PTA07
Powder Spray
Customer Product Manual Part
Issued 12/10

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Section 1
Safety

Introduction
Read and follow these safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.
Make sure all equipment documentation, including these instructions, is accessible to all persons operating or servicing equipment.

Qualified Personnel
Equipment owners are responsible for making sure that Promaks equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

Intended Use
Use of Promaks equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.
Some examples of unintended use of equipment include
_ using incompatible materials
_ making unauthorized modifications
_ removing or bypassing safety guards or interlocks
_ using incompatible or damaged parts
_ using unapproved auxiliary equipment
_ operating equipment in excess of maximum ratings

Personal Safety
To prevent injury follow these instructions.
_ Do not operate or service equipment unless you are qualified.
_ Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
_ Keep clear of moving equipment. Before adjusting or servicing any moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
_ Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
_ Obtain and read Material Safety Data Sheets (MSDS) for all materials used. Follow the manufacturer.s instructions for safe handling and use of materials, and use recommended personal protection devices.
_ To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

Fire Safety

To avoid a fire or explosion, follow these instructions.

_ Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.

_ Provide adequate ventilation to prevent dangerous concentrations of volatile materials or vapors. Refer to local codes or your material MSDS for guidance.

_ Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.

_ Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.

_ Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.

_ Use only replacement parts that are designed for use with original equipment. Contact your Promaks representative for parts information and advice.

Grounding

WARNING: Operating faulty electrostatic equipment is hazardous and can cause electrocution, fire, or explosion. Make resistance checks part of your periodic maintenance program. If you receive even a slight electrical shock or notice static sparking or arcing, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.

All electrically conductive objects in the spray areas shall be electrically connected to ground with a resistance of not more than 1 megohm as measured with an instrument that applies at least 500 volts to the circuit being evaluated.

_ Equipment to be grounded includes, but is not limited to, the floor of the spray area, operator platforms, hoppers, photoeye supports, and blow-off nozzles. Personnel working in the spray area must be grounded.

_ There is a possible ignition potential from the charged human body. Personnel standing on a painted surface, such as an operator platform, or wearing non-conductive shoes, are not grounded. Personnel must wear shoes with conductive soles or use a ground strap to maintain a connection to ground when working with or around electrostatic equipment.

_ Operators must maintain skin-to-handle contact between their hand and the gun handle to prevent shocks while operating manual electrostatic spray guns. If gloves must be worn, cut away the palm or fingers, wear electrically conductive gloves, or wear a grounding strap connected to the gun handle or other true earth ground.

_ Shut off electrostatic power supplies and ground gun electrodes before making adjustments or cleaning powder spray guns.

_ Connect all disconnected equipment, ground cables, and wires after servicing equipment.

Action in the Event of a Malfunction

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

_ Disconnect and lock out electrical power. Close pneumatic shutoff valves and relieve pressures.

_ Identify the reason for the malfunction and correct it before restarting the equipment.

Disposal

Dispose of equipment and materials used in operation and servicing according to local codes.

Safety Labels

Table 1-1 contains the text of the safety label on this equipment. The safety label is provided to help you operate and maintain your equipment safely.

Table 1-1 Safety Label Shipped With Powder Spray Guns

WARNING: The following procedures MUST be followed when working with this electrostatic spray equipment. Failure to follow these instructions may result in a fire and/or serious personal injury. Display this warning on the spray booth.

