

# M600

# OPERATING & SERVICE MANUAL



Read Manual Before Operating Machine

408300 Rev A





## DECLARATION OF CONFORMITY

Name and address of the manufacturer:

HYPERGRINDER s.r.l. Via Ragazzi del '99, 7 - 65123 Pescara - Italy

Phone +39 085 921 8160 - Phone/WhatsApp +39 324 8282674

www.hypergrinder.com - info@hypergrinder.com

Declares under its own responsibility that the new machine.

**Model**

M600

**Serial No.**

See nameplate

**Year of construction**

See nameplate

Conforms to the following Directive:

Est conforme aux Directives:

Es conforme a las siguientes Directivas:

Esta conforme as seguintes Diretivas:

È conforme alle seguenti Direttive:

Machinery Directive 2006/42/EC and subsequent amendments

Direttiva Macchine 2006/42/CE e successive modifiche

Direttiva Bassa Tensione 2014/35/UE e successive modifiche

Direttiva Compatibilità Elettromagnetica 2014/30/UE e successive modifiche

Direttiva RoHS II 2011/65/CE e successive modifiche

And moreover it is built in accordance with the following norms:

Et est fabriquées, en outre, conformément aux normes:

Y que ademas ha sido fabricada en conformidad con las normas:

E além disso são fabricadas com respeito as normas:

Ed inoltre sono fabbricate nel rispetto delle norme:

UNI EN ISO 12100: 2010;

UNI ISO/TR 14121-2 ;

CEI EN 60204-1: 2018 ;

CEI EN 61000-6-3.

Monica D'Orazio

Chief Executive Officer / Amministratore unico / L'administrateur unique  
/ El Administrador Unico Administrador Único



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## OPERATOR SAFETY INSTRUCTIONS

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This manual includes important information for the use and safe operation of this machine. Failure to read this book prior to operating or attempting any service or maintenance procedure to your machine could result in injury and could be dangerous to you or other people. Damage to your machine or other property could occur. All instructions are as viewed from the operator's position at the rear of the machine.

DO NOT USE this machine without reading this manual. This manual has important information for the use and safe operation of this machine. Failure to read and observe all DANGER and/or WARNING statements could result in severe injury or death. Read and observe all WARNING statements found in your OWNER'S MANUAL and on your machine.

**DANGER:** Failure to read and observe all WARNING statements could result in injury to you or to other personnel. Property damage could occur as well. Read and observe all WARNING statements found in your OWNER'S MANUAL and on your machine.

**DANGER:** Failure to read and observe all WARNING statements could result in damage to the machine or to other property. Read and observe all WARNING statements found in your OWNER'S MANUAL.

**DANGER:** Operating with a machine that is not completely or fully assembled could result in injury or property damage. DO NOT USE this machine until it is completely assembled. Inspect the machine carefully before operating it. Use only as described in this manual. Use only recommended attachments.

**DANGER:** Operating a machine without all labels, decals etc., could result in injury or damage. READ all machine labels before attempting to operate the machine.

**DANGER:** Electrical machines can cause an explosion when operating near inflammable materials and vapors. DO NOT USE this machine with or near fuels, grain dust, solvent, thinners or other inflammable materials.

**DANGER:** Using machines with a damaged power cable could result in an electrocution. DO NOT USE the machine with a damaged power cable.

DO NOT run the machine over the power cable during operation.

DO NOT use the electrical cord to move the machine.

KEEP cord away from heated surfaces.

DO NOT lift or pull the machine by any of the operating triggers. Use the main handle.

**DANGER:** DO NOT unplug the machine by pulling on the cord. Grasp the plug not the cord. Electrocution could occur if you handle the plug or appliance with wet hands.

**DANGER:** Do not handle the plug or appliance with wet hands.

**DANGER:** DO NOT attempt machine maintenance or cleaning unless the plug has been removed from the

electric supply outlet.

**DANGER:** Electrical components may 'short-out' if exposed to water or moisture. KEEP the electrical components of the machine dry. Always store the machine in a dry place.

**WARNING:** Use of this machine to move other objects or to climb on could result in injury to the operator or damage to the machine. DO NOT use the machine as a step or furniture. Pay extremely close attention if it is necessary to use the machine near children. Keep the machine out of reach of children and/or animals.

**WARNING:** Moving parts of this machine can cause injury and/or damage. KEEP hands, feet, loose clothing, hair, fingers, and all parts of the body away from machine openings and moving parts.

**DANGER:** The machine may 'short-out' or burn-out' if openings and/or cooling vents are blocked. DO NOT put any object into the openings.

**WARNING:** In case of danger immediately press the emergency button.

**WARNING:** Damage could occur to the machine if openings are blocked. DO NOT use the machine with any openings blocked. KEEP FREE from dust, lint, hair and anything that may reduce air flow. DO NOT insert any foreign objects into any machine openings.

**WARNING:** Use tools specifically recommended by the manufacturer. Use of other tools may cause unintended detachment and result in damage to persons and/or property.

**WARNING:** Ensure tools are correctly inserted and fully tightened. Incorrect tool mounting can cause damage to persons and/or property.

**WARNING:** Injury could occur to the operator and/or damage to the machine could occur when cleaning stairs, unless extra caution is used. Use extra caution when cleaning stairs or difficult areas.

**DANGER:** DO NOT operate the machine while upside down. Dust particles could go inside the machine and cause electrocution.

**WARNING:** Ensure that there are no protrusions or any discontinuities on the flooring surface. Remove these before working with the machine, to avoid the machine jumping resulting in injury to the operator, other people, or property. Work at a safe distance away from floor anchor studs or any other rough edges.

**WARNING:** If you observe functional abnormalities and unusual noises, stop, leave the machine in safe state, and contact NFE technical services.

**WARNING:**

- DO NOT clean by spraying water.
- DO NOT immerse into water or moisture.
- KEEP machine clean.
- KEEP tooling and accessories in good condition.
- REPLACE any worn or damaged parts immediately.
- ENSURE that the working area is clear of obstructions

and/or people.

- ENSURE that the working area is sufficiently illuminated.

**DANGER:** Components contained in packaging (e.g., plastic bags) can cause suffocation. KEEP away from children and animals.

THE MANUFACTURER CANNOT BE HELD RESPONSIBLE for any damage/injury caused to persons or property, due to incorrect use of the machine or due to procedures being used which are not specified in this instruction manual.

USE ONLY REPLACEMENT PARTS from the original manufacturer.

**DANGER:** To avoid the risk of electrocution, disconnect power before attempting any maintenance or service.

THE USE OF THE MACHINE for anything not specified in this manual may be dangerous and must be avoided.

The manufacturer is not liable to any responsibility if the machine is used for purposes other than those specified

in this manual.

SUCTION TUBES AND ACCESSORIES should be kept away from the body, especially delicate areas such as the eyes, ears and mouth.

DO NOT LEAVE the equipment unattended whilst in use.

**DANGER:** This machine is intended for use by professionals. ENSURE EXTENSION CABLE use is suitable for use with the equipment.

**DANGER:** When using the equipment always ensure that all necessary precautions are taken to guarantee the safety of the operator and any other person who may be affected. When necessary:

**WARNING:** DRESS PROPERLY AND WEAR SAFETY GEAR such as safety glasses, gloves, non-slip footwear, respiratory mask when working in dusty and/or unventilated areas, and ear protection.

## LABELS AND SYMBOLS

### NAMEPLATE

This machine is labeled with an nameplate. Machines without nameplates must not be used and the manufacturer declines all responsibility for them. Any product without a nameplate must be considered potentially hazardous.

 <b>NATIONAL FLOORING EQUIPMENT</b> <small>Made in America Since 1968</small>		National Flooring Equipment, Inc. 9250 Xylon Avenue North, Minneapolis, MN 55445 Telephone: (800) 245-0267	
Manufactured in Italy by Hyper Grinder, Pescara, Italy			
Serial Number			
Model Number			
Electrical Input			
Rated Current			
Weight			
Ingress: IP54	Working Grade:	/	

408313 Rev A



## MACHINE SPECIFICATIONS

Product Specifications						
Width	Length (Min/Max)	Height (Min/Max)	Working Width	Tool Speed	Tool Size	Power
23.6" (60 cm)	47.2"/66.5" (120/169 cm)	47.2"/55.0" (120/140 cm)	23.6" (60 cm)	600-1000 RPM	3x 0.375" 3x 9.5 mm	5.5 HP (4.1 kW)
Full Weight	Removable Weight	Base Machine Weight	Sound Pressure	Sound Power Level	Hand-Arm Vibration	
503 lbs (185.8 kg)	60 lbs (27.3 kg)	443 lbs (201.4 kg)	N/A	N/A	N/A	

Machine Variants			
Region	Serial Number	Max. Operating Amps*	Input Power**
Domestic (North America)	M600-10XXXX	30A	208/230V, 1 Phase, 60 Hz, 30A
		19A	208/230V, 3 Phase, 60 Hz, 30A
	M600-45XXXX	30A	208/230V, 1 Phase, 60 Hz, 30A
		19A	208/230V, 3 Phase, 60 Hz, 30A

\* Indicates the maximum amp draw under typical conditions.

