



PANDROL

PROFILE GRINDER

REF 44352001

OPERATING AND MAINTENANCE MANUAL

RPLE type with a single phase electric engine 230V and a grinding wheel with central sunk nut

REF 14352007

HOMOLOGATION SNCF N° DEO 19045



PANDROL

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En cas de litige, la version française fait référence – The French version will be decisive in cases of litigation



SUMMARY

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I – SAFETY LABELS EXPLANATION



WARNING ! The machine can be dangerous.
Careless and incorrect use results in injury to the operator.



Read carefully the operating manual instructions of use before using the machine.



WARNING ! Sparks can cause fire in combustible materials such as petrol, wood, dry grass, ...

II – GENERAL SAFETY INSTRUCTIONS

- Never start up the light restoring grinder until you have read and understood the directions for use
- Verify the compatibility of the electric feeding
- Only authorised operators may operate and use the light restoring grinder
- All maintenance operations must be achieved by qualified staff
- The operator must respect the regulations, procedures and particular orders of the Railway operating Network
- Never use the light restoring grinder when you are tired or under influence of medicines, alcohol or substances which can alter your sight, dexterity or appreciation capacity
- The operator must wear the protective clothes necessary to the grinding operations
- If sparks are directed (directly or not) towards a flammable material (shrubs, culture...), place a screen stopping any incandescent particles to avoid any fire
- Two persons must handle and place the machine on the track
- The engine must be always protected from rain
- Under no circumstances the original design and configuration of the light restoring grinder should be modified
- The light restoring grinder must be handled by a single one operator and be held with both hands to ensure the grinding with accuracy and safety

- Do not use grinding wheels which maximum rotation speed stipulated by the supplier would be inferior to the maximum rotation speed of the grinder

Grinding wheel diameter : 115

minimum speed: 8 300 rpm

Thickness : 50 mm

Central sunk nut thread : 5/8"

- Engine shall be disconnected from the electricity feeding source before grinding wheel replacement
- Never use damaged grinding wheels, verify its good condition and that there are no cracks or impacts
- Every time a new grinding wheel is fitted or reassembled, let it run light for 30 seconds. During this test all the staff must be kept at a distance with the exception of the user who must hold the machine in such a way that he is outside the wheel rotation area and away from the safety guard opening side
- Measure the grinding wheel rotation speed every time the machine has been repaired
- Before starting to work verify the good tightening of the grinding wheel so as to prevent any accident
- Check the safety guard good condition, its positioning and tightening before grinding
- Replace the safety guard every time a wheel has burst
- Store the grinding wheels in a dry place
- **WARNING :** When engine stops running, the grinding wheel continues its rotation for several seconds
- Wearing personal protective equipment may be necessary !



III - DESCRIPTION

- The light restoring grinder is specially designed to restore accurately the whole rail head after welding operation or for finishing grinding.
- The operator can restore the rail head top by a single one operation.
- It can be equipped with two vertical rollers (welding option) to incline the machine up to 90° from the vertical position ; this optional equipment allows the machine to grind completely an aluminothermic weld.
- The important distance between the rollers and a very accurate adjusting, with taking up the wear, of the grinding wheel descent, has been carefully calculated to ensure a perfect reprofiling of all Vignole rails.
- The rollers, seated on the rails, ensure a perfect rail profile copy in every position of the light grinder
- When the light grinder is not working a quick collapsible support, seated on one sleeper, maintains it steadily on the rail

IV – USE INSTRUCTIONS

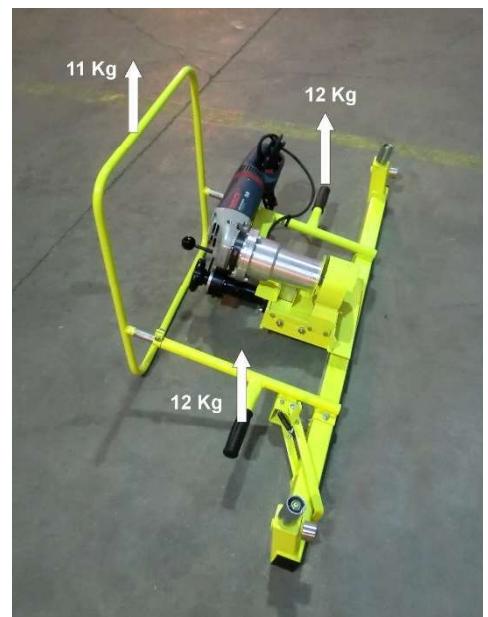
1-Storage

La rectifieuse de profil doit toujours être stockée dans un endroit sec.