1. NO SMOKING. Keep open flames, hot surfaces, and sparks from torches or grinding away from booth.
2. Turn the electrostatic power unit off when the spray gun is not in use.
3. Shut down immediately in event of fire.
4. Maintain ground circuit on all conductive objects below 1 meg ohm to prevent sparking.
5. Shut down operation and correct grounds if sparking occurs.
6. Install fixed fire suppression system before operating with combustible powder.
7. Install automatic flame detectors before operating automatic guns.
8. Examine all equipment at the beginning of each work period and repair or replace any damaged, loose, or missing parts.
9. Before cleaning or performing any maintenance on the electrostatic spray gun, turn off the power unit and ground the nozzle. Maintain electrostatic spray equipment in accordance with instruction manual. Do not deviate. Do not substitute parts from other manufacturers.
10. Operator must be grounded to prevent shocks from static electricity. Floor surface must be conductive. Footwear and gloves must be static Dissipative.
11. Air velocity through all booth openings must meet local requirements and contain powder within the booth. If powder escapes from the booth, shut down operation and correct the malfunction.
12. Powder may be toxic or be a nuisance dust hazard. Refer to supplier.s MSDS. If exposed to dust during operation, maintenance, or clean up, operators must use appropriate personal protective equipment.
13. Do not use compressed air or organic solvents for removal of powder from skin or clothing. Do use soap and water. Wash hands before eating or smoking.
14. Guns, feeders, booths, etc., may be cleaned with clean dry air at 1.7 bar (25 psig). If you have any questions concerning this electrostatic spray equipment, call +90 216 362 10 34, and ask to speak with the Powder Systems Group Technical Service Department.

Section 2
Description

The Promaks Tribo PTAG07 automatic powder spray gun uses friction (the tribo effect) to electrostatically charge powder coating particles as they are forced through the spray gun by compressed air. The spray gun is used with a PTAU07 controller and powder pump.
The gun mount is used with a 5/8-in. diameter mounting bar to mount the spray gun to a reciprocator or oscillator, or to a fixed gun stand. An optional gun holder adapter allows existing PTAG07 gun holders to be used with gun mounting bars.
The spray gun uses the same wide variety of optional nozzles and sprayheads available for use with the original PTAG07 automatic spray gun

WARNING: Make sure the spray gun is grounded before spraying powder or cleaning the spray gun with compressed air. Without a ground connection the spray gun will become electrostatically charged. Personnel touching the spray gun could receive a shock.
Flow rate air pumps powder out of the feed hopper and forces it through the feed hose to the diffuser. Diffuser air mixes with the powder and increases its speed. The powder and air mixture then passes between the inner and outer wear sleeves inside the charge module. The collision of the powder particles with the walls of the sleeves electrostatically charges both the powder particles and the sleeves.
The sleeves are grounded through the spray gun body, ground wire, and control unit. The charge picked up by the sleeves is displayed in microamperes at the control unit. The display indicates how well the powder is charging (the higher the number, the stronger the charge the powder is receiving). The strength of the charge the powder receives will vary depending on many factors, including the powder type and its speed through the spray gun.

Section 3

Operation and Maintenance

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

WARNING: All electrically conductive equipment in the spray area must be grounded. Ungrounded or poorly grounded equipment can store an electrostatic charge which can give personnel a severe shock or arc and cause a fire or explosion.

WARNING: Make sure the spray gun is grounded before spraying powder or cleaning the spray gun with compressed air. Without a ground connection the spray gun will become electrostatically charged. Personnel touching the spray gun could receive a shock.

Operation

Each automatic spray gun is controlled by one gun control unit which houses electrical controls, a bar led display, and regulators and gauges for flow rate and diffuser air. Refer to the control unit manual for operation instructions.

Powder volume, velocity, and atomization are controlled by the flow rate and diffuser air pressure settings. As a starting point, set air pressures to:

Flow rate (ejector) air pressure 1.8 bar (26 psi)

Diffuser (atomizing) air pressure 2.5 bar (36 psi)

Keep the flow rate air pressure as low as possible. Maintain the same ratio of diffuser air-to-flow rate air without reducing the charging level. Reduce the diffuser air pressure if powder is being blown out of recesses. Build coating thicknesses slowly. Reduce air pressures to keep overspray to a minimum.

Experiment with the part hanger configuration and part density. Reduce the space between parts to keep overspray to a minimum. Keep the air velocity through the booth as close to the minimum required by law as practical without violating safety.

Operation and Maintenance

Operation

Use different sprayheads for different part shapes. Select the appropriate nozzle for the parts being coated.

