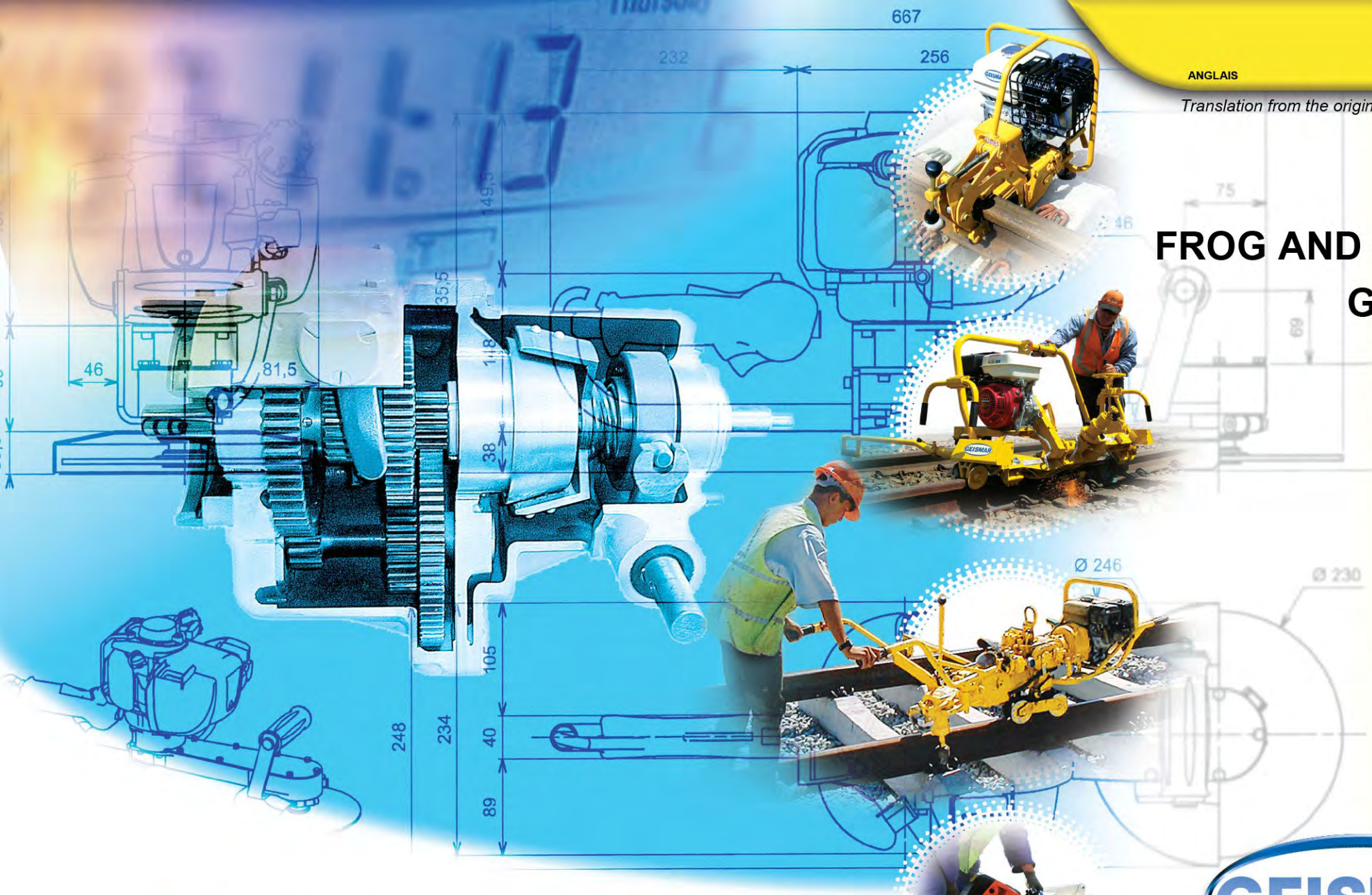
MC.3

ANGLAIS

Translation from the original instruction manual

FROG AND SWITCH GRINDER

Type MC.3



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GEISMAR, the quality choice !

You have just acquired a machine for laying and servicing railway lines. We thank you for choosing equipment developed and constructed by GEISMAR / STUMEC, the fruit of over eighty years' experience.

Every day since 1924, the GEISMAR Group has been investing in research and state-of-the-art construction to offer you the quality and reliability so essential to the requirements of the world of railways.

This machine, built entirely in France from design through to delivery, has been subjected to continuous, extremely strict controls. Formed of different mechanical elements assembled by highly qualified fitters, your machine has been tested, calibrated and controlled at every stage of its production.

We are convinced that it will give you every satisfaction and are, of course, at your service to offer you any recommendations you may require for its use or its maintenance.

We thank you for the confidence you have shown in us and, in the hope that we will remain one of your privileged partners, we would like to confirm that we are totally available for any comments or recommendations you may care to make.

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CHAPTER 1 – SAFETY

1.1 Foreword

The following set of rules has been drawn up to ensure the application of precautionary principles that help to preserve the safety of persons and property when the machine is in use. Any failure to comply with these rules can have serious repercussions (bodily injury, etc.), and can even be fatal, so we must draw your attention to the fact that all persons involved in the use, maintenance, storage or custody of the machine covered by the present manual must be familiar with these rules.
Any users who cause an accident through failure to comply with these rules will be held personally responsible for the results of their actions.

1.2 Instructions for safety and general use

All persons using, servicing or repairing this equipment must have undergone the training, possess the skills, and have at their disposal the tools necessary to carry out any such operations.
Before using the equipment, even in a maintenance context, it is necessary to read the corresponding instruction manual, together with its appendices, and the safety rules in force in the workplace.
Comply carefully with the general safety instructions drawn up for the site by the person in charge of the site, especially if the work is carried out without stopping or diverting traffic.
The equipment can only be used, serviced or repaired by competent personnel who have undergone thorough specialized training beforehand. The technical documentation and the instructions are useful in completing the knowledge acquired during the training courses, but they can in no way replace theoretical and practical qualifying training, provided in accordance with good professional practice.
If the operating company is not in a position to carry out the necessary training for its staff, at a satisfactory level, the GEISMAR/STUMEC Company is able to provide advice concerning the training programme to be implemented.
The training must include an explanation of the various equipment functions, the instructions for use and maintenance, and the safety rules applicable, together with practical exercises.

IMPORTANT! All persons using the machine must comply with the labour regulations in force

The GEISMAR/STUMEC Company cannot be held responsible for any modifications made without its written approval, or for any assembly work not in conformity with its recommendations, especially in the case of use of parts other than original manufacturer's parts.

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1.3 General safety instructions

- The operator and the working environment

⇨ To avoid all risks of accident or injury, it is essential to wear:
- Sturdy, non-flammable clothing that is suitably close-fitting
- Strong, non-slip gloves
- Safety shoes
- Protective eyewear
- Safety helmet
- All other equipment necessary on the site or when using the machine

⇨ In the case of use of ear defenders, the safety instructions in force on the site must be complied with at all times.

⇨ Make sure that the machine vibrations do not lead to a loss of sensitivity in the hands. Adapt the working periods to the level of vibration caused by the machine, which is shown within the framework of normal use.

⇨ Do not work with the machine if you are not sure that you can control it correctly. Do not start working with the machine until you are sure that you can do so in full safety, for yourself (good conditions of visibility and lighting) and for other people (work calmly and carefully). Take care to ensure you have a firm, stable footing; all unstable working positions must be prohibited.

⇨ The user must be in a physical and mental condition enabling work to be carried out without danger.

⇨ The work area must be free of all obstacles. The work area (and the surrounding areas) must be free of all flammable substances.

⇨ If anything does not seem clear to you, whether it concerns the machine or the work to be carried out, ask a qualified person for information. Do not base your work on assumptions.

⇨ For underground use (tunnel or gallery), or in a closed area, make sure there is sufficient ventilation or extraction to avoid the risks generated by inhaling exhaust gases or by their build-up.

⇨ This equipment must not be used in an explosive atmosphere.

⇨ Avoid working positions in which exhaust gases could come into contact with parts of the body, whether protected or not.

⇨ In a general way, take all necessary precautions to prevent flammable products from coming into contact with fire hazards.

⇨ The operator must ensure that no one else is within the working area. In particular, it is necessary to make sure that in the direction in which the machine is travelling, no one can be hit. If someone is nonetheless in the path of the machine, the operator must stop and warn the person of his passage.

⇨ When the machine is installed on the track, it must be handled only by the number of operators strictly necessary for its normal use.

⇨ As the overall size of the machines does not enable extinguishers to be carried on them, we strongly recommend placing extinguishers of an appropriate type to deal with the fire hazards close to the machine.

⇨ The user must comply with all the regulatory environmental instructions applicable to the machine in use.

- The operator and the machine

⇨ Before putting the machine into service each time, check that its condition and its operation are in compliance with the instructions.
In particular, make sure that the controls are free and in good working order, and that they are in the “stop” or “neutral” position. Never make any modifications that could affect correct operation of the control systems.

⇨ All the protective elements must be kept carefully in place and in good condition.

⇨ Always keep the machine clean and remove any accumulated dust, especially if it could absorb flammable products.

⇨ Always move forwards when working.

⇨ When working, always hold the machine with both hands to ensure control at all times, and to be able to use it in full safety.

⇨ Never bring a machine close to a flame or a source of heat.

⇨ The machine must never be positioned close to hot or protruding elements that could damage some parts (tanks, exhaust, housings...).

⇨ Never move away from a machine while the engine is running, even when it is idling. Stop the engine immediately if the machine is not in use. After stopping the engine, wait until all moving parts have come to a complete stop.

⇨ Work on the electrical installations on the machine can only be carried out by suitably qualified persons.

⇨ Read and make sure you fully understand all the signs placed on the machine, and always comply with all the instructions.

⇨ The signs placed on the machine include pictograms, manufacturer’s plates, and instruction labels. Make sure they are kept clean and replaced if they have been damaged, or if they are missing or illegible. If one of these elements is on a part that is to be replaced, a new element must be present on the replacement part. Please contact us on this subject.

⇨ When using a lifting device, the lifting operations of the machine must be done only using the lifting points indicated on the instruction manual.

⇨ When possible, the lifting of the machine is to be done only when the machine needs to be set in or out of the track. If the machine has to stay lifted (for a maintenance operation for example), the hazardous area must be signaled/marked, so that no one can stay below the machine or walk close by.

THE MACHINE MUST NEVER BE USED FOR A PURPOSE OTHER THAN THAT FOR WHICH IT IS INTENDED

NEVER TOUCH A MOVING PART WITH A TOOL, OR WITH THE HAND, OR WITH ANY OTHER PART OF THE BODY

IT IS **ESSENTIAL TO STOP THE ENGINE** AND SET THE CONTROL TO THE STOP POSITION BEFORE CARRYING OUT :

- ANY **HANDLING** WORK
- ANY WORK TO **CHANGE TOOLS OR SOCKETS**
- ANY **WORK INVOLVING FUEL** OR **OIL** (FILLING, TOPPING UP, CHECKING LEVELS, ETC.)
- ANY **REPAIR, MAINTENANCE OR CLEANING** WORK

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- Using and handling fuel and oil

⇨ It is essential to stop the engine and set the control to the stop position before carrying out any work involving fuel (filling up, checking the level, draining, etc.).

⇨ Always keep suitable extinguishers ready for use in all areas where fuel is handled (storage, filling up, etc.).

⇨ Always store fuel and oil in separate cans specially designed for the purpose and bearing the labels required by regulations. They must be stored in a safe place, well away from all types of fire hazard.

⇨ Each time a machine is started up, and while it is running, make sure that there are no fuel leaks from any part of the machine. If a leak is suspected, stop the engine immediately and do not restart the machine until the leak has been repaired.

⇨ Never carry out any work on a fuel tank or handle fuel to fill a tank, or for any other reason, in an area where there could be a fire hazard (such as a burning cigarette, a blowtorch, sparks, etc.) or substances that are incandescent or at a high temperature (such as welding spatters, slag, clinker, etc.). All such work must always be carried out outdoors or in a well-ventilated area.

⇨ Always turn all mobile phones off while filling a tank with fuel or handling fuel.

⇨ Carefully tighten the fuel filler cap each time, and check that no fuel leaks from it.

⇨ Always remove a filler cap slowly, to enable any internal pressure to be released without spraying any fuel out. Take special care if the surrounding temperature is high.

⇨ When putting fuel in a machine that has heated up, never fill the tank completely. Do not put in more than three-quarters of the tank capacity.

⇨ If fuel starts to boil in the tank when putting fuel in a machine that has heated up, screw the cap on again immediately and leave the machine to cool down.

⇨ Make sure the fuel used is suitable for the type of engine on the machine. See the user manual for the engine.

⇨ Do not inhale fuel vapour.

⇨ If it is necessary to drain the fuel tank, pour the fuel into a container designed for the purpose and bearing the labels required by regulations. Always close them tightly, even if they only contain a small quantity. Never use a glass container.

⇨ Never use fuel for cleaning work. Use only non-flammable, non-toxic products that are harmless for the user, the equipment and environment.

⇨ If fuel has been spilt near the filling area for any reason, clean it up immediately. Clean straightaway any spillage of fuel on the skin. Make sure no fuel has been spilt on your clothes; otherwise, change clothes immediately. Remove all rags or other materials used to wipe fuel, and store them in a safe place well away from all sources of heat or combustion. Move the machine well clear of any spilt fuel before starting it up (at least 6 metres away), and do not move any closer to the area while the engine is running.

IN CERTAIN CASES HANDLING OIL CAN GIVE RISE TO THE SAME TYPE OF RISKS AS HANDLING FUEL. IT IS THEN ESSENTIAL TO TAKE THE SAME PRECAUTIONS WITH OIL AS THOSE SET OUT ABOVE FOR FUEL.

- Tools to be used on the machine

  ⇨ Use only the types of tools intended for normal use of the machine.

  ⇨ Measure the speed of all rotating tools at regular intervals.

  ⇨ Never use tools at speeds greater than the maximum speed for which they have been designed and approved.

  ⇨ Never use damaged tools or tools that have reached their maximum level of wear.

- The engine on the machine

  ⇨ Never touch the hot parts of the engine, and especially the exhaust pipe. If it is necessary to work on the engine, wait until it has cooled down.

  ⇨ The factory setting of engine corresponds to the conditions of the production site (fuel, temperature, altitude, etc...), verify at receipt of the machine the rotational speed of the engine and correct if necessary.

  ⇨ Check the engine rotation speed at regular intervals, and especially after fitting tools or reassembling the machine. Adjust if necessary.

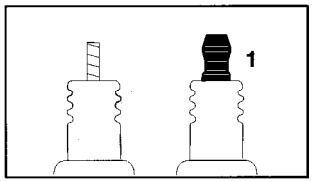
  ⇨ Never exceed the speed shown in the technical specifications.

  ⇨ After starting with the choke, remember to return the choke to the normal running position.

  ⇨ Never wind the starter rope around your hand, and never release it suddenly.

