

ELECTRIC STUMP TOOTH SEPARATOR

CUT

 MAINTENANCE AND INSTRUCTION MANUAL

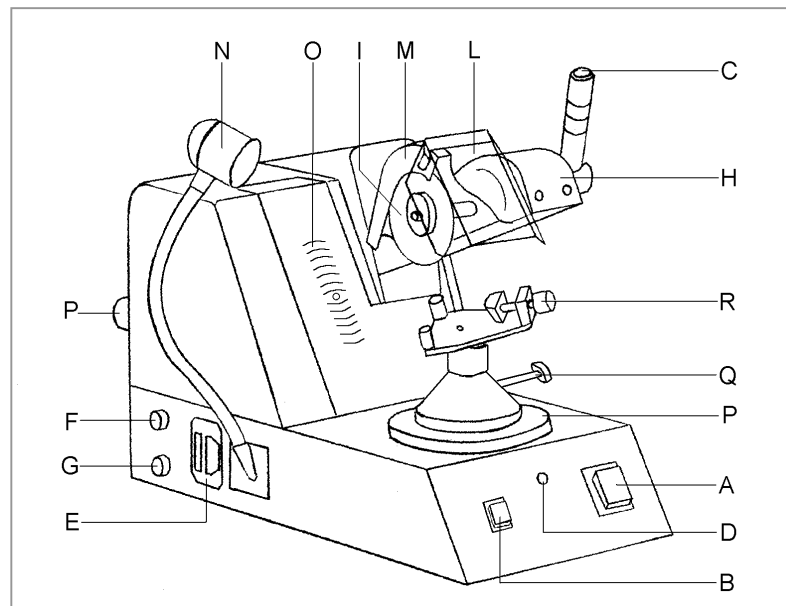


1.0 DESCRIPTION

The CUT saw is an electric appliance expressly studied to separate every single element of the plaster models prepared according to the "stump tooth separating technique" currently used in the dental field.

CUT is fully outfitted including all the accessories for a quick and smooth operation, it is versatile and powerful.

The unit is fitted with a gear motor connected to the transmission shaft by a belt and a cutting disc with diamond-coated blade.



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|--|----------------------------------|
| A Main switch | H Pivoting cutting arm |
| B 1° motor and electromagnet actuating push-button | I Disc with diamond coated blade |
| C 2° motor and electromagnet actuating push-button | L Protection screen |
| D Electromagnet on led indicator led | M Shield on disc |
| E Plug and fuse-holder unit | N Flexible lamp |
| F Suction installation fuse-holder | O Suction inlet |
| G Low tension installation fuse-hlder | P Suction pipe manifold |

Standard accessores supplied with:

- feeding cable with plug and socket (85)
- model-holder for Dowel-Pins technique (57-72)
- 4 mm set screw wrench (83)
- ø 3mm cylindric pin (82)
- plug to be fitted on the extractor cable for the automatic starting (84)

Accessories available upon request:

- model-holder for ACCU-TRAC technique
- model-holder for TRICODENT technique



ACCU-TRAC

TRICODENT

DOWEL-PINS

2.0 SAFETY PRECAUTIONS

Attention: when using electric appliances, in order to prevent electrocution, wounding and risk of fire, the following safety precautions must always be observed.

Keep your working place in order – disorder on the working place involves risks of accidents.

Environmental conditions – do not expose electric appliances to the rain. Do not use electric appliances in damp or wet places or close to inflammable liquids or gas.

Protection against electrocution – avoid any contemporary contact with parts fitted with ground connection, namely pipes, radiators, refrigerators.

Keep children away – do not let touch either the cable or the tool by third persons, keep them away from the operating site, above all children.

Preserve your tools safely – place the tool in a dry and safe place away from children.

Do not overload the tool – any machine will give the best performance and work safer if utilised within the label rating specification.

Choice of the tool – do not use weak tools or accessories requiring high power range. Do not use the tools for purposes and operations differing from those they have been studied for.

Working clothes – during work, always dress in a convenient manner, avoid loose-fitting or loose-sleeved clothes.

Wear safety goggles – always use protection goggles, if operations originating dust particles are carried out, use a mask, too.

Attention to the cable – do not lift or move the tool from the cable end and do not use it to remove the plug from the socket. Protect the cable from high temperatures, oils or sharp edges.

Fix in place the piece to be machined – make sure that the piece is well locked in place and tightened. Always work by grasping the tool with your both hands.

Avoid unsafe positions – take care to be in a safe position allowing to keep always a stable balance.

Take care of your tools – in order to assure a proper work, keep your tools well sharp and clean, follow the maintenance prescriptions illustrating the replacement operation of the tools. Check regularly the cable and in case of damages have it replaced by a skilled worker. Check periodically the extension cables and replace them if damaged; the handles and the controls must be dry and clean.

Replacement of the working tools – before any repair or replacement of tools (for instance blades, tips and any consumable tools), always remove the plug from the socket.

Do not let the service keys on the machine – before starting to use the tools, make sure that the service keys have been taken away.

Avoid any accidental starting – before plugging in, make sure that the main switch is in idle position.

Do not use the machine outdoor – the machine must be used indoor, in well lighted rooms.

Pay always utmost attention when working – during any working operation, never be distracted. Any carelessness may cause an accident. In case more persons are working together, we recommend to stay at a safety distance from the operator and the machine.

