig. 5), make sure that this is clean and well lubricated with grease.**

**This operations must be carried out by two people wearing strong gloves.**

**All the towed accessories (plough, tank, trailer) must be connected to the motor cultivator at the cupling (8 Fig. 5) with the special pin and its safety pin.**

**N.B. It is strictly forbidden to connect any interchangeable attachment not in compliance with the safety and health regulations in force and therefore without the «EC» brand.**

**It is better not to use accessories that are not**

approved by the manufacturer, under penalty of warranty voiding.

#### 4.1.5 PRELIMINARY CHECKS

- Make sure that there is the oil in the change gear and check its level (please make reference to section 5.3 Maintenance of the machine).
- When the clutch lever (16, Fig. 1) is in the full down position in support of the knob, check that the external lever of the gear (4, Fig. 4) touches the head of the screw (3, Fig. 4); a correct distance is between 0.5 and 2 mm; possibly intervene on the adjustment screw of the clutch cable (2, Fig. 4).
- Before starting, check that all the screws, in particular those of the rotary hoe unit, are tightened.
- Make sure that the wheels are assembled properly and that the arrow on the tyre sides corresponds to the forward movement of the machine, otherwise exchange them.



#### WARNING

**The engine does not have lubricant. Before starting the engine, it is necessary to read the instructions reported in the engine instructions manual and fill it with the right type and quantity of oil amount provided for by its manufacturer.**

**If the engine has air intake filter in oil bath, shall include on the oil, even on this component, following the instructions in the manual supplied with the engine.**

#### 4.2 STARTING

Before working and starting the engine, always check:

- the engine oil is at level (make reference to the engine instructions manual);
- the engine air filter is clean;
- the tank has enough fuel.

As for the fuel type, make reference to the engine instructions manual by checking the identification data reported on the engine identification plate.

The fuel tank is placed on the engine (under the bonnet).



#### DANGER

**Do not refuel the machine near sparks, lighted cigarettes or whatsoever fires.**

**Always shut the engine off before removing the tank**

**cap and wait till it is cool enough.**

**Before starting the engine, make sure that there are no oil or fuel leaks, otherwise carefully clean and dry them. If some fuel is spilt on the machine parts, dry it. The tank shall never be filled in to the maximum to avoid fuel leaks.**

After sending away bystanders within the machine working range, if any, start the machine according to the following procedure:

- 1) Push the lever down, pull the clutch lever and lock it with its clamp; put the speeds and the PTO in neutral.
- 2) Position the accelerator lever as indicated in the engine assembly manual. Make sure that the switch for stopping the engine is in the «ON» position.
- 3) Check that the device off motor (10 Fig. 1) is positioned at the «I», for gasoline engines and rotated upwards for diesel engines.
- 4) **Bring the machine to a safe area and according to the type of starting available, do as follows.**

#### 4.2.1 PULL START OF THE GASOLINE ENGINE, WITH RECOIL

- 1) Check that the additional switch-off, for engines that are equipped with it, is in the «ON» and that the lever (10 Fig. 1) is in position «1».
- 2) Place the gear and PTO (12 and 13, Fig.1) rod in a neutral position.
- 3) Position the accelerator lever (8, Fig. 1) at the end of its stroke.
- 4) Check that the clutch lever (16, Fig. 1) is in the vertical position.
- 5) Move to the side of the machine, grasp the hand lever of the motor starter cord (Fig. 3) and pull slowly until there is some resistance. Now pull the cord with a strong and decisive pull.

#### 4.2.2 PULL START OF THE DIESEL ENGINE, WITH RECOIL

- 1) Check that the additional off switch lever of the engine (10 Fig. 1) is pointing upwards.
- 2) Place the gear and PTO (12 and 13, Fig.1) rod in a neutral position.
- 3) Position the accelerator lever (8, Fig. 1) at the end of its stroke.
- 4) Check that the clutch lever (16, Fig. 1) is in the vertical position.
- 5) Move to the side of the machine, grasp the hand lever of the motor starter cord (Fig. 3) and pull

slowly until there is some resistance. Now pull the cord with a strong and decisive pull..



**CAUTION**

For engines equipped with decompressor (detect its location by the instruction manual of the engine), before pulling with a sharp jerk and decided to lower the decompression lever that will rise up and will turn off automatically once the engine starts.