  ⇨ If the machine does not operate correctly after the engine has been started, stop the engine and inform the head of maintenance.

  ⇨ For petrol engines, use only spark plugs whose tops are as shown in drawing 1 opposite. If the plug is fitted with a screw top, make sure the top is fully tightened. After fitting the spark plug, make sure that the plug cap is in good condition and that it stays firmly on the plug. Carefully check the fastening system to make sure that no sparks can be formed.



- Using trolleys (If applicable)

  ⇨ A machine designed to work on a trolley must not be used without the trolley. The trolley is thus an integral part of the machine. The machine and the trolley must not be used separately.

  ⇨ Trolleys whose use is dedicated to a machine must never be used to transport equipment or personnel, or attached to a vehicle.

  ⇨ Before fitting the machine on its trolley, it must be placed correctly on the track to ensure that it can run freely. If it is on a sloping section of track, make sure the trolley is kept immobile while the machine is being put on the track or taken off it.

  ⇨ Attention, the trolley takes up the full width of the track and can cause injuries to the legs if it hits someone.

1.4 Special safety instructions

1.4.1 Risks liable to be caused by using an “MC3” type grinder

The main risks liable to be caused by “MC3” type frog and switch point grinders for the operator and other persons close by, are:

- Fires resulting from fuel handling
- Fires caused by sparks encountering inflammable material.
- Grinding wheels bursting during use under non-standard conditions
- Injuries or burns caused by sparks or grinding wheel debris being projected (particular must be taken to protect eyes).
- Severe injury if any part of the body comes into contact with the grinding wheel when it is turning.
- Inhalation of particles caused by grinding (use protective equipment to avoid inhaling any particles).

IMPORTANT

Due to the possibility of positioning the engine at an angle whilst working, the following rules MUST be systematically obeyed:

- Always bring the grinding wheel back to vertical, stop all grinding operations and stop the engine before opening the fuel cap.
- Never fill the fuel tank over ¾ full (to avoid any seepage when the engine is working at an angle.)
- Never work on a fuel tank, or handle fuel for filling or for any other reason in any zone where the following may be present: An ignition source (for example: Lit cigarettes, blow-lamps, sparks, etc.) or materials that are incandescent or at high temperatures (for example: welding flash, various types of slag, etc.). Always carry out this type of operation in the open air in a well ventilated area.
  Lock the fuel tank cap after use and check that no fuel can escape.
- Refer to §1.2 “Safety and general operating instructions” and §1.3 “General safety regulations”

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1.4.2 Safety rules to be followed before and during use of the “MC3” type grinder

- Besides the clothing specified in paragraph §1.3 “General safety regulations / the operator and his environment”, any personnel using this equipment must also use protective equipment such as: masks or glasses, an apron, gaiters or boots in fireproof material
  Wearing a protective mask for avoiding any inhalation of grinding dust is also recommended.
- Do not use any damaged, cracked or split grinding wheels.
- Rotate any new or refitted grinding wheel for 30 seconds without any load on it. All personnel should be kept at a distance during the test, except for the operator who must stay at the controls of his machine, but outside the grinding wheel’s plane of rotation and ready to stop the engine if necessary.
- When grinding, never stand in direct line with the sparks. If necessary, set up a screen for stopping sparks and prevent them from encountering any dangerous areas (dangers of brush fires in summer).
- Do not let the grinding wheel hit anything when in operation as this may cause it to burst.
- Make sure that the grinding wheel is never in contact with a sleeper, ballast or any other foreign body.
- Before starting the machine, check that the grinding wheel protective cover is in good condition and correctly attached. Never make any modifications to it.
- Install a new protective cover if ever a grinding wheel has burst and every time the cover appears to be in poor condition.
- Regularly check rotation speeds especially after reassembling the machine and correct them if necessary.
- Only use the types of grinding-wheel allowed, as far as both dimensions and composition characteristics are concerned.
- Never use grinding wheels at speeds higher than the maximum speed recommended by their manufacturer, which should be marked on every wheel.
- Stop the engine systematically before taking the machine off the rails or between two grinding operations where the machine has to be moved from one point to another.

ONLY USE GRINDING WHEELS:

➔ Whose maximum operating speed is higher than the maximum speed of the grinding wheel arbor, indicated on the machine.

➔ Whose outside diameter is smaller than or equal to the maximum diameter allowed as indicated on the machine.

➔ Authorized by regulations in force for this type of machine.

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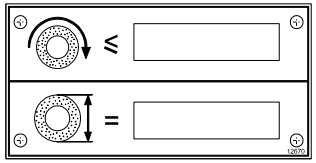
1.4.3 Personal protective equipment

- Personnel using this equipment must wear the clothing specified in paragraph §1.3 “General safety regulations / the operator and his environment”. He must also be equipped with equipment to protect him against sparks, such as: masks or glasses, an apron, solid non-slip gloves, and gaiters or boots in fireproof material
- Wearing a protective mask for avoiding any inhalation of grinding dust is also recommended.
- Besides using the personal protective equipment described in §1.3 “General safety regulations / the operator and his environment”, we also recommend the use of ear muffs. However, railway regulations in force and applicable to the worksite must be referred to, in order to see whether muffs may be used or not.

1.4.4 Pictograms and safety instructions

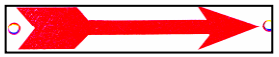
The presence of pictograms and safety instructions is compulsory on the profile grinder in the positions indicated.
If any of them are missing or deteriorated, replacements MUST be ordered immediately and installed in the position provided for.
If any part with a label on it has been replaced, make sure that a new label has been fixed to the new part.

Reference: **N°** 12528 (yellow background)
Position: Glued to the grinding height adjustment barrel.



Reference: **N°** 12670
Position: Riveted onto the machine's grinding wheel cover.

Reference: **N°** HZM (blue background)
Position: Glued to the grinding height adjustment barrel.



Reference: **N°** 12412
Position: Riveted onto the machine's grinding wheel cover.

Reference: **N°** 12569 (blue background)
Position: Glued to each of the machine's carrying arms (if supplied).

Reference: **N°** 12632 (white background)
Position: Glued to the fuel tank beside the filling cap.

CHAPTER 2 – MACHINE DESCRIPTION

2.1 General

Manufacturer:	SOCIETE TURRIPINOISE DE MECANIQUE Route d'Italie 38110 LA TOUR DU PIN
Name of equipment	Frog and switch point grinder
Type:	**MC.3**

The MC3 type frog and switch point grinding machine is designed for grinding switch blades, frogs and wheel-guides on all types of points and crossings

The tilt angle of the grinding head up to ±30° from vertical (with angle readout on a graduated rule) also enables certain number of fillet radii to be ground.

Its exceptional performance, its sturdiness and its firm, accurate and ergonomic controls offer optimal ease of operation.

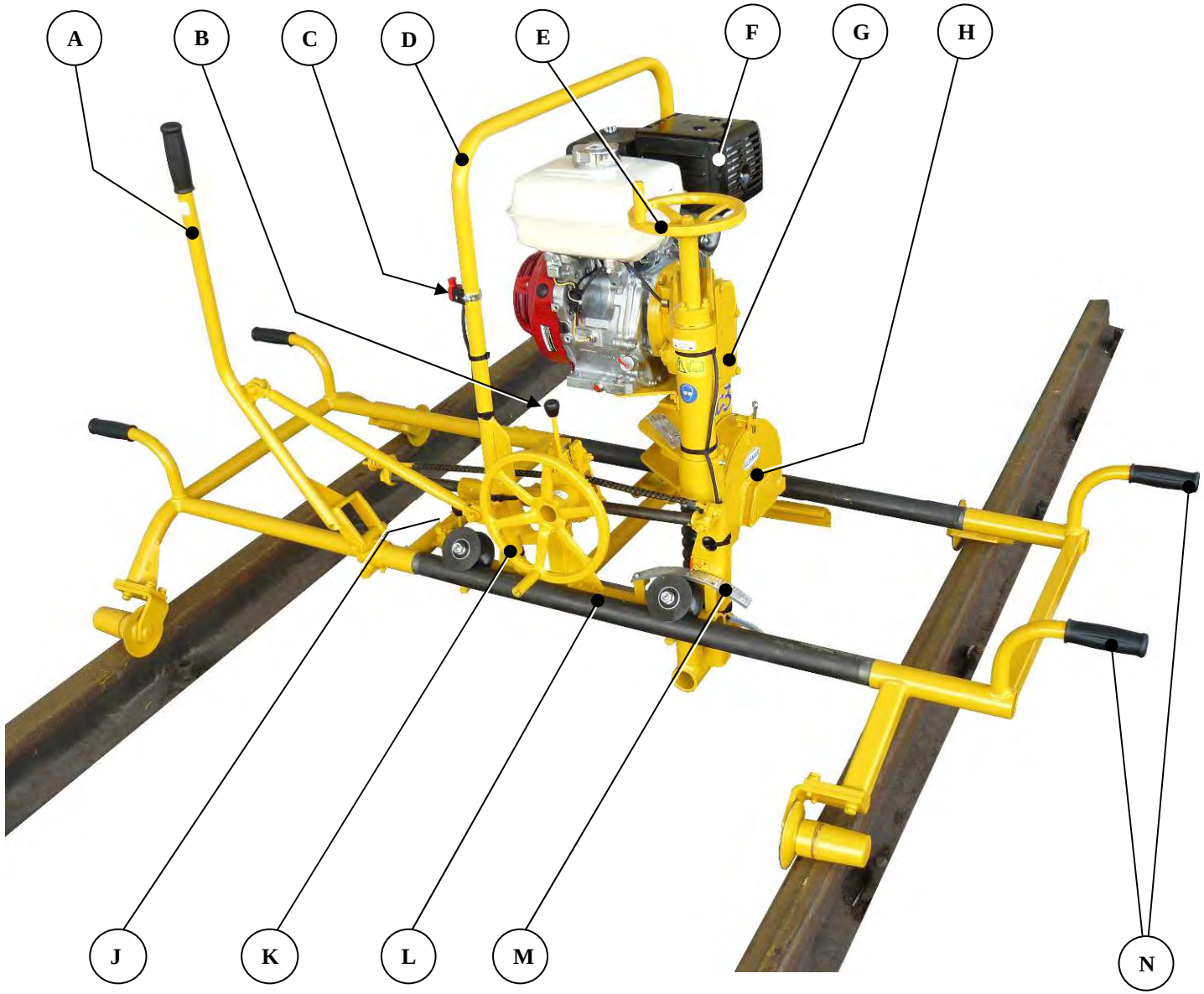
It has been totally designed by calling on the latest techniques used in the machine tool industry.

The combination of movement provided by its two carriages, which move in two perpendicular directions, gives access to a very wide zone of action.

- Along the track (4-wheel trolley)
- Perpendicular to the track (carriage holding the machine's grinding wheel mechanism).

The grinding wheel moves both horizontally and vertically.

2.2 Overview



Ref.	Description
A	Operating lever
B	Wheel tilt locking catch
C	Remote motor stop button
D	Work bar
E	Wheel raising & lowering hand-wheel
F	Engine
G	Grinding head
H	Grinding wheel protective housing
J	Cross-traverse locking catch
K	Wheel tilt hand-wheel
L	Guiding column
M	Graduated scale
N	Lifting handles (x4)

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2.3 Technical characteristics

TYPE OF ENGINE (4-stroke)		HONDA GX 160	HONDA GX 200	HONDA GX 270	BRIGS&STRATTON 19L232
Machine dimensions					
Length / width / height …….……	mm	2160 / 1100 / 1030	2160 / 1100 / 1030	2160 / 1100 / 1030	2160 / 1100 / 1030
Weight					
Machine (empty)……..……..	kg	95	96	107	94
Machine (ready-to-run) ……....……	kg	103	104	115	102
Noise					
Acoustic pressure level (La_{eq}) [1]…..…….	dB (A)	85 (±2)	85 (±2)	86 (±2)	78 (±2)
Acoustic power level (Lwa) [2]….....	dB (A)	92 (±2)	92 (±2)	94 (±2)	91 (±2)
Vibrations					
Vibration level (A_{eq}) [3]…….....……	ms^{-2}	1.1 (operating lever) (±2%) 1.3 (lifting arm) (±2%)	1,1 (operating lever) (±2%) 1,3 (lifting arm) (±2%)	1.5 (operating lever) (±2%) 1.8 (lifting arm) (±2%)	3,2 (operating lever) (±2%) 3,7 (lifting arm) (±2%)
Motor					
Power (at 3600 rpm) ……..……...	kW	3.6 (= 4.8hp)*	4.1 (= 5.5hp)*	6 (= 8hp)*	7,5 (= 10 hp)
Fuel tank capacity …….	litre	3,1	3,1	5,3	3,8
Fuel consumption	Liters/hour	1,4	1,7	2,5	1,9
Fuel …….....	……	Unleaded petrol			
Start-up …….....	……	Pull-rope start with auto return			
Machine		For grinding wheel Ø ≤ 254mm		For grinding wheel Ø 260mm	
Preset engine speed (maximum speed) …….....	rpm	3600		3300	
Grinding wheel rotation speed …….....	rpm	3570		3270	
Maximum grinding wheel diameter ……....	mm	254		260	
Grinding wheel					
Outside diameter ……..……..	mm	230 or 250 or 254 or 260 (depending on machine)			
Maximum permitted peripheral speed .....……...	m/sec	50 or 80 (depending on machine)			
Wheel composition ….....…….....	……	Resinoid grinding wheel (wheel made with synthetic binder)			
Vertical movement of the wheel..……...	mm	65			

[1] Measurements taken under load as per NF EN ISO 11204. [2] Measurements taken under load as per NF EN ISO 3746. [3] Vibration readings taken under load as per NF EN ISO 5349.

* The engine power given in this document corresponds to the net power produced tested on a standard motor and measured to SAE J1349 standards at a given engine speed. This power value may vary on other standard motors. The net power produced by the engine mounted on the machine may vary for numerous reasons, such as, for example, engine speeds used for a specific application, environmental conditions, etc.