\*\* Indicates the required source/supply connection rating.

Power Cord: 408322 (Assembly, Power Cord, IEC 309, 5P, 32A, 25')

Recommended Dust Collectors: DL3000, DL3000P, DL4000P

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## USING THE MACHINE

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The machine is intended for preparing or grinding flat or leveled surfaces up to a 2% slope. Preparation is understood as a roughing sanding of the surface, made in order to flatten a floor but with a marked roughness. The roughing is performed with aggressive tools and aims to remove the material needed to get this surface, further steps are made with less aggressive tools (gradually finer grits). Surfaces are understood as flat horizontal surfaces made of sufficiently hard stone. Grinding is understood as the process that starts from the initial roughing through the polishing steps. These steps are meant to decrease the surface roughness in order to obtain the mechanical polish of the surface. These processes can be performed dry or with water or by combining dry steps with wet steps. Contact National Flooring Equipment for questions based on your unique application.

### Operating the machine

Instructions are provided from the operator's perspective at the rear of the machine. The operator must position himself to keep the machine under control in the workspace around of the machine.

### Intervention procedures

Anytime during operation the operator can stop the machine by pressing the E-Stop (red mushroom) on the control pad, located on the handle. During maintenance or tool change it is mandatory to disconnect the machine's power source. Avoid the intermediate positions of the handle due to instability. In cases where it is necessary to service the machine in an intermediate positions, properly block and support the machine to fully stabilize.

### Operator features

This is a machine for professional use for which the operator that is working it must be a professional in the field. Carefully read the instruction booklet before using the machine.

### PREDICTABLE INCORRECT USE

Do not operate the grinding deck while the machine in transport position.

Disconnect power source when changing tools.

Do not use the machine as a forklift or for transporting materials.

Use the machine only with tooling specifically approved by the manufacturer.

Use the machine only for indicated materials and avoid or remove any foreign hazards (e.g., studs, drain covers, etc.).

**DANGER:** Do not stop the machine by pulling the power source risking electric shock. Press the E-Stop if hazardous circumstances are encountered.

### TREATED MATERIALS

Concrete and stone flooring materials.

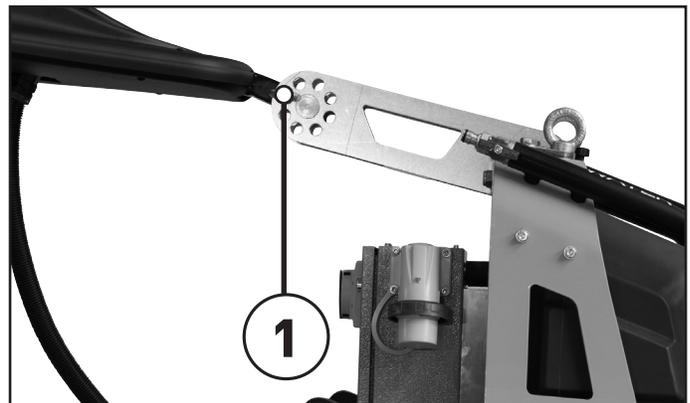
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## ADJUSTING THE HANDLE

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To adjust the handle position, loosen and remove the pin (1), adjust the handle to the required height, and reinstall.

**WARNING:** Ensure the pin is fully inserted before resuming work.



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## CONNECTING POWER

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**WARNING:** Ensure the correct voltage (208/230) is available before connecting to power. Verify power requirements as shown on machine nameplate.

This machine is designed to operate on both single-phase and three-phase power.

### Single-Phase Power

Black Wire = LINE ("L")

White Wire = NEUTRAL ("N")

Green Wire = GROUND ("PE")

### Three-Phase Power

Black Wire = LINE 1 ("L1")

Red Wire = LINE 2 ("L2")

Orange Wire = LINE 3 ("L3")

White Wire = NEUTRAL ("N")

Green Wire = GROUND ("PE")

**WARNING:** Power plugs and sockets must include a grounding pin.

**WARNING:** If any of the above or following instructions are ignored, the manufacturer assumes no responsibility. Operators must ensure all national and local provisions of the law and/or permits regarding use are observed.

**WARNING:** Operator must check safety conditions including but not limited to: availability of sufficient power and the absence of explosives, inflammable or corrosive powders in the vicinity of use.

Ensure the cord type is suitable for the application and location. If you are unsure about your cord type, consult a qualified electrical professional or electrician.

### EXTENSION CORD

- Must be a Service Grade power cord
- 300V minimum voltage rating
- Oil and Water resistant
- 10 AWG up to 150' [50m] maximum length
- Examples of acceptable cord types include SJTOW, STOW, SEOW, SJEOW, and SE00W.

**WARNING:** Use only appropriately-sized electrical cables to reduce the risk of damage, fire, or reduced performance.

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## CONTROL PANEL

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**3. POWER ON LIGHT:** the machine is ready to work when the pilot light is illuminated.

**4. EMERGENCY STOP (E-Stop):** All mechanical motion will stop when this switch is pressed. Twist and rotated to release.

**NOTE:** To stop the machine, push the emergency red button. The E-Stop will stop motion within 1 second as the machine will stop by inertia.

**CONTROL PANEL:** Control panel is composed of the following controls:

**1. SPEED CONTROL POTENTIOMETER:** Regulates rotational speed. This potentiometer regulates the rotation speed of the tools.

**2. DIRECTIONAL SWITCH:** Three position switch; neutral position (vertical), turn right for clockwise rotation, turn left for counterclockwise rotation.  
**NOTE:** Return switch to neutral after a power cycle.

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## TOOLS ASSEMBLY

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### FAST CHANGE TOOLING:

1. Recline machine to access the tooling plate.
2. Insert the fast change wedge lock tooling into the openings.
3. Tap with a hammer to fully seat.
4. Tap to release.



## DUAL CUT TECH (DCT)

This grinder introduces the exclusive DCT transmission feature. While engaged, this feature locks rotation of the main plate and limits rotation to the tooling satellites. With the DCT engaged (DCT ON), the machine achieves higher tooling speeds resulting in more aggressive and effective grinding.

The DCT ON system is ideal for glue and resin removal

work, surface preparation, and floor leveling. Disengaging the DCT (DCT OFF) will cause the main plate to rotate in the direction of the tools. In DCT OFF mode, the planetary is counter-rotating for general polishing, marble polishing, natural stone and concrete.

### DCT ON:

Permits rotation of only the tool holder satellites.

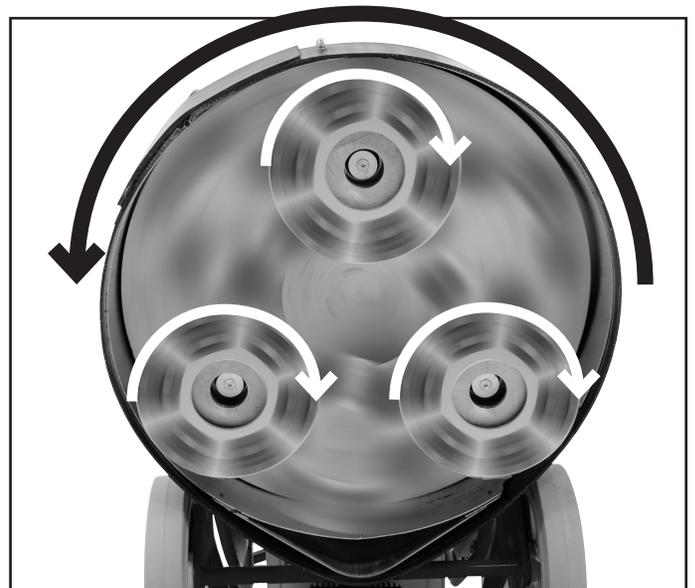
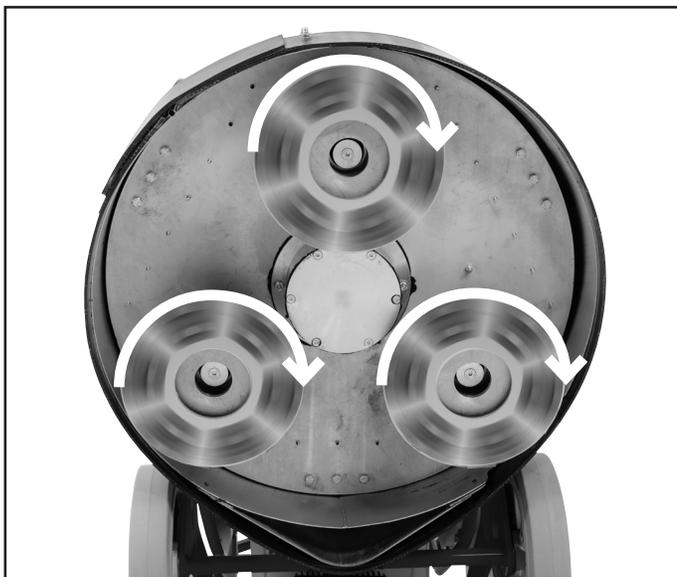
Applications: Aggressive and effective preparation, removal of glues and resins, leveling of surfaces, and for rapid exposure of the concrete aggregate.