For motors with decompressor, it is recommended that the engine is cold, pull the starter cord 4-5 times with the decompression lever held down, making idling the engine.

Then release the decompression lever, pull the starter cord slowly until there is resistance, lower the decompression lever and pull with a jerk strong and decisive.

The engines are equipped with recoil starter that allows pulling the rope but that when the engine starts, it disconnects so to avoid pulls and kicks back for the operator.

- 6) Release the rope while it rewinds. In case the engine does not start, repeat the operation.

**4.2.3 ELECTRIC STARTER ENGINES MOUNTED ON MACHINE WITH LIGHTS**

In case the motor cultivator has the engine with an electric starter, and lighting system, after following the procedures listed in paragraph «4.2 and 4.2.1 o 4.2.2».

- 1) Remove the rubber cap (1 Fig. 10) from the starting key that prevents it from rotating accidentally and insert it into the ignition switch.
- 2) Rotate the key clockwise until you hear the first click; the battery charger (3 Fig. 10) and the engine oil (5 Fig. 10) pilot lights shall be on.
- 3) Rotate the key further and, as soon as the engine is started, release it; the key goes back automatically to the first click. If at first the engine does not start, repeat the operation after a few seconds.

The pilot lights mentioned at paragraph 3 shall be off as soon as the engine is idling, otherwise, contact the after-sale service.

**4.2.4 ELECTRIC STARTER ENGINES MOUNTED ON MACHINE WITHOUT LIGHTS**

The machine is equipped with engine with electric starter:

- Check what previously reported for other gasoline or diesel engines;
- Turn clockwise the key in the start-up panel and release it as soon as the engine starts.
- After starting the engine, move the accelerator lever to idle and run the engine for a few minutes in order for it to warm.
- During the early hours of work, do not use the machine at peak efficiency; avoid exasperated exploitation of the engine.



**WARNING**

**For all starting systems, if the engine does not start after some tries, contact the after-sale service of the engine assembled on the motor cultivator.**

**4.2.5 AFTER STARTING**

- After starting the engine, set the accelerator lever to minimum and let the engine run for a few minutes to warm up.
- During the first working hours, do not use the machine at its max capacity. Do not exploit the engine too much.



**WARNING**

**When the gasoline engine is cold, actuate the rich mixture control, place on the carburetor , to facilitate the starting (make reference to the engine instructions manual).**

**4.2.6 BEAMS SWITCH (only machine with lights)**

The switch for selecting the beams (2 Fig. 10) is on the dashboard and it has 4 positions:

- 0) lights off;
- 1) switching on of the parking lights;
- 2) switching on of the low beams;
- 3) switching on of the high beams;
- On the dashboard there are also some other pilot lamps of:
- 4) battery charge ;
- 5) switching on of lights;
- 6) engine oil pressure.



**WARNING**

**While you are working, hold the handlebars firmly to prevent the motor hoe from slipping from your**

**hands and always check that no people or animals are within the operating range of the machine.**

### 4.3 FORWARD MOVEMENT - SHIFTING

The transmission has 4 forward and 4 reverse gears, but, for safety reasons, the top gear is locked through a device external to the gear that it's prohibited to remove to avoid difficulty and possible injury to the operator.

The engagement of the gears and the advancement of the machine are obtained in the following way:

- 1) With the control clutch lever free (vertically) and the machine stopped, let the engine turn to an idle position by turning the accelerator lever (8, Fig. 1).
- 2) Select one of the gears by pulling or pushing the gear selection bar (12, Fig. 1) according to the work to be performed and the engine power available.
- 3) Place the palm of your left hand on the tip of the control clutch lever, which is still upright, and with your fingers, press its locking/unlocking device (17, Fig. 1).
- 4) With the palm of your hand, at this point, slowly bring down the control clutch lever (16, Fig. 1) until it rests on the knob of the handle and hold it for as long as you need; keep in mind that each gear position (operation or neutral position) corresponds to a click of the selection bar.  
In case you find it difficult to engage the gear desired, arrange with your left hand to gently press down on the control clutch lever with your right hand while pulling or pushing the gears selection bar.
- 5) Accelerate the engine until the engine speed desired. To stop the advance of the machine, release the control clutch lever (16, Fig. 1).