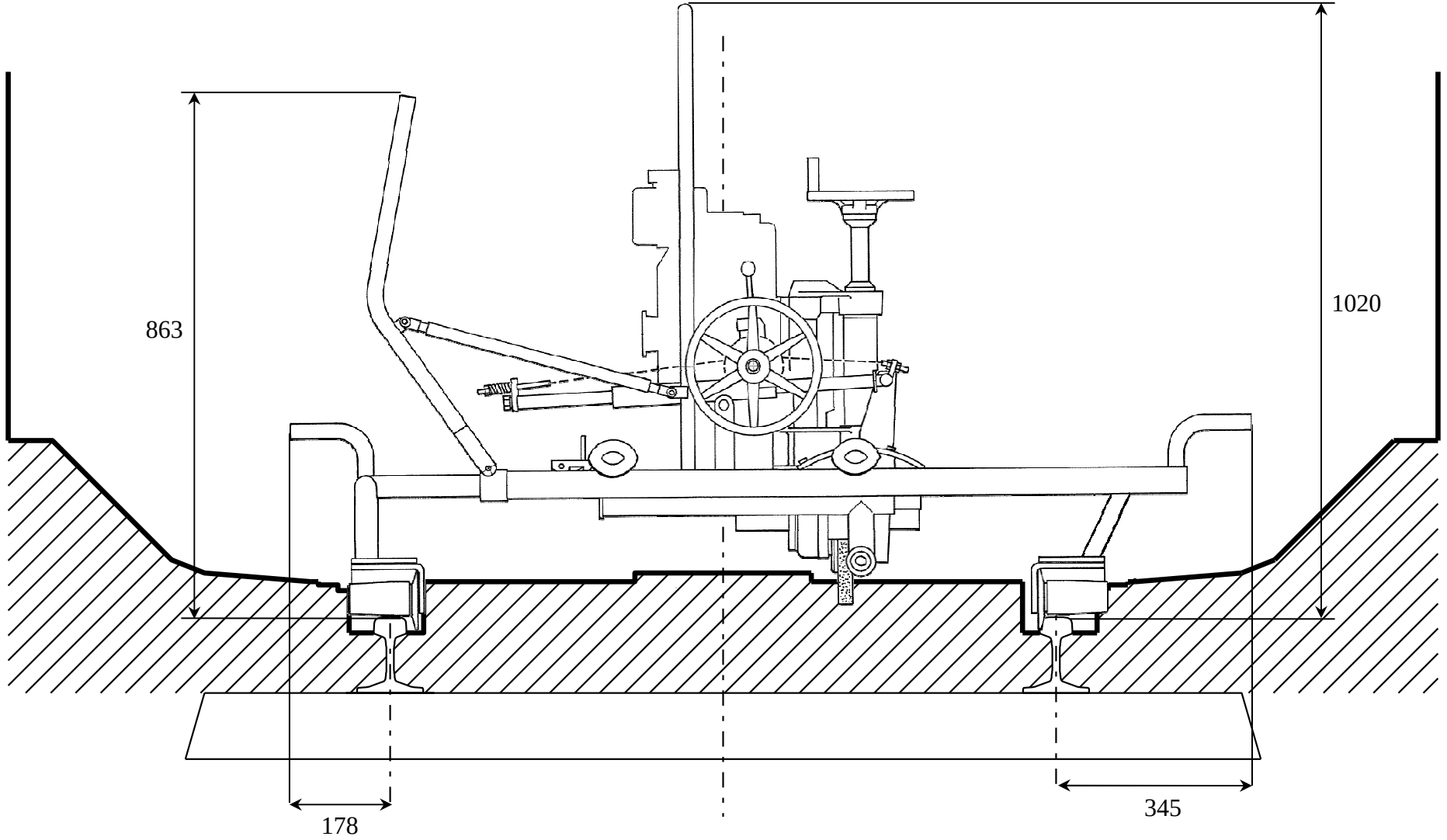
2.4 Allocation of loads

The diagram below shows how loads are allocated as a percentage of the machine's weight.

Refer to §3.3 "Putting the machine on the rails" for determining the number of persons required for transport operations.

2.5 Position of the machine in the gauge

The following diagram gives the machine's dimensions compared with low track gauge UIC 505-1 (track with a nominal gauge of 1435).



CHAPTER 3 – INSTALLATION – SET-UP

3.1 Fitting the grinding wheel

The grinding wheel MUST ALWAYS be fitted with the engine or motor switched off, with the machine placed on the ground and the grinding head in a vertical position and raised as high as possible.

➔ Removing the grinding wheel:

1→ Unscrew the 4 nuts Ref. ① using a 13 mm spanner and then remove the protective cover Ref. ② (See fig.1).

2→ Separate the grinding wheel Ref. ④ from the wheel-holder plate Ref. ③:

- ***Assembly fig.2*** >> unscrew nut Ref. ⑤ with a 36 mm spanner, holding the pulley shaft Ref. ⑥ in position with the 17 mm box spanner.
- ***Assembly fig.3*** >> Unscrew the four screws Ref. ⑧ with a 13 mm spanner, holding the pulley shaft Ref. ⑥ in position with the 17 mm box spanner.

3 → Remove the back plate Ref. ⑦ and then remove the grinding wheel fitted to the machine.

➔ Fitting the grinding wheel (with the grinding wheel protective cover already removed):

4→ - ***Assembly fig.2*** >> Position the wheel Ref. ④ so that its inside diameter bears on the shoulder of the wheel-holder flange plate Ref. ③. Place the back plate Ref. ⑦ on the pulley shaft Ref. ⑥ and tighten the unit together using nut Ref.⑤ and a 36 mm spanner, continuing to hold the pulley shaft Ref. ⑥ in position with the 17 mm box spanner.

- ***Assembly fig.3*** >> Position the wheel Ref. ④ so that its inside diameter bears on the shoulder of the wheel-holder flange plate Ref. ③. Place the back plate Ref. ⑦ in contact with the wheel and maintain it in position with the four holding screws Ref. ⑧. Bring the screws into contact and then tighten them with a 13 mm spanner.

Do not overtighten nut Ref. ⑤ or screws Ref. ⑧.

5 → Position the protective housing Ref. ② and fix in place by tightening the 4 nuts Ref. ① using a 13 mm spanner.

Fig.1

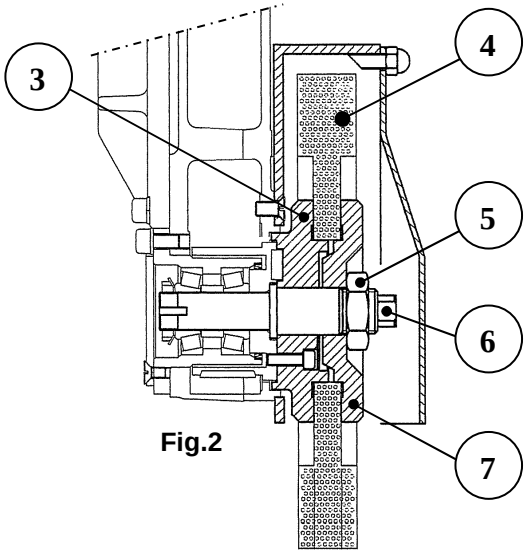


Fig.2

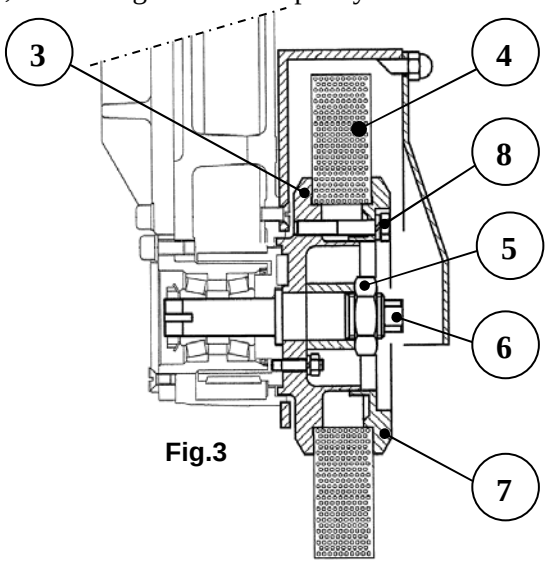


Fig.3

Grinding wheels are marked with a use-before date. Check that the date has not been overrun. Please contact us should you wish to use a grinding wheel other than the original supply or to adapt different grinding wheels.

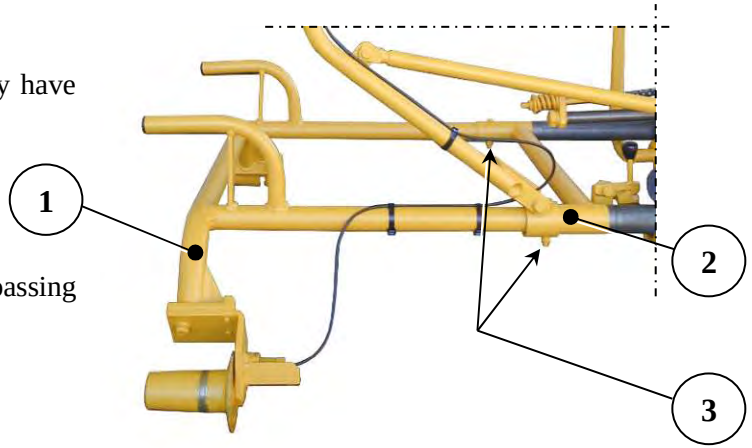
GRINDING WHEELS TO BE USED MUST COMPLY WITH THE TECHNICAL CHARACTERISTICS DEFINED IN § 2.3 "TECHNICAL CHARACTERISTICS / GRINDING WHEEL".

3.2 Initial assembly

To reduce the overall size of the unit before packaging, its rear roller support Ref. ① may have been dismantled.
Should this be the case on the machine in question, it must be re-assembled before use.

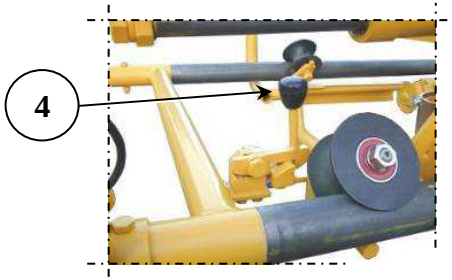
To re-assembly the machine, proceed as follows:

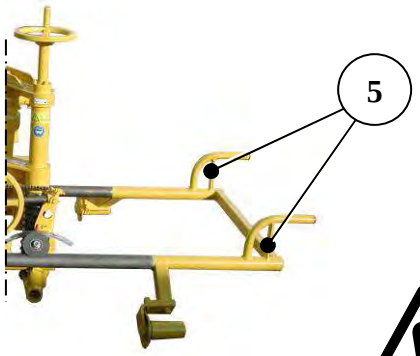
- Insert the rear roller support unit Ref. ① into the chassis of the machine Ref. ②.
- Insert the 2 holding screws Ref. ③ in the sockets provided for this purpose (holes passing through the 2 tubes).
- Screw in and tighten the 2 holding screws (13 mm spanner).



3.3 Putting the machine on the rails

Before any handling operation, the mobile part of the machine must be prevented from making any crossways movement by engaging the catch Ref. ④.
The frog and switch point grinder may be positioned on or close to railway lines using a crane or any other type of lifting equipment with a capacity of over 2000N and the lifting rings Ref. ⑤ (x4) (if supplied) located at the four corners of the machine (between the chassis and the lifting arms).
The "MC3" frog and switch point grinder can also be put into position by hand using the 4 lifting arms Ref. ⑥ located on either side of the machine. The positioning operation can be carried out by two persons. Nevertheless, if access to the work area proves to be difficult, provide for a sufficient number of persons so that transport operations can be carried out under satisfactory safety conditions.
Once the machine has been positioned on the rails, it must be immobilized to prevent it from moving by itself and hitting and injuring anybody. If the machine is fitted with a roller brake (See Chap.6 "Optional equipment"), check that the brake is on. Otherwise chock the machine if necessary.





ALL MACHINE-MOVING OPERATIONS ON AND OFF THE RAILS MUST BE CARRIED OUT WITH THE ENGINE SWITCHED OFF

3.4 Fuel

Petrol with an octane content of at least 90 RON must be used on the frog and switch point grinder's four-stroke engine. Ordinary unleaded petrol containing no more than 10% of ethanol (E10) or 5% of methanol in volume may be used.

Petrol ➥ **DIESEL and ALCOHOL are NOT ALLOWED**

Storing petrol ➥ petrol oxidizes and its condition deteriorates as time goes by. Should the machine be stored for a long period, empty the fuel tank beforehand and let the engine run until it is out of fuel.

Filling up with fuel

Take care when opening the fuel can.

⚠ Pressure may build up inside the can. Open it carefully

Before filling up, carefully clean the fuel cap and its surrounding area to prevent any impurity from entering the fuel tank.

Put the grinding head in a vertical position so that the petrol cap is facing upwards.

NEVER FILL UP WITH FUEL WITH THE ENGINE RUNNING, OR OVERHEATED

- Opening the cap:

❶ By hand, turn the cap anticlockwise as far as possible

❷ Remove the petrol cap

⚠ Open the fuel tank carefully so that any inside overpressure can escape gently, without any fuel being projected.

⚠ Never open the fuel cap using a tool. You risk damaging the cap and letting fuel escape in the future.

⚠ Fill up the tank in a well-ventilated area and never close to possible ignition sources, such as: blow-torches, sparks, welding flash, etc.

⚠ Move the machine more than 6m away from its filling point before starting up.

When filling, never spill fuel and never totally fill the tank. Only put in a quantity of fuel equal to ¾ of its maximum capacity.

- Closing the cap:

❶ Put the cap in position on the filling hole.

❷ By hand, turn the cap clockwise as far as possible.

THE FUEL TAP MUST BE SYSTEMATICALLY CLOSED AFTER USE

This prevents petrol from getting into the oil-bath, which would reduce its quality

3.5 Machine inspection

Every element of the machine must be examined by a proficient person before start-up, so as to detect any possible faults.
This inspection will be mainly composed of a visual and functional check-up.

The inspection phase enables a check to be made for ensuring that all elements are safe and that they have not been damaged during transport or storage.

- ***Checking mechanically welded units*** (these checks must be made with the engine switched off)

  Check visually that there are no external faults, deformation, superficial cracks, wear or marks of corrosion.

- ***Checking levels*** (this check must be made with the engine switched off)

  - Fuel level: Check the fuel level and add if necessary (⚠ : Refer to §1.3 “General safety regulations” / sub-§: "Using and handling fuel” before carrying out any operation).
  - Engine oil level: Check the engine oil level using the gauge and add oil if required. The level should be slightly below the maximum level on the gauge, but it must never be over this level.

- ***Checking safety equipment***

  Start up the engine (⚠: Refer to §4.1.2 “Starting and stopping the engine”) and check that safety equipment operates correctly (remote engine stop).

- ***Checking operation***

  Check that controls operate correctly. Check that the grinding wheel raising and lowering hand-wheel and the tilt control system operate correctly i.e. when these elements are manoeuvred, their movement must be as fluid as possible without any hard spots.

- ***Checking the grinding wheel and its holding system***

  Check the condition of the grinding wheel and the wheel-arbour visually. Refer to the manufacturer's instructions concerning the technical characteristics and the wear limits on the grinding wheel.

- ***Checking the grinding wheel protective cover***

  Check that there are no knocks or cracks on the protective cover.

SHOULD ANY ANOMALY BE DETECTED DURING THE INSPECTION PHASE OR WHEN IN OPERATION, THE MACHINE MUST OBLIGATORILY BE PUT BACK IN A COMPLIANT CONDITION BY PROFICIENT PERSONNEL OR THE MANUFACTURER BEFORE IT CAN BE REUSED.

CHAPTER 4 – OPERATION

4.1 Operating conditions

4.1.1 The operator's work area

The operator's work area Ref. Ⓣ is inside two vertical limits (between the two rails), defined by gauge UIC 505-1 (See §2.5 "Position of the machine in the gauge").

4.1.2 Starting and stopping the machine

Refer to the engine constructor's instructions for information on the position of the elements to be turned on and off for starting up and stopping the engine.

