

SECTION 110-01

Introduction

Application on the Models: **Medium Duty**

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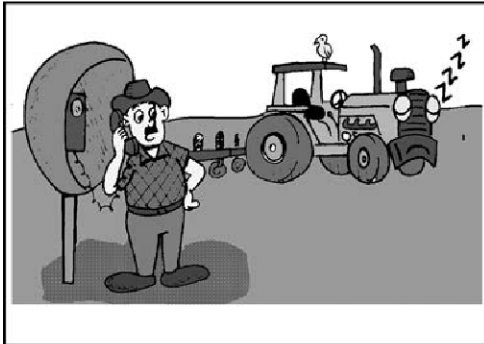
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INTRODUCTION

Presentation



The purpose of this Service Manual is to assist the Dealers when performing an efficient maintenance of the BM Series tractors.

A good product support assumes increasing importance. Besides selling a good product, good service is indispensable, because only then you can achieve the ultimate goal which is the Customer satisfaction.

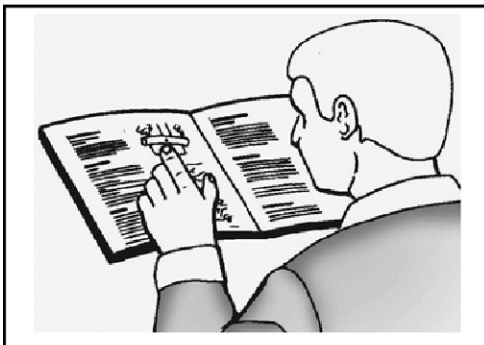
In this context, the maintenance structure provided by the Dealer is of fundamental importance and therefore should only be performed by trained personnel, thoroughly familiar with the different components of the tractor.

Therefore, in addition to taking periodic refresher courses in the AGCO Brazil Training Units, REFER TO this guide before performing the service whenever you have any questions.

For this, the Manual should always be available at the workshop.

In addition to always keeping it in working condition, the Services Department should be alert for updates that will be introduced in the tractors and therefore in the Manual.

How to Read the Services Manual



This manual was divided in systems (1, 2, 3, 4, 5, etc.), each describing a specific system of the tractor. Examples: Information, Engine, Electric, Transmission, Rear Axle and Brake, Front Axle and Steering, Chassis, Tires and Wheels, etc.

Each system is divided in groups (10, 20, 30, 40, 50, etc.), each describing a specific group. Examples: Engine, Transmission, Hydraulic System, Chassis, Tires and Wheels, etc.

Each group is divided in sections (01, 02, 03, 04, 05, etc.), each describing a specific section. Examples: in the case of Engines: Introduction, the engine itself, Cooling System, Lubrication System, Fuel System, etc. Other examples: Transmission: Gearbox, Clutch, Power Take Off, etc.

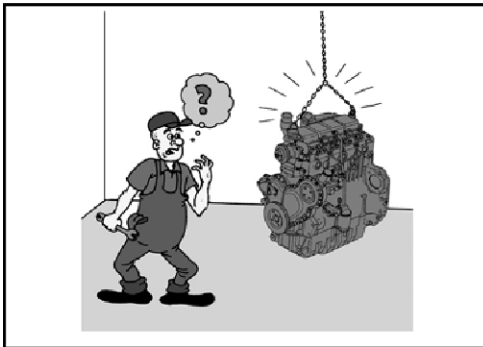
Each section page has a sequential number, starting with 01.

Security

Your safety and that of others, must be the first concern when performing maintenance work. For this to become effective, three things are necessary: awareness, proper use of tools and adoption of protective equipment, individually and collectively, PPE and PSAO respectively.

With regard to awareness, it depends on individuals, that is to say, each one must obtain it, based on the risks to which they are subject at work. Upon learning about any security rule, this cannot be interpreted as "Do not do this, do not do that ...". First TRY to think about what might happen in case of not observing a certain rule. Do not be attached to the outdated idea that "we must make mistakes to learn," because the consequences may be irreparable. REMEMBER: after an accident, the first thought that arises is that one would have done anything - if they still had the time - to prevent that damage. Walking twenty meters to seek "that appropriate tool" can be tiresome, but not as disastrous as an accident with personal and/or material injury.