### DCT OFF:

Permits rotation of the planetary in counter-rotational mode.

Applications: Ideal for sanding and polishing of concrete, marble, and natural stone floors.

Note: Appearance of mechanism may vary.



## WEIGHTS KIT

The machine is pre-installed with additional weights. Depending on specific requirements, weights can be positioned forward or rearward.

**A)** Positioning weights forward increases downward tooling pressure and increases aggressiveness.



### WARNING

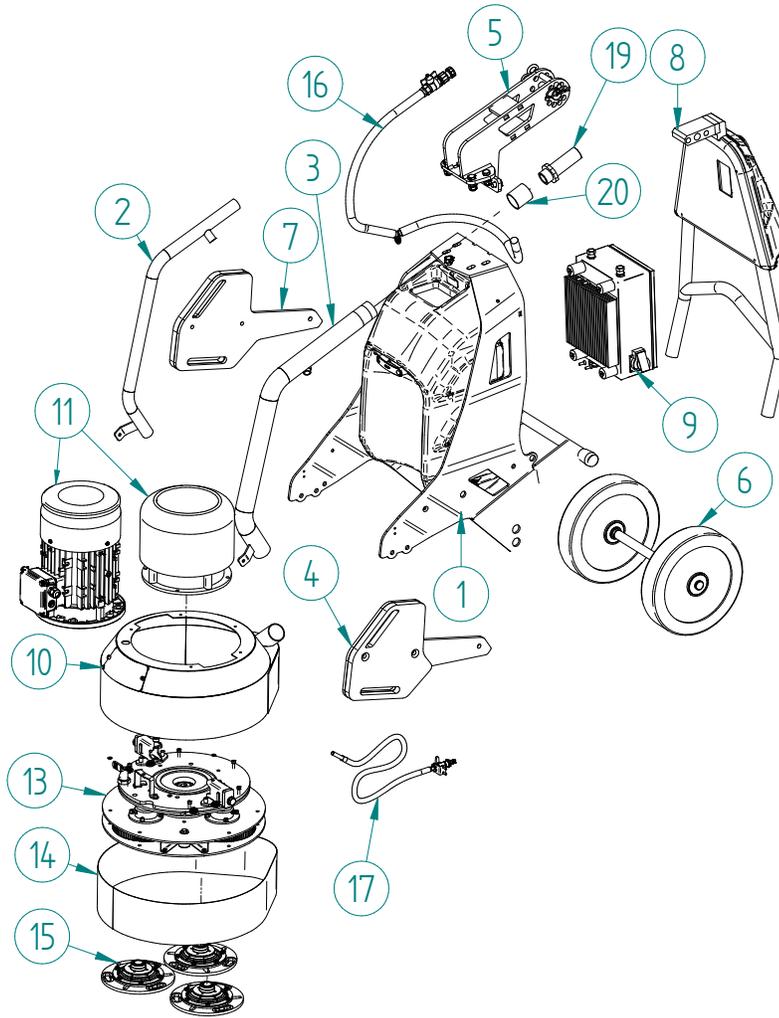
Always position the weights in corresponding positions on both sides to avoid instability.



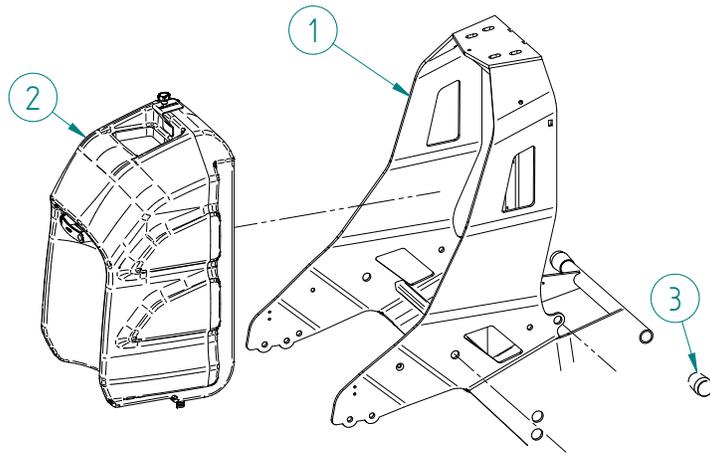
**WARNING:** Wear gloves or other protective gear and use caution while repositioning the weights due to the risk of crushing.

**B)** Positioning weights rearward, reduces tooling pressure and permits safer reclining of the machine.

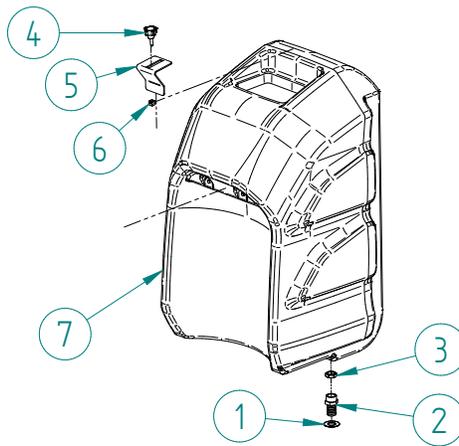
## SPARE PARTS



Item	Part No.	NFE#	Description	Qty
1	HG100401		Frame	1
2	HG1002701		Water Tube Series 1	1
3	HG1002802		Suction Tube Series 1	1
4	HG110201		Left Weight Series 1	1
5	HG103902		High Handle Base Kit	1
6	HG101101		Trolley	1
7	HG110101		Right Weight Series 1	1
8	HG101202		Machine Control Series 1	1
9	HG143201		Drive	1
10	HG106802		Drum Kit	1
11	MOTHG1091		Motor, Electric, 7.5 HP	1
13	HG156903		Head 600 T7	1
14	HG1011801		Dust Guard	1
15	HG198801		240 QA/Ready Look Tool Holder	3
16	HG110501		Main Valve Kit	1
17	HG110601		Valve Kit, Series 1	1
19	MANHG018		Hose Holder 1", 1/2 x 50 x 52	1
20	MANHG039		1/2" Coupling Sleeve	1

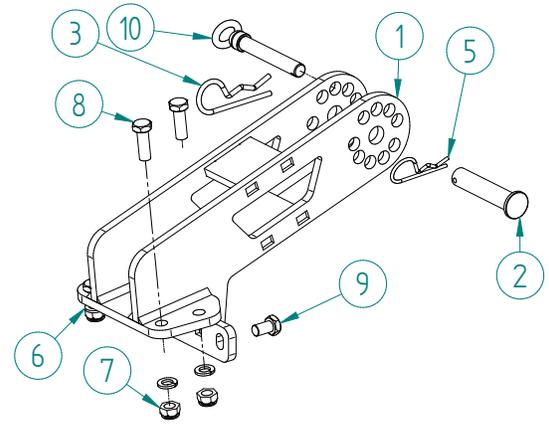


Frame NFE 600				
HG100401				
Item	Part No.	NFE#	Description	Qty
1	HG1003001		Frame	1
2	HG104401		Expansion Tank Assembly	1
3	MAN235		Heavy-Duty Round Bushing	2