Check that the tool is not damaged – before using the machine check accurately the efficiency and the perfect running of the safety devices and of any parts eventually damaged. Check operation of the moving components, that they are not locked, that there are no damaged parts and that every component has been assembled in the correct way and that all the conditions which may affect the regular operation of the machine are ideal. Safety devices or damaged parts must be repaired or replaced by a proper after-sale servicing centre, if not otherwise specified in the instruction manual.

Attention – for your safety, use exclusively the tools and accessories illustrated in the instruction manual or offered in the product catalogue. The use of different accessories or tools which are not recommended in our instruction manual or products catalogue, may originate accidents.

Tool repair by skilled personnel, only – the electric appliance complies with Safety Regulations in force. The repair of electric tools must be carried out exclusively by appointed servicing centres.

3.0 INSTALLATION INSTRUCTIONS

This machine **MUST** be connected to a proper extraction system (rate of flow not lower than 15l/min and max rated output 800W).

Connect the extraction system to the manifold (P) and, in case it not already fitted, replace the plug with the one supplied with (84) which must be plugged in the socket (40) placed on the rear part of the base thus allowing for the automatic switching on as the machine is operated.

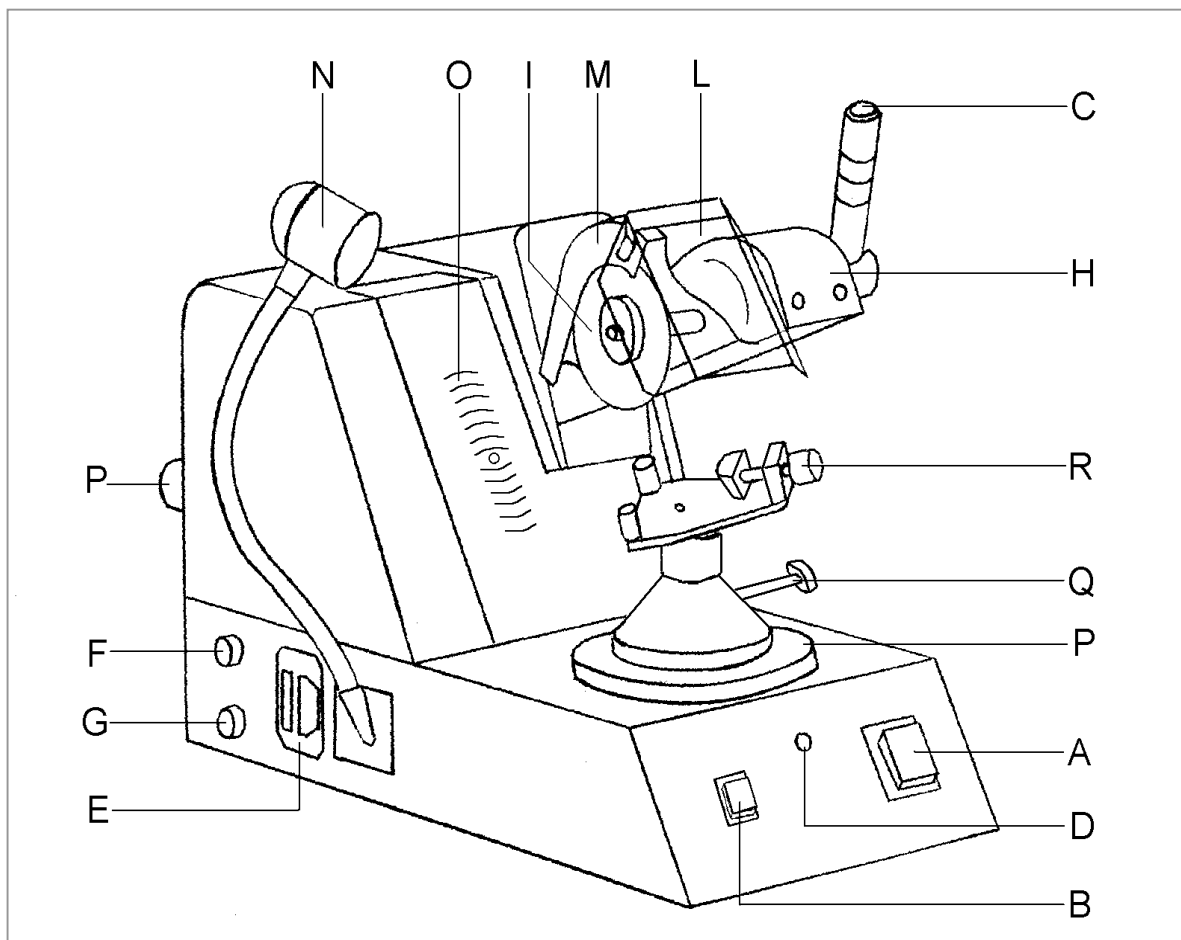
Before connecting the unit, make sure that the rated voltage on the data plate corresponds to the mains voltage and that it is duly provided with ground cable.

Connect the plug of the electric cable coming from the unit to the proper socket – this operation must be carried out with the main switch off.

Feeding of the machine has to be carried out following the instructions by DENTALFARM who is in no way responsible for the connection. The feeding cable supplied is against flashback suitable to the highest absorbed power (stated in the technical specifications).