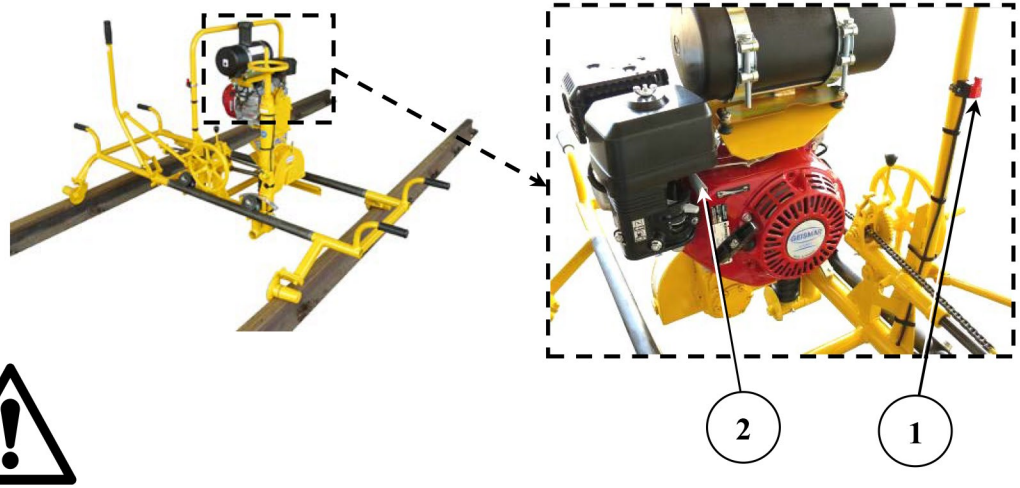
The engine must only be started and stopped (normal operating conditions) when the grinding head is vertical and there is a space of at least 3 mm between the rail and the grinding wheel.

➔ Start-up:

- Check that the remote engine stop button Ref. ① is in position **1**.
- Start the engine, let it idle for a few moments until the speed is stabilized and the engine starts to warm up.
- Once the engine is hot, increase its speed by moving the accelerator handle Ref. ② up to the end-stop (preset in our works).

➔ Stopping the machine:

- Move the grinding wheel about 3 mm away from the rail.
- Reduce engine speed by returning the accelerator Ref. ② to low speed (idling speed).
- Stop the engine, by pushing down the remote engine stop button Ref. ① to one of the two **0** positions.



THE MACHINE MUST ONLY BE STARTED UP AFTER IT HAS BEEN PLACED ON THE RAILS

4.1.3 Machine operation

To show how the machine runs, below we describe the different stages that make up the grinding operation, explaining for each stage: what controls are to be used and the position of each of them.

The stages that make up the grinding operation are:

❶ ➢ Moving the grinding head to the zone to be ground.
❷ ➢ Tilting the grinding head to the required angle.
❸ ➢ Adjusting the height of the grinding wheel.
❹ ➢ Grinding in successive passes.

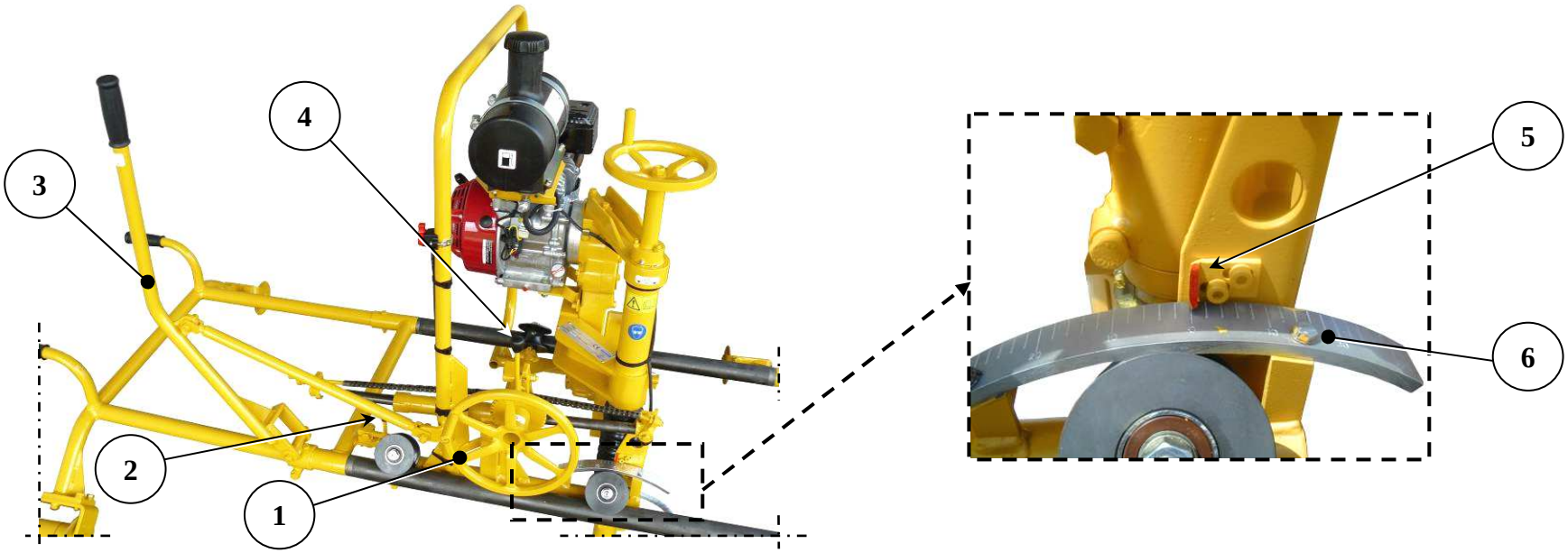
❶ ➢ Moving the grinding head to the zone to be ground.

To move the head, release catch Ref. ② which holds the grinding head in position on the cross-traverse carriage and using the lever Ref. ③ bring the grinding wheel into position close to the zone to be ground.

❷ ➢ Tilting the grinding head to the required angle.

Raise pin Ref. ④ on the holding catch and using the tilt hand wheel Ref. ①, set the grinding head at the angle required. The movement of index Ref. ⑤ on graduated scale Ref. ⑥ gives the tilt angle. Lock the hand wheel in position by lowering pin Ref. ④ on the catch.

To avoid making any hollows in the rail when grinding, it is essential to not to put too much load on the operating lever Ref. ③ combined with the machine's to-and-fro movement.



❸ ➢ Adjusting the height of the grinding wheel

Once the grinding head has been positioned correctly and locked in place, start up the engine (⚠: Refer to §4.1.2 Starting and stopping the machine").

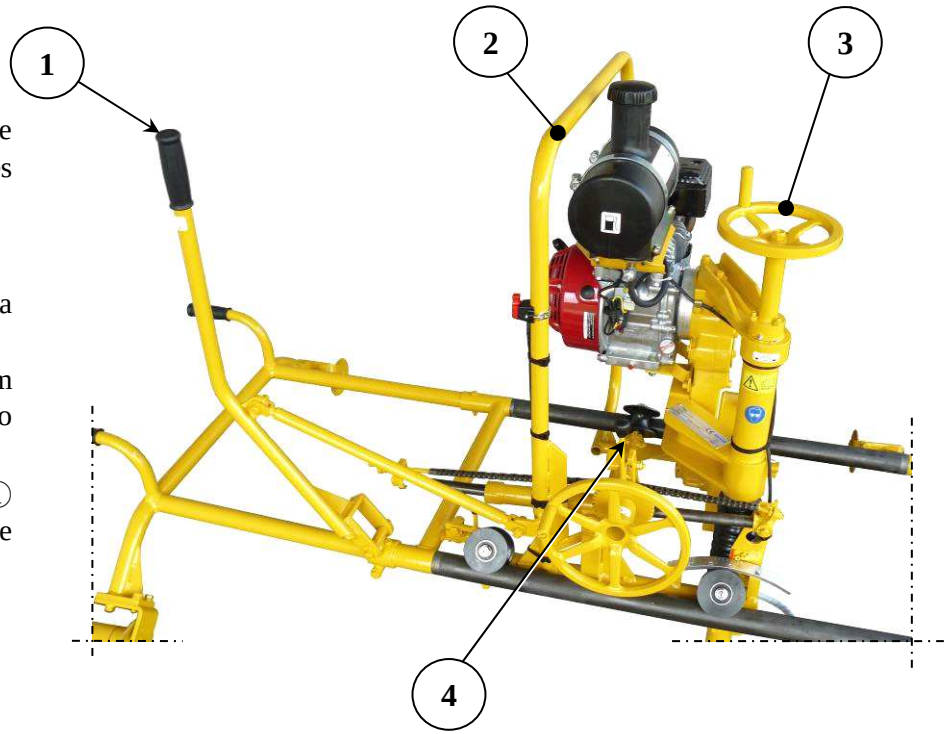
Then turn the hand-wheel to lower the grinding wheel Ref. ③, moving the operating lever Ref. ① at the same time so that the grinding wheel lightly touches (a few sparks) the surface to be ground.

❹ ➢ Grinding in successive passes

Then carry out the grinding operation in successive passes by giving the grinder a short to-and-fro movement along the rail.

To move the machine longitudinally, take hold of the handle on the operating arm Ref. ① with one hand and the lifting bar Ref. ② with the other hand in order to move the grinder along the rails.

As the pressure of the wheel on the rail is given by the operating arm Ref. ① make successive passes by manoeuvring it gently. Excessive pressure on the grinding wheel may lead to it bursting.



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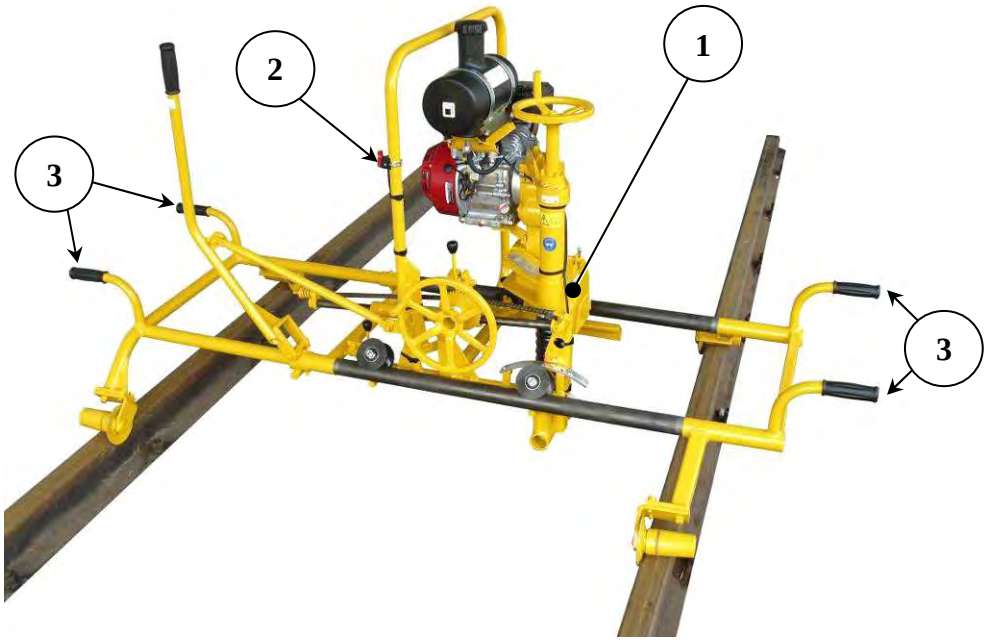
4.1.4 Taking the machine off the rails

Depending on the situation (more or less time available for taking the machine off the rails), taking the machine off the rails must be done as per "a) Normal procedure" or "b) Emergency procedure".

a) Normal procedure

- Raise the "grinding wheel and head" assembly Ref. ① as high as possible in a vertical position.
- Reduce engine speed then stop the engine by putting the remote engine stop switch Ref. ② in position 0. Then wait until the grinding wheel has completely stopped turning.
- Take the machine off the rails by following the procedure described in §3.3 "Putting the machine on the rails" in reverse order.

  ➔ As indicated in this same paragraph the "MC3" type frog and switch point grinder can be put on or off the rails by two persons. Nevertheless, if access conditions to the work area are difficult, a sufficient number of persons must be provided for so that transport operations can be carried out under good conditions.



b) Emergency procedure

- Stop the engine, by putting the remote engine stop switch Ref. ② in position 0.
- Take hold of the machine using the two carrying bars ③ located on either side of the machine and remove it rapidly from the rails.

  IMPORTANT: After carrying out the emergency procedure for taking the machine off the rails, it is essential to check that no machine element has been damaged and that the grinding wheel is in good condition. The machine may only be re-started after an inspection has been made and any necessary repair work carried out.

4.2 Storage

4.2.1 General storage instructions

During when the equipment is not being used, it is essential that it be stored correctly to remain in good condition. Poorly stored equipment is liable to show risks of deterioration when it is restarted. As a result, it is important that personnel in charge of storage operations take the Greatest care when storing away this equipment and that they scrupulously obey the measures recommended.

⇨ Storage protection system

The choice of storage protection system depends on 2 main factors:

- The length of storage time
- Storage conditions: “Non-sheltered” storage (exposed to weather conditions) and “sheltered” storage (building, closed or open shed, canopy, etc.).

Storage may only be done after the equipment has been run in. Measures must be taken for providing easy access around the equipment for servicing it.

⇨ Storage premises

Generally, storage premises for equipment must offer the best possible protection against:

- dust, exhaust gasses, dampness
- direct sunlight
- rapid changes in temperature

⇨ Putting into store

The condition of equipment when it is put back into service after storage depends on the way it has been prepared and protected before being stored away:

- Equipment must be cleaned (after cleaning, protect mobile elements with grease).
- A technical inspection must be made for detecting any possible anomalies.

4.2.2 Special storage instructions

⇨ For prolonged machine storage, empty the fuel tank.

⇨ Never store the machine away with a grinding wheel fitted.

⇨ Store grinding wheels in a dry place, protected from frost, sunshine and heat. Position them so that they do not undergo any external pressure liable to warp them. Machines must not be stored away for more than 2 years.

CHAPTER 5 – SERVICING / MAINTENANCE

5.1 Servicing

For servicing and repairing this equipment, appropriate training, proficiency and tooling are required.
The equipment can only be serviced and repaired by persons possessing the necessary skills and sound general knowledge in mechanical engineering.

⚠ Before any servicing operation is carried out, the engine must be stopped (leave the control in the stop position) and left until cold.

⚠ To a large extent, safety in use relies on the machine being serviced correctly.

⚠ Waste resulting from servicing and maintenance operations (fluids, filters, used rags, etc.) must be processed as per regulations in force and environmental protection directives.