_ Pinpoint nozzles for penetration

_ Eight-orifice nozzles for flat surfaces

_ Cylindrical nozzles for general purpose coating

Angle the nozzles to meet and follow the parts as they move through the booth. Typical nozzle-to-part distance is 32,5 cm. Coat the inside surfaces and recessed areas first, then coat the outside surfaces and open areas.

Daily Maintenance

WARNING: Make sure the spray gun is grounded before spraying powder or cleaning the spray gun with compressed air. Without a ground connection the spray gun will become electrostatically charged. Personnel touching the spray gun could receive a shock.

1. Remove the powder feed hose from the pump and the air tubing from the pump and diffuser. Use air gun to clean the hose, diffuser, and charge module with compressed air.

NOTE: Never blow powder through the feed hose back into the pump. Turn on the booth exhaust fan, disconnect the hose from the pump, and blow out the hose from the pump end into the booth.

2. Remove the diffuser from the gun body. Disassemble the diffuser and clean the parts with compressed air and a clean, soft cloth. Check the powder contact parts for wear and replace worn parts.

3. Blow out the charge module and sprayheads. Disassemble and clean the charge module. Check the powder contact parts for wear and replace worn parts.

NOTE: Never use a knife or other sharp object to clean plastic parts. Powder will build up on scratches on the powder contact surfaces. The powder particles can fuse on impact and clog the spray gun.

WARNING: All electrically conductive equipment in the spray area must be grounded. Ungrounded or poorly grounded equipment can store an electrostatic charge which can give personnel a severe shock or arc and cause a fire or explosion.

4. Make sure all conductive equipment in the spray area, including the spray guns, are connected to a true earth ground. The resistance from part to ground, through the hangers and conveyor, must not exceed one megohm. For best results, the resistance should be less than 500 &.

Section 4

Troubleshooting

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

This section contains troubleshooting procedures. These procedures cover only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your local Promaks representative for help.

Problem	Possible Cause	Corrective Action
1. Powder does not flow when control unit turned on	No supply air or pressure set too low	Make sure the control unit is getting air. Check the supply air pressure.
	Blockage in system	Shut down and clean the system starting with the pump. Check the air dryer for proper operation. Drain the air filters and inspect the filter elements. Make sure the powder supply in the feed hopper is dry.
	Control unit malfunction. Solenoid valve is not opening	Repair or replace the control unit.
	Flow rate (ejector) air pressure too low	Increase the flow rate air pressure.
2. Powder puffing from spray gun	Blockage in system	Shut down the system. Clean the system starting with the pump.
	Pump venturi throat worn out	Change the venturi throat.
	Diffuser (atomizing) air pressure too high or incorrect ratio of diffuser to flow rate air pressure	Decrease the diffuser air pressure or increase the flow rate air pressure.
	Powder feed hose ID too large or hose too short	Change to a smaller ID hose or change the hose length. Best results are obtained when a hose is 4–6 m (13–20 ft) long.

Problem	Possible Cause	Corrective Action
3. Poor powder charging—no electrostatic wrap or adhesion	Flow rate air pressure too high or diffuser air pressure too low	Decrease the flow rate air pressure or increase the diffuser air pressure.
	Parts not properly grounded	Check the conveyor and hangers with a standard ohmmeter for coating buildup that could affect the ground. Resistance between the parts and the ground must not exceed one megohm. For best results, resistance should not exceed 500 ohms.
	Too much moisture in compressed air supply	Check the air dryer for proper operation. Use a refrigerated or regenerative desiccant air dryer that can produce a 3.4 °C (38 °F) or lower dew point at 7 bar (100 psi). Drain the air filter and check the filter element.
	Inner and outer wear sleeves worn	Disassemble the spray gun. Reverse the inner and outer wear sleeves (turn end-for-end). Replace the sleeves if necessary.
	Too many fine particles in powder supply	Replace the powder supply with virgin powder. Consult with the powder manufacturer.
	Powder not suitable for tribo-charging	Consult with the powder manufacturer.
4. Inadequate powder flow	Flow rate air pressure too low	Increase the flow rate air pressure.
	Wet powder clogging system	Check the air filters, dryer, and powder supply. Service the filters and/or the dryer and change the powder supply.