The supplied cable is 2 meters in length, in case any extension is required, be sure that:

- the section of the cable fits to its length – its section must match at least with its length corresponding to the section of the connecting cable
- the position of the cable is not likely to cause any damage
- the connection point to the electric power source must assure the presence of all the necessary protections according to the regulations in force.



4.0 INSTRUCTIONS FOR USE

The operator must stand in front of the unit in order to be allowed to operate both the arm knob (C) with one hand and the safety mechanism (B) placed on the front part of the unit with the other hand.

Concerning the use, we recommend to carry out the following operations in the suggested sequence:

- 1) Tighten the knob (R) to fix the model well stiffed to the model-holder
- 2) Arrange the plate horizontally according to the shape of the model, loosen and then tighten the knob (Q)
- 3) Place the model-holder on the magnetic plate (P)
- 4) Switch on the main switch (A)
- 5) Adjust position of the lamp (N) in order to focus the light in the ideal direction
- 6) Turn the model-holder so as the disc is allowed to cut perpendicularly in the desired place, eventually in idle mode, lower the arm until it reaches the model
- 7) If necessary, modify the inclination of the plate by means of the lever (Q)
- 8) press one only operating key (B or C), thus starting up the electromagnet with the option to check if the cutting position is correct
- 9) press simultaneously the two operating keys (B and C), the electromagnet with the motor and the extractor will start up
- 10) Gently lower the arm and let the blade penetrate into the model as per your wishes
- 11) When the cutting operation has finished, move the arm upwards and release the keys.

Important:	before starting the curring, check always that all the safety protections are in.
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Important:	Whatever the extraction system may be, wear always goggles and protective mask
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Attention:	never start the motor with the disc leant onto the model, when it starts rotating, the disc must be free
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Important:	do not press in excess the blade on the model, limit the cutting feed in order to avoid useless efforts. Thickness of the disc has been reduced to facilitate the technique, try therefore to avoid any possible damage and crushings.
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Important:	Cut always and only well dried and hardened plaster models thus avoiding to gum the sharp diamond-coated surface
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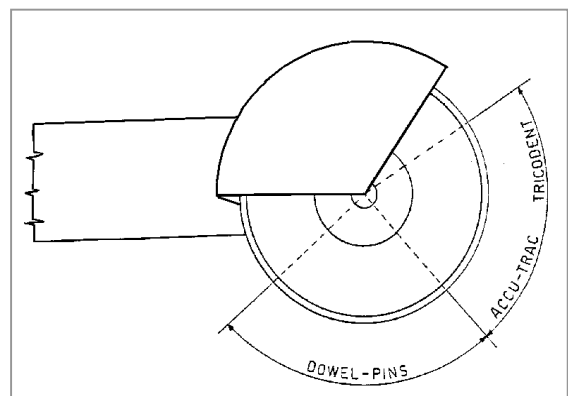
Attention:	always make sure that the base of the support perfectly lays on the magnetic plan thus avoiding any risk of overturning during the cutting effort
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Attention:	check accurately that the disc, during the downstroke, can not hit any metallic part of the model-holder
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The electric saw CUT allows to carry out the model stump separating technique according to the different procedures: DOWEL-PINS, ACCU-TRAC and TRICODENT.

In relation to the technique in use, different section of the blade must be used (see illustration) since, in some cases, it will be necessary to penetrate through the thickness of plaster.

Techniques differing to DOWEL-PINS will require the installation of the suitable model-holder.



4.1 DOWEL-PIN Technique

This technique can be carried out with the model-holder supplied with the unit.

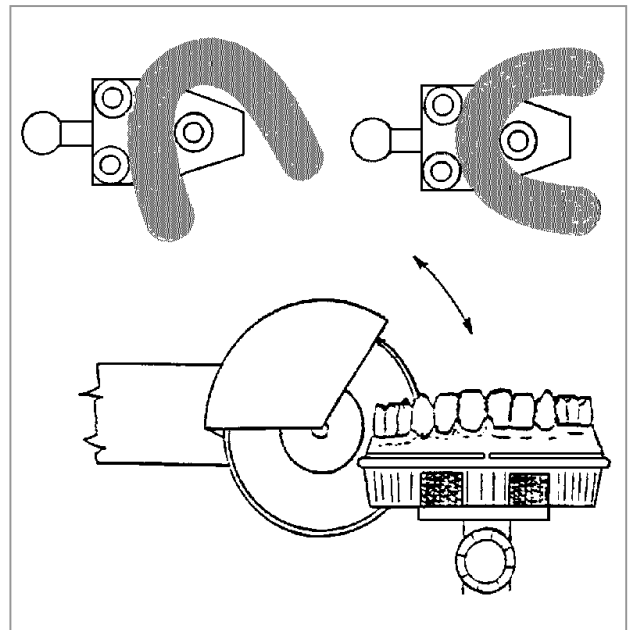
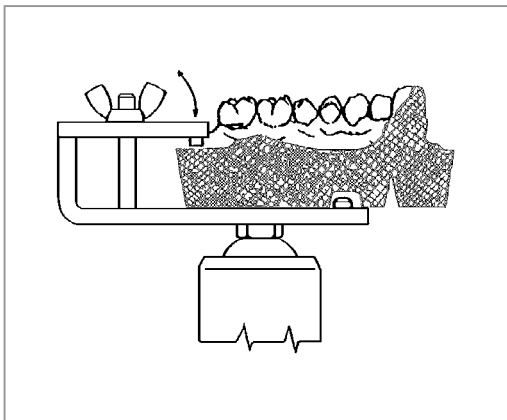
This specific model provides for the pins to be well inserted in the impression so as to be as vertical as possible. (the use of the laser drilling unit ED-Laser is highly recommend). Be careful not to make cuttings which may interfere with the pin itself or part of it which may cause the disc to wear out quickly or even result in some crackings; should this event occur, replace the disc immediately.