⚠ **Exchange or repair all worn, damaged or missing parts, whenever there is a safety risk.**

5.1.1 Engine

- Refer strictly to the manufacturer's instructions

5.1.2 List of equipment and accessories required for servicing

The following tooling is required for carrying out servicing and maintenance operations correctly:

Standard tooling (supplied with the machine)	*Servicing and maintenance tooling (non-supplied with the machine)*
17 mm box spanner (Ref. 28051) 17 mm flat spanner (Ref. FJM) 13 mm flat spanner (Ref. FJX) H36 box spanner Ref. 28052A) Plug spanner (Ref. FVL)	Flat screwdriver 10, 12, 14 and 18 mm flat spanners 3, 4, 5 and 6 mm Allen keys Multigrip pliers

This list of tooling does not exclude equipment that is normal but essential for servicing, such as: Rags, brushes, grease, etc.

5.1.3 Cleaning

Make sure that the machine is kept in as clean a condition as possible. The machine's service life and its satisfactory operation depend on the care given in cleaning the equipment.

Clean the machine carefully with a clean rag or an air gun taking care to remove any dirt that may have been deposited on it, especially close to moving parts. As a precaution, wear gloves systematically to avoid injuring or burning hands.

Regularly clean the chain on the tilting system.

5.1.4 Lubrication

- Lubricate the whole machine thoroughly once a week by means of the 4 grease nipples Ref. Ⓖ.

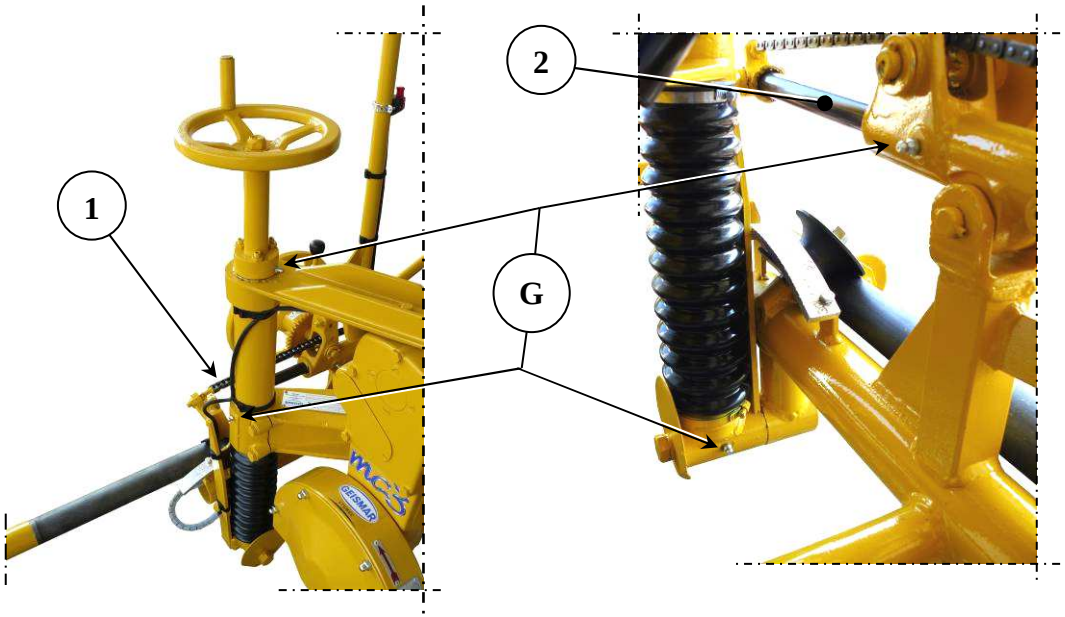
Use one of the following recommended greases:

- TOTAL MULTIS EP 2
- KLÜBER CENTOPLEX 2 EP

or any other grease that meets DIN 51 354 or ISO.L.XBBFB.00 standards (grade 00 stringy grease for heavily loaded gears. utilization temperature from – 20°C to + 120 ° C).

Regularly grease chain Ref. ① and tilt slideway Ref. ②.

Keep clean and regularly lubricate all the locking and adjustment elements where handles, hand wheels and guide columns are located.



5.1.5 Tilt brake

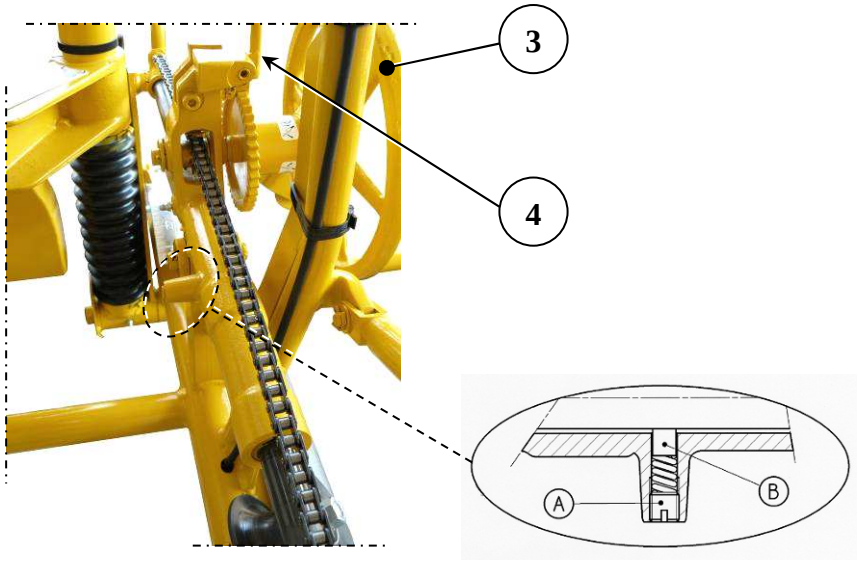
- The tilt brake must be regularly checked to avoid the grinding head tipping over too rapidly.

  To do this: - Hold hand wheel Ref. ③ firmly.

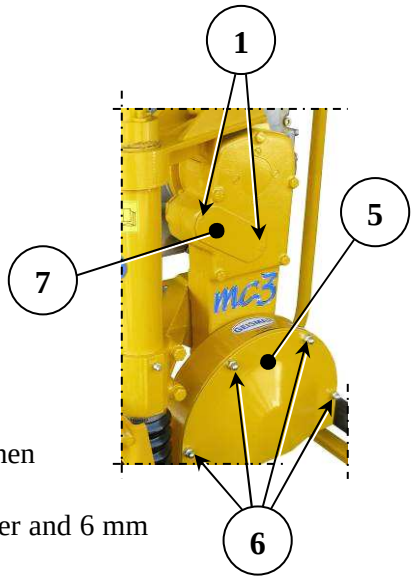
  - Release holding catch Ref. ④.

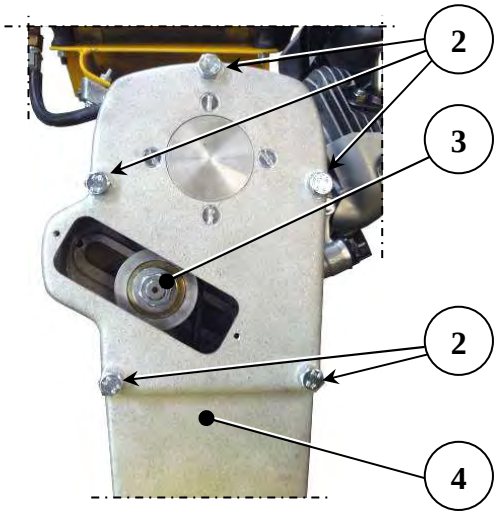
  - Rotate hand wheel Ref. ③ to tilt the grinding head, and adjust screw Ref. Ⓐ until the head remains in position at any angle without needing to hold it in place with the hand wheel.

- If the brake is no longer sufficiently effective after a certain period of use, repeat the above operations.
- When adjustments can no longer be made, replace the brake pad Ref. Ⓑ.



5.1.6 Drive belt (this operation MUST be carried out with the engine stopped)





Drive belt tension:

Every 50 hours' operation, adjust the drive belt tension as follows:

❶ Unscrew the 2 screws Ref. ① with a flat screwdriver.
❷ Remove the front housing cover Ref. ⑦.
❸ Loosen nut Ref. ③ holding the tensioning roller in place (18 mm flat spanner). Apply tension to the drive belt by moving the tensioning roller until the required tension is obtained, then retighten nut Ref. ③.
❹ Put the front housing cover Ref. ⑦ in position and retighten the 2 screws Ref. ①.

Changing the drive belt:

❶ Remove the grinding wheel cover Ref. ⑤ by unscrewing the 4 nuts Ref. ⑥ and then remove the grinding wheel.
❷ Unscrew the 9 screws Ref. ② holding the front housing Ref. ④ (13 mm flat spanner and 6 mm Allen key). Remove the front cover.
❸ Loosen nut Ref. ③ holding the tensioning roller in place (18 mm flat spanner).
❹ Replace the belt and adjust its tension.
❺ Refit the front housing proceeding as for dismantling but in reverse order.

NB: Whenever a drive belt is exchanged or refitted, check that the pulley grooves are in good condition and clean them carefully together with the belt grooves.

5.1.7 Engine speed

On leaving our works, the carburettor is delivered with the best-possible setting corresponding to barometric and climatic conditions at our works at the time. For optimal use of the machine, it is important that the engine speed corresponds to the speed indicated in §2.3 "Technical Characteristics".

Besides normal servicing during use, it is recommended that any possible repairs or adjustments to the carburetor are carried out by members of the GEISMAR sales or repair network. All carburetor adjustments must be made when the engine is hot. Refer strictly to the manufacturer's instructions when making these adjustments.

Regularly check the maximum rotation speed of the engine running unloaded, using an electronic tachometer (Ref. HLN). A check must be made before the machine is used for the first time, weather conditions and altitude may considerably modify settings.

To check the setting and measure engine speed, the machine must be placed in a work position.

Too low or too high speeds may cause premature wear on certain parts, even serious operating incidents.

5.2 Maintenance

5.2.1 Preventive maintenance schedule

ELEMENTS	TYPE OF OPERATION	FREQUENCY						Ref.
		Before every use	**After every use**	**Once a week**	**Every 50 hours**	**Every 100 hours**	**Presence of evident signs of wear or poor operation**	
The whole machine	**Machine inspection**	**X**						**Chap.3 - § 5**
The whole machine	**Clean thoroughly with a clean rag or an air gun for removing any dirt that may have settled on the machine**		**X**					**Chap.5 § 1.3**
Lubrication	**Greaser / Oiler**			**X**				**Chap.5 § 1.4**
Tilt brake	**Check / Adjustment**			**X**				**Chap.5 § 1.5**
Drive belt	**Adjustment / Replacement**				**X**		**X**	**Chap.5 & 1.6**
Engine speed	**Check**			**X**				**Chap.5 & 1.7**

NB: These recommendations are not limitative. Permanent surveillance of the machine and well-organized preventive servicing are certain to extend machines' service life.

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5.2.2 List or normal wear parts (this list does not include engine parts)

A list of the machine's normal wear parts is given below together with the conditions for their replacement

However, all worn, damaged or missing parts MUST be exchanged or repaired immediately, whenever there is a safety risk.

Name	Part	Nb.	Replacement conditions
Engine stop switch (petrol engine only)	HBD	1	Dysfunction or breakage
Chain	DJD	1	Wear or breakage
Closed rubber handle Ø27	LZ	5	
Bakelite ball Ø25	MA	2	
Dust-boot	28 278	1	Deterioration
Type J belt	ATP	1	
Grinding wheel protective cover	28 036 B	1	
Grinding wheel protective housing	28 035 C	1	Wear or deterioration
Brake pad	28 288	1	
Brake spring	33 044	1	
Rapid connection	BJS	2	

CHAPTER 6 – MODIFICATIONS & OPTIONS

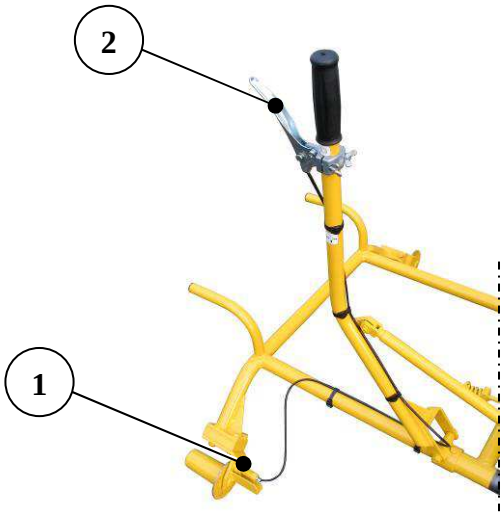
6.1 Optional equipment

6.1.1 Anti-vibration handles

The machine's lifting and operating handles are anti-vibration (Ref. 28250 FW).

The purpose of these handles is to:

- reduce vibrations at the operator station
- provide increased comfort when using the machine
- enable the machine to be used for longer periods.

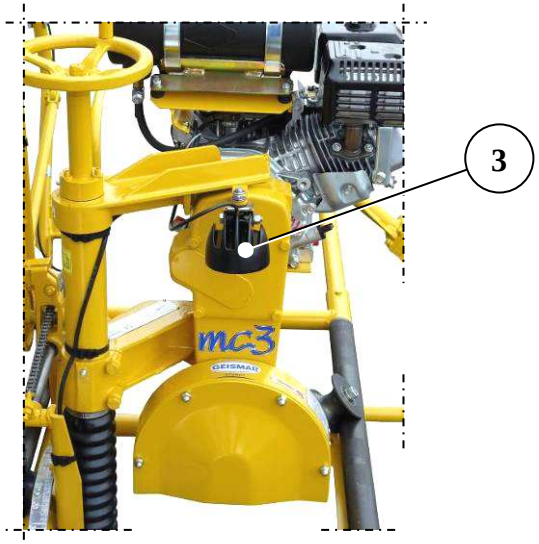


6.1.2. Braking system

To prevent the machine from moving by itself after it has been placed on the rails, it is fitted with an automatic roller braking system Ref. ①.
To use the machine, all that is required is to take the brake off by operating the control handle Ref. ②.

6.1.3 Lighting system

To enable work to be done at night-time or in a tunnel the machine can be fitted with a lighting system.
This system consists of a projector Ref. ③ placed on the grinding head.
Lighting is switched on and off automatically when the machine is started or stopped.



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6.1.4 System for transport by inflatable wheel

To simplify transport on worksites and reduce the number of persons required, an inflatable wheel system Ref. ① can be adapted to the machine. The inflatable wheel makes it possible to cross tracks and get to the work site even under difficult conditions.

The system's switchover to "work" or "transport" mode is done manually and the wheel is locked in position using a captive pin.

System for transport by inflatable wheel (ref. 28250 BM).

6.1.5 Rollers for buried grooved rails

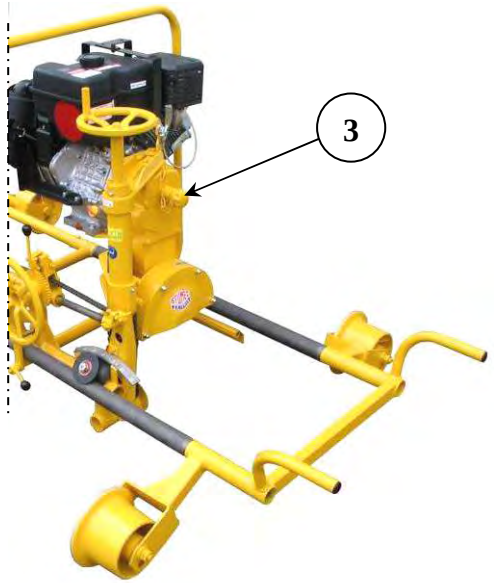
Roller system Ref. ② for using the machine on flat-bottomed rails and buried grooved rails (up to 50 mm).