2-Manutention

The weight of the grinder in order to work is 35 Kg

Two persons are necessary, one person at each side of the machine handling it by an extremity handle and the central handle



3-Safety measures before operating

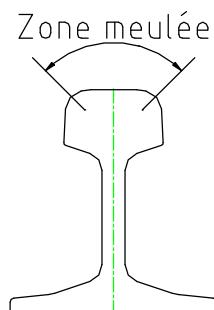
Vérify :

- the light restoring grinder good functioning following the maintenance manual prescriptions delivered with the machine
- mains feeding : monophase 230V
- electric cable aspect : all damaged cable must be replaced
- the grinding wheel and the protective guard good condition
- the grinding wheel assembling and tightening

4-Grinder positioning

- To carry out a restoring grinding :

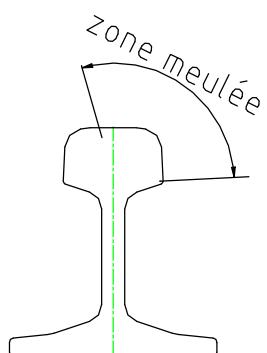
The grinder must place himself inside the track. The rollers ensure a perfect guiding to grind all the deposit metal



- To carry out an aluminothermic weld grinding :

It's necessary to return the machine

The grinder place himself inside the track to grind the area following the Diagram 1 .



Then the grinder must return the machine, place himself outside of the track So as to finish the complete rail head profile (diagram 2)

This operation is optional ; it can be realised only after replacing the vertical rollers by rollers for the option « aluminothermic weld » (see frame equipment pages 22-23)

5-Operating

Ensure that the urgency stop device is not engaged, otherwise unlock it.

When the machine is connected to the electricity feeding, start it by pushing the black button on the electric box.

6-Operating method

Pull up the grinding wheel (turn the hand wheel counter clockwise)

Place the machine on the rail and move it on its cylindrical rollers

Verify that any obstacle don't trouble the restoring operation (rail fasteners, etc.), the free rotation of the support and the light grinder efficient maintaining on the rail

The operator staying on the opposite side of the drive system starts up the engine

The grinding wheel is lowered by turning the handwheel clockwise. One complete turn lower the wheel of 2 mm. A ratchet gearing system allows an advance precision of 0,08 mm per tooth.

To obtain a good quality of grinding finish, the grinding operation must be performed in the following steps :

6.1 Rough grinding



To use fully the engine maximum power, do not exceed a maximum lowering value of the grinding wheel (0.375 mm) after it's point of contact with the weld. To obtain a good lowering value, turn the handwheel clockwise five teeth further.

When the grinder operates, an important fall of engine normal working speed informs of a too important lowering and this can reduce the engine life expectancy.

To move from one side of the rail to the other, the machine must be turned round.

6.2 FINISH GRINDING

Bring the grinder back into the position of grinding the rail upper surface.

The cylindrical rollers perfectly seated on the rail, lower the grinding wheel until it just touch the rail, close to the weld, in an area which doesn't require grinding.

Finish the grinding operation by extending the join for about 10 cm on either side of the weld. A grinding wheel lowering of 0,08 mm is obtained by turning clockwise the handwheel a tooth further.

Once grinding operation has been achieved, the grinding wheel must be always raised by some turns of handwheel in counterclockwise.

V- GRINDING WHEEL REPLACEMENT



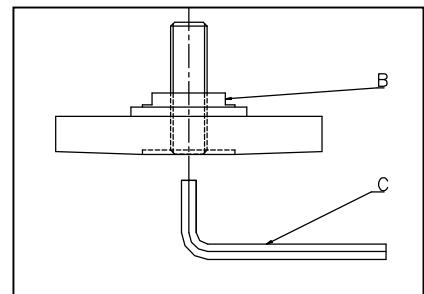
THE ENGINE SHALL BE IMPERATIVELY STOPPED
AND DISCONNECTED FROM THE SOURCE OF ELECTRIC POWER

Mounting and removal of the grinding wheel are carried out when the shaft is maintained in a standstill with the locking system, placed on the engine head, and the wrench delivered with the machine. The wrench studs fit into the wheel shoulder holes.