#### 4.3.1 REVERSE

The progress in reverse is obtained as follows:

- 1) With the clutch lever free (vertically) and the machine stopped, let the engine turn to an idle position by turning the accelerator lever (8, Fig. 1).
- 2) Select the desired gear; in case of difficulty, act lightly on the control clutch lever, as reported in the previous paragraph.
- 3) With the right hand, lift the control lever of the inverter (9, Fig. 1) from the location where it is and place it on the opposite side in support of the

tube of the handlebar;

- 4) Then press the control clutch lever slowly up in support of the knob and hold it for as long as it takes.
- 5) Accelerate gently until the engine rpm desired.
- 6) To stop the reverse operation, release the clutch lever.



#### ATTENTION

**Avoid in any way to select the forward and reverse gears without first completely releasing the control clutch lever and since the machine is stopped.**

### 4.4 DURING OPERATION

- When you cross slippery or sinking grounds, drive slowly.



#### WARNING

- **Do not cross yielding grounds where the machine might overturn; run at minimum speed in reverse by paying attention not to stumble on obstacles; if this happens, immediately release the control devices and the machine will stop automatically.**
- **The obstacles must be passed at reduced speed and any driving reaction must be controlled.**
- **Do not start the machine abruptly.**
- **Do not transport persons or animals in the machine.**

#### 4.4.1 USE OF THE MACHINES ON SLOPES

- When running on slopes, use only slow travel speeds by driving at the minimum.
- Never cross more than 20% steep slopes; never cross slopes with disengaged clutch or gearbox in neutral, use the braking effect of the engine.
- Park on slopes only if there is no other option.  
In this case, always make sure that the machine is stopped in a correct and safe way.
- Do not move on long and steep side slopes; the maximum side slopes it is safe to work on is 20%.
- Avoid rapid turns on slopes; they can make the machine overturn.
- Pay a lot of attention when crossing obstacles on slopes, because the barycentre moving from one side to the other can cause jolts to the machine, compromising its balance.

## 4.4.2 PARKING



### WARNING

Do not park the machine near yielding grounds, near slopes, ditches or steep grounds.

Never let the machine unattended when stopped.

On request, the motor cultivator may be equipped with drum brakes on the two wheels with independent controls on the handlebars.

By pulling the brakes control levers to the stop, that is towards the operators, these are kept locked; this helps a safety parking of the machine.

## 4.5 DIFFERENTIAL LOCKING

We suggest to lock the differential when you are working on slippery ground, when either wheel skids or when you intend to move always in the same direction. The differential locking is obtained by pulling the lever back towards the operator (15 Fig. 1) in the «LOCKED» position, after reducing the engine r.p.m. and after engaging the clutch.

For the re-start, after entering the differential lock, very slowly lower the control clutch lever (16, Fig. 1) after pressing the lock lever (17, Fig. 1).

**N.B. To avoid possible damage to the gears of the machine, it is advisable to operate the differential lock only after releasing the control clutch lever. This is for the insertion and for the disengagement.**

- Do not lock the differential before turning or when the 3 or 4 gear is engaged. Before turning, always disconnect the differential locking, putting the lever (14 Fig. 1) back to the «UNLOCKED» position.

## 4.6 POWER TAKEOFF

It works independently from the gearbox with the machine either moving or stopped.

With the engine at 3600 rpm, are obtained: 965 rpm and direction of rotation: clockwise in the mover model and counterclockwise in version cutter (making reference to the grooved bush).

### Engagement and disengagement

In order to engage the power takeoff, carry out the following operations:

- With clutch lever free and the machine stopped bring the engine in an idle position by turning the taccelerator lever (8, Fig. 1).
- Pull or push the control PTO rod (13, Fig. 1) according to the position in which it is;

- Lower slowly the control clutch lever, after turning off its locking system;
- Accelerate gradually to the desired rpm.



### WARNING

In the cutter unit model (Fig. 1) the machine is equipped with a special safety device that automatically stops the PTO rotation when reverse speed is engaged. In this way, the cutter unit does not rotate and there is no danger for the operator.



### WARNING

**The motor hoe with cutter bar works in the best way when the peak r.p.m. of the motor are 1700/2200 (corresponding to 1/4 - 1/3 of the throttle lever). At this speed there is the best ratio of motor rpm to strokes of the knife.**

## 4.7 STOPPING THE ENGINE

The engine must be stopped on the level ground and not on the soft ground, near drop-offs, ditches or slopes.