6.1.6 Power take-off

Two operators MUST be present when the flexible grinding unit is used on machines fitted with a power take-off Ref. ③. One operator must keep control over the machine, whilst the other carries out grinding operations with the portable grinding-head.

The engine MUST be stopped before any intervention is carried out on the grinding wheel or the flexible drive.

Using the machine with the flexible drive MUST ONLY take place with the machine off the rails.



Fitting the flexible drive:

Raise the grinding head using the height adjustment hand wheel.

Place the grinding head vertically so that the power take-off is accessible. Remove the protective cap on the power take-off and then attach the flexible transmission drive.

Starting the motor:

Irrespective of whether the flexible drive is fitted with a clutch or not (compulsory for use in the EC), the power take-off requires two operators to be present. After the first operator has attached the tool selected, he must take hold of the grinding wheel holder and wait for the machine to be started up by the second operator. He must not put the tool holder on the ground before the second operator has completely stopped the motor. As long as the motor is running, one of the operators must remain beside it and stop it immediately should any incident whatsoever occur.

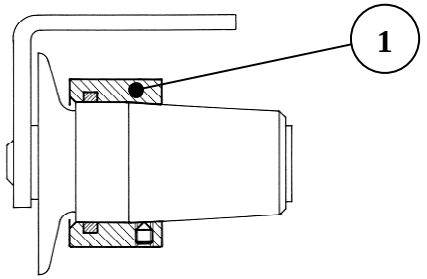
Precautions for use:

When grinding, take all necessary precautions to avoid sending jets of sparks towards the second operator who MUST wear glasses and gloves.

Do not bend or twist the flexible drive excessively as this is liable to damage the transmission system and even lead to accidents, should it break suddenly as a result of incorrect use.

After the motor has been stopped the flexible drive must be removed and the power take-off protective cap put back in place. To continue work, put the machine back on the rails before carrying out any other operations.

6.1.7 Bearing ring for use on shallow-buried grooved rails



For carrying out operations on buried grooved rails, the machine must be raised so that no part of it is in contact with the track. For this purpose, a bearing ring Ref. ① must be mounted on the roller and held in position with a screw. This enables the machine to be raised by 11 mm.

Rollers for buried grooved rails (Ref. 28250 CY).

6.1.8 Consumables

Disc grinding wheels for back-plate and central nut fitting:

Grinding wheels in reinforced resinoid for flat-bottomed rails	Grinding wheels in reinforced resinoid for grooved rails
• Wheel Ø 254 x 40 x 76.2 – 166 x 9.5/9.5 (code N01952) • Wheel Ø 254 x 32 x 76.2 – 166 x 8.5/8.5 • Wheel Ø 254 x 32 x 76.2 – 166 x 8/8 • Wheel Ø 254 x 25 x 76.2 – 166 x 7.5/7.5 (code N04571) • Wheel Ø 254 x 31.75 x 25.4 (code N00740) • Wheel Ø 254 x 44.5 x 25.4 • Wheel Ø 250 x 5 x 32 • Wheel Ø 250 x 25 x 32 • Wheel Ø 254 x 31.75 x 25.4 • Wheel Ø 230 x 20 x 22.2 • Wheel Ø 254 x 44.5 x 25.4 • Abrasive wheel Ø 8" x 1" x 1"	• Wheel Ø 254 x 40 x 76.2 – 166 x 9.5/9.5 • Wheel Ø 254 x 32 x 76.2 – 166 x 8.5/8.5 (code N04248) • Wheel Ø 254 x 32 x 76.2 – 166 x 8/8 (code N04264)

Disc grinding wheels for back-plate and screw:

Grinding wheels in reinforced resinoid for flat-bottomed rails	Grinding wheels in reinforced resinoid for grooved rails
• Wheel Ø 260 x 25 x 120 (code N04051) • Wheel Ø 260 x 32 x 120 • Wheel Ø 260 x 15 x 120 (code N03858)	

GRINDING WHEELS MUST COMPLY WITH THE TECHNICAL CHARACTERISTICS DEFINED IN §2.3"TECHNICAL CHARACTERISTICS/WHEEL"

CHAPTER 7 – SPARE PARTS CATALOG

7.1 Drawings and parts lists

IMPORTANT

Afin que votre commande de pièces de rechange soit suivie d'une livraison prompte et correcte, bien indiquer :

- Le rep., le nombre et la désignation des pièces de rechange
- Le type et le n° de série de la machine (plaque sur le châssis)

****

IMPORTANT

To ensure that you are delivered promptly and correctly after placing an order for spare parts please state:

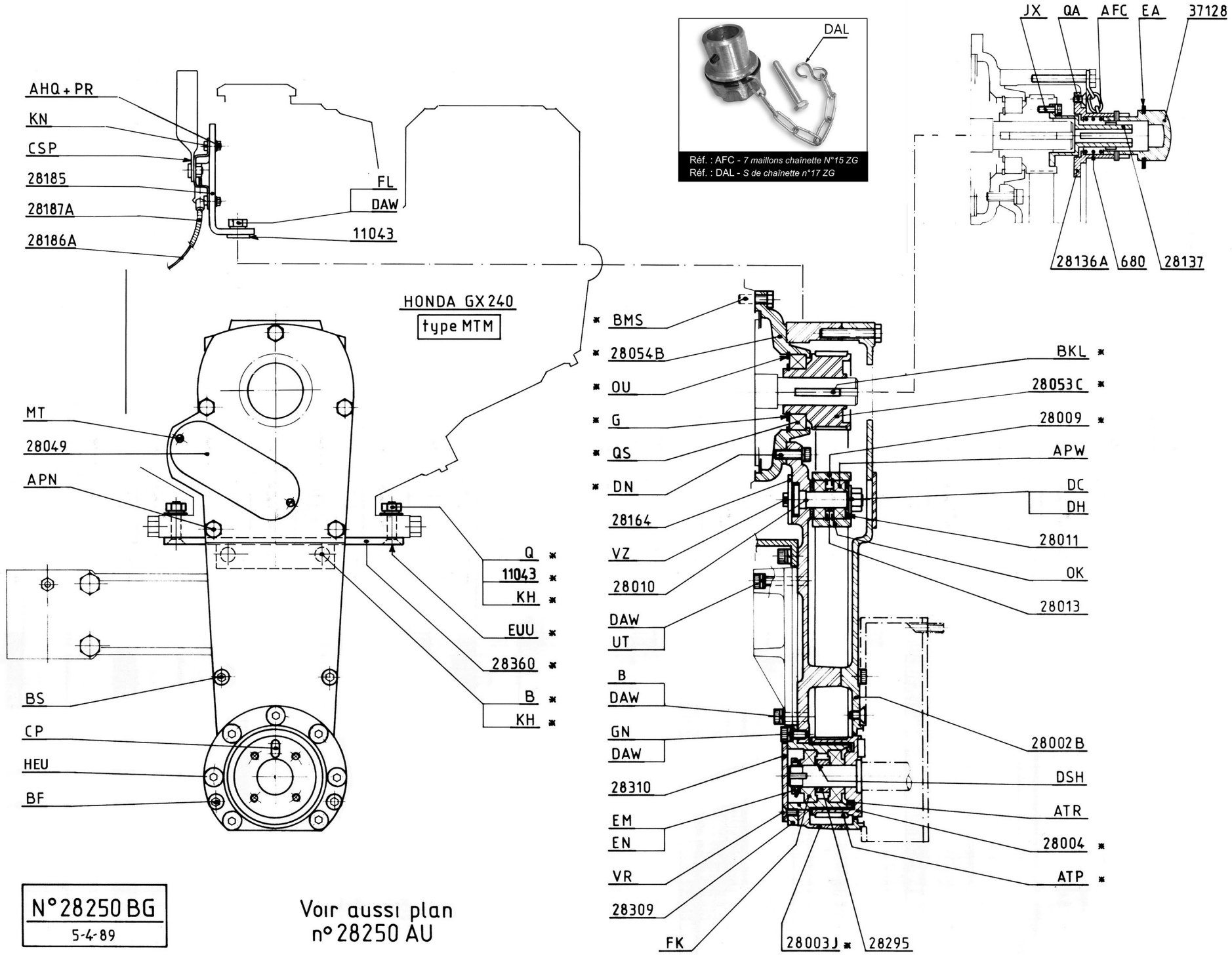
- the Reference, number and description of the spare parts
- the type and serial number of the machine (to locate this number, look at the plate on the chassis)

****

WICHTIG

Um uns eine schnelle und fehlerlose Erledigung lhres Ersatzteil-Auftrages zu erlauben, bitten wir Sie um folgende Angaben :

- Seriennummer und Baujahr der maschine
- Benennung und Bestellnummer der Ersatzeile



N°28250 BG
5-4-89

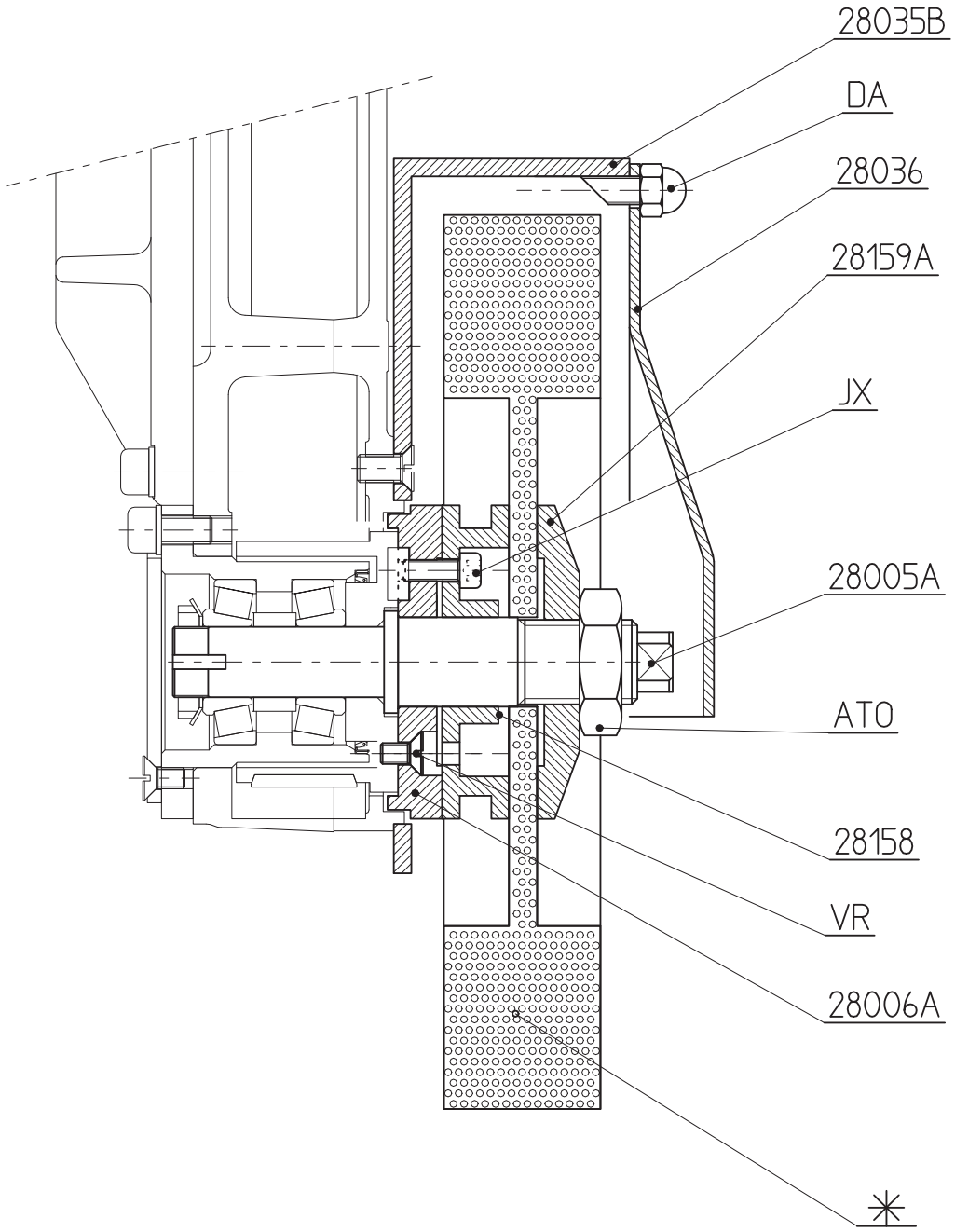
Voir aussi plan
n° 28250 AU

Ref.	Qty	Description
680	1	Spring
11 043	1	Washer
28 002 B	1	Belt font casing
28 003 J	1	Belt rear casing
28 010	1	Tension roller axle
28 011	2	Tension roller locking device
28 013	1	Ring Ø 15 x 20 x 7
28 049	1	Casing locking device
28 136 A	1	Connecting socket
28 137	1	Flexible shaft driver
28 164	1	Locking plate
28 185	1	Mounting lever
28 186 A	1	Cable
28 187 A	1	Sheath
28 295	1	Bearing spacer
28 309	1	Bearing
28 310	1	Locking device
37 128	1	Bayonet plug
B	2	Screw Chc 8 x 20
BF	4	Screw Chc 8 x 30
BS	2	Screw Chc 8 x 35
CP	1	Key BR 6 x 6 x 15
DC	5	Washer M 12
DH	9	Nut H 12

Ref.	Qty	Description
EA	1	Circlips 45 e
EM	1	Tightening nug KM.4
EN	1	Brake washer MB.4
FK	2	Bearing n° 30204
FL	1	Screw H 8 x 45
GN	6	Screw Chc 8 x 15
JX	6	Screw Chc 6 x 15
KN	2	Screw C 5 x 15
MT	2	Screw F 4 x 10
OK	2	Circlips 35 I
PR	2	Nut H 5
QA	4	Screw F 6 x 10
UT	2	Screw Chc 8 x 40
VR	3	Screw F 6 x 12
VZ	2	Screw H 6 x 12
AFC	1	Chain
AHQ	2	Washer DE 5
APN	5	Screw H 8 x 50
APW	2	Bearing n° 6202 EE
ATR	1	Tightness joint G 45 x 52 x 4
CSP	1	Lever throttle control assy
DAL	1	Hook
DAW	11	Washer DI 8
DSH	1	Adjusting ring when assembling Ø 20,2 x 25
HEU	7	Screw Fhc 8 x 16

NOTE : The bearings are lubricated with KLUBER ISOLFLEX NBU 15 grease of synthetic base. In USA and Canada grease PENWALT KSL 112 may be used. When filling after bearing replacement, obtain this grease from us of from your usual supplier asking for life lubrication of roller conical bearings (such as TIMKEN), grade NLGI.2 stating temperature limits form - 20 to + 150° C and according to MIL.G.23 827 A specification.