The correct position of the model is right under the cutting tool.

4.2 ACCU-TRAC Technique

The ACCU-TRAC model-holder is optional and can be supplied upon request.

This specific type of model must be positioned on its support allowing the gear teeth, which assures the mesh, to enter the knurling on the lower part of the model. Always make sure that the three gears are under constant engagement with this system. The section of the disc involved for this technique is the part in front of the cutting disc, which allows to avail of a higher depth.



4.3 TRICODENT Technique

The TRICODENT model-holder is available upon request.

It consists of a sort of clamp locking the model on the inside thus requiring to cast the plaster thoroughly. For this model, too the section of the disc involved is the one in front of the cutting disc.

4.4 Suggested cutting time for a correct feed of the tool

According to the height and the section of the model, the working time to carry out a cutting on a model casted with the DOWEL-PINS system may vary from a minimum of 4 seconds approximately up to over 10 seconds. For ACCU-TRAC and TRICODENT models working times are longer, since the section of the model includes the base, too; as a consequence, the cutting time, too will increase starting from a minimum of 10 seconds up to 18-20 seconds.

For this reason, it is important to use a rather slow feed allowing to get rid of the removed plaster, thus resulting in a more accurate and straighter cut.

5.0 INSTRUCTIONS FOR THE ORDINARY MAINTENANCE

All maintenance operations must be carried out with idle, unplugged unit, disconnected from the mains.

5.1 Feeding cable

Check regularly the conditions of the power cable; if damaged, only skilled personnel will have to replace it.

5.2 Electromagnetic plate

Always keep the electromagnetic plan (18) well cleaned; if necessari, rubricate with oil to increase sliding and prevent it from oxidizing.

5.3 Lubrication

The machine is equipped with waterproof bearings, which do not require any lubrication of the moving parts.

5.4 Cleaning of the suction pipeline

After a long working period, it may be necessary to remove the plaster deposits inside the suction pipes which could narrow the pipe section thus compromising the correct operation of the suction system. To carry out this operation, it is necessary to disassemble the stainless steel panel (17) conveying the dust particles; to this purpose, first of all remove the screws fixing it to the machine.

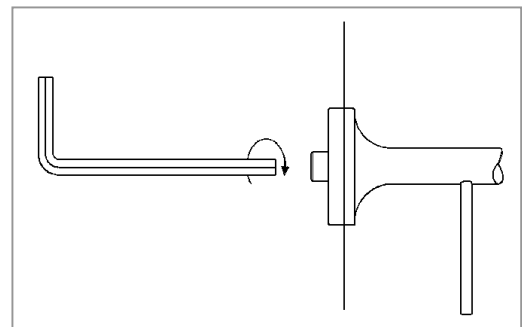
5.5 Disc replacement

The disc (26) will have to be replaced everytime it does not allow to work under the highest safety conditions. Replace it without delay if it is bent or if one or more sections are missing or are bent due to steady impact. Wear out conditions of the disc are not so easy to be identified through a visual check only, anyway its wear and tear can be detected in consideration of the operator's effort to perform the machining. In fact, a worn out disc will loose almost completely its abrasive power.

Attention:	do not fit disc made of high-speed steel (HSS), since they are not suited for these operations and tend to chip and break into pieces all at once.
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Attention:	before replacing the disc, switch off the unit and unplug it.
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Insert the 4 mm hexagon wrench (83) in the seat of the reverse pitch screw locking the disc, then insert the pin (82) in the hole drilled on the shaft so as to block it. Unscrew in clockwise direction until the disc is set free, fit in a new disc and follow the above illustrated operation in reverse sequence. The disc does not have a peculiar direction of rotation, it can be idifferently assembled in both directions.