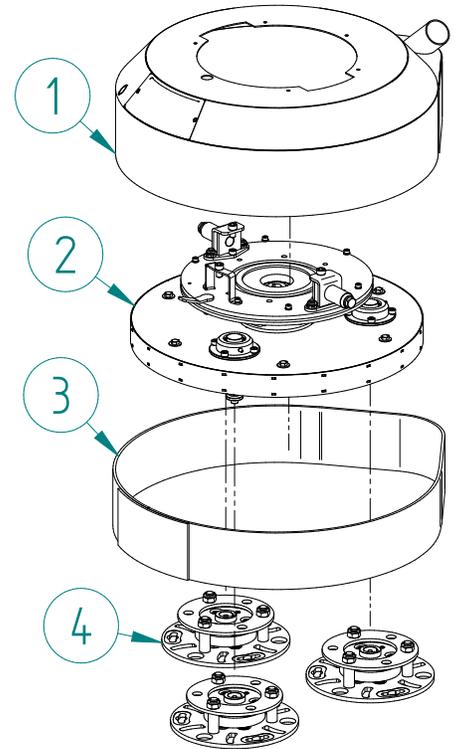


Tank				
HG104401				
Item	Part No.	NFE#	Description	Qty
1	HG1112601		Washer 16-30-0.5	1
2	RCD071		1/2" Hose Holder 10	1
3	CIG003		G 3/8 Nut	1
4	MAN006		Hand wheel M5x16	1
5	HG1007002		TANK SUPPORT PLATE	1
6			Nut with Cage	1
7	HG1011702		50L Tank	1

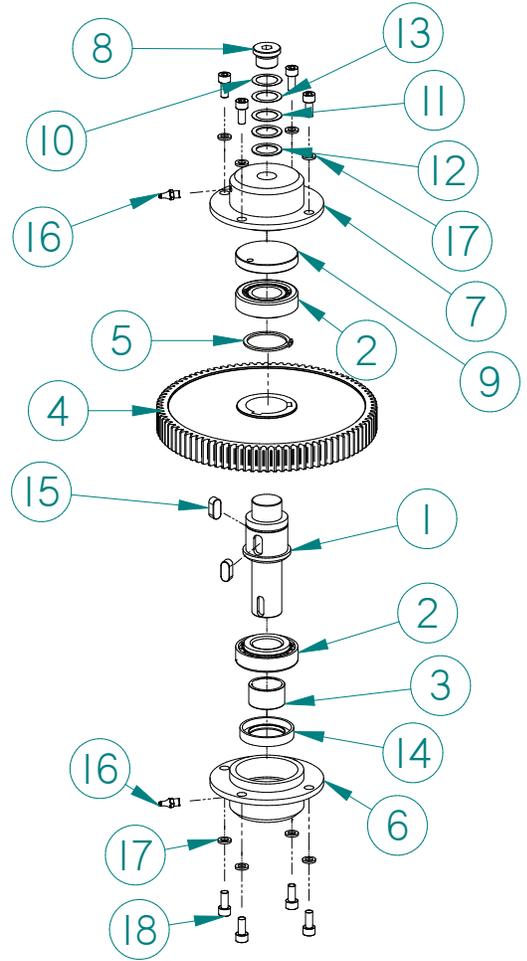
High Handle Base Kit				
HG103902				
Item	Part No.	NFE#	Description	Qty
1	HG1002903		High Handle Base	1
2	HG7311804		Central Pin	1
3			Cotter Pin UNI 8833 - A5	1
5			Cotter Pin UNI 8833 - A3.5	1
6			Grover Washer M12 DIN 127	4
7			Self-Locking Nut M12 DIN985	4
8			Socket Head Screw M12x35 UNI5739	4
9			Socket Head Screw M12x25 UNI5739	2
10	HG7317801		Adjustment Pin with Eyelet	1



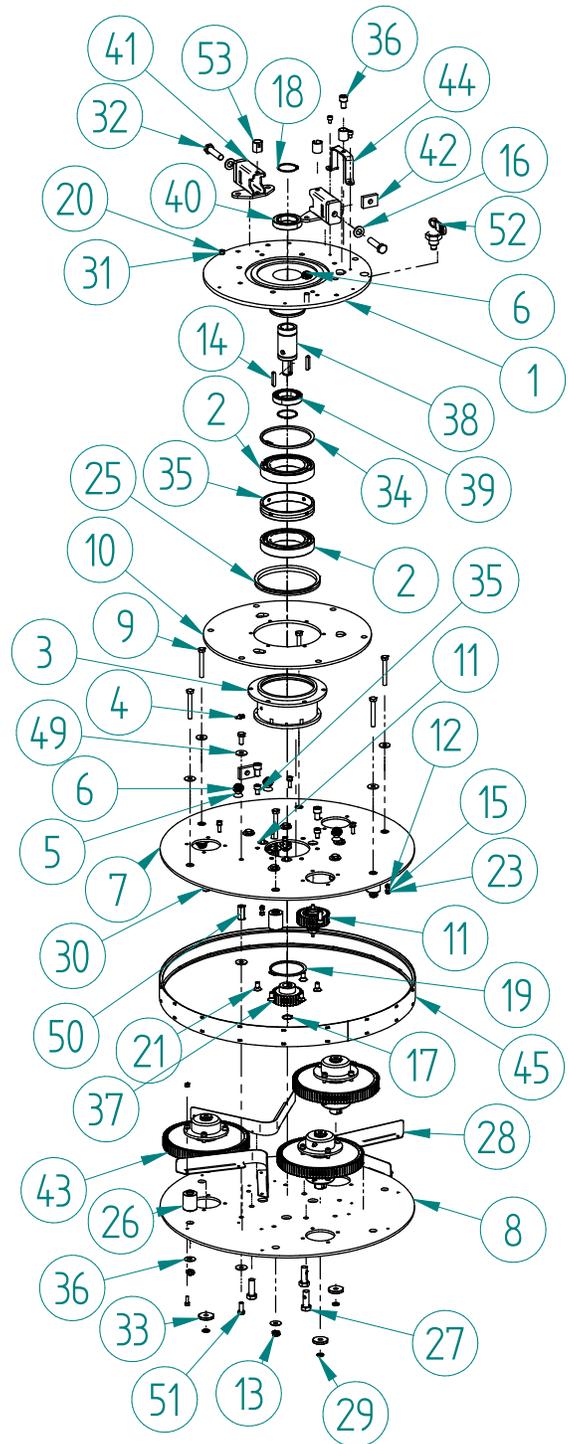
Head NFE 600				
HG104902				
Item	Part No.	NFE#	Description	Qty
1	HG106802		Crankcase Kit	1
2	HG156903		Planetary	1
3	HG1011801		Splash Guard Ring	1
4	HG136101		240 QA/Ready Look Tool Holder HRC 601	3



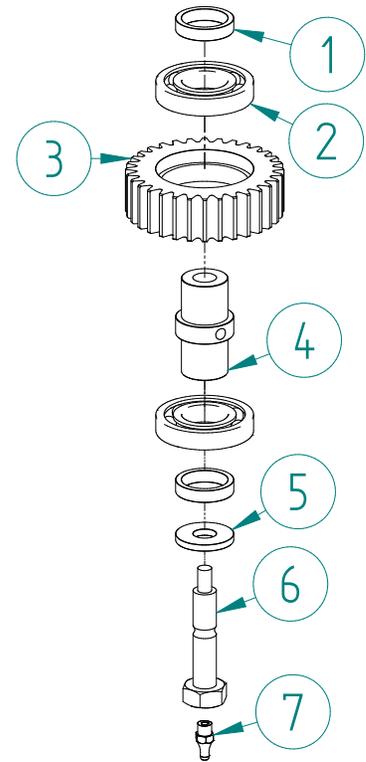
Satellite Group				
HG156701				
Item	Part No.	NFE#	Description	Qty
1	HG1129001		Shaft	1
2			Bearing, 30205	2
3			Bearing, 25x30x17, SKF IR	1
4	HG1128901		Satellite m=2 z=90	1
5			Circlip UNI 7435 35	1
6	HG1129102		Bushing	1
7	HG1129201		Bushing with Adjustment	1
8	DIN908 st m18x1,5 a		Steel Cap M18x1.5	1
9	HG1129301		Sliding Block	1
10			Shim 18x25x0.2	1
11			Shim 18x25x0.5	1
12			Shim 18x25x1	2
13			Shim 18x25x0.3	1
14			Oil Seal with Lip 30x45x8	1
15			Tab 8x7x18 UNI6604-A	2
16			Grease Nipple TSD M6 UNI7663-A	2
17			Washer M6 UNI 6592	8
18			Screw UNI5931 M6x14	8