Section 5
Repair

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

Introduction *(contd)*

See Figure 6-2. The cutaway drawing below shows how the parts of the charge module fit together. Refer to this drawing when assembling the charge module.

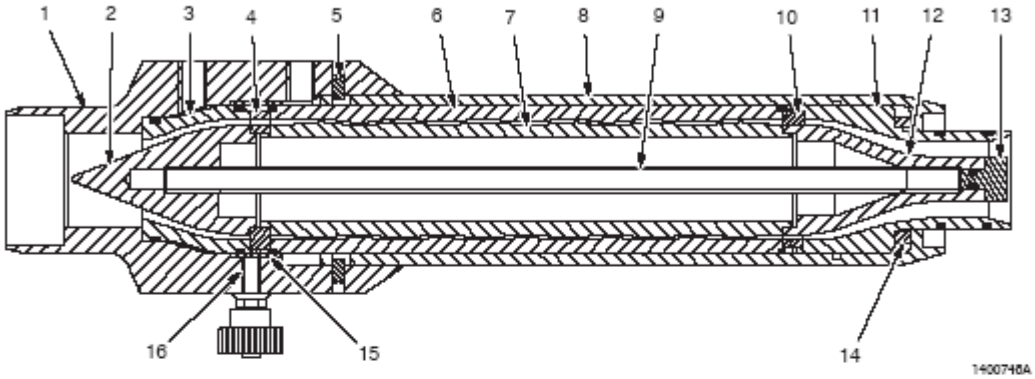


Figure 6-2 Charge Module

1. Body
2. Inlet distributor [1]
3. Inlet wear sleeve [1]
4. Positioning ring [1, 2]
5. Body pins
6. Outer wear sleeve [1, 2]
7. Inner wear sleeve [1, 2]
8. Extension
9. Threaded rod [1]
10. Spacing ring [1, 2]
11. Outlet wear sleeve [1]
12. Outlet distributor [1]
13. Outlet distributor plug [1]
14. Spring [1]
15. Grounding ring
16. Ground stud

Note: 1–provided with charge module service kit.
Note: 2–provided with wear sleeve service kit.

Cleaning

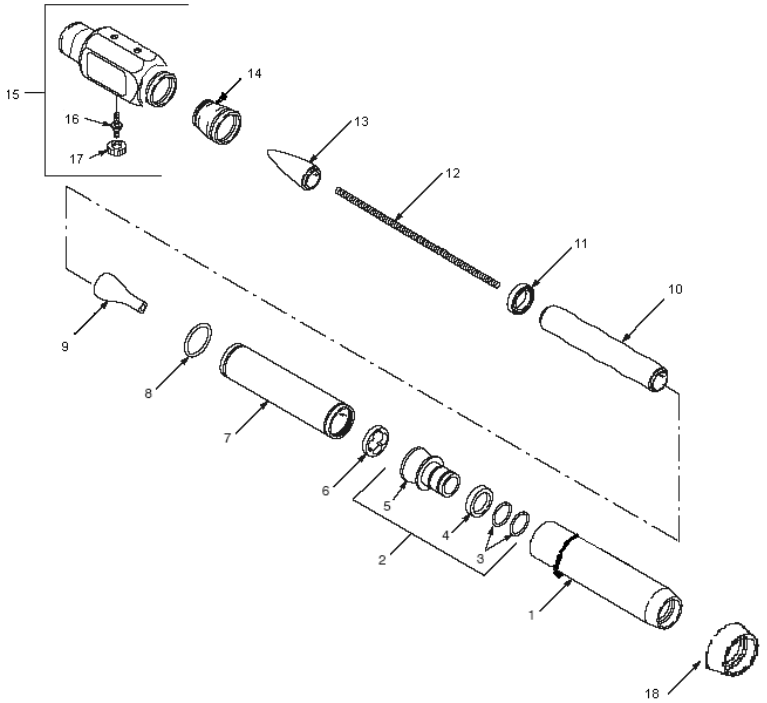
Before disassembling the spray gun to install one of the service kits perform the following steps.