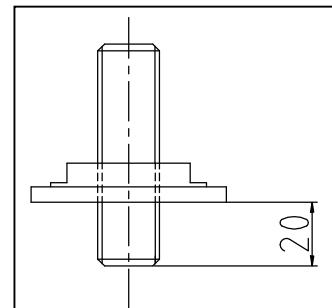
During a worn wheel removal, it may happen that the headless screw and the grinder shaft come loose

To solve this problem a 32 flat wrench and an Allen wrench are delivered with the machine

The flat wrench immobilizes the wheel plate **B** and the Allen wrench **C** unscrews the screw



Before replacing the new wheel, it's necessary to verify the mounting dimension of the wheel plate on the headless screw (that is to say 20 mm)



VI – MAINTENANCE

OBJECT	DESCRIPTION	PÉRIODICITY		
		Before use	After use	50 hour of use or annualy
Complete machine	Machine inspection	X		
Complete machine	Clean the machine with a clean cloth or with compressed gun to remove the dirt		X	
Feed système Notching	Cleaning Replacement		X	X
Guide roller	Replacement			X

To ensure a good restoring grinding, verify every year :

- **The absence of clearance in the drive system**
 - A clearance making good system is fitted up in the drive system. Spring washers take up the couple screw/nut wear. This system, not adjustable, has its limit.
 - Control : some tractions / pushing movements with hand must not generate any clearance.
 - When there is a clearance, the couple screw/nut must be replaced.
- **The notched system efficiency**
 - The driving handwheel of the head descent must be keep in a standstill without rotation
 - clearance. If there is a clearance, it's necessary to suppress it by acting on the ball screw of the immobilization system situated under the driving handwheel.

Operating method :

- Unscrew the nut, tighten the headless cut screw of a fraction of a fractions of turn
- Verify the drive handwheel immobilization
- Tighten back the nut



- **The guiding rollers free rotation and wear**

- The cylindrical external part must not show any holes or grooves because this situation will cause a wrong rail profile copy.
- Rollers rotation must be free, regular and without clearance. If there is any defect the rollers must be replaced.

MAINTENANCE KIT (not delivered with the machine)

Item	Qty	Description
44010006	1	Ball bearing 6005 - 2RS
44010005	1	Ball bearing 6205 - 2RS
44201005	1	Scraper seal
31210332	2	Little complete equipped roller
31210340	2	Long complete equipped roller
31970002	2	Slide block
31210157	1	5/8" threaded plate
41099005	1	5/8" cup point screw
TOOLS		
34910002	1	Studded wrench

VII – SIGNALISATION

Our RPLE machine benefits of tracability on the ID plate.