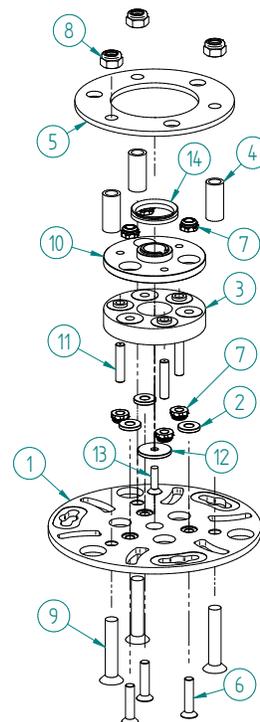
NFE 600 T7 Planetary				
HG156903				
Item	Part No.	NFE#	Description	Qty
1	HG1110302		Motor Flange	1
2			Bearing 6015 RS1 (75-115-20)	2
3	HG1109701		Double Flanged Shaft	1
4			Grease Nipple TSD M6 UNI7663-A	1
5			Screw M10x25 UNI5933	4
6			Nut DIN 985 M10	4
7	HG1130302		Upper Disc 551	1
8	HG1130402		Lower Disc 550	1
9			Screw M8x60 UNI5737	6
10	HG1110603		Planetary Locking Disc	1
11	HG152801		Idler Wheel Assembly 600-450	3
12			Self-Locking Nut M5 DIN982	12
13			Nut M8 DIN985	6
14			Tab 6x6x32 UNI6604-A	2
15			Grover Washer M5	4
16			Washer M12 UNI 6592	2
17			Circlip UNI 7435 20	1
18			Circlip UNI 7435 40	2
19			Shaft Circlip 75 UNI7435	1
20			Screw M6x18 UNI5931	5
21			Hex Socket Screw M8x16 UNI5933	6
22			Screw M10x16 UNI5931	3
23			Socket Head Screw M5x15 UNI5931	12
24			Socket Head Screw M6x10 UNI5931	2
25	GUA048		V-Ring V130 A	1
26	HG1110501		Spacer	6
			Screw for Grease Nipple	
27	HG1130601		Planetary Baffle	3
28	HG1130701		Split Washer M8 UNI 1751 B	3
29			Screw UNI5931 M8x20	3
30			Washer M6 UNI 6592	3
31			Socket Head Screw M12x50 UNI5739	5
32			Spacer 32 x 8.2 x 5	2
33	HG1111101		Circlip for Hole 115 UNI7437	3
34			Spacer	1
35	HG1110401		Washer M8 DIN 6340	1
36			Pinion	12
37	HG1110001		MEC 28mm Shaft Extension	1
38	HG1131101		Bearing 61908	1
39			Bearing 61908-1RSR	1
40			Cylinder Head Support	1
41	HG1130001		Threaded Plate	2
42	HG1130101		Satellite Assembly	2
43	HG156701		Front Support	3
44	HG1110901		Planetary Perimeter Cover	1
45	HG1130901		Washer M8 DIN 6340	1
46			Socket Head Screw M8x35 UNI5737	24
47			Extended Nut UNI 5535 M8x35	12
48			Grease Nipple TSD M8 UNI7663-A	6
50			Socket Head Screw M8x12 UNI5931	3
51			Collar CPL Pin M12x1.5	2
52	GUAHG003		Donut Weight Spacer	1
53	HG1184401		Motor Flange	3

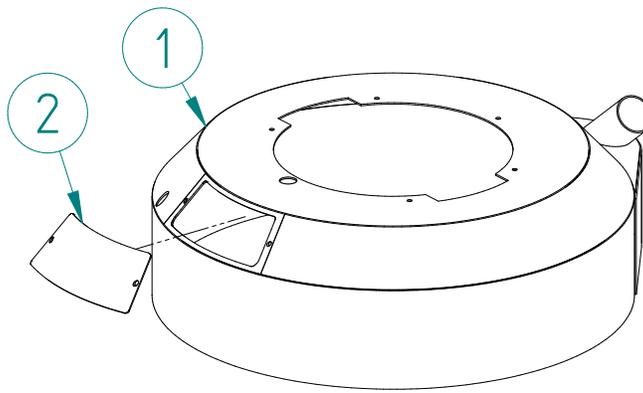


Idler Wheel Assembly 600				
HG152801				
Item	Part No.	NFE#	Description	Qty
1	HG1116501		Spacer Ambassador 600-450	2
2			Bearing 16004 1RS	2
3	HG1116601		Idler Wheel Z=32 dp=64	1
4	HG1116701		550 Idler Wheel Shaft	1
5	HG1116801		Washer	1
6	HG1116901		Screw M8x60 UNI5737 for Grease Nipple	1
7			Grease Nipple TSD M6 UNI7663-A	1

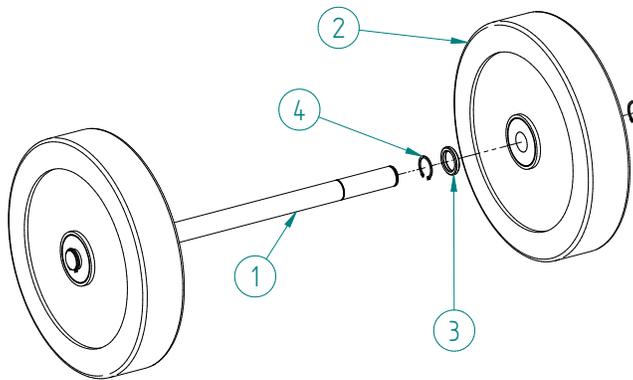


Tools holder 240 QA/Ready Lock PLA				
HG198801				
Item	Part No.	NFE#	Description	Qty
1	HG1235201		Base portadiamante 240 QA/ Ready Lok maxima	1
2	HG1112001		Spacer for Gasket	3
3	GUA004		Flexible Coupling	1
4	HG1112101		Spacer	3
5	HG1112201		Safety Disc	1
6			Hex Socket Screw M10x45 UNI5933	3
7			Nut M10 DIN 985	6
8			Nut M14 DIN 985	3
9			Screw M14x75 UNI5933	3
10	HG1112504		Upper Tool Holder Support D=240 ERK 600	1
11			Stud M10x35 UNI 5909	3
12	HG1112301		Lock Washer	1
13			Hex Socket Screw M8x30 UNI5933	1
14			SKF_40 VA R	1



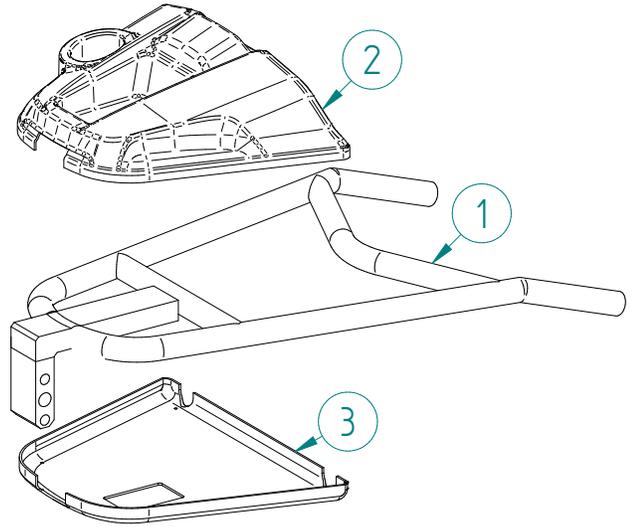


Drum Housing				
HG106802				
Item	Part No.	NFE#	Description	Qty
1	HG1007503		Carter 600	1
2	HG1007801		Cap 600	1
3			Socket Head Cap Screw M6x10 UNI5391	2

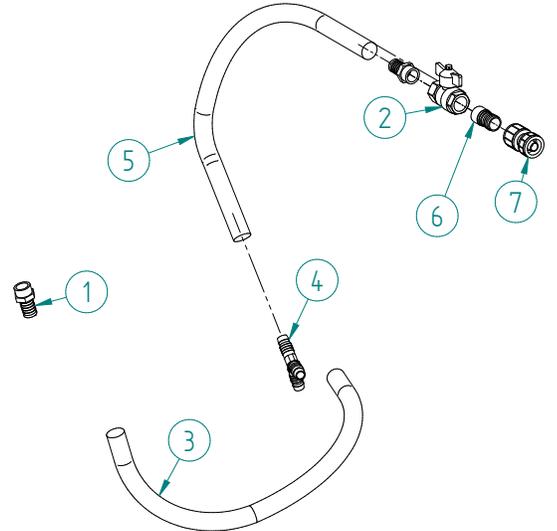


Wheel Assembly				
HG101101				
Item	Part No.	NFE#	Description	Qty
1	HG1002601		Wheel axle	1
2	RTO015		Wheel Ø300 hub 25x60	2
3	HG1091301		Wheel axle spacer	2
4			Circlip 24 UNI 7435	4