SPECIAL PARTS FOR HONDA GX 270 ENGINE ADAPTATION – MTM TYP					
11 043	2	Washer Ø 8,2 x 20 x 4	Q	2	Nut H 8
12 391	1	Label	DN	4	Screw Chc 8 x 25
28 004	1	Receiving pulley external Ø 68,5	KH	4	Washer W 8
28 009	1	Tension roller Ø 50	OU	1	Circlips 68 i
28 053 C	1	Driving pulley external Ø 67	QS	1	Bearing 6008 – 2 RS. 1
28 054 B	1	Engine adaptator	ATP	1	Belt 13 t, 914 mm lg.
28 360	1	Engine support	BKL	1	Key BR 6,35 x 6,35 x 40
B	2	Screw Chc 8 x 20	BMS	4	Screw H 3/8 – 16 UNC – Lg. 25
G	1	Circlips 40 e	EUU	4	Screw FS 8 x 40



28250 AJ
11/1986

Ref.	Qty	Description
28 005 A	1	Receiving pulley axle
28 006 A	1	Engine bracket
28 035 B	1	Grindstone protecting casing
28 036	1	Grindstone protecting plate
28 159 A	1	Grindstone tightening flange

Ref.	Qty	Description
DA	4	Blind nut H 8
VR	4	Screw FS 6 x 12
ATO	1	Nut Hm 24

ON REQUEST		
28 158	1	Spacer bracket
JX	2	Screw Chc 6 x 16

* Spéciale grindstone ∅ 254 x 44, 5 x 25,4 - 50 m/s

REMOVING OF GRINDSTONE

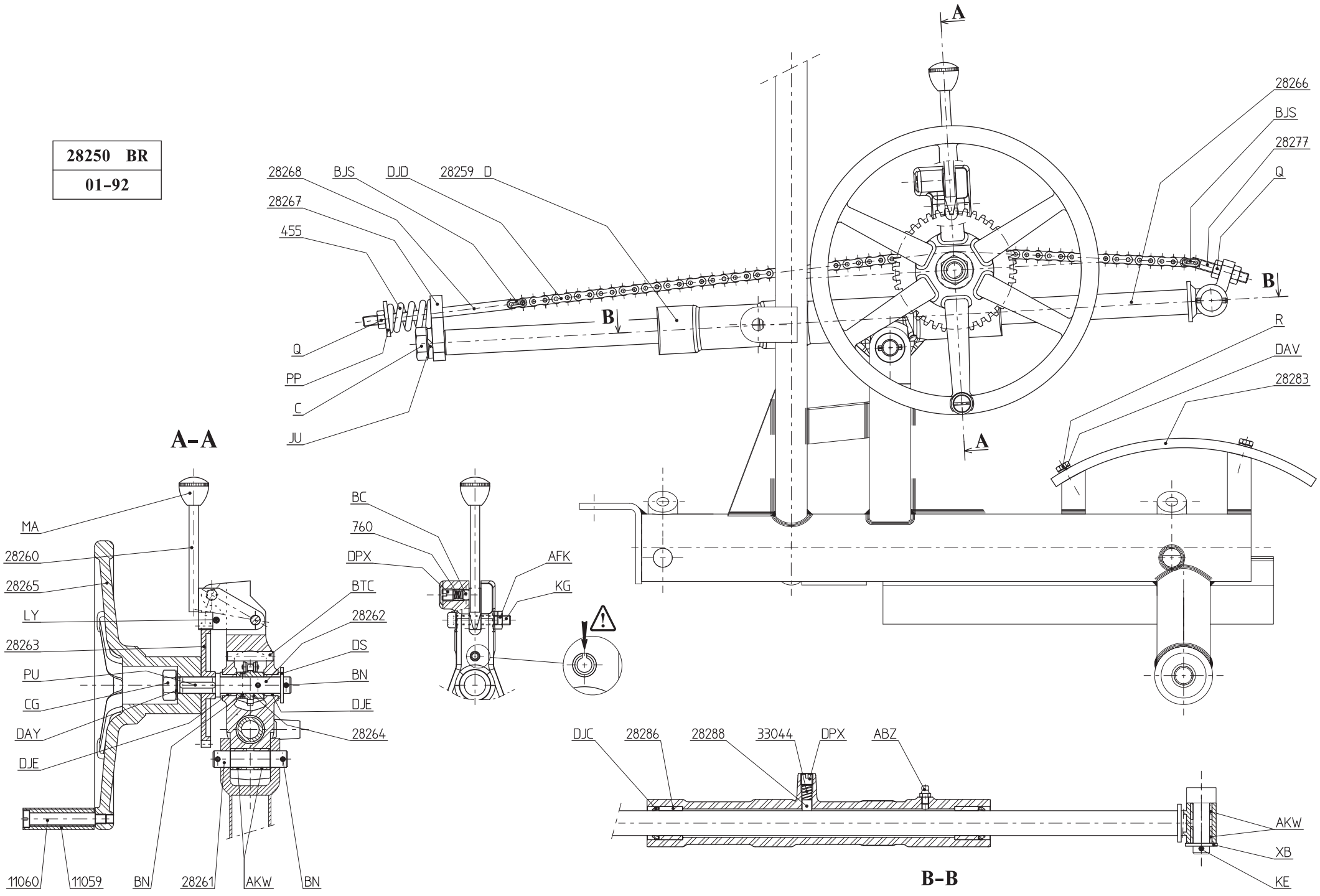
- Take off 4 nuts then protection plate ref. 28 036.
- Remove tightening flange ref. 28 159 A, then grindstone.

REMOUNTING OF GRINDSTONE

- Proceed in the reverse order to removing.

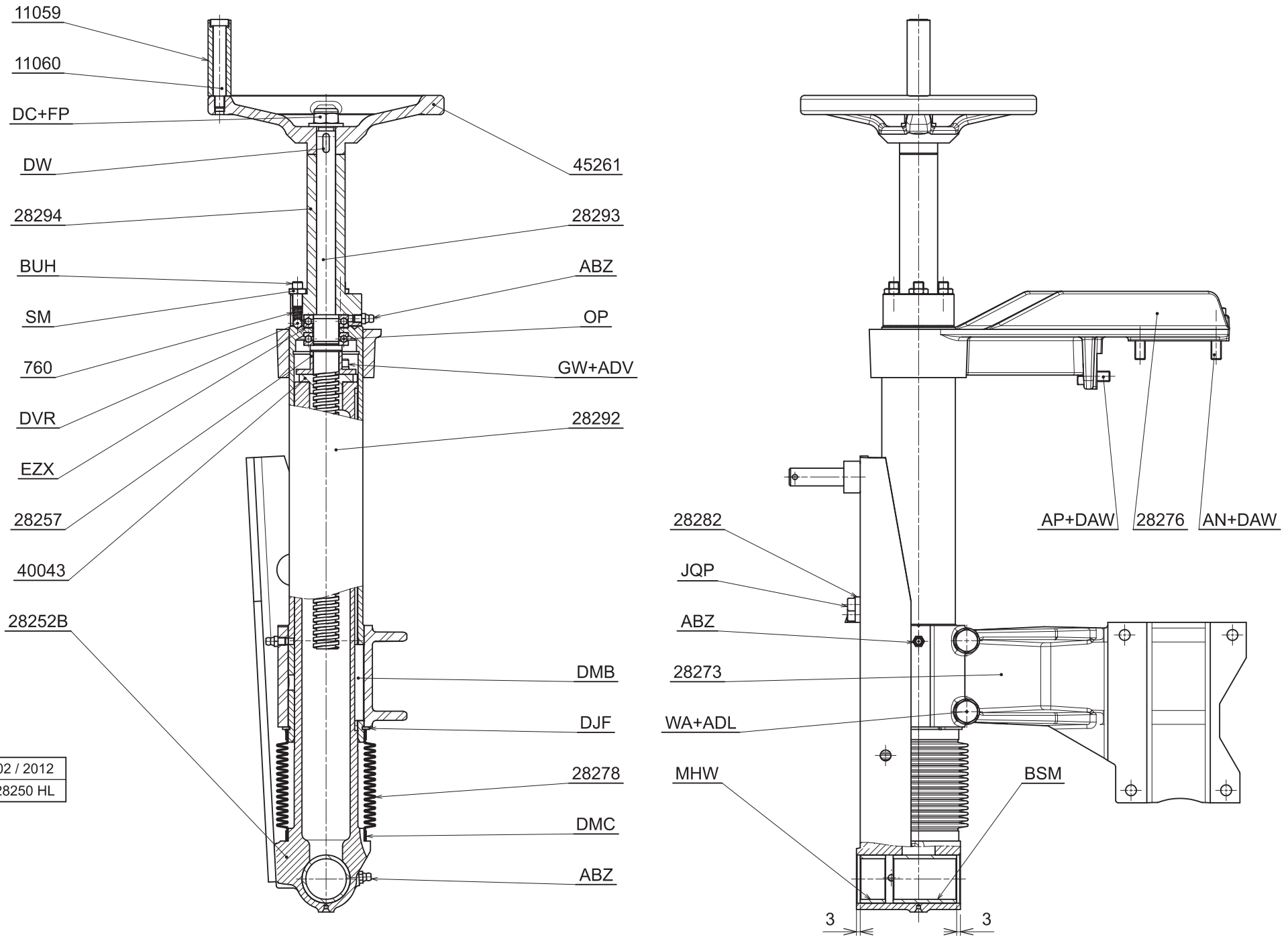
- DO NOT TIGHTEN TOO MUCH.

28250 BR
01-92



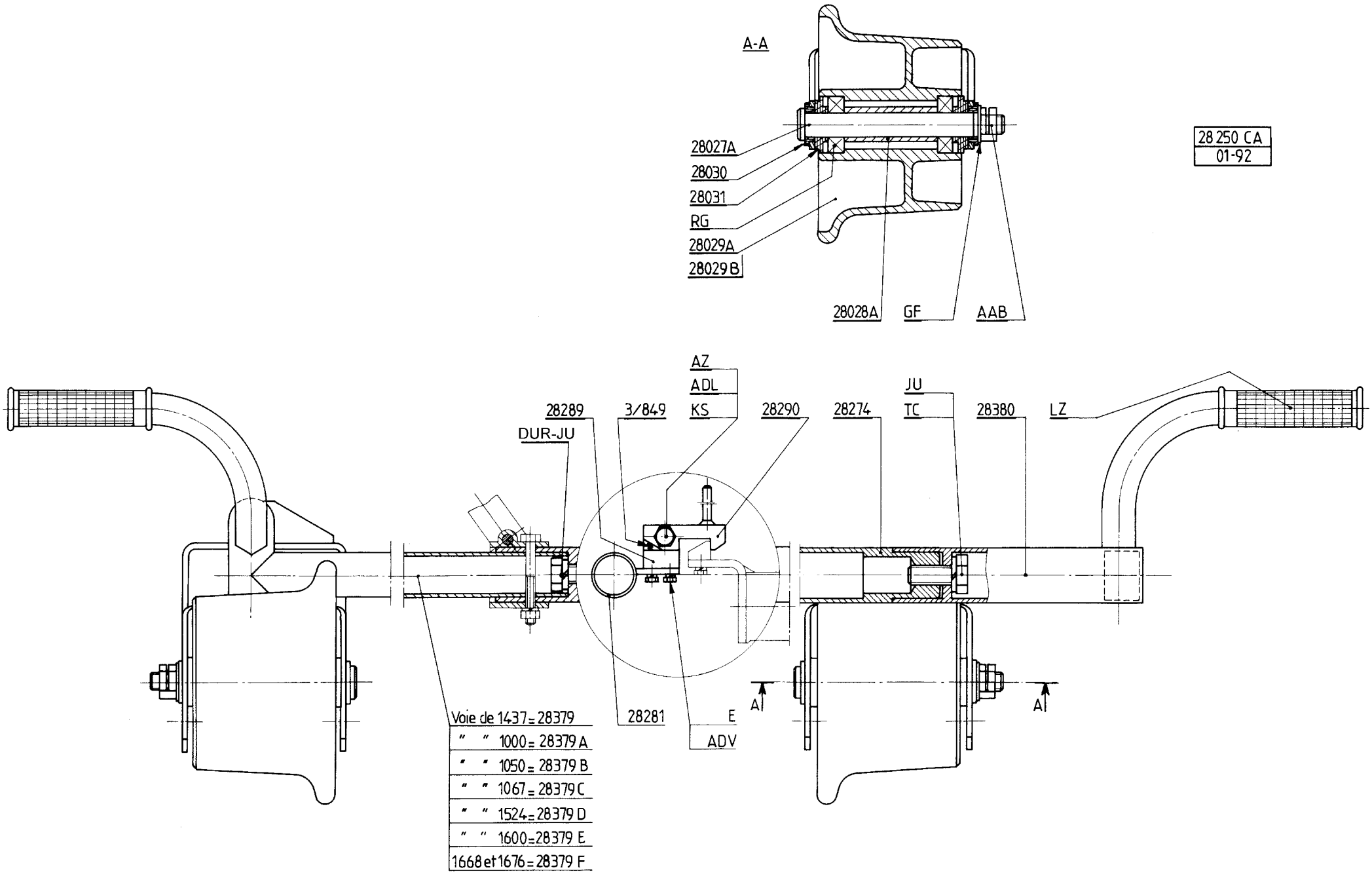
Ref.	Qty	Description
455	1	Pressure spring
760	1	Spring
11 059	1	Handwheel handle
11 060	1	Handle axle
28 259 D	1	Inclination mechanism support
28 260	1	Ratchet
28 261	1	Axle 14 x 62
28 262	1	Inclination axle
28 263	1	Pinion 40 D
28 264	1	Chain pinion
28 265	1	Inclination handwheel
28 266	1	Inclination adjustment rod
28 267	1	Hooking plate
28 268	1	Hooking rod
28 277	1	Adjustment rod
28 283	1	Graduated sector
28 286	2	Inclination support ring
28 288	1	Brake pad
33 044	1	Brake spring

Ref.	Qty	Description
C	1	Screw 16 x 30
Q	2	Nut H 8
R	2	Screw H 6 x 20
BC	1	Steel-ball ∅ 8,731
BN	5	Elastic pin 3 x 20
CG	1	Nut H 14
DS	1	Washer M 14
JU	1	Washer W 16
KE	1	Elastic pin 4 x 25
KG	1	Screw Chc 8 x 45
LY	1	Elastic pin 5 x 15
MA	1	Bakelite knob dia. 25
PP	1	Washer ∅ 9 x 30 x 3
PU	1	Key BR 5 x 5 x 30
XB	1	Washer Z 14 U
ABZ	1	Lubricator M 6
AFK	1	Stop-nut H 8
AKW	4	Self-lubricated ring 18 x 24 x 22
BJS	2	Connecting link 3 N chain
BTC	1	Elastic pin 8 x 40
DAV	2	Fan washer DI 6
DAY	1	Fan washer DI 14
DJC	2	Scraper joint 21 x 28
DJD	1	3 N chain, pitch 9,525 mm 61 links
DJE	2	Self lubricated ring 14 x 18 x 14
DPX	2	Screw Hc 10 x 10 platter