ID PLATE



ETIQUETTE EN 13977



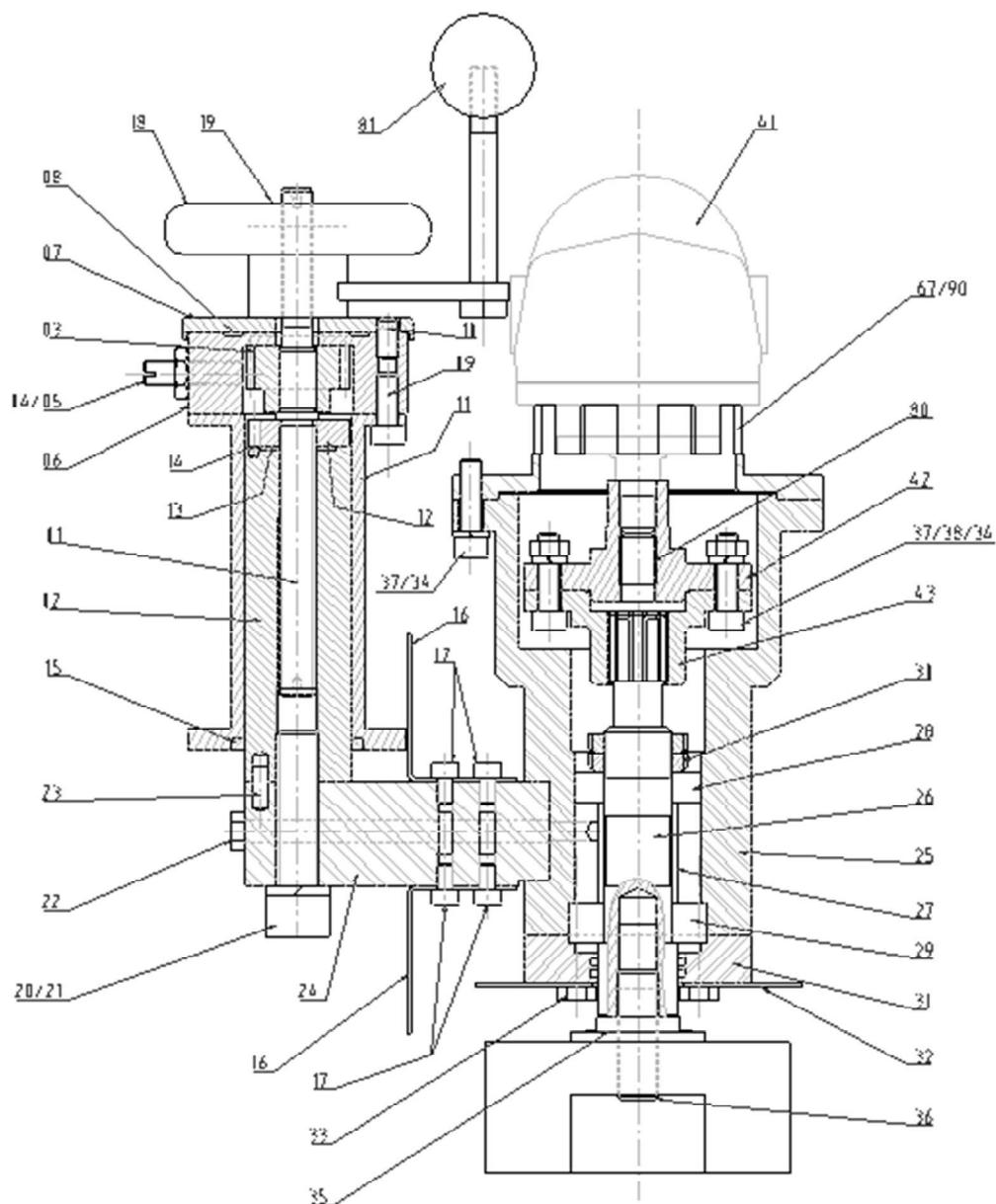
VIII – CARACTERISTIQUES GENERALES

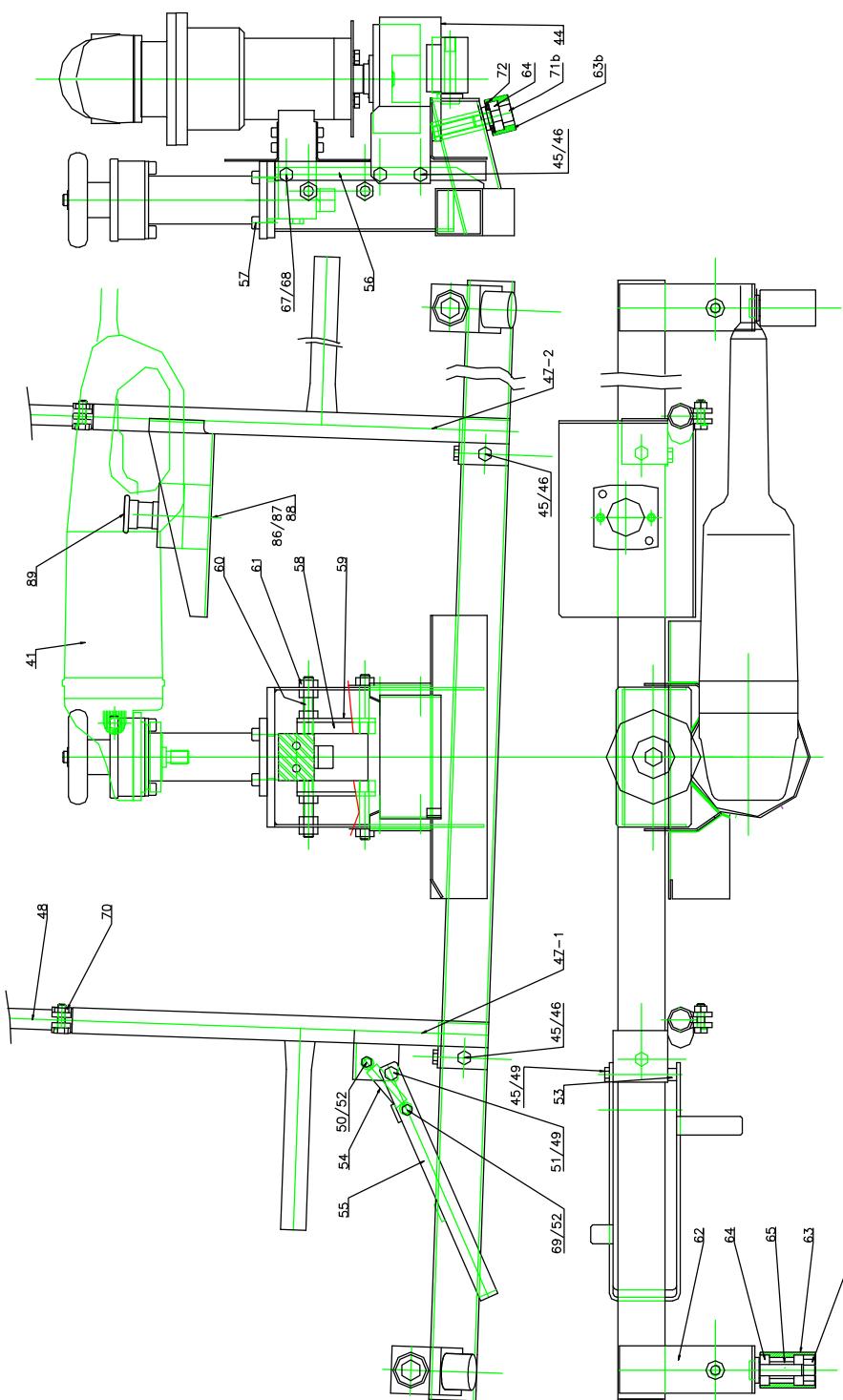
LIGHT RESTORING GRINDER AFTER A BUILD UP WELD RPLE TYPE

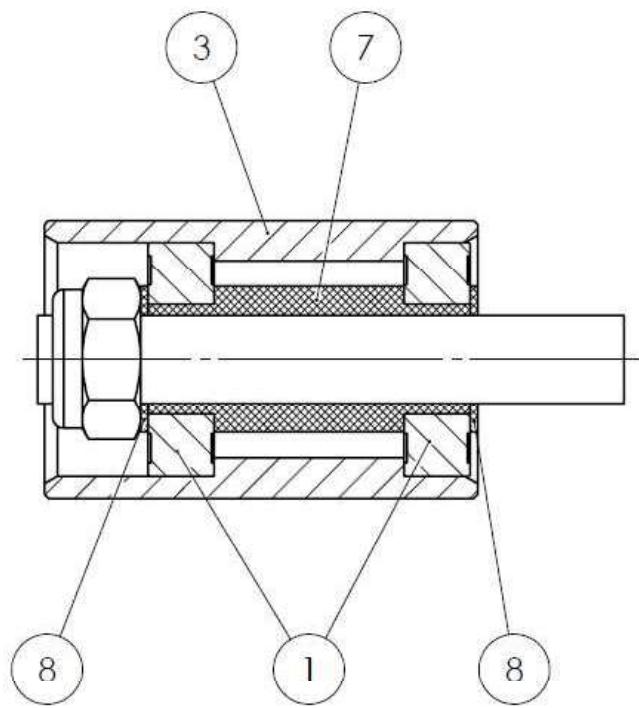