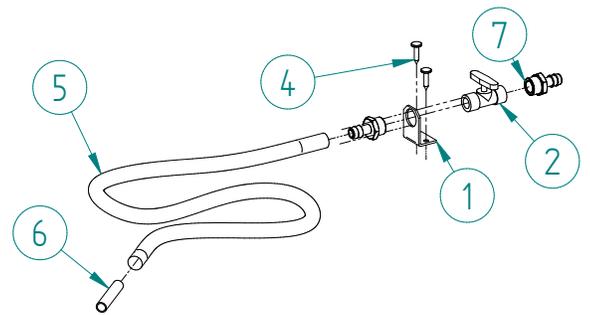
Machine Controls, Series 1				
HG101202				
Item	Part No.	NFE#	Description	Qty
1	HG1003401		Machine control series 1	1
2	HG1011102		Cover, Upper	1
3	HG1078201		Cover, Lower, with side holes	1



Main Valve Kit				
HG110501				
Item	Part No.	NFE#	Description	Qty
1	RCD071		Hose connector 1/2"	2
2	RCD098		Ball valve 1/2" F/F	1
3	TBO020		Braided hose 16x22	1
4	RCD100		T-fitting D16 (nylon)	1
5	TBO019		Braided hose 16x22	1
6	RCD099		Quick coupling brass M 1/2"	1
7	RCD096		Quick coupling brass F 1/2"	1



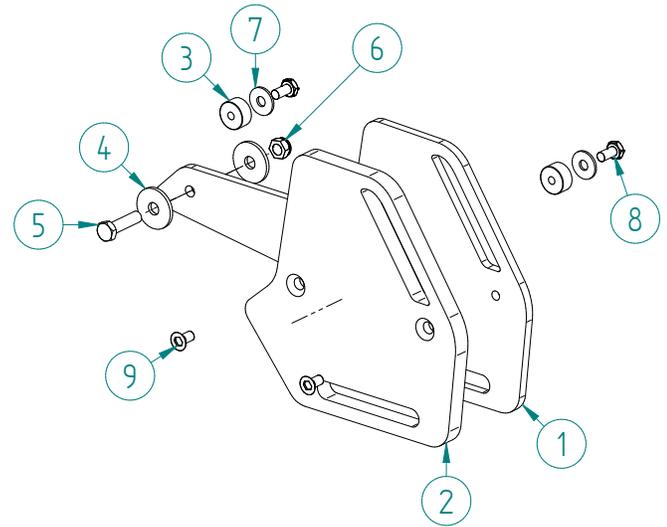
Valve Kit series 1				
HG110601				
Item	Part No.	NFE#	Description	Qty
1	HG1124201		Tap holder plate	1
2	RCD020		Ball valve F/F 3/8	1
3	RCDHG001		Hose connector 3/8 12	2
4			Self-tapping screw 4.2x19 UNI8118-C	2
5	TBO004		Tuboflex 570x14x10	1
6	TBO005		Steel sleeve 50 x 10 x 8	1



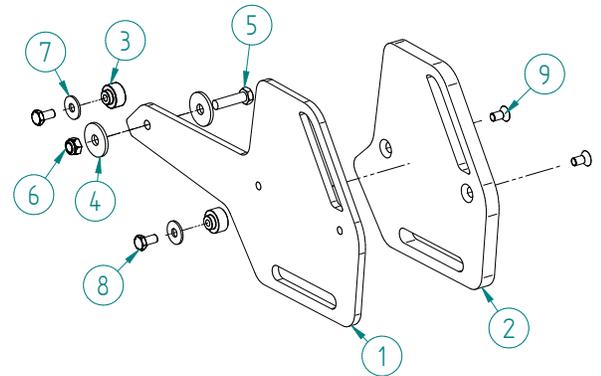
Weight kit - Series 1 (60 lb [27kg])

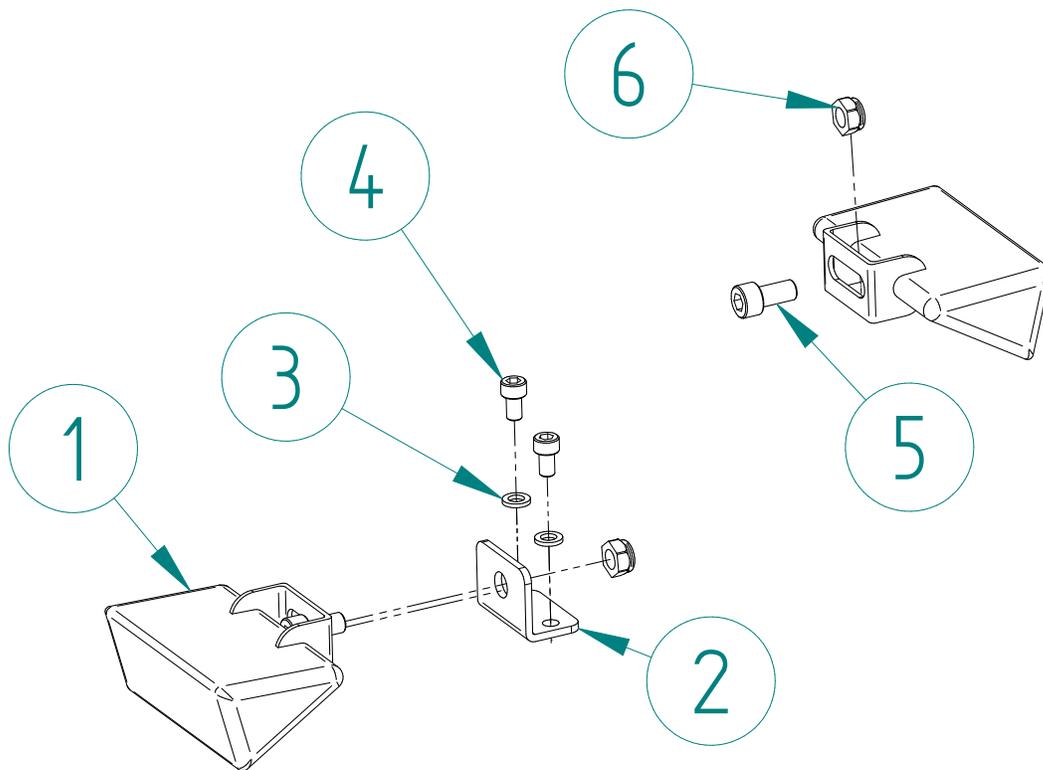
HG110301

Right Weight Assembly				
HG110101				
Item	Part No.	NFE#	Description	Qty
1	HG1001301		Weight support base series 1 (5.5kg)	1
2	HG1001401		Weight (8kg)	1
3	HG1003201		Weight block	2
4			Wide flat washer M12	2
5			Screw M12x45 UNI5739	1
6			Nut DIN 985 M12	1
7			Wide flat washer M10 DIN 6340	2
8			Screw UNI 5739 M10x20	2
9			Screw UNI 5933 M10x20	2



Left Weight Assembly				
HG110201				
Item	Part No.	NFE#	Description	Qty
1	HG1001301		Weight support base series 1 (5.5 kg)	1
2	HG1001401		Weight (8 kg)	1
3	HG1003201		Weight block	3
4			Wide flat washer M12	2
5			Screw M12x45 UNI5739	1
6			Nut M12 DIN 985	1
7			Wide flat washer M10 DIN 6340	2
8			Screw M10x20 UNI5739	2
9			Screw M10x20 UNI5933	2