1. Shut off the flow rate and diffuser air.
2. Disconnect the powder feed hose from the pump and the diffuser air tubing from the diffuser.
3. Leave the ground wire attached to the spray gun. Make sure the booth exhaust fan is running.
4. Blow out the feed tubing, diffuser, and charge module.
5. Pull the diffuser from the gun body and blow out the charge module again.
6. Remove the sprayhead.

Section 6

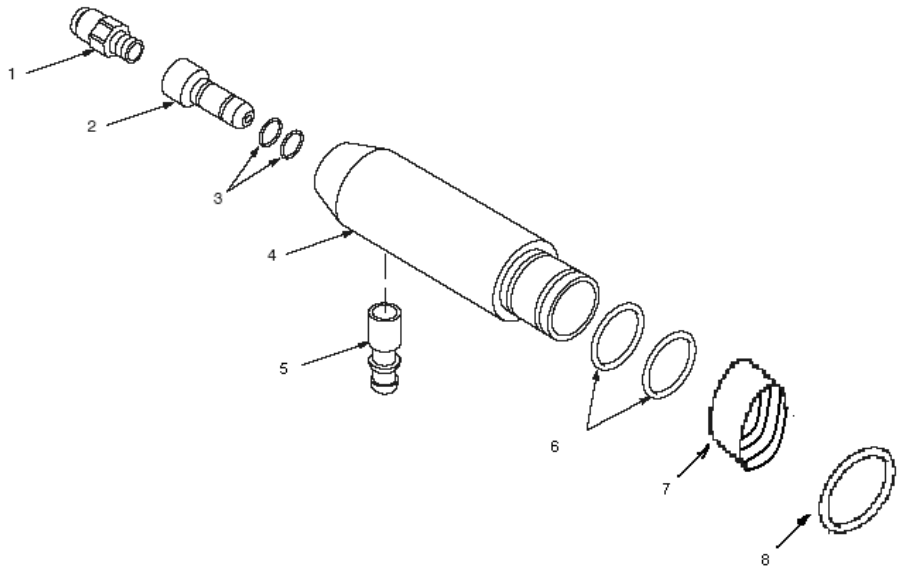
Parts

PTAG07 Automatic Gun



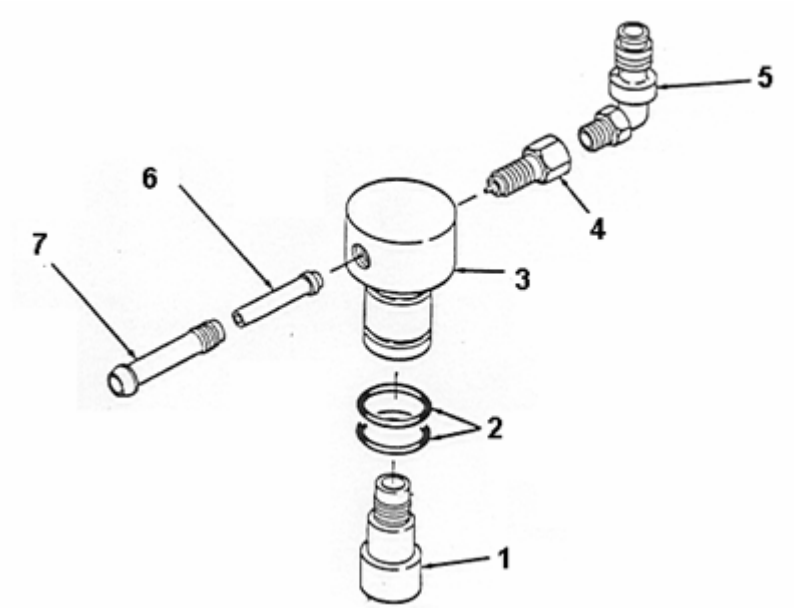
Item	Part	Description
1	PT631225	EXTENSION Body
2	PT631221	SLEEVE, wear,outlet, assembly, teflon
3	PT940224	O-RING, silicone, 1.000*1.125*0.0063 in
4	PT361222	SPRING, silicone, 1.25*1.50 in
5	**********	SLEEVE,wear,outlet , teflon
6	PT631220	RING, spacing
7	PT631212	SLEEVE, wear,outlet, teflon
8	PT940284	O-RING, silicone, 1.375*1.500*0.0063 in
9	PT631224	DISTRIBUTOR, outlet, teflon
10	PT631216	SLEEVE, wear, inner, teflon
11	PT631210	RING, positioning
12	PT631211	STUD, M8*9.65 long
13	PT631234	DISTRIBUTOR, inlet, teflon
14	PT631232	SLEEVE, wear, inlet, assembly, teflon
15	PT631228	BODY, autogun, assembly
16	PT630088	STUD, ground,with nut
17	PT630073	KNOB, M5 X 08
18	PT631229	EXTENSION Knob