To stop the machine for engines with recoil starter, operate in the following way:

- Set the accelerator lever to the idle position.
- Release the control clutch lever (16, Fig. 1) and put the gear in a neutral position.
- Lock safely the machine to prevent itsaccidental movement.
- Turn the red lever for engine shutdown (8, Fig. 1) to "0".

### 4.7.1 ENGINE STOP FOR MACHINES EQUIPPED WITH ELECTRIC STARTER

To stop the machine, act as follows:

- Bring the accelerator lever to idle.
- Release the control clutch lever (16, Fig. 1) and put the gear in a neutral position.
- Lock safely the machine to prevent its accidental movement.
- Turn the red lever for engine shutdown (8 Fig. 1) to "0".
- Rotate the starting key anticlockwise and return it to the vertical position (the battery charger and the engine oil pilot lights must be off).
- Remove the key from the control board and put the rubber cap on it that prevents it from rotating

accidentally (on keys that have them).



### PERICOLO

- **For safety reasons, it is strictly forbidden to leave the machine with the starting key on.**

## 4.8 AFTER USE

After using the machine, park it on a flat ground inside and clean it thoroughly.

A clean and well-maintained machine will always work at its max. capacity.

## SECTION 5

### Ordinary maintenance

### 5.1 GENERAL INFORMATION

As it was designed, the Motor hoe does not need special maintenance. Anyhow, in order to have the machine work at its max. capacity and in order to constantly have a perfectly efficient machine, some precautions must be followed.

We here below list some operations of ordinary maintenance. It is important to keep in mind that lower operating cost and the utmost durability of the machine depend on the procedure and constant compliance with these rules.

For whatever problem or explanation, contact the area dealer of the Manufacturer's technical department.



### DANGER

**The several maintenance and adjustment operations shall be performed with the engine shut off and with the machine well locked on a firm level ground.**

### 5.2 ENGINE MAINTENANCE

As for the engine maintenance, make reference to the specific engine instructions manual. Approximately, **every 8 working hours**: check and top the engine oil level up, if necessary. Check, moreover, the engine air filter and clean it if necessary.

**Every 50/60 working hours**, replace the engine oil. For the engines equipped with oil bath air filter, check the oil level periodically and replace it when it is dirty or otherwise; the replacement schedule depends on the environment where the machine works.

### 5.3 MACHINE MAINTENANCE

Periodically wash the machine and clean thoroughly each part. If a washing system with high pressure water is used, pay attention that no water goes inside the fuel or the carburetor and that no part is damaged. After each washing, it is necessary to lubricate all parts subject to friction.

Periodically check and if necessary restore the gearbox oil level.

**Every 150 working hours or at least once a year**, change the oil in the gearbox (only use EP320 oil); first oil: AGIP blasia 320.

To change the oil, do as follows:

- We suggest to disassemble the cutter unit or other assembled accessory from the machine.
- For your convenience, we suggest to disassemble the rotary hoe unit or any other attachment from the machine.
- Lift the machine (please make reference to the specific chapter 3.1) so that an oil drain tray may be put under the gearbox casing and secure it.
- Remove the oil drain plug (3 Fig. 8) and the oil filler cap (2 Fig. 8).
- Drain all the used oil into the drain tray.
- Put the oil drain plug again and pay attention not to damage the seal.
- Pour 2.1 lt. of new oil through the oil filler cap and check the oil level.

After filling and also periodically, check the oil level through the oil plug (1 Fig. 8). This must be done with the machine in a horizontal position.

**The oil must be changed when the machine is still hot**, so to facilitate the exhaust of all oil in the gearbox.

### 5.3.1 ADJUSTMENT OF THE CLUTCH CONTROL

Periodically check that:

- The control clutch lever (16, Fig. 1), in free position, is locked in a vertical position with the special locking system operated by the button (17, Fig. 1).  
Otherwise, verify what can be the impediments and clear them.
- If you report any breakage of the locking lever system, perform repair/or replacement.
- With the engine off and the gear clutch lever (16, Fig. 1) fully down and resting on the knob of the handle, the gear clutch lever (4, Fig. 4) should touch the head of the reference screw (maximum distance of 2 mm. If you experience too much distance, you need to intervene in the register (2, Fig. 4) to reduce the distance and allow proper load on the clutch.
- A proper adjustment provides a distance between the lever and the screw head (3, Fig. 4) between 0.5 and 2 mm; however, it is better that it is as low as possible.