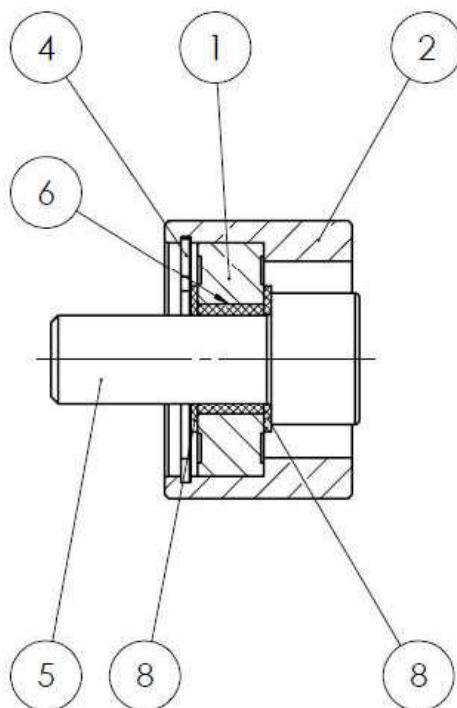
- Electric engine	230V - 50 Hz single phase
Power	2600 W
- Grinding wheel diameter 115 x 50	With central sunk nut 5/8"
Rotation speed	6 500 rpm
- Distance between guiding rollers	1 300 mm
- Rollers insulation	>1 MΩ
- Weight	35 Kg
- Dimensions	L mm I mm H mm
without handle	1360 245 482
with handle (adjustable height)	1360 455 800 to 1000
- Noise level	
acoustic pressure	Lpa
acoustic power	LWA
	93 dB (A)
	106 dB (A)
- Vibration level	9 m/s ²
- Insulation class	II □
- Protection class	20