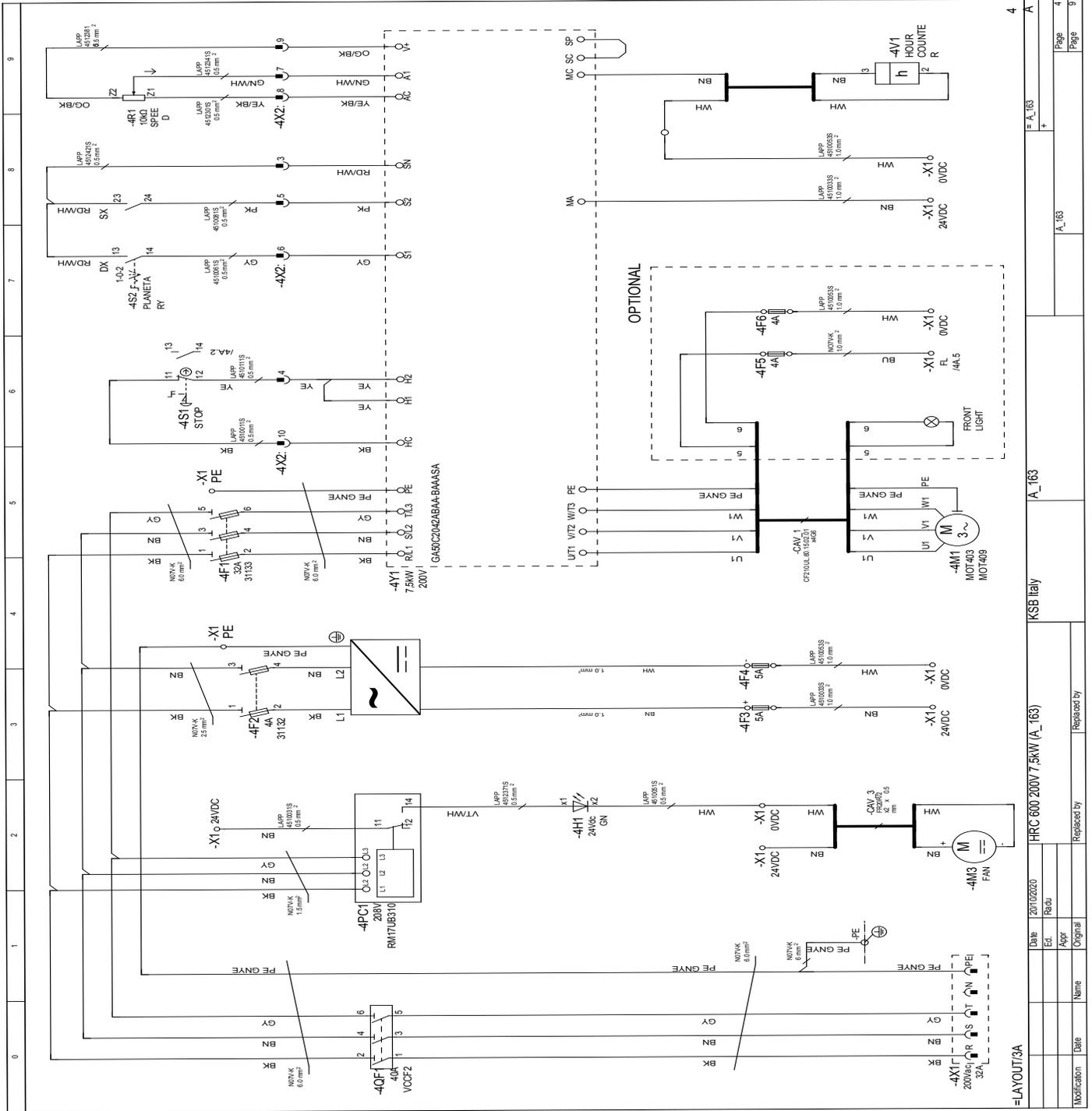




Lights Kit				
HG110801				
Item	Part No.	NFE#	Description	Qty
1	HG9200101		LED Spotlight	2
2	HG1017101		Titan Spotlight Bracket	1
3			Washer M6 UNI 6592	2
4			Socket Head Cap Screw M6x10 UNI5391	2
5			Socket Head Cap Screw M8x14 UNI5931	2
6			Nut M8 DIN 985	2

Service Parts				
Item	Part No.	NFE#	Description	Qty
1		408339	Grease, EP2, 14oz	2

# WIRING DIAGRAM



= LAYOUT 3A

Date: 20/10/2020  
 Ed: Rebu  
 Appr: [Signature]  
 Original: [Signature]  
 Replaced by: [Signature]

KSB Italy

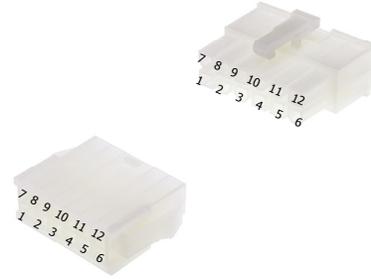
A\_163

= A\_163

Modification	Date	Name	Original	Replaced by



12 poles -4X2 Control board		
Signal description	Wire	Pin
Positive power common	BN	1
Negative power common	WH	2
Common start motor	RD/WH	3
Emergency signal from cabinet	YE	4
Reverse start motor	PK	5
Forward start motor	GY	6
Reference speed	GN/WH	7
Common reference speed	YE/BK	8
Power reference speed	OG/BK	9
Emergency stop	BK	10
Light	BU	11
-	-	12





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# MAINTENANCE SCHEDULE

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Maintenance to be performed	Interval					
	Daily	50 hrs	300 hrs	900 hrs		
Inspect extension cord for damage	•					
Grease bearings		•				
Replace rubber seals/joints			•			
Fully disassemble and re-grease planetary housing assembly				•		

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# ROUTINE MAINTENANCE

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## REGULAR MAINTENANCE EVERY 50 HOURS.

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**1.** Tilt the machine into the maintenance/tool change position.



**2.** Apply **3 pumps** of NILEX EP 2 grease to each of the **9 grease fittings** located at the base of the planetary gear system and on the satellite assemblies.

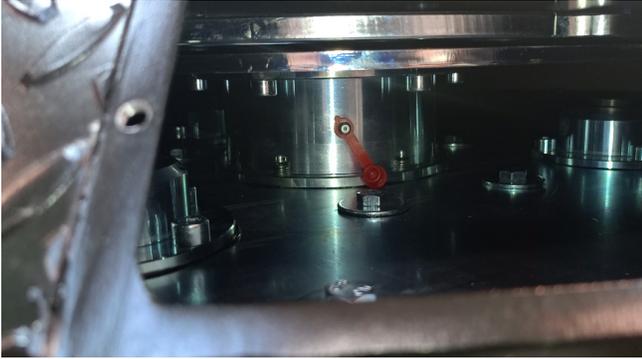


**3.** Remove the front cover of the casing.

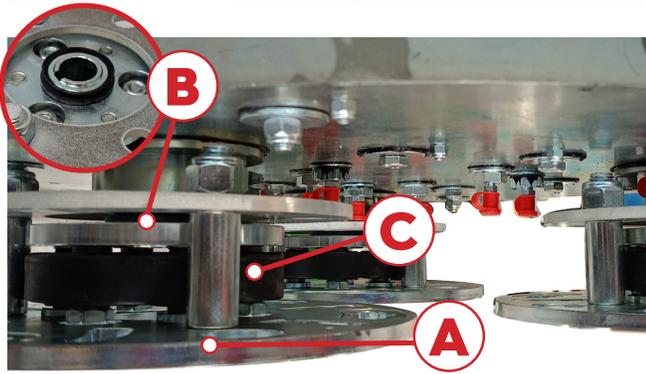


**4.** Grease with **3 pumps** of NILEX EP 2 using the grease fitting on the 3 adjustable cups (HG1129201).





**5.** Always using the front panel of the casing, grease the central shaft with **3 pumps** using the designated grease fitting.



**6.** Check the condition of the Tool Holder Plates **(A)** (HG136101), the 3 gaskets **(B)**, and the 3 flexible joints **(C)** (GUA004).

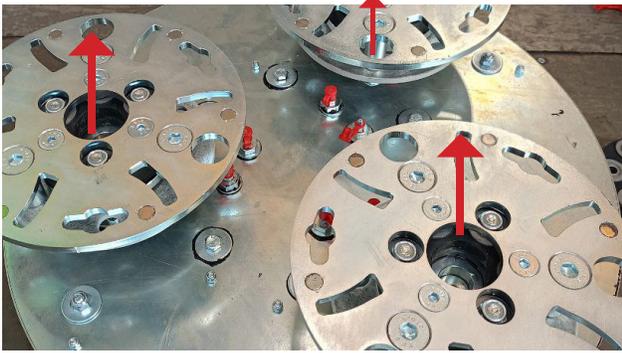
**Note:** If the inspection in point 6 shows that the gaskets (B) or the flexible joints (C) (HG1111701) are worn, proceed as described in the 'Maintenance Every 300 Hours, Replacement of Gaskets and Seals' section on page 4.

If the plates are not properly aligned, follow the 'Bearing Adjustment' procedure on page 9."