11059
11060
DC+FP
DW
28294
BUH
SM
760
DVR
EZX
28257
40043
28252B
45261
28293
ABZ
OP
GW+ADV
28292
DMB
DJF
28278
DMC
ABZ
02 / 2012
28250 HL
28282
JQP
ABZ
28273
WA+ADL
MHW
BSM
AP+DAW
28276
AN+DAW
3
3

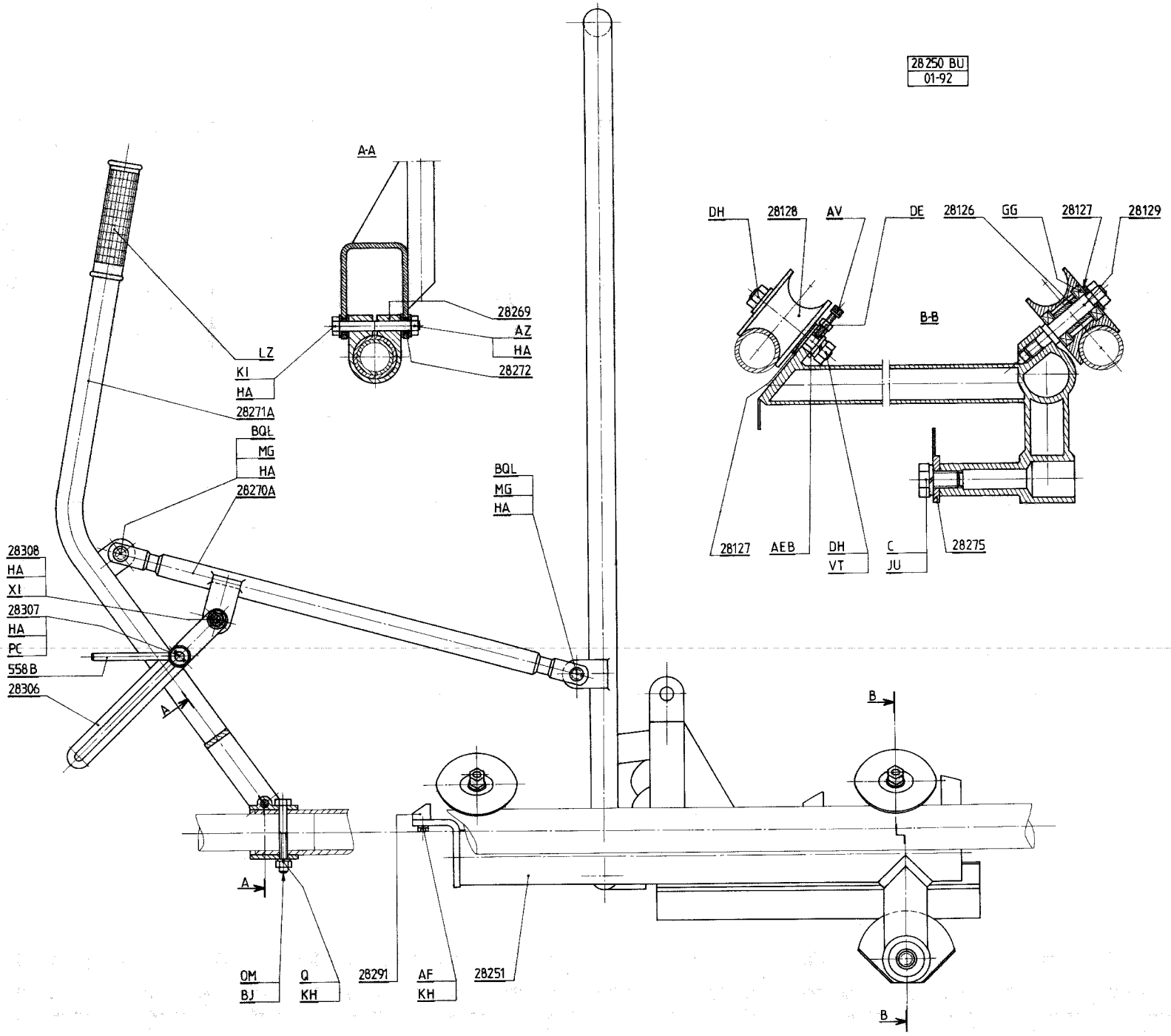
Ref.	Qty	Description
760	3	Spring
11 059	1	Handwheel handle
11 060	1	Handle axle
28 252 B	1	Height adjustment pivot
28 257	1	Screw thrust
28 273	1	Pivoting support
28 276	1	Upper support
28 278	1	Protective bellows
28 282	1	Inclination finger
28 292	1	Height adjustment shaft
28 293	1	Height adjustment screw
28 294	1	Handwheel extension piece
40 043	1	Height adjustment nut
45 261	1	Height adjustment handwheel

Ref.	Qty	Description
AN	2	Screw H 8 x 35
AP	2	Screw H 8 x 20
DC	1	Washer M 12
DW	1	Key 5 x 5 x 15
FP	1	Stop nut M 12
GW	2	Screw Chc 6 x 20
OP	2	Thrust ball bearing 51104
SM	3	Nut Hm 8
WA	2	Screw H 10 x 50
ABZ	3	Lubricator Bec 6
ADL	2	Washer Z 10 U
ADV	2	Washer W 6
BSM	1	Self lubricating ring 32 x 38 x 50
BUH	3	Screw Hc 8 x 20
DAW	4	Washer inside range DI 8
DJF	1	Inverted ring TRUARC 60 E
DMB	2	Round end key 8 x 7 x 60
DMC	2	Tightening collar
DVR	3	Ball Ø 7
EZX		Shims Ø 30,2 x 34,5
JQP	2	Screw Chc M 6 x 10 / 8.8 galvanized
MHW	1	Self lubricating ring 32 x 38 x 20


A-A
28027A
28030
28031
RG
28029A
28029B
28028A
GF
AAB
28250 CA
01-92
AZ
ADL
KS
28289
DUR-JU
3/849
28290
28274
JU
TC
28380
LZ
A
A
28281
E
ADV
Voie de 1437 = 28379
" " 1000 = 28379 A
" " 1050 = 28379 B
" " 1067 = 28379 C
" " 1524 = 28379 D
" " 1600 = 28379 E
1668 et 1676 = 28379 F

Ref.	Qty	Description
3/849	1	Spring
28 027 A	5	Front roller axle
28 028 A	5	Front roller cross-piece
28 030	10	Insulating sleeve
28 031	10	Insulating locking device
28 274	2	Guiding axle
28 281	1	Rear slide spacer
28 289	1	Pawl bearing
28 290	1	Ratchet
28 379	1	Rear roller support (1435 mm track gauge)
28 379 A	1	" " (1000 mm track gauge)
28 379 B	1	" " (1050 mm track gauge)
28 379 C	1	" " (1067 mm track gauge)
28 379 D	1	" " (1524 mm track gauge)
28 379 E	1	" " (1600 mm track gauge)
28 379 F	1	" " (1668 and 1676 mm track gauge)
28 380	1	Front roller support
28 029 A	5	Front roller (iron)
28 029 B	5	Front roller (aluminium)

Ref.	Qty	Description
E	2	Screw H 6 x 16
AZ	1	Nut H 10
GF	5	Washer M 16
JU	4	Washer W 16
KS	1	Screw H 10 x 30
LZ	4	Rubber handle
RG	10	Bearing n° 6204 – 2 RS.1
TC	2	Screw H 16 x 35
AAB	5	Stop-nut H 16
ADL	1	Washer Z 10 U
ADV	2	Washer W 6
DUR	2	Screw H 16 x 45


28250 BU
01-92
A-A
LZ
KI
HA
28271A
BQL
MG
HA
28270A
28269
AZ
HA
28272
BQL
MG
HA
28308
HA
XI
28307
HA
PC
558B
28306
A
A
OM
BJ
Q
KH
28291
AF
KH
28251
B
B
B-B
DH
28128
AV
DE
28126
GG
28127
28129
28127
AEB
DH
VT
C
JU
28275

Ref.	Qty	Description
558 B	1	Locking handle
28 126	3	Grooved roller axle
28 127	4	Blocking washer
28 128	3	Grooved roller
28 129	3	Blocking axle
28 251	1	Transfer trolley-body
28 269	1	Traversing arm bearing
28 270 A	1	Support connecting rod
28 271 A	1	Traversing arm
28 272	2	Spacer socket
28 275	1	Protective plate
28 291	1	Pawl
28 306	1	Locking rod
28 307	1	Stud 33 x 13 M 10
28 308	1	Stud 14 x 8 M 10

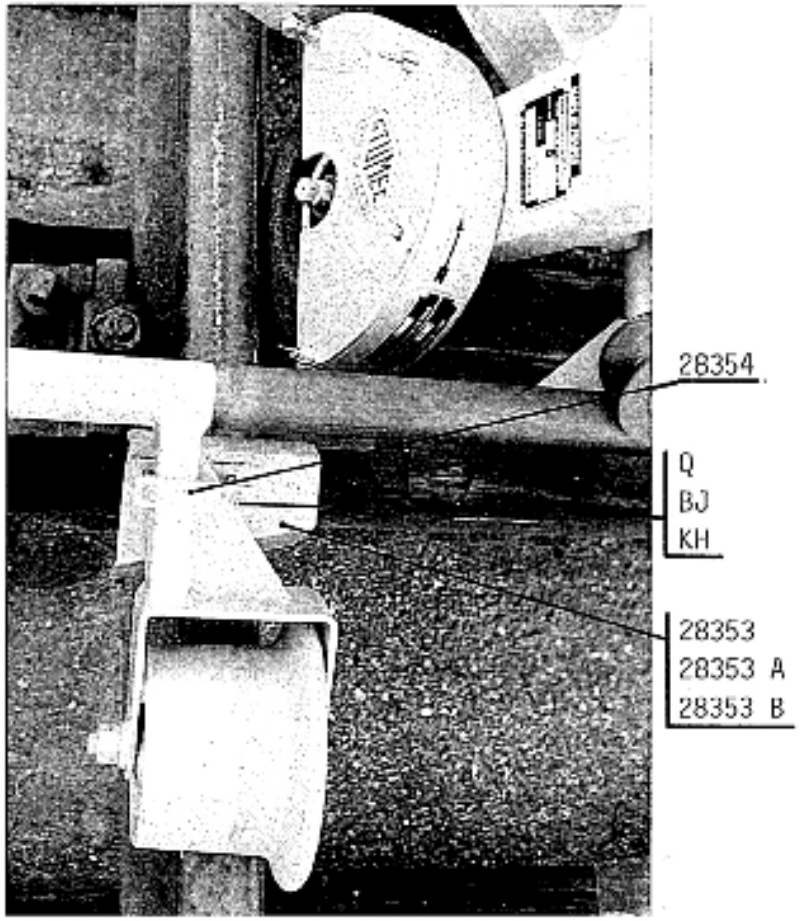
Ref.	Qty	Description
C	1	Screw H 16 x 30
Q	1	Nut H 8
AF	1	Screw H 8 x 15
AV	1	Screw Chc 6 x 25
AZ	4	Nut H 10
BJ	1	Screw H 8 x 70
DE	1	Nut H 6
DH	4	Nut H 12
GG	6	Bearing n° 6203 - 2 RS.1
HA	6	Washer M 10
JU	1	Washer W 16
KH	2	Washer W 8
KI	1	Screw H 10 x 80
LZ	1	Rubber handle
MG	2	Cotter pin 3 x 25
OM	1	Screw H 8 x 60
PC	1	Elastic pin Ø 2 x 12
VT	1	Washer W 12
XI	1	Split brake nut Ø 10
AEB	1	Washer L 12
BQL	2	Shell-axle

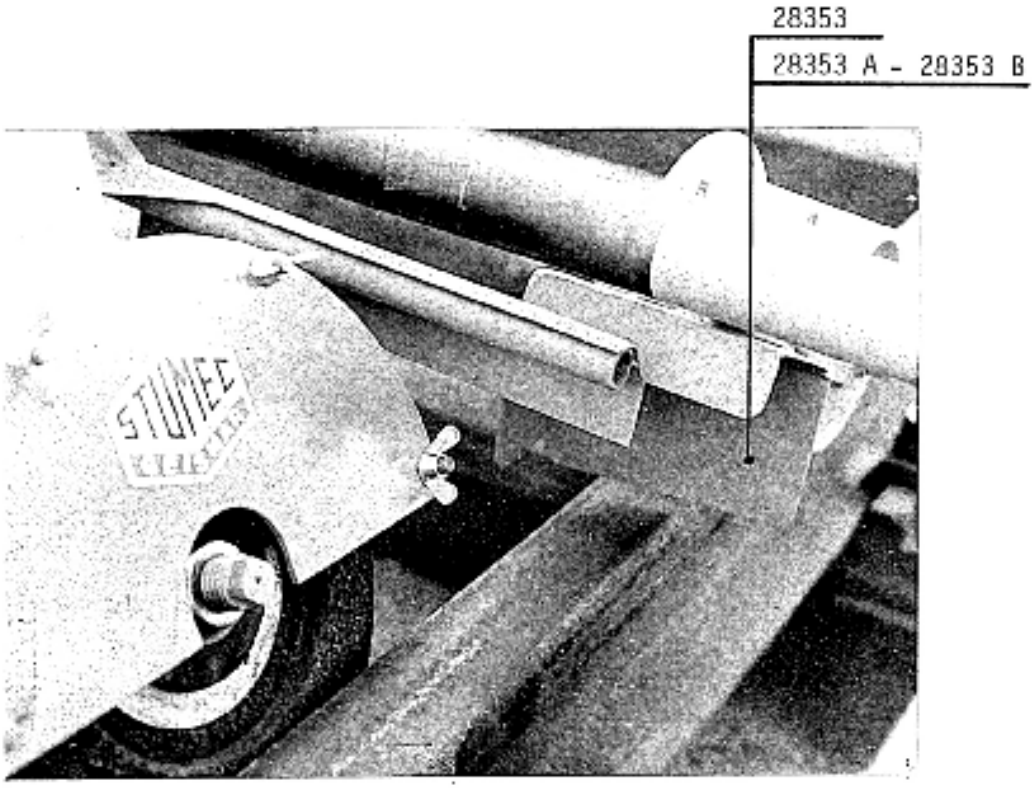
SPARKS GUARD

N° 28 250 CD
13 / 04 /92

To avoid incandescent particles projection ont he roller, the mounting of a protection fixed on the roller support canalyse the sparks to the grounb.

This rapid seting up can done on the machines in use.





Ref.	Qty	Description
28 353	1	Spark guard (roller Ø 150)
28 353 A	1	Spark guard (roller Ø 57)
28 353 B	1	Spark guard (for 28250 DG)
28 354 B	1	Spark guard clamp
Q	2	Nut H 8
BJ	2	Screw H 8 x 70
KH	2	Washer W 8

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