IX – LISTE DES PIECES DETACHEES

DÉSIGNATION	DESCRIPTION
SYSTEME D'AVANCE ET LIGNE D'ARBRE	<i>DRIVE MECHANISM AND SHAFT</i>
EQUIPEMENT CHASSIS	<i>FRAME EQUIPMENT</i>
MOTEUR GWS26.230 LVI	<i>MOTOR GWS 26.230 LVI</i>





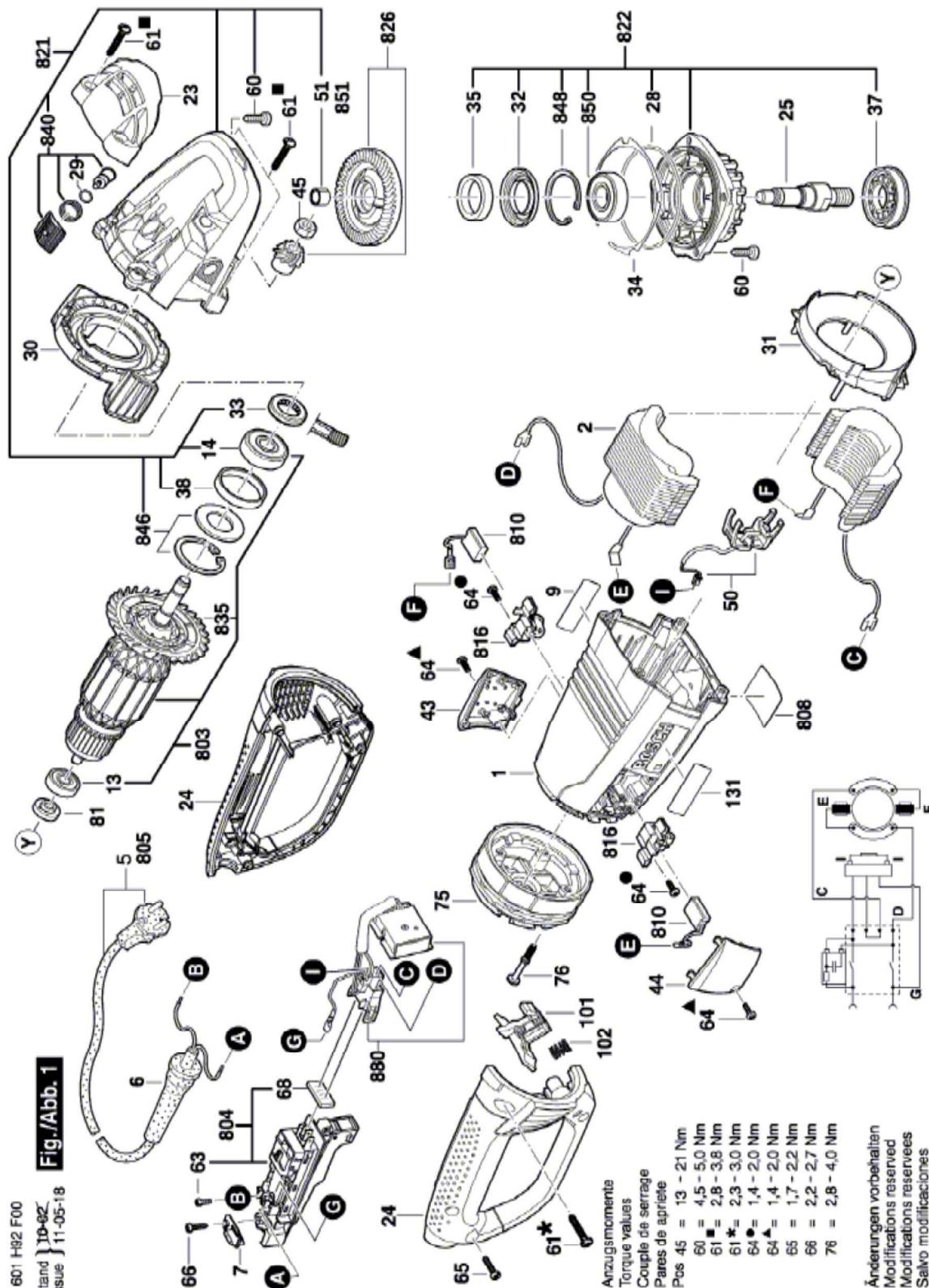
ISOLATION DES GALETS
ISOLATION ROLLERS


REP	Référence	Quantité	Désignation	Label	Matière
1	44010007	6	Roulement 6002-2RS	6002-2RS Ball bearing	
2	31210332	2	Rouleau ø 38 - lg 25	Roller ø 32 -Long 25	ACIER
3	31210340	2	Rouleau ø 38 - lg 59	Roller ø 32 -Long 59	ACIER
4	41801003	2	Anneau élastique	Elastic ring	ACIER
5	41012001	2	Vis CHC M12x30	Screw CHC M12x30	ACIER
6	31270037	2	Bague isolante lg 9mm Entretoise isolante lg 44 mm	Insulating ring lg 9 mm Insulating strut lg 44mm	PA6
7	31270038	2			PA6
8	31270036	8	Rondelle isolante øext 20	Insulating washer ø20	PA6