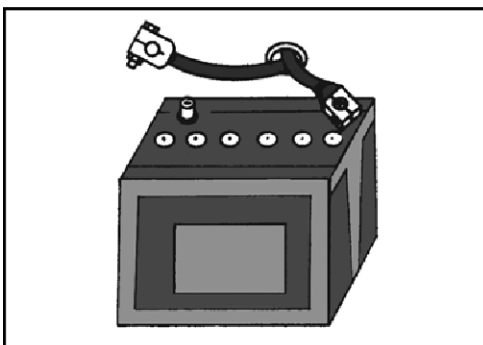
With regard to the rules themselves, it is impossible to gather all. There are countless situations of risk. Thus, we list some basic rules for illustrative purpose.



- Always USE the appropriate tools and devices at work, especially when dealing with whole sets and/or heavy parts. MAKE SURE that the hydraulic jack, the hoist, the chain are in perfect condition, and with the corresponding load capacity.



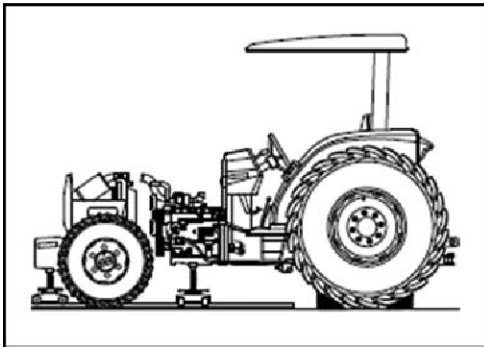
- Whenever using an electrical appliance, MAKE SURE that it is grounded and that there is no bare wire.



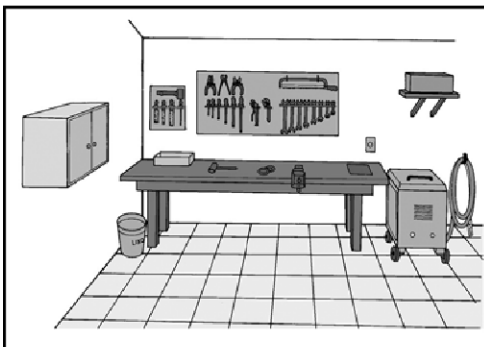
- Always TURN OFF the battery negative cable, preventing someone from triggering the accidental or inadvertent starter actuation.



- To perform welds, besides disconnecting the battery, **USE** the necessary protections: mask or goggles, gloves and apron. The lack of eye protection, for example, affects the eyesight in a short time, often irreversibly.



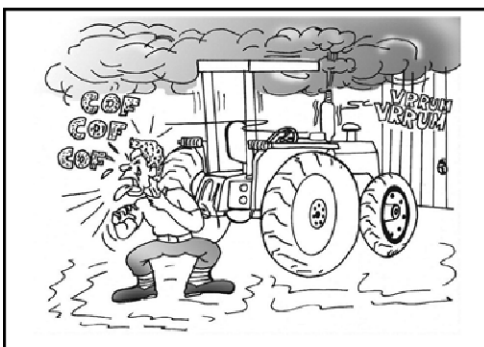
- When opening the tractor, it is essential to use the appropriate trails and carts. This provides, besides safety, a profitable and quality service. Always **USE** wooden blocks in wedge to shim the wheels that will not be displaced for the opening.