5.6 Replacement of the lighting lamp

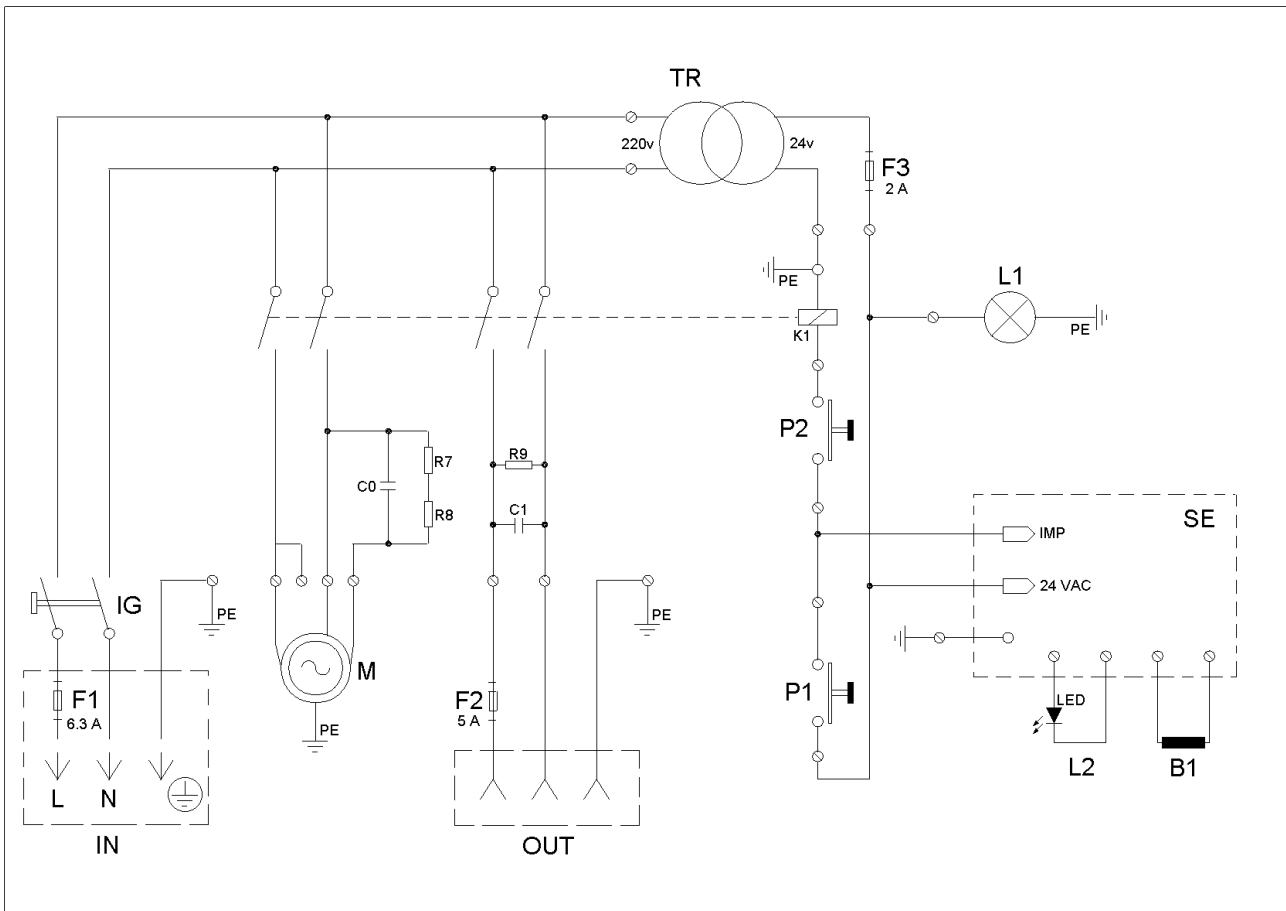
Should be necessari to replace the lamp, be careful to use a lamp embodying the same features. Before replacing the lamp, make sure that it has cooled.

6.0 POSSIBLE INCONVENIENCES

All the following operations must be carried out with the unplugged unit.
Do not carry out any maintenance, setting or repair operations not expressly mentioned in this user's manual; should it be necessary, please contact our after-sale technical service.

INCONVENIENCE	POSSIBLE CAUSE	REMEDY
The unit does not start up	No power to the unit	Check that the connection cable between the unit and the mains is well inserted in the socket. Check the fuse (contact skilled personnel)
The lamp does not switch on	The filament has broken ----- Check the fuse	Remove it from the lamp-holder and check if it is safe ----- Replace the fuse (contact skilled personnel)
The extractor is working but there is no suction of the dust particles developed during the cutting operation	Filter of the extraction unit is clogged ----- The connection pipe between the dust conveyor and the extractor may be obstructed by plaster deposits	Clean the filter ----- Evaluate the situation and proceed accordingly (contact skilled personnel)
The plaster of the model tend to clog and to slow down the disc	Moisture inside the model is too high	Check the drying process of the model
Durino working, the disc tend to vibrate or to produce chips or in any case it does not operate in the correct way	The disc is damaged ----- The disc has not been assembled in the correct way with foreign particles inbetween the disc itself and the fastening plans ----- The disc is worn out	Check if the disk had a shock; also check if any part is folded. In any of above cases, replace the disk (see maintenance chapter) ----- disassemble and clean the surfaces (see maintenance chapter) ----- Replace the disk (see maintenance chapter)