DIFFUSER



Item	Part	Description
	PT631271	DIFFUSER
1	PT630035	CONNECTOR,MALE,1/8-in NPTF x1/4-in tube
2	PT635007	NOZZLE,diffuser
3	PT940117	O-RING, silicone,0.312*0.438*0.063 in
4	PT635008	HOUSING, diffuser
5	PT631275	CLAMP,hose,0.781-0.875 in
6	PT940224	O-RING, silicone,1.00*1.125*0.063 in

INJECTOR



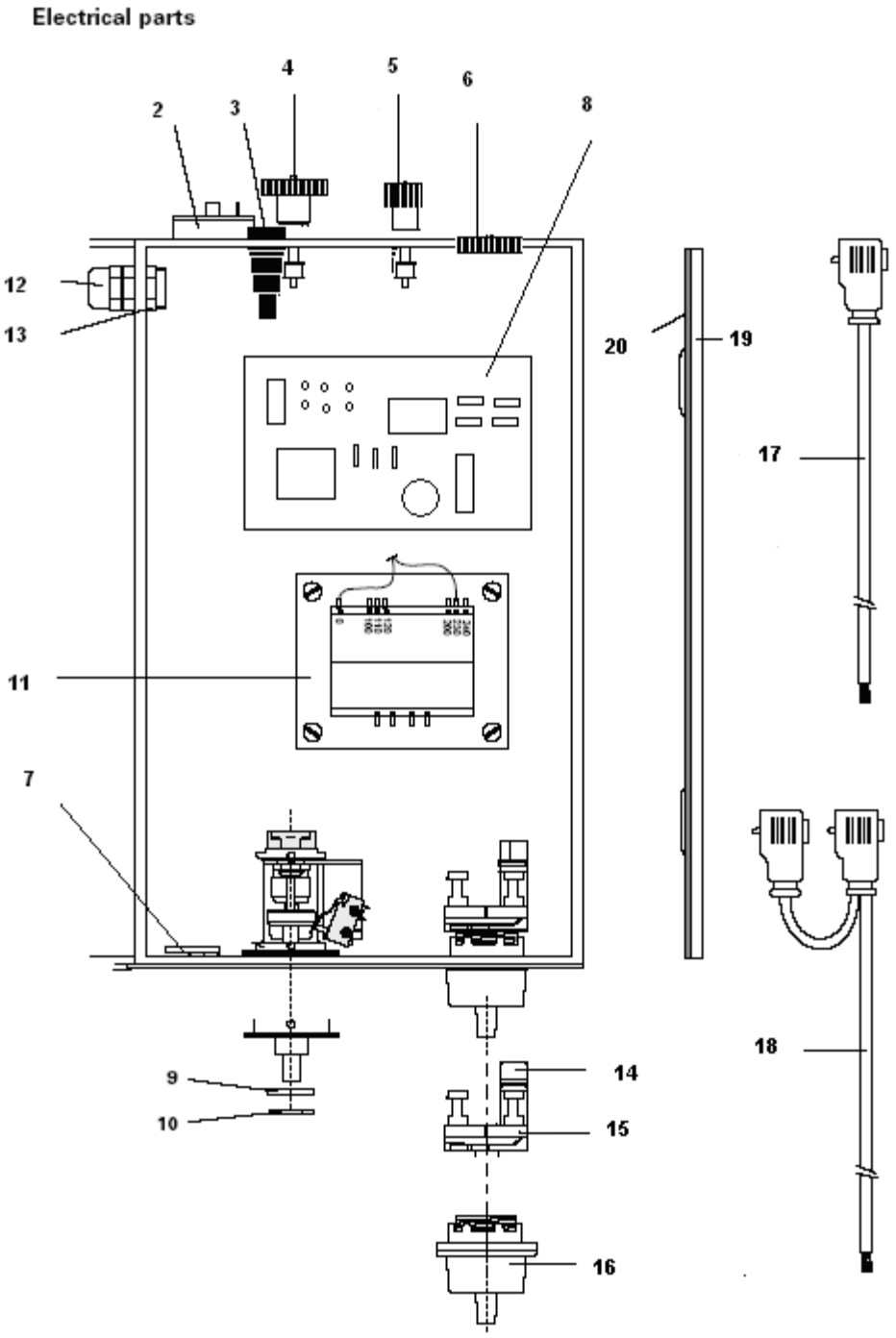
Item	Part	Description
	PT630034	INJECTOR COMPLETE
1	PT630043	VENTING HOSE ADAPTER
2	PT630025	O-RING, silicone, 1.000*1.125*0.0063 in
3	PT630037	INJECTOR BODY
4	PT630036	INJECTOR NOZZLE
5	PT630035	CONNECTOR,male,1/8-in NPTF*1/4-in tube
6	PT630038	INSERT SLEEVE
7	PT630041	INSERT SLEEVE NUT