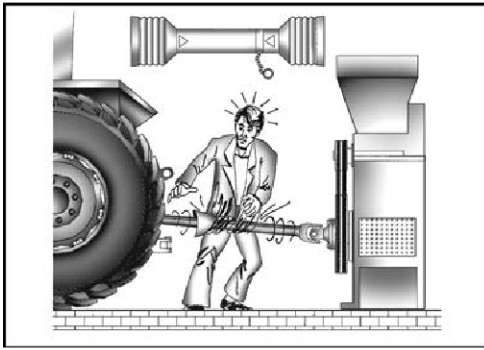
- Do not allow the workshop floor to be soaked in oil; this may cause slip and falls, besides compromising the workshop appearance. **REMEMBER:** organization mirrors the quality of the professional who works there.



- Never stand under suspended loads. No matter how safe the equipment is, you may not want to risk.



- Do not run the engine indoors and in a non-ventilated room. Toxic gases can suffocate you in a few minutes.
- Do not smoke in the workplace, there is always the risk of fire due to the wide variety of flammable products.



- Do not wear long or down hair, as well as loose clothing. When in contact with moving parts, these can cause serious accidents.



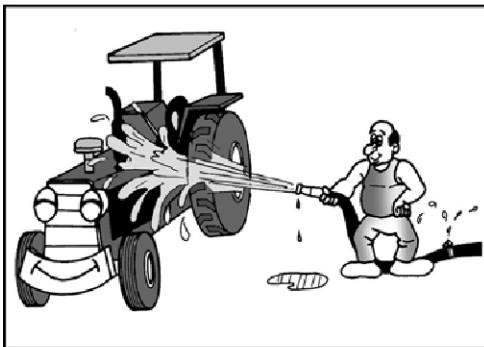
- Before starting the engine of any tractor, MAKE SURE that there is no one working on it. CHECK also if there are no tools or other utensils under the tractor.
- USE a warning card attached on the panel to prevent anyone from starting the engine with parts removed.

Proper Services Strategies in Workshops

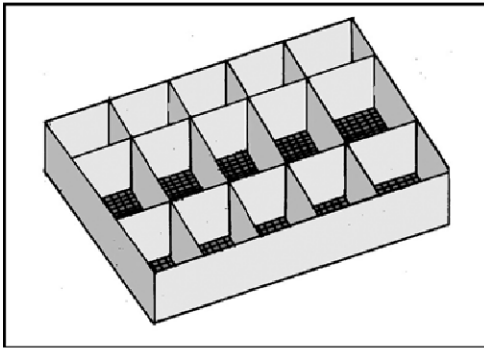
Most of the procedures recommended for repairs and services in different parts of this Manual are described considering that the assembly to be repaired is completely dismantled and removed from the machine.

Many services, in particular of certain parts, may be performed without completely removing the assembly from the machine. The mechanic will determine the need for removing it or not, taking into account the degree and extent of services needed and the degree of difficulty of access.

The following are important points to be remembered and put into practice:



- **IDENTIFY** the breakdown and **CLEAN** the machine before taking it apart.
- If it is possible to make a complete diagnosis to determine the extent of the repair to be done, TAKE all necessary precautions to safely avoid any foreign material entering into the hydraulic systems, fuel supply or air.



- **SEPARATE** the parts.

PAY ATTENTION during disassembling, observing the special parts that cannot shift position. **SEPARATE** the various bolts and nuts in "trays" with dividers and bottom screen to allow the flow of oil and washing water.

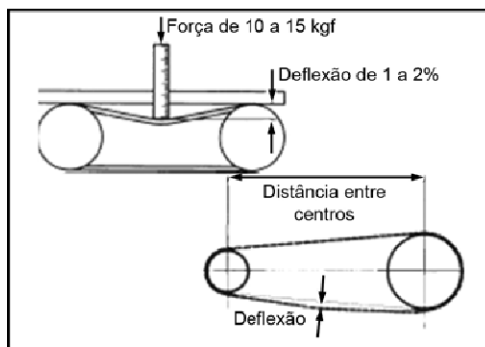
- **INSPECT** the parts during disassembly, cleaning them well..
- **ATTACH** labels on the parts and **PROTECT** the precision and polished surfaces.