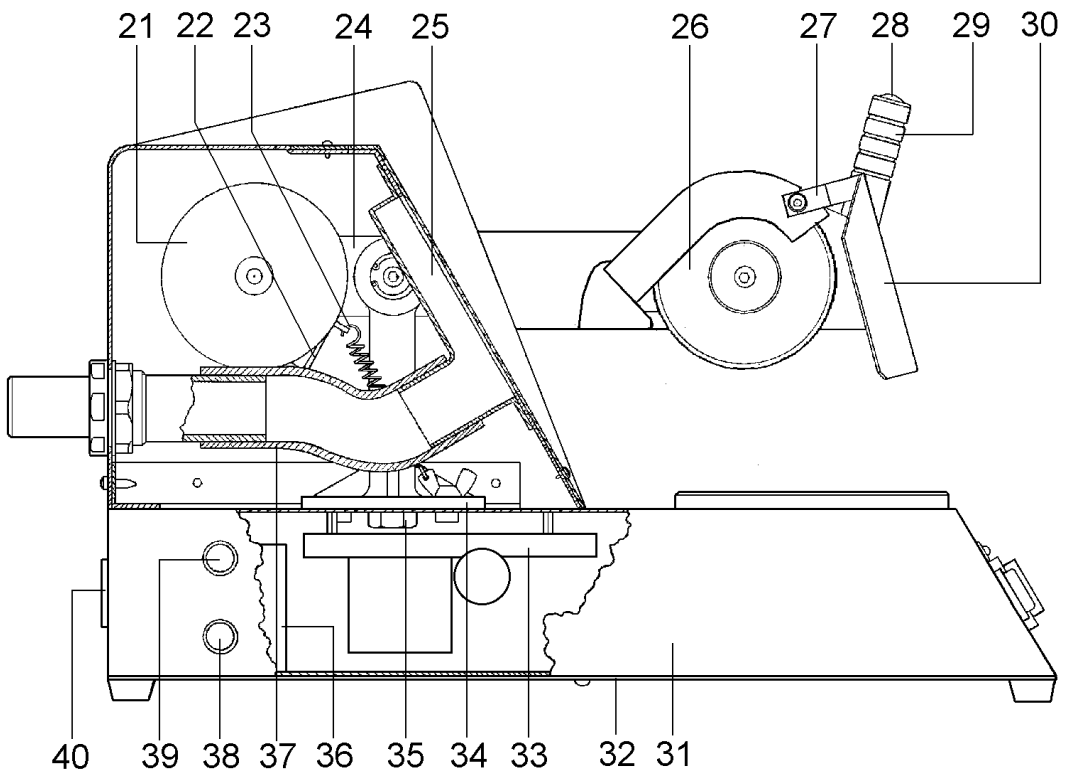
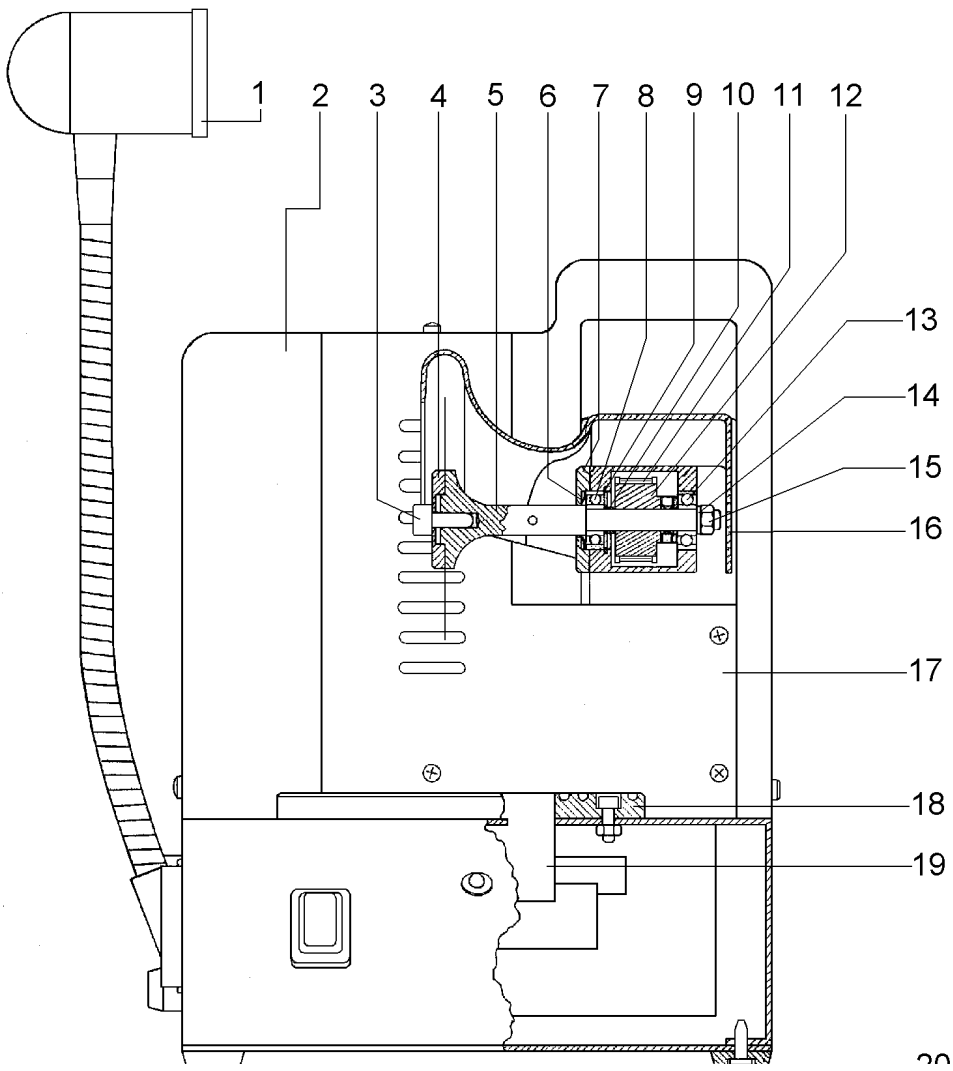
7.0 WIRING DIAGRAM



REF.	DESCRIPTION
IN	Plug – fuseholder unit
IG	Main switch
P1	Push button on arm handle
P2	Push-button on base
F1	6.3° Network fuse
F2	Fuse on 5° suction system
F3	Fuse on 2° low voltage circuit
TR	Transformer
SE	Electromagnet feeling board
B1	Electromagnet coil
L2	LED stating the electromagnet is on
M	Motor
OUT	Suction feeling socket
L1	Lighting lamp