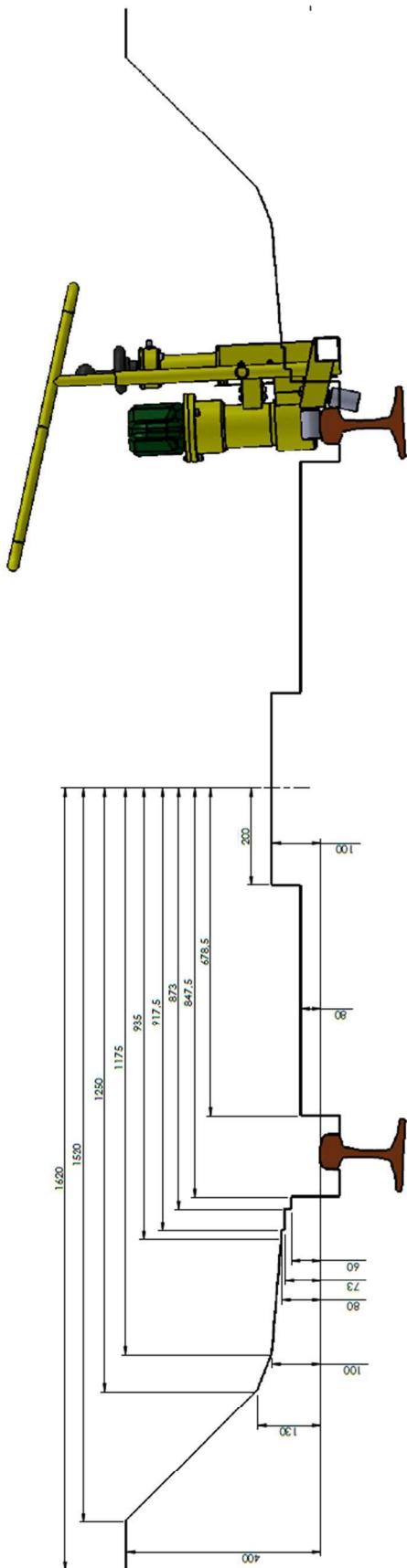
MOTEUR GWS 26.230 LVI

GWS 26.230 BV LVI



3 601 H92 F00
Stand 10-92
Issue 11-05-18

X – PLAN DE CONTRÔLE SUIVANT EN 13977





FICHE DE CONTROLE
COPIE CLIENT

RECTIFIEUSE LEGERE
APRES RECHARGELEMENT

CONTROL CARD
CUSTOMER'S COPY

LIGHT RESTORING GRINDER
REF. 14352007 AFTER A BUILD UP WELD

N°	Désignation des opérations <i>Description of operation</i>	Contrôle <i>Checked by</i>
1	Rotation des rouleaux <i>Rotation of rollers</i>	
2	Fonctionnement du système d'avance de la meule <i>Process of the grinding wheel forward motion system</i>	
3	Vitesse de rotation de la meule : 6 500 tr/min <i>Grinding wheel rotating speed : 6 500 r.p.m.</i>	
4	Essai de reprofilage <i>Grinding test</i>	
5	Aspect général <i>General appearance</i>	
6	Outilage <i>Tools</i>	
7	Notice d'utilisation REF 44352001 <i>User's Manual</i>	
8	Garantie moteur <i>Guarantee card for the engine</i>	
9	Accessoires <i>Accessories</i>	

Date de fabrication *Date of manufacturing*.....

Fait à Raismes le *Drawn up in Raismes*.....

Nom *Name* :.....

Signature *Signature* :

Références à rappeler en cas de réclamation
In case of complaint, please quote these references

N° de machine *Machine nbr* :

Moteur Type, N° *Engine Type* : N°

.....





FICHE DE CONTROLE
COPIE CLIENT

RECTIFIEUSE LEGERE
APRES RECHARGELEMENT

CONTROL CARD
CUSTOMER'S COPY

LIGHT RESTORING GRINDER
REF. 14352007 AFTER A BUILD UP WELD

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Nom *Name* :.....

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N° de machine *Machine nbr* :

Moteur Type, N° *Engine Type* : N°
.....



SAV / Commercial

Contacter votre représentant commercial / Contact your local representative

Ou / Or +33 (0) 1 46 88 17 00

Ou / Or Infos.pandrol-fr@pandrol.com

IV - ATTESTATION DE CONFORMITE

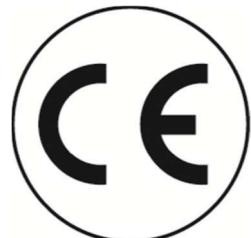
CERTIFICATE OF CONFORMITY

Le constructeur soussigné (the undersigned manufacturer)

PANDROL (DIVISION MATERIEL)

Z.I DU BAS PRE

59590 RAISMES



Certifie que le matériel neuf désigné ci-après (certify that the under described products)

MEULEUSE DE FINITION

FOR FINISHING GRINDING

TYPE RPLE

RPLE TYPE

Moteur Electrique 230V monophasé

Electric engine 230V monophase

Référence 14352007

Référence 14352007

N° de machine (machine number) :

Est conforme (comply with)

- **A LA CONFORME EUROPEENE NF EN 13977**
(THE EUROPEENE NORM NF EN 13977)
- **AUX DISPOSITIONS REGLEMENTAIRES DEFINIES PAR LA DIRECTIVE 2006/42/CE**
(THE INFORMATIONS STATED IN THE LEGAL DOCUMENTATION OF THE DIRECTIVE 2006/42/CE)
- **Aux prescriptions de l'article R4313-20 (*procedure d'auto certification*)**
(the regulations of R4313-20 article – self certification procedure)
- **M. LISINSKI Aurélien est le détenteur du dossier technique**

Raismes, 05/2019
Bruno JOIRIS
Directeur Industriel

Aurélien LISINSKI
Responsible division matériel et équipement

PANDROL

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