Use of Original Valtra Replacement Parts

The use of not recommended spare parts can be a source of major problems. Do not believe that all parts that look alike are equal. Some parts have special properties, known only by the manufacturer. They are the result of special requirements established by intense research and engineering tests and from field experience.

AGCO keeps a constant parts improvement program. Many of these improvements cannot be detected by visual comparison. It is therefore critical to use only genuine spare parts.

Rule for tensioning belts and chains in general



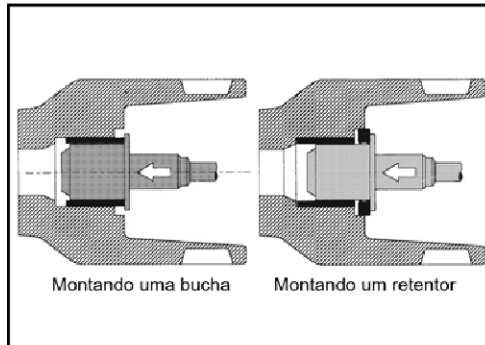
To check the belt tension, always **FOLLOW** the rule below:

Apply a load of 10-15 kg in the center of the largest distance between the supports.

The deflection found in belts or chains must be 1-2% of this distance.

In the case of chains, **APPLY** a sufficient force to bring the entire deflection to either side: deflection also must be 1-2% of the distance between centers.

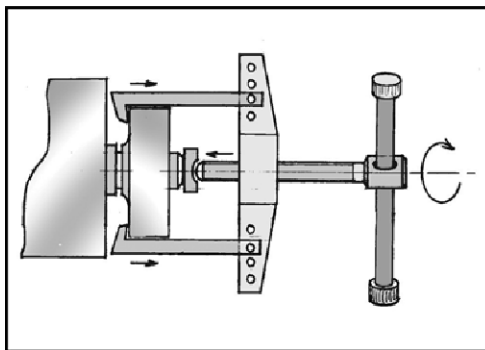
Bushings, Retainer Rings and Bearings Mounting with Interference



Always USE the special tool for this purpose. Where necessary, APPLY stress, by a press.

Improvisation results in these cases, besides loss of time, in damaged parts, which inevitably will present problems in the operation.

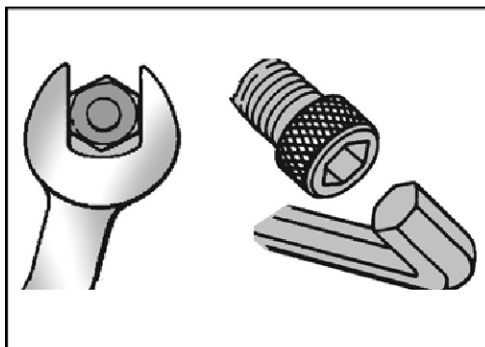
In the case of bushings, after assembly CHECK the inside diameter (or outside if any) and ADJUST if necessary, based on clearance technical specifications for each case.



- **USE the appropriate pullers to pull pulleys, hubs and gears.**

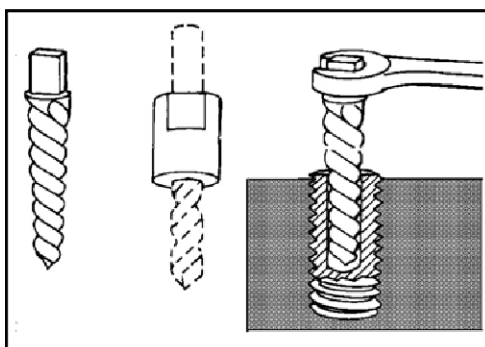
The use of sledge hammers and levers, in addition to the risk of damaging the parts, can require much more time in the operation.

NOTE: Always USE a protector for the shaft end.



- **Always USE the appropriate tool for each case.**

Saving a few steps to find the right key can result in more lost time, after damaging a hexagonal, a slot, etc.