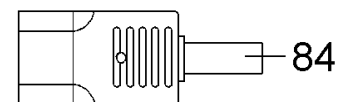
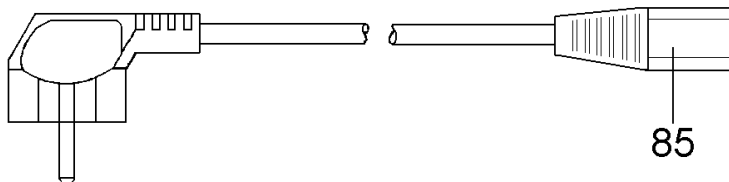
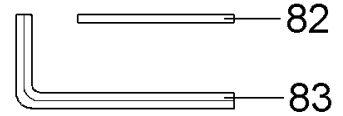
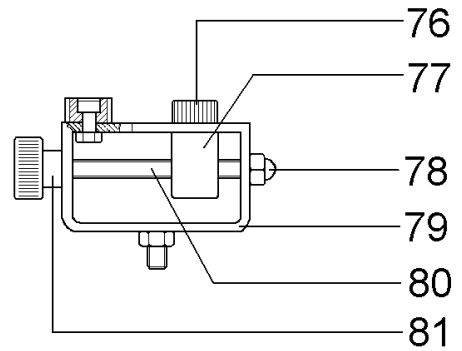
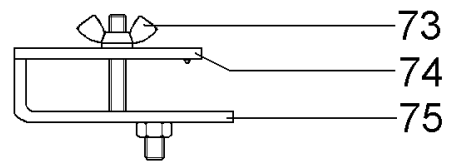
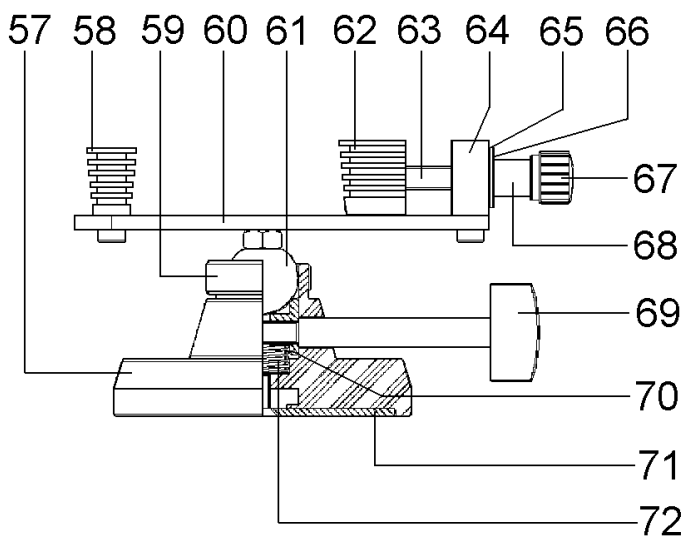
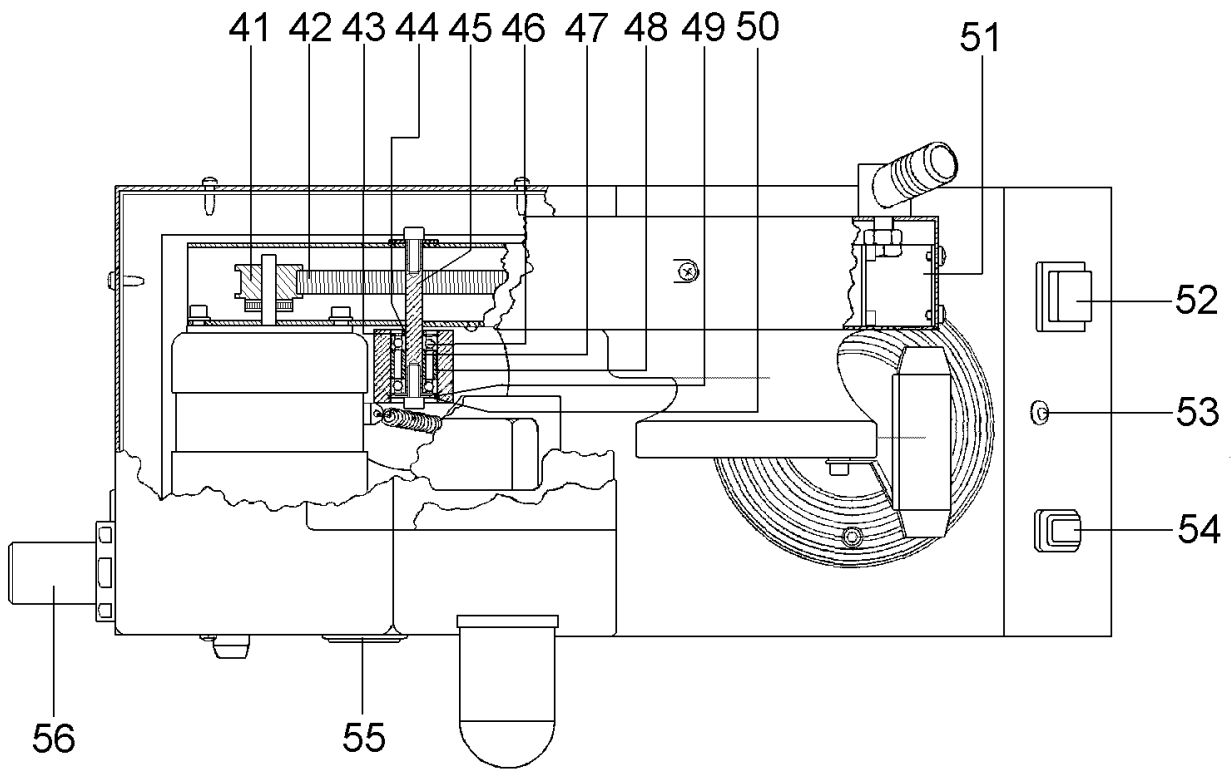
80 EXPLODED DRAWING AND SPARE-PART LIST – table 1 and 2