PTAU07 Control module

Electrical Parts

1 GOLD SERİES Control module (complete)	PTAU07
2 Fixed plug, with gasket (for Mains connection)	PG200 409
3 Fuse holder - F1	PG200 131
4 Knurled grounding nut - M6	PG200 433
5 Grounding Nut	PT512 244
6 Control Box Air Fitler	PNM100131
7 Bar Led	PT526 320
8 Printed circuit board - CB1	PT526 319
9 Washer	PG200 271
10 Clamp nut - M 12 x 1 mm	PG200 700
11 Transformer	PT526 318
12 Clamp nut - PG 7	PG230 537
13 Lead-through - PG 7	PG235 989
14 Contact unit	PG235 938
15 Adapter fixture	PG235 920
16 Switch	PG235 911
17 Mains cable connection (single plug)	PG303 607
18 Mains cable connection (two plugs)	PG343 366
Mains cable connection (four plugs - not shown)	PG343 374
Mains cable connection (eight plugs - not shown)	PG343 382
19 Cover plate	PG352 128
20 Sealing strip - 9 x 6 mm	PG100 269

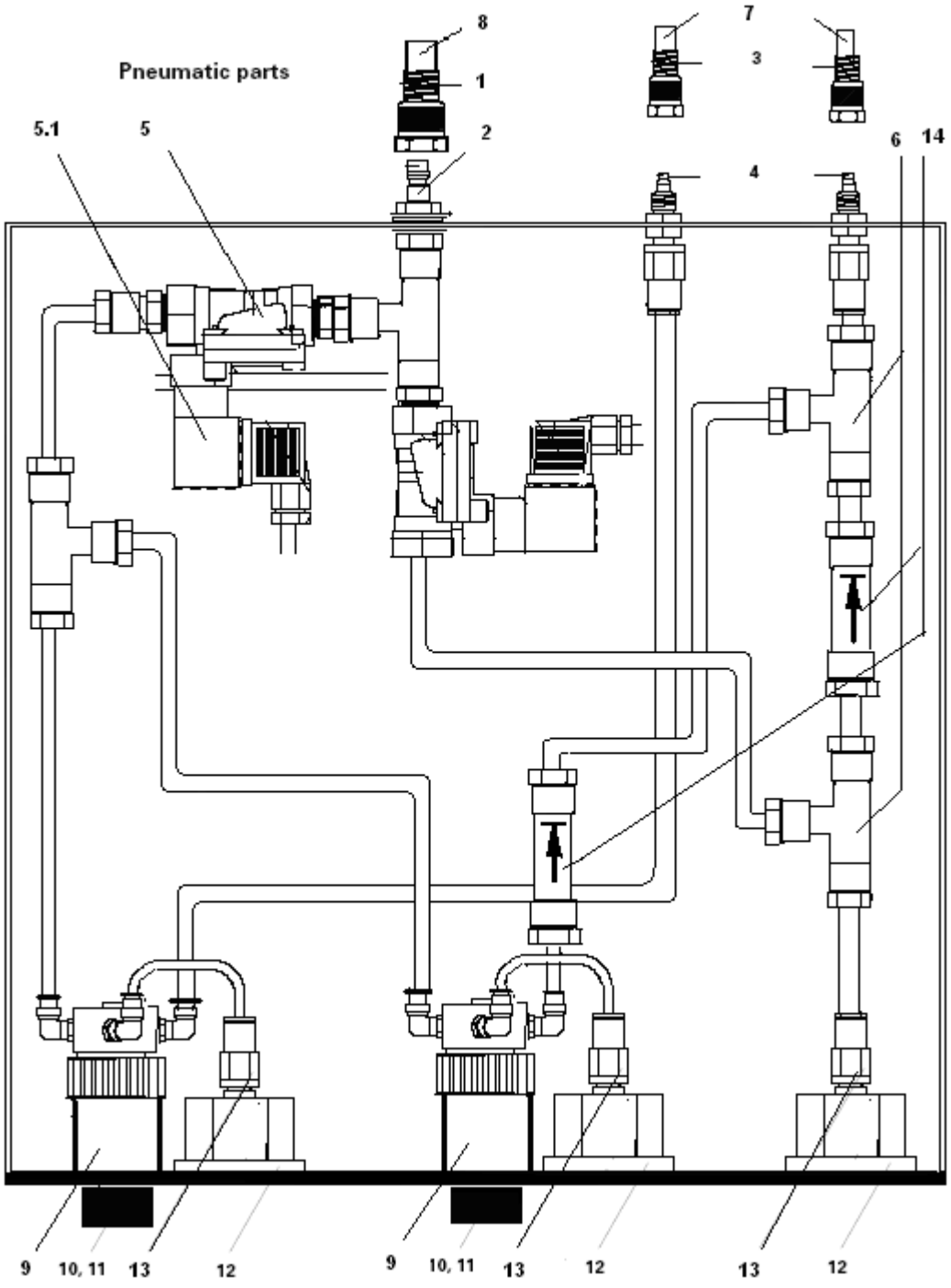
PTAU07 Control module



PTAU07 Control module
Pneumatic parts

1 Screw coupling - ø 8 mm	PNM100102
2 Screw connector - ø 8 mm	……
3 Screw coupling - ø 6 mm	PNM100105
4 Screw connector - ø 6 mm	……
5 Solenoid valve (24 VAC - 3/8" B.S.P. thread)	PG235 865
5.1 Solenoid valve coil - 24 VAC	PG243 930
6 T-connector (3/8"- ø 8 mm)	PG235 873
7 Hose - ø 6 / 4 mm	PG103 144
8 Hose - ø 8 / 6 mm	PG103 756
9 Pressure reducing valve	PG235 822
10 Control knob	PG200 069
11 Clamp nut - M14 x 1 mm	PG302 163
12 Pressure gauge (0-4 bar)	PG235 814
13 Quick-release connector (1/8"- ø 6 mm)	PG233 412
14 Check valve	PT368 746

PTAU07 Control module


Pneumatic parts
8
1
2
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5.1
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