- **To remove a stud that broke inside the hole:**

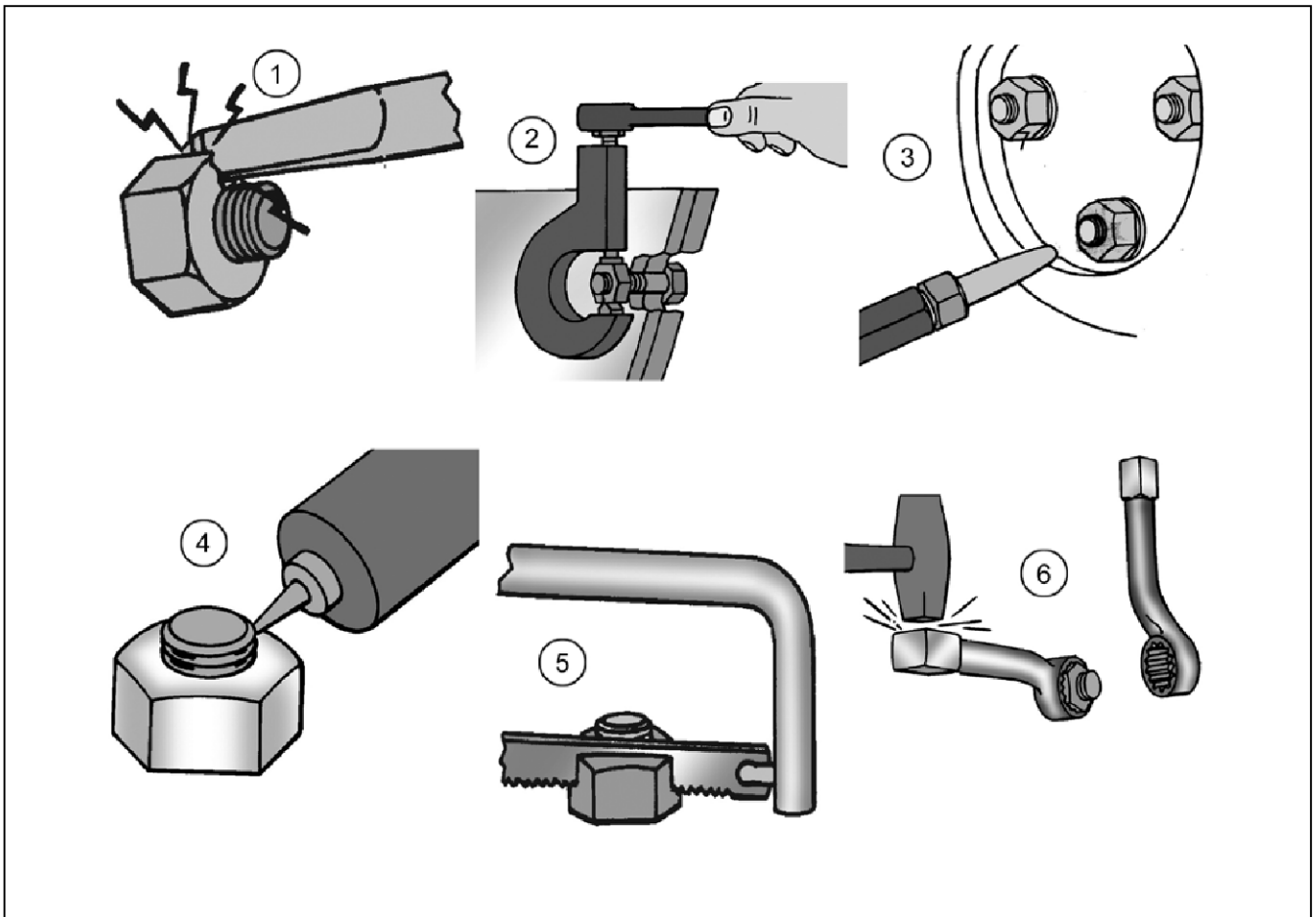
MAKE a hole having a diameter approximately half the diameter of the broken stud and **USE** a puller such as in the figure, with a thread opposite to the stud thread.