REF	CODE	DESCRIPTION
1	5601121	Lamp
2	5601014	Plastic upper lid
3	-	Disc fixing screw
4	5601021	Disc locking flange
5	5601022	Disc support shaft
6	5601119	Preloading spring
7	5601023	Bearing locking flange
8	5601117	Bearing 607 2RS NMB
9	5601120	Seeger ring
10	5601024	Spacer
11	5601105	Toothed belt
12	5601025	Driven pulley
13	5601117	Bearing 607 2RS NMB
14	-	Thrust washer
15	-	Self-locking nut M5
16	5601016	Blade covering plastic shell
17	5601011	Stainless steel panel
18	5601019	Steel working plan
19	5601107	Electromagnet
20	5601122	Rubber feet
21	5601106	Motor
22	5601026	Spring locking device
23	5601027	Extension spring
24	5601015	Floating arm
25	5601028	Dust collector
26	5601005	Segment diamond-coated disc
-	5601004	Sleek diamond-coated disc
27	5601017	Screen support
28	5601102	Push-button on handle
29	5601103	Handle
30	5601018	Lexan protection screen
31	5601012	Base
32	5601013	Lower closing plate
33	5601108	Feeding and control board
34	5601029	Arm support
35	5601116	Cable-clamp
36	5601109	Transformer
37	5601115	Pipe for suction inlet
38	5601112	Low tension fuse-holder
39	5601113	Fuse-holder for extraction installation
40	5601111	Extractor connecting socket



9.0 DRAWING AND SPARE-PART LIST – TABLE 3 AND 4

RE.	CODE	DESCRIPTION
41	5601030	Driving pulley
42	5601105	Toothed belt
43	5601120	Seeger ring
44	5601024	Spacer
45	5601032	Fulcrum pin
46	5601118	607 2RS CN ball-bearing
47	5601033	Inside spacer
48	5601034	Outer spacer
49	5601119	Preload spring
50	5601120	Seeger ring
51	5601020	Closing plate
52	5601100	Protected green bipolar lighting switch
53	5601104	Warning light
54	5601101	Protected black bipolar switch
55	5601110	Plug and fuse-holder unit
56	5601114	Manifold for suction pipe
57	3002014M	Model-holder support
58	3501027	Rod on model-holder plate
59	3002019	Adjusting ring nut
60	3002015M	Model-holder plate
61	3002018	Articulation ball
62	3501021	Model lockinbg pin
63	3501023	Set-screw
64	3501024N	Screw support
65	NVT046	Shimming ring
66	NVT039	Seeger ring
67	3501042	Model-holder knob
68	3501022	Screw guide
69	RP507	Articulation locking rod
70	3002016	Tightening clamp
71	3002014P	Metallic plate for magnet
72	3002017	Model-holder spring
-	5601001	Model-holder complete
73	-	Female handwheel
74	5601040	Tricodent model-holder body
75	5601041	Pressure plate
-	5601002	Model-holder plate complete for Tricodent technique
76	5601123	Nylon gear
77	5601042	Cursor
78	-	M6 cap nut
79	5601043	Accu-trac model-holder body
80	5601044	Threaded bar
81	5601045	Knob
-	5601003	Model-holder plate complete for Accu-trac technique
82	5601124	∅ 3mm cylindric pin
83	5601125	4mm set screw wrench
84	5601126	Plug for extractor feeding
85	NEV013	Electric cable with plug and socket



10.0 TECHNICAL SPECIFICATIONS

Description	Unit	Value
Gear motor		Gear system
Engine revolution per minute	RPM	2800
Absorbed power	watt	100
Absorbed current	ampère	0.65
Overall dimensions	mm	230x500x360
Weight	kg	9.3
Disc Diameter	mm	80x0.25

11.0 TECHNICAL REFERENCE REGULATIONS AND TEST PROCEDURES

The **CUT electric stump tooth separator** is mass-manufactured by DENTALFARM in compliance with technical and safety rules in force, as provided for by the 2006/42 EEC Community Directive on machinery.

Careful inspection and full routine testing is carried out singularly on each machine which is further tested by an automatic test installation assuring compliance with the fixed limits.

12.0 DEMOLITION AND WASTE DISPOSAL

According to International regulations, this unit has been classified as AEE (electric and electronic device, whose correct operation depends on electric currents and electromagnetic fields) and as a consequence, at the end of its lifetime, it can not be treated as normal waste material but it must be disposed separately, complying with the Directive 2002/96/CE.



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