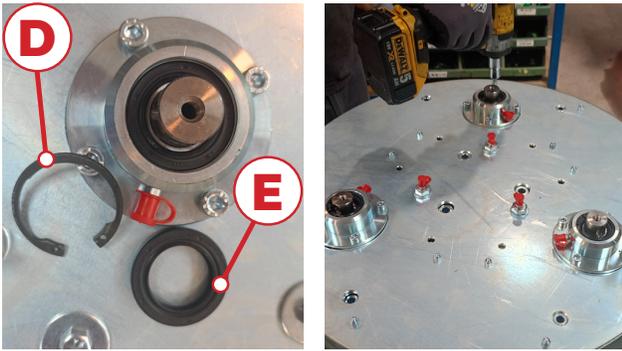
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## MAINTENANCE EVERY 300 HOURS, REPLACEMENT OF GASKETS AND SEALS.

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1. Remove the 3 Tool Holders (HG146601) by unscrewing the central pin.



2. Remove the seeger (D) and replace the 3 lip seals (E) protecting the 3 satellite shafts.

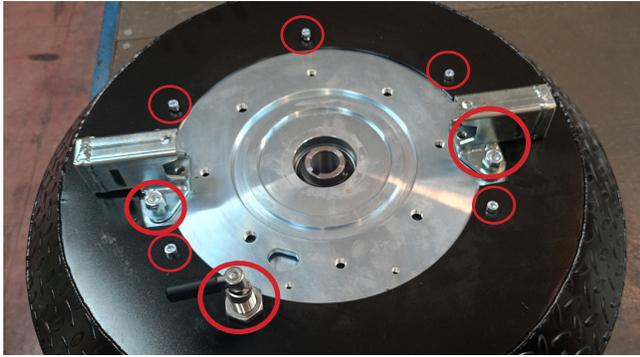


3. Replace the rubber gasket (F) of the Tool Holder Kit (HG136101).



4. If necessary, replace the Flexible Joint (G) (GUA004).

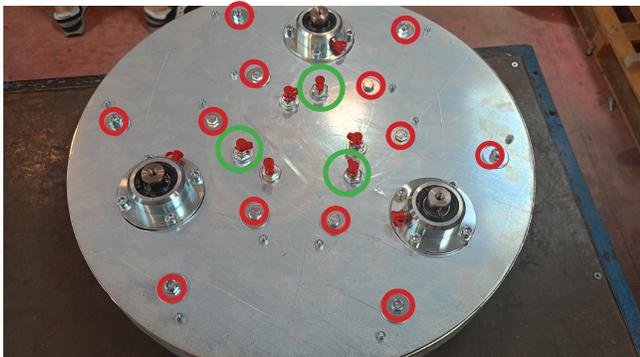




**5.** Remove all the screws and the DCT lever to slide the casing off the planetary gear.



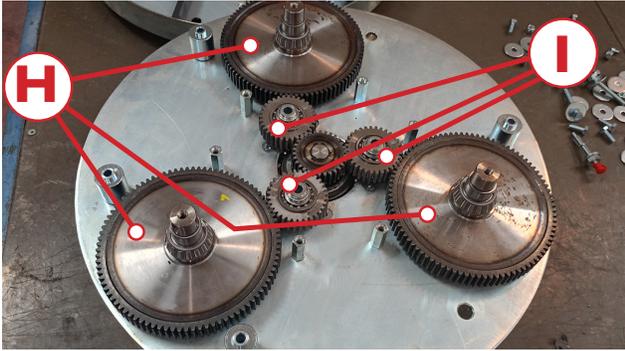
**6.** Rotate the planetary gear and remove the 3 tool holders (HG146601) by removing the central screw.



**7.** Remove all the screws and grease fittings marked in red in the photo. It is not necessary to remove the 3 grease fittings marked in green.

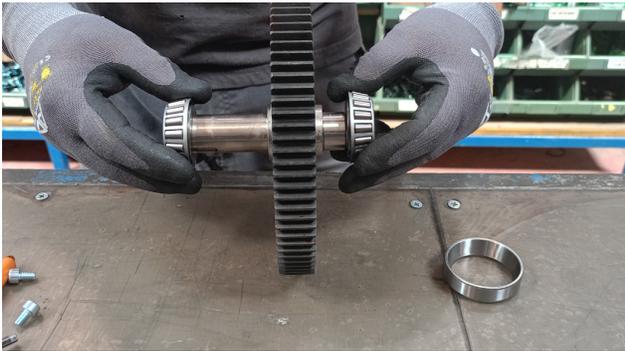


## BEARING REPLACEMENT

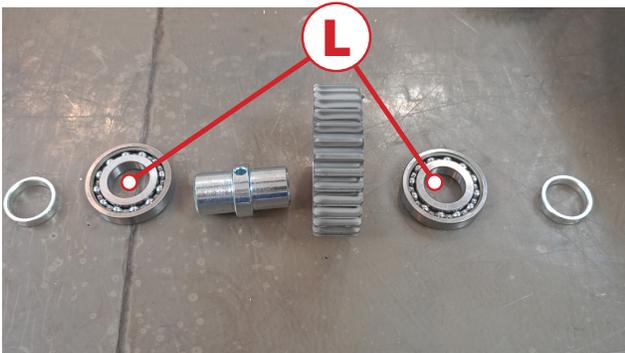


1. Remove the 3 groups (HG156701) Satellite Assembly **(H)** and the 3 Idler Gear Groups 600-450 (HG152801) **(I)**.

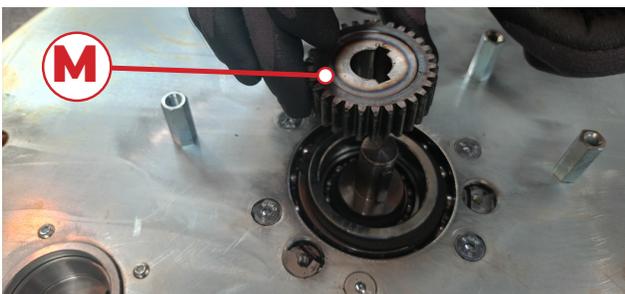
1.



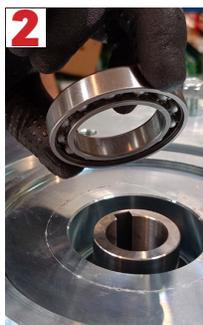
2. Replacement of the tapered roller bearings 30205 of the group (HG156701) Satellite Assembly **(H)**.



3. Replacement of the 16004 1RS Bearing **(L)** of the Idler Gear Group 600-450 (HG152801) **(I)**.



4. Removal of the Pinion (HG1110001) **(M)** and replacement of the 61908 Bearing and the 61908-1RSR Bearing.



**Note:** The replaced parts should be reassembled as follows:

- 1-bearing 61908-1RSR (with shield),
- 2-bearing 61908 (without shield),
- 1-pinion.

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## GEAR LUBRICATION

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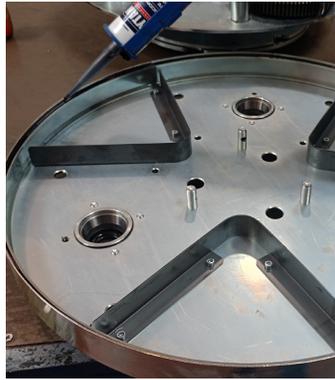
**1.** Begin lubricating with NILEX EP 2 using the grease fitting located on the Double Flanged Shaft (HG1109701). Continue until grease seeps out from the gap around the central pinion, as shown in photo 1.



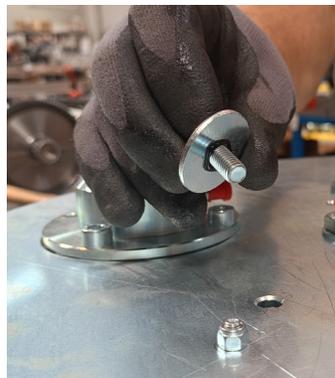
**2.** Position the 3 Idler Gear Groups 600-450 (HG152801) and apply ample grease NILEX EP 2.



**3.** Position the 3 groups (HG156701) Satellite Assembly and continue applying ample grease.



**NOTE:** Before closing the planetary gear system, it is recommended to apply silicone to all the screws, the 450 sheet metal housing (HG1110101), the lower disc (HG1129802), and the shaft disc (HG1129702) to prevent grease leakage.



**NOTE:** After closing the planetary gear system, seal the screws and grease fittings on the lower disc (HG1129802) with silicone to prevent grease leakage.