Then **REMOVE** the stud, turning the puller counterclockwise (if right-hand thread).

NOTE: when mounting studs or screws into non-passing holes, **MAKE SURE** that there is no oil or other impurities in the hole. The oil forms a hydraulic shim which can crack the housing.

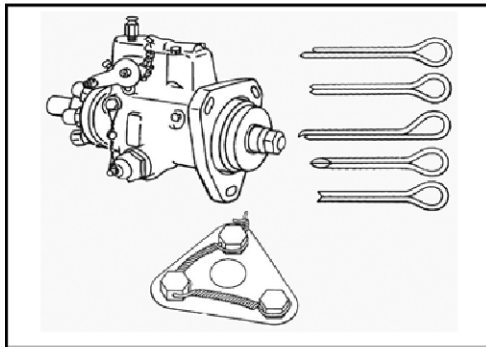
- **To remove a stuck nut:**

There are several ways, depending on the situation. In any case, they must not damage the surrounding parts.



Item	Description
1	Using a chisel
2	With a "splitter"
3	Heating
4	Penetrating oil
5	Cut with a saw
6	Impact wrench

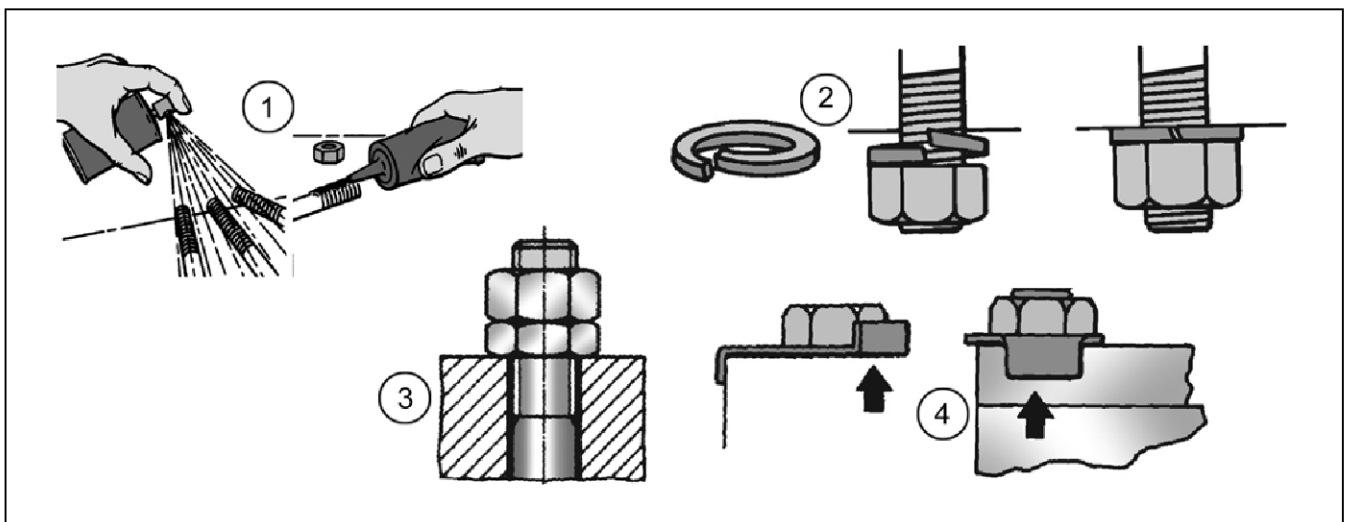
Correct locking of nuts and bolts



Counter pins, cotter pins and other means whenever removed must be replaced.

- **How to prevent screws or bolts to loosen with the normal vibration required by the work:**

There are several ways, common sense and practice should dictate the best way for each case.



Item	Description
1	Locking decal
2	Spring washer
3	Lock nut
4	Locking plates



Thank you very much
for your reading.
Please click here
to get more information.