The control screw for checking the correct loading of the clutch (3, Fig. 4) should not be removed. Only when replacing the clutch, you can intervene on that screw, but it will be the exclusive task of specialized personnel or an authorized service center.

### 5.3.2 ADJUSTMENT OF THE ACCELERATOR CONTROL

It is strictly forbidden to change the limits set by the manufacturer. If it is necessary to adjust the accelerator, apply to an authorized After-Sales Service Center.

### 5.4 EXTRAORDINARY MAINTENANCE

The operations of extraordinary maintenance are not mentioned in this manual: however, they shall be performed only by the Manufacturer or by skilled personnel authorized by the Manufacturer himself.

### 5.5 SETTING AT REST

In case you foresee a long period of inactivity for the machine, it is necessary:

- To clean thoroughly all dirt on the machine.
- To check the correct tightening of the screws.
- To check and replace, if necessary, the damaged or worn parts.
- To coat the ruined or abraded parts with an antitrust varnish.
- To lubricate/grease all parts subject to wear.
- Completely empty the tank and the carburetor (for the gasoline engines).
- To cover the machine with a cloth and put it inside, away from bad weathers, freezing and humidity.

### 5.6 MACHINE DISMANTLING

In case you decide to dismantle the machine, you shall separate its components in equal parts which must be disposed one by one in compliance with the local regulations concerning waste disposal.

Dispose the exhausted lubricants and the several detergents, according to their different structure.



#### WARNING

**FOR THE DISPOSAL OF THE SEVERAL COMPONENTS, CONTACT EXCLUSIVELY LEGALLY AUTHORIZED COMPANIES THAT MAY ISSUE A REGULAR RECEIPT OF THE DISPOSAL.**

### 5.7 SPARE PARTS

The spare parts of the engine unit must be directly requested to the engine manufacturer or its dealer. In order to request the spare parts of the machine, contact the local Dealer of the Manufacturer.

**We finally remind you that the Manufacturer is always at your disposal in case you need after-sale service and/or spare parts.**

## 5.8 TROUBLESHOOTING

**A) The engine does not start at all:** check what follows:

- 1) the fuel level reaches at least the half of the fuel tank;
- 2) the fuel cap is open (if any);
- 3) the accelerator is in START position (end of stroke), the control cable is not released or broken and the rich mixture control is working («air» - primer);
- 4) the fuel reaches the carburetor or the injector.
- 5) the vent on the fuel cap is not clogged;
- 6) the filter on the carburetor inlet is clean (if any);
- 7) the carburetor jet is clean. In order to check it, unscrew it and if dirty, clean it by means of an air jet;
- 8) the spark plug makes sparks (gasoline engines). In order to carry out this check, disassemble the plug, connect it again to the current cable, lean the metallic ground part and pull slowly the rope of the engine recoil starter, as if you wanted to start it. If there is no spark between the two electrodes, try to check the connections between the spark plug cable and if the current does not arrive yet, replace the spark plug. If also this gives no results, the problem concerns the electric system, and at this point we advice you to contact the closest service center or a specialized repair shop.

For the engines with electric starter, besides the above mentioned checks, check that:

- 1) the battery cables are well connected and oxide free;
- 2) the battery is sufficiently charged;
- 3) some cables did not come out from the starter unit;
- 4) the battery charger pilot light is on only when the engine idles and that it is automatically off when it accelerates.

**B) The engine has no power:**

- 1) check if the air filter is clean; in case it is dirty, remove the dirt by means of a compressed air jet;
- 2) replace the filter in case it is dirty with oil, above all during the transportation;
- 3) enough gas oil (Diesel engine) arrives to the injector.

**C) The machine moves forward with difficulty or the PTO does not work well:**

- 1) Check the distance between the control screw and the gear clutch lever (distance between 0.5 and 2 mm); eventually record it as described in the specific chapter 5.3.1.
- 2) Check that the accessory is well inserted into the PTO quick coupling.
- 3) Make sure that the clutch is not worn or damaged;

to check this and eventually change the clutch, call the nearest Service.

**D) The speeds or the PTO are engaged with difficulty:**

- 1) Check that the control clutch lever (16, Fig. 1) in the release position takes the vertical position.
- 2) To facilitate the insertion of the gears and/or PTO little and slowly lower the control clutch lever.









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